



**COUNTY OF EL DORADO, CALIFORNIA
CHIEF ADMINISTRATIVE OFFICE
PARKS DIVISION**

CONTRACT DOCUMENTS

INCLUDING

**NOTICE TO BIDDERS,
PROPOSAL, CONTRACT,
AND CONDITIONS OF THE CONTRACT**

FOR

OLD DEPOT BIKE PARK

BID #21-968-050

**BIDS MUST BE RECEIVED BY:
3:00 P.M. on SEPTEMBER 22, 2021
PROCUREMENT & CONTRACTS
330 FAIR LANE, PLACERVILLE, CA 95667**

**COUNTY OF EL DORADO
CHIEF ADMINISTRATIVE OFFICE
PARKS DIVISION**

OLD DEPOT BIKE PARK

BID #21-968-050

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**COUNTY OF EL DORADO
CHIEF ADMINISTRATIVE OFFICE
PARKS DIVISION**

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN by the County of El Dorado, State of California, that sealed bids for work in accordance with the Project Plans (Plans) and Contract Documents designated:

**OLD DEPOT BIKE PARK
BID #21-968-050**

will be received by the Chief Administrative Office, Procurement & Contracts Division, at **330 FAIR LANE, PLACERVILLE, CALIFORNIA**, until **3:00 p.m. on September 22, 2021**, at which time and place bids will be publicly opened and read by the Chief Administrative Office, Procurement & Contracts Division.

LOCATION/DESCRIPTION OF THE WORK: The project is located at 40 Old Depot Road, Placerville, California in El Dorado County. The Work to be done as shown on the Plans, generally consists of, but is not limited to:

- A. The furnishing of all labor, materials, and equipment for the Old Depot Bike Park as shown or required per the Contract Documents. Bids are required for the entire work described herein.
- B. The contract time shall be **One Hundred Eighty (180) calendar days**.
- C. For bonding purposes the estimated project cost is **approximately \$1,350,000**.
- D. **A Pre-Bid Job Walk is scheduled for this project on September 8, 2021. BIDDERS OR THEIR REPRESENTATIVES SHALL MEET AT 40 OLD DEPOT ROAD, PLACERVILLE, CALIFORNIA SHARPLY AT 10:00 A.M. ATTENDANCE AT THE PRE-BID JOB WALK IS NOT MANDATORY. REPRESENTATIVES SHALL FOLLOW COUNTY COVID-19 POLICY WHILE ON COUNTY PREMISES WHICH CURRENTLY INCLUDES, BUT IS NOT LIMITED TO, THE USE OF FACE COVERINGS AND PHYSICAL DISTANCING OF SIX (6) FEET. THE UPDATED COUNTY POLICY IS AVAILABLE AT: <https://www.edcgov.us/Government/BOS/Documents/E-11%20COVID-19%20Workplace%20Guidelines.pdf>.** In order to limit the disruption to the conduct of business, the meeting date listed will be the only opportunity for bidders to visit the site. The Bidder's representative will be required to sign an attendance sheet and provide the name of the firm being represented. The County will post on the Quest website such Addenda as the County in its discretion considers necessary in response to questions arising and information presented at the Pre-Bid Job Walk. Oral statements shall not be relied upon and will not be binding or legally effective. Addenda and answers to questions deemed relevant and appropriate issued as a result of the Pre-Bid Job Walk shall constitute the sole and exclusive record and statement of the results of the Pre-Bid Job Walk.

OBTAINING OR INSPECTING CONTRACT DOCUMENTS: The contract documents may be viewed and/or downloaded from the Quest Construction Data Network (Quest) website at <http://www.questcdn.com>. Interested parties may also access the Quest website by clicking on the link next to the Project Name or entering the Quest project #7900721 on the Chief Administrative Office, Procurement and Contract's website at <http://edcapps.edcgov.us/contracts/invite.asp>.

Interested parties may view the Contract Documents on the Quest website at no charge. The digital Contract Documents may be downloaded for \$15.00 by inputting the Quest project #7900721 on the websites' Project Search page. Please contact Quest CDN.com at 925.233.1632 or info@questcdn.com for assistance with free membership, registration, downloading, and working with this digital project information. Physical paper copies of the Contract Documents, including Plans, may be examined at the County of El Dorado, Chief Administrative Office, Procurement & Contract Division located at 330 Fair Lane, Placerville, California; however, the Chief Administrative Office will no longer issue paper copies of the Contract Documents to bidders.

By paying for and downloading the digital Contract Documents, interested bidders are automatically included on the PlanHolders List. The list of planholders will be available on Quest's website under "View Planholders." Those downloading the Contract Documents assume responsibility and risk for completeness of the downloaded Contract Documents. To be eligible to bid, interested parties must be included on the Planholders List.

ONLY CONTRACT DOCUMENTS, INCLUDING THE PROJECT PLANS, DOWNLOADED FROM QUEST AND SUBMITTED BY A BIDDER INCLUDED ON THE PLANHOLDERS LIST WILL BE CONSIDERED FOR BID SUBMITTAL.

PRE-BID COMMUNICATIONS & REQUESTS FOR INFORMATION (RFI): Questions will be accepted in writing only, through submission to the Quest website under the Quest Project #7900721 "Project Q&A", by email, or in hard copy, until **5:00 P.M. on September 10, 2021**. Pre-bid communications and RFI are to be emailed to: kady.leitner@edcgov.us with BID #21-968-050 – RFI as the subject, or in hard copy delivered to: County of El Dorado, Procurement & Contracts, 330 Fair Lane, Placerville, CA 95667, BID #21-968-050 – RFI. Answers to questions deemed relevant and appropriate will be posted on Quest on or about September 15, 2021. Oral responses concerning the content of the Plans and Contract Documents shall not be relied upon and will not be binding or legally effective. Addenda will be uploaded in pdf format to Quest's website. To receive notification of addenda, interested bidders must be included on the planholders list.

CONTRACTORS LICENSE CLASSIFICATION: Bidders shall be properly licensed to perform the Work pursuant to the Contractors' State License Law (Business and Professions Code Section 7000 et seq.) and shall possess a **Class A – General Engineering and Class B – General Building Contractor License at the time the bid is submitted**, and shall maintain a valid license and certification through completion and acceptance of the Work, including the guarantee and acceptance period. Failure of the successful Bidder to obtain proper adequate licensing at the time of contract award shall constitute a failure to execute the Contract and shall result in the forfeiture of the Bidder's security, and may result in legal penalties.

CONTRACTOR REGISTRATION: No contractor or subcontractor may be listed on a bid proposal for a public works project or awarded a contract for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code Sections 1771.1(a), 1725.5. Bids will not be accepted from unregistered contractors except as provided in section 1771.1.

PREVAILING WAGE REQUIREMENTS: In accordance with the provisions of California Labor Code Sections 1770 et seq., the general prevailing rate of wages in the county in which the Work is to be done has been determined by the Director of the California Department of Industrial Relations. These wage rates appear in the California Department of Transportation publication entitled General Prevailing Wage Rates. Interested parties can obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, P.O. Box 420603, San Francisco CA 94142-0603, Telephone (415) 703-4708 or by referring to the website at <http://www.dir.ca.gov/dlsr/PWD>. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997.

Copies of the general prevailing rate of wages in the County in which the Work is to be done are also on file at the Chief Administrative Office, Facilities Division, and are available upon request.

In accordance with the provisions of Labor Code 1810, eight (8) hours of labor shall constitute a legal day's work upon all work done hereunder, and Contractor and any subcontractor employed under this Contract shall conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

BID SECURITY: A bid security shall be provided with each bid. Bid security shall be in an amount of not less than ten percent (10%) of the total amount bid for the Work and shall be cash, a certified check, or cashier's check drawn to the order of the County of El Dorado or a Bidder's Bond executed by a surety satisfactory to the County of El Dorado on the **form provided in the Proposal section of these Contract Documents**. Original copies of the Bidder's Bond and acknowledgment must be provided with the bid.

PERFORMANCE AND PAYMENT BONDS: The successful Bidder shall be required to execute a Performance Bond and a Payment Bond for not less than one hundred percent of the construction price, issued by an Admitted Surety, an insurance organization authorized to transact business in the State of California.

SUBSTITUTION OF SECURITIES: Substitution of appropriate securities in lieu of retention amounts from progress payment is permitted under Public Contract Code § 22300.

INSTRUCTIONS TO BIDDERS: All bidders should carefully review the Instructions to Bidders for more detailed information before submitting a Bid Proposal.

BY ORDER OF the Board of Supervisors, County of El Dorado, State of California.

Authorized by the Board of Supervisors on August 24, 2021 at Placerville, California.

Dated: _____

By: _____

Chair, Board of Supervisors

Kim Dawson
Clerk of the Board of Supervisors

By: _____
Deputy Clerk

Dated: _____

*** END OF NOTICE TO BIDDERS ***

**THESE INSTRUCTIONS SUPPLEMENT THE NOTICE TO BIDDERS, PROPOSAL, DRAFT
CONTRACT, AND CONDITIONS OF THE CONTRACT**

**OLD DEPOT BIKE PARK
BID #21-968-050**

INSTRUCTIONS TO BIDDERS

1. The County of El Dorado will receive sealed bids from Bidders as stipulated in the Notice to Bidders. The proposal including the Bidder's Bond shall be submitted in a sealed envelope clearly marked:

**"OLD DEPOT BIKE PARK"
BID #21-968-050
TO BE OPENED AT 3:00 P.M. ON September 22, 2021**

2. Bidders must submit bids only on forms provided in the Contract Documents downloaded from the Quest website and shall be accompanied by all documents and information required to be submitted by these Instructions to Bidders, the Notice to Bidders, and by law. Bids not submitted on the required forms provided in the Contract Documents downloaded by the bidder from the Quest website will be deemed nonresponsive and will be disqualified.
3. Bidders must complete and submit the Proposal, Proposal Bid Price Schedule, Subcontractors Listing, Public Contract Code Section 10285.1 Statement, Public Contract Code Section 10162 Questionnaire, Non-Collusion Affidavit, Confidentiality of Information Provided, Iran Contracting Act Certification, and page P-15, along with P-16 through P-18, as applicable. Bids submitted without the required documentation will be deemed nonresponsive and will be disqualified.
4. Bidders must supply all information required by the Contract Documents and specifications. Bids must be complete. The County reserves the right at its sole discretion to reject any bid as nonresponsive as a result of any error or omission in the bid.
5. Bidders may not modify Proposal Document or qualify their bids.
6. Submission of a bid signifies that the Bidder has done a careful examination of the Contract Documents and has a complete understanding of the nature, extent, and location of Work to be performed. Bidder must complete the tasks listed below in subsections "a - c" as a condition to bidding, and submission of bid shall constitute the Bidder's express representation to the County that Bidder has fully completed the following:
 - a. Bidder has downloaded all documents related to the project from the Quest website and takes responsibility for their completeness;
 - b. Bidder has examined thoroughly and understands the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions and federal, state and local laws and regulations that in any manner may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto;
 - c. Bidder has given the County representative during the bid period prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and as built and actual conditions and the written resolution thereof by County is acceptable to Bidder.

7. The following represents the schedule for this Project and is subject to change:

Bid Issuance	AUGUST 31, 2021
Pre-Bid Job Walk (Not Mandatory)	SEPTEMBER 8, 2021 10:00 A.M.
Deadline for Final Questions	SEPTEMBER 10, 2021 5:00 P.M.
Bid Submission Deadline	SEPTEMBER 22, 2021 3:00 P.M.
Notice of Intent to Award Posting Estimate	SEPTEMBER 27, 2021

8. No Bid may be withdrawn after the time established for receiving bids or before the award and execution of the Contract, unless the award is delayed for a period exceeding sixty (60) calendar days.
9. **BUSINESS LICENSE:** The County Business License Ordinance provides that it is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of El Dorado County without possessing a County business license unless exempt under County Ordinance Code Section 5.08.070. The Bidder to whom an award is made shall comply with all of the requirements of the County Business License Ordinance, where applicable, prior to beginning work under this Contract and at all times during the term of this Contract.
10. **REQUIRED LISTING OF PROPOSED SUBCONTRACTORS:** Each Bid shall have listed therein the name and address of each subcontractor, to whom the Bidder proposes to subcontract portions of the work in an amount in excess of 1/2 of one percent of its total bid in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The Bidder shall also describe in the Subcontractor Listing the work to be performed by each subcontractor listed. The work to be performed by the subcontractor shall be shown by listing the description of the work, and portion of the work to be performed by the subcontractor in the form of a percentage calculated by dividing the work to be performed by the subcontractor by the lump sum bid price. At the time the bids are submitted all listed subcontractors shall be properly licensed to perform their designated portion of the work. The Bidder's attention is invited to other provisions of the Act related to the imposition of penalties for a failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions.
11. **EMISSIONS REDUCTION:** Successful bidder shall comply with emission reduction regulations mandated by the California Air Resources Board, sign the certification of knowledge in the Agreement, and provide County a Certificate of Reported Compliance when road legal diesel vehicles with a gross vehicle weight over 14,000 pounds are included in their fleet. Contractor must require all sub-contractors to comply with such regulations and provide County a Certificate of Reported Compliance for each sub-contractor with road legal diesel vehicles over 14,000 pound gross vehicle weight.
12. **NONDISCRIMINATION:** Attention is directed to the following Notice that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

**NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM
(GOVERNMENT CODE SECTION 12990)**

13. **AWARD OF CONTRACT:** The County reserves the right after opening bids to reject any or all bids, to waive any irregularity in a bid, or to make award to the lowest responsive, responsible Bidder(s). The Purchasing Agent will recommend the bid for award by the Board of Supervisors. As a condition of award, the successful Bidder will be required to submit bonds and evidence of insurance prior to execution of the Agreement by the County. Failure to meet this requirement shall constitute abandonment of the Bid by the Bidder and forfeiture of Bidder's security. Award will then be made to the next lowest responsive, responsible bidder.

A responsible, responsive bidder who submitted the lowest bid shall be awarded the contract, if awarded. County reserves the right to add or deduct from the contract any of the additive or deductive items after the lowest responsive, responsible bidder has been determined. The lowest bid will be

determined based on the lowest total of the bid prices of all the items for the Base Bid and Additive Alternatives 1-4 identified in the Proposal Bid Price Schedule.

14. **BIDDERS PROTEST PROCEDURES:** The Chief Administrative Office, Procurement & Contracts Division, will notify all bidders in writing of its recommendation for award or rejection of bids, and the date and time on which the recommendation for award will be considered and acted upon by the Board of Supervisors ("Notice of Intent to Award"). All bidders may attend the Board of Supervisors meeting, address the Board, and be heard.

Within 5 working days from the date of the Notice of Intent to Award, the Bidder protesting the recommendation for award must submit a formal written protest to the Procurement & Contracts Division, stating in detail the basis and reason for the protest. The Bidder must provide facts to support the protest including any evidence Bidder wishes to be considered together with the law, rule, regulation, or criteria on which the protest is based. The Bidder may attend the Board of Supervisors meeting at which the recommendation and bid protest will be considered. If the Bidder is not in attendance at that time, the bid protest may be dismissed by the Board of Supervisors without further consideration of the merits and the decision of the Board of Supervisors on the bid protest shall be final.

15. **PAYMENTS:** Attention is directed to Article 5 –PAYMENT of the Contract.
16. **RETAINAGE FROM PAYMENTS:** Attention is directed to Article 21 – RETAINAGE of the Contract.
17. The following documents are to be executed and submitted by the apparent low Bidder after bids have been opened and duly inspected, and the County transmits the Notice of Award package to the successful Bidder. Failure to properly and timely submit these documents entitles the County to determine that the Bidder has abandoned the contract and the bidder's security shall be forfeited to County.

Submit the following documents to Kady Leitner, Chief Administrative Office, Procurement and Contracts Division, 330 Fair Lane, Placerville, CA 95667 by 5:00 p.m. of the **TENTH** calendar day, following the date of the NOTICE OF AWARD OF CONTRACT letter. Execution of Contracts by the County depends upon approval of Insurance Certificates and Bonds, and associated contract documents.

- i. **Contracts:** The successful Bidder shall execute and submit the Agreements for the work associated with the Proposal Lump Sum Bid Price Schedule (See Draft Contract). Submit two (2) originals of Contract, each bearing an original signature.
- ii. **County of El Dorado Performance Bond:** To be executed by successful Bidder and surety each with notary acknowledgement. Successful Bidder shall furnish County with original copies of the Performance Bond and notary acknowledgment.
- iii. **County of El Dorado Payment Bond:** To be executed by successful Bidder and surety each with notary acknowledgement. Successful Bidder shall furnish County with original copies of the Payment Bond and notary acknowledgment.
- iv. Insurance certificates required by Conditions of the Contract, Article 8.
- v. California Form 590 – Withholding Exemption and County Payee Data Record Form
- vi. Certificate of Reported Compliance for road legal diesel vehicles over 14,000 pounds, if applicable.

*** END OF INSTRUCTIONS TO BIDDERS ***

**THE USE OF PENCIL OR CORRECTION FLUID OR TAPE IS NOT ACCEPTABLE.
BID DOCUMENTS COMPLETED IN PENCIL OR CONTAINING THE USE OF CORRECTION FLUID OR
TAPE WILL BE REJECTED.**

**ALL CHANGES MUST BE LINED OUT AND CORRECTIONS INSERTED ADJACENT TO THE CHANGE AND
INITIALED BY THE BIDDER'S AUTHORIZED REPRESENTATIVE**

PROPOSAL

(to be submitted with Bidder's Security)

**TO: CHIEF ADMINISTRATIVE OFFICE, PROCUREMENT & CONTRACTS DIVISION
COUNTY OF EL DORADO, STATE OF CALIFORNIA**

for the completion of

OLD DEPOT BIKE PARK

BID #21-968-050

NAME OF BIDDER: _____

BUSINESS MAILING ADDRESS: _____

CITY, STATE, ZIP: _____

BUSINESS STREET ADDRESS: _____
(Please include even if P.O. Box used)

CITY, STATE, ZIP: _____

TELEPHONE NO: AREA CODE () _____

FAX NO: AREA CODE () _____

EMAIL ADDRESS _____

The work for which this Proposal is submitted is for the construction in accordance with these Contract Documents (including the payment of not less than the State general prevailing wage rates set forth herein), the Project Plans described below, including any addenda thereto, the Contract annexed hereto, and also in accordance with the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished, and in accordance with the General Prevailing Wage rates. The Project Plans and other Contract Documents for the work to be done are entitled:

OLD DEPOT BIKE PARK

BID #21-968-050

Bids are to be submitted for the entire work, including Base Bid, Additive Alternate 1, Additive Alternate 2, Additive Alternate 3, and Additive Alternate 4. The amount of the bid for comparison purposes will be the total of all the items for Base Bid and Additive Alternates 1 – 4. Inclusion or omission of the work contained in the Additive Alternates 1 – 4 will be determined in accordance with the Special Provisions. Failure to submit bids for the entire work, including Base Bid and Additive Alternates 1 – 4 will result in the bid being deemed non-responsive and will be disqualified. The County reserves the right to reject all bids or to award the Base Bid only or the combination of Base Bid with any or all of the Additive Alternate Bids 1 – 4 work to the lowest responsive, responsible Bidder.

The Bidder shall set forth for each unit basis item of work a unit price and a total for the item, and for each lump sum item a total for the item, all in clearly legible figures in the respective spaces provided for this purpose. In the case of unit basis items, the amount set forth under the “Item Total” column shall be the product of the unit price bid and the estimated quantity for the item.

In case of discrepancy between the item price and the total set forth for a unit basis item, the unit price shall prevail, except as provided in (a) or (b), as follows:

- (a) If the amount set forth as a unit price is unreadable or otherwise unclear, or is omitted, or is the same as the amount as the entry in the item total column, then the amount set forth in the total column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price;
- (b) (Decimal Errors) If the product of the entered unit price and the estimated quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc., from the entered total, the discrepancy will be resolved by using the entered unit price or item total, whichever most closely approximates percentage wise the unit price or item total in the Chief Administrative Office Final Estimate of cost.

The Bidder shall set forth a lump sum total for the BID, in clearly legible figures in the respective space provided for this purpose.

If the item total for the lump sum is unreadable or otherwise unclear, or is omitted, the bid may be deemed irregular.

Symbols such as commas and dollar signs will be ignored and have no mathematical significance in establishing lump sums. The written lump sum in numbers will be interpreted according to the number of digits and, if applicable, decimal placement.

The foregoing provisions for the resolution of specific irregularities cannot be so comprehensive as to cover every omission, inconsistency, error, or other irregularity which may occur in a bid. Any situation not specifically provided for will be determined in the discretion of the County of El Dorado, and that discretion will be exercised in the manner deemed by the County of El Dorado to best protect the public interest in the prompt and economical completion of the work. The decision of the County of El Dorado respecting the amount of a bid, or the existence or treatment of any irregularity in a bid, shall be final.

If this Proposal is accepted and the undersigned Bidder shall fail to enter into the Contract and furnish the two bonds in the sums required by the State Contract Act, with surety satisfaction to the County of El Dorado in accordance with the Special Provisions within ten (10) calendar days of the date of the letter notice from the County of El Dorado that the Contract has been awarded, the County of El Dorado may, at its option, determine that the Bidder has abandoned the Contract, and thereupon this Proposal and the acceptance thereof shall be null and void and the forfeiture of such security accompanying this Proposal shall operate and the same shall be the property of the County of El Dorado.

The undersigned Bidder acknowledges that a bid security must be submitted in the amount of not less than ten percent (10%) of the total Base Bid and all Additive Alternates 1 – 4.

The undersigned, as Bidder, declares under penalty of perjury under the laws of the State of California that the only persons or parties interested in this Proposal, as principals, are those named herein; that this Proposal is made without collusion with any other person, firm, or corporation; that it has carefully examined the location of the proposed work, the annexed proposed form of Contract, and the Plans therein referred to; and that it proposes, and agrees if this Proposal is accepted, that it will contract with the County of El Dorado, in the form of the copy of the Draft Agreement annexed hereto, to provide all necessary machinery, tools, apparatus, and other means of construction, and to do all the work and furnish all the materials specified in the Contract, in the manner and time therein prescribed, and according to the requirements of the County as therein set forth, and that it will take in full payment therefore the following item prices, to wit:

For the project site, Bidder's scope of work shall include: Construction of a bike park for outdoor recreation that includes the following elements: Final clearing and grubbing, grading of site, erosion control, construction of water, stormwater, and septic utilities, site lighting, concrete paving, crushed gravel paving, asphalt paving, stairs, ramp, bicycle track and jumps, pump track and bowl, restroom slab and plumbing, shade shelter, playground, site furnishings, irrigation system, planting, and hydroseeding. For additional scope of work information, see project specific attachments, Attachments A and B. Should Bidder find relevant details missing from the original drawings, Bidder shall alert the County.

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 BID DOCUMENTS COMPLETED IN PENCIL OR CONTAINING THE USE OF CORRECTION FLUID OR
 TAPE WILL BE REJECTED.**

**ALL CHANGES MUST BE LINED OUT AND CORRECTIONS INSERTED ADJACENT TO THE CHANGE AND
 INITIALED BY THE BIDDER'S AUTHORIZED REPRESENTATIVE**

**PROPOSAL BID PRICE SCHEDULE
 OLD DEPOT BIKE PARK
 BID #21-968-050**

AWARD OF CONTRACT: The lowest bid will be determined based on the lowest total of the bid prices of all the items for the Base Bid and Additive Alternatives 1-4 identified in the Proposal Bid Price Schedule.

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)
BASE BID SCHEDULE					
1	Mobilization	LS	1		
2	Layout and Staking	LS	1		
3	Construction Fencing and Entrance	LS	1		
4	Temporary Tree Protection	LF	1373		
5	Erosion Control	LS	1		
6	Site Clearing	LS	1		
7	Excavation and Grading	CY	7785		
8	Storm Drain System	LS	1		
9	Domestic Water System	LS	1		
10	Sanitary Sewer System	LS	1		
11	Concrete Paving	SF	2540		
12	Asphalt Paving	SF	204		
13	Asphalt Driveway	LS	1		

14	Crushed Gravel Paving	SF	9240		
15	Ramp	LS	1		
16	Stairs	LS	1		
17	Electrical Improvements (SOV)	LS	1		
18	Retaining Wall	LS	1		
19	Chain Link Fence	LF	1108		
20	Vehicular Gate	EA	1		
21	Concrete Split Rail Fence	LF	203		
22	Pump Track and Bowl	LS	1		
23	Bicycle Jumps	LS	1		
24	Site Furnishings (SOV)	LS	1		
25	Restroom	LS	1		
26	Playground (SOV)	LS	1		
27	Irrigation (SOV)	LS	1		
28	Planting (SOV)	LS	1		
29	Seeding	SF	40702		
30	Maintenance	LS	1		
31	General Conditions				
32	Insurance				
33	Bonds				
34	Fees				
BASE BID SCHEDULE TOTAL					

ADDITIVE ALTERNATE 1					
AA1.1	Beginner Pump Track	LS	1		
AA1.2	<i>Less Seeding</i>	<i>SF</i>	<i>-882</i>		
AA1.3	<i>General Conditions, Insurance, Bonds, and Fees</i>				
ADDITIVE ALTERNATIVE 1 SUBTOTAL					

ADDITIVE ALTERNATE 2					
AA2.1	Bicycle Skills	LS	1		
AA2.2	<i>Less Seeding</i>	<i>SF</i>	<i>-2853</i>		
AA2.3	<i>General Conditions, Insurance, Bonds, and Fees</i>				
ADDITIVE ALTERNATIVE 2 SUBTOTAL					

ADDITIVE ALTERNATE 3					
AA3.1	Bicycle Jumps - Top Row	LS	1		
AA3.2	<i>Less Seeding</i>	<i>SF</i>	<i>-4691</i>		
AA3.3	<i>General Conditions, Insurance, Bonds, and Fees</i>				
ADDITIVE ALTERNATIVE 3 SUBTOTAL					

ADDITIVE ALTERNATE 4					
AA4	Additional Electrical Improvements	LS	1		
AA4.1	<i>General Conditions, Insurance, Bonds, and Fees</i>				
ADDITIVE ALTERNATIVE 4 SUBTOTAL					

TOTAL LUMP SUM BID PRICE (TOTAL OF BASE BID + ADDITIVE ALTERNATE SCHEDULES 1-4)					
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Planting Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Soil Preparation and Amendments	SF	6987		
2	15-Gallon Tree	EA	6		
3	Shrub (Furnish only)	EA	45		
4	5-Gallon Shrub	EA	82		
5	1-Gallon Shrub/Groundcover	EA	369		
6	Wood Mulch	SF	16529		
7	Rock Mulch	SF	2041		
PLANTING SUBTOTAL					

Irrigation Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Backflow Preventer	EA	1		
2	Controller	EA	1		
3	Sleeve	LF	150		
4	Mainline	LF	851		
5	Master Valve	EA	1		
6	Flow Meter	EA	1		
7	Gate Valve	EA	1		
8	Quick Coupling Valve	EA	7		
9	Remote Control Valve	EA	6		
10	Drip Emitters	SF	4436		
11	In-Line Drip	SF	2551		
12	Drip Tree Ring	EA	6		
IRRIGATION SUBTOTAL					

Playground Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Play Curb	LF	129		
2	Play Equipment	LS	1		
3	Drainage	LF	106		
4	Play Ramp	LS	1		
5	Surfacing	LS	1		
PLAYGROUND TOTAL					

Site Furnishing Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Picnic Table 6 Foot	EA	2		
2	Picnic Table 92 Inches	EA	5		
3	Disposal Receptacle	EA	2		
4	Exercise Equipment	LS	1		
5	Bicycle Rack	EA	4		
6	Bicycle Repair Station	EA	1		
7	Interpretive Sign	EA	1		
8	Temporary Sign	EA	1		
9	Bond Act Sign	EA	1		
SITE FURNISHINGS TOTAL					

Electrical Improvements Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Electrical Meter	LS	1		
2	Pull Box and Receptacles	LS	1		
3	Conduit and Conductors	LS	1		
4	Light Poles	EA	2		
SITE FURNISHINGS TOTAL					

NOTICE: Bidder's failure to execute the questionnaire and statements contained in this Bid as required by applicable laws and regulations, or the determinations by the County of El Dorado based upon those questionnaires and statements, may prohibit award of the subject Contract to the Bidder.

SUBCONTRACTORS LISTING

The Bidder shall list the name, address, license, and DIR number of each subcontractor to whom the Bidder proposes to subcontract portions of the work in an amount in excess of one-half of 1% of the total bid, in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code and as required by the provisions in “Required Listing of Proposed Subcontractors” in the Notice to Bidders. **The Bidder must also list the Work portion to be performed by each subcontractor by listing the bid item number, bid item description, and portion of the Work to be performed by the subcontractor in the form of a percentage calculated by dividing the Work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price).**

Firm Name Address City, State, Zip Code	Phone Fax	License No. DIR No.	Bid Item Number Bid Item Description	Percentage of Each Bid Item Subcontracted
<i>Name</i>	<i>Phone</i>	<i>License No.</i>		
<i>Address</i>				
<i>City, State, Zip Code</i>	<i>Fax</i>	<i>DIR No.</i>		
<i>Name</i>	<i>Phone</i>	<i>License No.</i>		
<i>Address</i>				
<i>City, State, Zip Code</i>	<i>Fax</i>	<i>DIR No.</i>		
<i>Name</i>	<i>Phone</i>	<i>License No.</i>		
<i>Address</i>				
<i>City, State, Zip Code</i>	<i>Fax</i>	<i>DIR No.</i>		
<i>Name</i>	<i>Phone</i>	<i>License No.</i>		
<i>Address</i>				
<i>City, State, Zip Code</i>	<i>Fax</i>	<i>DIR No.</i>		

**THE USE OF PENCIL OR CORRECTION FLUID OR TAPE IS NOT ACCEPTABLE.
BID DOCUMENTS COMPLETED IN PENCIL OR CONTAINING THE USE OF CORRECTION FLUID OR
TAPE WILL BE REJECTED.**

**ALL CHANGES MUST BE LINED OUT AND CORRECTIONS INSERTED ADJACENT TO THE CHANGE AND
INITIALED BY THE BIDDER'S AUTHORIZED REPRESENTATIVE**

PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

In accordance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the Bidder hereby declares under penalty of perjury under the laws of the State of California that the Bidder has _____, has not _____ been convicted within the preceding three years of any offenses referred to in that Section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100. The term "Bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

NOTE: The Bidder must place a check mark after "has" or "has not" in one of the blank spaces provided.

The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Signature: _____

Date: _____

Name: _____

Title: _____

Firm: _____

**THE USE OF PENCIL OR CORRECTION FLUID OR TAPE IS NOT ACCEPTABLE.
BID DOCUMENTS COMPLETED IN PENCIL OR CONTAINING THE USE OF CORRECTION FLUID OR
TAPE WILL BE REJECTED.**

**ALL CHANGES MUST BE LINED OUT AND CORRECTIONS INSERTED ADJACENT TO THE CHANGE AND
INITIALED BY THE BIDDER'S AUTHORIZED REPRESENTATIVE**

PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

In accordance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury under the laws of the State of California, the following questionnaire:

Has the Bidder, any officer of the Bidder, or any employee of the Bidder who has a proprietary interest in the Bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes: _____ **No:** _____

If the answer is yes, explain the circumstances in the following space:

PUBLIC CONTRACT CODE SECTION 10232 STATEMENT

In accordance with Public Contract Code Section 10232, the Bidder hereby states under penalty of perjury under the laws of the State of California, that no more than one final unappealable finding of contempt of court by a Federal Court has been issued against the Bidder within the immediate preceding two year period because of the Bidder's failure to comply with an order of a Federal Court which orders the Bidder to comply with an order of the National Labor Relations Board.

NOTE:

The above Questionnaire and Statement are part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Questionnaire and Statement.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

NONCOLLUSION AFFIDAVIT
(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

In accordance with Title 23 United States Code, Section 112 and Public Contract Code Section 7106, the Bidder declares 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 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.

NOTE:

The above Noncollusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Noncollusion Affidavit.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Signature: _____

Date: _____

Name: _____

Title: _____

Firm: _____

CONFIDENTIALITY OF INFORMATION PROVIDED

Contractor shall maintain the confidentiality and privileged nature of all records. Upon completion of all Services, ownership and title to all reports, documents, plans, maps, specifications, estimates, compilations and any and all other materials or data given to Contractor as part of the Services requested shall be returned to the County.

Signature: _____

Date: _____

Name: _____

Title: _____

Firm: _____

IRAN CONTRACTING ACT CERTIFICATION

(Public Contract Code Section 22000 *et seq.*)

As required by California Public Contract Code Section 2204, I certify subject to penalty for perjury that: (i) I am duly authorized to execute this certification on behalf of Bidder/Proposer; and (ii) the option checked below relating Bidder/Proposer's status in regard to the Iran Contracting Act of 2010 (Public Contract Code Section 2200 *et seq.*) is true and correct:

___ Bidder/Proposer is not:

- (i) Identified on the current list of persons and entities engaging in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code Section 2203; or
- (ii) A financial institution that extends, for 45 days or more, credit in the amount of \$20,000,000 or more to any other person or entity identified on the current list of persons and entities engaging in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code Section 2203, if that person or entity uses or will use the credit to provide goods or services in the energy sector in Iran.

___ The County has exempted Bidder/Proposer from the requirements of the Iran Contracting Act of 2010 after making a public finding that, absent the exemption, the County will be unable to obtain the goods and/or services to be provided pursuant to the contract.

Signature: _____

Date: _____

Name: _____

Title: _____

Firm: _____

NOTE: In accordance with Public Contract Code Section 2205, false certification of this form shall be reported to the California Attorney General and may result in civil penalties equal to the greater of \$250,000 or twice the contract amount, termination of the contract and/or ineligibility to bid on public contracts for three (3) years.

Accompanying this proposal is _____

(NOTICE: INSERT THE WORDS "CASH (\$____)," "CASHIER'S CHECKS," "CERTIFIED CHECKS," OR "BIDDERS BONDS," AS THE CASE MAY BE)

in amount equal to at least ten percent (10%) of the total amount bid.

The names of all persons interested in the forgoing Proposal as principals are as follows:

IMPORTANT NOTICE: If the Bidder or other interested person is a corporation, state legal name of corporation and place of incorporation, also names of the president, secretary, treasurer, and executive officer thereof; if a partnership, state name of partnership, also names of all individual partners; if Bidder or other interested person is an individual, state first and last names in full.

Licensed in accordance with an act providing for the registration of Contractors,

License No. _____ Classification(s) _____

A copy of the afore-referenced license must be attached hereto.

ADDENDA: This Proposal is submitted with respect to the changes to the Contract included in addenda number(s)

(Fill in addenda numbers if addenda have been received and insert, in this Proposal, any Proposal Pay Items and Bid Price Schedules that were received as part of the addenda)

By my signature on this Proposal I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements of Public Contract Code Sections 10162, 10232, and 10285.1 are true and correct and that I have complied with the requirements of Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5 of Division 4 of Title 2 of the California Code of Regulations). By my signature on this Proposal I further certify, under penalty of perjury under the laws of the State of California and the United States of America that the Noncollusion Affidavit required by Title 23 United States Code, Section 112 and Public Contract Code Section 7106 is true and correct.

The person or persons executing this Proposal on behalf of a corporation or partnership shall be prepared to demonstrate by resolution, article, or otherwise, that such person is or that such persons are appropriately authorized to act in these regards for such corporation or partnership. Such authority shall be demonstrated to the satisfaction of the County of El Dorado.

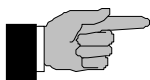
If the signature is by an agent other than an officer of a corporation or a member of a partnership, a power of attorney authorizing said act by the agent on behalf of his principal shall be submitted with the bid forms; otherwise, the bid may be disregarded as irregular and unauthorized.

The Bidder's execution on the signature portion of this Proposal shall constitute an endorsement and execution of those affidavits, declarations and certifications which are part of this Proposal.

Executed this _____ day of _____, 20__

at: _____ County, State of _____

Date: _____



SIGNHERE: _____

Name and Title of Bidder: _____

Name of Firm: _____

END OF PROPOSAL

COUNTY OF EL DORADO

BIDDER'S BOND

this form MUST be used

KNOW ALL PEOPLE BY THESE PRESENTS, THAT WE _____
_____, as **PRINCIPAL**, and

as Surety are held and firmly bound unto the County of El Dorado (Obligee), in the penal sum of **TEN (10) PERCENT OF THE AMOUNT OF THE TOTAL LUMP SUM BID PRICE** of the Principal above named, submitted by said Principal to the Obligee for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made to the Obligee, we the Principal and Surety bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the Surety hereunder exceed the sum of

TEN PERCENT (10%) OF THE AMOUNT OF THE TOTAL LUMP SUM BID PRICE

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT:

WHEREAS, the Principal has submitted the above-mentioned Bid to the Obligee, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at Placerville, El Dorado County, California, for the construction of the:

OLD DEPOT BIKE PARK
BID #21-968-050

NOW, THEREFORE, if the aforesaid Principal is awarded the Contract and, within the time and manner required under the Contract Documents, after the prescribed forms are presented to it for signature, enters into a written contract, in the prescribed form, in accordance with the Bid, and files two bonds with the County of El Dorado, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; otherwise, it shall remain in full force and virtue.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the Court.

IN WITNESS WHEREOF, we have set our hands and seals on this _____ day of _____ 20____

(seal) _____
Principal

(seal) _____
Surety

Address: _____

(NOTE: Signature of those executing for the Surety shall be properly acknowledged, and accompanied by a Certificate of Acknowledgment.)

PRINCIPAL

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

County of El Dorado

BID #21-968-050

OLD DEPOT BIKE PARK

THIS AGREEMENT ("Agreement") approved by the County of El Dorado Board of Supervisors, this _____ day of _____, in the year of 20__, made and concluded, in duplicate, between the COUNTY OF EL DORADO, a political subdivision of the State of California, by the Chief Administrative Office, Facilities Division thereof, the party of the first part hereinafter called "County," and _____ (Contractor) party of the second part hereinafter called "Contractor."

R E C I T A L S

WHEREAS, County has caused the above-captioned project to be let to formal bidding process; and

WHEREAS, Contractor has duly submitted a bid response for the captioned project upon which County has awarded this Contract.

NOW, THEREFORE, the parties hereto have mutually covenanted and agreed, and by these presents do covenant and agree, each with the other, as follows:

Article 1. THE WORK

The improvement contemplated in the performance of this Contract is an improvement over which the County of El Dorado shall exercise general supervision. The County therefore, shall have the right, but not the duty to assume full and direct control over this Contract whenever the County at its sole discretion, shall determine that its responsibility is so required.

The Contractor shall complete the Work as specified or indicated under the County's Contract Documents entitled:

OLD DEPOT BIKE PARK

The project is located at 40 Old Depot Road, Placerville, California in El Dorado County. The Work to be done as described in the Technical Specifications section and as shown on the Plans, generally consists of, but is not limited to: furnishing of all labor, materials, and equipment for the construction of a bike park for outdoor recreation. The Work shall include:

Final clearing and grubbing, grading of site, erosion control, construction of water, stormwater, and septic utilities, site lighting, concrete paving, crushed gravel paving, asphalt paving, stairs, ramp, bicycle track and jumps, pump track and bowl, restroom slab and plumbing, shade shelter, playground, site furnishings, irrigation system, planting and hydroseeding.

For additional scope of work information, see project specific attachments, Attachment A and B. Should Bidder find relevant details missing from the original drawings, Bidder shall alert the County.

Alternate #1: ADD – Construction of beginner pump track in place of hydroseed.

Alternate #2: ADD – Construction of bicycle skills course in place of hydroseed.

Alternate #3: ADD – Construction of large jumps on second track.

Alternate #4: ADD – Installation of additional lighting around perimeter.

Article 2. CONTRACT DOCUMENTS

The Contract Documents consist of: the Notice to Bidders; the bid forms which include the accepted Proposal, Proposal Bid Price Schedule, Subcontractors Listing, Section 10285.1 Statement, Section 10162 Questionnaire, Section 10232 Statement, and the Noncollusion Affidavit; the Contract which includes this Agreement with all Exhibits thereto, the Performance Bond and Payment Bond; Conditions of the Contract; the drawings, specification and diagrams, listed and identified as the Project Plans; all Addenda incorporated in those documents before their execution, all Contract Change Orders, Architect's Supplemental Instructions, and Construction Change Directives issued in accordance with the Contract Documents which may be delivered or issued after the Effective Date of this Agreement and are not attached hereto; the prevailing Labor Surcharge And Equipment Rental Rates (when required) as determined by the Department of Industrial Relations to be in effect on the date the Work is accomplished; all the obligations of County and of Contractor which are fully set forth and described therein; and all Contract Documents which are hereby specifically referred to and by such reference made a part hereof. All Contract Documents are intended to cooperate so that any work called for in one and not mentioned in the other is to be executed the same as if mentioned in all Contract Documents. Contractor agrees to perform all of its promises, covenants, and conditions set forth in the Contract Documents, and to abide by and perform all terms and conditions set forth therein. In case of conflict between this Agreement and any other contract document, this Agreement shall take precedence.

Article 3. CONTRACT PRICE

As compensation agreed upon for said Work, County shall pay or cause to be paid to Contractor, in full, and for the full contract price and compensation for said completion of the Work, including without limitation, all bonds and insurance, the contract prices named in Contractor's Bid and Proposal Bid Price Schedule, a copy of which is attached hereto as Exhibit A, which sum constitutes the Contract Price for the complete Project (the "Contract Price").

Article 4. COMMENCEMENT AND COMPLETION

The Work to be performed under this Contract shall commence on the date specified in the Notice to Proceed issued by County. The work shall be diligently prosecuted to completion within **one hundred eighty (180) calendar days** commencing from the date shown on the Contractor Notice to Proceed.

County and Contractor recognize that time is of the essence of the Agreement and that County will suffer loss if the Work is not completed within the time specified in the above paragraph, plus any extensions thereof allowed in accordance with Article 4.3.5 of the Conditions of the Contract. The parties also recognize delays, expense, and difficulties involved with proving in a legal proceeding the actual loss suffered by County if the Work is not completed on time. Accordingly, instead of requiring any such proof, County and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay County the sum of **ONE THOUSAND TWO HUNDRED DOLLARS (\$1,200.00)** for each and every calendar day, as liquidated damages and not as a penalty, for each and every calendar day's delay in finishing the Work in excess of the contract time prescribed herein; and Contractor agrees that County may deduct the amount thereof from any monies due or that may become due Contractor under this contract.

Article 5. PAYMENT

Payment shall be made to Contractor as follows:

Progress payments are to be made monthly based on the percentage of completion method reached by the Contractor and invoiced using Exhibit B, marked "Application and Certificate for Payment" incorporated herein and made by reference a part hereof.

Retention of 5% of the total Contract price will be held until the work is 50% complete, and thereafter at the option of County. Payment by County as herein provided shall not be construed as an absolute acceptance of defects in the work or improper materials.

Article 6. INDEMNITY

To the fullest extent allowed by law, Contractor shall defend, indemnify, and hold the County and its officers, directors, and employees and the State of California, its officers, agents, and employees harmless against and from any and all claims, suits, losses, damages, and liability for damages, including attorney's fees and other costs of defense brought for or on account of injuries to or death of any person, including but not limited to, workers and the public, or on account of injuries to or death of County employees, or damage to property, or any economic, consequential or special damages which are claimed or which shall in any way arise out of or be connected with Contractor's services, operations or performance hereunder, regardless of the existence or degree of fault or negligence on the part of the County, the Contractor, subcontractors or employees of any of these, except for the active, or sole negligence of the County, its officers and employees, or where expressly prescribed by statute.

The duty to indemnify and hold harmless the County specifically includes the duties to defend set forth in Section 2778 of the Civil Code. The insurance obligations of the Contractor are separate, independent obligations under the Contract Documents, and the provisions of this defense and indemnity are not intended to modify nor should they be construed as modifying or in any way limiting the insurance obligations set forth in the Contract Documents.

Article 7. GUARANTEES

Contractor shall repair or replace any or all work provided hereunder which is defective due to faulty materials, poor workmanship, or defective equipment at no expense to County, ordinary wear or tear and unusual abuse or neglect excepted, during the term of the Contract and for a period of one (1) year after Notice of Acceptance. Contractor shall be required to repair or replace any and all adjacent facilities or areas which have been damaged or displaced due to Contractor work performed under this Agreement at no expense to County during the term of this Contract and for a period of one (1) year after Notice of Acceptance.

If a warranty or guarantee exceeding one (1) year is provided by the supplier or manufacturer of any equipment or materials used in this Project, or if a warranty or guarantee exceeding one (1) year is required elsewhere in these Contract Documents, then the guarantee for such equipment or materials shall be extended for such term. Contractor expressly agrees to act as co-guarantor of such equipment and materials, and Contractor shall supply County with all warranty and guaranty documents relative to equipment and materials incorporated in the job and guaranteed by its suppliers or manufacturers.

The parties agree that this guarantee and the rights and obligations accruing therefrom shall be in addition to, and not by way of limitation in any manner whatsoever to, the rights, obligations, warranties or remedies otherwise provided for by law.

In the event of Contractor's failure to comply with the above mentioned conditions within ten (10) calendar days after being notified in writing by County, Contractor hereby authorizes County to proceed to have said defects repaired and made good at Contractor's expense, and Contractor will honor and pay all costs and charges therefore upon written demand.

Article 8. NOTICE

Any notice or other correspondence required to be given under this Agreement by either party to the other may be affected by personal delivery in writing or by mail, postage prepaid. Notices personally delivered during normal business hours shall be deemed received on the actual date of delivery; mailed notices shall be deemed received one (1) day after affixed postmark. Notices and correspondence to County shall be in duplicate and shall be delivered to it as follows:

To County:

County of El Dorado
Chief Administrative Office
330 Fair Lane
Placerville, California 95667

Attn.: Vickie Sanders
Parks Manager

Notices and correspondence to Contractor shall be delivered when personally delivered to, or if mailed, addressed to Contractor at:

Contractor's Business Name
Street Address
City, State Zip

Attn.: Name of Notices Recipient
Title of Notices Recipient

Either party may change its address for notices by giving written notice pursuant to this Article.

Article 9. VENUE

The Contract Documents and all provisions thereto shall be governed by the laws of the State of California. Any litigation arising out of this Contract shall be brought in El Dorado County.

Article 10. PERFORMANCE BOND

As a part of the execution of this Contract, Contractor shall furnish a bond of a surety company authorized to do business in the State of California, conditioned upon the faithful performance of all covenants and stipulations under this Contract. The amount of this bond shall be one hundred percent (100%) of the total Contract Price and shall be executed upon the form provided by County.

Article 11. PAYMENT BOND

As a part of the execution of this Contract, Contractor shall furnish a bond of a surety company authorized to do business in the State of California, conditioned upon the payment in full of all claims for labor and materials in accordance with the provisions of the law of the State of California. The amount of this bond shall be one hundred percent (100%) of the total Contract Price and shall be executed upon the form provided by County.

Article 12. NOTIFICATION OF SURETY COMPANY

The surety company shall familiarize itself with all of the conditions and provisions of this Contract, and shall waive the right of special notification of any change or modifications of this Contract or extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by County or its authorized agents, under the terms of this Contract; and failure to so notify the aforesaid surety company of changes shall in no way relieve the surety company of its obligation under this Contract.

Article 13. ASSIGNMENT OF ANTITRUST ACTIONS

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

If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Government Code Sections 4550-4554, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the

bid price, less the expenses incurred in obtaining that portion of the recovery. Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under Government Code Sections 4550-4554 if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

Article 14. TERMINATION BY COUNTY FOR CONVENIENCE

County reserves the right to terminate the Contract at any time upon determination by County's representative that termination of the Contract is in the best interest of County. County shall issue Contractor a written notice specifying that the Contract is to be terminated.

Upon receipt of said written notice, Contractor shall stop all work under the Contract except: (1) work specifically directed to be completed prior to termination, (2) work the Inspector deems necessary to secure the project for termination, (3) removal of equipment and plant from the site of the Work, (4) action that is necessary to protect materials from damage, (5) disposal of materials not yet used in the Work as directed by County, and (6) clean up of the site.

If the Contract is terminated for County's convenience as provided herein, all finished or unfinished work and materials previously paid for shall, at the option of County, become its property. Contractor shall be paid an amount which reflects costs incurred for work provided to the date of notification of termination. In addition, Contractor shall be paid the reasonable cost, as solely judged by County, and without profit, for all work performed to secure the project for termination.

Article 15. TERMINATION BY COUNTY FOR CAUSE

If Contractor is adjudged as bankrupt or insolvent, or makes a general assignment for the benefit of its creditors or if a trustee or receiver is appointed for Contractor or for any of its property, or if Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or on more than one occasion fails to supply sufficient skilled workmen or suitable material or equipment, or on more than one occasion fails to make prompt payments to subcontractors for labor, materials, or equipment, or disregards the authority of the County's representative, or the Engineer, if one is appointed, or otherwise violates any provision of the Contract Documents, then County may, without prejudice to any other right or remedy and after giving Contractor and its Surety a minimum of ten (10) calendar days from delivery of a written termination notice, terminate the services of Contractor and take equipment and machinery thereon owned by Contractor and finish the Work by whatever method County may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the Work is finished.

Without prejudice to other rights or remedies County may have, if Contractor fails to begin delivery of materials and equipment, to commence Work within the time specified, to maintain the rate of delivery of material, to execute the Work in the manner and at such locations as specified, or fails to maintain a work program which will ensure County's interest, or, if Contractor is not carrying out the intent of the Contract, an Inspector's written notice may be served upon Contractor and the Surety on its faithful performance bond demanding satisfactory compliance with the Contract. If Contractor or its Surety does not comply with such notice within five (5) calendar days after receiving it, or after starting to comply, fails to continue, County may exclude it from the premises and take possession of all material and equipment, and complete the Work by County's own forces, by letting the unfinished Work to another Contractor, or by a combination of such methods.

Where Contractor's services have been so terminated by County, said termination shall not affect any right of County against Contractor then existing or which may thereafter accrue. Any retention or payment of monies by County due Contractor will not release Contractor from compliance with the Contract Documents.

If the unpaid balance of the Contract price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, such excess shall be paid to Contractor. If the sums under the Contract are insufficient for completion, Contractor or Surety shall pay to County within five (5) calendar days after the completion, all costs in excess of the Contract price. In any event, the cost of completing the Work shall be charged against Contractor and its Surety and may be deducted from any money due or becoming due from County.

The provisions of this Article shall be in addition to all other rights and remedies available to County under law.

If after notice of termination, it is determined for any reason that Contractor was not in default, the rights and obligations of the parties shall be the same as if the notice of termination had not been issued. The Contract shall be equitably adjusted to compensate for such termination.

Article 16. SUCCESSORS AND ASSIGNS

This Agreement shall bind and inure to the heirs, devisees, assignees, and successors in interest of Contractor and to the successors in interest of County in the same manner as if such parties had been expressly named herein.

Article 17. REPORTING ACCIDENTS

Contractor shall prepare and submit (within 24 hours of such incidents) reports of accidents at the site and anywhere else the work is in progress in which bodily injury is sustained or property loss in excess of Five Hundred Dollars (\$500.00) occurs.

Article 18. EMISSIONS REDUCTION

Contractor and its subcontractors shall comply with emission reduction regulations mandated by the California Air Resources Board, and sign a certification of knowledge thereof:

CERTIFICATE OF KNOWLEDGE – EMISSIONS REDUCTION REGULATIONS

I am aware of the emissions reduction regulations being mandated by the California Air Resources Board (CARB). I will comply with such regulations before commencing the performance of the Work and maintain compliance throughout the duration of this Contract.

Signed: _____ Date: _____

Contractor shall indemnify County against any fines or penalties imposed by CARB or any other governmental or regulatory agency for violations of applicable laws, rules, and regulations by Contractor, its subcontractors, or others for whom Contractor is responsible under its indemnity obligations provided for in this Agreement.

Article 19. WORKERS' COMPENSATION CERTIFICATION

Contractor shall comply with Labor Code Sections 3700 et seq., requiring it to obtain Workers' Compensation Insurance, and sign a certificate of knowledge thereof.

CERTIFICATE OF KNOWLEDGE - LABOR CODE SECTION 3700

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

Signed: _____ Date: _____

Article 20. WARRANTY

Contractor warrants to County that materials and equipment furnished for the Work will be of good quality and new, unless otherwise required or permitted under the Contract Documents, that the Work will be free from defects or flaws and is of the highest quality of workmanship and that the Work will conform with the requirements herein. Work not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

Article 21. RETAINAGE

The retainage from payments is set forth in Section 6.4 "WITHHOLDINGS FROM PAYMENTS" of the Conditions of the Contract. Contractor may elect to receive one hundred percent (100%) of payments due as set forth in the Contract Documents, without retention, by depositing securities of equivalent value with County, in accordance with, and as set forth in Section 22300 of the Public Contract Code. Securities eligible for deposit hereunder shall be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

Article 22. RESOLUTION OF CLAIMS

Contractor's attention is directed to California Public Contract Code Section 9204, which describes procedures for the resolution of claims on public works projects. Among other things, Section 9204 requires the claimant to furnish reasonable documentation to support a claim, requires the public entity to respond to the claim within forty-five (45) days of receipt of the claim, and allows for the claimant to demand an informal meet and confer conference for settlement of the issues in dispute. For any portion of a claim that remains in dispute, Section 9204 requires submission of the claim to nonbinding mediation. Additionally, Section 9204 requires the public entity to make any payment due on an undisputed portion of the claim within sixty (60) days of the public entity's written response and to pay interest at the rate of seven percent (7%) per annum on any amounts not paid in a timely manner. The provisions of Sections 20104 et seq. also apply to the resolution of claims under this Contract to the extent those sections are not in conflict with Section 9204.

Article 23. PREVAILING WAGE REQUIREMENTS

In accordance with the provisions of California Labor Code Sections 1770 et seq., the general prevailing rate of wages in the county in which the Work is to be done has been determined by the Director of the California Department of Industrial Relations. Interested parties can obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, P.O. Box 420603, San Francisco, CA 94142-0603, Telephone (415) 703-4708 or by referring to the website at <http://www.dir.ca.gov/dlsr/PWD>. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997.

Copies of the general prevailing rate of wages in the county in which the Work is to be done are also on file at the Chief Administrative Office, Facilities Division, and are available upon request.

In accordance with the provisions of Labor Code 1810, eight (8) hours of labor shall constitute a legal day's work upon all work done hereunder, and Contractor and any subcontractor employed under this Contract shall conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

Article 24. CONTRACTOR REGISTRATION

In accordance with California Labor Code Section 1771.1, a contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

The contractor must post job site notices as prescribed by regulation 8 California Code of Regulations Section 16451. All contractors and subcontractors must furnish electronic certified payroll records directly to the Department of Industrial Relations (DIR). The work is subject to compliance monitoring and enforcement by the DIR.

Article 25. AUDIT BY CALIFORNIA STATE AUDITOR

Audit by California State Auditor: Contractor acknowledges that if total compensation under this agreement is greater than \$10,000.00, this Agreement is subject to examination and audit by the California State Auditor for a period of three (3) years, or for any longer period required by law, after final payment under this Agreement, pursuant to California Government Code §8546.7. In order to facilitate these potential examinations and audits, Contractor shall maintain, for a period of at least three (3) years, or for any longer period required by law, after final payment under the contract, all books, records and documentation necessary to demonstrate performance under the Agreement.

Article 26. TAXES

Contractor certifies that as of today's date, it is not in default on any unsecured property taxes or other taxes or fees owed by Contractor to County. Contractor agrees that it shall not default on any obligations to County during the term of this Agreement.

Article 27. CHILD SUPPORT COMPLIANCE ACT

For any Agreement in excess of \$100,000.00, the Contractor acknowledges in accordance with Public Contract Code 7110, that:

- a) The Contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with section 5200) of Part 5 of Division 9 of the Family Code; and
- b) The Contractor, to the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

Article 28. LICENSES

Contractor warrants and represents that it holds a valid California license pursuant to the Contractors' State License Law (Business and Professions Code Sections 7000, et seq.), that its license is in good standing and that it possesses a Class A – General Engineering and Class B – General Building Contractor's Licenses as required by the categories and type of the Work. Copies of Contractor's State Contractors' license must be provided with this Agreement.

In addition, Contractor hereby represents and warrants that Contractor and any of its subcontractors employed under this Agreement has all the applicable licenses, permits, and certifications that are legally required for Contractor and its subcontractors to practice its profession or provide the services or work contemplated under this Agreement in the State of California. Contractor and its subcontractors shall obtain or maintain said applicable licenses, permits, or certificates in good standing throughout the term of this Agreement

Article 29. BUSINESS LICENSE

The County Business License Ordinance provides that it is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of El Dorado County without possessing a County business license unless exempt under County Ordinance Code Section 5.08.070. Contractor warrants and represents that it shall comply with all of the requirements of the County Business License Ordinance, where applicable, prior to beginning work under this Contract and at all times during the term of this Contract.

Article 30. CONTRACT ADMINISTRATOR

The County Officer or employee with responsibility for administering this Agreement is Russ Fackrell, Facilities Manager, Chief Administrative Office, or successor.

Article 31. AUTHORIZED SIGNATURES

The parties hereto represent that the undersigned individuals executing this Agreement on their behalf are fully authorized to do so by law or other appropriate instrument and to bind upon said parties the obligations set forth herein.

Article 32. PARTIAL INVALIDITY

If any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will continue in full force and effect without being impaired or invalidated in any way.

Article 33. ENTIRE AGREEMENT

This document and the documents referred to herein or exhibits hereto are the entire Agreement between the parties and they incorporate or supersede all prior written or oral agreements or understandings.

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IN WITNESS WHEREOF, the County and Contractor have executed this Agreement on the dates indicated below, the latest shall be deemed to be the effective date of this Agreement.

COUNTY OF EL DORADO

By: _____ Dated: _____
_____, Chair
Board of Supervisors
County of El Dorado

ATTEST:
Kim Dawson, Clerk
Of the Board of Supervisors

By: _____ Dated: _____
Deputy Clerk

CONTRACTOR

By: _____ Dated: _____
President

By: _____ Dated: _____
Secretary

License No.: _____ Federal Employer Identification No. _____

NOTE: If Contractor is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if Contractor is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if Contractor is an individual, his/her signature shall be placed above. Contractor executing this document on behalf of a corporation or partnership shall be prepared to demonstrate by resolution, article, or otherwise that it is appropriately authorized to act in these regards. For such corporation or partnership, such authority shall be demonstrated to the satisfaction of County. If signature is by an agent, other than officer of a corporation or a member of a partnership, an appropriate Power of Attorney shall be on file with the Department prior to signing this document.

Mailing Address: _____

Business Address: _____

City, Zip: _____

Phone: _____ Fax: _____

Exhibit A

CONTRACTOR'S BID AND PROPOSAL BID PRICE SCHEDULE

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE (IN FIGURES)	TOTAL PRICE (IN FIGURES)
BASE BID SCHEDULE					
1	Mobilization	LS	1		
2	Layout and Staking	LS	1		
3	Construction Fencing and Entrance	LS	1		
4	Temporary Tree Protection	LF	1373		
5	Erosion Control	LS	1		
6	Site Clearing	LS	1		
7	Excavation and Grading	CY	7785		
8	Storm Drain System	LS	1		
9	Domestic Water System	LS	1		
10	Sanitary Sewer System	LS	1		
11	Concrete Paving	SF	2540		
12	Asphalt Paving	SF	204		
13	Asphalt Driveway	LS	1		
14	Crushed Gravel Paving	SF	9240		
15	Ramp	LS	1		
16	Stairs	LS	1		
17	Electrical Improvements (SOV)	LS	1		
18	Retaining Wall	LS	1		
19	Chain Link Fence	LF	1108		
20	Vehicular Gate	EA	1		
21	Concrete Split Rail Fence	LF	203		
22	Pump Track and Bowl	LS	1		
23	Bicycle Jumps	LS	1		
24	Site Furnishings (SOV)	LS	1		
25	Restroom	LS	1		
26	Playground (SOV)	LS	1		
27	Irrigation (SOV)	LS	1		
28	Planting (SOV)	LS	1		
29	Seeding	SF	40702		
30	Maintenance	LS	1		
31	General Conditions				
32	Insurance				
33	Bonds				
34	Fees				
BASE BID SCHEDULE TOTAL					

ADDITIVE ALTERNATE 1					
AA1.1	Beginner Pump Track	LS	1		
AA1.2	Less Seeding	SF	-882		
AA1.3	General Conditions, Insurance, Bonds, and Fees				
ADDITIVE ALTERNATIVE 1 SUBTOTAL					

ADDITIVE ALTERNATE 2					
AA2.1	Bicycle Skills	LS	1		
AA2.2	Less Seeding	SF	-2853		
AA2.3	General Conditions, Insurance, Bonds, and Fees				
ADDITIVE ALTERNATIVE 2 SUBTOTAL					

ADDITIVE ALTERNATE 3					
AA3.1	Bicycle Jumps - Top Row	LS	1		
AA3.2	Less Seeding	SF	-4691		
AA3.3	General Conditions, Insurance, Bonds, and Fees				
ADDITIVE ALTERNATIVE 3 SUBTOTAL					

ADDITIVE ALTERNATE 4					
AA4	Additional Electrical Improvements	LS	1		
AA4.1	General Conditions, Insurance, Bonds, and Fees				
ADDITIVE ALTERNATIVE 4 SUBTOTAL					

TOTAL LUMP SUM BID (TOTAL OF BASE BID + ADDITIVE ALTERNATE SCHEDULES 1-4)					
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Planting Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Soil Preparation and Amendments	SF	6987		
2	15-Gallon Tree	EA	6		
3	Shrub (Furnish only)	EA	45		
4	5-Gallon Shrub	EA	82		
5	1-Gallon Shrub/Groundcover	EA	369		
6	Wood Mulch	SF	16529		
7	Rock Mulch	SF	2041		
PLANTING SUBTOTAL					

Irrigation Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Backflow Preventer	EA	1		
2	Controller	EA	1		
3	Sleeve	LF	150		
4	Mainline	LF	851		
5	Master Valve	EA	1		
6	Flow Meter	EA	1		
7	Gate Valve	EA	1		
8	Quick Coupling Valve	EA	7		
9	Remote Control Valve	EA	6		
10	Drip Emitters	SF	4436		
11	In-Line Drip	SF	2551		
12	Drip Tree Ring	EA	6		
IRRIGATION SUBTOTAL					

Playground Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Play Curb	LF	129		
2	Play Equipment	LS	1		
3	Drainage	LF	106		
4	Play Ramp	LS	1		
5	Surfacing	LS	1		
PLAYGROUND TOTAL					

Site Furnishing Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Picnic Table 6 Foot	EA	2		
2	Picnic Table 92 Inches	EA	5		
3	Disposal Receptacle	EA	2		
4	Exercise Equipment	LS	1		
5	Bicycle Rack	EA	4		
6	Bicycle Repair Station	EA	1		
7	Interpretive Sign	EA	1		
8	Temporary Sign	EA	1		
9	Bond Act Sign	EA	1		
SITE FURNISHINGS TOTAL					

Electrical Improvements Schedule of Values

ITEM NO.	DESCRIPTION	UNIT	UNIT QTY	UNIT PRICE	TOTAL PRICE
1	Electrical Meter	LS	1		
2	Pull Box and Receptacles	LS	1		
3	Conduit and Conductors	LS	1		
4	Light Poles	EA	2		
ELECTRICAL IMPROVEMENTS TOTAL					

APPLICATION AND CERTIFICATE FOR PAYMENT - EXHIBIT B

PAGE 1 OF 2 PAGES

TO OWNER:
El Dorado County
3000 Fairlane, #2
Placerville, CA 95667
FROM CONTRACTOR:

PROJECT:

APPLICATION #: 1

PERIOD TO:

PROJECT NOS:

CONTRACT DATE:

Distribution to:

<input type="checkbox"/>	County
<input type="checkbox"/>	Cont Adm
<input type="checkbox"/>	Contractor
<input type="checkbox"/>	
<input type="checkbox"/>	

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM-----	\$	<input type="text"/>
2. Net change by Change Orders-----	\$	<input type="text"/>
3. CONTRACT SUM TO DATE (Line 1 +/- 2)	\$	<input type="text"/>
4. TOTAL COMPLETED & STORED TO DATE-\$		<input type="text"/>
(Column G on Continuation Sheet)		
5. RETAINAGE:		
a. _____ of Completed Work	\$	<input type="text"/>
(Columns D+E on Continuation Sheet)		
b. _____ of Stored Material	\$	<input type="text"/>
(Column F on Continuation Sheet)		
Total Retainage (Line 5a + 5b or		
Total in Column 1 of Continuation Sheet-----	\$	<input type="text"/>
6. TOTAL EARNED LESS RETAINAGE-----	\$	<input type="text"/>
(Line 4 less Line 5 Total)		
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT		
(Line 6 from prior Certificate)-----	\$	<input type="text"/>
8. CURRENT PAYMENT DUE-----	\$	<input type="text"/>
9. BALANCE TO FINISH, INCLUDING RETAINAGE		
(Line 3 less Line 6)	\$	<input type="text"/>

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Contract Administrator		
Total approved this Month		
TOTALS		
NET CHANGES by Change Order		

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown therein is now due.

CONTRACTOR:

By: _____ Date: _____

State of: CaliforniaCounty of: El Dorado**CERTIFICATE FOR PAYMENT**

In accordance with Contract Documents, based on on-site observations and the data comprising application, the Contract Administrator certifies to El Dorado County that to the best of the Contract Administrator's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ----- \$ _____
(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this application and on the Continuation Sheet that are changed to conform to the amount certified.)

CONTRACT ADMINISTRATOR

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

EXHIBIT "B"

CONTINUATION SHEET

Page 2 of 2 Pages

ATTACHMENT TO PAY APPLICATION

APPLICATION NUMBER: 1

PROJECT:

APPLICATION DATE:

PERIOD TO:

CONTRACTOR'S PROJECT NO:

A Item No.	B Description of Work	C Scheduled Value	D Work Completed		F Materials Presently Stored (Not In D or E)	G		H Balance To Finish (C - G)	I Retainage
			From Previous Application (D + E)	This Period		Total Completed And Stored To Date (D + E + F)	% (G/C)		
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	SUBTOTALS PAGE 2								

COUNTY OF EL DORADO

PAYMENT BOND

(Section 3247, Civil Code)

Bond No. _____

WHEREAS, the County of El Dorado, a political subdivision of the State of California, hereafter referred to as "Obligee", has awarded to Contractor

_____ hereafter referred to as "Principal", a contract for the work described as follows:

**OLD DEPOT BIKE PARK
BID #21-968-050**

AND, WHEREAS, said Principal is required to furnish a bond in connection with said contract, guaranteeing the faithful performance thereof:

NOW, THEREFORE, we the undersigned Principal and Surety are held and firmly bound unto the Obligee, in the sum of _____ Dollars, (\$ _____) to be paid to the Obligee, for which payment we bind ourselves, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if said Principal or its subcontractors shall fail to pay any of the persons named in Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed by such claimant, or any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the Principal and his subcontractors pursuant to Section 18806 of the Revenue and Taxation Code, with respect to such work and labor, that the Surety herein will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void. In case suit is brought upon this bond, the Surety will pay a reasonable attorney's fee to be fixed by the court.

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

Dated: _____

Correspondence or Claims relating to this bond should be sent to the Surety at the following address:

PRINCIPAL

SURETY

ATTORNEY-IN-FACT

NOTE: Signatures of those executing for the Principal and for the Surety must be properly acknowledged, and a Power of Attorney attached for the Surety.

NOTARY ACKNOWLEDGMENTS ATTACHED

PRINCIPAL

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

COUNTY OF EL DORADO

PERFORMANCE BOND

Bond No. _____

KNOW ALL MEN BY THESE PRESENTS, that we _____

the Contractor in the Contract hereto annexed, as Principal, and

as Surety, are held firmly bound unto the County of El Dorado, a political subdivision of the State of California, hereinafter called the "Obligee" in the sum of _____DOLLARS, _____lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, jointly and severally, firmly by these presents.

Signed, sealed and dated: _____

The condition of the above obligation is such that if said Principal as Contractor in the Contract hereto annexed shall faithfully perform each and all of the conditions of said Contract to be performed by him, and shall furnish all tools, equipment, apparatus, facilities, transportation, labor and material, other than material, if any, agreed to be furnished by the Obligee, necessary to perform and complete, and to perform and complete in a good and workmanlike manner, the work of **BID #21-968-050** for the **OLD DEPOT BIKE PARK** in strict conformity with the terms and conditions set forth in the Contract hereto annexed, then this obligation shall be null and void; otherwise this bond shall remain in full force and effect and the said Surety will complete the Contract work under its own supervision, by Contract or otherwise, and pay all costs thereof for the balance due under terms of the Contract, and the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court.

This guarantee shall insure the Obligee during the work required by any Contract and for a period of one (1) year from the date of acceptance of the work against faulty or improper materials or workmanship that may be discovered during that time.

No right of action shall accrue under this bond to or for the use of any person other than the Obligee named herein.

Dated: _____, 20_____.

Correspondence or Claims relating to this bond should be sent to the Surety at the following address:

PRINCIPAL

SURETY

ATTORNEY-IN-FACT

NOTE: Signatures of those executing for the Principal and the Surety must be properly acknowledged, and a Power of Attorney attached for the Surety.

NOTARY ACKNOWLEDGMENTS ATTACHED

PRINCIPAL

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

20 **Withholding Exemption Certificate****590**

(This form can only be used to certify exemption from nonresident withholding under California R&TC Section 18662. This form cannot be used for exemption from wage withholding.)

File this form with your withholding agent.
(Please type or print)

Withholding agent's name

Vendor/Payee's name

Vendor/Payee's ☐ Social security number
☐ SOS no. ☐ California corp. no. ☐ FEIN**Note:**
Failure to furnish your
identification number will
make this certificate void.

Vendor/Payee's address (number and street)

APT no.

Private Mailbox no.

Vendor/Payee's daytime telephone no.

City

State

ZIP Code

I certify that for the reasons checked below, the entity or individual named on this form is exempt from the California income tax withholding requirement on payment(s) made to the entity or individual. Read the following carefully and check the box that applies to the vendor/payee:

☐ **Individuals — Certification of Residency:**

I am a resident of California and I reside at the address shown above. If I become a nonresident at any time, I will promptly inform the withholding agent. See instructions for Form 590, General Information D, for the definition of a resident.

☐ **Corporations:**

The above-named corporation has a permanent place of business in California at the address shown above or is qualified through the California Secretary of State to do business in California. The corporation will withhold on payments of California source income to nonresidents when required. If this corporation ceases to have a permanent place of business in California or ceases to be qualified to do business in California, I will promptly inform the withholding agent. See instructions for Form 590, General Information E, for the definition of permanent place of business.

☐ **Partnerships:**

The above-named partnership has a permanent place of business in California at the address shown above or is registered with the California Secretary of State, and is subject to the laws of California. The partnership will file a California tax return and will withhold on foreign and domestic nonresident partners when required. If the partnership ceases to do any of the above, I will promptly inform the withholding agent. **Note:** For withholding purposes, a Limited Liability Partnership is treated like any other partnership.

☐ **Limited Liability Companies (LLC):**

The above-named LLC has a permanent place of business in California at the address shown above or is registered with the California Secretary of State, and is subject to the laws of California. The LLC will file a California tax return and will withhold on foreign and domestic nonresident members when required. If the LLC ceases to do any of the above, I will promptly inform the withholding agent.

☐ **Tax-Exempt Entities:**

The above-named entity is exempt from tax under California R&TC Section 23701 _____ (insert letter) or Internal Revenue Code Section 501(c) _____ (insert number). The tax-exempt entity will withhold on payments of California source income to nonresidents when required. If this entity ceases to be exempt from tax, I will promptly inform the withholding agent.

Note: Individuals cannot be tax-exempt entities.☐ **Insurance Companies, IRAs, or Qualified Pension/Profit Sharing Plans:**

The above-named entity is an insurance company, IRA, or a federally qualified pension or profit-sharing plan.

☐ **California Irrevocable Trusts:**

At least one trustee of the above-named irrevocable trust is a California resident. The trust will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required. If the trustee becomes a nonresident at any time, I will promptly inform the withholding agent.

☐ **Estates — Certification of Residency of Deceased Person:**

I am the executor of the above-named person's estate. The decedent was a California resident at the time of death. The estate will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required.

CERTIFICATE: Please complete and sign below.

Under penalties of perjury, I hereby certify that the information provided herein is, to the best of my knowledge, true and correct. If conditions change, I will promptly inform the withholding agent.

Vendor/Payee's name and title (type or print) _____

Vendor/Payee's signature ► _____ Date _____

Instructions for Form 590

Withholding Exemption Certificate

References in these instructions are to the California Revenue and Taxation Code (R&TC).

General Information

A Purpose

Use Form 590 to certify an exemption from nonresident withholding. Complete and present Form 590 to the withholding agent. The withholding agent will then be relieved of the withholding requirements if the agent relies in good faith on a completed and signed Form 590 unless told by the Franchise Tax Board (FTB) that the form should not be relied upon.

Important – This form cannot be used for exemption from wage withholding. Any questions regarding wage withholding should be directed to the California Employment Development Department.

Do not use Form 590 if you are a seller of California real estate. Sellers of California real estate should use Form 593-C, Real Estate Withholding Certificate.

B Law

R&TC Section 18662 requires withholding of income or franchise tax on payments of California source income made to nonresidents of California.

Withholding is required on:

- Payments to nonresidents for services rendered in California;
- Distributions of California source income made to domestic nonresident partners and members and allocations of California source income made to foreign partners and members;
- Payments to nonresidents for rents if the payments are made in the course of the withholding agent's business;
- Payments to nonresidents for royalties for the right to use natural resources located in California;
- Distributions of California source income to nonresident beneficiaries from an estate or trust; and
- Prizes and winnings received by nonresidents for contests in California.

For more information on withholding and waiver requests, get FTB Pub. 1017, Nonresident Withholding Partnership Guidelines, and FTB Pub. 1023, Nonresident Withholding Independent Contractor, Rent and Royalty Guidelines. To get a withholding publication see General Information G.

C Who can Execute this Form

Form 590 can be executed by the entities listed on this form.

Note: In a situation where payment is being made for the services of a performing entity, this form can only be completed by the performing entity or the performing entity's partnership or corporation. It **cannot** be completed by the performing entity's agent or other third party.

Note: The grantor of a revocable/grantor trust shall be treated as the vendor/payee for withholding purposes. Therefore, if the vendor/payee is a revocable/grantor trust and one or more of the grantors is a nonresident, withhold-

ing is required. If all of the grantors of a revocable/grantor trust are residents, no withholding is required. Resident grantors can check the box on Form 590 labeled "Individuals — Certification of Residency."

D Who is a Resident

A California resident is any individual who is in California for other than a temporary or transitory purpose or any individual domiciled in California who is absent for a temporary or transitory purpose.

An individual domiciled in California who is absent from California for an uninterrupted period of at least 546 consecutive days under an employment-related contract is considered outside California for other than a temporary or transitory purpose.

Note: Return visits to California that do not total more than 45 days during any taxable year covered by the employment contract are considered temporary.

This provision does not apply if an individual has income from stocks, bonds, notes, or other intangible personal property in excess of \$200,000 in any taxable year in which the employment-related contract is in effect.

A spouse who is absent from California for an uninterrupted period of at least 546 days to accompany a spouse who is under an employment-related contract is considered outside of California for other than a temporary or transitory purpose.

Generally, an individual who comes to California for a purpose which will extend over a long or indefinite period will be considered a resident. However, an individual who comes to perform a particular contract of short duration will be considered a nonresident. For assistance in determining resident status, get FTB Pub. 1031, Guidelines for Determining Resident Status, or call the Franchise Tax Board at (800) 852-5711 or (916) 845-6500 (not toll-free).

E What is a Permanent Place of Business

A corporation has a permanent place of business in California if it is organized and existing under the laws of California or if it is a foreign corporation qualified to transact intrastate business by the California Secretary of State. A corporation that has not qualified to transact intrastate business (e.g., a corporation engaged exclusively in interstate commerce) will be considered as having a permanent place of business in California only if it maintains a permanent office in California that is permanently staffed by its employees.

F Withholding Agent

Keep Form 590 for your records. Do not send this form to the FTB unless it has been specifically requested.

Note: If the withholding agent has received Form 594, Notice to Withhold Tax at Source, only the performing entity can complete and

sign Form 590 as the vendor/payee. If the performing entity completes and signs Form 590 indicating no withholding requirement, you must send a copy of Form 590 with Form 594 to the FTB.

For more information, contact the Withholding Services and Compliance Section. See General Information G.

The vendor/payee must notify the withholding agent if:

- The individual vendor/payee becomes a nonresident;
- The corporation ceases to have a permanent place of business in California or ceases to be qualified to do business in California;
- The partnership ceases to have a permanent place of business in California;
- The LLC ceases to have a permanent place of business in California; or
- The tax-exempt entity loses its tax-exempt status.

The withholding agent must then withhold. Remit the withholding using Form 592-A, Nonresident Withholding Remittance Statement, and complete Form 592, Nonresident Withholding Annual Return, and Form 592-B, Nonresident Withholding Tax Statement.

G Where to get Publications, Forms, and Additional Information

You can download, view, and print FTB Publications 1017, 1023, 1024, and nonresident withholding forms, as well as other California tax forms and publications not related to nonresident withholding from our Website at: www.ftb.ca.gov

To have publications or forms mailed to you or to get additional nonresident withholding information, please contact the Withholding Services and Compliance Section.

WITHHOLDING SERVICES AND
COMPLIANCE SECTION
FRANCHISE TAX BOARD
PO BOX 942867
SACRAMENTO CA 94267-0651

Telephone: (888) 792-4900
(916) 845-4900 (not toll-free)
FAX: (916) 845-9512

Assistance for persons with disabilities:

We comply with the Americans with Disabilities Act. Persons with hearing or speech impairments please call TTY/TDD (800) 822-6268.

Asistencia bilingüe en español

Para obtener servicios en español y asistencia para completar su declaración de impuestos/formularios, llame al número de teléfono (anotado arriba) que le corresponde.



County of El Dorado

OFFICE OF AUDITOR-CONTROLLER

360 FAIR LANE
PLACERVILLE, CALIFORNIA 95667
Phone: (530) 621-5487 FAX: (530) 295-2535

JOE HARN, CPA
Auditor-Controller

BOB TOSCANO
Assistant Auditor-Controller

PAYEE DATA RECORD

(Required in lieu of IRS W-9 when receiving payment from the County of El Dorado) Version: April 2014

PAYEE DATA RECORD	INSTRUCTIONS: Complete all information on this form. Sign, date, and return to the address shown at the bottom of this page. Prompt return of the fully completed form will prevent delays in processing payments. Information provided in this form will be used by the County of El Dorado to prepare Information Returns (Forms 1099), for withholding on payments to nonresident payees, and for reporting to the Employment Development Department (EDD).											
NAME AND ADDRESS	Name (as shown on your income tax return)											
	Business name/Doing business as/Disregarded entity name, if different from above											
	Physical address (number, street, and apt. or suite)						Remittance address (if different than physical)					
	City, state, zip code						City, state, zip code					
	Phone number				Fax number (optional)				Email (optional)			
FEDERAL TAX CLASSIFICATION & EXEMPTIONS	Check appropriate federal tax classification											
	<input type="checkbox"/> Individual / sole proprietor <input type="checkbox"/> Partnership <input type="checkbox"/> Trust / estate <input type="checkbox"/> Other (see instructions) ▶ _____											
	<input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation If you are a corporation, do you provide legal or medical services? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C Corporation, S=S Corporation, P=Partnership) _____											
NOTE: IF YOU ARE A SINGLE MEMBER LLC (DISREGARDED ENTITY), ENTER THE TAX CLASSIFICATION OF THE OWNER IDENTIFIED ON THE NAME LINE.												
Exempt payee code (if any) – see instructions _____ Exemption from FATCA reporting code (if any) – see instructions _____												
TAX IDENTIFICATION NUMBER	Tax identification number (TIN)											
	Enter your TIN in the appropriate box. If you are an individual or sole proprietor, you must enter your SSN. You may choose to provide your EIN in addition to, but not instead of, the SSN. Single member LLCs (disregarded entities) must enter the TIN of the owner identified on the Name line.											
	Social Security Number ____ - ____ - ____ Employer Identification Number ____ - ____ - ____											
RESIDENCY STATUS	Check appropriate box for residency status											
	<input type="checkbox"/> California resident / exempt from nonresident withholding – qualified to do business in California or maintains a permanent place of business in California (attach CA Form 590)											
	<input type="checkbox"/> California nonresident (see instructions)											
NOTE: Payments to California nonresidents for services performed in California and for certain rents derived from properties located in California that exceed \$1,500 in a calendar year will be subject to 7% nonresident withholding unless you have obtained a waiver or have been approved for reduced withholding by the Franchise Tax Board. There is no withholding on payments for product and for services performed outside of California.												
<input type="checkbox"/> Obtained Franchise Tax Board waiver of State withholding (attach a copy if applicable)												
<input type="checkbox"/> Obtained Franchise Tax Board approval for reduced withholding (attach a copy if applicable)												
California sales tax permit number _____ (required only for California nonresident vendors that charge California sales tax)												
CERTIFICATION	Under penalties of perjury, I certify that: 1) the TIN shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me) and 2) I am not subject to backup withholding and 3) I am a U.S. citizen or other U.S. person and 4) the FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.											
	Authorized Payee Representative's Name (Type or Print)								Title			
	Signature				Date				Telephone			
	Should my residency status or any other information provided above change, I will promptly notify County of El Dorado at the address listed above.											
RETURN FORM TO	Please return completed form to:											
	Department/office:											
	Mailing address:											
	Phone:		Fax:		Email:		21-1228-A-52 of 393					

COUNTY OF EL DORADO, PAYEE DATA RECORD (REVERSE)

PAYEE DATA RECORD	<p>A completed Payee Data Record is required for payments to all entities and will be kept on file at the County of El Dorado Auditor-Controller's Office. Payees who do not wish to complete the Payee Data Record may elect to not do business with the County of El Dorado. If the payee does not complete the form and the required payee data is not otherwise provided, payment may be reduced for federal backup withholding, California backup withholding and California nonresident withholding.</p>
FEDERAL TAX CLASSIFICATION	<p>Check the applicable federal tax classification. Note that if an LLC is disregarded as an entity separate from its owner, enter the appropriate tax classification of the owner identified on the "Name" line.</p> <p>Individual: Enter the name shown on your income tax return. If the account is in joint names, list first, and then circle, the name of the person or entity whose SSN you entered on the form.</p> <p>Sole proprietor: Enter your individual name as shown on your income tax return on the "Name" line. You may enter your business, trade, or "doing business as" name on the "Business name/Doing business as/Disregarded entity name" line.</p> <p>Partnership, C Corporation, or S Corporation: Enter the entity's name on the "Name" line and any business, trade, or "doing business as" name on the "Business name/Doing business as/Disregarded entity name" line.</p> <p>Disregarded entity: Enter the owner's name on the "Name" line. The name of the entity entered on the "Name" line should never be a disregarded entity. The name on the "Name" line must be the name shown on the income tax return on which the income should be reported. Check the appropriate box for the U.S. federal tax classification of the person whose name is entered on the "Name" line (individual/sole proprietor, partnership, C corporation, S corporation, trust/estate).</p> <p>Limited liability company (LLC): If the person identified on the "Name" line is an LLC, check the "Limited Liability Company" box only and enter the appropriate code for the U.S. federal tax classification.</p> <p>Other entities: Enter your business name as shown on required U.S. federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade or DBA name on the "Business name/Doing business as/Disregarded entity name" line.</p>
EXEMPTIONS	<p>Exemptions: If you are exempt from backup withholding and/or FATCA reporting, enter in the exemptions box any code(s) that may apply to you. Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends. Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions. The following codes identify payees that are exempt from backup withholding: 1 – an organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2); 2 – The United States or any of its agencies or instrumentalities; 3 – A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities; 4 – A foreign government or any of its political subdivisions, agencies, or instrumentalities; 5 – A corporation; 6 – A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States; 7 – A futures commission merchant registered with the Commodity Futures Trading Commission; 8 – A real estate investment fund; 9 – An entity registered at all times during the tax year under the Investment Company Act of 1940; 10 – A common trust fund operated by a bank under section 584(a); 11 – A financial institution; 12 – A middleman known in the investment community as a nominee or custodian; 13 – A trust exempt from tax under section 664 or described in section 4947.</p> <p>Exemption from FATCA reporting. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37); B—The United States or any of its agencies or instrumentalities; C—A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities; D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Reg. section 1.1472-1(c)(1)(i); E—A corporation that is a member of the same expanded affiliated group as a corporation described in Reg. section 1.1472-1(c)(1)(i); F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state.</p>
TAX IDENTIFICATION NUMBER	<p>Enter your tax identification number (TIN) in the appropriate box. If you are a single member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN. The TIN for individuals and sole proprietors is the Social Security Number (SSN). Sole proprietors may provide their EIN in addition to but not instead of a SSN.</p> <p>The County of El Dorado requires that all parties entering into business transactions that may lead to payment(s) from the County provide their Taxpayer Identification Number (TIN). The TIN is also required by the California Revenue and Taxation Code Section 18646 to facilitate tax compliance enforcement activities and the preparation of Form 1099 and other information returns as required by the Internal Revenue Code Section 6109(a).</p>
RESIDENCY STATUS	<p>Are you a California resident or nonresident?</p> <p>A corporation will be defined as a "resident" if it has a permanent place of business in California or is qualified through the Secretary of State to do business in California. A partnership is considered a resident partnership if it has a permanent place of business in California. An estate is a resident if the decedent was a California resident at time of death. A trust is a resident if at least one trustee is a California resident. For individuals and sole proprietors, the term "resident" includes every individual who is in California for other than a temporary or transitory purpose and any individual domiciled in California who is absent for a temporary or transitory purpose. Generally, an individual who comes to California for a purpose that will extend over a long or indefinite period will be considered a resident. However, an individual who comes to perform a particular contract of short duration will be considered a nonresident.</p> <p>Payments to all nonresidents may be subject to withholding. Nonresident payees performing services in California or receiving certain rent, lease, or royalty payments from property (real or personal) located in California will have 7% of their total payments withheld for State income taxes. However, no withholding is required if total payments to the payee are \$1,500 or less for the calendar year or if payment is for product. Nonresidents who have been granted a waiver on payments of California source income from the California Franchise Tax Board must submit a copy of the waiver. For information on Nonresident Withholding, contact the Franchise Tax Board at the numbers listed below:</p> <p style="text-align: center;">Withholding Services and Compliance Section: 1-888-792-4900 E-mail address: wscs.gen@ftb.ca.gov For hearing impaired with TDD, call: 1-800-822-6268 Website: www.ftb.ca.gov</p> <p>California nonresidents charging California sales tax are required to provide their California sales tax number.</p>
CERTIFICATION	<p>Provide the name, title, signature, and telephone number of the authorized individual completing this form. Provide the date the form was completed. NOTE: You must cross out item 2 in the certification block if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return.</p>

CERTIFICATE OF INSURANCE FORM FOR CONTRACTORS, ARCHITECTS AND/OR ENGINEERS

CERTIFICATE ISSUER	DATE EXECUTED:		
PHONE ()	THIS CERTIFICATE DOES NOT AMEND, EXTEND, OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. COMPANIES AFFORDING COVERAGE		
INSURED	COMPANY A LETTER	COMPANY RATING	
PHONE ()	COMPANY B LETTER	COMPANY RATING	
PROJECT DESCRIPTION	COMPANY C LETTER	COMPANY RATING	
PROJECT TITLE:	COMPANY D LETTER	COMPANY RATING	
PROJECT NUMBER:	COMPANY E LETTER	COMPANY RATING	
LOCATION:			

THIS IS TO CERTIFY that policies of insurance listed below have been issued to the insured named above for the policy period indicated. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusion and conditions of such policies.

CL	Type of Insurance Coverage	Policy Number	Policy Effective Date	Policy Expiration Date	Limits of Liability (in Thousands)
	GENERAL LIABILITY [] Commercial General Liability [] Occurrence [] Claims Made [] Owner's & Contractor's Protective [] General Aggregate * [] Per Project [] Per Location				GENERAL AGGREGATE \$ PRODUCTS-COMP/OPS AGGREGATE \$ PERSONAL & ADVERTISING INJURY \$ EACH OCCURRENCE \$ FIRE DAMAGE (ANY ONE FIRE) \$ MEDICAL EXPENSES (ANY ONE PERSON) \$ DEDUCTIBLE \$
	ARCHITECT'S AND/OR ENGINEER'S PROFESSIONAL LIABILITY [] Claims Made [] Project				GENERAL AGGREGATE \$ EACH CLAIM \$ DEDUCTIBLE \$
	AUTOMOBILE LIABILITY [] Any Auto [] All Owned Autos [] Scheduled Autos [] Hired Autos [] Non-Owned Autos [] Garage Liability				COMBINED SINGLE LIMIT \$ BODILY INJURY (PER PERSON) \$ BODILY INJURY (PER ACCIDENT) \$ PROPERTY DAMAGE \$ DEDUCTIBLE \$
	EXCESS LIABILITY [] Umbrella Form [] Other Than Umbrella Form				EACH OCCURRENCE \$ AGGREGATE \$
	[] WORKER'S COMPENSATION				-----STATUTORY-----
	EMPLOYER'S LIABILITY				(EACH ACCIDENT) \$ (DISEASE - POLICY LIMIT) \$ (DISEASE - EACH EMPLOYEE) \$
	OTHER [] Installation Floater [] Builder's Risk []				\$ \$ \$

* The General Aggregate limit, under Limits of Insurance, applies separately to each of the projects away from premises owned by or rented by you.

<p>DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS/ADDITIONAL INSURED:</p> <p>The County of El Dorado its officers, officials, employees and volunteers are made additional insured, but only insofar as the operations under this contract are concerned.</p> <p>The state of California its officers, agents, and employees are made additional insured, but only insofar as the operations under this contract are concerned.</p>

CERTIFICATE HOLDER	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED OR TERMINATED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL GIVE THIRTY (30) DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, IN ADVANCE OF THE EFFECTIVE DATE OF SUCH CANCELLATION OR TERMINATION.
	AUTHORIZED REPRESENTATIVE SIGNATURE, TITLE, TYPED NAME, SSN AND PHONE NUMBER:

COUNTY OF EL DORADO

OLD DEPOT BIKE PARK

BID #21-968-050

CONDITIONS OF THE CONTRACT

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

- 1.1.1 **County:** The County of El Dorado, a political subdivision of the State of California.
- 1.1.2 **Owner:** The County of El Dorado is the Owner and is identified as the Owner in the Contract and these Contract Conditions. The term Owner, and pronouns in place of the same shall mean the County of El Dorado acting by and through its duly authorized representative.
- 1.1.3 **Owner's Representative:** The Chief Administrative Office, Parks Manager, or designated representative.
- 1.1.4 **Architect:** The person holding a valid California State Architect's license, whose firm has been designated within the Contract Documents as the Architect to provide services on the Project. When the Architect is referred to within the Contract Documents and no Architect has in fact been designated, then the matter shall be referred to the County and shall be interpreted as Owner's Representative.
- 1.1.5 **Project Manager:** Project Manager or such other designated representative of the Owner. The Project Manager has such duties and authority as may be set forth in the Contract Documents.
- 1.1.6 **Contractor:** The person or entity identified as such in the Contract and is referred to throughout the Contract Documents as if singular in number. The term Contractor refers to the Contractor or the Contractor's authorized representative.
- 1.1.7 **Inspector:** The individual designated by the Owner as the Inspector as set forth in Paragraph 2.1.2.
- 1.1.8 **Subcontractor:** Those contractors, of whatever tier, furnishing labor or material, or both, for the Work under the Contract with the Contractor.
- 1.1.9 **Substantial Completion:** The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.
- 1.1.10 **Final Acceptance:** Conditions upon which the County will accept Work as satisfactorily completed in accordance with the Contract Documents. Requirements include, but are not limited to:
1. All Systems having been tested and accepted as having met requirements of the Contract Documents.
 2. One (1) PDF format and one (1) hard copy of all as-builts, manufacturer's product data and maintenance manuals having been submitted by the Contractor and reviewed and accepted by the Owner.

3. All punch list work, as directed by the Owner, having been completed by the Contractor.
 4. Acceptance of the Work by the Owner.
- 1.1.11 **Final Payment:** The Final Payment shall be the only Payment made to Contractor and shall not be considered to be the payment of any or all of the retention.
- 1.1.12 **Architect's Supplemental Instructions/Instruction Bulletins:** A written order of the Architect and reviewed by the Owner's Representative directing the Contractor to provide supplemental instructions, interpretations, or conduct minor changes in work involving neither extra cost nor extra time and being consistent with the scope and functioning of the project, if applicable.
- 1.1.13 **Construction Change Directive:** A written order issued by the Owner directing a change in the Work and stating a proposed basis for adjustment, if any, of Contract Time or Sum. The Owner may by Change Directive, without invalidating the Contract and without Contractor's agreement, order changes in the Work. This procedure will be used in the absence of agreement between Owner and Contractor, for subsequent inclusion in a Change Order.
- 1.1.14 **Change Order:** A Change Directive signed by the Owner and Contractor stating their agreement upon all of the following: 1) a change in the Work, 2) the amount of the adjustment in the Contract Price, if any, and 3) the extent of the adjustment in the Contract Time, if any.
- 1.1.15 **Contract Documents:** The Contract Documents shall include the documents described in Article 2 of the Contract, including Architect's Supplemental Instructions, Construction Change Directives, and Change Orders.
- 1.1.16 **Work:** The construction and services required by the Contract Documents, including all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations.
- 1.1.17 **Project:** The total construction of the Work performed under the Contract Documents.
- 1.1.18 **Plans:** The graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams, specifically Attachment A – Technical Specifications and Attachment B - Signs.
- 1.1.19 **Special Provisions and Technical Specifications:** That portion of the Contract Documents Division 1 through 32 consisting of the technical written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services, specifically Attachment A – Technical Specifications.
- 1.1.20 **Claim:** A demand or assertion by the Contractor seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. Claims must be made by written notice and shall include a demand for the Owner's decision. The responsibility to substantiate claims and to resolve the claims of subcontractors of whatever tier shall rest with the Contractor.
- 1.1.21 **Work Not Included:** Except for such auxiliary work as shown or specified, or is necessary as part of the construction, the following is NOT included in this contract: Any work shown but marked "Not in Contract" (NIC) or otherwise designated to be done under another contract or by Owner.
- 1.1.22 **Furnish (material):** To supply and deliver to the project ready for installation and in operating condition.

- 1.1.23 Install (service or labor): To place in final position, complete, anchored, connected, and in operable condition with respect to required codes and/or governing agency requirements.
- 1.1.24 Provide: To furnish and install complete. When “Furnish”, “Install”, or “Provide” is stated, “Provide” is implied.
- 1.1.25 Construct: To “Furnish” materials to “Install” in final position, complete, anchored, and connected with respect to required codes, requirements, Contract Documents, and details.
- 1.1.26 Day(s): All references to “day” or “days” in these Contract Documents shall be defined as calendar-day or calendar-days.
- 1.1.27 Normal Working Hours: Includes the hours from 7:30 a.m. to 4:30 p.m. Monday through Friday, except for County holidays.

1.2 CONTRACT DOCUMENTS

- 1.2.1 One Document: The Contract Documents are one document and any work shown or mentioned shall be performed or furnished. The Contractor admits and agrees that the Contract Documents exhibit the intent and purpose of the Owner in regard to the Work, and that they are not complete in every detail and are to be considered as showing the purpose and intent only; and Contractor further agrees to furnish all labor or material for any detail that is necessary to carry out the intent and purpose of the Specifications without extra charge.
- 1.2.2 Misuse of Words or Punctuation: The misplacement, addition, or omission of any word, letter, or punctuation mark will not in any way change the intent or meaning of the Contract Documents. Any part of the Work, or any article pertaining thereto which is not specifically set forth in these Contract Documents, but which is necessary for the proper completion of the Work, is to be supplied and set in place at the Contractor's expense, the same as if it had been mentioned in these Contract Documents. The Contractor shall furnish all things necessary to make a good and workmanlike job in accordance with the intent and purpose of the Contract Documents.

1.3 ASSIGNMENT OF CONTRACT

- 1.3.1 Mutual Consent: Neither party to the Contract shall assign the Contract without the written consent of the other party, nor shall the Contractor assign any moneys due or to become due to him hereunder without the written consent of the Owner.
- 1.3.2 Assignment Under Anti-Trust Claims: In accordance with Section 4552 of the California Government Code, and Section 7103 of the Public Contract Code, Contractor and subcontractors shall conform to the following requirements:
1. In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, Contractor or subcontractors offers and agrees to assign to the Owner 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 Section 15) or under the Cartwright Act, [Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code], arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the Owner tenders Final Payment to the Contractor, without further acknowledgment by the parties.
 2. If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Government Code Sections 4550-4554, the

assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under Government Code Sections 4550-4554 if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

1.4 WAIVER OF "COMMON PRACTICE"

1.4.1 The Contractor shall waive "common practice" and "common usage" as construction criteria wherever the Contract Documents details, plans, technical specifications, governing codes, or ordinances require greater quantity or better quality than common practice or common usage would require.

1.5 EXCESSIVE COSTS

1.5.1 Failure to Comply with Contract: If Contractor fails to comply with any Contract requirements, including any required coordination with other contractors, and that failure results in additional costs to Owner, then Contractor shall be liable for such additional costs.

1.5.2 Construction Methods: If Contractor's construction methods and techniques result in additional costs to Owner, after notice, such Contractor shall be responsible for cost attributable to his methods and techniques.

ARTICLE 2

OWNER

2.1 OWNER'S REPRESENTATIVE

2.1.1 Owner Representative: The Owner will be represented by the Owner's Representative who shall oversee the performance of the Contract on behalf of the Owner.

2.1.2 Owner May Appoint Inspector: Owner shall be entitled to appoint an agent as Inspector who shall see that the performance of the Work is in strict accordance with the Contract Documents on behalf of the Owner.

2.1.3 Communication: In order that the Owner may act upon expert advice and upon good procedure, all communications from the Contractor shall be in writing and will be through said Owner's Representative or Inspector, as the Owner may direct, and all communications and instructions from the Owner to the Contractor will be so routed. The Owner reserves the right to alter this procedure without the consent of the Contractor. All communications not in compliance herewith, shall be considered non-binding on the Owner.

2.2 RIGHTS OF OWNER

2.2.1 Right to Clean Up: Subject to the strict prohibition against maintaining a nuisance, if a dispute arises between the Contractor, Subcontractors, or separate contractors as to the responsibility under their respective Contracts for maintaining the premises and surrounding area free from waste materials and rubbish the Owner may, but need not, clean up and allocate the cost among those responsible as the Inspector determines to be just.

- 2.2.2 **Right to Accept Imperfect Work:** If any part or portion of the Work completed under this Contract is defective and not in accordance with the Plans or Contract Documents, and if the imperfection is judged by Owner to be not of sufficient magnitude or importance so as to make the Work unacceptable, then Owner shall have the right and authority to retain such Work but will make such deductions in Contract Price as may be equitable and reasonable. However, Owner does not by this section; waive any other rights provided for herein.
- 2.2.3 **Right to do Adjacent Work:** The Owner reserves the right to perform construction or operations on the site of the Work. In doing this Owner may use its own forces or award separate contracts in connection with other construction or operations on the site but not covered by the Contract Documents. Contractor shall defend, indemnify, and hold Owner harmless for costs incurred by Owner that are payable to a separate contractor because of delays, improperly timed activities, or defective construction by the Contractor, unless such costs are incurred due to the sole or active negligence of Owner.
- 2.2.4 **Right to Finish Contractor's Work:** If the Contractor defaults or neglects to carry out all or any part of the Work in accordance with the Contract Documents, the Owner has the right, exercisable solely at Owner's discretion, to commence and continue completion of the Work with diligence and promptness. In such an event, if the Owner's cost to complete the Work exceeds the remaining balance of the Contract with the Contractor, Contractor shall reimburse the Owner for such excess costs.
- 2.2.5 **Right of Partial Use of Project:** The Owner may occupy or use any completed or partially completed portion of the Work at any stage, upon agreement of Owner and Contractor.
1. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents.
 2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld.
 3. Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.
 4. Unless otherwise agreed upon in writing, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of work not complying with the requirements of the Contract Documents.
 5. No claim for acceleration, delay, or hindrance, may be made by Contractor on his own behalf or that of any of his subcontractors, for any delays, accelerations, or hindrances that may arise out of Owner's partial occupancy of the Project.
- 2.2.6 **Right to Audit:** Contractor shall maintain and make available to the County, State Auditor, or to any of their duly authorized representatives all books, papers, job cost records, detailed cost estimates, claims, and accounts, including payment, property, payroll, personnel, subcontractor records, and financial records related to or which arise out of the Work or under terms of this Contract. Contractor shall maintain such books, records, data and documents in accordance with generally accepted accounting principles and in accordance with these Contract Conditions and federal and state requirements. These books, papers, records, claims, and accounts shall be made available for examination during normal business hours and shall be readily available and accessible at Contractor's principal place of business in California, for audit during normal business hours at such place of business. Contractor shall provide office space, photocopies and other assistance to enable audit or inspection representatives to conduct such audits or inspections. This right to audit books and records directly related to this Contract shall also extend to any first-tier subcontractors employed under this Contract. Contractor shall incorporate this provision in any

subcontract entered into as a result of this Contract and shall require its subcontractors to agree to cooperate with the above-listed agencies by making all appropriate and relevant Project records available to those agencies for audit and copying.

All of Contractor's books, papers, job cost records, detailed cost estimates, claims, and accounts, including payment, property, payroll, personnel, subcontractor records, and financial records related to or which arise out of the work or under terms of this Contract shall be retained for access, inspection and/or audit by the County, the State Auditor, or their duly authorized representatives for at least three (3) years after County's final payment to Contractor and/or the final resolution of any claims under this Contract. Contractor shall incorporate this provision in any subcontract entered into as a result of this Contract.

2.3 RESPONSIBILITIES OF OWNER

2.3.1 **Removal, Relocation, or Protection of Underground Infrastructure:** If the Contractor while performing the contract discovers utility facilities not identified by the Owner in the contract plans or specifications, Contractor shall immediately notify the Owner in writing. Owner shall have the sole discretion to perform the repairs or relocation work itself, or to permit the Contractor to do such repairs or relocation work at a reasonable price. In the event that the Owner authorizes the Contractor to perform the work, the parties shall proceed with a written Change Order as set forth in Article 5 herein. Compensation to the Contractor for said costs shall be in accordance with Section 4215 of the Government Code.

Nothing herein shall be construed to require the Owner to locate the presence of any existing services not expressly included in Government Code Section 4215, nor to limit the Owner's rights or remedies set forth therein.

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

ARTICLE 3

CONTRACTOR'S RESPONSIBILITIES

3.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS

3.1.1 **Reporting Errors in Contract Documents:** The Contractor shall carefully study and compare the Contract Documents with each other and shall at once report to the Inspector errors, inconsistencies, or omissions discovered. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency, or omission in the Contract Documents without such notice to the Owner, the Contractor shall assume responsibility for such performance and shall bear all costs for correction.

3.1.2 **Reporting Errors in Field Conditions:** The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies, or omissions discovered shall be reported to the Owner at once.

3.1.3 **No Implied Warranty:** No warranty is to be implied nor shall any warranty arise by operation of law, or by interpretation of this Contract, that the Plans and Contract Documents are adequate and sufficient to construct the Project.

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

- 3.2.1 Supervision of Work: The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.
- 3.2.2 Acts of Employees and Agents: The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.
- 3.2.3 Acts Do Not Waive Contractor's Obligation: The Contractor shall not be relieved of obligations to perform the Work in strict accordance with the Contract Documents either by activities or duties of the Owner's Representative or the Inspector in the administration of the Contract, or by tests, inspections, or approvals required or performed by persons other than the Contractor.

3.3 PROSECUTION OF WORK

- 3.3.1 Time of the Essence: It is expressly understood and agreed that the time of beginning, rate of progress, and time of completion of the Work are of the essence. The time for completion of this contract shall be **one hundred eighty (180) calendar days**, commencing from the date shown on the Contractor Notice to Proceed.
- 3.3.2 Owner and Contractor recognize that time is of the essence of the Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified, plus any extensions thereof. They also recognize the delays, expense, and difficulties involved with proving in a legal proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that Contractor shall pay Owner the sum of **One Thousand Two Hundred Dollars (\$1,200) per day**, as liquidated damages and not as a penalty, for each and every calendar day's delay in finishing the Work in excess of the contract time prescribed herein.
- 3.3.3 Work During Operational Hours: The Facility will not be operational during the Work. The Contractor shall keep all equipment and materials within designated work areas. Emergency exit routes shall be maintained at all times.
- 3.3.4 Construction Schedule: The Contractor shall coordinate the final critical path method (CPM) construction schedule with the Owner. The CPM schedule is required to be submitted within five (5) calendar days of issuance of Notice to Proceed. The CPM schedule will be for Owner's information only. Silence or inaction with regard to Contractor's schedule shall not be construed as acquiescence or acceptance of the schedule as being binding on Owner. Contractor's schedule shall provide for the completion date not to exceed nor shall it provide for the completion date earlier than the time limits for completion set forth in the Contract Documents. Float, whether for the entire Project or for specific tasks therein, shall be deemed to be for the benefit of the Owner. The Contractor shall keep the construction schedule current, and shall submit weekly updates to the Owner's Representative and Inspector, if any. The Contractor shall further prepare and keep current a schedule of submittals which is coordinated with the construction schedule, and which allows the Owner reasonable time to review the submittals.

3.4 SUBMITTALS

- 3.4.1 Use of Listed Manufacturers; Review of "Or Equals": Contractor shall utilize only the manufacturer designated in its Proposal for major equipment items listed therein. In accordance with the provisions of Section 3400 of the California Public Contract Code, but subject to Subsection (b) thereof, if requesting approval of an "or equal" product, Contractor shall within two (2) business days following the bid opening

submit data substantiating its request. Failure to submit such substantiating data within two (2) business days following the bid opening shall constitute submission of a non-responsive bid.

3.5 STATE AND FEDERAL LABOR REQUIREMENTS

3.5.1 Hours of Work:

1. Eight (8) hours of labor shall constitute a legal day's work upon all work done hereunder, and it is expressly stipulated that no workman employed at any time by the Contractor, or by any subcontractor under this Contract, upon the Work, shall be required or permitted to work thereon more than eight (8) hours in any one (1) calendar day and/or more than forty (40) hours in any one (1) calendar week except as provided in Section 1815 of the Labor Code of California, and it is further expressly stipulated that for each and every violation of said last named stipulation, said Contractor shall forfeit, as penalty to the said Owner, \$25.00 for each workman employed in the execution of this Contract, or by any subcontractor under this Contract, for each calendar day during which said workman is required or permitted to labor more than eight (8) hours in any one (1) calendar day or more than forty (40) hours in any one (1) calendar week in violation of the provisions of said Labor Code.
2. In accordance with the provisions of Section 1776 of the Labor Code of the State of California, the Contractor, and each subcontractor, shall also keep an accurate record showing the names and actual hours worked for all workers employed by him in connection with the Work contemplated by the Agreement, which record shall be open at all reasonable hours to the inspection of the Owner or its officers or agents, and to the Chief of the Division of Labor Statistics and Law Enforcement or the Department of Industrial Relations, his deputies or agents.

3.5.2 Apprenticeship Employment:

1. Pursuant to the provisions of Section 1777.5 of the Labor Code as amended, the Contractor or subcontractor employing tradesmen in any apprenticeable occupation shall apply to the joint apprenticeship committee nearest the site of the public works project and which administers the apprenticeship program in that trade for a Certificate of Approval. The certificate will also fix the ratio of apprentices to journeymen that will be used in the performance of the Contract. All requirements and exceptions to those requirements set forth herein for Apprenticeship Employment are contained in Labor Code Section 1777.5 and are available from the applicable Joint Apprenticeship Committee.
2. The Contractor shall make contributions to funds established for the administration of the apprenticeship programs if he employs registered apprentices or journeymen in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions.
3. The Contractor and any subcontractor under him shall comply with the requirements of Sections 1777.5 and 1777.6 in the employment of apprentices. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

3.5.3 Wage Rates:

1. Pursuant to Labor Code Section 1770 et seq., each laborer or mechanic of Contractor or any subcontractor engaged in work on the Project under this Contract shall be paid not less than the hourly wage rate of per diem wages set forth in the prevailing wage rate schedule published by the Director of Industrial Relations regardless of any contractual relationship which may be alleged to exist between Contractor or any subcontractor and such laborers and mechanics.

2. Any laborer or mechanic employed to perform work on the Project under this Contract, which work is not covered by any of the foregoing classifications, shall be paid not less than the prevailing rate of per diem wages specified herein for the classification which most nearly corresponds to the work to be performed by him.
3. The foregoing specified prevailing wage rates are minimum rates only, and the Contractor may pay any wage rate in excess of the applicable rate contained in this Contract.
4. Pursuant to Labor Code Section 1775, the Contractor as a penalty to the Owner shall forfeit \$50.00 for each calendar day, or portion thereof for each worker paid less than prevailing rate established by the Department of Industrial Relations for such work or craft in which such worker is employed. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which the worker was paid less than the prevailing wage rate shall be paid to each worker by the Contractor.
5. An error on the part of an awarding body does not relieve the Contractor from responsibility for payment of the prevailing rate of per diem wages and penalties pursuant to Labor Code Sections 1770 - 1775.
6. All Contractors and subcontractors are subject to the provisions of Sections 1810-1814 of the California Labor Code which provide that the maximum hours a worker is to be employed is limited to eight (8) hours a day and forty (40) hours a week and the Contractor or subcontractor shall forfeit, as a penalty, \$25.00 for each worker employed in the execution of the Contract for each calendar day during which a worker is required or permitted to labor more than eight (8) hours in any calendar day or more than forty (40) hours in any calendar week and is not paid overtime.
7. Section 1815 of the California Labor Code requires that notwithstanding the provisions of Sections 1810-1814, employees of Contractors who work in excess of eight (8) hours per day and forty (40) hours per week shall be compensated for all hours worked in excess of eight (8) hours per day at not less than 1-1/2 times the basic rate of pay.
8. In the case of federally funded projects, where federal and state prevailing wage requirements apply, compliance with both is required. This project is funded in whole or part by federal funds. Contractor's attention is directed to the requirements of, and compliance with the Copeland Act (18 U.S.C. 874 and 29 CFR Part 3), the Davis-Bacon Act (40 U.S.C. 276a to 276a-7 and 29 CFR Part 5), and the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330 and 29 CFR Part 5).
9. If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, Contractor and subcontractors shall pay not less than the higher wage rate. The Department will not accept lower State wage rates not specifically included in the Federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal wage determinations. Where Federal wage determinations do not contain the State wage rate determination otherwise available for use by Contractor and subcontractors, Contractor and subcontractors shall pay not less than the federal minimum wage rate which most closely approximates the duties of the employees in question.
10. Interested parties can obtain the current wage information by submitting requests to the Department of Industrial Relations, Division of Labor Statistics and Research, PO Box 420603, San Francisco CA 94142-0603, Telephone (415) 703-4708 or by referring to the website at <http://www.dir.ca.gov/dlsr/PWD>. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997.

11. Copies of the applicable state prevailing wage rates are on file with the County of El Dorado, Chief Administrative Office, Parks Division, 330 Fairlane Court, Placerville, CA 95667, and they are available to any interested party on request.

3.5.4 Certified Payroll: As required under the provisions of Labor Code Section 1776 Contractor and subcontractors shall keep accurate payroll records:

1. The payroll records shall show the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee by him or her in connection with the Project.
2. A certified copy of all payroll records enumerated above shall be available for inspection at all reasonable hours at the principal office of the Contractor as follows:
 - a. Make available or furnish to the employee or his or her authorized representative on request.
 - b. Make available for inspection or furnished upon request to a representative of the Owner, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.
 - c. Make available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the Owner, the Division of Labor Standards Enforcement, or the Division of Apprenticeship Standards. The requesting party shall, prior to being provided the records, reimburse the costs of preparation by the Contractor, subcontractor, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the Contractor.

3.5.5 Discrimination In Employment: No discrimination shall occur in the employment of persons upon the Work because of race, color, sex, national origin, or ancestry or religion of such persons.

3.5.6 Convict-Made Materials: Except as may be provided by law, the Contractor agrees that no materials manufactured or produced in a penal or correctional institution shall be incorporated in the construction under this Contract.

3.6 TAXES

3.6.1 Contractor Pays Taxes: The Contractor and subcontractors shall pay all local, state, and federal taxes upon labor or materials involved in their branch of the Work, cost of same to be included in the Contract price.

3.7 COMPLIANCE WITH LAW AND LOCAL REQUIREMENTS

3.7.1 Regulations: The Contractor and all subcontractors shall conform to and abide by all city, county, and state laws, ordinances, rules, and regulations, as the same pertain to the Work contemplated by said Plans and Contract Documents.

3.7.2 Permits, Licenses, and Fees: The County shall procure and pay for all permits and inspection fees that may be required to commence, carry on, and complete the Contract. Contractor shall be responsible for all applicable license fees.

3.7.3 Patent Rights, Copyrights, Trade Names, and Royalties: The Contractor shall indemnify and save harmless the Owner and all persons acting under him for all liability on account of any patent rights, copyrights, or trade names which may affect the articles or materials or their application under the Contract Documents. The Contractor shall pay all royalties, or other charges that may arise, due to methods, types of

construction, processes, materials or use of equipment, and shall hold the Owner harmless from any charges whatsoever which may arise, and shall furnish written assurance, satisfactory to the Owner, that such charges have been paid.

3.8 GUARANTEE

3.8.1 **Final Guarantee:** The Contractor shall guarantee all materials and equipment furnished and work performed for a period of one (1) year. Contractor warrants and guarantees for a period of one (1) year from the date of the Notice of Acceptance that the Work is free from all defects due to faulty materials or workmanship and Contractor shall promptly make such corrections as may be necessary, including repairs of any damage to other parts of the Work resulting from such defects. Owner will give notice of observed defects with reasonable promptness. In the event that Contractor should fail to make such repairs, adjustments, or other work that may be made necessary by such defects within ten (10) calendar days after being notified in writing by Owner, Owner may do so and charge Contractor the cost thereby incurred.

3.8.2 **Extended Guarantees:** If a guaranty exceeding one (1) year is provided by the supplier or manufacturer of any equipment used in this Project, then the guarantee for such materials shall be extended for such term. Contractor expressly agrees to act as co-guarantor of such equipment and materials, and Contractor shall supply Owner with all warranty and guaranty documents relative to equipment and materials incorporated in the job and guaranteed by their suppliers or manufacturers.

3.9 WARRANTY

3.9.1 **Contract Warranty:** The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new, unless otherwise required or permitted by the Contract, that the Work will be free from defects or flaws and is of the highest quality of workmanship and that the Work will conform with the requirements of the Contract. Work not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

3.10 INDEMNIFICATION

3.10.1 **Owner Not Liable for Damages:** The Owner or its authorized representative shall not in any way or manner be answerable or suffer loss, damage, expense, or liability for any loss or damage that may happen to said Work, or part thereof, or in or about the same during its construction and before acceptance and the said Contractor shall assume all liabilities of every kind or nature arising from said Work, either by accident, negligence, theft, vandalism, or any cause whatever; and shall hold the Owner and its authorized representatives harmless from all liability of every kind and nature arising from accident, negligence, or any cause whatever, other than for the active negligence of the Owner, its officers, agents and employees.

3.10.2 **Owner Not Liable for Debts:** Indebtedness incurred for any cause in connection with this Work must be paid by the Contractor, and the Owner is hereby relieved at all times from any indebtedness or claim other than the Contract price.

3.10.3 **Indemnity:** To the fullest extent allowed by law, Contractor shall defend, indemnify, and hold the County and its officers, directors, and employees, and the State of California, its officers, agents, and employees harmless against and from any and all claims, suits, losses, damages, and liability for damages, including attorney's fees and other costs of defense brought for or on account of injuries to or death of any person, including but not limited to, workers and the public, or on account of injuries to or death of County employees or damage to property, or any economic, consequential or special damages which are claimed or which shall in any way arise out of or be connected with Contractor's services, operations or performance hereunder, regardless of the existence or degree of fault or negligence on the part of the County, the

Contractor, subcontractors or employees of any of these, except for the active, or sole negligence of the County its officers and employees, or where expressly prescribed by statute.

The duty to indemnify and hold harmless the County specifically includes the duties to defend set forth in Section 2778 of the Civil Code. The insurance obligations of Contractor are separate, independent obligations under the Contract Documents, and the provisions of this defense and indemnity are not intended to modify nor should they be construed as modifying or in any way limiting the insurance obligations set forth in the Contract Documents.

3.10.4 Environmental Indemnification: To the fullest extent allowed by law, from and after recording of the Notice of Acceptance, Contractor shall indemnify, defend, and save harmless Owner from all losses or damages resulting from injury to or death of any person and damage to property, and any fine, which is occasioned by or arises out of any breach of Environmental and Toxics Warranty, representations, or covenants of Contractor under this Contract. Contractor further agrees to indemnify and hold harmless Owner, its officers, employees, and agents, from and against any and all liability as follows:

1. Including all foreseeable and all unforeseeable consequential damages, directly or indirectly arising out of the use, generation, storage, or disposal of hazardous materials in any location by Contractor, and
2. Including, without limitation, the cost of any required or necessary repair, cleanup, or detoxification and the preparation of any closure or other required plans, whether such action is required or necessary prior to or following filing of the Notice of Acceptance to the full extent that such action is attributable, directly or indirectly, to the presence or use, generation, storage, release, threatened release, or disposal of hazardous materials by any person on the Project prior to filing of the Notice of Acceptance. Contractor's obligations pursuant to the foregoing indemnity shall survive the filing of the Notice of Acceptance of the Project.
3. This agreement as to indemnity and reimbursement as above set forth to be undertaken by the Contractor shall survive the performance of the remainder of said Contract and shall remain in full force and effect notwithstanding such performance.
4. The foregoing duties of indemnity shall not apply to loss, damage, expense, or liability caused solely by the active negligence of the Owner or the Owner's agents, servants or independent contractors.

3.11 WORK REQUIREMENTS

3.11.1 Conduct of Work: The Contractor shall confine the storage of his equipment and materials to limits as designated. He shall at all times exercise due caution and provide all necessary barricades and other safety equipment around the Work to protect the general public from injury to person and property during the entire time of performance of the Work. The Contractor shall not create excessive dust or noise.

3.11.2 Maintenance of Site: Strict prohibition against committing nuisances in or about the Work shall be maintained, and the Contractor shall not in any way obstruct or interfere with movements of traffic on any public right of way without first obtaining the necessary approval of the proper public agency.

3.11.3 Clean Up of Site: The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials. If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

3.11.4 Cutting and Patching:

1. The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.
2. The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.12 SUBCONTRACTORS

3.12.1 Contractor Responsible for Subcontractor's Acts: Contractor shall be fully responsible to Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

3.12.2 Contractor's Subcontract: Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to Contractor by the terms of the Contract Documents insofar as applicable to the Work of subcontractors and to give Contractor the same power as regards terminating any subcontract that Owner may exercise over Contractor under any provisions of the Contract Documents. The percentage of retention withheld from any subcontractor by the Contractor shall not exceed the percentage of retention withheld from the Contractor as provided herein.

3.12.3 Ineligible Subcontractor: Contractor is prohibited from performing work with a subcontractor who is ineligible to perform work pursuant to Labor Code Section 1777.1 or 1777.7.

3.13 SUPERINTENDENT

3.13.1 Work Superintendent: The Contractor will employ and maintain on the worksite a qualified supervisor or Superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The Superintendent shall have full authority to act on behalf of the Contractor, and all communications given to the Superintendent shall be as binding as if given to the Contractor. The Superintendent shall be present on the site at all times as required to perform adequate supervision and coordination of the Work.

3.14 LABOR AND MATERIALS

3.14.1 Skilled Labor: All labor must be especially skilled for each kind of work, and must be thorough and first class in all respects. Any person whom the Inspector or Owner may deem incompetent or disorderly shall be promptly discharged from the Project and not re-employed.

3.14.2 Quality of Materials: All materials used on this Contract shall be new and the best market quality, unless specified or shown otherwise. All Work executed under this Contract shall be done in the best, most thorough, substantial and workmanlike manner and without flaws. All materials and labor shall be subject to the approval of the Inspector as to its quality and fitness, and shall be immediately removed if it does not meet with his approval. The Inspector may refuse to issue the Certificate for Payment until all defective materials or work have been removed and other material of proper quality substituted therefore. All removal and replacement with same shall be done at the Contractor's expense. Manufactured articles,

materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer.

ARTICLE 4

ADMINISTRATION OF CONTRACT

4.1 ADMINISTRATION OF CONTRACT

- 4.1.1 Contract Communications:** Unless otherwise provided in the Contract or when direct communications have specifically been authorized, all parties shall communicate through the Owner's Representative or the Inspector if the Owner so directs. Communications by and with the subcontractors and material suppliers shall be through the Contractor. Communications by Contractor to separate contractors, architect, or Project Manager shall be through the Owner's Representative.
- 4.1.2 Control of Work:** The Owner's Representative or the Inspector will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Owner's Representative or the Inspector will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Owner's Representative or the Inspector will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, subcontractors, or their agents or employees, or of any other persons performing portions of the Work.
- 4.1.3 Recommendation for Payments:** Based on his or her observations and evaluations of the Contractor's Applications for Payment, the Owner's Representative will review amounts due the Contractor and will recommend to Owner, payments to Contractor as set forth in the section entitled CERTIFICATION FOR PAYMENTS.
- 4.1.4 Inspector's Authority:** The Inspector will have the authority to stop work whenever necessary to ensure a proper execution of the Work. The Inspector will also have authority to reject Work which does not conform to the Contract Documents. Whenever the Inspector considers it necessary or advisable for implementation of the intent of the Contract Documents, the Inspector will have authority to require additional inspection or testing of the Work in accordance with the following section whether or not such Work is fabricated, installed, or completed. However, neither this authority of the Inspector nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Inspector to the Contractor, subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work. In the event an Inspector is not appointed by the Owner, the Owner's Representative shall have the authority set forth herein.

4.2 INSPECTION AND TESTING

- 4.2.1 Advance Notice:** Contractor shall provide Owner's Representative seventy-two (72) hours notice prior to beginning work at a specific location and for a specific department. Contractor shall notify Owner's Representative and Inspector forty-eight (48) hours prior to any day in which Contractor will 1) require an inspection of any portion of the Work, 2) work in excess of eight (8) hours or any time Contractor intends to work weekends, and 3) require shut down of all or any portion of building systems (electrical, plumbing, fire, mechanical, etc.). Any work not performed subject to inspection will not be accepted and will be rejected and/ or ordered removed by Owner, or Inspector.
- 4.2.2 Access to Work:** The Owner's Representative, the Architect, the Project Manager, and the Inspector will at all times have access to the Work. In addition, authorized representatives and agents of any participating Federal or State Agency shall be permitted to inspect all Work, materials, payrolls, and records on

personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and also for any inspection or testing thereof.

4.2.3 Costs of Tests: The Owner shall bear all costs related to testing for conformance of the Work to the Contract requirements. However, if the Contractor has called for any testing, and that test fails, subsequent tests, and all related costs, shall be borne by the Contractor.

4.2.4 Preparation of Change Directives/Orders: The Owner's Representative or the Inspector, if one is appointed, will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in the section entitled CHANGES IN WORK.

4.3 CLAIMS

4.3.1 Concealed or Unforeseen Conditions: It is understood by both parties that Contractor has made a pre-contract investigation of the site. All concealed, unforeseen, or materially differing conditions are the responsibility of the Contractor in the absence of an actual material, intentional misrepresentation by the Owner as to the conditions on the site. Contractor shall give written notice of any conditions encountered at the site which are unforeseen, concealed, or materially different from those set forth in the Plans or Contract Documents, or ordinarily encountered and generally recognized as inherent in the Work. Such written notice shall be given within five (5) calendar days of his discovery of any such facts.

4.3.2 Notice of Discovery of Hazardous Waste or Unusual Conditions:

1. The Contractor shall promptly, and before the following conditions are disturbed, notify the Owner in writing, in the event the Contractor encounters any of the following:
 - a. Material that the Contractor believes may be hazardous waste, as defined in Section 25117 of the Health and Safety Code that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
 - b. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in the work of the character provided for in the contract.
2. The Owner shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work shall issue a change order under the procedures described herein.
3. In the event a dispute arises between the Owner and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for in the contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the Contractor and the Owner.

4.3.3 Time Limits on Claims: Claims by Contractor must be made within ten (10) calendar-days after occurrence of the event giving rise to such Claim, except that claims made due to delay or hindrances which Contractor claims was caused by Owner shall be made within five (5) calendar-days after occurrence of the event giving rise to such Claim. Claims must be made by written notice. Failure to make such claim in writing in the time set forth herein shall bar Contractor from recourse for such claim. All claims must be filed on or before the payment date of Final Payment.

4.3.4 Claims for Additional Costs:

1. If Contractor wishes to make a Claim for an increase in the Contract Price, he shall give the Owner written notice thereof within the time set forth in Paragraph 4.3.3. This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property in which case the Contractor shall, as soon as possible, advise Owner of his intent to do the Work.
2. Increases in Contract Price due to Claims shall be calculated based on the Cost Reimbursement method detailed in Paragraph 5.4.1.3.
3. Under no circumstances shall Contractor recover any administrative overhead costs or recover on the basis of any "Home Office" damages formula, "Total Cost" recovery formula, or any other such formula.

4.3.5 Claims for Additional Time:

1. If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate probable effect of delay on progress of the Work.
2. If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled construction.
3. The Owner shall not be liable for any damages on account of any reasonable delay or hindrance of the Owner. However, Contractor shall be entitled to an extension of time for any delay or hindrance caused by the Owner. Any delay or hindrance by Owner which is unreasonable and not within the contemplation of the parties may subject Owner to a claim for damages. Contractor shall make any claims in writing within the time set forth in Paragraph 4.3.3., for any unreasonable delay or hindrance caused by Owner, and specifying the cause thereof as required in paragraph "Submittal of Claims".

4.3.6 Submittal of Claims: Any disputes relating to this Contract, or its breach, which is not disposed of by agreement shall be promptly submitted as a claim to the Owner's Representative who shall issue a written response on the dispute. Claims shall be submitted by the Contractor to the Owner's Representative with adequate supporting data and include a demand for the Owner's Representative's decision. Adequate supporting data shall include, but is not limited to, a statement of the reasons for the asserted entitlement, the certified payroll, invoice for material and equipment rental, and an itemized breakdown of any adjustment sought. The claim must be sent by registered mail or certified mail with return receipt requested to Owner's Representative.

4.3.7 Submission Under Penalty of Perjury: The Contractor shall certify, at the time of submission of a claim, as follows:

"I certify under penalty of perjury under the laws of the State of California, that the claim is made in good faith, that the supporting data are accurate and complete, and that the amount requested accurately reflects the contract adjustment for which the Owner is liable.

By: _____
“(Contractor's signature)”

4.3.8 Third Party Claims: Owner will notify Contractor of receipt of any third party claim relating to the contract within five (5) calendar days of receipt of such claim.

4.4 DISPUTE RESOLUTION

4.4.1 Continue Work During Dispute: In the event of any dispute between the Owner and the Contractor, the Contractor will not stop Work but will prosecute the work diligently to completion in the manner directed by the Owner, and the dispute shall be resolved as set forth herein after completion of the Work.

4.4.2 Requirements for Filing a Claim: The claim shall be in writing and include documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Claims must be submitted by registered mail or certified mail with return receipt requested to Owner's Representative.

4.4.3 Owner's Review of Claim.

- (a) Upon receipt of a claim, the Owner's Representative shall conduct a reasonable review of the claim, and within a period not to exceed forty-five (45) days, shall provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed.
- (b) The County and Contractor may, by mutual agreement, extend the time period provided in this Article 4.4.
- (c) If the County needs approval from the Board of Supervisors to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the Board does not meet within the forty-five (45) days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the County shall have up to three (3) days following the next duly publicly noticed meeting of the governing body after the forty-five (45) day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.
- (d) Any payment due on an undisputed portion of the claim shall be processed and made within sixty (60) days after the County issues its written statement. Failure by the County to issue a written statement shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the County's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this Article 4.4, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the Contractor.
- (e) If the Contractor disputes the County's written response, or if the County fails to respond to a claim issued pursuant to this Article within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the County shall schedule a meet and confer conference within thirty (30) days for settlement of the dispute.
- (f) Within ten (10) business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the County shall provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within sixty (60) days after the County issues its written statement.

4.4.4 Nonbinding Mediation

- (a) Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the County and the Contractor sharing the associated costs equally. The County and Contractor shall mutually agree to a mediator within ten (10) business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of

the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

- (b) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this Article 4.4.
- (c) Unless otherwise agreed to by the County and the Contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.
- (d) If mediation is unsuccessful, the part of the claim remaining in dispute shall be subject to applicable procedures outside of this Article 4.4.
- (e) The claim resolution procedures in this Article 4.4 do not preclude the County from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this Article does not resolve the parties' dispute.

4.4.5 Payment of Undisputed Portion of Claim: Amounts not paid in a timely manner as required by this Article 4.4 shall bear interest at 7 percent (7%) per annum.

4.4.6 Claims by Subcontractors: If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against County because privity of contract does not exist, Contractor may present to the County a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on their own behalf or on behalf of a lower tier subcontractor, that the Contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the County shall furnish reasonable documentation to support the claim. Within forty-five (45) days of receipt of this written request, the Contractor shall notify the subcontractor in writing as to whether the Contractor presented the claim to the County and, if the original Contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

4.4.7 Compliance.

- (a) The provisions of this Article constitute a non-judicial dispute resolution procedure that, pursuant to Section 930.2 of the California Government Code, shall constitute a condition precedent to submission of a valid claim under the California Government Code. Contractor shall bear all costs incurred in the preparation, submission and administration of a claim. Any claims presented in accordance with the Government Code must affirmatively indicate Contractor's prior compliance with the dispute resolution procedure herein and the previous dispositions of the claims asserted. Pursuant to Government Code Section 930.2, the one (1) year period in Government Code Section 911.2 shall be reduced to one hundred and fifty (150) days from either accrual of the cause of action, substantial completion or termination of the contract, whichever occurs first; in all other respects, the Government Code shall apply unchanged.
- (b) Failure to submit a claim as required in Article 4.3 shall waive Contractor's right to claim on any specific issues not included in a timely submitted claim or issues not raised in a timely protest and timely claim submitted under Article 4.3 and may not be asserted in any subsequent litigation, Government Code claim, or legal action.
- (c) Upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and County may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this Article 4.4, so long as the provision do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

- 4.4.8 Consistency with Public Contract Code Sections 9204 and 20104 et seq: If Contractor remains dissatisfied and desires to preserve its right to pursue the matter further, Contractor must file a claim with the County pursuant to Government Code Sections 900 et seq. or Sections 910 et seq. If any claim arising under this Contract is subject to the provisions of Public Contract Code Sections 9204 or 20104 et seq. and if those provisions require a procedure different from that established in this Contract, then the provisions of those sections shall apply in place of the conflicting procedure established herein.

ARTICLE 5

CHANGES IN WORK

5.1 WAIVER

- 5.1.1 Waivers of Contract Provisions: It is expressly understood and agreed that no waiver granted by the Inspector or the Owner of any term, provision, or covenant of this Contract shall constitute a precedent for breach of the same or any other terms, provisions, or covenants of this Contract.

5.2 CHANGES

- 5.2.1 Owner May Order Changes in Work: The Contractor agrees that the Owner, without invalidating the Contract, may order changes in Work by altering, adding to, or deducting from the Work, the Contract Amount and Time being adjusted according to the provisions of Section 5.4 and Section 5.5. Contractor agrees to enter into a modification of his original Contract for such changes.
- 5.2.2 Cost Proposals: Upon request of the Owner for a quotation on the change to the Work, the Contractor shall promptly submit to Owner's Representative, and the Inspector, if one is appointed, in writing a detailed breakdown of the work and of the amount of deduction or addition claimed. In no case shall Cost Proposals be provided later than ten (10) calendar days from the date requested. The Owner's request for quotations on alterations to the Work shall not be considered authorization to proceed with the work prior to issuance of a Change Order, nor shall such request justify any delay in existing work. If Contractor fails to provide Cost Proposals within ten (10) calendar days, Owner may prepare the Cost Proposal based on estimates of labor, materials, and equipment. This proposal, prepared by Owner, shall be binding on the Contractor, will become the basis for Contract Price adjustment, and shall not be subject to dispute or claim.
- 5.2.3 Contract Change Instrument: Changes in work involving a change in Contract Price or Contract Time shall be done only pursuant to an Architect's Supplemental Instructions (if applicable), Change Order, or Construction Change Directive as set forth below in this article.
- 5.2.4 Changes Shall Conform to Contract: Changes in work shall be performed in conformance with applicable provisions of the Contract Documents, and the Contractor shall proceed promptly unless otherwise provided in the Architect's Supplemental Instructions (if applicable), Change Order, or Change Directive.

5.3 CONTRACT CHANGE INSTRUMENTS

- 5.3.1 Architect's Supplemental Instructions (ASI) (if applicable): The Owner's Representative or the Architect, may order minor changes in work by use of an Architect's Supplemental Instruction. These minor changes will involve neither changes in the Contract Price or Contract Time. If the Contractor disagrees that the change does not involve a change in cost or time, then a Change Order or Change Directive shall be used.

5.3.2 Change Order (CO): The Change Order shall be used in cases where Owner and Contractor agree on the change in work, the amount of or method of computing the Contract Amount, and the amount of adjustment in Contract Time.

5.3.3 Construction Change Directive (CCD): In the event that the Owner and Contractor do not agree on the proposed change in work, and/or the proposed adjustment of Contract Price and Time, or in the event it is essential that the Contractor proceed expeditiously and without delay, then Owner may, by issuance of a Construction Change Directive, order changes in work, and the Contractor shall promptly proceed with the change in work involved.

1. Acceptance of Change Directive: If Contractor agrees with the Change Directive, the Contractor shall by his signature thereon, indicate his acceptance of the terms of the Directive, including adjustments to price and time, and the Change Directive shall then be followed by a Change Order.
2. Non-Acceptance of Change Directive: If the Contractor disagrees with the method of computing an increase in Contract Price, then the amount of adjustment shall be computed by the Cost Reimbursement method detailed in Basis for Adjustment. Disagreements with amounts or credits, under the Cost Reimbursement method, or time, shall be considered a dispute, and processed under the section on Disputes Resolution.

5.4 BASIS OF ADJUSTMENT

5.4.1 Methods of Adjustment: The amount of adjustments to Contract Price, whether a credit or payment, shall be computed by one of the methods detailed below. The method used shall be at the sole determination of the Owner.

1. Unit Prices: Those prices stipulated in the Bid Proposal shall be utilized where they are applicable. In the event the change in original quantity is in excess of twenty five (25) percent of the original bid quantity, and the total dollar value of that bid is greater than \$5,000, the Owner shall review the unit price to determine if a new unit price shall be renegotiated. Unit prices for new items shall be negotiated and mutually agreed upon.
2. Lump Sum: A total lump sum for the Work negotiated and mutually acceptable to the Contractor and Owner. Lump sum quotations for modifications to the Work shall include substantiating documentation with an itemized breakdown of Contractor's and subcontractor's costs, including labor, materials, rentals, approved services, overhead, and profit all calculated as specified in the Cost Reimbursement method which follows.
3. Cost Reimbursement (Extra Work): In this method, the payment for Extra Work shall be made on a time and expense basis that is on an accounting of the Contractor's forces, materials, equipment, and other items of cost as required and used to do the Work. Payment will be made for the documented actual cost of the following:
 - a. Costs of direct labor, excluding supervisory personnel, including social security, old age and unemployment insurance, fringe benefits required by agreement, labor insurance and labor taxes established by law.
 - b. Costs of materials, supplies, and equipment, including cost of transportation and sales tax, whether incorporated if paid for by the Contractor or his subcontractor.
 - c. Rental costs, prevailing in the area, of machinery and equipment for the actual time used, and including transportation costs for items having value in excess of \$100.00.

- d. Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work.

To the above cost the Contractor shall be allowed a markup of fifteen (15) percent on direct labor charges and fifteen (15) percent for all other cost items. When any or all of the Extra Work is done by one of the Contractor's subcontractors, the markups set forth above shall be applied to the subcontractor's actual costs to which a five (5) percent markup shall be allowed the Contractor. These markups shall be considered to be full compensation, covering the cost of general supervision, administration, overhead, profit, and any and all other general expenses, including, but not limited to, uniforms, hand tools, safety equipment, travel and lodging.

5.5 EXTENSION OF TIME FOR COMPLETION

5.5.1 Contractor Delayed or Hindered: Should the Contractor be delayed or hindered in the completion of the Work by the neglect of the Owner, or by fire, by strikes, lockouts, embargoes or earthquakes, and any other causes the Inspector approves as not having been reasonably foreseeable at the time of execution of the Contract Documents, then the time allowance herein fixed for the completion of the Work shall be extended for a period equivalent to the time lost by reason of any or all of the causes aforesaid. Time extensions must be requested in accordance with Section 4.3.

5.5.2 Agreement on Time Extension: In addition, the Contractor and the Owner reserve the right to mutually agree in writing upon an extension of time for completion for causes other than enumerated above.

5.5.3 Time Extension Not Waiver: The granting of an extension of time by the Owner for performance by the Contractor shall not operate as a waiver or stop the Owner from claiming damages due to any other delays, prior or subsequent, which were not approved by the Owner as provided herein.

ARTICLE 6

PAYMENTS AND COMPLETION

6.1 GENERAL

6.1.1 Contract Price: The Contract Price stated in the Contract is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

6.1.2 Waiver: Neither the acceptance of the Work by the Owner nor the payment of any part or all of the sum due the Contractor hereunder shall constitute a waiver by the Owner of any claim which the Owner may have against the Contractor or Surety under this Contract or otherwise.

6.1.3 Manner of Paying Warrants: Payment becomes due under the terms of this Contract in the manner prescribed by law. The Auditor shall cause a warrant for the Certified amount to be drawn upon the proper fund of the Treasurer of the Owner, which warrant shall be approved and issued to Contractor within that period of time customarily required to process said warrants in the ordinary course of Owner's business.

6.2 APPLICATIONS FOR PAYMENT

6.2.1 Submittal of Applications: The Contractor shall submit to the Owner OR Owner's Representative, an Application for Payment form, which will be provided by the Owner. Such application shall be supported by such data substantiating the Contractor's right to payment as the Owner may require, such as copies of requisitions from subcontractors and material suppliers.

- 6.2.2 **Basis for Payment:** The Payment shall be based upon the total Contract price and upon percentage of completion of the Work at the time of the submittal of the application for payment.
- 6.2.3 Before submitting an Application for Payment (Final or Partial) the Contractor shall reach an agreement with the Project Manager concerning the percentage complete of the Work and the dollar value for which the Application for Payment may be submitted.
- 6.2.4 **Work Free of Liens:** The Contractor warrants that upon submittal of an Application for Payment, all work for which Certificates for Payment have been previously issued and payments received from the Owner shall be free and clear of liens, claims, security interests, or encumbrances against Contractor by subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment in relation to the Work.

6.3 CERTIFICATION FOR PAYMENT

- 6.3.1 **Certification Determination:** The Owner's Representative will review as soon as practicable for the purpose of determining whether it is a proper payment request and shall within seven (7) days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certification for Payment, with a copy to the Contractor, for such amount as determined to be properly due, or notify the Contractor of the reasons why the payment request is not proper and for withholding certification of payment in whole or in part as provided in Section 6.4.1.
- 6.3.2 The Owner shall pay or cause to be paid to Contractor, an amount equal to ninety five percent (95%) as noted in Section 6.4.3 of the amount set forth in the approved Certificate for Payment within thirty (30) days of receipt of an Application for Payment approved by the Owner's representative as provided for in Paragraph 6.3.1 above, and shall retain the remaining five percent (5%) as noted in 6.4.3 until the time provided for in Section 6.6.4. The Owner shall withhold amounts pursuant to stop notices received in addition to the retainage. Failure of Owner to make payments provided herein in a timely manner shall not constitute a default by the Owner of the Contract, but may entitle the Contractor to interest as provided by law.

6.4 WITHHOLDING FROM PAYMENTS

- 6.4.1 **Reasons for Withholding:** The Owner, upon recommendation of the Inspector, may withhold payments, or on account of subsequently discovered evidence nullify the whole or a part of any progress or retention payments to such extent as may be necessary to protect the Owner from loss on account of:
1. Defective work or material not remedied or replaced.
 2. The filing of claims or Stop Notices to withhold, or reasonable evidence indicating probable filing of such claims or notices.
 3. Failure of the Contractor to make payments properly to subcontractors, or for materials or labor.
 4. Failure to make payments to any person or entity for financial obligations of the Contractor under terms of this Contract.
 5. A reasonable doubt that the Contract can be completed for the balance then unpaid.
 6. Damage to another contractor.
 7. Performance of work in violation of the terms of the Contract Documents.

8. Excessive costs to Owner.

9. Failure of Contractor to comply with requirements for timely submittal of specified documentation, including but not limited to construction schedules, cost proposals, and submittals.

6.4.2 Release of Payment: When the above grounds for withholding are removed, payment shall be made for amounts withheld because of them.

6.4.3 Method of Retainage: The Department will retain 5% of the value of each progress payment from each progress payment. The retained funds shall be retained until thirty-five (35) days after recordation of the Notice of Acceptance.

6.5 SUBSTITUTE SECURITIES FOR RETENTION

6.5.1 Substitution of Securities: Bidders are hereby put on notice that the successful bidder may substitute securities for any monies withheld by the County of El Dorado to insure performance of the Contract pursuant to Public Contract Section 22300. This section provides that the Contractor may elect to receive 100 percent of payments due under the Contract Documents from time to time, without retention from any portion of the payment by the County of El Dorado, by depositing eligible securities of equivalent value with the County of El Dorado or qualified escrow agent in accordance with the provisions of Public Contract Code Section 22300. Eligible securities shall be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit from a qualified institution. Any such escrow agreement shall follow the form set forth in Public Contract Code Section 22300(f) and provided by the Owner.

6.6 FINAL COMPLETION AND PAYMENT OF RETAINAGE

6.6.1 Affidavit of Payment: After the date of Substantial Completion of the Work, and before final acceptance of the Work, the Contractor shall file with the Owner his affidavit, sworn to before a Notary Public, stating that all workmen and persons employed, all firms supplying materials, and all subcontractors upon the project for either labor or material have been paid in full, except certain items, if any, to be set forth in such affidavit covering disputed claims, including claims for acceleration, disruption, delays, inefficiencies, and hindrance, or items in connection with which Stop Notices have been filed under the provisions of the Statutes of the State of California. The filing of such affidavit by the Contractor shall be one of the prerequisites to the making, by the Owner, of the final retainage payment on the Contract.

6.6.2 Final Inspection: Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of the Application for Payment, the Owner will promptly make such inspection. The Contractor shall complete all punch list items within two (2) days of receipt of the written punch list. When the Owner's Representative finds the work acceptable under the Contract Documents and the Contract fully performed, the Owner's Representative will promptly recommend to Owner that Owner may consider the Project complete, accept the project, and that the Notice of Acceptance may be issued.

6.6.3 Final Certification: Before issuance of payment, Contractor shall file, with Owner, a certificate in which he certifies that to the best of the Contractor's knowledge, information, and belief, and on the basis of observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents.

6.6.4 Payment of Retention: Thirty-five (35) days after the Notice of Acceptance has been filed, provided the Work is fully completed and the Contract fully performed, the balance due under the Contract shall be paid, less any monies held for stop notices. Payment shall not be construed as an absolute acceptance of the work done up to the time of such payment. The Contractor, if requested by the Owner, shall furnish

receipts or other vouchers showing his payments for materials and labor. Owner may withhold from payment an amount not to exceed 150 percent of any amount in dispute.

- 6.6.5** Notice of Acceptance: The Work shall be accepted in writing in the form of a Notice of Acceptance when the whole of the work has been completed satisfactorily to the Owner. In judging the Work, no allowance for deviations from the original Contract Documents will be made unless already approved in writing at the proper times and in the manner as called for herein.

ARTICLE 7

PROTECTION OF PERSONS AND PROPERTY

7.1 PROTECTION OF WORK, PROPERTY, AND PERSONS

- 7.1.1** Responsible for Damage to Owner's Property: The Contractor shall be entirely responsible for any damage to the property of the Owner due to careless handling of tools and/or materials or other causes attributed to the Contractor's Work in performing this Contract.
- 7.1.2** Responsible for Safety: The Contractor will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury, or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
- 7.1.3** Safety and Convenience: The Contractor will comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction. The Contractor will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. The Contractor will notify owners of adjacent utilities when prosecution of the Work may affect them.
- 7.1.4** Remedy Damages: The Contractor will remedy all damage, injury, or loss to any property caused, directly or indirectly, in whole or part, by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or anyone of whose acts any of them would be liable, except damage or loss attributable to the sole or active negligence of the Owner or the Inspector or anyone employed by them and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

ARTICLE 8

INSURANCE AND BONDS

8.1 INSURANCE

GENERAL INSURANCE REQUIREMENTS

The Contractor shall provide proof of a policy of insurance satisfactory to the El Dorado County Risk Management Division and documentation evidencing that the Contractor maintains insurance that meets the following requirements:

1. Full Workers' Compensation and Employers' Liability Insurance covering all employees of the Contractor as required by law in the State of California.

2. Commercial General Liability Insurance of not less than Two Million Dollars (\$2,000,000) combined single limit per occurrence for bodily injury and property damage, including but not limited to endorsements for the following coverage: Premises, personal injury, operations, products and completed operations, blanket contractual, and independent contractors liability. This insurance can consist of a minimum \$1 Million primary layer of CGL and the balance as an excess/umbrella layer, but only if the County is provided with written confirmation that the excess/umbrella layer "follows the form" of the CGL policy.
3. Automobile Liability Insurance of not less than One Million Dollars (\$1,000,000) is required in the event motor vehicles are used by the Contractor in performance of the contract.
4. In the event Contractor is a licensed professional and is performing professional services under this contract, Professional Liability Insurance is required with a limit of liability of not less than One Million Dollars (\$1,000,000).
5. Explosion, Collapse and Underground coverage is required when the scope of work includes XCU exposures. For the purpose of this contract, XCU coverage is not required.

PROOF OF INSURANCE REQUIREMENTS

1. Contractor shall furnish proof of coverage satisfactory to the El Dorado County Risk Management Division as evidence that the insurance required herein is being maintained. The insurance will be issued by an insurance company acceptable to the Risk Management Division, or be provided through partial or total self-insurance likewise acceptable to the Risk Management Division.
2. The County of El Dorado, its officers, officials, employees, and volunteers and the State of California, its officers, agents, and employees shall be included as additional insureds, but only insofar as the operations under this Contract are concerned. This provision shall apply to all general liability and excess liability policies. Proof that the County is named additional insured shall be made by providing the Risk Management Division with a certified copy, or other acceptable evidence, of an endorsement to Contractor's insurance policy naming the County additional insured.
3. In the event Contractor cannot provide an occurrence policy, Contractor shall provide insurance covering claims made as a result of performance of this contract for not less than three (3) years following completion of performance of this Contract.
4. Any deductibles or self-insured retentions must be declared to and approved by the County. At the option of the County, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the County, its officers, officials, employees and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.
5. Contractor shall require each of its subcontractors to procure and maintain commercial general liability insurance, automobile liability insurance, and workers compensation insurance of the types and in the amounts specified above, or shall insure the activities of its subcontractors in its own policy in like amounts. Contractor shall also require each of its subcontractors to name Contractor and County of El Dorado as additional insureds.

INSURANCE NOTIFICATION REQUIREMENTS

1. Contractor agrees no cancellation or material change in any policy shall become effective except upon thirty (30) days prior written notice to the County of El Dorado, Chief Administrative Office, Parks Division, Vickie Sanders at 330 Fair Lane, Placerville, CA 95667.
2. Contractor agrees that the insurance required herein shall be in effect at all times during the term of this agreement. In the event said insurance coverage expires at any time or times during the term of this Contract, Contractor shall immediately provide a new certificate of insurance as evidence of the required insurance coverage. In the event Contractor fails to keep in effect at all times insurance coverage as herein provided, County may, in addition to any

other remedies it may have, terminate this Contract upon the occurrence of such event. New certificates of insurance are subject to the approval of the Risk Management Division.

ADDITIONAL STANDARDS

Certificates shall meet such additional standards as may be determined by the Department either independently or in consultation with the Risk Management Division, as essential for protection of the County.

COMMENCEMENT OF PERFORMANCE

Contractor shall not commence performance of this Contract unless and until compliance with each and every requirement of the insurance provisions is achieved.

MATERIAL BREACH

Failure of Contractor to maintain the insurance required herein, or to comply with any of the requirements of the insurance provisions, shall constitute a material breach of the entire Contract.

REPORTING PROVISIONS

Any failure to comply with the reporting provisions of the policies shall not affect coverage provided to the County, its officers, officials, employees or volunteers.

PRIMARY COVERAGE

The Contractor's insurance coverage shall be primary insurance as respects the County, its officers, officials, employees and volunteers and the State of California, its officers, agents, and employees. Any insurance or self-insurance maintained by the County, its officers, officials, employees or volunteers shall be in excess of the Contractor's insurance and shall not contribute with it.

PREMIUM PAYMENTS

The insurance companies shall have no recourse against the County of El Dorado its officers, agents, employees, or any of them for payment of any premiums or assessments under any policy issued by any insurance company.

CONTRACTOR'S OBLIGATIONS

Contractor's indemnity and other obligations shall not be limited by the insurance required herein and shall survive the expiration of this Contract.

8.2 BONDS

- 8.2.1 General Requirements for Bonds:** Before commencing any Work under the Contract, the Contractor shall provide all bonds to the Owner. These bonds shall be in the amounts and for the purposes specified below. They shall be Surety bonds and shall be issued by corporations duly and legally licensed and qualified to transact business in the State of California. They shall be maintained by him and at his expense during the entire life of the Contract or later as provided.
- 8.2.2 Performance Bond:** One bond shall be in the amount of 100 percent of the Awarded Contract and shall guarantee the faithful performance of the Contract and shall insure the Owner during the life of the Contract and the Guarantee period. The Contractor may provide, subject to approval by the Owner, a separate guarantee bond upon completion of and acceptance of the work.
- 8.2.3 Payment Bond:** One bond shall be in the amount of 100 percent of the Awarded Contract and shall guarantee the payment in full of all claims for labor and materials in accordance with the provisions of the laws of the State of California.
- 8.2.4 Change of Surety:** If, at any time a Surety on such bonds becomes irresponsible or loses its right to do business in the State of California, the Owner may require another Surety which the Contractor shall furnish within ten (10) calendar days after receipt of written notice to do so.

- 8.2.5 Authentication of Bonds: Evidence of authority of an attorney-in-fact acting for the corporate Surety must be provided in the form of a certificate as to his power of attorney and to the effect that it is not terminated and remains in full force and effect on the date of the bonds. The form of the bonds shall be in accordance with those provided in the Draft Agreement.

ARTICLE 9

UNCOVERING AND CORRECTION OF WORK

9.1 DEVIATION FROM CONTRACT DOCUMENTS

- 9.1.1 Improper Work: If the Contractor shall vary from the Contract Documents in the form or quality of the Work, or the amount or value of the materials herein provided for, the Owner shall have the right to order such improper work or materials removed, remade, or replaced. In the event that the Work is ordered changed, any other work disturbed or damaged by such alteration shall be made good at the Contractor's expense.

9.2 CORRECTION OF WORK

- 9.2.1 Covered or Completed Work: If any work is covered contrary to the written instructions of the Owner's Representative, or the Inspector, if one is appointed, it must, if requested, be uncovered for observation and replaced at the Contractor's expense.
- 9.2.2 Inspection of Covered Work: If the Owner's Representative or the Inspector, if one is appointed, considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, upon request, will uncover, expose, or otherwise make available for observation, inspection, or testing as the Inspector may require, that portion of the Work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such Work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction; if, however, such Work is not found to be defective, the Contractor will be allowed an increase in the Contract price or an extension of the Contract time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and construction, and an appropriate Change Order shall be issued.
- 9.2.3 Rejected Work: The Contractor shall promptly remove from the premises all Work rejected by Owner for failure to comply with the Contract Documents, whether incorporated in the construction or not, and the Contractor shall promptly replace and re-execute the work either during the term of the Contract or during the warranty period, in accordance with the Contract Documents and without expense to the Owner and shall bear the expense of making good all Work of other contractors destroyed or damaged by such removal or replacement.
- 9.2.4 Cost of Correction: All removal and replacement Work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected Work within ten (10) days after receipt of written notice, the Owner may remove such Work and store the materials at the expense of the Contractor. Owner also may perform such Work or repairs itself and charge the expense to the Contractor.

ARTICLE 10

SUSPENSION OF CONTRACT

10.1 SUSPENSION OF WORK

10.1.1 Owner May Suspend: The Owner may suspend the Work or any portion thereof for a period of not more than ninety (90) days or such further time as agreed upon by the Contractor, by written notice to the Contractor and the Inspector which shall fix the date on which work shall be resumed.

10.1.2 Resumption of Work: The Contractor shall resume that Work on the dates so fixed. The Contractor shall be allowed an increase in the Contract price or an extension of the Contract time, or both, directly attributed to any suspension.

*** END OF CONDITIONS OF THE CONTRACT ***

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SECTION 01 10 00 – SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Coordination with other contractors and volunteers.
 - 4. Contractor's use of site and premises.
 - 5. Coordination with occupants.
 - 6. Work restrictions.
 - 7. Grant requirements.

1.2 PROJECT INFORMATION

- A. Project Identification: Old Depot Bike Park
 - 1. Project Location: 40 Old Depot Road, Placerville CA 95667
 - 2. Construction Access from Old Depot Road. See plans for more information.
- B. Owner: County of El Dorado
 - 1. Owner's Representative: Vickie Sanders, Parks Manager, 530-621-7538, Vickie.sanders@edcgov.us
 - 2. Project Manager: Dick Loorz, 916-281-1035, Dickloorz@loorzcm.com
- C. Landscape Architect: HELIX Environmental Planning
 - 1. Landscape Architect's Representative: Jessamyn Lett, 916-365-8700, JessamynL@helixepi.com.
- D. Design Team: The following design professionals have prepared designated portions of the Contract Documents
 - 1. Civil Engineer: Giuliani & Kull – Auburn, Inc.
 - a. Civil Engineering Representative: Pat Druding, 530-885-5107, pdruding@gmail.com.
 - 2. Electrical Engineer: EDGE Electrical Consulting
 - a. Electrical Engineering Representative: Stephanie Roynon, 916-256-4283, Stephanie@EDGE-eConsulting.com.
 - 3. Septic Designer: Sonde Geological
 - a. Septic Designer Representative: Clyde Hebbbron, 530-677-3055, sondegeo@hotmail.com.
 - 4. Bicycle Specialist: Action Sports Construction
 - a. Bicycle Specialist Representative: Alex Flower, 831-239-1702, Alex@actionssportsconstruction.com.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work of project is defined by the contract documents and consists of the following:
 - 1. Final clearing and grubbing, grading of site, erosion control, construction of water, stormwater, and septic utilities, site lighting, concrete paving, crushed gravel paving,

- asphalt paving, stairs, ramp, bicycle track and jumps, pump track and bowl, restroom and shade shelter, playground, site furnishings, irrigation system, planting, and hydroseeding.
2. Additive Alternate #1 – Construction of beginner pump track in place of hydroseed.
 3. Additive Alternate #2 – Construction of bicycle skills course in place of hydroseed.
 4. Additive Alternate #3 – Construction of large jumps on second track.
 5. Additive Alternate #4 – Installation of additional lighting around perimeter.
- B. Type of contract:
1. Project will be construction under a single prime Contractor.
- 1.4 COORDINATION WITH OTHER CONTRACTORS AND VOLUNTEERS
- A. Civilian Conservation Corps (CCC)
1. Tree and brush removal and vegetation mowing/ cutting to 1" height shall be performed by the CCC as a separate contract. Contractor shall review demolition plan and Section 31 10 00 "Site Clearing" and make request for additional clearing, if desired, with bid.
 2. Contractor shall assume tree and brush removal shall be completed prior to start of work.
 3. Any additional clearing tree or shrub removal or site clearing activities required for completion of work and not requested at time of bid by contractor shall be the responsibility of the contractor and no additional compensation shall be paid for this Work.
- B. Community Volunteers
1. Tree planting shall be performed by community volunteer groups (ex. boy scouts).
 2. Contractor shall coordinate date of tree planting with Project Manager, after installation of irrigation system (see Section 32 84 00 "Irrigation").
- C. Northern California Construction Training (NCCT)
1. Benches shall be constructed and installed by NCCT.
 2. Contractor shall coordinate date of installation with Project Manager after bench pads are ready for installation.
- D. Artist
1. Sculpture shall be designed and constructed by Artist to be selected by Owner's Representative under separate contract.
 2. Contractor shall install footings, concrete pad or surfacing, and anchor materials as required to mount sculpture in accordance with the sculpture plans provided by Artist and shall coordinate access for installation of art piece by Artist.
- E. CXT Restrooms
1. Prefabricated restroom shall be designed and installed by CXT under separate contract between CXT and the County.
 2. Contractor shall coordinate delivery and installation of restroom with manufacturer. Contact Kurt Mee, 303-552-1843, kmee@lbfooster.com. Delivery may require truck and crane access. Delivery and installation of restroom shall be coordinated prior to grading and shall be included in the Construction Schedule as required by Section 01 31 00 "Project Management and Coordination."
 3. Contractor shall install restroom building pad and utility stub-ups per Construction Documents and per restroom plans, as provided by manufacturer.

1.5 CONTRACTORS USE OF SITE AND PREMISES

- A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Limits on Use of Site: Limit use of Project site to Work in areas indicated on plans. Do not disturb portions of Project site beyond areas in which the Work is indicated.
- C. Construction Site Access: Construction site access shall be limited to existing western driveway entrance off Old Depot Road, unless alternate access is pre-approved by Project Manager.
- D. Parking: Contractor may park in the parking lot around the red barn located at 4451 Missouri Flat Road, at the intersection of Missouri Flat and Old Depot Road. This area shall be for vehicle parking only and shall not be used as a staging area or for other uses.
- E. Old Depot Road and El Dorado Trail: Keep trail and entrances serving premises clear and available to Owner, Owner's employees, residents, the public, and emergency vehicles at all times, unless temporary closure is pre-approved by Project Manager. Do not use these areas for parking or for storage of materials.
- F. Adjacent Residences: Adjacent residences will be occupied during entire construction period. Manage construction operations to minimize conflicts and facilitate access to residential properties. Perform the Work so as not to interfere with residents' day-to-day operations.

1.6 COORDINATION WITH OCCUPANTS

- A. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1.7 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
- B. Comply with limitations on use of public streets and trails, Work on public streets and trails, rights of way, and other requirements of authorities having jurisdiction.
- C. On-Site Work Hours: Limit Project Work to normal business working hours of 7 a.m. to 5 p.m., Monday through Friday, unless otherwise approved in writing by Project Manager.
- D. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by residents or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than seven (7) days in advance of proposed utility interruptions.
 - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- E. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to adjacent residents or trail users with Owner.
 - 1. Notify Owner not less than seven (7) days in advance of proposed disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.

- F. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Owner's property is not permitted.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
 - 3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
 - 4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Sculpture Footing and Coordination: Lump Sum per approved Schedule of Values to be submitted upon receipt of Artist's plans.

4.2 PAYMENT

- A. Progress payments for Sculpture Footing and Coordination shall be based on approved Schedule Of Values for improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager.
- B. Full compensation for all work complying with the items in Summary shall be considered as included in the prices paid for the various contract items of work involved and therefore no additional compensation shall be made.

END OF SECTION 01 10 00

SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Digital Files
 - 3. Coordination drawings.
 - 4. Project meetings.
 - 5. RFIs.
 - 6. Submittals
 - 7. As-built Drawings
 - 8. Public Notice
 - 9. Payment and Unit Prices

1.2 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Installation and removal of temporary facilities and controls.
 - 3. Delivery and processing of submittals.
 - 4. Progress meetings.
 - 5. Preinstallation conferences.
 - 6. Project closeout activities.
 - 7. Startup and adjustment of systems.

1.3 DIGITAL FILES

- A. Use of Design Team's Digital Data Files: Digital data files of Design Team's CAD drawings will be provided for Contractor's use during construction.
 - 1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.
 - 2. Landscape Architect and Design Team make no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings because digital files may be altered. In case of discrepancy between digital files and stamped Contract Drawings, stamped Contract Drawings shall take precedence.

3. Digital Drawing Software Program: Contract Drawings are available in AutoCAD 2020.
 4. Contractor shall execute a data licensing agreement in format acceptable to Owner and Design Team.
- B. PDF Document Preparation: Where PDFs are required to be submitted to Project Manager, prepare as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.
- 1.4 COORDINATION DRAWINGS
- A. Coordination Drawings, General: Prepare coordination drawings where installation is not completely indicated on Plans, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity, or when requested by Project Manager.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of various systems.
 - b. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Project Manager indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
 2. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of plumbing, irrigation, and electrical equipment.
 3. Review: Project Manager will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Project Manager determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Project Manager will so inform Contractor, who shall make suitable modifications and resubmit.
- 1.5 PROJECT MEETINGS
- A. General: Contractor shall schedule and conduct meetings and conferences at Project site unless otherwise indicated.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner's Representative and Project Manager, but no later than fifteen (15) calendar days after notice to proceed.
1. Attendees: Owner's Representative, Project Manager, and Design Team; Contractor and its superintendent; major subcontractors; and other interested parties deemed necessary by Contractor or Project Manager. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Working Days
 - d. Phasing.
 - e. Critical Work sequencing and long lead items.

- f. Designation of key personnel and their duties.
 - g. Lines of communications.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Preparation of Record Documents.
 - o. Use of the premises.
 - p. Work restrictions.
 - q. Working hours.
 - r. Responsibility for temporary facilities and controls.
 - s. Procedures for disruptions and shutdowns.
 - t. Construction waste management and recycling.
 - u. Parking availability.
 - v. Office, work, and storage areas.
 - w. Equipment deliveries and priorities.
 - x. First aid.
 - y. Security.
 - z. Progress cleaning.
 - aa. Certified payroll/ labor compliance
3. Minutes: Contractor shall record and distribute meeting minutes.
- C. Progress Meetings: Conduct progress meetings at weekly intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to Project Manager, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - a. Owner's Representative and Design Team shall be included on distribution of agenda and meeting minutes and shall attend as requested by Project Manager.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule shall be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities shall be completed within the Contract Time.
 - 1) Review schedule for next period.
 - 2) Provide copy of updated schedule to Project Manager.
 - b. Key Personnel: Provide updated contact information to Project Manager whenever there is a change in key personnel.
 - c. Review present and future needs of each entity present, including the following, as applicable:

- 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Status of sustainable design documentation.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site use.
 - 9) Temporary facilities and controls.
 - 10) Progress cleaning.
 - 11) Quality and work standards.
 - 12) Status of correction of deficient items.
 - 13) Field observations.
 - 14) Status of RFIs.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.
4. Minutes: Contractor shall record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- 1.6 REQUEST FOR INFORMATION (RFI)
- A. General: Immediately upon discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Project Manager will return without response those RFIs submitted to Project Manager by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's Work or Work of subcontractors.
 - B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Owner name.
 2. Owner's Project number.
 3. Date.
 4. Name of Contractor.
 5. RFI number, numbered sequentially.
 6. RFI subject.
 7. Specification Section number and title and related paragraphs, as appropriate.
 8. Drawing number and detail references, as appropriate.
 9. Field dimensions and conditions, as appropriate.
 10. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 11. Contractor's signature.
 12. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

- C. Project Manager's Action: Project Manager will review each RFI, determine action required, if any, and respond. Allow fifteen (15) Working Days for Project Manager's response for each RFI. RFIs received by Project Manager after 1:00 p.m. will be considered as received the following Working Day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Project Manager's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Project Manager's action may include a request for additional information, in which case Project Manager's time for response will be dated as of the time of receipt of additional information by Project Manager.
 3. Project Manager's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Sections 9-8 and 9-12 of the Standard Construction Specifications.
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Project Manager in writing within five (5) days of receipt of the RFI response.

1.7 SUBMITTALS

- A. Contractor shall submit the following items no later than the pre-construction meeting for approval by Project Manager:
1. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - a. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - b. Number and title of related Specification Section(s) covered by subcontract.
 - c. Drawing number and detail references, as appropriate, covered by subcontract.
 2. List of Key Personnel: Provide list of key Project personnel. For each person, state job responsibilities on Project, e-mail address, and telephone number.
 3. Construction Schedule: Prepare a construction schedule showing all items of Work, including lead times. Construction schedule shall include installation of restroom by others.
 4. Project Arborist: Submit qualifications of Project arborist, including their experience completing projects of similar scope. See Section 01 56 39 "Temporary Tree and Plant Protection."
 5. Installer Qualifications: Submit qualifications of installers of various items. See Sections 11 68 16 "Play Equipment," and 32 18 16 "Playground Surfacing."
 6. Bike Park Installation Specialist Qualifications: See Sections 11 68 33 "Bicycle Amenities," 31 20 00 "Earthwork," 32 12 16 "Asphalt Paving," 32 12 43 "Rubber Paving."
 - 7.

8. Submittal Schedule: Submit a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Project Manager and additional time for handling and reviewing submittals required by those corrections.
- B. In addition to the submittals identified in Section 1.2, Project submittals shall include, but are not limited, to the items identified below.
- C. Submittals required prior to the start of site Work
 1. Tree Protection Plan: See Section 01 56 39 "Temporary Tree and Plant Protection."
 2. Worker Awareness Training Documentation: See Section 01 71 00 "Examination and Preparation."
 3. Waste Management Plan: See Section 01 74 19 "Construction Waste Management and Disposal."
 4. Tree Pruning Plan: See Section 31 10 00 "Site Clearing."
- D. Submittals as needed to ensure Project progress
 1. Plant Source Lists: See Section 32 93 00 "Planting."
 2. Electrical System Design Data: See Section 26 05 19
 3. Electrical Test and Evaluation Reports. See Section 26 22 00 "Low-Voltage Transformers."
 4. Shop drawings for panelboard. See Section 26 24 16 "Panelboards."
 5. Shop drawings for play equipment and playground surfacing. See Sections 11 68 16 "Play Equipment" and 32 18 16 "Playground Surfacing."
 6. Photographs of boulders. See Section 11 68 33 "Bicycle Amenities."
 7. Shop drawings for fences and gates. See Section 32 31 19 "Fences and Gates."
 8. Stamped building and engineering plans for restroom. See Section 32 33 00 "Site Furnishings."
 9. Irrigation Testing reports. See Section 32 84 00 "Irrigation."
 10. Existing sanitary sewer conditions video survey and summary. See Section 22 13 00 "Facility Sanitary Sewerage."
 11. Product submittals and documentation as specified.
 12. Materials certificates, testing results, and delivery receipts as specified.
 13. Samples as required:
 - a. Samples of wiring devices and wall plates. See Section 262726 "Wiring Devices."
 - b. Sample and mock-up of crushed gravel paving. See Section 32 15 40 "Aggregate Paving."
 - c. Color sample of concrete fence. See Section 32 31 19 "Fences and Gates."
 - d. Color and finish samples for site furnishings. See Section 32 33 00 "Site Furnishings."
 - e. Sample of wood mulch. See Section 32 39 00 "Planting."
 - f. Color and finish samples for proposed substitution materials.
- E. After Project Work completion, prior to project acceptance:
 1. Post-Construction Arborist Certification, see Section 01 56 39 "Temporary Tree and Plant Protection."
 2. Waste Management Report: See Section 01 74 19 "Construction Waste Management and Disposal."
 3. Irrigation Zoning Chart. See Section 328400 "Irrigation."
 4. Controller Timing Schedule. See Section 328400 "Irrigation."

5. Project Record Documents: as-built plans showing actual location of all Project components, if different from Plans.

F. SUBMITTAL FORMATS

1. Submittal Information: Include the following information in each submittal:
 - a. Project name.
 - b. Date.
 - c. Name of Contractor.
 - d. Name of firm or entity that prepared submittal.
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 - j. Drawing number and detail references, as appropriate.
 - k. Indication of full or partial submittal.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Other necessary identification.
 - n. Remarks.
 - o. Signature of transmitter.
2. Options: Identify options requiring selection by Project Manager.
3. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Project Manager on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
4. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.
5. Paper Submittals: Submit three (3) copies of each submittal, one (1) of which will be returned to Contractor. Each copy will be stapled or bound together.

G. SUBMITTAL PROCEDURES

1. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
2. Submittals shall be delivered by means determined by Project Manager.
3. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - a. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - b. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
4. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Project Manager's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

5. Initial Review: Allow fifteen (15) Working Days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Project Manager will advise Contractor when a submittal being processed must be delayed for coordination.
6. Resubmittal Review: Allow fifteen (15) Working Days for review of each resubmittal.
7. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
8. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
9. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Project Manager's action stamp.

H. SUBMITTAL REQUIREMENTS

1. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - a. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 - b. Mark each copy of each submittal to show which products and options are applicable.
 - c. Include the following information, as applicable:
 - 1) Manufacturer's catalog cuts.
 - 2) Manufacturer's product specifications.
 - 3) Standard color charts.
 - 4) Statement of compliance with specified referenced standards.
 - 5) Testing by recognized testing agency.
 - 6) Application of testing agency labels and seals.
 - 7) Notation of coordination requirements.
 - 8) Availability and delivery time information.
 - d. For equipment, include the following in addition to the above, as applicable:
 - 1) Wiring diagrams that show factory-installed wiring.
 - 2) Printed performance curves.
 - 3) Operational range diagrams.
 - 4) Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - e. Submit Product Data before Shop Drawings, and before or concurrent with Samples.
2. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - a. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - 1) Identification of products.
 - 2) Schedules.
 - 3) Compliance with specified standards.
 - 4) Notation of coordination requirements.
 - 5) Notation of dimensions established by field measurement.

- 6) Relationship and attachment to adjoining construction clearly indicated.
 - 7) Seal and signature of professional engineer if specified.
3. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
 - a. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - b. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - 1) Project name and submittal number.
 - 2) Generic description of Sample.
 - 3) Product name and name of manufacturer.
 - 4) Sample source.
 - 5) Number and title of applicable Specification Section.
 - 6) Specification paragraph number and generic name of each item.
 - c. Electronic Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
 - d. Paper Transmittal: Include paper transmittal including complete submittal information indicated.
 - e. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - 1) Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - 2) Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
4. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit two sets of Samples. Project Manager will retain one Sample set; remainder will be returned.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
5. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

6. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
7. Certificates:
 - a. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 - b. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 - c. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 - d. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 - e. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
8. Test Reports:
 - a. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
 - b. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
 - c. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

I. CONTRACTOR'S REVIEW

1. Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Project Manager.
2. Contractor's Approval: Indicate Contractor's approval for each submittal. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 - a. Project Manager will not review submittals received from Contractor that do not have Contractor's review and approval.

J. PROJECT MANAGER'S REVIEW

1. Submittals: Project Manager will review each submittal, indicate corrections or revisions required, and return it.

- a. PDF Submittals: Project Manager, or appropriate member of Design Team, will indicate, via markup on each submittal, the appropriate action.
- b. Paper Submittals: Project Manager will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
2. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Project Manager.
3. Incomplete submittals are unacceptable, shall be considered nonresponsive, and shall be returned for resubmittal without review.
4. Project Manager shall return without review submittals received from sources other than Contractor.
5. Submittals not required by the Contract Documents shall be returned by Project Manager without action.

1.8 AS-BUILT DRAWINGS

- A. Maintain as-built drawings to satisfaction of Project Manager and submit to County for review and approval prior to final acceptance of the Work.
- B. As-built drawings shall represent the Work as constructed and document changes to the Work shown on the Project Plans, and shall show the actual as-constructed conditions of installed or modified systems, equipment, and material.
 1. All changes to the original plans must be shown in RED.
- C. The as-builts shall show, by field measured dimensions, the exact locations of all underground work, including all sprinkler system piping and components, and the final elevations and locations of all improvements constructed, modified or adjusted.
- D. As-builts shall be available for inspection by the Project Manager at all times and shall be updated at least weekly with all field instructions and other written directives, Contract Change Orders, and Contract adjustments shown thereon and initialed by the Project Manager. Progress payments or portions thereof may be withheld if as-builts are not kept up to date.
- E. The Contractor shall submit one (1) full sized set and one (1) digital set of as-builts to the City at the final inspection. These as-builts shall include certification by the Contractor that the as-builts are a true representation of the Work as actually constructed. The Work will not be formally accepted until the as-builts are provided to and approved by the City. Final payment or a portion thereof may be withheld if final as-builts are not provided.

1.9 PUBLIC NOTICE

- A. The Contractor shall notify, in writing, all residents within 1,000 feet of Project a minimum of ten (10) Working Days prior to Work requiring ground disturbance.
 1. Notification shall include anticipated date to start Work.
 2. Anticipated duration of project.
 3. Working hours.
 4. Name, phone number, and e-mail address of Contractor's designated contact.
- B. Re-notify residents of any change in working hours, extension of schedule, designated Contractor contact, or as directed by Project Manager.

1.10 PAYMENT AND BID ITEM PRICES

- A. Payment for all Bid Items will be based on the Bid Item quantity, regardless of the actual quantity used, unless dimensions are changed by approval of the Project Manager.
- B. Bid prices shall include all necessary material, plus cost for all labor, work, tools, equipment, and incidentals necessary to perform the work, delivery, installation, insurance, overhead, and profit.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all work complying with the items in Project Management and Coordination shall be considered as included in the prices paid for the various contract items of work involved and therefore no additional compensation shall be made.

END OF SECTION 01 31 00

SECTION 01 56 39 – TEMPORARY TREE PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Requirement for Project Arborist hired by Contractor.
 - 2. Tree protection fencing.
 - 3. Site access and transport route limitations.
 - 4. Excavation within tree protection zones.
 - 5. Root pruning.
 - 6. Grading requirements around existing trees.
 - 7. Repair and replacement of unauthorized damage to existing vegetation.
- B. Related Sections
 - 1. See Section 31 10 00 "Site Clearing" for tree pruning clearances and requirements.

1.2 DEFINITIONS

- A. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction as indicated on drawings. Typical tree protection zone is one foot outside of edge of canopy, except where permanent improvements are located within canopy boundary.
- B. Critical Root Zone: The circular area around a tree equal to one foot per inch DSH (diameter at standard height).
- C. Project Arborist – Qualified arborist certified by International Society of Arboriculture (ISA) or registered Consulting Arborist as designated by American Society of Consulting Arborists (ASCA) supplied by contractor to direct and monitor tree protection practices.

1.3 SUBMITTALS

- A. Tree Protection Plan, including the following information:
 - 1. Plan showing locations of tree protection zone fencing, gates, and signage, and relation of equipment movement and haul routes and material storage locations to protection zones.
 - 2. Tree Protection Plan shall be reviewed and signed by Project Arborist.
- B. Product Data: For each type of product.
- C. Post-Construction Certification: At conclusion of Project submit report from Project Arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged. Report shall include logs of Work inspection or oversight including inspection date, description of Work being completed, tree numbers of any tree potentially impacted by Work, and Project Arborist's notes and recommendations.
- D. Arborist Qualifications: Submit documentation of project arborist qualifications and experience with similar work.

1.4 MITIGATION MEASURES

Contractor shall comply with applicable Mitigation Measures of the Old Depot Bike Park Initial Study/ Mitigated Negative Declaration, see sheet NO1.

1.5 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Moving or parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch is prohibited.
- D. Refueling or fuel storage within fifty (50) feet of a tree protection zone is prohibited

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Backfill Soil: Stockpiled soil from site of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
- B. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:
 - 1. Wood and bark chips: Wood from removed oak trees may be used on site as mulch.
 - 2. Wood mulch: See Section 32 93 00 "Plants."
- C. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements:
 - 1. High-visibility fencing: Heavy-duty orange plastic fencing made from UV stabilized HDPE material.
 - a. Height: 48 inches.
 - b. Thickness: 30 mil.
 - 2. Posts: T-post: 6-foot studded steel post with anchor plate and baked enamel finish. Cap with plastic safety cap. Place posts 8' o.c. max., per plans.
- D. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes prepunched and reinforced; legibly printed with nonfading lettering. At a minimum, sign shall include the following text, or approved equal:

TREE PROTECTION ZONE
DO NOT ENTER
OR RELOCATE FENCE
WITHOUT APPROVAL OF
COUNTY PROJECT MANAGER

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

3.2 PREPARATION

- A. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones in a manner that will prevent people from easily entering protected areas except by entrance gates.
- B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Project Manager.
 - 1. Signs shall be placed no more than 50 feet on center or placed equidistantly around perimeter facing north, south, east, and west, whichever is less.
- C. Maintain protection zones free of weeds and trash.
 - 1. Mowing or manual may be done within tree protection zone in accordance with Section 31 10 00 "Site Clearing."
- D. Maintain protection-zone fencing and signage in good condition as acceptable to Project Manager and remove when construction operations are complete and equipment has been removed from the site.

3.4 SITE ACCESS AND TRANSPORT ROUTES

- A. Limit site access, haul, and transport routes to areas that will be subject to permanent improvements, such as proposed concrete paths. Do not drive off of or park vehicles off of path alignment in southern half of site.

3.5 EXCAVATION WITHIN TREE PROTECTION ZONES

- A. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only roots smaller than 2 inches in diameter that interfere with installation of utilities. Cut roots as required for root pruning. All trenching within protection zones shall be done under the supervision of a qualified arborist.
- B. Do not allow exposed roots to dry out before placing permanent backfill.

3.6 ROOT PRUNING

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 3. Cover exposed roots with burlap and water regularly.
 4. Backfill as soon as possible according to requirements in Section 31 20 00 "Earthwork."
- B. Root Pruning at Edge of Protection Zone: Prune tree roots 2 inches or smaller in diameter by cleanly cutting all roots to the depth of the required excavation if necessary for construction of improvements.
- C. For any root larger than 2 inches in diameter, preserve root wherever possible. Obtain approval of Project Manager prior to cutting roots.
- 3.7 CROWN PRUNING
- A. Prune branches that are affected by temporary and permanent construction in accordance with Section 31 10 00 "Site Clearing."
- 3.8 REGRADING
- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- C. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.
- 3.9 FIELD QUALITY CONTROL
- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees indicated to remain and to prepare inspection reports.
- 3.10 REPAIR AND REPLACEMENT
- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain that are damaged by construction operations, in a manner approved by Project Manager.
1. Notify Project Manager by phone or e-mail within 24 hours of damage to trees designated to be preserved. Submit written notification documenting damage and repair or replacement status within three (3) Working Days of damage.
 2. Perform repairs of damaged trunks, branches, and roots within twenty-four (24) hours according to arborist's written instructions.
 - a. Repairs may include pruning, decompaction techniques, or other standard arboricultural practices as recommended by Project arborist and approved by Project Manager.
 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Project Manager.
 - a. Protected trees shall be replaced by mitigation planting in accordance with the County Tree Ordinance.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Tree Protection Fencing: Linear foot.

4.2 PAYMENT

- A. Progress payments for work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing linear feet completed by total linear feet bid.
- B. Full compensation for other tree protection work involved in Temporary Tree Protection shall be considered as included in the prices paid for the various contract items of work involved and therefore no additional compensation shall be made.
- C. No compensation shall be paid for any work related to repair and replacement of trees indicated to remain that are damaged by construction.

END OF SECTION 01 56 39

SECTION 01 57 13 – TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Includes
 - 1. Temporary erosion and sediment control measures (TESC)

1.2 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this section.
 - 1. Section 31 00 00 EarthWork
 - 2. Section 31 10 00 Site Clearing
 - 3. Section 32 12 00 Concrete Paving
 - 4. Section 32 12 16 Asphalt Paving
 - 5. Section 32 12 43 Rubber Paving
 - 6. Section 32 15 40 Aggregate Paving
 - 7. Section 32 92 00 Seeding

1.3 DEFINITIONS

- A. Vegetation: Groundcovers, weeds, grass, and other plants.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's standard drawings and catalog cuts for the following:
 - 1. Compost sock

1.5 PROJECT CONDITIONS

- A. Perform site clearing prior to earthWork or paving.
- B. Do not commence any construction activity until temporary erosion and sediment control measures are in place.

PART 2 - PRODUCTS

2.1 TESC MATERIALS

- A. All material shall be in conformance with the 2018 Standard Plans and Standard Specifications for Road, Bridge, and Municipal Construction, as published by the Washington State Department of Transportation unless otherwise indicated on the Drawings or herein.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect existing site improvements to remain from damage during construction.

1. Restore improvements damaged by construction activity to the satisfaction of the Project Manager, at no cost to the Owner.

3.2 TEMPORARY EROSION AND SEDIMENT CONTROL

- A. The Contractor shall implement the TESC measures as shown on the Plans. Additional TESC measures may be required beyond those shown on the Plans as a result of Contractor's means, methods, and schedule to accomplish the Work. The Contractor shall be solely responsible for the costs to meet state and local erosion control requirements necessary for completion of the Work.
- B. The Contractor shall implement, inspect, maintain, and repair TESC measured during construction.
- C. Remove TESC measures, restore, and stabilize areas disturbed prior to Project closeout.

3.3 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Transport acceptable excess excavated material to temporary stockpile areas on the Owner's property. Remove surplus soil material, unsuitable topsoil obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Bid Item Erosion Control: Lump Sum

4.2 PAYMENT

- A. Progress payments for storm drain system Work completed shall be based on a percentage of storm drain system complete, as determined by Project Manager.

END OF SECTION 01 57 13

SECTION 01 71 00 – EXAMINATION AND PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Compliance with Environmental Document.
 - 2. Mobilization and De-Mobilization.
 - 3. Staking.

1.2 SUBMITTALS

- A. Worker Awareness Training Documentation: Contractor shall provide documentation that all construction personnel underwent required training programs in the form of attendance sheets signed and dated by attendees.

1.3 MITIGATION MEASURES

- A. Contractor shall comply with applicable Mitigation Measures of the Old Depot Bike Park Initial Study/ Mitigated Negative Declaration, See Sheet NO1.

1.4 COUNTY-PROVIDED SERVICES

- A. County shall provide a qualified biologist and qualified archaeologist.
- B. County's biologist and archaeologist shall complete pre-construction surveys as required by project Mitigation Measures (see Sheet NO1).
- C. County's biologist and archaeologist shall provide one pre-construction training at the beginning of the project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ADDITIONAL PRE-CONSTRUCTION SURVEYS

- A. If Contractor stops work for seven or more days without written permission from the County, compensation shall be deducted from mobilization payment commensurate to the cost of additional pre-construction surveys.

3.2 WORKER AWARENESS TRAINING

- A. Contractor shall notify Project Manager of requested date and time of pre-construction training at least fifteen (15) working days prior to requested date. Contractor shall provide two options for training dates. Training shall be scheduled during normal working hours and requires a one (1)-hour window.
- B. All construction personnel, including Subcontractors, shall attend pre-construction worker awareness training with County's biologist and archaeologist as required by project Mitigation

Measures (See Sheet NO1). If all construction personnel are not present, compensation shall be deducted from mobilization payment commensurate to cost of additional trainings.

3.3 ENGINEERING SURVEYS

- A. Contractor is responsible for all survey and staking required for completion of Work per plans.

3.4 MOBILIZATION

- A. Contractor shall perform all Work associated with pre-Project mobilization, including moving equipment and materials onto the Project site.

3.5 DE-MOBILIZATION:

- A. Contractor shall remove all equipment, debris, supplies, or other materials from project site prior to final acceptance of Project.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Mobilization: Lump sum.
- B. Layout and Staking: Lump sum.

4.2 PAYMENT

- A. Payment for Mobilization shall be as follows and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the Work involved as specified in these Technical Specifications, and as directed by the City and therefore no additional compensation shall be made:
 - 1. 25% upon Mobilization by Contractor;
 - 2. 10% monthly for meeting General Conditions and Project Management and Coordination for first five (5) months of Project;
 - 3. 25% upon project Closeout and De-Mobilization.
- B. Progress payments for Layout and Staking work completed shall be based on a percentage of total layout and staking complete, as determined by Project Manager.

END OF SECTION 01 71 00

SECTION 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging, recycling, or disposing of nonhazardous demolition and construction waste.
 - 2. Waste Management Plan
- B. Related Sections
 - 1. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.2 DEFINITIONS

- A. Construction Waste: Site improvement materials and other solid waste resulting from construction, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Structure, and site improvement materials resulting from demolition operations.
- C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 SUBMITTALS

- A. Waste Management Plan: Submit plan within fifteen (15) Working days of date established for the Notice to Proceed. Do not start Work prior to City approval of Waste Management Plan.
 - 1. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification and waste reduction Work plan. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
 - 2. Recyclable materials must be identified and recycled to the maximum extent possible.
 - 3. Waste Identification: Indicate anticipated types and quantities of demolition site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
 - 4. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

- a. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - b. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 - c. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - d. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
- B. Waste Management Report: At conclusion of Project, submit waste management report documenting quantity and material, where it was delivered, and whether it was recycled, of all waste removed throughout the Project. Waste management report must be reviewed and accepted by Project Manager prior to Final Acceptance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Training: Train Workers, Subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
 - 1. Distribute waste management plan to everyone concerned within seven (7) days of submittal return.
 - 2. Distribute waste management plan to entities when they first begin Work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.

3.2 SALVAGING DEMOLITION WASTE

- A. Comply with requirements in Section 31100 "Site Clearing" for salvaging demolition waste.
- B. Salvaged Items for Reuse in the Work:
 - 1. Clean salvaged items.
 - 2. Store items in a secure area until installation.
 - 3. Protect items from damage during transport and storage.
 - 4. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site Workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 - 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from the weather.
 - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.4 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - 2. Polystyrene Packaging: Separate and bag materials.
 - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Wood Materials:
 - 1. Clean Cut-Offs of Untreated Lumber: Grind or chip into small pieces.
- C. Paint: Seal containers and store by type.

3.5 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Work complying with the items in Project Management and Coordination shall be considered as included in the prices paid for the various contract items of Work involved and therefore no additional compensation shall be made.

END OF SECTION 01 74 19

SECTION 11 68 16 – PLAY EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Timber Stacks
 - 2. Boulder
 - 3. Log Hop
 - 4. Risk management sign
- B. Related Requirements
 - 1. Section 32 18 16 "Playground Surfacing"
 - 2. Section 32 13 13 "Concrete" for play curbs and access ramp
 - 3. Section 33 40 00 "Storm Drainage" for drainage

1.2 DEFINITIONS

- A. Definitions in ASTM F1487 apply to Work of this Section.
- B. IPEMA: International Play Equipment Manufacturers Association.

1.3 SUBMITTALS

- A. Product Data: for each type of product
- B. Shop Drawings:
 - 1. For each type of playground equipment.
 - a. Include Plans, elevations, sections, and attachment details.
 - b. Include fall heights and use zones for playground equipment, coordinated with the critical-height values of protective surfacing specified by manufacturers and applicable safety regulations.
- C. Samples:
 - 1. Color and finish samples for any proposed substitution.
 - 2. All samples shall be a minimum of 2" x 2".
- D. Product certificates.
- E. Material certificates.
- F. Field quality-control reports.
- G. Sample warranty. Manufacturer agrees to provide parts to repair or replace components of playground equipment that fail in materials or Workmanship within specified warranty period.
 - 1. Warranty Period: Five (5) years from date of Substantial Completion
- H. All proposed substitutions shall be submitted for review and approval within four (4) weeks of award of Contract.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Inspector: Certified Playground Safety Inspector (CPSI) through National Recreation and Park Association supplied by County.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Safety Standard: Provide playground equipment according to ASTM F1487.
- B. Playground equipment and components shall have the IPEMA Certification Seal.

2.2 PLAY EQUIPMENT

- A. All play equipment available through Dave Bang and Associates. Contact Kelvin Fountano at 916-542-5176.
- B. Timber Stacks
 - 1. Albany model number ZZXX1321 as manufactured by Playworld, or approved equal.
 - 2. Color: Sand
- C. Boulder
 - 1. Origins Tower Boulder model number ZZBD0014 as manufactured by Playworld, or approved equal
 - 2. Color: sand
- D. Log Hop
 - 1. 12-inch Log Hop model number ZZUN8396 as manufactured by Playworld, or approved equal.
 - 2. Color: Brownstone
- E. Risk management sign
 - 1. Ages 5-12 Model number ZZXX0843Z as manufactured by Playworld, or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's written installation instructions for each equipment type unless more stringent requirements are indicated. Anchor playground equipment securely, positioned at locations and elevations indicated.
- B. Maximum Equipment Height: Coordinate installed fall heights of equipment with finished elevations and critical-height values of protective surfacing. Set equipment so fall heights and elevation requirements for age group use and accessibility are within required limits. Verify that playground equipment elevations comply with requirements for each type and component of equipment.

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative and a Certified Playground Safety Inspector.
 - 1. Perform inspection and testing for each type of installed playground equipment according to ASTM F1487.
- B. Prepare test and inspection reports and submit to County for review.
- C. Playground equipment items will be considered defective if they do not pass tests and inspections.
 - 1. Contractor shall submit a proposal to correct any deficiencies for County approval.
 - 2. Any defective equipment shall be repaired or replaced to the satisfaction of the County at no cost to the County.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Playground shall be lump sum and shall consist of the following items:
 - 1. Play Curb and Play Ramp: Install concrete curb and curb ramp per Plans.
 - 2. Drainage: Grade subgrade to drain and install subsurface playground drainage per Plans.
 - 3. Play Equipment and Surfacing: Install all play structures, equipment, and associated signage and safety inspection per Plans and specifications. Install engineered wood fiber as necessary to meet fall zone requirements and per Plans and Section 32 18 16.

4.2 PAYMENT

- A. Payment for playground shall be progress payments as follows and includes full compensation for furnishing all labor, Work, materials, tools, equipment, and incidentals necessary to perform the Work and for doing all Work involved in playground, including curbs and ramps, excavation and grading, playground drainage, footings, equipment, surfacing, inspections, and other details as shown on the Plans and in these specifications.
 - 1. 20% upon construction of play curb and play ramp.
 - 2. 20% upon final subgrade preparation and installation of drainage.
 - 3. 60% upon installation of play equipment and surfacing and passing safety inspections.

END OF SECTION 11 68 16

SECTION 11 68 33 – BICYCLE AMENITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Kicker ramps
 - 2. Boulders (Additive Alternate #2)
 - 3. Ladder drop (Additive Alternate #2)
 - 4. Skinny straight ladder 15 degrees (Additive Alternate #2)
 - 5. Skinny zig zag short (Additive Alternate #2)
 - 6. Nussy two bumps (Additive Alternate #2)
 - 7. Wall ride (Additive Alternate #3)
- B. Related Requirements
 - 1. Section 32 15 40 "Aggregate Paving."

1.2 MEETINGS

- A. Preinstallation Conference shall be held at Project site with Bicycle Specialist and County Representative.
- B. Prior to post-installation inspection of gravel paving, stake locations of bicycle amenities for inspection by Bicycle Specialist and County Representative. If all asphalt and bicycle amenity staking is not completed when Contractor calls for inspection, payment for additional inspection will be deducted from Contractor's payment for incomplete item.
- C. Post-installation inspection and test riding of all Bicycle Amenities with Bicycle Specialist and County Representative. Test ride of all Bicycle Amenities and Pump Tracks shall be completed on same day. If all bicycle improvements are not ready for test ride when Contractor calls for inspection, payment for additional test ride will be deducted from Contractor's payment for incomplete item.

1.3 SUBMITTALS

- A. Bike Park Installation Specialist Qualifications
- B. Warranty
- C. Product Data: Each product
- D. Photos of each selected boulder for approval prior to delivery to the site.
 - 1. Any unsuitable boulders purchased prior to approval are responsibility of Contractor. No compensation shall not be made for rejected boulders purchased prior to approval.

1.4 QUALITY ASSURANCE

- A. Bike Park Installation Specialist: Installer of bicycle amenities shall have installed a minimum of two bicycle track, trails, skills, or jump projects within the past 10 years and be a member of the Professional TrailBuilders Association or an equal certification.
- B. Warranty: Installer must provide a 3-year warranty.

PART 2 - PRODUCTS

2.1 FRAMEWORK

- A. Framework shall be as recommended by manufacturer.
- B. Supports and plates shall be galvanized laser cut metal recommended for exterior use

2.2 EARTH ANCHOR

- A. Earth anchors shall be 18" Penetrator with square-drive (flat) head. Model #PE18SQ as manufactured by American Earth Anchors, or approved equal.
- B. Earth anchors shall be 18" long with a 1" neck diameter and a 1-3/4" flight diameter.
- C. Pullout strength load capacity shall be 600 lbs for Soil Class 2 – Medium sandy gravel.
- D. Use sleeves, plates, brackets, and tie off cable accessories where recommended by manufacturer of anchored amenity.

2.3 KICKER RAMPS

- A. Per Plans as manufactured by Progressive Bike Ramps, or approved equal. Contact: 855-727-7267
- B. Size per Plans.

2.4 BOULDERS

- A. Boulders shall be salvaged from onsite or shall be granite and shall have a significant flat surface suitable for a riding feature.
- B. Small boulders shall be minimum 1.5 feet, maximum 2 feet in any direction.
- C. Medium boulders shall be minimum 2 feet, maximum 3 feet in any direction.
- D. Large boulders shall be minimum 3 feet, maximum 4 feet in any direction.

2.5 LADDER DROP

- A. Per Plans as manufactured by Progressive Bike Ramps, or approved equal. Contact: 855-727-7267

2.6 SKINNY STRAIGHT LADDER 15 DEGREES

- A. Per Plans as manufactured by Progressive Bike Ramps, or approved equal. Contact: 855-727-7267

2.7 SKINNY ZIG ZAG SHORT

- A. Per Plans as manufactured by Progressive Bike Ramps, or approved equal. Contact: 855-727-7267

2.8 NESSY TWO BUMPS

- A. Per Plans as manufactured by Progressive Bike Ramps, or approved equal. Contact: 855-727-7267

2.9 WALL RIDE

- A. Per Plans as manufactured by Progressive Bike Ramps, or approved equal. Contact: 855-727-7267

PART 3 - EXECUTION

3.1 EARTH ANCHORS

- A. Install with an impact wrench for pavement and a T-handle for non-paved areas, or as recommended by manufacturer.

3.2 INSTALLATION

- A. Boulders
 - 1. Install boulders in area indicated on Plans. Bury boulder so a minimum of 1/3 of boulder is below ground.
 - 2. Backfill around boulders and compact to secure position. When all boulders have been installed, compact all backfill to a minimum of 95% R.D.
- B. Install all amenities after installation and approval of gravel paving per Plans and as recommended by manufacturer.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Bicycle Jumps shall be lump sum consisting of the following items:
 - 1. Delivery of Materials: When all equipment has been delivered to Contractor.
 - 2. Fine grading
 - 3. Installation of crushed aggregate
 - 4. Installation of bicycle amenities
 - 5. Test ride and approval
- B. Bicycle Skills (Additive Alternate #2) shall be lump sum consisting of the following items:
 - 1. Delivery of Materials: When all equipment has been delivered to Contractor.
 - 2. Fine grading
 - 3. Installation of crushed aggregate
 - 4. Installation of bicycle amenities
 - 5. Test ride and approval
- C. Bicycle Jumps - Top Row (Additive Alternate #3) shall be lump sum consisting of the following items:
 - 1. Delivery of Materials: When all equipment has been delivered to Contractor.
 - 2. Fine grading
 - 3. Installation of crushed aggregate
 - 4. Installation of bicycle amenities
 - 5. Test ride and approval

4.2 PAYMENT

- A. Payment for Bicycle Jumps shall be progress payments per the following progress payment Schedule.

- B. Payment for Bicycle Skills (Additive Alternate #2) shall be progress payments per the following progress payment schedule.
- C. Payment for Bicycle Jumps – Top Row (Additive Alternate #3) shall be progress payments per the following progress payment Schedule.
- D. Progress Payment Schedule:
 - 1. 20% upon delivery of materials.
 - 2. 20% upon completion of fine grading.
 - 3. 45% upon installation of bicycle amenities, including gravel surface.
 - 4. 15% upon completion of any Work required after post-completion inspection and test ride.
- E. No additional compensation shall be made for any work required to complete Bicycle Jumps, Bicycle Skills, or Bicycle Jumps to satisfaction of Bicycle Specialist following post-installation inspection and test riding of completed track.

END OF SECTION 11 68 33

SECTION 22 11 00 - FACILITY WATER DISTRIBUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Potable water system including but not limited to the following:
 - a. Water piping.
 - b. Water filters.
 - c. Valves.
 - d. Check valves
 - e. Hose bibbs.
 - f. Backflow preventers.
 - g. Vacuum breakers.
 - h. Water pressure-reducing valves.
 - i. Thermostatic mixing valves
 - j. Piping protection
 - k. Flushing, Cleaning and Disinfecting
 - l. Testing

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. The Project Manager will provide the submittals for Owner furnished products for the Contractor's review. The Contractor shall review and return submittals as specified in Division 00 Section "General Conditions."

1.3 QUALITY ASSURANCE

A. NSF Compliance:

1. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic domestic water piping components.
2. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9."

PART 2 - PRODUCTS

2.1 WATER PIPING

A. Piping, Fittings, and Valves Material Usage (unless otherwise required by Authorities Having Jurisdiction):

1. Interior Above Floor: CPVC
 - a. Provide Type "L" Copper in rated walls around exhaust hoods.
2. Interior Under Floor: PEX tubing or Type "K" soft copper tubing.
3. RO Water Distribution Piping: PEX tubing.

B. Materials:

1. CPVC: ASTM F 441/F 441M, Schedule 40.
 - a. CPVC Socket Fittings: ASTM F 438 for Schedule 40.
 - b. CPVC Threaded Fittings: ASTM F 437, Schedule 80.
 - c. CPVC Piping System: ASTM D 2846/D 2846M, SDR 11, pipe and socket fittings.
2. Copper
 - a. Type "L": Hard drawn copper tubing, with wrought copper bronze fittings and 95/5 tin/antimony or 94/6 tin/silver solder or copper pressure seal fittings (Contractor's option).
 - b. Type "K": Soft copper tubing of one continuous piece, where possible, with wrought copper fittings and 15 percent silver alloy brazed joints.
 - c. Copper, Pressure-Seal Fittings (Contractor Option to Solder-Joint Fittings):
 - 1) Products:
 - a) Elkhart Products Corporation; Xpress.
 - b) Viega, LLC; ProPress.
 - 2) NPS 2 (DN 50) and Smaller: Wrought-copper fitting with EPDM O-ring seal in each end.
 - d. PEX Tube And Fittings
 - 1) PEX Distribution System: ASTM F 877, SDR 9 tubing.
 - 2) Tubing Colors:
 - a) Hot Water: Red.
 - b) Cold Water: Blue.
 - c) Reverse Osmosis (RO) Water: White.

- 3) Fittings for PEX Tube: ASTM F 1807, metal-insert type with copper or stainless-steel crimp rings and matching PEX tube dimensions.
- 4) Manifold: Multiple-outlet, plastic or corrosion-resistant-metal assembly complying with ASTM F 877; with plastic or corrosion-resistant-metal valve for each outlet.
- 5) Installation Accessories: Snap-in clips, plastic pipe clamps, suspension pipe clamps and plastic PEX bend supports.

2.2 WATER FILTERS (OWNER SUPPLIED/CONTRACTOR INSTALLED)

- A. Water filters that are lost or damaged are to be replaced by Contractor at no cost to Owner as follows:
1. Manufacturers: Provide products by 3M as distributed by Cincinnati Ice Machine Co., 513-861-9000.
 2. Two Combi Ovens: Twin Manifold Filter System: 3M; Twin Manifold Filter System, part #CIKR2CF with wall mounting, shut off valve, gauge, and two HF95-S-SR filters.
 3. Produce Misting System: RO Filtration System; 3M; part no. CISGLP200CLBP (replaces Steralux and Prodew systems).

2.3 VALVES

- A. Bronze or Brass Valves:
1. Manufacturers: Provide the Basis-of-Design product indicated or comparable products by one of the following:
 - a. Cincinnati Valve Co, Lunkenheimer Valves.
 - b. Powell Valves
 - c. Walworth Co.
 2. Basis-of-Design Product:
 - a. Ball Valves: Powell Valves; Figure 4201T
 - b. Check Valves: Wilkins, a Zurn Company; model 40XL2 In-line single check valve.
- B. CPVC Valves
1. Manufacturers:
 - a. American Valve, Inc.
 - b. Asahi/America.
 - c. NIBCO, Inc.
 - d. Spears Manufacturing Company.
 - e. Thermoplastic Valves, Inc.
 2. CPVC Union Ball Valves:

- a. Standard: MSS SP-122.
 - b. Pressure Rating and Temperature: **150 psig (1035 kPa)** at 73 deg F (23 deg C).
 - c. Body Material: CPVC.
 - d. Body Design: Union type.
 - e. End Connections for Valves NPS 2 (DN 50) and Smaller: Detachable, socket or threaded.
 - f. End Connections for Valves NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Detachable, socket or threaded.
 - g. Ball: CPVC; full port.
 - h. Seals: PTFE or EPDM-rubber O-rings.
 - i. Handle: Tee shaped.
3. CPVC Ball Check Valves:
- a. Pressure Rating and Temperature: **150 psig (1035 kPa)** at 73 deg F (23 deg C).
 - b. Body Material: CPVC.
 - c. Body Design: Union-type ball check.
 - d. End Connections for Valves NPS 2 (DN 50) and Smaller: Detachable, socket or threaded.
 - e. Ball: CPVC.
 - f. Seals: EPDM- or FKM-rubber O-rings.
4. CPVC Non-Union Ball Valves:
- a. Standard: MSS SP-122.
 - b. Pressure Rating and Temperature: **150 psig (1035 kPa)** at 73 deg F (23 deg C).
 - c. Body Material: CPVC.
 - d. Body Design: Non-union type.
 - e. End Connections: Socket or threaded.
 - f. Ball: CPVC; full or reduced port.
 - g. Seals: PTFE or EPDM-rubber O-rings.
 - h. Handle: Tee shaped.

2.4 HOSE BIBBS

- A. Manufacturers: Provide the Basis-of-Design products by the Woodford Manufacturing Co. or comparable products by one of the following:
- 1. Jay R.Smith Co. Division of Smith Industries, Inc.
 - 2. Tyler Pipe, Wade Division
 - 3. Zurn Plumbing Products Group
- B. Basis-of-Design Product:
- 1. Interior Hose Bibbs (HB): Woodford Manufacturing Co.; Model 24P-CH, chrome-plated brass.

2.5 BACKFLOW PREVENTERS

- A. Manufacturers: Provide the Basis-of-Design product by the Watts Water Technologies, Inc. or a comparable product by one of the following:
 - 1. Cla-Val Automatic Control Valves
 - 2. Hershey-Beeco Company
 - 3. Rockwell International
 - 4. Zurn Plumbing Products Group
- B. Basis-of-Design Product:
 - 1. Backflow Preventer for Interior Hose Bibbs Including Prep Room Hose Bibb Connections: Watts Water Technologies, Inc.; #9D.
 - 2. Backflow Preventer for Seafood Steamer : Watts Water Technologies, Inc.; No. #SD3.
 - 3. Backflow Preventer for Pharmacy Reverse Osmosis (RO) Water Filtration Dispensing System: Watts Water Technologies, Inc.; No. LF719QT-S, 1/2 inch (15 mm).

2.6 VACUUM BREAKERS

- A. Pipe-Applied, Atmospheric-Type Vacuum Breakers:
 - 1. Manufacturers:
 - a. Watts Water Technologies, Inc.
 - b. Zurn Plumbing Products Group; Wilkins Div.
 - 2. Standard: ASSE 1011.
 - 3. Size: NPS 1/4 to NPS 3, as required to match connected piping.
 - 4. Body: Bronze.
 - 5. Inlet and Outlet Connections: Threaded.
- B. Hose-Connection Vacuum Breakers:
 - 1. Manufacturers:
 - a. Watts Water Technologies, Inc.
 - b. Woodford Manufacturing Company.
 - c. Zurn Plumbing Products Group.
 - 2. Standard: ASSE 1011.
 - 3. Body: Bronze, nonremovable, with manual drain.
 - 4. Outlet Connection: Garden-hose threaded complying with ASME B1.20.7.

2.7 WATER PRESSURE-REDUCING VALVES

- A. Pressure Reducing Valves (PRV's).

1. Basis-of-Design Product: Watts Water Technologies, Inc.; No. #U5B.

B. Water Regulators:

1. Manufacturers:
 - a. Honeywell Water Controls.
 - b. Watts Water Technologies, Inc.
 - c. Zurn Plumbing Products Group.
2. Standard: ASSE 1003.
3. Pressure Rating: Initial Working pressure of 150 psig (1035 kPa).

2.8 THERMOSTATIC MIXING VALVES

A. (TMV) Point of use Water-Temperature Limiting Devices for Public Hand Washing Lavatories:

1. Manufacturers: Provide the Basis-of-Design product by Symmons Industries, Inc. or a comparable product by one of the following:
 - a. Honeywell Water Controls.
 - b. Watts Water Technologies, Inc.
 - c. Zurn Plumbing Products Group; Wilkins Div.
2. Basis-of-Design Product: Symmons Industries, Inc.; 5-210-CK Maxline thermostatic mixing valve.
3. Size: 3/8 inch compression inlets/outlet and integral checks.
4. Body: Brass with dual stainless steel strainers.
5. Adjustment: Vandal-resistant cap/temperature adjustment handle.
6. Finish: Rough brass.
7. Certification: Dual certified to ASSE 1017/1070. (.5 - 5 GPM)
8. Pressure Rating: 125 psig.
9. Accessories: Check stops on hot- and cold-water supplies, and adjustable, temperature-control handle.

2.9 PIPING PROTECTION

A. Protection Sleeve for Underground Copper Piping: Polyethylene sleeve manufactured from virgin material conforming to ASTM D 1248.

1. Basis-of-Design Product: Northtown Company; Polywrap-C.
2. Tensile Strength: MD-3400 psi, TD-2800 psi.
3. Density: 924
4. Elongation: MD-300 percent, TD-500 percent.
5. Color: **[Natural]****[Blue]****[Orange]**.

PART 3 - EXECUTION

3.1 GENERAL

- A. Appropriate compression shutoff valve and ground joint unions shall be used at each fixture and piece of equipment to facilitate removal of equipment.
- B. Adapters used for screwed valves and any connection to steel shall be insulated to prevent electrolysis.
- C. Use dielectric unions where dissimilar metals are joined together.

3.2 INSTALLATION

- A. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.
 - 1. Locate backflow preventers in same room as connected equipment or system.
 - 2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.
 - 3. Do not install bypass piping around backflow preventers.
- B. Install check valves on both the hot and cold water supply lines under sinks equipped with overhead sprayers in addition to the faucets for service sinks.
- C. Install water pressure regulators on equipment as indicated on the drawings with inlet and outlet shutoff valves. Install pressure gages on inlet and outlet.
- D. Install temperature-actuated water mixing valves with check stops or shutoff valves on inlets and with shutoff valve on outlet.
 - 1. Install thermometers and water regulators if specified.
 - 2. Install cabinet-type units recessed in or surface mounted on wall as specified.
- E. Install piping protection for underground copper piping by slipping piping protection over the barrel length. Overlap joints a minimum of six inches. Repair any damage to piping protection with tape or piping protection material cut and wrapped around the pipe and secured in place.
- F. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping and specialties.
- G. Equipment Nameplates and Signs:

1. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit.
2. Nameplates and signs are specified in Division 22 Section "Common Work Results for Plumbing."

3.3 EXCAVATION

- A. Excavating, trenching, and backfilling are specified in Division 31 Section "Earth Moving."
- B. Remove excavating debris, materials and equipment promptly from the premises upon completion.

3.4 TESTING

- A. The entire water distribution system shall be tested and proven tight under air or water pressure of fifty percent more than the maximum pressure of each system but in no case less than 100 pounds.
- B. Combination domestic and sprinkler service piping shall be tested and proven under a water pressure of 200 psi. for two hours.
- C. Test temperature at sink locations to comply with 110 degrees F (43.3 degrees C) delivered temperature.
- D. Perform systems tests in the presence of the Plumbing Inspector and Project Manager. Notify Project Manager of systems tests at least 48 hours in advance.
- E. Test each reduced-pressure-principle backflow preventer according to authorities having jurisdiction and the device's reference standard.

3.5 ADJUSTING

- A. Set field-adjustable temperature set points of temperature-actuated water mixing valves.

3.6 FLUSHING AND CLEANING

- A. Upon completion of testing, flush all domestic water piping until water shows no discoloration. Clean all valves, strainers, etc.
- B. After flushing and cleaning, disinfect pipe by the use of chlorine or chlorine compounds in amounts to produce a concentration of 50 parts per million. At the end of six (6) hours, flush all piping until chlorine residual is less the two (2) parts per million.

1. Provide any additional system cleaning and disinfecting as required by state or local codes.
- C. Prepare and submit reports of purging and disinfecting activities.

3.7 PIPING INSTALLATION

- A. Basic piping installation requirements are specified in Division 22 Section "Common Work Results for Plumbing."
- B. Install under-building-slab copper tubing according to CDA's "Copper Tube Handbook."
- C. Install domestic water piping level with 0.25 percent slope downward toward drain and plumb.
- D. Install PEX piping with loop at each change of direction of more than 90 degrees.

3.8 JOINT CONSTRUCTION

- A. Basic piping joint construction requirements are specified in Division 22 Section "Common Work Results for Plumbing."
- B. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.
- C. Copper-Tubing, Pressure-Sealed Joints (Contractor Option to Solder-Joint Fittings): Use proprietary crimping tool and procedure recommended by copper, pressure-seal-fitting manufacturer. Install per ASTM B16.18 or ASTM B16.22
 1. Mechanically formed tee-drill fittings are only acceptable where new piping is connected to existing piping.
- D. PEX Piping: Join according to ASTM F 1807.
- E. Extruded-Tee Connections: Form tee in copper tube according to ASTM F 2014. Use tool designed for copper tube; drill pilot hole, form collar for outlet, dimple tube to form seating stop, and braze branch tube into collar.

3.9 HANGER AND SUPPORT INSTALLATION

- A. Pipe hanger and support devices are specified in Division 20 Section "Hangers and Supports for Facility Services." Install the following:
 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 2. Individual, Straight, Horizontal Piping Runs: According to the following:
 - a. 100-feet (30.5-m) and Less: MSS Type 1, adjustable, steel clevis hangers.

- 3. Base of Vertical Piping: MSS Type 52, spring hangers.
- B. Install supports according to Division 20 Section "Hangers and Supports for Facility Services."
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced 1 size for double-rod hangers, to a minimum of 3/8-inch (9.5-mm).
- E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 3/4 and Smaller: 60 inches (1.5-m) with 3/8-inch (9.5-mm) rod.
 - 2. NPS 1-1/4: 72 inches (1.8-m) with 3/8-inch (9.5-mm) rod.
 - 3. NPS 1-1/2 and NPS 2: 96 inches (2.4-m) with 3/8-inch (9.5-mm) rod.
- F. Install supports for vertical copper tubing every 10 feet (3-m).
- G. Install vinyl-coated hangers for PEX piping with a maximum horizontal spacing and minimum rod diameters of 32 inches (813 mm) with 3/8-inch (9.5 mm) rod
- H. Install hangers for vertical PEX piping every 48 inches (1220 mm).
- I. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.10 CONNECTIONS

- A. General: Install piping to all mechanical equipment requiring water, including equipment supplied by Owner and equipment supplied and installed by Owner.
- B. Install piping adjacent to equipment and machines to allow service and maintenance.
- C. Connect domestic water piping to water-service piping with shutoff valve, and extend and connect to the following:
 - 1. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Refer to Division 22 Section "Commercial Plumbing Fixtures."
 - 2. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 and larger.

3.11 FIELD QUALITY CONTROL

- A. Inspect domestic water piping as follows:

1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
 2. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
 - a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 - b. Final Inspection: Arrange final inspection for authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
 3. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
 4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- B. Test domestic water piping as follows:
1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
 2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
 3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose Work that was covered or concealed before it was tested.
 4. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
 5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
 6. Prepare reports for tests and required corrective action.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Domestic Water System: Lump Sum

4.2 PAYMENT

- A. Progress payments for domestic water system Work completed shall be based on a percentage of domestic water system complete, as determined by Project Manager.

END OF SECTION 22 11 00

SECTION 22 13 00 - FACILITY SANITARY SEWERAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Soil and waste systems including connections to sanitary mains as indicated on the Drawings. Work includes, but is not limited to:
 - a. Providing and paying for permits and taps for facility sanitary sewerage.
 - b. Sanitary waste, drain and vent piping.
 - c. Floor sinks.
 - d. Floor drains.
 - e. Hub drains.
 - f. Trench drains.
 - g. Area drain.
 - h. Cleanouts.
 - i. Plumbing fixture connections.
 - j. Food preparation sinks connections.
 - k. Testing.

1.2 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping; and "NSF-drain" for plastic drain piping.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Components and installation shall be capable of withstanding 10-foot head of water (30 kPa) minimum Working pressure, unless otherwise indicated:

2.2 SANITARY, DRAIN AND VENT PIPING:

- A. Copper Piping 2-1/2 inches and Under: Type "M" copper ASTM B88.62.
- B. Plastic Piping:

1. Polyvinyl chloride (PVC), schedule 40 DWV. ASTM D-2665
 - a. PVC Socket Fittings: ASTM D 2665, socket type, made to ASTM D 3311, drain, waste, and vent patterns.
 2. ABS Pipe: ASTM D 2661, Schedule 40, solid wall.
 - a. ABS Socket Fittings: ASTM D 2661, made to ASTM D 3311, drain, waste, and vent patterns.
- C. Cast Iron Piping:
1. Over 2-1/2 inches: Service weight cast iron, ASTM A-74 with ASTM C-564 gasketed joints.
 2. 2-1/2 inches and Under: Type "M" copper ASTM B88.62.
 3. No-Hub Cast Iron Pipe and Fittings:
 - a. May be used for soil, waste, and vent piping above floor.
 - b. Comply with ASTM A 888 or CISPI 301 with ASTM C 564 gaskets and ASTM 1277 stainless steel couplings.
- D. Exposed vent piping will not be permitted in sales area or customer vision areas below bottom elevation of decor.
- E. Collect vent piping where practical so roof will be pierced a minimum number of times. Vent sizes and heights above roof per governing codes. Vents piercing roofs flashed per roofing manufacturer's requirements. Provide wire basket strainer in top of all vents.

2.3 DRAINS:

- A. Manufacturers:
1. Canplas Industrial Products
 2. Josam Company
 3. Jay R Smith Mfg. Co., Div. of Smith Industries
 4. Oatey Company
 5. Tyler Pipe; Wade Division
 6. Watts Regulator Company; A Division of Watts Water Technologies, Inc.
 7. Zurn Industries, Inc.
- B. FD2 - Heavy Duty Stainless Steel Floor Drain: Smooth antimicrobial PVC gray colored body, with 8-1/2-inch round stainless steel ring and pinned grate, 4,500 lbs. load rating, and stainless steel sediment basket.
- C. FD4 - Floor Sink, Round: Heavy Duty PVC body with Schedule 40 hub connection, with 8-1/2-inch round PVC half grate strainer and stainless steel mesh debris basket.

2.4 TRENCH DRAINS

A. Manufacturers

1. ABT Polydrain, Inc.
2. ACCO Drain, Inc.
3. Hubbell Polycast
4. Quartzite Polycast
5. Zurn Industries, Inc.

B. TD2-Trench Drains: Reinforced Slotted Galvanized Steel Grate, 28,000 lb grate load rating load, for service department walkway application: See Drawings for sizes.

1. Manufacturers

- a. ABT Polydrain, Inc., Product #2420
- b. Zurn Industries, Inc., Product # Z886 RFG

2.5 CLEANOUTS (CO)

A. Interior and Exterior Traffic Area Floor Cleanouts:

1. Size: 4-inch top adjustable to finish floor, regardless of piping size in which floor cleanouts are installed.
2. Load Rating: Provide cleanout covers with a minimum load rating of 15,000 lbs. (6803 kg).

B. Wall Cleanouts: 4-inch cleanout cover kit, with brass plug and stainless steel polished top.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. General:

1. Do not run sanitary piping under freezers and avoid running sanitary piping under coolers if at all possible. Run indirect system vents separately through roof independent from sanitary system vents.
2. Do not install exposed vent piping in sales area below 14-feet (4.3-m) or customer vision areas. Coordinate location to be grouped with other piping and conduit extending to roof.
3. Collect vent piping where practical so roof will be pierced a minimum number of times without increasing depth of wall. Vent sizes and heights above roof per governing codes. Vents piercing roofs flashed per roof manufacturer's recommended details. Provide wire basket strainer in top of all vents.
4. Do not run sanitary vent piping in return air shaft wall. If no other option is available, cast iron, steel, or copper vent piping may be run in return air shaft wall upon approval of the Project Manager.

- B. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.
- C. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.
- D. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.
- E. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:
 - 1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
- F. Install ABS soil and waste drainage and vent piping according to ASTM D 2661.
- G. Install PVC soil and waste drainage and vent piping according to ASTM D 2665.
- H. Install underground PVC soil and waste drainage piping according to ASTM D 2321.
- I. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
- J. Underground piping servicing fixtures discharging 140 Degree F. (60 Degree C.) or hotter provide trap and first 20 lineal feet of pipe cast iron prior to connecting to underground PVC piping.

3.2 JOINT CONSTRUCTION

- A. Basic piping joint construction requirements are specified in Division 22 Section "Common Work Results for Plumbing."
- B. Cast-Iron, Soil-Piping Joints: Make joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
 - 1. Gasketed Joints: Make with rubber gasket matching class of pipe and fittings.
 - 2. Hubless Joints: Make with rubber gasket and sleeve or clamp.

- C. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.
- D. PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

3.3 HANGER AND SUPPORT INSTALLATION

- A. Pipe hangers and supports are specified in Division 23 Section "Hangers and Supports for Facility Services." Install the following:
 - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 - 2. Individual, Straight, Horizontal Piping Runs: According to the following:
 - a. 100-feet and Less: MSS Type 1, adjustable, steel clevis hangers.
 - 3. Base of Vertical Piping: MSS Type 52, spring hangers.
- B. Install supports according to Division 23 Section "Hangers and Supports for Facility Services."
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch minimum rods.
- E. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 1-1/2 and NPS 2: 60-inches with 3/8-inch rod.
 - 2. NPS 3: 60-inches with 1/2-inch rod.
 - 3. NPS 4 and NPS 5: 60-inches with 5/8-inch rod.
 - 4. Spacing for 10-foot lengths may be increased to 10-feet. Spacing for fittings is limited to 60-inches.
- F. Install supports for vertical cast-iron soil piping every 15-feet.
- G. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 1-1/4: 72 inches with 3/8-inch rod.
 - 2. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.
 - 3. NPS 2-1/2: 108 inches with 1/2-inch rod.
 - 4. NPS 3 to NPS 5: 10-foot with 1/2-inch rod.
- H. Install supports for vertical copper tubing every 10-foot.
- I. Install hangers for PVC piping with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 1-1/2 and NPS 2: 48 inches with 3/8-inch rod.
 - 2. NPS 3: 48 inches with 1/2-inch rod.
 - 3. NPS 4 and NPS 5: 48 inches with 5/8-inch rod.

- J. Install supports for vertical PVC piping every 48 inches.
- K. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.4 CONNECTIONS

- A. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.
- B. Connect drainage and vent piping to the following:
 - 1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code.
 - 2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
 - 3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code.
 - 4. Food Prep Equipment: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code, to equipment supplied by Owner and equipment supplied and installed by Owner.
 - 5. Non-Refrigerated Fixtures and Equipment: Drain lines from non-refrigerated fixtures and equipment to building system shall be as specified by manufacturer.
 - 6. Refrigerated Equipment: Drain lines from refrigerated equipment to building system shall be supplied and installed as specified by manufacturer.

3.5 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
 - 1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 - 2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- D. Test sanitary drainage and vent piping according to procedures of authorities having jurisdiction.
 - 1. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.

2. Prepare reports for tests and required corrective action.

3.6 TESTING:

- A. The entire soil, waste and vent system shall be tested per code and to the satisfaction of the Plumbing Inspector and the Project Manager. Cover no Work until it has been approved. The minimum requirements shall be as follows:
 1. Water pressure: 10-foot head of water for 15 minutes without loss of water.
 2. Air pressure: 5 psi. for 15 minutes without loss of air.
 3. Entire soil and waste systems to be inspected for debris and flushed prior to pouring of concrete floor slab.
 4. Perform all systems tests in the presence of the Project Manager. Notify the Project Manager of all systems tests at least 48 hours in advance.

3.7 CLEANUP:

- A. Clean interior of piping. Remove dirt and debris as Work progresses.
- B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction Work.
- C. Place plugs in ends of uncompleted piping at end of day and when Work stops.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Sanitary Sewer System: Lump Sum

4.2 PAYMENT

- A. Progress payments for sanitary sewer system Work completed shall be based on a percentage sanitary sewer system complete, as determined by Project Manager.

END OF SECTION 22 13 00

SECTION 22 13 60 – SEPTIC TANK AND LEACHFIELD SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. The Contractor shall provide all labor, materials, equipment and method of installation necessary for the construction of a concrete septic tank, concrete distribution box, and leaching chambers complete with all appurtenances shown on the Drawings and more fully described herein.
- B. The Contractor shall include in his base bid price the costs to cover any permits necessary to put the septic system into use.

1.2 1.2 QUALITY ASSURANCE

- A. General Requirements: Comply with provisions of Section 01600.
- B. Basis of Design:
 - 1. The septic tank and leach system shall be capable of accepting domestic wastewater at an average rate of 2520 gallons per day and shall be capable of accepting sewage at a peak rate of 5.25 gallons per minute.
 - 2. Precast concrete products shall be based on items manufactured by Oldcastle Precast or engineer approved equal. Submit drawings to Engineer for approval.
 - 3. Plastic leaching chamber products are based on items manufactured by Infiltrator Systems, Inc, or engineer approved equal. Submit drawings to Engineer for approval.
- C. Requirements of Regulatory Agencies: Construction code requirements of Local, State, County, or other political subdivision which exceed requirements of national codes, standards and approving bodies to be complied with.

1.3 SUBMITTALS

- A. Shop Drawings: Submit Shop Drawings for sanitary septic system appurtenances in accordance with Section 01300, demonstrating compliance with Specifications.
- B. Furnish Engineer with manufacturer's certificate regarding equipment installation prior to initial operation and mechanical performance test.
- C. Shop Drawings and Product Data:
 - 1. Submit in accordance with these Specifications and Section 11005, manufacturer's published detail drawings, modified to suit design conditions if required.
 - 2. Submit in accordance with these Specifications, manufacturer's descriptive literature and specifications covering product specified. Include installation instructions.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Unload equipment with care. In event of damage make repairs or replacements at no increase in Contract Price. Follow manufacturer's instructions for unloading equipment.
- B. Store and protect equipment in strict accordance with manufacturer's written instructions.
- C. See Section 01600 for general handling, storage, and protection requirements.

PART 2 - PRODUCTS

2.1 DUAL COMPARTMENT SEPTIC TANK

- A. The tank shall be a dual compartment septic tank capable of accepting domestic wastewater at an average rate of 2520 gallons per day and shall be capable of accepting sewage at a peak rate of 5.25 gallons per minute. Concrete shall have a compressive strength of 4,500 psi and be reinforced per ASTM A-615, GR 60. Joints are to be sealed with Butyl sealant per ASTM C-990.
- B. All joints shall be watertight and the factory-built septic tank shall be as manufactured by Old Castle precast Cloud Concrete Products, Lexington, KY, or equal.

2.2 DISTRIBUTION BOX

- A. The distribution box shall be constructed to the shown dimensions. The concrete shall have compressive strength of 4,500 psi and be reinforced with ASTM A 615-92-GR. 60 steel bars.
- B. All joints shall be watertight and sealed with Butyl Sealant per ASTM C-990. The factory-built distribution box shall be as manufactured by Old Castle Precast or equal.
- C. Adjustable weir inserts shall be provided in the entrance of each leach line exiting the distribution

2.3 LEACHING CHAMBERS AND END CAPS

- A. The leaching chamber shall accommodate a storage capacity of 8 gallons per linear foot and have strength and physical property requirements necessary for certification in accordance with IAPMO PS-53. The chambers shall be that of the Infiltrator Systems, Inc. Quick 4 Equalizer 36 Chamber, or equal.
- B. End caps shall be able to accept inlet pipes up to 4" in diameter of Schedule 40 pipe, and have 11.1 gallons of storage capacity. The factory-build end caps shall be as manufactured by Infiltrator Systems, Inc, or equal.

2.4 INSPECTION PORT ASSEMBLY

- A. The Quick 4 Chamber Inspection Port shall be assembled using 4" Schedule 40 PVC pipe, capped or threaded cleanout assembly, and a small meter box. The Contractor shall install the Inspector Port Assembly according to Infiltrator Systems, Inc. specifications.
- B. Meter boxes shall be that of an 18-inch HDPE standard meter box. It shall be accurately centered over Inspection Port, and backfilled thoroughly, tamped about them. They shall be set vertically and properly cut and/or adjusted so that the tops of the boxes will be at finished grade.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Refer to manufacturer's instruction and installation manual before proceeding with installation of equipment.
- B. Examine equipment and components for damage or loss. Inform Engineer of damage, loss, or defects. Do not proceed with installation until damage, loss or defects have been corrected.

3.2 INSTALLATION

- A. Install each item in accordance with manufacturer's literature.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full Compensation for all Septic Tank and Leachfield System work completed shall be considered as included in the price paid for Sanitary Sewer System and therefore no additional compensation shall be made.

END OF SECTION 22 1360

SECTION 22 14 00 – FACILITY STORM DRAINAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all storm drainage improvements and related Work as shown on the Drawings and/or specified herein.
- B. Scope of Work:

The general extent of the drainage Work is shown on the Drawings and includes, but is necessarily limited to, the following:

 - 1. Storm drainage system installation and the possible connection to existing systems.
- C. Related sections can include, but may not be limited to:
 - 1. Section 31 20 00 "EarthWork"
 - 2. Section 32 23 00 "Excavation and Fill"
 - 3. Section 32 11 00 "Aggregate Base"
 - 4. Section 32 12 00 "Concrete"
 - 5. Section 32 12 16 "Asphalt Paving"
 - 6. Section 32 12 43 "Rubber Paving"
 - 7. Section 32 15 40 "Aggregate Paving"
 - 8. Section 22 11 00 "Domestic Water Systems"
 - 9. Section 22 13 00 "Sanitary Sewerage"
 - 10. Section 32 33 00 "Site Furnishings"

1.2 REGULATORY REQUIREMENTS AND REFERENCES

- A. State of California Department of Transportation Standard Specifications, most recent edition.

1.3 SUBMITTALS

- A. Submit cut-sheets or samples of all products to be used in conformance with Section 01 31 00 Submittals and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.
- B. Record Drawings:
 - 1. Conform to Section 0 31 00
 - 2. Accurately record location of new piping, drain structures and connections to existing systems using horizontal dimensions, elevations, inverts and slope gradients as applicable.

1.4 QUALITY ASSURANCE

- A. Control of Work: Conform to Section 5 of the Standard Specifications.
- B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.5 PROTECTION OF PROJECT SITE

- A. Make provisions for, and take the necessary precautions to, protect existing and new Work from damage during entire life of Project.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store pipe neatly and orderly, stacked and blocked to prevent damage. Cracked, checked, spalled or otherwise damaged pipe shall be removed from site.
- B. Use of chain slings shall not be permitted.
- C. All piping, fittings and related materials shall be carefully handled at all times.
- D. All pipelines, fittings and drainage structures shall be kept clean and closed during construction.

1.7 PROJECT/SITE CONDITIONS

- A. Work of this section shall not be executed when site conditions are detrimental to quality of Work as determined by the Project Manager.

1.8 SEQUENCING AND SCHEDULING

- A. Coordinate Work of this section with all other Work contained in the Contract Documents.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

- A. All pipe and fittings shall be clearly and permanently marked to identify manufacturer, type, class, or schedule and NSF approval as applicable.
- B. Reinforced Concrete Pipe (RCP) and fittings: Unless otherwise shown on the Drawings, all storm drain pipe 12" in diameter or greater shall be reinforced concrete pipe conforming to Section 65 of the Standard Specifications. Pipe shall be Class III unless otherwise shown on the Drawings.
- C. Polyvinyl Chloride Pipe (PVC) and fittings: Unless otherwise shown on the Drawings, all storm drain pipe less than 12" in diameter shall be Polyvinyl chloride pipe, SDR 35 Bell and Spigot, Type I PVC 1120, NSF approved. Comply with ASTM D3034.
- D. Polyvinyl Chloride Perforated Drain Pipe (Perf. PVC) and fittings: Conform to Section 68 of the Standard Specifications. Provide bell and non-pressure rated PVC SDR 35 pipe with two rows of perforations 120 degrees apart on bottom of pipe five inches on center. Pipe shall conform to ASTM D 2729 and ASTM D 3034

2.2 DRAINAGE STRUCTURES

- A. Catch Basins: Shall be as shown or noted in the Drawings.
- B. Extensions: Provide box extensions, junction boxes and grade rings compatible with structures as necessary to finish at the proper elevation and to facilitate future elevation adjustments as noted below.
- C. Clean Outs: Shall be as shown or noted in the Drawings.

- D. Trench Drain: Shall be the "Meadrain U 1000" system by MEA/Josam Inc. as available through: RV and associates, Benicia, CA (707) 745 - 3655. The system shall be put together with the "Stepped Fall" (internally sloping) type of unit unless noted otherwise.
- E. French Drain: Shall be as shown or noted in the Drawings.

2.3 MISCELLANEOUS MATERIALS

- A. Drain Rock: Shall be Class II permeable material. Refer to Section 02230.
- B. Filter Fabric: Shall be Mirafi 140-N or acceptable equal.
- C. Filter Fabric Fasteners: Metal clip type staple.
- D. Mortar: Shall conform to all applicable sections of the Standard Specifications. Mixture shall be a 1:2 Portland Cement to sand mixture with a minimum of water.
- E. Reinforcing bars: Refer to Section 02520.
- F. Minor concrete: Refer to Section 02520.

PART 3 - EXECUTION

3.1 PIPE INSTALLATION

- A. General: Pipe shall be installed per manufacturer's instructions and in conformance with the Contracts Documents.
- B. P.V.C. Pipe:
 - 1. Pipe shall be laid in trench to specified lines and grades fully and evenly supported by bedding material. Excavate bedding as required so bell fittings are clear from soil 12" on each side of joint and to a depth sufficient to avoid contamination of joint.
 - 2. Pipe shall be laid beginning at the outlet and proceeding with each bell end facing upgrade.
 - 3. Cut pipe square and ream to remove burrs.
 - 4. Connections shall be solid, true to grade and watertight. Grease gaskets as necessary to facilitate joining pipe.

3.2 DRAINAGE STRUCTURES

- A. General: Set rim or cover elevations to specified grades utilizing two or three grade rings (or extensions) at top of drainage structure to facilitate elevation adjustments in the future.
- B. Catch Basins: Install as shown in the Drawings and as follows:
 - 1. Excavate as required including grade ring allowance noted above.
 - 2. Set materials on firm, unyielding base. Set on compacted select backfill material if directed by the Project Manager.
 - 3. Prefabricated units not having a bottom shall be set on a poured-in-place concrete slab with smooth trowel finish. Mortar and properly seal unit to slab, making a watertight connection.
 - 4. Install pipe inlets and outlets to specified elevations. Grout and/or seal all joints to a watertight condition with material per manufacturer's recommendation.
- C. Trench Drains: Install as shown in the Drawings.

D. French Drains: Install as shown in the Drawings.

3.3 FIELD QUALITY CONTROL

- A. The Project Manager shall review and accept Work at the following stages:
1. Excavated trench with bedding in place prior to any pipe being laid.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Storm Drain System: Lump Sum

4.2 PAYMENT

- A. Progress payments for storm drain system Work completed shall be based on a percentage of storm drain system complete, as determined by Project Manager.

END OF SECTION 22 14 00

SECTION 26 00 00 - ELECTRICAL WORK GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. The Requirements of General Conditions and Special Conditions apply to Work of this Section as if fully repeated herein.

1.2 WORK INCLUDED

- A. Provide a complete Working installation with all material and equipment as shown and specified.
- B. Provide all labor, materials, tools, and equipment necessary for the complete in-place installation of all electrical items complete as shown on drawings and as specified in this Division.
- C. Provide submittals and shop drawings.
- D. Make electrical connections for equipment furnished as part of Work of other Sections.
- E. Include sealing and fireproofing of conduits and cables.
- F. Electrical products shall be anchored and fastened to building elements and finishes as follows:
 - 1. Concrete Structural Elements: Provide expansion anchors and powder actuated anchors.
 - 2. Steel Structural Elements: Provide beam clamps and spring steel clips.
 - 3. Concrete Surfaces: Provide expansion anchors.
 - 4. Solid Masonry Walls: Provide expansion anchors.
 - 5. Sheet Metal: Provide sheet metal screws.
 - 6. Wood Elements: Provide wood screws.
- G. Provide as-built drawings.

1.3 DEFINITIONS

- A. "Listed": Equipment is "listed" if of a kind mentioned in a list which:
 - 1. Is published by a nationally recognized laboratory which makes periodic inspection of production of such equipment.
 - 2. States that such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner.
- B. "Labeled": Equipment is labeled if:
 - 1. It embodies a valid label, symbol, or other identifying mark of a nationally recognized testing laboratory such as Underwriters Laboratories, Inc.
 - 2. The laboratory makes periodic inspection of the production of such equipment.
 - 3. The labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specified manner.
- C. "Certified": Equipment is "certified" if:
 - 1. Equipment has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards or to be safe for use in a specified manner.
 - 2. Production is periodically inspected by a nationally recognized testing laboratory.

3. It bears a label, tag or other record of certification.
- D. "Nationally Recognized Testing Laboratory": A testing laboratory, which is approved, in accordance with OSHA regulation, by the Secretary of Labor.
- E. "The Contractor": Refers to the prime Contractors.
- F. "The Architect": Refers to the Professional Landscape Architect.
- G. "The Owner": Refers to the legally registered Owner of the Project or their authorized representative.
- H. "The Engineer": Refers to the Professional Electrical Engineer.
- I. "Provide": Construed to mean furnish (supply), install and connect complete and ready for safe and regular operation of particular Work referred to unless otherwise noted.
- J. "Furnish": Construed to mean purchase, procure, acquire and deliver complete with related accessories to Project site.
- K. "Install": Construed to mean to physically erect and mount the item(s) complete with related accessories in-place.
- L. "Connect": Construed to mean make final electrical connections for a complete operating piece of equipment with related accessories.
- M. "As directed": In written directive by the Owner or their authorized representative.
- N. "Work": Labor, materials, equipment, apparatus, controls, accessories and other items required for proper and complete installation.
- O. "Wiring": Raceway, fittings, wire, boxes and related items.
- P. "Concealed": Embedded in or below masonry or other construction, installed in furred spaces, within partitions, above suspended ceilings, in trenches, or in enclosures.
- Q. "Exposed": Not installed underground or "concealed" as defined above.
- R. "Indicated", "shown" or "noted": As indicated, shown or noted on drawings or specifications.
- S. "Utility Companies": Construed to mean either the electric utility company (Sacramento Municipal Utility District) or the telephone utility company (Pacific Bell or the cable television utility company).
- T. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 CODES AND STANDARDS

- A. Work and materials shall be in full accordance with California Occupational Safety Health Act (CAL-OSHA), California Electrical Code (CEC), State Fire Marshal, Title 8, Safety Orders of Division of Industrial Safety (ESO), the National Fire Protection Association, California Building Code (CBC); California Code of Regulations - Title 24 and other applicable laws or regulations. Nothing in the Drawings or Specifications shall be construed to permit Work not conforming to these codes.

- B. When Contract Documents differ from governing codes, furnish, and install larger size or higher standards called for without extra charge.

1.5 QUALITY ASSURANCES

- A. Requirements of Regulatory Agencies:
 - 1. Nothing in the Contract Documents shall be construed to permit Work not conforming to applicable codes, laws, ordinances, rules, or regulations.
 - 2. All installed or connected equipment shall be labeled or certified for its use by a nationally recognized testing laboratory.
 - 3. All materials and equipment shall be installed in accordance with manufacturer's recommendations and in accordance with the National Electrical Contractors Association (NECA) Standard of Installation
 - 4. Equipment to be installed or permanently connected (hardwired) shall be listed, labeled or certified by a Nationally Recognized Testing Laboratory (NRTL).

1.6 PERMITS, FEES, AND INSPECTIONS

- A. Contractor shall obtain all permits and arrange for Owner to pay required fees to any governmental agency or utility company having jurisdiction over the Work of this Section. Inspections required by any local ordinances or utility companies during construction shall be arranged by the Contractor.
- B. All Work and materials covered by these specifications and accompanying drawings shall at all times be subject to inspection by the Architect or his representative. Any material not in accordance with the Plans and specifications, or not installed in a neat and Workmanlike manner, shall, upon order from the Architect, be removed from the premises or corrective action taken within three (3) days; and if material in question has been installed, the entire expense for removing and reinstalling shall be borne by the Contractor.
- C. On completion of the Work, satisfactory evidence shall be furnished to the Architect to show that all Work has been installed in accordance with the Codes.

1.7 SPECIFICATIONS AND CONTRACT DRAWINGS

- A. Accuracy of data given herein and on the drawings is as exact as could be secured, but their extreme accuracy is not guaranteed. The drawings and specifications are for the assistance and guidance of the Contractor and exact locations, distances, levels, etc., will be governed by the construction and the Contractor shall accept same with this understanding.
- B. Layouts of equipment, accessories and wiring systems are diagrammatic (not pictorial and not exact) but shall be followed as closely as possible. Architectural, structural, mechanical, and other drawings shall be examined noting all conditions that may affect this Work. Where connections to equipment provided by other divisions are shown on electrical drawings, refer to drawings of respective division for exact locations and electrical requirements of equipment.
- C. Report conflicting conditions to the Architect for adjustment before proceeding with Work. Should Contractor proceed with Work without reporting conflict(s), he does so on his own responsibility, and shall alter Work if directed by the Architect, at his own expense.
- D. Right is reserved to make minor changes in locations of equipment and wiring systems shown, providing change is ordered before conduit runs and/or Work directly connected to same is Installed and no extra materials are required.

- E. Drawings and specifications may be superseded by later detail specification and detail drawings prepared by the Architect, and the Contractor shall conform to them and to such reasonable changes in the contract drawings as may be called for by these revised drawings without extra cost to the Owner.
- F. Contractor may request additional detail(s) and such shall be conformed to, without additional cost. Contractor may offer alternate detail(s), but such detail(s) shall be approved by Architect and authority having jurisdiction

1.8 SUBMITTALS

A. Submission Requirements

1. Contractor is responsible for the scheduling of submittals in order to avoid detrimental impact to the construction schedule and to support the timely sequence of the Work. Allow a minimum of 15-Working days for submittal review by the Engineer. Complex submittals or submittals which are not provided as complete packages may take longer than 15-Working days for review. Contractor should allow time for potential rejection and re-submittal of submittals which are being offered as substitution to the specified products.
2. Contractor shall review submittals for completeness, coordination and conflicts between Subcontractors and other Work in the Contract Documents. Submittals made by Contractor which are not thoroughly reviewed by the Contractor will be returned. Submittals which vary significantly from the Contract Documents and are not so identified prior to submission, will be returned to the Contractor without review.
3. Make submissions within following number of days from issuance of Notice to Proceed or Start Letter
 - a. Items needed in initial stages of Work or requiring long lead-time for ordering: 15 calendar days.
 - b. All other items: 21 calendar days.
4. Before submitting a shop drawing or any related material, Contractor shall: review each such submission for conformance with the means, methods, techniques, sequences, and operations of construction, and safety precautions and programs incidental thereto, all of which are the sole responsibility of the Contractor; approve each such submission before submitting it; and stamp each such submission before submitting it. Engineer shall assume that no shop drawing or related submittal comprises a variation unless the Contractor advises the Engineer otherwise via a written instrument which is acknowledged by the Engineer in writing.
5. Engineer will check submittals for conformance with design concepts of Project. Approval covers only such conformance. Effort will be made by Engineer to discover any errors, but responsibility for accuracy and correctness of all submittals shall be with the Contractor.
6. Approval of submittals will be on a general basis only and shall not relieve the Contractor from their responsibility for proper fitting and construction of the Work, nor from furnishing materials and labor required by the Contract which may not be indicated on the submittals when approved.
7. No portion of the Work requiring submittals shall be commenced until the submittal for that portion of the Work has been approved by Engineer. All such portions of Work shall be in accordance with the approved submittal. Any Work performed without approved submittals will be done so at the Contractor's own risk. Work found not to be in

compliance with the approved submittals shall be removed and corrected at the Contractor's own expense.

8. Number of Copies Required - Contractor shall submit following number of copies:
 - a. Shop Drawings: 1-electronic copy in PDF format.
 - b. Product Data/Material Lists: 1-electronic copy in PDF format.
 - c. Samples: As specifically indicated in pertinent specification section.
 - d. Substitution Request: 1-copy in PDF format
9. Submittals shall include (where applicable):
 - a. Date and revision dates.
 - b. Project title and number.
 - c. The names of Architect, Engineer, Contractor, Subcontractor and supplier or manufacturer.
 - d. Identification of product or material.
 - e. Relation to adjacent structure or material.
 - f. Field dimensions clearly identified as such.
 - g. Specification section number.
 - h. A blank space for Engineer's stamp.
 - i. Contractor's stamp on each, initialed or signed, certifying that submittal was reviewed, field measurements have been verified and submittal is in compliance with the applicable specification section and the overall Contract Documents.
10. Incomplete, inaccurate, or non-complying submittals requiring revisions, re-submittal and additional review time, shall not be considered as a basis for Contract time extension.
11. Two reviews will be made for each submittal. Additional reviews will be charged to the Contractor. A rejection of a submittal or review of a partially presented submittal constitutes one submittal review. Incomplete submittals, such as product data submitted without required shop drawings, will be returned without review.

B. Required Submittals

1. Various specification sections may state additional information to be submitted.
2. Submittals are required for all materials even though the submitted material may be exactly as specified in the Project Manual.
3. Electrical Materials Submittal:
 - a. Submit product data only for materials that are being substituted. Product data is not required for materials that are being provided as specified.
 - b. Electrical materials include raceway, boxes, supports, finish material, etc.
4. Electrical Equipment Submittal:
 - a. Submit product data for all equipment.
 - b. Electrical equipment includes panelboards, switchboards, transformers, underground pull boxes, floor boxes, light fixtures, etc.
5. Low Voltage and Control Systems Submittals:
 - a. Provide product data for each item in the system.
 - b. Provide shop drawings for each system.
 - c. Low voltage and control systems include lighting controls, sound communications, fire alarm, etc.

C. Product Data

1. Manufacturer's Standard Schematic Drawings:
 - a. Modify drawings to delete information which is not applicable to the Project.

- b. Supplement standard information to provide additional information which is applicable to the Project.
 - 2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.
 - a. Clearly mark each copy to identify pertinent materials, products, or models. Mark out or remove all extraneous information.
 - b. Show dimensions and clearances required.
 - c. Show performance characteristics and capacities.
 - d. Show wiring diagrams and controls.
- D. Shop Drawings
 - 1. Submit shop drawings as a copy of the original set maintained by the Contractor. Shop drawings are to include the name of the Project, the name of Contractor and are to be numbered consecutively. Provide legible and complete copies in every respect. Provide quantity as described below. Do not reproduce bid document drawings in lieu of Contractor or Subcontractor produced shop drawings.
 - 2. Contract Documents define the general scope of Work. Contractor's submittal shall not be a duplication of the contract drawings but shall be a result of site and system investigation and shall show all the Work required. Do not reproduce bid document drawings in lieu of Contractor or Subcontractor produced shop drawings.
 - 3. If shop drawings show variations from Contract requirements because of standard shop practice or other reason, make specific mention of such variations in letter of transmittal, as well as on drawings, in order that (if acceptable) suitable action may be taken for proper adjustment of the Contract Documents. Unless specific changes have been noted and approved, no deviations from Contract Documents will be accepted.
 - 4. If the shop drawings are accepted or rejected, all reviewed and stamped copies will be distributed to all parties. If corrections are required, the Contractor is responsible for making the necessary corrections and re-submitting the shop drawings in a timely fashion as to not affect the Project schedule. The Contractor must secure Final Acceptance prior to commencing Work involved.
- E. Substitutions
 - 1. Engineer's Approval Required:
 - a. Contract is based on materials, equipment and methods described in Contract Documents. Substitutions will not be reviewed and approved prior to the award of the contract.
 - b. Engineer will consider proposals during the submittal process for substitution of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by Engineer to evaluate proposed substitution. Substitution shall be submitted with completed Substitution Request Form.
 - c. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this Work by Engineer.
 - 2. "Or Equal": Whenever, in Contract Documents, any material, process or specified patent or proprietary name and/or by name of manufacturer is indicated, such name shall be deemed to be used for purpose of facilitating description of material and/or process desired, and shall be deemed to be followed by the words "or equal", or "accepted equal", and Contractor may offer any material or process which shall be equal in every respect to that so indicated or specified; provided, however, that if material, process or article

offered by Contractor is not, in opinion of Architect, equal in every respect to that specified, then Contractor must furnish material, process or article specified or one that in opinion of Engineer is equal thereof in every respect.

3. "No Substitutions": Items indicated as "No Substitutions" must be provided as specified and no alternates will be allowed. These items are required either due to District standards by the Board or to match materials recently installed by others.
4. Coordination: Approval of substitution shall not relieve Contractor from responsibility for compliance with all requirements of Drawings and Project Manual, and Contractor shall be responsible at his own expense for any changes in other parts of his own Work or Work of others which may be caused by approved substitution.

1.9 OPERATION AND MAINTENANCE MANUALS

- A. General: Contractor shall incorporate in Maintenance/Operation Manual(s) all brochures, manufacturer's catalogs and written instructions for equipment and materials needing regular care or maintenance and other items as required elsewhere in Project documents. Prepare all such manuals in durable plastic loose leaf binder size to accommodate 8-1/2 x 11 sheets with following minimum data:
 1. Identification on or readable through, front cover stating general nature of manual.
 2. Neatly typewritten index of all contents.
 3. Site plan and building Plans indicating location of equipment referenced (reduced scale).
 4. Complete instructions regarding operation, maintenance, replacement instructions and programming instructions of all equipment involved.
 5. Complete nomenclature of all replaceable parts, their part numbers, current cost and name and address of nearest vendor of parts.
 6. Copy of all guarantees and warranties issued, in a separate binder as specified in this section.
 7. Copy of approved shop drawings (reduced scale) with all data concerning changes made during construction.
- B. Extraneous Data:
 1. Where contents of manuals include manufacturer's catalog pages, clearly indicate precise items included in the Project installation and delete, or otherwise clearly indicate, all manufacturer's data with which the Project installation is not concerned.
- C. Materials shall be organized in a logical and consistent manner, by specification section number, with separating tabs clearly marked.
- D. Data shall be provided for:
 1. Lighting Fixtures
 2. Lighting Control System
- E. In addition to the requirements above, Contractor shall provide final programming information to District on disk for all systems requiring programming.

1.10 RECORD DRAWINGS

- A. At time of installation, installed locations of all underground Work shall be recorded on prints by Contractor, and reviewed with Inspector. Record drawings are to be maintained and adjusted on a daily basis by the Contractor.

- B. All information entered on drawings copy shall be neat, legible, and emphasized by drawing "clouds" around changed items. Changes shall be made in an accurate manner by a qualified draftsman acceptable to Architect. Completed Record Drawings shall be signed by the Contractor.
- C. Locate and dimension all major equipment and underground Work, including stubs and pull boxes. Provide dimensions from curbs, foundations, or other permanent landmarks.
- D. All symbols and designations used in preparing record drawings shall match those used in the Contract Drawings.
- E. Record drawing shall be up-dated monthly.
- F. Record drawing signoff:
 - 1. At such time that the underground Work has been completed, all the Contractors and sub-Contractors notes, sketch and miscellaneous drawings documenting installed locations not currently part of the ongoing record drawing set shall be transferred. These updates shall be reviewed for accuracy by the Inspector of record and Architect. Once all corrections have been completed the Inspector shall sign and date the record set coversheet noting it as acceptance of the underground phase of record drawings.
 - 2. At Project completion, the record drawings shall be submitted by the Contractor for Project Inspector and Architect review and comment. These will be returned to the Contractor for revisions. Once all corrections have been completed the Inspector shall sign and date the record set coversheet noting it as acceptance of the completed record drawings. The original record drawings are to be resubmitted to the Architect along with a scanned electronic file set in PDF format with file names matching the drawing titles.

1.11 GUARANTEES

- A. Standard Guarantee: Provide individual as well as overall guarantees for all Work executed under this Contract or any extra Work to be absolutely free of all defects of Workmanship and materials for a period of two years from the date of filing of notice of completion and acceptance by Project Manager. Repair and make good all such defects and repair any damage to other Work caused thereby which may occur during same period at no cost to the Owner.
- B. Indicate on Guarantee Form specific provisions required by individual specification sections. List all special requirements, extended periods, bonding, etc.
- C. Additional Guarantees: Provide additional guarantees (in excess of year(s) required by Standard Guarantee) where specifically required by pertinent Specification Sections.
- D. Binder: Provide a binder with all guarantees placed in the order in which they occur in the Project manual. Include an Index of Guarantees listing each specification section, specific items covered and length of guarantee for each item.

1.12 SITE EXAMINATION AND CONDITIONS

- A. Examine site; verify dimensions and locations against drawings and become informed of all conditions under which Work is to be done before submitting proposal. No allowance will be made for extra expenses because of omission on Contractor's part to include cost of Work under prevailing conditions.

- B. Information shown relative to services is based upon available records and data shall be regarded as approximate only. Minor deviations found necessary to conform with actual locations and conditions shall be made without extra cost.
- C. Extreme care shall be exercised in excavating near existing utilities to avoid any damage thereto; Contractor is responsible for any damage caused by such operations.
- D. Where signal systems exist, and services of other firms are required, Contractor shall instruct those firms to investigate existing systems and determine labor and materials needed to add devices or modify systems.
- E. Where new conduits are to be run underground at existing sites, Contractor shall visit site prior to bidding and walk routes of new underground conduits, note areas of concrete and asphalt being crossed, and include in bid all costs for cutting and patching.
- F. Where existing conduits are shown, their location is diagrammatic, and their exact location may not be known.

1.13 UTILITY COMPANY COORDINATION:

- A. Immediately after award of contract, Contractor shall contact utility company representatives for power services. Contractor shall obtain specific requirements and details from respective representative. Contractor shall discuss the aspects of the Project related to services and coordinate scheduling of the Work and inspections required by utility companies.

1.14 UNDERGROUND UTILITIES:

- A. Existing underground utilities, services, circuits, piping, irrigation piping, etc., are present, but their exact locations are not known. Contractor shall locate and protect before trenching or excavating in any area. Consult utility companies and Project drawings for location of existing underground Work. If existing piping or utilities are damaged during construction. Contractor shall repair immediately at own expense. New underground Work shall be modified as necessary to conform to existing conditions.
- B. Immediately after award of contract, Contractor shall contact utility company representatives for power, telephone, and TV services. Contractor shall obtain specific requirements and details from respective representative. Contractor shall discuss the aspects of the Project related to services and coordinate scheduling of the Work and inspections required by utility companies.

1.15 CARE AND CLEANING

- A. After all Work has been accomplished such as sanding, painting, etc., lighting fixtures, panelboards, and switchboards shall be cleaned to remove all dust, dirt, grease, paint, or other marks. All electrical equipment shall be left in a clean condition inside and out, satisfactory to the Architect. Keep buildings and premises free from accumulated waste materials, rubbish, and debris resulting from Work herein, and, upon completion of said Work, remove tools, appliances, surplus materials, waste materials, rubbish, debris, and accessory items used in or resulting from said Work and legally dispose of off the site.
- B. All broken, damaged, or otherwise defective parts shall be repaired or replaced without additional cost to Owner. Work shall be left in a condition satisfactory to Engineer. At

completion, carefully clean and adjust all equipment, fixtures and trim installed as part of this Work. Systems and equipment shall be left in a satisfactory operating condition.

- C. All surplus materials and debris resulting from this Work shall be cleaned out and removed from site; this includes surplus excavated material.

1.16 PROTECTION

- A. The Contractor shall protect from damage during construction the Work and materials of other trades as well as the electrical Work and material. Electrical equipment stored and installed on the job site shall be protected from dust, water, or any other damage.

1.17 WORKING SPACE

- A. Adequate Working space shall be provided around electrical equipment in strict compliance with the Codes. In general, provide 6'6" of headroom and 36" minimum clear Work space in front of switchboards, panelboards, transformers, disconnect switches and controls for 120/208 volts and 42" for 277/480 volts. Carefully coordinate locations and orientation of electrical equipment with other divisions to ensure that Working space will be clear of piping, conduits, and equipment provided by others.

1.18 FIRE STOPPING SYSTEM DESCRIPTION AND PERFORMANCE REQUIREMENTS

- A. Firestopping Materials: ASTM E119, ASTM E814, UL 263, UL 1479, to achieve fire ratings of adjacent construction in accordance with FM and UL Design Numbers noted on Drawings.
- B. Firestop interruptions to fire rated assemblies, materials, and components.
- C. Firestopping: Conform to applicable code, FM, and UL for fire resistance ratings and surface burning characteristics.
- D. Firestopping: Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.19 COOPERATION AND COORDINATION

- A. Cooperate and coordinate with other crafts in putting the installation in place at a time when the space required by this installation is accessible. Work done without regard to other crafts shall be moved at the Contractor's expense.

1.20 INSPECTION

- A. The Contractor shall cooperate with the Architect and shall provide assistance at all times for the inspection of the electrical Work performed under this contract. He shall remove covers, operate machinery, or perform any reasonable Work which, in the opinion of the Engineer, will be necessary to determine the quality and adequacy of the Work.

1.21 MANUFACTURER'S DIRECTIONS

- A. Follow manufacturer's directions where these directions cover points not included on the drawings or in the specifications. When equipment is provided by other divisions, obtain directions from respective supplier.

1.22 WORKMANSHIP

- A. Good Workmanship shall be evidenced in the installation of all electrical materials and equipment. Equipment shall be level, plumb and true with the structure and other equipment. All materials shall be firmly secured in place and adequately supported and permanent. The recommendations of the National Electrical Contractors Association Standard of installation shall be followed except where otherwise specifically directed.

1.23 OPERATING TEST

- A. After the installation is complete, and at such time as the Engineer and other authorities having jurisdiction may request, the Contractor shall conduct an operating test for approval.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 GENERAL

- A. Manufacturer's Directions: Follow manufacturer's directions where manufacturers of articles used furnish directions covering points not specified or shown.
- B. All Work shall be done in orderly, Workmanlike manner and present neat appearing installation when completed.
- C. Provide metal backing plates, anchor plates, and similar items that are required for anchorage for the Work of this Section; securely weld or bolt to metal framing. Wood blocking or backing will not be permitted in combination with metal framing.
- D. Equipment: Accurately set and level, neatly place support and anchor properly. Anchorage shall conform to the requirements of California Building Code. No allowance will be made for negligence to foresee means of placing, installing or supporting equipment in position.
- E. Electrical products shall be anchored and fastened to building elements and finishes as follows:
 - 1. Concrete Structural Elements: Provide expansion anchors and powder actuated anchors.
 - 2. Steel Structural Elements: Provide beam clamps and spring steel clips.
 - 3. Concrete Surfaces: Provide expansion anchors.
 - 4. Solid Masonry Walls: Provide expansion anchors.
 - 5. Sheet Metal: Provide sheet metal screws.
 - 6. Wood Elements: Provide wood screws.
- F. All wiring shall be installed in conduit, unless specifically shown otherwise on Plans.

3.2 EXCAVATING AND BACKFILLING

- A. Excavate and backfill as required for installation of electrical Work. Restore all surfaces, roadways, sod, walks, curbs, walls, existing underground installation, etc., cut by installations to original condition in an acceptable manner. Maintain all warning signs, barricades, flares and lanterns as required by the Safety Orders and local ordinances.
- B. Excavation and Backfill: See EarthWork Section.

3.3 FIRESTOPPING

- A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit, and other items, requiring firestopping.
- B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.
- C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating.
- D. Place intumescent coating in sufficient coats to achieve rating required.
- E. Remove dam material after firestopping material has cured.
- F. Fire Rated Surface:
 - 1. Seal opening at floor, wall, partition, ceiling, and roof as follows:
 - a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
 - b. Size sleeve allowing minimum of 1-inch void between sleeve and building element.
 - c. Pack void with backing material.
 - d. Seal ends of sleeve with UL listed fire resistive silicone compound to meet fire rating of structure penetrated.
 - 2. Where cable tray, bus, cable bus, conduit, wireway, and trough penetrates fire rated surface, install firestopping product in accordance with manufacturer's instructions.
- G. Non-Rated Surfaces:
 - 1. Seal opening through non-fire rated wall, partition, floor, ceiling, and roof opening as follows:
 - a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
 - b. Size sleeve allowing minimum of 1-inch void between sleeve and building element.
 - c. Install type of firestopping material recommended by manufacturer.
 - 2. Install floor plates or ceiling plates where conduit, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
 - 3. Exterior wall openings below grade: Assemble rubber links of mechanical seal to size of conduit and tighten in place, in accordance with manufacturer's instructions.

3.4 EQUIPMENT IDENTIFICATION

- A. Provide screwed-on engraved nameplates of black lamicoid with 0.75 inch high white lettering for main switchboards (including each breaker and switch), all panelboards, transformers, all relays, timers, terminal cabinets (including each section) and all special panels and consoles.
- B. Provide identifying numbers for each breaker in all lighting and appliance panelboards in a permanently attached (not pasted on) directory with plexiglass cover with typewritten identification of each circuit.
- C. Provide screwed-on engraved nameplates of black lamicoid with white 0.5-inch-high lettering, identifying function, for all disconnect switches and starters.
- D. Provide labels at each end of each pull cord for all empty conduits/raceways.
- E. Indicate type of equipment, equipment designation and origination, ex. "PANEL-XXX fed from SWITCHBOARD-XXX", PANEL-XXX fed from TRANSFORMER-XXX", etc.

- F. Provide 0.25-inch-high white lettering labels for all receptacles to identify panel and circuit number.

3.5 CLOSING OF UNINSPECTED WORK

- A. Do not allow or cause any of Work installed hereunder to be covered up or enclosed before it has been inspected and approved.
- B. Should any Work be enclosed or covered up before it has been approved, uncover such Work and after it has been inspected and approved, make all repairs necessary to restore Work of others to conditions in which it was found at time of cutting, all without additional cost to Owner.

3.6 TESTING AND ADJUSTING

- A. Furnish all labor and test equipment required for the Work of this Division. Testing Work is defined as that Work necessary to establish that equipment has been properly assembled, connected, and checked to verify that intent and purpose of Drawings, manufacturer's instruction manuals, and directions of Architect have been accomplished in satisfactory manner.
- B. Test each individual circuit at panel with equipment connected for proper operation.
- C. Test each individual receptacle device for proper polarity and grounding.
- D. Test each ground fault circuit interrupter for proper operation.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Electrical Improvements: Lump Sum per Schedule of Values.

4.2 PAYMENT

- A. Progress payments for Work completed shall be based on Schedule of Values for Electrical Improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager.
- B. Full compensation for all electrical improvements in Additional Electrical Improvements (Additive Alternate #4) shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 00 00

SECTION 26 05 05 - SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removal of existing electrical equipment, wiring, and conduit in areas to be remodeled; removal of designated construction; dismantling, cutting and alterations for completion of the Work.
2. Disposal of materials.
3. Storage of removed materials.
4. Identification of utilities.
5. Salvaged items.
6. Protection of items to remain as indicated on Drawings.
7. Relocate existing equipment to accommodate construction.

1.2 SUBMITTALS

- ##### A. Shop Drawings:
- Indicate demolition and removal sequence and location of salvageable items; location and construction of temporary Work. Describe demolition removal procedures and schedule.

1.3 CLOSEOUT SUBMITTALS

- ##### A. Project Record Documents:
- Record actual locations of capped utilities, conduits, and equipment abandoned in place.

1.4 QUALITY ASSURANCE

- ##### A. Perform Work in accordance with State, Municipality, Highways, and Public Work's standard.

1.5 SCHEDULING

- ##### A. Schedule Work to coincide with new construction.
- ##### B. Cease operations immediately when structure appears to be in danger and notify Architect/Engineer. Do not resume operations until directed.

1.6 COORDINATION

- ##### A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- ##### B. Coordinate demolition Work with Project Manager and all other disciplines.
- ##### C. Coordinate and sequence demolition so as not to cause shutdown of operation of surrounding areas.
- ##### D. Shut-down Periods:
1. Arrange timing of shut-down periods of in-service panels with Project Manager. Do not shut down any utility without prior written approval and submitting a "Method of Procedure" for review.

2. Keep shut-down period to minimum or use intermittent period as directed by Project Manager.
 3. Maintain life-safety systems in full operation in occupied facilities, or provide notice minimum 72 hours in advance and fire watch.
- E. Identify salvage items in cooperation with Owner.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify field measurements and circuiting arrangements are as indicated in the Contract Documents.
- B. Verify wiring and equipment indicated to be demolished serve only abandoned facilities.
- C. Verify termination points for demolished services.
- D. Demolition drawings are based on casual field observation and existing record documents.
- E. Report discrepancies to Project Manager before disturbing existing installation.
- F. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

- A. Take care to ensure that there will be no damage to structural elements or portions there-of which are not to be removed. Erect and maintain temporary shoring, bracing, and other means to safeguard the structural integrity of the existing buildings and structures.
- B. Erect, and maintain temporary safeguards, including warning signs and lights, barricades, and similar measures, for protection of the public, Owner, Contractor's employees, and existing improvements to remain.
- C. Protect existing structures, facilities, and plant life from damage. Items damaged because of demolition operations shall be repaired or replaced, at no cost to the Owner.
- D. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
- E. Coordinate utility service outages as directed in the Contract Documents.
- F. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
 1. Permitting prior to initiating an outage or interruption of service.
 2. Make temporary connections to maintain service in areas adjacent to Work area.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Demolition Drawings are based on casual field observation and existing record documents. Report discrepancies to Owner or Architect/Engineer before disturbing existing installation.
- B. Remove exposed abandoned conduit.

- C. Remove conduit, wire, boxes, and fastening devices to avoid any interference with new installation.
- D. Disconnect and remove abandoned panelboards and distribution equipment.
- E. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
- F. Install temporary wiring and connections to maintain existing systems in service during construction.
- G. Perform Work on energized equipment or circuits with experienced and trained personnel.
- H. Remove, relocate, and extend existing installations to accommodate new construction.
- I. Repair adjacent construction and finishes damaged during demolition and extension Work.
- J. Remove exposed abandoned grounding and bonding components, fasteners and supports, and electrical identification components, including abandoned components above accessible ceiling finishes. Cut embedded support elements flush with walls and floors.
- K. Protect and retain power to existing active equipment remaining.
- L. Cap abandoned empty conduit at both ends.
- M. Jackhammering
 - 1. Jackhammering will be permitted only to a limited degree, and only with the prior written approval of the Owner.
 - 2. Do not jack-hammer within 2-inches of reinforcing or structural steel to remain; remove final 2-inches of material with chipping gun.

3.4 SALVAGE ITEMS

- A. Remove and protect items indicated on Drawings to be salvaged and turn over to Owner.
- B. Items of salvageable value may be removed as Work progresses. Transport salvaged items from site as they are removed.

3.5 REUSABLE ELECTRICAL EQUIPMENT

- A. Carefully remove equipment, materials, or fixtures which are to be reused.
- B. Disconnect, remove, or relocate existing electrical material and equipment interfering with new installation.

3.6 CUTTING AND PATCHING

- A. Make new openings neat, as close as possible to profiles indicated, and only to extent necessary for new Work.
- B. Do not cut or alter structural members unless specifically indicated or approved, and do not damage reinforcing or structural steel to remain.
- C. At concrete, masonry, paving, and other materials where edges of cuts and holes will remain exposed in the completed Work, make cuts using power-sawing and coring equipment. Do not over cut at corners of cut openings – saw overruns will not be permitted. Core hole at corner of proposed openings to insert blade and chip square.

- D. Upon completion of cutting and coring, clean remaining surfaces of loose particles and dust.
- E. Repair and patch all holes and openings from the removed electrical equipment, outlet boxes, etc. Coordinate with the General Contractor and the Architect to include and provide finished to match adjacent area.

3.7 CLEANING

- A. Remove demolished materials as Work progresses. Legally dispose.
- B. Keep Workplace neat.
- C. Clean surfaces on which new materials will be applied, removing adhesives, bitumen, and other adhering materials, as necessary to furnish acceptable substrates for new materials.
- D. Perform sandblasting, chipping, grinding, acid washing, etching, and other Work as required by conditions encountered and new materials involved
- E. Use of acids or other cleaning agents shall include neutralizing, washing, rinsing, and drying, as applicable.
- F. Determine substrate requirements for reconditions surfaces in cooperation with the manufacturer's representative and installer of each new installer involved.
- G. Clean surfaces on which new materials will be applied, removing adhesives, bitumen, and other adhering materials, as necessary to furnish acceptable substrates for new materials.

3.8 PROTECTION OF FINISHED WORK

- A. Do not permit traffic over unprotected floor surface.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Electrical Improvements and Additional Electrical Improvements (Additive Alternate #4) shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 05 05

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Single conductor building wire.
 - 2. Metal Clad Cable
 - 3. Service entrance cable
 - 4. Power and control tray cable.
 - 5. Wiring connectors and connections.
 - 6. Electrical tape.
 - 7. Wire pulling lubricant.
 - 8. Cable ties.

1.2 REFERENCES

- A. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- B. National Fire Protection Association:
 - 1. NFPA 70 - National Electrical Code with California Amendments.
 - 2. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.
- C. Underwriters Laboratories, Inc.:
 - 1. UL 1277 - Standard for Safety for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members.

1.3 SYSTEM DESCRIPTION

- A. Product Requirements: Provide products as follows:
 - 1. Stranded conductor for feeders and branch circuits.
 - 2. Stranded conductors for control circuits.
 - 3. Conductor not smaller than 12 AWG for power and lighting circuits.
 - 4. Conductor not smaller than 14 AWG for line voltage control circuits (120-volt).
 - 5. Increase wire size in branch circuits to limit voltage drop to a maximum of 3 percent.
 - 6. 10 AWG conductors for 20 ampere or larger as designated on Plans for 120-volt branch circuit home runs longer than 75 feet.
- B. Conductor and Cable Applications:
 - 1. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
 - 2. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
 - 3. Armored cable is not permitted.
 - 4. Concealed Dry Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.

5. Exposed Dry Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.
6. Above Accessible Ceilings: Use only building wire, Type THHN/THWN-2 insulation, in raceway.
7. Wet or Damp Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.
8. Exterior Locations: Use only building wire, Type XHHW-2 insulation, in raceway.
9. Underground Locations: Use only building wire, Type XHHW-2 insulation, in raceway.

1.4 DESIGN REQUIREMENTS

- A. Conductor sizes are based on copper unless indicated as aluminum or "AL".

1.5 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.
- C. Manufactured Wiring System Shop Drawings: Provide plan views indicating proposed system layout with components identified; indicate branch circuit connections.
- D. Field Quality Control Test Reports.
- E. Project Record Documents: Record actual installed circuiting arrangements. Record actual routing for underground circuits.

1.6 QUALITY ASSURANCE

- A. Provide wiring materials located in plenums with peak optical density not greater than 0.5, average optical density not greater than 0.15, and flame spread not greater than 5 feet when tested in accordance with NFPA 262.
- B. Perform Work in accordance with State, Municipality, Highways, and Public Work's standard.
- C. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.8 FIELD MEASUREMENTS

- A. Verify field measurements are as indicated on Drawings.

1.9 COORDINATION

- A. Where wire and cable destination are indicated and routing is not shown, determine routing and lengths required.
- B. Wire and cable routing indicated is approximate unless dimensioned.

- C. Determine required separation between wire, cable and other Work. Determine cable routing to avoid interference with other Work.

PART 2 - PRODUCTS

2.1 BUILDING WIRE

- A. Product Description: Single conductor insulated wire.
- B. Conductor: Copper stranded.
- C. Insulation Voltage Rating: 600 volts.
- D. Insulation:
 - 1. Copper Building Wire: Type THHN/THWN-2.
 - a. Installed Underground: Type XHHW-2.

2.2 SERVICE ENTRANCE CABLE

- A. Conductor: Copper.
- B. Insulation Voltage Rating: 600 volts.
- C. Insulation: Type SE.

2.3 POWER AND CONTROL TRAY CABLE

- A. Description: NFPA 70, Type TC cable listed and labeled as complying with UL 1277.
- B. Where exposed run cable is indicated between cable tray and utilization equipment in qualifying industrial establishments as determined by authorities having jurisdiction, provide tray cable marked as Type TC-ER in accordance with NFPA 70.
- C. Conductor Stranding: Stranded.
- D. Insulation Voltage Rating: 600 volts.
- E. Insulation: Type THHN/THWN-2.
- F. Grounding: Full-size integral equipment grounding conductor where indicated.
- G. Jacket: PVC or Chlorinated Polyethylene (CPE).

2.4 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 26 05 26.
- C. Wiring Connectors for Splices and Taps:
 - 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
 - 2. Copper Conductors Size 6 AWG and Larger: Use pre-insulated mechanical connectors or compression connectors.
- D. Wiring Connectors for Terminations:

1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
 3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
 4. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
 5. Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.
- E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
- G. Twist-on Insulated Spring Connectors: Rated 600-volt, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- H. Mechanical Connectors: Provide bolted type.
- I. Compression Connectors: Provide circumferential type or hex type crimp configuration.
- J. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.
- 2.5 PLASTIC TAPE:
- A. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
- 2.6 WIRE PULLING LUBRICANT:
- A. Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.
- 2.7 CABLE TIES:
- A. Material and tensile strength rating suitable for application.
- 2.8 INSULATING RESIN:
- A. Use two-part liquid epoxy resin with resin and catalyst in premeasured, sealed mixing pouch. Scotchcast 4 or equivalent.
- 2.9 REDUCING ADAPTERS:
- A. Burndy, Thomas and Betts or approved equal.

2.10 TERMINATIONS

- A. Terminal Lugs for Wires 6 AWG and Smaller: Solderless, compression type copper.
- B. Lugs for Wires 4 AWG and Larger: Color keyed, compression type copper, with insulating sealing collars.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that Work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.
- E. Verify that conditions are satisfactory for installation prior to starting Work.

3.2 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

3.3 EXISTING WORK

- A. Remove exposed abandoned wire and cable, including abandoned wire and cable above accessible ceiling finishes. Patch surfaces where removed cables pass through building finishes.
- B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.
- C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.
- D. Extend existing circuits using materials and methods as specified.
- E. Clean and repair existing wire and cable remaining or wire and cable to be reinstalled.

3.4 INSTALLATION

- A. Circuiting Requirements:
 - 1. Unless dimensioned, circuit routing indicated is diagrammatic.
 - 2. When circuit destination is indicated without specific routing, determine exact routing required.
 - 3. Arrange circuiting to minimize splices.
 - 4. Include circuit lengths required to install connected devices within 10 ft of location indicated.
 - 5. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
 - 6. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
 - 7. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is not permitted.

8. Provide dedicated neutral/grounded conductor for each individual branch circuit.
 9. Do not install 480/277-volt and 208/120-volt systems in the same conduit, junction box, cable auxiliary gutter, wireway, or other enclosure.
- B. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- C. Identify and color code wire and cable. Identify each conductor with its circuit number or other designation indicated.
- D. Special Techniques--Building Wire in Raceway:
1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
 2. Pull all conductors and cables together into raceway at same time.
 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
 5. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
 6. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
 7. Installation in Vertical Raceways: Provide supports where vertical rise exceeds permissible limits.
- E. Paralleled Conductors: Install and terminate conductors of the same length and electrical characteristics in the same manner.
- F. Special Techniques - Wiring Connections:
1. Clean conductor surfaces before installing lugs and connectors.
 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
 3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
 4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
 5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
 6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
 7. Terminate aluminum conductors with tin-plated, aluminum-bodied compression connectors only. Fill with antioxidant compound before installing conductor.
 8. Install suitable reducing connectors or mechanical connector adaptors for connecting aluminum conductors to copper conductors.
 9. Encapsulate below grade splices at outlet, pull and junction boxes with specified insulating resin kits. Make all splices watertight.
 10. Install waterproof wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller in outdoor or wet locations.
 11. Where oversized cables are used to accommodate voltage drop, whether a single or parallel feeder, provide appropriate reducing adapter and conductors for termination.

- G. Install stranded conductors for branch circuits. Install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.
- H. Install terminal lugs on ends of 600-volt wires unless lugs are furnished on connected device, such as circuit breakers.
- I. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars.
- J. For terminal lugs fastened together such as on motors, transformers, and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

3.5 WIRE COLOR

- A. General:
 - 1. For wire sizes 10 AWG and smaller, install wire colors in accordance with the following:
 - a. Black and red for single phase circuits at 120/240 volts.
 - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
 - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
 - 2. For wire sizes 8 AWG and larger, identify wire with colored tape at terminals, splices and boxes. Colors are as follows:
 - a. Black and red for single phase circuits at 120/240 volts.
 - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
 - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
- B. Neutral Conductors: White. When two or more neutrals are in one conduit, individually identify each with proper circuit number.
- C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded.
- D. Feeder Circuit Conductors: Uniquely color code each phase.
- E. Ground Conductors:
 - 1. For 6 AWG and smaller: Green.
 - 2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

3.6 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors.
- C. Correct deficiencies and replace damaged or defective conductors and cables.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Electrical Improvements and Additional Electrical Improvements (Additive Alternate #4) shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 05 19

SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Bars.
 - 2. Rod electrodes.
 - 3. Wire.
 - 4. Grounding well components.
 - 5. Connectors.

1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers:
 - 1. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
 - 2. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.
- B. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- C. National Fire Protection Association:
 - 1. NFPA 70 - National Electrical Code, with California Amendments.

1.3 SYSTEM DESCRIPTION

- A. Grounding systems use the following elements as grounding electrodes:
 - 1. Concrete-encased electrode.
 - 2. Ground Bars.

1.4 PERFORMANCE REQUIREMENTS

- A. Grounding System Resistance: 25 ohms maximum.

1.5 SUBMITTALS

- A. Product Data: Submit data on grounding electrodes and connections.
- B. Test Reports: Indicate overall resistance to ground and resistance of each electrode.
- C. Project Record Documents: Record actual locations of components and grounding electrodes.

1.6 QUALITY ASSURANCE

- A. Provide grounding materials conforming to requirements of NEC, IEEE 142, and UL labeled.
- B. Perform Work in accordance with State, Municipality, Highways, and Public Work's standard.
- C. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum 3 years documented experience.

1.8 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing Work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- B. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.
- C. Do not deliver items to Project before time of installation. Limit shipment of bulk and multiple-use materials to quantities needed for immediate installation.

1.10 COORDINATION

- A. Complete grounding and bonding of building reinforcing steel prior concrete placement.

PART 2 - PRODUCTS

2.1 GROUND BARS:

- A. Description: Copper rectangular ground bars with mounting brackets and insulators.
- B. Main Ground Bar Size: 1/4 by 4 by 12 inches unless otherwise indicated or required.
- C. Ground Bar Size: 1/4 by 12 inches unless otherwise indicated.
- D. Material: Annealed copper, pre-drilled.

2.2 ROD ELECTRODES

- A. Material: Copper bonded (copper-clad) steel.
- B. Size: 3/4-inch diameter by 10 feet long, unless otherwise indicated.
- C. Connector: Connector for exothermic welded connection.

2.3 WIRE

- A. Use stranded, annealed copper conductors for all sizes unless otherwise indicated.
- B. Use insulated conductors unless otherwise indicated.
 - 1. Use green-colored insulation.
 - 2. Exceptions:
 - a. Use bare copper conductors where installed underground in direct contact with earth.
 - b. Use bare copper conductors where directly encased in concrete (not in raceway).
 - c. Use bare copper conductors where installed in cable tray system.

3. Use #4/0 AWG, minimum, copper conductors where installed underground in direct contact with earth or encased in concrete (not in raceway).
4. Use #6 AWG, minimum, copper conductors where installed in cable tray systems.
5. Use #4 AWG, minimum, copper conductors for raceway bonding penetrating into a designated space, as indicated on the drawings.

2.4 GROUNDING WELL COMPONENTS

- A. Description: Open bottom round or rectangular well with access cover for testing and inspection; suitable for the expected load at the installed location.
- B. Size: As required to provide adequate access for testing and inspection, but not less than minimum size requirements specified.
- C. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 12 inches.
- D. Cover: H-20 traffic rated, factory-identified by permanent means with word "GROUND".

2.5 CONNECTORS

- A. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
- B. Unless otherwise indicated, use exothermic welded connections or irreversible compression connectors.
 1. Exceptions:
 - a. Use removable compression connectors for ground rods.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify final backfill and compaction has been completed before driving rod electrodes.

3.2 PREPARATION

- A. Remove paint, rust, mill oils, surface contaminants at connection points.

3.3 INSTALLATION

- A. Install in accordance with IEEE 142 and 1100.
- B. Grounding Electrode System: Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
 1. Provide continuous grounding electrode conductors without splice or joint.
 2. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end.
- C. Metal In-Ground Support Structure:
 1. Connect to metal in-ground support structure that is in direct contact with earth in accordance with NFPA 70.
- A. Concrete-Encased Electrode:

2. Connect to concrete-encased electrode consisting of not less than 20 feet of bare copper conductor not smaller than 4/0 AWG embedded at least 2-inches within concrete foundation or footing that is in direct contact with earth in accordance with NFPA 70.
- D. Ground Rod Electrode(s):
1. Provide ground access well for each electrode.
 2. Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches deep in accordance with NFPA 70 or provide ground plates.
 - a. Outdoor Installations: Unless otherwise indicated, install with top of rod 6 inches below finished grade.
 - b. Indoor Installations: Unless otherwise indicated, install with 4 inches of top of rod exposed.
- E. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.
- F. Where existing grounding and bonding system components are indicated to be reused, they may be reused only where they are free from corrosion, integrity and continuity are verified, and where acceptable to the authority having jurisdiction.
- G. Install grounding and bonding conductors concealed from view.
- H. Install grounding well pipe with cover at each rod location. Install well pipe top flush with finished grade.
- I. Install 4/0 AWG bare copper wire in foundation footing or as indicated on Drawings.
- J. Bond together metal siding not attached to grounded structure; bond to ground.
- K. Bond together reinforcing steel and metal accessories in pool and fountain structures.
- L. Install ground grid under access floors. Construct grid of 4 AWG bare copper wire installed on 24 inch centers both ways. Bond each access floor pedestal to grid.
- M. Bond together each metallic raceway, pipe, duct and other metal object entering space under access floors. Bond to underfloor ground grid. Install 2 AWG bare copper bonding conductor.
- N. Install grounding and bonding in patient care areas to meet requirements of NFPA 99.
- O. Equipment Grounding Conductor: Install separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.
- P. Connect to site grounding system.
- Q. Bond to lightning protection system.
- R. Install continuous grounding using underground cold water system and building steel as grounding electrode. Where water piping is not available, install artificial station ground by means of driven rods or buried electrodes.
- S. Permanently ground entire light and power system in accordance with NEC with California Amendments, including service equipment, distribution panels, lighting panelboards, switch and starter enclosures, motor frames, grounding type receptacles, and other exposed non-current carrying metal parts of electrical equipment.

- T. Install branch circuits feeding isolated ground receptacles with separate insulated grounding conductor, connected only at isolated ground receptacle, ground terminals, and at ground bus of serving panel.
- U. Accomplish grounding of electrical system by using insulated grounding conductor installed with feeders and branch circuit conductors in conduits. Size grounding conductors in accordance with NEC with California Amendments. Install from grounding bus of serving panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housing, light switch outlet boxes or metal enclosures of service equipment. Ground conduits by means of grounding bushings on terminations at panelboards with installed number 12 conductor to grounding bus.
- V. Grounding electrical system using continuous metal raceway system enclosing circuit conductors in accordance with NEC with California Amendments.
- W. Permanently attach equipment and grounding conductors prior to energizing equipment.
- X. Ground Bars:
 - 1. Mounting Height: 18 inches above finished floor unless otherwise indicated.
 - 2. Main Ground Bar:
 - a. Provide ground bar, separate from service equipment enclosure, for common connection point of grounding electrode system bonding jumpers as permitted in NFPA 70. Connect grounding electrode conductor provided for service-supplied system grounding to this ground bar.
 - b. Where ground bar location is not indicated, install in an accessible location as near as possible to building service/feeder disconnect enclosure. Preferred installation location is the main electrical room, if present.
- Y. Telecommunications Ground Bars:
 - 1. Mounting Height: 18 inches above finished floor unless otherwise indicated.
 - 2. Main Ground Bar: Where location is not indicated, install at an accessible location at main telecommunication rooms.
 - 3. Ground Bar: Where location is not indicated, install at an accessible location at satellite telecommunication rooms.
- Z. Make grounding and bonding connections using specified connectors.
 - 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking, or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 - 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 - 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
 - 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

3.4 APPLICATIONS:

- A. Service-Supplied System Grounding

1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory installed. Do not make other connections between neutral (grounded) conductors and ground on load side of service disconnect.

3.5 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Grounding and Bonding: Perform inspections and tests listed in NETA ATS, Section 7.13.
- C. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 72 hours does not constitute normally dry conditions.
- D. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.
- E. Perform leakage current tests in accordance with NFPA 99.
- F. Perform continuity testing in accordance with IEEE 142.
- G. When improper grounding is found on receptacles, check receptacles in entire Project and correct. Perform retest.
- H. Submit detailed reports indicating inspection and testing results and corrective actions taken.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Electrical Improvements and Additional Electrical Improvements (Additive Alternate #4) shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 05 26

SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Conduit supports.
 - 2. Formed steel channel.
 - 3. Spring steel clips.
 - 4. Sleeves.
 - 5. Mechanical sleeve seals.
 - 6. Firestopping relating to electrical Work.
 - 7. Firestopping accessories.
 - 8. Equipment bases and supports.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
 - 4. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.
- B. FM Global:
 - 1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved by Factory Mutual Research for Property Conservation.
- C. National Fire Protection Association:
 - 1. NFPA 70 - National Electrical Code with California Amendments.
- D. Underwriters Laboratories Inc.:
 - 1. UL 263 - Fire Tests of Building Construction and Materials.
 - 2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
 - 3. UL 1479 - Fire Tests of Through-Penetration Firestops.
 - 4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
 - 5. UL - Fire Resistance Directory.
- E. Intertek Testing Services (Warnock Hersey Listed):
 - 1. WH - Certification Listings.
- F.

1.3 DEFINITIONS

- A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SYSTEM DESCRIPTION

- A. Firestopping Materials: ASTM E119, ASTM E814, UL 263, UL 1479, to achieve fire ratings of adjacent construction in accordance with FM, UL, and WH Design Numbers noted on Drawings.
- B. Firestop interruptions to fire rated assemblies, materials, and components.

1.5 PERFORMANCE REQUIREMENTS

- A. Firestopping: Conform to applicable code, FM, UL, and WH for fire resistance ratings and surface burning characteristics.
- B. Firestopping: Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.6 SUBMITTALS

- A. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.
- B. Product Data:
 - 1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
 - 2. Firestopping: Submit data on product characteristics, performance, and limitation criteria.
- C. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.
- D. Design Data: Indicate load carrying capacity of trapeze hangers and hangers and supports.
- E. Submit details and calculations for support and anchors that are not specifically detailed on the Drawings where required by California Building Standards Code, California Code of Regulations, Title 24. Pre-approved systems may be used as noted below only if the pre-approval is current and accepted by the local agency having jurisdiction.
- F. Where pre-approved bracing systems will be employed, submit:
 - 1. System component brochure describing components used and detailed installation instructions.
 - 2. Loads to be transmitted to the structure at anchor points.
- G. Where pre-approved bracing systems are not used, submit details and calculations of proposed systems. Include:
 - 1. Detailed drawings and calculations showing system to be installed, stamped by a Structural Engineer registered in the state of California.
 - 2. Loads to be transmitted to the structure at anchor points.
 - 3. Submit detailed routing and installation drawings of all raceway systems requiring seismic supports for review. Include attachment points, raceway sizes and methods proposed for securing and attaching.
- H. Manufacturer's Installation Instructions:
 - 1. Hangers and Supports: Submit special procedures and assembly of components.
 - 2. Firestopping: Submit preparation and installation instructions.
- I. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

- J. Firestopping Engineering Judgments: For conditions not covered by UL listed designs, submit judgments by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.7 QUALITY ASSURANCE

- A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10-inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
 - 1. Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.
 - 2. Floor and Roof Penetrations: Fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
 - a. Floor Penetrations Within Wall Cavities: T-Rating is not required.
- B. Through Penetration Firestopping of Non-Fire Rated Floor and Roof Assemblies: Materials to resist free passage of flame and products of combustion.
 - 1. Noncombustible Penetrating Items: Noncombustible materials for penetrating items connecting maximum of three stories.
 - 2. Penetrating Items: Materials approved by authorities having jurisdiction for penetrating items connecting maximum of two stories.
- C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.
- D. Fire Resistant Joints Between Floor Slabs and Exterior Walls: ASTM E119 with 0.10-inch water gage minimum positive pressure differential to achieve fire resistant rating as indicated on Drawings for floor assembly.
- E. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- F. Perform Work in accordance with State, Municipality, Highways, and Public Work's standard.
- G. Maintain one copy of each document on site.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum 3 years documented experience.

1.9 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing Work of this section.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- B. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

1.11 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply firestopping materials when temperature of substrate material and ambient air is below 60 degrees F.
- B. Maintain this minimum temperature before, during, and for minimum 3 days after installation of firestopping materials.
- C. Provide ventilation in areas to receive solvent cured materials.

PART 2 - PRODUCTS

2.1 CONDUIT SUPPORTS

- A. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.
- B. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.
- C. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.
- D. Conduit clamps - general purpose: One-hole malleable iron for surface mounted conduits.
- E. Cable Ties: High strength nylon temperature rated to 185 degrees F. Self-locking.

2.2 FORMED STEEL CHANNEL

- A. Product Description: Galvanized 12 gage thick steel. With holes 1.5 inches on center.

2.3 SPRING STEEL CLIPS

- A. Product Description: Mounting hole and screw closure.

2.4 SLEEVES

- A. Sleeves for Through Non-fire Rated Floors: 18 gage thick galvanized steel.
- B. Sleeves for Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.
- C. Sleeves for Through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.
- D. Fire-stopping Insulation: Glass fiber type, non-combustible.

2.5 MECHANICAL SLEEVE SEALS

- A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

2.6 FIRESTOPPING

- A. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.
 - 1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
 - 2. Foam Firestopping Compounds: Single component foam compound.
 - 3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
 - 4. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
 - 5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
 - 6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
 - 7. Firestop Pillows: Formed mineral fiber pillows.
- B. Color: Dark gray.

2.7 FIRESTOPPING ACCESSORIES

- A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.
- B. Dam Material: Permanent:
 - 1. Mineral fiberboard.
 - 2. Mineral fiber matting.
 - 3. Sheet metal.
 - 4. Plywood or particle board.
 - 5. Alumina silicate fire board.
- C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.
- D. General:
 - 1. Furnish UL listed products.
 - 2. Select products with rating not less than rating of wall or floor being penetrated.
- E. Non-Rated Surfaces:
 - 1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where conduit is exposed.
 - 2. For exterior wall openings below grade, furnish modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill annular space between conduit and cored opening or water-stop type wall sleeve.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify openings are ready to receive sleeves.

- B. Verify openings are ready to receive firestopping.

3.2 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.
- B. Remove incompatible materials affecting bond.
- C. Install backing materials to arrest liquid material leakage.
- D. Obtain permission from Architect/Engineer before using powder-actuated anchors.
- E. Obtain permission from Architect/Engineer before drilling or cutting structural members.

3.3 INSTALLATION - HANGERS AND SUPPORTS

- A. Anchors and Fasteners:
 - 1. Concrete Structural Elements: Provide precast inserts and expansion anchors.
 - 2. Steel Structural Elements: Provide beam clamps, spring steel clips, steel ramset fasteners, and welded fasteners.
 - 3. Concrete Surfaces: Provide self-drilling anchors and expansion anchors.
 - 4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Provide toggle bolts.
 - 5. Solid Masonry Walls: Provide expansion anchors and preset inserts.
 - 6. Sheet Metal: Provide sheet metal screws.
 - 7. Wood Elements: Provide wood screws.
- B. Inserts:
 - 1. Install inserts for placement in concrete forms.
 - 2. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
 - 3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
 - 4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
 - 5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut flush with top of slab.
- C. Install conduit and raceway support and spacing in accordance with NEC.
- D. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
- E. Install multiple conduit runs on common hangers.
- F. Supports:
 - 1. Fabricate supports from structural steel or formed steel channel. Install hexagon head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
 - 2. Install surface mounted cabinets and panelboards with minimum of four anchors.
 - 3. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch off wall.
 - 4. Support vertical conduit at every floor.

3.4 INSTALLATION - FIRESTOPPING

- A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.
- B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.
- C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating.
- D. Place intumescent coating in sufficient coats to achieve rating required.
- E. Remove dam material after firestopping material has cured.
- F. Fire Rated Surface:
 - 1. Seal opening at floor, wall, partition, ceiling, and roof as follows:
 - a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
 - b. Size sleeve allowing minimum of 1-inch void between sleeve and building element.
 - c. Pack void with backing material.
 - d. Seal ends of sleeve with UL listed fire resistive silicone compound to meet fire rating of structure penetrated.
 - 2. Where cable tray, bus, cable bus, conduit, wireway, and trough penetrates fire rated surface, install firestopping product in accordance with manufacturer's instructions.
- G. Non-Rated Surfaces:
 - 1. Seal opening through non-fire rated wall, partition, floor, ceiling, and roof opening as follows:
 - a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
 - b. Size sleeve allowing minimum of 1-inch void between sleeve and building element.
 - c. Install type of firestopping material recommended by manufacturer.
 - 2. Install floor plates or ceiling plates where conduit, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
 - 3. Exterior wall openings below grade: Assemble rubber links of mechanical seal to size of conduit and tighten in place, in accordance with manufacturer's instructions.
 - 4. Interior partitions: Seal pipe penetrations at clean rooms, laboratories, hospital spaces, computer rooms, telecommunication rooms, and data rooms. Apply sealant to both sides of penetration to completely fill annular space between sleeve and conduit.

3.5 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

- A. Provide housekeeping pads of concrete, minimum 3-1/2 inches thick and extending 6 inches beyond supported equipment.
- B. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.
- C. Construct supports of formed steel channel. Brace and fasten with flanges bolted to structure.

3.6 INSTALLATION - SLEEVES

- A. Exterior watertight entries: Seal with adjustable interlocking rubber links.

- B. Conduit penetrations not required to be watertight: Sleeve and fill with silicon foam.
- C. Set sleeves in position in forms. Provide reinforcing around sleeves.
- D. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- E. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.
- F. Where conduit or raceway penetrates floor, ceiling, or wall, close off space between conduit or raceway and adjacent Work with fire stopping insulation and caulk airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.
- G. Install chrome plated steel escutcheons at finished surfaces.

3.7 FIELD QUALITY CONTROL

- A. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.8 CLEANING

- A. Clean adjacent surfaces of firestopping materials.

3.9 PROTECTION OF FINISHED WORK

- A. Protect adjacent surfaces from damage by material installation.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Electrical Improvements and Additional Electrical Improvements (Additive Alternate #4) shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 05 29

SECTION 26 05 33 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes conduit, surface raceways, J-hooks, wireways, outlet boxes, pull and junction boxes, concrete pull boxes and vaults, floor boxes.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
 - 2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.
 - 3. ANSI C80.5 - Aluminum Rigid Conduit - (ARC).
- B. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
 - 2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
 - 3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
 - 4. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports.
 - 5. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
 - 6. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.
 - 7. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

1.3 SYSTEM DESCRIPTION

- A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.
- B. All wiring shall be installed in raceway.
- C. Underground More than 5 feet outside Foundation Wall: Provide thick wall nonmetallic conduit. Provide cast metal boxes or nonmetallic handhole.
- D. Underground Within 5 feet from Foundation Wall: Provide thick wall nonmetallic conduit. Provide cast metal or nonmetallic boxes.
- E. In Slab Above Grade: Not permitted.
- F. Below Slab on Grade: Use thick wall nonmetallic conduit. Terminate with coated rigid steel elbows and short length of coated rigid steel conduit out of concrete.
- G. Outdoor Locations, Above Grade: Provide galvanized rigid steel conduit. Provide cast metal outlet, pull, and junction boxes.
- H. Wet and Damp Locations: galvanized rigid steel conduit. Provide cast metal outlet, junction, and pull boxes. Provide flush mounting outlet box in finished areas.

- I. Concealed Dry Locations: Provide electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes where shown on drawings. Provide J-hooks when shown on Plans.
- J. Exposed Interior Dry Locations: Use rigid steel conduit or intermediate metal conduit below eight feet or where subject to damage. Use rigid steel conduit, intermediate metal conduit, or electrical metallic tubing above eight feet or in electrical, mechanical or telecommunication rooms. Use sheet-metal or cast metal boxes. Use flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.

1.4 DESIGN REQUIREMENTS

- A. Minimum Raceway Size:
 - 1. 0.75 inch unless otherwise specified.
 - 2. 1 inch for homeruns unless otherwise specified.
 - 3. 1 inch for tele/data unless otherwise noted.
 - 4. 1 inch for AV systems unless otherwise noted.
 - 5. 1 inch for outside foundation line unless otherwise specified.

1.5 SUBMITTALS

- A. Product Data: Submit for the following:
 - 1. Nonmetallic conduit.
 - 2. Flexible nonmetallic conduit.
 - 3. Raceway fittings.
 - 4. Conduit bodies.
 - 5. Surface raceway.
 - 6. Wireway.
 - 7. Pull and junction boxes.
 - 8. Handholes.
- B. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.6 CLOSEOUT SUBMITTALS

- A. Project Record Documents:
 - 1. Record actual routing of conduits larger than 2 inches.
 - 2. Record actual locations and mounting heights of outlet, pull, and junction boxes.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- B. Protect PVC conduit from sunlight.

1.8 COORDINATION

- A. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

- B. Coordinate Work of this Division and Work of other Divisions in advance of installation. Provide additional Work to overcome tight conditions at no increase in Contract Sum.
- C. Coordinate installation of outlet boxes for equipment specified in other divisions.

PART 2 - PRODUCTS

2.1 METAL CONDUIT

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Rigid Aluminum Conduit: ANSI C80.5.
- C. Intermediate Metal Conduit (IMC): Rigid steel.
- D. Fittings and Conduit Bodies: NEMA FB 1. Fittings shall be steel/malleable iron with threaded fittings. Use insulated metallic bushings with lug where ground connections are required. Use plastic bushing for non-bonding applications.

2.2 PVC COATED METAL CONDUIT

- A. Product Description: NEMA RN 1; rigid steel conduit with external PVC coating, 40 mil thick.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel fittings with external PVC coating to match conduit.

2.3 ELECTRICAL METALLIC TUBING (EMT)

- A. Product Description: ANSI C80.3; galvanized tubing.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel couplings and connectors. Box connectors shall have with insulated throat. Set screw type couplings.

2.4 NONMETALLIC CONDUIT

- A. Product Description: NEMA TC 2; Schedule 40 PVC for normal power and 80 PVC for emergency power.
- B. Fittings and Conduit Bodies: NEMA TC 3.

2.5 WIREWAY

- A. Product Description: General purpose for indoor applications and raintight type for outdoor locations wire way.
- B. Knockouts: Manufacturer's standard.
- C. Cover: Hinged cover with full gaskets.
- D. Connector: Flanged.
- E. Fittings: Lay-in type with removable top, bottom, and side; captive screws and drip shield for outdoor.
- F. Finish: Rust inhibiting primer coating with gray enamel finish.

2.6 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
 - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 0.5-inch male fixture studs where required.
 - 2. Boxes for shall be 1.5-inch-deep by 4-inch square minimum.
 - 3. Concrete Ceiling Boxes: Concrete type.
 - 4. Provide rings as required.
- B. Cast Boxes: NEMA FB 1, Type FD, aluminum. Furnish gasketed cover by box manufacturer. Furnish threaded hubs.

2.7 BOX EXTENSIONS

- A. At rooms being remodeled and where existing walls are to receive new finish material, replace existing plaster rings with new rings.
- B. Provide extension rings as required so that boxes are flushed with finished wall or ceiling.

2.8 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
- B. Hinged Enclosures: As specified in Section 262716.
- C. Surface Mounted Cast Metal Box: NEMA 250, Type 4X; flat-flanged, surface mounted junction box:
 - 1. Material: Galvanized cast iron.
 - 2. Cover: Furnish with ground flange, neoprene gasket, and stainless-steel cover screws.

2.9 CONCRETE PULLBOXES AND VAULTS

- A. Boxes: Boxes shall be precast, high density reinforced concrete. In areas of vehicular traffic, boxes shall be H20 rated.
- B. Extensions: Extensions shall be provided at each pull box. Provide a minimum of (1) extension. Provide additional extension(s) as required to provide space in box for code required cable bending.
- C. Covers: Covers in concrete or asphalt shall be galvanized. In all other areas, covers shall be steel checker plate. In areas of vehicular traffic, lids shall be galvanized steel, H20 rated. All covers shall be provided with hold-down bolts.
- D. Floor: Provide poured concrete slab as detailed on Plans. At H20 rated boxes, provide manufacturer's concrete slab.
- E. Size: Provide size as noted on Plans. If size is not shown, provide boxes sized per codes.
- F. Labeling: Covers shall be factory marked as shown on Plans.
- G. In-Ground Cast Metal Box: NEMA 250, Type 6, outside flanged, recessed cover box for flush mounting:
 - 1. Material: Galvanized cast iron.
 - 2. Cover: Nonskid cover with neoprene gasket and stainless-steel cover screws.
 - 3. Cover Legend: "ELECTRIC".

- H. Concrete composite Handholes: Die-molded, concrete composite hand holes:
 - 1. Cable Entrance: Pre-cut 6-inch x 6-inch cable entrance at center bottom of each side.
 - 2. Extension: 12" reinforced concrete below box.
 - 3. Cover: Concrete composite cover with nonskid finish. Covers shall be marked "ELECTRIC", "SIGNAL", "GROUND" or as indicated on drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

3.2 EXISTING WORK

- A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.
- B. Remove concealed abandoned raceway to its source.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.
- D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
- E. Extend existing raceway and box installations using materials and methods [compatible with existing electrical installations, or] as specified.
- F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

3.3 INSTALLATION

- A. Ground and bond raceway and boxes.
- B. Fasten raceway and box supports to structure and finishes.
- C. Identify raceway and boxes.
- D. Arrange raceway and boxes to maintain headroom and present neat appearance.

3.4 INSTALLATION - RACEWAY

- A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.
- B. Unless otherwise specified, all raceway shall be installed concealed. Raceway may be run exposed on unfinished walls, in attic spaces, in electrical rooms and when routed to surface panels, cabinets or gutters.
- C. Arrange raceway supports to prevent misalignment during wiring installation.
- D. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- E. Group related raceway; support using conduit rack. Construct rack using steel channel and provide space on each for 25 percent additional raceways.

- F. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports
- G. Do not attach raceway to ceiling support wires or other piping systems.
- H. Construct wire way supports from steel channel.
- I. Route exposed raceway parallel and perpendicular to walls.
- J. Route raceway installed above accessible ceilings parallel and perpendicular to walls.
- K. Route conduit in and under slab from point-to-point.
- L. Maintain clearance between raceway and piping for maintenance purposes.
- M. Maintain 12-inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.
- N. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- O. Bring conduit to shoulder of fittings; fasten securely.
- P. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for minimum 20 minutes.
- Q. Install conduit hubs to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.
- R. Install no more than equivalent of three 90-degree bends between boxes. Install conduit bodies to make sharp changes in direction, as around beams. Install factory elbows for bends in metal conduit larger than 2-inch size.
- S. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.
- T. Install fittings to accommodate expansion and deflection where raceway crosses seismic and expansion joints.
- U. Install suitable pull string or cord in each empty raceway except sleeves and nipples.
- V. Install suitable caps to protect installed conduit against entrance of dirt and moisture.
- W. Surface Raceway:
 - 1. Install flat-head screws, clips, and straps to fasten raceway channel to surfaces; mount plumb and level. Install insulating bushings and inserts at connections to outlets and corner fittings.
 - 2. Anchor raceway to structural members using screws. Supports shall be concealed. Space screws 24" maximum on center. Each run shall have a minimum of (2) screws.
 - 3. Mount plumb and level.
 - 4. Install insulating bushings and inserts at connections to outlets and corner fittings.
 - 5. Raceway shown on Plans is schematic. Contractor shall coordinate exact routing and installation with building conditions and provide all parts, pieces, elbows, transition boxes and other items as required for a complete, closed and professionally installed installation.
 - 6. Coordinate exact routing with Architect prior to installation.
- X. Close ends and unused openings in wire way.

Y. Excavating and Trenching:

1. Perform all excavations as required for the installation of the Work included under this Section, including shoring of earth banks to prevent cave-ins and to protect Workmen and equipment.
2. Restore all surfaces, roadways, walks, curbs, walls, existing underground installation, etc., damaged or cut as a result of the excavations to their original condition in a manner approved by the Architect.
3. Stop machine excavation for trenches, in solid ground, several inches above required grade line, then trim trench bottom by hand to accurate grade so that a firm and uniform bearing throughout entire length of duct is provided. In lieu of above hand excavation in bottom of trench, Contractor may excavate to depth no less than 6" below required grade line and place a bed of sand or granular soil, properly compacted to provide a uniform grade and to provide a firm support for duct throughout its entire length.
4. Minimum conduit depth of pipe crown shall be 2'0" below finished or natural grade, unless detailed otherwise on Drawings. Conduits under parking lots, roadways, driveways, fire truck access routes, and other areas subject to vehicular traffic shall be installed a minimum of 24" below grade.

Z. Backfilling:

1. No backfilling operations shall begin until the required tests and inspection has been made. Should any of the Work be enclosed or covered up before it has been approved, Contractor shall, at his expense, uncover the Work.
2. After it has been inspected, tested, and approved, he shall make all repairs necessary to restore the Work of other Contractors to the condition in which it was found at the time of uncovering.
3. Except under existing paved area, walks, roads, or similar surfaces, and in cases where rock is encountered, backfill more than 12" above the top of the pipe shall be made using suitable excavated material placed in 6" layers measured before compaction, and tamped by machine.
4. Surface Work shall be replaced to match the existing.
5. Entire backfill for bored excavations under existing pavement, walks, roads, or similar surfaces, shall be made with clean sand compacted by flooding.
6. The Contractor shall install a marking tape 6" below grade and directly above all electrical conduits. The tape shall consist of a 4 mil insert plastic film specifically formulated for prolonged use underground. It shall be highly resistant to alkalis, acids and other destructive agents found in the soil. Tape shall have a minimum tensile strength of 20 lbs. per 3" with strips and a minimum elongation of 500%. Tape shall bear a continuous painted message repeated every 16" to 36" warning of the installation buried below. The message shall read "CAUTION – ELECTRICAL POWER LINE BURIED BELOW" or "CAUTION – ELECTRICAL SIGNAL LINES BURIED BELOW" as applies. Installation instruction for the tape shall be printed with each message along the entire length. The tape shall be as that manufactured by Reef Industries, Inc., or approved equal. For those installations involving non-metallic pipe, tape shall be aluminum foil encased in two layers of inert plastic film enabling the tape to be inductively located. Terre Tape "D" Warning Tapes are acceptable. When conduit below is plastic, tape shall have metallic content and shall respond to metal detectors. Do not exclude this. It will be required to verify the installation of this tape.

AA. Flashing and Sealing:

1. Flash and counter flash roof and wall penetrations in manner described under other applicable sections of this Specification and as approved by the Architect.
2. Conduits, ducts, etc., passing through finished walls and ceilings shall be fitted with steel escutcheon plates, chrome or paint finish as directed.
3. Conduits which penetrate floor slabs and concrete or masonry walls shall be grouted and sealed watertight at penetration.
4. Conduits penetrating exterior walls other than concrete or masonry shall be sealed watertight with polyurethane sealant.
5. Underground conduits stubbing up into a room shall be sealed around cables or pull string with foam sealant.
6. All flashing and sealing shall be provided by this Contractor.

3.5 INSTALLATION - BOXES

- A. Contractor shall refer to Drawings, specifications, and submittals covering Work of the other trades to coordinate outlet location. In the event of conflict between planned locations of outlet and other equipment or furnishing, Contractor shall not proceed until direction has been given by Architect.
- B. Unless otherwise specified or shown on Drawings, boxes shall be flush mounted with front edge of box or ring flush with wall or ceiling finish. Use steel plaster ring of appropriate depth in plastered or gypboard applications. Contractor shall review Architectural drawings and note wall and ceiling construction and finishes for each wall.
- C. Boxes shall not be installed back-to-back in walls. To prevent sound transfer, outlets, switches, etc. shown on opposing sides of the same wall shall be installed in separate stud spaces, except that outlets installed at different elevations may occupy the same stud space when box separation exceeds 18". Where these requirements cannot be met, Contractor shall provide insulation material between boxes.
- D. Orient boxes to accommodate wiring devices.
- E. Install wall mounted boxes at elevations to accommodate mounting heights as indicated on Drawings.
- F. Adjust box location up to 10 feet prior to rough-in to accommodate intended purpose.
- G. Orient boxes to accommodate wiring devices.
- H. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- I. In Accessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
- J. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.
- K. Do not install flush mounting box back-to-back in walls; install with minimum 6 inches separation. Install with minimum 24 inches separation in acoustic rated walls.
- L. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.
- M. Install stamped steel bridges to fasten flush mounting outlet box between studs.
- N. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

- O. Install adjustable steel channel fasteners for hung ceiling outlet box.
- P. Do not fasten boxes to ceiling support wires or other piping systems.
- Q. Support boxes independently of conduit.
- R. Install gang box where more than one device is mounted together. Do not use sectional box.
- S. Install gang box with plaster ring for single device outlets.

3.6 INSTALLATION CONCRETE COMPOSITE HANDHOLES

- A. Install boxes flush with finished grade or surface material.
- B. Provide hold down bolts for all covers.
- C. Provide minimum 12" depth of crushed rock or pea gravel below boxes for drainage. Ground bond steel cover plate with insulated green grounding conductor.
- D. Ground bond steel cover plate with insulated green grounding conductor.
- E. Grout between box and extension(s).
- F. Any box installed in areas of vehicular traffic shall be H20 rated. Contractor shall verify this requirement prior to ordering.

3.7 INTERFACE WITH OTHER PRODUCTS

- A. Install conduit to preserve fire resistance rating of partitions and other elements.
- B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation.
- C. Locate outlet boxes to allow luminaires positioned as indicated on reflected ceiling plan.
- D. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

3.8 ADJUSTING

- A. Adjust flush-mounting outlets to make front flush with finished wall material.
- B. Install knockout closures in unused openings in boxes.

3.9 CLEANING

- A. Clean interior of boxes to remove dust, debris, and other material.
- B. Clean exposed surfaces and restore finish.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Electrical Improvements and Additional Electrical Improvements (Additive Alternate #4) shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 05 33

SECTION 26 05 83 - WIRING CONNECTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes electrical connections to equipment.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA WD 1 - General Requirements for Wiring Devices.
 - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

1.3 SUBMITTALS

- A. Product Data: Provide wiring device manufacturer's catalog information showing dimensions, configurations, and construction.
- B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- C. Project Record Documents: Record actual locations, sizes, and configurations of equipment connections.

1.4 COORDINATION

- A. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
- B. Determine connection locations and requirements.
- C. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- D. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Disconnect Switches: As specified in Section 26 28 16.16 and in individual equipment sections.
- B. Wiring Devices: As specified in Section 26 27 26.
- C. Conduit: As specified in Section 26 05 33.
- D. Wire and Cable: As specified in Section 26 05 19.
- E. Boxes: As specified in Section 26 05 33.

2.2 CORD AND PLUGS

- A. Attachment Plug Construction: Conform to NEMA WD 1.
- B. Configuration: NEMA WD 6; match receptacle configuration at outlet furnished for equipment.

- C. Cord Construction: Type SO multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
- D. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify equipment is ready for electrical connection, for wiring, and to be energized.

3.2 EXISTING WORK

- A. Remove exposed abandoned equipment wiring connections, including abandoned connections above accessible ceiling finishes.
- B. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.
- C. Extend existing equipment connections using materials and methods as specified.

3.3 INSTALLATION

- A. Make electrical connections in accordance with equipment manufacturer's instructions.
- B. Make conduit connections to equipment using flexible conduit. Use liquid tight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Install receptacle outlet to accommodate connection with attachment plug.
- E. Do not field-supply cord and plugs; use manufacturer-provided only if equipment is NRTL listed and required to have one.
- F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- H. Install terminal block jumpers to complete equipment wiring requirements.
- I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.
- J. Coolers and Freezers: Cut and seal conduit openings in freezer and cooler walls, floor, and ceilings.

3.4 ADJUSTING

- A. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide

personnel to operate electrical system and checkout wiring connection components and configurations.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for electrical connections to equipment and other Work involved in Wiring Connections shall be considered as included in the prices paid for the various contract items of Work involved and therefore no additional compensation shall be made.

END OF SECTION 26 05 83

SECTION 26 09 23 - LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Occupancy sensors.
 - 2. Outdoor Photocells.
 - 3. Accessories

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of lighting control devices with millWork, furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate the placement of wall switch occupancy sensors with actual installed door swings.
 - 3. Coordinate the placement of occupancy sensors with millWork, furniture, equipment or other potential obstructions to motion detection coverage installed under other sections or by others.
 - 4. Coordinate the placement of photo sensors for daylighting controls with windows, skylights, and luminaires to achieve optimum operation. Coordinate placement with ductWork, piping, equipment, or other potential obstructions to light level measurement installed under other sections or by others.
 - 5. Notify Owner of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with Work.
- B. Sequencing:
 - 1. Do not install lighting control devices until final surface finishes and painting are complete.

1.3 SUBMITTALS

- A. Product Data: Include ratings, configurations, standard wiring diagrams, dimensions, colors, service condition requirements, and installed features.
 - 1. Occupancy Sensors: Include detailed motion detection coverage range diagrams.
- B. Shop Drawings:
 - 1. Occupancy Sensors: Provide lighting plan indicating location, model number, and orientation of each occupancy sensor and associated system component.
 - 2. Daylighting Controls: Provide lighting plan indicating location, model number, and orientation of each photo sensor and associated system component.
- C. Manufacturer's Installation Instructions: Include application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Field Quality Control Reports.
- E. Operation and Maintenance Data:
 - 1. Submit replacement parts numbers.

2. Submit manufacturer's published installation instructions and operating instructions.
 3. Recommended renewal parts list.
 - F. Project Record Documents: Record following information:
 1. Actual locations of components and record circuiting and switching arrangements.
 2. Wiring diagrams reflecting field installed conditions with identified and numbered system components and devices.
- 1.4 QUALITY ASSURANCE
- A. Comply with requirements of NFPA 70, CAL TITLE 24 P3, and CAL TITLE 24 P6.
 - B. Comply with requirements of CAL TITLE 24 P3 and CAL TITLE 24 P6.
 - C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Accept components on Site in manufacturer's packaging. Inspect for damage.
 - B. Protect components by storing in manufacturer's containers indoor protected from weather.
- 1.6 WARRANTY
- A. Furnish five-year manufacturer's warranty for components.

PART 2 - PRODUCTS

- 2.1 MANUFACTURERS
- A. Source Limitations: Furnish products produced by a single manufacturer and obtained from a single supplier.
- 2.2 LIGHTING CONTROL DEVICES - GENERAL REQUIREMENTS
- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - B. Unless specifically indicated to be excluded, provide all required conduit, wiring, connectors, hardware, components, and accessories as required for a complete operating system.
 - C. Products for Switching of Electronic Ballasts/Drivers: Tested and rated as suitable for peak inrush currents specified in NEMA 410.
 - D. Low-Voltage Lighting Control Systems: 0 to 10 V standard dimming controls, unless otherwise noted.
- 2.3 AREA, MULTI-LEVEL, AND SHUT-OFF CONTROLS
- A. All Occupancy Sensors:
 1. Description: Factory-assembled commercial specification grade devices for indoor use capable of sensing both major motion, such as walking, and minor motion, such as small desktop level movements, according to published coverage areas, for automatic control of load indicated.
 2. Sensor Technology:

- a. Passive Infrared (PIR) Occupancy Sensors: Designed to detect occupancy by sensing movement of thermal energy between zones.
- b. Passive Infrared/Ultrasonic Dual Technology Occupancy Sensors: Designed to detect occupancy using a combination of both passive infrared and ultrasonic technologies.
3. Provide LED to visually indicate motion detection with separate color LEDs for each sensor type in dual technology units.
4. Operation: Unless otherwise indicated, occupancy sensor to detect occupant presence and to detect no occupant presence during an adjustable turn-off delay.
5. Activation Settings: Field configurable turn-on and hold-on activation with settings for activation by either or both sensing technologies.
6. Passive Infrared Lens Field of View: Field customizable by addition of factory masking material, adjustment of integral blinders, or similar means to block motion detection in selected areas.
7. Turn-Off Delay: Field adjustable, Field adjustable with time delay settings up to 20 minutes.
8. Sensitivity: Field adjustable.
9. Compatibility: Compatible with the load being controlled and other lighting control devices also controlling the load.
10. Load Rating for Line Voltage Occupancy Sensors: As required to control the load indicated on drawings.
11. Use only wired sensors and control devices. Do not use wireless sensors and devices.

2.4 AUTOMATIC SCHEDULING CONTROLS

A. Digital Electronic Time Switches:

1. Description: Factory-assembled solid-state programmable controller with LCD display, listed and labeled as complying with UL 916 or UL 917.
2. Program Capability:
 - a. Astronomical Time Switches: Single channel, capable of different schedule for each day of the week with additional holiday schedule available to override normal schedule for selected days and field-configurable astronomic feature to automatically adjust for seasonal changes in sunrise and sunset times.
3. Schedule Capacity: Not less than 16 programmable on/off operations.
4. Provide automatic daylight savings time and leap year compensation.
5. Provide power outage backup to retain programming and maintain clock.
6. Manual override: Capable of overriding current schedule both permanently and temporarily until next scheduled event.
7. Provide remote photocell input with light level adjustment.
8. Input Supply Voltage: As indicated on the drawings.
9. Output Switch Configuration: As required to control the load indicated on drawings.
10. Provide lockable enclosure; environmental type per NEMA 250 as specified for the following installation locations:
 - a. Indoor clean, dry locations: Type 1.
 - b. Outdoor locations: Type 3R.
11. Provide flush-mounted unit where indicated, where mounted in public areas, or where mounted adjacent to flush-mounted equipment.

2.5 OUTDOOR PHOTO CONTROLS

A. Stem-Mounted Outdoor Photo Controls:

1. Description: Direct-wired photo control unit with threaded conduit mounting stem and field-adjustable swivel base, listed, and labeled as complying with UL 773A.
2. Housing: Weatherproof, impact resistant polycarbonate.
3. Photo Sensor: Cadmium sulfide.
4. Provide external sliding shield for field adjustment of light level activation.
5. Light Level Activation: 1 to 5 foot-candles turn-on and 3 to 1 turn-off to turn-on ratio with delayed turn-off.
6. Voltage: As required to control the load indicated on the drawings.
7. Failure Mode: Fails to the on position.
8. Load Rating: As required to control the load indicated on the drawings.
9. Provide accessory wall-mounting bracket where indicated or as required to complete installation.

B. Locking Receptacle-Mounted Outdoor Photo Controls

1. Description: Plug-in locking type photo control unit complying with ANSI C136.10 for mounting on a compatible receptacle, listed, and labeled as complying with UL 773.
2. Housing: Weatherproof, impact resistant UV stabilized polypropylene, color to be selected.
3. Photo Sensor: Silicon photo diode.
4. Light Level Activation: 1 to 3 foot-candles turn-on and 1.5 to 1 turn-off to turn-on ratio with instant turn-on and delayed turn-off.
5. Voltage: As required to control the load indicated on the drawings.
6. Failure Mode: Fails to the on position.
7. Load Rating: As required to control the load indicated on the drawings.
8. Surge Protection: Air gap arrester with 2.5 kV spark over.
9. Provide the following accessories where indicated or as required to complete installation:
 - a. Receptacle: Complying with ANSI C136.10.
 - b. Mounting Bracket.
 - c. Shorting Cap: Suitable for replacing locking photo control to complete circuit.

C. Button Type Outdoor Photo Controls

1. Description: Direct-wired photo control unit complying with ANSI C136.24 with weatherproof gasketed wall plate where required or indicated, listed, and labeled as complying with UL 773A.
2. Housing: Weather resistant polycarbonate.
3. Photo Sensor: Cadmium sulfide.
4. Light Level Activation: 1 to 3 foot-candles turn-on and 3 to 1 turn-off to turn-on ratio with delayed turn-off.
5. Voltage: As required to control the load indicated on the drawings.
6. Failure Mode: Fails to the on position.
7. Load Rating: As required to control the load indicated on the drawings.

D. Auxiliary Contacts:

1. Comply with NEMA ICS 5.
2. Provide number and type of contacts indicated or required to perform necessary functions, including holding (seal-in) circuit and interlocking, plus one normally open (NO) and one normally closed (NC) spare contact for each lighting contactor, minimum.

- E. Control and Timing Relays:
 - 1. Comply with NEMA ICS 5.
 - 2. Provide number and type of relays indicated or required to perform necessary functions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.
- C. Verify that openings for outlet boxes are neatly cut and will be completely covered by devices or wall plates.
- D. Verify that final surface finishes are complete, including painting.
- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to lighting control devices.
- F. Verify that the service voltage and ratings of lighting control devices are appropriate for the service voltage and load requirements at the location to be installed.
- G. Verify that conditions are satisfactory for installation prior to starting Work.

3.2 INSTALLATION

- A. Install lighting control devices in accordance with manufacturer's instructions.
- B. Unless otherwise indicated, connect lighting control device grounding terminal or conductor to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- C. Install lighting control devices plumb, level, and held securely in place.
- D. Where applicable, install lighting control devices and associated wall plates to fit completely flush to mounting surface with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.
- E. Occupancy Sensor Locations:
 - 1. Location Adjustments: Locations indicated are diagrammatic and only intended to indicate which rooms or areas require devices. Provide quantity and locations as required for complete coverage of respective room or area based on manufacturer's recommendations for installed devices.
 - 2. Locate ultrasonic and dual technology passive infrared/ultrasonic occupancy sensors a minimum of 4 feet from air supply ducts or other sources of heavy air flow and as per manufacturer's recommendations, in order to minimize false triggers.
- F. Outdoor Photo Control Locations:
 - 1. Where possible, locate outdoor photo controls with photo sensor facing north. If north facing photo sensor is not possible, install with photo sensor facing east, west, or down.
 - 2. Locate outdoor photo controls so that photo sensors do not face artificial light sources, including light sources controlled by the photo control itself.

- G. Install outdoor photo controls so that connections are weatherproof. Do not install photo controls with conduit stem facing up in order to prevent infiltration of water into the photo control.

3.3 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.
- B. Adjust position of directional occupancy sensors and outdoor motion sensors to achieve optimal coverage as required.
- C. Adjust time switch settings to achieve desired operation schedule as indicated. Record settings in written report to be included with submittals.
- D. Adjust external sliding shields on outdoor photo controls under optimum lighting conditions to achieve desired turn-on and turn-off activation as indicated.
- E. Adjust daylighting controls under optimum lighting conditions after all room finishes, furniture, and window treatments have been installed to achieve desired operation as indicated. Record settings in written report to be included with submittals. Readjust controls calibrated prior to installation of final room finishes, furniture, and window treatments that do not function properly
- F. Test each system component after installation to verify proper operation.
- G. Test relays, contactors, and switches after installation to confirm proper operation.
- H. Confirm correct loads are recorded on directory card in each panel.

3.4 DEMONSTRATION

- A. Upon completion of all line, load and interconnection wiring, and after all fixtures are installed and lamped, a qualified technician shall completely check the installation prior to energizing the system. Each installed occupancy sensor shall be tested in the test mode to see that lights turn off and on based on occupancy.
- B. At the time of checkout and testing, the Project Manager shall be thoroughly instructed in the proper operation of the system.
- C. Demonstrate operation of the following system components:
- D. Operation of each type of occupancy sensors.
- E. Furnish 2 hours to instruct Owner's personnel in operation and maintenance of system. Schedule training with Owner, provide at least 7 days' notice to Owner of training date.
 - 1. Instructor: Qualified Contractor familiar with the Project and with sufficient knowledge of the installed lighting control system and devices.
 - 2. Location: At Project site.

3.5 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Electrical Improvements and Additional Electrical Improvements (Additive Alternate #4) shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 09 23

SECTION 26 27 26 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes receptacles and wall plates

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA WD 1 - General Requirements for Wiring Devices.
 - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.
 - 3. NECA 1 - Standard for Good Workmanship in Electrical Construction.
 - 4. NECA 130 - Standard for Installing and Maintaining Wiring Devices.
 - 5. NFPA 70 - National Electrical Code, with California Amendments.
 - 6. UL 498 - Attachment Plugs and Receptacles.
 - 7. UL 514D - Cover Plates for Flush-Mounted Wiring Devices.
 - 8. UL 943 - Ground-Fault Circuit-Interrupters.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of outlet boxes with furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
 - 3. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.
 - 4. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
- B. Sequencing:
 - 1. Do not install wiring devices until final surface finishes and painting are complete.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's catalog information showing dimensions, colors, and configurations.
 - 1. Wall Dimmers: Include derating information for ganged multiple devices.
- B. Field Quality Control Test Reports.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Operation and Maintenance Data:
 - 1. GFCI Receptacles: Include information on status indicators.

1.5 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 WIRING DEVICE APPLICATIONS

- A. Provide wiring devices suitable for intended use and with ratings adequate for load served.
- B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.
- C. GFCI Protection: Provide GFCI protection for all single-phase receptacles rated 150-volt to ground or less, 50-amps or less and all three-phase receptacles rated 150-volt to ground or less, 100-amps or less in the following locations:
 - 1. Within 6 feet from the top inside edge of the bowl of the sink.
 - 2. Bathrooms.
 - 3. Kitchens.
 - 4. Rooftops.
 - 5. Outdoors and Indoor Wet Locations. Provide weather resistant GFCI type receptacle with extra duty weatherproof while in use cover.
 - 6. Serving electric drinking fountains.
 - 7. Garages, service bays, and similar areas other than vehicle exhibition halls and showrooms.
 - 8. Locker rooms with associated showering facilities.
 - 9. Crawl spaces installed at or below grade level.
 - 10. Unfinished portions or areas of the basement not intended as habitable rooms.
 - 11. Kitchen dishwasher branch circuit.
 - 12. Crawl space lighting outlets.
 - 13.
- D. AFCI Protection: Provide AFCI protection for 15-amp and 20-amp, 120-volt receptacles in dwelling units.
- E. Unless noted otherwise, do not use combination switch/receptacle devices.

2.2 WIRING DEVICE FINISHES

- A. Provide wiring device finishes as described below unless otherwise indicated.
- B. Wiring Devices, Unless Otherwise Indicated: White with white nylon wall plate.
- C. Wiring Devices Installed in Finished Spaces: White with white nylon wall plate.
- D. Wiring Devices Installed in Unfinished Spaces: White with galvanized steel wall plate.
- E. Wiring Devices Installed in Wet or Damp Locations: White with specified weatherproof while in use cover.
- F. Wiring Devices Connected to Standby Power: Red with red nylon wall plate.

2.3 RECEPTACLES

- A. Manufacturers:
 - 1. Furnish wiring devices and associated components produced by a single manufacturer and obtained from a single supplier.
- B. General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498; types as indicated on the drawings.
 - 1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
 - 2. NEMA configurations specified are according to NEMA WD 6.
- C. Convenience Receptacle: Standard Convenience Receptacles: Heavy duty specification grade, 20-amp, 125-volt, NEMA 5-20R, with finger grooves; single or duplex as indicated on the drawings.
- D. GFCI Receptacles:
 - 1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
 - a. Provide test and reset buttons of same color as device.
 - 2. Standard GFCI Receptacles: Heavy duty specification grade, duplex, 20-amp, 125-volt, NEMA 5-20R.
 - 3. Weather Resistant GFCI Receptacles: Heavy duty specification grade, 20-amp, 125-volt, NEMA 5-20R, listed and labeled as weather resistant type complying with UL 498 Supplement SE suitable for installation in damp or wet locations, single or duplex as indicated on the drawings.
 - 4. Blank Face GFCI Receptacles: Heavy duty specification grade, 20-amp, 125-volt.
- E. Tamper Resistant Receptacle: Receptacle with internal spring-loaded mechanical shutter. Heavy duty specification grade, duplex, 20-amp, 125-volt, NEMA 5-20R.
- F. Special Purpose Receptacles: Type and rating and number of poles indicated or required for the equipment. NEMA configuration of special purpose receptacle shall be coordinated with equipment prior to ordering.

2.4 WALL PLATES

- A. Wall Plates: Comply with UL 514D.
 - 1. Configuration: One-piece cover as required for quantity and types of corresponding wiring devices.
 - 2. Size: Standard.
 - 3. Screws: Metal with slotted heads finished to match wall plate finish.
- B. Nylon Wall Plates: Smooth finish, high-impact thermoplastic.
- C. Stainless Steel Wall Plates: Brushed satin finish, Type 302 stainless steel.
- D. Weatherproof Covers for Damp Locations: Gasketed, thermoplastic, with self-closing hinged cover and corrosion-resistant screws; listed as suitable for use in wet locations with cover closed.

- E. Weatherproof Covers for Wet Locations: Gasketed, thermoplastic, with hinged lockable cover and corrosion-resistant screws; listed as suitable for use in wet locations while in use with attachment plugs connected and identified as extra-duty type.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.
- C. Verify that wall openings are neatly cut and will be completely covered by wall plates.
- D. Verify that final surface finishes are complete, including painting.
- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.
- F. Verify that core drilled holes for poke-through assemblies are in proper locations.
- G. Verify that openings in access floor are in proper locations.
- H. Verify that conditions are satisfactory for installation prior to starting Work.

3.2 PREPARATION

- A. Clean debris from outlet boxes.

3.3 EXISTING WORK

- A. Disconnect and remove abandoned wiring devices.
- B. Modify installation to maintain access to existing wiring devices to remain active.
- C. Clean and repair existing wiring devices to remain or to be reinstalled.

3.4 INSTALLATION

- A. Install devices plumb and level.
- B. Install receptacles with grounding pole on top.
- C. Connect wiring device grounding terminal to outlet box with bonding jumper and branch circuit equipment grounding conductor.
- D. Install wall plates on flush mounted switches, receptacles, and blank outlets.
- E. Install decorative plates on switch, receptacle, and blank outlets in finished areas.
- F. Connect wiring devices by wrapping solid conductor around screw terminal. Install stranded conductor for branch circuits 10 AWG and smaller. When stranded conductors are used in lieu of solid, use crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under device screws.
- G. Use jumbo size plates for outlets installed in masonry walls.

- H. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.
- I. Unless noted otherwise, do not use combination switch/receptacle devices.

3.5 INTERFACE WITH OTHER PRODUCTS

- A. Coordinate locations of outlet boxes to obtain mounting heights as specified and as indicated on Architectural elevations.
- B. Install wall switch/dimmers per drawings.
- C. Install convenience receptacle 18 inches to center of box above finished floor. No convenience outlet or wall switch shall be mounted below the 15" minimum low reach.
- D. Install convenience receptacle 42 inches to center of box above finished floor for receptacles mounted above counter.
- E. Install dimmer 48 inches to top of box above finished floor.

3.6 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.
- B. Operate each wall switch with circuit energized and verify proper operation.
- C. Verify each receptacle device is energized.
- D. Test each receptacle device for proper polarity.
- E. Test each GFCI receptacle device for proper operation.

3.7 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.

3.8 CLEANING

- A. Clean exposed surfaces to remove splatters and restore finish.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Electrical Improvements and Additional Electrical Improvements (Additive Alternate #4) shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 27 26

SECTION 26 56 00 - EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Exterior luminaires.
 - 2. Ballasts.
 - 3. Lamps.
 - 4. Poles and accessories.
 - 5. Luminaire accessories.

1.2 REFERENCE STANDARDS

- A. CAL TITLE 24 P3 - California Code of Regulations, Title 24, Part 3 (California Electrical Code).
- B. CAL TITLE 24 P6 - California Code of Regulations, Title 24, Part 6 (California Energy Code).
- C. IEEE C2 - National Electrical Safety Code.
- D. IES LM-63 - IESNA Standard File Format for Electronic Transfer of Photometric Data and Related Information.
- E. IES LM-79 - Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products.
- F. IES LM-80 - Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays, and Modules.
- G. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- H. NECA/IESNA 501 - Standard for Installing Exterior Lighting Systems.
- I. NFPA 70 - National Electrical Code, with California Amendments.
- J. UL 1598 - Luminaires.
- K. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate placement of poles and associated foundations with utilities, curbs, sidewalks, trees, walls, fences, striping, etc. installed under other sections or by others. Coordinate elevation to obtain specified foundation height.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
 - 2. Provide photometric calculations where luminaires are proposed for substitution.
 - 3. Provide structural calculations for each pole.

- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, weight, effective Projected area (EPA), and installed accessories; include model number nomenclature clearly marked with all proposed features.
 - 1. LED Luminaires:
 - a. Include estimated useful life, calculated based on IES LM-80 test data.
 - b. Include IES LM-79 test report.
 - 2. Provide electronic files of photometric data certified by a National Voluntary Laboratory Accreditation Program (NVLAP) lab or independent testing agency in IES LM-63 standard format upon request.
 - 3. Ballasts and LED Drivers: Include wiring diagrams and list of compatible lamp configurations.
 - 4. Lamps: Include rated life, color temperature, color rendering index (CRI), and initial and mean lumen output.
 - 5. Poles: Include information on maximum supported effective Projected area (EPA) and weight for the design wind speed.
 - C. Certificates for Poles and Accessories: Manufacturer's documentation that products are suitable for the luminaires to be installed and comply with designated structural design criteria.
 - D. Certification that luminaire, ballast or LED driver, and lamps comply with CAL TITLE 24 P6 requirements.
 - E. Field Quality Control Reports.
 - 1. Include test report indicating measured illumination levels.
 - F. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of product.
 - G. Operation and Maintenance Data: Instructions for each product including information on replacement parts.
 - H. Maintenance Materials: Furnish the following for LLNS's use in maintenance of Project.
 - 1. Extra Lamps: Ten percent of total quantity installed for each type, but not less than two of each type.
 - 2. Extra Ballasts: Two percent of total quantity installed for each type, but not less than one of each type.
 - 3. Touch-Up Paint: 2 gallons, to match color of pole finish.
 - I. Project Record Documents: Record actual connections and locations of pole foundations, luminaires, and any pull or junction boxes.
- 1.5 QUALITY ASSURANCE
- A. Comply with requirements of NFPA 70.
 - B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Receive, handle, and store products according to NECA/IESNA 501 and manufacturer's written instructions.
- B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.7 WARRANTY

- A. Provide five-year manufacturer warranty for all LED luminaires, drivers, material, fixture finish, and Workmanship. On-site warranty includes transportation, removal, and installation of new products.
 - 1. Finish warranty includes warranty against failure and against substantial deterioration such as blistering, cracking, peeling, chalking, or fading.
 - 2. Material warranty includes power supply units (drivers) and replacement with more than 10 percent of LED sources in any lightbar or subassembly are defection or non-starting.
- B. Provide luminaire useful life certificate.

PART 2 - PRODUCTS

2.1 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.

2.2 LED LUMINAIRES

- A. Where a specific manufacturer or model is indicated elsewhere in the luminaire schedule or on the drawings, substitutions are not permitted unless explicitly indicated.
- B. Provide products of the same type by the same manufacturer.
- C. Provide products that comply with requirements of NFPA 70, CAL TITLE 24 P3, and CAL TITLE 24 P6.
- D. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- E. Provide products that comply with the seismic requirements of ASCE 7-16.
- F. Provide products listed, classified, and labeled as suitable for the purpose intended.
- G. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts or lamp drivers, reflectors, lenses, housings, and other components required to position, energize, and protect the lamp and distribute the light.
- H. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, and accessories as necessary for a complete operating system.
- I. Provide products suitable to withstand normal handling, installation, and service without damage, distortion, corrosion, fading, or discoloring.
- J. Provide products with a BUG rating of U0-G3 or better with a maximum rated wattage of 40 W.
- K. Provide luminaires listed and labeled as suitable for wet locations unless otherwise indicated.
- L. LED Luminaires:

1. Components: UL 8750 recognized or listed as applicable.
2. Tested in accordance with IES LM-79 and IES LM-80 prior to shipment from the factory.
3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.3 POWER SUPPLY UNITS (DRIVERS)

A. Manufacturers:

1. Where a specific manufacturer or model is indicated elsewhere in the luminaire schedule or on the drawings, substitutions are not permitted unless explicitly indicated.

B. LED Drivers:

1. Minimum Efficiency: Provide drivers complying with current federal and CAL TITLE 24 P6 efficiency standards for ballasts and not less than 85 percent efficiency.
2. Drive current to each individual LED must not exceed the current limit specification of the LED manufacturer.
3. Rated to operation between ambient temperatures of 20 degrees F and 104 degrees F.
4. Designed to operation on the voltage system to which they are connected, typically ranging from for 120 to 480 V.
5. Operating Frequency: 60 Hz
6. Power Factor (PF): 0.90, minimum
7. Total Harmonic Distortion (THD): 20 percent, maximum
8. Must meet requirements of 47 CFR 15, class B
9. Control Compatibility: Fully compatible with the lighting controls to be installed.
10. Power Supply: Mounted integral to the luminaire. Remote mounting of power supply is prohibited.
11. Equipped with over-temperature protection circuit that turns lamp off until normal operating temperature is achieved.

C. Dimmable LED Drivers:

1. Dimming Range: Continuous dimming from 100 percent to 10 percent relative light output unless dimming capability to lower level is indicated, without flicker.
2. Control Compatibility: Fully compatible with the dimming controls to be installed.

D. LED Luminaire Surge Protection: Provide surge protection integral to luminaire to meet C low waveforms as defined by IEEE C62.41.2, scenario 1, location category C.

2.4 LAMPS

A. Lamps - General Requirements:

1. Unless explicitly excluded, provide new, compatible, operable lamps in each luminaire.
2. Verify compatibility of specified lamps with luminaires to be installed. Where lamps are not specified, provide lamps per luminaire manufacturer's recommendations.
3. Minimum Efficiency: Provide lamps complying with all current applicable federal and CAL TITLE 24 P6 lamp efficiency standards.
4. Color Temperature Consistency: Unless otherwise indicated, for each type of lamp furnish products which are consistent in perceived color temperature. Replace lamps that are determined to be inconsistent in perceived color temperature.
5. Light Distribution Pattern: As indicated on drawings.

B. LED Lamps:

1. Correlated Color Temperature (CCT): 4000 degrees K, nominal, in accordance with NEMA C78.377
2. Color Rendering Index (CRI): Greater than or equal to 70 for 4000-degree K light sources.
3. Color Consistency: Manufacturer must utilize a maximum 4-step MacAdam ellipse binning tolerance for color consistency of LEDs used in luminaires.

2.5 POLES

A. All Poles:

1. Provide poles and associated support components suitable for the luminaire(s) and associated supports and accessories to be installed.
2. Structural Design Criteria:
 - a. Comply with AASHTO LTS.
 - b. Wind Load: Include effective Projected area (EPA) of luminaire(s) and associated supports and accessories to be installed.
 - 1) Design Wind Speed: 105 miles per hour, with gust factor of 1.3.
 - c. Dead Load: Include weight of proposed luminaire(s) and associated supports and accessories.
 - d. Include structural calculations demonstrating compliance with submittals.
3. Material: Anodized aluminum, unless otherwise indicated.
4. Shape: Square straight, unless otherwise indicated.
 - a. Parking Lots and Roadways: 5-inch square.
 - b. Bikeways, Pedestrian Pathways, Sidewalks, and Crosswalks: 4-inch square.
5. Pole Length:
 - a. Parking Lots: 25-feet, 0-inches.
 - b. Roadways: 30-feet, 0-inches.
 - c. Bikeways, Pedestrian Pathways, Sidewalks, and Crosswalks: 10-feet, 0-inches.
6. Finish: Dark bronze, unless otherwise indicated.
7. Mounting: Install on concrete foundation, height as indicated on the drawings, unless otherwise indicated.
8. Unless otherwise indicated, provide with the following features/accessories:
 - a. Handhole, 10-inch by 17-inch size.
 - b. Anchor bolts with leveling nuts or leveling shims.
 - c. Ground lug accessible from handhole.

B. Metal Poles: Provide ground lug, accessible from handhole.

2.6 CONTROLS

A. Provide a control system interface within each luminaire to provide control by photocell, lighting contactor, hand-off, auto switch, and bypass switch or lighting control panel.

B. Photocells:

1. Designed to fail in the ON position
2. Provide hermetically sealed light sensor type.
3. Provide time delay to prevent accidental switching from transient light sources.
4. Provide surge protection.

C. Lighting Contactor:

1. Type: NEMA ICS 2
2. Enclosure: NEMA type 3R

3. Poles: 2 poles; configured as normally open (NO) and normally closed (NC).
4. Contacts: Silver cadmium oxide, double break; no arcing contacts.
5. Provide contactor with hand-off-automatic selector switch.

2.7 ACCESSORIES

- A. Stems for Suspended Luminaires: Steel tubing, minimum 1/2" size, factory finished to match luminaire or field-painted as directed.
- B. Suspension Wire for Suspended Luminaires: Sized to support the maximum load, but not smaller than 12-gauge.
- C. Sway Bracing: Seismic restraint cables.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
- C. Verify that suitable support frames are installed where required.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
- E. Verify that conditions are satisfactory for installation prior to starting Work.

3.2 INSTALLATION

- A. Coordinate locations of outlet boxes as required for installation of luminaires provided under this section.
- B. Install products in accordance with manufacturer's instructions.
- C. Install luminaires in accordance with NECA/IESNA 501.
- D. Provide required support and attachment.
- E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- F. Recessed Luminaires:
 1. Install trims tight to mounting surface with no visible light leakage.
 2. Luminaires Recessed in Fire-Rated Ceilings: Install using accessories and firestopping materials to meet regulatory requirements for fire rating.
- G. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.
 1. Small Buildings and Trailers: Mount bottom of fixture 8-feet, 0-inches above finished grade.
 2. Large Buildings: Mount bottom of fixture 12-feet, 0-inches above finished grade.
- H. Pole-Mounted Luminaires:
 1. Maintain the following minimum clearances:
 - a. Comply with IEEE C2.

- b. Comply with utility company requirements.
 - 2. Foundation-Mounted Poles:
 - a. Provide cast-in-place concrete foundations for poles unless otherwise indicated.
 - 1) Install anchor bolts plumb per template furnished by pole manufacturer.
 - 2) Position conduits to enter pole shaft.
 - b. Install foundations plumb.
 - c. Install poles plumb, using leveling nuts as required to adjust to plumb.
 - d. Tighten anchor bolt nuts to manufacturer's recommended torque.
 - e. Install non-shrink grout between pole anchor base and concrete foundation, leaving small channel for condensation drainage.
 - f. Install anchor base covers or anchor bolt covers as indicated.
 - 3. Grounding:
 - a. Bond luminaires, metal accessories, metal poles, and foundation reinforcement to branch circuit equipment grounding conductor.
 - b. Provide concrete-encased electrode with the following characteristics:
 - 1) Minimum 20-feet of unspliced AWG #4 bare copper wire with minimum 2-inches of concrete encasement that is in direct contact with earth.
 - 2) Exothermic welded connection to rebar system.
 - 3) Connect to grounding lug inside pole
 - 4. Install separate service conductors, 12 AWG copper, from each luminaire down to handhole for connection to branch circuit conductors.
 - 5. Provide dedicated handhole for each pole.
 - I. Suspended Luminaires:
 - 1. Install suspension wires attached directly to the structure.
 - 2. Brace pendants, rods, cable, and chains 4-feet or longer to prevent swaying. Install three seismic cables at 120-degree separation.
 - J. Install accessories furnished with each luminaire.
 - K. Bond products and metal accessories to branch circuit equipment grounding conductor.
- 3.3 FIELD QUALITY CONTROL
- A. Inspect each product for damage and defects.
 - B. Operate each luminaire after installation and connection. Inspect for improper connections and operation.
 - C. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts.
 - D. Measure illumination levels to verify conformance with performance requirements.
 - E. Take measurements during night sky, without moon or with heavy overcast clouds effectively obscuring moon.
- 3.4 ADJUSTING
- A. Aim and adjust luminaries to provide illumination levels and distribution as indicated on Drawings.
 - B. Luminaires with Field-Rotatable Optics: Position optics according to manufacturer's instructions to achieve lighting distribution as indicated.

3.5 CLEANING

- A. Clean photometric control surfaces as recommended by manufacturer.
- B. Clean finishes and touch up damage.

3.6 PROTECTION OF FINISHED WORK

- A. Relamp luminaries having failed lamps at Substantial Completion.
- B. Replace ballast and drivers that have failed at Substantial Completion.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Additional Electrical Improvements (Additive Alternate #4): Lump Sum per Schedule of Values.

4.2 PAYMENT

- A. Progress payments for Work completed shall be based on Schedule of Values for Additional Electrical Improvements (Additive Alternate #4) in place, inspected by the authority having jurisdiction, and accepted by Project Manager.
- B. Full compensation for all Electrical Improvements shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 26 56 00

SECTION 31 10 00 – SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Tree pruning.
 - 2. Final clearing.
- B. Related Sections
 - 1. Section 01 10 00 "Summary."
 - 2. Section 01 56 39 "Temporary Tree and Plant Protection."

1.2 PRIOR WORK

- A. CCC shall complete all tree and brush removal and vegetation clearing prior to start of Project Work.
- B. Demolition of structures, paving, utilities, railroad tracks, and other constructed features and lowering of well cap, and salvage of existing improvements will be completed by others prior to start of Project Work.
- C. Contractor shall be responsible for tree pruning and final clearing as required.

1.3 DEFINITIONS

- A. Satisfactory Soil Material: Clean fill graded free of roots and rocks larger than three inches, debris, weeds, organic material, and other deleterious material.

1.4 SUBMITTALS

- A. Tree Pruning Plan:
 - 1. Written plan signed by Project Arborist detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction. Plan shall identify trees by tree number, consistent with the Project Arborist report (Appendix A) and shall note extent of Work to be done on each tree. Removal of any living branches greater than 2" will be called out in plan.
 - 2. If additional tree removals or pruning is required after approval of tree removal and pruning plan, submit amendment for approval by Project Manager.

1.5 INSPECTIONS

- A. Pre-Pruning Inspection: Mark trees to be pruned and confirm pruning approach and strategy with Project Manager prior to beginning Work.

1.6 MATERIAL OWNERSHIP

- A. Except for materials indicated to be stockpiled, salvaged, or otherwise remain County's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.7 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
- B. Do not close or obstruct streets, trails or other adjacent occupied or used facilities without permission from County and authorities having jurisdiction.
- C. Provide alternate routes around closed or obstructed trafficways if required by County.
- D. Salvageable Improvements: Store salvaged items in location in staging area approved by County.
- E. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- F. Do not commence final clearing, or other ground-disturbing operations until site security fencing, temporary erosion- and sedimentation-control, and tree protection measures are in place.
- G. Do not begin tree pruning until Tree Pruning Plan has been approved by Project Manager. Tree Pruning shall be completed prior to grading.
- H. Tree- and Plant-Protection Zones: Protect according to requirements in Section 01 56 39 "Temporary Tree and Plant Protection."

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXISTING UTILITIES AND IRRIGATION

- A. Interrupting Existing Utilities: Do not interrupt utilities serving occupied facilities, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify County not less than seven (7) days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without County's written permission.

3.2 SITE IMPROVEMENTS

- A. Remove any remaining existing above- and below-grade improvements not indicated to remain as necessary to facilitate new construction.

3.3 TREE PRUNING

- A. Prune all trees to remain to provide clearance as follows:
 - 1. Six (6) foot minimum clearance or per approved Tree Clearing and Pruning Submittal.
 - 2. If additional clearance is desired for construction access, include request in Tree Clearing and Pruning submittal.
- B. Consult with County prior to cutting any living branch over six (6) inches in diameter.
- C. Prune to remove injured, broken, dying, or dead branches as follows. Do not prune for shape.
 - 1. Remove deadwood greater than one (1) inch in diameter from all trees within Project footprint.

- D. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system
- E. All tree pruning will be done by experienced tree Workers under the supervision of a qualified Arborist, see Section 01 56 39 "Temporary Tree and Plant Protection".
- F. Pruning Standards: Prune trees according to ANSI A300 (Part 1)
- G. Cut branches with sharp pruning instruments; do not break or chop.
- H. Do not paint or apply sealants to wounds.
- I. Chip oak tree prunings on site for reuse as wood mulch.

3.4 FINAL CLEARING

- A. Remove all remaining vegetation, including roots of grasses and forbs, debris, and rocks larger than two inches in any dimension from areas shown to be cleared and grubbed per geotechnical report (See Appendix C).
- B. Remove all stockpiled soil from north corner of site to expose original native soil surface and remove all organic matter per geotechnical report (Appendix C) to produce satisfactory soil material.
- C. Do not clear within tree protection fencing as shown on Plans by Protected Area.
- D. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
- E. Place fill material in horizontal layers not exceeding a loose depth of eight (8) inches, and compact each layer to a density equal to adjacent original ground.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Site Clearing: Lump Sum

4.2 PAYMENT

- A. Progress payments for Site Clearing Work completed shall be based on a percentage of total site clearing complete, as determined by Project Manager.

END OF SECTION 31 10 00

SECTION 31 20 00 – EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all earthwork and related Work shown on the Drawings and/or specified herein.
- B. Scope of Work:

The general extent of the earthwork is shown on the Drawings and can include, but is not necessarily limited to the following:

 - 1. Topsoil stripping, stockpiling and replacement into planting areas
 - 2. Rough grading
 - 3. Filling and backfilling to attain required grades
 - 4. Excavating for paving, footings and foundations
 - 5. Adherence to any applicable requirements, recommendations and/or Best Management Practices (BMP's) for storm water management as may be outlined in the Project Storm Water Pollution Prevention Plan (SWPPP) or as required by governing agencies
- C. Related sections can include, but may not be limited to:
 - 1. Section 01 56 39 "Tree Protection"
 - 2. Section 32 11 00 "Aggregate Base"
 - 3. Section 32 90 00 "Planting"

1.2 REFERENCES AND REGULATORY REQUIREMENTS

- A. International Conference of Building Officials (ICBO):
 - 1. Uniform Building Code (UBC):
 - a. Chapter 29 Excavations, Foundations, and Retaining Walls
 - b. Chapter 70 Excavation and Grading
- B. American Society for Testing and Materials (ASTM):
 - 1. D 155778 - Test Methods for Moisture Density Relations of Soils and Soil Aggregate Mixtures Using 10pound Rammer and 18inch Drop.
 - 2. D 155682 - Test Methods for Density of Soil in Place by the Sand Cone Method.
- C. California Occupational Safety and Health Standards (OSHA):
 - 1. Article 6 - Excavations and Shoring
- D. State of California Department of Transportation Standard Specifications, most recent edition.

1.3 SUBMITTALS

- A. Project Record Drawings:
 - 1. Conform to Section 01720 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.
 - 2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts, and slope gradients.

- B. Import Topsoil:
 - 1. It is the Contractor's responsibility to determine if import topsoil is required on the Project.
 - 2. As applicable, Contractor shall submit four (2) samples (1 quart-sized "zip-lock" plastic bag min. each) of proposed import topsoil(s) with a current accompanying fertility and structure analyses, prepared by a recognized soil and plant laboratory, for review and acceptance by the Project Manager prior to use.

1.4 QUALITY ASSURANCE

- A. Geotechnical Investigation:
 - 1. A geotechnical investigation report has been prepared for use on this Project. The report and recommendation are provided as Appendix B for reference during construction. If recommendations of said report that differ from the Contract Documents, the Contractor shall notify the Project Manager in writing prior to beginning earthwork for clarification. Failure of the Contractor to notify the Project Manager prior to beginning Work implies acceptance and all costs necessary to redo Work in accordance with recommendations shall be at the Contractors expense and no additional cost to the County shall be permitted.
 - 2. The County may designate and pay for the services of a Geotechnical Engineer to make recommendations based on the soil conditions encountered, the results of field and laboratory tests and observations of the activities performed under this Section.
 - 3. Relative compaction densities specified for structural fills under footings, slabs, or pavements shall be determined in accordance with ASTM D-1556 and D-1557, unless otherwise noted.
- B. Certification:
 - 1. The Contractor shall certify source and type of backfill and topsoil proposed to be incorporated into the Work at the request of the Owner's Representative.
 - 2. The Contractor shall certify elevations of excavations, footings, sub-grades and finish grades with the use of a Licensed Surveyor, at Contractor's expense, at the request of the Owner's Representative.

1.5 PROTECTION

- A. Protect all existing structures, fences, roads, sidewalks, paving, curbs and other items as necessary from earthwork activity.
- B. Protect above or below grade utilities which are to remain.
- C. Protect trees to remain in accordance with Section 02050 - Tree Protection (as applicable).
- D. Repair damage to any existing site features which are to remain. Repair and restoration shall be equal to quality and appearance of prior condition and to the satisfaction of the Project Manager.

1.6 PROJECT CONDITIONS

- A. Underground Utilities:

Unknown buried utility lines may exist. If encountered, notify Project Manager immediately for direction and re-direct Work to avoid delay.

1. Cooperate and coordinate with Project Manager and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility Owner.
 2. Do not interrupt existing utilities serving occupied facilities without proper notification to and written direction from, the Project Manager.
 3. Wet Conditions: No grading operations shall be conducted when excessively wet conditions exist as determined by the Project Manager.
- B. Contractor shall provide de-watering equipment as required to continue scheduled operations and provide optimum Working conditions at no additional cost to Owner.
- C. Dry Conditions: Contractor shall apply sufficient water to materials during construction to properly compact materials and control dust.
- 1.7 GRADE STAKES AND LINES
- A. All grading and sub-grading shall be controlled by "Contractor-installed" intermediate grade stakes and lines necessary to obtain the finished grade elevations shown or implied in the Drawings. Sub-grade and finish grade surfaces shall conform to the control planes established by these grade stakes and lines.
- B. Protect and maintain all existing bench marks, monuments and other reference points. If disturbed or destroyed, they shall be replaced at the Contractor's expense.
- C. Contractor shall set temporary benchmarks as necessary to properly complete construction operations.
- 1.8 SURVEYING
- A. Contractor shall be responsible for hiring a licensed professional surveyor to perform all surveying, layout and staking. Contractor shall be responsible for informing Owners Representative (minimum two (2) Working days notice) when staking and layout is scheduled so that a review of completed chalk lines and staking can take place.
- 1.9 TOLERANCES
- A. Sub-grades, rough grades and finished grades for un-surfaced areas may vary within a tolerance of one-tenth of a foot (0.1') from the finished grade elevations shown on the Plans, provided that no drainage pockets or depressions result. Surfaced areas tolerance shall not vary more than 0.05'.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Select material for structural backfill shall be in accordance with applicable portions of Earthwork specifications and of the County Standard Specifications, unless modified by recommendations and requirements of the Project Geotechnical Report.
- B. Topsoil: Excavated material from top 6 inches (maximum) of existing grade (unpaved areas) and/or acceptable import material BOTH graded free of roots and rocks larger than two inches, subsoil, debris, weeds, large mats of grass and other deleterious material.

- C. Subsoil: Excavated material below top 6 inches of existing grade, and within soil stockpile, graded free of clay clods larger than 6 inches, roots and rocks larger than 3 inches and debris, weeds, organic material, and other deleterious material.
 - 1. If after grading and removing deleterious material, there is less subsoil than is required by grading plan, Contractor shall notify Project Manager in writing immediately. If notification is not performed prior to 50% completion of grading, Contractor shall be responsible for costs associated with importing additional soil.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Identify all required lines, levels, contours, datum, control points and property lines required to properly establish limits of Work.
- B. Verify elevations of critical existing grades as noted on Drawings and as directed by Project Manager. Notify Project Manager of all discrepancies prior to start of Work and re-direct Work to avoid delay.
- C. Identify all known below grade utilities. Stake and flag their locations.
- D. Identify and flag surface grades and utilities.
- E. Contact Underground Service Alert (USA) (800-642-2444) or similar local underground utility detection service (811 etc.) to verify locations of existing utilities and have them marked a minimum of two (2) Working days prior to excavation.

3.2 PROTECTION

- A. Maintain and protect existing utilities remaining which pass through Work area.
- B. Perform excavation Work near utilities by hand. Provide necessary protection as the Work progresses.
- C. Provide and maintain protection for walks, curbs, drains, trees, corners of structures, etc., as necessary to prevent damage.
- D. Barricade and/or cover open excavations occurring as part of this Work and post with warning lights to the satisfaction of the Project Manager. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
- E. Keep adjacent properties, streets and drives clean of any dirt, dust or stains caused by earthwork operations.
- F. Upon discovery of unknown utility or concealed conditions, notify the Project Manager immediately and re-direct Work to avoid delay.
- G. Control dust on and near the Work and on and near off-site borrow areas.
 - 1. Thoroughly moisten surfaces as required to prevent dust from being a nuisance to the public, neighbors and concurrent performance of any other activities that may occur on the site.
 - 2. Non-compliance with proper dust control measures shall be grounds for issuance of "stop Work" orders by the Project Manager until such time as satisfactory measures can be implemented.

3.3 TOPSOIL EXCAVATION

- A. Excavate topsoil from all areas scheduled for paving or rough grading and stockpile material in neat wind-row(s) in location(s) that have been previously established which will cause least interference to construction operations and which is/are acceptable to the Project Manager.
- B. Do not excavate topsoil that has become wetted to, or beyond, the saturation point that would be required for optimum compaction.
- C. Stockpile topsoil in wind-row(s) of a height not to exceed 8 feet, protect from erosion and cover or treat as necessary to prevent formation of dust unless noted otherwise in the Contract Documents.

3.4 ROUGH GRADING

- A. Grade site subsoil to establish proper sub-grade elevations and site contouring as described or implied in the Drawings.
- B. Contouring:
 - 1. Construct landforms depicted in the Drawings to the satisfaction of the Project Manager.
 - 2. "Round-off" all tops of slopes
 - 3. "Feather" all toes of slopes
- C. Compaction: Compact sub-grade areas as follows unless otherwise noted:
 - 1. Areas to be planted: Maximum twelve inch (12") inch lifts to 85% relative density.
 - 2. Areas to be paved: Maximum six inch (6") lifts to 90% relative density.
- D. Remove all excess subsoil material from site and dispose of in a legal manner. Refer to "Material Storage" below.

3.5 EXCAVATION

- A. Remove and dispose of all miscellaneous materials encountered when establishing required grade elevations.
 - 1. Miscellaneous materials can include but are not limited to: pavements and other obstructions, underground structures, utilities, abandoned irrigation materials and other materials encountered per the discretion of the Project Manager.
- B. Stability of Excavations:
 - 1. Comply with any applicable recommendations contained within the Project Geotechnical Report and requirements of agencies having jurisdiction.
 - 2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
- C. De-watering: Provide and maintain, at all times during construction, ample means and devices with which to promptly remove and properly dispose of water from any source entering structural excavation, pipe trenches or other excavations. All costs incurred from de-watering activities shall be paid for by the Contractor.
- D. Excavation for Structures:
 - 1. Conform to elevations and dimensions shown in the drawings within a tolerance of plus or minus one tenth (0.10') of a foot and extending a sufficient distance from footings

and foundations to permit placing and removal of concrete form-Work, installation of services and quality review.

- E. Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown in the Drawings.
- F. Material Storage: Stockpile satisfactory excavated materials where appropriate, until required for use. Stockpile topsoil and sub-grade soil in separate piles. Place, grade and shape stockpiles for proper drainage.
 - 1. Locate and retain stockpiles away from edge of excavations.
 - 2. Dispose of excess soil material in a legal fashion after it has become evident that the material is no longer needed on the Project and is of no value to the Owner.

3.6 TOPSOIL PLACEMENT

- A. Thoroughly cross-rip all sub-grade soil to a depth of six (6) inches prior to placing the specified thickness of topsoil back into all applicable planting areas. Secure review and acceptance of ripping depth prior to placement of topsoil.
- B. Compact topsoil to 85% maximum density.
- C. Maintain all slopes and gradients established during sub-grade operations and shape landforms to satisfaction of the Project Manager.
- D. Refer to Section 32 91 93 – Soil Preparation for more information

3.7 TOLERANCES

- A. Finish grades of landscape areas shall be as required to ensure positive drainage as shown on Drawings and as acceptable to the Project Manager.
- B. Select material for structural backfill shall be in accordance with applicable portions of Section 19 Earthwork, of the Standard Specifications, unless modified by recommendations and requirements of the Project Geotechnical Report.
- C. Topsoil: Excavated material from top 6 inches (maximum) of existing grade (unpaved areas) and/or acceptable import material BOTH graded free of roots and rocks larger than two inches, subsoil, debris, weeds, large mats of grass and other deleterious material.
- D. Subsoil: Excavated material below top 6 inches of existing grade, graded free of clay clods larger than 6 inches, rocks larger than 3 inches and debris.

PART 4 - PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Excavation and Grading: Cubic yard.

4.2 PAYMENT

- A. Progress payments for excavation and grading Work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing cubic yards completed by total cubic yards bid.

- B. Full compensation for adherence to BMPs and other Work involved in Earthwork shall be considered as included in the prices paid for the various contract items of Work involved and therefore no additional compensation shall be made.

END OF SECTION 31 20 00

SECTION 31 23 00 – EXCAVATION AND FILL

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all excavation, trenching, backfilling, compaction and related Work as shown on the Drawings and/or specified herein.
- B. Scope of Work:

The general extent of all trenching, backfilling and compaction is shown on the Drawings and may include, but is not necessarily limited to, the following:

 - 1. Sanitary Sewer Line Installation
 - 2. Storm Drainage System Installation
 - 3. Potable Water Line Installation
 - 4. Irrigation System Installation
 - 5. Electrical Conduit Installation
 - 6. Building Slab and Foundations
 - 7. Paving Installation
- C. Related sections can include, but may not be limited to:
 - 1. Section 01 56 39 "Tree Protection"
 - 2. Section 31 20 00 "EarthWork"
 - 3. Section 32 12 00 "Concrete"
 - 4. Section 32 12 16 "Asphalt Paving"
 - 5. Section 32 12 43 "Rubber Paving"
 - 6. Section 22 14 00 "Facility Storm Drainage"
 - 7. Section 32 15 40 "Aggregate Paving"
 - 8. Section 32 84 00 "Irrigation"
 - 9. Section 32 91 13 Soil Preparation"

1.2 REFERENCES AND REGULATORY REQUIREMENTS

- A. State of California Department of Transportation Standard Specifications, 2010 or latest edition.

1.3 SUBMITTALS

- A. Project Record Drawings:
 - 1. Conform to requirements of Section 13 10 00 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.
 - 2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts and slope gradients as practical.

1.4 QUALITY ASSURANCE

- A. Control of Work: Comply with Section 5 of the Standard Specifications.

- B. Control of Materials: Comply with Section 6 of the Standard Specifications.
- C. Trench Safety: Comply with applicable portions of Sections 5 and 7 of the Standard Specifications and requirements of other agencies having jurisdiction (OSHA etc.).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide materials as described below free of debris, roots, wood, scrap material, vegetative matter, refuse, soft unsound particles or other deleterious and/or objectionable materials.
- B. Select Backfill: Select backfill material shall be sand conforming to Section 19-3.025B of the Standard Specifications.
- C. Native Backfill: Native backfill shall be acceptable soil material excavated from the Project site. This material will be considered unclassified and no testing other than for compaction will be required. Additional material required for backfill shall be acceptable to the Project Manager.
- D. Permeable Material: Permeable material shall be ¾" washed drain rock.
- E. Aggregate Base: Aggregate base shall be Class 2, ¾" maximum material conforming to Section 26-1.02A of the Standard Specifications.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General:
 - 1. Prior to trenching, the Contractor shall pothole existing utilities at locations indicated or implied on the Plans, where new piping or utilities will cross existing utilities of uncertain depth to determine the elevation of the utility in question and ensure that the new line will clear the potential obstruction.
 - 2. The Contractor shall mark out all construction areas in white, non-permanent paint and contact Underground Service Alert (U.S.A.) (800-642-2444) (or local utility location service) to locate all known utilities a minimum 48 Working hours prior to starting any excavation.
 - 3. Should an existing crossing utility present an obstruction, the proposed line shall be adjusted as acceptable to the Project Manager to clear the existing utility.

3.2 TRENCH EXCAVATION

- A. General:
 - 1. Excavation shall include removal of all water and materials that interfere with construction. Remove any water that may be encountered in the trench by pumping or other methods prior to pipe laying, bedding and backfill operations. Trenches shall be sufficiently dry to permit proper jointing and compaction.
 - 2. It shall be the Contractor's responsibility to direct vehicular and pedestrian traffic safely through or around the Work area at all times.
 - 3. The Contractor shall relocate, replace, reconstruct or repair, to an "as-was" or better condition, all surface or subsurface improvements which are in the line of construction

or which may be damaged, removed, disrupted or otherwise disturbed by the construction activities. Except as specified in other Sections or shown in the Drawings, this provision applies to all surface improvements of whatever nature such as walls, fences, above-grade utilities, landscaping, paving, structures, or other physical features whether shown in the Drawings or not and to all subsurface improvements such as utilities which may be indicated in the Drawings or marked in the field. The Contractor shall connect such utilities to existing systems and leave all in a Workable and operating condition. The cost of this Work shall be considered as included in other items of Work and no additional compensation will be allowed.

4. The maximum allowable trench width at the top of pipe shall be 18 inches greater than the pipe diameter.

B. Existing Paving Areas:

1. Existing asphalt concrete paving over new trenches shall be saw-cut, removed and legally disposed. Existing asphalt concrete paving shall be neatly saw-cut one foot (1') greater on each side than the trench width. If a longitudinal pavement joint or edge of pavement is located within three feet of the limit of excavation, all intervening pavement shall be removed and replaced after completion of backfilling. If concrete curb and/or gutter are to be replaced, the adjacent existing asphalt concrete paving shall be saw-cut two feet (2') from the edge of concrete curb and/or gutter.
2. Existing concrete paving over new trenches shall be saw-cut to a minimum depth of 1-1/2 inches in straight lines either parallel to the curb or at 90 degree angles to the alignment of the sidewalk prior to being broken out. No section to be replaced shall be smaller than 30 inches in either length or width. If the saw-cut would fall within 30 inches of a construction joint, expansion joint, or edge, or within 12 inches of a score mark, the concrete shall be removed to the joint, edge or mark.

C. Walkway Areas: Backfill for trenches or other excavations within walkway areas should be compacted in six inch (6") maximum layers, unless otherwise noted, with hand-held tampers to assure adequate sub-grade support.

D. Compacted Fill Areas: Where trenches must be excavated in compacted fill, these trenches shall be backfilled with the fill materials excavated and re-compacted in the layers and to the density specified for the particular area.

E. Open Trench:

1. No trench shall be left in an open un-protected condition at the end of the day. At the end of the day any open trench shall be covered and protected in a manner acceptable to the Project Manager.
2. Provisions for trench crossings and access shall be made at all street crossings, driveways, water gate valves and fire hydrants unless otherwise acceptable to the Project Manager.

F. Excavated Material:

1. All excavated material not required for backfill or of value to the Owner shall be removed and legally disposed of by the Contractor at no additional cost.
2. Material excavated in streets and roadways shall be laid alongside the trench no closer than two feet from the trench edge and kept trimmed to minimize inconvenience to public traffic.
3. Provisions shall be made whereby all storm and wastewater can flow uninterrupted in gutters or drainage channels to drainage structures.

4. Excavated material shall not be stored on existing landscaping or paving without provisions being made to protect the surface below from being stained or otherwise adversely affected.

3.3 PIPE BEDDING

- A. Stabilization of Trench Bottom: When the trench bottom is unstable due to wet or spongy foundation, trench bottom shall be de-watered as necessary. The Project Manager shall determine the suitability of the trench bottom and the amount of sand, gravel, or crushed rock needed to stabilize the soft foundation.

3.4 TRENCH BACKFILL AND COMPACTION

- A. General:
 1. Construct backfill in two operations (initial and final).
 2. Do not backfill where the foundation material in trench is already saturated, except as acceptable to the Project Manager. Provide a minimum cover as may be specified.
 3. Where settling greater than the tolerance allowed for grading occurs in trenches and pits due to un-stable sub-grade material, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation.
 4. For utilities under roads, streets, concrete slabs or other areas to be paved, place final backfill in 6-inch maximum loose lifts. Compact all backfill surrounding ducts, conduits, pipes and other structures, including the top 12-inches of subgrade to 95 percent of ASTM D1557 maximum density. Backfill to permit the rolling and compacting of the completed excavation with the adjoining material providing the specified density necessary to enable paving of the area immediately after backfilling has been completed.
- B. Initial Backfill:
 1. Prior to trench backfill, the condition of the trench and laying of pipe shall be acceptable to the Project Manager.
 2. Select backfill material shall be used as initial backfill for all utilities except irrigation piping, unless otherwise noted. After the pipe has been properly laid and accepted by the Project Manager, select backfill material shall be placed on both sides of the pipe and compacted to the depth shown in the Drawings.
 3. Compaction: The initial backfill material shall be hand tamped in layers not exceeding four inches (4") in un-compacted depth and shall be brought up uniformly on both sides of the pipe to avoid bending or distortional stress. After hand tamping, the relative compaction of the initial backfill material shall be 90% relative compaction.
- C. Final Backfill:
 1. Native backfill material shall be used for final backfill, unless otherwise noted.
 2. Compaction: Final backfill compaction shall be by mechanical means with backfill material placed in layers not exceeding eight inches (8") in loose depth. Each layer shall be thoroughly compacted before succeeding layers are placed. The use of machine tampers, except manually held types, shall not be permitted. Final backfill shall be compacted to a relative compaction of 95%. In planting areas, provide acceptable topsoil to required depth (Refer to Section 02200) compacted to 85% maximum relative compaction.

- D. Jetting: No jetting shall be allowed.

3.5 TRENCH SURFACING

- A. General:
 - 1. In unimproved areas, the trench surface shall be restored to its original condition. No mounds of earth shall be left along the trench.
 - 2. All backfill shall be flush with adjoining grade in a firm, unyielding position with no visible settling for a period of one year after Final Acceptance.
- B. Paved Areas:
 - 1. Temporary surfacing acceptable to the Project Manager shall be laid within one day after backfilling (except where the Contractor elects to place permanent surfacing within this time period) until permanent paving is installed.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for trenching, backfilling, compaction and other Work involved in Excavation and Fill shall be considered as included in the prices paid for the various contract items of Work involved and therefore no additional compensation shall be made.

END OF SECTION 31 23 00

SECTION 32 11 00 – AGGREGATE BASE

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all base course preparation, installation and related work as shown on the Drawings and/or specified herein.
- B. Install Restroom pad
- C. Scope of work:

The general extent of the base course work is shown on the Drawings and may include, but is not necessarily limited to, the following:

 - 1. Grading and compaction of sub-grade soil
 - 2. Furnishing and placing of aggregate base material
- D. Related sections can include, but may not be limited to:
 - 1. Section 31 20 00 "Earthwork"
 - 2. Section 32 12 16 "Asphalt Paving"
 - 3. Section 32 12 43 "Rubber Paving"
 - 4. Section 32 13 00 "Concrete"
 - 5. Section 32 15 40 "Aggregate Paving"
 - 6. Section 32 32 00 "Unit masonry Retaining Walls"

1.2 REFERENCES AND REGULATORY REQUIREMENTS

- A. State of California Department of Transportation Standard Specifications, 2010 or latest edition.

1.3 QUALITY ASSURANCE

- A. Control of Work: Conform to Section 5 of the Standard Specifications.
- B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.4 SUBMITTALS

- A. Conform to the requirements of Section 01 31 00 and/or applicable Division One and Division Two Specifications, General Conditions and Special Provisions.
- B. Submit material certificates of compliance and/or sieve analyses for all products and materials to be used in work covered by this Section.

1.5 PROJECT/SITE CONDITIONS

- A. Wet Conditions: No sub-grade preparation or base material placement shall occur when excessively wet conditions exist in the opinion of the Project Manager.

- B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to sub-grades and base courses as necessary to achieve compaction goals.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be stockpiled on site in locations that, in the opinion of the contractor, cause least interference with construction operations and as acceptable to the Project Manager.
- B. Materials shall not be stockpiled in proposed planting areas.
- C. Protect materials from segregation and contamination as well as wind and water erosion.

1.7 SEQUENCING AND SCHEDULING

- A. Work of this section shall not proceed until all underground utilities and irrigation sleeves have been installed and accepted.
- B. Contractor shall schedule work so that installation of paving/surfacing occurs no later than five (5) working days after placement and proper compaction of base materials. Base materials left un-paved longer than this time period shall be subject to testing and re-compaction at the contractor's expense.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aggregate Base: Aggregate base shall be Class 2, 3/4" maximum material conforming to Section 26-1.02A of the Standard Specifications.

PART 3 - EXECUTION

3.1 SUB-GRADE PREPARATION

- A. Preparation of sub-grade shall conform to Section 6 of the Standard Specifications.
- B. Remove unsuitable sub-grade material as necessary and replace with suitable material or aggregate base per the discretion of the Project Manager.

3.2 BASE MATERIAL PLACEMENT

- A. Conform to Section 26 of the Standard Specifications.
- B. Obtain acceptance of sub-grade preparation work prior to placing base material thereon.
- C. Place and compact base material in six inch (6") maximum lifts unless otherwise noted.

3.3 TOLERANCES

- A. Conform to Section 26 of the Standard Specifications.

3.4 CLEAN-UP OF WORK AREA

- A. The contractor shall remove and legally dispose of excess materials/spoils and debris from the job site on a daily basis.

3.5 PROTECTION OF FINISHED PRODUCT

- A. The contractor shall provide lighted barricades, signs and other devices as necessary to prevent damage to finished base courses.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Restroom building pad shall be lump sum.

4.2 PAYMENT

- A. Payment for Restroom Building Pad shall be upon completion of restroom building pad after inspection by the authority having jurisdiction and accepted by Project Manager.
- B. Full compensation for subgrade preparation, miscellaneous aggregate base and other work involved in Aggregate Base shall be considered as included in the prices paid for the various contract items of work involved and therefore no additional compensation shall be made.

END OF SECTION 32 11 00

SECTION 32 12 00 – CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all concrete and related Work as shown on the Drawings and/or specified herein.
- B. Scope of Work:

The general extent of the concrete Work is shown on the Drawings and can include, but is not necessarily limited to the following:

 - 1. Vertical Curbs
 - 2. Curbs and Gutters
 - 3. Valley Gutters and Concrete Swales
 - 4. Accessible Ramps
 - 5. Stairs
 - 6. FlatWork, Slabs and Walkways
 - 7. Expansion, Deep Score and Score Joints
 - 8. Misc. Footings
 - 9. Reinforcement and/or Doweling
- C. Related sections can include, but may not be limited to:
 - 1. Section 31 20 00 "EarthWork"
 - 2. Section 32 11 00 "Aggregate Base"
 - 3. Section 22 14 00 "Facility Storm Drainage"
 - 4. Section 32 84 00 "Irrigation"
 - 5. Section 32 33 00 "Site Furnishings"

1.2 REFERENCES AND REGULATORY REQUIREMENTS

- A. State of California Department of Transportation Standard Specifications, 2010 or latest edition.

1.3 SUBMITTALS

- A. Conform to Section 01 31 00 and applicable Division One and/or Division Two specifications, General Conditions and Special Provisions.
- B. Submit "cut-sheets", mill certificates, certificates of compliance etc. for all products proposed for use on the Project.

1.4 QUALITY ASSURANCE

- A. Concrete:
 - 1. All formWork, joint patterns, base material, reinforcement and other miscellaneous items such as "dobies" and ties shall be reviewed and accepted by the Project Manager prior to pouring concrete. Contractor shall have any and all such items in place and shall give a minimum of two (2) Working day lead-time notice to Owner's Representative when scheduling the review request. Contractor shall also schedule and allow a

minimum of two (2) Working days after review for possible modifications to concrete preparation Work, at no cost or delay to the Project.

2. The Project Manager shall at all times have access to any off-site batch plant or quarry supplying materials for subject Project and trucks en route to the Project site. The Project Manager may at any time request slump tests and secure samples of concrete, cement, aggregates or other materials. All applicable materials shall be provided by the Contractor at no additional cost to the Owner.
3. Any specified review or observation by the Project Manager of the concrete Work shall be requested by the Contractor at least two (2) Working days prior to the need for the review or observation.
4. Finishes and colorants other than the concrete darkening agent (see Part 2-Products) are called out in the Drawings. A four foot by four foot (4' x 4') sample of all concrete colorants (including concrete darkening agent) and finishes shall be poured by the Contractor in the field for review and acceptance by the Project Manager. Contractor shall schedule review well in advance of concrete operations to allow for color and/or finish modifications if necessary.
5. Codes and Standards: Comply with the provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified in these specifications:
 - a. Uniform Building Code, current edition
 - b. Part 2, Chapter 26, Title 24, C.C.R.
 - c. ACI 301 Specifications for Structural Concrete for Buildings
 - d. ACI 318 Building Code Requirements for Reinforced Concrete
 - e. ACI 614 Recommended Practice for Measuring, Mixing, and Placing Concrete
 - f. Concrete Reinforcing Steel Institute, Manual of Standard Practice
6. Concrete Testing Service: The Owner may retain and engage a testing laboratory to perform material evaluation tests.

1.5 DELIVERY AND STORAGE

- A. Deliver concrete reinforcement to job site properly tagged and ready to set. Store all materials above ground surface on platforms, skids or other supports. Coordinate delivery and storage of all other materials as appropriate.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

- A. Concrete shall be Portland Cement Concrete conforming to Section 90 of the Standard Specifications. Unless otherwise specified, all concrete shall be Class B at a minimum.
- B. Cement shall be Type II cement conforming to ASTM Designation C150 as modified by Section 90 of the Standard Specifications.
- C. Mortar shall conform to Section 51 of the Standard Specifications. Mortar, when used for patching, shall match the color of the Work to be patched.
- D. Water used for mixing shall be potable.

- E. Minimum mix requirements: It shall be the Contractors responsibility to design the concrete mixes to provide the minimum requirements listed below. Increase cement content over that listed if necessary to obtain the specified compressive strength. Minimum ultimate compression strength of concrete at 28 days is as follows:

Item	Strength	Max. slump	Size of aggregate	Cement (# of 94 lb. sacks per yard)	W/C Ratio
Slab-On-Grade	3,000	4"	3/4"-1"	5	.60
Walls/Footings	3,000	4"	3/4"-1"	5	.60
Thrust Blocks	2,500	4"	3/4"-1'	4.5	.45

2.2 OTHER MATERIALS

- A. FormWork materials shall be surfaced lumber, plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection and as follows:
1. All form panels shall be placed in a neat, symmetrical pattern, subject to the acceptance of the Project Manager.
 2. Form clamps or bolts shall be used to fasten forms. The use of ties consisting of twisted wire loops to hold forms in position during the placing of concrete shall not be permitted unless noted otherwise.
 3. All exposed sharp edges shall be "bullnosed" to prevent mortar runs and to preserve smooth, straight lines, unless otherwise acceptable to the Project Manager or noted in the Drawings.
 4. Before concrete is placed in forms, all inside surfaces of forms which will be removed shall be thoroughly coated with commercial quality form oil, which will permit the ready release of the forms and will not discolor the concrete.
 5. Where form panels are attached directly to the studding or joists, the panels shall be not less than five-eighths of an inch (5/8") thick and the studding or joists, shall be spaced not more than twelve inches (12") center to center.
 - a. Form panels less than five-eighths of an inch (5/8") thick, otherwise conforming to the requirements specified, may be used with a continuous backing of surfaced material three-fourths of an inch (3/4") thick.
 - b. Form panels more than five-eighths of an inch (5/8") thick attached to studding or joists spaced at more than twelve inches (12") center to center may be used, provided that the deflection of the panel between studding or joists does not exceed that of a five-eighths inch (5/8") thick panel attached to studding or joists spaced at eighteen inches (18") center to center.

6. Curved surfaces shall be formed with timber, plywood, masonite, or sheet metal as appropriate. Sheet metal shall have masonite or plywood backing. Plywood for forming shall be ACX or better grade.

B. Expansion Joints:

1. **Joint primer:** Sonneborn horizontal paving joint primer No. 733, or No. 766, one component solvent based primer or acceptable equal.
2. **Expansion joint material:** One-half inch (1/2") asphalt impregnated fiber strips in compliance with ASTM D1751 or acceptable equal. Expansion joint material shall be variety with "zip-strip" H-channel joint sealant receptacles. If proposed joint material is not installed with sealant receptacles then, the expansion joint material shall be completely covered with a Sonneborn "Sonofoam" closed cell backer rod or acceptable or equal prior to application of joint sealant. Provide three eighth inch (3/8") tooled edges each side of joint material. Refer to Drawings for additional information.
3. **Expansion joint sealant:** Self leveling sonolastic elastomeric polyurethane joint sealant in accordance with Federal Specification TT-S-00227E, Type I, Class A-Sonneborn SL-1, (800) 433-9517, or acceptable equal. Color shall match concrete.

Sonneborn products are available through the Cade Co. San Jose, CA (408) 292-3435.

C. Score Joints:

1. Deep score joints: Deep score joints shall be three eighth inch (3/8") radius tooled joints to a depth equal to 1/3 the thickness of the slab.
2. Score joints: Three eighths inch (3/8") radius tooled joint one-quarter inch (1/4") deep.

D. Reinforcing bars: Comply with Section 2603 (f) and 2528 (b), Title 24, C.C.R. and ASTM A-615. Grade 60, deformed, except #3 and smaller may be Grade 40. Test in accordance with Sec. 2628, Title 24, C.C.R. Bars shall be in a new, "first-class" condition.

E. Smooth Dowel Steel Bars for Expansion Joints: ASTM A-29, #3 smooth Grade 40. Provide as indicated on drawings. Where shown, provide metal dowel sleeve at one end of dowel (or other approved break-bond method), to permit lateral movement at dowel within concrete section. Provide for movement which equals joint width plus one-half inch (1/2"). Bars shall be in a new, "first-class" condition.

F. Tie Wires: Black annealed, ASTM A-82, minimum 16 gauge.

G. Supports for Reinforcement: Provide supports for reinforcement including "dobies", bolsters, chairs, spacers and other devices for spacing, support and fastening reinforcing bars and welded wire fabric in place.

H. Welded wire mesh (WWM) shall conform to ASTM A-185 and shall be 6 x 6 #10 unless noted otherwise in the Drawings. Wire mesh shall be "chaired" up with "dobies" or concrete blocks to ensure uniform embedment into concrete section to dimension as shown in the Drawings.

I. Concrete Darkening Agent: Add one quarter pound (1/4 lb.) of Davis Colors Inc. colorant #8084 Black (or acceptable equal) per 94 lb. sack of cement to all exterior concrete which will be exposed to view when cured (Drain rims and concrete receiving other colorants excluded). Contact Davis Colors Inc. for local distribution information Ph.: (800)-800-6856 Fx.: (213)-269-1053. Other colorants shall be as noted in the Drawings.

J. No concrete admixtures shall be allowed without prior acceptance by the Project Manager.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. In addition to the general grading excavation required, the Contractor shall excavate to the required depths in the locations shown for flatWork, retaining walls, curbs, footings, etc. Excess excavation may be replaced with concrete poured monolithically with the wall or pavement, at no additional cost, if acceptable to the Owner.

3.2 FORMING

- A. All forming shall conform to Section 51 of the Standard Specifications and as follows:
 - 1. The Contractor shall build forms with a high degree of care and shall select from materials of adequate strength and smoothness to produce smooth, even surfaces of uniform texture and appearance, free of bulges, depressions, or other imperfections per the discretion of the Project Manager. Remove any residue remaining on concrete after forms are removed.
 - 2. Concrete walls are to be vibrated as necessary to provide uniform density. No concrete surfaces with "rock pockets" or "honeycombing" shall be accepted.
 - 3. Transition of curves to straight lines and of curves to curves shall be formed as smooth, continuous and uninterrupted with typical 90-degree radius alignment at the points of tangency.

3.3 CONCRETE CONSTRUCTION

- A. All concrete shall be mixed in accordance with Section 90 of the Standard Specifications.
- B. Construction of concrete substructures shall conform to applicable provisions of Section 51 of the Standard Specifications.
- C. Construction of concrete curbs, gutters, sidewalks, wheelchair ramps and driveway aprons shall conform to Section 73 of the Standard Specifications.
- D. At the termination of all curbs, the final eighteen inch (18") length of curb shall be tapered from the full curb height to the gutter flow line or adjacent pavement elevation unless noted otherwise on the Plans.
- E. All footings shall be sloped to drain.
- F. Finish: Unless otherwise specified, concrete shall be medium broom finish perpendicular to direction of travel.

3.4 CONCRETE JOINTS

- A. Joints shall be constructed at locations indicated and as detailed in the Drawings.
- B. Construct concrete joints as follows:
 - 1. Expansion Joints:
 - a. General. Refer to drawings for location of expansion joints.
 - b. Install to full depth of slab per drawings and manufacturers instructions. After allowing concrete to fully cure, remove "zip strips" and install expansion joint sealant.
 - c. Expansion joint sealant. Install per drawings and manufacturers instructions.
 - 2. Score Joints:

- a. Deep score joints. Refer to drawings for locations.
- b. Score joints. Refer to drawings for locations.

3.05 EDGING

- C. All outside edges of slabs, curbs, and other structures shall be tooled with a one-half inch (1/2") radius edging tool, unless otherwise specified in the Drawings.
- D. All trowel marks resulting from tooling of edges shall be carefully trowelled out.

3.5 REINFORCEMENT

- A. Reinforcement installation shall conform to the provisions of the Standard Specifications as follows:
 - 1. Cleaning - Section 51-1.05
 - 2. Bending - Section 52-1.06
 - 3. Placing - Section 52-1.07
 - 4. Splicing - Section 52-1.08
 - 5. Lapped Splices - Section 52-1.08A

3.6 CONCRETE PLACEMENT

- A. Concrete placement shall conform to Section 40 of the Standard Specifications.
- B. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than six feet. Spouts, elephant trunks, or other acceptable means shall be used to prevent segregation.

3.7 SURFACE DRAINAGE

- A. Finish surfaces shall drain properly with no areas of standing water. Tops of curbs, walls and foundations shall be level unless otherwise specified.

3.8 CURING

- A. All newly placed concrete shall be cured in accordance with the provisions in Section 90 of the Standard Specifications.

3.9 PROTECTION

- A. All newly placed concrete shall be protected in accordance with the provision in Section 90-8 of the Standard Specifications.
- B. Provide all necessary security to protect the concrete from vandalism. Any concrete that is defaced or damaged during the course of this contract shall be replaced by the Contractor at no additional cost to the Owner.

3.10 CONCRETE FINISHES

- A. Patching of concrete to repair or disguise flaws, imperfections, or other damage, shall commence only with the acceptance of the Project Manager. Patching color and finish shall conform to the original adjacent concrete color and finish and the Project Manager shall be the sole judge in this respect. Any patching of concrete walls must occur prior to final wall finishing.

- B. Provide concrete finishes where shown in the Drawings and as follows:
 - 1. Trowel Finish: Trowel finish shall be smooth and clean with no obvious trowel marks.
 - 2. Broom Finish: Broom with medium bristled broom to a uniformly roughened surface. Finished surface shall be clean with uniform and straight lines. Install broom finish perpendicular to the primary path of travel unless specified otherwise. Coordinate with Project Manager if necessary.
 - 3. Provide samples, as previously specified, of all concrete finishes for review and acceptance prior to pouring concrete. All accepted samples shall be left on Job site as quality control examples until removal and disposal of samples is acceptable to the Project Manager.

3.11 BUILT-INS

- A. Refer to drawings for additional information relating to built-ins that shall be coordinated with concrete Work (e.g., light fixtures, benches, handrails, guardrails, site furnishings, signs, etc) as necessary.

3.12 CLEANING

- A. Remove excess base material, concrete spills, cement stains and all other excess materials from all Project areas prior to Project Acceptance.

3.13 TOLERANCES

- A. Concrete:
 - 1. Vertical deviation from specified grades shall not exceed 0.04 foot.
 - 2. Surface smoothness deviations shall not exceed 1/8 inch in 8 feet, in any direction.
 - 3. Thickness shall not be more than 0.01 foot less than specified thickness at any point.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Driveway: Lump Sum
- B. Concrete Paving: Square foot.
- C. Ramp: Lump Sum
- D. Stairs: Lump Sum

4.2 PAYMENT

- A. Progress payments for driveway Work completed shall be based on a percentage driveway complete, as determined by Project Manager.
- B. Progress payments for concrete paving Work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing square feet completed by total square feet bid.
- C. Progress payments for ramp Work completed shall be based on a percentage driveway complete, as determined by Project Manager.

- D. Progress payments for stairs Work completed shall be based on a percentage driveway complete, as determined by Project Manager.
- E. Full compensation for footings, concrete pads, and other miscellaneous concrete Work involved in Concrete shall be considered as included in the prices paid for the various contract items of Work involved and therefore no additional compensation shall be made.

END OF SECTION 32 12 00

SECTION 32 12 16 – ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Hot-mix asphalt paving.
 - 2. Hot-mix asphalt overlay.
- B. Related Requirements
 - 1. Section 31 20 00 "EarthWork" for subgrade preparation and fill material.
 - 2. Section 32 11 23 "Aggregate Base" for subbase.
 - 3. Section 32 13 13 "Concrete" for concrete pavement.

1.2 MEETINGS

- A. Preinstallation Conference shall be held at Project site with Bicycle Specialist and Project Manager.
- B. Post-staking inspection shall be held at Project site after earth moving, fine grading, and staking of all asphalt paving features is completed and prior to installation of base or hot-mix asphalt with Bicycle Specialist and Project Manager. If all grading and staking, for pump track, bowl, jumps, and all other bicycle amenities is not completed when Contractor calls for inspection, payment for additional inspection will be deducted from Contractor's payment for incomplete item.
- C. Post-installation inspection and test riding of completed track with Bicycle Specialist and Project Manager. Test ride of all Bicycle Amenities and Pump Tracks shall be completed on same day. If all bicycle improvements are not ready for test ride when Contractor calls for inspection, payment for additional test ride will be deducted from Contractors payment for incomplete item.

1.3 SUBMITTALS

- A. Bike Park Installation Specialist qualifications
- B. Product Data: Hot-mix asphalt paving and Hot-mix asphalt overlay.
- C. Shop Drawings: Provide shop drawings for any proposed deviations from Plans.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall be registered with and approved by authorities having jurisdiction in the state of California.
- B. Comply with current edition of AI MS-22 "Construction of Hot Mix Asphalt Pavements" unless more stringent requirements are indicated.
- C. Bike Park Installation Specialist: Installation of pump track base and asphalt shall be overseen and approved by Bike Park Installation Specialist that has completed a minimum of two projects within the past ten years installing asphalt bicycle projects such as pump tracks, trails,

skills or jumps and is a member of the Professional TrailBuilders Association or an equal certification.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. Aggregate base shall be per section 32 11 23 "Aggregate Base."
- B. Coarse Aggregate: Coarse aggregate shall be ½" or smaller and in accordance with ASTM D692/D692M. Aggregate shall be sound; angular crushed stone, crushed gravel, or recycled asphalt pavement (RAP).
- C. Fine Aggregate: AASHTO M 29, sharp-edged natural sand or sand prepared from stone, gravel, recycled asphalt pavement (RAP) or combinations thereof.

2.2 ASPHALT MATERIALS

- A. Asphalt Cement: ASTM D3381/D3381M.

2.3 AUXILIARY MATERIALS

- A. Recycled Materials for Hot-Mix Asphalt Mixes: Reclaimed asphalt pavement; reclaimed, unbound-aggregate base material; and recycled tires, or asphalt shingles from sources and gradations that have performed satisfactorily in previous installations, equal to performance of required hot-mix asphalt paving produced from all new materials.
- B. Herbicide: Commercial chemical for weed control, registered by the EPA, and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form.

2.4 MIXES

- A. Surface Course Limit: Recycled content no more than 10 percent by weight.
- B. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes designed in accordance with procedures in AI MS-2, "Asphalt Mix Design Methods"

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. Complete fine grading of pump tracks and bowl in accordance with Section 31 20 00 "EarthWork."
- B. Proof-roll sub-base using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

- C. Ensure that prepared subgrade is ready to receive paving. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces.
- D. Herbicide Treatment: Apply herbicide in accordance with manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

3.2 STAKING

- A. Stake outside edge of pavement every 10 feet for inspection prior to placement.

3.3 HOT-MIX ASPHALT PLACEMENT

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off using a roller and/or plate compactor. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Place hot-mix asphalt base course in lifts and thicknesses indicated on Plans.
 - 2. Place hot-mix asphalt surface course in single lift.
 - 3. Spread mix at a minimum temperature of 250 deg F.
 - 4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide or the width of the Pump Track path, whichever is less, unless infill edge strips of a lesser width are required.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.4 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat to joints.
 - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 - 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
 - 4. Construct transverse joints at each point where paver ends a day's Work and resumes Work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method in accordance with AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."

3.5 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density, Rice Test Method: 92 percent of reference maximum theoretical density in accordance with ASTM D2041/D2041M, but not less than 90 percent or greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus 1/2 inch.
 - 2. Surface Course: Plus 1/4 inch, no minus.
- B. Pavement Surface Smoothness: Compact each course to produce surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course 1/4 inch
 - 2. Surface Course: 1/8 inch

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Replace and compact hot-mix asphalt where core tests were taken.
- C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.8 WASTE HANDLING

- A. General: Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Pump Track and Bowl: Lump sum.
- B. Asphalt Paving: Square foot.
- C. Asphalt Driveway: Lump sum.

4.2 PAYMENT

- A. Progress payments for Pump Track and Bowl Work completed shall be based on a percentage of total pump track and bowl complete, as determined by Project Manager.
- B. Progress payments for asphalt paving Work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing square feet completed by total square feet bid.
- C. Payment for Asphalt Driveway Work completed shall be based on driveway completion, as determined by Project Manager.
- D. No additional compensation shall be made for any work required to complete Pump Track to satisfaction of Bicycle Specialist following post-installation inspection and test riding of completed track.

END OF SECTION 32 12 16

SECTION 32 12 43 – RUBBER PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Rubber paving for beginner pump track (Additive Alternate #1).
- B. Related Requirements
 - 1. Section 31200 "Earth Moving" for subgrade preparation and fill material.
 - 2. Section 32 11 23 "Aggregate Base" for subbase.

1.2 DEFINITIONS

- A. Porous Flexible Paving: A paving comprising of recycled tire rubber granules, aggregate, and urethane binder with sufficient continuous voids to allow water to pass from the surface to the underlying layers.

1.3 MEETINGS

- A. Preinstallation Conference shall be held at Project site with Bicycle Specialist and Project Manager.
- B. Post-staking inspection shall be held at Project site after earth moving, fine grading, and staking of all rubber paving features is completed and prior to installation of base or rubber with Bicycle Specialist and Project Manager. If all grading and staking, for pump track, bowl, jumps, and all other bicycle amenities is not completed when Contractor calls for inspection, payment for additional inspection will be deducted from Contractor's payment for incomplete item.
- C. Post-installation inspection and test riding of completed track with Bicycle Specialist and Project Manager. Test ride of all Bicycle Amenities and Pump Tracks shall be completed on same day. If all bicycle improvements are not ready for test ride when Contractor calls for inspection, payment for additional test ride will be deducted from Contractor's payment for incomplete item.

1.4 SUBMITTALS

- A. Bike Park Installation Specialist qualifications
- B. Warranty
- C. Product Data: Each product
- D. Shop Drawings: Provide shop drawings for any proposed deviations from Plans.

1.5 QUALITY ASSURANCE

- A. Bike Park Installation Specialist: Installation of base and rubber paving shall be overseen and approved by Bike Park Installation Specialist that has installed a minimum of 5,000 square feet of a pervious paving surface over a minimum of two bicycle pump track projects within the past ten years and is a member of the Professional TrailBuilders Association or an equal certification.

- B. Warranty: Installer must provide a 3-year warranty.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. Aggregate base shall be per section 32 11 23 "Aggregate Base."

2.2 RUBBER PAVING

- A. Rubber Paving shall be a porous paving material recommended for use in bicycle amenities by manufacturer.
- B. Rubber paving shall be P3 Cycle Surface as manufactured by American Ramp Company / Progressive Bike Ramps, or approved equal. Contact 417-206-6816 or info@americanrampcompany.com
- C. Maintain binger temperatures above 45 degrees Fahrenheit at all time up to point of installation and curing.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. Complete fine grading of rubber surface areas in accordance with Section 31 20 00 "EarthWork."
- B. Proof-roll sub-base using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- C. Ensure that prepared subgrade is ready to receive paving. Immediately before placing porous paving materials, remove loose and deleterious material from substrate surfaces.
- D. Herbicide Treatment: Apply herbicide in accordance with manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

3.2 STAKING

- A. Stake outside edge of pavement every 10 feet.

3.3 RUBBER PLACEMENT

- A. Do not place rubber if rain, snow, or frost is forecast within 24 hours. Protect fresh paving from moisture and freezing.
- B. Place porous paving material on prepared surface per manufacturer recommendation, spread uniformly.
- C. Surface shall be a float finish.
 - 1. Have a smooth, monolithic, and consistently uniform paving surface.
 - 2. Be free from visible bull-float and hand trowel finishing marks.
- D. Place paving in consecutive strips not less than 10 feet wide or the width of the Pump Track path, whichever is less, unless infill edge strips of a lesser width are required.

- E. Promptly correct surface irregularities in paving course. Use suitable hand tools to remove excess material forming high spots. Fill depressions to prevent segregation of mix; use suitable hand tools to smooth surface.
- F. Edge shall be tapered in compliance with manufacturer recommendations.

3.4 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of rubber paving.
 - 1. Have level, blended, and finished cold seams between pours

3.5 COMPACTION

- A. General: begin compaction as soon as paving will bear roller or tamping weight without excessive displacement. Compact rubber paving with hot hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling rubber paving is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density, Rice Test Method: 92 percent of reference maximum theoretical density in accordance with ASTM D2041/D2041M, but not less than 90 percent or greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while rubber paving is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of rubber pavement to proper alignment. Bevel edges while paving is still hot; compact thoroughly.
- F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 INSTALLATION TOLERANCES

- A. Pavement Surface Smoothness: Compact each course to produce surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Subgrade: 1/2 inch
 - 2. Surface Course: 1/8 inch

3.7 WASTE HANDLING

- A. General: Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Beginner Pump Track: Lump Sum.

4.2 PAYMENT

- A. Progress payments for Beginner Pump Track (Additive Alternate #1) Work completed shall be based on a percentage of total beginner pump track complete, as determined by Project Manager.
- B. No additional compensation shall be made for any work required to complete Beginner Pump Track to satisfaction of Bicycle Specialist following post-installation inspection and test riding of completed track.

END OF SECTION 32 12 43

SECTION 32 15 40 – AGGREGATE PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Crushed gravel paving.
 - 2. Crushed gravel bicycle jumps and skills paving.
- B. Related Requirements
 - 1. Section 31 11 23 "Aggregate Base" for subbase.
 - 2. Section 11 68 33 "Bicycling Amenities."

1.2 MEETINGS

- A. Preinstallation Conference for gravel path and bicycle jumps and skills paving shall be held at project site with Bicycle Specialist and Project Manager
- B. Post-staking inspection of gravel path and bicycle jumps and skills paving shall be held at project site after staking of all gravel features is completed and prior to installation of base or gravel with Bicycle Specialist and Project Manager
- C. Post-grading inspection of earth moving and fine grading of bicycle jumps and skills with Bicycle Specialist and Project Manager.
- D. Post-installation inspection and test riding of completed bicycle jumps and skills with Bicycle Specialist and Project Manager.

1.3 SUBMITTALS

- A. Product Data and sample of crushed gravel. Submittal required even if using pre-approved material.
- B. Shop Drawings: Provide shop drawings for any proposed deviations from plans.

1.4 QUALITY ASSURANCE

- A. Installer qualifications:
 - 1. Crushed gravel path and bicycle jumps and skills paving shall be installed by a contractor or sub-contractor with five completed bicycle park projects within the past five years and be a member of the Professional TrailBuilders Association or an equal certification.
 - 2. Crushed gravel shall be installed by an employer of workers trained and experienced with installation of stabilized crushed gravel paving
- B. Mockups: Build mockups of crushed gravel to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockups of crushed gravel paving where directed by Project Manager and not less than 3 feet (3') by 3 feet (3') square. At a minimum provide one mock-up of crushed gravel paving and one mockup of on-slope crushed gravel bicycle jumps and skills paving.
 - 2. Mock-ups shall be finished per specifications and approved by Project Manager prior to installation of crushed gravel paving.
 - 3. Mock-ups shall be preserved intact until Project completion.

PART 2 - PRODUCTS

2.1 AGGREGATE BASE

- A. Aggregate base shall be per section 31 11 23 "Aggregate Base"

2.2 CRUSHED GRAVEL

- A. Provide high quality materials consisting of sound, angular, durable stone particles, free from clay lumps, organic materials, frozen materials, or other deleterious substances. All material shall be from single source.
- B. Color: grey or tan.
- C. Gradation requirements Gradation requirements are based on AASHTO T 11 and T27 indicated below:

Sieve size	Percentage Passing
3/8 inch	100
No. 4	95-100
No. 8	75-80
No. 16	55-65
No. 30	40-50
No. 50	25-35
No. 100	20-25
No. 200	5-15

- D. Pre-approved material: Cinderlite Class A Backfill from Goni Pit as available through Blain Stumpf Rock, Sand & Gravel, (916) 933-1555.

2.3 METAL EDGING

- A. Galvanized steel edging, 1/8"-thick, height per plans such as manufactured by Perma Loc, or approved equal.
- B. Finish: Unpainted. Galvanized steel.

2.4 FILTER FABRIC

- A. Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
1. Survivability: Class 2; AASHTO M 288.
 2. Grab Tensile Strength: 157 lbf; ASTM D 4632
 3. Sewn Seam Strength: 142 lbf; ASTM D 4632.
 4. Tear Strength: 56 lbf; ASTM D 4533.
 5. Puncture Strength: 56 lbf; ASTM D 4833.

6. Apparent Opening Size: [No. 40] sieve, maximum; ASTM D 4751
7. Permittivity: [0.5] per second, minimum; ASTM D 4491
8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355

2.5 STABILIZER

- A. Stabilizer shall be a liquid polymer binder designed for stabilizes aggregate surfaces, as manufactured by Environmental Products Soil Works, or approved equal. The stabilizer shall not change the crushed gravel color.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION

- A. The finished aggregate base surface must be smooth, uniform, and compacted per plans. The finished surface must conform to the general drainage and slopes shown on the grading plan and finished grade within ½-inch.
- B. Install metal containment strips per manufacturer's recommendations along all edges not contained by concrete paving or curbs.

3.2 FILTER FABRIC INSTALLATION

- A. Filter fabric shall be used under crushed gravel paving only. Filter fabric shall NOT be used under crushed gravel on Bicycle Jumps or Bicycle Skills.
- B. Place filter fabric on compacted base unless directed by stabilizer manufacturer not to use fabric. Stretch, align, and place fabric without wrinkling.
- C. Immediately before placing filter fabric, the base to receive filter fabric must be free of loose or extraneous material and sharp objects that may damage the filter fabric.
- D. Adjacent borders of filter fabric must be stitched or overlapped. Overlap rolls twelve (12) to eighteen (18) inches. Place the preceding roll over the following roll in the direction the material is being spread. Stitch fabric using yarn of a contrasting color. Yarn size and composition must comply with the filter fabric manufacturer's instructions. Use five (5) to seven (7) stitches per inch of seam.
- E. Minimum patch size four (4) feet in any direction.
- F. Repair damaged filter fabric by placing a piece of filter fabric large enough to cover the damaged area and provide at least a twelve (12) inch overlap.
- G. Do not operate equipment, including vehicles, directly on filter fabric. Maintain at least 3 inches of material between filter fabric and equipment during spreading of crushed gravel.

3.3 CRUSHED GRAVEL INSTALLATION

- A. Mechanically pre-mix stabilizer with crushed gravel at a rate recommended by manufacturer for bicycle and pedestrian use in the El Dorado County climate. Stabilizer and aggregate shall be mixed dry.
- B. Place crushed gravel uniformly in layers no more than 1-1/2 inches thick over top of aggregate base course.

- C. Apply water per stabilizer manufacturer's recommendations.
- D. Compact each layer of crushed gravel to a relative compaction of not less than eighty-five (85) percent using equipment recommended by stabilizer manufacturer. Start compaction at least six (6) hours but no more than seventy-two (72) hours after placement or as recommended by stabilizer manufacturer.
- E. For field-mixed material, apply a stabilizer after compaction as recommended by the manufacturer. Prevent runoff or overspray of stabilizer onto adjacent paved or planting areas.
- F. The finished crushed gravel surface must be smooth, uniform, and compacted to a relative compaction of not less than 95 percent. The finished surface must provide positive drainage as shown on the grading plans.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Crushed Gravel Paving: Square foot based on the dimensions installed per the plans.

4.2 PAYMENT

- A. Progress payments for Crushed Gravel Paving work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing square feet completed by total square feet bid.
- B. Full compensation for all crushed gravel in Bicycle Jumps, Bicycle Skills (Additive Alternate #2), and Bicycle Jumps (Additive Alternate #3) involved in Aggregate Paving shall be considered as included in the price paid for these items and therefore no additional compensation shall be made.

END OF SECTION 32 15 40

SECTION 32 18 16 – PLAYGROUND SURFACING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Engineered wood fiber
- B. Related Requirements
 - 1. Section 11 68 16 "Play Structures."

1.2 DEFINITIONS

- A. Critical Height: Standard measure of shock attenuation according to ASTM F2223; same as "critical fall height" in ASTM F1292.

1.3 SUBMITTALS

- A. Product Data: for each type of product.
- B. Shop drawings: Include fall heights and use zones for equipment and structures specified in Section 11 68 16 "Play Structures," coordinated with the critical heights for playground surfacing.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are experienced in the installation of engineered wood fiber for playgrounds.
- B. Inspector: Certified Playground Safety Inspector (CPSI) through National Recreation and Park Association supplied by County.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Impact Attenuation: Critical fall height tested according to ASTM F1292.
- B. Accessibility Standard: Minimum surfacing performance according to ASTM F1951.

2.2 ENGINEERED WOOD FIBER

- A. Engineered Wood Fiber: ASTM F2075; containing no bark, leaves, twigs, or foreign or toxic materials; tested for accessibility according to ASTM F1951.
- B. Critical Height: As required for play equipment.
- C. Uncompressed Material Depth: Not less than as required for critical height indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates to receive surfacing products according to protective surfacing manufacturer's written instructions.
 - 1. Repair: Fill holes and depressions in unsatisfactory surfaces with leveling and patching material.

3.2 INSTALLATION OF ENGINEERED WOOD FIBER

- A. Apply components of engineered wood fiber according to manufacturer's written instructions to produce a uniform surface.
- B. Engineered wood fiber: Place engineered wood fiber to required depth after installation of playground equipment support posts and foundations. Include manufacturer's recommended amount of additional material to offset natural compaction over time.
- C. Finish Grading: Hand rake to a uniformly smooth finished surface and to required elevations.
- D. Re-Inspect and Top Off: Immediately prior to Project completion, and a minimum of three weeks after initial installation, add additional engineered wood fiber and hand rake to a uniformly smooth finished surface and to required elevations.

3.3 FIELD QUALITY CONTROL

- A. Perform the following tests with the assistance of a factory-authorized service representative:
 - 1. Perform "Installed Surface Performance Test" according to ASTM F1292 for each playground surfacing thickness in each playground area.
- B. Playground surfacing will be considered defective if it does not pass tests.
- C. Prepare test reports.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT (NOT USED)

4.2 PAYMENT

- A. Full compensation for all Work involved in Playground Surfacing shall be considered as included in the price paid for playground and therefore no additional compensation shall be made.

END OF SECTION 31 18 16

SECTION 32 31 19 – FENCES, GATES, AND RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Chain link Fence
 - 2. Concrete Split Rail Fence
 - 3. Vehicular Gate
 - 4. Railings
- B. Related Requirements
 - 1. Section 32 13 13 "Concrete" for concrete footing and curbs, stairs, and ramp.
 - 2. Section 32 33 00 "Site Furnishings" for fence mounted sign.

1.2 SUBMITTALS

- A. Shop Drawings:
 - 1. Vehicular gate.
 - 2. Standard and corner chain link panels.
 - 3. Plan showing post and footing locations for chain link fence, concrete split rail fence, and stair and ramp railings.
- B. Results of grounding tests.
- C. Color and finish sample for concrete split rail fence.

1.3 QUALITY ASSURANCE

- A. Contractor shall engage a qualified testing agency to perform grounding tests and inspections.

PART 2 - PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.
- B. Ferrous Metals:
 - 1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
 - 2. Steel Tubing: ASTM A 500, cold-formed steel tubing.

2.2 FASTENERS

- A. General: Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
- B. Cast-in-Place Anchors in Concrete: Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

2.3 MISCELLANEOUS

- A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI #79.
- B. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
- C. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint for regalvanizing welds in steel.
- D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.
- E. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa), unless otherwise indicated.

2.4 FABRICATION

- A. General: Preassemble items in the shop to greatest extent possible. Use connections that maintain structural value of joined pieces.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.
- C. Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.
- D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.
- E. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, not less than 24 inches (600 mm) o.c.

2.5 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Finish metal fabrications after assembly.
- B. Steel and Iron Finishes:
 - 1. Hot-dip galvanize items as indicated to comply with ASTM A 123/A 123M or ASTM A 153/A 153M as applicable.
 - 2. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with requirements indicated below for environmental exposure conditions of installed metal fabrications:
 - 3. Exteriors (SSPC Zone 1B) and Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry,

to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting," for shop painting

2.6 CHAIN LINK FABRIC

- A. Chain link fence fabric shall be galvanized finish.

2.7 VEHICULAR GATE

- A. Completed gates shall be capable of supporting a 200 lb. load applied at midspan without permanent deformation.
- B. Gate shall match fence height and color.
- C. The gate shall be set upright with the V-grooved wheels positioned over the pre-installed steel V-track that traverses the gate opening. Roller guides shall be affixed to the gateposts at a height even with the gate toprail to hold the gate in a vertical position. Gate stops shall be welded to the end of the gate or track so gate cannot pass rollers in either direction

2.8 RAILING

- A. Railing shall be per Plans. Color: black.

2.9 POSTS

- A. Posts shall be set in accordance with the spacing's shown in the construction Plans and approved shop drawings. The "EarthWork" and "Concrete" sections of this specification shall govern post base material requirements.

2.10 CONCRETE SPLIT RAIL FENCE

- A. Concrete shall be normal weight concrete having sand and gravel or crushed stone aggregate. Mixed with ASTM-C150 Type I or III Portland cement to meet the minimum compressive strength: panels and post: 4500 PSI at 28 day.
- B. Reinforcement: Posts, Rails, and Footings shall be reinforced with bars conforming to ASTM-A 615 and/or steel wire conforming to ASTM-A 82 per manufacturer's recommendations.
- C. Color: Warm brown to match existing concrete fence along El Dorado Trail adjacent to Project.
- D. Texture: Woodgrain finish to match existing concrete fence along El Dorado Trail adjacent to Project.

PART 3 - EXECUTION

3.1 GENERAL

- A. Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, with edges and surfaces level, plumb, and true.
 - 1. Fit exposed connections accurately together. Weld connections that are not to be left as exposed joints but cannot be shop welded. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication.
 - 2. Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.

3. Provide temporary bracing or anchors in formWork for items that are to be built into concrete, masonry, or similar construction.
- B. Set bearing and leveling plates on cleaned surfaces using wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts and pack solidly with nonshrink, nonmetallic grout.

3.2 POSTS

- A. Install by setting posts as indicated and fastening rails and infill panels to posts.
- B. Post Excavation: Drill or hand-excavate holes for posts in firm, undisturbed soil. Excavate holes to a diameter of not less than four (4) times post size and a depth of not less than twenty-four (24) inches plus three (3) inches for each foot or fraction of a foot that fence height exceeds four (4) feet.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
- D. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
- E. Concrete Fill: Place concrete around posts and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
- F. Posts Set in Concrete: Extend post to within six (6) inches of specified excavation depth, but not closer than three (3) inches to bottom of concrete.
- G. Space posts uniformly or as shown on Plans or approved shop drawings.

3.3 PAINTED SURFACES

- A. Touch up surfaces and finishes after installation.
- B. Clean field welds, bolted connections, and abraded areas and touch up paint with the same material as used for shop painting.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.4 RAILING

- A. Install railing according to manufacturer's written instructions.

3.5 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions and approved shop drawings, level, plumb, and secure for full opening without interference. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.6 CONCRETE SPLIT RAIL FENCE

- A. Install concrete split rail fence according to manufacturer's written instructions.

3.7 GROUNDING AND BONDING

- A. Fence Grounding: Install at maximum intervals of 750 feet.

- B. Gates and Other Fence Openings: Ground fence on each side of opening.
- C. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is six (6) inches below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at grounding location.
- D. Bonding Method for Gates: Connect bonding jumper between gate post and gate frame.
- E. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
- F. Field Quality Control
 - 1. Grounding-Resistance Tests: Subject completed grounding system to a megger test at each grounding location. Measure grounding resistance not less than two (2) full days after last trace of precipitation, without soil having been moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural grounding resistance. Perform tests by two-point method according to IEEE 81.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Chain Link Fence: Linear foot.
- B. Vehicular Gate: Each.
- C. Concrete Split Rail Fence: Linear foot.

4.2 PAYMENT

- A. Progress payments for Chain Link Fence Work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing linear feet completed by total linear feet bid.
- B. Progress payments for Vehicular Gate completed shall be based on a based on a percentage of total vehicular gate installation complete, as determined by Project Manager.
- C. Progress payments for Concrete Split Rail Fence Work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing linear feet completed by total linear feet bid.
- D. Full compensation for all Work involved in Railings shall be considered as included in the price paid for Ramps or Stairs and therefore no additional compensation shall be made.

END OF SECTION 32 31 19

SECTION 32 32 00 – UNIT MASONRY RETAINING WALL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for
 - 1. Retaining Walls

1.2 SUBMITTALS

- 1. Submit one concrete block and one concrete block cap for approval. Blocks shall be representative full-size samples showing the correct type, thickness, finish, and color.

1.3 PROTECTION

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's Work.
- B. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
- C. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried.
- D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
- E. The Contractor is responsible for repairing or replacing items damaged during Work to the satisfaction of the City.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. Aggregate base shall be per section 32 11 23 "Aggregate Base."

2.2 MASONRY UNITS

- A. Keystone Compac Series III or approved equal.
 - 1. Units shall be 8" tall, 12" wide, and 18" deep. Weight shall be 71 – 76 lbs.
 - 2. Finish shall be Straight Split, Color shall be grey.
- B. Pins shall be ½" x 5- ¼" fiberglass alignment pins or as recommended by manufacturer.
- C. Cap shall be recommended by manufacturer for use with masonry unit blocks and color shall match. Finish shall be smooth.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. For manufactured items, comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. Perform necessary field cutting and trimming as masonry is set.

3.2 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces, do not exceed 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch in 40 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet or 1/2 inch in 40 feet or more.
- B. Variation from Level: For lines of exposed horizontal grooves, and other conspicuous lines, do not exceed 1/4 inch in 20 feet or 1/2 inch in 40 feet or more.
- C. Variation of Linear Building Line: For position shown in plan, do not exceed 1/2 inch in 20 feet or 3/4 inch in 40 feet or more.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Retaining Wall: Linear foot.

4.2 PAYMENT

- A. Progress payments for Retaining Wall Work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing linear feet completed by total linear feet bid.

END OF SECTION 32 32 00

SECTION 32 33 00 – SITE FURNISHINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Picnic Tables
 - 2. Disposal Receptacle
 - 3. Exercise Equipment
 - 4. Bicycle Rack
 - 5. Bicycle Repair Station
 - 6. Interpretive Sign
 - 7. Temporary Sign
 - 8. Bond Act Sign

1.2 DIVISION OF WORK

- A. NCCP shall construct and install all benches on bench pads prepared by Contractor.
- B. Contractor shall be responsible for furnishing and installation of all other site furnishings. Contractor shall provide level bench pad with maximum 2% slope in any direction at bench locations shown on Plans.

1.3 SUBMITTALS

- A. Product Data: each product.
- B. Samples:
 - 1. Color and finish samples for picnic tables and disposal receptacles.
 - 2. Color and finish samples for any proposed substitution.
 - 3. Samples shall be a minimum of 2 inches by 2 inches.
 - 4. Print sample for interpretive sign and grant sign.
- C. Shop Drawings: Brackets and mounting of bond act sign to metal fence.
- D. Stamped building and engineering Plans for the restroom.

1.4 PERMITS

- A. Contractor is responsible for obtaining building permit for restroom building. Stamped, engineered Plans will be provided by manufacturer upon placement of order. Allow 5 weeks after order to receive building Plans.

PART 2 - PRODUCTS

2.1 PICNIC TABLES

- A. Picnic tables shall be concrete with a minimum weight of 1600 pounds.
- B. Color: Outdoor Creation's Sand Buff or approved equal.
- C. Finish shall be non-sacrificial nano sealer.

- D. 6 foot tables shall be model number 101S as manufactured by Outdoor Creations or approved equal, contact Chad Smith 530-338-8366.
- E. 6-foot accessible table shall have a truncated bench for right entry and be model number 101SRE as manufactured by Outdoor Creations or approved equal, contact Chad Smith 530-338-8366.
- F. 92 inch tables shall have skateboard resistant bumps and be model number 100SSK as manufactured by Outdoor Creations or approved equal, contact Chad Smith 530-338-8366.

2.2 DISPOSAL RECEPTACLE

- A. Disposal receptacle shall be concrete with a minimum weight of 1600 pounds, a covered top with round opening, 40 gallon capacity, and a side opening access. Model number 512 as manufactured by Outdoor Creations or approved equal, contact Chad Smith 530-338-8366.
- B. Color: to match picnic tables.
- C. Finish shall be acrylic.

2.3 EXERCISE EQUIPMENT

- A. Existing salvaged exercise equipment.
- B. LifeTrail Exercise Equipment. Available through Dave Bang and Associates. Contact Kelvin Fountano at 916-542-5176.
 - 1. Frame with roof. Model number ZZLT0045 as manufactured by Playworld or approved equal.
 - 2. Push-up. Model number ZZT0050 as manufactured by Playworld or approved equal.
 - 3. Hip Lift and Thigh Squeeze. Model number ZLT0057 as manufactured by Playworld or approved equal.
 - 4. Welcome Sign. Model number ZLT0066 as manufactured by Playworld or approved equal.

2.4 BICYCLE RACK

- A. Up Lift Bike Racks as manufactured by American Bicycle Security Company or approved equal. Available through Dave Bang and Associates. Contact Kelvin Fountano at 916-542-5176.
- B. Bicycle rack shall have two staggered wheel troughs.
- C. Finish: thermoplastic coated black, or powder coated black.

2.5 BICYCLE REPAIR STATION

- A. Fixit with Air Kit Prime as manufactured by American Bicycle Security Company or approved equal. Available through Dave Bang and Associates. Contact Kelvin Fountano at 916-542-5176.
- B. Repair station shall include air pump; bike hanger; philips and flat head screwdrivers; 2.5, 3, 4, 5, 6, and 8 mm Allen wrenches; headset wrench; pedal wrench; 8, 9, 10, and 11mm box wrenches; and tire levers.
- C. Finish: powder coated black RAL 9005

2.6 INTERPRETIVE SIGN

- A. Interpretive sign base shall be ½"-thick steel panel, size per Plans, color: powder coated black. Install in concrete footing per Plans.
- B. Interpretive sign panels shall be 24 inches by 36 inches and ¼"-thick polycarbonate
- C. Interpretive sign artwork design files will be a CMYK graphic and will be provided to Contractor after award of bid.

2.7 TEMPORARY SIGN

- A. The contractor shall maintain and display the existing temporary construction sign for duration of construction.
- B. If Contractor wishes to reprint sign with contractor name and logo, Contractor may do so. Sign shall:
 - 1. Be a minimum of 36 inches by 48 inches vinyl banner as recommended by manufacturer for outdoor application.
 - 2. Align with temporary sign artwork design files which will be a CMYK graphic. Sign files shall be provided upon request by contractor.

2.8 BOND ACT SIGN

- A. Bond act sign shall be permanently mounted to perimeter fence at location shown on Plans.
- B. Brackets shall be rail style and extend the full width of sign. Bracket color shall be black. Wrought Iron Fence Sign Holder as manufactured by Sign Bracket Store (www.signbracketstore.com) or approved equal.
- C. Bond act sign panels shall be 36 inches by 48 inches and a minimum 80 mil thick aluminum recommended by manufacturer for exterior use for a minimum of five years. Sign shall have lamination or coating for fading and graffiti resistance as recommended by manufacturer. Corners shall be rounded with a 2.25 inch radius and be burr-free. Sign shall have a pre-punched and cleaned hole in each corner for mounting.
- D. Bond act sign artwork design files will be a CMYK graphic and will be provided to Contractor after award of bid.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated on Plans. Complete field assembly of site furnishings where required.
- B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- C. Install in-ground and surface mount site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.
- D. Install concrete picnic tables and disposal receptacles level, plumb, true, and placed at locations indicated on Drawings.

- E. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts, without damaging or marking, in position during placement and finishing operations until concrete is sufficiently cured.
- F. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.

3.2 SIGNAGE

- A. Contractor shall install existing temporary sign on temporary construction fence at beginning of construction. Sign shall be mounted facing El Dorado Bike Trail or per Project Manager direction. Sign shall be hung or replaced as necessary to retain visibility and legibility throughout construction. Sign shall be removed and disposed of offsite after installation and approval of bond act sign.
- B. Bond act sign shall be mounted to proposed fence with a bracket at the top of the sign and another bracket at the bottom of the sign, using hardware provided by bracket manufacturer.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Site Furnishings: Lump Sum per Schedule of Values.

4.2 PAYMENT

- A. Progress payments for Work completed shall be based on Schedule of Values for Site Furnishings for improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager.

END OF SECTION 32 33 00

SECTION 32 84 00 – IRRIGATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Piping.
 - 2. Backflow preventers.
 - 3. Controller.
 - 4. Weather sensor.
 - 5. Master valve.
 - 6. Flow meter.
 - 7. Gate valve.
 - 8. Quick coupling valve.
 - 9. Remote control valves.
 - 10. Drip irrigation.
 - 11. Valve boxes.
- B. Related Requirements
 - 1. Section 32 13 00 "Concrete" for equipment pads.

1.2 PERFORMANCE REQUIREMENTS

- A. Irrigation zone control shall be automatic operation with controller and automatic control valves.
- B. Location of Emitters and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain one hundred (100) percent irrigation coverage of areas indicated.
- C. Minimum Working Pressures: The following are minimum pressure requirements for piping, valves, and specialties unless otherwise indicated:
 - 1. Irrigation Main Piping: 120 psi.
 - 2. Drip Lateral Piping: 40 psi

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories.
- B. Wiring Diagrams: For power, signal, and control wiring.
- C. Zoning Chart: Show each irrigation zone and its control valve. Zoning chart shall be laminated.
- D. Controller Timing Schedule: Indicate timing settings for each automatic controller zone.
- E. Operation and maintenance data.
- F. Post-construction water audit report.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Irrigation Auditor: Certified Landscape Irrigation Auditor (CLIA) supplied by Contractor.

PART 2 - PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

- A. Comply with requirements in the irrigation schedule for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.
- B. PE Pipe with Controlled ID: ASTM F771, PE 3408 compound;
 - 1. Insert Fittings for PE Pipe: ASTM D2609, nylon or propylene plastic with barbed ends. Include bands or other fasteners.
- C. PVC Pipe: ASTM D1785, PVC 1120 compound, Schedules 40 and 80.
 - 1. PVC Socket Fittings: ASTM D2466, Schedules 40 and 80.
 - 2. PVC Threaded Fittings: ASTM D2464, Schedule 80.
 - 3. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket ends.
- D. PVC Pipe, Pressure Rated: ASTM D2241, PVC 1120 compound, SDR 21 and SDR 26.
 - 1. PVC Socket Fittings: ASTM D2467, Schedule 80.
 - 2. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket or threaded ends.
- E. PIPING JOINING MATERIALS
 - 1. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick unless otherwise indicated; full-face or ring type unless otherwise indicated.
 - 2. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.
 - 3. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.
 - 4. Solder Filler Metals: ASTM B32, lead-free alloys. Include water-flushable flux according to ASTM B813.
 - 5. Solvent Cements for Joining PVC Piping: ASTM D2564. Include primer according to ASTM F656.
 - 6. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.2 BACKFLOW PREVENTERS (PER PLANS)

- A. Concrete pad per Section 32 13 00 "Concrete."

2.3 CONTROLLER (PER PLANS)

2.4 WEATHER SENSOR (PER PLANS)

2.5 MASTER VALVE (PER PLANS)

- 2.6 FLOW METER (PER PLANS)
- 2.7 GATE VALVE (PER PLANS)
- 2.8 QUICK COUPLING VALVE (PER PLANS)
- 2.9 REMOTE CONTROL VALVES (PER PLANS)
- 2.10 DRIP IRRIGATION (PER PLANS)
- 2.11 BOXES FOR VALVES
 - A. Plastic Boxes:
 - 1. Description: Box and cover designed for irrigation valves with open bottom and openings for piping.
 - a. Size: As required for valves and service. Size box to ensure minimum 4" clearance around valves or other non-piping irrigation equipment.
 - b. Shape: Round, Square, or Rectangular, as required.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install warning tape directly above pressure piping, 12 inches below finished grades, except 6 inches below subgrade under pavement and slabs.
- B. Provide minimum cover over top of underground piping according to the following:
 - 1. Irrigation Main Piping: 18 inches.
 - 2. Circuit Piping: 12 inches.
 - 3. Sleeves: 18 inches.

3.2 PIPING INSTALLATION

- A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.
- B. Install piping free of sags and bends.
- C. Install groups of pipes parallel to each other, spaced to permit valve servicing.
- D. Install fittings for changes in direction and branch connections.
- E. Install unions adjacent to valves and to final connections to other components with NPS 2 or smaller pipe connection.
- F. Install flanges adjacent to valves and to final connections to other components with NPS 2-1/2 or larger pipe connection.
- G. Install underground thermoplastic piping according to ASTM D2774.
- H. Install expansion loops in control-valve boxes for plastic piping.
- I. Lay piping on solid subbase, uniformly sloped without humps or depressions.
- J. Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.

- K. Install components having pressure rating equal to or greater than system operating pressure

3.3 DRIP INSTALLATION

- A. Install drip equipment downstream of remote control valve assembly after hydrostatic test is completed.

3.4 CONTROLLER INSTALLATION

- A. Equipment Mounting: Install interior controllers on wall.
 - 1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
- B. Install control wire in same trench as irrigation piping, within 4 inches of edge of mainline. See Standard Detail L-18. Provide conductors of size not smaller than recommended by controller manufacturer. Install cable in separate sleeve under paved areas.

3.5 IDENTIFICATION

- A. Valve Boxes: Heat stamp each valve box lid with CV, controller designation, and valve number for control valves, QC for quick coupling valves, GV for gate valves, FV for flush valves, and AR for air release valves.
- B. Warning Tapes: Install continuous, underground, detectable warning tapes over underground piping during backfilling of trenches.

3.6 FIELD QUALITY CONTROL

- A. Contractor shall perform tests and inspections as follows:
 - 1. Mainline Leak Test: A minimum of 24 hours after installation of solvent-welded joints, charge system and test for leaks by pressuring to 125 PSI for one (1) hour. Pressure gauge shall remain in place throughout test. If pressure drops more than two (2) PSI, repeat test after leaks have been repaired. All fittings and couplings shall be open to visual inspection during test.
 - 2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Notify Project Manager a minimum of two (2) Working days prior to conducting testing.
- C. Any irrigation product shall be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports and submit to Project Manager.

3.7 ADJUSTING

- A. Adjust settings of controllers.
- B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.

- C. Adjust devices, except those intended to be mounted aboveground, so they will be flush with, or not more than 1/2 inch above, finish grade.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Irrigation System: Lump Sum per Schedule of Values.

4.2 PAYMENT

- A. Progress payments for Work completed shall be based on Schedule Of Values for Irrigation System for improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager.

END OF SECTION 32 84 00

SECTION 32 91 13 – SOIL PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Planting and seeding soil amendments

1.2 DEFINITIONS

- A. Duff Layer: A surface layer of soil, typical of wooded areas, that is composed of mostly decayed leaves, twigs, and detritus.
- B. Imported Soil: Soil that is transported to Project site for use.
- C. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and fertilizers to produce a soil mixture suitable for plant growth.
- E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- F. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- G. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- H. USCC: U.S. Composting Council.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each bulk-supplied material in sealed containers labeled with content, source, and date obtained; providing an accurate representation of composition, color, and texture.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

PART 2 - PRODUCTS

2.1 INORGANIC SOIL AMENDMENTS

- A. Sulfur: elemental granulated agricultural grade soil sulfur.
 - 1. Containing a minimum of 99 percent sulfur

2.2 ORGANIC SOIL AMENDMENTS

- A. Compost: Compost shall be a well decomposed, stable, weed free organic matter source. It shall be derived from: agricultural, food, or industrial residuals; biosolids (treated sewage sludge); yard trimmings; source-separated or mixed solid waste. The product shall contain no substances toxic to plants and shall be reasonably free (< 1% by dry weight) of man-made foreign matter. The compost will possess no objectionable odors and shall not resemble the raw material from which it was derived., and bearing USCC's "Seal of Testing Assurance," and as follows:
1. Feedstock: May include animal waste.
 2. Reaction: pH of 6.0 to 8.5.
 3. Soluble-Salt Concentration: Less than 5 dS/m.
 4. Moisture Content: 30 to 60 percent by weight.
 5. Organic-Matter Content: 30-65% of dry weight.
 6. Particle Size: Minimum of 98 percent passing through a $\frac{3}{4}$ -inch sieve.
- B. Wood Derivatives: Shredded and composted, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.

2.3 FERTILIZERS

- A. Gro-Power Plus 5-3-1 with Mycorrhizae, or approved equal.
- B. The fertilizer / soil conditioner shall be derived from organic materials consisting of higher plant form life, composted beyond the fibrous stage. It shall NOT contain poultry, animal, or human waste (i.e. sewage sludge), pathogenic viruses, fly larvae, insecticides, herbicides, fungicides, or poisonous chemicals that would inhibit plant growth and shall have the following guaranteed analysis:

Ingredient	Percentage (Minimum)
Nitrogen	5
Phosphoric Acid	3
Water Soluble Potash	1
Humic Acids	15
Soluble Metallic Iron	1
Soil Penetrant	1
Mycorrhizal Inoculum	N/A

PART 3 - EXECUTION

3.1 GENERAL

- A. Place amendments and fertilizers according to requirements in Soil Analysis and Recommendations (Appendix D).

- B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.
- C. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

3.2 PREPARATION OF SOIL IN SHRUB PLANTING AREAS

- A. Spread amendments at the following rate per 1,000 square feet:
 - 1. 150 lbs. fertilizer
 - 2. 25 lbs. soil sulfur
 - 3. 1.5 cubic yards good quality compost
- B. Rototill a minimum of two directions to a depth of 6-8 inches.
- C. Remove all rocks or other debris greater than 1.5 inches in any dimension
- D. Compact to a maximum of 85% relative density.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- F. Irrigate with water truck so a minimum of 3 inches of water passes through the soil profile.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Soil Preparation: Lump Sum per Planting Schedule of Values.
- B. PAYMENT
- C. Progress payments for work completed shall be based on Schedule of Values for Planting for improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager.

END OF SECTION 32 91 13

SECTION 32 92 00 – SEEDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Seeding.
- B. Related Requirements
 - 1. Section 329113 "Soil Preparation."
 - 2. Section 329300 "Plants."

1.2 SUBMITTALS

- A. Certification of seed mixture.
- B. Product certificates.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose Work has resulted in successful seeding.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when Work is in progress.
 - 2. Personnel Certifications: Installer's field supervisor shall have experience with hydroseed installations
 - 3. Pesticide Applicator: State licensed, commercial.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

PART 2 - PRODUCTS

2.1 SEED

- A. Seed of species as shown on Plans, with not less than 85 percent germination, not less than 95 percent Pure Live Seed (PLS), and not more than 0.5 percent weed seed:
- B. Seed shall be free of weed seeds, fresh, re-cleaned, and from the most recent crop consisting of the percentages of mix as specified. Seed must be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists. Tests must be performed within 12 months before application.
- C. Seed shall be provided from and mixed by a certified dealer or as specified on Plans. Seed mixture shall be labeled with manufacturer's guaranteed analysis, germination rate, and purity rate.

- D. Basic Native Erosion Control Mix shall be from S&S Seeds or approved equal. Species shall include:
 - 1. *Croums carinatus* "Cucamonga"
 - 2. *Festuca microstachys*
 - 3. *Trifolium ciliolatum*
- E. California Native Wildflower Mix shall be from S&S Seeds or approved equal. Species shall include:
 - 1. *Achillea millefolium*
 - 2. *Clarkia unguiculata*
 - 3. *Collinsia heterophylla*
 - 4. *Eschscholzia californica*
 - 5. *Cilia capitata*
 - 6. *Gilia tricolor*
 - 7. *Lasthenia californica*
 - 8. *Layia platyglossa*
 - 9. *Lupinus microcarpus densiflorus*
 - 10. *Lupinus succulentus*
 - 11. *Mimulus aurantiaceus puniceus*
 - 12. *Nemophila maculate*
 - 13. *Nemophila menziesii*
 - 14. *Phacelia campanularia*
 - 15. *Sisyrinchium bellum*

2.2 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, rice, oats, or barley.
 - 1. Straw shall be furnished in air-dry condition with a consistency compatible for application with commercial straw-blowing equipment. Wheat and barley straw must be derived from irrigated crops.
 - 2. Straw must be free of plastic, glass, metal, rocks, and refuse or other deleterious material.
 - 3. Straw must have not have been used for stable bedding.
- B. Virgin Wood Fiber:
 - 1. Virgin wood fiber shall have an initial moisture content of no more than 15 percent of its dry weight when tested under California Test 226. The moisture content must be marked on the packaging.
 - 2. The wood fiber shall be derived from long-strand, whole wood chips with no growth or germination inhibiting substances. The wood fiber shall contain 3/8-inch fiber strands for at least 25 percent by total volume and have at least 40 percent retained when passed through a no. 25 sieve.
 - 3. Virgin wood fiber shall be free of growth or germination inhibiting factors and dyed green to facilitate visual metering. The coloring agent must be biodegradable, nontoxic, and free from copper, mercury, and arsenic, and must not stain concrete or painted surfaces.
 - 4. During application, virgin wood fiber shall have additional characteristics of dispensing rapidly in water to form a homogeneous slurry.
 - 5. The wood fiber shall be nontoxic to plants and animal life, free of synthetic or plastic materials, lead paint, printing ink, varnish, petroleum products, seed germination inhibitors, and chlorine bleach.

6. The wood fiber shall contain less than 250 ppm of boron.

C. COMPOST

1. See Section 32 91 13 "Soil Preparation."

2.3 TACKIFIER/ BINDER

- A. Tackifier must be (1) free from growth or germination inhibiting factors, (2) nonflammable, (3) nontoxic to aquatic organisms, and (4) functional for a minimum of 180 days.
- B. The tackifier/binder shall be an organic substance supplied in powder form and shall be psyllium or guar gum based.
- C. The stabilizing emulsion shall be a concentrated liquid chemical that forms a film upon drying and allows water and air to penetrate.

2.4 PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

PART 3 - EXECUTION (Not Used)

3.1 PLANTING AREA PREPARATION

- A. General: Prepare planting area for seeding:
 - 1. Remove all rocks or other debris greater than 1.5 inches in any dimension
 - 2. Compact to a maximum of 85% relative density.
 - 3. Finish Grading: Grade soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- B. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- C. Before planting, obtain Project Manager's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- D. Do not perform seeding of any kind when temperatures are below 40 degrees Fahrenheit or when it is raining. Do not perform seeding when soil is saturated or excessively moist.
- E. Seeding shall occur between September 15 to February 1 unless in irrigated area or otherwise approved by the Project Manager.

3.2 BROADCAST SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.
 - 1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 2. Do not use wet seed or seed that is moldy or otherwise damaged.
 - 3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

- B. Sow seed at manufacturers recommended rate. If manufacturer recommends range, then sow at median rate.
- C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch, and roll surface smooth.

3.3 HYDROSEEDING

- A. Do not perform hydroseeding when wind is above 15 mph.
- B. Lightly scarify areas to be hydroseeded.
- C. Blend mix in a hydraulic mixer until all material is consistently blended.
 - 1. Tank, hose and associated apparatus must be thoroughly clean and free of debris or other material prior to placement/spraying of seed.
 - 2. Mixing of ingredients is to be performed in a tank, with built-in continuous agitation and recirculation of system of sufficient capacity to produce homogeneous slurry of the materials designated. The discharge system shall apply the slurry mix at a continuous and uniform rate, producing a uniform cover on the ground. The slurry is to contain a temporary green dye in order to make ready identification of treated area.
 - 3. Hydroseed mix shall contain the following:
 - a. Seed: rate per Plans
 - b. Virgin wood fiber: 60 lbs. per 1,000 square feet
 - c. Tackifier/ binder: per manufacturer's recommendations
 - 4. Water, mulch, fertilizer, and tackifier shall be added first and simultaneously so that the finished load is a homogeneous mix of the specified ingredients.
 - 5. Seed shall be added last to the slurry. Once the seed is added, the mix shall be agitated for 3-5 minutes to allow for uniform mixing.
- D. Spray mixture consistently over the area to be hydroseeded. Protect adjacent areas such as paving, walls, play areas and other from overspray.
- E. The slurry shall be discharged from the system within two hours of adding seed. Slurry with seed more than two hours old shall be recharged with new seed at 50% the original seed rate before application. Hydroseed mixtures more than four hours old shall be removed from the job site at the Contractor's expense.
- F. Straw shall be uniformly spread over hydroseed planting areas when conditions are suitable.
 - 1. The straw may be pneumatically applied as long as the resulting straw is predominately 3 to 6 inches in length. The straw shall be treated with mulch and tackifier before it can be blown off site, but in no case shall straw be left untreated for more than 24 hours. The Contractor shall clean up areas of straw, which are blown from site, and the areas shall be retreated at no additional expense to the Owner.
 - 2. Apply slurry of 10 lbs. virgin wood fiber per 1,000 square feet and tackifier per manufacturer's recommendations after straw is spread.
- G. At the end of each day of spraying operations, clean up all areas where overspray has occurred.
- H. After hydroseeding, water shall be lightly applied to saturate the soil, but not to cause floatation.

- I. After seeding, no portion of the seeded area shall be allowed to dry out during the entire plant establishment period. The Contractor shall be required to monitor seedbed moisture and provide watering as required to develop an acceptable stand of target plant type.
- J. The Contractor shall stay out of all hydroseeded areas. Pedestrians, equipment, and vehicles shall be excluded from and not allowed within areas hydroseeded until plants are established.

3.4 SATISFACTORY SEEDED AREAS

- A. Seeded shall meet the following criteria as determined by Project Manager:
 - 1. Satisfactory Seeding: At end of maintenance period, a healthy, uniform, close stand of seeded plants has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
 - 2. Non-specified species in seeded areas shall be less than 5% over any 10 sq. ft and in monoculture stands no larger than 1 foot in any direction.
 - 3. Seeded areas shall not contain any plants defined as invasive by the California Invasive Plants Council (Cal-IPC; cal-ipc.org/plants/profiles).

3.5 MAINTENANCE

- A. Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Maintain as required in Section 32 93 00 "Plants" and in accordance with Project Manager approved maintenance data. Begin maintenance immediately after seeds are installed and continue until plants are acceptably healthy and well established, but for not less than maintenance period below:
- B. Maintenance Period: 90 days from completion of Work.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Seeding: Square foot.

4.2 PAYMENT

- A. Progress payments for Seeding Work completed shall be based on a percentage of improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager. Percentage shall be calculated by dividing square feet completed by total square feet bid less area included any approved additive alternates.
- B. Full compensation for all Work involved in maintenance of seeded areas shall be considered as included in the price paid for maintenance period and therefore no additional compensation shall be made.

END OF SECTION 32 92 00

SECTION 32 93 00 – PLANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Groundcover.
 - 2. Shrubs.
 - 3. Trees.
 - 4. Tree Stakes.
 - 5. Wood Mulch.
 - 6. Rock Mulch.
 - 7. Landscape Maintenance Period.
- B. Related Requirements
 - 1. Section 32 91 13 "Soil Preparation."
 - 2. Section 32 92 00 "Hydroseed."

1.2 DIVISION OF WORK

- A. Volunteer Groups shall install forty-five (45) shrubs provided by Contractor, including planting pit excavation and backfill.
- B. Contractor shall be responsible for furnishing and installation of groundcover, shrubs not installed by volunteers, trees, wood mulch, and rock mulch. Contractor is responsible for pruning of all plants and landscape maintenance. Contractor shall furnish forty-five (45) shrubs on site for installation by others.

1.3 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.
- C. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 32 91 13 "Soil Preparation" for drawing designations for planting soils.
- D. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
- B. Plant Source Lists: Submit documentation of plant sources and requested plant substitutions within thirty (30) days of award of contract.

- C. Samples of wood mulch and rock mulch.
- D. Product certificates.
- E. Sample warranty.

1.5 QUALITY ASSURANCE

- A. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when Work is in progress.
 - 1. Pesticide Applicator: State licensed, commercial.
- B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.
- C. Acceptance walk: Contractor and Project Manager shall walk site at completion of maintenance period prior to acceptance of site by County.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
- B. Handle planting stock by root ball.
- C. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.
- D. Deliver plants after preparations for planting have been completed and install immediately. If planting is delayed more than four hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.
- E. Install plants within three (3) days of delivery to Project site.

1.7 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, Workmanship, or growth within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
 - b. Structural failures including plantings falling or blowing over.
 - 2. Warranty Period: 12 months from date of Project completion.
 - 3. Replacement plants shall be installed within thirty (30) Calendar Days of County notifying Contractor of warranty issue.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on

Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

- B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- C. Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery and that are in bud but not yet in bloom.
- D. If specified plants are not available, Contractor notify Project Manager within 30 days of award of contract and provide suggested plant substitutions.

2.2 COMPOST

- A. See Section 32 91 13 "Soil Preparation."

2.3 WOOD MULCH

- A. Wood and bark chips, free of salt and deleterious materials such as clods, coarse objects, and rocks.
- B. Size Range: 4 inches maximum, 1 inch minimum in length; ½-inch minimum width; 1/8-inch minimum thickness. At least seventy-five percent, by volume, of wood mulch shall conform to size specified.
- C. Wood mulch shall be made of clean recycled wood.
- D. Color: natural

2.4 ROCK MULCH

- A. Rock mulch shall be ¾-inch to 2-inches washed river rock.

2.5 TREE STAKES

- A. Use untreated wooden stakes for all tree support stakes, size per Plans

2.6 PESTICIDES

- A. General: Contractor to obtain the Pest Control Advisor's recommendations for each pesticide to be used. Pesticide registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PLANTING AREA ESTABLISHMENT

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."

- B. Before planting, obtain Project Manager's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits.
 - 1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
 - 2. Excavate approximately three times as wide as ball diameter.
 - 3. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
 - 4. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.

3.3 TREE AND SHRUB PLANTING

- A. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- B. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.
- C. Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
 - 1. Backfill Soil: Amend soil removed from planting pit excavations with 25% compost by volume.
 - 2. Container-Grown Stock: Carefully remove root ball from container without damaging root ball or plant.
 - 3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
 - 4. Continue backfilling process. Water again after placing and tamping final layer of soil.
- D. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.4 TREE AND SHRUB PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape.
- B. Prune, thin, and shape trees, shrubs, and vines as directed by Project Manager and according to standard professional horticultural and arboricultural practices. Do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.
- C. Do not apply pruning paint to wounds.

3.5 GROUND COVER PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.
- B. Dig holes large enough to allow spreading of roots.
- C. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- D. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- E. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.6 PLANTING AREA MULCHING

- A. Mulch backfilled surfaces of planting areas and other areas indicated.
- B. Wood mulch in Planting Areas and tree protection areas: Apply 3-inch minimum thickness of organic mulch over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of proposed trunks or stems or 1 foot of existing tree trunks.
- C. Rock mulch shall be 2-inch thick in swales.

3.7 PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.
- B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
- D. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- E. Protect plants from damage due to landscape operations and operations of other Contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.
- F. Replace any plants that die during the maintenance period within 2 weeks of death.

3.8 MAINTENANCE SERVICE

- A. Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:

- B. Maintenance Period: Ninety days from completion of Work. At end of maintenance period, Contractor and Project Manager shall have an acceptance walk prior to acceptance of the site.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Planting: Lump Sum per Schedule of Values.
- B. Maintenance Period: Lump Sum.

4.2 PAYMENT

- A. Progress payments for Work completed shall be based on Schedule Of Values for Planting for improvements in place, inspected by the authority having jurisdiction, and accepted by Project Manager.
- B. Progress payments for Maintenance Period Work completed shall be based on a percentage of total maintenance period complete, as determined by Project Manager.

END OF SECTION 32 93 00

El Dorado County Bike Park

Oak Resource Technical Report

April 2021 | CED-04

Prepared for:

El Dorado County
200 Armory Drive
Placerville, CA 95667

Prepared by:

HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630
21-1228 A 289 of 393

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ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
County	El Dorado County
DBH	diameter at breast height
DLR	dripline radius
GPS	Global Positioning System
HELIX	HELIX Environmental Planning, Inc.
ISA	International Society of Arboriculture
OWMP	Oak Woodland Management Plan
RPZ	root protection zone

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1.0 INTRODUCTION

This report presents the results of the oak woodland and tree survey conducted for the El Dorado County Bike Park in Placerville, El Dorado County, California. The purpose of this report is to present information on the species, size, and condition of protected oak trees, mapping of oak woodland, an analysis of impacts to oak resources from the proposed project, mitigation requirements consistent with the El Dorado County Oak Resources Management Plan, tree protection recommendations for trees to be preserved onsite, and an assessment of mitigation requirements.

1.1 REGIONAL LOCATION

The project site is located at 40 Old Depot Road in the unincorporated community of Diamond Springs in El Dorado County, California. The site is located within Township 10 North, Range 10 East, Section 24 of the USGS 7.5-minute series *Placerville, CA* quadrangle. The approximate location of the Study Area is 38.703167° Latitude, -121.822719° Longitude (Figure 1, *Vicinity Map*). The Study Area included the two parcels (Assessor's Parcel Numbers; APN: 327-250-37 and 327-250-38) and the approximately 50-foot area south to the El Dorado Trail (Figure 2, *Oak Resources*). Land uses surrounding the site include low-density residential to the west, commercial development along Missouri Flat Road to the south, Depot Lake reservoir to the north, and rural undeveloped land to the north and east.

1.2 PROPOSED PROJECT

The proposed project will construct a bike park in the Study Area. Detailed plans for the proposed project are not available as of the preparation of this report.

1.3 OAK RESOURCES MANAGEMENT PLAN

The County of El Dorado (County) adopted the El Dorado County Oak Resources Management Plan (ORMP) on October 24, 2017 and the ORMP went into effect on November 24, 2017 (El Dorado County 2017). The ORMP designates three classes of protected oak resources: oak woodlands, Heritage oak trees, and individual native oak trees. According to the ORMP, there are six primary native oak tree species in El Dorado County, which include blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizeni*), valley oak (*Quercus lobata*), California black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepis*), and Oregon oak (*Quercus garryana*). Additionally, one hybrid, known as oracle oak (*Quercus x morehus*) also occurs within the County. These species comprise the County's oak woodlands and also occur as isolated individuals or small groups. Woodland habitats include biological communities that range in structure and density. Major oak woodland habitats within El Dorado County include blue oak-foothill pine, blue oak woodland, montane hardwood, montane hardwood-conifer, and valley oak woodland. Additionally, any oak stand that either currently or historically supports a greater than 10 percent oak canopy cover is considered an oak woodland, even if it is located within a larger non-woodland habitat. A Heritage tree is a protected oak tree that has a single main trunk that measures 36 inches DBH or greater, or a multiple trunk with an aggregate diameter at breast height (DBH) measuring 36 inches or greater. Trees of this size are regulated individually whether located within or outside of an oak woodland. An individual oak tree located outside of an oak woodland is regulated under the ORMP if it has a single main trunk that measures greater than six inches in DBH as measured at four feet six inches from the ground, or a multiple trunk with an aggregate DBH measuring greater than ten inches in DBH and is not a Heritage tree.

A permit is required prior to impacting or removing protected oak resources. Impacts to oak trees include pruning, grading within the root zone, or any other disturbance to the tree. Oak woodland is considered impacted by any development activity, such as clearing, grading, and other modifications for roads, buildings, landscaping, or other development activities.

Mitigation is required for impacts to protected oak resources. Mitigation for individual oak trees is based on an inch-for-inch basis; Heritage tree replacement is required at a 3:1 ratio. Oak woodland mitigation requirements depend on the percentage of oak woodland impacted, as shown in Table 1, below. Additionally, a conservation easement or deed restriction must be placed over any retained on-site woodlands to protect them in perpetuity.

Table 1
OAK WOODLAND MITIGATION REQUIREMENTS

Existing Oak Woodland Impacted	Mitigation Ratio (Acres)
≤50.0%	1:1
50.0%< and <75.0%	1.5:1
75.0< to 100%	2:1

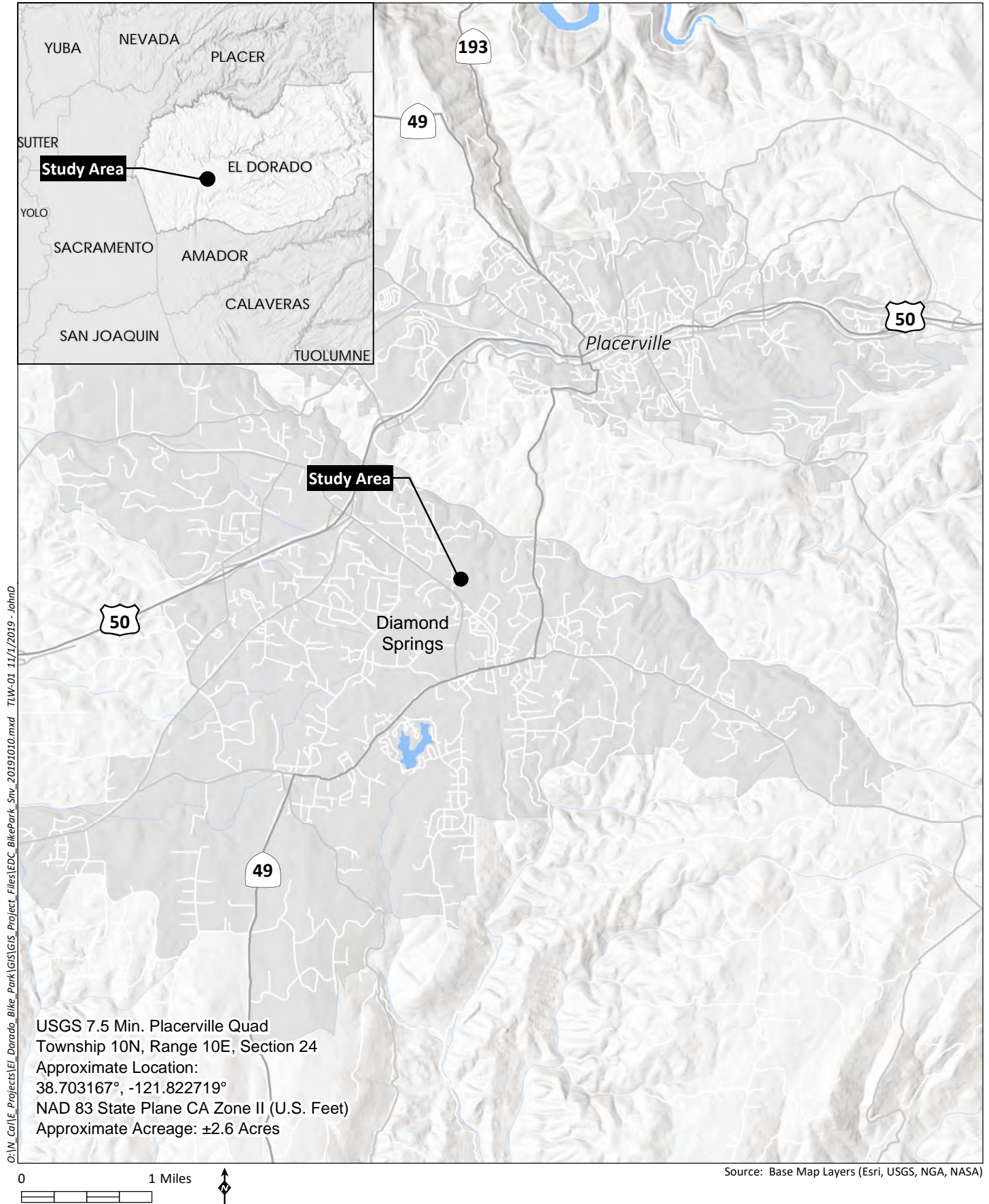
Mitigation under the ORMP may be completed with a combination of the following options: on- or off-site replacement plantings, payment of in-lieu fees, or establishment of an off-site conservation easement for oak woodlands. Payment of in-lieu fees are currently set at \$8,285 per acre for oak woodlands, \$153 per trunk inch for individual trees, and \$459 per trunk inch for Heritage trees. Replacement planting is limited to 50 percent of the total required mitigation. Various plant sizes may be used in mitigation planting, as shown in Table 2, below.

Table 2
TREE MITIGATION REPLACEMENT RATIOS

Replacement Tree Size	Number of Trees Required
<i>Oak Woodland</i>	
1-gallon/TreePot 4	1 per tree required*
Acorn	3 per tree required*
<i>Individual/Heritage Trees</i>	
15-gallon	1 per inch removed
5-gallon	1.5 per inch removed (rounded up)
1-gallon/TreePot 4	2 per inch removed
Acorn	3 per inch removed

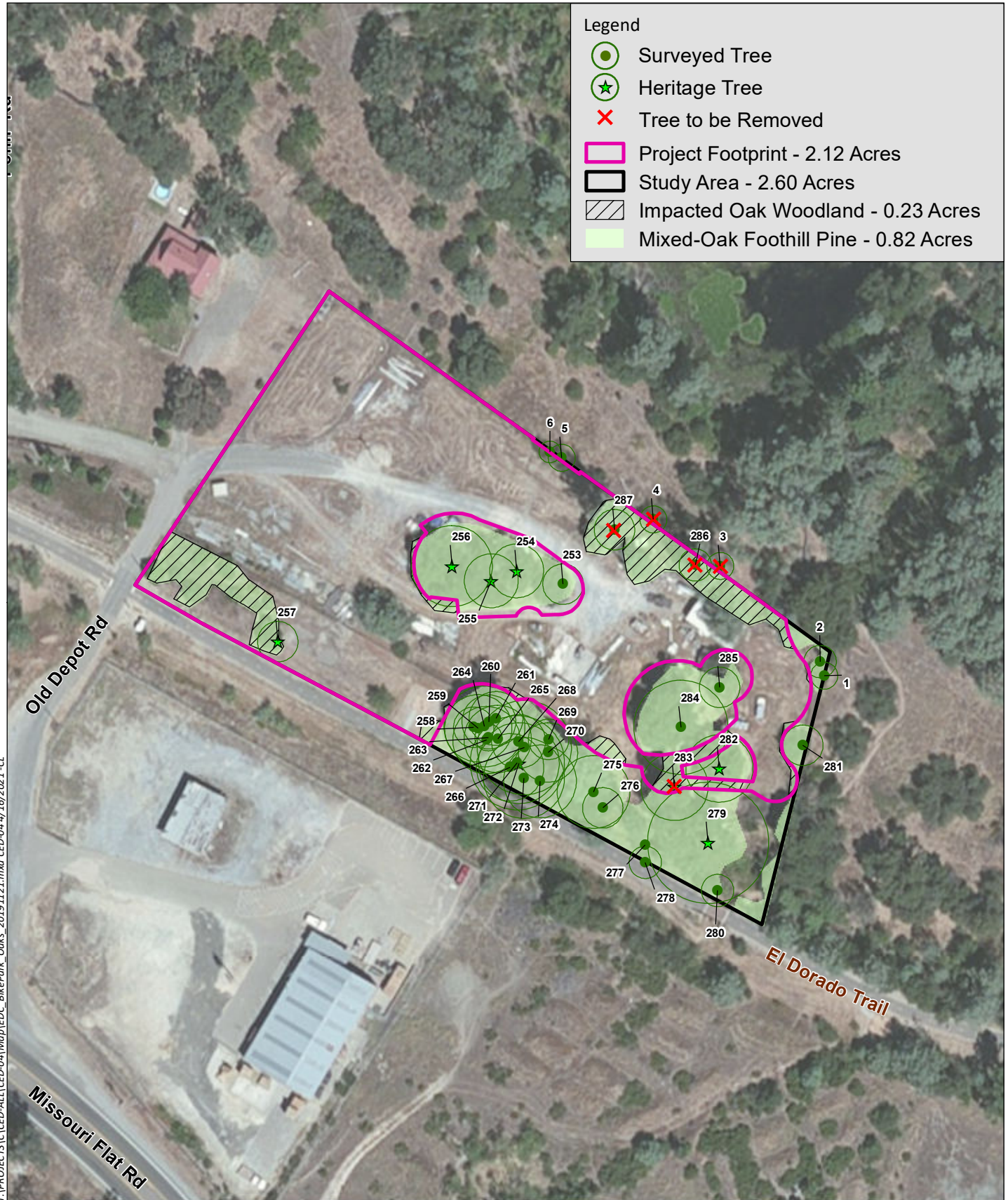
* Number of trees required based on actual density of trees removed.

Mitigation planting density is based on the actual tree density of the oak woodland removed, with a maximum planting density of 200 trees per acre. All mitigation trees shall be maintained and monitored for a period of seven years following the initial planting. Overplanting is acceptable in order to achieve the required density and acreage at the end of the 7-year monitoring period. If mitigation planting is implemented, then a Replacement Planting Plan is required, and the planting area must be protected in perpetuity through deed restrictions or a conservation easement.



Legend

-  Surveied Tree
-  Heritage Tree
-  Tree to be Removed
-  Project Footprint - 2.12 Acres
-  Study Area - 2.60 Acres
-  Impacted Oak Woodland - 0.23 Acres
-  Mixed-Oak Foothill Pine - 0.82 Acres



Source: Aerial (DigitalGlobe, 2018)

2.0 METHODOLOGY

The Study Area was surveyed by International Society of Arboriculture (ISA) Certified Arborist, Charlotte Marks (WE-10519A) on October 10, 2019 and by ISA Certified Arborist Meredith Branstad (WE-6727A) on February 19, 2020 and April 13, 2021. All oak trees with a cumulative DBH of at least 6 inches within and overhanging the Study Area, up to 50 feet surrounding the site, where accessible, were inventoried. A diameter tape was used to verify each trunk diameter at breast height, which is 54 inches above the ground. The measurement from the trunk to the end of the longest lateral limb was used as the dripline radius (DLR). All accessible surveyed trees were identified with an aluminum tag that corresponds to the numbering in Appendix A. Trees that were inaccessible were not tagged and were arbitrarily numbered from 1 to 6 (Appendix A). Approximate tree locations were mapped using a Trimble GeoXT Global Positioning System (GPS) hand-held unit with sub-meter accuracy. Tree data was combined with habitat data developed by aerial photo interpretation and field observations in ArcGIS 10.6.1.

The health and structural condition of each tree was rated according to Table 3. The health rating considers factors such as the size, color, and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency, and insect infestation. The structural rating reflects the trunk and branch configuration; canopy balance; the presence of included bark and other structural defects such as decay; and the potential for structural failure. In cases where conditions fall between the Good, Fair, and Poor ratings, intermediate ratings Fair-Good and Fair-Poor were used.

Table 3
TREE RATING SYSTEM

Rating	Tree Health
Good	There is an average or below-average amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density are typical for the species; buds are normal size, viable, abundant, and uniform throughout the canopy; current and past growth increments are generally average or better; any callusing is vigorous. This health rating indicates that there is very little, if any, evidence of stress, disease, nutrient deficiency, and/or insect infestation.
Fair	There is an above-average amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density may be below what is typically expected for the species; buds are normal size and viable, but slightly sparse throughout the canopy; current and past growth increments may be below average; tree may be slow to callus around old wounds. This health rating indicates that there is moderate evidence of stress, disease, nutrient deficiency, and/or insect infestation.
Poor	There is an extreme amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density are clearly compromised; very few viable buds are present throughout the canopy; current and past growth increments are meager; no evidence of callusing around old wounds. This health rating indicates that there is widespread evidence of stress, disease, nutrient deficiency, and/or insect infestation.
Tree Structure	
Good	No wounds, cavities, decay, or indication of hollowness are evident in the root crown, trunk, or primary and secondary limbs; no anchor roots are exposed; no codominant branching or multiple trunk attachments are present; very little included bark at branch attachments exists; no dead primary or secondary limbs are present in canopy; there have been no major limb failures; limbs are not overburdened; branching structure is appropriate for species; any decay is limited to small dead branches/stubs. This structure rating represents a low potential for failure.
Fair	With respect to the size of the tree, small to moderate wounds, cavities, decay, and indication of hollowness may be evident in the root crown, trunk, and/or primary and secondary limbs; some anchor roots may be exposed; codominant branching or multiple trunk attachments may be present, but included bark does not exist or is not well developed; minor to moderate amounts of included bark at branch attachments may exist; there may be small to moderate amounts of large dead limbs in canopy, but there is no evidence of large limb failures; limbs may be slightly overburdened; branching structure and/or canopy balance may be moderately altered by the tree's growing environment. This structure rating represents a moderate potential for failure.
Poor	With respect to the size of the tree, significant wounds, cavities, decay, and/or indication of hollowness may be evident in the root crown, trunk, and/or primary and secondary limbs; anchor roots may be exposed and/or the tree may have lost anchorage; codominant branching or multiple trunk attachments may be present; significant amounts of included bark may exist in trunk and branch attachments; there may be significant amounts of large dead limbs in the canopy; there may be evidence of trunk or large limb failures; limbs may be severely overburdened; branching structure and/or canopy balance may be drastically altered by the tree's growing environment. This structure rating represents a high potential for failure.

3.0 RESULTS AND DISCUSSION

3.1 SURVEYED TREES

The Study Area contains approximately 0.82 acres of mixed oak-foothill pine habitat (oak woodland) (Figure 2). This biological community is characterized primarily by blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), interior live oak (*Quercus wislizeni*), and foothill pine (*Pinus sabiniana*). Dominant understory vegetation includes coyote brush (*Baccharis pilularis*), Himalayan blackberry (*Rubus armeniacus*), common periwinkle (*Vinca minor*), dogtail grass (*Cynosurus echinatus*), Queen Anne's lace (*Daucus carota*), field parsley (*Torilis arvensis*), and rose clover (*Trifolium hirtum*).

A total of 41 oak trees were surveyed, consisting of 38 interior live oaks, two blue oaks, and one valley oak occur. All but two of the trees are located within the oak woodland. Eight Heritage trees (#254, #255, #256, #257, #272, #279, #282, and #283) are present within the Study Area (Figure 2). A total of 23 trees (56 percent) were rated as Fair or better in both health and structure. The remaining 18 trees (44 percent) had a structure and/or health condition rating of Poor-Fair or Poor (Table 4). Trees in Poor-Fair to Poor condition demonstrated decay, structural lean, included bark, moderate to severe dieback of the foliage, asymmetrical canopy and codominant branching. Two trees (#283 and #287) were recommended for removal due to structural issues caused by basal cavities that make them highly likely to fail with the potential to damage property and injure people. Detailed tree data for all surveyed trees is included in Appendix A. Approximate locations of surveyed trees are shown on Figure 2.

Table 4
NUMBER OF TREES BY HEALTH AND STRUCTURE RATINGS

		Health					Total Trees
Structure		Good	Fair-Good	Fair	Poor-Fair	Poor	
	Good	0	0	0	0	0	0
	Fair-Good	0	0	0	0	0	0
	Fair	0	1	22	2	0	25
	Poor-Fair	0	0	4	11	0	15
	Poor	0	0	0	1	0	1
Total Trees		0	1	26	14	0	41

3.2 IMPACTS AND MITIGATION

A total of 0.23 acres (28% of existing) of oak woodland will be removed (Figure 2). This includes removal of one Heritage Tree (#283) and impacts to four Heritage Trees. Additionally, two individual trees will be impacted by the project. Since the majority of the site is currently heavily disturbed and the proposed work within the dripline will consist of removal of existing paving and structures, construction of permeable gravel paths and mountain bicycle skills equipment, and installation of low-water use landscaping, long-term impacts to these trees is not expected to be significant.

No mitigation is necessary for the removal of Tree #283 as it is exempt under Section 2.1.9 of the ORMP and Section 130.39.050.I of the Zoning Code, which states that individual native oak tree removal is

exempted from the mitigation requirements when the tree is dead, dying, or diseased or the tree exhibits high failure potential with the potential to injure persons or damage property.

Mitigation for impacts to oak woodland resources will be implemented through payment of in-lieu fees totaling \$1,906. Since impacts to other protected trees are anticipated to be minor and not significantly contribute to the decline of the trees if tree protection measures are implemented, no mitigation is anticipated for these impacts.

For all protected trees to be preserved within 20-feet of the impact area, then protection measures shall be implemented in order minimize impacts to protected trees. Protection measures include:

- Install tree protection fencing, consisting of a minimum 4-foot tall high-visibility fence (orange plastic snow fence or similar) on steel posts placed a maximum of 8 feet on center, shall be placed at the edge of the woodland habitat and around the perimeter of the root protection zone (RPZ; dripline radius x 1.3) for the trees to remain, whichever is greater. The RPZ is the minimum distance for placing protective fencing, but tree protection fencing should be placed as far outside of the RPZ as possible.
- Tree and vegetation removal will be limited to the extent needed to facilitate project construction and access to the site.
- If permanent site improvements (e.g., paving, buildings, and structures) encroach into the protected area, install fence at limit of work. If temporary impacts (e.g., grading, utility installation) require encroachment into the protected area, move fence to limit of work during active construction of item and return to edge of protected area once work is completed.
- Protection fencing shall not be moved without prior authorization from the Project Arborist or County of El Dorado or as detailed on approved plans.
- Avoid paving within protected area. If paving cannot be avoided, porous materials will be used.
- No parking, portable toilets, dumping or storage of any construction materials, including oil, gas, or other chemicals, or other infringement by workers or domesticated animals is allowed in the protected area.
- No signs, ropes, cables, metal stakes, or any other items shall be attached to a protected tree, unless recommended by an ISA Certified Arborist.
- Grading, excavation, or trenching within RPZ of existing native oaks should be avoided to the greatest extent possible. Under no circumstances should fill soil be placed against the trunk of an existing tree.
- Underground utilities should be avoided in the RPZ, but if necessary, shall be bored or drilled.
- No trenching is allowed within the RPZ unless specifically approved by the Project Arborist.
- Pruning of living limbs or roots shall be done under the supervision of an ISA-Certified Arborist or as approved by the County.

- All pruning shall be done by hand, air knife, or water jet, in accordance with ISA standards using tree maintenance best practices. Climbing spikes shall not be used on living trees. Limbs shall be removed with clean cuts just outside the crown collar.
- Cover exposed roots or cut root ends in trenches with damp burlap to prevent drying out.
- Minimize disturbance to the native ground surface (grass, leaf, litter, or mulch) under preserved trees to the greatest extent feasible.
- Native woody plant material (trees and shrubs to be removed) may be chipped or mulched on the project site and placed in a 4 to 6 inch deep layer around existing trees to remain. Do not place mulch in contact with the trunk of preserved trees.
- If a tree to remain has had roots cut during construction, the tree shall be deep watered once a month during summer/fall months until construction is complete.
- Appropriate fire prevention techniques shall be employed around all trees to be preserved. This includes cutting tall grass, removing flammable debris within the RPZ, and prohibiting the use of tools that may cause sparks, such as metal-bladed trimmers or mowers.
- No open flames shall be permitted within 15 feet of the tree canopy.
- Damage to any protected tree during construction shall be immediately reported to the County of El Dorado Planning Services. Damage shall be corrected as required by the County representative.

4.0 REFERENCES

El Dorado County. 2017. *El Dorado County Oak Resources Management Plan*. Available online at: <https://www.edcgov.us/Government/longrangeplanning/environmental/Documents/Reso-129-2017-Exhibit-A-ORMP-10-24-2017.pdf>. Dated September 2017. 208 pages.

Appendix A

Tree Survey Data

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Appendix A
Tree Survey Data

Tree #	Species	# of	DBH	DLR	Height	Health	Structure	Notes
1	Interior Live Oak	2	4, 6	10	15	Fair	Fair	No tag; codominant at 2 ft, included bark, asymmetrical canopy, dieback
2	Interior Live Oak	6	3, 3, 2, 2, 2, 2	12	15	Poor-Fair	Poor-Fair	No tag; multiple trunks at 1ft, trunk rot, moderate dieback, pruning cuts, included bark
3	Interior Live Oak	3	3, 3, 3	10	17	Fair-Good	Fair	No tag; included bark, multiple trunk attachments, asymmetrical canopy
4	Interior Live Oak	2	7,3	10	17	Fair	Fair	No tag; asymmetrical canopy, included bark, multiple trunk attachments, dieback
5	Interior Live Oak	5	4, 3, 3, 2, 2	10	12	Fair	Fair	No tag; multiple trunk attachments, included bark, dieback
6	Interior Live Oak	1	7	8	15	Fair	Fair	No tag; included bark, asymmetrical canopy, dieback
253	Blue Oak	3	11, 8, 7	15	20	Fair	Fair	multiple trunks at 1ft, included bark, minor trunk rot, limb rot, trunk scar
254	Interior Live Oak	5	16, 10, 11, 10, 11	20	22	Poor-Fair	Poor-Fair	Heritage Tree ; asymmetrical canopy, multiple trunk attachments, basal cavity, included bark, dieback, limb death, mistletoe, trunk cavity
255	Interior Live Oak	4	16, 12, 11, 12	20	25	Poor-Fair	Poor-Fair	Heritage Tree ; trunk rot, asymmetrical canopy, multiple trunks at 1 ft, included bark, pruning cuts, asymmetrical canopy
256	Interior Live Oak	1	46	30	25	Poor-Fair	Poor-Fair	Heritage Tree ; trunk rot, trunk cavity, asymmetrical canopy, fungus, woodpecker damage, included bark, trunk scar, limb rot
257	Interior Live Oak	6	6, 7, 4, 9, 6, 10	12	22	Fair	Fair	Heritage Tree ; new pruning cuts, multiple trunk attachments, asymmetrical canopy, included bark, bark damage
258	Interior Live Oak	2	6, 8	15	25	Poor-Fair	Fair	asymmetrical canopy, included bark, pruning cuts, severe dieback, minor limb rot
259	Interior Live Oak	1	7	25	15	Fair	Poor-Fair	severe asymmetrical canopy, bark scar, included bark
260	Interior Live Oak	1	11	20	27	Fair	Fair	asymmetrical canopy, included bark, new pruning cuts

Appendix A
Tree Survey Data

Tree #	Species	# of	DBH	DLR	Height	Health	Structure	Notes
261	Interior Live Oak	1	11	20	25	Fair	Fair	dieback, asymmetrical canopy, new pruning cuts, included bark, trunk cavity, minor trunk rot
262	Interior Live Oak	2	8, 7	25	27	Fair	Fair	new pruning cuts, included bark, asymmetrical canopy
263	Interior Live Oak	1	6	10	27	Fair	Fair	asymmetric canopy, included bark, dieback
264	Interior Live Oak	1	10	30	27	Fair	Fair	new pruning cuts, asymmetrical canopy, included bark
265	Interior Live Oak	1	10	25	30	Fair	Fair	included bark, moderate dieback, asymmetrical canopy, new pruning cuts
266	Interior Live Oak	2	6, 11	25	27	Fair	Fair	minor limb rot, moderate dieback, new pruning cuts, asymmetrical canopy
267	Interior Live Oak	2	9, 6	35	37	Fair	Poor-Fair	included bark, asymmetrical canopy, moderate dieback, new pruning cuts, bark damage, minor limb rot
268	Interior Live Oak	1	19	20	35	Fair	Fair	included bark, asymmetrical canopy, dieback, limb rot
269	Interior Live Oak	1	14	15	40	Fair	Fair	asymmetrical canopy, trunk scar, dieback, included bark
270	Interior Live Oak	1	8	22	27	Fair	Fair	asymmetrical canopy, new pruning cuts, included bark, dieback
271	Interior Live Oak	1	13	35	30	Fair	Poor-Fair	severe asymmetrical canopy, included bark, pruning cuts
272	Interior Live Oak	5	7, 5, 5, 15, 16	30	40	Poor-Fair	Poor-Fair	Heritage Tree ; trunk damage, trunk rot, limb rot, severe asymmetrical canopy, trunk cavity
273	Interior Live Oak	1	7	30	22	Fair	Poor-Fair	severe asymmetrical canopy, dieback, new pruning cuts
274	Interior Live Oak	2	13, 16	27	32	Poor-Fair	Poor-Fair	limb rot, trunk rot, pruning cuts, woodpecker damage, asymmetrical canopy
275	Interior Live Oak	2	17, 17	27	27	Poor-Fair	Poor-Fair	included bark, new pruning cuts, asymmetrical canopy, basal cavity, dieback, bark scar

Appendix A
Tree Survey Data

Tree #	Species	# of	DBH	DLR	Height	Health	Structure	Notes
276	Interior Live Oak	3	5, 4, 4	15	15	Poor-Fair	Poor-Fair	new pruning cuts, severe dieback, limb rot
277	Blue Oak	1	12	0	1	Poor-Fair	Poor-Fair	moderate dieback, trunk rot, trunk cut, trunk wound, included bark, exfoliating bark, asymmetrical canopy
278	Interior Live Oak	2	6, 6	12	15	Fair	Fair	included bark, pruning cuts, bark damage
279	Valley Oak	3	19, 24, 12	45	47	Fair	Fair	Heritage Tree ; dieback, limb rot, included bark, asymmetrical canopy
280	Interior Live Oak	2	11, 7	12	12	Fair	Fair	codominant trunks, included bark, dieback
281	Interior Live Oak	1	17	15	17	Poor-Fair	Poor-Fair	trunk rot, trunk cavity, asymmetric canopy, moderate dieback, pruning cuts, limb rot
282	Interior Live Oak	2	22, 22	25	35	Fair	Fair	Heritage Tree ; trunk cavity, included bark, codominant trunks, sprinkler spigot at base of the trunk, embedded wire, limb rot, asymmetric canopy
283	Interior Live Oak	2	28, 22	25	47	Poor-Fair	Poor	Heritage Tree; Recommended for Removal ; basal conk, hollow trunk, included bark, bark damage, nailed wood plank to the trunk, dead trunk
284	Interior Live Oak	1	32	35	40	Poor-Fair	Fair	trunk cavity, included bark, limb rot, trunk rot, woodpecker damage, moderate dieback
285	Interior Live Oak	2	11, 13	15	27	Fair	Fair	included bark, dieback, asymmetric canopy
286	Interior Live Oak	2	7, 10	12	22	Fair	Fair	codominant, dieback, included bark
287	Interior Live Oak	1	16	13	25	Poor-Fair	Poor-Fair	Recommended for Removal ; limb rot, trunk rot, basal cavity, included bark, asymmetrical canopy, limb failure

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Geotechnical Engineering Report

OLD DEPOT BIKE PARK

WKA No. 12918.01P

November 3, 2020

Prepared for:

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Geotechnical Engineering Report

OLD DEPOT BIKE PARK

Placerville, California

WKA No. 12918.01P

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Geotechnical Engineering Report
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*Geotechnical Engineering Report***OLD DEPOT BIKE PARK**

Placerville, California

WKA No. 12918.01P

November 3, 2020

INTRODUCTION

As authorized, Wallace-Kuhl and Associates (WKA) has completed a geotechnical engineering evaluation for the proposed Old Depot Bike Park project in Placerville, California. The purpose of our work has been to explore the existing site, soil and groundwater conditions within the vicinity of the property, and to provide geotechnical engineering conclusions and recommendations to support the proposed improvements. This report represents the results of our work.

Work Scope

Our scope of work has included the following tasks:

1. site reconnaissance;
2. review of available groundwater information;
3. subsurface investigation, consisting of the excavating and sampling of eight test pits to a maximum depth of approximately 10 feet below the existing ground surface;
4. laboratory testing of selected soil samples;
5. engineering analyses, and;
6. preparation of this report.

Figures and Attachments

A Vicinity Map showing the location of the site is included as Figure 1. Figure 2 shows the approximate location of our test pits. The Logs of Test Pits is presented as Figures 3 and 4. An explanation of the symbols and classification system used on the log appears on Figure 5. Appendix A contains information of a general nature regarding project concepts, exploratory methods used during the field exploration phase of the investigation, an explanation of the laboratory testing accomplished, and further laboratory test results that are not presented on the Logs of Test Pits.

Proposed Improvements

We understand the project will consist of the design and construction of a new bicycle park. We understand the park will consist of two asphalt bicycle tracks, a dirt track, and a six foot wide crushed aggregate path. Associated improvements include a prefabricated restroom structure supported on shallow spread foundations and a conventional concrete slab, an exercise station, and security lights.

FINDINGS

Site Description

The project site is located northeast of the intersection of Old Depot Road and El Dorado Trail, in Placerville, California. The site is bound to the north by vacant land with dense tree growth and a large pond; to the west by Old Depot Road and a residential property; to the south by El Dorado Trail, beyond which is a commercial property; and, to the east by a vacant land. The entire site is bound by a chain-link fence.

At the time of our field exploration, most of the ground surface was vacant and covered with a moderate growth of volunteer vegetation with several mature trees across the site. An unpaved road extends from the western boundary to two existing metal storage structures near the eastern end of the site. A soil stockpile measuring about 150 feet long was present in the northwestern portion of the site. The stockpile was covered with a growth of volunteer grass and straw swaddles.

The ground surface at the site slopes gently from north to south. Based on the USGS 7.5-minute *Topographic Map of the Placerville Quadrangle*, dated 2018, the existing ground surface elevation at the sign location is about +1795 feet relative to North America Vertical Datum 1988 (NAVD88).

Site Geology

The site is located in the Sierra Nevada geomorphic provinces of California. The Sierra Nevada geomorphic Province of California is typified by a belt of northwest-trending metamorphic, volcanic and igneous rocks that have been sheared, deformed, and intruded during periods of tectonic and volcanic activity. In general, the bedding of the sedimentary and meta-sedimentary units trend north to northwest and dip to the west.



The 1981 USGS *Geologic Map of the Sacramento Quadrangle, California*, shows the site to be underlain by Mesozoic Volcanic Rocks, but our field exploration revealed rock more consistent with the nearby mapped Mariposa Formation. The Mariposa Formation is characterized by the metasedimentary slate and greywacke rocks of Jurassic age that unconformably overlies the Logtown Ridge Formation volcanics.

Subsurface Soil Conditions

Eight test pits were excavated at the proposed bike park site on September 29, 2020, using a Case 580m rubber tired backhoe equipped with a 24 inch bucket. The soil conditions encountered at the test pit locations consisted primarily clayey of fine sand from approximately six inches to two feet below site grade, underlain by variably weathered bedrock. Sandy clay soil was encountered in the upper foot of Test Pit 8. Excavation refusal was encountered at depths of about two feet to seven feet on more resistant bedrock, except for TP7 where the full depth of ten feet was achieved.

For soil and bedrock conditions at the test pit locations, please refer to the Logs of Test Pits contained on Figures 3 and 4.

Groundwater

Groundwater was not encountered during the excavation of test pits on September 29, 2020, to a maximum depth of about 10 feet below existing site grades.

We did not find any historic groundwater information at or in the vicinity of the subject site at the California Department of Water Resources (DWR) website. Based on the information published in the *Voluntary Domestic Well Assessment Project*, by the California State Water Resources Control Board (September 2005), groundwater at the site is expected to be greater than 100 feet below the ground surface.

Based upon our experience in the area, we anticipate perched water may be encountered at the site during different times of the year on top of the variably weathered rock that underlies the onsite surface and near-surface soils, specifically following the rainy season due to the relative impermeable nature of the weathered bedrock.



CONCLUSIONS

2019 CBC Seismic Design Parameters

We expect the project will be designed under the 2019 edition of the *California Building Code* (CBC). The 2019 CBC references the *American Society of Civil Engineers (ASCE), Minimum Design Loads and Associated Criteria for Buildings and Other Structures 7-16*. To assist with the structural design of the project, we have provided seismic design parameters for the 2019 CBC, which have been determined based on the site location and the web interface developed by the Structural Engineers Association of California (SEAOC) and the Office of Statewide Health Planning and Development (OSHPD) (<https://seismicmaps.org>).

The following seismic design parameters summarized below in Table 1 may be used for seismic design of the proposed improvements.

TABLE 1 2019 CBC SEISMIC DESIGN PARAMETERS				
Latitude: 38.7034° N Longitude: 120.8230° W	ASCE 7-16 Table/Figure	2019 CBC Table/Figure	Factor/ Coefficient	2019 CBC Value
Short-Period MCE_R at 0.2 second	Figure 22-1	Figure 1613.2.1(1)	S_s	0.434 g
1.0 second Period MCE_R	Figure 22-2	Figure 1613.2.1(2)	S_1	0.206 g
Soil Class	Table 20.3-1	Section 1613.2.2	Site Class	C
Site Coefficient	Table 11.4-1	Table 1613.2.3(1)	F_a	1.300
Site Coefficient	Table 11.4-2	Table 1613.2.3(2)	F_v	1.500
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equation 16-36	S_{MS}	0.565 g
	Equation 11.4-2	Equation 16-37	S_{M1}	0.309 g
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation 16-38	S_{DS}	0.377 g
	Equation 11.4-4	Equation 16-39	S_{D1}	0.206 g
Seismic Design Category	Table 11.6-1	Table 1613.2.5(1)	Risk Category I through IV	D
	Table 11.6-2	Table 1613.2.5(2)	Risk Category I through IV	D

Notes: MCE_R = Risk-Targeted Maximum Considered Earthquake

g = gravity

* The value is valid provided the requirements in Exception Note No. 2 in Section 11.4.8 of ASCE 7-16 are met. If not, a site-specific ground motion hazard analysis is required.



Effect of Previous Construction on Development

The site currently supports an existing structure and an asphalt concrete paved area. From a geotechnical standpoint, the most effective method of mitigating the impact of existing development on the new construction is to completely remove all existing surface and subsurface structures within new construction areas, including all associated backfill soils, and restoring the site to grade using engineered fill placed and compacted in accordance with the recommendations included in this report. We have provided specific recommendations regarding surface and subsurface structure removal in the Site Clearing section of this report.

Excavation Conditions

The surface and near-surface sand encountered at the site, including completely weathered rock, should be readily excavated using conventional earthmoving, trenching, and pier drilling equipment. Cuts within these materials are expected to be relatively stable at near-vertical inclinations for the short time required for foundation and utility construction, unless the soils are saturated, subjected to construction vibrations, or allowed to dry significantly. These unstable conditions may result in caving or sloughing; therefore, the contractor should be prepared to shore or case these excavations, if necessary. Excavations left open for more than a day may also be susceptible to caving or sloughing; therefore, such excavations should be evaluated by the contractor on a daily basis and determine if it is necessary to shore or case the excavations. Shoring or casing of excavations, if necessary, should conform to current Occupational Safety and Health Administration (OSHA) requirements.

Based on our findings and the results of previous experience in the project area, the weathered bedrock should be removable without blasting, however, it's likely that large dozers and excavators will be necessary to excavate into this material. Hydraulic or pneumatic hammers (hoe-rams) will likely be required to excavate utility trenches or pier excavations that extend into this material. Over-widening of bedrock excavations is inevitable. Should planned excavations extend into the bedrock, the contractor should perform their own analysis of the excavatability or rippability of the weathered bedrock to select and size their equipment and determine their approach.

Excavations or trenches exceeding five feet in depth that will be entered by workers should be sloped, braced or shored to conform to current California OSHA requirements. The contractor must provide an adequately constructed and braced shoring systems in accordance with federal, state and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground.



Excavated materials should not be stockpiled directly adjacent to an open excavation to prevent surcharge loading of the excavation sidewalls, and to reduce the risk of equipment or materials rolling or falling into the trench. Excessive truck and equipment traffic should also be avoided near open excavations as this can increase surcharge loads on the excavations. If material is stored or heavy equipment is stationed and/or operated near an excavation, a shoring system must be designed to resist the additional pressure due to the superimposed loads.

Groundwater

Based on the subsurface explorations performed at or near the site and review of available groundwater information relevant to the site, a permanent groundwater table is not anticipated to be a significant factor in site development for excavations above the top of the variably weathered rock present at the site. However, any excavations that approach the variably weathered or competent rock have the probability of encountering perched groundwater due to rainfall, surface run-off, or seepage from perched groundwater sources. The amount of perched groundwater would vary depending on the time of year and is more likely to occur during the later winter to early spring months.

If perched groundwater is encountered during construction, dewatering of the excavations should be performed to lower the water level at least two feet below the bottom of excavations. An adequate dewatering method can best be determined during site work when subsurface conditions are fully exposed. However, localized dewatering of perched groundwater can likely be accomplished by standard sump pit and pumping procedures. Dewatering, if required, should be the contractor's responsibility.

Naturally Occurring Asbestos Potential

The test pits completed during our geotechnical exploration revealed no ultramafic rocks, serpentine, or obvious evidence of naturally occurring asbestos (NOA). Metasedimentary rocks of the Mariposa Formation geologic unit generally underlie the site.

We collected and tested two samples of soil and rock for NOA. These samples were collected concurrently with the geotechnical explorations, and were transported under chain-of-custody documentation to a California-certified laboratory in accordance with California Air Resources Board 435 test method. The results are included in Figure A1 and A 2 in Appendix A. The results indicate that no asbestos was detected in the samples tested.



On-site Soil Suitability for Use in Fill Construction

From a geotechnical standpoint, the on-site soils are considered suitable for use as engineered fill provided that they do not contain significant quantities of organics, rubble and deleterious debris, and are at a proper moisture content to achieve the desired degree of compaction. Organically laden topsoil should not be reused as engineered fill.

The stockpiled soils observed in the northwest portion of the site should be completely removed in accordance with the Site Clearing section of this report to expose undisturbed native soil. The stockpiled soils can be used as engineered fill provided they do not contain significant quantities of organics, rubble and deleterious debris, and are at a proper moisture content to achieve the desired degree of compaction.

Preliminary Soil Corrosion Potential

Three samples of near-surface soil were submitted to Sunland Analytical of Rancho Cordova, California, for testing to determine pH, chloride and sulfate concentrations, and minimum resistivity to help evaluate the potential for corrosive attack upon buried concrete. The results of the corrosivity testing are summarized below in Table 2. Copies of the test reports are presented in Figures A3 through A8.

TABLE 2 SOIL CORROSIVITY TESTING				
Analyte	Test Method	Sample Identification		
		B1 (Stockpile)	TP5 (0'-2')	TP8 (0-1')
pH	CA DOT 643 Modified*	4.57	6.31	5.35
Minimum Resistivity	CA DOT 643 Modified*	2,410 Ω-cm	2,950 Ω-cm	3,750 Ω-cm
Chloride	CA DOT 422m	11.4 ppm	2.5 ppm	2.9 ppm
Sulfate	CA DOT 417	4.0 ppm	28.6 ppm	3.7 ppm
Sulfate – SO ₄	ASTM D-516m	3.3 mg/kg	28.1 mg/kg	3.1 mg/kg

Notes: * = Small cell method; Ω-cm = Ohm-centimeters; ppm = Parts per million; mg/kg= Milligrams per kilogram

The California Department of Transportation Corrosion and Structural Concrete Field Investigation Branch, 2018 Corrosion Guidelines (Version 3), considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil and/or water samples taken: has a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 1500 ppm, or the pH is 5.5 or less. Based on this



criterion, two of the three on-site soils tested are considered potentially corrosive to steel reinforcement properly embedded within Portland cement concrete (PCC).

Table 19.3.1.1 – Exposure Categories and Classes, of American Concrete Institute (ACI) 318-19, Section 19.3 – Concrete Design and Durability Requirements, as referenced in Section 1904.1 of the 2019 CBC, indicates the severity of sulfate exposure for the samples is Exposure Class S0. Exposure Class S0 is assigned for conditions where the water-soluble sulfate concentration in contact with concrete is low and injurious sulfate attack is not a concern. The project Structural Engineer should evaluate the requirements of ACI 318-19 and determine their applicability to the site.

Wallace-Kuhl & Associates are not corrosion engineers. Therefore, if it is desired to further define the soil corrosion potential at the site, a Corrosion Engineer should be consulted.

RECOMMENDATIONS

General

The recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils likely will be saturated by rainfall in the winter and early spring months and will not be compactable without drying by aeration, chemical treatment, or geogrid stabilization. Should the construction schedule require work to continue during the wet months, additional recommendations can be provided, as conditions dictate.

Site preparation should be accomplished in accordance with the provisions of this report and the approved plans and specifications. A representative of the Geotechnical Engineer should be present during all earthwork operations to evaluate compliance with the recommendations included in this report and/or the approved project plans and specifications. The Geotechnical Engineer of Record referenced herein should be considered the Geotechnical Engineer that is retained to provide geotechnical engineering observation and testing services during construction.

Site Clearing

Prior to grading, the construction areas should be cleared of all existing surface and sub-surface structures associated with existing development (e.g. existing building foundations, pavements, exterior flatwork, debris, underground utilities, sod, other vegetation, etc.) to expose undisturbed native soils, as determined by the Geotechnical Engineer's representative. Where practical, the



clearing should extend a minimum of five feet beyond the limits of the planned improvement areas. Rubble and demolition debris should be removed from the site, or used as engineered fill, provided it is processed per the recommendations in this section.

The observed soil stockpile in the northwest portion of the site, and any other stockpiles present at the site during construction, should be completely removed to expose firm native soil, as identified by the Geotechnical Engineer, or their representative. Rubble and debris encountered during the removal of the stockpiles, if any, should be removed from the site. The remaining soil may be used as engineered fill, provided it does not contain significant quantities of organics, rubble and deleterious debris, and is at a proper moisture content to achieve the desired degree of compaction.

Existing pavements and concrete slabs designated for removal may be broken up, pulverized and reused as engineered fill, or removed from the site. If pavement and/or concrete rubble is to be reused as engineered fill, it should be pulverized to fragments less than three inches in largest dimension and contain sufficient intermediate sized particles to form a compactable mixture, and must be approved by the owner. Please note that soils beneath existing pavements and concrete slabs will likely be at an elevated moisture content regardless of the time of year of construction and may require considerable aeration before compaction or use as engineered fill.

Any existing underground utilities designated to be removed or relocated should include removal of all trench backfill and associated bedding material. The resulting excavations should be replaced with engineered fill placed and compacted in accordance with the recommendations in this report. On-site wells, septic systems, or below-grade tanks associated with existing development at the site were not noted during the time field exploration was performed; however, if any of these items are discovered, they should be properly abandoned in accordance with El Dorado County Environmental Management Department requirements.

Existing surface vegetation and organically laden soil within construction areas should be removed by stripping. Debris from the strippings should not be used in general fill construction areas supporting the planned improvements.

Any trees, bushes, or other vegetation designated for removal should include the entire rootball and roots larger than ½-inch in diameter. Adequate removal of debris and roots may require laborers and handpicking to clear the subgrade soils to the satisfaction of the Geotechnical Engineer's on-site representative.



If excavated materials are reused as engineered fill, the excavated soil should be separated from any unsuitable material (i.e., vegetation, deleterious debris, etc.) during site clearing operations to facilitate the reuse of the on-site material.

Depressions resulting from site clearing operations, as well as any loose, soft, disturbed, saturated, or organically contaminated soils, as identified by the Geotechnical Engineer's representative should be cleaned out to firm, undisturbed soils and the excavation should be widened, as necessary, to allow access with compaction equipment. Depressions should be backfilled with engineered fill placed and compacted in accordance with the recommendations of this report. It is important that the Geotechnical Engineer's representative be present during site clearing operations to verify adequate removal of the surface and subsurface items, as well as the proper backfilling of resulting excavations.

Engineered Fill Construction

Engineered fill consisting of on-site or import materials should be placed in lifts not exceeding six inches in compacted thickness, with each lift being thoroughly moisture conditioned to at least two percent above the optimum moisture content for clay soils and to the optimum moisture content for granular/silty soils, maintained in that condition, and uniformly compacted to at least 90 percent relative compaction.

From a geotechnical standpoint, the on-site soils encountered at the site, including the stockpile, are considered suitable for use as engineered fill provided that they do not contain significant quantities of organics, rubble and deleterious debris, and are at a proper moisture content to achieve the desired degree of compaction.

Imported fill materials placed in structural areas, if required, should be compactable, well-graded, granular soils with a Plasticity Index of 15 or less when tested in accordance with ASTM D4318; an Expansion Index of 40 or less when tested in accordance with ASTM D4829, and should not contain particles greater than three inches in maximum dimension. In addition, with the exception of imported aggregate base and bedding/initial fill materials for underground utilities, we recommend that the contractor provide appropriate documentation for all imported fill materials that designates the import materials do not contain known contaminants per Department of Toxic Substances Control's guidelines for clean fill, and have corrosion characteristics within acceptable limits. **Imported soils should be approved by the Geotechnical Engineer prior to being transported to the site.**



Permanent excavation and fill slopes, if any, should be constructed no steeper than two horizontal to one vertical (2H:1V) and should be vegetated as soon as practical following grading to minimize erosion. As a minimum, the following erosion control measures should be considered: placement of straw bale sediment barriers or construction of silt filter fences in areas where surface run-off may be concentrated.

All earthwork operations should be accomplished in accordance with the recommendations contained within this report and the approved plans and specifications. We recommend the Geotechnical Engineer's representative be present on a regular basis during all earthwork operations to observe and test the engineered fill and to verify compliance with the recommendations of this report and the project plans and specifications.

Utility Trench Backfill

Bedding of utilities and initial backfill should be performed in accordance with the pipe manufacturer's recommendations for the pipe materials selected, and with current El Dorado County standards. Backfill for on-site utilities should be placed in maximum eight-inch-thick lifts (compacted thickness), be thoroughly moisture conditioned to at least the optimum moisture content, and mechanically compacted to at least 90 percent of the ASTM D1557 maximum dry density. Trench backfill should meet the requirements of the Engineered Fill Construction recommendations of this report. Alternatively, a controlled low-strength slurry may be used in utility trenches where compaction would be difficult to achieve.

The upper six inches of utility backfill within the limits of pavement areas should be compacted to at least 95 percent relative compaction at a minimum of the optimum moisture content. We recommend that underground utility trenches that are aligned nearly parallel with foundations be at least three feet from the outer edge of foundations, wherever possible.

It is likely that materials excavated from trenches will be at elevated moisture contents and will require significant aeration or a period of drying to reach acceptable moisture content for compaction efforts. We recommend bid documents contain a unit price for the removal and drying of saturated soils, or replacement with approved import soils.

Foundation Design

The proposed restroom structure may be supported upon continuous and/or isolated spread foundations extending at least 12 inches below lowest adjacent soil grade. Lowest adjacent soil grade is defined as the grade upon which the capillary break material is placed or exterior soil grade, whichever is lower. A continuous reinforced foundation should be utilized for the



perimeter of the structure to act as a “cut-off” to help minimize moisture infiltration and variations beneath the interior slab-on-grade area of the structure. All continuous foundations should maintain a minimum width of 12 inches; isolated spread foundations should be at least 18 inches in plan dimension.

Foundations bearing on undisturbed or re-compacted native soils, engineered fill, or a combination of those materials may be sized for maximum allowable “net” soil bearing pressure of 3000 pounds per square foot (psf) for dead plus live load; this bearing value may be increased by one-third to include the effects of seismic or wind forces. The weight of the foundation concrete extending below lowest adjacent soil grade may be disregarded in sizing computations.

All foundations should be adequately reinforced to provide structural continuity, mitigate cracking and permit spanning of local soil irregularities. The structural engineer or civil engineering consultant should determine final foundation reinforcing requirements.

Resistance to lateral foundation displacement may be computed using an ultimate friction factor of 0.3, which may be multiplied by the effective vertical load on each foundation. Additional lateral resistance may be computed using an ultimate passive lateral earth pressure against the vertical projection of foundations equal to an equivalent fluid pressure of 300 psf per foot of depth. These two modes of resistance should not be added unless the passive pressure component is reduced by 50 percent. The upper 12 inches of passive resistance should be neglected if the area in front of foundation is not covered by pavement or concrete flatwork.

Ancillary Foundations

Foundations for lightly-loaded, ancillary structures not structurally connected to the proposed buildings, such as sound walls, landscape walls, light poles, monuments, trash enclosures, or similar structures, may be supported upon conventional spread foundations or drilled, cast-in-place reinforced concrete piers (drilled piers).

Conventional Spread Foundations

Conventional spread foundations should bear on firm, undisturbed ground, engineered fill, or a combination of these materials, as confirmed by the Geotechnical Engineer or his representative. The spread foundations should be at least 12 inches wide and extend at least 18 inches below the lowest adjacent soil grade. The foundations may be sized using a maximum allowable soil bearing pressure of 3000 psf, with a one-third increase for wind or seismic forces. Lateral foundation resistance may be determined using the factors presented in



the Foundation Design section. The upper 12 inches of subgrade soil should be disregarded when estimating lateral resistance.

Uplift resistance may be provided by the weight of the structure, the weight of soil directly above the foundation, and the weight of soil within an envelope defined by a $\frac{3}{4}(H):1(V)$ projection up and away from the perimeter of the foundation. The upper 2 feet of soil should be neglected in determining uplift capacity. All foundation backfill should be compacted to at least 90 percent compaction in accordance with ASTM D1557. A soil unit weight of 120 pounds per cubic foot may be assumed for compacted backfill and native undisturbed soil.

If foundations are supported on firm, competent bedrock, rock tiedown anchors (such as grouted dowels) can be used to provide additional uplift resistance. There are several approaches and anchor products available that would be suitable for this project. If dowels are used, a common approach would be to drill 2 to 4 inch diameter holes using air percussion to a minimum depth of 10 feet; blowing out the hole to remove as much rock dust as possible; filling the hole with a non-shrink grout (such as Embeco 636) or an approved high strength epoxy; and then installing the dowel (such as a No. 8, grade 60 reinforcing bar).

The uplift capacity of the anchor is typically assumed to be equivalent to the effective weight of bedrock within a cone or wedge defined by a $1(H):1(V)$ projection up from the outside edge and mid-depth of the grouted dowel. A bedrock effective unit weight of 140 pounds per cubic foot and a minimum factor of safety of 2 may be used for estimating uplift. For anchors with overlapping cones, the effective weight of bedrock within the overall area of the overlapping cones should be used for determining uplift. The overlapping of the zones of influence between adjacent anchors results in anchor uplift capacity less than that for a single anchor.

The actual anchor design and approach should be determined by the Contractor in coordination with the Structural Engineer. An uplift load test should be performed on at least one of the completed anchors to verify the design capacity. The Geotechnical Engineer should review the final anchor design and a representative should observe the load test and anchor installation.

Drilled, Cast-in-Place Concrete Piers

Drilled piers should be designed using an allowable skin friction capacity of 500 psf developed between the sands and the pier shafts and allowable end bearing capacities of 3,000 psf and 5,000 psf where supported on the native sand or competent weather bedrock, respectively. The capacities presented are net values; therefore, the weight of the pier may be neglected when estimating downward axial capacities. A one-third increase in the allowable capacities may be applied when considering short-term loading due to wind or seismic forces.



In determining the total capacity of an individual pier, the sidewall area of the pier shaft equal to an equivalent depth of one pier diameter at the top should be neglected to account for soil disturbance and remolding caused by elastic and lateral deflections of the pier. Uplift loads (under either static or seismic loading conditions) can be resisted by the dead weight of the pier plus skin friction developed along the pier shaft equal to 75 percent of the allowable downward skin friction capacity. If the piers are extended to bear on firm, competent bedrock, rock tiedown anchors, such as those discussed in the Conventional Spread Foundation section above, can be used to provide additional uplift resistance.

Sizing of drilled piers to resist lateral loads can be evaluated using Section 1807.1 of the 2016 CBC. An allowable lateral soil bearing pressure of 200 psf per foot of depth may be used for the CBC parameters S1 (equation 18-1) and S3 (equations 18-2 and 18-3). If a deflection of ½ inch at the ground surface is acceptable, this value may be doubled. The upper 12 inches of the subgrade should be neglected when determining lateral resistance.

If the data obtained from our widely spaced test pits is representative of the subsurface conditions at the project site, we anticipate that casing may not be required to prevent caving during the pier excavations. However, there could be undetected soft soils, seepage, or other unanticipated conditions that may be exposed during construction. To minimize construction delays, steel casing should be maintained on-site during the drilling operations. If needed to reduce caving or sloughing, the outside diameter of the casing should not be less than the diameter of the drilled shaft, with the casing vibrated or driven into place. During removal, the casing should be slowly pulled from the excavation as concrete is being placed. During removal, the bottom of the casing should be kept at least five feet below the top of the concrete where possible.

All reinforcing steel used in the construction of drilled piers should be specified by the project Structural Engineer. The clear spacing between steel bars of the rebar cage should be at least three times the size of the maximum coarse aggregate to allow concrete to flow. The contractor should handle the rebar cage in a manner so as not to cause damage in placing. Guides should be placed on the rebar cage to allow concentric spacing in the borehole and adequate cover of the cage with concrete. During the concrete pour, the reinforcing cage should be held in position by some positive method to minimize displacement during concrete placement.

The proper concrete mix design for drilled piers varies with the design stress intensity, the anticipated concrete placement procedures, and the spacing of the reinforcement. The project specifications should provide provisions as to concrete slump, temperature, air content, homogeneity, job-site conditions, and method of placement. In order to properly develop the design skin friction, current practice calls for concrete to have a 4- to 6-inch slump during



placement “in the dry” and no pulling of casing, a 5- to 7-inch slump if casing is to be pulled or the pier shaft is heavily reinforced, and a 7- to 9-inch slump with 3/4 inch maximum size aggregate if concrete is to be placed by tremie or pumping methods.

Concrete used for pier construction may be placed by free fall in dry boreholes provided the soil walls are stable or cased and concrete can be directed vertically down the center of the excavation so as to avoid striking the sides of the borehole, the rebar cage, or any other obstruction. If a hopper is used, it should have a fixed pipe so that it does not flap, permitting the concrete to angle back and forth as it is being placed. If water or seepage is present in the drilled shaft, the water should be pumped from the pier excavation to allow inspection and concrete placement. Otherwise, the concrete should be placed using tremie methods from the bottom of the hole, while keeping the tremie pipe below the surface of the concrete at all times. During placement, concrete should not be allowed to “mushroom” or overflow the drilled shaft. Any excess concrete poured outside the shaft should be removed before it cures with the shaft.

Steel reinforcement and concrete should be placed as soon as possible but not greater than 4 hours after completion of each pier excavation.

Interior Floor Slab Support

Interior concrete slab-on-grade floors can be supported upon the soil subgrade prepared in accordance with the recommendations in this report. Slab-on-grade thickness, reinforcement and joint spacing should be determined by the slab designer. Proper and consistent location of the reinforcement near mid-slab is essential to its performance. The risk of uncontrolled shrinkage cracking is increased if the reinforcement is not properly located within the slab.

Floor slabs should be underlain by a layer of free-draining crushed rock, serving as a deterrent to migration of capillary moisture. The crushed rock layer should be at least four inches thick, but not more than six inches thick, and graded such that 100 percent passes a one-inch sieve and no appreciable amount passes a No. 4 sieve. Additional moisture protection may be provided by placing a vapor retarder membrane (at least 10-mil thick) directly over the crushed rock. The membrane should meet or exceed the minimum specifications as outlined in ASTM E1745 and be installed in strict conformance with the manufacturer’s recommendations.

Floor slab construction over the past 30 years or more has included placement of a thin layer of sand or pea gravel over the vapor retarder membrane. The intent of the sand/pea gravel is to aid in the proper curing of the slab concrete and to protect the membrane prior to concrete placement. However, recent debate over excessive moisture vapor emissions from floor slabs includes concern for water trapped within the sand/pea gravel. As a consequence, we consider



the use of the sand/pea gravel layer as optional. The concrete curing benefits should be weighed against efforts to reduce slab moisture vapor transmission.

The recommendations presented above are intended to mitigate any significant soils-related cracking of the slab-on-grade floors. More important to the performance and appearance of a Portland cement concrete slab is the quality of the concrete, the workmanship of the concrete contractor, the curing techniques utilized, and the spacing of control joints.

Floor Slab Moisture Penetration Resistance

It is considered likely that floor slab subgrade soils will become saturated at some time during the life of the structure. This is a certainty when slabs are constructed during the wet season or when constantly wet ground or poor drainage conditions exist adjacent to the structure. For this reason, it should be assumed that interior slabs, particularly those intended for moisture-sensitive floor coverings or materials, require protection against moisture or moisture vapor penetration, or mold formation. Standard practice includes the rock and vapor retarder membrane suggested above. However, the rock and membrane offer only a limited, first line of defense against soil-related moisture. Recommendations contained in this report concerning floor slab design are presented as *minimum* requirements only from the geotechnical engineering standpoint.

It is emphasized that the use of sub-slab gravel and vapor retarder membrane will not "moisture proof" the slab, nor does it assure that slab moisture transmission levels will prevent damage to floor coverings or other building components, or mold formation. If increased protection against moisture vapor penetration of slabs is desired, a concrete moisture protection specialist should be consulted. The design team should consider all available measures for slab moisture protection. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is one of the most effective ways to reduce future moisture vapor penetration of the completed slabs.

Exterior Flatwork

Soil subgrades supporting exterior concrete flatwork (i.e., sidewalks, patios, etc.) should be brought to at least the optimum moisture content and uniformly compacted prior to the placement of the concrete. Proper moisture conditioning of the subgrade soils is considered important to the performance of exterior flatwork. Expansion joints should be provided to allow for minor vertical movement of the flatwork. Exterior flatwork should be constructed independent of the perimeter building foundation and isolated column foundations by the placement of a layer of felt material between the flatwork and the foundation.



Sidewalks and other concrete flatwork should be at least four inches thick and may be constructed directly on the prepared subgrade. The subgrade should be thoroughly moisture conditioned to at least the optimum moisture content, and compacted to at least 90 percent of the maximum dry density just prior to concrete placement.

Consideration should be given to thickening the edges of sidewalks and patios to at least twice the slab thickness. Flatwork reinforcement for crack control, if desired, should be determined by the structural engineer. Practices recommended by the Portland Cement Association (PCA) for proper placement, curing, joint depth and spacing, construction, and placement of concrete should be followed during exterior concrete flatwork construction.

Areas adjacent to new exterior flatwork should be landscaped to maintain more uniform soil moisture conditions adjacent to and beneath flatwork. We recommend final landscaping plans not allow fallow ground adjacent to exterior concrete flatwork.

Observation and Testing of Foundation Construction

Geotechnical testing and observation during construction is considered a continuation of our geotechnical engineering investigation. Wallace-Kuhl & Associates should be retained to provide testing and observation services during foundation construction at the project to verify compliance with this geotechnical report and the project plans and specifications and to provide consultation as required during construction. These services are beyond the scope of work authorized for this investigation. We would be pleased to submit a proposal to provide these services upon request.

Additional Services

We recommend that Wallace-Kuhl & Associates be retained to review the final plans and specifications to determine if the intent of our recommendations has been implemented in those documents. We would be pleased to submit a proposal to provide these services upon request.

LIMITATIONS

Our recommendations are based upon the information provided regarding the proposed project, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used our engineering judgment based upon the information provided and the data generated from our study. This report has been prepared in substantial compliance with generally accepted geotechnical engineering practices that exist in the area of




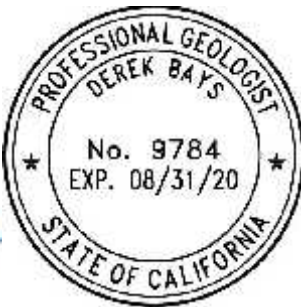
the project at the time the report was prepared. No warranty, either express or implied, is provided.


If the proposed construction is modified or re-sited; or, if it is found during construction that subsurface conditions differ from those we encountered at the test pit locations, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.

We emphasize that this report is applicable only to the proposed construction and the investigated site and should not be utilized for construction on any other site. The conclusions and recommendations of this report are considered valid for a period of three years. If design is not completed and construction has not started within three years of the date of this report, the report must be reviewed and updated, if necessary.

Wallace - Kuhl & Associates

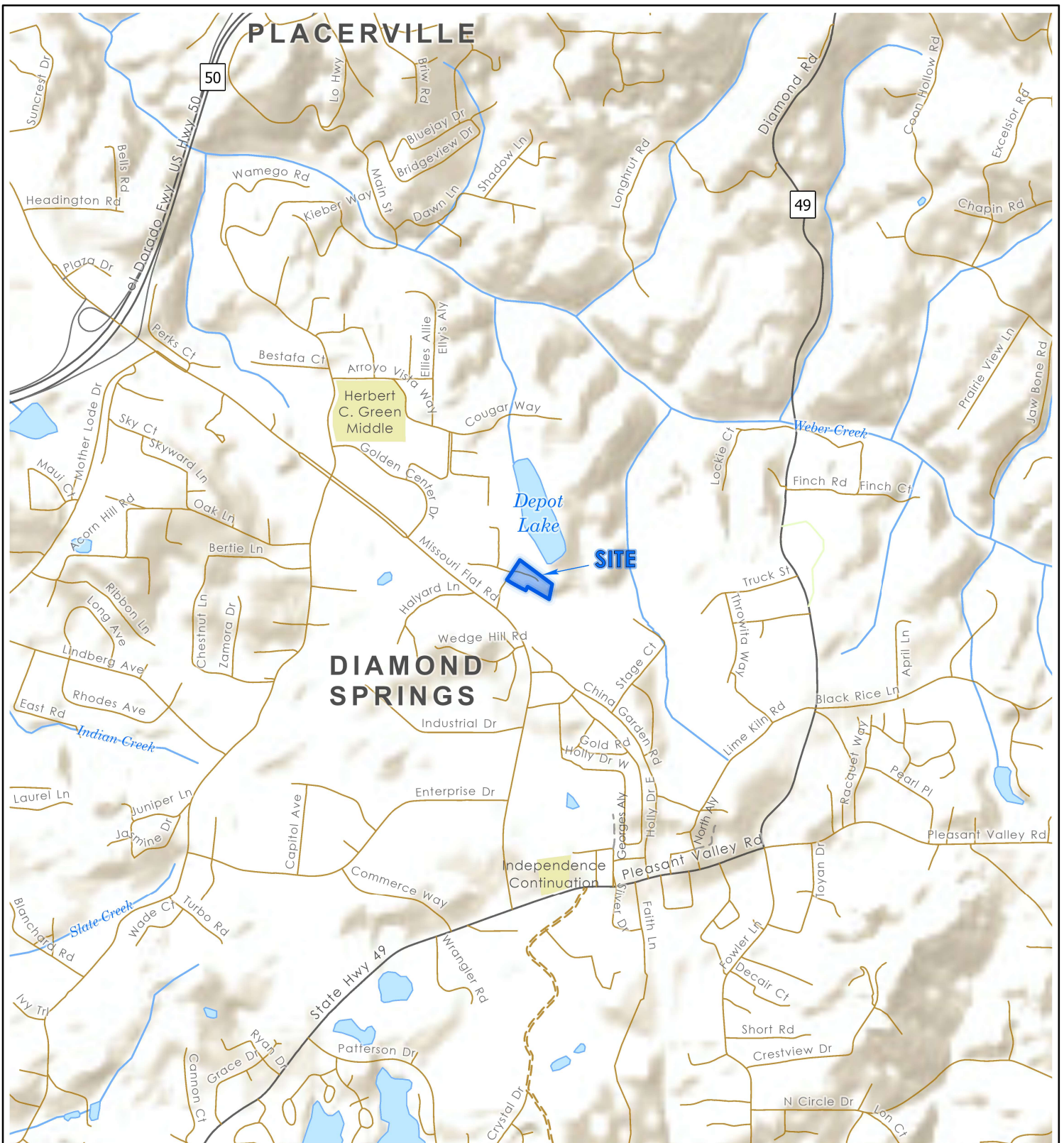

Derek Bays
Staff Geologist



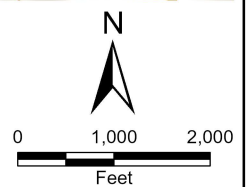

Gary H. Gulseth
Senior Engineer







Spatial Data provided by Esri, NOAA, and USGS.
 Projection: WGS 1984 Web Mercator Auxiliary Sphere



VICINITY MAP
OLD DEPOT BIKE PARK
 Placerville, California

FIGURE 1

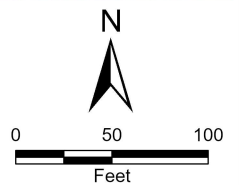
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DATE	11/2020

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 WKA NO. 12918.01P



- Approximate Test Pit Location
- Approximate Stockpile Location
- Approximate Site Boundary

Aerial imagery provided by Esri.
 Site Plan adapted from a drawing provided by
 Helix Environmental Planning, dated 05/19/2020.
 Projection: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US



SITE PLAN **OLD DEPOT BIKE PARK** Placerville, California

FIGURE 2	
DRAWN BY	RWO
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DATE	11/2020

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LOGS OF TEST PITS
OLD DEPOT BIKE PARK
Excavated on September 29, 2020, with a Case 580M backhoe
Logged by: Derek Bays
WKA No. 12918.01P

TEST PIT 1

0' to 6" Brown, moist, clayey fine SAND (SM)

6" to 2' Variably weathered bedrock (RX)

Practical refusal on bedrock at about 2 feet below ground surface
Groundwater was not encountered

TEST PIT 2

0' to 2' Brown, moist, silty, clayey, fine to coarse SAND with gravel and cobbles (STOCKPILE)

2' to 4½' Variably weathered bedrock (RX)

Practical refusal on bedrock at about 4½ feet below ground surface
Groundwater was not encountered
Bulk sample TP2 retrieved from 0' to 2'

TEST PIT 3

0' to 6" Brown, moist, clayey fine SAND with surface gravel (SM)

6" to 7' Variably weathered bedrock (RX)

Practical refusal on bedrock at about 7 feet below ground surface
Groundwater was not encountered
Bulk sample TP3 retrieved from 0' to 3'

TEST PIT 4

0' to 3' Variably weathered bedrock (RX)

Practical refusal on bedrock at about 3 feet below ground surface
Groundwater was not encountered



TEST PIT LOGS
OLD DEPOT BIKE PARK
Placerville, California

FIGURE 3

DRAWN BY	RWO
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LOGS OF TEST PITS (Cont.)
OLD DEPOT BIKE PARK
Excavated on September 29, 2020, with a Case 580M backhoe
Logged by: Derek Bays
WKA No. 12918.01P

TEST PIT 5

0' to 1' Brown, moist, clayey fine SAND (SM)

1' to 3' Variably weathered bedrock (RX)

Practical refusal on bedrock at about 3 feet below ground surface
Groundwater was not encountered
Bulk sample TP5 retrieved from 0' to 2'

TEST PIT 6

0' to 6" Brown, moist, clayey fine SAND (SM)

6" to 2½' Variably weathered bedrock (RX)

Practical refusal on bedrock at about 2½ feet below ground surface
Groundwater was not encountered

TEST PIT 7

0' to 6" Brown, moist, clayey fine SAND (SM)

6" to 10' Variably weathered bedrock (RX)

Test pit terminated at about 2 feet below ground surface
Groundwater was not encountered
Bulk sample TP7 retrieved from 0' to 5'

TEST PIT 8

0' to 1' Red brown, moist, sandy CLAY (CL)

6" to 2' Variably weathered bedrock (RX)

Practical refusal on bedrock at about 2 feet below ground surface
Groundwater was not encountered
Bulk sample TP8 retrieved from 0' to 1'



TEST PIT LOGS
OLD DEPOT BIKE PARK
Placerville, California

FIGURE 4

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WKA NO. 12918.01P

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487)

MAJOR DIVISIONS		USCS ⁴	CODE	CHARACTERISTICS
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	<u>GRAVELS</u> ¹ (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well-graded gravels or gravel - sand mixtures, trace or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, trace or no fines
		GM		Silty gravels, gravel - sand - silt mixtures, containing little to some fines ²
		GC		Clayey gravels, gravel - sand - clay mixtures, containing little to some fines ²
	<u>SANDS</u> ¹ (50% or more of coarse fraction < no. 4 sieve size)	SW		Well-graded sands or sand - gravel mixtures, trace or no fines
		SP		Poorly graded sands or sand - gravel mixtures, trace or no fines
		SM		Silty sands, sand - gravel - silt mixtures, containing little to some fines ²
		SC		Clayey sands, sand - gravel - clay mixtures, containing little to some fines ²
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML		Inorganic silts, gravelly silts, and sandy silts that are non-plastic or with low plasticity
		CL		Inorganic lean clays, gravelly lean clays, sandy lean clays of low to medium plasticity ³
		OL		Organic silts, organic lean clays, and organic silty clays
	<u>SILTS & CLAYS</u> <u>LL ≥ 50</u>	MH		Inorganic elastic silts, gravelly elastic silts, and sandy elastic silts
		CH		Inorganic fat clays, gravelly fat clays, sandy fat clays of medium to high plasticity
		OH		Organic fat clays, gravelly fat clays, sandy fat clays of medium to high plasticity
HIGHLY ORGANIC SOILS		PT		Peat
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

	= Drive Sample: 2-1/2" O.D. Modified California sampler
	= Drive Sampler: no recovery
	= SPT Sampler
	= Initial Water Level
	= Final Water Level
	= Estimated or gradational material change line
	= Observed material change line
<u>Laboratory Tests</u>	
CR = Corrosion	
PI = Plasticity Index	
EI = Expansion Index	
UCC = Unconfined Compression Test (TSF)	
TR = Triaxial Compression Test	
GR = Gradational Analysis (Sieve/Hydro)	
FC = Wash (Fines Content)	
PP = Pocket Penetrometer Test (TSF)	
PID = Photo Ionization Detector Test (PPM)	
RV = Resistance ("R") Value	

REF = Refusal (>50 blows in 6 inches)

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS (b)	Above 12"	Above 300
COBBLES (c)	12" to 3"	300 to 75
GRAVEL (g) coarse fine	3" to No. 4	75 to 4.75
	3" to 3/4"	75 to 19
	3/4" to No. 4	19 to 4.75
SAND coarse medium fine	No. 4 to No. 200	4.75 to 0.075
	No. 4 to No. 10	4.75 to 2.00
	No. 10 to No. 40	2.00 to 0.425
	No. 40 to No. 200	0.425 to 0.075
SILT & CLAY	Below No. 200	Below 0.075

Trace - Less than 5 percent

Few - 5 to 10 percent

Little - 15 to 25 percent

Some - 35 to 45 percent

Mostly - 50 to 100 percent

* Percents as given in ASTM D2488

NOTES:

- Coarse grained soils containing 5% to 12% fines, use dual classification symbol (ex. SP-SM).
- If fines classify as CL-ML ($4 < PI < 7$), use dual symbol (ex. SC-SM).
- Silty Clays, use dual symbol (CL-ML).
- Borderline soils with uncertain classification list both classifications (ex. CL/ML).



UNIFIED SOIL CLASSIFICATION SYSTEM

OLD DEPOT BIKE PARK

Placerville, California

FIGURE 5

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DATE	11/2020

WKA NO. 12918.01P

APPENDIX A
General Project Information, Laboratory Testing and Results



APPENDIX A
WKA No. 12918.01P

A. GENERAL INFORMATION

The preparation of a geotechnical engineering report for the Old Depot Bike Park project in Placerville, California, was authorized by Mr. Patrick Britton on September 18, 2020. Authorization was for a geotechnical study as described in our proposal letter dated June 3, 2020, sent to our client HELIX Environmental Planning, Inc., whose mailing address is 11 Natoma Street, Suite 155 in Folsom, California 95630; telephone (916) 365-8700.

A *Conceptual Design* prepared by HELIX Environmental Planning, Inc., and dated May 2020 was reviewed as part of this work.

B. FIELD EXPLORATION

Eight exploratory test pits were excavated at the site on September 29, 2020, utilizing a Case 580M rubber-tire backhoe equipped with a 24-inch wide bucket. The test pits were excavated to a maximum depth of about 10 feet below existing site grades, or to refusal to excavation, at the approximate locations shown in Figure 2. Disturbed bulk samples were collected during the field exploration and taken to our laboratory for additional soil classification and selection of samples for testing.

Descriptions of the soils encountered by the test pits are included as Figures 3 and 4. An explanation of the Unified Soil Classification System symbols used in the descriptions is contained in Figure 5.

C. LABORATORY TESTING

Two samples of soil and bedrock were submitted to California Laboratory Services of Rancho Cordova, California, and EMSL Analytical, Inc., of San Leandro, California, for Naturally Occurring Asbestos testing in accordance with California Air Resources Board 435 test method. The results are presented in Figures A1 and A2.

Three samples of near-surface soils were submitted to Sunland Analytical to determine the soil pH and minimum resistivity (California Test 643), Sulfate concentration (California Test 417, ASTM D516) and Chloride concentration (California Test 422). The results of these tests are presented in Figures A3 through A8.





MicroTest Laboratories, Inc. | NVLAP Code: 200999-0
3110 Gold Canal Dr, Ste. A, Rancho Cordova, CA 95670
PH 916.567.9808 | FX 916.404.0302
www.microtestlabsinc.com | service@microtestlabsinc.com

for office use only

Accession Numbers:

246742-43

CLIENT INFORMATION

Company CLS Labs

Name

Address 3249 Fitzgerald Road
Rancho Cordova, CA 95742

Phone 916-638-7301

Email Sub@californialab.com

SAMPLE

Date Tuesday, September 29, 2020
Time 8:45 AM

JOB SITE INFORMATION

Sampler

Project 20J0920

Address

MicroTest Laboratories

Analytical Data

POLARIZED LIGHT MICROSCOPY (PLM) EPA METHOD 600 / R-93 / 116-Carb 435 Level A (0.25%)

Sample	Accession			Non Fibrous /	Asbestiform
ID	Number	Location	Description	Fibrous Materials	Minerals %
20J0920-01	246742		Cream Soil	99% Binder	None Detected
20J0920-02	246743		Cream Soil	99% Binder	None Detected

REPORT

Date Thursday, October 22, 2020

Samples Received: 2

Samples Analyzed: 2

Analyst: Amritpal Nagra

Authorized Signatory:

Kelly Favero - Lab Manager

This analytical data sheet constitutes a final report. Due to the limitation of Polarized Light Microscopy (PLM), some samples classified as containing no asbestos in materials, None Detected (ND), such as floor tiles or like materials, warrant a recommendation for further analysis by Transmission Electron Microscopy (TEM). This report is limited to items analyzed here within. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. All Samples will be held for not less than 30 days, upon which they will then be disposed of. This report shall not be reproduced in full without written authorization from MicroTest Laboratories, Inc. Soil and rock matrices are considered problematic matrices and MicroTest recommends sample homogenization prior to PLM analysis. Thermal decomposition of asbestos fibers will yield non-asbestiform mineral properties.

Analytical Page # 1 of 1

Document # MT-PLM-A 1.0
Authorized by Kelly Favero

Proprietary to MicroTest Laboratories, Inc
Issue Date: 05/29/18 Rev: 3



NATURALLY OCCURRING ASBESTOS TEST RESULTS

OLD DEPOT BIKE PARK

Placerville, California

FIGURE A1

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PROJECT MGR	GHG
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SUBCONTRACT ORDER

20J0920

246742-43

SENDING LABORATORY:

CLS Labs
 3249 Fitzgerald Rd.
 Rancho Cordova, CA 95742
 Phone: 916-638-7301
 Fax: 916-638-4510
 Project Manager: Mark Smith
 Project: Old Depot Bike Park

RECEIVING LABORATORY:

MicroTest Laboratories, Inc.
 3110 Gold Canal Dr, Ste A
 Rancho Cordova, CA 95670
 Phone : (916) 567-9808
 Fax: (916) 404-0302

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Asbestos-Soil SUB	5	10/23/20 12:00	03/28/21 08:45	20J0920-01	09/29/20 08:45	10/15/20 13:33	Soil

Client sample ID: TP 3 Bulk

Laboratory sample ID: 20J0920-01

Please use client sample ID on all reports

Sampler:

CARB 435A

Containers Supplied:

Plastic Baggie (A)

Asbestos-Soil SUB	5	10/23/20 12:00	03/28/21 10:10	20J0920-02	09/29/20 10:10	10/15/20 13:33	Soil
-------------------	---	----------------	----------------	------------	----------------	----------------	------

Client sample ID: TP 5 Bulk

Laboratory sample ID: 20J0920-02

Please use client sample ID on all reports

Sampler:

CARB 435A

Containers Supplied:

Plastic Baggie (A)

Relinquished By

Date

Received By

Date

Relinquished By

Date

Received By

Date

Shipped By

Airbill Number

Page 1 of 1



NATURALLY OCCURRING ASBESTOS TEST RESULTS

OLD DEPOT BIKE PARK

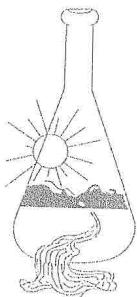
Placerville, California

FIGURE A2

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DATE	11/2020

WKA NO. 12918.01P

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Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/07/2020
Date Submitted 09/30/2020

To: Derek Bays
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12918.01P Site ID : B1 BULK.
Thank you for your business.

* For future reference to this analysis please use SUN # 83143-173540.

EVALUATION FOR SOIL CORROSION

Soil pH	4.57		
Minimum Resistivity	2.41	ohm-cm (x1000)	
Chloride	11.4 ppm	00.00114	%
Sulfate	4.0 ppm	00.00040	%

METHODS

pH and Min. Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m



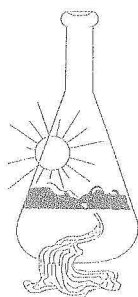
CORROSION TEST RESULTS

OLD DEPOT BIKE PARK
Placerville, California

FIGURE A3

DRAWN BY	RWO
CHECKED BY	DMB
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12918.01P



Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/07/2020
Date Submitted 09/30/2020

To: Derek Bays
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12918.01P Site ID : B1 BULK.
Thank you for your business.

* For future reference to this analysis please use SUN # 83143-173541.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	3.3	mg/kg

METHODS

ASTM D-516m from sat.paste extract-reported based on dry wt.



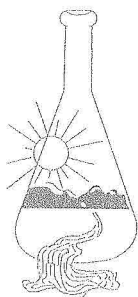
CORROSION TEST RESULTS

OLD DEPOT BIKE PARK
Placerville, California

FIGURE A4

DRAWN BY	RWO
CHECKED BY	DMB
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12918.01P



Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/07/2020
Date Submitted 09/30/2020

To: Derek Bays
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney *RP*
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12918.01P Site ID : TP5 BULK.
Thank you for your business.

* For future reference to this analysis please use SUN # 83143-173542.

EVALUATION FOR SOIL CORROSION

Soil pH	6.31		
Minimum Resistivity	2.95 ohm-cm (x1000)		
Chloride	2.5 ppm	00.00025	%
Sulfate	28.6 ppm	00.00286	%

METHODS

pH and Min. Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m



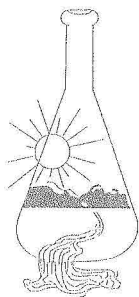
CORROSION TEST RESULTS

OLD DEPOT BIKE PARK
Placerville, California

FIGURE A5

DRAWN BY	RWO
CHECKED BY	DMB
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12918.01P



Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/07/2020
Date Submitted 09/30/2020

To: Derek Bays
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12918.01P Site ID : TP5 BULK.
Thank you for your business.

* For future reference to this analysis please use SUN # 83143-173543.

Extractable Sulfate in Water

Type of TEST	Result	Units
-----	-----	-----
Sulfate-SO4	28.1	mg/kg

METHODS

ASTM D-516m from sat.paste extract-reported based on dry wt.



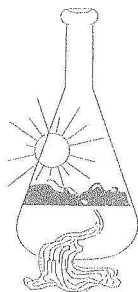
CORROSION TEST RESULTS

OLD DEPOT BIKE PARK
Placerville, California

FIGURE A6

DRAWN BY	RWO
CHECKED BY	DMB
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12918.01P



Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/07/2020
Date Submitted 09/30/2020

To: Derek Bays
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12918.01P Site ID : TP8 BULK.
Thank you for your business.

* For future reference to this analysis please use SUN # 83143-173544.

EVALUATION FOR SOIL CORROSION

Soil pH	5.35		
Minimum Resistivity	3.75	ohm-cm (x1000)	
Chloride	2.9	ppm	00.00029 %
Sulfate	3.7	ppm	00.00037 %

METHODS

pH and Min. Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m



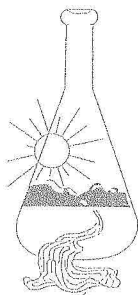
CORROSION TEST RESULTS

OLD DEPOT BIKE PARK
Placerville, California

FIGURE A7

DRAWN BY	RWO
CHECKED BY	DMB
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12918.01P



Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/07/2020
Date Submitted 09/30/2020

To: Derek Bays
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney *RA*
General Manager \ Lab Manager \

The reported analysis was requested for the following location:
Location : 12918.01P Site ID : TP8 BULK.
Thank you for your business.

* For future reference to this analysis please use SUN # 83143-173545.

Extractable Sulfate in Water

Type of TEST	Result	Units
-----	-----	-----
Sulfate-SO4	3.1	mg/kg

METHODS

ASTM D-516m from sat.paste extract-reported based on dry wt.



CORROSION TEST RESULTS

OLD DEPOT BIKE PARK
Placerville, California

FIGURE A8

DRAWN BY	RWO
CHECKED BY	DMB
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12918.01P

Appendix C

INTERPRETATION OF ANALYSIS

NAME: Helix Environmental Planning

LAB NO.: 51128

DATE: 10/09/20

PROJECT: Old Depot Bike Park

Page 1 of 2

TEXTURES*					
<input type="checkbox"/>	SANDY SOILS	<input checked="" type="checkbox"/>	LOAM SOILS	<input type="checkbox"/>	CLAY SOILS
Coarse textured, low water retention, infertile; fertilizer leaches easily and needs frequent irrigation. Organic matter benefits water and nutrient retention.		Have desirable properties of clay and sand, good moisture and fertilizer retention, not too sticky or droughty.		Sticky: high water retention, slow water penetration, compacts easily; high fertilizer retention. Need organic matter to keep workable.	
Sand, Loamy Sand		Sandy Loam, Loam, Silt Loam, Silty Clay Loam, Sandy Clay Loam, Clay Loam		Sandy Clay, Silty Clay, Clay	

*Texture estimate derived from CEC value. For more precise texture information, further testing is required. Contact lab for information.

LIME (amount of solid lime distributed in soil)		
<input checked="" type="checkbox"/>	HIGH	Plants sensitive to "Lime-induced Iron Chlorosis", (i.e. azalea, gardenia, liquid amber, roses, etc.) must have corrective chemical added to soil.
<input type="checkbox"/>	MODERATE	Plants sensitive to "Lime-induced Iron Chlorosis", affected but not as severely as "high" readings. Corrective chemical may be added.
<input type="checkbox"/>	LOW	Plants sensitive to "Lime-induced Iron Chlorosis", not affected. No corrective chemical needed.

pH	
7.4	Normal pH values for this area vary from 6.5 to 8.0, however variations in either direction may exist. Soil amendments may be recommended to help bring the soil pH into a more optimal range. To lower pH, soil sulfur or an equivalent acid-forming chemical recommended. To raise pH, lime is usually recommended.

EC			BORON (ppm)		
Electrical Conductivity of the soil saturation extract is a measure of the total salts in the soil. This can be related to plant growth as follows: (Units are mmhos/cm @ 25 degrees C)			Is expressed as ppm in the saturation extract. A small amount of boron is essential for plant growth, but a concentration slightly above the optimum is toxic for plants.		
<input checked="" type="checkbox"/>	0 - 1.9	No damage from salts.	<input checked="" type="checkbox"/>	0.0 - .6	Not toxic for any, but may be too low for some.
<input type="checkbox"/>	2 - 3.9	Sensitive plants may be damaged.	<input type="checkbox"/>	.7 - 1.4	Sensitive plants restricted.
<input type="checkbox"/>	4 - 7.9	Many plants affected.	<input type="checkbox"/>	1.5 - 4.9	Many plants restricted.
<input type="checkbox"/>	8 - 16	Most plants damaged.	<input type="checkbox"/>	5.0 - 10.0	Only tolerant plants satisfactory.
<input type="checkbox"/>	over 16	Few plants survive.	<input type="checkbox"/>	10.0 - over	Few plants survive.

PERCENT SODIUM SATURATION

Is the degree to which the soil exchange complex is saturated with sodium. Exchangeable sodium has two effects: (1) Reduced permeability and (2) Toxicity of sensitive plants.

<input checked="" type="checkbox"/>	Below 5	Generally no permeability problem due to sodium. However, sodium sensitive plants may show leaf burn.
<input type="checkbox"/>	5 - 15	Possible permeability problems with clay loams and clays. (C.E.C. 15 – 30)
<input type="checkbox"/>	Above 15	Permeability problems are likely on all mineral soil except some sands and loam sands.

NUTRIENTS

NITROGEN (N)	<input checked="" type="checkbox"/>	LOW	<input type="checkbox"/>	MODERATE	<input type="checkbox"/>	HIGH
PHOSPHORUS (P₂O₅)	<input checked="" type="checkbox"/>	LOW	<input type="checkbox"/>	MODERATE	<input type="checkbox"/>	HIGH
POTASSIUM (K₂O)	<input checked="" type="checkbox"/>	LOW	<input type="checkbox"/>	MODERATE	<input type="checkbox"/>	HIGH
		Definite need for fertilizer nutrient add at recommended rate for plant soil in question	Fertilizer nutrients are present in adequate amounts; maintain at this level.		There is no need for adding fertilizer nutrients at this time.	

ORGANIC MATTER (Percent as designated on the soil analysis)*

<input type="checkbox"/>	VERY LOW	0.0 – 0.7
<input type="checkbox"/>	LOW	0.8 – 1.7
<input type="checkbox"/>	MODERATE	1.8 – 3.2
<input type="checkbox"/>	HIGH	3.3 – 4.2
<input checked="" type="checkbox"/>	VERY HIGH	4.3 –

*Variables may exist depending upon the soil type and the source of organic matter that is being measured, however the above table will give a good estimate of the percentage of organic matter present.

WATER PERCOLATION RATE**(INCHES/HOUR)***

<input type="checkbox"/>	VERY RAPID	MORE THAN 20.00
<input type="checkbox"/>	RAPID	6.00 – 20.00
<input checked="" type="checkbox"/>	MODERATELY RAPID	2.00 – 6.00
<input type="checkbox"/>	MODERATE	.60 – 2.00
<input type="checkbox"/>	MODERATELY SLOW	.20 - .60
<input type="checkbox"/>	SLOW	.06 - .20
<input type="checkbox"/>	VERY SLOW	LESS THAN .06

*Variables may exist depending upon the soil type and the source of organic matter that is being measured, however the above table will give a good estimate of the percentage of organic matter present.

Percolation rate is an estimate derived from texture. For more specific rates, further testing is required. Contact lab for information.

SOIL ANALYSIS RECOMMENDATIONS

October 13, 2020

**Helix Environmental Planning
11 Natoma St. #100
Folsom, CA 95630
Attn: Jessamyn Lett**

Project Name: Old Depot Bike Park

Project Number: CED-04

The following recommendations are based on the results of soil analysis and soil texture test #51128 from A & L Western Agricultural Laboratories dated October 9, 2020.

SOIL PREPARATION:

Materials recommended per 1,000 square feet

- 150 lbs. fertilizer / soil conditioner with mycorrhizae*
- 25 lbs. soil sulfur
- 1 - 1½ cu. yd. of nitrolized shavings or good quality compost

Apply recommended materials and rototill a minimum of two directions, to a depth of 6 inches. After soil preparation, but prior to planting, irrigate with overhead irrigation so that a minimum of 1-3 inches of good quality water passes through the soil profile, beyond the root zone.

BACKFILL:

Materials recommended per cubic yard of mix

- 4 parts native on site soil, by volume
- 1 parts nitrolized shavings or good quality compost
- 8 - 10 lbs. fertilizer / soil conditioner with mycorrhizae*
- 1 lb. soil sulfur
- Optional: planting tablets for extended feed/conditioning

Dig planting pits 1½ times the width and 1 time the depth of the root ball. Fill pits with backfill mix to the depth of the root ball and irrigate thoroughly. Be sure entire root ball area is covered when planting.



15065 TELEPHONE AVENUE CHINO, CA 91710-9614 • (909) 393-3744 • FAX (909) 393-2773

www.gropower.com • e-mail: info@gropower.com

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SPECIFICATIONS FOR BIOSWALE AND BIO RETENSION BASINS:

Bioswale soils need to meet or exceed the following 3 criteria:

1. Must achieve long-term infiltration rate of 5" per hour or as dictated by storm water plan.
2. Soil must be able to support vigorous plant growth.
3. Remove silt and pollution from surface runoff.
(A typical mixture is 60% - 80% sand and topsoil, 20% - 40% compost)

- A. Sand and Topsoil:** See sand/topsoil manufacturer sieve analysis to meet the criteria.
- B. Compost:** Well decomposed, derived from plant waste materials, yard debris or other organic materials NOT including animal waste, manures or bio solids.
(Local topsoil companies may be able to supply the proper bioswale mix)
- C. Plant Nutrients:** To ensure proper growth for new planting in vegetated swales, nutrients are required. The humus, humic acids and mycorrhizae in the fertilizer / soil conditioner* will help to established microbial activity to assist in the purification of the polluted run-off water. For bioswales mix incorporate fertilizer / soil conditioner* at a rate of 25 lbs. per cubic yard.
- D. Mulch:** If mulch is recommended, apply a 2" layer of mulch to retain moisture, prevent weeds, and minimize weed growth.

*** The fertilizer / soil conditioner shall be derived from organic materials consisting of higher plant form life, composted beyond the fibrous stage. It shall NOT contain poultry, animal, or human waste (i.e. sewage sludge), pathogenic viruses, fly larvae, insecticides, herbicides, fungicides, or poisonous chemicals that would inhibit plant growth and shall have the following guaranteed analysis:**

Ingredient	Percentage (Minimum)	
Nitrogen	5	
Phosphoric Acid	3	
Water Soluble Potash		1
Humic Acids	15	
Soluble Metallic Iron		1
Soil Penetrant	1	
Mycorrhizal Inoculum	N/A	

Page 3

October 13, 2020

Helix Environmental Planning

Project Name: Old Depot Bike Park

Project Number: CED-04

MAINTENANCE:

For natives, consider feeding with a slow release complete fertilizer (for example 12-8-8 controlled release) 2 -3 times annually.

EVALUATION OF SOIL ELEMENTS:

1. pH is MODERATELY ELEVATED, indicating alkaline soil. Soil sulfur and leaching will help to maintain lower levels over time.
2. Lime level is VERY HIGH. Possible lime-induced iron chlorosis. Soil sulfur and leaching will help lower level over time.
3. EC (soluble salts) is LOW. Within optimum range for most plant material.
4. Boron is LOW. No toxicity problem.
5. Exchangeable sodium is LOW with some balance provided by magnesium and calcium.
6. Major nutrients: Nitrogen is LOW- Phosphorus is LOW- Potassium is LOW.

SPECIAL COMMENTS:

1. Selective plant palette important, re: elevated lime.
2. Amendments are more effective when thoroughly mixed into the soil.

Thank you for giving Gro-Power[®], Inc. the opportunity to make recommendations on this project. If I may be of further assistance to you, or you have any questions regarding the above stated recommendations, please don't hesitate to contact me at (562) 754-0415.

Sincerely,

Jack L. Engberg

Soil Analysis Consultant

JE/jma

Attachment A

LANDSCAPE PLANS FOR:
OLD DEPOT BIKE PARK
COUNTY OF EL DORADO
40 OLD DEPOT ROAD
PLACERVILLE CA, 95667
APN: 327-250-037 and 327-250-038

GENERAL NOTES

SPECIFICATIONS: SEE THE GENERAL PROVISIONS, SPECIAL PROVISIONS, GENERAL REQUIREMENTS, AND TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. TECHNICAL SPECIFICATIONS ARE AN INTEGRAL PART OF THESE DRAWINGS. UPON GIVING A BID PRICE, IT IS ASSUMED THAT THE CONTRACTOR IS FAMILIAR WITH THE PROJECT SITE CONDITIONS AND HAS READ AND UNDERSTANDS ALL INFORMATION CONTAINED THEREIN.

UNAUTHORIZED CHANGES AND USES: HELIX ENVIRONMENTAL PLANNING WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY HELIX ENVIRONMENTAL PLANNING.

BASE SHEET DATA: THE PROPOSED IMPROVEMENTS SHOWN ON THESE DRAWINGS ARE DRAWN ONTO A BASE SHEET FORMED FROM THE TOPOGRAPHIC SURVEY AND OTHER DATA THAT HAS BEEN MADE AVAILABLE TO HELIX ENVIRONMENTAL PLANNING. HELIX ENVIRONMENTAL PLANNING SHALL NOT BE HELD LIABLE FOR CHANGES, INACCURACIES, OMISSIONS, OR OTHER ERRORS ON DOCUMENTS PROVIDED TO US. THE BASE SHEET DATA IS PROVIDED AS AN AID ONLY AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THESE DOCUMENTS AND INCORPORATING/INTEGRATING ALL CONSTRUCTION AS REQUIRED TO ACCOMMODATE SAME.

THE FOLLOWING IS THE LIST OF SOURCES OF THE BASE SHEET DATA:

1)EL DORADO BIKE TRAIL (MASTER).DWG, DATED 11/15/19, PREPARED BY UNICO

CONTRACTOR: ALL WORK IS TO BE PERFORMED BY A LICENSED CONTRACTOR AND EXPERIENCED WORKERS. THE CONTRACTOR SHALL CONFORM TO ALL LOCAL CODES AND OBTAIN AND PAY FOR ALL PERMITS NECESSARY TO COMPLETE THE WORK.

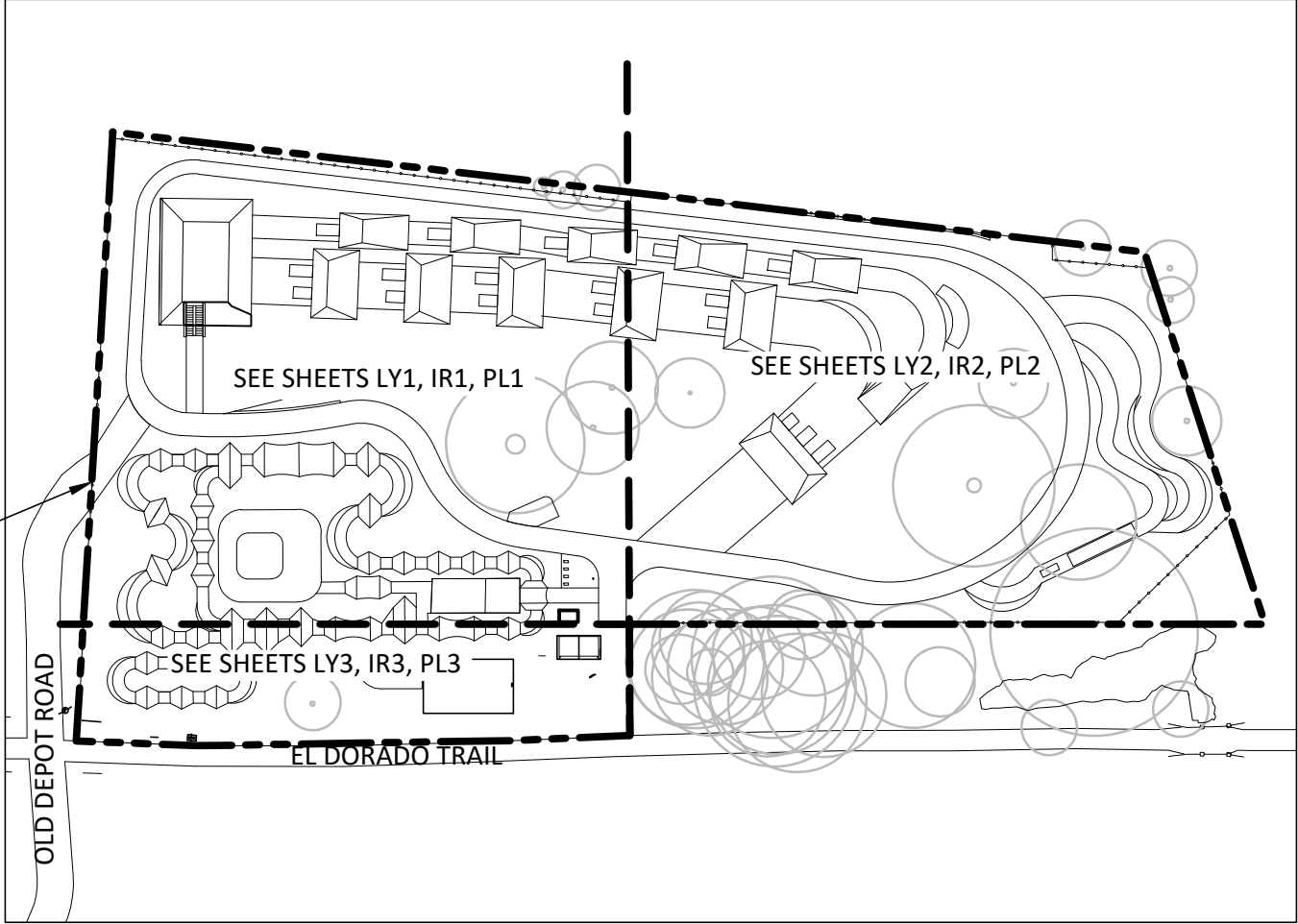
JOB SITE CONDITIONS: THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES THAT THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD THE OWNER AND HELIX ENVIRONMENTAL PLANNING HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR HELIX ENVIRONMENTAL PLANNING. TEMPORARY FENCING SHALL BE PROVIDED AND MAINTAINED AROUND SITE PERIMETER AND AT LOCATIONS DEEMED NECESSARY BY CONTRACTOR. TEMPORARY FENCING SHALL BE 6' CHAIN LINK WITH PEDESTAL TYPE BASE. RELOCATE AS NECESSARY DURING CONSTRUCTION.

UTILITIES: PRIOR TO CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED IN THE VICINITY OF CONSTRUCTION AND REQUESTING A VISUAL VERIFICATION OF THE LOCATIONS OF THEIR FACILITIES. MOST UTILITY COMPANIES ARE MEMBERS OF THE UNDERGROUND SERVICE ALERT (U.S.A.) ONE-CALL PROGRAM. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT SHALL NOTIFY MEMBERS OF THE U.S.A. 72 HOURS IN ADVANCE OF PERFORMING EXCAVATION WORK BY CALLING 811 OR UTILIZING U.S.A'S ONLINE SERVICE AT USANORTH811.ORG/EXCAVATORS. EXCAVATION IS DEFINED AS BEING 12 OR MORE INCHES IN DEPTH BELOW THE EXISTING SURFACE. A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES. THE CONTRACTOR IS CAUTIONED THAT ONLY EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATION, AND DEPTHS OF SUCH UNDERGROUND UTILITIES. HOWEVER, HELIX ENVIRONMENTAL PLANNING CANNOT ASSUME RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE DELINEATION OF SUCH UTILITIES, OR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH ARE NOT SHOWN ON THESE DRAWINGS. UTILITY CONTACTS ARE LISTED ON SHEET 11.

COORDINATION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SCHEDULING OF CONSTRUCTION OPERATIONS WITH CONSTRUCTION OPERATIONS OF OTHERS WORKING ON OR NEAR THE PROJECT SITE.


EMISSIONS: THE CONTRACTOR SHALL MAINTAIN AND OPERATE CONSTRUCTION EQUIPMENT TO MINIMIZE EXHAUST EMISSIONS. DURING CONSTRUCTION, TRUCKS AND EQUIPMENT SHALL BE OPERATED ONLY WHEN NECESSARY AND ENGINES SHALL BE SHUT OFF WHEN TRUCKS ARE BEING LOADED OR UNLOADED OR OTHERWISE STATIONARY. EQUIPMENT SHALL BE MAINTAINED IN GOOD CONDITION AND WELL-TUNED TO MINIMIZE EXHAUST EMISSIONS.

PROJECT KEY MAP



MAP NOT TO SCALE

PROJECT VICINITY MAP




MAP NOT TO SCALE

DRAWING INDEX

SHEET NUMBER	SHEET LABEL	SHEET TITLE
1	CV1	COVER SHEET
2	NO1	NOTES
3	DM1	DEMOLITION PLAN
4-6	LY1-LY3	LAYOUT PLANS
7-10	BK1-BK4	BICYCLE AMENITY PLANS
11-15	C1 - C5	CIVIL PLANS AND DETAILS
16-22	E0.01 - E3.01	ELECTRICAL PLANS AND DETAILS
23-25	IR1 - IR3	IRRIGATION PLANS
26-28	PL1 - PL3	PLANTING PLANS
29-37	DT1 - DT9	LANDSCAPE DETAILS

SUBMITTED BY:



5/14/2021
DATE

MEREDITH BRANSTAD, PLA, CA LICENSE #5122
HELIX ENVIRONMENTAL PLANNING

ACCEPTED BY:

VICKIE SANDERS
PARKS MANAGER

DATE


REVISION/ISSUE

BY

COVER

OLD DEPOT BIKE PARK
EL DORADO COUNTY

LANDSCAPE ARCHITECT
OF RECORD



11 NATOMA STREET, SUITE 135
FOLSOM, CALIFORNIA 95630
(916) 365-8700
© 2021

HELIX

Environmental Planning

DRAWN BY
JLL, CBH

DATE
05/14/2021

SCALE
AS SHOWN

JOB NUMBER
CED-04

SHEET
CV1
1 of 37

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MITIGATION MEASURES

BIO-1 CONDUCT PRE-CONSTRUCTION SURVEYS: CONDUCT PRE-CONSTRUCTION SURVEYS FOR COAST HORNED LIZARD, WESTERN POND TURTLE, SPECIAL-STATUS BATS, AND NESTING MIGRATORY BIRDS AND RAPTORS (DURING THE NESTING SEASON) 14 DAYS PRIOR TO THE INITIATION OF CONSTRUCTION OR GROUND DISTURBING ACTIVITIES. IF CONSTRUCTION OR GROUND DISTURBING ACTIVITIES DO NOT COMMENCE WITHIN 14 DAYS, OR HALT FOR MORE THAN SEVEN DAYS, ADDITIONAL SURVEYS ARE REQUIRED PRIOR TO RESUMING OR STARTING WORK, AS DETAILED BELOW:

- IF NO COAST HORNED LIZARDS ARE OBSERVED, THEN A LETTER REPORT SHALL BE PREPARED TO DOCUMENT THE RESULTS OF THE SURVEY AND PROVIDED TO THE PROJECT PROPONENT, AND NO ADDITIONAL MEASURES ARE RECOMMENDED FOR COAST HORNED LIZARD. IF DEVELOPMENT DOES NOT COMMENCE WITHIN 14 DAYS OF THE PRE-CONSTRUCTION SURVEY, OR HALTS FOR MORE THAN SEVEN DAYS, AN ADDITIONAL SURVEY IS REQUIRED PRIOR TO RESUMING OR STARTING WORK.
- IF COAST HORNED LIZARDS ARE PRESENT IN THE PROJECT SITE, THEN AGENCY CONSULTATION MAY BE REQUIRED TO DETERMINE APPROPRIATE BUFFERS AND ADDITIONAL MEASURES TO REDUCE IMPACTS TO THESE SPECIES. ADDITIONAL AVOIDANCE MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO, HAVING A QUALIFIED BIOLOGIST CONDUCT A SECOND PRE-CONSTRUCTION SURVEY WITHIN 24 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES, AND HAVING A QUALIFIED BIOLOGIST PRESENT ON-SITE DURING INITIAL GROUND-CLEARING AND GRADING ACTIVITIES FOR THE PURPOSE OF RELOCATING ANY COAST HORNED LIZARDS FOUND WITHIN THE CONSTRUCTION FOOTPRINT TO A SUITABLE HABITAT AWAY FROM THE CONSTRUCTION ZONE, BUT WITHIN THE PROJECT SITE.
- IF CONSTRUCTION BEGINS DURING THE WINTER MONTHS (BETWEEN OCTOBER AND APRIL), A QUALIFIED BIOLOGIST SHALL CONDUCT A PRE-CONSTRUCTION SURVEY FOR WESTERN POND TURTLE WITHIN 14 DAYS PRIOR TO DEVELOPMENT OR GROUND DISTURBING ACTIVITIES INCLUDING GRADING, VEGETATION CLEARING, TREE REMOVAL, OR CONSTRUCTION. IF WESTERN POND TURTLE IS NOT OBSERVED, A LETTER REPORT SHALL BE PREPARED TO DOCUMENT THE RESULTS OF THE SURVEY AND PROVIDED TO PROJECT PROPONENT, AND NO ADDITIONAL MEASURES ARE RECOMMENDED. IF DEVELOPMENT DOES NOT COMMENCE WITHIN 14 DAYS OF THE PRE-CONSTRUCTION SURVEY, OR HALTS FOR MORE THAN SEVEN DAYS, AN ADDITIONAL SURVEY SHALL BE CONDUCTED PRIOR TO RESUMING OR STARTING WORK. IF CONSTRUCTION BEGINS OUTSIDE OF THE OVERWINTERING PERIOD, THEN NO SURVEYS ARE REQUIRED.
- IF WESTERN POND TURTLE IS OBSERVED WITHIN THE PROJECT SITE, THEN A QUALIFIED BIOLOGIST SHALL ESTABLISH AN APPROPRIATE NO DISTURBANCE BUFFER AROUND THE AREA OBSERVED (LIKELY THE INTERMITTENT STREAM) AND WILDLIFE EXCLUSION FENCING SHALL BE INSTALLED. THIS FENCING WILL BE COMPRISED OF SILT FENCING AND WILL BE INSTALLED IN AN AREA RECOMMENDED BY THE DESIGNATED BIOLOGIST. THE FENCING SHALL REMAIN IN PLACE THE DURATION OF CONSTRUCTION AND SHALL BE REMOVED UPON THE COMPLETION OF CONSTRUCTION.
- A QUALIFIED BIOLOGIST SHALL CONDUCT A PRE-CONSTRUCTION SURVEY FOR SPECIAL-STATUS BAT SPECIES WITHIN 14 DAYS PRIOR TO DEVELOPMENT OR GROUND DISTURBING ACTIVITIES INCLUDING GRADING, VEGETATION CLEARING, TREE REMOVAL, OR CONSTRUCTION. IF NO BATS ARE OBSERVED, A LETTER REPORT SHALL BE PREPARED TO DOCUMENT THE SURVEY AND PROVIDED TO PROJECT PROPONENT, AND NO ADDITIONAL MEASURES ARE RECOMMENDED. IF DEVELOPMENT DOES NOT COMMENCE WITHIN 14 DAYS OF THE PRE-CONSTRUCTION SURVEY, OR HALTS FOR MORE THAN SEVEN DAYS, AN ADDITIONAL SURVEY IS REQUIRED PRIOR TO RESUMING OR STARTING WORK.
- IF SPECIAL-STATUS BATS ARE PRESENT AND ROOSTING IN THE PROJECT SITE OR THE SURROUNDING 100 FEET OF THE PROJECT SITE, THE QUALIFIED BIOLOGIST SHALL ESTABLISH AN APPROPRIATE NO DISTURBANCE BUFFER AROUND THE ROOST SITE PRIOR TO THE COMMENCEMENT OF GROUND DISTURBING ACTIVITIES OR DEVELOPMENT. NO TREES WILL BE REMOVED UNTIL THE BIOLOGIST HAS DETERMINED THAT A ROOST SITE IS NO LONGER ACTIVE, AND NO BATS ARE PRESENT. IF AVOIDANCE IS NOT FEASIBLE, THEN THE CDFW WILL BE CONSULTED FOR ADDITIONAL AVOIDANCE MEASURES AND ADDITIONAL MITIGATION MEASURES, SUCH AS INSTALLATION OF BAT BOXES OR ALTERNATE ROOST STRUCTURES.

BIO-2 BOTANICAL SURVEY AND AVOIDANCE: A QUALIFIED BOTANIST SHALL CONDUCT A BOTANICAL SURVEY WITHIN THE EVIDENT AND IDENTIFIABLE BLOOMING PERIODS FOR POTENTIAL SPECIAL-STATUS PLANTS THAT HAVE THE POTENTIAL TO OCCUR WITHIN THE PROJECT SITE, INCLUDING BRANDEGEE'S CLARKIA (MAY TO JULY), CHAPARRAL SEDGE (MARCH TO JUNE), HUMBOLDT LILY (MAY TO AUGUST), SIERRA CLARKIA (MAY TO AUGUST), RED HILLS SOAPROOT (MAY TO JUNE), AND OVAL-LEAVED VIBURNUM (MAY TO JUNE). ONE SURVEY, CONDUCTED IN MAY OR JUNE, WILL SATISFY THE BLOOMING PERIODS FOR ALL SIX PLANTS. IF NO SPECIAL-STATUS PLANTS ARE OBSERVED, THE BOTANIST WILL DOCUMENT THE FINDINGS IN A LETTER REPORT AND NO ADDITIONAL MEASURES ARE RECOMMENDED.

IF ANY OF THE NON-LISTED SPECIAL-STATUS PLANTS ARE IDENTIFIED WITHIN AREAS OF POTENTIAL CONSTRUCTION DISTURBANCE, THEY WILL BE AVOIDED TO THE GREATEST EXTENT FEASIBLE. IF THE PLANTS CANNOT BE AVOIDED, THE PLANTS AND/OR THE SEEDBANK WILL BE TRANSPLANTED TO A SUITABLE HABITAT NEAR THE PROJECT SITE. IF NONLISTED SPECIAL STATUS PLANTS ARE FOUND DURING THE RECOMMENDED BOTANICAL SURVEYS, A QUALIFIED BIOLOGIST WILL PREPARE AN AVOIDANCE AND MITIGATION PLAN DETAILING PROTECTION AND AVOIDANCE MEASURES, TRANSPLANTING PROCEDURES, SUCCESS CRITERIA, AND LONG-TERM MONITORING PROTOCOLS.

BIO-3 ENVIRONMENTAL AWARENESS TRAINING: A QUALIFIED BIOLOGIST SHALL CONDUCT AN ENVIRONMENTAL AWARENESS TRAINING FOR ALL CONSTRUCTION PERSONNEL PRIOR TO THE INITIATION OF WORK.

THE TRAINING SHALL INCLUDE IDENTIFICATION OF COAST HORNED LIZARD, WESTERN POND TURTLES, SPECIAL STATUS BATS, SPECIAL STATUS PLANTS, AND NESTING BIRDS; REQUIRED PRACTICES TO BE IMPLEMENTED PRIOR TO AND DURING CONSTRUCTION; GENERAL MEASURES THAT ARE BEING IMPLEMENTED TO CONSERVE THE SPECIES AS THEY RELATE TO THE PROJECT; PENALTIES FOR NON-COMPLIANCE, BOUNDARIES OF THE NON-DISTURBANCE BUFFER ZONES; AND WHAT TO DO/WHOM TO CONTACT SHOULD ANY SENSITIVE WILDLIFE OR PLANT SPECIES, OR NESTING BIRDS BE OBSERVED ONSITE DURING CONSTRUCTION. UPON COMPLETION OF THE TRAINING, ALL CONSTRUCTION PERSONNEL SHALL SIGN A FORM STATING THAT THEY HAVE ATTENDED THE TRAINING AND UNDERSTAND ALL THE MEASURES. PROOF OF THIS INSTRUCTION SHALL BE KEPT ON FILE WITH THE PROJECT PROPONENT.

BIO-4. OBTAIN APPLICABLE REGULATORY PERMITS AND IMPLEMENT ASSOCIATED MITIGATION. SHOULD THE FINAL DESIGN OF THE PROPOSED PROJECT RESULT IN IMPACTS TO AQUATIC RESOURCES, THEN A FORMAL AQUATIC RESOURCES DELINEATION REPORT SHALL BE PREPARED AND VERIFIED BY THE USACE. THE COUNTY SHALL OBTAIN CLEAN WATER ACT SECTION 404 AND 401 PERMITS FOR ANY IMPACTS TO WATERS OF THE U.S. AND FILE A WASTE DISCHARGE REPORT FOR IMPACTS TO WATERS OF THE STATE NOT SUBJECT TO REGULATION UNDER THE CLEAN WATER ACT.

IMPACTS TO ANY REGULATED AQUATIC FEATURES WOULD REQUIRE A CLEAN WATER ACT SECTION 404 AUTHORIZATION BY THE USACE AND ADDITIONALLY A SECTION 401 WATER QUALITY CERTIFICATION WOULD LIKELY BE REQUIRED BY THE RWQCB. IF AQUATIC FEATURES ARE DETERMINED NOT TO BE SUBJECT TO FEDERAL JURISDICTION UNDER THE CLEAN WATER ACT, THEN THESE FEATURES MAY BE SUBJECT TO WASTE DISCHARGE REQUIREMENTS UNDER THE PORTER-COLOGNE WATER QUALITY CONTROL ACT SHOULD THE PROPOSED PROJECT RESULT IN IMPACTS TO THESE FEATURES. SECTION 13260(A) OF THE PORTER-COLOGNE WATER QUALITY CONTROL ACT (CONTAINED IN THE CALIFORNIA WATER CODE) REQUIRES ANY PERSON DISCHARGING WASTE OR PROPOSING TO DISCHARGE WASTE, OTHER THAN TO A COMMUNITY SEWER SYSTEM, WITHIN ANY REGION THAT COULD AFFECT THE QUALITY OF THE WATERS OF THE STATE (ALL SURFACE AND SUBSURFACE WATERS) TO FILE A REPORT OF WASTE DISCHARGE. THE DISCHARGE OF DREDGED OR FILL MATERIAL MAY CONSTITUTE A DISCHARGE OF WASTE THAT COULD AFFECT THE QUALITY OF WATERS OF THE STATE. A REPORT OF WASTE DISCHARGE WILL BE FILED FOR IMPACTS TO NON-FEDERAL WATERS, IF REQUIRED. MITIGATION MEASURES AND ANY OTHER REQUIREMENTS CONTAINED IN THESE PERMITS SHALL BE IMPLEMENTED.

BIO-5. TO AVOID IMPACTS TO NESTING BIRDS, ALL VEGETATION REMOVAL SHOULD BE COMPLETED BETWEEN SEPTEMBER 1 AND JANUARY 31, IF FEASIBLE. IF DEVELOPMENT ACTIVITIES OCCUR DURING THE NESTING SEASON, A QUALIFIED BIOLOGIST SHOULD CONDUCT A NESTING BIRD SURVEY TO DETERMINE THE PRESENCE OF ANY ACTIVE NESTS WITHIN THE PROJECT SITE. ADDITIONALLY, THE SURROUNDING 500 FEET OF THE PROJECT SITE SHOULD BE SURVEYED FOR ACTIVE RAPTOR NESTS, WHERE ACCESSIBLE, AND WITH BINOCULARS, AS NECESSARY. IF DEVELOPMENT ACTIVITIES OCCUR DURING THE NESTING SEASON, A QUALIFIED BIOLOGIST SHOULD CONDUCT A NESTING BIRD SURVEY TO DETERMINE THE PRESENCE OF ANY ACTIVE NESTS WITHIN THE PROJECT SITE. ADDITIONALLY, THE SURROUNDING 500 FEET OF THE PROJECT SITE SHOULD BE SURVEYED FOR ACTIVE RAPTOR NESTS, WHERE ACCESSIBLE, AND WITH BINOCULARS, AS NECESSARY. THE NESTING BIRD SURVEY SHOULD BE CONDUCTED WITHIN 14 DAYS PRIOR TO COMMENCEMENT OF GROUND-DISTURBING OR OTHER DEVELOPMENT ACTIVITIES. IF THE NESTING BIRD SURVEY SHOWS THAT THERE IS NO EVIDENCE OF ACTIVE NESTS, A LETTER REPORT SHOULD BE PREPARED TO DOCUMENT THE SURVEY AND PROVIDED TO THE PROJECT PROPONENT, AND NO ADDITIONAL MEASURES ARE RECOMMENDED. IF DEVELOPMENT DOES NOT COMMENCE WITHIN 14 DAYS OF THE NESTING BIRD SURVEY, OR HALTS FOR MORE THAN SEVEN DAYS, AN ADDITIONAL SURVEY IS REQUIRED PRIOR TO STARTING OR RESUMING WORK.

IF ACTIVE NESTS ARE FOUND, THE QUALIFIED BIOLOGIST SHOULD ESTABLISH SPECIES-SPECIFIC BUFFER ZONES TO PROHIBIT DEVELOPMENT ACTIVITIES AND MINIMIZE NEST DISTURBANCE UNTIL THE YOUNG HAVE SUCCESSFULLY FLEDGED OR THE BIOLOGIST DETERMINES THAT A NEST IS NO LONGER ACTIVE. BUFFER DISTANCES MAY RANGE FROM 20 FEET FOR MOST SONGBIRDS UP TO 250 TO 500 FEET FOR MOST RAPTORS. NEST MONITORING MAY ALSO BE WARRANTED DURING CERTAIN PHASES OF DEVELOPMENT TO ENSURE NESTING BIRDS ARE NOT ADVERSELY IMPACTED BY CONSTRUCTION ACTIVITIES. IF ACTIVE NESTS ARE FOUND WITHIN ANY TREES

SLATED FOR REMOVAL, AN APPROPRIATE BUFFER SHOULD BE ESTABLISHED AROUND THE TREE AND ALL TREES WITHIN THE BUFFER SHOULD NOT BE REMOVED UNTIL A QUALIFIED BIOLOGIST DETERMINES THAT THE NEST HAS SUCCESSFULLY FLEDGED AND IS NO LONGER ACTIVE.

BIO-6 CONDUCT ENVIRONMENTAL AWARENESS TRAINING FOR NESTING BIRDS FOR CONSTRUCTION DURING THE NESTING SEASON (FEBRUARY 1 TO AUGUST): A QUALIFIED BIOLOGIST SHOULD CONDUCT AN ENVIRONMENTAL AWARENESS TRAINING FOR ALL CONSTRUCTION PERSONNEL FOR THE POTENTIAL OF NESTING BIRDS TO OCCUR ONSITE PRIOR TO THE INITIATION OF WORK. THE TRAINING SHOULD INCLUDE IDENTIFICATION OF NESTING BIRDS, REQUIRED PRACTICES TO BE IMPLEMENTED PRIOR TO AND DURING CONSTRUCTION, GENERAL MEASURES THAT ARE BEING IMPLEMENTED TO CONSERVE THE SPECIES AS THEY RELATE TO THE PROJECT, PENALTIES FOR NON-COMPLIANCE, BOUNDARIES OF THE NON-DISTURBANCE BUFFER ZONES, AND WHAT TO DO/WHOM TO CONTACT SHOULD A NESTING BIRD BE OBSERVED ONSITE DURING CONSTRUCTION. UPON COMPLETION OF THE TRAINING, ALL CONSTRUCTION PERSONNEL SHOULD SIGN A FORM STATING THAT THEY HAVE ATTENDED THE TRAINING AND UNDERSTAND ALL THE MEASURES. PROOF OF THIS INSTRUCTION SHOULD BE KEPT ON FILE WITH THE PROJECT PROPONENT. AS APPLICABLE, THE PRE-CONSTRUCTION SURVEY AND ENVIRONMENTAL TRAINING MAY BE COMBINED WITH OTHER RECOMMENDED SURVEYS AND TRAININGS.

IF CONSTRUCTION OCCURS FROM SEPTEMBER 1 TO JANUARY 31ST, WHICH IS OUTSIDE OF THE NESTING BIRD SEASON, A NESTING BIRD SURVEY AND ENVIRONMENTAL TRAINING FOR NESTING BIRDS WOULD NOT BE REQUIRED.

BIO-7A. OAK WOODLAND REMOVAL PERMIT: PROJECT PROPONENT WILL OBTAIN AN OAK WOODLAND REMOVAL PERMIT. REQUIRED MITIGATION WILL BE IMPLEMENTED ON-SITE AND INTEGRATED INTO THE LANDSCAPE PLAN. IF ON-SITE MITIGATION IS NOT FEASIBLE, THEN MITIGATION WILL BE COMPLETED THROUGH OFF-SITE MITIGATION OR PAYMENT OF IN-LIEU FEES IN ACCORDANCE WITH THE ORMP.

BIO-7B. OAK TREE PROTECTION MEASURES: FOR ALL PROTECTED TREES TO BE PRESERVED WITHIN 20 FEET OF THE IMPACT AREA, THEN PROTECTION MEASURES SHALL BE IMPLEMENTED IN ORDER MINIMIZE IMPACTS TO PROTECTED TREES. PROTECTION MEASURES INCLUDE:

- INSTALL TREE PROTECTION FENCING, CONSISTING OF A MINIMUM 4-FOOT TALL HIGH-VISIBILITY FENCE (ORANGE PLASTIC SNOW FENCE OR SIMILAR) ON STEEL POSTS PLACED A MAXIMUM OF 8-FEET ON CENTER, SHALL BE PLACED AT THE EDGE OF THE WOODLAND HABITAT AND AROUND THE PERIMETER OF THE ROOT PROTECTION ZONE (RPZ; DRIPLINE RADIUS X 1.3) FOR THE TREES TO REMAIN, WHICHEVER IS GREATER. THE RPZ IS THE MINIMUM DISTANCE FOR PLACING PROTECTIVE FENCING, BUT TREE PROTECTION FENCING SHOULD BE PLACED AS FAR OUTSIDE OF THE RPZ AS POSSIBLE. SIGNS SHALL BE PLACED ALONG THE FENCE AT APPROXIMATELY 50-FOOT INTERVALS. EACH SIGN SHALL BE A MINIMUM OF TWO FEET BY TWO FEET AND SHALL INCLUDE THE FOLLOWING:

TREE PROTECTION ZONE

DO NOT MOVE OR RELOCATE FENCE

UNTIL PROJECT COMPLETION WITHOUT

PERMISSION OF PROJECT ARBORIST

OR THE COUNTY OF EL DORADO

- TREE AND VEGETATION REMOVAL WILL BE LIMITED TO THE EXTENT NEEDED TO FACILITATE PROJECT CONSTRUCTION AND ACCESS TO THE SITE.

- IF PERMANENT SITE IMPROVEMENTS (E.G., PAVING, BUILDINGS, AND STRUCTURES) ENCROACH INTO THE PROTECTED AREA, INSTALL FENCE AT LIMIT OF WORK. IF TEMPORARY IMPACTS (E.G., GRADING, UTILITY INSTALLATION) REQUIRE ENCROACHMENT INTO THE PROTECTED AREA, MOVE FENCE TO LIMIT OF WORK DURING ACTIVE CONSTRUCTION OF ITEM AND RETURN TO EDGE OF PROTECTED AREA ONCE WORK IS COMPLETED.

- PROTECTION FENCING SHALL NOT BE MOVED WITHOUT PRIOR AUTHORIZATION FROM THE PROJECT ARBORIST OR COUNTY OF EL DORADO OR AS DETAILED ON APPROVED PLANS.

- AVOID PAVING WITHIN PROTECTED AREA. IF PAVING CANNOT BE AVOIDED, POROUS MATERIALS WILL BE USED.

- NO PARKING, PORTABLE TOILETS, DUMPING OR STORAGE OF ANY CONSTRUCTION MATERIALS, INCLUDING OIL, GAS, OR OTHER CHEMICALS, OR OTHER INFRINGEMENT BY WORKERS OR DOMESTICATED ANIMALS IS ALLOWED IN THE PROTECTED AREA.

- NO SIGNS, ROPES, CABLES, METAL STAKES, OR ANY OTHER ITEMS SHALL BE ATTACHED TO A PROTECTED TREE, UNLESS RECOMMENDED BY AN ISA-CERTIFIED ARBORIST.

- GRADING, EXCAVATION, OR TRENCHING WITHIN RPZ OF EXISTING NATIVE OAKS SHOULD BE AVOIDED TO THE GREATEST EXTENT POSSIBLE. UNDER NO CIRCUMSTANCES SHOULD FILL SOIL BE PLACED AGAINST THE TRUNK OF AN EXISTING TREE.

- UNDERGROUND UTILITIES SHOULD BE AVOIDED IN THE RPZ, BUT IF NECESSARY, SHALL BE BORED OR DRILLED.

- NO TRENCHING IS ALLOWED WITHIN THE RPZ UNLESS SPECIFICALLY APPROVED BY THE PROJECT ARBORIST.

- PRUNING OF LIVING LIMBS OR ROOTS SHALL BE DONE UNDER THE SUPERVISION OF AN ISA-CERTIFIED ARBORIST.

- ALL PRUNING SHOULD BE DONE BY HAND, AIR KNIFE, OR WATER JET, IN ACCORDANCE WITH ISA STANDARDS USING TREE MAINTENANCE BEST PRACTICES. CLIMBING SPIKES SHOULD NOT BE USED ON LIVING TREES. LIMBS SHOULD BE REMOVED WITH CLEAN CUTS JUST OUTSIDE THE CROWN COLLAR.

- COVER EXPOSED ROOTS OR CUT ROOT ENDS IN TRENCHES WITH DAMP BURLAP TO PREVENT DRYING OUT.

- MINIMIZE DISTURBANCE TO THE NATIVE GROUND SURFACE (GRASS, LEAF, LITTER, OR MULCH) UNDER PRESERVED TREES TO THE GREATEST EXTENT FEASIBLE.

- NATIVE WOODY PLANT MATERIAL (TREES AND SHRUBS TO BE REMOVED) MAY BE CHIPPED OR MULCHED ON THE PROJECT SITE AND PLACED IN A 4- TO 6-INCH DEEP LAYER AROUND EXISTING TREES TO REMAIN. DO NOT PLACE MULCH IN CONTACT WITH THE TRUNK OF PRESERVED TREES.

- IF A TREE TO REMAIN HAS HAD ROOTS CUT DURING CONSTRUCTION, THE TREE SHALL BE DEEP WATERED ONCE A MONTH DURING SUMMER/FALL MONTHS UNTIL CONSTRUCTION IS COMPLETE..

- APPROPRIATE FIRE PREVENTION TECHNIQUES SHALL BE EMPLOYED AROUND ALL TREES TO BE PRESERVED. THIS INCLUDES CUTTING TALL GRASS, REMOVING FLAMMABLE DEBRIS WITHIN THE RPZ, AND PROHIBITING THE USE OF TOOLS THAT MAY CAUSE SPARKS, SUCH AS METAL-BLADED TRIMMERS OR MOWERS.

- NO OPEN FLAMES SHALL BE PERMITTED WITHIN 15 FEET OF THE TREE CANOPY.

- DAMAGE TO ANY PROTECTED TREE DURING CONSTRUCTION SHALL BE IMMEDIATELY REPORTED TO THE COUNTY OF EL DORADO PLANNING SERVICES. DAMAGE SHALL BE CORRECTED AS REQUIRED BY THE COUNTY REPRESENTATIVE.

CUL-1 WORKER AWARENESS TRAINING PROGRAM: PRIOR TO THE INITIATION OF GROUND-DISTURBING ACTIVITIES HELIX RECOMMENDS THAT ALL CONSTRUCTION PERSONNEL BE TRAINED IN THE PROTECTION OF CULTURAL RESOURCES, THE RECOGNITION OF BURIED CULTURAL REMAINS, AND THE NOTIFICATION PROCEDURES TO BE FOLLOWED UPON THE DISCOVERY OF ARCHAEOLOGICAL MATERIALS, INCLUDING NATIVE AMERICAN BURIALS. THE TRAINING SHOULD BE PRESENTED BY AN ARCHAEOLOGIST WHO MEETS THE SECRETARY OF INTERIOR'S STANDARDS FOR PREHISTORIC AND HISTORIC ARCHAEOLOGY AND SHOULD INCLUDE RECOGNITION OF BOTH PREHISTORIC AND HISTORIC RESOURCES. PERSONNEL SHOULD BE INSTRUCTED THAT UNAUTHORIZED COLLECTION OR DISTURBANCE OF ARTIFACTS OR OTHER CULTURAL MATERIALS IS ILLEGAL, AND THAT VIOLATORS WILL BE SUBJECT TO PROSECUTION UNDER THE APPROPRIATE STATE AND FEDERAL LAWS. SUPERVISORS SHOULD ALSO BE BRIEFED ON THE CONSEQUENCES OF INTENTIONAL OR INADVERTENT DAMAGE TO CULTURAL RESOURCES.

CUL-2 UNANTICIPATED DISCOVERY PROCEDURES: IF BURIED CULTURAL RESOURCES ARE DISCOVERED DURING CONSTRUCTION, OPERATIONS SHALL STOP IN THE IMMEDIATE VICINITY OF THE FIND AND A QUALIFIED ARCHAEOLOGIST SHALL BE CONSULTED TO DETERMINE WHETHER THE RESOURCE REQUIRES FURTHER STUDY. THE ARCHAEOLOGIST SHALL MAKE RECOMMENDATIONS TO THE LEAD AGENCY CONCERNING APPROPRIATE MEASURES THAT WILL BE IMPLEMENTED TO PROTECT THE RESOURCES, INCLUDING BUT NOT LIMITED TO EXCAVATION AND EVALUATION OF THE FINDS, CONSISTENT WITH SECTION 15064.5 OF THE CEQA GUIDELINES. CULTURAL RESOURCES COULD CONSIST OF BUT ARE NOT LIMITED TO STONE, BONE, WOOD, OR SHELL ARTIFACTS, OR FEATURES INCLUDING HEARTHS, STRUCTURAL REMAINS, OR HISTORIC DUMPSITES. IN ACCORDANCE WITH PRC SECTION 21082 AND SECTION 15064.5 OF THE CEQA GUIDELINES, NO FURTHER GRADING OR CONSTRUCTION ACTIVITY SHALL OCCUR WITHIN 50 FEET OF THE DISCOVERY UNTIL THE LEAD AGENCY APPROVES THE MEASURES TO PROTECT THESE RESOURCES.

CUL-3 INADVERTENT DISCOVERY PROCEDURES: THERE IS ALWAYS THE POSSIBILITY THAT GROUND DISTURBING ACTIVITIES DURING CONSTRUCTION MAY UNCOVER PREVIOUSLY UNKNOWN HUMAN REMAINS. IN THE EVENT OF AN ACCIDENTAL DISCOVERY OR RECOGNITION OF ANY HUMAN REMAINS, PRC SECTION 5097.98 MUST BE FOLLOWED. IF THERE IS A DISCOVERY OR RECOGNITION OF HUMAN REMAINS DURING PROJECT-RELATED EARTHMOVING ACTIVITIES, THE FOLLOWING STEPS SHALL BE TAKEN:

- THERE SHALL BE NO FURTHER EXCAVATION OR DISTURBANCE OF THE SPECIFIC LOCATION OR ANY NEARBY AREA REASONABLY SUSPECTED TO OVERLIE ADJACENT HUMAN REMAINS UNTIL THE EL DORADO COUNTY CORONER IS CONTACTED TO DETERMINE IF THE REMAINS ARE NATIVE AMERICAN AND IF AN INVESTIGATION OF THE CAUSE OF DEATH IS REQUIRED. IF THE CORONER DETERMINES THE REMAINS ARE NATIVE AMERICAN, THE CORONER SHALL CONTACT THE NAHC WITHIN 24 HOURS, AND THE NAHC SHALL IDENTIFY THE PERSON OR PERSONS IT BELIEVES TO BE THE "MOST LIKELY DESCENDANT" OF THE DECEASED NATIVE AMERICAN. THE MOST LIKELY DESCENDANT MAY MAKE RECOMMENDATIONS TO THE LANDOWNER OR THE PERSON RESPONSIBLE FOR THE EXCAVATION WORK, FOR MEANS OF TREATING OR DISPOSING OF, WITH APPROPRIATE DIGNITY, THE HUMAN REMAINS, AND ANY ASSOCIATED GRAVE GOODS AS PROVIDED IN PRC SECTION 5097.98, OR
- WHERE THE FOLLOWING CONDITIONS OCCUR, THE LANDOWNER OR HIS/HER AUTHORIZED REPRESENTATIVE SHALL REBURY THE NATIVE AMERICAN HUMAN REMAINS AND ASSOCIATED GRAVE GOODS WITH APPROPRIATE DIGNITY EITHER IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MOST LIKELY DESCENDENT OR ON THE PROJECT AREA IN A LOCATION NOT SUBJECT TO FURTHER SUBSURFACE DISTURBANCE:
 - THE NAHC IS UNABLE TO IDENTIFY A MOST LIKELY DESCENDENT OR THE MOST LIKELY DESCENDENT FAILED TO MAKE A RECOMMENDATION WITHIN 48 HOURS AFTER BEING NOTIFIED BY THE COMMISSION;
 - THE DESCENDENT IDENTIFIED FAILS TO MAKE A RECOMMENDATION; OR
 - THE LANDOWNER OR HIS AUTHORIZED REPRESENTATIVE REJECTS THE RECOMMENDATION OF THE DESCENDENT, AND THE MEDIATION BY THE NAHC FAILS TO PROVIDE MEASURES ACCEPTABLE TO THE LANDOWNER.

HAZ-1 PRIOR TO CONSTRUCTION, IF IT IS DETERMINED THAT THE EXISTING WATER WELL WOULD BE ABANDONED AND NOT USED FOR THE PROJECT, THE COUNTY SHALL SECURE AND ABANDON THE EXISTING WATER WELL IN ACCORDANCE WITH COUNTY REQUIREMENTS.

HAZ-2 THE COUNTY SHALL ENSURE THAT UNUSED SUBSURFACE SEPTIC SYSTEM STRUCTURES WILL BE A PROPERLY ABANDONED IN ACCORDANCE WITH COUNTY REQUIREMENTS..

NOI-1 CONSTRUCTION RELATED NOISE. THE FOLLOWING SHALL BE IMPLEMENTED DURING CONSTRUCTION ACTIVITIES:

- THE OPERATION OF TOOLS OR EQUIPMENT USED IN CONSTRUCTION, DRILLING, REPAIR, ALTERATION OR DEMOLITION SHALL BE LIMITED TO BETWEEN THE HOURS OF 7:00 A.M. AND 7:00 P.M. MONDAY THROUGH FRIDAY, AND BETWEEN 8:00 A.M. AND 5:00 P.M. ON SATURDAYS.

- NO HEAVY EQUIPMENT RELATED CONSTRUCTION ACTIVITIES SHALL BE ALLOWED ON SUNDAYS OR HOLIDAYS.

ALL STATIONARY AND OTHER CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED IN GOOD WORKING ORDER AND FITTED WITH FACTORY APPROVED MUFFLER SYSTEMS.

TCR-1 CONTACT TRIBAL REPRESENTATIVE: IF ANY SUSPECTED TRIBAL CULTURAL RESOURCES (TCRS) ARE DISCOVERED DURING GROUND DISTURBING CONSTRUCTION ACTIVITIES, ALL WORK SHALL CEASE WITHIN 100 FEET OF THE FIND, OR AN AGREED UPON DISTANCE BASED ON THE PROJECT AREA AND NATURE OF THE FIND. A TRIBAL REPRESENTATIVE FROM A CALIFORNIA NATIVE AMERICAN TRIBE THAT IS TRADITIONALLY AND CULTURALLY AFFILIATED WITH A GEOGRAPHIC AREA SHALL BE IMMEDIATELY NOTIFIED AND SHALL DETERMINE IF THE FIND IS A TCR (PRC SECTION 21074). THE TRIBAL REPRESENTATIVE WILL MAKE RECOMMENDATIONS FOR FURTHER EVALUATION AND TREATMENT, AS NECESSARY.

PRESERVATION IN PLACE IS THE PREFERRED ALTERNATIVE UNDER CEQA AND UNITED AUBURN INDIAN COMMUNITY OF THE AUBURN RANCHERIA PROTOCOLS, AND EVERY EFFORT MUST BE MADE TO PRESERVE THE RESOURCES IN PLACE, INCLUDING THROUGH PROJECT REDESIGN. CULTURALLY APPROPRIATE TREATMENT MAY BE, BUT IS NOT LIMITED TO, PROCESSING MATERIALS FOR REBURIAL, MINIMIZING HANDLING OF CULTURAL OBJECTS, LEAVING OBJECTS IN PLACE WITHIN THE LANDSCAPE, RETURNING OBJECTS TO A LOCATION WITHIN THE PROJECT AREA WHERE THEY WILL NOT BE SUBJECT TO FUTURE IMPACTS. THE TRIBE DOES NOT CONSIDER CURATION OF TCR'S TO BE APPROPRIATE OR RESPECTFUL AND REQUEST THAT MATERIALS NOT BE PERMANENTLY CURATED, UNLESS APPROVED BY THE TRIBE.

THE CONTRACTOR SHALL IMPLEMENT ANY MEASURES DEEMED BY THE CEQA LEAD AGENCY TO BE NECESSARY AND FEASIBLE TO PRESERVE IN PLACE, AVOID, OR MINIMIZE IMPACTS TO THE RESOURCE, INCLUDING, BUT NOT LIMITED TO, FACILITATING THE APPROPRIATE TRIBAL TREATMENT OF THE FIND, AS NECESSARY. TREATMENT THAT PRESERVES OR RESTORES THE CULTURAL CHARACTER AND INTEGRITY OF A TRIBAL CULTURAL RESOURCE MAY INCLUDE TRIBAL MONITORING, CULTURALLY APPROPRIATE RECOVERY OF CULTURAL OBJECTS, AND REBURIAL OF CULTURAL OBJECTS OR CULTURAL SOIL.

WORK AT THE DISCOVERY LOCATION CANNOT RESUME UNTIL ALL NECESSARY INVESTIGATION AND EVALUATION OF THE DISCOVERY UNDER THE REQUIREMENTS OF THE CEQA, INCLUDING AB 52, HAS BEEN SATISFIED.

REVISION /ISSUE	BY

NOTES

OLD DEPOT
BIKE PARK

EL DORADO COUNTY

LANDSCAPE ARCHITECT
OF RECORD

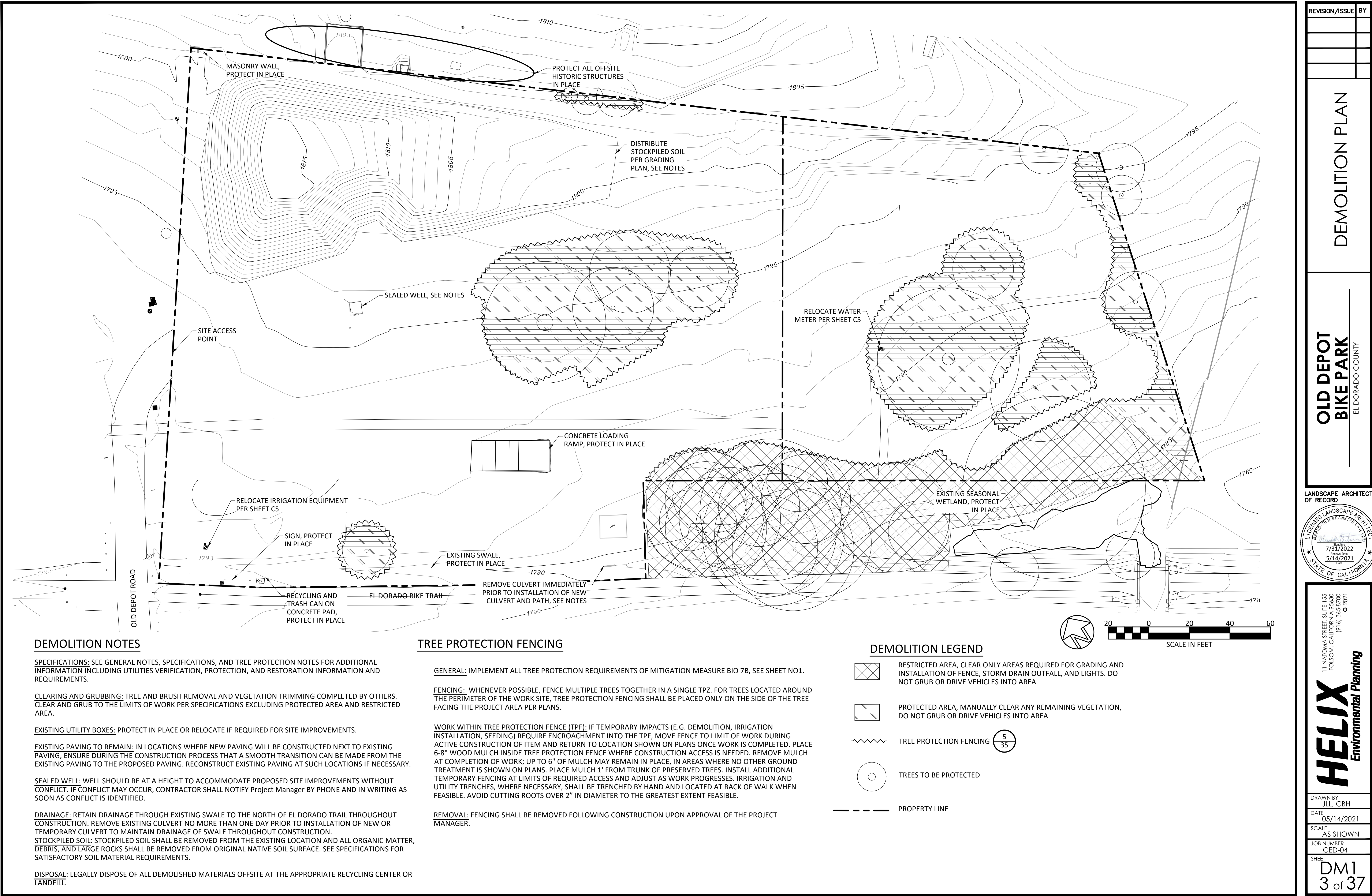


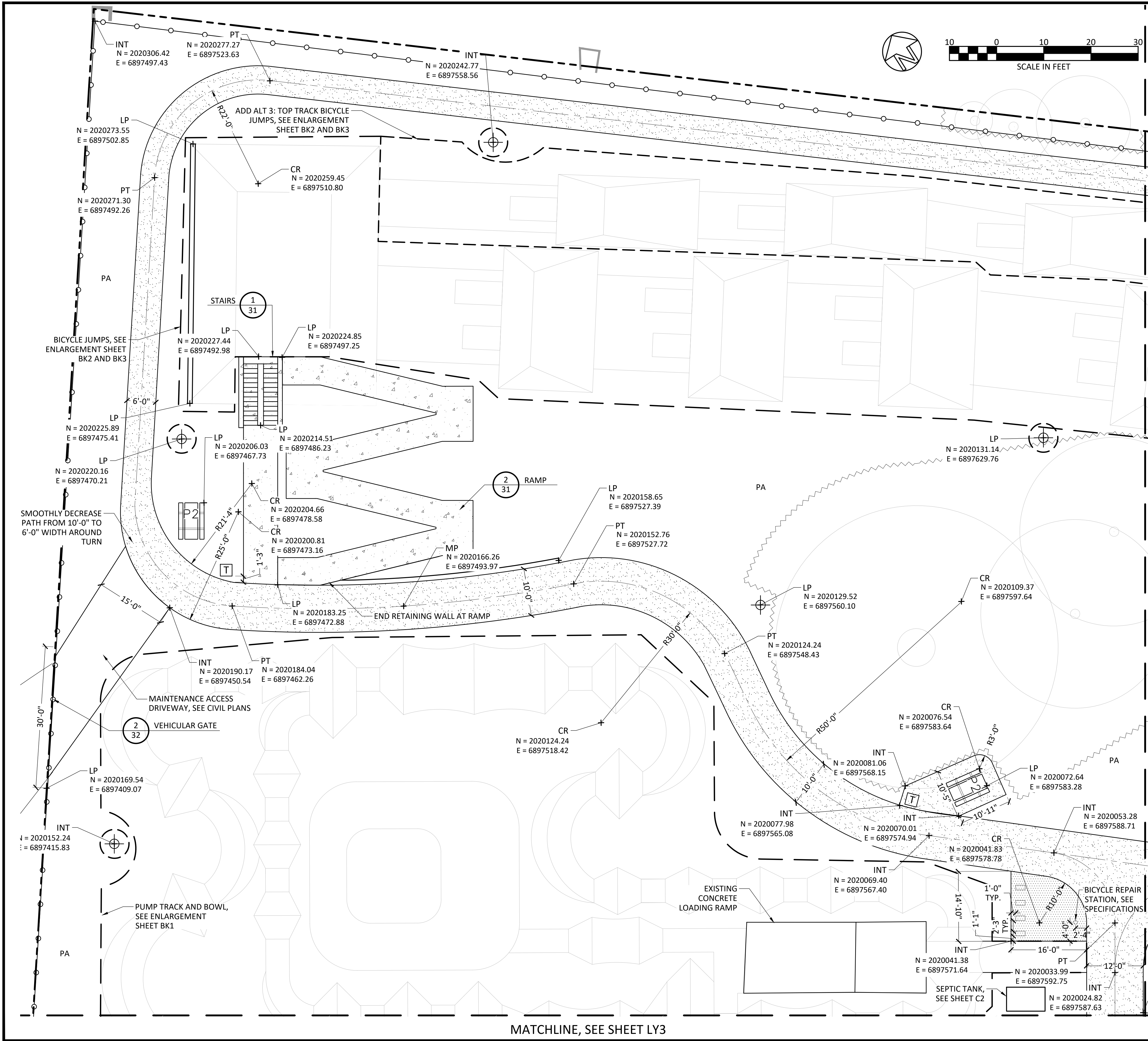
11 NATOMA STREET, SUITE 135
FOLSOM, CALIFORNIA 95630
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HELIX
Environmental Planning

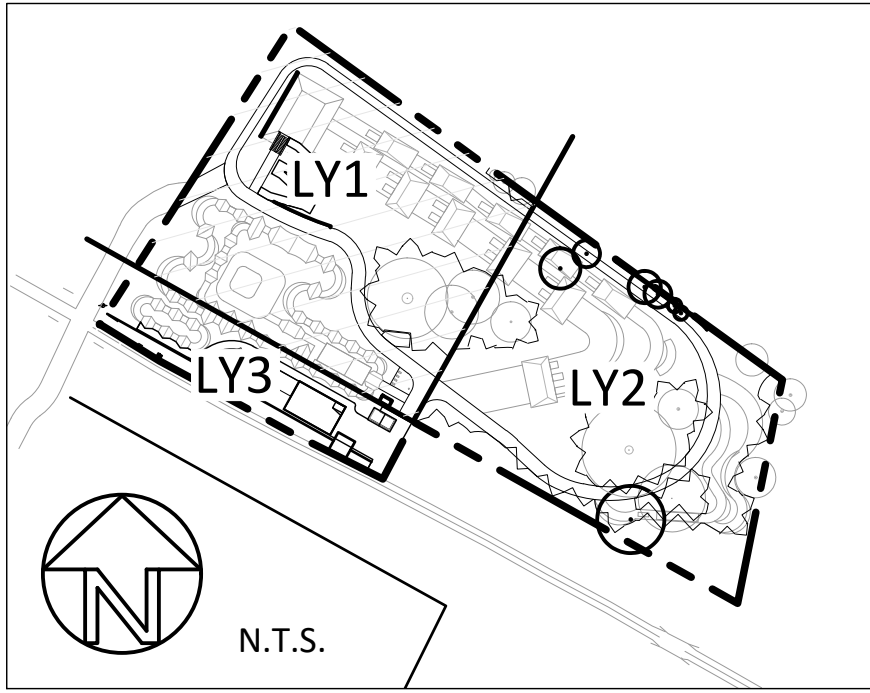
DRAWN BY	JLL, CBH
DATE	05/14/2021
SCALE	AS SHOWN
JOB NUMBER	CED-04
SHEET	

NO1
2 of 37





KEYMAP



LAYOUT LEGEND

- PT N = 14417.41 E = 35655.27 COORDINATE POINT
- CR CENTER OF RADIUS
- INT POINT OF INTERSECTION
- LP LOCATION POINT
- MP MIDPOINT
- PA PLANTING AREA
- PT POINT OF TANGENCY
- CENTER LINE
- ENLARGEMENT
- CHAINLINK FENCE
- TREE PROTECTION FENCE
- PROPERTY LINE
- PUMP TRACK ASPHALT, PER SHEET C3
- CONCRETE
- CRUSHED GRAVEL
- 92" PICNIC TABLE, ALIGN WITH EDGE OF PAD, SEE SPECIFICATIONS
- DISPOSAL RECEPTACLE, ALIGN WITH EDGE OF PAVING, SEE SPECIFICATIONS
- BIKE RACK, ALIGN WITH EDGE OF PAVING, SEE SPECIFICATIONS
- LIGHT POST, SEE ELECTRICAL ENGINEER'S PLANS
- ADD ALT 4: LIGHT POST, SEE ELECTRICAL ENGINEER'S PLANS

* SEE LY3 FOR CONSTRUCTION NOTES

REVISION/ISSUE	BY

LAYOUT PLAN

OLD DEPOT BIKE PARK
EL DORADO COUNTY

LANDSCAPE ARCHITECT
OF RECORD

LICENSED LANDSCAPE ARCHITECT
JEREMY BRANSTADT
7/31/2022
5/14/2021
STATE OF CALIFORNIA

11 NATOMA STREET, SUITE 135
FOLSOM, CALIFORNIA 95630
(916) 365-8700
© 2021

HELIX
Environmental Planning

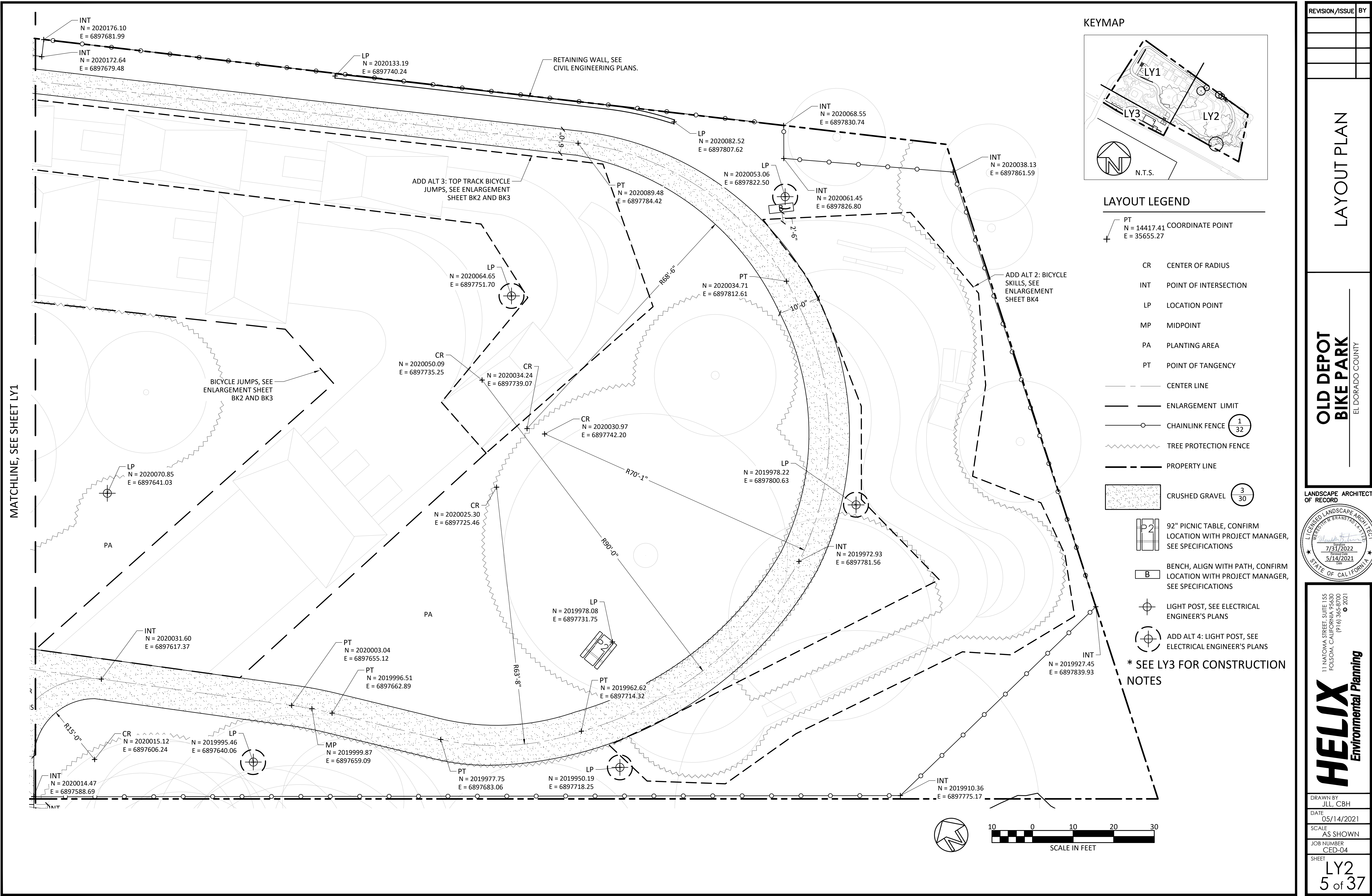
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JLL, CBH

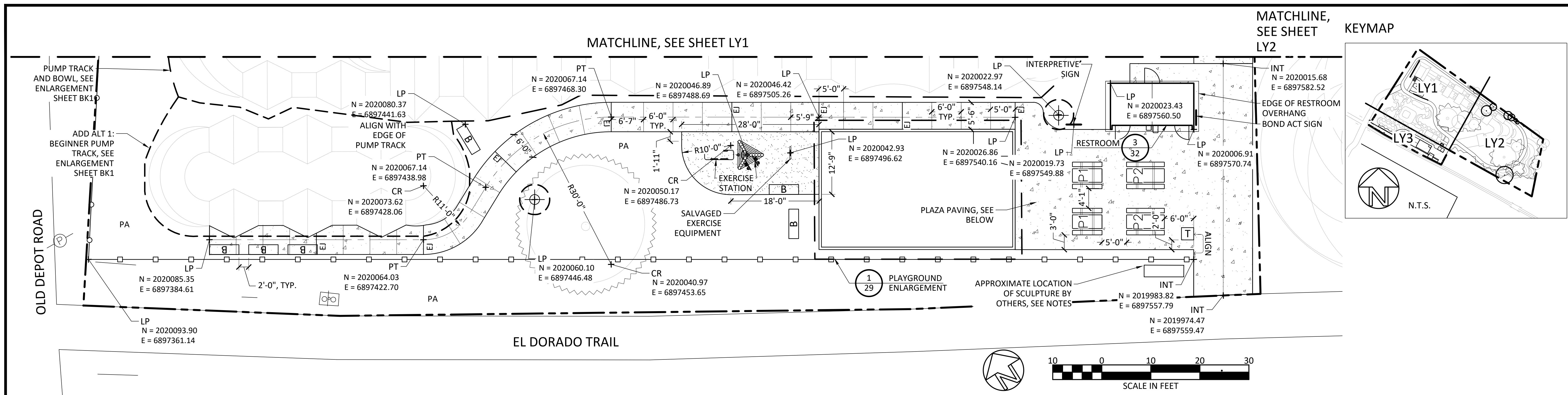
DATE
05/14/2021

SCALE
AS SHOWN

JOB NUMBER
CED-04

SHEET
LY1
4 of 37





CONSTRUCTION NOTES

DIMENSIONS: ALL WRITTEN DIMENSIONS SUPERSEDE SCALED DIMENSIONS.

EXPANSION JOINTS: CONTRACTOR SHALL INSTALL EXPANSION JOINTS AS SHOWN ON DRAWINGS, AS WELL AS BETWEEN CONCRETE PAVING, WALLS, CURBS, EXISTING PAVING, AND STRUCTURES.

SOIL COMPACTION: COMPACT ALL PLANTING AREAS TO 85% R.D. IN LIFTS OF 12 INCH MAXIMUM. COMPACT ALL OTHER AREAS TO 95% R.D. IN LIFTS OF 12 INCH MAXIMUM OR AS REQUIRED IN PLANS OR SPECIFICATIONS.

GRADING: PROVIDE POSITIVE DRAINAGE THROUGHOUT ALL PAVING AND PLANTING AREAS. CONTRACTOR SHALL FLOOD PAVED AREAS UPON COMPLETION AND RECONSTRUCT ANY LOW SPOTS BY REMOVING PAVING THAT DOES NOT DRAIN AND REPLACING IT WITH POSITIVELY DRAINING PAVING AT NO ADDITIONAL COST AS DIRECTED BY THE OWNER.

SCULPTURE: CONTRACTOR SHALL INSTALL FOOTINGS, FOUNDATIONS, PAVING, AND ANCHOR MATERIALS AS REQUIRED FOR SCULPTURE. SCULPTURE DESIGN, FABRICATION, AND INSTALLATION BY OTHERS. SEE SPECIFICATIONS FOR FOR MORE INFORMATION.

SIGNS: SEE SPECIFICATIONS FOR MORE INFORMATION REGARDING INTERPRETIVE SIGN AND BOND ACT SIGN.

LAYOUT LEGEND

CR CENTER OF RADIUS

CENTER LINE

CONCRETE FENCE

TREE PROTECTION FENCE

PROPERTY LINE

①

CONCRETE (30)

CROSSED DRIVE

6' PICNIC TABLE, ALIGN WITH EDGE OF PAVING,
SEE SPECIFICATIONS

92" PICNIC TABLE ALIGN WITH EDGE OF PAVING

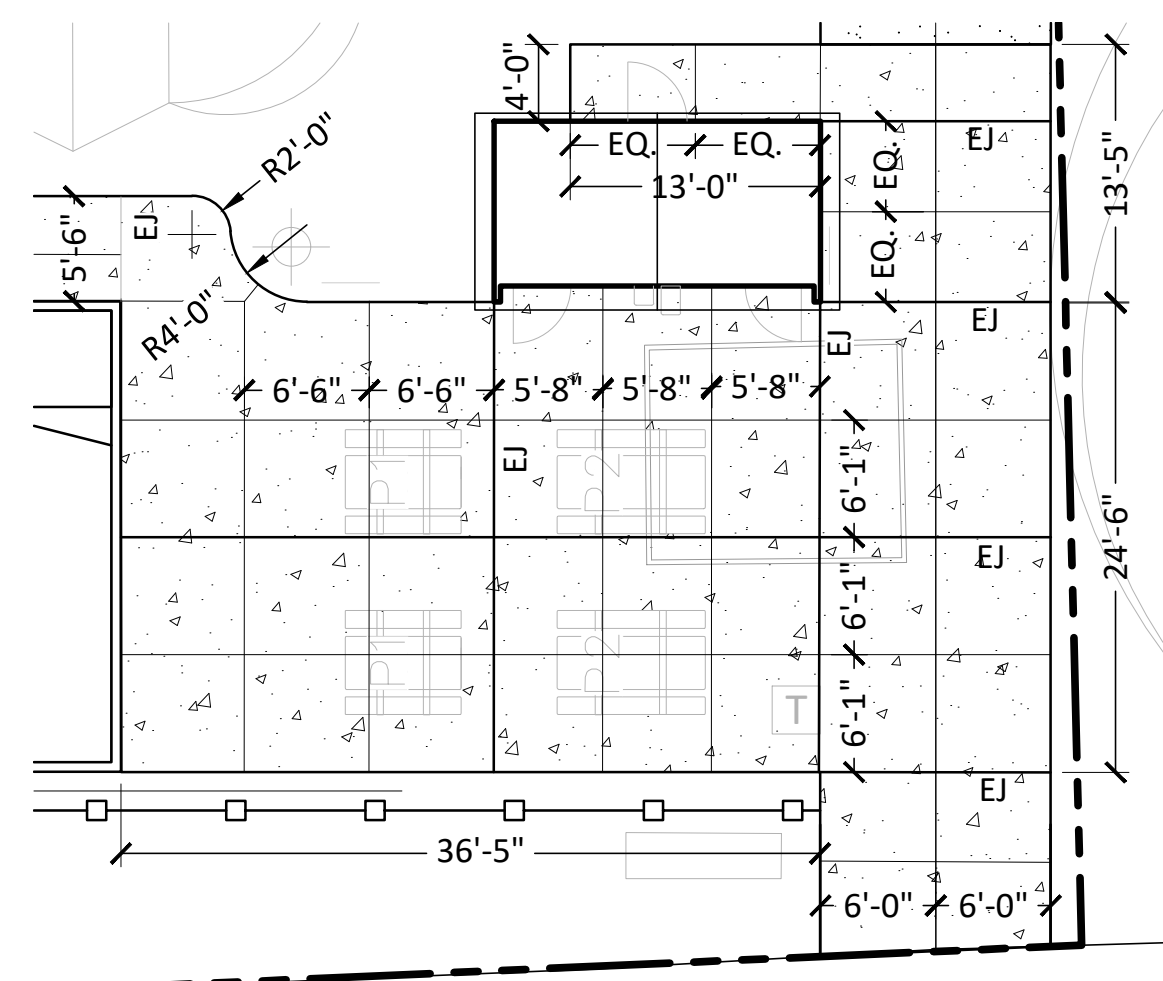
SEE SPECIFICATIO

BENCH. ALIGN WITH EDGE OF PAVING. SEE

SPECIFICATIONS

DISPOSAL RECEPTACLE, ALIGN WITH EDGE OF
PAVING, SEE SPECIFICATIONS

ADD ALT 4: LIGHT POST, SEE ELECTRICAL



PLAZA PAVING PLAN

**OLD DEPOT
BIKE PARK**

EL DORADO COUNTY

LANDSCAPE ARCHITECT
OF RECORD

11 NATOMA STREET, SUITE 155
FOLSOM, CALIFORNIA 95630
(916) 365-8700 © 2021

HELIX

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DATE

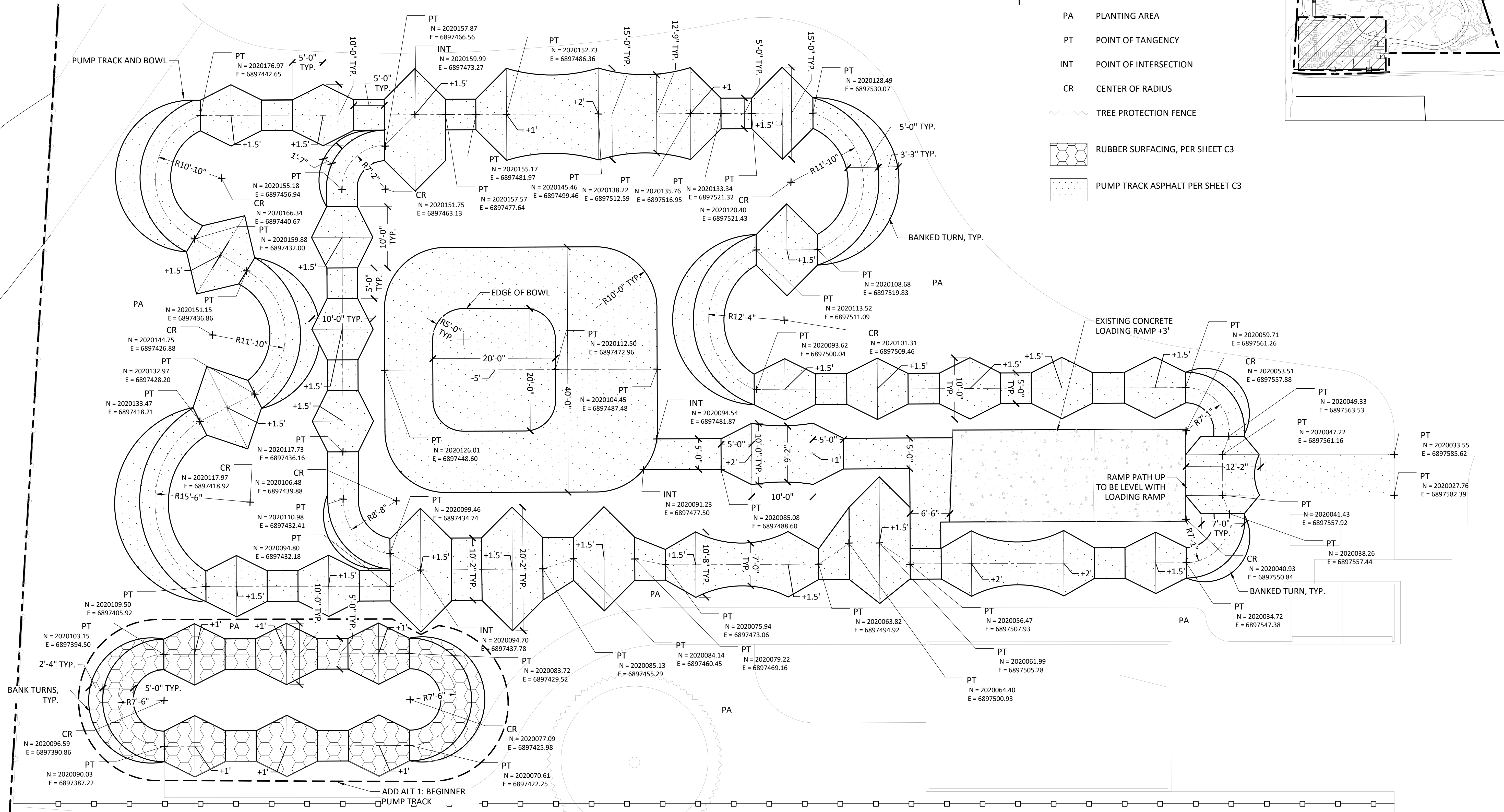
05/14/20

SCALE
AS SHOWN

JOB NUMBER
CED-04

SHEET 130

LY3
6 of 37



LAYOUT LEGEND

PT N 14417.41
E 35655.27

COORDINATE POINT

PA PLANTING AREA

PT POINT OF TANGENCY

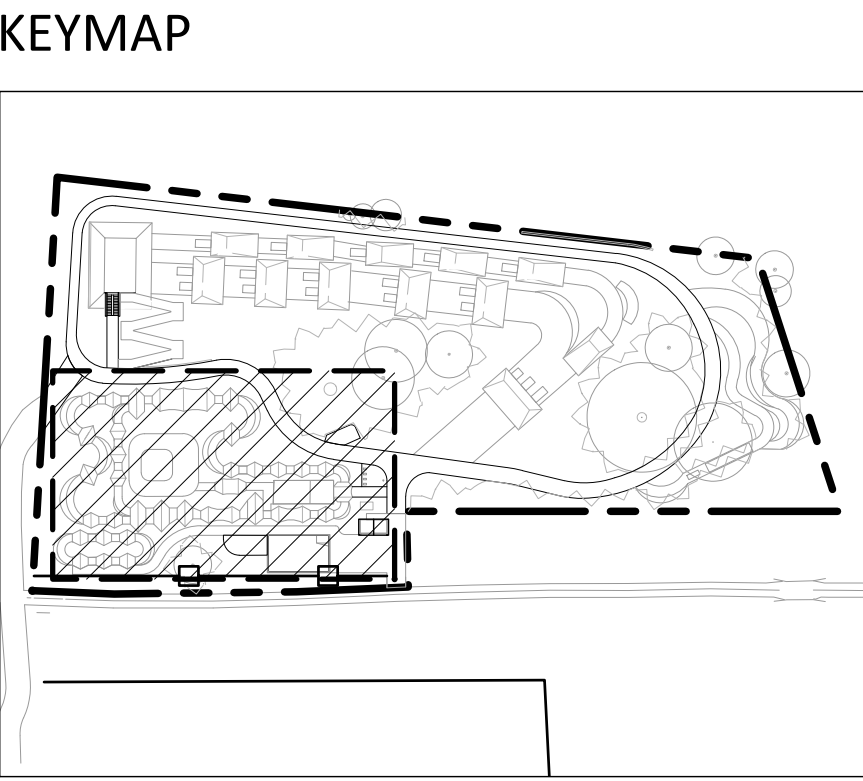
INT POINT OF INTERSECTION

CR CENTER OF RADIUS

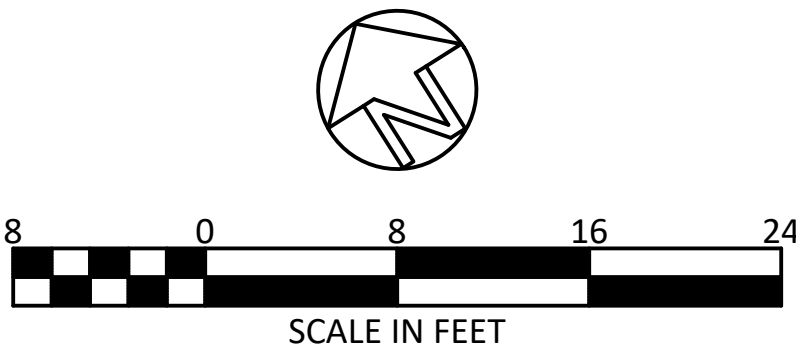
TREE PROTECTION FENCE

RUBBER SURFACING, PER SHEET C3

PUMP TRACK ASPHALT PER SHEET C3



- NOTES**
1. ALL SPOT ELEVATIONS ARE RELATIVE TO FINISH GRADE SHOWN ON C5.
 2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING ANY PROPOSED DESIGN CHANGES FOR APPROVAL PRIOR TO CONSTRUCTION OF PUMP TRACK AND BOWL AND BEGINNER PUMP TRACK. IF NO DESIGN CHANGES ARE REQUESTED, SHOP DRAWINGS ARE NOT REQUIRED.



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PUMP TRACK ENLARGEMENT

OLD DEPOT BIKE PARK
EL DORADO COUNTY

ACTION SPORTS CONSTRUCTION

DRAWN BY
JLL

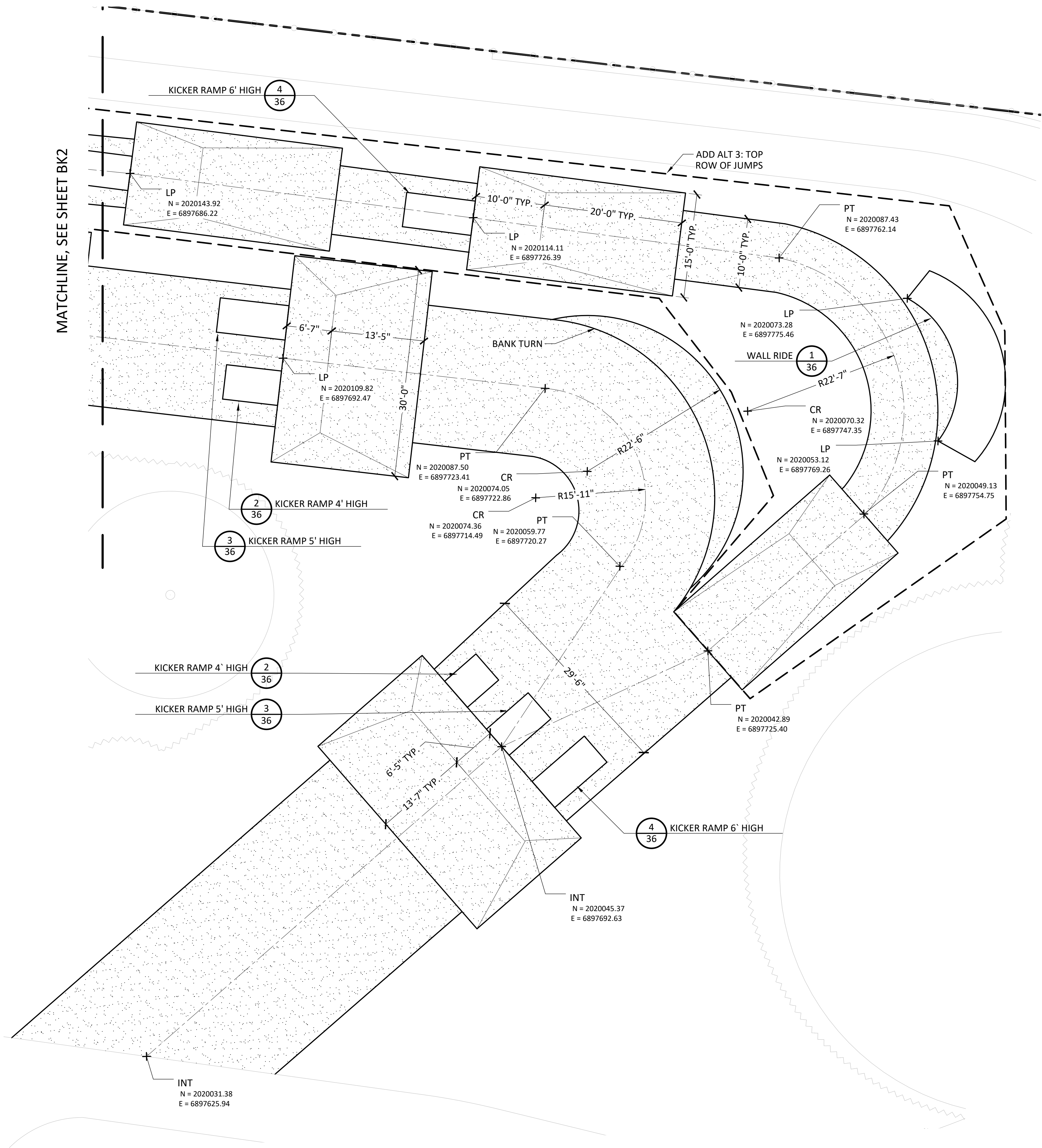
DATE
5/14/2020

SCALE
AS SHOWN

JOB NUMBER
CED-04

SHEET
BK1
7 of 37

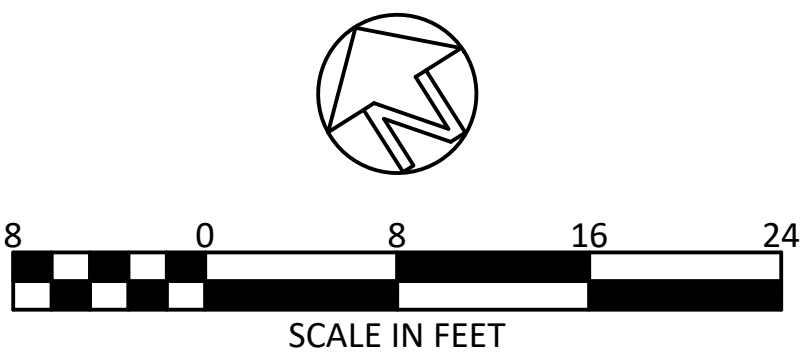
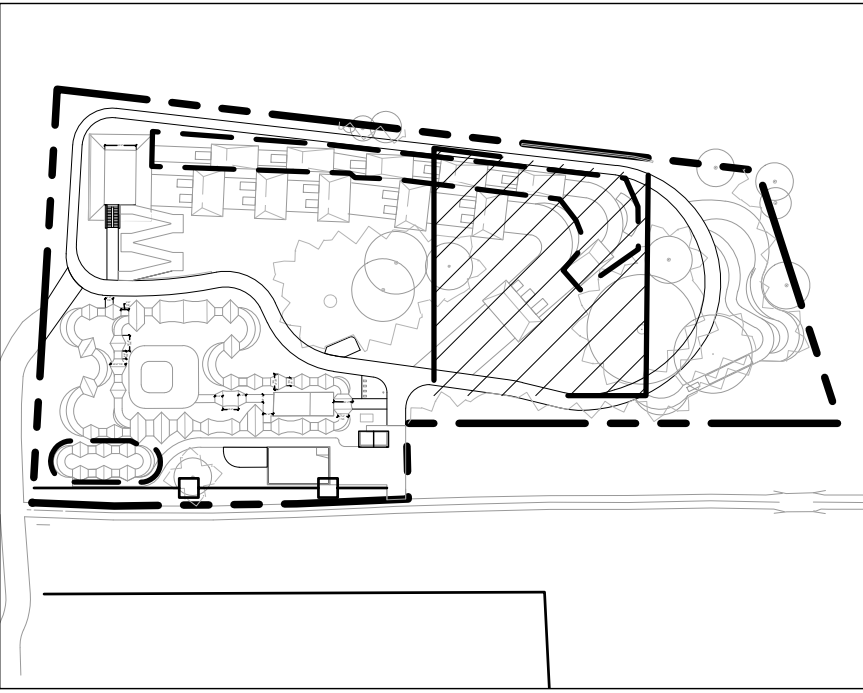
MATCHLINE, SEE SHEET BK2



LAYOUT LEGEND

- PT N 14417.41 E 35655.27 COORDINATE POINT
- PA PLANTING AREA
- PB POINT OF BEGINNING
- PT POINT OF TANGENCY
- INT POINT OF INTERSECTION
- CR CENTER OF RADIUS
- TREE PROTECTION FENCE
- CRUSHED GRAVEL (3/30)
- SEE SHEET C5 FOR MASS GRADING, THIS SHEET FOR FINE GRADING

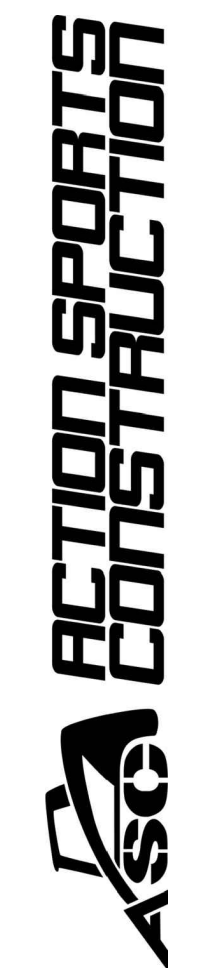
KEYMAP



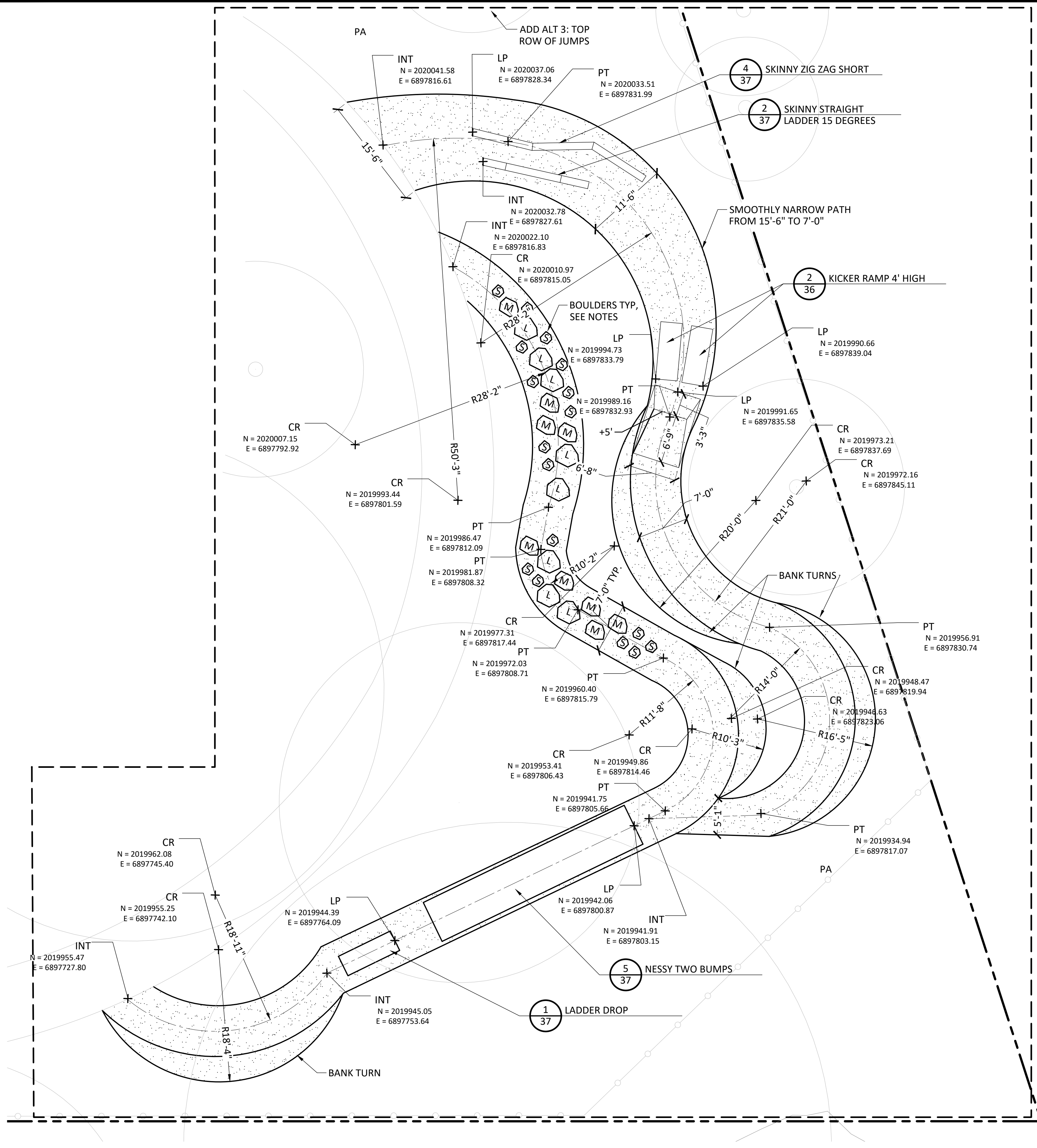
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JUMP TRACK ENLARGEMENT

OLD DEPOT BIKE PARK
EL DORADO COUNTY



DRAWN BY	JLL
DATE	5/14/2020
SCALE	AS SHOWN
JOB NUMBER	CED-04
SHEET	BK3 9 of 37



LAYOUT LEGEND

PT N 14417.41
E 35655.27

COORDINATE POINT

PA PLANTING AREA

PB POINT OF BEGINNING

PT POINT OF TANGENCY

INT POINT OF INTERSECTION

CR CENTER OF RADIUS

~~~~~ TREE PROTECTION FENCE

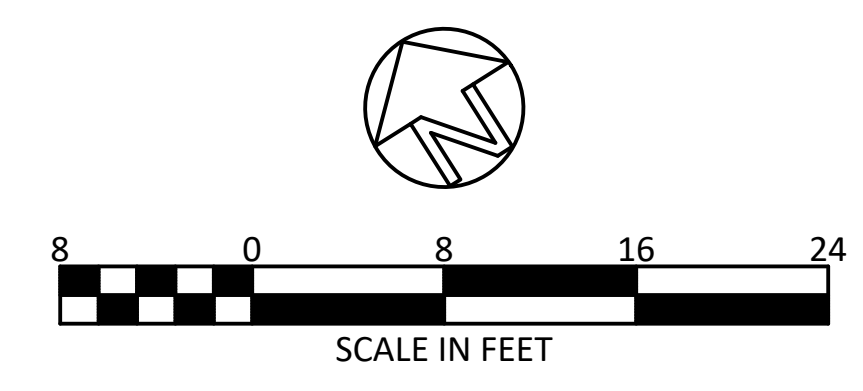
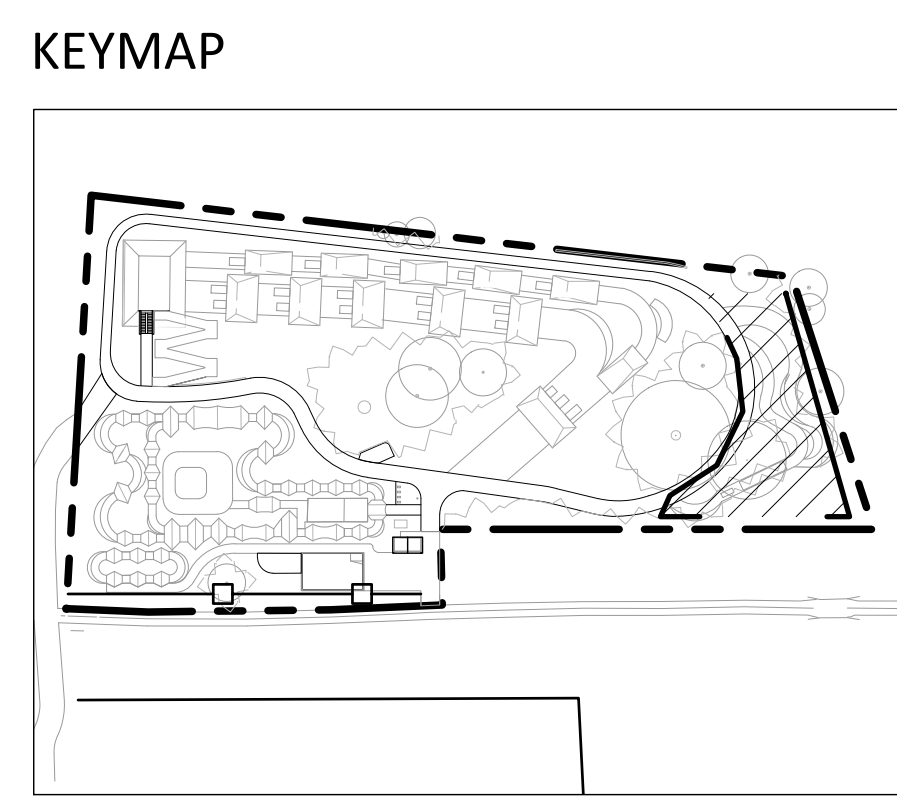
CRUSHED GRAVEL  $\frac{3}{30}$

L LARGE BOULDER, FOR BOULDERS SEE  $\frac{3}{37}$

M MEDIUM BOULDER

S SMALL BOULDER

SEE SHEET C5 FOR MASS GRADING,  
THIS SHEET FOR FINE GRADING



| REVISION/ISSUE | BY |
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**SKILLS TRACK  
ENLARGEMENT**

**OLD DEPOT  
BIKE PARK**  
EL DORADO COUNTY

**ACTION SPORTS  
CONSTRUCTION**

DRAWN BY  
JLL

DATE  
5/14/2020

SCALE  
AS SHOWN

JOB NUMBER  
CED-04

SHEET  
BK4  
10 of 37



NOTICE TO CONTRACTORS  
CONTRACTOR TO NOTIFY U.S.A. (UNDERGROUND SERVICE ALERT) AT 800-227-2600 A MINIMUM OF 24 HOURS BEFORE BEGINNING UNDERGROUND WORK FOR VERIFICATION OF THE LOCATION OF EXISTING UNDERGROUND UTILITIES.



DIAL TOLL FREE  
1-800-227-2600  
AT LEAST TWO DAYS  
BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA

EARTHWORK VOLUMES

CUT: 3000 CY  
FILL: 3000 CY

BALANCE: 00 CY 00

NOTES:  
ALL QUANTITIES ARE ESTIMATES ONLY.  
CONTRACTOR IS RESPONSIBLE FOR PROVIDING  
INDEPENDENT ESTIMATE.

EARTHWORK QUANTITIES SHOWN ARE ESTIMATES ONLY AND MAY OR MAY NOT REPRESENT ACTUAL QUANTITIES ENCOUNTERED DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM EARTHWORK QUANTITIES PRIOR TO CONSTRUCTION.

UTILITY DISCLOSURE NOTE:

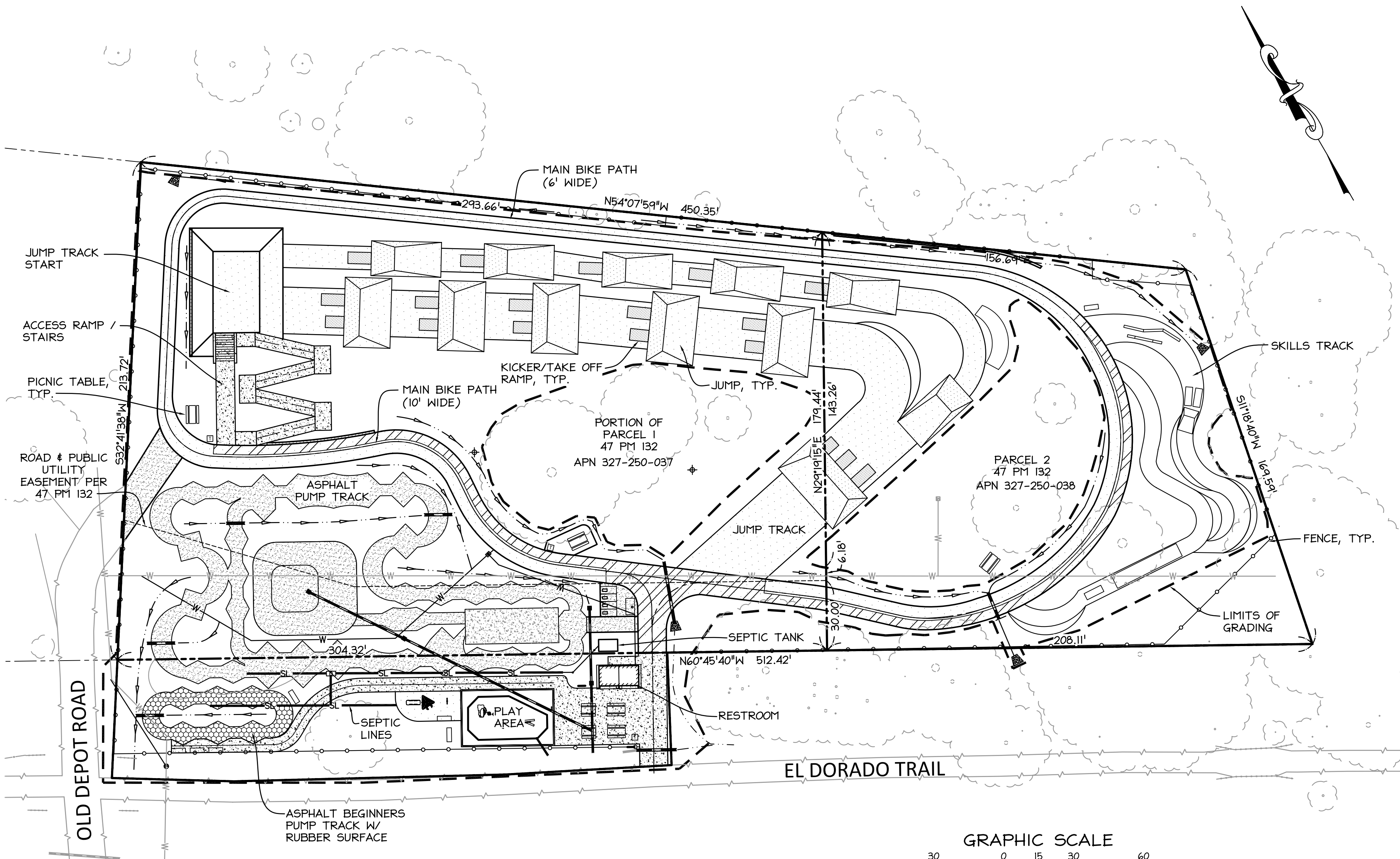
THE LOCATION, DISPOSITION, AND EXISTENCE OF ALL UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND INTENDED AS A SCHEMATIC REPRESENTATION ONLY. THE CONTRACTOR IS WARNED THAT THESE PLANS MAY NOT BE A COMPLETE INVENTORY OF ALL EXISTING UTILITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT ACTUAL LOCATIONS AND DEPTHS OF ALL EFFECTED UTILITIES PRIOR TO CONSTRUCTION.

SQUARE FOOTAGE

|                                |             |
|--------------------------------|-------------|
| ASPHALT CONCRETE (AC)          | 2800± SQFT  |
| AGGREGATE BASE (AB)            | 20000± SQFT |
| PERMEABLE PAVEMENT (PP)        | 6500± SQFT  |
| PORTLAND CEMENT CONCRETE (PCC) | 2800± SQFT  |

NOTE

FOR ADD ALTERNATIVES, SEE SHEET LY1



BASIS OF BEARING

THE BASIS OF BEARING IS THE CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE 11 (EPOCH 2010.00) AS DETERMINED LOCALLY BY GPS SURVEY MEASUREMENTS AND LEAST SQUARES ADJUSTMENT.

DATUM

NAVD83

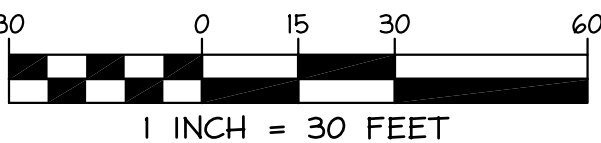
LEGEND

| LINETYPE | DESCRIPTION                         |
|----------|-------------------------------------|
| ---      | PROPERTY LINE (SUBJECT)             |
| - - -    | PROPERTY LINE (ADJACENT)            |
| - . - .  | EASEMENTS                           |
| - - - -  | BUILDING SETBACKS (AS NOTED)        |
| ---      | CENTERLINE                          |
| ---      | LIMITS OF GRADING                   |
| ---      | CONCRETE PAVING                     |
| ---      | CRUSHED GRAVEL PATH                 |
| ---      | CRUSHED GRAVEL PATH (ADA COMPLIANT) |
| ---      | RUBBER SURFACE                      |
| ---      | PUMP TRACK ASPHALT                  |

SITE PLAN

SCALE: 1"=30'

GRAPHIC SCALE



UTILITY CONTACTS

|                |                                                                                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------|
| GAS:           | PG&E<br>4636 MISSOURI FLAT ROAD<br>PLACERVILLE CA, 95667<br>(800) 743-5000                                                      |
| ELEC:          | PG&E<br>4636 MISSOURI FLAT ROAD<br>PLACERVILLE CA, 95667<br>(800) 743-5000                                                      |
| TELE:          | AT&T<br>3675 T STREET, ROOM 205, POB 15038<br>SACRAMENTO, CA 95851<br>(530) 888-2041                                            |
| WATER:         | EL DORADO IRRIGATION DISTRICT<br>2840 MOSQUITO ROAD<br>PLACERVILLE, CA 95667<br>(530) 622-4513                                  |
| FIRE:          | DIAMOND SPRINGS - EL DORADO FIRE PROTECTION DISTRICT<br>501 PLEASANT VALLEY ROAD<br>DIAMOND SPRINGS, CA 95619<br>(916) 652-6813 |
| FLOOD CONTROL: | EL DORADO COUNTY ENGINEERING<br>2850 FAIRLANE COURT<br>PLACERVILLE, CA 95667<br>(530) 621-5900                                  |

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SITE PLAN

OLD DEPOT  
BIKE PARK

EL DORADO COUNTY

CIVIL ENGINEER OF  
RECORD



**GK Giuliani & Kull Auburn, Inc.**  
Engineers • Planners • Surveyors  
Post Box 786, Auburn, CA 95604  
(530) 885-5107 Fax (530) 885-5157  
Auburn • San Jose • Oakdale • Sacramento

|            |            |
|------------|------------|
| DRAWN BY   | GK         |
| DATE       | 05/14/2021 |
| SCALE      | 1"=20'     |
| JOB NUMBER | CED-04     |
| SHEET      | C1         |

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Standard General Notes - Roadwork, Grading and Drainage

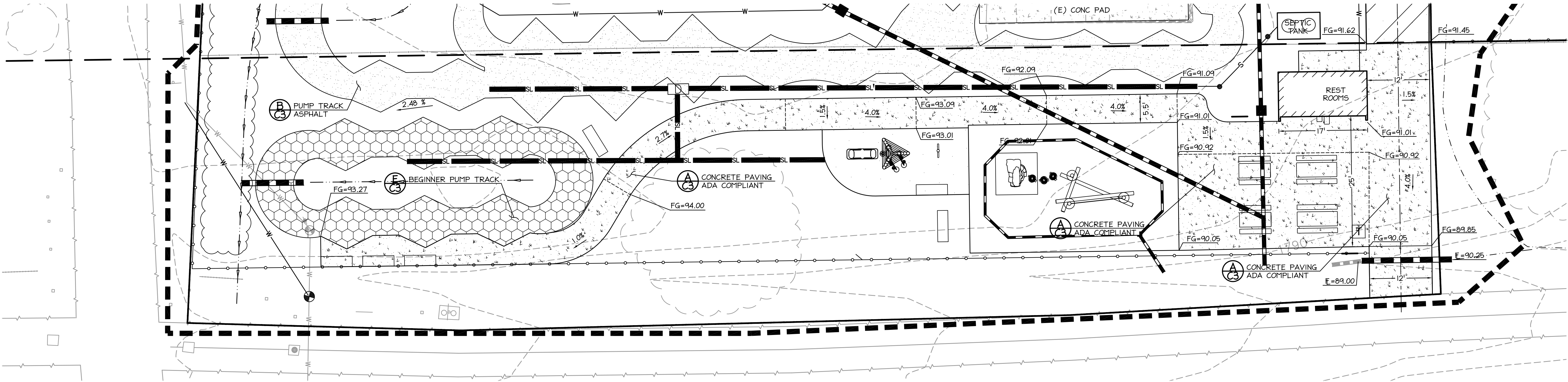
1. Materials, construction quality, and methods for this project are subject to the County of El Dorado Design and Improvement Standards Manual Standard Plans, and the State of California Department of Transportation Standard Plans and Standard Specifications.
2. All work shall be accomplished to the satisfaction of the Director, County of El Dorado Department of Transportation or his authorized representative.
3. All reference to DOT shall mean the Director, County of El Dorado Department of Transportation, or his authorized representative.
4. All reference to the Standard Specifications shall mean the State of California Department of Transportation Standard Specifications dated July 2006
5. The Contractor shall have a responsible party, who shall have full authority to represent and act for the Contractor on site at all times during working hours.
6. The Contractor shall notify DOT 48 hours in advance of commencing work to schedule a pre-construction conference and inspection with the Engineer and DOT. No work shall begin until after the pre-construction conference and inspection have been completed.
7. The Contractor's attention is directed to section 7, "Legal Relations and Responsibility" of the Standard Specifications.
8. Rights to enter and construct shall be obtained prior to constructing any off-site work shown in these plans. Copies of such documents shall be kept on-site at all times during the performance of off-site work.
9. The Contractor shall contact Underground Service Alert (USA) 1-800-227-2600 prior to performing any excavation on the project site. The owner(s) of identified existing underground facilities shall also be contacted prior to construction.
10. The contractor shall not construct any work without adequate construction staking. As a minimum, the following staking shall be required: 1) clearing limits, 2) slope stakes, 3) water line stakes, 4) sewer line stakes, 5) storm drain stakes, 6) finished grade stakes. Additional staking may be required by DOT due to the nature and/or complexity of the work. Lost or damaged stakes shall be replaced to the satisfaction of DOT whether resulting from construction procedures, vandalism, or any other cause.
11. The Contractor's attention is directed to County of El Dorado Resolution No. 19991, which contains specific requirements for the protection and preservation of oak trees and wetlands. The Contractor shall remove only those trees shown on the plans to be removed. The Contractor shall install protective fencing at the drip line of all remaining trees within 50 feet of any grading, and otherwise comply with the provisions of said ordinance.
12. Construction hours shall be limited from Monday through Saturday, 7:00 a.m. to 7:00 p.m. (Or sunset), unless otherwise specified by separate agreement (Subdivision Grading Agreement, Subdivision Improvement Agreement, Road Improvement Agreement, etc.). All heavy equipment and any internal combustion engines shall be fitted with adequate mufflers.
13. The Contractor shall provide, place and maintain all lights, signs, delineators, barricades, temporary traffic striping, flagmen, detours or other devices necessary to provide for the safe and convenient passage of public vehicle and pedestrian traffic through the construction site.
14. The Contractor shall obtain the express written consent of DOT prior to implementing any lane closure or detour on a County maintained street or highway. All lane closures or detours shall conform to Chapter 5, "Traffic Controls for Construction and Maintenance Work Zones" of the State of California Department of Transportation Traffic Manual (latest edition).
15. The Contractor shall be responsible for Dust Control during construction. At least one water truck shall be on site at all times. Additional equipment may be required as determined by DOT.
16. The Contractor shall obtain an approved fugitive dust control plan, including provisions for asbestos hazard mitigation, if required, from the County of El Dorado Environmental Management Department prior to beginning of work.
17. If unusual amounts of stone, bone, or artifacts are uncovered during construction, all work shall be stopped within one hundred feet (100') of the find, and a qualified archaeologist consulted for an on-site evaluation.
18. If the presence of serpentine rock (SaF) is discovered during construction, the Contractor shall immediately notify the Owner, DOT and the El Dorado County Department of Environmental Management that serpentine rock is present on the site. Additionally, the Contractor shall implement the Asbestos Hazard Mitigation Provisions of the Fugitive Dust Plan prior to continuation of earthwork in areas where serpentine rock is present.
19. Upon job completion, it shall be the responsibility of the contractor to provide information to \_\_\_\_\_ (Engineer), regarding any material changes made during construction as well as any other information required to be shown on the Record Drawings by DOT, the El Dorado Irrigation District (EID), other utility companies, or other responsible agencies.
20. Clearing and Grubbing shall conform to the provisions of section 16, "Clearing and Grubbing" of the Standard Specifications. Roots, stumps, trees, rocks or other deleterious substances shall be disposed of off-site and in a lawful manner.

Standard General Notes - Roadwork, Grading and Drainage

21. Earthwork shall conform to the provisions of Section 19, "Earthwork" of the Standard Specifications. Widening of embankments and flattening of slopes, which result in an increased area of grading, will not be permitted without express written approval of Project Manager.
22. Aggregate Base shall conform to the provisions of section 26, "Aggregate Base" of the Standard Specifications for Class 2 Aggregate Base, 3/4" maximum gradation. Aggregate base shall not be placed until the prior grading plane has been approved by Project Manager.
23. Asphalt Concrete shall conform to the provisions of section 39, "Asphalt Concrete" of the Standard Specifications for Type B Asphalt Concrete. Asphalt binder shall be Performance Grade 64-16. Aggregate for the top lift shall be 1/2" maximum, medium gradation. Aggregate for lower lifts shall be 3/4" maximum, medium gradation. Lift thickness shall conform to the provisions of section 39-6, "Spreading and Compaction" of the Standard Specifications. Asphalt concrete shall not be placed until the prior grading plane has been approved by DOT, and all utilities within the paved area have been placed, tested, and approved.
24. After acceptance of the final lift of asphalt concrete, and prior to the end of the warranty period, all roadways shall be fog sealed in accordance with Section 37-1, "Seal Coats" of the Standard Specifications. Asphaltic Emulsion shall be Slow-Setting Type, Grade SS1, conforming to the requirements of Section 94, "Asphaltic Emulsions" of the Standard Specifications. All projects that have re-striping due to traffic staging or new lane lines shall be sealed with a Type III Slurry Seal after the existing striping is removed by grinding or sandblasting or shall be overlaid.
25. Subgrade - When asphalt concrete or asphalt concrete base is to be placed on the grading plane, the grading plane at any point shall not vary more than 0.05 foot above or below the grade established by the Engineer. When subbase or base material (other than asphalt concrete base) is to be placed on the grading plane, the grading plane at any point shall not vary more than 0.05 foot above the grade established by the Engineer.
26. Precast concrete structures shall conform to Section 70-1.02H "Precast Concrete Structures" of the Standard Specifications.
27. Where type B drop inlets exceed 5 feet in height, reinforcing steel shall be installed as shown on the plan detail. Reinforcing steel shall be #4 bars, installed in the vertical walls at 12" O.C. (both directions). 3" clearance shall be maintained from the outside face of the walls. Under no circumstances will type B drop inlets be allowed in excess of 8 feet in height.
28. Where any portion of the structure excavation for vertical concrete structures (manholes, inlets, vaults, etc.) is within the street, material used to backfill such structures shall conform to Section 19-3.06, "Structure Backfill" of the Standard Specifications. Compaction tests will be taken every 2-3 feet vertically. Where cast-in-place structures are placed against undisturbed native material, this requirement shall not apply.
29. All striping (centerline, edgelines, lanelines, channelizing lines, etc.) and all other pavement markings (limit lines, legends, crosswalk lines, arrows, legends, etc.) shall be thermoplastic, conforming to Caltrans Standard Specifications Section 84-2.
30. Before finalization of the project, the geotechnical engineer and the (Structural) design engineer, shall certify, respectively, that the walls on the plan were built in conformance with the respective geotechnical and structural recommendations for the project.
31. If blasting activities are to occur in conjunction with development, the developer shall ensure that such blasting activities are conducted in compliance with state and local regulations.
32. If burning activities are to occur during construction, the developer shall obtain the necessary burning permits from the California Department of Forestry and air pollution permits from the County prior to said burning activities.
33. Storm drains shall be televised when backfill reaches the point of 2 foot of compacted trench fill over the pipe. A copy of the videotape will be provided to the DOT inspector, and no paving over the pipe will be done without the inspector's authorization. Cost of televising will be included in the unit cost of construction.
34. Storm drains in public right-of-way, in irrevocable offers of dedications, or that are to be maintained by a zone of benefit (ZOB), service district (CSD), service area (CSA), or any other publicly administered agency will be of the following materials:
- Reinforced concrete pipe (RCP)
  - High density polyethylene pipe (HDPE), 48" maximum
  - Corrugated steel pipe, but only under the following circumstances:
    - 48" maximum
    - Non-erosive flow velocities
    - Aluminized
    - Nominal thickness for 50 year life (AASHTO Designation M196)
    - Polymerized asphalt (Sec. 66-1.03 Caltrans) or 4" reinforced concrete pad in bottom third
    - In non-corrosive soils (including backfill)
    - Steel plate or steel arch with concrete or "soft" bottom.
35. Street name signs shall be installed at every intersection.

Standard General Notes - Roadwork, Grading and Drainage

36. The contractor shall furnish and install Type F-2 markers at both ends of culverts. The culvert markers shall have a two inch wide black strip at the top of the marker. Above elevations 3,000 feet, the contractor shall furnish and install Type F markers with snow pole brackets on all dikes at 100 foot intervals and at both ends of culverts. Above elevation 3,000 feet, the contractor shall install metal marker posts with snow pole brackets near each fire hydrant.
37. Contractor shall not start any utility work until a joint trench composite plan has been approved by the Transportation Department (water and sewer excepted). All utility work performed in the County right of way shall require an encroachment permit.
38. Water and sewer lines shall be tested and approved prior to placing pavement on the street.
39. Omissions and errors on plans shall not be valid, and all codes and laws must be complied with by the Owner, Engineer and Contractor.
40. All new or reconstructed drainage inlets shall have a storm water quality message stamped into the concrete, conforming to Sacramento County Standard Drawing 11-10. All stamps shall be approved by the El Dorado County inspector prior to being used.
41. Import or export over 50 cubic yards to any off-site borrow or disposal site will require a separate grading permit for the off-site location.
42. In the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified pursuant to Section 7050.5 of the Health and Safety Code and Section 5097.98 of the Public Resources Code. If the remains are determined to be Native American, the Coroner must contact the Native American Heritage Commission within 24 hours. The treatment and disposition of human remains shall be completed consistent with guidelines of the Native American Heritage Commission.



GRADING DETAIL  
SCALE: 1"=10'

| REVISION /ISSUE | BY |
|-----------------|----|
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NOTES

**OLD DEPOT  
BIKE PARK**  
EL DORADO COUNTY

CIVIL ENGINEER OF  
RECORD

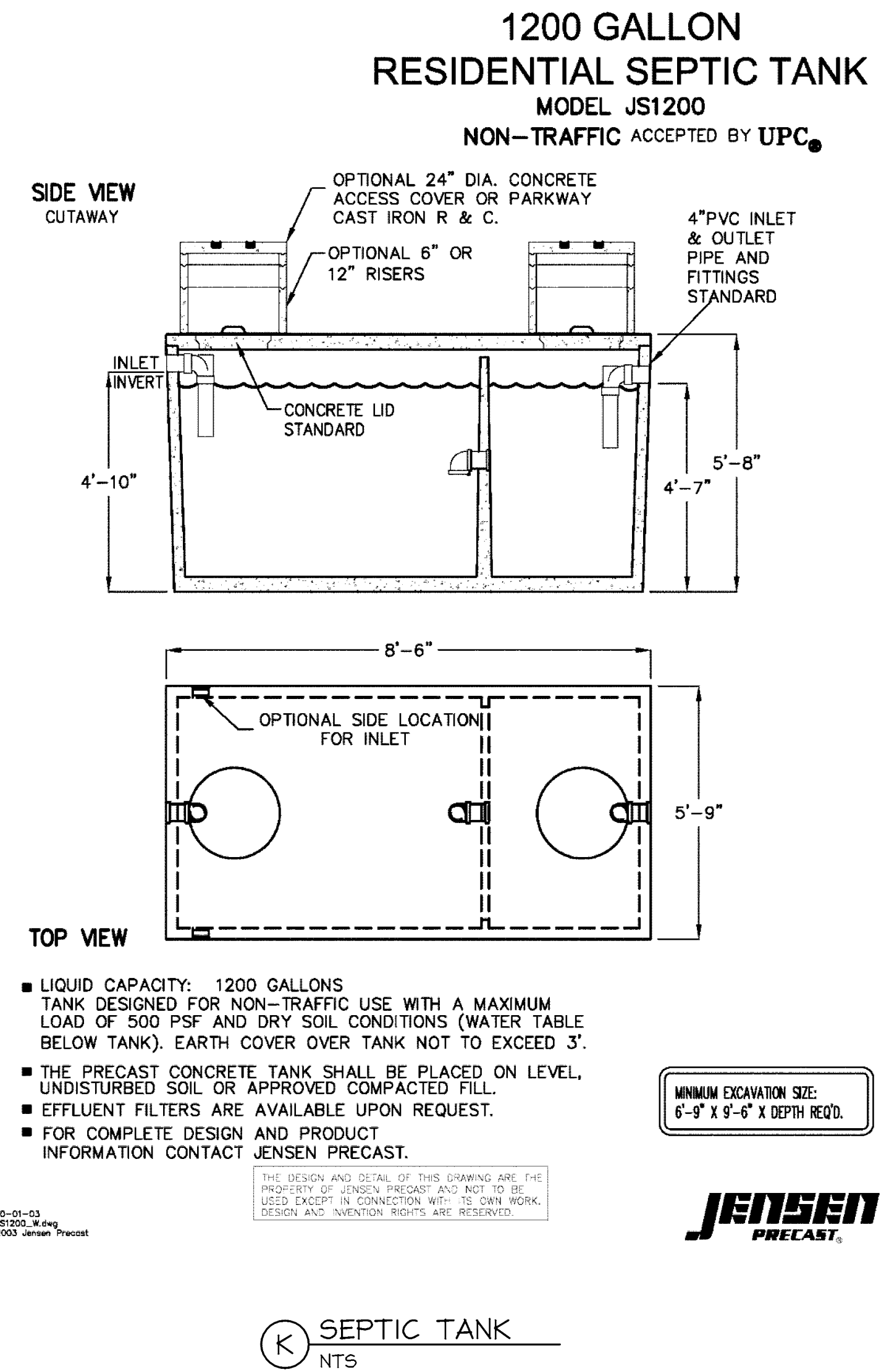
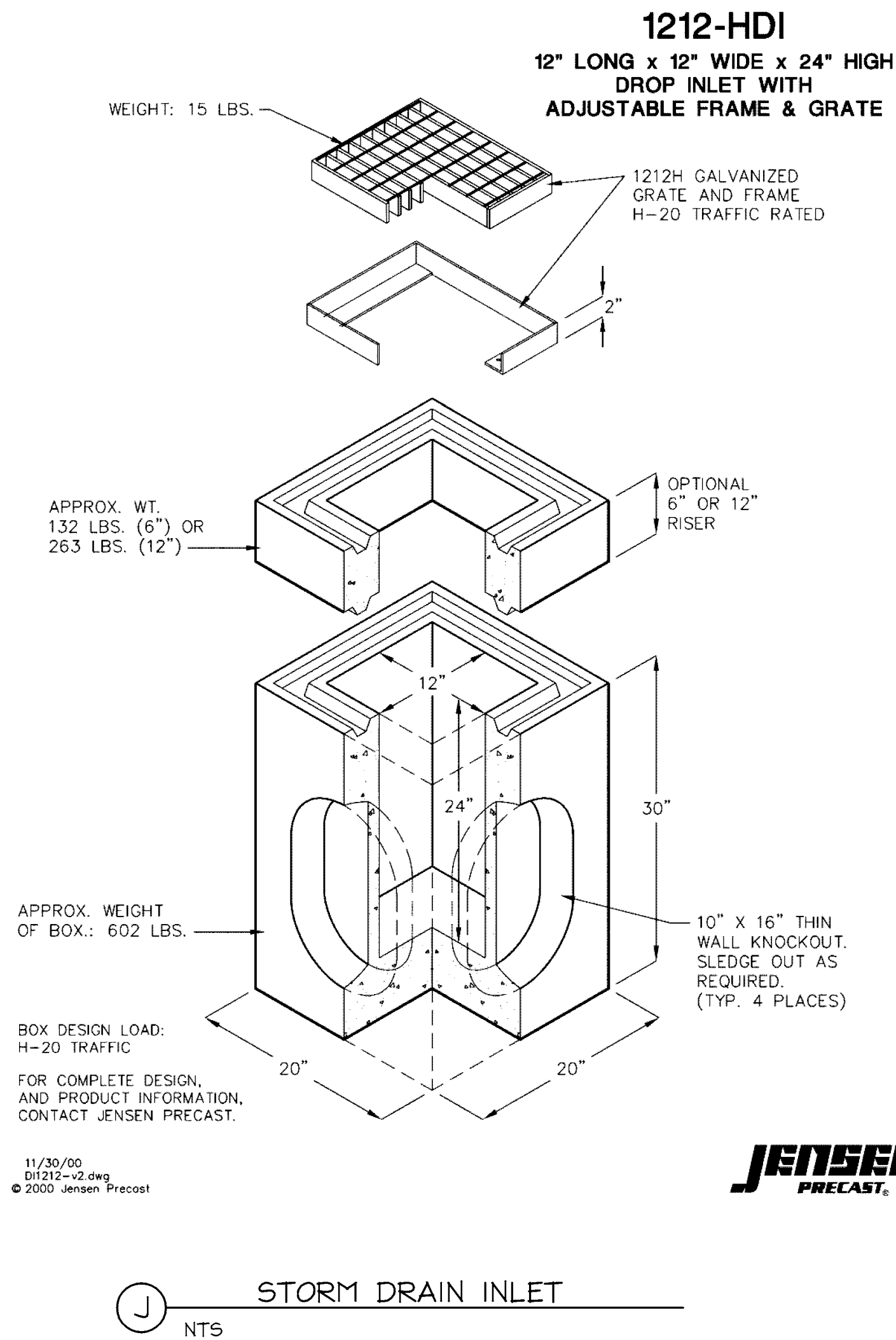
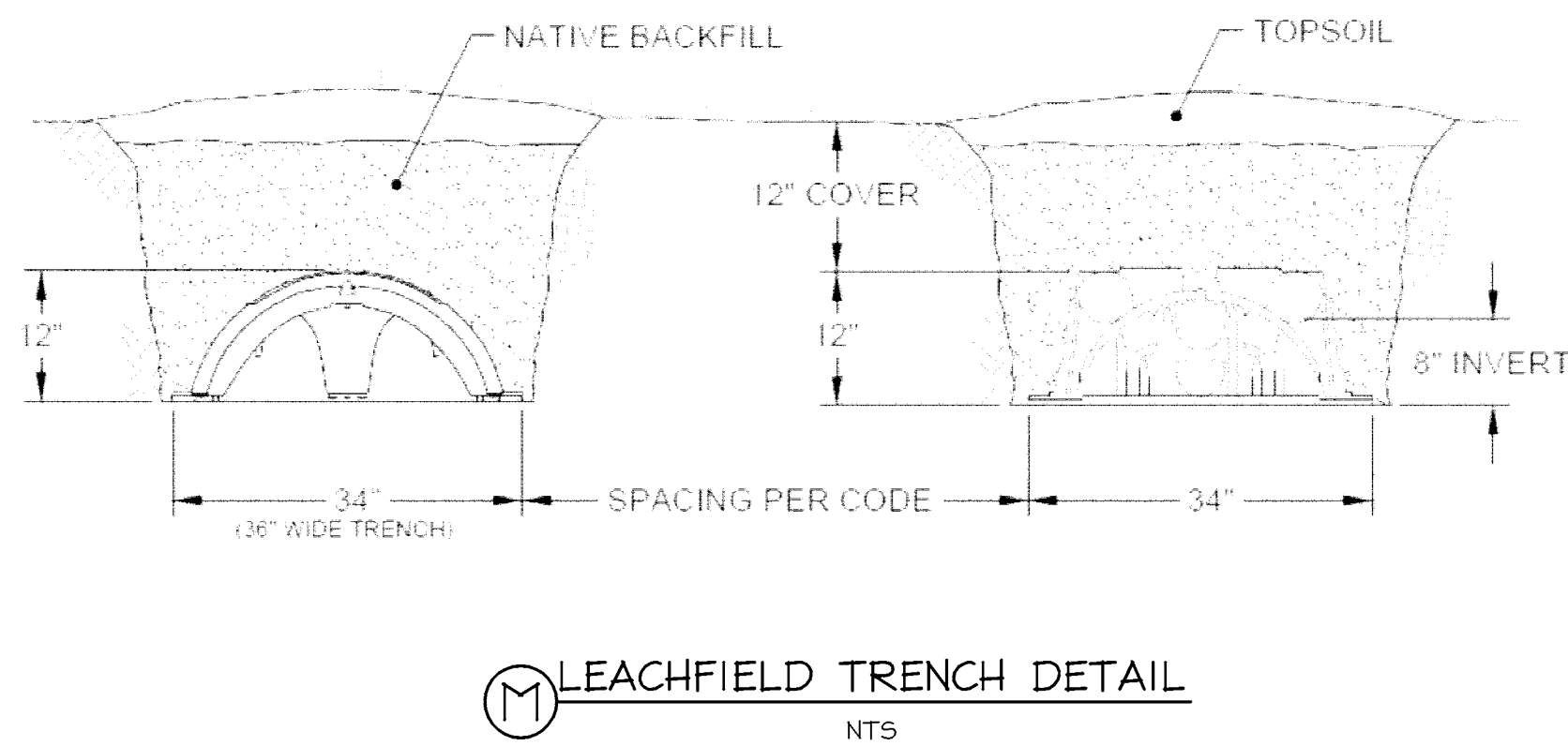
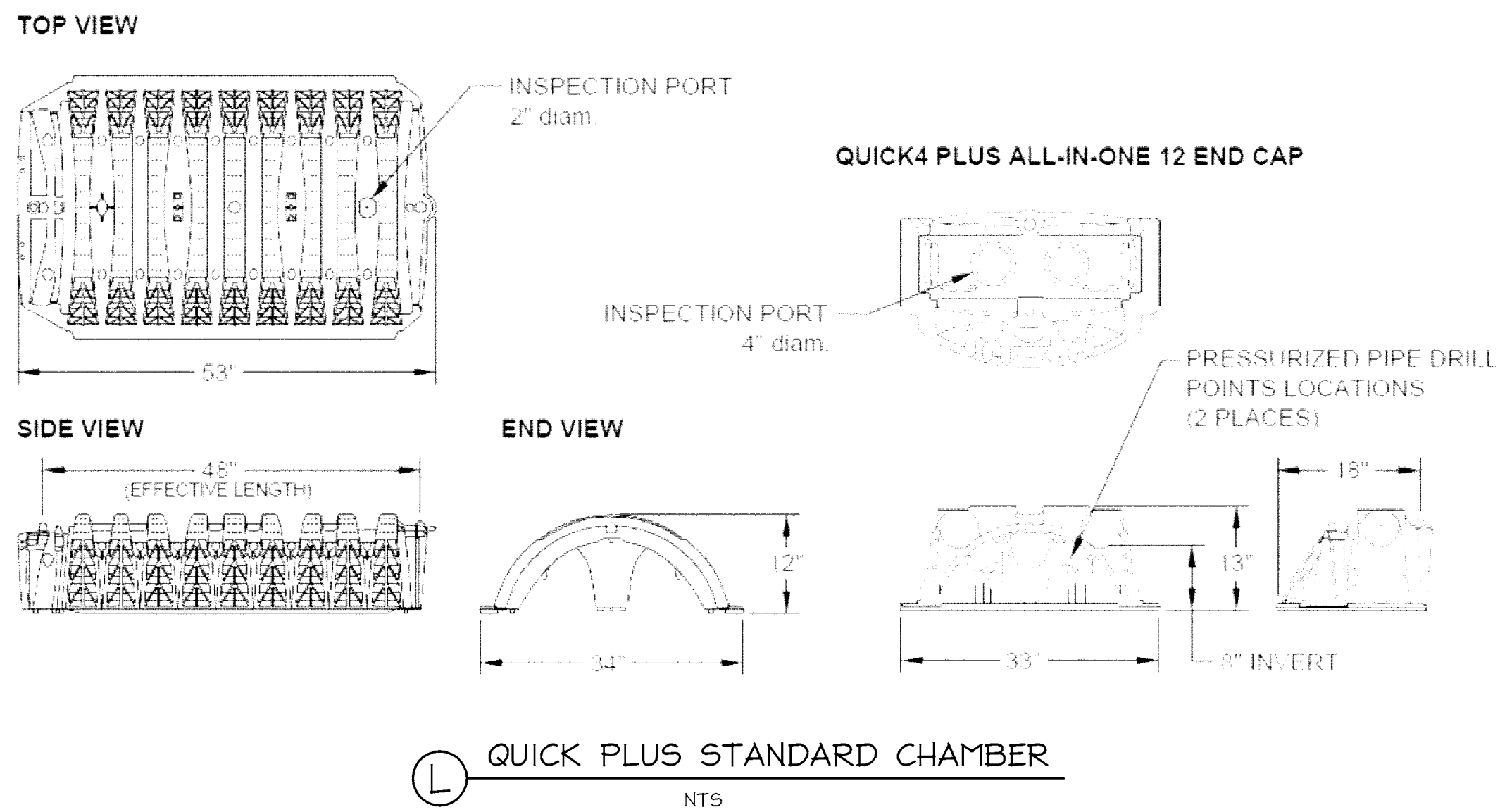
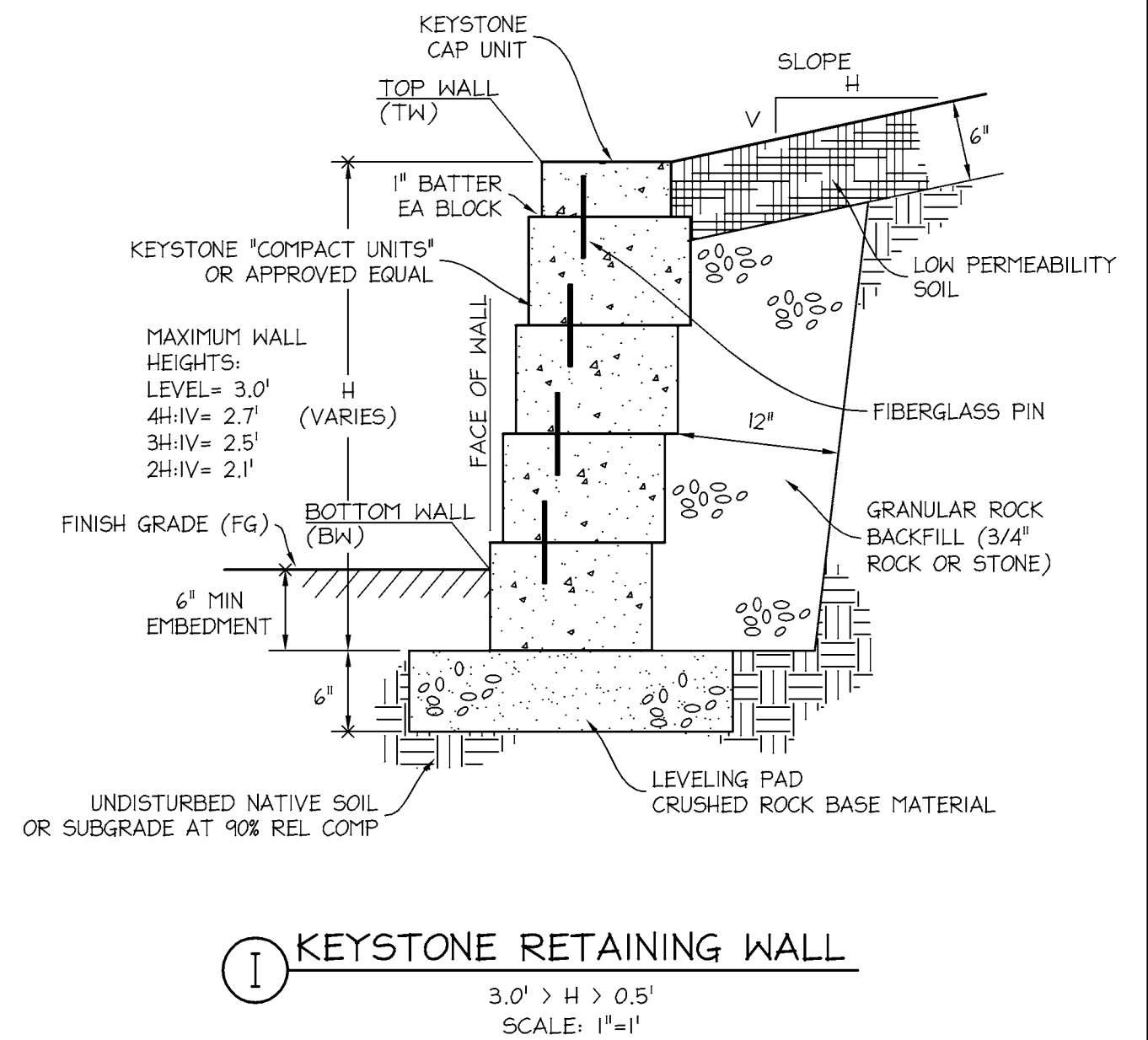
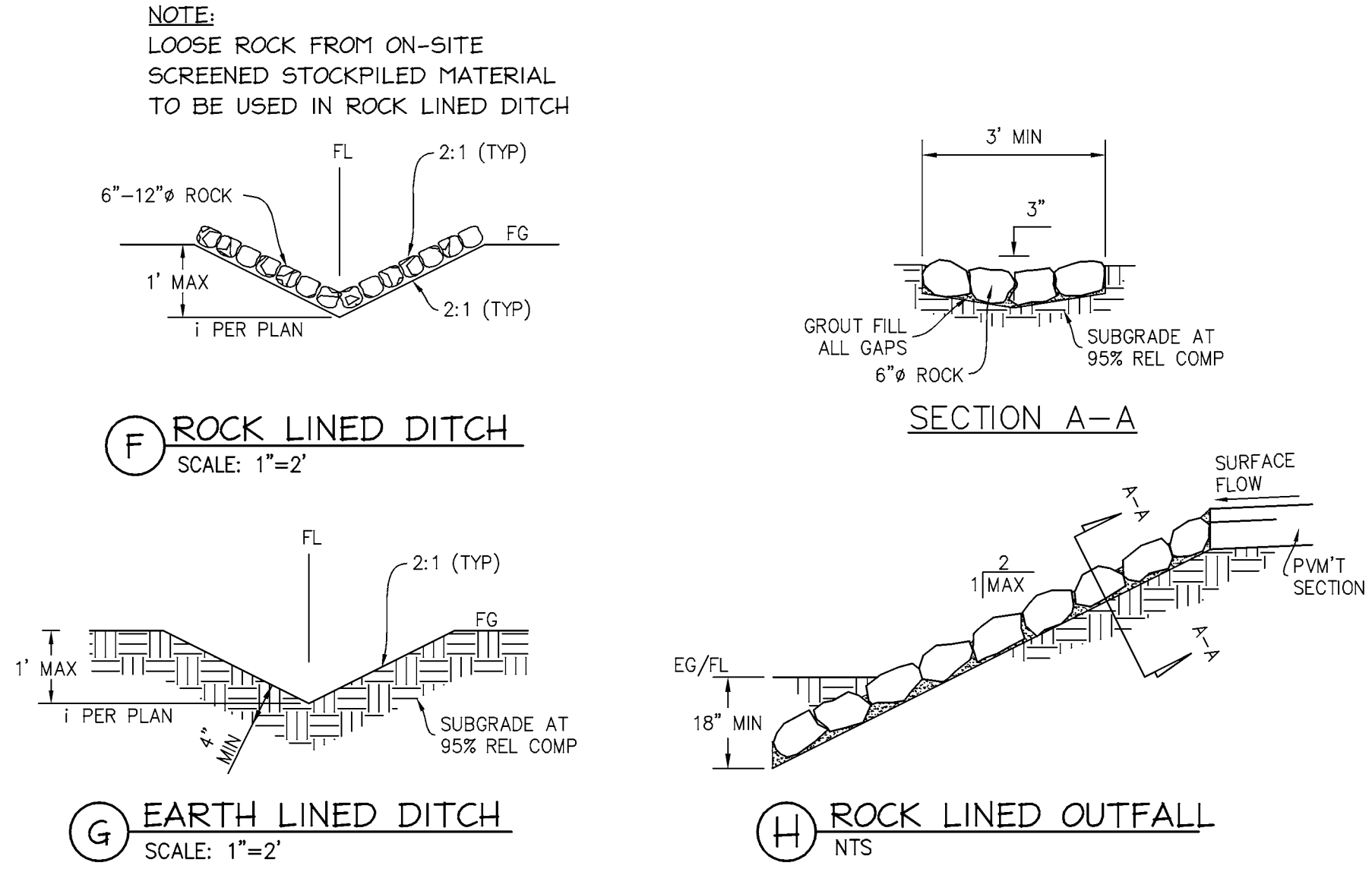
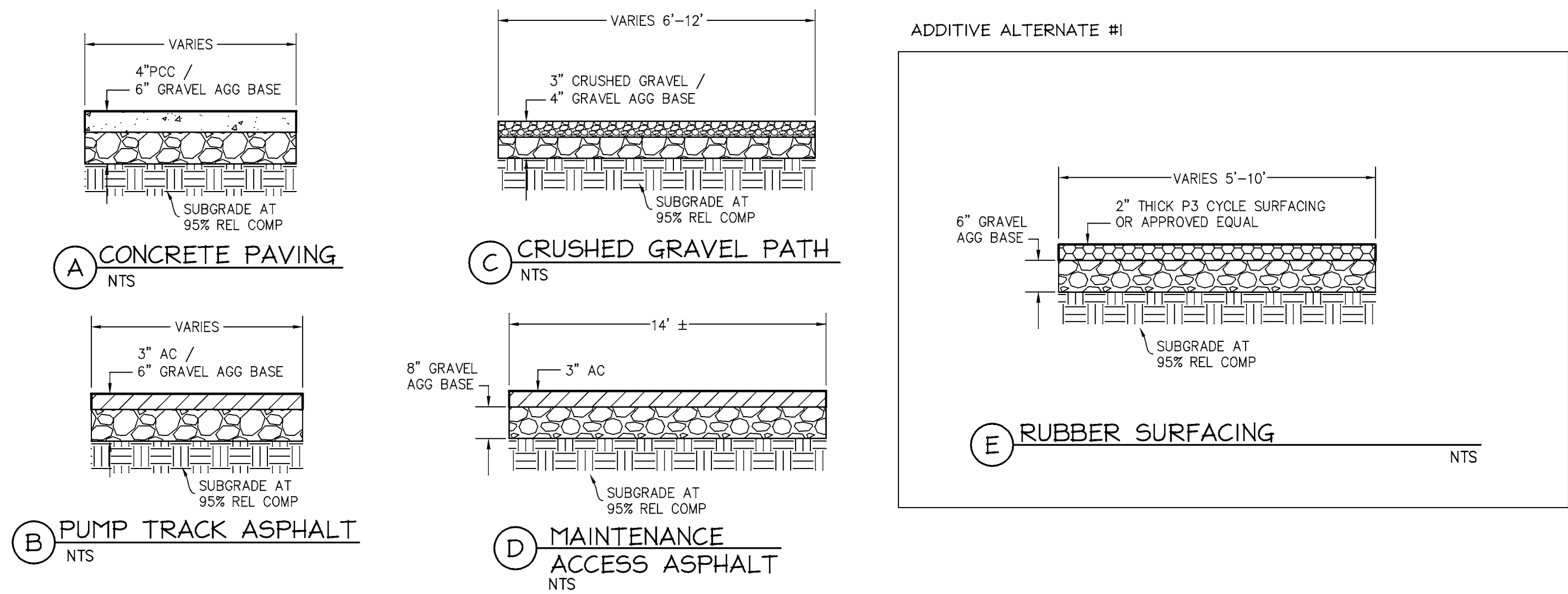


**GK Giuliani & Kull Auburn, Inc.**  
Engineers • Planners • Surveyors  
Post Box 786, Auburn, CA 95604  
(530) 885-5107 Fax (530) 885-5157  
Auburn • San Jose • Oakdale • Sacramento

|            |            |
|------------|------------|
| DRAWN BY   | GK         |
| DATE       | 05/14/2021 |
| SCALE      | AS SHOWN   |
| JOB NUMBER | CED-04     |
| SHEET      | C2         |

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| REVISION/ISSUE | BY |
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## DETAILS

# OLD DEPOT BIKE PARK

EL DORADO COUNTY

CIVIL ENGINEER OF  
RECORD

**GK Giuliani & Kull Auburn, Inc.**  
Engineers • Planners • Surveyors

Post Box 786, Auburn, CA 95604  
(530) 885-5107 Fax (530) 885-5157  
Auburn • San Jose • Oakdale • Sacramento

**C3**  
**13 of 37**

|                   |  |
|-------------------|--|
| DRAWN BY GK       |  |
| DATE 05/14/2021   |  |
| SCALE 1"=20'      |  |
| JOB NUMBER CED-04 |  |
| SHEET             |  |

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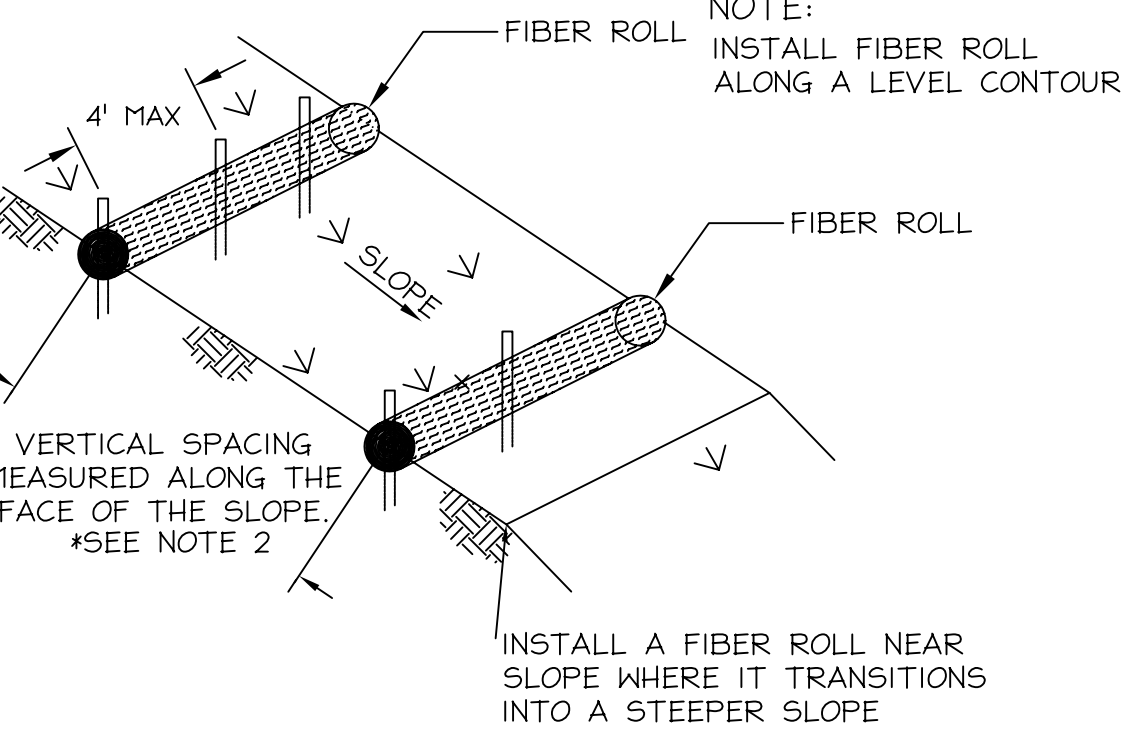
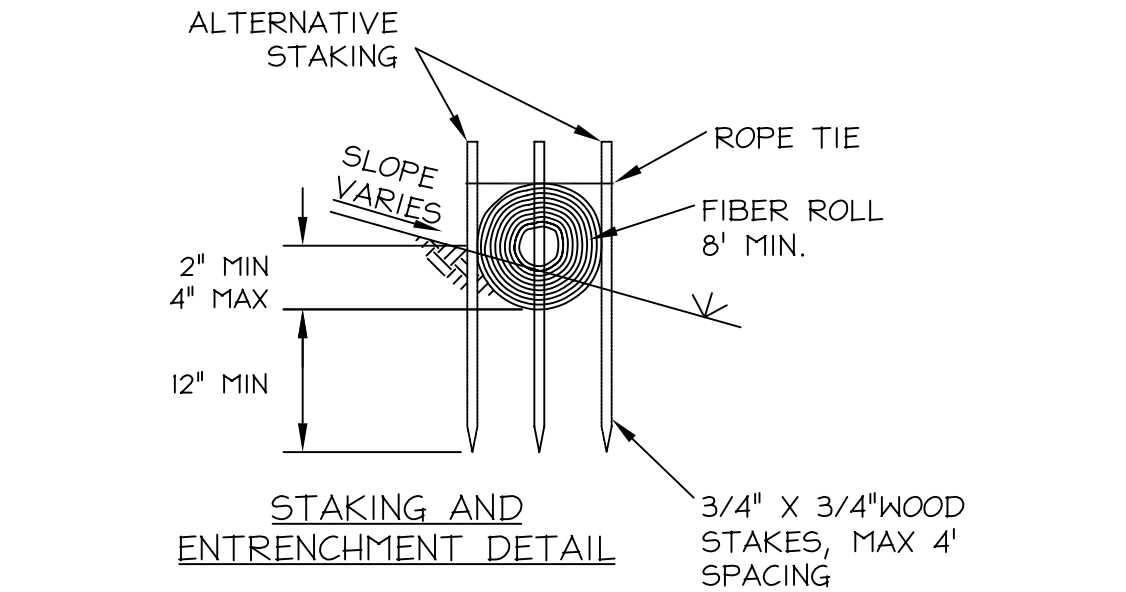
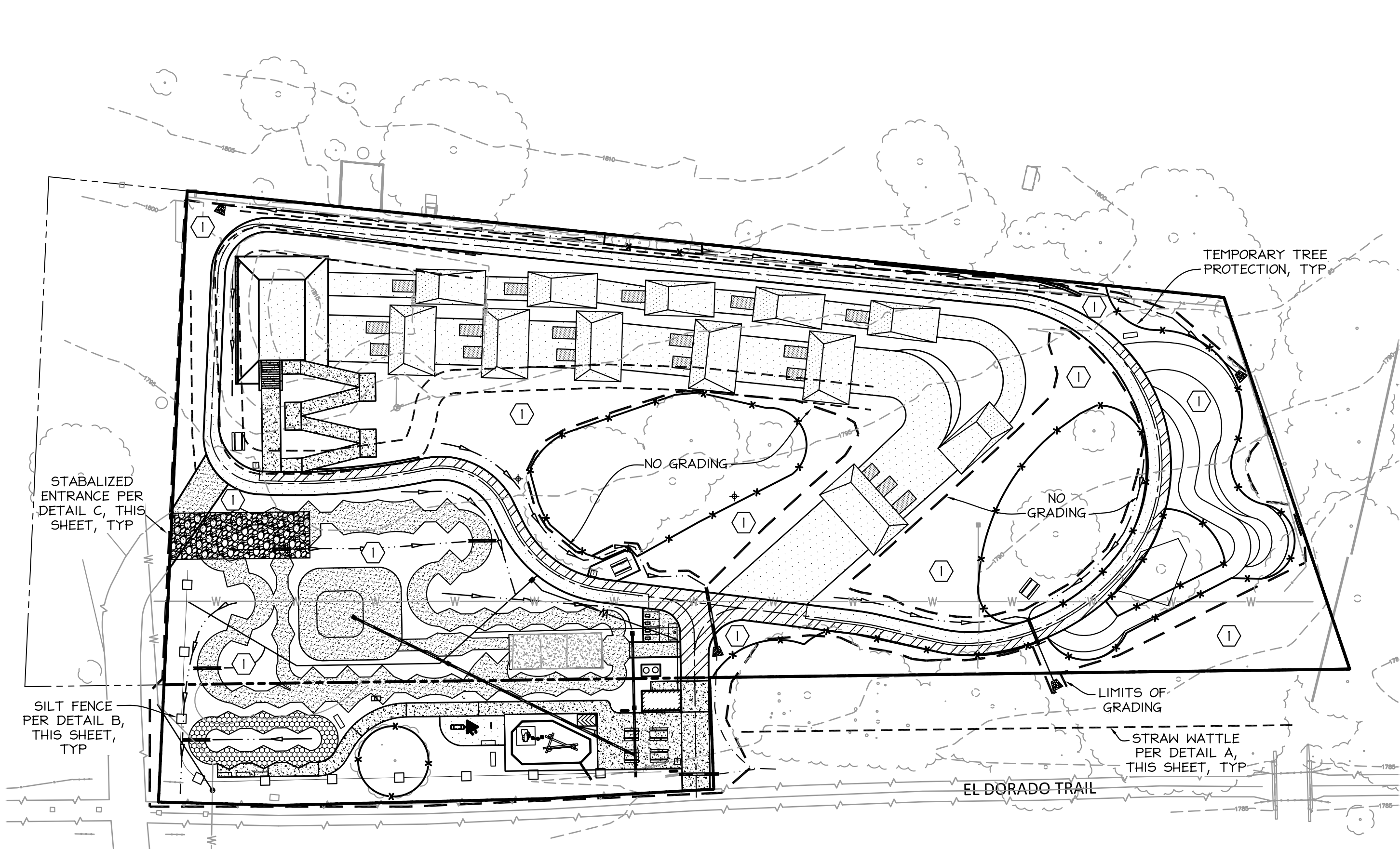
EROSION CONTROL NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PREVENT DISCHARGE OF SEDIMENT FROM THE SITE TO ANY WATERCOURSE, DRAINAGE SYSTEM, OR ADJACENT PROPERTY AND TO PROTECT WATERCOURSES AND ADJACENT PROPERTIES FROM DAMAGE FROM EROSION OR DEPOSITION, WHICH MAY RESULT FROM THE PERMITTED GRADING.
2. EROSION CONTROL SHALL BE PER THE SPECIFICATIONS AND DETAILS FROM THE "EROSION AND SEDIMENT CONTROL GUIDELINES FOR DEVELOPING AREAS OF THE SIERRA FOOTHILLS". PAGE REFERENCES TO THIS DOCUMENT ARE CITED WITH PARENTHESIS.
3. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE OR BE CAPABLE OF BEING IN PLACE WITHIN 24 HOURS. FAILURE TO COMPLY MAY RESULT IN IMMEDIATE SUSPENSION OF ALL GRADING ACTIVITIES WITHOUT PRIOR NOTICE.
4. ALL DISTURBED SLOPES GREATER THAN 10:1 SHALL BE BROADCAST WITH CLEAN, SMALL GRAIN STRAW (WHEAT, RICE, BARLEY, OAT) AT A RATE OF 3,000 LBS. PER ACRE (35 BALES PER ACRE) IF SEEDED AND 4,000 LBS. PER ACRE (50 BALES) IF UNSEEDED, SLOPES EQUAL TO OR GREATER THAN 3:1 SHALL HAVE STRAW PRESSED IN PLACE, BE TACKIFIED, OR HAVE EROSION "NETTING" INSTALLED ON TOP OF THE STRAW MULCH. EROSION CONTROL BLANKETS MAY BE USED IN LIEU OF STRAW MULCH WITH NETTING.
5. ALL BARE AREAS WITHIN 50 FEET OF NATURAL DRAINAGES SHALL BE COVERED WITH STRAW MULCH AT THE RATE OF 4,000 LBS. PER ACRE IF UNSEEDED OR 3,000 LBS. PER ACRE IF SEEDED AND STRAW SHALL BE MECHANICALLY PRESSED IN PLACE OR TACKIFIED. THE DEVELOPER SHOULD COMPLY WITH ANY/ALL CALIFORNIA DEPARTMENT OF FISH AND GAME REGULATIONS THAT MAY BE APPLICABLE.
6. STRAW BALES SHALL BE STOCKPILED ON SITE AT A RATE OF 1.5 BALES PER PROJECT ACRE. BALES SHOULD BE PRESENT BY SEPTEMBER 25TH. STOCKPILED STRAW SHALL BE COVERED TO ASSURE A DRY SUPPLY OF STRAW.
7. SILT FENCES (SECTION I. D.) SHALL BE INSTALLED FOLLOWING THE CONTOUR, ON DISTURBED SLOPES WHERE SEDIMENT HAS CAPABILITY OF BEING TRANSPORTED TO STORM DRAIN INLETS OR WETLANDS OR DRAINAGE AREAS. SPACING REQUIREMENTS ARE: 1) 200 FEET ON SLOPES FROM 0-15% WITH A 1/2 TO 1 ACRE DRAINAGE AREA, AND 2) 100 FEET ON 15%+ SLOPES WITH LESS THAN 1/2 ACRE DRAINAGE AREA.
8. ALL STOCKPILED SOIL SHALL BE COVERED WITH STRAW MULCH (AT A RATE OF 1 BALE PER 1000 SQUARE FEET), PLASTIC SHEETING, OR OTHER SUITABLE MATERIAL. ALL STOCKPILED SOIL SHALL HAVE SILT FENCES, STRAW WATTLES OR STRAW BALE DIKES (SECTION I. D.) INSTALLED AT THE TOE OF THE MATERIAL. IN ADDITION, NO MATERIAL SHALL BE STOCKPILED WITHIN 50 FEET OF PERENNIAL AND INTERMITTENT DRAINAGE SWALES (AS MEASURED FROM THE CENTERLINE OF THE DRAINAGE).
9. TEMPORARY DIVERSION DIKES (SECTION I. A.) SHALL BE PLACED ON TOP OF THE EXPOSED SLOPES OR OTHER DISTURBED AREAS TO INTERCEPT AND ROUTE RUN-OFF TO STABLE OUTLETS. DRAINAGE FROM THE DIVERSION DIKES SHOULD BE TRANSPORTED OVER THE SLOPE WITH A PIPED SLOPE DRAIN (SEE SECTION I. L) OR OTHER SUITABLE MEASURE AND DISCHARGED TO A STABLE AREA. CROSS-ROAD AND/OR CROSS SLOPE DRAINS (WATER BARS) SHALL BE PLACED ON DISTURBED AREAS THAT ARE USED FOR ROADS, PARKING, OR OTHER GRADED AREAS WHICH HAVE NOT BE STABILIZED BY GRAVEL SURFACING OR VEGETATIVE MEANS (SECTION I. B.)
10. TEMPORARY PERIMETER DIKES (SECTION I. C.) SHALL BE CONSTRUCTED AROUND DISTURBED AREAS TO DIVERT SEDIMENT INTO THE SEDIMENT TRAPS. THEY SHALL BE USED ONLY DURING THE CONSTRUCTION PERIOD UNTIL THE SLOPES ARE STABILIZED.
11. CHECK DAMS (CONSTRUCTED OF ROCK, LOGS, STRAW BALES, ETC.) SHALL BE CONSTRUCTED ACROSS SWALES, GULLIES, OR DRAINAGE WAYS THAT HAVE WATERSHEDS LESS THAN 1 ACRE IN SIZE AND ARE NOT LOCATED IN PERENNIAL STREAMS. MAXIMUM HEIGHT OF THE CHECK DAM CENTER SHALL BE 2 FEET WITH THE CENTER OF THE CHECK DAM 6 INCHES LOWER THAN THE OUTER EDGES.
12. SEDIMENT TRAPS (SECTION I. K.) SHALL BE CONSTRUCTED ACROSS DRAINAGE WAYS, STORM DRAIN INLETS, OR OTHER LOCATIONS TO COLLECT, INTERCEPT AND TRAP SEDIMENT-LADEN RUN-OFF. THE TEMPORARY TRAPS SHOULD BE CONSTRUCTED USING EXISTING TERRAIN WHERE FEASIBLE. SEDIMENT ACCUMULATED IN DRAINAGE WAYS OR IN SEDIMENT TRAPS MUST BE REMOVED ON A REGULAR BASIS FOR THE PROJECT-OWNER TO REMAIN IN COMPLIANCE. TRASH SHALL BE REMOVED AT LEAST WEEKLY.
13. TEMPORARY STORM DRAIN INLET SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT ANY DROP/CURB INLETS RECEIVING SEDIMENT LADEN RUN-OFF. DROP INLET PROTECTION MAY BE CONSTRUCTED OF SILT FENCES, GRAVEL-FILLED SAND BAGS, STRAW BALE DIKES AND/OR OTHER INNOVATIVE MEASURES. GRAVEL-FILLED SAND-BAG (OR STRAW WATTLE) "DONUTS" SHOULD BE USED ON GENTLY SLOPING, PAVED STREETS. SEDIMENT MUST BE REMOVED FROM THESE STRUCTURES BEFORE AND/OR AFTER EACH STORM.
14. NO GRADING OR TRENCHING (EXCEPT THAT REQUIRED FOR EROSION OR SEDIMENT CONTROL) SHALL OCCUR WITHIN 50 FEET FROM THE CENTERLINE OF PERENNIAL AND INTERMITTENT DRAINAGE SWALES BETWEEN OCTOBER 15 AND MAY 1, UNLESS APPROVED BY THE PROJECT MANAGER.
15. ALL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE MONITORED, BY THE PROJECT MANAGER, BEFORE, DURING, AND AFTER ALL STORMS TO ENSURE CONTROL FEATURES ARE WORKING PROPERLY. ALTERNATE MEASURES MUST BE INSTALLED IF ORIGINAL MEASURES FAIL.
16. DRAINAGE-WAYS LOCATED BELOW A ROAD RUN-OFF DISCHARGE POINT SHALL BE PROTECTED THROUGH THE INSTALLATION OF A "GRASSED SWALE" (OR EQUAL). "GRASSED SWALES" CAN BE CONSTRUCTED USING A PROTECTIVE LAYER OF 3-DIMENSIONAL NYLON FILAMENT, SUCH AS MACCAFFERRI MACMAT (OR EQUAL) AND PLACING PLUGS OF HYBRID BERMUDA GRASS/REED CANARY GRASS WITHIN SWALE AT A RATE OF ONE PLUG PER SQUARE FOOT. PLANTINGS SHALL BE DONE BY SEPTEMBER 15TH AND SHALL BE IRRIGATED TO ASSURE PROPER GERMINATION PRIOR TO THE WINTER MONTHS.
17. TEMPORARY EROSION CONTROL SEEDING IS NOT ANTICIPATED TO BE REQUIRED FOR THIS PROJECT. IF TEMPORARY EROSION CONTROL SEEDING IS REQUIRED, CONTRACTOR SHALL SUBMIT SEED MIX FOR APPROVAL. SEED MIX SHALL BE COMPOSED OF NATIVE GRASS AND FORB SPECIES.
18. "STABILIZED CONSTRUCTION ENTRANCE(S)" PER EL DORADO COUNTY PLATE C-4 (SEE DETAIL C, THIS SHEET) SHALL BE INSTALLED ON SITES WHERE TRACKING ONTO PUBLIC ROADS CAN BE A PROBLEM. AGGREGATE, ASPHALTIC CONCRETE (OR EQUAL) CAN BE USED BASED ON THE LONGEVITY, PERFORMANCE, AND SITE CONDITIONS. MINIMUM LENGTH - 50', WIDTH - MINIMUM 10', DEPTH - 3" TO 6".
19. THE DEVELOPER SHALL CONDUCT ALL SOIL STABILIZATION ACTIVITIES PURSUANT TO ENGINEERING & SURVEYING DEPARTMENT AND SOIL CONSERVATION SERVICE PRACTICES AND TECHNIQUES. STABILIZATION DETAILS SHALL BE SHOWN BE SHOWN ON THE IMPROVEMENT PLANS FOR TEMPORARY AND PERMANENT CONDITIONS.

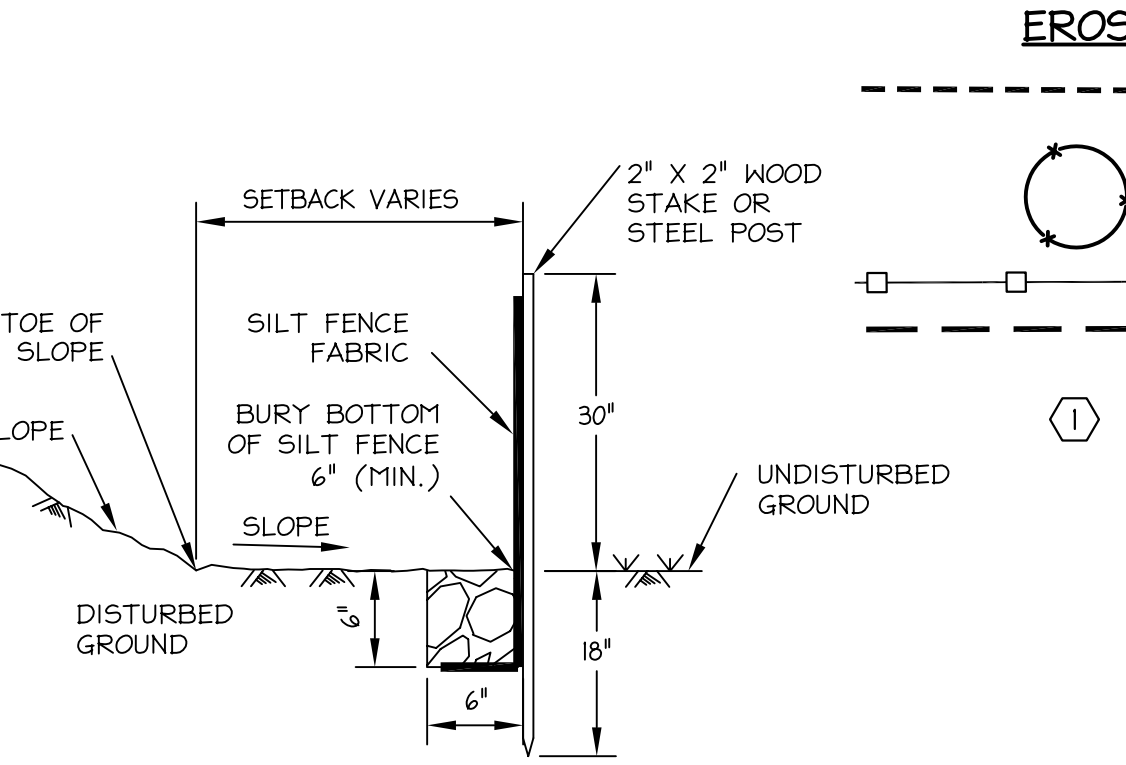
FAILURE TO IMPLEMENT EROSION CONTROL MEASURES DURING PERIODS OF RAINFALL MAY RESULT IN A PROHIBITION OF ANY ADDITIONAL CONSTRUCTION DURING THE REMAINDER OF THE RAINY SEASON.

DUST CONTROL NOTES

1. PROJECT SHALL CONFORM TO THE REQUIREMENTS OF THE EL DORADO COUNTY AIR POLLUTION CONTROL DISTRICT.
2. CONSTRUCTION VEHICLES SHALL TRAVEL ALONG WATERED CONSTRUCTION ROUTES. REDUCE TRAFFIC SPEEDS ON ALL UNPAVED SURFACES TO 15 MILES PER HOUR OR LESS.
3. SUSPEND ALL GRADING OPERATIONS WHEN FUGITIVE DUST EXCEEDS EL DORADO COUNTY AIR POLLUTION CONTROL DISTRICT RULE 228, FUGITIVE DUST LIMITATIONS.
4. CONSTRUCTION EQUIPMENT EXHAUST EMISSIONS SHALL NOT EXCEED EL DORADO COUNTY AIR POLLUTION CONTROL DISTRICT RULE 202 - VISIBLE EMISSION LIMITATIONS.
5. PAVED STREETS, EL DORADO TRAIL ADJACENT TO THE PROJECT, SHALL BE REGULARLY SWEEP AND WASHED DURING CONSTRUCTION ACTIVITIES. MECHANICAL DRY SWEEPING WILL NOT BE PERMITTED.
6. CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED IN A CLEAN CONDITION TO MINIMIZE DUST POLLUTION.
7. TRUCKS TRANSPORTING SOIL SHALL USE AN EFFECTIVE COVER METHOD TO PREVENT EXCESSIVE AMOUNTS OF DUST.
8. CONSTRUCTION EQUIPMENT USED SHALL BE PROPERLY MAINTAINED.
9. AN OPERATIONAL WATER TRUCK SHALL BE ON-SITE AT ALL TIMES. APPLY WATER TO CONTROL DUST AS NEEDED TO PREVENT DUST IMPACTS OFF-SITE.



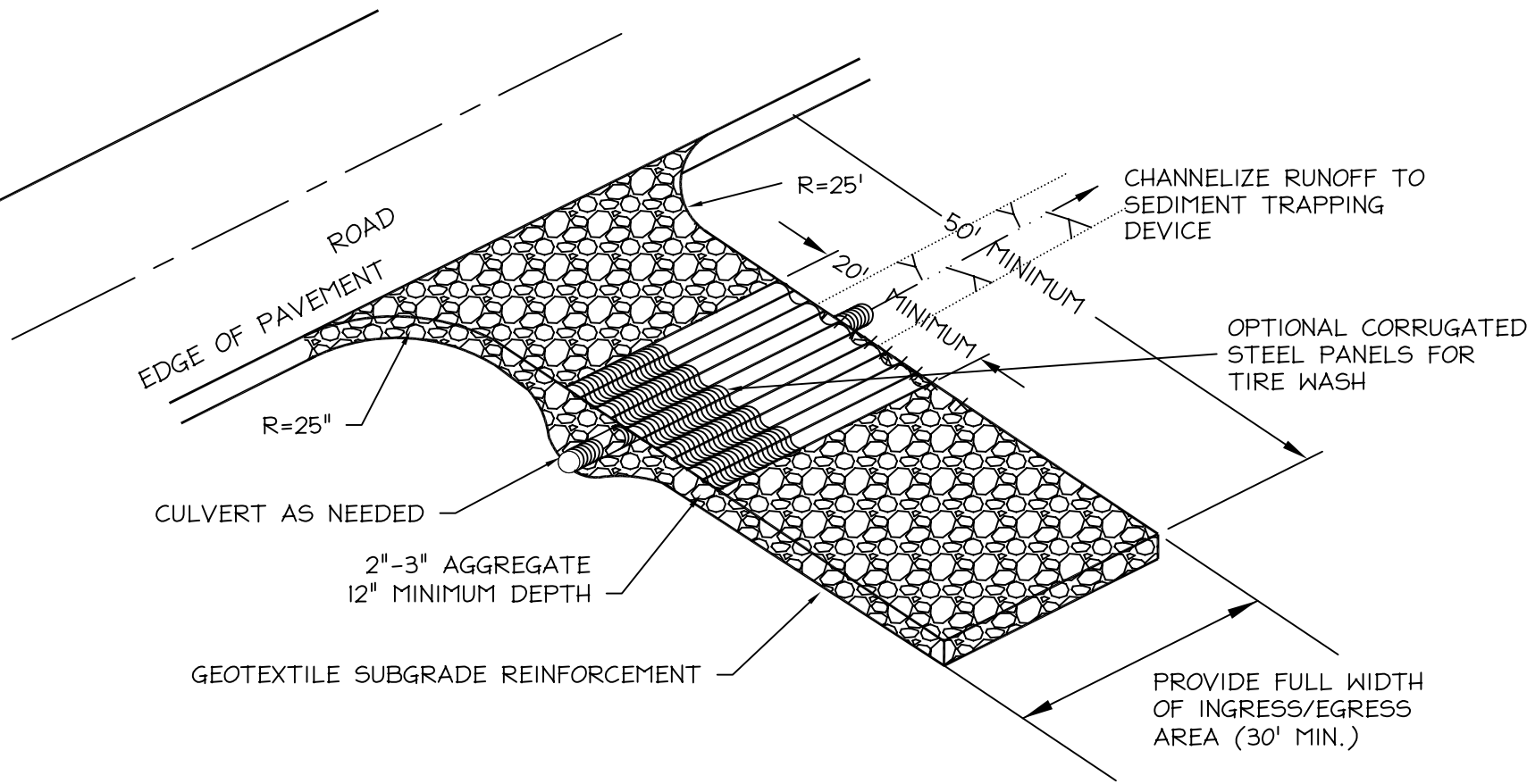
- NOTES:
- FIBER ROLLS SHOULD CONSIST OF STRAW, FLAX, WOOD EXCELSIOR OR COCONUT FIBERS BOUND IN A TIGHT TUBULAR ROLL.
  - LOCATE FIBER ROLLS ON LEVEL CONTOURS SPACED AS FOLLOWS:
    - SLOPE INCLINATION OF 4:1 (H:V) OR FLATTER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 20 FT.
    - SLOPE INCLINATION BETWEEN 4:1 AND 2:1 (H:V): FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 15 FT.
    - SLOPE INCLINATION OF 2:1 (H:V) OR GREATER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 10 FT.
  - TURN THE ENDS OF THE FIBER ROLL UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL.
  - IF MORE THAN ONE FIBER ROLL IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED, NOT ABUTTED.
  - FIBER ROLLS MAY BE USED FOR DRAINAGE INLET PROTECTION IF PROPERLY ANCHORED.
  - SEDIMENT SHOULD BE REMOVED WHEN SEDIMENT ACCUMULATION REACHES ONE-HALF THE SEDIMENT STORAGE DEPTH.



- NOTES:
- DO NOT USE IN STREAMS, CHANNELS, DRAIN INLETS, OR ANYWHERE FLOW IS CONCENTRATED. DO NOT USE TO DIVERT FLOW.
  - THE MAXIMUM LENGTH OF SLOPE DRAINING TO ANY POINT ALONG THE SILT FENCE SHOULD BE 200 FT OR LESS.
  - SILT FENCE FABRIC SHOULD BE WOVEN POLYPROPYLENE WITH A MINIMUM WIDTH OF 36 IN. AND A MINIMUM TENSILE STRENGTH OF 100 LB FORCE.
  - THE FOLLOWING CRITERIA IS RECOMMENDED FOR SELECTION OF THE FABRIC EQUIVALENT OPENING SIZE:
    - A. IF 50% OR LESS OF THE SOIL, BY WEIGHT, WILL PASS THE U.S. STANDARD SIEVE NO. 200, SELECT THE EOS TO RETAIN 85% OF THE SOIL. THE EOS SHOULD NOT BE FINER THAN E0570.
    - B. FOR ALL OTHER SOIL TYPES, THE EOS SHOULD BE NO LARGER THAN THE OPENINGS IN THE U.S. STANDARD SIEVE NO. 70 EXCEPT WHERE DIRECT DISCHARGE TO A STREAM, LAKE, OR WETLAND WILL OCCUR, THEN THE EOS SHOULD BE NO LARGER THAN STANDARD SIEVE NO. 100.
  - CONNECTION/JOINING OF SILT FENCES SHALL BE COMPLETED BY TIGHTLY OVERLAPPING THE ENDS OF THE ROLLS A MINIMUM OF 12" OR BY OVERLAPPING THE END POSTS AND SECURING THE TWO POSTS TOGETHER TIGHTLY WITH PLASTIC WIRE TIES AND/OR STEEL BAILING WIRE (9 GAUGE OR HEAVIER).
  - STAKES SHALL BE SPACED AT 8'-0" MAXIMUM AND SHALL BE POSITIONED ON DOWNSTREAM SIDE OF FENCE.
  - STAPLES USED TO FASTEN THE FENCE FABRIC TO THE STAKES SHOULD BE NOT LESS THAN 1.25 IN. LONG AND SHOULD BE FABRICATED FROM 15 GAUGE OR HEAVIER WIRE. PLASTIC WIRE TIES AND/OR STEEL BAILING WIRE (9 GAUGE OR HEAVIER) MAY BE SUBSTITUTED. NOT LESS THAN 4 STAPLES/TIES SHALL BE USED ON EACH STAKE.
  - THE LAST 8' OF FENCES SHALL BE TURNED UPSLOPE.
  - SILT FENCES SHOULD BE LEFT IN PLACE, REGULARLY INSPECTED, AND MAINTAINED UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.
  - SEDIMENT SHOULD BE REMOVED BEFORE THE SEDIMENT ACCUMULATION REACHES ONE-THIRD OF THE BARRIER HEIGHT.



- EROSION CONTROL LEGEND
- STRAW WATTLE PER DETAIL A, THIS SHEET.
  - TEMPORARY TREE PROTECTION FENCING PER DETAIL 5/D/77
  - SILT FENCE PER DETAIL B, THIS SHEET
  - LIMITS OF GRADING
  - ① ALL DISTURBED AREAS WITHOUT ARTIFICIAL SURFACE TO BE HYDROSEEDING PER PLANTING PLAN.



- NOTES:
- A STABILIZED CONSTRUCTION ENTRANCE SHALL BE USED AT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS.
  - THE AGGREGATE SHALL BE 2 -3 IN. CRUSHED ROCK.
  - THE ENTRANCE SHALL BE PROPERLY GRADED TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
  - THE ENTRANCE SHALL BE CONSTRUCTED ON LEVEL GROUND.
  - PERIODIC TOP DRESSING WITH ADDITIONAL STONE SHALL BE PROVIDED TO ENSURE THE INTEGRITY OF THE ENTRANCE DURING CONSTRUCTION.
  - CONTRACTOR TO MAINTAIN CONSTRUCTION ENTRANCE AT ALL TIMES.
  - CRUSHED ROCK MATERIAL SHALL BE ADDED WHEN SURFACE Voids ARE NOT VISIBLE.
  - ALL SEDIMENT DEPOSITS ON PAVED ROADWAYS SHALL BE REMOVED WITHIN 24 HOURS.
  - THE CRUSHED ROCK AND GEOTEXTILE SHALL BE REMOVED AT COMPLETION OF CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE

**GK Giuliani & Kull Auburn, Inc.**  
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Post Box 786, Auburn, CA 95604  
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EROSION CONTROL

OLD DEPOT BIKE PARK

EL DORADO COUNTY

CIVIL ENGINEER OF RECORD

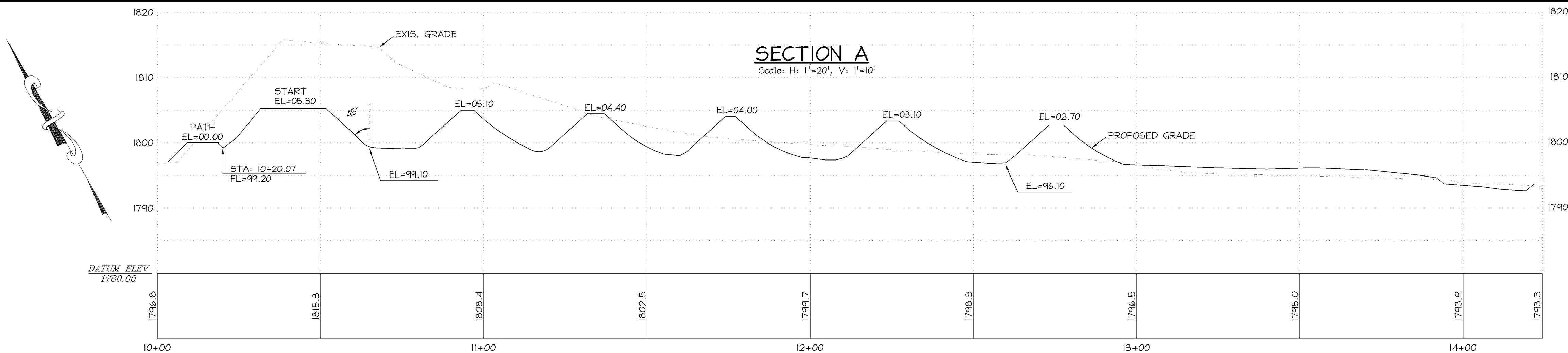


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| DRAWN BY   | GK         |
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| SCALE      | 1"=40'     |
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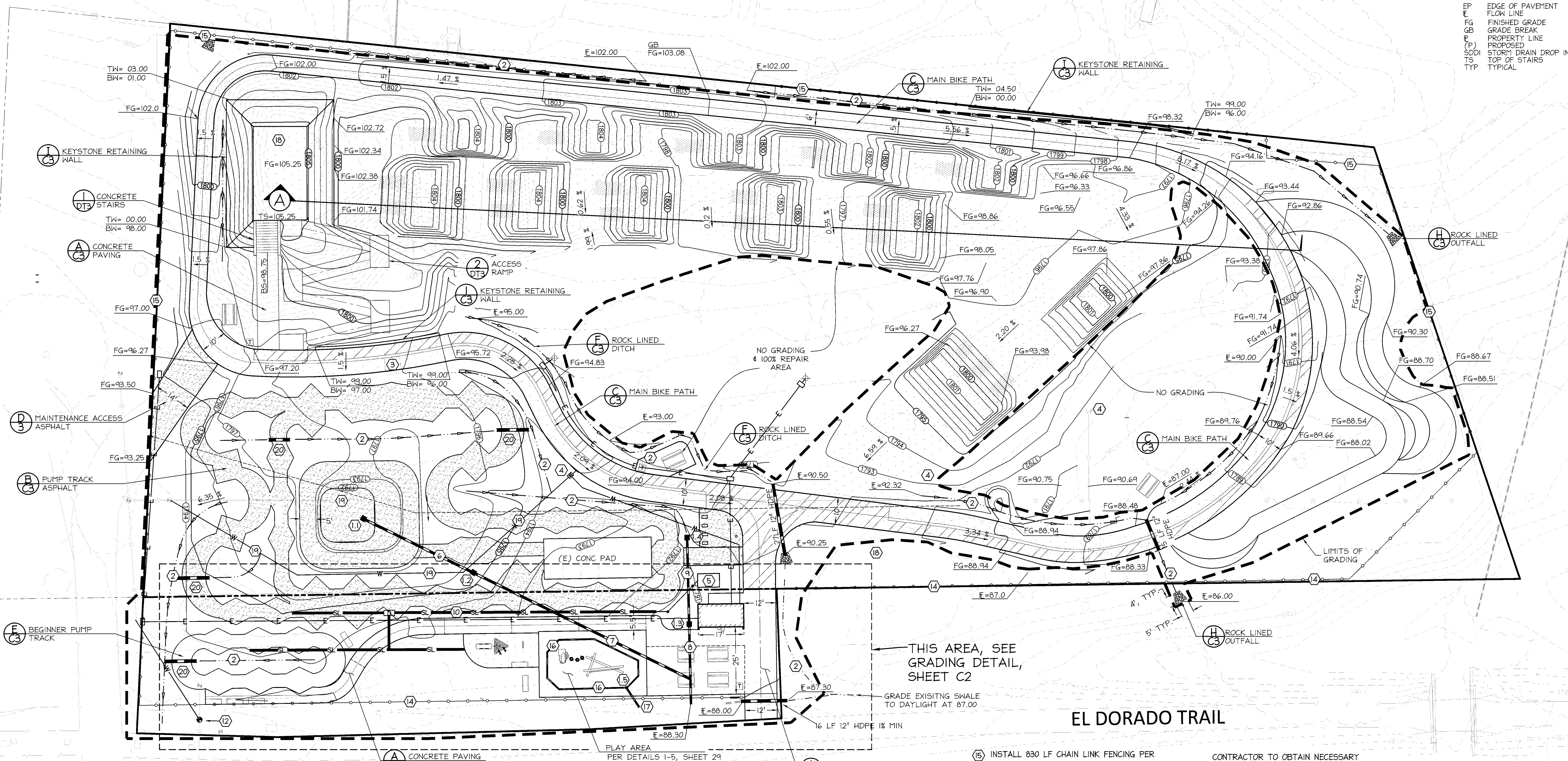
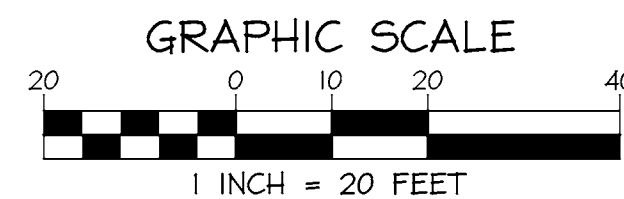
### GRADING LEGEND

| PROPOSED | DESCRIPTION              |
|----------|--------------------------|
|          | EDGE OF PAVEMENT         |
|          | RETAINING WALL           |
|          | DRAINAGE SWALE           |
|          | OVERLAND FLOW            |
|          | EXISTING CONTOUR (MINOR) |
|          | EXISTING CONTOUR (MAJOR) |
|          | PROPOSED CONTOUR (MINOR) |
|          | PROPOSED CONTOUR (MAJOR) |
|          | LIMITS OF GRADING        |

NOTE:  
ADD 1700.00 TO ALL SHOWN FG ELEVATIONS

### ABBREVIATIONS

|      |                        |
|------|------------------------|
| AB   | AGGREGATE BASE         |
| AC   | ASPHALT                |
| BC   | BEGIN CURVE            |
| BS   | BOTTOM OF STAIRS       |
| C    | CENTERLINE             |
| CONC | CONCRETE               |
| (E)  | EXISTING               |
| EG   | EXISTING GRADE         |
| EP   | EDGE OF PAVEMENT       |
| FL   | FLOW LINE              |
| FG   | FINISHED GRADE         |
| GB   | GRADE BREAK            |
| P    | PROPERTY LINE          |
| (P)  | PROPOSED               |
| SDDI | STORM DRAIN DROP INLET |
| TS   | TOP OF STAIRS          |
| TYP  | TYPICAL                |



### KEY NOTES

- SDDI - STORM DRAIN DROP INLET SEE DETAIL J, SHEET C3  
RIM=92.00, FL=90.50
- SDDI - STORM DRAIN DROP INLET SEE DETAIL J, SHEET C3  
RIM=92.50, FL=89.90
- SDDI - STORM DRAIN DROP INLET SEE DETAIL J, SHEET C3  
RIM=90.50, FL=89.50

- SDDI - STORM DRAIN DROP INLET SEE DETAIL J, SHEET C3; RIM=91.5, FL=90.00
- 12" X 12" STORM DRAIN JUNCTION BOX NO INLET  
RIM=89.92, FL=88.97
- EARTH LINED DITCH, SEE DETAIL G, SHEET C3
- WELL DECOMMISSIONED PRIOR TO CONSTRUCTION
- RELOCATE EXISTING WATER METER AND SPLIT LANDSCAPE & DOMESTIC VIA BACKFLOW PREVENTION PER EID STD DWG W22

- INSTALL 1200 GALLON SEPTIC TANK JENSEN PRECAST OR EQUIVALENT PER DETAIL K SHEET C3
- 61 LF 8" SDR35 S=1.0%
- 92 LF 8" SDR35 S=1.0%
- 20 LF 8" SDR35 S=1.5%

- 31 LF 8" SDR35 S=1.5%
- INSTALL 216 LF 2.5' DEEP X 3' WIDE LEACHFIELD TRENCH THE WITH INFILTRATOR SYSTEMS, INC. QUICK 4 EQUALIZER 36 CHAMBER, OR EQUAL PER DETAIL L & M, SHEET 3.
- INSTALLATION PER MANUFACTURES INSTRUCTIONS. COORDINATE INSTALLATION WITH SONDE GEOLOGICAL SERVICES, 530-677-3055
- ALL ADA PATH OF TRAVEL 1.5% CROSS SLOPE

- RELOCATE EXISTING EID 2" PVC WATER LINE AND VALVE
- UTILITY TRENCH PER EL DORADO COUNTY STANDARD PLAN19
- INSTALL 570 LF SPLIT RAIL FENCING PER ARCHITECTURAL DETAIL

- INSTALL 830 LF CHAIN LINK FENCING PER ARCHITECTURAL DETAIL

- INSTALL 90 LF 4" ABS PERFORATED DRAIN PER ARCHITECTURAL DETAIL 3, SHEET 29. CONNECT TO STORM DRAIN SYSTEM.

- INSTALL 10 LF 4" PVC 1/2 MIN, DAYLIGHT AT FLOWLINE
- SCREEN STOCKPILED MATERIAL REMOVE LOOSE ROCK TO BE USED IN ROCK LINED DITCH DETAIL F, SHEET C3.

- CONTRACTOR TO OBTAIN NECESSARY PERMITS FROM AND COORDINATE WITH EID TO RELOCATE AN EXISTING EXISTING 1 1/2" PVC WATER MAIN AND REPLACE WITH 175 LF 4" PVC MINIMUM PER EID STANDARDS.

- INSTALL TOTAL OF 40 LF HDPE 1/2 MIN TO PROVIDE DRAINAGE UNDERNEATH TRACKS AND TO DRAINAGE SWALES

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GRADING &  
DRAINAGE

OLD DEPOT  
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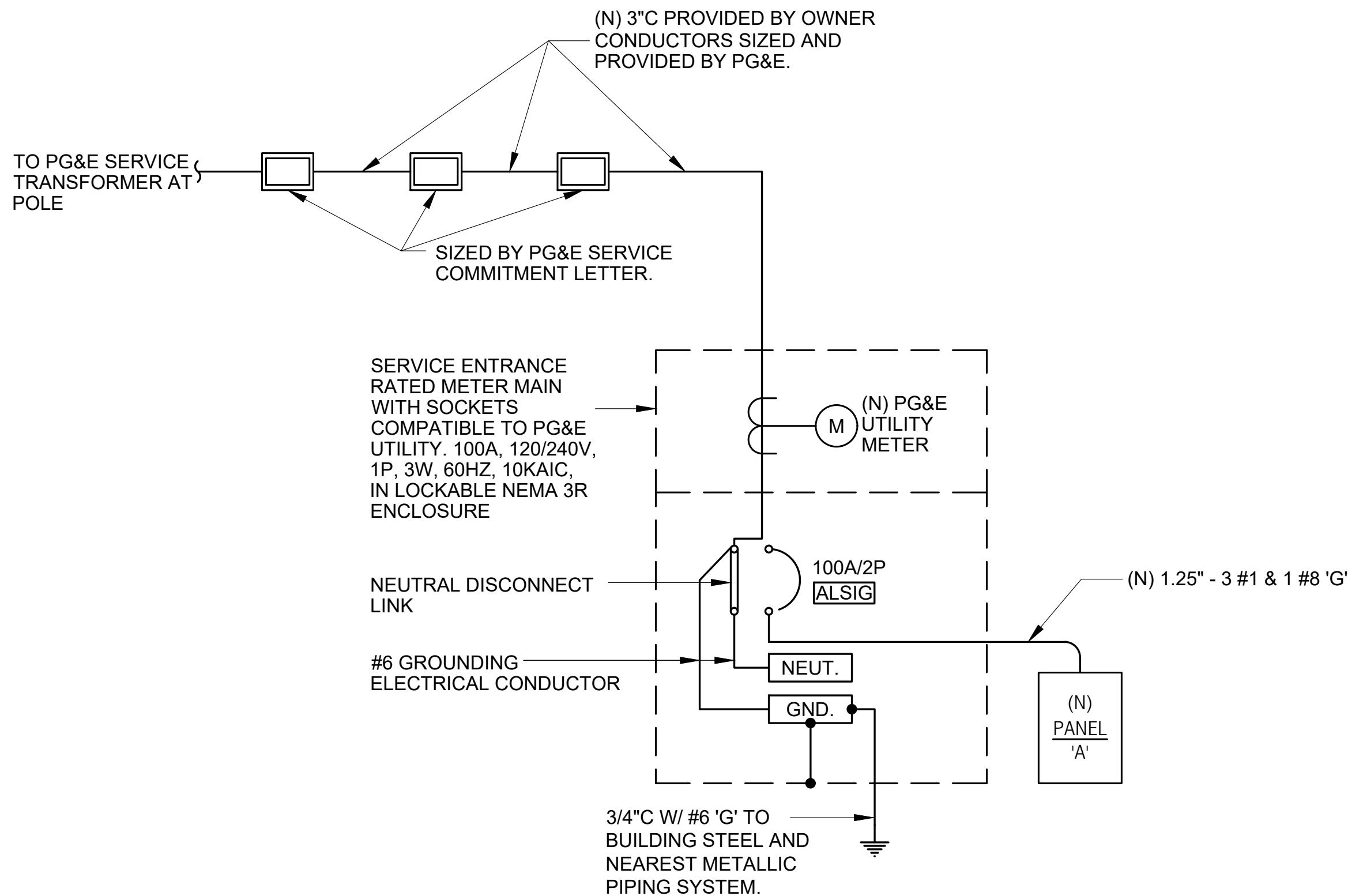


| LUMINAIRE SCHEDULE |                                                                           |                                                              |          |      |       |       |                                              |
|--------------------|---------------------------------------------------------------------------|--------------------------------------------------------------|----------|------|-------|-------|----------------------------------------------|
| TYPE               | MANUFACTURER/CATALOG                                                      | DESCRIPTION                                                  | MOUNTING | TYPE | VOLTS | WATTS | REMARKS                                      |
| A                  | U.S. ARCHITECTURAL LIGHTING<br>RZRM-PLD-III-48LED-525MA-NW-120-RAL-9005-T | POLELIGHT; 10,018 LUMEN; 3000K CCT;<br>TYPE III DISTRIBUTION | 14' POLE | LED  | 120   | 81.0  | INTEGRATED PHOTOCELL AND<br>OCCUPANCY SENSOR |

| (N) PANEL 'A'                                                        |  | SECTION 1 OF 1 |       | SERVING NORMAL            |      | BUS RATING: 100 AMP |      | SINGLE PHASE  |   | VOLTAGE                                    |                     |
|----------------------------------------------------------------------|--|----------------|-------|---------------------------|------|---------------------|------|---------------|---|--------------------------------------------|---------------------|
| LOCATION: RESTROOM CLOSET                                            |  | MOUNTING: X    |       | FLUSH SURFACE             |      | MAIN BREAKER        |      | 3-WIRE        |   | 240/120                                    |                     |
| PANEL A.I.C. 10,000                                                  |  | X              |       | SURFACE                   |      | MAIN LUGS ONLY      |      | FED-THRU LUGS |   |                                            |                     |
| LOAD DESCRIPTION                                                     |  | KVA LOAD       |       | C. B.                     |      | CKT                 |      | PH            |   | CT                                         |                     |
|                                                                      |  | CONT.          | RECP. | MOTOR                     | NON  | AMP                 | POLE | #             |   | #                                          |                     |
| RESERVE FOR BUILDING ELECTRICAL                                      |  |                |       |                           | 1.00 | 20                  | 1    | 1             | A | 2                                          | 1 20                |
| RESERVE FOR BUILDING ELECTRICAL                                      |  |                |       |                           | 1.00 | 20                  | 1    | 3             | B | 4                                          | 1 20                |
| RESERVE FOR BUILDING ELECTRICAL                                      |  |                |       |                           | 1.00 | 20                  | 1    | 5             | A | 6                                          | 1 20                |
| SPACE                                                                |  |                |       |                           | 0.00 | -                   | -    | 7             | B | 8                                          | 1 20                |
| SPACE                                                                |  |                |       |                           | 0.00 | -                   | -    | 9             | A | 10                                         | 1 20                |
| SPACE                                                                |  |                |       |                           | 0.00 | -                   | -    | 11            | B | 12                                         | 1 20                |
| TOTALS                                                               |  | 0.00           | 0.00  | 0.00                      | 3.00 |                     |      |               |   |                                            | 0.32 1.08 0.00 0.36 |
| TOTAL CONTINUOUS LOAD @ 125%:                                        |  |                |       |                           |      | 0.40 KVA            |      |               |   |                                            |                     |
| TOTAL RECEPTACLE LOAD, 100% FOR FIRST 10,000VA, & 50% FOR REMAINDER: |  |                |       |                           |      | 1.08 KVA            |      |               |   |                                            |                     |
| TOTAL NONCOINCIDENT LOAD:                                            |  |                |       |                           |      | 3.36 KVA            |      |               |   |                                            |                     |
| TOTAL MOTOR LOAD:                                                    |  |                |       |                           |      | 0.00 KVA            |      |               |   |                                            |                     |
| LARGEST MOTOR @ 25%:                                                 |  | 0 KVA          |       |                           |      | 0.00 KVA            |      |               |   |                                            |                     |
| TOTAL DEMAND LOAD                                                    |  | 4.84 KVA       |       | CONNECTED KVA TOTAL/PHASE |      | A 2.50              |      | B 2.26        |   | MINIMUM FEEDER CAPACITY 4.84 KVA 20.17 AMP |                     |

### PANEL SCHEDULE NOTES

- PROVIDE UPDATED 'TYPEWRITTEN' PANEL INDEX. PANEL INDEX SHALL INCLUDE DATE APPLIED AND ALSO WHERE THE PANEL IS FED FROM.
- PROVIDE BLANK COVER PLATES OVER ANY EXPOSED CIRCUIT BREAKER SPACE THAT IS EXPOSED.
- UPON OPENING EXISTING PANELS, TURN ANY CIRCUIT BREAKERS WITH NO CONDUCTORS OR NOT CONNECTED TO A LOAD INTO THE "OFF" POSITION AND UPDATE PANEL SCHEDULE.
- SHORT CIRCUIT CALCULATION TO BE DONE AFTER GETTING CONDUCTOR SIZES FROM PG&E.



### WIRING DEVICE SYMBOLS

| SYMBOL | DESCRIPTION                                                                      |
|--------|----------------------------------------------------------------------------------|
|        | 20 AMP 125V 3W DUPLEX CONVENIENCE RECEPTACLE W/ GROUND FAULT INTERRUPTER.        |
|        | 20 AMP 125V 3W DOUBLE DUPLEX CONVENIENCE RECEPTACLE W/ GROUND FAULT INTERRUPTER. |
|        | JUNCTION BOX, SIZE AND TYPE AS INDICATED OR REQUIRED.                            |

### POWER DISTRIBUTION SYMBOLS

| SYMBOL | DESCRIPTION                                                                                       |
|--------|---------------------------------------------------------------------------------------------------|
|        | BRANCH CIRCUIT PANELBOARD, SURFACE MOUNTED.                                                       |
|        | CONTROL AND/OR EQUIPMENT, PROVIDED UNDER ANOTHER DIVISION, PROVIDE POWER CONNECTION AS INDICATED. |

### LIGHTING SYMBOLS

| SYMBOL | DESCRIPTION                                                   |
|--------|---------------------------------------------------------------|
|        | LUMINAIRE TAG, LETTER INDICATES TYPE, SEE LUMINAIRE SCHEDULE. |
|        | EXTERIOR POLE LIGHT, TWO LUMINAIRES.                          |

### RACEWAY SYMBOLS

| SYMBOL | DESCRIPTION                                                                                                                                                                                                                                     |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | RACEWAY INSTALLED IN CEILING OR WALL. ROUTE EXPOSED IN ALL UNFINISHED AREAS.                                                                                                                                                                    |
|        | RACEWAY INSTALLED BELOW FINISHED FLOOR OR GRADE.                                                                                                                                                                                                |
|        | ARROW AT END OF RACEWAY INDICATES HOME RUN TO RESPECTIVE PANELBOARD OR SWITCHBOARD.                                                                                                                                                             |
|        | BRANCH CIRCUIT WITHOUT FURTHER DESIGNATION INDICATES A 2 #12 AWG CIRCUIT WITH 1 #12 AWG GROUND.                                                                                                                                                 |
|        | STRAIGHT CROSS-LINES IN BRANCH CIRCUIT RACEWAY INDICATE NUMBER OF #12 AWG WIRES IN A CIRCUIT. SHORT LINES INDICATE UNGROUNDED CONDUCTORS. LONG LINES INDICATE NEUTRAL CONDUCTORS. WIRES SHOWN ARE IN ADDITION TO 1 #12 AWG GROUNDING CONDUCTOR. |

### STANDARD ELECTRICAL SYMBOLS

| SYMBOL | DESCRIPTION                  |
|--------|------------------------------|
|        | UTILITY METER.               |
|        | PG&E ELECTRICAL UTILITY POLE |

### GENERAL ELECTRICAL NOTES

- WHERE PROVIDED, THROUGH-PENETRATION FIRESTOP SYSTEM AND MEMBRANE PENETRATION DETAILS SHOW IN THE DETAILS ARE FOR REFERENCE ONLY. THROUGH- PENETRATIONS AND MEMBRANE PENETRATIONS SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM OR MEMBRANE PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 814 OR UL 1479, WITH A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER OR AS OTHERWISE PERMITTED BY CBC, SECTION 714. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS AND MEMBRANE PENETRATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS FOR LISTED SYSTEMS. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS, MEMBRANE PENETRATION PROTECTION AND OTHER PERMITTED MEANS AND METHODS OF PENETRATION PROTECTION SHALL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION TO REVIEW AND APPROVAL PRIOR TO INSTALLATION.
- ALL ELECTRICAL EQUIPMENT TO BE INSTALLED OR PERMANENTLY CONNECTED (HARDWIRED) SHALL BE LISTED, LABELED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) PER CEC 110.2.
- ALL EQUIPMENT SHALL BE USED IN ACCORDANCE WITH LISTING PER CEC 110.3B.

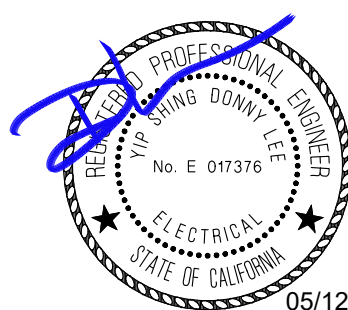
### ABBREVIATIONS

|                                                                      |                                                                                                                                     |                                        |                                                                                                                                                                           |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1PH, 3PH<br>1P, 2P, 3P<br>3W, 4W<br>(D)<br>(E)<br>(ER)<br>(N)<br>(R) | 1 PHASE, 3 PHASE<br>1 POLE, 2 POLE, 3 POLE<br>3 WIRE, 4 WIRE<br>DEMO, DEMOLISH<br>EXISTING<br>EXISTING RELOCATED<br>NEW<br>RELOCATE | MCA<br>MCB<br>MCC<br>MLO<br>MOCB<br>MT | -M-<br>MINIMUM CIRCUIT AMPACITY<br>MAIN CIRCUIT BREAKER<br>MOTOR CONTROL CENTER<br>MAIN LUGS ONLY<br>MAXIMUM OVER-CURRENT<br>PROTECTION<br>EMPTY CONDUIT W/ PULL-LINE     |
| A, AMPS<br>AC<br>AF<br>AFF<br>AIC                                    | AMPERES<br>ALTERNATING CURRENT<br>FRAME RATING IN AMPERES<br>ABOVE FINISHED FLOOR<br>AMPERES INTERRUPTING<br>CAPACITY               | NC<br>NCTC<br>NEC<br>NEMA<br><br>NIES  | -N-<br>NORMALLY CLOSED<br>NURSE CALL TERMINAL CABINET<br>NATIONAL ELECTRIC CODE<br>NATIONAL ELECTRICAL<br>MANUFACTURER ASSOCIATION<br>NOT INCLUDED IN ELECTRICAL<br>SCOPE |
| AL, ALUM<br>ATS<br>AT<br>AWG                                         | ALUMINUM<br>AUTO TRANSFER SWITCH<br>TRIP RATING IN AMPERES<br>AMERICAN WIRE GAUGE                                                   | NL<br>NO<br>NTS                        | NIGHT LIGHT<br>NORMALLY OPEN<br>NOT TO SCALE                                                                                                                              |
| BTR                                                                  | BUILDING TELECOM ROOM                                                                                                               | OCB<br>OFCI<br>OFOI                    | -O-<br>OVER-CURRENT PROTECTION<br>OWNER FURNISHED<br>CONTRACTOR INSTALLED<br>OWNER FURNISHED OWNER<br>INSTALLED                                                           |
| C<br>CB, C/B<br>CEC<br>CT<br>CU                                      | CONDUIT<br>CIRCUIT BREAKER<br>CALIFORNIA ELECTRICAL CODE<br>CURRENT TRANSFORMER<br>COPPER                                           | PT<br>PVC                              | -P-<br>POTENTIAL TRANSFORMER<br>POLYVINYL CHLORIDE CONDUIT                                                                                                                |
| DC                                                                   | DIRECT CURRENT                                                                                                                      | RLA<br>RSC                             | -R-<br>RUNNING LOAD AMP<br>RIGID STEEL CONDUIT                                                                                                                            |
| EA<br>ELEC<br>EMT                                                    | EACH<br>ELECTRICAL<br>ELECTRICAL METALLIC TUBING                                                                                    | SPD<br>SPDT<br>SPST<br>SST             | -S-<br>SURGE PROTECTION DEVICE<br>SINGLE POLE DOUBLE THROW<br>SINGLE POLE SINGLE THROW<br>SOLID STATE TRIP                                                                |
| FA<br>FACP<br>FATC<br>FLA<br>FT                                      | FIRE ALARM<br>FIRE ALARM CONTROL PANEL<br>FIRE ALARM TERMINAL CABINET<br>FULL LOAD AMPS<br>FOOT OR FEET                             | TER<br>TR<br>TM<br>TTB                 | -T-<br>TELECOM EQUIPMENT ROOM<br>TELECOM ROOM<br>THERMAL MAGNETIC<br>TERMINAL BACKBOARD                                                                                   |
| G, GND<br>GA<br>GFCI                                                 | GROUND<br>GAUGE<br>GROUND FAULT CIRCUIT<br>INTERRUPTER<br>GROUND FAULT INTERRUPTER                                                  | UG<br>UL<br>UON<br>UPS                 | -U-<br>UNDERGROUND<br>UNDERWRITERS LAB.<br>UNLESS OTHERWISE NOTED<br>UNINTERRUPTIBLE POWER<br>SUPPLY                                                                      |
| HOA<br>HP                                                            | HAND-OFF-AUTO<br>HORSE POWER                                                                                                        | V<br>VA<br>VAC                         | -V-<br>VOLTS<br>VOLT-AMPS<br>VOLTS ALTERNATE CURRENT                                                                                                                      |
| J-BOX                                                                | JUNCTION BOX                                                                                                                        | W<br>WP                                | -W-<br>WATTS<br>WEATHERPROOF                                                                                                                                              |
| KVA<br>KW                                                            | ONE THOUSAND VOLT-AMPS<br>ONE THOUSAND WATTS                                                                                        | XFMR<br>XFER                           | -X-<br>TRANSFORMER<br>TRANSFER SWITCH                                                                                                                                     |
| LCP<br>LTG                                                           | LIGHTING CONTROL PANEL<br>LIGHTING                                                                                                  |                                        |                                                                                                                                                                           |

### SHEET INDEX

| SHEET | DESCRIPTION                                                    |
|-------|----------------------------------------------------------------|
| E0.01 | ABBREVIATIONS, SYMBOLS, ONE LINE, PANEL SCHEDULE & SHEET INDEX |
| E0.02 | TITLE 24 COMPLIANCE                                            |
| E1.01 | OVERALL SITE PLAN - DEMO ELECTRICAL                            |
| E2.01 | OVERALL SITE PLAN - NEW ELECTRICAL                             |
| E2.02 | OVERALL SITE PLAN - PHOTOMETRICS                               |
| E2.03 | OVERALL SITE PLAN - ADD ALT ELECTRICAL                         |
| E2.04 | OVERALL SITE PLAN - ADD ALT PHOTOMETRICS                       |
| E3.01 | ELECTRICAL DETAILS                                             |

1 ONE LINE DIAGRAM  
NO SCALE



**EDGE**  
ELECTRICAL CONSULTING

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Sacramento, CA 95811  
916.256.2460

300 27th Street #201  
Oakland, CA 94612  
510.775.3836

05/12/2021 Project Number H129 Contact Stephanie

REVISION/ISSUE

BY

ABBREVIATIONS,  
SYMBOLS, & SHEET  
INDEX

OLD DEPOT  
BIKE PARK

EL DORADO COUNTY

LANDSCAPE ARCHITECT OF RECORD

11 NATOMA STREET, SUITE 155  
FOLSOM, CALIFORNIA 95630  
(916) 345-8700  
© 2020

HELIX  
Environmental Planning

DRAWN BY  
Stephanie

DATE  
05/14/2021

SCALE  
AS SHOWN

JOB NUMBER  
CED-04

SHEET  
E0.01  
16 of 37



| STATE OF CALIFORNIA                                                                                                                                                                                                            |    |                                                                                                                                                        |    | NRC-170-E [Created 11/19]                                                                   |                                                                                                 | CALIFORNIA ENERGY COMMISSION |                          |             |                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------|--------------------------|-------------|----------------------------------------------|
| <b>Outdoor Lighting</b>                                                                                                                                                                                                        |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          | NRC-170-E   |                                              |
| This document is used to demonstrate compliance with requirements in §170.9, §130.0, §130.2, §140.2, and §141.0(b)(2) for outdoor lighting scopes using the prescriptive path.                                                 |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| Project Name: El Dorado Bike Park                                                                                                                                                                                              |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 | Report Page:                 |                          | Page 1 of 6 |                                              |
| Project Address: Old Depot Road, Placerville, 95667                                                                                                                                                                            |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 | Date Prepared:               |                          | 03/16/2021  |                                              |
| <b>A. GENERAL INFORMATION</b>                                                                                                                                                                                                  |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| 01 Project Location (city)                                                                                                                                                                                                     |    | Placerville                                                                                                                                            |    | 04 Total Illuminated Hardscape Area (ft²)                                                   |                                                                                                 |                              |                          | 21,627      |                                              |
| 02 Climate Zone                                                                                                                                                                                                                |    | 12                                                                                                                                                     |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| 03 Outdoor Lighting Zone per Title 24, Part 1 §10-114 or as designated by Authority Having Jurisdiction (AHJ):                                                                                                                 |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| <input type="checkbox"/> LZ-0: Very Low - Undeveloped Parkland                                                                                                                                                                 |    | <input checked="" type="checkbox"/> LZ-2: Moderate - Rural Areas                                                                                       |    | <input type="checkbox"/> LZ-4: High - Must be reviewed by CA Energy Commission for Approval |                                                                                                 |                              |                          |             |                                              |
| <input type="checkbox"/> LZ-1: Low - Developed Parkland                                                                                                                                                                        |    | <input type="checkbox"/> LZ-3: Moderately High - Urban Areas                                                                                           |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| <b>B. PROJECT SCOPE</b>                                                                                                                                                                                                        |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| Table Instructions: Include any outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.7, or §141.0(b)(2) for alterations. |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| My project consists of:                                                                                                                                                                                                        |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| 01                                                                                                                                                                                                                             |    | 02                                                                                                                                                     |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| <input checked="" type="checkbox"/> New Lighting System                                                                                                                                                                        |    | Must Comply with Allowances from §140.7.                                                                                                               |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| <input type="checkbox"/> Altered Lighting System                                                                                                                                                                               |    | Is your alteration increasing the connected lighting load (Watts)? <span style="float:right"><input type="radio"/> Yes <input type="radio"/> No</span> |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100                                                    |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| <b>C. COMPLIANCE RESULTS</b>                                                                                                                                                                                                   |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| Table Instructions: If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, for guidance.                                                                                 |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 |                              |                          |             |                                              |
| Calculation of Total Allowed Lighting Power (Watts) §140.7 or §141.0(b)(2)                                                                                                                                                     |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 | Compliance Results           |                          |             |                                              |
| 01                                                                                                                                                                                                                             | 02 | 03                                                                                                                                                     | 04 | 05                                                                                          | 06                                                                                              | =                            | 07                       | 08          | 09                                           |
| General<br>Hardscape<br>Allowance<br>§140.7(d)(1)                                                                                                                                                                              | +  | Per<br>Application<br>§140.7(d)(2)                                                                                                                     | +  | Ornamental<br>§140.7(d)(2)                                                                  | +<br>OR<br>Per Specific<br>Area<br>§140.7(d)(2)<br><br>(See Table M)<br><br>OR<br>(See Table N) | =                            | Total Allowed<br>(Watts) | ≥           | Total Actual<br>(Watts)<br><br>(See Table F) |
| 1,040.275                                                                                                                                                                                                                      | +  |                                                                                                                                                        | +  |                                                                                             |                                                                                                 | =                            | 1,040.275                | ≥           | 324                                          |
| Cutoff Compliance (See Table G for Details)                                                                                                                                                                                    |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 | Not Applicable<br>COMPLIES   |                          |             |                                              |
| Controls Compliance (See Table H for Details)                                                                                                                                                                                  |    |                                                                                                                                                        |    |                                                                                             |                                                                                                 | COMPLIES                     |                          |             |                                              |

| <b>STATE OF CALIFORNIA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |                                                                                                                                                      |                          |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| <b>Outdoor Lighting</b><br>NRCC-LTO-6 (Created 11/78)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       | CALIFORNIA ENERGY COMMISSION<br>NRCC-LTO-6                                                                                                           |                          |                          |
| CERTIFICATE OF COMPLIANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                                                                                                                                                      |                          |                          |
| Project Name: El Dorado Bike Park                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       | Report Page:                                                                                                                                         | NRCC-LTO-6 Page 4 of 6   |                          |
| Project Address: Old Depot Road, Placerville, 95667                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       | Date Prepared:                                                                                                                                       | 03/16/2021               |                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                                                                                                                                      | 0                        |                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                                                                                                                                      |                          |                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       | Initial Wattage Allowance for Entire Site (Watts):                                                                                                   | 250                      |                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       | Total General Hardcape Allowance (Watts):                                                                                                            | 1,040.275                |                          |
| <b>J. LIGHTING ALLOWANCE: PER APPLICATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                                                                                                                                      |                          |                          |
| This Section Does Not Apply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                                                                                                                                      |                          |                          |
| <b>K. LIGHTING ALLOWANCE: SALES FRONTAGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                                                                                                                                                      |                          |                          |
| This Section Does Not Apply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                                                                                                                                      |                          |                          |
| <b>L. LIGHTING ALLOWANCE: ORNAMENTAL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |                                                                                                                                                      |                          |                          |
| This Section Does Not Apply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                                                                                                                                      |                          |                          |
| <b>M. LIGHTING ALLOWANCE: PER SPECIFIC AREA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                                                                                                                                      |                          |                          |
| This Section Does Not Apply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                                                                                                                                      |                          |                          |
| <b>N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                                                                                                                                      |                          |                          |
| This Section Does Not Apply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                                                                                                                                      |                          |                          |
| <b>O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |                                                                                                                                                      |                          |                          |
| Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at <a href="https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/NRNonresidential_Documents/NRCC/">https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/NRNonresidential_Documents/NRCC/</a> |                       |                                                                                                                                                      |                          |                          |
| YES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | NO                    | Form/Title                                                                                                                                           | Field Inspector Pass     | Field Inspector Fail     |
| <input checked="" type="radio"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="radio"/> | NRCC-LTO-01-E - Must be submitted for all buildings.                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="radio"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="radio"/> | NRCC-LTO-02-E - Must be submitted for a lighting control system; or for an Energy Management Control System (EMCS), to be recognized for compliance. | <input type="checkbox"/> | <input type="checkbox"/> |

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-02 (Created 11/19)

CERTIFICATE OF COMPLIANCE

Project Name: El Dorado Bike Park

Project Address: Old Depot Road, Placerville, 95667

Report Date:

Date Prepared:

STATE OF CALIFORNIA

NRCC-LTO-02

Page 2 of 6

03/15/2023

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

No exceptional conditions apply to this project.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. REMOVED LIGHTING FIXTURE SPECIFICATIONS

Table Instructions: For new or altered lighting systems demonstrating compliance with §150.7 (ie Table I has expanded for input), include all luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit applicant in the Table below. For altered lighting systems using the Existing Power method per §131.0(b)(2), (ie Table N has expanded for input), include any new luminaires being installed and replacement luminaires being installed as part of the project scope (ie do not include existing luminaires remaining or existing luminaires being moved).

Designed Wattage:

| 01                    | 02                                                | 03                               | 04                        | 05                                   | 06                            | 07                       | 08           | 09                                                                  | 10                                                          |
|-----------------------|---------------------------------------------------|----------------------------------|---------------------------|--------------------------------------|-------------------------------|--------------------------|--------------|---------------------------------------------------------------------|-------------------------------------------------------------|
| Name or Item Tag      | Complete Luminaire Description                    | Watts per luminaire <sup>1</sup> | How Wattage is determined | Total number luminaires <sup>2</sup> | Luminaire Status <sup>3</sup> | Excluded per §150.7(a)   | Design Watts | Calc'd Req. ≤ 6,200 initial luminaire output §130.2(b) <sup>4</sup> | Field Inspector                                             |
| A                     | 14" Pole Lighting <input type="checkbox"/> Linear | 81                               | Mfr. Spec <sup>1</sup>    | 4                                    | New                           | <input type="checkbox"/> | 324          |                                                                     | <input type="checkbox"/> Pass <input type="checkbox"/> Fail |
| Total Designed Watts: |                                                   |                                  |                           |                                      |                               |                          | 324          |                                                                     |                                                             |

\* NOTES: Selections with a \* require a note in the space below explaining how compliance is achieved.

EX: Luminaire is lighting a statue; EXCEPTION 2 to §130.2(b).

<sup>1</sup> FOOTNOTES: Authority Having Jurisdiction may ask for luminaire cut sheets to confirm wattage used for compliance per §130.0(d).


For linear luminaires, wattage should be indicated as W/ft instead of Watts/luminaire. Total linear feet for the luminaire should be indicated in column 05 instead of number of luminaires.

<sup>2</sup> Select "New" for new luminaires in a new outdoor lighting project or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope

<sup>4</sup> Compliance with mandatory cutoff requirements is required for luminaires with initial luminaire output ≥ 6,200 unless exempted by §130.2(b).

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2019standards>

November 2019

|                                                     |                |                                                                                     |  |
|-----------------------------------------------------|----------------|-------------------------------------------------------------------------------------|--|
| STATE OF CALIFORNIA                                 |                |  |  |
| <b>Outdoor Lighting</b>                             |                | CALIFORNIA ENERGY COMMISSION                                                        |  |
| NRECA-LTO-4 (Created 11/19)                         |                | NRCC-LTO-4                                                                          |  |
| CERTIFICATE OF COMPLIANCE                           |                | Page 5 of 6                                                                         |  |
| Project Name: El Dorado Bike Park                   | Report Page:   |                                                                                     |  |
| Project Address: Old Depot Road, Placerville, 95667 | Date Prepared: |                                                                                     |  |
|                                                     | 03/16/2022     |                                                                                     |  |

**P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE**

*Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: <http://www.energy.ca.gov/title24/attcp/providers.html>*

| YES                              | NO                    | Form/Title                                                                                                                               | Field Inspector                                   |
|----------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
|                                  |                       |                                                                                                                                          | Pass Fail                                         |
| <input checked="" type="radio"/> | <input type="radio"/> | NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls area added to ≤ 20 luminaires. | <input type="checkbox"/> <input type="checkbox"/> |

STATE OF CALIFORNIA
NRCC-TO-E (Created 11/7/19)
NRCC-TO-E Page 3 of 4

## Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

---

|                                                     |  |                       |                  |
|-----------------------------------------------------|--|-----------------------|------------------|
| <b>CERTIFICATE OF COMPLIANCE</b>                    |  | <b>Report Page:</b>   | <b>NRCC-TO-E</b> |
| Project Name: El Dorado Lake Park                   |  | <b>Date Prepared:</b> | Page 3 of 4      |
| Project Address: Old Depot Road, Placerville, 95667 |  |                       | 03/16/2023       |

**G. CUTOFF REQUIREMENTS (BUG)**  
 This Section Does Not Apply

**H. OUTDOOR LIGHTING CONTROLS**

**Table Instructions:** Complete this table demonstrating compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.

When an option having a "\*" is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank. For each requirement in columns 02 through 04, do not leave the field blank, instead select NA or Exempt\* from the dropdown list to indicate not applicable or an exemption.

| Mandatory Controls | 01                               | 02                                    | 03                                    | 04 | 05                                                          |
|--------------------|----------------------------------|---------------------------------------|---------------------------------------|----|-------------------------------------------------------------|
| Area Description   | Shut-Off<br><i>\$130.2(c)(1)</i> | Auto-Schedule<br><i>\$130.2(c)(2)</i> | Motion Sensor<br><i>\$130.2(c)(3)</i> |    | Field Inspection                                            |
| Park               | Photocontrol                     | Yes                                   | Yes                                   |    | Pass <input type="checkbox"/> Fail <input type="checkbox"/> |

\*NOTES: Controls with a \* require a note in the space below explaining how compliance is achieved.  
 EX: Not permitted by health & safety to be turned off; EXCEPTION I to §130.2(c).

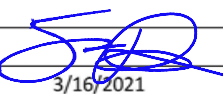
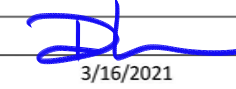
**I. LIGHTING POWER ALLOWANCE (per §140.7)**

**Table Instructions:** Please complete this table for areas using the allowance calculations per §140.7. General Hardscape Allowance is per Table 140.7-A while "Use it or lose it" Allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

|                                                                                    | General<br>Hardscape<br>Allowance<br><br><input checked="" type="checkbox"/> | 01<br>"Use it or lose it" Allowances (select all that apply) |                                      |                                         |                       |                                                                                 |                                                |                                            |  |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------|-----------------------------------------|-----------------------|---------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------|--|
|                                                                                    |                                                                              | <input type="checkbox"/> Per Application                     |                                      | <input type="checkbox"/> Sales Frontage |                       | <input type="checkbox"/> Ornamental                                             |                                                | <input type="checkbox"/> Per Specific Area |  |
|                                                                                    |                                                                              | Table I (below)                                              | Table J                              | Table K                                 | Table L               | Table M                                                                         | Table N                                        |                                            |  |
| Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 2 & 3) |                                                                              |                                                              |                                      |                                         |                       |                                                                                 |                                                |                                            |  |
| 02                                                                                 | 03                                                                           | 04                                                           | 05                                   | 06                                      | 07                    | 08                                                                              | 09                                             | 10                                         |  |
| Area Description                                                                   | Surface Type                                                                 | Area Wattage Allowance (AWA)                                 |                                      | Area Allowance (Watts)                  | Perimeter Length (ft) | Linear Wattage Allowance (LWA)                                                  |                                                | Total General A + LWA (Watts)              |  |
|                                                                                    |                                                                              | Illuminated Area (sq ft)                                     | Allowed Density (W/ft <sup>2</sup> ) |                                         |                       | Allowed Density (W/ft) <td>Linear Allowance (Watts) <td colspan="2"></td> </td> | Linear Allowance (Watts) <td colspan="2"></td> |                                            |  |
| Park                                                                               | Concrete                                                                     | 21,627                                                       | 0.025                                | 540.675                                 | 624                   | 0.4                                                                             | 249.6                                          | 790.275                                    |  |

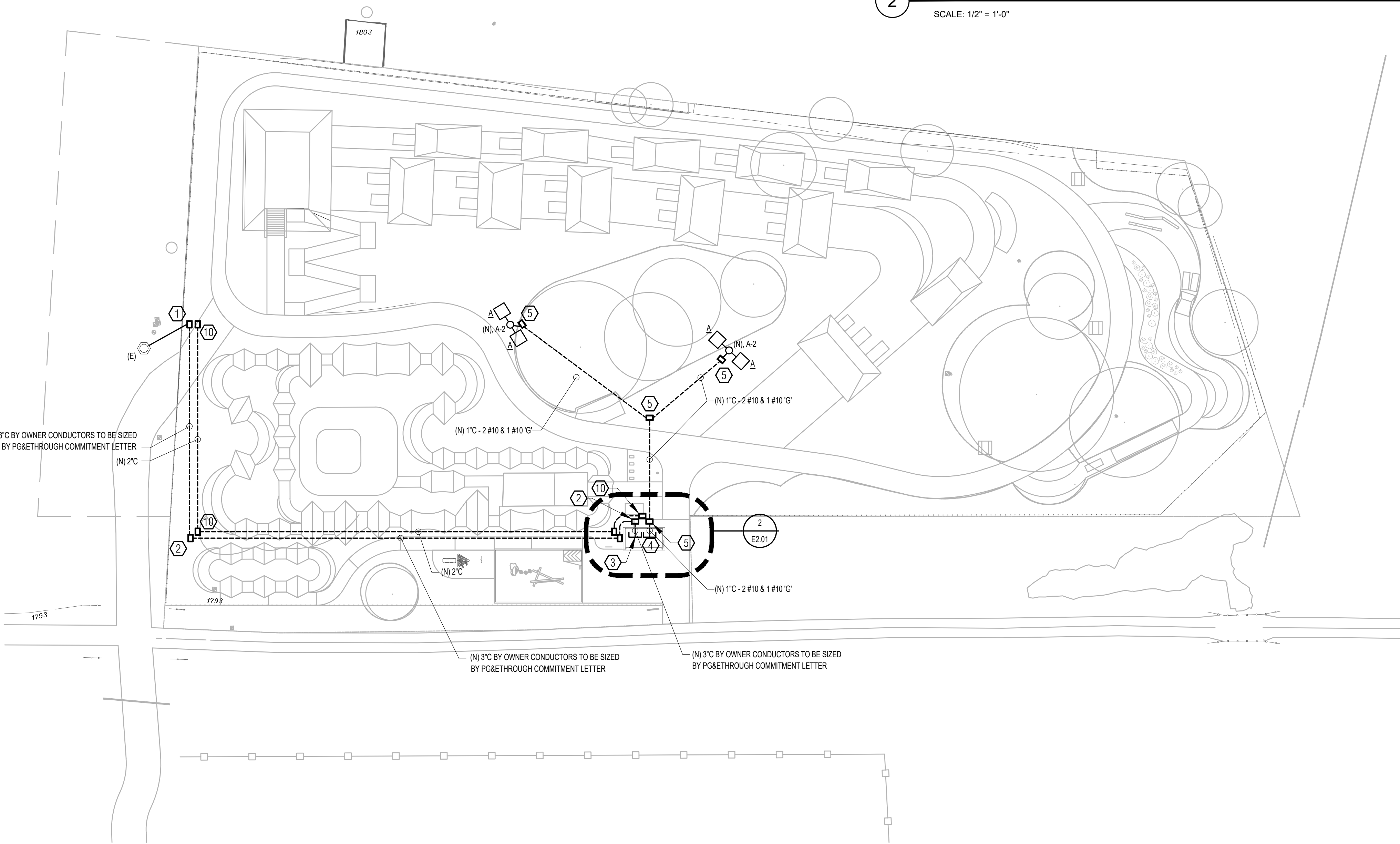
Table Continued

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2019standards>
November 2019

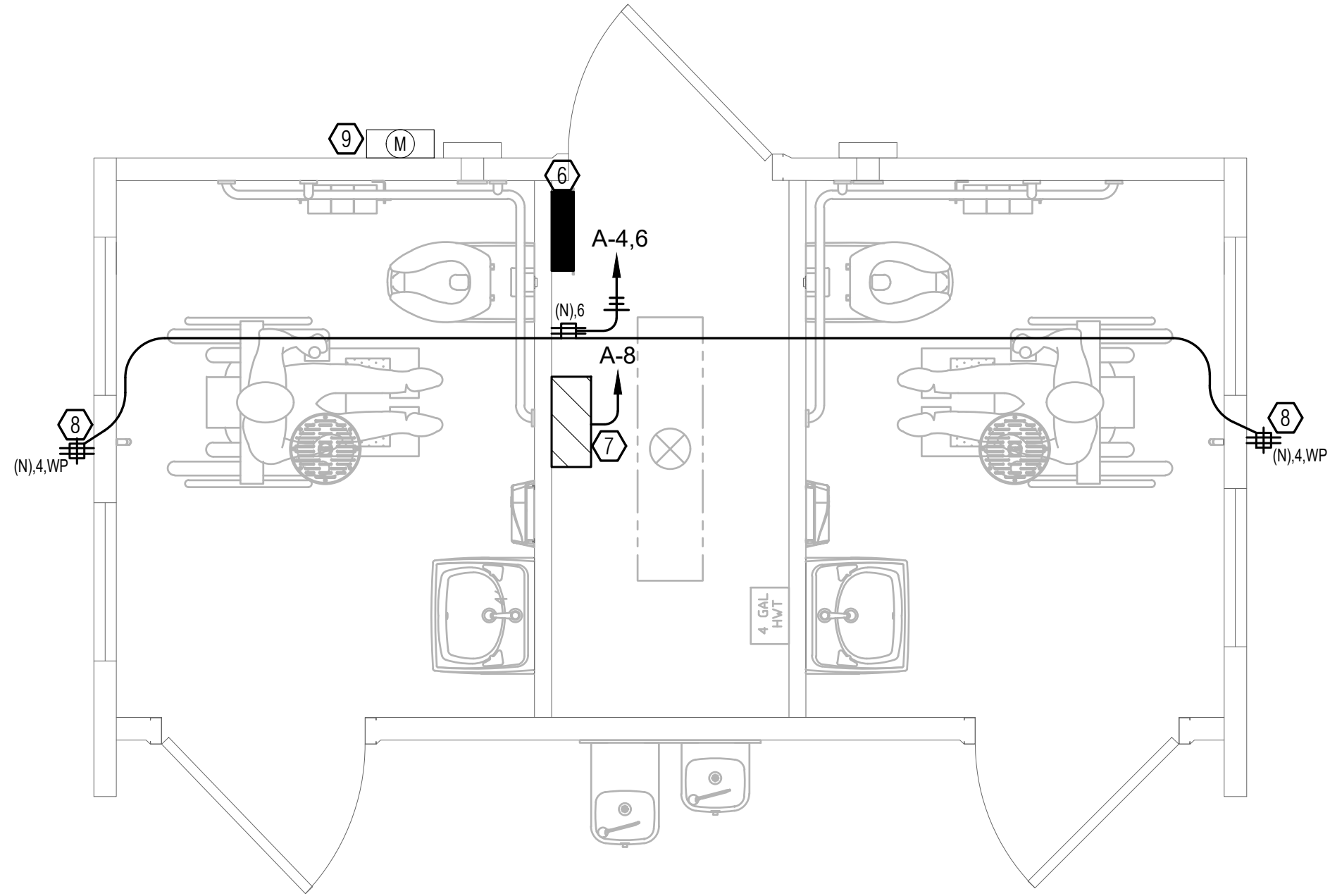
|                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                       |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------|--|
| STATE OF CALIFORNIA<br><b>Outdoor Lighting</b><br>NRCC-LTD4 (Created 12/19)                                                                                                                                                                                                                                                                                                                                                      |  | CALIFORNIA ENERGY COMMISSION<br>NRCC-LTD4                                                                             |  |
| CERTIFICATE OF COMPLIANCE<br>Project Name: El Dorado Bike Park<br>Project Address: Old Depot Road, Placerville, 95667                                                                                                                                                                                                                                                                                                            |  | Report Page: _____<br>Date Prepared: 03/16/2021                                                                       |  |
| <b>DOCUMENTATION AUTHOR'S DECLARATION STATEMENT</b>                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                       |  |
| I certify that this Certificate of Compliance documentation is accurate and complete                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                       |  |
| Documentation Author Name: Stephanie Roynton, EIT                                                                                                                                                                                                                                                                                                                                                                                |  | Documentation Author Signature:    |  |
| Company: EDGE Electrical Consulting, Inc.                                                                                                                                                                                                                                                                                                                                                                                        |  | Signature Date: 3/16/2021                                                                                             |  |
| Address: 1801 7th St, Suite 150                                                                                                                                                                                                                                                                                                                                                                                                  |  | CEA/ HERS Certification Identification (if applicable):                                                               |  |
| City/State/Zip: Sacramento, CA, 95811                                                                                                                                                                                                                                                                                                                                                                                            |  | Phone: 916-256-2460                                                                                                   |  |
| <b>RESPONSIBLE PERSON'S DECLARATION STATEMENT</b>                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                       |  |
| I certify the following under penalty of perjury, under the laws of the State of California:                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                       |  |
| 1. The information provided on this Certificate of Compliance is true and correct.                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                       |  |
| 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)                                                                                                                                                                                                                     |  |                                                                                                                       |  |
| 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.                                                                                                                                   |  |                                                                                                                       |  |
| 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.                                                                                         |  |                                                                                                                       |  |
| 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy. |  |                                                                                                                       |  |
| Responsible Designer Name: Donny Lee, PE                                                                                                                                                                                                                                                                                                                                                                                         |  | Responsible Designer Signature:  |  |
| Company: EDGE Electrical Consulting, Inc.                                                                                                                                                                                                                                                                                                                                                                                        |  | Date Signed: 3/16/2021                                                                                                |  |
| Address: 1801 7th St, Suite 150                                                                                                                                                                                                                                                                                                                                                                                                  |  | License: E017376                                                                                                      |  |
| City/State/Zip: Sacramento, CA, 95811                                                                                                                                                                                                                                                                                                                                                                                            |  | Phone: 916-256-2460                                                                                                   |  |

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2019standards>





1 ENLARGED SITE PLAN - NEW POWER  
SCALE: 1" = 30'-0"



2 ENLARGED FLOOR PLAN - ELECTRICAL  
SCALE: 1/2" = 1'-0"

SHEET NOTES

- RESTROOM BUILDING LIGHTING, LIGHTING CONTROLS, 100A, 120/240V, SINGLE PHASE PANEL, EXHAUST FAN ELECTRICAL, HAND DRYER ELECTRICAL AND ELECTRIC LOCK SYSTEM SHALL BE DESIGNED AND PROVIDED BY PREFABRICATED BUILDING VENDOR.
- REFER TO ONE LINE DIAGRAM FOR CONDUIT, CONDUCTOR SIZES AND ADDITIONAL REQUIREMENTS.

NUMBERED NOTES

- PG&E TO RISER DOWN NEW SERVICE FEED TO NEW CHRISTY PULL BOX. (N) CHRISTY PULLBOX COVER TO BE LABELED 'ELECTRICAL'. PULL BOX TO BE SIZED BY PG&E AFTER RECEIPT OF COMMITMENT LETTER.
- NEW CHRISTY PULL BOX TO BE SIZED BY PG&E AFTER RECEIPT OF COMMITMENT LETTER. COVER TO BE LABELED 'ELECTRICAL'.
- CONNECT NEW POWER SERVICE TO ELECTRICAL METER ON THE EXTERIOR OF THE BUILDING. THEN STUB CONDUIT FOR USE INTO THE BACKROOM OF THE RESTROOM TO NEW ELECTRICAL PANEL PROVIDED BY MANUFACTURED BUILDING VENDOR.
- NEW LIGHTING CIRCUIT TO STUB INTO BACKROOM OF RESTROOM BUILDING TO BE CONNECTED TO NEW ELECTRICAL SERVICE PANEL.
- NEW N9 CHRISTY PULLBOX. COVER TO BE LABELED 'ELECTRICAL'.
- 100A, 120/240V, SINGLE PHASE, 10KAIC, 12 BREAKER PANEL PROVIDED BY MANUFACTURED BUILDING VENDOR.
- (N) IRRIGATION CONTROLLER. 120V, 1 A.
- CONVENIENCE RECEPTACLES, PROVIDE WITH LOCKABLE METAL COVERS. COVERS MUST BE PAINTED TO MATCH BUILDING.
- MILBANK 114TB SERVICE ENTRANCE RATED METER. NEW PG&E SERVICE TO CONNECT HERE. FROM METER, PENETRATE POWER CONDUIT INTO BUILDING TO ELECTRICAL PANEL PROVIDED BY MANUFACTURED BUILDING VENDOR.
- PULLBOXES AND ASSOCIATED EMPTY CONDUIT PROVISIONED FOR FUTURE LOW VOLTAGE SERVICES.

PG&E NOTES

ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS WORK THE ELECTRICAL POWER, TELECOMMUNICATIONS, AND CABLE TELEVISION SERVICES. ALL WORK PERFORMED BY THE CONTRACTOR SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS FROM THE UTILITY COMPANY AND FROM THESE PLANS AND SPECIFICATIONS. CONTACT THE UTILITY COMPANY AND OBTAIN THEIR REQUIREMENTS REGARDING THE DETAIL OF SERVICES AND ASSOCIATED WORK. WHERE THE UTILITY COMPANY REQUIRE MATERIALS AND METHODS BEYOND THESE PLANS AND SPECIFICATIONS, REPORT THE DISCREPANCIES TO THE ARCHITECT AND ENGINEER OF RECORD PRIOR TO PURCHASING OF MATERIALS AND CONSTRUCTION.

PG&E CONTACT(S): MARSHALL KELLY: 209-728-4879  
BEFORE BEGINNING SUBSTRUCTURE WORK, CALL 811.



Know what's below.  
Call before you dig.



**EDGE**  
ELECTRICAL CONSULTING

1801 7th Street, Suite 150  
Sacramento, CA 95811  
916.256.2460

300 27th Street #201  
Oakland, CA 94612  
510.775.3836

05/12/2021 Project Number H129 Contact Stephanie

| REVISION/ISSUE | BY |
|----------------|----|
|                |    |
|                |    |
|                |    |
|                |    |
|                |    |

OVERALL SITE PLAN -  
NEW ELECTRICAL

OLD DEPOT  
BIKE PARK

EL DORADO COUNTY

LANDSCAPE ARCHITECT OF RECORD

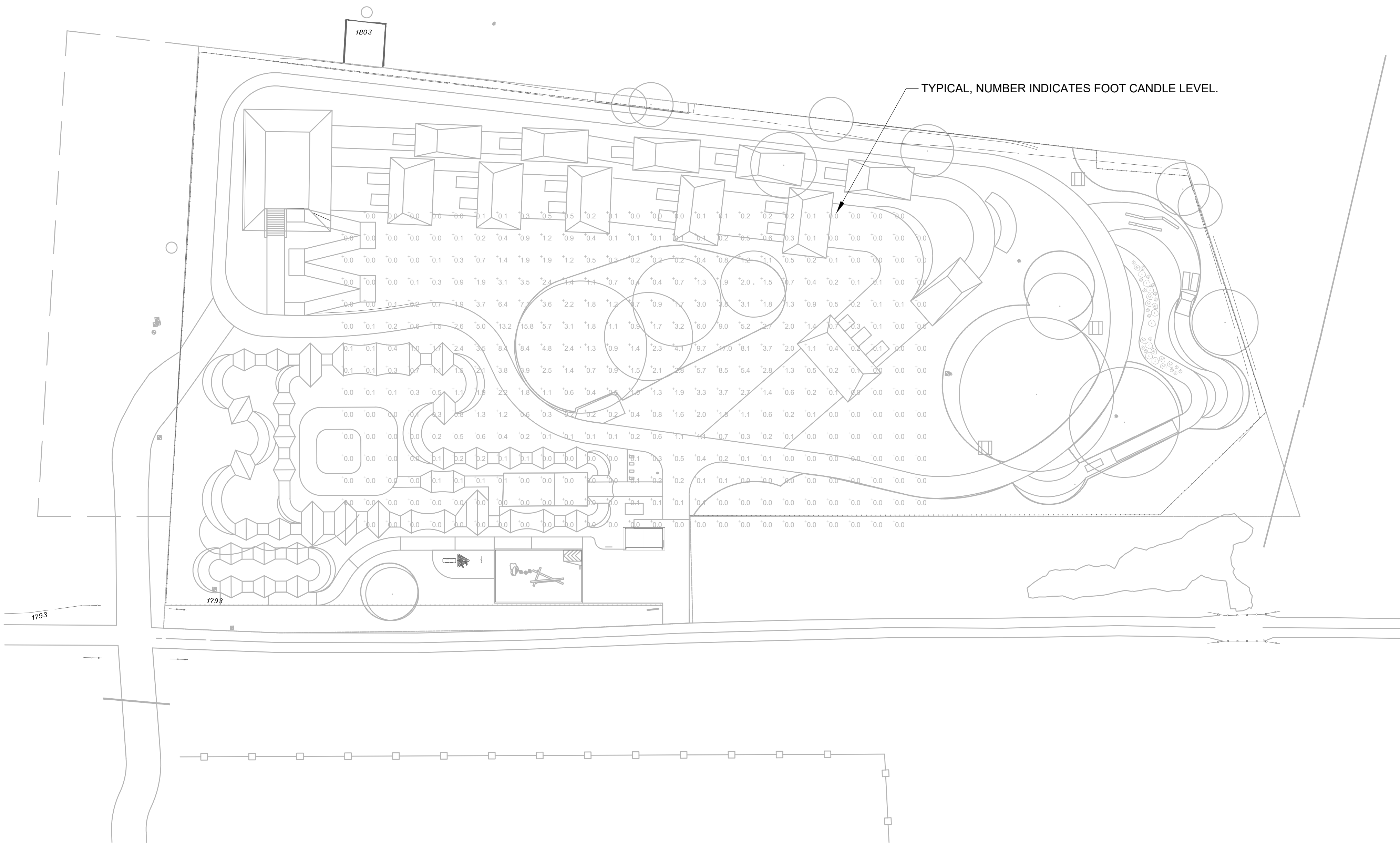
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**HELIX**  
Environmental Planning

DRAWN BY  
Stephanie  
DATE  
05/14/2021  
SCALE  
AS SHOWN  
JOB NUMBER  
CED-04

SHEET  
E2.01  
17 of 37





1 OVERALL SITE PLAN - PHOTOMETRICS  
SCALE: 1" = 30'-0"

SHEET NOTES

1. EXTERIOR LIGHTING IS NOT MEANT AS A MEANS OF EGRESS. PARK SHALL BE CLOSED AFTER HOURS AND HAVE RESTRICTED ACCESS. EXTERIOR LIGHTING IS MEANT TO ACT AS MEANS TO DETER TRESPASSING AFTER HOURS. FOOT CANDLE LEVELS DO NOT REFLECT LEVELS FOR WHEN PARK IS IN USE. EXTERIOR LIGHT SHALL NOT CAUSE DISTURBANCES TO LOCAL RESIDENTIAL AREAS.

| REVISION/ISSUE | BY |
|----------------|----|
|                |    |
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OVERALL SITE PLAN -  
PHOTOMETRICS

OLD DEPOT  
BIKE PARK  
EL DORADO COUNTY

LANDSCAPE ARCHITECT OF RECORD

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| DRAWN BY   | Stephanie  |
| DATE       | 05/14/2021 |
| SCALE      | AS SHOWN   |
| JOB NUMBER | CED-04     |
| SHEET      | E2.02      |
|            | 18 of 37   |

| LUMINAIRE SCHEDULE                        |                                                                             |                                                              |          |      |       |       |
|-------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------|----------|------|-------|-------|
| TYPE                                      | MANUFACTURER/CATALOG                                                        | DESCRIPTION                                                  | MOUNTING | TYPE | VOLTS | WATTS |
| A1                                        | U.S. ARCHITECTURAL LIGHTING<br>RZRM-PLD-III-W-48LED-525MA-NW-120-RAL-9005-T | POLELIGHT; 10,018 LUMEN; 4000K CCT;<br>TYPE III DISTRIBUTION | 14' POLE | LED  | 120   | 81.0  |
| A2                                        | U.S. ARCHITECTURAL LIGHTING<br>RZRM-PLD-IV-48LED-525MA-NW-120-RAL-9005-T    | POLELIGHT; 10,018 LUMEN; 4000K CCT;<br>TYPE IV DISTRIBUTION  | 14' POLE | LED  | 120   | 81.0  |
| A3                                        | U.S. ARCHITECTURAL LIGHTING<br>RZRM-PLD-IV-48LED-700MA-NW-120-RAL-9005-T    | POLELIGHT; 12,600 LUMEN; 4000K CCT;<br>TYPE IV DISTRIBUTION  | 14' POLE | LED  | 120   | 105.0 |
| REMARKS                                   |                                                                             |                                                              |          |      |       |       |
| INTEGRATED PHOTOCELL AND OCCUPANCY SENSOR |                                                                             |                                                              |          |      |       |       |
| INTEGRATED PHOTOCELL AND OCCUPANCY SENSOR |                                                                             |                                                              |          |      |       |       |
| INTEGRATED PHOTOCELL AND OCCUPANCY SENSOR |                                                                             |                                                              |          |      |       |       |

| (N) PANEL 'A'                                                        |  | SECTION 1 OF 1      |                           | BUS RATING: 100 AMP |      | SINGLE PHASE |      | VOLTAGE |                                            |
|----------------------------------------------------------------------|--|---------------------|---------------------------|---------------------|------|--------------|------|---------|--------------------------------------------|
| LOCATION: RESTROOM CLOSET                                            |  | SERVING NORMAL      |                           | MAIN BREAKER        |      | 3-WIRE       |      | 240/120 |                                            |
| PANEL A.I.C. 10,000                                                  |  | MOUNTING: X SURFACE |                           | X MAIN LUGS ONLY    |      |              |      |         |                                            |
| LOAD DESCRIPTION                                                     |  | KVA LOAD            |                           | C. B.               |      | CKT          |      | PH      |                                            |
|                                                                      |  | CONT.               | RECP.                     | MOTOR               | NON  | AMP          | POLE | #       |                                            |
| RESERVE FOR BUILDING ELECTRICAL                                      |  |                     |                           | 1.00                | 20   | 1            | 1    | A       | 2                                          |
| RESERVE FOR BUILDING ELECTRICAL                                      |  |                     |                           | 1.00                | 20   | 1            | 3    | B       | 4                                          |
| RESERVE FOR BUILDING ELECTRICAL                                      |  |                     |                           | 1.00                | 20   | 1            | 5    | A       | 6                                          |
| SITE LIGHTING                                                        |  | 1.04                |                           |                     | 20   | 1            | 7    | B       | 8                                          |
| SPACE                                                                |  |                     |                           | 0.00                | -    | -            | 9    | A       | 10                                         |
| SPACE                                                                |  |                     |                           | 0.00                | -    | -            | 11   | B       | 12                                         |
| TOTALS                                                               |  | 1.04                | 0.00                      | 0.00                | 3.00 |              |      |         |                                            |
| TOTAL CONTINUOUS LOAD @ 125%:                                        |  | 3.08 KVA            |                           |                     |      |              |      |         |                                            |
| TOTAL RECEPTACLE LOAD, 100% FOR FIRST 10,000VA, & 50% FOR REMAINDER: |  | 1.08 KVA            |                           |                     |      |              |      |         |                                            |
| TOTAL NONCOINCIDENT LOAD:                                            |  | 3.36 KVA            |                           |                     |      |              |      |         |                                            |
| TOTAL MOTOR LOAD:                                                    |  | 0.00 KVA            |                           |                     |      |              |      |         |                                            |
| LARGEST MOTOR @ 25%:                                                 |  | 0.00 KVA            |                           |                     |      |              |      |         |                                            |
| TOTAL DEMAND LOAD                                                    |  | 7.52 KVA            | CONNECTED KVA TOTAL/PHASE |                     | A    | 3.60         | B    | 3.30    | MINIMUM FEEDER CAPACITY 7.52 KVA 31.31 AMP |

### SHEET NOTES


1. ALL ASSOCIATED CONDUITS AND PULL BOXES SHALL BE INSTALLED AS PART OF THE BASE BID. LIGHTING AND CONDUCTORS SHALL BE INSTALLED LATER AS PART OF THE ADD ALT.

### NUMBERED NOTES

① EXTEND CIRCUIT FROM MAIN ELECTRICAL WORK TO THIS PULL BOX FOR ADD ALTERNATE SERVICE.

② (N) 1"C - 2 #6 & 1 #10 'G'

③ (N) CHRISTY N9 PULL BOX. COVER TO BE LABELED "ELECTRICAL".



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Call before you dig.

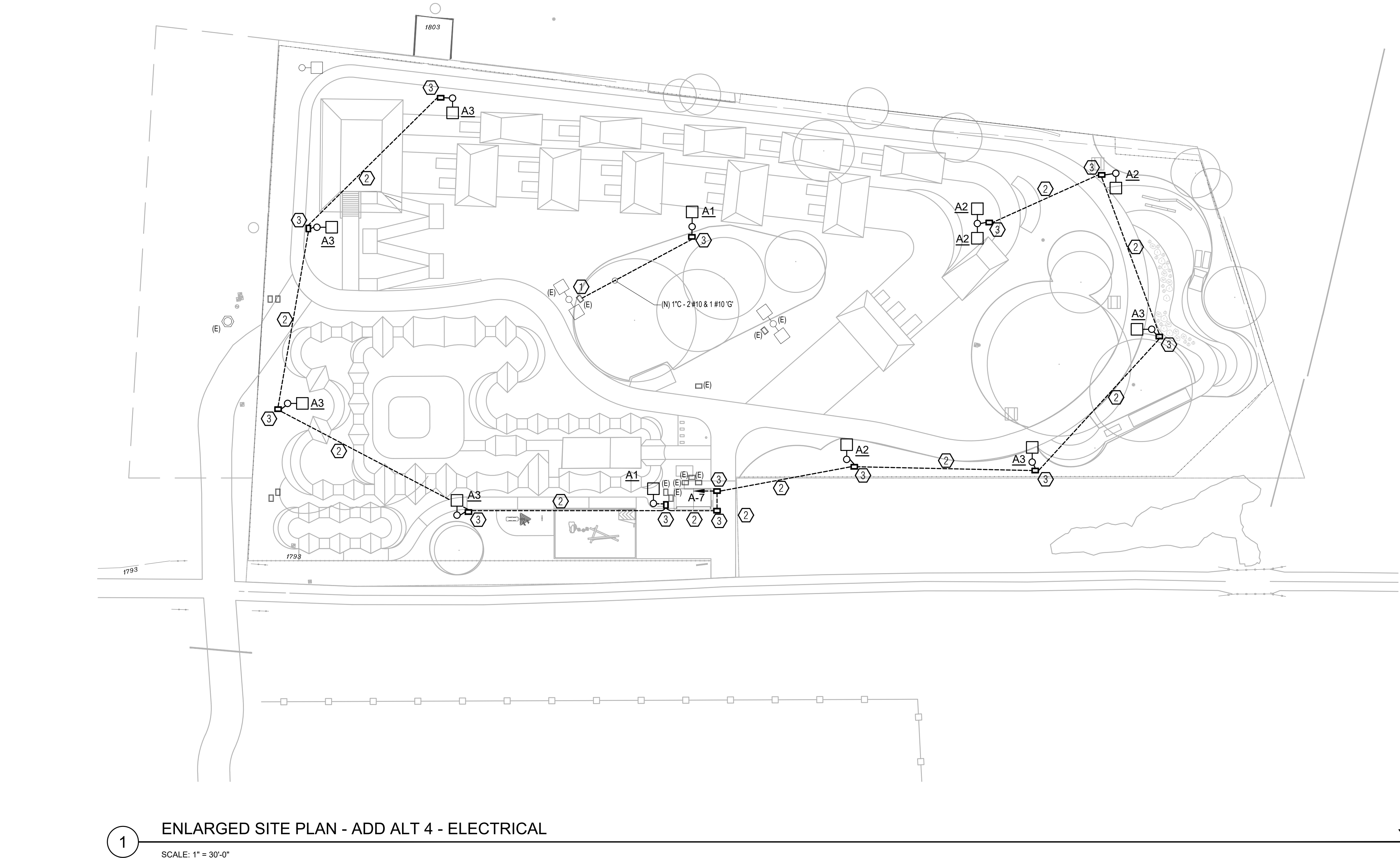
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BY

OVERALL SITE PLAN -  
ADD ALT 1 -  
ELECTRICAL

OLD DEPOT  
BIKE PARK  
EL DORADO COUNTY

LANDSCAPE ARCHITECT OF RECORD



1 ENLARGED SITE PLAN - ADD ALT 4 - ELECTRICAL

SCALE: 1" = 30'-0"



STEPHANIE  
ELECTRICAL  
STATE OF CALIFORNIA  
No. E 017376  
05/12/2021



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05/14/2021

SCALE  
AS SHOWN

JOB NUMBER  
CED-04

SHEET  
E2.03  
19 of 37



1. EXTERIOR LIGHTING IS NOT MEANT AS A MEANS OF EGRESS. PARK SHALL BE CLOSED AFTER HOURS AND HAVE RESTRICTED ACCESS. EXTERIOR LIGHTING IS MEANT TO ACT AS MEANS TO DETER TRESPASSING AFTER HOURS. FOOT CANDLE LEVELS DO NOT REFLECT LEVELS FOR WHEN PARK IS IN USE. EXTERIOR LIGHT SHALL NOT CAUSE DISTURBANCES TO LOCAL RESIDENTIAL AREAS.

## OVERALL SITE PLAN - ADD ALT PHOTOMETRICS

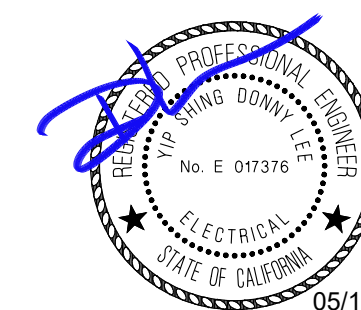
**OLD DEPOT  
BIKE PARK**

---

EL DORADO COUNTY

LANDSCAPE ARCHITECT OF RECORD

SCALE: 1" = 30'-0"



**EDGE**  
**ELECTRICAL CONSULTING**

|                                                                    |                                                           |
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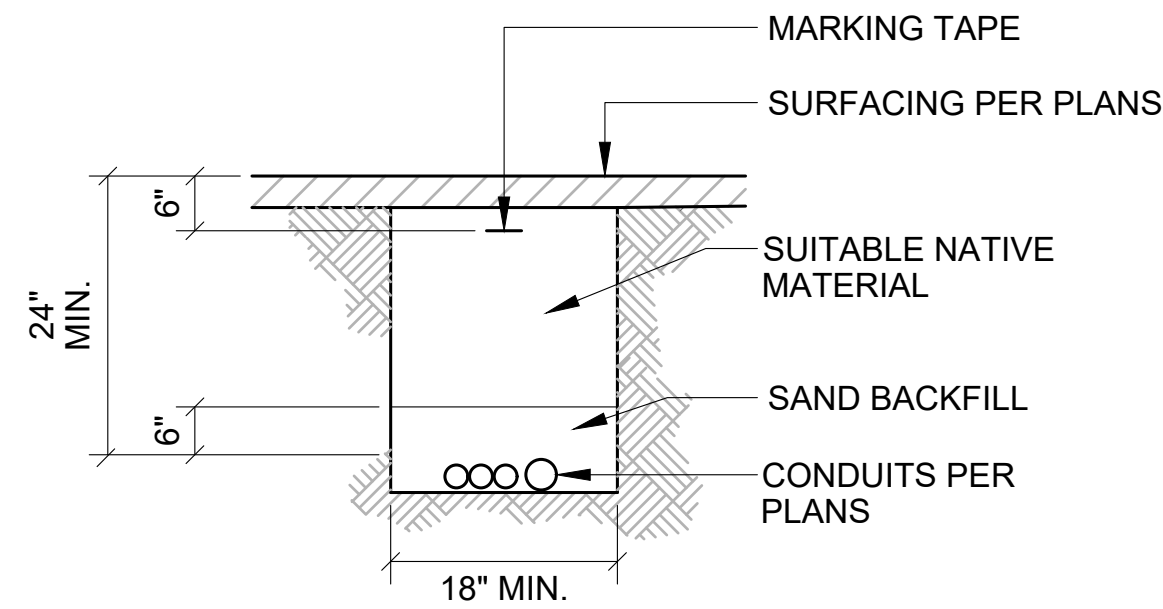
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| DATE       | 05/14/2021 |
| SCALE      | AS SHOWN   |
| JOB NUMBER | CPD-04     |

HEET  
E2.04  
20 of 37

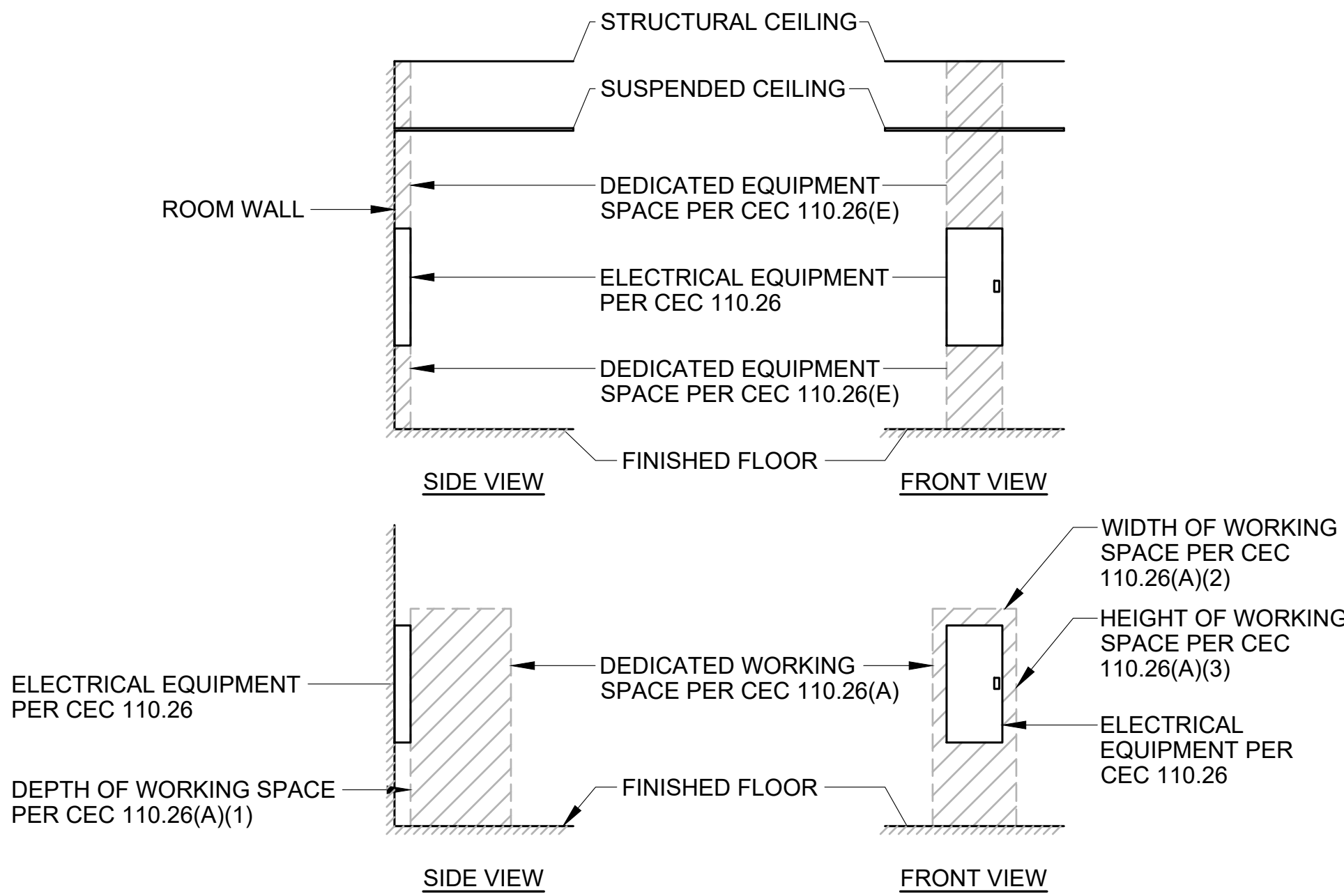




- NOTES:
- BOTTOM OF TRENCH SHALL BE SQUARE AND CLEAN.
  - REFER TO PLANS FOR QUANTITY AND SIZES OF CONDUITS.
  - NATIVE MATERIALS SHALL BE NATIVE TO THE PROJECT SITE, FREE OF WOOD, ORGANICS, AND OTHER DELETERIOUS SUBSTANCES. ROCKS SHALL NOT BE GREATER THAN 3" INCHES.
  - SAND SHALL BE FINE GRANULAR MATERIAL, FREE OF ORGANIC MATTER, MICA, LOAM OR CLAY.
  - 24" COVER IS ACCEPTABLE AT LOCATIONS W/IN THE WALK.

#### UTILITY TRENCH DETAIL

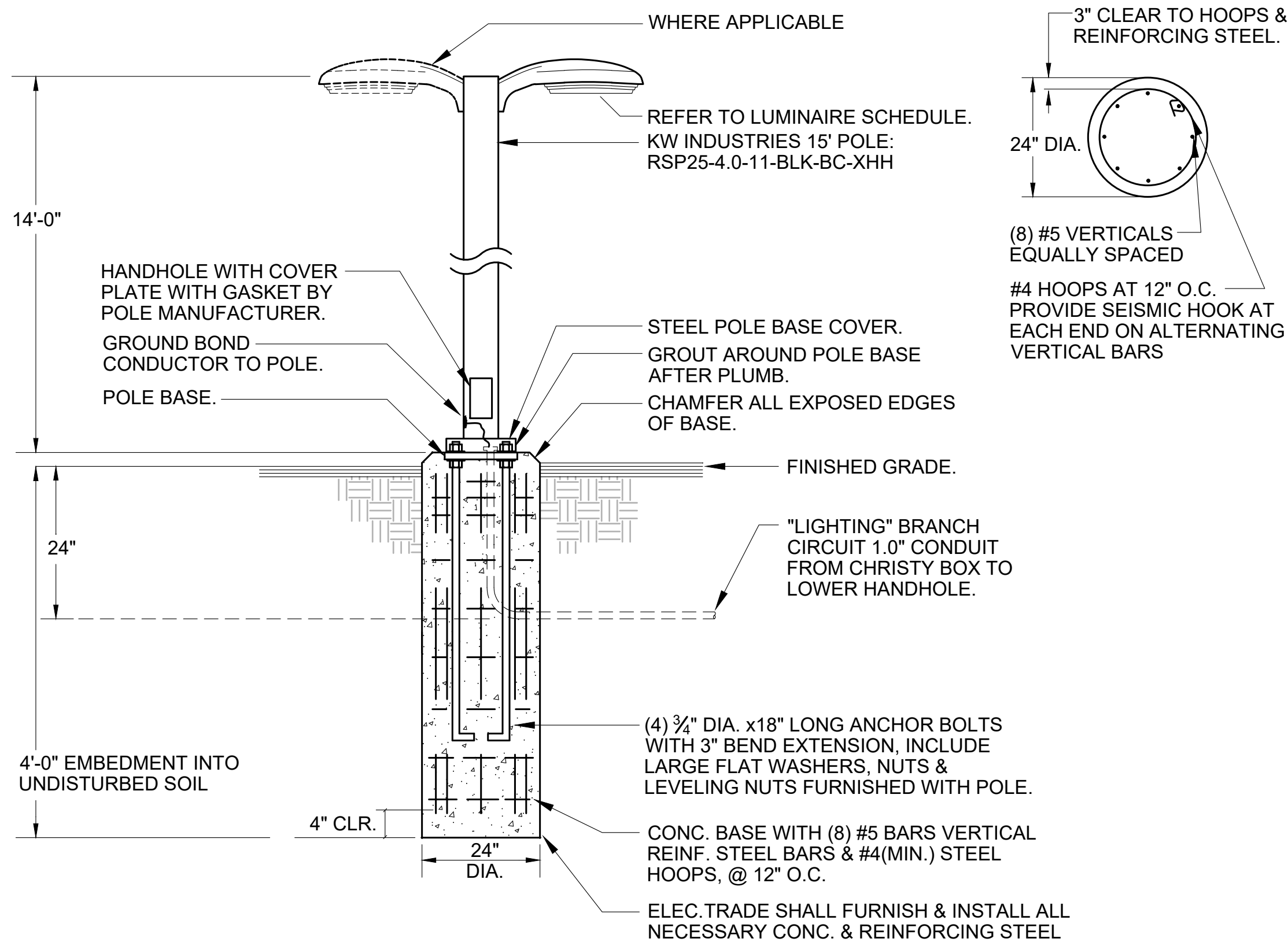
1  
NO SCALE



- NOTES:
- REFER TO CEC SECTION 110.26 FOR ADDITIONAL INFORMATION ON ELECTRICAL WORKING SPACE, EQUIPMENT SPACE, EGRESS PATH, AND ILLUMINATION.

#### ELECTRICAL PANEL CLEARANCE DETAIL

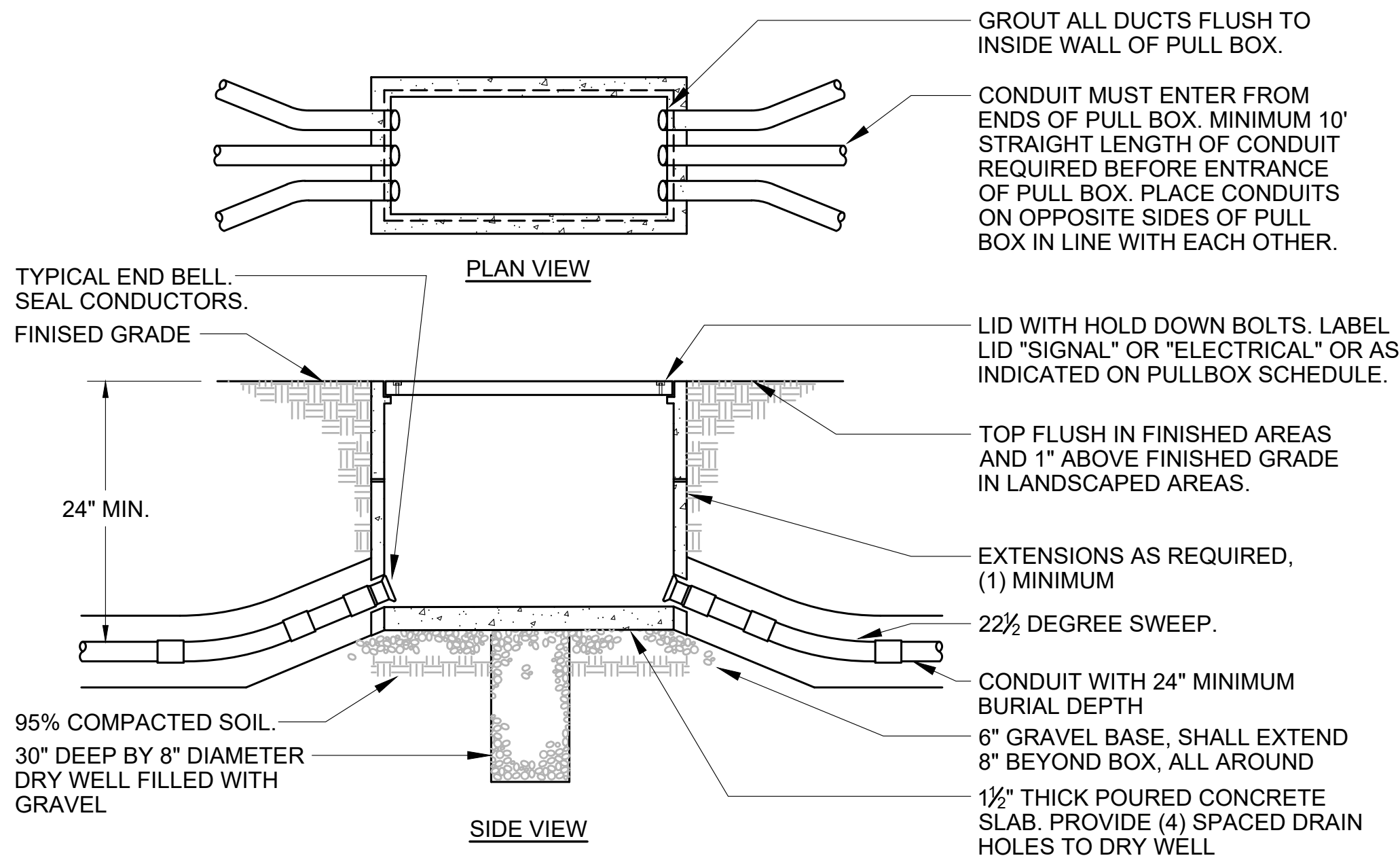
2  
NO SCALE



#### POLE LIGHT WITH BASE DETAIL

3  
NO SCALE

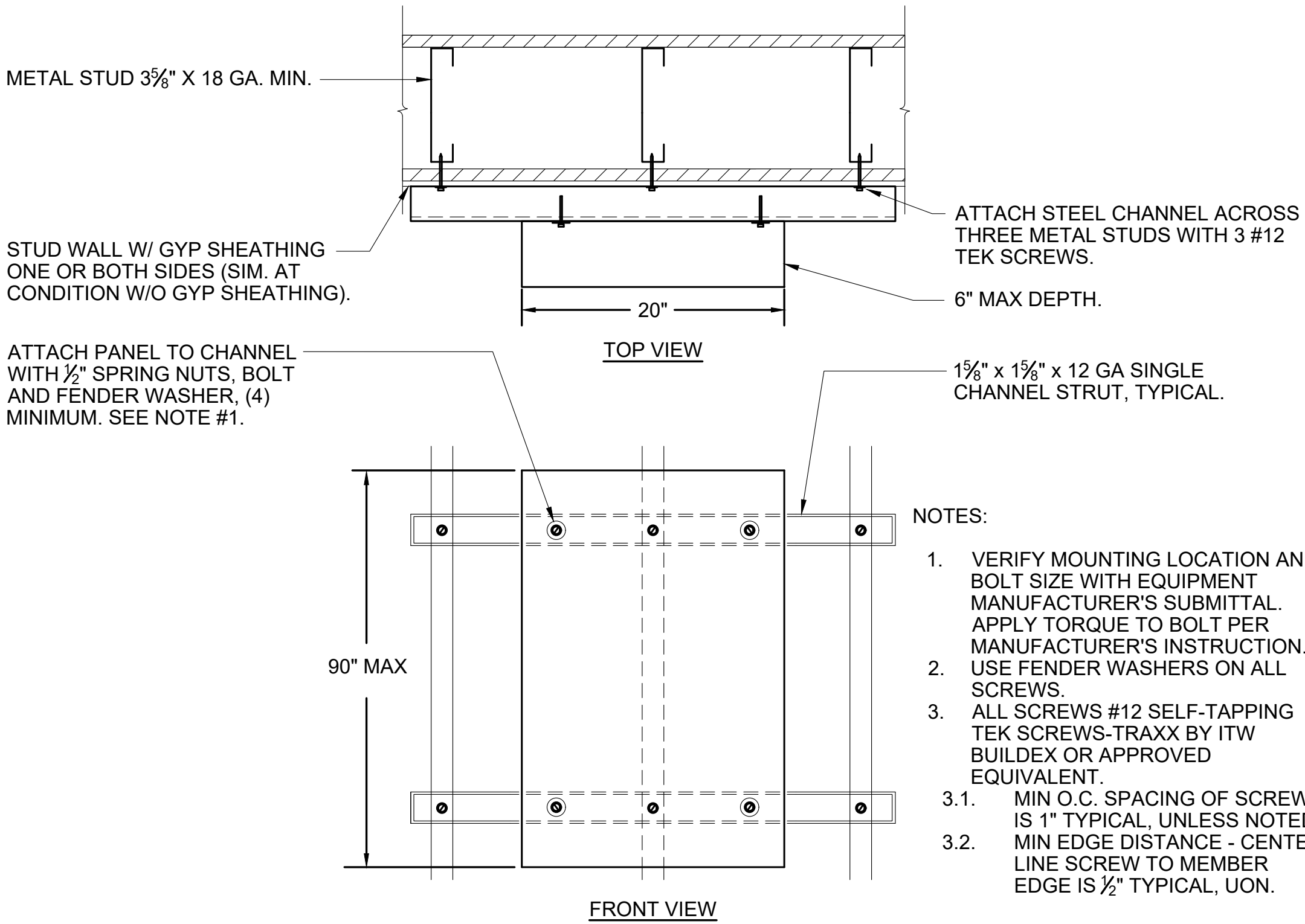
| PROPOSED SEQUENCE OF OPERATIONS                                                                                    |                |            |                  |                     |         |                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------|----------------|------------|------------------|---------------------|---------|--------------------------------------------------------------------------------------------------|
| BLDG/SPACE TYPE                                                                                                    | CONTROL        |            |                  |                     |         |                                                                                                  |
|                                                                                                                    | MANUAL CONTROL | TIME CLOCK | OCCUPANCY SENSOR | DAYLIGHT HARVESTING |         |                                                                                                  |
| EXTERIOR LIGHTING                                                                                                  |                |            | X                | X                   | ON:     | Lights will turn on and off via photocell to 50%.                                                |
|                                                                                                                    |                |            | X                | X                   | ADJUST: | When motion sensor detects that space is occupied, light shall illuminate to 100% for 5 minutes. |
|                                                                                                                    |                |            | X                | X                   | OFF:    | After the spaces has been vacant for 10 minutes. The lights will automatically dim to 50%.       |
| LIGHTING CONTROL NOTES:                                                                                            |                |            |                  |                     |         |                                                                                                  |
| 1. THE LIGHTS SHALL AUTOMATICALLY TURN ON TO 100% INTENSITY USING A 3 SECOND FADE RATE WHEN OCCUPANCY IS DETECTED. |                |            |                  |                     |         |                                                                                                  |



- NOTES:
- PROVIDE CONCRETE LID AT ASPHALT OR CONCRETE WALKWAY. PROVIDE GALVANIZED STEEL CHECKER PLATE LID AT ALL OTHER NON-VEHICULAR AREAS.
  - AT VEHICULAR TRAFFIC AREAS, PULLBOXES, EXTENSIONS AND LIDS SHALL BE TRAFFIC (H20) RATED. SLAB SHALL BE REINFORCED CONCRETE.

#### PULLBOX DETAIL

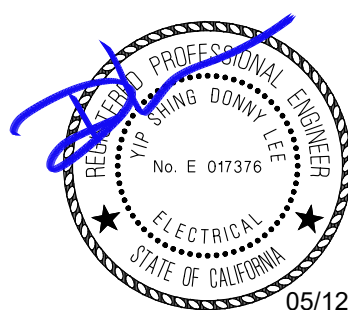
5  
NO SCALE



- NOTES:
- VERIFY MOUNTING LOCATION AND BOLT SIZE WITH EQUIPMENT MANUFACTURER'S SUBMITTAL. APPLY TORQUE TO BOLT PER MANUFACTURER'S INSTRUCTION. USE FENDER WASHERS ON ALL SCREWS.
  - ALL SCREWS #12 SELF-TAPPING TEK SCREWS-TRAXX BY ITW BUILDEX OR APPROVED EQUIVALENT.
  1. MIN O.C. SPACING OF SCREWS IS 1" TYPICAL, UNLESS NOTED.
  2. MIN EDGE DISTANCE - CENTER LINE SCREW TO MEMBER EDGE IS 1/2" TYPICAL, UON.

#### SURFACE MOUNTED PANEL ON UNISTRUT DETAIL

4  
NO SCALE



**EDGE**  
ELECTRICAL CONSULTING

1801 7th Street, Suite 150  
Sacramento, CA 95811  
916.256.2460

300 27th Street #201  
Oakland, CA 94612  
510.775.3836

05/12/2021 Project Number H129 Contact Stephanie

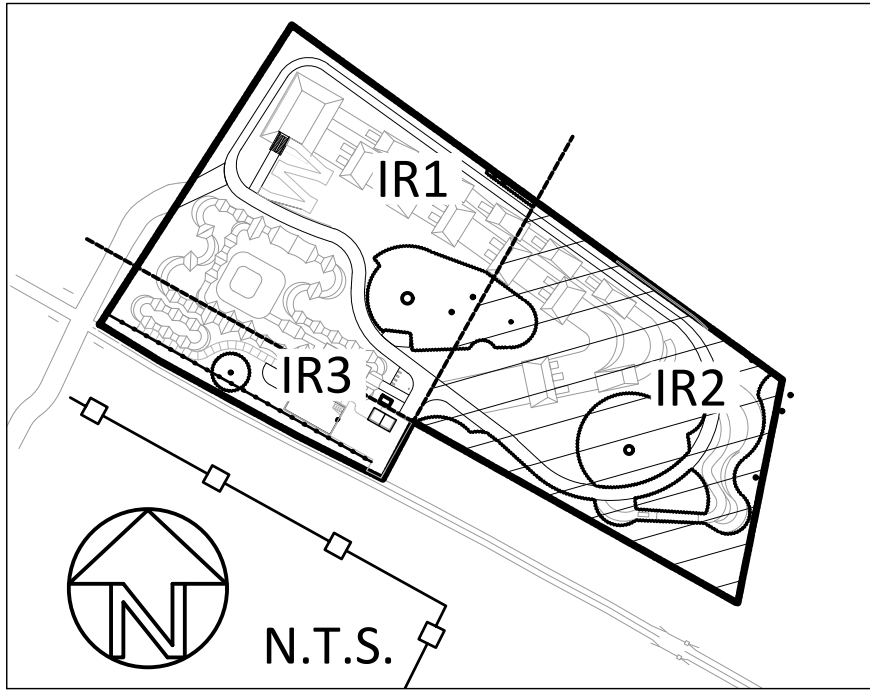




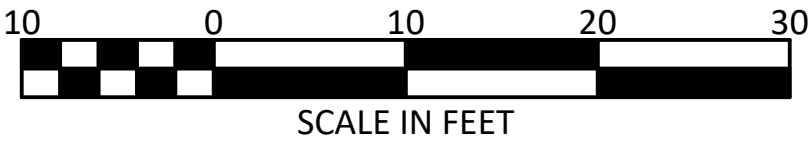
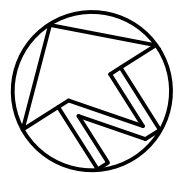




KEYMAP



MATCHLINE, SEE SHEET IR1



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# IRRIGATION PLAN

**OLD DEPOT  
BIKE PARK**  
EL DORADO COUNTY

LANDSCAPE ARCHITECT  
OF RECORD



**HELIX**  
Environmental Planning

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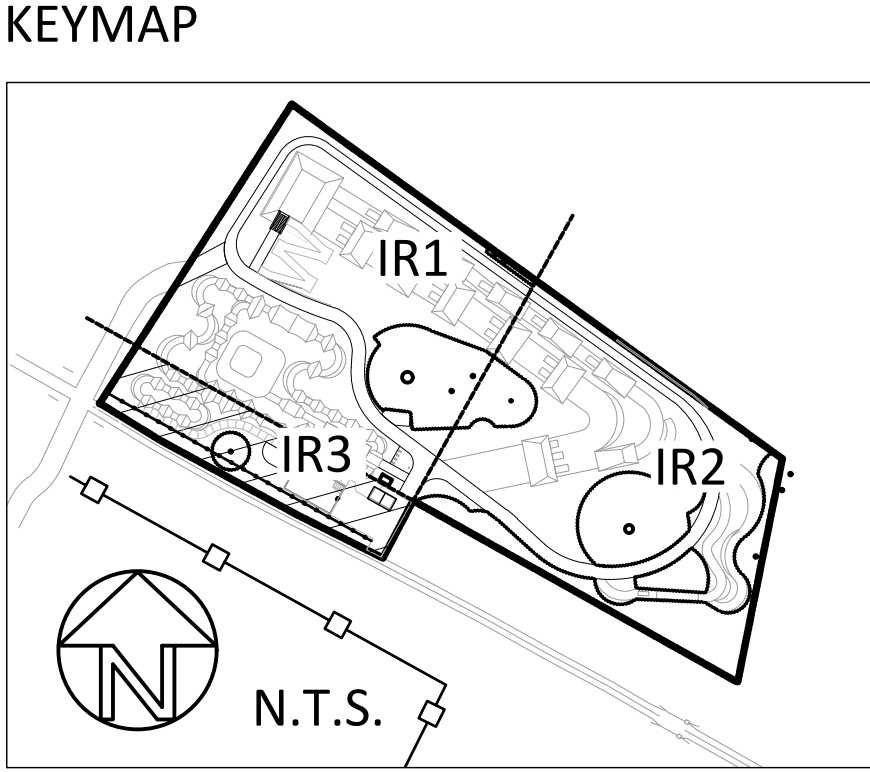
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IR2  
24 of 37

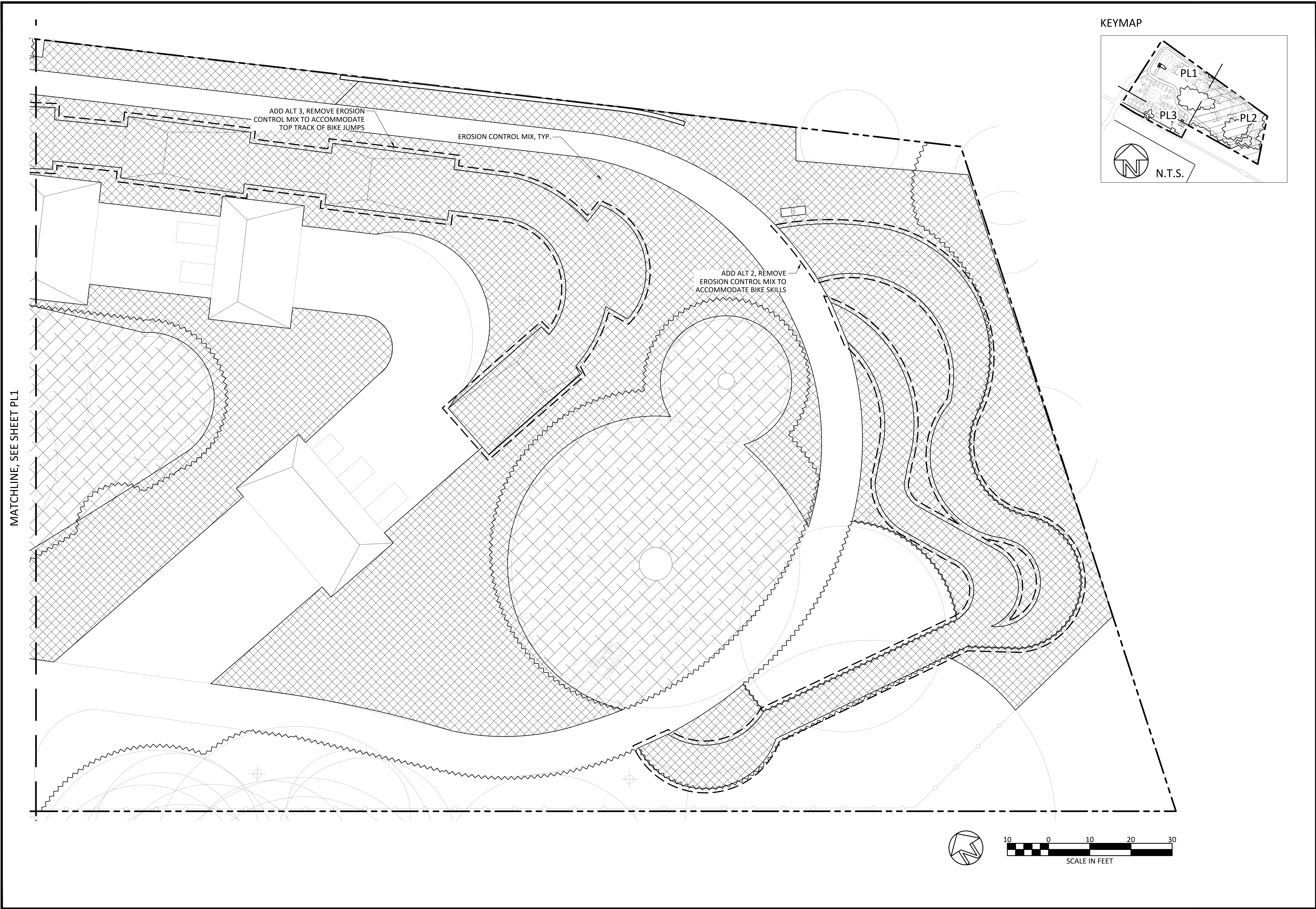




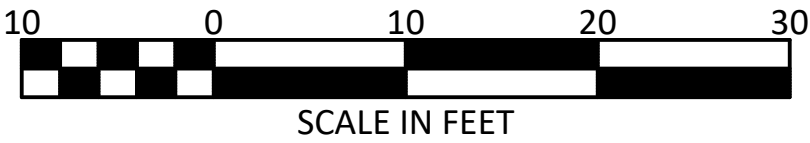
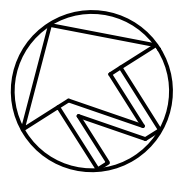
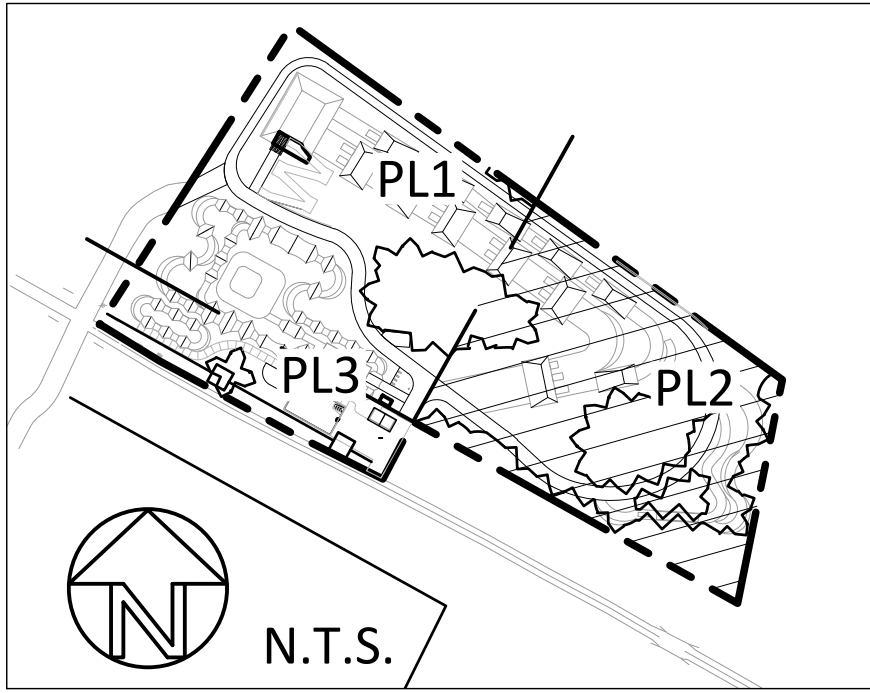








KEYMAP



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PLANTING PLAN

**OLD DEPOT  
BIKE PARK**  
EL DORADO COUNTY

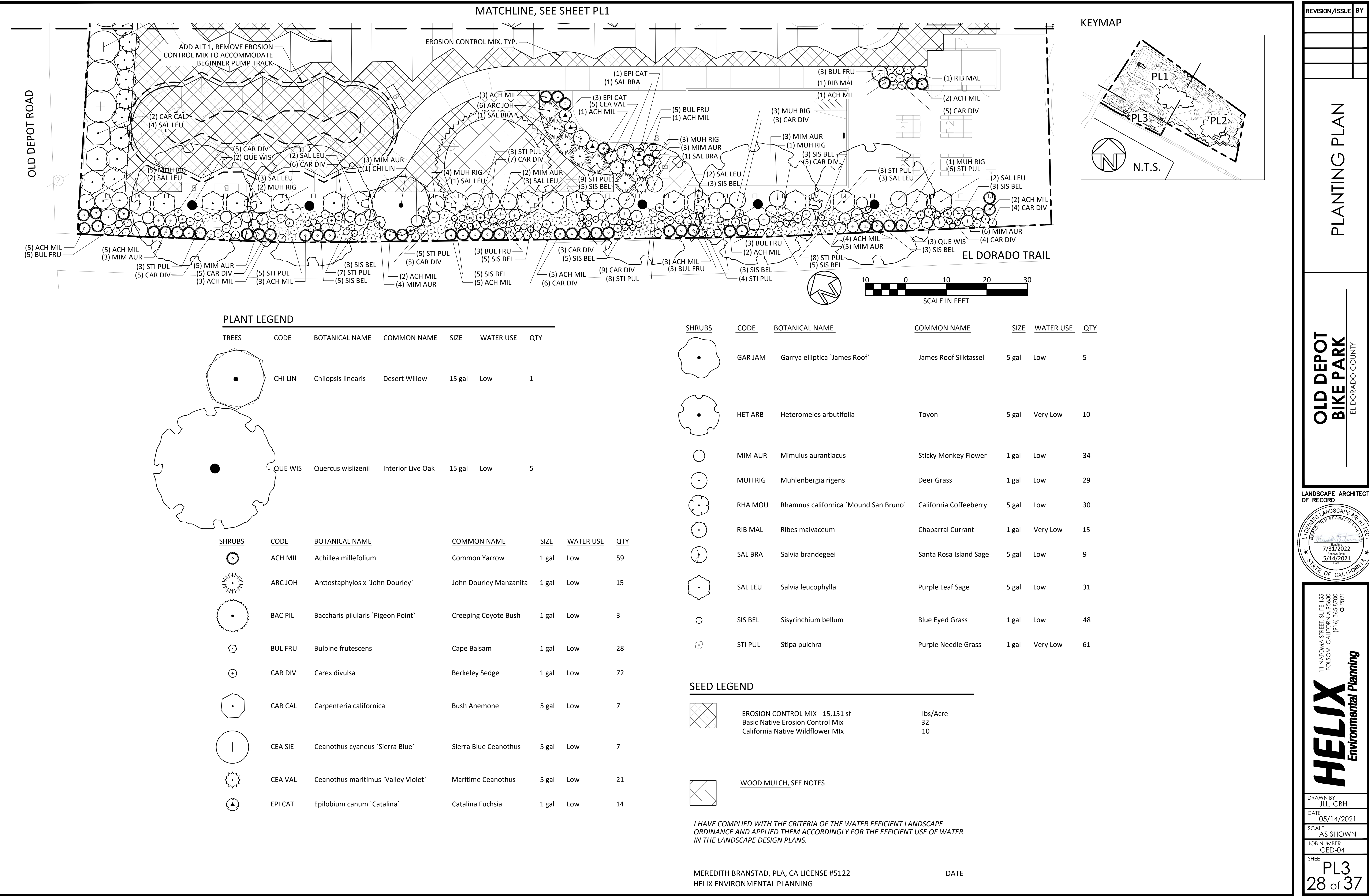
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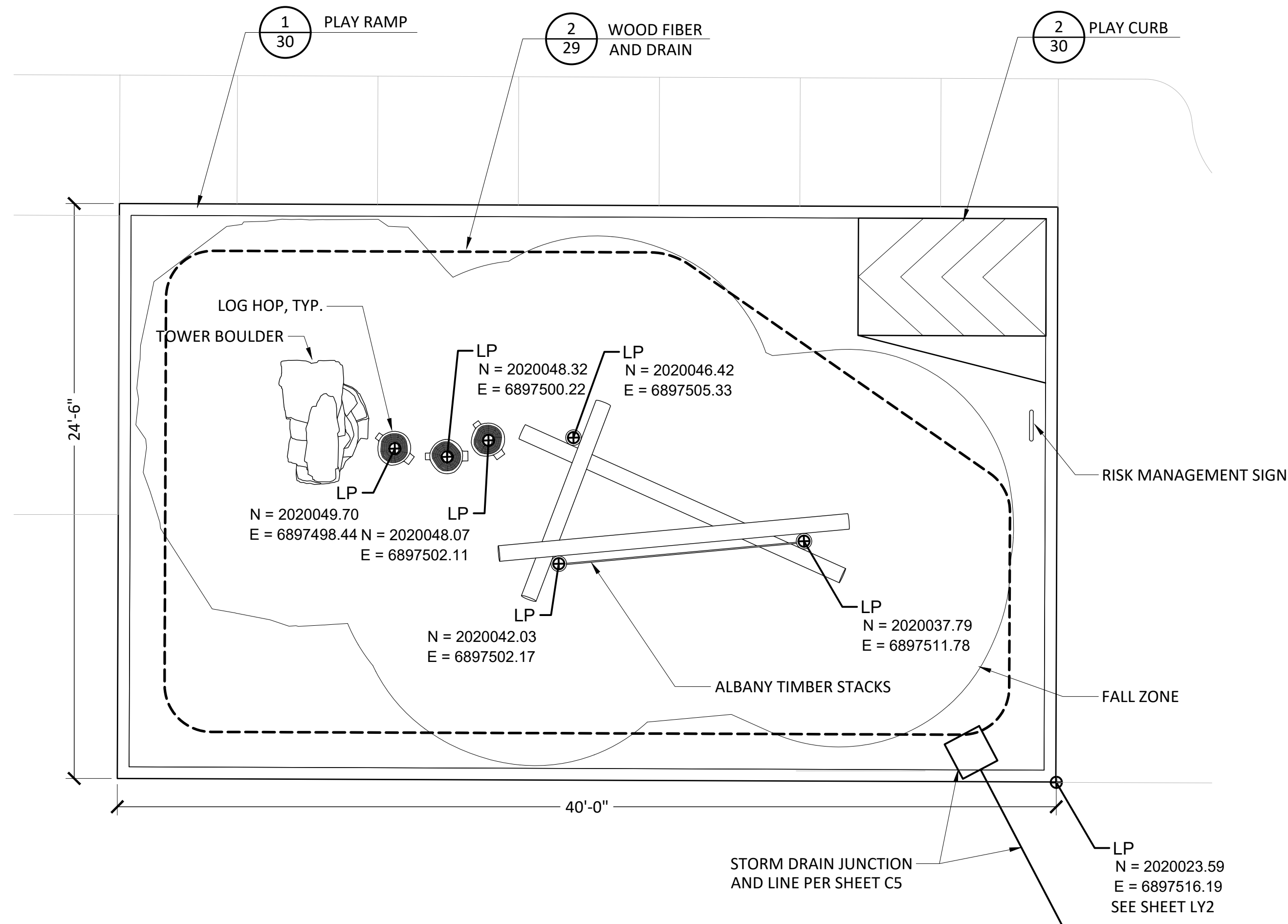
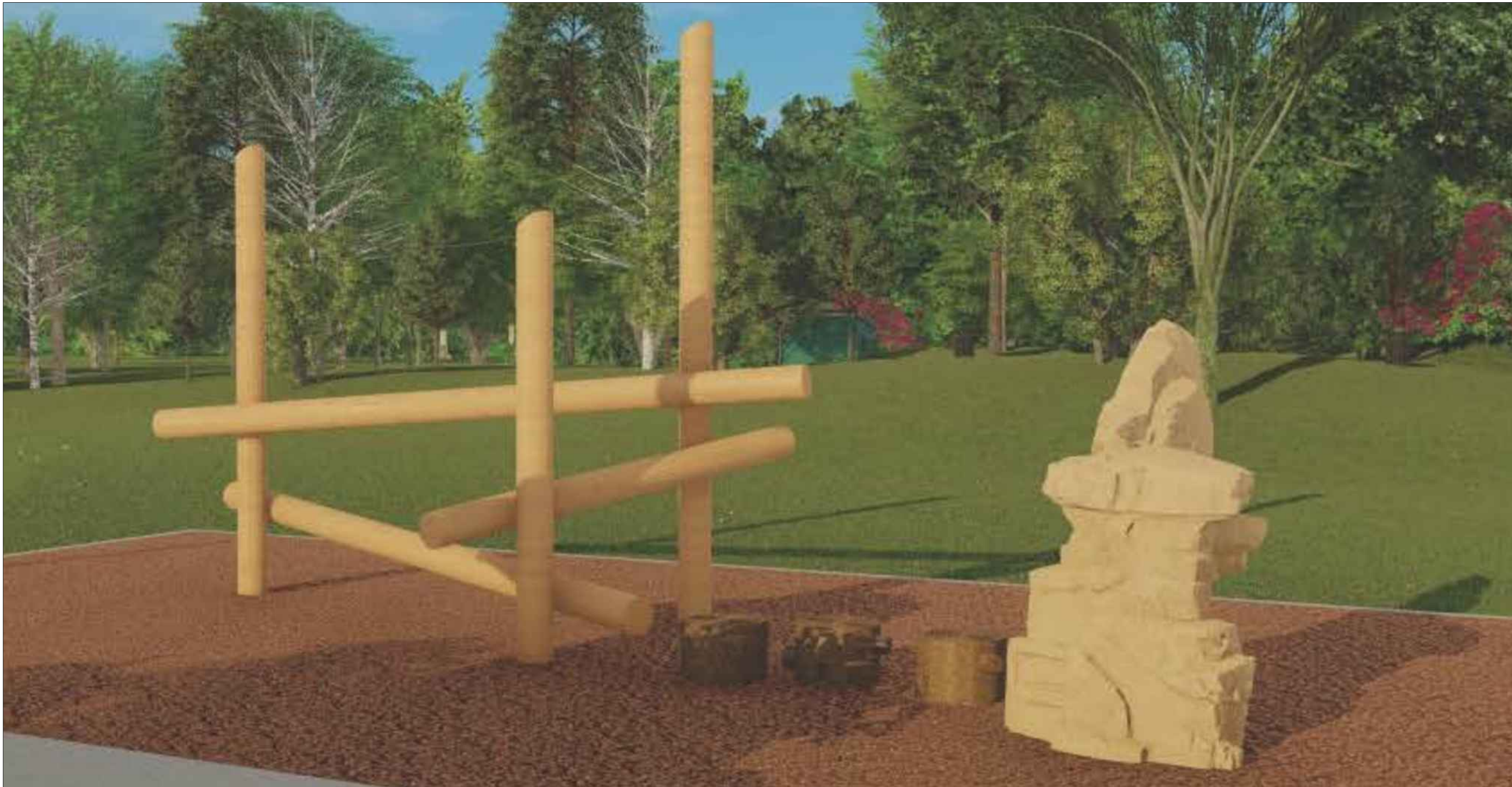
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| SHEET      | PL2<br>27 of 37 |





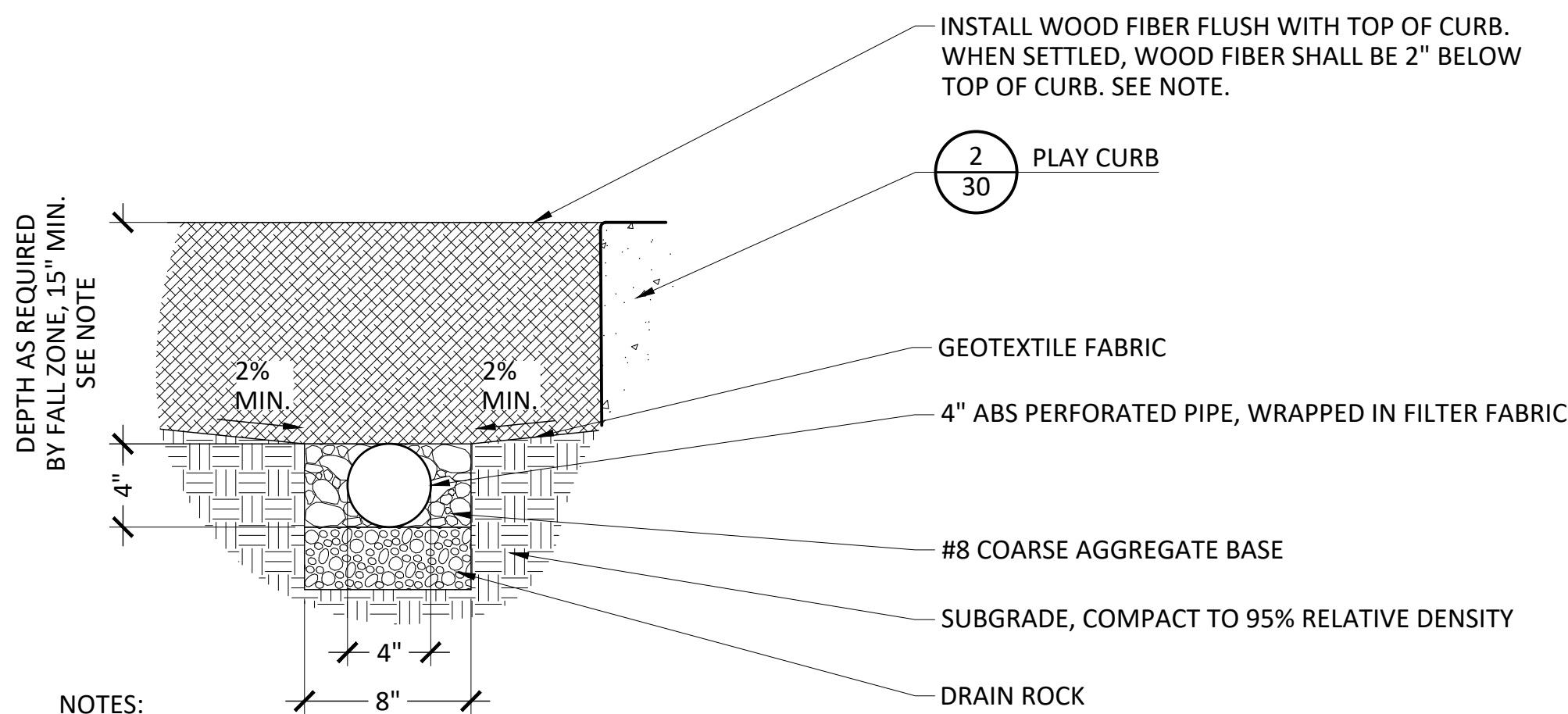




- NOTES:
- SEE SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS FOR PLAY EQUIPMENT, FALL ZONES, AND SURFACING.
  - MANUFACTURER WILL PROVIDE FOOTING DESIGN UPON ORDER OF EQUIPMENT. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL, SEE SPECIFICATIONS.

1 PLAYGROUND ENLARGEMENT

N.T.S.



- NOTES:
- 1% MIN. DRAIN PIPE SLOPE
  - SLOPE SURFACE OF SUBGRADE TOWARD DRAIN PIPE TRENCH 2% MIN.
  - WOOD FIBER SHALL BE INSTALLED 15" DEEP AND FLUSH WITH TOP OF CURB. WOOD FIBER SHALL BE MIN. 12" DEEP AND 2" BELOW TOP OF CURB AFTER THREE MONTHS OF SETTLING. WHERE BELOW GROUND UTILITIES ARE WITHIN PLAYGROUND AND OUTSIDE OF FALL ZONE, MIN. 8" OF SETTLED WOOD FIBER COVERAGE REQUIRED.

2 WOOD FIBER AND DRAIN

N.T.S.

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DETAILS

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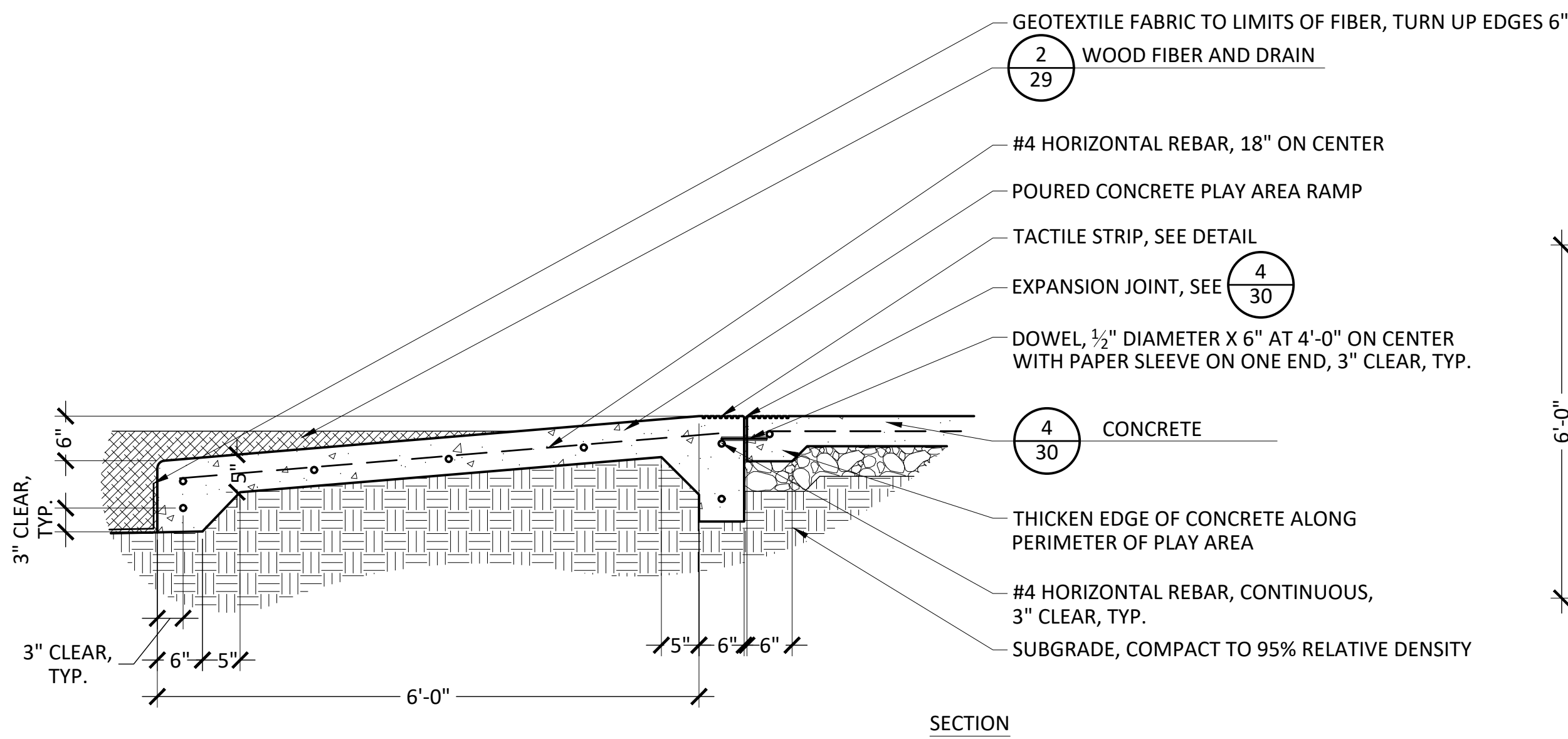
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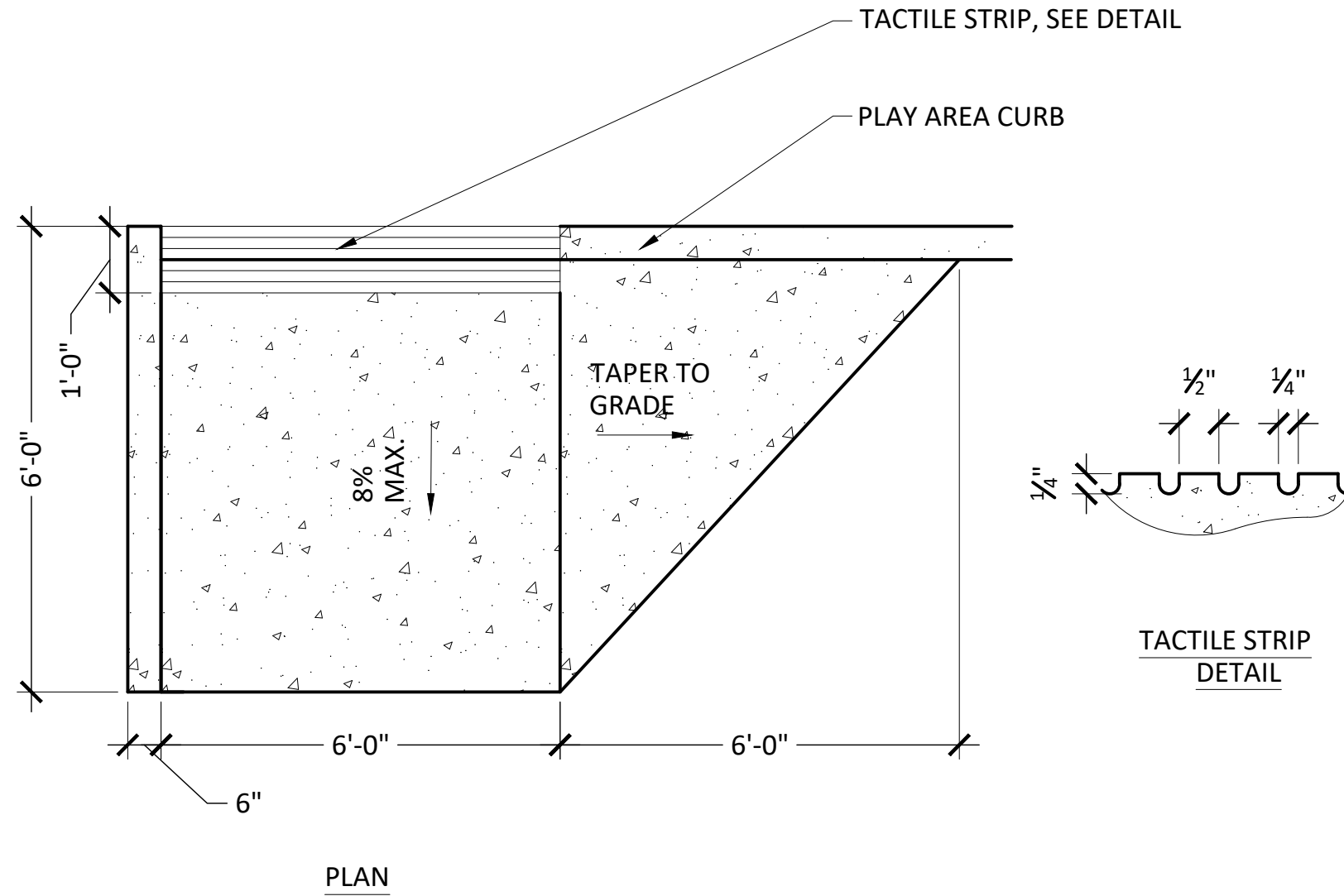
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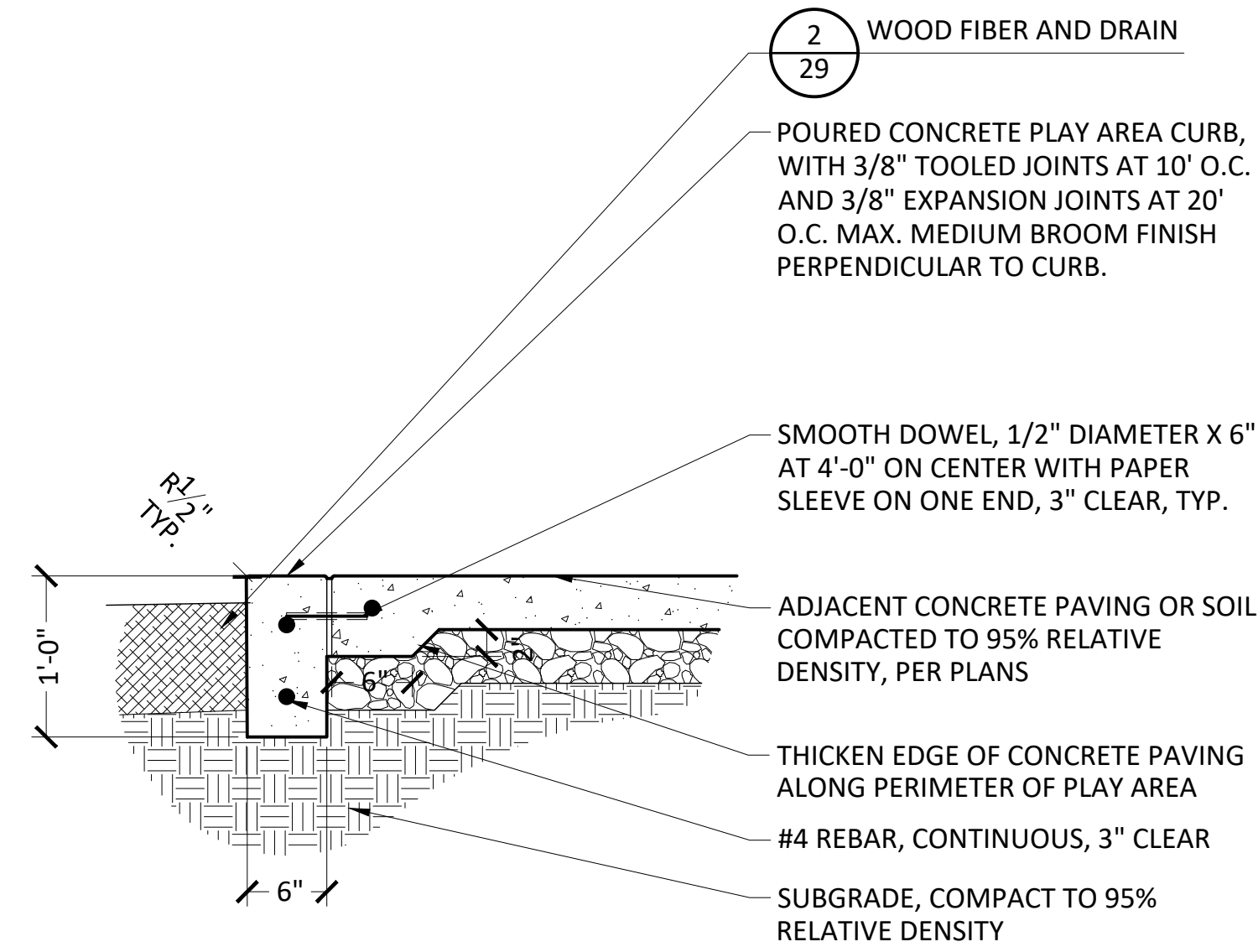


1 PLAY RAMP

N.T.S.

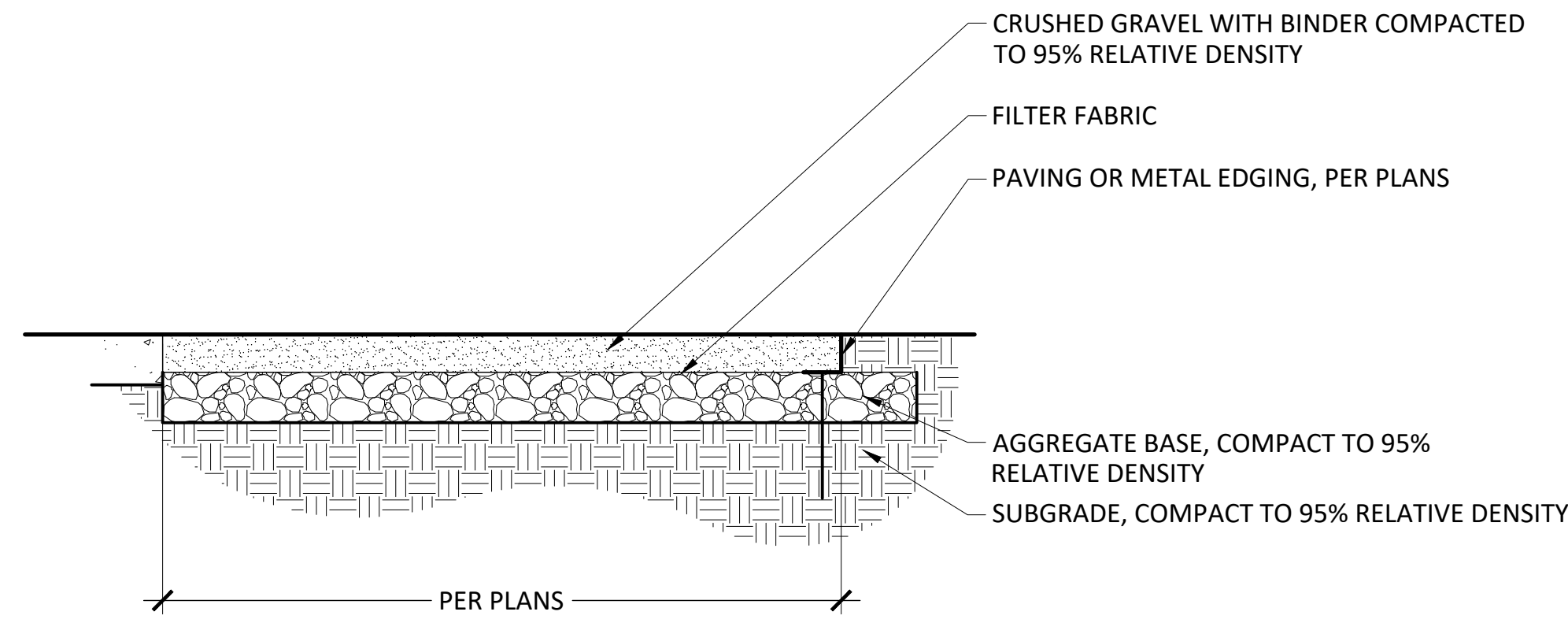


PLAN



2 PLAY CURB

N.T.S.

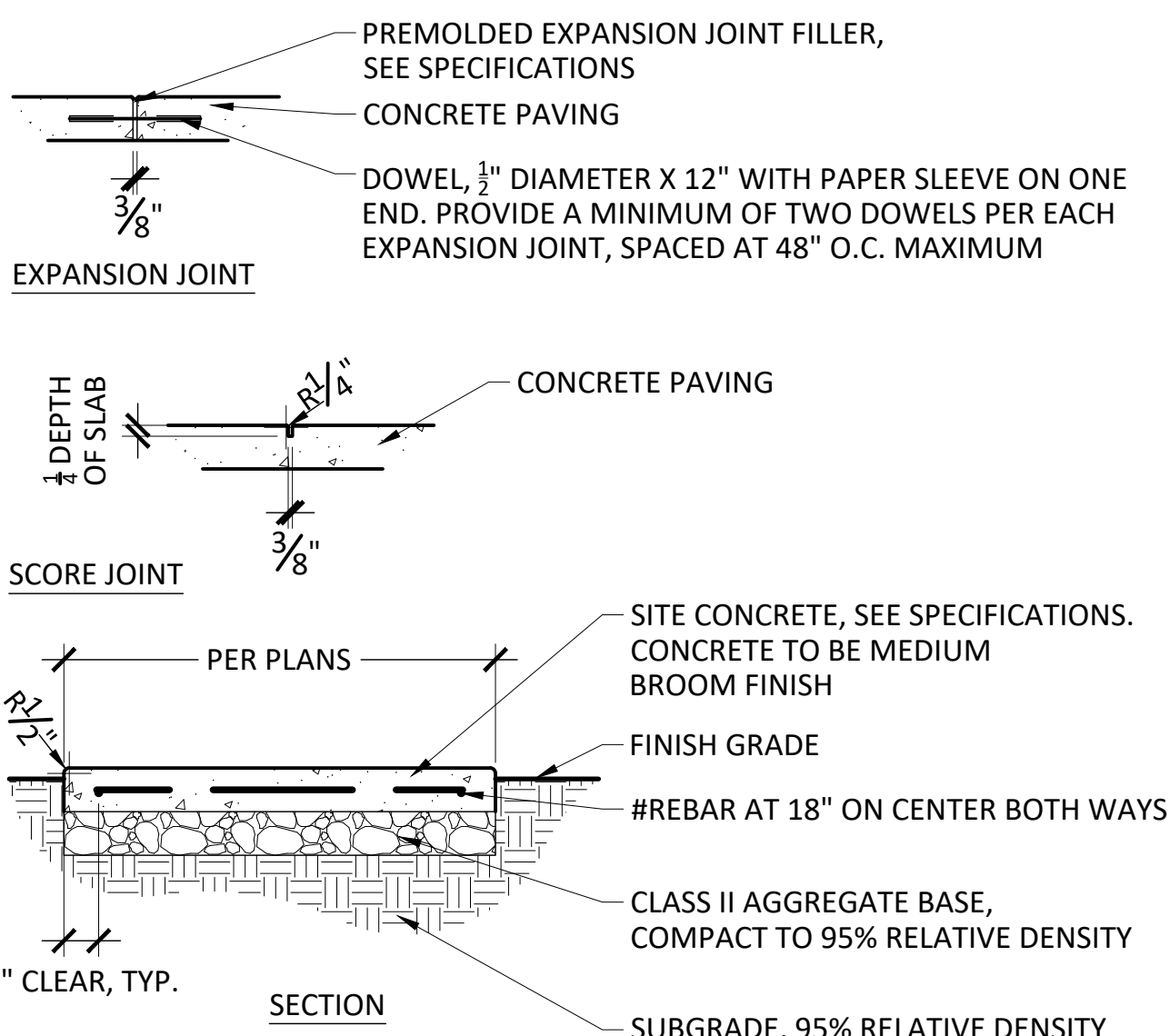


NOTES:

- SEE DETAIL C, SHEET C3 FOR DEPTH OF CRUSHED GRAVEL AND AGGREGATE BASE.
- PRIOR TO INSTALLATION OF CRUSHED GRAVEL, APPLY PRE-EMERGENT HERBICIDE ON EXCAVATED SURFACE.
- FINISH GRADE OF CRUSHED GRAVEL TO BE NO MORE THAN 1/4" BELOW ADJACENT PAVING EDGING OR CURBS.
- FOR METAL EDGING SEE

3 CRUSHED GRAVEL

N.T.S.

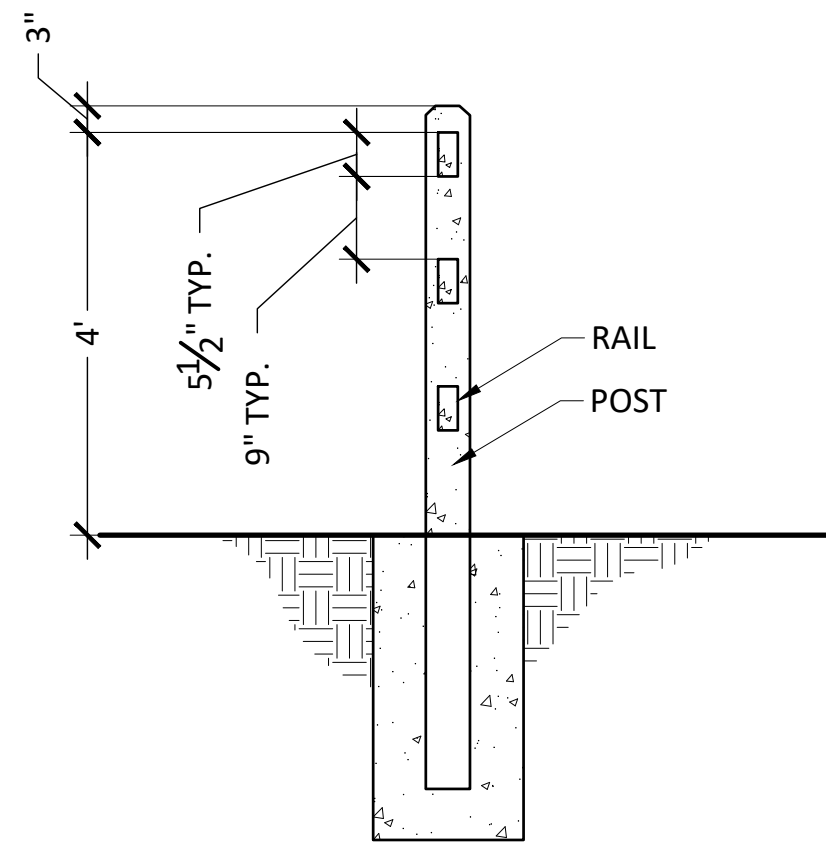


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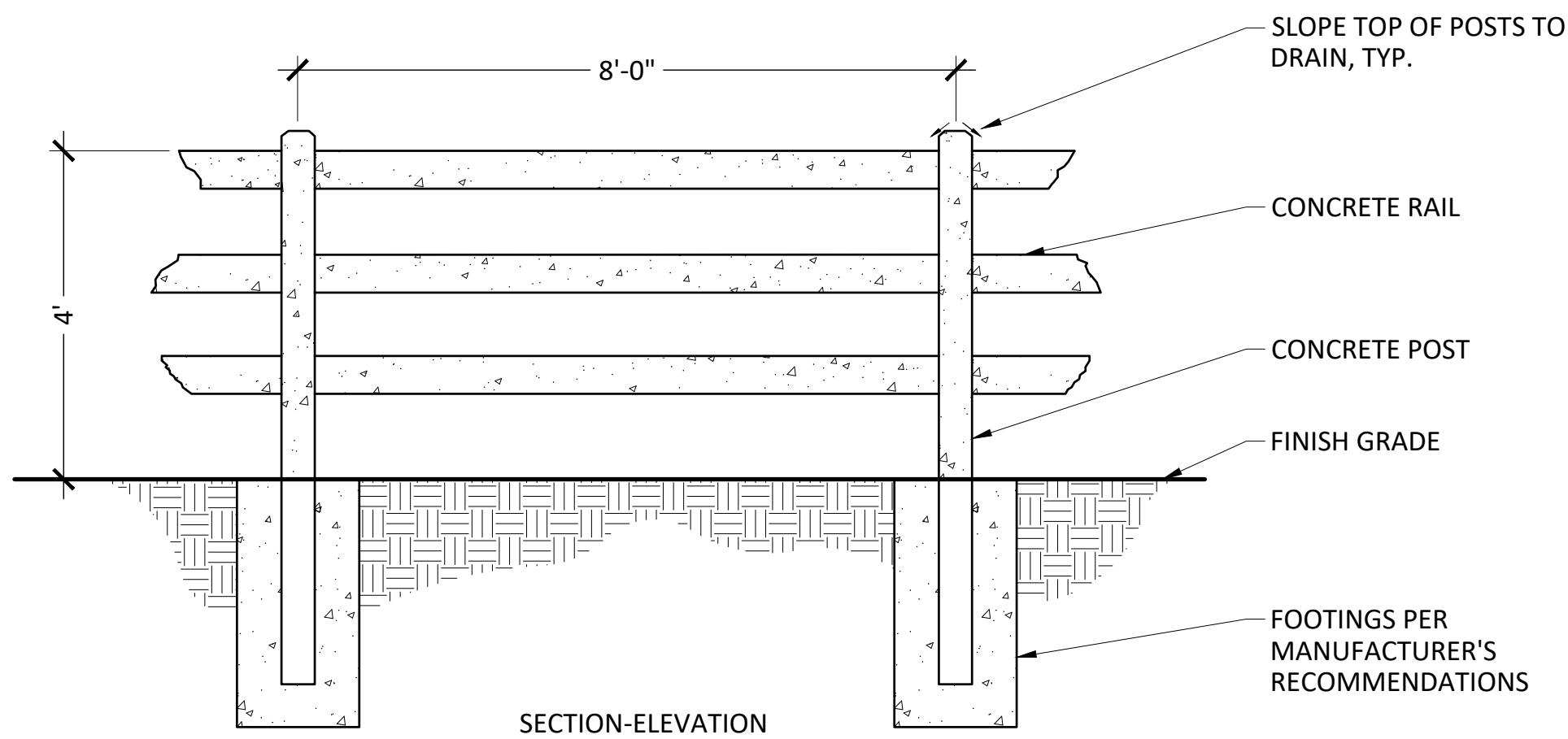
- SEE CIVIL ENGINEER'S PLANS FOR DEPTH OF CONCRETE AND AGGREGATE BASE.

4 CONCRETE

N.T.S.



SECTION



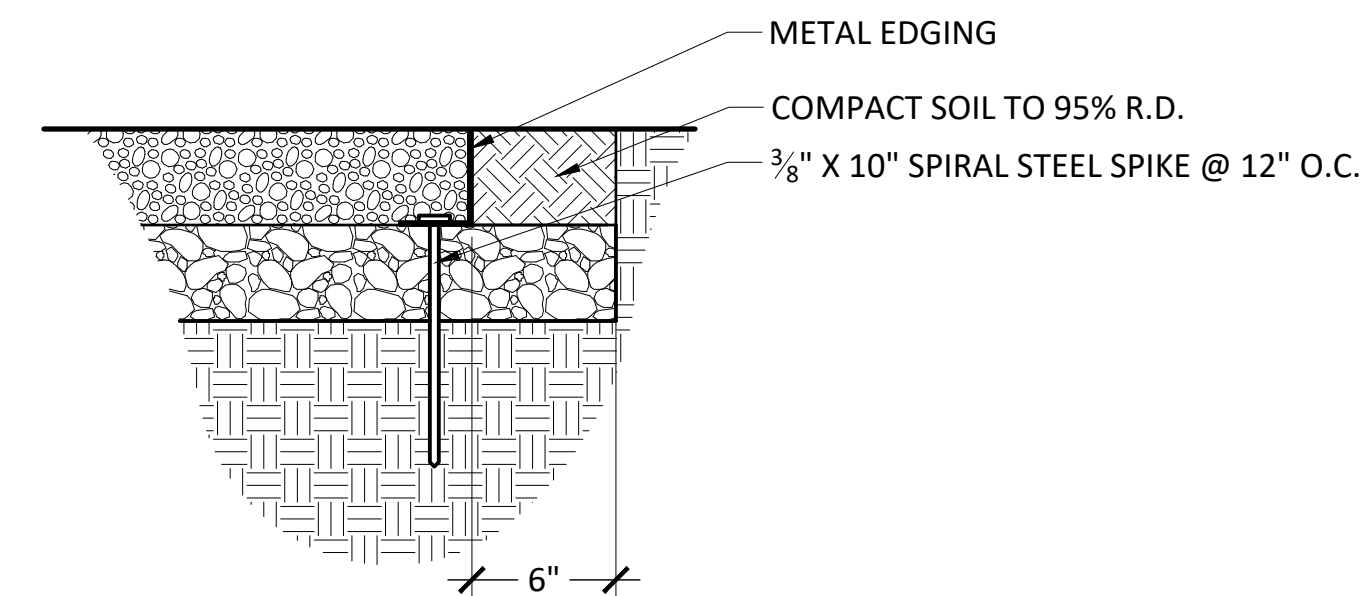
SECTION-ELEVATION

NOTES:

- SEE SPECIFICATIONS FOR COLORS AND FINISHES.
- INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.

5 CONCRETE SPLIT RAIL FENCE

N.T.S.



NOTES:

- EDGE RESTRAINT SHALL BE 3" TALL AND RECOMMENDED BY MANUFACTURER FOR GRAVEL OR ASPHALT.
3. CONNECT SEGMENTS OF METAL EDGING WITH SLIDING CONNECTOR OR PER MANUFACTURER'S RECOMMENDATIONS.

6 EDGING - METAL

N.T.S.

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OLD DEPOT  
BIKE PARK  
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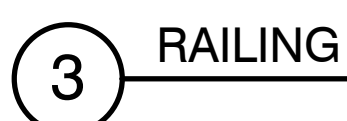
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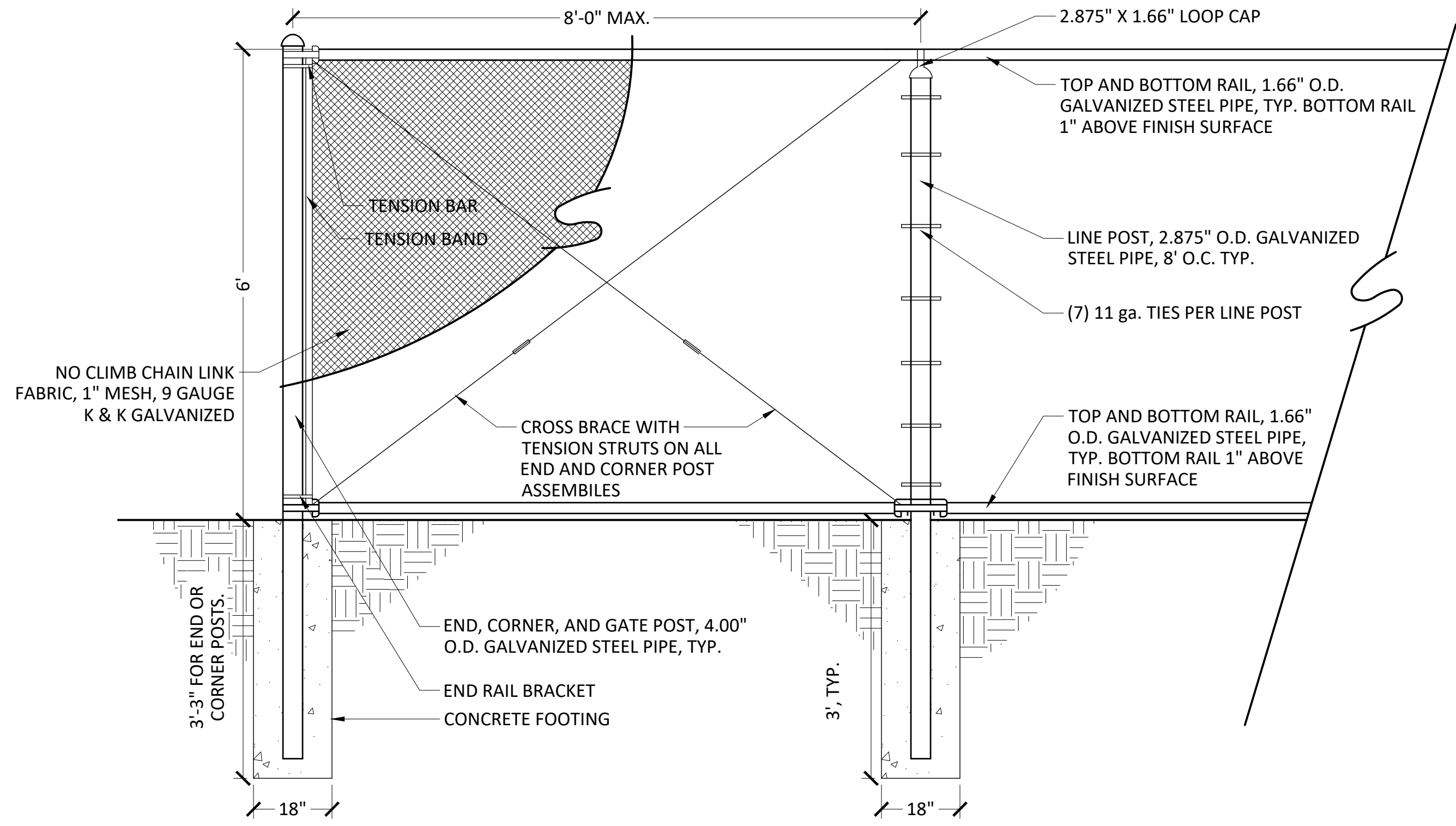


- 1 STAIRS

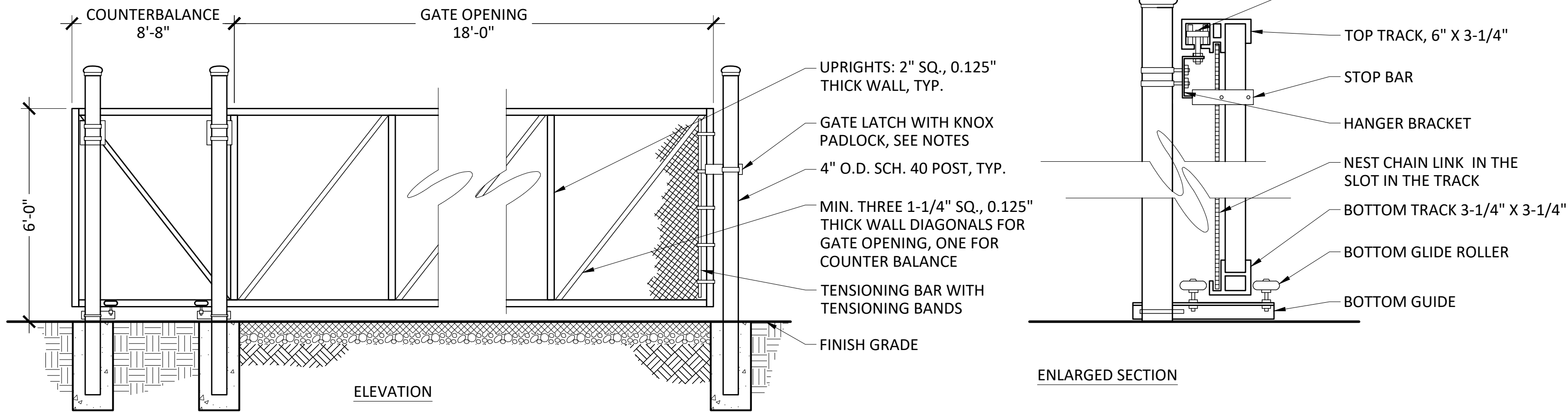


SHEET DT3  
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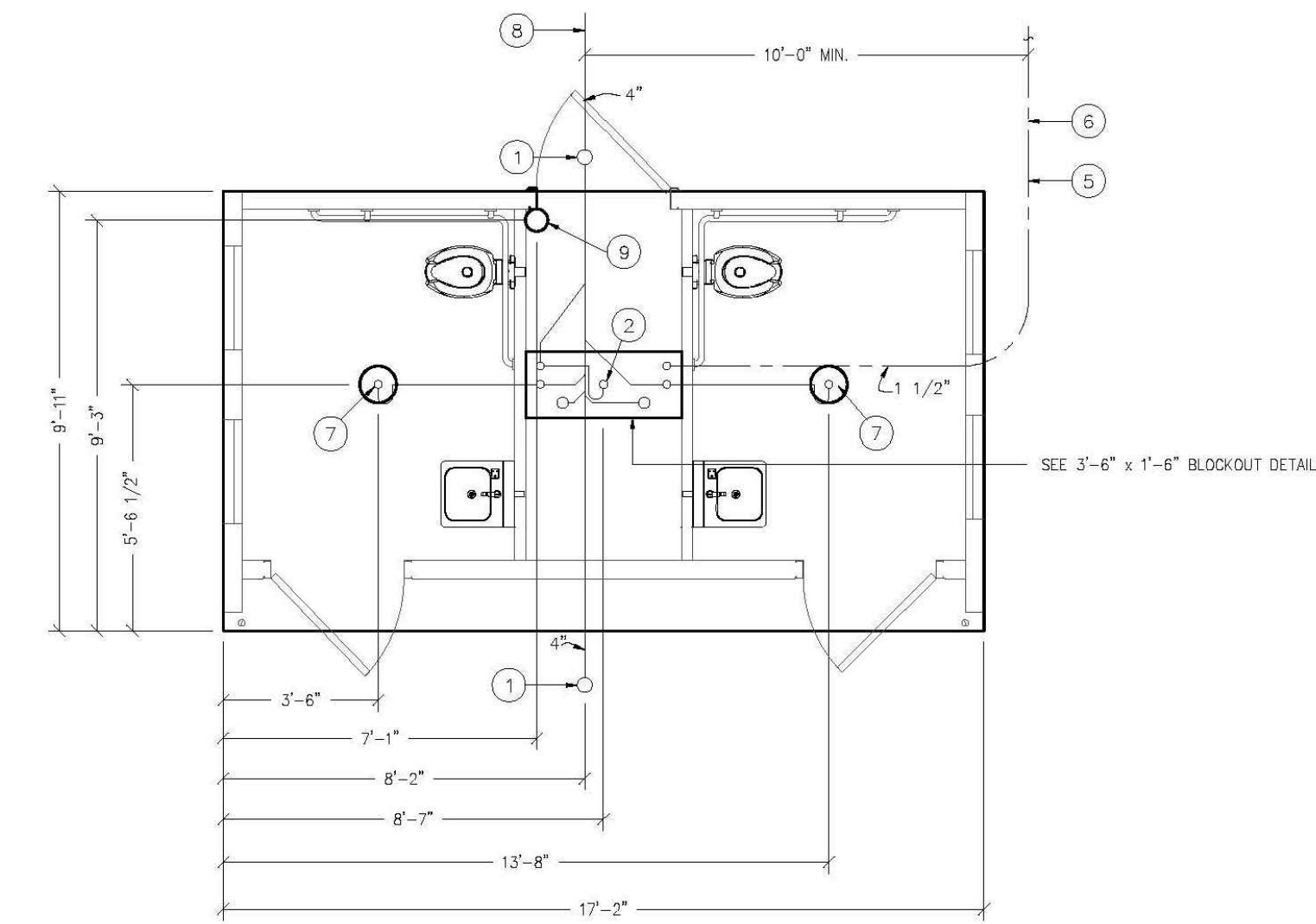
- NOTES:
1. ALL PIPE, POSTS, METAL ATTACHMENTS, AND FASTENERS SHALL BE GALVANIZED.



- NOTES:
1. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
  2. CHAINLINK AND FOOTINGS PER CHAINLINK FENCE DETAIL.
  3. ALL ALUMINUM TUBING SHALL BE 6061-T6 EXTRUDED.
  4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND PROPOSED GATE LATCH TO PROJECT MANAGER FOR APPROVAL PRIOR TO PURCHASING OR CONSTRUCTION.
  5. KNOX PADLOCK SHALL BE RECOMMENDED FOR EXTERIOR USE, COMPATIBLE WITH GATE AND LATCH, AND ACCEPTED BY THE EL DORADO FIRE PROTECTION DISTRICT.

## 1 CHAIN LINK FENCE

## 2 VEHICULAR GATE



### BELOW FLOOR PIPING — KEY NOTES

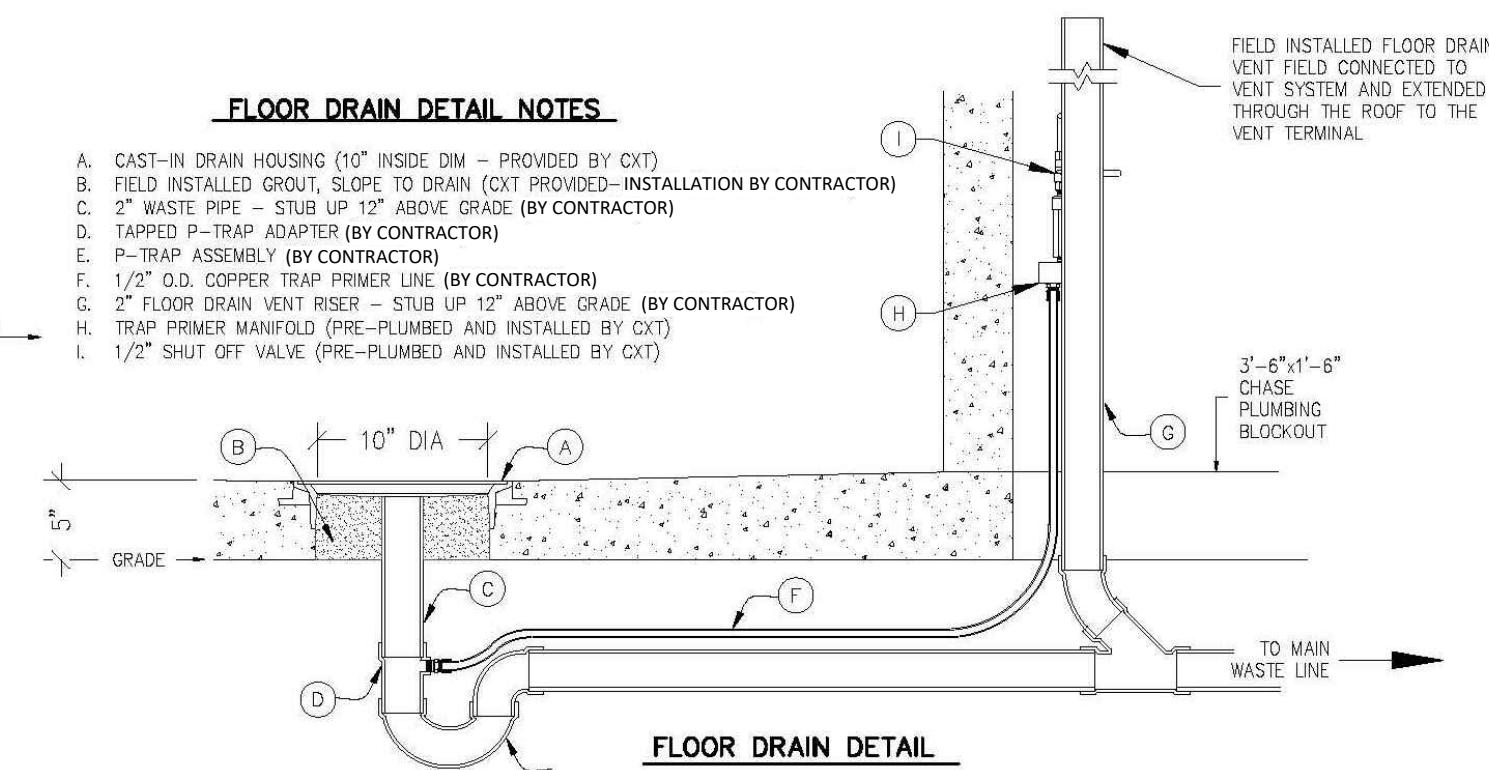
1. 4" CLEAN OUT TO GRADE.
2. 2" FLOOR DRAIN, FIELD INSTALLED TRAP PRIMER SYSTEM IF REQUIRED BY AUTHORITY HAVING JURISDICTION. (3'-6" x 1'-8" BLOCKOUT)
3. 2" VENT PIPES EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUG. (3'-6" x 1'-8" BLOCKOUT)
4. 3" WASTE PIPE EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUG. (3'-6" x 1'-8" BLOCKOUT)
5. 1 1/2" TYPE K ANNEALED "SOFT" COPPER WATER SERVICE EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE CAP AT END. (3'-6" x 1'-8" BLOCKOUT)
6. MIN. BURY PER LOCAL REQUIREMENTS TO PROTECT AGAINST FREEZING AND DAMAGE.
7. 2" FLOOR DRAIN, FIELD INSTALLED TRAP PRIMER SYSTEM IF REQUIRED BY AUTHORITY HAVING JURISDICTION. (10" BLOCKOUT)
8. 30" MIN. BURY, PROVIDE TRACER TAPE.
9. ELECTRICAL STUB UP, (6"x BLOCKOUT)

### PIPING LEGEND

- |                                                           |                                                          |                                                                   |
|-----------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------|
| ——— BELOW FLOOR<br>WASTE PIPING<br>SCH 40 ABS<br>TYPE DWV | ——— BELOW FLOOR<br>VENT PIPING<br>SCH 40 ABS<br>TYPE DWV | ——— 1 1/2" TYPE "K"<br>ANNEALED<br>"SOFT" COPPER<br>WATER SERVICE |
|-----------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------|

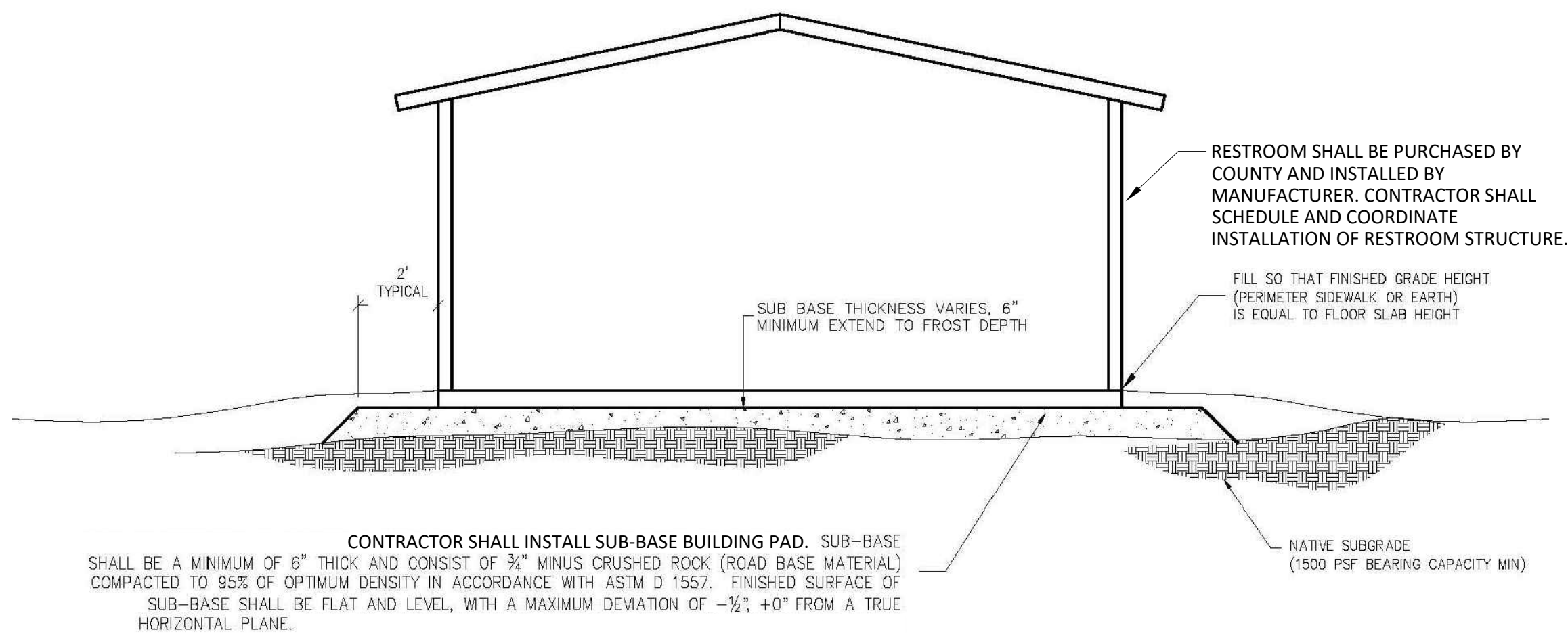
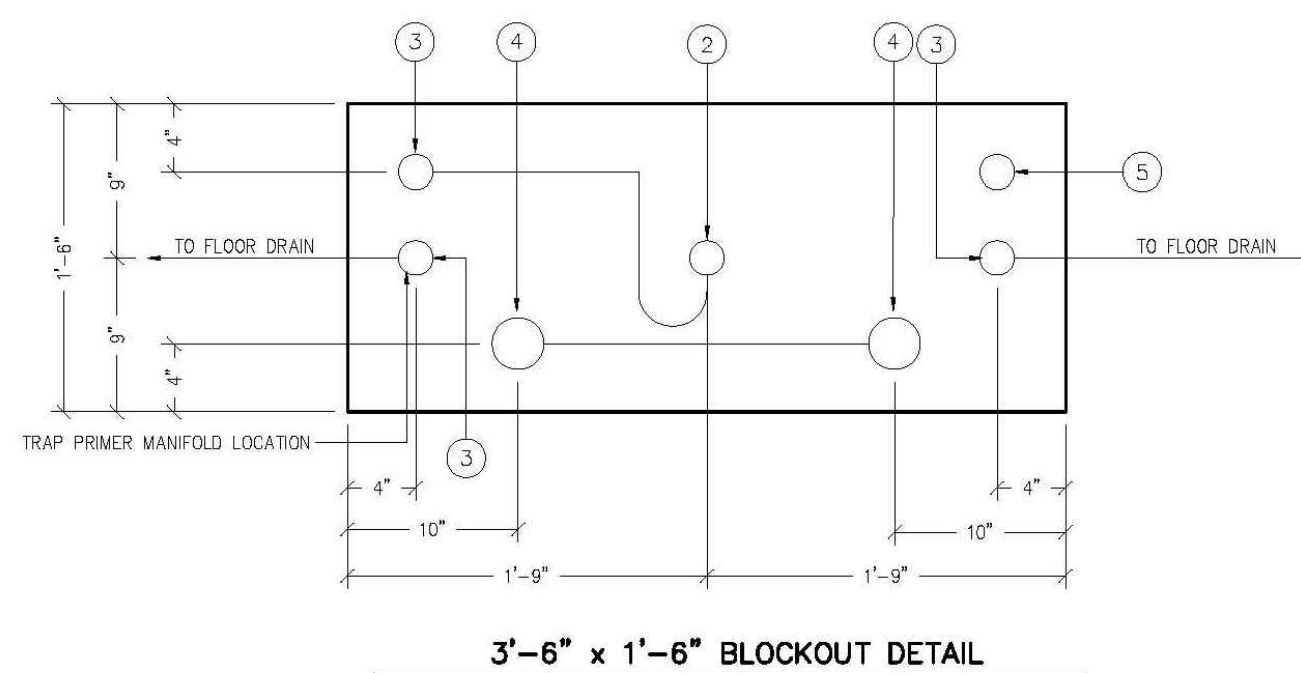
### FLOOR DRAIN DETAIL NOTES

- A. CAST-IN DRAIN HOUSING (10" INSIDE DIA — PROVIDED BY CXT)
- B. FIELD INSTALLED GROUT, SLOPS TO DRAIN (CXT PROVIDED—INSTALLATION BY CONTRACTOR)
- C. 2" WASTE PIPE — STUB UP 12" ABOVE GRADE (BY CONTRACTOR)
- D. TAPPED P-TRAP ADAPTER (BY CONTRACTOR)
- E. P-TRAP ASSEMBLY (BY CONTRACTOR)
- F. 1/2" O.D. COPPER TRAP PRIMER LINE (BY CONTRACTOR)
- G. 2" FLOOR DRAIN VENT RISER — STUB UP 12" ABOVE GRADE (BY CONTRACTOR)
- H. TRAP PRIMER MANIFOLD (PRE-PLUMBED AND INSTALLED BY CXT)
- I. 1/2" SHUT OFF VALVE (PRE-PLUMBED AND INSTALLED BY CXT)



### FLOOR DRAIN BLOCKOUTS & BELOW FLOOR PIPING

ALL PIPING INDICATED ON THIS SHEET IS BY CONTRACTOR



- NOTES:
1. PLANS FOR BIDDING PURPOSES ONLY. MANUFACTURER'S STAMPED STRUCTURAL ENGINEERING PLANS SHALL BE PROVIDED BY COUNTY UPON AWARD OF BID.
  2. CONTRACTOR SHALL INSTALL BUILDING PAD AND UTILITY STUB UPS IN ACCORDANCE WITH MANUFACTURER'S PLANS. SEE SPECIFICATIONS FOR MORE INFORMATION.

## 3 RESTROOM - FOR REFERENCE ONLY

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## DETAILS

## OLD DEPOT BIKE PARK

EL DORADO COUNTY

LANDSCAPE ARCHITECT  
OF RECORD



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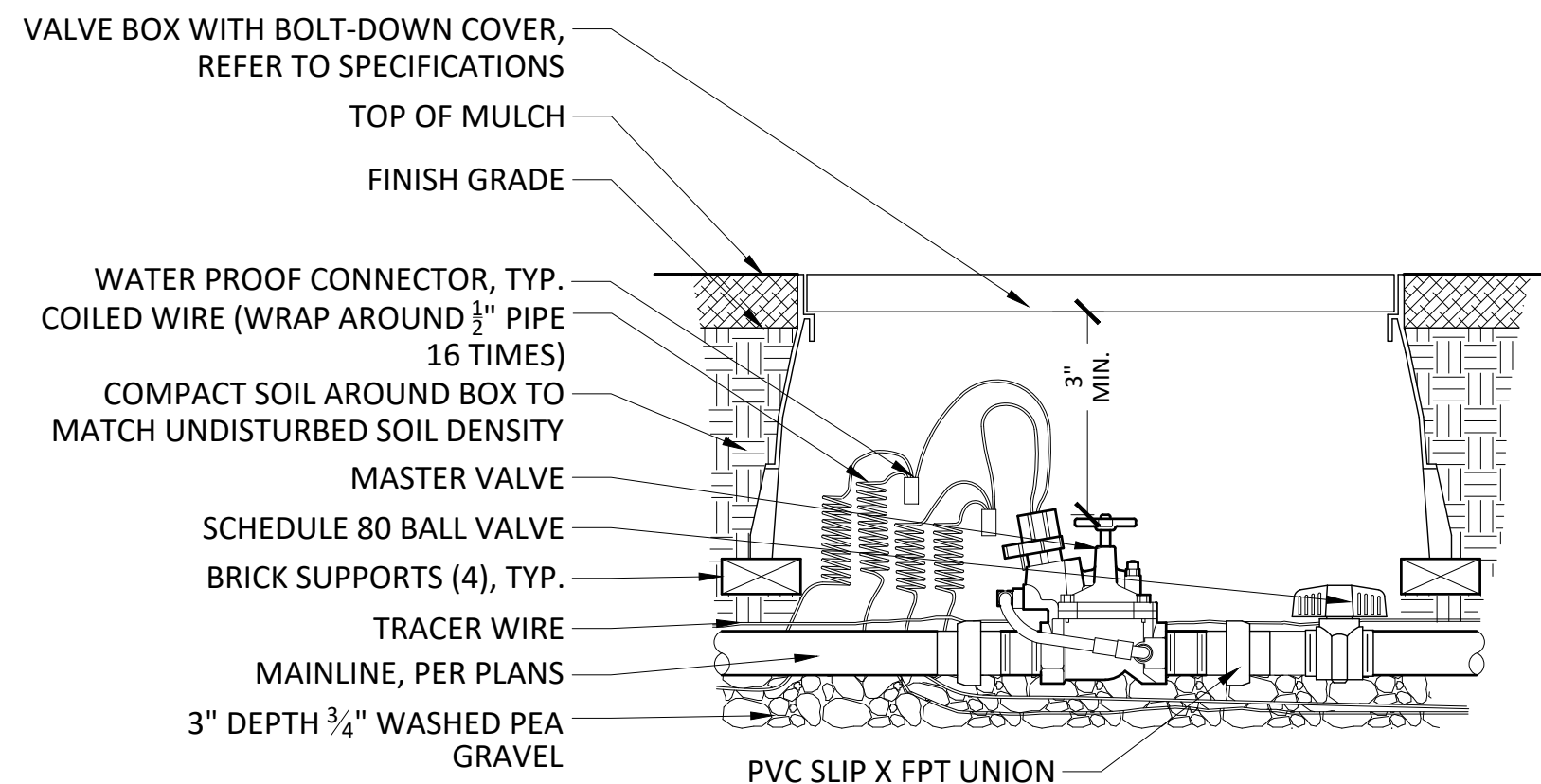
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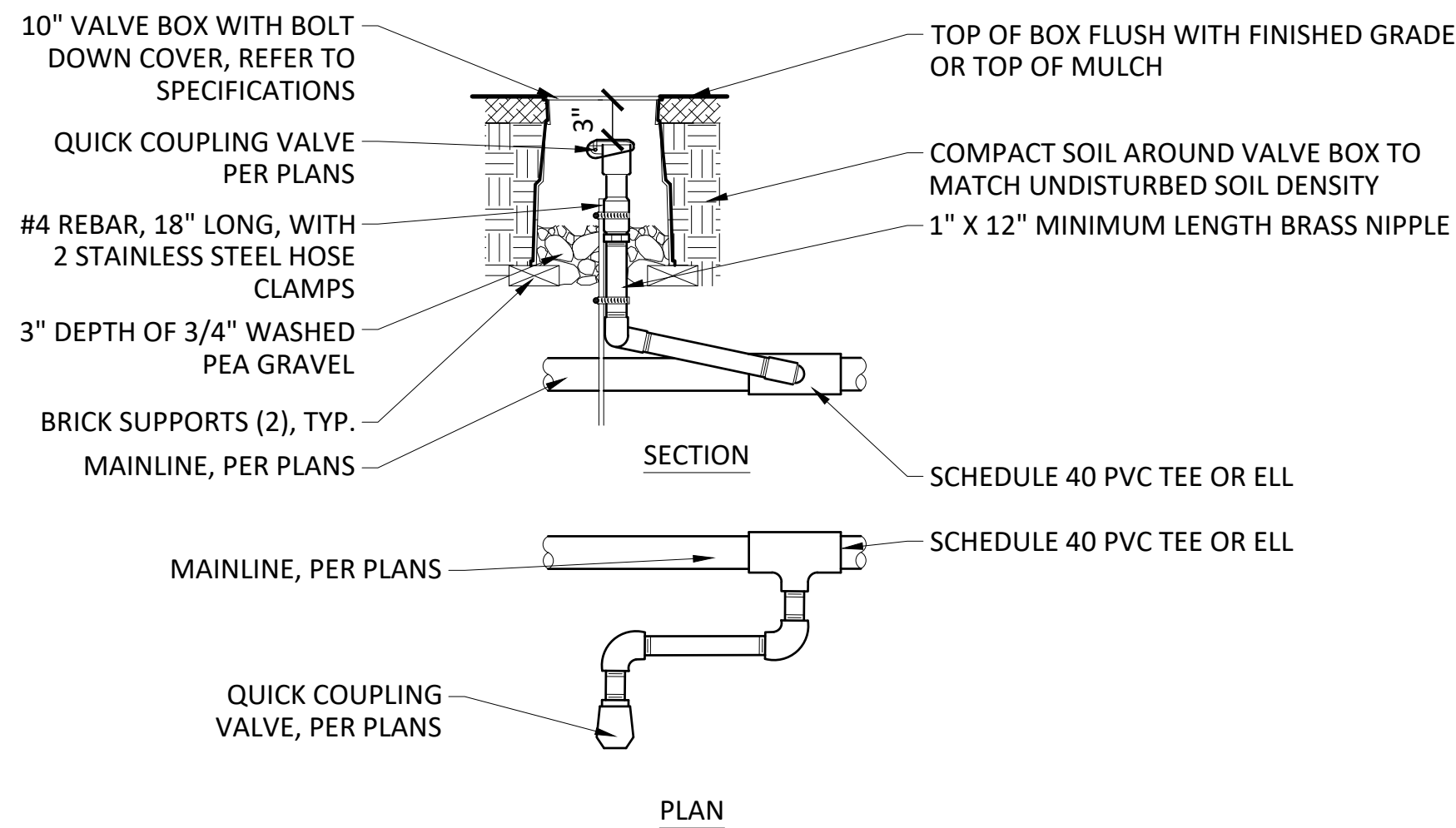




- NOTE:
1. MASTER VALVE SHALL BE ON A CONVENTIONAL WIRE SYSTEM WITH FLOW METER. ALL WIRE SHALL BE TAPED AND BUNDLED EVERY TEN FEET AND SHALL BE INSTALLED PER LOCAL CODE.
  2. VALVE BOX SHALL NOT REST ON OR TOUCH VALVE, MAINLINE AT ANY POINT.

#### 1 MASTER VALVE

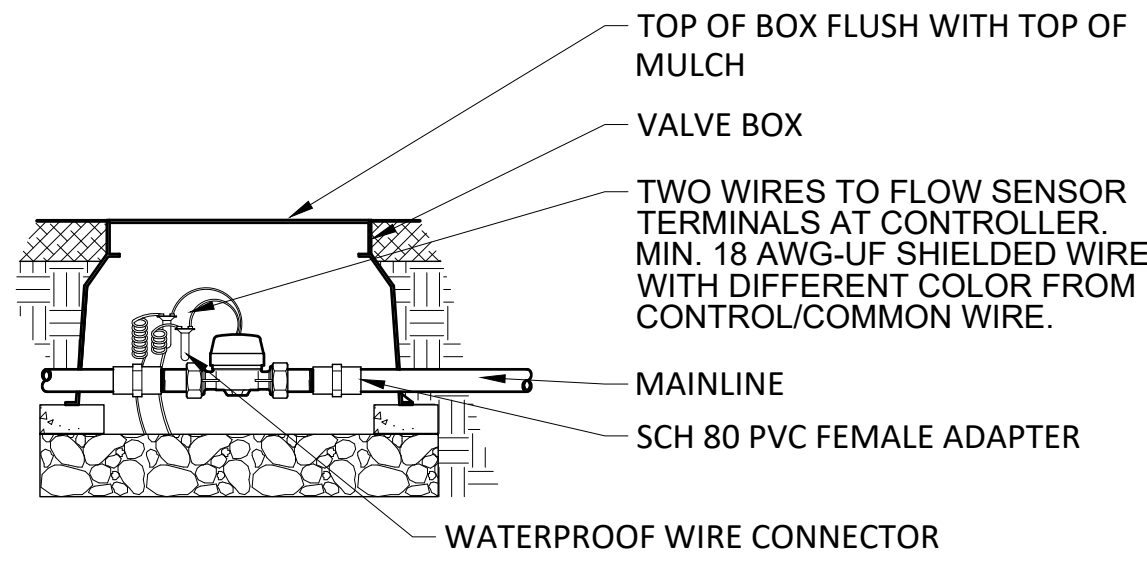
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- NOTES:
1. INSTALLATION OF TRIPLE SWING JOINTS SHALL BE AT AN ANGLE NO GREATER THAN 45 DEGREES TO HORIZONTAL.
  2. ALL PRE-MANUFACTURED TRIPLE SWING JOINTS SHALL BE MANUFACTURED WITH "O" RINGS AND SHALL BE RATED AT 200 PSI.

#### 4 QUICK COUPLER VALVE

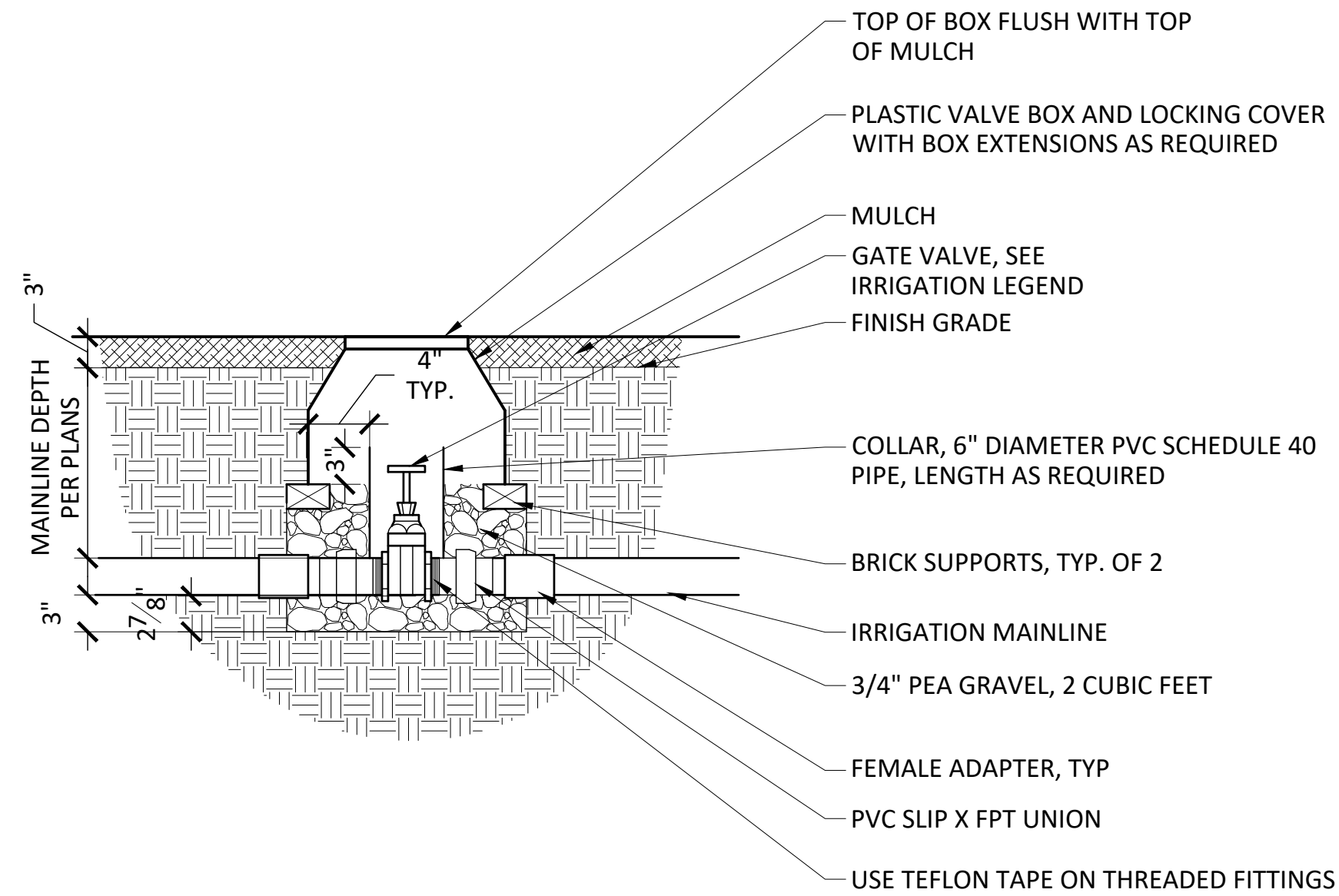
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- NOTES:
1. INLET PIPE LENGTH OF SENSOR MUST BE MINIMUM 10X PIPE DIAMETER, STRAIGHT, CLEAN RUN OF PIPE, NO FITTINGS OR TURNS. OUTLET PIPE LENGTH OF SENSOR MUST BE MINIMUM 5X PIPE DIAMETER OF STRAIGHT CLEAN RUN OF PIPE, NO FITTINGS OR TURNS.

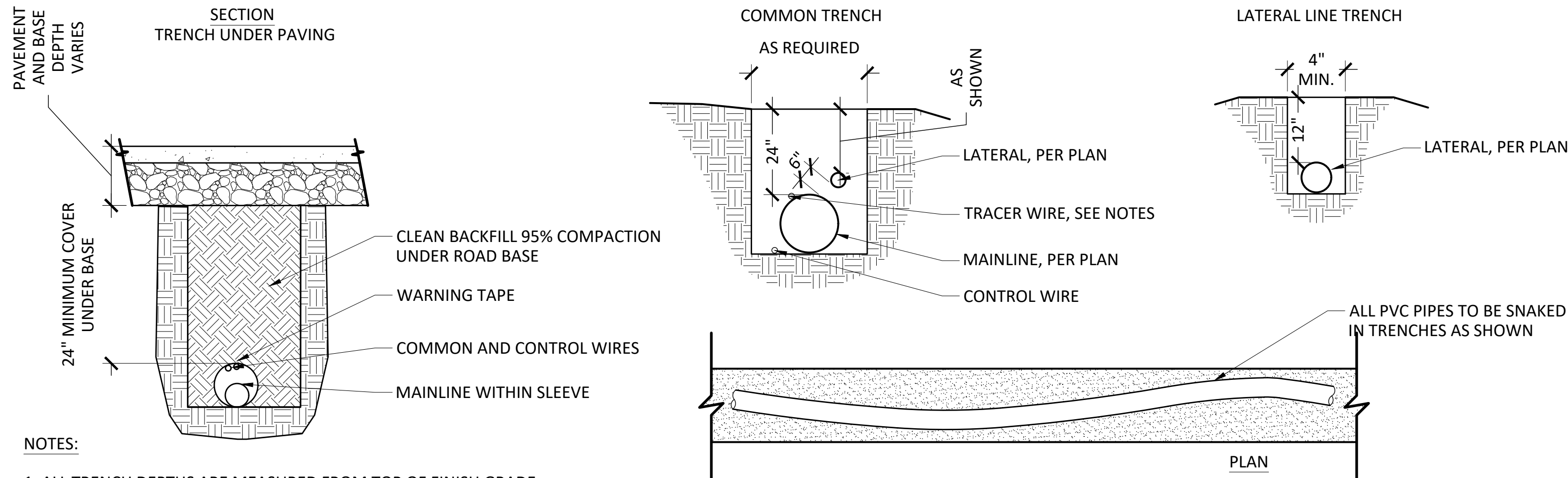
#### 2 FLOW METER

N.T.S.



#### 3 GATE VALVE

N.T.S.



- NOTES:
1. ALL TRENCH DEPTHS ARE MEASURED FROM TOP OF FINISH GRADE.
  2. INSTALL PIPE WITHIN SLEEVES PER PLANS UNDER PAVING. UNLESS OTHERWISE SPECIFIED, SLEEVE SIZE SHALL BE A MINIMUM OF TWICE THE DIAMETER OF THE PIPE BEING SLEEVED. SLEEVES SHALL EXTEND 1' BEYOND THE EDGE OF PAVING OR BACK OF CURB NECESSITATING THE SLEEVE. INSTALL TRACER WIRE WITH ALL MAINLINES AND WHERE PIPES ARE INSTALLED UNDER PAVEMENT.
  3. ALL PIPE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION SPECIFICATIONS.
  4. INSTALL PER BEDDING UNDER PIPING, WHEN SPECIFIED.
  5. TAPE AND BUNDLE ALL WIRING AT 10' INTERVALS. TIE A 24" LOOP IN ALL WIRING AT CHANGES IN DIRECTION OF 30 DEGREES OR GREATER. UNTIE ONCE CONNECTIONS HAVE BEEN MADE.
  6. BACKFILL TRENCHES, AFTER SYSTEM HAS BEEN CHARGED TO TEST FOR LEAKS, WITH CLEAN BACKFILL TO A DENSITY TO MATCH ADJACENT UNDISTURBED SOIL PER SPECIFICATIONS.

#### 5 TRENCHING

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### DETAILS

## OLD DEPOT BIKE PARK

EL DORADO COUNTY

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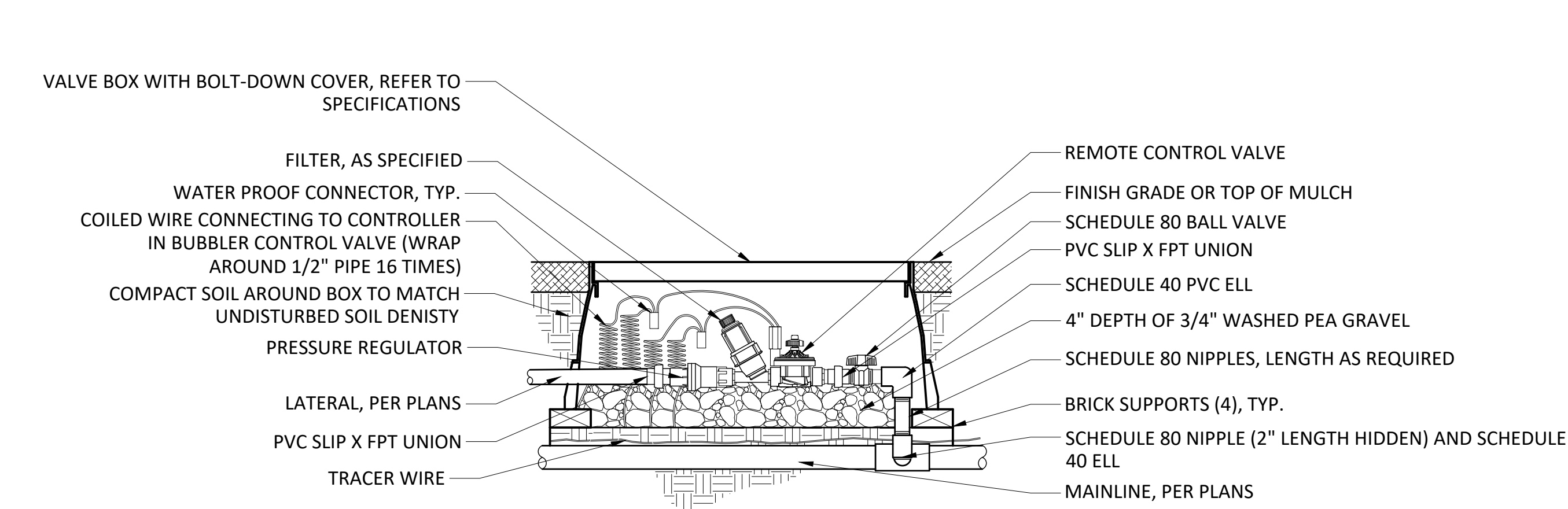
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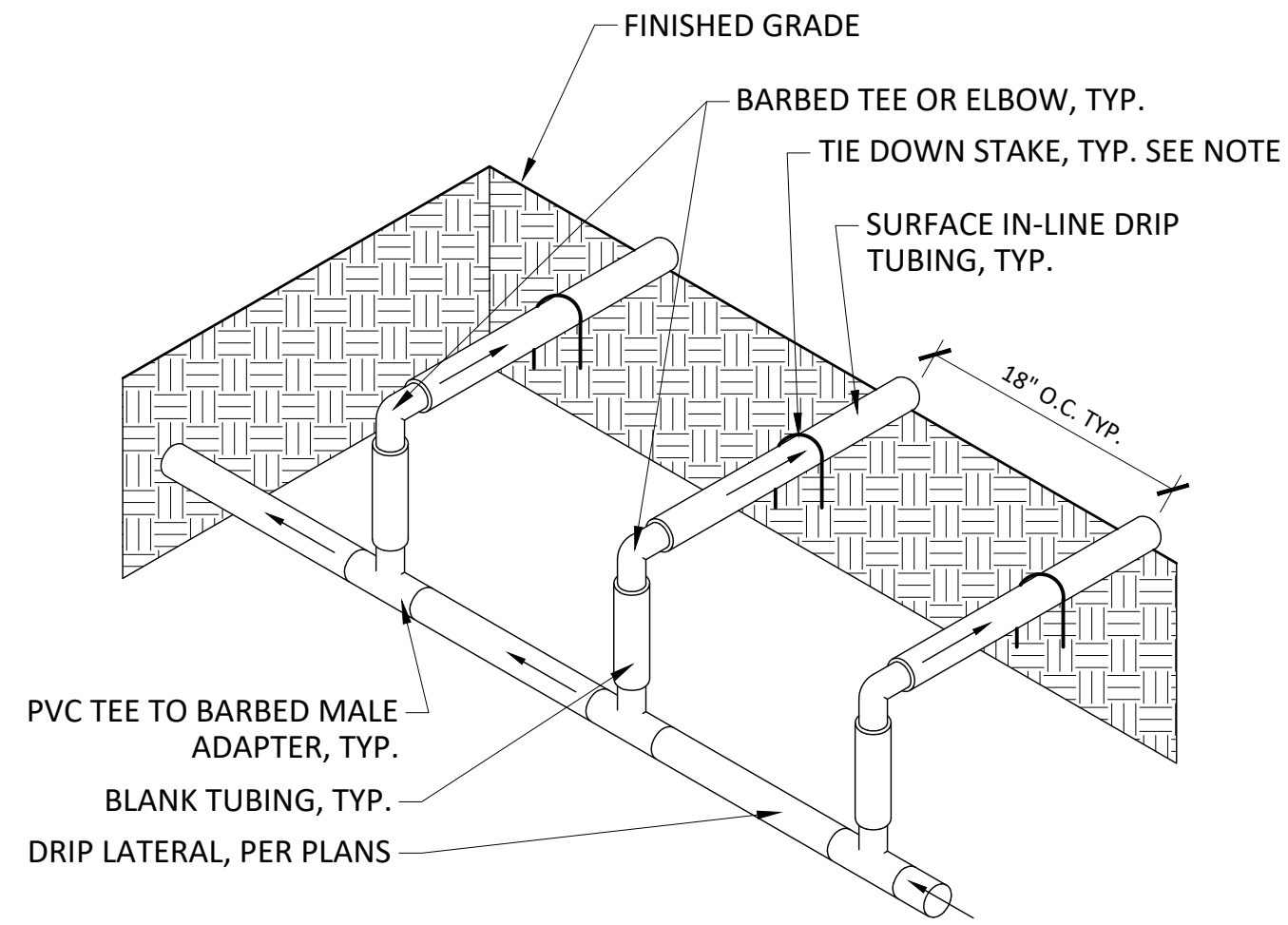




NOTE:  
1. ALL WIRE SHALL BE TAPED AND BUNDLED EVERY TEN FEET AND SHALL BE INSTALLED PER LOCAL CODE.  
2. VALVE BOX SHALL NOT REST ON OR TOUCH VALVE, MAINLINE, OR LATERAL AT ANY POINT.

1 DRIP CONTROL VALVE

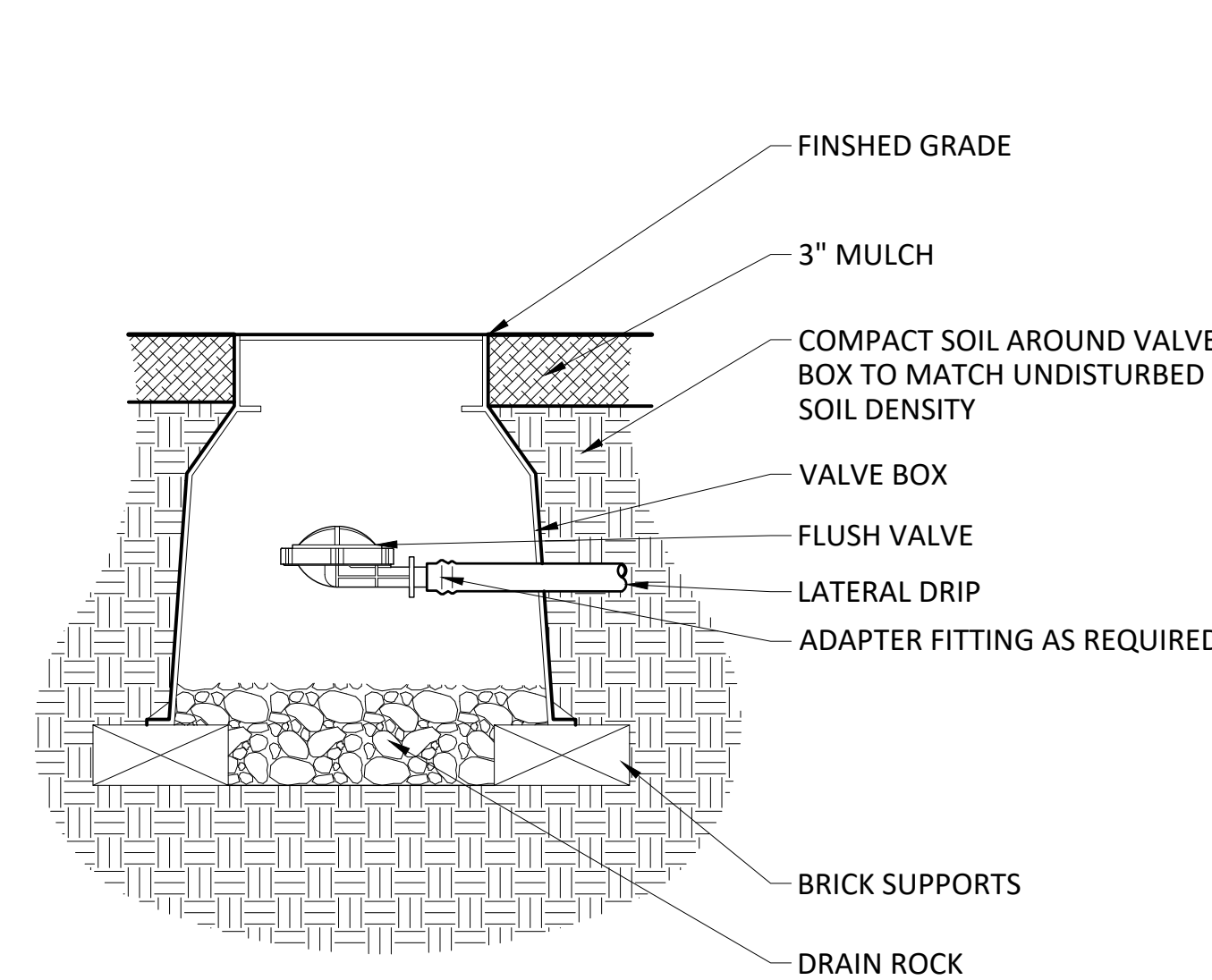
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NOTES:  
1. MAXIMUM LENGTH OF LATERAL DRIP LINE SHALL BE 200 LINEAR FEET.  
2. INSTALL STAINLESS STEEL TIE DOWN STAKES EVERY 4' AND AT ALL BENDS OR CORNERS.

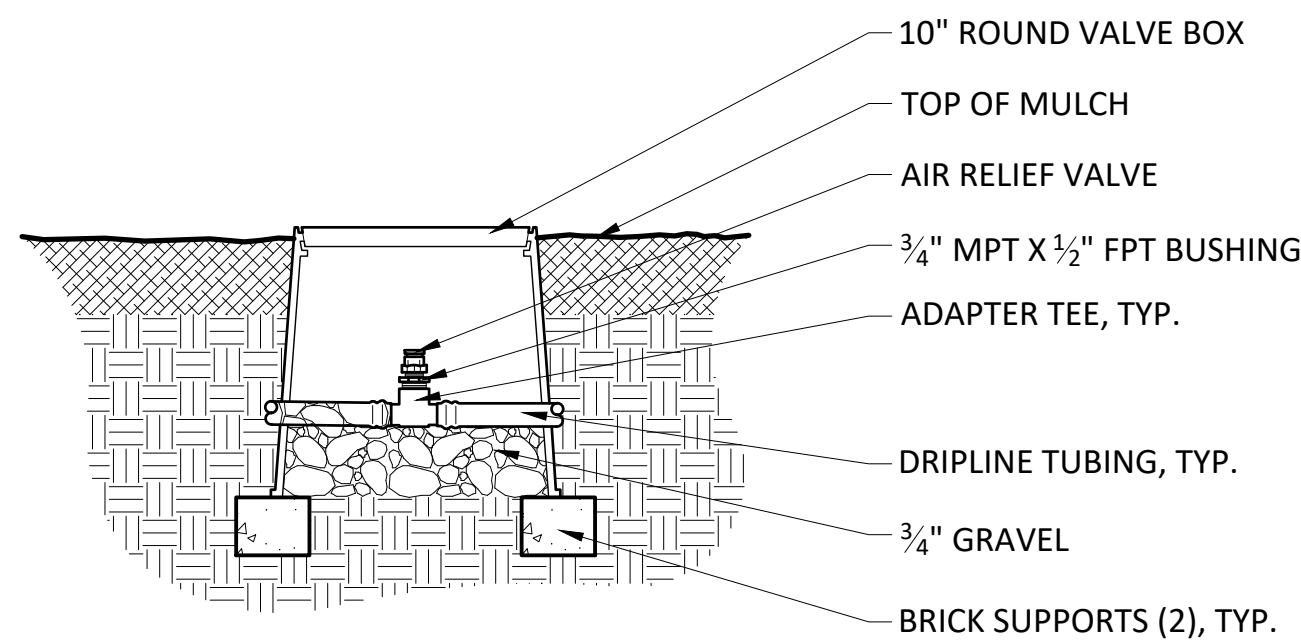
3 DRIP TUBING

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7 AUTOMATIC FLUSH VALVE

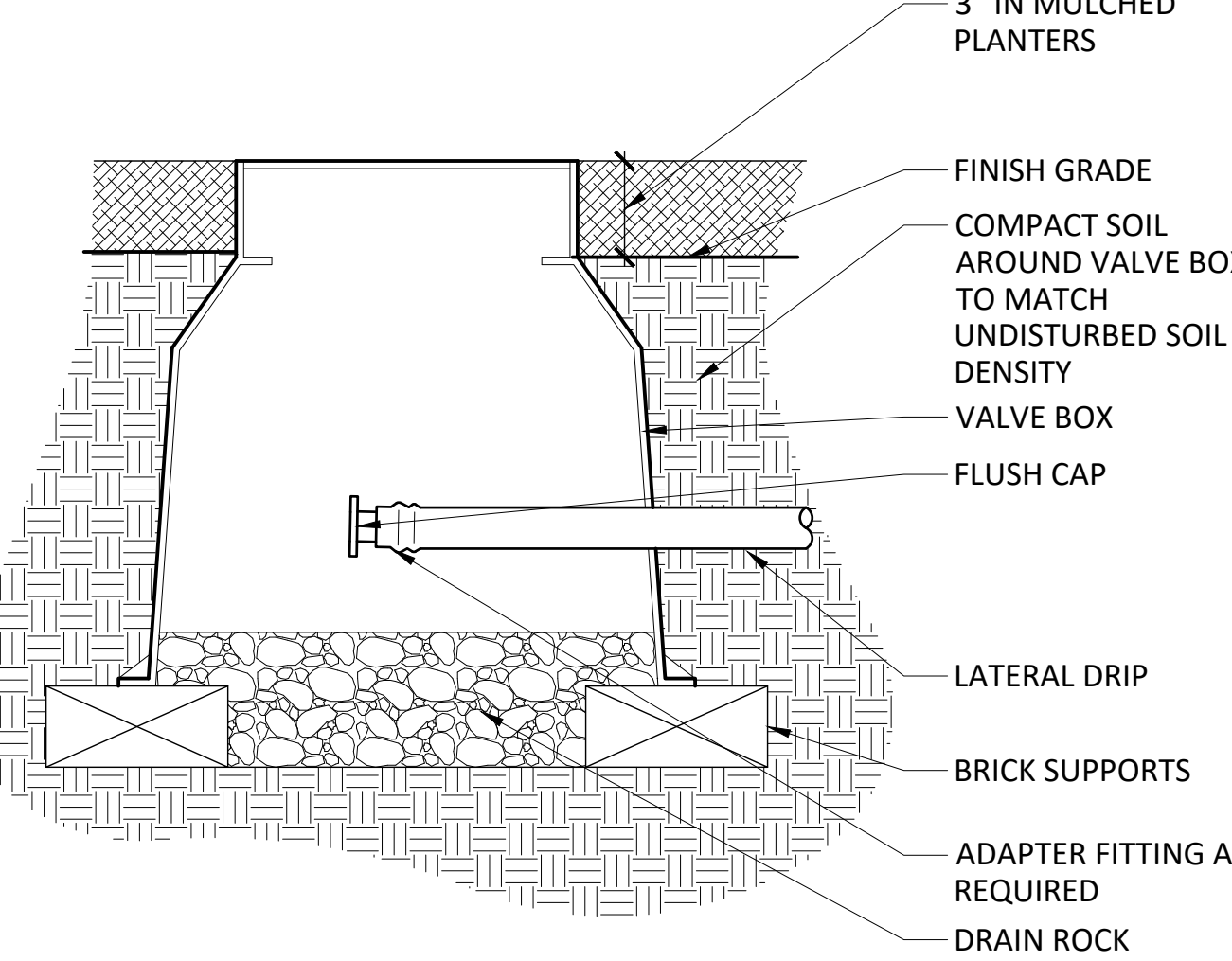
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NOTE:  
1. AIR RELIEF VALVE SHALL BE INSTALLED AT THE HIGHEST POINT OF THE SYSTEM ABOVE ALL DRIPLINE LATERALS

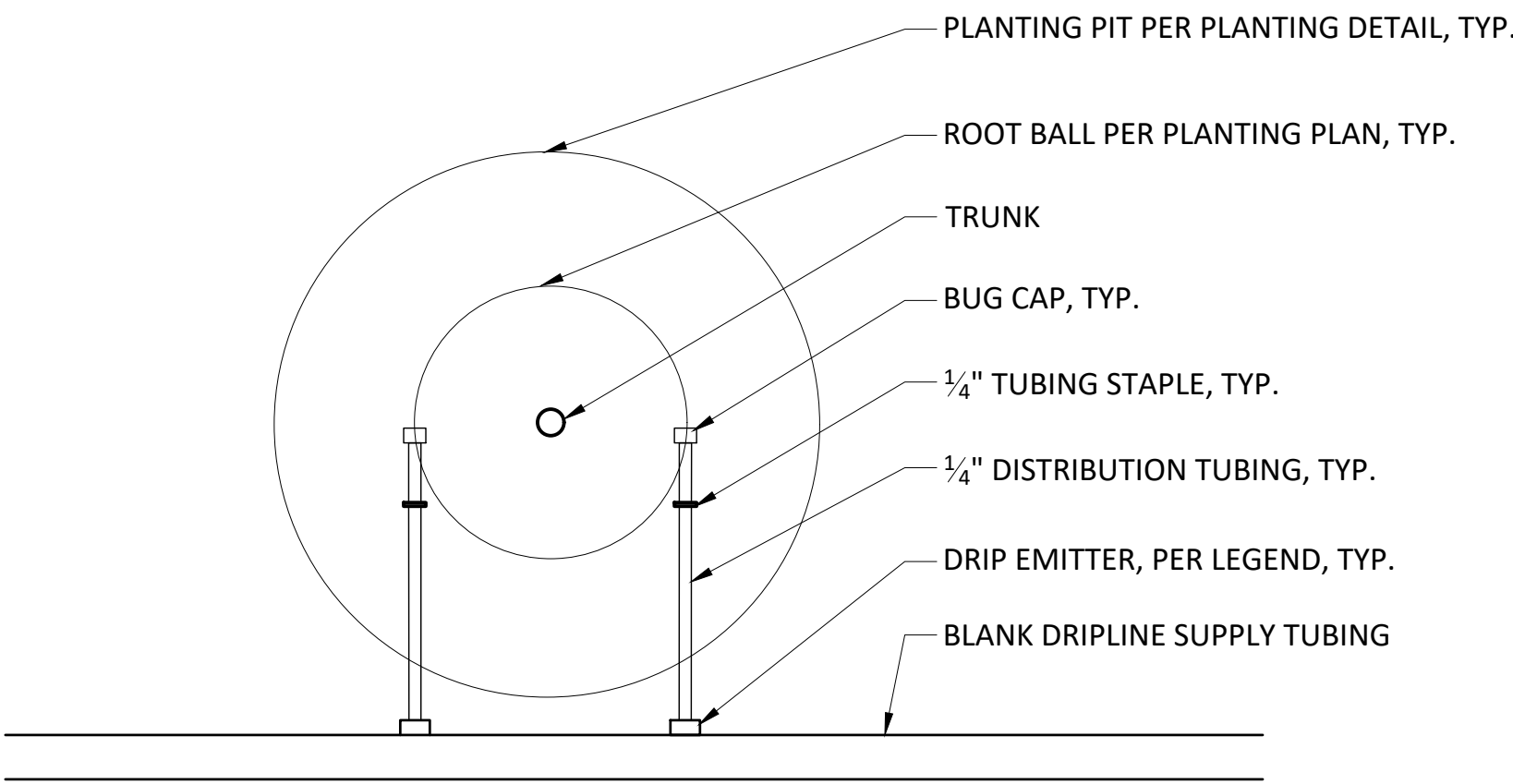
4 AIR RELIEF VALVE

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8 MANUAL FLUSH VALVE

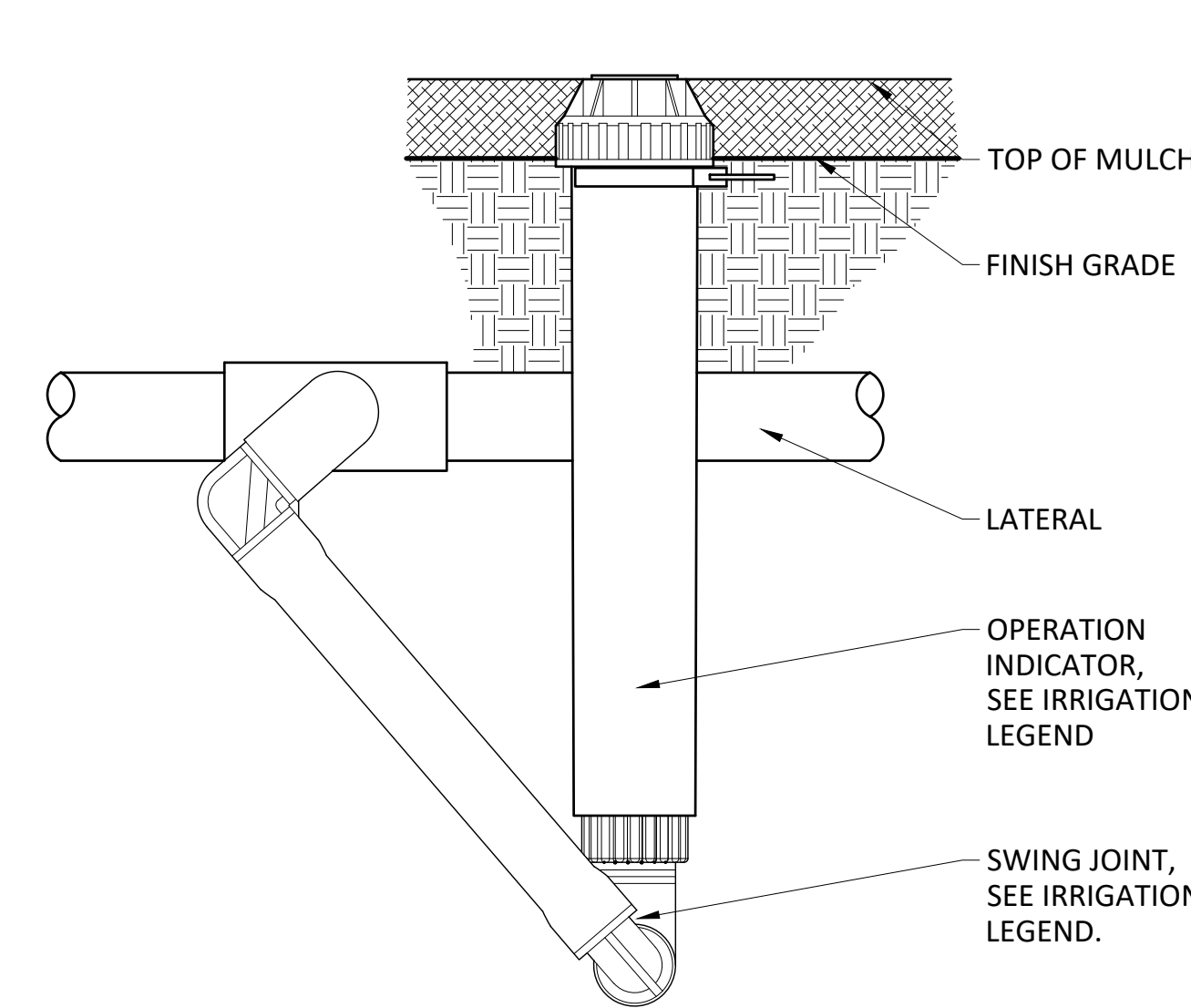
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NOTES:  
1. TERMINUS OF DISTRIBUTION TUBING SHALL BE AT UPHILL SIDE OF ROOTBALL.  
2. INSTALL EMITTER AT EDGE OF ROOTBALL.  
3. MAXIMUM LENGTH OF DISTRIBUTION TUBING SHALL BE 6'.

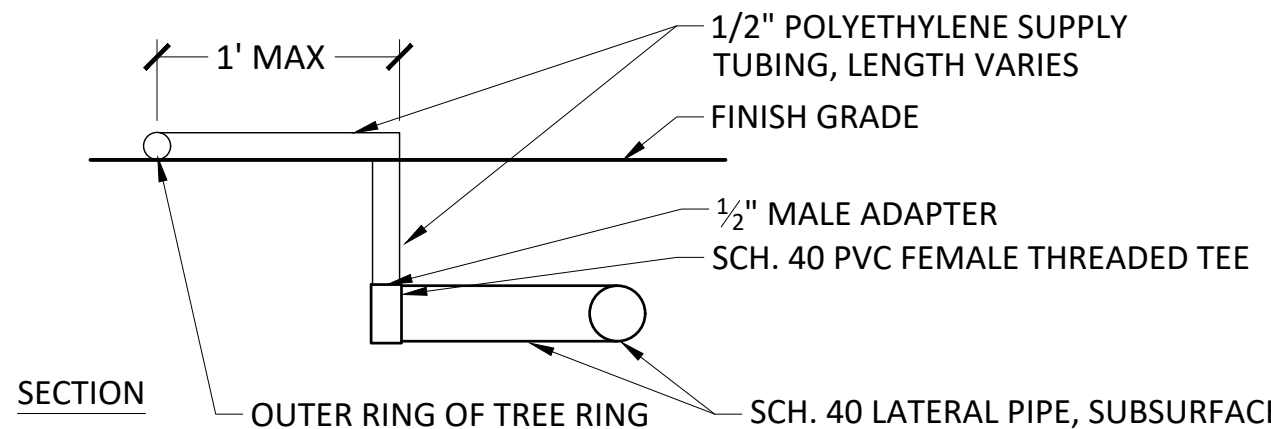
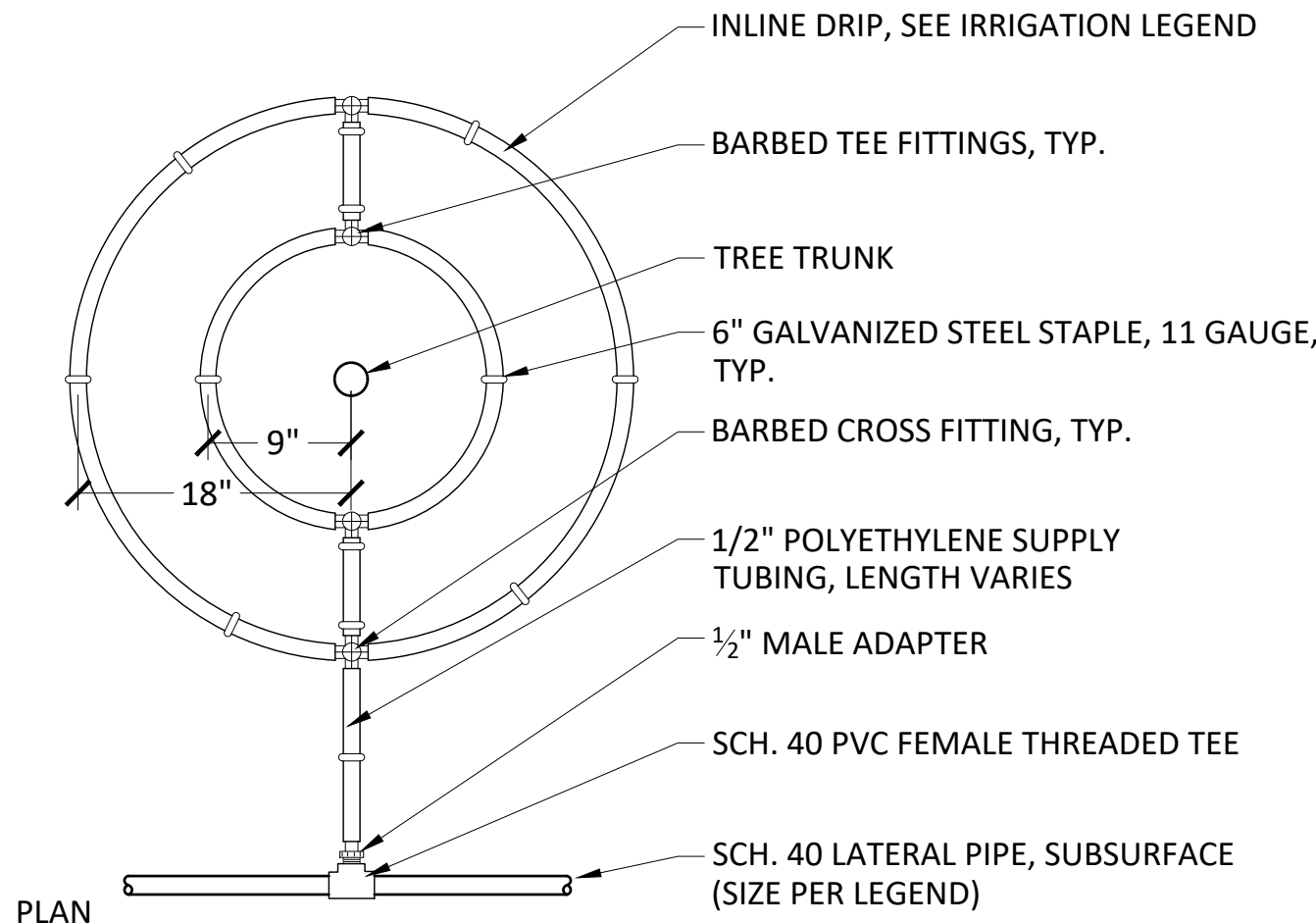
2 DRIP EMITTERS

N.T.S.



5 DRIP SYSTEM OPERATION INDICATOR

N.T.S.



NOTES:  
1. INSTALL DRIP IRRIGATION ON FINISH GRADE.  
2. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTALLATION GUIDELINES

6 TREE RING

N.T.S.

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DETAILS

OLD DEPOT BIKE PARK

EL DORADO COUNTY

LANDSCAPE ARCHITECT OF RECORD

LICENSED LANDSCAPE ARCHITECT

7/31/2022

5/14/2021

STATE OF CALIFORNIA

11 NATOMA STREET, SUITE 135  
FOLSOM, CALIFORNIA 95630  
(916) 365-8700

2021

HELIX

Environmental Planning

DRAWN BY  
JLL, CBH

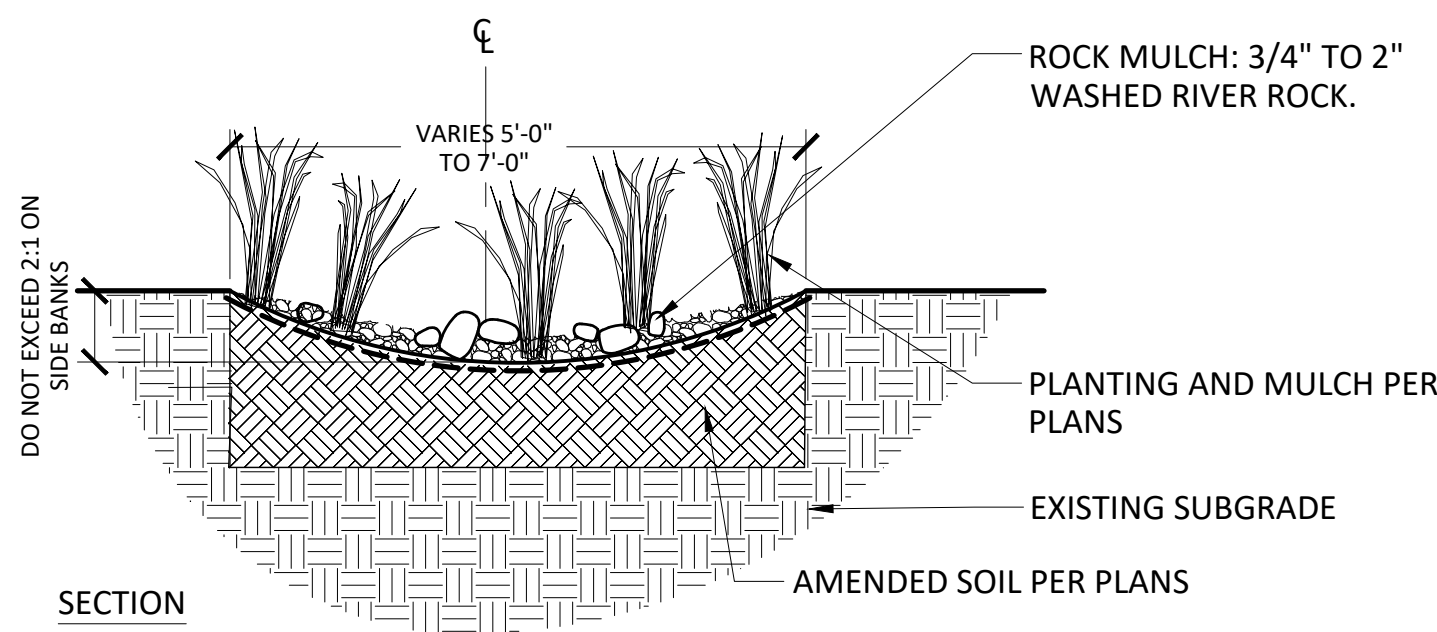
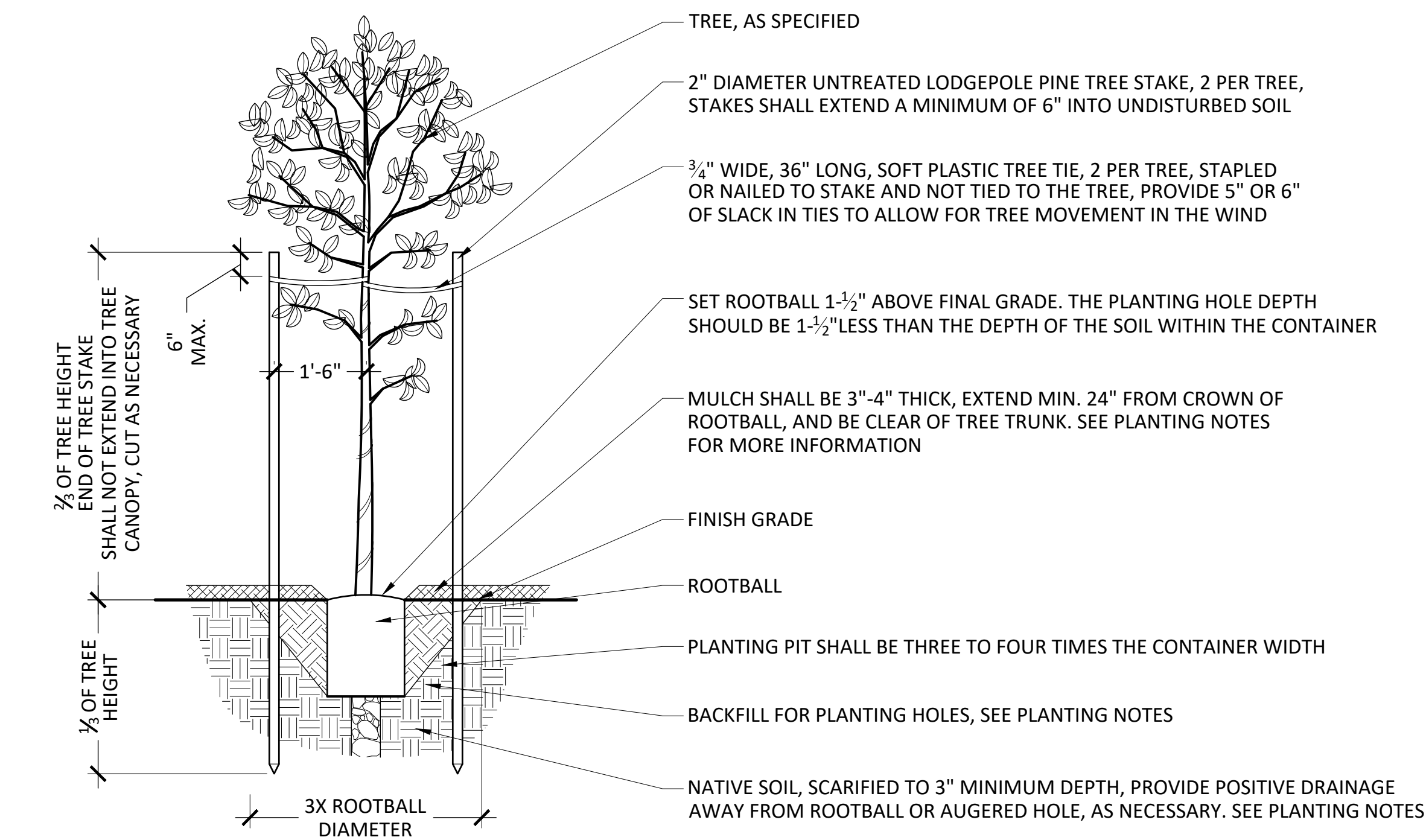
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05/14/2021

SCALE  
AS SHOWN

JOB NUMBER  
CED-04

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DT6  
34 of 37



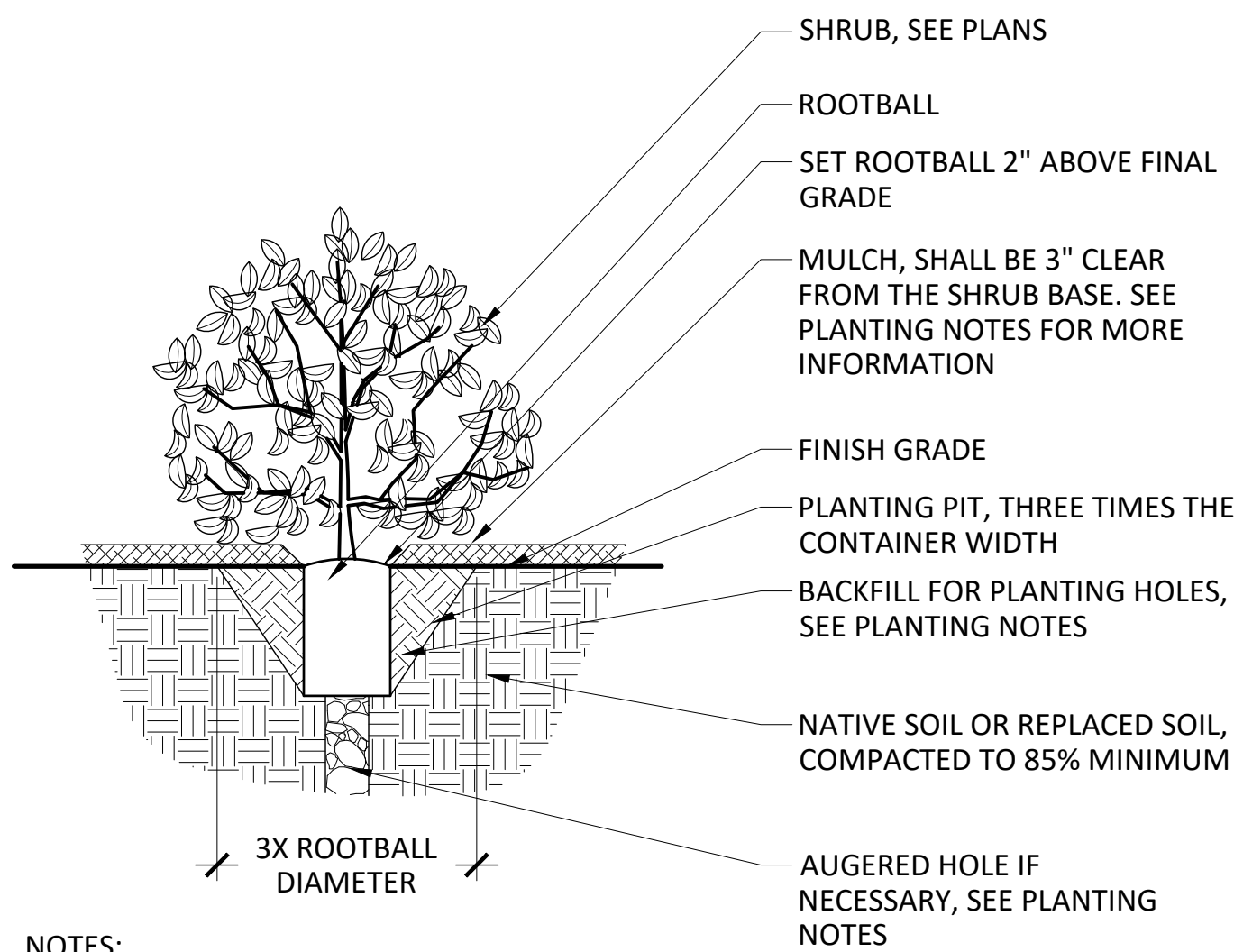


- NOTES:
1. SWALE GRADING, SEE GRADING PLAN.
  2. PROVIDE ADDITIONAL ROCK MULCH 1' AROUND CULVERT.
  3. STAKE LINE OF SWALE AND MUST BE APPROVED BY PROJECT MANAGER PRIOR TO CONSTRUCTION

4 SWALE N.T.S.

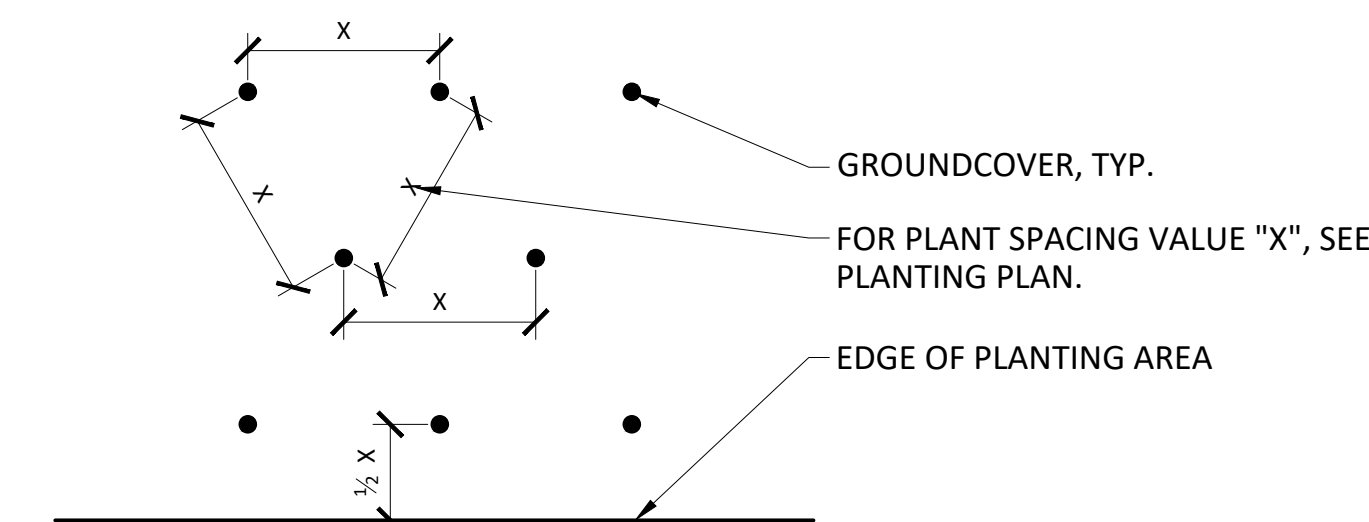
- NOTES:
1. TRUNK CALIPER SHALL MEET ANSI Z60 CURRENT EDITION FOR ROOT BALL SIZE.
  2. LEAVE THE SMALL BRANCHES ON THE TREE. REMOVE THEM IF THE BRANCH LOCATION IS NOT SUITABLE AS A PERMANENT BRANCH WHEN THEY BECOME 1" IN DIAMETER. DO NOT TOP THE TREE.
  3. REMOVE ANY NURSERY STAKE TIED CLOSE TO THE TRUNK OF THE TREE. WATER TO SATURATION WHEN FIRST PLANTED.

1 TREE PLANTING N.T.S.

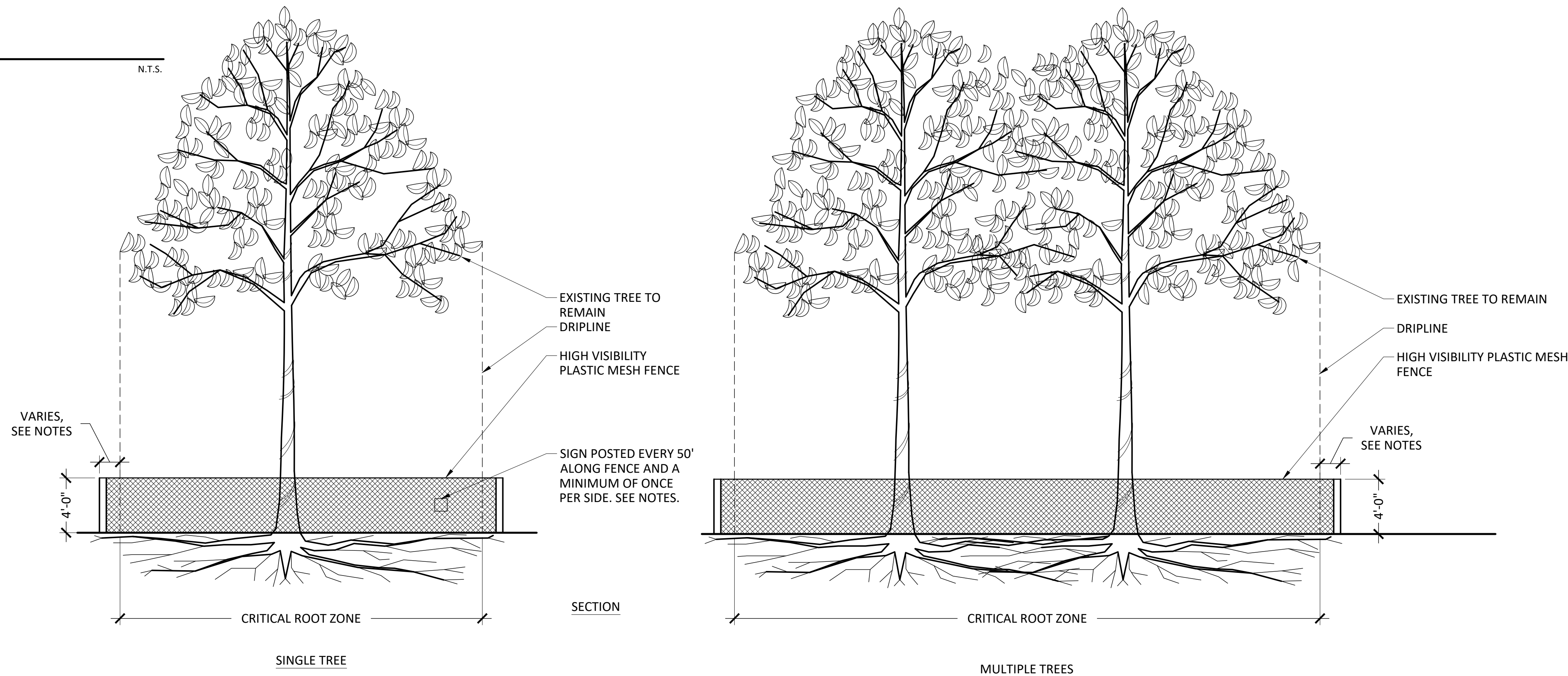


- NOTES:
1. REMOVE ALL NURSERY STAKES AND TIES.
  2. WATER TO SATURATION WHEN FIRST PLANTED

2 SHRUB PLANTING N.T.S.



3 GROUNDCOVER PLANTING N.T.S.



- NOTES:
1. INSTALL FENCING BEFORE ANY CONSTRUCTION BEGINS.
  2. FENCING SHOULD BE LOCATED A MINIMUM AS FAR OUT FROM THE DRIPLINE AS POSSIBLE AND A MINIMUM OF 1.3X THE RADIUS OF THE DRIPLINE WHERE THERE ARE NOT CONFLICTS WITH PERMANENT IMPROVEMENTS.
  3. THE FENCED AREAS SHOULD BE KEPT CLEAR OF BUILDING MATERIALS, WASTE, AND EXCESS SOIL. NO DIGGING, TRENCHING, OR OTHER SOIL DISTURBANCE SHOULD BE ALLOWED IN THE FENCED AREA.
  4. STORAGE AREAS FOR EQUIPMENT, SOIL, AND CONSTRUCTION MATERIALS IS NOT ALLOWED WITHIN THE TREE PROTECTION ZONES. CONCRETE WASH-OUT PITS ARE NOT ALLOWED WITHIN THE TREE PROTECTION ZONES OR IN ANY LOCATION THAT DRAINS TO A TREE PROTECTION ZONE.
  5. SIGNS SHALL READ, "TREE PROTECTION ZONE. DO NOT ENTER OR RELOCATE WITHOUT APPROVAL OF COUNTY". TEXT SHALL BE 1" TALL BLACK LETTER ON WHITE BACKGROUND. SIGN SHALL BE A MINIMUM OF 11" HIGH AND WIDE AND MADE OF A MATERIAL THAT WILL NOT FADE OR BECOME DAMAGED WHEN EXPOSED TO THE ELEMENTS.

5 TREE PROTECTION FENCING N.T.S.

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DETAILS

OLD DEPOT  
BIKE PARK  
EL DORADO COUNTY

LANDSCAPE ARCHITECT  
OF RECORD



11 NATOMA STREET, SUITE 135  
FOLSOM, CALIFORNIA 95630  
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**HELIX**  
Environmental Planning

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JLL, CBH

DATE  
05/14/2021

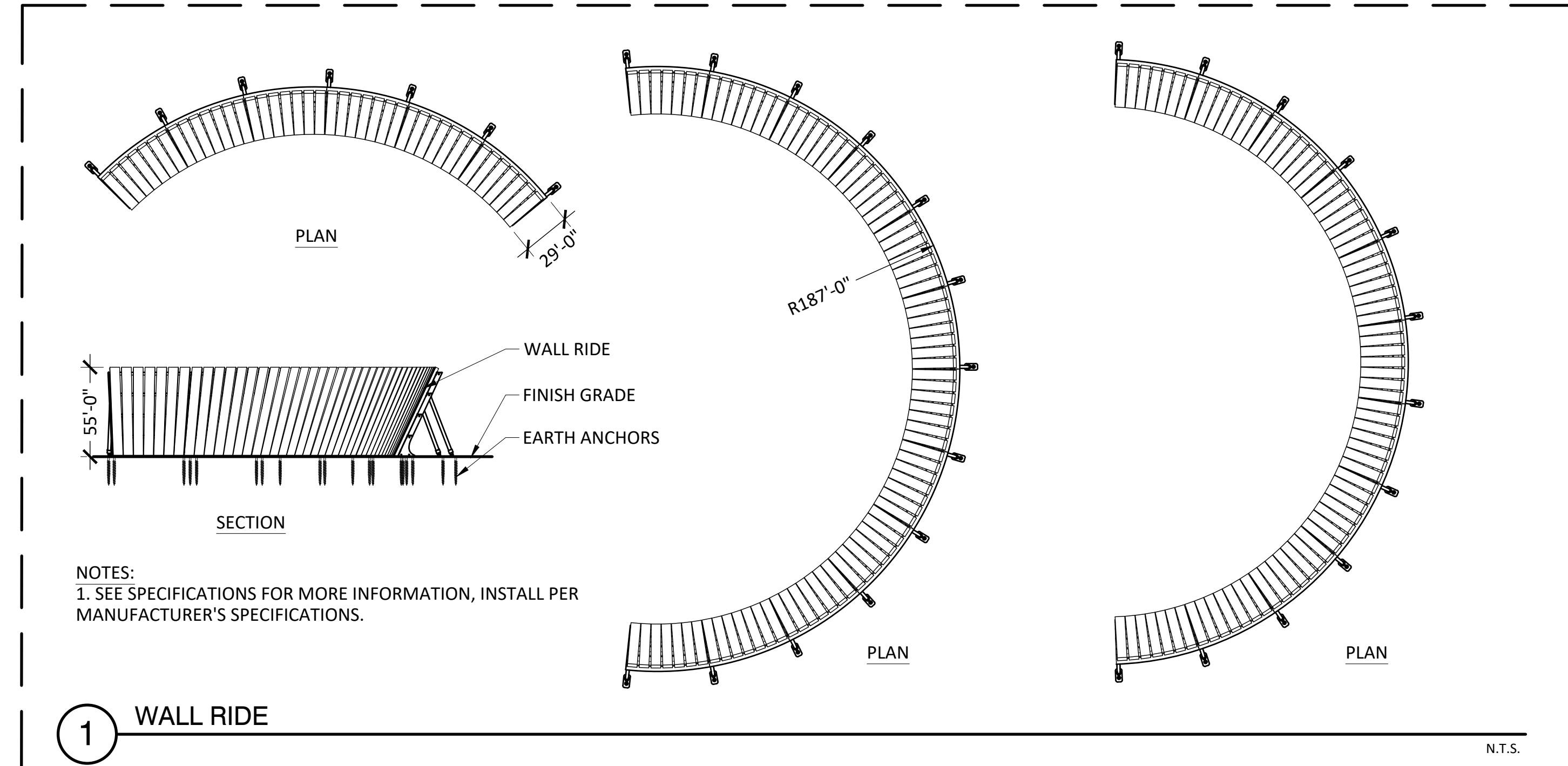
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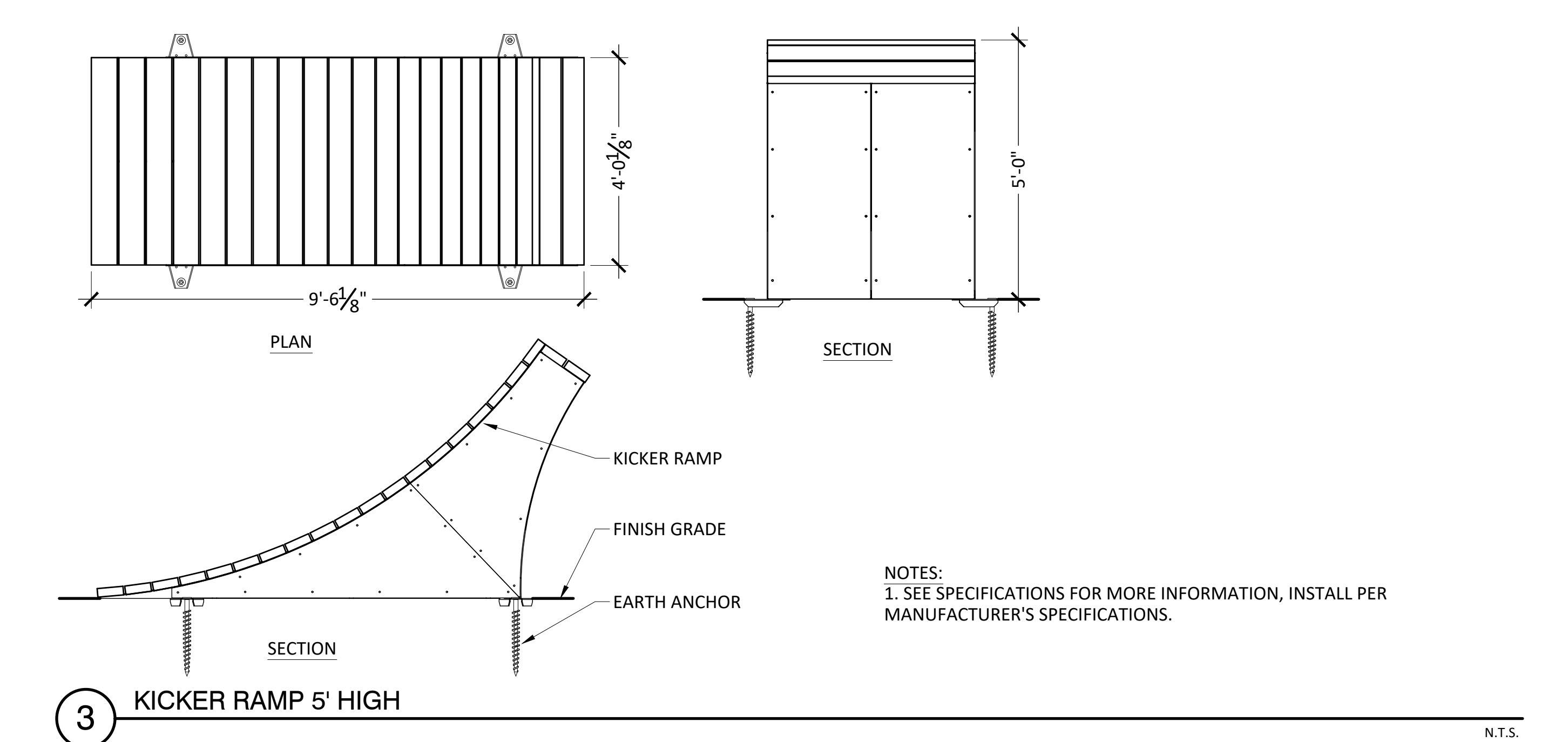
DT7  
35 of 37





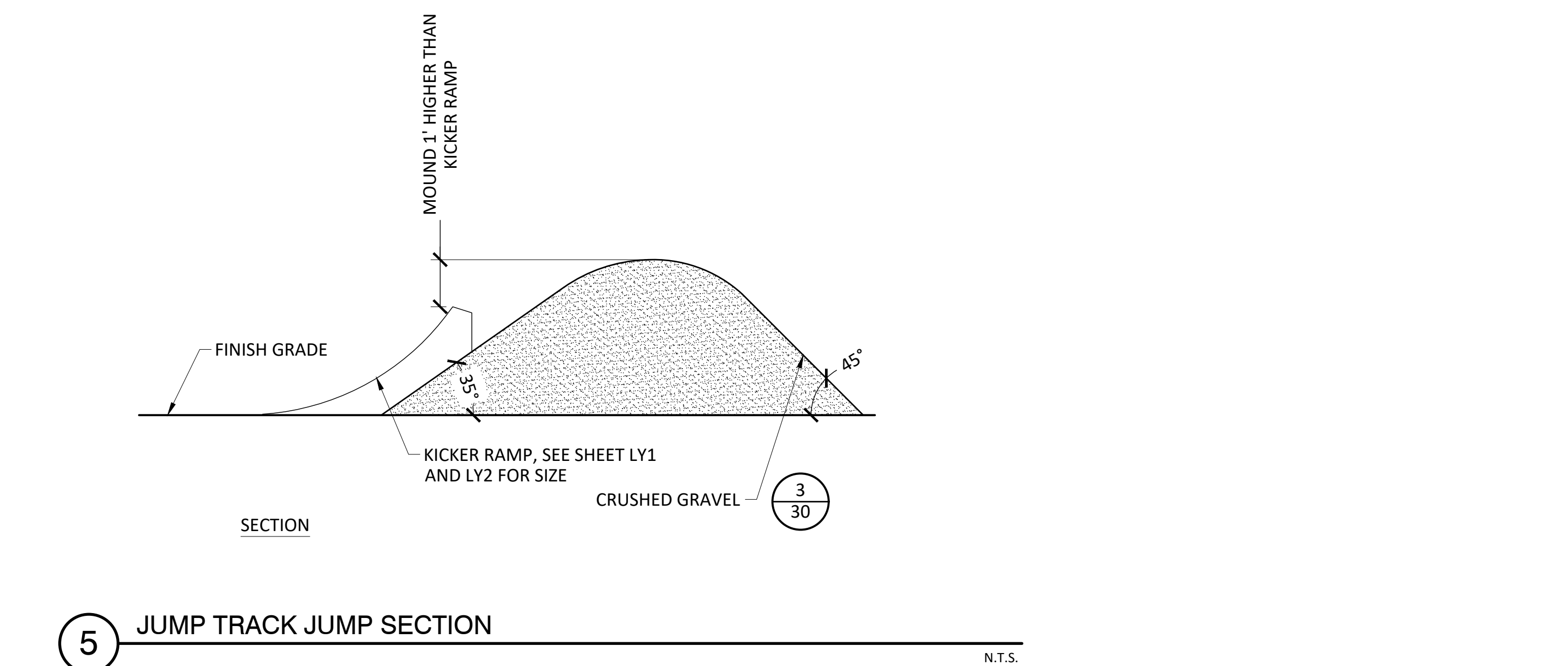
1 WALL RIDE

ADDITIVE ALTERNATE #3



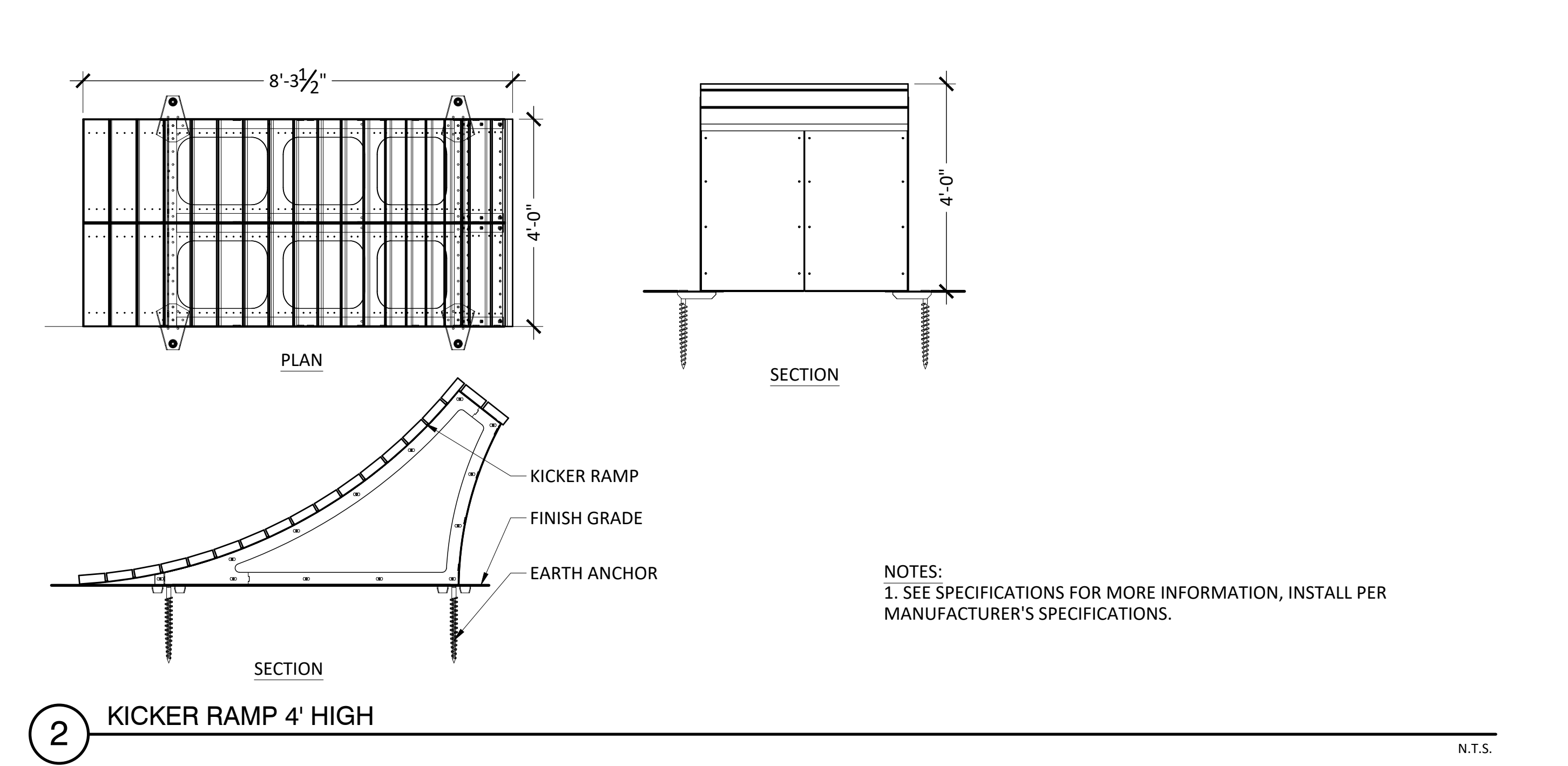
3 KICKER RAMP 5' HIGH

N.T.S.



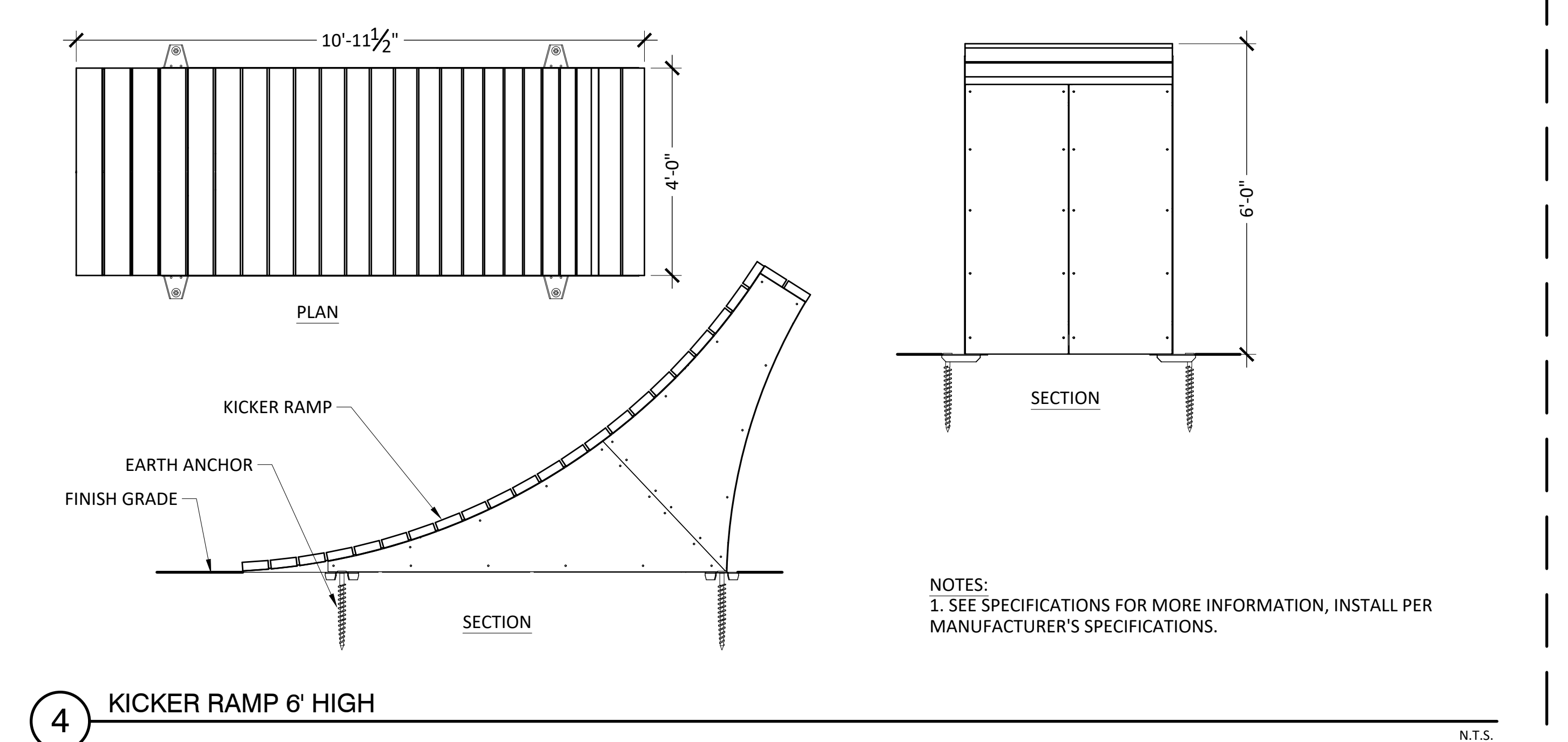
5 JUMP TRACK JUMP SECTION

N.T.S.



2 KICKER RAMP 4' HIGH

N.T.S.



4 KICKER RAMP 6' HIGH

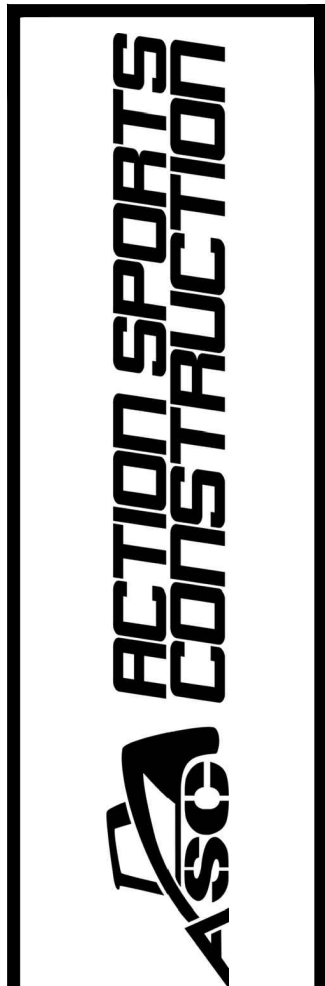
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ADDITIVE ALTERNATE #3

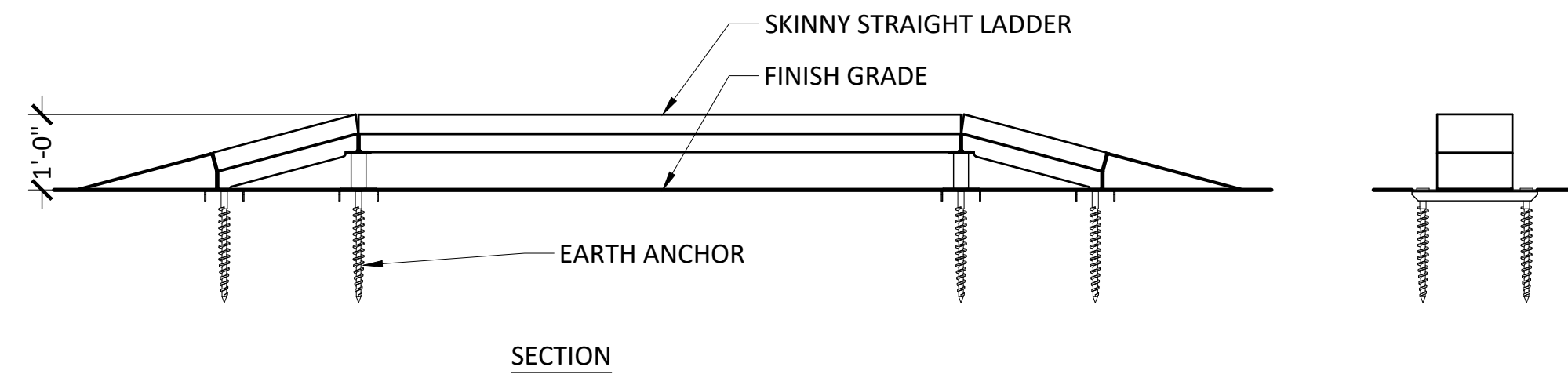
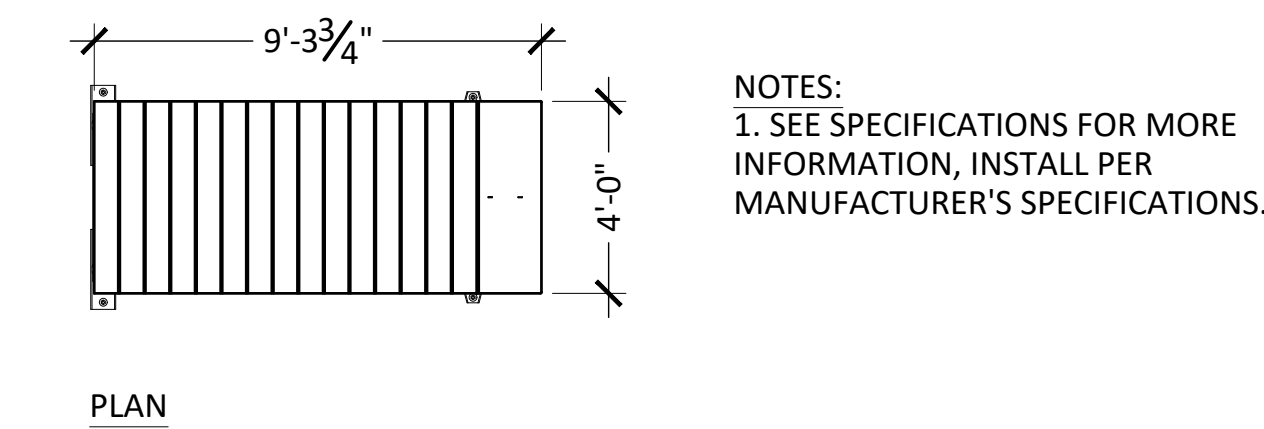
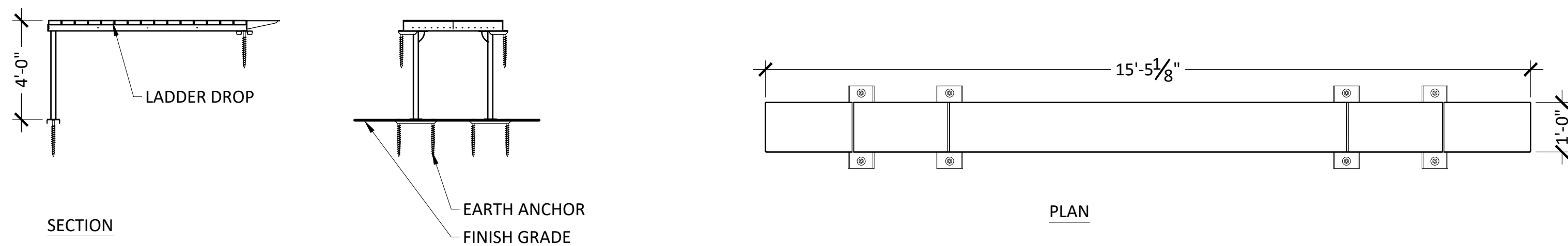
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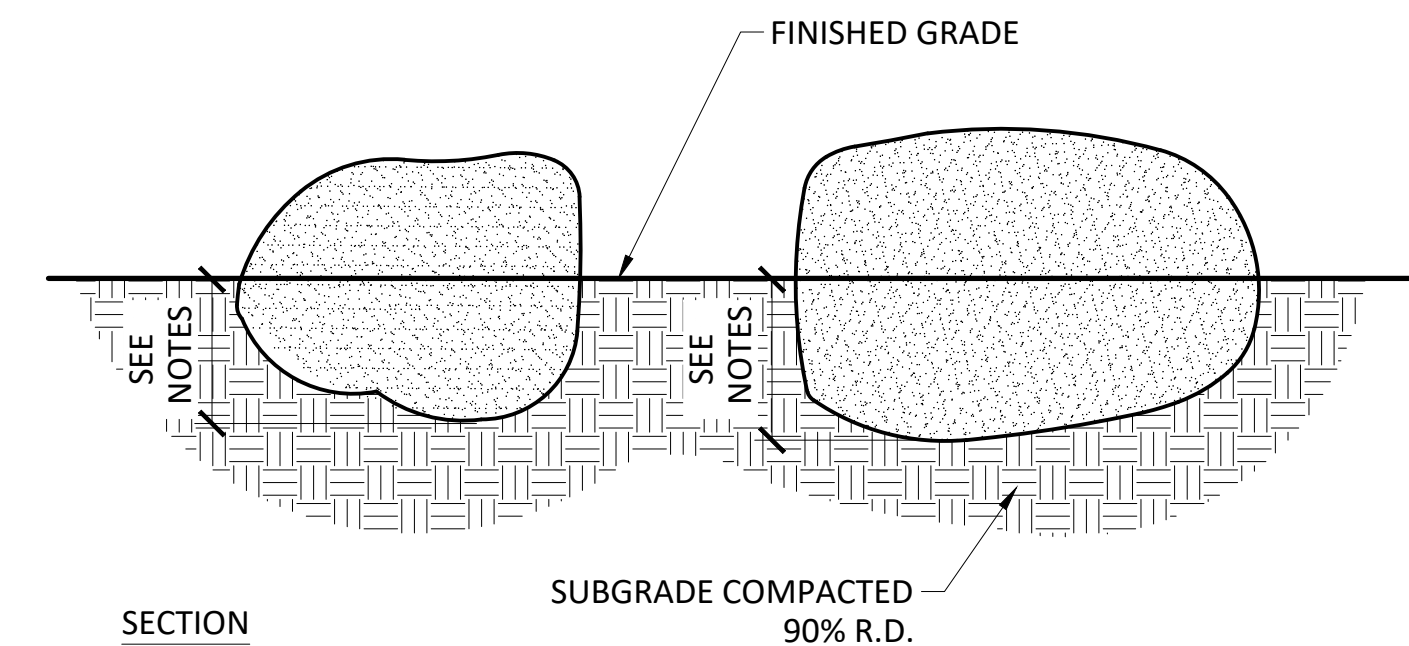
OLD DEPOT  
BIKE PARK  
EL DORADO COUNTY



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| DRAWN BY   | JLL             |
| DATE       | 5/14/2020       |
| SCALE      | AS SHOWN        |
| JOB NUMBER | CED-04          |
| SHEET      | DT8<br>36 of 37 |



NOTES:  
1. SEE SPECIFICATIONS FOR MORE INFORMATION, INSTALL PER MANUFACTURER'S SPECIFICATIONS.



- NOTES
1. BOULDERS SHALL BE SALVAGES FROM ONSITE OR SHALL BE GRANITE BOULDERS.
  2. SIZE BOULDERS PER PLANS AND SPECIFICATIONS.
  3. BOULDERS SHALL BE LOCATED AS SHOWN ON PLANS.
  4. BOULDERS SHALL BE SOURCED AND PLACED TO HAVE LARGEST FLAT RIDE-ABLE AREA FACING UP.
  5. BOULDERS SHALL BE PLACED WITH  $\frac{1}{2}$  OF THEIR MASS BELOW FINISH GRADE.

1 LADDER DROP

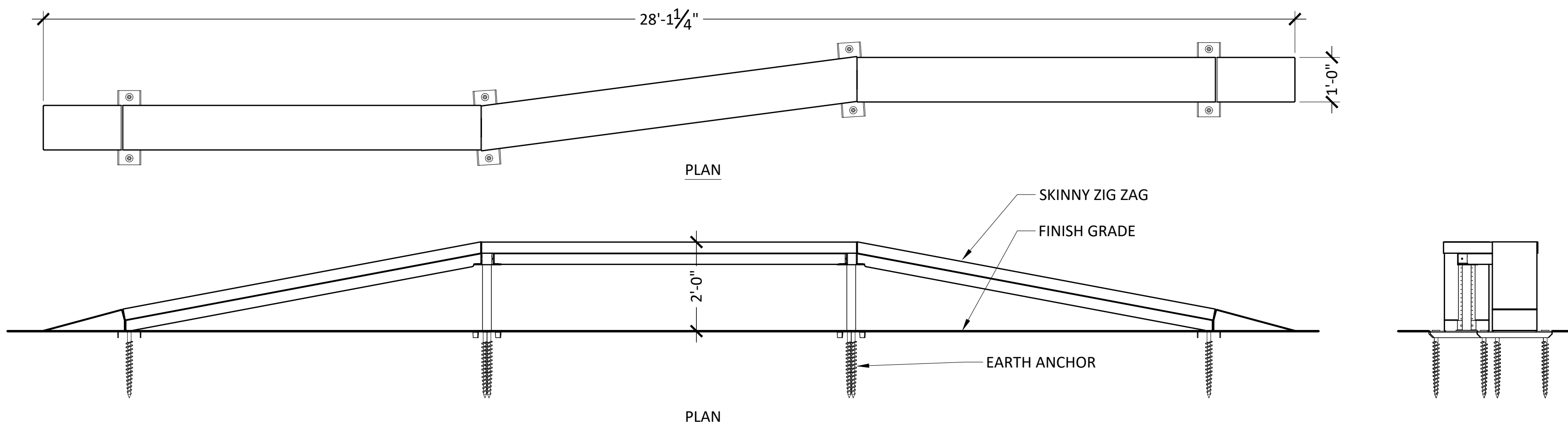
N.T.S.

2 SKINNY STRAIGHT LADDER 15 DEGREES

N.T.S.

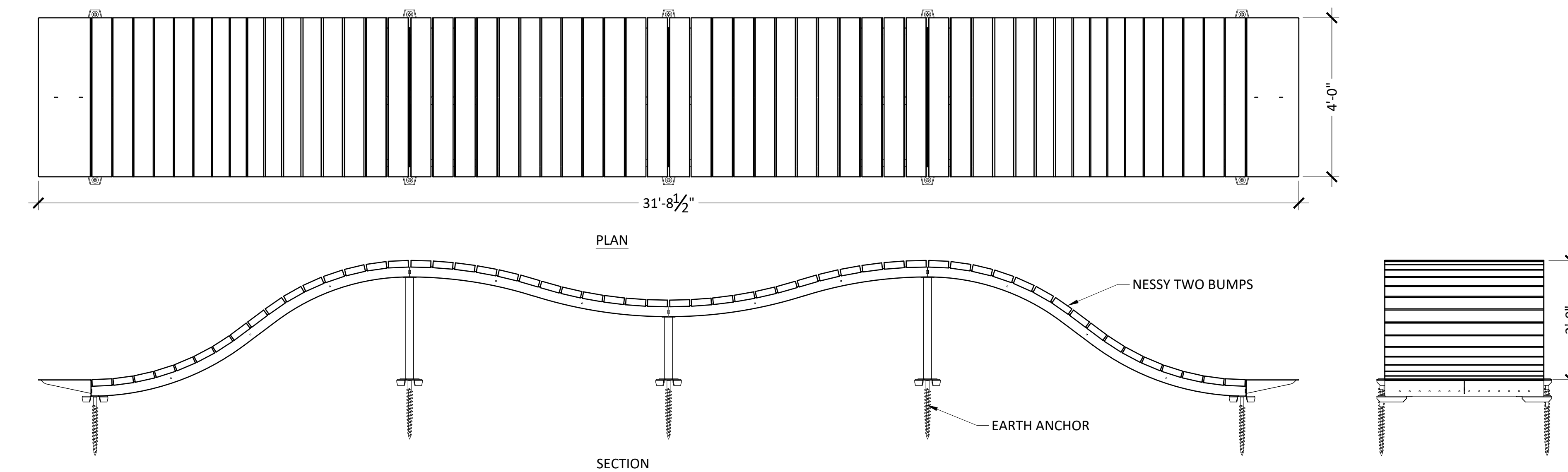
3 BOULDERS

N.T.S.



4 SKINNY ZIG ZAG SHORT

N.T.S.



5 NESSY TWO BUMPS

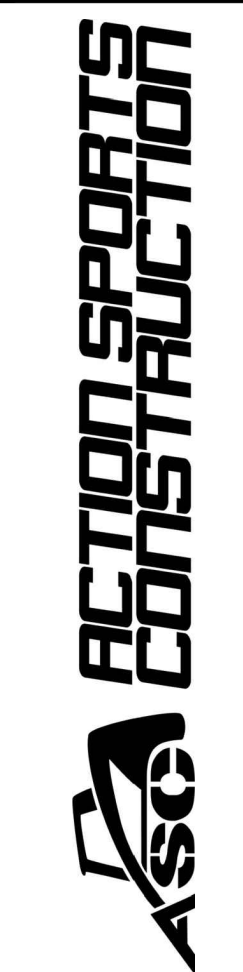
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ADDITIVE ALTERNATIVE #2

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DETAILS

OLD DEPOT  
BIKE PARK  
EL DORADO COUNTY



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DATE  
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AS SHOWN  
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## Attachment B

# Old Depot Bike Park From Railroad Tracks to Bike Tracks

Old Depot Bike Park is right next to the El Dorado Trail.

The trail was formerly the path of the Sacramento to Placerville railroad alignment which became part of Southern Pacific. The Sacramento Valley Railroad started construction in Sacramento in 1855 and reached Folsom in 1856. In 1863, construction of the next segment started which reached Placerville in 1888. During this time California was booming from the discovery of gold in 1848. People migrated to California and a number of industries came with them. The need for building supplies and the nearby forests brought the logging industry to the area. One of these companies was the California Door Company who owned the Old Depot Bike Park site between 1898 and 1908, which they used as a worker's camp for their nearby mill.

### CALIFORNIA DOOR COMPANY AND CALDOR RAILROAD

The California Door Company was established in 1884 and made doors, windows, and blinds. They purchased 30,000 acres of timberlands in Dogtown, El Dorado County, (near Grizzly Flats) and the town was renamed Caldor. The Diamond & Caldor Railway was incorporated in 1902 to build a narrow gauge rail spanning 35 miles with 63 trestles to transport logs from Caldor to their mill in Diamond Springs. The railroad was completed in 1904 and was abandoned in 1953 when transportation was replaced by diesel trucks. The mill in Diamond Springs operated into the 1970s.

### PUMP TRACK LOADING RAMP

Great care was taken to incorporate the loading ramp in the pump track design. This loading ramp was located on the team track, which was a public loading ramp positioned on a railroad spur so teams of horses could approach it and load or unload freight. The ramp was located on the north side of the main railroad tracks with the Southern Pacific depot on the south side used mostly for passengers. This loading ramp was used up until the 1980s.



The Caldor Railroad narrow gauge rail carries logs toward Diamond Springs. This narrow gauge track was 3 feet wide, whereas standard gauge track was 4' 8 1/2".

The original water powered sawmill located in Caldor burned in 1923 and the California Door Co. built a new electric powered sawmill in Diamond Springs, along with a large log pond, shown here. Whole logs were transported instead of cut lumber to the planing mill in Diamond Springs.



The Diamond Springs Depot handled millions of feet of lumber yearly, doing the largest business in El Dorado County. There were five depots on the Placerville line: Latrobe, Shingle Springs, El Dorado, Diamond Springs, and Placerville.



# OLD DEPOT BIKE PARK

**Project funded by the California  
Drought, Water, Parks, Climate,  
Coastal Protection, and Outdoor  
Access for All Act of 2018**

**Thanks to:**

Gavin Newsom, Governor

Wade Crowfoot, Secretary for Natural Resources

Armando Quintero, Director,  
California Department of Parks and Recreation

Vickie Sanders, Parks Manager, El Dorado County



# PROP



State of California  
Parks & Water Bond 2018



# OLD DEPOT BIKE PARK

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Drought, Water, Parks, Climate,  
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California Department of Parks and Recreation

Vickie Sanders, Parks Manager, El Dorado County

HELIX Environmental Planning, Landscape Architects

[Fill in name], Construction Contractor



**HELIX**  
Environmental Planning

Construction  
Contractor Logo

