

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

P.O. Box 944246
SACRAMENTO, CA 94244-2460
(916) 653-7772
Website: www.fire.ca.gov



**Invitation for Bid
Notice to Prospective Bidders
#4CA07912 Replace Water Tank and Waterline System Services**

May 22, 2026

You are invited to review and respond to this Invitation for Bid (IFB). In submitting your bid, you must comply with these instructions. In addition to those programs and preferences that are specified in this solicitation, Prospective Contractors are encouraged to consider programs and preferences that are available, such as those for the use of small businesses, disadvantaged businesses, disabled veteran businesses, and other businesses covered by State and Federal programs and preferences.

On March 04, 2022, Governor Gavin Newsom issued Executive Order N-6-22 (the EO) regarding Economic Sanctions against Russia and Russian entities and individuals. "Economic Sanctions" refers to sanctions imposed by the U.S. government in response to Russia's actions in Ukraine, as well as any sanctions imposed under state law. By submitting a bid or proposal, Contractor represents that it is not a target of Economic Sanctions. Should the State determine Contractor is a target of Economic Sanctions or is conducting prohibited transactions with sanctioned individuals or entities, that shall be grounds for rejection of the Contractor's bid/proposal any time prior to contract execution, or, if determined after contract execution, shall be grounds for termination by the State.

The DVBE Participation Program applies, **and a three percent (3.00%) goal is required for this IFB.** The DVBE Incentive Program may also apply to this IFB. See **Section D, Special Programs, Item 1**, in this IFB for requirements.

As required by Executive Order S-02-06, the California Department of Forestry and Fire Protection (CAL FIRE) is committed to meeting the State's 25 percent (25%) Small Business (SB) participation goal. Certified SBs, Micro Businesses (MB), and contractors willing to commit to subcontracting a minimum of 25 percent (25%) of their net bid price to certified SBs or MBs (if applicable) are encouraged to submit bids. See **Section D, Special Programs, Item 2**, in this IFB for requirements.

Note that all agreements entered into with the State of California will include by reference General Terms and Conditions (GTC 02/2025) and Contractor Certification Clauses that may be viewed and downloaded at Internet site <https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language>. If you do not have Internet access, a hard copy can be provided by contacting the person listed below.

This contract requires Prevailing Wages if the total bid amount exceeds **\$1,000.00**. If the total bid amount is under **\$1,000.00**, then Prevailing Wage language will be removed prior to award. Refer to **Sample Standard Agreement**, for requirement details.

In the opinion of California Department of Forestry and Fire Protection (CAL FIRE), this IFB is complete and without need of explanation. However, if you have questions, or should you need any clarifying information, the contact person for this IFB is:

Gloria Pietromonaco
California Department of Forestry and Fire Protection
Gloria.Pietromonaco@fire.ca.gov

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PLEASE REMEMBER TO CONSERVE ENERGY. FOR TIPS AND INFORMATION, VISIT "FLEX YOUR POWER" AT WWW.CA.GOV

Please note that no *verbal* information given will be binding upon the State unless such information is issued in writing as an official addendum.

Technical questions regarding this solicitation will be addressed, in writing, and in accordance with the Questions and Answers portion of this IFB. See **Section C, Item 1, Key Action Dates** for more details.

Gloria Pietromonaco

Contract Analyst

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A) Purpose and Description of Services

1. Contractor shall provide all materials, labor, equipment, tools, permits, taxes, transportation, and fees to replace a water tank and waterline system.
2. Replacement of the current water tank and waterline collapse and failure is needed to meet mission critical daily operations for fire center.

B) Bidder Minimum Qualifications

1. The Prime Bidder must be either an individual or firm currently licensed to do business in California and provide proof of such as required in **Required Attachment Checklist, Attachment 1**.
2. The Prime Bidder must have a business license or incorporation papers for their respective State showing that their company is in good standing in that state, if the Prime Bidder's base of operation is located outside the State of California and provide proof of such as required in **Required Attachment Checklist, Attachment 1**.
3. **(If applicable)** Pursuant to Public Contract Code section 2010, a person that submits a bid or proposal to [...] a state agency with respect to any contract in the amount of \$100,000.00 shall complete the **California Civil Rights Laws, Attachment 10**.
4. Contractor shall possess and provide proof of the following:
 - A. A-General Engineering license issued by the Contractors State Licensing Board (CSLB).
 - B. Department of Industrial Relations (DIR) registration.
 - C. Contractor **shall submit a Bidder's Bond** that meets the requirements listed in C) Bid Requirements and Information – 14. Bonds.
5. By submitting its bid, Bidder certifies, under penalty of perjury, that its Contractors State License Board (CSLB) license is in a classification appropriate to the work to be undertaken as identified in the **Sample Standard Agreement, Exhibit A, Scope of Work, Section 9** This requirement has also been added in the **Sample Standard Agreement, Exhibit E, Section 5**. Refer to **Section C, Bid Requirements and Information, Contractor License**, for submittal requirements.
6. Failure of Bidder to sufficiently provide any or all of the minimum qualifications, in the opinion of CAL FIRE, will result in the Bidder's bid deemed non-responsive.

C) Bid Requirements and Information

1. Key Action Dates

It is recognized that time is of the essence. All bidders are hereby advised of the following schedule and will be expected to adhere to the required dates and times.

Event	Date	Time (Pacific Time)
IFB available to prospective bidders	May 22, 2026	
Mandatory Pre-bid Conference/Site Inspection	June 04, 2026	10:00 a.m.
Written Question Submittal	June 08, 2026	
Final Date and Time for Bid Submission	June 10, 2026	05:00 p.m.
Bid Opening	June 11, 2026	11:00 a.m.

2. Mandatory Pre-Bid Walk-Through

- A. A mandatory pre-bid walk-through is scheduled at 10:00 a.m. on June 04, 2026, for the purpose of viewing the site and discussing concerns regarding this IFB. Please contact Joe Aguirre at joe.aguirre@fire.ca.gov to confirm attendance.
- B. The meeting site is CAL FIRE Tollhouse Fire Center, 27595 Tollhouse Road, Tollhouse, CA 93667.
 In the event a potential prime contractor is unable to attend the mandatory pre-bid walk-through, an authorized representative may attend on their behalf. The representative may only sign-in for one (1)

company. Subcontractors may not represent a potential prime contractor at a mandatory pre-bid walk-through.

3. Written Question and Answer Period

- A. Potential Bidders who attended the mandatory pre-bid walk-through may submit written questions regarding the bid by June 08, 2026. All questions should be emailed in writing to Gloria Pietromonaco, Gloria.Pietromonaco@fire.ca.gov. NO QUESTIONS will be entertained after June 08, 2026.
- B. Written questions must include: the individual's name, firm name, complete address and must reference IFB No. **4CA07912**
- C. Written responses to all questions will be collectively compiled and posted, as an Addendum, to the Cal eProcure website (<https://caleprocure.com/pages/index.aspx>). It is the responsibility of the Bidder to access the website for any changes or addenda that may be posted. Refer to this **IFB, Section C1, Key Action Dates**, for the schedule of events and dates/times. It is the responsibility of the bidder to check Cal eProcure for all addenda. Bidder can contact the Contract Analyst named above.

4. Costs Included in Bid Rates

Bid prices/rates shall include the cost of employer payments to or on behalf of employees, subsistence, travel, compensation insurance premiums, unemployment contributions, social security taxes, contract bond premiums, and any other taxes or assessments, **including but not limited to, sales and use taxes** required by law or otherwise and no additional allowance will be paid unless separate payment provisions in the Agreement should specifically provide otherwise.

5. Employment of undocumented Workers

No State agency or department, as defined in California Public Contract Code Section 10335.7, that is subject to this code, shall award a public works contract to a bidder or contractor, nor shall a bidder or contractor be eligible to bid for or receive a Public Works Agreement, who has, in the preceding five (5) years, been convicted of violating a State or Federal law regarding the employment of undocumented workers (Pub. Cont. Code Section 6101).

6. State General Prevailing Wage Rates

State General Prevailing Wage Rates will apply for the County of Fresno as described in the attached **Sample Standard Agreement, Section E**. The predetermined general prevailing wage rates published by the Director of Industrial Relations may be obtained via the Internet: <https://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>. It is the bidder's responsibility to use the correct classification determination published by the Department of Industrial Relations.

7. Postconsumer Content Certification

Your signature affixed hereon and dated on the **Bid/Bidder Certification Sheet, Attachment 2** shall signify that you are aware of the recycle materials, goods, and supplies program requirements of Public Contract Code Sections 12200 and 12205, and that the Recycled-Content Certification will be required for the successful contractor. The awarded bidder will be required to complete a Postconsumer-Content Certification (CalRecycle 74) and provide the form with the signed Agreement. An incomplete form or failure to provide a completed form will result in cancellation of the Agreement. The Postconsumer-Content Certification can be downloaded at <https://calrecycle.ca.gov/buyrecycled/>.

8. Mandatory Organic Waste Recycling

The Contractor generating organic waste or commercial solid waste shall arrange for the recycling services required by this section in a manner that is consistent with State and local laws and requirements, including a local ordinance or local jurisdiction's franchise agreement, applicable to the collection, handling, or recycling of organic waste and commercial solid waste. This requirement does not modify, limit or abrogate the Contractors right to sell or donate its recyclable organic waste materials consistent with the requirements of Public Resources Code Sections 42649.8 et seq

9. Motor Carrier Permit Requirements

- A. Contractor is responsible for determining whether California Vehicle Code Sections 34601 and 34620 require Contractor to have a valid Motor Carrier Permit (MCP) issued by the Department of Motor Vehicles (DMV) in order for Contractor to lawfully perform any part or aspect of the work described in **Exhibit A, Scope of Work**, and, if California Vehicle Code Sections 34601 and 34620 do require same for any part or aspect of such work, Contractor must have a valid MCP(s) issued from the DMV for its services as a Motor Carrier of Property under this Agreement. Contractor shall pay any required fees necessary to obtain and maintain in good standing during the entire term of this Agreement the any such required MCP(s).
- B. The MCP(s), if any, required for the Contractor's Motor Carriers of Property under California Vehicle Code Sections 34601 and 34620 shall be on file with the Contractor for the duration of this Agreement. Upon request of CAL FIRE, the Contractor must immediately provide to CAL FIRE a copy of the required MCP(s), if any.

10. Contractor Registration Program

- A. No Contractor or Subcontractor may be listed on a bid proposal for a public works contract unless registered with the Department of Industrial Relations (DIR), pursuant to Labor Code Section 1725.5 with limited exceptions from this requirement for bid purposes only under LC Section 1771.1(a)).
- B. No Contractor or Subcontractor may be awarded a public works contract or commercial service contract requiring prevailing wages, unless registered with DIR pursuant to Labor Code Section 1725.5.
- C. CAL FIRE will verify each of the registration numbers prior to contract award. Bidders that do not possess the required DIR registration will be deemed non-responsive and rejected from further consideration in the solicitation process.

11. Contractor's License

Bidder must have, at time of bid submittal and for the duration of the contract, a valid, current **A - General Engineering** license issued by the Contractors State License Board (CSLB), for the type of work to be performed. Bidder shall obtain, pay for and maintain, in good standing, all necessary licenses and permits to accomplish the work. Bidders will be considered non-responsive unless proper licensing requirements are met. An invalid license will result in rejection of the bid. Positive verification of a valid license issued by the CSLB will be performed by CAL FIRE (reference Business and Professions Code Section 7028.15).

12. Subcontractors

Bidder may subcontract portions of the work as defined in the attached **Sample Standard Agreement**. If subcontractors are used, complete the **Bidder Declaration (GSPD-05-105), Attachment 5**. Bidder must ensure that the subcontractor(s) will have all necessary licenses, permits, and/or certifications to accomplish its portion of the work. Failure of a subcontractor(s) to have the proper licenses, permits, and/or certifications, shall be cause for rejection of bid. The Bidder Declaration can also be downloaded at which can be downloaded at <https://www.documents.dgs.ca.gov/dgs/fmc/gsp/pd/gspd05-105.pdf>.

13. Non-Collusion Declaration for Public Works

Bidder must submit, as described herein, a non-collusion declaration for Public Works. The non-collusion declaration is attached to this IFB as **Attachment 11**. Failure to submit a complete declaration shall result in rejection of the bid.

14. Bonds

- A. Bidder's Bond is required for Bids \$903,000 and greater: Bidder shall submit a *bid bond (executed by an admitted surety insurer) with bid as described herein. The bidder's bid bond shall be no less than 10 percent (10%) of bidder's total bid, must be notarized and include the embossed surety seal and must include a Power of Attorney if the signee is not an officer of the surety. Submittal of a bid bond that is not in the appropriate amount, signed and stamped with the surety seal, or failure to submit a bid bond shall be cause for rejection of bid. *The bidder may also submit, in lieu of a Bidder's Bond, one of the following forms of bidder's security: cash, cashier's check, or certified check made payable to CAL FIRE.
- B. Payment Bond (STD 807) Requirement: If the successful bidder's bid exceeds \$25,000, the successful bidder shall furnish a Payment Bond for not less than 100 percent (100%) of the total amount payable by

the terms of this Agreement. The Payment Bond is due prior to the start date of work. No work may commence without receipt of a valid Payment Bond. The Payment Bond must be in effect at all times for the duration of the Agreement. If the Payment Bond expires during the term of the Agreement, a new Payment Bond must be provided to the CAL FIRE representative not less than 10 business days prior to its expiration. Failure to maintain a Payment Bond for the full term of this Agreement will be grounds for termination for default in addition to other legal remedies CAL FIRE may have. Inadequate or lack of a Payment Bond does not negate the Contractor's obligations under this Agreement.

15. Insurance

- A. The bidder, who receives the Agreement award, must provide a Certificate of Insurance providing proof of insurance to the Business Service Office (BSO) within ten (10) working days from the date of notification of award. The State's Office of Risk and Insurance Management will review insurance certificates and/or proof of self-insurance documentation before execution of the Agreement. Refer to the **Sample Standard Agreement Exhibit E, Section 1** for the applicable and specific Insurance requirements and coverage limits.

- B. The insurance carrier shall provide an endorsement for the additional insured statement as follows:

CAL FIRE, State of California, its officers, agents, and employees shall be included as additional insured, but only with respect to work performed for the State of California under this Agreement.

- C. The additional insured endorsement must accompany the certificate of insurance.
- D. Available Coverages/Limits

In the event the insurance coverages obtained by the Contractor is broader in scope than, and/or the limits are higher than, those required under the contract, all such broader coverage and/or higher limits available to the Contractor shall also be available and applicable to the State.

16. California Civil Rights Laws

Any person that submits a bid or proposal to, or otherwise proposes to enter into or renew a contract with, a state agency with respect to any contract in the amount of one hundred thousand dollars (\$100,000.00) or more shall certify, under penalty of perjury, at the time the bid or proposal is submitted or the contract is renewed, that they satisfy all of the conditions set forth in California Public Contract Code Section 2010 and they shall execute the **California Civil Rights Laws Certification**, as **Attachment 10**, completed, signed, and returned with its bid or proposal.

17. Darfur Contracting Act

- A. The Darfur Contracting Act, Public Contract Code Section 10475-10481, applies to any company that currently or within the previous three (3) years has had business activities or other operations outside of the United States. The Act was passed by the California Legislature and signed into law by the Governor to preclude State agencies generally from contracting with "scrutinized" companies that do business in the African nation of Sudan (of which the Darfur region is a part), for the reasons described in Public Contract Code Section 10475. All bidders shall complete the **Darfur Contracting Act Certification, CAL FIRE-720, Attachment 6**, and submit with the proposal.
- B. If your company has not, within the previous three (3) years, had any business activities or other operations outside of the United States, complete **Option 1** on the **CAL FIRE-720**.
- C. A scrutinized company is a company doing business in Sudan as defined in Public Contract Code Section 10476. Scrutinized companies are ineligible to, and cannot bid on, or submit a bid or proposal for an Agreement with a State agency for goods or services. (Pub. Cont. Code Section 10477(a)).
- D. Therefore, Public Contract Code Section 10478(a) requires a company that currently has (or within the previous three (3) years has had business activities or other operations outside of the United States to certify that it is not a "scrutinized" company when it submits a bid or proposal to a State agency.
- E. A scrutinized company may still; however, submit a bid or proposal for an Agreement with a State agency for goods or services if the company first obtains permission from the Department of General Services according to the criteria set forth in Public Contract Code Section 10477(b).

18. Iran Contracting Act

- A. Pursuant to the Iran Contracting Act of 2010 (Pub. Cont. Code Sections 2200 et seq., hereinafter "the Act"), persons identified on the list established under Public Contract Code Section 2202.5 (hereinafter "List") are ineligible to bid on, submit a proposal for, enter into, or renew any contract with the State for goods or services of one million dollars or more.
- B. Any person who submits a bid or proposal must complete and submit to CAL FIRE with its bid proposal, the **Iran Contracting Act Certification (DGS PD 3), Attachment 7**, certifying that it is not on the most current List unless the person is exempted from the certification requirement by Public Contract Code Section 2203(c) or (d). If claiming an exemption, the person shall provide written evidence that supports an exemption under Public Contract Code Section 2203(c) or (d) with its bid or proposal. **The Iran Contracting Act Certification** can also be downloaded at https://www.documents.dgs.ca.gov/dgs/FMC/GS/PD/PD_3.pdf.
- C. Any person, for a contract that is exempt from bidding or is renewed, or for whom a contract is otherwise awarded by the State, must complete and submit to CAL FIRE the DGS PD 3, certifying that it is not on the most current List, before the contract has been executed by the parties, unless the person is exempted from the certification requirement by Public Contract Code Section 2205(c) or (d). If claiming an exemption, the person shall provide written evidence that supports an exemption under Public Contract Code Section 2203(c) or (d), before execution of the contract.

19. Submission of Bid

- A. All bids must be submitted and received under **sealed** cover and sent to CAL FIRE by dates and times shown in **Section C, Bid Requirements and Information, Item 1) Key Action Dates**.
- B. Bids can be submitted Electronically.
 - 1) **Electronic Submissions**
 - a) Electronic bid submittals shall be sent to Bids@fire.ca.gov
 - b) All bid documents will be in an attachment (as a PDF). If any bid information is in the body of the email, it shall be rejected.
 - c) Subject line must include the **4CA07912, Replace Water Tank and Waterline System Services, June 10, 2026, 05:00 p.m.**, and **Contractor Business Name**.
 - d) The bid submission email inbox is **ONLY** for bid submissions, contact the contract analyst directly with contract questions.
- C. All bids shall include the documents identified in **Required Attachment Checklist, Attachment 1**. Bids with incomplete documents or not including the proper "required attachments" shall be deemed non-responsive. A non-responsive bid is one that does not meet the basic bid requirements.
- D. All documents requiring a signature must bear an original signature of a person authorized to bind the bidding firm.
- E. Bids must be submitted for the performance of all the services described herein. Any deviation from the work specifications will not be considered and will cause a bid to be rejected.
- F. A bid may be rejected if it is conditional or incomplete, or if it contains any alterations of form or other irregularities of any kind. The State may reject any or all bids and may waive an immaterial deviation in a bid. The State's waiver of immaterial deviation shall in no way modify the IFB document or excuse the bidder from full compliance with all requirements if awarded the agreement.
- G. Costs for developing bids and in anticipation of award of the agreement are entirely the responsibility of the bidder and shall not be charged to the State of California.
- H. An individual who is authorized to bind the bidder contractually shall sign **Bid/Bidder Certification Sheet, Attachment 2**. The signature should indicate the title or position that the individual holds in the firm. An unsigned bid may be rejected.

- I. A bidder may modify a bid after its submission by withdrawing its original bid and resubmitting a new bid prior to the bid submission deadline. Bidder modifications offered in any other manner, oral or written, will not be considered.
- J. A bidder may withdraw its bid by submitting a written withdrawal request to the State, signed by the bidder or an authorized agent. A bidder may thereafter submit a new bid prior to the bid submission deadline. Bids may not be withdrawn without cause subsequent to bid submission deadline.
- K. The awarding agency may modify the IFB prior to the date fixed for submission of bids by the issuance of an addendum to all parties who received a bid package.
- L. The awarding agency reserves the right to reject all bids. The agency is not required to award an agreement.
- M. Before submitting a response to this solicitation, bidders should review, correct all errors and confirm compliance with the IFB requirements.
- N. Where applicable, bidder should carefully examine work sites and specifications. Bidder shall investigate conditions, character, and quality of surface or subsurface materials or obstacles that might be encountered. No additions or increases to the agreement amount will be made due to a lack of careful examination of work sites and specifications.
- O. The State does not accept alternate contract language from a prospective Contractor. A bid with such language will be considered a counter proposal and will be rejected. The State's General Terms and Conditions (GTC) are not negotiable. The GTC may be viewed at Internet site <https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language>.
- P. No oral understanding or agreement shall be binding on either party.
- Q. Bidder must complete and submit to the awarding agency **Payee Data Record, STD 204, Attachment 8**, to determine if the Contractor is subject to state income tax withholding pursuant to California Revenue and Taxation Code Sections 18662 and 26131. This form can be found on the Internet at <http://www.documents.dgs.ca.gov/dgs/fmc/pdf/std204.pdf> under the heading STANDARD FORMS; select "Forms Search" and enter the form number "204". No payment shall be made unless a completed STD 204 has been returned to the awarding agency.
- R. Bidder must sign and submit to the awarding agency, **Contractor Certification Clauses (CCC), Attachment 9**, which can be found on the Internet at: <https://www.dgs.ca.gov/-/media/Divisions/OLS/Resources/CCC-042017.pdf?la=en&hash=4DE3E4DC414511AE378794200BA43EBF91C758EE>.

20. Bid Opening

- A. Bid openings will be held virtually only.
- B. Public Bid Opening dial in information:
 - 1) Dial in: 650-564-3271
 - 2) Phone Conference ID: 331 799 423#

21. Evaluation and Selection

- A. At the time of bid opening, each bid will be checked for the presence or absence of required information in conformance with the submission requirements of this IFB.
- B. The State will evaluate each bid to determine its responsiveness to the published requirements.
- C. Bids that contain false or misleading statements, or which provide references, which do not support an attribute or condition claimed by the bidder, may be rejected.
- D. Award if made, will be to the lowest responsive responsible bidder.

- E. In the event of a tie bids, the award will be determined by a coin toss. The coin toss will be held in the State Agency's headquarters area office. This is a public event, which the bidders will be invited to attend. The selection of the Contractor will be at the sole discretion of the State.

22. Award and Protest

- A. Whenever an agreement is awarded under a procedure, which provides for competitive bidding, but the agreement is not to be awarded to the low bidder, the notification must be "by telegram, electronic facsimile transmission, overnight courier, Internet transmission, or personal delivery." (PCC § 10345(a).)
- B. On written request from any bidder, the awarding agency must post a notice of the proposed contract award in a place accessible by the general public, including any Internet site identified in the IFB at least five working days prior to awarding the contract. (PCC § 10345(a)(1).)
- C. If any bidder, prior to the award of agreement, files a protest with the Department of General Services, Office of Legal Services, 707 Third Street, 7th Floor, Suite 7-330, West Sacramento, CA 95605 and CAL FIRE, on the grounds that the (protesting) bidder is the lowest responsive responsible bidder, the agreement shall not be awarded until either the protest has been withdrawn or the Department of General Services has decided the matter.
- D. Within five (5) days after filing the initial protest, the protesting bidder shall file with the Department of General Services and the awarding agency a detailed written statement specifying the grounds for the protest. The written protest must be sent to the Department of General Services, Office of Legal Services, 707 Third Street, 7th Floor, Suite 7-330, West Sacramento, California 95605. A copy of the detailed written statement should be mailed to the awarding agency. It is suggested that you submit any protest by certified or registered mail.

**California Department of Forestry and Fire Protection
Office of Business Services, Contracts Unit**
Attention: Gloria Pietromonaco
710 Riverpoint Court
West Sacramento, CA 95605
Email: Gloria.Pietromonaco@fire.ca.gov

**Department of General Services
Office of Legal Services**
Attention: Bid Protest Coordinator
707 Third Street, 7th Floor, Suite 7-330
West Sacramento, CA 95605
Phone Number: (916) 376-5080
Email: OLSProtests@dgs.ca.gov

23. Disposition of Bids

- A. Upon bid opening, all documents submitted in response to this IFB will become the property of the State of California and will be regarded as public records under the California Public Records Act (Government Code Section 6250 et seq.) and subject to review by the public.
- B. Bid packages may be returned only at the bidder's expense unless such expense is waived by the awarding agency.

24. Standard Conditions of Service

- A. After award of the Agreement and execution of the Agreement, should the Contractor fail to commence work within five (5) working days after notification of the starting date, or suspend work for a period of five (5) continuous working days after work has begun, CAL FIRE may provide five (5) calendar days written notice, posted at the job site or mailed to the Contractor, to timely prosecute and complete the work or the Agreement may be terminated and liquidated damages assessed for administrative costs for re-bidding the work or awarding the work to another Contractor. In addition, that Contractor shall be liable to CAL FIRE for the difference between the Contractor's bid price and the actual cost of performing the work by the second low bidder or by another Contractor.
- B. All performance under the Agreement shall be completed on or before the termination date of the Agreement.
- C. Antitrust Provisions
- 1) The Contractor offers and agrees and will require all of his other subcontractors and suppliers to agree to assign to the awarding body all rights, title, and interest in and to all causes of action they may have under Section 4 of the Clayton Act (15 USC 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 subcontract. The assignment made by the contractor and all additional assignments made by the subcontractors and suppliers shall be deemed to have been made and will become effective at the time the awarding body tenders final payment to the Contractor without further acknowledgment or the necessity of tendering to the awarding body any written assignments.

2) If an awarding 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, on demand, recover from the public body any portion of the recovery, including treble damages, and attributable overcharges that were paid by the assignor but were not paid by the public body as a part of the bid price, less the expenses incurred in obtaining that portion of the recovery. On 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.

- D. If the bidder is awarded the Agreement and refuses to sign the Agreement presented for signature within the time and manner required, the bidder will be liable to CAL FIRE for actual damages resulting to CAL FIRE therefrom or 10 percent (10%) of the amount bid, whichever is less.
- E. Loss Leader usage is prohibited in this solicitation: It is unlawful for any person engaged in business within this State to sell or use any article or product as a "loss leader" as defined in California Business and Professions Code Section 17030. "Loss Leader" means any article or product sold at less than cost: a) where the purpose is to induce, promote or encourage the purchase of other merchandise; or b) where the effect is a tendency or capacity to mislead or deceive purchasers of prospective purchasers; or c) where the effect is to divert trade from or otherwise injure competitors.
- F. No oral understanding or agreement shall be binding on either party.

25. Generative Artificial Intelligence (GenAI)

- A. The State of California seeks to realize the potential benefits of GenAI, through the development and deployment of GenAI tools, while balancing the risks of these new technologies.
- B. Bidder / Offeror must notify the State in writing if it: (1) intends to provide GenAI as a deliverable to the State; or (2), intends to utilize GenAI, including GenAI from third parties, to complete all or a portion of any deliverable that materially impacts: (i) functionality of a State system, (ii) risk to the State, or (iii) Contract performance. For avoidance of doubt, the term "materially impacts" shall have the meaning set forth in State Administrative Manual (SAM) § 4986.2 Definitions for GenAI.
- C. Failure to report GenAI to the State may result in disqualification. The State reserves the right to seek any and all relief to which it may be entitled to as a result of such non-disclosure.
- D. Upon notification by a Bidder / Offeror of GenAI as required, the State reserves the right to incorporate GenAI Special Provisions into the final contract or reject bids/offers that present an unacceptable level of risk to the State.
- E. Government Code 11549.64 defines "Generative Artificial Intelligence (GenAI)" as an artificial intelligence system that can generate derived synthetic content, including text, images, video, and audio that emulates the structure and characteristics of the system's training data.

D) Special Programs

1. Disabled Veteran Business Enterprise (DVBE) Program Requirement

- A. DVBE Participation Program with Goals:
 - 1) The required DVBE participation goal for this IFB is **three and a half percent (3.01%)**. The resultant Agreement is financed with State funds and subject to Public Contract Code Section 10115 et seq., Military and Veterans Code Section 999 et seq., and Title 2, California Code of Regulations, Sections 1896.60 (2

CCR Section 1896.60) et seq., that provides contracting opportunities for qualified DVBEs certified by the DGS. The DVBE Incentive Program may also apply—see **paragraph B, DVBE Incentive Program, below.**

- 2) Bidder shall complete and submit the following **Bid/Bidder Certification Sheet Attachment 2; Bidder Declaration (GSPD-05-105), Attachment 5**, as applicable, **Quotes from SB/DVBE Subcontractor, Attachment 12**, and, as applicable, the **Disabled Veteran Business Enterprise Declarations (STD 843), Attachment 4**. Bidder shall complete or collect STD 843(s) when the following situations occur:

- Bidder is DVBE (prime) Contractor.
- Bidder subcontracts with any DVBE firm. Bidder collects and submits with its bid package a completed and signed STD 843 from each of the DVBE subcontractor(s) listed on the **GSPD-05-105**.

Failure to provide required DVBE information will result in the bid being rejected as non-responsive. For each certified DVBE subcontractor listed on the **Bidder Declaration, GSPD-05-105**, the bidder shall submit a copy of the quotes from each DVBE as **Attachment 4, Quotes from SB/DVBE Subcontractor, Attachment 12**, as proof of commitment.

- 3) Additional references: <https://www.dgs.ca.gov/OBAS/Resources/Page-Content/OBAS-Resources-List-Folder/DGS-Contracting-Commitment-with-Small-Businesses-DVBEs>.

B. DVBE Incentive Program

- 1) The DVBE Incentive Program applies to this solicitation. It is separate from the DVBE Participation Program and was established in Military and Veterans Code Sections 999 et seq., and Title 2, California of Regulations, Sections 1896.99 (2 CCR Section 1896.99) et seq., to encourage bidders to partner with DVBE subcontractors. A dollar cap of \$100,000 is set for all combined incentives and preferences. The incentive is used only for evaluation purposes to arrive at the successful bidder and does not alter the amounts of the actual bid. Any responsive and responsible bidder with the confirmed DVBE participation per the Tables in **paragraph 3)** below is eligible to receive the incentive. Bidders who are not responsive and responsible regardless of the amount of DVBE participation are not eligible to receive the incentive.
- 2) CAL FIRE will apply an incentive to bids proposing the utilization of DGS certified DVBE firms identified on the **Bidder Declaration (GSPD-05-105)**. Information provided on the **GSPD-05-105** shall be verified by CAL FIRE prior to the award of the Agreement. Contractor shall also submit **Quotes from SB/DVBE Subcontractor, Attachment 12**, the incentive amount is equal to a percentage of the lowest responsive and responsible bid based on the amount of DVBE participation in the bid being evaluated per the Tables below.

- 3) Tables for IFB (Low Price Method)

Required 3.00% Goal

Verified DVBE Participation	DVBE Incentive Amount
5% or more	5%
4.5%-4.99%	4%
4.0%-4.49%	3%
3.5%-3.99%	2%
3.01%-3.49%	1%

2. Small Business (SB) or Microbusiness (MB) Preference

- B. Government Code Section 14835 et seq. requires that a five percent (5%) preference be given to contractors who qualify as a certified SB or MB. References to a SB shall also include MB. The rules and regulations of this law, including the definition of a SB for the delivery of services, are contained in Title 2, California Code of Regulations, Section 1896 (2 CCR Section 1896) et seq.

- C. To claim the SB preference, your firm must have its principal place of business located in California and be certified by the California Department of General Services (DGS), Office of Small Business and DVBE Services (OSDS). The preference amount may not exceed fifty thousand dollars (\$50,000) for any bid. If prospective Contractor is claiming the five percent (5%) SB preference, complete Section 16 of the **Bid/Bidder Certification Sheet Attachment 2**.
- D. Pursuant to Government Code Section 14838 and 2 CCR Section 1896, if a bidder is not a certified SB, but wishes to be eligible for the five percent (5%) non-small business (NSB) preference, the bidder must subcontract at least twenty five percent (25%) of its net bid price to one or more certified SBs. If bidder is claiming the five percent (5%) NSB preference, complete Section 17 of the **Bid/Bidder Certification Sheet, Attachment 2**, and **Bidder Declaration, GSPD-05-105**, which can be downloaded at <https://www.documents.dgs.ca.gov/dgs/fmc/gspd/gspd05-105.pdf>. Bidder shall list the names of all certified SB firms being claimed for credit on the GSPD-05-105 form. For each certified SB subcontractor listed, the bidder shall submit a copy of the quotes from each SB (on the SB's company letterhead) as **Quotes from SB/DVBE Subcontractor, Attachment 12**.
- E. This preference shall not be awarded to a noncompliant bidder and shall not be used to achieve any applicable minimum requirements.
- F. Certified SB bidder(s) shall have precedence over NSB bidders in the application of SB preference(s).
- G. SB preferences may not be applied to any bid deemed non-responsive with the solicitation instructions or from a non-responsive bidder.
- H. Questions regarding the certification approval process or SB program should be directed to OSDS at (800) 559-5529 or (916) 375-4940. For 24-Hour Recording and Mail Request, call (916) 322-5060, or email: osdshelp@dgs.ca.gov.
- I. Additional references are at <https://www.dgs.ca.gov/OBAS/Resources/Page-Content/OBAS-Resources-List-Folder/DGS-Contracting-Commitment-with-Small-Businesses-DVBEs>.

3. Commercially Useful Function

It is the law. All California-certified Small Businesses (SB) and Disabled Veteran Business Enterprise (DVBEs) doing business with the state must perform a Commercially Useful Function (CUF). Performing CUF is a critical requirement for all California-certified firms - SB and DVBE - that do business with the state (Government Code Section 14837 and Military and Veterans Code Section 999).

More information can be found on Department of General Services website:

<https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Commercially-Useful-Function-for-Certified-Firms>

4. CAL FIRE Advocates

CAL FIRE Small Business and Disabled Veteran Business Enterprise Advocates are available to answer questions regarding the SB/DVBE Programs and Incentives and to help identify possible SB/DVBE vendors.

CAL FIRE ADVOCATES: sbdvbe.advocate@fire.ca.gov

- 5. **Target Area Contract Preference Act (TACPA)** Promotes economic development and employment opportunities in designated distressed areas, by offering bidding preferences in specified state contracts. For more information:

[Request Target Area Contract Preference \(ca.gov\)](https://www.ca.gov/Request-Target-Area-Contract-Preference).

ATTACHMENT 1

Bidder's Company Name:

REQUIRED ATTACHMENT CHECKLIST

A complete bid or bid package will consist of the items identified below.

Complete this checklist to confirm the items in your bid. Place a check mark or "X" next to each item that you are submitting to the State. For your bid to be responsive, all required attachments must be returned. This checklist should be returned with your bid package also.

<u>Attachment</u>	<u>Attachment Name/Description</u>
_____ Attachment 1	Required Attachment Checklist
_____ Attachment 2	Bid/Bidder Certification Sheet
_____ Attachment 3	Rate Sheet
_____ Attachment 4	Disabled Veteran Business Enterprise Declarations (STD 843) * https://www.documents.dgs.ca.gov/dgs/fmc/gsp/pd/pd_843.pdf
_____ Attachment 5	Bidder Declaration (GSPD-05-105)* https://www.documents.dgs.ca.gov/dgs/fmc/gsp/pd/gspd05-105.pdf
_____ Attachment 6	DARFUR Contracting Act (CAL FIRE-720)
_____ Attachment 7	Iran Contracting Act (DGS PD 3)* https://www.documents.dgs.ca.gov/dgs/FMC/GS/PD/PD_3.pdf
_____ Attachment 8	Payee Data Record (STD 204) http://www.documents.dgs.ca.gov/dgs/fmc/pdf/std204.pdf
_____ Attachment 9	Contractor Certification Clauses (CCC 04/2017) https://www.dgs.ca.gov/-/media/Divisions/OLS/Resources/CCC-042017.pdf?la=en&hash=4DE3E4DC414511AE378794200BA43EBF91C758EE
_____ Attachment 10	California Civil Rights Laws Attachment*
_____ Attachment 11	Non-Collusion for Public Works*
_____ Attachment 12	Quotes from SB/DVBE Subcontractors*
_____ Additional Required Information:	1. The Prime Bidder must be either an individual or firm currently licensed to do business in California and proof of such in the form of a current and valid Business License or California Secretary of State registration for the business shall be provided. 2. The Prime Bidder must have a current and valid Business License or Incorporation papers for their respective State showing that their company is in good standing in that state, if the Prime Bidder's base of operation is located outside the State of California and provide proof of such. 3. Proof of valid A-General Engineering license issued by the Contractors State Licensing Board (CSLB). 4. Provide proof of current and valid Department of Industrial Relations (DIR) registration as Public Works Contractor. 5. The Prime Bidder must submit a Bidder's Bond that meets the requirements listed in C) Bid Requirements and Information – 14. Bonds

*If applicable

ATTACHMENT 2
BID/BIDDER CERTIFICATION SHEET

This Bid/Bidder Certification Sheet must be signed and returned along with all the "required attachments" as an entire package in duplicate with original signatures/electronic signature. The bid must be transmitted in accordance with IFB instructions.

Do not return IFB Sections A through E or the "Sample Standard Agreement" at the end of this IFB.

- A. Our all-inclusive bid is submitted as detailed in **Attachment 3, Rate Sheet**.
- B. All required attachments are included with this certification sheet.
- C. I have read and understand the DVBE participation requirements and have included documentation demonstrating that I have met the participation goals.
- D. The signature affixed hereon and dated certifies compliance with all the requirements of this bid document. The signature below authorizes the verification of this certification.

An Unsigned Bid/Bidder Certification Sheet May Be Cause For Rejection

1. Company Name	2. Telephone Number () ()	2a. Fax Number () ()
3. Address		
E-mail Address:		
5. ☐ Partnership		
Indicate your organization type:	4. ☐ Sole Proprietorship	
6. ☐ Corporation	6a. ☐ L.L.C. Limited Liability Corporation	
Indicate the applicable employee and/or corporation number:		
7. Federal Employee ID No. (FEIN)	8. California Corporation No.	
9. Indicate applicable license and/or certification information:		
10. Bidder's Name (Print)		11. Title
12. Signature		13. Date
14. Are you certified with the Department of General Services, Office of Small Business and DVBE Certification as: a. California Small Business Enterprise Yes ☐ No ☐ If yes, enter certification number: _____ a. Disabled Veteran Business Enterprise Yes ☐ No ☐ If yes, enter certification number: _____ NOTE: A copy of your Certification is required to be included if either of the above items is checked "Yes". Date application was submitted to OSBCR, if an application is pending:		

ATTACHMENT 2

Completion Instructions for Bid/Bidder Certification Sheet

Complete the numbered items on the
 Bid/Bidder Certification Sheet by following the instructions below.

Item Numbers	Instructions
1, 2, 2a, 3	Must be completed. These items are self-explanatory.
4	Check if your firm is a sole proprietorship. A sole proprietorship is a form of business in which one (1) person owns all the assets of the business in contrast to a partnership and corporation. The sole proprietor is solely liable for all the debts of the business.
5	Check if your firm is a partnership. A partnership is a voluntary agreement between two (2) or more competent persons to place their money, effects, labor, and skill, or some or all of them in lawful commerce or business, with the understanding that there shall be a proportional sharing of the profits and losses between them. An association of two (2) or more persons to carry on, as co-owners, a business for profit.
6, 6a	Check if your firm is a corporation. A corporation is an artificial person or legal entity created by or under the authority of the laws of a state or nation, composed, in some rare instances, of a single person and his successors, being the incumbents of a particular office, but ordinarily consisting of an association of numerous individuals. Or a Limited Liability Corporation.
7	Enter your federal employee tax identification number.
8	Enter your corporation number assigned by the California Secretary of State's Office. This information is used for checking if a corporation is in good standing and qualified to conduct business in California.
9	Complete, if applicable, by indicating the type of license and/or certification that your firm possesses and that is required for the type of services being procured.
10, 11, 12, 13	Must be completed. These items are self-explanatory.
14	If certified as a California Small Business, place a check in the "Yes" box, and enter your certification number on the line. If certified as a Disabled Veterans Business Enterprise, place a check in the "Yes" box and enter your service code on the line. If you are not certified to one (1) or both, place a check in the "No" box. If your certification is pending, enter the date your application was submitted to OSBCR.

ATTACHMENT 3

Bidder's Company Name:

RATE SHEET

Item	Description of Services	Unit Cost (A)	Quantity (B)	Unit of Measure	Cost* (A x B)
1	Mobilization/Demobilization as described in Exhibit A, Detailed Scope of Work	\$	1	Lump Sum	\$
2	Clearing/Grubbing as described in Exhibit A, Detailed Scope of Work	\$	1	Lump Sum	\$
3	Water Tank and Controls as described in Exhibit A, Detailed Scope of Work	\$	1	EA	\$
4	10" PVC Water line as described in Exhibit A, Detailed Scope of Work	\$	1,800	Linear Feet	\$
5	6" PVC Water line as described in Exhibit A, Detailed Scope of Work	\$	100	Linear Feet	\$
6	Fire Hydrants as described in Exhibit A, Detailed Scope of Work	\$	6	EA	\$
7	Bollards at Fire Hydrant as described in Exhibit A, Detailed Scope of Work	\$	10	EA	\$
8	Curb Replacement as described in Exhibit A, Detailed Scope of Work	\$	1	Lump Sum	\$
9	Asphalt Patch as described in Exhibit A, Detailed Scope of Work	\$	1	Lump Sum	\$
10	Asphalt Berm Replacement as described in Exhibit A, Detailed Scope of Work	\$	1	Lump Sum	\$
11	Water Tank Concrete Pad/Foundation as described in Exhibit A, Detailed Scope of Work	\$	1	Lump Sum	\$
12	Fencing as described in Exhibit A, Detailed Scope of Work	\$	1	Lump Sum	\$
13	Provide Storm Water Pollution Prevention Plan as described in Exhibit A, Detailed Scope of Work	\$	1	Lump Sum	\$
Sub Total (Sum of Items 1-13)					\$
**20% Contingency (20% of Sub Total)					\$
Total Cost* (Sub Total + 20% Contingency for Unforeseen Costs)					\$

*All-Inclusive Cost for Services

**Payable at the discretion of CAL FIRE

Submitted by: _____ Date: _____

Contact Name / Title:	
Company Name:	
Company Address:	
Telephone Number:	
Fax Number:	
E-Mail Address:	

Estimated quantities are not guaranteed and is not binding on the contracting agency. The Total Costs indicated above will be used solely for computing the cost as a fair and equitable formula to determine the low bidder and is not binding on the contracting agency. However, the actual costs quoted above by the bidder shall be binding for the term of the Agreement. Small Business and Disabled Veteran Business Enterprise incentives will also be applied to determine the lowest bid. CAL FIRE reserves the right to correct and revise calculation errors made by the bidder.

In case of discrepancy between the unit price and the total set forth for a unit basis item, the unit price shall prevail.

Please do not alter, modify, or change this bid proposal sheet. Any alterations, modifications, or changes to this bid proposal sheet will be grounds to reject the bid.

Each line item must be bid. Please do not leave any unit price column blank or this bid proposal sheet will be disqualified from competition for contract award.

ATTACHMENT 4

(if applicable)

DISABLED VETERAN BUSINESS ENTERPRISE DECLARATIONS (STD 843)

Bidders who are disabled veteran (DV) owner(s) and DV manager(s) of a Disabled Veteran Business Enterprise must complete Disabled Veteran Business Enterprise Declarations (STD 843) when a DVBE Contractor or subcontractor will provide materials, supplies, services or equipment and include it with the bid response.

The STD 843 Disabled Veteran Business Enterprise Declarations form can be found at:

https://www.documents.dgs.ca.gov/dgs/fmc/gsp/pd/pd_843.pdf

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ATTACHMENT 5

(if applicable)

BIDDER DECLARATION FORM (GSPD-05-105)

All bidders must complete the Bidder Declaration Form (GSPD-05-105) and include it with the bid response.

The Bidder Declaration Form can be found at:

<https://www.documents.dgs.ca.gov/dgs/fmc/gspd/gspd05-105.pdf>

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ATTACHMENT 6

DARFUR CONTRACTING ACT VENDOR CERTIFICATION

Pursuant to Public Contract Code Section 10478, if a bidder or proposer currently, or within the previous three (3) years, has had business activities or other operations outside of the United States, it must certify that it is not a “***scrutinized company***” as defined in Public Contract Code Section 10476 (**see attached definition**).

Therefore, to be eligible to submit a bid or proposal, please complete the company/vendor information and one of the three following clauses (**NOTE:** Clause #1 requires initials only; Clause #2 requires initials only; Clause #3 requires initials and a certification signature):

DATE	FEDERAL ID NUMBER
PRINTED COMPANY / VENDOR NAME	
PRINTED NAME <u>AND</u> TITLE OF AUTHORIZED PERSON INITIALING AN OPTION BELOW	

Complete ONLY ONE of the following:

1.
Initials
only We do not currently have, and have not had within the previous three (3) years, business activities or other operations outside of the United States.

OR
2.
Initials
only We are a *scrutinized company* as defined in Public Contract Code Section 10476, but we have received written permission from the Department of General Services (DGS) to submit a bid or proposal pursuant to Public Contract Code Section 10477(b). **A copy of the written permission from DGS is included with our bid or proposal.**

OR
3.
Initials
+
**certification
below** We currently have, or we have had within the previous three (3) years, business activities or other operations outside of the United States, but we certify below that we are not a *scrutinized company* as defined in Public Contract Code Section 10476.

CERTIFICATION for #3

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY that I am duly authorized to legally bind the prospective proposer/bidder to the clause listed above in #3. This certification is made under the laws of the State of California.

BY (AUTHORIZED SIGNATURE)	
PRINTED NAME <u>AND</u> TITLE OF AUTHORIZED PERSON SIGNING	
DATE EXECUTED	EXECUTED IN THE COUNTY AND STATE OF



ATTACHMENT 6

DEFINITION of SCRUTINIZED COMPANY PUBLIC CONTRACT CODE SECTION 10476

10476. As used in this article, the following definition applies:

"Scrutinized company" means a company in Sudan that is involved in power production activities, mineral extraction activities, oil-related activities, or the production of military equipment, but **excludes a company that can demonstrate any of the following:**

- (a) Its business operations are conducted under contract directly and exclusively with the regional government of southern Sudan.
- (b) Its business operations are conducted under a license from the Office of Foreign Assets Control or are expressly exempted under federal law from the requirement to be conducted under such a license.
- (c) Its business operations consist of providing goods or services to marginalized populations of Sudan.
- (d) Its business operations exclusively consist of providing goods or services to an internationally recognized peacekeeping force or humanitarian organization.
- (e) Its business operations consist of providing goods or services that are used only to promote health or education.
- (f) Its business operations with the Government of Sudan will be voluntarily suspended for the entire duration of the contract for goods or services for which they have bid on, or submitted a proposal for, a contract with a state agency.
- (g) It has adopted, publicized, and is implementing a formal plan to cease business operations within one year and to refrain from conducting any new business operations.

ATTACHMENT 7

(if applicable)

IRAN CONTRACTING ACT CERTIFICATION

All bidders must complete the Iran Contracting Act Certification (DGS PD 3) and include it with the bid response.

Iran Contracting Act Certification (DGS PD 3) Form can be found at:

https://www.documents.dgs.ca.gov/dgs/FMC/GS/PD/PD_3.pdf.

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ATTACHMENT 8

PAYEE DATA RECORD (STD 204)

All bidders must complete the Payee Data Record (STD 204) and include it with the bid response.

The Payee Data Record (STD 204) is available at the following website:

<http://www.documents.dgs.ca.gov/dgs/fmc/pdf/std204.pdf>

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ATTACHMENT 9

CONTRACTOR CERTIFICATION CLAUSES (CCC 04/2017)

All bidders must complete the Contractor Certification Clauses form (CCC 04/2017) and include it with the bid response.

The Contractor Certification Clauses Form (CCC 04/2017) is available at the following website:

<https://www.dgs.ca.gov/-/media/Divisions/OLS/Resources/CCC-042017.pdf?la=en&hash=4DE3E4DC414511AE378794200BA43EBF91C758EE>

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ATTACHMENT 10

(if applicable)

CALIFORNIA CIVIL RIGHTS LAWS ATTACHMENT

All bidders must complete the California Civil Rights Laws Attachment and include it with the bid response.

The California Civil Rights Laws Attachment is available at the following website:

<https://www.documents.dgs.ca.gov/dgs/FMC/DGS/OLS004.pdf>

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ATTACHMENT 11

Non-Collusion for Public Works

**NON-COLLUSION DECLARATION TO BE EXECUTED BY BIDDER AND
SUBMITTED WITH BID FOR PUBLIC WORKS
(Rev 04/22)**

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

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

Signed: _____
Print/Type Name

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ATTACHMENT 12

(if applicable)

QUOTES FROM SB/DVBE SUBCONTRACTORS

All bidders must complete the Quotes from SB/DVBE Subcontractors and include it with the bid response.

Quotes should be on Subcontractor letterhead.

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SAMPLE AGREEMENT

F. Proposed Form of Agreement

The following 106 pages represent a sample of the agreement that will be awarded, if any, from this IFB. Please review it carefully and present any questions in writing to the contact person identified on the cover letter for this IFB.

STATE OF CALIFORNIA - DEPARTMENT OF GENERAL SERVICES

STANDARD AGREEMENT

STD 213 (Rev. 04/2020)

AGREEMENT NUMBER

4CA07912

PURCHASING AUTHORITY NUMBER (If Applicable)

1. This Agreement is entered into between the Contracting Agency and the Contractor named below:

CONTRACTING AGENCY NAME

California Department of Forestry and Fire Protection (CAL FIRE)

CONTRACTOR NAME

TBD

2. The term of this Agreement is:

START DATE

June 30, 2026

THROUGH END DATE

June 29, 2027

3. The maximum amount of this Agreement is:

\$TBD

4. The parties agree to comply with the terms and conditions of the following exhibits, which are by this reference made a part of the Agreement.

Exhibits	Title	Pages
Exhibit A	Scope of Work	2
Exhibit B	Budget Detail and Payment Provisions	5
Exhibit C *	General Terms and Conditions (GTC 02/2025)	-
+ - Exhibit D	Special Terms and Conditions	4
+ - Exhibit E	Additional Provisions	9
+ - Attachment 1	Rate Sheet (to be attached upon award)	1
+ - Attachment 2	Bidder Declaration (GSPD 05-105) (to be attached upon award)	1
+ - Attachment 3	Specifications	60
+ - Attachment 4	Plans	22

Items shown with an asterisk (*), are hereby incorporated by reference and made part of this agreement as if attached hereto.

These documents can be viewed at <https://www.dgs.ca.gov/OLS/Resources>

IN WITNESS WHEREOF, THIS AGREEMENT HAS BEEN EXECUTED BY THE PARTIES HERETO.

CONTRACTOR

CONTRACTOR NAME (if other than an individual, state whether a corporation, partnership, etc.)

TBD

CONTRACTOR BUSINESS ADDRESS

CITY

STATE

ZIP

PRINTED NAME OF PERSON SIGNING

TITLE

CONTRACTOR AUTHORIZED SIGNATURE

DATE SIGNED

STATE OF CALIFORNIA - DEPARTMENT OF GENERAL SERVICES

STANDARD AGREEMENT

STD 213 (Rev. 04/2020)

AGREEMENT NUMBER

4CA07912

PURCHASING AUTHORITY NUMBER (If Applicable)

STATE OF CALIFORNIA

CONTRACTING AGENCY NAME

California Department of Forestry and Fire Protection (CAL FIRE)

CONTRACTING AGENCY ADDRESS

P.O. Box 944246

CITY

Sacramento

STATE

CA

ZIP

94244

PRINTED NAME OF PERSON SIGNING

TBD

TITLE

CONTRACTING AGENCY AUTHORIZED SIGNATURE

DATE SIGNED

CALIFORNIA DEPARTMENT OF GENERAL SERVICES APPROVAL

EXEMPTION (If Applicable)

EXHIBIT A
(Scope of Work)

SCOPE OF WORK

1. Contractor agrees to provide the California Department of Forestry and Fire Protection (CAL FIRE) **Replace Water Tank and Waterline System services**, as described herein:

Contractor shall provide all materials, labor, equipment, tools, permits, taxes, transportation, and fees to replace a water tank and waterline system.

Replacement of the current water tank and waterline collapse and failure is needed to meet mission critical daily operations for CAL FIRE.
2. CAL FIRE has the right to extend this agreement for one (1) year by amendment at the same terms, conditions, and costs.
3. Subcontracting is permitted under this Agreement if subcontractors are included on the **Bidder Declaration (GSPD-05-105), Attachment 2**.
4. The services shall be performed at 27595 Tollhouse Road, Tollhouse, CA 93667.
5. Any reference to CAL FIRE Project Representative shall also include their designee.
6. This Agreement will commence on **June 30, 2026**. This Agreement is of no effect unless approved by DGS. Contractor shall not receive payment for work performed prior to approval of the Agreement and before receipt of notice to proceed by CAL FIRE Project Representative. This Agreement shall expire on **June 29, 2027**. The services shall be provided during normal working hours, Monday through Friday, 8:00 a.m. to 5:00 p.m., except State holidays. The parties may amend this Agreement as permitted by law.
7. The Project Representatives during the term of this agreement will be:

California Department of Forestry and Fire Protection (CAL FIRE)	Contractor: TBD
Name: TBD	Project Representative:
Address: (Street Address, City State, Zip Code)	Address: (Street Address, City State, Zip Code)
Phone:	Phone:
Email:	Email:

8. Detailed Scope of Work

- A. All work is subject to approval by CAL FIRE Project Representative and any local, state, and federal regulations.
- B. Contractor shall refer to **Attachment 3, Specifications and Attachment 4, Plans**, for the following:
 - 1) Contractor shall be responsible for field verifying all measurements at mandatory walk through.
 - 2) Contractor shall be responsible for meeting all applicable compliance and regulations.
 - 3) Contractor shall be responsible for set up and clean up at the end of each work day.
 - 4) Contractor shall be responsible for clearing/grubbing area for water tank system, including haul off.
 - 5) Contractor shall install water tank concrete pad/foundation.
 - 6) Contractor shall install a bolted steel 345,000-gallon water tank and controls according to tank manufacturer specifications.
 - 7) Contractor shall install new water lines as followed:
 - a) Approximately 1,800 linear feet of ten-inch (10") Polyvinyl Chloride (PVC) water line.

EXHIBIT A
(Scope of Work)

- b) Approximately 100 linear feet of six-inch (6") PVC water line.
- 8) Contractor shall install six (6) new fire hydrants, associated protective bollards, valves, and fittings.
- 9) Contractor shall replace curb and asphalt berm including asphalt patch.
- 10) Contractor shall be responsible for testing, startup, commissioning, and function testing new system.
- 11) Contractor shall install fencing as listed in Attachment 3 - Plans.
- 12) Contractor shall provide CAL FIRE Project Representative with a Stormwater Pollution Prevention Plan (SWPP) for approval prior to commencement of agreement.
- 13) Contractor shall provide traffic and erosion control per SWPP.

EXHIBIT B
(Budget Detail and Payment Provisions)

BUDGET DETAIL AND PAYMENT PROVISIONS

1. Invoicing and Payment

- A. For services satisfactorily completed in accordance with the terms and conditions stated herein, and upon receipt and approval of the invoice(s), the State agrees to compensate the Contractor for actual expenditures incurred in accordance with the specified as follows: attached hereto as **Attachment 1 – Rate Sheet** and made a part of this Agreement.
- B. Contractor shall submit, in arrears, not more frequently than once a month, and no less than quarterly, an invoice to CAL FIRE for cost incurred pursuant to the agreement. In addition, each invoice shall contain the following information:
- C. Each Invoice shall include:
 - 1) The agreement number **4CA07912**.
 - 2) The dates or time-period which the invoiced costs were incurred.
 - 3) Description of service, quantity, rate, and total for the current invoice.
 - 4) Certified Small Business or DVBE #, if applicable.
- B. Invoice(s) shall be submitted to:

California Department of Forestry and Fire Protection
Attention: **TBD**
Street Address/P.O. Box
City, State, Zip
Phone Number
Email

- C. Contractor shall submit a copy of the Prime Contractor's [DVBE Subcontracting Report form \(STD 817\)](#) for verification by CAL FIRE Project Representative with each invoice submitted at Fiscal Year End (June 30th) and with final invoice.
- D. Contractor agrees to certify on Prime Contractor's Certification DVBE Subcontractor Report, **Form STD 817**, that DVBE subcontractor participation under this agreement is in compliance with the goals specified at the time of award of contract or with any subsequent amendment. If for this Contract the Contractor made a commitment to achieve the DVBE participation goal, the Department will withhold **\$10,000.00** from the final payment, or the full final payment if less than **\$10,000.00**, until the Contractor complies with the certification requirements of Military and Veterans Code Section 999.5. A Contractor that fails to comply with the certification requirement shall, after notice, be allowed to cure the defect. Notwithstanding any other law, if, after at least 15 calendar days but not more than 30 calendar days from the date of notice, the prime contractor refuses to comply with the certification requirements, the department shall permanently deduct **\$10,000.00** from the final payment, or the full payment if less than **\$10,000.00**. The Contractor shall provide proof of payment for the work performed by the DVBE subcontractor(s) upon Department's request.

2. Budget Contingency Clause

- A. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, the State shall have no liability to pay any funds whatsoever to Contractor or to furnish any other considerations under this Agreement and Contractor shall not be obligated to perform any provisions of this Agreement.
- B. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the State shall have the option to either cancel this Agreement with no liability occurring to the State or offer an agreement amendment to Contractor to reflect the reduced amount.

EXHIBIT B
(Budget Detail and Payment Provisions)

3. Prompt Payment Clause

- A. Payment will be made in accordance with, and within the time specified in, Government Code Chapter 4.5, commencing with Section 927. In the event of an emergency, as defined in section 927.11, late payment penalties may not apply. Specific to CAL FIRE, if an invoice from a business under contract with CAL FIRE becomes subject to late payment penalties during the annually declared fire season, then the required payment approval date shall extend 30 calendar days beyond the initial 45-day period, except in the case of a contract with a certified small business, a certified Disabled Veteran Business Enterprise, a non-profit organization, or a non-profit public benefit corporation.
- B. Pursuant to Public Contract Code Section 10262, Contractor shall pay its Subcontractor(s) within seven (7) calendar days from receipt of each payment made to Contractor by CAL FIRE.
- C. Failure of Contractor adhering to Public Contract Code Section 10262 may result in termination of this Agreement per Public Contract Code Section 10253 and disciplinary action by the Contractors State License Board may be implemented.
- D. Any subcontract entered into as a result of this Agreement shall contain all the provisions of this clause.

4. Cost Limitation

- A. Total amount of this Agreement shall not exceed **\$TBD**.
- B. It is understood and agreed that this total is an estimate, and that CAL FIRE will pay only for those services actually rendered as authorized by CAL FIRE Project Representative up to the total amount set forth in **Section 4A**, above.

5. Costs Included in Bid Rates

- A. The cost of employer payments to or on behalf of employees, subsistence, travel, compensation insurance premiums, unemployment contributions, social security taxes, Agreement bond premiums, and any other taxes or assessments including sales and use taxes required by law or otherwise shall be included in the Agreement rates and no additional allowance will be made thereof, unless separate payment provision should specifically so provide.
- B. Contractor shall make travel and subsistence payments to each worker in compliance with Labor Code Sections 1773.1 and 1773.9. Travel and subsistence requirements are available on the of Department of Industrial Relations (DIR) website at <https://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>.

6. Payroll Records

- A. Contractor and each Subcontractor shall comply with the following provisions. Contractor shall be responsible for compliance by its Subcontractors.
 - 1) Each Contractor and Subcontractor shall keep accurate payroll records and supporting documents as mandated by Section 1776 of the California Labor Code and as defined in Section 16000 of Title 8 of the California Code of Regulations, showing 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 employed by Contractor or Subcontractor in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:
 - a) The information contained in the payroll record is true and correct.
 - b) The employer has complied with the requirements of Labor Code Sections 1771, 1811, and 1815 for any work performed by its employees on the public works project.
 - 2) The payroll records enumerated under **paragraph 1)** above, shall be certified. The certified payrolls and records related to employee wages, fringe benefits, payroll tax and deductions shall be available for inspection and copying by CAL FIRE project Representative at all reasonable hours at Contractor's principal office. Certified payrolls shall be made available as follows:

EXHIBIT B
(Budget Detail and Payment Provisions)

- a) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or the employee's authorized representative on request.
 - b) A certified copy of all payroll records enumerated in **paragraph 1)** above, shall be made available for inspection or furnished upon request to a representative of CAL FIRE, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the of Industrial Relations. Certified payrolls submitted to CAL FIRE, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards shall not be altered or obliterated by Contractor.
 - 3) Each Contractor shall submit a certified copy of the records enumerated in **paragraph 1)** above, to the entity that requested the records within 10 days after receipt of a written request.
 - 4) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by CAL FIRE shall be marked or obliterated in such a manner as to prevent disclosure of each individual's name, address and social security number. The name and address of Contractor awarded the Agreement or performing the Agreement shall not be marked or obliterated.
 - 5) Contractor shall inform CAL FIRE of the location of the records enumerated under **paragraph 1)**, above, including the street address, city and county, and shall, within five (5) working days, provide a notice of a change of location and address.
 - 6) Contractor or Subcontractor shall have 10 days in which to comply subsequent to receipt of written notice requesting the records enumerated in **paragraph 1)**, above. In the event Contractor or Subcontractor fails to comply within the 10-day period, it shall, as a penalty to CAL FIRE, forfeit \$100 for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Such penalties shall be withheld by CAL FIRE from payments then due. A Contractor is not subject to a penalty assessment pursuant to this section due to the failure of a Subcontractor to comply with this section.
 - B. The penalties specified in **paragraph 6)**, above, for noncompliance with the provisions of said Labor Code Section 1776 will be deducted from any monies due or which may become due to Contractor. Penalties assessed for failure to submit certified payrolls are forfeitures and not retentions that will be returned to Contractor.
 - C. Payrolls shall contain the full name, address and social security number of each employee, the correct work classification (including apprentices, if applicable), rate of pay, daily and weekly number of hours worked, itemized deductions made, and actual wages paid. The payroll shall be signed by the employer or employer's agent indicating that the payrolls are correct and complete and that the wage rates contained therein are not less than those required by the Agreement. Contractor shall be responsible for the submission of copies of payrolls of all Subcontractors.
 - D. Contractor and each Subcontractor shall preserve their payroll records for a period of three (3) years from the date of completion of the Agreement.
 - E. Contractor shall submit a certified copy of all payroll records for verification by CAL FIRE Contract Representative with each invoice. When progress payments are called for, Contractor shall submit a certified copy of all payroll records for verification for the work completed to date with each invoice. Delinquent or inadequate certified payrolls or other required documents will result in the withholding of payment until such documents are submitted by Contractor.
 - F. Any subcontract entered into as a result of this Agreement shall contain all of the provisions of this clause.
- 7. Penalty**
- A. Contractor and any Subcontractor under Contractor shall comply with Labor Code Sections 1774 and 1775. In accordance with said Labor Code Section 1775, Contractor shall forfeit, as a penalty to CAL FIRE, not more than \$200.00 for each calendar day, or portion thereof, for each worker paid less than the prevailing rates for such work or craft in which such worker is employed for any public work done under the Agreement by Contractor, or by any Subcontractor, in violation of the provisions of the Labor Code and, in particular, Labor Code Sections 1775 to 1780, inclusive.

EXHIBIT B
(Budget Detail and Payment Provisions)

- B. The amount of this forfeiture shall be determined by the Labor Commissioner and shall be based on consideration of the mistake, inadvertence, or neglect of Contractor or Subcontractor in failing to pay the correct rate of prevailing wages, or the previous record of Contractor or Subcontractor in meeting his or her prevailing wage obligations, or a Contractor's willful failure to pay the correct rates of prevailing wages. A mistake, inadvertence, or neglect in failing to pay the correct rate of prevailing wages is not excusable if Contractor or Subcontractor had knowledge of the obligations under the Labor Code. Any Contractor that executes and receives a copy of this Agreement is deemed to have knowledge of his or her obligations regarding the Labor Code's prevailing wage requirements. In addition to the penalty and pursuant to Labor Code Section 1775, the difference between the prevailing wage rates and the amount paid to each worker for each calendar day, or portion thereof, for which each worker was paid less than the prevailing wage rate shall be paid to each worker by Contractor or Subcontractor.
- C. If a worker employed by a Subcontractor on a public works project is not paid the general prevailing per diem wages by the Subcontractor, Prime Contractor of the project is not liable for any penalties described above unless Prime Contractor had knowledge of that failure of the Subcontractor to pay the specified prevailing rate of wages to those workers or unless Prime Contractor fails to comply with all of the following requirements:
- 1) The Agreement executed between Contractor and the Subcontractor for the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1775, 1776, 1777.5, 1813 and 1815 of the Labor Code.
 - 2) Contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the Subcontractor to the employees by periodic review of the certified payroll records of the Subcontractor.
 - 3) Upon becoming aware of the failure of the Subcontractor to pay his or her workers the specific prevailing rate of wage, Contractor shall diligently take corrective action to halt or rectify the failure, including, but not limited, to retaining sufficient funds due the Subcontractor for work performed on the public works project.
 - 4) Prior to making final payment to the Subcontractor for work performed on the public works project, Contractor shall obtain an affidavit signed under penalty of perjury for the Subcontractor that the Subcontractor has paid the specified general prevailing rate of per diem wages to his or her employees on the public works project and any amounts due pursuant to Labor Code Section 1813.
- D. Pursuant to Labor Code Section 1775, CAL FIRE shall notify Contractor on a public works project within fifteen (15) days of receipt of a complaint that a Subcontractor has failed to pay workers the general prevailing rate of per diem wages.
- E. If CAL FIRE determines that employees of a Subcontractor were not paid the general prevailing rate of per diem wages and if CAL FIRE did not retain sufficient money under the Agreement to pay those employees the balance of wages owed under the general prevailing rate of per diem wages, Contractor shall withhold an amount of moneys due the Subcontractor sufficient to pay those employees the general prevailing rate of per diem wages if requested by CAL FIRE.
- F. Any subcontract entered into as a result of this Agreement shall contain all of the provisions of this clause.

8. State General Prevailing Wage Rates

Contractor agrees to comply with all of the applicable provisions of the Labor Code including those provisions requiring the payment of not less than the general prevailing rate of wages. Contractor further agrees to the penalties and forfeitures provided in said Code in the event a violation of any of the provisions occurs in the execution of this Agreement.

9. State Prevailing Wage Rate Determinations

- A. The General Prevailing Wage Rate determinations are made a specific part of this Agreement by reference pursuant to Labor Code Section 1773.2. Any special wage rate determinations applicable to this project are attached.
- B. General Prevailing Wage Rate Determinations applicable to this project may also be obtained from the DIR website at: <https://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>.

EXHIBIT B
(Budget Detail and Payment Provisions)

- C. After award of the Agreement, and prior to commencing work, all applicable General Prevailing Wage Rate Determinations are to be obtained by Contractor from DIR. These wage rate determinations are to be posted by Contractor at the job site in accordance with Labor Code Section 1773.2.

10. Hours of Labor

- A. Eight (8) hours labor constitutes a legal day's work. Contractor shall forfeit, as a penalty to CAL FIRE, \$25 for each worker employed in the execution of the Agreement by Contractor or any Subcontractor under Contractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of the Labor Code, and in particular Labor Code Sections 1810 to 1815 thereof, inclusive, except that work performed by employees in excess of eight (8) hours per day, and forty (40) hours during any one week, shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day and forty (40) hours in any week, at not less than one and one-half times the basic rate of pay, as provided in Section 1815.
- B. Any subcontract entered into as a result of this Agreement shall contain all of the provisions of this clause.

11. Employment of Apprentices

- A. Contractor and any Subcontractors shall comply with all applicable requirements of Labor Code Sections 1777.5, 1777.6 and 1777.7 in the employment of apprentices.
- B. Contractors and Subcontractors are required to comply with all Labor Code requirements regarding the employment of apprentices, including mandatory ratios of journey level to apprentice workers. Prior to commencement of work, Contractors and Subcontractors are advised to contact the State Division of Apprenticeship Standards, P. O. Box 420603, San Francisco, California 94142-0603, or one of its branch offices, for additional information regarding the employment of apprentices and for the specific journey-to-apprentice ratios for the Agreement work. Prime Contractor is responsible for all Subcontractors' compliance with these requirements. Penalties for failure to comply with apprenticeship requirements are specified in Labor Code Section 1777.7.
- C. Any subcontract entered into as a result of this Agreement shall contain all of the provisions of this clause.

EXHIBIT D
(Special Terms and Conditions)

SPECIAL TERMS AND CONDITIONS

1. Excise Tax

The State of California is exempt from federal excise taxes, and no payment will be made for any taxes levied on employees' wages. The State will pay for any applicable State of California or local sales or use taxes on the services rendered or equipment or parts supplied pursuant to this Agreement. California may pay any applicable sales and use tax imposed by another state.

2. Settlement of Disputes

- A. In the event of a dispute, within 10 days of discovery of the problem, Contractor shall file a "Notice of Dispute" with:

California Department of Forestry and Fire Protection
Attention: CAL FIRE Project Representative
P.O. Box 944246
Sacramento, CA 94244-2460

- B. Within 10 days of CAL FIRE receiving Contractor's notice, the Contracts Representative or designee shall advise Contractor of the findings and recommend a method to resolve the dispute. Decision of the Contracts Representative or designee shall be final.
- C. In the event of a dispute, the language contained within this Agreement shall prevail over any other language including that of the bid proposal.

3. Right to Terminate

- A. Termination for Cause

The agreement can be immediately terminated for cause. (Refer to GTC, Exhibit C, Item 7. Termination for Cause)

- B. Termination without Cause

The State reserves the right to terminate this agreement subject to 30 days written notice to the Contractor. Contractor may submit a written request to terminate this agreement only if the State should substantially fail to perform its responsibilities as provided herein.

4. Retention of Records/ Audits

- A. Contractor agrees that the awarding department, the Department of General Services, the Bureau of State Audits, or their designated representative shall have the right to review and to copy any records and supporting documentation pertaining to the performance of this Agreement. Contractor agrees to maintain such records for possible audit for a minimum of three (3) years after final payment, unless a longer period of records retention is stipulated. Contractor agrees to allow the auditor(s) access to such records during normal business hours and to allow interviews of any employees who might reasonably have information related to such records. Further, Contractor agrees to include a similar right of the State to audit records and interview staff in any subcontract related to performance of this Agreement (GC § 8546.7, PCC § 10115 et seq., CCR Title 2, §1896). Contractor shall comply with the above and be aware of the penalties for violations of fraud and for obstruction of investigation as set forth in PCC § 10115.10.
- B. Any subcontract entered into as a result of this Agreement shall contain all of the provisions of this clause.

5. Subcontractors

- A. Nothing contained in this Agreement or otherwise, shall create any contractual relation between CAL FIRE and any Subcontractors, and no subcontract shall relieve Contractor of its responsibilities and obligations hereunder. Contractor agrees to be as fully responsible to CAL FIRE for the acts and omissions of its Subcontractors and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by Contractor. Contractor's obligation to pay its Subcontractors is an independent obligation from CAL FIRE obligation to make payments to Contractor.

EXHIBIT D
(Special Terms and Conditions)

- B. Contractor shall perform the work contemplated with resources available within its own organization and no portion of the work shall be subcontracted, except for Subcontractors listed on the **Bidder Declaration (GSPD-05-105), Attachment 2**.
- C. Any substitution of Subcontractors shall comply with the requirements of Public Contract Code Sections 4100 et seq. and must be approved in writing by CAL FIRE Project Representative in advance of assigning work to a substitute Subcontractor.

6. DVBE Participation (With Goals)

- A. Contractor has complied with the requirements of Public Contract Code Sections 10115 et seq. DVBE goals achieved are expressed as a percentage of the estimated dollar value of this Agreement, and are identified on the **Bidder Declaration, GSPD-05-105, Attachment 2**.
- B. The following goals are Contractor's commitment set forth in this Agreement based upon the estimated total dollar amount to be expended.

***3.0% of work for DVBE(s)**
- C. If this Agreement is amended and the additional work can be included in the sub-contracted work, the goals may be amended to reflect this change. A revised **Bidder Declaration, GSPD-05-105** must be attached to and made a part of the amended Agreement.

7. Substitutions of DVBEs

- A. DVBE Subcontractors shall be used per the California Code of Regulations (CCR), Title 2, Section 1896.70 unless a substitution is approved in writing by CAL FIRE. A DVBE Subcontractor shall be replaced by another DVBE to perform the work originally stated. The substitution shall maintain, at minimum, the level of participation goal stated in the bid.
- B. Contractor shall simultaneously notify the CAL FIRE Small Business Advocate at sbdvbe.advocate@fire.ca.gov.

8. Non-Solicitation

Contractor warrants by execution of this Agreement, that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained or contracted by Contractor for the purpose of securing business. For breach or violation of this warranty, the State shall, in addition to other remedies provided by law, have the right to annul this Agreement without liability, paying only for the value of the work actually performed, or in its discretion, to deduct from the contract price or consideration, or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.

9. Laws to be Observed

Contractor shall keep fully informed of all existing and future State and Federal laws and county and municipal ordinances and regulations which in any manner affect those engaged or employed in the work, the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. Contractor shall at all times observe and comply with and shall cause all agents and employees to observe and comply with, all such existing and future laws, ordinances, regulations, orders, and decrees of bodies or tribunals having any jurisdiction or authority over the Agreement. Contractor shall protect and indemnify the State of California and all officers and employees thereof connected with the work against any claim, injury, or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by Contractor, its Subcontractor(s), or an employee(s). If any discrepancy or inconsistency is discovered in the plans, drawings, specification, or Agreement for the work in relation to any such law, ordinance, regulation, order, or decree, Contractor shall immediately report the same to CAL FIRE Project Representative in writing.

10. Specific Legal References

Any reference to specific statutes, regulations, or other legal authority in this Agreement shall not relieve Contractor from the responsibility of complying with all existing and future laws, ordinances, regulations, orders, and decrees of bodies or tribunals having any jurisdiction or authority over the Agreement.

EXHIBIT D
(Special Terms and Conditions)

11. Equipment Indemnification

- A. Contractor shall indemnify CAL FIRE for any claims against CAL FIRE for loss or damage to Contractor's property or equipment during its use under this Agreement and shall, at Contractor's own expense, maintain such fire, theft, liability, or other insurance as deemed necessary for this protection. Contractor assumes all responsibility which may be imposed by law for property damage or personal injuries caused by defective equipment furnished under this Agreement or by operations of Contractor or Contractor's employees under this Agreement.
- B. Any subcontract entered into as a result of this Agreement shall contain all the provisions of this clause.

12. Evaluation of Contractor

Performance of the Contractor under this Agreement will be evaluated. The evaluation shall be prepared on Contract/Contractor Evaluation Sheet (STD 4) and maintained in the Agreement file. For consultant agreements, a copy of the evaluation will be sent to the California Department of General Services, Office of Legal Services, if it is negative and over \$5,000.00.

13. Agency Liability

The Contractor warrants by execution of this Agreement, that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the State shall, in addition to other remedies provided by law, have the right to annul this Agreement without liability, paying only for the value of the work actually performed, or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.

14. Force Majeure

Neither party shall be liable to the other for any delay in or failure of performance, nor shall any such delay in or failures of performance constitute default, if such delay or failure is caused by "Force Majeure." As used in this section, "Force Majeure" is defined as follows: Acts of war and acts of God such as earthquakes, floods, and other natural disasters such that performance is impossible.

15. Employment of Undocumented Workers

By signing this Agreement, Contractor swears or affirms that it has not, in the preceding five (5) years, been convicted of violating a State or Federal law relative to the employment of undocumented workers.

16. Contractor Name Change

Contractor shall provide a written notice to the State at least 30 days prior to any changes to the Contractor's current legal name.

17. Bonds

Payment Bond Requirement: If the total contract price exceeds **\$25,000.00**, Contractor shall furnish a Payment Bond for not less than one hundred percent (100%) of the total amount payable by the terms of this Agreement. The Payment Bond is due prior to the start date of work. No work may commence without receipt of a valid Payment Bond. The Payment Bond must be in effect at all times for the duration of the Agreement. If the Payment Bond expires during the term of the Agreement, a new Payment Bond must be provided to the CAL FIRE Contact Manager not less than ten (10) business days prior to its expiration. Failure to maintain a Payment Bond for the full term of this Agreement will be grounds for termination for default in addition to other legal remedies CAL FIRE may have. Inadequate or lack of a Payment Bond does not negate Contractor's obligations under this Agreement.

18. Target Area Contract Preference Act

- A. This portion of the Agreement applies only to Contractors who are certified and participating in the TACPA Preference Program established by Government Code Section 4530 et seq. when performing work at a work site location in a qualified distressed area.
- B. Each IFB or RFP for goods, in which the cost is estimated to be in excess of **\$100,000.00**, except when the work site is fixed by the terms of the contract, should contain a provision applying work site and hiring preferences, as applicable, to eligible California-based firms. Bidders and proposers may apply for such preferences by means of

EXHIBIT D
(Special Terms and Conditions)

a **Target Area Contract Preference Request, STD 830S** for services (2 CCR § 1896 et seq., see also SCM 1, chapter 8.30).

19. Assumption of Risk and Indemnification Regarding Exposure to Environmental Health Hazards

In addition to, and not a limitation of, Contractor's indemnification obligations contained elsewhere in this Agreement, Contractor hereby assumes all risks of the consequences of exposure of Contractor's employees, agents, Subcontractors, Subcontractors' employees, and any other person, firm, or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this Agreement, to any and all environmental health hazards, local and otherwise, in connection with the performance of this Agreement. Such hazards include, but are not limited to, bodily injury and/or death resulting in whole or in part from exposure to infectious agents and/or pathogens of any type, kind, or origin. Contractor also agrees to take all appropriate safety precautions to prevent any such exposure to Contractor's employees, agents, Subcontractors, Subcontractors' employees, and any other person, firm or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this Agreement. Contractor also agrees to indemnify and hold harmless CAL FIRE, the State of California, and each and all of their officers, agents and employees, from any and all claims and/or losses accruing or resulting from such exposure. Except as provided by law, Contractor also agrees that the provisions of this paragraph shall apply regardless of the existence or degree of negligence or fault on the part of CAL FIRE, the State of California, and/or any of their officers, agents and/or employees.

20. Mandatory Organic Waste Recycling

It is understood and agreed that pursuant to Public Resources Code Sections 42649.8 et seq., if Contractor generates four (4) cubic yards or more of organic waste or commercial solid waste per week, Contractor shall arrange for organic waste or commercial waste recycling services that separate/source organic waste for organic waste recycling. Contractor shall provide proof of compliance, i.e. organic waste recycling services or commercial waste recycling services that separate/source organic waste recycling, upon request from CAL FIRE.

21. Health and Safety

- A. Contractor and all subcontractors shall abide by all health and safety mandates issued by federal, state, and local governments and/or public health officers as well as those issued by CAL FIRE, and worksite specific mandates. If multiple mandates exist, the Contractor and subcontractors shall abide by the most restrictive mandate. The term "employee", "worker", "state worker" or "state employee" in health and safety mandates includes contractor and subcontractor personnel.
- B. Costs associated with adhering to health and safety mandates are the responsibility of the Contractor. Contractor is responsible for the tracking and compliance of health and safety mandates and may be audited upon request.

22. Executive Order N-6-22 – Russia Sanctions

On March 4, 2022, Governor Gavin Newsom issued Executive Order N-6-22 (the EO) regarding Economic Sanctions against Russia and Russian entities and individuals. "Economic Sanctions" refers to sanctions imposed by the U.S. government in response to Russia's actions in Ukraine, as well as any sanctions imposed under state law. The EO directs state agencies to terminate contracts with, and to refrain from entering any new contracts with, individuals or entities that are determined to be a target of Economic Sanctions. Accordingly, should the State determine Contractor is a target of Economic Sanctions or is conducting prohibited transactions with sanctioned individuals or entities, that shall be grounds for termination of this agreement. The State shall provide Contractor advance written notice of such termination, allowing Contractor at least 30 calendar days to provide a written response. Termination shall be at the sole discretion of the State.

EXHIBIT E
(Additional Provisions)

ADDITIONAL PROVISIONS

1. Insurance Requirements

A. General Provisions Applying to All Policies

- 1) Deductible and Premiums
 - a) Contractor is responsible for any deductible or self-insured retention contained within the insurance program.
 - b) The Department will not provide for nor compensate Contractor for any insurance premiums or costs for any type or amount of insurance.
- 2) Coverage Term and Policy Cancellation or Termination:
 - a) Coverage must be in force for the complete term of this Agreement. If insurance expires during the term of this Agreement, a new certificate must be received by CAL FIRE project representative at least ten (10) days prior to the expiration of the insurance. Any new insurance must continue to comply with the original terms of this Agreement.
 - b) Contractor shall provide, to CAL FIRE project representative within five (5) business days, following receipt by Contractor, a copy of any cancellation or non-renewal of insurance required by this Agreement. In the event Contractor fails to keep, in effect at all times, the specified insurance coverage, the State may, in addition to any other remedies it may have, terminate this Agreement upon the occurrence of such event, subject to the provisions of this Agreement.
- 3) Primary Clause: Any required insurance contained in this contract shall be primary, and not excess or contributory, to any other insurance carried by the State.
- 4) Endorsements: Any required endorsements requested by the State must be physically attached to all requested certificates of insurance and not substituted by referring to such coverage on the certificate of insurance.
- 5) The Department will not provide for nor compensate Contractor for any insurance premiums or costs for any type or amount of insurance.
- 6) Insurance Carrier Required Rating: All insurance companies must carry a rating acceptable to the Department of General Services, Office of Risk and Insurance Management (ORIM). If Contractor is self-insured for a portion or all of its insurance, review of financial information including a letter of credit may be required. Department of General Services, ORIM Website: <https://www.dgs.ca.gov/ORIM>.
- 7) When Contractor submits a signed contract to the State, Contractor shall furnish to the State a certificate of insurance stating that all required insurance is in effect for the Contractor.

B. General and Commercial Liability Insurance

- 1) Contractor shall provide commercial general liability insurance of not less than **\$1,000,000.00** per occurrence for bodily injury and property damage liability combined in effect for the Contractor.
- 2) The policy shall include coverage for liabilities arising out of premises, operations, independent contractors, products, completed operations, personal and advertising injury, and liability assumed under an insured Agreement. This insurance shall apply separately to each insured against whom claim is made or suit is brought subject to Contractor's limit of liability.
- 3) The certificate of insurance will include the following provision in its entirety:

The State of California, its officers, agents and employees are included as additional insured, but only with respect to work performed for the State of California under the contract.
- 4) The additional insured endorsement must accompany the certificate of insurance.

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- 5) This endorsement must be supplied under form acceptable to the Department of General Services, Office of Risk and Insurance Management.

C. Worker's Compensation Insurance

Contractor shall provide Worker's Compensation Insurance with Waiver of Subrogation in favor of the State of California. Employer's liability shall be not less than **\$1,000,000.00**. The following clause should be included: "Waiver of Subrogation in favor of the State of California or in favor of CAL FIRE:" By signing this Agreement, the Contractor hereby warrants that it carries Workers' Compensation Insurance on all of its employees who will be engaged in the performance of this Agreement. If Staff provided by the Contractor is defined as independent contractors, this clause does not apply.

D. Commercial Automobile Insurance on Owned, Hired, and Non-Owned vehicles.

Contractor shall provide Commercial Automobile Insurance on Owned, Hired, and Non-Owned vehicles of not less than **\$1,000,000.00** policy. The same additional insured designation and endorsement required for general liability is to be provided for this coverage.

E. Builder's Risk/Installation Floater

During the term of this Agreement, Contractor shall maintain in force, at its own expense, Builder's Risk/Installation Floater covering contractor's labor, materials and equipment to be used for completion of the work performed under this Agreement against all risks of direct physical loss, excluding earthquake and flood, for an amount equal to the full amount of the Agreement improvements. The same additional insured designation and endorsement required for general liability is to be provided for this coverage.

F. Available Coverages/Limits

In the event the insurance coverages obtained by Contractor is broader in scope than, and/or the limits are higher than, those required under the contract, all such broader coverage and/or higher limits available to Contractor shall also be available and applicable to the State.

2. Regulations

- A. Contractor shall observe and comply with all federal, state, city, and county laws, rules or regulations affecting the work. Any work done that does not comply with any laws, rules, or regulations will be remedied at the Contractor's expense.
- B. Contractor shall cooperate with the CAL FIRE authorities and shall observe and comply with all regulations presently in force on CAL FIRE grounds.

3. Americans with Disabilities Act

By signing this contract, the contractor assures the State that it complies with the Americans with Disabilities Act (ADA) of 1990 (42 USC § 12101 et seq.), which prohibits discrimination on the basis of disability, as well as with all applicable regulations and guidelines issued pursuant to the ADA.

4. Motor Carrier Permit Requirements

- A. Contractor is responsible for determining whether California Vehicle Code Sections 34601 and 34620 require Contractor to have a valid Motor Carrier Permit(s) (MCP) issued by the Department of Motor Vehicles (DMV) in order for Contractor to lawfully perform any part or aspect of the work described in **Exhibit A, Scope of Work**, and, if California Vehicle Code Sections 34601 and 34620 do require same for any part or aspect of such work, Contractor must have a valid MCP issued from the DMV for its services as a Motor Carrier of Property under this Agreement. Contractor shall pay any required fees necessary to obtain and maintain in good standing during the entire term of this Agreement any such required MCP(s).
- B. The MCP(s), if any, required for Contractor's Motor Carriers of Property under California Vehicle Code Sections 34601 and 34620 shall be on file with Contractor for the duration of this Agreement. Upon request of CAL FIRE Contract Manager or their designee, Contractor must immediately provide to CAL FIRE a copy of the required MCP(s), if any.

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5. License and Permits

- A. Contractor shall be licensed in accordance with the laws of the State of California and shall possess an **A-General Engineering license** issued by the California Contractors State Licensing Board (CSLB).
- B. The Contractor shall be an individual or firm currently licensed to do business in California and shall obtain at their expense all license(s) and permit(s) required by law for accomplishing any work required in connection with this contract. In the event the Contractor fails to keep in effect at all times all required license(s) and permit(s), the State may, in addition to any other remedies it may have, terminate this contract upon occurrence of such event.
- C. If you are a Contractor located within the State of California, a business license from the city/county in which you are headquartered is necessary however, if you are a corporation, a copy of your incorporation documents/letter from the Secretary of State's Office can be submitted. If you are a Contractor outside the State of California, you will need to submit to the CAL FIRE Contracts Unit a copy of your business license or incorporation papers for your respective State showing that your company is in good standing in that state.
- D. If Contractor is a California or foreign corporation, Contractor must be registered and active/in good standing with the California Secretary of State.
- E. In the event any license(s) and/or permit(s) expire at any time during the term of this Agreement, Contractor agrees to provide CAL FIRE Project Representative a copy of the renewed license(s) and/or permit(s) within 30 days following the expiration date. In the event Contractor fails to keep in effect at all times all required license(s) and permit(s), the State may, in addition to any other remedies it may have, terminate this Agreement upon occurrence of such event.

6. Licensed Contractor Standards for Quality of Work

- A. Licensed Contractors must observe professional standards for quality of work or the California Contractors State License Board (CSLB) will invoke disciplinary action.
- B. Notice is hereby given that certain actions by a Contractor, including, but not limited to, the following, constitute grounds for disciplinary action by the CSLB once CAL FIRE has notified the license board of all violations:
 - 1) A willful departure from plans and specifications or disregard of trade standards for good and workmanlike construction in any material respect that might prejudice the CAL FIRE, owner of the property upon which you perform work (Bus. and Prof. Code Section 7109).
 - 2) The failure to observe and comply with all the applicable labor laws (Bus. and Prof. Code Section 7110).
 - 3) Material failure to complete this Agreement (Bus. and Prof. Code Section 7113).
- C. Should CAL FIRE determine that the work or materials provided vary materially from the specifications, or, that defective work when completed was not performed in a workmanlike manner, then Contractor warrants that it shall perform all necessary repairs, replacement and corrections needed to restore the property according to the Agreement plans and specifications, all at no further or additional cost to CAL FIRE.

7. Tax Delinquencies Contract Ban

Public Contract Code section 10295.4 provides that a state agency shall not enter into any contract for goods or services with a contractor whose name appears on either list of the 500 largest tax delinquencies pursuant to Section 7063 or 19195 of the Revenue and Taxation Code. This prohibition applies to contracts executed on or after July 1, 2012. FTB and BOE will post and periodically update lists of the 500 largest tax delinquencies on their websites as required by law. Starting July 1, 2012, prior to executing contracts, state agencies must check the FTB and BOE lists to ensure the proposed awardee/vendor is not on either list.

8. Debarment and Suspension Certification

- A. Contractor's signature affixed herein shall constitute a certification under penalty of perjury under the laws of the State of California, that Contractor or any person associated therewith in the capacity of owner, partner, director, officer, or manager:

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- 1) is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
 - 2) has not been suspended, debarred, voluntarily excluded, or determined ineligible by any Federal agency within the past three (3) years;
 - 3) does not have a proposed debarment pending; and
 - 4) has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.
- B. Any exceptions to this certification must be disclosed to CAL FIRE. Exceptions will not necessarily result in denial of recommendation for award but will be considered in determining bidder responsibility. Disclosures must indicate the party to whom the exceptions apply, the initiating agency, and the dates of agency action.

9. Contractor Registration Program

No Contractor or Subcontractor may be awarded this contract unless registered with the DIR pursuant to Labor Code Section 1725.5.

10. Small Business or Disabled Veteran Business Enterprise Certification

Contractor and/or Subcontractor(s) shall maintain its status as a DGS certified SB/MB or DVBE, as applicable, throughout the term of this Agreement.

11. Public Works – Rules/Regulations

- A. Contractor shall observe and comply with all federal, state, city, and county laws, rules or regulations affecting the work. Any work done that does not comply with any laws, rules, or regulations will be remedied at the Contractor's expense.
- B. Contractor shall cooperate with the Department of Forestry and Fire Protection (CAL FIRE) authorities and shall observe and comply with all regulations presently in force on Department of Forestry and Fire Protection grounds.

C. Materials

- 1) New materials must be used throughout the work incorporated in this contract. Where a particular grade or quality of material is not specified and more than one grade or quality is available to the contractor, the best grade or quality material containing the required characteristics for the purpose intended, normally used in construction of similar work will be used.
- 2) Contractor must request approval of all alternate materials. Any such requests should be directed to the designated Contract Manager. No additional compensation will be allowed for the installation of approved substitute items.

D. Storage

- 1) When necessary, materials shall be stored in a manner that ensures the preservation of their quality and fitness for the work. When State considers it necessary, materials shall be placed on wooden platforms or other hard clean surfaces and placed under cover. Stored materials shall be available for prompt inspection.
- 2) In case of suspension of work for any cause, contractor shall be responsible for properly storing all materials, and shall provide suitable drainage and temporary protective structures.

E. Time

1) Schedule

State will designate the starting day of the contract when contractor shall immediately begin and diligently prosecute the work to completion. Contractor shall coordinate with the CAL FIRE Project Representative to establish a schedule of the work to be performed. This schedule will coordinate any interruptions to State operations if necessary.

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2) Extensions

Contractor is obligated to satisfactorily complete the work on or before the contract's expiration date. If the work called for under the contract is not completed within the time specified, the State shall have the right to extend or not extend the time limit for its completion as may best serve the interest of the State.

F. The Work

1) Worksite

- a) Contractor shall be responsible for, provide, and maintain all proper temporary walks, roads, guards, railing, lights and warning signs and shall take precautions at all time to avoid injury or damage to any person or any property.
- b) No advertising of any description will be permitted in or about the work, except by order of the State.
- c) Contractor having control of the work shall clean up the work as it progresses. At frequent intervals and at all times when directed by State, contractor shall remove and dispose of all rubbish, excess excavated material, and debris. Contractor shall protect all adjoining and nearby State and public property, buildings, roads, and streets from dust, dirt, debris, or other nuisance arising out of contractor's operations.
- d) At completion the work site shall be cleared of tools, false work, equipment and rubbish and the entire project, including surrounding premises, shall be left in proper, clean condition. Upon completion of the work or as directed, contractor shall replace premises and adjacent property in good condition.
- e) Contractor shall be entirely responsible for any damage to the property due to hauling or other causes attributable to this work, including roads, curbs, fences, utilities, or other permanent improvements needing to be disturbed to the extent required. All such damaged portions shall be repaired when directed and as required to place them in as good condition as existed before the commencement of the work.

2) Acceptance

- a) Until the State makes formal acceptance of the work, contractor shall have the charge and care and shall bear the risk of injury or damage to any part of the work by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work.
- b) The State will accept work performed under this contract in writing when all work has been completed satisfactorily to the State. In judging the work, no allowance for deviations from the original scope of work will be made unless already approved in writing at the proper times and in the manner called for in the contract.

3) Rejection

- a) Should any portion of the work or materials fail to comply with the scope of work or provisions listed herein, the work or materials will be rejected. Contractor will immediately correct the work or materials in question, to the satisfaction of the State.
- b) Any work done that does not comply with any laws, rules, or regulations will be remedied at contractor's expense.

4) Guarantees

- a) Contractor shall unconditionally guarantee the work of the contract to be free of defects in workmanship and materials for a period of one year from date of State's acceptance of the work.
- b) Contractor shall unconditionally guarantee the work of the contract to be free of defects in workmanship and materials for a period of one year from date of State's acceptance of the work, unless a longer guarantee period is specifically called for. Prime contractor shall be responsible for the one year guarantee and shall sign for the entire work. The guarantee may also be countersigned by the subcontractor.

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G. Liabilities

- 1) Contractor shall, at own expense, rebuild, repair, restore, and make well all injuries or damages to any portion of the work before its completion and acceptance.
- 2) State shall not be answerable or accountable in any manner for any occurrences over which contractor has control and responsibility. This includes injury or damage from any cause that might have been prevented by the contractor or contractor's workers or anyone employed by contractor. Occurrences include but are not limited to injury to any person whether worker or the public, damage to any portion of the work, damage to materials or equipment used, or damage to adjoining property.
- 3) Contractor shall be responsible for any damage to any person or property resulting from defects, obstructions, or any other cause during the progress of the work at any time before its completion and final acceptance. State may retain money due contractor under the contract until disposition has been made of any suits or claims for damages filed for injuries or damages sustained by contractor, contractor's servants, or agents, provided that sworn statements of these claims are filed with the department or any other appropriate State office.
- 4) Neither the Director of CAL FIRE nor any other officer or authorized assistant of the department shall be personally responsible for any liability arising under the contract.

H. Changes

1) Requests

- a) If any conflict arises between provisions of the plans, specifications, scope of work, and any such law, then contractor shall notify the State at once. Such changes must be approved in writing but do not require a Change Order. All other types of changes will require the issuance of a Change Order duly approved either before making the change or, in the case of emergency changes described below, after the emergency change has been completed.
- b) State shall be at liberty to order, in writing, changes in the plans and specifications, or alterations, additions, or omissions in the work at any time prior to the formal completion and acceptance of the work without in any way voiding the contract and the Contractor shall comply with such orders.
- c) Any change or deviations from the contract plans and specifications or in the work made without authority in writing from the State will be the responsibility of the Contractor.
- d) Whenever the necessity for a change arises either at the request of the Contractor or at the request of the State, the Contractor shall take note that a change is pending and he shall take all necessary steps to halt such other work in the area of change that would be affected by the ultimate change until such time as the change is approved.

2) Detailed estimates

- a) When a request for a change is made by or received by contractor, the contractor shall prepare a full and completely detailed estimate of cost for the change, including itemized estimates for subcontractors work, and accurate quantities and unit prices for all items to be added or omitted by reason of the change. Changes requiring labor and/or materials over and above quantities originally called for will be paid for as an extra to the contract, while changes resulting in lesser quantities of labor and/or materials shall be credited to the State by contractor.
- b) The costs of extra work shall be estimated at current market values to which may be added five percent (5%) for overhead, ten percent (10%) for profit, and one percent (1%) where additional bonding is required. Credit for work omitted shall be on the same basis except that no credit for overhead or bond will be exacted. Unit prices shall be comparable with prices used by the Contractor in the original estimate if requested by the State. Estimates for requested changes shall be submitted promptly and in all cases within fifteen (15) calendar days from the date of request.

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3) Emergency changes

Changes in the work made necessary due to unexpected or unforeseen site conditions, discovery of errors in plans or specifications requiring immediate clarification in order to avoid a serious work stoppage, or changes of a kind where the extent cannot be determined until completed are types of emergency changes which may be authorized by the State in writing to contractor. The added price or credit for emergency changes shall be determined as provided herein for regularly issued Change Orders. In all such cases the contractor shall comply with the written orders and shall apply for and shall receive a standard form of Change Order as soon as the emergency change has been completed. Compensation for emergency changes will not be due contractor until he receives a confirming Change Order.

4) Time

- a) Each estimate for a change in the work submitted by the contractor shall state the amount of extra time that should be allowed for making the requested change. If no extra time is requested, it is assumed that the changes will be effected within the originally allotted time for the contract.
- b) State will consider all factors in judging the amount of additional time to be allowed by reason of changes in the work and will set forth in the Change Order the amount of extra time that will be allowed for each change.

5) Change orders

Contractor shall not make any changes other than emergency changes described above until State provides contractor with an approved and signed formal Change Order. State will not recognize any change in the contract sum due contractor until an approved Change Order has been issued in writing on an approved State form. The Change Order must show a full description of the change to be made, the extra time required for making the changes, and the agreed price to be added to or deducted from the contract sum. Drawings with notes and/or specifications accompanying the Change Order shall be deemed a part of the Change Order. Extra work called for by the Change Order shall be performed in accordance with the original contract drawings and specifications, except for the deviations specifically called for by the Change Order.

6) Failure to Agree

- a) In case contractor and State fail to agree on the extra cost or credit for a proposed change, State may order contractor to proceed with the change in order to avoid a serious work stoppage and the proper cost or credit for the change shall be determined as follows:
- b) For added work, contractor shall proceed on a time and material basis, keeping an accurate daily record of the cost of labor and material used under the change and submitting each day's records to the State's representative for review and approval. Upon completion of the change, a Change Order will be issued to contractor based on cost, plus overhead, profit, and bonds.
- c) For omitted work, the estimated amount of credit which the State contends is due may be withheld from any payment due contractor. Such sum will be withheld until contractor presents indisputable evidence that the State's estimate is in error.
- d) Should contractor fail to establish a valid claim, the entire amount withheld will be retained by the State; but should contractor establish that State's estimate was in error in part or in whole, State shall refund contractor the difference.

I. Time of Work and Damages

- 1) State will designate the starting day of the contract when contractor shall immediately begin and diligently prosecute the work to completion. Contractor is obligated to satisfactorily complete the work on or before the contract's expiration date, to be determined from the number of working days stated in the agreement, plus such days as may be properly allowed by State.
- 2) If all the work called for under the contract is not finished or completed before the expiration of the contract, State will sustain damage. As it is and will be impracticable and extremely difficult to determine the actual damage which the State will sustain because of any delay, contractor will pay to State liquidated damages of

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one hundred dollars (\$100) per day for each day's delay in finishing the work. If contractor fails to pay liquidated damages, CAL FIRE may deduct from contractor the amount from any money due under the contract. The contractor shall not be assessed liquidated damages for delay in completion of the project when such delay was caused by failure of the public agency or owner of the utility to provide for removal or relocation of utility facilities.

- 3) If the work called for under the contract is not completed within the time specified, the director shall have the right to extend or not extend the time limit for its completion as may best serve the interest of the State. The director shall further have the right to charge to contractor or Contractor's heirs, assigns, or sureties and to deduct from the final payment for the work, all or any part of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the contract, and which accrue during the period of such extension.
- 4) Contractor shall not be assessed with liquidated damages the cost of engineering and inspection during any delay in the completion of the work caused by acts of God or of the public enemy, acts of State, fire, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusual action of the elements, or delays of subcontractors due to such cause, providing contractor shall notify State in writing of the causes of delay within ten (10) days from the beginning of any such delay. State shall determine the facts and extent of the delay, and its findings of the facts shall be considered final and conclusive.
- 5) The term "unusual action of the elements" is limited to weather or related effects that cause a complete work stoppage of the controlling item of work at the site of the project for one or more full workdays.

J. Asbestos

In the event the contractor who is providing services under a service contract discovers asbestos, contractor shall stop all work immediately and notify the State contract coordinator, construction supervisor and/or project manager. After State has assessed site conditions and extent of asbestos-related work, State shall prepare and award a separate contract to a contractor who is registered and certified for asbestos abatement work. Under both State statute and State regulations found in the California Code of Regulations, a contractor must be certified by State Contractor's License Board and registered with the State Department of Industrial Relations, CAL-OSHA, in order to perform asbestos-related work. Contractor shall resume work under this contract only after the State gives notification to proceed.

K. Brand or Trade Names

Brand or trade names are given to establish quality, and no special preference by the State for these manufacturers is intended or implied. Where only one brand or trade name is listed, it is the only brand or trade name known to State for the particular product. State may permit contractor to use alternate product materials or equipment that is of equal quality and of required characteristics for the purpose intended if approved in writing by the State. Contractor must submit a request for approval of all alternate products in triplicate within seven (7) days of award of contract. Any such requests should be directed to the Chief Engineer, Technical Services Section, California Department of Forestry and Fire Protection, P.O. Box 944246, Sacramento, CA 94244-2460. CAL FIRE's chief engineer shall be the sole judge as to the comparative quality and suitability of the alternate and the decision shall be final. No additional compensation will be allowed for the installation of approved substitute items.

L. Interruption of Services

Contractor shall make provisions to accomplish the work of this contract without undue interference with the CAL FIRE operations. Interruptions to any services for the purpose of making or breaking a utility connection shall be made only after consultation with the State Representative and shall be at such time and of such duration as may be directed.

M. Cooperation Between Contractors

Where two or more contractors are employed on related or adjacent work each shall conduct operations in a manner which will not cause any unnecessary delay or hindrance to the other. Each contractor shall be

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responsible to the other for all damage to work, person, or property, or for loss caused by failure to finish the work within the time specified.

N. Conflicts in Documents

If conflict occurs between documents, priorities are:

- 1) Addenda govern over all other contract documents to the extent specified, followed by specific conditions, followed by general conditions.
- 2) Plans govern over specifications; within these, schedules govern over all other portions of plans, followed by specific notes. Larger scale drawings govern over smaller, and figured or numerical dimensions govern over scaled dimensions.
- 3) If there is conflict between provisions, codes, safety orders, contract documents, manufacturer's specifications, or industry standards, the more restrictive and higher quality govern.
- 4) If contract documents omit a requirement for proper construction system, or for combining or installing parts, materials, or equipment, and if there is an accepted trade standard for construction quality and performance, then contractor shall follow trade standard.

O. Change Authorization

CAL FIRE Chief of Technical Services or designated representative shall be the only individuals authorized to approve changes to the plans/specification, alternate materials/methods, or submittal materials.

**Attachment 1
(Rate Sheet)**

To be attached upon award.

SAMPLE

Attachment 2
(Bidder Declaration GSPD 05-105)

To be attached upon award.

SAMPLE

SECTION 31 10 00

SITE PREPARATION AND DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. This section describes general requirements, products, and methods of execution relating to site preparation, unless otherwise noted. This section applies to:
 - 1. Surface and subsurface demolition.
 - 2. Backfilling of excavations and depressions.
 - 3. Coordination, demolition and/or relocation of existing utilities.
 - 4. Prior to start of demolition of facilities, shut-off, disconnect, cut, and cap where required, underground utility services to facilities.
 - 5. Removal of A.C. pavement driveway and concrete pavement, concrete pads, and A.C. curbing.
 - 6. Removal of cyclone wire, wood fences and barricades.
 - 7. Removal of storm drainage piping, catch basins, and manholes.
 - 8. Removal of vegetation and trees as specified herein.
- B. Contractor shall provide labor, material and equipment required for demolishing, cutting, removing and disposing of existing construction as designated and shown on the drawings for the following as required, unless otherwise noted.
- C. Coordinate all work with capping or sealing of existing utilities.
- D. Related Sections:
 - 1. Section 31 22 00 – EARTHWORK AND GRADING.
 - 2. Section 31 23 33 – TRENCHING, BACKFILLING, AND COMPACTING.

1.2 SUBMITTALS

- A. Comply with requirements of Section 01 33 00 – SUBMITTAL PROCEDURES.
- B. Submit copies of all permits and certificates required for the project to the Owner's Representative, for record purposes.
- C. Permits and notices authorizing demolition.
- D. Submit copy of letters or certificates of severance of utilities services from the affected agencies or utilities.
- E. Submit copies of proposed haul route(s) from the demolition worksite to an authorized disposal site as approved by authority having jurisdiction.
- F. Submit copy of permit for transport and disposal of debris.
- G. Make arrangements of disposing of waste and excess materials at a legally licensed landfill/disposal facility outside worksite and pay cost thereof.
- H. Photograph existing conditions of existing structure surfaces, equipments, and adjacent improvements that might be misconstrued as damage related to removal operations. File photographs with Owner's Representative prior to start of work.
- I. Submit proposed dust control measures and a copy of approved permit.
- J. Submit proposed noise control measures and a copy of approved permit.
- K. Work Schedule: Submit a proposed schedule of work items to be performed, and a description of how the work is to be accomplished, for the review by the Owner's Representative.

- L. Report of inspections conducted with the Owner's Representative and Architect both before and after performing work.

1.3 QUALITY ASSURANCE

- A. Comply with the following Standards: American National Standards Institute, Inc. "American National Standard Safety Requirements for Demolition" (ANSI A10.6 and A10.8).
- B. Regulatory Agencies:
 - 1. Comply with rules and regulations of State of California, California Code of Regulations, Title 8, Industrial Relations, Chapter 4, Subchapter 4, "Construction Safety Order."
 - 2. Comply with applicable local and state agencies having jurisdiction.
 - 3. Comply with governing EPA notification regulations.
- C. Secure all required Permits or Certificates for demolition or discontinuance of utilities, prior to beginning the work.

1.4 PROJECT CONDITIONS

- A. Owner's Representative assumes no responsibility for actual condition of the site to be altered.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner's Representative as far as practical.
- B. Disposal of Existing Improvements:
 - 1. All materials indicated to be removed shall become the property of the Contractor; dispose of these outside the project site.
 - a. Do not dispose of removed materials to the general public by sale, gift or in any other manner at the Site.
 - b. These provisions shall not be construed as limiting or prohibiting sale or disposal of such materials at the Site to duly licensed Contractors or material suppliers, provided materials are removed from the construction site by the Contractor.
 - 2. All removal of debris from the site, including removal of inventory to site of storage, is part of this Contract and shall be done by Contractor's employees and no others.
- C. Salvage and Reuse:
 - 1. Where units or items of existing work are designated in Section 01 31 13 - PROJECT COORDINATION or Contract Plans to be removed and reused in the new work or are to become salvage, remove such units or items carefully.
 - a. Use tools and methods that will not damage such units or items.
 - b. Protect underlying or adjoining work from damage.
 - c. Salvaged items shall be cleaned by the Contractor.
 - 2. Recycle AC pavement and Class II AB where practical.
 - 3. Recycle concrete where practical.
 - 4. Items indicated to be salvaged shall be removed carefully, cleaned, and returned to the Owner. Coordinate with the Owner's Representative.
- D. Protection:
 - 1. Erect and maintain temporary bracing, shoring, lights, and barricades, except construction barricades for subsequent new construction, warning signs, and guards necessary to protect public, the Owner's employees, finishes, improvements to

remain and adjoining property from damage, all in accordance with applicable regulations.

2. Wet down areas affected by this work as required to prevent dust and dirt from rising.

E. Scheduling:

1. Coordinate with the Owner's Representative in scheduling noisy or dirty work.
2. Schedule work at the Owner's convenience to cause minimal interference with the Owner's normal operations.
3. Jack hammering will be allowed only during the following time periods 7:00 AM - 6:00 PM on weekdays.

F. Traffic Circulation: Ensure minimum interference with roads, streets, driveways, sidewalks, and adjacent facilities.

1. Do not close or obstruct public thoroughfares without first obtaining the required permit or permission of the responsible jurisdiction.
2. Where closing of a vehicular or pedestrian traffic circulation route is necessary, provide adequate directional signs to minimize the potential for confusion.
3. Maintain emergency access routes and coordinate any interruptions with local entities.
4. Provide pedestrian paths as necessary and coordinate with the Owner.

PART 2 - PART 2 – PRODUCTS

2.1 PIPE ABANDONMENT MATERIALS

- A. Slurry cement backfill conforming to Caltrans Standard Specification 19-3.02E.

PART 3 - PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas affected by work of this Section and verify following:
1. Disconnection of utilities as required.
 2. That utilities serving occupied portions of buildings on and off the site will not be disturbed.
 3. Removal by the Owner of the Owner's personal property, movable furniture and equipment items not designated for relocation.
- B. Document video and/or photograph, as necessary, existing items to remain that are damaged and submit photographs to Owner.
- C. Where existing conditions conflict with representations of the Contract Documents, notify the Owner's Representative and obtain clarifications. Do not perform work affecting the conflicting conditions until clarification of the conflict is received.

3.2 PREPARATION

- A. Verify that the area to be demolished or removed has been vacated, or adequate space made available to perform the work.
- B. Arrange for, and verify, termination of utility services to include removing meters and capping of lines.
- C. Lay out cutting work at Job Site and coordinate with related work for which cutting is required.

3.3 DEMOLITION

- A. If known or suspected hazardous materials are encountered during operations, stop operations immediately and notify the Owner's Representative.
 - B. Perform work in accordance with ANSI A10.6-1969 unless otherwise noted.
 - C. Provide noise and dust abatement as required to prevent contamination of adjacent areas.
 - D. Remove all materials not designated as salvage, in their entirety.
 - E. Remove building foundations in their entirety, unless otherwise indicated on the plans.
 - F. Fill voids in the land left by the removal of existing structures as follows:
 - 1. In accordance with the requirements of Section 31 22 00 – EARTHWORK AND GRADING. Grade finished remaining surface to the contours shown, or if not shown, to match the existing natural contours.
 - G. Lower, or remove, heavy structural framing members by hoist or crane.
 - H. Concrete and Masonry:
 - 1. Demolish concrete and masonry in sections, less than 3 feet in any direction.
 - 2. Method of cutting shall be limited to saw cutting and torch.
 - I. If unknown items such as human remains are encountered during operations, stop operations immediately and notify the Owner's Representative.
 - J. The Owner's Representative will provide a list of any items to be stockpiled for future use. Stockpile location will be a site on campus determined by the Owner's Representative.
- 3.4 DEMOLITION AND REMOVAL OF AC PAVEMENT:
- A. Saw cut pavement at edge of demolition area.
 - B. Break pavement and remove.
 - C. Remove any base material, gravel, and/or any other non-native soil.
- 3.5 CUTTING
- A. Make new openings neat.
 - B. Do not cut or alter structural members and any utilities including appurtenances unless indicated to do so in the Construction Documents or written approval is received from the Architect.
 - C. Take care not to damage reinforcing or structural steel scheduled to remain in place.
 - D. Concrete: Cut new openings in concrete by coring and saw cutting. Saw run-bys will not be permitted.
- 3.6 PREPARATION FOR NEW FINISH WORK
- A. Where demolished surfaces are scheduled to receive new finishes, Contractor shall restore such substrate to a condition ready to receive the scheduled new finishes, including grinding or leveling.
- 3.7 UTILITY REMOVAL:
- A. Where utility removal is shown on the plans, excavate to expose existing utility, demolish and remove section of pipe or conduit indicated. Cap section of pipe or conduit to remain. Mark end of utility with stake, rebar, or Surveyor's marker.
 - B. Provide thrust block or other mechanical restraint where dead end is created on pressurized pipe systems. Thrust blocks shall be per NFPA 24 Standards.
 - C. Included in demolition are any appurtenances, including but not limited to valves, valve boxes, and irrigation system components.

- D. Backfill trench in accordance with requirements of Section 31 23 33 – TRENCHING, BACKFILLING, AND COMPACTING.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning of demolished materials on-site is prohibited. Burning may be performed off-site of Owner's property provided it is done in a legal manner.

3.9 FIELD QUALITY CONTROL

- A. The Owner's Representative and Architect will accompany the Contractor before and after performance of work to observe physical condition of existing structures or improvements involved.

END OF SECTION

SECTION 31 22 00

EARTHWORK AND GRADING

PART 1 - GENERAL

1.1 SUMMARY:

- A. This section describes general requirements, products, and methods of execution relating to on-site earthwork. Any work within the public right-of-way shall be constructed to the standards of the State Fire Marshall (SFM) and State of California Department of Transportation. Work includes, but is not limited to, the following:
 - 1. Grading.
 - 2. Material.
 - 3. Excavation.
 - 4. Filling and backfilling.
 - 5. Soil Sterilant.
 - 6. Termiticide.
- B. Provide labor, material and equipment and services necessary to complete the excavations, re-compaction and finish grading as specified and indicated on Drawings.
 - 1. Obtain permit from local authorities.
 - 2. Provide surveying for grading operations.
 - 3. Provide shoring design.
 - 4. Provide dewatering operations.
 - 5. Provide site grading, cut, fill and finish.
 - 6. Provide excavation and backfill for filling construction, including trenches within building lines.
 - 7. Preparation for subgrade for building slabs, walks, pavements, and landscaping.
 - 8. Provide distribution of stockpiled topsoil.
 - 9. Provide sub-base course for walks and pavements.
 - 10. Provide engineered fills for building slabs and foundations.
 - 11. Provide sand and gravel for capillary break/moisture barrier under building slabs.
 - 12. Provide sub-surface drainage backfill for walls and trenches.
- C. The work includes removal and legal disposal off the site of debris, rubbish and other materials resulting from clearing and grubbing operations.
- D. Work specified in Related Sections:
 - 1. Section 31 10 00 – SITE PREPARATION AND DEMOLITION.
 - 2. Section 31 23 33 – TRENCHING, BACKFILLING, AND COMPACTING.

1.2 DEFINITIONS:

- A. Engineered Fill:
 - 1. Soil or soil-rock material approved by Owner's Representative used by the Contractor in order to raise grades or to backfill excavations.
 - 2. The Owner's Testing Agency will make sufficient tests and/or observations for the purpose of issuing a written statement that material meets or exceeds the specification requirements.
- B. On-site Material: Soil or earth material obtained from required on-site excavation.

- C. Excavation: Consists of the removal of material encountered to subgrade elevations and the re-use or disposal of materials removed.
- D. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below sub-base, drainage fill, rock base course, or topsoil materials.
- E. Import Material: Soil material obtained off-site when sufficient approved soil material is not available from excavations.
- F. Base Course: The layer placed between the sub-base and surface pavement in a paving system.
- G. Relative Compaction: In-place dry density of soil expressed as percentage of maximum dry density of same materials, as determined by laboratory test procedure American Society for Testing and Materials (ASTM) D1557.
- H. Overexcavation: Removal of material below required subgrade elevations.

1.3 SUBMITTALS:

- A. Comply with provisions of Section 01 33 00 – SUBMITTAL PROCEDURES.
- B. Product Data: Manufacturer's literature and data, including, where applicable, capacity, labels, or other markings on equipment made to the specified standards for materials, for the following:
 - 1. Imported materials.
 - 2. Class II aggregate base (Caltrans Section 26).
 - 3. Soil Sterilant.
 - 4. Termiticide.
 - 5. Cement Treatment.
 - 6. Geotextiles.
 - 7. Subdrainage Pipe.
 - 8. Aggregate for Structural Soil Mix.
- C. Test Reports: Submit the following reports for import material directly to Architect from the Contractor's testing services:
 - 1. Test reports on borrow material.
 - 2. Density test reports.
 - 3. One optimum moisture-maximum density curve for each type of soil encountered.
 - 4. Not used.
 - 5. Not used.
 - 6. Soil percolation rate test for soils to be used in storm water treatment zones.
 - 7. Structural Soil Mix Testing: Provide a two-gallon representative sample to approved testing laboratory for an analysis of the structural soil mix indicating the following:
 - a. Particle size analysis, including the following gradient of mineral content (USDA Designation Size in mm):
 - i. 3" (76mm)
 - ii. 2 ½" – 3" (63-76mm)
 - iii. 2" – 2 ½" (50-63mm)
 - iv. 1 ½" – 2" (37-50mm)
 - v. 1" (25-37mm)
 - vi. ¾" (19-25mm)
 - vii. Fine gravel – 1/8" – ¾" (2-19mm)

- viii. Sand – 0.05 -2mm
 - ix. Silt – 0.002-0.05mm
 - x. Clay – minus 0.002mm
 - b. Provide manufacturer's analysis of the following:
 - i. Loose and rodded unit weight.
 - ii. Bulk specific gravity and absorbance.
 - iii. Gravel dimension and surface texture description.
 - iv. Aggregate soundness and L.A. abrasion.
 - c. Provide a percent pore space analysis defined as follows:
 - i. Rodded Unit Weight divided by the Bulk Specific Gravity x 100.
 - d. Sample Collection Procedure:
 - i. Collect a minimum of eight samples to make up the composite sample.
 - ii. Take samples from random locations in the stockpile varying from the top to the bottom and around the stockpile.
 - iii. Take at least half the samples from the lower third of the stockpile into a clean bucket
 - iv. Thoroughly mix material after samples are taken.
 - v. Remove 2 gallon of material from bucket and fill a zip-lock plastic bag.
 - vi. Double bag the composite sample and label the bag with a permanent marker indicating the material name and date sample was taken.
- D. Shoring Design: Where shoring is required by State Law or Contractor shall provide necessary design, provide proposed excavation shoring method for review prior to commencement of excavation requiring shoring. Include the following information:
 - 1. Basic design assumptions.
 - 2. Design Calculations.
 - 3. Describe materials or shoring system to be used.
 - 4. Indicate whether or not any components will remain after filling or backfilling.
 - 5. The shop drawings for the proposed shoring system.
 - 6. Coordinate with the Construction Documents and identify any proposed modifications or deviations.
 - 7. Certification of the above by a registered professional civil or structural engineer licensed by the State of California.
 - 8. Submittal will be reviewed for general conformance with project plans, but no review of calculations will be provided.
- E. Dewatering Plan: Based upon site surface and subsurface conditions, including available geotechnical and hydrological data, provide a system to perform the following:
 - 1. Lower the ground water level below bottom of excavation.
 - 2. Relieve the hydrostatic pressure below the subgrade to prevent uplift.
 - 3. Prevent surface drainage from accumulating within work area.
 - 4. Legally discharge and dispose of excess water.
 - 5. Submit description of basic components of proposed dewatering system and its planned method of operation.
- F. Samples:

1. 20-lb. samples sealed in air-tight containers, of each proposed fill and backfill soil material from on-site or borrow sources. Provide to Geotechnical Engineer as requested.
 2. 20-lb samples sealed in air tight containers of specialty soils for submission to a plant and soil testing facility for analysis. Include perc test and sieve analysis.
 - G. Pad Certification
 1. Submit a pad certification stamped by a California Licensed Land Surveyor.
 - H. Erosion Control Plans
 - I. Permit/Notice of Intent (N.O.I.), for discharge of storm run-off from the construction site.
 - J. Haul Routes.
- 1.4 ASSURANCE:
- A. Requirements of Regulatory Agencies:
 1. Comply with State of California Business and Transportation Agency, California Department of Transportation (CDT, Caltrans) "Standard Specifications" (Caltrans Standard Specification).
 2. Comply with State of California Code of Regulations (CCR).
 3. Comply with State of California Construction Safety Orders, Latest Edition (CAL/OSHA).
 4. SFM Department of Public Works, Standards and Specifications and Drawings, latest edition.
 5. BCDC, ACOE, Fish and Wildlife, if applicable.
 - B. Soil Testing:
 1. Owner will engage a geotechnical testing agency, to include testing soil materials proposed for use in the work and for quality control testing during excavation and fill operations.
 2. Test results will be distributed in compliance with Section 014523 – TESTING AND INSPECTION SERVICES.
 - C. Codes and Standards:
 1. Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
 2. Statewide General Permit to Discharge Storm Water associated with construction activity.
 3. The project Storm Water Pollution Prevention and Monitoring Plan.
 - D. Comply with the latest editions of the following Standards and Regulations:
 1. American Society for Testing and Materials (ASTM):
 - a. Concrete Aggregates.
 - b. C125: Standard Terminology Relating to Concrete and Concrete Aggregates.
 - c. C136: Sieve Analysis of Fine and Coarse Aggregates.
 - d. C566: Total Evaporable Moisture Content of Aggregate by Drying.
 - e. D421: Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants.
 - f. D422: Particle Size Analysis of Soil.
 - g. D854: Specific Gravity of Soils.

- h. D1556: Density of Soil by the Sand Cone Method.
 - i. D1557: Laboratory Compaction Characteristics of Soil Using Modified Effort
 - j. D2216: Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
 - k. D2487: Classification of Soils for Engineering Purposes.
 - l. D2922: Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 - m. D2937: Density of Soil in Place by Drive Cylinder Method.
 - n. D3017: Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
 - o. D4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
 - 2. California Code of Regulations, Title 24, Part 2 - Basic Building Regulations, Chapter 24 - Excavations, Foundations, and Retaining Walls.
 - 3. California Department of Transportation (Caltrans) Standard Specifications:
 - a. Section 10: Watering.
 - b. Section 18: Dust Palliatives.
 - c. Section 19: Earthwork.
 - 4. CAL/OSHA, Title 8.
 - 5. SFM Standard Plans and Specifications
 - 6. Other authorities having jurisdiction
 - E. Geotechnical Engineering Services:
 - 1. Geotechnical Engineer shall be provided by the Owner or Contractor, as the Owner's Representative to observe grading observations during preparation offsite, excavation, and compaction of fill materials.
 - 2. Make visits to site to familiarize him generally with progress and quality of work.
 - 3. Make field observations and tests to enable him to form opinions regarding adequacy of site preparation, acceptability of fill materials and extent to which earthwork construction and relative compaction comply with specifications requirements.
 - 4. Examine conditions exposed in foundation excavations.
 - F. Site Information:
 - 1. Geotechnical Investigation Reports are available for examination by Contractor.
 - 2. Additional soil borings and other exploratory operations may be made by Contractor at no cost to the Owner. Submit proposed boring locations for review prior to performing the work.
 - G. Contractor Qualifications:
 - 1. Have successfully installed structural soil mixes similar to the quality specified for a period of not less than 5 years.
- 1.5 DELIVERY, STORAGE, AND HANDLING:
- A. Protect materials of this section before, during and after installation; objects designated to be retained; and the installed work of other trades.
 - B. In the event of damage to any of these items, immediately make repairs or replacements necessary to the acceptance of the Owner's Representative and at no additional cost to the Owner.

- C. Comply with provisions of Section 015000 – TEMPORARY FACILITIES AND CONTROLS where necessary to control dust and noise on and near the work caused by operations during performance of the Work
- 1.6 PROJECT CONDITIONS:
- A. Site Information: Review the geotechnical report identified in Section 02 30 00 – SUBSURFACE INVESTIGATION.
 - 1. The character of the material to be excavated or used for subgrade is not necessarily as indicated.
 - 2. Ground water elevations indicated are those existing at the time subsurface investigations were made and do not necessarily represent ground water elevation at the time of construction.
 - B. Environmental Requirements:
 - 1. Comply with the project SWPPP.
 - 2. When unfavorable weather conditions necessitate interrupting filling and grading operations, prepare areas by compaction of surface and grading to avoid collection of water.
 - 3. Provide adequate temporary drainage to prevent erosion.
 - 4. After interruption, reestablish compaction specified in last layer before resuming work.
 - 5. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the Owner.
 - 6. Protect existing streams, ditches and storm drain inlets from water-borne soil by means of straw bale dikes, filter fiber dams, or other methods.
 - C. Protections of open excavations.
 - 1. Barricade open excavations and post with warning lights.
 - 2. Comply with requirements of Section 01 50 00 –TEMPORARY FACILITIES AND CONTROLS.
 - 3. Operate warning lights as recommended by authorities having jurisdiction.
 - 4. Protect structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations, from damages caused by settlement, lateral movement, undermining, washout and other hazards.
 - D. Protection of Subgrade
 - 1. Protection of Subgrade: Do not allow equipment to pump or rut subgrade, stripped areas, footing excavations, or other areas prepared for project.
 - 2. At Contractor's option, and with the Geotechnical Engineer's approval, a working pad of granular material may be laid to protect footing and floor subgrade soils from disruption by traffic during wet conditions.
 - E. Transport of soils.
 - 1. Transport all excess soils materials by legally approved methods to disposal areas.
 - 2. Coordinate with the Owner's Representative.
 - 3. Sufficient topsoil and fill material shall be retained from the site to complete project requirements.

4. Any additional topsoil and fill requirements shall be the responsibility of the Contractor.
 - F. Blasting and use of explosives will not be permitted.
 - G. Dust Control Requirements: At all times during earthwork operations and until final completion and acceptance of the earthwork, the Contractor shall prevent the formation of an airborne dust and dirt nuisance from interfering with the surrounding normal operations. The Contractor shall effectively stabilize the site of work in such a manner that it will confine dust particles to the immediate surface of the work and to obtain a minimum of 40 percent emissions reduction by applying a dust palliative except in areas of active cut and fill. The dust palliative shall be non-petroleum based. Water alone is not considered to be a dust palliative. The dust palliative shall be applied at the rate and method in conformance with Section 18, "Dust Palliatives," of the Caltrans Standard Specifications and as recommended and/or specified by the manufacturer. Contractor shall assume liability for all claims related to dust and dirt nuisances.
 - H. All areas to receive Structural Soil shall be inspected by the Owner's Representative prior to beginning this work.
- 1.7 EXISTING UTILITIES
- A. The Owner will contact local utility agencies prior to construction and arrange for the shut-off of all utilities serving the buildings to be demolished. Coordinate work required to abandon active lines with the Program Manager and the Owner.
 - B. Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during excavation operations.
 - C. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult the Owner's Representative immediately for directions.
 1. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation.
 2. Repair damaged utilities to the satisfaction of the Owner's Representative.
 - D. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Owner and then only after acceptable temporary utility services have been provided.
- 1.8 SEQUENCING AND SCHEDULING:
- A. The schedule of operations shall be reviewed by the Owner's Representative prior to commencement of any work.
 - B. Coordinate operations with other construction activities, such as relocation of existing utilities.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. General:
 1. Fill material will be subject to approval of the Geotechnical Engineer.
 2. For approval of imported fill material, notify the Owner's Representative at least 7 days in advance of intention to import material, designated proposed borrow area, and permit the Geotechnical Engineer to sample as necessary from borrow area for purpose of making acceptance tests to prove quality of material.
 3. The Geotechnical Engineer's report on acceptability shall be final and binding.

4. During grading operations, soil types other than those analyzed in the geotechnical report for the project, may be encountered.
5. Consult the Geotechnical Engineer to determine the suitability of these soils.
- B. Engineered Fill Material: Soil excavated from site (native) or imported conforming to requirements for fill material contained in geotechnical report for this project.
- C. Native Fill Requirements:
 1. Approved native materials shall have a particle size not exceeding 3 inches as determined by ASTM D422, at least 90 percent by weight passing the 1 inch sieve and less than 3 percent organic content by weight.
- D. Imported Fill Requirements: Imported fill, where required, shall be non expansive granular soil, free of organic matter and deleterious substances. Imported fill material shall conform to the following requirements:
 1. Grading:

<u>U. S. Sieve Size</u>	<u>Percentage Passing Sieve</u>
2 ½ inch	100
No. 8	25-45
No. 200	0-100
 2. Be thoroughly compactable without excessive voids.
 3. Meet the following plasticity requirements:
 - a. Maximum Plasticity Index of 12, as determined by ASTM D4318.
 - b. Maximum Liquid Limit of 35, as determined by ASTM D4318.
- E. Imported Fill for Planting Areas: Imported fill for use in planting areas shall be sandy loam weed free soil. Submit analysis from certified Soil and Plant Lab. Coordinate with Landscape Architect.
- F. Topsoil: Friable clay loam surface soil found in a depth of not less than 10 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones and other objects over 2 inches in diameter, and without weeds, roots and other objectionable material.
 1. Use topsoil for top 2 feet of fill against exterior walls, except at paving and sidewalks.
 2. Topsoil may also be used beyond the area within 5 feet of building, except under paving and sidewalks.
 3. Confirm suitability of stockpiled materials.
- G. Sand: Clean, well-graded fine to coarse sand with not more than 2 percent passing the #200 sieve based on wet sieve analysis. Provide at locations indicated in the construction documents.
 1. Where coarse sand is required, provide sand no finer than No.40 sieve.
- H. Bioretention Soil Mixture
 1. Follow Appendix L of the Municipal Regional Permit
- I. Drain Rock:
 1. Washed, uniformly graded mineral aggregate ASTM D448 with percentage composition of dry weight conforming to following limits:
 - a. Passing 1-inch Sieve: 100 percent.
 - b. Passing 3/4-inch Sieve: 90-100 percent.
 - c. Passing No. 4 Sieve: 0-10 percent.

2. Base at Slab-on-Grade: As specified in the geotechnical report for this project.
 3. Absorption of water to saturated-surface dry condition shall not exceed 3 percent of oven-dry weight of a sample.
- J. Backfill material for use behind retaining walls shall be a granular material consisting of sand, broken rock, or a mixture of sand and gravel containing no size larger than 2 ½ inches and not more than 15 percent passing the No. 200 sieve.
- K. Pea Gravel: 3/8 inch to ½ inch washed, uncrushed gravel. Use at drainage pipe and at other locations indicated.
- L. Filter Fabric: Provide filter fabrics that meet or exceed the listed minimum physical properties determined according to ASTM D4759 and the referenced standard test method in parentheses.
1. Grab Tensile Strength (ASTM D4632): 120 lb.
 2. Apparent Opening Size (ASTM D4751): #70 U.S. Standard sieve.
 3. Permeability (ASTM D4491): 135 gallons per minute per square foot.
- M. Drainage Pipe:
1. Perforated corrugated plastic drainage tubing meeting ASTM F667, with continuous integral nylon filter screen.
 2. Acceptable Manufacturers and Products: Advanced Drainage Systems “DrainGuard,” Hancor “Agri-Flow.”
 3. Provide couplings, elbows and other fittings as recommended by pipe manufacturer.
- N. Water: Clean and free from deleterious amounts of acids, alkalis, salts and organic matter.
- O. Structural Soil:
1. Structural soil shall be a uniformly blended mixture of aggregate, soil, and binder to provide a soil matrix with approximately 30% voids.
 2. The soil for structural soil mix shall be:
 - a. Aggregate shall be crushed stone of a uniformly graded size.
 - b. Aggregate shall not be limestone or sandstone.
 - c. Aggregate shall meet AASHTO #4 gradation

<u>U.S. Sieve Size</u>	<u>Percentage Passing Sieve</u>
2-inch	100%
1.5-inch	90-100%
1-inch	20% - 55%
3/4-inch	0% - 15%
3/8-inch	0% - 5%
 - d. Aggregate shall be angular in shape with a maximum average length, width, and depth ratio of 2:1:1.
 - e. Aggregate PH shall be between 6.0 and 7.0
 - f. Aggregate soluble salt level shall be less than 300ppm.
 3. The soil for structural soil mix shall be:
 - a. Soil shall be a “clay loam” or “clay” based on “USDA classification system” as determined by mechanical analysis (ASTM D-422) and shall be of uniform composition, without admixture of subsoil.

<u>Textural Class</u>	<u>% of Total Weight</u>
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Gravel	Less than 5%
Sand	20% - 45%
Silt	20% - 50%
Clay	20% - 40%

- b. Chemical analysis:
 - i. pH: Between 5.5 to 6.5.
 - ii. Percent organic matter: 2 – 5% by dry weight.
 - iii. Nutrient levels as required by the soil testing laboratory recommendations for the type of plants to be grown in the soil.
 - iv. Toxic elements and compounds below the USEPA standards for Exceptional Quality sludge
 - v. Soluble salt less than 1.0 Millimho per cm
 - vi. Cation Exchange Capacity (CEC) greater than 10.
 - vii. Carbon/Nitrogen Ratio less than 33:1.
- c. Soil shall be the product of a commercial processing facility specializing in production of Structural Soil Mixes for a minimum of 5 years.
4. The binder for structural soil mix shall be:
 - a. Hydrogel: Cross linked potassium copolymer hydrogel as manufactured by Gelscape by Amereq.

5. Structural Soil Mix

- a. Approved proportion of materials in structural soil shall be as follows:

<u>Component</u>	<u>By units of weight</u>	<u>By percentage</u>
Aggregate	100 dry weight	71 - 75
Soil	18-21 dry weight	25 - 29
Binder	0.03 dry weight	0.03
Water	10 +/- (includes water in other ingredients)	

Other amendments As recommended by soil lab

- b. Mixing:
 - i. Mix polymer (PAM) with soil 48 hours ahead of blending with aggregate to allow for proper bonding.
 - ii. Cure polymer treated soil by allowing the soil to partially dry.
 - iii. Based upon accepted mix design, blend materials off-site in a clean area using an experienced blending operator.
 - iv. Uniformly blend materials so that they are even distributed throughout mixtures.
 - v. Maintain adequate soil moisture content during mixing process.
 - vi. Soils and mix components shall easily shred and break down without clumping.
 - vii. Soil clods shall easily break down into a medium crumbly texture material.
 - viii. Do not blend materials that are saturated or contain excessive water.
 - ix. Measure and monitor amount of soils moisture at mixing site periodically during mixing process.
 - x. Protect materials and mixtures from contamination prior to, during, and after mixing operations.

xi. Store mixes in stockpiles prior to shipment to site in clean areas protected from contamination from other materials.

xii. Reblend the mix if the components have separated.

6. TMT Enterprises, 1996 Oakland Road, San Jose, CA 95131, or approved equivalent.]

2.2 SOIL STERILANT:

A. Soil Sterilant shall be Treflan E.C. or approved equivalent.

2.3 TERMITICIDE:

A. Termiticide shall be Permethrin, Denon, or approved equivalent.

PART 3 - EXECUTION

3.1 GENERAL:

- A. Prior to commencement of earthwork, become thoroughly familiar with site conditions.
- B. If event discrepancies are found, immediately notify the [District's/Owner's] Representative in writing, indicating the nature and extent of differing conditions.
- C. Requirements:
 - 1. Grades and elevations are to be established with reference to benchmarks referenced on Drawings.
 - 2. Maintain engineering markers such as monuments, benchmarks and location stakes. If disturbed or destroyed, replace.
- D. No earthwork shall be performed without physical presence or acceptance of the Geotechnical Engineer.
- E. The Geotechnical Engineer's acceptance is required by these specifications; notify the Owner's Representative at least 48 hours prior to commencing any phase of earthwork.
 - 1. No phase of work shall proceed until prior phase has been accepted by the Geotechnical Engineer.
 - 2. Work shall not be covered up or continued until acceptance of the Geotechnical Engineer shall give written notice of conformance with the specifications upon completion of grading.
- F. Compacting:
 - 1. Compact by power tamping, rolling or combinations thereof as accepted by the Geotechnical Engineer.
 - 2. Where impractical to use rollers in close proximity to walls, stairs, etc., compact by mechanical tamping.
 - 3. Scarify and re-compact any layer not attaining compaction until required density is obtained.
 - 4. Compaction by flooding, ponding or jetting will not be permitted, unless specifically accepted by the Geotechnical Engineer.
- G. Hazardous Materials
 - 1. If any materials are encountered that may be hazardous (as defined in Section 25117 of the California Health and Safety Code), inform the [District's/Owner's] Representative verbally within 24 hours and in writing within 2 business days. Upon discovery, material is to remain undisturbed until investigation by State's representative is complete. The removal and disposal of hazardous materials, if discovered, is not part of the scope of work of this Division for this project.

3.2 SITE PREPARATION:

- A. Protect structures, utilities, sidewalks, pavements, and other facilities which are to remain from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations. Set up tree protection measures prior to commencing grading or demolition operations.
 - B. Clearing and Grubbing:
 - 1. Remove from area of designated project earthwork all improvements and obstructions, including designated concrete curbs or slabs, asphaltic concrete, all tree and shrub roots, any buried utility and irrigation lines, and other matter determined by the Geotechnical Engineer to be deleterious.
 - a. In all new planting areas, remove existing base material.
 - b. Use only hand methods for grubbing inside the drip line of trees indicated to be left standing.
 - 2. Remove from the site all trees and shrubs, unless otherwise indicated on the drawings as existing trees to be left standing.
 - 3. Remove or fill existing basements left from removed structures as appropriate to areas. Compact in accordance with requirements of these specifications.
 - 4. Removed material shall become property of the Contractor and shall be removed from site, unless otherwise indicated on the drawings or specified herein.
 - 5. Holes resulting from removal of underground obstructions that extend below finish grades shall be cleared and backfilled with engineered fill.
 - 6. Existing Trees to remain:
 - a. Verify the locations of existing trees to be preserved.
 - b. Replace existing trees to remain that are damaged during construction at no additional cost to the Owner.
 - c. Carefully make clean cuts at roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction. Paint cuts over ½ inch in size with tree pruning compound.
 - C. Topsoil:
 - 1. Strip topsoil to whatever depths encountered in manner to prevent intermingling with the underlying subsoil or other objectionable material.
 - 2. Remove heavy growths of grass from areas before stripping. Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to the main root system.
 - 3. Stockpile topsoil in storage piles to freely drain surface water.
 - 4. Cover storage piles if required to prevent windblown dust.
- 3.3 EXISTING UTILITIES:
- A. Protect existing utilities that are to remain in operation as specified.
 - B. Demolish and completely remove from the site existing underground utilities indicated to be removed. See Section 311000 – SITE PREPARATION AND DEMOLITION.
 - C. Movement of construction machinery and equipment over existing pipes and utilities during construction shall be at contractor's risk.
 - D. Excavation made with power-driven equipment is not permitted within 2 feet of any known utility or subsurface structure.

1. Use hand or light equipment for excavating immediately adjacent to or for excavations exposing a utility or buried structure.
2. Start hand or light equipment excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured.
3. Support uncovered lines or other existing work affected by excavation until approval for backfill is obtained.
4. Report damage of utility line or subsurface structures immediately to the Owner's Representative.

3.4 PREPARATION OF SUBGRADE:

- A. Expansive soils are anticipated at the site.
 1. To help mitigate expansive soil problems, over-excavate and replace the upper 12 inches of building pad subgrade with properly compacted soil with a Plasticity Index of 12 or less.
 2. Review the necessity for over-excavation of expansive soils once the final excavation depth has been determined.
 3. Include a plastic vapor retarder with a 2-inch thick sand cushion placed above the vapor retarder.
 4. A layer of clean gravel or crushed rock at least 4 inches thick should underlie the vapor retarder. The crushed rock shall have 100 percent passing the $\frac{3}{4}$ -inch sieve and less than 5 percent passing the No. 4 sieve.
- B. Scarify building pad, exterior flatwork and pavement subgrade to a depth of at least 8 inches and work until uniform and free from large clods.
 1. Bring expansive subgrades to not less than 3 percentage points above optimum moisture content (not less than 2 percentage points above optimum upper 6 inches of pavement subgrade) and compact to 90 percent of the maximum laboratory dry density, in accordance with ASTM D1557.
 2. Bring non-expansive subgrades to or slightly above the optimum moisture content and compact to 90 percent of the maximum laboratory dry density in accordance with ASTM D1557.
 3. Increase compaction of the upper 6 inches of pavement subgrades to 95 percent of the maximum laboratory dry density and at least 2 percent over the optimum moisture content per ASTM D1557 for non-expansive subgrades.

3.5 DEWATERING:

- A. Do not allow water from surface drainage or underground sources to accumulate in excavations, unfinished fills, or other low areas.
- B. Provide and maintain ample means and devices to remove water promptly and dispose properly of water entering excavations or other parts of the work to prevent softening of exposed surfaces.
- C. Dewater by methods which will ensure dry excavation and preservation of finish lines and grades of excavation bottoms.
- D. Prior to excavating below ground water level, place dewatering system in operation.
 1. Lower the ground water level a minimum of 1 foot below the bottom of the excavation.

2. Relieve the hydrostatic pressure in pervious zones below the subgrade elevation to prevent uplift.
 3. Use screens and gravel packs as necessary to prevent removal of fines from the soil.
 - E. Operate the dewatering system continuously, 24 hours a day, 7 days a week until construction work below existing ground water level is completed.
 1. Measure and record the performance of the dewatering system.
 2. After placement of initial slabs and backfill, the ground water level may be allowed to rise.
 3. At no time allow ground water to rise higher than 1 foot below the prevailing level of excavation or backfill.
 4. Have a back-up pump and system available for immediate use.
 - F. Dispose of water away from the work in suitable manner without damage to adjacent property or menace to public health.
 - G. Do not drain water into work being built or under construction without prior acceptance of the Owner's Representative.
 - H. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the Owner.
- 3.6 SITE EXCAVATION:
 - A. General
 1. All supports, shoring, and sheet piling required for the sides of excavations or for protection of adjacent existing improvements shall be provided and maintained by the Contractor. The adequacy of such systems shall be the complete responsibility of the Contractor.
 2. Earth and rock, regardless of character and subsurface conditions, shall be excavated to depths shown on drawings and to the neat dimensions of the footings wherever practicable, to permit pouring of footings and grade beams without use of side forms, except at slab perimeters.
 3. Large rocks, pieces of concrete or other obstructions, if encountered during the excavation/scarifying operations, shall be removed and disposed of by the Contractor off the site in a legal manner.
 4. Where footing excavation is too deep, backfill shall be concrete. Where footings are over dug laterally, side forms shall be employed for backfill with rock fill or concrete backfill shall be used (Contractor's option).
 5. Where forming is required, only that excavation necessary to permit placing and removal of forms shall be done.
 6. Bottoms of all footings and foundations trenches shall be subject to testing by the Geotechnical Engineer. Corrective measures as directed by the State's representative shall be executed promptly.
 - B. Excavate subgrade as required to allow for finish grades shown on drawings, as required for structural fill or otherwise required for proper completion of the work.
 - C. Remove and replace subgrade materials designated by Geotechnical Engineer as unsuitable.
- 3.7 FILL AND COMPACTING:
 - A. General Requirements:

1. Backfill excavations as promptly as work permits.
 2. Do not place engineered fill or backfill until rubbish and deleterious materials have been removed and areas have been approved by the District's Representative.
 3. Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
 4. In excavations, use satisfactory excavated or borrow material.
 5. Under grassed areas, use satisfactory excavated or borrow material.
 - B. After subgrade compaction has been approved by the Geotechnical Engineer, spread the engineered fill materials in lifts not exceeding 8 inches and uniformly mixed during the spreading operation.
 1. Bring non-expansive fill materials to or slightly above the optimum moisture content and compact to at least 90 percent of the maximum laboratory dry density, per ASTM D1557.
 2. Bring non-expansive aggregate fill materials to or slightly above the optimum moisture content and compact to at least 95 percent of the maximum laboratory dry density, per ASTM D1557.
 3. Do not compact the top 12 inches of soil in the planting areas.
 4. Fill sections greater than 5 feet in depth shall be compacted to at least 95 percent relative compaction per ASTM D1557.
 - C. Repeat compaction procedure until proper grade is attained.
 - D. Rocks generated during site earthwork may be used in fill when conforming to material specifications.
- 3.8 MOISTURE CONTROL:
- A. Do not place, spread or roll fill material during unfavorable weather conditions or when fill material is excessively wet.
 - B. Do not resume operations until moisture content and fill density are satisfactory to the Geotechnical Engineer.
 - C. Provide berms or channels to prevent surface water from flooding excavations. Promptly remove water collecting in depressions.
 - D. Where soil has been softened or eroded by flooding or by placement during unfavorable weather, remove damaged areas and re-compact as described for fill and compaction.
 - E. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material.
 1. Prevent free water appearing on surface during or subsequent to compaction operation.
 2. Remove and replace, or scarify and air dry, soil material too wet to permit compaction to specified density.
 3. Soil material removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.
- 3.9 GRADING:
- A. General: Uniformly grade areas of work including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes

between points where elevations are shown, or between such points and existing grades.

1. All areas covered by the project, including excavated and filled areas and adjacent transition areas, shall be uniformly graded so that finished surfaces are at the elevations established by the plans. Planter areas to receive future topsoil shall be graded below finished grade to allow for such material.
2. Finished surfaces and surfaces to receive paving and aggregate base shall be smooth, compacted, and free from irregular surface drainage.
3. Ditches, gutters, and swales shall be finished to permit proper surface drainage.
4. All surface areas, except paved and sloped embankments exceeding 8:1, shall be hydroseeded in accordance with specifications in Landscaping Sections.

B. Grading Tolerances:

1. Excavations shall not exceed 0.10-foot variation from dimensions and elevations shown or noted, unless otherwise approved by the Owner's Representative.
2. Fill and backfill shall be placed with tolerance of plus or minus 0.10 foot if placed in layers.
3. Grading shall be done within plus or minus 0.10 foot typically; areas under slabs, walks or pavements shall be graded within tolerance of 0 to 0.10 foot.
4. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 foot above or below required subgrade elevations.
5. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 foot above or below required subgrade elevation.
6. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than ½ inch above or below required subgrade elevation.

C. Compaction: After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

3.10 SOIL STERILIZATION:

- A. General: Soil sterilant shall be applied to prepared subgrade or after installation of rock or aggregate base as recommended by the manufacturer. Sterilant shall be applied uniformly at the rate recommended by the manufacturer to all areas beneath asphalt concrete pavement, brick pavement, concrete pavement, or on-grade concrete slabs including sidewalks, curbs, and gutters and areas between the inner and outer security fences. In addition to ground areas treated, sterilant shall be applied below expansion or control joints, and at all areas where pipe, ducts, or other features penetrate slabs.

3.11 BIORETENTION SOIL MIXTURE

- A. General: Soil material installed in bio-retention and bio-swales shall be tested in-site to verify the field conditions meet performance requirements.
- B. Installation: Place soil material in lifts not exceeding 8-inches. Compact to between 83 and 87 percent relative compaction.
- C. Testing: Demonstrate in-site percolation by the following method. One test shall be performed for each treatment measure.
1. Drive a 1 foot diameter pipe 2.5 feet long into the treatment soil until the end is 6 inches above the under drainage (typically 12-inches down).

2. Wet treatment zone then fill pipe with water to 12 inches above ground elevation.
3. Pipe should empty 12 inches of water within the following time periods:

<u>Soil Type</u>	<u>Min</u>	<u>Max</u>
Dewatering	1hr 12 min	6hrs
Treatment	1hr 12 min	2hrs 24min

4. If the in-situ test fails the soil within the treatment measures shall be removed and re-instated.

3.12 DISPOSAL OF EXCESS AND WASTE MATERIALS:

- A. Removal of Excess Excavated Material: Excess material shall be removed by the Contractor off the site in a legal manner.

3.13 FIELD QUALITY CONTROL:

- A. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
 1. Perform field in-place density tests according to ASTM D1556 (sand cone method), ASTM D2167 (Rubber Balloon Method), or ASTM D2937 (Drive Cylinder Method), as applicable.
 - a. Field in-place density tests may also be performed by the nuclear method according to ASTM D6938 , provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D1556. With each density calibration check, check the calibration curves furnished with the moisture gauges according to ASTM D6938
 - b. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gauges at beginning of work on each different type of material encountered, and at intervals as directed by the Architect.
 2. Footing Subgrade: At footing subgrades, use a hand probe and consult with the Geotechnical Engineer.
 3. Paved and Building Slab Areas; At subgrade and at each compacted fill and backfill layer, perform at least one field in-place density test for every 2,000 square feet or less of paved area or building slab, but in no case fewer than three tests.
 4. Foundation Wall Backfill: In each compacted backfill layer, perform at least one field in-place density test for each 100 feet or less of wall length, but no fewer than two tests along a wall face.
 5. Trench Backfill: In each compacted initial and final backfill layer, perform at least one field in-place density test for each 150 feet or less of trench, but not fewer than two tests.
- B. Number and location of test shall be at option of the Geotechnical Engineer.
- C. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, re-compact and retest until required density is obtained.

- D. After grading is completed and the testing agency has completed observation of the work, permit no further excavation or filling, except as approved by the Owner's Representative.
- 3.14 PROTECTION:
- A. Protect newly graded areas from traffic and erosion. In unpaved areas without landscaping, cover with straw erosion control blanket. Follow manufacturer's recommendations for installation. Provide and place straw wattles or biodegradable fiber logs across the slope at the midpoint and along the downhill edge of site. No soil is to be left uncovered at the completion of construction. Keep free of trash and debris.
 - B. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
 - C. Where completed compacted areas are disturbed by subsequent construction operation or adverse weather, scarify surface, reshape, compact to required density and provide other corrective work, including retesting, prior to further construction.
- 3.15 CLEAN-UP:
- A. Comply with requirements of Section 017400 – CLEANING.
- 3.16 TERMITICIDE:
- A. Termiticide shall be applied to soils as recommended by the manufacturer. Termiticide shall be applied uniformly at the rate recommended by the manufacturer to all areas beneath and around wood frame structures.

END OF SECTION

SECTION 31 23 33

TRENCHING, BACKFILLING, AND COMPACTING

PART 1 - GENERAL

1.1 SUMMARY:

- A. Provide labor, material, equipment, and services necessary to complete the backfilling and compacting as necessary for this project. Section includes, but is not limited to:
 - 1. Initial Backfill Material.
 - 2. Subsequent Backfill.
 - 3. Detectable Tape.
 - 4. Trench Excavation.
 - 5. Pipe Bedding.
 - 6. Trench Backfill.
 - 7. Trench Surfacing.
- B. Work specified in Related Sections include:
 - 1. Section 31 22 00 – EARTHWORK AND GRADING.
 - 2. Section 33 10 00 – WATER SYSTEMS.

1.2 DEFINITIONS:

- A. Engineered Fill:
 - 1. Soil or soil-rock material approved by the Geotechnical Engineer and transported to the site by the Contractor in order to raise grades or to backfill excavations.
 - 2. Contractor shall provide sufficient tests, and a written statement that all materials brought onto the project site comply with specification requirements.
- B. Excavation: Consists of the removal of material encountered to subgrade elevations.
- C. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below base.
- D. Base: The layer placed between the subgrade and surface pavement in a paving system.
- E. Relative Compaction: In-place dry density of soil expressed as percentage of maximum dry density of same materials, as determined by laboratory test procedure American Society for Testing and Materials (ASTM) D1557.

1.3 SYSTEM DESCRIPTION:

- A. Requirements:
 - 1. Comply with the recommendations of the Geotechnical Engineer.
 - 2. Protect existing trees to remain. No grading is permitted under the drip line of protected trees.
 - 3. Excavations for appurtenant structures, such as, but not limited to, manholes, transition structures, junction structure, vaults, valve boxes, catch basins, thrust blocks, and boring pits, shall be deemed to be in the category of trench excavation.
 - 4. Unless otherwise indicated in the Drawings, all excavation for pipelines shall be open cut.

1.4 SUBMITTALS:

- A. Comply with provisions of Section 01 33 00 – SUBMITTAL PROCEDURES.

- B. Test Reports: Submit the following report for import material directly to the Owner's Representative from the Contractor's testing services:
 - 1. Compaction test reports for import materials.
- C. Submit description of compactors proposed for use when requesting placement of base material.

1.5 QUALITY ASSURANCE:

- A. Requirements of Regulatory Agencies:
 - 1. Comply with State of California Business and Transportation Agency, Department of Transportation (Caltrans) latest edition of "Standard Specifications." (Caltrans Standard Specification).
 - 2. Comply with State of California Code of Regulations (CCR).
 - 3. Comply with State of California Construction Safety Orders, Latest Edition (CAL/OSHA).
- B. Soil Testing:
 - 1. Owner shall engage a geotechnical testing agency, to include compaction testing and for quality control testing during fill operations.
 - 2. Test results will be submitted to the Owner's Representative.
- C. Codes and Standards:
 - 1. Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
 - 2. NPDES Construction General Permit.
 - 3. California Department of Transportation Standard Specifications (Caltrans Standard Specification):
 - a. Section 19: Earthwork.
 - b. Standard Test Methods: No. 202.
 - 4. American Society for Testing and Materials (ASTM):
 - a. D1556: Density of Soil by the Sand Cone Method.
 - b. D1557: Moisture Density Relations of Soils and Soil-Aggregate Mixtures.

1.6 DELIVERY, STORAGE AND HANDLING:

- A. Protect materials before, during and after installation.
- B. Comply with provisions of Section 01 57 00 – TEMPORARY FACILITIES and controls where necessary to control dust and noise on and near the work caused by operations during construction activities.

1.7 PROJECT CONDITIONS:

- A. Environmental Requirements:
 - 1. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the [District/Owner].
 - 2. Protect existing streams, ditches and storm drain inlets during work on this project.
- B. Barricade open excavations and post with warning lights.
 - 1. Comply with requirements of Section 01 57 00 – TEMPORARY FACILITIES AND CONTROLS.
 - 2. Operate warning lights and barricades as required.

3. Protect structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations, from damages caused by settlement, lateral movement, undermining, washout, and other hazards.
 - C. Protection of Subgrade: Do not allow equipment to pump or rut subgrade, stripped areas, footing excavations, or other areas prepared for project.
 - D. Transport all excess soils materials by legally approved methods to disposal areas.
 1. Coordinate with the Owner's Representative.
 2. Any additional fill requirements shall be the responsibility of the Contractor.
- 1.8 EXISTING UTILITIES:
- A. Locate existing underground utilities in the areas of work. For utilities that are to remain in place, provide adequate means of protection during excavation operations.
 - B. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult utility agency immediately for directions.
 1. Cooperate with the Owner's Representative and public and private utility companies in keeping their respective services and facilities in operation.
 2. Repair damaged utilities to the satisfaction of the utility owner.
 - C. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Owner's Representative and then only after acceptable temporary utility services have been provided.
- 1.9 SEQUENCING AND SCHEDULING:
- A. The sequence of operations shall be reviewed by the Owner's Representative prior to commencement of any work.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. General:
 1. Backfill materials will be subject to approval of the Engineer.
 2. For approval of backfill fill material, notify the Owner's Representative at least 7 days in advance of intention to import material.
 3. Consideration shall also be given to the environmental characteristics as well as the corrosion potential of backfill materials. Laboratory testing, including pH, soluble sulfates, chlorides, and resistivity shall be reviewed. Backfill materials shall not be more corrosive than the native materials.
- B. Trench Sand:
 1. Material free from clay, organic materials, and other deleterious substances and conforming to Caltrans Standard Specification Section 19-3.02F(2).
- C. Trench Gravel:
 1. Granular material free from clay, organic materials, and other deleterious substances and conforming to Class 1 Type A Permeable Material, per Caltrans Standard Specification Section 68-2.02F(2).
- D. Approved Native Fill:
 1. See Section 31 22 00 – EARTHWORK AND GRADING.
- E. Imported Fill:
 1. See Section 31 22 00 – EARTHWORK AND GRADING.

- F. Class II Aggregate Base: $\frac{3}{4}$ " maximum, Class II AB, free from organic matter and other deleterious substances and conforming to Caltrans Standard Specification Section 26-1.02A.
- G. Controlled Low Strength Material (CLSM):
 - 1. Low strength structural backfill with a compressive strength between 50 and 100 psi, conforming to Caltrans Standard Specifications Section 19-3.02G.
- H. Water: Clean and free from deleterious amounts of acids, alkalis, salts and organic matter.

2.2 BURIED WARNING AND IDENTIFICATION TAPE

- A. Polyethylene plastic and metallic core or metallic-faced, acid- and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 75 mm 3 inch minimum width, color coded as specified below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing shall be permanent, unaffected by moisture or soil.
 - 1. Warning Tape Color Codes.
 - Red: Electric.
 - Yellow: Gas, Oil; Dangerous Materials.
 - Orange: Telephone and Other Communications.
 - Blue: Water Systems.
 - Green: Sewer Systems.
 - White: Steam Systems.
 - Gray: Compressed Air.
 - 2. Warning Tape for Metallic Piping: Acid and alkali-resistant polyethylene plastic tape conforming to the width, color, and printing requirements specified above. Minimum thickness of tape shall be 0.003 inch. Tape shall have a minimum strength of 1500 psi lengthwise, and 1250 psi crosswise, with a maximum 350 percent elongation.
 - 3. Detectable Warning Tape for Non-Metallic Piping: Polyethylene plastic tape conforming to the width, color, and printing requirements specified above. Minimum thickness of the tape shall be 0.004 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise. Tape shall be manufactured with integral wires, foil backing, or other means of enabling detection by a metal detector when tape is buried up to 920 mm 3 feet deep. Encase metallic element of the tape in a protective jacket or provide with other means of corrosion protection.

2.3 DETECTION WIRE FOR NON-METALLIC PIPING

- A. Detection wire shall be insulated single strand, solid copper with a minimum of 12 AWG.

PART 3 - EXECUTION

3.1 GENERAL:

- A. Prior to commencement of work, become thoroughly familiar with site conditions.
- B. In the event discrepancies are found, immediately notify the Owner's Representative in writing, indicating the nature and extent of differing conditions.
- C. Backfill excavations as promptly as work permits.

- D. Do not place engineered fill or backfill until rubbish and deleterious materials have been removed and areas have been approved by the Owner's Representative.
- E. Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
- F. In excavations, use satisfactory excavated or borrow material.
- G. Under grassed areas, use satisfactory excavated or borrow material.

3.2 COMPACTING:

- A. Compact by power tamping, rolling or combinations thereof.
 - 1. Where impractical to use rollers in close proximity to walls, stairs, etc., compact by mechanical tamping.
 - 2. Scarify and re-compact any layer not attaining compaction until required density is obtained.

3.3 SITE PREPARATION:

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, which are to remain, from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the Owner.

3.4 EXISTING UTILITIES:

- A. Identify the location of existing utilities.
 - 1. Prior to trenching, the Contractor shall excavate at locations specifically indicated on the Drawings, if any, and where new lines cross other utilities of uncertain depth and determine the elevation of the utility in question to ensure that the new line will clear the potential obstruction.
 - 2. The Contractor shall contact Underground Service Alert (USA) at 811 for assistance in locating existing utilities.
 - 3. If, after the excavation, a crossing utility does present an obstruction, then the line and grade of the new line will be adjusted as directed by the Engineer of Record to clear the utility.
- B. Protect all existing utilities to remain in operation.
- C. Movement of construction machinery and equipment over existing pipes and utilities during construction shall be at Contractor's risk.
- D. Excavation made with power-driven equipment is not permitted within 2 feet of any known utility or subsurface structure.
 - 1. Use hand or light equipment for excavating immediately adjacent to known utilities or for excavations exposing a utility or buried structure.
 - 2. Start hand or light equipment excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured.
 - 3. Support uncovered lines or other existing work affected by excavation until approval for backfill is obtained.
 - 4. Report damage of utility line or subsurface structures immediately to the Owner's Representative.

E. Backfill trenches resulting from utility removal in accordance with this section.

3.5 TRENCH EXCAVATION

A. General:

1. Excavation shall include removal of all water and materials that interfere with construction. The Contractor shall remove any water which may be encountered in the trench by pumping or other methods during the pipe laying, bedding and backfill operations. Material shall be sufficiently dry to permit approved jointing.
2. Excavation shall include the construction and maintenance of bridges required for vehicular and pedestrian traffic, support for adjoining utilities.
3. The Contractor shall be responsible to safely direct vehicular and pedestrian traffic through or around his/her work area at all times.
4. The Contractor shall relocate, reconstruct, replace or repair, at his/her own expense, all improvements which are in the line of construction or which may be damaged, removed, disrupted or otherwise disturbed by the Contractor.

B. Existing Paving and Concrete:

1. Existing pavement over trench shall be saw cut, removed, and hauled away from the job. Existing pavement shall be neatly saw cut a minimum of 6-inches beyond the limits of excavations.
2. Existing concrete over the trench shall be saw cut to a full depth in straight lines either parallel to the curb or right angles to the alignment of the sidewalk.
3. Boards or other suitable material shall be placed under equipment outrigging to prevent damage to paved surfaces.

C. Trench Width:

1. The maximum allowable trench widths at the top of the pipe shall be as follows:

<u>Pipe Type</u>	<u>Trench Width (Maximum)</u>
Copper	Outside diameter of barrel plus 24 inches
Plastic	"
Vitrified Clay	"
Cast-Iron	Outside diameter of barrel plus 24 inches
Ductile-Iron Reinforced Concrete	"

- a. The maximum trench width shall be inclusive of all shoring.
 - b. If the maximum trench width is exceeded, the Owner's Representative or Inspector of Record may direct the Contractor to encase or cradle the pipe in concrete at no additional charge.
2. For pipes 3 inch diameter and larger, the free working space on each side of the pipe barrel shall not be less than 6 inches.

A. Open Trench:

1. The maximum length of open trench shall be 300 feet or the distance necessary to accommodate the amount of pipe installed in a single day, whichever is greater. No trench shall be left open at the end of the day.
2. Provisions for trench crossings and free access shall be made at all street crossings, driveways, water gate valves, and fire hydrants.

- B. Excavation Bracing:
1. The excavation shall be supported and excavation operations shall be conducted in accordance with the California Industrial Accident Commission and CAL/OSHA.
 2. The Contractor shall, at his/her own expense, furnish, put in place, and maintain such sheeting and bracing as may be required to support the sides of all excavations (whether above or below the pipe grade), and to prevent any movement which could in any way diminish the required trench section or otherwise injure or delay the work. The sheeting and bracing shall be withdrawn in a manner such as to prevent any earth movement that might overload the pipe.
- C. Excavated Material:
1. All excavated material not required for backfill shall be immediately removed and properly disposed of in a legal manner by the Contractor.
 2. Material excavated in streets and roadways shall be laid alongside the trench no closer than 2 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.

3.6 PIPE BEDDING

- A. Bedding Excavation: The trench shall be excavated below the grade of the pipe bottom to the following minimum depths:

<u>Pipe Type</u>	<u>Depth</u>
Copper	3 inch
Reinforced Concrete	3 inch
Plastic: 2 inch diameter and smaller	3 inch
Cast/Ductile Iron	6 inch
Plastic: over 2 inch diameter	6 inch

1. Stabilization of Trench Bottom: When the trench bottom is unstable due to wet or spongy foundation, trench bottom shall be stabilized with gravel or crushed rock. The Inspector of Record will determine the suitability of the trench bottom and the amount of gravel or crushed rock needed to stabilize a soft foundation. Soft material shall be removed and replaced with gravel or crushed rock as necessary.
2. Placement of Bedding Material: The trench bottom shall be cleaned to remove all loose native material prior to placing pipe bedding material. Pipe bedding shall be trench sand or trench gravel, as defined in these specifications. Sufficient pipe bedding material shall be placed in trench and tamped to bring trench bottom up to grade of the bottom of pipe, plus 1/8th of the pipe diameter. The relative compaction of tamped material shall be not less than 90 percent. It is the intention of these requirements to provide uniform bearing under the full length of pipe to a minimum width of 60 percent of the external diameter

3.7 TRENCH BACKFILL

- A. Initial Backfill:
1. Prior to trench backfill, the condition of the trench and lying of pipe must be inspected and approved by the Inspector of Record.

2. Trench Sand or Trench Gravel shall be used for initial backfill. After the pipe has been properly laid and inspected, initial backfill material shall be placed on both sides of the pipe and compacted to final depth as follows:

<u>Pipe Type</u>	<u>Depth</u>
Copper	6 inches above top of pipe
Cast Iron	6 inches above top of pipe
Plastic: less than 6 inches diameter	6 inches above top of pipe
Plastic: 6 inches diameter and larger	12 inches above top of pipe
Ductile Iron	12 inches above top of pipe
Reinforced Concrete	1/2 outside diameter of pipe (pipe spring line)

3. Compaction: Initial backfill compaction shall be by mechanical means. The initial backfill material shall be hand tamped in layers not exceeding 4 inches in uncompacted 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 not less than 90 percent.
4. Pipe Detection: In trenches containing pressurized plastic pipes, tracer wire shall be placed directly above the pipe and shall be connected to all valves, existing exposed tracer wires, and other appurtenances as appropriate.

B. Subsequent Backfill:

1. Subsequent backfill material shall consist of approved native material, imported fill, or Class II AB conforming to these specifications.
2. Structure and utility trench backfill should be moisture conditioned, placed in lifts eight inches or less in loose thickness, and mechanically compacted to at least 90 percent relative compaction except the relative compaction shall not be less than 95 percent within 2-1/2 feet of finished permanent surface grade or 1-1/2 feet below the finished subgrade, whichever is greater; jetting will not be permitted. The moderately expansive clay soils exposed in trenches should not be allowed to dry out prior to placement of trench backfill materials.
3. It must be the contractor's responsibility to select equipment and procedures that will accomplish the grading as described above. He/she must organize his/her work in such a manner that the Soil Engineer can test and/or observe each element of grading.

C. Controlled Low Strength Material (CLSM):

5. CLSM is permitted at Engineer of Records discretion or where indicated on the contract documents.

D. Jetting and Ponding:

1. Jetting of trench backfill is not permitted.

E. Compaction Testing:

1. Compaction testing shall be in accordance with California Test Method ASTM D1556 or D1557.

3.8 TRENCH SURFACING

A. Unpaved Areas:

1. In unimproved areas, the trench surface shall be restored to its original condition. No mounds of earth shall be left along the trench. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
2. Where completed compacted areas are disturbed by subsequent construction operation or adverse weather, scarify surface, reshape, compact to required density and provide other corrective work, including retesting, prior to further construction.
- B. Temporary Surfacing:
 1. Temporary surfacing shall be a minimum of 2 inches of cutback asphalt on 10 inches of Class 2 aggregate base and shall be placed at all trench locations subject to vehicular or pedestrian traffic.
 3. Temporary surfacing shall be laid within one day after backfilling (except where the Contractor elects to place permanent surfacing within this time period).
 4. Before the trenching area is opened for traffic, all excess dirt, rock, and debris shall be removed, the street surface shall be swept clean and the pavement shall be washed down with a water truck and pressure nozzle.
 5. Temporary surfacing shall be maintained to prevent the occurrence of mud holes and prevent the surface from settling below 1 inch or rising more than 1 inch from the existing pavement grade.
- 3.9 MOISTURE CONTROL:
 - A. Do not resume operations until moisture content and fill density are satisfactory to the Engineer.
- 3.10 DISPOSAL OF EXCESS AND WASTE MATERIALS:
 - A. Removal of Excess Excavated Material: Excess material shall be removed by the Contractor off the site in a legal manner.
- 3.11 FIELD QUALITY CONTROL:
 - A. Testing Services: Allow testing agency to test each backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
 - B. When testing agency reports that backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, re-compact and retest until required density is obtained.
- 3.12 PROTECTION:
 - A. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
 - B. Where completed compacted areas are disturbed by subsequent construction operation or adverse weather, scarify surface, reshape, compact to required density and provide other corrective work, including retesting, prior to further construction.
- 3.13 CLEAN-UP:
 - A. Remove all debris, equipment, tools and materials upon completion prior to final inspections to the satisfactions of the engineer.
 - B. In unpaved areas without landscaping, cover with straw erosion control blanket. Follow manufacturer's recommendations for installation. Provide and place straw wattles or biodegradable fiber logs across the slope at the midpoint and along the downhill edge of site. No soil is to be left uncovered at the completions of construction.

END OF SECTION

SECTION 32 12 33
PAVING AND SURFACING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes (but is not necessarily limited to):
 - 1. Asphalt Concrete Paving.
 - 2. Portland Cement Concrete Paving.
 - 3. Liquid Asphalt and Asphalt Emulsion.
 - 4. Aggregate Base.
 - 5. Sealants
- B. Related work furnished under other sections but conforming to the provisions of this section:
 - 1. Subgrade preparation.
 - 2. Aggregate Base installation.
- C. Related Sections:
 - 1. Section 31 10 00 – SITE PREPARATION AND DEMOLITION.
 - 2. Section 31 22 00 – EARTHWORK AND GRADING.
 - 3. Section 32 17 23 – PAVEMENT MARKING.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. A615: Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 2. C150: Portland Cement.
 - 3. D1557: Moisture Unit Weight Relations of Soils and Aggregate Mixtures Using a 10 lb (4.5 kg) Rammer and 18 in. (457 mm) Drop.
 - 4. D1682: Breaking Loads and Elongation of Textile Fabrics.
- B. California Code of Regulations (CCR): Title 24, Chapter 2-71, Site Development Requirements for ADA Accessibility.
- C. California Department of Transportation (Caltrans):
 - 1. Standard Specifications:
 - a. Section 20-10: Decomposed Granite.
 - b. Section 24: Stabilized Soils.
 - c. Section 26: Aggregate Bases.
 - d. Section 37: Bituminous Seals.
 - e. Section 39: Asphalt Concrete.
 - f. Section 40: Concrete Pavement.
 - g. Section 41: Concrete Pavement Repair.
 - h. Section 51: Concrete Structures.
 - i. Section 52: Reinforcement.
 - j. Section 73: Concrete Curbs and Sidewalks.
 - k. Section 88: Geosynthetics.
 - l. Section 90: Portland Cement Concrete.
 - m. Section 92: Asphalts.
 - n. Section 93: Liquid Asphalts.

- o. Section 94: Asphaltic Emulsions.
 - p. Section 95: Epoxy
 - 2. Traffic Manual.
 - 3. Highway Design.
 - D. Institute of Transportation Engineers: Transportation and Traffic Engineering Handbook.
 - E. American Concrete Institute Manual of Practice.
 - F. Interlocking Concrete Pavement Institute (ICPI).
- 1.3 SUBMITTALS
- A. Requirements: Refer to Section 01 33 00 – SUBMITTAL PROCEDURES.
 - B. Asphalt Concrete Paving:
 - 1. Provide copies of material certificates signed by the material producer and the Contractor, certifying that each material item complies with or exceeds specified requirements.
 - 2. The Contractor shall furnish a certified weight or load slip for each load of material used in the construction of the asphalt concrete pavement.
 - C. Concrete Paving: The Contractor shall furnish mill test reports on the cement, reinforcement bars, and aggregates, showing compliance with the respective specifications. The Testing Engineer may make concrete test cylinders and slump tests as deemed necessary to determine compliance with the Specifications.
 - D. Liquid Asphalt.
 - E. Pavement Reinforcement Fabric.
 - F. Tack Coat.
 - G. Pavement Reinforcement Mesh.
 - H. Structural Geotextile Fabric.
 - I. Concrete Pavers.
 - J. Slurry Seal.
 - K. Joint Sealants.
 - L. Backer Rod.
 - M. Joint Filler.
 - N. Epoxy Crack Filler.
 - O. Bonding Epoxy.
 - P. Concrete Quality Control Plan. Inclusive of the following: [NTE: Submittal requirement shall be evaluated based on scale of project]
 - Placing and timing of joints including a location plan for all joints
 - Bar placement, alignment
 - Concrete placement methods
 - Finishing and curing methods and timing.
 - Joint sealants and timing of placement
- 1.4 PROJECT CONDITIONS
- A. Liquid Asphalt and Asphalt Emulsion:
 - 1. Seal coat and paint binder shall be applied only when the ambient temperature is above 50° Fahrenheit and when temperature has not been below 35° Fahrenheit for 12 hours immediately prior to application.

2. Fog coat, seal coat, and paint binder shall not be applied when base or surfaces are wet or contain excess moisture.
- B. Asphalt Concrete Paving: Asphalt concrete surfaces shall be constructed only when ambient temperature is above 50° Fahrenheit and when base is dry.
- C. Portland Cement Concrete: Concrete shall be placed when the conditions will yield satisfactory results and when the ambient temperature will be above 40°F for 72 hours after placement with no threat of precipitation.
- D. Joint Sealants: Sealants shall be placed per the manufacturers recommendations and when temperature is above 40°F for 2 days after and no threat of precipitation.

PART 2 - PRODUCTS

2.1 PAVING MATERIALS

- A. Aggregate Base: Aggregate base shall conform to Caltrans Class 2 (R value 78 min) aggregate base, 3/4" maximum size, as specified in Section 26 of the Caltrans Standard Specifications.
- B. Asphalt Concrete Paving:
 1. Shall be Type A HMA, conforming to Section 39-2.02B of the Caltrans Standard Specifications.
 2. Asphalt binder to be mixed with aggregate shall be performance-graded asphalt, PG64-10, conforming to Section 92 of the Caltrans Standard Specifications.
 3. Aggregate size shall be as follows:

Total AC Thickness	Min # of AC lifts	Aggregate Grading
3/4 inch - 1 1/2 inch	1	1/2" max
2 inch - 2 1/2 inch	1	1/2" max
3 inch or greater	2	1/2" max for top lift and 3/4" max for initial lifts
 4. If multiple lifts, apply a tack coat before placing a subsequent lift.
 5. Asphaltic emulsion for paint binder, fog coat, and seal coat shall be emulsified asphalt, Type SS-1h, conforming to Section 94 of the Caltrans Standard Specifications
- C. Portland Cement Concrete:
 1. Concrete shall be minor concrete conforming to Section 90-2 of the Caltrans Standard Specifications, except as modified by these specifications.
 2. Concrete Pavement shall contain a minimum of 505 lbs/yard of cementitious material.
 3. Cement shall be a combination of Type II or Type V Portland cement and supplemental cementitious materials conforming to Section 90-1.02B of the Caltrans Standard Specifications.
 4. For minor concrete, the maximum aggregate size must not be larger than 1-1/2 inches or smaller than 3/4 inch, per Section 90-2.02C of the Caltrans Standard Specifications.
 5. Water shall be potable and free of organic matter and injurious amounts of oil, acid, alkali, or other deleterious substances.
 6. Unless otherwise noted on the plans the concrete mix design shall provide a minimum compressive strength of 3,000 psi at 28 days.

7. Supplementary Cementitious Materials (SCM) shall comply with Section 90-1.02B(3) of the Caltrans Standard Specifications including chemical properties, physical properties, and proportioning.
 8. Reinforcing bars shall be deformed and shall conform to ASTM A615.
 9. Filled joints, unless noted otherwise on the Drawings, shall be 1/4-inch wide, the full depth of the concrete section and conforming to Section 51 of the Caltrans Standard Specifications.
 10. Joint filler shall conform to Section 51 of the Caltrans Standard Specifications for pre-molded expansion joint filler and expanded polystyrene joint filler.
 11. No admixtures will be allowed without prior approval of the Engineer of Record.
 - D. Epoxy shall meet the requirements of Section 95 of the Caltrans Standard Specifications.
 1. Epoxy used to bond dowels to hardened concrete shall be Type 1, Grade 1, Class B or C per ASTM C881.
 2. For high strength applications epoxy shall be Type IV.
 - E. Pavement Reinforcement Fabric: Pavement reinforcement fabric shall meet Caltrans Section 96-1.02J. BP Petromat, or approved equivalent.
 - F. Crack Sealant:
 1. Crack sealant shall be rubberized hot-pour type and shall meet ASTM D 3405. Husky 1611, or approved equivalent.
 2. Blotting Agent shall be one of: Screened sand, cement, or fly ash.
 - G. Tack coat: Tack coat shall meet Caltrans Section 39-2.01B(10).
 - H. Pavement reinforcement mesh: Pavement reinforcement mesh for use in overlays shall be Glasgrid Model 8501, or approved equivalent.
 - I. Structural geotextile fabric: Structural geotextile fabric shall be Mirafi 500X, or approved equivalent.
 - J. Joint Sealant:
 1. Dow Corning 890-SL or approved silicone sealant conforming to ASTM D5893, C639, C1183, C679, C792, C66 and C792.
 2. Conform to Caltrans Section 41-5.02B.
 - K. Backer Rod
 1. Backer Rod shall be expanded, cross-linked, crossed-cell polyethylene foam conforming to ASTM D5249, Type I.
 2. Rod diameter shall be 25% greater than the saw cut joint width
- 2.2 BITUMINOUS SEALS
- A. Fog Seal: Fog Seal asphaltic emulsion shall conform to Caltrans Section 37-4.02.
 - B. Flush Coat: Flush Coat asphaltic emulsion shall conform to Caltrans Section 37-4.03. Sand for the flush coat shall comply with the fine aggregate grading in Caltrans Section 90-1.02C(3), sand must be free of organic material or clays.
 - C. Slurry Seal: Slurry seal shall conform to Caltrans Section 37-3.02B, and be Type II unless otherwise specified.
 - D. Chip Seal: Chip seal shall conform to Caltrans Section 37-2 for polymer modified asphaltic emulsion seal coat and included screenings per Caltrans Section 37-2.01B.
 - E. Crack Sealant: Crack Sealant shall conform to Caltrans Section 37-6.02, Type 2, unless otherwise specified.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Subgrade and Aggregate Base:
 - 1. Prepare subgrade and over excavate per Section 31 22 00 –EARTHWORK AND GRADING.
 - 2. Aggregate base shall be compacted to 95 percent ASTM D1557. Section 26-1.03E of the Caltrans Standard Specifications shall apply.
 - 3. Soil sterilant shall be applied to prepared subgrade or after installation of rock or aggregate base uniformly at the rate recommended by the manufacturer.
- B. Crack Sealing:
 - 1. Before sealing, cracks shall be cleared of dirt, dust, and all other deleterious materials to a depth of 1/4-inch to 1/2-inch.
 - 4. Cracks 1/8-inch in width and greater shall be sealed.
 - 5. Application of crack sealer shall be in accordance with the manufacturer's recommendations unless otherwise directed.

3.2 ASPHALT CONCRETE PAVING

- A. General:
 - 1. Asphalt concrete shall be proportioned, mixed, placed, spread, and compacted in conformance with Section 39 of the Caltrans Standard Specifications.
 - 2. Before placing asphalt concrete, an asphalt emulsion tack coat shall be applied to all vertical surfaces of existing pavement, curbs, gutters, construction joints, and all existing pavement to be surfaced, in conformance with Section 39 of the Caltrans Standard Specifications.
 - 3. Spreading and compacting asphalt concrete shall be performed in accordance with Section 39 of the Caltrans Standard Specifications.
 - 4. Fog seal shall be applied to all finished surfaces of asphalt concrete pavement at a rate of 0.05 gallons per square yard, in accordance with Section 37 of the Caltrans Standard Specifications.
 - 5. After fog seal has been applied, ample time shall be allowed for drying before traffic is allowed on the pavement or paint striping is applied.

3.3 CONCRETE CONSTRUCTION

- A. General:
 - 1. All concrete shall be mixed in accordance with applicable provisions of Section 90 of the Caltrans Standard Specifications.
 - 2. Construction of concrete substructures shall conform to applicable provisions of Section 51 of the Caltrans Standard Specifications. Unless noted otherwise in the Specifications, all exposed surfaces of structure shall have Class 1 surface finish. Finish shall match adjacent existing concrete paving.
 - 3. Schedule of Locations for Concrete Finish Types, unless otherwise specified:
 - a. Slabs or Stairs to receive toppings and fills: Scratched.
 - b. Exposed Stairs Fills: Nonslip.
 - c. Exterior Paved Areas: Light Broomed.
 - d. Formed Surface to receive paint: Smooth Formed.
 - e. Concealed Concrete Surfaces: Rough Formed.

4. Curing shall conform to provision of Caltrans Section 90-1.03B. No pigment shall be used in curing compounds for construction of concrete curbs, gutters, and structures.
5. All work shall be subject to field inspection. No concrete shall be placed until the Program Manager has approved the forms and reinforcement.
6. Expansion joints on curbs and gutters shall be placed 20 feet on centers, adjacent to structures, and at all returns, and shall be filled with joint filler. Control joints shall be formed 10 feet on centers.
7. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than 6 feet. Spouts, elephant trunks, or other approved means shall be used to prevent segregation.

B. Vehicular Concrete Pavement

1. All vehicular concrete pavement shall meet the requirements of Section 40 of the Caltrans Standard Specifications.
2. Contraction Joints shall be a minimum $\frac{1}{3}$ of the pavement thickness.
3. Joints shall be no less than 5 feet apart and no greater than 15 feet apart.
4. Joints shall make rectangular panels generally square but in no case shall the dimensional ratio exceed 1.5 to 1.
5. Timing of the joint placement is critical. Sawcut Joints must be placed as soon as the concrete can support the sawing equipment and must be completed prior to the start of volunteer cracking. The contractor is responsible for the timing of joint placement. Typical sawcut joints would be expected to be placed 4-12 hours after concrete placement.

3.4 BITUMINOUS SEALS

A. General:

1. Mixing, spreading and placing shall be in accordance with applicable provisions of Section 37 of the Caltrans Standard Specifications.

3.5 SEALANTS AND BACKER ROD

A. General: Where indicated on the plans and/or specifications, Contractor shall seal joints with a sealant and backer rod.

1. Width and depth of joints shall meet project requirements and accommodate sealant and backer rod in conformance with Manufactures requirements.
2. Placements and shall conform to Manufactures requirements.

3.6 FIELD QUALITY CONTROL

A. Asphalt Concrete Paving:

1. Contractor shall perform a flood test in the presence of the engineer and/or Owner's Representative. Location of ponding greater than $\frac{1}{8}$ " in depth may impact proper drainage and shall be marked and remedied by the contractor.
2. The specified thickness of the finished pavement shown on the plans and specifications shall be the minimum acceptable.
3. Conforms shall form a smooth, pond-free transition between existing and new pavement.

4. Depressions in paving between high spots are not to exceed 1/8-inch when measured below a 10-foot long straight-edge placed anywhere on surface in any direction.
5. The finished asphalt pavement shall have positive drainage without ponding.

3.7 CLEANUP

A. General:

1. Surplus material remaining upon completion of paving operations shall become the property of the Contractor, to be removed from the work site and disposed of in a lawful manner.
2. Surfaces shall be left in a clean, neat, and workmanlike condition, and all construction waste, rubbish, and debris shall be removed from the work site and disposed of in a lawful manner.

END OF SECTION

SECTION 33 10 00

WATER SYSTEMS

PART 1 - PART 1 - GENERAL

1.1 SUMMARY

- A. This section describes general requirements, products, and methods of execution relating to on-site domestic water and fire water systems serving all buildings and appurtenances. Unless otherwise noted, this section does not apply to irrigation water systems and water systems inside and within 5 feet of buildings. This section applies to:
 - 1. Domestic water distribution and services.
 - 2. Fire water distribution and services.
 - 3. Water storage tanks.
- B. Contractor shall provide all labor, equipment, materials, and testing services unless otherwise noted.
- C. Related Sections:
 - 1. Section 31 23 33 – TRENCHING, BACKFILLING, AND COMPACTING.

1.2 SUBMITTALS

- A. Comply with requirements of Section 01 33 00 – SUBMITTAL PROCEDURES.
- B. Product Data: Manufacturer's literature and data, including, where applicable, sizes, pressure rating, rated capacity, listing/approval stamps, labels, or other marking on equipment made to the specified standards for materials, and settings of selected models, for the following:
 - 1. Piping and fittings.
 - 2. Gaskets, couplings, sleeves, and assembly bolts and nuts.
 - 3. Gate valves and ball valves.
 - 4. Blow-off valves, air release and vacuum valves, and combination air valves.
 - 5. Check valves.
 - 6. Pressure reducing valves.
 - 7. Backflow preventers.
 - 8. Valve boxes, frames and covers.
 - 9. Water meter boxes, frames and covers.
 - 10. Post indicators.
 - 11. Fire department connections and wet stand pipes.
 - 12. Fire hydrants.
 - 13. Thrust block concrete mix and/or restrained joints and fittings.
 - 14. Tapping sleeves and tapping valves.
 - 15. Service saddles and corporation stops.
 - 16. Identification materials and devices.
 - 17. Corrosion protection.
 - 18. Water sampling stations.
 - 19. Water storage tanks.
- C. Test Reports:
 - 1. Bacteriologic Testing: Provide copies of the test results indicating water sample meets California Drinking Water Standards.

D. Samples: None specified. Provide as necessary.

1.3 QUALITY ASSURANCE

A. Comply with the latest edition of the following Standards and Regulations:

1. American Water Works Association (AWWA) and American National Standards Institute (ANSI):
 - a. C104/A21.4 ANSI Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
 - b. C105/A21.5 ANSI Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
 - c. C110/A21.10 ANSI Standard for Ductile-Iron and Gray-Iron Fittings, 3 inch - 48 inch for Water.
 - d. C111/A21.11 ANSI Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - e. C115/A21.15 ANSI Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
 - f. C116/A21.16 ANSI Standard for Protective Fusion-Bonded Epoxy Coatings Interior & Exterior Surfaces for Ductile-Iron and Gray-Iron Fittings.
 - g. C150/A21.50 ANSI Standard for Thickness Design of Ductile-Iron Pipe.
 - h. C151/A21.51 ANSI Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.
 - i. C153/A21.53 ANSI Standard for Ductile-Iron Compact Fittings for Water Service.
 - j. C500 Metal-Seated Gate Valves for Water Supply Service.
 - k. C502 Dry-Barrel Fire Hydrants.
 - l. C503 Wet-Barrel Fire Hydrants.
 - m. C504 Rubber-Seated Butterfly Valves.
 - n. C507 Ball Valves, 6 inches - 48 inches.
 - o. C508 Swing-Check Valves for Waterworks Service, 2 inches - 24 inches NPS.
 - p. C509 Resilient-Seated Gate Valves for Water Supply Service.
 - q. C510 Double Check Valve Backflow Prevention Assembly.
 - r. C511 Reduced-Pressure Principle Backflow Prevention Assembly.
 - s. C512 Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.
 - t. C550 Protective Epoxy Interior Coating for valves and Hydrants.
 - u. C600 Installation of Ductile-Iron Water Mains and their Appurtenances.
 - v. C602 Cement- Mortar Lining of water Pipelines in place- 4 inches and larger.
 - w. C605 Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
 - x. C651 Disinfecting Water Mains
 - y. C652 Disinfection of Water-Storage Facilities
 - z. C800 Underground Service Line Valves and Fittings for 1/2 inches - 2 inches.
 - aa. C900 Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 inches - 12 inches, for Water Distribution.
 - bb. C901 Polyethylene (PE) Pressure Pipe and Tubing, 1/2 inches through 3 inches, for Water Service.

- cc. C905 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 inches - 48 inches.
- dd. C906 Polyethylene (PE) Pressure Pipe and Fittings, 4 inches - 63 inches, for Water Distribution and Transmission.
- ee. C907 Polyvinyl Chloride (PVC) Pressure Fittings for Water, 4 inches - 8 inches.
- ff. C908 PVC Self-Tapping Saddle Tees for Use on PVC Pipe.
- gg. D103 Factory-Coated Bolted steel Tanks for water Storage.
- 2. National Fire Protection Association (NFPA):
 - a. NFPA 13 Standard for the Installation of Sprinkler Systems.
 - b. NFPA 14 Standard for the Installation of Standpipe, Private Hydrants, and Hose Systems.
 - c. NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection.
 - d. NFPA 22 Standard for Water Tanks for Private Fire Protection.
 - e. NFPA 24 Private Service Mains and their Appurtenances.
 - f. NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
- 3. Uni-Bell Plastic Pipe Association (UNI).
 - a. PUB 3 PVC Pipe – Technology Serving the Water Industry.
 - b. PUB 7 External Corrosion of Underground Water Distribution Piping Systems.
 - c. PUB 8 Tapping Guide for AWWA C900 Pressure Pipe.
 - d. PUB 9 Installation Guide for PVC Pressure Pipe.
 - e. B-8 Recommended Practice for the Direct Tapping of Polyvinyl Chloride (PVC) Pressure Water Pipe (Nominal Diameters 6-12 inch).
- 4. American Society of Testing and Materials (ASTM).
 - a. ASTM A536 Standard Specification for Ductile Iron Castings.
 - b. ASTM A674 Standard Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids.
 - c. ASTM D1785 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 - d. ASTM D2241 Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe.
 - e. ASTM D2466 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
 - f. ASTM D2564 Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
 - g. ASTM D2683 Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing.
 - h. ASTM D3139 Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 - i. ASTM D3261 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
 - j. ASTM D3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

- k. ASTM F477 Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- l. ASTM F1055 Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing.
- m. ASTM F1056 Standard Specification for Socket Fusion Tools for Use in Socket Fusion Joining Polyethylene Pipe or Tubing and Fittings.
- n. ASTM A53/A53M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- o. ASTM A795 Standard Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection Use.
- p. ASTM A865 Standard Specification for Threaded Couplings, Steel, Black or Zinc-Coated (Galvanized) Welded or Seamless, for Use in Steel Pipe Joints.
- q. ASTM B88 Standard Specification for Seamless Copper Water Tube.
- 5. American Society of Mechanical Engineers (ASME).
 - a. ASME B16 series for valves, fittings, flanges, and gaskets applicable for use in water systems.
 - b. ASME B1.20.1 American Standard Tapered Pipe Threads for factory-threaded pipe and pipe fittings.
- 6. National Sanitation Foundation (NSF).
 - a. NSF/ANSI 14 Plastics Piping System Components and Related Materials.
 - b. NSF/ANSI 61 Standard for Drinking Water Systems Components – Health Effects.
- 7. Underwriters Laboratories, Inc. (UL).
 - a. UL 157 Standard for Safety for Gaskets and Seals.
 - b. UL 194 Standard for Safety for Gasketed Joints for Ductile-Iron Pipe and Fittings for Fire Protection Service.
 - c. UL 213 Rubber Gasketed Fittings for Fire-Protection Service.
 - d. UL 246 Standard for Safety for Hydrants for Fire-Protection Service.
 - e. UL 262 Standard for Safety for Gate Valves for Fire-Protection Service.
 - f. UL 312 Standard for Safety for Check Valves for Fire-Protection Service.
 - g. UL 405 Standard for Safety for Fire Department Connections.
 - h. UL 448 Standard for Safety for Pumps for Fire-Protection Service.
 - i. UL 789 Standard for Safety for Indicator Posts for Fire-Protection Service.
 - j. UL 860 Pipe Unions for Flammable and Combustible Fluids and Fire-Protection Service.
 - k. UL 1091 Standard for Safety for Butterfly Valves for Fire-Protection Service.
 - l. UL 1285 Pipe and Couplings, Polyvinyl Chloride (PVC), for Underground Fire Service.
 - m. UL 1468 Direct Acting Pressure Reducing and Pressure Restricting Valves.
 - n. UL 1478 Standard for Safety for Fire Pump Relief Valves.
- 8. FM Global (FM).
 - a. FM 1020 Automatic Water Control Valves.
 - b. FM 1045 Waterflow Detector Check Valves.
 - c. FM 1110 Indicator Posts.
 - d. FM 1111 Post-Indicator-Valve-Assembly.

- e. FM 1112 Indicating Butterfly Valves.
- f. FM 1120 and FM 1130 Fire Service Water Control Valves (OS&Y and NRS Type Gate Valves).
- g. FM 1210 Swing Check Valves.
- h. FM 1221 Backflow Preventers (Reduced Pressure Principle and Double Check Valve Types).
- i. FM 1311 Centrifugal Fire Pumps (Horizontal, Split-Case Type).
- j. FM 1312 Centrifugal Fire Pumps (Vertical-Shaft, Turbine Type).
- k. FM 1319 Centrifugal Fire Pumps (Horizontal, End Suction Type).
- l. FM 1361 Water Pressure Relief Valve.
- m. FM 1362 Pressure Reducing Valves.
- n. FM 1371 Centrifugal Fire Pumps (In-Line Type).
- o. FM 1510 Fire Hydrants (Dry Barrel Type) for Private Fire Service.
- p. FM 1511 Fire Hydrants (Wet Barrel Type) for Private Fire Service.
- q. FM 1530 Fire Department Connections.
- r. FM 1610 Plastic Pipe & Fittings for Underground Fire Protection Service.
- s. FM 1620 Pipe Joints & Anchor Fittings for Underground Fire Service Mains.
- 9. Plastics Pipe Institute (PPI).
 - a. Underground Installation of Polyethylene Pipe.
 - b. Polyethylene Joining Procedures.
 - c. Inspections, Test and Safety Considerations.
- 10. American Association of State Highway and Transportation Officials (AASHTO) for H2O Loading.
- 11. American Concrete Institute (ACI).
 - a. ACI 348 - Meter Pit Construction.
- 12. State Fire Marshall (SFM) Specifications and Details.
- 13. Other authorities having jurisdiction.
- B. System Description: Grades and elevations are to be established with benchmarks referenced on Plans.
- C. Comply with SFM Standards and authorities having jurisdiction for the installation and testing of potable water piping and fire protection systems.
- D. Comply with SFM Standards and authorities having jurisdiction for the installation, testing and separation requirements of recycled/reclaimed water piping and fire protection systems.
- E. All testing of systems specified in this section shall be witnessed by representatives of the local water department or local authority. Provide at least 7 days notice.

PART 2 - PRODUCTS

2.1 PIPING

- A. Water Distribution Main (pipe size 4 inches and larger).
 - 1. Ductile Iron Pipe (DIP): Pressure Class 350 pipe conforming to AWWA/ANSI C151/A21.5, cement-mortar lining conforming to AWWA/ANSI C104/A21.4, with standard thickness per AWWA/ANSI C150/A21.50. U.S. Pipe, American Cast Iron Pipe Company (ACIPCO), or approved equivalent.
 - a. Flanged ends shall conform to AWWA/ANSI C115/A21.15.

- b. Rubber-gasket joints shall conform to AWWA/ANSI C111/A21.11.
- 2. Polyvinyl Chloride Pipe (PVC): Pressure Class 235, DR 18, spigot and gasket bell end, conforming to AWWA C900 or AWWA C905, with equivalent cast-iron pipe outer diameter (O.D.). J-M Manufacturing, PW Pipe, North American Pipe Company, or approved equivalent.
- 3. Polyethylene Pipe (PE): PE 4710, ASTM F714, Pressure Class 200, DR 9, conforming to AWWA C906, or approved equivalent.
- B. Water Service Line (pipe size 3 inches and smaller)
 - 1. Copper (Cu): Provide Type K soft or hard copper pipe conforming to ASTM B88.
 - 2. High Density Polyethylene Pipe (HDPE): PE4710, Pressure Class 200, DR 9 conforming to AWWA C901. J-M Manufacturing PIPE or approved equivalent.
- C. Recycled/Reclaimed Water piping shall be purple.

2.2 FITTINGS, GASKETS, COUPLINGS, SLEEVES, AND ASSEMBLY BOLTS AND NUTS

- A. For DIP: Provide fittings with pressure rating greater than or equal to that of the pipe. Provide flanged joints, mechanical joints, push-on joints, and insulating joints where indicated. Fittings with push-on joint ends shall conform to the same requirements as fittings with mechanical-joint ends. Provide mechanically coupled type joints using a sleeve-type mechanical coupling where indicated. Provide ends of pipe and fittings suitable for the specified joints. Fittings shall have cement-mortar lining conforming to AWWA/ANSI C104/A21.4.
 - 1. Flanged Joints: Provide bolts, nuts, and gaskets in conformance with AWWA/ANSI C115/A21.15. Flanged fittings shall conform to AWWA/ANSI C110/A21.10 or C153/A21.53.
 - a. Provide flange for set screwed flanges of ductile iron, ASTM A536, Grade 65-45-12, and conform to the applicable requirements of ASME B16.1, Class 250.
 - b. Provide setscrews for set screwed flanges of 190,000 psi tensile strength, heat treated and zinc-coated steel.
 - c. Gaskets for set screwed flanges shall conform to the applicable requirements for mechanical-joint gaskets specified in AWWA/ANSI C111/A21.11.
 - d. Design of set screwed gaskets shall provide for confinement and compression of gasket when joint to adjoining flange is made.
 - e. Unless otherwise required, above ground flange assembly bolts shall be standard hex-head, cadmium plated machine bolts with American Standard Heavy, hot-pressed, cadmium plated hexagonal nuts. Buried flange nuts and bolts shall be as above except they shall be of Type 304 stainless steel.
 - 2. Mechanical Joints: Dimensional and material requirements for pipe ends, glands, bolts and nuts, and gaskets shall conform to AWWA/ANSI C111/A21.11.
 - 3. Push-on Joints: Provide shape of pipe ends and fitting ends, gaskets, and lubricant for joint assembly conforming to AWWA/ANSI C111/A21.11. Modify bell design fittings, as approved.
 - 4. Insulating Joints: Provide a rubber-gasketed or other suitable approved type of insulating joint or dielectric coupling which will effectively prevent metal-to-metal contact at the joint between adjacent sections of dissimilar metals.

- a. Provide joint of the flanged type with insulating gasket, insulating bolt sleeves, and insulating washers.
 - b. Provide gasket of the dielectric type, full face, as recommended in AWWA/ANSI C115/A21.15.
 - c. Provide bolts and nuts as recommended in AWWA/ANSI C115/A21.15.
 - d. Fittings shall be epoxy lined and coated with a thickness not less than 6-mils.
- B. For PVC: Fittings shall be DIP or PVC.
 1. DIP fittings: Provide gray-iron or ductile-iron conforming to AWWA/ANSI C110/A21.10, with cement-mortar lining conforming to AWWA/ANSI C104/A21.4, and standard thickness, with equivalent cast-iron pipe O.D.
 - a. Fittings with push-on joint ends shall conform to the same requirements as fittings with mechanical-joint ends, except the bell design shall be modified, as approved, for push-on joint suitable for use with PVC plastic pipe.
 - b. Provide push-on joints, compression joints and mechanical joints where indicated between pipe and fittings, valves, and other accessories.
 - c. Mechanical joints, glands, bolts and nuts, and gaskets shall conform to AWWA/ANSI C111/A21.11.
 - d. Fittings shall be epoxy coated with a thickness not less than 6-mils.
 2. PVC fittings: Provide fabricated PVC fittings for pressure pipe conforming to AWWA C900, C905, or C907.
 - a. PVC fittings shall conform to ASTM D2466.
 - b. Push-on joints shall conform to ASTM D3139.
 - c. Compression joints shall conform to ASTM D3139.
 - d. Provide each joint connection with an elastomeric gasket suitable for the bell or coupling with which it is to be used. Gaskets shall conform to ASTM F477.
- C. For PE: Fittings shall conform to AWWA C901 or AWWA C906. Driscopipe, or approved equivalent.
 1. Socket type fittings shall conform to ASTM D2683.
 2. Butt fusion fittings shall conform to ASTM D3261.
 3. Electrofusion fittings shall comply with ASTM F1055.
- D. For Cu:
 1. Cast copper alloy solder-joint pressure fittings shall conform to ASME B16.18.
 2. Wrought copper solder-joint pressure fittings or wrought copper alloy unions shall conform to ASME B16.22
 3. Cast copper alloy flare fittings shall conform to ASME B16.26.
 4. Wrought copper alloy body, hexagonal stock, metal-to-metal seating surfaces, and solder-joint threaded ends shall conform to ASME B1.20.1.
 5. Compression connections shall be Mueller 110, Ford or approved equivalent.
- E. For HDPE:
 1. Cast Copper Fittings shall conform to ASME B16.18.
 2. Cast Copper Compression Fittings and connections shall be Mueller 110 Ford or approved equivalent.
 3. HDPE Fittings shall conform to PE4710, Pressure Class 200, DR 9 conforming to AWWA C901. Wolseley Industrial Group or approved equivalent.

2.3 GATE VALVES AND BALL VALVES

- A. Gate Valves: Valves shall open by counterclockwise rotation of the valve stem. Provide valves with ends as appropriate for the adjoining pipe.
 - 1. Stuffing boxes shall have O-ring stem seals. Provide stuffing boxes bolted and constructed so as to permit easy removal of parts for repair.
 - 2. Valves (2-1/2 inches and larger):
 - a. Provide valves conforming to AWWA C500 or AWWA C509 and of one manufacturer. Valves shall have a non-rising stem, a 2-inch square nut, and double-disc gates. Valves shall be rated for 250 psi maximum working pressure. Mueller 2362 series, ACIPCO, or approved equivalent.
 - b. For the domestic water system, valves shall also conform to ANSI/NSF 61.
 - c. For the fire water system, valves 2 inches through 16 inches in size shall also conform to UL 262 and FM 1120 or FM 1130 to a working pressure of 200 psi.
 - 3. Where a post indicator is shown, provide valve with an indicator post flange.
- B. Ball Valves: Valves shall open by counterclockwise rotation of the valve stem. Provide valves with ends as appropriate for the adjoining pipe.
 - 1. Valves (2-inches and smaller):
 - a. Provide valves conforming to AWWA C800 and of one manufacturer. Mueller 300 Series, Ford, or approved equivalent.
 - 2. Provide valve with operating nut or handle as shown on the Construction Documents.

2.4 BLOW-OFF VALVES, AIR RELEASE AND VACUUM VALVES, AND COMBINATION AIR VALVES

- A. Blow-off valves: Provide valve and service size as shown in the Contract Documents. Provide 2-inch valves at low points of the piping system, and 4-inch valves at dead-ends of the piping system, unless otherwise directed by the Engineer.
 - 1. 2-inch blow-off shall have a 2-inch vertical female iron pipe (FIP) inlet and a 2-inch normal pressure and temperature (NPT) nozzle outlet with cap. Valve shall open by counterclockwise rotation of a top-mounted 9/16-inch square operating nut. All working parts shall be serviceable without excavation. Kupferle/Truflo Model TF550, or approved equivalent.
 - 2. 4-inch blow-off shall have a 4-inch vertical FIP inlet and a 4-inch male iron pipe (MIP) outlet with cap. Valve shall open by counterclockwise rotation of a top-mounted 9/16-inch square operating nut. All working parts shall be serviceable without excavation. Kupferle/Truflo Model TF800, or approved equivalent.
- B. Air release and vacuum valves: Provide valve and service size as shown on the Contract Documents, and where there is an increase in the downward slope or a decrease in the upward slope of the piping system. Valve shall have cast-iron single valve body, and shall conform to AWWA C512. A compound lever system shall have a maximum operating pressure of 300psi. Provide a protective cap for the outlet of the valve. Provide universal air-vacuum type valves, Crispin Model UL, Apco, or approved equivalent.
- C. Combination air valves: Provide valve and service size as shown on the Contract Documents, and at high points and sharp changes in gradient of the pipe system. Valve shall have cast-iron single valve or double valve body, and shall conform to AWWA C512. A simple or compound lever system shall have a maximum operating pressure of

300psi. Provide a protective cap for the outlet of the valve. Crispin Model C, Apco, or approved equivalent.

2.5 CHECK VALVES

- A. Valves: Valves shall have clear port opening and a cast-iron body. Provide spring-loaded or weight-loaded valves where indicated on the Construction Documents.
 - 1. For the domestic water system, provide swing-check type valves conforming to AWWA C508. Provide valves of one manufacturer. Mueller, Apco, or approved equivalent.
 - 2. For the fire water system, provide swing-check type valves conforming to FM 1210 and UL 312. Mueller, Watts, or approved equivalent.

2.6 PRESSURE REDUCING VALVES

- A. Pressure Reducing Valves: Valves shall have a cast-iron body, conforming to ASTM A536, with epoxy interior coating conforming to AWWA, and rated to Pressure Class 300. Cla-Val Model 90-01, Singer, or approved equivalent.
 - 1. Valves shall have flanged ends.
 - 2. Valves sized 3-inches or smaller may have screwed ends.

2.7 POST INDICATORS

- A. Posts Indicators shall withstand up to 900 ft-lbs of operating torque, be free-standing, and tamper-proof.
- B. Post Indicators shall conform to UL 789 and FM 1110. Mueller, ACIPCO, or approved equivalent.
- C. Post indicators on recycled/reclaimed systems shall be painted purple.

2.8 VALVE BOXES, METER BOXES, FRAMES AND COVERS

- A. Water Valve Box: Provide pre-cast concrete valve box for each buried valve. Provide box with steel or cast iron traffic cover marked "WATER." Christy Model G5 with G5C cover or approved equivalent.
- B. Valve or Meter Boxes: Contractor shall verify box size required for water system appurtenances as shown in the Contract Documents. Provide a precast concrete utility box for each buried appurtenance. Provide a traffic-rated lid for H2O loading. A non-traffic rated lid may be used for boxes located in landscape areas. Christy, or approved equivalent.
- C. Valve boxes, meter boxes, frames and covers on recycled/reclaimed systems shall be purple.

2.9 BACKFLOW PREVENTERS

- A. Provide backflow preventers as shown on the Contract Documents. Subject to local water department approval. Backflow preventers on the fire water system shall be subject to approval by the local office of the Fire Marshal.
- B. Reduced Pressure Principle Assemblies (RPPA): Provide a cast-iron body RPPA consisting of two independently operating check valves with a pressure differential relief valve located between the two check valves, two shut-off valves and four test cocks. RPPA shall be tamper-proof and conform to AWWA C511. Febco LF860, Watts, or approved equivalent.
- C. Double Check Detector Assemblies (DCDA): Provide a cast-iron body DCDA consisting of mainline double check assemblies in parallel with a bypass double check and meter

assembly, two shut-off valves and four test cocks. DCDA shall be tamper-proof and conform to AWWA C510. Febco LF856, Watts, or approved equivalent.

- D. Backflow preventers on recycled/reclaimed systems shall be painted purple.

2.10 FIRE DEPARTMENT CONNECTIONS AND WET STAND PIPES

- A. Fire Department Connections (FDC): Provide FDC's with 2-1/2 inch female hose connections, sidewalk or free-standing type. Number of inlets shall be as shown on the Contract Documents. Clapper and spring check inlets shall each have a minimum capacity of 250 gpm, and be furnished with Knox FDC plug. Outlet shall be sized for simultaneous use of all inlets. Connection shall be branded "AUTO SPKR".

1. 2-Way FDC: Connection shall conform to UL 405 or FM 1530. Elkhart, Croker, or approved equivalent.
2. 3-Way FDC: Connection shall be subject to approval by the local water department or fire marshal. Elkhart, Croker, Potter-Roemer or approved equivalent.
3. 4-Way FDC: Connection shall conform to UL 405. Potter-Roemer, Croker, or approved equivalent.
4. 6-Way FDC: Connection shall be subject to approval by the local water department or fire marshal. Croker, Potter-Roemer or approved equivalent.

- B. Wet Stand Pipes (WSP): Provide 2-Way WSP's with valves and two (2) 2-1/2 inch male hose connections free-standing type, with a 4" inlet. Each outlet shall each have a minimum capacity of 250 gpm, and be furnished with a Knox cap. Water to the WSP shall be controlled with a remote valve. Connection shall be branded "HYDRANT." Subject to approval by the local water department or fire marshal. Croker, Elkhart, Potter-Roemer or approved equivalent. Fire department connections and wet stand pipes on recycled/reclaimed systems shall be painted purple.

2.11 FDC AND WET STAND PIPE CAPS AND PLUGS

- A. Provide Knox caps or plugs for all new FDC and wet-stand pipes included in the project. Coordinate the number of Knox keys as well as the key signage location with the local Fire Marshal.

2.12 FIRE HYDRANTS

- A. Provide two 2-1/2 inch and one 4-1/2 inch outlets with a 6-inch nominal inside diameter inlet and break-away type bolts. Hydrant shall have a working pressure of 250 psi and shall conform to AWWA C502 or C503, and be UL listed and FM approved. Provide hydrants of one manufacturer. Clow 800 series, Mueller, ACIPCO, or approved equivalent, subject to approval by the local water department and Fire Marshal. Hydrants on recycled/reclaimed systems shall be painted purple. Dry barrel hydrants shall be Mueller Company Super Centurion 200, or approved equivalent.

2.13 THRUST BLOCKS AND PIPE RESTRAINTS

- A. Blocks: Provide thrust blocks in accordance with NFPA 24 Standards. Use concrete conforming to ASTM C94 having a minimum compressive strength of 2,500 psi at 28 days; or use concrete of a mix not leaner than one part cement, 2-1/2 parts sand, and 5 parts gravel, having the same minimum compressive strength.
- B. Pipe Restraints: Provide thrust restraint systems for fittings and joints as required or as indicated on the Plans.

1. For mechanical joint fittings and joints: Pipe restraints shall be "Mega-Lug" pipe restraint system by EBBA Iron, Inc., or approved equivalent.
 2. For push-on joint fittings and joints: Pipe restraints shall be "Field-Lok" gaskets by U.S. Pipe (or approved equivalent) or serrated restraint harness by EBAA Iron, Inc.
 - C. Thrust blocks, gravity blocks, or mechanical pipe restraints may be used at Contractor's option, unless otherwise indicated on the Plans.
 - D. Provide thrust blocks or mechanical pipe restraints at all fittings and changes in angle, alignment or elevation.
 - E. Where depth or location of water piping, existing utilities, or other structures prohibit the use of standard thrust blocks, gravity blocks or mechanical pipe restraints may be used. Conform to NFPA 24 Standards.
- 2.14 TAPPING SLEEVES AND TAPPING VALVES
- A. Sleeves shall be epoxy coated and furnished with stainless steel washers, nuts and bolts. Mueller H-615 and H-619, Ford, or approved equivalent.
 - B. Tapping valves shall have flanged inlet, Class 125, conforming to ASME B16.1 and furnished with stainless steel washers, nuts and bolts. Tapping valves shall be constructed with a mechanical joint outlet. Mueller T-687, T-642, T-681, or approved equivalent.
- 2.15 SERVICE SADDLES AND CORPORATION STOPS
- A. Service Saddles: Saddles shall conform to AWWA C800 and NSF 61.
 1. For DIP: Provide bronze or stainless steel body, double strap type with a 200 psi maximum working pressure. Mueller BR2 Series, Ford, or approved equivalent.
 2. For PVC: Provide bronze body, wide strap type. Mueller H-13000 Series, Ford, or approved equivalent.
 3. For PE: Provide stainless steel body, double strap style with a 250 psi maximum working pressure. Ford FSP-323, or approved equivalent.
 - B. Corporation Stops: Provide ground key type; bronze conforming to ASTM B61 or ASTM B62, for a working pressure of 100 psi. and suitable for the working pressure of the system.
 1. Ends shall be suitable for adjoining pipe and connections, solder-joint, or flared tube compression type joint.
 2. Threaded ends shall conform to AWWA C800.
 3. Coupling nut for connection to flared copper tubing shall conform to ASME B16.26.
 4. Mueller H-15000 Series with "CC" threads and a copper flare straight connection outlet, Ford, or approved equivalent.
- 2.16 IDENTIFICATION MATERIALS AND DEVICES
- A. Marker Tape: Provide marker tape consisting of metallic foil bonded to plastic film not less than 2-inches wide. Film shall be inert polyethylene plastic. Film and foil shall each not be less than 1-mil. thick. The tape shall be identified with lettering, not less than 3/4-inch high, "CAUTION: WATER MAIN BELOW," repeated at approximately 24-inch intervals.
 - B. Tracer Wire for Nonmetallic Piping: Provide 12 gage, coated copper or aluminum wire not less than 0.10 inch in diameter in sufficient length to be continuous over each separate run of nonmetallic pipe. Wire shall be tied in at all valves.

2.17 SETTLEMENT JOINTS

- A. Flexible joints shall be used if a differential settlement of greater than 2-inches is anticipated. Flexible joints shall be ductile iron rated, rated for 350 psi working pressure and FM approved. Megalug Flextend or approved equivalent.
- B. Provide pipe restraint on either side of flexible joint to resist thrust forces.

2.18 CORROSION PROTECTION

- A. In soils with low resistivity, high sulfides, high/low ph, redox potential and/or poor surrounding drainage conditions, or as indicated in the Contract Documents, encase underground pipe and appurtenances in 4-mil, high-density cross-laminated (HDCL) polyethylene film or 8-mil linear low-density (LLD) polyethylene film in accordance with AWWA/ANSI C105/A21.5. U.S. Pipe, ACIPCO, or approved equivalent.

2.19 WATER STORAGE TANKS

- A. Provide bolted steel storage tank, size as specified or shown in the Plans, in conformance with AWWA D103. Superior Tank, or approved equivalent.
 - 1. Steel sheets shall conform to ASTM A570 Grade 33 with minimum yield strength of 33,000 psi.
 - 2. Steel plates shall conform to ASTM A36 with minimum yield strength of 36,000 psi.
 - 3. Rolled structural shapes shall conform to ASTM A36.
 - 4. Galvanized bolts, nuts, washers, and gaskets will be per manufacturer's recommendations.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and areas for suitable conditions where water service is being installed.
- B. Do not begin installation until unsatisfactory conditions have been corrected.

3.2 LOCATION OF WATER LINES

- A. Where the location of the water line is not clearly defined by dimensions on the Plans, do not lay water line closer than 10 feet horizontally from any sewer line.
- B. Where water lines cross under gravity sewer lines, encase sewer line in concrete for a distance of at least 10 feet on each side of the crossing, unless sewer line is made of pressure pipe with rubber-gasketed joints and no joint is located within 3 feet horizontally of the crossing.
- C. Where water lines cross sewer force mains and inverted siphons, install water line at least 2 feet above these sewer lines.
- D. When joints in the sewer line are closer than 3 feet horizontally from the water line, encase sewer line joints in concrete.
- E. Do not lay water lines in the same trench with other utilities.
- F. Install water lines at 3'-0" minimum depth or as detailed on Plans.

3.3 INSTALLATION OF PIPING

- A. Inspection:
 - 1. Before placing in position, inspect pipe for noticeable defects. Clean the pipe, fittings, valves, and accessories, and maintain in a clean condition.
 - 2. Remove fins and burrs from pipe and fittings.
- B. Pipe laying and jointing:

1. Provide proper facilities for lowering sections of pipe into trenches.
2. Do not drop or dump pipe, fittings, valves, or any other water line material into trenches.
3. Cut pipe accurately to length established at the site and work into place without springing or forcing. Replace any pipe or fitting that does not allow sufficient space for proper installation of jointing material.
4. Blocking or wedging between bells and spigots will not be permitted. Lay bell-and-spigot pipe with the bell end pointing in the direction of lying.
5. Grade the pipeline in straight lines; avoid the formation of dips and low points.
6. Support pipe at proper elevation and grade.
7. Provide secure firm, uniform support. Wood support blocking will not be permitted.
8. Lay pipe so that the full length of each section of pipe and each fitting rests solidly on the pipe bedding; excavate recesses to accommodate bells, joints, and couplings.
9. Provide anchors and supports where indicated and where necessary for fastening work into place.
10. Make proper provision for expansion and contraction of pipelines.
11. Keep trenches free of water until joints have been properly made.
12. Do not lay pipe when conditions of trench or weather prevent proper installation.
13. All fittings shall be blocked with appropriately sized thrust blocks as shown in the Contract Documents.

C. Installation of Tracer Wire:

1. Install a continuous length of tracer wire for the full length of each run of nonmetallic pipe.
2. Attach wire to top of pipe in such manner that it will not be displaced during construction operations.

D. Connections to Existing Lines:

1. Make connections to existing water lines after approval is obtained and with a minimum interruption of service on the existing line.
2. Make connections to existing lines under pressure in accordance with the recommended procedures of a manufacturer of pipe of which the line being tapped is made.
3. The end of each work day, close open ends of pipe temporarily with wood blocks or bulkheads to keep out debris and contamination.

3.4 INSTALLATION OF DUCTILE-IRON PIPING

A. Install pipe and fittings in accordance with requirements of AWWA C600 for pipe installation, joint assembly, valve-and-fitting installation, and thrust restraint.

B. Jointing:

1. Provide push-on joints with the gaskets and lubricant specified for this type joint; assemble in accordance with the applicable requirements of AWWA C600 for joint assembly.
2. Provide mechanical joints with the gaskets, glands, bolts, and nuts specified for this type joint; assemble in accordance with the applicable requirements of AWWA C600 for joint assembly and with the recommendations of AWWA C111.
3. Provide flanged joints with the gaskets, bolts, and nuts specified for this type joint.

- a. Install flanged joints up tight; avoid undue strain on flanges, fittings, valves, and other equipment and accessories.
 - b. Align bolt holes for each flanged joint.
 - c. Use full size bolts for the bolt holes; use of undersized bolts to make up for misalignment of bolt holes or for any other purpose will not be permitted.
 - d. Do not allow adjoining flange faces to be out of parallel to such degree that the flanged joint cannot be made watertight without over straining the flange.
 - e. Where flanged pipe and fitting have dimensions that do not allow the installation of a proper flanged joint as specified, replace it by one of proper dimensions.
 - f. Use set screwed flanges to make flanged joints where conditions prevent the use of full-length flanged pipe. Assemble in accordance with the recommendations of the set screwed flange manufacturer.
4. Provide insulating joints with the gaskets, sleeves, washers, bolts, and nuts previously specified for this type joint. Assemble insulating joints as specified for flanged joints. Bolts for insulating sleeves shall be full size for the bolt holes.
 5. Ensure that there is no metal-to-metal contact between dissimilar metals after the joint has been assembled.
- C. Exterior Protection: Completely encase buried ductile iron pipelines and underground appurtenances with polyethylene wrap. Install 8-mil linear low-density polyethylene (LLD) film or 4-mil high-density cross-laminated (HDCL) film per manufacturer's recommendations and in accordance with AWWA/ANSI C105/A21.5 and ASTM A674.
 - D. Pipe Anchorage:
 1. Provide concrete thrust blocks or restrained joints for pipe anchorage, except where metal harness is indicated on the Construction Documents.
 2. Pipe anchorage shall be in accordance with NFPA 24 Standards.
- 3.5 INSTALLATION OF POLYVINYL CHLORIDE PIPING
- A. Install pipe and fittings in accordance with the requirements of UNI B-3 for the following:
 1. The laying of pipe, joining PVC pipe to fittings and accessories.
 2. The setting of hydrants, valves, and fittings.
 - B. Comply with the recommendations for pipe joint assembly and appurtenance installation in AWWA Manual M23, Chapter 7, "Installation."
 - C. Comply with the applicable requirements of AWWA C600 for joint assembly, and with the recommendations of Appendix A to AWWA C111.
 - D. Jointing:
 1. Provide push-on joints with the elastomeric gaskets specified for this type joint, using either elastomeric-gasket bell-end pipe or elastomeric-gasket couplings.
 2. For pipe-to-pipe push-on joint connections, use only pipe with push-on joint ends having factory-made bevel.
 3. For push-on joint connections to metal fittings, valves, and other accessories, cut spigot end of pipe off square and re-bevel pipe end to a bevel approximately the same as that on ductile-iron pipe used for the same type of joint.

4. Use an approved lubricant recommended by the pipe manufacturer for push-on joints.
 5. Assemble push-on joints for connection to fittings, valves, and other accessories in accordance with the requirements of UNI B-3 for joining PVC pipe to fittings and accessories and with the applicable requirements of AWWA C600 for joint assembly.
 6. Make compression-type joints/mechanical-joints with the gaskets, glands, bolts, nuts, and internal stiffeners previously specified for this type joint. Cut off spigot end of pipe for compression-type joint or mechanical-joint connections and do not re-bevel.
 7. Assemble joints made with sleeve-type mechanical couplings in accordance with the recommendations of the coupling manufacturer using internal stiffeners as previously specified for compression-type joints.
- E. Pipe Anchorage:
1. Provide concrete thrust blocks or restrained joints for pipe anchorage, except where metal harness is indicated on the Construction Documents.
 2. Anchorage shall be in accordance with the requirements of UNI B-3 and in accordance with NFPA 24 Standards for reaction or thrust blocking and plugging of dead ends, except that size and positioning of thrust blocks shall be as indicated on the Construction Documents.

3.6 INSTALLATION OF POLYETHYLENE PIPING

- A. Install pipe, fittings, and appurtenances in accordance with PPI and Manufacturer's Recommendations.
- B. Jointing:
1. Provide mechanical joints, compression fittings, or flanges as recommended by the manufacturer.
 2. Jointing shall be performed using proper equipment and machinery by trained and certified personnel.
 3. Joints, fittings and tools shall be clean and free of burrs, oil, and dirt.
 4. Butt fusion:
 - a. Pipe ends shall be faced to establish clean, parallel mating surfaces.
 - b. Align and securely fasten the components to be joined squarely between the jaws of the joining machine.
 - c. Heat the ends of the pipe to the pipe manufacturer's recommended temperature interface pressure and time duration. A pyrometer or other surface temperature measuring device should be used to insure proper temperature of the heating tool. Temperature indicating crayons shall not be used on a surface which will come into contact with the pipe or fitting.
 - d. Prevent molten plastic from sticking to the heater faces. Molten plastic on the heater faces shall be removed immediately according to the tool manufacturer's instructions.
 - e. Bring the molten ends together with sufficient pressure to properly mix the pipe materials and form a homogeneous joint. Hold the molten joint under pressure until cooled adequately to develop strength. Refer to the Manufacturer's recommendations for temperature, pressure, holding, and cooling times.

- f. Remove the inside bead from the fusion process using Manufacturer's recommended procedure.
- 5. Socket fusion:
 - a. Mixing manufacturers' heating tools and depth gages will not be allowed unless the tools conform to ASTM F1056.
 - b. Pipe ends shall be faced square to establish clean, parallel mating surfaces.
 - c. Clamp the cold ring on the pipe at the proper position using a depth gauge.
 - d. Heat the tool to the pipe manufacturer's recommended temperature. A pyrometer or other surface temperature measuring device should be used to insure proper temperature. Temperature indicating crayons shall not be used on a surface which will come into contact with the pipe or fitting.
 - e. Follow manufacturer's recommendations for bringing the hot tool faces into contact with the outside surface of the end of the pipe and the inside surface of the socket fitting.
 - f. Simultaneously remove the pipe and fitting from the tool.
 - g. Inspect the melt pattern for uniformity and immediately insert the pipe squarely and fully into the socket of the fitting until the fitting contacts the cold ring. Do not twist the pipe or fitting during or after the insertion.
 - h. Hold or block the pipe in place during cooling.
- 6. Electrofusion:
 - a. Unless the operation is for a saddle-type electrofusion joint, pipe ends shall be faced square to establish clean, parallel mating surfaces.
 - b. Clamp the pipe and fitting at the proper position in the fixture.
 - c. Connect the electrofusion control box to the fitting and to the power source. Apply the electric current using manufacturer's instructions.
 - d. Allow the joint to cool before removing the clamping fixtures.

3.7 INSTALLATION OF VALVES

- A. Install gate valves conforming to AWWA C500 and UL 262 in accordance with the requirements of AWWA C600 for valve-and-fitting installation and with the recommendations of the Appendix (Installation, operation, and Maintenance of Gate Valves) to AWWA C509.
- B. Install gate valves conforming to AWWA C509 in accordance with the requirements of AWWA C600 for valve-and-fitting installation and with the recommendations of the Appendix (Installation, Operation, and Maintenance of Gate Valves) to AWWA C509.
- C. Install gate valves on PVC water mains in addition in accordance with the recommendations for appurtenance installation in AWWA Manual M23, Chapter 7, "Installation."
- D. Install check valves in accordance with the applicable requirements of AWWA C600 for valve-and-fitting installation, except as otherwise indicated.
- E. Provide and assemble joints to gate valves and check valves as specified for making and assembling the same type joints between pipe and fittings.

3.8 INSTALLATION OF VALVE AND METER BOXES

- A. Boxes shall be centered over the appurtenance so as not to transmit shock or stress. Covers shall be set flush with the surface of the finished pavement, or as shown in the

Construction Documents. Backfill shall be placed around the boxes and compacted to the specified level in a manner that will not damage or displace the box from proper alignment or grade. Misaligned boxes shall be excavated, plumbed, and backfilled at no additional cost to the Owner.

3.9 INSTALLATION OF HYDRANTS

- A. Install hydrants, except for metal harness, plumbed vertical, in accordance with AWWA C600 for hydrant installation and as indicated.
- B. Provide and assemble joints as specified for making and assembling the same type joints between pipe and fittings. Hydrants shall be set so that mounting bolts clear the top of finished grade by three inches so bolts may be easily replaced if needed.
- C. Provide metal harness as specified under pipe anchorage requirements for the respective pipeline material to which hydrant is attached.

3.10 SERVICE LINE CONNECTIONS TO WATER MAINS

- A. Connect service lines of size shown on plans to the main with a rigid connection or a corporation stop and gooseneck. Install a gate valve on the service line.
- B. Connect service lines to ductile-iron water mains in accordance with AWWA C600 for service taps.
- C. Connect service lines to PVC plastic water mains in accordance with UNI-B-8 and the recommendations of AWWA Manual M231, Chapter 9, "Service Connections."

3.11 INSTALLATION OF BACKFLOW PREVENTERS

- A. Devices shall be installed horizontal and level, with three feet minimum clearances from obstructions.
- B. Bottom of backflow device shall be 12-24" above grade.

3.12 WATER TANKS

- A. Install water tanks per Manufacturer's recommendations in conformance with AWWA D103.

3.13 HYDROSTATIC PIPELINE TESTING

- A. Requirements:
 - 1. After the pipe has been laid and backfilled, perform hydrostatic pressure tests.
 - 2. Do not conduct tests until at least 12 hours have elapsed since pipe laying and at least 5 days have elapsed since placing of concrete thrust blocks.
 - 3. Fill the pipe with water which shall remain without external application of pressure for 24 hours before tests are conducted.
 - 4. Prior to hydrostatic testing, flush pipe system with fresh water until piping is free of dirt and foreign matter.
 - 5. Apply pressure by a pump and measured by a test gage. All necessary apparatus and labor for conducting the pressure and leakage tests shall be furnished by the Contractor.
 - 6. Ensure the release of air from the line during filling, and prevent collapse due to vacuum when dewatering the line.
 - 7. For pressure test, use a hydrostatic pressure not less than 200 psi for fire water or combined water systems and 1 ½ times operating pressure for domestic water systems. The duration of the test shall not be less than 4 hours with the variation in pressure of not more than 5 psi for the duration of the test.

B. Leakage Tests:

1. At Contractor's option, leakage tests can be performed at the same time as hydrostatic pressure tests.
2. Leakage rate shall be measured for at least 4 hours with a certified water meter, or other approved method. If requested, meter certification shall be submitted to the Owner for approval prior to testing.
3. Leakage shall not be measured by a drop in pressure in a test section over a period of time.
4. Leakage at mechanical couplings and joints, tapping sleeves, saddles, flanged joints, and copper piping will not be accepted. Correct any visible leaks.
5. Push-on joints: Test ductile iron pipe for leakage in accordance with AWWA C600 as shown in the following table:

TABLE 1

Allowable Leakage per 1000 feet of DIP Pipeline (Gal/Hr)

Average Test Pressure	Nominal Pipe Diameter - Inches									
(psi)	3	4	6	8	10	12	14	16	18	20
300	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
275	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12

6. When the pipeline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size.
7. Test polyvinyl chloride pipe for leakage in accordance with the recommendations of the Uni-Bell Plastic Pipe Association (UNI) as shown in the following table

TABLE 2

Allowable Leakage per 1000 feet or 50 joints of PVC Pipeline (Gal/Hr)

Nominal Pipe Size (inches)	Average Test Pressure in Line (psi.)	
	200	250
4	0.38	0.43
6	0.57	0.64
8	0.76	0.85
10	0.96	1.07
12	1.15	1.28
14	1.34	1.50
16	1.53	1.71
18	1.72	1.92
20	1.91	2.14

8. Should any section of new pipe fail to pass either test, locate and repair the defective pipe and repeat the test.

3.14 STERILIZATION AND FLUSHING

A. General:

1. Domestic water lines, mains, and branches by chlorination in accordance with AWWA C601 and as herein specified.

B. Sterilization Methods:

1. Liquid Chlorine Solution Method:

- a. Flush all foreign matter from mains, branch runs, hydrant runs, and installed services.
- b. Introduce liquid chlorine solution at appropriate locations to assure uniform distribution through the facilities at the proper concentration.
- c. Do not use installed copper service lines to convey the concentrated chlorine solution to the mains.
- d. The sanitizing solution shall be retained in the facilities for a period of 24 hours after which each service, hydrant run, branch run and dead end shall be flushed until:
 - i. Residual chlorine is less than 1 part per million.
 - ii. Residual chlorine is no greater than the concentration of chlorine in the water supplied for flushing.
- e. Chlorine shall be a 1 percent solution (containing 10,000 parts per million available chlorine) or shall be obtained by use of dry chlorine in tablet form firmly attached to inside tope of the pipe.
- f. The required concentration of chlorine in the pipe is 50 parts per million. This concentration may be attained by adding 5 gallons of the chlorine solution to 1,000 gallons of water.
- g. The weight of chlorine or chlorine compound required to make a 1 percent chlorine solution is as follows:

TABLE 3

One-Percent Chlorine Solution Mix

AMOUNT OF PRODUCT COMPOUND		QUANTITY OF WATER (in gallons)
High-Test Calcium Hypochlorite (65-70% Cl)	1 pound	7.50
Chlorinated Lime (32-35% Cl)	2 pounds	7.50
Liquid Laundry Bleach (5.25% Cl)	1 gallon	4.25
Liquid Chlorine (100% available chlorine)	0.62 pounds	7.50

2. HTH Tablet Method:

- a. The required concentration of chlorine in the mains may be obtained by the use of HTH tablets as produced by Olin Mathieson in the following quantities or approved equivalent:

TABLE 4

HTH Tablet (70%) Dosage

Number of Tablets Per Length of Pipe

Length of Section	DIAMETER OF PIPE				
	4 inches	6 inches	8 inches	10 inches	12 inches
13 feet	1	2	3	4	6
18 feet	1	2	3	5	6
20 feet	1	2	3	5	7
30 feet	2	3	5	7	10
36 feet	2	3	5	8	12
40 feet	2	4	6	9	14
100 feet	4	9	15	23	30

- b. Tablets are to be fastened to the inside top surface of each length of pipe using "Permatex No. 1" no earlier than the day pipe is laid.
- c. Tablets shall not be installed in the pipe and left overnight before laying and shall not be accessible at any time for casual pilferage by the general public or by children. Tablets shall be stored in a hermetically sealed container.
- d. The new water lines are to be slowly filled with water. Air is to be exhausted from each dead end, branch run, hydrant run, and installed service.
- e. Water shall be retained for a period of 24 hours, after which each service, hydrant run, branch run and dead end shall be thoroughly flushed to clear foreign matter and until:
- Residual chlorine concentration is less than 1 part per million
 - Residual chlorine is no greater than the concentration of chlorine in the water supplied for flushing.

C. Bacteriological Testing:

- Samples shall be gathered and tests conducted at the expense of the Contractor by a laboratory certified by the California Department of Health Services as an Environmental Testing Laboratory (ELAP).
- Samples are to be taken at representative points as required by the Owner and authorities having jurisdiction.
- The new water lines shall remain isolated and out of service until satisfactory test results have been obtained that:
 - Meet the requirements of the California Department of Health Services, Drinking Water Standards.
 - Owner has accepted the results as indicative of the bacteriological condition of the facilities.
 - If unsatisfactory or doubtful results are obtained from the initial sampling, repeat the chlorination process until acceptable test results are reported.

3.15 HYDRANT FLOW TESTING

- A. After completion of the pipe and hydrant installation and service connections, the new hydrants shall be flow tested and results provided to the Owner's Representative and Engineer. The Contract shall provide the following information:
1. Who performed the test.
 2. Testing date.
 3. Hydrant location.
 4. Static pressure (psig).
 5. Residual pressure (psig).
 6. Flow (gpm).
 7. Orifice size (in).]

END OF SECTION

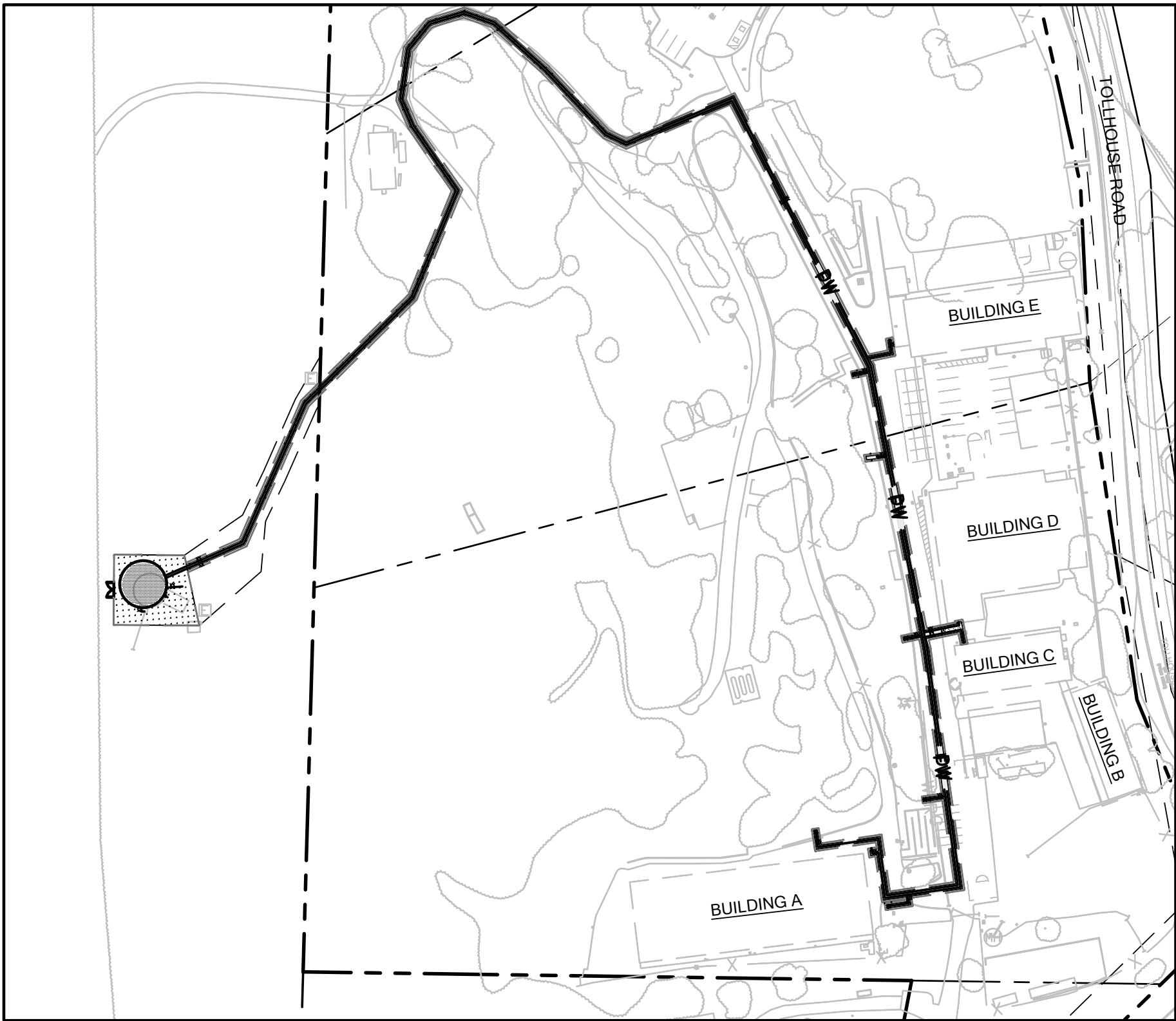
LEGEND

EXISTING	PROPOSED
SAWCUT AND CONFORM LINE	
RETAINING WALL	
A.C. PAVEMENT	
CONC. VALLEY GUTTER	
CONC. SIDEWALK OR PAD	
6" CURB & GUTTER	
EDGE OF A.C. PAVEMENT	
6" VERTICAL CURB	
CENTER LINE	
SANITARY SEWER MAIN	8" SS
STORM DRAIN MAIN	15" SD
PERFORATED PIPE	6" SD
WATER MAIN	6" W
FIRE WATER MAIN	4" FW
DOMESTIC WATER MAIN	4" DW
CHILLED WATER MAIN	4" CHW
IRRIGATION LINE	4" IRR
HOT WATER SUPPLY & RETURN	HWS-HWR
STEAM LINE	ST
TRENCH DRAIN	
CONDENSATE RETURN	CR
FLOW LINE	
CHAIN LINK FENCE	X X
GAS MAIN	2" G
ELECTRIC AND SIGNAL DUCT BANK	E
OVERHEAD ELECTRIC LINE	OHE
UNDERGROUND ELECTRIC LINE	UGE
STREET LIGHT CONDUIT	SL
CONTOUR ELEVATION LINE	85
SPOT ELEVATION	x 95.94
DIRECTION OF SLOPE	2:1 1%
GAS METER	GM
GAS VALVE	GV
WATER METER	WM
WATER VALVE	WV
FIRE HYDRANT	40+
BACK FLOW PREVENTOR	40+
POST INDICATOR VALVE	PIV
FIRE DEPARTMENT CONNECTION	40+
WATER LINE TEE	
CAP AND PLUG END	
AIR RELEASE VALVE	ARV
SIGN	
ACCESSIBLE RAMP	
CONCRETE THRUST BLOCK	
REDUCER	
SANITARY SEWER MANHOLE	SSGO
SANITARY SEWER CLEANOUT	SSGO
STORM DRAIN MANHOLE	SDGO
STORM DRAIN AREA DRAIN	SDGO
STORM DRAIN CATCH BASIN	SDGO
STORM DRAIN CURB INLET	SDGO
STORM DRAIN CLEANOUT	SDGO
ELECTROLIER	
JOINT POLE	
OVERLAND RELEASE	
CONSTRUCTION DETAIL REFERENCE	15 C5.2
	DETAIL REFERENCE SHEET REFERENCE

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AD	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ASB	AGGREGATE SUBBASE
BC	BEGINNING OF CURVE
BFP	BACK FLOW PREVENTOR
BLDC	BUILDING CORNER
BLDG	BUILDING
BOD	BOTTOM OF DOCK
BOL	BOLLARD
BOS	BOTTOM OF STEP
BOW	FG @ BOTTOM OF WALL
BVC	BEGIN VERTICAL CURVE
BW	BACK OF WALK
C	CONCRETE OR CIVIL
C&G	CURB AND GUTTER
CB	CATCH BASIN
CI	COMBINATION INLET
CIP	CAST IRON PIPE
CL	CENTER LINE OR CLASS
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
COI	CURB OPENING INLET
CONC	CONCRETE
CONST	CONSTRUCTION OR CONSTRUCT
CY	CUBIC YARD
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY
DI	DROP INLET
DIP	DUCTILE IRON PIPE
DOM	DOMESTIC
DW	DOMESTIC WATER
DWG	DRAWING
E	EAST
EC	END OF CURVE
EP	EDGE OF PAVEMENT
ER	END OF RETURN
EV	END VERTICAL CURVE
ELEV	ELEVATION
EX., EXIST.	EXISTING
FC	FACE OF CURB
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FOUND	FOUNDATION
FS	FINISHED SURFACE
FT	FOOT
FW	FIRE WATER
G	GROUND ELEVATION
GB	GRADE BREAK
GV	GATE VALVE
HCR	ACCESSIBLE RAMP
HP	HIGH POINT
INV	INVERT ELEVATION
JP	JOINT POLE
JT	JOINT TRENCH
LIP	LIP OF GUTTER
LP	LOW POINT
LSA	LANDSCAPE ARCHITECT
MAX	MAXIMUM
MEP	MECHANICAL/ELECTRICAL/PLUMBING
MH	MANHOLE
MIN	MINIMUM
MPVC	MIDPOINT OF VERTICAL CURVE
MON	MONUMENT
N	NORTH
N.I.C.	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
P	PAVEMENT ELEVATION
PCC	PORTLAND CEMENT CONCRETE / POINT OF CONTINUOUS CURVATURE
PIV	POST INDICATOR VALVE
PL	PROPERTY LINE
PMH	POWER MANHOLE
POC	POINT ON CURVE
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
RC	RELATIVE COMPACTION
ROP	REINFORCED CONCRETE PIPE
RPPA	REDUCED PRESSURE PRINCIPLE ASSEMBLY
R/W	RIGHT OF WAY
S	SLOPE OR SOUTH
S.A.D.	SEE ARCHITECTURAL DRAWINGS
SB	SEDIMENT BASIN
SD	STORM DRAIN
S.E.D.	SEE ELECTRICAL DRAWINGS
SF	SILT FENCE
SG	SUBGRADE
S.L.D.	SEE LANDSCAPE DRAWINGS
S.M.D.	SEE MECHANICAL DRAWINGS
SMH	SIGNAL MANHOLE
S.P.D.	SEE PLUMBING DRAWINGS
SS	SANITARY SEWER
STA	STATION
STD	STANDARD
S/W	SIDEWALK
TC	TOP OF CURB
TD	TRENCH DRAIN
TOD	TOP OF DOCK
TOE	TOE OF SLOPE
TOS	TOP OF STAIR
TOW	FG @ TOP OF WALL
TSP	TOP OF SLAB
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
U/G	UNDERGROUND
VC	VERTICAL CURVE
WM	WATER METER
WV	WATER VALVE
W	WEST
WWF	WELDED WIRE FABRIC
W/	WITH

TOLLHOUSE FIRE CENTER
WATER TANK AND MAIN(S)
27595 TOLLHOUSE ROAD
TOLLHOUSE, CA



KEY MAP
1"=100'

DEFERRED SUBMITTALS:

FIRE PROTECTION WATER STORAGE TANK

1. GENERAL COMPLIANCE: THE FIRE PROTECTION WATER STORAGE TANK AND ALL RELATED APPURTENANCES SHALL BE SUBMITTED AS A DEFERRED SUBMITTAL IN ACCORDANCE WITH NFPA 22 (2023 ED.), SECTION 4.6. NO FABRICATION OR INSTALLATION OF THE TANK OR ITS FOUNDATION SHALL COMMENCE UNTIL THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED BY THE STATE FIRE MARSHAL AND THE ENGINEER OF RECORD (EOR).

2. SUBMITTAL REQUIREMENTS: THE CONTRACTOR SHALL PROVIDE A COMPREHENSIVE SUBMITTAL PACKAGE INCLUDING, BUT NOT LIMITED TO:

DETAILED SHOP DRAWINGS: SCALED LAYOUTS SHOWING THE TANK DIMENSIONS, SPECIFIC LOCATIONS OF ALL NOZZLES, MANHOLES, LADDERS, AND PIPING (SUCTION, FILL, OVERFLOW, AND DRAIN).

STRUCTURAL CALCULATIONS (STRESS SHEETS): PROJECT SPECIFIC STRUCTURAL AND SEISMIC CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA.

CALCULATIONS MUST ACCOUNT FOR DEAD LOAD, LIVE LOAD, SNOW LOAD, WIND LOAD, AND SEISMIC DESIGN CATEGORY PER THE PROJECT'S GEOTECHNICAL REPORT AND ASCE.

PIPING & ACCESSORIES: DETAILS OF THE ANTI-VORTEX PLATE ASSEMBLY AT THE SUCTION OUTLET.

SIZING AND SPECIFICATIONS FOR THE ROOF VENT (MINIMUM 1.5 X THE AREA OF THE FILL/DISCHARGE PIPE).

MANUFACTURER DATA FOR WATER LEVEL GAUGES AND HIGH/LOW-LEVEL SUPERVISORY ALARMS.

FREEZE PROTECTION: DETAILED DESIGN FOR THE TANK HEATING SYSTEM (IF REQUIRED), INCLUDING HEAT LOSS CALCULATIONS AND ELECTRICAL/MECHANICAL REQUIREMENTS.

CORROSION MITIGATION: SPECIFICATIONS FOR INTERIOR LINERS OR FACTORY-APPLIED COATING SYSTEMS.

3. FOUNDATION DESIGN: DETAILED DESIGN OF THE TANK FOUNDATION (RING BEAM OR SLAB) SHALL BE PROVIDED, ENSURING COMPATIBILITY WITH THE MANUFACTURER'S SPECIFIC TANK LOADING REQUIREMENTS AND THE SITE'S SOIL BEARING CAPACITY.

MECHANICAL PIPE RESTRAINTS & THRUST DESIGN: PROVIDE A DEFERRED SUBMITTAL FOR ALL UNDERGROUND FIRE SERVICE MAIN RESTRAINTS IN ACCORDANCE WITH NFPA 24. SUBMITTAL SHALL INCLUDE MANUFACTURER'S SPECIFICATIONS FOR MECHANICAL JOINT RESTRAINTS AND/OR STRUCTURAL CALCULATIONS FOR CONCRETE THRUST BLOCKS BASED ON PROJECT SPECIFIC SOIL BEARING CAPACITY AND A MINIMUM TEST PRESSURE OF 200 PSI.

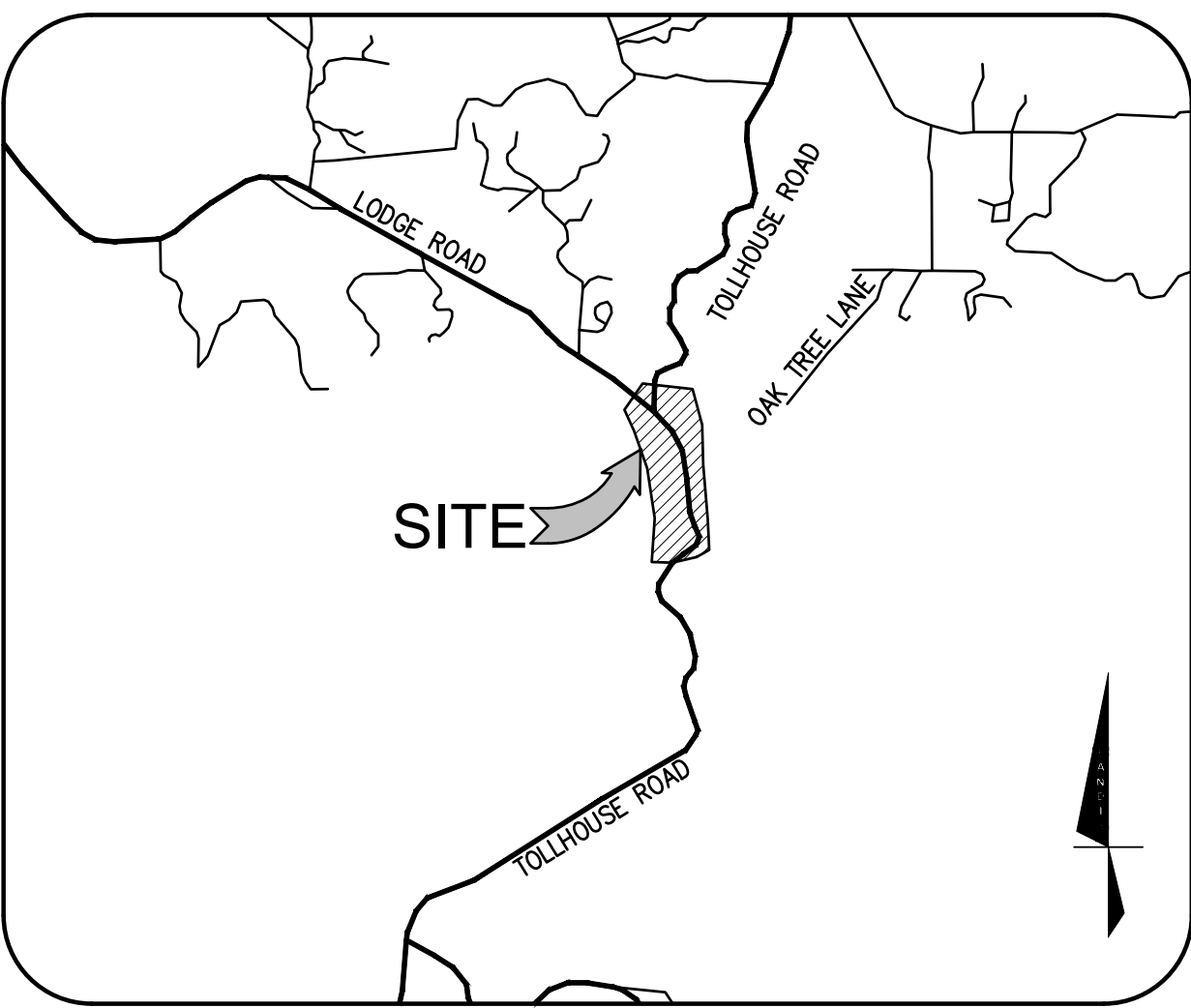
FIRE ALARM & TANK MONITORING

1. THE DETAILED DESIGN AND SHOP DRAWINGS FOR THE WATER TANK FIRE ALARM MONITORING SYSTEM ARE A DEFERRED SUBMITTAL AND SHALL BE PREPARED BY A LICENSED C-10 OR C-16 CONTRACTOR.

2. THE SYSTEM SHALL COMPLY WITH THE CURRENT CALIFORNIA BUILDING AND FIRE CODES, NFPA 22, AND NFPA 72, AND MUST BE APPROVED BY THE STATE FIRE MARSHAL PRIOR TO INSTALLATION.

3. THE DEFERRED SUBMITTAL SHALL DETAIL CONNECTION TO A FIRE ALARM CONTROL UNIT (FACU) WITH CENTRAL STATION TRANSMISSION, PROVIDING SUPERVISORY SIGNALS FOR THE FOLLOWING TANK CONDITIONS:

WATER LEVEL: DROPS 12 INCHES (300 MM) BELOW REQUIRED OPERATING LEVEL.
WATER TEMPERATURE: DROPS TO 40°F (4.4°C).
VALVE SUPERVISION: TAMPERING OF ANY ISOLATING CONTROL VALVES.
TANK HEATER: OPERATIONAL STATUS/POWER MONITORING OF THE FREEZE-PROTECTION SYSTEM.



VICINITY MAP
NOT TO SCALE

PROJECT DESCRIPTION

THIS PROJECT WILL PROVIDE A NEW WATER TANK, WATER MAIN AND APPURTENANT STRUCTURES FOR FIRE AND DOMESTIC WATER FOR THE TOLL HOUSE FIRE CENTER SITE. PER CAL FIRE SEVERITY ZONE MAPS, THIS SITE IS IN A HIGH FIRE SEVERITY ZONE.

OWNER INFO

JOE AGUIRRE
SENIOR CIVIL ENGINEER - SOUTHERN REGION
1234 E. SHAW AVE. FRESNO, CA 93710
(559) 243-4147 OFFICE
(559) 284-2715 CELL

SHEET SET

Sheet Number	Sheet Title
C1.0	COVER SHEET
C1.1	CONSTRUCTION NOTES
C2.0	SITE KEY MAP
C3.0	TOPOGRAPHIC SURVEY
C3.1	TOPOGRAPHIC SURVEY
C3.2	TOPOGRAPHIC SURVEY
C4.0	DEMOLITION PLAN
C4.1	DEMOLITION PLAN
C4.2	DEMOLITION PLAN
C5.0	PLAN AND PROFILE
C5.1	PLAN AND PROFILE
C5.2	PLAN AND PROFILE
C5.3	PLAN AND PROFILE
C5.4	PLAN AND PROFILE
C6.0	CONSTRUCTION DETAILS
C6.1	CONSTRUCTION DETAILS
C6.2	CONSTRUCTION DETAILS
C7.0	EROSION CONTROL PLAN
C7.1	EROSION CONTROL PLAN
C7.2	EROSION CONTROL PLAN
C7.3	EROSION CONTROL DETAILS
C8.0	FIRE ACCESS PLAN

VERSION: V2



DO NOT SCALE DIMENSIONS FROM THESE PLANS. FIGURED OR WRITTEN DIMENSIONS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS. IT IS INTENDED THAT THE DRAWINGS, DETAILS AND SPECIFICATIONS SHOULD AGREE. SHOULD ANY DISCREPANCY OR ERROR OCCUR, THE CONTRACTOR SHALL NOTIFY THE STATE REPRESENTATIVE AT ONCE. UPON OCCURRENCE OF DISCREPANCY OR ERROR, THE ENGINEER REPRESENTATIVE SHALL SEEK GUIDANCE FROM THE DESIGNER OF RECORD TO RESOLVE THE PROBLEM AND WHOSE DECISION SHALL BE FINAL. APPROVAL OF THIS PLAN DOES NOT AUTHORIZE OR APPROVE ANY DIMENSION OR ELEVATION FROM THE APPLICABLE REGULATIONS. FINAL APPROVAL IS SUBJECT TO FIELD INSPECTION. ONE SET OF APPROVED PLANS AND SPECIFICATIONS SHALL BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES.

BY	SC
DATE	10/26/2023
ISSUE	Issue 1: Comment Response
NO.	1



TECHNICAL SERVICES SECTION

PROJECT TITLE:
**TOLLHOUSE
FIRE CENTER -
WATER TANK
AND MAIN**

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: **224406**

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:

COVER SHEET

SHEET NUMBER

C1.0

UNAUTHORIZED CHANGES AND USES
CAUTION: THE ENGINEER PREPARING THESE PLANS 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 THE PREPARER OF THE PLANS.



CONSTRUCTION NOTES

- ALL OFF-SITE CONSTRUCTION MATERIAL AND METHODS SHALL COMPLY WITH THE LATEST EDITION OF THE CAL FIRE AND THE LATEST CALTRANS STANDARD PLANS & SPECIFICATIONS.
- CONTRACTOR SHALL LEAVE AN EMERGENCY PHONE NUMBER WITH THE CAL FIRE POLICE AND FIRE DEPARTMENTS.
- CONTRACTOR SHALL POST ON THE SITE, EMERGENCY TELEPHONE NUMBERS FOR PUBLIC WORKS, AMBULANCE, POLICE, AND FIRE DEPARTMENTS.
- CONTRACTOR SHALL NOTIFY ALL PUBLIC OR PRIVATE UTILITY OWNERS 48 HOURS PRIOR TO COMMENCEMENT OF WORK ADJACENT TO THE UTILITY UNLESS AN EXCAVATION PERMIT SPECIFIES OTHERWISE.
- THE CONTRACTOR SHALL HIRE A STREET CLEANING CONTRACTOR TO CLEAN UP DIRT AND DEBRIS FROM CITY STREETS THAT ARE ATTRIBUTABLE TO THE DEVELOPMENT'S CONSTRUCTION ACTIVITIES.
- ALL GRADING SHALL BE PERFORMED IN SUCH A MANNER AS TO COMPLY WITH THE STANDARDS ESTABLISHED BY THE AIR QUALITY MAINTENANCE DISTRICT FOR AIRBORNE PARTICULATES (DUST).
- ALL GRADING SHALL CONFORM TO APPROVED SPECIFICATIONS PRESENTED HEREON OR ATTACHED HERETO. ALL GRADING WORK SHALL BE OBSERVED AND APPROVED BY THE SOILS ENGINEER. THE GEOTECHNICAL ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS BEFORE BEGINNING ANY GRADING. UNOBSERVED AND UNAPPROVED GRADING WORK SHALL BE REMOVED AND REDONE AT THE CONTRACTORS EXPENSE.
- ALL MATERIALS, REQUIRED FOR THE COMPLETE EXECUTION OF THE PROJECT, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY DURING THE CONSTRUCTION PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR OR REPLACE ANY EXISTING IMPROVEMENTS OF UNDERGROUND FACILITIES DAMAGED DURING THE CONSTRUCTION PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL ENCROACHMENT, EXCAVATION, CONCRETE, ELECTRICAL, PLUMBING, ETC. PERMITS NECESSARY PRIOR TO BEGINNING CONSTRUCTION FOR ANY WORK.
- THE CONTRACTOR SHALL HAVE A SUPERINTENDENT OR REPRESENTATIVE ON SITE AT ALL TIMES DURING CONSTRUCTION.
- STORAGE OF CONSTRUCTION MATERIAL AND EQUIPMENT ON CITY STREETS WILL NOT BE PERMITTED.
- CONSTRUCTION EQUIPMENT SHALL BE PROPERLY MUFFLED. UNNECESSARY IDLING OF GRADING CONSTRUCTION EQUIPMENT IS PROHIBITED.
- CONSTRUCTION EQUIPMENT, TOOLS, ETC. SHALL NOT BE CLEANED OR RINSED INTO A STREET, GUTTER OR STORM DRAIN.
- A CONTAINED AND COVERED AREA ON-SITE SHALL BE USED FOR STORAGE OF CEMENT BAGS, PAINTS, FLAMMABLE, OILS, FERTILIZERS, PESTICIDES, OR ANY OTHER MATERIALS THAT HAVE POTENTIAL FOR BEING DISCHARGED TO THE STORM DRAIN SYSTEM BY WIND OR IN THE EVENT OF A MATERIAL SPILL.
- ALL CONSTRUCTION DEBRIS SHALL BE GATHERED ON A REGULAR BASIS AND PLACED IN A DUMPSTER WHICH IS EMPTIED OR REMOVED WEEKLY. WHEN FEASIBLE, TARPS SHALL BE USED ON THE GROUND TO COLLECT FALLEN DEBRIS OR SPLATTERS THAT COULD CONTRIBUTE TO STORMWATER POLLUTION.
- ANY TEMPORARY ON-SITE CONSTRUCTION PILES SHALL BE SECURELY COVERED WITH A TARP OR OTHER DEVICE TO CONTAIN DEBRIS.
- CONCRETE TRUCKS AND CONCRETE FINISHING OPERATIONS SHALL NOT DISCHARGE WASH WATER INTO THE STREET GUTTERS OR DRAINS.

DISCREPANCIES

IF THERE ARE ANY DISCREPANCIES BETWEEN DIMENSIONS IN DRAWINGS AND EXISTING CONDITIONS WHICH AFFECT THE WORK, THE CONTRACTOR SHALL BRING SUCH DISCREPANCIES TO THE ATTENTION OF THE ENGINEER FOR ADJUSTMENT BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FITTING OF ALL WORK AND FOR THE COORDINATION OF ALL TRADES, SUBCONTRACTORS, AND PERSONS ENGAGED UPON THIS CONTRACT.

UTILITY/POTHOLE NOTE

THE TYPES, LOCATIONS, SIZES AND /OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ARE APPROXIMATE AND WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES. HOWEVER, THE ENGINEER CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES WHICH MAY BE ENCOUNTERED, BUT WHICH ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND FACILITIES AND UTILITIES BY POTHOLING PRIOR TO COMMENCING CONSTRUCTION.

PHASING & SHUTDOWNS

- IT'S THE CONTRACTOR'S RESPONSIBILITY TO PREPARE A CONSTRUCTION SCHEDULE THAT ENSURES COMPLETING THE CONSTRUCTION ON TIME. THE CONTRACTOR MAY ACCELERATE THE WORK BY OVERTIME, ADDITIONAL CREWS AND/OR ADDITIONAL SHIFTS AT NO ADDITIONAL COST TO CALFIRE. THE CONTRACTOR SHALL SUBMIT A DETAILED SCHEDULE THAT SHOWS THE WORK DURING NORMAL WORKING HOURS, AFTER NORMAL WORKING HOURS, AND WEEKENDS FOR THE CALFIRE'S REVIEW AND APPROVAL.
- ANY REQUIRED SHUTDOWN WILL NEED TO BE PERFORMED AFTER NORMAL WORKING HOURS OR DURING THE WEEKENDS. THE CONTRACTOR NEEDS TO COORDINATE WITH CALFIRE'S PROJECT MANAGER FOR ANY SHUTDOWN REQUIREMENTS. CONTRACTOR SHALL SUBMIT SHUTDOWN PLAN/REQUEST FOR CALFIRE'S REVIEW AND APPROVAL 4 WEEKS AHEAD OF ANY SHUTDOWN DATE.
- CONTRACTOR SHALL ENSURE PEDESTRIAN WALKWAYS AND VEHICULAR ROADWAYS REMAIN OPEN TO THE EXTENT POSSIBLE. ANY CLOSURES OF THE WALKWAYS OR ROADWAYS SHOULD BE COORDINATED IN ADVANCE WITH THE CALFIRE PROJECT MANAGER AND CALFIRE PROJECT INSPECTOR.
- CONTRACTOR SHALL SUBMIT A PHASING PLAN SUBMITTAL FOR CALFIRE'S REVIEW AND APPROVAL PRIOR TO STARTING CONSTRUCTION. THIS PLAN TO INCLUDE TEMPORARY CONSTRUCTION FENCING AROUND EACH PHASE AREA. A TRAFFIC CONTROL PLAN SHALL ALSO BE SUBMITTED WITH THE PHASING PLAN FOR CALFIRE'S REVIEW AND APPROVAL.
- ANY ADDITIONAL VALVES OR COMPONENTS REQUIRED FOR PHASING OF CONSTRUCTION AS DETERMINED BY CONTRACTOR SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

FLOODZONE

THIS PROJECT IS IN FLOOD ZONE X: AREAS OUTSIDE OF 0.2% ANNUAL CHANCE FLOOD.

INFORMATION OBTAINED FROM THE FLOOD INSURANCE RATE MAP (FIRM) NO. 06019c0700H DATED FEBRUARY 18, 2009 PRODUCED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).

FIRE DESIGN NOTE:

THE CONTRACTOR SHALL DESIGN, PREPARE SHOP DRAWINGS FOR, OBTAIN ALL REQUIRED APPROVALS, AND CONSTRUCT THE FIRE SYSTEM FOR THE PROPOSED PROJECT. CONTRACTOR SHALL HAVE SHOP DRAWINGS STAMPED BY A FIRE PROTECTION ENGINEER AS REQUIRED BY THE LOCAL AUTHORITY.

UNDERGROUND WORK CAUTION

CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT FOR LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. FOR NORTHERN CALIFORNIA DIAL 811 OR (800) 227-2600. FOR OTHER AREAS CALL (800) 642-2444. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO BEGINNING ANY WORK ON THIS SITE.

DEMOLITION NOTES

- CONTRACTOR IS TO COMPLY WITH ALL GENERAL AND STATE REQUIREMENTS INVOLVING THE REMOVAL AND DISPOSAL OF HAZARDOUS MATERIAL(S).
- CONTRACTOR'S BID IS TO INCLUDE ALL VISIBLE SURFACE AND ALL SUBSURFACE FEATURES IDENTIFIED TO BE REMOVED OR ABANDONED IN THESE DOCUMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF THE DEMOLITION WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION, AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS. THE CONTRACTOR SHALL PAY ALL FEES ASSOCIATED WITH THE DEMOLITION WORK.
- BACKFILL ALL DEPRESSIONS AND TRENCHES FROM DEMOLITION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
- REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIALS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
- PRIOR TO BEGINNING DEMOLITION WORK ACTIVITIES, CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL PLAN & DETAILS AND THE PROJECT SWPPP IF APPLICABLE.
- THE CONTRACTOR SHALL MAINTAIN ALL SAFETY DEVICES, AND SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS LAWS AND REGULATIONS.
- THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS FACILITIES AND STRUCTURES WHICH ARE TO REMAIN. ANY ITEMS DAMAGED BY THE CONTRACTOR OR THEIR AGENTS OR ANY ITEMS REMOVED FOR HIS USE SHALL BE REPLACED IN EQUAL OR BETTER CONDITION AS APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE.
- COORDINATE WITH ELECTRICAL, MECHANICAL, LANDSCAPING AND ARCHITECTURAL DRAWINGS FOR UTILITY SHUT-DOWN/DISCONNECT LOCATIONS. CONTRACTOR IS TO SHUT OFF ALL UTILITIES AS NECESSARY PRIOR TO DEMOLITION. CONTRACTOR IS TO COORDINATE SERVICE INTERRUPTIONS WITH THE UTILITY OWNER AND ANY AFFECTED PROPERTIES OR BUILDINGS. SEE ARCHITECTURAL PLANS FOR ADDITIONAL DEMOLITION SCOPE OF WORK.
- THIS PLAN IS NOT INTENDED TO BE A COMPLETE CATALOGUE OF ALL EXISTING STRUCTURES AND UTILITIES. THIS PLAN INTENDS TO DISCLOSE GENERAL INFORMATION KNOWN BY THE ENGINEER AND TO SHOW THE LIMITS OF THE AREA WHERE WORK WILL BE PERFORMED. THIS PLAN SHOWS THE EXISTING FEATURES TAKEN FROM A FIELD SURVEY, FIELD INVESTIGATIONS AND AVAILABLE INFORMATION. THIS PLAN MAY OR MAY NOT ACCURATELY REFLECT THE TYPE OR EXTENT OF THE ITEMS TO BE ENCOUNTERED AS THEY ACTUALLY EXIST. WHERE EXISTING FEATURES ARE NOT SHOWN, IT IS NOT IMPLIED THAT THEY ARE NOT TO BE DEMOLISHED OR RELOCATED. THE CONTRACTOR SHALL PERFORM A THOROUGH FIELD INVESTIGATION AND REVIEW OF THE SITE WITHIN THE LIMIT OF WORK SHOWN IN THIS PLAN SET TO DETERMINE THE TYPE, QUANTITY AND EXTENT OF ANY AND ALL ITEMS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE EXTENT OF EXISTING STRUCTURES AND UTILITIES AND QUANTITY OF WORK INVOLVED IN REMOVING THESE ITEMS FROM THE SITE.
- CONTRACTOR TO DEMOLISH AND REMOVE ALL IRRIGATION IN LANDSCAPE AREAS WITHIN THE LIMIT OF WORK. IF ANY IRRIGATION LINES OR MAINS ARE IN THE LIMIT OF WORK OR ARE DAMAGED THAT SERVE LANDSCAPE TO REMAIN, CONTRACTOR TO RECONNECT OR RELOCATE AT NO ADDITIONAL COST TO OWNER.
- PROTECT ALL EXISTING UTILITIES IN PLACE UNLESS OTHERWISE NOTED. REPLACE ANY DAMAGED UTILITY TO REMAIN TO KEEP OPERABLE DURING CONSTRUCTION.
- ALL UTILITY SHUT DOWNS ARE TO BE AVOIDED. IF SHUT DOWNS ARE NECESSARY, CONTRACTOR TO COORDINATE SHUT DOWN WITH UTILITY OWNER WITH 48 HOUR MINIMUM NOTICE.
- ALL EXISTING STORM DRAIN, SANITARY SEWER, AND WATER MAINS THAT SERVE EXISTING BUILDINGS MUST REMAIN OPERABLE DURING CONSTRUCTION. CONTRACTOR TO SET UP TEMPORARY SERVICE OR PUMP AS NECESSARY TO ENSURE UNINTERRUPTED SERVICE.

GRADING NOTES

- ALL FILL, IMPORT SOILS AND GRADING SHALL BE IN CONFORMANCE WITH THE PROJECT GEOTECHNICAL REPORT.
- ALL GRADING SHALL CONFORM TO APPROVED SPECIFICATIONS PRESENTED HEREON OR ATTACHED HERETO. ALL GRADING WORK SHALL BE OBSERVED AND APPROVED BY THE SOILS ENGINEER. THE SOILS ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS BEFORE BEGINNING ANY GRADING. UNOBSERVED AND UNAPPROVED GRADING WORK SHALL BE REMOVED AND REDONE AT THE CONTRACTORS EXPENSE.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR OR REPLACE ANY EXISTING IMPROVEMENTS OF UNDERGROUND FACILITIES DAMAGED DURING THE CONSTRUCTION PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL ENCROACHMENT, EXCAVATION, CONCRETE, ELECTRICAL, PLUMBING, ETC. PERMITS NECESSARY PRIOR TO BEGINNING CONSTRUCTION FOR ANY WORK.
- AREAS LACKING TOPOGRAPHIC INFORMATION (ELEVATIONS) HAVE BEEN INTERPOLATED USING STANDARD ENGINEERING METHODS. CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS AT CONFORMS PRIOR TO COMMENCEMENT OF CONSTRUCTION AND REPORT BACK ANY DISCREPANCIES TO THE CIVIL ENGINEER.

APPLICABLE FIRE CODE NOTES

APPLICABLE CODES AS OF JANUARY 1, 2023:

2022 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR)

2022 CALIFORNIA BUILDING CODE, VOLUMES 1 AND 2 (PART 2, TITLE 24, CCR)
(2021 EDITION INTERNATIONAL BUILDING CODE)

2022 CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24, CCR)
(2020 EDITION NATIONAL ELECTRICAL CODE)

2022 CALIFORNIA MECHANICAL CODE (PART 4, TITLE 24, CCR)
(2021 EDITION UNIFORM MECHANICAL CODE)

2022 CALIFORNIA PLUMBING CODE (PART 5, TITLE 24, CCR)
(2021 EDITION UNIFORM PLUMBING CODE)

2022 CALIFORNIA ENERGY CODE (PART 6, TITLE 24, CCR)

2022 CALIFORNIA ELEVATOR SAFETY ORDERS (CHAPTER 4, TITLE 8, CCR)

2022 CALIFORNIA FIRE CODE (PART 9, TITLE 24, CCR)
(2021 EDITION INTERNATIONAL FIRE CODE)

2022 CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24, CCR)

TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

PARTIAL LIST OF APPLICABLE REFERENCE STANDARDS AS LISTED AND AMENDED PER 2022 CALIFORNIA FIRE CODE, CHAPTER 80:

NFPA 13 – AUTOMATIC SPRINKLER SYSTEMS – 2022 EDITION
NFPA 14 – STANDPIPE SYSTEMS – 2019 EDITION
NFPA 24 – PRIVATE FIRE MAINS – 2019 EDITION
NFPA 72 – NATIONAL FIRE ALARM CODE – 2022 EDITION
NFPA 20 – STATIONARY PUMPS FOR FIRE PROTECTION – 2019 EDITION
NFPA 22 – STANDARD FOR WATER TANK FOR PRIVATE FIRE PROTECTION – 2018 EDITION
NFPA 99 – HEALTH CARE FACILITIES – 2021 EDITION

UNDERGROUND FIRE SERVICE TO FIRE HYDRANTS REQUIREMENTS:

NFPA 24, SEC. 10.1.1.3: UNLESS THE REQUIREMENTS OF 10.1.1.3 ARE MET, ALL FERROUS METAL PIPE SHALL BE LINED IN ACCORDANCE WITH THE APPLICABLE STANDARDS IN TABLE 10.1.1.1

NFPA 24, SEC. 10.4: THE DEPTH OF COVER OVER WATER PIPES SHALL NOT BE LESS THAN 2-1/2 FEET TO PREVENT MECHANICAL DAMAGE. PIPE UNDER DRIVEWAYS SHALL BE BURIED AT A MINIMUM DEPTH OF 3 FEET. PIPE UNDER RAILROAD TRACKS SHALL BE BURIED AT A MINIMUM DEPTH OF 4 FEET.

NFPA 24, SEC. 10.4.1.1: ALL BOLTED JOINT ACCESSORIES SHALL BE CLEANED AND THOROUGHLY COATED WITH ASPHALT OR OTHER CORROSION-RETARDING MATERIAL AFTER INSTALLATION.

NFPA 24, SEC. 10.4.3: PIPE SHALL NOT BE RUN UNDER BUILDINGS EXCEPT WHERE PERMITTED IN 10.4.3.1 AND 10.4.3.2

NFPA 24, SEC. 10.6.1: THRUST BLOCKS SHALL BE PERMITTED WHERE SOIL IS STABLE AND CAPABLE OF RESISTING THE ANTICIPATED THRUST FORCES. THRUST BLOCKS SHALL BE OF A CONCRETE MIX NOT LEANER THAN ONE PART CEMENT, TWO AND ONE HALF PARTS SAND, AND FIVE PARTS STONE. THRUST BLOCKS SHALL BE PLACED BETWEEN UNDISTURBED EARTH AND THE FITTING TO BE RESTRAINED, AND SHALL BE CAPABLE OF RESISTING THE CALCULATED THRUST FORCES. WHEREVER POSSIBLE, THRUST BLOCKS SHALL BE PLACED SO THAT THE JOINTS ARE ACCESSIBLE FOR REPAIR.

NFPA 24, SEC. 10.6.2.5: CORROSION RESISTANCE. AFTER INSTALLATION, RODS, NUTS, BOLTS, WASHERS, CLAMPS, AND OTHER RESTRAINING DEVICES SHALL BE CLEANED AND THOROUGHLY COATED WITH BITUMINOUS OR OTHER ACCEPTABLE CORROSION-RETARDING MATERIAL.

NFPA 24, SEC. 10.10.2.1.1: UNDERGROUND PIPING, FROM THE WATER SUPPLY TO THE SYSTEM RISER, AND LEAD-IN CONNECTIONS TO THE SYSTEM RISER SHALL BE COMPLETELY FLOSHED BEFORE THE CONNECTION IS MADE TO THE DOWNSTREAM FIRE PROTECTION SYSTEM PIPING. THE FLUSHING OPERATION SHALL BE CONTINUED FOR A SUFFICIENT TIME TO ENSURE THOROUGH CLEANING. THE MINIMUM RATE OF FLOW SHALL BE NOT LESS THAN THAT SPECIFIED IN SECTION 10.10.2.1.3.

NFPA 24, SEC. 10.10.2.2.1: ALL PIPING AND ATTACHED APPURTENANCES SUBJECT TO SYSTEM WORKING PRESSURE SHALL BE HYDROSTATICALLY TESTED AT 200 PSI OR 50 PSI IN EXCESS OF THE SYSTEM WORKING PRESSURE, WHICHEVER IS GREATER, AND SHALL MAINTAIN THAT PRESSURE AT ±5 PSI FOR 2 HOURS.

NFPA 24, SEC. 10.10.1: THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING: (1) NOTIFYING THE AUTHORITY HAVING JURISDICTION AND THE OWNER'S REPRESENTATIVE OF THE TIME AND DATE TESTING IS TO BE PERFORMED; (2) PERFORMING ALL REQUIRED ACCEPTANCE TESTS; (3) COMPLETING AND SIGNING THE CONTRACTOR'S MATERIAL AND TEST CERTIFICATE(S) SHOWN IN FIGURE 10.10.1.

HAZARDOUS MATERIALS NOTE

THERE MAY BE ASBESTOS CONTAINING PIPE AND PIPE INSTALLATION OR OTHER HAZARDOUS MATERIALS WITHIN THE PROJECT AREA. THE CONTRACTOR WILL PROTECT ALL HAZARDOUS CONTAINING ITEMS DURING THE EXECUTION OF THIS CONTRACT. ADDITIONALLY THE CONTRACTOR WILL COMPLY WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS REGARDING CONSTRUCTION ACTIVITIES NEAR HAZARDOUS MATERIALS.

CONSTRUCTION FENCE

- CONTRACTOR SHALL PROVIDE A CONSTRUCTION FENCE AROUND THE ENTIRE AREA OF DEMOLITION AND CONSTRUCTION, INCLUDING ALL STAGING, STORAGE, CONSTRUCTION OFFICE AND LAYDOWN AREAS.
- CONSTRUCTION FENCE SHALL BE A MINIMUM OF A 6" HIGH GALVANIZED CHAIN LINK WITH GREEN WINDSCREEN FABRIC ON THE OUTSIDE OF THE FENCE.
- CONSTRUCTION FENCE ADDRESSED IN THESE NOTES IS ONLY FOR VISUAL CONFORMANCE OF THIS CONSTRUCTION SITE TO THE CAL FIRE STANDARDS. CONTRACTOR MAY BE REQUIRED TO PROVIDE ADDITIONAL FENCING, BARRICADES OR OTHER SAFETY DEVICES TO KEEP THE SITE SECURE AND SAFE.
- ALL PAVING SHALL BE IN CONFORMANCE WITH SECTION 26 "AGGREGATE BASE" AND SECTION 39 "ASPHALT CONCRETE" PER LATEST EDITION OF CALTRANS STANDARD SPECIFICATIONS.

DIMENSIONS

ALL DIMENSIONS ON THE PLANS ARE IN FEET OR DECIMALS THEREOF UNLESS SPECIFICALLY CALLED OUT AS FEET AND INCHES.

RECORD DRAWING NOTE

THE CONTRACTOR SHALL KEEP UP-TO-DATE AND ACCURATE A COMPLETE RECORD SET OF PRINTS OF THE CONTRACT DRAWINGS SHOWING EVERY CHANGE FROM THE ORIGINAL DRAWINGS MADE DURING THE COURSE OF CONSTRUCTION INCLUDING EXACT FINAL LOCATION, ELEVATION, SIZES, MATERIALS, AND DESCRIPTION OF ALL WORK. RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS. A COMPLETE SET OF CORRECTED AND COMPLETED RECORD DRAWING PRINTS SHALL BE SUBMITTED TO THE CITY ENGINEER AND DEVELOPER'S CIVIL ENGINEER PRIOR TO FINAL ACCEPTANCE FOR REVIEW AND APPROVAL BY THE CAL FIRE ENGINEER.

GENERAL UTILITY NOTES

- ALL TRENCHES SHALL BE BACK FILLED PER THE GEOTECHNICAL REPORT OR UTILITY OWNERS STANDARD DETAILS AND SPECIFICATIONS.
- CONTRACTOR SHALL STAKE LOCATION OF ABOVE GROUND UTILITY EQUIPMENT (TRANSFORMER, GAS METER, ETC.). CAL FIRE MUST SPECIFICALLY AGREE WITH LOCATION PRIOR TO PROCEEDING WITH ANY REVISIONS TO APPROVED LOCATIONS.
- CATHODIC PROTECTION SHALL BE REQUIRED ON ALL METALLIC FITTINGS AND ASSEMBLIES THAT ARE IN CONTACT WITH THE SOIL, UNLESS SPECIFICALLY DEEMED UNNECESSARY BY THE GEOTECHNICAL REPORT. CONTRACTOR IS RESPONSIBLE TO FULLY ENGINEER AND INSTALL THIS SYSTEM AND COORDINATE ANODE AND TEST STATION LOCATIONS WITH THE UTILITY OWNER.
- COMPLETE SYSTEMS: ALL UTILITY SYSTEMS ARE Delineated IN A SCHEMATIC MANNER ON THESE PLANS. CONTRACTOR IS TO PROVIDE ALL FITTINGS, ACCESSORIES AND WORK NECESSARY TO COMPLETE THE UTILITY SYSTEM SO THAT IT IS FULLY FUNCTIONING FOR THE PURPOSE INTENDED.
- UNDERGROUND UTILITIES OR STRUCTURES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS AND EXTENT BASED UPON RECORD INFORMATION. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CLIENT, BY ACCEPTING THESE PLANS OR PROCEEDING WITH IMPROVEMENTS PURSUANT THERETO, AGREES TO ASSUME LIABILITY AND TO HOLD UNDERSIGNED HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED TO THE UNDERSIGNED; NOT INDICATED ON THE PUBLIC RECORDS EXAMINED, LOCATED AT VARIANCE WITH THOSE REPORTED OR SHOWN ON RECORDS EXAMINED.
- CONTRACTOR SHALL VERIFY ALL EXISTING INVERT ELEVATIONS FOR STORM DRAIN AND SANITARY SEWER CONSTRUCTION PRIOR TO COMMENCEMENT OF ANY WORK. ALL WORK FOR STORM AND SANITARY SEWER INSTALLATION SHALL BEGIN AT THE DOWNSTREAM CONNECTION POINT. THIS WILL ALLOW FOR ANY NECESSARY ADJUSTMENTS TO BE MADE PRIOR TO THE INSTALLATION OF THE ENTIRE LINE. IF THE CONTRACTOR FAILS TO BEGIN AT THE DOWNSTREAM CONNECTION POINT AND WORK UP-STREAM, AND SHALL PROCEED AT HIS OWN RISK AND BE RESPONSIBLE FOR ANY ADJUSTMENTS NECESSARY.
- EXISTING UTILITY CROSSINGS OF NEW PIPELINE ARE SHOWN ACCORDING TO THE BEST AVAILABLE INFORMATION. GAS, WATER AND SEWER SERVICE LATERALS ARE SHOWN ACCORDING TO THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY THE TYPE, SIZE, LOCATION AND DEPTH OF ALL THE UTILITY CROSSING (BOTH MAINS AND LATERALS) ARE CORRECT AS SHOWN. NO GUARANTEE IS MADE THAT ALL EXISTING UTILITIES (BOTH MAINS AND LATERALS) ARE SHOWN. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING AND SHALL PROTECT ALL EXISTING UTILITIES (BOTH MAINS AND LATERALS) FROM DAMAGE DUE TO HIS OPERATION.
- VERTICAL SEPARATION REQUIREMENTS (UNLESS SPECIFICALLY SHOWN OTHERWISE ON PLANS):
 - A MINIMUM OF SIX (6) INCHES VERTICAL CLEARANCE, MEASURED FROM OUTSIDE EDGE OF PIPE, SHALL BE PROVIDED BETWEEN CROSSING UTILITY PIPES, EXCEPT THAT THE MINIMUM VERTICAL CLEARANCE BETWEEN WATER AND SANITARY SEWER PIPELINES SHALL BE 12 INCHES AND ALL NEW WATER PIPES SHALL BE TYPICALLY INSTALLED TO CROSS ABOVE/OVER EXISTING SANITARY SEWER PIPELINES.
 - WHERE NEW WATER PIPELINES ARE REQUIRED TO CROSS UNDER EXISTING AND/OR NEW SANITARY SEWER PIPELINES, THE MINIMUM VERTICAL SEPARATION SHALL BE 12 INCHES. WATER LINE PIPE ENDS SHALL BE INSTALLED NO CLOSER THAN 10" MINIMUM HORIZONTAL DISTANCE FROM CENTERLINE OF UTILITY CROSSINGS, WHERE FEASIBLE.
- HORIZONTAL SEPARATION REQUIREMENTS (UNLESS SPECIFICALLY SHOWN OTHERWISE ON PLANS):
 - A MINIMUM HORIZONTAL SEPARATION BETWEEN NEW PIPELINES AND ANY EXISTING UTILITIES SHALL BE 5' FEET, EXCEPT THAT THE MINIMUM HORIZONTAL SEPARATION FOR WATER AND SANITARY SEWER MAIN PIPELINES SHALL BE 10" MINIMUM.
 - A MINIMUM HORIZONTAL SEPARATION BETWEEN NEW PIPELINES AND JOINT TRENCH SHALL BE 5 FEET.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING APPROPRIATE UTILITIES AND REQUESTING VERIFICATION OF SERVICE POINTS, FIELD VERIFICATION OF LOCATION, SIZE, DEPTH, ETC. FOR ALL THEIR FACILITIES AND TO COORDINATE WORK SCHEDULES.
- ANY EXISTING UNDERGROUND UTILITY LINES TO BE ABANDONED, SHALL BE REMOVED FROM WITHIN THE PROPOSED BUILDING ENVELOPE AND THEIR ENDS CAPPED OUTSIDE OF THE BUILDING ENVELOPE.
- ANY PIPING TO BE ABANDONED IN PLACE SHALL BE FILLED WITH GROUT AND CAPPED.

PAVEMENT SECTIONS

- SEE STRUCTURAL DRAWINGS FOR BUILDING SLAB SECTIONS AND PAD PREPARATIONS.
- SEE GEOTECHNICAL REPORT FOR ALL FLATWORK AND VEHICULAR PAVEMENT SECTIONS AND BASE REQUIREMENTS.
- THE FINAL OR SURFACE LAYER OF ASPHALT CONCRETE SHALL NOT BE PLACED UNTIL ALL ON-SITE IMPROVEMENTS HAVE BEEN COMPLETED, INCLUDING ALL GRADING, AND ALL UNACCEPTABLE CONCRETE WORK HAS BEEN REMOVED AND REPLACED, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER AND/OR DEVELOPER'S CIVIL ENGINEER.
- ALL PAVING SHALL BE IN CONFORMANCE WITH SECTION 26 "AGGREGATE BASE" AND SECTION 39 "ASPHALT CONCRETE" PER LATEST EDITION OF CALTRANS STANDARD SPECIFICATIONS.

DIMENSIONS

ALL DIMENSIONS ON THE PLANS ARE IN FEET OR DECIMALS THEREOF UNLESS SPECIFICALLY CALLED OUT AS FEET AND INCHES.

DUST CONTROL NOTES

- WATER TRUCKS SHALL BE PRESENT AND IN USE AT THE CONSTRUCTION SITE. ALL PORTIONS OF THE SITE SUBJECT TO BLOWING DUST SHALL BE WATERED AS OFTEN AS DEEMED NECESSARY BY THE CLIENT/INSPECTOR IN ORDER TO INSURE PROPER CONTROL OF BLOWING DUST FOR THE DURATION OF THE PROJECT.
- ALL PUBLIC STREETS AND MEDIANS SOILED OR LITTERED DUE TO THIS CONSTRUCTION ACTIVITY SHALL BE CLEANED AND SWEEP ON A DAILY BASIS DURING THE WORK WEEK, OR AS OFTEN AS DEEMED NECESSARY BY THE CLIENT/INSPECTOR, OR TO THE SATISFACTION OF THE CAL FIRE.
- ALL TRUCKS HAULING SOIL, SAND, AND OTHER LOOSE MATERIALS SHALL BE COVERED WITH TARPULINS OR OTHER EFFECTIVE COVERS.
- WHEEL WASHERS SHALL BE INSTALLED AND USED TO CLEAN ALL TRUCKS AND EQUIPMENT LEAVING THE CONSTRUCTION SITE. IF WHEEL WASHERS CANNOT BE INSTALLED, TIRES OR TRACKS OF ALL TRUCKS AND EQUIPMENT SHALL BE WASHED OFF BEFORE LEAVING THE CONSTRUCTION SITE.
- THE CONTRACTOR SHALL DEMONSTRATE DUST SUPPRESSION MEASURES, SUCH AS REGULAR WATERING, WHICH SHALL BE IMPLEMENTED TO REDUCE EMISSIONS DURING CONSTRUCTION AND GRADING IN A MANNER MEETING THE APPROVAL OF THE CONSTRUCTION MANAGER. THIS SHALL ASSIST IN REDUCING SHORT-TERM IMPACTS FROM PARTICLES WHICH COULD RESULT IN NUISANCES THAT ARE PROHIBITED BY RULE 403 (FUGITIVE DUST).
- GRADING OR ANY OTHER OPERATIONS THAT CREATES DUST SHALL BE STOPPED IMMEDIATELY IF DUST AFFECTS ADJACENT PROPERTIES. THE CONTRACTOR SHALL PROVIDE SUFFICIENT DUST CONTROL FOR THE ENTIRE PROJECT SITE IN ACCORDANCE WITH THE PROJECT SWPPP (IF ONE EXISTS) OR AS APPLICABLE PER LOCAL REGULATIONS AT ALL TIMES. THE SITE SHALL BE SPRINKLERED AS NECESSARY TO PREVENT DUST NUISANCE. IN THE EVENT THAT THE CONTRACTOR NEGLECTS TO USE ADEQUATE MEASURES TO CONTROL DUST, THE CLIENT RESERVES THE RIGHT TO TAKE WHATEVER MEASURES ARE NECESSARY TO CONTROL DUST AND CHARGE THE COST TO THE CONTRACTOR.
- THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL MEASURES AND FOR OBTAINING ALL REQUIRED PERMITS AND APPROVALS. ALL GRADING OPERATIONS SHALL BE SUSPENDED DURING SECOND (OR WORSE) STAGE SMOG ALERTS.

GENERAL SITE NOTES

- CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING ON THIS WORK AND CONSIDER THE EXISTING CONDITIONS AND SITE CONSTRAINTS IN THE BID. CONTRACTOR SHALL BE IN THE POSSESSION OF AND FAMILIAR WITH ALL APPLICABLE GOVERNING AGENCIES STANDARD DETAILS AND SPECIFICATIONS PRIOR TO SUBMITTING OF A BID.
- ALL WORK ON-SITE AND IN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO ALL APPLICABLE GOVERNING AGENCIES STANDARD DETAILS & SPECIFICATIONS.
- PRIOR TO BEGINNING WORK, AND AFTER INITIAL HORIZONTAL CONTROL STAKING, CONTRACTOR SHALL FIELD CHECK ALL ELEVATIONS MARKED WITH (E) AND REPORT ANY DISCREPANCIES GREATER THAN 0.05' TO THE ENGINEER.
- DAMAGE TO ANY EXISTING SITE IMPROVEMENTS, UTILITIES AND/OR SERVICES TO REMAIN SHALL BE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN KIND.
- CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND THAT THE CONTRACTOR SHALL DEFEND INDEMNIFY AND HOLD THE CLIENT, THE CONSULTING ENGINEER AND THE CITY HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE CLIENT OR THE CONSULTING ENGINEER.

TREE PROTECTION

- PRIOR TO BEGINNING CONSTRUCTION ON SITE, CONTRACTOR SHALL IDENTIFY AND PROTECT EXISTING TREES AND PLANTS DESIGNATED AS TO REMAIN.
- PROTECT EXISTING TREES TO REMAIN FROM SPILLED CHEMICALS, FUEL OIL, MOTOR OIL, GASOLINE AND ALL OTHER CHEMICALLY INJURIOUS MATERIAL; AS WELL AS FROM PUDDING OR CONTINUOUSLY RUNNING WATER. SHOULD A SPILL OCCUR, STOP WORK IN THAT AREA AND CONTACT THE CITY'S ENGINEER/INSPECTOR IMMEDIATELY. CONTRACTOR SHALL BE RESPONSIBLE TO MITIGATE DAMAGE FROM SPILLED MATERIAL AS WELL AS MATERIAL CLEAN UP.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ONGOING MAINTENANCE OF ALL TREES DESIGNATED TO REMAIN AND FOR MAINTENANCE OF RELOCATED TREES STOCKPILED DURING CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REPLACE TREES THAT DIE DUE TO LACK OF MAINTENANCE.
- REFER TO LANDSCAPE PLANS, SPECIFICATIONS OR ARBORIST REPORT FOR TREE PROTECTION REQUIREMENTS AND MEASURES.

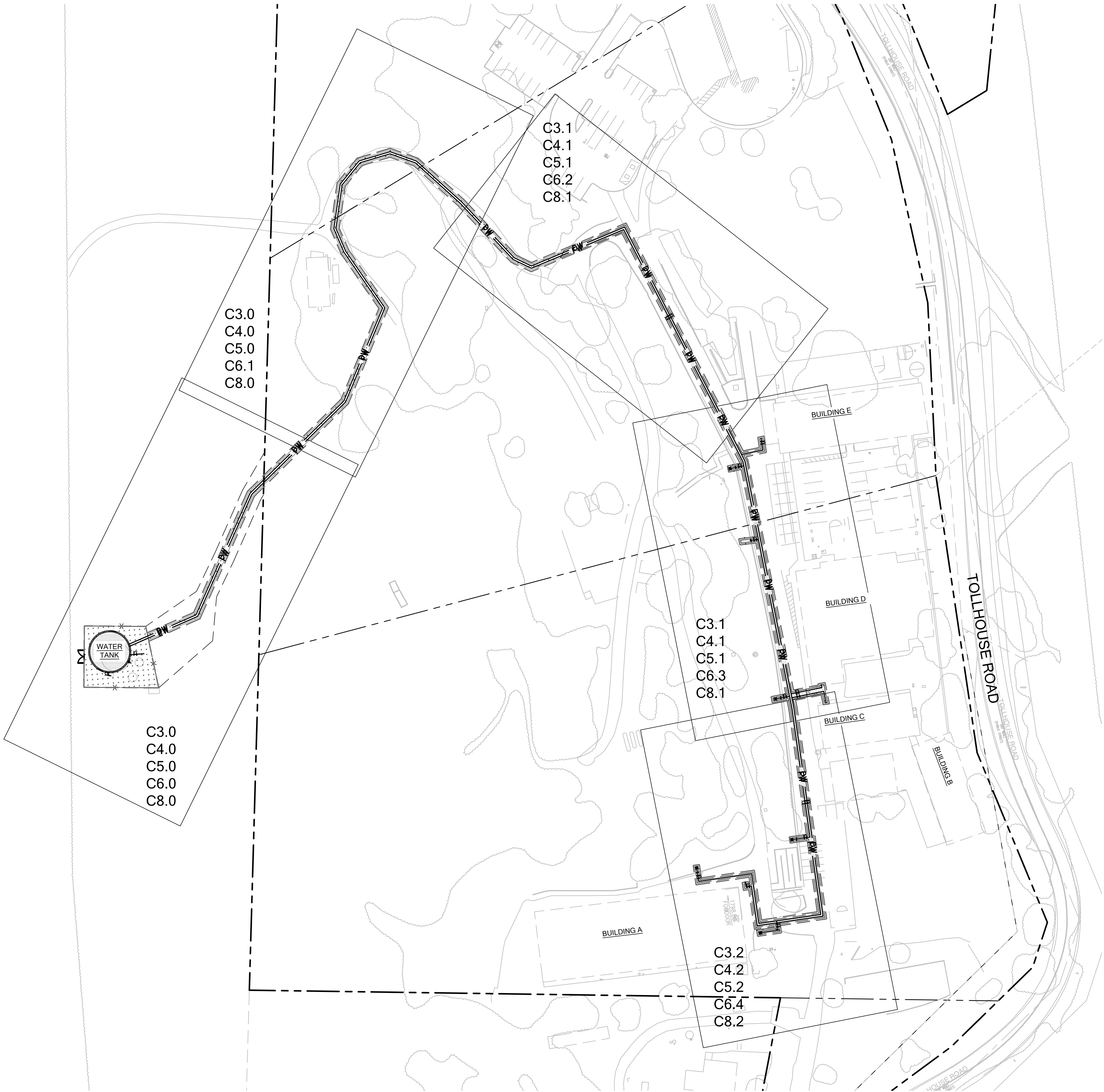
PROJECT SITE MAINTENANCE

- REMOVE ALL DIRT, GRAVEL, RUBBISH, REFUSE, AND GREEN WASTE FROM STREET PAVEMENT AND STORM DRAINS ADJOINING THE SITE. LIMIT CONSTRUCTION ACCESS ROUTES ONTO THE SITE AND PLACE GRAVEL PADS AT THESE LOCATIONS. DO NOT DRIVE VEHICLES AND EQUIPMENT OFF THE PAVED OR GRAVELED AREAS DURING WET WEATHER.
- SWEEP OR VACUUM THE STREET PAVEMENT AND SIDEWALKS ADJOINING THE PROJECT SITE AND THE ON-SITE PAVED AREAS ON A DAILY BASIS. SCRAPE CAKED-ON MUD AND DIRT FROM THESE AREAS BEFORE SWEEPING. CORNERS AND HARD TO REACH AREAS SHALL BE SWEEP MANUALLY.
- CREATE A CONTAINED AND COVERED AREA ON THE SITE FOR THE STORAGE OF BAGS, CEMENT, PAINTS, OILS, FERTILIZERS, PESTICIDES, OR OTHER MATERIALS USED ON THE SITE THAT HAVE THE POTENTIAL OF BEING DISCHARGED INTO THE STORM DRAIN SYSTEM THROUGH EITHER BEING WIND-BLOWN OR IN THE EVENT OF A MATERIAL SPILL.
- NEVER CLEAN MACHINERY, EQUIPMENT OR TOOLS INTO A STREET, GUTTER OR STORM DRAIN.
- ENSURE THAT CEMENT TRUCKS, PAINTERS, OR STUCCO/PLASTER FINISHING CONTRACTORS DO NOT DISCHARGE WASH WATER FROM EQUIPMENT, TOOLS OR RINSE CONTAINERS INTO GUTTERS OR DRAINS.

VERSION: V2

	
OFFICE OF THE STATE FIRE MARSHAL APPROVED FIRE AND PANIC ONLY 5/12/2026 CAL FIRE 25-5047 SINCE 1885 Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times	
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BY:	SC
DATE:	04/28/2025
ISSUE:	Issue 1: Comment Response
No.	1
PROJECT: 410_S:\224406 TOLLHOUSE4_ENGINEERING\02_PLAN SET\03_SHEET SET\01 SITE WATER TANK\01 - NOTES.DWG	
	
TECHNICAL SERVICES SECTION	
PROJECT TITLE: TOLLHOUSE FIRE CENTER - WATER TANK AND MAIN	
27595 TOLLHOUSE ROAD CITY OF TOLLHOUSE, CALIFORNIA 93667 FRESNO COUNTY	
JOB NUMBER: 224406	
DESIGNED BY: TH	
DRAWN BY: TK	
REVIEWED BY: SC	
FILE DATE: 12/01/2025	
SHEET TITLE:	
CONSTRUCTION NOTES	
SHEET NUMBER C1.1	

VER. 2019
PROJECT: 410_S:\224406 TOLLHOUSE4_ENGINEERING\02_PLAN SET\03_SHEET SET\01 SITE WATER TANK\01 - NOTES.DWG
DATE:

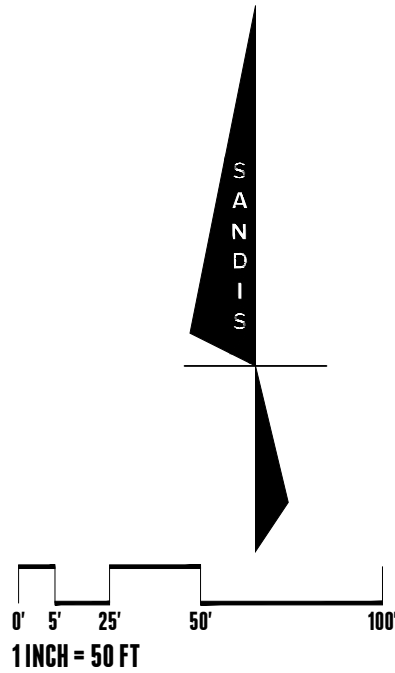


LEGEND

- PROPERTY LINE
- LOT LINE
- EASEMENT
- LIMIT OF WORK

NOTES

CONTRACTOR SHALL ENSURE PEDESTRIAN WALKWAYS AND VEHICULAR ROADWAYS REMAIN OPEN TO THE EXTENT POSSIBLE. ANY CLOSURES OF THE WALKWAYS OR ROADWAYS SHOULD BE COORDINATED IN ADVANCE WITH CAL FIRE.



VERSION: V2



OFFICE OF THE STATE FIRE MARSHAL
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No.	DATE	ISSUE	Delta 1: Comment Responses									
			1									
1	10/28/2023											



TECHNICAL SERVICES SECTION

PROJECT TITLE:
**TOLLHOUSE
FIRE CENTER -
WATER TANK
AND MAIN**

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: **224406**

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:

**SITE KEY
MAP**

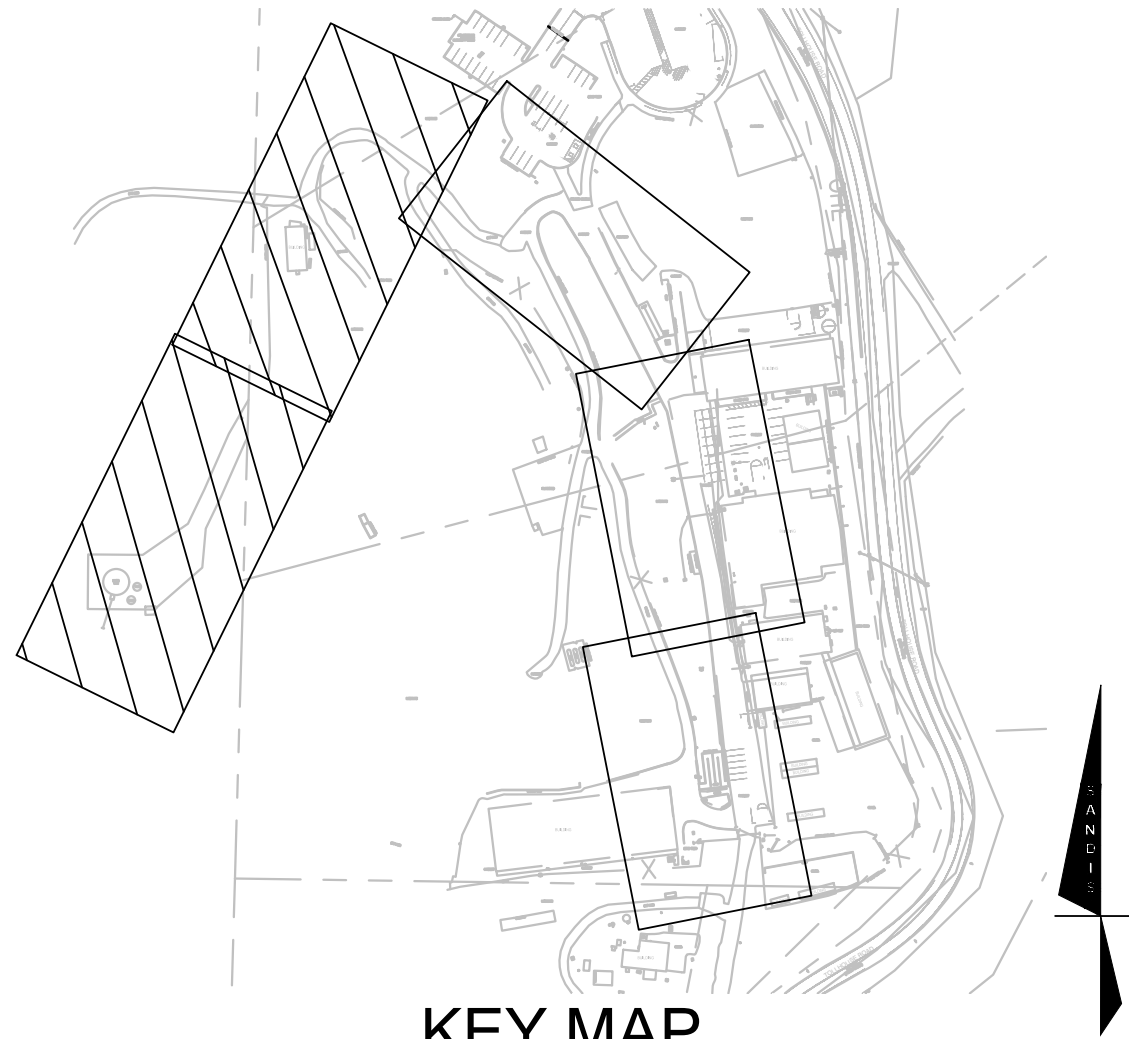
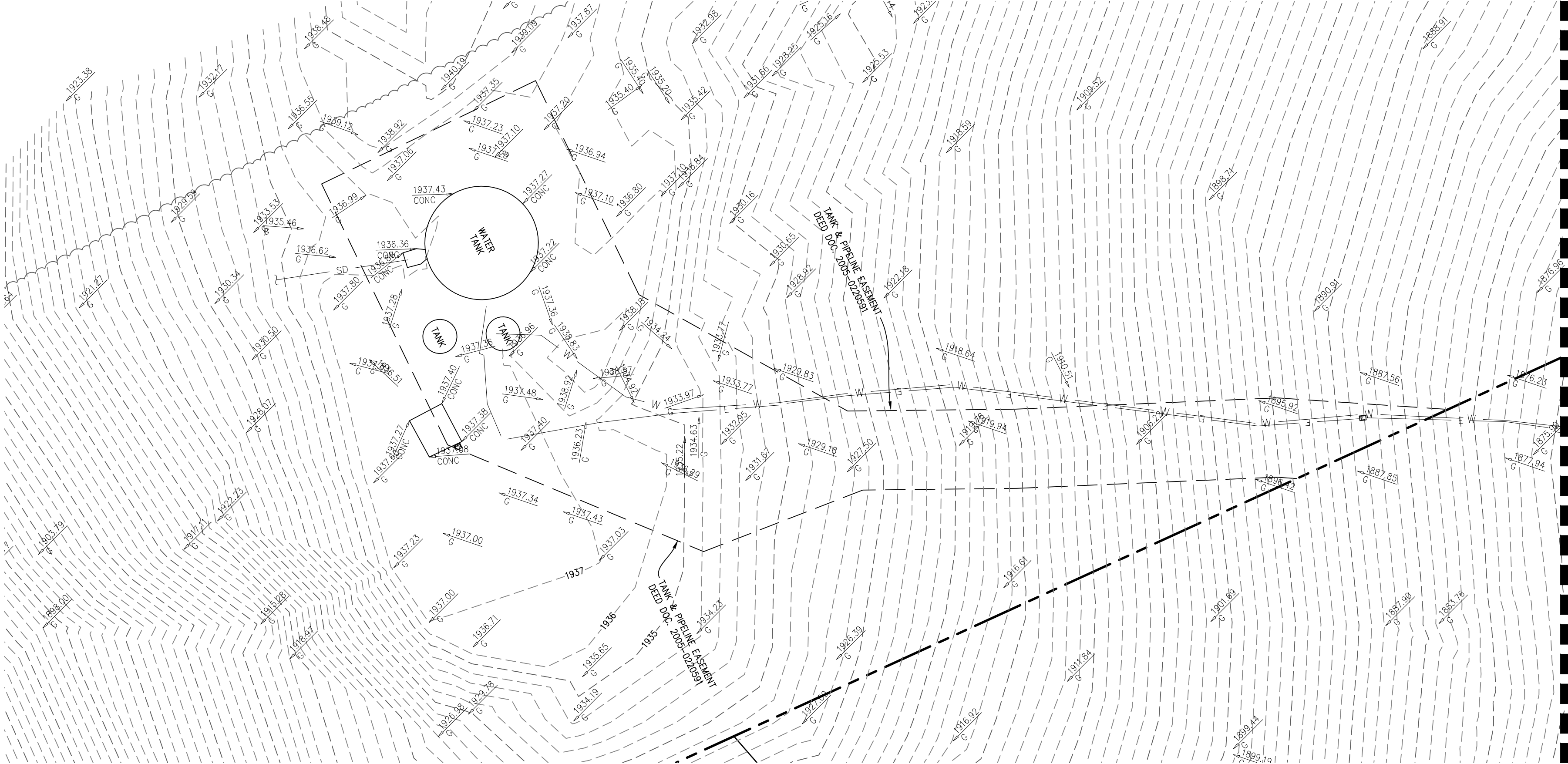
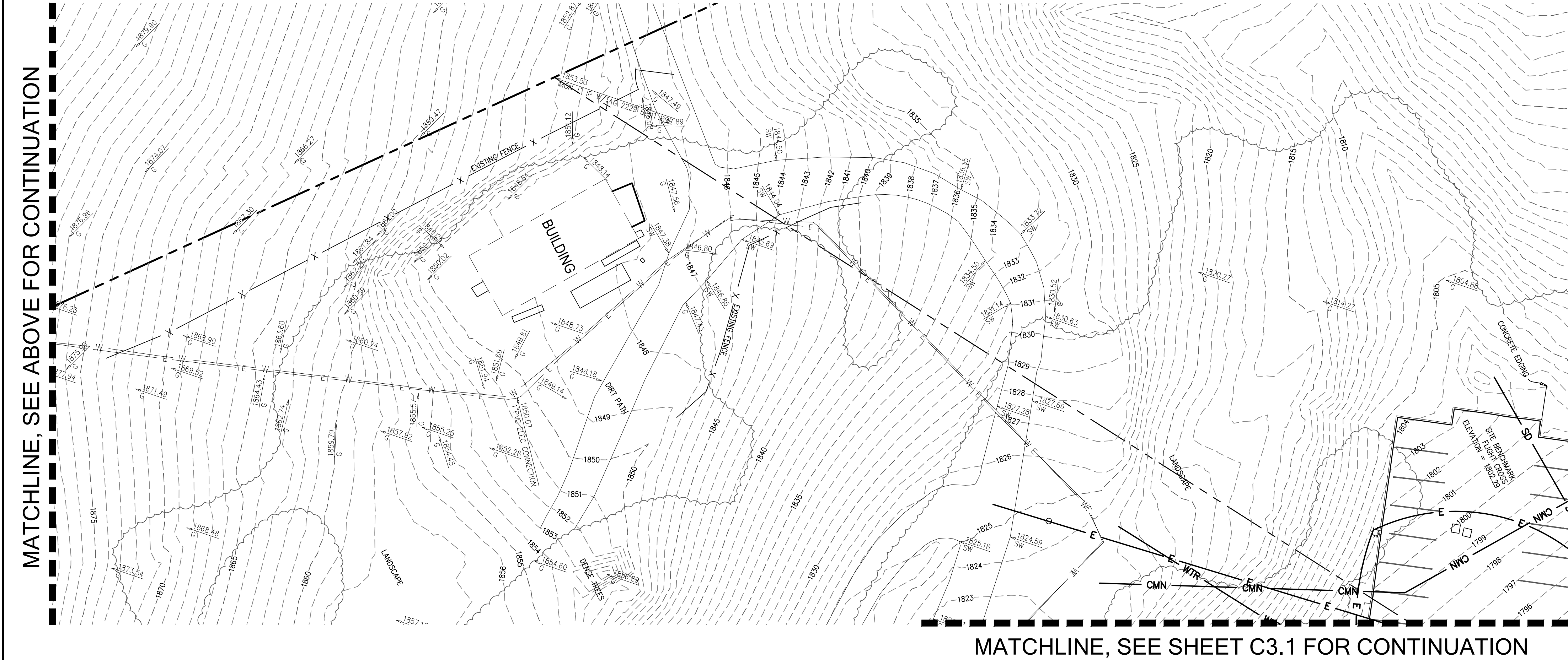
SHEET NUMBER

C2.0

VER: 2019

PROJECT PATH: S:\224406 TOLLHOUSE\4. ENGINEERING\2. PLAN SETS\3. SHEET SET\SITE WATER TANK\C2.0 - SITE KEY MAP.DWG

PLOT DATE:



SURVEY NOTES

- ALL DISTANCES AND DIMENSIONS ARE SHOWN IN FEET AND DECIMALS THEREOF.
- DATES OF FIELD SURVEY: 10/1/2024, 10/2/2024 & 3/27/2025.
- HORIZONTAL AND VERTICAL CONTROL WAS BASED ON A GPS SURVEY USING GNSS RTK METHODS CONNECTED TO THE LEICA SMARTNET REAL TIME NETWORK TIED INTO CALIFORNIA STATE PLANE COORDINATES NAD83, EPOCH 2023.250.

SITE BENCHMARK

SITE BENCHMARK IS A FLIGHT CROSS SET IN PAVEMENT AS SHOWN HERE ON THE SHEET C3.0.
ELEVATION=1802.29 FEET NAVD 88

AERIAL NOTES

- AERIAL IMAGERY WAS CAPTURED ON 10/4/2024 UTILIZING A DJI PHANTOM 4 PRO V2.0.
- THE FLIGHT WAS DIRECTED AND OBSERVED BY FAA CERTIFIED REMOTE PILOT NO. 4493239
- THIS MAP MEETS OR EXCEEDS THE ASPRS ACCURACY STANDARDS FOR DIGITAL GEOSPATIAL DATA.

BOUNDARY NOTE

THE PARCEL LINES SHOWN HEREON ARE BASED UPON A BEST-FIT METHOD INCORPORATING EXISTING FEATURES, FRESNO COUNTY GIS DATA, AND RECORD INFORMATION AS SHOWN ON THAT CERTAIN RECORD OF SURVEY FILED IN BOOK 36 OF RECORDS OF SURVEY, PAGE 57, FRESNO COUNTY RECORDS, TOGETHER WITH FIRST AMERICAN TITLE INSURANCE COMPANY ORDER NO. NCS-1263324-SC DATED JUNE 10, 2025. BOUNDARY PLACEMENT IS STILL ONGOING AND SUBJECT TO CHANGE.

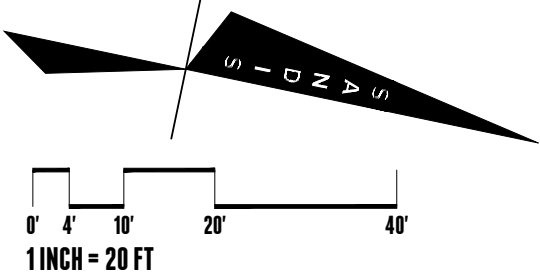
MONUMENT PRESERVATION NOTICE

IF AT ANY TIME A SURVEY MONUMENT WILL BE DESTROYED OR COVERED DURING CONSTRUCTION PHASE OF THE PROJECT, IT MUST BE PERPETUATED IN ACCORDANCE WITH STATE LAW.

PURSUANT TO PROFESSIONAL LAND SURVEYOR'S ACT SECTION 8771(B), CONTROLLING MONUMENTS SHALL BE LOCATED AND REFERENCED BY OR UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR. UPON COMPLETION OF CONSTRUCTION, THESE MONUMENTS WILL HAVE TO BE RESET IN THE SURFACE OF THE NEW CONSTRUCTION IN ORDER TO PERPETUATE THEIR LOCATION. A CORNER RECORD OR A RECORD OF SURVEY SHALL BE FILED TO DOCUMENT THE REFERENCED MONUMENTS PRIOR TO CONSTRUCTION AND THEIR NEW POSITION AND CHARACTER AFTER THEY HAVE BEEN RESET.

UTILITY NOTE

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BY	SC	DATE	ISSUE	DESCRIPTION
1		10/29/2025	Delta 1	Comment Response



TECHNICAL SERVICES SECTION

PROJECT TITLE:
**TOLLHOUSE
FIRE CENTER -
WATER TANK
AND MAIN**

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: **224406**

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:

**TOPOGRAPHIC
SURVEY**

SHEET NUMBER

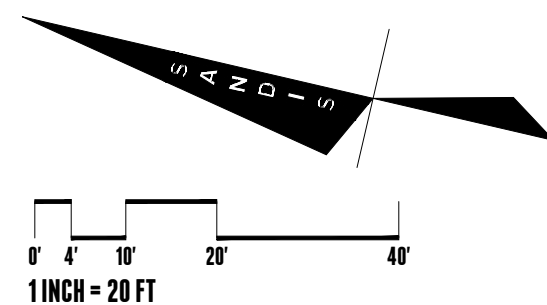
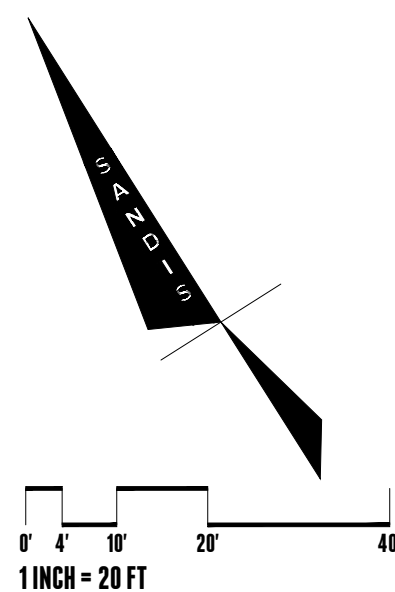
C3.0

VERSION: V2

VER. 2015

PROJECT PATH: S:\224406 TOLLHOUSE\4. ENGINEERING\2. PLAN SET\3. SHEET SET\SITE WATER TANK\C3.0 - TOPOGRAPHIC SURVEY.DWG

PLOT DATE



SCALE: 1"=200'

1. ALL DISTANCES AND DIMENSIONS ARE SHOWN IN FEET AND DECIMALS THEREOF.
2. DATES OF FIELD SURVEY: 10/1/2024, 10/2/2024 & 3/27/2025.
3. HORIZONTAL AND VERTICAL CONTROL WAS BASED ON A GPS SURVEY USING GNSS RTK METHODS CONNECTED TO THE LEICA SMARTNET REAL TIME NETWORK TIED INTO CALIFORNIA STATE PLANE COORDINATES NAD83, EPOCH 2023.250.

SITE BENCHMARK IS A FLIGHT CROSS SET IN PAVEMENT AS SHOWN
HERE ON THE SHEET C3.0.

ELEVATION=1802.29 FEET NAVD 88

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VERSION: V2



OFFICE OF THE STATE FIRE MARSHAL
APPROVED FIRE AND PANIC ONLY



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[illegible]

TECHNICAL SERVICES SECTION

PROJECT TITLE:

TOLLHOUSE
FIRE CENTER -
WATER TANK
AND MAIN

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: 224406

DESIGNED BY: TH

DRAWN BY: TH

REVIEWED BY: SC

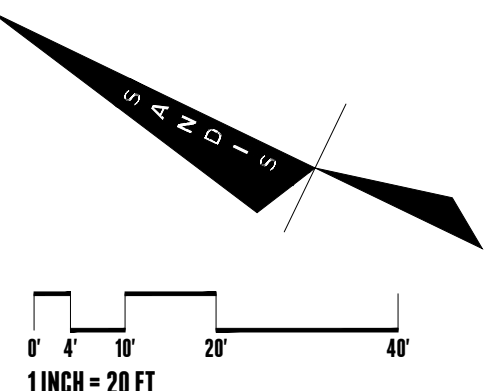
FILE DATE: 12/01/202

SHEET TITLE

TOPOGRAPHIC
SURVEY

SHEET NUMBER

C3.1



SCALE: 1"=200

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[illegible]

TECHNICAL SERVICES SECTION

PROJECT TITLE:
**TOLLHOUSE
FIRE CENTER -
WATER TANK
AND MAIN**

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: 224406

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

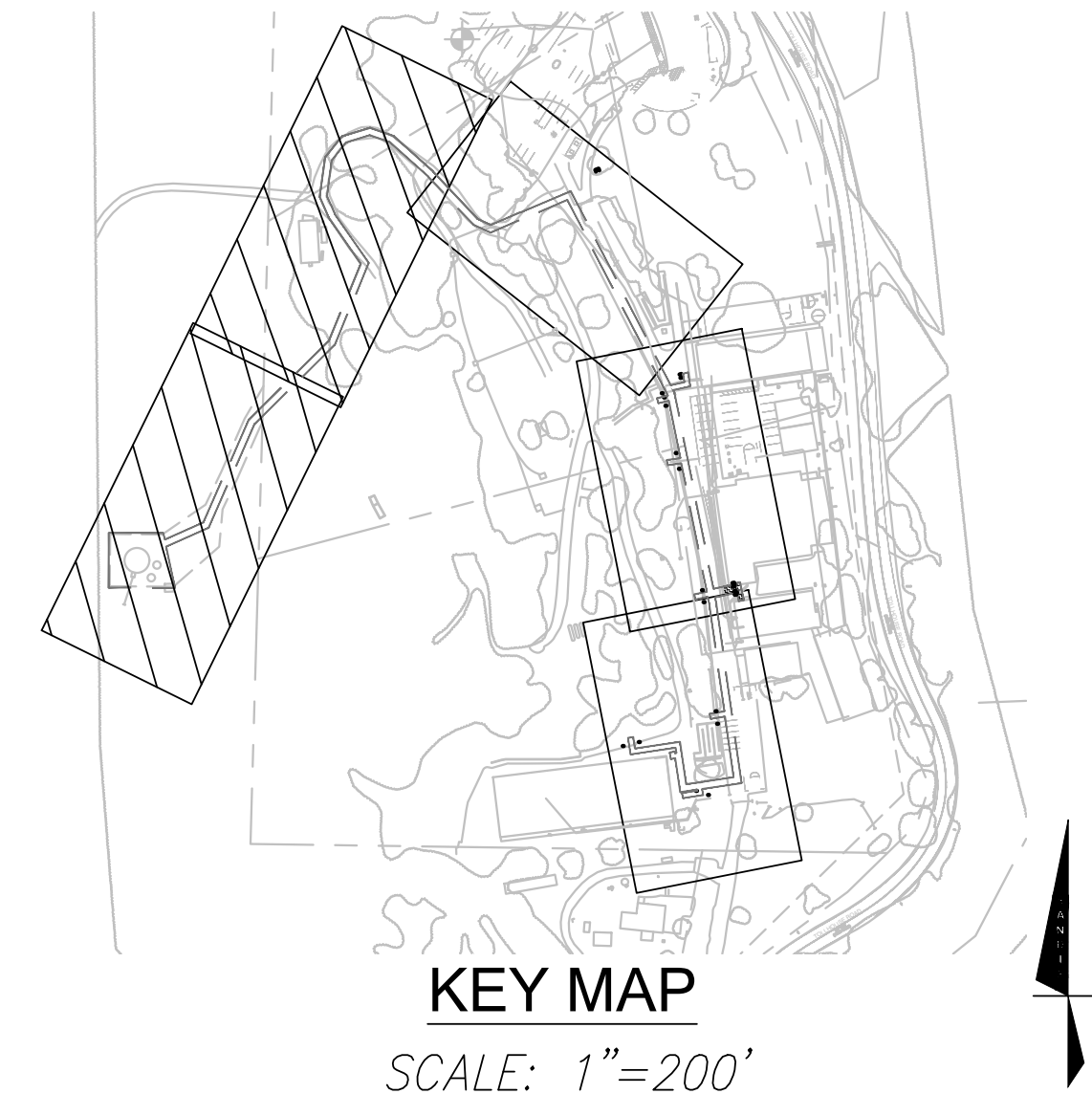
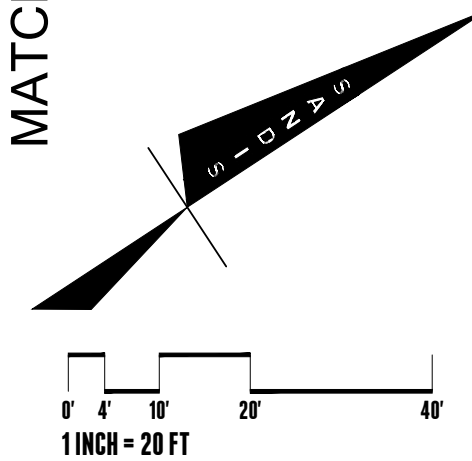
SHEET TITLE

TOPOGRAPHIC SURVEY

SHEET NUMBER

C3.2

VERSION: V2



APPROXIMATE LIMIT OF WORK

PROPERTY LINE

LOT LINE

EASEMENT

SAWCUT LINE. CONTRACTOR SHALL SAWCUT WITH A NEAT, CLEAN EDGE. SAWCUT CONCRETE AT NEAREST JOINT TO SAWCUT LINE SHOWN ON PLAN.

DEMOLISH AND REMOVE AC PAVING AND ANY ASSOCIATED BASE ROCK. STABILIZE THE EXISTING SUBGRADE. DEMOLISHED MATERIAL MAY BE USED AS BASE ROCK IF APPROVED BY GEOTECHNICAL ENGINEER.

DEMOLISH AND REMOVE CONCRETE INCLUDING ANY ASSOCIATED BASE ROCK AND REBAR. STABILIZE THE EXISTING SUBGRADE. DEMOLISHED MATERIAL MAY BE USED AS BASE ROCK IF APPROVED BY THE GEOTECHNICAL ENGINEER.

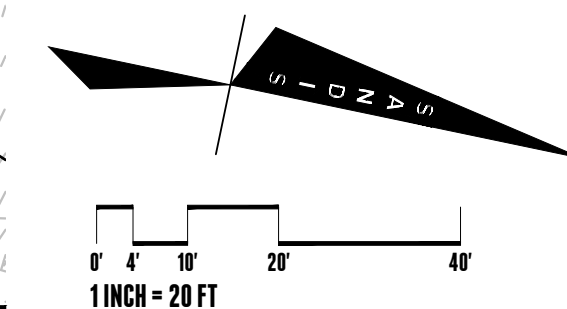
CLEAR AND GRUB EXISTING LANDSCAPE AREA
SO NO ORGANICS ARE STILL PRESENT.

DEMOLISH AND REMOVE EXISTING CURB AND GUTTER, INCLUDING ANY ASSOCIATED REBAR OR BASE ROCK. SAWCUT WITH NEAT, CLEAN EDGE.

EX. UTILITY LINE TO BE CAPPED AND ABANDONED.

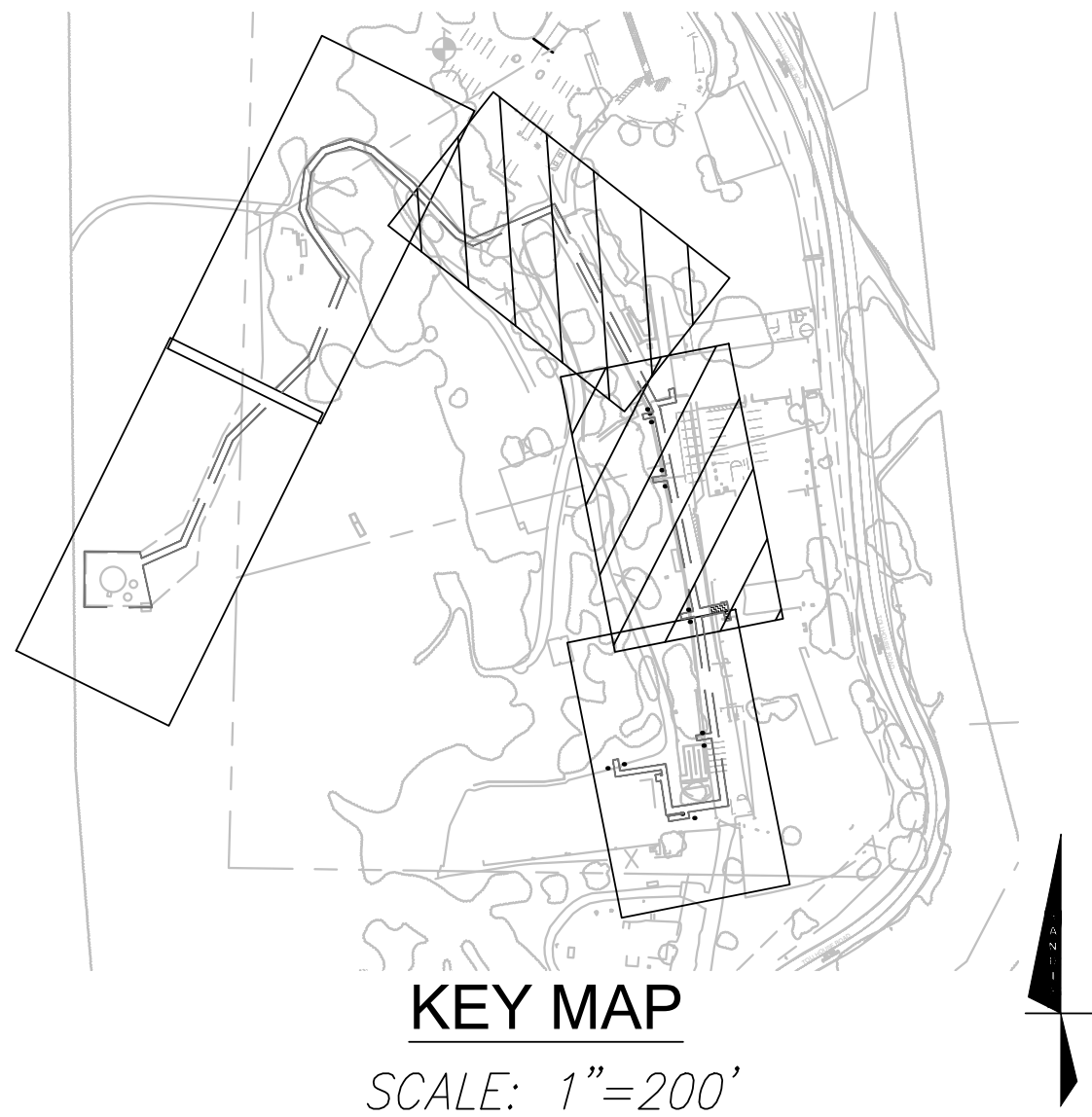
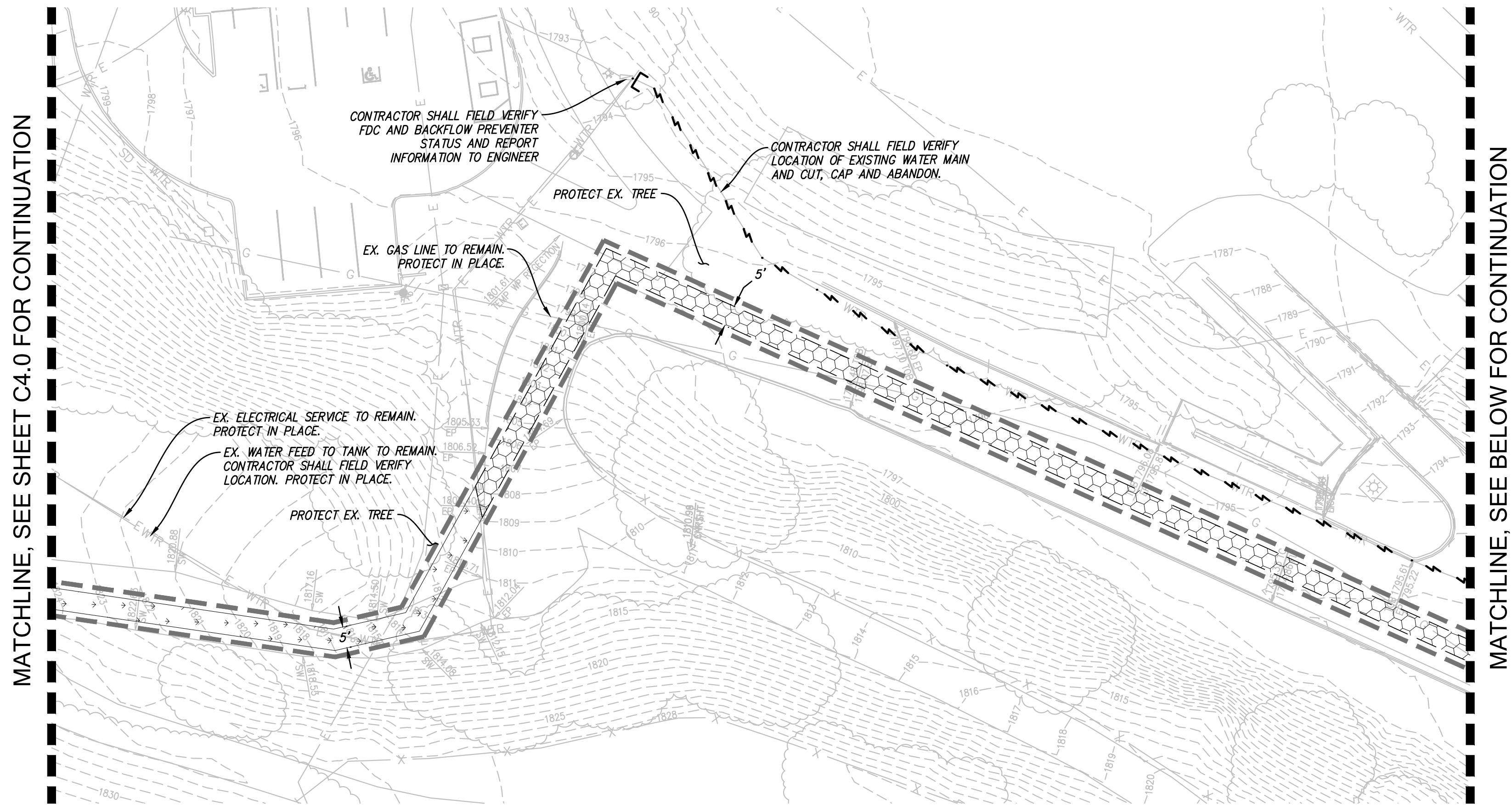
CAP EXISTING UTILITY WHERE SHOWN PER UTILITY OWNERS SPECIFICATIONS AND REQUIREMENTS. IF PRESSURIZED UTILITY CONTRACTOR SHALL HAVE COMPETENT PROFESSIONAL DESIGN PIPE RESTRAINTS.

1. *CONTRACTOR SHALL REMOVE TREES AND PLANTING AS REQUIRED. CONTRACTOR SHALL HAND DIG AROUND TREE ROOTS 2" IN DIAMETER.*
2. *CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION OF EXISTING UTILITIES.*
3. *CONTRACTOR SHALL REPLACE DISTURBED STRIPING IN KIND.*



VERSION: V2

			VER: 2019		
OFFICE OF THE STATE FIRE MARSHAL APPROVED FIRE AND PANIC ONLY CAL FIRE SINCE 1885 Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.					
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BV:	SF:				
No.	DATE:	ISSUE:			
1	5/12/2026	Draft - Comment Response			
TECHNICAL SERVICES SECTION					
PROJECT TITLE: TOLLHOUSE FIRE CENTER - WATER TANK AND MAIN					
27595 TOLLHOUSE ROAD CITY OF TOLLHOUSE, CALIFORNIA 93667 FRESNO COUNTY					
JOB NUMBER:	224406				
DESIGNED BY:	TH				
DRAWN BY:	TK				
REVIEWED BY:	SC				
FILE DATE:	12/01/2025				
SHEET TITLE:	DEMOLITION PLAN				
SHEET NUMBER					
C4.0					

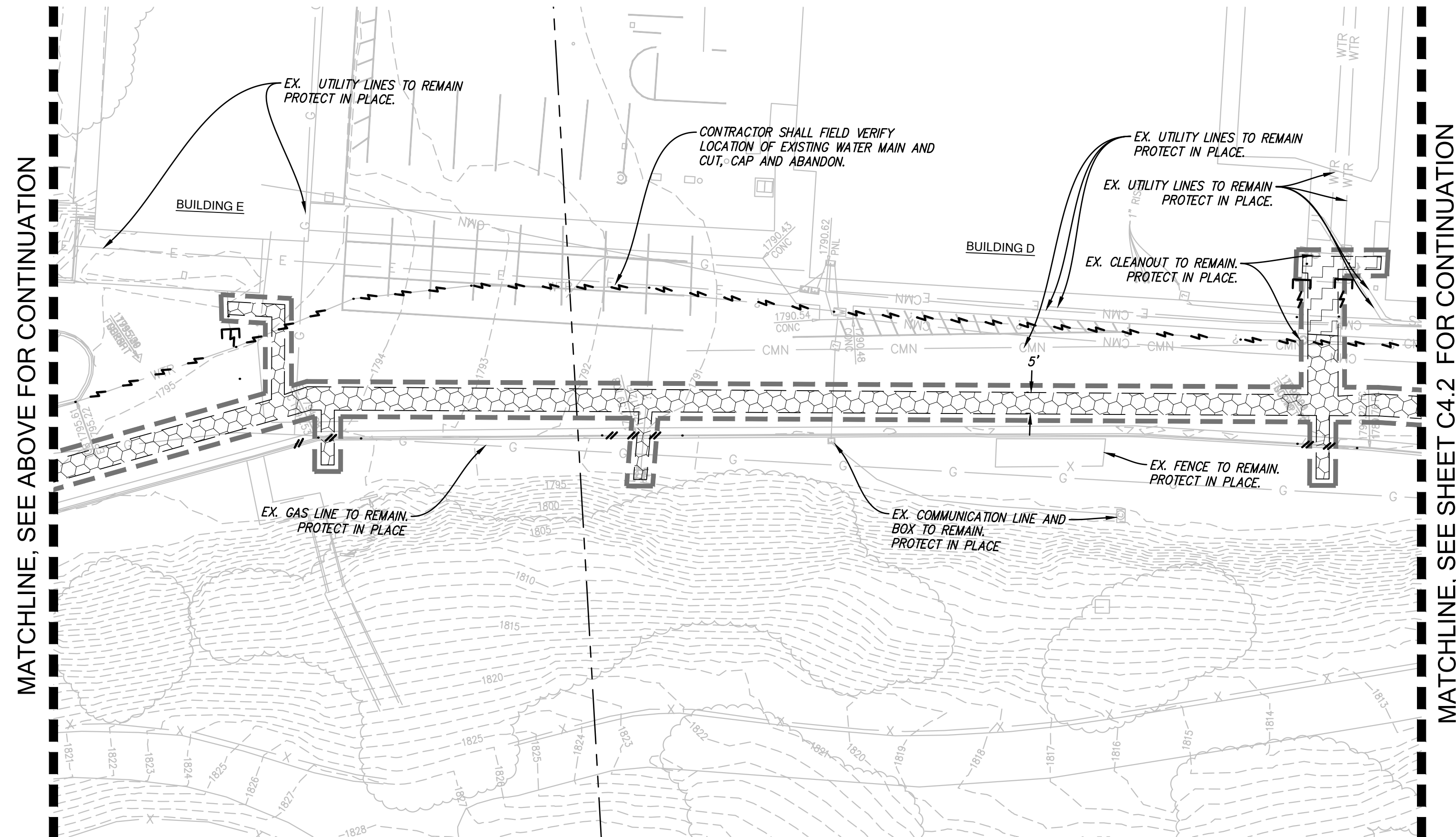


LEGEND

- APPROXIMATE LIMIT OF WORK
- PROPERTY LINE
- LOT LINE
- EASEMENT
- SAWCUT LINE. CONTRACTOR SHALL SAWCUT WITH A NEAT, CLEAN EDGE. SAWCUT CONCRETE AT NEAREST JOINT TO SAWCUT LINE SHOWN ON PLAN.
- DEMOLISH AND REMOVE AC PAVING AND ANY ASSOCIATED BASE ROCK. STABILIZE THE EXISTING SUBGRADE. DEMOLISHED MATERIAL MAY BE USED AS BASE ROCK IF APPROVED BY GEOTECHNICAL ENGINEER.
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- CLEAR AND GRUB EXISTING LANDSCAPE AREA SO NO ORGANICS ARE STILL PRESENT.
- DEMOLISH AND REMOVE EXISTING CURB AND GUTTER, INCLUDING ANY ASSOCIATED REBAR OR BASE ROCK. SAWCUT WITH NEAT, CLEAN EDGE.
- EX. UTILITY LINE TO BE CAPPED AND ABANDONED.
- CAP EXISTING UTILITY WHERE SHOWN PER UTILITY OWNERS SPECIFICATIONS AND REQUIREMENTS. IF PRESSURIZED UTILITY CONTRACTOR SHALL HAVE COMPETENT PROFESSIONAL DESIGN PIPE RESTRAINTS.

GENERAL NOTES

- CONTRACTOR SHALL REMOVE TREES AND PLANTING AS REQUIRED. CONTRACTOR SHALL HAND DIG AROUND TREE ROOTS 2" IN DIAMETER.
- CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION OF EXISTING UTILITIES.
- CONTRACTOR SHALL REPLACE DISTURBED STRIPING IN KIND.



VERSION: V2

VER. 2019



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BY	SC	DATE	ISSUE	Delta 1: Comment Response
No.	1	10/29/2023		



TECHNICAL SERVICES SECTION

PROJECT TITLE:

**TOLLHOUSE
FIRE CENTER -
WATER TANK
AND MAIN**

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: **224406**

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:

**DEMOLITION
PLAN**

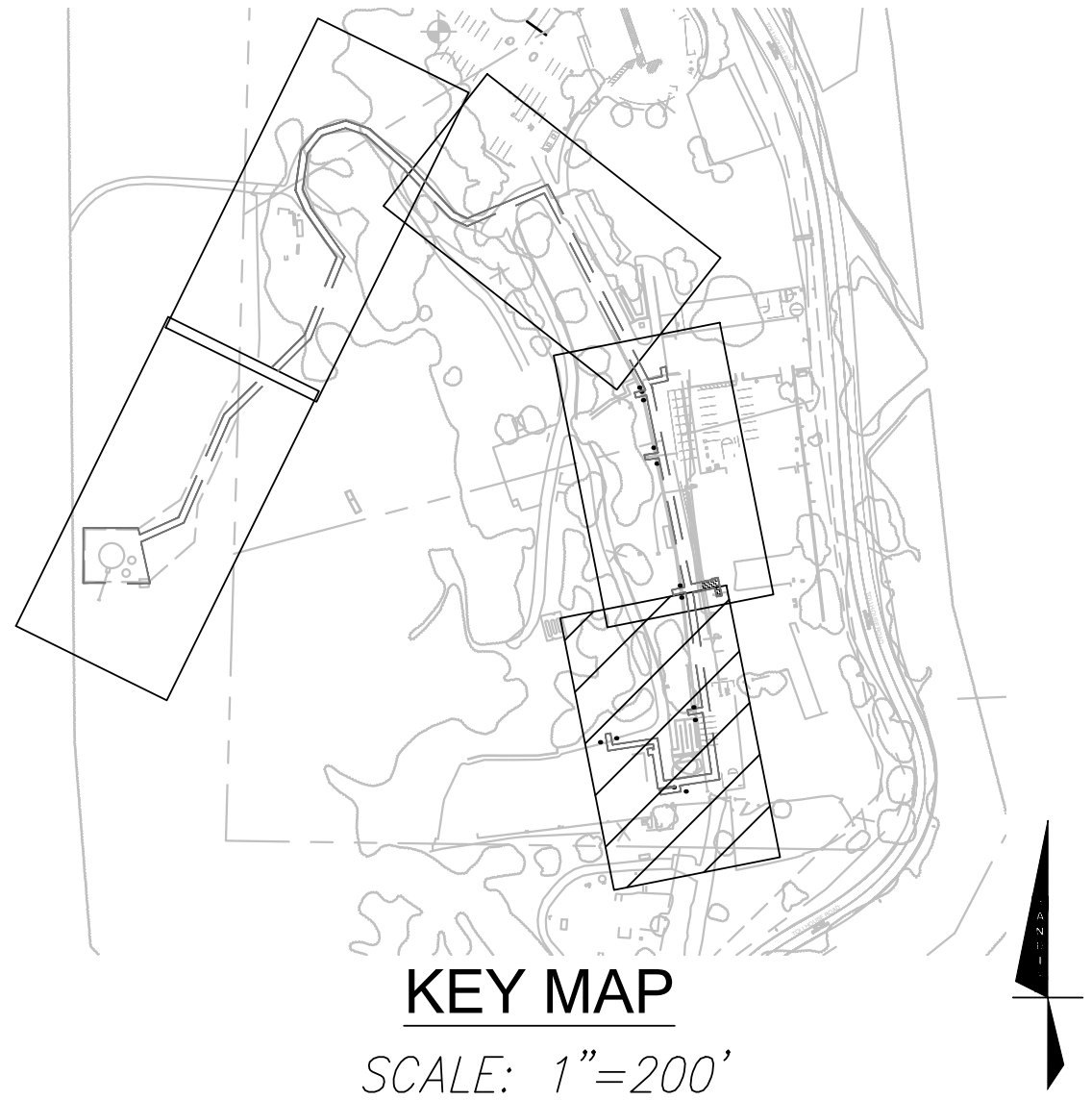
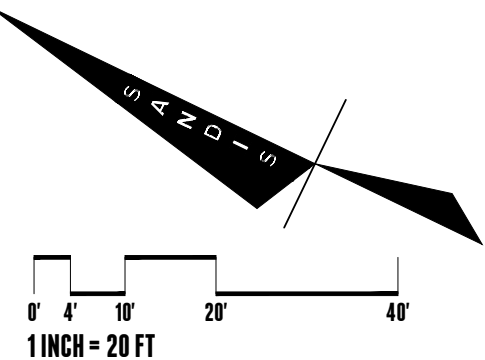
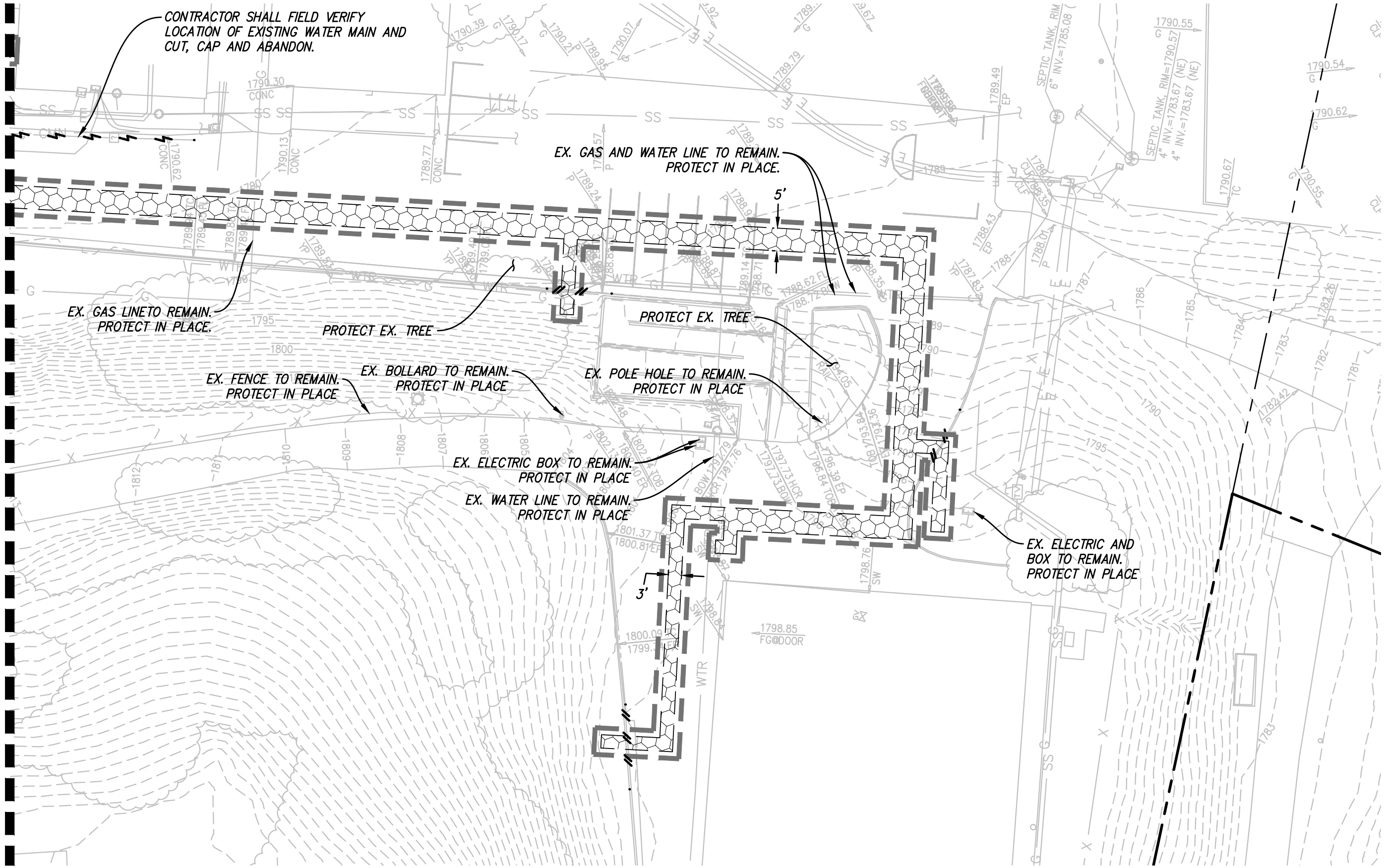
SHEET NUMBER

C4.1

PLOT DATE

PROJECT PATH: S:\224406 TOLLHOUSE\4. ENGINEERING\2. PLAN SET\3. SHEET SET\ONSITE WATER TANK\C4.0 - DEMOLITION PLAN.DWG

MATCHLINE, SEE SHEET C4.1 FOR CONTINUATION



LEGEND

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VERSION: V2

OFFICE OF THE STATE FIRE MARSHAL
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5/12/2026
25-5047
SINCE 1885

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TECHNICAL SERVICES SECTION

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**TOLLHOUSE
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27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: **224406**

DESIGNED BY: TH

DRAWN BY: TK

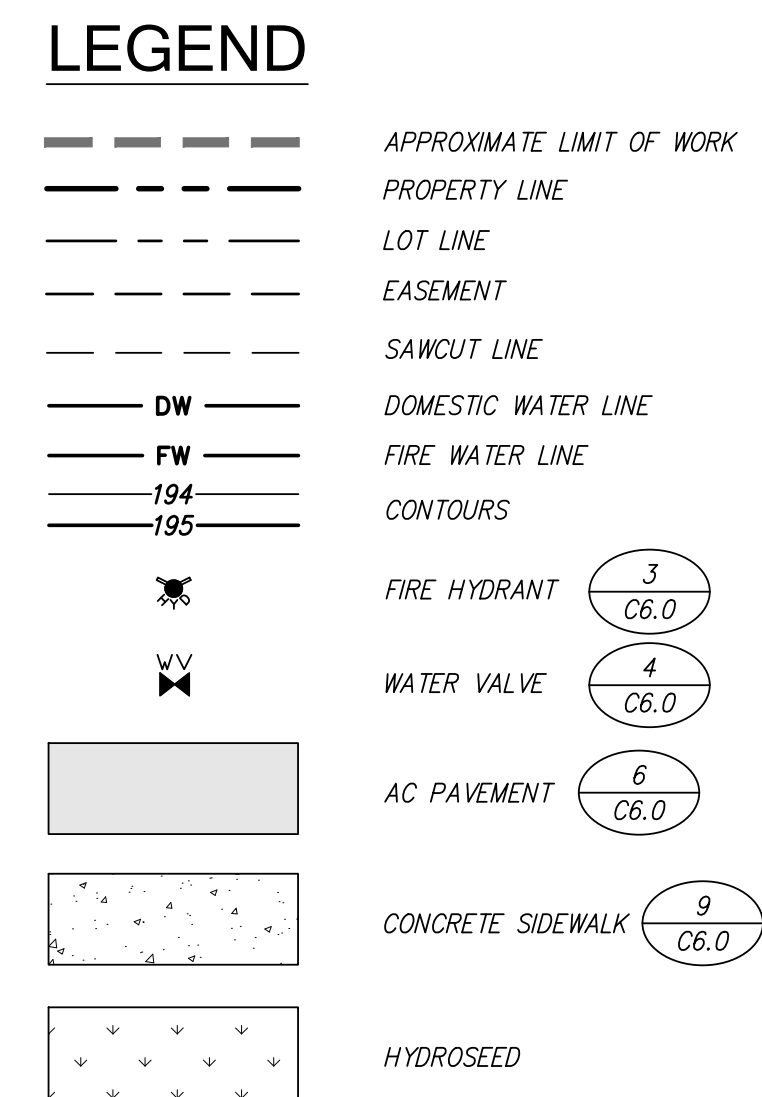
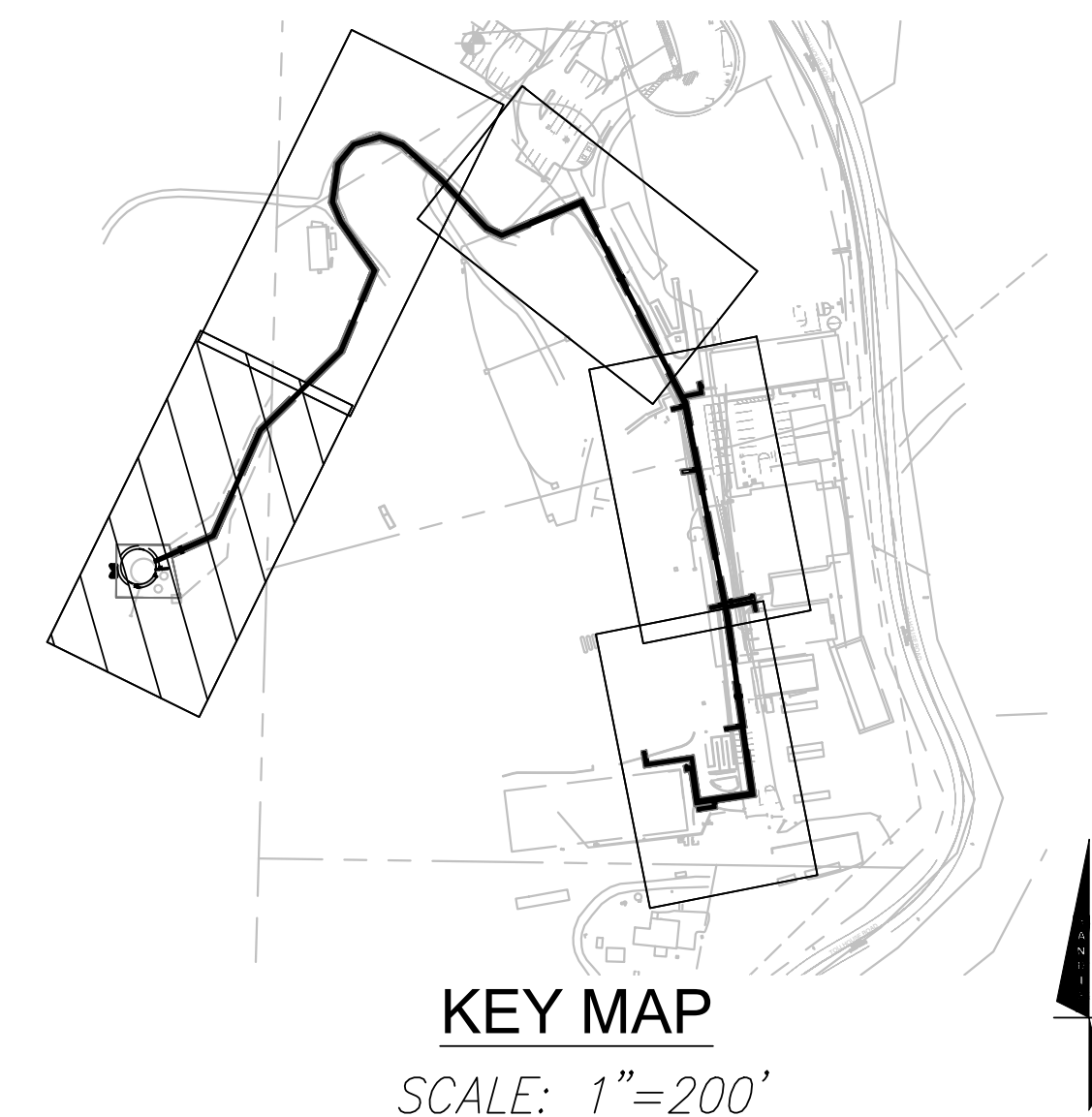
REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:
**DEMOLITION
PLAN**

SHEET NUMBER
C4.2

VER: 2015
PROJECT PATH: S:\224406 TOLLHOUSE\ENGINEERING\2 PLAN SETS\3 SHEET SET\ONSITE WATER TANK\C4.0 - DEMOLITION PLAN.DWG
PLOT DATE



- # WATER SYSTEM NOTES
1. MAINTAIN WATER MAIN LINES 10' AWAY FROM SANITARY SEWER MAIN LINES. LATERALS SHALL BE SEPARATED PER PLAN DIMENSIONS.
 2. WHERE WATER LINES HAVE TO CROSS SANITARY SEWER LINES, DO SO AT A 90 DEGREE ANGLE AND WATER LINES SHALL BE MINIMUM OF 12" ABOVE TOP OF SANITARY SEWER LINES.
 3. ALL WATER SERVICE CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE WATER DISTRICT STANDARDS.
 4. ALL WATER LINES SHALL BE INSTALLED WITH 36" MINIMUM COVER.
 5. THRUST RESTRAINTS SHALL BE DESIGNED AND INSTALLED AT ALL TEES, CROSSES, BENDS (HORIZONTAL AND VERTICAL), AT SIZE CHANGES AND AT FIRE HYDRANTS.
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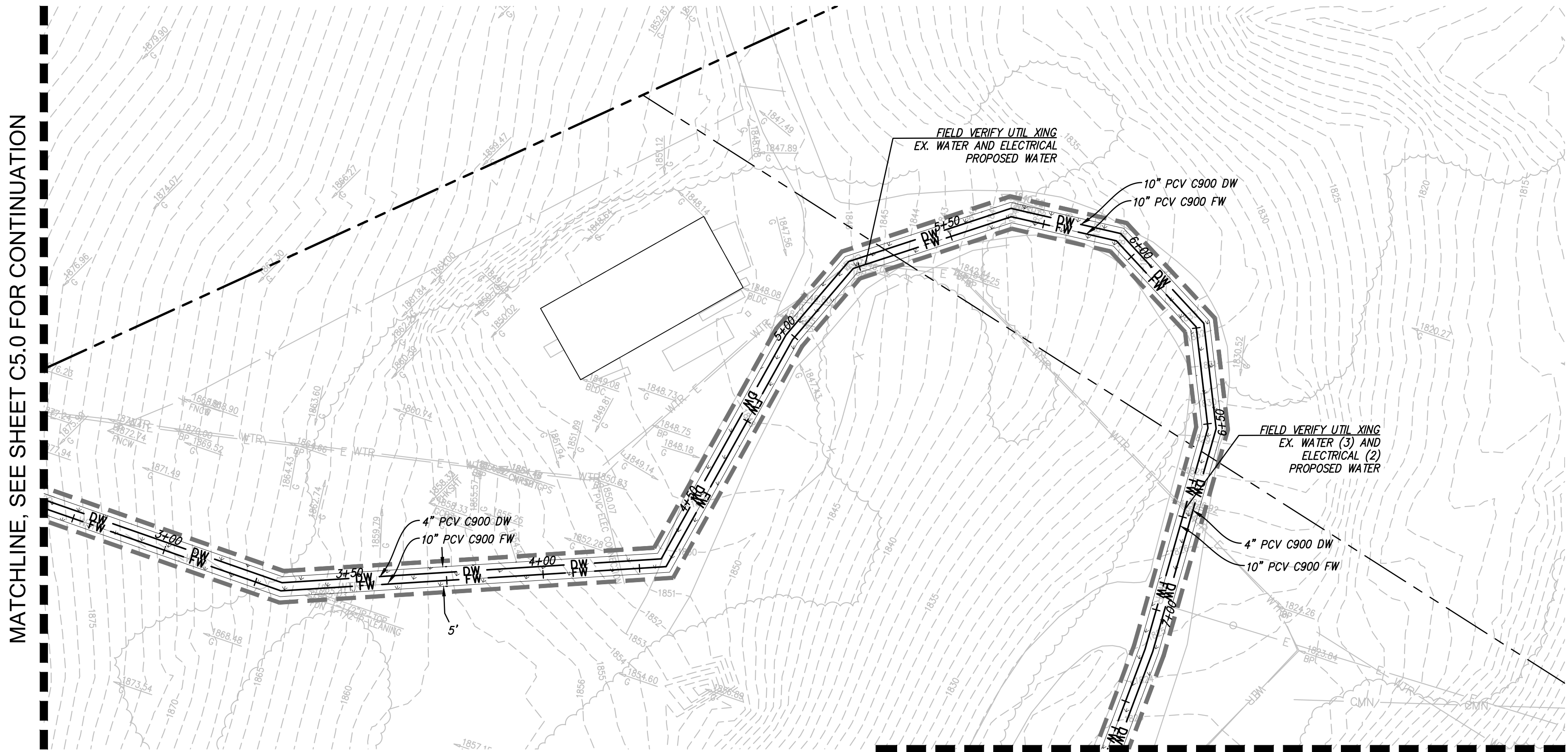
GRADING NOTES

1. CONTRACTOR SHALL CONNECT NEW LEVEL TRANSDUCER TO EXISTING LEVEL TRANSDUCER CONDUIT.

GRADING NOTES

1. 6' WIDE (TYP.) ACCESS PATHWAY TO BE INSTALLED AROUND TANK PERIMETER.

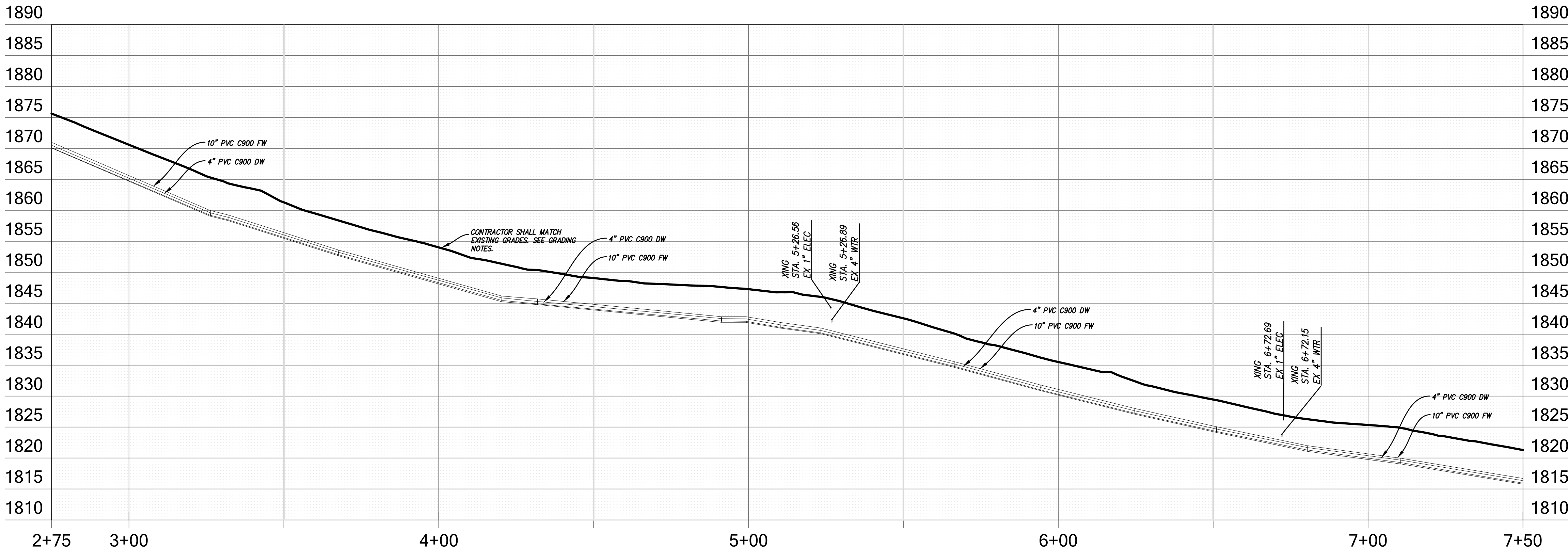
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PLAN VIEW

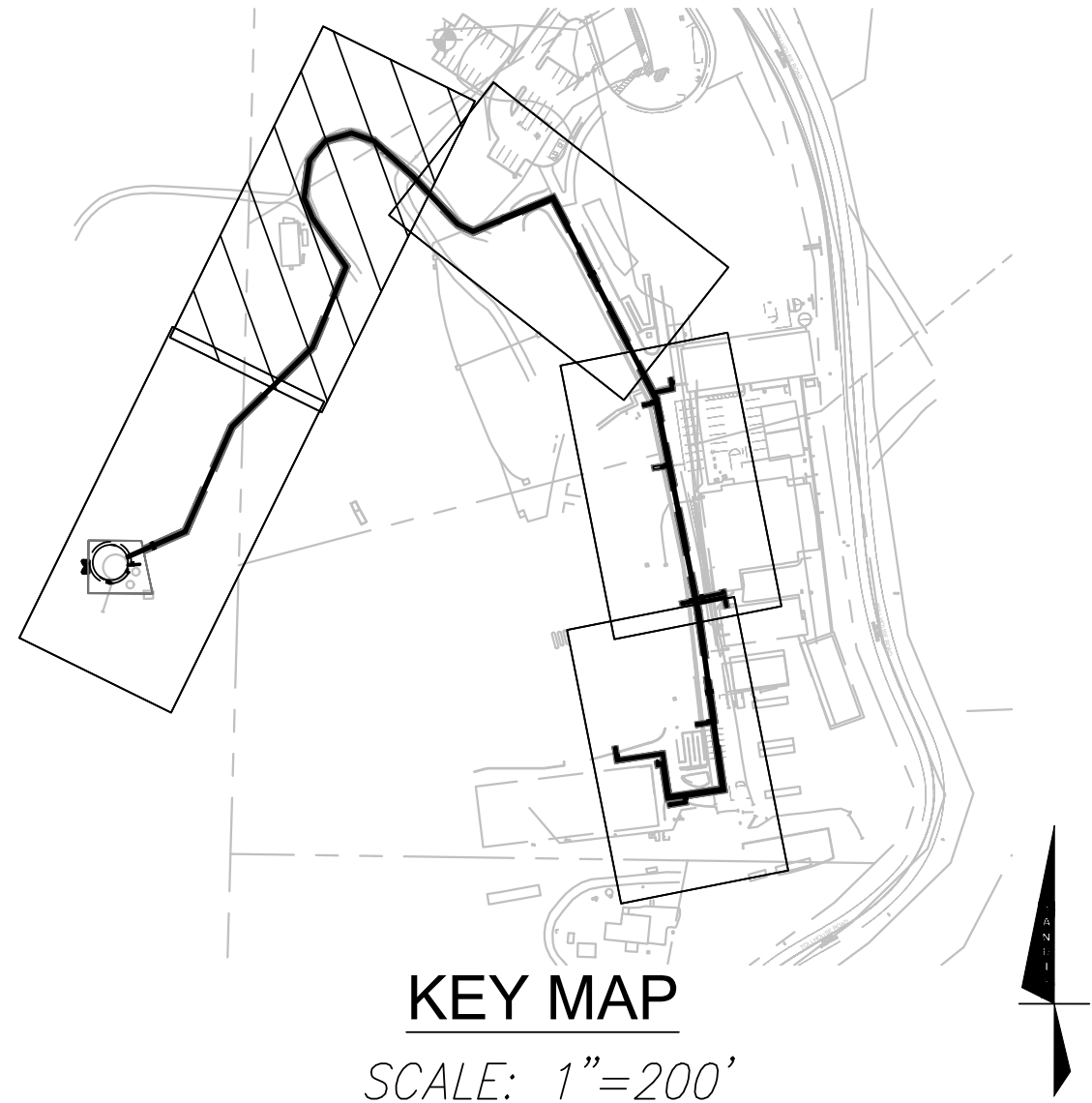
SCALE: 1"=20'

MATCHLINE, SEE SHEET C5.2 FOR CONTINUATION



PROFILE VIEW

SCALES:
1"=20' HORIZ.
1"=10' VERT.



KEY MAP

SCALE: 1"=200'

LEGEND

---	APPROXIMATE LIMIT OF WORK
---	PROPERTY LINE
---	LOT LINE
---	EASEMENT
---	SAWCUT LINE
DW	DOMESTIC WATER LINE
FW	FIRE WATER LINE
194	CONTOURS
195	
⊗	FIRE HYDRANT 3 C6.0
⊕	WATER VALVE 4 C6.0
AC PAVEMENT	6 C6.0
CONCRETE SIDEWALK	9 C6.0
HYDROSEED	

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TECHNICAL SERVICES SECTION

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**TOLLHOUSE
FIRE CENTER -
WATER TANK
AND MAIN**

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: **224406**

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:

**PLAN AND
PROFILE**

SHEET NUMBER

C5.1

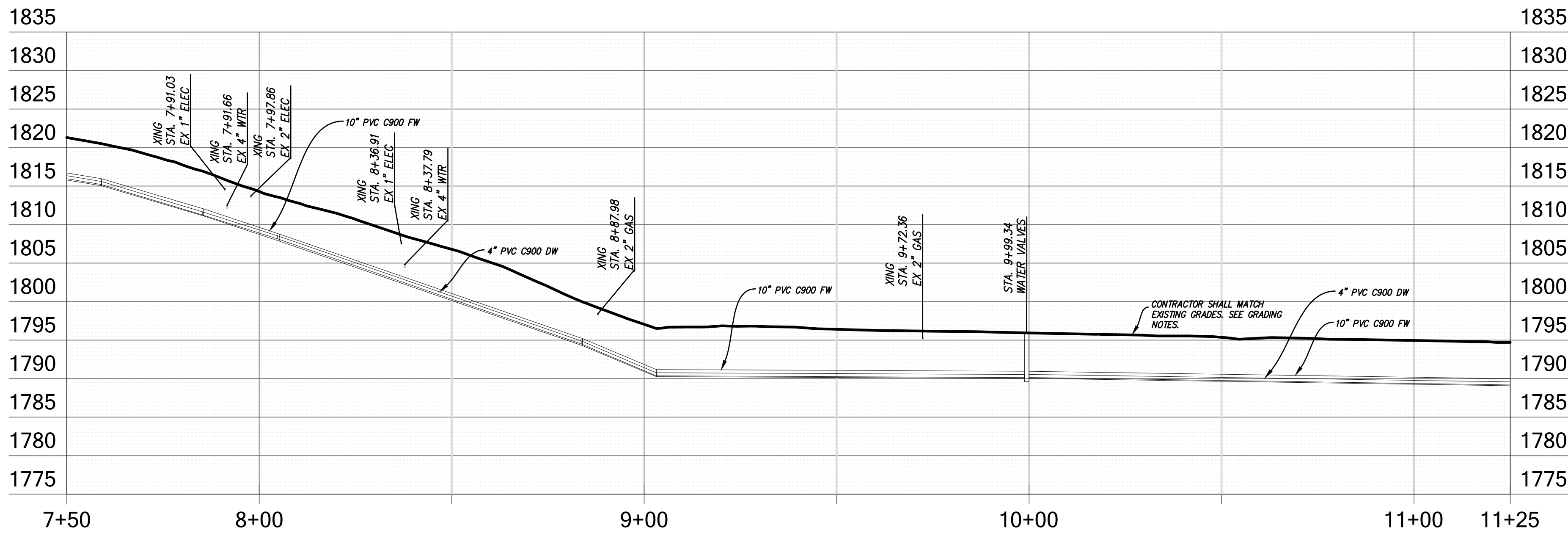
VERSION: V2

MATCHLINE, SEE SHEET C5.1 FOR CONTINUATION

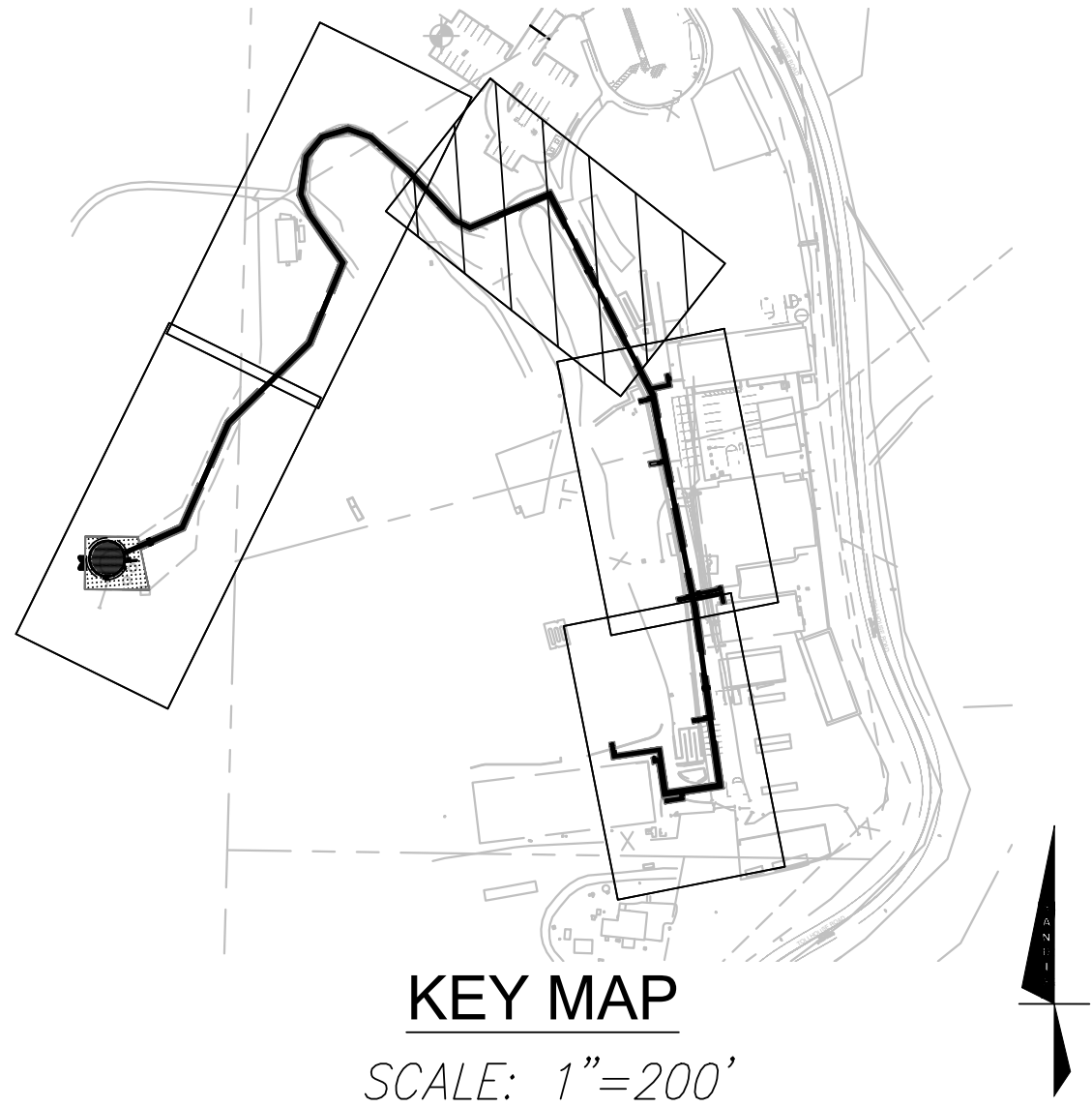


PLAN VIEW
SCALE: 1"=20'

MATCHLINE, SEE SHEET C5.3 FOR CONTINUATION



PROFILE VIEW
SCALES:
1"=20' HORIZ.
1"=10' VERT.



LEGEND

---	APPROXIMATE LIMIT OF WORK
---	PROPERTY LINE
---	LOT LINE
---	EASEMENT
---	SAWCUT LINE
DW	DOMESTIC WATER LINE
FW	FIRE WATER LINE
194	CONTOURS
195	
⊗	FIRE HYDRANT 3 C6.0
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AC PAVEMENT	6 C6.0
CONCRETE SIDEWALK	9 C6.0
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VERSION: V2



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TECHNICAL SERVICES SECTION

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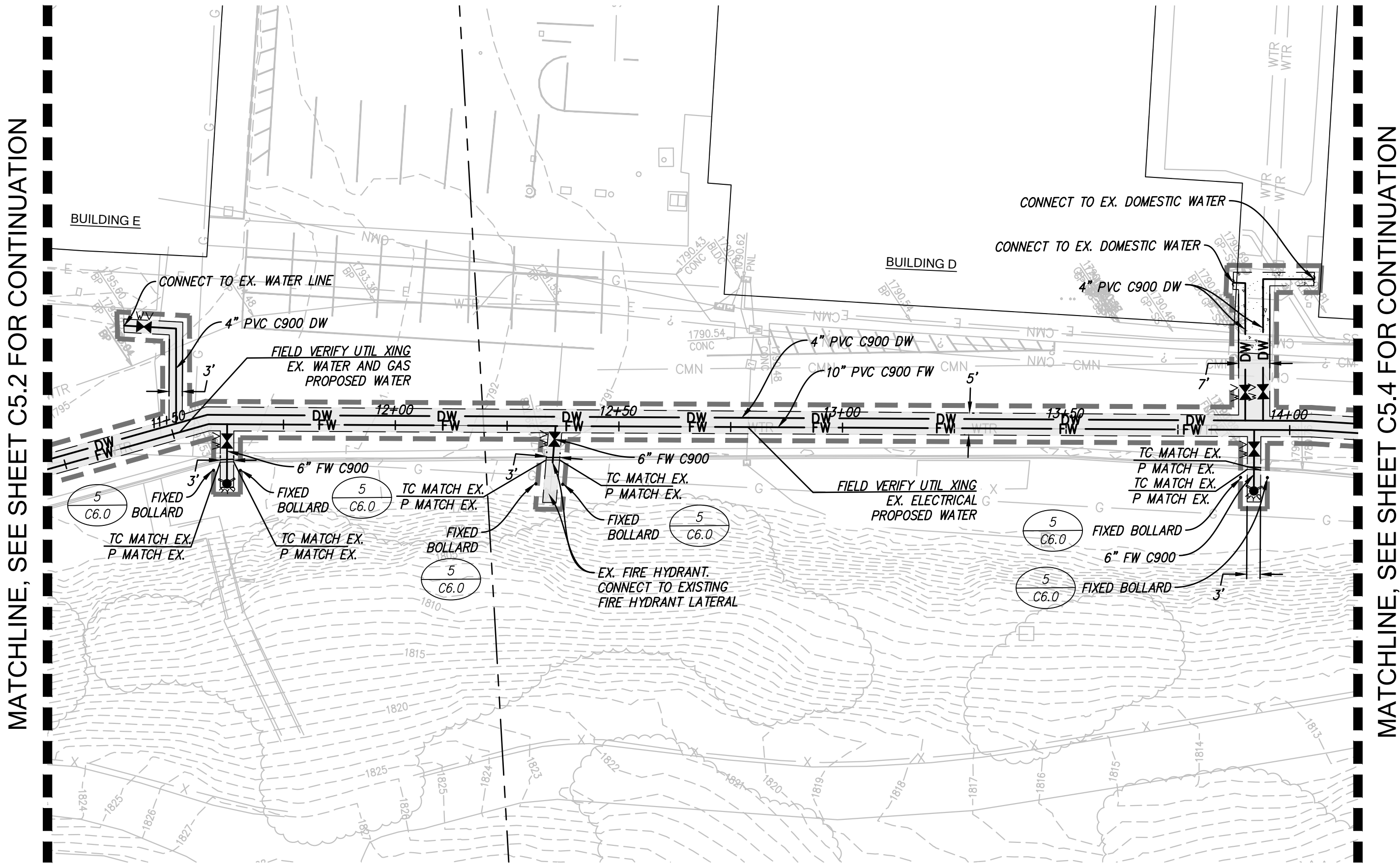
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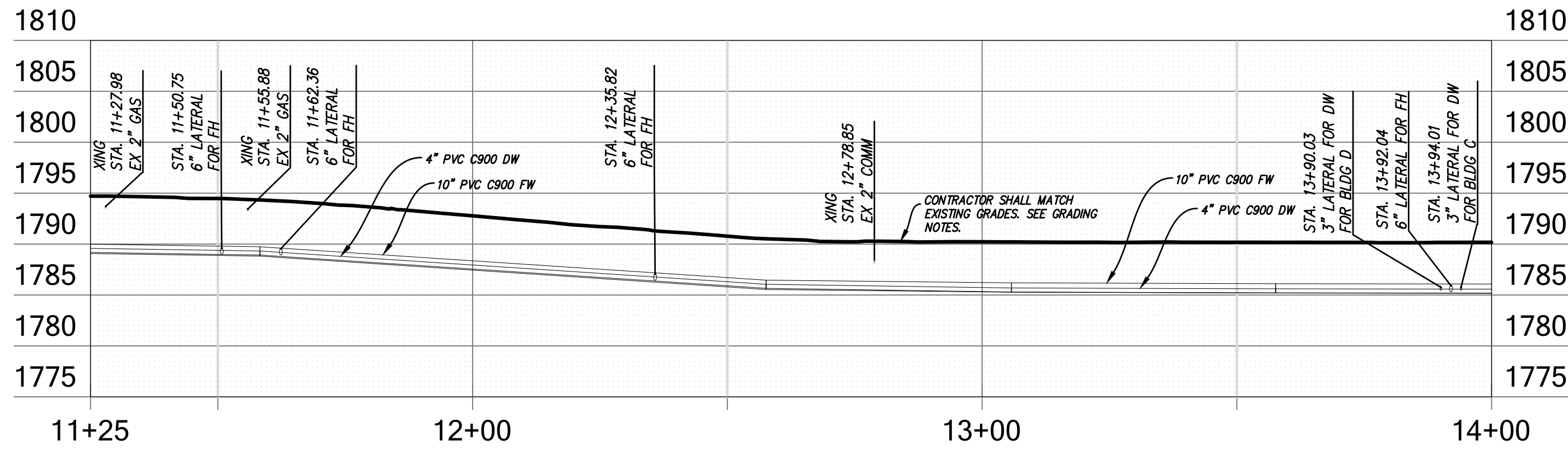
VER. 2015

PROJECT PATH: S:\224406 TOLLHOUSE\ENGINEERING\2. PLAN SET\3. SHEET SET\ONSITE WATER TANK\C5.0 - GRADING DRAINAGE UTILITY PLAN AND PROFILE.DWG

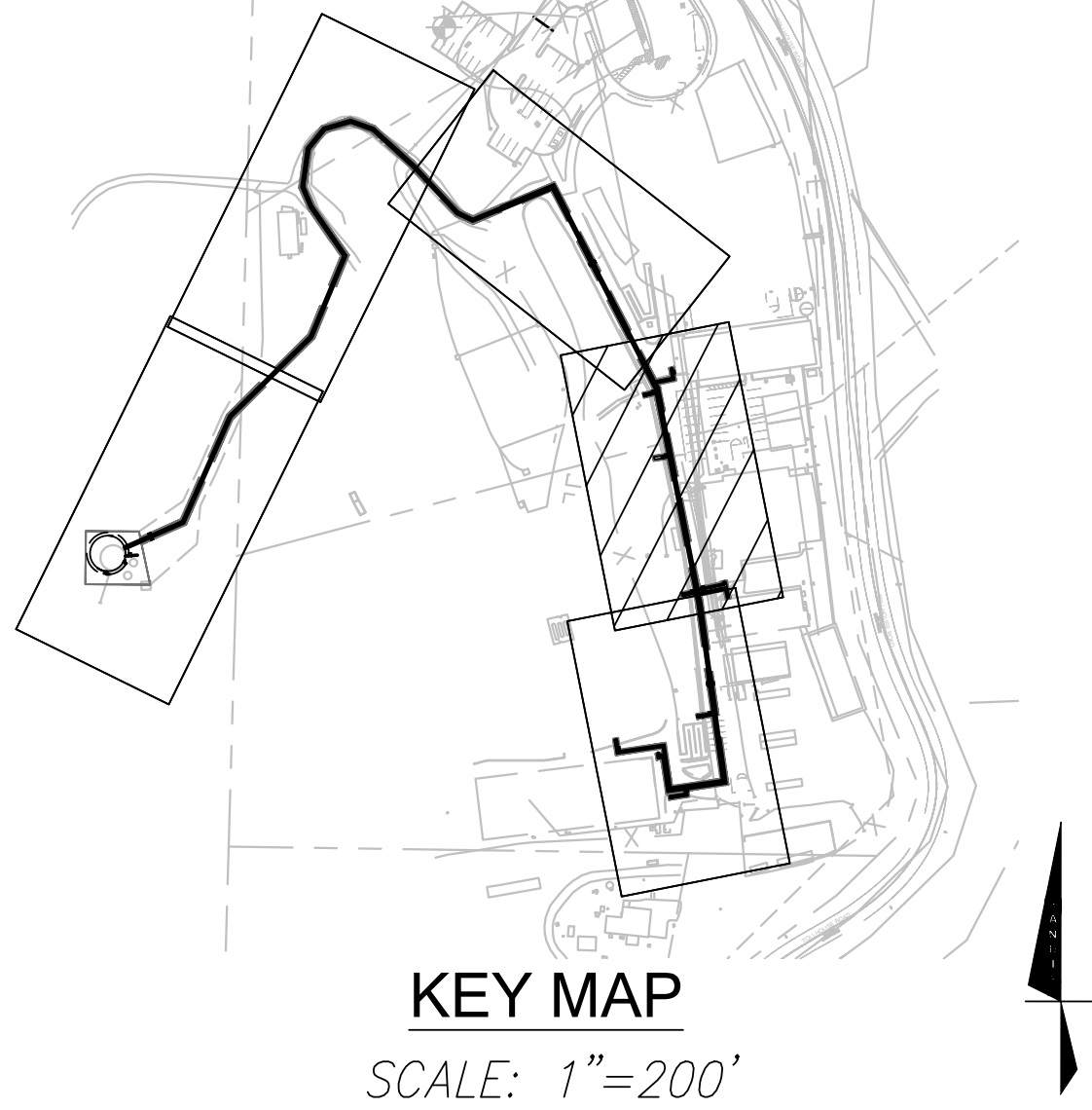
PLOT DATE:



PLAN VIEW
SCALE: 1"=20'



PROFILE VIEW
SCALES:
1"=20' HORIZ.
1"=10' VERT.



LEGEND

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---	LOT LINE	
---	EASEMENT	
---	SAWCUT LINE	
DW	DOMESTIC WATER LINE	
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Symbol	FIRE HYDRANT	3 C6.0
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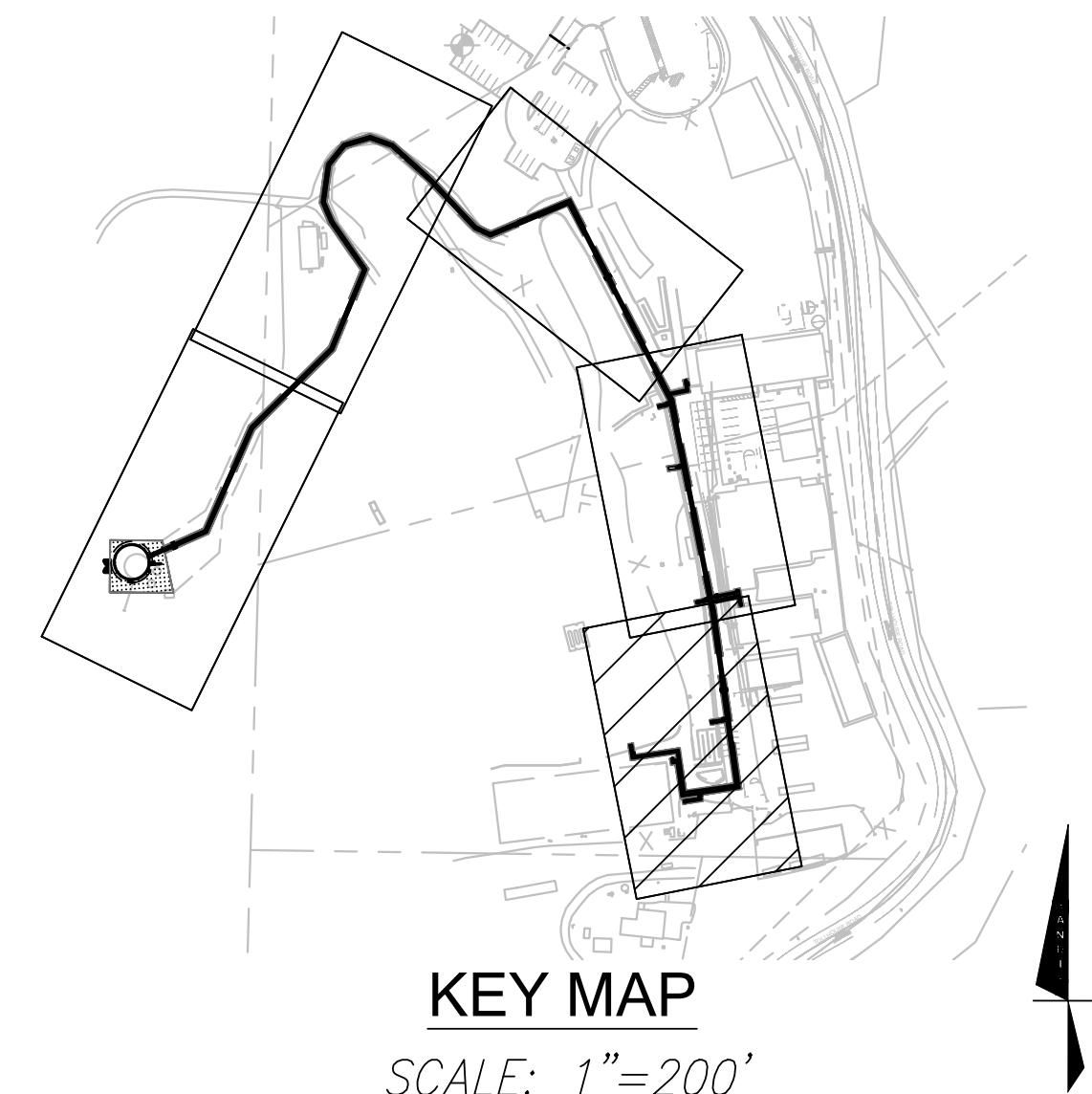
FILE DATE: 12/01/2025

SHEET TITLE:
**PLAN AND
PROFILE**

SHEET NUMBER
C5.3

VERSION: V2

VER. 2015
PROJECT PATH: S:\224406 TOLLHOUSE\4. ENGINEERING\2. PLAN SET\3. SHEET SET\ONSITE WATER TANK\C5.0 - GRADING DRAINAGE UTILITY PLAN AND PROFILE.DWG
PLOT DATE:



SCALE: 1"=200'

	APPROXIMATE LIMIT OF WORK
	PROPERTY LINE
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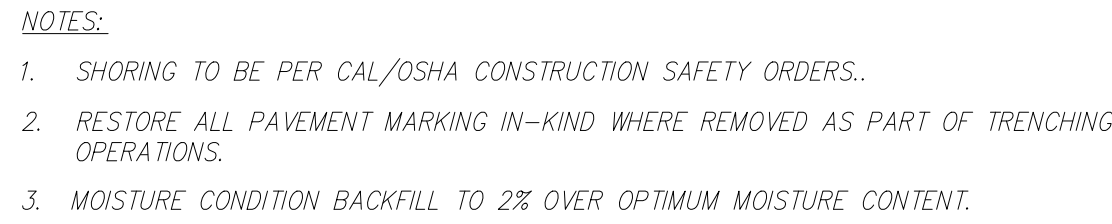
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SCALES:
1"=20' HORIZ
1"=10' VERT.





1

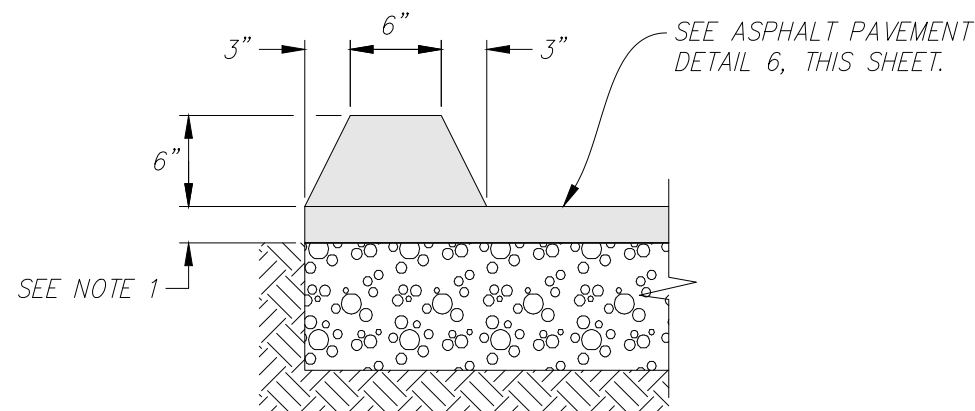
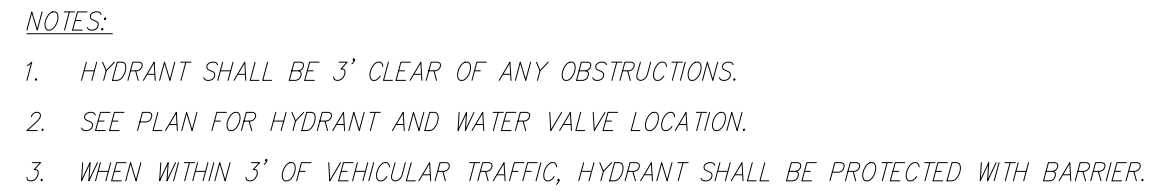
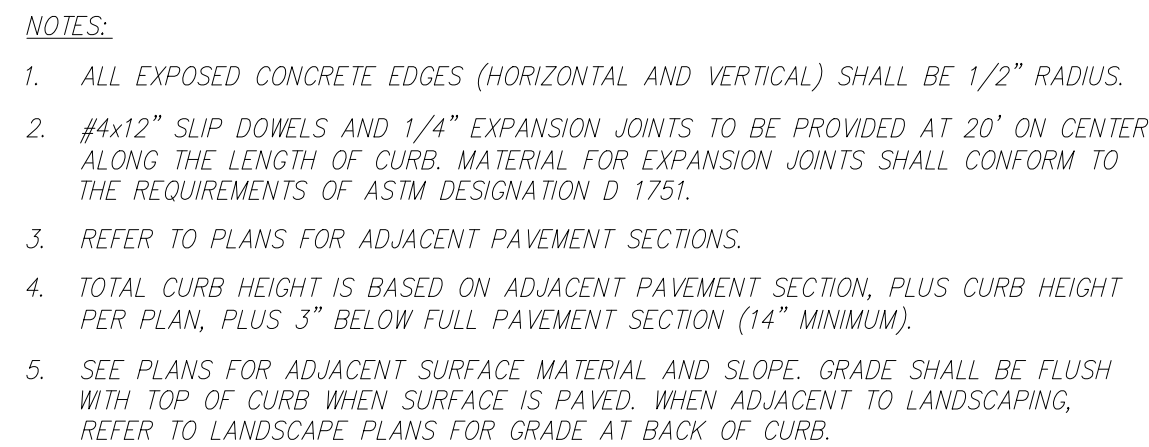
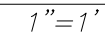
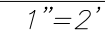


5

THRUST BLOCK NOTES:

1. MECHANICAL RESTRAINTS ARE PREFERRED. USE THRUST BLOCKS ONLY IF REQUIRED BY LOCAL JURISDICTION.
2. THRUST BLOCKS TO BE CONSTRUCTED OF 2500 PSI MINOR CALTRANS CONCRETE.
3. BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL.
4. JOINTS TO BE KEPT FREE OF CONCRETE. ALLOW WORKING ROOM.
5. ABRUPT CHANGES IN VERTICAL ALIGNMENT SHALL BE ANCHORED PER GRAVITY BLOCK DETAIL.
6. AREAS GIVEN ARE FOR PVC C900 CLASS 200 PIPE AT A STATIC TEST PRESSURE OF 200 PSI IN SOIL WITH 2,000 PSF BEARING CAPACITY AND A SAFETY FACTOR OF 1.0. SUBJECT TO FIELD CONDITIONS.
7. TAPPING SLEEVES SHALL HAVE THRUST BLOCKS SIZED THE SAME AS TEES.
8. AREA CALCULATIONS BASED ON NFPA 24, FORMULA A.10.6.1A, 2022 EDITION.

N. T. S.


$$\overline{f'' = f'}$$

$$1''=2'$$

$$\overline{f''} = f'$$


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[illegible]

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: 224406

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:

CONSTRUCTION DETAILS

SHEET NUMBER

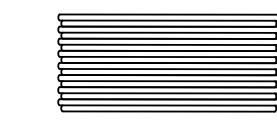
C6.0

VERSION: V2





- 
 APPROXIMATE AREA OF CONSTRUCTION DISTURBANCE
 PROPERTY LINE
 LOT LINE
 EASEMENT



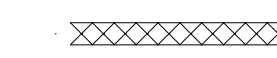
STABILIZED EXIT $\frac{TC-1}{C8.3}$



SPILL KIT



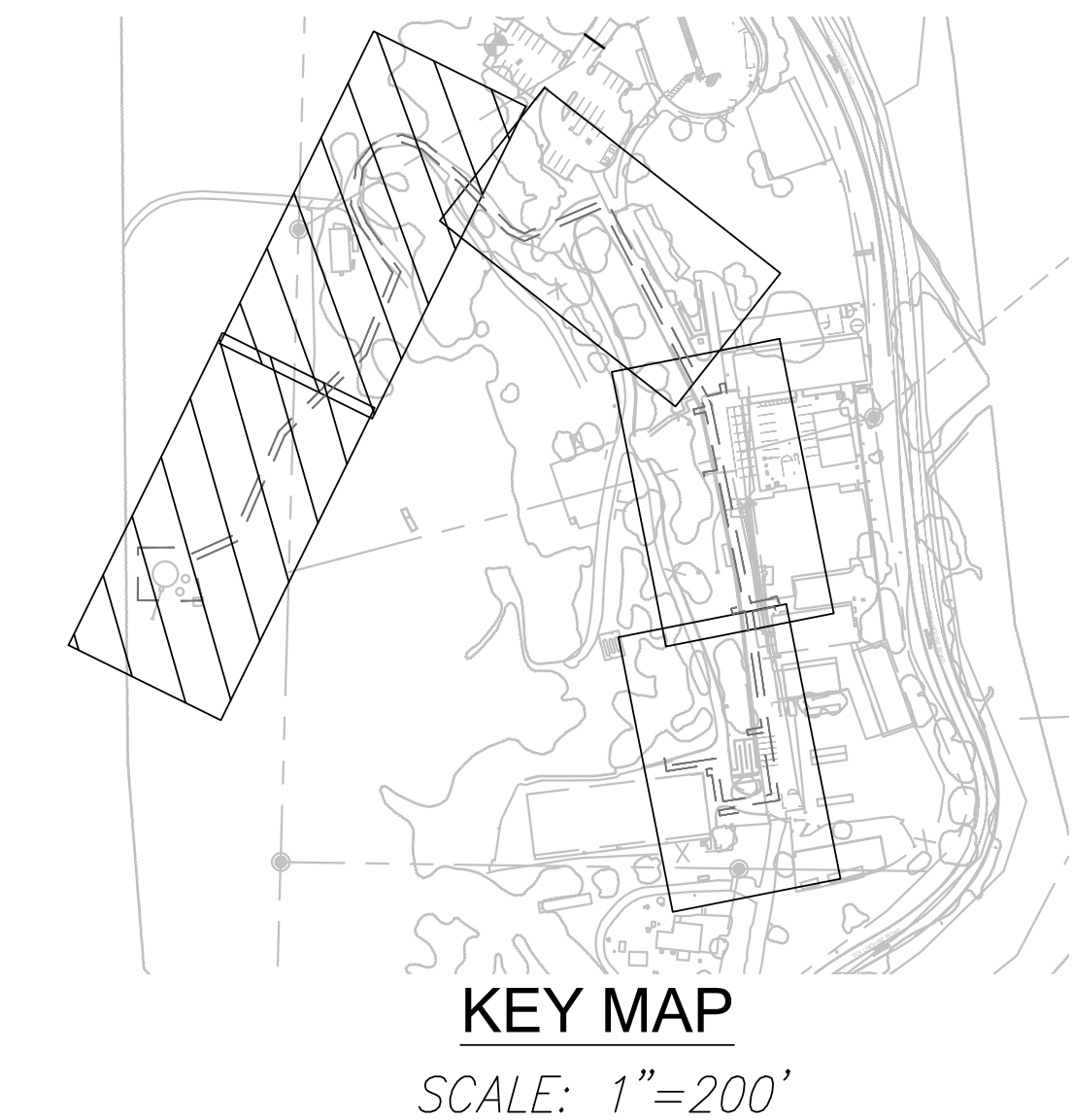
PORTABLE RESTROOM



FIBER ROLL 

INLET PROTECTION

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- B. TEMPORARY CONSTRUCTION ENTRANCE/EXIT LOCATION SHOWN IS APPROXIMATE. CONTRACTOR TO PROVIDE LOCATION WHERE APPROPRIATE.
- C. THIS PLAN REPRESENTS POSSIBLE WATER POLLUTION CONTROL MEASURES INCLUDING EROSION CONTROL AND SEDIMENT CONTROL.
- D. EXISTING SURFACES SHALL BE UNDISTURBED TO THE EXTENT PRACTICAL.
- E. GROUND WATER SHALL NOT BE DISCHARGED WITH STORM WATER. GROUND WATER DEWATERING OPERATIONS SHALL BE COORDINATED AS NEEDED WITH OWNER.
- F. CONTRACTOR SHALL PROVIDE EFFECTIVE SOIL COVER FOR AREAS OF CONSTRUCTION ACTIVITY THAT HAVE BEEN DISTURBED AND ARE NOT SCHEDULED TO BE ACTIVE FOR AT LEAST 14 DAYS.
- G. ALL EROSION CONTROL AND SEDIMENT CONTROLS TO BE OBTAINED INSTALLED AND MAINTAINED AS REQUIRED IN PROJECT SWPPP.
- H. CONTRACTOR TO INSTALL RUN-ON AND RUN-OFF CONTROL MEASURES ACCORDING TO PLANS OR AS NECESSARY TO ENSURE SEDIMENT IS NOT TRANSPORTED FROM SITE.
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- J. STOCKPILE LOCATION(S) TO BE DETERMINED BY THE CONTRACTOR. COORDINATE WITH SITE QSP.
- K. ALL CONCRETE TRUCKS TO USE CHUTE WASH BUCKETS FOR CONCRETE RINSE, ALL CONCRETE PUMPS TO CAPTURE CONCRETE RINSE IN SECONDARY CONTAINMENT AND PROPERLY DISPOSE.
- L. STREET SWEEPING SHALL BE CHECKED DAILY TO ENSURE DEPOSITED SEDIMENT AND DEBRIS DOES NOT ENTER THE STORM DRAIN SYSTEM. USE REGENERATIVE VACUUM STREET CLEANER TO MITIGATE AIR AND WATER POLLUTION.
- L. RUNOFF THAT HAS CONTACTED AMENDED SOIL AREAS SHALL NOT BE ALLOWED TO LEAVE THE SITE OR ENTER THE STORM DRAIN SYSTEM.



KEY MAP

SCALE: 1"=200'



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APPROVED FIRE AND PANIC ONLY



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[illegible]

TECHNICAL SERVICES SECTION

PROJECT TITLE:

TOLLHOUSE FIRE CENTER - WATER TANK AND MAIN

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: 224406

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:

EROSION CONTROL PLAN

SHEET NUMBER

C7.0

VERSION: V2

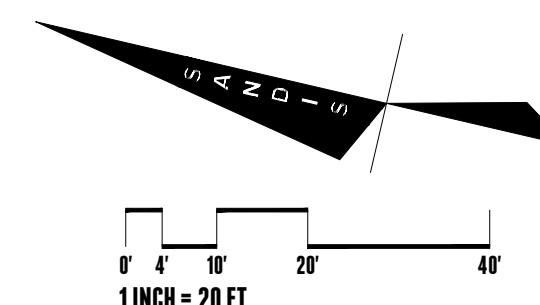


	APPROXIMATE AREA OF CONSTRUCTION DISTURBANCE
	PROPERTY LINE
	LOT LINE
	EASEMENT

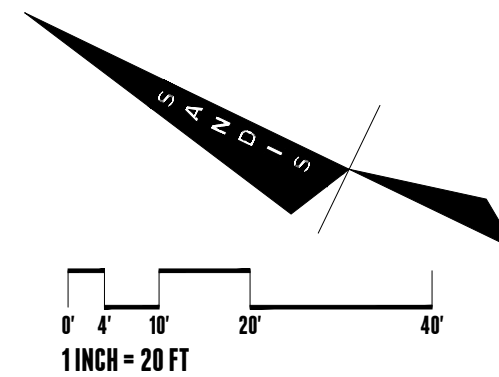
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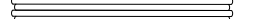
○

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OFFICE OF THE STATE FIRE MARSHAL APPROVED FIRE AND PANIC ONLY									
 5/12/2026 25-5047 Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.									
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BY:	SC								
DATE:	04/20/2026								
ISSUE:	Draw 1: Comment Response								
No.	1								
 CAL FIRE SINCE 1985									
TECHNICAL SERVICES SECTION									
PROJECT TITLE:									
TOLLHOUSE FIRE CENTER - WATER TANK AND MAIN									
27595 TOLLHOUSE ROAD CITY OF TOLLHOUSE, CALIFORNIA 93667 FRESNO COUNTY									
JOB NUMBER: 224406									
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FILE DATE: 12/01/2025									
SHEET TITLE:									
EROSION CONTROL PLAN									
SHEET NUMBER									
C7.1									



-
- Legend for construction materials and equipment:
-  APPROXIMATE AREA OF CONSTRUCTION DISTURBANCE
 -  PROPERTY LINE
 -  LOT LINE
 -  EASEMENT
 -  STABILIZED EXIT $\begin{matrix} TC-1 \\ CB.3 \end{matrix}$
 -  SPILL KIT
 -  PORTABLE RESTROOM
 -  FIBER ROLL $\begin{matrix} SF-9 \\ CB.3 \end{matrix}$
 -  INLET PROTECTION $\begin{matrix} SF-10 \\ CB.3 \end{matrix}$

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VERSION: V2



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5/12/2026
25-5047

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[illegible]

TECHNICAL SERVICES SECTION

PROJECT TITLE:

TOLLHOUSE FIRE CENTER - WATER TANK AND MAIN

27595 TOLLHOUSE ROAD
CITY OF TOLLHOUSE,
CALIFORNIA 93667
FRESNO COUNTY

JOB NUMBER: 224406

DESIGNED BY: TH

DRAWN BY: TK

REVIEWED BY: SC

FILE DATE: 12/01/2025

SHEET TITLE:

EROSION CONTROL PLAN

SHEET NUMBER

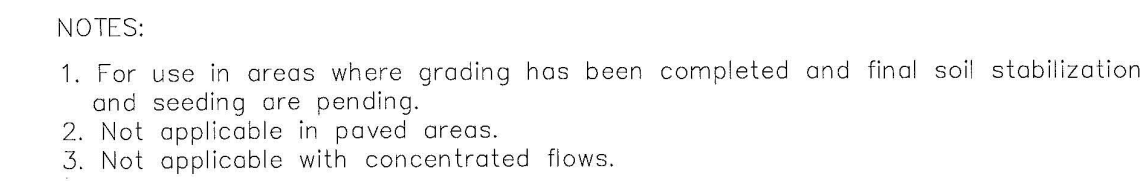
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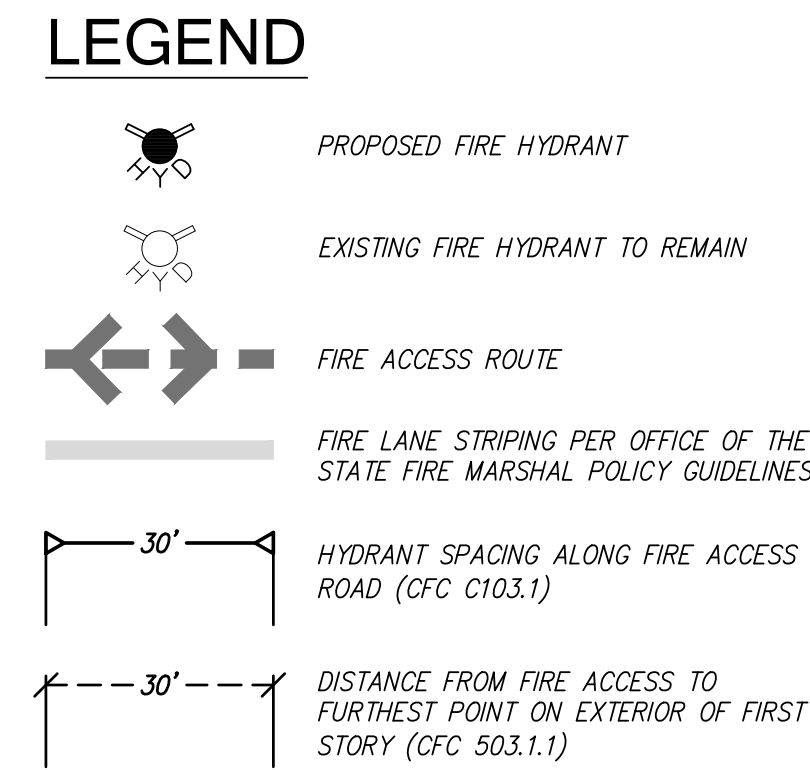
VER. 2019

PROJECT PATH: S:\224406 TOLLHOUSE\4_ENGINEERING\2_PLAN SETS\3_SHEET SETS\SITE WATER TANK\7.0 - EROSION CONTROL PLAN.DWG

PLOT DATE:

SE-10





BUILDING A

NO FIRE ALARM SYSTEM, HAS SMOKE DETECTORS WITH EXIT SIGNS ONLY

CONSTRUCTION TYPE:	V-N (1998)	(USED FIRE FLOW REQUIREMENTS FOR V-B OF 2022 CFC)
GROSS BUILDING FLOOR AREA:	8,760 SF	
FULLY SPRINKLERED:	NO	
REFERENCE FIRE FLOW	2,500 GPM	(CFC TABLE B105.1(2))
REQUIRED FIRE FLOW DURATION:	2 HR	(CFC TABLE B105.1(2) & B105.2)
REQUIRED NUMBER OF HYDRANTS:	3	(CFC TABLE C102.1)
AVERAGE HYDRANT SPACING:	450 FT	(CFC TABLE C102.1)

BUILDING D

NO FIRE ALARM OR PROTECTION SYSTEM

CONSTRUCTION TYPE:	V-1 (1998)	(USED FIRE FLOW REQUIREMENTS FOR V-A of 2022 CFC)
GROSS BUILDING FLOOR AREA:	10,400 SF	
FULLY SPRINKLERED:	NO	
REFERENCE FIRE FLOW	1,750 GPM	(CFC TABLE B105.1(2))
REQUIRED FIRE FLOW DURATION:	2 HR	(CFC TABLE B105.1(2) & B105.2)
REQUIRED NUMBER OF HYDRANTS:	1	(CFC TABLE C102.1)
AVERAGE HYDRANT SPACING:	500 FT	(CFC TABLE C102.1)

BUILDING E

HAS ALARM PANEL WITH PULL STATIONS, BACK-UP EMERGENCY LIGHTS, AND EXIT SIGNS

CONSTRUCTION TYPE:	V-N (1998)	(USED FIRE FLOW REQUIREMENTS FOR V-B OF 2022 CFC)
GROSS BUILDING FLOOR AREA:	9,856 SF	
FULLY SPRINKLERED:	NO	
REFERENCE FIRE FLOW	2,750 GPM	(CFC TABLE B105.1(2))
REQUIRED FIRE FLOW DURATION:	2 HR	(CFC TABLE B105.1(2) & B105.2)
REQUIRED NUMBER OF HYDRANTS:	3	(CFC TABLE C102.1)
AVERAGE HYDRANT SPACING:	450 FT	(CFC TABLE C102.1)

BUILDING B

HAS ALARM PANEL WITH SMOKE DETECTORS, HEAT DETECTORS, ALARMS, STROBES, PULL STATIONS AND EXIT SIGNS

CONSTRUCTION TYPE:	V-N (1998)	(USED FIRE FLOW REQUIREMENTS FOR V-B OF 2022 CFC)
GROSS BUILDING FLOOR AREA:	2,880 SF	
FULLY SPRINKLERED:	NO	
REFERENCE FIRE FLOW	1,500 GPM	(CFC TABLE B105.1(2))
REQUIRED FIRE FLOW DURATION:	2 HR	(CFC TABLE B105.1(2) & B105.2)
REQUIRED NUMBER OF HYDRANTS:	1	(CFC TABLE C102.1)
AVERAGE HYDRANT SPACING:	500 FT	(CFC TABLE C102.1)

BUILDING C

HAS ALARM PANEL WITH SMOKE DETECTORS, HEAT DETECTORS, ALARMS, STROBES, PULL STATIONS, BACK-UP EMERGENCY LIGHTS, AND EXIT SIGNS

CONSTRUCTION TYPE:	V-N (1998)	(USED FIRE FLOW REQUIREMENTS FOR V-B OF 2022 CFC)
GROSS BUILDING FLOOR AREA:	2,420 SF	
FULLY SPRINKLERED:	NO	
REFERENCE FIRE FLOW	1,500 GPM	(CFC TABLE B105.1(2))
REQUIRED FIRE FLOW DURATION:	2 HR	(CFC TABLE B105.1(2) & B105.2)
REQUIRED NUMBER OF HYDRANTS:	1	(CFC TABLE C102.1)
AVERAGE HYDRANT SPACING:	500 FT	(CFC TABLE C102.1)

TEMPORARY BUS SHELTER

NO FIRE ALARM OR PROTECTION SYSTEM

CONSTRUCTION TYPE:	V-B
GROSS BUILDING FLOOR AREA:	3,000 SF
FULLY SPRINKLERED:	NO
REFERENCE FIRE FLOW	1,500 GPM (CFC TABLE B105.1(2))
REQUIRED FIRE FLOW DURATION:	2 HR (CFC TABLE B105.1(2) & B105.2)
REQUIRED NUMBER OF HYDRANTS:	1 (CFC TABLE C102.1)
AVERAGE HYDRANT SPACING:	500 FT (CFC TABLE C102.1)

NOTES:

1. VALUES LISTED PER 2022 CALIFORNIA FIRE CODE APPENDIX B AND C.
2. ADDITIONAL FIRE FLOW NOTE(S) PER CAL FIRE.

FIRE PROTECTION NOTES

1. FIRE APPARATUS ROADWAYS, INCLUDING PUBLIC OR PRIVATE STREETS OR ROADS USED FOR VEHICLE ACCESS, SHALL BE INSTALLED AND IN SERVICE PRIOR TO CONSTRUCTION.
2. FIRE PROTECTION WATER SERVING ALL HYDRANTS SHALL BE PROVIDED AS SOON AS COMBUSTIBLE MATERIAL ARRIVES ON SITE.
3. PRIOR TO COMBUSTIBLE MATERIAL ARRIVING ON THE SITE, CONTACT THE CAL FIRE TO SCHEDULE AN INSPECTION OF ROADWAYS AND FIRE HYDRANTS. CFC 2022.
4. THE EXISTING BUILDINGS DO NOT HAVE SPRINKLER SYSTEMS SO FDOS AND PIVS ARE NOT REQUIRED.

HYDRAULIC CALCULATIONS

SITE STATIC PRESSURE: 66 PSI
DEMAND FLOW: 2,750 GPM
SITE RESIDUAL PRESSURE: 33 PSI
AVAILABLE FLOW AT 20 PSI: 3,289 GPM

PROJECT NAME	SU274406 T01 H01 SE4	ENGINEERING?	PIAN SETS.3	SHEET SET/ONSITE WATER TANK/C8.0 - FIRE ACCESS.PIAN DWG		VER 2019
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