

**SECTION 00020**

**FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631**

**NOTICE INVITING BIDS**

NOTICE IS HEREBY GIVEN that Foresthill Public Utility District, hereafter referred to as "Owner" or "Agency", will receive SEALED BIDS at the Owner's Office **24540 Main Street, Foresthill, CA 95631** until 1:00 p.m. local time, on Tuesday, August 25, 2026 for construction of:

**Generator Replacement Project**

At said place and time, and promptly thereafter, all Bids that have been duly received in accordance with the Contract Documents, will be publicly opened and read aloud.

Project Description: In accordance with plans and specifications prepared by Peters Engineering, the Work includes the furnishing of all labor, materials, tax, equipment and services for the construction and completion of a new Owner Supplied Generator, Generator concrete pad, excavation for footings and conduits, Wiring, terminations and commissioning of Generator.

The total Contract Time to achieve Final Completion is 60 calendar days from Notice to Proceed.

The estimated cost of construction is \$ 335,000.

At the time the Contract is bid, awarded and for the duration of the contract, the Owner has determined that the General Contractor shall possess a valid State of California At the time of bid submission and throughout the duration of the Contract, the Contractor shall possess a current, active, and unrestricted California contractor's license issued by the Contractors State License Board (CSLB). The Contractor shall possess one of the following:

- **Class A – General Engineering Contractor**, or
- **Class B – General Building Contractor**, if legally authorized to perform the scope of work and utilizing appropriately licensed specialty subcontractors.

All electrical work shall be performed by:

- A Contractor holding a **Class C-10 Electrical Contractor** license; or
- A subcontractor holding a current and active **Class C-10 Electrical Contractor** license.

Any work requiring specialty contractor licenses shall be performed by contractors properly licensed in the applicable classification as required by the CSLB.

The Contractor shall be responsible for ensuring that all subcontractors possess the licenses required for their respective scopes of work.

Failure to possess the specified license shall render the bid as non-responsive. Bidders must comply with the provisions of the Business and Professions Code Section 7028.15 by setting forth their license number and expiration date on their bid.

A full set of Contract Documents and all information available to Bidders, as further defined in Section 00200, **INFORMATION AVAILABLE TO BIDDERS**, may be examined at the Owner's main Office during regular business hours, Sacramento Builders Exchange or Foresthill Public Utility District website. Bidders are encouraged to examine qualification requirements contained within the Contract Documents.

Complete sets of Contract Documents must be used in preparing Bids. The Owner does not assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.

The Owner, in making copies of the Contract Documents available on the above terms, does so only for the purpose of obtaining Bids for the Work and does not confer license or grant for any other use. The Bidder shall purchase the Contract Documents and become a listed holder of these documents in accordance with these procedures to be eligible to bid the Project. Bids received from Bidders not following these procedures may, in the discretion of the Owner, be deemed non-responsive.

**A mandatory pre-bid walk-through meeting will be held on Tuesday, August 4, 2026 at 1:00 PM PST at 25985 Foresthill Rd, Foresthill, Ca. 95631.** At this meeting, representatives of Owner and the Design Engineer will discuss the bid documents, site constraints, order of work and other items specific to this project. A project walk-through will follow. A sign-in sheet will be available up until 1:15 PM only. Attendance at the entire pre-bid meeting and walk-through is mandatory for bidding. Bids received from Bidders who did not sign the sign-in sheet and attend the meeting and walk-through will be returned to the Bidder unopened. Attendance by subcontractors is not mandatory, but all interested prospective subcontractors are encouraged to attend. Oral statements not confirmed by Addenda may not be relied upon and are not binding or legally effective. Except for mandatory walk-through, no other access to the project site will be granted pre-bid without the Owner's approval. During all site visits the Bidder must be accompanied full time by an authorized representative of the Owner. No exceptions to this requirement.

Written questions regarding the Contract Documents and/or the proposed Work should be directed to the following: [Pre-Bid RFI Form](#). Last day to submit questions is Tuesday August 11, 2026 at 4:00 PM PST.

Bidding procedures are prescribed in the Contract Documents. Bids shall be executed upon the Bid Forms bound and made a part of the Bid Documents. All prescribed Bid Forms may be removed from the Contract Documents for submission in a sealed envelope.

A Bid Guaranty in an amount not less than ten percent (10%) of the total aggregate of the bid, including all Additive and/or Alternate Bid Items shall accompany each bid. This Bid Guaranty is to be forfeited should the Bidder, if awarded the contract, fail to enter into the same, or fails to furnish the bonds and/or proof of insurance as stipulated in the Contract Documents. The checks or bond shall be made payable to the Owner.

The successful Bidder will be required to furnish both a Faithful Performance Bond in the amount of one hundred percent (100%) and a Payment Bond in the amount of one hundred percent (100%) of the Contract price.

Pursuant to the provisions of California Labor Code Section 6707, each bid submitted in response to this Invitation to Bid shall contain, as a separate bid item, adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life or limb in trenches and open excavation, exceeding five feet, which shall conform to applicable safety orders. Neither this requirement, nor any payment by Owner for this separate bid item, shall be construed to impose tort liability on Owner, or its employees or agents, for any injury or damage caused by failure of any excavation or protective equipment or methods.

Pursuant to Sections 1770, *et seq.*, of the California Labor Code, the successful Bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Pursuant to the provisions of California Labor Code Section 1773.2, the Contractor is hereby advised that copies of the prevailing rate of per diem wages and a general prevailing rate for holidays, Saturdays and Sundays and overtime work in the locality in which the work is to be performed for each craft, classification, or type of worker required to execute the Contract, are on file in the Owner's office. These rate determinations may also be found on the State of California Department of Industrial Relations' website at <http://www.dir.ca.gov/OPRL/dprevagedetermination.htm>. This project is subject to compliance monitoring and enforcement by the State Department of Industrial Relations (DIR).

All contractors and subcontractors shall be registered with DIR pursuant to Labor Code Section 1725.5 to be qualified to bid on this project or to be listed as a subcontractor for this project pursuant to Public Contract Code Section 4104. Bidders will be required to submit proof of registration for themselves and all listed subcontractors prior to award of the contract.

The successful contractor and its subcontractors shall employ the appropriate number of apprentices, in each apprenticeable craft, on the project site as stipulated in California Labor Code, 1777.5.

The successful Bidder must insure that its policies and practices provide equal opportunity to all applicants and employees without regard to race, color, creed, sex, age, religion, ancestry, citizenship, national origin, handicap, mental condition, veteran or marital status. The successful Bidder must comply with the Americans with Disabilities Act.

Pursuant to Public Contract Code Section 22300, for monies earned by the Contractor and withheld by the Owner to ensure the performance of the Contract, the Contractor, may, at its option, choose to substitute securities meeting the requirements of Public Contract Code Section 22300, or have the retained, earned monies deposited in an escrow account at a federal or state chartered bank.

No bid received and read aloud may be withdrawn for a period of sixty (60) days after the bid opening date, except pursuant to Public Contract Code Section 5101 *et seq.*

Telephones will not be available to Bidders at the Owner's offices for the preparation of bids or for communicating bid results. Bid forms received after the designated time will not be opened and will be returned to the Bidder unopened.

Bidders shall develop and submit bids at their own expense. The Owner will not reimburse any costs associated with the development and submittal of any and all bids.

The Owner reserves the right to award the Contract, to reject any and all Bids, to waive irregularities, and to reject nonconforming, nonresponsive or conditional Bids.

DATED: \_\_\_\_\_

\_\_\_\_\_  
Hank White  
General Manager  
Foresthill Public Utility District



## SECTION 00100

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**24540 Main Street**  
**Foresthill, CA 95631**

### INSTRUCTIONS TO BIDDERS

#### 1.0 WORK TO BE DONE

It is the intention of the Owner to construct improvements as shown and set forth in the Contract Documents titled: Generator Replacement Project dated 7/24/26 as prepared by Foresthill Public Utility District and Peters Engineering. All of the work is particularly set forth in the permits, plans and specifications, and all of said work, together with all other work incidental thereto, is included. The work includes the furnishing of all labor, materials, taxes, incidentals and equipment necessary for completion of the project. Codes and standards, definition of words and terms, and abbreviations shall be as specified in Contract Documents.

#### 2.0 EXAMINATION OF CONTRACT DOCUMENTS

Each Bidder shall thoroughly examine and be familiar with those Contract Documents and addenda (if any). The submission of a bid shall constitute an acknowledgment upon which the Owner may rely that the Bidder has thoroughly examined and is familiar with the Contract Documents. The failure or neglect of a Bidder to receive or examine any of the Contract Documents shall in no way relieve it from any obligation with respect to its bid or to the Contract. No claim for additional compensation will be allowed which is based upon a lack of knowledge of any Contract Documents.

#### 3.0 INSPECTION OF PROJECT SITE AND PRE-BID ACCESS TO THE SITE

Attending the **Mandatory Job Walk on Tuesday 8/4/26 at 1:00 PM** and Prior to submitting a bid, it will be the sole responsibility of each bidder to conduct any additional examination, investigation, exploration, test, study or other inquiry and to obtain any additional information pertaining to the physical conditions (including surface, subsurface, and underground utilities) at or near the Project site that may affect the cost, progress, or performance of the Project, and that the bidder deems are necessary to prepare its bid for performance of the Project in accordance with the bid package and contract documents.

Submission of a bid by the bidder shall constitute conclusive evidence that, if awarded the Contract, it has relied upon and is relying on its own examination of (1) the site of the work, (2) access to the site, (3) all other data and matters requisite to the fulfillment of the work and on its own knowledge of existing facilities on and in the vicinity of the site of the work to be constructed under the Contract, (4) the conditions to be encountered, (5) the character, quality and scope of the proposed work, (6) the quality and quantity of the materials to be furnished, and (7) the requirements of the Contract, the plans, the specifications, and other related information made available to Bidders by the Owner (see Section 00200- **INFORMATION AVAILABLE TO BIDDERS**).

The information provided by the Owner is not intended to be a substitute for, or a supplement to the independent verification by the Bidder to the extent such independent investigation of site conditions is deemed necessary or desirable by the Bidder.

#### **4.0 INTERPRETATION OF CONTRACT DOCUMENTS**

No oral representations or interpretations will be made to any Bidder as to the meaning of the Contract Documents. Requests for an interpretation shall be made using the following link: [Pre Bid RFI Form](#)

All questions shall be submitted in the time set forth herein. All answers to questions will be addressed in an addendum issued by Peters Engineering. Last day to submit questions is Tuesday 8/11/26 4:00 PM. Last Addendum will be issued by Tuesday 8/18/26.

It is the Bidder's sole responsibility to ensure that the question is submitted in a timely manner. If the Bidder does not receive an acknowledgement of submitted form, Bidder shall assume the e-mail transmission was not received and shall be responsible for resubmitting the same in a timely manner, and if necessary, by an alternate allowable method of transmission allowing for confirmation of receipt (e.g., email or facsimile).

Requests to clarify the source of materials, equipment, suppliers or any other such matter which does not modify, change, increase, or decrease the scope of work requires no action by the Owner other than a response to the Bidder requesting the clarification. Requests to clarify possible ambiguous or incomplete statements or designs, or any other such clarification which modifies, changes, increases or decreases the scope of work, requires issuance of an addendum signed by the Owner and transmitted to all recipients of complete sets of Contract Documents. No other interpretation or information concerning the Contract Documents issued prior to the date specified for opening of bids will be binding.

#### **5.0 POSTPONEMENT OF OPENING**

The Owner reserves the right to postpone the date and time for receiving and/or opening of bids at any time prior to the date and time established in the Notice of Invitation to Bid. Postponement notices may be faxed or emailed and will subsequently be mailed to planholders of record in the form of addenda.

#### **6.0 OPENING OF BIDS**

All bids, irrespective of any irregularities or informalities, if received on time, will be opened and publicly read aloud at the time and place set forth in the Notice Inviting Bids, **provided** that, if a mandatory pre-bid walk-through is prescribed in Section 00020, NOTICE INVITING BIDS, any bid from a Bidder who did not sign the sign-in sheet and attend the meeting and walk-through, will be returned to the Bidder unopened; **and further provided** that, if the Agency has adopted a prequalification process and listed prequalified bidders in its Notice Inviting Bids, bids not from prequalified bidders will not be opened. Bidders, their representatives and other interested persons may be present at the opening and reading of bids.

Any bids received after the time for receiving and opening bids as set forth in the Notice Inviting Bids or as postponed by addenda will not be opened. Any such bids will be returned, unopened, to the Bidder.

The public reading of each bid will include at least the following:

- A. Name and address of bidder.
- B. The total amount of bid.
- C. The nature and amount of the security furnished with the bid.

Provided that if a mandatory pre-bid walk-through is prescribed in Section 00020, **NOTICE INVITING BIDS**, any bid from a Bidder who did not sign the sign-in sheet and attend the meeting and walk-through will be returned to the Bidder unopened.

## 7.0 PREPARATION OF BID FORMS AND BIDDER'S CHECKLIST

Bids shall be made on the separately bound blank bid forms, Sections 00300 through 00480, and must be submitted at the time and place stated in the Notice of Invitation to Bid. All blanks in the bid forms must be appropriately filled in, in permanent ink or typed, and all prices must be stated in figures.

All bids must be submitted in sealed envelopes bearing on the outside the name of the Bidder, its address, and the name of the project for which the bid is submitted. It is the sole responsibility of the Bidder to see that its bid is received before the time stipulated in the Notice Inviting Bids. A Bid will not be accepted after the date and time designated in the Notice Inviting Bids. Any Bid received after said date and time designated in the Notice Inviting Bids will be returned to the Bidder unopened. Owner shall not be responsible for errors or omissions in the bid. Bidders shall write their names on each bid form in the space provided.

The checklist shown below has been prepared and furnished to aid Bidders in including all necessary supporting information with their bid. Bidders' submittals should include, but are not limited to, the following:

| ITEM |                                                      | CHECKED  |
|------|------------------------------------------------------|----------|
| 1.   | Bid Form (Section 00300)                             | 1. _____ |
| 2.   | Bid Guaranty Bond (Section 00410)                    | 2. _____ |
| 3.   | Certification of Bidder's Experience (Section 00420) | 3. _____ |
| 4.   | Designation of Subcontractors (Section 00430)        | 4. _____ |
| 5.   | Site Visit Affidavit (Section 00450)                 | 5. _____ |
| 6.   | Non-collusion Declaration (Section 00480)            | 6. _____ |
| 7.   | Certificate of Drug Free Workplace (Section 00640)   | 7. _____ |
| 8.   | Workers Comp Insurance Certificate (Section 00645)   | 8. _____ |

## **8.0 BIDDER'S SIGNATURE AND AUTHORITY**

If the bid is made by an individual; bidder's name, signature, and post office address must be shown. If the bid is made by a firm or partnership; the name and post office address of the firm or partnership, a list of the partners, and the signature of at least one of the general partners must be shown. If the bid is made by a corporation; the bid shall show the name of the state under the laws of which the corporation is chartered, the name and post office address of the corporation, and the title of the person who signs on behalf of the corporation. If the bid is made by a corporation; a certified copy of the bylaws or resolution of the Board of Directors of the corporation shall be furnished, showing the authority of the officer signing the bid, to execute Contract on behalf of the corporation. If the bid is made by a joint venture, the bid shall be signed by a representative of the sponsoring partner of the joint venture. Additionally, the bid shall include a copy of the resolution or agreement empowering the representative to execute the bid and bind the joint venture.

All signatures on the bid shall be in longhand. Signature stamps are unacceptable and shall not be used.

## **9.0 ERASURES AND CORRECTIONS**

The bid submitted must not contain any erasure, interlinear additions, or other corrections unless each such correction is authenticated. Authentication may be made by affixing in the margin, immediately opposite the correction, the signature of the person submitting the bid.

## **10.0 BID IRREGULARITIES**

Changes in or additions to the bid form, recapitulations of the work bid upon, alternative bids, or any other modifications of the bid form which are not specifically called for in Section 00300 may result in rejection of the bid at the Owner's sole discretion. The Owner, at its sole discretion, may treat all such bids as not being responsive to the Invitation to Bid. The Owner will consider no oral, telephonic or email modification of any bid submitted.

## **11.0 MODIFICATION OF BID**

Upon written request, a bid already received may be modified or withdrawn at any time before the time established for receiving bids. The request must be executed by the Bidder or its authorized representative as described in Paragraph 00100-8.0, **BIDDER'S SIGNATURE AND AUTHORITY**. Modifications shall be made in writing, executed, and submitted in the same form and manner as the original bid. Withdrawal of a bid does not prejudice a bidder's right to submit a new bid within the time designated for the submission of bids. No bid may be withdrawn after the time established for receiving bids except as provided in Paragraph 00100-12.0, **WITHDRAWAL OF BIDS**.

## **12.0 WITHDRAWAL OF BIDS**

In accordance with California Public Contract Code 5103, a bidder may withdraw its bid with the consent of the Owner. A Bidder desiring to withdraw its bid, after the time of opening the bids, shall give written notice to the Owner within five (5) days after opening of the Bids (excluding Saturdays, Sundays, or Owner holidays) of the alleged mistake.

The Bidder shall provide documentation in accordance with California Public Contract Code 5103. Bids cannot be changed because of mistake.

### **13.0 BID PROTEST**

The lack of a prompt procedure to resolve disputes regarding the bidding process would impair the Owner's ability to carry out its purpose of constructing this project in a timely manner. Therefore, to the maximum extent authorized by law and notwithstanding any other procedures specified in documents referenced herein, all disputes and/or protests regarding the bidding process shall be subject to the following procedure. In submitting a bid to the Owner for this project, the bidder agrees to comply with and to be bound by this procedure.

Any Bid protest must be submitted in writing to the General Manager of Foresthill Public Utility District before 5:00 p.m. on the fifth (5<sup>th</sup>) working day following Bid opening.

- A. The initial protest document must contain a complete statement of the basis for the protest, and all supporting documentation.
- B. The party filing the protest must have actually submitted a Bid for the Work. A subcontractor of a party submitting a Bid for the Work may not submit a Bid protest. A party may not rely on the Bid protest submitted by another Bidder, but must timely pursue its own protest.
- C. The protest must refer to the specific portion of the Contract Document which forms the basis for the protest.
- D. The protest must include the name, address and telephone number of the person representing the protesting party.
- E. The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest which may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.
- F. The Owner will give the protested Bidder five (5) working days after the receipt of the protest to submit a written response. The responding Bidder shall transmit the response to the protesting Bidder concurrent with delivery to the Owner.
- G. The procedure and time limits set forth in this paragraph are mandatory and are the Bidder's sole and exclusive remedy in the event of Bid protest. The Bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings. A Bidder may not rely on a protest submitted by another Bidder, but must timely pursue its own protest.
- H. If the Owner determines that a protest is frivolous, the protesting bidder may be determined to be non-responsive and that bidder may be determined to be ineligible for future contract awards.

### **14.0 ADDENDA**

Addenda issued during the time of bidding shall become a part of the documents furnished bidders for the preparation of bids, shall be covered in the bids, and shall be made a part of the Contract. Each bid shall include specific acknowledgment in the space provided of receipt of all Addenda issued during the bidding period. Failure to so acknowledge may result in the bid being rejected as not responsive. Failure of any bidder to receive such Addenda shall not be grounds for non-compliance with the terms of the instructions.

Addenda will be issued such that they should be received by each recipient of a complete set of Contract Documents no later than three (3) working days prior to the specified bid date. Addenda withdrawing the request for bids or postponing the bid deadline may be issued anytime prior to the specified bid deadline.

## **15.0 BID GUARANTY**

The bid form shall be accompanied by a bid guaranty bond provided by a surety company authorized to carry on business in the State of California with a minimum "A" rating with Best's Rating Guide for payment to the Owner in the sum of at least ten percent (10%) of the total amount of the bid price, or, alternatively, by a certified or cashier's check, payable to the Owner in the sum of at least ten percent (10%) of the total amount of the bid price. The bid guaranty bond shall be provided on the form included in Section 00410, **BID GUARANTY BOND**, of this Project Document. The amount payable to the Owner under the bid guaranty bond, or the certified or cashier's check and the amount thereof, as the case may be, shall be forfeited to the Owner as liquidated damages in case of a failure or neglect of the bidder to furnish, execute, and deliver to the Owner the required performance and payment bonds, evidences of insurance; and to enter into, execute, and deliver to the Owner the Agreement on the form provided herewith, within ~~ten~~ (10) calendar days after receiving written notice from the Owner that the award has been made and the Agreement is ready for execution.

The bid guarantees of the three lowest Bidders will be retained until the Agreement is signed, evidence of insurance provided, and satisfactory bonds furnished or other disposition made thereof. The bid guarantees will be returned to all but the lowest three responsive bidders upon written request from the Bidder. The bid guarantees from the lowest three bids will be available for return at the time they are considered null and void per terms of the Bid Guaranty Bond.

## **16.0 QUALIFICATION OF BIDDER**

Each bidder shall complete and submit with their bid Section 00420, **CERTIFICATION OF BIDDER'S EXPERIENCE AND QUALIFICATIONS**.

Upon the request of Owner, any bidder whose bid is under consideration for the award of the Contract shall promptly submit satisfactory evidence showing the bidder's financial resources, its construction experience, and its organization's availability for the performance of the Contract.

The bidder may be required to establish to the satisfaction of the Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the work described in the Documents.

## **17.0 LOCAL BUSINESS LICENSE**

If required by City or County, the Contractor shall have a local business license for the work contemplated before the Contract can be executed. All subcontractors will be required to secure the appropriate local business license before they commence work on the project.

## **18.0 SUBCONTRACTORS**

In accordance with California Public Contract Code Section 4100, *et seq.*, "*Subletting and Subcontracting Fair Practices Act*," each general bid shall have listed in Section 00430, **DESIGNATION OF SUBCONTRACTORS**, the name, California contractor license number, location of the place of business and the portion of work to be performed by each subcontractor who will perform work or labor or render service to the bidder in or about the construction of the work or improvement, or of any subcontractor licensed by the State of California who, under subcontract to the bidder, will specially fabricate and install a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of one percent of the bidder's total bid.

Failure to list subcontractors may render the bid non-responsive and may be grounds for rejection of the bid. Failure to comply with the provisions of the California "Subletting and Subcontracting Fair Practices Act" shall make the Contractor subject to the sanctions as set forth in the Act.

Alternate subcontractors shall not be listed for the same work.

## **19.0 OWNER FURNISHED EQUIPMENT**

The Owner shall furnish the following equipment as further described Documents.

- 1) Automatic transfer Switch Panel
- 2) New Generator

## **20.0 SOLE-SOURCED ITEMS AND SUBSTITUTIONS DURING BIDDING**

Bidders are advised that, in accordance with Public Contract Code Section 3400, the Owner has made a finding that particular materials, products, things or services are designated by specific brand or trade names in order to match other materials, products, things or services in use or to obtain necessary items available only from one source. By listing a sole-source vendor, Owner has only identified a particular product the supply of which will conform to the Contract. Owner does not warrant in any respect the performance of any designated sole-source vendor. Owner shall not be responsible for, and Contractor shall not be excused for, any failure of a sole-source vendor to supply a conforming product in a timely fashion. Bidders shall refer to individual specification sections for specific requirements.

Contractors, manufacturers or suppliers of materials and equipment may offer an alternative product and request the alternatives to specified products be considered equal unless the Owner has sole-sourced a product in accordance with Public Contract Code 3400. Inclusion of such alternatives in the bid is the sole responsibility of the Contractor. Inclusion of the proposed alternative should only be considered if it is the Contractor's sole

belief the offered alternative is equal in quality and performance to the specified product. After award of the Contract, such offers of alternative products will be reviewed and processed as a substitution as provided under Section 01330-11.0, **SUBSTITUTES OR "OR EQUAL" ITEMS AND PRODUCT OPTIONS**. If the material, equipment, process or article offered by the contractor is not, in the Owner's sole opinion, substantially equal or better in respect to that specified, then the contractor shall furnish that material, process or article specified or one that in the Owner's opinion is substantially equal or better in every respect.

## **21.0 BIDDERS INTERESTED IN MORE THAN ONE BID**

No person, firm, or corporation, under the same or different name, shall make, file, or be interested in more than one bid for the same work unless alternate bids are called for. A person, firm, or corporation may, however, submit sub-proposals or quote prices on materials to more than one bidder.

Pursuant to Public Contract Code Section 7106, Bidders shall execute and furnish with their bids Section 00480, **NON-COLLUSION DECLARATION**. Reasonable grounds to believe that any individual, partnership, corporation, or combination is interested in more than one bid for the proposed work may cause rejection of all bids in which that individual, partnership, corporation, or combination is interested.

## **22.0 SHEETING, SHORING AND BRACING**

Pursuant to the provisions of California Labor Code Section 6707, each bid submitted shall contain, in the bid item indicated, the amount included in its bid for adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life and limb in trenches and open excavation, which shall conform to applicable safety orders. By listing this sum, the Bidder warrants that its action does not convey tort liability to the Owner, the Design Consultant, the Construction Manager, and their employees, agents, and subconsultants.

## **23.0 WAGE RATES**

Pursuant to provisions of the Labor Code Section 1770, *et seq.*, of the State of California, the Director of the Department of Industrial Relations has ascertained the prevailing rate of per diem wages of the locality in which the Work is to be performed and applicable to the work to be done.

Bidders shall promptly notify the Owner, in writing, of any and all classifications of labor not listed in the prevailing wage determinations but necessary for the performance of the Work, before bids are submitted.

## **24.0 OFFER OF ASSIGNMENT OF ANTITRUST ACTIONS**

As provided by Section 4552, *et. seq.*, of the California Government Code, in submitting a bid to the Owner, the Bidder offers and agrees that if the bid is accepted, it will assign to the Owner all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the Bidder for sale to



the Owner pursuant to the bid. Such assignment shall be made and become effective at the time the Owner tenders final payment to the Bidder.

## **25.0 ASSIGNMENT OF CONTRACT**

Any attempted assignment by the Contractor of any contract to be entered into hereunder, or any part thereof, or of funds to be received thereunder by the Contractor, is void unless such assignment has prior written approval of Owner, and the Surety has been given due notice of such assignment in writing and has consented thereto in writing.

## **26.0 REJECTION OF BIDS**

The Owner reserves the right to reject any and all bids and further reserves the right to reject any bids which are nonresponsive, incomplete, obscure, or irregular; any bids which omit a bid on any one or more items on which the bids are required; any bids in which unit prices are unbalanced in the opinion of the Owner; any bids accompanied by insufficient or irregular bid guaranty; bids from Bidders who failed to perform properly or complete on time past Agency projects; and bids from Bidders who fail to meet the experience and qualification requirements set for in the Contract Documents as determined by the Owner.

The Owner also reserves the right to waive irregularities in a bid or bidding procedure.

## **27.0 EVALUATION OF BIDS AND AWARD OF CONTRACT**

After the Proposals have been opened and read, they will be checked for accuracy and compliance with the Contract Documents. If a Contract is awarded, it will be to the lowest responsive, responsible, qualified Bidder whose bid complies with the specified requirements, as it may best serve the interests of the Owner. All bids will be compared on the basis of the Engineer's estimate of the quantities of work to be done. The selection of any or all alternates or bid schedules shall be at the sole discretion of the Owner. The Owner reserves the right to reject an unbalanced bid which is a bid having nominal prices for some bid items and enhanced prices for other bid items.

The criteria which will be used to determine the lowest responsive and responsible Bidder are as follows:

Responsive Bidder: Means a Bidder who has submitted a Bid which conforms in all material respects to the Bidding Documents.

Responsible Bidder: Means a Bidder who has the capacity and capability in all respects to perform fully the contract requirements and who has the integrity and reliability to assure good faith performance. Among factors to be considered in determining whether the Bidder meets these standards, are:

- A. Financial, material, equipment, facility, and personnel resources and expertise necessary to meet contractual requirements;
- B. A record of integrity;
- C. A record of Successful Project Completions defined as:
  - 1. Completion of project on time and without liquidated damages.

2. Completion of project without excessive defective work issues.
3. Completion of project without excess claims or disputes issues;

D. Qualified legally to contract with the OWNER, and;

E. Has not failed to supply any necessary information in connection with the inquiry concerning responsibility.

In the evaluation of any bid, the Owner shall have the right to consider information provided by sources other than Bidder.

Within sixty (60) days after the time of opening of the bids, the Owner will act either to accept a bid, to reject all bids or with the consent of the Bidders and their sureties to extend the time in which the Owner may act. The acceptance of a bid will be evidenced by a Notice of Award of Contract in writing, delivered in person or by mail to the Bidder whose bid is accepted. No other act of Owner will constitute acceptance of a bid. The Award of Contract shall obligate the Bidder whose bid is accepted to furnish performance and payment bonds and evidences of insurance, and to execute the Agreement in the form set forth in the Contract Documents. The Contract will require the completion of the work according to the Contract Documents.

Only one Contract will be awarded.

## **28.0 EXECUTION OF CONTRACT**

The Agreement shall be executed by the successful bidder and returned, together with the Contract bonds and evidences of insurance, within fifteen (15) calendar days after receiving written Notice of Award of the Contract. Time is of the essence in this regard. After execution by Owner, one copy of the Agreement shall be returned to Contractor.

The failure to execute the Contract Documents or to furnish the bonds or insurance required by these instructions within fifteen (15) calendar days after receiving written notice of the Award of the Contract constitutes default. In case of default, the Owner may, at its sole discretion, award the Contract to the next lowest Bidder or may re-advertise the project for new bids. If a more favorable bid is received by re-advertising, the defaulting Bidder shall have no claim against the Owner for a refund.

If a Bidder to whom an award is made fails or refuses for any reason to execute the Contract or fails to furnish any or all of the required insurance or Contract Bonds in proper form, within the time stated, it is agreed and stipulated between Owner and the Bidder to whom any award is made that damage has been and will be sustained by the Owner. It is further agreed by the Owner and any and all Bidders that it will be impractical and extremely difficult to fully ascertain and determine the actual damage that the Owner will sustain by such delay. Therefore, the Owner and all parties who submit a Bid under the Notice Inviting Bids shall be deemed to have jointly studied and attempted to estimate the damages suffered by the Owner by such delay under these circumstances and agree that the amount of the Bidder's bond or check is agreed to as the liquidated damages payable by such Bidder(s). This Bidder's bond or check will be collected and held by the Owner as the sole property of the Owner for full compensation for the damages suffered by the

Owner as a result of the Bidder's failure to execute the Contract and furnish the Bonds and Insurance as required.

## **29.0 CONTRACT AND BONDS**

The successful Bidder, simultaneously with the execution of the Agreement, will be required to furnish a Payment Bond equal to one hundred percent (100%) of the Contract Price, a Faithful Performance Bond equal to one hundred (100%) of the Contract Price, the **WORKERS' COMPENSATION INSURANCE CERTIFICATE** in Section 00645 and evidences of required insurance. Said insurance and bonds shall be secured from a surety company satisfactory to Owner with a minimum "A" rating with Best's Rating Guide.

The form of Agreement, as provided in Section 00510, **AGREEMENT** which the successful Bidder as Contractor will be required to execute, and the forms of bonds as provided in Sections 00610 and 00620, which it will be required to furnish, shall be carefully examined by the Bidder. The Faithful Performance Bond is to secure the faithful performance of the Contract, and the Payment Bond is to secure payment for those to whom the Bidder may become legally indebted for labor, materials, tools, equipment, or services of every kind used or employed by the Bidder in performing the work.

## **30.0 LIST OF RECIPIENTS OF FULL SETS OF CONTRACT DOCUMENTS**

Bidders may obtain a current listing of all recipients of complete sets of Contract Documents. This list will also include all plan rooms that were sent Contract Documents. To obtain a list, call the Foresthill Public Utility District at 530-367-2511 or email your request to [GM@foresthillpud.com](mailto:GM@foresthillpud.com). Do not call or email Bid questions.

**\*\*\*END OF SECTION\*\*\***

Name of Bidder: \_\_\_\_\_

**SECTION 00300**

**FORESTHILL PUBLIC UTILITY DISTRICT**

**24540 Main Street**

**Foresthill, CA 95631**

**BID FORM**

NAME OF PROJECT: Generator Replacement Project

THIS BID IS SUBMITTED BY:

Name of Bidder: \_\_\_\_\_

THIS BID IS SUBMITTED TO:

THE BOARD OF DIRECTORS OF THE FORESTHILL PUBLIC UTILITY DISTRICT

c/o FORESTHILL PUBLIC UTILITY DISTRICT

GENERAL MANAGER

24540 MAIN STEET

FORESTHILL, CA. 95631

IF BID IS SUBMITTED BY U.S. MAIL IT MUST BE MAILED TO 24540 MAIN STEET,  
FORESTHILL, CA. 95631

THE BID IS SUBMITTED ON: \_\_\_\_\_, 2026

Date

## 1.0 ENTER INTO AGREEMENT

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents within the specified time and for the price indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

## 2.0 BIDDER ACCEPTS

The undersigned Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for **sixty (60)** days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

## 3.0 BIDDER'S REPRESENTATIONS

In submitting this Bid, the undersigned Bidder represents that:

A. Bidder has purchased a complete set of Contract documents and carefully examined and studied the Contract Documents, all information available to Bidders as defined in Section 00200, **INFORMATION AVAILABLE TO BIDDERS**, and the following Addenda, receipt of all of which is hereby acknowledged.

| Addendum Number | Addendum Date | Signature of Bidder |
|-----------------|---------------|---------------------|
|                 |               |                     |
|                 |               |                     |
|                 |               |                     |
|                 |               |                     |
|                 |               |                     |

B. Bidder has visited the site and become familiar with and satisfied itself as to the general, local, and site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Federal, state, and local Laws and Regulations and Permits that may affect cost, progress, and performance of the Work.

D. Bidder and all named subcontractors have registered with DIR pursuant to Labor Code Section 1725.5.

E. Bidder has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site which have been identified in the Section 00200, **INFORMATION AVAILABLE TO BIDDERS**.

F. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents to be employed by Bidder, and safety precautions and programs incident thereto.

G. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

H. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

I. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

Name of Bidder: \_\_\_\_\_

J. Bidder has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Contract Documents, and the written resolution thereof by Owner is acceptable to Bidder, and where said conflicts, etc., have not been resolved through the interpretations or clarifications by Owner because of insufficient time or otherwise, Bidder has included in the Bid the greater quantity or better quality of Work, or compliance with the more stringent requirement resulting in a greater cost.

K. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

#### **4.0 BID SCHEDULE**

The undersigned Bidder proposes and agrees to contract with the Placer County Water Agency to perform all of the above work, including subsidiary obligations as defined in the Contract Documents for the prices indicated in the BID SCHEDULE below.

Further in submitting its bid, the undersigned Bidder understands and agrees that the Total Base Bid amount is determined by the sum total of all bid item amounts in the Bid Schedule shown below. Bid Items include all work as defined in Contract Documents.

#### **BID SCHEDULE**

| <b>Item</b> | <b>Description</b> | <b>Quantity</b> | <b>Units</b> | <b>Unit Price</b> | <b>Total Price</b> |
|-------------|--------------------|-----------------|--------------|-------------------|--------------------|
| <b>1</b>    |                    |                 |              |                   |                    |
| <b>2</b>    |                    |                 |              |                   |                    |
| <b>3</b>    |                    |                 |              |                   |                    |
| <b>4</b>    |                    |                 |              |                   |                    |
| <b>5</b>    |                    |                 |              |                   |                    |

TOTAL BASE BID PRICE (Items 1 through 5) \$ \_\_\_\_\_

TOTAL BASE BID PRICE (in words) \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

The Bid amount of each of the above Bid items must be filled in and completed.

Bid prices shall include everything necessary for the completion of the work stipulated in the Contract Documents, including but not limited to providing the materials, equipment, tools, plant and other facilities, and the management, superintendence, labor and services. Bid prices shall include all federal, state and local taxes.

In the event that the product of a unit price and an estimated quantity does not equal the extended amount stated, the unit price will govern and the correct product of the unit price and the estimated quantity shall be deemed to be the amount bid. In the event the addition of the bid item extended amounts does not equal the Total Base Bid Price, the corrected addition of all bid item extended amounts will govern and the Owner will correct the Total Base Bid Price accordingly.

Should the Bid Schedule contain only a total price for an item and the item price is omitted, the Owner shall determine the item price by dividing the total price for the item by estimated quantity of work to be performed.

If the Bid Schedule contains neither the item price nor the total price for an item, then it shall be deemed incomplete and the Bid shall be deemed non-responsive by the Owner.

In case of discrepancy between words and figures, words will prevail.

## **5.0 COMPLETION**

In accordance with the Specifications, the undersigned Bidder agrees to plan the work and to prosecute it with such diligence that said work shall be commenced within ten days after the date of Notice to Proceed and shall be substantially completed within the time specified in Section 00800-1.1, **Time Allowed for Completion**. Furthermore, the undersigned Bidder accepts the provisions of Section 00800-1.2, **Damages for Delays** in the event of failure to complete the work within the specified times.



Name of Bidder: \_\_\_\_\_

## 6.0 ATTACHED DOCUMENTS

The undersigned Bidder agrees that the following Contract Documents are attached to and made a condition of this bid:

| <u>SECTION</u> | <u>TITLE</u>                         |
|----------------|--------------------------------------|
| 00410          | Bid Guaranty Bond                    |
| 00420          | Certification of Bidder's Experience |
| 00430          | Designation of Subcontractors        |
| 00450          | Site Visit Affidavit                 |
| 00480          | Non-Collusion Declaration            |
| 00640          | Certificate of Drug Free Workplace   |
| 00645          | Workers Comp insurance Certificate   |

## 7.0 BIDDER'S PROOF OF DIR REGISTRATION

The undersigned Bidder agrees that its Proof of DIR Registration pursuant to Labor Code Section 1725.5 is attached hereto and made a condition of this bid:

## 9.0 BIDDER'S CALIFORNIA CONTRACTOR'S LICENSE INFORMATION

The undersigned Bidder is licensed in accordance with Chapter 9, Division 3 of California Business and Professions Code and section 3300 of the California Public Contract Code, and the laws of the State of California.

Bidder's Valid California Contractor's License No. \_\_\_\_\_ Class \_\_\_\_\_

Expiration Date: \_\_\_\_\_

Bidder has contracted under this license number for \_\_\_\_\_ years.

Name of Bidder: \_\_\_\_\_

**The undersigned hereby states that all representations made herein are made under penalty of perjury.**

If Bidder is:

**An Individual**

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_ (SEAL)

(Individual's signature)

Doing business as: \_\_\_\_\_

Business Address:

\_\_\_\_\_

Phone Number: ( ) \_\_\_\_\_ FAX Number: ( ) \_\_\_\_\_

Email Address of Authorized Representative: \_\_\_\_\_

**A Partnership**

Partnership Name: \_\_\_\_\_ (SEAL)

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

(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Business address: \_\_\_\_\_

Phone Number: ( ) \_\_\_\_\_ FAX Number: ( ) \_\_\_\_\_

Email Address of Authorized Representative: \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

**A Corporation**

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability): \_\_\_\_\_

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

(Signature -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

(CORPORATE SEAL)

Attest: \_\_\_\_\_

(Signature of Corporate Secretary)

Business address: \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

Phone Number: ( ) \_\_\_\_\_ FAX Number: ( ) \_\_\_\_\_

Email Address of Authorized Representative: \_\_\_\_\_

**A Joint Venture**

Joint Venturer Name: \_\_\_\_\_ (SEAL)

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

(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

Phone Number: ( ) \_\_\_\_\_ FAX Number: ( ) \_\_\_\_\_

Email Address of Authorized Representative: \_\_\_\_\_

Joint Venturer Name: \_\_\_\_\_(SEAL)

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

(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

Phone Number: ( ) \_\_\_\_\_ FAX Number: ( ) \_\_\_\_\_

Email Address of Authorized Representative: \_\_\_\_\_

(Each joint venturer must sign). The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.

**\*\*\*END OF SECTION\*\*\***

**SECTION 00410**

**FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631**

**BID GUARANTY BOND**

PROJECT NAME: Generator Replacement Project

**BIDDER** *(Name and Address):*

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**SURETY** *(Name and Address of Principal Place of Business):*

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**BID**

Bid Due Date: \_\_\_\_\_, 2026

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

Contract No.: \_\_\_\_\_

Project Location: \_\_\_\_\_

**BOND**

Bond Number: \_\_\_\_\_ Bond Date: \_\_\_\_\_  
(Not later than Bid Due Date)

Penal Sum: Ten percent (10%) of the Total Bid Price

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

**BIDDER****SURETY**

\_\_\_\_\_  
(Bidder's Name and Corporate  
Seal) (SEAL)

\_\_\_\_\_  
(Surety's Name and Corporate  
Seal) (SEAL)

By: \_\_\_\_\_  
(Signature and Title)

By: \_\_\_\_\_  
(Signature and Title)  
(Attach Power of Attorney)

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

Note: (1) Above addresses are to be used for giving required notice.

(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to the **Foresthill Public Utility District, Foresthill, Ca, (hereinafter called "Owner ")** upon default of Bidder the penal sum of **10% of the Bidder's Total Bid Price.**
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Contract Documents the executed Agreement required by the Contract Documents and any performance and payment bonds required by the Contract Documents.
3. This obligation shall be null and void if:
  - a. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Contract Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Contract Documents and 100% Performance and Payment bonds and certificates of insurance coverage required by the Contract Documents, or
  - b. All Bids are rejected by Owner, or
  - c. Owner fails to issue a Notice of Award to Bidder within the time specified in the Contract Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced in a court of competent jurisdiction located in Placer County, CA.

8. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a bid, offer or proposal as applicable.
12. In no event shall Bidder's and Surety's obligation as defined above exceed 10% of the Bidder's Total Bid Price.

**\*\*\*END OF SECTION\*\*\***

## SECTION 00420

### FORESTHILL PUBLIC UTILITY DISTRICT 24540 Main Street Foresthill, CA 95631

#### CERTIFICATION OF BIDDER'S EXPERIENCE AND QUALIFICATIONS

PROJECT: Generator Replacement Project

The undersigned Bidder represents that it is competent, knowledgeable and has the special skills to perform the work required for this project. The Bidder further represents that it has evaluated and recognizes the requirements of the Project and the conditions and circumstances under which the Project is to be performed. The Bidder further acknowledges that these inherent conditions existent in the construction of particular facilities may create, during construction, unusual or unsafe conditions hazardous to persons and property. The Bidder expressly acknowledges that it is aware of such risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the construction work with respect to such hazards.

#### **A. COMPANY EXPERIENCE- To be filled in and submitted with Bid.**

The Agency will evaluate the Bidder's responsibility based on information included in or otherwise required by this Section 00420 and such additional information as the Agency may receive. The Agency will evaluate the Bidder's length and depth of experience with comparable Qualifying Projects. For the Agency to consider the Bidder properly experienced in work of similar nature to this project, the Bidder must list at least three (3) and not more than six (6) Qualifying Projects, with at least two (2) being public works contracted directly with the public entity as the owner, completed since 2022 meeting all of the following Qualifying Criteria:

1. The Project involved as the primary work which includes but not limited to concrete forming, excavation, compaction, asphalt, electrical.
2. The Project required a Class B Building Contractor license to construct the project as the Prime Contractor.
3. The Total Project Cost (Prime Contract) exceeded \$ 750,000.

The Agency may investigate and independently determine whether the listed Qualifying Projects meet the Qualifying Criteria. The Bidder may include only project(s) for which it was Prime Contractor and projects completed by its Project Manager, named below, working for other companies as Prime Contractor. For projects completed for other companies to be eligible to be Qualifying Projects, the Project Manager shall have worked on them in a capacity similar to that of this Project. The Agency may accept as a Qualifying Project a Bidder's listed project that does not meet all the Qualifying Criteria, provided that the Bidder adequately demonstrates with its Bid that the Qualifying Projects it has listed are sufficient to give it the necessary experience to be a responsible Bidder. The Agency's decisions as to responsibility will be based on an overall evaluation of all information received.

If the Bidder is a Joint Venture of two or more companies, each participant in the Joint Venture shall identify at least the minimum number of Qualifying Projects and provide project information for each Joint Venture participant in the format found below.



**Qualifying Project # 1 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

**Qualifying Project # 2 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

**Qualifying Project # 3 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

**Qualifying Project # 4 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

**Qualifying Project # 5 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

**Qualifying Project # 6 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

**Total Construction Cost of listed Qualifying Project(s) above: \$** \_\_\_\_\_

The Agency further requires disclosure of, and will evaluate, all instances of incomplete projects and pending disputes involving the Bidder. For this purpose, Bidder hereby discloses the following projects for which it was terminated for default at any time in the past five (5) years:

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Bidder shall identify on a separate sheet any claims filed in court or arbitration against Bidder in the past five years which concerned Bidder's work on a construction project. For each claim, if any, the Bidder shall provide the project name, date of the claim, name of the claimant, a brief description of the nature of the claim, the court in which the case was filed and a brief description of the status of the claim (pending or, if resolved, a brief description of the resolution). If there are any pending claims against Bidder that, should Bidder lose the claim(s), would adversely affect Bidder's financial position or its ability to meet its obligations if awarded the contract for this Project, such claims shall also be disclosed on a separate sheet.

Bidder shall also identify on a separate sheet any claims filed in court or arbitration by Bidder against a project owner in the past five years concerning work on a project or payment for a contract. For each claim, if any, the Bidder shall provide the project name, date of the claim, name of the claimant, a brief description of the nature of the claim, the court in which the case was filed and a brief description of the status of the claim (pending or, if resolved, a brief description of the resolution). If there are any pending claims filed by Bidder against a project owner that, should Bidder lose the claim(s), would adversely affect Bidder's financial position or ability to meet its obligations if awarded the contract for this Project, such claims shall also be disclosed on a separate sheet.

**B. PROJECT MANAGER EXPERIENCE- To be filled in and submitted with Bid.**

The Bidder shall name below the Project Manager who will be assigned to this project and submit past related project experience of this person which must include successfully completing at least two (2) Qualifying Projects meeting the above Qualifying Criteria where this person held the role of Project Manager. The demonstrated experience of the Project Manager must have been within the last five (5) years. The Project Manager must be assigned to the Project site and be personally present on site full-time during Construction.

Name of Project Manager: \_\_\_\_\_

Number of Years of Total Construction experience as a Project Manager assigned to the types of projects as defined above: \_\_\_\_\_ years

Number of Years as a Project Manager for your Company: \_\_\_\_\_ years

List up to three Qualifying Projects as defined above where the individual named above held the position of Project Manager. At least one (1) of these projects shall have been public works contracted directly with the public entity as the owner.

**Qualifying Project # 1 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

**Qualifying Project # 2 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

**Qualifying Project # 3 Name:** \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Owner: \_\_\_\_\_

Construction Cost: \$ \_\_\_\_\_

Construction Time: \_\_\_\_\_ Calendar Days

Owner's Representative: \_\_\_\_\_

Owner's Representative Telephone No.: \_\_\_\_\_

Engineer or On-Site Construction Mgr.: \_\_\_\_\_

Engineer or On-Site CM's Telephone No.: \_\_\_\_\_

Date of Substantial Completion: \_\_\_\_\_

This form is to be fully completed and submitted by the Bidder with the bid. Bidder is not allowed to provide a substitute form of similar information.

The Agency will check project references listed to verify information provided along with skills and capacity represented by Bidder. It is very important that the Bidder verify that all contact information is current for each name listed above.

**Failure of the Bidder to provide current and valid project contact information and/or failure of the Bidder to meet both the pre-requisite Company and Project Manager experience may be grounds for the Agency to determine the Bidder as non-responsible and ineligible for contract award.**

**C. SAFETY QUALIFICATION INFORMATION- To be filled in and submitted with Bid.**

Has CAL OSHA cited and assessed penalties against your firm for any “serious,” “willful” or “repeat” violations of its safety or health regulations in the past five years?

NOTE: If you have filed an appeal of a citation, and the Occupational Safety and Health Appeals Board has not yet ruled on your appeal, you need not include information about it.

☐ Yes      ☐ No

If “yes,” attached a separate signed page describing the citations, including information about the dates of the citations, the nature of the violation, the project on which the citation(s) was or were issued, the amount of penalty paid, if any. If the citation was appealed to the Occupational Safety and Health Appeals Board and a decision has been issued, state the case number and the date of the decision.

Has the federal Occupational Safety and Health Administration cited and assessed penalties against your firm in the past five years?

NOTE: If you have filed an appeal of a citation and the Appeals Board has not yet ruled on your appeal, or if there is a court appeal pending, you need not include information about the citation.

**Experience Modification Rate (EMR).**

Enter your firm’s EMR for the last three complete years (this information is provided by your workers’ comp. insurance carrier).

| Year                | EMR |
|---------------------|-----|
| 1-                  |     |
| 2-                  |     |
| 3-                  |     |
| Three Year Average= |     |

Are the above rates interstate or intrastate? \_\_\_\_\_

If intrastate, which state? \_\_\_\_\_

Is your firm Self-Insured for Workers' Compensation Insurance in California?

☐ Yes      ☐ No

If YES, Self-Insurance No. \_\_\_\_\_ and attach certification to Bid.

**Name of Workers' Comp. Insurance Carrier(s):**

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

Agent Name: \_\_\_\_\_ Telephone No.: \_\_\_\_\_

**If the Bidder's Three Year Average EMR is greater than 1.00 (100%), Bidder is required to furnish the following additional information to the EMR information listed above:**

Calculate your firm's LWIR for the past three (3) complete years. The lost workday information is listed on your OSHA forms no. 300 and 300A and is available from your workers' comp. insurance carrier.

$$\text{LWIR} = \frac{\text{Total number of lost workday incidents} \times 200,000}{\text{Total employee hours worked}}$$

| Year   | Lost Workday Incidents | Total Employee Hours Worked | Lost Workday Incident Rate |
|--------|------------------------|-----------------------------|----------------------------|
| 1-     |                        |                             |                            |
| 2-     |                        |                             |                            |
| 3-     |                        |                             |                            |
| Totals |                        |                             |                            |

Average Recordable Incident Rate (RIR). Calculate your firm's RIR for the past three (3) complete years. The Incident Rate information is listed on your OSHA forms no. 300 and 300A and is available from your workers' comp. insurance carrier.

$$\text{RIR} = \frac{\text{Total number of recordable incidents} \times 200,000}{\text{Total employee hours worked}}$$

| Year   | Recordable Incidents | Total Employee Hours Worked | Recordable Incident Rate |
|--------|----------------------|-----------------------------|--------------------------|
| 1-     |                      |                             |                          |
| 2-     |                      |                             |                          |
| 3-     |                      |                             |                          |
| Totals |                      |                             |                          |

**D. FINANCIAL INFORMATION- To be submitted by the three lowest bidders within three (3) business days following the bid opening date.**

Provide evidence that the Bidder has sufficient financial resources to provide all work necessary to complete the project including construction, start-up, and warranty services.

A. Bidder must provide one or more of the following to assist the Agency in determining the Bidder's financial condition:

1. Copy of a reviewed or audited financial statement with accompanying notes and supplemental information. A financial statement that is not either reviewed or audited is not acceptable.
2. A certified Credit Report, current within 30 days of the date proposals are due. This credit report shall show a Dun & Bradstreet, or equal, credit risk category rating.
3. A letter from the Bidder's bank certifying their opinion of the Bidder's credit risk category rating and Bidder's current available line of credit.

B. Bidder must provide a letter from its Surety or Surety Broker which certifies that Bidder's current bonding capacity is sufficient for this Project based on the Bidder's Bid.

All financial information provided by Bidder that is marked "Confidential" or "Proprietary" shall be handled by the Agency in accordance with Section 00700- 4.5.12, **Public Records Act**.

**The undersigned hereby states that all representations regarding the Bidder's Company Experience, Project Manager Experience and Safety Qualification Information are correct and true.**

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_  
Bidder's Name

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title of Signator

**\*\*\*END OF SECTION\*\*\***



**SECTION 00450**

**FORESTHILL PUBLIC UTILITY DISTRICT**

**24540 Main Street  
Foresthill, CA 95631**

**SITE VISIT AFFIDAVIT**

(To Accompany Bid)

Project Name: Generator Replacement Project

State of California

County of \_\_\_\_\_

\_\_\_\_\_, **being first duly sworn**, deposes he or she is  
(Contractor's Authorized Representative)

\_\_\_\_\_ of \_\_\_\_\_, the party making the  
(Title of Representative) (Contractor's Name)

bid, has visited the Site of the Work as described in the Contract Documents and has examined and familiarized themselves with the existing conditions, as well as all other conditions relating to the construction which will be performed. The submitting of a bid shall be considered an acknowledgement on the part of the Bidder of familiarity with conditions at the site of Work. The Bidder further acknowledges that the site examination has provided adequate and sufficient information related to existing conditions which may affect cost, progress or performance of the Work.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Bidder's Name

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title of Signator

**\*\*\*END OF SECTION\*\*\***

**SECTION 00480**

**FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631**

**BIDDER'S NON-COLLUSION DECLARATION SUBMITTED WITH BID**

Project Name: Generator Replacement Project\_\_\_\_\_

Contract No.: \_\_\_\_\_

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]."

\_\_\_\_\_  
Signature

Public Contract Code Section 7106  
Code of Civil Procedure Section 2015.5

**\*\*\*END OF SECTION\*\*\***

## SECTION 00510

FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631

### AGREEMENT FOR THE CONSTRUCTION OF

#### Generator Replacement Project

(Document will be retyped after Contract Award)

THIS AGREEMENT, made and concluded, in duplicate, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between the Placer County Water Agency, a public entity in Placer County (hereinafter referred to as "Owner"), and \_\_\_\_\_, doing business as a (Name of State) Corporation/Partnership/Sole Proprietor, (hereinafter referred to as "Contractor").

#### RECITALS

WHEREAS, the Owner gave notice inviting bids to be submitted by Tuesday August 25, 2026 at 1:00 for the Generator Replacement Project by published notice and/or posting in accordance with California Public Contract Code Section 20804 and other applicable law.; and

WHEREAS, Contractor, pursuant to the provisions of said Notice Inviting Bids submitted a Bid to the Owner and such Bid is attached hereto in its entirety and made a part hereof as Exhibit A; and

WHEREAS, the Owner, by a majority vote of its Board of Directors on (date) awarded to Contractor Generator Replacement Project ; and

WHEREAS, Contractor is ready, willing and able to complete all Work specified in the Contract Documents, in accordance with the Specifications, Drawings and all other terms and conditions of the Contract Documents; and

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, Owner and Contractor agree as follows:

#### ARTICLE 1- WORK

**1.1 The Work.** The Contractor shall furnish all labor, materials, tools, apparatus, equipment, insurance, bonds, special services and skill to construct and complete in good workmanlike and substantial manner the project entitled Generator Replacement Project ("Work") as specified or indicated in the Contract Documents.

**1.2 Location of Work.** The Work will be performed at the following location:  
29585 Foresthill Rd, Foresthill, Ca. 95631

## ARTICLE 2- OWNER'S REPRESENTATIVE(S) AND OWNER'S CONSULTANTS

**2.1 Owner's Representative.** The Owner has designated Hank White to act as Owner's Representative, who will represent Owner is performing duties and responsibilities and exercising Owner's rights and authorities in the Contract Documents. Owner may change the individual(s) acting as Owner's Representative(s), or delegate one or more specific functions to one or more specific Owner's Representative at any time with notice and without liability to Contractor. Each Owner's Representative is a beneficiary of all Contractor obligations to Owner, including without limitation, all releases and indemnities.

**2.2 Engineer.** The Owner has designated Peters Engineering to act as Engineer. Engineer will assume all duties and responsibilities and have the rights and responsibilities assigned to the Engineer in the Contract Documents in connection with the completion of the Work. The Owner may assign all or part of the Owner's Representative's duties, rights and responsibilities to the Engineer. The Engineer is a beneficiary of all Contractor obligations to Owner, including without limitation, all releases and indemnities.

**2.3 Construction Manager.** The Owner has designated Project CM, LLC to act as Construction Manager. Construction Manager will assume all duties and responsibilities and have the rights and responsibilities assigned to the Construction Manager in the Contract Documents in connection with the completion of the Work. The Owner may assign, upon mutual agreement, all or part of the Owner's Representative's duties, rights and responsibilities to the Construction Manager. The Construction Manager is a beneficiary of all Contractor obligations to Owner, including without limitation, all releases and indemnities.

## ARTICLE 3- CONTRACT TIMES

**3.1 Time is of the Essence.** All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of this Agreement.

**3.2 Commence Work.** Contractor shall commence execution of the Work on the date established in the Notice to Proceed. Owner reserves the right to modify or alter the Commencement Date of the Work.

**3.3 Days to Achieve Contract Times.** The Contractor shall diligently prosecute the work so that it shall be completed within the contract times specified in Section 00800-1.1, **Time Allowed for Completion.**

**3.4 Liquidated Damages.** The Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the contract times specified in Section 00800-1.1, **Time Allowed for Completion.** Accordingly, Owner and Contractor agree that as liquidated damages for delay, Contractor will forfeit and pay to the Owner liquidated damages in the amount set forth in Section 00800-1.2, **Damages for Delays,** per day for each and every calendar day that expires after the time for completion specified in Section 00800-1.1 **Time Allowed for Completion,** except as otherwise provided by extension of time pursuant to Section 00700-6.4, **Time Extensions** of the General Conditions.

## ARTICLE 4- CONTRACT PRICE

**4.1 Contract Price Breakdown.** The Owner will pay Contractor the Contract Price for completion of the Work in accordance with the Contract Documents as follows:

| ITEM | DESCRIPTION | ESTIMATED QUANTITY | UNIT | UNIT PRICE | TOTAL |
|------|-------------|--------------------|------|------------|-------|
|      |             |                    |      |            | \$    |
|      |             |                    |      |            | \$    |
|      |             |                    |      |            | \$    |
|      |             |                    |      |            | \$    |
|      |             |                    |      |            | \$    |
|      |             |                    |      |            | \$    |

|                              |
|------------------------------|
| <b>TOTAL CONTRACT AMOUNT</b> |
|------------------------------|

|           |
|-----------|
| <b>\$</b> |
|-----------|

The above Total Contract Amount includes all allowances, if any, provided for in the Contract Documents.

Compensation for Unit Price Items shall be based upon the unit prices stated in above schedule times the actual quantities or units of work and materials performed or furnished. Unit prices paid by Owner may change depending on actual quantities or units or work completed in accordance with Section 01350- 4.0, **Increased or Decreased Quantities**.

The Contractor may substitute securities for the amounts retained by the Owner to ensure performance of the work in accordance with the provisions of Section 22300 of the Public Contract Code.

## ARTICLE 5- CONTRACTOR'S REPRESENTATIONS

**5.1 Representations and Warranties.** In order to induce Owner to enter into this Agreement, Contractor makes the following representations and warranties:

- A. Contractor has visited the Site and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions, and federal, state and local laws and regulations that in any manner may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Contractor and safety precautions and programs incident thereto.
- B. Contractor has examined thoroughly and understood all reports of exploration and tests of subsurface conditions, record drawings, drawings, products specifications or reports, available for bidding purposes, of physical conditions, including Underground Facilities, which are identified in Section 00200, **INFORMATION AVAILABLE TO BIDDERS**, or which may appear in the Drawings. Contractor accepts the determination set forth in these Contract Documents of the limited extent of the information contained in such materials upon which Contractor may be entitled to rely.

- C. Contractor has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- D. Contractor has given Agency prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and as-built drawings and actual conditions and the written resolution thereof through Addenda issued by Agency is acceptable to Contractor.
- E. Contractor is duly organized, existing and in good standing under applicable state law, and is duly qualified to conduct business in the State of California.
- F. Contractor has duly authorized the execution, delivery and performance of this Agreement, the other Contract Documents and the Work to be performed herein. The Contract Documents do not violate or create a default under any instrument, agreement, order or decree binding on Contractor.
- G. Contractor has listed the following Subcontractors pursuant to the Subcontractor Listing Law, California Public Contract Code §4100 *et seq.*:

| Name of Subcontractor and Location of Mill or Shop | Description of Subcontractor's Work | Subcontractor's License No. |
|----------------------------------------------------|-------------------------------------|-----------------------------|
|                                                    |                                     |                             |
|                                                    |                                     |                             |
|                                                    |                                     |                             |
|                                                    |                                     |                             |
|                                                    |                                     |                             |
|                                                    |                                     |                             |

## ARTICLE 6- CONTRACT DOCUMENTS

### 6.1 Contract Documents.

The Contract Documents consist of the following documents:

Notice Inviting Bids (Section 00020);  
 Instructions to Bidders (Section 00100);  
 Bid Form and Bid Schedule  
 Designation of Subcontractors  
 Agreement (Section 00510);  
 Performance Bond (Section 00610);  
 Payment Bond (Section 00620);  
 Guaranty Bond (Section 00635);  
 Certification of Drug-Free Workplace (Section 00640)

General Conditions (Section 00700);  
Supplementary General Conditions (Section 00800);  
General Requirements (Sections 01000 through 01999);  
Technical Specifications (Section 02000 and all other Sections following);  
Contract Drawings;  
Addenda (numbers \_\_\_\_ to\_\_\_\_, inclusive);  
Permits from other agencies as may be required by law;

Exhibits to this Agreement (enumerated as follows):

- Contractor's signed Statement of Qualifications Affidavit attached as Exhibit A;
- Accepted Contractor's Bid attached hereto as Exhibit B;

The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

- Notice to Proceed (Section 00550);
- Field Directive(s);
- Change Order(s);
- Construction Change Directive;
- Field Order(s).

**6.2 Not Contract Documents.** There are no Contract Documents other than those listed in this Section 00510- Article 6, **Contract Documents.** Section 00200, **INFORMATION AVAILABLE TO BIDDERS** and the information supplied therein, are not Contract Documents. The Contract Documents may only be amended, modified or supplemented as provided for in Section 00700, **GENERAL CONDITIONS.**

## **ARTICLE 7- MISCELLANEOUS**

**7.1 Terms.** Terms used in this Agreement will have the meanings indicated in the General Conditions.

**7.2 Assignment.** No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

**7.3 Successors and Assigns.** Owner and Contractor each binds itself, its partners, successors, assign, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

**7.4 Severability.** Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the

Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

**7.5 Prevailing Wage Rates.** Pursuant to the provisions of California Labor Code, Sections 1770 to 1780, inclusive thereof, the Contractor and any subcontractor under him shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Pursuant to the provisions of California Labor Code Section 1773.2, the Contractor is hereby advised that copies of the prevailing rate of per diem wages and a general prevailing rate for holidays, Saturdays and Sundays and overtime work in the locality in which the work is to be performed for each craft, classification, or type of worker required to execute the Contract, are on file in the Owner's office. The Contractor agrees that not less than said prevailing rates shall be paid to workers employed on this public works contract as required by Labor Code Section 1774 of the State of California.

**7.6 Governing Law.** This Agreement and the Contract Documents shall be deemed to have been entered into in the County of Placer, State of California, and governed by California law. By entering into this Agreement, the Contractor consents and submits to the jurisdiction of Courts of the State of California, County of Placer, over any action of law, suit in equity, and/or other proceeding that may arise out of the Contract Documents.

IN WITNESS WHEREOF, Owner and Contractor have caused this Agreement to be executed the day and year first above written.

Foresthill Public Utility District  
A Public Entity

By \_\_\_\_\_  
Chairman of the Board  
Foresthill Public Utility District

ATTEST:

By \_\_\_\_\_  
Clerk, Board of Directors  
Foresthill Public Utility District

\_\_\_\_\_  
CONTRACTOR'S NAME

\_\_\_\_\_  
STATE OF CALIFORNIA  
CONTRACTOR'S LICENSE No.  
and CLASSIFICATION

By \_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
LICENSE EXPIRATION DATE

\_\_\_\_\_  
Name

\_\_\_\_\_  
FEDERAL TAX I.D. No.

\_\_\_\_\_  
Title

\_\_\_\_\_



TYPE OF ORGANIZATION

ATTEST:

STATE OF INCORPORATION

By \_\_\_\_\_

(SEAL)

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title  
(If Corporation, must be attested by Corp Secretary)

Notices to the Parties shall be given at the following addresses:

**OWNER:**

**FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631**

**CONTRACTOR:**

\_\_\_\_\_  
CONTRACTOR'S NAME

\_\_\_\_\_  
STREET ADDRESS

\_\_\_\_\_  
CITY, STATE & ZIP

**\*\*\*END OF SECTION\*\*\***

SECTION 00610

FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631

FAITHFUL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That, WHEREAS, the Board of Directors of the Foresthill Public Utility District, Placer County, State of California, has awarded to \_\_\_\_\_, hereinafter designated as the "Principal," a Contract, the terms and provisions of which Contract are incorporated herein by reference, for constructing the **Generator Replacement Project**, Contract No. , and

WHEREAS, said Principal is required under the terms of said Contract to furnish a bond for the faithful performance of said Contract;

NOW,                    THEREFORE,                    we                    the                    Principal,                    and  
\_\_\_\_\_, as surety, are held and firmly bound unto the Foresthill Public Utility District, Placer County, California,                    in                    the                    penal                    sum                    of  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_),  
lawful money of the United States, being one hundred percent (100%) of the Contract amount, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal, Principal's heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and faithfully perform the covenants, conditions and agreements in the said Contract and any alterations made as therein provided, on the Principal's part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the Placer County Water Agency, its officers and agents, as therein stipulated, then this obligation shall be null and void; otherwise it shall be and remain in full force and virtue.

As a condition precedent to the satisfactory completion of the said Contract, the above obligation shall hold good for a period on one (1) year after the completion and acceptance of the said work, during which time, if the above bounden Principal, Principal's heirs, executors, administrators, successors or assigns shall fail to make full, complete and satisfactory repair and replacements or totally protect the said the Foresthill Public Utility District from loss or damage made evident during said period of one (1) year from the date of acceptance of said work, and resulting from or caused by defective materials or faulty installation, in the prosecution of the work done, the above obligation shall be and remain in full force and virtue.

And the said Surety, for value received, hereby stipulates and agrees to waive the benefits of California Civil Code Sections 2819 and 2845.

1. In the event the Foresthill Public Utility District, or its successors or assigns, shall be the prevailing party in an action brought upon this bond, then, in addition to the penal

sum hereinabove specified, we agree to pay to the said the Foresthill Public Utility District, or its successors or assigns, a reasonable sum on account of attorney's fees in such action, which sum shall be fixed by the court.

In WITNESS THEREOF, the above bounden parties have executed this instrument under their seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

ATTEST:

|                              |                    |
|------------------------------|--------------------|
| _____<br>Principal Secretary | _____<br>Principal |
|------------------------------|--------------------|

(SEAL)By \_\_\_\_\_

|                                  |       |
|----------------------------------|-------|
| _____<br>Witness as to Principal | _____ |
|----------------------------------|-------|

|                  |                  |
|------------------|------------------|
| _____<br>Address | _____<br>Address |
|------------------|------------------|

|                            |                 |
|----------------------------|-----------------|
| _____<br>Witness to Surety | _____<br>Surety |
|----------------------------|-----------------|

|                  |                  |
|------------------|------------------|
| _____<br>Address | _____<br>Address |
|------------------|------------------|

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Attorney-in-Fact

\_\_\_\_\_  
Address

If CONTRACTOR is partnership, all partners must execute BOND.  
The signature of the Surety on this bond must be acknowledged before a Notary Public.

**\*\*\*END OF SECTION\*\*\***

SECTION 00620

FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we, \_\_\_\_\_, as Principal, and \_\_\_\_\_, organized and existing under the laws of the State of \_\_\_\_\_, and authorized to execute bonds and undertaking as sole surety, as Surety, are held and firmly bound unto any and all persons named in California Civil Code Section 3181, whose claim has not been paid by the Contractor, company or corporation in the aggregate total of \_\_\_\_\_ Dollars(\$\_\_\_\_\_) (being 100% of the Contract amount) for payment whereof, well and truly to be made, said Principal and Surety bond themselves, their heirs, administrators, successors and assigns, jointly and severally, firmly by these presents.

The condition of the foregoing obligation is such that, whereas the above bounden Principal has entered into a Contract dated \_\_\_\_\_, 20\_\_\_\_, with the Foresthill Public Utility District to do the following work, to wit: Construct the **Generator Replacement Project**.

NOW, THEREFORE, if the above bounden Principal or his/her subcontractors fail to pay any of the persons named in Section 3181 of the Civil Code of the State of California, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the Contract, or for any amounts required to be deducted, withheld and paid over to the Employment Development Department from the wages of employees of the Contractor or his/her subcontractor pursuant to Section 13020 of the Unemployment Insurance Code of the State of California, with respect to such work and labor, the surety will pay for the same, in the amount not exceeding the sum specified in this bond, and also, in case suit is brought upon this bond, a reasonable attorney's fee, to be fixed by the court.

This bond shall inure to the benefit of any person named in Section 3181 of the Civil Code of the State of California so as to give a right of action to them or their assignees in suit brought upon this bond.

This bond is executed and filed to comply with the provisions of the act of Legislature of the State of California as designated in Civil Code Sections 9550 to 9566, inclusive, and all amendments thereto.

And the said Surety, for value received, hereby stipulates and agrees to waive the benefits of California Civil Code Sections 2819 and 2845.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

ATTEST:

\_\_\_\_\_  
Principal Secretary

\_\_\_\_\_  
Principal

(SEAL)By \_\_\_\_\_

\_\_\_\_\_  
Witness as to Principal

\_\_\_\_\_

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

\_\_\_\_\_  
Witness to Surety

\_\_\_\_\_  
Surety

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Attorney-in-Fact

\_\_\_\_\_  
Address

If CONTRACTOR is partnership, all partners must execute BOND.  
The signature of the Surety on this bond must be acknowledged before a Notary Public.

**\*\*\*END OF SECTION\*\*\***

**SECTION 00635**

**FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631**

**GUARANTY BOND**

Any singular reference to CONTRACTOR, Surety, OWNER or other party shall be considered plural where applicable.

GUARANTEE for \_\_\_\_\_  
[CONTRACTOR]

**CONTRACTOR** (Name and Address):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SURETY** (Name and Principal Place of Business):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**OWNER** (Name and Address):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**CONSTRUCTION CONTRACT**

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

Contract No.: \_\_\_\_\_

Date: \_\_\_\_\_

Location: \_\_\_\_\_  
\_\_\_\_\_

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

CONTRACTOR AS PRINCIPAL

SURETY

Company: \_\_\_\_\_

Company: \_\_\_\_\_

(Corp Seal)

(Corp. Seal)

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name & Title: \_\_\_\_\_

Name & Title \_\_\_\_\_

\_\_\_\_\_  
CONTRACTOR AS PRINCIPAL

\_\_\_\_\_  
SURETY

Company: \_\_\_\_\_

Company: \_\_\_\_\_

(Corp Seal)

(Corp. Seal)

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name & Title: \_\_\_\_\_

Name & Title \_\_\_\_\_

We hereby guarantee that all Work performed for the Contract Documents entitled:

\_\_\_\_\_  
(Description of Work)

which we have constructed, have been done in accordance with the Contract Documents, and that the work as constructed will fulfill the requirements of Contractor's general warranty and guaranties included in the Contract Documents. We agree to perform all work necessary to correct deficiencies, errors or omissions in the workmanship or materials within a period of one (1) year from the date of final acceptance of the above-named work by the Owner, pursuant to Paragraph 00700- 8.8, **Warranties and Bonds**, without any expense whatsoever to said Owner, ordinary wear and unusual abuse excepted.

As part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by Owner.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or

addition to the terms of the agreement or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the agreement or to the work or to the specifications.

In the event of our failure to comply with the above-mentioned conditions within ten (10) calendar days after being notified in writing by the Owner, we collectively or separately, do hereby authorize the Owner to proceed to have said defects repaired and made good at our expense and we will honor and pay the costs and charges therefore upon demand. When correction work is started, it shall be carried through to completion.

DATED: \_\_\_\_\_

**\*\*\*END OF SECTION\*\*\***



**SECTION 00640**

**FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631**

**CERTIFICATION OF DRUG-FREE WORKPLACE**

PROJECT: Generator Replacement Project

KNOW ALL PERSONS BY THESE PRESENTS:

\_\_\_\_\_ has reviewed and understands the Substance  
(Contractor)

Abuse Policy of the Foresthill Public Utility District (FPUD) and hereby expressly agrees, pursuant to and in furtherance of FPUD's policy, to maintain a Substance Abuse Policy at the site and take such necessary acts and/or measures to maintain a Drug-Free Workplace at the site. It is further agreed that the use, manufacture, distribution, dispensing or possession of illegal drugs by the Contractor or any person under the control of the Contractor (including, but not limited to subcontractors, their employees, mechanics and suppliers entering FPUD's premises) or while conducting business with PCWA shall constitute a breach of contract between FPUD and Contractor and shall give rise to any and all remedies available to FPUD in the event of a breach of Contract, including the termination thereof.

SIGNED AND SEALED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

SEAL

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Signature of Principal

\_\_\_\_\_  
Title of Signator

**\*\*\*END OF SECTION\*\*\***

**SECTION 00645**

**FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631**

**WORKERS' COMPENSATION INSURANCE CERTIFICATE**

Project Name: Generator Replacement Project

In accordance with California Labor Code Section 1861, prior to commencement of work on the Contract, the Contractor shall sign and file with the Owner the following certification:

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

\_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title of Signator

\_\_\_\_\_  
Date (month/day/year)

**\*\*\*END OF SECTION\*\*\***

## SECTION 00650

FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631

## GENERAL LIABILITY ENDORSEMENT (Form A-1)

Project Name: Generator Replacement Project

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A. POLICY INFORMATION.

1. Insurance Company \_\_\_\_\_  
Policy No. \_\_\_\_\_
2. Policy Term (From) \_\_\_\_\_ (To) \_\_\_\_\_  
Endorsement Effective Date \_\_\_\_\_
3. Named Insured \_\_\_\_\_
4. Address of Named Insured \_\_\_\_\_
5. Limit of Liability Any One Occurrence/Aggregate  
\$ \_\_\_\_\_
6. Deductible or Self-Insured Retention (Nil unless otherwise specified):  
\$ \_\_\_\_\_

---

B. POLICY AMENDMENTS.

This endorsement is issued on consideration of the policy premium. Notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto it is agreed as follows:

1. **INSURED.** The Owner, the Design Consultant, the Construction Manager, and each of their officers, partners, employees, and agents are included as additional insurers with regard to damages and defense of claims arising from (a) activities performed by or on behalf of the Named Insured, (b) products and completed operations of the Named Insured, or (c) premises owned, leased or used by the Named Insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the Named Insured for or on behalf of the Owner; or (b) products sold by the Named Insured to the Owner; or (c) premises leased by the Named Insured from the



I, \_\_\_\_\_ (print/type name), warrant that I have authority to bind the below listed insurance company and by my signature hereon do so bind this company. By signature below, the surety warrants that if requested by the Owner, it will furnish a certified copy of the certificate of authority issued by the Insurance Commissioner of the State of California.

Signature of: \_\_\_\_\_  
Authorized Representative  
(original signature required on endorsement furnished to the Owner)

ORGANIZATION: \_\_\_\_\_ TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ TELEPHONE: \_\_\_\_\_

\*\*\* END OF SECTION \*\*\*

## SECTION 00660

FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631

## AUTO LIABILITY ENDORSEMENT (Form B-1)

Project Name: **Generator Replacement Project**

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A. POLICY INFORMATION.

1. Insurance Company \_\_\_\_\_  
Policy No. \_\_\_\_\_
2. Policy Term (From) \_\_\_\_\_ (To) \_\_\_\_\_  
Endorsement Effective Date \_\_\_\_\_
3. Named Insured \_\_\_\_\_
4. Address of Named Insured \_\_\_\_\_
5. Limit of Liability Any One Occurrence/Aggregate  
\$ \_\_\_\_\_
6. Deductible or Self-Insured Retention (Nil unless otherwise specified):  
\$ \_\_\_\_\_

---

B. POLICY AMENDMENTS.

This endorsement is issued on consideration of the policy premium. Notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto it is agreed as follows:

1. **INSURED.** The Owner, the Design Consultant, the Construction Manager, and each of their officers, partners, employees, and agents are included as additional insureds with regard to damages and defense of claims arising from ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Named Insured, regardless of whether liability is attributable to the Named Insured or a combination of the Named Insured and the Owner, the Design Consultant and the Construction Manager and each of its officers, employees, and agents.
2. **CONTRIBUTION NOT REQUIRED.** As respects work performed by the Named Insured for or on behalf of the Owner, the insurance afforded by this policy shall: (a) be primary

- ### C. INCIDENT AND CLAIM REPORTING PROCEDURE.

Attn: \_\_\_\_\_  
(Title) (Department)

(Company)

(Street Address)

(Agency) (State) (Zip Code)

(Telephone Number)

7/24/26

**Form B-1**

I, \_\_\_\_\_ (print/type name), warrant that I have authority to bind the below listed insurance company and by my signature hereon do so bind this company. By signature below, the surety warrants that if requested by the Owner, it will furnish a certified copy of the certificate of authority issued by the Insurance Commissioner of the State of California.

Signature of: \_\_\_\_\_  
Authorized Representative  
(original signature required on endorsement furnished to the Owner)

ORGANIZATION: \_\_\_\_\_ TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ TELEPHONE: \_\_\_\_\_

**\*\*\* END OF SECTION \*\*\***



## SECTION 00700

FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631

### GENERAL CONDITIONS

#### 1.0 GENERAL

##### 1.1 Contract Agreement

A Bidder to whom award is made shall execute a written Contract Agreement and required supplementary documents and submit them to the Owner within fifteen (15) calendar days after the Notice of Award has been mailed to the Bidder at the address given in Section 00300, **BID FORM**. The Agreement shall be made in the form adopted by the Owner and incorporated in the Section 00510, **AGREEMENT**.

If the lowest responsive, responsible Bidder to whom award is made fails to enter into the Agreement, as herein provided, the Bidder's Bond will become the property of the Owner, and an award may be made to the next lowest responsive, responsible Bidder, and such Bidder shall fulfill every stipulation embraced herein as if it were the party to whom the first award was made.

In the event the Contractor is a joint venture of two or more contractors, the grants, covenants, provisos and claims, rights, power, privileges and liabilities of the Contract shall be construed and held to be several as well as joint. Any notice, order, direct request or any communication required to be or that may be given by the Owner or the Construction Manager to the Contractor under this Contract, shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such persons. Any notice, request or other communication given by any one of such persons to the Owner or the Construction Manager under this Contract shall be deemed to have been given by and shall bind all persons being the Contractor.

If any part of the work to be done under this Contract is subcontracted, the subcontract shall be in writing and shall provide that all work to be performed thereunder shall be performed in accordance with the terms of the Contract Documents. The subcontracting of any or all of the work to be done will in no way relieve the Contractor of any part of its responsibility under the Contract. Certified copies of subcontract agreements will be provided by the Contractor to the Owner upon request.

The Contractor shall not assign, transfer, convey, or otherwise dispose of the Contract in whole or in part, or its right, title, or interest therein, or its power to execute such Contract, to any other person, firm, or corporation without previous consent in writing of the Owner. Any proposed assignment, transfer, convey and or other disposition without such written consent of this owner will be void.

##### 1.2 Written Notice and Service Thereof

Any notice to any party relative to any part of this Contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted, by Mail, to said party at its last given address, or delivered in person to the said party or its authorized representative of the work. This includes notice of change of address.

### 1.3 Rights of Action

No right of action shall accrue upon or by reason of this Agreement to or for the use or benefit of anyone other than the parties to this Agreement. The parties to this Agreement are the Contractor and the Owner.

### 1.4 Plans and Specifications

The Contract Documents are complementary; what is called for by one is as binding as if called for by all. It is the intent of the Drawings and Specifications to describe a functionally complete and operable Project (and all parts thereof) to be constructed in accordance with the requirements of the Contract Documents. Any work, materials or equipment that may reasonably be inferred from the requirements of the Contract Documents or from prevailing custom or trade usage as being required to produce this intended result will be furnished and performed whether or not specifically called for. When words or phrases that have a well-known technical or construction industry or trade meaning are used to describe Work, materials or equipment, such words or phrases shall be interpreted in accordance with that meaning. The intent of the Drawings specifically includes the intent to depict construction that complies with all applicable laws, codes and standards. Subject to applicable law, including but not limited to California Public Contract Code Section 4100 et seq., and the terms of this Contract governing subcontracting, the Divisions and Sections of the Specifications and identifications of any Drawings shall not control Contractor in dividing the Work among subcontractors or suppliers or delineating the work to be performed by any specific trade.

Reasonably implied parts of the Work shall be performed as "incidental work" even though absent from the Drawings and Specifications. "Incidental" work shall be performed by Contractor without extra cost to Owner. Incidental work includes any work not shown on Drawings nor described in Specifications, but which is necessary or normally or customarily required as a part of the Work shown on the Drawings or described in the Specifications, or is necessary or required to make each installation satisfactory, legally operable, functional, consistent with the intent of the Drawings and Specifications or the requirements of the Contract Documents. Incidental work shall be treated as if fully described in Specifications and shown on Drawings, and expense thereof shall be included in price bid. Incidental work includes, but is not limited to, tasks required to be performed under Division 1 **GENERAL REQUIREMENTS** of Specifications.

Upon Notice to Proceed, the Contractor may obtain from the Owner, free of charge, One (1) copies of the Plans and Specifications. Additional sets of the Plans and Specifications may be procured at the cost of printing and binding. The Owner will also provide one electronic copy of the plans and specifications upon receipt of an executed **CAD WAIVER** Form 01999-01 from the Contractor. The Owner will furnish the release form at the Contractor's request.

The Contractor shall keep on the Project site a complete copy of the Specifications and Drawings and shall at all times give the Construction Manager and Agency staff access thereto. Any Drawings included in the Specifications shall be regarded as part thereof and of the Contract. Anything mentioned in these Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in these Specifications, shall be of like effect as though shown or mentioned in both. The Construction Manager will furnish from time to time such drawings, plans, profiles, and information as it may consider appropriate for the Contractor's guidance. Unless otherwise provided in the Contract Documents, it shall be the duty of the Contractor to see that all provisions are complied with in detail irrespective of the inspections of the Work during its

progress by the authorized official or its representatives. Any failure on the part of the Contractor to observe the Contract Documents will be sufficient cause for the rejection of the Work at any time before its acceptance.

Wherever reference specifications are referred to in these Specifications without designation of year, the reference is to the current or revised specification effective at the time of the Owner receiving bids, unless otherwise referenced in Section 01090, **REGULATORY REQUIREMENTS AND PERMITS**.

### **1.5 Applicability of all Paragraphs of Specifications**

The technical specifications are presented in paragraphs for convenience. However, this presentation does not necessarily delineate trades or limits of responsibility. All paragraphs of the Specifications and Plans are interdependent and applicable to the Project as a whole.

The Specifications and all notes on the Drawings are directed to the Contractor and all work shall be performed by the Contractor even though phrases such as "the Contractor shall" or "shall be done by the Contractor" are omitted. Where terms such as "approved," "acceptable," "favorably reviewed," "review," "selected," "directed," "equivalent," "equal," or "satisfactory" are used, it shall mean by or to the Construction Manager and/or Engineer.

### **1.6 Construction Manager**

The Construction Manager is engaged by the Owner as an independent construction management consultant to assist the Owner in administration of the Contract. The Construction Manager is not the Owner's Representative unless specifically designated in writing by the Owner.

The Construction Manager's review, coordination, transmittal of information, observations, comments, communications, reports, meeting minutes, recommendations to the Owner, and responses are administrative in nature and shall not constitute professional architectural or engineering services or create any independent design, engineering, supervisory, or construction responsibilities.

Nothing performed by the Construction Manager shall relieve the Design Professional of responsibility for the adequacy, accuracy, completeness, or code compliance of the design or relieve the Contractor of sole responsibility for construction of the Work in accordance with the Contract Documents.

The Contractor shall promptly notify the Construction Manager in writing of any apparent errors, inconsistencies, ambiguities, conflicts, omissions, or deficiencies in the Contract Documents before proceeding with the affected Work and shall request written clarification. The Contractor shall not knowingly proceed in a manner that takes advantage of any such apparent condition.

The Contractor shall also promptly notify the Construction Manager in writing whenever the Contractor believes any design, material, detail, specification, or prescribed method of construction is defective, impractical, unsafe, insufficient, or inconsistent with the Contract Documents. Failure to provide such written notice before proceeding with the affected Work shall constitute a waiver, to the fullest extent permitted by applicable law, of any claim for additional compensation or extension of Contract Time arising from any condition that reasonably could have been identified before proceeding.

The Construction Manager may coordinate review of such matters with the Owner and the Design Professional and may transmit written interpretations of the design intent or technical requirements issued by the Design Professional or written directives issued by the Owner.

Except as expressly authorized in writing by the Owner, the Construction Manager shall have no authority to:

- modify the Contract Documents;
- waive any Contract requirement;
- authorize extra work;
- approve substitutions;
- determine entitlement to changes in Contract Price or Contract Time;
- determine compliance with applicable laws, codes, regulations, or permits;
- determine the adequacy of the design;
- interpret the Design Professional's professional standard of care;
- accept or reject Work or materials;
- certify code compliance;
- supervise construction;
- direct or control the Contractor's means, methods, techniques, sequences, procedures, temporary works, staffing, equipment, scheduling, coordination, quality control, or safety precautions.

Only the Owner may authorize changes to the Contract Price, Contract Time, or Scope of Work through the procedures established in the Contract Documents. No oral statement, observation, report, meeting discussion, field comment, recommendation, correspondence, photograph, schedule, or other communication by the Construction Manager shall authorize or be construed as authorizing any modification of the Work or the Contract Documents.

Site visits, observations, inspections, reports, meeting minutes, schedules, photographs, payment application reviews, submittal reviews, shop drawing reviews, or similar activities performed by the Construction Manager are conducted solely for the benefit of the Owner in administering the Contract and shall not constitute continuous inspection of the Work, supervision of construction, quality control, safety monitoring, acceptance of the Work, certification of quantities, verification of code compliance, or approval of the Contractor's means and methods.

Review of payment applications is solely for the purpose of advising the Owner regarding the general status of the Work and shall not constitute acceptance of the Work, certification of quality or quantity, or representation that the Work complies with the Contract Documents.

Review or transmittal of shop drawings, product data, samples, schedules, submittals, or similar documents is performed solely for purposes of contract administration and coordination and shall not relieve the Contractor of responsibility for dimensions, quantities, fabrication, installation, constructability, coordination, safety, or compliance with the Contract Documents.

The Construction Manager shall have no duty to discover latent or patent defects or to verify dimensions, quantities, field conditions, constructability, fabrication, installation, coordination, quality, completeness, or the Contractor's compliance with the Contract Documents or applicable laws, codes, regulations, permits, manufacturer requirements, or safety requirements.

The Construction Manager performs its services solely for the benefit of the Owner. Nothing in the Contract Documents shall create any contractual relationship, fiduciary duty, or duty of care

between the Construction Manager and the Contractor, any Subcontractor, supplier, or any other third party, except as expressly provided herein.

The Contractor shall not rely upon any oral statement, field observation, recommendation, report, meeting discussion, correspondence, or other communication from the Construction Manager as authorization to modify the Work, alter construction means or methods, establish design intent, approve substitutions, accept nonconforming Work, determine code compliance, or authorize any adjustment to the Contract Price or Contract Time. Only written directives issued by the Owner or written technical interpretations issued by the Design Professional and transmitted by the Construction Manager may be relied upon for such purposes.

The Contractor remains solely responsible for independently verifying dimensions, quantities, field conditions, constructability, coordination, means and methods, safety precautions, and compliance with the Contract Documents regardless of any review, observation, communication, or activity performed by the Construction Manager.

No action, inaction, observation, review, comment, recommendation, report, payment recommendation, submittal review, or other communication by the Construction Manager shall constitute a waiver of any right or remedy of the Owner under the Contract Documents.

## **1.7 Order of Precedence**

In resolving conflicts resulting from errors or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:

- (1) Permits from other agencies as may be required by law
- (2) Addenda, Supplemental Agreements and Change Orders, the one dated later having the precedence over another dated earlier.
- (3) Agreement (Section 00510)
- (4) Contractor's accepted Bid Proposal
- (5) General Requirements (Sections 01000 through 01999)
- (6) Supplementary General Conditions (Section 00800)
- (7) General Conditions (Section 00700)
- (8) Notice Inviting Bids (Section 00020)
- (9) Instructions to Bidders (Section 00100)
- (10) Contract Drawings
- (11) Technical Specifications (Section 02000 and all other Sections following)
- (12) Reference/Standard Specifications
- (13) Reference/Standard Plans

With reference to the Drawings, the order of precedence is as follows:

- (1) Enumerated dimensions govern over scaled dimensions
- (2) Detail drawings govern over general drawings
- (3) Addenda/Change Order drawings govern over any other drawings
- (4) Contract Drawings govern over standard drawings/plans

The provisions of the Contract Documents shall take precedence over any Laws or Regulations applicable to the performance of the work unless such an interpretation of the provisions of the Contract Documents would result in a violation of such Law or Regulation.

## **1.8 Bonds**

The successful Bidder shall, at the time of signing the Contract, furnish surety bonds executed by a surety admitted to conduct business in California using the bond forms included in the bid package.

The payment bond shall be in amount equal to one hundred percent (100%) of the Contract Amount and shall be for payment of just claims for materials, equipment, labor and subcontractors employed by the Contractor thereon.

The faithful performance bond shall be in an amount equal to one hundred percent (100%) of the Contract Amount and shall be for the faithful performance of the Contract, and for the fulfillment of such other requirements as may be provided by Law. The performance bond shall remain in effect to guarantee the repair and replacement of defective equipment, materials, and workmanship, and payment of damages sustained by the Owner on account of such defects, discovered within one (1) year after final acceptance by the Owner, for the work performed under the Contract, which shall remain in effect for a period of one (1) year, to guarantee the repair and replacement, and payments for damages.

Attorneys-in-fact, who sign bid bonds or contract bonds, must file with each bond a notarized and effectively dated copy of their power of attorney as required on bond forms supplied by the Owner for Contractor use in Sections 00610 and 00620.

The surety company shall familiarize itself with all of the conditions and provisions of this Contract, and it waives the right of special notification of any change or modification of this Contract or of extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by the Owner or its authorized agents under the terms of this Contract; and failure to so notify the aforesaid surety companies of changes shall not relieve the surety companies of their obligations under this Contract.

## **1.9 Penalty for Collusion**

If, at any time, it is found that the person, firm, or corporation to whom the Contract has been awarded has, in presenting any bid or bids, colluded with any other party or parties, then the Contract shall be null and void, and the Contractor and its sureties shall be liable for loss or damage which the Owner may suffer thereby, and the Owner may advertise for new bids.

## **1.10 Rights and Remedies**

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to, and not a limitation of, any duties, obligations, rights, and remedies otherwise imposed or available by law.

No action or failure to act by the Owner, the Engineer, the Owner's Representative, or the Construction Manager shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

## **2.0 CONTRACT ADMINISTRATION**

### **2.1 Administration of the Contract**

The Owner's Representative, the Construction Manager, and the Engineer will provide administration of the Contract as hereinafter described. These parties are designated in Section 00800-1.4, **Contract Administration**. If the status of any of the above parties should change, the Owner will provide written notice to the Contractor of such change.

In case of the termination of the employment of the Engineer or the Construction Manager, the Owner shall appoint an Engineer or a Construction Manager whose status under the Contract Documents shall be that of the former Engineer or Construction Manager, respectively.

### **2.2 Owner's Representative**

2.2.1 **General** -The Owner's Representative shall be the person designated by the Agency's Director of Technical Services as indicated in Section 00800, **SUPPLEMENTARY GENERAL CONDITIONS**.

2.2.2 **Change Orders/Field Orders** -The Owner's Representative has the authority to reject proposed change orders, and cost proposals submitted by the Contractor or as recommended by the Construction Manager. The Owner's Representative has the authority to recommend acceptance and execution of Change Orders by the Agency. The Agency's Director of Technical Services has the authority to sign change orders on the Agency's behalf, after such recommendation or concurrent therewith, with approval by the Agency Board when required by Agency policies and procedures.

2.2.3 **Progress Payments** - The Owner's Representative has the authority to approve or disapprove requests for progress payments which have been submitted by the Contractor and recommended by the Construction Manager. In the event of approval and recommendation, the Progress Payments will be forwarded to the Director of Technical Services and, as appropriate, the Agency Board when required by Agency policies and procedures.

2.2.4 **Contract Decisions** - Should the Contractor disagree with the Construction Manager's decision with respect to the Contract, the Contractor may appeal to the Owner's Representative in accordance with the provisions of the Contract.

2.2.5 **Acceptability of Work** - The Owner's Representative has the authority to make the final determination of the acceptability of the Work. The Owner's Representative also has the authority to accept or reject the Engineer's recommendations regarding retention of defective work as provided.

### **2.3 Construction Manager**

The duties of the Construction Manager described in this Section are administrative in nature and shall be interpreted consistently with the limitations of authority established in Section 1.6, *Role, Authority, and Limitations of the Construction Manager*. In the event of any conflict between this Section and Section 1.6, Section 1.6 shall control.

The Construction Manager shall administer the Contract on behalf of the Owner by coordinating communications among the Owner, Contractor, Design Professional, testing laboratories,

inspectors, commissioning personnel, and other Project participants. The Construction Manager shall receive, coordinate, review, maintain records of, and transmit Requests for Information, submittals, schedules, Applications for Payment, notices, proposed Change Orders, requests for equitable adjustment, claims, closeout documents, and other Contract communications.

The Construction Manager may periodically observe the progress and general status of the Work for the purpose of advising the Owner. Such observations are not continuous inspections and shall not constitute supervision of construction, quality control, acceptance of the Work, verification of dimensions or quantities, certification of code compliance, or approval of the Contractor's means, methods, techniques, sequences, procedures, temporary works, staffing, equipment, scheduling, coordination, or safety precautions.

If the Construction Manager observes Work that appears inconsistent with the Contract Documents, the Construction Manager may notify the Contractor and the Owner and may recommend that the Design Professional or Owner review the matter. The Construction Manager may identify apparent nonconforming Work but shall not independently accept or reject the Work or determine the appropriate corrective action unless specifically authorized in writing by the Owner.

The Construction Manager shall coordinate Requests for Information with the Owner and, where appropriate, the Design Professional and shall transmit written responses issued by the Design Professional or Owner. The Construction Manager shall not independently interpret the technical requirements of the Contract Documents or provide architectural or engineering opinions.

The Construction Manager may review Applications for Payment, Change Order proposals, requests for additional compensation or Contract Time, and claims and provide recommendations to the Owner based upon available Project information. Such recommendations are advisory only and shall not constitute final determinations regarding Contractor entitlement, quality of the Work, quantities installed, or compliance with the Contract Documents.

The Construction Manager may coordinate inspections, prepare punch lists, monitor completion of corrective work, coordinate Project closeout, and recommend Substantial Completion or Final Completion to the Owner. Final acceptance of the Work shall remain solely with the Owner.

If the Contractor requests guidance regarding construction means, methods, sequencing, temporary works, constructability, scheduling, coordination, or safety, any discussion by the Construction Manager shall be advisory only and shall not relieve the Contractor of its sole responsibility for determining and implementing such means, methods, techniques, sequences, procedures, temporary works, scheduling, coordination, quality control, or safety precautions.

The Construction Manager may recommend actions to the Owner concerning administration of the Contract but shall not independently modify the Contract Documents, authorize changes in the Work, direct construction operations, waive Contract requirements, determine Contractor entitlement to changes in Contract Price or Contract Time, or exercise authority reserved to the Owner or Design Professional under the Contract Documents.

## **2.4 Engineer**

**2.4.1 General** - The Engineer will have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents.



2.4.2 Interpretations - The Engineer has the authority to be the initial interpreter of the technical requirements of the Contract Documents. Either party to the Contract may make written request to the Construction Manager for interpretations necessary for the proper execution or progress of the Work. The Construction Manager shall refer such written requests to the Engineer, who will render such interpretations. Where the Contractor has requested an interpretation from the Construction Manager, or been notified by the Construction Manager that such interpretation has been requested by the Owner, any work done before receipt of such interpretations, if not in accordance with same, shall be removed and replaced or adjusted as directed by the Owner based upon the Engineer's written interpretation, transmitted through the Construction Manager.

2.4.3 Acceptability of the Work - The Engineer has the authority to make a recommendation as to the acceptability of the Work. The Engineer has the authority to recommend acceptance regarding the remediation or retention of defective work.

2.4.4 Submittal - The Engineer shall receive, through the Construction Manager, shop drawings, product data and samples for review in accordance with Section 01330, **SUBMITTAL PROCEDURES**.

The Engineer has the authority to review and take other appropriate action upon the Contractor's submittal such as shop drawings, product data and samples, but only for conformance with the design concept of the Work and the information given in the Contract Documents.

### **3.0 OWNER**

#### **3.1 General**

The Owner, acting through the Owner's Representative shall have the authority to act as the sole judge of the Work and materials with respect to both quantity and quality as set forth in the Contract.

#### **3.2 Attention to Work**

The Owner's, Construction Manager's and Engineer's representatives are designated in Section 00800-1.4, **Contract Administration**. The Construction Manager's designated representative will normally be available part time at the Project site of the Work. An alternate representative will be designated when the designated Construction Manager's representative is not available at the Project site of the Work. The Owner may assign a representative to be available at the Project Site of the Work.

#### **3.3 Observation and Inspection**

The Owner may assign one or more inspectors, Owner representatives, consultants, testing agencies, or other authorized representatives to observe the Work on behalf of the Owner. Such representatives shall function under the administrative coordination of the Construction Manager unless otherwise directed by the Owner.

The purpose of such observations and inspections is to assist the Owner in determining the general status and apparent progress of the Work and to identify work that appears not to conform to the Contract Documents. Such observations and inspections are not continuous inspections and shall not constitute supervision of construction, quality control, acceptance of the Work, verification of dimensions or quantities, certification of code compliance, approval of the

Contractor's means, methods, techniques, sequences, procedures, temporary works, quality control, staffing, equipment, scheduling, coordination, or safety precautions.

If an inspector or other Owner representative observes Work that appears inconsistent with the Contract Documents, the inspector may notify the Construction Manager, who may notify the Contractor and coordinate review by the Owner and, where appropriate, the Design Professional. Neither the inspector nor the Construction Manager shall independently accept or reject the Work, order corrective work, modify the Contract Documents, direct the Contractor's means and methods, determine entitlement to changes in Contract Price or Contract Time, or otherwise exercise authority reserved to the Owner or the Design Professional under the Contract Documents.

Nothing contained herein shall relieve the Contractor of its sole responsibility for constructing the Work in accordance with the Contract Documents or create any duty on the part of the Owner, Construction Manager, inspectors, testing agencies, consultants, or other Owner representatives to discover defects, continuously inspect the Work, supervise construction, monitor safety, or ensure the Contractor's compliance with the Contract Documents.

Separate and independent from the observations described above, the Project may be inspected by building officials, fire officials, utility agencies, regulatory agencies, or other governmental authorities having jurisdiction. Such inspections shall be conducted pursuant to the authority granted to those agencies by applicable law and shall not expand the authority or responsibility of the Construction Manager under the Contract Documents.

### **3.4 Owner's Right to Use or Occupy**

The Owner reserves the right, prior to Substantial Completion, to occupy, or use, any completed part or parts of the Work, providing these areas have been approved for occupancy by the Owner. The exercise of this right shall in no way constitute an acceptance of such parts, or any part of the Work, nor shall it in any way affect the dates and times when progress payments shall become due from the Owner to the Contractor or in any way prejudice the Owner's rights in the Contract, or any bonds guaranteeing the same. The Contract shall be deemed completed only when all the Work contracted has been duly and properly performed and accepted by the Owner.

Prior to such occupancy or use, the Owner and Contractor shall agree in writing regarding the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents.

In exercising the right to occupy or use completed parts of the Work prior to the Substantial Completion thereof, the Owner shall not make any use which will materially increase the cost to the Contractor, without increasing the Contract Amount, nor materially delay the completion of the Contract, without extending the time for completion.

The part or parts of the Work, if any, which the Owner anticipates the use or occupancy of prior to Substantial Completion are noted in Section 01140, **WORK RESTRICTIONS**. Failure to include a part of the Work in the above referenced Section, shall not limit the Owner's right to use or occupy parts of the Work not listed.

### **3.5 Owner's Right to Carry Out the Work**

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of the Contract, and fails within five (5) days after receipt of written notice from the Owner to commence and continue correction of such neglect or deficiency with diligence and promptness, the Owner may, and without prejudice to any other remedy, make good such default, neglect or failure.

The Owner also reserves the right to perform any portion of the work due to an emergency threatening the safety of the Work, public, Owner, and any property or equipment.

In either case, a Change Order shall be issued unilaterally deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies and/or for performing such work, including compensation for the Engineer's, the Construction Manager's, and Owner's additional services made necessary by such default, neglect, failure or emergency.

### **3.6 Owner's Right to Perform Work and to Award Separate Contracts**

The Owner reserves the right to perform work related to the Project with the Owner's own forces, and to award separate contracts in connection with the Project or other work on the Project site. If the Contractor claims that delay, damage, or additional cost is involved because of such action by the Owner, the Contractor shall make such claim as provided elsewhere in the Contract Documents.

When separate contracts are awarded for different portions of the Project or other work on the Project site, the term "Contractor" in the Contract Documents in each case shall mean the contractor who executes each separate Agreement.

The Owner will provide for the coordination of the work of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate therewith as provided in Section 00700-4.10, **Cooperation with Other Contractors**.

### **3.7 Responsibility of the Owner**

The Owner shall not be held responsible for the care or protection of any material or parts of the work prior to the final acceptance, except as expressly provided in these Specifications.

## **4.0 CONTRACTOR**

### **4.1 Status of Contractor and Subcontractors**

4.1.1 It is stipulated and agreed that the Contractor shall be an independent contractor in the performance of this Contract and shall have complete charge of persons engaged in performance of the Work. The Contractor shall perform the Work in accordance with its own means and methods, subject to compliance with the requirements of the Contract.

4.1.2 Subcontractors will not be recognized as having a direct relationship with the Owner. The persons engaged in the work, including employees of subcontractors and suppliers, will be considered employees of the Contractor and their work shall be subject to the provisions of the Contract. References in the Project Manual to actions required of subcontractors, manufacturers, suppliers, or any person other than the Contractor, the Owner or the Construction Manager shall

be interpreted as requiring that the Contractor shall require such subcontractor, manufacturer, supplier or person to perform the specified action.

The Contractor shall not employ any subcontractors that are not properly licensed in accordance with State law. Prior to commencement of any work by a subcontractor, the Contractor shall submit verification to the Construction Manager that the subcontractor is properly licensed for the work it will perform.

The removal and/or substitution of any subcontractor listed in Section 00430, **DESIGNATION OF SUBCONTRACTORS**, shall be made by the Contractor and Owner as provided for in Public Contract Code Section 4100 et. seq. The Contractor attention is directed to Public Contract Code Section 6109 which prohibits an ineligible subcontractor from bidding and working on a public works project, and to Labor Code Section 1771.1 which requires that all subcontractors be registered with the California Department of Industrial Relations pursuant to Labor Code section 1725.5 as a precondition for bidding on, or being awarded a contract for public work.

#### **4.2 Contractor's Representative**

Only the Project Manager named in the Contractor's Bid Section 00420-B, **CERTIFICATION OF BIDDER'S EXPERIENCE AND QUALIFICATIONS**, or an equally qualified alternate approved by the Owner, will be permitted as the Contractor's on-site authorized representative. The Contractor shall confirm in writing, before starting work, the authorized representative who shall be qualified for the duties required and have complete authority to represent and to act for the Contractor. Said authorized representative has the authority to act in matters relating to the Contract, shall be personally present at the Project site at all times while work is actually in progress on the Contract. During periods when the Work is suspended, arrangements acceptable to the Construction Manager shall be made for any emergency work that may be required. The Contractor's authorized representative shall be fluent and proficient in the English language in order to understand, receive, and carry out oral and written communications or instructions relating to all job functions and responsibilities. All communications to and from the Contractor's authorized representative shall be binding as if given to or by the Contractor.

Contractor shall provide their authorized representative's contact information which shall include the representative's name, office street address, office telephone number, mobile phone number, home phone number, email address and the office mailing address if different from the street address.

The Contractor's authorized representative shall give its personal attention to and shall supervise the Work to the end that it shall at all reasonable times be prosecuted faithfully; and when the authorized representative is not personally present on the Work, the representative shall at all reasonable times be represented by a competent designated alternate, superintendent or foreman who shall receive and obey all instructions or orders given under this Contract, and who shall have full authority to supply materials, tools, and labor without delay, and who shall be the legally appointed representative of the Contractor. The Contractor shall be liable for the faithful observation of any instructions delivered to the Contractor or to its authorized representative.

The Contractor's authorized representative shall not be replaced without the Owner's express written permission. Furthermore, the Owner shall have the authority to remove the Contractor's authorized representative from the Project for reasons found in Section 5.3, **Character of Workers**.

### **4.3 Use and Protection of Owner's Site and Adjacent Property**

4.3.1 With the approval of the Construction Manager, the Contractor may use portions of the Owner's site for storage of construction equipment, materials and field offices provided the Contractor does not interfere with Agency operations. The Contractor will not be allowed to unreasonably encumber the Site or adjacent areas with its materials and/or equipment. The Owner will not accept any responsibility for damage to or loss of the Contractor's equipment or materials stored on any Project related site caused by vandalism, nature, or otherwise, suffered by the Contractor. Protection of all construction equipment, stores, and supplies shall be the sole responsibility of the Contractor. Where additional work space is desired by the Contractor or where the Owner cannot provide the space to the Contractor, it shall be the Contractor's sole responsibility and expense to obtain such a space for its use.

4.3.2 All workers or representatives of the Contractor, subcontractors or suppliers are admitted to the Site only of the proper execution of the Work and have no tenancy without the express written permission of the Owner. Furthermore, no persons may occupy property owned by the Owner outside the limit of the Work, as indicated on the drawings, without the express written permission of the Owner.

4.3.3 The Contractor shall enforce any instructions from the Owner or Construction Manager regarding combustible materials, placement of signs, danger signals, barricades, radios, noise, dust, and smoking. Upon completion of the Work, the Contractor shall remove all temporary barricades, signs and related materials.

4.3.4 The Contractor shall determine safe loading capacities and shall not overload any structure, building, pipe or other existing facility beyond its safe capacity during construction. In addition to any requirements imposed by law, the Contractor shall shore up, brace, underpin and protect as may be necessary all foundations and other parts of all existing structures, facilities and improvements on the Site or adjacent to the Site which are in any way affected by the Contractor's excavations or other operations connected with the Work. Prior to commencing any work which in any way affects adjoining or adjacent land or buildings thereon, or public utilities, the Contractor shall notify the Construction Manager to discuss responsibilities for properly notifying the owners/occupants of adjacent land and the protective measures taken by the Contractor. Upon request of the Construction Manager, the Contractor shall meet with the recipient of any notice or attend local public meetings as proper public outreach on local impacts caused by completion of the Work.

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

4.3.6 All existing improvements and facilities shall be protected from any damage resulting from the operations, equipment or workers of the Contractor during the entire Contract Time.

4.3.7 The Contractor shall take all steps necessary to protect all structures, buildings, land and other facilities from fires and sparks originating from the Work. The Contractor shall comply with all laws and regulations regarding fire protection and shall comply with all instructions given by the fire department with jurisdiction.

4.3.8 Any damage to existing conditions, or to any other improvement or property above or below the ground surface, whether public or private, arising from the Contractor's operations or

performance of the Work shall be repaired within forty-eight (48) hours by the Contractor without expense to the Owner, unless disruption of the Owner's operations or creation of a safety hazard has occurred, in which case damage will be repaired immediately. Any delays to the project completion times caused by such repairs shall be considered non-compensable and no further extension of the Contract Time will be granted therefor. Should the Contractor not be timely in repairing damage caused by its operations or performance, the Owner shall take steps to protect property and life, in its sole discretion, and deduct entire cost of such work from the next payment due the Contractor. No prior notice to the Contractor shall be necessary for the Owner to take such action.

#### **4.4 Fees and Permits**

The requirements for fees and permits are specified in Section 01090-2.0, **FEES AND PERMITS**.

#### **4.5 Compliance with Laws**

The Owner is a public agency in the State of California and is subject to the provisions of law relating to public contracts. It is agreed that all provisions of law applicable to public contracts are a part of these Contract Documents to the same extent as though set forth herein and will be complied with by the Contractor.

The Contractor shall, at its own cost and expense, observe and keep itself and its subcontractors fully informed of all existing and future legislated State and Federal Laws and City and County ordinances and regulations which in any manner affect those engaged or employed in the Work, or the materials and equipment used in the Work, or which in any way affect the conduct of the Work, and all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings, Specifications, or in any other part of this Contract, in relation to any such law, ordinance, regulation, order or decree, the Contractor shall immediately report the same to the Construction Manager in writing. The Contractor shall at all times observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees; and shall protect, indemnify, and defend the Owner, the Construction Manager, the Engineer, and all of their officers, officials, employees, agents, volunteers, and servants against any claim or liability arising from or based upon the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor itself, employees, or its subcontractors.

Attention is directed to the following specific regulations and requirements that are included in the Contract Documents. This list of regulations is not warranted to be complete and the burden of ascertaining legal requirements that must be satisfied shall rest solely with the Contractor.

**4.5.1 Prevailing Wage Rates**- Pursuant to the provisions of California Labor Code, Sections 1770 to 1780, inclusive thereof, the Contractor and any subcontractor under him shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Pursuant to the provisions of California Labor Code Section 1773.2, the Contractor is hereby advised that copies of the prevailing rate of per diem wages and a general prevailing rate for holidays, Saturdays and Sundays and overtime work in the locality in which the work is to be performed for each craft, classification, or type of worker required to execute the Contract, are on file in the Owner's office, which copies shall be made available to any interested party on request. The Contractor shall post a copy of said prevailing rate of per diem wages at each job site.

The Contractor shall comply with the provisions of Section 1775 of the California Labor Code and shall, as a penalty to the Owner, forfeit up to two hundred dollars (\$200) for each calendar day, or portion thereof, for each worker paid less than the prevailing rate of per diem wages for each craft, classification, or type of worker needed to execute the contract. The Contractor shall pay each worker an amount equal to the difference between the prevailing wage rates and the amount paid worker for each calendar day or portion thereof for which a worker was paid less than the prevailing wage rate. Contractor is required to pay all applicable penalties and back wages in the event of violation of prevailing wage law, and Contractor and any subcontractor shall fully comply with California Labor Code Section 1775, which is incorporated by this reference as though fully set forth herein.

Contractor and any subcontractor shall maintain and make available for inspection by the Owner's Representative payroll records as required by California Labor Code Section 1776, which is incorporated by this reference as though fully set forth herein. Contractor is responsible for ensuring compliance with this Document. Contractor and each subcontractor shall keep an accurate payroll record, showing the name, address, social security number, work classification, and 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 him or her in connection with the Project. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury stating that the information contained in the payroll record is true and correct. Penalties for non-compliance with the requirements of Section 1776 may be deducted from project payments per the requirements of Section 1776.

**4.5.2 Travel and Subsistence Payments-** Each worker needed to execute the Work must be paid travel and subsistence payments as defined in the applicable collective bargaining agreements filed in accordance with Section 1773.1 of the California Labor Code.

**4.5.3 Workday** - In accordance with the provisions of Division 2, Part 7, Chapter 1, Article 3 of the Labor Code, State of California, and in particular Sections 1810 to 1815 inclusive, thereof, eight (8) hours labor shall constitute a days' work and no laborer, worker, or mechanic in the employ of said Contractor, or any subcontractor doing or contracting to do any part of the Work contemplated by this Contract, shall be required or permitted to work more than eight (8) hours in any one calendar day, and forty (40) hours in any one calendar week unless compensated at not less than time and a half as set forth in California Labor Code Section 1815. However, if the prevailing wage determination requires a higher rate of pay for overtime than is required under said Section 1815, then the overtime rate must be paid, as specified in California Code of Regulation Title 8, Group 3, Section 16200(a)(3)(F). The Contractor and each subcontractor shall also keep an accurate record showing the names and actual hours worked of all workers employed by them in connection with the work contemplated by this Contract, which record shall be open at all reasonable hours for the inspection of the Owner or its officers or agents and by the Division of Labor Standards Enforcement of the Department of Industrial Relations, their deputies or agents; and it is hereby further agreed that said Contractor shall forfeit as a penalty to the Owner, the sum of Twenty-Five and No/100 Dollars (\$25.00) for each laborer, worker or mechanic employed in the execution of this Contract by the Contractor or by any subcontractor for each calendar day during which such laborer, worker or mechanic is required or permitted to labor more than eight (8) hours in any one calendar day and forty (40) hours in one calendar week in violation of these provisions.

**4.5.4 Apprentices-** Prior to commencing the Work, Contractor shall comply with the provisions of Labor Code 1777.5, including but not limited to the submission of contract award information to an applicable apprenticeship program that can supply apprentices to the site of the Work. Such

information shall include an estimate of journeyman hours to be performed under this Contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall be submitted to the Owner if requested by the Owner's Representative.

A determination by the Chief of the Division of Apprenticeship Standards that Contractor or its subcontractors have knowingly violated Labor Code 1777.5 shall forfeit as a civil penalty an amount not exceeding one hundred dollars (\$100) for each full calendar day of noncompliance. Contractor or its subcontractor, who knowingly commits a second or subsequent violation of Labor Code 1777.5 within a three-year period, where the noncompliance results in apprenticeship training not being provided as required, shall forfeit as a civil penalty the sum of not more than three hundred dollars (\$300) for each full calendar day of noncompliance. Upon the receipt of a determination that a civil penalty has been imposed by the Chief of the Division of Apprenticeship Standards, the Owner shall withhold the amount of the civil penalty from the next progress payment then due or to become due Contractor.

4.5.5 Certified Electricians- Workers performing work for an electrical contractor installing, constructing, or maintaining any electrical system covered by the National Electrical Code shall be certified as a General Electrician per California Labor Code Section 3099.

4.5.6 Receipt of Workers' Wages, Fee for Registering or Placing Persons In Public Works - Attention is directed to the provisions of sections 1778 and 1779 of the California Labor Code, which reads as follows:

Section 1778. "Every person, who individually or as a representative of an awarding or public body or officer, or as a contractor or subcontractor doing public work, or agent or officer thereof, who takes, receives or conspires with another to take or receive, for its own use or the use of any other person any portion of the wages of any workman or working subcontractor, in connection with services rendered upon any public work is guilty of a felony."

Section 1779. "Any person or agent or officer thereof who charges, collects, or attempts to charge or collect, directly or indirectly, a fee or valuable consideration for registering any person for public work, or for giving information as to where such employment may be procured, or for placing, assisting in placing, or attempting to place, any person in public work, whether the person is to work directly for the state, or any political subdivision or for a contractor or subcontractor doing public work is guilty of a misdemeanor."

4.5.7 Labor Discrimination. Attention is directed to Section 1735 of the Labor Code, which reads as follows:

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

4.5.8 Workers' Compensation Insurance - The provisions of Section 00800-2.1.2, **Workers' Compensation Insurance**, shall be considered as repeated herein.



4.5.9 Lateral and Subjacent Supports - Attention is directed to Section 832 of the Civil Code of the State of California relating to lateral and subjacent supports, and wherever structures or improvements adjacent to the excavation may be damaged by such excavation, the Contractor shall comply with this law. As provided in Labor Code Section 6707, a separate bid item is provided for costs of shoring and bracing of excavations five feet or more in depth.

4.5.10 Safety Standards - The Contractor shall comply with all applicable provisions of the Safety and Health Regulations of Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act (40 USC 327 et. seq.) as set forth in Title 29, C.F.R., CAL/OSHA, and the regulations issued thereunder. Compliance shall be the Contractor's sole responsibility, and neither the Owner, the Construction Manager nor the Engineer shall have any liability for non-compliance. See Section 00700-4.7, **Safety**, for additional safety requirements.

4.5.11 Asbestos Related Work- All work involving asbestos containing material must be performed in accordance with California Labor Code, Sections 6501.5 through 6510, inclusive, and California Administrative Code, Title 8, Section 5208 and all other pertinent laws, rules, regulations, codes, ordinances, decrees and orders.

#### 4.5.12 Public Records Act-

##### A. Ownership and Disclosure

Except as otherwise provided herein, all records, documents, drawings, plans, specifications, and all other information relating to the conduct of Owner's business, including information submitted by the Contractor ("Records"), shall become the exclusive property of Owner and shall be deemed public records. Said Records are subject to the provisions of the California Public Records Act (Government Code § 6250 et. seq.). The Owner's use and disclosure of its records are governed by this Act. The Owner will use its best efforts to inform the Contractor of any request for any financial records or documents marked "Trade Secret", "Confidential" or "Proprietary" provided by the Contractor to Owner. The Owner will not advise as to the nature or content of documents entitled to protection from disclosure under the California Public Records Act.

##### B. Litigation Related to Disclosure

In the event of litigation concerning the disclosure of any Records, Owner's sole involvement will be as a stakeholder, retaining the Records until otherwise ordered by a court. The submitting party, at its sole expense and risk, shall be fully responsible for any and all fees for prosecuting or defending any action concerning the Records and shall indemnify and hold Owner harmless from all costs and expenses including attorney's fees in connection with any such action.

## 4.6 Compliance with Environmental Laws

During construction, the Contractor shall comply with all pertinent requirements of Federal, State, and local environmental laws and regulations, including, but not limited to, the Federal Clean Air Act, State and local air pollution and noise ordinances, construction site erosion control regulations. Specific requirements are further specified in Section 01090, **REGULATORY REQUIREMENTS AND PERMITS**, and Section 01360, **ENVIRONMENTAL CONTROLS**.

## **4.7     Safety**

**4.7.1     Contractor's Safety Responsibility** - The Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons and property during performance of the Work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), the California Occupational Safety and Health Act (CalOSHA), and all other applicable Federal, State, County, and local laws, ordinances, codes, including but not limited to the requirements set forth below, and any regulations that may be detailed in other parts of these Contract Documents. In the event of conflicting requirements, the most stringent requirement as it pertains to the Contractor's safety responsibility shall be followed by the Contractor.

No provision of the Contract Documents shall act to make the Owner, the Construction Manager, Engineer or any other party than the Contractor responsible for safety. The Contractor agrees that for purposes of California Labor Code Section 6400 and related provisions of law the Contractor, the Contractor's privities and any other entities acting pursuant to this contract will be "employers" responsible for furnishing employment and a place of employment that is safe and healthful for the employees, if any, of such entities acting pursuant to this contract and that neither the Owner nor the Construction Manager, Engineer or their respective officers, officials, employees, agents or volunteers or other authorized representatives will be responsible for having hazards corrected and /or removed at the location(s) where the work is to be performed. The Contractor agrees that neither the Owner nor the Construction Manager, Engineer or their respective officers, officials, employees, agents or volunteers or other authorized representatives will be responsible for taking steps to protect the Contractor's employees from such hazards, or for instructing the Contractor's employees to recognize such hazards or to avoid the associated dangers. The Contractor agrees that with respect to the work to be performed under this contract and the location(s) where such work is to be performed, the Contractor will be responsible for not creating hazards, and for having hazards corrected and/or removed. The Contractor agrees that through the safety obligations contained in this contract and the Contractor's own inspection of the site(s) where the contract work is to be performed, the Contractor is aware and has been notified of the hazards to which the Contractor's employees may be exposed in the performance of contract work. The Contractor has taken and/or will take appropriate, feasible steps to protect the Contractor's employees from such hazards, and has instructed and/or will instruct its employees to recognize such hazards and how to avoid the associated dangers. The Contractor agrees that neither the Owner nor the Construction Manager, Engineer or their respective officers, officials, employees, agents or volunteers or other authorized representatives will be "employers" pursuant to California Labor Code Section 6400 and related provisions of law with respect to the Contractor, the Contractor's privities or other entities acting pursuant to this contract.

The Contractor shall indemnify, defend and hold Owner and Construction Manager, Engineer and their respective officers, officials, employees, agents and volunteers or other authorized representatives harmless to the full extent permitted by law concerning liability related to the Contractor's safety obligations in accordance with Section 00800-2.1.6, **Indemnification**.

If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Construction Manager and the Owner. In addition, the Contractor shall furnish the Construction Manager with a copy of the Employer's Report of Injury immediately following any incident requiring the filing of said report during the prosecution of the Work under this Contract. The Contractor shall also furnish the Construction Manager with a copy of the Employer's Report of Injury involving any subcontractors on this

Project. The Contractor shall make all reports as are, or may be, required by any authority having jurisdiction, and permit all safety inspections of the Work being performed under this Contract.

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

**4.7.2 Safety Program** - The Contractor shall establish, implement, and maintain a written injury prevention program as required by Labor Code Section 6401.7. Before beginning the Work, the Contractor shall file with the Construction Manager a written Contractor Safety Program that provides for the implementation of all of the Contractor's safety responsibilities in connection with the Work at the Project site and the coordination of that program and its associated procedures and precautions with safety programs, precautions and procedures of each of its subcontractors and other Contractors performing work at the Project site. The Contractor shall be solely responsible for initiating, maintaining, monitoring, coordinating, and supervising all safety programs, precautions, and procedures in connection with the Work and for coordinating its programs, precautions, and procedures of the other contractors and subcontractors performing the Work at the Project site. The Safety Program should contain all the necessary elements for the Contractor to administer its program on the Project site. At a minimum, this written Safety Program shall address the elements required by Labor Code Section 6401.7.

The Contractor's compliance with requirements for safety and/or the Construction Manager's acceptance for filing of the Contractor's Safety Program shall not relieve or decrease the liability of the Contractor for safety. The Construction Manager's review of the Contractor's Safety Program is only to determine if the above listed elements are included in the program.

**4.7.3 Safety Supervisor** - The Contractor shall appoint an employee as safety supervisor who is qualified and authorized to supervise and enforce compliance with the Safety Program. The Contractor shall notify the Construction Manager in writing prior to the commencement of work of the name of the person who will act as the Contractor's safety supervisor and furnish the safety supervisor's resume to the Construction Manager.

The Contractor will, through and with its Safety Supervisor, ensure that all of its employees and its subcontractors of any tier, fully comply with the Project Safety Policies. The Safety Supervisor shall be a full-time employee of the Contractor whose responsibility shall be for supervising compliance with applicable safety requirements on the Project site and for developing and implementing safety training classes for all job personnel. The Owner shall have the authority to require removal of the Contractor's Safety Supervisor if the representative is judged to be improperly or inadequately performing the duties; however, this authority shall not in any way affect the Contractor's sole responsibility for performing this work safely, nor shall it impose any obligation upon the Owner to ensure the Contractor performs its work safely.

**4.7.4 Safety and Protection** - The Contractor shall take all necessary precautions to prevent damage, injury, and loss to:

- A. All employees on the Project, employees of all subcontractors, and other persons and organizations who may be affected thereby;
- B. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

C. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, wetlands, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and of underground facilities and utility districts when prosecution of the Work may affect them and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor, supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by the Contractor.

**4.7.5 Excavation Safety** - In accordance with the provisions of Section 6705 of the Labor Code, the Contractor shall submit, in advance of excavation of any trench or trenches five feet or more in depth, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plans vary from the shoring system standards set forth in the Construction Safety Orders of the Division of Industrial Safety in Title 8, Subchapter 4, Article 6, California Code of Regulations, the plans shall be prepared and signed by a registered civil or structural engineer employed by the Contractor, and all costs therefore shall be included in the price named in the Contract for completion of the work as set forth in the Contract Documents. Nothing in this Section shall be deemed to allow the use of a shoring, bracing, sloping, or other protective system less effective than that required by the Construction Safety Orders. Nothing in this Section shall be construed to impose a tort liability on the Owner, the Engineer, the Construction Manager, nor any of their officers, officials, employees, agents, consultants or volunteers. The Owner's review of the Contractor's excavation plan is only for general conformance to the Construction Safety Orders.

Prior to commencing any excavation, the Contractor shall designate in writing to the Construction Manager the "competent person(s)" with the authority and responsibilities designated in the Construction Safety Orders.

**4.7.6 Safety Emergencies** - In emergencies affecting the safety or protection of persons or the Work or property at the Project site or adjacent thereto, the Contractor, without special instruction or authorization from the Construction Manager, is obligated to act to prevent threatened damage, injury or loss. The Contractor shall give the Construction Manager prompt written notice if the Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby.

**4.7.7 Safety Violations** - Should the Contractor fail to correct an unsafe condition, the Owner shall have the right to notify the Contractor through the Construction Manager that an unsafe condition may exist and must be corrected or the work in question can be stopped in accordance with Section 00700-6.6.1, **Suspension of Work** until the condition is corrected to the satisfaction of the Owner. No extension of time or additional compensation will be granted as a result of any stop order so issued. The notification and suspension of such work or the failure to provide such notification and suspension by the Owner shall not relieve the Contractor of its sole responsibility and liability for safety and the correction of any unsafe conditions.

The Owner shall have the authority to require the removal from the project of any worker and the foreman and/or superintendent in responsible charge of the work where safety violations occur.

**4.7.8 Equipment Safety Provisions** - The completed Work shall include all necessary permanent safety devices, such as machinery guards and similar safety items, required by the State and Federal (OSHA) industrial authorities and applicable local and national codes. Further, any features of the Work, including Owner-selected equipment, subject to such safety regulations shall be fabricated, furnished, and installed in compliance with these requirements. All equipment furnished shall be grounded and provided guards and protection as required by safety codes. Where vapor-tight or explosion-proof electrical installation is required by safety codes, this shall be provided. Contractors and manufacturers of equipment shall be held responsible for compliance with the requirements included herein. The Contractor shall notify all equipment suppliers and subcontractors of the provisions of this paragraph.

**4.7.9 Confined Spaces** – The Project requires work in confined spaces and requires compliance with CAL/OSHA and Federal OSHA requirements. Confined spaces for the purposes of this Section shall be as defined by the Division of Industrial Safety. Work within confined spaces of this project is subject to the definitions and applicable provisions of Section 5156 et. seq., Title 8, Division 1, Chapter 4, Subchapter 7, Group 16, Article 108 of California Code of Regulations, and Title 29 Part 1926 of the Code of Federal Regulations.

In addition the Owner classifies the following existing facilities as confined space: the interior of pipelines, vaults, manholes, reservoirs and any other such structure or space which is similarly surrounded by confining surfaces as to permit the accumulation of dangerous gases or vapors. The confined spaces are “permit” confined spaces as defined by OSHA and Cal/OSHA and therefore entry is allowed only through compliance with a confined space entry permit program by the contractor that meets the requirements of 8 C.C.R. Section 5157. While the above mentioned locations have been identified as permit confined spaces, other permit confined spaces may exist. It shall be the responsibility of the Contractor to identify and classify these confined spaces.

It is anticipated that the Contractor may encounter hazardous conditions within these permit confined spaces which include, but are not limited to the following:

- A. Exposure to hydrogen sulfide, methane, carbon dioxide and other gases and vapors commonly found in municipal sewers which could have or has the potential of having Immediate Danger to Life or Health Conditions (IDLH).
- B. Exposure to atmosphere containing insufficient oxygen to support human life.
- C. Exposure to combustible, flammable and/or explosive atmosphere.
- D. Exposure to sewage which may contain bacteriological, chemical and other constituents harmful to humans.
- E. Work in conditions where engulfment or entrapment may occur.
- F. Work in environments which may be slippery and/or have uneven work surfaces.
- G. Work in structures which have limited and/or restricted access and egress.

H. Work in structures where workers may trip, slip and/or fall several feet.

4.7.10 Public Safety and Convenience - The Contractor shall conduct his work so as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the Work and to ensure the protection of persons and property. No road or street shall be closed to the public except with the permission of the Construction Manager and the written approval by the proper governmental authority. Fire hydrants on or adjacent to the Work shall be accessible to fire fighting equipment. Temporary provisions shall be made by the Contractor to ensure the use of sidewalks, private and public driveways and proper functioning of gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses.

#### **4.8 Provisions for Handling Emergencies**

It is possible that emergencies may arise during the progress of the Work, which may require special treatment or make advisable extra shifts of labor forces to continue the Work for twenty-four (24) hours per day. These emergencies may be caused by damage or possible damage to nearby existing structures or property by reason of the work under construction, or by storm, accidents, or leakage. The Contractor shall be prepared in case of such emergencies to make all necessary repairs and shall promptly execute such work when required.

Upon start of the Work, Contractor shall provide means for immediate emergency notification of Contractor's designated representative and designated emergency alternates.

#### **4.9 Nonstandard Working Hours**

The Contractor may be required to prosecute the Work at night or outside of the normal working hours defined in Section 01140-3.1, **Work Hours**. Such work may be required due to project and/or operational constraints as defined in Section 01110, **SUMMARY OF WORK**, or if emergencies arise as provided for in Section 00700-4.8, **Provisions for Handling Emergencies**. When required, ordered, or permitted to work at night, the Contractor shall provide sufficient and satisfactory lighting and other facilities therefore. For work outside of the normal working hours, the Contractor shall receive no extra payment, but compensation shall be considered as having been included in the price stipulated for the Work, except for authorized work performed outside of the Contract requirements.

#### **4.10 Cooperation with Other Contractors**

This Subsection shall serve as notice to the Contractor that the Owner may let other contracts for other work at or near the site of this work. The Contractor shall afford other contractors reasonable opportunity for the delivery and storage of their materials and the execution of their work, and shall properly connect and coordinate its work with theirs.

Should construction be under way by other forces or by other contractors within or adjacent to the limits of the work or in the vicinity of the work to be done under this Contract, the Contractor shall so conduct its operations as to interfere to the least possible extent with the work of such other forces or contractors.

Any difference or conflicts which may arise between the Contractor and any other forces or contractors, creating delays or hindrance to each other, shall be adjusted as determined by the Construction Manager.

Section 01140-2.4, **Work By Others**, indicates anticipated other potential construction activities within or adjacent to work to be performed in this Contract.

## **5.0 CONTROL OF WORK AND MATERIAL**

### **5.1 Means and Methods**

The means and methods adopted by the Contractor shall be planned and executed to produce the highest grade quality of work and will enable the Contractor to complete the Work in the time agreed upon. The Owner and Construction Manager shall not supervise, direct, or have control over, or be responsible for, Contractor's means and methods of construction or for the safety precautions and programs incident thereto, or for any failure of Contractor to comply with laws and regulations applicable to the furnishing or performance of Work. If the Construction Manager observes that the Work appears inconsistent with the Contract Documents, the Construction Manager may notify the Contractor and the Owner and may recommend that the Contractor review its means and methods or that the Owner seek input from the Design Professional. Nothing herein authorizes the Construction Manager to direct the Contractor's means, methods, techniques, sequences, procedures, temporary works, or safety precautions.

### **5.2 Contractor's Responsibility for Work**

Until the formal acceptance of the work by the Agency, the Contractor shall have the charge and care and shall bear the risk of injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or non-execution of the work.

The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense, except such injuries or damages occasioned by the acts of the Federal government or acts of war.

In case of suspension of work from any cause whatsoever, the Contractor shall be responsible for the work as previously specified and shall also be responsible for all materials delivered to the work. Where necessary to protect the work from damage, the Contractor shall, at his own expense, provide suitable drainage of the worksite and erect such temporary structures as necessary to protect the work from damage during any period of suspension of work.

The Contractor shall provide twenty-four (24) hour emergency service for all maintenance and operations of the work specified and shall supply the Agency with the name and phone number of the responsible person. Emergency service shall be within thirty (30) minutes from the time of notification. If the Contractor fails to provide this service, the Agency shall perform such emergency service and the cost thereof shall be deducted from the next Progress Pay Estimate due the Contractor.

### **5.3 Character of Workers**

None but competent superintendents, forepersons and workers shall be employed on the Work by the Contractor and its Subcontractors at all tier levels. The Contractor shall remove from the Work any person who commits trespass, possesses firearms or other weaponry, is under the influence or is in the possession of alcohol or other illegal drugs/controlled substance, or is, in the opinion of the Contractor or Construction Manager, unfaithful, disorderly or profane, dangerous, abusive, insubordinate, incompetent, or otherwise objectionable. Such discharge shall not be the

basis of any claim for compensation or damages against the Owner, its officers, officials, employees, agents, and volunteers, the Engineer, the Construction Manager, and their partners, officers, employees, agents or any of its officers or representatives.

#### **5.4      Supply of Sufficient Workers**

The Contractor shall at all times employ qualified workers sufficient to prosecute the Work at a rate and in a sequence and manner necessary to complete the Work within the Contract Time(s). This obligation shall remain in full force and effect notwithstanding disputes or claims of any type. At any time during the progress of Work, should Contractor directly or indirectly (through subcontractors), refuse, neglect, or be unable to employ a sufficient number of qualified workers to prosecute the Work as required, then the Owner may require the Contractor to accelerate the Work and/or furnish additional qualified workers as Owner may consider necessary, at no cost to Owner.

If Contractor does not comply with the notice within five (5) days of date of service thereof. Owner shall have the right (but not a duty) to provide qualified workers to finish the Work or any affected portion of Work, as Owner may elect. Owner may at its discretion, exclude Contractor from the Site, or portions of the Site or separate Work elements during the time period that Owner exercises this right. Owner will deduct from moneys due or which may thereafter become due under the Contract Documents, the sums necessary to meet expenses thereby incurred and paid to persons doing Work. Owner will deduct from funds or appropriations set aside for purposes of Contract Documents, the amount of such payments and charge them to Contractor as if paid to Contractor. Contractor shall remain liable for resulting delay, including liquidated damages and indemnification of Owner from claims of others.

Exercise by Owner of the rights conferred upon Owner in this Section 00700, **GENERAL CONDITIONS** is entirely discretionary on the part of Owner. Owner shall have no duty or obligation to exercise the rights referred to in Section 00700-5.4, **Supply of Sufficient Workers** and its failure to exercise such rights shall not be deemed an approval of existing Work progress or a waiver or limitation of Owner's right to exercise such rights in other concurrent or future similar circumstances. The rights conferred upon Owner under Section 00700-5.4, **Supply of Sufficient Workers** are cumulative to Owner's other rights under any provision of the Contract Documents.

#### **5.5      Materials and Workmanship**

Unless otherwise indicated in these Specifications, or favorably reviewed by the Engineer, materials and equipment for the construction work shall be the best grade in quality of a manufacturer regularly engaged in the production of such materials and equipment or materials and equipment of comparable character. All materials must be of the specified quality and equal to approved samples, if samples have been submitted. All work shall be done and completed in the best workmanlike manner, obtainable in the local market. All permanent materials and equipment shall be new unless otherwise specified.

All defective work or materials shall be promptly removed from the premises by the Contractor, whether in place or not, and shall be replaced or renewed in such manner as the Construction



Manager may direct. All materials and workmanship of whatever description shall be subjected to the inspection of, and rejection by, the Construction Manager if not in conformance with the Contract Documents.

Unless otherwise stipulated in the Contract Documents, any defective material or workmanship, or any unsatisfactory or imperfect work which may be discovered before the final acceptance of the work or within one (1) year thereafter, shall be corrected immediately upon the receipt of notice from the Owner, without extra charge, notwithstanding that it may have been overlooked in previous inspections and estimates. Failure to inspect work shall not relieve the Contractor from any obligation to perform sound and reliable work as herein described.

## **5.6 Use of Materials Found on the Project Site**

The Owner does not warrant the suitability of any native material on the Project Site for use in the Project. The Contractor, with the approval of the Engineer, may use in the proposed construction such stone, gravel, sand or other material as may be found on the Project Site and deemed suitable in the opinion of the Engineer. The Contractor shall replace at his own expense all of that portion of the material so removed and used with other suitable material. No charge for native materials so used will be made against the Contractor. The Contractor shall not excavate or remove any material from any roadway location that is not within the excavation, as indicated by the slope and grade lines shown on the Contract Drawings, without written authorization from the Engineer.

## **5.7 Existing Utilities**

5.7.1 General - The location of known existing utilities and pipelines are shown on the Drawings in their approximate locations. However, nothing herein shall be deemed to require the Owner to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the site of the Project can be inferred from the presence of other visible facilities, such as buildings, cleanouts, meter and junction boxes, on or adjacent to the site of the Project.

The Owner will assume the responsibility for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the Project site if such utilities are not identified by the Owner in the Contract Documents or which cannot reasonably be inferred from the presence of other visible facilities.

5.7.2 Utility Location - It shall be the Contractor's responsibility to determine the exact location and depth of all utilities, including service connections, which have been marked by the respective utility owners and which the Contractor believes may affect or be affected by the Contractor's operations. The Contractor shall not be entitled to additional compensation or time extensions for work necessary to avoid interferences nor for repair to damaged utilities if the Contractor does not expose all such existing utilities as required by this Section.

Pursuant to Government Code Section 4216 the Contractor shall contact the appropriate regional notification center at least two (2) working days before performing any excavation. The Contractor shall request that the utility owners conduct a utility survey and mark or otherwise indicate the location of their service.

After the utility survey is completed, the Contractor shall commence "potholing" or hand digging to determine the actual location of the pipe, duct, or conduit. The Construction Manager shall be given notice prior to commencing potholing operations. The Contractor shall uncover all piping

and conduits, to a point one (1) foot below the pipe, where crossings, interferences, or connections are shown on the Drawings, prior to trenching or excavating for any pipe or structures, to determine actual elevations. New pipelines shall be laid to such grade as to clear all existing facilities which are to remain in service for any period subsequent to the construction of the run of pipe involved.

**5.7.3 Utility Relocation and Repair** - If interferences occur at locations other than those indicated in the Contract Documents with reasonable accuracy, the Contractor shall notify the Construction Manager in writing. The Construction Manager will supply a method for correcting said interferences in accordance with the responsibilities of this Section and Government Code Section 4215.

The Owner shall compensate the Contractor for the costs of locating and repairing damage not due to the failure of the Contractor to exercise reasonable care, and for removing or relocating such main or trunkline utility facilities not indicated in the Contract Documents with reasonable accuracy, and for the cost of equipment on the Project necessarily idled during such work. The payment for such costs will be made as provided in Section 00700-7.1, **Change Orders**. The Contractor shall not be assessed liquidated damages for delay in completion of the Project, when such delay is caused by the failure of the Owner or utility company to provide for removal or relocation of such utility facilities. Requests for extensions of time arising out of utility relocation or repair delays shall be filed in accordance with **Section 01324-11.0, TIME IMPACT ANALYSIS**.

The public utility, where they are the owner of the affected utility, shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price. The right is reserved to the Owner and the owners of utilities or their authorized agents to enter upon the Work area for the purpose of making such changes as are necessary for the rearrangement of their facilities or for making necessary connections or repairs to their properties. The Contractor shall cooperate with forces engaged in such work and shall conduct its operations in such a manner as to avoid any unnecessary delay or hindrance to the work being performed by such forces and shall allow the respective utilities time to relocate their facility.

When the Contract indicates that a utility is to be relocated, altered or constructed by others, the Owner will conduct all negotiations with the utility company and the work will be done at no cost to the Contractor, unless otherwise stipulated in the Contract.

Temporary or permanent relocation or alteration of utilities desired by the Contractor for its own convenience shall be the Contractor's responsibility and it shall make arrangements and bear all costs for such work.

## **5.8 Surface Restoration**

Surface restoration shall be defined as that work necessary to restore the excavated area above backfill and the scarred surrounding work areas to a condition equivalent to or better than existed prior to the construction. This may include pavement replacement, seeding, shrub and plant replacement, and restoration of ditches and drainage areas.

The replacement of grass and/or wild flowers shall be accomplished by seeding. The kind and type of seed is to be determined by the Engineer. Replacement of plants and shrubs shall be required where the easement travels through a developed parcel. In this case the Agency or

Developer and Contractor shall agree before proceeding as to which plants and shrubs shall be saved or replaced.

The restoration of trench surfaces shall include measures to prevent surface erosion of the trench. This shall include seeding, cutoff walls, surface header boards, water bars, interceptor dikes, gravel filter dikes, or rip rap energy dissipaters. These measures shall be used as required to prevent surface erosion.

## **5.9 Disposal of Materials**

Unless otherwise specified in the Contract Documents, the Contractor shall make arrangements for disposing of materials. Excess excavated material not required for backfill shall be disposed of legally by the Contractor.

When any materials, including excess of unsuitable excavated earth or other roadway materials are to be disposed of outside the right-of-way, the Contractor shall first obtain a written permit from the property owner on whose property the disposal is to be made and shall file said permit or certified copy together with a written release from the property owner absolving the Agency from any and all responsibility in connection with the disposal of material on said property. Before any material is disposed of on said property, the Contractor shall obtain permission from the Engineer to dispose of the material at the location designated in said permit.

Unless otherwise provided in the Supplementary General Conditions, full compensation for all cost involved in disposing of materials as above specified, including all costs of overhaul, shall be considered as included in the prices paid for the various Contract items of work and no additional allowance will be made.

## **6.0 PROGRESS OF THE WORK**

### **6.1 Commencement of Work**

Within thirty (30) calendar days after receipt of the required bonds and evidences of insurance and the executed Agreement from the Contractor, written Notice to Proceed will be given by the Owner to Contractor. Notwithstanding other provisions of the Contract, the Contractor shall not be obligated to perform work, and the Owner shall not be obligated to accept or pay for work performed by the Contractor, prior to Notice to Proceed. The Contractor shall provide the required Contract bonds and evidences of insurance prior to Notice to Proceed and commencing work at the site.

The Contractor shall commence execution of the Work covered by this Contract within ten (10) calendar days after the date established in the Notice to Proceed for the commencement of Contract Time.

The Contractor shall give the Construction Manager written notice not less than two (2) working days in advance of the actual date on which the work will be started. The Contractor shall be entirely responsible for any delay in the work which may be caused by its failure to give such notice.

### **6.2 Contract Time**

All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract. The counting of Working or Calendar Days shall begin three (3) Calendar Days from the Notice to Proceed date. The Contractor shall prosecute the work so that the various portions of the project shall be complete and ready for use within the times specified in Section 00800-1.1, **Times Allowed for Completion**. It is expressly understood and agreed by and between the Contractor and the Owner that the Contract Time for completion of the work described herein is a reasonable time taking into consideration the average climatic and economic conditions and other factors prevailing in the locality and the nature of the work.

### **6.3 Delays**

6.3.1 **Notice of Delays** - When the Contractor foresees a delay in the prosecution of the Work and, in any event, immediately upon the occurrence of a delay, the Contractor shall notify the Construction Manager in writing of the probability of the occurrence and the estimated extent of the delay, and its cause. The Contractor shall take immediate steps to prevent, if possible the occurrence or continuance of the delay. The Contractor agrees that no claim shall be made for delays which are not called to the attention of the Construction Manager at the time of their occurrence.

6.3.2 **Non-Excusable Delays** - Non-excusable delays in the prosecution of the Work shall include delays which could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its subcontractors, at any tier level, or suppliers to protect the Work. The Contractor shall receive no compensation or time extension for such delay.

6.3.3 **Excusable Delays** - Excusable delays in the prosecution or completion of the Work shall include delays which result from causes beyond the control of the Contractor and Owner and which could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its subcontractors, at any tier level, or suppliers to protect the Work. The Contractor shall receive no compensation for such delay unless such delay also qualifies for compensable dollars.

- A. **Abnormal Delays** - Delays caused by fire, unusual storms, floods, tidal waves, earthquakes, strikes, labor disputes, freight embargoes, and shortages of materials shall not be considered as excusable delays except insofar as they prevent the Contractor from proceeding with at least seventy-five (75) percent of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest favorably reviewed progress schedule.
- B. **Weather Delays** - Inclement weather conditions or the conditions resulting from weather shall not be considered as excusable delays unless they prevent the Contractor from proceeding with seventy-five (75) percent of the normal labor and equipment force engaged in the current critical activity item for a period of at least five (5) hours per day toward completion of such operation or operations, and the crew is dismissed as a result thereof, and unless such delays exceed the monthly Weather Days Allowance as defined in Section 00800, **SUPPLEMENTARY GENERAL CONDITIONS**, and Section 01324, **PROGRESS SCHEDULES**.
- C. **Material Shortages** – Upon the submission of satisfactory proof to the Owner by the Contractor, shortages of material may be acceptable as grounds for granting a time extension. In order that such proof may be satisfactory and acceptable to the Construction

Manager, it must be demonstrated by the Contractor that the Contractor has made every effort to obtain such materials from all known sources within reasonable reach of the proposed Work. Only the physical shortage of material, caused by unusual circumstances, will be considered under these provisions as a cause for extension of time, and no consideration will be given to any claim that material could not be obtained at a reasonable, practical, or economical cost or price, unless it is shown to the satisfaction of the Owner that such material could have been obtained only at exorbitant prices entirely out of line with current rates, taking into account the quantities involved and usual practices in obtaining such quantities. A time extension for shortage of material will not be considered for material ordered or delivered late or whose availability is affected by virtue of the mishandling of procurement. The above provisions apply equally to equipment to be installed in the work.

6.3.4 Compensable Delays - Compensable delays in the prosecution or completion of the Work shall include delays that occur through no fault of the Contractor or its subcontractors and prevent the Contractor from proceeding with at least seventy-five (75) percent of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest favorably reviewed progress schedule due to the following cause(s):

- A. Delays due solely to the actions and/or inactions of the Owner.
- B. Delays due to differing site conditions as defined in Section 00700-7.2, Differing Site Conditions.
- C. Delays due to other Contractors employed by the Owner who interfere with the Contractor's prosecution of the Work as defined above.

6.3.5 Concurrent Delays - Concurrent delays are those delay periods when the prosecution of the Work is delayed during the same period of time due to causes from a combination of the delays defined in Sections 00700-6.3.2, Non-Excusable Delays, 00700-6.3.3, Excusable Delays, or 00700-6.3.4, Compensable Delays. During such concurrent delay periods, time extensions will be granted in accordance with Section 00700-6.4, Time Extensions; however, the Contractor will be granted a non-compensable time extension, and the Owner shall not assess its actual costs as defined in Section 00700-6.4.1, Non-Excusable Delays.

## 6.4 Time Extensions

6.4.1 Non-Excusable Delays - The Owner, at its sole option, may grant an extension to milestone or completion dates for non-excusable delays. If the Owner grants an extension of time for non-excusable delays, the Contractor agrees to pay the Owner's actual costs, including charges for engineering, inspection and administration incurred during the extension.

6.4.2 Excusable or Compensable Delays - If the Contractor is delayed in the performance of its work as defined in Sections 00700-6.3.3, Excusable Delays, or 00700-6.3.4, Compensable Delays, then milestone and Contract completion dates may be extended by the Owner for such time that, in the Owner's and Construction Manager's determination, the Contractor's completion dates will be delayed, provided that the Contractor strictly fulfills the following:

- A. The Contractor shall provide notification, in accordance with Section 00700-6.3.1, Notice of Delays, and submit in writing a request for an extension of time to the Construction Manager stating at a minimum the probable cause of the delay and the number of days

being requested. The time extension request shall be submitted in accordance with the requirements of **Section 01325- 5.0, TIME IMPACT ANALYSIS**.

- B. If requested by the Construction Manager, the Contractor shall promptly provide sufficient information to the Construction Manager to assess the cause or effect of the alleged delay, or to determine if other concurrent delays affected the work.
- C. Weather Delays. The Contractor will be granted a non-compensable time extension for weather caused delays, pursuant to Section 00700-6.3.3.B, Weather Delays, over and above the Weather Day Allowances provided for in Section 00800-1.3, **Weather Days**. No time extensions for weather delays will be granted until the total number of weather days exceeds this allowance.

Should the Contractor fail to fulfill any of the foregoing, which are conditions precedent to the right to receive a time extension, the Contractor waives the right to receive a time extension.

During such extension of time, neither extra compensation for engineering, inspection and administration nor damages for delay will be charged to the Contractor. It is understood and agreed by the Contractor and Owner that time extensions due to excusable or compensable delays will be granted only if such delays involve controlling operations which would prevent completion of the whole Work within the specified Contract time.

Should the Contractor fail to complete the Work within the time specified in the Contract, as extended in accordance with this clause if appropriate, the Contractor shall pay to the Owner liquidated damages in accordance with Section 00700-6.5, **Liquidated Damages**.

#### 6.4.3 **Extended Overhead**

The Contractor shall be reimbursed for extended overhead expenses for periods of time when the Work is delayed as defined in Section 00700-6.3.4, **Compensable Delays**. However, no reimbursement for extended overhead shall be made for compensable delays which occur during a concurrent delay as defined in Section 00700-6.3.5, **Concurrent Delays**. No reimbursement for extended overhead shall be made for delays caused by the performance of work compensated as extra work under Section 01350-2.4; **Force Account**. Delays caused by the performance of force account work shall be understood as days when performance of force account work is on the Project Critical Path. As to such delays, it is understood and agreed that the Force Account Markups set forth in Section 01350 shall constitute full and complete compensation for all extended overhead costs (site and home office overhead) incurred as a result of said Force Account work.

Payment to the Contractor for extended overhead expenses will be made only if the extended Contract period granted for the compensable delay(s) is required to complete the work following the expiration of the original Contract period and any time extensions granted other than compensable time extensions.

6.4.3.1 **Extended Field Overhead** – For those allowable delay periods as defined in Section 00700-6.4.3, **Extended Overhead**, the Contractor shall be reimbursed for its extended field overhead based on:

- A. Actual invoice costs for on-site field offices and temporary utilities as described in Section 01500, **TEMPORARY FACILITIES AND CONTROLS**.

- B. Actual labor costs, as determined consistent with Section 01350-3.0, **COST DETERMINATION**, for field office staff.
- C. Fair rental values acceptable to the Construction Manager as described in Section 01350-3.0, **COST DETERMINATION**, for construction equipment idled due to the delay.

## **6.5 Liquidated Damages**

6.5.1 Owner and the Contractor recognize that time is of the essence of this Agreement and that the Owner will suffer financial loss if the Work is not completed within the times specified in Section 00800-1.1, **Time Allowed for Completion** plus any extensions thereof allowed in accordance with Section 00700-6.4, **Time Extensions**. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage which the Owner will sustain in the event of and by reason of the Contractor's failure to fully perform the Work or to fully perform all of its contract obligations that have accrued by the times for completion as specified in Section 00800-1.1, **Time Allowed for Completion** herein.

6.5.2 It is, therefore, agreed in accordance with California Government Code Section 53069.85 that the Contractor will forfeit and pay to the Owner liquidated damages in the amount set forth in Section 00800-1.2, **Damages for Delays**, per day for each and every calendar day that expires after the times for completion specified in 00800-1.1 herein and/or as specified for completion of any scheduled operations or works described in Section 00800-1.2 except as otherwise provided by extension of time pursuant to Section 00700-6.4, **Time Extensions**. It is further understood and agreed in accordance with California Government Code Section 53069.85 that the liquidated damages sum specified in this provision is not manifestly unreasonable under the circumstances existing at the time this Contract was made, and that the Owner may deduct liquidated damages sums in accordance with this provision from any payments due or that may become due the Contractor.

6.5.3 Liquidated damages will continue to accrue at the stated rate until the completion of any milestones, scheduled operations, substantial completion of total project and final completion of total project, all as set forth in Section 00800-1.1, **Time Allowed for Completion**. Accrued liquidated damages may be deducted by the Owner from amounts due or that become due to the Contractor for performance of the Work. Liquidated damages may not be waived or reduced by the Owner unless expressly waived or reduced in writing by the Construction Manager.

## **6.6 Owner Suspension of Work**

6.6.1 If the Contractor fails to correct defective work as required by Section 00700-5.5, **Materials and Workmanship**, or fails to carry out the Work in accordance with the Contract Documents or any other applicable rules and regulations, the Owner, by a written order of the Owner's representative or signed personally by an agent specifically so empowered by the Owner, in writing, may order the Contractor to stop the work, in its entirety or any portion thereof. In the event of a suspension of only a portion of the work, the Contractor is obligated to perform the portion of the work not suspended. The Suspension of Work shall remain in effect until the condition or cause for such order has been eliminated. The Owner's concurrence that the condition or cause has been eliminated will be provided to the Contractor in writing. This right of the Owner to stop and suspend the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity. All delays in the Work occasioned by such stoppage shall not relieve the Contractor of any duty to perform the

Work or serve to extend the time for its completion. Any and all necessary corrective work done in order to comply with the Contract Documents shall be performed at no cost to the Owner.

6.6.2 In the event that a suspension of Work is ordered, as provided in this paragraph, the Contractor, at its expense, shall perform all work necessary to provide a safe, smooth, and unobstructed passageway through construction for use by public, pedestrian, and vehicular traffic, during the period of such use by suspension. Should the Contractor fail to perform the Work as specified, the Owner may perform such work and the cost thereof may be deducted from partial payments and/or final payment due the Contractor under the Contract.

6.6.3 The Owner shall also have authority to suspend the Work wholly or in part, for such period as the Owner may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the Work. Such temporary suspension of the Work will be considered justification for time extensions to the Contract in an amount equal to the period of such suspension if such suspended work includes the current critical activity on the latest favorably reviewed progress schedule. The Contractor as directed by the Owner shall comply with the provisions in Section 00700-6.6, **Owner Suspension of Work**, above. Such additional work shall be compensated as provided for in Section 00700-7.0, **CHANGES IN THE WORK**.

## **6.7 Owner's Right to Terminate Contract**

6.7.1 **Termination for Default-** If the Contractor refuses or fails to prosecute the Work or any separable part thereof with such diligence as will ensure its completion within the time specified herein, or any authorized extension thereof, or fails to perform the Work in a manner required by the Contract Documents and/or industry standards, or fails to complete such Work within such time as required under the Contract Documents or, if the Contractor should be adjudged as bankrupt, or is otherwise deemed insolvent by the Owner based on good cause and is unable to proceed with the Work, or if the Contractor should make a general assignment for the benefit of creditors, or if a receiver should be appointed on account of insolvency, or if the Contractor files a petition to take advantage of any debtor's act, or should any Subcontractor violate any of the provisions of the Contract, or if the Contractor should persistently or repeatedly refuse or fail, except in cases for which an authorized extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified, or if the Contractor should fail to make prompt payment to Subcontractors for material or labor, or if the Contractor should persistently disregard laws, or instructions given by Owner, or if the Contractor otherwise substantially fails to fulfill its obligations under the Contract Documents, the Owner may, without prejudice to any other right or remedy, serve written notice upon the Contractor and Sureties of the Owner's intention to terminate the Contractor's performance under the Contract. Said notice shall contain the reasons for such intention to terminate the Contractor's performance under the Contract, and unless, within ten (10) days after the service of such notice, such violations cease and/or satisfactory arrangements for the corrections thereof have been made, the Owner may terminate Contractor's performance under the Contract and the Contractor shall not be entitled to receive any further payment until the Work is finished.

In the event of any such termination, The Owner shall serve written notice thereof upon the Surety and Contractor, and the Surety shall have the right to take over and perform the Contract. However, if the Surety, within five (5) days after the service of a notice of termination, does not give the Owner written notice of its intention to take over and perform



the Contract, and if it serves such notice of its intent to take over and perform the Contract and does not begin performance thereof within fifteen (15) days from the date of serving said notice, The Owner may take over the Work and prosecute the same to completion by contract or by any other method it may deem advisable for the account and at the expense of the Contractor, and the Sureties and/or Contractor shall be liable to the Owner for any excess cost or other damage incurred by the Owner thereby. In such an event, the Owner may without liability for so doing, take possession of and utilize such materials, tools, equipment, supplies and other property belonging to the Contractor and/or assume assignment of any and all subcontracts for Subcontractors and/or Suppliers that may be on the worksite and be necessary to complete the Work. For any portion of such Work that Owner elects to complete by furnishing its own employees, materials, tools, and equipment, The Owner shall be compensated in accordance with the schedule of compensation for force account work as stated in Section 01350- **CONTRACT MODIFICATION**

#### **PROCEDURES.**

If the Surety assumes the Contractor's terminated Work, it shall take the Contractor's place in all respects for that part and shall be paid by Owner for all Work performed by it in accordance with the terms of the Contract Documents. If the Surety assumes the entire Contract, all money due the Contractor at the time of its default shall be payable to the Surety as the Work progresses, subject to the terms of the Contract.

Contractor hereby consents to assigning to the Owner and/or Owner's replacement contractor all subcontracts and other agreements of any and all subcontractors and/or Suppliers that may be on the worksite and/or may be necessary to complete the Work in the event of Termination for Default or Termination for Convenience, as set forth below. Contractor agrees to obtain, by way of a subcontract provision, the consent of each and every Subcontractor and/or Supplier for such assignment prior to the commencement of each such Subcontractor's and/or Supplier's work on the Project.

In the event of such termination, the Contractor will be paid the actual amount due based on unit prices or lump sums Bid and the quantity of Work completed at the time of termination, less damages caused to the Owner by acts of the Contractor causing the termination, including but not limited to, all costs to the Owner arising from professional services and attorneys' fees and all costs generated to insure or bond the work of substituted Contractors or subcontractors utilized to complete the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner promptly upon demand. On failure of the Contractor to pay, the Surety shall pay on demand by Owner. Any portion of such difference not paid by the Contractor or Surety within thirty (30) days following the mailing of a demand for such costs shall earn interest at the maximum rate authorized by California law.

The Contractor and the Owner agree that nothing in this section is intended to create a right of either party to recover attorney fees as prevailing party in any lawsuit on this Contract.

The foregoing provisions are in addition to and not in limitation of any other rights or remedies under law or in equity available to Owner.

If it is later determined by the Owner that the Contractor had an excusable reason for not performing, such as a fire, flood, or other event which was not the fault of or was beyond the control of the Contractor, the Owner, after setting up a new performance schedule, may allow the Contractor to continue Work, or treat the termination as a termination for

convenience, and the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Owner.

#### 6.7.2 Termination for Convenience-

The Owner may terminate the Contractor's performance under the Contract, either in whole or in part, at its own discretion or when conditions encountered during the Work make it impossible or impracticable to proceed, or when the Owner is prevented from proceeding with the Contract by act of God, by law, or by official action of a public authority, or upon a determination that such termination is in the best interest and convenience of the Owner, or whenever the Owner is prohibited from completing the Work for any reason. The Owner shall provide no less than ten (10) days written notice of its intent to terminate the Contract for convenience, and shall provide the Contractor with consultation with the Owner prior to termination.

A. Upon receipt of such written notice of termination, the Contractor shall:

1. Stop Work as specified in the written notice;
2. Terminate all orders and Subcontractors except as necessary to complete Work which is not terminated;
3. If directed in writing by the Owner to do so, assign all right, title and interest in subcontracts and materials in progress, in which case the Owner will have the right at its discretion to settle, or pay any or all Claims arising out of the termination of such Subcontractors, but in no event shall recovery by any Contractor include lost profits for uncompleted portions of Work;
4. Deliver or otherwise make available to the Owner all data, drawings, specifications, reports, estimates, summaries and such other information and material as may have been accumulated by the Contractor in performing this Contract whether completed or in process;
5. Settle outstanding liabilities and Claims with the approval of Owner;
6. Complete performance of such part of the Work as has not been terminated; and
7. Take such other actions as may be necessary, or as may be directed by the Owner for the protection and preservation of the Project and/or property related to the Contract.

B. Upon receipt of Owner's written notice of termination for convenience, and within a period of

30 to 60 days, as determined by the Owner at the time of termination, the Contractor shall submit to the Construction Manager a Termination Proposal which shall include, but is not limited to, the Contractor's estimated costs to be incurred by the Contractor as a result of the termination for convenience, and as allowed by the Contract Documents, including all documentation to support such costs; the status of the Work at time of termination; the status of termination of the Contractor's Subcontractor(s) and Supplier(s) agreement(s) including the amount of each said agreement, amount paid under each agreement up to the date of termination, and the amount that currently remains due and owing under each agreement for Work completed as of the date of termination, if any; a list, certified as to quantity and quality, of termination inventory not

previously disposed of, excluding items authorized for disposition by the Construction Manager; and any other information and/or documentation as required by Owner.

Upon receipt of Owner's written notice of termination for convenience, the Contractor shall submit to the Construction Manager a request for final payment pursuant to the contract document requirements. Such request shall be submitted promptly, but no later than sixty (60) days from the effective date of termination.

C. The final payment to the Contractor after termination for convenience shall be limited to amounts due and owing under the Contract at time of termination, including the following:

1. Any actual costs incurred by the Contractor for restocking charges;
2. The agreed upon price of protecting the Work in any manner, if any, as directed by the Owner;
3. The cost of settling and paying Claims arising out of the termination of the Work under subcontract agreements or orders with the Owner's approval, as specified above, exclusive of the of the amounts paid or payable on account of goods delivered or Work furnished by Subcontractor prior to the effective date of the termination; and
4. The Contract price allocable to the portion of the Work properly performed or goods supplied by the Contractor as of the date of termination, as determined in accordance with the Contract Documents, reduced by any sums previously paid to the Contractor.

D. The Owner shall have the right to withhold any portion or the whole of the Final Payment under this provision in the event there are any outstanding Claims for compensation asserted by the Owner against the Contractor, or by any third party against the Owner which arises out of the Contractor's Work.

## **6.8 Contractor's Right to Stop Work or Terminate**

6.8.1 Upon seven (7) days written notice to the Owner, the Contractor may terminate this Agreement for any of the following reasons:

A. If the Work has been stopped for a one hundred twenty (120) consecutive day period due to:

- 1) A court order or order of other governmental authorities having jurisdiction; or
- 2) As a result of the declaration of a national emergency or other governmental act during which, through no act or fault of the Contractor, materials are not available; or

B. If the Work is suspended by the Owner, without cause attributable to the wrongful acts of Contractor, for ninety (90) days.

6.8.2 The Contractor's exclusive remedy in the event of termination under Section 6.8 shall be to recover from Owner payment on the same terms as provided in Section 6.7.2 above resulting from a properly noticed termination for the specific reasons allowed for in this Section 6.8, **Contractor's Right to Stop Work or Terminate.**

6.8.3 The provisions of this Section 6.8 are not intended to preclude the Contractor from making a Claim as provided for in the Contract Documents for an adjustment in Contract Price or Contract Time or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Section 6.8.

## **7.0 CHANGES IN THE WORK**

### **7.1 Change Orders**

7.1.1 The Owner may authorize additions, deletions, or revisions in the Work. The Construction Manager shall coordinate the preparation, review, negotiation, and administration of Change Orders and Construction Change Directives on behalf of the Owner. A Change Order will not be issued for a Field Directive unless the Construction Manager concurs with an appeal by the Contractor that such Field Directive is a change in the scope of the Contract. The Contractor shall comply promptly with the requirements for all Change Orders, Field Orders, or Field Directives. The work involved in Change Orders shall be executed under the applicable conditions and requirements of the Contract Documents. If any Field Order causes an increase or decrease in the Contract Amount or an extension or shortening of the Contract Time, an equitable adjustment will be made by issuing a Change Order. By the acceptance of a Change Order, the Contractor waives any claim for additional time, not included in the Change Order, for the work covered by that Change Order. Additional or extra work performed by the Contractor without written authorization of a Field Order or Change Order will not entitle the Contractor to an increase in the Contract Amount or an extension of the Contract Time.

7.1.2 Compensable extra work shall be that work required for the completed project, but not shown, detailed or specified in the Contract Documents and not constituting "incidental work " as defined in sub-section 00700-1.4. Such work shall be governed by all applicable provisions of the Contract Documents. In giving instructions, the Construction Manager shall have authority to make minor changes in the Work, not involving extra cost, and not inconsistent with the purposes of the Work; but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Owner through the Construction Manager, and no claim for an addition to the Contract Amount and/or Contract Time shall be valid unless so ordered.

7.1.3 In case any change increases or decreases the work shown, the Contractor shall be paid for the work actually done at a mutually agreed upon adjustment to the Contract Price, based upon the provisions of Section 01350 – **CONTRACT MODIFICATION PROCEDURES**.

7.1.4 If the Contractor refuses to accept a Change Order, the Owner may issue it unilaterally. The Contractor shall comply with the requirements of the Change Order. The Owner shall provide for an equitable adjustment to the Contract Price and/or Contract Time, and compensate the Contractor accordingly. If the Contractor does not agree that the adjustment is equitable, it may submit a claim in accordance with Section 00700-7.3, **Resolution of Disputes**.

### **7.2 Differing Site Conditions**

Pursuant to Public Contract Code Section 7104, the Contractor shall promptly, and before such conditions are disturbed, notify the Construction Manager in writing, of any:

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

B. Subsurface or latent physical conditions at the site differing from those indicated in the Contract Documents.

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

The Owner shall promptly investigate the conditions, and if it finds that the conditions do materially differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work the Owner shall cause to be issued a change order under the procedures provided in Section 00700-7.1, **Change Orders**.

In the event that a dispute arises between the Owner and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the contracting parties, Section 00700-7.3, **Resolution of Disputes**.

No claim of the Contractor under this clause shall be allowed unless the Contractor has given the notice required.

### **7.3 Resolution of Disputes**

It is the intent of this Contract that disputes arising under or relating to the Contract be identified, investigated, and resolved promptly and fairly between the Owner and Contractor. The Construction Manager's role in the claims process is administrative only and shall be consistent with Section 1.6 and Section 2.3. The Construction Manager shall receive, coordinate, document, and transmit claims and supporting information but shall not independently determine entitlement to additional compensation, Contract Time, or interpret the technical requirements of the Contract Documents except to transmit written interpretations issued by the Design Professional or written determinations issued by the Owner.

**7.3.1 Notice** - Either party shall provide verbal or written notice of disputed or potentially disputed work to the other parties before commencement of the affected Work and sufficiently in advance to permit joint review of the circumstances.

If the Contractor believes that the Work involves a change in the Contract, additional compensation, an extension of Contract Time, or any other adjustment to the Contract Documents, the Contractor shall submit written notice to the Construction Manager entitled **"Notice of Potential Claim."**

The Notice shall be submitted prior to commencement of the affected Work whenever practicable and, in any event, within the time required elsewhere in the Contract Documents. The Notice shall describe the facts giving rise to the claim, identify the affected Contract provisions, state the relief

requested, and include all reasonably available supporting information. The Notice need not state the amount of the claim if that amount cannot reasonably be determined at the time.

The Construction Manager shall promptly acknowledge receipt of the Notice and coordinate review with the Owner and, where appropriate, the Design Professional.

Compliance with the notice requirements of Sections 6.3 (Delays), 6.4 (Time Extensions), and all other applicable Contract provisions remains a condition precedent to recovery of additional compensation or Contract Time. No claim submitted after Final Payment shall be considered.

Failure to provide timely notice as required herein shall constitute a waiver of the claim to the fullest extent permitted by law.

Receipt of a Notice of Potential Claim by the Construction Manager, review of the matter, participation in meetings, maintenance of records, or monitoring of disputed work shall not constitute approval of the claim or an admission of liability by the Owner.

7.3.2 Administrative Review by Construction Manager - Upon receipt of a Notice of Potential Claim, the Construction Manager shall coordinate administrative review of the claim, assemble,

available Project documentation, and, where appropriate, request additional supporting information from the Contractor.

The Construction Manager may consult with the Owner, Design Professional, inspectors, testing agencies, commissioning personnel, consultants, and other Project participants as appropriate.

Within ten (10) days after receipt of the Notice, the Construction Manager shall either:

- A. transmit the Owner's preliminary written response;
- B. transmit a written technical interpretation issued by the Design Professional;
- or
- C. notify the Contractor that additional investigation is required and provide an estimated date for completion of the administrative review.

Nothing contained herein authorizes the Construction Manager to independently determine entitlement to additional compensation, Contract Time, acceptance of Work, or interpretation of technical design requirements.

**7.3.3 Owner Determination** - Following completion of the administrative review, the Owner shall issue its written determination regarding the claim.

In reaching its determination, the Owner may consider recommendations from the Construction Manager, written technical interpretations from the Design Professional, inspection reports, testing results, schedule analyses, cost information, and any other relevant Project information.

The Construction Manager shall transmit the Owner's written determination to the Contractor. If the Contractor disagrees with the Owner's determination, the Contractor shall provide written notice to the Construction Manager within ten (10) days after receipt of the determination stating its intention to pursue the claim pursuant to Section 7.3.7.

Failure to provide such notice shall constitute a waiver of the Contractor's right to further pursue that claim to the fullest extent permitted by law.

**7.3.4 Records of Disputed Work** - While disputed work proceeds, the Contractor shall maintain complete and accurate records of all labor, equipment, materials, subcontract costs, delays, schedule impacts, and other costs associated with the disputed work.

Copies of such records shall be submitted to the Construction Manager daily or at such other intervals required by the Contract Documents.

Receipt, review, audit, or maintenance of such records by the Construction Manager shall not constitute approval of the claim or acceptance of the disputed work.

**7.3.5 Submission of Claim Costs** - Within thirty (30) days after the last cost giving rise to the claim is incurred, or, if costs continue beyond thirty (30) days, within fifteen (15) days after the thirtieth

day and monthly thereafter until complete, the Contractor shall submit a detailed statement of claimed costs to the Construction Manager.

Claims shall be itemized and supported by available documentation. If additional documentation is reasonably requested, the Contractor shall promptly provide such information.

The Construction Manager may review submitted documentation and may audit records as provided in Section 01350 solely for purposes of making recommendations to the Owner. Review by the Construction Manager shall not constitute approval or rejection of the claim.

**7.3.6 Claim Meetings** - The Construction Manager may schedule, or the Contractor may request, meetings to facilitate review of outstanding claims.

Such meetings are intended solely to exchange information and promote resolution. Participation in any claim meeting, statements made during such meetings, or recommendations made by the Construction Manager shall not constitute an admission of liability, waiver of Contract rights, modification of the Contract Documents, or approval of any claim.

**7.3.7 Resolution of Claims** - Claims of Three Hundred Seventy-Five Thousand Dollars (\$375,000) or less shall be processed in accordance with California Public Contract Code Sections 20104 through 20104.8, as those statutes may be amended.

Claims exceeding Three Hundred Seventy-Five Thousand Dollars (\$375,000) shall be resolved in accordance with the dispute resolution provisions of this Agreement and applicable California law.

**7.3.7.1 Claims Not Exceeding \$375,000** - Said Code Sections provide in part that: Under the law (starting at Public Contract Code Section 20104.2) construction claims of \$375,000.00 or less on local public agency construction contracts must be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. The Owner must respond in writing to any written claim of three hundred seventy-five thousand dollars (\$375,000) or less within 60 days (or, in the case of claims of less than fifty thousand dollars (\$50,000), within 45 days) of receipt of claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the Owner may have against the claimant. If additional information is thereafter required, it shall be requested and provided, pursuant to Public Contract Code Section 20104.2, upon mutual agreement of the Owner and the claimant. The Owner's written response to the claim, as further documented, shall be submitted to the claimant within 30 days (or, for claims of less than \$50,000, within 15 days) after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater. If the claimant disputes the Owner's written response (or if the Owner fails to respond within the time periods prescribed above) the claimant may notify the Owner, in writing, within 15 days of receipt of the Owner's response or within 15 days of the Owner's failure to respond within the times prescribed, respectively, and demand an informal settlement conference. The Owner must then schedule a settlement conference within 30 days. Following the settlement conference, if the claim or any portion remains in dispute, the claimant may file a claim as required by the claims statute commencing at California Government Code



Section 910. The time within which a Government Code claim must be filed is tolled from the time the claimant submits the Public Contract Code claim until the time when the claim is denied.

**7.3.7.2 Claims Exceeding \$375,000** -Should either party commence litigation arising from this Agreement, venue shall lie exclusively in the Superior Court of the State of California in the County of Placer unless otherwise required by applicable law. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

Nothing contained in this Section shall be interpreted as expanding the authority, responsibility, or liability of the Construction Manager beyond the administrative duties expressly assigned elsewhere in the Contract Documents. The Construction Manager shall not be a decision-maker, arbitrator, mediator, expert witness, guarantor of the Work, or real party in interest with respect to disputes between the Owner and Contractor unless separately retained by written agreement after the dispute arises.

## **8.0 PAYMENT**

### **8.1 Basis of Payment**

**8.1.1 General** - The Contractor shall accept the compensation, as herein provided, as full payment for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed Work and for performing all work contemplated and embraced under the Contract; also for loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the Work, also for all expenses incurred in consequence of the suspension or discontinuance of the Work as herein specified; and for completing the Work according to the Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

No compensation will be made in case of loss of anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as provided in such agreements.

Full compensation for conforming to all of the provisions of the Contract Documents shall be considered as included in the prices paid for the various Contract items of work and no additional compensation will be allowed therefor.

**8.1.2 Payment for Patents and Patent Infringement** - All fees or claims for any patented invention, article, or arrangement that may be used upon, or in, any manner connected with the performance of the Work or any part thereof shall be included in the price bid for doing the work, and the Contractor and its sureties shall defend, protect, and hold the Owner, the Construction Manager, and Engineers, together with all their officials, officers, volunteers, agents, and employees harmless from and any and all suits and claims including claims for attorneys fees, expert's fees and costs brought or made by the holder of any invention or patent, or on account of any patented or unpatented invention, process, article, or appliance manufactured for or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract. Before final payment is made on the Contract, the Contractor shall furnish an affidavit to the Owner regarding patent rights for the Project. The affidavit shall state that all fees and payments due as a result of the work incorporated into the Project or methods utilized during construction have been paid in full. The Contractor shall certify in the affidavit that no other fees or claims exist for work in this Project.

8.1.3 Payment of Taxes - The Contractor shall pay and shall assume exclusive liability for all taxes levied or assessed on or in connection with its performance of this Contract, whether before or after acceptance of the work, including, but not limited to, State and local sales and use taxes, Federal and State payroll taxes or assessments, and excise taxes, including any taxes or assessments levied or increased during the performance period of the work. No separate allowance will be made therefor, and all costs in connection therewith shall be included in the total amount of the Contract price.

## 8.2 Partial Payments

8.2.1 General - In consideration of the faithful performance of the Work prosecuted in accordance with the Contract Documents, the Owner will pay the Contractor for all such work installed on the basis of unit prices and/or percentage completion of lump sum Bid Items. Amounts earned for lump sum work will be based on accepted Cost Breakdown (See Section 01200, **MEASUREMENT AND PAYMENT**).

Payments will be made by the Owner to the Contractor on estimates duly certified by the Contractor and recommended for payment by the Construction Manager, based on the Lump Sum or unit price value of equipment installed and tested, labor and materials incorporated into said permanent work by the Contractor during the preceding month, and acceptable materials and equipment on hand (materials and equipment furnished and delivered to the site by the Contractor and not yet incorporated into the work accompanied by an approved invoice). Payments will not be made for temporary construction unless specifically provided for in the Contract Documents.

Partial payments will be made monthly based on work accomplished as of a day mutually agreed to by the Owner and the Contractor.

The Contractor shall submit a completed and signed progress payment request form with its estimate of the work completed during the prior month and the work completed to date in a format corresponding to the unit price schedule and accepted cost breakdown. Additionally, the Contractor shall submit a detailed statement of the Contractor's request for payment of acceptable materials and equipment on hand in compliance with Section 00700-8.2.2, **Partial Payments - Inclusion of Materials on Hand**. Each payment request shall list each Change Order executed prior to date of submission, including the Change Order Number.

Upon receipt of Contractor's requests for payment, the Owner shall act in accordance with the following:

- A. The Construction Manager shall review the submitted estimates, as soon as practicable after receipt for the purpose of determining that the estimates are a proper request for payment, and shall prepare an estimate of the total amount of work done and acceptable materials and equipment on hand.
- B. Any request for payment determined not to be a proper payment request suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days after receipt. A request for payment returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the request for payment is not proper.

- C. The number of days available to the Owner to make a payment without incurring interest pursuant to this Section shall be reduced by the number of days by which the Owner exceeds the seven (7) day return requirement set forth in subdivision above.

If requested, the Contractor shall provide such additional data as may be reasonably required to support the partial payment request. The Construction Manager will be available to meet and discuss the partial payment request prior to its resubmittal(s). When the Contractor's estimate of amount earned conforms to the Construction Manager's evaluation, the Contractor shall submit to the Construction Manager a properly completed and signed progress payment request. The Construction Manager will submit the recommended progress payment request for the Owner's approval and processing. Payment will be made by the Owner to the Contractor in accordance with Owner's normal accounts payable procedures; the Owner shall retain amounts in accordance with Section 00700-8.3, **Right to Withhold Amounts**.

No such estimate or payment shall be required to be made, when in the judgement of the Construction Manager, the Work is not proceeding in accordance with the provisions of the Contract, or when in the Construction Manager's judgement the total value of the Work done since the last estimate amounts to less than One Thousand Dollars (\$1,000).

Subject to the provisions of this Section, the Owner shall pay the Contractor within thirty (30) days after receipt of undisputed and properly submitted requests for payment from the Contractor. In accordance with Public Contract Code Section 20104.50, if the Owner fails to pay an undisputed request for payment within the allotted thirty (30) days, the Owner shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

Each progress payment request and the final payment request shall be deemed "proper" only if it is submitted on the form approved by the Owner, with all of the requested information completely and accurately provided by the Contractor and such completed progress payment request form or final payment request form is accompanied by: (i) certified payrolls of the Contractor and all Subcontractors, of any tier, for laborers performing any portion of the Work for which a progress payment or final payment is requested; (ii) duly completed and executed Conditional Waiver and Release Upon Progress Payment or Final Payment forms in accordance with California Civil Code §8132 for all Subcontractors of any tier, and Material Suppliers covering the progress payment or final payment requested; (iii) duly completed and executed Unconditional Waiver and Release Upon Progress Payment forms in accordance with California Civil Code §8134 for all Subcontractors of any tier, and Material Suppliers covering the Progress Payment received by the Contractor under the prior progress payment request.

**8.2.2 Partial Payments - Inclusion of Materials on Hand** - Materials, as used herein, shall be considered to be those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to the Owner will be qualified for partial payment. The Contractor may request payment of ninety percent (90%) of the actual net cost of these materials. The request for partial payment will be subject to retention as provided elsewhere in the Contract Documents.

To receive partial payment for materials and equipment not incorporated in the Work, it shall be necessary for the Contractor to submit to the Construction Manager a list of such materials, at least seven (7) days prior to submitting the monthly estimate of amount earned for work completed. At the Construction Manager's sole discretion, it will approve items for which partial payment is to be made subject to the following:

- A. Equipment and materials will only be eligible if given conditional or final acceptance by the Engineer and are in apparent compliance with favorably reviewed shop drawings.
- B. Only equipment or materials which have received favorable review of shop drawings will qualify. No more than seventy-five percent (75%) of the total cost of an equipment item which requires Operation and Maintenance Manuals for equipment will be paid for stored materials until such manuals are submitted in accordance with Section 01730, **OPERATION AND MAINTENANCE DATA**, prior to payment for stored materials.
- C. Eligible equipment or materials must be delivered and properly stored, protected, and maintained in a manner favorably reviewed by the Construction Manager, at the job site.
- D. The Contractor's actual net cost for the materials must be supported by paid invoices of suppliers, or other documentation requested by the Construction Manager.
- E. Materials or equipment delivered to the Site less than thirty (30) days prior to their scheduled incorporation in the Work shall not qualify.
- F. Final payment shall be made only for materials actually incorporated in the Work and, upon acceptance of the Work, all materials remaining for which advance payments had been made shall revert to the Contractor, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the Work.
- G. Partial payments for materials and equipment on hand shall not be deemed to be final payment for the material nor relieve the Contractor of its obligations under the Contract.
- H. Partial payments for materials and equipment on hand shall not be construed or considered as acceptance of any portion of the Work.
- I. Partial payments for materials and equipment on hand shall be subject to retention in accordance with Section 00700-8.3, **Right to Withhold Amounts**.

8.2.3 **Effect of Payment** – Payment will be made by Owner based on the Construction Manager's observations at the site and the data comprising the progress payment request. Payment will not be a representation that the Owner has:

- A. made exhaustive or continuous on-site inspections to check the quality or quantity of Work;
- B. reviewed construction means, methods, techniques, sequences or procedures;
- C. reviewed copies of requisitions received from subcontractors and material suppliers and other data requested by Owner to substantiate Contractor's right to payment;
- D. made examination to ascertain how or for what purpose Contractor has used money previously paid on account of the Contract Sum; or
- E. accepted all or part of the Work.

8.2.4 Cash Flow Projection – A cash flow projection covering the entire construction period shall be included with the monthly contract earnings estimate report. The time increment shall be monthly and shall be revised monthly to show actual earnings and changes to projected cash flows. If there is a difference in the percent complete of the Work as measured by the CPM schedule and the percent complete of the Work as measured by the monthly contract earnings estimate, the Contractor shall explain the reason for the difference.

8.2.5 False Claims Act - All claims for payment from the Contractor to the Owner shall in all respects be a true and correct representation of services rendered and/or materials delivered to the Owner. It is a violation of both the federal and California False Claims Acts to knowingly present or cause to be presented to the Owner a false claim for payment or approval. The term "knowingly" includes either actual knowledge of the information, deliberate ignorance of the truth or falsity of the information, or reckless disregard for the truth or falsity of the information. Proof of specific intent to defraud is not necessary under the False Claims Acts. The penalties under the Federal False Claims Act and State of California False Claims Act are non-exclusive, and are in addition to any other remedies which the Owner may have either under contract or law.

### 8.3 Right to Withhold Amounts

8.3.1 Retention - The Owner will withhold from each of the partial payments and retain as part security, five (5) percent of the amount earned until final completion and acceptance of all of the Work. The amount retained will be kept by the Owner through completion of one hundred (100) percent of the Work. The full amount of retention will be paid to the Contractor in the final payment, except as dictated below.

8.3.2 Other Withholds - In addition to the amount which the Owner may otherwise retain under the Contract, the Owner may withhold a sufficient amount or amounts of any payment or payments otherwise due the Contractor, as in its judgment may be necessary to cover:

- A. For defective work not remedied, irrespective of when any such work be found to be defective.
- B. A reasonable doubt that the Contract can be completed for the balance then unpaid.
- C. A reasonable doubt that the Contractor will complete the Work within the agreed upon time limits.
- D. Damage to another contractor or third party, or to property.
- E. Failure of the Contractor to maintain Record Documents current as required in Section 01770-10, **PROJECT RECORD DOCUMENTS**.
- F. Cost of insurance arranged by the Owner due to cancellation or reduction of the Contractor's insurance.
- G. Failure to submit, revise, resubmit or otherwise conform to the requirements herein for preparing and maintaining a construction schedule as required in Section 01324, **PROGRESS SCHEDULES AND REPORTS**.
- H. Failure to make proper submissions, as specified herein.

- I. Payments due the Owner from the Contractor as provided for in the Contract Documents.
- J. Failure to comply with environmental and other regulatory requirements.
- K. The Contractor's neglect or unsatisfactory prosecution of the Work including additional engineering and administrative costs related to construction and/or shop drawing errors and the failure to clean up.
- L. Provisions of law that enable or require the Owner to withhold such payments in whole or in part.
- M. Stop Notice claims filed by Contractor's subcontractors, of any tier, or its material suppliers.
- N. Failure of Contractor to submit Operation and Maintenance Manuals as required in Section 01782, **OPERATION AND MAINTENANCE MANUALS**.

When the above reasons for withhold amounts are removed, payment will be made to the Contractor for amount withheld because of them.

The Owner, in its discretion, may apply any withheld amount or amounts to the payment of valid claims. In so doing, the Owner shall be deemed the agent of the Contractor, and any payment co made by the Owner shall be considered as a payment made under the Agreement by the Owner to the Contractor and the Owner shall not be liable to the Contractor for such payment made in good faith. Such payments may be made without prior judicial determination of the claim or claims. The Owner will render to the Contractor a proper accounting of such funds disbursed on behalf of the Contractor.

#### **8.4 Security Substitution for Withholds**

For any retention of amount earned by the Contractor under Sections 00700-8.3.1 **Retention**. The Contractor may substitute securities as provided in Section 22300 of the Public Contract Code, as amended, which states in part as follows:

"Provisions shall be included in any invitation for bid and in any contract documents to permit the substitution of securities for any moneys withheld by a public agency to ensure performance under a contract, provided that substitution of securities provisions shall not be required where federal regulations or policies, or both, do not allow the substitution of securities. At the request and expense of the contractor, securities equivalent to the amount withheld shall be deposited with the public agency, or with a state or federally chartered bank as the escrow agent, who shall then pay those monies to the contractor. Upon satisfactory completion of the contract, the securities shall be returned to the contractor."

Alternatively, the Contractor may request and the Owner shall make payment of retentions earned directly to the escrow agent at the expense of the Contractor. At the expense of the Contractor, the contractor may direct the investment of the payments into securities and the contractor shall receive the interest earned on the investments upon the same terms provided for in this Section for securities deposited by the Contractor. Upon satisfactory completion of the Contract, the contractor shall receive from the escrow agent all securities, interest and payments received by the escrow agent from the Owner, pursuant to the terms of this Section. The Contractor shall pay to each subcontractor, not later than 20 days of receipt of the payment, the respective amount of

interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of the Contractor."

"The contractor shall be the beneficial owner of any securities substituted for money withheld and shall receive any interest thereon."

Securities eligible for investment under Section 22300 shall be limited to those listed in Section 16430 of the Government Code and to bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the Owner.

The escrow agreement used hereunder shall be null, void, and unenforceable unless it is substantially similar to the form in Section 00630, **ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION**.

### **8.5     Warranty of Title**

No material, supplies, or equipment for the Work under this Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants good title to all material, supplies, and equipment installed or incorporated in the work and agrees upon completion of all work to deliver the premises, together with all improvements and appurtenances constructed or placed thereon by the Contractor, to the Owner free from any claims, liens, security interests, or charges. The Contractor further agrees that neither the Contractor nor any person, firm, or corporation furnishing any materials or labor for any work covered by this Contract shall have any right to a lien upon the premises or any improvement or appurtenances thereon, provided that this shall not preclude the Contractor from installing metering devices and other equipment of utility companies or of municipalities, the title of which is commonly retained by the utility company or the municipality. In the event of the installation of any such metering device or equipment, the Contractor shall advise the Owner as to the legal owner thereof.

Nothing contained in this paragraph, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and material contracts, and notice of its provisions shall be given to all persons furnishing materials for the work when no formal Contract is entered into for such materials.

### **8.6     Substantial Completion**

When the Contractor considers that the Work or portion of the Work as defined in Section 01110-7.0, **EARLY OCCUPANCY OF PORTIONS OF WORK**, is substantially complete, the Contractor shall notify the Construction Manager in writing. Upon receipt of the notification, the Construction Manager, the Owner, the Engineer and/or their authorized representatives will make inspection, to determine if the Work and administrative requirements are sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. If items are found which prevent such use or occupancy, the Construction Manager shall notify the Contractor in writing of such items by issuing a Corrective Work Item List.

Upon the completion of such corrective work, the Contractor shall so notify the Construction Manager in writing. The Construction Manager, the Owner and/or the Engineer shall inspect the Work to determine its acceptability for Substantial Completion and for determination of other items which do not meet the terms of the Contract. Upon verification that the Work is substantially complete the Construction Manager shall prepare a Certificate of Substantial Completion and the Punch List (see Form 01999-16- **CERTIFICATE OF SUBSTANTIAL COMPLETION**). The Certificate shall establish the date of Substantial Completion and the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, commencement of warranties required by the Contract Documents, and shall fix the time, not to exceed 60 days, within which the Contractor shall finish all items on the Punch List or remaining work or administrative requirements accompanying the Certificate. When the preceding provisions have been approved by both the Owner and the Contractor, they shall sign the Certificate to acknowledge their written acceptance of the responsibilities assigned to them in such Certificate. By such acknowledgment, the Owner has the right to retain withheld monies due the Contractor to pay the Owner's actual costs including, but not limited to, charges for engineering, inspection and administration incurred due to the failure to complete the Punch List within the time period provided in the Certificate of Substantial Completion, which costs the Owner may deduct from amounts due or that may become due the Contractor under the Contract.

## **8.7 Final Inspection and Payment**

Upon completion of the Work, including all items on the Punch List, and upon completion of final cleaning, the Contractor shall so notify the Construction Manager in writing. Upon receipt of the notification, the Construction Manager, the Owner's Representative(s) and the Engineer will make the final inspection, to determine the actual status of the Work in accordance with the terms of the Contract. If materials, equipment, workmanship or administrative requirements are found which do not meet the terms of the Contract, the Construction Manager shall prepare a Final Inspection List of such items and submit it to the Contractor. Following completion of the work to correct all items in the Final Inspection List the Contractor shall notify the Construction Manager. The Construction Manager shall, in turn, notify the Owner that the Work has been completed in accordance with the Contract. Final determination of the acceptability of the Work shall be made by the Owner. After completion of the work, but prior to its acceptance by the Owner, the last partial payment will be made to the Contractor in accordance with Section 00700-8.2, **Partial Payments**.

Pursuant to California Public Contract Code Section 7100, acceptance of the final payment described below shall operate as and shall be, a release to the Owner, the Construction Manager, the Engineer, and their duly authorized agents, from all claim of and/or liability to the Contract arising by virtue of the Contract related to undisputed contract amounts. Disputed Contract claims in stated amounts previously filed as provided in Section 00700-7.3, **Resolution of Disputes**, may be specifically excluded by the Contractor from the operation of the release.

Following receipt of all required submittals and the Construction Manager's written statement that construction is complete and recommendation that the Owner accept the project, the Owner will take formal action on acceptance.

Within ten (10) days of the acceptance by the Owner of the completed work embraced in the Contract, the Owner will cause to be recorded in the office of the County Recorder a Notice of Completion.



The Owner will pay the Contractor in lawful money such sums of money as may be due the Contractor including all sums retained but excluding such sums as have previously been paid the Contractor and as may be needed to cover outstanding stop notices. This payment will constitute the final payment to the Contractor under this Contract.

In the event of a dispute between the Owner and the Contractor, the Owner may in accordance with Public Contract Code Section 7107 withhold from the final payment an amount of 150 percent of the disputed amount without liability for any interest penalty under said statute.

## **8.8     Warranties and Bonds**

The Contractor hereby agrees to make, at its own expense, all repairs or replacements necessitated by defects in materials or workmanship, supplied under terms of this Contract, and pay for any damage to other works resulting from such defects, which becomes evident within one (1) year after the date of acceptance of the project or the Substantial Completion date whichever is applicable or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. The Contractor further assumes responsibility for a similar guarantee for all work and materials provided by subcontractors or manufacturers of packaged equipment components. The Contractor also agrees to indemnify, defend, and hold the Owner harmless from liability of any kind arising from damage due to said defects.

The Contractor shall execute and submit a completed **Warranty Form 01999-07** found in Section 01999, **REFERENCE FORMS** for the Work, and any portion of the Work possessed in accordance with Section 00700-3.4, **Owner's Right to Use or Occupy**. The Warranty Form shall be submitted prior to the Substantial Completion date or the final acceptance of the project or within five (5) days of the occupancy or use of a portion of the Work, whichever is applicable. Furthermore, prior to receipt of final payment, the Contractor shall submit a completed Document 00635, **GUARANTY BOND**.

The Contractor shall, upon the receipt of notice in writing from the Owner, promptly make all repairs arising out of defective materials, workmanship, or equipment. The Owner is hereby authorized to make such repairs, and the Contractor and its Surety shall be liable for the cost thereof, if ten (10) days after giving of such notice to the Contractor, the Contractor has failed to make or undertake the repairs with due diligence. In case of emergency, where in the opinion of the Owner delay could cause serious loss or damage, repairs may be made without notice being sent to the Contractor, and the expense in connection therewith shall be charged to the Contractor, and its Surety shall be liable for the cost thereof.

Prior to the expiration of the Warranty period, the Owner reserves the right to hold a meeting and require the attendance of the Contractor. The purpose of the meeting is to review warranties, bonds and maintenance requirements and determine required repair or replacement of defective items.

For the purpose of this paragraph, acceptance of the Work or a portion of the Work by the Owner, shall not extinguish any covenant or agreement on the part of the Contractor to be performed or fulfilled under this Contract which has not, in fact, been performed or fulfilled at the time of such acceptance. All covenants and agreements shall continue to be binding on the Contractor until they have been fulfilled.

The Owner and the Contractor agree that warranty on the parts of the work possessed and used by the Owner in accordance with Section 00700-3.4, "**Owner's Right to Use or Occupy**," shall commence on the date that the Owner takes possession of such work and so notifies the Contractor in writing. The Owner and Contractor further agree that such possession, and use of the work shall not be deemed as Substantial Completion or acceptance of any other part of the Work.

If, after installation, the operation or use of the materials or equipment furnished under this Contract proves to be unsatisfactory to the Construction Manager or Owner, the Owner shall have the right to operate and use such materials or equipment until it can, without damage to the Owner, be taken out of service for correction or replacement. Such period of use of the defective materials or equipment pending correction or replacement shall in no way decrease Warranty Period. Warranty Period for equipment shall be extended by the number of days from the date the equipment is found by the Owner to be non-functional or defective to the date the contractor repairs and makes fully operational the same equipment.

Nothing in this Document shall be construed to limit, relieve or release the Contractor's, subcontractor's and/or equipment supplier's liability to the Owner for damages sustained as the result of latent defects in the equipment furnished or work performed. Further, nothing in this Document shall be deemed to be a waiver by the Owner of any rights or remedies, or time limits in which to enforce such rights or remedies, it may have against the Contractor, subcontractors, suppliers of the equipment and work performed under these Specifications.

**\*\*\* END OF SECTION \*\*\***

## SECTION 00800

FORESTHILL PUBLIC UTILITY DISTRICT  
24540 Main Street  
Foresthill, CA 95631

### SUPPLEMENTARY GENERAL CONDITIONS

#### 1.0 MODIFICATIONS TO THE GENERAL CONDITIONS

##### 1.1 Time Allowed for Completion

In accordance with the provisions of Section 00700-6.2, **Contract Time**, the final completion contract times shall be completed within the number of consecutive calendar days from the date established in the Notice to Proceed for the commencement of Contract Time.

**Completion Time – 60 Calendar Days from Notice to Proceed date**

##### 1.2 Damages for Delays

In accordance with the provisions of Section 00700-6.5, **Liquidated Damages**, for the period of time that any portion of the work remains unfinished after the time fixed for an interim milestone and/or Substantial Completion in Section 00800-1.1, **Time Allowed for Completion**, as modified by extensions of time granted by the Owner, it is understood and agreed by the Contractor and the Owner that the Contractor shall pay the Owner the damages listed below.

**Dollars Per Calendar Day Liquidated Damages: \$500**

##### 1.3 Weather Days

In accordance with the provisions of Paragraph 00700-6.4.2.C, Weather Delays, an allowance of ten (10) working days of weather caused delay have been included in the time allowed for completion. This allowance represents a reasonable assessment of anticipated lost working days based on historical weather patterns. These weather days shall be included in the Contractor's schedule. as specified as **WEATHER CONDITIONS AND WEATHER DAY ALLOWANCE**.

##### 1.4 Contract Administration

The following project representatives are hereby designated by the Owner:

- A. Name of Owner Representative: **Hank White – FPUD General Manager**
- B. Name of Engineer: **Chris Sterratt – Peters Engineering**. The Engineer for this Project is Peters Engineering. References to the "Engineer" mean the Design Professional retained by the Owner.
- C. Name of Construction Manager: **Bill Hagman – Project CM, LLC**

All communications to and from the Contractor shall be routed through the Construction Manager. Wherever the Contract Documents indicate that the Contractor shall contact or notify the Engineer, Architect, Soils Engineer, Structural Engineer, etc., the Contractor shall route such communication through the Construction Manager except when otherwise explicitly approved by the Construction Manager.

## **2.0 LIABILITY AND INSURANCE**

### **2.1 Insurance**

Within ten (10) days after notice of award of the Contract, the Contractor shall promptly obtain, at its own expense, all the insurance required by Section 00800-2.0, **LIABILITY AND INSURANCE**, and submit coverage verification for approval by the Owner prior to the Owner's execution of the Contract. The insurance shall provide the minimum coverage and limits set forth below. Providing coverage in these stated minimum limits shall not be construed to relieve the Contractor from liability in excess of such limits. All deductibles and self-insured retentions must be disclosed and are subject to approval by the Contracting Agency. The cost of any claim payments falling within the deductible shall be the responsibility of the Contractor.

The Notice to Proceed with the Work under this Contract will not be issued, and the Contractor shall not commence work, until such insurance has been approved by the Owner. Such insurance shall remain in full force and effect at all times during the prosecution of the Work and until the final completion and acceptance thereof. In addition, the Commercial General Liability insurance shall be maintained for a minimum of one (1) year after final completion and acceptance of the Work. The Notice to Proceed does not relieve the Contractor of the duty to obtain such insurance as required herein.

The Contractor shall not allow any subcontractor to commence work on its subcontract until all similar insurance required of the subcontractor, except Builder's Risk Insurance, has been obtained and verified by the Contractor and submitted to the Construction Manager for the Owner's review and records. Subcontractors shall furnish original certificates and required endorsements as verification of insurance coverage. The insurance liability limits specified in Section 00800-2.1.1. b(2), **LIABILITY AND INSURANCE**, shall also apply for all subcontractors listed in Section 00430, **DESIGNATION OF SUBCONTRACTORS**. The Contractor shall designate the required insurance liability limits for all other subcontractors.

Companies writing the insurance under this article shall be licensed to do business in the State of California or be permitted to do business under the Surplus Line Law of the State of California. Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A - :VII.

Each insurance policy required by this contract shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the Owner.

Contractor shall include all costs for insurance in its bids.

Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from its operations under this Contract. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the Owner, the Engineer and the Construction Manager, and their

officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the Owner, its officers, officials, employees, agents or volunteers shall be in excess of the Contractor's insurance and shall not contribute with it.

Any failure of the Contractor to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the Owner, the Engineer and the Construction Manager and their officers, officials, employees, agents or volunteers.

The Contractor shall take out, pay for, and maintain throughout the duration of this Contract and for such additional periods as more specifically required herein the following insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, the Contractor's agents, representatives, employees, subcontractors, suppliers, vendors or materialmen, of any tier.

**2.1.1 Commercial General Liability and Automobile Liability Insurance** - This insurance shall protect the Contractor from claims for bodily injury, personal injury and property damage which may arise because of the nature of the work or from operations under this Contract. The Commercial General Liability Insurance shall be maintained for one (1) year after final completion and shall provide coverage on an occurrence basis. Coverage shall be at least as broad as ISO forms CG 0001 10 93 and CA 0001 12 93.

a. **Additional Insureds** - The Commercial General Liability and Automobile Policies of insurance shall include as additional insureds or be endorsed to contain the following provisions: the Foresthill Public Utility District, the Engineer and Construction Manager, and their officers, officials, employees, agents and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor and or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the Foresthill Public Utility District, its officers, officials, employees, agents or volunteers; the Engineer, the Construction Manager and each of their partners, officers, officials, employees, agents and volunteers and coverage provided to such additional insured. This policy shall provide coverage to each of the said insureds with respect to said work. Said policy shall provide primary coverage to the full limit of liability stated in the declarations. If an additional insured endorsement is used, it shall provide coverage as least as broad as either ISO form CG 20 10 11 85 or the combination of CG 20 10 10 01 plus 20 37 10 01.

b.(1) **Amount of Coverage (General Contractor)**- The bodily injury, personal injury and property damage liability of the Commercial General Liability insurance shall provide coverage in the following limits of liability: \$1,000,000 on account of any one occurrence for bodily injury and property damage, \$1,000,000 personal and advertising injury limit with an annual general aggregate limit of not less than \$2,000,000, and \$2,000,000 products and completed operations aggregate, combined single limit. The Automobile Liability insurance policy shall provide minimum limits of \$1,000,000 per accident for bodily injury and property damage arising out of the ownership, maintenance, or use of any owned or non-owned vehicles. The Commercial General Liability and Automobile Liability Coverages shall include per project aggregates in the above amounts equivalent to ISO form CG 25 03 11 85.

b.(2) **Amount of Coverage (SUBCONTRACTORS LISTED IN SECTION 00430)** - The bodily

injury, personal injury and property damage liability of the Commercial General Liability insurance shall provide coverage in the following limits of liability: \$1,000,000 on account of any one occurrence for bodily injury and property damage, \$1,000,000 personal and advertising injury limit with an annual general aggregate limit of not less than \$2,000,000, and \$2,000,000 products and completed operations aggregate, combined single limit. The Automobile Liability insurance policy shall provide minimum limits of \$1,000,000 per accident arising out of the ownership, maintenance, or use of any owned or non-owned vehicles.

- c. Subcontractors – The bodily injury and property damage liability insurance shall not be deemed to require the Contractor to have its subcontractors named as insureds in the Contractor's policy, but the policy shall protect the Contractor from contingent liability which may arise from operations of its subcontractors.
- d. Included Coverage - The above Commercial General Liability insurance shall also include the following coverages:

Premises - Operations

Independent Contractors

Products - Completed Operations

Personal Injury - (False Arrest, Libel, Wrongful Eviction, etc.)

Advertising Injury

Broad Form Property Damage, Including, Completed Operations

Separation of Insureds/Cross-Liability Provision

Duty to Defend all Insureds

Deletion of any Limitation on Coverage for Bodily Injury or Property Damage Arising out of Subsidence or Soil or Earth Movement

Separate Aggregate - A provision that the annual general aggregate and the products and completed operations annual aggregate shall apply separately to each project for which Contractor provides services away from premises owned by or rented to Contractor.

XCU - (Explosion, Collapse, Underground Damage) XCU may be deleted when not applicable to operations performed by the Contractor or its subcontractors.

Blanket Contractual Liability

- e. Umbrella Policy - Contractor may use an umbrella or excess policy to meet the limits requirement of Section 2.1.1.b(1). However, any such umbrella/excess policy must be approved by the Owner and maintain a A.M. Best Rating of no less than A - :VII.
- f. Professional Liability Coverage - The Engineer shall maintain, for the entire duration of

this contract, such errors and omissions insurance as shall protect it from claims based on negligent errors, or omissions, which may arise from the Engineers operations under this contract, whether such operations be by the Engineer or by its employees, subcontractors, consultants or anyone else directly or indirectly employed by any of the foregoing. The amount of this insurance shall not be less than \$1,000,000.

2.1.2 Workers' Compensation Insurance - In accordance with the provisions of Article 5, Chapter 1, Part 7, Division 2 (commencing with Section 1860) and Chapter 4, Part 1, Division 4 (commencing with Section 3700) of the Labor Code of the State of California, the Contractor is required to secure the payment of compensation to its employees and for that purpose obtain and keep in effect adequate Workers' Compensation Insurance. If the Contractor, in the sole discretion of the Owner, satisfies the Owner of the responsibility and capacity under the applicable Workers' Compensation Laws, if any, to act as self-insurer, the Contractor may so act, and in such case, the insurance required by this paragraph need not be provided.

The Contractor is advised of the provisions of Section 3700 of the Labor Code, which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that code, and shall comply with such provisions and have Employers' Liability limits of \$1,000,000 per accident and per employee, and in the aggregate for injury by disease, before commencing the performance of the work of this Contract.

Before the Notice to Proceed with the Work under this Contract is issued, the Contractor shall submit written evidence that the Contractor has obtained for the period of the Contract Workers' Compensation and Employer's Liability Insurance as required for all persons whom it employs or may employ in carrying out the work under this Contract. Such evidence of coverage shall be accompanied by an endorsement from the insurer agreeing to waive all rights of subrogation against the Owner, its officers, officials, employees, agents and volunteers, the Engineer, the Construction Manager and their agents, consultants and employees which might arise by reason of any payment under the policy. This insurance shall be in accordance with the requirements of the most current and applicable State Workers' Compensation Insurance Laws.

2.1.3 Builder's Risk Insurance - "All Risk or Special Form" Builder's Risk Insurance on the replacement cost basis, in an amount equal to the full replacement cost shall be issued on a completed value basis, without deduction for depreciation and shall also provide coverage for "soft costs" such as but not limited to design and engineering fees and inspection costs caused by an insured peril. Such insurance shall cover, but shall not be limited to, the perils of fire, lightning, windstorm, hail, explosion, riot, riot attending a strike, civil commotion, smoke damage, damage by aircraft or vehicles, vandalism and malicious mischief, theft, collapse, and flood. This insurance shall name the Owner, the Engineer, the Construction Manager and the Contractor as insureds, as their interests may appear and shall include coverage, but not by way of limitation, for all damages of loss to the Work and to appurtenances, to materials and equipment to be incorporated into the Project while the same are in transit, stored on or off the Project site, to construction plant and temporary structures. The policy shall separately cover the costs of debris removal, including demolition as may be made reasonably necessary by the application of any law, ordinance, or regulation.

Pursuant to Section 7105 of the Public Contract Code, the Owner requires \$25,000,000 for any damage to the work caused by an Act of God, as defined by Section 7105(b)(2) of that Code. The insurance premium for such coverage is listed as a separate Bid Item.

Builder's Risk Insurance policies shall contain the following provisions:

- (1) The Owner shall be named as an insured.
- (2) The insurer shall waive all rights of subrogation against the Owner.

The Builder's Risk Insurance may contain sublimits not less than the following: Debris removal - \$250,000; Pollution Cleaning - \$250,000. No other sublimits will be allowed except as declared to the Agency prior to bid and approved by addendum to the bid documents.

Builder's Risk Insurance may have a deductible clause not to exceed the following limits:

- (1) The deductible for coverage for any damage to the work caused by an Act of God as defined by Section 7105(b)(2) of the Public Contract Code shall not exceed five percent of the value at risk at the time of the loss. The Owner shall be named as an insured.
- (2) All Other Perils: \$10,000

The Contractor shall be responsible for paying any and all deductible costs. The policy shall provide the Owner the right to occupy the premises without termination of the policy until acceptance of the Project. In the event of a covered loss, proceeds of builder's risk insurance shall be applied first to reimburse actual costs of demolition, debris removal, reconstruction, and repair or replacement incurred in the discharge of the Contractor's obligations of repair or replacement under this contract. Insurance proceeds shall be deposited in a separate account in a local bank satisfactory to the Agency and shall be withdrawn only with the Agency's written approval to reimburse such actual costs as the builder's risk carrier has agreed to reimburse. The Agency shall have no liability for failure of the builder's risk carrier to pay for any particular cost of repairs. In the event of the termination of the Contractor for default, the Contractor shall forfeit all rights to builder's risk insurance proceeds and Agency may expend such proceeds to complete the project as if they were unpaid contract monies.

#### 2.1.4 Contractor's Pollution Legal Liability -

\$5,000,000 for legal liability coverage for the Contractor's pollution legal liability arising out of operations, negligent acts, errors or omissions committed or alleged to have been committed by Contractor or any subcontractors, suppliers, materialmen, vendors or agents of any tier, in connection with the Project.

2.1.5 Proof of Coverage - Before the Notice to Proceed with the Work under this Contract is issued, the Contractor shall furnish the Owner with certificate(s) evidencing issuance of all insurance mentioned herein, copies of the policy declaration or information page(s) and additional insured endorsements. The certificate(s) and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements are to be on general liability and automobile liability endorsement forms acceptable to the Owner. The certificate(s), policy declaration or information page(s), and endorsements are to be received and approved by the Owner before work commences. Except for the waiver of subrogation rights endorsements, as required under Sections 00800-2.1.2 and 00800-2.1.3, no other endorsements are required for Workers Compensation or Builder's Risk Insurance. Such certificates of insurance shall provide that the insurance policy shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the Owner. Contractor shall also provide certificate(s) evidencing renewals of all insurance required herein, at least thirty (30) days prior to the expiration date of any such insurance.

Any deductibles or self-insured retentions must be declared to and approved by the Owner. At the option of the Owner, either: the insurer shall reduce or eliminate such deductibles or self-



insured retentions as respects the Owner, the Engineer and the Construction Manager and their officers, officials, employees, agents and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

In the event of the breach of any provision of this paragraph, or in the event of any notices received which indicates any required insurance coverage will be diminished or canceled, Owner, at its option, may, notwithstanding any other provisions of this Agreement to the contrary, immediately declare a material breach of this Agreement and suspend all further work pursuant to this Agreement.

#### 2.1.6 Indemnification

A. Contractor shall indemnify, defend with counsel acceptable to Owner and hold harmless to the full extent permitted by law, Owner, the Engineer and the Construction Manager, and their officers, officials, employees, agents and volunteers, (collectively "the Indemnified Parties"), from and against any and all liability, loss, damage, claims, expenses and costs (including, without limitation, attorney fees and costs and fees of litigation) (collectively, "Liability") of every nature arising out of or in connection with Contractor's performance of the Work or its failure to comply with any of its obligations contained in this Agreement, except such Liability caused by the sole negligence, active negligence or willful misconduct of the Indemnified Parties. Such indemnification by the Contractor shall include, but not be limited to, the following:

1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the Contractor, its subcontractors, employees, or agents in the performance of the Work, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the Contractor, its employees, or agents;
2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the Contractor's, or Supplier's own employees, or agents engaged in the Work resulting in actions brought against the Indemnified Parties;
3. Liability or claims arising directly or indirectly from or based on the violation of any Laws or Regulations, whether by the Contractor, its subcontractors, employees, or agents;
4. Liability or claims arising directly or indirectly from the use or manufacture by the Contractor, its subcontractors, employees, or agents in the performance of this Agreement of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specified stipulated in this Agreement.
5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the Owner or any other parties by the Contractor, its subcontractors, employees, or agents;
6. Liability or claims arising directly or indirectly from the willful misconduct of the Contractor, its subcontractors, employees, or agents;
7. Liability or claims arising directly or indirectly from any breach of the obligations assumed in this Agreement by the Contractor;
8. Liability or claims arising directly or indirectly from, relating to, or resulting from a hazardous condition created by the Contractor, Subcontractors, Suppliers, or any of their employees or agents, and;

9. Liability or claims arising directly, or indirectly, or consequentially out of any action, legal or equitable, brought against the Indemnified Parties, their consultants, subconsultants, and the officers, directors, employees, agents and volunteers of each or any of them, to the extent caused by the Contractor's use of any premises acquired by permits, rights of way, or easements, the Site, or any land or area contiguous hereto or its performance of the Work thereon.

10. Liability arising directly or indirectly from exposure to hazards in violation of the California Labor Code that may be asserted by any person or entity, including, but not limited to, the Contractor, arising out of or in connection with the negligent activities of the Contractor, its agents, employees or privities pursuant to this Contract, whether or not there is concurrent negligence on the part of the Indemnified Parties.

- B. The Contractor shall reimburse the Indemnified Parties for all costs and expenses, (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals and court costs of appeal) incurred by said Indemnified Parties in enforcing the provisions of this Paragraph.
- C. The indemnification obligation under this Section 00800-2.1.6 shall not be limited in any way by any limitation on the amount or type of insurance carried by Contractor or by the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- D. Pursuant to California Public Contract Code Section 9201, Owner shall timely notify Contractor of receipt of any third-party claim relating to this Agreement.
- E. The Contractor's obligations pursuant to this provision will survive the expiration or earlier termination of this Contract.

**2.1.7 Injury or Illness Reports** - The Contractor shall furnish the Construction Manager with a copy of the Employer's Report of Injury immediately following any incident requiring the listing of said report on the OSHA Log during the prosecution of the work under this Contract. The Contractor shall also furnish the Construction Manager with a copy of the Employer's Report of injury involving any subcontractor on this project.

**2.1.8 Notification of Insurance Companies** - The Contractor shall advise all insurance companies to familiarize themselves with all of the Conditions and provisions of this Contract, and they shall waive the right of special notification of any change or modification of this Contract or of extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by the Indemnified Parties, under the terms of this Contract, and failure to so notify the aforesaid insurance companies of changes shall in no way relieve the insurance companies of their obligation under this Contract.

## **2.2 Insurance During Guarantee Period**

For all work the Contractor or its subcontractors perform during the guarantee period, worker's compensation, and commercial general liability insurance and insurance in the amounts and format required herein, shall remain in force and be maintained for one (1) year after final

completion.

### **2.3 Third Party Insurance Requirements**

The Work, as contemplated by the Contract Documents, does not specifically require an encroachment permit. However, in the event the Contractor chooses a means and method of construction that results in Work requiring an encroachment permit from a public utility, or any other local, state, federal or public agency, Contractor shall ensure that the insurance it obtains in accordance therewith complies with all requirements mandated by each permitting agency from whom permits shall be obtained for the Work and any other third parties from whom third party agreements are necessary to perform the Work (collectively, the "Third Party(ies)"). To the extent there is a conflict between the Third Party(ies)'s Insurance Requirements and those set forth by the Owner in Section 00800- SUPPLEMENTARY GENERAL CONDITIONS, the requirement(s) providing the more protective coverage for both the Owner and the Third Party(ies) shall control and be purchased and maintained by Contractor.

Contractor shall be responsible to determine what insurance requirements exist as a condition precedent to obtaining permit(s) for the Work, if any. Contractor shall be solely responsible for any delay(s) arising from its failure and/or its Subcontractors' failure to timely obtain all required insurance.

All required third party insurance shall be submitted to the Owner at the same time Contractor submits all other contractually required insurance, which is no later than fifteen (15) days after Notice of Award, unless otherwise agreed to in writing by the Owner prior to this deadline.

Bidders are encouraged to contact the applicable local agency(ies) prior to Bid in determining all applicable permits, and related insurance requirements, for this Project.

### **3.0 SUBSTANTIAL COMPLETION**

Substantial completion of the Project as required by Section 00700-8.6, **Substantial Completion**, requires that the following portions of the Work must be operational and ready for the Owner's continuous use as intended:

The following items of work must be fully tested and functional for Project Substantial Completion to be attained:

- Completion of the Corrective Work Item List as described in Section 00700-8.6, **Substantial Completion**.
- All alarms are fully functional, tested and demonstrated to properly associate locally, remotely and in the SCADA system.
- Training has been completed for all electrical, mechanical and instrumentation systems.
- All testing required by the Contract and Specification Section 01660, **TESTING AND TRAINING**, has been successfully completed.

- All process equipment shall be installed and operational, or temporary arrangements satisfactory to the Owner have been made.
- All instrumentation and control systems shall be installed and operational to allow automatic operation.
- All items related to health and safety of Owner operations and maintenance staff, including warning signs, guardrails, and safety equipment and Fire Protection Systems, shall be complete.
- All Operation and Maintenance Manuals have been submitted and approved.
- All record drawings have been submitted, updated, reviewed and approved.

Portions of the Work not essential to the system operation, which can be completed without interruption of system operations, may be completed after the Work is substantially complete, and may include the following items:

- Final Site Clean-Up
- Final Building Clean-Up
- Completion of the Final Punch List prepared by the Construction Manager in accordance with Section 00700-8.6, **Substantial Completion.**

**\*\*\* END OF SECTION \*\*\***

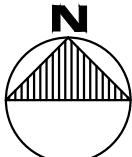


# FORESTHILL PUBLIC UTILITY DISTRICT

25985 FORESHILL RD.  
FORESTHILL, CA 95631

## VICINITY MAP

SCALE: N.T.S



## GENERAL NOTES

1. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL STANDARDS AND CODES.
2. ALL MATERIALS INSTALLED SHALL BE NEW. THE USE OF USED MATERIALS SHALL NOT BE PERMITTED.
3. ALL WORK AND MATERIALS SHALL BE GUARANTEED FOR A MINIMUM OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE AND SIGN-OFF FROM THE OWNERS REPRESENTATIVES. IF LONGER GUARANTEES ARE AVAILABLE, THE CONTRACTOR SHALL PROVIDE THE GUARANTEE THAT PROVIDES THE LONGEST TERM AVAILABLE, ALL GUARANTEES SHALL BE PROVIDED TO THE OWNER IN WRITING.
4. ANY DEVICES MOUNTED ON WALLS, EQUIPMENT RACKS, ETC, SHALL BE INSTALLED PLUMB AND SQUARE TO THE BUILDING. ENSURE ANY MOUNTED DEVICE IS LEVEL, BY USE OF A BUBBLE LEVEL, WHETHER OTHER DEVICES IN THE AREA, INSTALLED BY OTHERS, ARE LEVEL OR NOT.
5. CLOSEOUT DOCUMENTATION, INCLUDING AS-BUILT DRAWINGS IN AUTOCAD FORMAT (CURRENT VERSION) SHOWING ALL EQUIPMENT, LOCATIONS AND TYPES, OEM MANUALS, TESTING RESULTS AND PHONE EXTENSION NUMBERS FOR EACH LOCATION SHALL BE PROVIDED TO THE OWNERS REPRESENTATIVES UPON COMPLETION.
6. ALL UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40, MINIMUM.
7. ALL EXPOSED CONDUITS SHALL BE GALVANIZED RIGID WITH THREADED FITTINGS.
8. PROJECT'S MANDATORY WORK HOURS ARE MONDAY – FRIDAY 7:00AM – 3:30PM, NO EXCEPTIONS.
9. CONTRACTOR TO TAKE OWNERSHIP OF GENERATOR AND ATS FROM STORAGE LOCATION AND TRANSPORT FROM STORAGE LOCATION TO PROJECT LOCATION AND PLACE. STORAGE LOCATION IS TO BE DETERMINED.
10. CONTRACTOR TO INCLUDE A MINIMUM 2-YEAR MANUFACTURER'S SERVICE AGREEMENT FOR GENERATOR.
11. A METHOD OF PROCEDURE (MOP) IS MANDATORY AND SHALL BE PROVIDED FOR THIS JOB. WORK SHALL NOT BE STARTED WITHOUT AN APPROVED/SIGNED MOP.
12. THE OWNER SHALL BE NOTIFIED AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY POWER SHUTDOWN OF EXISTING PANELS OR SERVICE. SCHEDULE OF SHUTDOWNS SHALL BE AT CONVENIENCE OF THE OWNER. THE OWNER MAY, AT THEIR OPTION, HAVE A REPRESENTATIVE PRESENT DURING SHUTDOWN.

## PROJECT CONTACTS

OWNER: FORESTHILL PUBLIC UTILITY DISTRICT  
24540 MAIN STREET  
FORESTHILL, CA

ENGINEER: PETERS ENGINEERING  
7750 COLLEGE TOWN DR.  
SUITE 101  
SACRAMENTO, CA 95826  
ENGINEER: GINO ROMANO, P  
TELEPHONE: 916-447-2841

## SCOPE OF WORK

1. DISCONNECT (2) EXISTING BUILDING GENERATORS AND REPLACE WITH (1) EXTERIOR GENERATOR. GENERATOR IS OWNER FURNISHED, CONTRACTOR IS RESPONSIBLE FOR RELOCATION, INSTALLATION, START-UP AND COMMISSIONING.
2. EXISTING BUILDING GENERATORS ARE TO BE DISCONNECTED AND RETIRED IN PLACE.
3. REPLACE EXISTING AUTOMATIC TRANSFER SWITCH (ATS) IN MAINTENANCE BUILDING WITH NEW ATS. ATS IS OWNER FURNISHED, CONTRACTOR IS RESPONSIBLE FOR RELOCATION, INSTALLATION, START-UP AND COMMISSIONING.
4. PROVIDE TAP BOX WITH PORTABLE GENERATOR CONNECTIONS AT EACH BUILDING.

## AREA MAP



## PROJECT DESCRIPTION

REPLACE THE USE OF (2) EXISTING BUILDING GENERATORS AND COMBINE BACKUP POWER TO BE PROVIDED BY (1) EXTERIOR STAND-BY GENERATOR.

### APPLICABLE CODES

UNLESS OTHERWISE INDICATED OR SPECIFIED, PERFORM THE WORK IN CONFORMANCE WITH THE LATEST EDITIONS OF ALL APPLICABLE REGULATORY REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

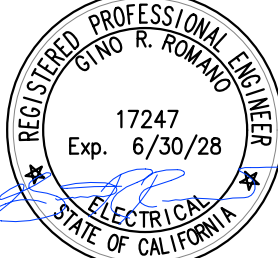
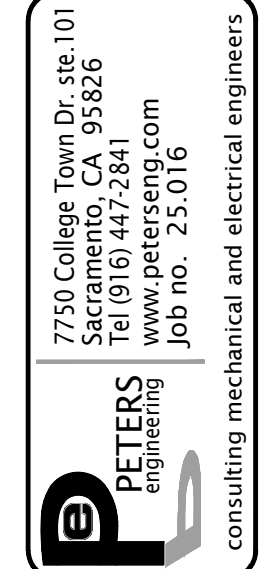
1. GOVERNING BUILDING STANDARDS TO BE THE 2025 CALIFORNIA BUILDING CODE.
2. GOVERNING ELECTRICAL STANDARDS TO BE THE "NATIONAL ELECTRICAL CODE", 2025 EDITION, AS ADOPTED AND MODIFIED BY THE STATE OF CALIFORNIA IN REFERENCE TO THE 2025 CALIFORNIA ELECTRICAL CODE.
3. GOVERNING MECHANICAL STANDARDS TO BE THE 2025 CALIFORNIA MECHANICAL CODE.
4. GOVERNING PLUMBING STANDARDS TO BE THE 2025 CALIFORNIA PLUMBING CODE.
5. GOVERNING FIRE REGULATION STANDARDS TO BE THE 2025 CALIFORNIA FIRE CODE AND NFPA 72.
6. GOVERNING ENERGY STANDARDS TO BE THE CALIFORNIA ENERGY STANDARDS, 2025 EDITION.
7. GOVERNING HEALTH AND SAFETY CODE TO BE THE 2025 CALIFORNIA HEALTH AND SAFETY CODE.

## DRAWING INDEX

## Sheet List Table

| Sheet Number | Sheet Title                       |
|--------------|-----------------------------------|
| E0.0         | COVER SHEET                       |
| E1.1         | SITE PLAN - ELECTRICAL            |
| E1.2         | ENLARGED FLOOR PLANS - ELECTRICAL |
| E2.1         | ONE LINE DIAGRAMS                 |
| E2.2         | ATS WIRING DIAGRAM                |
| E3.1         | DETAILS                           |
| S1           | STRUCTURAL DETAILS                |

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PLOT DATE: 7/22/2026

**FORESTHILL PUD  
GENERATOR REPLACEMENT**  
25985 FORESTHILL RD., FORESTHILL, CA 95631

COVER SHEET

Date 3/24/2026

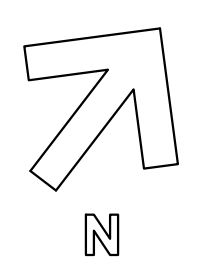
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EO.0

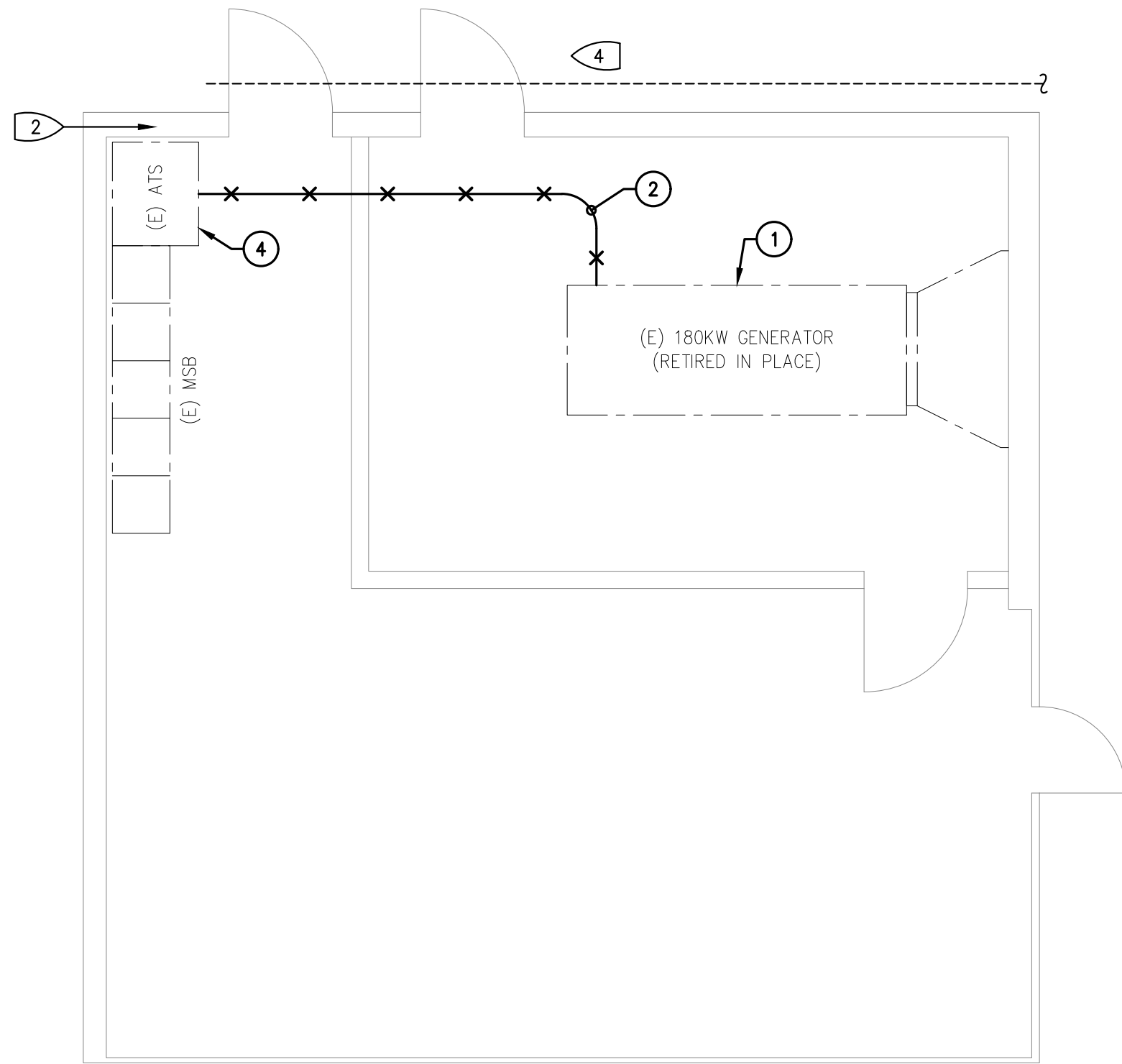




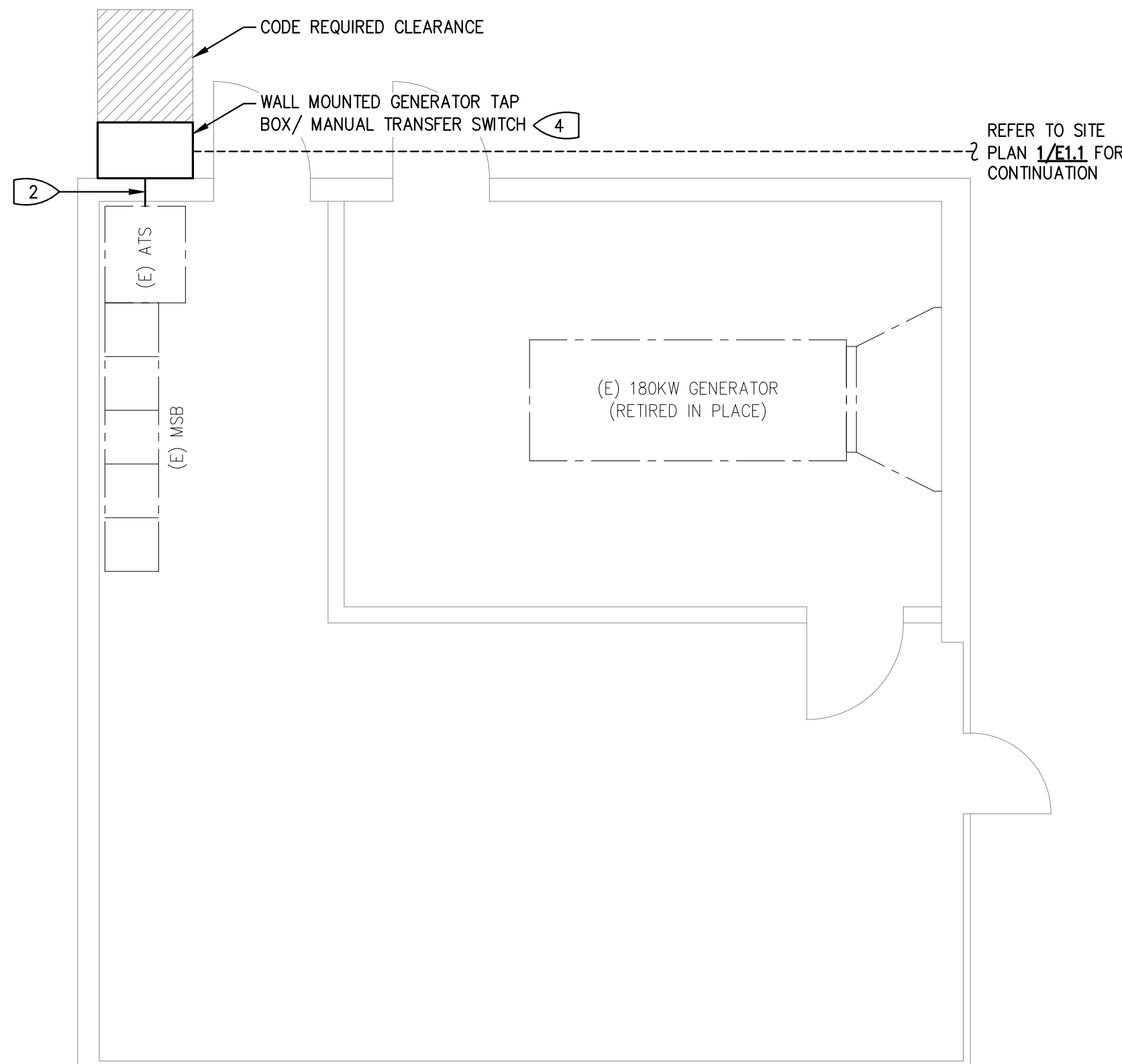
**APPROX. SCALE: 1" = 30'**

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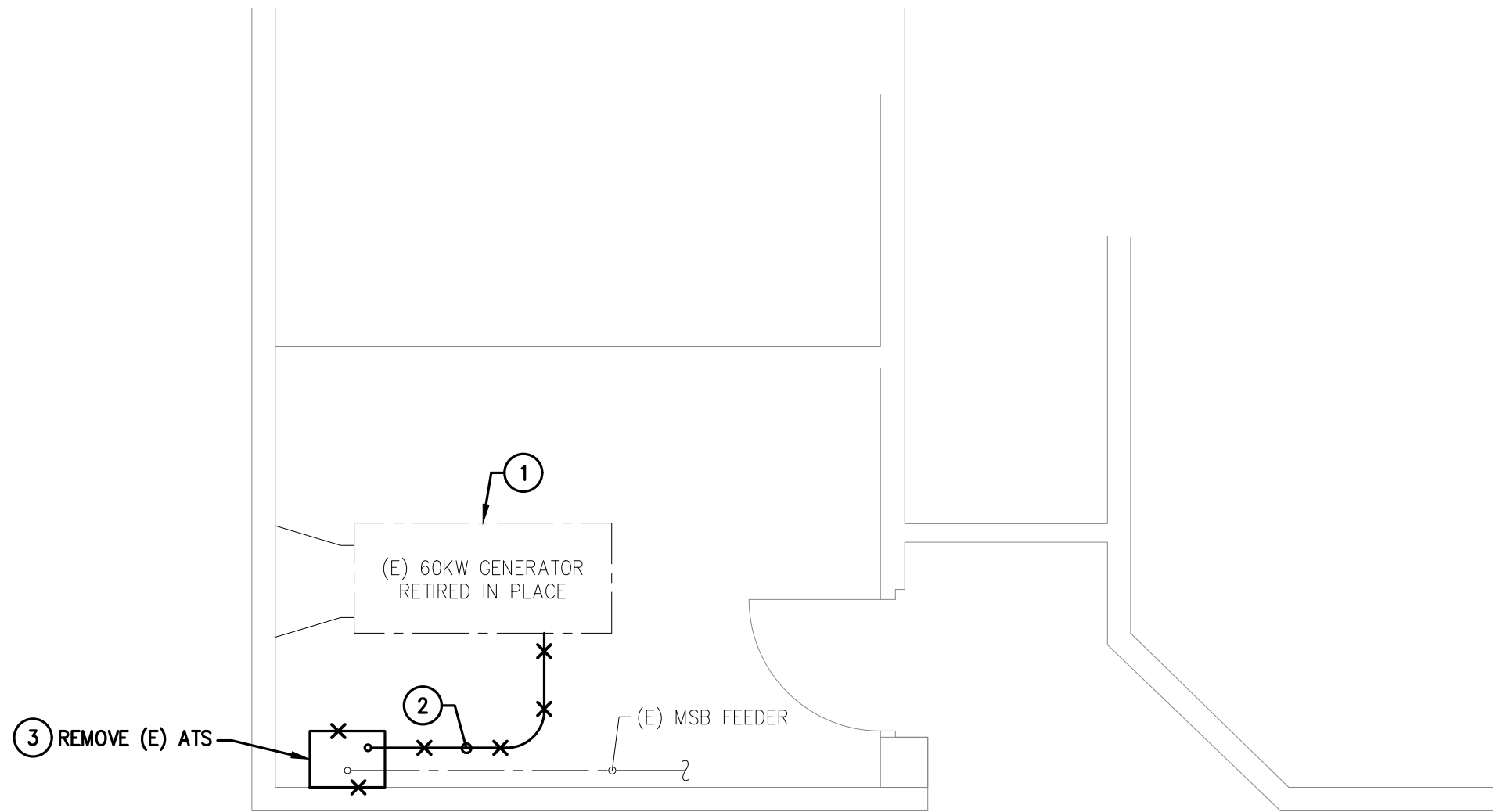




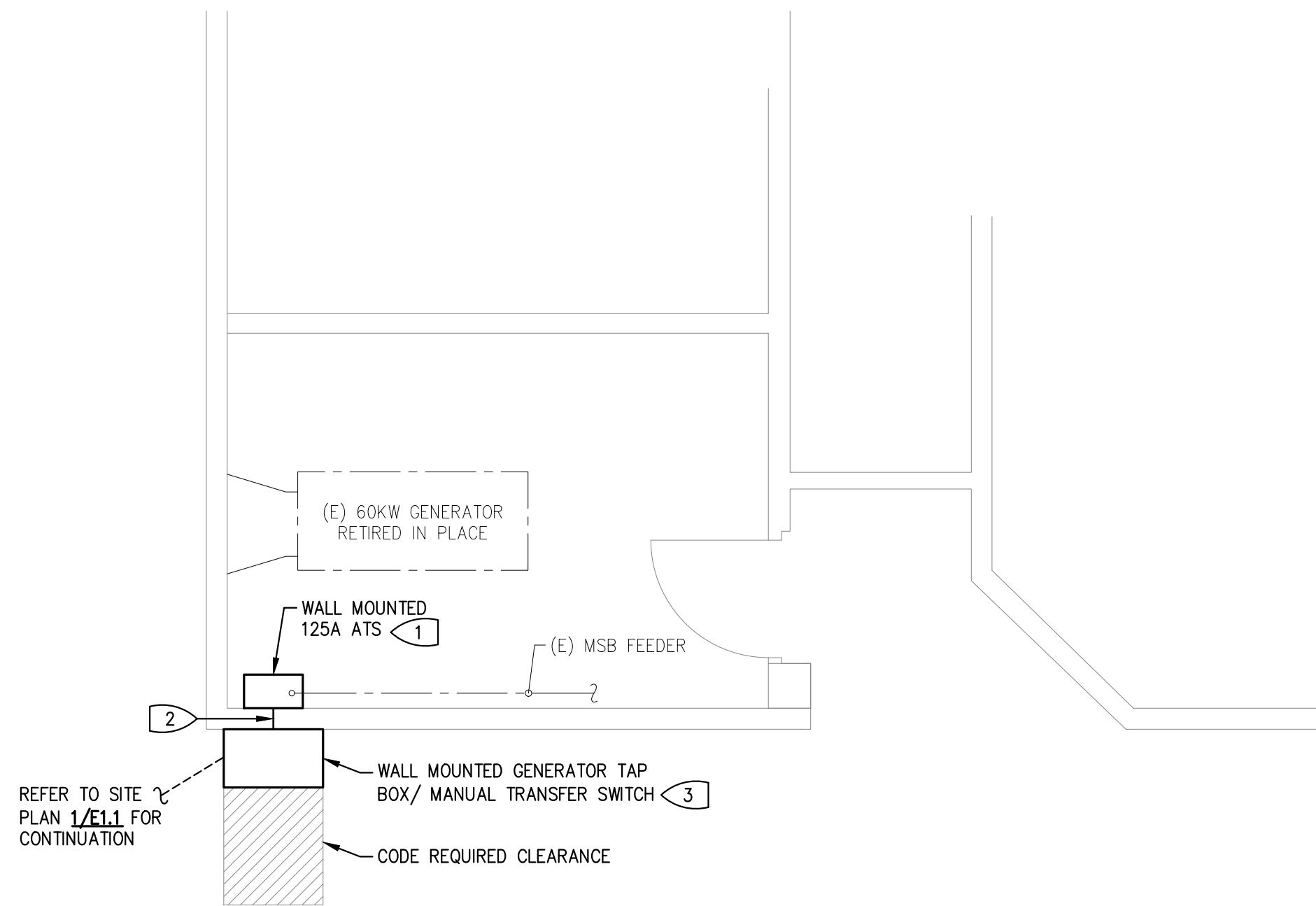
3 PUMP STATION - DEMOLITION  
SCALE: 1/4" = 1'-0"



4 PUMP STATION - ELECTRICAL  
SCALE: 1/4" = 1'-0"



1 PARTIAL MAINTENANCE BLDG - DEMOLITION  
SCALE: 1/4" = 1'-0"



2 PARTIAL MAINTENANCE BLDG - ELECTRICAL  
SCALE: 1/4" = 1'-0"

SHEET NOTES:

- ALL EXISTING EQUIPMENT, DEVICES, CONDUIT AND WRING, ETC., SHOWN ON PLANS ARE BASED ON AVAILABLE EXISTING DRAWINGS AND LIMITED SITE SURVEYS, AND SHOWN FOR REFERENCE ONLY.
- REFER TO ONE LINE DIAGRAM - NEW WORK 2/E1.1 FOR FEEDER CONDUIT AND CONDUCTOR SIZES.

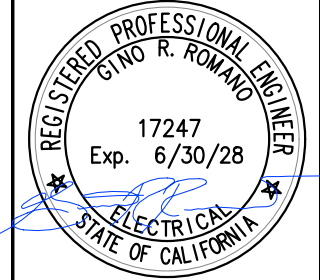
DEMOLITION KEYED NOTES:

- EXISTING GENERATOR TO BE DISCONNECTED AND RETIRED IN PLACE.
- REMOVE EXISTING GENERATOR FEEDER CONDUCTORS BACK TO ATS.
- REMOVE EXISTING ATS. PROTECT EXISTING FEEDER TO EXISTING BUILDING'S MAIN SWITCHBOARD FOR REUSE. EXISTING ATS ENCLOSURE MAY BE REUSED AS A
- EXISTING ATS TO REMAIN. PROTECT EXISTING ATS FOR REUSE.

KEYED NOTES:

- OWNER FURNISHED, CONTRACTOR INSTALLED (OFCI) ATS. LOCATE ATS TO INTERCEPT EXISTING FEEDER TO EXISTING BUILDING'S MAIN SWITCHBOARD. CONNECT EXISTING FEEDER TO NEW ATS. IF REQUIRED, NEW ATS CAN BE LOCATED ADJACENT TO EXISTING ATS AND THE EXISTING ATS ENCLOSURE MAY BE USED AS A TEMPORARY SPLICE BOX DURING CONSTRUCTION. IF EXISTING ATS ENCLOSURE IS USED IN THIS MANNER, IT SHALL BE REPLACED WITH A NEW SCREW COVER JUNCTION BOX AS THE FINAL SPLICE BOX.
- RUN CONDUIT THROUGH EXISTING WAL FROM BACK OF TAP BOX INTO ATS.
- PROVIDE ESL #3141-M TRIPLESWITCH, 3-WAY MANUAL TRANSFER SWITCH WITH 125A BREAKERS.
- PROVIDE ESL #3141-M TRIPLESWITCH, 3-WAY MANUAL TRANSFER SWITCH WITH 400A BREAKERS.

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PLOT DATE: 7/22/2026

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Sacramento, CA 95826  
Tel (916) 447-2841  
www.peterseng.com  
Job No. 25.016  
consulting mechanical and electrical engineers

PETERS  
Engineering

FORESTHILL PUD  
GENERATOR REPLACEMENT

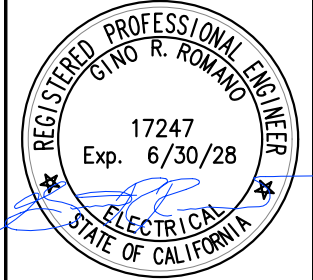
ENLARGED FLOOR PLANS -  
ELECTRICAL

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E1.2



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GENERATOR REPLACEMENT

25985 FORESTHILL RD., FORESTHILL, CA 95631

| ONE LINE DIAGRAMS |
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| Job 25.016        |
| Sheet             |

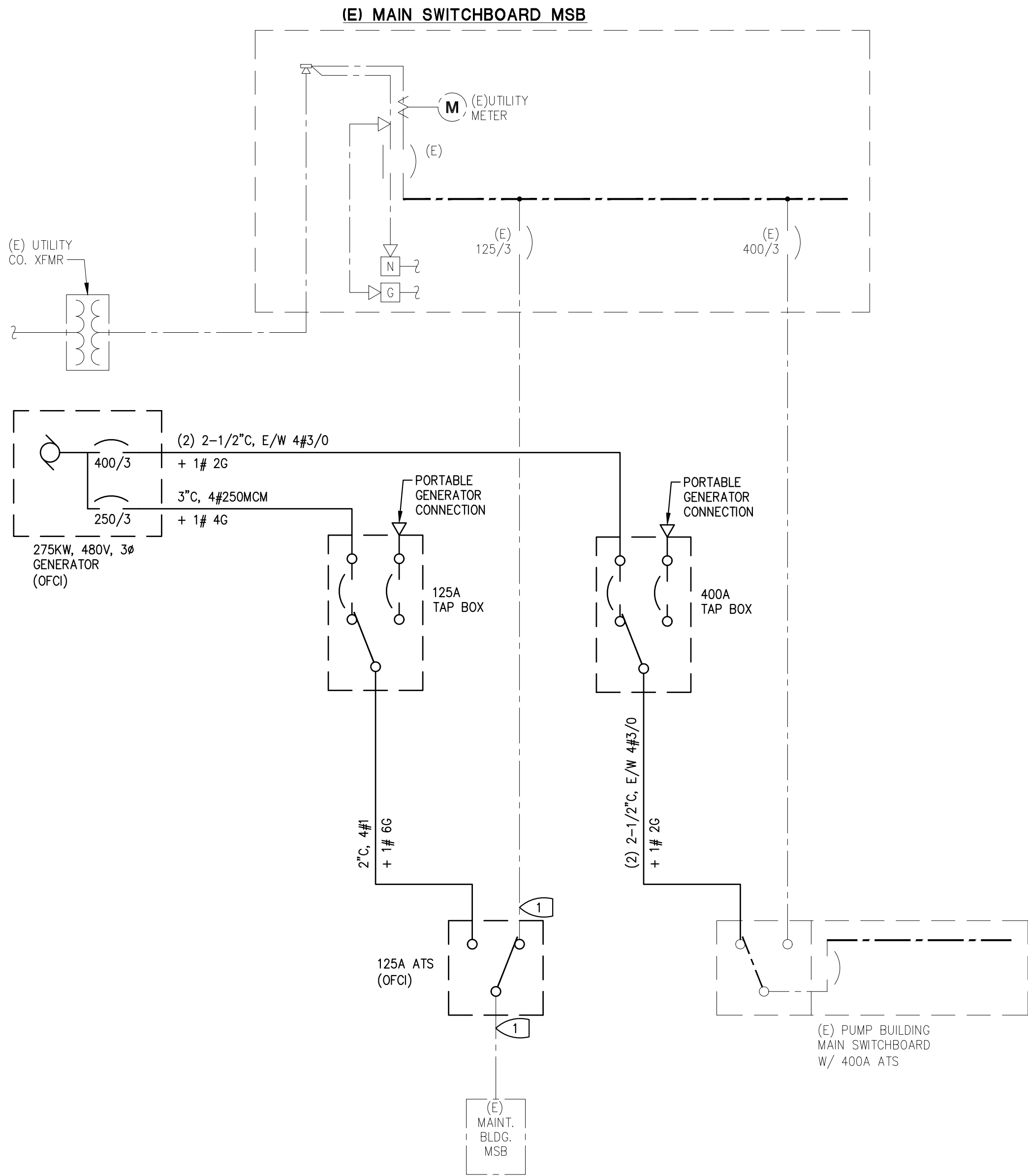
E2.1

SHEET NOTES:

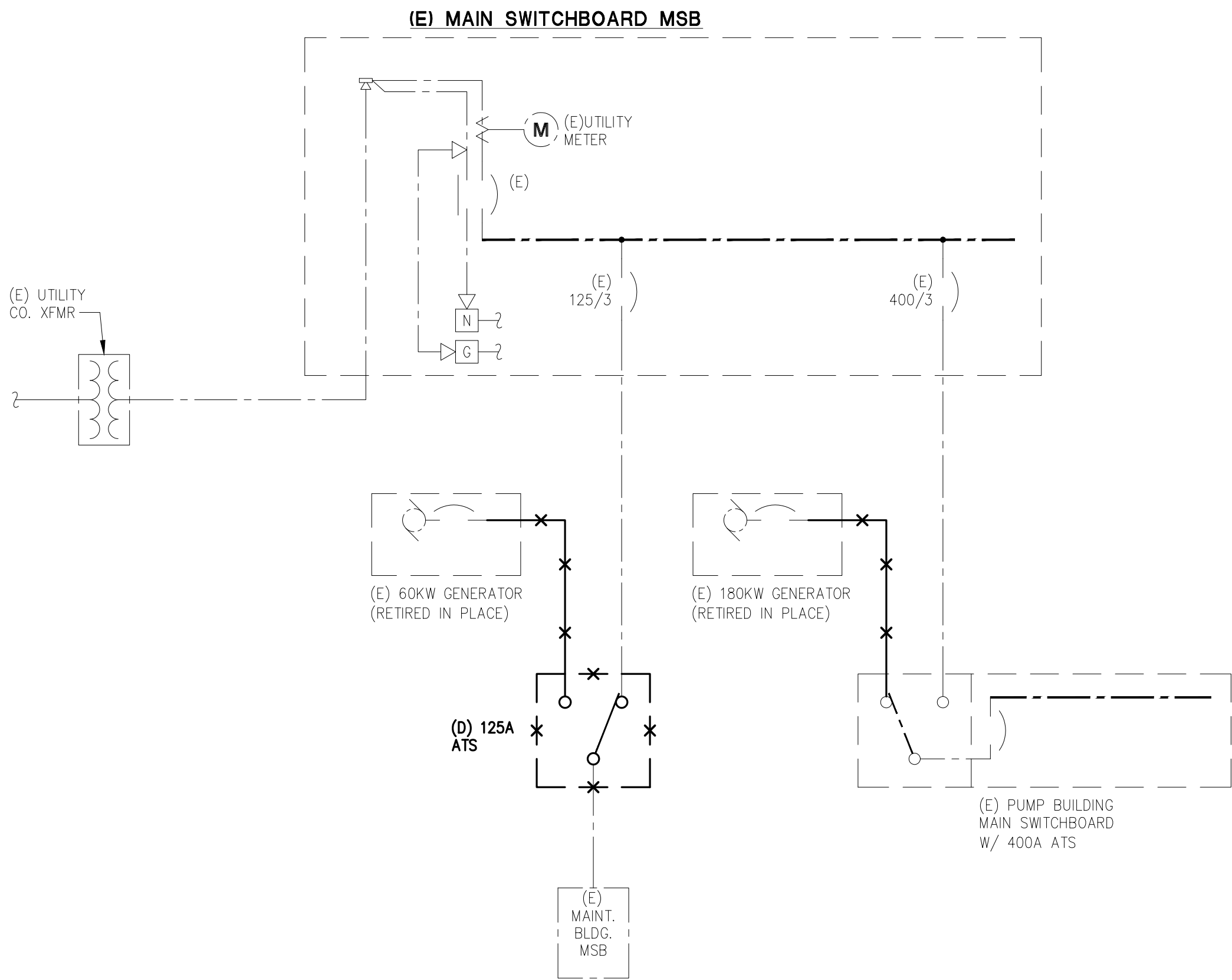
- ALL EXISTING EQUIPMENT, DEVICES, CONDUIT AND WRING, ETC., SHOWN ON PLANS ARE BASED ON AVAILABLE EXISTING DRAWINGS AND LIMITED SITE SURVEYS, AND SHOWN FOR REFERENCE ONLY.
- ALL CONDUCTORS SHALL BE COPPER WITH XHHW-2 INSULATION.

KEYED NOTES:

- 1 RECONNECT EXISTING FEEDER TO NEW AUTOMATIC TRANSFER SWITCH (ATS).



2 ONE LINE DIAGRAM - NEW WORK  
SCALE: NONE

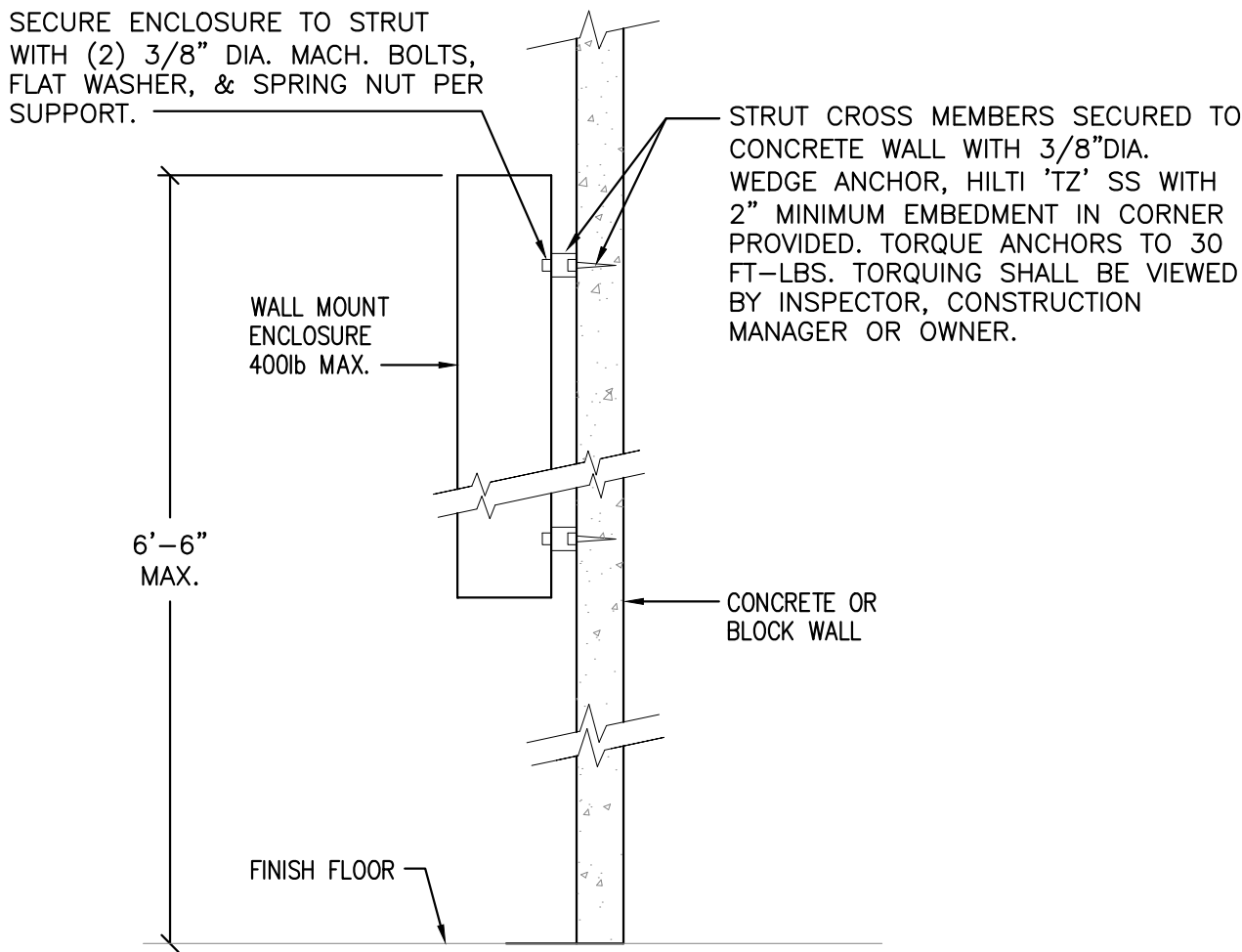


1 ONE LINE DIAGRAM - DEMOLITION  
SCALE: NONE



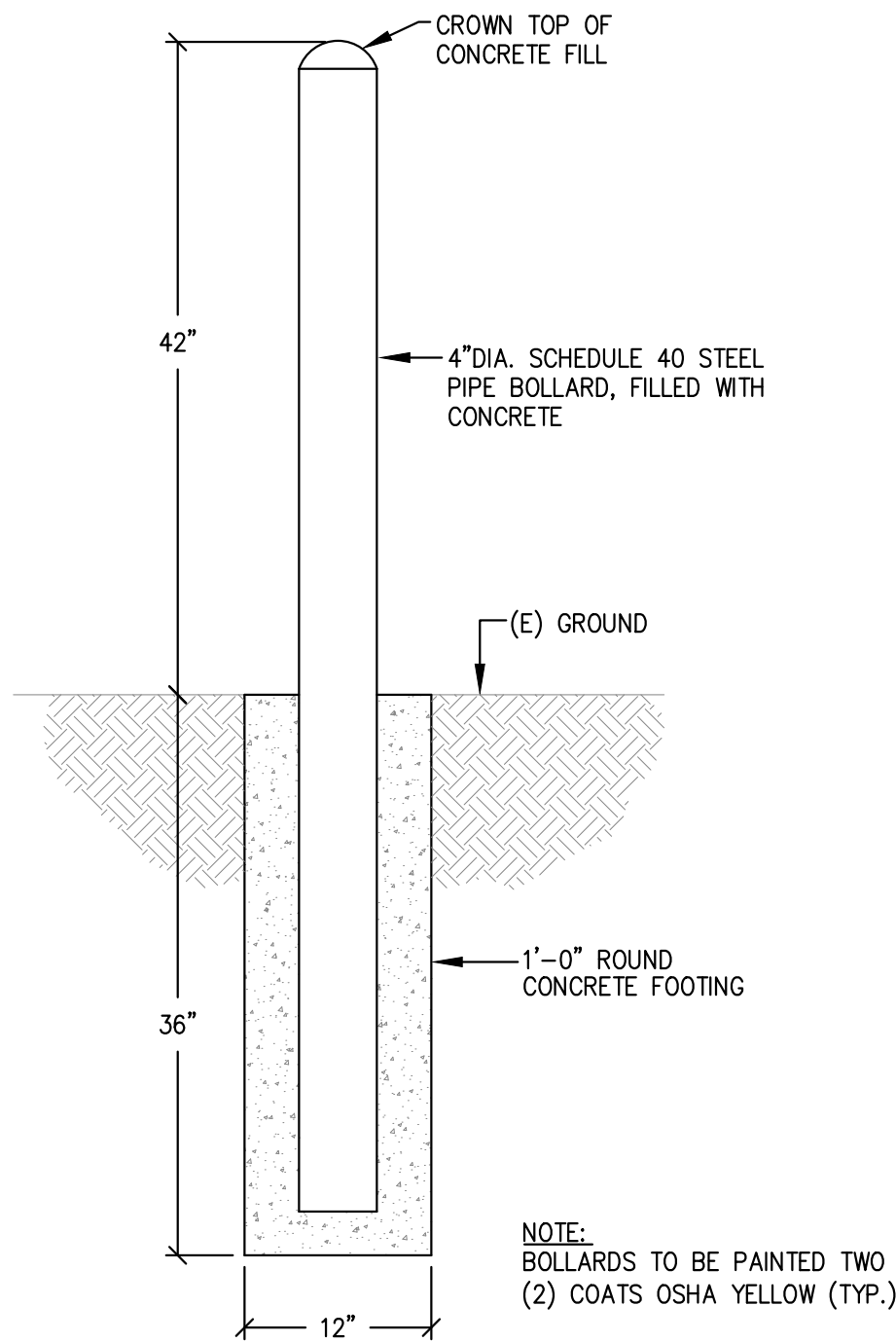
## E2.2





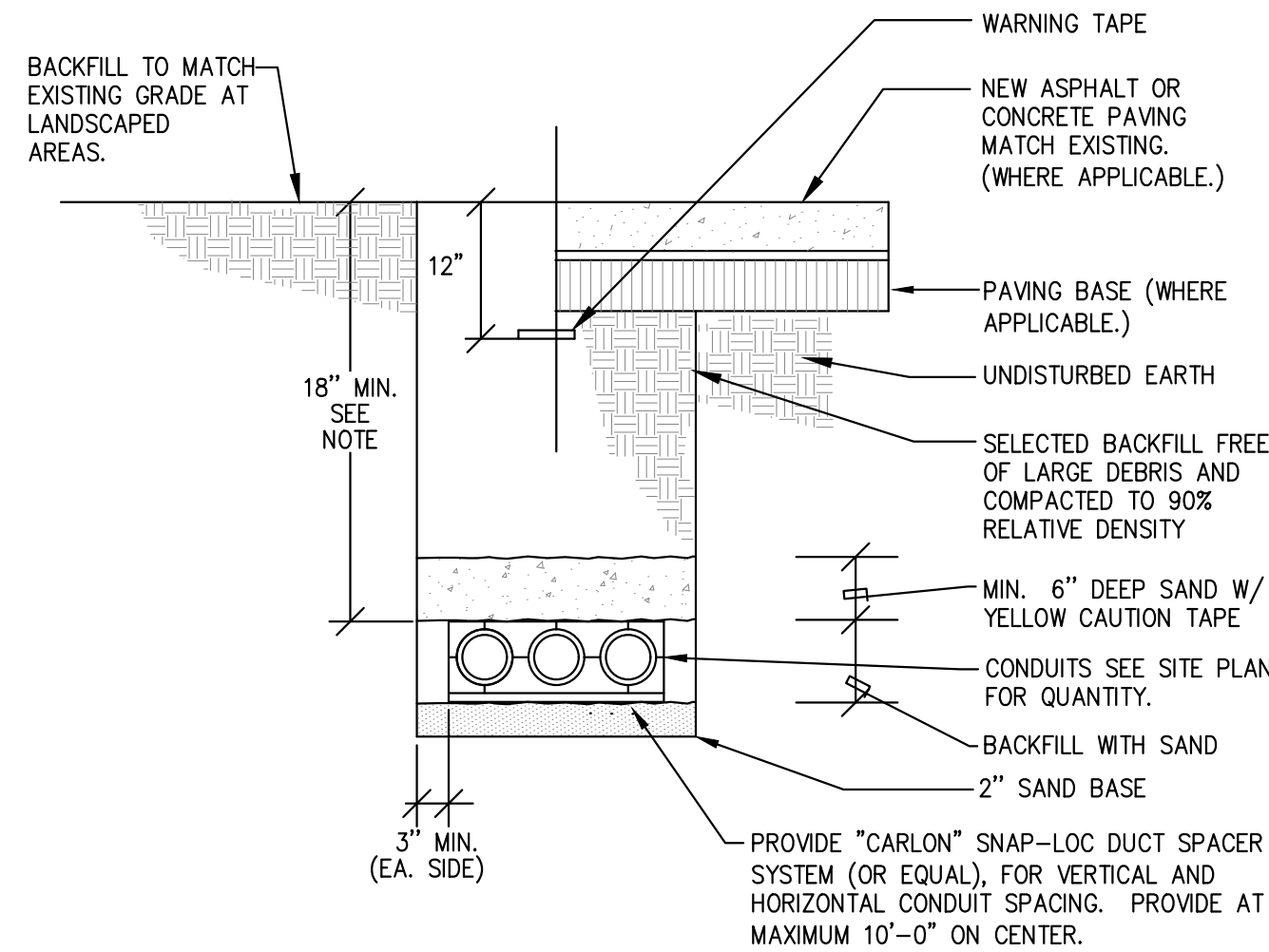
- NOTE:
- STRUTS SHALL BE HOT DIPPED GALVANIZED.
  - ALL HARDWARE SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.

**3 ENCLOSURE WALL MOUNTING DETAIL**  
SCALE: NONE



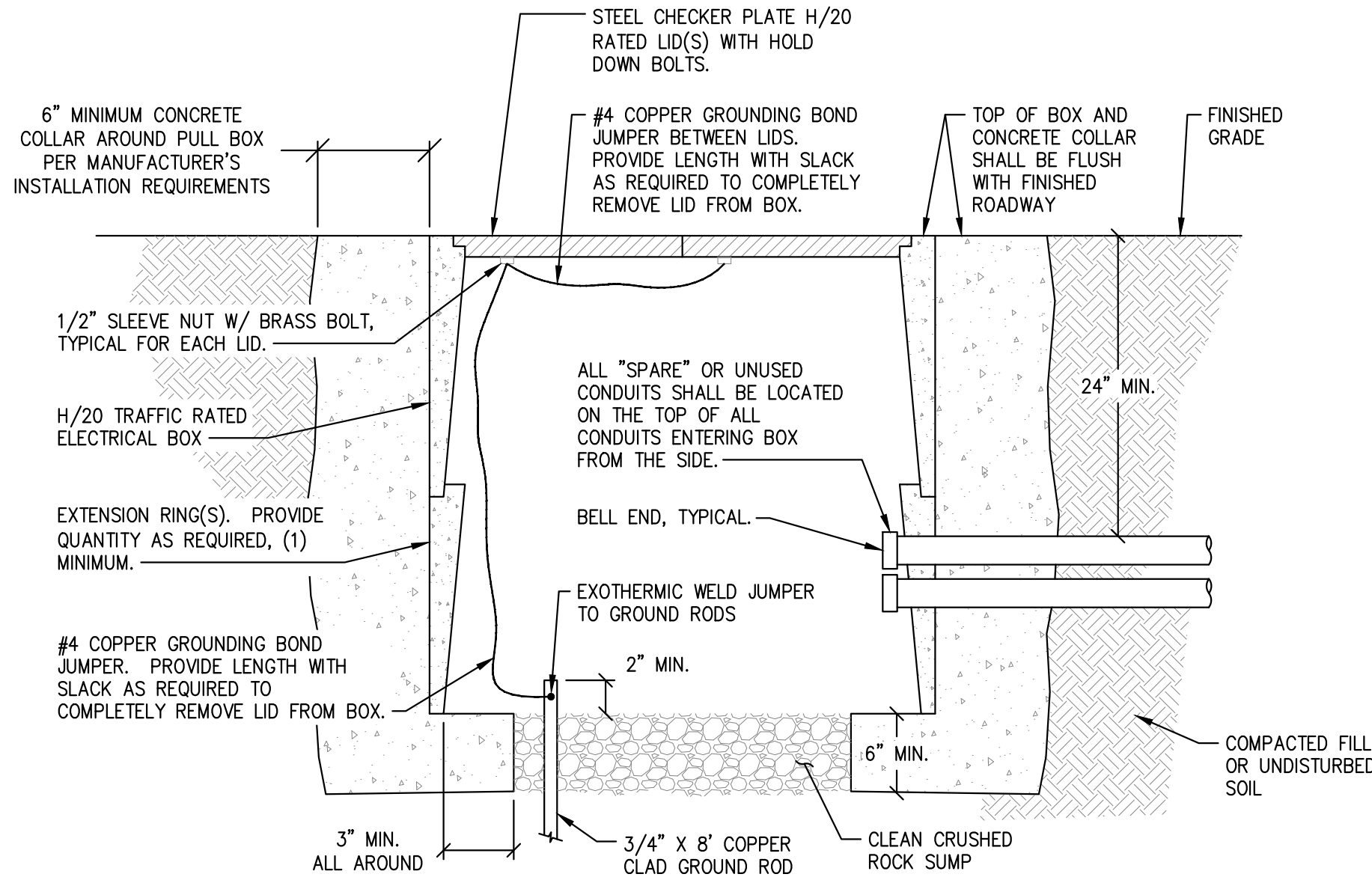
- NOTE:
- BOLLARDS TO BE PAINTED TWO (2) COATS OSHA YELLOW (TYP.)

**4 BOLLARD DETAIL**  
SCALE: NONE



- NOTE:
- BURIAL DEPTH SHALL BE A MINIMUM OF 24" UNDER STREETS, HIGHWAYS, ROADS, ALLEYS, DRIVEWAYS, AND PARKING LOTS PER CEC TABLE 300.5.
  - CLEARANCES FOR UTILITY CROSSINGS SHALL BE BASED ON PG&E's CLEARANCE REQUIREMENTS.

**1 TYPICAL TRENCH DETAIL**  
SCALE: NONE



- NOTES:
- PROVIDE H/20 TRAFFIC RATED BOXES IN ALL LOCATIONS WITH VEHICLE TRAFFIC.
  - CONTRACTOR SHALL PROVIDE THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR H/20 TRAFFIC RATING REQUIREMENTS AS PART OF THE SUBMITTALS.

**2 TYPICAL H/20 TRAFFIC RATED PULL BOX**  
SCALE: NONE

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**DETAILS**

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**E3.1**

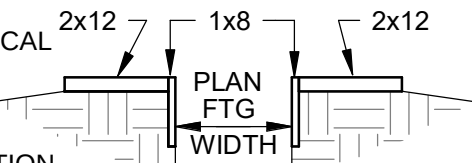


GENERAL NOTES

1. INTERPRETATION OF DRAWINGS & SPECIFICATIONS
- A. WHERE SPECIFICATIONS HAVE BEEN PREPARED FOR THIS PROJECT, THEY ARE ARRANGED IN SEVERAL SECTIONS, BUT SUCH SEPARATION SHALL NOT BE CONSIDERED AS THE LIMITS OF THE WORK REQUIRED OF ANY SEPARATE TRADE. THE TERMS AND CONDITIONS OF SUCH LIMITATIONS ARE WHOLLY BETWEEN THE CONTRACTOR AND THEIR SUBCONTRACTORS.
- B. IN GENERAL, THE WORKING DETAILS WILL INDICATE DIMENSIONS, POSITION AND KIND OF CONSTRUCTION, AND THE SPECIFICATIONS, QUALITIES AND METHODS. ANY WORK INDICATED ON THE WORKING DETAILS AND NOT MENTIONED IN THE SPECIFICATIONS, OR VICE VERSA, SHALL BE FURNISHED AS THOUGH FULLY SET FORTH IN BOTH. WORK NOT PARTICULARLY DETAILED, MARKED OR SPECIFIED, SHALL BE IDENTICAL OR SIMILAR TO LIKE CASES OF CONSTRUCTION THAT ARE DETAILED, MARKED OR SPECIFIED. IF CONFLICTS OCCUR ON DRAWINGS AND/OR SPECIFICATIONS, THE MOST EXPENSIVE MATERIALS OR METHODS WILL PREVAIL.
- C. SHOULD AN ERROR APPEAR IN THE WORKING DETAILS OR SPECIFICATIONS OR IN WORK DONE BY OTHERS AFFECTING THIS WORK, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AT ONCE AND IN WRITING. IF THE CONTRACTOR PROCEEDS WITH THE WORK SO AFFECTED WITHOUT HAVING GIVEN SUCH WRITTEN NOTICE AND WITHOUT RECEIVING THE NECESSARY APPROVAL, DECISION OR INSTRUCTIONS IN WRITING FROM THE OWNER, THEN THE CONTRACTOR SHALL HAVE NO VALID CLAIM AGAINST THE OWNER, FOR THE COST OF SO PROCEEDING AND SHALL MAKE GOOD ANY RESULTING DAMAGE OR DEFECT. NO VERBAL APPROVAL, DECISION, OR INSTRUCTION SHALL BE VALID OR BE THE BASIS FOR ANY CLAIM AGAINST THE OWNER, ITS OFFICERS, EMPLOYEES OR AGENTS. THE FOREGOING INCLUDES TYPICAL ERRORS IN THE SPECIFICATIONS OR NOTATIONAL ERRORS IN THE WORKING DETAILS WHERE THE INTERPRETATION IS DOUBTFUL OR WHERE THE ERROR IS SUFFICIENTLY APPARENT AS TO PLACE A REASONABLY PRUDENT CONTRACTOR ON NOTICE THAT, SHOULD THE CONTRACTOR ELECT TO PROCEED, THEY ARE DOING SO AT THEIR OWN RISK.
2. CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND REGULATIONS.
3. SHOP DRAWING NOTE
- A. WHEN NOT ADDRESSED BY DIVISION 1 OF THE SPECIFICATIONS, SUBMITTALS SHALL BE ELECTRONIC PDF FORMAT.
- B. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE STRUCTURAL ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT BY INDICATING WHICH MATERIAL THE CONTRACTOR INTENDS TO FURNISH AND INSTALL, AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THE CONTRACTOR INTENDS TO USE ON A STAND ALONE SET OF DOCUMENTS. DUPLICATION OF DESIGN DOCUMENTS FOR THE PURPOSE OF SHOP DRAWINGS IS NOT ACCEPTABLE.
- C. PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER. SHOP DRAWING SUBMITTALS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, STRUCTURAL STEEL, REINFORCING STEEL, & GLUE-LAMINATED BEAMS.
- D. PRIOR TO SUBMISSION THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL STAMP SUBMITTALS AS BEING "REVIEWED FOR CONFORMANCE".
- E. SHOP DRAWING SUBMITTALS PROCESSED BY THE STRUCTURAL ENGINEER ARE NOT CHANGE ORDERS.
- F. ANY DETAIL ON THE SHOP DRAWINGS THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL CLEARLY BE MARKED WITH THE NOTE "THIS IS A CHANGE".
- G. SHOP DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW THAT REQUIRE RESUBMITTAL FOR RE-REVIEW SHALL BE BILLED HOURLY FOR SUCH TIME TO THE GENERAL CONTRACTOR. RE-REVIEW WILL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE GENERAL CONTRACTOR FOR ADDITIONAL ENGINEERING REVIEW SERVICES.
4. SAFETY NOTE:
- A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE PERTINENT SECTIONS, AS THEY APPLY, TO THIS PROJECT, OF THE CONSTRUCTION SAFETY ORDERS ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL OSHA REQUIREMENTS.
- B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS AND SHORING REQUIRED. SHORING INDICATIONS (LOCATION, DIRECTION, DURATION, ETC.) ARE ONLY SHOWN ON THE STRUCTURAL DRAWINGS WHEN REQUIRED TO IMPLEMENT THE DESIGN INTENT OF THE FINAL WORK PRODUCT. DETERMINATION WHETHER SHORING IS REQUIRED FOR TEMPORARY OR INTERMEDIATE CONDITIONS DURING CONSTRUCTION IS WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR.
- C. THE OWNER AND THE STRUCTURAL ENGINEER DO NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
5. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER WHERE A CONFLICT OR DISCREPANCY OCCURS BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER PORTION OF THE CONTRACT DOCUMENTS OR EXISTING FIELD CONDITIONS. SUCH NOTIFICATION SHALL BE GIVEN IN DUE TIME SO AS NOT TO AFFECT THE CONSTRUCTION SCHEDULE. IN CASE OF A CONFLICT BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS THE MORE RESTRICTIVE CONDITION SHALL TAKE PRECEDENCE UNLESS WRITTEN APPROVAL HAS BEEN GIVEN FOR THE LEAST RESTRICTIVE. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH ARCHITECTURAL PRIOR TO COMMENCING ANY WORK.
6. WHEN CONSTRUCTION ATTACHES TO OR IS WITHIN AN EXISTING BUILDING, A COMPLETE SET OF DRAWINGS OF THE EXISTING BUILDING SHALL BE KEPT ON THE JOB SITE. CONTRACTOR TO OBTAIN THESE DRAWINGS FROM THE OWNER (IF THEY ARE AVAILABLE).
7. CONTRACTOR SHALL PROVIDE AN ALLOWANCE EQUAL TO 2% OF THE BID FOR STRUCTURAL STEEL, MISC. IRON AND REINFORCING STEEL TO BE USED AT THE DISCRETION OF THE STRUCTURAL ENGINEER. UNUSED AMOUNT TO REVERT TO THE OWNER UPON COMPLETION OF THE JOB.
8. ANY SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE OR DETAILS SHALL BE REVIEWED BY THE ARCHITECT AND STRUCTURAL ENGINEER. SUCH REVIEW WILL BE BILLED ON A TIME AND MATERIALS BASIS TO THE GENERAL CONTRACTOR WITH NO GUARANTEE THAT THE SUBSTITUTION WILL BE ALLOWED.
9. DO NOT SCALE DRAWINGS. CONTACT THE ARCHITECT OR STRUCTURAL ENGINEER FOR ANY DIMENSIONS NOT SHOWN.
10. THESE DRAWINGS ARE NOT COMPLETE UNTIL REVIEWED AND ACCEPTED BY LOCAL BUILDING OFFICIALS AND THE OWNER AND SIGNED BY THE STRUCTURAL ENGINEER.

FOUNDATIONS

1. THE BASIS OF DESIGN AND ALLOWABLE CAPACITIES OF THE FOUNDATION SYSTEM HAVE BEEN PROPORTIONED IN ACCORDANCE WITH THE PRESUMPTIVE ALLOWABLE BEARING PRESSURES IN THE CODE.
2. FOUNDATIONS SHALL BEAR ON FIRM UNDISTURBED NATIVE SOIL OR SOIL COMPACTED TO 90% RELATIVE COMPACTION.
3. ALL FILLING, BACKFILLING AND COMPACTION SHALL BE DONE UNDER THE OBSERVATION OF A GEOTECHNICAL ENGINEER AND MUST BE COMPACTED TO THE MINIMUM DENSITY SPECIFIED.
4. BOTTOMS OF ALL FOUNDATIONS SHALL BE LEVEL.
5. FOUNDATION CONCRETE MAY BE PLACED DIRECTLY INTO NEAT EXCAVATIONS PROVIDED THE EXCAVATIONS ARE STABLE (AS DETERMINED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER). OTHERWISE, FOUNDATIONS SHALL BE FULLY FORMED. USE MINIMUM PLANKING SHOWN TO PROTECT AGAINST SLOUGHING. AS REQUIRED, PLANKING DOES NOT REPLACE FORMWORK REQUIRED TO STABILIZE EXCAVATION.
6. NOTIFY THE STRUCTURAL ENGINEER 48 HOURS BEFORE CASTING FOUNDATIONS.



CONCRETE

1. CONCRETE SHALL ATTAIN 28 DAY COMPRESSIVE STRENGTH AS REQUIRED INNOTE #22. SLUMP SHALL BE 4 INCHES ± 1 INCH WITHOUT ADMIXTURES UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS.
2. CONCRETE MIX DESIGNS SHALL BE PREPARED ACCORDING TO ACI 318 CHAPTER 26.4 AND ACI 301 SECTION 4. REVIEWED BY OWNER'S TESTING LABORATORY AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW.
3. CEMENTITIOUS MATERIALS:
- CEMENT SHALL CONFORM TO ASTM C-150 TYPE II OR V.
- FLY ASH SHALL CONFORM TO ASTM C-618. MAX. QUANTITY OF FLY ASH BYPASS SHALL BE 25% UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS.
- SLAG SHALL CONFORM TO ASTM C989. MAX. QUANTITY OF SLAG BY MASS SHALL BE 25% UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS.
- TERNARY SYSTEMS ARE PROHIBITED.
4. CONCRETE AGGREGATES SHALL CONFORM TO ASTM C-33 FOR NORMAL WEIGHT CONCRETE AND ASTM C-330 FOR LIGHTWEIGHT CONCRETE.
5. NON-SHRINK GROUT OR DRYPACK SHALL CONSIST OF A PREMIXED NON-METALLIC FORMULA.
- REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60 UNO. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A-706 GRADE 60. CONTRACTOR SHALL SUBMIT REBAR MILL CERTIFICATES.
7. ALL PREHEATING AND WELDING OF REINFORCING BARS SHALL BE DONE IN ACCORDANCE WITH AWS D1.4 LATEST EDITION AND SHALL BE CONTINUOUSLY INSPECTED BY A QUALIFIED LABORATORY. CONTRACTOR SHALL FURNISH WPS FOR ALL REBAR WELDING TO THE LABORATORY.
8. REINFORCING STEEL SHALL BE FABRICATED ACCORDING TO "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION".
9. WIRE FABRIC SHALL CONFORM TO ASTM A1064.
10. DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF BARS LISTED AND DENOTE CLEAR COVERAGE. NON-PRESTRESSED, CAST-IN-PLACE CONCRETE COVERAGE SHALL BE AS FOLLOWS, UNO:
- CONCRETE DEPOSITED DIRECTLY AGAINST GROUND (EXCEPT SLABS)-----3"
- CONCRETE EXPOSED TO GROUND OR WEATHER BUT PLACED IN FORMS:-----1-1/2"
- #5 AND SMALLER-----1-1/2"
- #6 AND LARGER-----2"
- BEAMS & COLUMNS (TIES)-----1-1/2"
- BEAMS & COLUMNS (MAIN REINFORCING)-----2"
- CAST-IN-PLACE WALLS (EXTERIOR FACE & SOIL SIDE)-----SEE ABOVE
- CAST-IN-PLACE WALLS (INTERIOR FACE-#11 & SMALLER)-----3/4"
- SLABS (ON FORMS)-----3/4"
- SLABS (ON GROUND)-----2" CLEAR FROM TOP
11. SPLICES IN CONTINUOUS REINFORCEMENT SHALL BE LAPPED UNO, SEE SCHEDULE THIS SHEET. SPLICES IN ADJACENT BARS SHALL BE GREATER THAN 5'-0" APART. SPLICE CONTINUOUS BARS IN SOIL-BEARING GRADE BEAMS, STRUCTURAL SLABS ONGRADE AND MAT FOUNDATIONS AS FOLLOWS UNO: TOP BARS AT CENTERLINE OF SUPPORT, BOTTOM BARS AT MID-SPAN. SPLICE CONTINUOUS BARS IN ELEVATED SLABS AND BEAMS, ETC. AS FOLLOWS UNO: TOP BARS AT MID-SPAN, BOTTOM BARS AT CENTERLINE OF SUPPORT. ALL BARS SIZE #14 AND LARGER SHALL BE CONTINUOUS FOR FULL LENGTH SHOWN OR SPLICED WITH MECHANICAL COUPLERS AS NOTED IN DETAILS. SPLICES IN WWF SHALL BE 1-1/2 MESHES WIDE.
12. THE MINIMUM CLEAR SPACING BETWEEN PARALLEL BARS IN A LAYER SHALL NOT BE LESS THAN THE LARGER OF BAR DIAMETER, 1", OR 33% GREATER THAN THE MAXIMUM AGGREGATE SIZE (NOMINAL), WHICHEVER IS GREATEST. THIS REQUIREMENT ALSO APPLIES TO THE CLEAR SPACING BETWEEN DIFFERENT LAYERS OF PARALLEL BARS AND TO THE CLEAR DISTANCE BETWEEN A CONTACT LAP SPLICE AND ADJACENT SPLICES OR BARS.
13. ALL HOOKS SHALL BE STANDARD HOOKS UNLESS OTHERWISE SHOWN OR NOTED. AT WALLS, PROVIDE HOOKS AT ENDS OF ALL REINFORCING AT ENDS, CORNERS AND INTERSECTIONS, UNO.
14. CONSTRUCTION JOINTS SHALL BE MADE ROUGH AND ALL LAITANCE REMOVED FROM THE SURFACE. CONCRETE MAY BE ROUGHENED BY CHIPPING THE ENTIRE SURFACE, SAND BLASTING, OR RAKING THE SURFACE TO PROVIDE 1/4" DEEP DEFORMATIONS.
15. REMOVE ALL DEBRIS FROM FORMS BEFORE CASTING ANY CONCRETE.
16. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY POSITIONED BEFORE PLACING CONCRETE.
17. ANCHOR BOLTS (AB'S) CAST IN CONCRETE FOR WALL, SILL AND LEDGER APPLICATIONS SHALL BE HEADED BOLTS WITH CUT THREADS CONFORMING TO ASTM F1554, UNO.
18. CONSOLIDATE CONCRETE PLACED IN FORMS BY MECHANICAL VIBRATING EQUIPMENT SUPPLEMENTED BY HAND-SPADING, RODDING OR TAMPING. USE EQUIPMENT AND PROCEDURES FOR CONSOLIDATION OF CONCRETE IN ACCORDANCE WITH THE RECOMMENDED PRACTICES OF ACI 309 TO SUIT THE TYPE OF CONCRETE AND PROJECT CONDITIONS. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL (AS IN WALLS) SO AS TO CAUSE SEGREGATION OF AGGREGATES. IN SUCH CASES HOPPERS AND CHUTES OR TRUNKS OF VARIABLE LENGTHS SHALL BE USED SO THAT THE FREE UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED 6 FEET.
19. NO WOOD SPREADERS ALLOWED. NO WOOD STAKES ALLOWED IN AREAS TO BE CONCRETED.
20. PROVIDE #4x4'-0" DIAGONAL REINFORCING AT EACH REINFORCING LAYER OF SLAB AT ALL RE-ENTRANT CORNERS TYPICAL UNO.
21. NOTIFY STRUCTURAL ENGINEER A MINIMUM OF 48 HOURS BEFORE PLACING ANY CONCRETE.
22. CONCRETE STRENGTHS & MIX PROPERTIES: °C @
- | ITEM                                                | 28 DAYS  | MAX AGGR SIZE | WEIGHT | MAX W/CM* |
|-----------------------------------------------------|----------|---------------|--------|-----------|
| A. FOUNDATIONS, ELEVATOR PITS, TIE BEAMS            | 3000 PSI | 1-1/2"        | NW     | 0.58      |
| B. SLAB ON GRADE                                    | 3500 PSI | 1"            | NW     | 0.45      |
| C. COLUMNS, BEAMS, WALLS, ELEVATED SLABS, PILE CAPS | 4000 PSI | 1"            | NW     | 0.50      |
| D. NW CONC FILL OVER DECK                           | 3500 PSI | 3/4"          | NW     | 0.52      |
| E. LW CONC FILL OVER DECK                           | 3000 PSI | 3/4"          | LW     | 0.52      |
- SITE & MISCELLANEOUS - SEE CIVIL OR ARCH DRAWINGS

\* WCM = WATER : CEMENTITIOUS MATERIAL RATIO

DESIGN CRITERIA

100590602

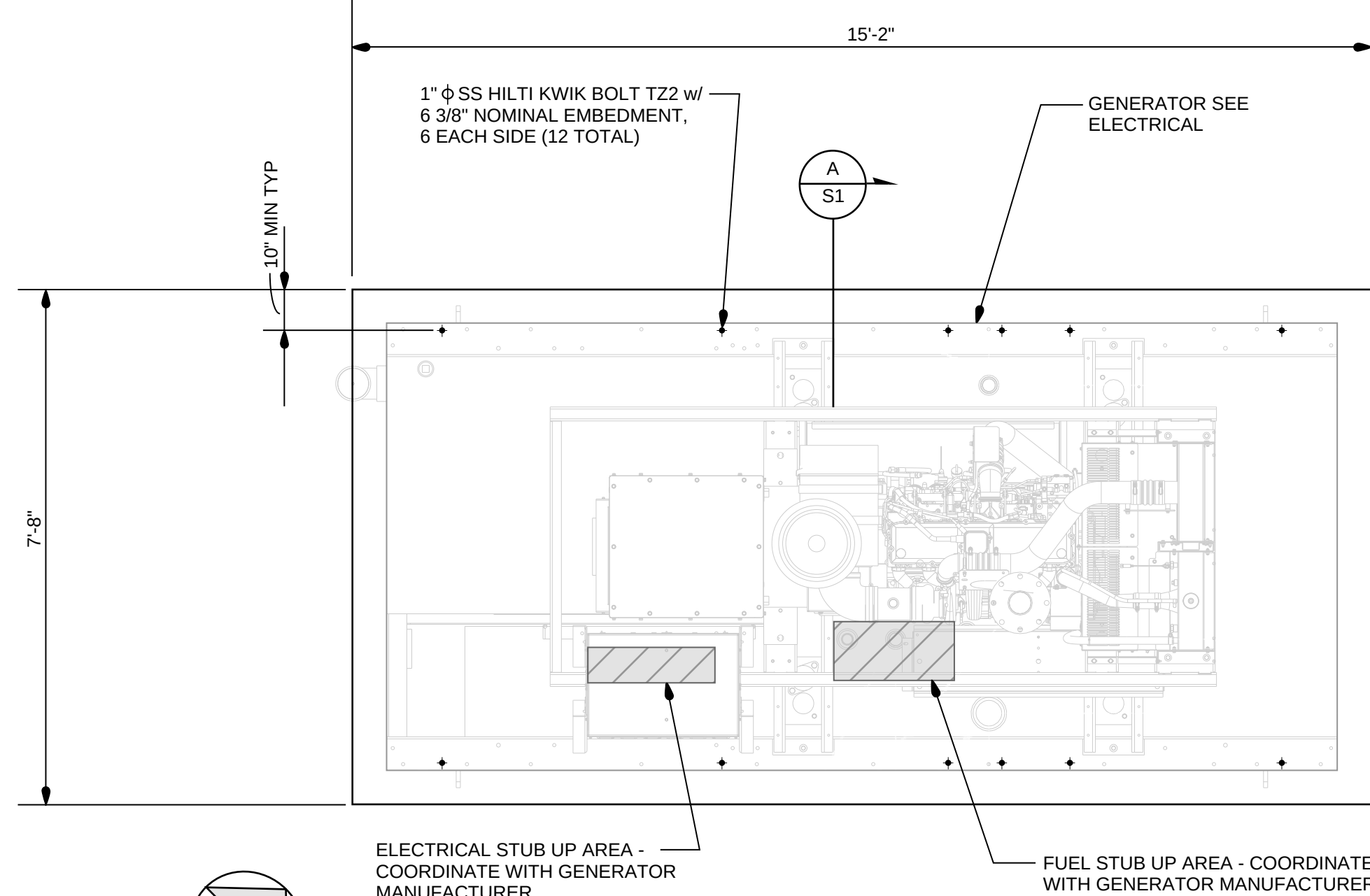
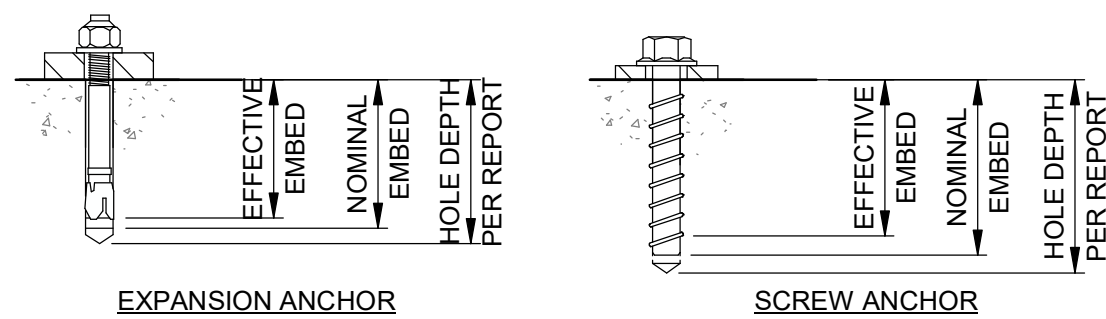
1. CODES AND STANDARDS
- 2025 CALIFORNIA BUILDING CODE (CBC)
- ASCE 7-22
- ACI 318-19
- AISC 360-22, 341-22, 358-22
- AISI S100-16 w/ S2-20, S240-20, S400-20
- TMS 402/602-2022
- 2024 NDS, 2018 SDPWS
2. VERTICAL LOADS
- GROUND SNOW LOAD = 167 PSF
- ROOF SNOW LOAD = 126 PSF
- ROOF LIVE LOAD = 20 PSF
- FLOOR LIVE LOAD = NA PSF
- FLOOR PARTITION LIVE LOAD = NA PSF
- CORRIDORS = NA PSF
- LIVE LOADS ARE REDUCED WHERE PERMITTED BY CODE.
3. SOILS VALUES
- ALLOWABLE SOILS PRESSURE
- A. DL 1500 PSF
- B. DL + LL 1500 PSF
- C. DL + LL + WIND/SEISMIC 2000 PSF
- FOOTING
- MINIMUM DEPTH = 18"
- MINIMUM WIDTH = 12"
4. LATERAL LOADS
- SEISMIC
- SITE CLASS D<sub>s</sub>: Default
- S<sub>s</sub> = 0.81 ; S<sub>ds</sub> = 0.71
- S<sub>1</sub> = 0.24 ; S<sub>01</sub> = 0.42
- R<sub>wo</sub> = 1.5 ; C<sub>w</sub> = 1.0
- Q<sub>0</sub> = 2.0
- I<sub>w</sub> = 1.5 PER ASCE 7-22 SECT 13.1.3
- RISK CATEGORY: SEISMIC DESIGN CATEGORY: \_
- WIND:
- V = 105 MPH
- RISK CATEGORY: IV
- EXPOSURE CATEGORY: C

POST-INSTALLED ANCHORS

305SN001

1. POST-INSTALLED ANCHORS SHALL BE AS INDICATED IN THE SECTIONS OR DETAILS. SEE LIST BELOW FOR CORRESPONDING EVALUATION REPORT REFERENCE. NOT ALL ANCHORS PROVIDE EQUIVALENT PERFORMANCE AND REQUESTS FOR SUBSTITUTION MAY BE SUBMITTED AND WILL BE EVALUATED PER THE GENERAL NOTES. POTENTIALLY ACCEPTABLE SUBSTITUTIONS ARE LISTED BELOW.
2. FOR CONCRETE CONSTRUCTION, POST-INSTALLED ANCHORS SHALL BE:
- A. ADHESIVE ANCHORS FOR THRD ROD & REBAR:
- a. HILTI HIT-HY 200 V3 PER ESR-4868
- b. HILTI HIT-RE500 V3 PER ESR-3814
- c. SIMPSON SET-3G PER ESR-4057
- d. DEWALT PURE 110+ ESR-3298
- B. EXPANSION ANCHORS:
- a. HILTI KB-TZ2 PER ESR-4266
- b. SIMPSON STRONG-BOLT 2 PER ESR-3037
- c. DEWALT POWER-STUD+ SD2, SD4 OR SD6 AS NOTED PER ESR-2502
- C. SCREW ANCHORS:
- a. HILTI KWIK HUS-EZ (KH-EZ) PER ESR-3027
- b. SIMPSON TITEN HD PER ESR-2713
- c. DEWALT SCREWBOLT+ PER ESR-3889
3. ANCHOR TYPE, SIZE & EMBEDMENT SHALL BE AS INDICATED IN DRAWINGS. POST-INSTALLED ANCHORS FOR REPAIR SHALL BE EVALUATED ON A CASE BY CASE BASIS. NOTIFY STRUCTURAL ENGINEER FOR REPAIRS.
4. EMBEDMENT DEPTHS SPECIFIED IN THE DRAWINGS REFER TO NOMINAL EMBEDMENT FOR EXPANSION AND SCREW ANCHORS.
5. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN THE EVALUATION REPORT. PROVIDE MINIMUM EMBEDMENT PROVIDED IN THE EVALUATION REPORT UNLESS NOTED OTHERWISE.
6. PROVIDE SPECIAL INSPECTION AS INDICATED IN THE STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS AND TESTING AND THE EVALUATION REPORT.
7. WHEN INSTALLING POST-INSTALLED ANCHORS IN EXISTING CONCRETE OR MASONRY, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING EXISTING REINFORCING BARS. DO NOT INSTALL ANCHORS WITHIN 1 1/2" OF CMU HEAD JOINTS. DO NOT INSTALL ANCHORS IN PRESTRESSED CONCRETE ELEMENTS.
8. THE CONCRETE SHALL HAVE ATTAINED ITS MINIMUM DESIGN STRENGTH PRIOR TO INSTALLATION OF THE ANCHORS.
9. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT THE TIME OF ANCHOR INSTALLATION PER ACI 318, CHAPTER 17.
10. IF TEMPERATURE OF BASE MATERIAL AT TIME OF ADHESIVE ANCHOR INSTALLATION IS 45 DEGREES FARENHEIT OR LOWER, COLD WEATHER ADHESIVE IS REQUIRED.
11. CONTRACTOR TO VERIFY W/ EVALUATION REPORT FOR ANCHOR INSTALLATION IN WET CONDITIONS AND/OR TEMPERATURE LIMITATIONS. DO NOT INSTALL WHERE PROHIBITED BY EVALUATION REPORT.
12. THE INSPECTION OF THE ANCHORS SHALL BE DONE BY A QUALIFIED INSPECTION AGENCY AND A REPORT OF THE INSPECTION RESULTS SHALL BE SUBMITTED TO THE GOVERNING AGENCY AND ARCHITECT/STRUCTURAL ENGINEER.

INSTALLED ANCHOR DIAGRAMS



FOUNDATION PLAN

1/2" = 1'-0"

SECTION

A  
S1

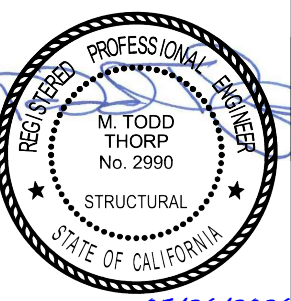
1/2" = 1'-0"

| REVISIONS | BY |
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FORESTHILL PUD  
GENERATOR REPLACEMENT

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02/26/2026



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|-------|-----------|
| Date  | 5/26/2026 |
| Scale | AS SHOWN  |
| Drawn | MTT       |
| Job   | 25.016    |
| Sheet |           |

S1





**Structural Calculations**  
*For*  
**Foresthill Public Utility District**  
**Generator Replacement**

25985 Foresthill Road, Foresthill, California

*April 22, 2026*

*Client: Peters Engineering  
Buehler SEOR: M. Todd Thorp*

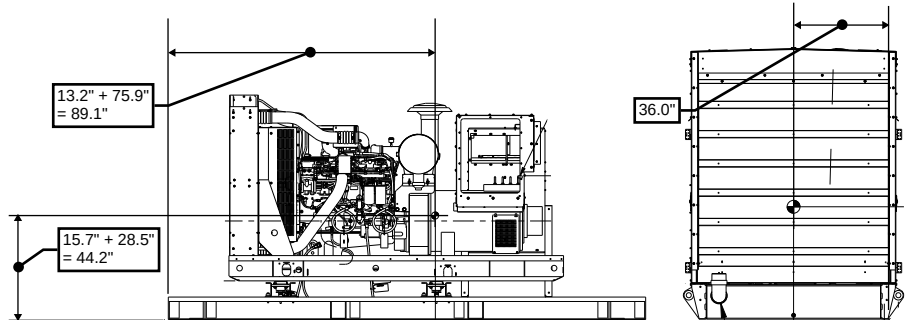
*Buehler Project No.: 2026-0158*



## Generator Foundation

### Component Weights

|                         |               |
|-------------------------|---------------|
| Gen Set                 | 4,926         |
| Lift Base               | 1,270         |
| 660 Gallon Tank (empty) | 2,917         |
| Fuel (660 Gallons)      | 4,400         |
| Enclosure               | 11,998        |
| <b>Total</b>            | <b>25,511</b> |



### Foundation Thickness

Greater of

$$B/5 = 6.67/5 = 1.33 \text{ ft}$$

$$L/10 = 14.17 / 10 = 1.47 \text{ ft}$$

2.00 ft ←

### Foundation Mass

Per ACI 351, for reciprocating equipment 5x mass of reciprocation equipment or 3x total mass.

$$M = 5x (4926_{\text{genset}}) = 24,630 \text{ lbs}$$

$$M = 3x (4926_{\text{genset}} + 1270_{\text{base}} + 2917_{\text{tank}}) = 27,340 \text{ lbs}$$

$$\text{Thickness} = 27,340 / (150 \times (15.17 \times 7.67)) = 1.56 \text{ ft}$$

Check Mat of 15'-2" x 7'-8" x 2'-0"

### Dead Load check

$$W_{t_{\text{fg}}} = 15.17 \times 7.67 \times 2.0 \times 150 = 34,900 \text{ lbs}$$

$$SP_{\text{dead}} = (25,511 + 34,900) / (15.17 \times 7.67) = 519 \text{ psf (336 psf net) OK, less than 1500 psf}$$

less 22" of soil at 100 pcf

### Dead + Snow

$$W_{t_{\text{snow}}} = 18.50 \times 7.67 \times 154_{\text{snow}} = 19,000 \text{ lbs}$$

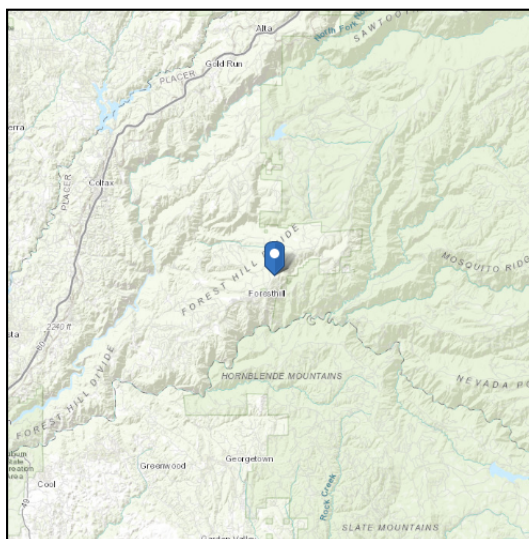
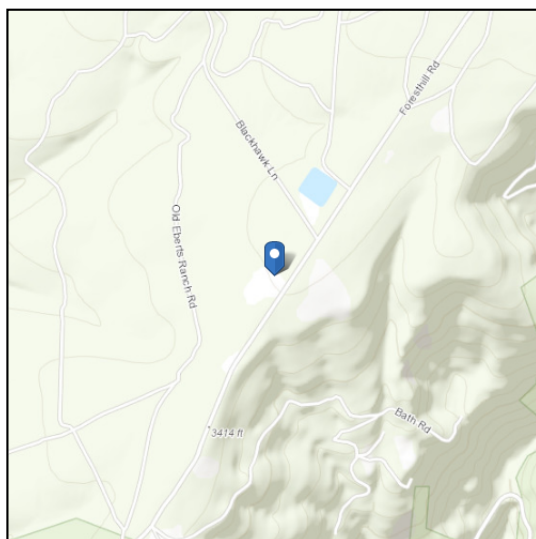
Area of Enclosure

See Page 3

$$SP_{\text{dead}} = (25,511 + 34,900 + 19,000) / (15.17 \times 7.67) = 682 \text{ psf (442 psf net) OK, less than 1500 psf}$$

**Address:**

25985 Foresthill Rd  
Foresthill, California  
95631

**ASCE Hazards Report****Standard:** ASCE/SEI 7-22**Risk Category:** IV**Soil Class:** Default**Latitude:** 39.035261**Longitude:** -120.796531**Elevation:** 3431.101430717158 ft  
(NAVD 88)**Wind****Results:**

Wind Speed

105 Vmph

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-22 Standard. Wind speeds correspond to approximately a 1.6% probability of exceedance in 50 years (annual exceedance probability = 0.00033, MRI = 3,000 years). Values for 10-year MRI, 25-year MRI, 50-year MRI and 100-year MRI are Service Level wind speeds, all other wind speeds are Ultimate wind speeds.

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-22 Section 26.2.

Data Source: ASCE/SEI 7-22, Fig. 26.5-1D and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Mon Apr 20 2026

**Seismic****Site Soil Class:**

Default

**Results:**

|                    |      |                    |      |
|--------------------|------|--------------------|------|
| PGA <sub>M</sub> : | 0.4  | T <sub>L</sub> :   | 6    |
| S <sub>MS</sub> :  | 1.06 | S <sub>S</sub> :   | 0.81 |
| S <sub>M1</sub> :  | 0.63 | S <sub>1</sub> :   | 0.24 |
| S <sub>DS</sub> :  | 0.71 | V <sub>S30</sub> : | 260  |
| S <sub>D1</sub> :  | 0.42 |                    |      |

Data Accessed: Mon Apr 20 2026

**Date Source:**

USGS Seismic Design Maps based on ASCE/SEI 7-22 and ASCE/SEI 7-22 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-22 Ch. 21 are available from USGS.



Snow

Results:

Ground Snow Load,  $p_g$ :167 lb/ft<sup>2</sup>

20-year MRI Value:39.96 lb/ft^2

Winter Wind Parameter:0.25

Mapped Elevation:3139.4 ft

Data Source:ASCE/SEI 7-22, Figures 7.6-1 and 7.6-2 A-D

Date Accessed:Mon Apr 20 2026

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

SNOW LOADS

Risk Category: IV

Ground Snow

$p_g$  = 167 psf from Building Department

Flat Roof Snow Load

$p_f = 0.7 C_e C_t p_g = 126.3$  psf

where  $C_e$  = 0.9 Exposure Factor per ASCE 7 Table 7.3-1 (Use worst case factor for Exposure C)

where , Surface Roughness Category is C (per Section 26.7)

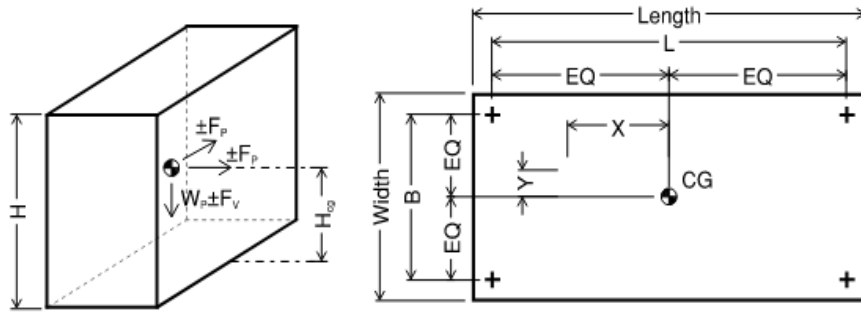
and Exposure of Roof is Fully Exposed

and  $C_t$  = 1.20 Thermal Factor per ASCE 7 Table 7.3-2

- ☐ 1.10 Structures kept just above freezing
- ☐ 1.10 Structures with cold ventilated roofs
- ☒ 1.20 Unheated and open air structures
- ☐ 1.30 Freezer Building
- ☐ 0.85 Continuously heated greenhouse
- ☐ 1.00 All other structures

## EQUIPMENT ANCHORAGE - BASE MOUNTED

ASCE 7-22, Chapter 13



Equip ID: Gen Set

### Unit Dimensions

Width = 74 in  
 Length = 170 in  
 Height = 112.5 in  
 $W_p = 28850$  lb  
 $H_{cg} = 45$  in

Includes 15% snow = 2850 lbs

Anchor Dimensions: Short Side  $B = 71.4$  in CG offset  $Y = 0$  in  
 Long Side  $L = 150$  in  $X = 4.1$  in

Unit Parameters: (Table 13.5-1 or 13.6-1)

$I_p = 1.5$   
 $\Omega_{op} = 2$   
 $C_{AR} = 1$   
 $R_{po} = 1.5$

Building Properties: Design spectral response acceleration (short period)

$S_{DS} = 0.71$

Location in building: Height to point of attachment from base of building

$z = 0$  ft

Average roof height from base of building

$h = 1$  ft

Is the equipment anchored on or below grade?

Yes

Input SFRS properties for your building or non-building structure?

No

Height Amplification for unknown SFRS (eqn 13.3-5)

$H_f = 1 + 2.5(z/h) = 1.000$

Structure Ductility Factor

At or Below Grade:  $R_\mu = 1.0$

Above Grade:  $R_\mu = 1.3$

$R_\mu = 1.00$   $H_f/R_\mu = 1.00$

Seismic Horizontal Force

$F_{p\text{calc}} = 0.4 \cdot S_{DS} \cdot I_p \cdot (H_f/R_\mu) \cdot (C_{AR}/R_{po})$

$F_{p\text{calc}} = 0.284 \cdot W_p$

(eqns 13.3-1 thru 13.3-3)

$F_{p\text{min}} = 0.3 \cdot S_{DS} \cdot I_p$

$F_{p\text{min}} = 0.320 \cdot W_p$

$F_{p\text{max}} = 1.6 \cdot S_{DS} \cdot I_p$

$F_{p\text{max}} = 1.704 \cdot W_p$

$F_p = 0.320 \cdot W_p = 9,218$  lb

Seismic Vertical Force (section 13.3.1.6)

$F_v = 0.2 \cdot S_{DS}$

$F_v = 0.142 \cdot W_p = 4,097$  lb

### Check Base Connection

Load Combination LRFD with Omega

$D = 0.9$

Anchor to Concrete?

Yes

$E_H = 2.0$

$E_V = 1.0$

# Anchors Resisting Shear & Tension in "B" Direction

$N_{VB} = 12$

$N_{TB} = 6$

# Anchors Resisting Shear & Tension in "L" Direction

$N_{VL} = 12$

$N_{TL} = 2$

Overtaking Moment in "B" Direction

$M_{OB} = E_H \cdot F_p \cdot H_{cg} + E_V \cdot F_v \cdot (B/2 - Y)$

$M_{OB} = 975,834$  lb\_in

Resisting Moment in "B" Direction

$M_{RB} = D \cdot W_p \cdot (B/2 - Y)$

$M_{RB} = 926,951$  lb\_in

Anchor Tension in "B" Direction

$T_B = (M_{OB} - M_{RB}) / (B \cdot N_{TB}) \geq 0$  lb

$T_B = 114$  lb

Anchor Shear in "B" Direction

$V_B = E_H \cdot F_p / N_{VB}$

$V_B = 1,536$  lb



|                                    |                                                            |                                     |
|------------------------------------|------------------------------------------------------------|-------------------------------------|
| Overturing Moment in "L" Direction | $M_{OL} = E_H * F_p * H_{cg} + E_V * F_v * (L/2 - X)$      | $M_{OL} = 1,120,038 \text{ lb\_in}$ |
| Resisting Moment in "L" Direction  | $M_{RL} = D * W_p * (L/2 - X)$                             | $M_{RL} = 1,840,919 \text{ lb\_in}$ |
| Anchor Tension in "L" Direction    | $T_L = (M_{OL} - M_{RL}) / (L * N_{TL}) \geq 0 \text{ lb}$ | $T_L = - \text{ lb}$                |
| Anchor Shear in "L" Direction      | $V_L = E_H * F_p / N_{VL}$                                 | $V_L = 1,536 \text{ lb}$            |

Maximum Anchor Demands Based on 100%/30% Loading in Orthogonal Directions

Tension Neglecting Dead Load

$$T_{ND} = \max(M_{OB} / (B * N_{TB}) + 0.3 * M_{OL} / (L * N_{TL}), 0.3 * M_{OB} / (B * N_{TB}) + M_{OL} / (L * N_{TL})) = 4,417 \text{ lb}$$

Assumed % Resisting DL to Critical Anchor

$$P_c = (B/2 - Y) / B * (L/2 - X) / L = 23.6\%$$

Anchor Demands;

$$T = T_{ND} - D * P_c * W_p \geq 0 \text{ lb} \quad T = - \text{ lb}$$

$$V = \max(V_B, V_L) \quad V = 1,536 \text{ lb}$$

Anchor 1" Diameter Hilti Kwik Bolt TZ2 w 6 3/8" Embedment

|                        |                                                    |                                       |
|------------------------|----------------------------------------------------|---------------------------------------|
| Anchor Capacities      | $\phi T = 7731 \text{ lb}$                         | $\phi V = 8759 \text{ lb}$            |
| Demand Capacity Ratios | $T / \phi T = 0.00 < 1.0, \text{ OK}$              | $V / \phi V = 0.18 < 1.0, \text{ OK}$ |
| Combined DCR           | $T / \phi T + V / \phi V = 0.18 < 1.2, \text{ OK}$ |                                       |

## OVERALL STABILITY

Generator

|         |                                      |
|---------|--------------------------------------|
| Slab    | 24" x 7.67' x 15.17'                 |
| W =     | 25,511 lbs $f_c' = 4000 \text{ psi}$ |
| $F_h =$ | 9,218 lbs $h = 4.16 \text{ ft}$      |

|             |          |
|-------------|----------|
| $B_{fig} =$ | 7.67 ft  |
| $L_{fig} =$ | 15.17 ft |
| $T_{fig} =$ | 2.00 ft  |

**LOAD CASE 8**  $1.0 D + 0.7 E + 0.15 S$

$$\text{Load Factor Vertical} = LF_V = 1.0 + 0.2 S_{DS} = 1.10$$

$$\text{Load Factor Lateral} = LF_H = 0.70$$

$$F_{v \text{ Applied}} = 28,361 \text{ lbs}$$

$$W_{fig} = T_{fig} \times L_{fig} \times W_{fig} \times 150 = 34,906 \text{ lbs}$$

$$F_h = 9,218 \text{ lbs}$$

$$A_{fig} = 116.35 \text{ ft}^2$$

$$S_{fig} = 148.74 \text{ ft}^3$$

$$M_{OT} = H \times (h + T_{fig}) = 56,768 \text{ ft-lbs}$$

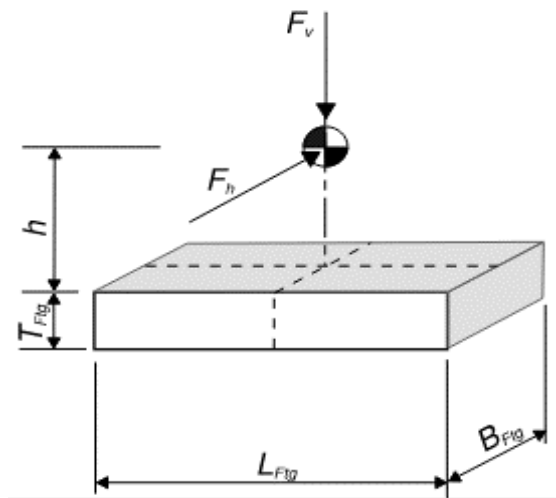
$$W_{TOT} = W + W_{fig} = 63,267 \text{ lbs}$$

$$M_R = W_{TOT} \times L_{fig} / 2 = 242,630 \text{ ft-lbs}$$

$$a = (LF_V \times M_R - LF_H \times M_{OT}) / (LF_V \times W_{TOT}) = 3.26 \text{ ft} \quad \text{MIDDLE 1/3}$$

$$3a = - \text{ ft}$$

$$\text{Overturning SF} = LF_V \times M_R / (LF_H \times M_{OT}) = 6.70 \quad \text{OK}$$



Includes 15%  
snow = 2850 lbs

## OVERALL STABILITY

Generator

Slab 24" x 7.67' x 15.17'

$W = 25,511 \text{ lbs}$   $f_c' = 4000 \text{ psi}$

$28,362 \text{ lbs w snow}$   $h = 4.16 \text{ ft}$

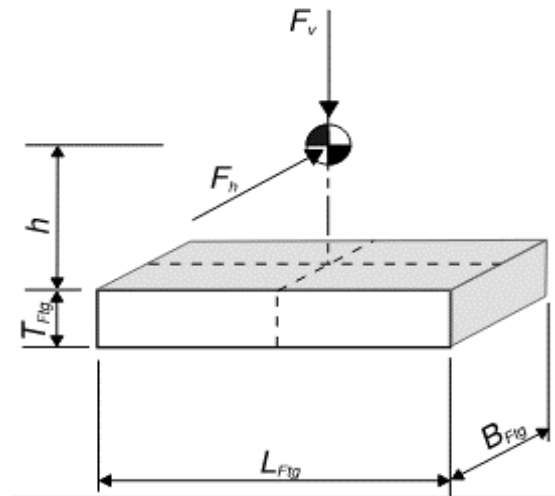
$F_h = 8,320 \text{ lbs}$

$9,218 \text{ lbs w snow}$

$B_{fig} = 7.67 \text{ ft}$

$L_{fig} = 15.17 \text{ ft}$

$T_{fig} = 2.00 \text{ ft}$



### LOAD CASE 8 1.0 D + 0.7 E + 0.15 S

Load Factor Vertical =  $LF_V = 1.0 + 0.2S_{DS} = 1.10$

Load Factor Lateral =  $LF_H = 0.70$

$F_v \text{ Applied} = 28,362 \text{ lbs}$

$W_{fig} = T_{fig} \times L_{fig} \times W_{fig} \times 150 = 34,906 \text{ lbs}$

$F_h = 9,218 \text{ lbs}$

$A_{fig} = 116.35 \text{ ft}^2$

$S_{fig} = 148.74 \text{ ft}^3$

$M_{OT} = F_h \times (h + T_{fig}) = 56,768 \text{ ft-lbs}$

$W_{TOT} = W + W_{fig} = 63,268 \text{ lbs}$

$M_R = W_{TOT} \times L_{fig} / 2 = 242,633 \text{ ft-lbs}$

$a = (LF_V \times M_R - LF_H \times M_{OT}) / (LF_V \times W_{TOT}) = 3.26 \text{ ft}$

$3a = - \text{ft}$

Overtuning SF =  $LF_V \times M_R / (LF_H \times M_{OT}) = 6.71$  **OK**

Includes 15%  
snow = 2850 lbs

Does not  
include snow

25,511 lbs

8,320 lbs

51,237 ft-lbs

60,417 lbs

231,700 ft-lbs

**MIDDLE 1/3**

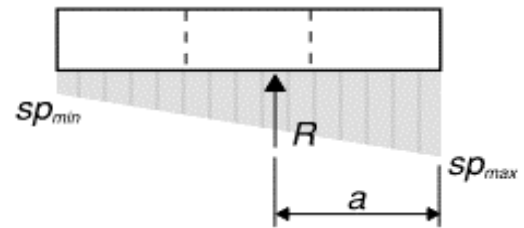
### If in OUTER 1/3

$sp_{max} = 2 \times W / (B_{fig} \times 3 \times a) = - \text{pdf}$

### If in MIDDLE 1/3

$sp_{max} = P / A + M / S = 865 \text{ psf}$

$sp_{min} = P / A - M / S = 331 \text{ psf}$



### LOAD CASE 10 0.6 D + 0.7 E

Load Factor Vertical =  $LF_V = 0.6 - 0.2S_{DS} = 0.50$

Load Factor Lateral =  $LF_H = 0.70$

$a = (LF_V \times M_R - LF_H \times M_{OT}) / (LF_V \times W_{TOT}) = 2.65 \text{ ft}$

$3a = - \text{ft}$

Overtuning SF =  $LF_V \times M_R / (LF_H \times M_{OT}) = 3.23$  **OK**

**MIDDLE 1/3**

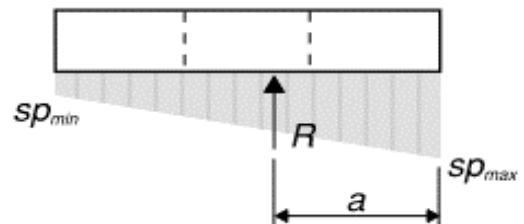
### If in OUTER 1/3

$sp_{max} = 2 \times W / (B_{fig} \times 3 \times a) = - \text{pdf}$

### If in MIDDLE 1/3

$sp_{max} = P / A + M / S = 539 \text{ psf}$

$sp_{min} = P / A - M / S = 5 \text{ psf}$

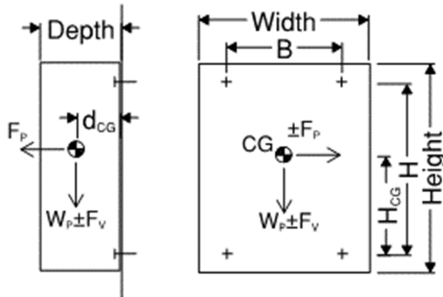


## Panel Anchorage

Anchor panel on existing concrete wall using Unistrut rails

### EQUIPMENT ANCHORAGE CALCULATION (ASCE 7-16)

for panel  
to Unistrut



|                             |                           |
|-----------------------------|---------------------------|
| Unit Identification         | UnitID = "Panel"          |
| Unit Height                 | Height = 36 in            |
| Unit Width                  | Width = 24 in             |
| Unit Depth                  | Depth = 8 in              |
| Unit Weight                 | W <sub>p</sub> = 400 lb   |
| Width Between Connections   | B = 18 in                 |
| Height Between Connections  | H = 37 in                 |
| Height to Center of Gravity | H <sub>CG</sub> = 18.5 in |
| Depth to Center of Gravity  | d <sub>CG</sub> = 6 in    |

#### Seismic Load Parameters (ASCE 7-16)

|                         |                      |                      |                      |
|-------------------------|----------------------|----------------------|----------------------|
| a <sub>p</sub> = 2.5    | R <sub>p</sub> = 6.0 | Ω <sub>0</sub> = 2.0 | I <sub>p</sub> = 1.5 |
| S <sub>ds</sub> = 0.690 | z = 6 ft             | h = 15 ft            |                      |

#### Seismic Forces

|                                                                                                                               |                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| F <sub>pcalc</sub> = 0.4*a <sub>p</sub> *S <sub>ds</sub> *I <sub>p</sub> *(1+2*(z/h))/R <sub>p</sub> = 0.311 * W <sub>p</sub> | F <sub>pmax</sub> = 1.6*S <sub>ds</sub> *I <sub>p</sub> = 1.656 * W <sub>p</sub> |
| F <sub>pmin</sub> = 0.3*S <sub>ds</sub> *I <sub>p</sub> = 0.311 * W <sub>p</sub>                                              | F <sub>p</sub> = 0.311 * W <sub>p</sub>                                          |
| Controlling Horizontal Force                                                                                                  | F <sub>v</sub> = 0.2*S <sub>ds</sub> = 0.138 * W <sub>p</sub>                    |
| Vertical Force                                                                                                                |                                                                                  |

#### Check Connections of Equipment to Wall

|                  |                      |                                       |                      |
|------------------|----------------------|---------------------------------------|----------------------|
| Load Combination | D <sub>F</sub> = 1.2 | E <sub>H</sub> = Ω <sub>0</sub> = 2.0 | E <sub>V</sub> = 1.0 |
|------------------|----------------------|---------------------------------------|----------------------|

|                                                   |                                                 |
|---------------------------------------------------|-------------------------------------------------|
| Total Number of Connections to Backing            | N = 4                                           |
| Number of Connections in Top Row                  | N <sub>T</sub> = 2                              |
| Number of Connections Each Side                   | N <sub>S</sub> = 2                              |
| Increase to Loads to Connections Due to CG Offset | Inc = abs( (H <sub>CG</sub> /H - 0.5)/0.5 ) = 0 |

|                                                  |                                                                                                                                               |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Tension from Dead Loads                          | T <sub>D</sub> = D <sub>F</sub> *W <sub>p</sub> *d <sub>CG</sub> /(H*N <sub>T</sub> ) = 39 lbs                                                |
| Tension from F <sub>v</sub>                      | T <sub>Fv</sub> = E <sub>V</sub> *F <sub>v</sub> *W <sub>p</sub> *d <sub>CG</sub> /(H*N <sub>T</sub> ) = 4 lb                                 |
| Tension from F <sub>p</sub> acting Front to Back | T <sub>1</sub> = E <sub>H</sub> *F <sub>p</sub> *W <sub>p</sub> /N*(1+Inc) = 62 lb                                                            |
| Tension from F <sub>p</sub> acting Side to Side  | T <sub>2</sub> = E <sub>H</sub> *F <sub>p</sub> *W <sub>p</sub> *d <sub>CG</sub> /(B*N <sub>S</sub> )*(1+Inc) = 41 lb                         |
| Controlling Tension                              | T <sub>conn</sub> = T <sub>D</sub> + T <sub>Fv</sub> + max(T <sub>1</sub> +0.3*T <sub>2</sub> , 0.3*T <sub>1</sub> +T <sub>2</sub> ) = 118 lb |

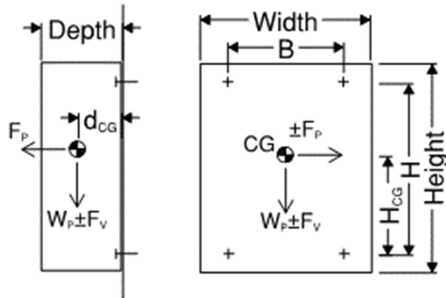
|                                                |                                                                                                                                                                                     |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shear from Dead Loads                          | V <sub>D</sub> = D <sub>F</sub> *W <sub>p</sub> /N*(1+Inc) = 120 lb                                                                                                                 |
| Shear from F <sub>v</sub>                      | V <sub>Fv</sub> = E <sub>V</sub> *F <sub>v</sub> *W <sub>p</sub> /N*(1+Inc) = 14 lb                                                                                                 |
| Shear from F <sub>p</sub> acting Front to Back | V <sub>1</sub> = 0 lb                                                                                                                                                               |
| Shear from F <sub>p</sub> acting Side to Side  | V <sub>2</sub> = (E <sub>H</sub> *F <sub>p</sub> *W <sub>p</sub> )/N*(1+Inc) = 62 lb                                                                                                |
| Controlling Shear                              | V <sub>conn</sub> = sqrt((V <sub>D</sub> + V <sub>Fv</sub> ) <sup>2</sup> + (max(V <sub>1</sub> +0.3*V <sub>2</sub> , 0.3*V <sub>1</sub> +V <sub>2</sub> )) <sup>2</sup> ) = 148 lb |

#### Check Connection to Wall

|                       |                                                            |
|-----------------------|------------------------------------------------------------|
| Connection            | Conn = "3/8" Bolt"                                         |
| Tension Capacity      | φT = 2250 lb                                               |
| Shear Capacity        | φV = 2400 lb                                               |
| Demand Capacity Ratio | DCR = V <sub>conn</sub> /φV + T <sub>conn</sub> /φT = 0.11 |
|                       | Check = "OK"                                               |

## EQUIPMENT ANCHORAGE CALCULATION (ASCE 7-16)

for Unistrut  
to Wall



|                             |                  |
|-----------------------------|------------------|
| Unit Identification         | UnitID = "Panel" |
| Unit Height                 | Height = 36 in   |
| Unit Width                  | Width = 24 in    |
| Unit Depth                  | Depth = 9.6 in   |
| Unit Weight                 | Wp = 415 lb      |
| Width Between Connections   | B = 18 in        |
| Height Between Connections  | H = 30 in        |
| Height to Center of Gravity | HCG = 18.5 in    |
| Depth to Center of Gravity  | dCG = 7.6 in     |

### Seismic Load Parameters (ASCE 7-16)

|                  |                    |                     |             |
|------------------|--------------------|---------------------|-------------|
| $a_p = 2.5$      | $R_p = 6.0$        | $\Omega_0 = 2.0$    | $I_p = 1.5$ |
| $S_{ds} = 0.690$ | $z = 6 \text{ ft}$ | $h = 15 \text{ ft}$ |             |

### Seismic Forces

|                                                                                                             |                                                                  |
|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| $F_{p\text{calc}} = 0.4 \cdot a_p \cdot S_{ds} \cdot I_p \cdot (1 + 2 \cdot (z/h)) / R_p = 0.311 \cdot W_p$ | $F_{p\text{max}} = 1.6 \cdot S_{ds} \cdot I_p = 1.656 \cdot W_p$ |
| $F_{p\text{min}} = 0.3 \cdot S_{ds} \cdot I_p = 0.311 \cdot W_p$                                            | $F_p = 0.311 \cdot W_p$                                          |
| Controlling Horizontal Force                                                                                | $F_v = 0.2 \cdot S_{ds} = 0.138 \cdot W_p$                       |
| Vertical Force                                                                                              |                                                                  |

### Check Connections of Equipment to Wall

|                  |             |                        |             |
|------------------|-------------|------------------------|-------------|
| Load Combination | $D_F = 1.2$ | $E_H = \Omega_0 = 2.0$ | $E_v = 1.0$ |
|------------------|-------------|------------------------|-------------|

|                                                   |                                                        |
|---------------------------------------------------|--------------------------------------------------------|
| Total Number of Connections to Backing            | $N = 4$                                                |
| Number of Connections in Top Row                  | $N_T = 2$                                              |
| Number of Connections Each Side                   | $N_S = 2$                                              |
| Increase to Loads to Connections Due to CG Offset | $\text{Inc} = \text{abs}((H_{CG}/H - 0.5)/0.5) = 0.23$ |

|                                      |                                                                                                     |
|--------------------------------------|-----------------------------------------------------------------------------------------------------|
| Tension from Dead Loads              | $T_D = D_F \cdot W_p \cdot d_{CG} / (H \cdot N_T) = 63 \text{ lbs}$                                 |
| Tension from Fv                      | $T_{Fv} = E_v \cdot F_v \cdot W_p \cdot d_{CG} / (H \cdot N_T) = 7 \text{ lb}$                      |
| Tension from Fp acting Front to Back | $T_1 = E_H \cdot F_p \cdot W_p / N \cdot (1 + \text{Inc}) = 79 \text{ lb}$                          |
| Tension from Fp acting Side to Side  | $T_2 = E_H \cdot F_p \cdot W_p \cdot d_{CG} / (B \cdot N_S) \cdot (1 + \text{Inc}) = 67 \text{ lb}$ |
| Controlling Tension                  | $T_{\text{conn}} = T_D + T_{Fv} + \max(T_1 + 0.3 \cdot T_2, 0.3 \cdot T_1 + T_2) = 170 \text{ lb}$  |

|                                    |                                                                                                                         |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Shear from Dead Loads              | $V_D = D_F \cdot W_p / N \cdot (1 + \text{Inc}) = 154 \text{ lb}$                                                       |
| Shear from Fv                      | $V_{Fv} = E_v \cdot F_v \cdot W_p / N \cdot (1 + \text{Inc}) = 18 \text{ lb}$                                           |
| Shear from Fp acting Front to Back | $V_1 = 0 \text{ lb}$                                                                                                    |
| Shear from Fp acting Side to Side  | $V_2 = (E_H \cdot F_p \cdot W_p) / N \cdot (1 + \text{Inc}) = 79 \text{ lb}$                                            |
| Controlling Shear                  | $V_{\text{conn}} = \text{sqrt}((V_D + V_{Fv})^2 + (\max(V_1 + 0.3 \cdot V_2, 0.3 \cdot V_1 + V_2))^2) = 189 \text{ lb}$ |

### Check Connection to Wall

|                       |                                              |
|-----------------------|----------------------------------------------|
| Connection            | Conn = "3/8" Expansion Anchor w/ 1.5" Embed" |
| Tension Capacity      | $\phi T = 1212 \text{ lb}$                   |
| Shear Capacity        | $\phi V = 1844 \text{ lb}$                   |
| Demand Capacity Ratio |                                              |

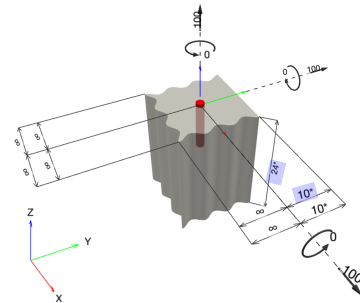
$$DCR = V_{\text{conn}} / \phi V + T_{\text{conn}} / \phi T = 0.24 \quad \text{Check} = \text{"OK"}$$



## Hilti PROFIS Engineering 3.1.30

### 1 Input data

|                                    |                                                                                                                                         |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Anchor type and diameter:</b>   | <b>Kwik Bolt TZ2 - SS 304 1 (5 3/4) hnom 2</b>                                                                                          |
| Item number:                       | 2210304 KB-TZ2 1x9 SS304                                                                                                                |
| Specification text:                | HILTI 25 1 IN KWIK BOLT TZ2 - SS 304 WITH 6.375 IN NOMINAL EMBEDMENT DEPTH PER ICC-ES ESR-4266 , HAMMER DRILL BIT INSTALLATION PER MPII |
| <b>Effective embedment depth:</b>  | $h_{ef,act} = 5.750$ in., $h_{nom} = 6.375$ in.                                                                                         |
| Material:                          | AISI 304                                                                                                                                |
| Evaluation Service Report:         | ESR-4266                                                                                                                                |
| Issued / Valid:                    | 12/1/2025 / 12/1/2027                                                                                                                   |
| Proof:                             | Design Method ACI 318-19 / Mech                                                                                                         |
| Shear edge breakout verification:  | Row closest to edge (Case 3 only from ACI 318-19 Fig. R.17.7.2.1b)                                                                      |
| Stand-off installation:            |                                                                                                                                         |
| Profile:                           |                                                                                                                                         |
| <b>Base material:</b>              | cracked concrete, 3000, $f'_c = 3,000$ psi; $h = 24.000$ in.                                                                            |
| <b>Installation:</b>               | <b>Hammer drilled hole, Installation condition: Dry</b>                                                                                 |
| Reinforcement:                     | tension: not present, shear: present; no supplemental splitting reinforcement present                                                   |
| Seismic loads (cat. C, D, E, or F) | edge reinforcement: > No. 4 bar<br>Tension load: yes (17.10.5.3 (d))<br>Shear load: yes (17.10.6.3 (c))                                 |



### Capacity

Tension = 7,731 lbs  
Shear = 8,759 lbs

### 3 Tension load

|                             | Load $N_{ia}$ [lb] | Capacity $\phi N_s$ [lb] |
|-----------------------------|--------------------|--------------------------|
| Steel Strength*             | 100                | 35,230                   |
| Pullout Strength*           | N/A                | N/A                      |
| Concrete Breakout Failure** | 100                | 7,731                    |

#### 3.1 Steel Strength

$N_{ia}$  = ESR value refer to ICC-ES ESR-4266  
 $\phi N_{ia} \geq N_{ia}$  ACI 318-19 Table 17.5.2

#### Variables

|                                |                |
|--------------------------------|----------------|
| $A_{se,V}$ [in. <sup>2</sup> ] | $f_{ut}$ [psi] |
| 0.47                           | 99,900         |

#### Calculations

|               |
|---------------|
| $N_{ia}$ [lb] |
| 46,974        |

#### Results

|               |                |                    |               |
|---------------|----------------|--------------------|---------------|
| $N_{ia}$ [lb] | $\phi_{steel}$ | $\phi N_{ia}$ [lb] | $N_{ia}$ [lb] |
| 46,974        | 0.750          | 35,230             | 100           |

#### 3.2 Concrete Breakout Failure

$N_{cb} = \left( \frac{A_{bc}}{A_{Nco}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$  ACI 318-19 Eq. (17.6.2.1a)  
 $\phi N_{cb} \geq N_{ia}$  ACI 318-19 Table 17.5.2  
 $A_{bc}$  see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)  
 $A_{Nco} = 9 h_{ef}^2$  ACI 318-19 Eq. (17.6.2.1.4)  
 $\psi_{ed,N} = 0.7 + 0.3 \left( \frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$  ACI 318-19 Eq. (17.6.2.4.1b)  
 $\psi_{cp,N} = \text{MAX} \left( \frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$  ACI 318-19 Eq. (17.6.2.6.1b)  
 $N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$  ACI 318-19 Eq. (17.6.2.2.1)

#### Variables

|                |                   |              |                |       |             |              |
|----------------|-------------------|--------------|----------------|-------|-------------|--------------|
| $h_{ef}$ [in.] | $c_{a,min}$ [in.] | $\psi_{c,N}$ | $c_{ac}$ [in.] | $k_c$ | $\lambda_a$ | $f'_c$ [psi] |
| 5.750          | 10.000            | 1.000        | 15.500         | 21    | 1.000       | 3,000        |

#### Calculations

|                              |                               |               |               |            |
|------------------------------|-------------------------------|---------------|---------------|------------|
| $A_{bc}$ [in. <sup>2</sup> ] | $A_{Nco}$ [in. <sup>2</sup> ] | $\psi_{ed,N}$ | $\psi_{cp,N}$ | $N_b$ [lb] |
| 297.56                       | 297.56                        | 1.000         | 1.000         | 15,859     |

#### Results

|               |                   |                  |                     |                    |               |
|---------------|-------------------|------------------|---------------------|--------------------|---------------|
| $N_{cb}$ [lb] | $\phi_{concrete}$ | $\phi_{seismic}$ | $\phi_{nonductile}$ | $\phi N_{cb}$ [lb] | $N_{ia}$ [lb] |
| 15,859        | 0.650             | 0.750            | 1.000               | 7,731              | 100           |

### 4 Shear load

|                                        | Load $V_{ia}$ [lb] | Capacity $\phi V_s$ [lb] |
|----------------------------------------|--------------------|--------------------------|
| Steel Strength*                        | 141                | 8,759                    |
| Steel failure (with lever arm)*        | N/A                | N/A                      |
| Pryout Strength**                      | 141                | 22,203                   |
| Concrete edge failure in direction y** | 141                | 14,030                   |

#### 4.1 Steel Strength

$V_{s,ESR}$  = ESR value refer to ICC-ES ESR-4266  
 $\phi V_{s,ESR} \geq V_{ia}$  ACI 318-19 Table 17.5.2

#### Variables

|                                |                |                |
|--------------------------------|----------------|----------------|
| $A_{se,V}$ [in. <sup>2</sup> ] | $f_{ut}$ [psi] | $\psi_{s,ESR}$ |
| 0.47                           | 99,900         | 0.429          |

#### Calculations

|                  |
|------------------|
| $V_{s,ESR}$ [lb] |
| 13,475           |

#### Results

|                  |                |                       |
|------------------|----------------|-----------------------|
| $V_{s,ESR}$ [lb] | $\phi_{steel}$ | $\phi V_{s,ESR}$ [lb] |
| 13,475           | 0.650          | 8,759                 |

#### 4.2 Pryout Strength

$V_{cp} = k_{cp} \left[ \left( \frac{A_{bc}}{A_{Nco}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$  ACI 318-19 Eq. (17.7.3.1a)  
 $\phi V_{cp} \geq V_{ia}$  ACI 318-19 Table 17.5.2  
 $A_{bc}$  see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)  
 $A_{Nco} = 9 h_{ef}^2$  ACI 318-19 Eq. (17.6.2.1.4)  
 $\psi_{ed,N} = 0.7 + 0.3 \left( \frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$  ACI 318-19 Eq. (17.6.2.4.1b)  
 $\psi_{cp,N} = \text{MAX} \left( \frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$  ACI 318-19 Eq. (17.6.2.6.1b)  
 $N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$  ACI 318-19 Eq. (17.6.2.2.1)

#### Variables

|          |                |                   |              |
|----------|----------------|-------------------|--------------|
| $k_{cp}$ | $h_{ef}$ [in.] | $c_{a,min}$ [in.] | $\psi_{c,N}$ |
| 2        | 5.750          | 10.000            | 1.000        |

|                |       |             |              |
|----------------|-------|-------------|--------------|
| $c_{ac}$ [in.] | $k_c$ | $\lambda_a$ | $f'_c$ [psi] |
| 15.500         | 21    | 1.000       | 3,000        |

#### Calculations

|                              |                               |               |               |            |
|------------------------------|-------------------------------|---------------|---------------|------------|
| $A_{bc}$ [in. <sup>2</sup> ] | $A_{Nco}$ [in. <sup>2</sup> ] | $\psi_{ed,N}$ | $\psi_{cp,N}$ | $N_b$ [lb] |
| 297.56                       | 297.56                        | 1.000         | 1.000         | 15,859     |

#### Results

|               |                   |                  |                     |                    |
|---------------|-------------------|------------------|---------------------|--------------------|
| $V_{cp}$ [lb] | $\phi_{concrete}$ | $\phi_{seismic}$ | $\phi_{nonductile}$ | $\phi V_{cp}$ [lb] |
| 31,718        | 0.700             | 1.000            | 1.000               | 22,203             |

#### 4.3 Concrete edge failure in direction y\*

$V_{cb} = \left( \frac{A_{bc}}{A_{Nco}} \right) \psi_{ed,V} \psi_{c,V} \psi_{s,V} \psi_{parallel,V} V_o$  ACI 318-19 Eq. (17.7.2.1a)  
 $\phi V_{cb} \geq V_{ia}$  ACI 318-19 Table 17.5.2  
 $A_{bc}$  see ACI 318-19, Section 17.7.2.1, Fig. R 17.7.2.1(b)\*  
 $A_{Nco} = 4.5 c_{a1}^2$  ACI 318-19 Eq. (17.7.2.1.3)  
 $\psi_{ed,V} = 0.7 + 0.3 \left( \frac{c_{a2}}{1.5 c_{a1}} \right) \leq 1.0$  ACI 318-19 Eq. (17.7.2.4.1b)  
 $\psi_{s,V} = \sqrt{\frac{1.5 c_{a1}}{h_a}} \geq 1.0$  ACI 318-19 Eq. (17.7.2.6.1)  
 $V_o = 9 \lambda_a \sqrt{f'_c} c_{a1}^{1.5}$  ACI 318-19 Eq. (17.7.2.2.1b)

#### Variables

|                |                |              |             |             |
|----------------|----------------|--------------|-------------|-------------|
| $c_{a1}$ [in.] | $c_{a2}$ [in.] | $\psi_{c,V}$ | $h_a$ [in.] | $l_a$ [in.] |
| 10.000         | -              | 1.200        | 24.000      | 5.750       |

|             |             |              |                     |
|-------------|-------------|--------------|---------------------|
| $\lambda_a$ | $d_s$ [in.] | $f'_c$ [psi] | $\psi_{parallel,V}$ |
| 1.000       | 1.000       | 3,000        | 1.000               |

#### Calculations

|                              |                               |               |              |            |
|------------------------------|-------------------------------|---------------|--------------|------------|
| $A_{bc}$ [in. <sup>2</sup> ] | $A_{Nco}$ [in. <sup>2</sup> ] | $\psi_{ed,V}$ | $\psi_{s,V}$ | $V_o$ [lb] |
| 450.00                       | 450.00                        | 1.000         | 1.000        | 15,588     |

#### Results

|               |                   |                  |                     |                    |
|---------------|-------------------|------------------|---------------------|--------------------|
| $V_{cb}$ [lb] | $\phi_{concrete}$ | $\phi_{seismic}$ | $\phi_{nonductile}$ | $\phi V_{cb}$ [lb] |
| 18,706        | 0.750             | 1.000            | 1.000               | 14,030             |



## Hilti PROFIS Engineering 3.0.62

### 1 Input data

#### Anchor type and diameter:

Effective embedment depth:

Material:

Evaluation Service Report:

Issued I Valid:

Proof:

Stand-off installation:

Profile:

Base material:

Installation:

Reinforcement:

Seismic loads (cat. C, D, E, or F)

#### Kwik Bolt TZ - CS 3/8 (2)

$h_{ef,req} = 2.000$  in.,  $h_{nom} = 2.313$  in.

Carbon Steel

ESR-1917

10/1/2015 | 5/1/2017

Design method ACI 318-11 / Mech.

-(Recommended plate thickness: not calculated)

no profile

cracked concrete,  $f'_c = 3000$  psi;  $h = 6.000$  in.

hammer drilled hole, Installation condition: Dry

tension: condition B, shear: condition B; no supplemental splitting reinforcement present

edge reinforcement: none or  $< N_o$  4 bar

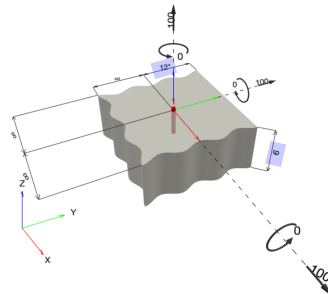
Tension load: yes (D.3.3.4.3 (d))

Shear load: yes (D.3.3.5.3 (c))



### Capacity

Tension = 1,212 lbs  
Shear = 1,844 lbs



### 3 Tension load

|                              | Load $N_{Ed}$ [lb] | Capacity $\phi N_s$ [lb] |
|------------------------------|--------------------|--------------------------|
| Steel Strength*              | 100                | 4875                     |
| Pullout Strength*            | 100                | 1212                     |
| Concrete Breakout Strength** | 100                | 1284                     |

#### 3.1 Steel Strength

$N_{s,req} = ESR$  value refer to ICC-ES ESR-1917  
 $\phi N_{s,req} \geq N_{Ed}$  ACI 318-11 Table D.4.1.1

#### Variables

|                                 |                |
|---------------------------------|----------------|
| $A_{s,req}$ [in. <sup>2</sup> ] | $f_{ds}$ [psi] |
| 0.05                            | 125000         |

#### Calculations

|                  |
|------------------|
| $N_{s,req}$ [lb] |
| 6500             |

#### Results

| $N_{s,req}$ [lb] | $\phi_{steel}$ | $\phi_{concrete}$ | $\phi N_{s,req}$ [lb] | $N_{Ed}$ [lb] |
|------------------|----------------|-------------------|-----------------------|---------------|
| 6500             | 0.750          | 1.000             | 4875                  | 100           |

#### 3.2 Pullout Strength

$N_{p,req} = N_{p,2500} \lambda_a \sqrt{\frac{f'_c}{2500}}$  refer to ICC-ES ESR-1917  
 $\phi N_{p,req} \geq N_{Ed}$  ACI 318-11 Table D.4.1.1

#### Variables

|              |             |                   |
|--------------|-------------|-------------------|
| $f'_c$ [psi] | $\lambda_a$ | $N_{p,2500}$ [lb] |
| 3000         | 1.000       | 2270              |

#### Calculations

|                            |
|----------------------------|
| $\sqrt{\frac{f'_c}{2500}}$ |
| 1.095                      |

#### Results

| $N_{p,req}$ [lb] | $\phi_{concrete}$ | $\phi_{seismic}$ | $\phi_{conductive}$ | $\phi N_{p,req}$ [lb] |
|------------------|-------------------|------------------|---------------------|-----------------------|
| 2487             | 0.650             | 0.750            | 1.000               | 1212                  |

#### 3.3 Concrete Breakout Strength

$N_{cb} = \left( \frac{A_{Ncb}}{A_{Ncb,req}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$  ACI 318-11 Eq. (D-3)  
 $\phi N_{cb} \geq N_{Ed}$  ACI 318-11 Table D.4.1.1

$A_{Ncb}$  see ACI 318-11, Part D.5.2.1, Fig. RD.5.2.1(b)

$A_{Ncb,req} = 9 h_{ef}^2$

$\psi_{ed,N} = \left( \frac{1}{1 + \frac{2 e_{Ncb}}{3 h_{ef}}} \right) \leq 1.0$  ACI 318-11 Eq. (D-5)

$\psi_{c,N} = 0.7 + 0.3 \left( \frac{C_{min}}{1.5 h_{ef}} \right) \leq 1.0$  ACI 318-11 Eq. (D-10)

$\psi_{cp,N} = \text{MAX} \left( \frac{C_{min}}{C_{max}}, \frac{1.5 h_{ef}}{C_{max}} \right) \leq 1.0$  ACI 318-11 Eq. (D-12)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$  ACI 318-11 Eq. (D-6)

#### Variables

|                |                  |                  |                 |              |
|----------------|------------------|------------------|-----------------|--------------|
| $h_{ef}$ [in.] | $e_{c1,N}$ [in.] | $e_{c2,N}$ [in.] | $C_{min}$ [in.] | $\psi_{c,N}$ |
| 2.000          | 0.000            | 0.000            | 12.000          | 1.000        |

|                 |       |             |              |
|-----------------|-------|-------------|--------------|
| $C_{max}$ [in.] | $k_c$ | $\lambda_a$ | $f'_c$ [psi] |
| 4.000           | 17    | 1.000       | 3000         |

#### Calculations

| $A_{Ncb}$ [in. <sup>2</sup> ] | $A_{Ncb,req}$ [in. <sup>2</sup> ] | $\psi_{ed,N}$ | $\psi_{c,N}$ | $\psi_{cp,N}$ | $N_b$ [lb] |
|-------------------------------|-----------------------------------|---------------|--------------|---------------|------------|
| 36.00                         | 36.00                             | 1.000         | 1.000        | 1.000         | 2634       |

#### Results

| $N_{cb}$ [lb] | $\phi_{concrete}$ | $\phi_{seismic}$ | $\phi_{conductive}$ | $\phi N_{cb}$ [lb] | $N_{Ed}$ [lb] |
|---------------|-------------------|------------------|---------------------|--------------------|---------------|
| 2834          | 0.650             | 0.750            | 1.000               | 1284               | 100           |

### 4 Shear load

|                                         | Load $V_{Ed}$ [lb] | Capacity $\phi V_s$ [lb] |
|-----------------------------------------|--------------------|--------------------------|
| Steel Strength*                         | 100                | 1466                     |
| Steel failure (with lever arm)*         | N/A                | N/A                      |
| Pryout Strength**                       | 100                | 1844                     |
| Concrete edge failure in direction x*** | 100                | 4135                     |

#### 4.1 Steel Strength

$V_{s,req} = ESR$  value refer to ICC-ES ESR-1917  
 $\phi V_{s,req} \geq V_{Ed}$  ACI 318-11 Table D.4.1.1

#### Variables

|                                 |                |
|---------------------------------|----------------|
| $A_{s,req}$ [in. <sup>2</sup> ] | $f_{ds}$ [psi] |
| 0.05                            | 125000         |

#### Calculations

|                  |
|------------------|
| $V_{s,req}$ [lb] |
| 2255             |

#### Results

| $V_{s,req}$ [lb] | $\phi_{steel}$ | $\phi_{conductive}$ | $\phi V_{s,req}$ [lb] | $V_{Ed}$ [lb] |
|------------------|----------------|---------------------|-----------------------|---------------|
| 2255             | 0.650          | 1.000               | 1466                  | 100           |

#### 4.2 Pryout Strength

$V_{cp} = k_{cp} \left[ \left( \frac{A_{Ncb}}{A_{Ncb,req}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$  ACI 318-11 Eq. (D-40)

$\phi V_{cp} \geq V_{Ed}$  ACI 318-11 Table D.4.1.1

$A_{Ncb}$  see ACI 318-11, Part D.5.2.1, Fig. RD.5.2.1(b)

$A_{Ncb,req} = 9 h_{ef}^2$  ACI 318-11 Eq. (D-5)

$\psi_{ed,N} = \left( \frac{1}{1 + \frac{2 e_{Ncb}}{3 h_{ef}}} \right) \leq 1.0$  ACI 318-11 Eq. (D-8)

$\psi_{c,N} = 0.7 + 0.3 \left( \frac{C_{min}}{1.5 h_{ef}} \right) \leq 1.0$  ACI 318-11 Eq. (D-10)

$\psi_{cp,N} = \text{MAX} \left( \frac{C_{min}}{C_{max}}, \frac{1.5 h_{ef}}{C_{max}} \right) \leq 1.0$  ACI 318-11 Eq. (D-12)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$  ACI 318-11 Eq. (D-6)

#### Variables

|          |                |                  |                  |                 |
|----------|----------------|------------------|------------------|-----------------|
| $k_{cp}$ | $h_{ef}$ [in.] | $e_{c1,N}$ [in.] | $e_{c2,N}$ [in.] | $C_{min}$ [in.] |
| 1        | 2.000          | 0.000            | 0.000            | 12.000          |

|              |                 |       |             |              |
|--------------|-----------------|-------|-------------|--------------|
| $\psi_{c,N}$ | $C_{max}$ [in.] | $k_c$ | $\lambda_a$ | $f'_c$ [psi] |
| 1.000        | 4.000           | 17    | 1.000       | 3000         |

#### Calculations

| $A_{Ncb}$ [in. <sup>2</sup> ] | $A_{Ncb,req}$ [in. <sup>2</sup> ] | $\psi_{ed,N}$ | $\psi_{c,N}$ | $\psi_{cp,N}$ | $N_b$ [lb] |
|-------------------------------|-----------------------------------|---------------|--------------|---------------|------------|
| 36.00                         | 36.00                             | 1.000         | 1.000        | 1.000         | 2634       |

#### Results

| $V_{cp}$ [lb] | $\phi_{concrete}$ | $\phi_{seismic}$ | $\phi_{conductive}$ | $\phi V_{cp}$ [lb] | $V_{Ed}$ [lb] |
|---------------|-------------------|------------------|---------------------|--------------------|---------------|
| 2634          | 0.700             | 1.000            | 1.000               | 1844               | 100           |

#### 4.3 Concrete edge failure in direction x\*

$V_{cb} = \left( \frac{A_{Ncb}}{A_{Ncb,req}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} \psi_{par,N} V_s$  ACI 318-11 Eq. (D-30)

$\phi V_{cb} \geq V_{Ed}$  ACI 318-11 Table D.4.1.1

$A_{Ncb}$  see ACI 318-11, Part D.6.2.1, Fig. RD.6.2.1(b)

$A_{Ncb,req} = 4.5 c_{a1}^2$  ACI 318-11 Eq. (D-32)

$\psi_{ed,N} = \left( \frac{1}{1 + \frac{2 e_{Ncb}}{3 c_{a1}}} \right) \leq 1.0$  ACI 318-11 Eq. (D-36)

$\psi_{c,N} = 0.7 + 0.3 \left( \frac{C_{min}}{1.5 c_{a1}} \right) \leq 1.0$  ACI 318-11 Eq. (D-38)

$\psi_{cp,N} = \sqrt{\frac{1.5 C_{min}}{h_s}} \geq 1.0$  ACI 318-11 Eq. (D-39)

$V_s = \left( 7 \left( \frac{L}{d_s} \right)^{0.2} \sqrt{f'_c} c_{a1}^{1.5} \right) \lambda_a \sqrt{f'_c} c_{a1}^{1.5}$  ACI 318-11 Eq. (D-33)

#### Variables

|                 |                 |                  |              |             |
|-----------------|-----------------|------------------|--------------|-------------|
| $C_{min}$ [in.] | $C_{max}$ [in.] | $e_{c1,N}$ [in.] | $\psi_{c,N}$ | $h_s$ [in.] |
| 12.000          | 12.000          | 0.000            | 1.000        | 6.000       |

|           |             |             |              |                |
|-----------|-------------|-------------|--------------|----------------|
| $L$ [in.] | $\lambda_a$ | $d_s$ [in.] | $f'_c$ [psi] | $\psi_{par,N}$ |
| 2.000     | 1.000       | 0.375       | 3000         | 1.000          |

#### Calculations

| $A_{Ncb}$ [in. <sup>2</sup> ] | $A_{Ncb,req}$ [in. <sup>2</sup> ] | $\psi_{ed,N}$ | $\psi_{c,N}$ | $\psi_{cp,N}$ | $V_s$ [lb] |
|-------------------------------|-----------------------------------|---------------|--------------|---------------|------------|
| 180.00                        | 648.00                            | 1.000         | 0.900        | 1.732         | 13641      |

#### Results

| $V_{cb}$ [lb] | $\phi_{concrete}$ | $\phi_{seismic}$ | $\phi_{conductive}$ | $\phi V_{cb}$ [lb] | $V_{Ed}$ [lb] |
|---------------|-------------------|------------------|---------------------|--------------------|---------------|
| 5907          | 0.700             | 1.000            | 1.000               | 4135               | 100           |

FORESTHILL PUBLIC UTILITY DISTRICT  
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SECTION 26 05 00 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SCOPE

- A. Provide electrical systems as shown and specified, including wiring and connections to any electrical equipment provided and any work not specifically noted but that can be reasonably inferred or is necessary to provide a complete functional system.
- B. Section Includes:
  - 1. Electrical equipment coordination.
  - 2. Sleeves for raceways and cables.
  - 3. Sleeve seals.
  - 4. Grout.
  - 5. Common electrical requirements.

1.02 DEFINITIONS

- A. EPDM: Ethylene-Propylene-Diene Terpolymer rubber.
- B. NBR: Acrylonitrile-Butadiene rubber.
- C. CBC: California Building Code 2016.

1.03 DRAWINGS AND SPECIFICATIONS

- A. For purposes of clearness and legibility, drawings are essentially diagrammatic and, although size and location of equipment are drawn to scale wherever possible, the Contractor shall make use of all data in all the contract documents and shall verify this information at building site.
- B. Information presented on Drawings and in the Specifications is based upon latest data available during their preparation. The Drawings and Specifications are for the assistance and guidance of the Contractor and exact locations, distances, levels, etc. will be governed by the structures and the site the contractor shall accept same with this understanding.
- C. The drawings indicate required size and points of termination of pipes, and suggest proper routes to conform to structure, avoid obstructions and preserve clearances. However, it is not intended that drawings indicate all necessary offsets, and it shall be the work of the Contractor to make the installation in such a manner as to conform to structure, avoid obstruction, preserve headroom and keep openings and passageways clear.

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1.04 DELIVERY, STORAGE, AND HANDLING

- A. Contractor shall be responsible for delivery, storage, protection and placing of all equipment and materials.
- B. Equipment stored and installed at the job site shall be protected from dust, water or other damage. Cover all equipment stored exposed to weather.

1.05 STRUCTURAL REQUIREMENTS

- A. Structural members shall not be cut or modified in any manner without specific instructions from the structural engineer.

1.06 SEISMIC RESISTANCE

- A. Provide systems, units, equipment, and parts to meet or exceed current applicable requirements for seismic resistance specified by codes, regulations, or agencies having jurisdiction. Include supports, anchors, braces, and other restraining devices required. Seismic restraints shall meet the local Seismic Zone requirements, SMACNA, and California Building Code (CBC), Chapter 16a, which are the responsibility of the Contractor.
- B. Design of seismic bracing will be per CBC Chapter 16.
- C. See Section 26 05 29 Hangers and Supports.

1.07 RULES AND REGULATIONS

- A. All work and materials shall be in full accordance with the latest rules and regulations of California Code of Regulations, Title 20 & Title 24 California Building Standards Code, California Electrical Code, Local City and County Code, applicable regulations of local utility companies, E.U.S.E.R.C. Standards, and General Order 95 of the Public Utilities Commission, and any other applicable laws or regulations.
- B. Nothing in these drawings or specifications is to be construed to permit work not conforming to the above codes.

1.08 PERMITS AND FEES

- A. Obtain all permits and pay all required fees for permits and/or utility services. Inspections required during the course of construction shall be arranged as required. On completion of the work furnish the District's representative with certificates of inspection.
- B. Include in bid all costs for electrical service including meter, and service lines installed by a power utility company or a power utility company approved contractor.

1.09 SITE CONDITIONS

- A. Assume all responsibility for damage to adjoining properties; and restore property to its original condition, should damage occur as a result of the work of this section. Contractor



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shall thoroughly familiarize himself with all site conditions. Should utilities not shown on the drawings be found during excavations, promptly notify the District's Representative for instructions as to further action. Failure to do so will make the Contractor liable for any and all damage thereto arising from his operations subsequent to discovery of such utilities not shown on plans.

### 1.10 SUBMITTALS

A. Submit in accordance with Division 01 Shop Drawings, Product Data and Samples

B. General

1. A submittal schedule shall be issued by the Contractor within 15 days of award of the contract. This schedule shall allow for timely review and approval as required by the contract documents.
2. These requirements apply only to substitutions, submittals, and shop drawings.
3. The contractor shall review all submittals prior to submission to the Architect. Submittals not reviewed by the contractor will be returned to the contractor and will not be reviewed.
4. Any deviations from specified requirements shall be clearly indicated in submittals.
5. Any errors in or omissions from submittals and any consequences of these are the responsibility of the Contractor.
6. Partial or incomplete submittals may be rejected as not complying with requirements; the Contractor shall be liable for any resultant consequences.
7. Delayed submittals may be rejected as not complying with requirements. Whether accepted or rejected, delayed submittals will not be considered justification for extension of contract time or similar relief.
8. Submittals not required or permitted by the Specifications but made at the option of the Contractor, will be returned without review unless accompanied with written valid justification.
9. Submittal items improperly included with those of another category (such as a proposed substitution included with shop drawing submittal) are not valid and will be returned without review.
10. Within 35 calendar days after award of the contract, and before fabrications and installation of any material or ordering of any materials, submit for approval one copy in PDF format of complete submittal data on specified and proposed substituted equipment and materials. Submittals shall list all materials proposed identified with drawing symbols and specific data on equipment such as arrangements, performance curves, sizes, capacity, motor locations, and other pertinent data. Check all submittals for conformance to the requirements of the Construction Documents before forwarding to the District's Representative for each item. No consideration will be given to substitutions submitted past 35 day limit. The contractor shall be responsible for all quantities and errors and omissions of submittals. Furnish samples when requested.
11. Equipment and materials specified as part of the specifications and drawings are listed by two manufacturers names. The first named manufacturer is the basis of design. The second named manufacturer has been determined to be an

## FORESTHILL PUBLIC UTILITY DISTRICT GENERATOR REPLACEMENT

equivalent in quality or utility. The second named has not been specifically determined to conform to the first named in size, layout, electrical power, voltage, or impacts to building structure. The contractor is bound by all requirements for substitutes, as described below, for all second named manufacturers and equivalent equipment or products.

12. Each reviewed submittal will be marked to indicate review and directions as stated below.
13. Acceptance of a submittal does not relieve the Contractor of responsibility for omissions from the submittal or errors in the submittal

### 1.11 REVIEW

- A. Submittals will be reviewed for general acceptability, not necessarily including all details. The engineer's review is for general conformance with the design concept of the project and the information given in the contract documents. The contractor is solely responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating the work with that of other trades and performing all work in a safe and satisfactory manner. Corrections of comments made on this submittal during this review do not relieve contractor from compliance with the requirements of the contract documents or with its responsibilities listed herein.
  1. Proposed substitutes will be judged not only for the acceptability of the items themselves, but also how they will be used under the conditions of the particular project.
  2. Proposed substitutions will be judged also for compliance with qualifications and conditions stipulated in paragraph 1.15.
- B. Each reviewed submittal will be marked to indicate review and directions as stated below.
  1. Acceptance of a substitute does not waive the specified requirements.
  2. Once a substitution is accepted, no revision or resubmittal may be made except for pressing and valid reason and after receipts of approval to do so.

### 1.12 REVIEW DIRECTIONS

- A. The notation "No Exceptions Taken" indicates that no further submittal on the particular matter is required and that the Contractor may proceed with normally ensuing action. The notation may be applied to submittals on substitutions, shop drawings, record data, or operation and maintenance data. The submittal has only been reviewed for general conformance with the design concept of the Contract Documents. The contractor is responsible for the dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This notation does not modify the contractor's duty to comply with the contract documents.
- B. The notation "Make Corrections Noted" indicates that no further submittal on the particular matter is required, but the Contractor shall make all changes or corrections noted (but no others) before proceeding with normally ensuing action. The notation may

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be applied to submittals on substitutions or shop drawings (but usually not record data or operation and maintenance data).

- C. The notation "Amend and Resubmit" indicates that the submittal is not accepted and must be revised, resubmitted, and reviewed again. In the case of submittal on substitutions and shop drawings so noted, the Contractor shall not proceed with any normally ensuing action until the resubmittal is reviewed. The notation may be applied to submittals on substitutions, shop drawings, record data, or operation and maintenance data.
- D. The notation "Rejected - See Remarks" indicates that the submittal is not accepted and that resubmittal on the same subject matter is not allowed and will not be considered. The notation will be applied normally only to submittals on substitutions (usually not on shop drawings, record data, or operation and maintenance data).
- E. The notation "Returned Without Review" indicates that the submittal or item has not been considered officially because it is either not proper, valid, required, or permitted by the Specifications and has no status or effect.

### 1.13 SHOP DRAWINGS

- A. The contractor is responsible for providing all shop drawings as described below so that the design professional has the opportunity to determine if the contractor understands the contract documents. It is not the purpose of shop drawings to assure that the contractor is meeting the requirements of the contract documents. Review and approval of a submittal neither extends nor alters any contractual obligation.
- B. Accompany all substituted equipment with shop drawings showing revised equipment and/or equipment layouts in order to ascertain that substituted equipment does not adversely affect layout or work of others. Shop Drawings: The following conditions apply to shop drawings:
  - 1. Shop drawings are not and do not become Contract Documents.
  - 2. Processed shop drawing submittals and any instructions or requirements noted thereon are a part of the work, but they may not be used as a means of increasing the scope of the work.
  - 3. If deviations, discrepancies, or conflicts between shop drawing submittals and the Contract Documents are discovered either prior to or after the submittals are processed, the Contract Document requirements shall govern.

### 1.14 SUBSTITUTIONS

- A. Whenever any equipment, material, or process is indicated or specified by patent of proprietary name and/or name of Manufacturer, in the Specifications and/or on the Drawings, it is understood that such specification is used to facilitate the description of the material and/or process and deemed to be followed by the words "or equal" unless noted "no substitute".
- B. Substitute equipment and materials shall be equal in all respects including quality, arrangement, utility, physical size, capacity, and performance to those specified. Approval of substitute material will not relieve the contractor from complying with the

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requirement of the Drawings and Specifications. The contractor shall be responsible and at his own expense, for any changes caused by proposed substitutions which affect other parts of his own work or the work of other contractors.

- C. The submittal of a proposed substitution shall clearly establish the following:
1. The item can be transported into and installed in the intended space and in the manner shown.
  2. Required connections (electrical and other) can be properly made and adjoining work can be properly accomplished.
  3. The proposed substitute is similar to and of substance equal to that specified, is suited to the same use as that specified, and will perform the functions required by the design.
  4. The proposed substitute equipment will have the same minimum ratings and dimensions that accommodate the available space as the specified equipment.
  5. All performance requirements shall be at least equal to the specified product or equipment including short circuit current rating, selective coordination, noise levels, temperature ratings, bracing and insulation ratings, etc.
- D. By submitting a proposed substitution, the Contractor agrees to the following:
1. He will assume full responsibility for any and all modifications and necessary alterations arising from the use of the substitute item or material including all cost incurred by all other trades.
  2. He will assume full responsibility for any delay in the construction schedule resulting from the use of the substitution.
  3. He will prove harmless and indemnify the District and the District's design consultants from real or alleged damages that may result from the installation, use, or performance of a substitute material or product.
- E. The following conditions apply to substitutions:
1. Submittals of substitutions are not and do not become part of the Contract Documents.
  2. Contractor shall not order, fabricate, use, or install any substitute product or procedure unless he has received acceptance of the substitute from the District's Representative.
  3. Should the Contractor install any substitute product in violation of the above he shall remove it and install the specified product at his own expense.
  4. The Contractor shall provide a letter stating that all the above items shall apply to all substituted products and equipment.
  5. Any submittal for substituted equipment or product that does not clearly show that the substituted item is equal shall be marked rejected and no further submittal shall be allowed on the substituted item. Provide in submittal format documentation that the proposed item is exactly as specified in the contract documents.

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1.15 INSTALLATION

A. Manufacturer's Instructions:

1. When specifications require that installation comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation.
2. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by specifications.
3. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
4. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with the District's Representative for further instructions.
5. Do not proceed with work without clear understanding.

1.16 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other systems.
3. To allow right of way for piping and conduit positioned at required slope.
4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate placement of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

1.17 WORKMANSHIP

A. Good workmanship shall be evidenced in the placement of all electrical materials and equipment. Equipment shall be level, plumb and true with the structure and other equipment. All materials shall be firmly secured in place and adequately supported and permanent. The requirements of the codes are minimum standards. The recommendations of the National Electrical Contractors Association Standards shall be followed except where otherwise specifically directed.

1.18 CLEANING

A. After all other work such as plastering, painting, etc., has been accomplished, lighting, panelboards, switchboards, and all other electrical equipment shall be cleaned of all dirt, grease, plaster, paint or other marks.

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1.19 ELECTRICAL WORK FOR EQUIPMENT PROVIDED BY OTHER DIVISIONS

- A. Provide all necessary electrical connections to all equipment provided by other divisions. Obtain specific power and control wiring requirements and connection points from others to perform electrical work. Contractor shall assist in testing equipment but responsibility is limited to correctly wiring and terminating electrical connections.
- B. All control wiring for mechanical space conditioning and ventilation equipment, both line and low voltage, shall be provided in the mechanical work, except for line voltage control wiring for exhaust fan switches which shall be in the electrical work. Disconnect switches and motor starters shall be provided.

1.20 SEISMIC RESISTANCE

- A. Provide systems, units, equipment, and parts to meet or exceed current applicable requirements for seismic resistance specified by codes, regulations, or agencies having jurisdiction. Include supports, anchors, braces, and other restraining devices required. Seismic restraints shall meet the local Seismic Zone requirements, SMACNA, and California Building Code (CBC), Chapter 16a, which are the responsibility of the Contractor.
- B. Design of seismic bracing will be per CBC Chapter 16.

1.21 MISCELLANEOUS EQUIPMENT

- A. Contractor shall provide conduit, conductors, disconnects, and connections for power and controls for equipment requiring electrical services. This includes materials required for temporary services and testing.

1.22 GUARANTEE

- A. Guarantee all work for one year from date of acceptance, against all defects in material, equipment and workmanship including repair of damage to any part of the premises resulting from leaks or other defects in material, equipment and workmanship. Guarantee shall be on form supplied by the District's representative.

1.23 RECORD DRAWINGS

- A. Changes including the result of RFI's or field directives shall be included in a record set provided by the Contractor in an electronic format compatible with system used to produce the original contract drawing set. Provide a copy of the marked-up field set along with the electronic file. It will not be acceptable to cut and paste the drawing changes to this set.

PART 2 - PRODUCTS

2.01 SHOP DRAWINGS:

- A. Make all drawings to an appropriate scale, large enough to show all pertinent aspects of the item and the method of its connection into the work.

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- B. Make each drawing sheet in a reproducible form, CAD, Revit or PDF.
- C. Grouping: Combine submittals in logical groupings; for example, submit Shop Drawings grouped by Sections of the Specifications, arranged in the specified sequence.
- D. Content:
  - 1. Shop drawings may be:
    - a. Drawings or diagrams prepared by the Contractor, a supplier, a manufacturer, or other.
    - b. Typewritten data or descriptions.
    - c. Manufacturer's printed brochures, descriptions, charts, instructions, or data sheets.
- E. Timing: Submit all shop drawings prior to installation of any items included in submittal.

2.02 MATERIALS

- A. Unless otherwise noted, all material and equipment shall be new, of the type, capacity and quality specified and free from defects. Material shall bear the label of, or be listed by, the Underwriters' Laboratories or Nationally Recognized Testing Laboratory (NRTL).
- B. Materials shall be of the same brand or manufacture throughout for each class of material or equipment wherever possible.
- C. Equipment shall be the product of a manufacturer who has, for a period of not less than five (5) years, been in successful manufacture of the equipment and who has a nationally distributed catalog covering ratings and specifications of said equipment.

2.03 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Sleeves for Rectangular Openings: Galvanized sheet steel.
  - 1. Minimum Metal Thickness:
    - a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.
    - b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.

2.04 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
  - 1. Manufacturers:
    - a. Calpico, Inc.
    - b. Advance Products & Systems, Inc.

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- c. Pipeline Seal and Insulator, Inc.
- d. Or, Equal.
- 2. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
- 3. Pressure Plates: Stainless steel. Include two for each sealing element.
- 4. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.05 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, non-staining, mixed with water to consistency suitable for application and a 30-minute working time.

2.06 MISCELLANEOUS EQUIPMENT AND MATERIALS

- A. Furnish and install miscellaneous equipment and materials required for the systems described whether or not specifically shown.

PART 3 - EXECUTION

3.01 COMMON REQUIREMENTS FOR ELECTRICAL

- A. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- B. Headroom Maintenance: If mounting heights or other location criteria are not indicated, locate components and equipment to provide maximum possible headroom consistent with these requirements.
  - 1. Adequate working space shall be provided around electrical equipment in strict compliance with the Electrical Safety Orders. In general provide six and one-half feet of headroom and thirty-six inches minimum clear work space in front of panelboards and controls for 120/208 volt equipment, and forty two inches for 277/480 volt equipment.
- C. Equipment: Placement shall facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby infrastructure. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- D. Right of Way: Give to piping systems with slope requirements.

3.02 SLEEVES FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.



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- C. Fire-Rated Assemblies: Provide sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with Firestop system used are fabricated during construction of floor or wall.
- D. Cut sleeves to length for mounting flush with both surfaces of walls.
- E. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- F. Seal space outside of sleeves with grout for penetrations of concrete and masonry
  - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
- G. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
- H. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Provide sleeves and seal raceway and cable penetration sleeves with firestop materials.
- I. Above ground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve and provide mechanical sleeve seals.
- J. Underground, Exterior-Wall Penetrations: Provide cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve and provide mechanical sleeve seals.

3.03 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical infrastructure to restore or maintain fire-resistance rating of assembly.

3.04 FIELD QUALITY CONTROL

- A. Test all wiring and connections for continuity and grounds before any fixtures or equipment are connected and where such tests indicate faulty insulation or other defects, they shall be located, repaired and tested again at the Contractor's expense. Electrical loads shall be balanced at the panelboards and motors shall be checked for correct rotation.
- B. Third party acceptance testing is required as part of this project. Contractor to provide the services of a NETA certified testing contractor to perform testing of equipment identified in the respective specification sections. Submit test reports noting acceptance, test values and a baseline for future test readings.
- C. Notify District's Representative in advance prior to project completion. At such time, arrange an operating test for approval and/or schedule for electrical apparatus testing. Demonstrate equipment to be in conformance with applicable Codes and operate in accordance with Requirements of this Section of the Specifications. Provide all instruments and personnel required for test.

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D. In the absence of manufacturer's torque values refer to Table 1 herein.

**Table 1**

U.S. Standard  
Bolt Torques for Bus Connections

Heat Treated Steel – Cadmium or Zinc Plated

| GRADE                       | SAE                  | SAE   | SAE   | SAE   |
|-----------------------------|----------------------|-------|-------|-------|
|                             | 1 & 2                | 5     | 6     | 8     |
| Minimum<br>Tensile (P.S.I.) | 64K                  | 105K  | 133K  | 150K  |
| Bolt Diameter               | Torque (Foot Pounds) |       |       |       |
| 1/4                         | 4.0                  | 5.6   | 8.0   | 8.4   |
| 5/16                        | 7.2                  | 11.2  | 15.2  | 17.6  |
| 3/8                         | 12.0                 | 20.0  | 27.2  | 29.6  |
| 7/16                        | 19.2                 | 32.0  | 44.0  | 48.0  |
| 1/2                         | 29.6                 | 48.0  | 68.0  | 73.6  |
| 9/16                        | 42.4                 | 70.4  | 96.0  | 105.6 |
| 5/8                         | 59.2                 | 96.0  | 133.6 | 144.0 |
| 3/4                         | 96.0                 | 160.0 | 224.0 | 236.8 |
| 7/8                         | 152.0                | 241.6 | 352.0 | 378.4 |
| 1.                          | 225.6                | 372.8 | 528.0 | 571.2 |

**3.05 SALVAGE MATERIAL AND EQUIPMENT**

- A. Where remodel or demolition work is to be accomplished under this Contract, all removed materials and equipment, which in the opinion of the Owner is salvable, shall remain the property of the Owner. Such salvaged materials and equipment shall be delivered to Owner on premises as directed and shall be neatly piled or stored and protected from damage.
- B. All materials considered as scrap and not salvageable shall be removed from premises and disposed of by Contractor.

**3.06 DEMOLITION**

- A. When devices are removed that are located midway in a circuit maintain continuity of the circuit and accessibility of any junction boxes.
- B. When the scope of work requires the removal of electrical equipment all associated conduit, conductors, boxes, hangers, anchors, etc. shall be removed in their entirety. All openings shall be patched and sealed to match the adjacent construction and finish including the replacement of floor tiles.
- C. Damaged floor and ceiling tiles shall be replaced.

END OF SECTION

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

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Building wires and cables rated 600 V and less.
  - 2. Connectors, splices, and terminations rated 600 V and less.
  - 3. Sleeves and sleeve seals for cables.

1.03 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. NBR: Acrylonitrile-butadiene rubber.

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Qualification Data: For testing agency.
- C. Field quality-control test reports.

1.05 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with CEC, California Electrical Code.

PART 2 - PRODUCTS

2.01 CONDUCTORS AND CABLES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Building Wire:
    - a. General Cable Corporation.
    - b. Senator Wire & Cable Company.
    - c. Southwire Company.
    - d. Cerro Wire, a Marmon/Berkshire Hathaway Company.
    - e. United Wire and Cable
  - 2. Wiring connectors and terminations:

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- a. 3M Company.
- b. Ideal.
- c. Blackburn-Holub.
- d. Burndy.
- e. Thomas & Betts Corp.
- f. Beau Barrier.

- B. Substitutions: Under provisions of Section 26 05 00: Common Work Results for Electrical..

2.02 BUILDING WIRE

A. Conductor material:

- 1. Provide annealed copper for all wire, conductor, and cable, unless otherwise indicated.
- 2. All building wire shall be stranded, unless otherwise indicated.
- 3. Comply with NEMA WC 70. Aluminum shall not be used.
- 4. Stranded Copper, #10 AWG minimum, except for control circuits which may be #14 AWG minimum. Signal and control circuits other than mechanical shall be as indicated on Drawings or as required by equipment manufacturers.
- 5. Conductors in sizes up through #10 AWG shall have solid color finish as listed above. #8 AWG and larger shall be color coded by application of phase tape for minimum of 6" length on conductor. Coding shall occur at all terminations, pull boxes and splices.
- 6. Color-coding shall be continuous and consistent throughout the work. Do not use different colors for switch legs, fixture taps, travelers, etc.
- 7. Phasing: Terminals in panelboards, motor control centers, switchboards and other equipment shall be phased A, B, C, reading left to right or top to bottom looking into the front of the equipment.

B. Conductor Insulation: Comply with UL 83 for Types THW, THHN/THWN, THWN-2, and XHHW-2

- 1. All insulated wire, conductor and cable shall be 600volt rated, unless otherwise noted on the Drawings.
- 2. Thermoplastic-insulated building wire.
- 3. Rubber-insulated building wire.
- 4. Copper feeders and branch circuits larger than #6 AWG: Type THW, XHHW or dual rated THHN/THWN.
- 5. Copper feeders and branch circuits #6 AWG and smaller: Type TW, THW, XHHW or dual rated THHN/THWN.
- 6. Feeders and branch circuits for direct-current (DC) in wet locations: Type XHHW-2.
- 7. Conductors for variable frequency drives (VFD): Type XHHW-2.
- 8. Service Entrance: Type RHW or THWN.
- 9. Control Circuits: Type THW or dual rated THHN/THWN.
- 10. Identify system conductors as to voltage and phase connections by means of color-impregnated insulation.
- 11. XHHW-2 conductors shall be used for feeders from generator to service switchboard.

C. Conductor Temperature Rating: 90°C.

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2.03 CONNECTORS AND SPLICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. AFC Cable Systems, Inc.
  - 2. Hubbell Power Systems, Inc.
  - 3. O-Z/Gedney; EGS Electrical Group LLC.
  - 4. 3M; Electrical Products Division.
  - 5. Cooper Crouse-Hinds.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.
- C. Bolted pressure connectors: Provide wide range-taking connectors with cast bronze compression bolts, designed for parallel taps, tees, crosses or end-to-end connections.
- D. Electrical spring wire connectors:
  - 1. Provide multi-part construction incorporating a non-restricted, zinc coated square cross-section steel spring enclosed in a steel sheet with an outer jacket of plastic and insulating skirt.
  - 2. Self-striping pigtail and tap U-contact connectors shall not be used.
- E. Compression type terminating lugs:
  - 1. Provide tin-plated copper high-compression type lugs for installation with hand or hydraulically operated circumference-crimping tools and dies as stipulated by the lug Manufacturer or as indicated on Drawings. Notch or single point type crimping is NOT acceptable.
  - 2. Two-hole, long barrel lugs shall be provided for size #4/0 and larger wire where terminated to bus bars. Use minimum of three crimps per lug, on sizes where possible.
- F. Splicing and insulating tape: Provide black, ultraviolet proof, self-extinguishing, 7-mil thick vinyl general purpose electrical tape with a dielectric strength of 10,000volts suitable for temperatures from minus 18-degrees C to 105-degrees C.
- G. Insulating putty:
  - 1. Provide pads or rolls of non-corrosive, self-fusing, one-eighth inch thick rubber putty with PVC backing sheet. Scotch vinyl mastic pads and roll or equal.
  - 2. Use putty suitable for temperatures from minus 17.8-degrees C to 37.8-degrees C with a dielectric strength of 570volts/mil minimum.
- H. Insulating resin:
  - 1. Provide two-part liquid epoxy resin with resin and catalyst in pre-measured, sealed mixing pouch. Scotchcast 4 or equal for wet or underground vaults, boxes, etc. splices or terminations.
  - 2. Use resin with a set up time of approximately 30-minutes at 21.1-degrees C and with thermal and dielectric properties equal to the insulating properties of the cables immersed in the resin.

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- I. Terminal strips:
  - 1. Provide box type terminal strips in the required quantity plus 25% spare. Install in continuous rows in terminal cabinets.
  - 2. Use the box type terminal strips with barrier open backs and with ampere ratings as required.
  - 3. Identify all terminals with numbering sequence being used for a system.
- J. Crimp type connectors:
  - 1. Provide insulated fork or ring crimp terminals with tinned electrolytic copper-brazed barrel with funnel wire entry and insulation support
  - 2. Fasten crimp type connectors or terminals using a crimping tool recommended by the connector Manufacturer.
  - 3. Provide insulated overlap splices with tinned seamless electrolytic copper barrel with funnel wire entry and insulation support.
  - 4. Provide insulated butt splices with tinned seamless electrolytic copper barrel with center stop, funnel wire entry and insulation support.
- K. Cable ties: Provide harnessing and point-to-point wire bundling with nylon cable ties. All cable ties shall be installed using tool supplied by Manufacturer of ties.
- L. Wire lubricating compound:
  - 1. UL listed for the wire insulation and conduit type and shall not harden or become adhesive.
  - 2. Shall not be used on wire for isolated type electrical power systems.
- M. Bolt termination hardware:
  - 1. Bolts shall be plated, medium carbon steel heat-treated, quenched and tempered equal to ASTM A-325 or SAE grade 5; or silicon bronze alloy ASTM B-9954 Type B.
  - 2. Nuts shall be heavy semi-finished hexagon, conforming to ANSI B18.2.2, threads to be unified coarse series (UNC), class 2B steel or silicon bronze alloy.
  - 3. Flat washers shall be steel or silicon bronze, Type A plain standard wide series, conforming to ANSI B27.2. SAE or narrow series shall not be used.
  - 4. Belleville conical spring washers shall be hardened steel, cadmium plated or silicon bronze.
  - 5. Each bolt connecting lug(s) to a terminal or bus shall not carry current exceeding the following values:
    - a. 1/4" bolt: 125amps
    - b. 5/16" bolt: 175amps
    - c. 3/8" bolt: 225amps
    - d. 1/2" bolt: 300amps
    - e. 5/8" bolt: 375amps
    - f. 3/4" bolt: 450amps

2.04 LOW VOLTAGE CONDUCTORS AND CABLES

- A. Power Wiring to Supply Side of Class 2 Power Source: Not smaller than No. 12 AWG, complying with Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

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- B. Classes 2 and 3 Control Cables: Stranded copper, complying with UL 83, multi-conductor cable with copper conductors not smaller than No. 18 AWG, complying with Division 26 Section Conductors and Cables.
- C. Class 1 Control Cables: Stranded copper, complying with UL 83, multi-conductor cable with copper conductors not smaller than No. 18 AWG, complying with Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

### PART 3 - EXECUTION

#### 3.01 CONDUCTOR MATERIAL APPLICATIONS

- A. Color code all branch circuits and feeders as follows:

|         | <u>120/208 Volts</u> | <u>120/240 Volts, 1Φ</u> | <u>120/240 Volts, 1Φ</u> | <u>277/480 Volts</u> |
|---------|----------------------|--------------------------|--------------------------|----------------------|
| Phase A | Black                | Black                    | Black                    | Brown                |
| Phase B | Red                  | Red                      | Orange*                  | Orange               |
| Phase C | Blue                 | -                        | Blue                     | Yellow               |
| Neutral | White                | White                    | White                    | Gray                 |
| Ground  | Green                | Green                    | Green                    | Green                |

\* Marking shall comply with CEC 230-56 to identify the "Stinger Leg" and its placement (Phase B) for Red Leg Delta system.

#### 3.02 CONDUCTOR INSULATION AND WIRING METHODS

- A. Exposed & Concealed Feeders: Type THHN-THWN-2, single conductors in raceway.
- B. Exposed & Concealed Branch Circuits: Type THHN-THWN-2, single conductors in raceway.
- C. Code size ground wire shall be provided in all raceways, secured using approved methods to each pull box, junction box, and equipment housing.
- D. Class 1 and Class 2 Control Circuits: Type THHN-THWN, in raceway.
- E. Branch circuits and feeders in conduit exposed to direct sunlight: Type XHHW-2.

#### 3.03 INSTALLATION OF CONDUCTORS AND CABLES

- A. All wiring shall be installed in raceways.
- B. Swab conduits before installing cables, and exercise care in pulling to avoid damage or disarrangement of conductors, use approved grips.
- C. Conceal cables in finished walls and poles, unless otherwise indicated.

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- D. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- E. Use pulling means including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
  - 1. Wire Pulling Lubricant: Minerallac "Pull-In" compound, Y- ER-EAS wire pulling lubricant, Poly-water, or other UL approved lubricant. Flax-soap is not approved.

### 3.04 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Splices:
  - 1. For conductors #10 and smaller, pre-insulated type connectors, 3M Scotchloks, T & B Piggys or equal, nylon self-insulated type.
  - 2. For conductors #8 and larger use compression type connector, Burndy type YS long barrel, requiring the use of a 360 degree circumference compression type tool, then insulated with Scotchtape No. 88 or equal.
    - a. Use Scotchfill or equal around large or irregular shape splices for insulation build-up and Scotchtape No. 88.
    - b. Wire splicing devices shall be sized according to manufacturer's recommendations.
  - 3. Factory insulated mechanical connectors manufactured by Polaris, ILSCO, etc., are not approved.
  - 4. Push in style connectors, i.e. WAGO, are not approved.
  - 5. Self-stripping pigtail and tap-U contact connectors shall not be used.
- D. Splices in underground pull boxes or in other areas subject to moisture shall be provided with cast resin kits and cadweld or compression type connections, Burndy type YS long barrel. Use Scotchlok sealing packs for wire size to #10 and Scotchcast kits for larger splices as recommended by 3M Company. All splices to be prepared as hereinbefore specified before resin kits are applied. Wire splicing devices shall be sized according to manufacturer's recommendations.

### 3.05 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
  - 1. Submit test reports for approval.
- B. Tests and Inspections:
  - 1. After installing conductors and cables and before electrical circuitry has been energized, test conductors for compliance with requirements.
  - 2. Grounding test shall be by Fall-of-Potential method by an independent testing agency.



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3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
    - a. Visual and Mechanical Inspection:
      - 1) Inspect cables for physical damage and proper connection in accordance with single line diagram.
      - 2) Test cable mechanical connections to manufacturer's recommended values with a calibrated torque wrench. In absence of manufacturer's data use Table 1.
  4. Check cable color-coding with applicable engineer's specifications and California Electrical Code standards.
    - a. Electrical Tests:
      - 1) Perform insulation resistance test on each conductor including neutral with respect to ground and adjacent conductors before connecting to equipment. Applied potential to be 1000 volts dc for one (1) minute withstand test, per NETA ATS-2017.
      - 2) Perform continuity test on all power equipment branch and feeder circuit conductors. Verify proper cable connection and phasing.
      - 3) Test all feeder splices per NETA standards and document the results in the test report. The resistance across the splice in each phase shall not exceed 50% of the lowest value obtained.
    - b. Test Values:
      - 1) Minimum insulation resistance values shall be not less than fifty megohms.
- C. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION

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SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes grounding systems and equipment.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Qualification Data: For qualified testing agency and testing agency's field supervisor.
- C. Field quality-control reports.
- D. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
  - 1. Instructions for periodic testing and inspection of grounding features at test wells ground rings, grounding connections for separately derived systems based on NETA MTS.
    - a. Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
    - b. Include recommended testing intervals.

1.04 QUALITY ASSURANCE

- A. Contractor to perform testing per NETA standards.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.
- C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Products furnished by the following Manufacturers shall be acceptable if in compliance with all features specified herein and indicated on the Drawings.
  - 1. Ground Rods:
    - a. Weaver.
    - b. Erico "Cadweld" Products, Inc.

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- 2. Ground Wells:
  - a. Christy Concrete Products, Inc.
  - b. Forni Corp.
- 3. Ground Bushings, Connectors, Jumpers and Bus:
  - a. O-Z/Gedney.
  - b. Thomas & Betts Corp.
  - c. Burndy.

- B. Substitutions: Under provisions of Section 26 05 00: Common Work Results for Electrical.

## 2.02 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
  - 1. Solid Conductors: ASTM B 3.
  - 2. Tinned Conductors: ASTM B 33.

## 2.03 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two bolts.
  - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

## 2.04 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch diameter by 10 feet (19 mm by 3 m).
- B. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.
  - 1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches (1200 mm) long.
  - 2. Backfill Material: Electrode manufacturer's recommended material.
- C. UFER Ground; Bare copper conductor 25-feet minimum length and gauge size per 12.5 percent of the service conductor size.

## PART 3 - EXECUTION

### 3.01 APPLICATIONS

- A. Conductors: Install stranded conductors unless otherwise indicated.

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- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. [2/0] AWG minimum.
  - 1. Bury at least 30 inches below grade.
  - 2. Duct-Bank Grounding Conductor: Bury 12 inches (300 mm) above duct bank when indicated as part of duct-bank installation.
- C. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down to specified height above floor; connect to horizontal bus.
- D. Conductor Terminations and Connections:
  - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
  - 2. Underground Connections: Welded connectors.
  - 3. Connections to Ground Rods at Test Wells: Welded connectors.
  - 4. Connections to Structural Steel: Welded connectors.

3.02 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

- A. Comply with IEEE C2 grounding requirements.
- B. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches (100 mm) will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches (50 mm) above to 6 inches (150 mm) below concrete. Seal floor opening with waterproof, nonshrink grout.
- C. Grounding Connections to Manhole Components: Bond exposed-metal parts such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields according to written instructions by manufacturer of splicing and termination kits.

3.03 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.

3.04 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade unless otherwise indicated.
  - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.

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- C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches (300 mm) deep, with cover.
  - 1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.
- D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
  - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
  - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
  - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- E. Grounding and Bonding for Piping:
  - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
  - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
  - 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- F. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.
- G. Ufer Ground (Concrete-Encased Grounding Electrode): Fabricate according to CEC; use a minimum of 25 feet of bare copper conductor not smaller than 12.5 percent of the service conductor size (sum total per a single phase) AWG. In no case shall the conductor size be less than #4/0 AWG.
  - 1. If concrete foundation is less than 20 feet (6 m) long, coil excess conductor within base of foundation.
  - 2. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building's grounding grid or to grounding electrode external to concrete.
  - 3. 2-inch minimum encasement in concrete.

3.05 LABELING

- A. Comply with requirements in Division 26 Section "Identification" Article for instruction signs. The label or its text shall be green.
- B. Install labels at the telecommunications bonding conductor and grounding equalizer and at the grounding electrode conductor where exposed.

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1. Label Text: "If this connector or cable is loose or if it must be removed for any reason, notify the Owner's Representative."

3.06 FIELD QUALITY CONTROL

- A. Contractor to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- B. Tests and Inspections:
  1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
  2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
  3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at ground test wells. Make tests at ground rods before any conductors are connected.
    - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    - b. Perform tests by fall-of-potential method according to IEEE 81.
- C. Grounding system will be considered defective if it does not pass tests and inspections.
  1. Prepare test and inspection reports.
- D. Report measured ground resistances that exceed the following values:
  1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
  2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
  3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
  4. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).
  5. Substations and Pad-Mounted Equipment: [5] <Insert value> ohms.
  6. Manhole Grounds: 10 ohms.
- E. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and include recommendations to reduce ground resistance.

END OF SECTION

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SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Hangers and supports for electrical equipment and systems.

1.03 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. IMC: Intermediate metal conduit.
- C. RMC: Rigid metal conduit.

1.04 PERFORMANCE REQUIREMENTS

- A. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- B. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project. Minimum structural safety factor shall meet the following site specific seismic design criteria:
  - 1. Seismic restraints are the responsibility of the contractor.
- C. Design of seismic bracing shall meet requirements of CBC Chapter 16A.

1.05 SUBMITTALS

- A. Product Data: For the following:
  - 1. Steel slotted support systems.
  - 2. Nonmetallic slotted support systems.
  - 3. Anchors.
  - 4. Hangers.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
  - 1. Steel slotted channel systems. Include Product Data for components.
  - 2. Nonmetallic slotted channel systems. Include Product Data for components.
  - 3. Equipment supports.

1.06 QUALITY ASSURANCE

- A. Comply with CEC.

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PART 2 - PRODUCTS

2.01 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Cooper B-Line, Inc.; a division of Eaton.
    - b. ERICO International Corporation.
    - c. Thomas & Betts Corporation.
    - d. Unistrut; Tyco International, Ltd.
  - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
  - 3. Channel Dimensions: Selected for applicable load criteria.
    - a. 12 Gage minimum.
- B. Fittings and Accessories: Products of channel and angle manufacturer and designed for use with those items.
  - 1. Provide end caps on all exposed strut to conceal sharp edges.
- C. Rated Strength: Selected to suit applicable load criteria.
- D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Hilti Inc.
    - b. Or, Approved Equal
  - 2. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
  - 3. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.

2.02 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

PART 3 - EXECUTION

3.01 SUPPORT INSTALLATION

- A. Provide end caps for all strut.
- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading



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limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
    - 1. To Wood: Fasten with through bolts unless noted otherwise in the electrical or structural details.
    - 2. To New Concrete: Bolt to concrete inserts unless noted otherwise in the electrical or structural details.
    - 3. To Masonry: Approved expansion anchor fasteners on solid masonry units.
    - 4. To Concrete: Expansion anchor fasteners unless noted otherwise in the electrical or structural details.
    - 5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
    - 6. To Light Steel: Sheet metal screws.
    - 7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements. See mounting details in the electrical and structural drawing set.
  - D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.
    - 1. Ferro resonant scan all concrete walls and floors prior to drilling.
  - E. Note: Structural details in the construction drawing set and structural specifications take precedence.
- 3.02 TOUCHUP: CLEAN FIELD WELDS AND ABRADED AREAS OF SHOP PAINT. PAINT PAINTING
- A. Exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
    - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
  - B. Touchup: Comply with requirements in Division 09 painting Sections for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

END OF SECTION

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SECTION 26 05 33.13 - RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes raceways and fittings for electrical wiring.

1.03 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. FMC: Flexible metal conduit.
- C. LFMC: Liquidtight flexible metal conduit.
- D. RGS: Rigid Galvanized Steel Conduit.
- E. CEC: California Electrical Code.

1.04 SUBMITTALS

- A. Product Data: For wireways and fittings.
- B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Proposed motion sensor and LED dimmable driver interconnection schematic.
- C. Source quality-control test reports.

1.05 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Products furnished by the following Manufacturers shall be acceptable if in compliance with all features specified herein and indicated on the Drawings.
  - 1. Metal conduit:
    - a. Allied Tube and Conduit Co.
    - b. Triangle PWC, Inc.

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- c. Western Tube and Conduit Corp.
- d. Spring City Electrical Manufacturing Co.
- e. Alflec Corp.
- f. American Flexible Metal Conduit Co.
- g. Anaconda.

2. Fittings:

- h. Appleton Electric Co.
- i. OZ/Gedney.
- j. Thomas & Betts Corp.
- k. Spring City Electrical Manufacturing Co.

- B. Substitutions: Under provisions of Section 26 05 00: Common Work Results for Electrical.

2.02 METAL CONDUIT AND TUBING

A. EMT: ANSI C80.3.

- 1. Shall be galvanized steel, thin wall. Maximum trade size to be used shall be 4".
- 2. Conduit: Shall be formed of cold rolled strip steel, electrical resistance welded continuously along the longitudinal seam and hot dip galvanized after fabrication. Conduit shall conform to ANSI C80.3 Specifications and shall meet UL requirements.
- 3. Set screw type couplings: Hot dip galvanized, steel, UL listed concrete tight. Use set screw type couplings with four setscrews each of conduit sizes over 2 inches. Setscrews shall be of case-hardened steel with hex-head and cup point to firmly seat in wall of conduit for positive grounding.
- 4. Set screw type connectors: Hot dip galvanized, steel, UL listed concrete tight with male hub and insulated plastic throat, 150-degree C temperature rated. Setscrew shall be same as for couplings.
- 5. Raintight couplings: Hot dip galvanized, steel; UL listed raintight and concrete tight, using gland and ring compression type construction.
- 6. Raintight connectors: Hot dip galvanized, steel, UL listed raintight and concrete tight, with insulated throat, using gland and ring compression type construction.

B. FMC: Zinc-coated steel.

- 1. Conduit: Shall be fabricated in continuous lengths from galvanized steel strip, spirally wound and formed to provide an interlocking design and conforming to UL 1.
- 2. Fittings: Connectors shall be of the single screw clamp variety with steel or cast malleable iron bodies and threaded male hubs with insulated throats. Exception: Pressure cast screw-in connectors shall be acceptable for luminaire connection in suspended ceilings and cut-in outlet boxes within existing furred walls.LFMC: Flexible steel conduit with PVC jacket.

C. LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC)

- 1. Conduit: Shall be fabricated in continuous lengths from galvanized steel strips, interlocking spirally wound, covered with extruded liquidtight jacket of polyvinyl chloride (PVC) and conforming to UL 360. Provide conduit with a continuous copper-bonding conductor wound spirally between the convolutions.

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2. Fittings: Connector body and gland nut shall be of cadmium plated steel or cast malleable iron, with tapered, male, threaded hub; insulated throat and neoprene "O" ring gasket recessed into the face of the stop nut. The clamping gland shall be of molded nylon with an integral brass push-in ferrule.
- D. RGS (RMC) Conduit: ANSI C80.1 and UL 6.
1. Full weight, mild steel pipe, heavy wall, threaded with threaded fittings, zinc coated on both inside and outside by a hot dipping or sherardizing process.
  2. Standard threaded couplings, locknuts, bushings, and elbows: Only materials of steel or malleable iron are acceptable. Locknuts shall be bonding type with sharp edges for digging into the metal wall of an enclosure; provide two locknuts at each box or can, inside and outside.
  3. Three-piece couplings: Hot dip galvanized, cast malleable iron.
  4. Insulating bushings: Threaded polypropylene or thermosetting phenolic rated 150-degree C minimum.
  5. Insulated grounding bushings: Threaded cast malleable iron body with insulated throat and steel "lay-in" ground lug with compression screw.
  6. Insulated metallic bushings: Threaded cast malleable iron body with plastic insulated throat rated 150-degrees C.
  7. All fittings and connectors shall be threaded.
- E. PVC INSULATED GALVANIZED RIGID STEEL CONDUIT (PVC GRS/RMC)
1. Conduit: Full weight, threaded, hot-dip galvanized steel, conforming to ANSI C80.1 and NEMA RN-1 with nominal 20 or 40 mil thermoplastic vinyl coating, heat fused and bonded to the exterior of the conduit.
  2. Fittings: Conduit couplings and connectors shall be as specified for galvanized rigid steel conduit and shall be factory PVC coated with an insulating jacket equivalent to that of the coated material.
- F. INTERMEDIATE METAL CONDUIT (IMC)
1. Conduit: Hot dip galvanized steel meeting the requirements of CEC Article 345 and conforming to ANSI C80.6 and UL 1242.
  2. Fittings: Conduit couplings, connector and bushing shall be as specified for galvanized rigid steel conduit. Integral retractable type IMC couplings are also acceptable.
- G. PVC: PLASTIC CONDUIT [PVC (Polyvinyl Chloride), Schedule 40, Heavy Wall, UL Listed and Labeled for Direct Burial, 90 Degrees Centigrade]
1. Shall be classified for direct burial,
  2. Standard PVC manufactured elbows shall be used. Where bends and offsets other than the standard fittings must be used, they shall be made with the use of standard manufactured bending equipment. Burn marks on PVC conduit will be considered cause for rejection of installation.
- H. MISCELLANEOUS CONDUIT FITTINGS AND PRODUCTS
1. Watertight conduit entrance seals: Steel or cast malleable iron bodies and pressure clamps with PVC sleeve, neoprene sealing grommets and PVC coated steel pressure rings. Fittings shall be supplied with neoprene sealing rings between the body and PVC sleeve.

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2. Watertight cable sealing bushings: One piece, compression molded sealing ring with PVC coated steel pressure disks, stainless steel sealing screws and zinc plated cast malleable iron locking collar.
  3. Expansion fittings: Multi-piece unit comprised of a hot dip galvanized malleable iron or steel body and outside pressure bussing designed to allow a maximum of 4" conduit movement (2" in either direction). Furnish with external braid tinned copper bonding jumper. Unit shall be UL listed for wet or dry locations.
  4. Expansion/deflection couplings: Multi-piece unit comprised of a neoprene sleeve with internal flexible tinned copper braid attached to bronze end couplings with stainless steel bands. Coupling shall accommodate 0.75-inch deflection, expansion or contraction in any direction and allow 30-degree angular deflections. Flexible, corrosion-resistant, watertight, moisture and heat resistant molded rubber jacket and stainless-steel jacket clamps. Unit shall comply with UL467 and UL514. Manufacturer shall be OZ/Gedney Type DX, Steel City Type EDF or equal.
  5. Fire rated penetration seals:
    - a. UL building materials directory classified.
    - b. Conduit penetrations in fire rated separation shall be sealed with a UL classified fill, void or cavity material.
    - c. The fire rated sealant material shall be the product best suited for each type of penetration and may be a caulk, putty, composite sheet, or wrap/strip.
  6. Standard products not herein specified:
    - a. Provide listing of standard electrical conduit hardware and fittings not herein specified for approval prior to use or installation, i.e. locknuts, bushings, etc.
    - b. Listing shall include Manufacturers name, part numbers and a written description of the item indicating type of material and construction.
    - c. Miscellaneous components shall be equal in quality, material and construction to similar items herein specified.
      - 1) **Hazardous area fittings: UL listed for the application.**
- I. Joint Compound for Rigid Steel Conduit: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from weather, corrosion, and enhance their conductivity.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Contractor shall thoroughly examine Project site conditions for acceptance of conduit system installation to verify conformance with Manufacturer and Specification tolerances. Do not commence with installation until all conditions are made satisfactory.

#### 3.02 RACEWAY APPLICATION

- A. Galvanized rigid steel conduit (GRS) can be used in the following applications:
1. For feeders and branch circuits located indoors, concealed or exposed above suspended ceilings, in damp/wet locations, in crawl spaces, in attics, chases, furred spaces, equipment rooms, loading docks or in hazardous locations in accordance with CEC and local Codes.
  2. For use where conduit is subject to physical damage.
  3. For feeders and branch circuits installed exposed on the roof.

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- B. PVC insulated galvanized rigid steel conduit can be used in the following applications:
  - 1. Use 40-mil coating for feeders and branch circuits in damp or wet locations.
  - 2. Use 40-mil for feeders and branch circuits concealed in concrete walls or slabs in contact with earth.
  - 3. Use 40-mil for runs beneath floor slabs on grade.
  - 4. Use 40-mil for all below grade penetrations through floor slabs on grade or exterior walls.
- C. Intermediate metal conduit (IMC): Can be used for the same application as galvanized rigid steel conduit as specified herein, except for hazardous locations prohibited by CEC or Local Codes.
- D. Electrical metallic tubing (EMT): Can be used exposed or concealed for interior electrical feeders 4" and smaller, interior power and lighting branch circuits and low tension distribution system where run above suspended ceilings, in concrete slabs and walls not in contact with earth; in stud walls, furred spaces and crawl spaces. EMT shall not be installed exposed below 8 feet above the finish floor except within electrical, communication or signal rooms or closets (subject to physical damage).
- E. Flexible metallic conduit (FMC): Can be used only in dry locations for connections from an adjacent outlet box or conduit to all motors, transformers, vibrating equipment or machinery, controllers, solenoid valves, float and flow switches or similar devices and to luminaires installed in suspended ceilings.
- F. Liquidtight flexible metallic conduit (LFMC): Can be used in wet or damp locations for connections from adjacent outlet box or conduit to all motors, transformers, vibrating equipment or machinery, controllers, solenoid valves, float and flow switches or similar devices. These areas are typically food preparation and dishwashing areas, sump wells, loading docks, pump rooms, exterior areas, etc.
- G. Minimum Raceway Size: 3/4-inch trade size.
- H. Raceway Fittings: Compatible with raceways and suitable for use and location.
  - 1. Galvanized Rigid Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.
    - a. Apply thread sealant to all joints except in permanently dry locations. Where installed below floor slab and in contact with fill material, or underground and in contact with earth or encased in concrete shall be double wrapped with Scotchwrap #50, Johns-Manville VID-10 or equal at double 1/2 lap (four net layers). Follow any specific instructions or methods shown on Drawings.
    - b. Termination of conduits, wiring gutters or boxes shall be fitted with steel locknut and insulated metallic bushing or with two steel locknuts and insulating bushings. When grounding bushings are required, use insulated grounding bushing. Where conduit connections are exposed to weather or excessive moisture they shall be fitted with insulated watertight sealing hub i.e. Myers Hub.
    - c. Cap underground conduit stubs.
    - d. All cut ends of conduit shall be reamed to remove rough edges where conduit is threaded in the field; an electrical conduit thread cutting die with a taper shall be used.

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2. LFMC: Use malleable liquidtight insulated fittings with full-size cast steel UL locknut, threaded locking mechanism with insulated throat.
  - a. In wet and corrosive locations, outside, or motor connections, shall be liquid-tight. May be used to connect recessed lighting fixtures or mechanical controls and equipment. Length shall be kept to a minimum but to allow for movement or removal of equipment. Leave slack in flex connection to maintain flexibility of conduit, minimum of 3' of flex & one (1) 90° bend.
3. PVC: May be used underground with sand fill evenly compacted on all sides or in concrete floor, or concrete walls, limited to structural requirements.
  - a. All portions shall be concealed below grade or within concrete slab. Continuation of run above grade or floor slab shall be with rigid steel, intermediate metal grade or EMT in furred walls
  - b. Stubup at generator pad and portable tap box may be PVC SCH 40 terminated with bell ends.
  - c. Conduit entries into underground pullboxes shall be terminated with bell ends.
  - d. Minimum 24" cover over conduit. Refer to additional details on drawings.
  - e. A copper bonding conductor shall be pulled in each raceway and bonded to equipment at each end with code lugs.
  - f. Duct separation shall be provided using plastic conduit spacers specifically designed for the purpose. Refer to duct bank details on drawings.
  - g. All joints shall be solvent cemented in accordance with manufacturer's recommendations. All underground stubs shall be capped.

### 3.03 PREPARATION

- A. Locations of conduit runs shall be planned in advance of the installation and coordinated with ductwork, plumbing, ceiling and wall construction in the same areas and shall not unnecessarily cross other conduits or pipe, nor prevent removal of ceiling tiles or panels, nor block access to mechanical or electrical equipment.
- B. Where practical, install conduits in groups in parallel vertical or horizontal runs and at elevations that avoid unnecessary offsets.
- C. All conduits shall be run parallel or at right angles to the centerlines of columns and beams, whether routed exposed, concealed above suspended ceiling or in concrete slabs.
- D. Conduits shall not be placed closer than 12-inches to a flue, parallel hot water, steam line or other heat producing source or three inches from such lines when crossing perpendicular to the runs.
- E. Exposed conduit installation shall not encroach into the ceiling height headroom of walkways or doorways. Where possible, install horizontal raceway runs above water and below steam piping.
- F. In long runs of conduit, provide sufficient pull boxes inside buildings to facilitate pulling wires and cables, with spacing not to exceed 150-feet. Support pull boxes from structure independent of conduit supports. These pull boxes are not indicated on the Drawings.

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- G. Provide all reasonably inferred standard conduits fitting and products required to complete conduit installation to meet the intended application whether noted, indicated, or specified in the Contract Documents or not.

3.04 INSTALLATION

- A. Install conduit in accordance with Manufacturer's written instructions, as indicated on Drawings and as specified herein.
- B. Minimum Conduit Size: Unless otherwise noted herein or on Drawings, minimum conduit size shall be 3/4" for interior applications and 1" for exterior and underground applications.
- C. All conduit sizes indicated on the Drawings are sized for copper conductors with THHN/THWN insulation. If conductor type or size is changed the Contractor shall be responsible for resizing conduits upward to meet Code.
- D. In general, all conduit work shall be concealed where possible. Exceptions shall be electrical, communication and mechanical rooms, exposed ceiling areas, and parking garages.
- E. Conduit connections to motors and surface cabinets shall be concealed, except for electrical, communication and mechanical rooms, or unless exposed Work is clearly called for on the Drawings.
- F. Install conduits in complete runs before pulling in cables or wires.
- G. Install conduit free from dented, bruises or deformations. Remove and replace any damaged conduits with new undamaged material.
- H. Conduits shall be well protected and tightly covered during construction using metallic bushings and bushing "pennies" to seal open ends.
- I. In making joints in rigid steel conduit, ream conduit smooth after cutting and threading. Coat all field-threaded joints with UL approved conductive type compound to ensure low resistance ground continuity through conduit and to prevent seizing and corrosion.
- J. Clean any conduit in which moisture or any foreign matter has collected before pulling in conductors. Paint all field-threaded joints to prevent corrosion.
- K. In all empty conduits or ducts, install a "True Tape" conduit measuring tape line to provide overall conduit length for determining length of cables/conductors for future use.
- L. Conduit systems shall be mechanically and electrically continuous throughout. Install code size, insulated, copper, green-grounding conductors in all conduit runs for branch circuits and feeders. This conductor is not indicated on the Drawings. Refer to Section 26 05 26: Grounding and Bonding.
- M. Metallic conduit shall not be in contact with other dissimilar metal pipes (i.e. plumbing).



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- N. Make bends with standard conduit bending hand tool or machines. The use of any item not specifically designed for the bending of electrical conduit is strictly prohibited.
- O. A run of conduit between terminations at wire pulling points shall not contain more than the equivalent of four quarter bends (360-degrees, total).

### 3.05 PENETRATIONS

- A. Locate penetrations and holes in advance where they are proposed in the structural sections such as footings, beams, wall, etc. Penetrations are acceptable only when the following occurs:
  - 1. Where indicated on the Structural Drawings.
  - 2. As approved by the Structural Engineer prior to construction and after submittal of Drawing showing location, size, and position of each penetration.
- B. Cutting or holes:
  - 1. Cut holes through concrete, masonry block or brick floors and floors of structure with a diamond core drill or concrete saw. Pneumatic hammer, impact electric, hand or manual hammer type drills are not allowed, except where permitted by the Structural Engineer as required by limited working space. Obtain the approval of the Structural Engineer prior to drilling through structural sections.
  - 2. Provide sleeves or "can outs" for cast-in-place concrete floors and walls. Following conduit installation, seal all penetrations using non-iron bearing, chloride free, non-shrinking, dry-pack grouting compounds; or fire rated penetration-sealing materials.
  - 3. Cut holes for conduit penetrations through non-concrete and non-masonry walls, partitions, or floors with a hole saw. The hole shall be only as large as required to accommodate the size of the conduit.
  - 4. Provide single piece escutcheon plates around all exposed conduit penetrations in public places.
- C. Sealing:
  - 1. Non-rated penetrations: Pack opening around conduits with non-flammable insulating material and seal with gypsum wallboard taping compound.
  - 2. Fire stop: Where conduits, wireways and other electrical raceways pass through fire rated partitions, walls, smoke partitions or floor; install a UL classified fire stop material to provide an effective barrier against the spread of fire, smoke, and gases. Completely fill and seal clearances between raceways and openings with the fire stop material.
- D. Waterproofing: At floor, exterior wall, and roof conduit penetrations, completely seal clearances around the conduit and make watertight as specified in Division 07: Sealants and Caulking.
  - 1. Install specified watertight conduit entrance seals at all below grade wall and floor penetrations. Conduits penetrating exterior building walls and building floor slab shall be PVC coated rigid galvanized steel.
  - 2. For roof penetrations furnish and install roof flashing, counter flashing and pitch-pockets as specified under Roofing and Sheet Metal Sections of the Specifications.
  - 3. Provide membrane clamps and cable sealing fittings for any conduit that horizontally penetrates the waterproof membrane.

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4. Conduits that horizontally penetrate a waterproof membrane shall fall away from and below the penetration on the exterior side a minimum of two times the conduit diameters.

3.06 TERMINATIONS AND JOINTS

- A. Use raceway fittings that are of types compatible with the associated raceway and suitable for the use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings except as otherwise indicated.
- B. Raceways shall be joined using specified couplings or transition couplings where dissimilar raceway systems are joined.
- C. Conduits shall be securely fastened to cabinets, boxes and gutters using two locknuts and an insulating bushing or specified insulated connectors. Where joints cannot be made tight, use bonding jumpers to provide electrical continuity of the raceway system. Where terminations are subject to vibration, use bonding bushings or wedges to assure electrical continuity. Where subject to vibration or dampness, use insulating bushings to protect conductors. Install grounding bushings or bonding jumpers on all conduits terminating at concentric or eccentric knockouts.
- D. Conduit terminations exposed at weatherproof enclosures and cast outlet boxes shall be made watertight using specified connectors and hubs.
- E. Install specified cable sealing bushings on all conduits originating outside the building walls and terminating in switchgear, cabinets, or gutters inside the building. Install cable sealing bushings or raceway seal for conduit terminations in all grade level or below grade exterior pull, junction, or outlet boxes.
- F. Raceway seal: Inject into wire filled raceways, a pre-formulated rigid 2 lbs. density polyurethane foam which expands a minimum 35 times its original bulk. Foam shall have the physical properties of water vapor transmission of 1.2 to 3.0 perms: water absorption less than 2% by volume, fungus and bacterial resistant. Foam shall permanent seal against water, moisture, insects, and rodents. Install raceway sealing foam at the following points:
  1. Where conduits pass from warm locations to cold locations to prevent passage of water vapor (such as refrigerated spaces, constant temperature rooms, air-conditioned spaces, etc.).
  2. Where conduits enter buildings from below grade.
- G. Use short length (maximum of 6ft) of the appropriate FMC or LFMC conduit for connections to motors and other electrical equipment subject to movement, vibration, misalignment, cramped quarters, or noise transmission. Provide liquidtight flexible metal conduit for installation in exterior locations, moisture or humidity-laden atmosphere, corrosive atmosphere, water hose or spray wash-down operations and locations subject to seepage or dripping of oil, grease, or water. Provide a green ground wire with FMC or LFMC conduit.

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3.07 SUPPORTS

- A. Provide supports for raceways as specified in Section 26 05 29: Electrical Hangers and Supports.
- B. All raceways systems shall be secured to building structures using specified fasteners, clamps and hangers spaced according to the CEC.
- C. Support single runs of conduit using one-hole pipe straps. Where run horizontally on walls in damp or wet locations, install "clamp backs" to space conduit off the surface.
- D. Multiple conduit runs shall be supported using "trapeze" hangers fabricated from specified construction channel, mounted to 3/8-inch diameter, threaded steel rods secured to building structures. Fasten conduit to construction channel with standard one-hole pipe clamps or the equivalent. Provide lateral seismic bracing for hangers.
- E. Support exposed vertical conduit runs at each floor level, independent of cabinets or switches to which they run, by means of acceptable supports.
- F. Fasteners and supports in solid masonry and concrete:
  - 1. Use steel or malleable iron concrete inserts set in place prior to placing the concrete.
  - 2. After concrete installation:
  - 3. Steel expansion anchors not less than ¼ inch bolt size and not less than 1-1/8" embedment.
  - 4. Power set fasteners not less than ¼ inch diameter with depth of penetration not less than three inches.
  - 5. Use vibration and shock resistant anchors and fasteners for attaching to concrete ceilings.
- G. Hollow masonry: Toggle bolts are permitted. Bolts supported only by masonry block are not acceptable.
- H. Metal structures: Use machine screw fasteners or other devices specifically designed and approved for the application.

3.08 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

3.09 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION

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SECTION 26 05 33.16 - BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes boxes for electrical wiring.

1.03 DEFINITIONS

- A. CEC: California Electrical Code.

1.04 SUBMITTALS

- A. Product Data: For boxes.
- B. Source quality-control test reports.

1.05 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.01 BOXES, ENCLOSURES, AND CABINETS

- A. Products furnished by the following Manufacturers shall be acceptable if in compliance with all features specified herein and indicated on the Drawings.
  - 1. Outlet and junction boxes:
    - a. Spring City Electrical Manufacturing Co.
    - b. Thomas & Betts Corp.
    - c. Raco, Inc.
  - 2. Cast boxes:
    - a. Appleton Electric Co.
    - b. Crouse-Hinds.
  - 3. Pullboxes:
    - a. Circle AW Products.
    - b. Hoffman Engineering Co.
- B. Substitutions: Under provisions of Section 26 05 00: Common Work Results for Electrical.

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- C. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
    - 1. Shall be of size and shape best suited for particular application, properly code sized for number of wires and conduits passing through or terminating therein, but in no case less than four inches square or octagon by 2-1/4-inch deep. Support boxes directly to structural members, framing or blocking by means of screws, anchors, bolts or embedded in masonry or concrete.
    - 2. Outlet boxes shall be one-piece pressed steel, sherardized or galvanized. Surface covers shall be used where exposed wiring is permissible. Boxes in damp or outdoor locations shall be malleable iron with threaded hubs, fitted with gasket and cast cover.
  - D. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy Type FD, with gasketed cover.
  - E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
  - F. Pull Boxes: Indoor pull boxes fabricated of code gauge steel, of size shown or as required, complete with screw covers, flush type in finished areas, surface type in unfinished areas, primed, and painted. See drawings for additional requirements.
  - G. Pull boxes used outdoors or in damp locations fabricated of code gauge steel with rain-tight welded seams, conduit hubs on top or sides, screw covers with neoprene or korprene gaskets. Hardware non-ferrous metal or hot-dipped galvanized. Boxes located on roof, entire boxes painted two coats of rust-inhibiting aluminum paint, Rustoleum or equal. Boxes located on building walls or free standing; finish powder paint color to match exterior building color.
    - 1. Hoffman, NEMA 3R, A Series or equal.
  - H. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.
    - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
- 2.02 CABINETS:
- A. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
  - B. Hinged door in front cover with flush latch and concealed hinge.
  - C. Key latch to match panelboards.
  - D. Metal barriers to separate wiring of different systems and voltage.
  - E. Accessory feet where required for freestanding equipment.

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PART 3 - EXECUTION

3.01 PREPARATION

- A. Install outlet boxes at the locations and elevations indicated on the Drawings or specified herein. Make adjustments to locations as required by structural conditions and to suit coordination requirements of other trades.
- B. Locate switch outlet boxes on the latch side of doorways unless otherwise indicated.

3.02 INSTALLATION

- A. Install boxes in accordance with Manufacturer's written instructions, as indicated on Drawings and as specified herein.
- B. Locate electrical boxes as indicated on Drawings and as required for splices, taps, wire pulling, equipment connections and Code compliance.
- C. Install junction or pull boxes where required to limit bends in conduit runs to not more than (3) 90 degree bends or where pulling tension achieved would exceed the maximum allowable for the cable to be installed. Note that these boxes are not indicated on the Drawings.
- D. Leave no unused openings in any box. Install close-up plugs as required to seal openings.
- E. Provide cast metal boxes with gasketed cast metal cover plates where boxes are exposed in damp or wet locations.
- F. Welded outlet boxes shall only be used in concealed interior installations.
- G. Provide precast concrete boxes in exterior planting areas, walkways, roads etc.
- H. Use conduit outlet bodies to facilitate pulling of conductors or to make changes in conduit direction only. Do not make splices in conduit outlet bodies.
- I. Install galvanized steel coverplates on boxes in unfinished areas, above accessible ceilings and on surface mounted outlets.

3.03 SUPPORTS

- A. Provide boxes installed in walls with brackets designed for attaching directly to the studs or mount boxes on specified box supports.
- B. Mount boxes, installed in suspended ceilings of gypsum board or lath and plaster construction, to 16-gauge metal channel bars attached to main ceiling runners.
- C. Support boxes independently of conduit system.

END OF SECTION

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SECTION 26 05 43 - UNDERGROUND DUCTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SCOPE

- A. Section Includes:
  - 1. Conduit, ducts, and duct accessories for direct-buried and concrete-encased duct banks, and in single duct runs.
  - 2. Handholes and pull boxes.

1.02 RELATED SECTIONS

- A. Section 26 05 19 Low Voltage Electrical Power Conductors and Cables
- B. Section 26 05 53 Identification for Electrical Systems

1.03 DEFINITION

- A. RNC: Rigid nonmetallic conduit.

1.04 SUBMITTALS

- A. Submit in accordance with of Section 01 3300 Shop Drawings, Product Data and Samples.
- B. Product Data: For the following:
  - 1. Duct-bank materials, including separators and miscellaneous components.
  - 2. Ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
  - 3. Accessories for manholes, handholes, pull boxes, and other utility structures.
  - 4. Warning tape.
- C. Shop Drawings for Precast or Factory-Fabricated Underground Utility Structures: Include plans, elevations, sections, details, attachments to other work, and accessories, including the following:
  - 1. Duct entry provisions, including locations and duct sizes.
  - 2. Reinforcement details.
  - 3. Frame and cover design and manhole frame support rings.
  - 4. Ladder details.
  - 5. Grounding details.
  - 6. Dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
  - 7. Joint details.
- D. Product Certificates: For concrete and steel used in precast concrete manholes, pull boxes and handholes, comply with ASTM C 858.
- E. Field quality-control reports.

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1.05 QUALITY ASSURANCE

- A. Comply with IEEE C2 – National Electrical Safety Code.
- B. Comply with the current issue of the California Electrical Code.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver ducts to Project site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.
- B. Store precast concrete underground utility structures at Project site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.
- C. Lift and support precast concrete units only at designated lifting or supporting points.

1.07 COORDINATION

- A. Coordinate layout and installation of ducts, manholes, handholes, and pull boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.
- B. Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and pull boxes with final locations and profiles of ducts and duct banks as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations from those indicated as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by the Owner's Representative.

PART 2 - PRODUCTS

2.01 CONDUIT

- A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.
- B. RNC: NEMA TC 2, Type EPC-40-PVC, and Type EPC-80-PVC UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

2.02 NONMETALLIC DUCTS AND DUCT ACCESSORIES

- A. Basis-of-Design Product: Carlon or comparable product by one of the following:
  - 1. Cantex, Inc.
  - 2. Allied Tube & Conduit; Atkore International.
  - 3. JM Eagle; J-M Manufacturing Company, Inc..
  - 4. DCX-CHOL Enterprises, Inc.; ELECSYS Division.
  - 5. Electri-Flex Company.
  - 6. IPEX Inc.
  - 7. Lamson & Sessions; Carlon Electrical Products.
  - 8. Or, Equal.



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- B. Duct Accessories:
  - 1. Duct Separators: Factory-fabricated rigid PVC interlocking spacers, sized for type and sizes of ducts with which used, and retained to provide minimum duct spacings indicated while supporting ducts during concreting or backfilling.
  - 2. Warning Tape: Underground-line warning tape specified in Section 25 0553 "Identification."

2.03 PRECAST CONCRETE HANDHOLES AND PULL BOXES

- A. Manufacturers: provide products by one of the following:
  - 1. Jensen Precast
  - 2. Christy Concrete Products.
  - 3. Oldcastle Precast Group.
  - 4. Oldcastle Precast Inc.; Utility Vault Division.
  - 5. Or, Equal.
- B. Comply with ASTM C 858 for design and manufacturing processes.
- C. Ferrous metal hardware shall be hot-dip galvanized in accordance with ASTM A153 (ASTM A153M) and ASTM A123 (ASTM A123M) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings.
- D. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or pull box.
  - 1. Frame and Cover: Weatherproof steel frame, with steel cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing stainless-steel bolts.
  - 2. Frame and Cover: Weatherproof steel frame, with hinged steel access door assembly with tamper-resistant, captive, cover-securing stainless-steel bolts.
    - a. Cover Hinges: Concealed, with hold-open ratchet assembly.
    - b. Cover Handle: Recessed.
  - 3. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
  - 4. Cover Legend: Molded lettering, As indicated for each service.
  - 5. Configuration: Units shall be designed for flush burial and have closed bottom unless otherwise indicated.
  - 6. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.
    - a. Extension shall provide increased depth of 12 inches
    - b. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.

2.04 SOURCE QUALITY CONTROL

- A. Test and inspect precast concrete utility structures according to ASTM C 1037.

PART 3 - EXECUTION

3.01 CORROSION PROTECTION

- A. Aluminum shall not be installed in contact with earth or concrete.

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- B. Rigid steel galvanized conduit to be wrapped with 10-Mil PVC tape.

3.02 UNDERGROUND DUCT APPLICATION

- A. Ducts for Electrical Cables over 600 V: RNC, NEMA Type EPC-80, Installed per utility requirements.
- B. Ducts for Electrical Feeders 600 V and Less: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank unless otherwise indicated.
- C. Ducts for Electrical Branch Circuits: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank unless otherwise indicated.

3.03 EARTHWORK

- A. Excavation and Backfill: Do not use heavy-duty, hydraulic-operated, compaction equipment.
- B. Restore surface features at areas disturbed by excavation and reestablish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.
- C. Cut and patch existing pavement in the path of underground ducts and utility structures according to Division 01 Section "Cutting and Patching."

3.04 DUCT INSTALLATION

- A. Slope: Pitch ducts a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope ducts from a high point in runs between two manholes to drain in both directions.
- B. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 60 inches, horizontally and 36-inch vertically, at other locations unless otherwise indicated.
- C. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.
- D. Duct Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches o.c. for 5-inch ducts, and vary proportionately for other duct sizes.
  - 1. Begin change from regular spacing to end-bell spacing 10 ft. from the end bell without reducing duct line slope and without forming a trap in the line.
  - 2. Grout end bells into structure walls from both sides to provide watertight entrances.
- E. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.
- F. Pulling Cord: Install 100-lbf- test nylon cord in ducts, including spares.

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G. Direct-Buried Duct Banks:

1. Support ducts on duct separators coordinated with duct size, duct spacing, and outdoor temperature.
2. Space separators close enough to prevent sagging and deforming of ducts, with not less than 5 spacers per 20 ft. of duct. Secure separators to earth and to ducts to prevent displacement during backfill and yet permit linear duct movement due to expansion and contraction as temperature changes. Stagger spacers approximately 6 inches between tiers.
3. After installing first tier of ducts, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand-place backfill to 4 inches over ducts and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction.
4. Install ducts with a minimum of 3 inches between ducts for like services and 3 feet between power and signal ducts.
5. Depth: Install top of duct bank at least 36 inches below finished grade unless otherwise indicated.
6. Install manufactured rigid steel galvanized conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
  - a. Couple steel conduits to ducts with female adapters designed for this purpose, and encase coupling with 3 inches of concrete.
  - b. For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
7. Warning Tape: Bury warning tape approximately 12 inches above direct-buried ducts and duct banks, placing them 24 inches o.c. Align tape along the width and along the centerline of duct bank. Provide an additional plank for each 12-inch increment of duct-bank width over a nominal 18 inches.

3.05 INSTALLATION OF CONCRETE MANHOLES, HANDHOLES, AND PULL BOXES

A. Precast Concrete Handhole and Manhole Installation:

1. Comply with ASTM C 891 unless otherwise indicated.
2. Install units level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances.
3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

B. Elevations:

1. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.
2. Where indicated, cast handhole cover frame integrally with handhole structure.

C. Drainage: Install drains in bottom of manholes where indicated. Coordinate with drainage provisions indicated.

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- D. Hardware: Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated.

3.06 GROUNDING

- A. Ground underground ducts and utility structures according to the CEC and Division 26 Section "Grounding and Bonding for Electrical Systems." The more stringent shall apply.

3.07 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
  - 1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.
  - 2. Pull aluminum or wood test mandrel through duct to prove joint integrity and test for out-of-round duct. Provide mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.
  - 3. Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Division 26 Section "Grounding and Bonding for Electrical Systems."
- B. Correct deficiencies and retest as specified above to demonstrate compliance.
- C. Prepare test and inspection reports.

3.08 CLEANING

- A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.
- B. Clean internal surfaces of manholes, including sump. Remove foreign material.

END OF SECTION

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SECTION 26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
  - 1. Equipment identification
  - 2. Panelboard directories
  - 3. Identification for power, conductors, communication, and control cable
  - 4. Wire and cable identification
  - 5. Buried electrical line warnings
  - 6. Junction box identification
  - 7. Inscribed device coverplates
  - 8. Warning labels and signs
  - 9. Instruction signs
  - 10. Miscellaneous identification products

1.02 RELATED SECTIONS

- A. Section 09 90-00, Painting and Coating

1.03 REFERENCE STANDARDS

- A. ANSI/ASME A13.1 – Scheme for the Identification of Electrical Systems.

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: Submit samples of each color, lettering style, and other graphic representation required for each identification material or system.
- C. Schedules of nameplates to be furnished indicating wording, symbols, letter size, letter style, and color coding for each system.

1.05 QUALITY ASSURANCE

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes, standards, and 29 CFR 1910.145.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer:
  - 1. Brady/Seton
  - 2. Stranco

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3. Rowmark
4. Or equal

2.02 CONDUCTOR AND COMMUNICATION AND CONTROL-CABLE IDENTIFICATION

- A. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather and chemical resistant coating and matching wraparound adhesive tape for securing ends of legend label.
  1. Marker for Tags: Machine-printed permanent, waterproof, black ink marker recommended by printer manufacturer.
- B. Snap-Around labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
- C. Snap around, Color Coding Bands: Slit, pretensioned, flexible, solid color-coded acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

2.03 UNDERGROUND-LINE WARNING TAPE

- A. Tape:
  1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
  2. Printing on tape shall be permanent and shall not be damaged by burial operations.
  3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.
- B. Color and Printing:
  1. Comply with ANSI Z535.1 through ANSI A535.5
  2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
  3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE. C. Tag:
    4. Pigmented polyolefin, bright-colored, compounded for direct-burial service.
    5. Thickness: 4 mils.
    6. Weight: 18.5 lb/1000 sq. ft.
    7. 3-inch Tensile According to ASTM D 882: 30 lbf, and 2500 psi.

2.04 WARNING LABELS AND SIGNS

- A. Comply with CEC and 29 CFR 1910.145
- B. Self-Adhesive Warning Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.
- C. Warning label and sign shall include, but are not limited to, the following legends:
  1. Material: rigid plastic laminated impact acrylic, 2 layer, exterior grade, UV stable
  2. Thickness: 3/16 inch minimum

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3. Maximum label size: Length and width vary for required label content, but no less than 2 inches wide by 1 inch high. D. Baked-Enamel Warnings Signs:
4. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
5. 1/4 inch grommets in corners for mounting.
6. Nominal size, 7 inches by 10 inches E. Metal-Backed, Butyrate Warning Signs:
7. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396 inch galvanized-steel backing; and with colors, legend, and size required for application.
8. 1/4 inch grommets in corners for mounting.
9. Nominal size, 10 inches by 14 inches

2.05 EQUIPMENT IDENTIFICATION NAMEPLATES

- A. Provide plastic labels for mechanical engraving with predrilled holes for attachment hardware.
  1. Material: rigid plastic laminated impact acrylic, 2 layer, exterior grade, UV stable
  2. Thickness: 3/16 inch minimum
  3. Maximum label size: Length and width vary for required label content, but no less than 2 inches wide by 1 inch high.
  4. Background color:
    - a. Normal power: Black, matte finish
    - b. Emergency power: Red, matte finish
  5. Lettering: White, machine engraved, Futura font, 3/8 inch high, all caps
  6. Maximum temperature: Able to withstand up to 160 deg. F.
  7. Fasteners: Self-tapping stainless steel screws, except contact type permanent adhesive where screws cannot or should not penetrate substrate.
    - a. Mounting screw type to be #8- 18 x 1 /2 drilling or tapping style, 1/4 inch hex washer head, stainless steel, or similar, appropriate for material in which sign is affixed to. A bead of silicone sealer shall be applied on back of sign and at screw locations prior to affixing sign to equipment.
    - b. For signs larger than 3 inches by 3 inches, use a minimum of 4 mounting screws.

2.09 WIRE AND TERMINAL MARKERS

- A. Provide self-adhering, pre-printed, machine printable or write-on, self-laminating vinyl wrap around strips. Blank markers shall be inscribed using the printer or pen recommended by Manufacturer for this purpose.

2.10 PAINTED IDENTIFICATION MATERIALS

- A. Stencils: Standard fiberboard stencils, prepared for required applications with the letter sizes generally complying with recommendations of ANSI A13.1 for piping and similar applications, but not less than 3/4 inch high letters for access door signs and similar operational instructions.
- B. Stencil Paint: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.

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- C. Identification Paint: Standard identification enamel of colors indicated or, if not otherwise indicated for piping systems, comply with ANSI A13.1 for colors.

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.
- B. Coordination: Where identification is to be applied to surfaces which require insulation, painting or other covering or finish, install identification after completion of covering and painting. Install identification prior to installation of acoustical ceilings and similar removable concealment.

### 3.02 ELECTRICAL EQUIPMENT IDENTIFICATION

- A. General: Install engraved plastic laminate sign or plastic equipment marker on or near each major item of electrical equipment and each operational device, as specified herein if not otherwise specified for each item or device.
- B. Optional sign types: Where lettering larger than 1 inch height is needed for proper identification, because of distance from normal location of required identification, stenciled signs may be provided in lieu of engraved plastic, verify with Owner's Representative.
- C. Lettering size: Minimum 1/4 inch high lettering for name of unit where viewing distances less than 24 inches, 1/2 inch high for distances up to 6 feet, and proportionately larger lettering for greater distances. Provide secondary lettering of 2/3 to 3/4 of size of the principal lettering.

### 3.06 WIRE AND CABLE IDENTIFICATION

- A. Provide wire markers on each conductor in panelboards, pull boxes outlet and junction boxes and at load connection. Identify with branch circuit or feeder number for power and lighting circuits and with control wire number as indicated on Manufacturer's shop drawings for control wiring.
- B. Provide colored phase markers for conductors as noted in Section 26 05 19 Conductors and Cables. Apply colored, pressure sensitive plastic tape in half-lapped turns for a distance of 3 inches from terminal pointes and in boxes where splices or taps are made. Apply the last two laps of tape with no tension to prevent possible unwinding. Do not cover cable identification markings by taping.

### 3.07 UNDERGROUND CONDUIT MARKERS

- A. During trench backfilling, for exterior underground power, signal and communications lines, install continuous underground plastic line marker, located directly above line at 6 inches to 8 inches below finished grade. Where multiple lines installed in a common



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trench or concrete envelope, do not exceed an overall width of 16 inches; install a single line marker.

3.08 JUNCTION BOX IDENTIFICATION

- A. The cover of junction, pull, and connection boxes for both power and signal systems, located above suspended ceilings and below ceilings in non-public areas, shall be clearly marked with a permanent ink felt pen. Identify the circuits (panel designation and circuit numbers) contained in each box.

3.09 ADJUSTING AND CLEANING

- A. Adjusting: Relocate any electrical identification device which has become visually blocked by Work of this Division or other Divisions.
- B. Cleaning: Clean face of identification devices.

3.10 EXTRA STOCK

- A. Furnish minimum of 5% extra stock of each electrical identification material required, including additional numbered valve tags (not less than 3) for each piping system, additional piping system identification markers, and additional plastic laminate engraving blanks of assorted sizes.
  - 1. Where stenciled markers are provided, clean and retain stencils after completion of stenciling and include used stencils in extra stock, along with required stock of stenciling paints and applicators.

END OF SECTION

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SECTION 26 32 13.13 – DIESEL ENGINE GENERATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Install an owner provided diesel driven generator set with belly tank and enclosure as described herein this specification and on the drawing set. The unit shall be capable of operating during the extremes of summer and winter at this location. The engine generator will support emergency systems for the facility.

1.2 QUALITY ASSURANCE

- A. Technician Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
  - 1. Maintenance Proximity: Not more than Two hours' normal travel time from Installer's place of business to Project site.
- B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 80 miles of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.
- C. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- E. Comply with ASME B15.1.
- F. Comply with NFPA 37.
- G. Comply with NFPA 70.
- H. Comply with NFPA 110.
- I. Comply with UL 2200.
- J. Comply with NFPA 111 Per CFC 1203.1.3.

1.3 COORDINATION

- A. Coordinate with Generator manufacturer for startup and commissioning.

1.4 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at final acceptance, provide 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include quarterly exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and

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adjusting as required for proper operation. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

- B. Provide end user personnel training.

### PART 2 - PRODUCTS

#### 2.1 ENGINE-GENERATOR SET

- A. Owner Furnished Cummins DQDAB 275kW, 277/480V, 3-phase generator.

#### 2.2 FUEL OIL STORAGE

- A. Owner Furnished

#### 2.3 CONTROL AND MONITORING

- A. Owner Furnished

#### 2.4 OUTDOOR GENERATOR-SET ENCLOSURE

- A. Owner Furnished

#### 2.5 VIBRATION ISOLATION DEVICES

- A. Elastomeric Isolator Pads: Oil- and water-resistant elastomer or natural rubber, arranged in single or multiple layers, molded with a nonslip pattern and galvanized-steel baseplates of sufficient stiffness for uniform loading over pad area, and factory cut to sizes that match requirements of supported equipment.
  - 1. Material: Standard neoprene to comply with IBC seismic standards for the project location.
- B. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic restraint.
  - 1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to wind loads or if weight is removed; factory-drilled baseplate bonded to 1/4-inch thick, elastomeric isolator pad attached to baseplate underside; and adjustable equipment mounting and leveling bolt that acts as blocking during installation.
  - 2. Outside Spring Diameter: Not less than 80 percent of compressed height of the spring at rated load.
  - 3. Minimum Additional Travel: 50 percent of required deflection at rated load.
  - 4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
  - 5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

### PART 3 - EXECUTION

#### 3.1 IDENTIFICATION

- A. Provide labeling for system components, engraved nameplates, safety labeling warning of dangers per CAL OSHA and required labeling for the fuel tank system per NFPA."

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3.2 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- B. Tests and Inspections:
  - 1. Contractor to provide the services of the Generator Vendor to perform on site tests recommended by manufacturer and each electrical test and visual and mechanical inspection for "AC Generators and for Emergency Systems" specified in NETA Acceptance Testing Specification. Certify compliance with NETA test parameters and NFPA 110.
  - 2. Load Bank Test
    - a. Minimum test load bank test period of 4 hours.
    - b. Provide load bank and cables to facilitate the test.
    - c. Load test generator at 60% of nameplate for 1-hour, 80 % for 1-hour, 100% of nameplate for 15-minutes and then stepdown to 90% nameplate for 1-hour.
      - 1) Provide recording of fluid levels and temperatures at each step.
    - d. Simulate the following transient conditions to verify generator operation in accordance with manufacturer's specifications. Load to be maximum attainable, up to 100 % rated full load.
      - 1) Drop out of generator under load.
      - 2) Reconnection of generator with load.
      - 3) Generator output voltage deviation from no load to 25 percent load and return, and 60 percent to 100 percent and return.
  - 3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.
    - a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
    - b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
    - c. Verify acceptance of charge for each element of the battery after discharge.
    - d. Verify that measurements are within manufacturer's specifications.
  - 4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
  - 5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
  - 6. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
  - 7. Harmonic-Content Tests: Measure harmonic content of output voltage under 25 percent and at 100 percent of rated linear load. Verify that harmonic content is within specified limits.
- C. Live Test
  - 1. Test connections for loop start to the automatic transfer switch.
  - 2. Initiate a transfer to pick up existing building loads for a period of 1-hour.

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- D. Coordinate tests with tests for transfer switches and run them concurrently.
  - E. Test instruments shall have been calibrated within the last 12 months, traceable to standards of NIST, and adequate for making positive observation of test results. Make calibration records available for examination on request.
  - F. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
  - G. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
  - H. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
  - I. Remove and replace malfunctioning units and retest as specified above.
  - J. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
  - K. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.
  - L. Perform Infrared Scanning: Performing an infrared scan of each power wiring termination and each bus connection. Remove all access panels so terminations and connections are accessible to portable scanner.
- 3.3 TOUCHUP PAINT
- 1. Provide touchup paint and patch all nicks and scuffs on the unit leaving no bare metal exposed to the elements.
- 3.4 DEMONSTRATION
- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators. Refer to Division 01 Section "Demonstration and Training."
  - B. Provide a video of the training.

END OF SECTION 26 32 13

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SECTION 26 36 23 – AUTOMATIC TRANSFER SWITCHES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes transfer switches rated 600 V and less, including the following:
  - 1. Automatic transfer switches.
  - 2. Remote annunciation systems.
  - 3. Remote annunciation and control systems.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
  - 1. Provide a withstand rating chart that includes required protective devices to meet the listed ratings.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
- C. Qualification Data: For manufacturer and testing agency.
- D. Field quality-control test reports.
- E. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
  - 1. Features and operating sequences, manual.
  - 2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.
- B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

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1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.
  - C. Source Limitations: Obtain manual transfer switches as part of the engine generator package, through one source from a single manufacturer.
  - D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - E. Comply with NEMA ICS 1.
  - F. Comply with CEC.
  - G. Comply with NFPA 110.
  - H. Comply with UL 1008 unless requirements of these Specifications are stricter.
- 1.05 COORDINATION
- A. Coordinate the location of the transfer switch in the main electrical room when dimensions differ from plan.

PART 2 - PRODUCTS

2.01 AUTOMATIC TRANSFER SWITCHES

- A. Owner Furnished Cummins 125 amp 3-pole PowerCommand OTEC Transfer Switch.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Identify components according to Division 26 Section "Identification for Electrical Systems".
- B. Provide a placard indicating the sequence of operation including load shedding.
- C. The installation and operation shall comply with NFPA 110 for an optional standby system.

3.02 CONNECTIONS

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.
- B. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems".

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- C. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables".

3.03 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- B. Testing Agency: Engage a qualified independent testing and inspecting agency to perform tests and inspections and prepare test reports.
  - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installation, including connections, and to assist in testing.
  - 2. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
  - 3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
  - 4. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
    - a. Check for electrical continuity of circuits and for short circuits.
    - b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
    - c. Verify that automatic and manual transfer warnings are properly placed.
    - d. Perform automatic and manual transfer operation.
  - 5. After energizing circuits, demonstrate interlocking sequence and operational function for each switch.
    - a. Verify utility power rotation and coordinate throughout the distribution system.
    - b. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
    - c. Simulate loss of phase-to-ground voltage for each phase of normal source.
    - d. Verify time-delay settings.
    - e. Verify pickup and dropout voltages by data readout or inspection of control settings.
    - f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
    - g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.
- C. Coordinate tests with a generator connected and operating.
  - 1. Contractor to furnish a portable generator, fuel, cables and personnel to connect and accomplish the test.
- D. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.



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- E. Remove and replace malfunctioning units and retest as specified above.
- F. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switch. Remove all access panels so joints and connections are accessible to portable scanner.
  - 1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
  - 2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
  - 3. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.04 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below. Refer to Division 01 Section "Demonstration and Training".
- B. Factory authorized service representative shall conduct two initial 4-hour training sessions for Owner's Maintenance Personnel upon completion and acceptance of system. Provide one 4-hour follow-up training session to be scheduled by Owner within one year of the final date of the final initial training session. Instructions shall include operation, maintenance, adjusting and testing of equipment with both classroom training and hands-on instruction. The agenda for the second session will be by Owner.
- C. Contractor shall provide a training video.
- D. Contractor shall schedule training with a minimum of 7-days advance notice.
- E. Coordinate this training when there is a portable generator in place.

END OF SECTION