

BID DOCUMENTS

including Specifications
for the construction of:

The COUNTY OF MENDOCINO

County of Mendocino Juvenile Hall Generator Project

585 Low Gap Road
Ukiah, CA 95482



Prepared by:
FACILITIES & FLEET DIVISION
841 LOW GAP ROAD
UKIAH, CA 95482

BID# 010-26

Date of Issue:
Friday, March 27, 2026

SECTION 00 00 20

PROJECT DIRECTORY

PROJECT: Mendocino County Juvenile Hall Generator Project
585 Low Gap Road
Ukiah, CA 95482

OWNER: County of Mendocino
841 Low Gap Road
Ukiah, CA 95482
(707) 234-6050

AGENT: County of Mendocino
Executive Offices
Facilities and Fleet Division
841 Low Gap Road
Ukiah, CA 95482
Office:(707) 234-6058
Mobile:(707) 380-3223
vierak@mendocinocounty.gov
Facilities Specialist I

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Pasadena, CA. 91107
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NOTICE INVITING BIDS

Notice is hereby given that sealed bids will be received at the Mendocino County Facilities Conference Room, 841 Low Gap Road, Ukiah, California 95482, until the hour of 2:00 p.m., as determined by the clock on the wall in the Mendocino County Facilities Conference Room, **on Thursday, April 23, 2026**, and then publicly opened and read aloud in the Mendocino County Facilities Conference Room, 841 Low Gap Road, Ukiah, California, for the following project:

Mendocino County Juvenile Hall Generator Project (BID# 010-26)

Electronic Plans and Documents may be seen or downloaded from the Mendocino County Web Page for Open RFP, Quotes & Bids: <https://www.mendocinocounty.org/departments/general-services/central-services/open-rfp-quotes-bids>. Additionally, plans and documents have been distributed to builders' exchange plan rooms throughout Northern California.

Bids shall be submitted on the form provided in this Manual and accompanied by a form of bid security as specified in Section 001000, Instructions to Bidders.

The successful Bidder will be required to furnish a Labor and Material Bond and a Performance Bond as required in Section 001000 Instructions to Bidders. Bidders' attention is called to the Instruction to Bidders and other related documents in this Manual for complete directions and information as to bidding and other requirements.

MANDATORY PRE-BID CONFERENCE

A mandatory pre-bid conference and site inspection will be held on:

Wednesday, April 8, 2026 @ 11:00 AM at 585 Low Gap Road, Ukiah, CA 95482

The County reserves the right to schedule additional opportunities for bidders to attend a mandatory conference and site inspection to ensure a competitive bidding environment.

PAYMENT OF PREVAILING WAGES

Pursuant to the provisions of the Labor Code of the State of California, the Department of Industrial Relations has made a determination of the rate of per diem wages to be paid on the prevailing rate of pay for regular, holiday and overtime work in the locality in which the public work is to be performed, for each craft, classification, or type of workman needed to execute the contract. All County of Mendocino projects greater than \$1,000 require contractors to comply with Prevailing Wage requirements (California Labor Code, Sections 1770 through 1775). The rates are available online at <https://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>.

CONTRACTOR REGISTRATION

Per Labor Code Section 1771.1(a) A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code or engage in the performance of any contract for public work, as defined in this chapter,

unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

CERTIFIED PAYROLL RECORDS

Per Labor Code Section 1776, each contractor and subcontractor shall keep accurate payroll records. A certified copy of all payroll records for work performed under this contract shall be furnished upon request to a representative of the awarding body. Per SB 854, contractors and subcontractors must submit certified payroll reports directly to the Department of Industrial Relations.

EMPLOYMENT OF APPRENTICES

Each contractor and subcontractor performing work in an apprenticeable craft or trade shall comply with Section 1777.5 relating to Apprentices on public works projects.

MENDOCINO COUNTY BUSINESS LICENSE

Pursuant to Mendocino County Code Chapter 6.04 – Business Licenses, at the time of contract award, the contractor shall supply a copy of their current County of Mendocino business license.

LAWS AND GOVERNANCES

In the performance of the work contemplated by this contract, the contractor shall conform to and abide by all labor requirements and provisions of State and Federal Laws and City and County Ordinances and Regulations which may in any manner affect those engaged or employed on the work project, including but not limited to the overtime provisions of the Labor Code section 1813 and 1815 of the State of California.

Federal Laws, including the Davis-Bacon Act and the Americans with Disabilities Act of 1990, apply to the project.

END OF SECTION

SECTION 00 10 00

INSTRUCTIONS TO BIDDERS

PART 1 – GENERAL

1.1 BIDS RECEIVED

- A. Sealed bids for the **Mendocino County Juvenile Hall Generator Project (BID# 010-26)** will be received at the Mendocino County Facilities Conference Room, 841 Low Gap Road, Ukiah, California, until 2:00 p.m., as determined by the clock on the wall of the Mendocino County Facilities Conference Room, on **Thursday, April 23, 2026** and then publicly opened and read aloud in the Mendocino County Facilities Conference Room, 841 Low Gap Road, Ukiah, California.
- B. Late bids will not be accepted. It is Bidder's responsibility to ensure that its bid is delivered and received at the location noted above on or before the date and hour set for the bid opening.

1.2 LICENSE REQUIREMENT

The license required for this Project is an A-General Engineer Contractor or B-General Building.

1.3 BIDS AND BID SECURITY

Bids, to be considered, must be in accordance with the following instructions:

- A. Bids must be submitted on the bid form provided in this Manual, correctly and completely filled out with numbers stated both in writing and in figures, and with signatures of all persons signing in longhand/cursive.
- B. The completed form shall be without erasures or interlineation and shall not contain recapitulations of the work to be done.
- C. A Bidder's Bond, Certified Check, or Cashier's Check made payable to the County of Mendocino for an amount equal to at least ten percent (10%) of the bid amount shall accompany each bid. The above-mentioned bid security shall serve as a guarantee that the Bidder will execute the contract if awarded the contract in conformity with the contract documents, provide the required surety bond or bonds, sign the contract, and commence work as set forth in the contract documents. Such a guarantee is to be forfeited should the Bidder to whom the contract is awarded fail to enter into the contract.
- D. Responsive Bids shall include completed and executed copies of the following sections if included in the project Manual:
 - a. 001200 Qualification Application
 - b. 003070 Non-Collusion Affidavit
 - c. 003100 Bid Form
 - d. 004300 Subcontractor Listing Form

1.4 SUBCONTRACTORS LISTED

- A. In accordance with California Public Contract Code Sections 4100 et seq., inclusive, each bidder shall provide a list of subcontractors (Section 004300), giving the name and location of place of business and contractor's license number of each subcontractor who will perform a portion of the contract work in an amount in excess of one-half of one percent (0.5%) of the total contract price. In each instance, the nature and portion of the work to be subcontracted shall be described.
- B. Failure of Bidder to specify a subcontractor for any portion of the work in an amount in excess of one-half of one percent (0.5%) of the total contract price constitutes an agreement for Bidder to perform that portion of the work itself. After bids are opened, no subcontractor may be designated or substituted except as provided for in Sections 4107 et seq. of the Public Contract Code.
- C. All Bidders must supply with their Bids the required information on all subcontractors who will perform any portion of the work, including labor, rendering of service, or specially fabricating and installing a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in excess of one-half of one percent (0.5%) of the total bid. Violation of this requirement may result in the Bid being deemed non-responsive and not being considered.

1.5 AWARD OR REJECTION OF BIDS

The contract shall be awarded to the lowest responsible bidder who complies with these instructions, provided that the bid is deemed reasonable and in the best interests of the County of Mendocino. The County reserves the right to reject any and all bids and to waive any informality on bids received whenever the rejection or waiver is in the best interest of the County. The bidders' competence and dependability will be taken into consideration when making the award.

- A. Additive and Deductive Items: Method of Determining Lowest Bid. Pursuant to Public Contract Code section 20103.8, if this bid solicitation includes additive and/or deductive items, the checked [X] method shall be used to determine the lowest bid: [check one].

- 1. The lowest bid shall be the lowest bid price on the base bid contract without consideration of the prices on allowance, additive, or deductive items.
- 2. The lowest bid shall be the lowest total of the bid prices on the base contract and those additive or deductive items that were specifically identified in the bid solicitation or Bid Form as being used for the purpose of determining the lowest bid price.
- 3. The lowest bid shall be the lowest total of the bid prices on the base contract and those additive or deductive items taken in order from a specifically identified list of those items that, when in the solicitation, and added to, or subtracted from, the base contract, are less than, or equal to, a funding amount publicly disclosed by the County before the first bid is opened.

4. The lowest bid shall be determined in a manner that prevents any information that would identify any of the bidders or the proposed Subcontractors or suppliers from being revealed to the public entity before the ranking of all bidders from lowest to highest has been determined.

If no method is checked, sub-paragraph one shall be used to determine the lowest bid.

- B. Notwithstanding the method used by the County to determine the lowest responsible bidder, the County retains the right to add to or deduct from the contract any of the additive or deductive items included in the bid solicitation.
- C. The award of the contract, if awarded, is expected to be made within thirty (30) days and in no event any later than eighty (80) days after the bid opening. After the award, the County shall notify the successful Bidder in writing and forward the original contracts for the Bidder's execution with the notification. Within eight (8) working days after such notification, the successful Bidder shall return the signed agreements to the County, accompanied by all required Surety Bonds, insurance policies, and endorsements.

1.6 TIME OF COMPLETION

Bidder agrees to commence work on or before a date to be specified in the written "Notice to Proceed" from County and to fully complete the project within two hundred and seventy (270) calendar days from the date of the written "Notice to Proceed".

1.7 ADDENDUM

Any addendum issued during the bidding period and prior to bid opening shall be included in the bid. The addendum issued by the County shall become part of the agreement. Questions to be considered for inclusion in an addendum must be in writing and in the hands of the County not less than seven (7) days prior to the bid opening date.

1.8 INTERPRETATION OF DRAWINGS AND DOCUMENTS

Should a Bidder find discrepancies in, or omissions from, the drawings or documents, or should it be in doubt as to their intent, it should at once notify the County, which will then send responsive written instructions in the form of addenda to all Bidders. The county will not be responsible for any oral instructions. Any verbal conversations with the County during the bidding period are not to be construed as instructions. Any changes to the Contract documents will be issued only in writing via addendum.

1.9 WITHDRAWAL OF BID

Bids may be withdrawn prior to, but not later than, the time of bid opening.

1.10 BONDS

The Successful Bidder is required to furnish a Labor and Material Payment Bond and a Performance Bond, each in the amount equal to one hundred percent (100%) of the contract price. Said Bonds shall be obtained from a surety company satisfactory to the County on the forms provided in Section 006113.

1.11 SUBSTITUTIONS

Any substitution shall be made in accordance with instructions contained in Section 007000 – General Conditions included herein. Questions concerning substitutions will not be entertained during the bidding period.

1.12 SUBSTITUTION OF SECURITY

Pursuant to California Public Contract Code Section 22300, the Contractor may substitute securities for retention money withheld by the County to ensure performance under the Contract. Said securities shall be in the form and of the type acceptable to the County.

1.13 LIQUIDATED DAMAGES

In case of failure on the part of Contractor to complete the work within the time stipulated, plus any duly authorized extension of time granted in writing by County, Contractor shall pay to County the sum of \$250.00 per calendar day for each day's delay beyond the time prescribed as liquidated damages, but not as a penalty. The language in the paragraph of the General Conditions entitled "Time of Completion and Liquidated Damages" is incorporated herein.

1.14 BIDDER'S QUALIFICATIONS

- A. All Bidders, Contractors, and Subcontractors bidding under joint venture agreements shall be duly licensed as provided for under Sections 7000 et seq. of the Business and Professions Code.
- B. A corporation which is awarded the Contract will be required to furnish certification attesting to its corporate existence, as well as evidence that the Officer signing the contract is duly authorized to do so.
- C. Bidders and their subcontractors may be required to furnish evidence satisfactory to the County that they have sufficient means and have had experience in the class of work called for to enable them to complete the contract in a satisfactory manner.
- D. No person, firm, or corporation shall make or file or be interested in more than one bid for the same work, except insofar as alternate bids may be called for. No person, firm or corporation shall submit a collusive or sham bid or seek directly or indirectly to induce any other bidder to submit a collusive or sham bid or to refrain from submitting a bid or to seek in any way to control or fix the price of the bid or any portion of the bid price in order to secure an advantage against County or any other person interested in the proposed contract. However, a person, firm, or corporation submitting a sub-proposal to a bidder or quoting prices on materials to a bidder is not hereby disqualified from submitting sub-proposals or quoting prices to other bidders.
- E. A licensed contractor shall not submit a bid to a public agency unless (1) its contractor's license number appears clearly on the bid, (2) the license expiration date is stated, and (3) the bid contains a statement that the representations made therein are made under penalty of perjury. Any bid not containing this

information, or a bid containing information that has subsequently proven false, shall be considered non-responsive and shall be rejected by the County.

- F. The work to be performed under this contract is of a very specialized nature. The County's goal is to secure the best possible work and maintain a very critical, compressed schedule. Bidders considered for award will be limited to those firms that can show to the satisfaction of the County that they have the facilities and experience necessary to perform the required construction in accordance with the specifications proposed for this project. The terms under which bidders will be evaluated, and the rules that will be applied, are attached to this Manual as section 00120 Qualification Application.

1.15 EXAMINATION OF SITE AND DOCUMENTS

By submitting a bid, Bidder agrees and warrants that (1) it has examined the site and all documents, drawings, and specifications; (2) it is satisfied that the same are adequate to produce the required results; and (3) its bid covers the cost of all items required in the agreement. The work to be performed includes all items mentioned in these specifications and/or as shown on the plans and other documents included as part of the project.

1.16 ENVIRONMENTAL AND PLANNING CONDITIONS OF APPROVAL

Bidder agrees to perform its work in conformance with all environmental and planning conditions of approval applicable to the project. Bidders' attention is directed to Section 00801 of the Supplementary General Conditions and the source documents for specific conditions of approval.

1.17 AGREEMENT

Contract documents include the Agreement, which the successful Bidder, as Contractor, will be required to execute.

1.18 PRE-CONSTRUCTION CONFERENCE

The successful bidder shall be available for a pre-construction conference with the County at a mutually convenient time and date.

END OF SECTION

SECTION 00 12 00

QUALIFICATION APPLICATION

QUALIFICATION APPLICATION

The information contained in this Application is confidential and is for the sole use of the County in evaluating the qualifications of the Bidder. Only the information below ("Contact Information") is considered public information.

CONTACT INFORMATION

Firm Name (as it appears on license):

Check one: Corporation Partnership Sole Proprietor

Contact Person: _____

Address: _____

Phone: _____ Fax: _____

If the firm is a sole proprietor or partnership:

Owner(s) of Company: _____

Contractor's License Number(s):

<u>License No.</u>	<u>Classifications</u>	<u>Expiration</u>	<u>Qualifying Individual</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

DIR Registration Number: _____

Mendocino County Business License No: _____

PART I.

ESSENTIAL REQUIREMENTS FOR QUALIFICATION

The Contractor will be immediately disqualified if the answer to any of the questions 1 through 3 is “no”.

The Contractor will be immediately disqualified if the answer to any of the questions 4 through 7 is “yes”¹.

1. Contractor possesses a valid and current California Contractor’s license for the project or projects for which it intends to submit a bid.
 Yes No
2. Contractor has a liability insurance policy with a policy limit of at least one million dollars (\$1,000,000) per occurrence and two million dollars (\$2,000,000) aggregate.
 Yes No
3. Contractor has a current workers’ compensation insurance policy as required by the Labor Code or is legally self-insured pursuant to Labor Code Section 3700 *et seq.*
 Yes No Contractor is exempt from this requirement because it has no employees
4. Has Contractor’s license been revoked at any time in the last five (5) years?
 Yes No
5. Has a surety firm completed a contract on Contractor’s behalf, or paid for completion because Contractor’s firm was default terminated by the project owner within the last five (5) years?
 Yes No
6. At the time of submitting this qualification form, is Contractor’s firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either Labor Code Section 1777.1 or Labor Code Section 1777.7?
 Yes No

If the answer is “yes”, state the beginning and ending dates of the period of debarment:

7. At any time during the last five (5) years, has Contractor’s firm, or any of its owners or officers, been convicted of a crime involving the awarding of a contract of a government construction project, or the bidding or performance of a government contract?
 Yes No

¹ A contractor disqualified solely because of a “yes” answer given to questions 4,5, or 7 may appeal the disqualification and provide an explanation of the relevant circumstances during the appeal procedure.

PART II. ORGANIZATION, HISTORY, ORGANIZATIONAL PERFORMANCE, COMPLIANCE WITH CIVIL AND CRIMINAL LAWS

A. Current Organization and Structure of the Business

For firms that are corporations:

- 1a. Date incorporated: _____
- 1b. Under the laws of the State of: _____
- 1c. Provide all the following information for each person who is either (a) an officer of the corporation (president, vice president, secretary, treasurer), or (b) the owner of at least ten percent (10%) of the corporation's stock:

Name	Position	Years with Co.	% Ownership	Social Security #

For firms that are partnerships:

- 1a. Date of formation: _____
- 1b. Under the laws of the State of: _____
- 1c. Provide all of the following information for each partner who owns ten percent (10%) or more of the firm:

Name	Position	Years with Co.	% Ownership	Social Security #

For firms that are sole proprietorships:

- 1a. Date of commencement of business: _____
- 1b. Social security number of company owner: _____

B. History of the Business and Organizational Performance

- 2. Has there been any change in ownership of the firm at any time during the last three (3) years?

NOTE: A corporation whose shares are publicly traded is not required to answer this question.

Yes No

If "yes", explain on a separate signed page.

3. Is the firm a subsidiary, parent, holding company, or affiliate of another construction firm?

NOTE: Include information about other firms if one firm owns fifty percent (50%) or more of another, or if an owner, partner, or officer of Contractor's firm holds a similar position in another firm.

Yes No

If "yes", explain on a separate signed page.

4. Are any corporate officers, partners, or owners connected to any other construction firms?

NOTE: Include information about other firms if an owner, partner, or officer of Contractor's firm holds a similar position in another firm.

Yes No

If "yes", explain on a separate signed page.

5. Financial Statements: Does the Contractor have reviewed or audited financial statements for each of the last three years?

Yes No

6. State Contractor's firm's gross revenues for each of the last three (3) years:

Year	Gross Revenue

7. How many years has Contractor's organization been in business in California as a contractor under its present business name and license number? _____ years.

8. Is Contractor's firm currently the debtor in a bankruptcy case?

Yes No

If "yes", please attach a copy of the bankruptcy petition, showing the case number, and the date on which the petition was filed.

Disputes

9. At any time in the last five (5) years, has Contractor's firm been assessed and paid liquidated damages after completion of a project under a construction contract with either a public or private owner?

Yes No

If “yes”, explain on a separate signed page, identifying all such projects by owner, owner’s address, the date of completion of the project, amount of liquidated damages assessed, and all other information necessary to fully explain the assessment of liquidated damages.

10. In the last five (5) years, has Contractor’s firm, or any firm with which any of Contractor’s company’s owners, officers or partners was associated, been debarred, disqualified, removed or otherwise prevented from bidding on, or completing, any government agency or public works project for any reason?
NOTE: “Associated with” refers to another construction firm in which an owner, partner or officer of Contractor’s firm held a similar position.
 Yes No

If “yes”, explain on a separate signed page. State whether the firm involved was the firm applying for qualification here or another firm. Identify by name of the company, the name of the person within Contractor’s firm who was associated with that company, the year of the event, the owner of the project, the project, and the basis for the action.

11. In the last five (5) years, has Contractor’s firm been denied an award of a public works contract based on a finding by a public agency that Contractor’s company was not a responsible bidder?
 Yes No

If “yes”, explain on a separate signed page. Identify the year of the event, the owner, the project, and the basis for the finding by the public agency.

NOTE: The following two questions refer only to disputes between the Contractor’s firm and the owner of a project. A contractor need not include information about disputes between its firm and a supplier, another contractor, or a subcontractor. Contractor need not include information about “pass-through” disputes in which the actual dispute is between a subcontractor and a project owner. Also, the Contractor may omit reference to all disputes about amounts less than \$50,000.

12. In the last five (5) years, has any claim *against* Contractor’s firm concerning the firm’s work on a construction project been *filed in court or arbitration*?
 Yes No

If “yes”, on separate signed sheets of paper identify the claim(s) by providing 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).

13. In the last five (5) years, has Contractor’s firm made any claim against a project owner concerning work on a project or payment for a contract and *filed that claim in court or arbitration*?
 Yes No

If "yes", on separate signed sheets of paper identify the claim by providing the project name, date of the claim, name of the entity (or entities) against whom the claim was filed, 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).

Criminal Matters and Related Civil Suits

14. Has Contractor's firm or any of its owners, officers or partners ever been found liable in a civil suit or found guilty in a criminal action for making any false claim or material misrepresentation to any public agency or entity?

Yes No

If "yes", explain on a separate signed page, including who was involved, the name of the public agency, the date of the investigation and the grounds for the finding.

15. Has Contractor's firm or any of its owners, officers or partners ever been convicted of a crime involving federal, state, or local law related to construction?

Yes No

If "yes", explain on a separate signed page, including who was involved, the name of the public agency, the date of the conviction and the grounds for the conviction.

16. Has Contractor's firm or any of its owners, officers or partners ever been convicted of a federal or state crime of fraud, theft, or any other act of dishonesty?

Yes No

If "yes", identify on a separate signed page the person(s) convicted, the court (the county if a state court, the district or location if a federal court), the year, and the criminal conduct.

Bonding

17. If Issued a Notice of Award, can the contractor secure payment and performance bonds within ten (10) calendar days?

Yes No

Name of Bonding Company:

Name, Address, Telephone# for Surety Agent:

C. Compliance with Occupational Safety and Health Laws and with Other Labor Legislation Safety

18. Has Cal-OSHA cited and assessed penalties against Contractor's firm for any "serious", "willful", or "repeat" violations of its safety or health regulations in the last five (5) years?

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

Yes No

If "yes", attach 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/were issued, and the amount of the 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.

19. Has the Federal Occupational Safety and Health Administration cited and assessed penalties against Contractor's firm in the last five (5) years?

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

Yes No

If "yes", attach a separate signed page describing each citation.

20. Has the EPA or any Air Quality Management District or any Regional Water Quality Control Board cited and assessed penalties against either Contractor's firm or the owner of a project contracted to Contractor in the last five (5) years?

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

Yes No

If "yes", attach a separate signed page describing each citation.

21. How often does Contractor require documented safety meetings to be held for construction employees and field supervisors during the course of a project?

22. List Contractor's Experience Modification Rate (EMR) (California's Workers' Compensation insurance) for each of the past three (3) premium years:

NOTE: An Experience Modification Rate is issued to the Contractor annually by its workers' compensation insurance carrier.

Current year: _____

Previous year: _____

Year previous to previous year: _____

If Contractor's EMR for any of these three (3) years is or was 1.20 or higher, Contractor may, at its discretion, attach a letter of explanation.

Prevailing Wage and Apprenticeship Compliance Record

23. Provide the name, address and telephone number of the apprenticeship program (approved by the California Apprenticeship Council) from whom the Contractor intends to request the dispatch of apprentices to Contractor for use on any public work project for which it is awarded a contract by the County of Mendocino:

SECTION 00 30 60

ANTITRUST CLAIM ASSIGNMENT

Pursuant to California Labor Code Section 7103.5, the following certification is hereby set forth and made a part of these specifications:

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

SECTION 00 30 70

NON-COLLUSION AFFIDAVIT

In accordance with California Public Contract Code Section 7106, the following affidavit must be completed by the Bidder:

Non-Collusion Affidavit to be executed by Bidder and submitted with the bid

State of California
County of Mendocino

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

Signature

SECTION 00 31 00

BID FORM

Juvenile Hall Generator Project

FOR MENDOCINO COUNTY

TO: Honorable Board of Supervisors

It is understood that this bid is based upon completion of the work within the time of completion requirements contained in the Instructions to Bidders.

It is agreed that this bid may not be withdrawn for a period of eighty (80) days from the opening hereof.

The undersigned has carefully checked all its figures and understands that the County will not be responsible for any error or omission by the undersigned in preparing this bid.

If awarded the Contract, the undersigned agrees to complete the Work, two hundred seventy (270) calendar days from the date of Notice to Proceed.

The undersigned, having become completely familiar with all conditions affecting the cost of the work at the place where the work is to be done, and with the drawings, specifications and other contract documents prepared and issued thereof and now on file at the General Services Agency Office, hereby proposes and agrees to perform everything required to be performed, and to provide and furnish any and all required labor, materials, equipment, transportation and services necessary to erect and complete in the best workmanlike manner, all as shown and specified.

The following bid amounts are as defined and clarified in the Bids Required portion of these specifications:

BASE BID: _____ Dollars (\$ _____)

Allowance No. 1 Unforeseen Conditions _____ (\$ 10,000)

TOTAL BID: _____ Dollars (\$ _____)

SALES TAX

All bids shall include required California State Sales Tax, cost of all bonds and insurance as required, and all other items of expense incidental to the contract. The County of Mendocino is exempt from Federal Excise Tax.

Name of Organization _____

A licensed Contractor shall not submit a bid to a public agency unless its Contractor's License number appears clearly on the bid, the license expiration date is stated, and the bid contains a statement that the representations made therein are made under penalty of perjury. Any bid not containing this information, or a bid containing information which is subsequently proven false, shall be considered nonresponsive and shall be rejected by the public agency.

Name of Organization _____

Type of Organization _____
(Corporation, Partnership, etc.)

Address _____

Name of the State where incorporated _____

CONTRACTORS LICENSE NO. _____ EXPIRATION DATE _____

Contractor has registered with the State of California's DIR (Department of Industrial Relations) website.

DIR Registration #: _____

Contractor is currently licensed to do business in the County of Mendocino.
Mendocino County Business License

Business License #: _____

ADDENDA: CONTRACTOR TO ACKNOWLEDGE RECEIPT

I have received the following Addenda pertaining to this project, and they have been included as part of my bid.

Numbers: _____

The undersigned hereby certifies under penalty of perjury that this bid is genuine and not collusive, that all the information is correct, and that he/she has carefully checked all of the above figures and understands that the County will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

Signature _____

SECTION 00 43 00

SUBCONTRACTORS LISTING FORM

JUVENILE HALL GENERATOR PROJECT

In accordance with the provisions of Section 4100 *et seq.* of the Public Contract Code of the State of California, each bidder shall list below the name, license number, Department of Industrial Relations (DIR) Registration Number, and location of place of business of each subcontractor who will perform a portion of the contract work in an amount in excess of one-half of one percent (0.5%) of the total contract price. In each such instance, the nature and portion of the work to be subcontracted shall be described.

PORTION OF WORK	SUBCONTRACTOR'S NAME	<u>CONTRACT LIC.</u>	LOCATION
		DIR REG #	

SECTION 00 50 00

AGREEMENT FOR LUMP SUM BID

THIS AGREEMENT made effective on the date it becomes fully executed by all parties, between the County of Mendocino, hereinafter called COUNTY, and [Contractor information], hereinafter called CONTRACTOR.

COUNTY and CONTRACTOR, for the consideration described below, named, agree as follows:

FIRST:CONTRACTOR shall furnish all labor, materials, equipment, mechanical workmanship, transportation, and services for the installation and completion of the **Mendocino County Juvenile Hall Backup Generator Project**, in accordance with the contract documents, including the Addenda thereto, all as adopted by COUNTY.

SECOND: The work under this contract described below shall be completed within two hundred seventy (270) calendar days from the date of the "Notice to Proceed".

THIRD: The Contract consists of the following documents, all of which are fully a part hereof as if herein set out in full, whether or not hereto attached:

1. Invitation to Bid
2. Instructions to Bidders
3. Bidding Documents
4. Agreement
5. General Conditions
6. Unforeseen Physical Conditions
7. Summary of Work
8. Temporary Facilities and Building Services
9. Project Plans and Drawings
10. Technical Specifications
11. Addendum to the Bid

FOURTH: COUNTY shall pay to CONTRACTOR, if CONTRACTOR is the successful bidder, as full consideration for the faithful performance of the Contract, the sum of:

[Spelled out dollar amount] _____ (\$ 00.00)

This sum constitutes the base bid and the following allowances:

Payment shall be made each month to CONTRACTOR in accordance with and subject to the provisions embodied in the Documents made a part of this Contract.

IN WITNESS WHEREOF

DEPARTMENT FISCAL REVIEW:

DEPARTMENT HEAD _____ DATE _____

Budgeted: Yes No

Budget Unit: 1710

Line Item: 864360 CI101

Grant: Yes No

Grant No.: _____

CONTRACTOR/COMPANY NAME

By: _____

Date: _____

NAME AND ADDRESS OF CONTRACTOR:

Name of Contractor

Street Address

City, State, Zip

COUNTY OF MENDOCINO

By: _____
JOHN HASCHAK, Chair
BOARD OF SUPERVISORS

Date: _____

By signing above, the signatory warrants and represents that he/she executed this Agreement in his/her authorized capacity and that by his/her signature on this Agreement, he/she or the entity upon behalf of which he/she acted, executed this Agreement.

ATTEST:

DARCIE ANTLE, Clerk of said Board

By: _____
Deputy

I hereby certify that, according to the provisions of Government Code section 25103, delivery of this document has been made.

DARCIE ANTLE, Clerk of said Board

By: _____
Deputy

COUNTY COUNSEL REVIEW:

APPROVED AS TO FORM:

By: _____
COUNTY COUNSEL

Date: _____

INSURANCE REVIEW:

By: _____
Risk Management

Date: _____

EXECUTIVE OFFICE/FISCAL REVIEW:

By: _____
Deputy CEO or Designee

Date: _____

Signatory Authority: \$0-25,000 Department; \$25,001- 50,000 Purchasing Agent; \$50,001+ Board of Supervisors
Exception to Bid Process Required/Completed _____
Mendocino County Business License: Valid
Exempt Pursuant to MCC Section: _____

SECTION 00 50 10

WORKERS' COMPENSATION CERTIFICATION

Pursuant to California Labor Code Section 1861, the Contractor hereby certifies the following:

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.

Dated: _____

Contractor Signature _____

SECTION 00 51 00

CONTRACTOR GUARANTEE

Juvenile Hall Generator Project

Contractor hereby guarantees that the labor and materials furnished for this project are in accordance with the drawings, specifications, and applicable building codes. Contractor agrees to repair or replace any or all of the work, together with any other adjacent work which may be displaced in so doing, that may prove to be defective in its quality or material within a period of ONE (1) YEAR from date of acceptance of the above-named project by County without any expense whatsoever to County, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of Contractor's failure to comply with the above-mentioned conditions within fifteen (15) calendar days after being notified in writing by County, Contractor authorizes County to proceed to have said defects repaired and made good at Contractor's expense. Contractor shall honor and pay the costs and charges therefore upon demand.

SIGNED _____

COUNTERSIGNED _____

CONTRACTOR _____

DATED _____

DATE OF BUILDING ACCEPTANCE _____

SECTION 00 61 13

BOND FORMS

MENDOCINO COUNTY PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS THAT WE, _____ whose address is _____ as Principal, and _____, duly authorized under the laws of the State of California to become sole surety on bonds and undertakings, as Surety, are jointly and severally held and firmly bound unto MENDOCINO COUNTY, a political subdivision of the State of California, as Obligee, in the full and just sum of _____ AND 00/100 DOLLARS lawful money of the United States of America, to be paid to the said Obligee, successors or assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors, successors, administrators 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, or is about to enter into a contract with the Obligee to do and perform the following work, to-wit: _____ Project as is more specifically set forth in said contract, to which contract reference is hereby made.

NOW, THEREFORE, if the said Principal shall well and truly do the said work, and fulfill each and every of the covenants, conditions and requirements of the said contract in accordance with the plans and specifications, then the above obligation shall be null and void; otherwise, it shall remain in full force and effect.

THE SURETY does hereby consent to any and all alterations, modifications and revisions to the agreement secured by this bond including but not limited to, any extension of time for performance or modifications in manner of performance which may be agreed upon and between MENDOCINO COUNTY as Obligee and the Principal, and the Surety does hereby waive notice of any alterations, modifications, revisions, or extensions.

SEALED with our seals and dated this _____ day of _____, 2024.

Principal (contractor)

Surety

By: _____

By: _____, Attorney in Fact

By: _____

Signatures for Principal and Surety must be acknowledged before a Notary Public

APPROVED AS TO FORM:

County Counsel
By: _____
Deputy County Counsel

**MENDOCINO COUNTY
PAYMENT BOND**

KNOW ALL PERSONS BY THESE PRESENTS THAT WE _____

_____, as Principal, and _____
duly authorized under the laws of the State of California to become sole surety on bonds and undertakings, as Surety, are held and firmly bound unto any and all materialmen, persons, companies or corporations furnishing materials, provisions, provender or other supplies used in, upon, for or about the performance of the work contracted to be executed or performed under the contract

hereinafter mentioned, and all persons, companies or corporations renting or hiring teams, or implements or machinery, for or contributing to said work to be done, and all persons who performed work or labor upon the same, and whose claim has not been paid by the contractor, company or corporation, in the just and full sum of

_____ AND 00/100 DOLLARS

for the payment whereof, well and truly to be made, said Principal and Surety bind 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, or is about to enter into a contract with MENDOCINO COUNTY, a political subdivision of the State of California, to do and perform the following work, to-wit: _____ **Project.**

NOW THEREFORE, if the above bounden Principal, contractor, person, company or corporation, or his or its subcontractor fails to pay for any materials, provisions, provender, other supplies, or terms used in, upon for or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal or the subcontractors of the Principal pursuant to Section 130200 of the Unemployment Insurance Code with respect to the work and labor, then the Surety of this bond will pay the same, in an amount not exceeding the sum specified in this bond as well as a reasonable attorney's fee, which shall be fixed and awarded by the court to the prevailing party in said suit, said attorney's fee to be taxed as costs in said suit and to be included in the judgment therein rendered.

THE SURETY does hereby consent to any and all alterations, modifications and revisions to the contract above referred to, and work and labor under which is secured by this bond, including but not limited to, any extension of time for performance or modifications in manner of performance which may be agreed upon by and between MENDOCINO COUNTY and the Principal, and the Surety does hereby waive notice of any alterations, modifications, revisions, or extensions.

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 9550 et seq., inclusive, and all amendments thereto and shall inure to the benefit of any of the persons named in Civil Code section 9100 so as to give a right of action to those persons or their assigns in any suit brought upon the bond.

SEALED with our seals and dated this ____ day of _____, 2024.

Principal (contractor)	Surety
By:	By:
Attorney in Fact	
By: _____	

Signatures for Principal and Surety must be acknowledged before a Notary Public

APPROVED AS TO FORM:

County Counsel

By: _____

Deputy County Counsel

END OF SECTION 006113

SECTION 00 70 00

GENERAL CONDITIONS

1. DEFINITIONS

Whenever in the Specifications and other Contract Documents the following abbreviations and terms are used, the intent and meaning shall be interpreted as follows:

- A. "Owner" - Board of Supervisors, County of Mendocino, or its authorized agents or assignees.
- B. "Agent" - The Agent acting for the County, which shall be either the County General Services Agency Director or his/her designee, or the County Executive Officer or his/her designee.
- C. "Contractor" - The person or persons, partnership, corporation, or combination thereof, private or municipal, who have entered into a contract with the County, as party or parties of the second part or his/her or their legal representatives.
- D. "Specifications" - The directions, provisions, and requirements contained in these Specifications as supplemented by the Supplementary Conditions. Whenever the term "These Specifications" is used in this book, it means the provisions as set forth in this book.
- E. "Paragraph" - The particular section of subdivision herein designated by a number.
- F. "Laboratory" - The designated laboratory authorized by the County to test materials and work involved in the Contract.
- G. In the case of conflict between the Standard Specification and these Specifications, these Specifications shall take precedence over and be used in lieu of such conflicting portions:
 - A.W.S. American Welding Society
 - A.S.T.M. American Society for Testing Materials
 - A.S.A. American Standard Association
 - N.B.F.U. National Board of Fire Underwriters
 - N.B.S. National Bureau of Standards
 - A.S.M.E. American Society of Mechanical Engineers
 - A.R.I. American Refrigeration Institute
 - N.E.M.A. National Electrical Manufacturers Association
 - U.L. Underwriter's Laboratories
 - E.T.L. Electrical Testing Laboratories
 - A.C.I. American Concrete Institute
 - F.A. Federal Specifications
 - A.I.S.C. American Institute of Steel Construction
- H. The County and the Contractor are those named as such in the Agreement. They are treated throughout the Contract Documents as if each were singular in number and of the masculine gender.

- I. When the words "Approved", "Satisfactory", or "Equal", "As Directed", etc., are used, approval by the County is understood.
- J. All Federal, State laws and local laws shall govern the construction of the Contract, and all rules, ordinances, and requirements of authorized officials shall be complied with.
- K. It is understood that any reference to the Specifications or designation of the American Society for Testing Materials, Federal Specifications, or other standard, code, or order, refers to the most recent or latest amended specification or designation.

2. EXAMINATION OF PLANS AND SPECIFICATIONS

The Bidder shall examine carefully the site of the work contemplated and the proposal, plans, specifications, and Contract forms thereof. It will be assumed that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and material to be furnished, and as to the requirements of these Specifications.

3. DRAWINGS AND SPECIFICATIONS

- A. Figured dimensions on the drawings shall govern, but work not dimensioned shall be as directed. Work indicated but not particularly detailed or specified shall be equal to similar parts that are detailed or specified, or as directed. Full-size detailed drawings shall take precedence over scale drawings for shape and construction details. It is intended that scale drawings, full-size details, and specifications should agree, but should any discrepancy or apparent error occur in plans and specifications, or should any work of others affect this work, the Contractor shall notify the County at once; if the Contractor proceeds with the work affected without instruction from the County he shall make good any resultant damage or defect.
- B. All misunderstandings of drawings or specifications shall be clarified by the County, whose decision shall be final.
- C. Any work called for by the drawings and not mentioned in the Specifications, or vice versa, is to be furnished as though fully set forth by both. Where not specifically stated otherwise, all work and materials necessary for each unit of construction, including special construction for any specific brand or shape of material called for, even though only briefly mentioned or indicated, shall be furnished and installed fully and completely as a part of the Contract.
- D. Lists, rules, and regulations referred to are recognized printed standards and shall be considered as one and a part of these Specifications within the limits specified.
- E. "General Conditions" apply with equal force to all of the work, including extra work authorized.
- F. For convenience, the Technical Specifications are arranged in Divisions and further divided into various sections. It is to be understood that this separation is for the convenience of all parties involved and is not to be considered as the limits of the work required of any separate trade. The terms and conditions of such limitations are wholly between the County and the Contractors during bidding and construction

phases, i.e., all work shown, as well as for the proper completion of the project as a whole, shall be coordinated by the Contractor and his Subcontractors during bidding and construction and shall be provided in this Contract.

4. CONDUCT OF WORK

- A. The County reserves the right to do other work in connection with the project by contract or otherwise. Contractor shall at all times conduct his work so as to impose no hardship on the County or others engaged in the work. Contractor shall adjust, correct, and coordinate his work with the work of others so that no discrepancies shall result in the whole work.
- B. The Contractor shall provide at his own cost and risk all labor, material, water, power tools, machinery, scaffolding, and framework for the execution of the work. Equipment shall be adequate and as approved.

The Contractor shall obtain all necessary measurements from the work and shall check dimensions, levels, and construction and layout, and supervise the construction, for the correctness of all of which he shall be responsible.

- C. Where work of one trade joins or is on other work, there shall be no discrepancy when the same is completed. When engaging with other materials, marring or damaging them shall not be permitted. Should improper work of any trade be covered by another, which results in damage or defects, the whole work affected shall be made good without expense to the County.
- D. The Contractor must anticipate the relation of all parts of the work and, at the proper time, furnish and set anchorage, blocking, or bonding as required. Anchorage and blocking necessary for each trade shall be a part of the same, except where stated otherwise.
- E. Assistance required by the County in obtaining measurements or information on the work shall be furnished accurately and fully without cost to the County.

5. OWNERSHIP OF DRAWINGS

All plans and specifications shall remain the property of the County and shall be returned to the office of the County Facilities and Fleet Division Manager or shall be accounted for by the Contractor before the final certificate will be issued.

6. PUBLIC AND COUNTY CONVENIENCE AND SAFETY

The Contractor shall furnish, erect, and maintain such fences, barriers, lights and signs as are necessary to give adequate warning to the public at all times and of any dangerous conditions until final acceptance of the work by the County.

7. ACCIDENT PREVENTION

- A. It shall be the Contractor's responsibility to keep himself fully informed of all existing and future safety regulations, Codes, OSHA requirements, and other laws and regulations governing the work which may in any manner affect anyone in and around the project or engaged or employed in the work, or materials, equipment, etc. used in the work or which in any way affect the conduct of the work.

- B. The Contractor shall appoint a Safety Officer for the project and submit his name to the County.
- C. The Contractor shall supply the County with a Material Safety Data Sheet (MSDS) on each hazardous substance to be used by the Contractor on the project.
- D. The Contractor and his Safety Officer shall be solely responsible for ensuring compliance with those Codes, regulations, OSHA requirements, and for discovering and correcting any code violations or unsafe conditions.
- E. Reports of all lost-time accidents shall be promptly submitted to the Owner, giving all pertinent information.

8. RESPONSIBILITY FOR DAMAGE

The County shall not be answerable or accountable in any manner for: (1) any loss or damage that may happen to the work or any part thereof, for any loss or damage to any of the materials or other things used or employed in performing the work; (2) injury to or death of any person or persons, either workers or the public; (3) damage to property from any cause which might have been prevented by the Contractor or his workers or anyone employed by him. The Contractor shall be responsible for any liability imposed by law for injuries to or death of any person, including, but not limited to, workers and the public, or damage to property resulting from defects or obstructions or from any cause whatsoever during the progress of the work or at any time before its completion and final acceptance. The Contractor shall indemnify, save harmless, and defend the County of Mendocino, its elected or appointed officers, agents, employees, or volunteers connected with the work, from all claims or actions for injuries or death of any person, or damage to property, resulting from the Contractor's performance of the Contract. With respect to third-party claims against the Contractor, the Contractor waives any and all rights to any type of express or implied indemnity against the County of Mendocino, its elected or appointed officers, agents, employees, or volunteers.

In addition to any remedy authorized by law, so much of the money due the Contractor under and by virtue of the Contract as shall be considered necessary by the County may be retained by the County until disposition has been made of such suits or claims for damages as aforesaid.

9. LAWS TO BE OBSERVED

The Contractor shall keep himself fully informed of all existing and future State, Federal and local laws, codes and regulations which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies and tribunals having any jurisdiction or authority over the same and shall be solely responsible for insuring compliance with those laws, codes and regulations.

A partial, though not necessarily complete listing of laws to be observed by the Contractor is as follows:

- A. Federal Americans with Disabilities Act of 1990.
- B. Federal Labor Standards Act.
- C. The Anti-Kick-Back regulations found in 29 CFR Part 3.
- D. All contract clauses required by 29 CFR 5.5 (a) and (c), 20 U.S.C. 1232b ; 40 U.S. C. 276a, 276c, 327-332; 29 CFR Parts, (926).
- E. Nondiscrimination clause and Certification of Non-Segregated Facilities prescribed by Executive Order No. 11246, September 24, 1965, as amended by Executive Order 11375.
- F. Executive Order No. 11288 of July 7, 1966 (31 FR 9261) "Prevention, Control and Abatement of Water Pollution".
- G. Executive Order 11988, relating to evaluation of flood hazards.
- H. Compliance with all Federal, State, and local requirements for handicapped access, fire safety, and seismic resistance.

10. BONDS REQUIRED

The successful bidder shall furnish bonds as required in the document entitled "Instructions to Bidders," which is part of these Contract documents.

11. INSURANCE

The Contractor, at his expense, shall secure and maintain at all times during the entire period of performance under this Contract, insurance as set forth below with insurance companies acceptable to the County of Mendocino.

The Contractor shall provide to the County of Mendocino certificates of insurance with endorsements properly executed by an officer or authorized agent of the issuing insurance company, evidencing coverage and provisions as stated below:

A. INSURED

Name the County of Mendocino, its elected or appointed officials, employees, agents and volunteers as additional insured 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, (c) Premises owned, leased or used by the Named Insured, or (d) Ownership, operation, maintenance, use, loading or unloading of any vehicle 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 County of Mendocino, its elected or appointed officials, employees, agents and volunteers.

B. SEVERABILITY OF INTEREST

Provide that the inclusion of more than one named insured shall not operate to

impair the rights of one insured against another insured, and the coverages afforded shall apply as though separate policies had been issued to each insured.

C. CONTRIBUTION NOT REQUIRED

Provide that as respects: (a) work performed by the Named Insured on behalf of the County of Mendocino; or (b) products sold by the Named Insured to the County of Mendocino; or (c) premises leased by the Named Insured from the County of Mendocino; or (d) ownership, operation, maintenance, use, loading or unloading of any vehicle owned, leased, hired or borrowed by the Named Insured, the insurance afforded by this policy shall be primary insurance as respects the County of Mendocino, its elected or appointed officials, employees, agents and volunteers; or stand in an unbroken chain of coverage excess of the Named Insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the County of Mendocino, its elected or appointed officials, employees, agents, and volunteers shall be excess of this insurance and shall not contribute to it.

D. COVERAGE BELOW MINIMUM REQUIRED NOTICE

Provide that the limits of insurance afforded by this policy shall not fall below the minimum requirements of the County of Mendocino without notice to the County of Mendocino by certified mail, return receipt requested. Such notice shall be addressed to: County of Mendocino, 501 Low Gap Road, Ukiah, Calif. 95482, Attn: Risk Management.

E. CANCELLATION NOTICE

Provide that the insurance afforded by this policy shall not be suspended, voided, canceled, non-renewed, or reduced in coverage or in limits except after thirty (30) days' prior written notice, delivered in person or by First Class U.S. Mail, has been given to the County of Mendocino. Such notice shall be addressed to: County of Mendocino, 841 Low Gap Road, Ukiah, Calif. 95482, Attn: Risk Management.

Contractor shall furnish to the County of Mendocino certificate(s) of insurance evidencing Workers' Compensation Insurance coverage to cover its employees. The Contractor shall require all subcontractors to similarly provide Workers Compensation Insurance as required by the Labor Code of the State of California for all of the Contractor's and subcontractors' employees.

The Contractor shall not commence work, nor shall he allow his employees or subcontractors or anyone to commence work until all insurance required and provisions contained herein have been submitted to and accepted by the County of Mendocino. Failure to submit proof of insurance as required herein may result in the award of said Contract to another bidder. Failure to comply with the insurance requirements set forth herein shall constitute a material breach of contract and, at County of Mendocino's option, shall subject this Contract to termination.

Insurance coverage in the minimum amounts set forth herein shall not be construed to relieve the Contractor for liability in excess of such coverage, nor shall it preclude the County of Mendocino from taking such other action as is available to it under any other provisions of this Contract or otherwise in law.

SCOPE OF LIABILITY COVERAGES

Contractor shall furnish to the County of Mendocino certificates of insurance evidencing at a minimum the following:

1. Public Liability-Bodily Injury (not auto) \$500,000 each person; \$1,000,000 each accident,

and

Public Liability-Property Damage (not auto) \$500,000 each occurrence; \$1,000,000 aggregate.

---or---

Combined Single Limit Bodily Injury Liability and Property Damage Liability (not auto) \$1,000,000 each occurrence.

2. Vehicle-Bodily Injury \$500,000 each person, \$1,000,000 each occurrence, and
Vehicle-Property Damage \$1,000,000 each occurrence.

---or---

Combined Single Limit Vehicle Bodily Injury and Property Damage Liability \$1,000,000 each occurrence.

12. WORKERS COMPENSATION CERTIFICATION

Contractor certifies as follows:

"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". (Labor Code Section 1861)

13. CONTRACTOR'S RESPONSIBILITY FOR WORK

Until the formal acceptance of the work by the County, the Contractor shall have the charge and care thereof and shall bear the risk of injury or damage to any part thereof or to materials or thing employed in doing the work or stored on the site by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, replace, and make good all injuries or damages to any portion of the work occasioned by any of the above caused before final acceptance and shall bear the expense thereof, except such injuries or damages occasioned by acts of the Federal Government or the public enemy. The Contractor's responsibility also extends to adjoining property as related to the construction operation.

14. RESPONSIBILITY OF COUNTY

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

15. COOPERATION BETWEEN CONTRACTORS

Where two or more contractors are employed on related or adjacent work, each shall conduct his operations in such a manner as not to cause any unnecessary delay or hindrance to the other. Each contractor shall be responsible to the other for all damage to work, to person or property, or for loss caused by failure to furnish the work within the time specified for completion.

Should the Contractor, through acts of neglect on the part of any Contractor, suffer loss or damage to the Work, the Contractor agrees to settle with such other Contractor by agreement. If such other Contractor should file a claim against the County on account of alleged damages to be sustained, the County shall notify the Contractor, who shall, at his expense, indemnify and save harmless the County against any such claim.

16. SUBCONTRACTING AND ASSIGNMENT

The Contractor shall give his personal attention to the fulfillment of the Contract and shall keep the work under his control. Should the Contractor subcontract any part of his Contract, the Contractor shall be fully responsible to the County for the acts and omissions of his subcontractor and of the persons either directly or indirectly employed by the subcontractor, as he is for the acts and omissions of persons directly employed by himself.

No subcontractor will be recognized as such, and all persons engaged in the work on construction shall be considered as employees of the Contractor.

17. PERMITS AND LICENSES

The Contractor shall procure all permits and licenses, pay all charges and fees, and file all notices necessary and incidental to the due and lawful prosecution of the work.

18. PATENTS

The Contractor shall assume all responsibilities arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work.

19. LIENS

Liens shall be enforced as provided by California State Law pertaining to Public Works.

20. CHANGES IN THE WORK

- A. The County may order changes in the work, in which event the Contract sum shall be adjusted by one or more, or a combination of, the following methods:
1. Unit bid prices previously approved or as may be agreed upon.
 2. An agreed lump sum substantiated by the Contractor, itemizing labor, material, equipment, overhead, profit, bond, etc.

3. By ordering Contractor to proceed with work and keep correct accounts with vouchers, the actual cost of:

- a. Labor, including foreman;
- b. Materials entering permanently into the work;
- c. The ownership or rental cost of construction plant and equipment during the time of use on the extra work;
- d. Power and consumable supplies for the operation of power equipment;
- e. Insurance;
- f. Social Security, old age, and employment contribution.

- B. To the cost under (2) and (3), there may be added a fixed fee to be agreed upon but not to exceed fifteen percent (15%) for the estimated cost of the work. The fee shall be compensation to cover administrative overhead and profit.
- C. On changes that involve a credit to the County, no overhead allowances need be figured.
- D. All such change orders and adjustments shall be in writing. Claims by the Contractor for extra costs shall be made in writing before the work is executed.
- E. All change orders shall be reviewed and approved by the County.

21. COUNTY'S RIGHT TO TERMINATE CONTRACT

If the Contractor should refuse or neglect to properly perform or prosecute the work or if he should substantially violate any provision of the Contract, then the County may, without prejudice to any other right or remedy upon seven (7) days written notice to the Contractor, terminate the services of the Contractor and take possession of the premises, and all materials, tools, and equipment thereon and complete the work. The expense thereof shall be deducted from the balance otherwise due the Contractor. If such expense exceeds the unpaid balance, the Contractor shall pay the difference to the County.

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

If the work is stopped for a period of thirty (30) days under an order of any court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing any of the work under a contract with the Contractor, or if the work should be stopped for a period of thirty (30) days by the Contractor because no certificate for payment has issued as provided in Paragraph 25 or because the County has not made payment thereon as provided in Paragraph 25, then the Contractor may, upon seven (7) additional days' written notice to the County, terminate the Contract and recover from the County payment for all work executed and for any proven loss sustained upon any materials, equipment, tools, construction equipment and machinery, including reasonable profit and damages.

23. TIME OF COMPLETION AND LIQUIDATED DAMAGES

- A. In case all the work called for under the Contract is not completed before or upon the expiration of the time limit as set forth in these specifications, damage will be sustained by the County, and it is impracticable to determine the actual damage which the County will sustain in the event of and by reason of such delay. It is therefore agreed that the Contractor will pay to the County the sum of money per calendar day for each day's delay beyond the time prescribed in the document entitled "Instructions to Bidders", which is part of these Contract Documents. The Contractor agrees to pay such liquidated damages as herein provided, and in case the same are not paid, agrees that the County may deduct the amount thereof from any money due or that may become due the Contractor under the Contract.
- B. In case the work called for under the Contract is not finished and completed in all parts and requirements within the time specified, the County shall have the right to extend the time for completion or not, as may best serve the interest of the County. If the County decides to extend the time limit for the completion of the Contract, the County shall further have the right to charge the Contractor, his heirs, assigns or sureties, and to deduct from the final payment for the work, all or any part, as it may deem proper, of the actual cost of County, including inspections, superintendence, and other overhead expenses directly chargeable to the Contract, and which accrue during the period of such extension. The cost of final inspections shall not be included in such charges.
- C. The Contractor shall not be assessed with liquidated damages nor the cost of County's services and inspection during any delay in the completion of the work caused by acts of God or the public enemy, acts of the County, fire, flood, earthquake, epidemics, quarantine restrictions, strikes, freight embargoes, shortages of materials, labor, fixtures or equipment (provided the Contractor furnishes satisfactory and acceptable proof that he has made diligent attempts to obtain same) and unusually severe weather or delays of subcontractors due to such causes, provided the Contractor shall within ten (10) days from the beginning of such delay notify the County in writing of the delay. The county's findings of fact thereon shall be final and conclusive.
- D. The County agrees that changes in work ordered pursuant to Paragraph 20 and extensions of completion time made necessary by reasons thereof, shall in no way release any guarantee given by the Contractor or the Contract let hereunder, nor shall such changes in the work relieve or release the sureties on bonds executed pursuant to these specifications. Sureties shall be deemed to have expressly agreed to any change in the work and to any extension of time made by reason thereof.

24. ACCEPTANCE

- A. The Contract will be accepted as completed only when the whole and entire Contract shall have been completed satisfactorily to the County. In judging the work, no allowance for deviations from the original plans and specifications will be made unless already approved in writing at proper times and in a manner as called for herein.
- B. Should it become necessary to occupy a portion of the work before the Contract is fully completed, such occupancy shall not constitute acceptance.

25. PARTIAL PAYMENTS

Prior to submitting, and as a condition of approval of the first progress payment application, the Contractor shall submit a schedule of values acceptable to the County, providing a breakdown of the contract value by trade division so that the County can accurately assess the percentage completion of the project.

On the twenty-fifth (25th) day of each month, the Contractor shall submit to the County an application for payment, on a form acceptable to the County, showing an itemized statement of work performed on a percent-complete basis, based on the previously approved schedule of values. The County, within thirty (30) days of receipt of the application that meets the County's approval, shall issue to the Contractor a certificate for ninety percent (95%) of the amount the County finds due for work that has been performed.

Contractor shall submit a certified payroll copy showing payment of Davis-Bacon Act wages with each request for payment.

26. FINAL PAYMENT

Upon completion of the Contract, the County will cause a final estimate to be prepared of the amount of work performed and the value of such work. After approval by the County representative, the County shall pay the remaining amount due under the contract (except for retainage) after deducting all prior payments. All amounts retained (retainage) under the provisions of the Contract shall be due and payable 30 days from the date of acceptance in writing of the completion of the Contract and/or Notice of Completion issued by the County representative. All prior partial estimates and payments shall be subject to correction in the final estimate and payments. Payment and the final estimate are due within thirty-five (35) days from the recorded date of the Notice of Completion, provided all as-built drawings, equipment manuals, instructions to the owner, and guarantees have been received and accepted by the County.

27. PAYMENT WITHHELD

The County may withhold or, on account of subsequently discovered evidence, may nullify the whole or part of any certificates to such extent as may be necessary to protect the County from (1) defective work not remedied, (2) asserted claims against Contractor, (3) failure of the Contractor to make payments properly to employees or for material or labor, (4) any reasonable doubt that the Contract work can be completed for the balance then unpaid, or (5) damage to another contractor.

28. FAULTY WORK AND MATERIALS

The Contractor shall promptly remove from the premises all materials condemned by the County as failing to conform to the Contract, whether incorporated in the work or not. The Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the County. The Contractor shall bear the expense of making good all work of other contractors destroyed or damaged by such removal.

If the Contractor does not remove such condemned work and materials within a reasonable time as fixed by written notice, the County may remove them and store the materials at the Contractor's expense. If the Contractor does not pay the expenses of such removal within ten (10) days thereafter, the County may, upon ten (10) days' written

notice, sell such materials at auction or at private sales and shall account for the net proceeds thereof after deducting all costs and expenses that should have been borne by the Contractor.

29. TEMPORARY SUSPENSION OF WORK

The County shall have the authority to suspend the work wholly or in part, for such period as it may deem necessary, due to unsuitable weather or to such other conditions as are considered unfavorable for the suitable progression of the work, or for such time as it may deem necessary due to the failure of the Contractor to carry out orders given by County, or to perform any provision of the Contract. The Contractor shall immediately obey such order of the County and shall not resume work until ordered in writing by the County.

30. SAMPLES

When requested, the Contractor shall submit for the County's review samples of the various materials, together with the finish thereof, as specified for and intended for use in the work. Samples of bulk materials shall be selected by the lab. All materials and workmanship shall in all respects be equal to the samples submitted and reviewed. Samples shall be sent or delivered to the County, and samples and delivery charges shall be paid by the Contractor. Samples will be returned to the Contractor if requested, and shipping or delivery charges will be collected.

31. CLEANING AND REMOVAL OF DEBRIS

The Contractor shall, as directed by the County during the progress of the work or as indicated elsewhere in these documents, remove and properly dispose of dirt and debris and shall keep the premises reasonably clean. Upon completion of the work, the Contractor shall remove all of his equipment and unused materials provided for the work, put the building and appurtenances in a neat and clean condition, and perform all cleaning and washing required by the specifications.

32. OBSTRUCTIONS

The Contractor may be required to work around public utility facilities and other improvements that are to remain in place within the construction area. The Contractor shall be held liable to the owners of such facilities and improvements for any damage or interference with service resulting from the Contractor's operation.

The exact location of underground facilities and improvements within the construction area, whether shown on the drawings or not, shall be ascertained by the Contractor before using equipment that may damage such facilities or interfere with their service.

33. SUPERINTENDENT IN CHARGE

The Contractor shall keep the work going at all times and until the acceptance certificate is issued, a competent superintendent or foreman for the purpose of receiving and executing without delay any orders from the County in keeping with the terms of the Contract. This foreman shall have charge of the plans and specifications kept on the job. He shall be instructed to familiarize himself closely with all provisions of the plans and specifications and to follow the same accurately.

34. STORAGE OF MATERIALS AND EQUIPMENT

Materials and equipment shall not be stockpiled or placed outside of the site property lines unless written permission is obtained by the appropriate owner or political subdivision having jurisdiction over the adjacent property, roads, streets, etc.

35. GENERAL GUARANTY

Neither the final payment nor any partial payment, nor partial or entire use of the premises by occupancy by the County, shall constitute an acceptance of the work not completed in accordance with the Contract. Final Payment, partial payment, or partial or entire use of the premises by occupancy shall not relieve the Contractor of liability with respect to any warranties or responsibilities for faulty materials or workmanship. The Contractor shall remedy any defect in the work and pay for any damage to other work resulting therefrom that shall appear within a period of one (1) year from the date of final acceptance of the work, unless a longer period is specified elsewhere in these specifications. The County shall notify the Contractor of observed defects with reasonable promptness.

36. MATERIALS SUBMITTALS AND SUBSTITUTIONS

Materials and substitutions shall be governed by the relevant sections elsewhere in these documents. If not specified, the following shall govern.

- A. Specific reference to materials, appliances, fixtures, and equipment by trade name is intended to be used as standard, but this implies no right on the part of the Contractor to use other materials, fixtures, appliances, or equipment until reviewed by the County.
- B. The County alone shall determine what will be considered as equal, but the burden of proof as to quality, utility, and function, etc., shall be upon the Contractor.

If the Contractor desires to substitute any item, he shall, in writing, state the cost of such item and the original item named in the specifications, if requested, and shall submit a substitution warranty in the format shown in the specifications.

- C. As soon as practicable and within twenty (20) days after official award of Contract and before any fixtures, materials or equipment are purchased, the Contractor shall submit to the County a complete list of materials, fixtures and equipment giving the manufacturers' names, catalog numbers, etc., and, when requested, the original and substitute item of each article which he proposes to install as a substitution.
- D. Requests for substitution will not be considered after the above period of time unless the item specified is not obtainable or, in the opinion of the County, such substitution would serve the County's interest.

37. CONSTRUCTION, MATERIAL AND LABOR COST SCHEDULES

- A. The successful Contractor shall submit the following schedules to the County within ten (10) days after commencing the work:
 - 1. A construction schedule indicating the start and finish of each phase of the work.

2. A detailed statement of the cost of material and labor included in the original estimate for each phase of the work so arranged that the value of the work as it progresses may be readily determined.

38. CONFERENCES

At any time during the progress of the work, the County may request the Contractor to attend a conference of any or all of the Contractors engaged on the work, and any notice of such conference shall be duly observed and complied with by the Contractor.

39. INSPECTION AND PAYMENTS - NOT ACCEPTABLE

The fact that the work and materials have been inspected by the County of Mendocino and payments on account have been made does not relieve the Contractor from the responsibility of replacing and making good any defective work or materials that may be discovered within one (1) year from the date of the completion of the work by the Contractor and its acceptance by the County. [Five (5) years for the roof.]

40. RETURN OF DRAWINGS AND SPECIFICATIONS

All plans and specifications shall be returned to the Office of the County Director of General Services or shall be accounted for by the Contractor before the final certificate is issued.

41. ARRANGEMENT OF SPECIFICATION SECTION

- A. For convenience, these specifications are arranged in several sections, but such separation shall not be considered as limiting any work required to a particular trade. The Contractor shall, in cooperation with other contractors, establish responsibility for any work required by the plans and specifications which may be improperly arranged or not included in the appropriate section.
- B. In areas where one trade meets another for joining, the Contractor is responsible for being certain that all work shown is included in his bid.

42. QUALITY OF MATERIALS AND LABOR

All materials used in this Contract shall be new and of the best market quality, unless otherwise specified or shown. All labor used on this Contract shall be competent and skilled for the work. All work executed under this Contract shall be done in the best, most thorough, substantial, and workmanlike manner.

All material and labor not meeting these standards shall be removed. The County may refuse to issue any certificate of payment until all defective materials or work have been removed, and other material of proper quality substituted therefor.

43. INCOMPETENT WORKERS

If at any time any foreman or worker who shall be employed by the Contractor shall be declared by the County to be incompetent or unfaithful in executing the work, the Contractor, on receiving written notice, shall forthwith initiate appropriate action to dismiss such person from the work.

44. COUNTY TO DECIDE

All matters of color, texture, design, and interpretation of plans and specifications shall be referred by the Contractor to the County, whose decision thereon shall be final.

45. CODES

All work and materials shall be in full accordance with the latest rules and regulations of the State Fire Marshal; the Safety Orders of the Division of Industrial Safety; the California Electric Code; the California Building Code; the California Mechanical Code; the California Fire and Plumbing Codes; OSHA and other applicable State and local codes and laws. Nothing in these plans or specifications is to be construed to permit work not conforming to these Codes.

46. PAYMENT OF FEDERAL, STATE OR LOCAL TAXES

Any Federal, State or Local tax payable on articles furnished by the Contractor under the Contract shall be included in the Contract price and paid by the Contractor.

47. LIMITATIONS OF HOURS OF WORK

Eight (8) hours of labor constitutes a legal day's work. The Contractor shall forfeit as a penalty \$25.00 for each worker employed in the execution of the Contract by the Contractor for each calendar day which such worker is required or permitted to work more than eight (8) hours in one (1) calendar day and forty (40) hours in any one (1) calendar week in violation of the provisions of the California Labor Code, and in particular Sections 1810 and 1816. Work performed by employees of Contractors in excess of eight (8) hours per day and forty (40) hours during any-one (1) week, shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1 & 1/2) times the basic rate of pay, as provided in Section 1815.]

48. PAYMENT OF NOT LESS THAN THE GENERAL PREVAILING RATE OF PER DIEM WAGES

- A. The Contractor shall pay his workers on all work included in this Contract not less than the general prevailing rate of per diem wages for legal holiday and overtime work in said locality. Such per diem wages shall not be less than the stipulated rates contained in a schedule thereof which has been ascertained and determined by the State Director of Industrial Relations to be the general prevailing rate of per diem wages for each craft or type of worker needed to execute this Contract.
- B. The Contractor shall comply with Labor Code Section 1775. In accordance with Section 1775, the Contractor shall forfeit as a penalty twenty-five dollars (\$25.00) for each calendar day or portion thereof, for each worker paid less than the stipulated prevailing rates for such work or craft in which such worker is employed for any work done under the Contract in violation of the provisions of the Labor Code in particular Labor Code Sections 1770 and 1780. In addition to said penalty, and pursuant to Section 1775, the difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor.

49. LABOR CODE CLARIFICATION

It is to be understood that references to the California Labor Code shall mean the current Code or, as may be amended during the period of the Contract.

50. NOTIFICATION OF READINESS FOR REQUIRED TESTS AND INSPECTIONS

The Contractor shall be responsible for notifying all inspectors, testing agencies, and County representatives a minimum of seventy-two (72) hours before required tests and/or inspections.

51. RESPONSIBILITY FOR PROJECT SAFETY AND CONSTRUCTION TECHNIQUES

Specifically omitted from the County's services are all design and construction review services relating to the Contractor's safety precautions or to the means, methods, techniques, sequences, or procedures required for the Contractor to perform his work.

Omitted services include, but are not limited to, shoring, scaffolding, underpinning, temporary retainment of excavations, and any erection methods and bracing.

52. RECORD DRAWINGS

- A. The Contractor shall furnish one complete set of clean "Record" drawings to the County prior to project acceptance, showing clearly any changes made during construction. Record drawings shall be in accordance with Section 017839 Project Record Documents.
- B. In addition to any changes, all mechanical, electrical, and plumbing items concealed in the building and underground, actually installed and routed. Depth below the surface to the top of the underground item shall be indicated.
- C. All underground items shall be dimensioned from permanent reference points in a manner that they can be easily found in the field at a later time.
- D. Each sheet of the "Record" drawings shall be identified with the following label to be signed by the Contractor:

These are record drawings which have been prepared or supervised by the undersigned.

Contractor Date

- E. The Contractor is solely responsible for the preparation, completeness, and accuracy of the "Record" drawings. The County and its representatives are not responsible for reviewing the "Record" drawings.

53. OCCUPANCY OR USE BEFORE ACCEPTANCE OF COMPLETION

The County may occupy any building or portion thereof or use any improvement contemplated by the Contract prior to the completion of the entire work. A list of work to be completed and corrected by the Contractor, if any, shall be prepared and agreed to between the County and the Contractor before occupancy or use. Such occupancy or use

shall not operate as an acceptance of any part of the work but shall start the guaranty-warranty period on the structure or portion thereof so occupied or improvement of equipment so used, provided, however, that such occupancy shall not start the guaranty-warranty period as to items appearing on the list of work to be completed and corrected. No such occupancy or use shall be deemed to have occurred unless and until the County has given the Contractor formal written notice of intention to occupy so or use, specifying the portion or portions of the structure, improvement, or equipment which will be deemed so occupied or used.

54. COMPLIANCE WITH HANDICAPPED ACCESS LAWS

- A. It is the County's intent for all features on these plans and specifications to conform to applicable regulations for the accommodations of physically handicapped persons in buildings and facilities used by the public, whether or not said plans and specifications so conform.
- B. It shall be the responsibility of the manufacturers, suppliers, and distributors to ensure that all manufactured and fabricated products, devices, and items they supply for this project conform to applicable regulations of Title 24 of the California Code of Regulations.
- C. When shop drawings and/or manufacturers' product literature, and other matters subject to handicapped regulations are submitted to the County, the following shall be provided:
 - 1. Statement that the item shown complies with the handicapped regulations of Title 24 of the California Code of Regulations.
 - 2. Show all required dimensions, heights, clearances, and locations that must be followed when items are installed on the project.

55. CONTRACT AMBIGUITY

This Contract shall be deemed to have been prepared jointly by the parties signing the Contract, and if any inconsistencies or ambiguities exist, they shall not be interpreted or construed against any of the parties as the drafter.

56. FAIR EMPLOYMENT PRACTICES/NONDISCRIMINATION

The Contractor shall comply with Federal and State Fair Employment Practices provisions.

The Contractor, in connection with performance of work under this agreement, agrees to comply with the rules and regulations which deal with or relate to nondiscrimination set forth as follows:

- A. During the performance of this Contract, the Contractor and its subcontractors shall not deny the Contract's benefits to any person on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex or age, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, age, or sex. Contractor shall ensure that the evaluation and

treatment of employees and applicants for employment are free of such discrimination.

- B. The Contractor shall comply with the provisions of the California Fair Employment and Housing Act (Gov. Code, sections 12900 *et seq.*), the regulations promulgated thereunder (2 Cal. Code of Regulations sections 7285.0 *et seq.*), and Government Code Sections 11135 - 11139.5).
- C. The Contractor shall permit access by representatives of the Department of Fair Employment and Housing and the County upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to view such of its books, records, accounts, other sources of information and its facilities as said Department or County shall require to ascertain compliance with this clause.
- D. The Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
- E. The Contractor shall include the above nondiscrimination and compliance provisions in the above subparagraphs A and B in all subcontracts to perform work under the Contract.

END OF SECTION

SECTION 00 81 10

UNFORESEEN PHYSICAL CONDITIONS

PART 1 - GENERAL

1.1 SUMMARY

This Section includes special requirements for unforeseen hidden conditions, differing site conditions, and underground facilities as required for California Public Works Contracts.

1.2 UNFORESEEN SITE CONDITIONS

- A. Pursuant to Section 7104 of the California Public Contract Code, if any of the following conditions, hereinafter called hidden conditions, are encountered at the site. Contractor shall promptly, before such conditions are disturbed and in no event later than three (3) days after discovery, notify County in writing using the "Hidden Conditions Report" attached to this Document:
1. Material that Contractor believes may be hazardous waste material, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
 2. Subsurface or latent physical conditions at the site or in the building differing materially from those represented in the Contract Documents.
 3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents, or conditions that could be observed by examination of the site and the Reference Documents.
- B. Conditions that are not unforeseen, hidden, unknown, or differing site and building conditions include, but are not limited to, the following.
1. All that is indicated in or reasonably interpreted from the Contract Documents.
 2. All that is indicated in or reasonably interpreted from the Reference Documents specified in Section 010100, "Summary of Work".
 3. All that could be seen on site and that could be observed.
 4. Conditions that are materially similar or characteristically the same.
 5. Conditions where the location of the building component is in the proximity where indicated in or reasonably interpreted from the Contract Documents or Reference Documents.
- C. County will promptly investigate the conditions reported, which appear to be unforeseen conditions.
1. If County determines that the reported conditions are inherent in work of the character provided for in the Contract Documents or observed by examination of the site and Reference Documents, or that the condition is not hidden, unforeseen,

or materially different, Contractor shall execute the Work at no additional cost to County.

2. If the County determines that the conditions are hidden or differing conditions and that they will materially cause a decrease or increase in the Contractor's cost of any portion of the work, a Contract Modification will be issued for compensation of such portion of the work as provided in the General Conditions.
4. If the County determines whether the conditions are hidden or differing conditions and that they will materially affect the performance time, Contractor, upon submitting a written request, will be granted an extension of time subject to the provisions of the General Conditions.
 - a. Time extensions or contract costs will not be granted for delays that could be or could have been avoided by the Contractor redirecting his forces and equipment to perform other work on the Contract.

D. Should Contractor disagree with County's determination, Contractor shall submit a Request for Change (RFC) to County that the condition is not indicated in or reasonably interpreted from the Contract Documents, and that the condition is not similar in character to the material that could have been observed by examination of the site and Reference Drawings, but that the condition is materially different and the condition is unforeseen and unknown.

1. Contractor shall submit proof with written explanation, drawings, photographs, material, and labor cost breakdowns, and other relevant data to show the condition.
2. The County will review the Contractor's submission and make a determination. Contractor shall not file for a claim or RFC before the County makes the determination.
3. In the event of continued disagreement, 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.
5. Contractor shall retain any and all rights provided either by the Contract or by law which pertain to the resolution of RFC and protests between the contracting parties.

1.3 REMOVAL, RELOCATION, OR PROTECTION OF EXISTING UTILITIES

A. In accordance with the provisions of Section 4215 of the California Government Code, the County will assume the responsibility for the removal, relocation, or protection of existing main or trunk-line utilities located on the site of the Contract work, if such utilities are not identified in the Contract Documents.

B. Contractor shall immediately notify County and the public utility in writing of such utility facilities it discovers while performing the work which are not identified in the Contract Documents.

1. Contractor shall negotiate with the owner of the utility, who shall have the sole discretion to perform repairs or relocation work or permit Contractor to do such repairs or relocation work at a reasonable price.

- C. Contractor shall not be assessed liquidated damages for delay in Substantial Completion if the delay was caused by such existing utilities in direct conflict with the work and not shown on the Drawings.
- D. Contractor will be compensated under the provisions of Article 7 for extra work involving existing utilities not shown on the Drawings or included in the Specifications but in direct physical conflict with Contractor's operations.
 - 1. This extra work shall include the following costs:
 - a. Locating, supporting, working around, and protecting or repairing damage not due to the failure of Contractor to exercise reasonable care.
 - b. Removing and relocating, as directed by the County, existing main or trunk line utility facilities located on site but not indicated on the Drawings and Specifications with reasonable accuracy.
 - c. Equipment on the project necessarily idles during such work.
- E. Contractor shall not be entitled to any adjustment in the Contract Sum or Time if the existence of such condition:
 - 1. Could have been reasonably discovered or revealed as a result of any examination, investigation, exploration, test, or study of the site and contiguous areas required by the Contract Documents to be conducted by or for Contractor before commencing such work, or
 - 2. Could have been inferred from the presence of other visible facilities, such as buildings, meters, and junction boxes, on or adjacent to the work site.

PART 2 - PRODUCTS
NOT USED

PART 3 - EXECUTION
NOT USED

HIDDEN CONDITIONS REPORT (HCR)

Juvenile Hall

HCR No. _____

Submitted By: _____ Date: _____

	Ctr to PM	PM to Arch	Arch to PM	PM to Ctr
Date Sent:	_____	_____	_____	

Date Received:	_____	_____	_____	

Type of Conditions Reported:

- | | | | |
|------------------------------------|--|--|--------------------------------|
| <input type="checkbox"/> Site Work | <input type="checkbox"/> Structural | <input type="checkbox"/> Architectural | <input type="checkbox"/> HVAC |
| <input type="checkbox"/> Plumbing | <input type="checkbox"/> Fire Protection | <input type="checkbox"/> Electrical | <input type="checkbox"/> Other |

Location and Reference to Drawing: _____

Conditions Reported: _____

Investigated By: _____ Firm: _____ Date: _____

Check this box if the hidden condition reported is not hidden. Reply with location(s) where the information can be obtained.

Reply of Findings: _____

By: _____ Firm: _____ Date: _____

The reply is a finding from the investigation. No change in the Contract Sum or Time is authorized. See Specifications Document 008110 for the timeliness of investigation.

END OF SECTION

SECTION 00 85 10

DRAWINGS INDEX

Title: County of Mendocino Juvenile Hall Generator Project

Issue Date: Friday, March 27, 2026

G-1	COVER
E-1	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E-10	EXISTING SITE PLAN
E-11	PROPOSED PLAN
E-12	SINGLE LINE DIAGRAM
E-30	DETAILS

END OF SECTION

SECTION 01 01 00

SUMMARY OF WORK

PART 1 - GENERAL

A.1 SUMMARY

- A. The General Conditions and Division 1 - General Requirements apply to the Work of all Sections.
- B. Contractor is hereby specifically directed to notify and apprise all subcontractors and other parties engaged in the Work as to the Contents of the General Conditions and Division 1 - General Requirements.

A.2 SCOPE OF WORK

- A. Provide all labor, materials, and equipment to install a new generator and transfer switch, new fence, fence improvements, electric gate, and all related work needed to complete the project.
- B. The contractor will be responsible for complying with regulations of the Mendocino County Air Quality Management District, including securing and paying for all permitting fees and requirements. The District's website can be found here:
<https://www.mendocinocounty.gov/government/affiliated-agencies/air-quality-management-district/aqmd-permits>
- C. The contractor shall provide a proposed work schedule within two (2) weeks of receipt of the fully executed contract and no later than two (2) weeks prior to the proposed start of the work. Upon acceptance of the proposed work schedule, the County shall issue the Notice to Proceed for the date proposed by the Contractor for the start of the work.
- D. Work shall be completed no more than two hundred seventy (270) calendar days after the Notice to Proceed date.
- E. Provide all labor, material, and equipment to complete the work as depicted in the drawings, as described in the project manual, or as necessary for a complete and proper installation. The extent of the work as indicated on the Drawings and as described in the Specifications shall include all that may be reasonably inferred to be required for proper execution or installation of work. Present to the County, at the close of the project, signed copies of all required permits indicating successful completion of all permit requirements.

- F. Should the General Conditions or Contract Documents contradict themselves, Contractor shall provide the more stringent or higher quality or quantity unless otherwise approved by the County.
- G. The Drawings shall be recognized as diagrammatic in nature and not entirely descriptive of all requirements for construction. Whatever work may be specified, and not drawn, or drawn and not specified, is to be executed as fully as if described in both these ways; and should any workmanship or material be necessary which is not either directly or indirectly noted in these specifications, or shown on the Drawings, but is nevertheless necessary for the purpose of properly carrying out the obvious intention thereof, Contractor is to understand the same to be implied, and is to provide for the same in its bid, as fully as if it were particularly described or delineated.
- H. Furnish all labor, materials, and equipment required to install, complete, and make fully operational, electrical and fencing systems as specified, as shown on the Drawings and/or recommended and required by the Manufacturers.
- I. Each bidder or their authorized representatives shall, before preparing their proposal, visit all areas of the existing buildings and structures in which work under this bid is to be performed and inspect the present installation carefully. The submission of the proposal by this bidder shall be considered evidence that they have visited the site, buildings, and structures and noted the locations and conditions under which the work will be performed, and that they take full responsibility for a complete knowledge of all factors governing their work.

1.2 TYPE OF CONTRACT

- A. Contractor shall construct the Work under a single fixed-price Contract.
 - 1. Where the term "Contractor" is used in the Specification, the General Contractor is referred to.
 - 2. Where the terms "Plumbing Contractor," "Electrical Contractor," etc., are used, it has been for convenience only and in no way affects the overall responsibility of the General Contractor.

1.3 PRECEDENCE OF DOCUMENTS

- A. In the case of discrepancy or ambiguity in the Contract Documents, the following order of precedence shall prevail:
 - 1. Modifications in inverse chronological order and in alphanumeric order.
 - 2. Signed Agreement and terms and conditions referenced in the Signed Agreement.
 - 3. Supplemental Conditions.
 - 4. General Conditions.
 - 5. Division 1 specifications.
 - 6. Drawings and Division 2 through 16 specifications.
 - 7. Written numbers and figures, unless obviously incorrect.
 - 8. Figured dimensions over-scaled dimensions.
 - 9. Large-format drawings over small-scale drawings.

- B. Any conflict between the Drawings and Division 2 through 16 specifications will be resolved in favor of the document of the latest date (i.e., the most recent document), and if the dates are not the same or are not determinable, then in favor of the specifications.

- C. Any conflict between a bill or list of materials shown in the Contract Documents and the actual quantities required to complete the Work required, then the actual quantity shall take precedence.

1.4 USE OF PREMISES

- A. General: Comply with requirements in General Conditions and Section 01 50 00.

- B. Area available for Contractor's use for work and storage, if any, is limited to the area designated by the County.

- C. Work to be performed is within a temporarily closed county-owned public park. Contractor shall ensure that no members of the public are within the park prior to commencing each day and throughout the day.

- D. Fire Department Access: Contractor's use of premises shall not limit required Fire Department access.

1.5 EXAMINATION

- A. General: As stipulated in Document 00 10 00, Contractor is responsible for inspection of the existing site conditions and bidding documents prior to bidding and shall include in their bid any modifications of the Contract Documents required as a result of Contractor's inspection.
- B. Persons performing work shall examine conditions that affect their work and shall report in writing to Contractor, with a copy to County, conditions detrimental to work.
 - 1. Failure to examine and report makes the person responsible, at no increase in the Contract Sum, for corrections necessary for the proper installation of their work.
 - 2. Commencement of Work constitutes acceptance of the existing condition.
- C. Field Verification: Contractor shall verify all existing conditions in the field prior to commencing the Work.

1.6 PERMITS FOR WORK

A County of Mendocino building permit has been issued for the work. The Contractor is responsible for meeting all permit requirements to complete the work.

1.7 LISTING OF RELATED WORK

Listings of related work or sections in the various Sections are not necessarily complete listings. They are provided for information and convenience only and are intended to highlight related or similar work, which is specified in other Sections. Related work listings and omissions from such listings are not intended to control the Contractor in dividing the work among subcontractors or in establishing the extent of the work to be performed by any trade.

1.8 REQUEST FOR INFORMATION (RFI)

- A. Requirement: It is the Contractor's responsibility to review Contract Documents a minimum of Fifteen (15) days in advance of the work to be executed, and to request information so that the County will have sufficient time to respond to Requests for Information prior to the start of actual construction of that part of the Work to which the RFI relates. Contractor shall be responsible for all delays, disruptions, and other related impacts as a result of untimely RFI's being submitted to the County.
- B. Contractor shall coordinate all requests for information to prevent duplication. Requests for information that are duplicative, uncoordinated, or do not allow for a reasonable response time will be returned to the Contractor.

1. Contractor shall promptly notify County in writing of any discrepancies and shall not proceed with the Work until such discrepancies have been resolved.
 2. Failure to notify the County shall not relieve the Contractor of its responsibility for resulting damage and/or defect, and for the cost of any corrective work that may be required due to the Contractor's failure to notify.
- C. The Contractor shall prioritize RFIs and request a response based on its most current and accepted CPM schedule.
- D. Form:
1. When an interpretation or clarification of the Contract Documents is required from the County, Contractor shall make the request on a copy of the RFI form included at the end of this section.
 2. Contractor shall fill in all applicable information on the form.
 3. Contractor shall limit the subject to one design discipline to expedite the reply and attach supplementary information where necessary.
 4. County will reply or give a summary of the reply on the same form and include supplementary information where necessary.
 5. The completed form shall be the written record of each RFI.
 6. Contractor shall not use any other RFI form on this Project.
- E. Uses:
1. The RFI form shall be used for interpretation or clarification of the Contract Documents only.
 2. Contractor shall not use the RFI form for the following; County will not reply and will reject the RFI:
 - a) Product or material substitution.
 - b) Questions relating to construction means, methods, techniques, sequences, procedures, or safety precautions. (These are Contractor's responsibilities exclusively.)
 - c) Questions relating to construction schedule, coordination between trades, or division of work among subcontractors. (These are also the Contractor's responsibilities exclusively.)
 - d) Questions on contract administration procedural matters, unless they require interpretation or clarification of the Contract Documents.

- e) Dimensions or quantities which are shown on the Contract Documents, or which can be measured from the building, or calculated from the information contained in the Contract Documents.
- f) Confirmation of interpretations or clarifications previously provided by the County.

F. Reply:

1. County will endeavor to reply to all RFI's promptly as the work schedule of the consultants allows; generally, no later than fifteen (15) days from the day received.
2. When an RFI involves a complex subject, extensive research or development, or substantial input from another governmental agency, the County will inform the Contractor and request additional time to prepare the reply. Contractor shall cooperate and agree to a reasonable time extension.
3. The reply shall be a clarification or an interpretation of the Contract Documents; the reply is not an authorization of a change in the Contract Sum or Time.
4. Such written interpretation or clarification will be binding on Contractor and County. If County or Contractor believes that a written interpretation or clarification justifies an adjustment in the Contract Sum or Time, then County or Contractor may make a written request for change therefor as provided in the General Conditions, Article 1.07.

PART 2 - PRODUCTS
NOT USED
PART 3 - EXECUTION
NOT USED
END OF SECTION

REQUEST FOR INFORMATION (RFI)
Juvenile Hall Backup Generator Project

RFI No. _____

Submitted By: _____ Date: _____

	<i>Ctr to PM</i>	<i>PM to Arch</i>	<i>Arch to PM</i>	<i>PM to Ctr</i>
Date Sent:	_____	_____	_____	_____
Date Received:	_____	_____	_____	_____

Type of Information Requested:

- | | | | |
|------------------------------------|--|--|--------------------------------|
| <input type="checkbox"/> Site Work | <input type="checkbox"/> Structural | <input type="checkbox"/> Architectural | <input type="checkbox"/> HVAC |
| <input type="checkbox"/> Plumbing | <input type="checkbox"/> Fire Protection | <input type="checkbox"/> Electrical | <input type="checkbox"/> Other |

Spec. Section: _____ Paragraph(s): _____

Drawing Sheet: _____ Detail(s): _____

Information Requested: _____

μ Mark this circle if the RFI can be answered by the Contractor's review of the documents. Reply with location(s) where the information can be obtained.

Reply: _____

By: _____ Firm: _____ Date: _____

By: _____ PM: _____ Date: _____

The reply serves as a clarification or interpretation of the Contract Documents. No change in the Contract Sum or Time is authorized. The Contractor shall notify the County in the event the Contractor believes the response to the RFI will result in additional costs. The Contractor shall comply with the requirements of Articles 2.06 and 2.07 of the General Conditions regarding notice and submittal of an RFC. See Specification Section 01010 for the timeliness of reply.

SECTION 01 06 00

REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY

- A. Deferred Approval Items include structural design, specifications, required special inspections, and site-specific calculations for engineered, stamped shop drawings for contractor-furnished equipment and improvements.
- B. Specific reference in the Specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency at the date of advertisement for bid, unless the document is shown to be dated.

1.2 REGULATORY REQUIREMENTS

- A. Contractor shall be responsible for contacting governing authorities directly for necessary information and decisions bearing upon performance of Work.
- B. Perform the Work in conformance with the applicable requirements of all Federal, State, and local regulatory agencies and the following codes:
 - 1. California Building Code (CBC), 2010 Edition.
 - 2. California Electric Code (CEC), 2010 Edition, with State Building Code Amendments CCR Title 24, Part 3.
 - 3. California Plumbing Code (CPC), 2010 Edition.
 - 4. California Mechanical Code (CMC), 2010 Edition, with State Building Code Amendments CCR Title 24, Part 4.
 - 5. California Fire Code (CFC), 2010 Edition.
 - 6. National Fire Protection Association (NFPA).
 - 7. California Occupational Safety and Health Administration (CalOSHA).
 - 8. Occupational Safety and Health Administration (OSHA): Hazard Communications Standard.
 - 9. Americans with Disabilities Act of 1990 (ADA) and as amended.
 - 10. Others as applicable.
- C. Unless otherwise indicated or specified, codes and regulations shall be those in effect at the date of application for permit and in effect at the time of work of this

Contract.

1.3 SEISMIC LOADING DESIGN PROVISIONS

- A. Contractor shall be responsible for the design of all equipment foundations, equipment supports, piping supports, and anchorages. Contractor shall provide the services of a civil/structural engineer registered in the State of California for preparing such designs, which shall be in accordance with the seismic loading provisions of the 1998 Edition of the California Building Code. Shop drawings and supporting calculations for all supports and anchorages shall bear the engineer's seal, signature, and license expiration date, and shall be submitted to the County for approval in accordance with the requirements of Section 013000 - Submittals.
- B. All costs for the design, preparation of drawings, specifications, and calculations, construction, and inspection in compliance with the California Building Code shall be included in the price named in the Schedule of Bid Prices for completion of the Work as set forth in the Contract Documents.

1.4 CONFLICTS

- A. Notify County in the event of conflicts between Referenced Regulatory Requirements as listed herein, and between the Contract Documents.
- B. Between Referenced Regulatory Requirements: Comply with the one establishing the more stringent requirement.
- C. Between Referenced Regulatory Requirement and Contract Documents: Comply with the one establishing the more stringent requirement.

PART 2 – PRODUCTS
NOT USED

PART 3 – EXECUTION
NOT USED

END OF SECTION

SECTION 01 21 00

ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements to permit the evaluation of existing conditions before defining the required scope for each allowance item and providing the final direction that will be provided to the Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Force account allowances.
- C. Related Requirements:
 - 1. Section 007000 "General Conditions" for Changes in the Work
 - 2. Section 008110 "Unforeseen Physical Conditions" for the definition of hidden conditions.

1.3 SURVEY AND ASSESSMENT

- A. The base bid includes all labor, materials, and equipment to install a new backup generator, install new fencing, make improvements to the existing fence, and perform all related work indicated on the plans and required to complete the job. Enter 811 dig ticket as required and identify on-site utility locations with the County. Provide shop drawings locating the Generator and Transfer Switch to minimize interference with utilities. Prior to and during any subsurface excavations, the Contractor shall coordinate observation of the existing utilities and subsurface conditions with the Architect and the County.
- B. In consultation with the Contractor and the Architect, the County will determine the extent of unforeseen conditions and corrective actions to be completed and provide direction to

the contractor. Should unforeseen conditions arise that require additional work, the County will issue the Contractor a Request for Proposal. The Contractor shall promptly provide a Lump Sum or Unit Cost Proposal in accordance with Section 00700 General Conditions, Chapter 20 – Changes in the Work.

- C. In the event that the County does not authorize a proposal, the County may direct the contractor to proceed with the authorized work by Force Account in accordance with Section 00700 – General Conditions, Chapter 20.
- D. In the event any other unforeseen conditions are encountered, the Contractor shall promptly notify the County and Architect and proceed according to paragraph 1.3B. above.

1.4 ACTION SUBMITTALS

- A. Submit proposals for the work noted above.
- B. Upon completion of identified repairs, submit a revised Schedule of Values, noting allowance amounts used.

1.5 INFORMATIONAL SUBMITTALS

- A. Submit timecards, invoices, or delivery slips to show actual labor time and quantities of materials delivered to the site for use in completing allowance work authorized under force account.
- B. Coordinate and process submittals for allowance work items in the same manner as for other portions of the Work.

1.6 COORDINATION

- A. Coordinate allowance items with other portions of the Work.

1.7 ALLOWANCE ITEMS

- A. Provide for each allowance item on the schedule of Values.
- B. Use the allowances only as directed by the County for labor, materials, and equipment to provide work to resolve unforeseen conditions, by unit cost, lump sum price, or force account, authorized in writing by the owner.
- C. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between the authorized cost of all repairs completed and the allowance amount.
 - 1. If requested, include the cost of lump sum proposals for the work performed.
 - 2. Submit substantiation of any force account work related to allowance work authorized in advance by the owner.
- B. Submit Contract Change Order to refund the balance of the Allowance to the County or claims for increased costs for work performed on authorized work items that exceed the allowance amount included in the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing conditions at the time work is to be performed to verify that the conditions are suitable for the work under the allowances. Immediately report all unsatisfactory conditions to the County.

3.2 PREPARATION

- A. Submit and secure approval of all labor, materials, and equipment to provide work for unforeseen conditions costs prior to beginning work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No.1: Unforeseen Conditions: Include the sum of \$10,000 for labor, materials, and equipment to provide work to resolve subsurface unforeseen conditions encountered during the project.
 - 1. This allowance includes labor, material, equipment costs, and Contractor overhead and profit documented for either lump sum or force account work to complete authorized work to resolve unforeseen conditions.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES & BUILDING SERVICES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide temporary facilities and controls needed for the Work, including, but not necessarily limited to:
 - 1. Temporary utilities such as water, electricity, lighting, and telephone.
 - 2. Temporary building services such as electricity, gas, heating, and cooling, or telephone and data, when an interruption in services is required to complete the work.
 - 3. Sanitary facilities.
 - 4. Enclosures and temporary protection such as fencing, tarpaulins, barricades, and canopies.

- B. Related work:
 - 1. Documents affecting the work of this Section include, but are not necessarily limited to, Project Plans, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 JOB SAFETY

- A. Working within the Juvenile Hall requires extra security measures from the contractor. Comply with all applicable laws and regulations pertaining to job safety, and be solely responsible for construction means, methods, techniques, sequences, procedures, and safety precautions and programs in connection with the Work. The owner or Architect will not be responsible for the Contractor's failure to employ proper safety procedures.

- B. All work, including the temporary construction, shall be in full accord with the latest orders, rules, and regulations of the State of California Division of Industrial Safety and the California Occupational Safety and Health Act (CAL-OSHA).

- C. The Contractor shall at all times so conduct his work as to cause the least possible obstruction and inconvenience and ensure the protection of persons and property in the vicinity of the Work.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS FACILITIES

- A. Construction Aids: Hoists, ramps and ladders, enclosures, pumps, barriers, fences, barricades necessary to adequately move materials and equipment, and to protect workmen and the public.

B. All temporary construction and protection to comply with the requirements of state and local authorities.

C. Sanitary Facilities

1. Provide and pay for temporary sanitary facilities in quantity required for use by all personnel
2. Shall be maintained in a sanitary condition at all times.
3. Facility shall remain locked when Contractor is off-site.

PART 3 – EXECUTION

3.1 EXISTING BUILDING SERVICES

- A. Utilities: Coordinate the temporary shut-off of any utilities, including water, electricity, gas, and sanitary sewer, with the County. No utility will be made unavailable to any building for more than 8 hours without the County's express written approval.
- B. Provide a minimum of 48 hours' written notice to the County prior to any activities that may result in loss of water, firewater, sewer, gas, electrical, or data connectivity. Coordinate all changeover activities closely with the County.
- C. In the event of any utility service disconnect, the county requires that all parties meet the morning of the disconnect before shutting down any power. The county must be provided with a list of all buildings and areas affected by the disconnect.

3.2 SECURITY

- A. All personnel of the Contractor and all subcontractors operating within the secure perimeter of the Mendocino County Juvenile Hall premises are mandated to undergo and pass a Live Scan Security Background check conducted by the Mendocino County Sheriff's Office. The contractor retains the option to select an alternative entity to perform the Live Scan. The contractor assumes responsibility for all related fees for the Live Scans. Only individuals who successfully pass the Sheriff's Department background check or Live Scan will be granted access to the detention facility.
- B. The Contractor shall be responsible for securing the project Site and work areas within the Juvenile Hall before the start of work and at the end of each day, including:
1. Provide a minimum of 14-day notice before beginning work within the Juvenile Hall.
 2. Maintain security at access points to the Work at all times. In public areas, provide clear delineation, appropriate barriers, and signage to protect the public and county employees throughout the project.

3. No fencing shall be demolished until new fencing or secured temporary fencing is installed. If temporary fencing is used, it must be approved by the Juvenile Hall prior to installation.
4. Do not leave materials, tools, equipment, or debris unattended in any areas that are potentially accessible to the Juvenile Hall residents.
5. Remove all equipment, temporary facilities, debris, and thoroughly clean all affected surfaces before removing barriers.
6. Secure equipment and temporary facilities until the time of acceptance.

3.3 MAINTENANCE AND REMOVAL

- A. Maintain tree protection, erosion and sediment control measures, temporary facilities, and controls as long as needed for safe and proper completion of the Work. The Contractor shall be responsible for ensuring the effectiveness of erosion and sediment control devices and for repairing or replacing them as necessary throughout the duration of the project.
- B. Remove such temporary facilities and controls as rapidly as progress of the Work will permit or as directed by the County.

END OF SECTION

SECTION 11 39 60

DIESEL ENGINE STANDBY GENERATOR

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements for providing standby power. Provide standby power in accordance with the requirements specified under this Section and as shown on the Drawings.
- B. Standby power required under this Section shall be from a diesel engine-driven generator set. The generator set shall include all appurtenances for a complete, functioning standby power-generating system.
- C. The following index of this detailed specification is presented for convenience:

1.02 RELATED WORK

- A. Labeling and Identification is included in Section 16020.

1.03 REFERENCES

- A. Standby power shall comply with the latest applicable provisions and recommendations of the following:
 - 1. California Electrical Code.
 - 2. NFPA 30 - Flammable and Combustible Liquids Code.
 - 3. NFPA 37 - Standard for Installation and use of Stationary Combustible Engine and Gas Turbines.
 - 4. NFPA 70 - National Electrical Code.
 - 5. NFPA 110 - Standard for Emergency and Standby Power Systems.
 - 6. NEMA MG1 - Motors and Generators.
 - 7. NEMA MG2 - Safety Standard for Construction and Guide for Selection, Installation and Use of Motors and Generators.
 - 8. NEMA AB1 - Molded Case Circuit Breakers.
 - 9. ISO STD 8528 - Reciprocating Internal Combustion Engines.
 - 10. ISO STD 3046 - Performance Standard for Reciprocating Internal Combustion Engines.
 - 11. UL 142 - Steel Aboveground Tanks for Flammable and Combustible Liquids.

12. UL 508 - Industrial Control Equipment.
 13. EGSA - Electrical Generating Systems Association.
- B. Design, manufacture, and assembly of elements of the equipment herein specified shall be in accordance with, but not limited to, published standards of the following, as applicable. Current code dates in effect at the time the Contract is awarded shall be followed:
1. American Gear Manufacturers Association (AGMA)
 2. American Institute of Steel Construction (AISC)
 3. American Iron and Steel Institute (AISI)
 4. American National Standards Institute (ANSI)
 5. American Petroleum Institute (API)
 6. American Society of Mechanical Engineers (ASME)
 7. American Society for Testing Materials (ASTM)
 8. American Welding Society (AWS)
 9. American Bearing Manufacturers Association (ABMA)
 10. British Standards Institution (BS)
 11. Canadian Standards Association (CSA)
 12. Deutsches Institut fuer Normung (DIN) (German Institute for Standards)
 13. Factory Mutual Engineering and Research Corp. (FM)
 14. Institute of Electrical and Electronics Engineers (IEEE)
 15. Instrument Society of America (ISA)
 16. International Standards Organization (ISO)
 17. National Electrical Code (NEC)
 18. National Electrical Manufacturers Association (NEMA)
 19. National Fire Protection Association (NFPA)
 20. Occupational Safety and Health Administration (OSHA)
 21. Society of Automotive Engineers (SAE)
 22. Society of Protective Coatings (SSPC)

23. Underwriters Laboratories, Inc. (UL)

- C. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.04 SYSTEM DESCRIPTION

- A. Furnish all labor, materials, equipment, and incidentals and install, place in operation, and field test one (1) skid-mounted diesel engine-driven generator unit, engine instrumentation and controls, and supporting systems as shown on the Drawings and as specified herein.
- B. Generator set shall be rated for standby duty at not less than 350 kW at 80 percent lagging power factor, 120/208 Volt, 3 Phase, 4 Wire, 60 Hz, 1800 RPM, alternating current output. The alternator shall be four-wire, complete with excitation system and controls. Generator shall be enclosed within an outdoor, weatherproof, sound attenuating enclosure. Sub-base fuel tank shall be capable of running the generator at full load for 48 hours minimum. Mount the generator and enclosure on a steel sub-base fuel tank with spring-type vibration isolators installed between the sub-base and the concrete foundation.
- C. Generator shall be approved by Mendocino County Air Quality Management District and all necessary permits shall be obtained prior to placing order.
- D. The unit shall be arranged for automatic starting and stopping and acceptance of load. The unit will provide standby power in the event of failure of the normal utility power. Load transfer shall be open transition.
- E. All equipment and controls specified in this detailed specification shall be new and shall be part of the engine generator package. The engine generator manufacturer or his/her licensee shall be responsible for furnishing the package in its entirety as specified herein. External wiring connections to the engine generator set and the generator set control panels shall be furnished and installed under Division 16. Engine generator package shall be complete in all respects and with the exception of controls furnished under Division 16, shall include all equipment and controls necessary for a fully operational standby power supply.
- F. The equipment to be furnished under this Section includes the following for each unit:
 - 1. Diesel engine with attached alternator mounted on a steel frame base with vibration isolators for mounting on a concrete foundation.
 - 2. Unit mounted generator control panel.
 - 3. All cooling system components for a remote mounted radiator cooling system, including dual core radiator with electric motor driven cooling fan and engine driven coolant pumps, for cooling of the engine jacket water, lubricating oil cooler, and aftercooler.
 - 4. Exhaust silencer and engine exhaust flexible connection.

5. Skid mounted fuel system piping and appurtenances.
6. Sub-base fuel tank.
7. Skid mounted, factory-piping, wiring and valves.
8. Flexible connectors or expansion joints for field piping connections to the engine-generator units.
9. Engine mounted electric starters with engine starting batteries and associated battery charger.
10. Spare parts and special tools.
11. Services of a manufacturer's representative.

1.05 DESIGN REQUIREMENTS

- A. The generator set shall have identifying nameplates in accordance with the requirements of Section 16020. Alternator nameplates shall also be in accordance with NEMA MG1.
- B. The unit will be utilized to provide standby power service should the normal source of power fail.
- C. The generator shall be capable of accepting and powering all of the connected loads in one Step without the need of load shedding.
- D. The steady state voltage regulation shall be within plus or minus 1/2 percent from zero load to full-rated load. Upon application or removal of 50 percent of the maximum prime rated load in one step, the transient voltage dip and recovery to steady state operation shall be within 10 seconds, and the voltage dip shall not exceed ten percent of rated voltage.
- E. Stable or steady state operation is defined as operation with the frequency variation not exceeding plus or minus 0.25 percent (0.15 Hz) and voltage variation plus or minus 1/2 percent of their mean value for constant load from zero load to full rated load.
- F. The generator unit shall be installed outdoor. All equipment furnished under this Section is intended for installation outdoor.
- G. Provide electric resistance heaters for the engine jacket and alternator to maintain warmth within the equipment as an aid to starting, to minimize warm-up time, and reduce condensation within the equipment.
- H. Design all structure, supports, and anchors for the generator unit and accessories for all gravity loads, dynamic loads, and seismic forces and conform to all applicable requirements of the California and Mendocino County Building Code.

1.06 SUBMITTALS

- A. Submit working drawings, shop drawings and material specifications for the approval of the Engineer. Base all submitted information upon standard published data for the applicable equipment. Special or maximum ratings are not acceptable.
- B. Submit manufacturer's literature, specifications, engineering data and installation instructions necessary to fully describe the engine-generator set and all appurtenances and to substantiate compliance with the specified requirements, including the following:
 - 1. Shop drawings, catalog cuts, brochures, and other materials required to completely describe the systems and equipment being furnished.
 - 2. Identification, description, and dimensions for each separately installed sub-assembly or piece of equipment and associated piping and electrical connection schematics.
 - 3. Supporting structure drawings showing size and location of anchor bolts, selection of vibration isolators, and horizontal and vertical reactions in kips at each support location.
 - 4. Performance specifications of all items of equipment.
 - 5. Panel layout drawings showing interior and exterior views, dimensions, paint finish specifications and component bill of materials.
 - 6. Complete electrical, instrumentation, control, and wiring diagrams in sufficient detail to allow installation of instrumentation and controls and electrical components. Specifically, the following is required:
 - a. Complete instrumentation and control schematics, presented in conformance with Instrument Society of America Bulletin S5.1, and NFPA 79.
 - b. Complete electrical circuit schematics, including all termination points in generator control panel and Automatic Transfer Switch (ATS). All wiring shall be identified by numbers and every termination point shall be assigned a number. Termination point number (including wire number) shall appear on the schematics for each wiring termination shown.
 - c. Complete external electrical interconnection diagrams for wiring between generator control panel, ATS, and main switchboard.
 - d. Sequence of operation.
 - e. Complete nameplate schedule.
 - 7. The size, attenuation curve, and design back pressure for the silencing equipment as offered to accomplish the specified silencing for this installation.
 - 8. Detailed information on the proposed jacket water treatment.
 - 9. Complete description of supplier's shop test facilities.
 - 10. Certification of conformance to the EPA Emissions Tier Designation as applicable to the engine horsepower rating.

11. Mendocino County AQMD Permit.
 12. Four copies of the manufacturer's certified shop test record of each complete engine driven generator unit.
 13. Report summarizing calculations of the voltage drop that will occur.
 14. Certification of prototype testing of the unit.
 15. Description of and justification for all deviations of the proposed equipment from the materials and equipment specified herein.
 16. Complete details of the proposed battery charger.
- C. Include the following tabulation in the submittal of data for the equipment:
1. Engine Data
 - a. Manufacturer
 - b. Model
 - c. Number and arrangement of cylinders
 - d. RPM
 - e. Bore x stroke
 - f. Displacement (cubic inches)
 - g. Maximum engine power at rated rpm
 - h. Brake mean effective pressure (BMEP) at rated kW (including any parasitic loads and alternator efficiency)
 - i. Piston speed, fpm
 - j. Make and model of governor
 - k. Make and model of overspeed shutdown device.
 - l. Maximum allowable exhaust back pressure (inches water column)
 - m. Engine cold cranking amps
 2. Alternator Data
 - a. Manufacturer
 - b. Model
 - c. Rated kVA
 - d. Rated kW
 - e. Voltage
 - f. Temperature rise above 40 degrees C ambient
 - 1) Stator by thermometer (degrees C)
 - 2) Field by resistance (degrees C)
 - g. Class of insulation
 - h. Alternator subtransient reactance (Ohms or P.U.)
 3. Alternator efficiency including excitation losses and at 80 percent power factor
 - a. Full load (percent)
 - b. Three-quarters load (percent)
 - c. Half load (percent)
 4. Guaranteed fuel consumption rate (at alternator terminals at 138,000 BTU/gallon)
 - a. Full load (gal/hr)

- b. Three-quarters load (gal/hr)
 - c. Half load (gal/hr)
5. Generator unit and accessories
 - a. Weight of skid mounted unit (pounds)
 - b. Overall length (inches)
 - c. Overall width (inches)
 - d. Overall height (inches)
 - e. Exhaust connection size (inches)
 6. Engine exhaust gas emission data at prime load:
 - a. Temperature (degrees F)
 - b. Flow (ACFM)
 - c. Carbon Monoxide (CO) (grams/BHP-hr)
 - d. Nitrogen Oxides (NOx) (grams/BHP-hr)
 - e. Volatile Organic Compounds (VOC) (grams/BHP-hr)
 - f. Sulfur Dioxide (SO₂)* (grams/BHP-hr)
*Based on 0.05 percent sulfur content by weight in the fuel.
 - g. Particulates (grams/BHP-hr)
 7. Engine heat rejection (BTU/min)
 - a. Heat radiated to room by engine.
 - b. Heat to jacket coolant
 - c. Heat to oil cooler
 - d. Heat to after cooler
 - e. Heat to exhaust
 - f. Heat to Fuel
 8. Coolant data
 - a. Jacket coolant flow rate (gpm)
 - b. Jacket coolant outlet temperature (degrees F)
 - c. Maximum allowable jacket coolant return temperature (degrees F)
 - d. Aftercooler coolant flow rate (gpm)
 - e. Aftercooler coolant outlet temperature (degrees F)
 - f. Maximum allowable aftercooler coolant return temperature (degrees F)
 9. Alternator heat rejection (BTU/min)
 10. Combustion air volume (CFM)
 11. Height from bottom of skid required for removing piston with connecting rod; (also for removing cylinder liner): (feet)
 12. Nominal ampere-hour rating and cold cranking amps of the starting battery(ies) (AH), (CCA).

D. Testing

1. Submit a description of witnessed shop testing methods, procedures and apparatus and schedule of dates at least 45 days in advance of actual testing.

2. Submit data and results of shop tests accompanied by a certificate of authenticity sworn to before a notary public by an officer of the manufacturing company. Upon approval, release for shipment to site shall proceed.
 3. Submit a description of field testing procedures, methods, and apparatus, and schedule of dates at least 45 days in advance of actual testing
 4. Submit qualifications of proposed testing firm to perform field acceptance testing at least 45 days in advance of actual testing, including 5 recent references with phone numbers.
 5. Submit field test reports.
 6. Submit manufacturer's site visit and acceptance testing reports.
- E. Submit operation and maintenance manuals.

1.07 QUALITY ASSURANCE AND QUALIFICATIONS

A. General:

1. The generator sets shall be designed, built and tested in accordance with the latest applicable editions of NFPA, NEMA and NGS, and shall conform to NFPA 110, Standard for Emergency and Standby Power Systems, Level 2, Type 60; NFPA 37, Standard for Installation and Use of Stationary Combustion Engines and Gas Turbines; and NEC 701, Legally Required Standby Systems, except as modified by this Detailed Specification.
2. Generator set shall be of the current manufacturer and the standard product, as modified by this Detailed Specification, of a manufacturer regularly engaged in the production of this type of equipment and having satisfactory experience in supplying units as herein specified. Build each unit from components that have proven compatibility, reliability and are coordinated and prototype tested to operate as a unit. Design, construct, deliver, and field test each unit in accordance with the best practices and methods. The manufacturer shall maintain a permanent service organization and supply of spare parts in place at the time of the bid within 100 miles of the project site.
3. Generator set shall be factory assembled and tested to determine that it is free from electrical or mechanical defects and to assure that it meets design specifications.
4. Generator set shall be adequately guarded both physically and electrically for protection of operating personnel.
5. All materials, equipment and parts comprising the generator set shall be new, of current manufacturer and of the highest grade. All components shall be covered by the manufacturer's standard warranty on new machines.
6. The generator set manufacturer shall have complete parts and service facilities and a factory trained serviceman available on a 24-hour basis. Services shall be

readily available so to avoid long periods of interruption or require extensive spare parts inventory.

7. The generator set manufacturer shall use a shop test facility that has recently calibrated testing apparatus and qualified, experienced technicians, for all factory tests. Calibration of testing apparatus shall be within one year.
8. All test equipment and instrument calibration shall be in accordance with the latest edition of the accuracy standard of the U.S. National Institute of Standards and Technology and the NETA maintenance testing specification.
9. Design engine-generator to accept 100 percent of the connected load. The alternator voltage control system shall provide stable operation in the presence of such harmonics. The alternator subtransient reactance shall be 12 percent or less, calculated on an 350 kW machine base rating.
10. The unit shall be of such physical dimensions to fit into the space provided as indicated.
11. Design and build all mechanical equipment for prime power service at any and all points within the specified range of operation without overheating, detonation, or excessive vibration or strain, and require only that degree of maintenance generally accepted as typical of the specific type of equipment required. Prime power service shall be defined as continuous operation at varying loads up to the specified prime rating point 24 hours per day, seven days per week, with the capability of withstanding a ten percent overload (standby rating) for two hours out of every 24 hours. All parts and components of all units shall be designed and built for interchangeability so that replacement parts may be installed without additional fitting or machining.
12. Components of mechanical and electrical equipment shall be the products of manufacturers who can produce evidence of their ability to promptly furnish any and all interchangeable replacement parts as may be needed at any time within the expected life of the equipment.
13. The manufacturer shall have testing facilities adequate for performing the shop tests and inspections specified herein. Submit a description of the manufacturer's testing facilities. The descriptive matter shall contain illustrative photographs, drawings and such other matter as may be requested.
14. Should equipment which differs from the equipment described in this detailed specification be offered and determined to be equal to that specified, such equipment shall be acceptable only on the basis that any revisions in the design and construction of the structure, piping, appurtenant equipment, and electrical work required to accommodate such a substitution shall be made at no additional cost to the Owner and be as approved by the Engineer. Modifications required to accommodate product substitutions shall not extend the Contract time.

B. Services of Manufacturer's Representative

1. Provide services of factory-trained service technicians, specifically trained on the type of equipment specified. Submit the qualifications of the service technicians for approval. Person-day requirements listed are exclusive of travel time and do not relieve the Contractor of the obligation to provide sufficient service to place the equipment in satisfactory operation.
2. Installation: to assist in location of anchor bolts; setting, leveling and field erection; coordination of piping, electrical, miscellaneous utility connections: two person-days.
3. Start-up, testing and calibration (vendor furnished equipment only): two person-days.
4. Field performance test: two person-days
5. Operation and maintenance instruction: two person-days.
6. Service inspections during the first year of actual operation, for use at the City's request, and exclusive of repair, malfunction or other troubleshooting service calls: two person-days (not anticipated as consecutive).

C. Field Tests:

1. Each generator set shall be field acceptance tested.
2. The generator set manufacturer shall perform field service and shall be present for the field tests.
3. Retain the service of an independent testing firm who shall perform field acceptance testing of the generator set. The testing firm shall have experience in the inspection and testing of the equipment and shall be a member company of NETA.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Generator and accessories shall be delivered, stored, and handled in accordance with this Detailed Specification and manufacturer requirements.
- B. Inspect all equipment for shipping damage when received.
- C. All sleeve or oil lubricated bearings generators shall be identified and the bearing reservoirs filled to normal level.
- D. Handle generators and accessories using base lifting lugs, rings, and other designated lifting points. Avoid pounding or bumping of equipment that may damage unit. Use a hoist and spreader bar arrangement to avoid damage.
- E. Generators and accessories shall be stored indoors in clean, dry heated areas.

- F. Generators shall not be stored in areas subject to continuous vibration. Inject a small quantity of grease into each bearing on a monthly basis. Inspect purged grease for water or rust.
- G. Ship equipment, material, and spare parts complete except where partial disassembly is required by transportation regulations or for protection of components.
- H. All mechanical and electrical equipment shall be coated, wrapped, and otherwise protected from snow, rain, drippings of any sort, dust, dirt, mud, flood, and condensed water vapor during shipment and while installed in place during construction. The protective coverings shall remain in place until the work areas are substantially free of all construction dust and debris. Submit full details of proposed protective measures for approval to the Engineer prior to shipment. Energize alternator space heater at all times during storage.
- I. Package all equipment for shipment and provide treatment for long periods of storage before use in the local climate.
- J. Ensure proper construction power is provided under Division 16 to energize space and equipment heaters during storage and construction. If temporary heating units are required, they shall be provided as necessary under this Contract.
- K. The vendor or the manufacturer's representative of the equipment furnished under this section shall inspect the equipment within one month after delivery to the site, to assure that the equipment is being stored in accordance with the manufacturer's recommendations. Provide a signed certification that the equipment has been inspected and found to be in suitable storage. The vendor or the manufacturer's representative shall return every six months thereafter to re-inspect the equipment and provide certification of inspection. Any deficiencies in storage shall be documented and resolved.

1.09 SPARE PARTS, SPECIAL TOOLS, AND SUPPLIES

- A. The Contractor shall furnish and deliver to the Engineer, at that part of the site and at such time as the Engineer may direct, spare parts for the generator sets in accordance with this detailed specification.
- B. The spare parts shall be listed in an index and packed in containers suitable for long-term storage, bearing labels clearly designating the manufacturer's part number with complete information for use and reordering.
- C. Spare parts shall be furnished in accordance with the manufacturer's recommendations for the generator size and type. Spare parts shall include at a minimum the following:
 - 1. One complete set of air, oil, coolant, and fuel filters of each type and size used.
 - 2. One complete set of belts and hoses of each type and size used.
 - 3. Two sets of control power fuses of each type and size used.
 - 4. Two packages of pilot lights of each size and type used.

5. The Contractor shall furnish as part of the bulk lubricant order the quantity of lubricants required to operate and maintain the generators furnished under this detailed specification for a period of one year after acceptance. As a minimum, provide sufficient oil and grease to make a least one lubricant change for each generator as applicable. Replace all lubricants used during startup and testing prior to acceptance of the equipment. Furnish this replacement lubricant in addition to the lubricants included in the bulk order.

1.10 PAINTING

- A. All ferrous metal surfaces to be cleaned and painted with a rust inhibiting primer. All exterior surfaces shall be given three coats of manufacturer's standard finish paint. Finish paint shall be suitable for the operating temperature. Color of finish paint shall be manufacturer's standard color.

1.11 SHOP TESTS

A. Certified Shop Tests:

1. Perform shop testing on each generator at the manufacturer's plant prior to shipment. Shop test shall be in accordance with the latest revisions of NEMA MG1 and shall demonstrate that the equipment tested conforms to the requirements specified.
2. Submit a shop test report. The report shall identify the tests performed and the results obtained.
3. Perform a routine factory test on completed generator set at the manufacturer's factory. The set shall be tested for a period of two hours at full load, 0.8 power factor with suitable load bank.
4. The test may include the manufacturer's standard test procedure, but at minimum shall include the following:
 - a. Verify generator set assembly, prior to operation, including all mechanical and electrical connections.
 - b. Verify fuel and lubrication systems are clean and filled with proper grades of fuel and lubricants.
 - c. Make adjustments as required to governor and voltage regulator controls.
 - d. Inspect operation of all gauges, switches and meters. Verify generator set monitoring meters against calibrated load bank meters.
 - e. Verify operation of all safeties and alarms.
 - f. Maintain records of unit operation, at 15-minute intervals, for the duration of the test. Records at a minimum shall include, coolant temperature, oil pressure, ambient air temperature, voltage, current, frequency, kilowatts and power factor.

B. Witnessed Shop Tests

1. The Contractor shall perform witnessed shop tests in accordance with the Detailed Specifications. Generator shall be given a complete test two weeks before and then retested in the presence of the witness.

1.12 WARRANTY

- A. The Contractor shall furnish a written two-year extended warranty from the equipment supplier, written to the Owner, on all equipment furnished under this Section against defects in workmanship and material, when operated as a standby unit for up to 300 hours per year of operation. The warranty shall extend from the date of acceptance of the equipment and shall include all parts, labor, and transportation for replacing any defective components of the equipment as furnished. Acceptance shall be defined as when the load bank testing has been completed and the generator is able to operate under the full load bank. Completion of commissioning shall be defined as when the generator and ATS are 100 percent operational.
- B. All costs for labor, transportation, freight, and replacement parts required to satisfactorily repair any piece of equipment as a result of equipment malfunction during the guarantee period shall be included in the lump sum price bid for providing the generator set.

1.13 SERVICE AND MAINTENANCE AGREEMENT

- A. Provide to the Owner, at the time of acceptance of each unit, a written five year service contract for the diesel engine generator and support systems as furnished, commencing on the date of acceptance of the unit. Include all costs associated with the service contract in the price bid and furnish a copy of this contract to the Owner at the time of acceptance. This service contract does not supersede or replace the manufacturer's equipment warranty as specified herein.
- B. The Service and Maintenance Agreement shall cover maintenance as well as emergency repairs to assure the safe and dependable operation of the standby power system for standby service with up to 300 hours per year of operation. The agreement shall at a minimum include the following:
 - 1. All maintenance recommended by the manufacturer including checkout, inspection and maintenance of all furnished components and wiring once per year.
 - 2. All parts, labor, and other expenses associated with providing emergency (within 48-hours) on-site repairs, regardless of the reason for failure excepting misuse or vandalism.
 - 3. Submit a report after each site visit describing the problem, solution, all work performed and parts replaced.
 - 4. The generator set manufacturer or authorized representative shall perform all work covered by the service and maintenance agreement. Include the cost of this agreement in the lump-sum price bid for the work, under the same contract as the generator sets.
 - 5. The preventive maintenance shall include all maintenance service at the recommended service intervals as published in the manufacturer's literature, and as required to maintain the equipment warranty in full effect. The service contract shall include not less than one inspection at the end of each year of operation to sample and analyze lubricating oil, change lubricating oil and filters; clean/replace

air filters; sample and analyze coolant, check coolant level and condition; inspect fuel injection system; check heaters; inspect fuel supply system, exhaust system, and starting batteries and battery charger; check and adjust output voltage and frequency; and operate the units to confirm proper operation.

PART 2 PRODUCTS

2.01 GENERAL

- A. Generator set shall be a factory assembled unit and shall be Kohler 350REOZJD or equal. The engine and alternator shall be directly connected with a flexible coupling, shall be free from injurious torsional or other vibration and shall be mounted on a heavy steel sub-base. Units offered at ratings in excess of their published ratings are not acceptable and will not be approved.
- B. The engine and alternator shall be directly connected and shall operate at the same rotative speed. The use of gearing or other speed adjustment between the engine and the alternator, such that the engine and alternator operate at different rotative speeds will not be allowed.
- C. The generator set shall be rigid and shall allow easy access to all parts for maintenance purposes. Enclose all parts to prevent the throwing or dripping of oil.
- D. Generator set shall be pre-piped and pre-wired insofar as possible. Provide separate pre-wired terminal boxes on the engine-generator skid for AC and DC power wiring, discrete signal, and analog signal.
- E. The complete generator unit shall be free from harmful torsional or other vibration throughout the entire operating range of speed and load. The generator manufacturer shall make, or have made, the mass-elastic system analysis of the complete engine/alternator unit, and shall submit to the Engineer certification that the analysis has been performed and shows the unit to be free from harmful torsional or other vibration.

2.02 ENGINE

- A. Engine shall be specifically designed and equipped for operation on No. 2 diesel fuel oil (ASTM D396). A diesel engine requiring a premium fuel will not be considered.
- B. The rating of the engine shall not exceed the manufacturer's published prime ratings. The gross engine horsepower required to produce the prime rating shall not exceed the manufacturer's published continuous duty rating by more than 15 percent. Continuous duty rating shall be as defined in BS649 or DIN6270 but in no case shall it exceed the manufacturer's published continuous duty rating. The gross engine horsepower required for the generator set ratings described above shall include all parasitic demands such as alternator inefficiencies, fuel pumps, water pumps, and all accessories necessary to the unit's proper operation while operating at rated load.
- C. Design the engine and electronic injection control system to limit the exhaust emissions of the engine. Engine exhaust emissions shall be certified in compliance with the applicable EPA Tier Designation emissions standards per ISO 8178-D2 Emissions

Cycle at specified ekW/bHP rating at the time of on-site start-up and without further exhaust emissions control measures external to the engine.

- D. The engine shall incorporate individual mechanically cam actuated, electronically controlled unit injectors for each cylinder, which combine the electronic actuator, pump assembly, and nozzle into a single unit, to provide precise metering and timing of fuel delivery into each cylinder.
- E. The engine shall have removable wet-type cylinder liners of close grained alloy steel, heat treated for proper hardness as required for maximum liner life. The engine block shall be a one piece stress relieved grey iron casting.

2.03 EQUIPMENT

A. Governor

- 1. The governor control shall be capable of providing isochronous load sharing operation when paralleling the generator units running independent of the utility. Control of engine speed shall be through electronic control of the individual unit injectors in response to engine speed, load, and engine operating parameters. The governor shall be an all-electronic speed control located in the generator control panel, powered by 24 volts DC from the engine starting batteries. House the governor in an environmentally sealed module that shall obtain engine operating information from sensors mounted on the engine that monitors engine functions. The governor shall be adjustable and programmable through service software. The governor shall provide for isochronous regulation from no load to full rated load within 0.25 percent of rated frequency. The governor shall provide control to the unit injectors for fuel injection timing and limiting, idle/rated speed setting, programmable speed acceleration ramp rate, and adjustable cool down duration.
- 2. Furnish a separate overspeed shutdown device which shall, in case of predetermined overspeed or the operation of various protective devices as later specified, instantly stop the engine without the fuel injection system losing its prime. The overspeed device shall be a part of the engine control module specified herein.

B. Supporting Structure

- 1. The diesel engine and the alternator shall be directly bolted, doweled and aligned on a heavy, rigid, fabricated, welded steel base, sized to maintain correct alignment of all system components. The base shall be made of steel I-beam or box section, braced and reinforced as required to maintain alignment between the engine and the alternator. The base shall extend under the entire length of the engine and the alternator and shall fully support each outboard end of the engine-alternator assembly.
- 2. The base shall be supported by Korfund, Ace, Mason, or equal heavy-duty spring-type seismic vibration isolators, anchored to the level surface of a concrete pad. Design the vibration isolators, snubbers and attachment bolts for gravity loads, operating loads, and seismic forces in accordance with applicable requirements of the State Building Code.

3. All exposed surfaces of the structural steel members of the fabricated base frame and isolator spring restraints shall be shop primed and finish painted in accordance with the manufacturer's standard practice.

2.04 SYSTEMS

A. Fuel System

1. The fuel supply system shall consist of one sub-base fuel storage tank system, fuel piping from the sub-base fuel storage tank to the engine, and engine mounted fuel system components.
2. The engine mounted fuel system shall include fuel filters, integral engine driven fuel supply pump, manually operated priming pump, and fuel solenoid shut off. Fuel filters shall be duplex replaceable element type fuel oil filters, Aquacon Model AC21005, or equal, including cartridge filter for water separation. Filter elements shall be easily removable from their housing for replacing without breaking any fuel line connection, or disturbing the fuel pump, or any other part of the engine. All fuel filters shall be conveniently located in one accessible housing, ahead of the injection pumps so that the fuel will have been thoroughly filtered before it reaches the pump. Provide a 2-inch diameter differential pressure gauge with 0 to 15 psig scale across the fuel filters. The injection pump or injection valve assemblies shall not require screens or filters requiring cleaning or replacement. The engine fuel supply pump shall be built-in gear-type engine-driven, capable of lifting from the sub-base fuel tank and supplying fuel through the filters to the injection pump at constant pressure. Return excess fuel supplied to the engine to the sub-base fuel tank.
3. All engine mounted fuel and vent piping shall be black steel and of a size recommended by the engine manufacturer.
4. Install all parts of the fuel system in full compliance with OSHA Standard 1910.106. All parts of the fuel system shall meet the approval of and be installed in complete compliance with all applicable State, Federal, and local codes, laws, and regulations.

B. Electric (Battery) Starting System

1. Provide an engine-mounted, 24 Volt DC solenoid shift electric starter capable of withstanding four consecutive continuous cranking periods of 15-second duration each, separated by 15-second rest periods.
2. The starting batteries shall be low maintenance, long life, lead acid type, especially designed for diesel engine cranking service. Batteries shall be of a capacity as recommended by the battery manufacturer for the necessary break-away current, cold cranking amperes, and ampere hour capacity for four consecutive starts of 15 seconds of cranking on each start, without being recharged, with a battery temperature of 45 degrees F and with the SAE 30 oil in the engine maintained at 60 degrees F. The batteries shall be manufactured by Delco; Exide; Caterpillar or equal. The engine starting batteries shall supply power to the associated generator control panel.

3. Furnish floor mounted fiberglass, fully enclosed, containment type, insulated battery boxes specifically designed for battery service. Furnish fully insulated battery covers. Design the battery boxes, supports, and anchors for gravity loads and seismic forces in accordance with the applicable requirements of the latest California Building Code. Furnish and install the required battery cables with insulated terminals and connectors for connecting the batteries to the electric starter. Furnish all connectors and hardware, cables, grease, and battery lifting device.
4. Furnish a completely automatic battery charger for charging the engine starting batteries. The charger shall be UL listed, fully automatic, electronically controlled, solid state, temperature compensating, float/equalize-type, designed for maximum battery service life with minimum battery maintenance. Charger shall be rated for 120 Volt, single phase, 60 Hz alternating current input, with a D.C. output capacity of not less than 20 Amperes. Voltage regulation shall be within one percent with plus or minus ten percent fluctuations of the input voltage and shall be current limited at 120 percent of rated output. Accessories shall include a direct current voltmeter and ammeter (panel type, 2 percent accuracy), float and equalize controls and indicating light, fused A.C. and D.C. circuits, and A.C. power indicating light. Furnish alarms including A.C. power failure, high D.C. voltage, and low D.C. voltage. The charger shall have automatic voltage sensing determined by the state of the battery and reducing to milliamp current on fully charged battery. The charger shall be as supplied by LaMarche; Nife; Sens, or equal and for the correct voltage for the battery. Arrange the charger for strut mounting adjacent to the generator. The battery charger shall provide control power to the generator control panel when the generator is not running with correct voltage and current output to provide proper battery charge rate for maximum battery life and control panel power requirements.

C. Air Intake System

1. Provide dry type unit mounted heavy duty dual element air intake filter(s) on each engine to protect working parts of the engine from dirt and grit. The filters shall have dual replaceable type filter elements and service indicator. Combustion air shall be drawn from the generator room at a maximum ambient temperature of 50 degrees C.

D. Lubrication System

1. Provide a full-pressure lubricating oil system arranged to lubricate and cool the pistons and to distribute oil to all moving parts of the engine, including the turbocharger bearings. The system shall include a full flow oil filter of the replaceable element cartridge type, designed for not less than 500 hours of operation between oil changes. The system shall include a shell and tube type oil cooler and an automatic oil temperature regulating valve. Furnish a dial-type differential pressure gauge with the engine oil filter system. The gauge shall be mounted on the filter housing and shall indicate when servicing of the filter elements is required. Provide an engine-driven lubricating oil circulating pump. The pump shall be of the positive displacement type and shall have ample capacity to circulate the amount of lubricating oil and cooling oil required by the engine and turbocharger. Furnish a pressure relief valve on the pump discharge. The engine

shall have a sump-type crankcase arrangement of capacity to suit the requirements of the engine. The oil drain shall be valved and shall be piped to an easily accessible location on the engine skid to facilitate draining of oil.

2. Provide a crankcase breather with a crankcase emission control filter and a crankcase pressure regulator to control crankcase emissions. Collect filtered contaminants in a reservoir, and discharge the crankcase exhaust gases to the induction air inlet or to outdoors. If the crankcase breather is to vent to outdoors, furnish a screened vent cap for installation on the outdoor termination of the vent pipe.
3. All drains and vents shall be with ASTM A53, Schedule 40 black steel pipe and threaded fittings.

E. Exhaust System

1. Furnish a super critical grade exhaust silencer, 18-inch size, as manufactured by GT Exhaust Systems; Maxim; Donaldson; Nelson, or equal. Fabricate the silencer of aluminized steel and design for horizontal mounting on top of the generator enclosure. The silencer shall provide not less than the following dynamic insertion loss ratings (dB):

Frequency Octave Band (in Hz)	63	125	250	500	1000	2000	4000	8000
Dynamic Insertion Loss (dB)	33	40	43	39	35	34	36	38

2. Provide a stainless steel bellows type flexible connection as recommended by the engine manufacturer designed for the maximum operating temperature to connect the exhaust pipe to the engine. The flexible connection shall adapt to the engine exhaust outlet connection(s), and shall provide a single flanged connection to the exhaust piping. The connector shall be of Type 321 stainless steel, designed for an operating temperature of up to 1200°F.
3. Provide an insulated cover for the exhaust flexible connection, non-combustible type, of adequate insulating capability to limit the external surface temperature of the insulated section to 140 degrees F. The insulation shall be insulating blanket, consisting of high density fiberglass insulation, 11 pounds per cubic foot, rated to 1200 degrees F, totally encapsulated in Type 304 stainless steel mesh. The exterior shall have a weather barrier of silicone rubber coated fiberglass cloth. The blanket shall be wrapped around the flexible section and secured with Type 304 stainless steel clips and wire. The insulation blanket shall meet the following standard specifications: MIL-I-16411E-Type II, NRC 136, U.S. Coast Guard Certificate No. 164.009/94/0, UL 492 (self-extinguishing), and NFPA A 255.

2.05 MISCELLANEOUS EQUIPMENT AND REQUIREMENTS

- A. Pipe connections to the engine, except for exhaust, shall be with flexible reinforced synthetic elastomer connectors of sufficient flexibility to account for all expansion/contraction and vibration of the engine-generator set, assuming the connecting piping is rigidly anchored at the point of connection of the flexible connector. Provide flexible connectors for jacket coolant supply and return, aftercooler

coolant supply and return, fuel supply and return, and crankcase vent. Coolant and vent connectors shall be suitable to match the engine.

B. Wiring

1. Run all on-skid wiring in conduits or flexible wire loom. Wire routing shall avoid hot areas, or shall be in metal conduit installed with stand-offs, where hot areas cannot be avoided.
2. Control wiring shall be 600 Volt, 90 degrees C, switchboard type SIS, minimum No. 14 AWG. Use solderless compression type connectors for terminating all wires. Current transformer circuit terminations shall be ring tongue type. Other circuits shall be locking spade type applied with the proper tool. Control wires shall be permanently numbered on both ends with wire markers applied next to the terminals with the number visible. The low-level signal circuits shall be separated and provided with shielded wire to minimize electromagnetic crosstalk and interference.
3. Provide grommetted holes between each of the vertical sections of enclosures to allow control wiring to pass through. Wiring shall not be spliced and shall be free of abrasions and tool marks. The wires shall be neatly bundled and shall be supported to prevent sagging or breakage from weight or vibration. Wiring bundles shall be contained in covered metal or plastic gutters.
4. Permanently number all wiring on both ends utilizing thermally embossed heat shrink sleeves.

- C. In addition to the emergency stop on the control panel, furnish one weatherproof emergency stop pushbutton on the outside of the generator enclosure, within easy reach when standing beside the engine, located on the side nearest to the ATS. The emergency stop pushbutton shall be red colored, push to stop, mushroom head, maintained type, pull to reset, labeled as "Emergency Stop", "Push". Wire pushbutton to the generator control panel to immediately stop the engine.

D. Control Power Fuses (600 V class)

1. Mount fuses in locations where they are readily accessible. Provide pull-out type fuses for all primary circuits. Fuses shall be of the current limiting type.
2. Provide three spare fuses of each type and ampere rating (primary and secondary) used in this equipment loose, but shipped with the equipment.

E. Terminal Blocks

1. Terminal blocks shall be suitable for ring tongue terminals and provided with binding head screws, minimum size of screw 8/32. The terminal block rating shall be 600 Volt.

2.06 ENGINE INSTRUMENTATION AND CONTROLS

- A. The generator set shall include a combination engine-alternator control panel (referred to herein as the generator control panel), mounted at the alternator end of the unit to provide local engine control and monitoring instruments for local indication, alarm monitoring, and control. The control panel shall be all electronic type, with digital displays visible in any lighting condition. House the control panel in the generator enclosure. Provide all interconnecting wiring between the engine-alternator set and the control panel. Construction of the panel shall conform to UL 508 for control panels. Direct communication with the control panel shall be with an environmentally sealed membrane keypad. If the control panel adjustment and diagnostics are accomplished through the use of an interconnection to a PC, furnish with the generator all software, instructions, and interconnecting cables required for PC communication with the control panel.
1. The panel shall include, but not be limited to, the following indications displayed on a two-line alphanumeric digital display:
 - a. Lubricating oil pressure.
 - b. Jacket coolant temperature.
 - c. Lubricating oil temperature
 - d. Engine intake manifold temperature
 - e. Fuel temperature
 - f. Fuel pressure
 - g. Fuel consumption rate and total fuel consumed
 - h. Engine exhaust manifold temperature
 - i. Engine intake manifold temperature
 - j. Engine speed (rpm)
 - k. A.C. volts, 0.5 percent accuracy.
 - l. A.C. amperes, 0.5 percent accuracy.
 - m. Frequency, 0.5 percent accuracy.
 - n. Output power (kW and kVA) (total and per phase)
 - o. Power factor
 - p. Elapsed time meter calibrated in hours and tenths of hours.
 - q. DC volts
 - r. Diagnostics for servicing
 - s. Emergency shutdown condition indication lamps for each shutdown condition with logic to maintain lockout condition and fault light until reset.
 2. Operators on the panel shall include:
 - a. Emergency stop mushroom-type push button
 - b. RUN-OFF-AUTO selector switch
 - c. Phase selector switch
 - d. Lamp test pushbutton
 - e. Alarm reset pushbutton
 3. The panel shall also include:
 - a. Three current transformers.
 - b. Alternator voltage regulator
 - c. Governor/engine control module

- B. The generator control panel shall include a complete automatic engine control module that provides local and remote start-stop control of the engine. Remote control capability shall be provided but shall not be utilized in this current design, remote capability may be utilized in the future under a separate project.
 - 1. The engine control module shall provide for cyclic cranking for a total of at least four 15-second cranking periods separated by 15-second rest periods. If the engine fails to start after the last cranking cycle, the cranking limiter shall terminate further cranking and activate the overcrank alarm.
 - 2. The generator controls shall include a three-position switch with the following positions: RUN-OFF-AUTO. In RUN, the engine shall start and run with load transfer controlled from a remote location; in OFF, the engine shall stop and shall not start; in AUTO, the engine shall start, run and stop from remote signals and with load transfer controlled by a FUTURE Generator Switchgear Mimic Panel when the unit attains rated voltage and frequency. Provide Form C contacts for remote status monitoring of switch position.
 - 3. The generator controls shall include an automatic cool-down timer, to allow the engine to continue to operate after load transfer back to the normal power supply, to cool down prior to automatic shut-down. The timer shall be adjustable from zero to ten minutes and shall be engaged when the selector switch is in the AUTO position.
 - 4. Should any of the protective sensors on the generator activate, the engine control shall immediately shut down the engine.
- C. The generator control panel shall include an emergency stop pushbutton. Emergency stop shall override all other controls to immediately shut off the fuel supply and stop the engine.
- D. Provide automatic shutdowns with fault indication for the following conditions:
 - 1. High coolant temperature
 - 2. Low lubricating oil pressure
 - 3. Engine overspeed
 - 4. Overcrank
 - 5. Fail to crank
 - 6. Overvoltage
 - 7. Emergency stop
 - 8. Low fuel pressure
 - 9. High fuel pressure
 - 10. Fuel filter restriction

11. High intake manifold temperature
 12. High fuel temperature
 13. High lube oil temperature
 14. High exhaust temperature
- E. Provide automatic pre-alarms for the following conditions with fault indication for each:
1. Low coolant temperature
 2. Low oil pressure (pre-warn)
 3. High coolant temperature (pre-warn)
 4. Switch not in AUTO position
 5. High/low battery voltage
 6. Low fuel pressure (pre-warn)
 7. High fuel pressure (pre-warn)
 8. Fuel filter restriction (pre-warn)
 9. High intake manifold temperature (pre-warn)
 10. High fuel temperature (pre-warn)
 11. High oil temperature (pre-warn)
 12. High exhaust temperature (pre-warn)
- F. Engine Monitoring, Alarm and Shut-down Conditions
1. Engine monitoring, alarm, and shut-down conditions shall be displayed at the Generator Control Panel. Provide all safety and shutdown functions built into the generator control panel specified herein.
 2. The generator control panel shall include provision for remote status monitoring at a FUTURE Generator Switchgear Mimic Panel. Furnish a communication module in the generator control panel to provide remote monitoring of all status and alarms, and all gauge readings (panel indications) as listed above. The communication module shall provide for remote PLC monitoring of all "real-time" engine and generator parameters, remote monitoring of all alarms, shutdowns, and diagnostic codes, remote start/stop control, remote fault reset, remote control of low/high idle relay and fault relay, and cool-down timer override.
 3. The following minimum status, alarm, and shut-down conditions shall be sent to the FUTURE Generator Switchgear Mimic Panel:
 - a. Analog Indication

- 1) Lubricating oil pressure (analog signal from generator control panel)
 - 2) Lubricating oil temperature (analog signal from generator control panel)
 - 3) Jacket coolant temperature (analog signal from generator control panel)
 - 4) Intake manifold temperature (analog signal from generator control panel)
 - 5) Fuel temperature (analog signal from generator control panel)
 - 6) Fuel pressure (analog signal from generator control panel)
 - 7) Fuel flow (analog signal from generator control panel)
 - 8) Exhaust temperature (analog signal from generator control panel)
 - 9) Engine speed (analog signal from generator control panel)
 - 10) Battery voltage (analog signal from generator control panel)
 - 11) Alternator output volts (analog signal from generator control panel)
 - 12) Alternator output amperes (analog signal from generator control panel)
 - 13) Alternator output kilowatts (analog signal from generator control panel)
 - 14) Alternator output power factor (analog signal from generator control panel)
 - 15) Alternator winding temperature (analog signal from alternator-mounted RTD)
 - 16) Alternator bearing temperature (analog signal from alternator-mounted RTD)
- b. Pre-Alarm
- 1) Low oil pressure (discrete alarm from generator control panel)
 - 2) Low coolant temperature (discrete alarm from generator control panel)
 - 3) High coolant temperature (discrete alarm from generator control panel)
 - 4) Generator control switch Not-in-Auto (discrete alarm from generator control panel)
 - 5) High/Low battery voltage (discrete alarm from generator control panel)
 - 6) Low/High fuel pressure (discrete alarm from generator control panel)
 - 7) Fuel filter restriction (discrete alarm from generator control panel)
 - 8) High fuel temperature (discrete alarm from generator control panel)
 - 9) High lube oil temperature (discrete alarm from generator control panel)
 - 10) High exhaust temperature (discrete alarm from generator control panel)
 - 11) High intake manifold temperature (discrete alarm from generator control panel)
 - 12) Alternator high voltage (discrete alarm from generator control panel)
 - 13) Battery charger (common alarm from battery charger)
 - 14) High day tank fuel filter differential (discrete alarm from each day tank fuel filter)
 - 15) Day tank Not-in-Auto (discrete alarm from day tank control panel)
 - 16) Day tank high-level alarm (discrete alarm from day tank control panel)
 - 17) Day tank high-high level alarm (discrete alarm from day tank control panel)
 - 18) Day tank low-level alarm (discrete alarm from day tank control panel)
 - 19) Day tank leak alarm (discrete alarm from day tank control panel)
 - 20) Low jacket coolant level (discrete alarm from expansion tank on remote radiator)
 - 21) Low aftercooler coolant level (discrete alarm from expansion tank on remote radiator)
 - 22) High alternator winding temperature (alarm signal determined by software setpoint from analog signal from unit-mounted RTD)
 - 23) High alternator bearing temperature (alarm signal determined by software setpoint from analog signal from unit-mounted RTD)

- c. Alarm/Shut-down
 - 1) High jacket coolant temperature (discrete alarm from generator control panel)
 - 2) Low lube oil pressure (discrete alarm from generator control panel)
 - 3) Low/High fuel pressure (discrete alarm from generator control panel)
 - 4) Fuel filter restriction (discrete alarm from generator control panel)
 - 5) High intake manifold temperature (discrete alarm from generator control panel)
 - 6) High exhaust manifold temperature (discrete alarm from generator control panel)
 - 7) High fuel temperature (discrete alarm from generator control panel)
 - 8) High lube oil temperature (discrete alarm from generator control panel)
 - 9) Overspeed (discrete alarm from generator control panel)
 - 10) Overcrank (discrete alarm from generator control panel)
 - 11) Emergency Stop (discrete alarm from generator control panel)
 - 12) High alternator voltage (discrete alarm from generator control panel)

- G. The generator control panel shall include an audible alarm horn to signal any of the alarm shutdown or pre-alarm conditions. The alarm horn shall not shut off until manually acknowledged. The alarm fault lights shall not reset until the fault is resolved. Provide lamp test pushbutton and alarm acknowledge pushbutton.
- H. The generator control panel shall include one normally open and one normally closed Form C contact, rated 120 Volts, 10 Amps, for operation of a remote common alarm on activation of any one or more of the pre-alarm conditions listed above. The generator control panel shall include one normally open and one normally closed Form C contact, rated 120 Volts, 10 Amps, for operation of a remote common alarm on activation of any one or more of the shut-down conditions listed above.
- I. The generator control panel shall include three normally open and three normally closed Form C contacts, rated 120 Volts, 10 Amps, A.C., for operation of combustion air and ventilation air dampers within the generator room upon activation of the starting sequence of the engine, and to provide a generator run signal to the control for the remote radiator, to the day tank control panel, the generator switchgear and the instrumentation system.
- J. The controls shall incorporate a means to positively disable and lock out the generator from starting during maintenance. This provision shall take the form of a lockable battery disconnect switch, a lockable disconnect switch on the battery cable to the starter, a lockable stop switch on the control panel, or a lockable switch on the starter solenoid power supply.

2.07 ALTERNATOR AND EXCITATION SYSTEM

- A. The alternator shall be drip-proof, guarded, especially designed for connection to the specified engine and shall be for 120/208 Volt, 3 Phase, 60 Hz, 4 Wire operation and shall be "Y" connected. The alternator shall be mechanically and torsionally matched to the engine driver and shall be designed to withstand inherent pulsating torques of the engine. All windings shall be copper. Full load efficiency of the combined alternator, exciter and regulator shall be not less than 95 percent.

- B. The alternator shall be as manufactured by Newage Stamford; Kato; LeRoy Somer or equal. The alternator shall conform to the applicable parts of the following standards, unless otherwise specified:
1. NEMA MG1, Motors and Generators
 2. IEEE 43, Recommended Practice for Insulation Testing of Large AC Rotating Machinery
 3. CSA C22.2-100 Designation ABL3.
 4. Testing shall be in accordance with IEEE-115 and NEMA MG-1 standards.
- C. The alternator windings, insulation and excitation system shall be braced to withstand any possible short-circuit stresses. The maximum allowable fault current shall be based upon 350 MVA. The permanent magnet excitation and voltage control system shall sustain at least 300 percent rated generated current for ten seconds when a 3-phase symmetrical short-circuit is applied at the alternator terminals. The unit shall be "Radio Interference Proof" (RIP) and the "Telephone Influence Factor" (TIF) shall be within the limits of Section 9, ANSI C50.12.
- D. Voltage regulation shall be within plus or minus 1/2 percent of rated voltage from no load to full load. Steady-state modulation shall not exceed plus or minus two percent. Instantaneous voltage dip shall not exceed 20 percent of rated voltage when full load at rated power factor is applied in one step, and shall not exceed ten percent of rated voltage when 50 percent of the prime rating at rated power factor is applied in one step. Recovery of stable operation shall occur within one second.
- E. The temperature rise of the alternator windings, when operated at rated prime power output under continuous duty conditions with cooling air inlet temperature of 40 degrees C, shall not exceed 80 degrees C when measured by the resistance method. The temperature rise of the alternator windings, when operated at rated standby power output under continuous duty conditions with cooling air inlet temperature of 40 degrees C, shall not exceed 105 degrees C when measured by the resistance method.
- F. The stator frame shall be fabricated bar and plate steel construction. Machine the frame to tolerance to provide alignment with the rotor. Non-orientated, silicon steel laminations with core plated insulation on both sides shall be used to reduce core loss and temperature rise in the machine and to improve efficiency. The stacked laminations shall be skewed to reduce harmonic distortion caused by the slots, and held under pressure with clamping plates.
1. All insulation materials used in the stator shall have a minimum temperature rating of Class H (180 degrees C) per IEEE Standard 1. The stator windings shall be limited to Class B (80 degrees C) temperature rise at prime rating. The coils shall be of a formed coil construction using a magnet wire meeting NEMA MW36-C.
 2. The complete stator shall be processed in a vacuum pressure impregnation chamber. Encapsulate the stator with a fungus and moisture-resistant two-part epoxy system.

3. The stator shall include six 100-ohm platinum resistance temperature detectors fitted in the stator windings with RTD cable brought to the control terminal box.
- G. The rotor shall be of the fully laminated, salient pole type. Low resistance amortisseur bars shall be inserted through slots in the field poles and brazed/welded to a continuous shorting ring to complete the damping circuit. Cooling fans shall be an integral part of the rotor assembly. The rotor shall have accessible provisions for bolt-on balancing weights. Braze cage connections for strong construction and permanent electrical characteristics. Each pole shall be dovetailed and keyed to the rotor shaft. Dynamically balance the rotor for all speeds up to 125 percent of rated speed per NEMA standard.
1. Insulation materials used on the rotor shall have a minimum temperature rating of Class H (180 degrees C). The rotor windings shall be limited to Class B (80 degrees C) temperature rise when operated at the prime rating. The poles shall be of a layer wound construction using a magnet wire meeting NEMA MW35-C or MW36-C.
 2. The complete winding and rotor pole assembly shall be processed in a vacuum pressure impregnation chamber. Encapsulate the assembly with a fungus and moisture resistant thixotropic, single component epoxy resin.
 3. Provide for the pilot brush to be periodically inspected and serviced.
- H. The exciter shall be a high frequency, direct connected, rotating brushless type, three phase, full wave rectified, and shall be matched with the alternator rotor and control system. The rotating part of the exciter, including the rectifier assembly, shall rotate together with the alternator rotor as a complete assembly on one shaft. Both the armature and field windings shall be vacuum pressure impregnated with epoxy resin.
- I. The pilot exciter shall be permanent magnet alternator type to provide power to the voltage regulator. The permanent magnet alternator shall rotate on the same shaft as the brushless exciter and alternator rotor. The stator winding shall be vacuum pressure impregnated with epoxy resin. The permanent magnet alternator shall be electrically connected to the voltage regulator, and shall have the ability to provide a nominal 300 percent of the 80 degree C rise rated three phase short circuit for ten seconds at the alternator terminals.
- J. The digital voltage regulator shall be hermetically sealed, silicon-controlled rectifier type, and shall employ a zener reference and three-phase sensing. The voltage regulator shall provide automatic protection of the entire unit on three phase short-circuits. The voltage regulator shall include automatic over excitation and under frequency protection. Provide input isolation transformers and filters to minimize disturbances caused by line harmonics. Exciter shall be fast response type with a rotating rectifier and surge suppressor, 3-phase, full-wave bridge. It shall feature low time constant design to minimize voltage transients under severe load changes. The voltage regulator shall include means to detect under voltage, overvoltage, or regulator failure and provide contact closure for shut-down of the generator unit.
- K. The voltage regulator and associated equipment shall be mounted in the alternator terminal box.

- L. The alternator shall be of the single bearing type. It shall have a shaft extension and close coupled adaptor suitable for direct connection to the standard SAE bellhousing of the engine. Provide a drive coupling to the engine output shaft.
 - 1. Bearings shall be grease lubricated, single row, ball bearing design. The designed bearing life, based on the B-10 curve of the ABMA, shall not be less than 40,000 hours.
 - 2. Insulate the bearing on the exciter end to prevent circulating currents.
 - 3. Each bearing shall include one 100-ohm platinum resistance temperature detector with RTD cable brought to the control terminal box.
- M. Provide a rotor mounted cooling fan to draw air from the exciter end, over the rotor poles and through louvered openings in drive end.
- N. Connect the alternator stator and neutral leads to copper bus bars in an oversize terminal box. Current transformers for differential and neutral ground fault protection will be furnished under Division 16 for mounting by the generator manufacturer in the terminal box. The terminal box shall have extensions sufficient to allow the five-inch flexible conduit for the main power connections to rise from the floor four feet zero inches from the centerline of the generator unit directly into the terminal box.
- O. Provide two grounding pads, on diagonally opposite corners, welded to the alternator.
- P. Furnish 120-volt thermostatically controlled anti-condensation space heater within the alternator, designed to hold a minimum temperature of 32 degrees C (90 degrees F).
- Q. Furnish connection boxes separate from the main terminal box, one for all bearing and stator temperature detectors and one for the space heater leads. These connection boxes shall be located in a convenient area.
- R. The complete alternator unit shall be dynamically balanced. The vibration displacement shall not exceed three mils peak, in accordance with NEMA standards, at the manufacturer's test stand.
- S. At any balanced load between 75 and 100 percent rated output, the difference in line-to-neutral voltage among the three phases shall not exceed one percent of the average line-to-neutral voltage. Under an unbalanced load, consisting of 25 percent load at 1.0 power factor placed between any phase and neutral and zero load on each of the other two phases, the maximum simultaneous difference in voltage between the three line-to-neutral phases shall not exceed three percent of rated line to neutral voltage.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install generator sets in accordance with the manufacturer's instructions and recommendations.

- B. Mount each engine-generator skid base, sub-base fuel tank, and sound attenuating enclosure on a flat concrete foundation. Utilize grout or other approved means to level the foundation to provide equal bearing for all supports as work of this detailed specification. Anchors shall be in accordance with the manufacturer's recommendations. Field wiring will be connected under Division 16.
- C. Installation shall include furnishing all required coolant as specified herein and lubricants in accordance with the manufacturer's recommendations.

3.02 CHECKOUT AND TESTING

- A. Upon completion of installation, each generator unit and accessories, and the entire standby power system shall undergo a sequence of inspection, check-out and testing to assure that all components and systems operate as required. Testing shall culminate in a final acceptance test to show full compliance with this detailed specification. Testing phases shall consist of the following in sequence:
 - 1. Physical Checkout, which shall include physically inspecting each product or system component individually after they have been installed in the Work to determine if the components have been installed as specified and are ready for field and functional testing. The testing shall be in accordance with the recommendations of the manufacturer's representative and shall include at a minimum the following:
 - a. Apply electric power to individual components to determine continuity of power supply and signal systems. Equipment shall not be energized without the permission of the Engineer.
 - b. Perform pressure and leakage testing of all piping systems furnished under this Contract.
 - c. Perform dry running tests where possible to confirm rotation and function.
 - d. Verify construction is in accordance with the approved manufacturer's drawings, and that the equipment and all auxiliaries are ready for operation.
 - e. Verify fuel and lubrication systems are complete, clean and filled with the proper grades of fuel and lubricants.
 - f. Verify that units and all subsystems start, operate, and shutdown in accordance with manufacturer's recommendations.
 - g. Verify that all safeties, alarms and shut-downs function at the correct set point and sequence.
 - 2. Field Testing shall consist of the operation of individual system components utilizing local (equipment-mounted) controls and simulation of remote automatic control. Field testing shall include load bank testing of each generator as specified herein. This test shall include operation of the associated radiator, battery charger, and associated engine-generator component.
 - 3. Acceptance Testing shall be the final stage of testing to demonstrate that the standby power system functions fully automatically as specified. Acceptance testing shall consist of not less than 24 hours of automatic operation of generator. Testing shall include starting and shut-down and transfer of load under conditions simulating loss of utility power.

4. Provide not less than 350 kW of resistive load bank for the testing referenced above. Furnish all connecting cables to connect from the Main Switchboard to the temporary portable load bank.
- B. The Contractor shall perform field tests in accordance with this Detailed Specification. All tests shall be witnessed by the Engineer and certified by the Contractor.
 - C. The generator load bank testing shall confirm that each unit accepts load, governs speed and regulates voltage. Load bank testing shall consist of, but not be limited to, four continuous hours of operation of each generator unit individually, on a resistive load bank for at least 1/2 hour each at zero load, 1/4 load, 1/2 load, and 3/4 load and two hours on full load, based upon the standby rating.
 1. During the test, take readings and record results every 30 minutes for each of the following:
 - a. Time
 - b. Ambient temperature
 - c. Load:
 - 1) Volts for each phase
 - 2) Amps for each phase
 - 3) Kilowatts
 - 4) Power factor
 - 5) Frequency
 - d. Engine jacket water temperature supply and return
 - e. Aftercooler water temperature supply and return
 - f. Lubricating oil pressure
 - g. Gallons of fuel consumed per hour
 2. Test and record voltage and frequency regulation and voltage and current balance to show full compliance with this detailed specification.
 3. Perform and document tests to demonstrate transient response from zero load to full load, zero load to half load and half load to full load.
 - D. Submit complete details, proposed procedures, and schedules for all testing and submit results of testing. Prepare and submit for approval, test data sheets to record test data and document test procedures for each generator.

3.03 MANUFACTURER'S FIELD SERVICES

- A. Qualified manufacturer's service representative shall supervise installation of the generator sets; assist with performing the generator set installation and physical checkout before they are placed into operation; assist in the performance of field, functional, and acceptance tests; observe and assist the acceptance test and initial operations; and train the plant operations and maintenance staff in the care, operation and maintenance of the generator sets.
- B. The Contractor shall provide equipment start-up services and training in accordance with this detailed specification.

- C. The Contractor shall provide a field report from the manufacturer's representative for each visit to the site. The report shall include complete information on time, schedule, tasks performed, persons contacted, problems corrected, tests results, training, instruction and all other pertinent information.
- D. The service representative shall sign in with the Engineer on each day they are at the site.

3.04 ACCEPTANCE TESTING

- A. The Contractor shall provide acceptance testing of the generator sets. All acceptance testing shall be performed by the testing firm, after the completion of the field tests. The acceptance testing shall be witnessed by the Engineer and certified by the Contractor.
- B. Acceptance testing shall be performed on each generator set. Test each set for a period of four hours, using the connected loads or the portable load bank. Testing shall include the following:
 - 1. Perform functional tests to verify that the generator set shutdown features operate as required.
 - 2. Perform vibration baseline test.
 - 3. The unit shall be operated for a simulated power failure test. Tests shall be initiated by simulating a failure of the normal supply. Tests shall end by returning normal supply.
 - 4. Apply the actual connected loads available plus load banks necessary to mimic the total full load. Unit shall be load tested, 30 minutes at 25 percent load, 30 minutes at 50 percent load and three hours at 100 percent load.
 - 5. Records shall be maintained at 30-minute intervals for the duration of the test. Records at a minimum shall include fuel consumption, water temperature, oil pressure, ambient air temperature, voltage, current, frequency, kilowatts and power factor.
- C. Acceptance electrical testing shall be performed on each alternator. Testing shall include the following:
 - 1. Insulation-resistance tests shall be performed on each alternator winding with respect to ground. Determine polarization index.
- D. All tests and values shall be in accordance with the manufacturer's recommendations and NETA, ATS Acceptance Testing Specification.
- E. The Contractor shall provide an acceptance testing report. The report shall be in accordance with NETA, ATS Acceptance Testing Specification.

END OF SECTION

SECTION 16 02 00

ELECTRICAL

PART 1 GENERAL

1.01 SUBMITTALS

- A. Submit, in accordance with Division 1, shop drawings for equipment, materials, and other items furnished under Division 16.
- B. Check shop drawings for accuracy and contract requirements prior to submittal. Shop drawings shall be stamped with the date checked and a statement indicating that the shop drawings conform to Specifications and Drawings. This statement shall also list all exceptions to the Specifications and Drawings. Shop drawings not so checked and noted shall be returned.
- C. The Engineer's check shall be for conformance with the design concept of the project and compliance with the Specifications and Drawings. Errors and omissions on approved shop drawings shall not relieve the Contractor from the responsibility of providing materials and workmanship required by the Specifications and Drawings.
- D. All dimensions shall be field verified at the job site and coordinated with the work of all other trades.
- E. Material shall not be ordered or shipped until the shop drawings have been approved. No material shall be ordered or shop work started if shop drawings are marked "APPROVED AS NOTED - CONFIRM," "APPROVED AS NOTED - RESUBMIT" or "NOT APPROVED."
- F. Operation and Maintenance Data
 - 1. Submit operations and maintenance data for equipment furnished under this Division. The manuals shall be prepared specifically for this installation and shall include catalog data sheets, drawings, equipment lists, descriptions, parts lists, etc., to instruct operating and maintenance personnel unfamiliar with such equipment.

1.02 CONTRACT PERFORMANCE REQUIREMENTS

- A. Electric equipment, materials and installation shall comply with the latest edition of the National Electrical Code (NEC) and with the latest edition of the following codes and standards:
 - 1. National Electrical Safety Code (NESC)
 - 2. Occupational Safety and Health Administration (OSHA)
 - 3. National Fire Protection Association (NFPA)

4. National Electrical Manufacturers Association (NEMA)
5. American National Standards Institute (ANSI)
6. Insulated Cable Engineers Association (ICEA)
7. Instrument Society of America (ISA)
8. Underwriters Laboratories (UL)
9. Factory Mutual (FM)
10. National Electrical Testing Association (NETA)

B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.03 PRIORITY OF THE CONTRACT DOCUMENTS

- A. If, during the performance of the work, the Contractor finds a conflict, error, or discrepancy between or among one or more of the Sections or between or among one or more Sections and the Drawings, furnish the higher performance requirements. The higher performance requirement shall be considered the equipment, material, device, or installation method that represents the most stringent option, the highest quality, or the largest quantity.
- B. In all cases, figured dimensions shall govern over scaled dimensions, but work not dimensioned shall be as directed by the Engineer, and work not particularly shown, identified, sized, or located shall be the same as similar work that is shown or specified.
- C. Detailed Drawings shall govern over general drawings, larger scale Drawings take precedence over smaller scale Drawings, Change Order Drawings shall govern over Contract Drawings, and Contract Drawings shall govern over Shop Drawings.
- D. If the issue of priority is due to a conflict or discrepancy between the provisions of the Contract Documents and any referenced standard, or code of any technical society, organization, or association, the provisions of the Contract Documents will take precedence if they are more stringent or presumptively cause a higher level of performance. If there is any conflict or discrepancy between standard specifications, or codes of any technical society, organization, or association, or between Laws and Regulations, the higher performance requirement shall be binding on the Contractor, unless otherwise directed by the Engineer.
- E. In accordance with the intent of the Contract Documents, the Contractor accepts the fact that compliance with the priority order specified shall not justify an increase in Contract Price or an extension in Contract Time nor limit in any way, the Contractor's responsibility to comply with all Laws and Regulations at all times

1.04 ENCLOSURE TYPES

- A. Unless otherwise specified, electrical enclosures shall have the following ratings:
 - 1. NEMA 3R for outdoor areas.

1.05 CODES, INSPECTION, AND FEES

- A. Equipment, materials, and installation shall comply with the requirements of the local authority having jurisdiction.
- B. Obtain all necessary permits and pay all fees required for permits and inspections.

1.06 RECORD DRAWINGS

- A. As the work progresses, legibly record all field changes on a set of project contract drawings, hereinafter called the "record drawings."
- B. Record drawings shall accurately show the installed condition of the following items:
 - 1. Raceways and pullboxes.
 - 2. Underground raceway and duct bank routing.
 - 3. Plan view, sizes, and locations of generator and ATS.
 - 4. Fence and gate locations.

1.07 MATERIALS AND EQUIPMENT

- A. Materials and equipment shall be new.
- B. Material and equipment of the same type shall be the product of one manufacturer and shall be UL listed.
- C. Warrant all equipment furnished under Division 16 for a minimum of 5 years.

1.08 EQUIPMENT IDENTIFICATION

- A. Nameplates shall be engraved, laminated plastic, not less than 1/16-in thick by 3/4-in by 2-1/2-in with 3/16-in high white letters on a black background.
- B. Nameplates shall be bonded to all other enclosure types using an epoxy or similar permanent waterproof adhesive. Two-sided foam adhesive tape is not acceptable. Where the equipment size does not have space for mounting a nameplate, the nameplate shall be permanently fastened to the adjacent mounting surface.

1.09 INTERPRETATION OF DRAWINGS

- A. Unless specifically stated to the contrary, the Drawings are not intended to show exact locations of conduit runs. Coordinate the conduit installation with existing underground utilities prior to digging.

1.10 SEISMIC RESTRAINTS

- A. Seismic restraints shall be provided for all electrical systems, including but not limited to conduits, pull boxes, free-standing or wall-mounted panels and cabinets, disconnect switches, and other similar electrical equipment installed under Division 16.
- B. Use seismic criteria, Tables and standard restraint details found in the latest edition of the SMACNA Seismic Retraining Manual for the seismic restraints. The restraints shall be selected from the Tables that represent the highest seismic hazard class or level possible within the State, Commonwealth, or District in which the project resides. Where materials other than steel are specified, members of equal strength to those in the standards shall be provided.
- C. Materials of construction for seismic restraints shall be same as those specified for the equipment supports and area classifications. However, all bolts shall be stainless steel regardless of the locations.

PART 2 PRODUCTS

2.01 CONDUITS AND FITTING

- A. Rigid Steel Conduit
 - 1. Rigid steel conduit interior and exterior shall be hot-dipped galvanized and be as manufactured by the Allied Tube and Conduit Corp.; Wheatland Tube Co.; Western Tube & Conduit Corporation, or equal.
- B. Rigid Nonmetallic Conduit
 - 1. PVC conduit shall be rigid polyvinyl chloride schedule 40 and 80 as manufactured by Carlon; An Indian Head Co.; Kraloy Products Co., Inc.; Highland Plastics Inc., or equal.
- C. Boxes and Fittings
 - 1. NEMA 3R enclosures, wireways, terminal boxes, junction boxes, and pull boxes shall be galvanized steel with galvanized steel hardware and covers having a continuous gasket on all four sides. Boxes shall be as manufactured by Hoffman Engineering Co. or an approved equal.
 - 2. Steel elbows and couplings shall be hot-dipped galvanized.
 - 3. Conduit hubs shall be manufactured by Myers Electric Products, Inc. or equal.
 - 4. Combination expansion-deflection fittings embedded in concrete shall be Type XD as manufactured by Crouse-Hinds Co., Type AXDX as manufactured by O.Z./Gedney Co., Type DF as manufactured by Appleton Electric Co., or equal.
 - 5. Combination expansion-deflection fittings installed exposed shall be Type XD as manufactured by Crouse-Hinds Co.; Type AXDX as manufactured by O.Z./Gedney Co., Type DF as manufactured by Appleton Electric Co., or equal.

D. Conduit Mounting Equipment

1. In dry indoor areas, hangers, rods, backplates, beam clamps, channel, etc. shall be galvanized iron or steel.
2. Galvanized steel channel with galvanized steel hardware shall be used in areas designated "WET" and "CORROSIVE" on the Drawings and in outdoor locations.

E. Wall and Floor Slab Opening Seals

1. Wall and floor slab openings shall be sealed with "FLAME-SAFE" as manufactured by the Thomas & Betts Corp.; Pro Set Systems; Neer Mfg. Co.; Specified Technologies, Inc., or equal.

2.02 UNDERGROUND SYSTEM

- A. Excavation and backfilling, including gravel and sand bedding, shall be included by Division 16.
- B. Concrete and reinforcing steel shall be included by Division 16.
- C. All concrete and reinforcing steel shall be the responsibility of furnishing and installing the material under this Section.
- D. All trenching and surface restoration shall be the responsibility of furnishing and installing the material shall be that of this Section.
- E. Raceways shall be polyvinyl chloride conduit encased in concrete.

2.03 GROUNDING

- A. Ground wire shall be #4/0 bare annealed copper wire and run the entire length of the ductbank.

2.04 WIRE, CABLE AND ACCESSORIES

- A. Wires and cables shall be of annealed, 98 percent conductivity, soft drawn copper.
- B. All conductors shall be stranded, except that lighting and receptacle wiring may be solid.
- C. Except for control, signal and instrumentation circuits, wire smaller than No. 12 AWG shall not be used.
- D. Wire for lighting, receptacles and other circuits not exceeding 150 Volts to ground shall be NEC Type THHN/THWN as manufactured by Okonite Co.; Southwire Co.; Pirelli Corp., or equal.
- E. Wire for circuits over 150 Volts to ground shall be NEC type XHHW-2 for sizes up to No. 4/0 AWG and Type RHW-2 for sizes greater than No. 4/0 AWG as manufactured by Okonite Co.; Southwire Co., or equal.

- F. Wire for control, status and alarm circuits shall be No.14 AWG NEC type THHN/THWN, stranded as manufactured by the Okonite Co.; Carol Cable Co. Inc. West; Pirelli Cable Corp., or equal.
- G. Multi-conductor control and power cables shall have stranded conductors with type THHN/THWN insulated, nylon conductor covering, and an overall PVC jacket covering the individual wires. Cable shall be TC rated meeting UL 1277 and IEEE 383 Standards. Cable shall be flame resistant, non-propagating and suitable for installation in a Class I, Division II hazardous location and for direct burial in earth. Power and control cables shall be furnished with a green ground conductor. Power cables shall be furnished with a white neutral conductor where required to serve phase to neutral loads. Cable shall be as manufactured by the Okonite Co.; Southwire Co.; General Cable Co., or equal.
- H. Splices for power wiring shall be compression type connectors insulated with a heat shrink boot or outer covering and epoxy filling. Splice kits shall be as manufactured by Raychem; Ideal Industries; 3M Co., or equal.
- I. Termination connectors for control wiring shall be of the locking fork-end (upturned leg ends) type as manufactured by Ideal Industries; 3M Co.; Panduit Corp. or equal.
- J. Splices for control wiring shall be insulated compression type connectors of the expanded vinyl insulated parallel or pigtail type as manufactured by Ideal Industries; 3M Co.; Panduit Corp., or equal.
- K. Wire markers shall be "Omni-Grip" as manufactured by the W.H. Brady Co.; Thomas & Betts Co.; 3M Co., or equal.
- L. Wire and cables with diameters exceeding the capacity of the "Omni-Grip" shall be marked with pre-printed, self-adhesive vinyl tapes as manufactured by the W.H. Brady Co.; Panduit Corp., or equal.

2.05 POLYETHYLENE WARNING TAPE

- A. Warning tape shall be red polyethylene film, 6-in minimum width.
- B. Warning tape shall be W.H. Brady Co., Catalog No. 91296, or equal.
- C. Warning tape shall be included a minimum of 6" above each underground conduit(s).

2.06 GROUNDING

- A. Ground rods shall be 3/4-in by 10-ft copper clad steel and constructed in accordance with UL 467. The minimum copper thickness shall be 0.25 mm. Ground rods shall be Copperweld, or equal.
- B. Grounding conduit hubs shall be malleable iron type similar to Thomas & Betts Co.; Cat No. 3940 (3/4-in conduit size) by Burndy; O.Z./Gedney Co., or equal, and of the correct size for the conduit.

- C. Waterpipe ground clamps shall be cast bronze saddle type, similar to Thomas & Betts Co. Cat. No. 2 (1/2-in, 3/4-in, or 1-in size) or equal by Burndy; O.Z./Gedney Co. or equal, and of the correct size for the pipe.
- D. Buried grounding connections shall be by Cadweld process, or equal exothermic welding system.

2.07 AUTOMATIC TRANSFER SWITCHES

1. Automatic transfer switches shall be designed for an emergency and normal source of 120/208 Volt, 3 Phase, 4 Wire, 60 Hz. Current ratings shall be as shown on the Drawings. Switches shall be listed under UL 1008.
2. The switches shall initiate transfer of the load to the emergency source when any phase of the normal source drops below 90 percent of normal voltage.
3. The transfer switches shall be adequately constructed to carry full rated current on a continuous 24-hour basis in all approved enclosures and shall not show excessive heating or be subject to de-rating. The transfer switches shall be capable of withstanding all available system fault currents without parting of or damage to contacts during the fault clearing time of the system over-current device.
4. The transfer switches shall be of inherently 3 Pole double throw construction and shall have three position operations: closed to normal source, open, closed to emergency source. Time delay between opening of the closed contacts and closing of the open contacts shall be a minimum of 400 milliseconds to allow for voltage decay before transfer is complete.
5. The following accessories shall be furnished:
 - a. Close differential adjustable phase sensing relay set to drop out at 80 percent of rated voltage and pick up at 90 percent of rated voltage.
 - b. Adjustable 0.5 to 6.0 second tune delay to override normal source power outages (set at 2 seconds).
 - c. Two auxiliary contacts to open on normal source failure (for combustion air damper control).
 - d. Two auxiliary contacts to close on normal source failure (for remote alarm and engine start).
 - e. Neutral (off) position adjustable time delay 0.1 to 10 seconds.
 - f. Auxiliary contacts to open 0 to 30 seconds (adjustable) before transfer to either normal or emergency source and to close after transfer has occurred. These contacts are to cause variable frequency drive controllers to come to a controlled stop before transfer to either source and allow re-start after transfer has occurred. Each transfer switch shall have one set of these contacts for each current-source variable frequency drive controller connected downstream.
 - g. Adjustable time delay on retransfer to normal (1 to 300 seconds) with 0 to 25-minute adjustable unloaded engine running time after retransfer.
6. Enclosure type shall be NEMA 3R. Paint color shall be ANSI Z55.1, No. 61, light gray or as approved by Owner.

7. Automatic transfer switches shall have the following 10-cycle withstand ratings:
 - a. Switch Rating Withstand Rating
 - b. 225 to 800 Amps 65,000 Amps at 208 Volts RMS SYM
8. A maintained contact test-auto switch and normal/emergency pilot lights shall be mounted on the door.
9. Automatic transfer switches shall be Russelectric; Automatic Switch Company; Onan Company; Kohler KCP/KCC or KCS; or equal.

PART 3 EXECUTION

3.01 SLEEVES AND FORMS FOR OPENINGS

- A. Provide and place all sleeves for conduits penetrating floors, walls, partitions, etc. Locate all necessary slots for electrical work and form before concrete is poured.
- B. Exact locations are required for stubbing-up and terminating conduits. Obtain shop drawings and templates from equipment vendors or other subcontractors and locate the conduit windows before the concrete is poured.
- C. Seal all openings, sleeves, penetration and slots.

3.02 CUTTING AND PATCHING

- A. Cutting and patching shall be done in a thoroughly workmanlike manner and repair concrete and asphalt to match existing. Sawcut concrete and masonry prior to breaking out sections.
- B. Core drill holes in walls, coordinate with building as-builts to confirm core drill locations so as not to damage any structural member.
- C. Do not cut joists, beams, girders, columns or any other structural members.
- D. Cut opening only large enough to allow easy installation of the conduit.
- E. Patching to be of the same kind and quality of material as was removed.
- F. The completed patching work shall restore the surface to its original appearance or better.
- G. Patching of waterproofed surfaces shall render the area of the patching completely waterproofed.
- H. Remove rubble and excess patching materials from the premises.

3.03 INSTALLATION

- A. Any work not installed according to the Specifications shall be subject to change as directed by the Engineer. No extra compensation will be allowed for making these changes.

- B. Electrical equipment shall be protected at all times against mechanical injury or damage by water. Electrical equipment shall not be stored outdoors. Electrical equipment shall be stored in dry permanent shelters. Do not install electrical equipment in its permanent location until structures are weather-tight. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried out and tested as directed by the Engineer, or shall be replaced at no additional cost at the Engineer's discretion.
- C. Equipment that has been damaged shall be replaced or repaired by the equipment manufacturer, at the Engineer's discretion.
- D. Repaint any damage to factory applied paint finish using touch-up paint furnished by the equipment manufacturer. The entire damaged panel or section shall be repainted, at no additional cost to the Owner.
- E. Coordinate the conduit installation with existing underground utilities.
- F. Install each 3-phase circuit in a separate conduit.
- G. Exact locations of electrical enclosures and wireway shall be determined by the Contractor and approved by the Engineer during construction.

3.04 MANUFACTURERS SERVICE

- A. Provide manufacturers' services for testing and start-up and training of the following equipment:
 - 1. Automatic Transfer Switch (1 day 1 trip minimum)
 - 2. Generator (1 day 1 trip minimum)
- B. Testing and startup may be combined with training. Testing and start-up time shall not be used for manufacturer's warranty repairs.

3.05 BOXES AND FITTINGS

- A. Galvanized steel conduit shall be used the transition from below-grade to above-grade.
- B. PVC conduit shall be used for underground duct banks.
- C. The ends of all conduits shall be tightly plugged to exclude dust and moisture during construction.
- D. Conduit supports, other than for underground raceways, shall be spaced at intervals of 3-ft or less.
- E. Conduit hangers shall be attached to structural steel by means of beam or channel clamps. Where attached to concrete surfaces, concrete inserts of the spot type shall be provided.
- F. All conduits shall be run at right angles to and parallel with the surrounding wall and shall conform to the form of the ceiling. No diagonal runs will be allowed. Bends in

parallel conduit runs shall be concentric. All conduits shall be run perfectly straight and true.

- G. Conduit terminating in NEMA 3R, 4, 4X and 12 enclosures shall be terminated with Myers type conduit hubs.
- H. Conduits containing equipment grounding conductors and terminating in sheet steel boxes shall have insulated throat grounding bushings.
- I. Conduits shall be installed using threaded fittings, if applicable.
- J. Where conduits pass through openings in walls or floor slabs, the remaining openings shall be sealed against the passage of flame and smoke.
- K. Conduit ends exposed to the weather shall be sealed with conduit sealing bushings.
- L. All conduit entering or leaving a switchboard shall be terminated into the top or bottom horizontal wireway or other manufacturer designated area, directly above the vertical section in which the conductors are to be terminated. Coordinate with Owner exact termination location for each power conduit.
- M. All conduit which may under any circumstance contain liquids such as water, condensation, liquid chemicals, etc, shall be arranged to drain away from the equipment served. If conduit drainage is not possible, conduit seals shall be used to plug the conduits.
- N. Where no type or size is indicated for junction boxes, pull boxes or terminal cabinets, they shall be sized in accordance with the requirements of N.E.C. Article 370.
- O. Miscellaneous steel for the support of fixtures, boxes, transformers, starters, contactors, panels and conduit shall be furnished and installed.
- P. Steel channels, flat iron and channel iron shall be furnished and installed for the support of all electrical equipment and devices, where required, including all anchors, inserts, bolts, nuts, washers, etc. for a rigid installation.
- Q. Conduits passing from heated to unheated spaces, exterior spaces, refrigerated spaces, cold air plenums, etc., shall be sealed with "Duxseal" as manufactured by Manville or seal fitting to prevent the accumulation of condensation.
- R. Conduit expansion and deflection fittings shall be installed on all conduits crossing building expansion joint. Where conduits are installed outdoors, provide expansion and deflection fittings on all conduits crossing expansion joints or at 200-foot intervals, whichever is the least dimension.

3.06 WIRE, CABLE AND ACCESSORIES

- A. Uniquely identify all wires, cables and each conductor of multi-conductor cables (except lighting and receptacle wiring) at each end with wire and cable markers.

- B. Use lubrications to facilitate wire pulling. Lubricants shall be UL approved for use with the insulation specified.
- C. All wire shall be color coded or coded using electrical tape in sizes where colored insulation is not available. Where tape is used as the identification system, it shall be applied in all junction boxes, and other accessible intermediate locations as well as at each termination.
- D. The following coding shall be used:

System	Wire	Color
208Y/120, Volts	Neutral	White
3-Phase, 4-Wire	Phase A	Black
	Phase B	Red
	Phase C	Blue

- E. Power conductors: Terminations shall be die type or set screw type pressure connectors as specified. Splices (where allowed) shall be die type compression connector and waterproof with heat shrink boot or epoxy filling. Aluminum conductors (where specified) shall employ terminations and splices specifically designed for aluminum conductors.
- F. Except where permitted by the Engineer no splices will be allowed in manholes, handholes or other below grade located boxes.
- G. Splices are prohibited.

3.07 UNDERGROUND SYSTEM

- A. Install raceways to drain away from buildings.
- B. Reinforce raceway banks when conduits pass over newly excavated pipes.
- C. The minimum cover for raceway banks shall be 24-in unless otherwise permitted by the Engineer.
- D. Swab all raceways clean before installing pull-string.
- E. Plug spare raceways and seal them watertight at all manholes, buildings and structures.
- F. Seal the ends of raceways and make watertight at all handholes, buildings and structures.

3.08 GROUNDING

- A. Run grounding electrode conductors in rigid steel conduits. Bond the protecting conduits to the grounding electrode conductors at both ends. Do not allow water pipe connections to be painted. If the connections are painted, disassemble them and re-make them with new fittings.

- B. Install equipment grounding conductors with all feeders and branch circuits.
- C. Metal conduits stubbed into a motor control center shall be terminated with insulated grounding bushings and connect to the motor control center ground bus. Bond boxes mounted below motor control centers to the motor control center ground bus. Size the grounding wire in accordance with NEC Table 250-95, except that a minimum No. 12 AWG shall be used.
- D. Liquid tight flexible metal conduit in sizes 1-1/2-in and larger shall have bonding jumpers. Bonding jumpers shall be external, run parallel (not spiraled) and fastened with plastic tie wraps.
- E. Lay all underground grounding conductors slack and, where exposed to mechanical injury, protect by pipes or other substantial guards. If guards are iron pipe, or other magnetic material, electrically connect conductors to both ends of the guard. Make connections as specified herein.
- F. Care shall be taken to ensure good ground continuity, in particular between the conduit system and equipment frames and enclosures. Where necessary, jumper wires shall be installed.
- G. Test the grounding system. Resistance to ground testing shall be performed during dry season. Submit test results in the form of a graph showing the number of points measured (12 minimum) and the numerical resistance to ground.
- H. Testing shall be performed before energizing the distribution system.
- I. If the resistance to ground is greater than five ohms, then add ground rods spaced at 10' apart connected via #4/0 ground wire until the resistance is tested to be less than five ohms.

END OF SECTION