

BID REQUEST FOR AN EMERGENCY GENERATOR SYSTEM TO
SUPPORT THE IT DEPARTMENT
AT TIMBERLAND REGIONAL LIBRARY LOCATED AT 415
TUMWATER BLVD, TUMWATER WA 98501



RELEASED ON MAY 3rd 2018

BID PROPOSALS DUE DATE: JUNE 14, 2018 @

5:00 PM

May 3, 2018

**NOTICE INVITING SEALED BID PROPOSALS, FOR AN EMERGENCY GENERATOR FOR
TIMBERLAND REGIONAL LIBRARY AND WILL BE LOCATED AT;**

**TIMBERLAND REGIONAL LIBRARY SERVICE
CENTER, 415 TUMWATER BLVD.
TUMWATER WASHINGTON**

Timberland Regional Library (TRL) is requesting sealed BID proposals for construction of the following scope of work IDENTIFIED IN THE Construction plans and specifications as developed by KPFF dated 4/20/2018;

See attached plans and specifications.

SUBMITTAL OF PROPOSALS

Two (2) copies of the BID proposal and fees shall be submitted in two separate sealed envelopes:

1. Envelopes shall contain the proposal responding to this Bid request.
Proposals shall be submitted to:

LG Nelson, Facilities Manager
Timberland Regional Library
415 Tumwater Blvd.
Tumwater, WA 98501-5799
lnelson@trl.org
360-704-4510

Proposals shall be submitted no later than **JUNE 14, 2018 @ 5:00 PM**

Postmarks and late bid proposals will not be accepted.

BACKGROUND:

Timberland Regional Library is soliciting Requesting bids from qualified contractors/firms to provide Emergency Generation Service equipment per attached plans and specifications that will provide backup power for our IT department within the existing service complex located at 415 Tumwater Blvd. Tumwater WA 98501.

TRL seeks to hire a firm qualified to perform the work as outlined in the scope contained within the attached construction documents. The attached plans and specifications are part of this Bid proposal document.

This is a prevailing wage job and is subject to the prevailing wage reporting requirements of the State of Washington.

In conformance with 2015 IBC Chapter 17, TRL will hire a Special Inspection Agency to perform all required inspections deemed to be of value to the owner.

QUALIFICATIONS OF CONTRACTORS:

Each contractor shall be fully qualified by ability, knowledge, and experience to satisfactorily perform the work required in these specifications, and shall engage in the business of building construction projects as outlined by the attached plans and specifications in a timely manner as spelled out in this document.

REFERENCES AND QUALIFICATION REQUIREMENTS:

Contractor must present evidence indicative of its ability to finance provide, and sustain the specified construction services to the satisfaction of TRL. Failure to include any of the following information as requested below may cause proposal to be deemed non-responsive if TRL has no prior experience with the contractor.

Task 1 - Construction Services

1. Research/Data Collection: TRL encourages Contractor to visit the site for better understanding of the project, where the work will be concentrating on and how it may impact staff at the project site.
2. Prepare Project Schedule

The Contractor shall prepare and submit a schedule of work including all required special inspections and other sub-contractors to be used on this job site.

Requirement for Supplemental Information: Following evaluation of bids, and prior to any consideration of award, the apparent responsible contractor(s) may be required to provide supplemental information. The supplemental information will be used to evaluate the contractor's ability to fulfill the terms of the Agreement and determine the relative values and benefits of utilizing the contractor in lieu of TRL staff.

This Request for Bid Proposal does not commit TRL to award a contract, or to pay any costs incurred in the preparation of the proposal. TRL reserves the right to extend the due date for the proposal, to accept and reject any or all proposals received as a result of this request, to negotiate with any qualified consultant, to cancel this Request for Proposal in part or in its entirety, and to procure alternate or additional consulting services. TRL may require the selected consultant to participate in negotiations and to submit such technical fee, or other revisions of their proposals as may result from negotiations.

TRL requires the work to commence by July 15th and continue until completed or until November 1, 2018.

CONTACT INFORMATION

Questions regarding this Request for Bid Proposal can be directed to:

LG Nelson, Facilities Manager
lnelson@trl.org
360 704 4510

EXHIBIT A

TIMBERLAND REGIONAL LIBRARY CONSTRUCTION CONTRACT

THIS CONSTRUCTION CONTRACT ("Contract"), effective as of the date of the last party to sign below, is between **Timberland Regional Library (TRL)**, having an address at 415 Tumwater Blvd., SW Tumwater WA 98501 ("Owner") and XXX, having an address at XXX ("Contractor").

For valuable consideration the parties hereby agree as follows:

1. **SCOPE OF WORK:** Contractor shall provide all labor and materials, and perform all work necessary for the completion of the following scope of work IDENTIFIED IN THE Construction plans and specifications as developed by KPFF dated 4/20/2018 and attached as Exhibit B and C. Such drawings and specifications are hereby made a part of this Contract.
2. **WORK SITE:** The Project shall be constructed on the property of TRL at 415 Tumwater Blvd SW Tumwater WA 98501 and more particularly described as Timberland Regional Library Service Center (hereafter "the Work Site"). Owner hereby authorizes Contractor to commence and complete the usual and customary excavation and grading on the Work Site as may be required in the judgment of the Contractor to complete the Project as required in City approved plans and specifications.
3. **TIME OF COMPLETION:** Contractor shall commence the work to be performed under this Contract on or before 7/15/18 and shall substantially complete the work on or before 11/1/18. Contractor shall not be liable for any delay due to circumstances beyond its control including strikes, casualty, acts of God, illness, injury, or general unavailability of materials.
4. **PERMITS:** Contractor shall apply for and obtain such permits and regulatory approvals as may be required by the local municipal/county/state government, the cost thereof shall be included as part of the Project price.
5. **INSURANCE:** Contractor shall maintain general liability, workers compensation and builder's risk insurance as required by the State of Washington.
6. **CHANGES TO SCOPE OF WORK:** Owner may make changes to the scope of the work, including changes to the drawings and specifications, from time to time during the construction of the Project. However, any such change or modification shall only be made by written "Change Order" signed by both parties. Such Change Orders shall become part of this Contract. Owner agrees to pay any increase in the cost of the Project as a result of a Change Order. In the event the cost of a Change Order is not known at the time a Change Order is executed, the Contractor shall estimate the cost thereof and Owner shall pay the actual cost whether or not it is in excess of the estimated cost.
7. **PREVAILING WAGE REQUIREMENTS:**

7.1 Contractor to pay Prevailing Wages: Contractor shall pay the prevailing rate of wages to all workers, laborers, or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 and the rules and regulations of the Department of Labor and Industries. The schedule of prevailing wage rates for the locality or localities of the Work, is

determined by the Industrial Statistician of the Department of Labor and Industries. It is the Contractor's responsibility to verify the applicable prevailing wage rate.

7.2 Statement of Intent to Pay Prevailing Wages: Before payment is made by the Owner to the Contractor for any work performed by the Contractor and subcontractors whose work is included in the application for payment, the Contractor shall submit, or shall have previously submitted to the Owner for the Project, a Statement of Intent to Pay Prevailing Wages, approved by the Department of Labor and Industries, certifying the rate of hourly wage paid and to be paid each classification of laborers, workers, or mechanics employed upon the Work by Contractor and Subcontractors. Such rates of hourly wage shall not be less than the prevailing wage rate.

7.3 Affidavit of Wages Paid: Prior to release of retainage, the Contractor shall submit to the Owner an Affidavit of Wages Paid, approved by the Department of Labor and Industries, for the Contractor and every subcontractor, of any tier, that performed work on the Project.

7.4 Disputes: Disputes regarding prevailing wage rates shall be referred for arbitration to the Director of the Department of Labor and Industries. The arbitration decision shall be final and conclusive and binding on all parties involved in the dispute as provided for by RCW 39.12.060.

7.5 Statement with pay application; Post Statements of Intent at job site: Each Application for Payment submitted by Contractor shall state that prevailing wages have been paid in accordance with the prefilled statement(s) of intent, as approved. Copies of the approved intent statement(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

7.6 Contractor to pay for Statements of Intent and Affidavits: In compliance with chapter 296-127 WAC, Contractor shall pay to the Department of Labor and Industries the currently established fee(s) for each statement of intent and/or affidavit of wages paid submitted to the Department of Labor and Industries for certification.

7.7 Certified Payrolls: Consistent with WAC 296-127-320, the Contractor and any subcontractor shall submit a certified copy of payroll records if requested.

8. **Books and Records.** The Contractor agrees to maintain books, records, and documents which sufficiently and properly reflect all direct and indirect costs related to the performance of the Work and maintain such accounting procedures and practices as may be deemed necessary by the Library to assure proper accounting of all funds paid pursuant to this Agreement. These records shall be subject, at all reasonable times, to inspection, review or audit by the Library, its authorized representative, the State Auditor, or other governmental officials authorized by law to monitor this Agreement.

9. **CONTRACT PRICE:**

Owner agrees to pay Contractor the sum of \$????????? For performing the construction services set forth in the scope of the work. Contractor shall be paid as follows:

9.1 In return for the completion of work identified in Exhibits B & C plans and specifications by KPFF Consulting Engineers, the Library shall pay the Contractor an amount not to exceed the maximum amount and according to a rate or method as delineated in this contract, and

incorporated by this reference. The Contractor fix bid amount charged by it for its Construction services contracted for herein shall remain locked at the Bid amount for the Term. Contractor shall be solely responsible for the payment of any taxes imposed by any lawful jurisdiction as a result of the performance and payment of this Agreement.

9.2 Method of Payment. On a monthly basis, the Contractor shall submit an invoice in the form specified by the Library, including a description of what phase of work have been performed, the name of the personnel Performing such Services. The Contractor shall also submit a final bill upon completion of all construction and a final inspection by both L&I and the City of Tumwater. Payment shall be made on a monthly basis by the Library only after the work has been performed and within thirty (30) days after receipt and approval by the appropriate Library representative of the voucher or invoice. If the Work does not meet the requirements of this Agreement, the Contractor will correct or modify the work to comply with the Agreement. The Library may withhold payment for such work until the work meets the requirements of the Agreement.

9.3 Contractor shall furnish Owner appropriate releases or waivers of lien for all work performed or materials provided at the time the next periodic payment shall be due.

9.4 In accordance with Chapter 60.28.001 R.C.W. the Library will retain five (5) percent of each monthly progress payment. Retainage will be released after completion of all contract work and when clearances have been received from DOR, ESD, and L&I.

10. **ASSIGNMENT:** Neither party may assign this Contract, or payments due under the Contract, without the other party's written consent. Any such assignment shall be void and of no effect.

13. **INTERPRETATION:**

13.1 Interpretation of Documents. The Contract, drawings, and specifications are intended to supplement one another. In the event of a conflict, the specifications shall control the drawings, and the Owner shall control both. If work is displayed on the drawings but not called for in the specifications, or if the work is called for in the specifications but not displayed on the drawings, Contractor shall be required to perform the work as though it were called for and displayed in both documents.

13.2 Entire Agreement. This Contract constitutes the entire agreement of the parties. No other agreements, oral or written, pertaining to the work to be performed under this Contract exists between the parties. This Contract may only be modified only by a written agreement signed by both parties.

13.3 Governing Law. This Contract shall be interpreted and governed in accordance with the laws of the State of Washington.

14. **ATTORNEYS' FEES AND COSTS:** If any party to this Contract brings a cause of action against the other party arising from or relating to this Contract, the prevailing party in such proceeding shall be entitled to recover reasonable attorney fees and court costs.

15. **PERFORMANCE:**

15.1 Contractor may, at its discretion, engage licensed subcontractors to perform work pursuant

this Contract provided Contractor shall remain fully responsible for the proper completion of the Project.

15.2 All work shall be completed in a workman-like manner and in compliance with all building codes and applicable laws. To the extent required by law, all work shall be performed by individuals duly licensed and authorized by law to perform said work.

15.3 Contractor agrees to remove all debris and leave the premises in broom clean condition.

16. **WARRANTY:** Contractor's warranty shall be limited to defects in workmanship within the scope of work performed by Contractor and which arise and become known within one (1) year from the date hereof. All said defects arising after one (1) year and defects in material are not warranted by Contractor. Contractor hereby assigns to Owner all warranties on materials as provided by the manufacturer of such materials.

AGREED:	
CONTRACTOR:	OWNER:
_____ Signature	_____ Signature
_____ Print Name & Title	<u>Cheryl Heywood, Director</u> Print Name
_____ Date	_____ Date
_____ License Number	
_____ Name and Address of License Holder	

EXHIBIT B

SECTION 263213 PACKAGED ENGINE GENERATOR

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Description: Work includes packaged gas engine-generator sets for emergency or standby power supply as indicated on the Drawings with unit mounted cooling system, unit mounted mcontrol and monitoring, outdoor enclosure and associated appurtenances.
- B. General Requirements: Drawings and general provisions of the Contract apply to work in this section.

1.2 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable city, county and state codes and ordinances.
- B. Codes and Standards:
 - 1. ASCE 7, Minimum Design Loads for Buildings and Other Structures.
 - 2. ASME B15.1, Safety Standard for Mechanical Power Transmission Apparatus.
 - 3. NEMA AB1, Molded-Case Circuit Breakers, Molded Case Switches, and Circuit-Breaker Enclosures.
 - 4. NEMA ICS 6, Industrial Controls and System Enclosures.
 - 5. NEMA MG-1, Motors and Generators.
 - 6. NEMA 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
 - 7. NFPA 30, Flammable and Combustible Liquids Code.
 - 8. NFPA 37, Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines.
 - 9. NFPA 70, National Electrical Code (NEC)
 - 10. NFPA 110, Standard for Emergency and Power Standby Systems.
 - 11. UL 142, Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids.
 - 12. UL 489, Molded-Case Circuit Breakers, Molded Case Switches, and Circuit-Breaker Enclosures.
 - 13. UL 1236, Standard for Battery Chargers for Charging Engine-Starter Batteries.
 - 14. UL 2200, Standard for Safety Stationary Engine Generator Assemblies.
- C. Manufacturer and/or Supplier Qualifications:
 - 1. Authorized primary distributor with minimum of 5 years in business of distributing, installing and maintaining specific type of generation equipment under present firm name. Second tier dealers are not acceptable.
 - 2. Capable of dispatching maintenance and repair truck with qualified factory trained repairman and spare parts to the job site within 1 hour of request for service on equipment.
 - 3. Equipment manufacturer with minimum of 5 years' experience to regularly assembled and manufactured such equipment.
 - 4. Distributor with local office within **60** miles of project site, with factory trained representatives employed for minimum of 1 year.
 - 5. Distributor shall maintain spare parts stock to minimize down time in case of equipment failure.
 - 6. Engineering Responsibility: Preparation of data for vibration isolators and seismic restraints of engine skid mounts, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those included for this Project.

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- D. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70 by a testing agency acceptable to the AHJ and marked for intended use.
- F. Engine Exhaust Emissions: EPA Certified or as required to comply with applicable state and local government requirements.
- G. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and for each component and appurtenance. Include rated capacities, operating characteristics, and furnished specialties and accessories. Include the following:
 - 1. Thermal damage curve for generator.
 - 2. Time current characteristic curves for generator protective device.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection. Include the following:
 - 1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
 - 2. Design Calculations: Signed and sealed by a qualified professional engineer. Calculate requirements for selecting vibration isolators and seismic restraints and for designing vibration isolation bases. Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include base weights.
 - 3. Wiring Diagrams: Power, signal, and control wiring.
- C. Certification: Manufacturer seismic qualification certification that engine-generator set, batteries, battery racks, accessories, and components will withstand seismic forces.
 - 1. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 2. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Test Reports:
 - 1. Factory start-up and test reports.
 - 2. Field start-up and test reports.
 - 3. Certified Torsional Vibration Compatibility: Comply with requirements in NFPA 110.
 - 4. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.

1.4 OPERATION AND MAINTENANCE MANUALS

- A. Include step by step instructions for startup and shutdown.

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- B. Include copies of test forms, service forms, and maintenance data, including test and servicing intervals, fluid levels, lubrication requirements, filters, antifreeze, and recommended lubricants.

1.5 WARRANTY

- A. Packaged Engine Generator: Two years from date of acceptable on site start up and testing.
- B. Warranty shall cover material, labor and travel time for the entire system. Replacement parts shall be available within 48 hours of initial notification.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Packaged Engine Generator:
 - 1. Cummins Power Generation as supplied by Cummins Northwest
 - 2. Kohler Co. as supplied by EC Power Systems
 - 3. MTU/Detroit Diesel as supplied by Pacific Power Products
 - 4. Caterpillar as supplied by NC Machinery
 - 5. No Substitutions.

2.2 ENGINE-GENERATOR SET

- A. Factory assembled and tested, engine generator set.
- B. Mounting Frame: Maintain alignment of mounted components without depending on concrete foundation. Include lifting attachments.
- C. Capacities and Characteristics:
 - 1. Power Output Ratings: Nominal ratings as indicated on the Drawings.
 - 2. Output Connections: Three-phase, four wire.
 - 3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.
- D. Generator Set Performance:
 - 1. Steady State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.
 - 2. Transient Voltage Performance: Maximum 20 percent variation for 50 percent step load increase or decrease. Voltage shall recover and remain within steady state operating band within 3 seconds.
 - 3. Steady State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
 - 4. Steady State Frequency Stability: No random speed variations outside steady state operational band and no hunting or surging of speed when system is operating at any constant load within the rated load.
 - 5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step load increase or decrease. Frequency shall recover and remain within steady state operating band within 5 seconds.
 - 6. Output Waveform: At no load, harmonic content measured line-to-line and line-to-neutral not to exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, not to exceed 50 percent.

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7. Sustained Short Circuit Current: For 3-phase, bolted short circuit at system output terminals, system shall supply minimum 250 percent of rated full load current for not less than 10 seconds and then clear fault automatically without damage to generator system components.

2.3 ENGINE

- A. Fuel: LP gas.
- B. Rated Engine Speed: 1800 rpm.
- C. Lubrication System: Include the following items mounted on engine or skid:
 1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
 2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit capable of full flow and designed to be fail safe.
 3. Crankcase Drain: Arranged for complete gravity drainage to removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- D. Engine Fuel System:
 1. Dual Natural Gas with LP Gas Backup (Vapor Withdrawal) System:
 - a. Carburetor.
 - b. Secondary Gas Regulators: One for each fuel type.
 - c. Fuel Shutoff Solenoid Valves: One for each fuel source.
 - d. Flexible Fuel Connectors: One for each fuel source.
 - e. Natural gas strainer – shipped loose for field installation
- E. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with requirements in NFPA 110 for Level 1 equipment for heater capacity.
- F. Governor: Control engine speed within plus or minus 3 Hz at 60 Hz (speed regulation 5 percent) from no load to full load generator output. Maintain steady state frequency at any constant load, including no load, within band of plus or minus 0.25 Hz rated frequency. Governor not to permit frequency modulation, defined as number of times per second that frequency varies from average frequency in cyclic manner, in excess 1 Hz per second.
- G. Cooling System: Closed loop, liquid cooled with radiator factory mounted on engine generator set mounting frame, engine driven fan, and integral engine-driven coolant pump.
 1. Coolant: Solution of 50 percent ethylene glycol based antifreeze and 50 percent water with anticorrosion additives as recommended by engine manufacturer.
 2. Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
 3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed loop coolant system pressure for engine used. Include gage glass and petcock.
 4. Temperature Control: Self-contained, thermostatic control valve that modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
 5. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging, ultraviolet, and abrasion resistant fabric.

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- a. Rating: 50 psig maximum working pressure with coolant at 180 F and non-collapsible under vacuum.
 - b. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.
- H. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system not to exceed engine manufacturer's engine backpressure requirements.
 - 1. Sound Attenuation: Minimum 25 dB at 500 Hz.
 - 2. Maximum 78 dBA sound level measured at distance of 10 feet from exhaust discharge.
 - 3. Sound level may be superseded by dBA requirements, under section 2.9 Outdoor Generator Set Enclosure.
- I. Engine Exhaust Flexible Connectors: Sized to match engine exhaust outlet connection and as recommended by engine manufacturer.
- J. Air-Intake Filter: Heavy duty, engine mounted air cleaner with replaceable dry filter element and "blocked filter" indicator.
- K. Starting System:
 - 1. Components: Sized not to be damaged during full engine cranking cycle at maximum ambient temperature.
 - 2. Cranking Motor: Heavy duty unit that automatically engages and releases from engine flywheel without binding.
 - 3. Cranking Cycle: Minimum 60 seconds.
 - 4. Battery: Capacity within ambient temperature range for specified cranking cycle at least twice without recharging. Include 120 Volt battery heater.
 - 5. Battery Cable: Size as recommended by engine manufacturer. Include required interconnecting conductors and connection accessories.
 - 6. Battery Charging Alternator: Factory mounted on engine with solid state voltage regulation and 35-A minimum continuous rating.
 - 7. Battery Charger: Current limiting, automatic equalizing and float charging type. Comply with UL 1236. Include the following features:
 - a. Operation: Equalizing charging rate of 10 Amps initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
 - b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 C to plus 60 C to prevent overcharging at high temperatures and undercharging at low temperatures.
 - c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
 - d. Ammeter and Voltmeter: Flush mounted in door to indicate charging rates.
 - e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of AC input or DC output of battery charger. Either condition shall close contacts that provide a battery charger malfunction indication at system control and monitoring panel.
 - f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.

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2.4 FUEL STORAGE

- A. Storage tank provided by Civil.

2.5 CONTROL AND MONITORING

- A. Automatic Starting System Sequence of Operation: When mode selector switch on control and monitoring panel is in "AUTO" position, remote control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode selector switch is switched to "ON" position, generator set starts. "OFF" position of same switch initiates generator set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of remote emergency stop switch also shuts down generator set.
- B. Include the Following Indicating and Protective Devices and Controls:
1. AC voltmeter.
 2. AC ammeter.
 3. AC frequency meter.
 4. DC voltmeter (alternator battery charging).
 5. Engine coolant temperature gage.
 6. Engine lubricating oil pressure gage.
 7. Running time meter.
 8. Ammeter and voltmeter and phase-selector switch(es).
 9. Generator voltage adjusting rheostat.
 10. Start/stop switch.
 11. Overspeed shutdown device.
 12. Coolant high temperature shutdown device.
 13. Coolant low level shutdown device.
 14. Oil low pressure shutdown device.
 15. Fuel tank low level alarm.
 16. Fuel tank high level shutdown of fuel supply alarm.
 17. Fuel tank leak alarm.
 18. Generator overload.
 19. Battery charger failure.
 20. Battery charger low and high voltage alarms.
- C. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated on the Drawings.
- D. Alarm Contacts: Include separate terminal block, factory wired to Form C dry contacts, for each alarm and status indication for connections for data link transmission of indications to remote data terminals.

2.6 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Generator Circuit Breaker: Molded-case, thermal-magnetic type, 100 percent rated. Comply with requirements in NEMA AB 1. UL 489.
1. Tripping Characteristic: Designed specifically for generator protection.
 2. Trip Rating: Matched to generator rating.
 3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
 4. Mounting: Adjacent to or integrated with control and monitoring panel.

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2.7 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with requirements in NEMA MG 1.
- B. Drive: Generator shaft directly connected to engine shaft. Exciter rotated integrally with generator rotor, 2/3rd pitch winding.
- C. Electrical Insulation: Class H or Class F.
- D. Stator Winding Leads: Terminate at terminal box to permit future reconnection for other voltages.
- E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- F. Enclosure: Dripproof.
- G. Voltage Regulator: Solid state type, separate from exciter, for performance specified in this section. Include adjustable rheostat on control and monitoring panel for plus or minus 5 percent of output-voltage operating band.

2.8 OUTDOOR GENERATOR SET ENCLOSURE

- A. Description: Weatherproof steel housing. Multiple panels lockable with adequate access to components requiring maintenance. Panels removable by one person without tools. Instruments and control mounted within enclosure.
 - 1. The enclosures shall allow the generator set to operate at full load in an ambient of 40°C - 45°C with no additional derating of the electrical output
 - 2. The enclosure roof shall be pitched to prevent accumulation of water.
 - 3. The complete exhaust system shall be internal to the enclosure
 - 4. A duct between the radiator and air outlet shall be provided to prevent re-circulation of hot air.
 - 5. All acoustical insulation shall be fixed to the mounting surface with pressure sensitive adhesive or mechanically fastened. In addition, all acoustical insulation mounted on a horizontal plane shall be mechanically fastened. The acoustical insulation shall be flame retardant meeting UL94 HF1 classification.
 - 6. The enclosures shall include an exhaust scoop to direct the cooling air in a vertical direction.
 - 7. Muffler Location: Within enclosure.
 - 8. Sound Performance: Reduce the sound level of the engine generator while operating at full rated load to a maximum of 69 dBA measured at any location 23 feet from the engine generator in a free field environment.
- B. Engine Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for 2 hours with ambient temperature at top of range specified in system service conditions.
 - 1. Louvers: Fixed engine, cooling air inlet and discharge. Storm proof and drainable louvers to prevent entry of rain and snow.

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2.9 VIBRATION ISOLATION DEVICES

- A. Generator set shall be seismic certified from factory without additional elastomeric isolator pads or spring isolators.

2.10 FINISHES

- A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard color finish over corrosion resistant pretreatment and compatible primer.

2.11 SOURCE QUALITY CONTROL

- A. Prototype Testing: Factory test engine generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
- B. Project Specific Equipment Tests: Before shipment, factory test engine generator set and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
 - 1. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
 - 2. Full load run.
 - 3. Maximum power.
 - 4. Voltage regulation.
 - 5. Transient and steady-state governing.
 - 6. Single-step load pickup.
 - 7. Safety shutdown.
 - 8. Sound generation.

PART 3 - EXECUTION

3.1 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.2 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.3 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

SECTION 263213
PACKAGED ENGINE GENERATOR

3.4 PACKAGED ENGINE GENERATOR INSTALLATION

- A. Comply with packaged engine-generator manufacturers' written installation and alignment instructions and with NFPA 110.
- B. Install packaged engine generator to provide access without removing connections or accessories, for periodic maintenance.
- C. Secure packaged engine generator sets to anchor bolts installed in concrete bases.
- D. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

3.5 CONNECTIONS

- A. Piping installation requirements are specified in Civil drawings.

3.6 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- B. Tests and Inspections:
 - 1. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
 - 2. Test the complete engine generator system at manufacturers factory
 - a. At full load and rated power factor with a reactive load
 - b. Tests shall include and be documented:
 - 1) Radiator.
 - 2) Engine control panel.
 - 3) Single-step load pickup.
 - 4) Transient and steady-state governing.
 - 5) Safety shutdown device testing.
 - 6) Rated power.
 - 7) Maximum power
 - 3. Provide full load test utilizing portable test bank as required by NFPA 110. Simulate power failure including operation of transfer switch, and return to normal.
 - 4. Perform tests recommended by manufacturer and each electrical test and visual and mechanical inspection for "AC Generators and for Emergency Systems" specified in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 5. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified in this section including, but not limited to, single step full load pickup test.
 - 6. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages for the following.
 - a. Measure charging voltage and voltages between available battery terminals for full charging and float charging conditions. Check electrolyte level and specific gravity under both conditions.
 - b. Test for contact integrity of connectors. Perform integrity load test and capacity load test for battery.

SECTION 263213
PACKAGED ENGINE GENERATOR

- c. Verify acceptance of charge for each element of battery after discharge.
 - d. Verify that measurements are within manufacturer's specifications.
 - 7. Battery Charger Tests: Verify specified rates of charge for both equalizing and float charging conditions.
 - 8. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine generator system before and during system operation. Check for air, exhaust, and fluid leaks.
 - 9. Voltage and Frequency Transient Stability Tests: Measure voltage and frequency transients for 50 and 100 percent step load increases and decreases and verify that performance is as specified.
 - 10. Harmonic Content Tests: Measure harmonic content of output voltage under 25 percent and at 100 percent of rated linear load. Verify that harmonic content is within specified limits.
- C. Coordinate tests with tests for transfer switches specified in Section 263600 and run them concurrently.
- D. Test instruments shall have been calibrated within last 12 months, traceable to standards of NIST, and adequate for making positive observation of test results. Make calibration records available for examination on request.
- E. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
- F. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
- G. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- H. Repair malfunctioning unit on site with factory-authorized service technicians, or remove malfunctioning units and provide new. Retest as specified above.
- I. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
- J. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach label or tag to each tested component indicating satisfactory completion of tests.
- K. Include copy of test reports in the Operation and Maintenance Manual.
- 3.7 DEMONSTRATION
- A. Demonstrate proper system operation to the A/E and Owner utilizing factory-trained field service personnel.
- 3.8 TRAINING
- A. Conduct one 2 hour training session for Owner's representatives at project site. Include training on installed equipment, system operation, emergency procedures, and maintenance. Training conducted by factory-trained service personnel.

SECTION 263213
PACKAGED ENGINE GENERATOR

3.9 FUEL FILL

- A. Fill fuel storage system(s), including remote bulk storage tank(s), with fuel after tests and demonstrations have been completed.

END OF SECTION 263213

EXHIBIT C

TIMBERLAND REGIONAL LIBRARY
SERVICE CENTER GENERATOR

PROJECT #81700089
TUMWATER, WASHINGTON

ABBREVIATIONS:

APPROX	APPROXIMATELY
AR	AIR RELEASE
AVE	AVENUE
BCR	BEGINNING OF CURB RETURN
BLDG	BUILDING
BLVD	BOULEVARD
BO	BLOW-OFF
CB	CATCH BASIN
CO	CLEANOUT
CPP	CORRUGATED POLYETHYLENE PIPE
DI	DUCTILE IRON
DIA	DIAMETER
DWG	DRAWING
E	EAST, EASTING
ECP	END OF CURB RETURN
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EX	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR
FM	FORCE MAIN
FT	FEET
GA	GAUGE
GRAVL	GRAVEL
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ, HORZ	HORIZONTAL
IE	INVERT ELEVATION
LF	LINEAR FEET
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MJ	MECHANICAL JOINT
N	NORTH, NORTHING
NE	NORTHEAST
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NW	NORTHWEST
PC	POINT OF CURVE
PI	POINT OF TANGENT INTERSECTION
POC	POINT OF CONNECTION
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE
R	RANGE, RADIUS
RD	ROOF DRAIN, ROAD
S	SOUTH, SLOPE
SCH	SCHEDULE
SE	SOUTHEAST
SEC	SECTION
SF	SQUARE FEET
SD	STORM DRAIN
SS	SANITARY SEWER
SSMH	SEWER MANHOLE
ST	STREET
STA	STATION
STD	STANDARD
SW	SOUTHWEST
T	TOWNSHIP
TYP	TYPICAL
VERT	VERTICAL
VC	VERTICAL CURVE
VPC	VERTICAL POINT OF CURVE
VPT	VERTICAL POINT OF TANGENT
W	WEST
WI	WITH
WM	WATER MAIN

SITE INFO:

ADDRESS: TIMBERLAND REGIONAL LIBRARY
ADMINISTRATIVE SERVICES CENTER
415 TUMWATER BLVD SW
TUMWATER, WA 98501

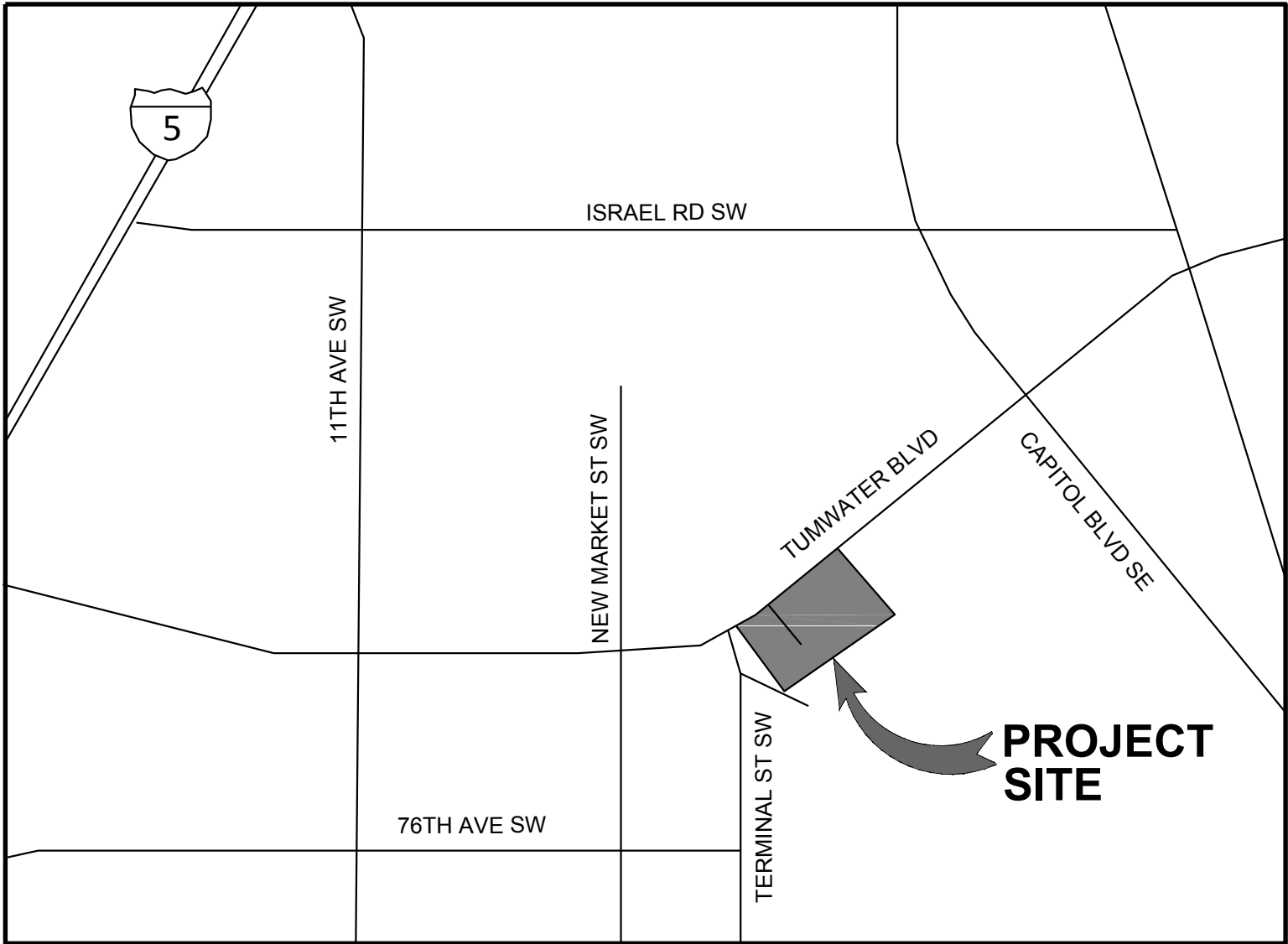
ELECTRICAL ENGINEER:

HARGIS ENGINEERS INC
1201 3RD AVE SUITE 600
SEATTLE, WA 98101
TEL: (206) 448-3376
CONTACT: MARK MERRITT

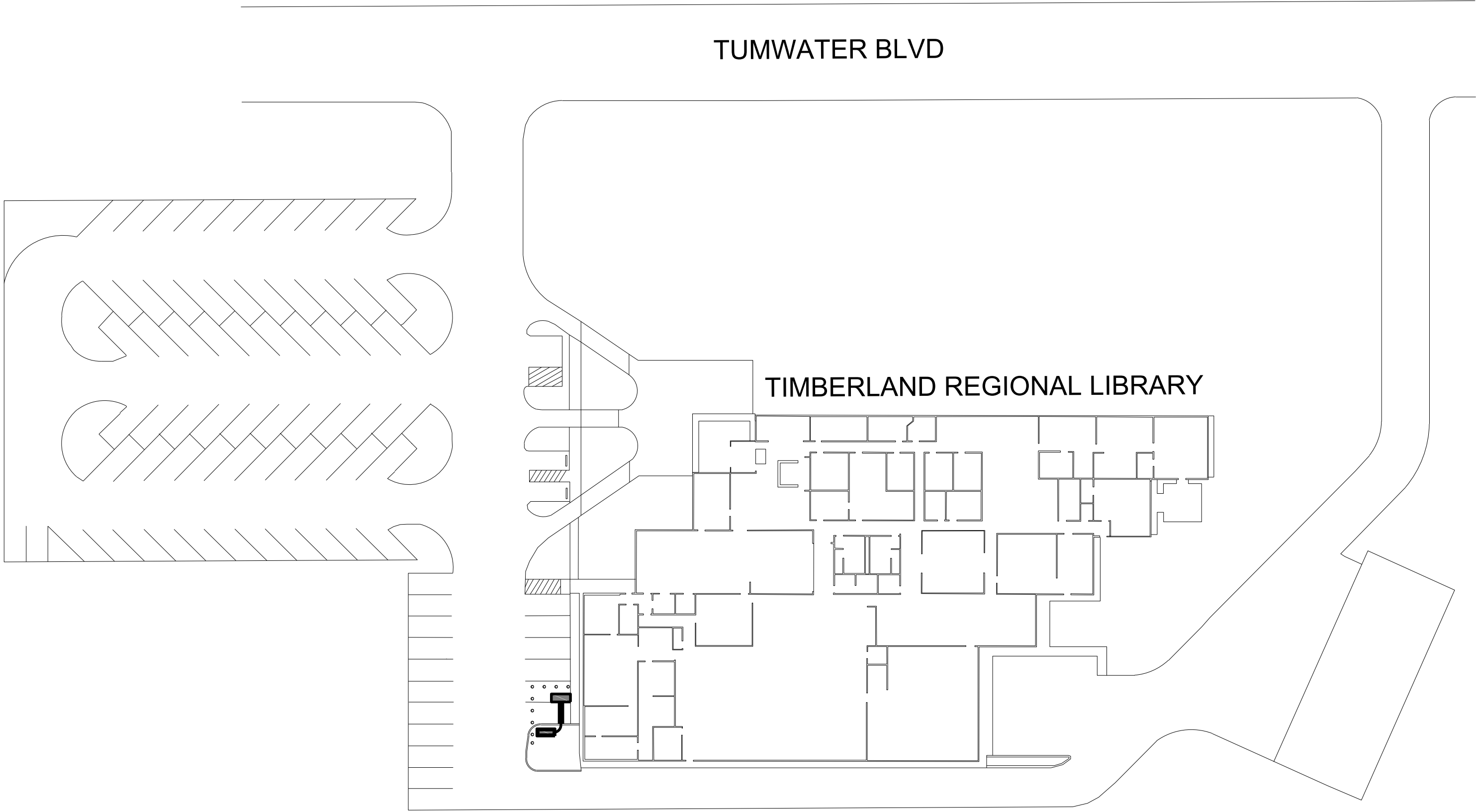
CIVIL ENGINEER:

KPFF CONSULTING ENGINEERS
612 WOODLAND SQUARE LOOP SE, SUITE 100
LACEY, WA 98503
TEL: (360) 292-7230
FAX: (360) 292-7231
CONTACT: STEVE SCHMITZ

SHEET INDEX		
SHEET	DWG.	TITLE
1	C1.0	COVER SHEET
2	C1.1	SITE PLAN
3	E0.01	ELECTRICAL LEGEND & DRAWING INDEX
4	E0.02	ELECTRICAL ABBREVIATIONS & GENERAL NOTES
5	ED3.01	DEMOLITION POWER FLOOR PLAN
6	ED9.01	ELECTRICAL PARTIAL ONE-LINE DEMOLITION DIAGRAM
7	E3.01	POWER FLOOR PLAN
8	E7.01	ENLARGED ELECTRICAL PLAN
9	E9.01	ELECTRICAL PARTIAL ONE-LINE DIAGRAM
10	E10.1	ELECTRICAL CALCULATIONS

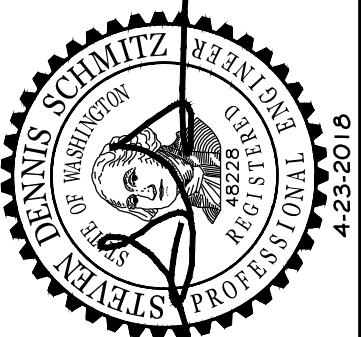


VICINITY MAP
NTS



SITE PLAN
NTS

REVISION		NO	DATE	BY	CHKD	APPR



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BEFORE YOU
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811

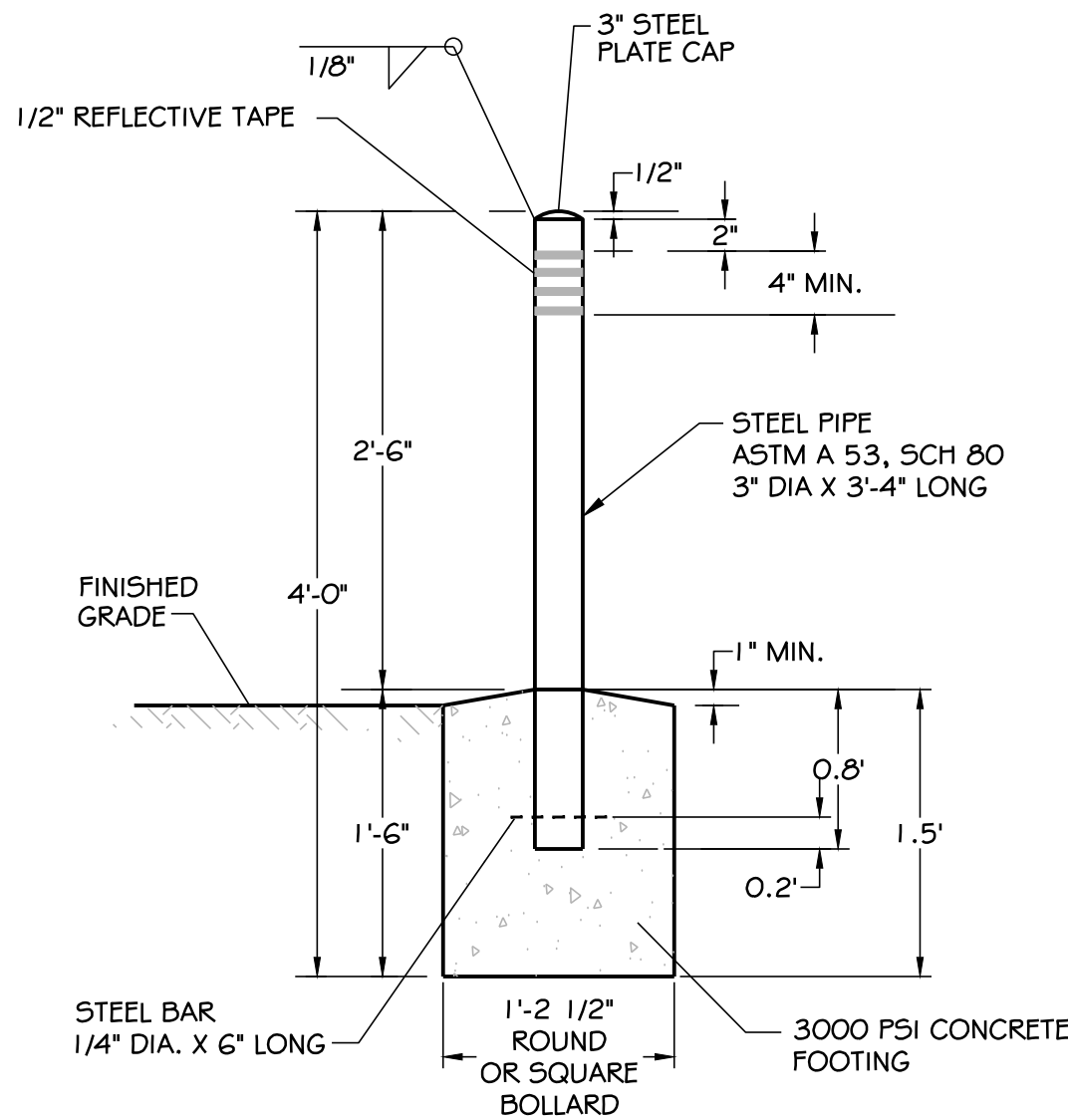
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CHECKED BY SDS	APPROVED BY SDS		

PROJECT / CLIENT NAME LOCATION (CITY, STATE)	COVER SHEET
-------------------------------------------------	-------------

DRAWING
C1.0
SHEET 1 OF 10

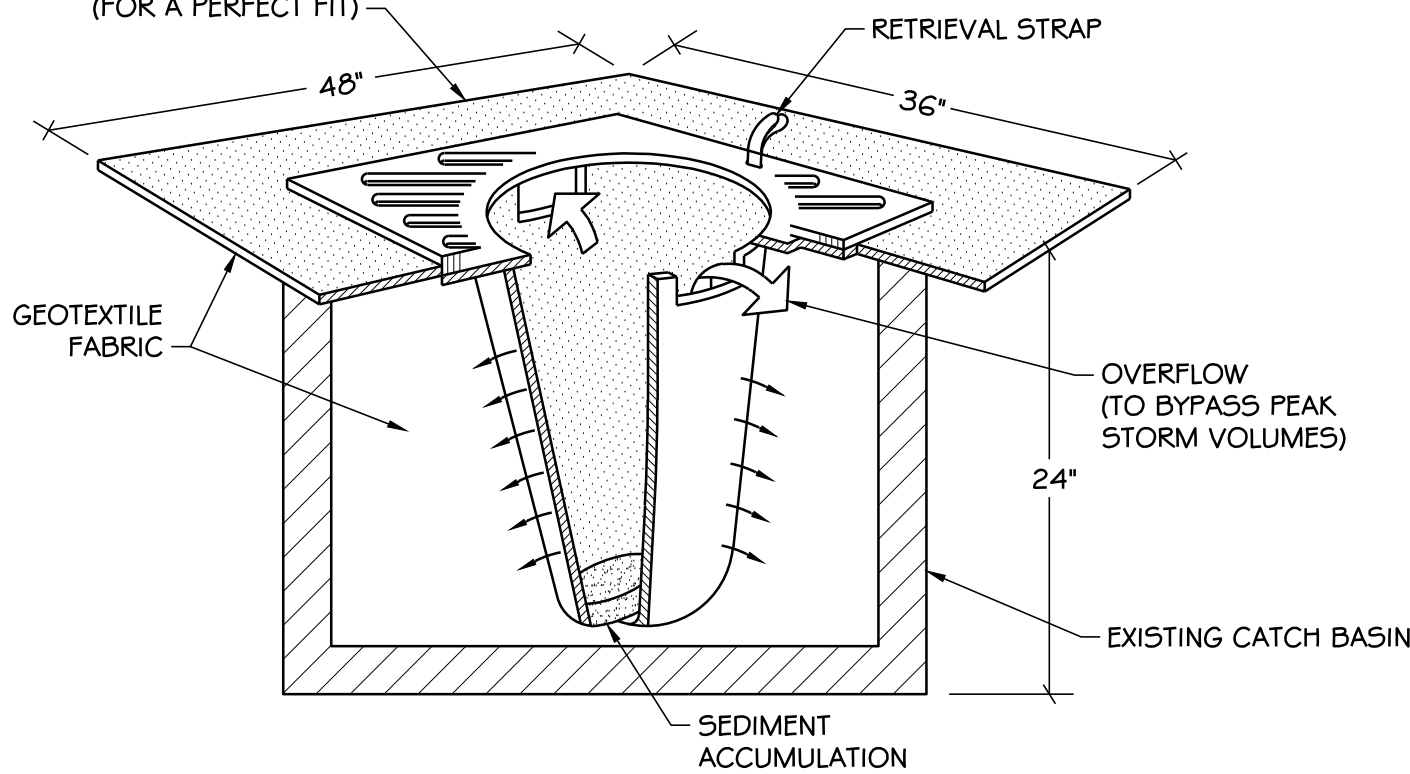
FILE: I:\2017\10181700089 - Timberland Regional Library CTRL3 Svc Ctr Generator\CADD\DWG\C11 SITE PLAN

PLOTTED: Apr. 23, 2018 - 13:33a4p4 PLOTTED BY: steves

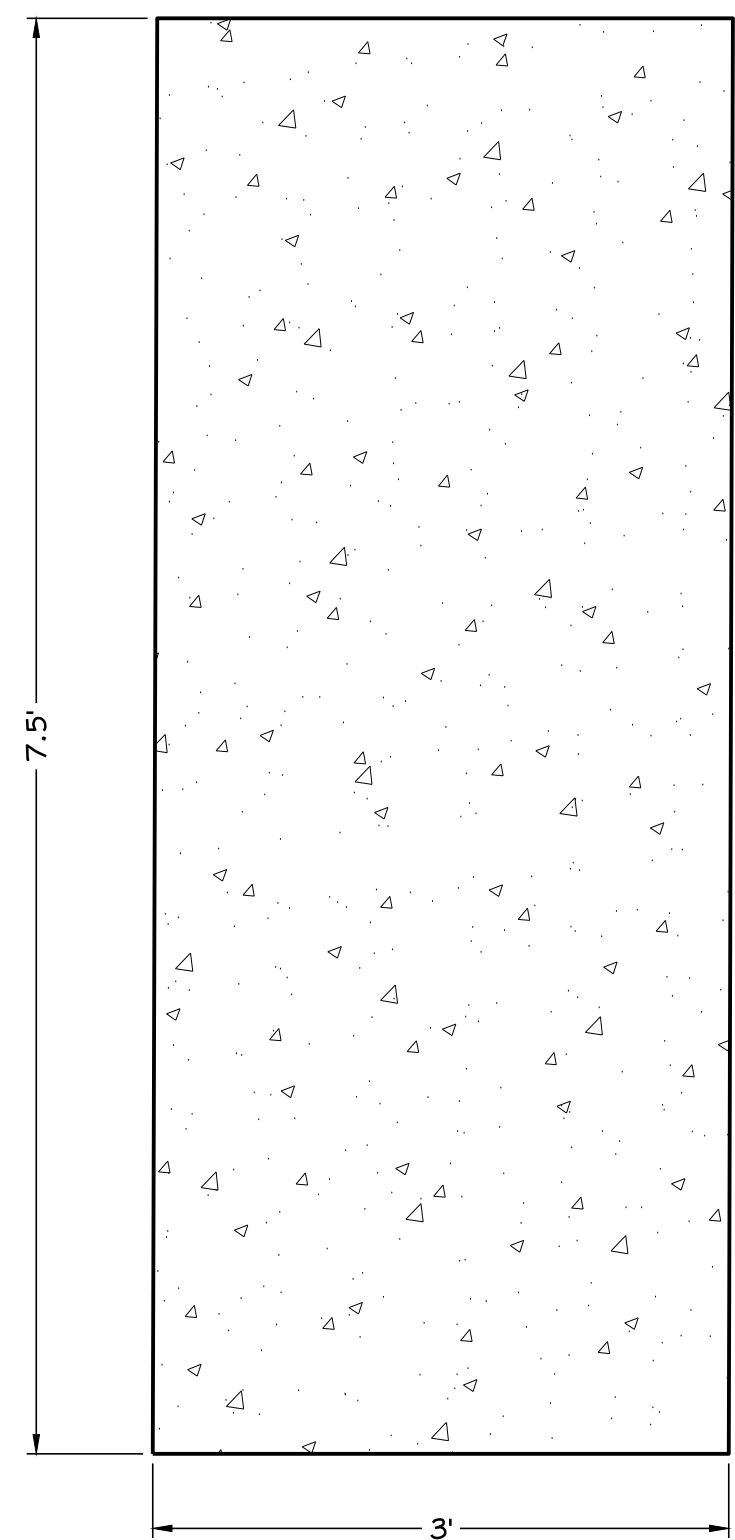


NOTES
1. THE BOLLARD SHALL BE PAINTED SAFETY YELLOW.

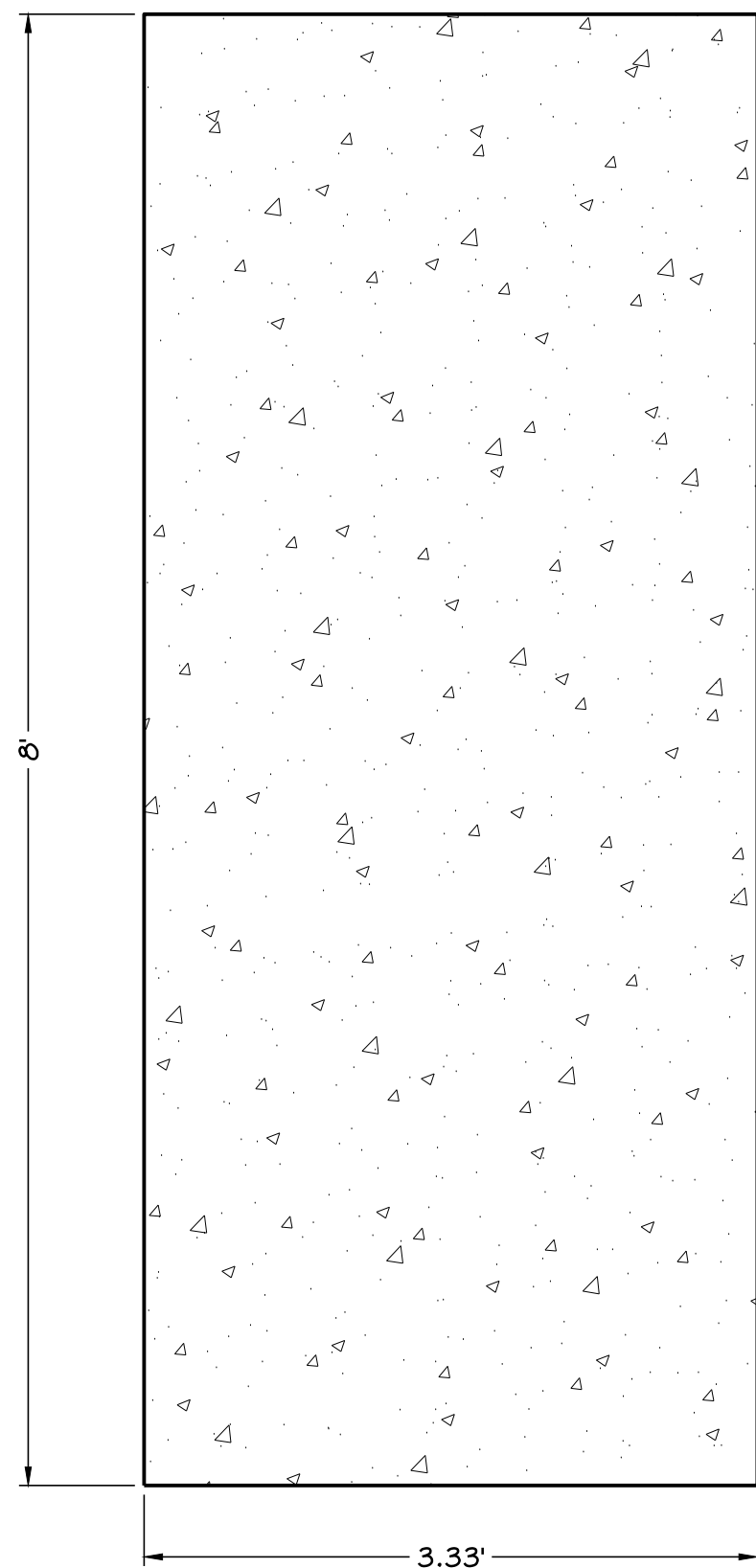
BOLLARD DETAIL
N.T.S.



INLET PROTECTION DETAIL
N.T.S.

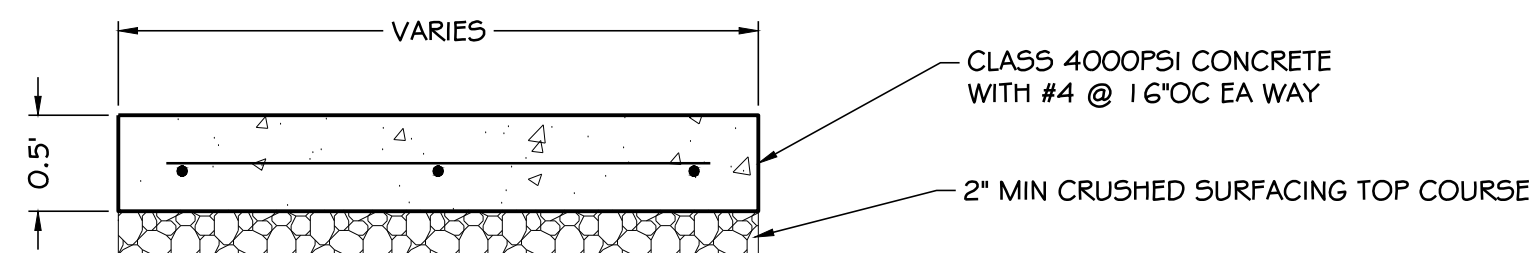


PLAN (PROPANE TANK PAD)



PLAN (GENERATOR PAD)

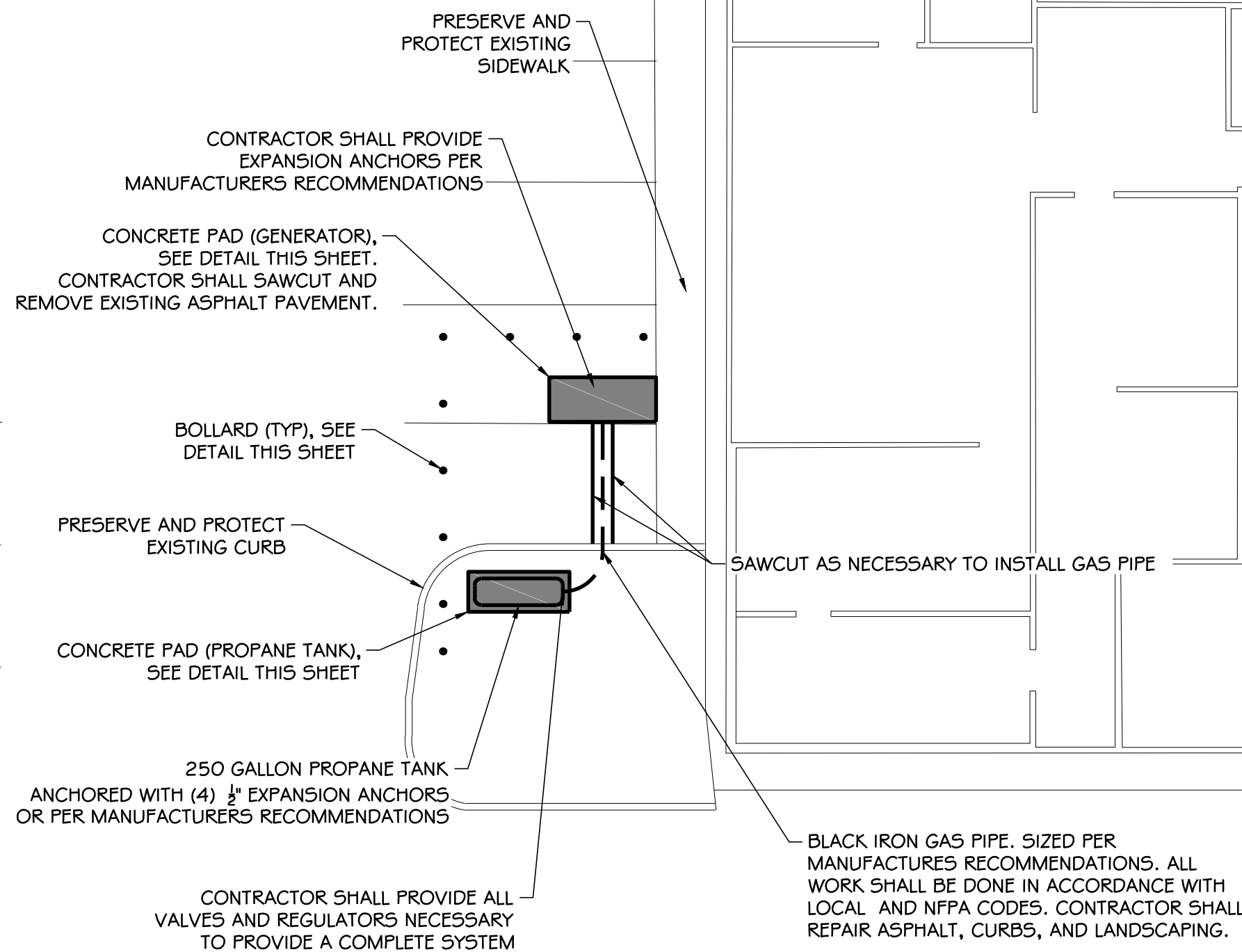
CONCRETE PAD DETAIL
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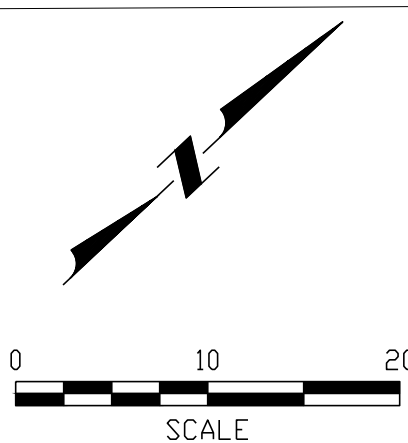
SECTION

NOTES:

1. MAINTAIN AND REPLACE INSERTS AS RECOMMENDED BY THE MANUFACTURER, AS REQUIRED BY THE INSPECTOR OR PROJECT ENGINEER, AND AS OTHERWISE NECESSARY.



SITE PLAN
1" = 10'



STANDARD TESC NOTES:

1. THE IMPLEMENTATION OF EROSION CONTROL MEASURES AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
2. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
3. THE TESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.
4. THE TESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT.

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL PROVIDE ALL MATERIALS & LABOR NECESSARY TO PROVIDE A COMPLETE & FUNCTIONAL GENERATOR SYSTEM.
2. CONTRACTOR SHALL REPAIR ALL ASPHALT, CURBS, AND LANDSCAPING IMPACTED BY CONTRACTORS WORK.
3. CONTRACTOR SHALL COORDINATE FINAL LOCATIONS OF GENERATORS, ATS, PROPANE TANK & OTHER EQUIPMENT WITH THE ENGINEER.

PROPANE TANK SPECIFICATIONS:

1. CONFORMS TO THE LAST EDITION AND ADDENDA OF THE ASME CODE FOR PRESSURE VESSELS, SECTION VIII, DIVISION 1. COMPLIES WITH NFPA 58.
2. RATED AT 250 PSIG FROM -20°F TO 125°F. ALL TANKS MAY BE EVACUATED TO A FULL (14.7 PSI) VACUUM.
3. VESSEL FINISH: COATED WITH TGIC POWDER.

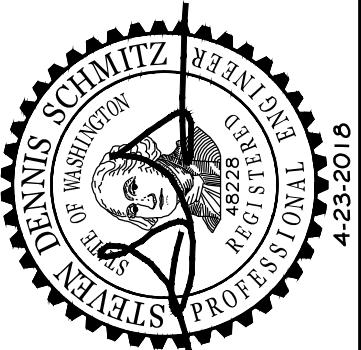
PROJECT / CLIENT NAME
LOCATION (CITY, STATE)

SITE PLAN AND DETAILS

DRAWING

C1.1

SHEET 2 OF 10



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811

DRAWN BY: JAD
DESIGNED BY: SD5
CHECKED BY: SD5
APPROVED BY: SD5
DATE: 04-20-2018
JOB NO.: 81700089

REVISION

NO. DATE BY CHD APPR

GENERAL NOTES

1.

PERFORM WORK IN ACCORDANCE WITH APPLICABLE NATIONAL AND STATE CODES AS AMENDED LOCALLY AND ENFORCED BY THE AHJ.
2.

OBTAIN AND PAY FOR PERMITS REQUIRED FOR INSTALLATION OF WORK. ARRANGE AND SCHEDULE REQUIRED INSPECTIONS.
3.

DEVICE LOCATIONS ARE APPROXIMATE. COORDINATE DEVICE LOCATIONS AND ELEVATIONS WITH APPROPRIATE DOCUMENTS INCLUDING CASEWORK SHOP DRAWINGS AND ARCHITECT'S INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
4.

COORDINATE ELECTRICAL WORK WITH THAT OF OTHER TRADES. REFER TO MECHANICAL, ARCHITECTURAL, STRUCTURAL, CIVIL, AND LANDSCAPE DRAWINGS AND SPECIFICATIONS. COORDINATION SHALL OCCUR PRIOR TO FABRICATION, PURCHASE, AND INSTALLATION OF WORK.
5.

REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF EXPANSION/SEISMIC JOINTS. PROVIDE RACEWAY EXPANSION/SEISMIC JOINTS FOR RACEWAYS CROSSING BUILDING EXPANSION/SEISMIC JOINTS.
6.

DEMOLISH EXISTING SYSTEMS AS INDICATED ON PLANS OR AS REQUIRED FOR INSTALLATION OF NEW WORK. MATERIAL SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF OFF SITE UNLESS OTHERWISE DIRECTED. RETURN ITEMS TO OWNER IN EXISTING CONDITION WHEN DIRECTED BY OWNER.
7.

COMPLETION OF WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE PROJECT SCHEDULE. SCHEDULE INSTALLATION WITH OTHER TRADES TO ENSURE PROJECT MILESTONES ARE MET.
8.

DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION. PROVIDE COMPONENTS REQUIRED FOR COMPLETE AND OPERATIONAL SYSTEMS INCLUDING RACEWAYS, CONDUCTORS, BOXES, SUPPORTS AND SIMILAR ITEMS.
9.

BRANCH CIRCUIT HOMERUNS ARE SHOWN TO INDICATE CIRCUIT PROPERTIES AND CONFIGURATION. SINGLE-CIRCUIT HOMERUNS SERVED FROM THE SAME PANELBOARD MAY BE COMBINED IN ACCORDANCE WITH THE DIVISION 26 SPECIFICATIONS, UNLESS INDICATED OTHERWISE. EXTEND AND CONNECT BRANCH CIRCUIT RACEWAY AND WIRING FROM HOMERUN TO DEVICES AND EQUIPMENT WITH CIRCUIT NUMBERS INDICATED. CONDUCTOR QUANTITIES AND SIZES ARE INDICATED AT HOMERUNS ONLY. SHOW ACTUAL RACEWAY ROUTING AND CIRCUITING ON RECORD DRAWINGS. MINIMUM CONDUCTOR SIZE 12 AWG.

NON-STRUCTURAL ELECTRICAL NOTES

1.

THE FOLLOWING ITEMS ARE TAKEN DIRECTLY FROM THE 2015 INTERNATIONAL BUILDING CODE AND FROM THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) STANDARD 7. THE CONTRACTOR SHALL REFER TO THE ABOVE FOR ADDITIONAL INFORMATION, EXCEPTIONS, AND FURTHER DESCRIPTIONS. THE CONTRACTOR SHALL ADHERE TO REQUIREMENTS AND AS SUCH, SHALL BE INCLUDED WITHIN BID. ALSO REFER TO SPECIFICATIONS.
2.

2015 IBC, 1613.1, SCOPE: ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND NON-STRUCTURAL COMPONENTS THAT ARE PERMANENTLY ATTACHED TO STRUCTURES AND THEIR SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST THE EFFECTS OF EARTH SHAKE MOTIONS IN ACCORDANCE WITH ASCE 7, EXCLUDING CHAPTER 14 AND APPENDIX 11A.
3.

ASCE 7-02, 11A.1.2.2, CONTRACTOR RESPONSIBILITY: EACH CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF A SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM, OR COMPONENT LISTED IN THE QUALITY ASSURANCE PLAN SHALL SUBMIT A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY TO THE REGULATORY AUTHORITY HAVING JURISDICTION AND TO THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL INCLUDE THE FOLLOWING:

A.

ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE QUALITY ASSURANCE PLAN

B.

ACKNOWLEDGMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE AUTHORITY HAVING JURISDICTION

C.

PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS; AND

D.

IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.
4.

DIVISION 26 RESPONSIBILITIES:

A.

HANGERS AND SEISMIC BRACING FOR ELECTRICAL SYSTEMS SHALL BE DESIGNED AND SPECIFIED BY DIVISION 26. DIVISION 26 SHALL REFER TO THE ELECTRICAL DRAWINGS FOR LOCATIONS OF EQUIPMENT AND ELECTRICAL SYSTEMS AS STRUCTURAL DRAWINGS DO NOT SHOW THE LOCATIONS OF ELECTRICAL EQUIPMENT, RACEWAYS, AND OTHER COMPONENTS.

B.

DIVISION 26 SHALL COORDINATE THE SUPPORT SYSTEMS AND DESIGN LOADS FOR HUNG RACEWAYS AND OTHER ELECTRICAL SYSTEMS (INCLUDING COMBINED MULTIPLE RACEWAY RUNS) WITH THE GENERAL CONTRACTOR AND THE STEEL AND WOOD JOIST MANUFACTURERS IN ADDITION TO OTHER TRADES THAT MAY BE IMPACTED.

ENERGY CODE NOTES

1.

RECORD DRAWINGS: SUBMIT TO THE BUILDING OWNER PER ENERGY CODE ENFORCED BY THE LOCAL AHJ.
2.

OPERATION AND MAINTENANCE MANUALS: SUBMIT TO THE BUILDING OWNER PER ENERGY CODE ENFORCED BY THE LOCAL AHJ.
3.

THIS BUILDING AND ITS ENERGY SYSTEMS HAVE BEEN DESIGNED TO COMPLY WITH ENERGY CODE ENFORCED BY THE LOCAL AHJ. CONTRACTOR IS RESPONSIBLE FOR CORRECT INSTALLATION OF ENERGY CONSERVATION MEASURES.

ABBREVIATIONS

A	AMPERE	MAX	MAXIMUM
AC	AIR CONDITIONING; ALTERNATING CURRENT; ABOVE COUNTER	MC	MAIN CROSS CONNECT; METAL CLAD (CABLE)
AF	AMP FUSE; AMP FRAME	MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER
AG	ABOVE GRADE	MDF	MAIN DISTRIBUTION FRAME
AHJ	AUTHORITIES HAVING JURISDICTION	MDP	MAIN DISTRIBUTION PANEL
AHU	AIR HANDLING UNIT	MFR	MANUFACTURER
AIC	AMPERE INTERRUPTING CURRENT	MH	MANHOLE
AL	ALUMINUM	MIN	MINIMUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MLO	MAIN LUGS ONLY
AS	AMP SWITCH	MM	MULTIMODE
AT	AMP TRIP	MPOE	MAIN POINT OF ENTRY
ATS	AUTOMATIC TRANSFER SWITCH	MPOP	MAIN POINT OF PRESENCE
ATM	ASYNCHRONOUS TRANSFER MODE	MSB	MAIN SWITCHBOARD
AV	AUDIO VISUAL	MTS	MANUAL TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE	(N)	NEW
		N	NEUTRAL
BAS	BUILDING AUTOMATION SYSTEM	NAC	NOTIFICATION APPLIANCE CIRCUIT
BATT	BATTERIES	NEC	NATIONAL ELECTRICAL CODE
BKBD	BACKBOARD	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
BIL	BASIC IMPULSE INSULATION LEVEL	NF	NON-FUSED
BKR	BREAKER	NIC	NOT IN CONTRACT
BLDG	BUILDING	NL	NIGHT LIGHT
C	CONDUIT; DEGREES CELSIUS	OFC	OPTICAL FIBER CABLE
CAB	CABINET	OHL	OVERHEAD LINE
CAT	CATEGORY	OL	OVERLOAD
CATV	COMMUNITY ANTENNA TELEVISION	OS	OCCUPANCY SENSOR
CB	CIRCUIT BREAKER	OSP	OUTSIDE PLANT
CCTV	CLOSED CIRCUIT TELEVISION		
CLG	CEILING	P	POLE
CM	CEILING-MOUNTED	PBX	PRIVATE BRANCH EXCHANGE
CO	CONDUIT ONLY	PF	POWER FACTOR
COW	COMPUTER ON WHEELS	PH	PHASE
CR	CONTROLLED RECEPTACLE	PIR	PASSIVE INFRARED
CT	CURRENT TRANSFORMER	PIV	POST INDICATING VALVE
CU	COPPER	PNL	PANEL
		PP	PATCH PANEL
DDC	DIRECT DIGITAL CONTROL	PT	POTENTIAL TRANSFORMER
DEMARC	DEMARICATION POINT	PVC	POLYVINYL CHLORIDE
DISC	DISCONNECT		
DIST	DISTRIBUTION	RCP	REFLECTED CEILING PLAN
DSL	DIGITAL SUBSCRIBER LINE	REC	RECEPTACLE
DWG	DRAWING	REF	REFER TO
		REV	REVISION
(E)	EXISTING	RM	ROOM
EA	EACH	RU	RACK UNIT
EF	EXHAUST FAN		
EIA	ELECTRONIC INDUSTRIES ASSOCIATION	SHT	SHEET
ELEV	ELEVATION	SLC	SIGNALING LINE CIRCUIT
EM	EMERGENCY	SM	SINGLEMODE
EMT	ELECTRICAL METALLIC TUBING	SMFC	SURFACE-MOUNTED OPTICAL FIBER CABINET
ENCL	ENCLOSURE	SMR	SURFACE METAL RACEWAY
EPM	ELECTRONIC POWER METER	SONET	SYNCHRONOUS OPTICAL NETWORK
EPO	EMERGENCY POWER OFF	SP	SERVICE PROVIDER
EQUIP	EQUIPMENT	SPD	SURGE PROTECTIVE DEVICE
ETR	EXISTING TO REMAIN	SPEC	SPECIFICATIONS
EWG	ELECTRIC WATER COOLER	SPST	SINGLE POLE SINGLE THROW
		ST	SHUNT TRIP
F	FUSE; DEGREES FAHRENHEIT	STP	SHIELDED TWISTED PAIR
FA	FIRE ALARM	SVGA	SUPER VIDEO GRAPHICS ARRAY
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SW	SWITCH
FACP	FIRE ALARM CONTROL PANEL	SWBD	SWITCHBOARD
FBO	FURNISHED BY OWNER		
FOIC	FURNISHED BY OWNER INSTALLED BY CONTRACTOR	TBB	TELECOMMUNICATIONS BONDING BACKBONE
FOIO	FURNISHED BY OWNER INSTALLED BY OWNER	TEL	TELEPHONE
FSD	FIRE SMOKE DAMPER	TELCO	TELEPHONE COMPANY
		TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
G	GROUND	TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
GF	GROUND FAULT CIRCUIT INTERRUPTER	TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
GFP	GROUND FAULT PROTECTION	TP	TAMPERPROOF
GND	GROUND	TR	TELECOMMUNICATIONS ROOM
GRS	GALVANIZED RIGID STEEL	TTB	TELEPHONE TERMINAL BOARD
		TV	TELEVISION
HC	HORIZONTAL CROSS CONNECT	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
HID	HIGH INTENSITY DISCHARGE	TYP	TYPICAL
HP	HORSEPOWER		
HTR	HEATER	UG	UNDERGROUND
Hz	HERTZ	UL	UNDERWRITERS LABORATORIES
		UON	UNLESS OTHERWISE NOTED
IC	INTERMEDIATE CROSS CONNECT	UPS	UNINTERRUPTIBLE POWER SUPPLY
IBC	INTERNATIONAL BUILDING CODE	USB	UNIVERSAL SERIAL BUS
IDF	INTERMEDIATE DISTRIBUTION FRAME	UTP	UNSHIELDED TWISTED PAIR
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS	UV	UNIT VENTILATOR
IG	ISOLATED GROUND		
IMC	INTERMEDIATE METALLIC CONDUIT	V	VOLTS
ISDN	INTEGRATED SERVICES DIGITAL NETWORK	VA	VOLT AMPERES
		VFD	VARIABLE FREQUENCY DRIVE
J	JUNCTION	W	WATT; WIRE
kVA	KILOVOLT AMPERE	W/	WITH
kW	KILOWATT	W/O	WITHOUT
KCMIL	THOUSAND CIRCULAR MILS	WA	WORKSTATION AREA
KVAR	KILOVOLT AMPERE REACTIVE	WAN	WIDE AREA NETWORK
		WG	WIRE GUARD
LAN	LOCAL AREA NETWORK	WH	WATT HOUR METER
LCP	LIGHTING CONTROL PANEL	WP	WEATHERPROOF
LEC	LOCAL EXCHANGE CARRIER		
LT	LIGHT	XMFR	TRANSFORMER
LTG	LIGHTING		
		Y	WYE
M	METER		
MAN	METROPOLITAN AREA NETWORK	Z	IMPEDANCE



PROFESSIONAL STAMP

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SERVICE CENTER GENERATOR

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PROJECT NO.	10181700089
HARGIS PROJECT NO.	18006
DRAWN BY	SM
CHECKED BY	MM
APPROVED BY	ES
SHEET TITLE	

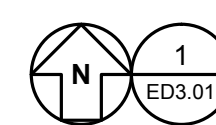
ELECTRICAL
ABBREVIATIONS AND
GENERAL NOTES

SHEET NUMBER

E0.02

1. DEMOLITION SHOULD ONLY BE DONE AFTER NEW EQUIPMENT HAS BEEN INSTALLED TO LIMIT THE DOWNTIME TO A MINIMUM. COORDINATE ALL POWER OUTAGES WITH OWNER.

- 1 REMOVE EXISTING CONDUIT AND CONDUCTORS FROM DISTRIBUTION PANEL TO PANEL D.



DEMOLITION POWER FLOOR PLAN

SCALE: 1/16" = 1'-0"

[illegible]

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SHEET TITLE	

DEMOLITION
POWER
FLOOR PLAN

SHEET NUMBER

ED3.01

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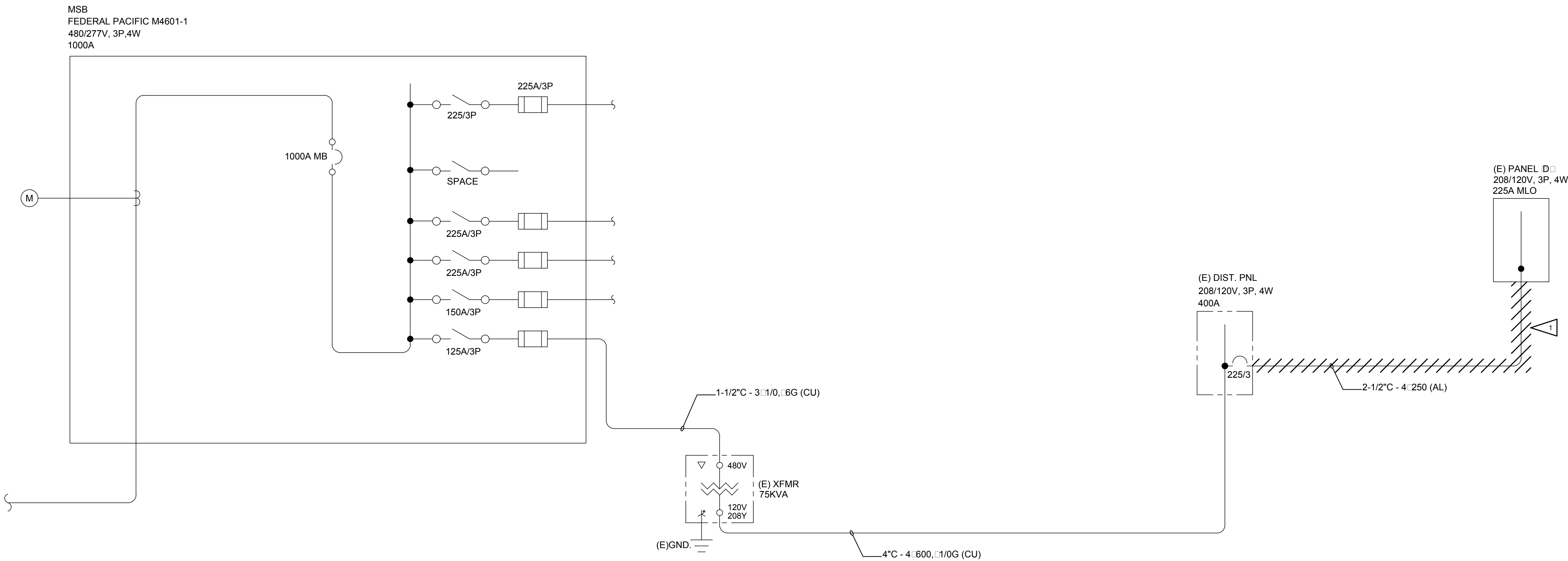
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1
ED9.01

ELECTRICAL PARTIAL ONE-LINE DEMOLITION DIAGRAM
SCALE: NONE

SHEET NOTES:

1. DEMOLITION SHOULD ONLY BE DONE AFTER NEW EQUIPMENT HAS BEEN INSTALLED TO LIMIT THE DOWNTIME TO A MINIMUM. COORDINATE ALL POWER OUTAGES WITH OWNER.

FLAG NOTES:

- 1 REMOVE EXISTING CONDUIT AND CONDUCTORS FROM DISTRIBUTION PANEL TO PANEL D.

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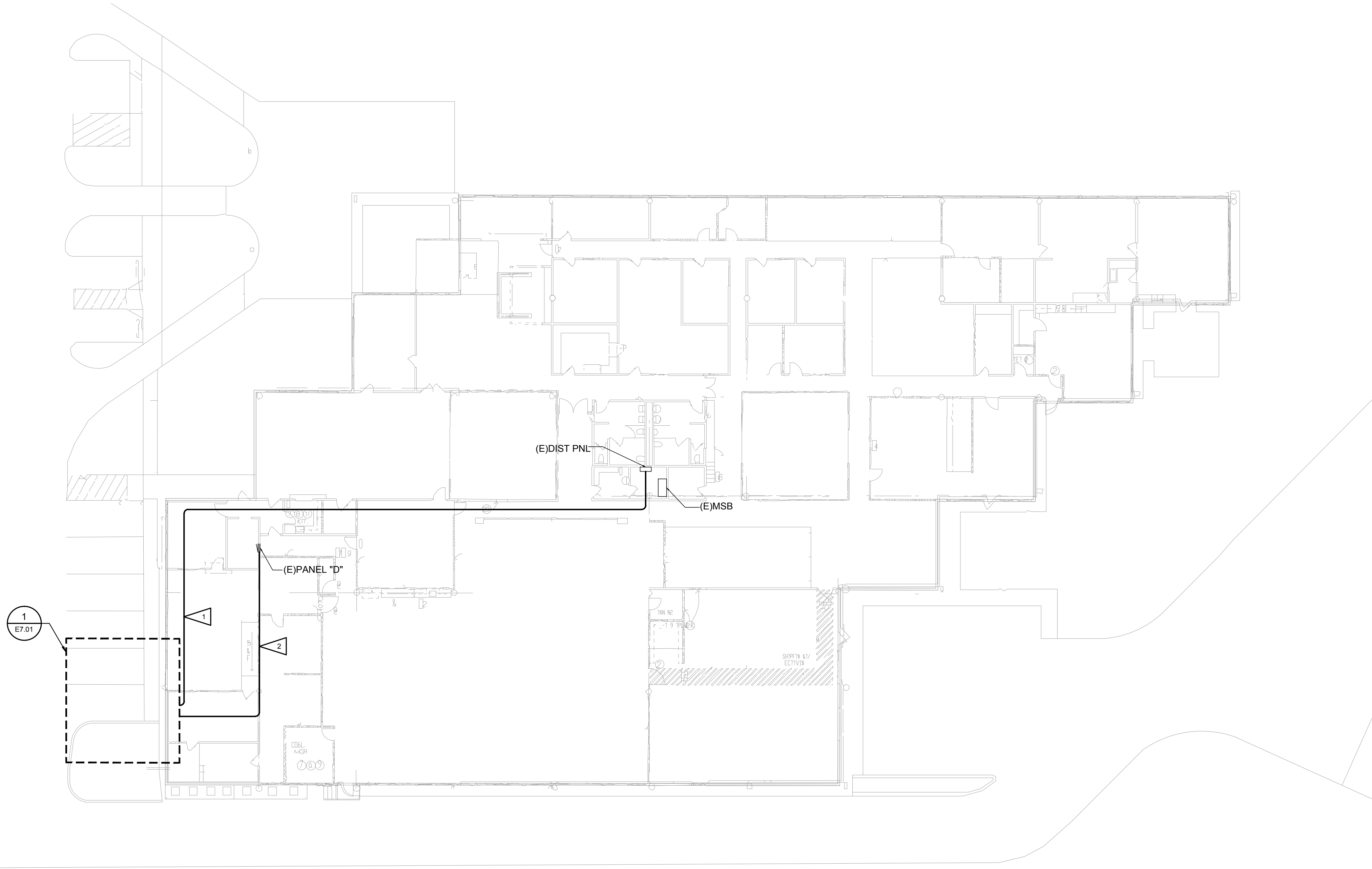
PROJECT NO. 10181700089
HARGIS PROJECT NO. 18006
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CHECKED BY MM
APPROVED BY ES
SHEET TITLE
**ELECTRICAL
PARTIAL ONE-LINE
DEMOLITION
DIAGRAM**

SHEET NUMBER
ED9.01

1. EXTERIOR CONDUITS TO BE RIGID GALVANIZED STEEL (RGS). INTERIOR CONDUITS TO BE EMT.

1 ROUTE CONDUIT IN SPACE ABOVE CEILING FROM EXISTING DISTRIBUTION PANEL TO ATS-1. SEE SHEET E7.01 FOR CONTINUATION OF CONDUIT.

2 ROUTE CONDUIT IN SPACE ABOVE CEILING FROM ENCLOSED CIRCUIT BREAKER ECB-1 TO PANEL D. SEE SHEET E7.01 FOR CONTINUATION OF CONDUIT.



SCALE: 1/16" = 1'-0"

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SHEET TITLE	

POWER
FLOOR PLAN

SHEET NUMBER

E3.01



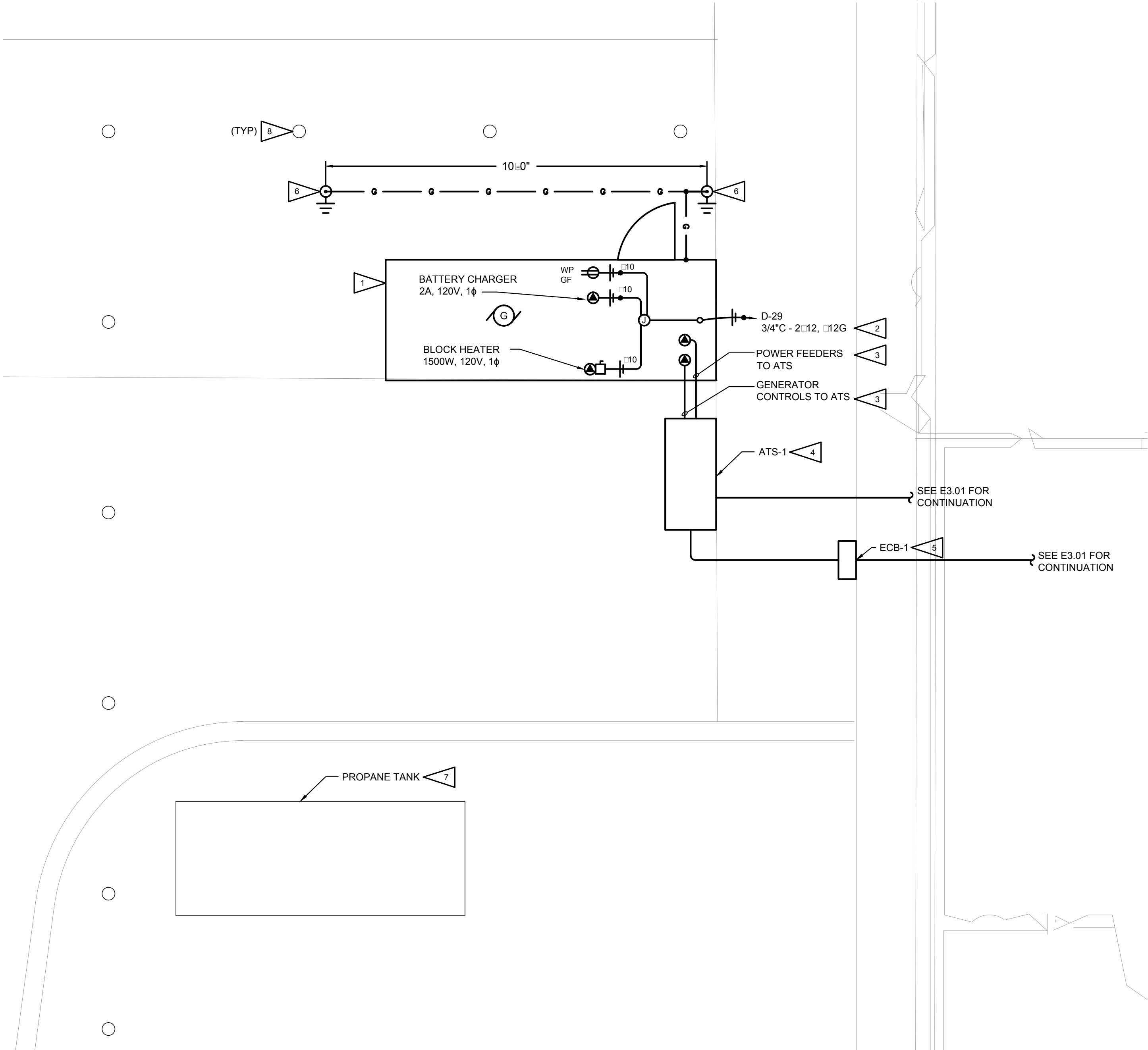
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ENLARGED ELECTRICAL PLAN
SCALE: 1/2" = 1'-0"

SHEET NOTES:

1. EXTERIOR CONDUITS TO BE RIGID GALVANIZED STEEL (RGS). INTERIOR CONDUITS TO BE EMT.
2. ROUTE EXTERIOR CONDUITS UP CEMENT COLUMN AND INTO BUILDING ABOVE EXISTING INTERIOR CEILING.
3. SEAL ALL BUILDING PENETRATIONS WATERTIGHT.
4. SEE SHEET E9.01 FOR ADDITIONAL INFORMATION ON CONDUIT AND CONDUCTOR SIZES.

FLAG NOTES:

1. INSTALL GENERATOR ON CONCRETE PAD. SEE CIVIL DRAWINGS FOR CONCRETE PAD DETAIL.
2. PROVIDE CONNECTION TO BLOCK HEATER, BATTERY CHARGER AND WEATHERPROOF RECEPTACLE. PROVIDE CONDUIT AND CONDUCTOR TO EXISTING PANEL D AND TERMINATE AT EXISTING 20A CIRCUIT BREAKER.
3. PROVIDE CONDUIT AND CONDUCTORS FROM GENERATOR TO ATS FOR BOTH POWER AND CONTROL WIRING. SEE SHEET E9.01 FOR ADDITIONAL REQUIREMENTS.
4. PROVIDE STRUT RACK AND INSTALL ATS ON RACK. PROVIDE CONDUIT AND CONDUCTORS FROM ATS TO ENCLOSED CIRCUIT BREAKER.
5. PROVIDE ENCLOSED CIRCUIT BREAKER ON WALL ADJACENT TO ATS. PROVIDE CONDUIT AND CONDUCTORS FROM ENCLOSED CIRCUIT BREAKER TO PANEL D.
6. PROVIDE GROUND ROD AND GROUNDING CONDUCTOR TO GENERATOR. INSTALL GROUND RODS A MINIMUM OF 10'-0" APART. SEE SHEET E9.01 FOR ADDITIONAL REQUIREMENTS.
7. PROPANE TANK AND PIPING TO GENERATOR PROVIDED BY CIVIL. COORDINATE EXACT LOCATION OF TANK AND PIPING CONNECTIONS WITH CIVIL DRAWINGS. CONTRACTOR TO ENSURE THAT ALL ELECTRICAL EQUIPMENT IS A MINIMUM OF 10'-0" FROM TANK.
8. SEE CIVIL DRAWINGS FOR EXACT BOLLARD LOCATIONS AND INSTALLATION.

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SHEET TITLE

ENLARGED
ELECTRICAL PLAN
SHEET NUMBER

E7.01



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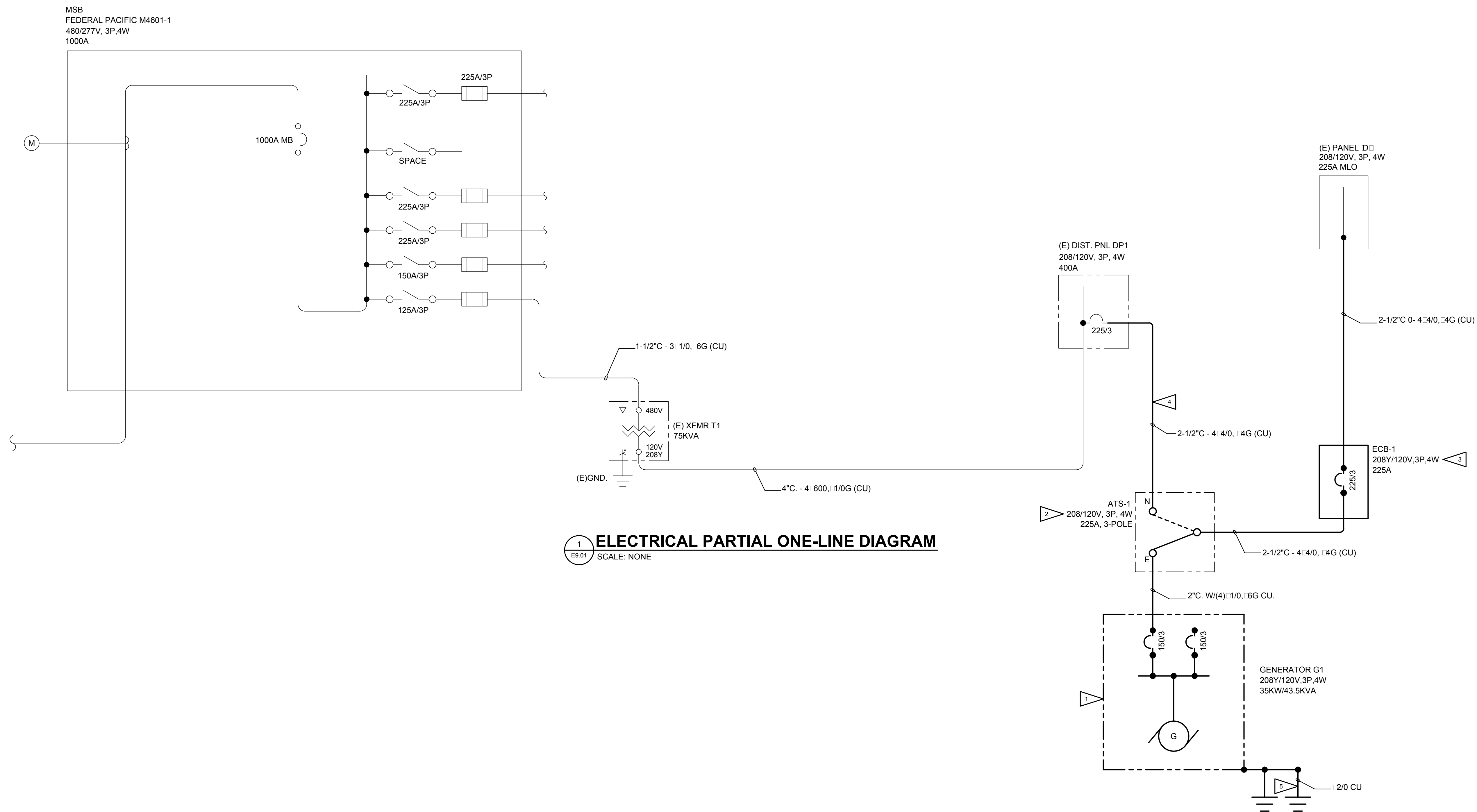
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SHEET NOTES:

1. COORDINATE ALL POWER OUTAGES WITH OWNER.
2. EXTERIOR CONDUITS TO BE RGS. INTERIOR CONDUITS TO BE EMT.

FLAG NOTES:

1. PROVIDE SPARK-IGNITED 30KW/38kVA CUMMINS C30 N6 STANDBY PROPANE GENERATOR SET IN LEVEL 2 SOUND ATTENUATED ENCLOSURE OR APPROVED EQUAL. PROVIDE 2-YEAR FACTORY WARRANTY AND MANUFACTURER START-UP AND TESTING. PROVIDE CONDUIT AND CONDUCTORS FROM GENERATOR TO ATS-1.
2. PROVIDE OPEN-TRANSITION STYLE, NEMA 3R RATED, ATS. PROVIDE CONDUIT AND CONDUCTORS FROM ATS TO CIRCUIT BREAKER DISCONNECT INSIDE BUILDING.
3. PROVIDE ENCLOSED CIRCUIT BREAKER ON BUILDING WALL. PROVIDE CONDUIT AND CONDUCTORS FROM DISCONNECT TO EXISTING PANEL D.
4. PROVIDE CONDUIT AND CONDUCTORS FROM EXISTING DISTRIBUTION PANEL TO ATS.
5. PROVIDE GROUND CONDUCTOR AND (2) 8'-0" LONG, 3/4" DIAMETER, GROUND RODS. INSTALL GROUND RODS A MINIMUM OF 10'-0" APART.



1 ELECTRICAL PARTIAL ONE-LINE DIAGRAM E9.01 SCALE: NONE

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ELECTRICAL
PARTIAL ONE-LINE
DIAGRAM

SHEET NUMBER

E9.01



PROFESSIONAL STAMP

PEAK DEMAND CALCULATION WORKSHEET

NEC 220-87 AND WAC 296-46B-900(3)(j)

(E) DIST. PNL (400A, 208/120V, 3PH, 4W)

1.	30 DAY DEMAND	=	51.52	kVA
3.	NEC 220-87 ADJUSTED PEAK DEMAND	X	<u>1.25</u>	
	ADJUSTED PEAK DEMAND	=	64.40	kVA
4.	SEASONAL ADJUSTMENT FACTOR	X	<u>1.16</u>	
	SEASONALLY ADJUSTED PEAK DEMAND	=	74.70	kVA
5.	OCCUPANCY ADJUSTMENT FACTOR	X	<u>1.00</u>	
	OCCUPANCY ADJUSTED PEAK DEMAND	=	74.70	kVA
6.	OTHER ADJUSTMENT FACTORS	X	<u>1.00</u>	
	TOTAL PEAK DEMAND	=	74.70	kVA
7.	ADDED LOAD	=	1.82	kVA

PEAK DEMAND BASED					
CALCULATED LOAD:	<table> <tr> <td>76.52</td> <td>kVA</td> </tr> <tr> <td><u>212.40</u></td> <td>AMPS @ 208V</td> </tr> </table>	76.52	kVA	<u>212.40</u>	AMPS @ 208V
76.52	kVA				
<u>212.40</u>	AMPS @ 208V				

SEASONAL - ADJUSTMENT BASED ON 12 MONTH UTILITY BILLS

OCCUPANCY - ALWAYS OCCUPIED, NO ADJUSTMENNT

OTHER - OTHER CORRECTION FACTORS ARE NOT APPLICABLE.

PEAK DEMAND CALCULATION WORKSHEET

NEC 220-87 AND WAC 296-46B-900(3)(j)

PANEL D (225A, 208/120V, 3PH, 4W)

1.	30 DAY DEMAND	=	15.06	kVA
3.	NEC 220-87 ADJUSTED PEAK DEMAND	X	<u>1.25</u>	
	ADJUSTED PEAK DEMAND	=	18.82	kVA
4.	SEASONAL ADJUSTMENT FACTOR	X	<u>1.16</u>	
	SEASONALLY ADJUSTED PEAK DEMAND	=	21.84	kVA
5.	OCCUPANCY ADJUSTMENT FACTOR	X	<u>1.00</u>	
	OCCUPANCY ADJUSTED PEAK DEMAND	=	21.84	kVA
6.	OTHER ADJUSTMENT FACTORS	X	<u>1.00</u>	
	TOTAL PEAK DEMAND	=	21.84	kVA
7.	ADDED PANEL EV LOAD	=	1.82	kVA

PEAK DEMAND BASED					
CALCULATED LOAD:	<table> <tr> <td>23.66</td> <td>kVA</td> </tr> <tr> <td><hr/>65.66</td> <td>AMPS @ 208V</td> </tr> </table>	23.66	kVA	<hr/> 65.66	AMPS @ 208V
23.66	kVA				
<hr/> 65.66	AMPS @ 208V				

SEASONAL - ADJUSTMENT BASED ON 12 MONTH UTILITY BILLS

OCCUPANCY - ALWAYS OCCUPIED, NO ADJUSTMENT

OTHER - OTHER CORRECTION FACTORS ARE NOT APPLICABLE.

[illegible]

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ELECTRICAL CALCULATIONS

SHEET NUMBER

E10.1

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