



Department of Community Development
922 Machin Avenue, Novato, CA 94945
Inspections: (415) 899-8240
Office: (415) 899-8989 Fax: (415) 899-8216
www.novato.org

Building Division
PERMIT NUMBER

B2022-2111

Print Date: 10/31/2022

To obtain this permit the undersigned hereby files this application and agrees, certifies, and declares: Notice has been given to me that this permit may be used only in compliance with the Novato Municipal Code and all other applicable ordinances and laws. This permit does not allow additional work to be performed. I agree to comply with all City and County ordinances and State laws relating to building construction and hereby authorize representative of the City of Novato permission to enter the job premises at any reasonable time to inspect any work installed under this permit and remove any nonconforming construction at my expense. Refunds made after 30 days but before 90 days from issuance of permit will be determined by the Building Official; No refunds after 90 days. (CDD/PW Fee Schedule, Item 16. Refund of Permit Fees.)

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Class C-10 Lic No. C:923979

Exp. Date 10/31/2022 Contractor GENERAL DYNAMICS INFORMATION TECHNOLOGIES

OWNER BUILDING DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractor's License Law for the following reason (Section 7031.5, Business and Professions Code: Any city or county that requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for the permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500).)

I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Section 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does the work himself or herself or through his or her own employees, provided that the improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he or she did not build or improve for the purpose of sale.)

I, as owner, of the property, am exclusively contracting with licensed contractors to construct the project (Section 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who contracts for the projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

I am exempt under Sec. B&P.C for this reason

WORKER'S COMPENSATION DECLARATIONS

I hereby affirm under penalty of perjury one of the following declarations:

I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier A I U INSURANCE

Policy No. WC16393276 Expire: 7/1/2023

I certify that, in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that, if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000), IN ADDITION TO THE COST OF COMPENSATION DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this City to enter upon the above-mentioned property for inspection purposes.

I understand all work must be inspected and approved before placing concrete or concealing framing, electrical, plumbing, or mechanical work. A final inspection and certificate of occupancy must be obtained prior to occupancy and clearance for connection of utilities.

Frank Schabaraum 10/31/2022
SIGNATURE OF APPLICANT OR AGENT DATE

This permit will expire if work is not started in 180 days or if work is abandoned for more than 180 days.

Applied Date 08/25/2022	Approved Date 10/19/2022	Issued Date 10/31/2022	
	Valuation \$ 31,500.00	Lot	Subdivision
Job Site Address 150 HAMILTON DR			APN 157-171-17
Owner NEW CINGULAR WIRELESS PCS, LLC dba AT 2700 WATT AVENUE STE 2200-014 SACRAMENTO CA 95821 Phone: (916) 715-5834 Fax:		Contractor GENERAL DYNAMICS INFORMATION TECHNOLOGIES 101 STATION DR #D05 WESTWOOD MA 02090 Phone: (619) 402-8490 Fax: License No. C:923979	
Lessee		Applicant FRANK SCHABARAUM 10615 QUAIL HOLLOW DRIVE REDDING CA 96003	
Description of Work Install new Generac 30k/w standby diesel generator with UL 2085 rated 190 gallon base fuel tank on new 9-2 x 15-0 concrete foundation. Install new 4'-0" X 9'-2" concrete stoop adjoining new concrete foundation. Install new ATS and camlock, PG&E generator document box, fire extinguisher within new fire extinguisher cabinet and lockable emergency shutoff switch to side of			
Conditions			
FEE DESCRIPTION AND FEES [refer to receipt for details]			
BUILDING PERMIT FEES		\$466.70	
GREEN BUILDING STANDARDS		\$2.00	
PLAN STORAGE		\$3.90	
SURCHARGES		\$98.01	
PLAN CHECK FEES		\$1,318.76	
		Total Fees	\$ 1,889.37
		Paid at Issuance	\$ 1,889.37
		DIF Balance Due at Final	\$ 0.00
Residential Development Impact Fees (DIF) Due Prior to Final			

NONRESIDENTIAL INSPECT. REQ. (INSPECTION REQUEST: 415-899-8240)

NOTICE

Inspection Record

Job Location 150 HAMILTON DR

Permit No. B2022-2111

Job Description Install new Generac 30k/w standby diesel generator with UL 2085 rated 190 gallon base fuel tank on new 9-2 x 15'-0 concrete foundation. Install new 4'-0" X 9'-2" concrete stoop adjoining new concrete foundation. Install new ATS and camlock, PG&E generator document box, fire extinguisher within new fire extinguisher cabinet and lockable emergency shutoff switch to side of existing and adjoining AT&T equipment shelter. Install new underground conduit and generator cable from generator location to new ATS.

Date Issued 10/31/2022

Owner NEW CINGULAR WIRELESS PCS, LLC dba AT&T MOBILITY

Type of Inspection	Date	Inspector	Type of Inspection	Date	Inspector
Site/Foundation	INSPECTION CODE: 300		Energy and Sustainability	INSPECTION CODE: 340	
<input type="checkbox"/> Footings			<input type="checkbox"/> Green Bldg. Components		
<input type="checkbox"/> Foundation Wall			<input type="checkbox"/> Green Bldg. Compliance		
<input type="checkbox"/> Foundation Drains			<input type="checkbox"/> Energy Compliance		
<input type="checkbox"/> Piers, Caissons					
<input type="checkbox"/> Anchors			Gas Meter Authorization	INSPECTION CODE: 370	
<input type="checkbox"/> Erosion Control			<input type="checkbox"/> Gas Test		
<input type="checkbox"/> Vapor Barrier			<input type="checkbox"/> HVAC		
<input type="checkbox"/> Underfloor Venational			<input type="checkbox"/> Fireplace/Gas Insert		
Utilities	INSPECTION CODE: 310		Water Meter Authorization	INSPECTION CODE: 380	
<input type="checkbox"/> Underfloor/Slab Elec			<input type="checkbox"/> Water Test		
<input type="checkbox"/> Underfloor/Slab Plg.			<input type="checkbox"/> Water Heater		
<input type="checkbox"/> Underfloor/SlabMech.			<input type="checkbox"/> Shower Pan		
Close In	INSPECTION CODE: 320		Electric Meter Authorization	INSPECTION CODE: 390	
<input type="checkbox"/> Rough Electrical			<input type="checkbox"/> Grounding Electrode (Ufer)		
<input type="checkbox"/> Rough Plumbing					
<input type="checkbox"/> Rough Mech.			Required form at Final Inspection		
<input type="checkbox"/> Hold Dn Brackets			<input type="checkbox"/> Energy Documentation		
			<input type="checkbox"/> Green Building		
Roof Sheathing	INSPECTION CODE: 325		Required Final Approvals		
<input type="checkbox"/> Roof Underlayment and Flashing					
			FINAL APPROVALS INSPECTION CODE: 990		
Wall Sheathing	INSPECTION CODE: 330		Final Approvals	Date	By
			<input type="checkbox"/> Building		
WallBoard	INSPECTION CODE: 335		<input type="checkbox"/> Planning		
<input type="checkbox"/> Fire Rated Assemblies			<input type="checkbox"/> Engineering		

It is the responsibility of the Permittee to:

1. Keep this inspection record/card and the approved plans on the job site for inspection.
2. Request inspections 24 hours in advance from the Building Division office for each stage of work. Each stage of work must be left exposed for inspection and approved before covering. Inspections can be scheduled by phoning the Automated Building Inspection Request Line: 899-8240. Every effort will be made to respond the following working day to all calls received. Due to the difficulty of scheduling inspections, no specific time for appointments can be assumed unless prior arrangements are made with the Building Inspector.
3. It is the responsibility of the owner to ensure compliance with any private deed restrictions or CC&R's, including any required architectural review.
4. It is your responsibility to coordinate final inspections with the appropriate agencies indicated by a checkmark on the "Inspection Record" and/or "Final Occupancy and Utility Approval" form. A "Final Occupancy and Utility Approval" and a release of utilities will not be granted by the Building Division until these spaces are signed by the required 24-48 hours advance notice for an inspection. Some, such as the Planning Division require submission of other forms and materials prior to performing the inspection.

EXPIRATION: This permit shall expire if there is more than 180 days without an inspection - permit valid for maximum of 2 years if inspections are made within 180 day time frames.

NOTE: When an extra inspection is required due to the job not being ready when an inspection is called for, or the approved plans are not available on the job, or when the inspector has no access to the project, a reinspection fee will be required. You should be ready for an approval before you call for an inspection. If you cannot keep an appointment, please cancel by phoning the Building Division. If you have any questions, please call the Building Division at 899-8989.

WARNING: If Final Inspection and approvals are not obtained the building permit will expire by limitation and the owner will be subject to enforcement action including additional permit fees, citation, and/or a nuisance abatement hearing before the City Council.

			<input type="checkbox"/> Fire District		
Miscellaneous	INSPECTION CODE: 399		<input type="checkbox"/> Sanitary District		
			<input type="checkbox"/> NM Water District		
			<input type="checkbox"/> NPD Crime Prevention		
			<input type="checkbox"/> MC Health Department		

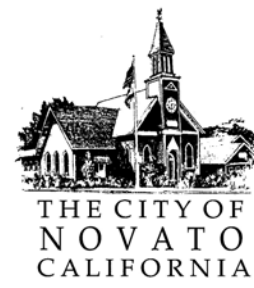


Permit No. B2022-2111

Type of Inspection	Date	Inspector	Type of Inspection	Date	Inspector	Type of Inspection	Date	Inspector
Masonry INSPECTION CODE: 350			Temporary Power INSPECTION CODE: 390			Special Inspections/Test Reports per special inspection & Testing agreement. Must be signed by special Inspector prior to calling for City inspection.		
Retaining Wall Footing			Overhead service					
Steel Reinforcement			Underground service					
1 st Lift			Electrical Service Upgrade					
2 nd Lift			GFI Breakers			Soils compliance prior to foundation inspection.		
3 rd Lift						3-Test cylinders		
Fireplace Throat			ACCESSIBILITY INSPEC. CODE: 360 (Exterior)			Pier/caisson reinforcing		
Fireplace Top Out			ACCESSIBILITY INSPEC. CODE: 365 (Interior)					
Fireplace Seismic Straps								
Stucco INSPECTION CODE: 355			Entrance			Masonry/reinforcing		
Veneer			Path of travel			Structural concrete over 2500 PSI by design		
Lathing			Sanitary facilities			Foundation reinforcing		
Scratch Coat			Drinking fountain			High strength bolts		
Brown Coat			Public phone			Spayed on fire proofing		
			Parking - other			Retaining walls backfill/drains		
Suspended Ceiling INSPECTION CODE: 345								
T Bar Ceiling			INFORMATIONAL/STATUS INSPEC CODE: 399					
T Bar Cross Bracing			Miscellaneous					
Fixture Supports								

Full Job Description: Install new Generac 30k/w standby diesel generator with UL 2085 rated 190 gallon base fuel tank on new 9'-2 x 15'-0 concrete foundation. Install new 4'-0" X 9'-2" concrete stoop adjoining new concrete foundation. Install new ATS and camlock, PG&E generator document box, fire extinguisher within new fire extinguisher cabinet and lockable emergency shutoff switch to side of existing and adjoining AT&T equipment shelter. Install new underground conduit and generator cable from generator location to new ATS.

Inspector's Comments:



CITY OF NOVATO
922 Machin Avenue
Novato, CA 94945



Frank Schabarum <frank.schabarum123@gmail.com>

Transaction Receipt from City of Novato for \$1889.37 (USD)

Auto-Receipt <noreply@mail.authorize.net>
Reply-To: Trevor Alton <talton@novato.org>
To: Frank Schabarum <frank.schabarum123@gmail.com>

Mon, Oct 31, 2022 at 1:01 PM

Order Information

Description: Goods or Services
Invoice Number 20221031125825 PO Number WEB12218

Billing Information

Frank Schabarum
General Dynamics Information Technology, Inc
[10615 Quail Hollow Drive](#)
Redding, CA 96003
United States
frank.schabarum123@gmail.com
6197430309

Shipping Information

Frank Schabarum
General Dynamics Information Technology, Inc
[10615 Quail Hollow Drive](#)
Redding, CA 96003
United States

Total: \$1889.37 (USD)

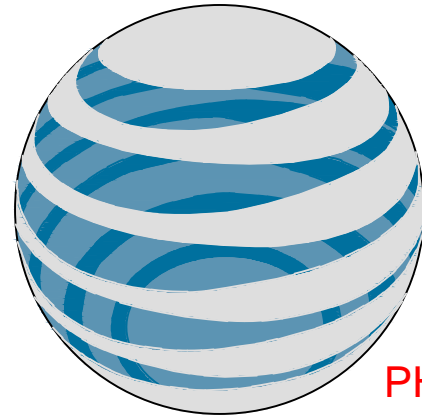
Payment Information

Date/Time: 31-Oct-2022 13:01:08 PDT
Transaction ID: 64023506098
Payment Method: Visa xxxx8063
Transaction Type: Purchase
Auth Code: 52185D

Merchant Contact Information

City of Novato
Novato, CA 94945
US
talton@novato.org

JOB COPY



at&t

September 13 2022
PHILLIPS SEABROOK ASSOCIATES

PLAN REVIEW ACCEPTANCE BY
PHILLIPS SEABROOK ASSOCIATES
APPLIES ONLY TO PLAN SHEETS
WHICH HAVE THIS STAMP

CITY OF NOVATO

Received
09 13 2022

By: Julie Williams

HWY 101 - IGNACIO

FA#: 10088152

LINE NAME: FULTON-IGNACIO #1 230KV
TOWER NUMBER: 40/192
SAP TOWER#: 40663880
**GENERATOR INSTALLATION PROJECT
30KW GENERAC DIESEL GENERATOR
WITH ASSOCIATED UL-2085 FUEL TANK**

**150 HAMILTON ROAD
NOVATO, CA 94945**

CITY OF NOVATO

Received
08 25 2022

By: Julie Williams



GENERAL DYNAMICS
Information Technology



GEOSTRUCTURAL
PO BOX 2621, BOISE, ID 83701
530.539.4787
CONTACT@GEOSTRUCTURAL.COM
WWW.GEOSTRUCTURAL.COM

REVISIONS

REV	DATE	DESCRIPTION	INT
2	06/14/22	PGE GG	JAD
1	02/15/22	PGE REDLINES	JAD
0	01/05/22	ISSUED FOR CONSTRUCTION	KS

CHECKED BY: GGD

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE CLIENT NAMES IS STRICTLY PROHIBITED.



DATE SIGNED: 6/14/22

SITE INFORMATION:

HWY 101 - IGNACIO

10088152

GENERATOR INSTALLATION PROJECT

150 HAMILTON ROAD
NOVATO, CA 94945

JURISDICTION USE:

CITY OF NOVATO APPROVED

PERMIT NO: B2022-2111

DATE: 10/19/2022

STAFF: Brian Macpherson

REMARKS:

SHEET TITLE:

TITLE SHEET

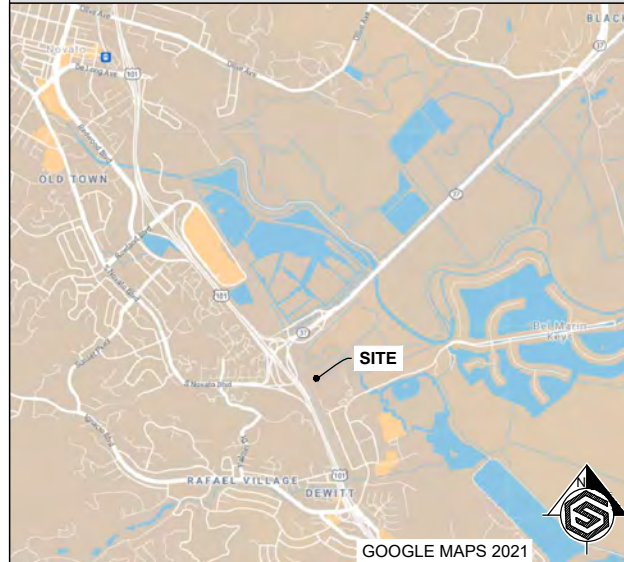
SHEET NUMBER:

T-1

SITE INFORMATION:

SITE ADDRESS: 150 HAMILTON ROAD
NOVATO, CA 94945
COUNTY: MARIN
COORDINATES: 38.0782481° / -122.5415981° (FOR NAVIGATION ONLY)
PROPERTY LANDLORD OR OWNER: PG&E
TAX ID #: 157-171-17
ZONING: C1-1
OCCUPANCY GROUP: U - UNMANNED
CONSTRUCTION TYPE: II-B
POWER COMPANY: PG&E
FLOOD ZONE: AE (EL = 10FT AMSL NAVD88)
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

VICINITY MAP:



AREA MAP:



CODE COMPLIANCE:

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF ALL GOVERNING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS ARE TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES:
CALIFORNIA BUILDING CODE (CBC) 2019
CALIFORNIA ELECTRICAL CODE 2019
CALIFORNIA MECHANICAL CODE 2019
CALIFORNIA FIRE CODE (CFC) 2019
INTERNATIONAL BUILDING CODE (IBC) 2018
NATIONAL ELECTRICAL CODE (NEC) 2017
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 13,30,37,58,70,72,110,111
AMERICAN CONCRETE INSTITUTE (ACI) 318
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 607

DO NOT SCALE DRAWINGS:

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME.

CONTACT INFORMATION:

APPLICANT: AT&T MOBILITY
1375 CAMINO REAL STE 120
SAN BERNARDINO, CA 92408
PHONE: 951.534.8967
PROJECT MANAGER: GENERAL DYNAMICS WIRELESS SERVICES, LLC.
19240 DES MOINES DR. S. BLDG C STE 300
SEA TAC, WA 98048
PHONE: 425.606.8785
CONTACT: CHRISTOPHER HERMAN
LEASING / PERMITTING: JT LAND MANAGEMENT
10615 QUAIL HOLLOW LANE
REDDING, CA 96003
PHONE: 530.722.0743
CONTACT: FRANK SCHABARUM
ARCHITECTURE & ENGINEERING: GEOSTRUCTURAL, LLC.
PO BOX 2621
BOISE, ID 83701
PHONE: 530.539.4787
CONTACT: DON GEORGE

APPROVALS :

AT&T MANAGER _____
CONSTRUCTION MANAGER _____
SITE ACQ. MANAGER _____
PROPERTY OWNER _____
LANDLORD _____

SCOPE OF WORK:

INSTALL (1) ARTICLE 702 OPTIONAL STANDBY DIESEL GENERATOR (GENERAC SD030) WITH UL-2085 BASE FUEL TANK ON CONCRETE PAD WITHIN NEW COMPOUND AND 200A ATS / CAMLOCK (GENERAC TAS200) NEAR EXISTING AT&T EQUIPMENT AREA. INSTALL NEW GEN DOCS BOX INSIDE FENCED AREA.

INTEGRATE NEW GENERATOR WITH EXISTING SERVICE.

NOTE: NO CHANGES OR ALTERATIONS TO THE TOWER, MOUNTS, ANTENNAS, FEEDLINES, ETC. IS PROPOSED AS A PART OF THIS SCOPE OF WORK.

DIG LINE:

THE PLANS SHOW SOME KNOWN SUBSURFACE STRUCTURES, ABOVE GROUND STRUCTURES, AND/OR EXISTING UTILITIES BELIEVED TO BE IN THE WORKING AREA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL UTILITIES, PIPELINES AND OTHER STRUCTURES SHOWN OR NOT SHOWN ON THESE PLANS.

ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AND ENGINEER AT THE CONTRACTOR'S EXPENSE.



SHEET INDEX:

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A-0	PARCEL SITE PLAN
A-1	OVERALL SITE PLAN
A-2	ENLARGED SITE PLAN
A-3	ELEVATION VIEWS
S-1	GENERATOR PAD DETAILS
S-2	GENERAL STRUCTURAL DETAILS
S-3	FENCE & GATE DETAILS
S-4	COMPOUND EXPANSION DETAIL
S-4.1	GRADE BUILD-UP DETAIL
E-1	ELECTRICAL DETAILS
E-2	ELECTRICAL DETAILS
E-3.0	ELECTRICAL DETAILS
E-3.1, E-3.2, E-3.3	PG&E GROUNDING SPECIFICATIONS
E-4.0 <- E4.4	GENERATOR SPECIFICATIONS
E-5.0	ATS SPECIFICATIONS
E-5.1	CAM-LOCK BOX SPECIFICATIONS

NOTES TO SUBCONTRACTOR:

1. THE GENERAL SUBCONTRACTOR MUST VERIFY ALL DIMENSIONS, CONDITIONS AND ELEVATIONS BEFORE PROCEEDING WITH THE WORK. ALL DISCREPANCIES SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH ACCEPTED CONSTRUCTION PRACTICES.

2. IT IS THE INTENTION OF THESE DRAWINGS TO SHOW THE COMPLETED INSTALLATION. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY BRACING, SHORING, TIES, FORM WORK, ETC. IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL ORDINANCES, TO SAFELY EXECUTE ALL WORK AND SHALL BE RESPONSIBLE FOR SAME. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES.

3. THE SUBCONTRACTOR SHALL USE ADEQUATE NUMBER OF SKILLED WORKMAN WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND METHOD NEEDED FOR PROPER PERFORMANCE OF THE WORK.

4. SUBCONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION SUBCONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND SUBCONTRACTOR FURTHER AGREES TO INDEMNIFY AND HOLD DESIGN ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH PERFORMANCE OF WORK ON THIS PROJECT.

5. SITE GROUNDING SHALL COMPLY WITH AT&T WIRELESS SERVICES TECHNICAL SPECIFICATIONS FOR FACILITY GROUNDING FOR CELL SITE STANDARDS, LATEST EDITION, AND COMPLY WITH AT&T TOWERS GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

6. ALL WORK SHALL COMPLY WITH OSHA AND STATE SAFETY REQUIREMENTS. PROCEDURES FOR THE PROTECTION OF EXCAVATIONS, EXISTING CONSTRUCTION AND UTILITIES SHALL BE ESTABLISHED PRIOR TO FOUNDATION INSTALLATION.

7. ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES OR ORDINANCES. THE MOST STRINGENT CODE WILL APPLY IN THE CASE OF DISCREPANCIES OR DIFFERENCES IN THE CODE REQUIREMENTS.

8. ANY DAMAGE TO THE ADJACENT PROPERTIES WILL BE CORRECTED AT THE SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE LANDOWNER AND THE CONSTRUCTION MANAGER.

9. THE COMPLETE BID PACKAGE INCLUDES THESE CONSTRUCTION DRAWINGS ALONG WITH THE SPECIFICATIONS. SUBCONTRACTOR IS RESPONSIBLE FOR REVIEW OF TOTAL BID PACKAGE PRIOR TO BID SUBMITTAL.

10. SUBCONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES WITHIN CONSTRUCTION LIMITS PRIOR TO CONSTRUCTION.

11. THE SUBCONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES. SILT AND EROSION CONTROL SHALL BE MAINTAINED ON THE DOWNSTREAM SIDE OF THE SITE AT ALL TIMES. ANY DAMAGE TO ADJACENT PROPERTIES WILL BE CORRECTED AT THE SUBCONTRACTOR'S EXPENSE.

12. CLEARING OF TREES AND VEGETATION ON THE SITE SHOULD BE HELD TO A MINIMUM. ONLY THE TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED. ANY DAMAGE TO THE PROPERTY OUTSIDE THE LEASED PROPERTY SHALL BE REPAIRED BY THE SUBCONTRACTOR.

13. ALL SUITABLE BORROW MATERIAL FOR BACK FILL OF THE SITE SHALL BE INCLUDED IN THE BID. EXCESS TOPSOIL AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF SITE AT LOCATIONS APPROVED BY GOVERNING AGENCIES PRIOR TO DISPOSAL.

14. PERMITS: THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES, ETC.

15. RECORD DRAWINGS: MAINTAIN A RECORD OF ALL CHANGES, SUBSTITUTIONS BETWEEN WORK AS SPECIFIED AND INSTALLED. RECORD CHANGES ON A CLEAN SET OF CONTRACT DRAWINGS WHICH SHALL BE TURNED OVER TO THE CONSTRUCTION MANAGER UPON COMPLETION OF THE PROJECT.

16. THE PLANS SHOW SOME KNOWN SUBSURFACE STRUCTURES, ABOVE GROUND STRUCTURES AND/OR EXISTING UTILITIES BELIEVED TO BE IN THE WORKING AREA. IT IS THE RESPONSIBILITY OF THE SUBCONTRACTOR TO VERIFY ALL UTILITIES, PIPELINES AND OTHER STRUCTURES SHOWN OR NOT SHOWN ON THESE PLANS. THE SUBCONTRACTOR SHALL CONTACT THE LOCAL LOCATE SERVICE BEFORE DIGGING OR DRILLING. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AND ENGINEER AT THE SUBCONTRACTOR'S EXPENSE.

REQUIRED SPECIAL INSPECTIONS:

1. PER CBC 1705.4 SPECIAL INSPECTION OF MASONRY. (IF REQUIRED)

**PLAN REVIEW ACCEPTANCE BY
PHILLIPS SEABROOK ASSOCIATES
APPLIES ONLY TO PLAN SHEETS
WHICH HAVE THIS STAMP**

GENERAL PROJECT NOTES:

1. THIS PROPOSAL IS FOR THE ADDITION OF A NEW GENERATOR ON A NEW CONCRETE PAD TO AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY CONSISTING OF AN EQUIPMENT SHELTER/PLATFORM AND TOWER.

2. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE.

3. THE PROPOSED FACILITY IS UNMANNED AND IS NOT FOR HUMAN HABITAT. (NO HANDICAP ACCESS IS REQUIRED)

4. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH BY AT&T TECHNICIANS.

5. OUTDOOR STORAGE AND SOLID WASTE CONTAINERS ARE NOT PROPOSED.

6. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

7. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY THE CONSTRUCTION OPERATION.

8. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTION REQUIRED FOR CONSTRUCTION.

9. SUBCONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.

ELECTRICAL NOTES:

A. GENERAL

1. COORDINATE LOCATION AND POWER REQUIREMENTS OF ALL EQUIPMENT WITH AT&T AND EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.

2. COORDINATE LOCATION AND REQUIREMENTS FOR ELECTRICAL AND TELEPHONE SERVICES WITH THE PROPERTY REPRESENTATIVE, AT&T AND UTILITY COMPANIES. ROUTING OF CONDUITS MAY BE MODIFIED TO MEET SITE REQUIREMENTS. EXACT CONDUIT ROUTING TO BE DETERMINED IN THE FIELD.

3. ALL WIRING AND EQUIPMENT SHOWN ON ELECTRICAL SHEETS SHALL BE FURNISHED AND INSTALLED UNDER ELECTRICAL PORTION OF CONTRACT UNLESS OTHERWISE NOTED

4. UNINTERRUPTED ELECTRICAL SERVICE FOR EXISTING EQUIPMENT SHALL BE MAINTAINED DURING THE INSTALLATION OF THE WORK DESCRIBED UNDER THESE DOCUMENTS. TEMPORARY EQUIPMENT, CABLES AND WHATEVER ELSE IS NECESSARY SHALL BE PROVIDED AS REQUIRED TO MAINTAIN ELECTRICAL SERVICE. TEMPORARY SERVICE FACILITIES, IF REQUIRED AT ANY TIME, SHALL NOT BE DISCONNECTED OR REMOVED UNTIL NEW SERVICE EQUIPMENT IS IN PROPER OPERATION. IF ANY SERVICE OR SYSTEM MUST BE INTERRUPTED, THE CONTRACTOR SHALL REQUEST PERMISSION IN WRITING STATING THE DATE, TIME, ETC. THE SERVICE WILL BE INTERRUPTED AND THE AREAS AFFECTED. THIS REQUEST SHALL BE MADE IN SUFFICIENT TIME FOR PROPER ARRANGEMENTS TO BE MADE. WRITTEN PERMISSION SHALL BE OBTAINED FROM THE OWNER BEFORE INTERRUPTING ELECTRICAL SERVICE.

5. COORDINATE NEW WORK WITH OTHER TRADES AND VERIFY EXISTING CONDITIONS TO AVOID INTERFERENCE. IN CASE OF INTERFERENCE, AT&T'S REPRESENTATIVE WILL DECIDE WHICH WORK IS TO BE RELOCATED, REGARDLESS OF WHICH WAS FIRST INSTALLED.

6. THE INSTALLATION MUST COMPLY WITH CEC AND ALL FEDERAL, STATE AND LOCAL RULES AND REGULATIONS.

7. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND EQUIPMENT UNLESS OTHERWISE DEFINED BY DIMENSIONS OR DETAILS. EXACT EQUIPMENT LOCATIONS AND RACEWAY ROUTING SHALL BE GOVERNED BY ACTUAL FIELD CONDITIONS AND/OR DIRECTIONS FROM AT&T'S REPRESENTATIVE.

8. CONTRACTOR SHALL PAY ALL PERMITS AND FEES REQUIRED.

9. ALL MATERIALS SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE STANDARDS REFERENCED BELOW:

- a. ANSI (AMERICAN NATIONAL STANDARDS INSTITUTE)
- b. ASTM (AMERICAN SOCIETY FOR TESTING MATERIALS)
- c. ETL (ELECTRICAL TESTING LABORATORY)
- d. ICEA (INSULATED CABLE ENGINEERS ASSOCIATION)
- e. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS)
- f. MBFU (NATIONAL BOARD OF FIRE UNDERWRITERS)
- g. NESC (NATIONAL ELECTRICAL SAFETY CODE)
- h. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
- i. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
- j. UL (UNDERWRITER'S LABORATORY)
- k. NEC (NATIONAL ELECTRICAL CODE)
- l. CEC (CALIFORNIA ELECTRICAL CODE)

10. CONTRACTOR SHALL REVIEW PLANS, DETAILS AND SPECIFICATIONS IN DETAIL AND ADJUST WORK TO CONFORM WITH ACTUAL SITE CONDITIONS SO THAT ELECTRICAL DEVICES AND EQUIPMENT WILL BE LOCATED AND READILY ACCESSIBLE. QUANTITIES LISTED IN MATERIAL LISTS ON THE DRAWINGS ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL PROVIDE HIS OWN TAKEOFF FOR MATERIAL QUANTITY AND TYPES BASED ON ACTUAL SITE CONDITIONS, IN ADDITION, CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIALS TO INSTALL EQUIPMENT FURNISHED BY AT&T OR ITS SUPPLIERS. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, BUT WHICH ARE OBVIOUSLY NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED.

11. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) AT&T'S REPRESENTATIVE OF ANY CONFLICTS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK, IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.

ELECTRICAL NOTES:

12. ALL FLOORS WHERE PENETRATIONS ARE REQUIRED IN BUILDING ARE TO BE CORE DRILLED AND THEN FIREPROOFED.

B. WIRING/CONDUIT

1. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR AS REQUIRED BY CODE SUCH THAT NO MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) EXIST IN A CONDUIT RUN.

2. ALL POWER AND CONTROL/INDICATION WIRING SHALL BE TYPE THHN/THWN 600V RATED 75 DEGREES CELSIUS, UNLESS NOTED OTHERWISE.

3. CONDUIT BENDS SHALL BE MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.

4. POWER WIRING SIZE SHALL NOT BE SMALLER THAN #12 AWG.

5. ALL WIRING SHALL BE COPPER. ALUMINUM WILL NOT BE ACCEPTABLE ALL POWER CIRCUITS SHALL CONTAIN A GROUND WIRE.

6. PHASE MARKINGS TO BE USED AT POWER CONDUCTOR TERMINATIONS.

7. CONTRACTOR SHALL ENSURE INTEGRITY IS MAINTAINED WHEN INSTALLING CONDUIT AND WIRING.

8. INSTALL PULL STRING IN ALL CONDUIT.

9. FOR ROOFTOP INSTALLS AND BUILD-OUTS, CONDUITS INSIDE BUILDING AND ON ROOF SHALL BE RGS, UNLESS OTHERWISE NOTED. FOR RAW LAND SITES AND CO-LOCATES, PVC SCHEDULE 80 SHALL BE UTILIZED UNLESS NOTED OTHERWISE.

10. MAINTAIN MINIMUM 1'-0" VERTICAL AND 1'-0" HORIZONTAL SEPARATIONS FROM ANY MECHANICAL GAS PIPING.

11. ALL WIRING ROUTED IN PLENUM TO BE RATED OR IN METALLIC FLEX (LIQUIDTITE) CONDUIT.

C. EQUIPMENT

1. EQUIPMENT/PARTS CONNECTED TO EXISTING PANELS, DUCTS, ETC. SHALL MATCH THE CHARACTERISTICS (A/C, V, A) OF THAT EQUIPMENT.

2. ALL ELECTRICAL EQUIPMENT OUTSIDE SHALL BE NEMA 3R RATED.

D. GROUNDING

1. ALL GROUND CONNECTIONS TO BUILDING SHALL BE MADE USING TWO-HOLE CONNECTORS. PROVIDE STAINLESS STEEL BOLTS AND LOCK WASHERS ON ALL MECHANICAL GROUND CONNECTIONS.

2. ALL EQUIPMENT SURFACES TO BE BONDED TO GROUNDING SYSTEM SHALL BE STRIPPED OF ALL PAINT AND DIRT AT ANY POINT OF CONNECTION. CONNECTIONS TO VARIOUS METALS SHALL BE OF A TYPE AS TO PREVENT A GALVANIC OR CORROSIVE REACTION. AREA SHALL BE REPAINTED FOLLOWING BONDING.

3. ANY METALLIC ITEM WITHIN 6' OF ANY EQUIPMENT OR METALLIC INFRASTRUCTURE (RACKS, CABLE TRAY.. ETC.) OR GROUND CONDUCTORS MUST BE CONNECTED TO THE GROUNDING SYSTEM PER AT&T STANDARDS.

4. EXTERIOR, ABOVE GRADE GROUND CONNECTIONS SHALL BE FURNISHED WITH A LIBERAL PROTECTIVE COATING OF ANTI-OXIDATION COMPOUND.

5. ALL MATERIALS AND LABOR REQUIRED FOR THE GROUNDING SYSTEM AS INDICATED ON THE PLANS AND DETAILS, AND AS DESCRIBED HEREIN SHALL BE FURNISHED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.

6. EXACT LOCATION OF GROUND CONNECTION POINTS SHALL BE DETERMINED IN FIELD. ADJUST LOCATIONS INDICATED ON PLANS ACCORDING TO ACTUAL EQUIPMENT LOCATIONS TO KEEP THE GROUND CONNECTION CABLES AS SHORT AND STRAIGHT AS PRACTICAL.

7. PROVIDE ALL ELECTRICAL SYSTEM AND EQUIPMENT GROUNDS AS REQUIRED BY THE CURRENT EDITION OF THE NATIONAL ELECTRIC CODE, THE CURRENT EDITION OF THE NATIONAL ELECTRICAL SAFETY CODE AND AT&T STANDARDS. BONDING JUMPERS WITH APPROVED GROUND FITTINGS SHALL BE INSTALLED AT ALL RACEWAYS, EQUIPMENT ENCLOSURES, PULL BOXES, ETC. TO MAINTAIN GROUND CONTINUITY WHERE REQUIRED BY CODE.

8. ALL BURIED EQUIPMENT GROUND CONDUCTORS SHALL BE #2 AWG BARE, TINNED, SOLID COPPER UNLESS NOTED OTHERWISE ON THE DRAWINGS.

E. INSPECTION/DOCUMENTATION

1. THE CONTRACTOR, UPON COMPLETION OF HIS WORK, SHALL PROVIDE AS-BUILT DRAWINGS. INFORMATION SHOULD BE GIVEN TO THE GENERAL CONTRACTOR FOR INCLUSION IN FINAL AS-BUILT SURVEY DOCUMENTS TO BE GIVEN TO THE OWNER.

2. CONTRACTOR SHALL SUPPLY DOCUMENTATION ATTESTING TO THE COMPLETE GROUND SYSTEM'S RESISTANCE TO GROUND (MAX. 5 OHMS).

3. AN ELECTRICAL INSPECTION SHALL BE MADE BY AN INSPECTING AGENCY APPROVED BY AT&T'S REPRESENTATIVE. CONTRACTOR SHALL COORDINATE ALL INSPECTIONS AND OBTAIN POWER COMPANY APPROVAL.

4. CONTRACTOR SHALL HAVE ATS AND GENERATOR RELAY INSTALLATION AND CONNECTIONS INSPECTED BY OTHERS TO ENSURE THAT UL LISTING FOR THAT EQUIPMENT IS NOT VOIDED.



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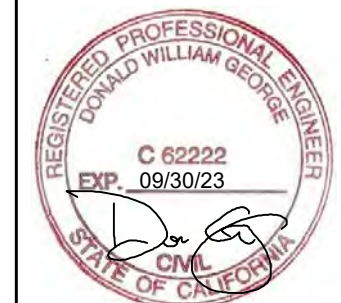
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2	06/14/22	PGE GG	JAD
1	02/15/22	PGE REDLINES	JAD
0	01/05/22	ISSUED FOR CONSTRUCTION	KS

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10088152

GENERATOR INSTALLATION PROJECT

150 HAMILTON ROAD
NOVATO, CA 94945

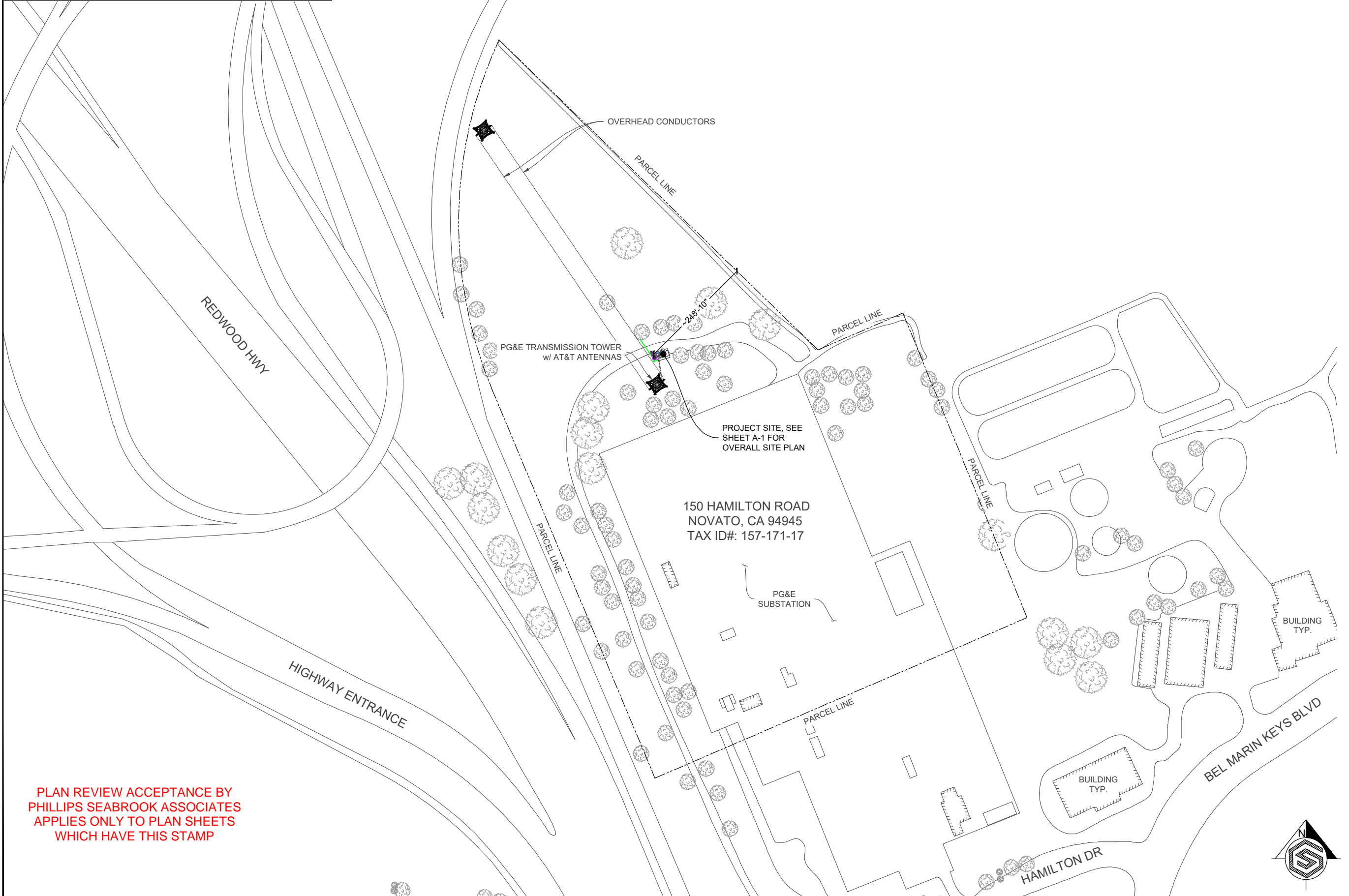
JURISDICTION USE:

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
N-1

EXISTING CONDITIONS:
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NOTE:
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PARCEL SITE PLAN

SCALE: 1" = 200'-0" (11x17)

1

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 PROJECT
 150 HAMILTON ROAD
 NOVATO, CA 94945

JURISDICTION USE:

SHEET TITLE:
 PARCEL
 SITE PLAN

SHEET NUMBER:
 A-0

GENSET USE, CEQA & BAAQMD EXEMPTION:

THE PROPOSED GENERAC SD030 GENSET:
 * IS RATED AT 49 HP AT MAXIMUM RATED kW OUTPUT,
 * IS INSTALLED WITH AN ABOVE-GROUND DOUBLE-WALL SECONDARY CONTAINMENT BALLISTIC BASE FUEL TANK WITH 132 USABLE GALLONS OF FUEL,
 * USES ULTRA LOW SULFUR DIESEL FUEL (15 ppm SULFUR),
 * IS LIMITED TO 100 HOURS PER YEAR OF NON-EMERGENCY USE (TESTING & MAINTENANCE),
 * IS INSTALLED WITH A LEVEL 2 ACOUSTIC ENCLOSURE, WHICH BUFFERS SOUND OUTPUT TO A MAXIMUM OF 62 dB AT 7 METERS (~23 FEET),
 * IS COMPLIANT WITH APPLICABLE AIR QUALITY REGULATIONS,
 * IS EXEMPT FROM AIR QUALITY PERMITS IN MOST JURISDICTIONS UNDER THE PROVISIONS OF CLASS 1, SEC. 15301 OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) GUIDELINES,
 * IS EXEMPT PER BAAQMD REG. 2, RULE 1, SEC. 2-1-114-2.2.1.; LESS THAN 50 BHP.

CUMULATIVE VOLUME CALCULATIONS:

THE PHYSICAL DIMENSIONS OF THE PROPOSED GENERATOR w/ ENCLOSURE AND BASE FUEL TANK ARE LESS THAN 250 CU. FT. IN VOLUME.

BASE FUEL TANK = 120.2"x43.0"x34.5" = 103.2 CU. FT.
 GENERATOR BODY w/ ENCLOSURE = 94.8"x61.1"x38" = 127.4 CU. FT.

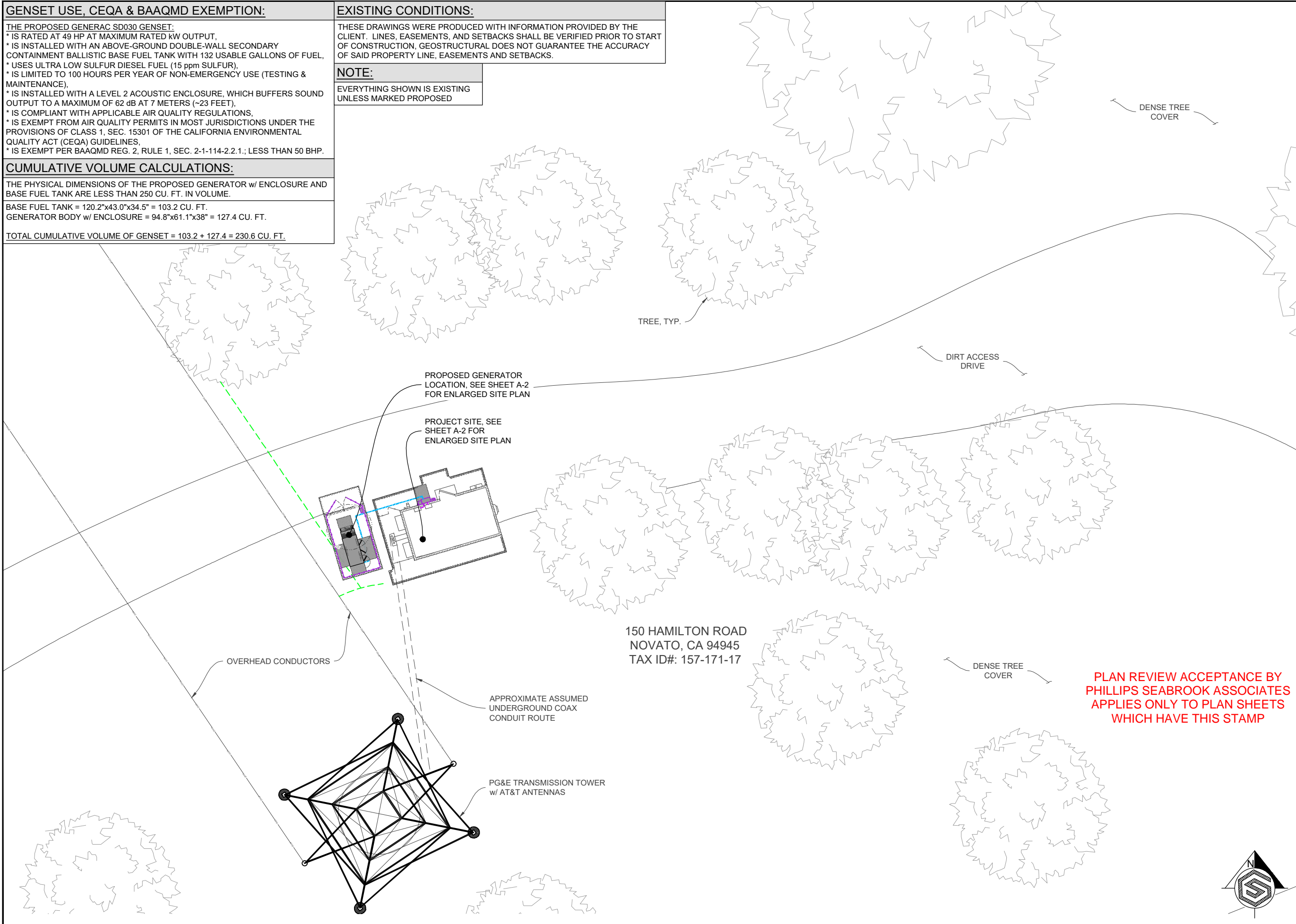
TOTAL CUMULATIVE VOLUME OF GENSET = 103.2 + 127.4 = 230.6 CU. FT.

EXISTING CONDITIONS:

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SITE INFORMATION:
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 SITE PLAN

SHEET NUMBER:
 A-1

UTILITY NOTE:

THE UTILITIES AS SHOWN ON THIS SET OF DRAWINGS WERE DEVELOPED FROM RECORD INFORMATION. THE INFORMATION PROVIDED IS IMPLIED NOT INTENDED TO BE A COMPLETE INVENTORY OF THE UTILITIES IN THIS AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE CAUSED BY CONTRACTOR'S ACTIVITIES.

EXISTING CONDITIONS:

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SCOPE OF WORK DETAILS:

GENERAL:

- NEW GENERAC DIESEL GENERATOR PROVIDED BY GENERAL DYNAMICS & INSTALLED BY GENERAL CONTRACTOR. SEE SHEETS E-4.0, E-4.1, E-4.2.
- NEW CONCRETE PAD PROVIDED & INSTALLED BY GENERAL CONTRACTOR. SEE SHEET S-1.
- NEW GENERAC AUTOMATIC TRANSFER SWITCH PROVIDED BY GENERAL DYNAMICS & INSTALLED BY CONTRACTOR. SEE SHEETS S-2, E-5.0, E-5.1.
- NEW COMPOUND FENCE & COMPOUND EXPANSION PROVIDED & INSTALLED BY GENERAL CONTRACTOR. SEE SHEETS S-3, S-4.
- CONTRACTOR TO VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL RESTORE & REPAIR ANY DAMAGED AREAS CAUSED BY CONSTRUCTION TO ORIGINAL OR BETTER CONDITION.
- INNER AND OUTER TANK TESTING DOCUMENTATION SHALL BE PROVIDED ONCE TANK IS IN PLACE ON SITE IN ACCORDANCE WITH NFPA 30.
- A CALIBRATION CHART OF PERMANENT AND DURABLE CONSTRUCTION SHALL BE LOCATED AT THE FILL BOX.

CONDUITS:

- INSTALL PULL STRING IN EACH CONDUIT.
- (2) NEW ELECTRICAL CONDUITS WITH CONDUCTORS TO BE INSTALLED FROM NEW GENERATOR TO NEW ATS. CONDUIT PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. SEE SHEETS E-1, E-2.
- (2) NEW ELECTRICAL CONDUITS WITH CONDUCTORS TO BE INSTALLED FROM NEW GENERATOR TO AC PANEL. CONDUIT PROVIDED & INSTALLED BY GENERAL CONTRACTOR. SEE SHEETS E-1, E-2.
- (1) NEW ALARM CONDUIT & CABLING PROVIDED & INSTALLED BY GENERAL CONTRACTOR. SEE SHEETS E-1, E-2.

GROUNDING:

- NEW EXOTHERMIC CONNECTION FROM EXISTING GROUND RING TO NEW MECHANICAL CONNECTION AT GENERATOR CHASSIS. GENERAL CONTRACTOR TO VERIFY LOCATION IN FIELD. LOCATE GROUND RODS NO MORE THAN 8'-0" APART. SEE SHEET E-3.

POWER ROUTING KEYED NOTES:

- MTS** EXISTING AT&T MANUAL TRANSFER SWITCH
- INT** INTERCEPT EXISTING CONDUIT AND CONDUCTORS AT MTS AND RE-ROUTE THROUGH PROPOSED ATS (~5'). COORDINATE PATH WITH CONSTRUCTION MANAGER
- AC** EXISTING AC LOAD CENTER
- CON** PROPOSED AT&T UNDERGROUND GENERATOR CONDUIT ROUTE (~40'). CONTRACTOR TO LOCATE EXISTING UTILITIES PRIOR TO EXCAVATION. SEE SHEETS E-1, E-2.

SEE SHEET E-1 FOR SINGLE LINE DIAGRAM.

GENERATOR KEYED NOTES:

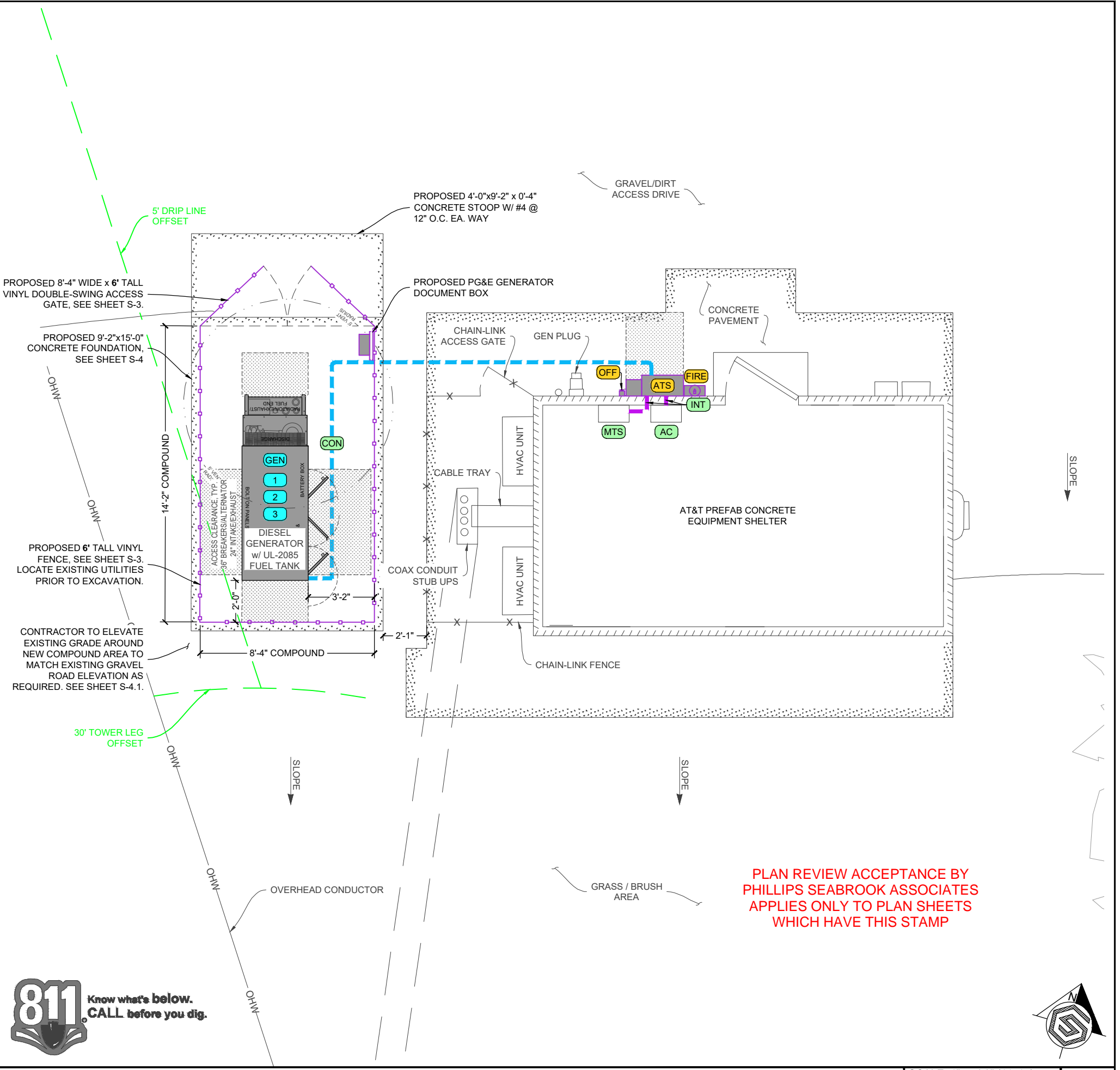
- GEN** PROPOSED AT&T 30KW DIESEL GENERATOR w/ SOUND ATTENUATED ENCLOSURE, NORMAL/EMERGENCY TANK VENTING AND BASE FUEL TANK. SEE SHEETS S-1, S-2, E-3.
- 1** FUEL FILL SHALL BE PROVIDED WITH SPILL CONTROL, WITH A SOLID FILL CONNECTION, AND WITH OVERFILL PREVENTION
- 2** FUEL TANK NORMAL AND EMERGENCY VENTS SHALL TERMINATE AT LEAST 12'-0" ABOVE THE ADJACENT GRADE. SEE SHEET S-2.
- 3** NFPA 704 PLACARD AND OTHER SIGNAGE. SEE SHEET S-2.

ATS / EQUIPMENT KEYED NOTES:

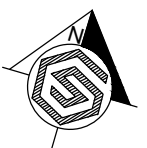
- FIRE** -FIRE EXTINGUISHER, (2A-20BC OR APPROVED EQUAL) PER CFC 906.3 -FIRE EXTINGUISHER CABINET (BFC-7009 OR APPROVED EQUAL), MOUNT TO BUILDING WALL PER CFC 906.9 (5'-0" MAX. ABOVE GRADE)
- OFF** LOCKABLE EMERGENCY SHUTOFF SWITCH, MOUNT TO BUILDING WALL PER CFC 906.9 (5'-0" MAX. ABOVE GRADE)
- ATS** PROPOSED ATS w/ CAMLOCK MOUNTED TO BUILDING WALL WITH 36" FRONT CLEARANCE. SEE SHEET S-2.

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JURISDICTION USE:

SHEET TITLE:
ENLARGED SITE PLAN

SHEET NUMBER:
A-2



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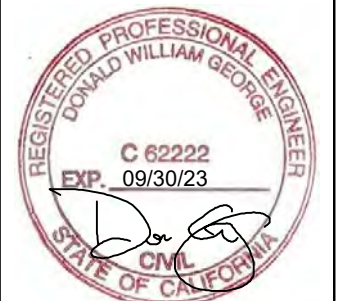
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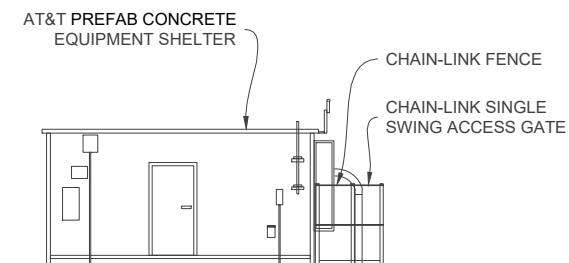
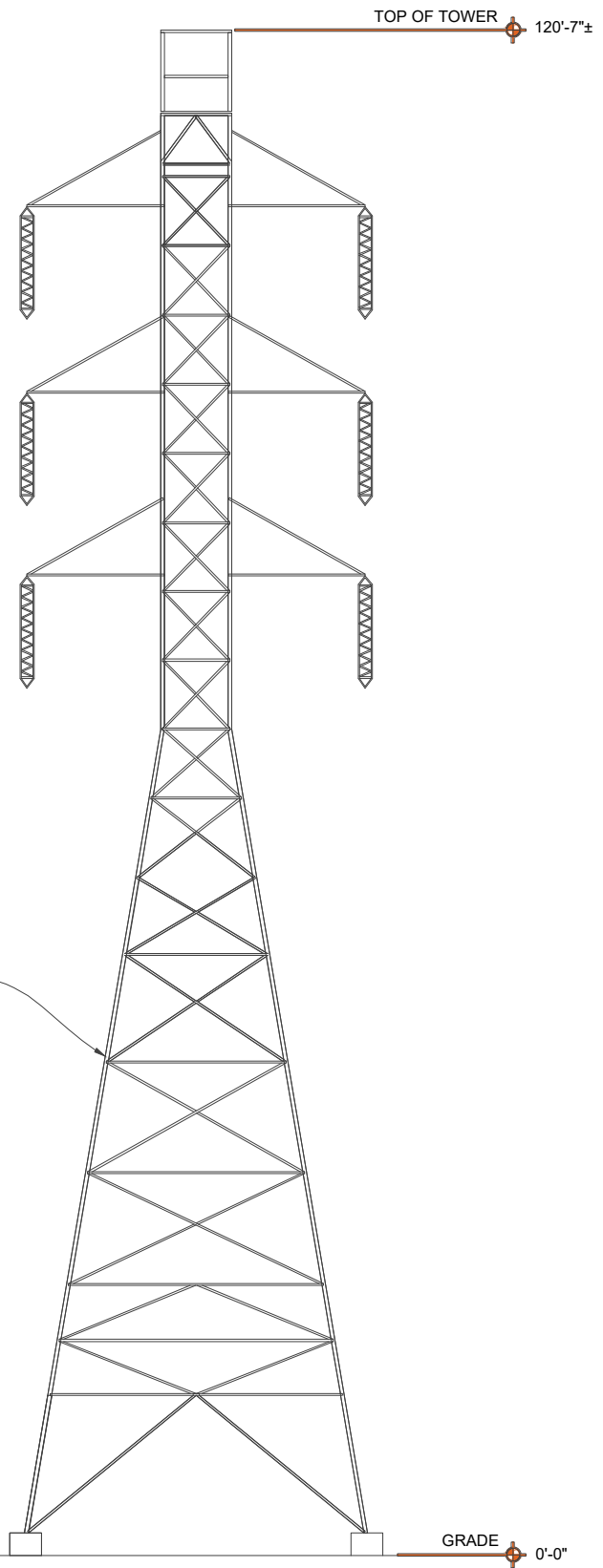
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JURISDICTION USE:

SHEET TITLE:
**ELEVATION
VIEWS**

SHEET NUMBER:

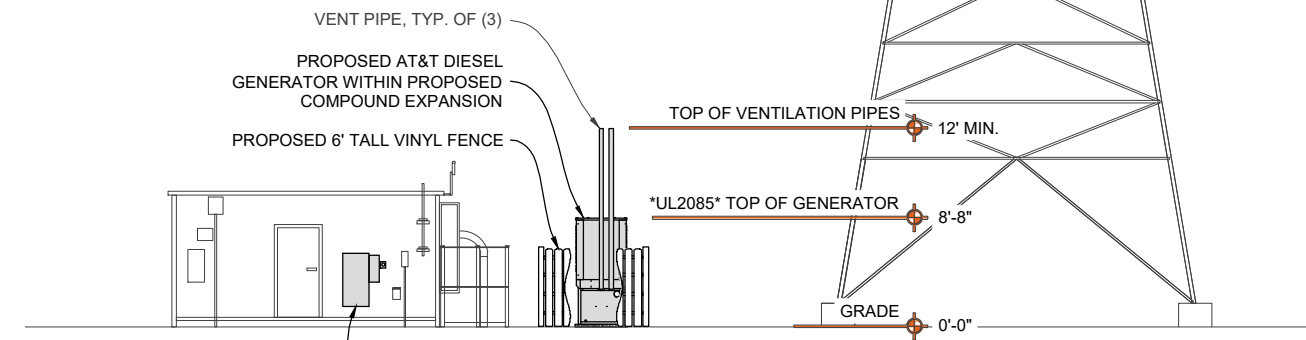
A-3



EXISTING ELEVATION VIEW

SCALE
N.T.S. **1**

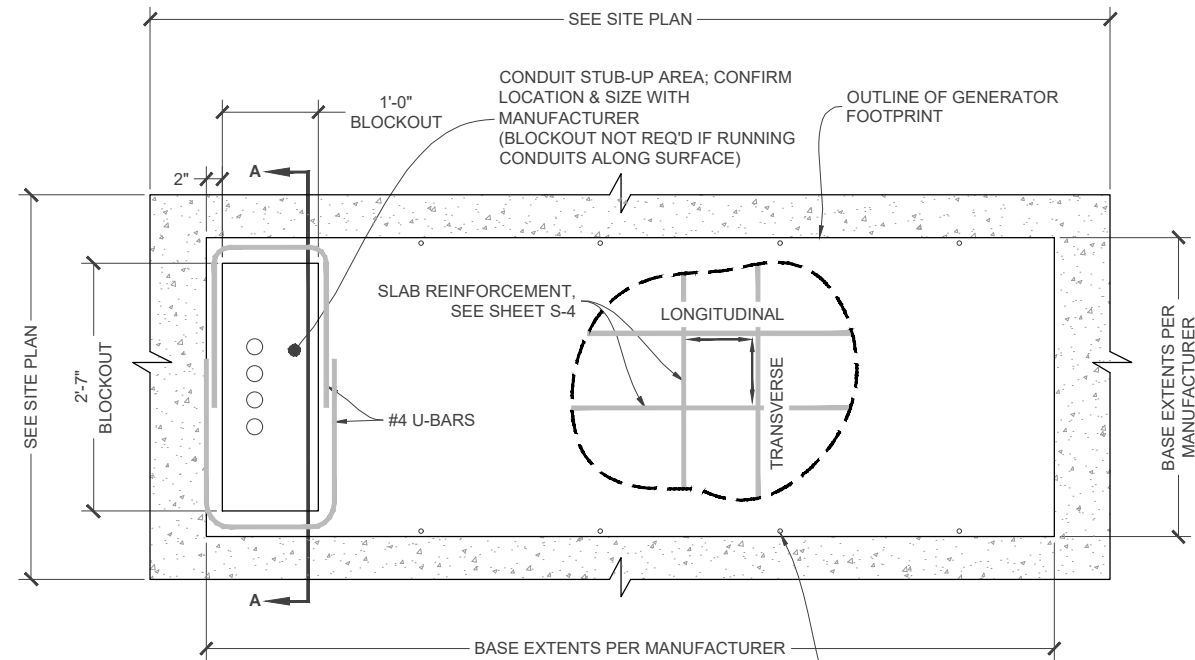
PROPOSED ELEVATION VIEW



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SCALE
N.T.S. **2**

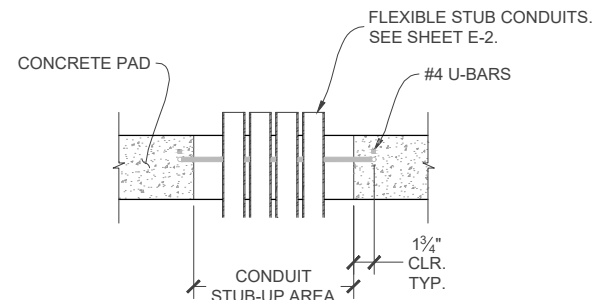
EXISTING ELEVATION VIEW



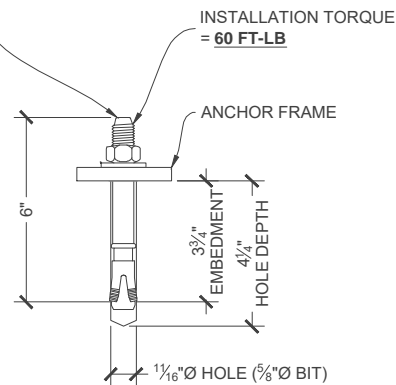
GENERATOR PAD DETAIL
SCALE: 1/2"=1'-0"(11x17) 1"=1'-0" (24x36)

#4 REBAR INSTALLED @ 12" O.C. PER PG&E GROUNDING DESIGN. DESIGN TO FOLLOW.

(10) 5/8"Ø x 3 3/4" EMBED HILTI KWIK BOLT TZ2 STAINLESS STEEL EXPANSION ANCHOR (OR APPROVED EQUAL). REFERENCE ICC-ES ESR-4266 REPORT.



GENERATOR PAD - SECTION A-A
SCALE: 1/2"=1'-0"(11x17) 1"=1'-0" (24x36)



TYPICAL ANCHOR

STRUCTURAL DESIGN NOTES:

ALL LOADS DERIVED FROM REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, ASCE 7 & ANSI TIA-222. BUILDING & COMMUNICATION STRUCTURES: (38.0782481° / -122.5415981°)

- WIND LOADS: IBC 2018 & ASCE 7-16
V = 92 MPH ULTIMATE WIND SPEED
STRUCTURE CLASS = II; EXPOSURE CATEGORY = C; TOPOGRAPHIC CATEGORY = 1.
IMPORTANCE FACTOR = 1.0.
- SEISMIC LOADS: IBC 2018 & ASCE 7-16
STRUCTURE CLASS = II; SITE CLASS = D.
S_s = 1.5; S₁ = 0.6; S_{0.5} = 1.2

CONCRETE NOTES:

- PRIOR TO EXCAVATION, CHECK THE AREA FOR UNDERGROUND FACILITIES.
- ALL CONCRETE SHALL BE IN ACCORDANCE WITH CHAPTER 19 OF THE CBC & ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION & HAVE THE FOLLOWING PROPERTIES:
 - A MINIMUM 28-DAY COMPRESSIVE STRENGTH (f_c) OF 2,500 PSI.
 - B CEMENT SHALL BE "LOW-ALKALI" TYPE IIA (MODERATE SULFATE RESISTANCE, AIR ENTRAINING) CONFORMING TO ASTM C150.
 - C MAXIMUM WATER/CEMENT RATIO OF 0.45 AND AIR-ENTRAINED 4% TO 7%.
 - D CONCRETE PROPORTIONING SHALL BE DESIGNED BY AN APPROVED LABORATORY. TOLERANCES IN ACCORDANCE WITH ACI 117. COPIES OF CONCRETE MIX SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO PLACEMENT.
 - E ALL AGGREGATE USED IN CONCRETE SHALL CONFORM TO ASTM C33. USE ONLY AGGREGATES KNOWN NOT TO CAUSE EXCESSIVE SHRINKAGE. MAXIMUM AGGREGATE SIZE TO BE 3/4".
 - F MAXIMUM SLUMP: REFER TO GEOTECHNICAL REPORT WHEN APPLICABLE.
- FORMWORK FOR CONCRETE SHALL CONFORM TO ACI 347. TOLERANCES FOR FINISHED CONCRETE SURFACES SHALL MEET CLASS-C REQUIREMENTS. IN NO CASE SHALL FINISHED CONCRETE SURFACES EXCEED THE FOLLOWING VALUES AS MEASURED FROM NEAT PLAN LINES AND FINISHED GRADES: ± 1/4" VERTICAL, ± 1" HORIZONTAL.
- CHAMFER ALL EXPOSED CORNERS AND FILLET ENTRANT ANGLES 3/4" U.N.O.
- CONCRETE FINISHING: CONCRETE SURFACES SHALL BE FINISHED IN ACCORDANCE WITH ACI. PROVIDE ROUGH FINISH FOR ALL SURFACES NOT EXPOSED TO VIEW AND SMOOTH FINISH FOR ALL OTHERS, U.N.O.
- STEEL REINFORCEMENT AND CONCRETE SHOULD BE PLACED IMMEDIATELY UPON COMPLETION OF THE FOUNDATION EXCAVATION. CONTRACTOR SHALL NOT ALLOW A COLD JOINT TO FORM IN THE CONCRETE. PORTION AT GRADE SHOULD BE FORMED. TEMPORARY CASING MAY BE REQUIRED TO PREVENT CAVING PRIOR TO CONCRETE PLACEMENT.

REINFORCING STEEL NOTES:

- ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615. VERTICAL/HORIZONTAL BARS SHALL BE GRADE 60; TIES OR STIRRUPS SHALL BE A MINIMUM OF GRADE 40. ALL REINFORCING STEEL SHALL HAVE 3" (± 3/8") OF CONCRETE COVER, U.N.O.
- ALL BAR BENDS, HOOKS, SPLICES AND OTHER REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ACI 315.
- ALL BARS SHALL BE SPLICED WITH A MINIMUM LAP OF 48 BAR DIAMETERS. LAP SPLICES OF DEFORMED BARS IN TENSION ZONES SHALL BE CLASS-B SPLICES. WELDING OF BARS IS NOT PERMITTED.
- AT ALL CORNERS AND WALL INTERSECTIONS, PROVIDE BENT HORIZONTAL BARS TO MATCH THE HORIZONTAL REINFORCING STEEL.
- PROVIDE VERTICAL DOWELS IN FOOTINGS AND AT CONSTRUCTION JOINTS TO MATCH VERTICAL REINFORCING BAR SIZE AND SPACING.
- ACI-APPROVED PLASTIC-COATED BAR CHAIRS OR PRECAST CONCRETE BLOCKS SHALL BE PROVIDED FOR SUPPORT OF ALL GRADE-CAST REINFORCING STEEL & SHALL BE SUFFICIENT IN NUMBER TO PREVENT SAGGING. METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUB-GRADE.
- DOWELS AND ANCHOR BOLTS SHALL BE WIRED OR OTHERWISE HELD IN CORRECT POSITION PRIOR TO PLACING CONCRETE. IN NO CASE SHALL DOWELS OR ANCHOR BOLTS BE "STABBED" INTO FRESHLY-POURED CONCRETE.

FOUNDATION & SOIL NOTES:

- FOUNDATION DESIGN BASED ON PRESUMPTIVE MINIMUM SOIL PARAMETERS (ALLOWABLE BEARING = 1,000 PSF; ALLOWABLE PASSIVE SLIDING = 100 PSF/FT) IN ACCORDANCE WITH THE IBC AND CBC.
- THE EXCAVATION SHALL BE INSPECTED PRIOR TO THE PLACEMENT OF CONCRETE AND THE CONTRACTOR SHALL PROVIDE A NOTICE OF INSPECTION FOR THE BUILDING INSPECTOR FOR REVIEW AND RECORDS PURPOSES.
- THE CONTRACTOR SHALL DETERMINE THE MEANS AND METHODS NECESSARY TO SUPPORT THE EXCAVATION DURING CONSTRUCTION.
- ALL FOUNDATIONS TO BE PLACED ON FIRM, UNDISTURBED, INORGANIC MATERIAL. PROOF ROLL SUB-GRADE PRIOR TO PLACING CONCRETE WHERE THE MATERIAL HAS BEEN DISTURBED BY EQUIPMENT. UNACCEPTABLE/DISTURBED MATERIAL SHALL BE OVER-EXCAVATED AND REPLACED WITH "LEAN CONCRETE FILL" OR REPLACED WITH STRUCTURAL BACKFILL.
- STRUCTURAL BACKFILL SHALL BE GRANULAR FREE-DRAINING MATERIAL FREE OF DEBRIS, ORGANICS, REFUSE AND OTHERWISE DELETERIOUS MATERIALS. MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 6" IN DEPTH AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED PER ASTM D1557 (MODIFIED PROCTOR).

MECHANICAL ANCHOR NOTES:

- HILTI PRODUCTS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, AS INCLUDED IN THE ADHESIVE PACKAGING.
- CONTRACTOR SHALL AVOID DRILLING HOLES IN VERTICAL/HORIZONTAL REINFORCING BARS.
- HOLES MUST BE WIRE BRUSHED AND BLASTED WITH COMPRESSED AIR PRIOR TO INSTALLATION. TEMPERATURES/METHODS/WORKING TIME/ETC. ARE TO BE IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.

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SITE INFORMATION:
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10088152
GENERATOR INSTALLATION PROJECT

150 HAMILTON ROAD
NOVATO, CA 94945

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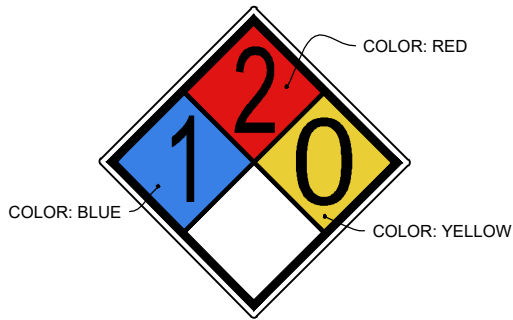
SHEET TITLE:
GENERATOR PAD DETAILS

SHEET NUMBER:
S-1



PLACE ON (2) VISIBLE SIDES OF PROPOSED GENERATOR TANK

15" x 12" SIGN



PLACE ON (2) VISIBLE SIDES OF PROPOSED GENERATOR TANK

15" x 15" SIGN



PLACE ON (2) VISIBLE SIDES OF PROPOSED GENERATOR TANK

11" x 11" SIGN



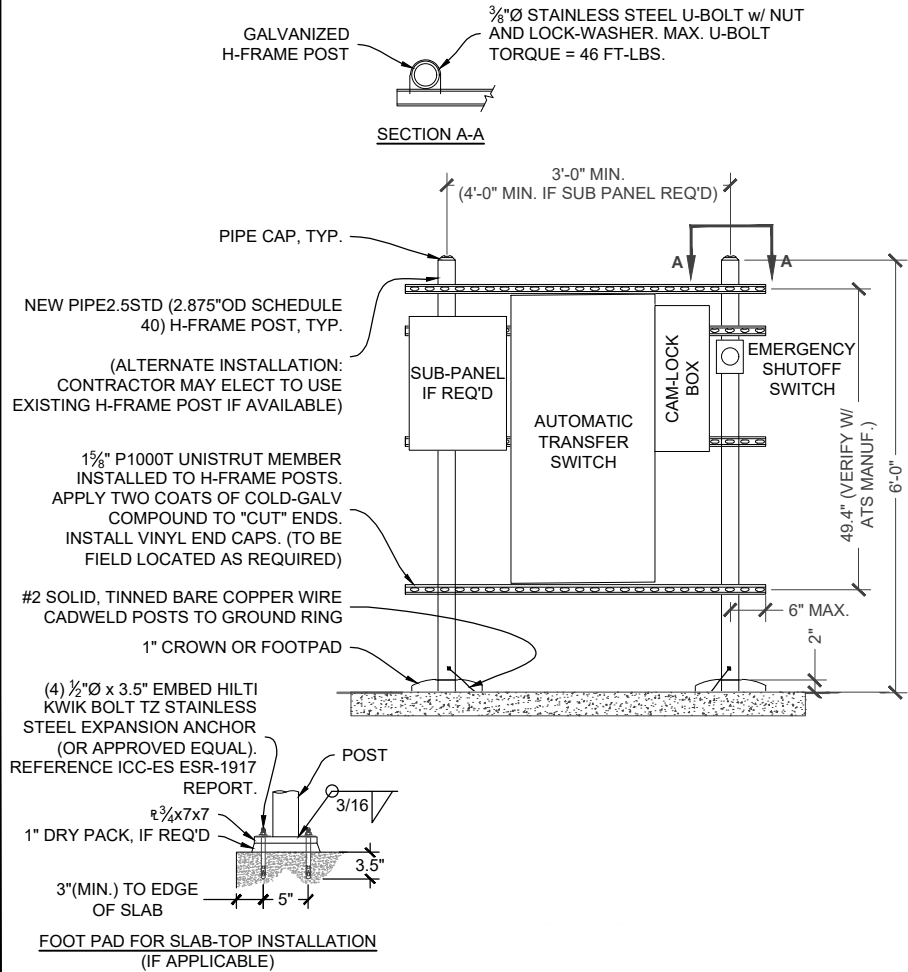
PLACE ON (2) VISIBLE SIDES OF PROPOSED GENERATOR TANK

6.5" x 3" SIGN

CONTRACTOR TO PROVIDE REQUIRED SIGNAGE FOR ELECTRICAL PANELS, DISCONNECTS, TRANSFER SWITCHES, ETC. PER CALIFORNIA ELECTRICAL CODE ARTICLE 702.7

REQUIRED LABELING & SIGNAGE

ATS LOCATION NOTE:
ATS LOCATION SHOWN IN PLANS IS THE BEST AVAILABLE BASED ON THE INFORMATION PROVIDED. ALTERNATIVE LOCATION MAY BE REQUIRED AND SHALL BE APPROVED BY CONSTRUCTION MANAGER AND/OR LANDLORD. THIS DETAIL PROVIDES ALTERNATIVE METHODS OF INSTALLATION (NOT ALL DETAILS MAY BE USED).

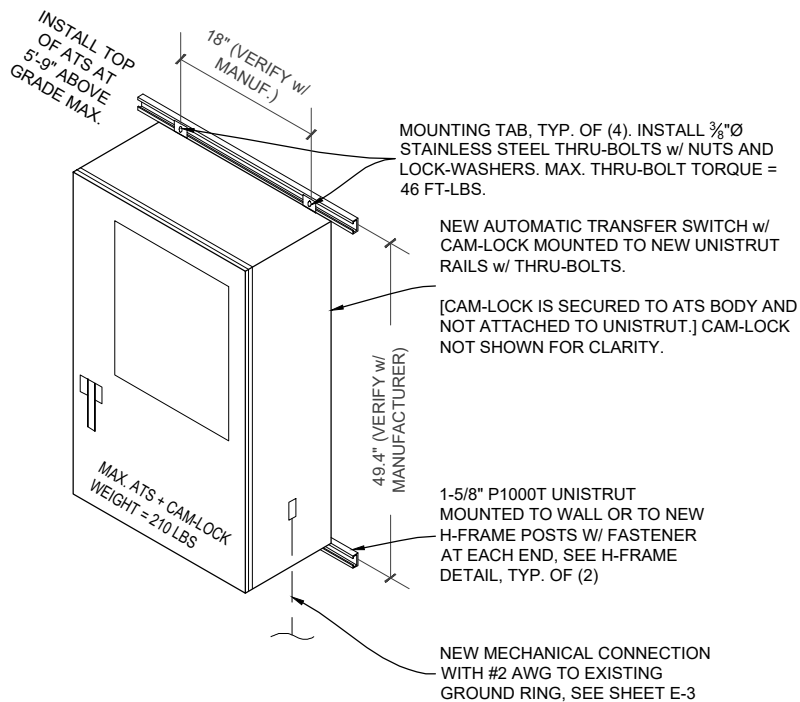


H-FRAME DETAIL (IF REQUIRED)

UNISTRUT WALL ATTACHMENT:

WALL CONSTRUCTION TYPE	FASTENER
HOLLOW, AT STUD	3/8" DIA. x 2-1/2" EMBED LAG SCREW
CONCRETE BLOCK (HOLLOW)	3/8" DIA. HILTI HY-270 WITH SCREEN, MINIMUM EMBEDMENT 2-3/8"
CONCRETE (SOLID)	3/8" DIA. HILTI HY-200, MINIMUM EMBEDMENT 2-3/8"

NOTES:
1. USE GALVANIZED OR STAINLESS STEEL HARDWARE FOR WALL MOUNT AND CONNECTION OF CHANNELS
2. GC SHALL USE NON-SHRINKING CAULK TO WEATHER SEAL ALL PENETRATIONS INTO OR THROUGH WALL



ATS MOUNTING DETAIL

DIESEL TANK CHECKLIST:

- READILY ACCESSIBLE MANUAL SHUTOFF VALVES SHALL BE INSTALLED ON SUPPLY PIPING AT THE POINT OF USE AND THE TANK (CFC 5003.2.2.1)
- SECONDARY CONTAINMENT-TYPE TANKS SHALL BE UL LISTED, UL-2085, AND COMPLY WITH ALL OF THE FOLLOWING REQUIREMENTS; OTHERWISE TRADITIONAL SPILL CONTROL OR SECONDARY CONTAINMENT MEASURES, SUCH AS DIKING, SHALL BE UTILIZED (NFPA 30 22.11.4)
- + CAPACITY OF DIESEL TANK SHALL NOT EXCEED 50,000 GAL.
 - + PIPING CONNECTIONS SHALL BE ABOVE THE LIQUID LEVEL
 - + MEANS SHALL BE PROVIDED TO PROTECT RELEASE OF LIQUID BY SIPHON FLOW.
 - + MEANS TO DETERMINE LIQUID LEVEL IN TANK SHALL BE PROVIDED TO DRIVER.
 - + MEANS TO PREVENT OVERFILLING BY AN ALARM AT 90% CAPACITY AND AUTOMATICALLY STOPPING DELIVERY OF LIQUID TO THE TANK AT 95% CAPACITY.
 - + SPACING BETWEEN ADJACENT TANKS SHALL NOT BE LESS THAN 3'.
 - + TANK SHALL BE PROTECTED AGAINST DAMAGE FROM VEHICLES.
 - + INTERSTITIAL SPACE SHALL HAVE EMERGENCY VENTING.
 - + INTEGRITY OF SECONDARY CONTAINMENT SHALL BE ESTABLISHED.
 - + THE SECONDARY CONTAINMENT SHALL WITHSTAND THE HYDROSTATIC HEAD OF THE MAXIMUM AMOUNT OF LIQUID STORED IN THE PRIMARY TANK.

TANK LABELING AND PROTECTIONS:

- THE FOLLOWING SIGNS AND LABELS SHALL BE AFFIXED TO THE TANK.
- + "DIESEL FUEL - NO SMOKING" (CFC 5703.5 & CFC 5003.7.1)
 - + NFPA 704 PLACARD (CFC 5003.5)
 - + EH&S
 - + AT&T MOBILITY SIGN #3
- CRASH PROTECTION COMPLYING WITH FC 312 SHALL BE PROVIDED (CFC 5003.9.3) (IF APPLICABLE)

GENERATOR FEATURES:

- GENERATORS SHALL BE UL 2200 LISTED AND COMPLY WITH NFPA 37 AND NFPA 110. (CFC 604.1 AND 604.1.1)
- INSTALLATIONS SHALL HAVE A LABELED REMOTE MANUAL STOP (NFPA 110 5.6.5.6 & 5.6.5.6.1 AND NFPA 37 9.2.1.1)

DOUBLE WALL FUEL TANK BASE SPECIFICATION:

- REF: AT&T 30KW GENERATOR PACKAGE
UL REGISTRATION NUMBER: MH 18481
UL-2085 DOUBLE WALL FUEL TANK BASE SPECIFICATION
- FUEL TANK BASE CONSTRUCTION:
BE CONSTRUCTED IN ACCORDANCE WITH UNDERWRITERS LABORATORIES STANDARD UL-2085. BE CONSTRUCTED IN ACCORDANCE WITH FLAMMABLE COMBUSTIBLE LIQUIDS CODE, NFPA 30; THE STANDARD FOR INSTALLATION USE OF STATIONARY COMBUSTIBLE ENGINE GAS TURBINES, NFPA 37; AND THE STANDARD FOR EMERGENCY STANDBY POWER SYSTEMS, NFPA 110.
- + MINIMUM ANCHOR QUANTITY PER MANUFACTURER OR THIS PLAN SET; WHICHEVER IS LARGER.
- SUB BASE TANK TESTING:
+ PRIMARY TANK & SECONDARY CONTAINMENT BASIN SECTIONS SHALL BE PRESSURIZED AT 3-5 PSI AND LEAK-CHECKED TO ENSURE INTEGRITY OF SUB BASE WELD SEAMS PER UL-142 STANDARDS
- FUEL FILL: 2.5 - 5 GALLON SPILL CONTAINMENT WITH ALARM
- + 40% REMAINING FOR ALARM
 - + 20% REMAINING FOR SHUT-DOWN
- FACTORY PRE-SET AT 90% FULL FOR ALARM
- FUEL CONTAINMENT BASIN:
SUB BASE TANK SHALL INCLUDE A WELDED STEEL CONTAINMENT BASIN, SIZED AT A MINIMUM OF 110% OF THE TANK. CAPACITY TO PREVENT ESCAPE OF FUEL INTO THE ENVIRONMENT IN THE EVENT OF A TANK RUPTURE. A FUEL CONTAINMENT BASIN LEAK DETECTOR SWITCH SHALL BE PROVIDED.

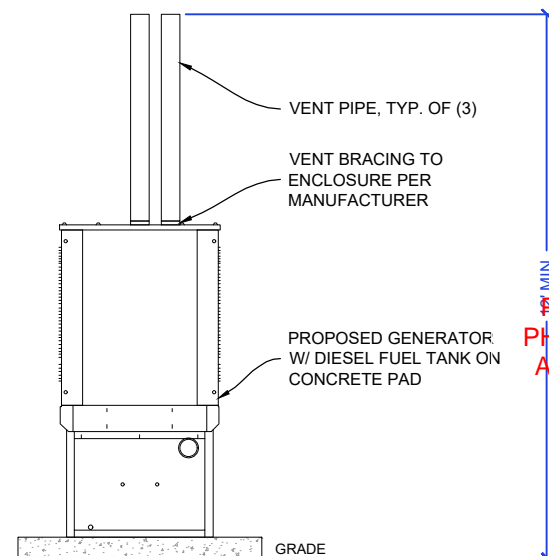
NEPA NOTES:

- CONSTRUCTION, INSTALLATION, MAINTENANCE, & OPERATIONAL TESTING OF EPSS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF NFPA 110.
- ALL ELECTRICAL WORK SHALL COMPLY WITH LATEST ADOPTED EDITION OF NFPA 70 - NATIONAL ELECTRICAL CODE.

FUEL TANK NOTES:

- THE TANK SHALL BE MANUFACTURED WITH THE FOLLOWING:
- INTERSTITIAL ELECTRONICALLY MONITORED RUPTURE BASIN
 - ALARM TO MONITOR THE SPACE BETWEEN THE PRIMARY AND SECONDARY TANK.
 - OVERFILL ALERT TO VISUALLY WARN WHEN THE TANK IS FILLED UPON CAPACITY.
 - OVERSPILL CONTAINMENT AT FILL PORT TO PREVENT SPILL OF FUEL DURING FILLING OPERATIONS.
 - 2.5/5 GALLON OVERSPILL CONTAINMENT W/ LOCKABLE CAP.

**SEE SHEETS E-4.3, E-4.4 FOR VENT PIPES, FUEL FILL, SPILL & ALARM COMPONENTS



GENERATOR VENTING DETAIL



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GENERATOR INSTALLATION PROJECT
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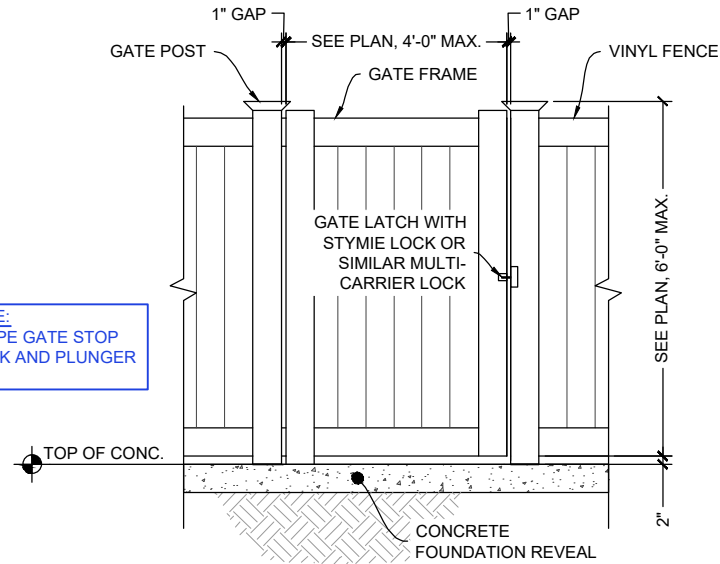
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SHEET TITLE:
GENERAL STRUCTURAL DETAILS

SHEET NUMBER:
S-2

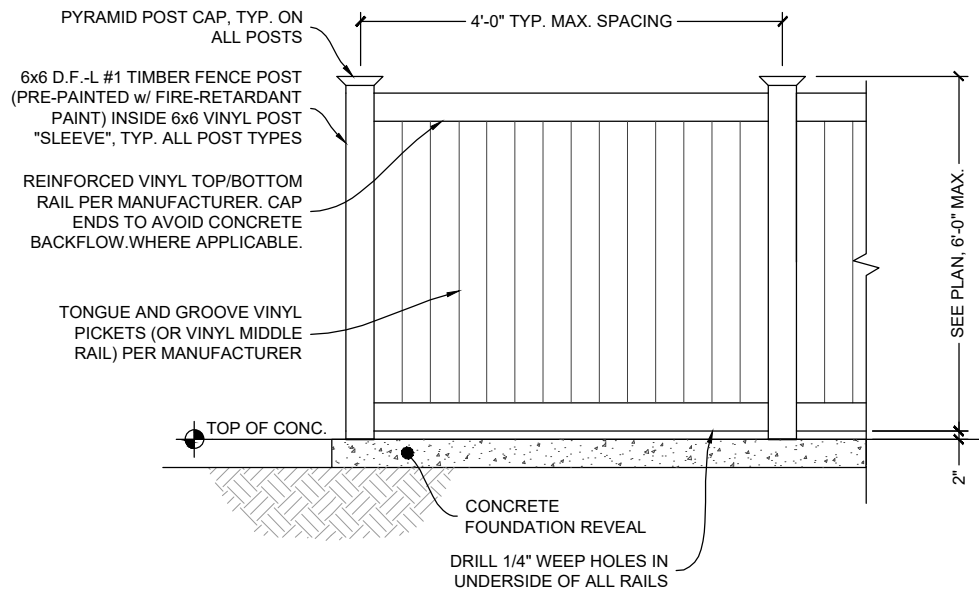
VINYL FENCE NOTES:

1. CONTRACTOR TO REFER TO FENCE MANUFACTURER'S INSTALLATION GUIDELINES.
2. ALL VINYL FENCE PRODUCTS SHALL BE "COMMERCIAL" OR "PROFESSIONAL" GRADE WITH UV INHIBITORS AND IMPACT MODIFIERS.
3. FENCES INSTALLED ON SLOPED GRADES SHALL BE STEPPED OR RACKED AS ALLOWED BY MANUFACTURER.
4. ALL VINYL FENCE PRODUCTS TO BE FIRE-RESISTANT AND NON CONDUCTIVE. USE "FIBERFENCE" OR APPROVED EQUIVALENT PER PG&E REQUIREMENTS.
5. TIMBER FENCE POSTS SHALL BE TREATED D.F.-L #1 OR BTR. POSTS TO BE PAINTED WITH FIRE-RETARDANT PAINT PER PG&E REQUIREMENTS PRIOR TO "SLEEVEING" WITH "FIBERFENCE" VINYL POST MATERIAL.

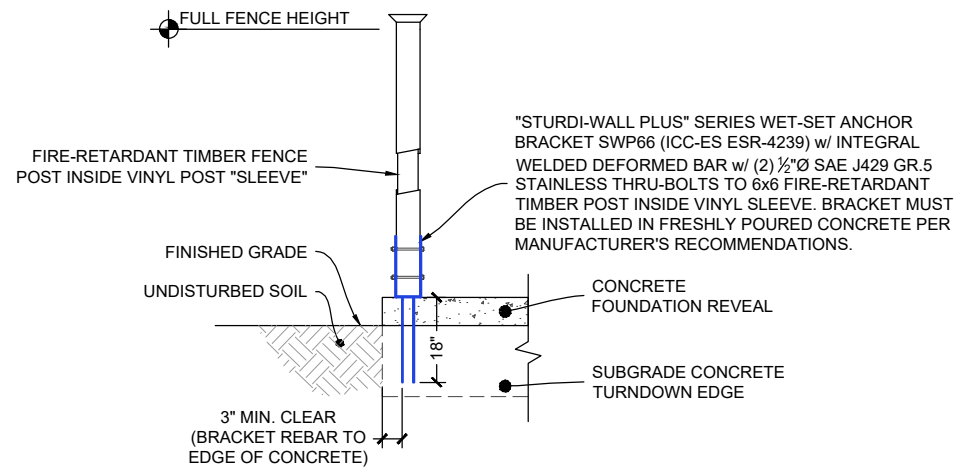


FOR DOUBLE SWING GATE:
INSTALL "MUSHROOM" TYPE GATE STOP
CAST IN CONCRETE BLOCK AND PLUNGER
BAR BETWEEN GATES

VINYL ACCESS GATE DETAIL



VINYL PRIVACY FENCE DETAIL



BRACKET AT POST DETAIL

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PROJECT
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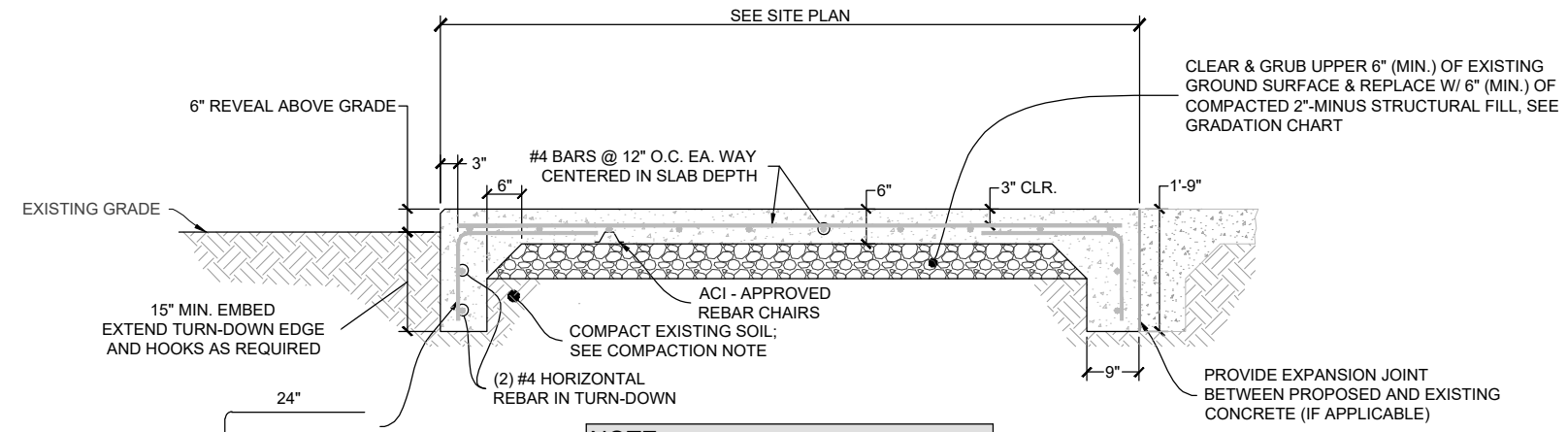
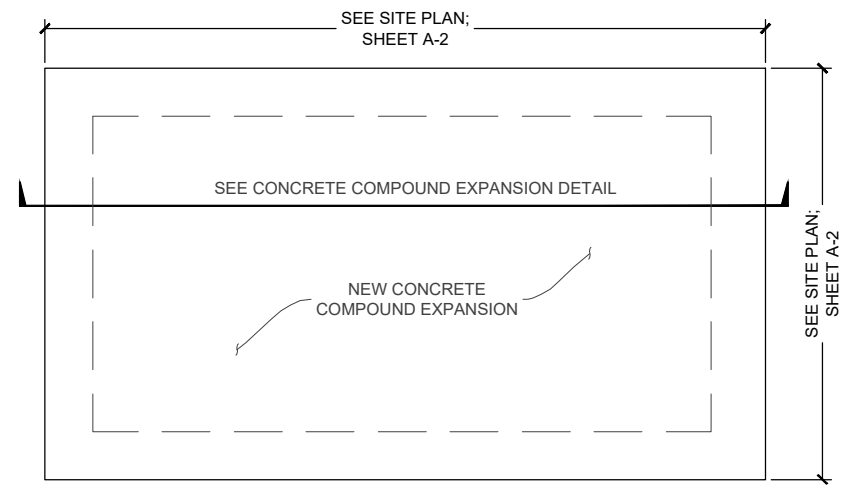
SHEET TITLE:
**FENCE & GATE
DETAILS**

SHEET NUMBER:
S-3

AGGREGATE NOTES:	
1	THE AGGREGATE MATERIAL TO BE USED WILL BE PRODUCED FROM SOUND, TOUGH, DURABLE ROCK AND SHALL BE UNIFORM IN QUALITY AND GRADATION. THE CRUSHED MATERIAL WILL BE REASONABLY FREE FROM SOFT OR DISINTEGRATED PIECES, ORGANIC MATERIALS, AND OTHER OBJECTIONABLE MATTER.
2	THE AGGREGATE MATERIAL WILL SHOW A LOSS LESS THAN 35% IN THE LOS ANGELES ABRASION TEST.
3	THE PERCENTAGE OF SOFT PARTICLES, AS DETERMINED BY THE CLAY LUMPS AND FRIABLE PARTICLES [AASHTO T 112], SHALL NOT BE MORE THAN 5%.
4	THE AGGREGATE MATERIAL USED WILL NOT HAVE A SAND EQUIVALENT LESS THAN 30 IF 5% OR MORE OF THE MATERIAL PASSES THE NUMBER 200 SIEVE.
5	80% OF THE GRAVEL (BY WEIGHT) OF THE COMBINED COURSE AGGREGATE SHALL HAVE THREE OR MORE ROUGH ANGULAR SURFACES AND PRODUCED BY CRUSHING OF THE ROCK.
6	THE PLASTICITY INDEX OF THE FINISHED AGGREGATE PRODUCT SHALL NOT EXCEED 6.

COMPACTION NOTE:	
STRUCTURAL FILL SHALL BE GRANULAR FREE-DRAINING MATERIAL FREE OF DEBRIS, ORGANICS, REFUSE AND OTHERWISE DELETERIOUS MATERIALS. MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 12" IN DEPTH AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED PER ASTM D1557.	

AGGREGATE GRADATION CHART:		
(% BY WEIGHT PASSING SIEVES)		
SIEVE SIZE	2"-MINUS	¾"-MINUS
2½"	100	-
2"	90-100	-
1"	55-83	100
¾"	-	90-100
No. 4	30-60	40-65
No. 8	-	30-50
No. 30	10-25	-
No. 200	0-8	3-9



NOTE:
SEE SHEET S-1 FOR FOUNDATION / STRUCTURAL NOTES AND SPECIFICATIONS.

CONCRETE COMPOUND EXPANSION DETAIL

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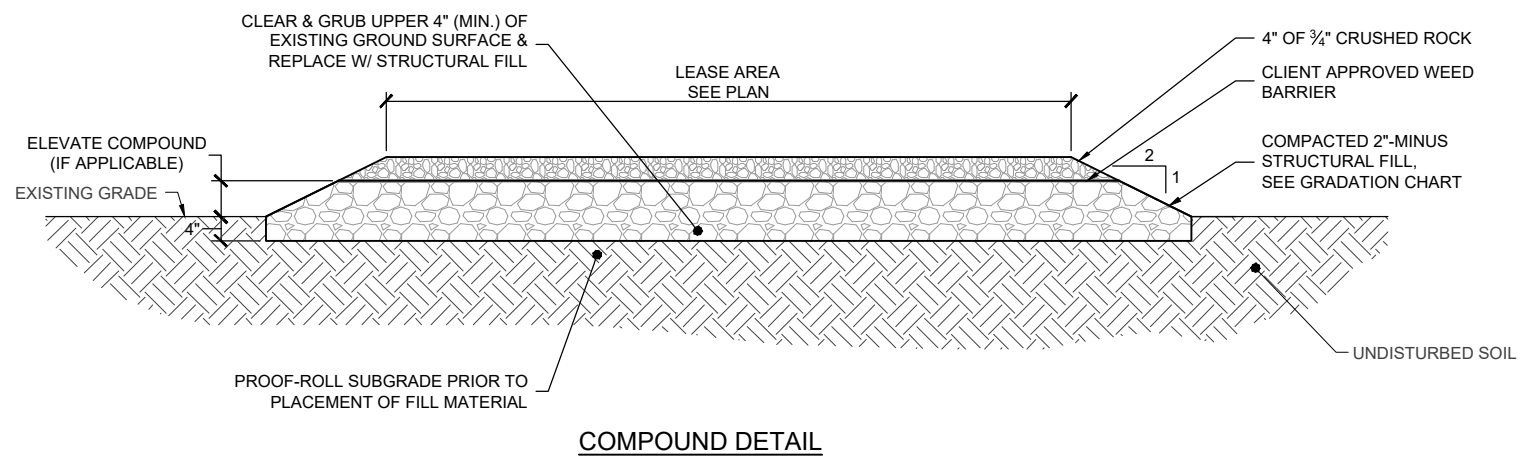
SHEET TITLE:
COMPOUND EXPANSION DETAIL

SHEET NUMBER:
S-4

AGGREGATE NOTES:	
1	THE AGGREGATE MATERIAL TO BE USED WILL BE PRODUCED FROM SOUND, TOUGH, DURABLE ROCK AND SHALL BE UNIFORM IN QUALITY AND GRADATION. THE CRUSHED MATERIAL WILL BE REASONABLY FREE FROM SOFT OR DISINTEGRATED PIECES, ORGANIC MATERIALS, AND OTHER OBJECTIONABLE MATTER.
2	THE AGGREGATE MATERIAL WILL SHOW A LOSS LESS THAN 35% IN THE LOS ANGELES ABRASION TEST.
3	THE PERCENTAGE OF SOFT PARTICLES, AS DETERMINED BY THE CLAY LUMPS AND FRIABLE PARTICLES [AASHTO T 112], SHALL NOT BE MORE THAN 5%.
4	THE AGGREGATE MATERIAL USED WILL NOT HAVE A SAND EQUIVALENT LESS THAN 30 IF 5% OR MORE OF THE MATERIAL PASSES THE NUMBER 200 SIEVE.
5	80% OF THE GRAVEL (BY WEIGHT) OF THE COMBINED COURSE AGGREGATE SHALL HAVE THREE OR MORE ROUGH ANGULAR SURFACES AND PRODUCED BY CRUSHING OF THE ROCK.
6	THE PLASTICITY INDEX OF THE FINISHED AGGREGATE PRODUCT SHALL NOT EXCEED 6.

AGGREGATE GRADATION CHART:		
(% BY WEIGHT PASSING SIEVES)		
SIEVE SIZE	2"-MINUS	¾"-MINUS
2½"	100	-
2"	90-100	-
1"	55-83	100
¾"	-	90-100
No. 4	30-60	40-65
No. 8	-	30-50
No. 30	10-25	-
No. 200	0-8	3-9

COMPACTION NOTE:
 STRUCTURAL FILL SHALL BE GRANULAR FREE-DRAINING MATERIAL FREE OF DEBRIS, ORGANICS, REFUSE AND OTHERWISE DELETERIOUS MATERIALS. MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 12" IN DEPTH AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED PER ASTM D1557.



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 10088152
 GENERATOR INSTALLATION
 PROJECT
 150 HAMILTON ROAD
 NOVATO, CA 94945

JURISDICTION USE:

SHEET TITLE:
**GRADE BUILD-UP
 DETAIL**

SHEET NUMBER:
S-4.1

TYP 1

CONDUIT / WIRE SCHEDULE:

NO.	FROM	TO	WIRES	GROUND	CONDUIT SIZE	FUNCTION
①	NORMAL POWER SOURCE	AUTOMATIC TRANSFER SWITCH	(3) W/C	(1) W/C	(1) W/C	NORMAL POWER FEEDER TO ATS (CUT BACK EXISTING)
②	AUTOMATIC TRANSFER SWITCH	LOAD CENTER	(3) W/C	(1) W/C	(1) W/C	POWER FEEDER FROM ATS TO PANELS
③	GENERATOR	AUTOMATIC TRANSFER SWITCH	(3) W/C	(1) W/C	(1) W/C	STANDBY POWER FEEDER TO ATS
④	AUTOMATIC TRANSFER SWITCH	GENERATOR	(2) W/C	(1) W/C	(1) W/C	START CIRCUIT
⑤	LOAD CENTER (DISTRIBUTION CENTER)	GENERATOR, ATS	(2) W/C (2) W/C (2) W/C	(1) W/C (1) W/C (1) W/C	(1) W/C (1) W/C (1) W/C	CKT FOR GEN BLOCK HEATER & BATTERY HEATER, CKT FOR BATTERY CHARGER, CKT FOR ATS CONTROLS (SEE BREAKER NOTE)
⑥	GENERATOR	THROUGH ATS TO ALARM BLOCK	12-PAIR 24 AWG OR 2EA 6-PAIR CAT5	N/A	1"	ALARM CABLES (1) 12 PAIR 24 AWG. PROVIDE 24" OF SLACK CABLE. FINAL PUNCH DOWN IS BY AT&T TECH. LABEL ALL WIRES
⑦	AUTOMATIC TRANSFER SWITCH	ALARM BLOCK	(2) 12-PAIR 24 AWG OR (2) 6-PAIR CAT5 (1) 1-PAIR 24AWG	N/A	1"	ALARM CABLES (1) 12 PAIR 24 AWG (RUN THRU INTERIOR OF SHELTER OR GROUND EQUIPMENT & INTO ALARM BOX). PROVIDE SINGLE PAIR FOR COMMERCIAL POWER FAIL ALARM. PROVIDE 24" OF SLACK CABLE. FINAL PUNCH DOWN IS BY AT&T TECH. LABEL ALL WIRES
⑧	CAM-LOCK BOX	AUTOMATIC TRANSFER SWITCH	(3) W/C	(1) W/C	(1) W/C	STANDBY POWER FEEDER TO ATS

(W/C) = SEE WIRE/CONDUIT SIZING TABLE FOR VALUES

ATS POLE NOTE:

NEW ATS/CAMLOCK ARE CONFIGURABLE FOR SINGLE OR THREE PHASE OPERATION. IN SINGLE PHASE INSTALLATIONS, 3-POLE ATS TO BE INSTALLED WITH ONE POLE NOT CONNECTED (UNUSED) AND TO BE CONFIGURED FOR DUAL-POLE USE. NEUTRAL SHALL NOT BE SWITCHED.

BREAKER QUANTITY NOTE:

"ATS CONTROLS" CIRCUIT MAY NOT BE REQUIRED TO POWER ATS. CONTRACTOR TO FIELD-VERIFY PER APPLICATION ON EQUIPMENT.

NOTE: ALL CONDUCTORS TO BE COPPER UNLESS NOTED OTHERWISE.

ALARM WIRE IDENTIFICATION CHART:

WIRE	ALARM
BROWN BROWN / WHITE	GENERATOR RUNNING
GREEN GREEN / WHITE	CRITICAL FAULT
BLUE BLUE / WHITE	MINOR FAULT
ORANGE ORANGE / WHITE	LOW FUEL
BROWN * BROWN / WHITE *	FUEL LEAK

*CAT5 CABLE ONLY, FROM 2ND CAT5 CABLE

EXISTING DISTRIBUTION PANEL

CONTRACTOR TO VERIFY VOLTAGE AND PHASE OF PROPOSED ATS/CAMLOCK AND GENERATOR ARE COMPATIBLE W/ EXISTING SERVICE FEED/DISTRIBUTION PANEL.

*CONTRACTOR TO UTILIZE NEXT AVAILABLE IN SEQUENCE SINGLE BREAKER POSITION FOR GENERATOR, BATTERY CHARGER, BATTERY HEATER AND BLOCK HEATER

EXISTING PANEL SCHEDULE INFORMATION WAS NOT AVAILABLE AT THE TIME OF DRAWING CREATION.

SCOPE OF WORK REQUIRES (2) OR (3) PROPOSED SINGLE POLE, 20A BREAKERS, ONE EACH FOR CONDUIT CALLOUT NUMBER 5 ON THE SINGLE LINE DIAGRAM. UTILIZE EMPTY OR SPARE SPACES ON EXISTING PANELBOARD IF POSSIBLE.

IF SUFFICIENT SPACES ARE NOT PRESENT IN MAIN PANEL, PROVIDE NEW SUBPANEL FED WITH NEW SINGLE-POLE, 60A BREAKER IN MAIN PANELBOARD. SQUARE D QO LOAD CENTER RECOMMENDED AS NECESSARY.

ALL ELECTRICAL WORK CONDUCTED ON PANELS TO BE VERIFIED WITH CONSTRUCTION MANAGER AND CONDUCTED BY AN APPROVED ELECTRICAL CONTRACTOR LICENSED IN THE STATE.

PANEL NOTES:

- CONTRACTOR TO LABEL WIRES WITH P-TOUCH OR SIMILAR LABELS ONLY. ABSOLUTELY NO HANDWRITTEN LABELS.
- CONTRACTOR SHALL PERFORM A POWER STUDY ON EXISTING AC PANEL PRIOR TO INSTALLING, CHANGING, ALTERING, OR REMOVING ANY BREAKER. NO WORK SHALL BE COMPLETED ON AC PANEL WITHOUT PROPER INSPECTOR OR ENGINEER APPROVED DOCUMENTATION CONFIRMING CAPACITY ON SITE. ALL WORK SHALL CONFORM TO CEC VERSION ENFORCED BY A.H.J. AT TIME OF INSTALLATION.
- CONTRACTOR SHALL VERIFY THAT THE MAXIMUM DEMAND FOR ALL CONNECTED EQUIPMENT AT THIS SITE AS CALCULATED PER CEC DOES NOT EXCEED THE GENERATOR OUTPUT CIRCUIT BREAKER RATING. (SEE NOTE #4 ALSO.)
- IF MAXIMUM DEMAND OF GENERATOR OUTPUT CIRCUIT BREAKER RATING AS CALCULATED PER CEC IS CONTINGENT ON THE TWO HVAC UNITS NOT OPERATING CONCURRENTLY, THEN CONTRACTOR SHALL VERIFY THAT THE HVAC LEAD/LAG CONTROLLER IS CONFIGURED TO PREVENT CONCURRENT OPERATION. IF NOT, THEN CONTRACTOR SHALL RECONFIGURE IT AS NEEDED TO PREVENT TRIPPING THE CIRCUIT BREAKER.
- SEE REQUIRED LABELING & SIGNAGE; SHEET S-2.

WIRE/CONDUIT SIZING: FEEDER MAX 1-WAY LENGTH IN FEET

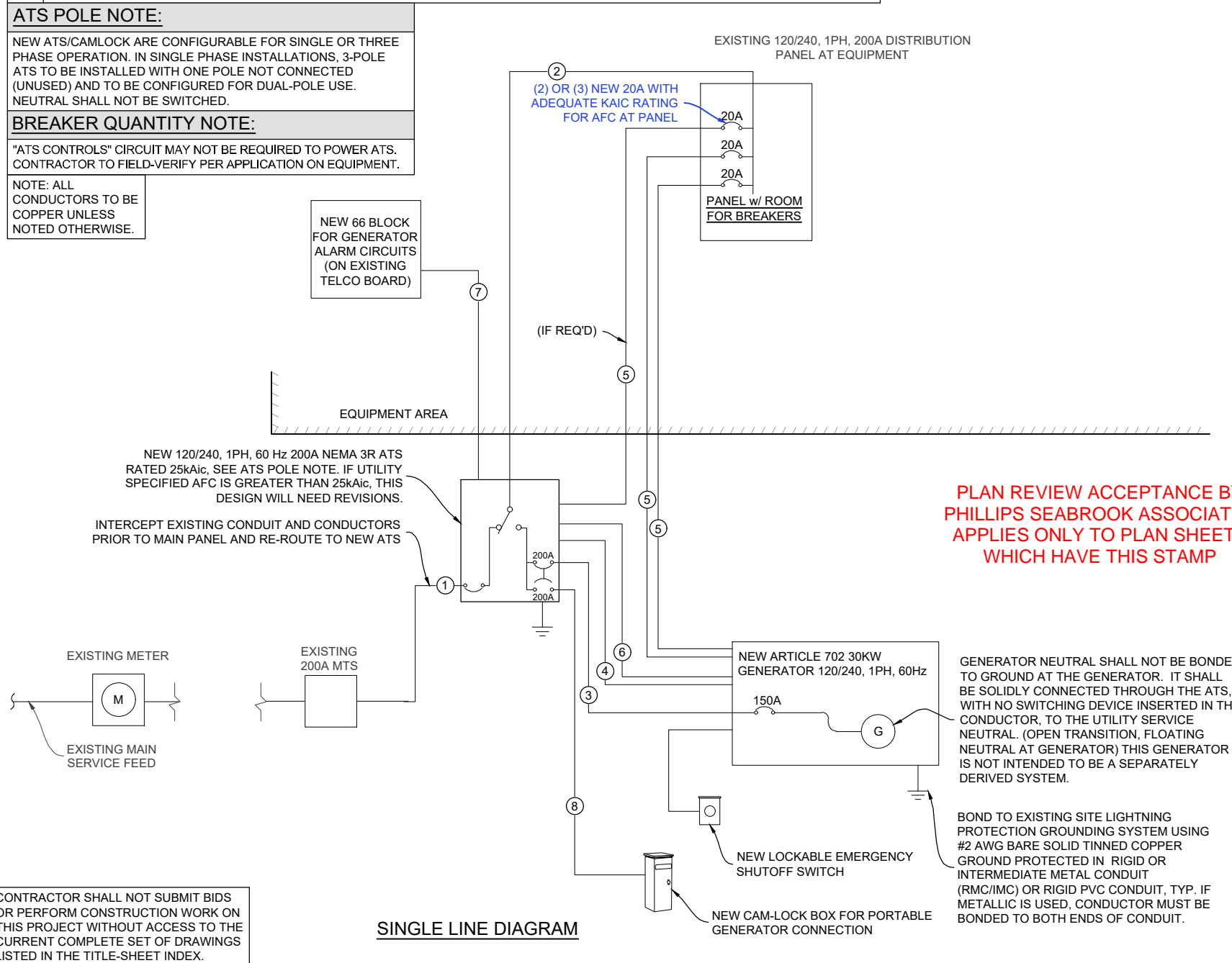
WIRE SIZE	150A OCP 120/240V 1P	150A OCP 120/208V 1P	150A OCP 208Y/120V 3P	200A OCP 120/240V 1P	200A OCP 120/208V 1P	200A OCP 208Y/120V 3P	GROUND WIRE SIZE	CONDUIT SIZE
1/0	192	166	192	-	-	-	#4	1-1/2"
2/0	227	196	227	-	-	-	#4	2"
3/0	284	246	284	213	185	213	#4	2"
4/0	337	292	337	253	220	254	#4	2"
250 KCMIL	378	328	378	284	246	284	#4	2-1/2"
300 KCMIL	423	367	423	318	275	318	#3	2-1/2"
350 KCMIL	471	408	471	354	307	354	#2	2-1/2"
400 KCMIL	510	442	510	383	332	383	#2	3"
500 KCMIL	581	503	581	436	378	436	#1	3"
600 KCMIL	625	541	625	469	406	469	1/0	3-1/2"
750 KCMIL	694	601	694	521	451	521	2/0	3-1/2"
1000 KCMIL	781	677	781	586	508	586	3/0	4"

FEEDER MAXIMUM LENGTH VALUES SHOWN ARE FOR MAX. FEEDER VOLTAGE DROP OF 2.5%. NOTE THAT A 30KW GENERATOR REQUIRES NO MORE THAN 150A OCP.

MAX. ONE-WAY LENGTH VS. WIRE SIZE FOR 20A CKT, AND CEC REQ'D INCREASED GROUND WIRE SIZE - BELOW GROUND

WIRE SIZE	DISTANCE	GROUND WIRE SIZE	CONDUIT SIZE
#12	0 - 51 FT	#12	1"
#10	52 - 85 FT	#10	1"
#8	86 - 130 FT	#8	1"
#6	131 - 203 FT	#6	1"

FOR LONG RUNS, PER CEC 300.3(B)(1), FOR CONDUCTORS 1/0 AND LARGER, CONTRACTOR MAY ELECT TO INSTALL EQUIVALENT SETS OF PARALLEL CONDUCTORS (UPSIZED GROUND WIRE AND CONDUIT ACCORDINGLY). SMALLER CONDUCTORS REQUIRING UPSIZING MUST BE REPLACED W/ ADEQUATELY SIZED LARGER CONDUCTORS.



SINGLE LINE DIAGRAM

CONTRACTOR SHALL NOT SUBMIT BIDS OR PERFORM CONSTRUCTION WORK ON THIS PROJECT WITHOUT ACCESS TO THE CURRENT COMPLETE SET OF DRAWINGS LISTED IN THE TITLE-SHEET INDEX.



GENERAL DYNAMICS
Information Technology

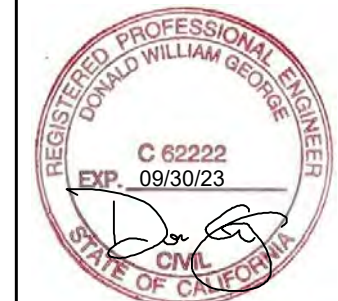


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REVISIONS			
REV	DATE	DESCRIPTION	INT
2	06/14/22	PGE GG	JAD
1	02/15/22	PGE REDLINES	JAD
0	01/05/22	ISSUED FOR CONSTRUCTION	KS

CHECKED BY: GGD

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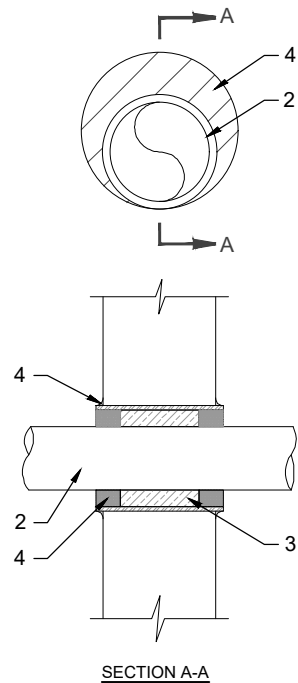
DATE SIGNED: 6/14/22

SITE INFORMATION:
HWY 101 - IGNACIO
10088152
GENERATOR INSTALLATION PROJECT
150 HAMILTON ROAD
NOVATO, CA 94945

JURISDICTION USE:

SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER:
E-1



U.L. SYSTEM NO. C-AJ-1150
 CONDUIT THROUGH BEARING WALL SIMILAR TO U.L. DESIGN NO. U902
 F RATING = 3 HR
 T RATING = 0 HR

- FLOOR OR WALL ASSEMBLY : MINIMUM 4-1/2" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAMETER OF OPENING IS 4". (SEE CONCRETE BLOCKS 9CATZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- THROUGH PENETRATIONS : ONE METALLIC PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE ANNULAR SPACE SHALL BE MINIMUM 0", (POINT CONTACT) TO MAXIMUM 1-3/8". THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:
 - A. STEEL PIPE-NOMINAL 6" DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE
 - B. IRON PIPE-NOMINAL 6" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.
 - C. CONDUIT - NOMINAL 4" DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR NOMINAL 3-1/2" DIAMETER (OR SMALLER) STEEL CONDUIT.
- PACKING MATERIAL: MINIMUM 6" THICKNESS OF MIN 4.0 PCF MINERAL WOOL BATTING INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- FILL, VOID, OR CAVITY MATERIAL*: SEALANT: MINIMUM 1/4" THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR AND WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MINIMUM 1/2" DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL. W-RATING APPLIES ONLY WHEN CP601S OR CP604 SEALANT IS USED.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. : CP601S, CP604, CP606, OR FS-ONE SEALANT.

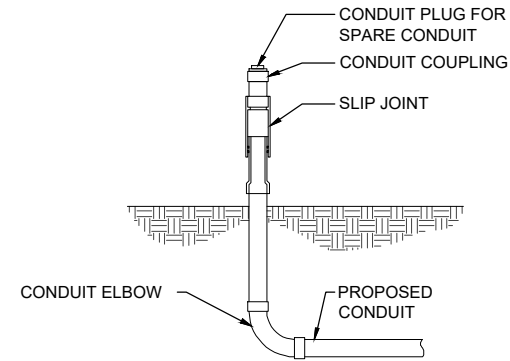
* BEARING THE UL CLASSIFICATION MARK

NOTE:
 1. IF EXISTING CONSTRUCTION VARIES FROM THIS DETAIL, AN EQUAL 3-HR U.L. PENETRATION APPROPRIATE FOR THE EXISTING WALL TYPE SHALL BE CONSTRUCTED
 2. GC SHALL USE NON-SHRINKING CAULK TO WEATHERSEAL ALL PENETRATIONS INTO OR THRU SHELTER WALL.

OUTER WALL PENETRATION DETAIL (IF APPLICABLE)

CONDUIT NOTES:

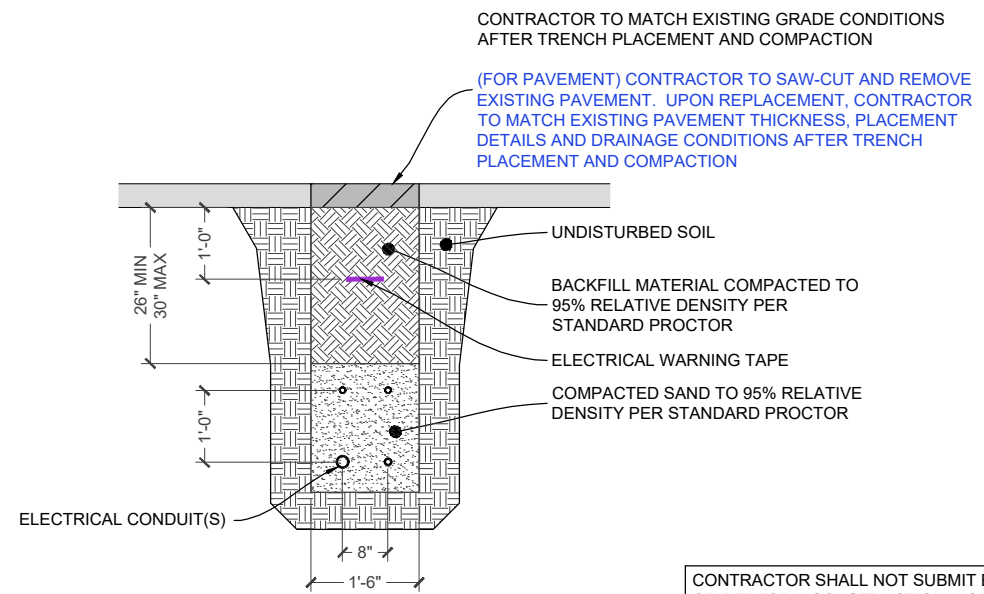
- VERIFY WIRE AND CONDUIT QUANTITY & SIZES WITH GENERATOR MAKE & MODEL # PRIOR TO INSTALLATION. VERIFY ELECTRICAL REQUIREMENTS WITH LOCAL UTILITY PROVIDER.
- ALL CONDUIT ABOVE GRADE OR IN AREAS OF HIGH TRAFFIC SHALL BE SCH 80 PVC
- PROVIDE SCH 40 PVC CONDUIT BELOW GRADE EXCEPT AS NOTED BELOW.
- PROVIDE RGS CONDUIT AND ELBOWS AT STUB UP LOCATIONS (I.E. SERVICE POLE, BTS EQUIPMENT, ETC.)
- INSTALL UTILITY PULLBOXES PER CEC.



SLIP JOINT DETAIL (IF APPLICABLE)

CONDUIT NOTES:

- VERIFY WIRE AND CONDUIT QUANTITY & SIZES WITH GENERATOR MAKE & MODEL # PRIOR TO INSTALLATION. VERIFY ELECTRICAL REQUIREMENTS WITH LOCAL UTILITY PROVIDER.
- ALL CONDUIT ABOVE GRADE OR IN AREAS OF HIGH TRAFFIC SHALL BE SCH 80 PVC
- PROVIDE SCH 40 PVC CONDUIT BELOW GRADE EXCEPT AS NOTED BELOW.
- PROVIDE RGS CONDUIT AND ELBOWS AT STUB UP LOCATIONS (I.E. SERVICE POLE, BTS EQUIPMENT, ETC.)
- INSTALL UTILITY PULLBOXES PER CEC.



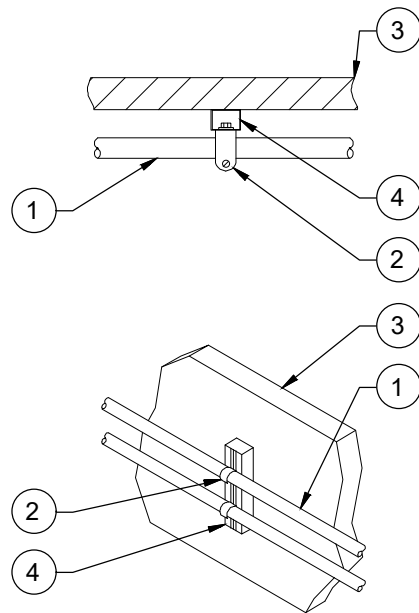
UTILITY TRENCH SECTION (IF APPLICABLE)

CONTRACTOR SHALL NOT SUBMIT BIDS OR PERFORM CONSTRUCTION WORK ON THIS PROJECT WITHOUT ACCESS TO THE CURRENT COMPLETE SET OF DRAWINGS LISTED IN THE TITLE-SHEET INDEX.

UNISTRUT WALL ATTACHMENT:

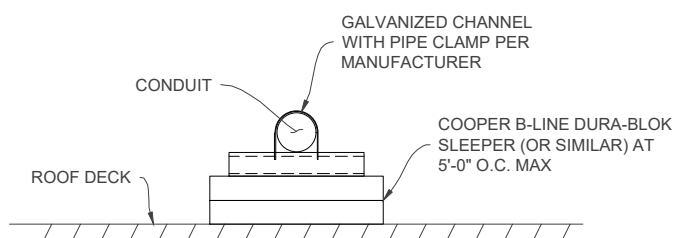
WALL CONSTRUCTION TYPE	FASTENER
HOLLOW, AT STUD	3/8" DIA. x 2-1/2" EMBED LAG SCREW
CONCRETE BLOCK (HOLLOW)	3/8" DIA. HILTI HY-270 WITH SCREEN, MINIMUM EMBEDMENT 2-3/8"
CONCRETE (SOLID)	3/8" DIA. HILTI HY-200, MINIMUM EMBEDMENT 2-3/8"

NOTES:
 1. USE GALVANIZED OR STAINLESS STEEL HARDWARE FOR WALL MOUNT AND CONNECTION OF CHANNELS
 2. GC SHALL USE NON-SHRINKING CAULK TO WEATHER SEAL ALL PENETRATIONS INTO OR THROUGH WALL



- 1 CONDUIT (TYP)
- 2 P1119 OR P2558 CLAMP
- 3 EXISTING WALL/CEILING
- 4 VERTICAL "UNISTRUT" P1000T. REQUIRED LENGTH BASED ON QUANTITY OF CONDUIT TO BE MOUNTED. INSTALL AT 5'-0" O.C. MAX. W/ FASTENER AT EACH END.

CONDUIT WALL MOUNT DETAIL (IF APPLICABLE)



ROOF CONDUIT MOUNTING DETAIL (IF APPLICABLE)



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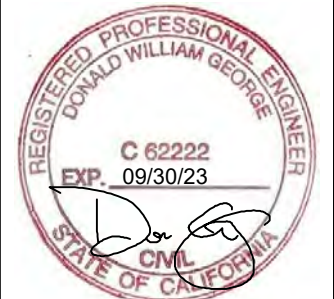


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1	02/15/22	PGE REDLINES	JAD
0	01/05/22	ISSUED FOR CONSTRUCTION	KS

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SITE INFORMATION:
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 10088152
 GENERATOR INSTALLATION PROJECT
 150 HAMILTON ROAD
 NOVATO, CA 94945

JURISDICTION USE:

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SHEET TITLE:
 ELECTRICAL DETAILS

SHEET NUMBER:
 E-2



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Information Technology

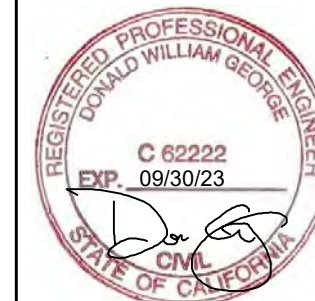


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SITE INFORMATION:

HWY 101 - IGNACIO

10088152

GENERATOR INSTALLATION PROJECT

150 HAMILTON ROAD
NOVATO, CA 94945

JURISDICTION USE:

SHEET TITLE:

**ELECTRICAL
DETAILS**

SHEET NUMBER:

E-3.0

PG&E NOTES:

- IF THIS GROUNDING DIAGRAM CONFLICTS WITH PG&E REQUIREMENTS, PG&E GROUNDING PLAN WILL SUPERSEDE.
- CONTRACTOR TO EXERCISE CAUTION AROUND EXISTING GROUND SYSTEM. ANY DAMAGE DONE TO PG&E CONDUCTORS/GROUND COMPONENTS MUST BE REPAIRED/REPLACED TO THE SATISFACTION OF PG&E AT THE EXPENSE OF THE CONTRACTOR.

GROUNDING NOTES:

- IF MORE THAN 20' FROM EXISTING GROUND RING, INSTALL GROUND ROD (5/8" x 10' SS). ROD SPACING: 8' MAX. TOP OF ROD AND GROUND WIRE TO BE BELOW FROST LINE.
- CONTRACTOR SHALL COORDINATE INCOMING SERVICES WITH LOCAL UTILITIES PRIOR TO TRENCHING.
- ALL CONDUCTORS SHALL BE COPPER, 75 DEGREES C RATED, AND CONDUCTOR INSULATION BE THWN OR THHN.
- ALL TERMINATION SHALL BE LISTED AND IDENTIFIED FOR USE WITH 75°C RATED CONDUCTORS OPERATING AT 75°C.
- GROUND FAULT PROTECTION REQUIRED FOR UTILITY RECEPTACLES.
- GENERATOR NEUTRAL SHALL NOT BE GROUNDED AT THE GENERATOR. REFER TO SINGLE LINE DETAIL, SHEET E-1.
- EQUIPMENT LOCATED OUTSIDE OR EXPOSED TO MOISTURE SHALL BE NEMA 3R RATED.
- CONTRACTOR SHALL USE SCHEDULE 80 PVC CONDUIT THROUGH CONCRETE AND ABOVE GROUND, UNLESS OTHERWISE NOTED.
- ALL NEWLY INSTALLED EQUIPMENT SHALL BE RATED "AT 10K AIC" MINIMUM. HIGHER RATINGS SHALL BE REQUIRED WHERE AVAILABLE FAULT CURRENT EXCEEDS THIS VALUE. EXACT FAULT CURRENT AVAILABLE SHALL BE COORDINATED WITH LOCAL UTILITY BASED ON EXACT CONDITIONS (XFMR SIZE, PERCENT IMPEDANCE, LENGTH OF CONDUCTORS, ETC).

TYP. OF (2) 250 MCM BCW GROUND WIRES TO TO EXISTING CONCRETE SLAB GROUND RING. GROUND GENERATOR PER MANUFACTURER'S RECOMMENDATIONS. FOR SAFETY REASONS, ALL CONCRETE AND NEW GROUNDING SHALL BE PLACED/INSTALLED PRIOR TO SECURING GROUNDING CONNECTION TO EXISTING RING. **COORDINATE WITH PG&E PRIOR TO MAKING FINAL CONNECTION TO GROUND GRID.**

PG&E GROUNDING DESIGN TO SUPERSEDE ALL GROUNDING DESIGNS. PG&E GRID DESIGN TO FOLLOW.

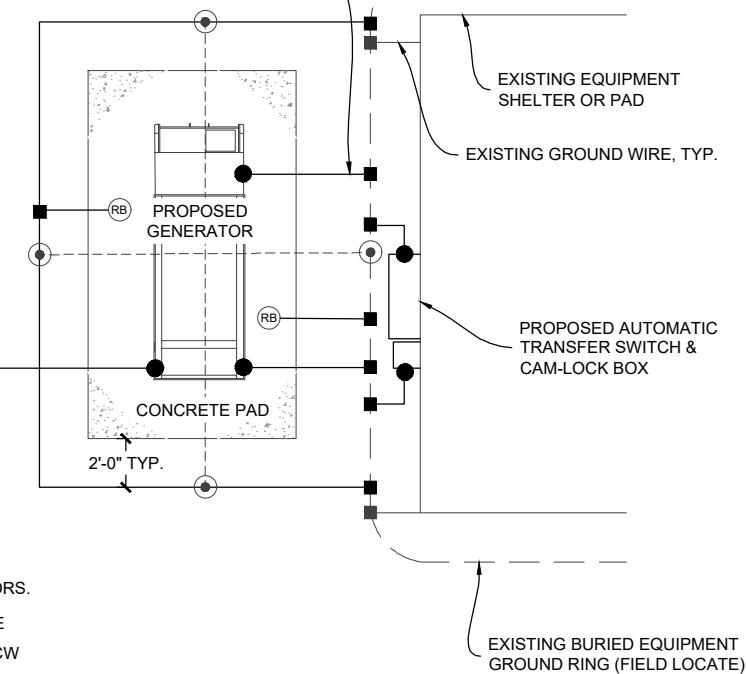
#2 AWG GROUNDED TO FENCE IF LESS THAN 6FT

ELECTRICAL SYMBOLS LEGEND

- ALL CONNECTIONS TO EXISTING GROUND RING MUST BE APPROVED DMC GROUNDLOK COMPRESSION CONNECTORS.
- MECHANICAL TYPE CONNECTION, AS APPROVED BY PG&E
- ⊙ CONNECT REBAR TO GROUND GRID WITH (2) 250 MCM BCW USING APPROVED DMC CONNECTORS (IF APPLICABLE)
- GROUND ROD
- NEW GROUNDING
- - - EXISTING GROUNDING

FENCE GROUNDING:

- SEE FENCE & GATE DETAILS SHEET FOR ADDITIONAL GROUNDING (IF APPLICABLE)



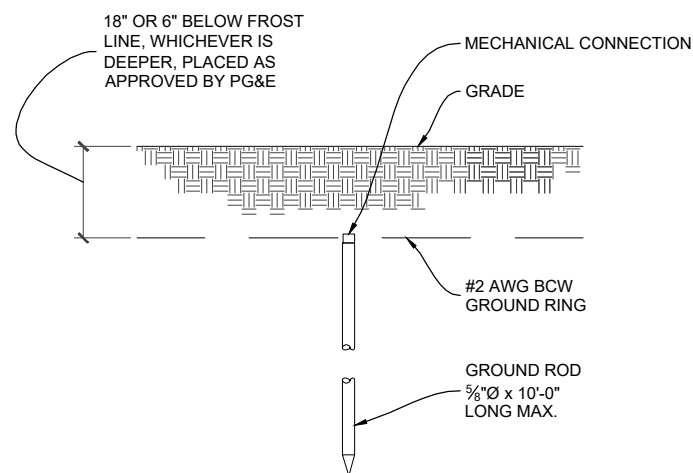
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TYPICAL GROUNDING DIAGRAM

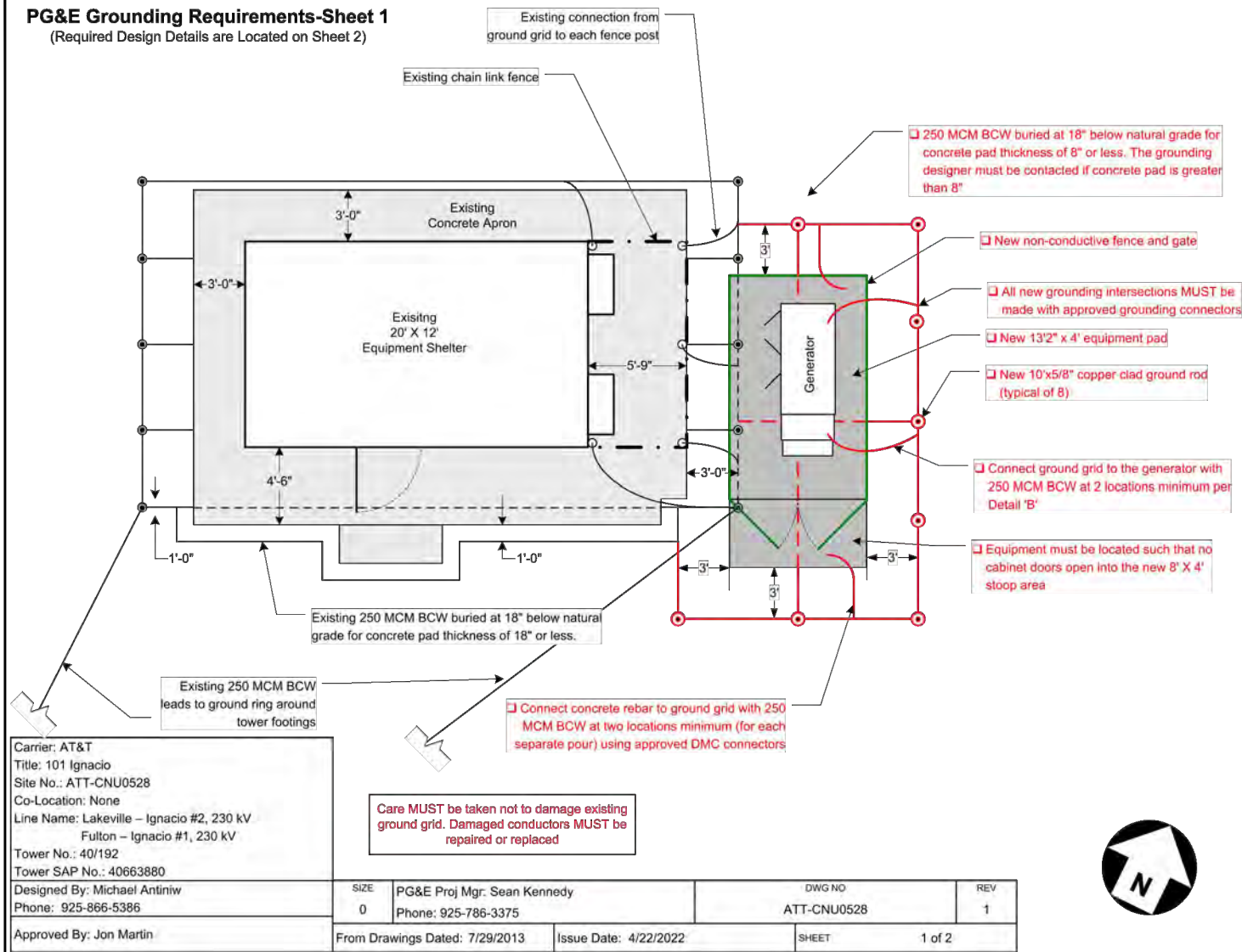
GROUND ROD NOTES:

- GROUND RODS MAY BE:
- COPPER CLAD STEEL
- SOLID COPPER
- GROUND RODS SHALL HAVE A MAXIMUM SPACING TWICE THE LENGTH OF ROD
- SEE RESISTIVITY REPORT FOR VERIFICATION AS AVAILABLE
- A LARGER CONDUCTOR SHALL BE REQUIRED IN AREAS HIGHLY PRONE TO LIGHTNING AND/OR AREAS WITH HIGHLY ACIDIC SOIL
- GROUND RODS INSTALLED WITHIN CLOSE PROXIMITY TO TOWER OR WHEN SOIL IS AT OR BELOW 2,000 OHM-CM, SHALL BE GALVANIZED TO PREVENT GALVANIC CORROSION OF TOWER, (SEE ANSI/TIA-EIA-222)
- PROVIDE (1) GROUND LEAD TO EACH SIDE OF THE GENERATOR



GROUND ROD DETAILS

PG&E Grounding Requirements-Sheet 1
(Required Design Details are Located on Sheet 2)



Carrier: AT&T
 Title: 101 Ignacio
 Site No.: ATT-CNU0528
 Co-Location: None
 Line Name: Lakeville – Ignacio #2, 230 kV
 Fulton – Ignacio #1, 230 kV
 Tower No.: 40/192
 Tower SAP No.: 40663880
 Designed By: Michael Antiniw
 Phone: 925-866-5386
 Approved By: Jon Martin

SIZE 0	PG&E Proj Mgr: Sean Kennedy Phone: 925-786-3375	DWG NO ATT-CNU0528	REV 1
From Drawings Dated: 7/29/2013		Issue Date: 4/22/2022	SHEET 1 of 2

The following design details **MUST BE** incorporated into the final engineering and construction drawings for the cell site ground grid. Where conflicts arise between these details and cell vendor generic details, these details **SHALL** prevail.

REQUIRED DESIGN DETAILS:

1. All grounding connections and grid intersections SHALL be made using approved 'DMC GroundLok System' compression components.
2. Ground grid safety calculations are based on the ground grid conductors being at 18" below natural grade with a concrete equipment pad of no more than 18" thick. Any pad thickness greater than 18" MUST be verified as acceptable by the grounding designer.
3. All above ground metallic equipment SHALL be located fully within (3'-0" minimum) the concrete pad (including open doors and panels). Cable trays and conduits running outside the concrete pad MUST be non-metallic.
4. All concrete SHALL contain #4 rebar with a 1'-0" maximum grid spacing. All rebar intersections MUST be securely tied together. If concrete is poured in separate sections, each section must be connected to ground grid with 2-250 MCM BCW or equivalent.
5. Coax ground MUST be connected to the ground grid with 2-250 MCM BCW or equivalent. If more than one ground bus is used, all ground buses must be either connected together or connected to ground grid separately with #2 BCW or larger.
6. Electric meter MUST be located fully within the boundary of the concrete pad. Any exception to this MUST be cleared through Michael Antiniw (925) 866-5386 prior to construction. Special service requirements may be required to isolate ground grid from other customer neutral wires.
7. Meter ground rod MUST be attached to the cell site ground grid with a 250 MCM BCW or equivalent.
8. Ground grid backfill material (at least 6") covering the 250 MCM BCW MUST be clean loamy material (or conductive material) and be free of rocks and foreign material.
9. If drilling is required to achieve ground rod depth, a minimum 2" hole is required. The hole MUST be backfilled with bentonite (or equivalent) material.
10. Care MUST be taken not to damage existing ground grid. Damaged conductors MUST be repaired or replaced.
12. Concrete pad size or any dimension stated on sheet 1 can not be changed without prior authorization from the grounding designer.

Carrier: AT&T
 Title: 101 Ignacio
 Site No.: ATT-CNU0528
 Co-Location: None
 Line Name: Lakeville – Ignacio #2, 230 kV
 Fulton – Ignacio #1, 230 kV
 Tower No.: 40/192
 Tower SAP No.: 40663880
 Designed By: Michael Antiniw
 Phone: 925-866-5386
 Approved By: Jon Martin

SIZE 0	PG&E Proj Mgr: Sean Kennedy Phone: 925-786-3375	DWG NO ATT-CNU0528	REV 1
From Drawings Dated 7/29/2013		Issue Date: 4/22/2022	SHEET 2 of 2

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REV	DATE	DESCRIPTION	INT
2	06/14/22	PGE GG	JAD
1	02/15/22	PGE REDLINES	JAD
0	01/05/22	ISSUED FOR CONSTRUCTION	KS

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 INFORMATION
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SITE INFORMATION:
 HWY 101 - IGNACIO
 10088152
 GENERATOR INSTALLATION
 PROJECT
 150 HAMILTON ROAD
 NOVATO, CA 94945

JURISDICTION USE:

SHEET TITLE:
**PG&E GROUNDING
 SPECIFICATIONS**

SHEET NUMBER:
E-3.1



Report Date: 4/22/22
Revision: 1

High Voltage Transmission Tower Cell Site Datasheet

Site Information

Company:	AT&T		
Site name:	101 Ignacio	Site number:	ATT-CNU0528
Site address:	150 Hamilton Road, Novato		
PG&E Contact:	Michael Antiniw	Phone:	(925) 866-5386

Soil Data

Soil Model:	Horizontal 4 layer		
	Top Layer	80.0 Ohm-meters	2.0 Feet
	Middle 1	25.0 Ohm-meters	13.0 Feet
	Middle 2	1.4 Ohm-meters	34.0 Feet
	Bottom	12.0 Ohm-meters	Infinite thickness

GPR Information

Grid Area	3,352	Ft ²
Grid Resistance	0.295	Ohms
Ground Fault Duty	16,231	Amps RMS
X/R Ratio	12.58	
Voltage (Line-Line)	230	kV RMS
DC Offset	1.78	
GPR RMS	4,787	Volts RMS
GPR Peak Symmetrical	6,771	Volts (Peak Symmetrical)
GPR Peak with DC Offset	12,045	Volts (Peak Asymmetrical)

Michael Antiniw
PG&E Representative

4/22/2022
Date



Report Date: 1/25/18
Revision: 3

Electric Power Station High Voltage Datasheet

Station Information

Station Name:	Ignacio		
Site address:	Hamilton Dr. and Bel Marin Keys, Ignacio, CA		
PG&E Contact:	Tim Kintanar	Phone:	(925) 866-5868

Soil Data

Soil Model:	Horizontal 3 layer		
	Top Layer	55.00 Ohm-meters	2.50 Feet
	Middle	5.00 Ohm-meters	40.00 Feet
	Bottom	42.00 Ohm-meters	Infinite thickness

GPR Information

Grid Area	371,010	Ft ²
Grid Resistance	0.074	Ohms
Ground Fault Duty	13,309	Amps RMS
X/R Ratio	12.6	
Voltage (Line-Line)	230	kV RMS
DC Offset	1.78	
GPR RMS	741	Volts RMS
GPR Peak Symmetrical	1,048	Volts (Peak Symmetrical)
GPR Peak with DC Offset	1,864	Volts (Peak Asymmetrical)

Tim Kintanar
PG&E Representative

1/25/2018
Date

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SITE INFORMATION:
HWY 101 - IGNACIO
10088152
GENERATOR INSTALLATION
PROJECT
150 HAMILTON ROAD
NOVATO, CA 94945

JURISDICTION USE:

SHEET TITLE:
PG&E GROUNDING
SPECIFICATIONS

SHEET NUMBER:
E-3.2

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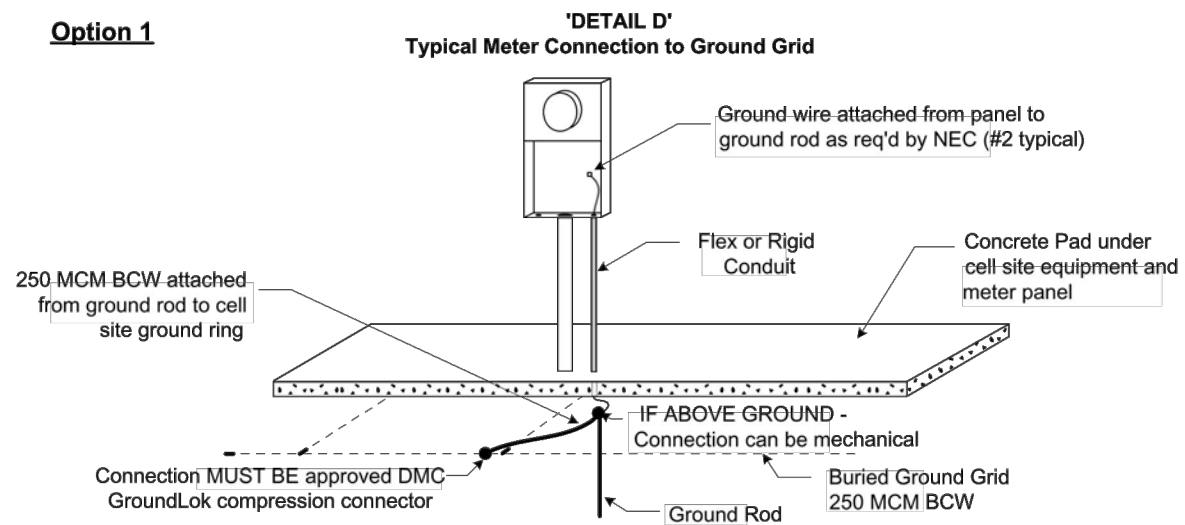
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PG&E GROUNDING
SPECIFICATIONS

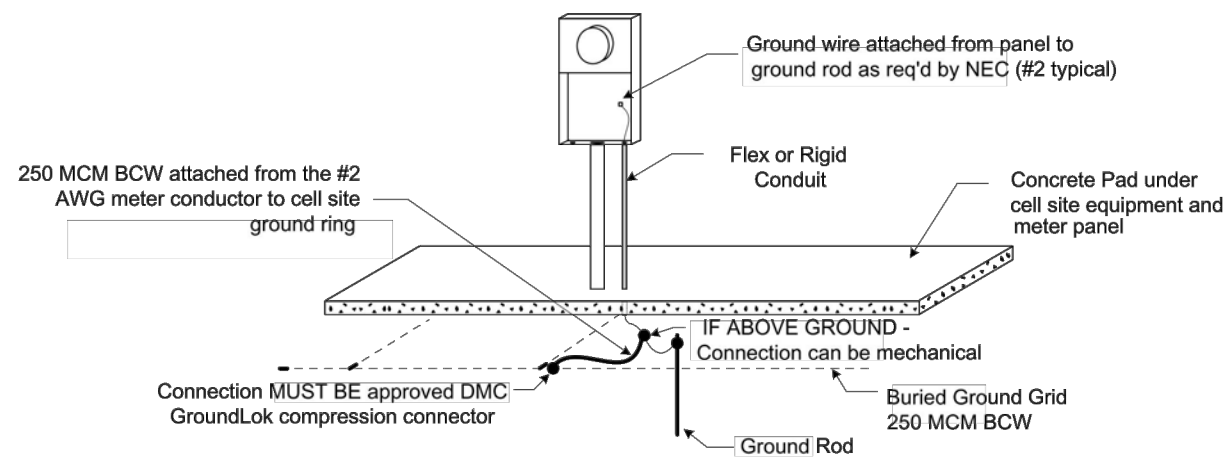
SHEET NUMBER:

E-3.3

Option 1



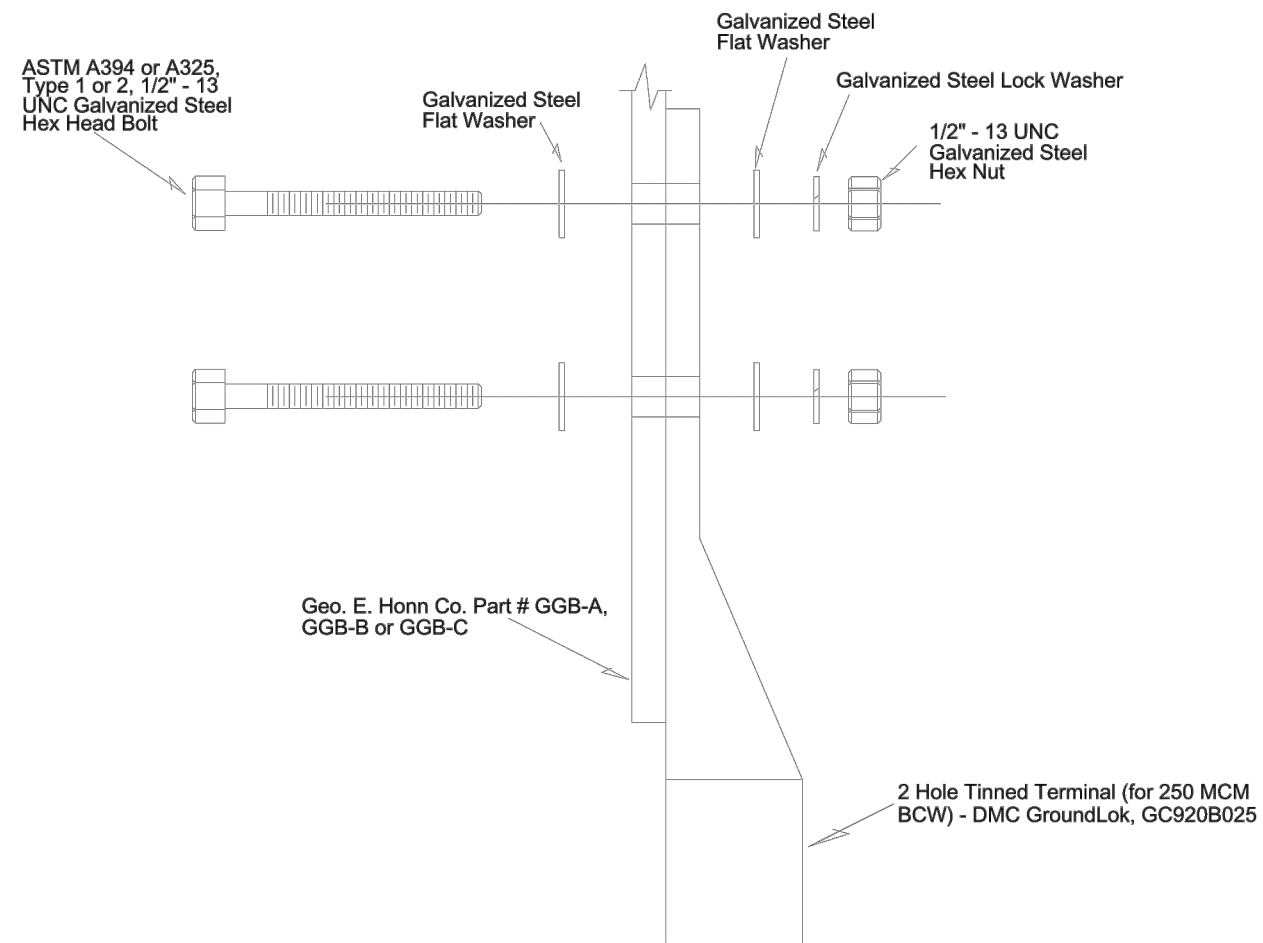
Option 2



Title: Typical Grounding Connection from Cell Site to Meter

Drawn By: HJE Revision Drawn By: Greg Chang Approved by: Marcia Eblen, PE	SIZE	Revision Date: 7/19/05	DWG NO Meter Connection - Detail 'D'	REV 2
	SCALE Not To Scale		SHEET 1 of 1	

Connection Detail "B"



Reference Drawings:
Sheet 1 Arrangement
Sheet 2 Ground Bar Details
Sheet 3 Bolting Detail "A"
Sheet 5 Installation Guide

Notes:

1. Coat any cut or drilled surfaces with cold galvanizing compound.
2. Clean area on flat bar where connector is to be bolted with a wire brush. Use Penetrox "A" or equivalent as a coating between connector and tower leg.
3. All bolting material per ASTM A 394 or A325, Type 1 or 2. Bolts to be torqued to 480 in/lbs.
4. After installation and torquing, center punch the bolt threads in at least one location at the Hex Nut interface.

Title: Theft Deterrent Tower Ground Bolting Detail 'B'

Drawn By: Bill DeHart Revision Drawn By: Steve Maddix Approved By: Marcia Eblen	SIZE 0	Revision Date: 7/29/09	DWG NO	REV 3
	SCALE none		SHEET 4 of 5	

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SD030 | 2.2L | 30 kW
INDUSTRIAL DIESEL GENERATOR SET
EPA Certified Stationary Emergency

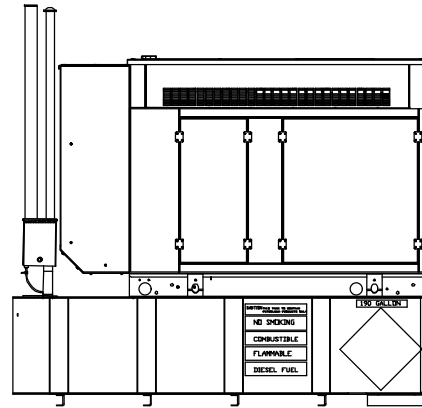


SD030 | 2.2L | 30 kW
INDUSTRIAL DIESEL GENERATOR SET
EPA Certified Stationary Emergency



Standby Power Rating
30 kW, 38 kVA, 60 Hz

Prime Power Rating*
27 kW, 34 kVA, 60 Hz



Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

- UL2200, UL508, UL489, UL142, [UL-2085](#)
- CSA C22.2
- BS5514 and DIN 6271
- SAE J1349
- NFPA 37, 70, 99, 110
- NEC700, 701, 702, 708
- ISO 3046, 7637, 8528, 9001
- NEMA ICS10, MG1, 250, ICS6, AB1
- ANSI C62.41

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

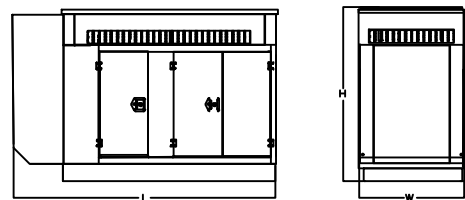
Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SPEC SHEET
1 of 6

LEVEL 2 ACOUSTIC ENCLOSURE



Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)	
			Enclosure Only	Steel Aluminum
No Tank	-	94.8 (2,407) x 38.0 (965) x 61.1 (1,551)		
19	54 (204)	94.8 (2,407) x 38.0 (965) x 74.1 (1,881)	510	341
47	132 (501)	94.8 (2,407) x 38.0 (965) x 86.1 (2,186)	(232)	(155)
75	211 (799)	94.8 (2,407) x 38.0 (965) x 98.1 (2,491)		
107	300 (1,136)	94.8 (2,407) x 38.0 (965) x 98.1 (2,491)		

* All measurements are approximate and for estimation purposes only. Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Critical Silencer (Enclosed Unit Only)
- Engine Coolant Heater

Fuel System

- Fuel Lockoff Solenoid
- Primary Fuel Filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene Glycol Antifreeze

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

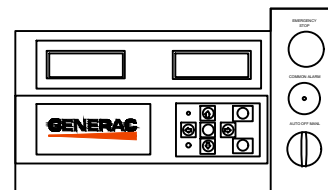
- UL2200 GENprotect
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Brushless Excitation
- Sealed Bearing
- Rotor Dynamically Spin Balanced
- Amortisseur Winding (3-Phase Only)
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Silencer Mounted in the Discharge Hood (Enclosed Unit Only)

NOTE: IT IS RECOMMENDED THAT BATTERY BE WITHIN LEAK CONTAINMENT BOX OR TRAY

CONTROL SYSTEM



Digital H Control Panel- Dual 4x20 Display

Program Functions

- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable Logic Controller
- RS-232/485 Communications
- All Phase Sensing Digital Voltage Regulator
- 2-Wire Start Capability
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors

- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus® Protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 16 Channel Remote Trending
- 0.2 msec High Speed Remote Trending
- Alarm Information Automatically Annunciated on the Display

Full System Status Display

- Power Output (kW)
- Power Factor
- kW Hours, Total, and Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents

ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuation Enclosures)
- Gasketed Doors
- Stamped Air-Intake Louvers
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat - Textured Polyester Powder Coat Paint

FUEL TANKS (If Selected)

- [UL-2085](#)
- Double Wall
- Normal and Emergency Vents
- Sloped Top
- Sloped Bottom
- Factory Pressure Tested
- Rupture Basin Alarm
- Fuel Level
- Check Valve In Supply and Return Lines
- RhinoCoat- Textured Polyester Powder Coat Paint
- Stainless Steel Hardware

Alarms and Warnings

- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Overspeed
- Battery Voltage
- Alarms and Warnings Time and Date Stamped
- Snap Shots of Key Operation Parameters During Alarms and Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

SPEC SHEET
2 of 6



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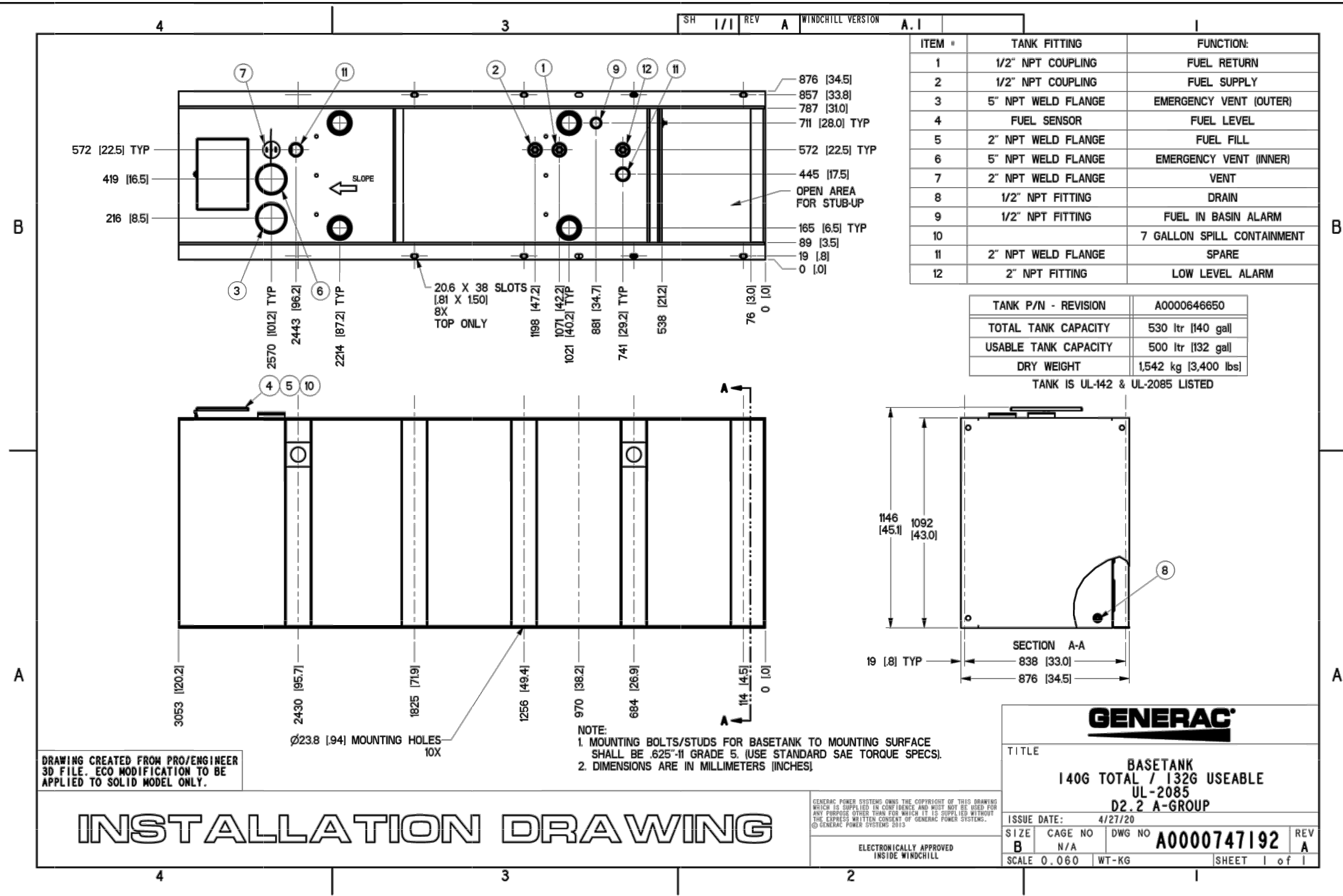
SHEET NUMBER:
E-4.1

SH 1/1 REV A WINDCHILL VERSION A.1

ITEM #	TANK FITTING	FUNCTION:
1	1/2" NPT COUPLING	FUEL RETURN
2	1/2" NPT COUPLING	FUEL SUPPLY
3	5" NPT WELD FLANGE	EMERGENCY VENT (OUTER)
4	FUEL SENSOR	FUEL LEVEL
5	2" NPT WELD FLANGE	FUEL FILL
6	5" NPT WELD FLANGE	EMERGENCY VENT (INNER)
7	2" NPT WELD FLANGE	VENT
8	1/2" NPT FITTING	DRAIN
9	1/2" NPT FITTING	FUEL IN BASIN ALARM
10		7 GALLON SPILL CONTAINMENT
11	2" NPT WELD FLANGE	SPARE
12	2" NPT FITTING	LOW LEVEL ALARM

TANK P/N - REVISION	A0000646650
TOTAL TANK CAPACITY	530 ltr [140 gal]
USABLE TANK CAPACITY	500 ltr [132 gal]
DRY WEIGHT	1,542 kg [3,400 lbs]

TANK IS UL-142 & UL-2085 LISTED



DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

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ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
BASETANK
140G TOTAL / 132G USEABLE
UL-2085
D2.2 A-GROUP

ISSUE DATE: 4/27/20

SIZE B	CAGE NO N/A	DWG NO A0000747192	REV A
SCALE 0.060		WT-KG	SHEET 1 of 1

- PG&E GENERATOR REQUIREMENTS
- GENERATOR FUEL STORAGE WILL REQUIRE A PRIMARY ENCLOSURE RATED UL2085 (CONCRETE ENCASED FUEL TANK)
 - GENERATOR MUST HAVE A SECONDARY ENCLOSURE RATED UL2200
 - GENERATOR MUST BE EQUIPPED WITH A HEAT SENSOR AND LEAK DETECTION DEVICES WHICH WILL DISABLE THE GENERATOR IN CASE OF FUEL LEAKAGE, FIRE, OR OTHER EXTERNAL CIRCUMSTANCES
 - GENERATOR MUST HAVE A FIRE DETECTION SHUT-OFF VALVE

GENERAC UL-2085 TANK SPECIFICATIONS

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NOVATO, CA 94945

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SHEET TITLE:
**GENERATOR
SPECIFICATIONS**

SHEET NUMBER:
E-4.2

EXPLODED VIEW: EV VENT EXT AGRP 2"3 ATT

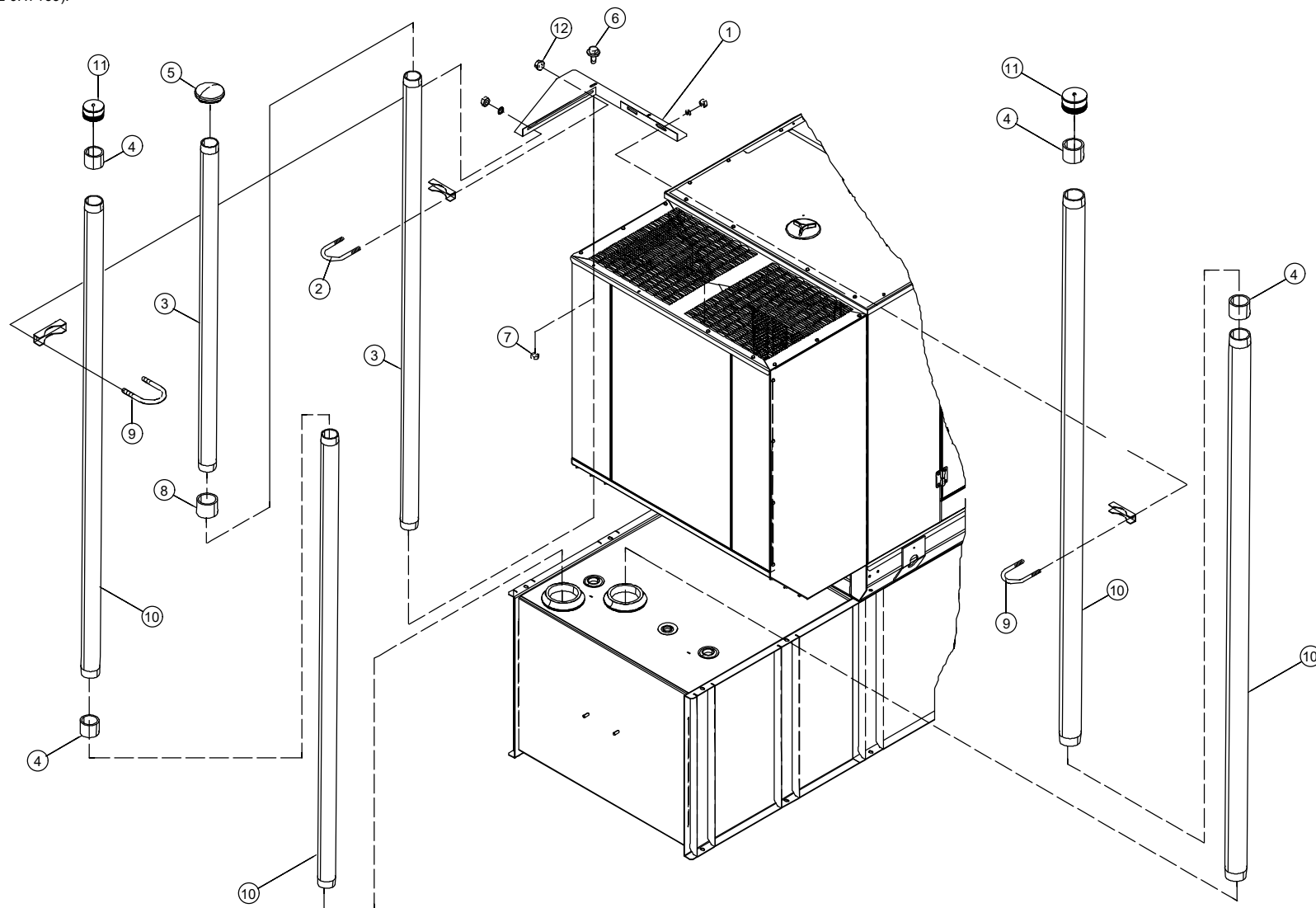
DRAWING #:0K9817A

GROUP H

ITEM	PART#	QTY.	DESCRIPTION
(1)1	0G3036YST0R	1	BRACKET VENT EXT AGRP 2"3 ATT
2	0C7947	1	KIT, SADDLE AND BOLT 2 1/2"
3	0G3045	2	PIPE 2"VENT EXTENSION 72"LG
4	10000016676	4	COUPLING PIPE 3 ZINC
5	G021178	1	VENT OEM 2"
6	0C2454B	2	SCREW HWHT M6-1 X 30 W/MKS
7	G049813	2	NUT HEX M6-1.0 G8 CLEAR ZINC
8	068640B	1	COUPLING FULL 2-11.5 BLACK
9	0E4264	2	BOLT U 3/8-16 X 3.50" W/SADDLE
10	0H1454	4	PIPE NIPPLE 3"x72" SCH40 PNTBK
11	072989J	2	VENT CAP EMERG 3"NPT
12	G064101	2	NUT HEX FL WHIZ 3/8-16

NOTES (UNLESS OTHERWISE SPECIFIED)

- (1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING CENERIC PARTS (NO COLOR).
- * MANUFACTURING: FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
- * CUSTOMER: WHEN ORDERING REPLACEMENT PARTS, ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR. (FOR REFERENCE SEE GUIDELINE 0H7169).



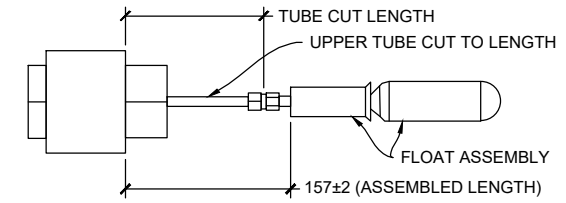
EMERGENCY VENT PIPE ASSEMBLY

REVISION : CN-0019649-W
DATE : 9/4/18

EXPLODED VIEW : EV VENT EXT AGRP 2"3 ATT
DRAWING NO. : 0K9817A

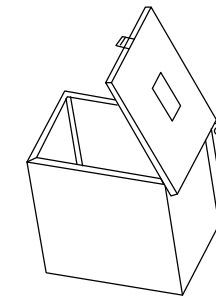
GENERAC GENERATOR SPECIFICATIONS

OVERFILL PREVENTION VALVE INSIDE TANK (FACTORY-INSTALLED)



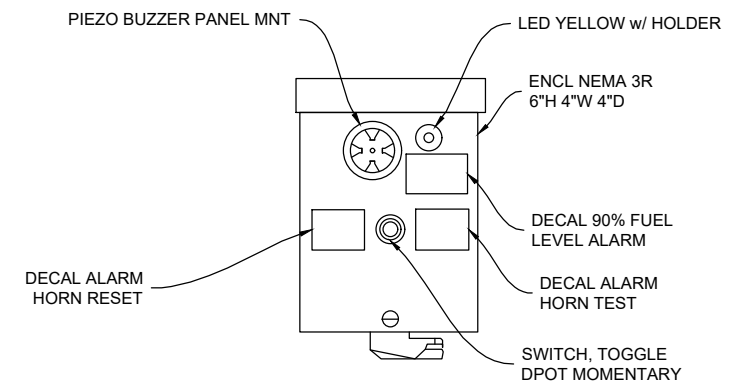
GENERAC 0J7671

FUEL SPILL/FILL DRAIN OUTSIDE TANK (FACTORY-INSTALLED)



GENERAC 0J7606A

REMOTE 90% FUEL ALARM (FACTORY-INSTALLED)



GENERAC OF2908\$

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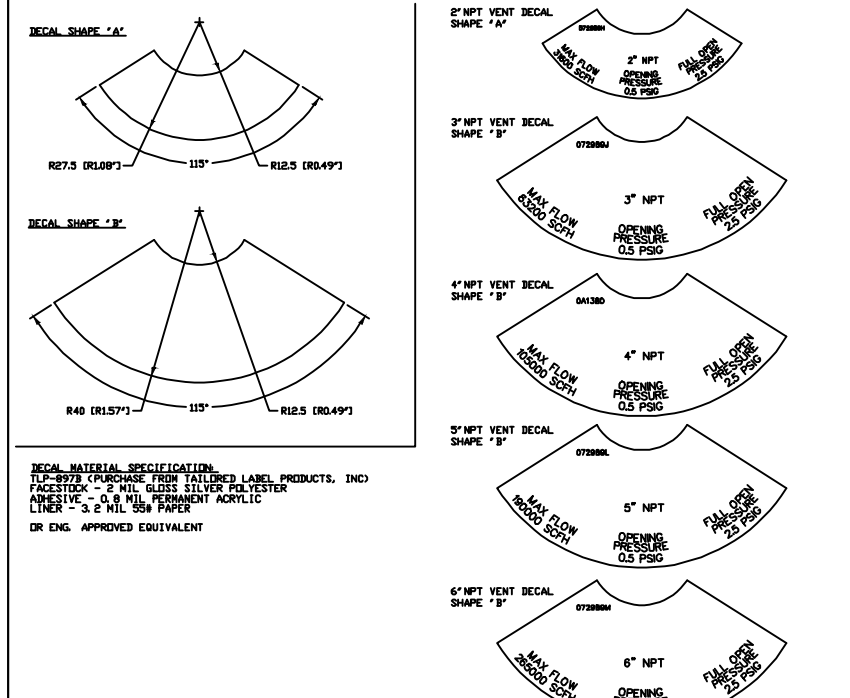
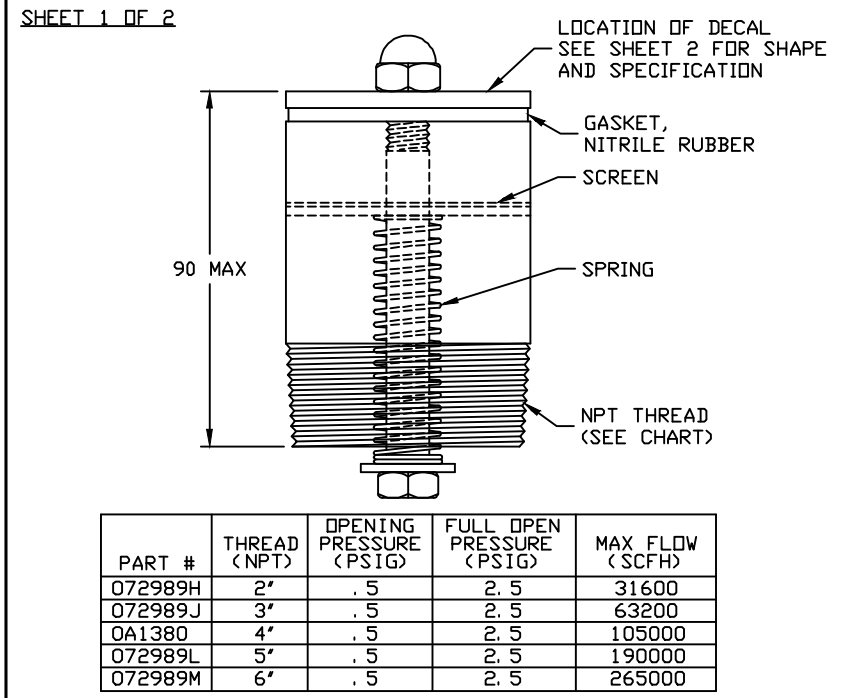
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GENERATOR
SPECIFICATIONS

SHEET NUMBER:

E-4.4

DO NOT SCALE ALL DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994 UNLESS OTHERWISE SPECIFIED: ALL XX DIM ----- 21 MM ALL XX DIM ----- 21 MM ALL ANGLES ----- 31° ALL PUNCHED HOLES ----- 20.1 MM ALL PROFILED HOLES ----- 21 MM	S-327	DO NOT SCALE ALL DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994 UNLESS OTHERWISE SPECIFIED: ALL XX DIM ----- 21 MM ALL XX DIM ----- 21 MM ALL ANGLES ----- 31° ALL PUNCHED HOLES ----- 20.1 MM ALL PROFILED HOLES ----- 21 MM	S-327
---	-------	---	-------



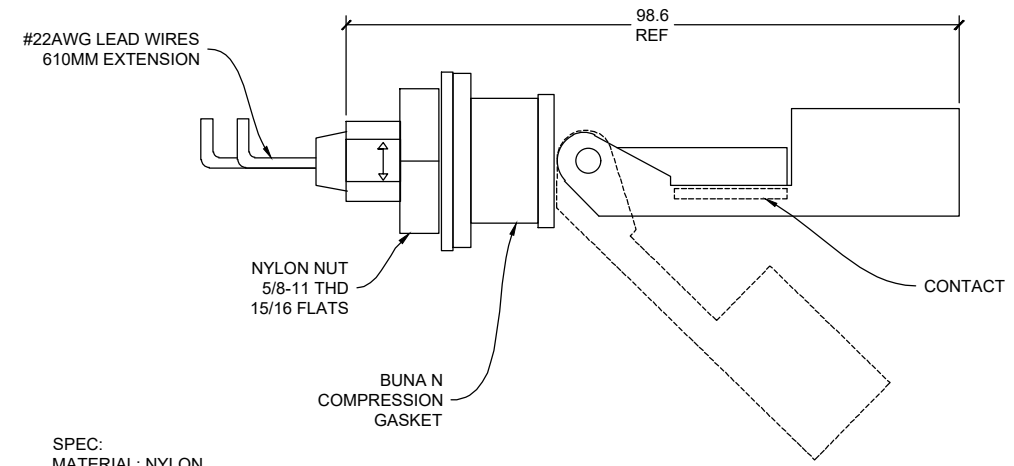
DRAWING TITLE VENT CAPS, EMERGENCY		GENERAC POWER SYSTEMS P.O. BOX 9 WAUKESHA, WIS. 53187		DRAWING TITLE VENT CAPS, EMERGENCY		GENERAC POWER SYSTEMS P.O. BOX 9 WAUKESHA, WIS. 53187	
MATERIAL STEEL		FILE NAME S-327.DWG		MATERIAL STEEL		FILE NAME S-327.DWG	
DWN	JRS	DATE	1/2/03	DWN	JRS	DATE	1/2/03
CHKD	TMM	DATE	3/3/03	CHKD	TMM	DATE	3/3/03
RELEASED FOR PRODUCTION BY A GILLETTE		DATE 3/7/03		RELEASED FOR PRODUCTION BY A GILLETTE		DATE 3/7/03	

GENERAC EMERGENCY VENT CAPS

GENERAC GENERATOR SPECIFICATIONS

FUEL LEAK DETECTOR ALARM (FACTORY-INSTALLED)

INSTALLATION NOTE:
HAND TIGHTEN + ONE QUARTER TURN.
LEAK DETECTION MUST BE INSTALLED IN THE NORMALLY OPEN (N.O.) POSITION AS SHOWN FOR IT TO FUNCTION CORRECTLY IN GENERAC'S UL TANK SECONDARY CONTAINMENT LEAK DETECTION APPLICATION. OVER TIGHTENING WILL RESULT IN DAMAGE TO THE LEAK DETECTOR AND IMPROPER OPERATION.



SPEC:
MATERIAL: NYLON
VENDOR P/N AND VENDOR: 165900, GEMS SENSORS
MOUNTING ATTITUDE: HORIZONTAL
RECOMMENDED HOLE SIZE: Ø 0.875", 1/32"-5/32" THICK PANEL.
OPERATING TEMPERATURE: -40°F TO 250°F
MAX. OPERATION PRESSURE: 100 PSIG AT 70°F
THIS SWITCH IS U.L. RECOGNIZED - FILE #E45168, CSA LISTED - 30200
CONTACT RATING: 0.17 AMP, 120 V, 60 HZ, RESISTIVE
0.08 AMP, 240 V, 60 HZ, RESISTIVE
20 VA PILOT DUTY
DC ELEC. RATING: 0.3 AMP MAX @30 VDC

GENERAC 096500B

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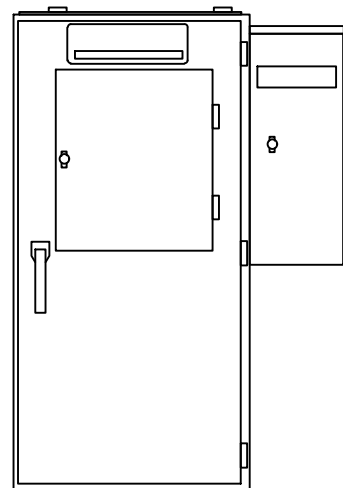
TTS Series
Switches

200 Amps
600 VAC

GENERAC | INDUSTRIAL
POWER

TAS200

200A Automatic Transfer Switch



The Generac TAS200 Automatic Transfer Switch

Flexibility for multiple application installations

Multiple generator support with 3 source panel

Designed with a 6 inch touch screen controller for improved user interface

Camlock functionality for mobile generator sources

Features

- = STEEL CONSTRUCTION
- = NEMA 3R ENCLOSURE WITH HINGED "PADLOCKING" DOORS
- = STAINLESS STEEL HARDWARE
- = CAMLOCK "QUICK CONNECT" CAPABILITY
- = OPERATIONAL STATUS VIEW VIA 6 INCH TOUCH SCREEN
- = TEST FUNCTION - FAST TEST & NORMAL TEST
- = UL1008 LISTED - FOR EMERGENCY SYSTEMS

Optional Features

- = EXTENDED WARRANTY
- = THREE-PHASE VOLTAGE CONFIGURATIONS

Codes and Standards

Generac products are designed to the following standards:



UL1008,
UL508,
UL50,
CSA C22.2 No. 178



NEC 700, 701 and 702



NEMA 250

Application and Engineering Data

Cabinet Specifications	
Dimensions	24"W x 12"D x 48"H
Weight	210 lbs.
Construction	Single Chamber with Main Door
	Steel
	UL Type / NEMA 3R Rated
	Powder Coat Finish for Corrosion Resistance
	C-UL-US Listed - Automatic Transfer Switch
Mounting Options	Stainless Steel Hardware
	3-Point Latching System with Pad-Lockable Handles
	Wall
Installed	H-frame
	Pre-wired alarm terminal strip

Electrical Specifications	
Voltage/Phase/Amps	120/240 Single-Phase, 200A 120/208 3-Phase, 200A 120/240 3-Phase, 200A
Breaker	Eaton 200 amp Utility Breaker Eaton 200 amp Generator Breaker
Maximum RMS Symmetrical Fault Current - Amps	25k AIC Rated
Protective Device Continuous Rating (Max) Amp	200
Input to Generator	350MCM - #6 AWG
Output to Site	350MCM - #6 AWG
Generator Annunciator Connector	Deutsch DTM04-12PA-L012
Alarm Terminal Board	Generator Run Alarm
	Generator Fail - Shutdown Alarm
	Generator Fail - Non Shutdown Alarm
	Low Fuel Alarm
	Generator Theft Alarm
	AC Utility Fail Alarm

PLAN REVIEW ACCEPTANCE BY
PHILLIPS SEABROOK ASSOCIATES
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GENERAC ATS SPECIFICATIONS



GENERAL DYNAMICS
Information Technology



GEOSTRUCTURAL
PO BOX 2621, BOISE, ID 83701
530.539.4787
CONTACT@GEOSTRUCTURAL.COM
WWW.GEOSTRUCTURAL.COM

REVISIONS			
REV	DATE	DESCRIPTION	INT
2	06/14/22	PGE GG	JAD
1	02/15/22	PGE REDLINES	JAD
0	01/05/22	ISSUED FOR CONSTRUCTION	KS

CHECKED BY: GGD

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FOR
INFORMATION
ONLY

SITE INFORMATION:

HWY 101 - IGNACIO

10088152

GENERATOR INSTALLATION
PROJECT

150 HAMILTON ROAD
NOVATO, CA 94945

JURISDICTION USE:

SHEET TITLE:

ATS
SPECIFICATIONS

SHEET NUMBER:

E-5.0

TTS Control Systems

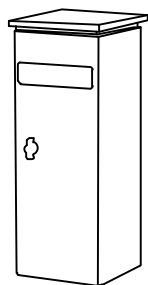
INDICATORS AND BUTTONS

<ul style="list-style-type: none"> . System Ready indicator . Standby Operating indicator . Utility Available indicator . GEN/UTIL Switch Position indicator . TVSS status 	<ul style="list-style-type: none"> . Normal Test button . Fast Test button . Return to Normal button . Reset button . Exercising indicator
---	---

DETAILS SCREEN

<p>System Settings:</p> <ul style="list-style-type: none"> . System Voltage/Phases: <ul style="list-style-type: none"> - 120/240V single phase (standard) - 120/208V three phase (optional) - 120/240V three phase (optional) . Utility Fail Monitor: <ul style="list-style-type: none"> - Under Voltage: 75-95% of nominal voltage - Over Voltage: 105%-125% of nominal voltage - Pickup (hysteresis): fixed at 5 volts - Delay time: 0-60s . Utility Interrupt Delay: 0-60s . Return to Utility Timer: 1-30 minutes . Transfer: <ul style="list-style-type: none"> - In-phase, or - Time-Delay-Neutral at 0.0-10.0s in 1 second increments 	<p>Exercise Settings:</p> <ul style="list-style-type: none"> . Time of day . Day of week . Exercise: <ul style="list-style-type: none"> - Exercise with/without load - Exercise once every 1, 2, or 4 weeks. - Exercise time-of-day - Exercise day of week - Exercise duration: 15-30 minutes
	<p>Screen Settings:</p> <ul style="list-style-type: none"> . Brightness & Contrast button . Screen Calibration button . Startup/Clean screen
	<p>Diagnostics:</p> <ul style="list-style-type: none"> . Digital I/O bits status . Voltage A/D readings
<p>Engine Settings:</p> <ul style="list-style-type: none"> . Engine Warm-up timer: 0-20 minutes . Generator Load Accept: <ul style="list-style-type: none"> - Time-Delay-Neutral at 0.0-10.0s in 1 sec increments - Voltage: 85-95% of nominal - Frequency: 85-95% of nominal . Engine Minimum Run Timer: 5-30 minutes . Engine Cooldown Timer: 0-20 minutes 	<p>Mimic Diagram:</p> <ul style="list-style-type: none"> . System Ready . Transfer switch position . Utility available . Standby available . Maintenance/Auto switch position . Generator source TS position . TVSS status

Camlock Component	
Camlock Component	Shipped loose for multiple installation options
Dimensions	9" W x 9.4" D x 24.25" H
200A Camlock Generator Connection	Single-Phase: Black L1, Red L2, White-Neutral, Green-Ground
	3-Phase: Black L1, Red L2, Blue L3, White-Neutral, Green-Ground
	Uses 4 CH E1016 Male Connectors
	Mating Connector - CH E1016 Female



CAM-LOCK BOX SPECIFICATIONS

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REVISIONS			
REV	DATE	DESCRIPTION	INT
2	06/14/22	PGE GG	JAD
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ONLY**

SITE INFORMATION:
HWY 101 - IGNACIO

10088152

GENERATOR INSTALLATION
PROJECT

150 HAMILTON ROAD
NOVATO, CA 94945

JURISDICTION USE:

SHEET TITLE:
**CAM-LOCK BOX
SPECIFICATIONS**

SHEET NUMBER:
E-5.1



By: Julie Williams

Structural Analysis Report

• New Concrete Slab •

Site ID: 10088152
Site Name: Hwy 101 - Ignacio
Project: Generator Upgrade

Prepared For: AT&T

Structure Description: Concrete Slab & Anchorage
Diesel Backup Generator

Site Location: 150 Hamilton Road
Novato, CA 94945
Marin County
38.078248°, -122.541598°

Design Codes: CBC 2019
IBC 2018 w/ State Amendments
ASCE 7-16



Date Signed:
2/15/2022

September 13 2022
PHILLIPS SEABROOK ASSOCIATES

PLAN REVIEW ACCEPTANCE BY
PHILLIPS SEABROOK ASSOCIATES
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Revision 1
February 15, 2022

10088152_Gen Slab Analysis_R1 220215 3996



1.0 Introduction

GeoStructural has completed a structural analysis for the existing AT&T 10088152 communications site located in Marin County, CA. The scope of this structural analysis is limited to the following:

- 9'-2" x 15'-0" x 6" Reinforced Concrete Generator Slab w/ #4 Bars @ 12" O.C. Each Way & 1'-9" Turndown Edges w/ (2) #4 Horiz and #4 Hooks @ 12" o.c..
- Generac UL2085 Diesel Generator Equipment Anchorage.

The existing communications structure/foundation and existing equipment platform(s)/shelter(s) are designed by others and beyond the scope of this analysis.

2.0 Analysis & Design Criteria

This analysis is pursuant to the following design criteria:

- CBC 2019 – California Building Code.
- IBC 2018 – International Building Code.
- ASCE 7-16 – Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
- AISC – Steel Construction Manual.
- ACI 318-14 – Building Code Requirements for Structural Concrete.

Gravity Design Loading:	
Generac UL2085 30kW Generator w/ L2A Enclosure = 2,182lbs	
132gal Fuel Tank(Dry) = 3200 lbs	
Diesel Fuel (100% Fill + 35% Contain) = 7.3 lb/gal(178gal) = 1300 lbs	
WET Total Assembly Weight = 6.683 kips ; DRY Total Assembly Weight = 5.382 kips	
Wind Design Loading:	
Design Wind w/o ice = 92 mph [3-sec gust Ultimate ASCE Figure 26.5-1B]	
Exposure Category C	Topographic Category 1
Risk Category II	
Seismic Design Loading:	
Site Class D	Importance Factor, I _p = 1.0
S _s = 1.500, S ₁ = 0.600, S _{DS} = 1.200	

All data required to complete our structural analysis was furnished by our client. GeoStructural has not conducted an independent study to verify existing site conditions and the results of this analysis are based solely on the information provided.

3.0 Load Generation & Material Strength

Table 3.1 – Wind Design Loading

Wind Load – Velocity Pressure	ASCE 7-16, §29.3
$q_z = 0.00256 K_z K_{zt} K_d V^2$ $K_z = 0.85$ $K_{zt} = 1.00$ $K_d = 0.90$ $V = 92 \text{ mph}$ $q_z = 0.00256 * 0.85 * 1.00 * 0.90 * (92^2) / 1000 = 0.0166 \text{ ksf}$	Eq. 29.3-1 Table 29.3-1 § 26.8.2 Table 26.6-1 Figure 26.5 Eq. 29.3-1
Wind Load – Other Structures (Tanks & Similar Structures)	ASCE 7-16, §29.5
$F = q_z G C_i A_r$ $G = 0.85$ $C_i = 1.32$ $A_f = 77.6 \text{ ft}^2 \text{ Worst Case}; 25.4 \text{ ft}^2 \text{ Transverse (Side)}$ $F_N = 0.0166 * 0.85 * 1.32 * 77.6 = 1.44 \text{ kip}; F_T = 0.0166 * 0.85 * 1.32 * 25.4 = 0.47 \text{ kip}$	Eq. 29.5-1 § 26.9 Figure 29.5-1 Generac UL2085 Eq. 29.5-1

Table 3.2 – Seismic Design Loading – 100% FIII + 35%

Seismic Load – Non-Structural Components	ASCE 7-16, Chapter 13
$F_p = 0.4 a_p S_{DS} W_p \{ (1+2(z/h)) / (R_p / I_p) \}$ $F_p \leq 1.6 S_{DS} I_p W_p$ $F_p > 0.3 S_{DS} I_p W_p$ Reversible Vert Force, $E_v = 0.2 S_{DS} W_p = 0.2 * 1.200 * 6.683 = 1.60 \text{ kip}$ $a_p = 1.0$ $S_{DS} = (2/3) S_{MS} = 1.200$; $S_{D1} = (2/3) S_{M1}$ $S_s; S_1$ $F_a; F_v$ $S_{MS} = F_a S_s$; $S_{M1} = F_v S_1$ $W_p = 6.683 \text{ kip (Wet Weight)}$ $z = 2 \text{ ft (Conservative Anchorage Height of Generator to Tank Top)}$ $h = 8.03 \text{ ft (Overall Height of Generator with Tank Assembly)}$ $R_p = 2.5$ Importance Factor, $I_p = 1.0$ $\rho = 1.0 \text{ (Exception from } \rho = 1.3, \text{ Non-Structural Components)}$ $F_p = 0.4 a_p S_{DS} W_p \{ (1+2(z/h)) / (R_p / I_p) \}$ $= 0.4 * 1.0 * 1.200 * 6.683 * (1+2*(2/8.03)) / (2.5/1.0) = 1.28 \text{ kip}$ $F_p \leq 1.6 S_{DS} I_p W_p = 1.6 * 1.200 * 1.0 * 6.683 = 12.83 \text{ kip}$ $F_p > 0.3 S_{DS} I_p W_p = 0.3 * 1.200 * 1.0 * 6.683 = 2.41 \text{ kip}$	Eq. 13.3-1 Eq. 13.3-2 Eq. 13.3-3 § 13.3.1 Table 13.6-1 Eq. 11.4-3 & 4 USGS Reference Tables 11.4-1 & 2 Eq. 11.4-1 & 2 From Section 2.0 Above Slab-On-Grade Slab-On-Grade Table 13.6-1 § 11.5.1 & 13.1.3 § 12.3.4.2 & § 13.3.1 Eq. 13.3-1 Eq. 13.3-2 Eq. 13.3-3

Table 3.3 – Seismic Design Loading – 0% Fill

Seismic Load – Non-Structural Components	ASCE 7-16, Chapter 13
Reversible Vert Force, $E_v = 0.2S_{DS}W_p = 0.2*1.200*5.382 = 1.29 \text{ kip}$ $a_p = 1.0$ $S_{DS} = (2/3)S_{MS} = 1.200$; $S_{D1} = (2/3)S_{M1}$ S_s ; S_1 F_a ; F_v $S_{MS} = F_a S_s$; $S_{M1} = F_v S_1$ $W_p = 5.382 \text{ kip (Dry Weight)}$ $z = 2 \text{ ft (Conservative Anchorage Height of Generator to Tank Top)}$ $h = 8.03 \text{ ft (Overall Height of Generator with Tank Assembly)}$ $R_p = 2.5$ Importance Factor, $I_p = 1.0$ $\rho = 1.0$ (Exception from $\rho = 1.3$, Non-Structural Components) $F_p = 0.4a_p S_{DS} W_p \{ (1+2(z/h)) / (R_p/I_p) \}$ $= 0.4*1.0*1.200*5.382*(1+2*(2/8.03))/(2.5/1.0) = 1.03 \text{ kip}$ $F_p \leq 1.6S_{DS} I_p W_p = 1.6*1.200*1.0*5.382 = 10.33 \text{ kip}$ $F_p > 0.3S_{DS} I_p W_p = 0.3*1.200*1.0*5.382 = 1.94 \text{ kip}$	§ 13.3.1 Table 13.6.1 Eq. 11.4-3 & 4 USGS Reference Tables 11.4-1 & 2 Eq. 11.4-1 & 2 From Section 2.0 Above Slab-On-Grade Slab-On-Grade Table 13.6.1 § 11.5.1 & 13.1.3 § 12.3.4.2 & § 13.3.1 Eq. 13.3-1 Eq. 13.3-2 Eq. 13.3-3

Table 3.4 – Seismic Overstrength Anchorage Loading (ACI 318-14 § 17.2.3.4.3(d) & 17.2.3.5.3(c))

Seismic Load – Non-Structural Components	ASCE 7-16, Chapter 13
$(0.9-0.2(S_{DS}))D + \Omega_0 Q_E$ $\Omega_0 = 2.5$ $Net \text{ OTM} = (6.66*2.5)-(((0.9-(0.2*1.200))* 6.683)*1.5) = 10.04 \text{ k-ft}$ $Omega \text{ AB Tension} = (10.0/(33/12)/(10/2))+((1.60*2.5)/10) = 1.13 \text{ kip}$ $Net \text{ Shear} = (2.41*2.5)-(((0.9-(0.2*1.200))* 6.683)*0.3) = 4.69 \text{ kip}$ $Omega \text{ AB Shear} = 4.69/(10/2) = 0.94 \text{ kip (Assume only 1/2 AB engage)}$	Eq. 12.4.3.2 (7) Table 13.6-1

Table 3.5 – Structural Component Material Strengths

Structural Component	Nominal Strength/Material ¹
Mechanical Anchors	HILTI KWIK Bolt TZ2 Stainless Steel Expansion Anchors (ICC-ES ESR-4266)
Concrete Slab	$f_c' = 2500 \text{ psi}$
Steel Reinforcing	$F_y = 60 \text{ ksi}$
Allowable Soil Capacities	Bearing = 1,000 psf Passive Sliding = 100 psf/ft $\mu = 0.3$

1. Strengths listed were utilized for this analysis and are based upon ASTM, AISC, RCSC, MSJC, AWS and ACI preferred specification values. Values and materials are consistent with industry standards. Material strengths were taken from original design documents, geotechnical reports, etc. when available.

Table 3.6 – Analysis Parameter Design Checks

Parameter	Site Specific (Demand) ¹	6" Analysis (Allowable) ¹	Result ²
Concrete Strength (f'_c)	2500	2500	Adequate
Anchor Tension	1.13	2.38	
Anchor Shear	0.94	1.84	

1. The analysis (allowable) values listed for each parameter are the minimum values required to safely transmit the imparted loading through the foundation and anchorage to the surrounding soil without creating an unstable condition. The allowable values are based on the minimum presumptive values shown in Table 3.5 above.
2. Since the site-specific individual demand parameters are less than or equal to the maximum allowable values listed the foundation and anchorage design is deemed adequate to support the loading.

4.0 Conclusion & Recommendations

AT&T's proposed reinforced concrete slab-on-grade and generator mechanical anchorage will satisfy the requirements of the applicable design codes and have sufficient capacity to support the proposed backup diesel generator loading considered in this analysis.

- Reinforced Concrete Generator Slab:
 - 9'-2" x 15'-0" x 6" Reinforced Concrete Generator Slab w/ #4 Bars @ 12" O.C. Each Way & 1'-9" Turndown Edges w/ (2) #4 Horiz and #4 Hooks @ 12" o.c..
- Generac Diesel Generator Equipment Anchorage:
 - (10) 5/8"Ø x 3-3/4" Embed HILTI Kwik Bolt TZ2 stainless steel expansion anchors (ICC-ES ESR-4266 report).

Analysis Notes & Assumptions:

- All data required to complete our structural analysis was furnished by our client. GeoStructural has not conducted a site visit or independent study to verify existing conditions and the results of this analysis are based solely on the information provided.
- Proposed generator slab and anchorage shall be installed in accordance with any recommendations given in GeoStructural's approved Construction Drawings.

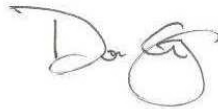
If any of the existing or proposed conditions reported in this analysis are not properly represented, please contact our office immediately to request an amended report. We appreciate the opportunity to provide our structural engineering services to you. If you have any questions regarding the content of this structural analysis report, please don't hesitate to contact us.

Prepared by:



Jesse Drennen, PE
208.761.7986
jesse.drennen@geostructural.com

Reviewed and Approved by:



Don George, PE
208.602.6569
don.george@geostructural.com

5.0 Attachments, Calculations & Software Output

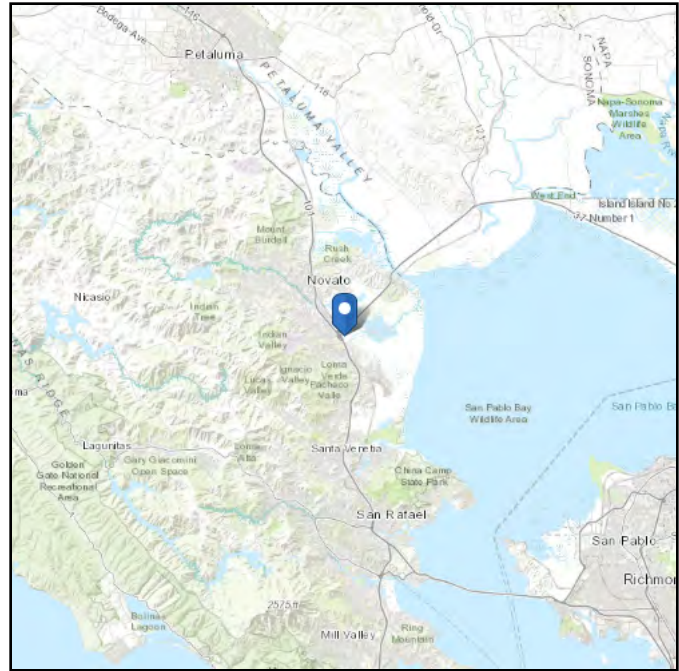
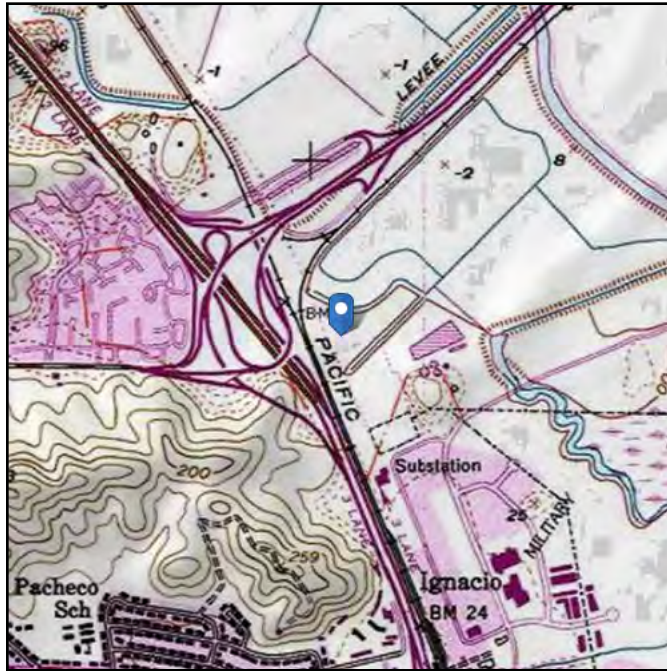
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ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 2.77 ft (NAVD 88)
Latitude: 38.078248
Longitude: -122.541598



Wind

Results:

Wind Speed:	92 Vmph
10-year MRI	64 Vmph
25-year MRI	70 Vmph
50-year MRI	74 Vmph
100-year MRI	79 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon Mar 22 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	1.5	S_{D1} :	N/A
S_1 :	0.6	T_L :	12
F_a :	1.2	PGA :	0.601
F_v :	N/A	PGA _M :	0.721
S_{MS} :	1.8	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.2	C_v :	1.4

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Mon Mar 22 2021

Date Source: [USGS Seismic Design Maps](#)

Ice

Results:

Ice Thickness: 0.00 in.

Concurrent Temperature: 25 F

Gust Speed: 30 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Mon Mar 22 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Flood

Results:

Flood Zone Categorization: AE

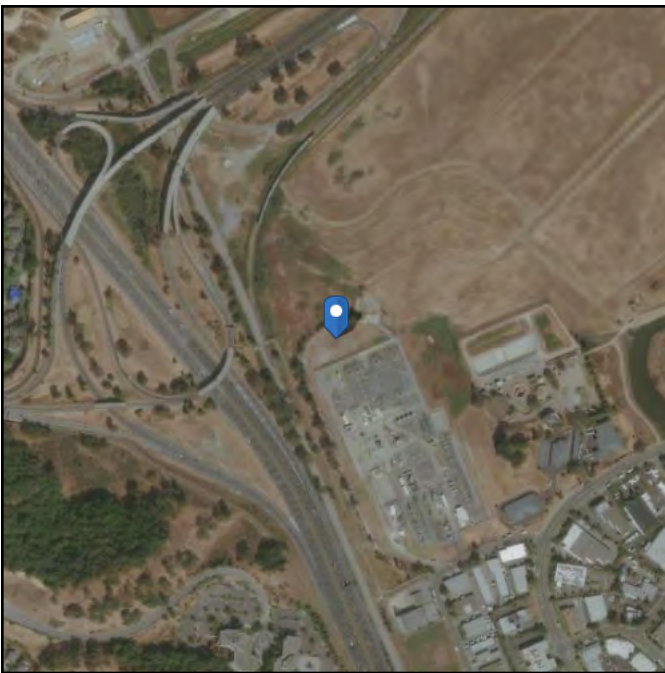
Base Flood Elevation: NAVD88

Data Source: FEMA National Flood Hazard Layer - Effective Flood Hazard Layer for US, where modernized (<https://msc.fema.gov/portal/search>)

Date Accessed: Mon Mar 22 2021

FIRM Panel: If available, download FIRM panel [here](#)

Insurance Study Note: Download FEMA Flood Insurance Study for this area [here](#)



The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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GeoStructural LLC
PO Box 2621
Boise, ID 83701

Project Title: AT&T Generator Upgrade Project
Engineer: Jesse Drennen, PE
Project ID:
Project Descr: Standby Generator on Concrete Slab

Building Code Information

File = E:\GOOGLE-1\ZZGENE-1\GENPRO-1\0A_CAL-1\100904-1\Reports\CALCUL-1\3 GEN calcs.ec6 .
Software copyright ENERCALC, INC. 1983-2018, Build:10.18.12.30 .

Lic. # : KW-06009677

Licensee : GeoStructural, LLC

Governing Code : IBC 2018, ASCE 7-16, CBC 2019, AISC 360-16, NDS 2018, ACI 318-14, TM9

City Jurisdiction :

Contact Name :

Alternate Contact :

Building Official :

Address : , ,

Phone :

Fax :

eMail :

Notes :

GeoStructural LLC
PO Box 2621
Boise, ID 83701

Project Title: AT&T Generator Upgrade Project
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Project Information

File = E:\GOOGLE-1\ZZGENE-1\GENPRO-1\0A_CAL-1\100904-1\Reports\CALCUL-1\3 GEN calcs.ec6 .
Software copyright ENERCALC, INC. 1983-2018, Build:10.18.12.30 .

Lic. # : KW-06009677

Licensee : GeoStructural, LLC

Project Title : AT&T Generator Upgrade Project

Description : Standby Generator on Concrete Slab

I.D. :

Address : , , CA

Project Leader : Jesse Drennen, PE

Phone : 208-761-7986

Fax :

eMail :

Project Notes



GEOSTRUCTURAL

General Footing

Project File: 3.1 PGE GEN calcs.ec6

LIC#: KW-06015027, Build:20.22.1.12

GeoStructural, LLC

(c) ENERCALC INC 1983-2021

DESCRIPTION: Generator Reinforced Concrete Slab On Grade - Strength and Stability Analysis

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f _c : Concrete 28 day strength	=	2.50 ksi
f _y : Rebar Yield	=	60.0 ksi
E _c : Concrete Elastic Modulus	=	2,850.0 ksi
Concrete Density	=	150.0 pcf
φ Values	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	1.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	100.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing Depth

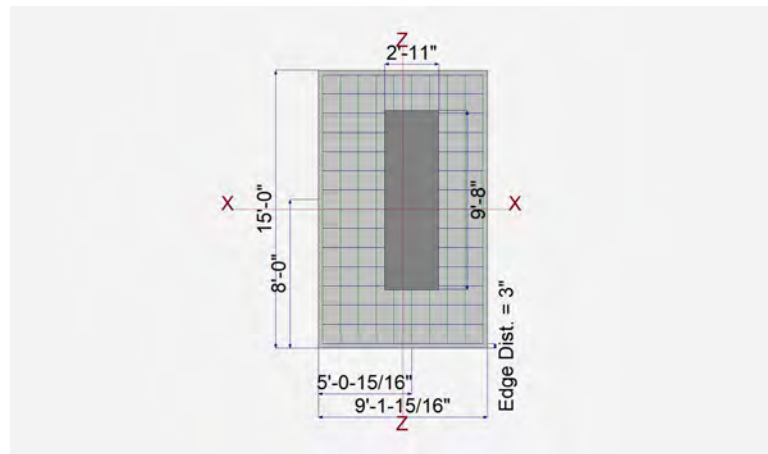
Footing base depth below soil surface	=	0.3330 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf ft
---	---	--------

Dimensions

Width parallel to X-X Axis	=	9.160 ft
Length parallel to Z-Z Axis	=	15.0 ft
Footing Thickness	=	6.0 in
Load location offset from footing center...		
ex : Prll to X-X Axis	=	6 in
ez : Prll to Z-Z Axis	=	6 in
Pedestal dimensions...		
px : parallel to X-X Axis	=	35.0 in
pz : parallel to Z-Z Axis	=	116.0 in
Height	=	1.0 in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	15.0
Reinforcing Bar Size	=	# 4
Bars parallel to Z-Z Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 4
Bandwidth Distribution Check (ACI 15.4.4.2)		
Direction Requiring Closer Separation		
		Bars along X-X Axis
# Bars required within zone	=	75.8 %
# Bars required on each side of zone	=	24.2 %



Applied Loads

	D	L _r	L	S	W	E	H
P : Column Load	=	6.683				-1.60	k
OB : Overburden	=						ksf
M-xx	=				1.90	6.660	k-ft
M-zz	=				5.80	6.660	k-ft
V-x	=				1.440	2.410	k
V-z	=				-0.470	-2.410	k



GeoStructural LLC
PO Box 2621
Boise, ID 83701

Project Title: AT&T Generator Upgrade Project
Engineer: Jesse Drennen, PE
Project ID:
Project Descr: Standby Generator on Concrete Slab

GEOSTRUCTURAL

General Footing

Project File: 3.1 PGE GEN calcs.ec6

LIC# : KW-06015027, Build:20.22.1.12

GeoStructural, LLC

(c) ENERCALC INC 1983-2021

DESCRIPTION: Generator Reinforced Concrete Slab On Grade - Strength and Stability Analysis

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.1739	Soil Bearing	0.1739 ksf	1.0 ksf	+D+0.70E
PASS	6.033	Overturning - X-X	12.502 k-ft	75.425 k-ft	+0.60D+0.70E
PASS	4.373	Overturning - Z-Z	10.216 k-ft	44.678 k-ft	+0.60D+0.70E
PASS	1.663	Sliding - X-X	1.687 k	2.805 k	+0.60D+0.70E
PASS	1.644	Sliding - Z-Z	1.687 k	2.773 k	+0.60D+0.70E
PASS	9.101	Uplift	-1.120 k	10.193 k	+0.60D+0.70E
PASS	0.3345	Z Flexure (+X)	0.8324 k-ft/ft	2.488 k-ft/ft	+1.440D+E
PASS	0.5456	Z Flexure (-X)	1.358 k-ft/ft	2.488 k-ft/ft	+1.440D-E
PASS	0.2112	X Flexure (+Z)	0.5692 k-ft/ft	2.695 k-ft/ft	+1.440D+E
PASS	0.3879	X Flexure (-Z)	1.046 k-ft/ft	2.695 k-ft/ft	+1.440D-E
PASS	0.210	1-way Shear (+X)	15.753 psi	75.0 psi	+1.440D+E
PASS	0.2583	1-way Shear (-X)	19.369 psi	75.0 psi	+1.440D-E
PASS	0.1746	1-way Shear (+Z)	13.096 psi	75.0 psi	+1.440D+E
PASS	0.2086	1-way Shear (-Z)	15.645 psi	75.0 psi	+1.440D-E
PASS	0.2386	2-way Punching	21.318 psi	89.331 psi	+1.440D-E

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
		Zecc (in)		Bottom Left	Top Left	Top Right	Bottom Right	
, D Only								0.000
, 45.0 deg CCW	1.0	2.360	2.360	0.1175	0.09824	0.1298	0.1490	0.149
, +D+0.60W								0.000
, 30.5 deg CCW	1.0	5.175	3.049	0.1015	0.07662	0.1458	0.1707	0.171
, +0.60D+0.60W								0.000
, 26.5 deg CCW	1.0	7.051	3.509	0.05451	0.03733	0.09386	0.1110	0.111
, +D+0.70E								0.000
, 37.5 deg CCW	1.0	6.373	4.885	0.09433	0.05710	0.1366	0.1739	0.174
, +0.60D+0.70E								0.000
, 35.8 deg CCW	1.0	9.379	6.776	0.04733	0.01780	0.08473	0.1143	0.114

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	124.069 k-ft	Infinity	OK
X-X, +D+0.60W	1.140 k-ft	124.233 k-ft	108.976	OK
X-X, +0.60D+0.60W	1.140 k-ft	74.606 k-ft	65.444	OK
X-X, +D+0.70E	12.502 k-ft	125.053 k-ft	10.003	OK
X-X, +0.60D+0.70E	12.502 k-ft	75.425 k-ft	6.033	OK
Z-Z, D Only	None	74.464 k-ft	Infinity	OK
Z-Z, +D+0.60W	3.984 k-ft	74.464 k-ft	18.691	OK
Z-Z, +0.60D+0.60W	3.984 k-ft	44.678 k-ft	11.214	OK
Z-Z, +D+0.70E	10.216 k-ft	74.464 k-ft	7.289	OK
Z-Z, +0.60D+0.70E	10.216 k-ft	44.678 k-ft	4.373	OK

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
X-X, D Only	0.0 k	5.180 k	No Sliding	OK
X-X, +D+0.60W	0.8640 k	5.180 k	5.995	OK
X-X, +0.60D+0.60W	0.8640 k	3.141 k	3.635	OK
X-X, +D+0.70E	1.687 k	4.844 k	2.871	OK
X-X, +0.60D+0.70E	1.687 k	2.805 k	1.663	OK
Z-Z, D Only	0.0 k	5.147 k	No Sliding	OK
Z-Z, +D+0.60W	-0.2820 k	5.147 k	18.252	OK
Z-Z, +0.60D+0.60W	-0.2820 k	3.109 k	11.024	OK
Z-Z, +D+0.70E	-1.687 k	4.811 k	2.852	OK
Z-Z, +0.60D+0.70E	-1.687 k	2.773 k	1.644	OK



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Engineer: Jesse Drennen, PE
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GEOSTRUCTURAL

General Footing

Project File: 3.1 PGE GEN calcs.ec6

LIC# : KW-06015027, Build:20.22.1.12

GeoStructural, LLC

(c) ENERCALC INC 1983-2021

DESCRIPTION: Generator Reinforced Concrete Slab On Grade - Strength and Stability Analysis

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.4924	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.40D	0.8552	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.20D+W	0.4896	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.20D+W	0.6095	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.20D-W	0.3847	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.20D-W	0.8566	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.20D+W	0.3841	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +0.90D+W	0.4262	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +0.90D-W	0.2999	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +0.90D-W	0.6733	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.440D+E	0.5692	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.440D+E	0.7138	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.440D-E	0.4676	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +1.440D-E	1.046	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +0.660D+E	0.2948	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +0.660D+E	0.2373	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +0.660D-E	0.2472	+Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
X-X, +0.660D-E	0.5864	-Z	Bottom	0.1296	AsMin	0.2183	2.695	OK
Z-Z, +1.40D	1.137	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.40D	0.7190	+X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.20D+W	0.8396	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.20D+W	0.7204	+X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.20D-W	1.110	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.20D-W	0.5123	+X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +0.90D+W	0.5960	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +0.90D+W	0.5663	+X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +0.90D-W	0.8661	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +0.90D-W	0.3582	+X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.440D+E	0.9817	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.440D+E	0.8324	+X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.440D-E	1.358	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +1.440D-E	0.6467	+X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +0.660D+E	0.3482	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +0.660D+E	0.4318	+X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +0.660D-E	0.7601	-X	Bottom	0.1296	AsMin	0.20	2.488	OK
Z-Z, +0.660D-E	0.2702	+X	Bottom	0.1296	AsMin	0.20	2.488	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	16.56 psi	13.74 psi	14.70 psi	11.35 psi	16.56 psi	75.00 psi	0.22	OK
+1.20D+W	12.58 psi	13.63 psi	14.22 psi	11.28 psi	14.22 psi	75.00 psi	0.19	OK
+1.20D-W	15.80 psi	9.92 psi	12.05 psi	8.87 psi	15.80 psi	75.00 psi	0.21	OK
+0.90D+W	9.04 psi	10.68 psi	11.06 psi	8.85 psi	11.06 psi	75.00 psi	0.15	OK
+0.90D-W	12.26 psi	6.98 psi	9.58 psi	6.92 psi	12.26 psi	75.00 psi	0.16	OK
+1.440D+E	14.70 psi	15.75 psi	15.41 psi	13.10 psi	15.75 psi	75.00 psi	0.21	OK
+1.440D-E	19.37 psi	12.51 psi	15.65 psi	10.80 psi	19.37 psi	75.00 psi	0.26	OK
+0.660D+E	5.47 psi	8.10 psi	7.22 psi	6.77 psi	8.10 psi	75.00 psi	0.11	OK
+0.660D-E	10.67 psi	5.31 psi	9.23 psi	5.72 psi	10.67 psi	75.00 psi	0.14	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	19.31 psi	89.33psi	0.2161	OK
+1.20D+W	16.42 psi	89.33psi	0.1838	OK
+1.20D-W	16.67 psi	89.33psi	0.1867	OK
+0.90D+W	12.28 psi	89.33psi	0.1375	OK
+0.90D-W	12.54 psi	89.33psi	0.1403	OK
+1.440D+E	18.40 psi	89.33psi	0.2059	OK
+1.440D-E	21.32 psi	89.33psi	0.2386	OK
+0.660D+E	7.64 psi	89.33psi	0.08553	OK
+0.660D-E	10.56 psi	89.33psi	0.1182	OK



GeoStructural LLC
PO Box 2621
Boise, ID 83701

Project Title: AT&T Generator Upgrade Project
Engineer: Jesse Drennen, PE
Project ID:
Project Descr: Standby Generator on Concrete Slab

GEOSTRUCTURAL

Beam on Elastic Foundation

Project File: 3.1 PGE GEN calcs.ec6

LIC#: KW-06015027, Build:20.22.1.12

GeoStructural, LLC

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DESCRIPTION: Slab On Grade - "Beam" on Soil Spring Design

CODE REFERENCES

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

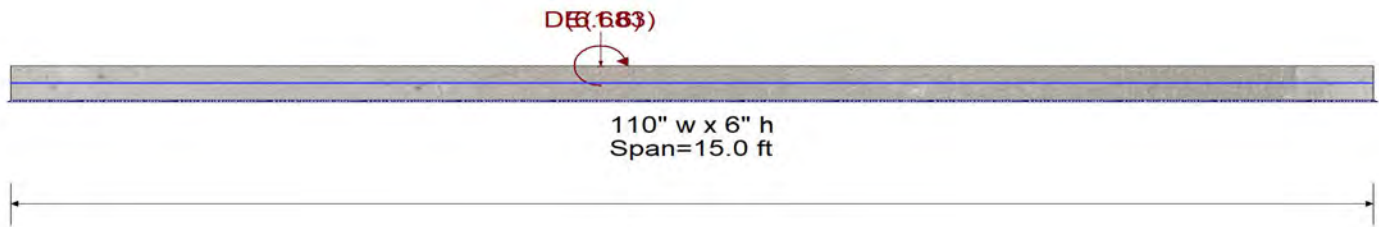
Load Combinations Used : ASCE 7-16

Material Properties

f_c	=	2.50 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f_c^{1/2}$	=	7.50		Shear :	0.750
ψ Density	=	150.0 pcf	β_1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	2,850.0 ksi			
Soil Subgrade Modulus	=	47.0 psi / (inch deflection)			
Load Combination	ASCE 7-16				
f_y - Main Rebar	=	60.0 ksi	F_y - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 110.0 in, Height = 6.0 in

Span #1 Reinforcing....

10-#4 at 3.0 in from Top, from 0.0 to 15.0 ft in this span

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Load for Span Number 1

Moment : W = 1.90, E = 6.660 k-ft, Location = 6.50 ft from left end of this span

Point Load : D = 6.683 k @ 6.50 ft

Point Load : E = 1.60 k @ 6.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.588 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	14.508 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	24.690 k-ft	Max Downward Total Deflection	0.029 in
Load Combination	+1.440D+E	Max Upward Total Deflection	0.007 in
Location of maximum on span	6.529 ft		
Span # where maximum occurs	Span # 1		

Maximum Soil Pressure = **0.198** ksf at 7.17 ft LdComb: +D+0.70E
 Allowable Soil Pressure = **1.0** ksf **OK**

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \Phi V_c/2$, Req'd Vs = Not Reqd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope						
+1.40D	Span # 1	1	6.529	14.51	24.69	0.59



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GEOSTRUCTURAL

Beam on Elastic Foundation

Project File: 3.1 PGE GEN calcs.ec6

LIC#: KW-06015027, Build:20.22.1.12

GeoStructural, LLC

(c) ENERCALC INC 1983-2021

DESCRIPTION: Slab On Grade - "Beam" on Soil Spring Design

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
Span # 1		1	6.529	9.27	24.69	0.38
+1.20D+W		1	6.529	8.91	24.69	0.36
+1.20D-W		1	6.353	8.39	24.69	0.34
+0.90D+W		1	6.529	6.93	24.69	0.28
+0.90D-W		1	6.353	6.52	24.69	0.26
+1.440D+E		1	6.529	14.51	24.69	0.59
+1.440D-E		1	6.353	10.62	24.69	0.43
+0.660D+E		1	6.529	9.34	24.69	0.38
+0.660D-E		1	6.353	5.75	24.69	0.23

Overall Maximum Deflections - Unfactored Lo

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.0292	7.167		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+0.660D-E	1	0.00	3.00	0.07	0.07	0.00	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.660D-E	1	0.18	3.00	0.09	0.09	0.00	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.660D-E	1	0.35	3.00	0.12	0.12	0.01	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.660D-E	1	0.53	3.00	0.14	0.14	0.02	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.660D-E	1	0.71	3.00	0.17	0.17	0.03	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.660D-E	1	0.88	3.00	0.21	0.21	0.05	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	1.06	3.00	0.26	0.26	0.06	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	1.24	3.00	0.32	0.32	0.10	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	1.41	3.00	0.38	0.38	0.14	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	1.59	3.00	0.46	0.46	0.20	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	1.76	3.00	0.54	0.54	0.27	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	1.94	3.00	0.63	0.63	0.35	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	2.12	3.00	0.72	0.72	0.45	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	2.29	3.00	0.83	0.83	0.57	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	2.47	3.00	0.94	0.94	0.71	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	2.65	3.00	1.06	1.06	0.86	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	2.82	3.00	1.18	1.18	1.04	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	3.00	3.00	1.31	1.31	1.23	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	3.18	3.00	1.45	1.45	1.46	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	3.35	3.00	1.60	1.60	1.70	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	3.53	3.00	1.75	1.75	1.97	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	3.71	3.00	1.91	1.91	2.27	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	3.88	3.00	2.08	2.08	2.60	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	4.06	3.00	2.25	2.25	2.96	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	4.24	3.00	2.43	2.43	3.34	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	4.41	3.00	2.61	2.61	3.76	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	4.59	3.00	2.80	2.80	4.21	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	4.76	3.00	2.99	2.99	4.69	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	4.94	3.00	3.19	3.19	5.21	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	5.12	3.00	3.38	3.38	5.76	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	5.29	3.00	3.59	3.59	6.35	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	5.47	3.00	3.79	3.79	6.97	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	5.65	3.00	4.00	4.00	7.63	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	5.82	3.00	4.20	4.20	8.32	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	6.00	3.00	4.41	4.41	9.05	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	6.18	3.00	4.61	4.61	9.82	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	6.35	3.00	4.81	4.81	10.62	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	6.53	3.00	-6.36	6.36	14.51	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	6.71	3.00	-6.08	6.08	13.37	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	6.88	3.00	-5.79	5.79	12.29	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	7.06	3.00	-5.50	5.50	11.26	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	7.24	3.00	-5.22	5.22	10.28	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	7.41	3.00	-4.93	4.93	9.35	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	7.59	3.00	-4.65	4.65	8.46	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00



GeoStructural LLC
 PO Box 2621
 Boise, ID 83701

Project Title: AT&T Generator Upgrade Project
 Engineer: Jesse Drennen, PE
 Project ID:
 Project Descr: Standby Generator on Concrete Slab

GEOSTRUCTURAL

Beam on Elastic Foundation

Project File: 3.1 PGE GEN calcs.ec6

LIC# : KW-06015027, Build:20.22.1.12

GeoStructural, LLC

(c) ENERCALC INC 1983-2021

DESCRIPTION: Slab On Grade - "Beam" on Soil Spring Design

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
			Actual	Design	Actual	Design						Req'd	Suggest
+1.440D+E	1	7.76	3.00	3.00	-4.38	4.38	7.63	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	7.94	3.00	3.00	-4.10	4.10	6.85	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	8.12	3.00	3.00	-3.84	3.84	6.11	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	8.29	3.00	3.00	-3.57	3.57	5.43	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	8.47	3.00	3.00	-3.32	3.32	4.79	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	8.65	3.00	3.00	-3.07	3.07	4.19	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	8.82	3.00	3.00	-2.83	2.83	3.64	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	9.00	3.00	3.00	-2.60	2.60	3.13	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	9.18	3.00	3.00	-2.37	2.37	2.66	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	9.35	3.00	3.00	-2.15	2.15	2.23	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	9.53	3.00	3.00	-1.95	1.95	1.84	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	9.71	3.00	3.00	-1.75	1.75	1.48	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	9.88	3.00	3.00	-1.56	1.56	1.17	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	10.06	3.00	3.00	-1.37	1.37	0.88	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	10.24	3.00	3.00	-1.20	1.20	0.63	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	10.41	3.00	3.00	-1.04	1.04	0.40	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	10.59	3.00	3.00	-0.88	0.88	0.21	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	10.76	3.00	3.00	-0.74	0.74	0.04	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	10.94	3.00	3.00	-0.60	0.60	0.10	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	11.12	3.00	3.00	-0.48	0.48	0.22	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	11.29	3.00	3.00	-0.36	0.36	0.31	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.660D-E	1	11.47	3.00	3.00	0.30	0.30	0.53	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	11.65	3.00	3.00	0.30	0.30	0.84	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	11.82	3.00	3.00	0.33	0.33	0.79	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	12.00	3.00	3.00	0.35	0.35	0.75	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	12.18	3.00	3.00	0.37	0.37	0.70	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	12.35	3.00	3.00	0.38	0.38	0.64	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	12.53	3.00	3.00	0.39	0.39	0.58	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	12.71	3.00	3.00	0.39	0.39	0.53	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	12.88	3.00	3.00	0.39	0.39	0.47	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	13.06	3.00	3.00	0.39	0.39	0.41	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	13.24	3.00	3.00	0.38	0.38	0.35	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	13.41	3.00	3.00	0.36	0.36	0.29	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D-E	1	13.59	3.00	3.00	0.34	0.34	0.24	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	13.76	3.00	3.00	0.32	0.32	0.21	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	13.94	3.00	3.00	0.31	0.31	0.16	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	14.12	3.00	3.00	0.28	0.28	0.12	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	14.29	3.00	3.00	0.25	0.25	0.08	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	14.47	3.00	3.00	0.21	0.21	0.05	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	14.65	3.00	3.00	0.15	0.15	0.02	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.440D+E	1	14.82	3.00	3.00	0.09	0.09	0.01	1.00	27.26	Vu < PhiVc/2	Not Reqd	0.00	0.00

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Specifier's comments: Wet

1 Input data

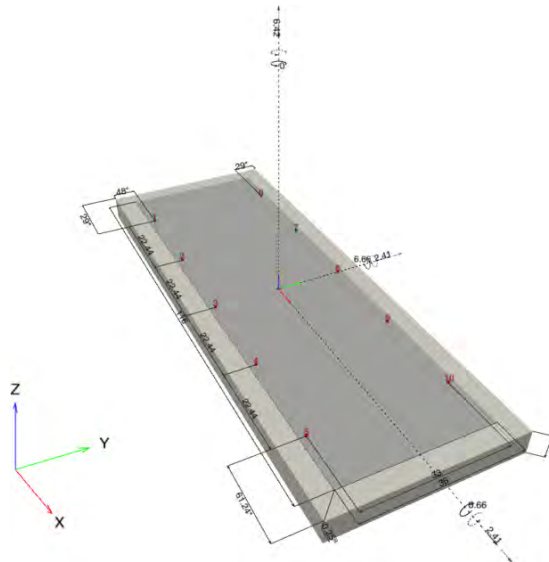
Anchor type and diameter:	Kwik Bolt TZ2 - SS 304 5/8 (3 1/4) hnom2
Item number:	2210278 KB-TZ2 5/8x4 3/4 SS304
Effective embedment depth:	$h_{ef,act} = 3.250$ in., $h_{nom} = 3.750$ in.
Material:	AISI 304
Evaluation Service Report:	ESR-4266
Issued Valid:	7/1/2021 12/1/2021
Proof:	Design Method ACI 318-14 / Mech
Stand-off installation:	$e_b = 0.000$ in. (no stand-off); $t = 0.250$ in.
Anchor plate ^R :	$l_x \times l_y \times t = 116.000$ in. x 36.000 in. x 0.250 in.; (Recommended plate thickness: not calculated)
Profile:	no profile
Base material:	cracked concrete, 2500, $f_c' = 2,500$ psi; $h = 6.000$ in.
Installation:	hammer drilled hole, Installation condition: Dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.2.3.4.3 (d)) Shear load: yes (17.2.3.5.3 (c))



SAFE-ET

^R - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [kip, ft.kip]





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1.1 Unfactored loads

	Sustained load factor	Load factor f_1 or f_2	V_x [kip]	V_y [kip]	N [kip]	M_x [ft.kip]	M_y [ft.kip]	M_z [ft.kip]
D (Dead)	1.000	-	-	-	-6.683	-	-	-
F (Fluid)	1.000	-	-	-	-	-	-	-
T (Temperature)	1.000	-	-	-	-	-	-	-
L (Live)	1.000	0.500	-	-	-	-	-	-
H (Lateral)	1.000	-	-	-	-	-	-	-
L_r (Roof live)	1.000	-	-	-	-	-	-	-
S (Snow)	1.000	0.200	-	-	-	-	-	-
R (Rain)	-	-	-	-	-	-	-	-
W (Wind)	-	-	0.470	1.440	-	-5.80000	1.90000	-
E (Earthquake)	-	-	2.410	2.410	1.600	-6.66000	6.66000	-

1.2 Load combination and design results

1.2.1 Load combination

Load case	Load combination
Equation (16-4a)	1.2 (D + F) + 1.0 (W) + f_1L + 1.6 (H) + 0.5 (L_r)
Equation (16-5)	1.2 (D + F) + 1.0 (E) + f_1L + 1.6 (H) + f_2S
Equation (16-6)	0.9 (D) + 1.0 (W) + 1.6 (H)
Equation (16-7)	0.9 (D + F) + 1.0 (E) + 1.6 (H)

1.2.2 Design results

Case	Description	Forces [kip] / Moments [ft.kip]	Seismic	Max. Util. Anchor [%]
Equation (16-4a)	1.2 (D + F) + 1.0 (W) + f_1L + 1.6 (H) + 0.5 (L_r)	N = -8.020; V_x = 0.470; V_y = 1.440; M_x = -5.80000; M_y = 1.90000; M_z = 0.00000;	yes	9
Equation (16-5)	1.2 (D + F) + 1.0 (E) + f_1L + 1.6 (H) + f_2S	N = -6.420; V_x = 2.410; V_y = 2.410; M_x = -6.66000; M_y = 6.66000; M_z = 0.00000;	yes	20
Equation (16-6)	0.9 (D) + 1.0 (W) + 1.6 (H)	N = -6.015; V_x = 0.470; V_y = 1.440; M_x = -5.80000; M_y = 1.90000; M_z = 0.00000;	yes	9
Equation (16-7)	0.9 (D + F) + 1.0 (E) + 1.6 (H)	N = -4.415; V_x = 2.410; V_y = 2.410; M_x = -6.66000; M_y = 6.66000; M_z = 0.00000;	yes	20



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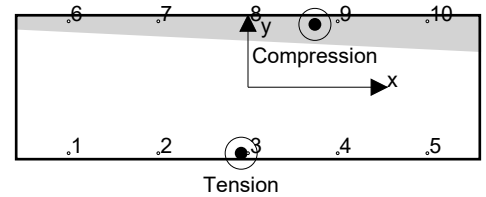
2 Load case/Resulting anchor forces

Controlling load case: Equation (16-5) $1.2 (D + F) + 1.0 (E) + f_1 L + 1.6 (H) + f_2 S$

Anchor reactions [kip]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	0.070	0.341	0.241	0.241
2	0.068	0.341	0.241	0.241
3	0.065	0.341	0.241	0.241
4	0.063	0.341	0.241	0.241
5	0.060	0.341	0.241	0.241
6	0.000	0.341	0.241	0.241
7	0.000	0.341	0.241	0.241
8	0.000	0.341	0.241	0.241
9	0.000	0.341	0.241	0.241
10	0.000	0.341	0.241	0.241



max. concrete compressive strain: 0.00 [%]
 max. concrete compressive stress: 0.018 [ksi]
 resulting tension force in (x/y)=(-1.708/-16.508): 0.326 [kip]
 resulting compression force in (x/y)=(16.742/15.719): 4.741 [kip]

Anchor forces are calculated based on the assumption of a rigid anchor plate.

3 Tension load

	Load N_{ua} [kip]	Capacity ϕN_n [kip]	Utilization $\beta_N = N_{ua} / \phi N_n$	Status
Steel Strength*	0.070	14.132	1	OK
Pullout Strength*	N/A	N/A	N/A	N/A
Concrete Breakout Failure**	0.326	11.104	3	OK

* highest loaded anchor **anchor group (anchors in tension)



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3.1 Steel Strength

N_{sa} = ESR value refer to ICC-ES ESR-4266
 $\phi N_{sa} \geq N_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$A_{se,N}$ [in. ²]	f_{uta} [ksi]
0.16	114.604

Calculations

N_{sa} [kip]
18.843

Results

N_{sa} [kip]	ϕ_{steel}	$\phi_{nonductile}$	ϕN_{sa} [kip]	N_{ua} [kip]
18.843	0.750	1.000	14.132	0.070


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3.2 Concrete Breakout Failure

$$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \quad \text{ACI 318-14 Eq. (17.4.2.1b)}$$

$$\phi N_{cbg} \geq N_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

$$A_{Nc} \text{ see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)}$$

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-14 Eq. (17.4.2.1c)}$$

$$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.4)}$$

$$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.5b)}$$

$$\psi_{cp,N} = \text{MAX} \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.7b)}$$

$$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5} \quad \text{ACI 318-14 Eq. (17.4.2.2a)}$$

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
3.250	1.708	0.000	29.000	1.000
c_{ac} [in.]	k_c	λ_a	f'_c [psi]	
7.000	21	1.000	2,500	

Calculations

A_{Nc} [in. ²]	A_{Nc0} [in. ²]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [kip]
475.31	95.06	0.741	1.000	1.000	1.000	6.152

Results

N_{cbg} [kip]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕN_{cbg} [kip]	N_{ua} [kip]
22.778	0.650	0.750	1.000	11.104	0.326



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4 Shear load

	Load V_{ua} [kip]	Capacity ϕV_n [kip]	Utilization $\beta_v = V_{ua} / \phi V_n$	Status
Steel Strength*	0.341	8.034	5	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	3.408	86.100	4	OK
Concrete edge failure in direction x+**	3.408	17.406	20	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa,eq}$ = ESR value refer to ICC-ES ESR-4266
 $\phi V_{steel} \geq V_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$A_{se,V}$ [in. ²]	f_{uta} [ksi]	$\alpha_{v,seis}$
0.16	114.604	1.000

Calculations

$V_{sa,eq}$ [kip]
12.360

Results

$V_{sa,eq}$ [kip]	ϕ_{steel}	$\phi_{nonductile}$	$\phi V_{sa,eq}$ [kip]	V_{ua} [kip]
12.360	0.650	1.000	8.034	0.341


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4.2 Pryout Strength

$$V_{cp,g} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right] \quad \text{ACI 318-14 Eq. (17.5.3.1b)}$$

$$\phi V_{cp,g} \geq V_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

 A_{Nc} see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-14 Eq. (17.4.2.1c)}$$

$$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.4)}$$

$$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.5b)}$$

$$\psi_{cp,N} = \text{MAX} \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.7b)}$$

$$N_b = k_c \lambda_a \sqrt{f_c} h_{ef}^{1.5} \quad \text{ACI 318-14 Eq. (17.4.2.2a)}$$

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	3.250	0.001	0.001	29.000

$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f_c [psi]
1.000	7.000	21	1.000	2,500

Calculations

A_{Nc} [in. ²]	A_{Nc0} [in. ²]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [kip]
950.63	95.06	1.000	1.000	1.000	1.000	6.152

Results

$V_{cp,g}$ [kip]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi V_{cp,g}$ [kip]	V_{ua} [kip]
122.999	0.700	1.000	1.000	86.100	3.408

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4.3 Concrete edge failure in direction x+

$$V_{cbg} = \left(\frac{A_{Vc}}{A_{Vc0}} \right) \Psi_{ec,V} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} \Psi_{parallel,V} V_b \quad \text{ACI 318-14 Eq. (17.5.2.1b)}$$

$$\phi V_{cbg} \geq V_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

 A_{Vc} see ACI 318-14, Section 17.5.2.1, Fig. R 17.5.2.1(b)

$$A_{Vc0} = 4.5 c_{a1}^2 \quad \text{ACI 318-14 Eq. (17.5.2.1c)}$$

$$\Psi_{ec,V} = \left(\frac{1}{1 + \frac{2e_v}{3c_{a1}}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.5.2.5)}$$

$$\Psi_{ed,V} = 0.7 + 0.3 \left(\frac{c_{a2}}{1.5c_{a1}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.5.2.6b)}$$

$$\Psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0 \quad \text{ACI 318-14 Eq. (17.5.2.8)}$$

$$V_b = \left(7 \left(\frac{l_e}{d_a} \right)^{0.2} \sqrt{d_a} \right) \lambda_a \sqrt{f'_c} c_{a1}^{1.5} \quad \text{ACI 318-14 Eq. (17.5.2.2a)}$$

Variables

c_{a1} [in.]	c_{a2} [in.]	e_{cV} [in.]	$\Psi_{c,V}$	h_a [in.]
32.000	29.000	0.000	1.000	6.000
l_e [in.]	λ_a	d_a [in.]	f'_c [psi]	$\Psi_{parallel,V}$
3.250	1.000	0.625	2,500	1.000

Calculations

A_{Vc} [in. ²]	A_{Vc0} [in. ²]	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{h,V}$	V_b [kip]
660.00	4,608.00	1.000	0.881	2.828	69.652

Results

V_{cbg} [kip]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cbg} [kip]	V_{ua} [kip]
24.866	0.700	1.000	1.000	17.406	3.408

5 Combined tension and shear loads

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.029	0.196	5/3	7	OK

$$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} \leq 1$$

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6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- For additional information about ACI 318 strength design provisions, please go to <https://submittals.us.hilti.com/PROFISAnchorDesignGuide/>
- An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-14, Chapter 17, Section 17.2.3.4.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.2.3.4.3 (b), Section 17.2.3.4.3 (c), or Section 17.2.3.4.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.2.3.5.3 (a), Section 17.2.3.5.3 (b), or Section 17.2.3.5.3 (c).
- Section 17.2.3.4.3 (b) / Section 17.2.3.5.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.2.3.4.3 (c) / Section 17.2.3.5.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.2.3.4.3 (d) / Section 17.2.3.5.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by ω_0 .
- Hilti post-installed anchors shall be installed in accordance with the Hilti Manufacturer's Printed Installation Instructions (MPII). Reference ACI 318-14, Section 17.8.1.

Fastening meets the design criteria!



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7 Installation data

Profile: no profile

Hole diameter in the fixture: $d_f = 0.687$ in.

Plate thickness (input): 0.250 in.

Recommended plate thickness: not calculated

Drilling method: Hammer drilled

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Anchor type and diameter: Kwik Bolt TZ2 - SS 304 5/8 (3 1/4) hnom2

Item number: 2210278 KB-TZ2 5/8x4 3/4 SS304

Maximum installation torque: 0.06019 ft.kip

Hole diameter in the base material: 0.625 in.

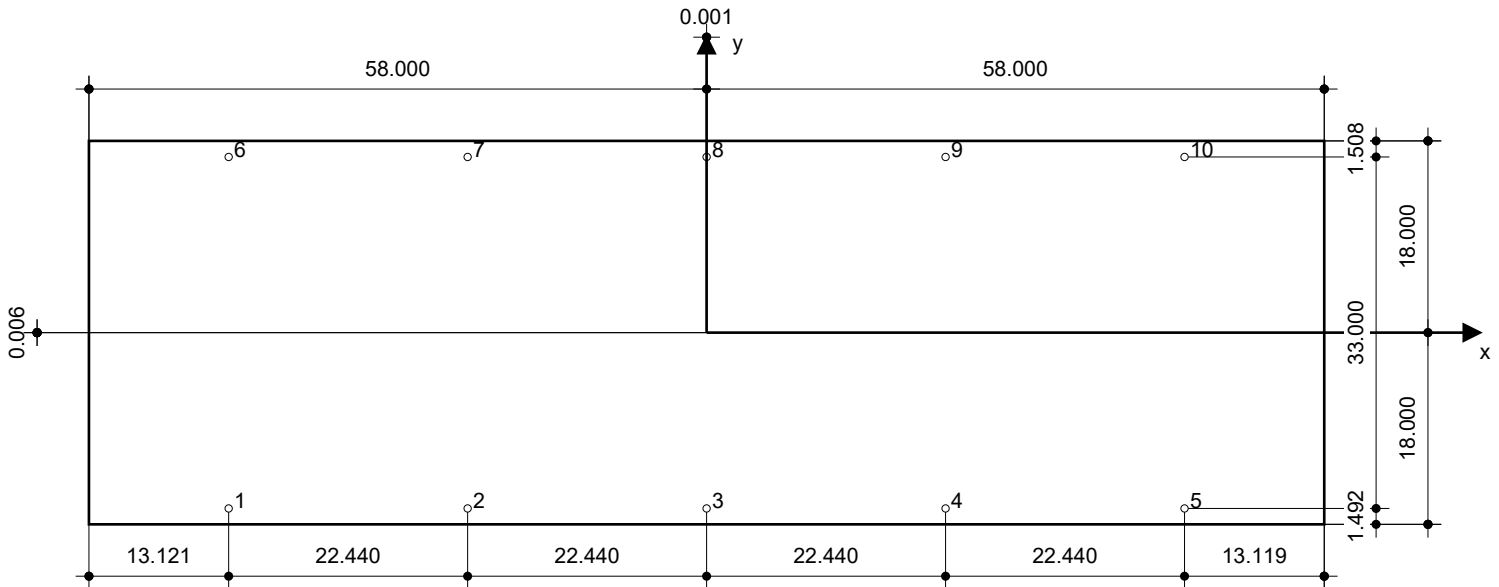
Hole depth in the base material: 4.250 in.

Minimum thickness of the base material: 5.500 in.

Hilti KB-TZ2 stud anchor with 3.75 in embedment, 5/8 (3 1/4) hnom2, Stainless steel, installation per ESR-4266

7.1 Recommended accessories

Drilling	Cleaning	Setting
<ul style="list-style-type: none"> Suitable Rotary Hammer Properly sized drill bit 	<ul style="list-style-type: none"> Manual blow-out pump 	<ul style="list-style-type: none"> Torque controlled cordless impact tool Torque wrench Hammer



Coordinates Anchor [in.]

Anchor	x	y	c _{-x}	c _{+x}	c _{-y}	c _{+y}	Anchor	x	y	c _{-x}	c _{+x}	c _{-y}	c _{+y}
1	-44.879	-16.508	29.000	151.000	48.000	62.000	6	-44.879	16.492	29.000	151.000	81.000	29.000
2	-22.439	-16.508	51.440	128.560	48.000	62.000	7	-22.439	16.492	51.440	128.560	81.000	29.000
3	0.001	-16.508	73.880	106.120	48.000	62.000	8	0.001	16.492	73.880	106.120	81.000	29.000
4	22.441	-16.508	96.320	83.680	48.000	62.000	9	22.441	16.492	96.320	83.680	81.000	29.000
5	44.881	-16.508	118.760	61.240	48.000	62.000	10	44.881	16.492	118.760	61.240	81.000	29.000

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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8 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

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Specifier's comments:

1 Input data

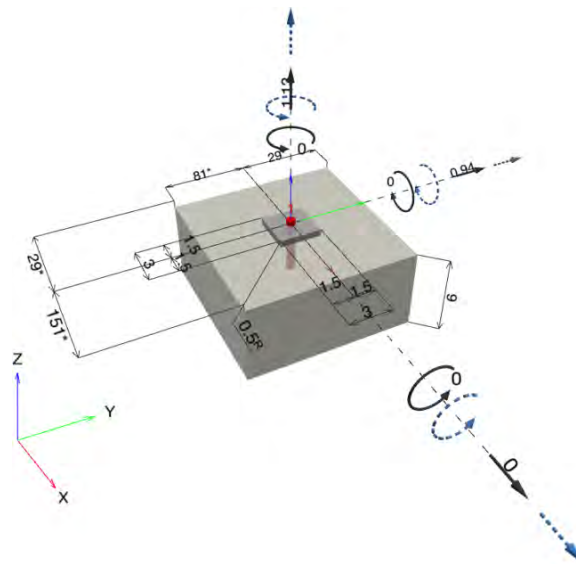
Anchor type and diameter:	Kwik Bolt TZ2 - SS 304 5/8 (3 1/4) hnom2
Item number:	2210279 KB-TZ2 5/8x6 SS304
Effective embedment depth:	$h_{ef,act} = 3.250$ in., $h_{nom} = 3.750$ in.
Material:	AISI 304
Evaluation Service Report:	ESR-4266
Issued Valid:	7/1/2021 12/1/2021
Proof:	Design Method ACI 318-14 / Mech
Stand-off installation:	$e_b = 0.000$ in. (no stand-off); $t = 0.500$ in.
Anchor plate ^R :	$l_x \times l_y \times t = 3.000$ in. x 3.000 in. x 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	no profile
Base material:	cracked concrete, 2500, $f'_c = 2,500$ psi; $h = 6.000$ in.
Installation:	hammer drilled hole, Installation condition: Dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.2.3.4.3 (d)) Shear load: yes (17.2.3.5.3 (c))



SAFE-ET

^R - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [kip, ft.kip]





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1.1 Unfactored loads

	Sustained load factor	Load factor f_1 or f_2	V_x [kip]	V_y [kip]	N [kip]	M_x [ft.kip]	M_y [ft.kip]	M_z [ft.kip]
D (Dead)	1.000	-	-	-	-	-	-	-
F (Fluid)	1.000	-	-	-	-	-	-	-
T (Temperature)	1.000	-	-	-	-	-	-	-
L (Live)	1.000	0.500	-	-	-	-	-	-
H (Lateral)	1.000	-	-	-	-	-	-	-
L_r (Roof live)	1.000	-	-	-	-	-	-	-
S (Snow)	1.000	0.200	-	-	-	-	-	-
R (Rain)	-	-	-	-	-	-	-	-
W (Wind)	-	-	-	-	-	-	-	-
E (Earthquake)	-	-	-	0.940	1.130	-	-	-

1.2 Load combination and design results

1.2.1 Load combination

Load case	Load combination
Equation (16-7)	0.9 (D + F) + 1.0 (E) + 1.6 (H)

1.2.2 Design results

Case	Description	Forces [kip] / Moments [ft.kip]	Seismic	Max. Util. Anchor [%]
Equation (16-7)	0.9 (D + F) + 1.0 (E) + 1.6 (H)	N = 1.130; V_x = 0.000; V_y = 0.940; M_x = 0.00000; M_y = 0.00000; M_z = 0.00000;	yes	38

* The detailed results (0.9 (D + F) + 1.0 (E) + 1.6 (H), shown in the following) do not represent the decisive load combination #DECISIVE#

2 Load case/Resulting anchor forces

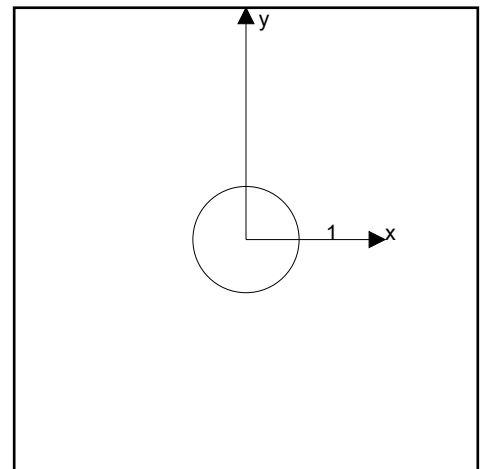
Anchor reactions [kip]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	1.130	0.940	0.000	0.940

max. concrete compressive strain: - [%]
 max. concrete compressive stress: - [ksi]
 resulting tension force in (x/y)=(0.000/0.000): 1.130 [kip]
 resulting compression force in (x/y)=(0.000/0.000): 0.000 [kip]

Anchor forces are calculated based on the assumption of a rigid anchor plate.



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3 Tension load

	Load N_{ua} [kip]	Capacity ϕN_n [kip]	Utilization $\beta_N = N_{ua} / \phi N_n$	Status
Steel Strength*	1.130	14.132	8	OK
Pullout Strength*	N/A	N/A	N/A	N/A
Concrete Breakout Failure**	1.130	2.999	38	OK

* highest loaded anchor **anchor group (anchors in tension)

3.1 Steel Strength

N_{sa} = ESR value refer to ICC-ES ESR-4266
 $\phi N_{sa} \geq N_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$A_{se,N}$ [in. ²]	f_{uta} [ksi]
0.16	114.604

Calculations

N_{sa} [kip]
18.843

Results

N_{sa} [kip]	ϕ_{steel}	$\phi_{nonductile}$	ϕN_{sa} [kip]	N_{ua} [kip]
18.843	0.750	1.000	14.132	1.130


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3.2 Concrete Breakout Failure

$$N_{cb} = \left(\frac{A_{Nc}}{A_{Nc0}} \right) \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \quad \text{ACI 318-14 Eq. (17.4.2.1a)}$$

$$\phi N_{cb} \geq N_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

A_{Nc} see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-14 Eq. (17.4.2.1c)}$$

$$\Psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.5b)}$$

$$\Psi_{cp,N} = \text{MAX} \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.7b)}$$

$$N_b = k_c \lambda_a \sqrt{f_c} h_{ef}^{1.5} \quad \text{ACI 318-14 Eq. (17.4.2.2a)}$$

Variables

h_{ef} [in.]	$c_{a,min}$ [in.]	$\Psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f_c [psi]
3.250	29.000	1.000	7.000	21	1.000	2,500

Calculations

A_{Nc} [in. ²]	A_{Nc0} [in. ²]	$\Psi_{ed,N}$	$\Psi_{cp,N}$	N_b [kip]
95.06	95.06	1.000	1.000	6.152

Results

N_{cb} [kip]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕN_{cb} [kip]	N_{ua} [kip]
6.152	0.650	0.750	1.000	2.999	1.130



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4 Shear load

	Load V_{ua} [kip]	Capacity ϕV_n [kip]	Utilization $\beta_V = V_{ua} / \phi V_n$	Status
Steel Strength*	0.940	8.034	12	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	0.940	8.613	11	OK
Concrete edge failure in direction y+**	0.940	11.716	9	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa,eq}$ = ESR value refer to ICC-ES ESR-4266
 $\phi V_{steel} \geq V_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$A_{se,V}$ [in. ²]	f_{uta} [ksi]	$\alpha_{V,seis}$
0.16	114.604	1.000

Calculations

$V_{sa,eq}$ [kip]
12.360

Results

$V_{sa,eq}$ [kip]	ϕ_{steel}	$\phi_{nonductile}$	$\phi V_{sa,eq}$ [kip]	V_{ua} [kip]
12.360	0.650	1.000	8.034	0.940


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4.2 Pryout Strength

$$V_{cp} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \right] \quad \text{ACI 318-14 Eq. (17.5.3.1a)}$$

$$\phi V_{cp} \geq V_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

 A_{Nc} see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-14 Eq. (17.4.2.1c)}$$

$$\Psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.5b)}$$

$$\Psi_{cp,N} = \text{MAX} \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.7b)}$$

$$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5} \quad \text{ACI 318-14 Eq. (17.4.2.2a)}$$

Variables

k_{cp}	h_{ef} [in.]	$c_{a,min}$ [in.]	$\Psi_{c,N}$
2	3.250	29.000	1.000
c_{ac} [in.]	k_c	λ_a	f'_c [psi]
7.000	21	1.000	2,500

Calculations

A_{Nc} [in. ²]	A_{Nc0} [in. ²]	$\Psi_{ed,N}$	$\Psi_{cp,N}$	N_b [kip]
95.06	95.06	1.000	1.000	6.152

Results

V_{cp} [kip]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cp} [kip]	V_{ua} [kip]
12.304	0.700	1.000	1.000	8.613	0.940


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4.3 Concrete edge failure in direction y+

$$V_{cb} = \left(\frac{A_{Vc}}{A_{Vc0}} \right) \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} \Psi_{parallel,V} V_b \quad \text{ACI 318-14 Eq. (17.5.2.1a)}$$

$$\phi V_{cb} \geq V_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

 A_{Vc} see ACI 318-14, Section 17.5.2.1, Fig. R 17.5.2.1(b)

$$A_{Vc0} = 4.5 c_{a1}^2 \quad \text{ACI 318-14 Eq. (17.5.2.1c)}$$

$$\Psi_{ed,V} = 0.7 + 0.3 \left(\frac{c_{a2}}{1.5c_{a1}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.5.2.6b)}$$

$$\Psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0 \quad \text{ACI 318-14 Eq. (17.5.2.8)}$$

$$V_b = \left(7 \left(\frac{l_e}{d_a} \right)^{0.2} \sqrt{d_a} \right) \lambda_a \sqrt{f_c} c_{a1}^{1.5} \quad \text{ACI 318-14 Eq. (17.5.2.2a)}$$

Variables

c_{a1} [in.]	c_{a2} [in.]	$\Psi_{c,V}$	h_a [in.]	l_e [in.]
29.000	29.000	1.000	6.000	3.250
λ_a	d_a [in.]	f_c [psi]	$\Psi_{parallel,V}$	
1.000	0.625	2,500	1.000	

Calculations

A_{Vc} [in. ²]	A_{Vc0} [in. ²]	$\Psi_{ed,V}$	$\Psi_{h,V}$	V_b [kip]
435.00	3,784.50	0.900	2.693	60.090

Results

V_{cb} [kip]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cb} [kip]	V_{ua} [kip]
16.738	0.700	1.000	1.000	11.716	0.940

5 Combined tension and shear loads

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.377	0.117	5/3	23	OK

$$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} \leq 1$$

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Phone | Fax: 5305394787 |
Design: 10088152 4
Fastening point:

Page: 8
Specifier:
E-Mail: contact@geostructural.com
Date: 2/15/2022

6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- For additional information about ACI 318 strength design provisions, please go to <https://submittals.us.hilti.com/PROFISAnchorDesignGuide/>
- An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-14, Chapter 17, Section 17.2.3.4.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.2.3.4.3 (b), Section 17.2.3.4.3 (c), or Section 17.2.3.4.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.2.3.5.3 (a), Section 17.2.3.5.3 (b), or Section 17.2.3.5.3 (c).
- Section 17.2.3.4.3 (b) / Section 17.2.3.5.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.2.3.4.3 (c) / Section 17.2.3.5.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.2.3.4.3 (d) / Section 17.2.3.5.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by ω_0 .
- Hilti post-installed anchors shall be installed in accordance with the Hilti Manufacturer's Printed Installation Instructions (MPII). Reference ACI 318-14, Section 17.8.1.

Fastening meets the design criteria!

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7 Installation data

Profile: no profile

Hole diameter in the fixture: $d_f = 0.687$ in.

Plate thickness (input): 0.500 in.

Recommended plate thickness: not calculated

Drilling method: Hammer drilled

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Anchor type and diameter: Kwik Bolt TZ2 - SS 304 5/8 (3 1/4) hnom2

Item number: 2210279 KB-TZ2 5/8x6 SS304

Maximum installation torque: 0.06019 ft.kip

Hole diameter in the base material: 0.625 in.

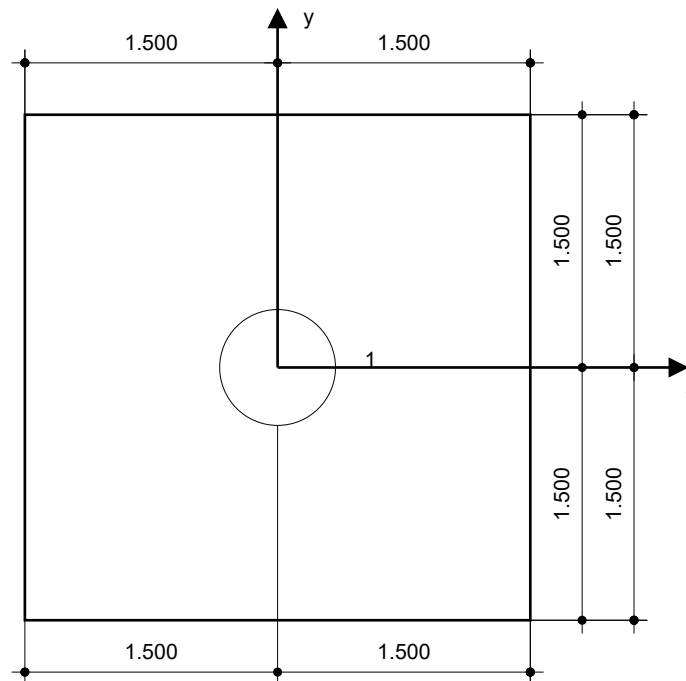
Hole depth in the base material: 4.250 in.

Minimum thickness of the base material: 5.500 in.

Hilti KB-TZ2 stud anchor with 3.75 in embedment, 5/8 (3 1/4) hnom2, Stainless steel, installation per ESR-4266

7.1 Recommended accessories

Drilling	Cleaning	Setting
<ul style="list-style-type: none"> • Suitable Rotary Hammer • Properly sized drill bit 	<ul style="list-style-type: none"> • Manual blow-out pump 	<ul style="list-style-type: none"> • Torque controlled cordless impact tool • Torque wrench • Hammer



Coordinates Anchor [in.]

Anchor	x	y	C _{-x}	C _{+x}	C _{-y}	C _{+y}
1	0.000	0.000	29.000	151.000	81.000	29.000



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8 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

Novato Fire Protection District



Occupancy: **Cingular Wireless PCS, LLC dba AT&T Mobility**
Occupancy ID: **2413**
Address: **150 Hamilton RD**
Novato CA 94949

Inspection Type: **2 - Plan Review**

Inspection Date: **9/28/2022**

Time In: **13:03**

Authorized Date: **09/28/2022**

By: Osgood, Lynne (196)

Time Out: **15:34**

By: Osgood, Lynne (196)

Form: Novato Fire Plan
Review Form 2017-1 Master

Inspection Description:

Based on the 2016 California Building Standards Code, including the California Building and Fire Codes, along with current Novato Fire Protection District Standards.

Inspection Topics:

Building Division Review

Address Number Requirements.

The address shall be posted clearly visible from the street with numerals illuminated and contrasting color to their background conforming to Novato Fire Protection Standard #205.

Status: Condition of Approval

Notes:

Vegetation Management Plan - Fuels Management Plan Required.

An irrigated greenbelt Vegetation Management Plan (VMP) Fuels Management Plan conforming to the standards of the Novato Fire District shall be prepared and implemented at the site. The VMP-Fuels Management Plan shall conform to Novato Fire Protection Standard #220. The plan shall be incorporated into the landscape plan for the project and submitted to the Fire Marshal for review prior to implementation. The plan shall be implemented prior to building final.

Status: Condition of Approval

Notes:

NFPA 704 Placards Required.

NFPA 704 placards shall be installed conforming to Fire District Standard #309. The numerical ranking on the placards shall be in accordance with the highest hazard material as noted by the MSDS in each category as approved by the Fire Marshal.

Status: Condition of Approval

Notes:

Portable Fire Extinguishers Required.

Portable fire extinguishers shall be installed and maintained in accordance with California Fire Code Chapter 9.

Status: Condition of Approval

Notes:

Alternate Energy Supply Systems

NFPA, California Fire Code, State Fire Marshal Building Standards and Regulations, Conformance Required.

Conformance required.

Status: Condition of Approval

Notes:

Novato Fire Protection District Standard Conformance Required.

This installation must be in conformance with Fire Protection District Standard #523.

Status: Condition of Approval

Notes:

Signage.

Signage shall be provided as required in Fire Protection District Standard #523 and the California Fire Code.

Status: Condition of Approval

Notes: Approved WARNING signage shall be provided and posted to warn emergency personnel that the power is backed up by a fuel fired generator. Shut down signage shall be provided

Final Inspection Required.

Final inspection of installed system including acceptance test is required.

Status: Condition of Approval

Notes:

Other Information.

See Below.

Status: Condition of Approval

Notes: Vehicle Impact Protection. 312.1 General vehicle impact protection required by this code shall be provided by posts that comply with Section 312.2 or by other approved physical barriers that comply with Section 312.3.

Placeholder

X

Status: Condition of Approval

Notes:

Stationary generators. Stationary emergency and standby power generators required by the CFC code shall be listed in accordance with UL 2200.

Installation of stationary generators. Emergency power systems and standby power systems shall be installed in accordance with the California Building Code, the California Electrical Code, NFPA 110 and NFPA 111.

Letters

Plan Review Completion Report

Your plan submittal is complete for the subject project and is subject to the conditions and notes indicated. You are required to contact the Novato Fire Protection District for all noted inspections at least 48 hours in advance. We are returning plans that have been reviewed. The Fire District will retain one set for our files. A reviewed stamped set of plans must be maintained on the project site for reference by District Inspectors at all times. To schedule appointments for inspections and tests, contact the Fire District Administrative Office at (415) 878-2690 during business hours and at least 48 hours in advance of the required inspection. Should you have any questions about your project please contact me or the Fire Marshal at (415) 878-2620. Thank you.

Status: Condition of Approval

Notes:

Additional Time Spent on Inspection:

Category	Start Date / Time	End Date / Time
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Notes: No Additional time recorded

Total Additional Time: 0 minutes

Inspection Time: 151 minutes

Total Time: 151 minutes

Summary:

Overall Result: Plan Review - Complete

Inspector Notes:

Inspector:

Name: Osgood, Lynne
Rank: Deputy Fire Marshal

**CITY OF NOVATO CONSTRUCTION & DEMOLITION
WASTE RECOVERY ORDINANCE
INFORMATION BULLETIN
Community Development Department, Building Division**

Many of the materials generated from your project can be successfully diverted from the landfill through recycling or reuse. You are required to recycle or reuse at least 50% of these materials. The building official may impose a fine for failure to comply with this condition.

COVERED PROJECTS: Every construction, demolition, and renovation project within the City of Novato.

SMALL PROJECT permits, such as minor plumbing upgrades or electrical service upgrades, additional circuits/receptacles/light fixtures or mechanical residential ventilation fans, fireplace inserts or building - add skylight, repair exterior siding. Compliance to be by completion of the Penalty of Perjury Statement.

ROOFING CONTRACTORS: Compliance to be by completion of the Penalty of Perjury Statement and periodic requests for receipts from approved recycling facility.

Replacement of HVAC, water heater or windows. Compliance to be by completion of the Penalty of Perjury Statement.

The goal is to divert, by recycling or reuse, 50% or more of the scrap materials (by weight) from the project. A waste management plan (WMP) must be completed before your construction or demolition permit will be issued.

COMPLIANCE BY USE OF WASTE HAULER

Submittal of receipts from State licensed recycling/reuse facilities (see list below) or waste hauler who takes materials to these facilities is required for compliance. Compliance is required as a condition of approval for a building permit and for final approval and/or occupancy of the building.

COMPLIANCE BY SELF HAULER

Collect and attach all receipts or reports for disposal and recycling from State licensed facility. In Part 3 of this document fill in the actual disposal and diverted weight for each material. Using the actual weights, calculate the diversion rate for your final submittal.

Debris Boxes:

1. Recology Sonoma-Marin	800-243-0291
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Self Haulers:

RECEIPTS WILL BE ACCEPTED FROM THESE APPROVED RECYCLING OR REUSE FACILITIES:		
1. Redwood Land Fill*	8950 Redwood Highway, Novato, CA	415-892-2851
2. Marin Resource Recovery Center	Public Dump, 565 Jacoby Street, San Rafael, CA	415-485-5646
3. Global Materials Recovery Service	3911 Santa Rosa Avenue, Santa Rosa, CA	707-585-0511

* Redwood Landfill receipts MUST have their Recyclable C&D stamp to be accepted by the City of Novato.