



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

October 16, 2023

Eric Breun
Transcend Wireless
10 Industrial Ave, Suite 3
Mahwah, NJ 07430
ebreun@transcendwireless.com

RE: **EM-T-MOBILE-138-230911** - T-Mobile notice of intent to modify an existing telecommunications facility located at 23 Stonybrook Road, Stratford, Connecticut.

Dear Eric Breun:

The Connecticut Siting Council (Council) is in receipt of your correspondence of October 5, 2023, submitted in response to the Council's October 2, 2023 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie Bachman
Executive Director

MAB/ANM/laf

From: Breun, Eric <ebreun@transcendwireless.com>

Sent: Thursday, October 5, 2023 1:00 PM

To: Mathews, Lisa A <Lisa.A.Mathews@ct.gov>

Cc: CSC-DL Siting Council <Siting.Council@ct.gov>

Subject: Re: EM-T-MOBILE-138-230911 Stonybrook Road, Council Incomplete Letter

Good Afternoon Lisa,

Please see the attached revised modification request dated 10/6/2023 with updated CDs. The set of hard copies will be shipped shortly as well.

10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066



October 6, 2023

Members of the Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
23 Stonybrook Road, Stratford, CT 06614
Latitude: 41.2032777
Longitude: -73.148625
T-Mobile Site#: CTF310D - Hardening

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 97' level of the existing 119' monopole at 23 Stonybrook Road in Stratford, CT. The property is owned by Stonybrook Management LLC. The tower is owned by American Tower. T-Mobile now intends to install a 48 KW diesel backup generator on their existing equipment platform.

Planned Modifications:

Ground:

Install New:

(1) Generac RD048 48 KW Diesel Backup Generator

This tower facility was originally approved by the Connecticut Siting Council in Docket No. 385 on February 25, 2010. The proposed modification complies with the approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor Laura Hoydick, Elected Official, and Susmitha Attota, Town Planner, as well as the property owner and tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Eric Breun

Transcend Wireless

Cell: 201-658-7728

Email: ebreun@transcendwireless.com

Attachments

cc: Laura Hoydick - Mayor of Stratford

Jay Habansky - Planning and Zoning Administrator

American Tower - Tower Owner

Stonybrook Management LLC - Property Owner

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

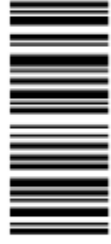
1 LBS

1 OF 1

SHIP TO:
MAYOR LAURA HOYDICK
2725 MAIN STREET
STRATFORD CT 06615

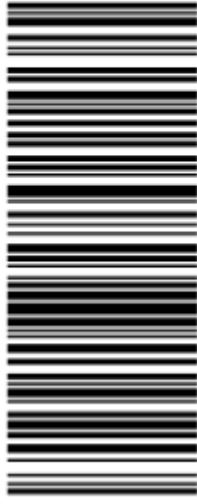


CT 066 9-01



UPS GROUND

TRACKING #: 1Z V25 742 03 9631 0246



BILLING: P/P

Reference #1: CTFF310D

XOL 23.08.16

NV/15 36.0A 09/2023*



TM

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

SHIP TO:
CONTACTS MANAGEMENT
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801



MA 018 9-04



UPS GROUND

TRACKING #: 1Z V25 742 03 9582 0232



BILLING: P/P

Reference #1: CTFF310D

XOL 23.08.16

NV/15 36.0A 09/2023*



TM

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

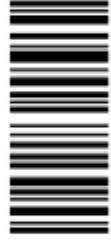
1 OF 1

SHIP TO:

STONYBROOK MANAGEMENT LLC
124 KNAPP STREET
EASTON CT 06612

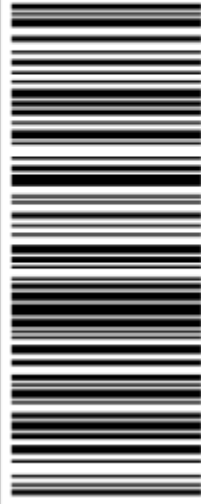


CT 066 9-06



UPS GROUND

TRACKING #: 1Z V25 742 03 9361 2621



BILLING: P/P

Reference #1: CTFF310D

XOL 23.08.16 NV/15 36.0A 09/2023*



TM

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

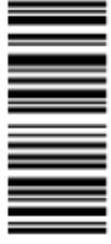
1 OF 1

SHIP TO:

PLANNING AND ZONING
JAY HABANSKY
2725 MAIN STREET
STRATFORD CT 06615

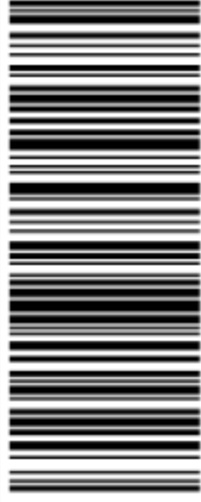


CT 066 9-01



UPS GROUND

TRACKING #: 1Z V25 742 03 9682 0258



BILLING: P/P

Reference #1: CTFF310D

XOL 23.08.16 NV/15 36.0A 09/2023*



TM

Hello, your package has been delivered.

Delivery Date: Thursday, 09/07/2023

Delivery Time: 10:15 AM

Signed by: JUDY

TRANSCEND WIRELESS

Tracking Number: [1ZV257420396310246](#)

Ship To:

MAYOR LAURA HOYDICK
2725 MAIN STREET
STRATFORD, CT 06615
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: [CTFF310D](#)

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/06/2023

Delivery Time: 3:50 PM

Left At: GARAGE

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Be in total control of how, when and where your packages are delivered.

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[Set Delivery Instructions](#)

[Manage Preferences](#)

[View](#)

TRANSCEND WIRELESS

Tracking Number: [1ZV257420393612621](#)

Ship To:

STONYBROOK MANAGEMENT LLC
124 KNAPP STREET
EASTON, CT 06612
US

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/06/2023

Delivery Time: 1:15 PM

Signed by: ANCRI

TRANSCEND WIRELESS

Tracking Number: [1ZV257420395820232](#)

Ship To: AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN, MA 01801
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: **CTFF310D**

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/06/2023

Delivery Time: 10:21 AM

Signed by: HABANSKY

TRANSCEND WIRELESS

Tracking Number: [1ZV257420396820258](#)

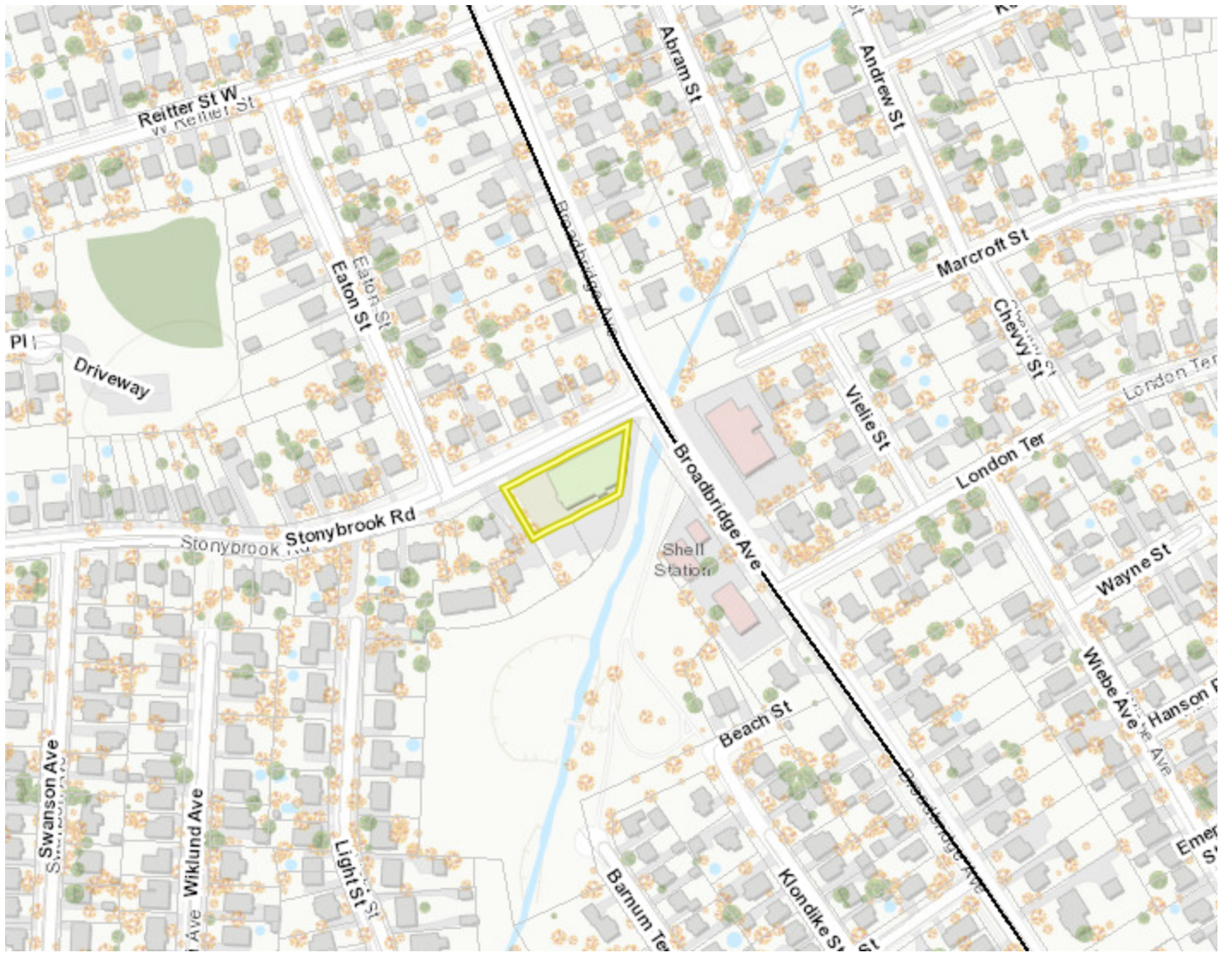
Ship To: JAY HABANSKY
2725 MAIN STREET
STRATFORD, CT 06615
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: **CTFF310D**



23 STONYBROOK RD

Location	23 STONYBROOK RD	Mblu	30/11 10/ 16/ /
Acct#	1626900	Owner	STONYBROOK MANAGEMENT LLC
PBN		Assessment	\$673,750
Appraisal	\$962,500	PID	17088
Building Count	1	Sewer Use	BZZ
EPA Action			

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$740,700	\$221,800	\$962,500

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$518,490	\$155,260	\$673,750

Owner of Record

Owner	STONYBROOK MANAGEMENT LLC	Sale Price	\$900,000
Co-Owner		Certificate	
Address	124 KNAPP ST EASTON , CT 06812	Book	2604
		Page	0275
		Sale Date	03/24/2005
		Instrument	00

Ownership History

Ownership History						
Owner	Sale Price	Certificate	Instrument	Sale Date	Book	Page
STONYBROOK MANAGEMENT LLC	\$900,000		00	03/24/2005	2604	0275
STONYBROOK CENTER INC THE	\$90,000		UNKQ	08/13/1969	0451	0378

Building Information

Building 1 : Section 1

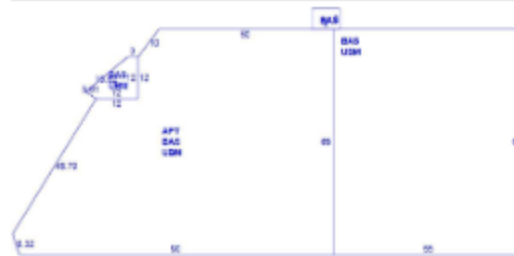
Year Built: 1989
 Living Area: 13,264
 Building Percent Good: 65

Building Attributes	
Field	Description
Style:	Retail/Apt
Model	Commercial
Grade	C
Stories:	2 Stories
Occupancy	8.00
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Built Up
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	Partial
Struct Class	
Bldg Use	Nbhd Ctr
1st Floor Use:	323
Heat/AC	Heat/AC Split
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Ceil & Walls
Rooms/Prtns	Average
Wall Height	9.00
% Comm Wall	

Building Photo



Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	8,502	8,502
APT	Apartment	4,762	4,762
UBM	Unfinished Basement	8,454	0
		21,718	13,264

Extra Features

Extra Features					Legend
Code	Description	Size	Value	Bldg #	
A/C	Air Condition	5679.60 S.F.	\$9,500	1	
SPR1	Sprinklers - Wet	3000.00 S.F.	\$3,900	1	

Land

Land Use		Land Line Valuation	
Use Code	323	Size (Acres)	0.46
Description	Nbhd Ctr ⓘ	Frontage	0
Zone		Depth	0
Neighborhood	1	Assessed Value	\$155,260
Alt Land Appr	No	Appraised Value	\$221,800
Category			

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV	Paving	AS	Asphalt	16000.00 S.F.	\$13,200	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$740,700	\$221,800	\$962,500
2021	\$740,700	\$221,800	\$962,500
2020	\$740,700	\$221,800	\$962,500

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$518,490	\$155,260	\$673,750
2021	\$518,490	\$155,260	\$673,750
2020	\$518,490	\$155,260	\$673,750

DOCKET NO. 385 – T-Mobile Northeast LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and management of a telecommunications facility located at 23 Stonybrook Road, Stratford, Connecticut.

Connecticut

Siting

Council

February 25, 2010

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and management of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to T-Mobile Northeast LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 23 Stonybrook Road, Stratford, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile Northeast LLC and other entities, both public and private, but such tower shall not exceed a height of 100 feet above ground level. Panel antennas shall be installed in an exterior, flush mount configuration and such panel antennas shall not exceed a height of 100 feet above ground level.
2. The tower compound shall be re-located in an east-west orientation along the south property line. The tower shall be re-located appropriately to increase the distance from the tower to the west property line.
3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Stratford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
 - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
 - c) details for the installation of architecturally-treated fencing around the compound and the installation of evergreen plantings along the west property boundary, where necessary to provide visual screening to the adjacent residences.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Stratford public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.
9. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
10. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Stratford. Any proposed modifications to this Decision and Order shall likewise be so served.
10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Connecticut Post.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant

T-Mobile Northeast LLC

Its Representative

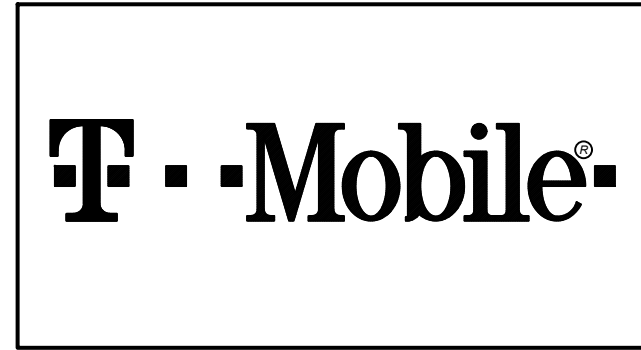
Julie D. Kohler, Esq.
Monte E. Frank, Esq.
Jesse A. Langer, Esq.
Cohen and Wolf, P.C.
1115 Broad Street
Bridgeport, CT 06604



**T-MOBILE NORTHEAST LLC
GENERATOR ADD**

**SITE #: CTFF310D
SITE NAME: 23 STONYBROOK RD
23 STONYBROOK ROAD
STRATFORD, CT 06614
FAIRFIELD COUNTY**

CONSTRUCTION DRAWINGS
ALL SCALES RELATIVE TO 24"x36" PAGE SIZE

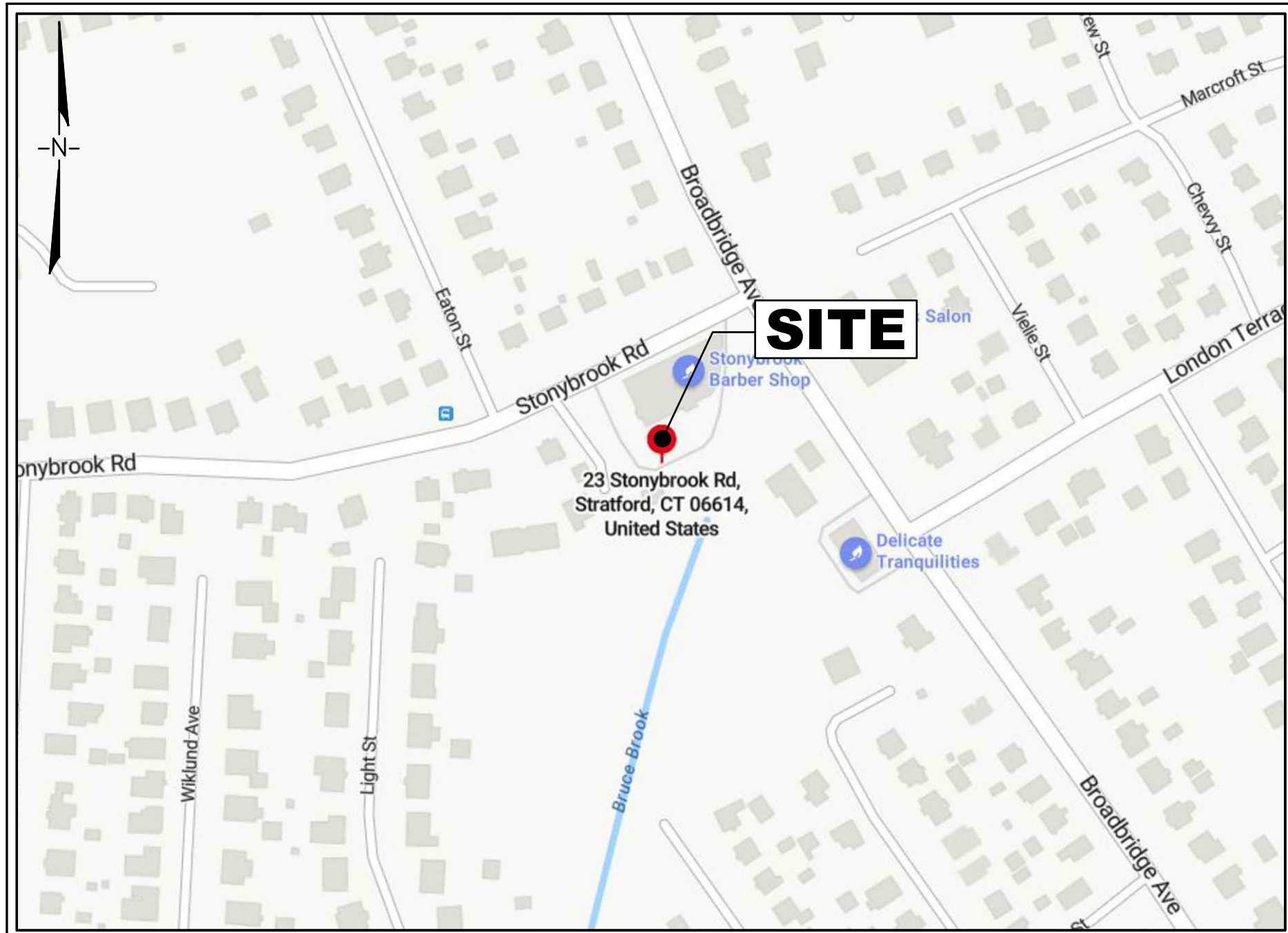


**ELEVATED
ENGINEERING**
99 FANNY ROAD
BOONTON, NJ 07005
862-242-8050

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REV NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4	10/04/23	PER UPDATED CODE
3	09/06/23	ISSUED AS FINAL
2	08/11/23	REVISED PER CLIENT
1	07/13/23	REVISED PER CLIENT
0	06/19/23	INITIAL SUBMISSION

DRAWN BY: CJT
CHECKED BY: NDB
SCALE: AS NOTED
JOB NO: 23019-TRN



KEY MAP
SCALE = N.T.S.

SITE LOCATION INFORMATION	
SITE NUMBER:	CTFF310D
SITE ADDRESS:	23 STONYBROOK ROAD STRATFORD, CT 06614
COUNTY:	FAIRFIELD COUNTY
MAP / PARCEL#:	30/11/10/16
AMERICAN TOWER SITE#:	283420
AMERICAN TOWER SITE NAME:	STONYBROOK RD CT
TOWER OWNER:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801
PROPERTY OWNER:	JOHN D. MIRANDA 23 STONYBROOK RD. STRATFORD, CT 06614
APPLICANT:	T-MOBILE NORTHEAST LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002

SITE CHARACTERISTICS	
LATITUDE:	41.20327777'
LONGITUDE:	-73.148625'
STRUCTURE TYPE:	MONOPOLE
LOCATION OF PROPOSED EQUIPMENT:	EXISTING EQUIPMENT PLATFORM

SHEET INDEX	
SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
C-1	COMPOUND PLAN
C-2	EQUIPMENT PLANS AND DETAILS
C-3	EQUIPMENT DETAILS
E-1	ONE-LINE DIAGRAM
E-2	ELECTRICAL NOTES
G-1	GROUNDING PLAN & NOTES

UNDERGROUND SERVICE ALERT

CONNECTICUT LAW REQUIRES
TWO WORKING DAYS NOTICE PRIOR TO
ANY EARTH MOVING ACTIVITIES BY
CALLING 800-922-4455 OR DIAL 811

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

**SITE ID: CTFF310D
23 STONYBROOK RD
23 STONYBROOK RD.
STRATFORD, CT 06614
FAIRFIELD COUNTY**

DRAWING TITLE:

TITLE SHEET

DRAWING SHEET:

T-1

GENERAL NOTES

- FOR THE PURPOSE OF THE CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTORS – TO BE DETERMINED
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – T-MOBILE
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE PROVIDED BY THE SUBCONTRACTOR.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSED AND ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY CONTRACTOR.

- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
- THE SUBCONTRACTOR SHALL PROTECT THE EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTORS EXPENSE TO THE SATISFACTION OF OWNER.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIAL SUCH AS COAXIAL CABLE AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNERS DESIGNATED LOCATION.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
- ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
- ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHED AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
- CONSTRUCTION SHALL COMPLY WITH UMS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
- SUBCONTRACTORS SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

- THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

- APPLICABLE BUILDING CODES:

SUBCONTRACTORS WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

- BUILDING CODE: 2022 CONNECTICUT STATE BUILDING CODE
- ELECTRICAL CODE: NFPA 70 NATIONAL ELECTRICAL CODE, 2017 EDITION
- LIGHTNING CODE: NFPA 780-2014 LIGHTNING PROTECTION CODE

SUBCONTRACTORS WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

- AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE
- AMERICAN INSTITUTE FOR STEEL CONSTRUCTION (AISC)
- MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
- TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL
- ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS A CONFLICT BETWEEN A GENERAL REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ELECTRICAL & GROUNDING NOTES

- THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO LIGHTNING PROTECTION AND AS POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO THE BTS EQUIPMENT.
- EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- APPROVED ANTIOXIDANT COATING (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

- METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- ALL NEW STRUCTURE WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN OR THIN INSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

- GROUNDING SHALL COMPLY WITH NEW ART. 250.
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON DRAWING.
- ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
- CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT)
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- BOND ANTENNA MOUNTING BRACKETS. COAXIAL CABLE GROUND KITS AND ALNA TO EGB PLACES NEAR THE ANTENNA LOCATION.
- BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
- TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
- BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
- VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCIEVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

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6		
5		
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REV NO.	DATE	DESCRIPTION OF CHANGES
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PROFESSIONAL ENGINEER, CT LIC. No. 28643

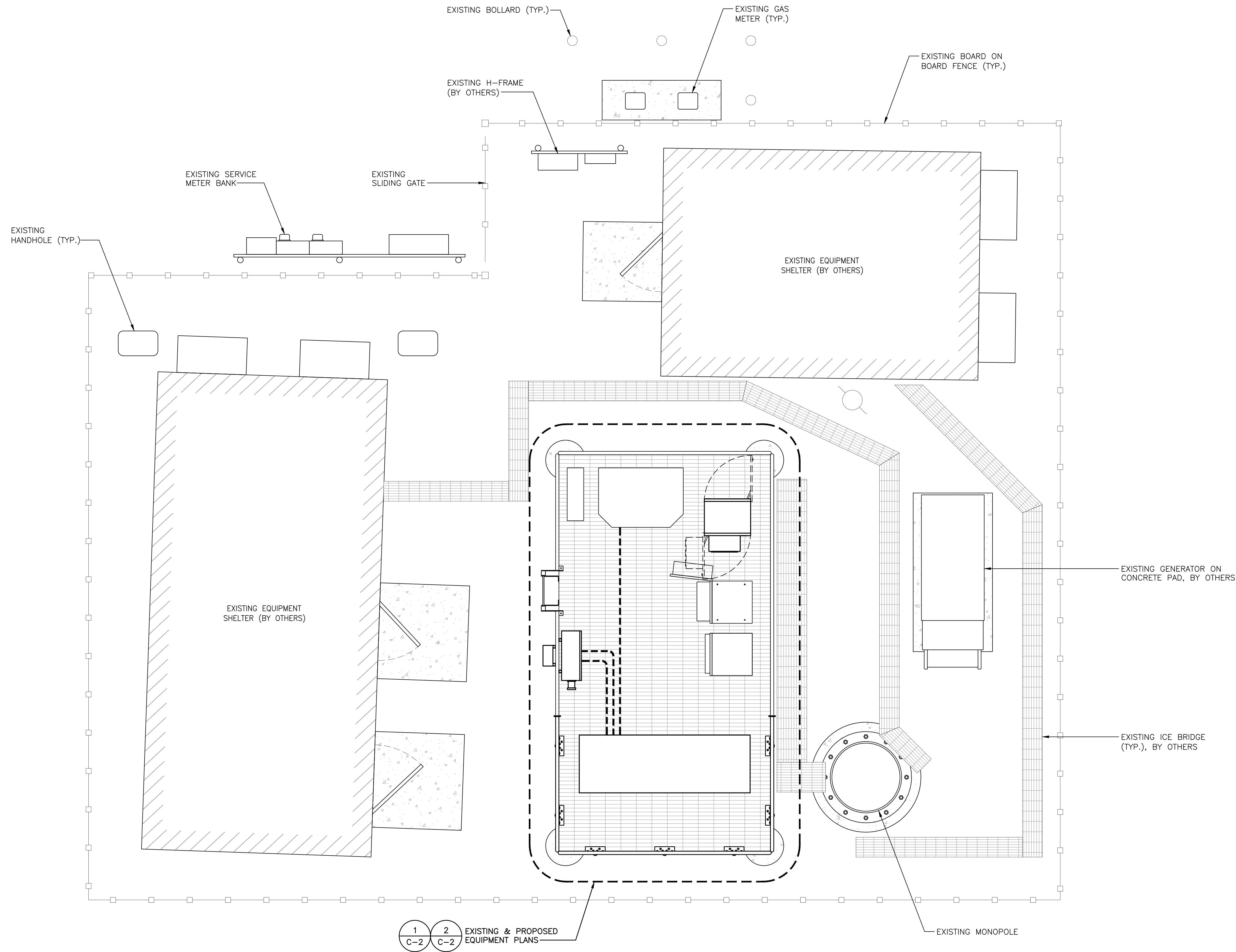
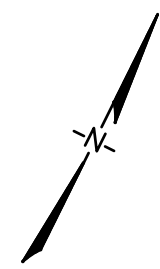
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NOTES**

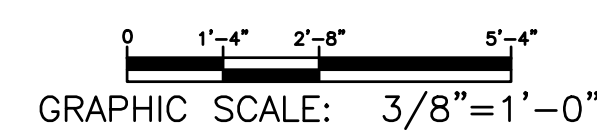
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GN-1



1
2
 EXISTING & PROPOSED EQUIPMENT PLANS

1
C-1
 COMPOUND PLAN
 SCALE: 3/8"=1'-0" (24"x36" SHEET)



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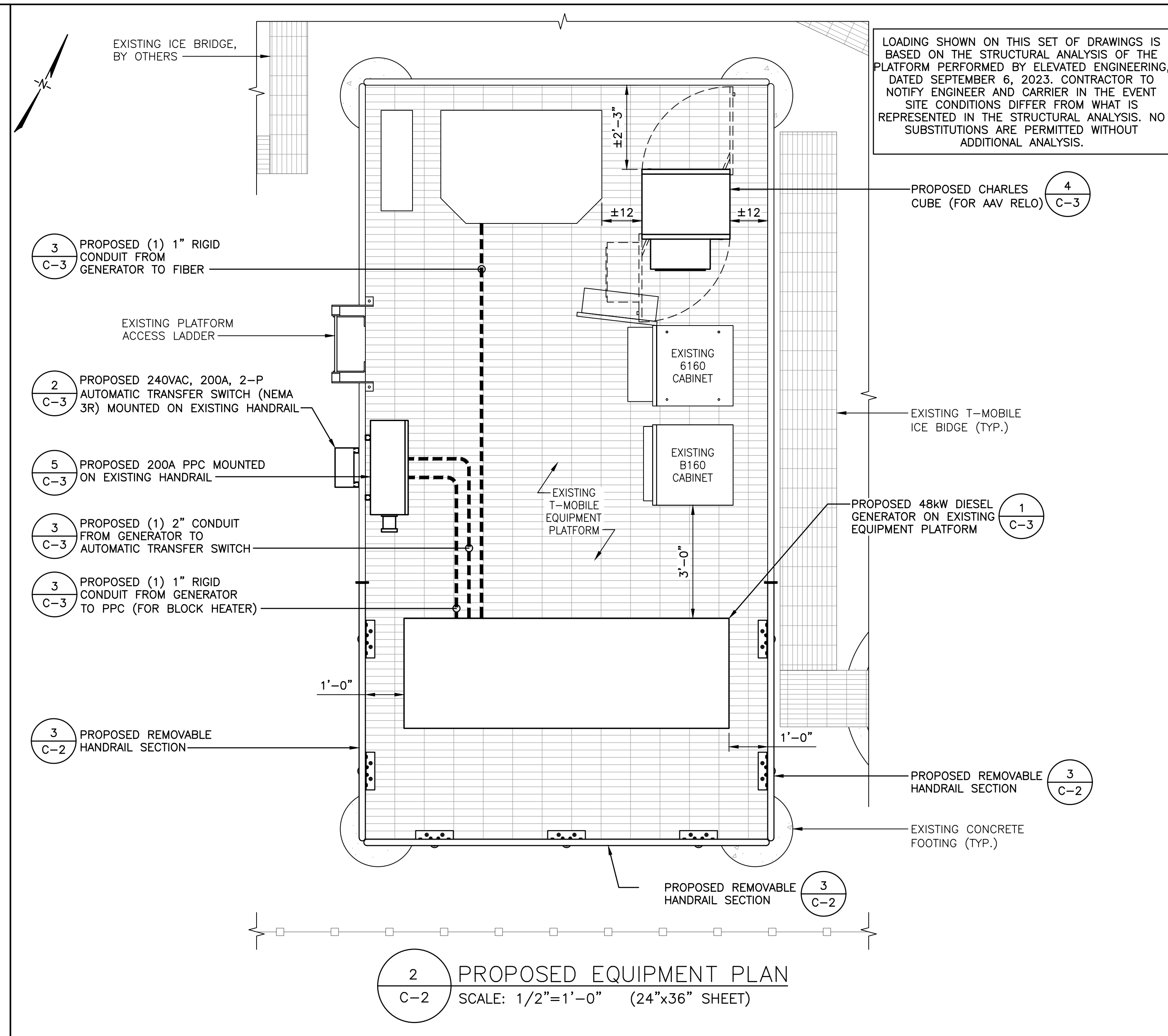
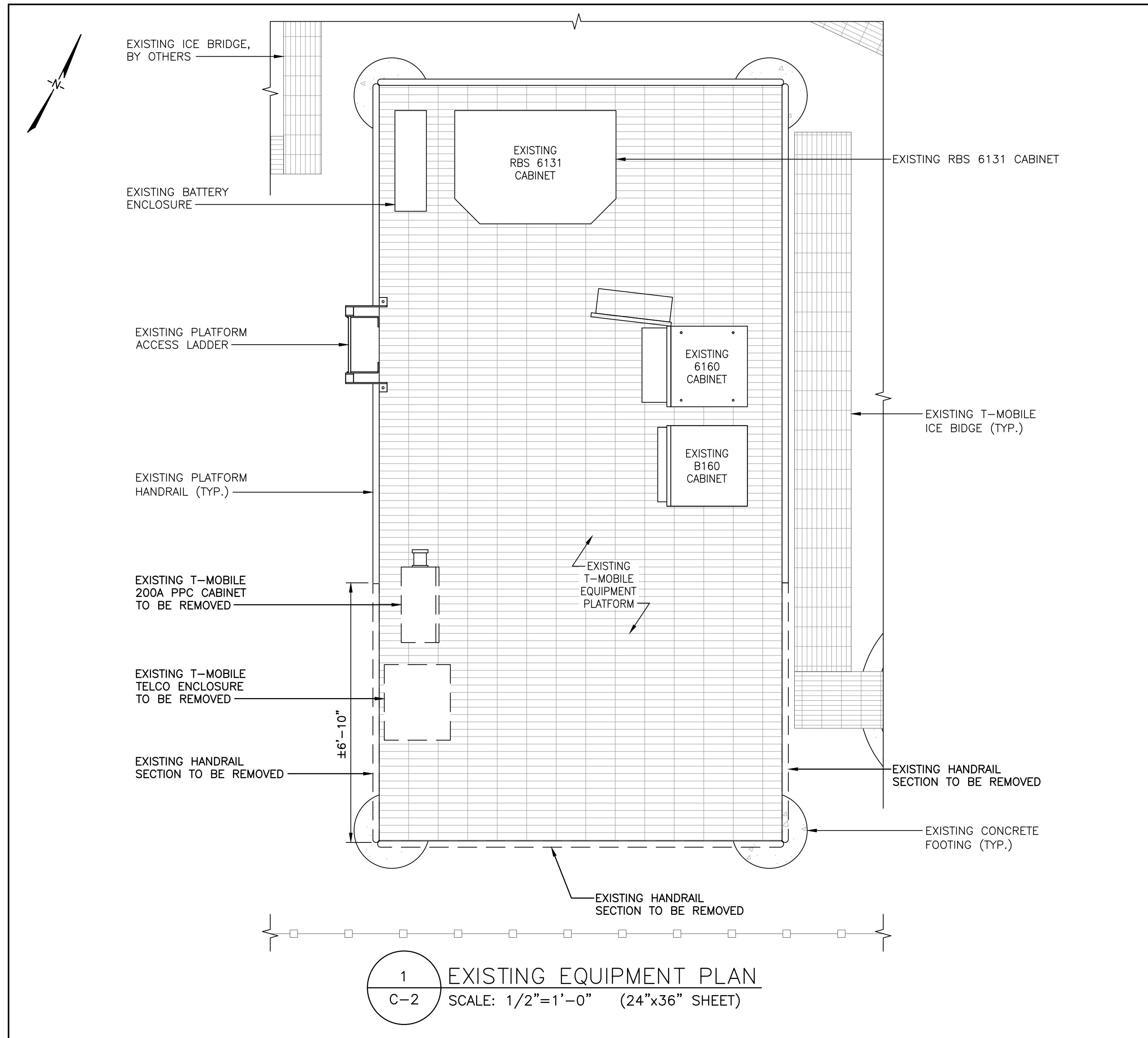
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COMPOUND PLAN

DRAWING SHEET:

C-1



LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE STRUCTURAL ANALYSIS OF THE PLATFORM PERFORMED BY ELEVATED ENGINEERING, DATED SEPTEMBER 6, 2023. CONTRACTOR TO NOTIFY ENGINEER AND CARRIER IN THE EVENT SITE CONDITIONS DIFFER FROM WHAT IS REPRESENTED IN THE STRUCTURAL ANALYSIS. NO SUBSTITUTIONS ARE PERMITTED WITHOUT ADDITIONAL ANALYSIS.

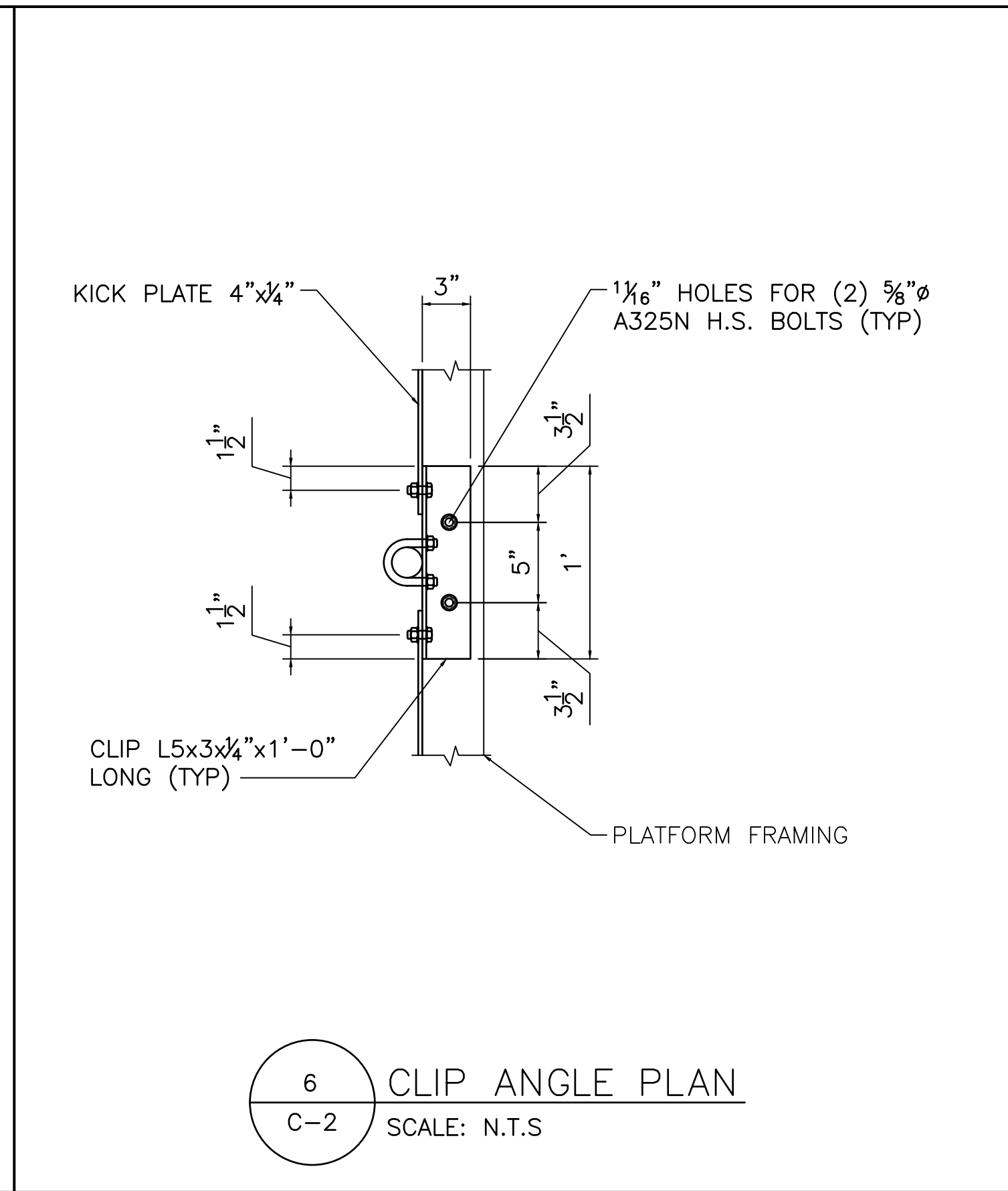
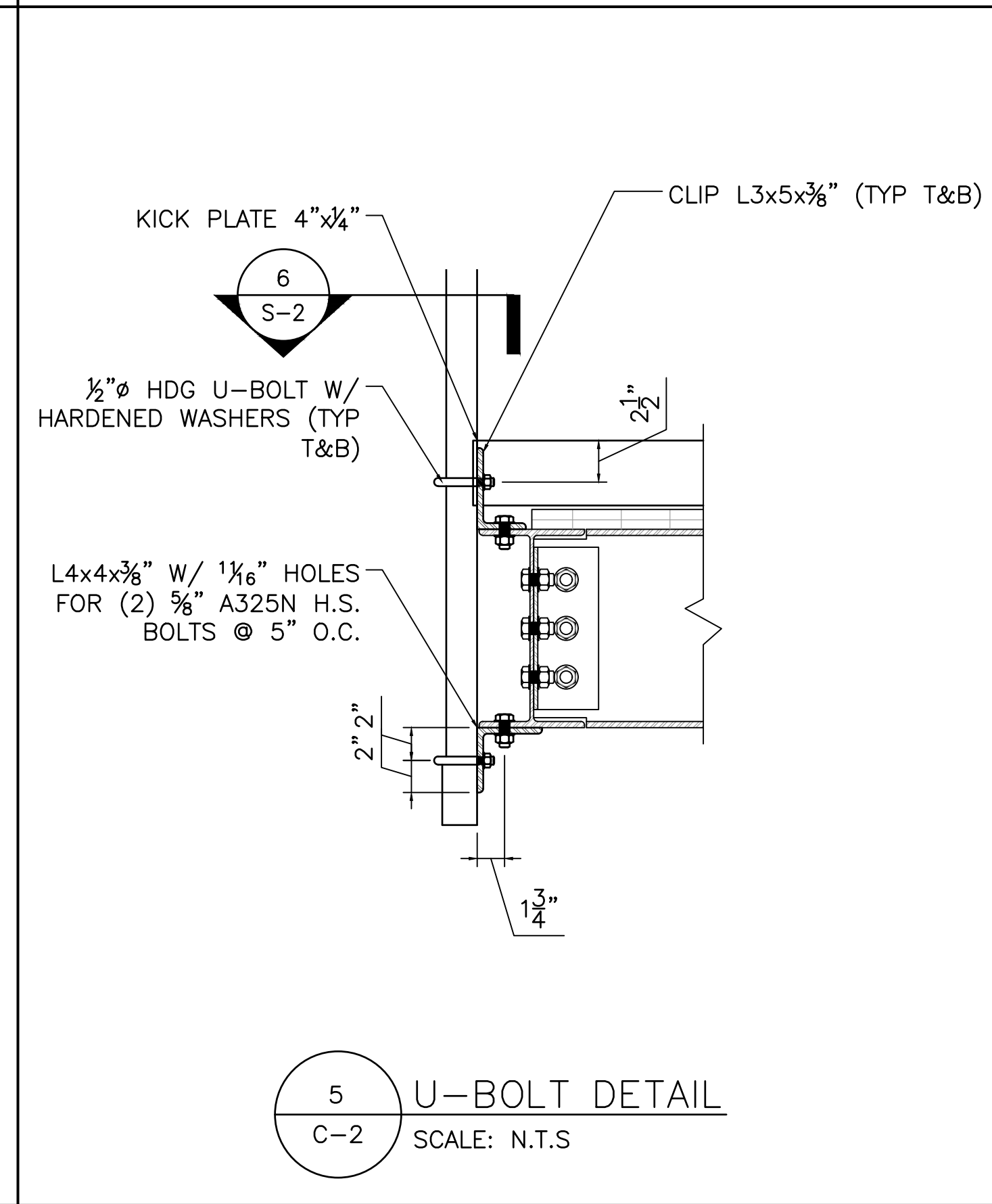
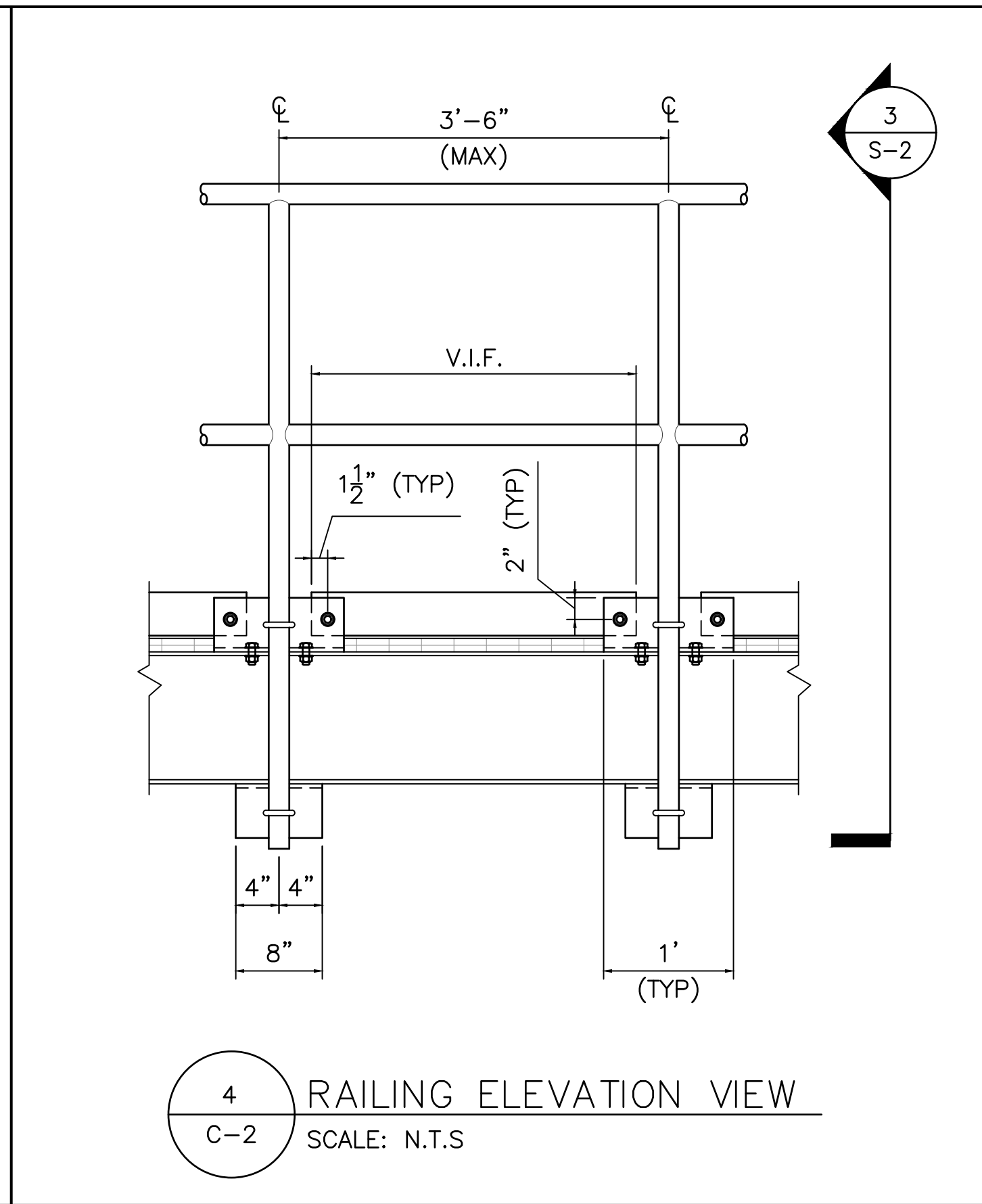
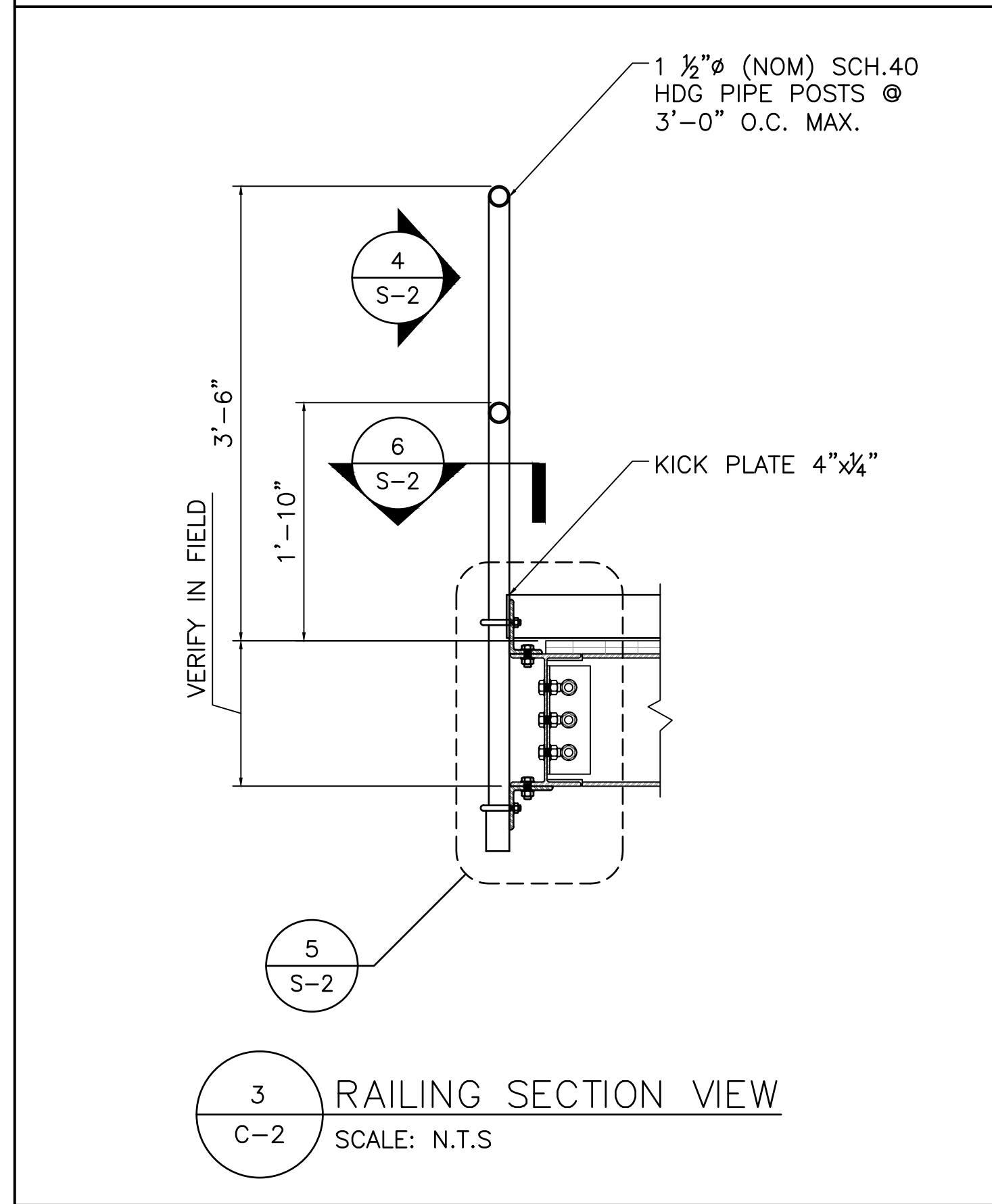


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EQUIPMENT PLANS AND DETAILS

C-2

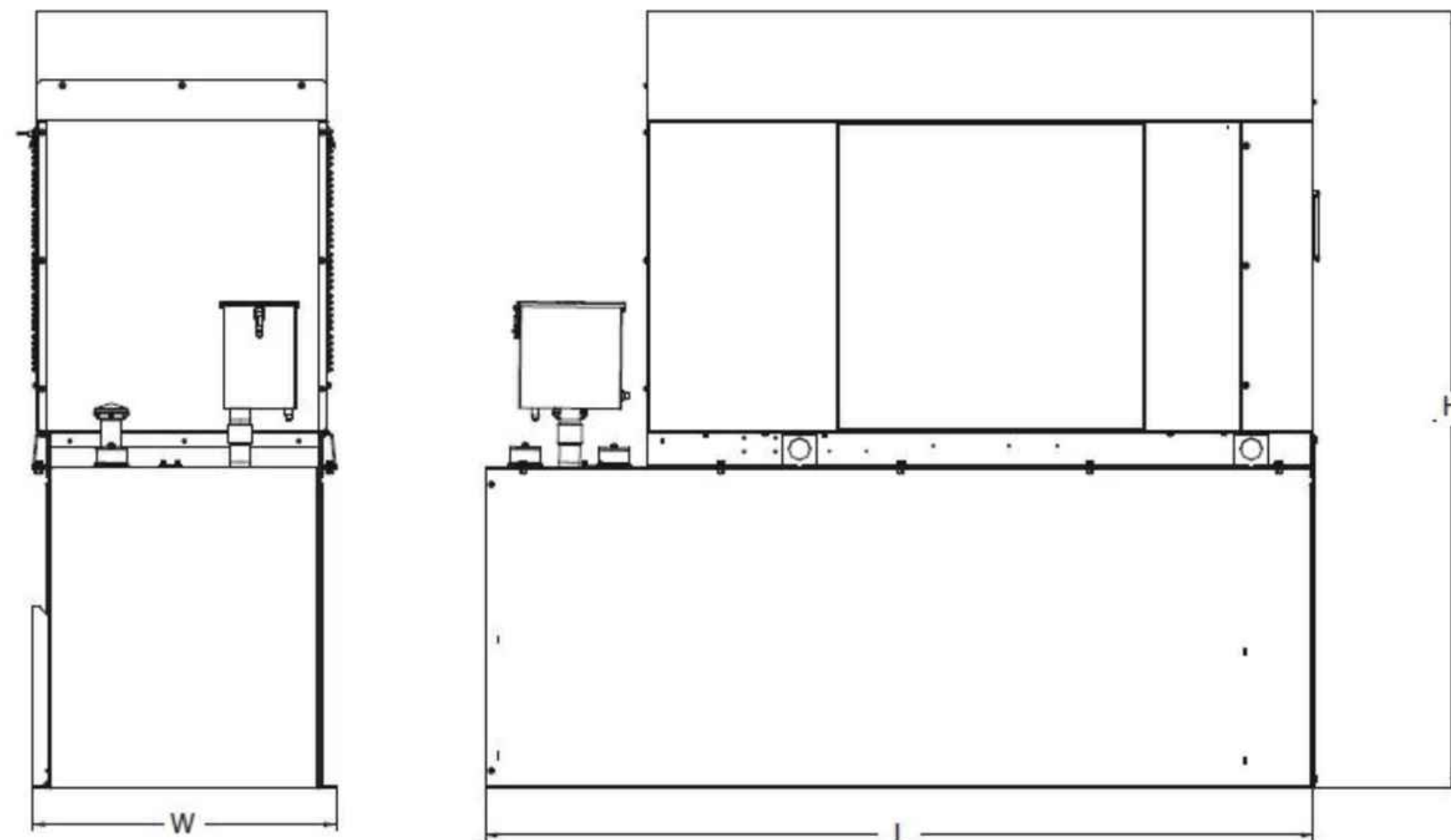
RD048 | 3.4L | 48kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC INDUSTRIAL POWER

Model Number
48kW: G0071940



Weights and Dimensions

Unit Weight - lbs	Unit Weight with Skid - lbs	Dimensions (L x W x H) - in
2,915	2,954	103.4 (2,625) x 35.0 (888) x 90.0 (2,286)

1 **GENERATOR DETAILS**
C-3 SCALE: 1/2"=1'-0" (24"x36" SHEET)

48kW Fuel Consumption

Fuel Tank Gross Total Capacity	240
Fuel Tank Gross Usable Capacity	229
Fuel Tank Net Usable Capacity (Run Hours Based on Net Usable Capacity)	206
Run Hours 100% Load	52
Run Hours 75% Load	67
Run Hours 50% Load	96

Sound Emission Data

Rated Load Sound Output at 23ft - dB(A)	65
---	----

* All measurements are approximate and for estimation purposes only.



**GENERAC RXSC200A43
AUTOMATIC TRANSFER SWITCH**

PHASE	1-PHASE
VOLTAGE	120/240
ENCLOSURE TYPE	NEMA 3R
AMPS	200
DIMENSIONS	17.3"(L) x 12.5"(W)

2 **PROPOSED ATS**
C-3 SCALE: N.T.S. (24"x36" SHEET)

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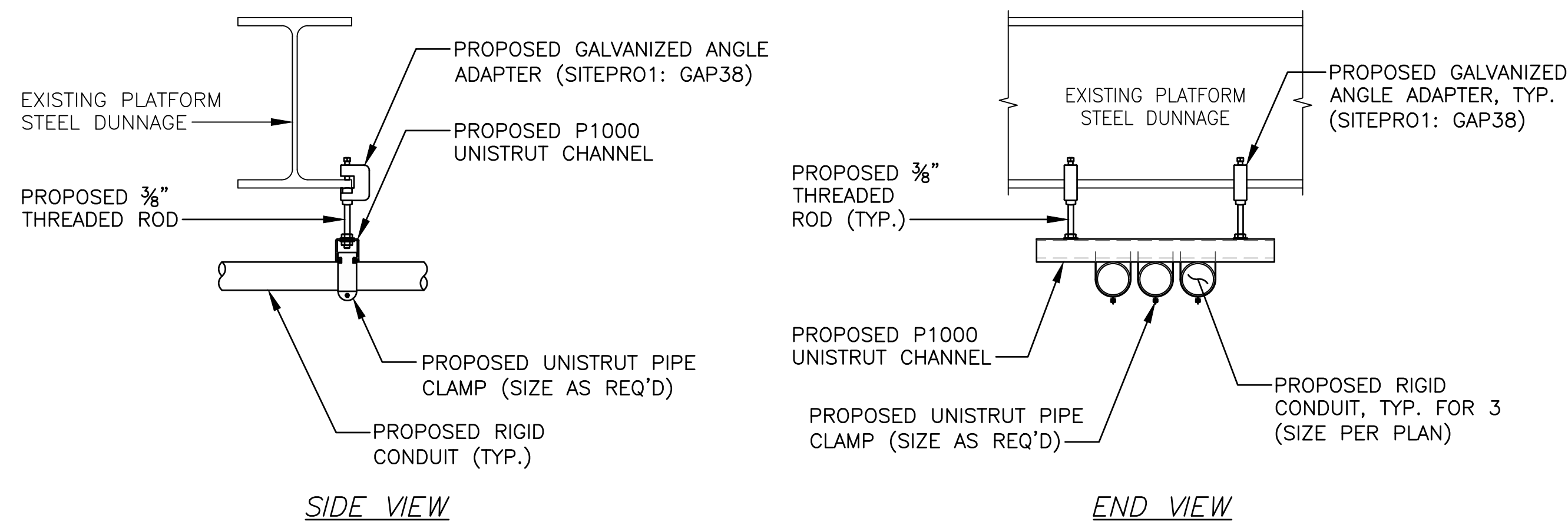
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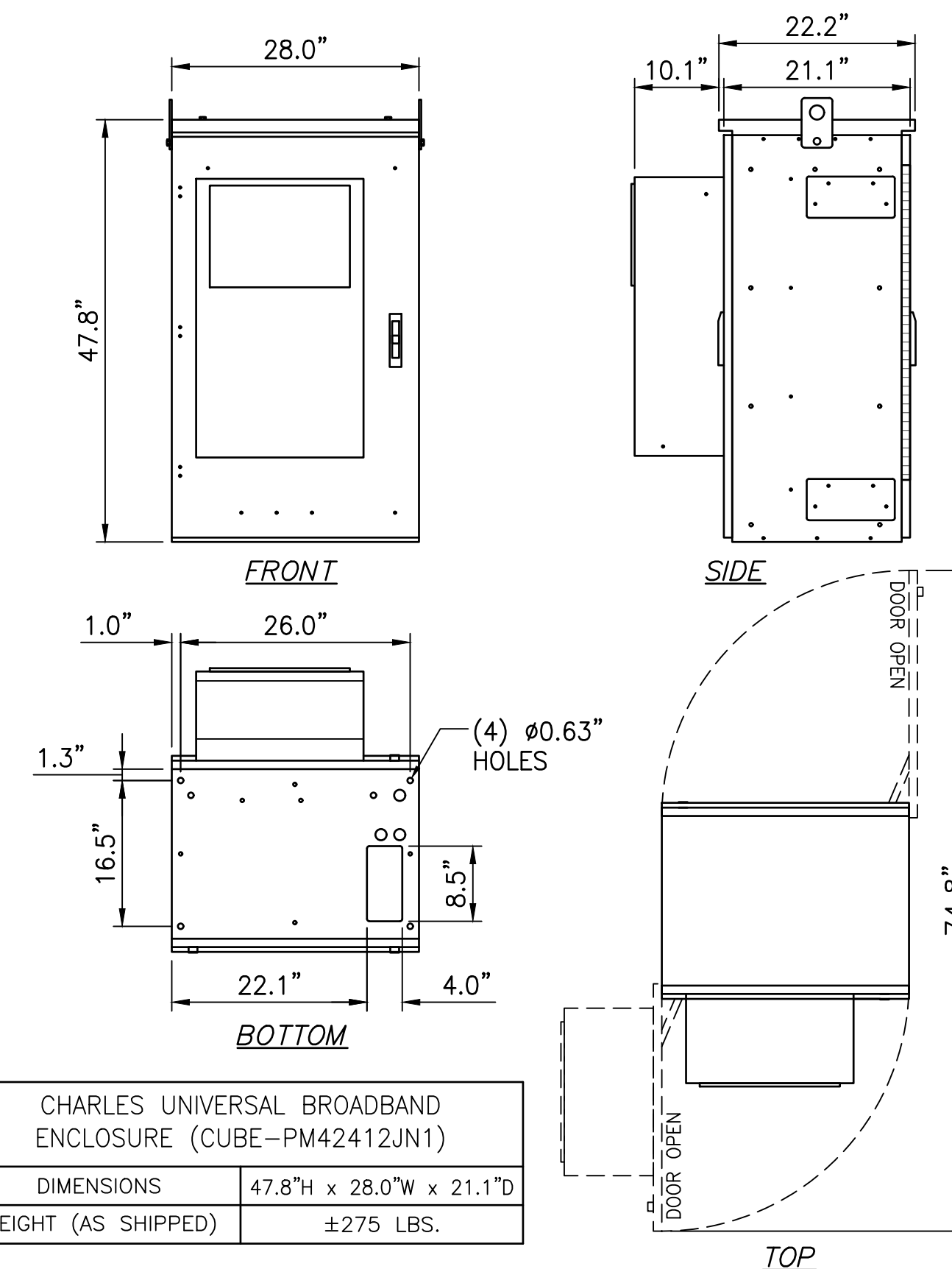
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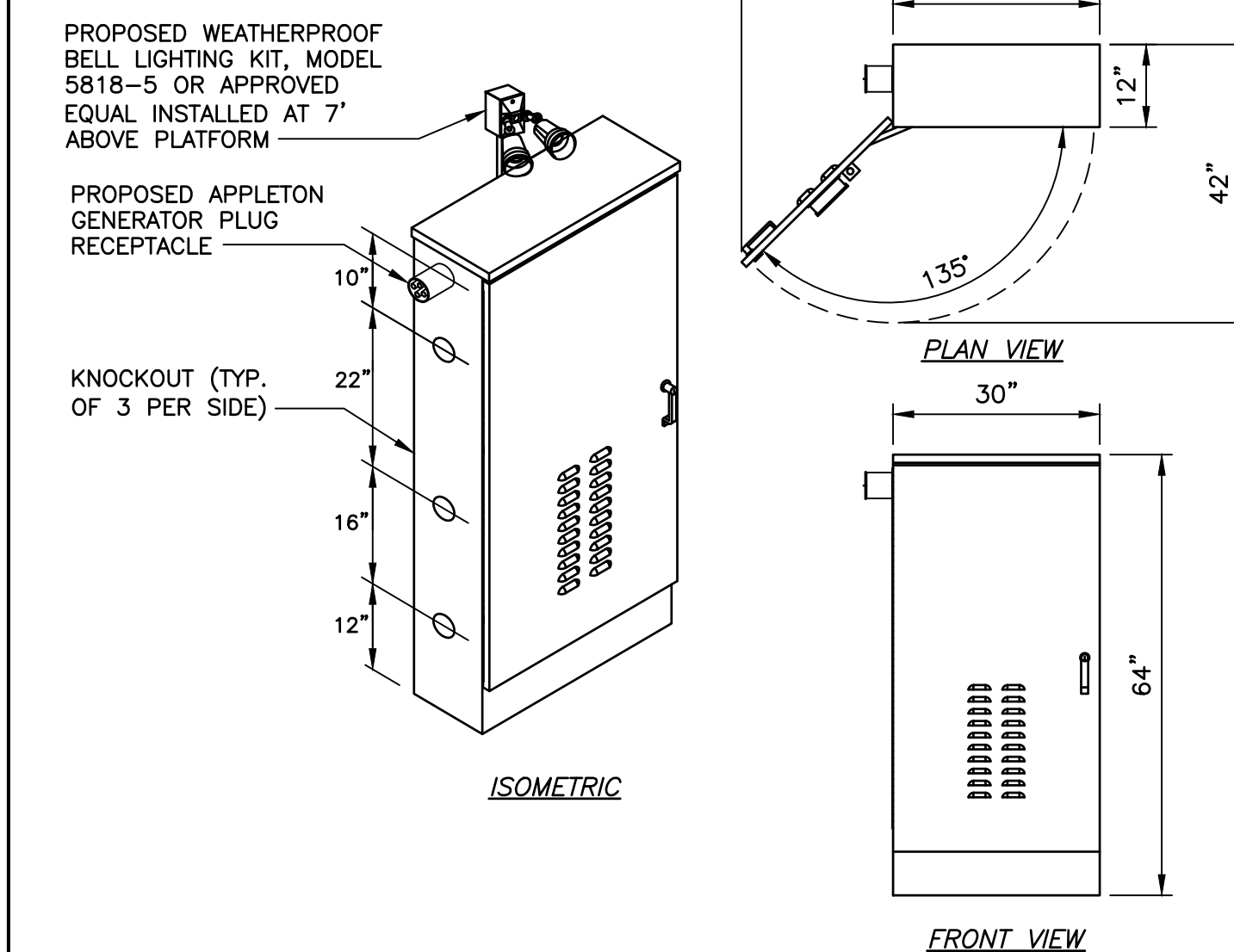
3 **CONDUIT ROUTING DETAIL**
C-3 SCALE: N.T.S. (24"x36" SHEET)



CHARLES UNIVERSAL BROADBAND ENCLOSURE (CUBE-PM42412JN1)

DIMENSIONS	47.8"H x 28.0"W x 21.1"D
WEIGHT (AS SHIPPED)	±275 LBS.

4 **CHARLES CUBE DETAIL**
C-3 SCALE: N.T.S. (24"x36" SHEET)



5 **PPC DETAIL**
C-3 SCALE: N.T.S. (24"x36" SHEET)

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NICHOLAS D. BARILE
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DRAWING TITLE:

EQUIPMENT DETAILS

DRAWING SHEET:

C-3


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DRAWING TITLE:

ONE-LINE DIAGRAM

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E-1

ELECTRICAL POWER SYMBOLS

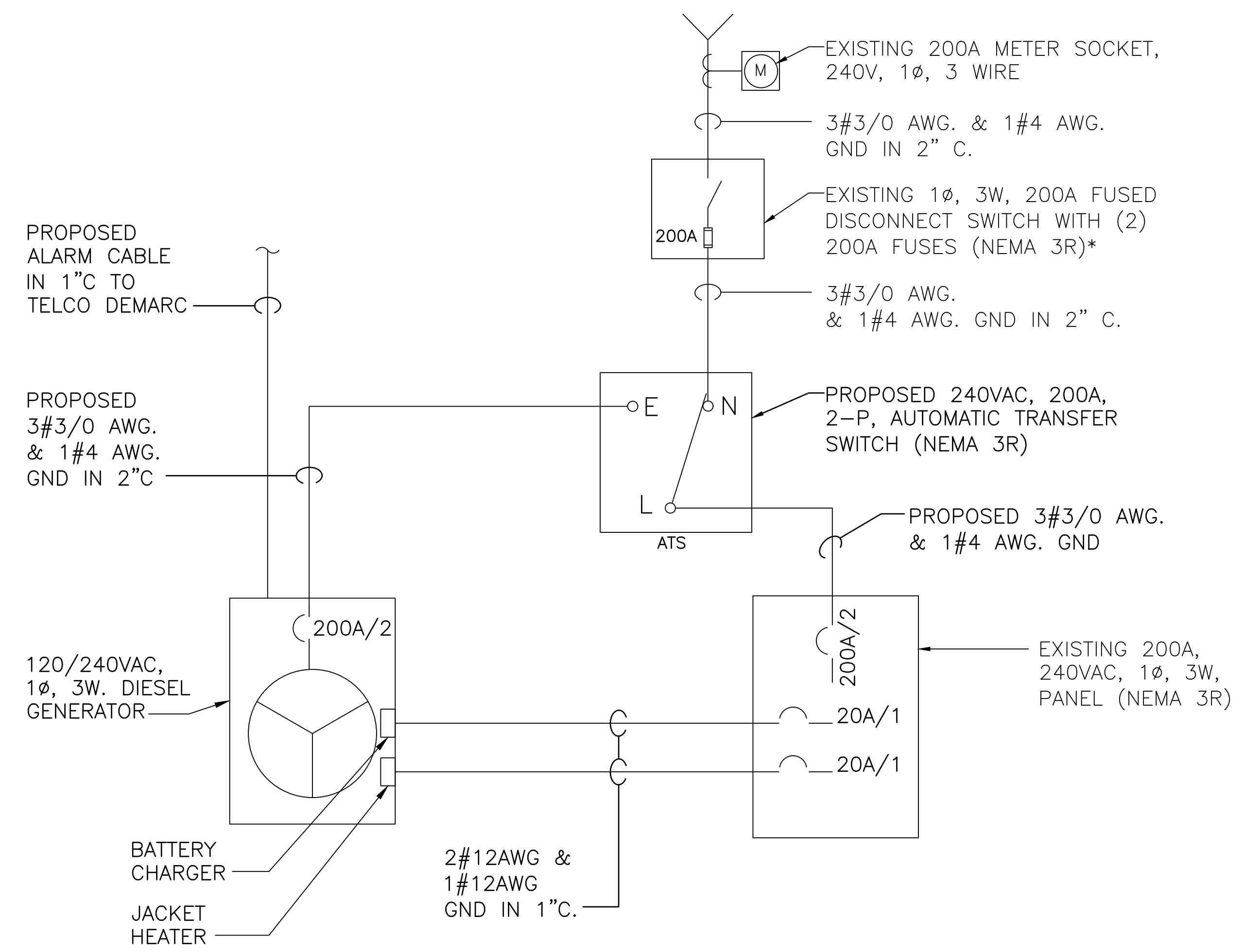
SYMBOL	DESCRIPTION
	ELECTRICAL PANELBOARD/ENCLOSURE
	GENERATOR
	CIRCUIT BREAKER
	GROUNDING ELECTRODE

ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
AFCI	ARC FLASH CIRCUIT INTERRUPTER
AWG	AMERICAN WIRE GAUGE
C	CONDUIT, CORRIDOR
CT	CURRENT TRANSFORMER
EX	EXISTING
GND	GROUND
GFI	GROUND FAULT INTERRUPTER
KW	KILOWATT
MSB	MAIN SWITCHBOARD
N.T.S.	NOT TO SCALE
OCPPD	OVERCURRENT PROTECTIVE DEVICE
P	POLE(S)
PH, φ	PHASE
PNL	PANEL
SE	SERVICE ENTRANCE
SW	SWITCH
TYP	TYPICAL
UNOTED	UNLESS OTHERWISE NOTED
V	VOLT
W	WATT, WIRE
WP	WATERPROOF
G	GENERATOR
M	METER
CB	CIRCUIT BREAKER

- NOTES:**
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
 - ALL NEW WIRING SHALL BE COPPER. ALL CONDUCTORS LARGER THAN #10 AWG SHALL BE THWN-2, THW-2, RHW-2, OR XHHW-2 WIRE UNLESS NOTED OTHERWISE.

FINAL ELECTRICAL SERVICE LAYOUT SUBJECT TO UTILITY COORDINATION



1 ONE-LINE DIAGRAM
E-1 SCALE: N.T.S.

1. GENERAL REQUIREMENTS:

- 1.1 THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES, AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
- 1.2 ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE 2014 EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK:
- 1.3 THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
- 1.4 ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
- 1.5 THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.
- 1.6 CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS PROVIDED BY OTHER TRADES.
- 1.7 PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
- 1.8 KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
- 1.9 ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.
- 1.10 THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.
- 1.11 THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.
- 1.12 ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.
- 1.13 BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY ACQUAINT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- 1.14 THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.
- 1.15 UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
- 1.16 UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- 1.17 THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
- 1.18 EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.
- 1.19 IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER, LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.
- 1.20 THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW, AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.
- 1.21 DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLEMENT ONE ANOTHER, AND WHAT IS SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.
- 1.22 ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIREMENTS.
- 1.23 ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.
- 1.24 THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 36" BELOW FINISHED GRADE.

2. PROJECT COORDINATION:

- 2.1 THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
- 2.2 THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
- 2.3 THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
- 2.4 REFER TO THE CONSTRUCTION DRAWINGS AND APPROPRIATE VENDORS APPROVED DIMENSIONED LAYOUT DRAWINGS FOR THE LOCATIONS OF ALL ELECTRICAL DEVICES AND EQUIPMENT.
 - A. EXTERIOR BUILDING MOUNTED LUMINARIES
 - B. SWITCHES
- 2.5 REFER TO THE PLUMBING DRAWINGS FOR THE LOCATIONS OF THE FOLLOWING:
 - A. GENERATOR
- 2.6 SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONE MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
- 2.7 ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
- 2.8 EXACT LOCATIONS OF OUTLETS AND EQUIPMENT SHALL BE COORDINATED WITH ARCHITECTURAL AND MILLWORK PLANS. ALL OUTLET AND EQUIPMENT LAYOUTS SHALL BE VERIFIED AND COORDINATED WITH WORK OF OTHER TRADES.
- 2.9 PROVIDE TEMPORARY LIGHTING AND POWER IN ACCORDANCE WITH ARTICLE 305 OF THE NEC. TEMPORARY LIGHTING FIXTURES IN UNFINISHED AREAS SHALL REMAIN CONNECTED UNTIL REMOVAL IS REQUESTED BY THE CONTRACTOR.
- 2.10 COLORS AND FINISHES OF ALL LIGHTING FIXTURES SHALL BE AS DETERMINED BY THE ARCHITECT OR OTHER WHO SELECT SAME FROM THOSE AVAILABLE AS STANDARD OF THE EQUIPMENT SPECIFIED. PROVIDE CUSTOM ENGRAVING FOR ALL DIMMER SWITCHES.
- 2.11 THE CONTRACTOR SHALL CONTACT THE BUILDING MANAGER TO OBTAIN A COPY OF THE GENERAL REQUIREMENTS AND/OR CONDITIONS TO BE USED FOR THIS PROJECT.
- 2.12 INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. TEMPORARY SHUT DOWNS OF ANY SYSTEM SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER AND ARCHITECT.
- 2.13 CONTRACTOR SHALL VERIFY ALL EQUIPMENT POWER REQUIREMENTS AND REQUIRED OUTLET TYPES WITH EQUIPMENT MANUFACTURER AND OWNER PRIOR TO POWER DISTRIBUTION AND RECEPTACLE INSTALLATION.

3. PROTECTION OF WORK:

- 3.1 EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

4. WARRANTIES AND BONDS:

- 4.1 ALL MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
- 4.2 OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

5. PERMITS:

- 5.1 CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

6. RACEWAYS:

- 6.1 ALL CONDUIT SHALL BE MINIMUM SIZE OF 3/4" FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE GRC (GALVANIZED RIGID METAL CONDUIT). ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE RNC (RIGID NONMETALLIC CONDUIT). CHANGE TO RIGID METALLIC CONDUIT OR INTERMEDIATE METALLIC CONDUIT BEFORE EXITING OUT OF CONCRETE OR PENETRATING A WALL, FLOOR OR ROOF. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
- 6.2 ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
- 6.3 CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
- 6.4 ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
- 6.5 ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
- 6.6 ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
- 6.7 ALL RACEWAY AND WIRING SHALL BE CONCEALED IN FINISHED AREAS. RACEWAY IN MECHANICAL ROOMS, BASEMENTS AND CRAWL SPACES MAY BE SURFACE MOUNTED.
- 6.8 FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1-1/4" AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.
- 6.9 THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH APPROVED FIRE RATED SEALANT. ALL PENETRATIONS THROUGH ALL WALLS AND FLOORS SHALL BE SEALED. FOR ALL SLAB PENETRATIONS THE METHOD, DEPTHS AND LOCATIONS SHALL BE PRE-APPROVED BY THE BUILDING ENGINEER PRIOR TO THE START OF WORK.
- 6.10 THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
- 6.11 EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.
- 6.12 ALL PENETRATIONS THROUGH FLOORS SHALL BE FIRE STOPPED AND SEALED WITH APPROVED SEALANT.
- 6.13 ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY SUCH AS MOTORS, TRANSFORMERS, ETC., SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT METALLIC CONDUIT.
- 6.14 SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS IN HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS IN METAL, BEAM CLAMPS IN FRAMEWORK AND WOOD SCREWS IN WOOD. NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES.
- 6.15 DO NOT RUN RACEWAYS CLOSER THAN 6 INCHES WHEN PARALLEL TO HOT WATER OR STEAM PIPES. WHEN CROSSING WATER OR STEAM PIPES CROSS A MINIMUM OF 3 INCHES ABOVE. IF CROSSING BELOW IS UNAVOIDABLE, PROVIDE DRIP SHIELDS EXTENDING 6 INCHES BEYOND THE WATER OR STEAMPIPE. BOXES INSTALLED IN PROXIMITY TO WATER OR STEAM PIPE SHALL BE RATED NEMA 4X.

7. BOXES:

- 7.1 INTERIOR OUTLET BOXES SHALL BE METALLIC, EXCEPT AS NOTED. FAN MOUNTING BOXES SHALL BE RATED FOR THE APPLICATION AND FOR THE WEIGHT OF THE FAN. EXTERIOR OUTLET BOXES SHALL BE CAST ALUMINUM AND SHALL BE MADE WEATHERTIGHT.
- 7.2 INTERIOR JUNCTION BOXES SHALL BE SHEET STEEL. EXTERIOR JUNCTION BOXES SHALL BE NONMETALLIC, WITH SCREW COVERS. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF CONDUITS.
- 7.3 MOUNTING HEIGHTS OF EQUIPMENT AND DEVICES SHALL BE AS FOLLOWS:
 - A. RECEPTACLES (WALL MOUNTED) - 18" A.F.F.
 - B. RECEPTACLES (COUNTER HEIGHT) - 9" ABOVE COUNTER
 - C. RECEPTACLES (EXTERIOR) - 24" ABOVE FINISHED GRADE
 - D. COMMUNICATION OUTLETS - SAME AS RECEPTACLES
 - E. LIGHTING SWITCHES AND CONTROLS - 44" A.F.F.
 - F. PANELBOARDS AND CABINETS - 78" TO TOP OF ENCLOSURE
- 7.4 WHERE MULTIPLE SWITCHES AND RECEPTACLES ARE INDICATED AT THE SAME LOCATION, THEY SHALL BE MOUNTED BEHIND A COMMON FACEPLATE. TECHNOLOGY OUTLETS SHALL BE SEPARATED FROM AND BE PROVIDED WITH SEPARATE FACEPLATES FROM THE ASSOCIATED POWER RECEPTACLES.
- 7.5 RECEPTACLES SHALL BE ACCESSIBLE EXCEPT A DEDICATED RECEPTACLE MAY BE OBSTRUCTED BY THE REMOVABLE EQUIPMENT IT SERVES.
- 7.6 OUTLET BOXES IN EXISTING CONCRETE FLOORS WITH ACCESS FROM BELOW SHALL BE FIRE RATED, POKE-THROUGH TYPE FOR POWER AND LOW TENSION SERVICE. SERVICE FITTING HEADS SHALL BE ANODIZED ALUMINUM AND SHALL CONTAIN DEVICES AS SHOWN ON THE DRAWINGS. BOXES SHALL BE AS MANUFACTURED BY STEEL CITY OR HUBBELL.
- 7.7 SET BOXES SQUARE AND TRUE WITH BUILDING FINISH. INSTALL RECEPTACLE AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. SECURE TO BUILDING STRUCTURE IN ACCORDANCE WITH NEC REQUIREMENTS.
- 7.8 FURNISH OUTLET BOXES WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WHERE NO FIXTURE OR DEVICE IS INSTALLED, PROVIDE OUTLET BOX WITH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 INCH HORIZONTAL SEPARATION.

8. WIRING:

- 8.1 ALL WIRE SHALL BE COPPER WITH TYPE THHN/THWN 600 VOLT INSULATION, MINIMUM #12 AWG FOR POWER AND LIGHTING CIRCUITS AND #16 AWG FOR CONTROL CIRCUITS.
- 8.2 UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
- 8.3 ALL COMPUTER CIRCUITS SHALL HAVE SEPARATE NEUTRAL CONDUCTORS. ALL OTHER CIRCUITS MAY SHARE GROUND AND NEUTRAL CONDUCTORS.
- 8.4 WHERE EQUIPMENT, LIGHTING FIXTURES AND WIRING DEVICES ARE SHOWN WITH CIRCUIT NUMBERS ONLY, THE MINIMUM BRANCH CIRCUITTING REQUIREMENTS SHALL BE AS FOLLOWS:
 - A. LIGHTING FIXTURES - (2)#12 & #12 GND.
 - B. RECEPTACLES - (2)#12 & #12 GND.
 - C. BRANCH CIRCUIT BREAKERS (120 VOLT) - 1P, 20A
 - D. HOMERUNS TO PANEL BOARDS SHALL CONTAIN NO MORE THAN THREE CIRCUITS.
 - E. WHERE LIGHTING SWITCH INDICATIONS ARE NOT SHOWN SWITCHES SHALL BE CONNECTED TO CONTROL ALL SWITCHED FIXTURES WITHIN THE CORRESPONDING SPACE.
- 8.5 CONTRACTOR SHALL INCREASE SIZE OF CIRCUIT WIRING/CONDUCTORS TO COMPENSATE FOR VOLTAGE DROP.
- 8.6 WIRE SIZES SHALL BE INCREASED TO COMPENSATE FOR VOLTAGE DROP AS FOLLOWS:
 - A. 120V AND 208V CIRCUITS LONGER THAN 80' SHALL UTILIZE MIN. #10 AWG.
 - B. 208V CIRCUITS LONGER THAN 150' SHALL UTILIZE MIN. #10 AWG.

9. GROUNDING:

- 9.1 PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250, OF THE NEC, AND AS SPECIFIED HEREIN.
- 9.2 ALL BRANCH CIRCUITS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.
- 10. DEVICES:
 - 10.1 THE CONTRACTOR SHALL VERIFY COLOR, LOCATION AND MOUNTING HEIGHT OF ALL DEVICES WITH ARCHITECT PRIOR TO INSTALLATION.
 - 10.2 RECEPTACLES SHALL BE DUPLEX TYPE, 20 AMP, 125 VOLT RATING, WITH SIDE AND BACK WIRING. HUBBELL 5362 OR APPROVED EQUAL.
 - 10.3 GROUND FAULT INTERRUPTERS SHALL BE SPECIFICATION GRADE. HUBBELL GF5362 OR APPROVED EQUAL.
 - 10.4 SWITCHES SHALL BE SPECIFICATION GRADE, 20 AMP AT 120/277 VOLTS, QUIET, AC, SINGLE OR DOUBLE POLE, THREE OR FOUR WAY AS REQUIRED, ROCKER STYLE WITH BACK AND SIDE WIRING.
 - 10.5 ALL RECEPTACLES MARKED WP SHALL BE GROUND FAULT PROTECTED AND WEATHER TIGHT WHILE IN USE.
 - 10.6 THE COLOR OF FACEPLATES SHALL MATCH COLOR OF DEVICE WHICH IT COVERS. ALL PLATES SHALL BE METALLIC.

11. PANELBOARDS:

- 11.1 PANELBOARDS: SWITCHING UNITS SHALL BE 120/240V, 1-PHASE, 3-WIRE, 200A, 45KAIC CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED ON PANEL SCHEDULES. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98% CONDUCTIVITY, AND SILVER OR TIN-PLATED JOINTS. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME-PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN. HIGH DOORS) OR VAULT HANDLE, LOCK AND 3-POINT CATCH (LARGER THAN 48 IN. HIGH DOORS). HINGES SHALL BE SEMI-CONCEALED, 5-KNUCKLE STEEL WITH NONFERROUS PINS, 180-DEG OPENING, LOCATED A MAXIMUM 26 IN. ON CENTERS. PROVIDE DOOR-IN-DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5" BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER.
- 11.2 PROVIDE A NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR EACH PANEL AFFECTED BY THIS PROJECT.
- 11.3 WHEREVER POSSIBLE, PANELBOARDS SHALL BE RECESSED IN WALL. SURFACE MOUNTED PANELBOARDS SHALL BE MOUNTED ON A PLYWOOD BACKBOARD. PLYWOOD SHALL BE MOUNTED ON TOP OF GYPSUM BOARD. PLYWOOD SHALL BE PAINTED ON ALL SIDES AND EDGES. COORDINATE WITH OWNER FOR COLOR.
- 11.4 PROVIDE LIGHTNING SURGE PROTECTION FOR MAIN SWITCHBOARD OR MAIN SERVICE PANEL BOARD. PROVIDE GROUNDING OF SURGE DEVICE PER THE NEC.
- 11.5 CIRCUIT NUMBERS SHOWN SHALL BE GENERALLY FOLLOWED. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS ON ALL PHASES AND MAY ALTER ASSIGNMENT OF CIRCUITS FOR BALANCING PHASES.
- 11.6 CIRCUIT SCHEDULES ARE INTENDED TO REPRESENT THE GENERAL WIRING NEEDS OF THE EQUIPMENT SERVICED FROM THE PANEL. THE EXACT CIRCUIT ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND PANELS ACTUALLY FURNISHED.
- 12. LIGHTING:
 - 12.4 PROVIDE LIGHTING FIXTURES AS SHOWN ON THE CONSTRUCTION DRAWINGS, COMPLETE WITH ALL STEMS, RODS, SUPPORTS, PLASTER FRAMES, ETC., NECESSARY FOR AN INSTALLATION IN OR ON THE MATERIAL FINISHES PROVIDED. PROVIDE ALL LAMPS FOR LIGHTING FIXTURES. FIXTURES SHALL HAVE ENERGY SAVING LAMPS, AND WHERE APPLICABLE, ENERGY SAVING BALLASTS WITH HIGH POWER FACTOR.
 - 12.5 SEE DRAWINGS AND SPECIFICATIONS FOR FIXTURE REQUIREMENTS.

13. IDENTIFICATION:

- 13.1 PROVIDE BLACK PHENOLIC IDENTIFICATION PLATES, WITH WHITE LETTERS ON ALL ELECTRICAL EQUIPMENT FURNISHED IN THIS CONTRACT. ATTACH WITH SUITABLE ADHESIVE.
- 13.2 INSTALL NAMEPLATES ON ALL MAJOR EQUIPMENT, INCLUDE STARTERS, TRANSFORMERS, PANELBOARDS, DISCONNECT SWITCHES AND OTHER ELECTRICAL BOXES AND CABINETS INSTALLED UNDER THIS CONTRACT.
- 13.3 APPLY CABLE/CONDUCTOR IDENTIFICATION MARKERS ON EACH CABLE AND CONDUCTOR IN EACH BOX, ENCLOSURE OR CABINET.
- 14. RECORD DRAWINGS:
 - 14.1 THE CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS. THE APPROVAL OF SHOP DRAWINGS SHALL ONLY BE CONSTRUED TO APPLY TO THE GENERAL LAYOUT AND CONFORMANCE TO THE DESIGN CONCEPT OF THE PROJECT AND FOR THE COMPLIANCE WITH THE GENERAL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL RETAIN THE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
 - 14.2 PROVIDE SHOP DRAWINGS FOR THE LIGHTING FIXTURES, PANEL BOARDS, CIRCUIT BREAKERS, WIRING DEVICES, FIRE ALARM DEVICES AND SEALS FOR FIRE AND WATER STOPPING.
 - 14.3 DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS AND DETAILS.
 - 14.4 UPON PROJECT COMPLETION, THE CONTRACTOR SHALL COMPLETE THE MARK UP OF ALL PROJECT DRAWINGS TO RECORD INSTALLED CONDITIONS.
 - 14.5 REPRODUCIBLE "RECORD" DRAWINGS PREPARED IN CAD (AUTOCAD 2002) FORMAT SHALL BE PROVIDED TO T-MOBILE INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. A FULL SIZE PRINT OUT OF THE "RECORD" DRAWING FILE SHALL BE PROVIDED TO T-MOBILE AFTER COMPLETION OF THE INSTALLATION.
 - 14.6 UPON COMPLETION AND ACCEPTANCE OF WORK, THE CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO T-MOBILE THE PROPER OPERATIONS AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.



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SCHEDULE OF REVISIONS

REV NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4	10/04/23	PER UPDATED CODE
3	09/06/23	ISSUED AS FINAL
2	08/11/23	REVISED PER CLIENT
1	07/13/23	REVISED PER CLIENT
0	06/19/23	INITIAL SUBMISSION

REV NO.	DATE	DESCRIPTION OF CHANGES

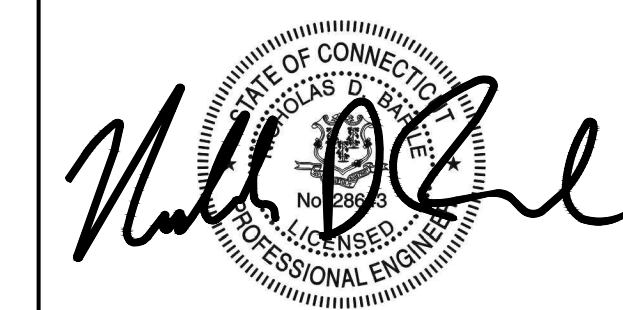
DRAWN BY: CJT

CHECKED BY: NDB

SCALE: AS NOTED

JOB NO: 23019-TRN

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 38643

**SITE ID: CTFF310D
23 STONYBROOK RD
23 STONYBROOK RD.
STRATFORD, CT 06614
FAIRFIELD COUNTY**

DRAWING TITLE:

ELECTRICAL NOTES

DRAWING SHEET:

E-2

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SITE ID: CTFF310D
23 STONYBROOK RD
23 STONYBROOK RD.
STRATFORD, CT 06614
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DRAWING TITLE:

**GROUNDING
PLAN & NOTES**

DRAWING SHEET:

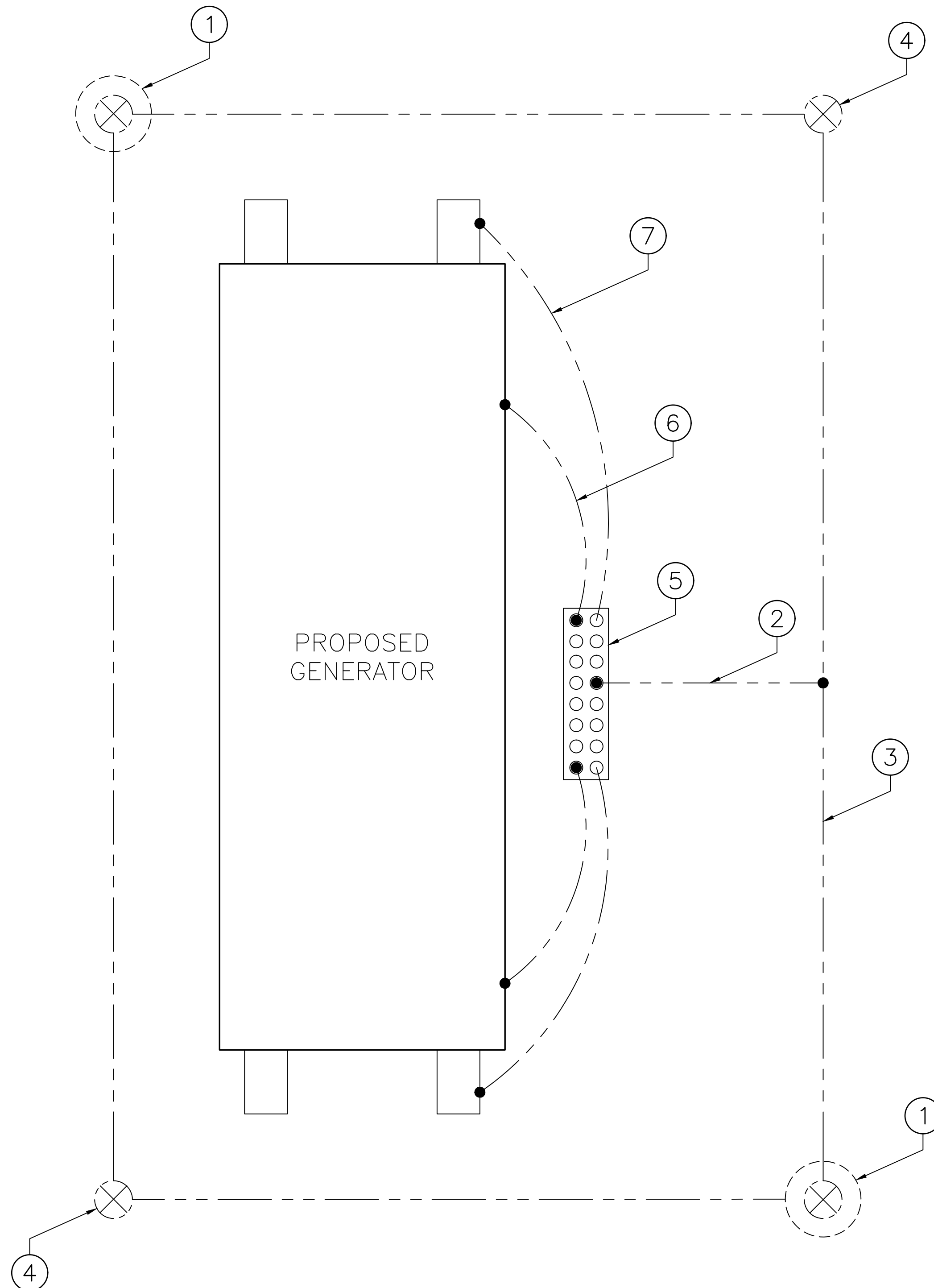
G-1

GROUNDING NOTES:

- ① GROUND ROD INSPECTION WELL (TYP. 2)
- ② #2 AWG, SOLID TINNED CU. TO BOND MAIN GROUND BAR TO GROUND RING (TYP. 2)
- ③ #2 AWG, SOLID TINNED CU. 30" BELOW GRADE (GROUND RING)
- ④ 5/8"Ø x 10' CU. CLAD GROUND ROD (TYP. 6)
- ⑤ MAIN GROUND BAR INSTALLED ON EQUIPMENT FRAME
- ⑥ #2 AWG, STRANDED INSULATED CU. TO BOND GENERATOR TO MAIN GROUND BAR (TYP.)
- ⑦ #2 AWG, SOLID TINNED CU. TO BOND EQUIPMENT STEEL

GROUNDING NOTES:

1. THE EQUIPMENT BONDING JUMPER SHALL BE PERMITTED TO BE INSTALLED INSIDE OR OUTSIDE OF A RACEWAY OR ENCLOSURE. WHERE INSTALLED ON OUTSIDE, THE LENGTH OF THE EQUIPMENT BONDING JUMPER SHALL NOT EXCEED 6 FEET AND SHALL BE ROUTED WITH THE RACEWAY OR ENCLOSURE. REFER TO NEC 2008 - 250.102 (E)
2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
3. ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
4. GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES, SPRAY CADWELD WITH GALVANIZING PAINT.
5. GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDING SCREW SET.) CLEAN GROUND BAR TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTIOXIDANT COATING.
6. GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
7. ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
8. INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
9. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO ANTENNA MOUNTS AND GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
10. EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-A.
11. CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO CARRIER'S CONSTRUCTION MANAGER.
12. ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2/0 TINNED. ALL EXTERIOR GROUND BARS TINNED COPPER.
13. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.). PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
14. ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED FIVE OHMS TO GROUND BY MEANS OF "FALL OF POTENTIAL TEST". TEST SHALL BE WITNESSED BY CARRIER REPRESENTATIVE, AND RECORDED ON CARRIER'S "GROUND RESISTANCE TEST" FORM.
15. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
16. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
17. ANY SITE WHERE THE EQUIPMENT (BTS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 6 FEET OF METAL FENCING, THE BGR SHALL BE BONDED TO THE NEAREST FENCE POST USING (2) RUNS OF #2 BARE TINNED COPPER WIRE.



1 GROUNDING PLAN
G-1 SCALE: NTS

ELEVATED ENGINEERING

99 Fanny Road, Boonton, NJ 07005
State of NJ Certificate of Authorization #24GA28326800

CTFF310D

23 Stonybrook Road, Stratford, CT 06614
(Fairfield County)

Structural Analysis of Platform Generator Add

September 6, 2023

<u>Item</u>	<u>Pass/Fail</u>	<u>Capacity</u>
Equipment Platform	Pass	17.2%
Soil Capacity	Pass	75.2%



Nicholas D. Barile, PE
CT PE License No.: 28643
Elevated Engineering Project No.: 23019-TRN

ELEVATED ENGINEERING

99 Fanny Road, Boonton, NJ 07005
State of NJ Certificate of Authorization #24GA28326800

Summary

At the request of T-Mobile, ELEVATED ENGINEERING has performed a structural analysis of the equipment platform for the proposed generator add under the *2022 Connecticut Building Code, ASCE 7, ANSI/TIA-222-H, and AISC (LRFD14)*. Information pertaining to the platform was obtained from:

- Design visit notes by Elevated Engineering dated 06/15/2023.
- Construction drawings by Elevated Engineering dated 09/06/2023.

Loading Criteria

Wind Factors			
	Basic Wind Speed; Vult	119	mph
	Risk Category	II	
	Exposure	C	
	Flat Terrain		
	Ground Elevation	79	ft
	Ice Thickness	3/4"	
	Wi	40	mph
Seismic Factors			
	Ss:	0.207	
	S1:	0.054	
Loading Combinations at (12) 30° Intervals			

Conclusions

Per our analysis, the equipment platform can support the proposed loading under the *2022 Connecticut Building Code*.

General Comments

If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, ELEVATED ENGINEERING should be notified immediately to perform a revised analysis. This report is not a condition assessment and assumes good workmanship will be used and systems will be properly maintained.

Limitations

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature, and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned, and it may not be reused, copied, or distributed for any other purpose without the written consent of ELEVATED ENGINEERING.

ELEVATED

ENGINEERING

99 Fanny Road, Boonton, NJ 07005
State of NJ Certificate of Authorization #24GA28326800

Attachment A

Final Equipment Configuration

Platform Equipment Loading

- (1) Ericsson 6160 Cabinet
- (1) Ericsson B160 Battery Cabinet
- (1) Charles PM42412JN1 Cube
- (1) Ericsson 6131 Cabinet
- (1) GENERAC G0071940 48kW Diesel Generator
- (1) Generac RXSC200A43 Automatic Transfer Switch
- (1) Generic Battery Enclosure
- (1) Generic PPC

$Kz=2.01 (Z/Zg)^{(2/\alpha)}$ = 0.850
 Zg = 900 Table 2-4 Exposure C
 Alpha (α) = 9.5 Table 2-4
 Z= 6 ft to 74.5ft
 Terrain Category I
 $Kzt = (1+KcKt/Kh)^2$ = 1.00 for Category I
 Kc= 1.00 Table 2-4
 Kt= 0.53 Table 2-5
 $Kh=e^{(f * Z/H)}$ = 0.000 for H=0
 f= 2.00 Table 2-5
 H =Height of Crest Surrounding Terrain 0.00 ft
 Kz = 0.850
 Kzt = 1.0
 Kd = 0.95
 Importance Factor Table 2-3 = I = 1.0 Use Class II
Zs = 79 ft
 $Ke= e^{(-0.0000362xZs)}$ = **1.00**
 Vult = 110 mph
 $qz=0.00256xKzxKztzKdxKsxKexV^2xl$ = 24.9 psf
 Gh = 1.00
qz Gh = 24.9 psf

	Equipment Loading	CaAa (sf or sf/lf)	Wind (psf)	Ka	Wind Load (lb)	Weight (lb)
Eq1	6131	27.81	24.9	1.0	693.6	1870
Eq2	B160	13.65	24.9	1.0	340.5	1883
Eq3	6160	17.59	24.9	1.0	438.7	605
Eq4	Charles Cube	10.73	24.9	1.0	267.7	275.0
Eq5	Generac G0071940 W/ Fuel	30.67	24.9	1.0	765.0	3240.6
Eq6	Transfer Switch - Generac RXSC200A43	1.80	24.9	1.0	44.9	22.5
Eq7	Battery Enclosure	8.30	24.9	1.0	207.0	1800.0
Eq8	PPC	20.80	24.9	1.0	518.8	125.0
	W12	2.000	24.9	0.9	44.9	
	W6	1.000	24.9	0.9	22.4	

Platform Live = 40 psf
 Grating Weight = 12 psf
 Handrails and Toe Kick = 20 plf
 Soils Capacity = 1,500 psf

Soils Check

Pier Diameter =	2 ft	
Pear Area = A =	3.14 ft ²	
Load =	7,116.5 lb	
Soil Load =	2,266.40 psf	
Bearing Capacity =	2,000.0 psf	Table 1806.2 Class 2
Brearing Resistance =	6,280.0 lb	
Lateral Bearing Pressure =	150.0 psf/ft	
μ=	0.25	
Soil Contact =	3.15 ft ²	
Skin Friction Resistance =	3,180.0 lb	based on 3 ft burial
Total Bearing Capacity =	9,460.0 lb	
Capacity = Load/Total Bearing x 100% =	75.2%	OK

Sliding

μ=	0.25	
Resistance = Load x μ =	1779.125 lb	
Wind Load =	799.1 lb	
Capacity = Wind Load/Resistance x 100% =	44.9%	OK

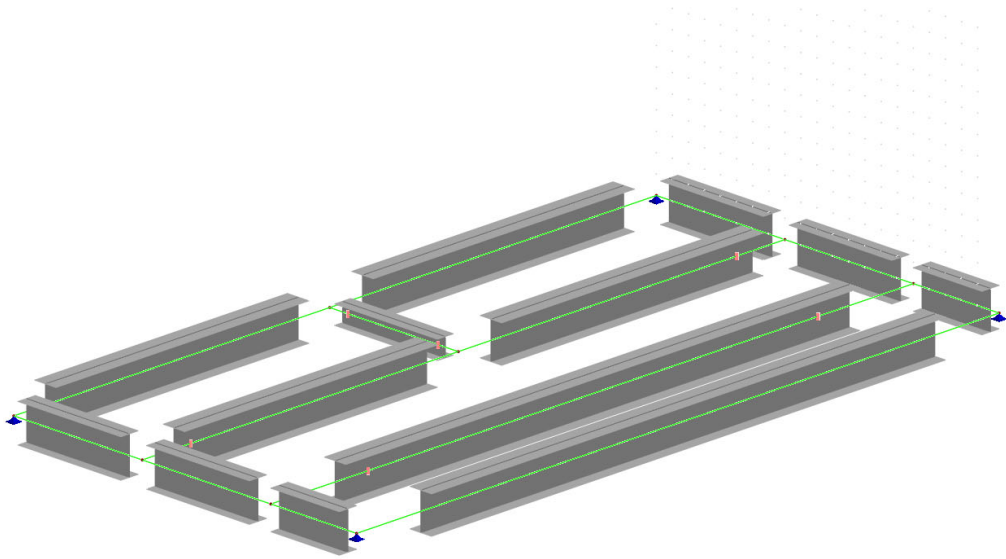
Company/Project: / 23019-TRN

VersaFrame V9.0 (609.0)
(C) Digital Canal Corp.

Engineer:

Date/Time: 09/03/23 14:15:26

LoadComb: [AISC14-LRFD_LC1]



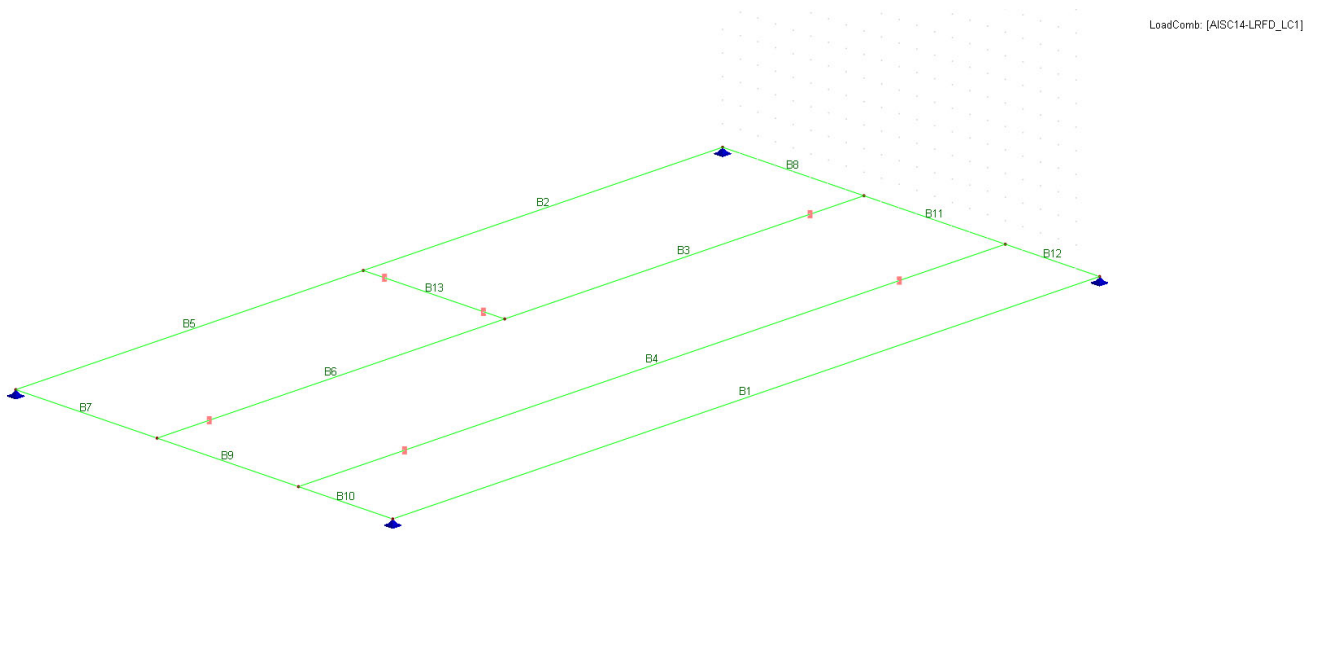
Note:

Company/Project: / 23019-TRN

VersaFrame V9.0 (609.0)
(C) Digital Canal Corp.

Engineer:

Date/Time: 09/03/23 14:16:07



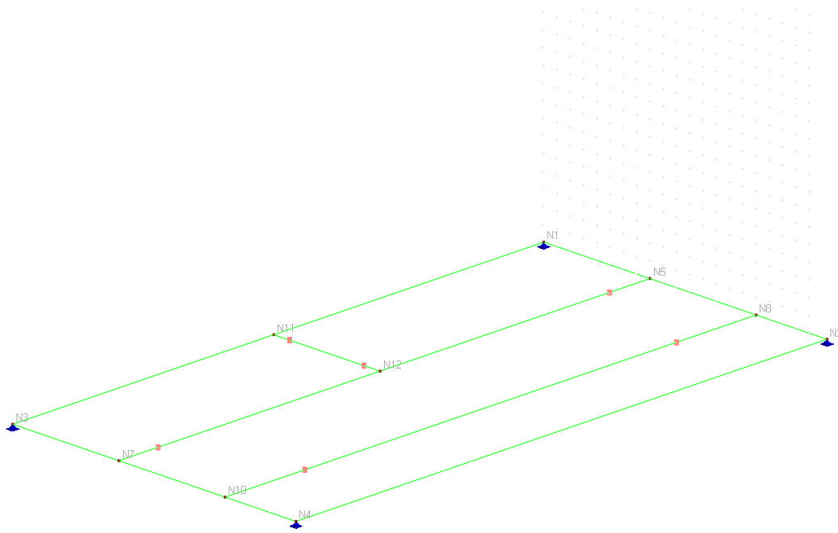
Note:

Company/Project: / 23019-TRN

VersaFrame V9.0 (609.0)
(C) Digital Canal Corp.

Engineer:

Date/Time: 09/03/23 14:15:50



LoadComb: [AISC14-LRFD_LC1]



Note:

Steel Check Report

Project: 23019-TRN
 Description: Platform
 Date: 09/03/2023 02:13 PM

Company:
 User:
 Software: Digital Canal VersaFrame

Code Check Results (LRFD14)

CRITICAL STRESS SUMMARY

ID	Section Name	Status	Governing Criteria	Stress Ratio	Load Combination	Distance (ft)
1	W12X40	OK	Axial-Bending	0.0422	AISC14-LRFD LC3d	10.000
2	W12X40	OK	Axial-Bending	0.0761	AISC14-LRFD LC3g	9.9125
3	W12X40	OK	Axial-Bending	0.1118	AISC14-LRFD LC3d	10.167
4	W12X40	OK	Axial-Bending	0.1724	AISC14-LRFD LC3g	10.000
5	W12X40	OK	Axial-Bending	0.0769	AISC14-LRFD LC3g	0.9833
6	W12X40	OK	Axial-Bending	0.1108	AISC14-LRFD LC3d	0.0000
7	W12X26	OK	Axial-Bending	0.1620	AISC14-LRFD LC3g	4.0000
8	W12X26	OK	Axial-Bending	0.1602	AISC14-LRFD LC3g	4.0000
9	W12X26	OK	Axial-Bending	0.1617	AISC14-LRFD LC3d	0.0000
10	W12X26	OK	Axial-Bending	0.1526	AISC14-LRFD LC3d	0.0000
11	W12X26	OK	Axial-Bending	0.1599	AISC14-LRFD LC3d	4.0000
12	W12X26	OK	Axial-Bending	0.1601	AISC14-LRFD LC3d	0.0000
13	W6X15	OK	Axial-Bending	0.0130	AISC14-LRFD LC3d	2.2000

SELECTED LOAD COMBINATIONS

Load Combination	Code Check	Total	Live	Dependent	Conditional
AISC14-LRFD LC1	x			-	-
AISC14-LRFD LC2a	x			-	-
AISC14-LRFD LC2b	x			-	-
AISC14-LRFD LC2c	x			-	-
AISC14-LRFD LC3a	x			-	-
AISC14-LRFD LC3b	x			-	-
AISC14-LRFD LC3c	x			-	-
AISC14-LRFD LC3d	x			-	-
AISC14-LRFD LC3e	x			-	-
AISC14-LRFD LC3f	x			-	-
AISC14-LRFD LC3g	x			-	-
AISC14-LRFD LC3h	x			-	-
AISC14-LRFD LC3i	x			-	-
AISC14-LRFD LC4a	x			-	-
AISC14-LRFD LC4b	x			-	-
AISC14-LRFD LC4c	x			-	-
AISC14-LRFD LC4d	x			-	-
AISC14-LRFD LC4e	x			-	-
AISC14-LRFD LC4f	x			-	-
AISC14-LRFD LC5a	x			-	-
AISC14-LRFD LC5b	x			-	-
AISC14-LRFD LC6a	x			-	-
AISC14-LRFD LC6b	x			-	-
AISC14-LRFD LC7a	x			-	-
AISC14-LRFD LC7b	x			-	-

INPUT Contents

- General:
- Geometry: [[Nodes](#)] [[Supports](#)] [[Moment Releases](#)]
- Loads: [[Point Loads](#)] [[Line Loads](#)]

OUTPUT Contents

- Nodal: [[Support Reactions](#)]
 - Members:
-

Nodes

Units: Coordinates X, Y, Z [in]

No.	X	Y	Z	No.	X	Y	Z
1	0.00	0.00	0.00	2	128.00	0.00	0.00
3	0.00	0.00	240.00	4	128.00	0.00	240.00
5	48.00	0.00	0.00	7	48.00	0.00	240.00
8	96.00	0.00	0.00	10	96.00	0.00	240.00
11	0.00	0.00	122.00	12	48.00	0.00	122.00

Supports

Units: Forced Displacements Dx, Dy, Dz [in]; Dox, Doy, Doz [rad]

Node	Flag	Dx	Dy	Dz	Dox	Doy	Doz
1	111000	0.000	0.000	0.000	0.000	0.000	0.000
2	111000	0.000	0.000	0.000	0.000	0.000	0.000
3	111000	0.000	0.000	0.000	0.000	0.000	0.000
4	111000	0.000	0.000	0.000	0.000	0.000	0.000

Moment Releases

Member ID	Begin OZ	End OZ	Begin OY	End OY	Torsion OX
3	1	0	0	0	0
4	1	1	0	0	0
6	0	1	0	0	0
13	1	1	0	0	0

Point Loads

Units: Force [lb]; Moment [lb-ft]; Coord-Sys: Local=0, Global=1;
 Direction: 0=X, 1=Y, 2=Z, 3=OX, 4=OY, 5=OZ

***** LOAD CASE - [Dead]*****

Member	Coord-Sys	Direction	Value	Distance
2	1	1	-1800.000	0.2
3	1	1	-935.000	0.2
4	1	1	-1620.300	0.75
4	1	1	-1883.000	0.5
4	1	1	-605.000	0.35
4	1	1	-935.000	0.1
4	1	1	-275.000	0.2
5	1	1	-125.000	0.1
5	1	1	-22.500	0.15
6	1	1	-1620.300	0.5

***** LOAD CASE - [Wind]*****

Member	Coord-Sys	Direction	Value	Distance
2	1	0	207.000	0.2
3	1	0	346.800	0.2
4	1	0	382.500	0.75
4	1	0	340.500	0.5
4	1	0	438.700	0.35
4	1	0	346.800	0.1
4	1	0	267.700	0.2
5	1	0	518.800	0.1
5	1	0	44.900	0.15
6	1	0	382.500	0.5

Line Loads

Units: Force [lb/ft]; Coord-Sys: Local=0, Global=1; Direction: 0=X, 1=Y, 2=Z

***** LOAD CASE - [Live]*****

Member	Coord-Sys	Direction	Value	Distance

Member	Coord-Sys	Direction	Value1	Value2	Distance1	Distance2
1	1	1	0.000	-53.333	0	0.0666667
1	1	1	-53.333	-53.333	0.0666667	0.933333
1	1	1	-53.333	0.000	0.933333	1
2	1	1	0.000	-80.000	0	0.196721
2	1	1	-80.000	-80.000	0.196721	0.803279
2	1	1	-80.000	0.000	0.803279	1
3	1	1	-80.000	0.000	0.983607	1
3	1	1	0.000	-80.000	0	0.196721
3	1	1	-80.000	-80.000	0.196721	0.803279
3	1	1	-80.000	0.000	0.803279	1
3	1	1	0.000	-80.000	0	0.983607
4	1	1	0.000	-53.333	0	0.0666667
4	1	1	-53.333	-53.333	0.0666667	0.933333
4	1	1	-53.333	0.000	0.933333	1
4	1	1	0.000	-80.000	0	0.5
4	1	1	-80.000	0.000	0.5	1
5	1	1	0.000	-80.000	0	0.20339
5	1	1	-80.000	-80.000	0.20339	0.79661
5	1	1	-80.000	0.000	0.79661	1
6	1	1	-40.000	-40.000	0	1
6	1	1	0.000	-80.000	0	0.20339
6	1	1	-80.000	-80.000	0.20339	0.79661
6	1	1	-80.000	0.000	0.79661	1
7	1	1	0.000	-80.000	0	0.5
7	1	1	-80.000	0.000	0.5	1
8	1	1	0.000	-80.000	0	0.5
8	1	1	-80.000	0.000	0.5	1
9	1	1	0.000	-400.000	0	0.5
9	1	1	-400.000	0.000	0.5	1
10	1	1	0.000	-53.333	0	0.5
10	1	1	-53.333	0.000	0.5	1
11	1	1	0.000	-400.000	0	0.5
11	1	1	-400.000	0.000	0.5	1
12	1	1	0.000	-53.333	0	0.5
12	1	1	-53.333	0.000	0.5	1
13	1	1	0.000	-80.000	0	0.5
13	1	1	-80.000	0.000	0.5	1
13	1	1	0.000	-80.000	0	0.5
13	1	1	-80.000	0.000	0.5	1

***** LOAD CASE - [Dead]*****

Member	Coord-Sys	Direction	Value1	Value2	Distance1	Distance2
1	1	1	-20.000	-20.000	0	1
1	1	1	-16.000	-16.000	0.0666667	0.933333
1	1	1	-16.000	0.000	0.933333	1
1	1	1	0.000	-16.000	0	0.0666667
2	1	1	-20.000	-20.000	0	1
2	1	1	-24.000	-24.000	0.196721	0.803279
2	1	1	-24.000	0.000	0.803279	1
2	1	1	0.000	-24.000	0	0.196721
3	1	1	0.000	-24.000	0	0.983607
3	1	1	-24.000	0.000	0.803279	1
3	1	1	-24.000	-24.000	0.196721	0.803279
3	1	1	0.000	-24.000	0	0.196721
3	1	1	-24.000	0.000	0.983607	1
4	1	1	0.000	-16.000	0	0.0666667
4	1	1	-16.000	-16.000	0.0666667	0.933333
4	1	1	-16.000	0.000	0.933333	1
4	1	1	0.000	-24.000	0	0.5
4	1	1	-24.000	0.000	0.5	1
5	1	1	-20.000	-20.000	0	1
5	1	1	0.000	-24.000	0	0.20339
5	1	1	-24.000	-24.000	0.20339	0.79661
5	1	1	-24.000	0.000	0.79661	1
6	1	1	-12.000	-12.000	0	1
6	1	1	0.000	-24.000	0	0.20339
6	1	1	-24.000	-24.000	0.20339	0.79661
6	1	1	-24.000	0.000	0.79661	1
7	1	1	-20.000	-20.000	0	1
7	1	1	0.000	-24.000	0	0.5

7	1	1	-24.000	0.000	0.5	1
8	1	1	-20.000	-20.000	0	1
8	1	1	-24.000	0.000	0.5	1
8	1	1	0.000	-24.000	0	0.5
9	1	1	-20.000	-20.000	0	1
9	1	1	-120.000	0.000	0.5	1
9	1	1	0.000	-120.000	0	0.5
10	1	1	-16.000	0.000	0.5	1
10	1	1	-20.000	-20.000	0	1
10	1	1	0.000	-16.000	0	0.5
11	1	1	-20.000	-20.000	0	1
11	1	1	-120.000	0.000	0.5	1
11	1	1	0.000	-120.000	0	0.5
12	1	1	-16.000	0.000	0.5	1
12	1	1	0.000	-16.000	0	0.5
12	1	1	-20.000	-20.000	0	1
13	1	1	-24.000	0.000	0.5	1
13	1	1	0.000	-24.000	0	0.5
13	1	1	0.000	-24.000	0	0.5
13	1	1	-24.000	0.000	0.5	1

***** LOAD CASE - [Wind]*****

Member	Coord-Sys	Direction	Value1	Value2	Distance1	Distance2
2	1	0	44.900	44.900	0	1
5	1	0	44.900	44.900	0	1

***** LOAD CASE - [Ice]*****

Member	Coord-Sys	Direction	Value1	Value2	Distance1	Distance2
1	1	1	0.000	-40.000	0	0.0666667
1	1	1	-40.000	-40.000	0.0666667	0.933333
1	1	1	-40.000	0.000	0.933333	1
2	1	1	0.000	-60.000	0	0.196721
2	1	1	-60.000	-60.000	0.196721	0.803279
2	1	1	-60.000	0.000	0.803279	1
3	1	1	-60.000	-60.000	0.196721	0.803279
3	1	1	0.000	-60.000	0	0.983607
3	1	1	-60.000	0.000	0.983607	1
3	1	1	-60.000	0.000	0.803279	1
3	1	1	0.000	-60.000	0	0.196721
4	1	1	-60.000	0.000	0.5	1
4	1	1	0.000	-60.000	0	0.5
4	1	1	0.000	-40.000	0	0.0666667
4	1	1	-40.000	-40.000	0.0666667	0.933333
4	1	1	-40.000	0.000	0.933333	1
5	1	1	0.000	-60.000	0	0.20339
5	1	1	-60.000	-60.000	0.20339	0.79661
5	1	1	-60.000	0.000	0.79661	1
6	1	1	-30.000	-30.000	0	1
6	1	1	-60.000	0.000	0.79661	1
6	1	1	0.000	-60.000	0	0.20339
6	1	1	-60.000	-60.000	0.20339	0.79661
7	1	1	0.000	-60.000	0	0.5
7	1	1	-60.000	0.000	0.5	1
8	1	1	-60.000	0.000	0.5	1
8	1	1	0.000	-60.000	0	0.5
9	1	1	0.000	-300.000	0	0.5
9	1	1	-300.000	0.000	0.5	1
10	1	1	-40.000	0.000	0.5	1
10	1	1	0.000	-40.000	0	0.5
11	1	1	0.000	-300.000	0	0.5
11	1	1	-300.000	0.000	0.5	1
12	1	1	0.000	-40.000	0	0.5
12	1	1	-40.000	0.000	0.5	1
13	1	1	-60.000	0.000	0.5	1
13	1	1	0.000	-60.000	0	0.5
13	1	1	0.000	-60.000	0	0.5
13	1	1	-60.000	0.000	0.5	1

Support Reactions

Units: Force Reactions Rx, Ry, Rz [lb]; Moment Reactions Rox, Roy, Roz [lb-ft]

Load Combination 3: AISC14-LRFD LC1

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	7005.573	-0.000	0.000	0.000	0.000
2	-0.000	6295.366	-0.000	0.000	0.000	0.000
3	-0.000	5011.289	-0.000	0.000	0.000	0.000
4	-0.000	6048.929	-0.000	0.000	0.000	0.000

Load Combination 4: AISC14-LRFD LC2a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	7061.031	-0.000	0.000	0.000	0.000
2	-0.000	6456.446	-0.000	0.000	0.000	0.000
3	-0.000	5372.471	-0.000	0.000	0.000	0.000
4	-0.000	6257.712	-0.000	0.000	0.000	0.000

Load Combination 5: AISC14-LRFD LC2b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	6004.777	-0.000	0.000	0.000	0.000
2	-0.000	5396.028	-0.000	0.000	0.000	0.000
3	-0.000	4295.391	-0.000	0.000	0.000	0.000
4	-0.000	5184.797	-0.000	0.000	0.000	0.000

Load Combination 6: AISC14-LRFD LC2c

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	6004.777	-0.000	0.000	0.000	0.000
2	-0.000	5396.028	-0.000	0.000	0.000	0.000
3	-0.000	4295.391	-0.000	0.000	0.000	0.000
4	-0.000	5184.797	-0.000	0.000	0.000	0.000

Load Combination 7: AISC14-LRFD LC3a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	9384.788	-0.000	0.000	0.000	0.000
2	-0.000	8789.365	-0.000	0.000	0.000	0.000
3	-0.000	7742.047	-0.000	0.000	0.000	0.000
4	-0.000	8618.126	-0.000	0.000	0.000	0.000

Load Combination 8: AISC14-LRFD LC3b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	6004.777	-0.000	0.000	0.000	0.000
2	-0.000	5396.028	-0.000	0.000	0.000	0.000
3	-0.000	4295.391	-0.000	0.000	0.000	0.000
4	-0.000	5184.797	-0.000	0.000	0.000	0.000

Load Combination 9: AISC14-LRFD LC3c

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	6004.777	-0.000	0.000	0.000	0.000
2	-0.000	5396.028	-0.000	0.000	0.000	0.000
3	-0.000	4295.391	-0.000	0.000	0.000	0.000
4	-0.000	5184.797	-0.000	0.000	0.000	0.000

Load Combination 10: AISC14-LRFD LC3d

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-665.935	9385.067	-340.164	0.000	0.000	0.000
2	-537.567	8789.079	324.579	0.000	0.000	0.000
3	-522.506	7742.208	301.880	0.000	0.000	0.000
4	-361.093	8617.971	-286.295	0.000	0.000	0.000

Load Combination 11: AISC14-LRFD LC3e

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-665.935	6004.952	-340.164	0.000	0.000	0.000
2	-537.567	5395.850	324.579	0.000	0.000	0.000
3	-522.506	4295.491	301.880	0.000	0.000	0.000
4	-361.093	5184.699	-286.295	0.000	0.000	0.000

Load Combination 12: AISC14-LRFD LC3f

Node	Rx	Ry	Rz	Rox	Roy	Roz

1	-665.935	6004.952	-340.164	0.000	0.000	0.000
2	-537.567	5395.850	324.579	0.000	0.000	0.000
3	-522.506	4295.491	301.880	0.000	0.000	0.000
4	-361.093	5184.699	-286.295	0.000	0.000	0.000

Load Combination 13: AISC14-LRFD LC3g

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	665.930	9384.509	340.157	0.000	0.000	0.000
2	537.572	8789.651	-324.588	0.000	0.000	0.000
3	522.507	7741.885	-301.882	0.000	0.000	0.000
4	361.091	8618.281	286.312	0.000	0.000	0.000

Load Combination 14: AISC14-LRFD LC3h

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	665.930	6004.602	340.157	0.000	0.000	0.000
2	537.572	5396.206	-324.588	0.000	0.000	0.000
3	522.507	4295.290	-301.882	0.000	0.000	0.000
4	361.091	5184.894	286.312	0.000	0.000	0.000

Load Combination 15: AISC14-LRFD LC3i

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	665.930	6004.602	340.157	0.000	0.000	0.000
2	537.572	5396.206	-324.588	0.000	0.000	0.000
3	522.507	4295.290	-301.882	0.000	0.000	0.000
4	361.091	5184.894	286.312	0.000	0.000	0.000

Load Combination 16: AISC14-LRFD LC4a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-1331.874	7061.445	-680.335	0.000	0.000	0.000
2	-1075.129	6456.022	649.148	0.000	0.000	0.000
3	-1045.010	5372.710	603.758	0.000	0.000	0.000
4	-722.187	6257.482	-572.571	0.000	0.000	0.000

Load Combination 17: AISC14-LRFD LC4b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-1331.874	6005.127	-680.335	0.000	0.000	0.000
2	-1075.129	5395.672	649.148	0.000	0.000	0.000
3	-1045.010	4295.592	603.758	0.000	0.000	0.000
4	-722.187	5184.602	-572.571	0.000	0.000	0.000

Load Combination 18: AISC14-LRFD LC4c

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-1331.874	6005.127	-680.335	0.000	0.000	0.000
2	-1075.129	5395.672	649.148	0.000	0.000	0.000
3	-1045.010	4295.592	603.758	0.000	0.000	0.000
4	-722.187	5184.602	-572.571	0.000	0.000	0.000

Load Combination 19: AISC14-LRFD LC4d

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1331.855	7060.616	680.306	0.000	0.000	0.000
2	1075.149	6456.869	-649.184	0.000	0.000	0.000
3	1045.016	5372.232	-603.765	0.000	0.000	0.000
4	722.181	6257.943	572.643	0.000	0.000	0.000

Load Combination 20: AISC14-LRFD LC4e

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1331.855	6004.428	680.306	0.000	0.000	0.000
2	1075.149	5396.384	-649.184	0.000	0.000	0.000
3	1045.016	4295.190	-603.765	0.000	0.000	0.000
4	722.181	5184.991	572.643	0.000	0.000	0.000

Load Combination 21: AISC14-LRFD LC4f

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1331.855	6004.428	680.306	0.000	0.000	0.000
2	1075.149	5396.384	-649.184	0.000	0.000	0.000
3	1045.016	4295.190	-603.765	0.000	0.000	0.000
4	722.181	5184.991	572.643	0.000	0.000	0.000

Load Combination 22: AISC14-LRFD LC5a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	6004.777	-0.000	0.000	0.000	0.000
2	-0.000	5396.028	-0.000	0.000	0.000	0.000
3	-0.000	4295.391	-0.000	0.000	0.000	0.000
4	-0.000	5184.797	-0.000	0.000	0.000	0.000

Load Combination 23: AISC14-LRFD LC5b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	6004.777	-0.000	0.000	0.000	0.000
2	-0.000	5396.028	-0.000	0.000	0.000	0.000
3	-0.000	4295.391	-0.000	0.000	0.000	0.000
4	-0.000	5184.797	-0.000	0.000	0.000	0.000

Load Combination 24: AISC14-LRFD LC6a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-1331.874	4503.845	-680.335	0.000	0.000	0.000
2	-1075.129	4046.754	649.148	0.000	0.000	0.000
3	-1045.010	3221.694	603.758	0.000	0.000	0.000
4	-722.187	3888.451	-572.571	0.000	0.000	0.000

Load Combination 25: AISC14-LRFD LC6b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1331.855	4503.321	680.306	0.000	0.000	0.000
2	1075.149	4047.288	-649.184	0.000	0.000	0.000
3	1045.016	3221.392	-603.765	0.000	0.000	0.000
4	722.181	3888.744	572.643	0.000	0.000	0.000

Load Combination 26: AISC14-LRFD LC7a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	4503.583	-0.000	0.000	0.000	0.000
2	-0.000	4047.021	-0.000	0.000	0.000	0.000
3	-0.000	3221.543	-0.000	0.000	0.000	0.000
4	-0.000	3888.597	-0.000	0.000	0.000	0.000

Load Combination 27: AISC14-LRFD LC7b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	4503.583	-0.000	0.000	0.000	0.000
2	-0.000	4047.021	-0.000	0.000	0.000	0.000
3	-0.000	3221.543	-0.000	0.000	0.000	0.000
4	-0.000	3888.597	-0.000	0.000	0.000	0.000

Load Combination 28: AISC14-ASD LC1

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 29: AISC14-ASD LC2

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 30: AISC14-ASD LC3a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	7116.488	-0.000	0.000	0.000	0.000
2	-0.000	6617.526	-0.000	0.000	0.000	0.000
3	-0.000	5733.652	-0.000	0.000	0.000	0.000
4	-0.000	6466.495	-0.000	0.000	0.000	0.000

Load Combination 31: AISC14-ASD LC3b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000

4	-0.000	4320.664	-0.000	0.000	0.000	0.000
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Load Combination 32: AISC14-ASD LC3c

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 33: AISC14-ASD LC4a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	6588.361	-0.000	0.000	0.000	0.000
2	-0.000	6087.317	-0.000	0.000	0.000	0.000
3	-0.000	5195.112	-0.000	0.000	0.000	0.000
4	-0.000	5930.037	-0.000	0.000	0.000	0.000

Load Combination 34: AISC14-ASD LC4b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 35: AISC14-ASD LC4c

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 36: AISC14-ASD LC5a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-799.119	5003.981	-408.192	0.000	0.000	0.000
2	-645.083	4496.690	389.500	0.000	0.000	0.000
3	-627.008	3579.492	362.257	0.000	0.000	0.000
4	-433.310	4320.664	-343.564	0.000	0.000	0.000

Load Combination 37: AISC14-ASD LC5b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	799.119	5003.981	408.192	0.000	0.000	0.000
2	645.083	4496.690	-389.500	0.000	0.000	0.000
3	627.008	3579.492	-362.257	0.000	0.000	0.000
4	433.310	4320.664	343.564	0.000	0.000	0.000

Load Combination 38: AISC14-ASD LC5c

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 39: AISC14-ASD LC5d

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 40: AISC14-ASD LC6a(i)

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-599.339	6588.361	-306.144	0.000	0.000	0.000
2	-483.812	6087.317	292.125	0.000	0.000	0.000
3	-470.256	5195.112	271.693	0.000	0.000	0.000
4	-324.983	5930.037	-257.673	0.000	0.000	0.000

Load Combination 41: AISC14-ASD LC6a(ii)

Node	Rx	Ry	Rz	Rox	Roy	Roz

1	-599.339	5003.981	-306.144	0.000	0.000	0.000
2	-483.812	4496.690	292.125	0.000	0.000	0.000
3	-470.256	3579.492	271.693	0.000	0.000	0.000
4	-324.983	4320.664	-257.673	0.000	0.000	0.000

Load Combination 42: AISC14-ASD LC6a(iii)

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-599.339	5003.981	-306.144	0.000	0.000	0.000
2	-483.812	4496.690	292.125	0.000	0.000	0.000
3	-470.256	3579.492	271.693	0.000	0.000	0.000
4	-324.983	4320.664	-257.673	0.000	0.000	0.000

Load Combination 43: AISC14-ASD LC6a(iv)

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	599.339	6588.361	306.144	0.000	0.000	0.000
2	483.812	6087.317	-292.125	0.000	0.000	0.000
3	470.256	5195.112	-271.693	0.000	0.000	0.000
4	324.983	5930.037	257.673	0.000	0.000	0.000

Load Combination 44: AISC14-ASD LC6a(v)

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	599.339	5003.981	306.144	0.000	0.000	0.000
2	483.812	4496.690	-292.125	0.000	0.000	0.000
3	470.256	3579.492	-271.693	0.000	0.000	0.000
4	324.983	4320.664	257.673	0.000	0.000	0.000

Load Combination 45: AISC14-ASD LC6a(vi)

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	599.339	5003.981	306.144	0.000	0.000	0.000
2	483.812	4496.690	-292.125	0.000	0.000	0.000
3	470.256	3579.492	-271.693	0.000	0.000	0.000
4	324.983	4320.664	257.673	0.000	0.000	0.000

Load Combination 46: AISC14-ASD LC6b(i)

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 47: AISC14-ASD LC6b(ii)

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	5003.981	-0.000	0.000	0.000	0.000
2	-0.000	4496.690	-0.000	0.000	0.000	0.000
3	-0.000	3579.492	-0.000	0.000	0.000	0.000
4	-0.000	4320.664	-0.000	0.000	0.000	0.000

Load Combination 48: AISC14-ASD LC7a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-799.119	3002.389	-408.192	0.000	0.000	0.000
2	-645.083	2698.014	389.500	0.000	0.000	0.000
3	-627.008	2147.695	362.257	0.000	0.000	0.000
4	-433.310	2592.398	-343.564	0.000	0.000	0.000

Load Combination 49: AISC14-ASD LC7b

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	799.119	3002.389	408.192	0.000	0.000	0.000
2	645.083	2698.014	-389.500	0.000	0.000	0.000
3	627.008	2147.695	-362.257	0.000	0.000	0.000
4	433.310	2592.398	343.564	0.000	0.000	0.000

Load Combination 50: AISC14-ASD LC8a

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	-0.000	3002.389	-0.000	0.000	0.000	0.000
2	-0.000	2698.014	-0.000	0.000	0.000	0.000
3	-0.000	2147.695	-0.000	0.000	0.000	0.000
4	-0.000	2592.398	-0.000	0.000	0.000	0.000

Load Combination 51: AISC14-ASD LC8b

Node	Rx	Ry	Rz	Rox	RoY	Roz
1	-0.000	3002.389	-0.000	0.000	0.000	0.000
2	-0.000	2698.014	-0.000	0.000	0.000	0.000
3	-0.000	2147.695	-0.000	0.000	0.000	0.000
4	-0.000	2592.398	-0.000	0.000	0.000	0.000

⚠ This is a beta release of the new ATC Hazards by Location website. Please [contact us](#) with feedback.

ℹ The ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

ATC Hazards by Location

Search Information

Address: 23 Stonybrook Rd, Stratford, CT 06614, USA
Coordinates: 41.2037169, -73.1486647
Elevation: 79 ft
Timestamp: 2023-09-03T14:31:16.628Z
Hazard Type: Wind



ASCE 7-16

MRI 10-Year 75 mph
 MRI 25-Year 84 mph
 MRI 50-Year 90 mph
 MRI 100-Year 97 mph
 Risk Category I 109 mph
 Risk Category II 119 mph
 Risk Category III 129 mph
 Risk Category IV ⚠ 133 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

ASCE 7-10

MRI 10-Year 77 mph
 MRI 25-Year 86 mph
 MRI 50-Year 94 mph
 MRI 100-Year 100 mph
 Risk Category I 113 mph
 Risk Category II 123 mph
 Risk Category III-IV ⚠ 133 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

ASCE 7-05

ASCE 7-05 Wind Speed ⚠ 112 mph
 You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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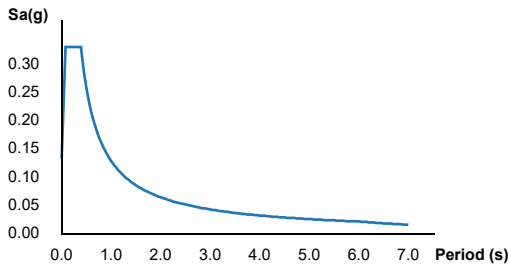
ATC Hazards by Location

Search Information

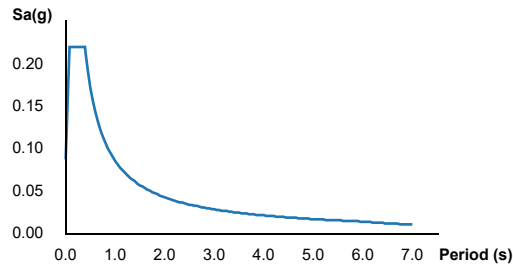
Address: 23 Stonybrook Rd, Stratford, CT 06614, USA
Coordinates: 41.2037169, -73.1486647
Elevation: 79 ft
Timestamp: 2023-09-03T14:31:55.375Z
Hazard Type: Seismic
Reference Document: ASCE7-16
Risk Category: II
Site Class: D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	0.207	MCE_R ground motion (period=0.2s)
S_1	0.054	MCE_R ground motion (period=1.0s)
S_{MS}	0.332	Site-modified spectral acceleration value
S_{M1}	0.129	Site-modified spectral acceleration value
S_{DS}	0.221	Numeric seismic design value at 0.2s SA
S_{D1}	0.086	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	B	Seismic design category
F_a	1.6	Site amplification factor at 0.2s
F_v	2.4	Site amplification factor at 1.0s
CR_S	0.939	Coefficient of risk (0.2s)
CR_1	0.929	Coefficient of risk (1.0s)
PGA	0.118	MCE_G peak ground acceleration
F_{PGA}	1.565	Site amplification factor at PGA
PGA_M	0.184	Site modified peak ground acceleration
T_L	6	Long-period transition period (s)
$SsRT$	0.207	Probabilistic risk-targeted ground motion (0.2s)
$SsUH$	0.221	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
$S1RT$	0.054	Probabilistic risk-targeted ground motion (1.0s)
$S1UH$	0.058	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)

S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

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Hazard loads are provided by the U.S. Geological Survey [Seismic Design Web Services](#).

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ATC Hazards by Location

Search Information

Address: 23 Stonybrook Rd, Stratford, CT 06614, USA
Coordinates: 41.2037169, -73.1486647
Elevation: 79 ft
Timestamp: 2023-09-03T14:33:30.062Z
Hazard Type: Snow



ASCE 7-16

Ground Snow Load ----- 30 lb/sqft

ASCE 7-10

Ground Snow Load ----- 30 lb/sqft

ASCE 7-05

Ground Snow Load ----- 30 lb/sqft

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Protector™ Series

Diesel Generator Set

INCLUDES:

- Two Line LCD Multilingual Digital Evolution™ Controller (English/Spanish/French/Portuguese) with external viewing window for easy indication of generator status and breaker position.
- Isochronous Electronic Governor
- Sound Attenuated Aluminum Enclosure
- Smart Battery Charger
- UV/Ozone Resistant Hoses
- ±1% Voltage Regulation
- Integrated Base Tank Provides Up to 40 Hours of Run Time
- 5 Year Limited Warranty*
- UL 2200 / UL142 / ULC S601 Listed
- Meets code requirements for External Vent and Fill

Standby Power Rating

- Model RD015 - 15 kW 60 Hz
- Model RD020 - 20 kW 60 Hz
- Model RD030 - 30 kW 60 Hz
- Model RD048 - 48 kW 60 Hz (single phase only)
- Model RD050 - 50 kW 60 Hz (three phase only)



*Built in the USA using domestic and foreign parts

Meets EPA Emission Regulations
CA/MA Emissions Compliant

* 5 year warranty applicable to U.S. and Territories/Canada. International warranty is 3 year limited.

FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.
- **TEST CRITERIA:**
 - ✓ PROTOTYPE TESTED
 - ✓ SYSTEM TORSIONAL TESTED
 - ✓ NEMA MG1-22 EVALUATION
 - ✓ MOTOR STARTING ABILITY
- **SOLID-STATE, FREQUENCY COMPENSATED VOLTAGE REGULATION.** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine. Digital voltage regulation at ±1%.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's extensive dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component.
- **GENERAC TRANSFER SWITCHES.** Long life and reliability are synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems and controls for total system compatibility.

15 • 20 • 30 • 48 • 50 kW**application & engineering data****GENERATOR SPECIFICATIONS**

Type	Synchronous
Rotor Insulation Class	H (15 & 20 kW) or F (30, 48 & 50 kW)
Stator Insulation Class	H
Telephone Interference Factor (TIF)	<50
Alternator Output Leads 1-Phase	3 wire
Alternator Output Leads 3-Phase	6 wire
Bearings	Single Sealed Cartridge
Coupling	Direct, Flexible Disc
Excitation System	Direct

VOLTAGE REGULATION

Type	Electronic
Sensing	Single Phase
Regulation	± 1%
Features	Adjustable Voltage & Gain

GOVERNOR SPECIFICATIONS

Type	Electronic Isochronous
Steady State Regulation	± 0.25%

ELECTRICAL SYSTEM

Battery Charge Alternator	50 Amp (15 & 20 kW) or 70 Amp (30, 48 & 50 kW)
Smart Battery Charger	2 Amp
Recommended Battery (battery not included)	Group 27F, 700 CCA
System Voltage	12 Volts

GENERATOR FEATURES

<p>Revolving field heavy duty generator Directly connected to the engine Operating temperature rise 120°C above a 40°C ambient Class H insulation is NEMA rated Class F insulation is NEMA rated All models fully prototype tested</p>

ENCLOSURE FEATURES

Aluminum weather protective enclosure	Ensures protection against mother nature. Electrostatically applied textured epoxy paint for added durability.
Enclosed critical grade muffler	Quiet, critical grade muffler is mounted inside the unit to prevent injuries and maximize sound dampening.
Small, compact, attractive	Makes for an easy, eye appealing installation.
SAE	Sound attenuated enclosure ensures quiet operation.

(All ratings in accordance with BS5514, ISO3046, ISO8528, SAE J1349 and DIN6271)

15 • 20 • 30 • 48 • 50 kW

application & engineering data

ENGINE SPECIFICATIONS: 15 & 20 kW

Make	Generac
Model	In-line
Cylinders	4
Displacement (Liters)	2.28
Bore (in./mm)	3.46/88
Stroke (in./mm)	3.70/94
Compression Ratio	21.3:1
Intake Air System	Naturally Aspirated
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum
EPA Emissions Compliance	Emergency Stationary

ENGINE SPECIFICATIONS: 30 kW

Make	Generac
Model	In-line
Cylinders	4
Displacement (Liters)	2.4
Bore (in./mm)	3.54/90
Stroke (in./mm)	3.70/94
Compression Ratio	21.3:1
Intake Air System	Turbocharged
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum
EPA Emissions Compliance	Emergency Stationary

ENGINE SPECIFICATIONS: 48/50 kW

Make	Generac
Model	In-Line
Cylinders	4
Displacement (Liters)	3.4
Bore in/mm	3.86/98
Stroke in/mm	4.45/113
Compression Ratio	18.5:1
Intake Air System	Turbocharged/Aftercooled
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum
EPA Emissions Compliance	Emergency Stationary

WEIGHTS AND DIMENSIONS

	15 kW	20 kW	30 kW	48 kW	50 kW
Weight (lb/kg)	1380/626		1927/874	2197/997	
Dimensions (LxWxH) (in/cm)	81 x 31 x 50/205 x 78 x 128		95 x 35 x 57/242 x 89 x 145		

ENGINE LUBRICATION SYSTEM

Oil Pump Type	Gear
Oil Filter Type	Full flow spin-on canister
Crankcase Capacity (quarts/liters)	6.87/6.5 - 15 & 20 kW
	6.8/6.4 - 30 kW
	7.4/7 - 48 & 50 kW

ENGINE COOLING SYSTEM

Type	Pressurized radiator - 15 & 20 kW Closed recovery - 30, 48 & 50 kW
Water Pump	Pre-lubed, self-sealing
Fan Speed (rpm)	1800 - 15 & 20 kW
	2061 - 30 kW
	2029 - 48 & 50 kW
Fan Diameter (in./mm)	18.11/460 (15 & 20 kW) 22/559 (30, 48 & 50 kW)
Fan Mode	Pusher

FUEL SYSTEM

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Pump Type	Mechanical Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line (mm/in)	7.94/0.31 (ID)
Fuel Return Line (mm/in)	7.94/0.31 (ID)
Fuel Specification	ASTM
Fuel Filtering (microns)	5 - 15, 20 & 30 kW
	10 - 48 & 50 kW

TANK SPECIFICATIONS

Total Size (gallons/liters)	34/128.7 - 15 & 20 kW
	62/234.7 - 30, 48 & 50 kW
Usable Size (gallons/liters)	32/121.1 - 15 & 20 kW
	57/215.8 - 30, 48 & 50 kW
Run Time @ 1/2 Load (hrs)	41 - 15 kW
	31 - 20 kW
	38 - 30 kW
	25 - 48 & 50 kW
Listings	UL142
	ULC-S601

15 • 20 • 30 • 48 • 50 kW

operating data

GENERATOR OUTPUT VOLTAGE/kW - 60 Hz

		kW (Standby)	Amp (Standby)	CB Size
RD015	120/240 V, 1Ø, 1.0 pf	15	62	70
	120/208 V, 3Ø, 0.8 pf	15	52	60
	120/240 V, 3Ø, 0.8 pf	15	45	50
RD020	120/240 V, 1Ø, 1.0 pf	20	83	100
	120/208 V, 3Ø, 0.8 pf	20	69	80
	120/240 V, 3Ø, 0.8 pf	20	60	70
RD030	120/240 V, 1Ø, 1.0 pf	30	125	150
	120/208 V, 3Ø, 0.8 pf	30	104	125
	120/240 V, 3Ø, 0.8 pf	30	90	100
	277/480 V, 3Ø, 0.8 pf	30	45	50
RD048/ RD050	120/240 V, 1Ø, 1.0 pf	48	200	200
	120/208 V, 3Ø, 0.8 pf	50	173	200
	120/240 V, 3Ø, 0.8 pf	50	150	175
	277/480 V, 3Ø, 0.8 pf	50	75	90

SURGE CAPACITY IN AMPS

		Voltage Dip @ < .4 pf	
		15%	30%
RD015	120/240 V, 1Ø	53	129
	120/208 V, 3Ø	37	90
	120/240 V, 3Ø	32	78
RD020	120/240 V, 1Ø	87	211
	120/208 V, 3Ø	59	143
	120/240 V, 3Ø	51	124
RD030	120/240 V, 1Ø	66	168
	120/208 V, 3Ø	59	144
	120/240 V, 3Ø	51	125
	277/480 V, 3Ø	26	64
RD048/ RD050	120/240 V, 1Ø	69	189
	120/208 V, 3Ø	90	218
	120/240 V, 3Ø	78	189
	277/480 V, 3Ø	36	87

ENGINE FUEL CONSUMPTION

		gal/hr	L/hr
RD015	25% of rated load	0.51	1.93
	50% of rated load	0.79	2.99
	75% of rated load	1.14	4.31
	100% of rated load	1.48	5.58
RD020	25% of rated load	0.67	2.6
	50% of rated load	1.05	3.97
	75% of rated load	1.52	5.32
	100% of rated load	1.98	7.48
RD030	25% of rated load	0.92	3.5
	50% of rated load	1.45	5.5
	75% of rated load	1.96	7.4
	100% of rated load	2.74	10.4
RD048/ RD050	25% of rated load	1.35	5.11
	50% of rated load	2.15	8.14
	75% of rated load	3.06	11.58
	100% of rated load	3.98	15.07

STANDBY RATING: Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046-1. Design and specifications are subject to change without notice.

15 • 20 • 30 • 48 • 50 kW

operating data

ENGINE COOLING

	15 kW	20 kW	30 kW	48/50 kW
Air flow (inlet air including alternator and combustion air in cfm/cmm)	2824/80	2824/80	3038/86	2824/80
System coolant capacity (gal/liters)	2.8/10.6	2.8/10.6	2.8/10.6	2.8/10.6
Heat rejection to coolant (BTU per hr/MJ per hr)	63,535/67	63,535/67	111,000/117.1	135,900/143.4
Maximum operation air temperature on radiator (°C/°F)	50/122			
Maximum ambient temperature (°C/°F)	50/122			

COMBUSTION REQUIREMENTS

Flow at rated power (cfm/cmm)	84.76/2.4	84.76/2.4	90/2.55	190/5.38
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SOUND EMISSIONS

Sound output in dB(A) at 23 ft (7 m) with generator in exercise mode*	65
Sound output in dB(A) at 23 ft (7 m) with generator operating at normal load*	70

*Sound levels are taken from the front of the generator. Sound levels taken from other sides of the generator may be higher depending on installation parameters.

EXHAUST

Exhaust flow at rated output (cfm/cmm)	98.88/2.8	98.88/2.8	230/6.51	448/12.7
Exhaust temperature at rated output (°C/°F)	604.4/1120	604.4/1120	454.4/850	604.4/1120

ENGINE PARAMETERS

Rated Synchronous RPM	1800			
HP at rated kW	26.4	33.5	49	85

POWER ADJUSTMENT FOR AMBIENT CONDITIONS

Temperature Deration	3% for every 5 °C above 25 °C or 1.7% for every 5 °F above 77 °F
Altitude Deration (15, 30, 48 & 50 kW)	1% for every 100 m above 915 m or 3% for every 1000 ft above 3000 ft
Altitude Deration (20 kW)	1% for every 100 m above 305 m or 3% for every 1000 ft above 1000 ft

CONTROLLER FEATURES

2-Line Plain Text Multilingual LCD Display	Simple user interface for ease of operation.
Mode Buttons: Auto	Automatic Start on Utility failure. Programmable 7 day exerciser.
Manual	Start with starter control, unit stays on. If utility fails, transfer to load takes place.
Off	Stops unit. Power is removed. Control and charger still operate.
Ready to Run/Maintenance Messages	Standard
Engine Run Hours Indication	Standard
Programmable start delay between 2-1500 seconds	Standard (programmable by dealer only)
Utility Voltage Loss/Return to Utility Adjustable	From 140-171 V/190-216 V
Future Set Capable Exerciser/Exercise Set Error Warning	Standard
Run/Alarm/Maintenance Logs	50 Events Each
Engine Start Sequence	Cyclic cranking: 16 sec on, 7 rest (90 sec maximum duration).
Starter Lock-out	Starter cannot re-engage until 5 sec after engine has stopped.
Smart Battery Charger	Standard
Charger Fault/Missing AC Warning	Standard
Low Battery/Battery Problem Protection and Battery Condition Indication	Standard
Automatic Voltage Regulation with Over and Under Voltage Protection	Standard
Under-Frequency/Overload/Stepper Overcurrent Protection	Standard
Safety Fused/Fuse Problem Protection	Standard
Automatic Low Oil Pressure/High Oil Temperature Shutdown	Standard
Overcrank/Overspeed (@ 72 Hz)/RPM Sense Loss Shutdown	Standard
High Engine Temperature Shutdown	Standard
Internal Fault/Incorrect Wiring Protection	Standard
Common External Fault Capability	Standard
Field Upgradable Firmware	Standard

15 & 20 kW

Drawing #0K7025-C (1 of 2)

- NOTES:**
- MINIMUM RECOMMENDED CONCRETE PAD SIZE: 1082 (457) WIDE X .2865 (837) LONG. REFERENCE INSTALLATION GUIDE SUPPLIED WITH UNIT FOR CONCRETE PAD GUIDELINES.
 - ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICING. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT ELECTRICAL AND MECHANICAL CODES, LOCAL AND STATE CODES, NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE, AND LOCAL CODES.
 - CONTROL PANEL / CIRCUIT BREAKER INFORMATION:
 - SEE SPECIFICATION SHEET OR OWNERS MANUAL FOR CIRCUIT BREAKER INFORMATION.
 - REMOVE REAR STUB-UP AND REAR ENCLOSURE COVER PANEL TO ACCESS THE STUBUP AREAS AS FOLLOWS:
 - HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, AND BATTERY CHARGER 120 VOLT AC (0.5 AMP MAX) CONNECTION.
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SERVICE ITEM	23L
OIL FILL CAP	RIGHT SIDE
OIL DIP STICK	RIGHT SIDE
OIL FILTER	RIGHT SIDE
OIL DRAIN HOSE	RIGHT SIDE
RADIATOR DRAIN HOSE	LEFT SIDE
COOLANT RECOVERY BOTTLE	LEFT SIDE
RADIATOR FILL CAP ACCESS	ROOF TOP
AIR CLEANER ELEMENT	EITHER SIDE
MUFFLER	FRONT
FAN BELT	EITHER SIDE
BATTERY	LEFT SIDE

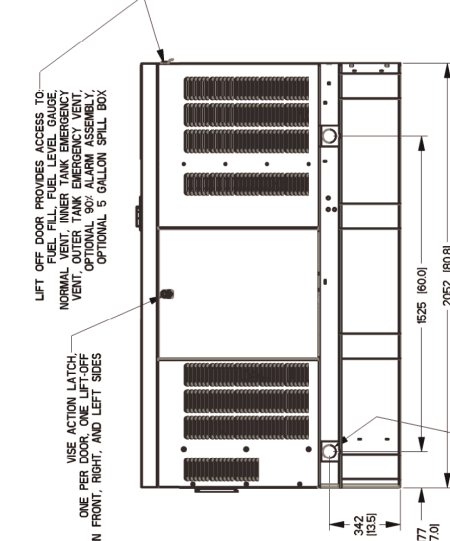
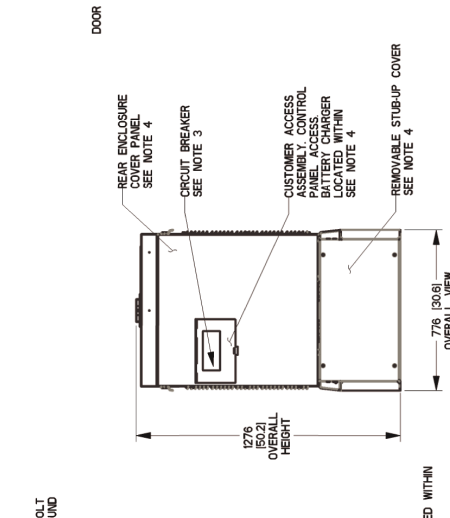
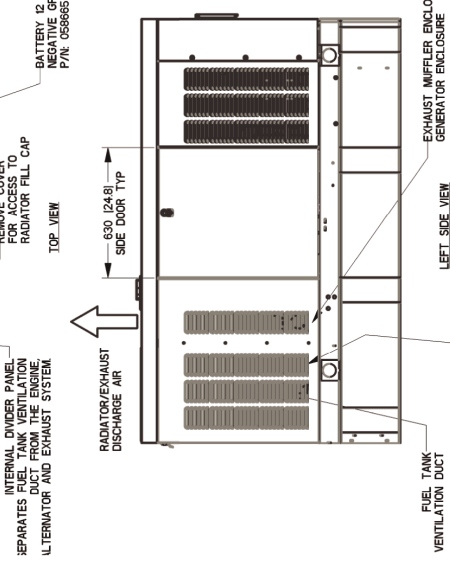
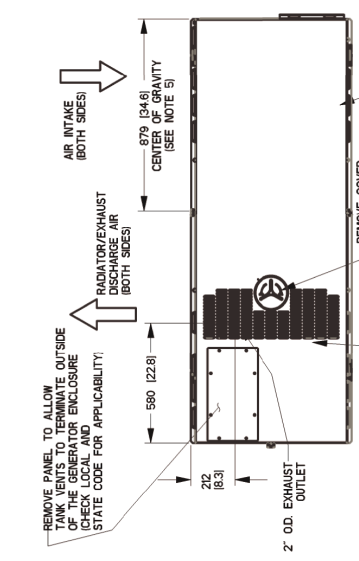
WEIGHT DATA WITH EMPTY BASETANK (SEE NOTE 5)

GENERATOR AS SHOWN	626 (1580)
WITH WOODEN SHIPPING SKID	666 (1685)

WEIGHT: KG (LBS)

DIMENSIONS: MM (INCH)

REFERENCE OWNERS MANUAL FOR PERIODIC REPLACEMENT PART LISTINGS.



REMOVE PANEL TO ALLOW ACCESS TO THE OUTSIDE OF THE GENERATOR ENCLOSURE (CHECK LOCAL AND STATE CODE FOR APPLICABILITY)

REMOVE COVER FOR ACCESS TO RADIATOR FILL CAP

BATTERY 12 VOLT LEAD ACID (SEE NOTE 5) P/N: US6665

INTERNAL DIVIDER PANEL SEPARATES FUEL TANK VENTILATION FROM EXHAUST SYSTEM

2' O.D. EXHAUST OUTLET

76 (3.0)

580 (22.8)

676 (26.6) CENTER OF GRAVITY (SEE NOTE 5)

AIR INTAKE (BOTH SIDES)

RADIATOR/EXHAUST DISCHARGE AIR (BOTH SIDES)

EXHAUST MUFFLER ENCLOSED WITHIN GENERATOR ENCLOSURE

630 (24.8) SIDE DOOR TYP

630 (24.8)

776 (30.6) OVERALL HEIGHT

REAR VIEW

776 (30.6) OVERALL WIDTH

FUEL TANK VENTILATION DUCT

OPEN PUNCHED LOUVERS TYPICAL ON BOTH SIDES OF FUEL TANK VENTILATION DUCT TO PROVIDE ADEQUATE CROSS-FLOW OF AIR VENTILATION

REAR ENCLOSURE COVER PANEL SEE NOTE 4

CIRCUIT BREAKER SEE NOTE 3

CUSTOMER ACCESS PANEL ACCESS BATTERY CHARGER LOCATION WITHIN SEE NOTE 4

REMOVABLE STUB-UP COVER SEE NOTE 4

DOOR ON FRONT, RIGHT, AND LEFT SIDES

LIFT OFF DOOR PROVIDES ACCESS TO REAR ENCLOSURE COVER PANEL SEE NOTE 4

NORMAL VENT, INNER TANK EMERGENCY VENT, OUTER TANK EMERGENCY VENT, OPTIONAL 90° ALARM ASSEMBLY, OPTIONAL 5 GALLON SPILL BOX

342 (13.5)

177 (7.0)

1525 (60.1)

2052 (80.8) OVERALL LENGTH

SEE NOTE 5, 8 AND CENTER OF GRAVITY DIMENSIONS

RIGHT SIDE VIEW

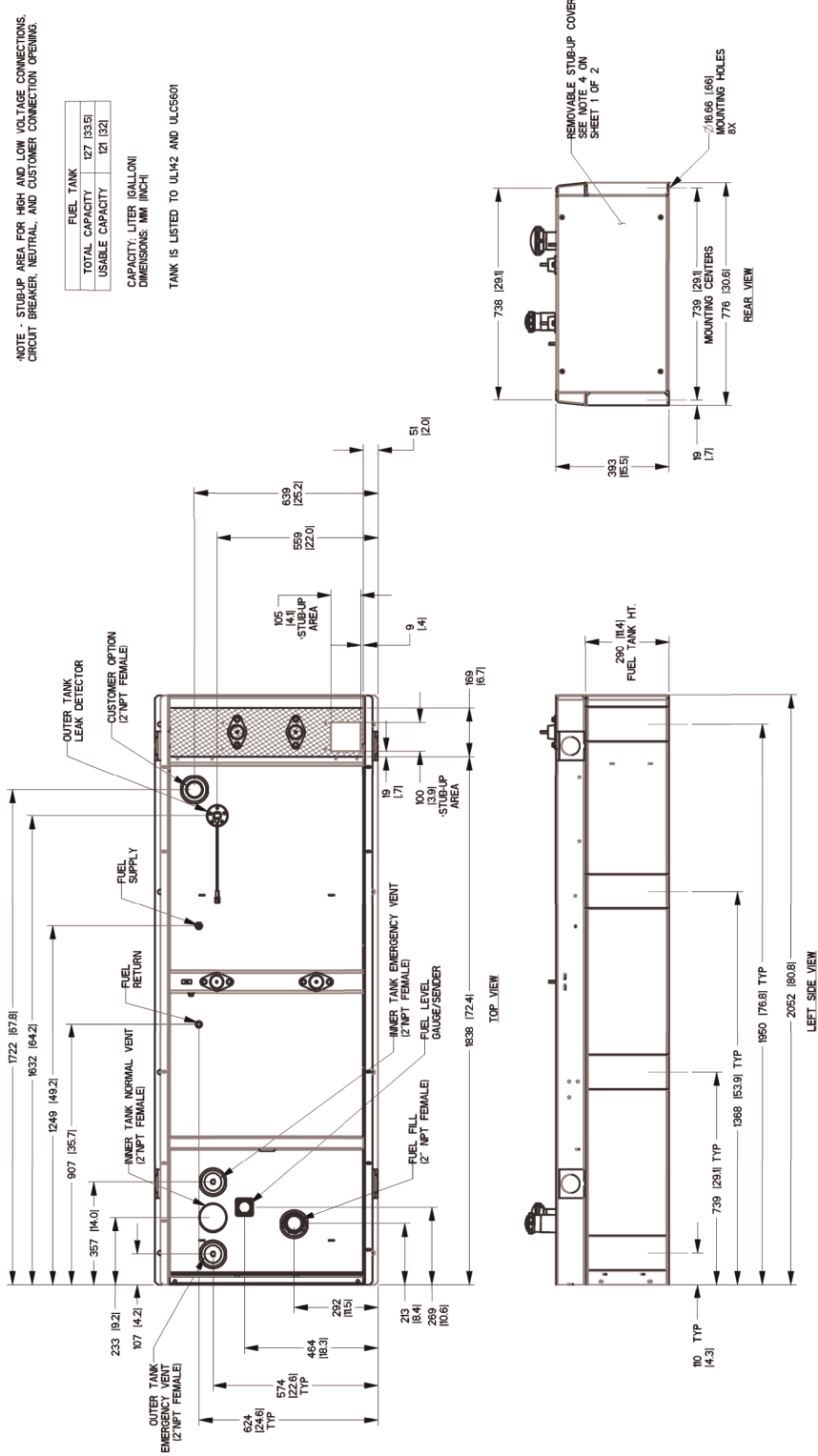
15 & 20 kW

NOTE - STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL, AND CUSTOMER CONNECTION OPENING.

FUEL TANK	
TOTAL CAPACITY	127 [33.5]
USABLE CAPACITY	121 [32]

CAPACITY: LITER (GALLON)
DIMENSIONS: MM (INCH)

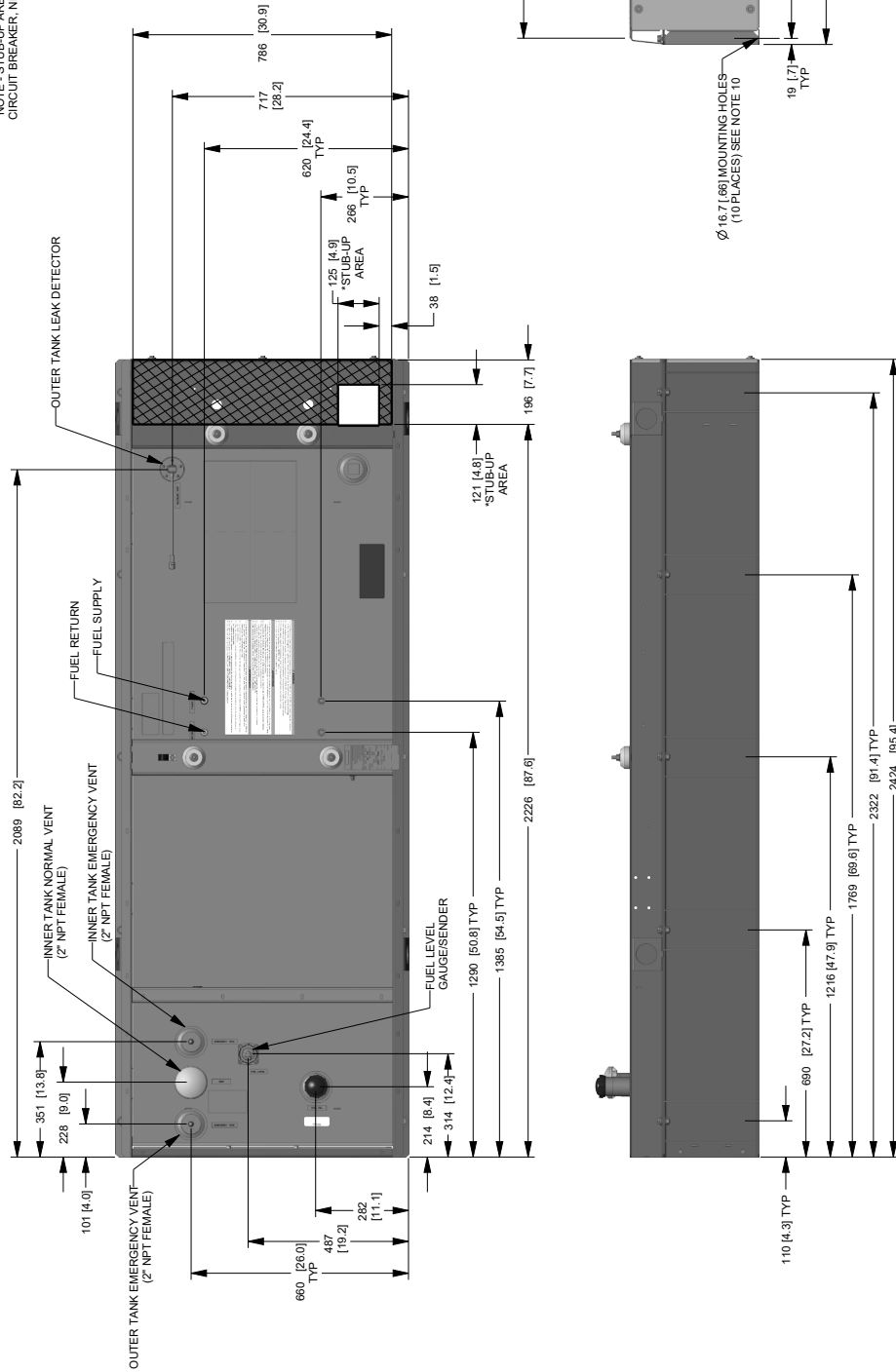
TANK IS LISTED TO UL142 AND ULCS601



30 kW

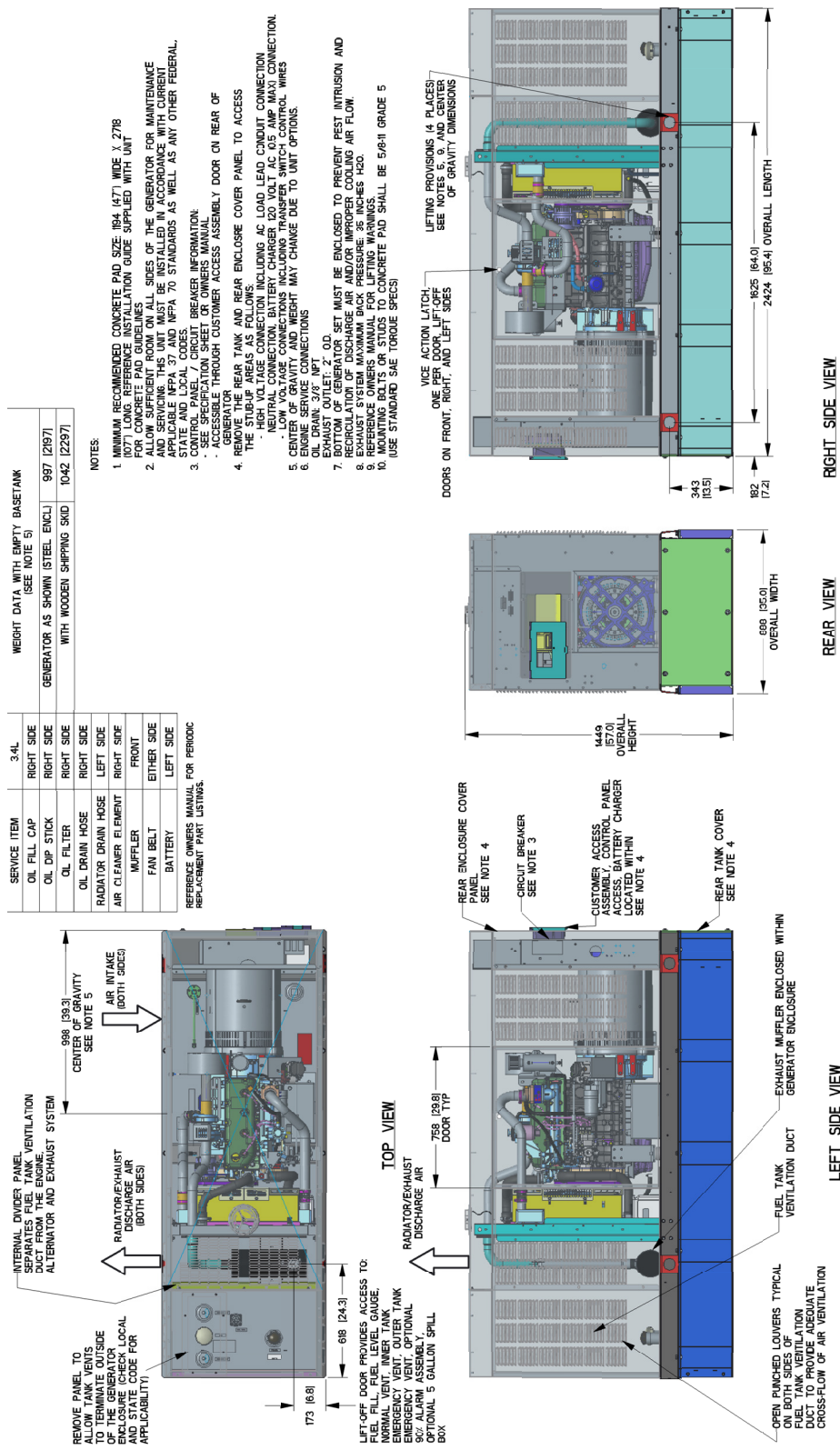
*NOTE - STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.

FUEL TANK	
TOTAL CAPACITY	233 [6.1]
USABLE CAPACITY	203 [5.5]
CAPACITY, LITER (GALLON)	
DIMENSIONS: MM (INCH)	
TANK IS LISTED TO UL142 AND ULCORD C142.18	



48 & 50 kW

Drawing #0K6968-C (1 of 2)



SERVICE ITEM	34L	WEIGHT DATA WITH EMPTY BASETANK (SEE NOTE 5)
OIL FILL CAP	RIGHT SIDE	GENERATOR AS SHOWN (STEEL ENCL) 997 (219.7)
OIL DIP STICK	RIGHT SIDE	WITH WOODEN SHIPPING SKID 1042 (229.7)
OIL FILTER	RIGHT SIDE	
OIL DRAIN HOSE	RIGHT SIDE	
RADIATOR DRAIN HOSE	LEFT SIDE	
AIR CLEANER ELEMENT	RIGHT SIDE	
MUFFLER	FRONT	
FAN BELT	ETHER SIDE	
BATTERY	LEFT SIDE	

NOTES:

- MINIMUM RECOMMENDED CONCRETE PAD SIZE: 184 (6.7) WIDE X 278 (10.9) DEEP. SEE CONCRETE FOUNDATION GUIDE SUPPLIED WITH UNIT FOR CONCRETE PAD GUIDELINES.
- ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICING. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT STATE AND LOCAL CODES AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE AND LOCAL CODES.
- CONTROL PANEL / CIRCUIT BREAKER INFORMATION:
 - SEE SPECIFICATION SHEET OR OWNERS MANUAL
 - ACCESS THROUGH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF ENCLOSURE
- REMOVE THE REAR TANK AND REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB-UP AREAS AS FOLLOWS:
 - HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CIRCUIT CONNECTION (SEE SPECIFICATION SHEET OR OWNERS MANUAL FOR CONNECTION)
 - LOW VOLTAGE CONNECTIONS INCLUDING TRANSFER SWITCH CONTROL WIRES
- ENGINE SERVICE CONNECTIONS
- EXHAUST OUTLET: 2" OD
- BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT INTRUSION AND REDUCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
- SEE OWNERS MANUAL FOR DISCHARGE AIR REQUIREMENTS AND SPECIFICATIONS.
- REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
- MOUNTING BOLTS OR STUDS TO CONCRETE PAD SHALL BE 5/8" I GRADE 5 (USE STANDARD SAE TORQUE SPECS)

REFERENCE OWNERS MANUAL FOR PERIODIC MAINTENANCE PART LISTING.

SERVICE ITEM	34L	WEIGHT DATA WITH EMPTY BASETANK (SEE NOTE 5)
OIL FILL CAP	RIGHT SIDE	GENERATOR AS SHOWN (STEEL ENCL) 997 (219.7)
OIL DIP STICK	RIGHT SIDE	WITH WOODEN SHIPPING SKID 1042 (229.7)
OIL FILTER	RIGHT SIDE	
OIL DRAIN HOSE	RIGHT SIDE	
RADIATOR DRAIN HOSE	LEFT SIDE	
AIR CLEANER ELEMENT	RIGHT SIDE	
MUFFLER	FRONT	
FAN BELT	ETHER SIDE	
BATTERY	LEFT SIDE	

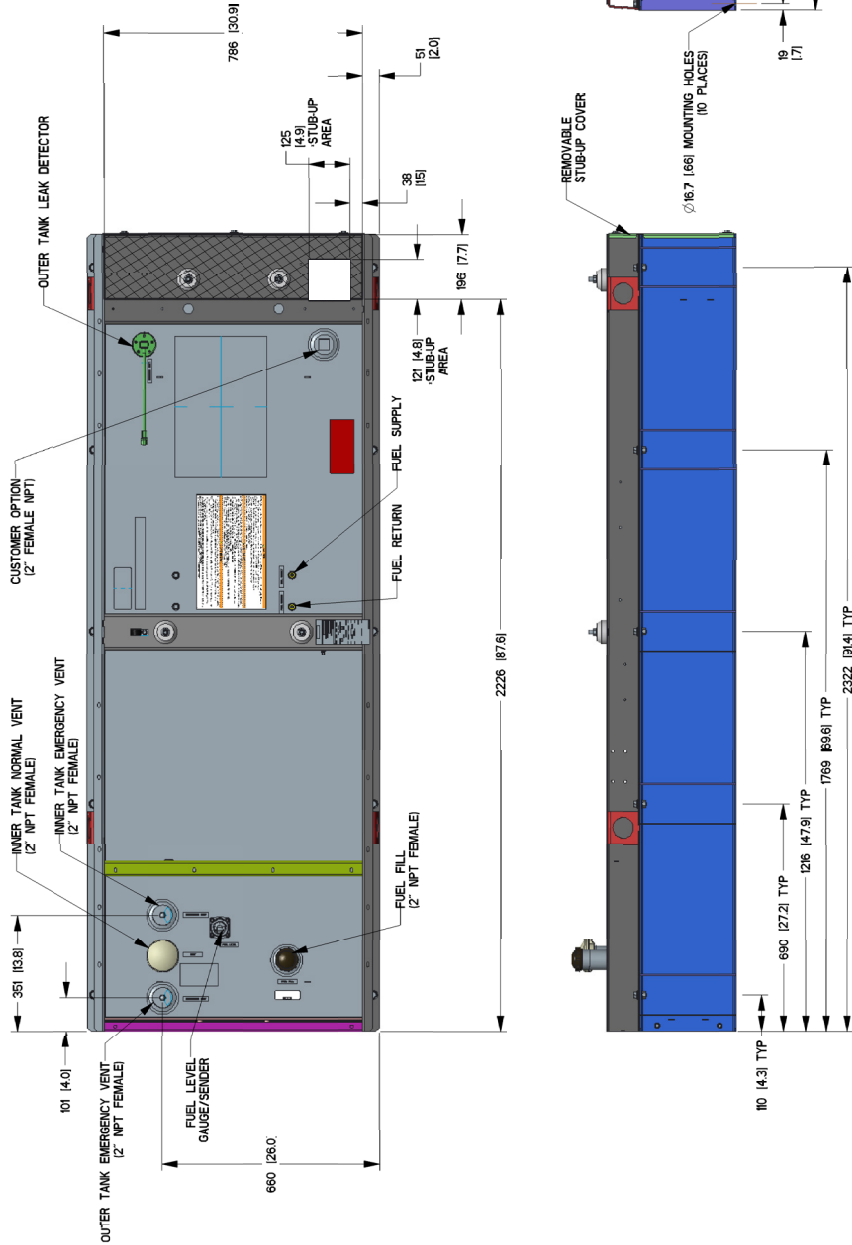
48 & 50 kW

installation layout

Drawing #0K6968-A (2 of 2)

FUEL TANK	
TOTAL CAPACITY	233 [61]
USABLE CAPACITY	209 [55]
CAPACITY: LITER (GALLONS)	
DIMENSIONS: MM (INCH)	
THIS TANK IS LISTED TO UL142 AND ULCS907	

NOTE - STUBUP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.



15 • 20 • 30 • 48 • 50 kW**available accessories**

Model #	Product	Description
G006463-4	Mobile Link™	Generac's Mobile Link allows you to check the status of your generator from anywhere that you have access to an Internet connection from a PC or with any smart device. You will even be notified when a change in the generator's status occurs via e-mail or text message. Note: Harness Adapter Kit required. Available in the U.S. only.
G006478-0	Harness Adapter Kit	The Harness Adapter Kit is required to make liquid-cooled units compatible with Mobile Link™.
G006502-0	Spill Box	The 5-gallon spill box screws into the existing fuel fill port of the base tank. It captures and contains fuel if over fueling or spilling occurs during the fill process.
G006504-0	90% Fuel Level Alarm	The 90% fuel level alarm alerts the fuel fill operator when the tank reaches a 90% fill level by sounding an audible alarm and triggering an LED warning light.
G006505-0 - 15 & 20 kW G006506-0 - 30, 48 & 50 kW	Tank Risers	Tank risers are required in some municipalities to help avoid potential base tank corrosion caused by mounting on rough surfaces.
G006507-0	Fuel Fill Drop Tube	A powder coat painted, steel fuel fill drop tube is required in some municipalities to prevent sparking due to static electricity buildup, which can be caused by the fuel dropping into the tank from the fill area. Using a drop tube also results in submerged filling, which increases the fuel delivery flow rate and reduces vapors, foam and potential tank evaporation.
G006513-0 - 15 & 20 kW G006517-0 - 30 kW G006516-0 - 48 & 50 kW	Stainless Steel Fuel Lines	Some municipalities require the use of stainless steel fuel lines instead of the standard hoses provided with the diesel generator products. These stainless steel lines are fire resistant for additional safety.
G006510-0	E-Stop	E-stop allows for immediate fuel shutoff and generator shutdown in the event of an emergency.
006511-0	Spill Box Drainback Kit	The spill box drainback kit allows fuel that was captured in the 5-gallon spill box to be drained directly back into the fuel tank to avoid vapors.
G006588-1	Vent Extension Support Kit	The vent extension support kit consists of two aluminum plates with the appropriate pipe cutouts to secure the vent extension pipes coming through the top of the generator enclosure. It helps to minimize stress on the NPT fittings integrated on the tank and also helps protect against pests.
G006512-0	Lockable Fuel Cap	The cast iron, lockable fuel cap provides the ability to lock the fuel system to prevent unwanted fuel tampering or fuel siphoning.
G006572-0 - 15 & 20 kW G006571-0 - 30 kW G006570-0 - 48 & 50 kW	Maintenance Kits	The Protector Maintenance Kits offer all the hardware necessary to perform complete maintenance on Generac Protector generators.
G006560-0 - 15 & 20 kW G006559-0 - 30 kW G006558-0 - 48 & 50 kW	Cold Weather Kits	Recommended for generators installed in regions where the temperature regularly falls below 32 °F (0 °C). The Cold Weather Kits consist of a block heater with all necessary mounting hardware and a battery warmer with a thermostat built into the battery wrap.
G005704-0	Paint Kit	If the generator enclosure is scratched or damaged, it is important to touch-up the paint to protect from future corrosion. The paint kit includes the necessary paint to properly maintain or touch-up a generator enclosure.
G006664-0	Local Wireless Remote	Completely wireless and battery powered, Generac's wireless remote monitor provides you with instant status information without ever leaving the house.
G006665-0	Wireless Remote Extension Harness	Recommended for use with the Wireless Remote on units up to 60 kW, required for use on units 70 kW or greater.
G006873-0	Smart Management Module (50 Amps)	Manage large loads by utilizing up to 8 individual Smart Management modules. These devices are installed directly in line with existing appliance wiring for easy installation.