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CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

December 28th, 2022

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **Shared Use Application for Verizon**
Crown Site ID#876359; Verizon Site #617226648
954 Norwich Road, Plainfield, CT 06062
Latitude: 41° 39′ 31.46″ Longitude: -71° 55′ 29.75″

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Verizon Wireless hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by Verizon Wireless of an existing telecommunication tower at 954 Norwich Road, Plainfield. (the "Property"). The existing 150-foot monopole tower is owned by Crown Castle International Corp. ("Crown Castle"). The underlying property is owned by CAYA Enterprises LLC. Verizon Wireless requests that the Council find that the proposed shared use of the Crown Castle tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times. A copy of this filing is being sent to Mr. Kevin Cunningham, First Selectman, Town of Plainfield; Mr. Richard J. Martel, Building Official; as well as the property owner.

Background

The existing Crown Castle facility consists of a 130 monopole tower within a 2,450 square foot leased area. T-Mobile currently maintains antennas at the 130-foot level. T-Mobile's equipment is located East of the tower. AT&T Currently maintains antennas at the 116-foot level. AT&T's equipment is located south west of the tower.

Verizon is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Verizon and Crown Castle have agreed to the proposed shared use of 954 Norwich Road, Plainfield tower pursuant to mutually acceptable terms and conditions. Likewise, Verizon and Crown Castle have agreed to the proposed installation of equipment cabinets on the ground on the south side of the tower within the existing compound. Crown Castle has authorized Verizon to apply for all necessary permits and approvals that may be required to share the existing tower.

Verizon proposes to install nine (9) antennas, six (6) RRUs, one (1) OVP, one (1) antenna platform, and one (1) hybrid cables. In addition, Verizon will install a ground equipment cabinet on a 11'x18' equipment pad. Included in the Construction Drawings are Verizon's project specifications for locations of all proposed site improvements. The Construction Drawings also contain specifications for Verizon's proposed antennas and groundwork. C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." Verizon respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility.

The existing Crown Castle tower is structurally capable of supporting Verizon's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support Verizon's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility.

Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the Crown Castle tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the Crown Castle tower would have a minimal environmental effect for the following reasons:

1. The proposed installation will have no visual impact on the area of the tower. Verizon's equipment cabinet would be installed within the existing facility compound. Verizon's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.

2. Operation of Verizon's antennas at this site would not exceed the RF emissions

standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that Verizon's proposed facility will operate well within the FCC RF emissions safety standards.

3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the Crown Castle facility other than periodic maintenance. The proposed shared use of the Crown Castle tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, Verizon has entered into an agreement with Crown Castle for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Verizon's full array of nine (9) antennas, six (6) RRUs, one (1) OVP, one (1) antenna platform, and one (1) hybrid cable and all related equipment. Verizon is not aware of any public safety concerns relative to the proposed sharing of the existing Crown Castle tower.

Conclusion
For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 954 Norwich Road, Plainfield satisfies the criteria stated in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant therefore, respectfully requests that the Council issue an order approving the prosed shared use.
Sincerely,

Katie Adams

Katie Adams
Crown Castle – Agent for Verizon Wireless
100 Apollo Drive Suite 303
Chelmsford, MA 01824
kadams@nbcllc.com
(781) 392-7547

CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

cc:

Richard J. Martel, Building Official
Town of Plainfield
3 Community Avenue
Plainfield, CT 06374
(Via Fedex)

Kevin Cunningham, First Selectman
Town of Plainfield
3 Community Avenue
Plainfield, CT 06374
(Via Fedex)

CAYA Enterprises LLC
306 Kenyon Road
Hampton, CT 06247
(Via Fedex)

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Friday, December 30, 2022 12:02 PM
To: Katie Adams
Subject: FedEx Shipment 770906203448: Your package has been delivered
Attachments: DeliveryPicture.jpeg

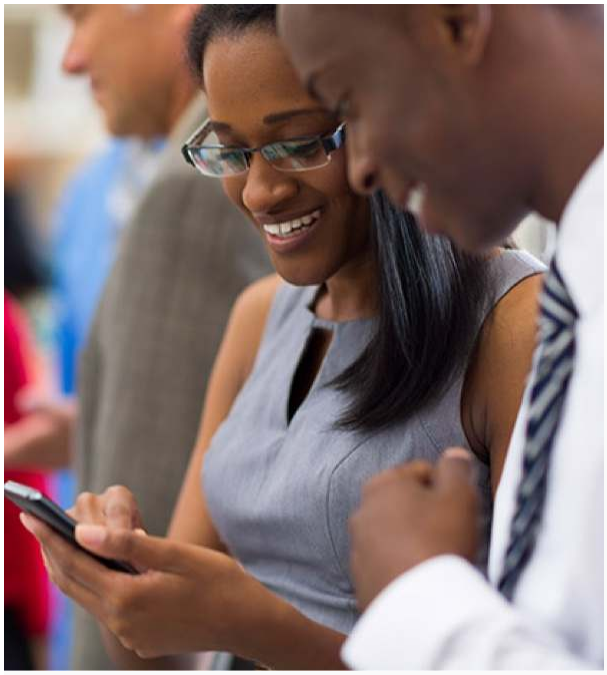
Hi. Your package was delivered Fri, 12/30/2022 at 11:56am.

Delivered to 306 KENYON RD, HAMPTON, CT 06247

OBTAIN PROOF OF DELIVERY

Delivery picture not showing? View in browser.

TRACKING NUMBER	770906203448
FROM	NB+C 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	CAYA Enterprises LLC 306 Kenyon Road HAMPTON, CT, US, 06247
REFERENCE	100788
SHIPPER REFERENCE	100788
SHIP DATE	Thu 12/29/2022 06:07 PM
DELIVERED TO	Residence
PACKAGING TYPE	FedEx Pak
ORIGIN	CHELMSFORD, MA, US, 01824
DESTINATION	HAMPTON, CT, US, 06247
SPECIAL HANDLING	Deliver Weekday Residential Delivery
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight



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Katie Adams

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Sent: Friday, December 30, 2022 9:36 AM
To: Katie Adams
Subject: FedEx Shipment 770906153520: Your package is now out for delivery today

Hi. Your package is now out for delivery today.

SCHEDULED DELIVERY

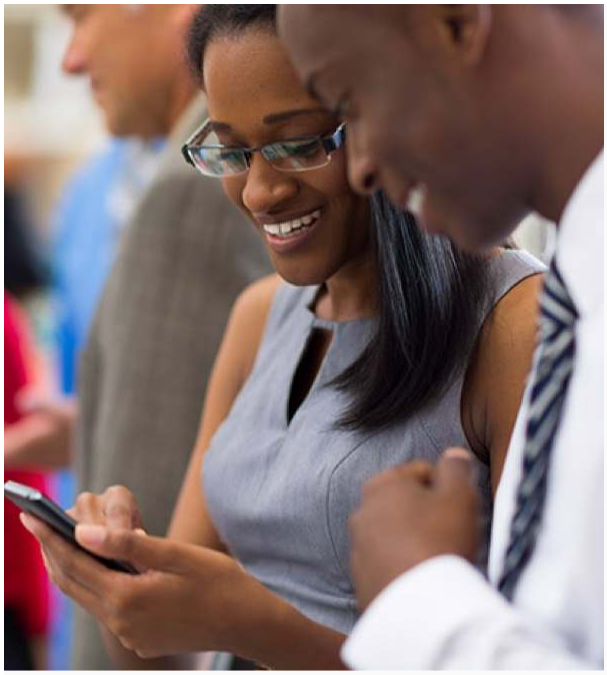
Fri, 12/30/2022
before 4:30pm

OUT FOR DELIVERY
NORWICH, CT

MANAGE DELIVERY

TRACKING NUMBER	770906153520
FROM	NB+C 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	Town of Plainfield Kevin Cunningham, First Selectman

	3 Community Avenue PLAINFIELD, CT, US, 06374
REFERENCE	100788
SHIPPER REFERENCE	100788
SHIP DATE	Thu 12/29/2022 06:07 PM
PACKAGING TYPE	FedEx Pak
ORIGIN	CHELMSFORD, MA, US, 01824
DESTINATION	PLAINFIELD, CT, US, 06374
SPECIAL HANDLING	Deliver Weekday
STANDARD TRANSIT	Fri, 12/30/2022 by 4:30pm
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Standard Overnight



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Katie Adams

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To: Katie Adams
Subject: FedEx Shipment 770906128633: Your package is now out for delivery today

Hi. Your package is now out for delivery today.

SCHEDULED DELIVERY

Fri, 12/30/2022
before 4:30pm

OUT FOR DELIVERY
NORWICH, CT

MANAGE DELIVERY

TRACKING NUMBER	770906128633
FROM	NB+C 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	Town of Plainfield Richard J. Martel

	3 Community Avenue PLAINFIELD, CT, US, 06374
REFERENCE	100788
SHIPPER REFERENCE	100788
SHIP DATE	Thu 12/29/2022 06:07 PM
PACKAGING TYPE	FedEx Pak
ORIGIN	CHELMSFORD, MA, US, 01824
DESTINATION	PLAINFIELD, CT, US, 06374
SPECIAL HANDLING	Deliver Weekday
STANDARD TRANSIT	Fri, 12/30/2022 by 4:30pm
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Standard Overnight

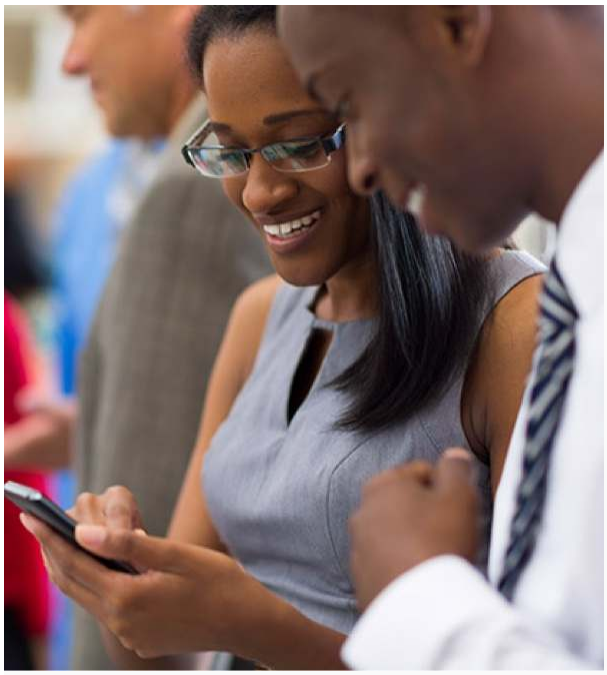

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Exhibit A

Original Facility Approval

THE PLAINFIELD TOWN HALL
PLAINFIELD • CENTRAL VILLAGE • MOOSUP • WAUREGAN

COPY

Town Hall
8 Community Avenue
Plainfield, CT 06374

Telephone (860) 564-4071
Fax (860) 564-0612

PLANNING AND ZONING COMMISSION

June 14, 1999

Sprint Spectrum L.P.
C/O Thomas J. Regan
Brown, Rudnick, Freed & Gesmer
185 Asylum St., 38th Fl.
Hartford, CT 06103-3402

Dear Applicant:

At its meeting on Tuesday, June 8, 1999, the Planning & Zoning Commission approved your request SP-99-08 for a Special Permit for property located at 954 Norwich Rd., Plainfield. Map 10, Block 133, Lot 15.

The Conditions are:

- A Zoning Permit, Building Permit and NDDH approval will need to be obtained prior to construction.
- Please file the enclosed notice on the Land Records of the town.

A copy of the Legal Notice is enclosed for your records and will appear in the Norwich Bulletin on Wednesday, June 16, 1999.

Yours Truly,

PLANNING & ZONING COMMISSION

Dennis Jolley, Chairman

Gloria Rizer, Secretary

CC: Stanley Chuddy, Owner

TOWN OF PLAINFIELD
SPECIAL PERMIT RECORD

CORRECTED

In accordance with Section 8-3d of the Connecticut General Statutes and the Plainfield Zoning Regulations, this Record must be filed in the Town Land Records. The Town Clerk shall index this record in the Grantor Index under the name of the owner of Record of such property at the time the Special Permit is granted. The Special Permit is not effective until the Record is filed.

1. *Grantor(s): ***Chudy*** (Last) ***Stanley*** (First) _____ (Middle)

2. Assessor's Information **10** (Map) **133** (Block) **15** (Parcel)

3. Location of Property: **954 Norwich Rd., Plainfield**

4. Zoning District in which property is located: **C-1**

5. Description of Project/Activity:
   Construction of 130 ft. telecommunications tower and related equipment for the provision of wireless telecommunications service.

6. Special Permit granted under the following Sections of the Plainfield Zoning Regulations: Section 6.35 Wireless Telecommunication Facilities

7. Date Special Permit Granted: **June 8, 1999**

8. Approval is granted subject to the following conditions:
   None

9 Reasons for granting Special Permit: None Stated.

The Planning and Zoning Commission finds that the proposed use or development satisfies all criteria identified within the Planning Zoning Regulations for the approval of a Special Permit.

I certify that this is a true Record of the Special Permit granted for the subject Property.

Dated at Plainfield, CT
this 27th day of July 1999

PLANNING AND ZONING COMMISSION

June A. Bissette
Secretary or Acting Clerk

* Correction made for the spelling of the Grantor.

Received For Record at Plainfield, CT
on 7/27/99 1:08 PM
Attest Helen Francis Coombs
Helen Francis Coombs, Town Clerk

THE PLAINFIELD TOWN HALL
PLAINFIELD • CENTRAL VILLAGE • MOOSUP • WAUREGAN

Town Hall
8 Community Avenue
Plainfield, CT 06374

Telephone (860) 564-4071
Fax (860) 564-0612

PLANNING AND ZONING COMMISSION

COPY

June 14, 1999

Sprint Spectrum L.P.
C/O Thomas J. Regan
Brown, Rudnick, Freed & Gesmer
185 Asylum St., 38th Fl.
Hartford, CT 06103-3402

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Dennis Jolley, Chairman

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CC: Stanley Chuddy, Owner

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June A. Bissette
Secretary or Acting Clerk

* Correction made for the spelling of the Grantor.

Received For Record at Plainfield, CT
on 7/27/99 1:08 PM
Attest Helen Francis Coombs
Helen Francis Coombs, Town Clerk

Exhibit B

Property Card

954 NORWICH RD

Location	954 NORWICH RD	**Mblu**	010/ 013B/ 0015/ /
Acct#	00081500	**Owner**	CAYA ENTERPRISES LLC
Assessment	$239,570	**Appraisal**	$342,250
PID	893	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$123,500	$218,750	$342,250
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$86,440	$153,130	$239,570

Owner of Record

Owner	CAYA ENTERPRISES LLC	**Sale Price**	$300,000
Co-Owner		**Certificate**	
Address	306 KENYON RD HAMPTON, CT 06247	**Book & Page**	0483/0730
		Sale Date	12/29/2014
		Instrument	08

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CAYA ENTERPRISES LLC	$300,000		0483/0730	08	12/29/2014
CHUDY CARL L	$0		0409/0144	29	04/02/2009
CHUDY GLADYS L	$0		0397/0022	10	05/21/2008
CHUDY STANLEY V + GLADYS L	$0		0189/0716		06/27/1989

Building Information

Building 1 : Section 1

Year Built:	1973
Living Area:	5,625
Replacement Cost:	$165,839

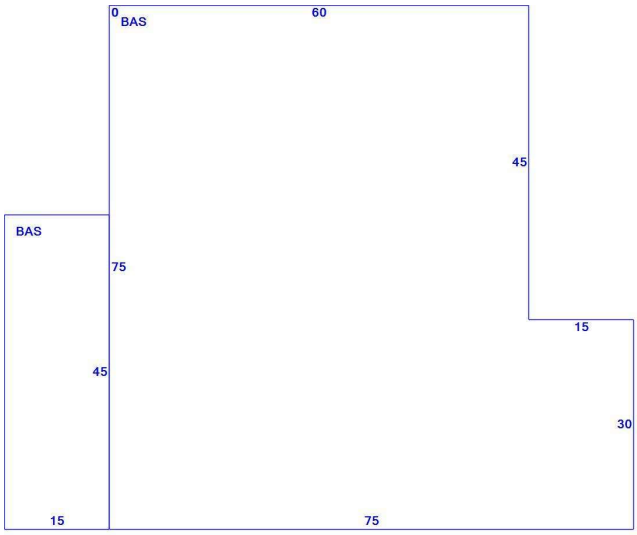
Building Percent Good: 73
Replacement Cost
Less Depreciation: $121,060

Building Attributes	
Field	**Description**
Style:	Light Indust
Model	Comm/Ind
Grade	D
Stories:	1
Occupancy	1.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	None
Struct Class	
Bldg Use	AUTO REPR
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3030
Heat/AC	HEAT ONLY
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	18.00
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/PlainfieldCTPhotos//\00\00\63\91.jpg)

Building Layout



(ParcelSketch.ashx?pid=893&bid=893)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	5,625	5,625
		5,625	5,625

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
OD1	Overhead Dr-Wood/Mtl	2.00 UNITS	$520	1
OD1	Overhead Dr-Wood/Mtl	2.00 UNITS	$720	1

Land

Land Use

Use Code	3320
Description	AUTO REPR
Zone	C
Neighborhood	1010
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	4.5
Frontage	
Depth	
Assessed Value	$153,130
Appraised Value	$218,750

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN1	Fence 4' Chain			600.00 L.F.	$1,200	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$123,500	$218,750	$342,250
2019	$123,500	$218,750	$342,250

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$86,440	$153,130	$239,570
2019	$86,440	$153,130	$239,570

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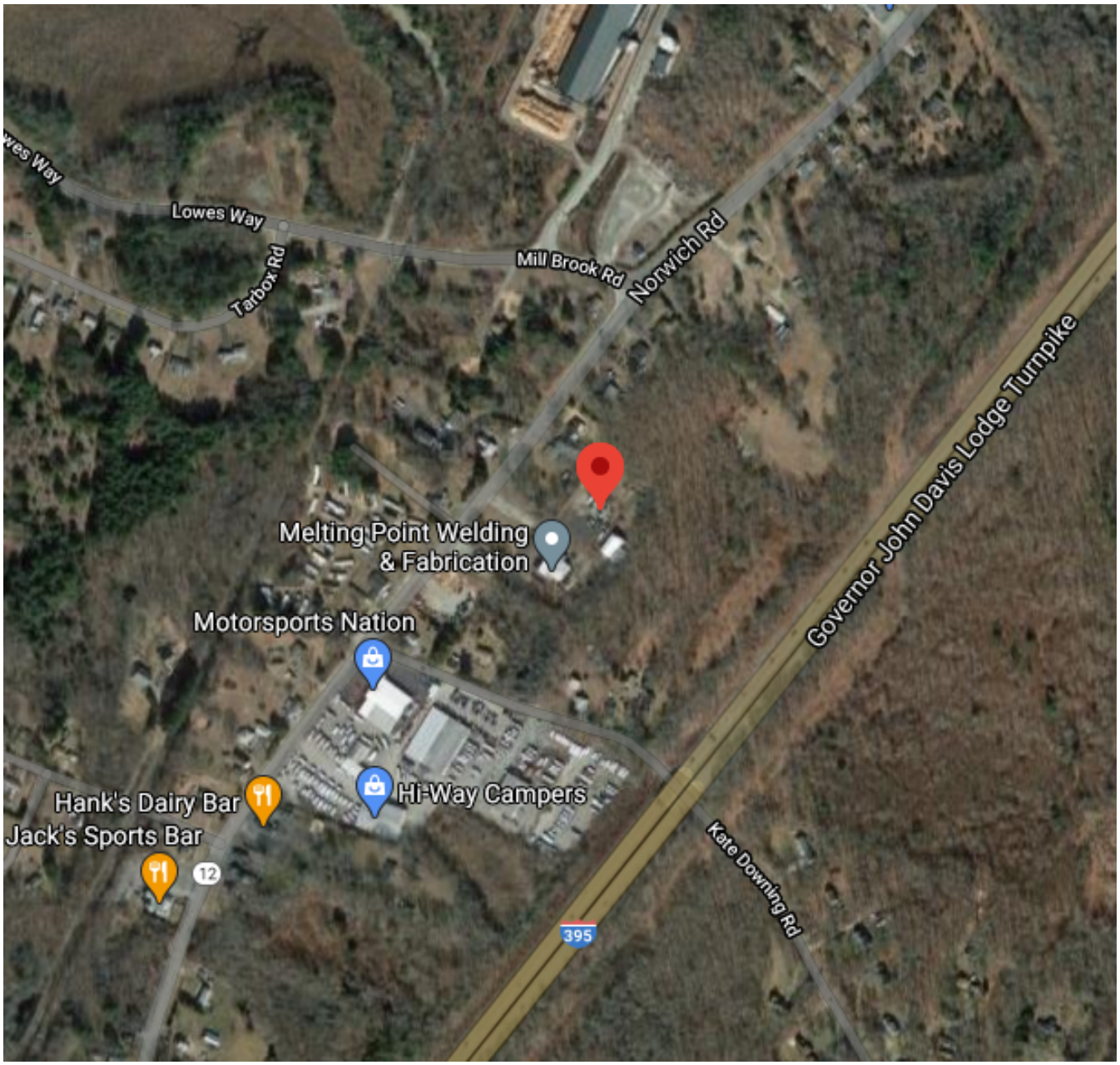
Lowes Way
Lowes Way
Tarbox Rd
Mill Brook Rd
Norwich Rd
Governor John Davis Lodge Turnpike
Melting Point Welding & Fabrication
Motorsports Nation
Hi-Way Campers
Hank's Dairy Bar
Jack's Sports Bar
12
395
Kate Downing Rd

954 NORWICH RD

Location	954 NORWICH RD	**Mblu**	010/ 013B/ 0015/ /
Acct#	00081500	**Owner**	CAYA ENTERPRISES LLC
Assessment	$250,730	**Appraisal**	$358,180
PID	893	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$183,280	$174,900	$358,180
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$128,300	$122,430	$250,730

Owner of Record

Owner	CAYA ENTERPRISES LLC	**Sale Price**	$300,000
Co-Owner		**Certificate**	
Address	306 KENYON RD HAMPTON, CT 06247	**Book & Page**	0483/0730
		Sale Date	12/29/2014
		Instrument	08

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
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CHUDY CARL L	$0		0409/0144	29	04/02/2009
CHUDY GLADYS L	$0		0397/0022	10	05/21/2008
CHUDY STANLEY V + GLADYS L	$0		0189/0716		06/27/1989

Building Information

Building 1 : Section 1

Year Built:	1973
Living Area:	5,625
Replacement Cost:	$249,489

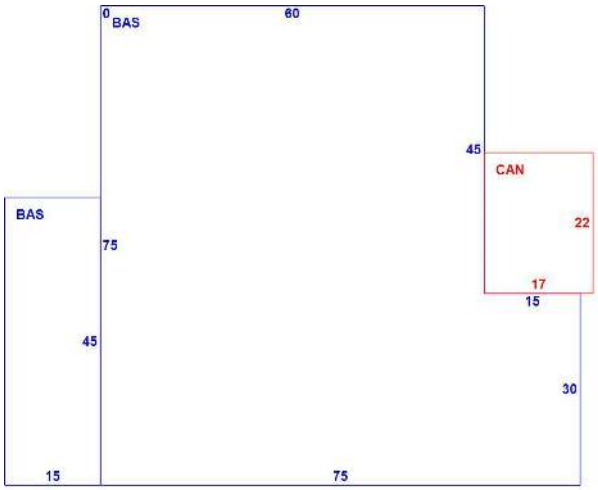
Building Percent Good: 71
Replacement Cost
Less Depreciation: $177,140

Building Attributes	
Field	**Description**
Style:	Light Indust
Model	Comm/Ind
Grade	D
Stories:	1
Occupancy	1.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	Other / Partial
Struct Class	
Bldg Use	AUTO REPR
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3030
Heat/AC	HEAT/AC SPLIT
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	18.00
% Comn Wall	

Building Photo

(https://images.vgsi.com/photos/PlainfieldCTPhotos//\00\00\63\91.jpg)

Building Layout



(ParcelSketch.ashx?pid=893&bid=893)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	5,625	5,625
CAN	Canopy	374	0
		5,999	5,625

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
OD1	Overhead Dr-Wood/Mtl	4.00 UNITS	$1,040	1
A/C	Air Conditioning	675.00 S.F.	$1,200	1

Land

Land Use

Use Code	4022
Description	IND BLDG
Zone	C
Neighborhood	1010
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	4.5
Frontage	
Depth	
Assessed Value	$122,430
Appraised Value	$174,900

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN1	Fence 4' Chain			600.00 L.F.	$3,900	1
NV1	Oby under 100 sf	SH	Shed	64.00 UNITS	$0	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$123,500	$218,750	$342,250
2020	$123,500	$218,750	$342,250

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$86,440	$153,130	$239,570
2020	$86,440	$153,130	$239,570

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Exhibit C

Construction Drawings

verizon

VERIZON SITE NUMBER: 617226648
VERIZON SITE NAME: PLAINFIELD SOUTH 2 CT
SITE TYPE: MONOPOLE
TOWER HEIGHT: 130'-0"

BUSINESS UNIT #: 876359
SITE ADDRESS: 954 NORWICH ROAD PLAINFIELD, CT 06062
COUNTY: WINDHAM
JURISDICTION: CONNECTICUT SITING COUNCIL

VERIZON INITIAL BUILD

SITE INFORMATION

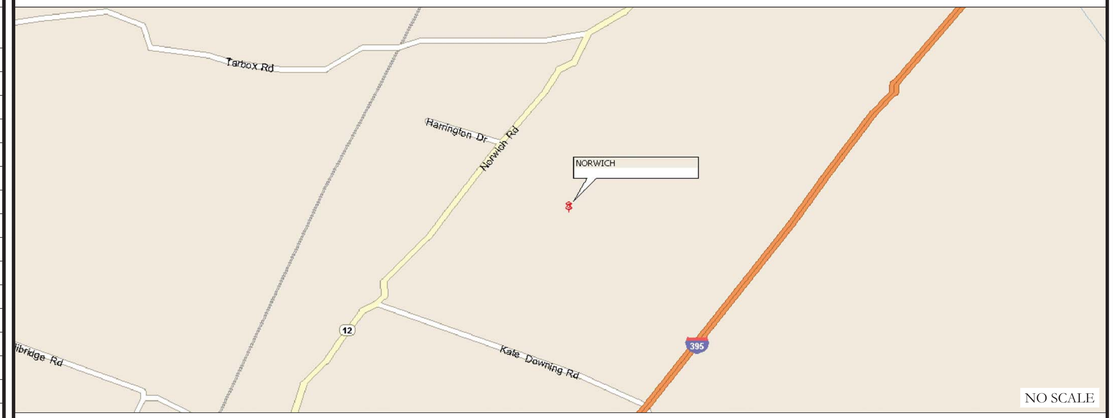
CROWN CASTLE USA INC. SITE NAME:	NORWICH
SITE ADDRESS:	954 NORWICH ROAD PLAINFIELD, CT 06062
COUNTY:	WINDHAM
MAP/PARCEL #:	010-013B-0015
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.658739°
LONGITUDE:	-71.924931°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	186'
CURRENT ZONING:	C
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	GLOBAL SIGNAL ACQUISITION P.O.BOX 277455 ATLANTA, GA 30384-7455
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	VERIZON WIRELESS 20 ALEXANDER DRIVE, 2ND FLOOR WALLINGFORD, CT 06492
ELECTRIC PROVIDER:	NORTHEAST UTILITIES 800-286-2000
TELCO PROVIDER:	FIBER APP -

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	MOUNTING DETAILS
C-4	EQUIPMENT DETAILS
C-5	CONCRETE PAD DETAILS
C-6	GROUND EQUIPMENT PLAN
C-7	EROSION DETAILS
C-8	FENCE DETAILS
C-9	ICE CANOPY DETAILS
E-1	UTILITY PLAN
E-2	ELECTRICAL DETAILS & ONE LINE DIAGRAM
E-3	PANEL SCHEDULES
E-4	TYPICAL CABINET CONDUIT ROUTINGS
E-5	RISER DIAGRAM & TRENCH DETAILS
E-6	EQUIPMENT PAD LIGHTING LAYOUT
G-1	GROUNDING PLAN
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

LOCATION MAP



DRIVING DIRECTIONS FROM VERIZON LOCAL OFFICE (819 HARTFORD TURNPIKE, WATERFORD, CT 06385, UNITED STATES)

HEAD NORTHWEST ON CT-85 N TOWARD DAYTON PL, TURN RIGHT TO MERGE WITH I-395 N TOWARD NORWICH, TAKE EXIT 28 FOR LATHROP RD, TURN LEFT ONTO LATHROP RD, TURN LEFT ONTO CT-12 S DESTINATION WILL BE ON THE LEFT.

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1200 MACARTHUR BLVD, SUITE 200 MAHWAH, NJ 07430 WILLIAM GATES - PROJECT MANAGER WILLIAM.GATES@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- INSTALL (6) ANTENNAS
- INSTALL (3) ANTENNAS W/INTEGRATED RRH
- INSTALL (6) RRHs
- INSTALL (1) OVP
- INSTALL (1) HYBRID CABLES
- INSTALL (1) PLATFORM MOUNT VALMONT - F3P-12 W/ VALMONT - HRK12 SUPPORT RAIL KIT AND (12) 2-1/2" STD. x 10'-6" LONG PIPES

GROUND SCOPE OF WORK:
- INSTALL CONCRETE PAD W/ (2) OUTDOOR EQUIPMENT CABINETS
- INSTALL ICE CANOPY
- INSTALL NEW H-FRAMES
- INSTALL (1) GENERATOR

GROUND SCOPE OF WORK:
- INSTALL NEW METER IN EXISTING METER BANK
- CONTRACTOR SHALL CALL POWER COMPANY TO START SERVICE ONCE INSPECTIONS ARE COMPLETE
- CONTRACTOR SHALL CONFORM SITE TO LOCAL UTILITY COMPANY CODES AND REGULATIONS
- CONTRACTOR SHALL PROVIDE AND SECURE ALL REQUIRED PERMITS, LICENSES, INSPECTIONS, APPROVALS AND PAYMENT OF ALL FEES
- COMPOUND EXPANSION BY PROPOSED CHAIN LINK FENCE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2022 CONNECTICUT SBC
MECHANICAL	2022 CONNECTICUT SBC
ELECTRICAL	2022 CONNECTICUT SBC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	MORRISON HERSHFIELD
DATED:	9/23/22
MOUNT ANALYSIS:	POD GROUP
DATED:	11/7/22
RFDS REVISION:	1
DATED:	9/14/22
ORDER ID:	623747
REVISION:	3

INSTALLER NOTES:

REFERENCE LATEST VERIZON CONSTRUCTION STANDARDS.

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS BEFORE YOU DIG!

verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

CROWN CASTLE
1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
617226648

BU #: **876359**
NORWICH

954 NORWICH ROAD
PLAINFIELD, CT 06062

EXISTING 130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	11/02/22	MEH	PRELIMINARY REVIEW	CV
B	11/04/22	MEH	PRELIMINARY REVIEW	CV
0	11/22/22	MEH	CONSTRUCTION	ANP
1	11/30/22	YX	CONSTRUCTION	CV

STATE OF CONNECTICUT
No. 23824
LICENSED
PROFESSIONAL ENGINEER
11/30/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-1
REVISION: 1

79791.005.01.0001_876359_NORWICH.dwg – Sheet:T-1 – User: chad.vandergraft – Nov 30, 2022 – 5:00pm

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR 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.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: VERIZON
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR 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 CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR 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.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER.......................................40 ksi
   #5 BARS AND LARGER.......................................60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH...................3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER.......................................2"
   #5 BARS AND SMALLER.......................................1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS.......................................3/4"
   BEAMS AND COLUMNS.......................................1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "VERIZON".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. 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 BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
617226648

BU #: **876359**
NORWICH

954 NORWICH ROAD
PLAINFIELD, CT 06062

EXISTING 130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	11/02/22	MEH	PRELIMINARY REVIEW	CV
B	11/04/22	MEH	PRELIMINARY REVIEW	CV
0	11/22/22	MEH	CONSTRUCTION	ANP
1	11/30/22	YX	CONSTRUCTION	CV

11/30/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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SHEET NUMBER: T-2
REVISION: 1

79791.005.01.0001_876359_NORWICH.dwg – Sheet:T-2 – User: chad.vandergraft – Nov 30, 2022 – 5:00pm

1 OVERALL SITE PLAN
SCALE: 50' 25' 0 50' 1" = 50'-0" (FULL SIZE) 1" = 100'-0" (11x17)

N

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OR FROM ASSESSORS MAPS. B+T GROUP HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.

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STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
11/30/22

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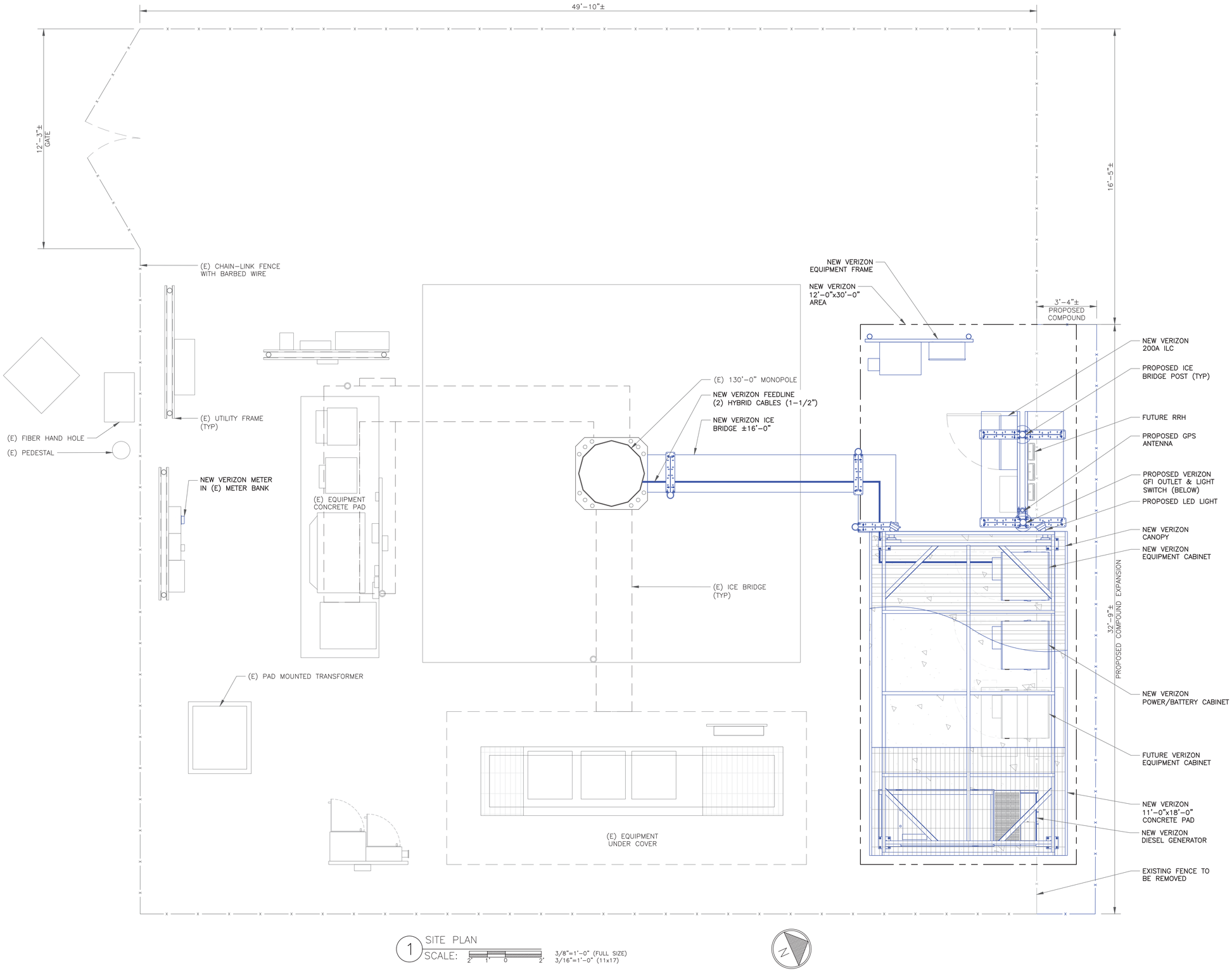
SHEET NUMBER: C-1.1
REVISION: 1

79791.005.01.0001_876359_NORWICH.dwg – Sheet:C-1.1 – User: chad.vandergraft – Nov 30, 2022 – 5:00pm



1 SITE PLAN
SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

N

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STATE OF CONNECTICUT
CHAD VANDERGRAFT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
11/30/22

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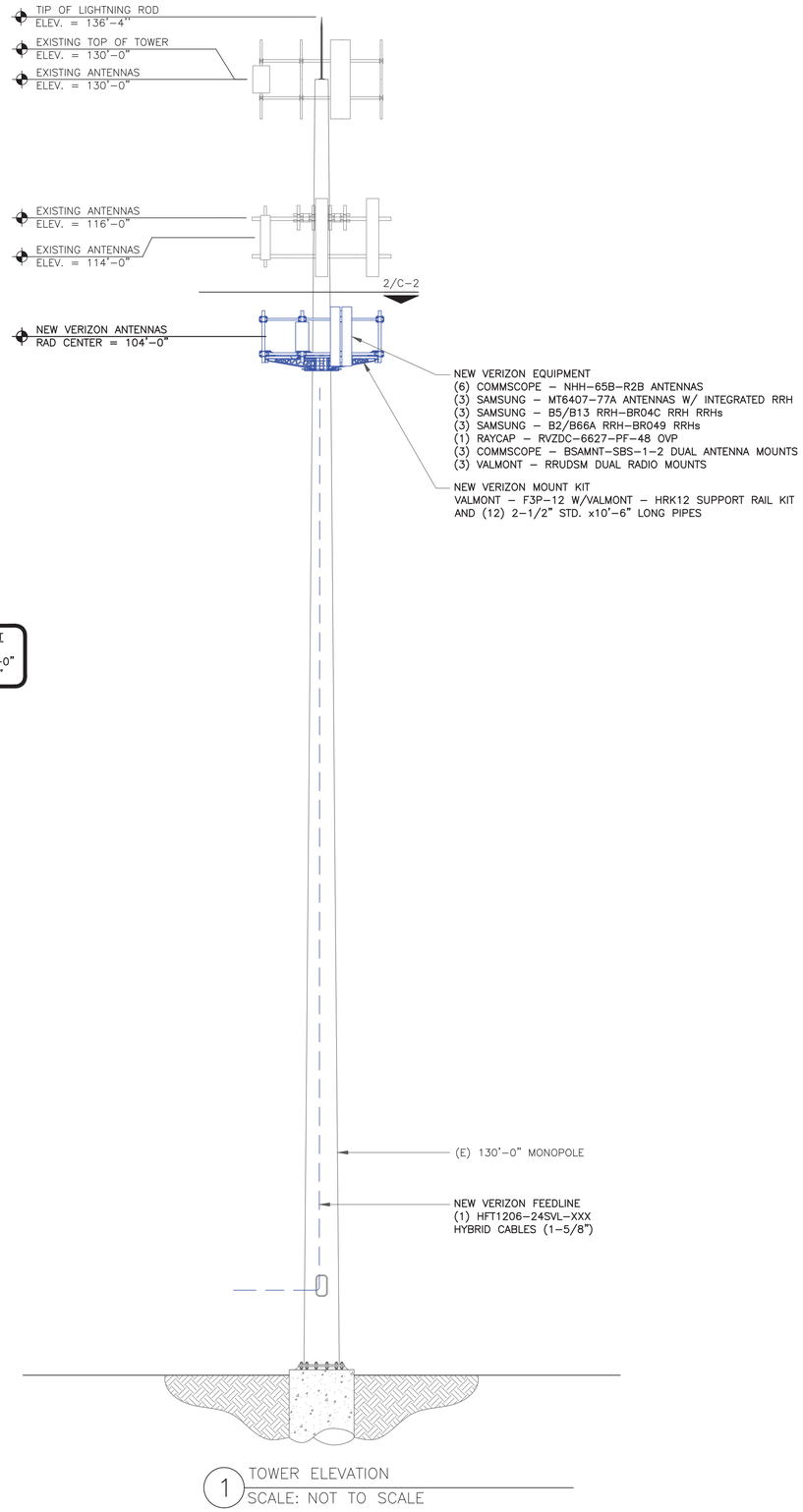
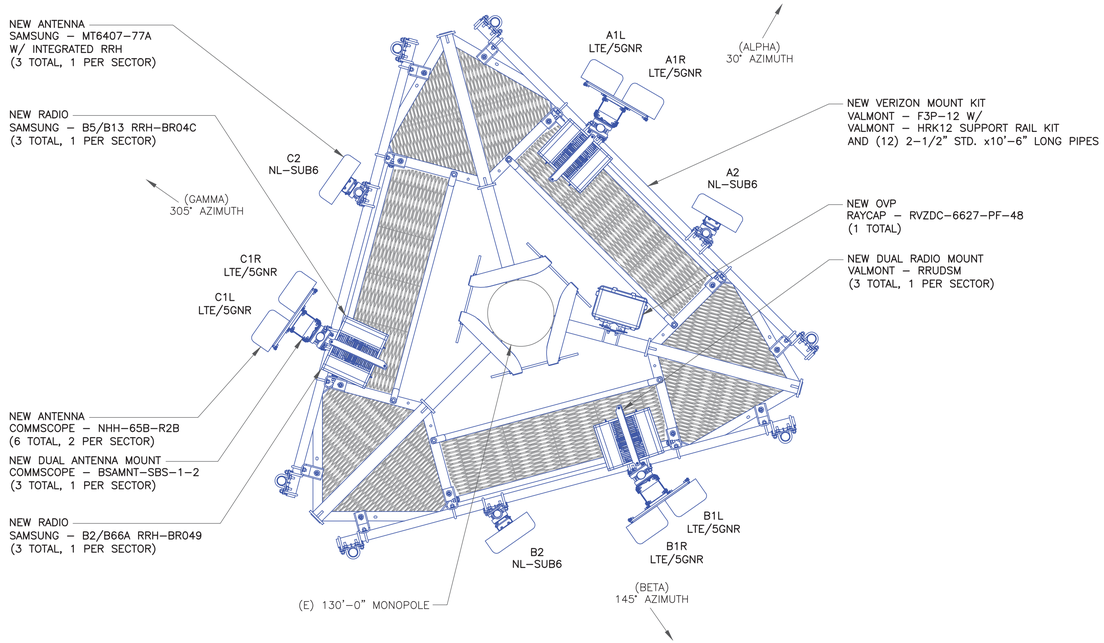
SHEET NUMBER: C-1.2
REVISION: 1

79791.005.01.0001_876359_NORWICH.dwg – Sheet:C-1.2 – User: chad.vandergraft – Nov 30, 2022 – 5:00pm



1 TOWER ELEVATION
SCALE: NOT TO SCALE



2 NEW ANTENNA PLAN
SCALE: NOT TO SCALE

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SHEET NUMBER: C-2

REVISION: 1

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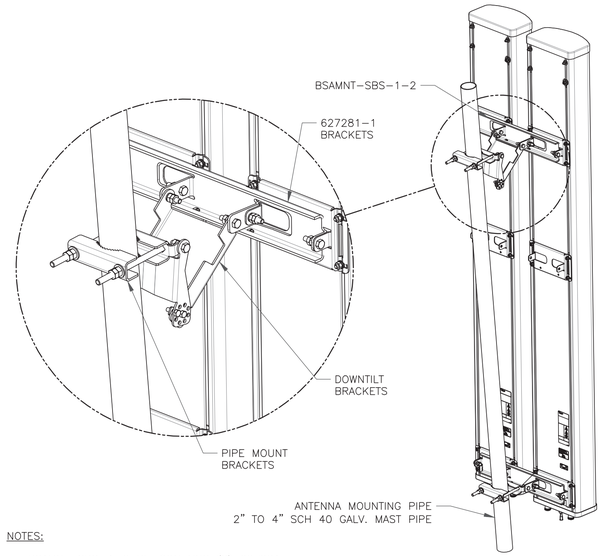


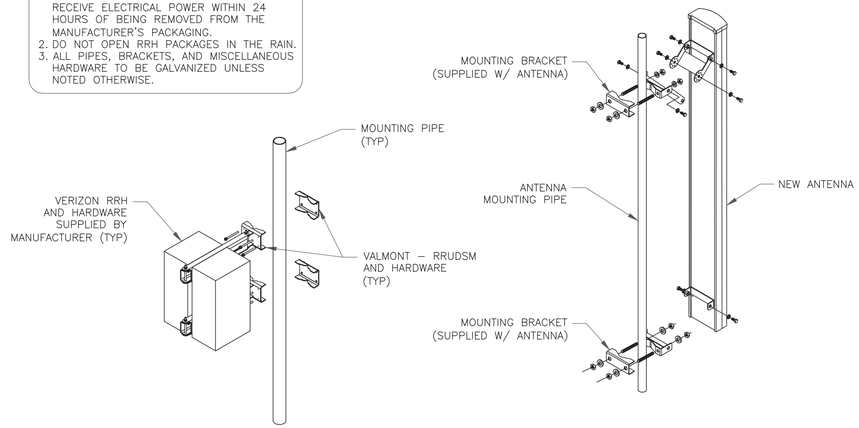
NOTES:

- BSAMNT–SBS–1–2 KIT CONTAINS (2) 627281 MOUNTING BRACKETS.
- TORQUE THE M10 BOLT ASSEMBLY TO 37 N.m. PER MANUFACTURE'S RECOMMENDATIONS.

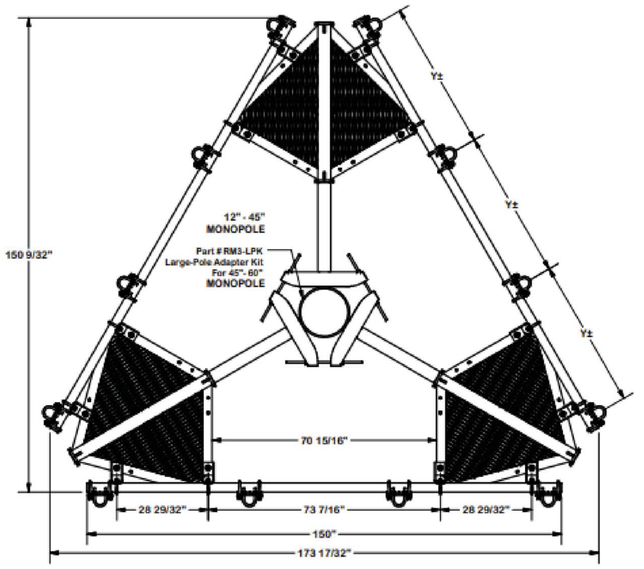
1 COMMSCOPE – BSAMNT–SBS–1–2
SCALE: NOT TO SCALE

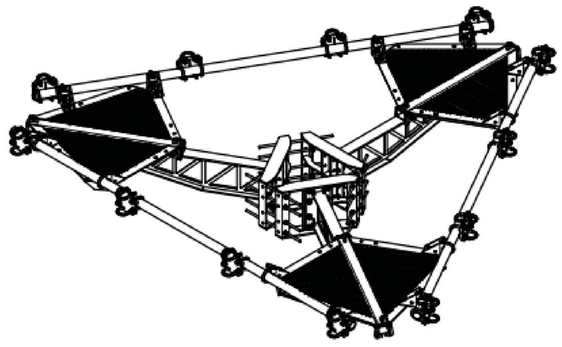
INSTALLER NOTES:

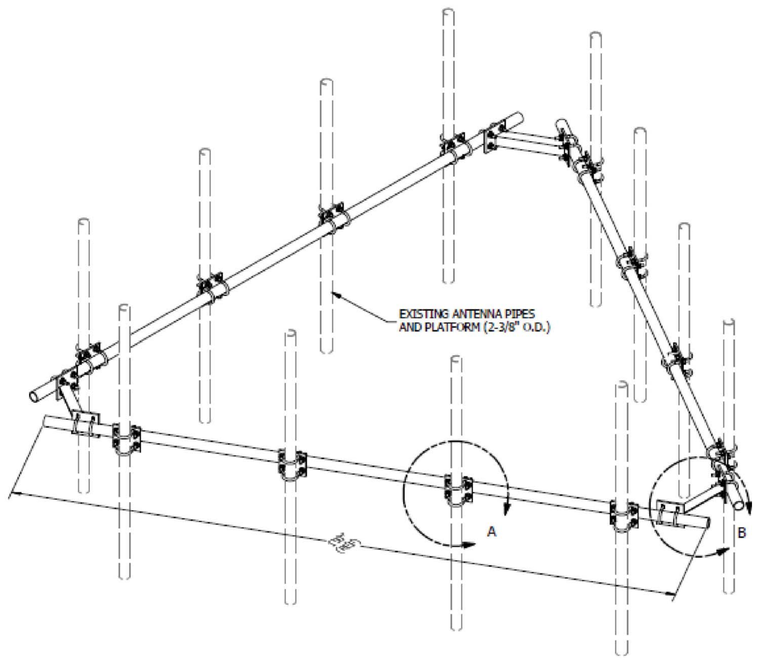
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE







3 VALMONT – F3P–12W & VALMONT – HRK12
SCALE: NOT TO SCALE

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SHEET NUMBER: C-3
REVISION: 1

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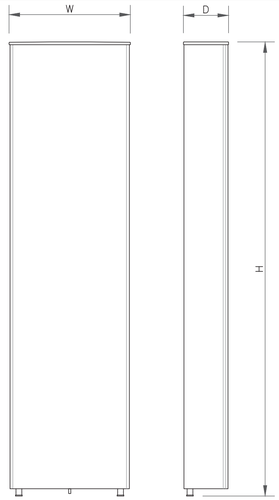
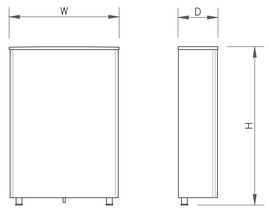


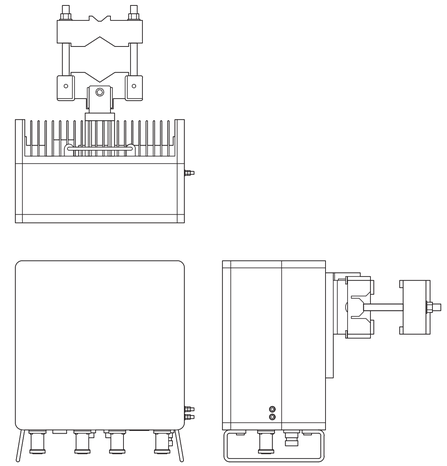
ANTENNA SPECS	
MANUFACTURER	COMMSCOPE
MODEL #	NHH-65B-R2B
WIDTH	11.90"
DEPTH	7.10"
HEIGHT	72.00"
WEIGHT	43.70 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



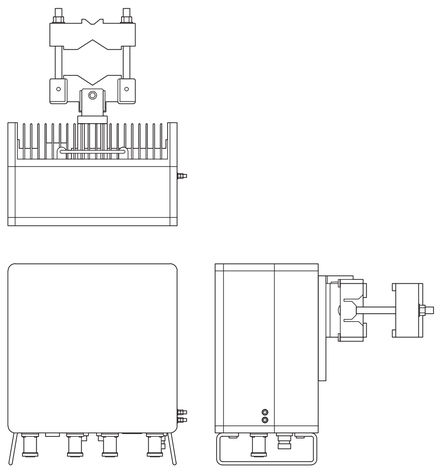
ANTENNA SPECS	
MANUFACTURER	SAMSUNG
MODEL #	MT6407-77A
WIDTH	16.06"
DEPTH	5.51"
HEIGHT	35.06"
WEIGHT	81.57 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



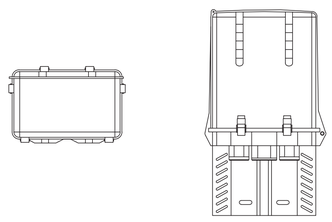
RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B2/B66A RRH-BR049
WIDTH	15.00"
DEPTH	10.00"
HEIGHT	15.00"
WEIGHT	84.40 LBS

3 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B5/B13 RRH-BR04C
WIDTH	15.00"
DEPTH	8.10"
HEIGHT	15.00"
WEIGHT	70.30 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



COMMSCOPE – RVZDC-6627-PF-48
WEIGHT (WITHOUT MOUNTING HARDWARE): 32.0 LBS
SIZE (HxWxD): 29.50x16.50x12.60 IN.

RATED WIND VELOCITY: 150 MPH (SUSTAINED)
OPERATING TEMPERATURE: -40° C TO +80° C
NOMINAL OPERATING DC VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING (VRP): 400V

5 RAYCAP – RVZDC-6627-PF-48
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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B+T GRP
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SUITE 300
TULSA, OK 74119
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VERIZON SITE NUMBER:
617226648

BU #: **876359**
NORWICH

954 NORWICH ROAD
PLAINFIELD, CT 06062

EXISTING 130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	11/02/22	MEH	PRELIMINARY REVIEW	CV
B	11/04/22	MEH	PRELIMINARY REVIEW	CV
0	11/22/22	MEH	CONSTRUCTION	ANP
1	11/30/22	YX	CONSTRUCTION	CV

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BER:2386985
Expires 3/31/23

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SHEET NUMBER: C-4
REVISION: 1

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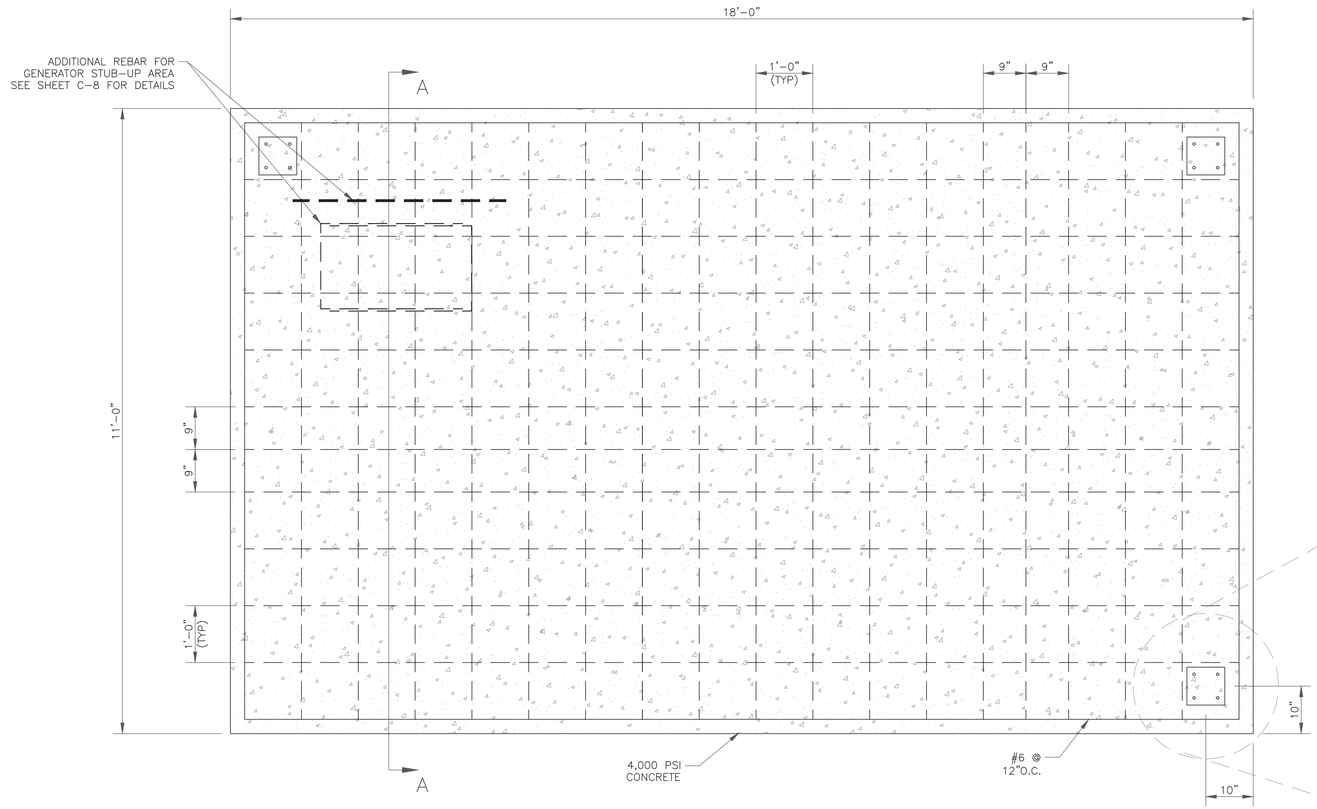
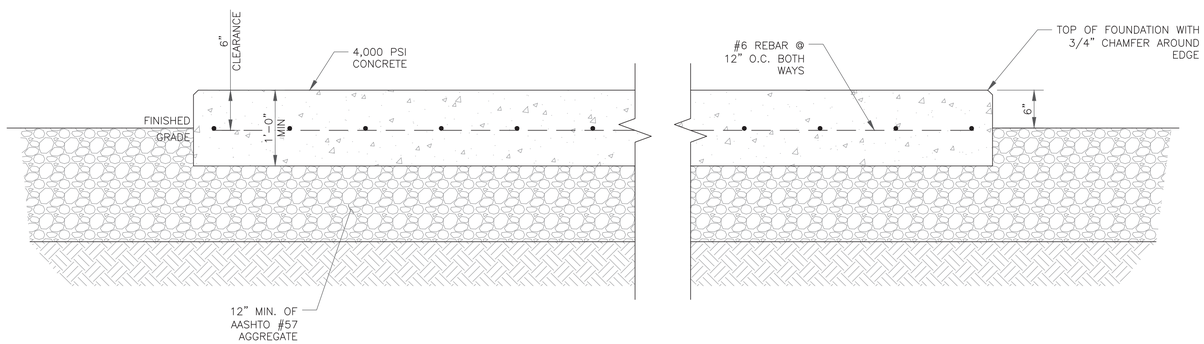
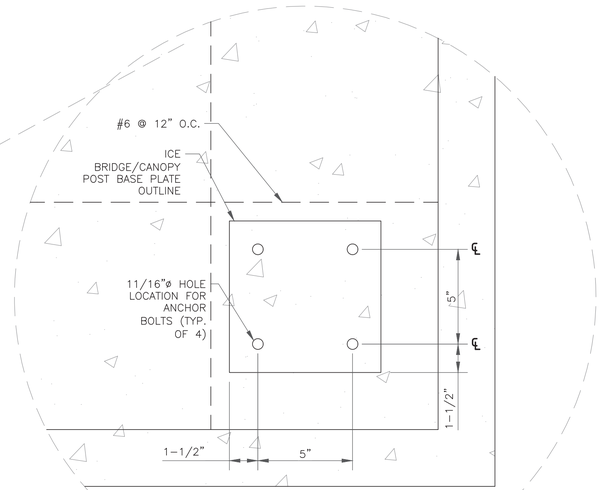


1 EQUIPMENT PAD FOUNDATION
SCALE: NOT TO SCALE



2 SECTION 'A-A'
SCALE: NOT TO SCALE



FOUNDATION NOTES:

1. REFER TO CIVIL DRAWINGS FOR ORIENTATION OF FOUNDATION.
2. FOUNDATION IS DESIGNED FOR THE FOLLOWING LOADS: FLOOR LIVE LOAD 40 PSF 3.
3. EQUIPMENT SHALL NOT BE SET UNTIL FOUNDATION HAS BEEN CURED FOR 72 HOURS MINIMUM.
4. ALL CONCRETE SHALL HAVE 28 DAY STRENGTH OF 4000 PSI MINIMUM, WITH A MAXIMUM SLUMP OF 3" AND SHALL BE AIR ENTRAINED.
5. REINFORCING STEEL TO HAVE INTERMEDIATE GRADE DEFORMED BARS OF NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60.
6. FOUNDATION SHALL BE INSTALLED PER VERIZON WIRELESS STATEMENT OF WORK SECTION 7.1.
7. CONTRACTOR MUST GROUND THE FOUNDATION PER VERIZON WIRELESS NSTD46 STANDARDS.
8. CONTRACTOR TO ENSURE FOUNDATION IS POURED TO MEET FLATNESS LEVEL TOLERANCES AS INDICATED IN ACI 4.5.6 AND ACI 4.5.7.
9. SLAB TOLERANCE IS ± 1/4".
10. THIS FOUNDATION IS DESIGNED FOR A MINIMUM OF 1,000 PSF ALLOWABLE SOIL BEARING CAPACITY.
11. FOUNDATION BEARING MATERIAL SHALL BE TESTED & VERIFIED

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STATE OF CONNECTICUT
No. 23824
LICENSED
PROFESSIONAL ENGINEER
11/30/22

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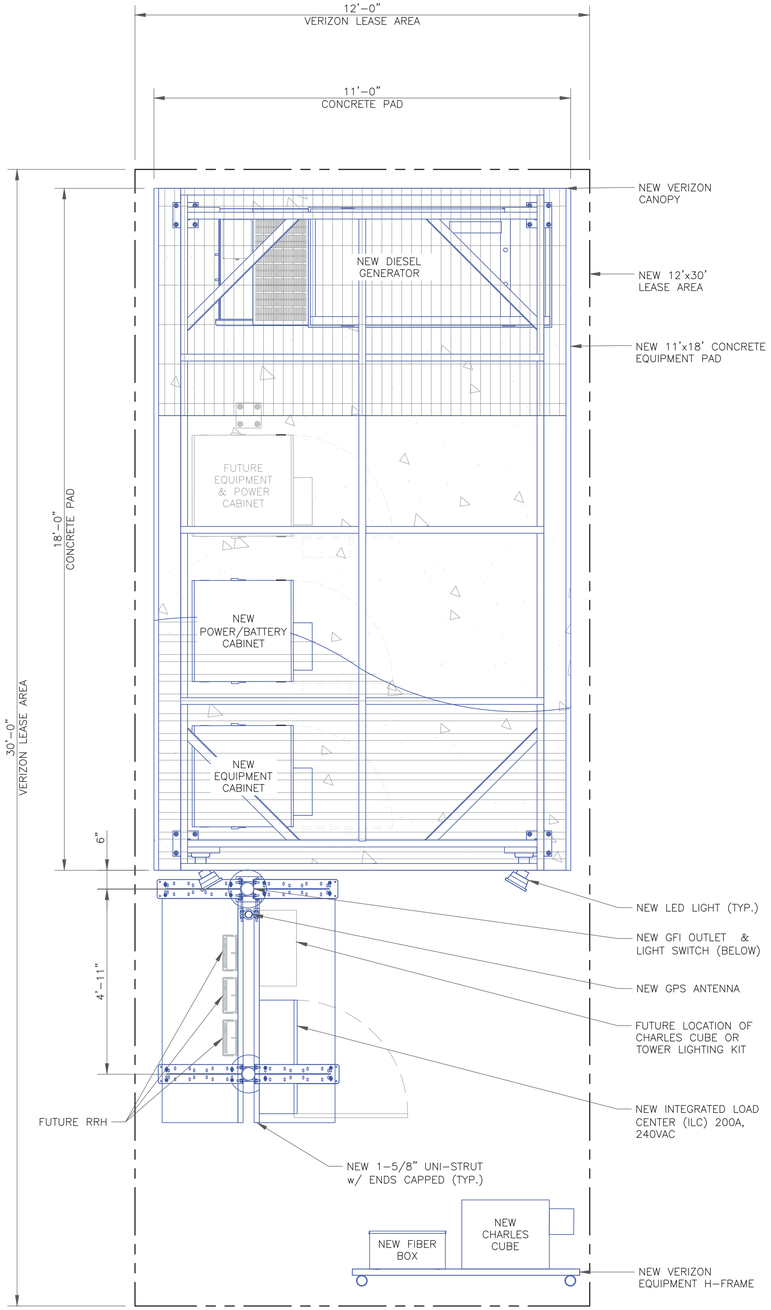
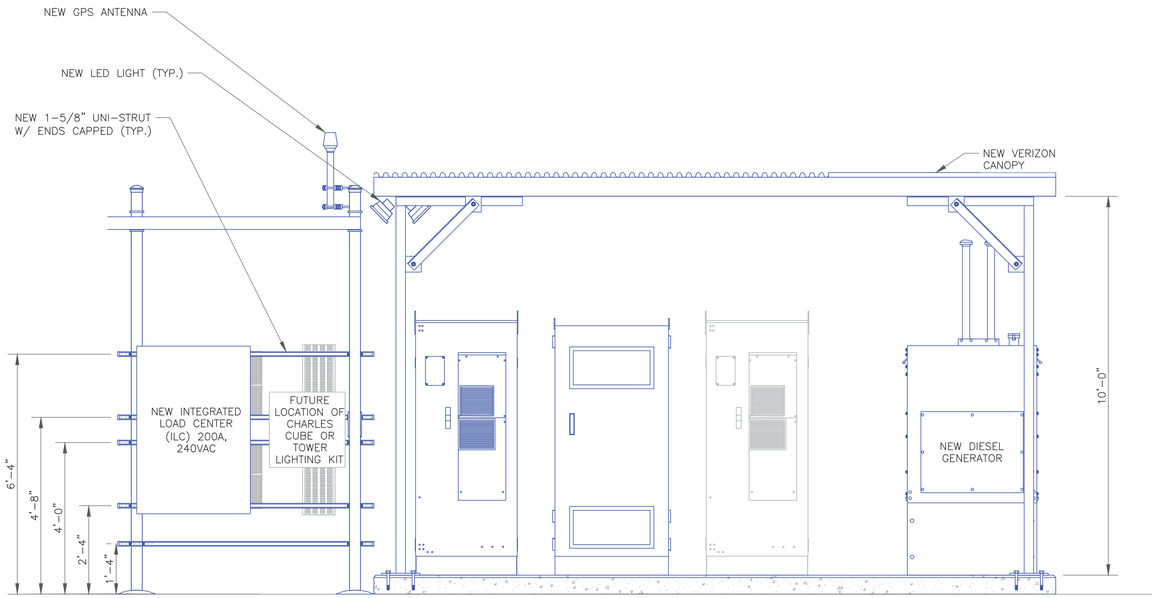
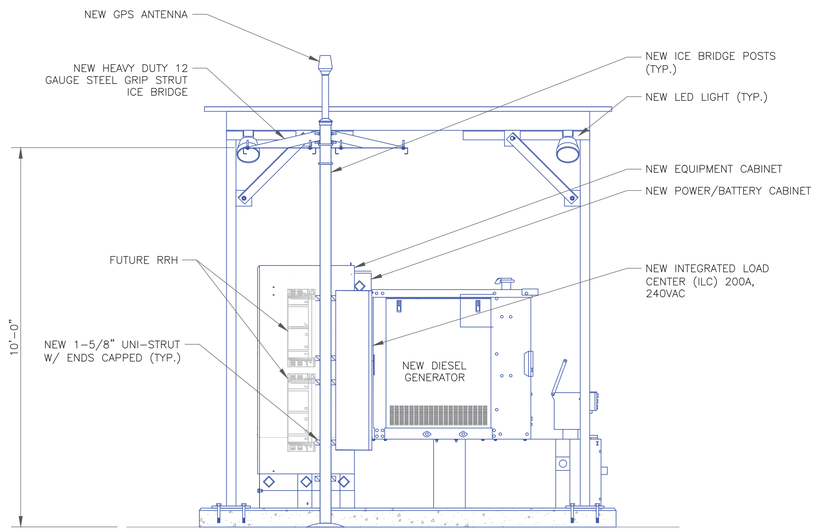


1 EQUIPMENT PAD PLAN IN 12'-0"x30'-0" LEASE AREA
SCALE: NOT TO SCALE



2 FRONT ELEVATION
SCALE: NOT TO SCALE



3 SIDE ELEVATION
SCALE: NOT TO SCALE

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SHEET NUMBER: C-6
REVISION: 1

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STORM WATER POLLUTION PREVENTION NOTES

1. ALL WORK SPECIFIED AS A/AN DOT ITEM SHALL BE GOVERNED BY THE CURRENT DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATION HANDBOOK. IT IS CONTRACTORS RESPONSIBILITY TO POSSESS AND BE FAMILIAR WITH APPLICABLE SECTIONS.
2. THIS CONTRACT DRAWING SHALL BE MADE AVAILABLE ON SITE AT ALL TIMES AND PRESENTED UPON REQUEST. IF UNFORESEEN STORM WATER POLLUTION PREVENTION IS ENCOUNTERED, ADDITIONAL STORM WATER POLLUTION PREVENTION (SWPP) MEASURES MAY BE REQUESTED BY THE OWNER, COUNTY ENGINEER, PROJECT ENGINEER OR SOIL CONSERVATION SERVICE REPRESENTATIVE AT ANYTIME. SUCH REQUESTS SHALL BE IMPLEMENTED IMMEDIATELY AT CONTRACTOR'S EXPENSE.
3. ALL STORM WATER POLLUTION PREVENTION ITEMS SHALL BE INSTALLED AS SHOWN OR NOTED ON THIS SHEET.
4. PLANT TEMPORARY SEEDING AND MULCHING IN ALL AREAS THAT SHALL BE INACTIVE FOR 15 DAYS OR MORE. ALL DISTURBED AND ERODED EARTH SHALL BE REGRADED AND SEEDED WITHIN 14 DAYS WITH SEEDING, AS DEFINED ABOVE AND AS SHOWN ON THE TABLE BELOW. TO ESTABLISH STABILITY AND PROVIDE SEDIMENT CONTROL, WHERE POSSIBLE. TEMPORARY SEEDING GROWTH SHALL NOT BE MOWED UNTIL IT HAS GONE TO SEED FOR 1 YEAR.

SEEDING DATES	SEED TYPE	APPLICATION RATE PER 1,000 S.F.
MARCH 1 – AUGUST 15	OATS PERENNIAL RYE GRASS OR TALL FESCUE	3# 1#
AUGUST 16 – NOVEMBER 1	RYE, WHEAT OR PERENNIAL RYE GRASS TALL FESCUE	 3# 1#
AFTER NOVEMBER 1	STRAW OR HAY MULCH	2–3 BALES
SEED BED PREPARATION	LIME 10–10–10 OR 12–12–12 FERTILIZER	100# 12–15#

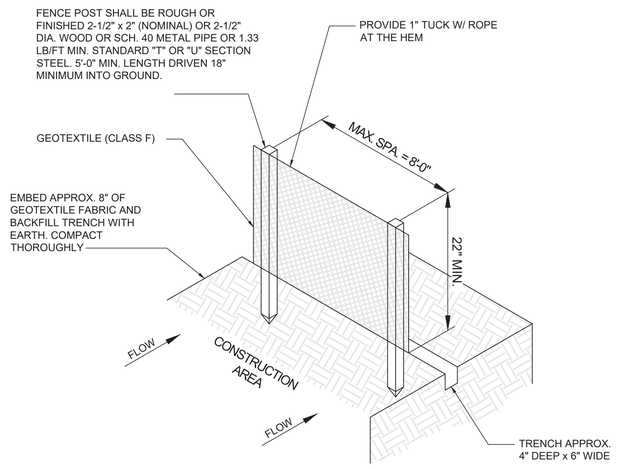
5. PERMANENT VEGETATION SHALL BE INSTALLED WITHIN 10 DAYS AT THE COMPLETION OF ANY GRADED AREAS, WEATHER PERMITTING. ALL PERMANENT VEGETATION SHALL CONSIST OF PLANTING AND SOD AS DETAIL ON THE LANDSCAPE PLAN L-1
6. AT SUCH TIME ROUGH GRADING OF THE SITE IS COMPLETE AND DRAINAGE DIVERTS TO INLETS, INLET SEDIMENT FILTERS SHALL BE INSTALLED AT ALL INLET STRUCTURES TO KEEP PIPING SYSTEMS FREE OF SILTATION.
7. SILT BARRIERS SHALL BE INSTALLED AROUND ALL EXISTING OR NEW STORM INLETS, CATCH BASINS, AND YARD DRAINS. INSTALL ROCK CHECK DAMS FOR HEADWALL INLETS FOR STORM WATER POLLUTION PREVENTION.
8. STORM WATER POLLUTION PREVENTION MEASURES SHALL BE INSTALLED OR TOPSOIL STOCKPILES AND OTHER TEMPORARILY DISTURBED AREAS AS SHOWN ON THESE PLANS AND AS DIRECTED BY THE ENGINEER.
9. CONTRACTOR SHALL INSPECT ALL SWPP MEASURES DAILY AND REPAIR AS NECESSARY TO PREVENT EROSION. SILTATION SHALL BE REMOVED FROM AREAS WHERE FAILURES HAVE OCCURRED AND CORRECTIVE ACTION TAKEN WITHIN 24 HOURS TO MAINTAIN ALL SWPP.
10. SILT BARRIERS, CONSTRUCTION ENTRANCES, AND SILT FENCES SHALL REMAIN IN PLACE UNTIL A GOOD STAND OF GRASS HAS BEEN OBTAINED AND/OR PAVING OPERATIONS ARE COMPLETE. CONTRACTOR SHALL KEEP SILT FROM ENTERING ANY STORM DRAINAGE SYSTEM. ONCE SITE HAS BEEN COMPLETELY STABILIZED, ANY SILT IN PIPES AND DRAINAGE SWALES SHALL BE REMOVED WITHIN 10 DAYS.
11. TEMPORARY SEDIMENTATION AND STORM WATER POLLUTION PREVENTION MEASURES MUST BE INSPECTED AND LOGGED BY THE CONTRACTOR FOR INSPECTION, LOGGING SHALL BE WEEKLY AND AFTER RAIN STORMS.
12. UTILITY COMPANIES MUST COMPLY WITH ALL STORM WATER POLLUTION PREVENTION MEASURES AS DEFINED ON THE STORM WATER PREVENTION PLANS, DETAILS AND NOTES.
13. THE TOTAL AREA OF DISTURBANCE FOR THIS PROJECT IS 0.386 ACRES.
14. ALL EXISTING WATER COURSES WITHIN THE PROJECT LIMITS SHALL BE TEMPORARILY PROTECTED DURING LAND CLEARING AND GRADING OPERATIONS. SOILS WITHIN 50 FEET OF SAID WATER COURSES SHALL BE STABILIZED WITHIN 2 DAYS OF THE INITIAL CLEARING / GRADING OPERATION AS SHOWN ON PLANS.
15. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.
16. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL SEDIMENTATION AND STORM WATER POLLUTION PREVENTION ITEMS AT ALL TIMES.
17. IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN ALL SEDIMENTATION AND STORM WATER POLLUTION PREVENTION ITEMS AT ALL TIMES.
18. ALL STORM WATER POLLUTION PREVENTION PRACTICES WILL BE INSTALLED BEFORE ANY OTHER EARTH MOVING OCCURS.
19. THE FOLLOWING STORM WATER POLLUTION PREVENTION AND SEDIMENT CONTROL MEASURES WILL BE USED ON THIS SITE:
    1. SILT BARRIERS
    2. SILT FENCE
    3. CONSTRUCTION ENTRANCE

CONSTRUCTION SEQUENCE

1. STAKE AND/OR FLAG LIMITS OF CLEARING
2. DURING PRECONSTRUCTION MEETING ALL EROSION & SEDIMENT CONTROL FACILITIES & PROCEDURES SHALL BE DISCUSSED.
3. CLEARING & GRUBBING, AS NECESSARY, FOR INSTALLATION OF PERIMETER CONTROLS.
4. INSTALL SILT FENCE PERIMETER CONTROLS AS SHOWN ON PLANS.
5. INSTALL CONSTRUCTION ENTRANCE, IF CONDITIONS ARE SUCH THAT MUD IS COLLECTION ON VEHICLE TIRES, THE TIRES MUST BE CLEANED BEFORE THE VEHICLES ENTER THE PUBLIC ROADWAY. THE SITE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING OR FLOW OF MUD INTO THE PUBLIC RIGHT-OF-WAY. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO THE ROADWAY MUST BE REMOVED PROMPTLY.
6. CLEARING & GRUBBING THE REMAINING SITE AS NECESSARY.
7. BEGIN FILLING & GRADING AS REQUIRED TO REACH SUBGRADE.
8. CONSTRUCT AND MAINTAIN TEMPORARY DRAINAGE SWALE DURING FILLING AND GRADING ACTIVITIES.
9. CONSTRUCT SITE WORK INCLUDING STORM DRAINAGE FACILITIES.
10. UPON INSTALLATION OF STORM DRAINAGE CATCH BASINS, INSTALL INLET PROTECTION.
11. MAINTAIN EROSION & SEDIMENTATION CONTROL MEASURES UNTIL THE SITE HAS BEEN COMPLETELY STABILIZED.
12. REMOVE SEDIMENT CONTROLS.

SILT FENCE AND EROSION CONTROL NOTES:

1. GEOTEXTILE FABRIC TO BE FASTENED SECURELY TO FENCE POSTS BY WIRE TIES OR HOG RINGS.
2. ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE FABRIC SHALL BE SECURELY FASTENED TO A COMMON POST OR OVERLAPPED 3'-0" MINIMUM.
3. THIS DEVICE IS INTENDED TO CONTROL SHEET FLOW ONLY. IT WILL NOT BE USED IN AREAS OF CONCENTRATED FLOW WITH A DRAINAGE ARE OF 1/2 ACRE OR MORE.
4. ALL SILT FENCING SHALL BE INSTALLED PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES, AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETED.



SILT FENCE DETAIL

(NOT TO SCALE)

1 EROSION CONTROL NOTES
SCALE: NOT TO SCALE

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SHEET NUMBER: C-7

REVISION: 1

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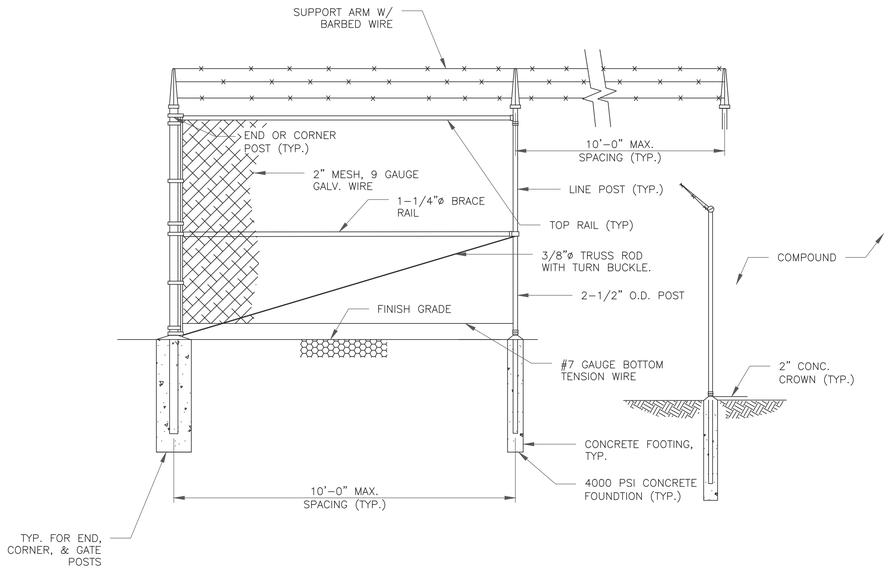
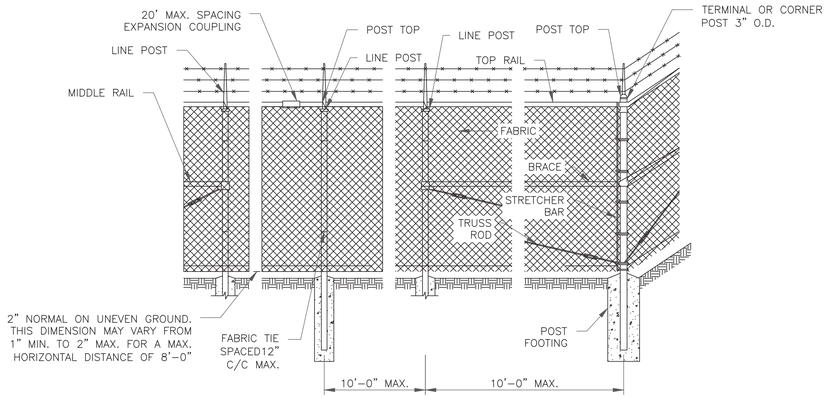


1 CHAIN LINK FENCE DETAIL
SCALE: NOT TO SCALE



2 POST/CORNER POST ARRANGEMENT
SCALE: NOT TO SCALE

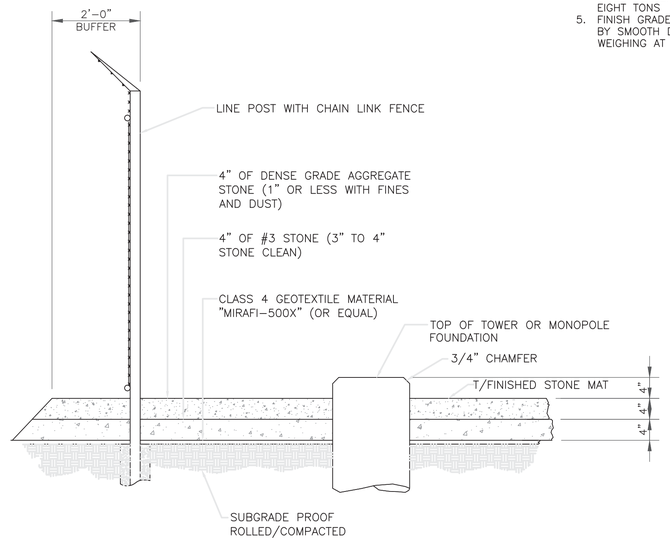
NOTES:

-WHEN FACE WITH SLOPES LESS THEN 2 TO 1 SLOPE, ALL SLOPES SHOULD BE DOZER TRACKED PRIOR TO SEEDING. ALL SLOPES SHOULD HAVE EROSION CONTROL BLANKETS OR RIP RAP EMBEDDED ON SLOPE SURFACES TO REDUCE EROSION

EXAMPLE OF CONSTRUCTION OF DRAINAGE DITCH LINE AND SLOPES AS SHOWN.

-ALL FLOW LINES MUST BE INSTALLED AT A MINIMUM OF 6" BELOW SUB-GRADE OF COMPOUND.

(UNLESS NOTED OTHERWISE)



3 SITE COMPOUND AREA RESURFACING
SCALE: NOT TO SCALE

NOTES:

1. USE OF SWALES AND/OR DRAINAGE DITCHES FOR PROPER WATER RUNOFF AS NEEDED
2. AGGREGATE IS BASED ON STANDARD AASHTO
3. SLOPE NOT TO EXCEED 1/4" PER FOOT TO MAX. GRADE OF 6" FROM CENTER OF COMPOUND TO EACH FENCE LINE
4. SUB-GRADE SHALL BE COMPACTED BY SHEEPS FOOT VIBRATOR OR RUBBER TIRED ROLLERS WEIGHING AT LEAST EIGHT TONS
5. FINISH GRADE SHALL BE COMPACTED BY SMOOTH DRUM VIBRATOR ROLLERS WEIGHING AT LEAST EIGHT TONS.

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STATE OF CONNECTICUT
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LICENSED
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11/30/22

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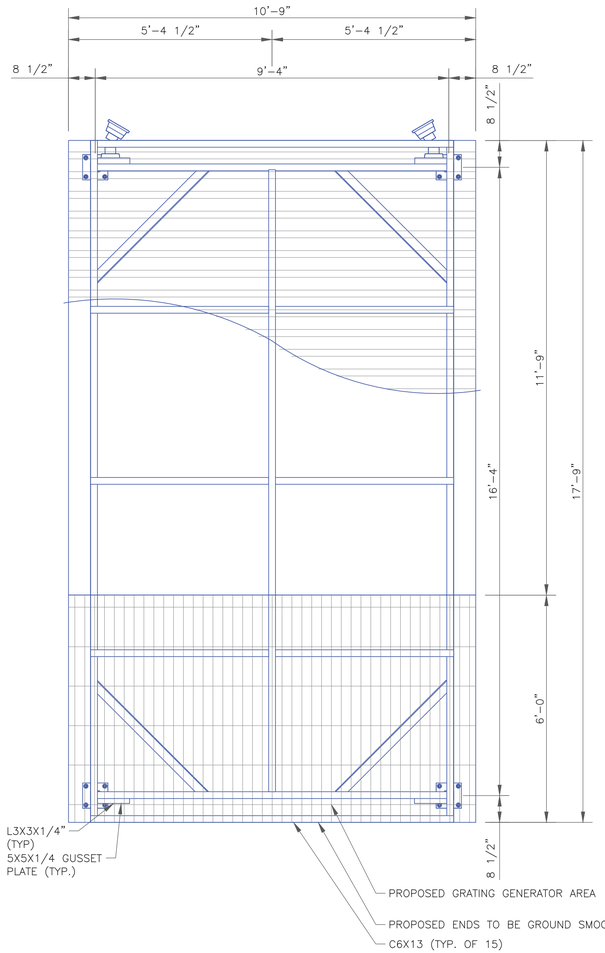
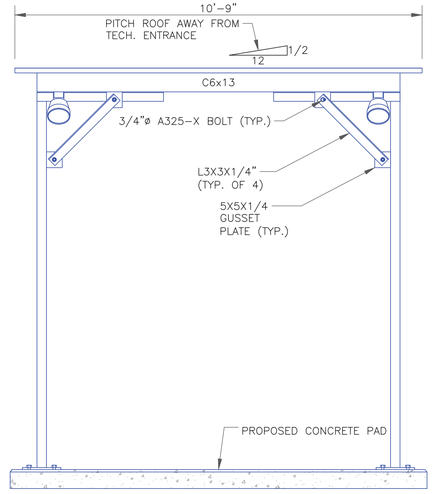
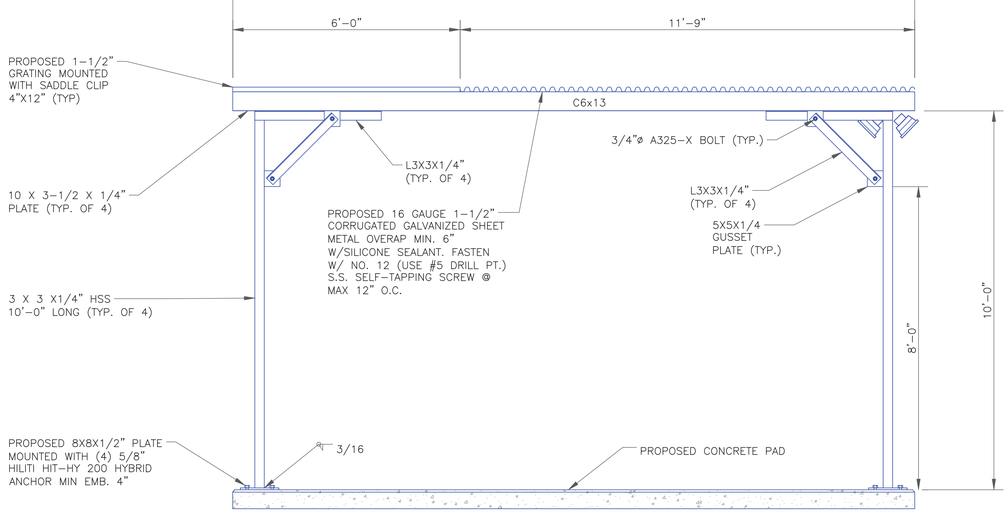


1 ICE CANOPY DETAIL PLAN
SCALE: NOT TO SCALE



2 ICE CANOPY DETAIL SIDE
SCALE: NOT TO SCALE



3 ICE CANOPY DETAIL ELEVATION
SCALE: NOT TO SCALE

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SHEET NUMBER: C-9

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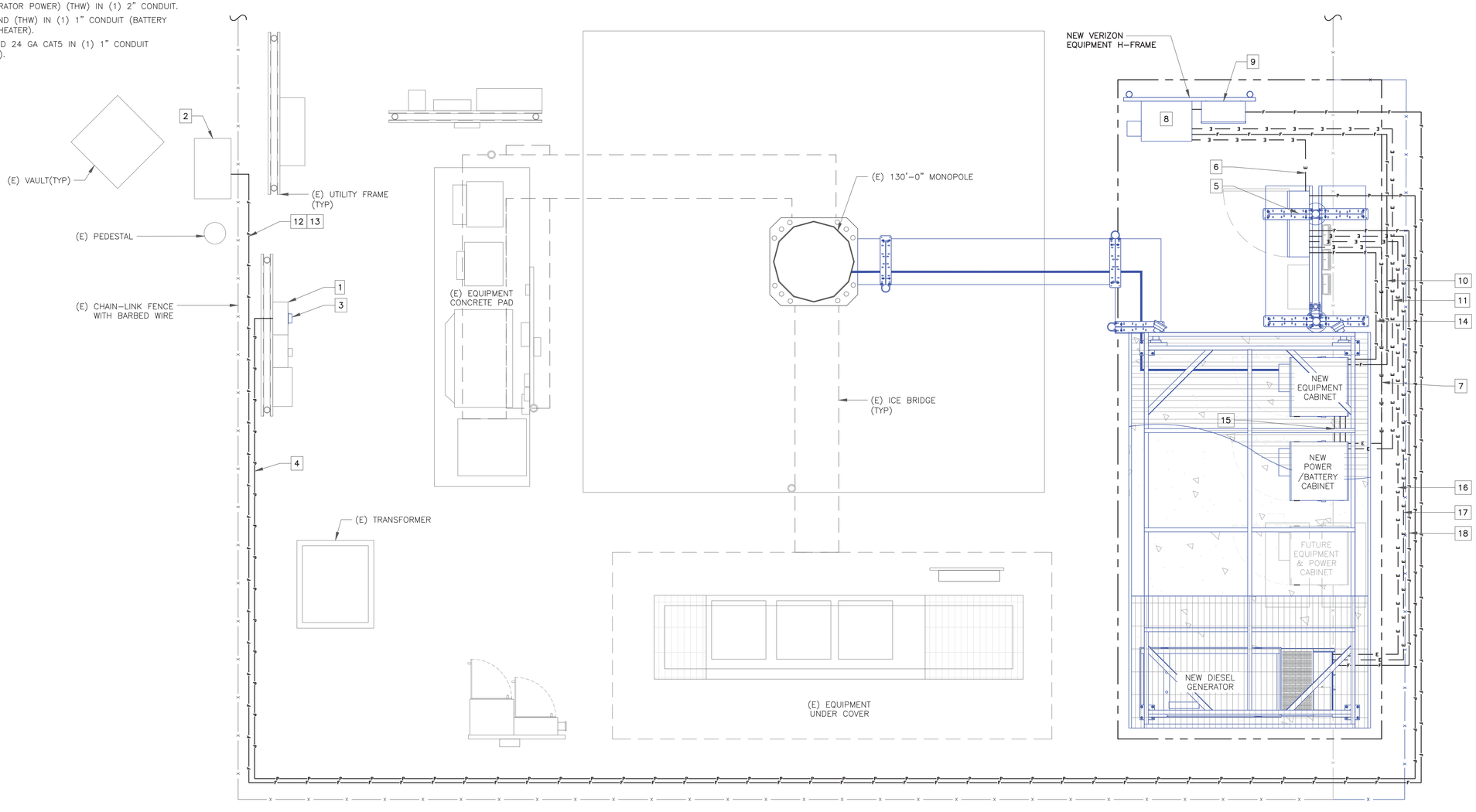
CODED DRAWING NOTES:

1. EXISTING METER BANK
2. EXISTING FIBER HANDHOLE
3. NEW METER WITH 200A MAIN BREAKER IN EXISTING EMPTY METER SOCKET ON UTILITY H-FRAME TO BE UTILIZED BY VERIZON
4. 3" SCH 40 PVC CONDUIT FOR ELECTRIC FROM SERVICE DISCONNECT (OCPD) TO ILC ON EQUIPMENT PAD H-FRAME (90'±)
5. INTEGRATED LOAD CENTER (ILC) – 200AMP/ 120/240 VAC MOUNTED ON EQUIPMENT PAD H-FRAME (ILC COMES EQUIPPED WITH (2) MAIN BREAKERS ONLY – G.C. SHALL PROVIDE ALL MISCELLANEOUS BREAKERS)
6. 2" SCH 40 PVC CONDUIT FOR ELECTRIC FROM (ILC) TO CUBE (9'±)
7. (1) 3" SCH 40 PVC CONDUIT FROM ILC TO EQUIPMENT & POWER CABINETS (13'±)
8. CHARLES UNIVERSAL BROADBAND ENCLOSURE (CUBE)
9. 24" x 24" x 12" NEMA 3R FIBER BOX W/ RUBBER SEAL & LOCKING KNOB ENTRY LATCH
10. 2" SCH 40 PVC CONDUIT FOR FIBER / ALARM CABLES FROM CUBE TO EQUIPMENT CABINET ON EQUIPMENT PAD (20'±)
11. 2" SCH 40 PVC CONDUIT FOR –48VDC ELECTRIC FROM CUBE TO EQUIPMENT & POWER CABINET (20'±)
12. NEW FIBER FROM EXISTING SOURCE IN EXISTING FIBER BOX (FIELD VERIFY ROUTE)
13. (2) 4" SCH 40 PVC CONDUITS – BOTH WITH (3) 1–1/4" SMOOTH WALL INNERDUCTS W/ PULL STRING & TRACER WIRE (#12 AWG STRANDED W/ ORANGE JACKET) FROM EXISTING UTILITY POLE TO NEW CHARLES UNIVERSAL BROADBAND ENCLOSURE (CUBE) (PENDING ROUTE BY OTHERS)
14. (1) 1" SCH 40 PVC CONDUIT FOR ALARMS FROM EQUIPMENT CABINET TO ILC (10'±).
15. (3) 3" SCH 40 PVC CONDUITS FOR POWER BETWEEN CABINETS (2'±).
16. (3) 3/0 W/ (1) #6 GROUND (GENERATOR POWER) (THW) IN (1) 2" CONDUIT.
17. (6) #10 (3–H/3–N) W/ #10 GROUND (THW) IN (1) 1" CONDUIT (BATTERY CHARGER, BATTERY HEATER, BLOCK HEATER).
18. (2) #16 W/ (2) 12–PAIR GEL–FILLED 24 GA CAT5 IN (1) 1" CONDUIT (TWO–WIRE START & ALARM CABLING).



1 UTILITY PLAN
SCALE: 2' 1' 0 2' 3/8"=1'–0" (FULL SIZE) 3/16"=1'–0" (11x17)

N

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SUITE 300
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VERIZON SITE NUMBER:
617226648

BU #: **876359**
NORWICH

954 NORWICH ROAD
PLAINFIELD, CT 06062

EXISTING 130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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CT DEPARTMENT OF CONSUMER PROTECTION
No. 23824
LICENSED
PROFESSIONAL ENGINEER
11/30/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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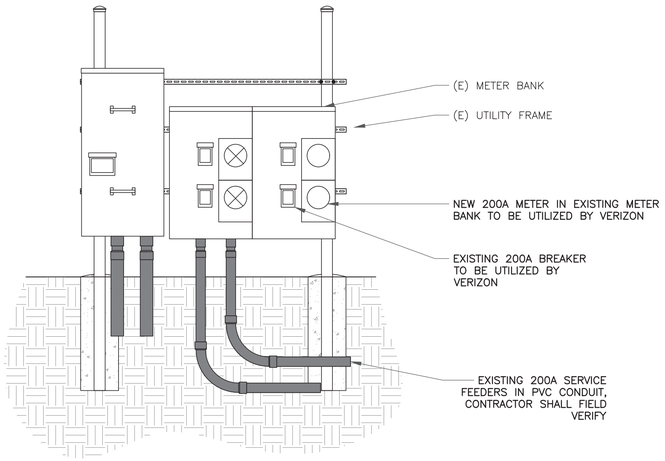
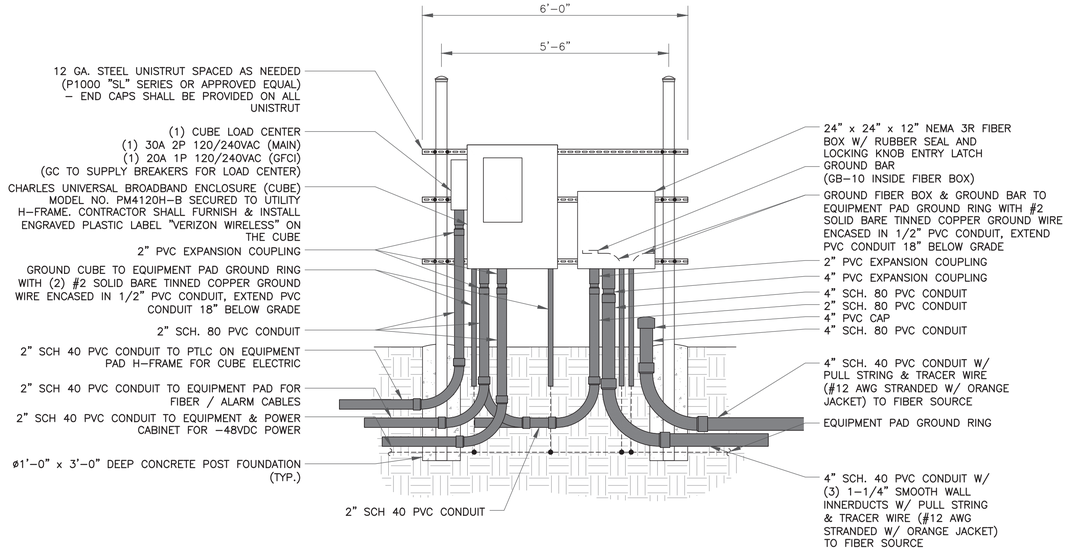
SHEET NUMBER: E-1
REVISION: 1

79791.005.01.0001_876359_NORWICH.dwg – Sheet:E–1 – User: chad.vandergraft – Nov 30, 2022 – 5:00pm

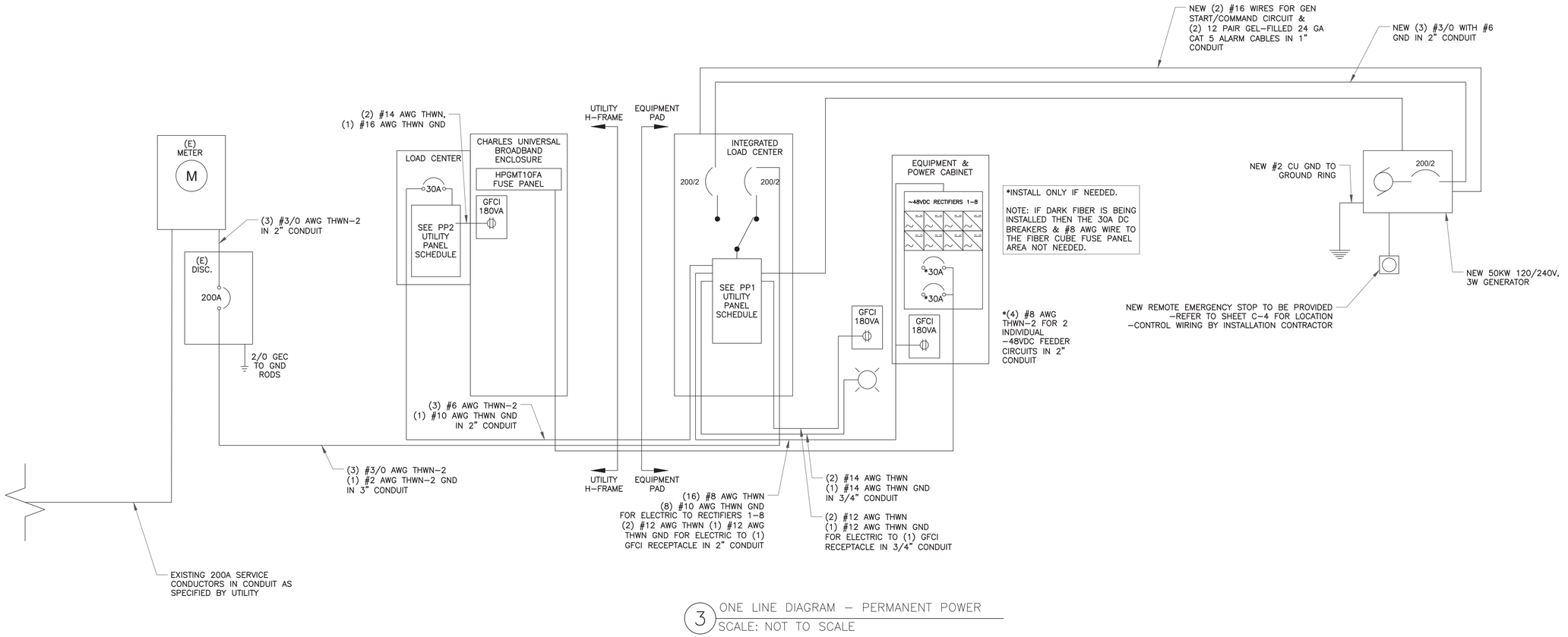
25 PAIR ALARM CABLE FROM THE CUBE TO THE ALARM PANEL INSIDE THE EQUIPMENT & POWER CABINET LOCATED ON THE EQUIPMENT PAD.



1 METER/DISCONNECT H-FRAME DETAIL
SCALE: NOT TO SCALE



2 CUBE/FIBER H-FRAME DETAIL
SCALE: NOT TO SCALE



3 ONE LINE DIAGRAM – PERMANENT POWER
SCALE: NOT TO SCALE

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SHEET NUMBER: E-2

REVISION: 1

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SITE NAME:	**HOPEFUL HEIGHTS RELHR**				**MODEL NUMBER:**	**TBD**									
VOLTAGE:	**240V/120**				**PHASE:**	**1**			**WIRE:**	**3**					
MAIN BREAKER:	**200A**				**BUSS RATING:**	**200 AMPS**			**AIC:**	**22K**					
MOUNT:	**SURFACE**				**NEUTRAL BAR:**	**YES**			**GROUND BAR:**	**YES**					
ENCLOSURE TYPE:	**NEMA 3R**				**N to GROUND BOND:**	**NO**									
PANEL STATUS:	**PROPOSED**				**SPD:**	**YES**									
CKT	**LOAD DESCRIPTION**	**BREAKER AMPS**	**BREAKER POLES**	**BREAKER STATUS**	**SERVICE LOAD VA**	**USAGE FACTOR**	**PHASE A VA**	**PHASE B VA**	**USAGE FACTOR**	**SERVICE LOAD VA**	**BREAKER STATUS**	**BREAKER POLES**	**BREAKER AMPS**	**LOAD DESCRIPTION**	**CKT**
1	RECTIFIER #1	30	2	ON	1000	1.25	2500		1.25	1000	ON	2	30	RECTIFIER 5	2
3					1000	1.25		2500	1.25	1000					4
5	RECTIFIER #3	30	2	ON	1000	1.25	2500		1.25	1000	ON	2	30	RECTIFIER 6	6
7					1000	1.25		2500	1.25	1000					8
9	RECTIFIER #5	30	2	ON	1000	1.25	2500		1.25	1000	ON	2	30	RECTIFIER 7	10
11					1000	1.25		2500	1.25	1000					12
13	RECTIFIER #7	30	2	ON	1000	1.25	2500		1.25	1000	ON	2	30	RECTIFIER 8	14
19					1000	1.25		2500	1.25	1000					16
21	GFCI RECEPTACLE	20	1	ON	180	1.00	360		1.00	180	ON	2	30	PP2 CUBE LOAD CENTER	18
19	GFCI RECEPTACLE	20	1	ON	180	1.00		360	1.00	180					20
21	GFCI RECEPTACLE	20	1	ON	180	1.00	1680		1.00	1500	ON	1	20	BLOCK HEATER	22
23	LED LIGHTS	15	1	ON	400	1.25		740	1.00	240	ON	1	20	BATTERY CHARGER	24
25	SPACE	---	---	N/A	0	1.00	1500		1.00	1500	ON	1	20	BATTERY HEATER	26
27	SPACE	---	---	N/A	0	1.00		0	1.00	0	N/A	---	---	SPACE	28
29	SPACE	---	---	N/A	0	1.00	0		1.00	0	N/A	---	---	SPACE	30
31	SPACE	---	---	N/A	0	1.00		0	1.00	0	N/A	---	---	SPACE	32
33	SPACE	---	---	N/A	0	1.00	0		1.00	0	N/A	---	---	SPACE	34
35	SPACE	---	---	N/A	0	1.00		0	1.00	0	N/A	---	---	SPACE	36
37	SPACE	---	---	N/A	0	1.00	0		1.00	0	N/A	---	---	SPACE	38
39	SPACE	---	---	N/A	0	1.00		0	1.00	0	N/A	---	---	SPACE	40
41	SPACE	---	---	N/A	0	1.00	0		1.00	0	N/A	---	---	SPACE	42
							13540	**11100**	**VA**			**TOTAL KVA**	**24.64**		
												AMPS	**102.67**		

NOTES:

ILC COMES EQUIPPED WITH (2) MAIN BREAKERS ONLY. GC SHALL PROVIDE ALL MICELLANEOUS BREAKERS.

PP2 CUBE LOAD CENTER — **30A, 120/240V 1o3W, 60HZ**

CKT	**LOAD DESCRIPTION**	**BREAKER AMPS**	**BREAKER POLES**	**BREAKER STATUS**	**SERVICE LOAD VA**	**USAGE FACTOR**	**PHASE A VA**	**PHASE B VA**
1	GFCI RECEPTACLE	20	1	ON	180	1.00	180	
2	GFCI RECEPTACLE	20	1	ON	180	1.00		180
3	---	---	---	---	0	1.00	0	
4	---	---	---	---	0	1.00		0
5	---	---	---	---	0	1.00	0	
6	---	---	---	---	0	1.00		0
							180	180
							TOTAL KVA	0.36
							AMPS	1.50

NOTES:

1 PANEL SCHEDULE
SCALE: NOT TO SCALE

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VERIZON SITE NUMBER:
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BU #: **876359**
NORWICH

954 NORWICH ROAD
PLAINFIELD, CT 06062

EXISTING 130'-0" MONOPOLE

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STATE OF CONNECTICUT — CHRISTOPHER VANDERGRAFT — No. 23824 — LICENSED PROFESSIONAL ENGINEER
11/30/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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SHEET NUMBER: E-3

REVISION: 1

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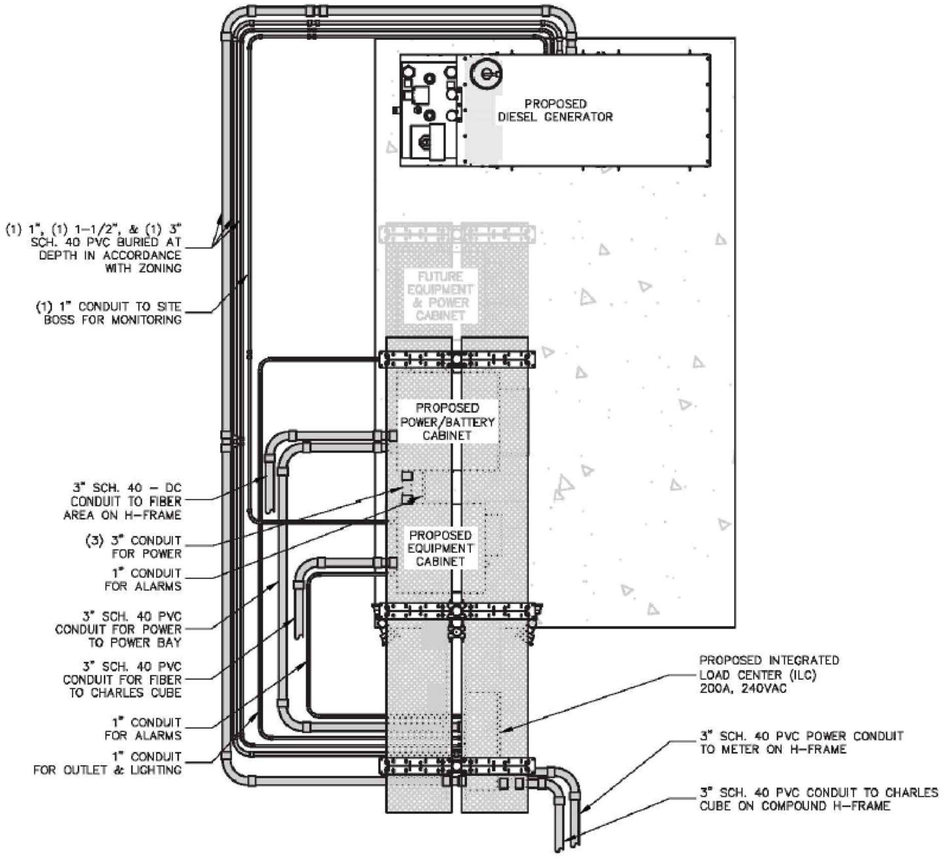


NOTE:

CONDUIT RUNS MAY BE EXAGGERATED FOR CLARITY.

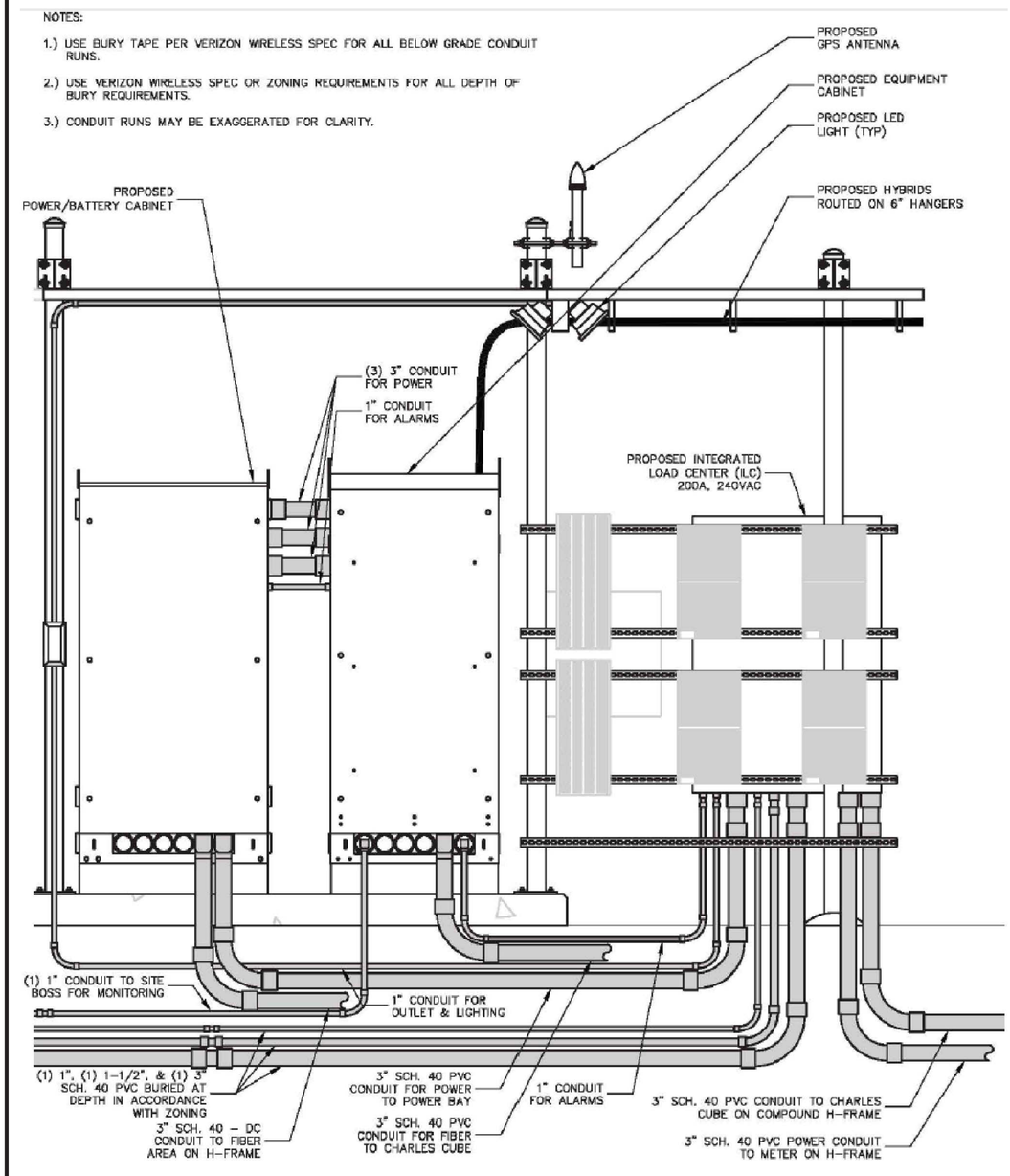
1 CONDUIT PLAN
SCALE: NOT TO SCALE

NOTES:

1.) USE BURY TAPE PER VERIZON WIRELESS SPEC FOR ALL BELOW GRADE CONDUIT RUNS.

2.) USE VERIZON WIRELESS SPEC OR ZONING REQUIREMENTS FOR ALL DEPTH OF BURY REQUIREMENTS.

3.) CONDUIT RUNS MAY BE EXAGGERATED FOR CLARITY.



2 H-FRAME DETAIL
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
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SHEET NUMBER: E-4

REVISION: 1

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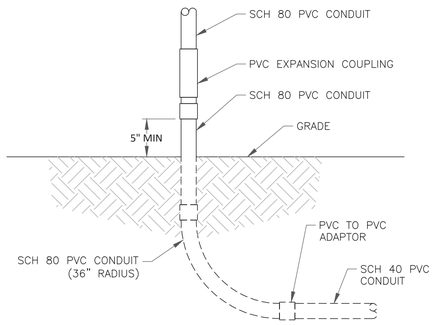
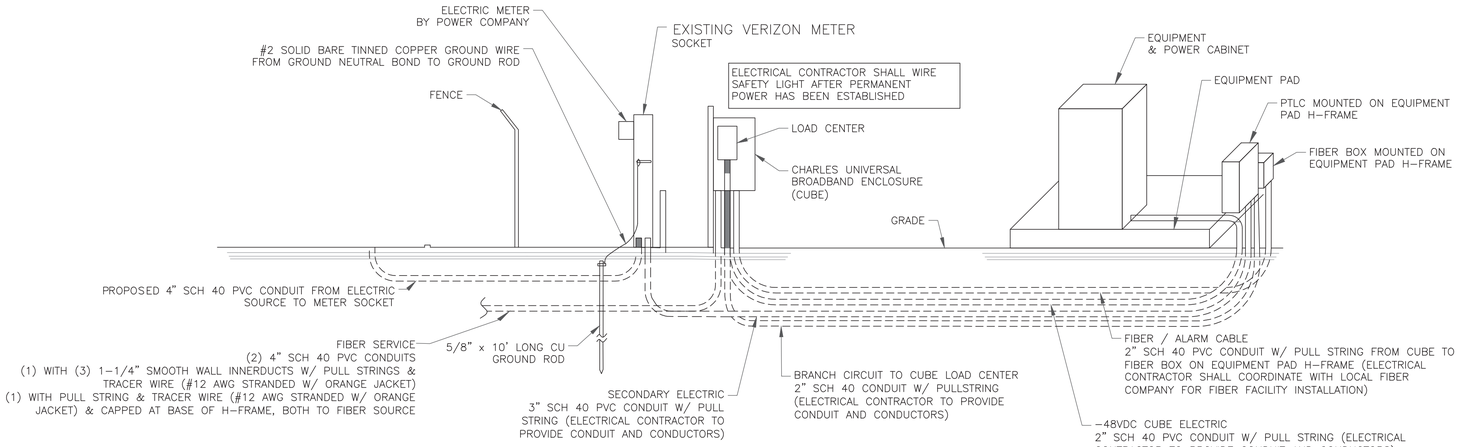
NOTES:

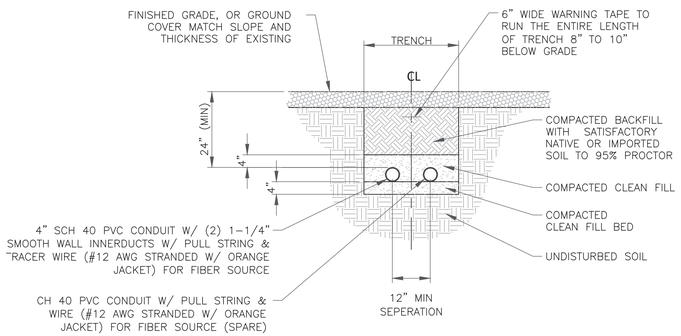
1. SEE E-1 SHEET FOR CONDUIT SIZES
2. ALL PVC CONDUITS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE SHALL HAVE EXPANSION COUPLINGS INSTALLED.



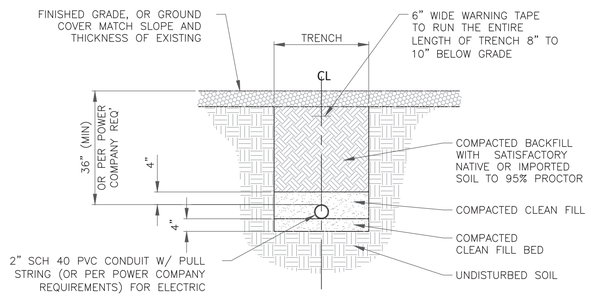
1 UNDERGROUND CONDUIT STUB-UP DETAIL
SCALE: NOT TO SCALE



2 TYPICAL ELECTRICAL RISER DIAGRAM
SCALE: NOT TO SCALE



3 FIBER TRENCH DETAIL (SOURCE)
SCALE: NOT TO SCALE



4 ELECRIC TRENCH DETAIL (SOURCE)
SCALE: NOT TO SCALE

UTILITY TRENCH NOTES:

1. CONDUIT SIZE, TYPE, QUANTITY, AND SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY.
2. ALL UTILITY TRENCHES WITHIN THE FENCED COMPOUND OR UNDER ANY PORTION OF A GRAVEL DRIVE AND/OR ROADWAY SHALL BE BACKFILLED WITH #57 COMPACTED AGGREGATE.
3. ALL CONDUITS SHALL BE INSTALLED WITH A PULL STRING.
4. ALL CONDUITS THAT ARE TO BE USED FOR FIBER/ALARM SHALL BE INSTALLED WITH A TRACER WIRE (#12 AWG STRANDED W/ ORANGE JACKET).
5. ALL CONDUITS SHALL BE CLEAN INSIDE WITH NO DIRT OR ANY OTHER OBSTRUCTIONS.
6. ALL BENDS MUST SWEEP 36" RADIUS AND MAXIMUM OF 3 SWEEPS. ANY ADDITIONAL SWEEPS MUST BE APPROVED BY THE POWER COMPANY.
7. THE CONTRACTOR SHALL VERIFY AND FOLLOW THE POWER COMPANY SPECIFICATIONS FOR INSTALLATIONS INVOLVING PAD MOUNTED TRANSFORMERS, UTILITY POLE, ETC...

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SHEET NUMBER: E-5

REVISION: 1

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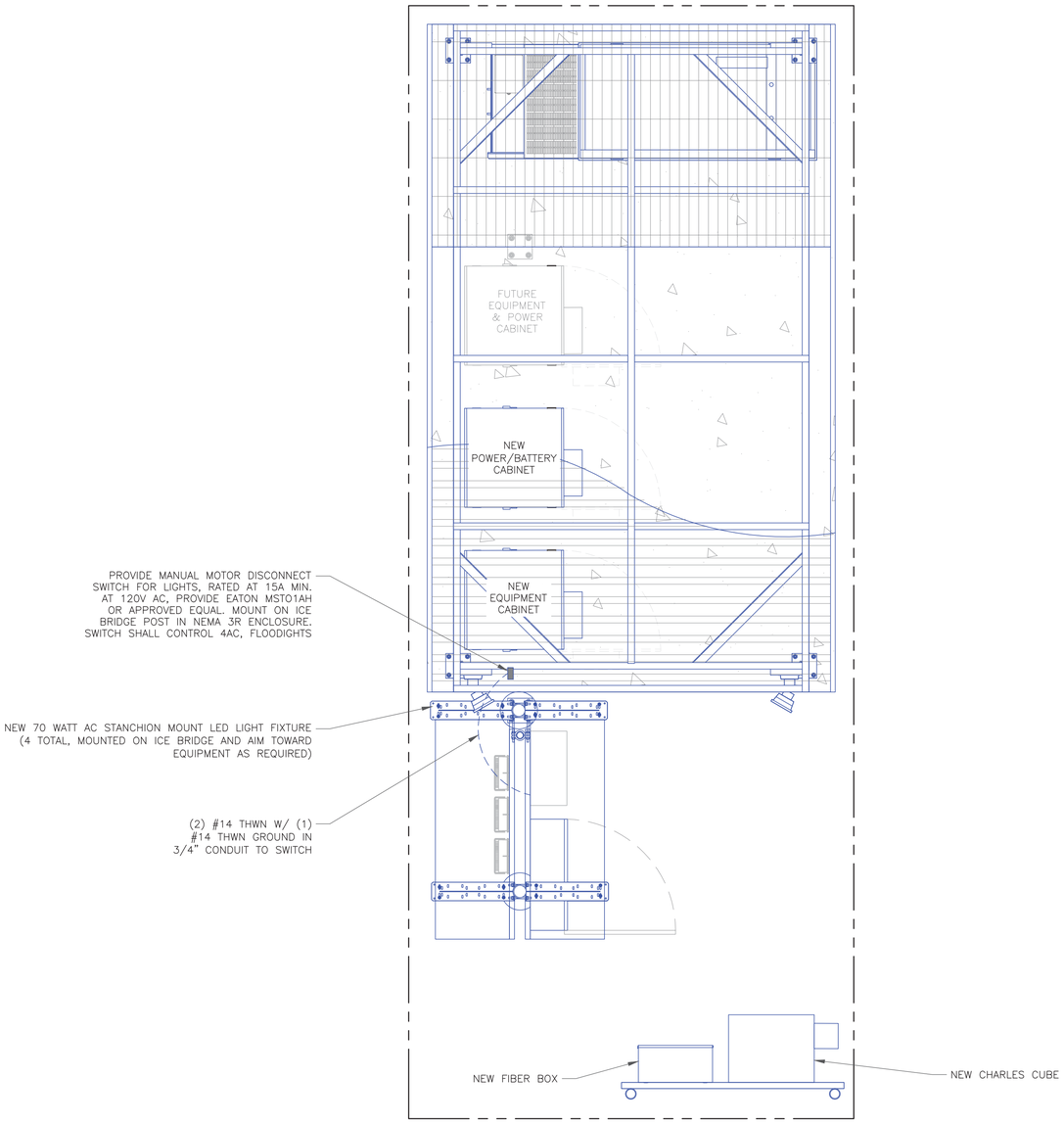

1 EQUIPMENT PAD LIGHTING PLAN
SCALE: NOT TO SCALE

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SHEET NUMBER: E-6

REVISION: 1

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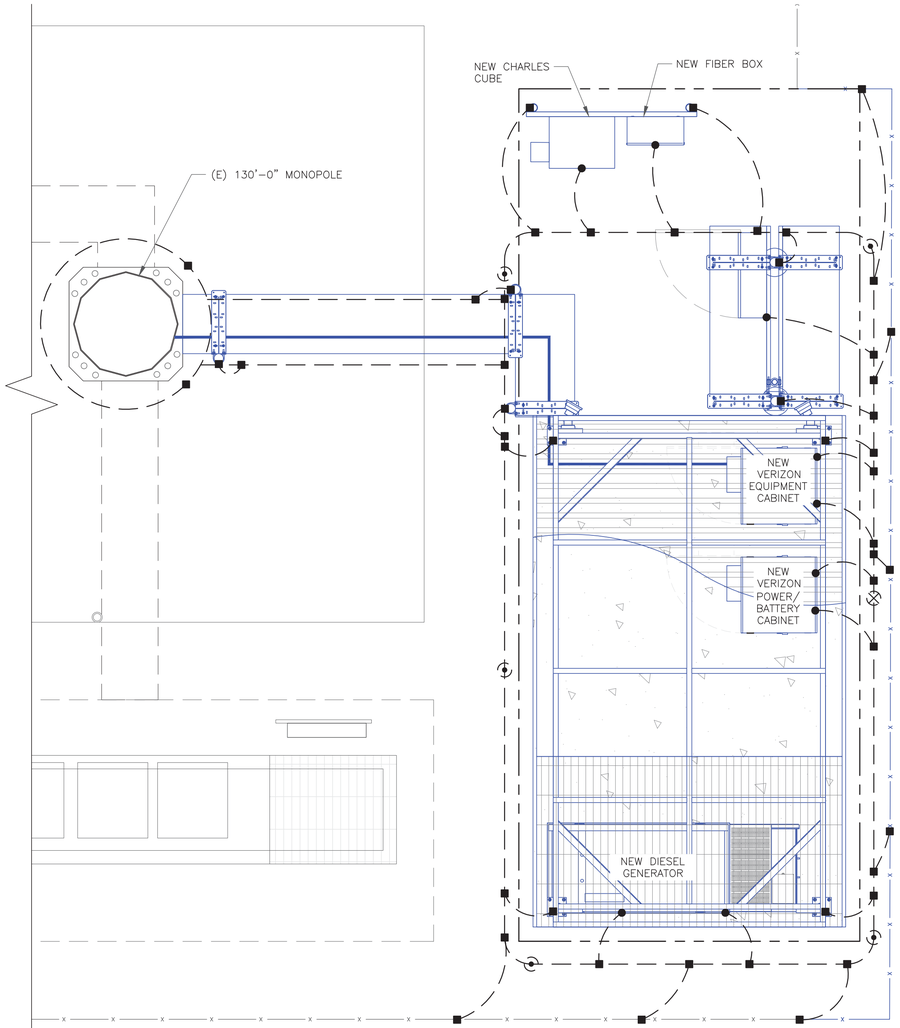
NOTES:

1. PROVIDE "ELECTRIC MOTION" TAMPER RESISTANT BUS BARS AT BULKHEAD AND ABOVE THE TURN AT THE ICE BRIDGE. UTILITY H-FRAME BUS BAR (IF REQUIRED) WILL BE AN ELECTRIC MOTION TINNED COPPER BUS BAR ON RED SEAL INSULATORS & STAINLESS STEEL BRACKET. COAT WITH ELECTRIC MOTION ANTI-THEFT COMPOUND.
2. CONTACT CONSTRUCTION MANAGER PRIOR TO BACKFILLING GROUNDING INSTALLATION.
3. ALL EXPOSED GROUND LEADS NEED TO USE EMC MODEL #2223-TMC THEFT-RESISTANT CABLE FROM 18" BELOW GRADE TO THE FINAL TERMINATION POINT. VERIFY ALL GROUND LEADS ARE VERTICAL AS THEY ENTER THE GROUND.
4. ALL BELOW GRADE GROUND LEADS ARE REQUIRED TO BE SEALED USING SEALTITE TO 18" BELOW GRADE. SEALTITE SHOULD EXTEND AS CLOSE AS POSSIBLE TO THE FINAL TERMINATION POINT AND FILL OPENINGS WITH SILICONE CAULKING.
5. ALL GROUND LEVEL BUS BARS NEED TO USE ANTI-THEFT MOUNTING HARDWARE.

NOTE: FOR ALL ABOVE GRADE CONNECTIONS TO TOWER, ICE BRIDGE, UTILITY H-FRAME, FENCE POSTS, GATE POSTS, GENERATORS, ETC... ALL OF THESE EXPOSED PIGTAILS SHALL BE WITH EMC MODEL #2223-TMC THEFT RESISTANT CABLE. THESE PIGTAILS SHALL THEN HAVE THE SHIELDS STRIPPED BACK AND CADWELDED TO THE TOWER AND EQUIPMENT PAD GROUND RING. ON LONG BELOW GRADE RUNS ONLY, THE ABOVE GROUND PORTIONS (FROM 18" BELOW GRADE UP TO ABOVE GRADE) SHALL BE IN THE EMC THEFT RESISTANT CABLE. CADWELD CONNECTIONS FOR IN-LINE BUT SPLICE FROM #2 TO THE EMC CABLE SHALL BE WITH SSC-1T.

NOTE:
"NO-OX-ID" SANCHEM INC. IS THE APPROVED GROUNDING COMPOUND



1 SITE PLAN
SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

NOTE: SEE SHEETS G-2 THROUGH G-3 FOR GROUNDING DETAILS

NOTE: ACTUAL RESISTANCE MUST BE MEASURED PRIOR TO CONNECTION TO THE POWER GRID.

GROUNDING PLAN LEGEND:

- #2 SOLID BARE TINNED COPPER GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- GROUND ROD W/ TEST WELL

NOTE TO CONTRACTOR:

ALL FENCE POSTS WITHIN 6' OF VERIZON GROUND EQUIPMENT MUST BE GROUNDED.

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SHEET NUMBER: G-1

REVISION: 1

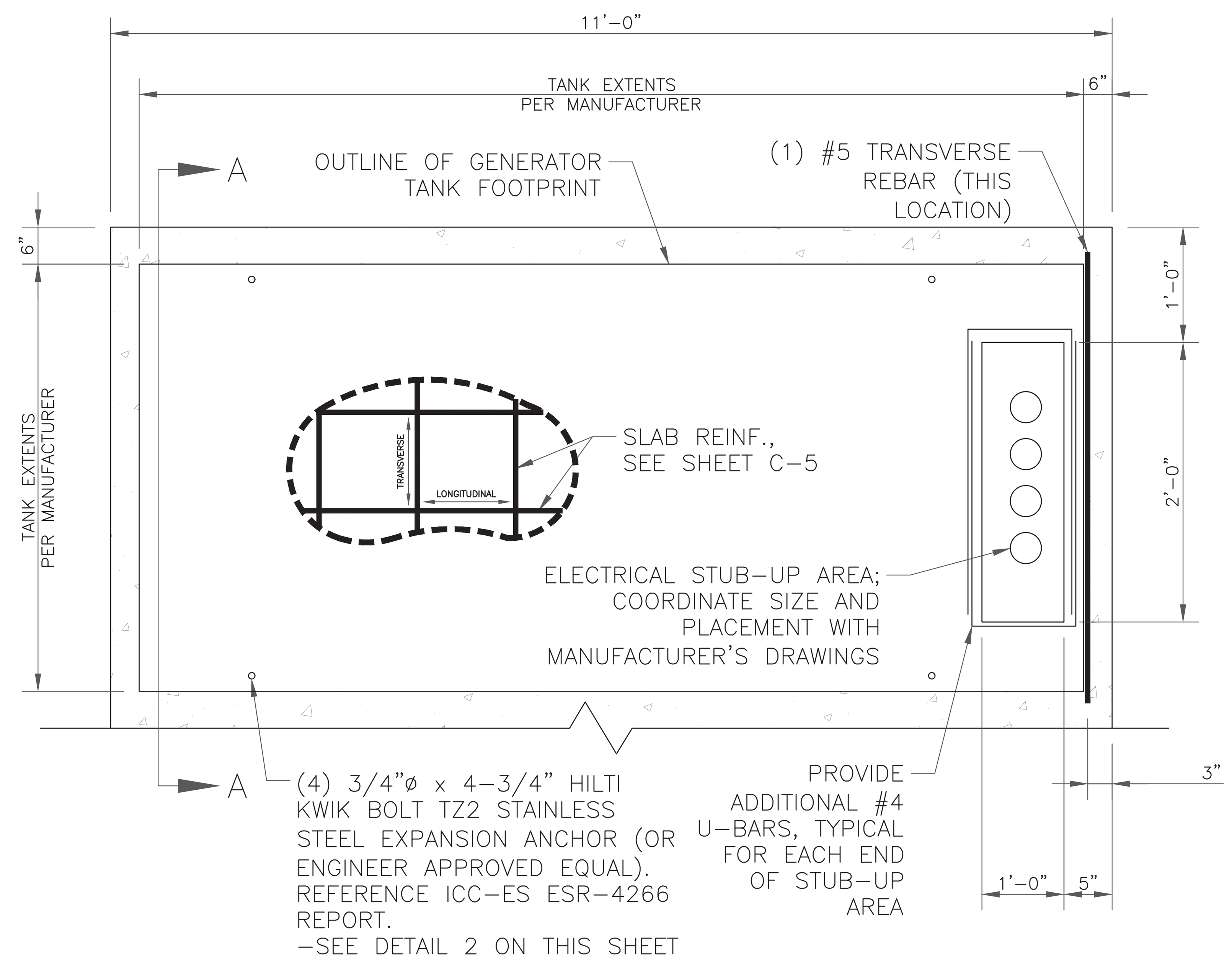
79791.005.01.0001_87639_NORWICH.dwg – Sheet:G-1 – User: chad.vandergraft – Nov 30, 2022 – 5:00pm

79791.005.01.0001_876359_NORWICH.dwg – Sheet:G-2 – User: chad.vandergraft – Nov 30, 2022 – 5:00pm

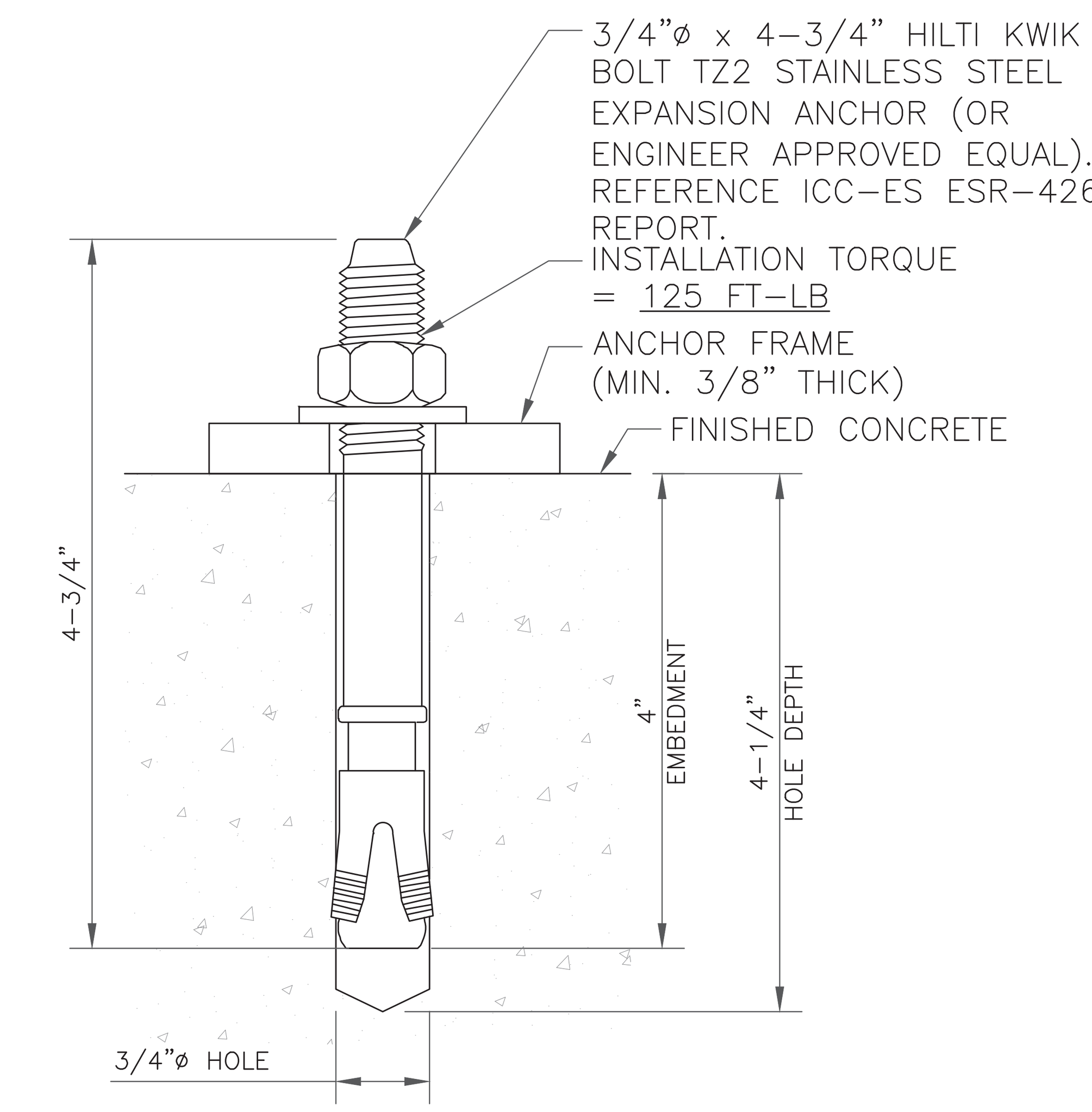
GENERAL NOTES:

1. FLEXIBLE UTILITY CONNECTIONS SHOULD BE USED AT UNDERGROUND TO GENERATOR INTERACTIONS.
2. INSTALL EQUIPMENT ANCHORAGE PER MANUFACTURER'S WRITTEN RECOMMENDATIONS.
3. THE ATTACHMENT OF THE GENERATOR TO THE FOUNDATION SLAB AND THE FOUNDATION ITSELF ARE DESIGNED TO RESIST A 3 SECOND GUST WIND SPEED OF 143 MPH (ULTIMATE WIND SPEED).
4. ELECTRICAL STUB-UP AREA WILL BE DETERMINED BY GENERATOR ORIENTATION.

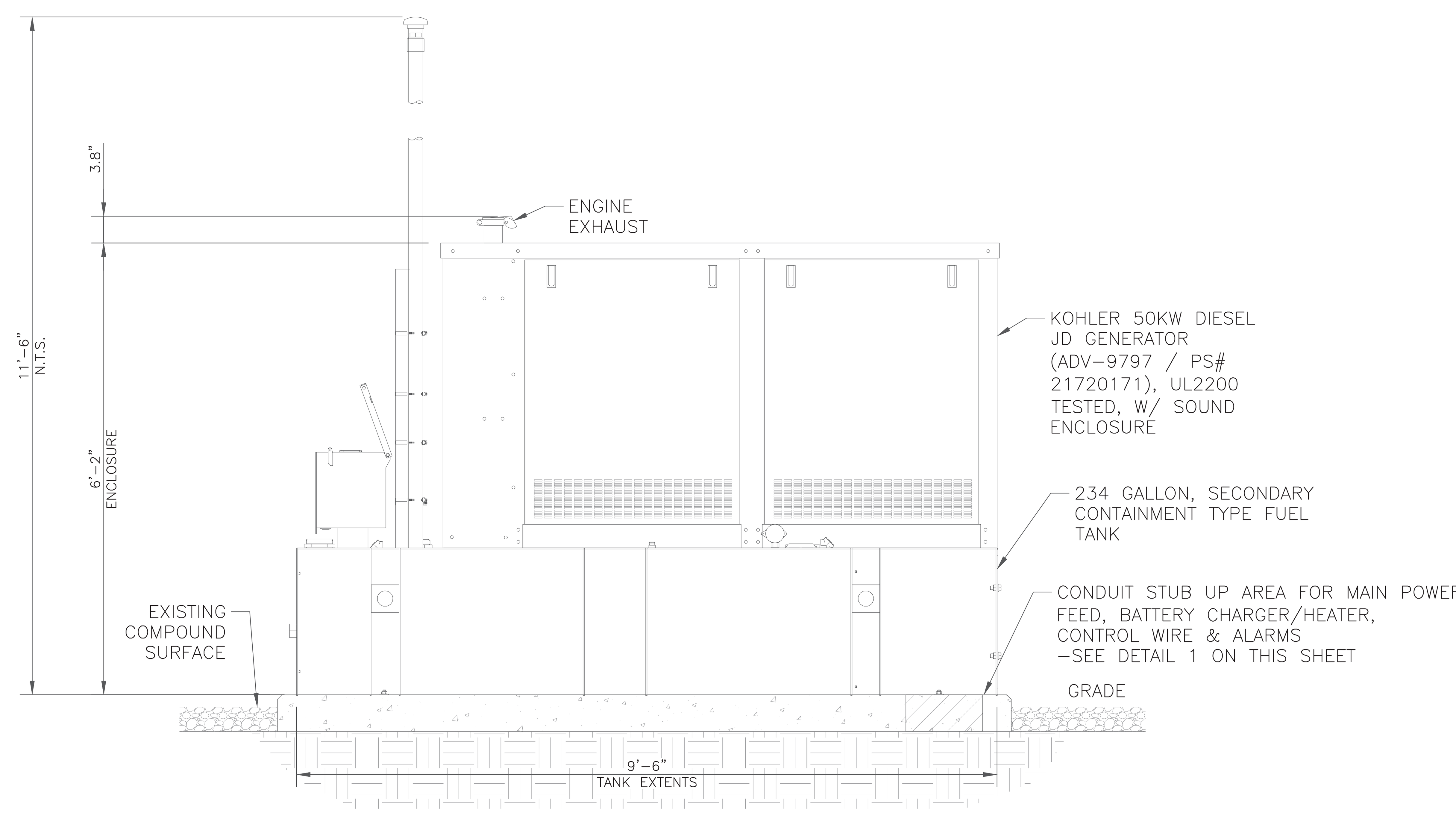
INSTALLER NOTE:
CONUIT STUB UP LOCATIONS SHALL BE COORDINATED ON SITE WITH CONSTRUCTION MANAGER, PRIOR TO INSTALLING CONCRETE PAD.



1 GENERATOR PAD DETAIL
SCALE: NOT TO SCALE



2 TYPICAL ANCHOR DETAIL
SCALE: NOT TO SCALE



3 ELEVATION VIEW
SCALE: NOT TO SCALE

NOTES

1. SEE GENERATOR MANUFACTURE'S DRAWINGS FOR PHYSICAL LOCATION OF FUEL LINES, CONTROL AND POWER INTERCONNECTIONS AND OTHER INTERFACES THAT ARE TO CAST INTO THE CONCRETE. THE PREFERRED METHOD IS TO BRING THE CONDUIT THROUGH THE PAD TO THE UNDERSIDE OF THE GENERATOR (MINIMIZES RODENT DAMAGE). FINISH CONNECTIONS WITH FLEXIBLE CONDUIT PER GENERATOR MANUFACTURES SPECS. RIGID CONDUITS SHALL BE SECURED TO THE EXISTING SLAB, THEN BURIED BETWEEN SLAB AND SHELTER.
2. THE GENERATOR SHALL BE LOCATED A MIN 5' AWAY FROM A COMBUSTIBLE WALL.
3. THE GENERATOR SHALL BE LOCATED A MIN OF 3' AWAY FROM A NON-COMBUSTIBLE WALL.

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VERIZON SITE NUMBER:
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BU #: **876359**
NORWICH

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EXISTING 130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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B	11/04/22	MEH	PRELIMINARY REVIEW	CV
0	11/22/22	MEH	CONSTRUCTION	ANP
1	11/30/22	YX	CONSTRUCTION	CV

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SHEET NUMBER: G-2
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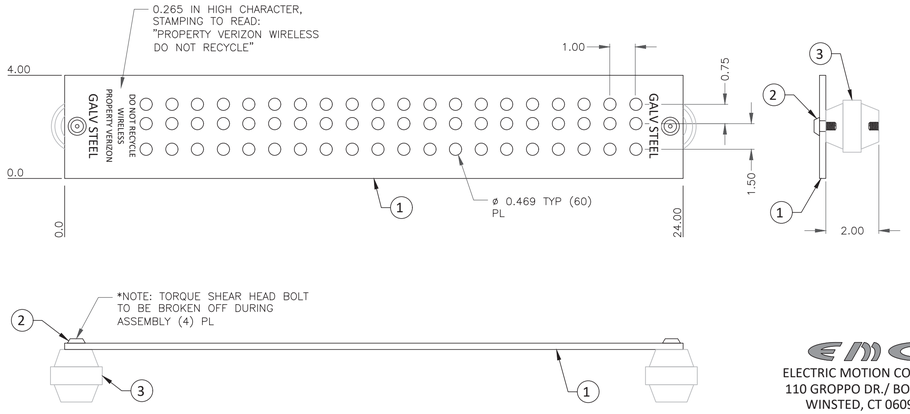
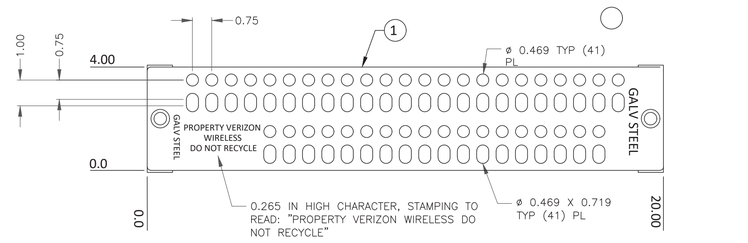


ELECTRIC MOTION CO., INC.
110 GROPPO DR./ BOX 626
WINSTED, CT 06098

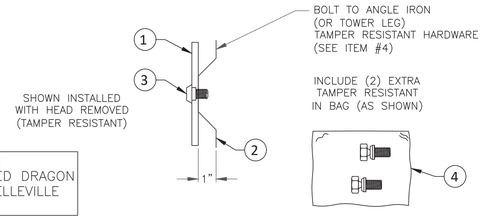
ITEM	PART NO.	DESCRIPTION	REQ
3	03-009-0118-000	THREADED (3/8-16) INSULATORS, 2" DIA X 2" HEIGHT; FIBERGLASS	2
2	02-009-0633-000	3/8-16 X 5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRASEAL; STAINLESS STEEL	2
1	02-009-0662-000	GROUND BAR, GALVANIZED STEEL 1/4" X 4" X 24"	1

1 MAIN GROUND BUS BAR
SCALE: NOT TO SCALE



ELECTRIC MOTION CO., INC.
110 GROPPO DR./ BOX 626
WINSTED, CT 06098

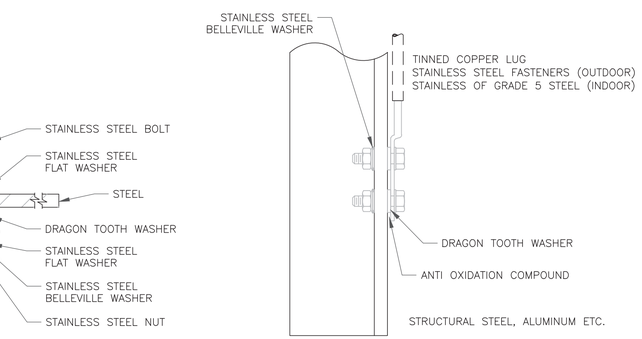
PART #EM SGM420-BM-NR



ATTENTION NOTE:
ALL NON LIKE METALS NEED DRAGON TOOTH WASHERS AND BELLEVILLE WASHERS

ITEM	PART NO.	DESCRIPTION	REQ
4	02-009-0663-000 (SUB-ASSEMBLY)	3/8-16 x 5/8" TORQUE SHEAR HEAD BOLT IN A STANDARD 4 x 6 BAG INCLUDES: (2) 3/8-16 x 5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRASEAL; STAINLESS STEEL (303) P/N 02-009-0603-000 (1) STANDARD 4" x 6" BAG (P/N 03-009-0209-00)	1
3	02-009-0633-000	3/8-16 x 5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRSEAL; STAINLESS STEEL (303)	2
2	02-009-0524-000	MOUNTING BRACKET; STAINLESS STEEL, 16 GA (.060) THICK	1
1	02-009-0672-000	20" GROUND BAR; STEEL; GALVANIZED	1
ITEM	PART NO.	DESCRIPTION	REQ

2 TOWER LEG BUS BAR (NON-INSULATED)
SCALE: NOT TO SCALE



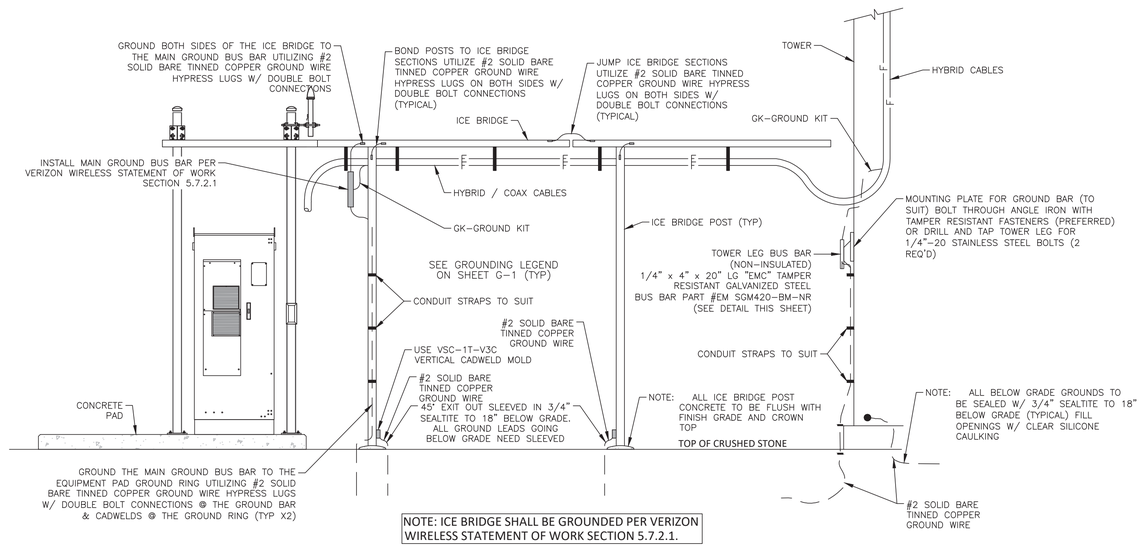
SINGLE CONNECTOR AT GALVANIZED GROUND BARS & STEEL OBJECTS

DISSIMILAR METAL CONNECTIONS

INSTALLATION NOTES:

1. ALL OUTDOOR HARDWARE (I.E. BOLTS, SCREWS, NUTS, WASHERS) SHOULD BE 18-8 GRADE STAINLESS STEEL.
2. ALL INDOOR HARDWARE (I.E. BOLTS, SCREWS, NUTS, WASHERS) SHOULD BE GRADE 5 STEEL HARDWARE.
3. BOLT LENGTH SHOULD ALLOW THE EXPOSURE OF AT TWO THREADS.
4. BACK TO BACK LUG CONNECTIONS ARE AN ACCEPTABLE PRACTICE WHEN BONDING TO A GROUND BAR OR STEEL OBJECTS.
5. ANY CONNECTIONS MADE BETWEEN STEEL OR OTHER DISSIMILAR METALS REQUIRE THE USE OF A DRAGON TOOTH WASHER.
6. 'SINGLE CONNECTOR AT GROUND BARS' PERTAINS TO COPPER GROUND BARS ONLY!
7. GALVANIZED GROUND BARS AND OTHER STEEL OBJECTS (I.E. CABINETS, GENERATOR TANKS, ICE BRIDGE POSTS, ETC.) SHOULD FOLLOW THE 'SINGLE CONNECTOR AT STEEL OBJECTS' DETAIL.

3 STANDARD GROUNDING HARDWARE CONFIGURATION
SCALE: NOT TO SCALE



NOTE: ICE BRIDGE SHALL BE GROUNDED PER VERIZON WIRELESS STATEMENT OF WORK SECTION 5.7.2.1.

4 ICE BRIDGE GROUNDING DETAIL
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
CHRISTOPHER VANDERGRAFT
No. 23824
LICENSED
PROFESSIONAL ENGINEER
11/30/22

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VZW GENERATOR RETROFIT ALARM LAYOUT 02/04/2010 GFH

New GEN PROG ALARM layout

Replaces existing alarm positions on BLK#2

All GEN PROG ALARMs on BLK#1 to remain the same

TB2

ROW	DESIGNATION	NOMENCLATURE	RELAY	CONTACT	WIRE COLOR	
1	GEN PROG ALARM J1	GEN OVERCRANK	1	1	W/BL	
2	GEN PROG ALARM J1	GEN OVERCRANK	1	2	BL/W	
3	GEN PROG ALARM J2	HIGH WATER TEMP	2	1	W/O	
4	GEN PROG ALARM J2	HIGH WATER TEMP	2	2	O/W	
5	GEN PROG ALARM J3	PRE-LOW OIL PRESSURE	3	1	W/GR	
6	GEN PROG ALARM J3	PRE-LOW OIL PRESSURE	3	2	GR/W	
7	GEN PROG ALARM J4	PRE-HIGH WATER TEMP	4	1	W/BR	
8	GEN PROG ALARM J4	PRE-HIGH WATER TEMP	4	2	BR/W	
9	GEN PROG ALARM J5	PRE-LOW FUEL	5	1	W/SL	
10	GEN PROG ALARM J5	PRE-LOW FUEL	5	2	SL/W	
11	GEN PROG ALARM J6	BATTERY CHARGER FAIL	6	1	R/BL	
12	GEN PROG ALARM J6	BATTERY CHARGER FAIL	6	2	BL/R	
13	GEN PROG ALARM J7	GEN RUN	7	1	R/O	
14	GEN PROG ALARM J7	GEN RUN	7	2	O/R	
15	GEN PROG ALARM J8	GEN NOT IN AUTO	8	1	R/GR	
16	GEN PROG ALARM J8	GEN NOT IN AUTO	8	2	GR/R	
17	GENERATOR SUMMARY ALARM	SUMMARY	9	C	R/BR	
18	GENERATOR SUMMARY ALARM	SUMMARY	9	NC	BR/R	
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35	SUB-PANEL AC POWER FAIL	EXT AC CKT SUB-PANEL	RELAY	NO	W/BL	TVSS ALARM CABLE
36	SUB-PANEL AC POWER FAIL	EXT AC CKT SUB-PANEL	RELAY	C	BL/W	
37	EXTERNAL AC CIRCUIT TVSS	LAE(TVSS3)	SA	NO	W/O	
38	EXTERNAL AC CIRCUIT TVSS	LAE(TVSS3)	SA	C	O/W	
39	GEN. FAIL COMMON (PROG RELAY	GPR2	GEN	NO	W/BL	
40	GEN. FAIL COMMON (PROG RELAY	GPR2	GEN	C	BL/W	
41	CATCH BASIN (PROG RELAY #4)	GPR4	GEN	NO	W/O	
42	CATCH BASIN (PROG RELAY #4)	GPR4	GEN	C	O/W	
43	UTILITY POWER FAIL	PFA	ATS	NO	W/GR	
44	UTILITY POWER FAIL	PFA	ATS	C	GR/W	
45	ATS/UTILITY SURGE ARREST.	LAU (TVSS1)	ATS	NC	W/BR	
46	ATS/UTILITY SURGE ARREST.	LAU (TVSS1)	ATS	C	BR/W	
47	ATS/GEN SURGE ARREST.	LAG(TVSS2)	ATS	NC	W/SL	
48	ATS/GEN SURGE ARREST.	LAG(TVSS2)	ATS	C	SL/W	
49	ATS/ILC NOT IN AUTO	ATS/ILC	ILC	NC	R/BL	
50	ATS/ILC NOT IN AUTO	ATS/ILC	ILC	C	BL/R	CABLE 4A

SURGE ARRESTOR BLOCK

ROW	CABLE #		DESIGNATION	CONTACT	ARRESTOR MODEL	
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19	4	1	GEN. FAIL COMMON (PROG RELAY #2)	GPR2		
20	4	2	GEN. FAIL COMMON (PROG RELAY #2)	GPR2	66PO60	
21	4	3	CATCH BASIN (PROG RELAY #4)	GPR4		
22	4	4	CATCH BASIN (PROG RELAY #4)	GPR4	66PO60	
23	7	1	UTILITY POWER FAIL	PFA		
24	7	2	UTILITY POWER FAIL	PFA	66PO60	
25	7	3	ATS/UTILITY SURGE ARREST.	LAU (TVSS1)		
26	7	4	ATS/UTILITY SURGE ARREST.	LAU (TVSS1)	66PO60	
27	7	5	ATS/GEN SURGE ARREST.	LAG(TVSS2)		
28	7	6	ATS/GEN SURGE ARREST.	LAG(TVSS2)	66PO60	
29	7	7	ATS/ILC NOT IN AUTO	ATS/ILC		
30	7	8	ATS/ILC NOT IN AUTO	ATS/ILC	66PO60	CABLE 4A
31						
32						
33	6	1	AI REMOTE RS232 PORT	DB9 PIN 2		B/WH
34	6	2	AI REMOTE RS232 PORT	DB9 PIN 3	66PO15	W/O
35	6	3	AI REMOTE RS232 PORT	DB9 PIN 5		W/G
36					66PO15	
37						
38						
39						
40						
41						
42						
43						
44						
45	5	1	21LT ANNUNCIATOR PANEL	RS485 (+)		
46	5	2	21LT ANNUNCIATOR PANEL	RS485(-)	66PO15	
47						
48	5	4	21LT ANNUNCIATOR PANEL	12V (-)	66PO60	
49						
50	5	3	21LT ANNUNCIATOR PANEL	12V (+)	66PO60	

NOTE: This document pertains to the install of the generator related alarms only. Adjust the placement of the alarms on TB1 as required based on current site configuration. For LP or Natural Gas generators substitute Pre-Low Water Temp for Pre-Low Fuel alarm on J5.

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STATE OF CONNECTICUT
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Exhibit D

Structural Analysis Report

Date: **September 23, 2022**

MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Park, Suite 500
Atlanta, GA 30346
(770)379-8500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Site Number:	720950
	Site Name:	Plainfield South 2 CT
Crown Castle Designation:	**BU Number:**	876359
	Site Name:	Norwich
	JDE Job Number:	723295
	Work Order Number:	2131490
	Order Number:	623747 Rev. 3
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN7-449R2 / 2200039	
Site Data:	**954 Norwich Road, Plainfield, Windham County, CT 06062**	
	Latitude *41° 39' 31.46"*, Longitude *-71° 55' 29.75"*	
	130 Foot – Summit Monopole Tower	

Morrison Hershfield is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity-72.0%**

This analysis utilizes an ultimate 3-second gust wind speed of 124 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer

Digitally signed by G. Lance Cooke
Date: 2022.09.26 18:21:40+05'30'

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 130 ft Monopole tower designed by Summit Manufacturing, LLC.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	124 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
104.0	104.0	3	samsung telecom.	MT6407-77A w/ Mount Pipe	1	1-5/8
		6	commscope	NHH-65B-R2B		
		3	samsung telecom.	RFV01U-D1A		
		3	samsung telecom.	RFV01U-D2A		
		1	raycap	RVZDC-6627-PF-48_CCIV2		
		1	Site Pro 1	Handrail Kit[#F3P-HRK12]		
		3	Commscope	Side by Side Mounting Kit [BSAMNT-SBS-1-2]		
		1	Site Pro 1	12' Tri-Cornered Telescoping Platform[#F3P-12]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130.0	130.0	3	rfs/celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	3	1-5/8
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	-	8' Mount Pipe [#P2.0 STD]		
		1	-	Platform Mount [LP 1201-1_KCKR-HR-1]		
116.0	116.0	3	ericsson	RRUS-11	-	-
		3	ericsson	RRUS12/RRUS A2		
		1	-	Side Arm Mount [SO 102-3]		
114.0	115.0	3	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe	12 4 2	1-1/4 3/4 3/8
		3	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
114.0	115.0	3	ericsson	RRUS 32	-	-
		6	powerwave technologies	7020.00		
		3	powerwave technologies	LGP21401		
		1	raycap	DC6-48-60-18-8C		
	114.0	1	raycap	DC6-48-60-18-8F		
		1	-	Platform Mount [LP 304-1_HR-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1616503	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1616546	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1446983	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Morrison Hershfield should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	130 - 83	Pole	TP26.06x16x0.25	1	-15.86	1241.83	63.0	Pass
L2	83 - 43.25	Pole	TP34.068x24.8644x0.3125	2	-22.23	2030.16	72.0	Pass
L3	43.25 - 0	Pole	TP42.7x32.5333x0.375	3	-33.33	3139.28	68.5	Pass
							Summary	
						Pole (L2)	72.0	Pass
						Rating =	72.0	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	62.7	Pass
1	Base Plate		58.0	Pass
1,2	Base Foundation (Compared w/ Design Loads)	0	63.8	Pass

Structure Rating (max from all components) =	72.0%*

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Foundation capacity determined by comparing analysis reactions to original design reactions.
3) *Rating per TIA-222-H, Section 15.5.

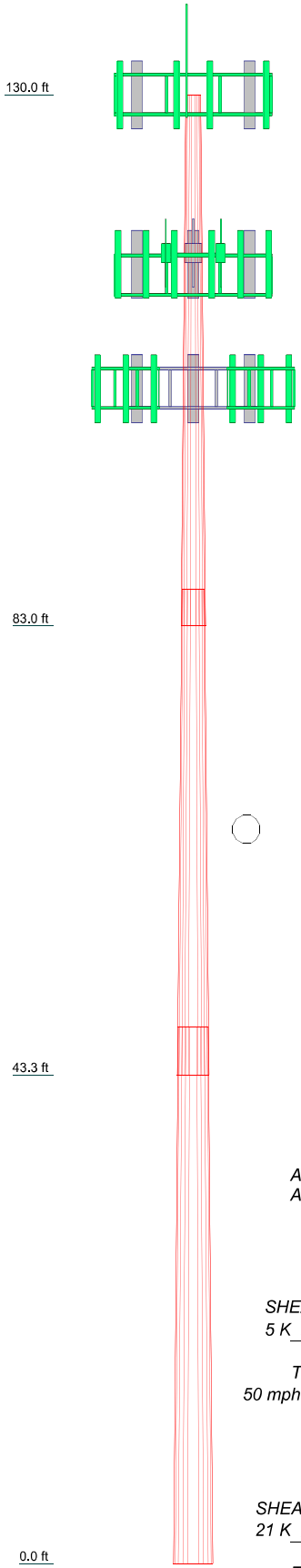
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3
Length (ft)	47.00	43.00	47.50
Number of Sides	12	12	12
Thickness (in)	0.2500	0.3125	0.3750
Socket Length (ft)	3.25	4.25	
Top Dia (in)	16.0000	24.8644	32.5333
Bot Dia (in)	26.0600	34.0680	42.7000
Grade	A607-65		
Weight (K)	2.7	4.3	7.3



ALL REACTIONS ARE FACTORED

AXIAL 48 K

SHEAR 5 K

MOMENT 462 kip-ft

TORQUE 0 kip-ft

50 mph WIND - 1.0000 in ICE

AXIAL 33 K

SHEAR 21 K

MOMENT 2044 kip-ft

TORQUE 0 kip-ft

REACTIONS - 124 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 124 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 72%

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Job: CN7-449R2 / 2200039			
Project: 876359 / Norwich			
Client: Crown Castle USA	Drawn by: CSA	App'd:	
Code: TIA-222-H	Date: 09/23/22	Scale: NTS	
Path:		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Windham County, Connecticut.
Tower base elevation above sea level: 182.00 ft.
Basic wind speed of 124 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	130.00-83.00	47.00	3.25	12	16.0000	26.0600	0.2500	1.0000	A607-65 (65 ksi)
L2	83.00-43.25	43.00	4.25	12	24.8644	34.0680	0.3125	1.2500	A607-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	43.25-0.00	47.50		12	32.5333	42.7000	0.3750	1.5000	(65 ksi) A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.4762	12.6788	401.4426	5.6385	8.2880	48.4366	813.4316	6.2401	3.6180	14.472
	26.8911	20.7770	1766.6310	9.2400	13.4991	130.8705	3579.6733	10.2258	6.3141	25.256
L2	26.3514	24.7053	1900.8381	8.7896	12.8797	147.5836	3851.6134	12.1592	5.8261	18.644
	35.1596	33.9665	4939.9833	12.0845	17.6472	279.9298	10009.7454	16.7173	8.2927	26.537
L3	34.4904	38.8312	5125.7082	11.5127	16.8523	304.1554	10386.0745	19.1115	7.7139	20.57
	44.0740	51.1074	11685.9491	15.1524	22.1186	528.3313	23678.9011	25.1535	10.4386	27.836

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 130.00-83.00				1	1	1			
L2 83.00-43.25				1	1	1			
L3 43.25-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
******										
Safety Line 3/8"	C	No	Surface Ar (CaAa)	130.00 - 8.00	1	1	-0.450 -0.450	0.3750		0.22
Climbing Rungs	C	No	Surface Ar (CaAa)	130.00 - 8.00	1	1	-0.500 -0.400	0.7050		1.80
****										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
******									
***									
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	130.00 - 8.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
****									
LDF6-50A(1-1/4)	A	No	No	Inside Pole	114.00 - 8.00	12	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
FB-L98B-002-75000(3/8)	A	No	No	Inside Pole	114.00 - 8.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							1" Ice	0.00	0.06
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	114.00 - 8.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	114.00 - 8.00	4	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
******									
HFT1206-24SVL-XXX(1-5/8)	A	No	No	Inside Pole	104.00 - 0.00	1	No Ice	0.00	1.92
							1/2" Ice	0.00	1.92
							1" Ice	0.00	1.92
****									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-83.00	A	0.000	0.000	0.000	0.000	0.34
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	5.076	0.000	0.45
L2	83.00-43.25	A	0.000	0.000	0.000	0.000	0.46
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	4.293	0.000	0.38
L3	43.25-0.00	A	0.000	0.000	0.000	0.000	0.42
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.807	0.000	0.34

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-83.00	A	0.954	0.000	0.000	0.000	0.000	0.34
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	23.017	0.000	0.61
L2	83.00-43.25	A	0.906	0.000	0.000	0.000	0.000	0.46
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	19.466	0.000	0.52
L3	43.25-0.00	A	0.812	0.000	0.000	0.000	0.000	0.42
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	16.585	0.000	0.45

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-83.00	0.5177	0.3761	1.5006	1.0902
L2	83.00-43.25	0.5224	0.3795	1.6055	1.1665
L3	43.25-0.00	0.4209	0.3058	1.3094	0.9513

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	Safety Line 3/8"	83.00 - 130.00	1.0000	1.0000
L1	3	Climbing Rungs	83.00 - 130.00	1.0000	1.0000
L2	2	Safety Line 3/8"	43.25 - 83.00	1.0000	1.0000
L2	3	Climbing Rungs	43.25 - 83.00	1.0000	1.0000
L3	2	Safety Line 3/8"	8.00 - 43.25	1.0000	1.0000
L3	3	Climbing Rungs	8.00 - 43.25	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
******									
Lightning Rod 3/4" x 6'	C	From Leg	0.00 0.00 3.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.45 1.06 1.70	0.45 1.06 1.70	0.03 0.03 0.04
******									
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None		0.0000	130.00	No Ice 1/2" Ice 1" Ice	37.61 45.62 53.59	37.61 45.62 53.59	2.63 3.48 4.46
***									
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00 0.00	0.0000	130.00	No Ice 1/2"	14.69 15.46	6.87 7.55	0.18 0.31

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	16.23	8.25	0.45
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.0000	130.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00	0.0000	130.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.0000	130.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
						1" Ice			
Radio 4480_TMOV2	A	From Leg	4.00	0.0000	130.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
						1" Ice			
Radio 4480_TMOV2	C	From Leg	4.00	0.0000	130.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
						1" Ice			
Radio 4480_TMOV2	B	From Leg	4.00	0.0000	130.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
						1" Ice			
8' Mount Pipe [#P2.0 STD]	A	From Leg	4.00	0.0000	130.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice			
8' Mount Pipe [#P2.0 STD]	B	From Leg	4.00	0.0000	130.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice			
8' Mount Pipe [#P2.0 STD]	C	From Leg	4.00	0.0000	130.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice			
******									
RRUS-11	A	From Leg	2.00	0.0000	116.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
						1" Ice			
RRUS-11	B	From Leg	2.00	0.0000	116.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
						1" Ice			
RRUS-11	C	From Leg	2.00	0.0000	116.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
						1" Ice			
RRUS12/RRUS A2	A	From Leg	2.00	0.0000	116.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			0.00			Ice	3.59	2.20	0.13
						1" Ice			
RRUS12/RRUS A2	B	From Leg	2.00	0.0000	116.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			0.00			Ice	3.59	2.20	0.13
						1" Ice			
RRUS12/RRUS A2	C	From Leg	2.00	0.0000	116.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			0.00			Ice	3.59	2.20	0.13
						1" Ice			
(2) 4' x 2" Pipe Mount	A	From Leg	2.00	0.0000	116.00	No Ice	0.79	0.79	0.03
			0.00			1/2"	1.03	1.03	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	1.28	1.28	0.04
						1" Ice			
(2) 4' x 2" Pipe Mount	B	From Leg	2.00	0.0000	116.00	No Ice	0.79	0.79	0.03
			0.00			1/2"	1.03	1.03	0.04
			0.00			Ice	1.28	1.28	0.04
						1" Ice			
(2) 4' x 2" Pipe Mount	C	From Leg	2.00	0.0000	116.00	No Ice	0.79	0.79	0.03
			0.00			1/2"	1.03	1.03	0.04
			0.00			Ice	1.28	1.28	0.04
						1" Ice			
Side Arm Mount [SO 102-3]	C	None		0.0000	116.00	No Ice	3.60	3.60	0.07
						1/2"	4.18	4.18	0.11
						Ice	4.75	4.75	0.14
						1" Ice			
******									
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	4.00	0.0000	114.00	No Ice	12.25	8.33	0.10
			0.00			1/2"	13.19	9.23	0.19
			1.00			Ice	14.16	10.15	0.30
						1" Ice			
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.00	0.0000	114.00	No Ice	12.25	8.33	0.10
			0.00			1/2"	13.19	9.23	0.19
			1.00			Ice	14.16	10.15	0.30
						1" Ice			
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.00	0.0000	114.00	No Ice	12.25	8.33	0.10
			0.00			1/2"	13.19	9.23	0.19
			1.00			Ice	14.16	10.15	0.30
						1" Ice			
TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Leg	4.00	0.0000	114.00	No Ice	11.85	8.99	0.11
			0.00			1/2"	12.77	9.88	0.21
			1.00			Ice	13.71	10.79	0.32
						1" Ice			
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.00	0.0000	114.00	No Ice	11.85	8.99	0.11
			0.00			1/2"	12.77	9.88	0.21
			1.00			Ice	13.71	10.79	0.32
						1" Ice			
TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Leg	4.00	0.0000	114.00	No Ice	11.85	8.99	0.11
			0.00			1/2"	12.77	9.88	0.21
			1.00			Ice	13.71	10.79	0.32
						1" Ice			
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	114.00	No Ice	3.39	2.32	0.06
			0.00			1/2"	3.75	2.66	0.10
			1.00			Ice	4.12	3.02	0.15
						1" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	114.00	No Ice	3.39	2.32	0.06
			0.00			1/2"	3.75	2.66	0.10
			1.00			Ice	4.12	3.02	0.15
						1" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	114.00	No Ice	3.39	2.32	0.06
			0.00			1/2"	3.75	2.66	0.10
			1.00			Ice	4.12	3.02	0.15
						1" Ice			
RRUS 32	A	From Leg	4.00	0.0000	114.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			1.00			Ice	3.32	2.17	0.10
						1" Ice			
RRUS 32	B	From Leg	4.00	0.0000	114.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			1.00			Ice	3.32	2.17	0.10
						1" Ice			
RRUS 32	C	From Leg	4.00	0.0000	114.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			1.00			Ice	3.32	2.17	0.10
						1" Ice			
LGP21401	A	From Leg	4.00	0.0000	114.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			Ice	1.38	0.35	0.03
						1" Ice			
LGP21401	B	From Leg	4.00	0.0000	114.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			1.00			Ice	1.38	0.35	0.03
						1" Ice			
LGP21401	C	From Leg	4.00	0.0000	114.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			1.00			Ice	1.38	0.35	0.03
						1" Ice			
(2) 7020.00	A	From Leg	4.00	0.0000	114.00	No Ice	0.10	0.17	0.00
			0.00			1/2"	0.15	0.24	0.01
			1.00			Ice	0.20	0.31	0.01
						1" Ice			
(2) 7020.00	B	From Leg	4.00	0.0000	114.00	No Ice	0.10	0.17	0.00
			0.00			1/2"	0.15	0.24	0.01
			1.00			Ice	0.20	0.31	0.01
						1" Ice			
(2) 7020.00	C	From Leg	4.00	0.0000	114.00	No Ice	0.10	0.17	0.00
			0.00			1/2"	0.15	0.24	0.01
			1.00			Ice	0.20	0.31	0.01
						1" Ice			
DC6-48-60-18-8F	B	From Leg	2.00	0.0000	114.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice			
DC6-48-60-18-8C	C	From Leg	2.00	0.0000	114.00	No Ice	2.74	2.74	0.03
			0.00			1/2"	2.96	2.96	0.05
			1.00			Ice	3.20	3.20	0.08
						1" Ice			
Platform Mount [LP 304-1_HR-1]	C	None		0.0000	114.00	No Ice	21.41	21.41	1.60
						1/2"	26.62	26.62	2.06
						Ice	31.66	31.66	2.60
						1" Ice			
******									
(2) NHH-65B-R2B	A	From Leg	4.00	0.0000	104.00	No Ice	4.16	2.49	0.04
			0.00			1/2"	4.56	2.88	0.09
			0.00			Ice	4.98	3.27	0.15
						1" Ice			
(2) NHH-65B-R2B	B	From Leg	4.00	0.0000	104.00	No Ice	4.16	2.49	0.04
			0.00			1/2"	4.56	2.88	0.09
			0.00			Ice	4.98	3.27	0.15
						1" Ice			
(2) NHH-65B-R2B	C	From Leg	4.00	0.0000	104.00	No Ice	4.16	2.49	0.04
			0.00			1/2"	4.56	2.88	0.09
			0.00			Ice	4.98	3.27	0.15
						1" Ice			
MT6407-77A w/ Mount Pipe	A	From Leg	4.00	0.0000	104.00	No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			0.00			Ice	5.61	3.62	0.18
						1" Ice			
MT6407-77A w/ Mount Pipe	B	From Leg	4.00	0.0000	104.00	No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			0.00			Ice	5.61	3.62	0.18
						1" Ice			
MT6407-77A w/ Mount Pipe	C	From Leg	4.00	0.0000	104.00	No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			0.00			Ice	5.61	3.62	0.18
						1" Ice			
RFV01U-D1A	A	From Leg	4.00	0.0000	104.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			0.00			Ice	2.22	1.54	0.12
						1" Ice			
RFV01U-D1A	B	From Leg	4.00	0.0000	104.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	2.22	1.54	0.12
						1" Ice			
RFV01U-D1A	C	From Leg	4.00	0.0000	104.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			0.00			Ice	2.22	1.54	0.12
						1" Ice			
RFV01U-D2A	A	From Leg	4.00	0.0000	104.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice			
RFV01U-D2A	B	From Leg	4.00	0.0000	104.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice			
RFV01U-D2A	C	From Leg	4.00	0.0000	104.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice			
RVZDC-6627-PF-48_CCIV2	A	From Leg	4.00	0.0000	104.00	No Ice	4.06	3.10	0.03
			0.00			1/2"	4.32	3.34	0.07
			0.00			Ice	4.58	3.58	0.11
						1" Ice			
12' Tri-Cornered Telescoping Platform[#F3P-12]	C	None		0.0000	104.00	No Ice	25.52	25.41	2.00
						1/2"	31.74	32.27	2.60
						Ice	40.10	39.68	3.41
						1" Ice			
Hand Rail Kit[#F3P-HRK12]	C	None		0.0000	104.00	No Ice	5.38	4.64	0.41
						1/2"	7.22	6.35	0.50
						Ice	8.88	8.13	0.63
						1" Ice			
Mounting Kit [BSAMNT-SBS-1-2]	A	From Leg	4.00	0.0000	104.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice			
Mounting Kit [BSAMNT-SBS-1-2]	B	From Leg	4.00	0.0000	104.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice			
Mounting Kit [BSAMNT-SBS-1-2]	C	From Leg	4.00	0.0000	104.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice			
****									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice

Comb. No.	Description
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	130 - 83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.73	0.09	0.09
			Max. Mx	20	-15.87	458.79	-0.04
			Max. My	14	-15.86	0.04	-459.36
			Max. Vy	20	-15.46	458.79	-0.04
			Max. Vx	14	15.49	0.04	-459.36
			Max. Torque	19			-0.31
L2	83 - 43.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.10	0.09	-0.19
			Max. Mx	20	-22.23	1108.62	-0.15
			Max. My	14	-22.23	0.05	-1110.54
			Max. Vy	20	-18.08	1108.62	-0.15
			Max. Vx	14	18.11	0.05	-1110.54
			Max. Torque	19			-0.31
L3	43.25 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.58	0.09	-0.54
			Max. Mx	20	-33.33	2040.09	-0.30
			Max. My	14	-33.32	0.05	-2043.62
			Max. Vy	20	-21.15	2040.09	-0.30
			Max. Vx	14	21.18	0.05	-2043.62
			Max. Torque	19			-0.31

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	47.58	0.00	-4.56
	Max. H_x	20	33.35	21.11	0.00
	Max. H_z	2	33.35	0.00	21.14
	Max. M_x	2	2043.02	0.00	21.14
	Max. M_z	8	2039.98	-21.11	0.00
	Max. Torsion	7	0.31	-18.29	10.57
	Min. Vert	23	25.01	18.29	10.57
	Min. H_x	8	33.35	-21.11	0.00
	Min. H_z	14	33.35	0.00	-21.14
	Min. M_x	14	-2043.62	0.00	-21.14
	Min. M_z	20	-2040.09	21.11	0.00
	Min. Torsion	19	-0.31	18.29	-10.57

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	27.79	0.00	0.00	0.23	0.04	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	33.35	-0.00	-21.14	-2043.02	0.05	-0.19
0.9 Dead+1.0 Wind 0 deg - No Ice	25.01	0.00	-21.14	-2007.45	0.04	-0.19
1.2 Dead+1.0 Wind 30 deg - No Ice	33.35	10.56	-18.31	-1769.28	-1019.97	-0.28
0.9 Dead+1.0 Wind 30 deg - No Ice	25.01	10.56	-18.31	-1738.47	-1002.18	-0.29
1.2 Dead+1.0 Wind 60 deg - No Ice	33.35	18.29	-10.57	-1021.37	-1766.67	-0.30
0.9 Dead+1.0 Wind 60 deg - No Ice	25.01	18.29	-10.57	-1003.61	-1735.85	-0.31
1.2 Dead+1.0 Wind 90 deg - No Ice	33.35	21.11	-0.00	0.30	-2039.98	-0.24
0.9 Dead+1.0 Wind 90 deg - No Ice	25.01	21.11	0.00	0.22	-2004.39	-0.25
1.2 Dead+1.0 Wind 120 deg - No Ice	33.35	18.29	10.57	1021.97	-1766.67	-0.12
0.9 Dead+1.0 Wind 120 deg - No Ice	25.01	18.29	10.57	1004.06	-1735.85	-0.12
1.2 Dead+1.0 Wind 150 deg - No Ice	33.35	10.56	18.31	1769.88	-1019.96	0.04
0.9 Dead+1.0 Wind 150 deg - No Ice	25.01	10.56	18.31	1738.91	-1002.17	0.04
1.2 Dead+1.0 Wind 180 deg - No Ice	33.35	-0.00	21.14	2043.62	0.05	0.19
0.9 Dead+1.0 Wind 180 deg - No Ice	25.01	0.00	21.14	2007.89	0.04	0.19
1.2 Dead+1.0 Wind 210 deg - No Ice	33.35	-10.56	18.31	1769.88	1020.07	0.29
0.9 Dead+1.0 Wind 210 deg - No Ice	25.01	-10.56	18.31	1738.92	1002.25	0.29
1.2 Dead+1.0 Wind 240 deg - No Ice	33.35	-18.29	10.57	1021.97	1766.78	0.31
0.9 Dead+1.0 Wind 240 deg - No Ice	25.01	-18.29	10.57	1004.06	1735.93	0.31
1.2 Dead+1.0 Wind 270 deg - No Ice	33.35	-21.11	-0.00	0.30	2040.09	0.24
0.9 Dead+1.0 Wind 270 deg - No Ice	25.01	-21.11	0.00	0.22	2004.48	0.25
1.2 Dead+1.0 Wind 300 deg - No Ice	33.35	-18.29	-10.57	-1021.37	1766.79	0.12
0.9 Dead+1.0 Wind 300 deg	25.01	-18.29	-10.57	-1003.62	1735.93	0.12

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice 1.2 Dead+1.0 Wind 330 deg	33.35	-10.56	-18.31	-1769.28	1020.07	-0.04
- No Ice 0.9 Dead+1.0 Wind 330 deg	25.01	-10.56	-18.31	-1738.47	1002.25	-0.04
- No Ice 1.2 Dead+1.0 Ice+1.0 Temp	47.58	0.00	0.00	0.54	0.09	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	47.58	-0.00	-4.56	-460.54	0.11	-0.03
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	47.58	2.28	-3.95	-398.76	-230.15	-0.04
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	47.58	3.95	-2.28	-229.98	-398.72	-0.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	47.58	4.56	0.00	0.58	-460.42	-0.03
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	47.58	3.95	2.28	231.13	-398.72	-0.01
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	47.58	2.28	3.95	399.91	-230.15	0.01
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	47.58	-0.00	4.56	461.69	0.11	0.03
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	47.58	-2.28	3.95	399.91	230.38	0.04
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	47.58	-3.95	2.28	231.13	398.95	0.04
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	47.58	-4.56	0.00	0.58	460.65	0.03
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	47.58	-3.95	-2.28	-229.98	398.95	0.01
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	47.58	-2.28	-3.95	-398.76	230.38	-0.01
Dead+Wind 0 deg - Service	27.79	0.00	-4.66	-446.16	0.05	-0.04
Dead+Wind 30 deg - Service	27.79	2.33	-4.04	-386.35	-222.80	-0.06
Dead+Wind 60 deg - Service	27.79	4.03	-2.33	-222.96	-385.93	-0.07
Dead+Wind 90 deg - Service	27.79	4.66	0.00	0.25	-445.64	-0.05
Dead+Wind 120 deg - Service	27.79	4.03	2.33	223.45	-385.93	-0.03
Dead+Wind 150 deg - Service	27.79	2.33	4.04	386.85	-222.80	0.01
Dead+Wind 180 deg - Service	27.79	0.00	4.66	446.65	0.05	0.04
Dead+Wind 210 deg - Service	27.79	-2.33	4.04	386.85	222.89	0.06
Dead+Wind 240 deg - Service	27.79	-4.03	2.33	223.45	386.02	0.07
Dead+Wind 270 deg - Service	27.79	-4.66	0.00	0.25	445.73	0.05
Dead+Wind 300 deg - Service	27.79	-4.03	-2.33	-222.96	386.02	0.03
Dead+Wind 330 deg - Service	27.79	-2.33	-4.04	-386.35	222.89	-0.01

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-27.79	0.00	0.00	27.79	0.00	0.000%
2	0.00	-33.35	-21.14	0.00	33.35	21.14	0.000%
3	0.00	-25.01	-21.14	0.00	25.01	21.14	0.000%
4	10.56	-33.35	-18.31	-10.56	33.35	18.31	0.000%
5	10.56	-25.01	-18.31	-10.56	25.01	18.31	0.000%
6	18.29	-33.35	-10.57	-18.29	33.35	10.57	0.000%
7	18.29	-25.01	-10.57	-18.29	25.01	10.57	0.000%
8	21.11	-33.35	0.00	-21.11	33.35	0.00	0.000%
9	21.11	-25.01	0.00	-21.11	25.01	0.00	0.000%
10	18.29	-33.35	10.57	-18.29	33.35	-10.57	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
11	18.29	-25.01	10.57	-18.29	25.01	-10.57	0.000%
12	10.56	-33.35	18.31	-10.56	33.35	-18.31	0.000%
13	10.56	-25.01	18.31	-10.56	25.01	-18.31	0.000%
14	0.00	-33.35	21.14	0.00	33.35	-21.14	0.000%
15	0.00	-25.01	21.14	0.00	25.01	-21.14	0.000%
16	-10.56	-33.35	18.31	10.56	33.35	-18.31	0.000%
17	-10.56	-25.01	18.31	10.56	25.01	-18.31	0.000%
18	-18.29	-33.35	10.57	18.29	33.35	-10.57	0.000%
19	-18.29	-25.01	10.57	18.29	25.01	-10.57	0.000%
20	-21.11	-33.35	0.00	21.11	33.35	0.00	0.000%
21	-21.11	-25.01	0.00	21.11	25.01	0.00	0.000%
22	-18.29	-33.35	-10.57	18.29	33.35	10.57	0.000%
23	-18.29	-25.01	-10.57	18.29	25.01	10.57	0.000%
24	-10.56	-33.35	-18.31	10.56	33.35	18.31	0.000%
25	-10.56	-25.01	-18.31	10.56	25.01	18.31	0.000%
26	0.00	-47.58	0.00	0.00	47.58	0.00	0.000%
27	0.00	-47.58	-4.56	0.00	47.58	4.56	0.000%
28	2.28	-47.58	-3.95	-2.28	47.58	3.95	0.000%
29	3.95	-47.58	-2.28	-3.95	47.58	2.28	0.000%
30	4.56	-47.58	0.00	-4.56	47.58	-0.00	0.000%
31	3.95	-47.58	2.28	-3.95	47.58	-2.28	0.000%
32	2.28	-47.58	3.95	-2.28	47.58	-3.95	0.000%
33	0.00	-47.58	4.56	0.00	47.58	-4.56	0.000%
34	-2.28	-47.58	3.95	2.28	47.58	-3.95	0.000%
35	-3.95	-47.58	2.28	3.95	47.58	-2.28	0.000%
36	-4.56	-47.58	0.00	4.56	47.58	-0.00	0.000%
37	-3.95	-47.58	-2.28	3.95	47.58	2.28	0.000%
38	-2.28	-47.58	-3.95	2.28	47.58	3.95	0.000%
39	0.00	-27.79	-4.66	0.00	27.79	4.66	0.000%
40	2.33	-27.79	-4.04	-2.33	27.79	4.04	0.000%
41	4.03	-27.79	-2.33	-4.03	27.79	2.33	0.000%
42	4.66	-27.79	0.00	-4.66	27.79	0.00	0.000%
43	4.03	-27.79	2.33	-4.03	27.79	-2.33	0.000%
44	2.33	-27.79	4.04	-2.33	27.79	-4.04	0.000%
45	0.00	-27.79	4.66	0.00	27.79	-4.66	0.000%
46	-2.33	-27.79	4.04	2.33	27.79	-4.04	0.000%
47	-4.03	-27.79	2.33	4.03	27.79	-2.33	0.000%
48	-4.66	-27.79	0.00	4.66	27.79	0.00	0.000%
49	-4.03	-27.79	-2.33	4.03	27.79	2.33	0.000%
50	-2.33	-27.79	-4.04	2.33	27.79	4.04	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00004141
3	Yes	5	0.00000001	0.00001798
4	Yes	6	0.00000001	0.00034982
5	Yes	6	0.00000001	0.00011373
6	Yes	6	0.00000001	0.00035421
7	Yes	6	0.00000001	0.00011540
8	Yes	5	0.00000001	0.00004287
9	Yes	5	0.00000001	0.00001935
10	Yes	6	0.00000001	0.00035141
11	Yes	6	0.00000001	0.00011431
12	Yes	6	0.00000001	0.00035171
13	Yes	6	0.00000001	0.00011442
14	Yes	5	0.00000001	0.00004143
15	Yes	5	0.00000001	0.00001799
16	Yes	6	0.00000001	0.00035450
17	Yes	6	0.00000001	0.00011544
18	Yes	6	0.00000001	0.00034996
19	Yes	6	0.00000001	0.00011376
20	Yes	5	0.00000001	0.00004288

21	Yes	5	0.00000001	0.00001935
22	Yes	6	0.00000001	0.00035272
23	Yes	6	0.00000001	0.00011483
24	Yes	6	0.00000001	0.00035258
25	Yes	6	0.00000001	0.00011474
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00046149
28	Yes	5	0.00000001	0.00060592
29	Yes	5	0.00000001	0.00060730
30	Yes	5	0.00000001	0.00046100
31	Yes	5	0.00000001	0.00060745
32	Yes	5	0.00000001	0.00060740
33	Yes	5	0.00000001	0.00046217
34	Yes	5	0.00000001	0.00060938
35	Yes	5	0.00000001	0.00060752
36	Yes	5	0.00000001	0.00046153
37	Yes	5	0.00000001	0.00060733
38	Yes	5	0.00000001	0.00060785
39	Yes	4	0.00000001	0.00018464
40	Yes	4	0.00000001	0.00063048
41	Yes	4	0.00000001	0.00065527
42	Yes	4	0.00000001	0.00018447
43	Yes	4	0.00000001	0.00063907
44	Yes	4	0.00000001	0.00064134
45	Yes	4	0.00000001	0.00018502
46	Yes	4	0.00000001	0.00065726
47	Yes	4	0.00000001	0.00063166
48	Yes	4	0.00000001	0.00018466
49	Yes	4	0.00000001	0.00064704
50	Yes	4	0.00000001	0.00064555

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 83	22.612	45	1.5682	0.0008
L2	86.25 - 43.25	9.658	45	1.1290	0.0004
L3	47.5 - 0	2.759	45	0.5506	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	Lightning Rod 3/4" x 6'	45	22.612	1.5682	0.0008	30064
116.00	RRUS-11	45	18.146	1.4475	0.0006	10737
114.00	HPA-65R-BUU-H8 w/ Mount Pipe	45	17.521	1.4294	0.0006	9394
104.00	(2) NHH-65B-R2B	45	14.485	1.3337	0.0005	5781

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 83	103.666	14	7.2065	0.0036
L2	86.25 - 43.25	44.276	14	5.1843	0.0020
L3	47.5 - 0	12.639	14	2.5246	0.0007

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	Lightning Rod 3/4" x 6'	14	103.666	7.2065	0.0038	6701
116.00	RRUS-11	14	83.193	6.6505	0.0032	2391
114.00	HPA-65R-BUU-H8 w/ Mount Pipe	14	80.327	6.5674	0.0031	2091
104.00	(2) NHH-65B-R2B	14	66.406	6.1267	0.0026	1284

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	130 - 83 (1)	TP26.06x16x0.25	47.00	0.00	0.0	20.2171	-15.86	1182.70	0.013
L2	83 - 43.25 (2)	TP34.068x24.8644x0.3125	43.00	0.00	0.0	33.0511	-22.23	1933.49	0.011
L3	43.25 - 0 (3)	TP42.7x32.5333x0.375	47.50	0.00	0.0	51.1074	-33.33	2989.79	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	130 - 83 (1)	TP26.06x16x0.25	459.36	710.94	0.646	0.00	710.94	0.000
L2	83 - 43.25 (2)	TP34.068x24.8644x0.3125	1110.54	1493.72	0.743	0.00	1493.72	0.000
L3	43.25 - 0 (3)	TP42.7x32.5333x0.375	2043.62	2888.40	0.708	0.00	2888.40	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	130 - 83 (1)	TP26.06x16x0.25	15.49	354.81	0.044	0.19	783.82	0.000
L2	83 - 43.25 (2)	TP34.068x24.8644x0.3125	18.11	580.05	0.031	0.19	1675.88	0.000
L3	43.25 - 0 (3)	TP42.7x32.5333x0.375	21.18	896.94	0.024	0.19	3339.32	0.000

Pole Interaction Design Data

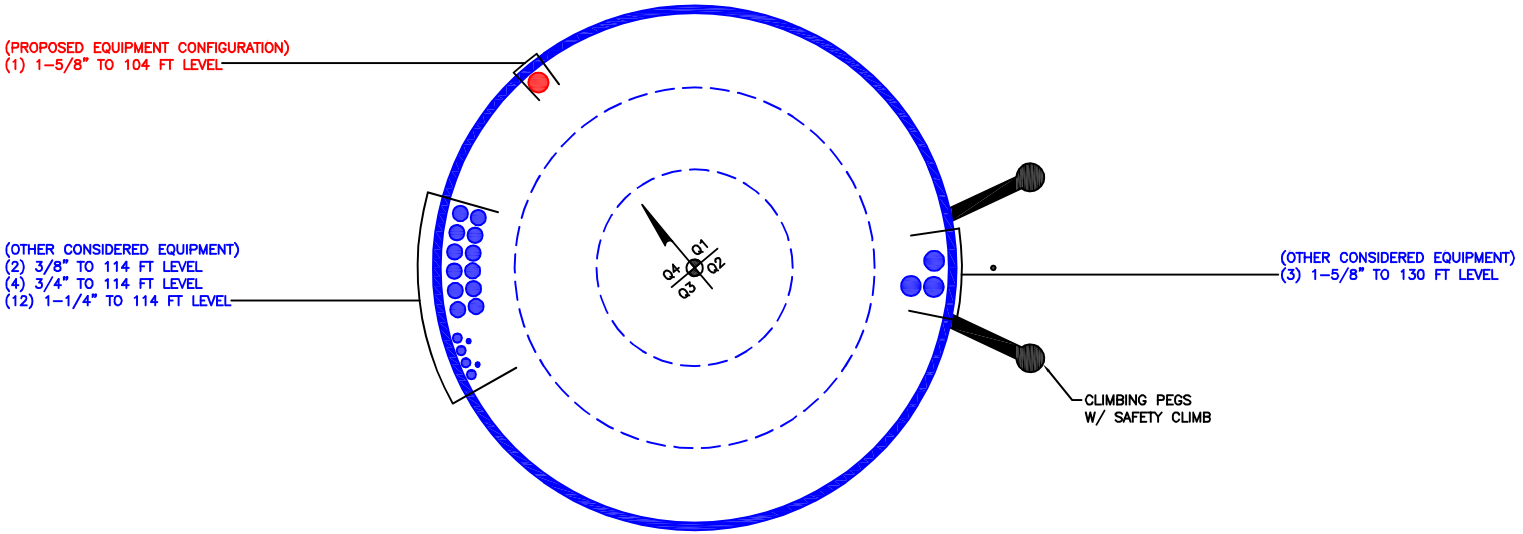
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 83 (1)	0.013	0.646	0.000	0.044	0.000	0.661	1.050	4.8.2
L2	83 - 43.25 (2)	0.011	0.743	0.000	0.031	0.000	0.756	1.050	4.8.2
L3	43.25 - 0 (3)	0.011	0.708	0.000	0.024	0.000	0.719	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	130 - 83	Pole	TP26.06x16x0.25	1	-15.86	1241.83	63.0	Pass
L2	83 - 43.25	Pole	TP34.068x24.8644x0.3125	2	-22.23	2030.16	72.0	Pass
L3	43.25 - 0	Pole	TP42.7x32.5333x0.375	3	-33.33	3139.28	68.5	Pass
							Summary	
						Pole (L2)	72.0	Pass
						RATING =	**72.0**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876359 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

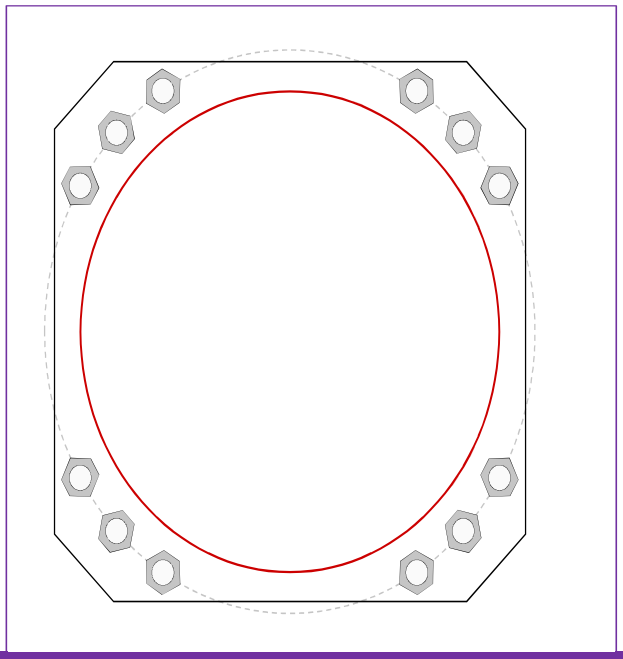
Monopole Base Plate Connection

Site Info	
BU #	876359
Site Name	Norwich
Order #	623747 Rev. 3

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.5

Applied Loads	
Moment (kip-ft)	2043.62
Axial Force (kips)	33.32
Shear Force (kips)	21.18

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 50" BC

Anchor Spacing: 6 in

Base Plate Data

48" W x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

42.7" x 0.375" 12-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 160.58	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.76	ϕVn = 149.1	**62.7%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	27.4	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**58.0%**	**Pass**

Job No.	CN7-449R2
Project No.	2200039
BU#:	876359
Site Name:	Norwich
App#:	623747 Rev. 3
Date:	09/26/2022

MORRISON HERSHFIELD

Foundation Reaction Comparison - Rev. H					
Reactions	**Original Design Reactions**	**Modified Design Reactions***	**Current Analysis Reactions**	**% Capacity***	**Pass / Fail**
MOMENT (kip-ft)	2260.0	3051.0	2044.0	63.8%	***Pass***
SHEAR (kips)	26.0	35.1	21.0	57.0%	***Pass***

**TIA-222-H Section 15.5 Applied.*

Although the shear capacity is at 57.0%, the moment reaction is the governing criteria for a monopole drilled pier foundation. Therefore, the overall capacity for this foundation is 63.8%.

*Design loads were multiplied by 1.35 for comparison as allowed by TIA-222-H, Section 15.6.2.

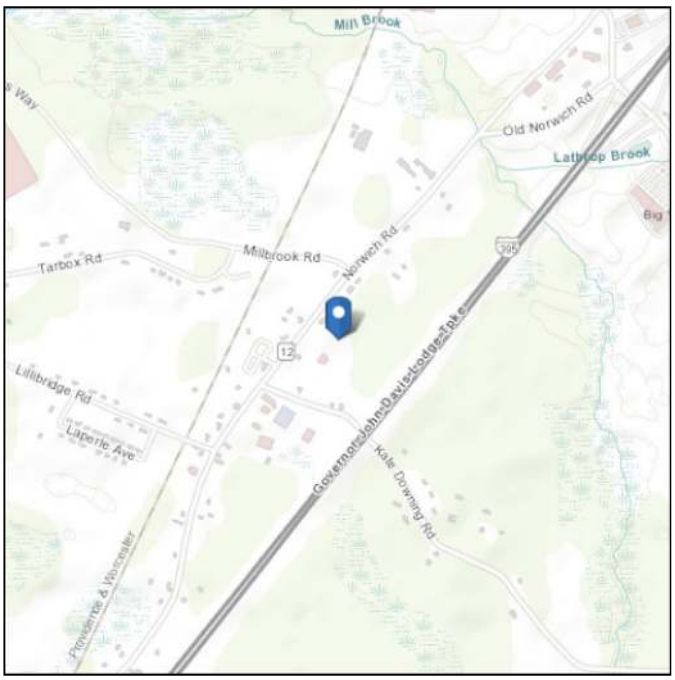
Design reactions were taken from the tower drawings by Summit Manufacturing, LLC., CCIsites document # 1446983

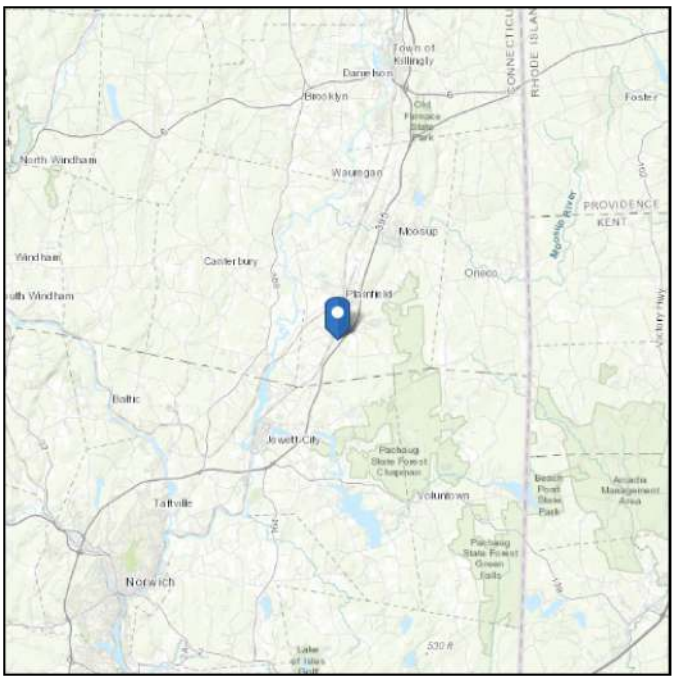
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 181.69 ft (NAVD 88)
Latitude: 41.658739
Longitude: -71.924931





Wind

Results:

Wind Speed	124 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	96 Vmph
100-year MRI	101 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Fri Sep 23 2022

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

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

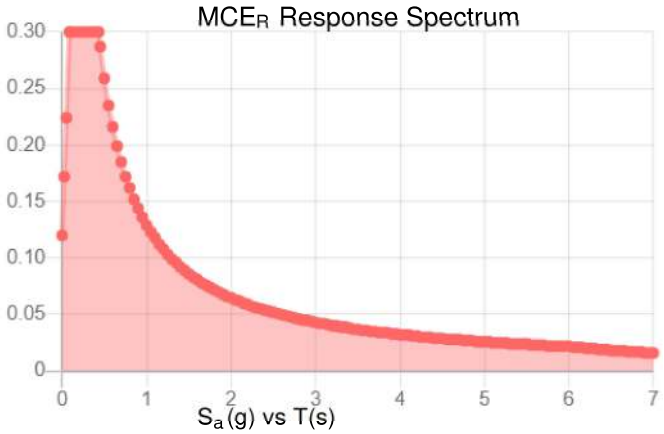
Seismic

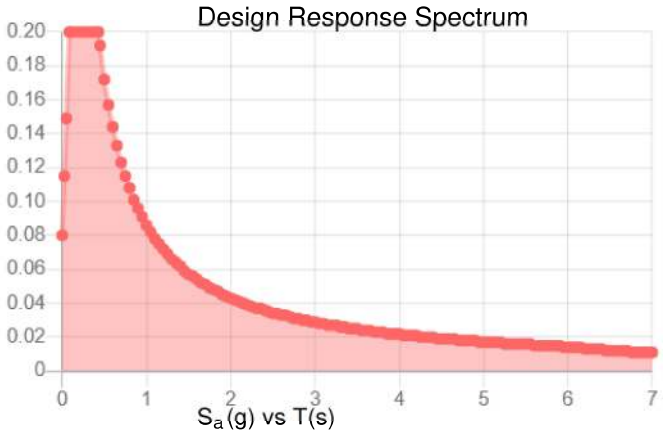
Site Soil Class: D - Stiff Soil

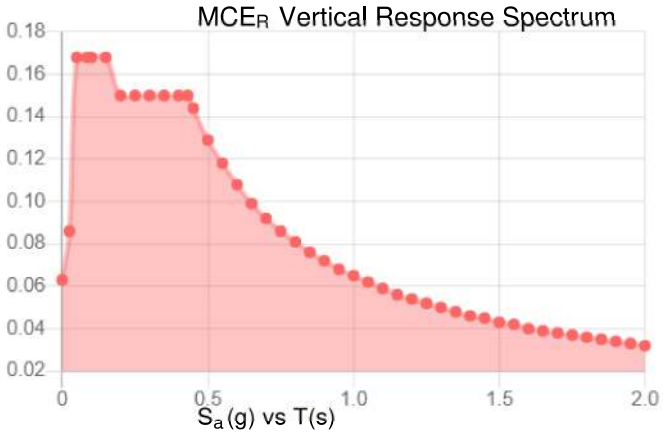
Results:

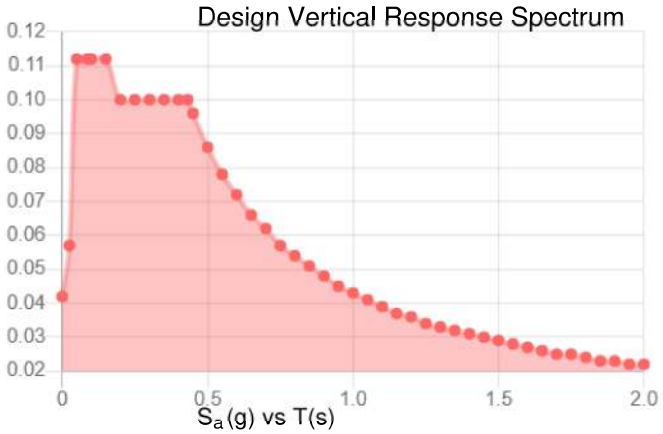
S_S :	0.187	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.102
F_v :	2.4	PGA_M :	0.163
S_{MS} :	0.3	F_{PGA} :	1.596
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.2	C_v :	0.7

Seismic Design Category B









Data Accessed: **Fri Sep 23 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Sep 23 2022

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

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

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