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Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

March 21, 2025

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

**RE: Notice of Exempt Modification for Verizon
Crown #857144; T-Mobile Site ID – CTFF575A
22 Wayside Lane, Redding, CT 06896
Latitude: 41° 16' 56.30" / Longitude: -73° 24' 26.90"**

Dear Ms. Bachman:

T-Mobile currently maintains three (3) antennas at the 85-foot level of the existing 109-foot monopole tower at 22 Wayside Lane, Redding, CT. The tower is owned by Crown Castle USA Inc. and the property is owned by Jo Ann Wunschel. T-Mobile now intends to replace three (3) antennas and install three (3) new antennas and ancillary equipment at the 85-foot level. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Planned Modification:

Tower:

Installed New:

- (3) COMMSCOPE – FVV-65B-R3 ANTENNAS
- (3) COMMSCOPE SMART BLAST - ATSBT-TOP-MF-4G
- (6) COAX CABLES
- (1) EEI - TRIAD-FPS COLLAR MOUNT

Remove:

- (3) COMMSCOPE – DBXNH-6565A-A2M ANTENNAS
- (3) ERICSSON – KRY112 489/2 TMA5
- (3) ERICSSON – KRY 102 267/1 DIPL EXERS

Ground:

Install New:

- (3) ERICSSON - 4480- B71/B85 RADIOS
- (3) ERICSSON - 4460- B25/B66 RADIOS
- (1) ERICSSON - 6160_V2 AC ENCLOSURE
- (1) ERICSSON – B160 ENCLSURE
- (1) CSR IXRE V2 (GEN2) TRANSPORT SYSTEM
- (1) 36X30 NEMA 3R RATED SLACK BOX
- INSTALL NEW SECTION OF ICE BRIDGE
- (2) 6X24 HYBRIDS (10M)

The Foundation for a Wireless World.
CrownCastle.com

Remove:

- (3) ERICSSON – 11 B4 RADIOS
- (3) ERICSSON – 11 B12 RADIOS
- (3) ERICSSON – 01 B2 RADIOS
- (2) CABINETS

The facility was approved by the Connecticut Siting Council on Docket No. 284 on October 7, 2004. Said approval given with conditions. T-Mobile's proposed exempt modification complies with the conditions of approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Joann Wunschel as property owner, Julia Pemberton, First Selectman for the Town of Redding, as the municipality, Town Land Use Planner, and Crown Castle is the tower owner.

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

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Keenan Brinn.

Sincerely,



Keenan Brinn
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(617) 680-5464/ Keenan.Brinn.Contractor@crowncastle.com

Attachments

Melanie A. Bachman

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cc:

Julia Pemberton, First Selectman
Redding Town Hall
100 Redding Hill Rd.
Redding, CT 06893
203-938-2327

Land Use Director
Redding Land Use Office
23 Cross Highway
Redding, CT 06893
203-938-8517

Joann Wunschel, Property Owner
726 Middle Turnpike
Storrs, CT 06268

Crown Castle, Tower Owner

Connecticut Siting Council Decisions

DOCKET NO. 284 – AT&T Wireless PCS, LLC d/b/a AT&T Wireless application for a Certificate of Environmental Compatibility and Public need for the construction, maintenance and operation of a wireless telecommunications facility at 259 Redding Road or 22 Wayside Lane in Redding, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		October 7, 2004

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to AT&T Wireless PCS, LLC d/b/a AT&T Wireless at Site B, located at 22 Wayside Lane, Redding, Connecticut. The Council denies certification of Site A, located at 259 Redding Road, Redding, Connecticut.

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

1. The tower shall be constructed as a flagpole approximately 50 feet to the north of the proposed site, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level, including appurtenances. The tower shall not be lit.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Redding, and all parties and intervenors as listed in the service list for the purpose of seeking comments, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a. color options for the flagpole, with the preferred option of the Town of Redding;
 - b. a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
 - c. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
7. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved. Any request for extension of this period shall be filed with the Council not later than sixty days prior to expiration date of this Certificate and shall be served on all parties and intervenors and the Town of Redding, as listed in the service list. Any proposed modifications to this Decision and Order shall likewise be so served.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Danbury New Times, The Hour (Norwalk) and the Redding Pilot.

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

The parties and intervenors to this proceeding are:

<u>Applicant</u> AT&T Wireless PCS, LLC d/b/a AT&T Wireless	<u>Its Representative</u> Christopher B. Fisher, Esq. Cuddy & Feder LLP 90 Maple Avenue White Plains, NY 10601
<u>Party</u> Fred and Susan Baker	<u>Its Representative</u>
<u>Intervenor</u> Representative Hank Bielawa, 59 th District	<u>Its Representative</u>
<u>Party</u> Lee Shull	<u>Its Representative</u> Ira W. Bloom, Esq. 27 Imperial Avenue Westport, CT 06880
<u>Party</u>	<u>Its Representative</u>

Town of Redding	Monte E. Frank, Esq. Cohen & Wolf, P.C. 158 Deer Hill Avenue Danbury, CT 06810
<u>Party</u> William F. King and Jose E. Pereyra	<u>Its Representative</u> Douglas I. Bayer Paul & Bayer, P.C. P.O. Box 459 Wilton, CT 06897-0459

Content Last Modified on 10/13/2004 11:18:59 AM

22 WAYSIDE LN

Location 22 WAYSIDE LN

Mblu 36 / 10 / 1

Acct# 00256000

Owner WAIDE WUNSCHEL JO ANN

Assessment \$395,600

Appraisal \$565,200

PID 2497

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2023	\$335,400	\$229,800	\$565,200

Assessment			
Valuation Year	Improvements	Land	Total
2023	\$234,700	\$160,900	\$395,600

Owner of Record

Owner WAIDE WUNSCHEL JO ANN
Co-Owner
Address 726 MIDDLE TURNPIKE
STORRS MANSFIELD, CT 06268

Sale Price \$0
Certificate
Book & Page 0409/0896
Sale Date 08/01/2017
Instrument 04

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
WAIDE WUNSCHEL JO ANN	\$0		0409/0896	04	08/01/2017
ENRIGHT NANCY	\$0		0393/1028	04	08/07/2014
ENRIGHT EDWARD D & NANCY	\$0	1	0104/0965	XX	05/22/1979
STOUT BARBARA	\$0	2	0099/0289	XX	07/26/1977

Building Information

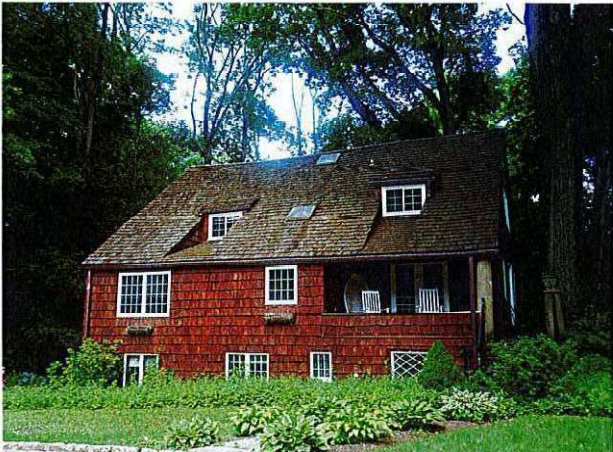
Building 1 : Section 1

Year Built: 1810

Living Area: 2,072
Replacement Cost: \$541,063
Building Percent Good: 60
Replacement Cost
Less Depreciation: \$324,600

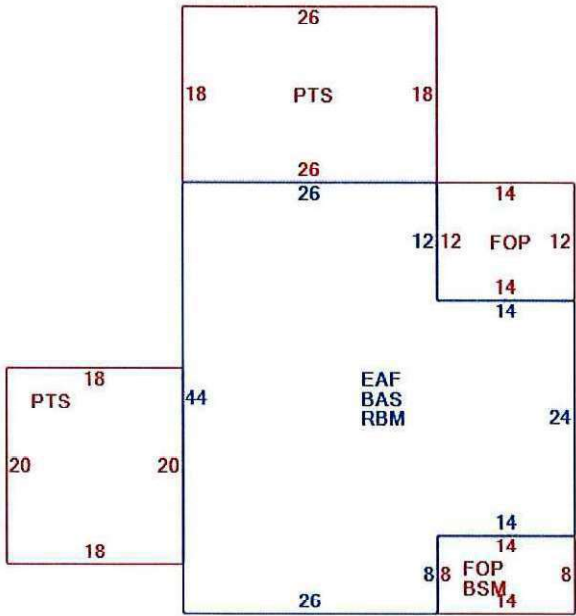
Building Attributes	
Field	Description
Style	Bungalow
Model	Residential
Grade:	B
Stories	1 1/4 Stories
Occupancy	1
Exterior Wall 1	Wood Shingle
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Wood Shingle
Interior Wall 1	Cust Wd Panel
Interior Wall 2	
Interior Flr 1	Pine/Soft Wood
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms	3 Bedrooms
Full Bathrooms	4
Half Bathrooms	1
Total Xtra Fixtrs	1
Total Rooms	7
Bath Style:	Average
Kitchen Style:	Average
Fireplaces 2	3
Cndtn	
Whirlpool Tubs	
Fin Bsmt Area	1380
Fin Bsmt Qual	4
Bsmt Garages	
Num Park	
Fireplaces	
Fndtn Cndtn	
Basement	

Building Photo



(<https://images.vgsi.com/photos/ReddingCTPhotos/\00\01\02\88.jpg>)

Building Layout



([ParcelSketch.ashx?pid=2497&bid=2497](#))

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,480	1,480
EAF	Expansion Attic Finished	1,480	592
BSM	Basement Area	112	0
FOP	Framed Open Porch	280	0
PTS	Patio - Stone	828	0
RBM	Raised Basement	1,480	0
		5,660	2,072

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
GEN	Generator	1.00 Units	\$0	1

Land

Land Use		Land Line Valuation	
Use Code	101	Size (Acres)	4.1
Description	Single Family Res	Frontage	
Zone	R-2	Depth	
Neighborhood	140	Assessed Value	\$160,900
Alt Land Appr	No	Appraised Value	\$229,800
Category			

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
GAR1	Garage	FR	Frame	560.00 S.F.	\$10,600	1
LNT	Lean-To			196.00 S.F.	\$200	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2023	\$335,400	\$229,800	\$565,200
2022	\$335,400	\$229,800	\$565,200
2021	\$218,500	\$224,800	\$443,300

Assessment			
Valuation Year	Improvements	Land	Total
2023	\$234,700	\$160,900	\$395,600
2022	\$234,700	\$160,900	\$395,600
2021	\$152,900	\$157,400	\$310,300





March 21, 2025

Dear Customer,

The following is the proof-of-delivery for tracking number: 772838383741

Delivery Information:

Status:	Delivered	Delivered To:	Residence
Signed for by:	N.Julia	Delivery Location:	
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday; Residential Delivery		REDDING, CT,
		Delivery date:	Mar 20, 2025 15:34

Shipping Information:

Tracking number:	772838383741	Ship Date:	Mar 19, 2025
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
REDDING, CT, US,		WESTBOROUGH, MA, US,	

Reference 799001.7680

FedEx Express proof-of-delivery details appear below; however, no signature is currently available for this shipment. Please check again later for a signature.

Thank you for choosing FedEx



March 21, 2025

Dear Customer,

The following is the proof-of-delivery for tracking number: 772838615805

Delivery Information:

Status:	Delivered	Delivered To:	Shipping/Receiving
Signed for by:	C.Carol	Delivery Location:	
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday		REDDING, CT,
		Delivery date:	Mar 20, 2025 12:25

Shipping Information:

Tracking number:	772838615805	Ship Date:	Mar 19, 2025
		Weight:	1.0 LB/0.45 KG
Recipient:		Shipper:	
REDDING, CT, US,		WESTBOROUGH, MA, US,	

Reference 799001.7680

FedEx Express proof-of-delivery details appear below; however, no signature is currently available for this shipment. Please check again later for a signature.

Thank you for choosing FedEx



March 21, 2025

Dear Customer,

The following is the proof-of-delivery for tracking number: 772838789236

Delivery Information:

Status:	Delivered	Delivered To:	Residence
Signed for by:	Signature not required	Delivery Location:	
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday; Residential Delivery		STORRS MANSFIELD, CT,
		Delivery date:	Mar 20, 2025 10:47

Shipping Information:

Tracking number:	772838789236	Ship Date:	Mar 19, 2025
		Weight:	1.0 LB/0,45 KG
Recipient:		Shipper:	
STORRS MANSFIELD, CT, US,		WESTBOROUGH, MA, US,	

Reference 799001.7680

Proof-of-delivery details appear below; however, no signature is available for this FedEx Express shipment because a signature was not required.

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTFF575A - 857144

ATT WAYSIDE LANE
22 Wayside Lane
Redding, Connecticut 06896

March 14, 2025

EBI Project Number: 045798-PR

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	0.13%



March 14, 2025

T-Mobile

Attn: Jason Overbey, RF Manager

35 Griffin Road South

Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTFF575A - 857144 - ATT WAYSIDE LANE

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **22 Wayside Lane in Redding, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu\text{W}/\text{cm}^2$ and 467 $\mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 1.9 GHz frequency bands is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 22 Wayside Lane in Redding, Connecticut using the equipment information listed below. Modeling of the antennas and associated equipment was completed using RoofMaster™ software, which is a widely-used predictive modeling program that has been developed to predict RF power density values for rooftop and tower telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. Using the computational methods set forth in Federal Communications (FCC) Office of Engineering & Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65), RoofMaster™ calculates predicted power density in a scalable grid based on the contributions of all RF sources characterized in the study scenario. At each grid location, the cumulative power density is expressed as a percentage of the FCC limits. Manufacturer antenna pattern data is utilized in these calculations. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.



For all calculations, telecommunications equipment was modeled using the following assumptions:

- 1) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 2) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 160 Watts per Channel.
- 4) 1 NR channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 160 Watts per Channel.
- 5) 1 LTE channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 160 Watts per Channel.
- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the COMMSCOPE FVV-65B-R3 02DT 600 MHz / 700 MHz / 1900 MHz / 1900 Mhz / 2100 MHz channel(s) in Sector A, the COMMSCOPE FVV-65B-R3 02DT for the 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the COMMSCOPE FVV-65B-R3 02DT for the 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.



- 9) The antenna mounting height centerline of the proposed antennas is 85 feet above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database or documents available on the Connecticut Siting Council website (<https://portal.ct.gov/CSC>). Values in the database are provided by the individual carriers themselves.
- 11) All calculations were done in Far Field mode with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C	Sector:	
Antenna #:	I	Antenna #:	I	Antenna #:	I	Antenna #:	
Make / Model:	COMMSCOPE FVV-65B-R3	Make / Model:	COMMSCOPE FVV-65B-R3	Make / Model:	COMMSCOPE FVV-65B-R3	Make / Model:	
Frequency Bands:	600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	
Gain:	11.48 dBd / 11.9 dBd / 15.17 dBd / 15.17 dBd / 16.12 dBd	Gain:	11.48 dBd / 11.9 dBd / 15.17 dBd / 15.17 dBd / 16.12 dBd	Gain:	11.48 dBd / 11.9 dBd / 15.17 dBd / 15.17 dBd / 16.12 dBd	Gain:	
Height (AGL):	85 feet	Height (AGL):	85 feet	Height (AGL):	85 feet	Height (AGL):	
Channel Count:	5	Channel Count:	5	Channel Count:	5	Channel Count:	
Total TX Power (W):	600.00 Watts	Total TX Power (W):	600.00 Watts	Total TX Power (W):	600.00 Watts	Total TX Power (W):	
ERP (W):	9,894.81	ERP (W):	9,894.81	ERP (W):	9,894.81	ERP (W):	
Antenna A1 MPE %:	6.50%	Antenna B1 MPE %:	6.50%	Antenna C1 MPE %:	6.50%	Antenna D1 MPE %:	



Site Composite MPE %	
Carrier	MPE %
T-Mobile (Combined Sectors):	0.12%
AT&T	0.01%
Site Total MPE % :	0.13%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	0.10%
T-Mobile Sector B Total:	0.11%
T-Mobile Sector C Total:	0.07%
T-Mobile Total MPE % :	0.12%

T-Mobile Maximum MPE Power Values (Sector B)							
T-Mobile Frequency Band / Technology (Sector B)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 600 MHz NR	1	656.2812355	85	3.780527016	600 MHz NR	400.0	0.95%
T-Mobile 700 MHz LTE	1	361.4597895	85	2.082199559	700 MHz LTE	467.0	0.45%
T-Mobile 1900 MHz LTE	1	2736.024504	85	15.7609482	1900 MHz LTE	1000.0	1.58%
T-Mobile 1900 MHz NR	1	2736.024504	85	15.7609482	1900 MHz NR	1000.0	1.58%
T-Mobile 2100 MHz LTE	1	3405.022474	85	19.61473032	2100 MHz LTE	1000.0	1.96%
						T-Mobile Total:	0.12%

- NOTE: Total T-Mobile MPE values reflect all T-Mobile antennas as reported by RoofMaster™ combined modeling.
- NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	0.10%
Sector B:	0.11%
Sector C:	0.07%
T-Mobile Maximum MPE % (Sector B):	0.11%
T-Mobile Combined Sectors MPE %:	0.12%
Site Total:	0.13%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **0.13%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions or documents available on the Connecticut Siting Council website.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Date: **November 13, 2024**



520 South Main Street, Suite 2531
Akron, Ohio 44311
(216) 927-8663

Subject: **Structural Analysis Report**

Carrier Designation: **T-Mobile Co-Locate**
Site Number: CTF575A

Crown Castle Designation: **BU Number:** 857144
Site Name: REDDING WAYSIDE LANE
JDE Job Number: 2125018
Work Order Number: 2343214
Order Number: 679838 Rev. 0

Engineering Firm Designation: **GPD Project Number:** 2025777.857144.01

Site Data: **22 Wayside Lane, Redding, CT 06896, Fairfield County**
Latitude 41° 16' 56.30", Longitude -73° 24' 26.90"
109 Foot – Modified EEI Concealment Tower

GPD 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:

LC5: Proposed Equipment Configuration

Sufficient Capacity – 30.5%

This analysis utilizes an ultimate 3-second gust wind speed of 116 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 – Analysis Criteria.

Structural analysis prepared by: Parker Graf

Respectfully submitted by:

The block contains a handwritten signature in black ink that reads "Christopher J. Scheks". Overlaid on the signature is a circular professional engineer seal for the State of Connecticut. The seal features the text "STATE OF CONNECTICUT" at the top, "CHRISTOPHER J. SKEKS" in the center, and "LICENSED PROFESSIONAL ENGINEER" at the bottom. A small number "0030026" is also visible within the seal.

Christopher J. Scheks, P.E.
Connecticut #: 0030026

11/13/2024

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1) INTRODUCTION

This tower is a 109 ft concealment monopole tower designed by EEI in March of 2006 and mapped by TEP in June of 2016. The tower has been modified previously to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	116 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)
84.0	85.0	3	CommScope	FVV-65B-R3	18	7/8

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)
104.0	106.0	3	Powerwave Technologies	7770.00	1 6	5/16 1-5/8
		6	Powerwave Technologies	LGP21401		
	104.0	1	-	30.75" ø x 10' Concealment Canister		
94.0	96.0	3	Powerwave Technologies	P65-16-XLH-RR	6	1-5/8
		6	Powerwave Technologies	TTAW-07BP111-001		
	94.0	1	-	30.75" ø x 10' Concealment Canister		
84.0	84.0	1	-	30.75" ø x 10' Concealment Canister	-	-
74.0	74.0	1	-	30.75" ø x 10' Concealment Canister	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	6109301	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4568119	CCISITES
4-TOWER MANUFACTURER DRAWINGS	5171985	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	6474586	CCISITES
4-POST-MODIFICATION INSPECTION	7036879	CCISITES

3.1) Analysis Method

tnxTower (version 8.2.4.3), 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 of the TIA-222 standard.

3.2) Assumptions

- 1) The 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 or items in Table 3 are not valid or have been made in error. GPD 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	109 - 99	Pole	TP4.5x4.5x2.25	1	-1.12	751.48	13.9	Pass
L2	99 - 89	Pole	TP6x6x3	2	-3.18	1335.96	15.3	Pass
L3	89 - 79	Pole	TP7x7x3.5	3	-5.65	1818.39	17.6	Pass
L4	79 - 69	Pole	TP10.75x10.75x1	4	-7.55	1013.11	23.8	Pass
L5	69 - 48.21	Pole	TP32.36x29.5x0.1875	5	-9.46	1153.05	14.4	Pass
L6	48.21 - 0	Pole	TP38.5x31.3549x0.25	6	-16.76	1864.34	22.2	Pass
						Summary	ELC:	LC5
						Pole (L4)	23.8	Pass
						Rating =	23.8	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Flange Connection	99.0	2.0	Pass
1,2	Flange Connection	89.0	5.3	Pass
1,2	Flange Connection	79.0	21.8	Pass
1,2	Flange Connection	69.0	15.1	Pass
1,2	Anchor Rods	0	29.3	Pass
1,2	Base Plate	0	21.5	Pass
1,2	Base Foundation Structural	0	9.5	Pass
1,2	Base Foundation Soil Interaction	0	30.5	Pass

Structure Rating (max from all components) =	30.5%
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity.
- 2) 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.

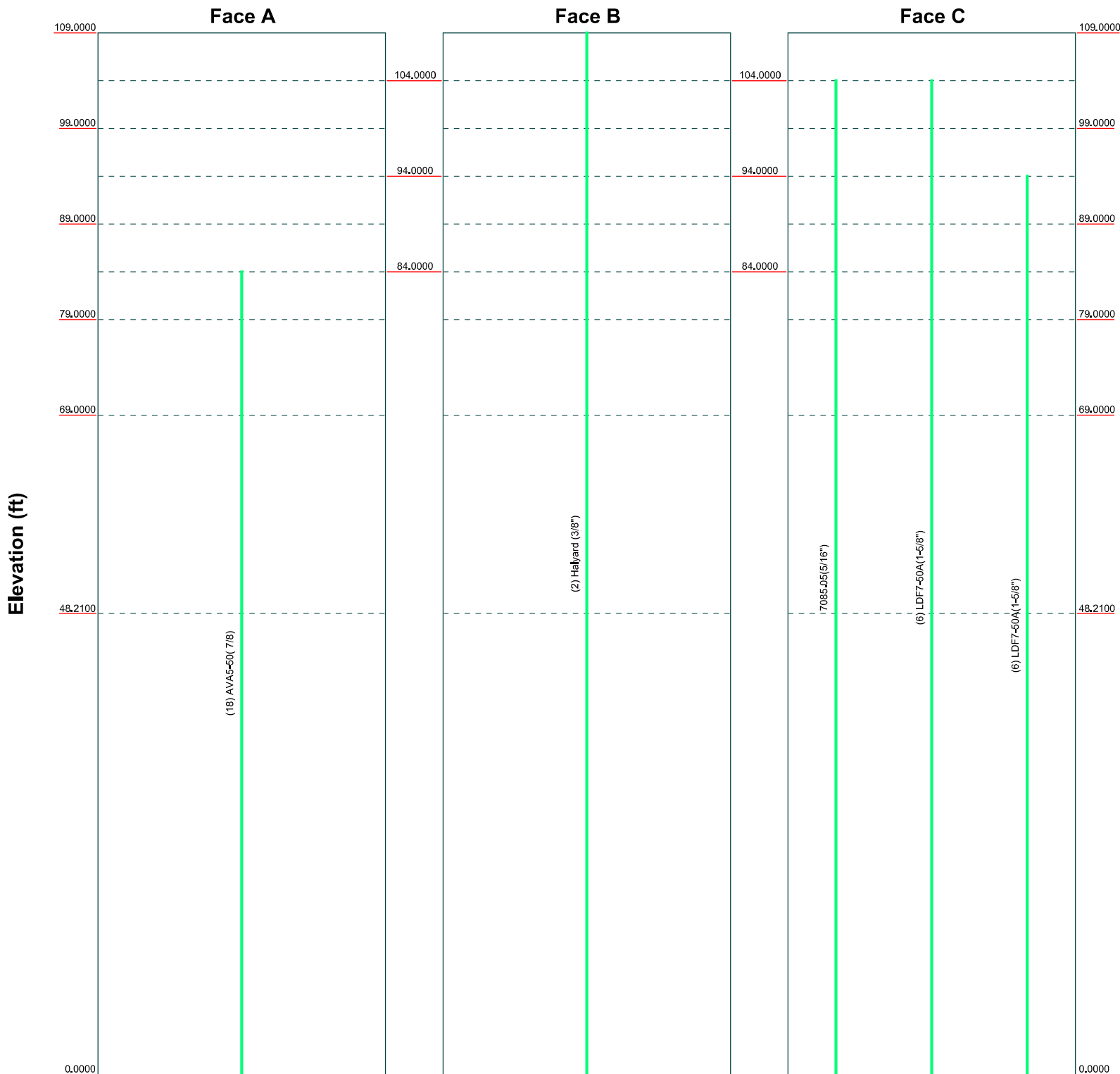
APPENDIX A

TNXTOWER OUTPUT

Feed Line Distribution Chart

0' - 109'

Round Flat App In Face App Out Face Truss Leg



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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 Fairfield County, Connecticut.

Tower base elevation above sea level: 576.00 ft.

Basic wind speed of 116 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 56.00 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	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Horizontals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Consider Moments - Diagonals	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
Use Moment Magnification	Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Stress Ratios	Retension Guys To Initial Tension	Offset Girt At Foundation
√ Use Code Safety Factors - Guys	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Escalate Ice	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Always Use Max Kz	√ Project Wind Area of Appurtenances	Use TIA-222-H Bracing Resist. Exemption
Use Special Wind Profile	√ Alternative Appurt. EPA Calculation	Use TIA-222-H Tension Splice Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	√ Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	√ Pole Without Linear Attachments
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	√ Pole With Shroud Or No Appurtenances
Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules	Outside and Inside Corner Radii Are Known

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Tapered Pole Section Geometry

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
L1	109.0000-99.0000	10.0000	0.00	Round	4.5000	4.5000	2.2500		A572-50 (50 ksi)
L2	99.0000-89.0000	10.0000	0.00	Round	6.0000	6.0000	3.0000		A572-50 (50 ksi)
L3	89.0000-79.0000	10.0000	0.00	Round	7.0000	7.0000	3.5000		A572-50 (50 ksi)
L4	79.0000-69.0000	10.0000	0.00	Round	10.7500	10.7500	1.0000		A53-B-35 (35 ksi)
L5	69.0000-48.2100	20.7900	4.58	18	29.5000	32.3600	0.1875	0.7500	A572-65 (65 ksi)
L6	48.2100-0.0000	52.7900		18	31.3549	38.5000	0.2500	1.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	<i>I</i> in ⁴	<i>r</i> in	<i>C</i> in	<i>I/C</i> in ³	<i>J</i> in ⁴	<i>It/Q</i> in ²	<i>w</i> in	<i>w/t</i>
L1	4.5000	15.9043	20.1289	1.1250	2.2500	8.9462	40.2578	7.9474	0.0000	0
	4.5000	15.9043	20.1289	1.1250	2.2500	8.9462	40.2578	7.9474	0.0000	0
L2	6.0000	28.2743	63.6173	1.5000	3.0000	21.2058	127.2345	14.1287	0.0000	0
	6.0000	28.2743	63.6173	1.5000	3.0000	21.2058	127.2345	14.1287	0.0000	0
L3	7.0000	38.4845	117.8588	1.7500	3.5000	33.6739	235.7176	19.2308	0.0000	0
	7.0000	38.4845	117.8588	1.7500	3.5000	33.6739	235.7176	19.2308	0.0000	0
L4	10.7500	30.6305	367.8056	3.4652	5.3750	68.4290	735.6113	15.3061	0.0000	0
	10.7500	30.6305	367.8056	3.4652	5.3750	68.4290	735.6113	15.3061	0.0000	0
L5	29.9262	17.4446	1893.6697	10.4059	14.9860	126.3626	3789.8311	8.7240	4.8620	25.931
	32.8303	19.1467	2503.8025	11.4212	16.4389	152.3098	5010.8996	9.5751	5.3654	28.615
L6	32.4295	24.6818	3016.9824	11.0423	15.9283	189.4100	6037.9346	12.3432	5.0785	20.314
	39.0554	30.3514	5610.2046	13.5787	19.5580	286.8496	11227.7912	15.1786	6.3360	25.344

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor <i>A_f</i>	Adjust. Factor <i>A_r</i>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 109.0000-99.0000				1	0	1			
L2 99.0000-89.0000				1	0	1			
L3 89.0000-79.0000				1	0	1			
L4 79.0000-69.0000				1	0	1			
L5 69.0000-48.2100				1	1	1			
L6 48.2100-0.0000				1	1	1			

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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} ft ² /ft	Weight plf
Halyard (3/8")	B	No	No	CaAa (Out Of Face)	109.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice	0.0375 0.1375 0.2375	0.04 0.57 1.72
7085.05(5/16")	C	No	No	Inside Pole	104.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.09 0.09 0.09
LDF7-50A(1-5/8")	C	No	No	Inside Pole	104.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.82 0.82 0.82
LDF7-50A(1-5/8")	C	No	No	Inside Pole	94.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.82 0.82 0.82
AVA5-50(7/8)	A	No	No	Inside Pole	84.0000 - 0.0000	18	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.30 0.30 0.30

User Defined Loads

Description	Elevation	Offset From Centroid	Azimuth Angle		Weight	F _x	F _z	Wind Force	C _{AC}
	ft	ft	°		K	K	K	K	ft ²
Flag (25'x15')	109.0000	0.00	0.00	No Ice	0.04	0.00	0.00	0.54	15.0099
				Ice	0.83	0.00	0.00	0.10	15.3104
				Service	0.04	0.00	0.00	0.14	16.7758

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
7770.00 w/ Mount Pipe	A	From Leg	0.5000 0.00 2.00	0.00	104.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.0000 0.0000 0.0000	0.06 0.10 0.15
7770.00 w/ Mount Pipe	B	From Leg	0.5000 0.00 2.00	0.00	104.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.0000 0.0000 0.0000	0.06 0.10 0.15
7770.00 w/ Mount Pipe	C	From Leg	0.5000 0.00 2.00	0.00	104.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.0000 0.0000 0.0000	0.06 0.10 0.15
(2) LGP21401	A	From Leg	0.5000 0.00 2.00	0.00	104.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.0000 0.0000 0.0000	0.01 0.02 0.03
(2) LGP21401	B	From Leg	0.5000 0.00 2.00	0.00	104.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.0000 0.0000 0.0000	0.01 0.02 0.03
(2) LGP21401	C	From Leg	0.5000 0.00 2.00	0.00	104.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.0000 0.0000 0.0000	0.01 0.02 0.03

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	0.5000 0.00 2.00	0.00	94.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.08 0.14 0.21
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	0.5000 0.00 2.00	0.00	94.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.08 0.14 0.21
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	0.5000 0.00 2.00	0.00	94.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.08 0.14 0.21
(2) TTAW-07BP111-001	A	From Leg	0.5000 0.00 2.00	0.00	94.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.02 0.02 0.03
(2) TTAW-07BP111-001	B	From Leg	0.5000 0.00 2.00	0.00	94.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.02 0.02 0.03
(2) TTAW-07BP111-001	C	From Leg	0.5000 0.00 2.00	0.00	94.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.02 0.02 0.03
FVV-65B-R3 w/ Mount Pipe	A	From Leg	0.5000 0.00 1.00	0.00	84.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.08 0.15 0.22
FVV-65B-R3 w/ Mount Pipe	B	From Leg	0.5000 0.00 1.00	0.00	84.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.08 0.15 0.22
FVV-65B-R3 w/ Mount Pipe	C	From Leg	0.5000 0.00 1.00	0.00	84.0000	No Ice 0.0000 1/2" Ice 0.0000 1" Ice 0.0000	0.0000 0.0000 0.0000	0.08 0.15 0.22
Canister Load1	C	None		0.00	109.0000	No Ice 5.7656 1/2" Ice 14.5521 1" Ice 15.0104	5.7656 14.5521 15.0104	0.08 0.18 0.27
Canister Load2	C	None		0.00	99.0000	No Ice 11.5312 1/2" Ice 29.1042 1" Ice 30.0208	11.5312 29.1042 30.0208	0.34 0.54 0.73
Canister Load3	C	None		0.00	89.0000	No Ice 11.5312 1/2" Ice 29.1042 1" Ice 30.0208	11.5312 29.1042 30.0208	0.36 0.56 0.75
Canister Load4	C	None		0.00	79.0000	No Ice 11.5312 1/2" Ice 29.1042 1" Ice 30.0208	11.5312 29.1042 30.0208	0.38 0.58 0.77
Canister Load5	C	None		0.00	69.0000	No Ice 5.7656 1/2" Ice 14.5521 1" Ice 15.0104	5.7656 14.5521 15.0104	0.34 0.44 0.54
Truck Ball	C	None		0.00	109.7500	No Ice 0.8836 1/2" Ice 1.3783 1" Ice 1.5272	0.8836 1.3783 1.5272	0.05 0.07 0.09

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Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	109 - 99	5.98	43	0.81	0.00
L2	99 - 89	4.39	43	0.66	0.00
L3	89 - 79	3.16	43	0.49	0.00
L4	79 - 69	2.30	43	0.31	0.00
L5	69 - 48.21	1.73	43	0.22	0.00
L6	52.79 - 0	1.07	43	0.17	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
109.7500	Truck Ball	43	5.98	0.81	0.00	5416
109.0000	Canister Load1	43	5.98	0.81	0.00	5416
104.0000	7770.00 w/ Mount Pipe	43	5.16	0.74	0.00	5416
99.0000	Canister Load2	43	4.39	0.66	0.00	3004
94.0000	P65-16-XLH-RR w/ Mount Pipe	43	3.72	0.58	0.00	2981
89.0000	Canister Load3	43	3.16	0.49	0.00	3270
84.0000	FVV-65B-R3 w/ Mount Pipe	43	2.68	0.40	0.00	3415
79.0000	Canister Load4	43	2.30	0.31	0.00	3739
69.0000	Canister Load5	43	1.73	0.22	0.00	11625

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	109 - 99	24.24	8	3.23	0.00
L2	99 - 89	17.88	8	2.66	0.00
L3	89 - 79	12.90	8	2.00	0.00
L4	79 - 69	9.40	8	1.27	0.00
L5	69 - 48.21	7.11	8	0.89	0.00
L6	52.79 - 0	4.39	8	0.71	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
109.7500	Truck Ball	8	24.24	3.23	0.00	1399
109.0000	Canister Load1	8	24.24	3.23	0.00	1399
104.0000	7770.00 w/ Mount Pipe	8	20.95	2.95	0.00	1399
99.0000	Canister Load2	8	17.88	2.66	0.00	774
94.0000	P65-16-XLH-RR w/ Mount Pipe	8	15.19	2.35	0.00	760
89.0000	Canister Load3	8	12.90	2.00	0.00	823
84.0000	FVV-65B-R3 w/ Mount Pipe	8	10.98	1.62	0.00	854
79.0000	Canister Load4	8	9.40	1.27	0.00	932
69.0000	Canister Load5	8	7.11	0.89	0.00	2878

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Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio
	ft		ft	ft		in ²	K	K	$\frac{P_u}{\phi P_n}$
L1	109 - 99 (1)	TP4.5x4.5x2.25	10.0000	0.0000	0.0	15.9043	-1.12	715.69	0.002
L2	99 - 89 (2)	TP6x6x3	10.0000	0.0000	0.0	28.2743	-3.18	1272.34	0.003
L3	89 - 79 (3)	TP7x7x3.5	10.0000	0.0000	0.0	38.4845	-5.65	1731.80	0.003
L4	79 - 69 (4)	TP10.75x10.75x1	10.0000	0.0000	0.0	30.6305	-7.55	964.86	0.008
L5	69 - 48.21 (5)	TP32.36x29.5x0.1875	20.7900	0.0000	0.0	18.7717	-9.46	1098.14	0.009
L6	48.21 - 0 (6)	TP38.5x31.3549x0.25	52.7900	0.0000	0.0	30.3514	-16.76	1775.56	0.009

Pole Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{ux}	Ratio	M _{uy}	φM _{uy}	Ratio
	ft		kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{ux}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{uy}}$
L1	109 - 99 (1)	TP4.5x4.5x2.25	8.23	56.95	0.145	0.00	56.95	0.000
L2	99 - 89 (2)	TP6x6x3	21.33	135.00	0.158	0.00	135.00	0.000
L3	89 - 79 (3)	TP7x7x3.5	38.94	214.38	0.182	0.00	214.38	0.000
L4	79 - 69 (4)	TP10.75x10.75x1	60.51	250.41	0.242	0.00	250.41	0.000
L5	69 - 48.21 (5)	TP32.36x29.5x0.1875	105.08	740.03	0.142	0.00	740.03	0.000
L6	48.21 - 0 (6)	TP38.5x31.3549x0.25	339.01	1517.93	0.223	0.00	1517.93	0.000

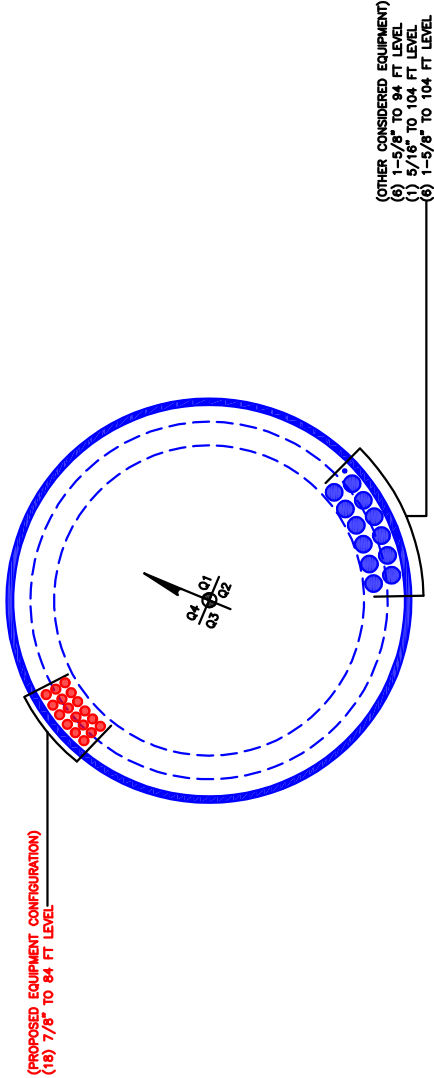
Pole Shear Design Data

Section No.	Elevation	Size	Actual V _u	φV _n	Ratio	Actual T _u	φT _n	Ratio
	ft		K	K	$\frac{V_u}{\phi V_n}$	kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	109 - 99 (1)	TP4.5x4.5x2.25	0.85	214.71	0.004	0.00	42.47	0.000
L2	99 - 89 (2)	TP6x6x3	1.34	381.70	0.004	0.00	100.68	0.000
L3	89 - 79 (3)	TP7x7x3.5	1.77	519.54	0.003	0.00	159.87	0.000
L4	79 - 69 (4)	TP10.75x10.75x1	2.16	289.46	0.007	0.01	248.12	0.000
L5	69 - 48.21 (5)	TP32.36x29.5x0.1875	3.16	329.44	0.010	0.04	910.03	0.000
L6	48.21 - 0 (6)	TP38.5x31.3549x0.25	5.68	532.67	0.011	0.11	1784.30	0.000

Pole Interaction Design Data

Section No.	Elevation	Ratio P _u	Ratio M _{ux}	Ratio M _{uy}	Ratio V _u	Ratio T _u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	ft	φP _n	φM _{ux}	φM _{uy}	φV _n	φT _n			
L1	109 - 99 (1)	0.002	0.145	0.000	0.004	0.000	0.146	1.050	
L2	99 - 89 (2)	0.003	0.158	0.000	0.004	0.000	0.161	1.050	
L3	89 - 79 (3)	0.003	0.182	0.000	0.003	0.000	0.185	1.050	
L4	79 - 69 (4)	0.008	0.242	0.000	0.007	0.000	0.250	1.050	
L5	69 - 48.21 (5)	0.009	0.142	0.000	0.010	0.000	0.151	1.050	
L6	48.21 - 0 (6)	0.009	0.223	0.000	0.011	0.000	0.233	1.050	

APPENDIX B
BASE LEVEL DRAWING



N.T.S.

CROWN REGION ADDRESS
USA

DATE
BY
JOB
PROJECT

21/05/14
18/12/13
18/07/17
18/06/16
18/05/14

(OTHER CONSIDERED EQUIPMENT)
(6) 1-3/8" TO 84 FT LEVEL
(1) 5/8" TO 104 FT LEVEL
(6) 1-3/8" TO 104 FT LEVEL

DRAWN BY: MMM
CHECKED BY: AMT
DRAWING DATE: 2/10/5/14

SITE NUMBER:
SITE NAME:

SITE NAME

REDDING WAYSIDE LANE

BUSINESS UNIT NUMBER

857144

SITE ADDRESS

22 WAYSIDE LANE
REDDING, CT 06896
FAIRFIELD COUNTY
USA

SHEET TITLE

BASE LEVEL

SHEET NUMBER

A1-0

APPENDIX C

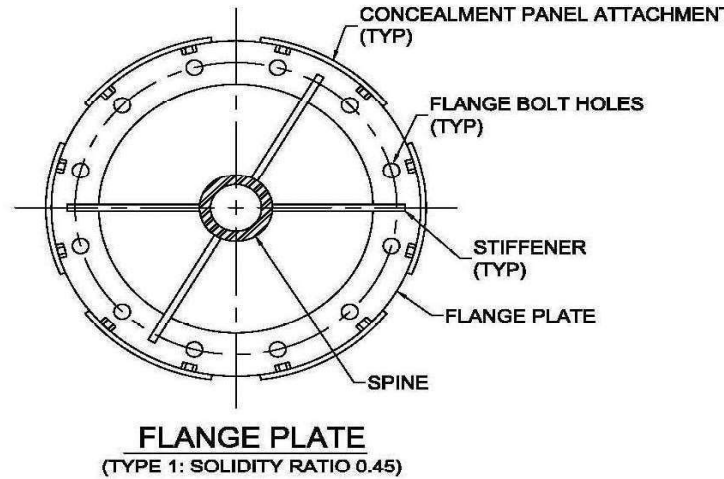
ADDITIONAL CALCULATIONS

CCI Flagpole Tool

Site Data	
BU#:	857144
Site Name:	REDDING WAYSIDE LANE
Order #:	679838 Rev. 0

Code	
Code:	TIA-222-H
Ice Thickness:	1 in
Windspeed (V):	116 mph
Ice Wind Speed (V):	50 mph
Exposure Category:	B
Topographic Feature:	N/A
Risk Category:	II

Tower Information	
Total Tower Height:	109 ft
Base Tower Height:	69 ft
Total Canister Length:	40 ft
Number of Canister Assembly Sections:	4



Canister Section Number ¹ :	Canister Assembly Length (ft):	Canister Assembly Diameter (in):	Ventilated Canister:	Manufacturer²:	Number of Sides Canister Section	Plate Type:	Mating Flange Plate Thickness (in) ³ :	Mating Flange Plate Diameter (in)
1	10	30.75	No		Round	1	1.13	21.5
2	10	30.75	No		Round	1	1.25	21.5
3	10	30.75	No		Round	1	1.38	21.5
4	10	30.75	No		Round	1	1.50	21.5

¹ Sections are numbered from the top of the tower down

² Select manufacturer if available for vented canister. Leave blank to autocalculate Cf values.

³ Mating Flange Plate Thickness at the bottom of canister section

Flag on Tower:	Yes
Flag Width:	25 ft
Flag Height:	15 ft
Flag Elevation(z):	109 ft

Truck Ball on Tower:	Yes
Diameter of Ball:	18 in

Geometry : Base Tower + Spine			
-------------------------------	--	--	--

857144.eri (last saved 11/12 11:06 am)

Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Part Material
109	10	0	0	4.5	4.5	2.25	n/a	A57

Discrete Loads: Truck Ball	Apply $C_a A_A$ at Elevation(z) (ft)	$C_a A_A$ No Ice (ft ²)	$C_a A_A$ 1/2" Ice (ft ²)	$C_a A_A$ 1" Ice (ft ²)	$C_a A_A$ 2" Ice (ft ²)	$C_a A_A$ 4" Ice (ft ²)	Weight No Ice (Kip)	Weight 1/2" Ice (Kip)
	109.75	0.884	1.378	1.527	1.848	2.581	0.05	0.05

Discrete Loads : $C_F A_F$ for Canister Assembly								
Canister Loading	Apply $C_F A_F$ at Elevation(z) (ft)	$C_F A_F$ No Ice (ft ²)	$C_F A_F$ 1/2" Ice (ft ²)	$C_F A_F$ 1" Ice (ft ²)	$C_F A_F$ 2" Ice (ft ²)	$C_F A_F$ 4" Ice (ft ²)	Canister Assembly Weight No Ice (Kip)	Canister Assembly Weight 1/2" Ice (Kip)
Canister Load 1	109	5.766	14.552	15.010	15.927	17.760	0.081	0.081
Canister Load 2	99	11.531	29.104	30.021	31.854	35.521	0.344	0.344
Canister Load 3	89	11.531	29.104	30.021	31.854	35.521	0.365	0.365
Canister Load 4	79	11.531	29.104	30.021	31.854	35.521	0.385	0.385
Canister Load 5	69	5.766	14.552	15.010	15.927	17.760	0.344	0.344

User Forces: Flag Force Calculation Per ANSI/NAAMM FP 1001-07	
Wind _{FORCE} =	0.536 Kip
Weight=	0.039 Kip
Wind _{FORCE, ICE} =	0.102 Kip
Weight _{ICE} =	0.828 Kip
$W_{FORCE, SERVICE WIND}$ =	0.143 Kip
Weight=	0.039 Kip

← Flag force should be included at the top of the flag attachment elevation. If the attachment of the flag to the halyard distributes forces equally to the pole, apply flag forces accordingly in tnx file.

Deflection Check Required:	Yes	Import Deflection Results
3% Spine Deflection Check		
Allowable (3%) Horizontal Spine Deflection (inches)	Actual Deflection ¹ (inches)	Sufficient/ Insufficient
14.400	4.247	Sufficient

¹ Relative deflection under service level wind speed

Monopole Flange Plate Connection

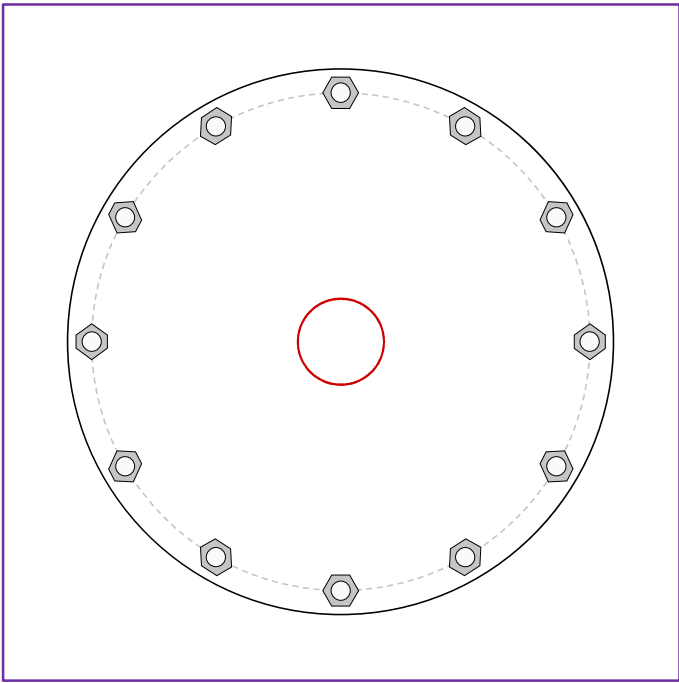
Elevation = 99 ft.

BU #	857144
Site Name	EDDING WAYSIDE LAN
Order #	679838 Rev. 0
TIA-222 Revision	H

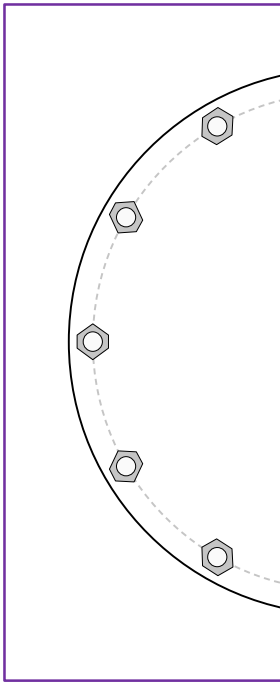
Applied Loads	
Moment (kip-ft)	8.23
Axial Force (kips)	1.12
Shear Force (kips)	0.85

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1" \varnothing bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

28.5" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

4.5" x 2.25" round pole (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

28.5" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

6" x 3" round pole (A572-50; Fy=50 ksi, Fu=65 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	1.17
Allowable (kips)	54.54
Stress Rating:	2.0% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-

Monopole Flange Plate Connection

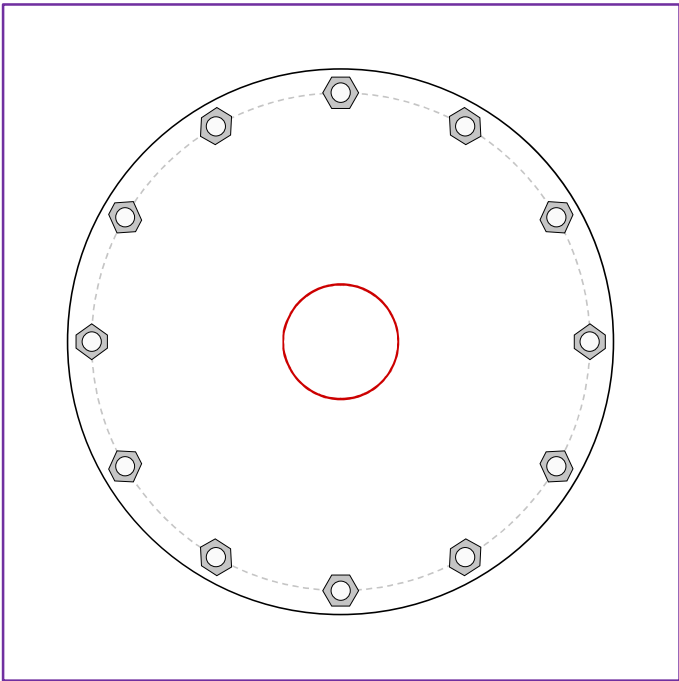
Elevation = 89 ft.

BU #	857144
Site Name	EDDING WAYSIDE LAN
Order #	679838 Rev. 0
TIA-222 Revision	H

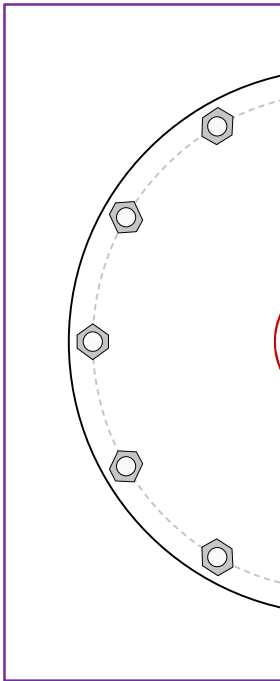
Applied Loads	
Moment (kip-ft)	21.33
Axial Force (kips)	3.18
Shear Force (kips)	1.34

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1" \varnothing bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

28.5" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

6" x 3" round pole (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

28.5" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

7" x 3.5" round pole (A572-50; Fy=50 ksi, Fu=65 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	3.01
Allowable (kips)	54.54
Stress Rating:	5.3% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-

Monopole Flange Plate Connection

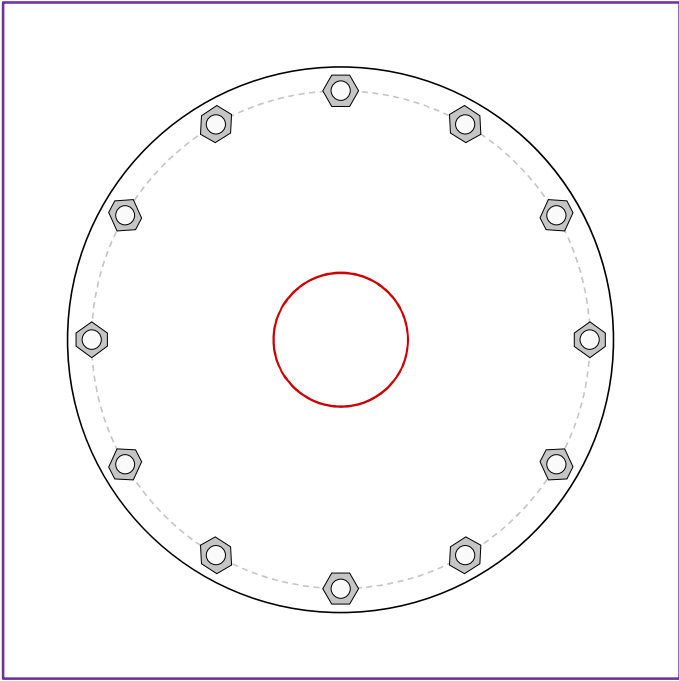
Elevation = 79 ft.

BU #	857144
Site Name	EDDING WAYSIDE LAN
Order #	679838 Rev. 0
TIA-222 Revision	H

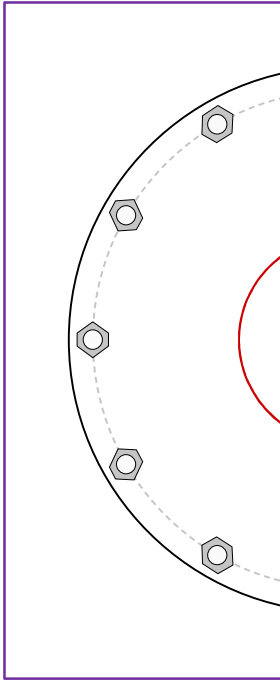
Applied Loads	
Moment (kip-ft)	38.94
Axial Force (kips)	5.65
Shear Force (kips)	1.77

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(12) 1" \varnothing bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

28.5" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

7" x 3.5" round pole (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

28.5" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

10.75" x 1" round pole (A572-50; Fy=50 ksi, Fu=65 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	12.51
Allowable (kips)	54.54
Stress Rating:	21.8% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-

Monopole Flange Plate Connection

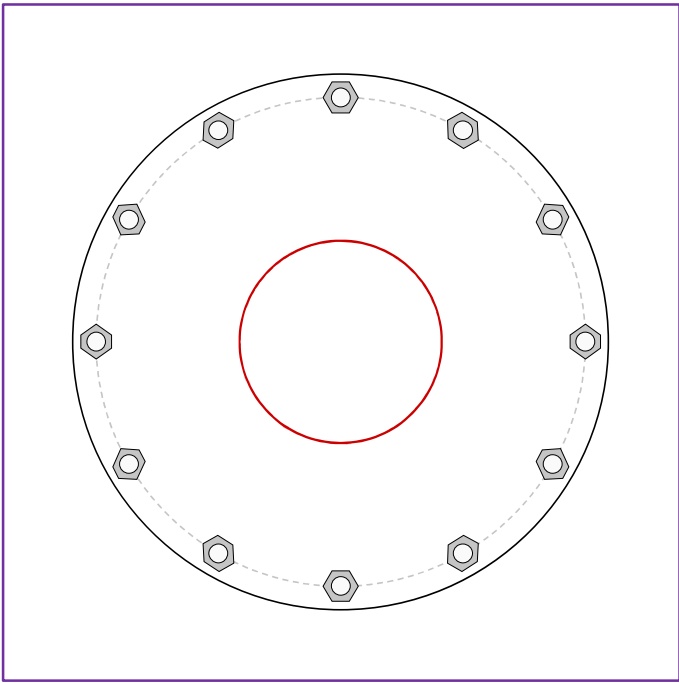
Elevation = 69 ft.

BU #	857144
Site Name	EDDING WAYSIDE LAN
Order #	679838 Rev. 0
TIA-222 Revision	H

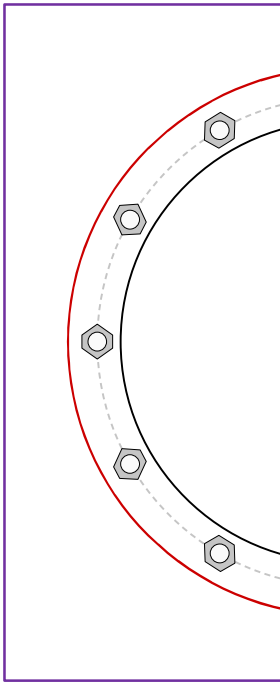
Applied Loads	
Moment (kip-ft)	60.51
Axial Force (kips)	7.55
Shear Force (kips)	2.16

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(12) 1" \varnothing bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

28.5" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

10.75" x 1" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Plate Data

23.5" ID x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

29.5" x 0.1875" 18-sided pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	8.67
Allowable (kips)	54.54
Stress Rating:	15.1% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-

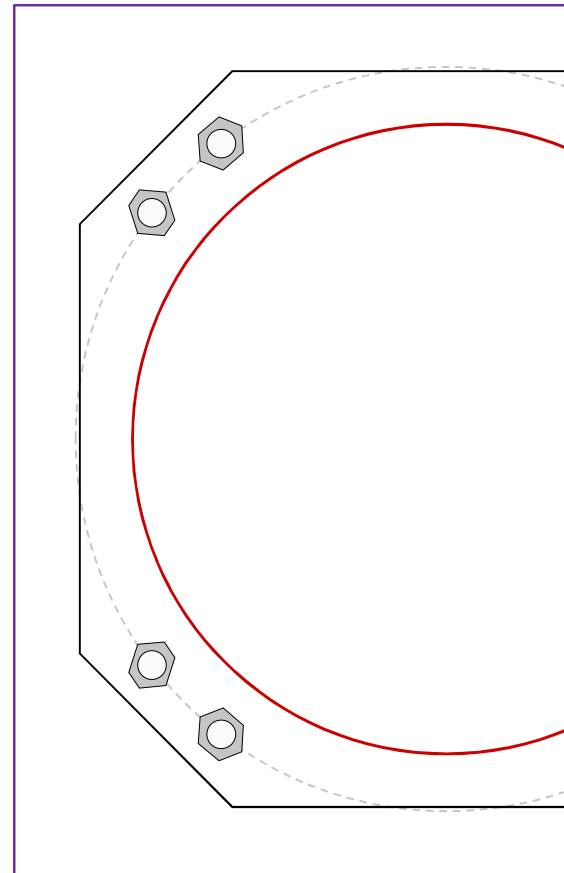
Monopole Base Plate Connection

Site Info	
BU #	857144
Site Name	EDDING WAYSIDE LAN
Order #	679838 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2.5

Applied Loads	
Moment (kip-ft)	339.02
Axial Force (kips)	16.76
Shear Force (kips)	5.68

*TIA-222-H Section 15.5 Applied



Connection Properties

Anchor Rod Data

(8) 1-3/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 45.5" BC
Anchor Spacing: 6 in

Base Plate Data

45" W x 2" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi); Clip: 9.37 in

Stiffener Data

N/A

Pole Data

38.5" x 0.25" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Analysis

Anchor Rod Summary

$Pu_c = 46.77$

$Vu = 0.71$

$Mu = 1.15$

Base Plate Summary

Max Stress (ksi):

Allowable Stress (ksi):

Stress Rating:

Pier and Pad Foundation



BU # : 857144
 Site Name: REDDING WAYSIDE
 App. Number: 679838 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

Top & Bot. Pad Rein. Different?: ☐
 Block Foundation?: ☐
 Rectangular Pad?: ☐

Superstructure Analysis Reactions		
Compression, P_{comp} :	17	kips
Base Shear, Vu_{comp} :	6	kips
Moment, M_u :	339	ft-kips
Tower Height, H :	109	ft
BP Dist. Above Fdn, bp_{dist} :	4.25	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	6	ft
Ext. Above Grade, E :	1	ft
Pier Rebar Size, Sc :	8	
Pier Rebar Quantity, mc :	34	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	6.5	ft
Pad Width, W_1 :	13.5	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	14	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	4	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	130	pcf
Ultimate Gross Bearing, Q_{ult} :	30,000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	38	degrees
SPT Blow Count, N_{blows} :	50	
Base Friction, μ :	0.45	
Neglected Depth, N :	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	22	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	141.48	6.00	4.0%	Pass
Bearing Pressure (ksf)	22.50	2.20	9.3%	Pass
Overturing (kip*ft)	1267.59	386.13	30.5%	Pass
Pier Flexure (Comp.) (kip*ft)	3664.11	366.00	9.5%	Pass
Pier Compression (kip)	22913.28	46.16	0.2%	Pass
Pad Flexure (kip*ft)	1537.77	86.63	5.4%	Pass
Pad Shear - 1-way (kips)	484.11	15.32	3.0%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.190	0.007	3.6%	Pass
Flexural 2-way (Comp) (kip*ft)	3075.55	219.60	6.8%	Pass

*Rating per TIA-222-H Section 15.5

Structural Rating*:	9.5%
Soil Rating*:	30.5%

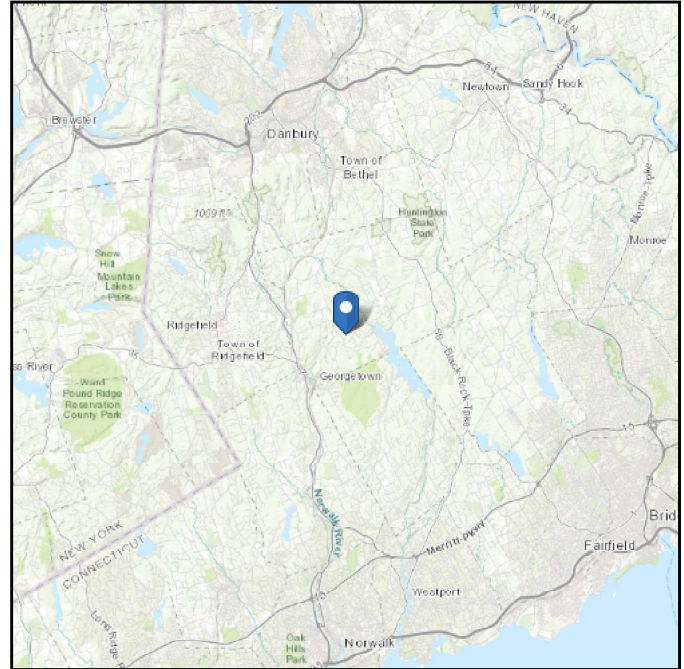
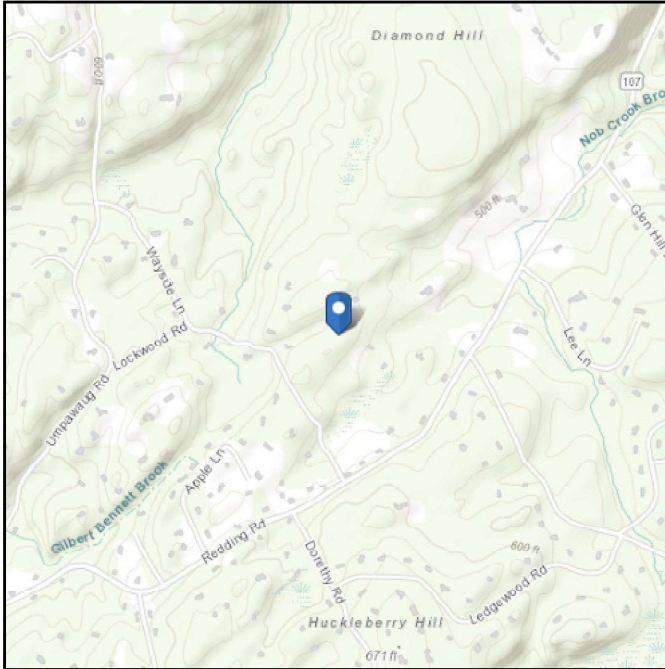
<--Toggle between Gross and Net

ASCE Hazards Report

Address:
No Address at This Location

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

Latitude: 41.282306
Longitude: -73.407472
Elevation: 576.4630519671583 ft
(NAVD 88)



Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 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: Tue Nov 12 2024

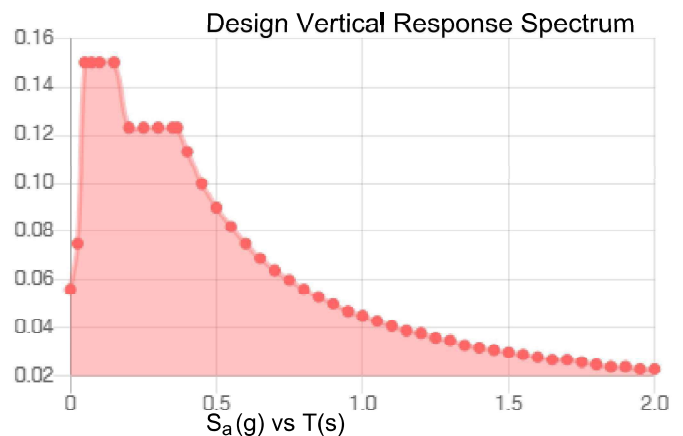
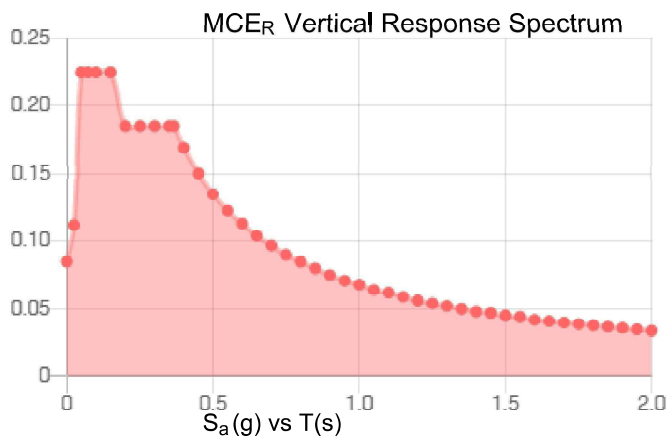
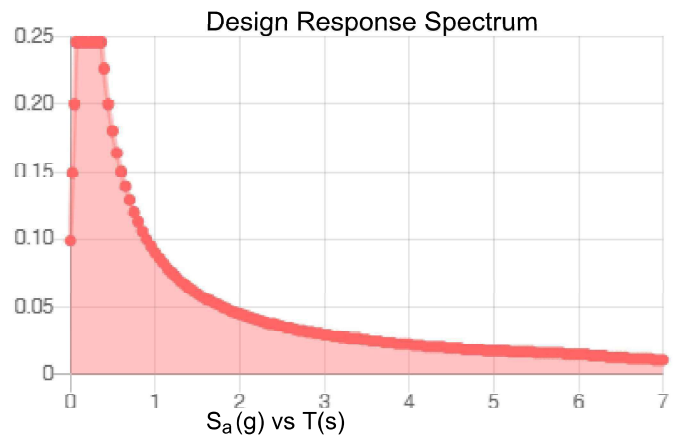
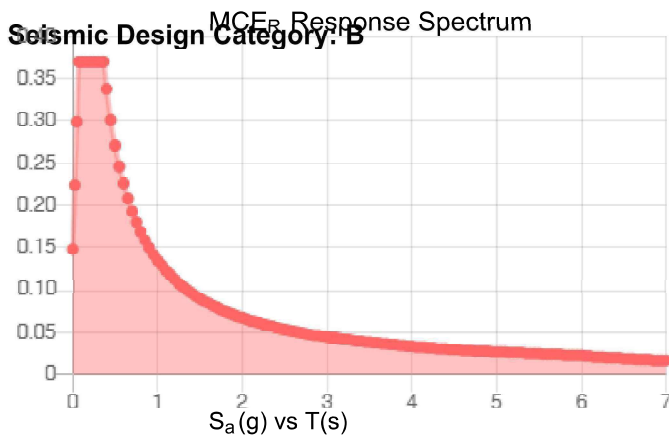
Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance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

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

Results:

S_s :	0.231	S_{D1} :	0.09
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.134
F_v :	2.4	PGA _M :	0.206
S_{MS} :	0.37	F_{PGA} :	1.531
S_{M1} :	0.135	I_e :	1
S_{DS} :	0.246	C_v :	0.762



Data Accessed: Tue Nov 12 2024

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: Tue Nov 12 2024

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.

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

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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 STABILITY OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY. PRIOR TO REMOVING OR REPLACING THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY, THE CLIMBING FACILITY SHALL BE STABILIZED. CHAINS OR WIRE ROPE SHALL BE USED TO SECURE THE CLIMBING FACILITY PRIOR TO REMOVING 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 IMPED/ BLOCK ITS INTENDED USE, ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POCC 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 OBTAINING ALL PERMITS, ALL 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. CLASS IV CONSTRUCTION, TO CERTIFY THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR ALL STEEL WORK.
5. ALL STEEL 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-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS." IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL DEVELOP AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
6. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL ORDINANCES, RULES, REGULATIONS, AND AWWA ORDERS OF ANY PUBLIC UTILITY. ALL MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL ORDINANCES, RULES, REGULATIONS, AND AWWA ORDERS OF ANY PUBLIC UTILITY 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.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION. 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.
9. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS. LATEST APPROVED REVISION.
10. 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.
11. 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.
12. 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.
13. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
14. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
15. 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.
16. 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.
17. 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.
18. 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.
19. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON DAILY BASIS.
20. NO FILL OR ENGAGEMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL BE REMOVED BEFORE ANY FILL OR ENGAGEMENT MATERIAL IS PLACED ON THE GROUND.

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-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND

GENERAL NOTES:

FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: T-MOBILE

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 IN THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR UNLESS OTHERWISE SPECIFIED.
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 BE LIMITED. 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. THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROCEED WITH AN ALTERNATE INSTALLATION, OR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY FURTHER 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.

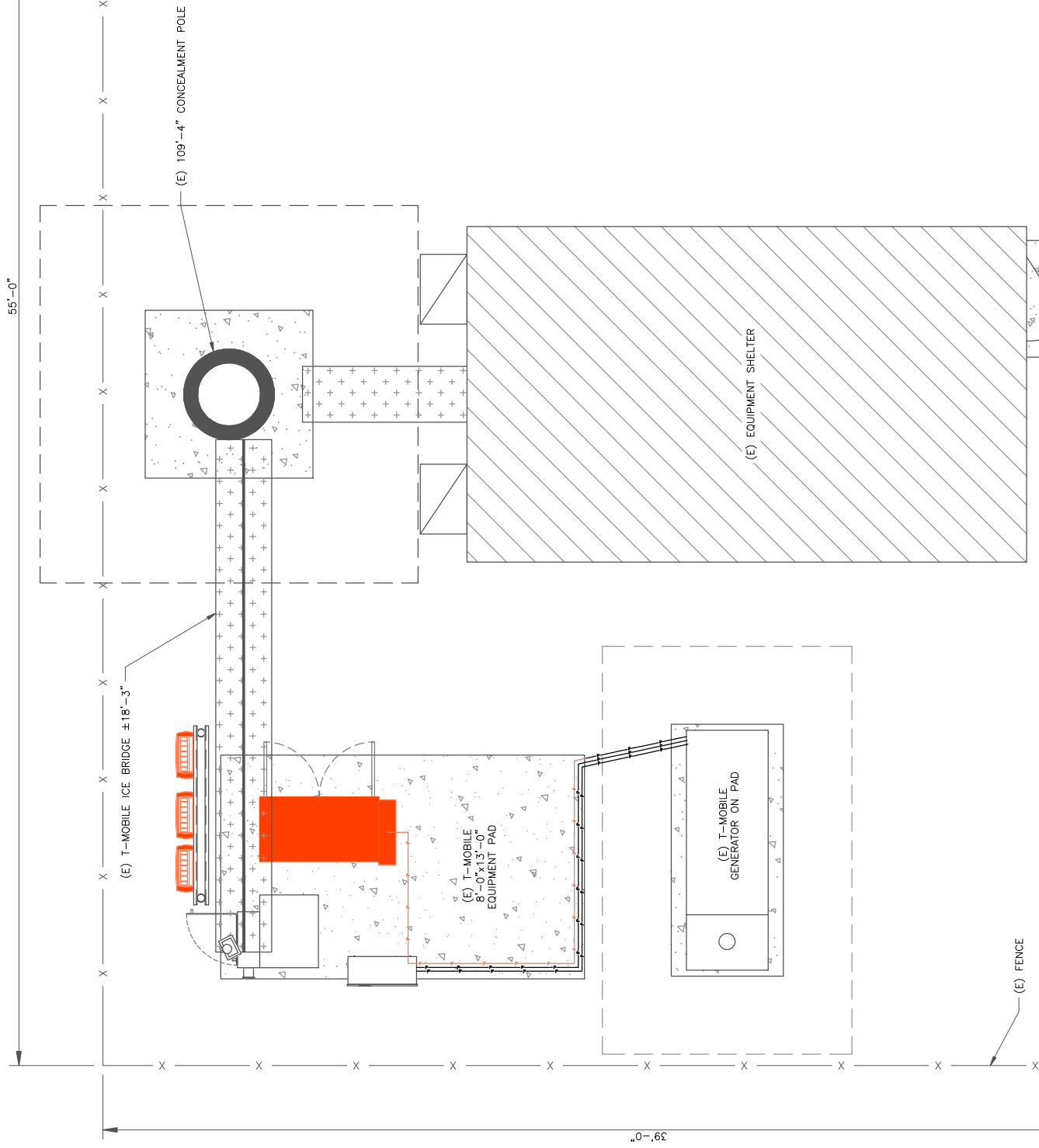
CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

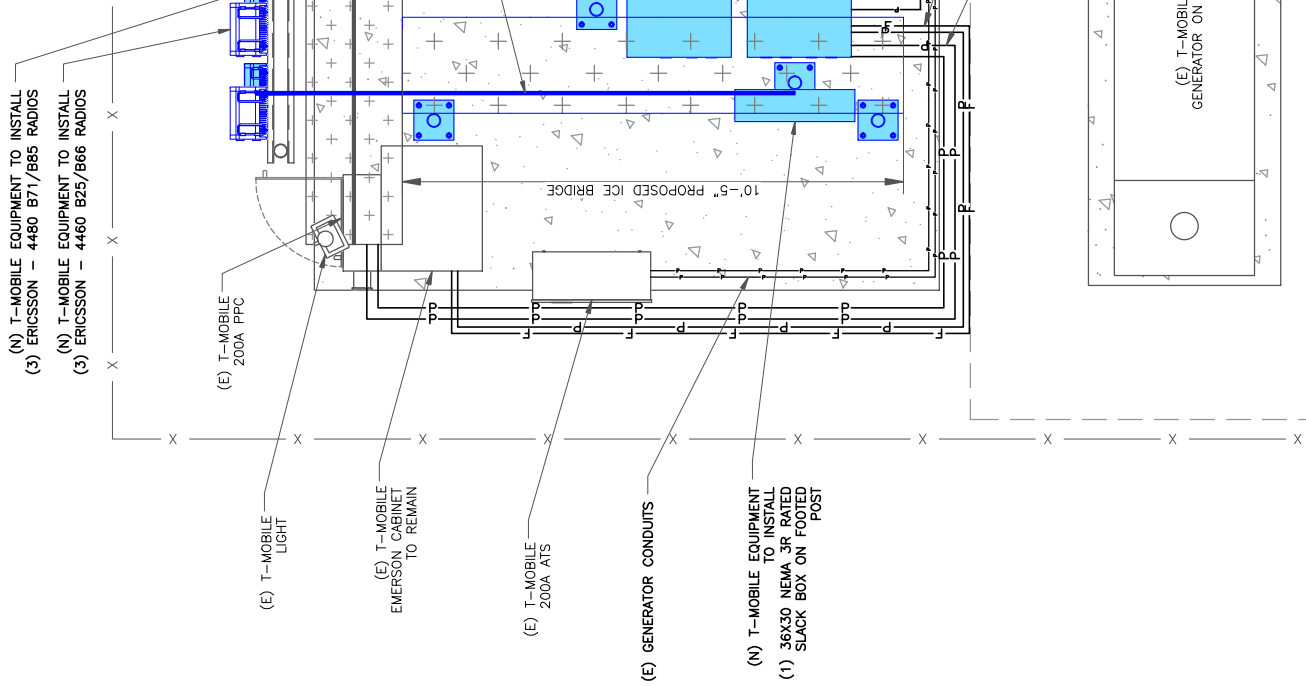
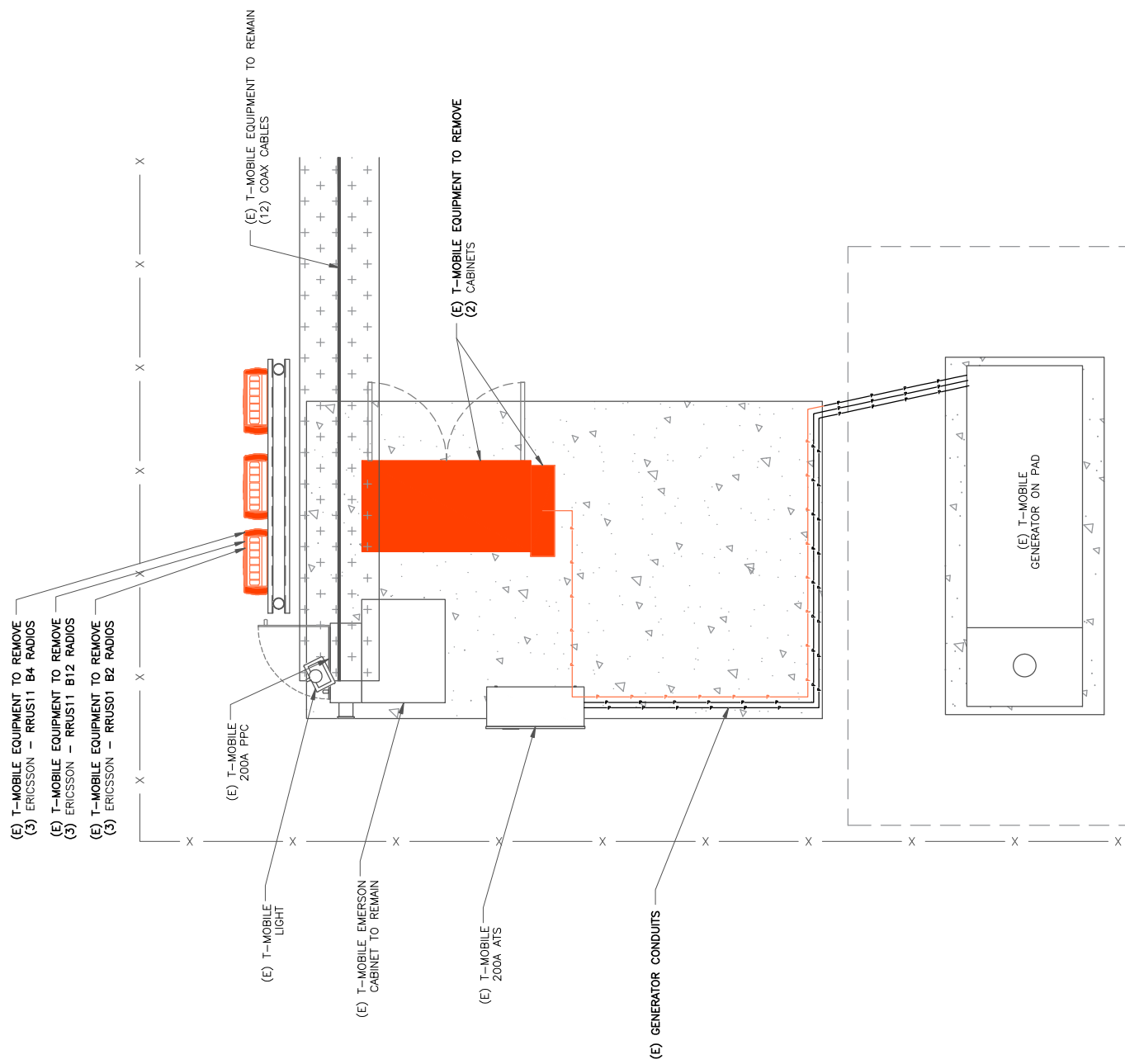
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|----|---|---|
| 1. | ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND ALL DESIGN AND CONSTRUCTION SPECIFICATIONS FOR PLACEMENT OF CONCRETE. | |
| 2. | UNLESS OTHERWISE SPECIFIED, SOIL BEARING PRESSURE USED FOR DESIGN OF SOILS 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 (f_y) OF STANDARD DEFORMED BARS ARE AS FOLLOWS: | 40 ksi
#4 BARS AND SMALLER
#5 BARS AND LARGER |
| 6. | THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS: | 60 ksi |
| | CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH..... | 3" |
| | CONCRETE EXPOSED TO EARTH OR WEATHER..... | 2" |
| | #6 BARS AND LARGER..... | 2" |
| | #5 BARS AND SMALLER..... | 1-1/2" |
| | CONCRETE NOT EXPOSED TO EARTH OR WEATHER..... | 3/4" |
| | SLAB AND WALLS..... | 3/4" |
| | BEAMS AND COLUMNS..... | 1-1/2" |
| 7. | A TOOD EDGE OR 1/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE. COORDINATE WITH THE ACI 301, SECTION 5.02.2. | |

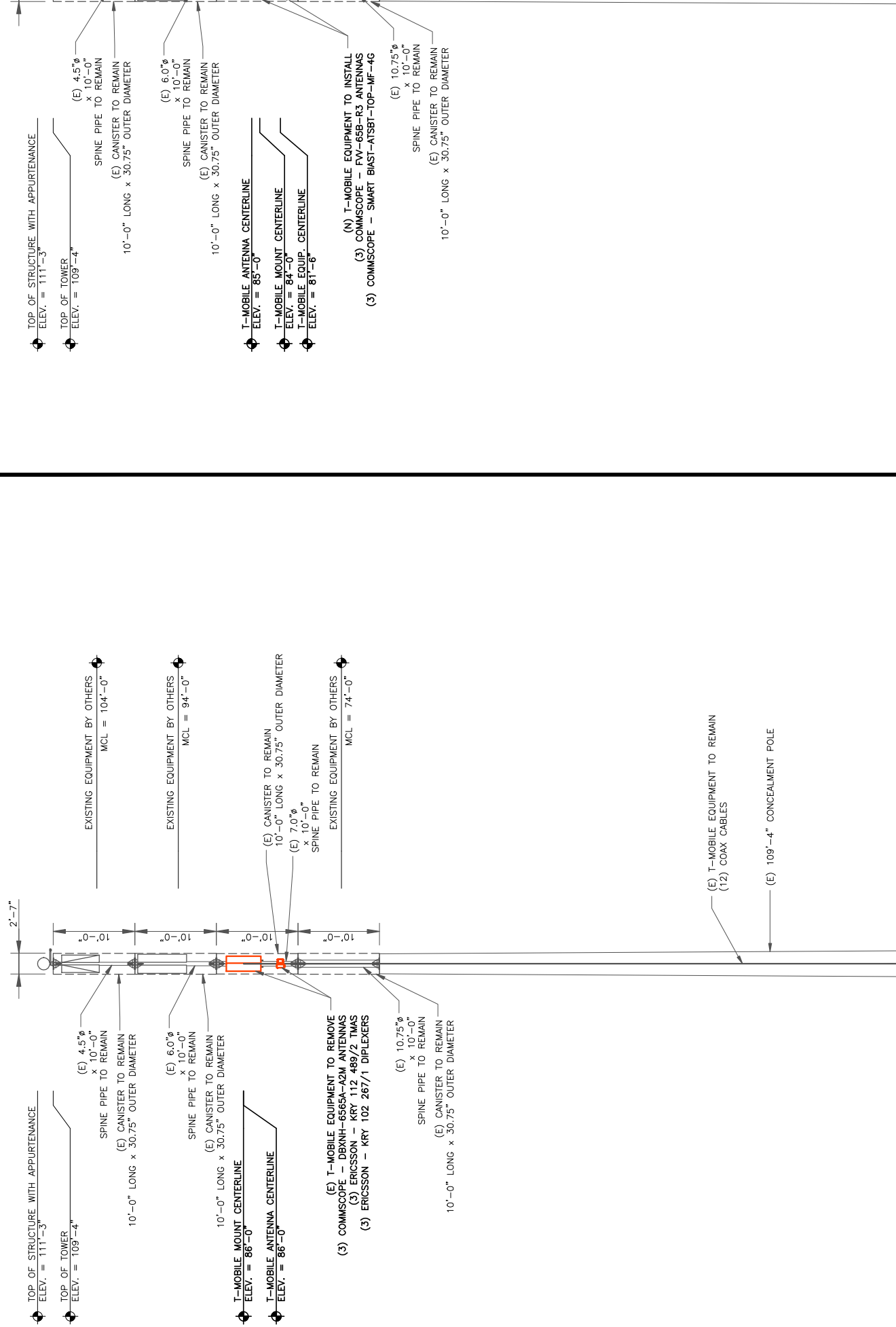
ELECTRICAL INSTALLATION N

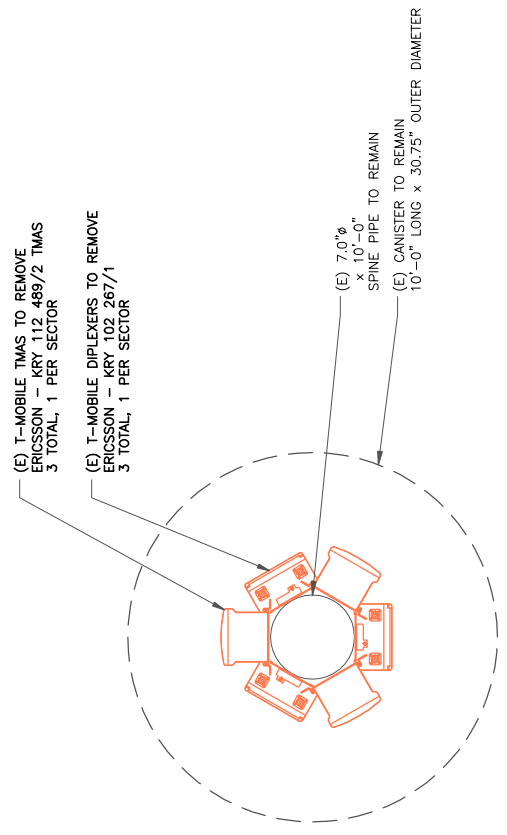
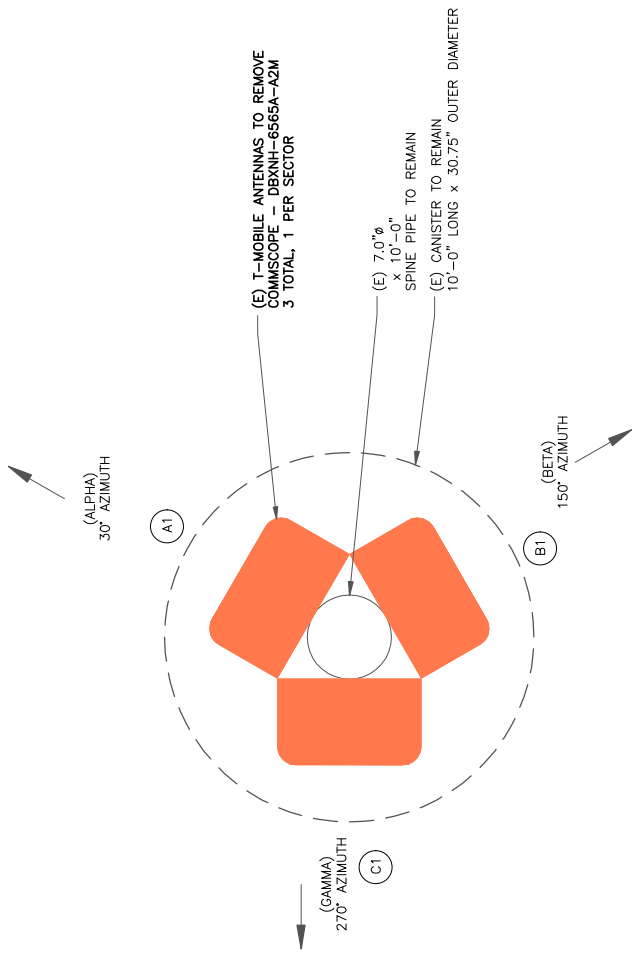
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| 1. | ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC). |
| 2. | CONDUIT RATINGS AND LOCAL CODES SHALL BE OBSERVED. |
| 3. | AND TRIP HAZARDS ARE ELIMINATED. |
| 4. | WIRING, RACEWAYS AND SUPPORTS SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC). |
| 4.1. | ALL EQUIPMENT SHALL BE BARE TO THE REQUIREMENT OF THE NATIONAL ELECTRICAL CODE (NEC). |
| 4.2. | ALL OVERCURRENT DEVICES SHALL BE CIRCUIT CURRENT TO WHICH THEY DO NOT EXCEED THE RATING OF THE DEVICES. |
| 5. | ADOPTED CODE PRE THE CODES SHALL BE OBSERVED. |
| 6. | EACH END OF EVERY POWER PHASE SHALL BE LABELED WITH COLOR-CODED INSULATION (PROTECTION, OR EQUAL). THE IDENTIFICATION SHALL BE PERMANENT. |
| 7. | ALL ELECTRICAL COMPONENTS SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 8. | PANEL BOARDS (ID NUMBERS) SHALL BE LABELED WITH CUT FLAME-RETARDANT TIE WRAPS SHALL BE CUT FLAME-RETARDANT. |
| 9. | ALL POWER AND EQUIPMENT GROUNDING SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 10. | SUPPLEMENTAL EQUIPMENT GROUNDING SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 11. | POWER AND CONTROL WIRING IN FLUORESCENT FIXTURES SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 12. | POWER AND CONTROL WIRING FOR ALL POWER AND EQUIPMENT GROUNDING SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 13. | BETTS (OR EQUAL), LUGS AND WIRING SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 14. | RACEWAY AND CABLE TRAY SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 15. | ELECTRICAL METALLIC TUBING (EMT) SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 16. | UNDERGROUND CONDUIT SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 17. | AND ALL ELBOWS/90s. ABOVE GRADE LOCATIONS AND INDOR ONLY. |
| 18. | LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 19. | CONDUIT AND TUBING FITTINGS SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 20. | SCREW FITTINGS ARE NOT ACCEPTABLE FOR CABINETS, BOXES AND WIRE WAYS. |
| 21. | THE NEC. |
| 22. | WIREWAYS SHALL BE METAL WITH A MINIMUM OF 1/2" THICKNESS. |
| 23. | SLOTTED WIRING DUCT SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 24. | DEVICES (I.E. POWDER-ACTUATED) SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 25. | THE STRUCTURE, MAINTAINED IN A DIRECTION TO ROUTE AROUND OBSTACLES. |
| 26. | SHALL BE FISHED TO CLEAR OBSTACLES. |
| 27. | PREVENT CONCRETE PLASTER OR OTHER MATERIALS FROM BUSHING ON INSIDE OF EQUIPMENT CABINETS, TERMINAL BOXES, STEEL SHALL MEET OR EXCEED U.S. STANDARD FOR EXTERIOR LOCATIONS. |
| 28. | METAL RECEPTACLE, SWITCH AND DIMMER SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 29. | (WP OR BETTER) FOR EXTERIOR LOCATIONS EXCEED UL 514AA AND NEMA OS 1. |
| 30. | NONMETALLIC RECEPTACLE, SWITCH AND DIMMER SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |
| 31. | NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS. |
| 32. | BEFORE COMMENCING WORK ON THE PROJECT, THE CONTRACTOR SHALL PROVIDE THE FOLLOWING INFORMATION TO THE OWNER: |
| 33. | WITH THE APPLICABLE CODES AND STANDARDS. |
| 34. | INSTALL LAMICOID LABEL ON THE MAIN ELECTRICAL PANEL. |
| 35. | ALL EMPTY/UNUSED CONDUITS THAT ARE NOT TO BE USED SHALL BE IDENTIFIED BY WIRE CONFIGURATION, CIRCUIT ID'S). |

SYSTEM	CONDUCTOR COLOR CODE	
	CONDUCTOR	COLOR
120/240V, 1 Ø	A PHASE	B
	B PHASE	W
	NEUTRAL	G
	GROUND	B
120/208V, 3 Ø	A PHASE	B
	B PHASE	W
	C PHASE	E
	NEUTRAL	W
277/480V, 3 Ø	GROUND	G
	A PHASE	B
	B PHASE	ORANGE
	C PHASE	YEL
DC VOLTAGE	NEUTRAL	C
	GROUND	G
	POS (+)	R
	NEG (-)	BLU

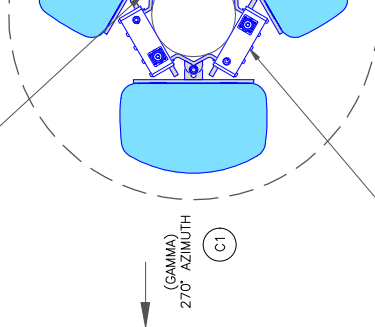








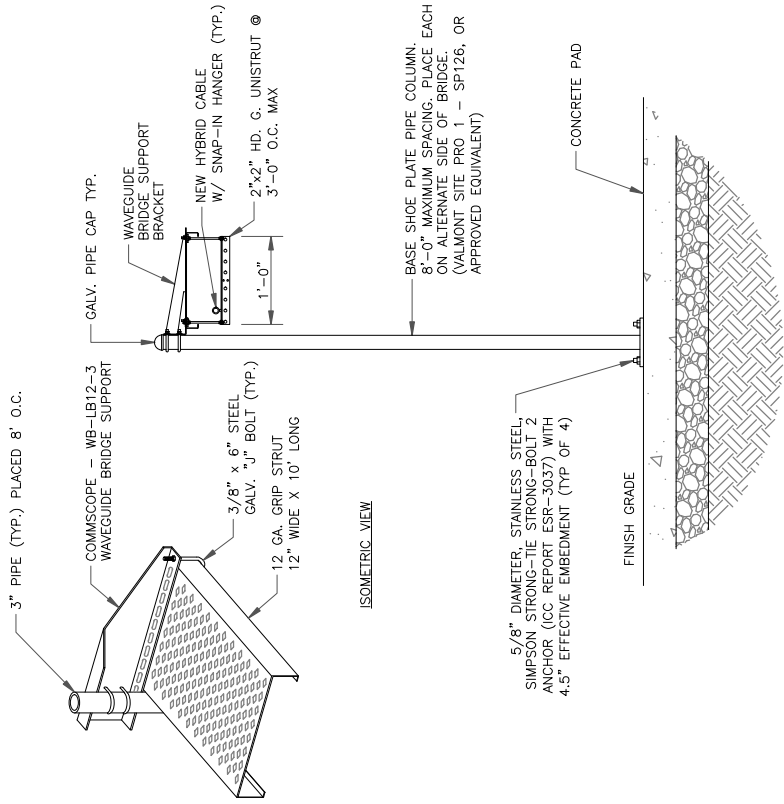
NEW T-MOBILE MOUNT
EEI - TRIAD-FPS
(1 TOTAL)



(N) T-MOBILE T-MAS TO INSTALL
SMART BIASE - ATSEB-TOP-MF-4G
3 TOTAL, 1 PER SECTOR
MOUNTED BELOW ANTENNAS

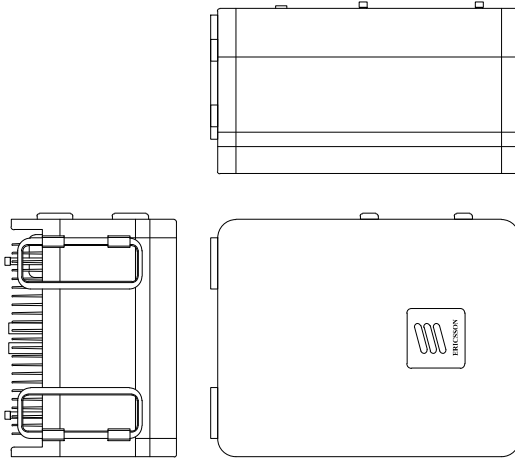
FINAL EQUIPMENT SCHEDULE
(GC TO VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA			RADIO				DIPLEXER			TMA		SURGE	
	TECH	STATUS/MANUFACTURER	MODEL	AZIMUTH	RAD. CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS	QTY.
A1	L1900	(N) COMMSCOPE – FW-65B-R3		30°	85°-0°	1	(N) ERICSSON – 4480 B71/B85	GROUND	-	-	-	1	(N) COMMSCOPE – SMART BIAST – ATSB1-TOP-WF-46	-
	N600 N1900 L2100 L700					1	(N) ERICSSON – 4460 B25/B66	GROUND						
B1	L1900	(N) COMMSCOPE – FW-65B-R3		150°	85°-0°	1	(N) ERICSSON – 4480 B71/B85	GROUND	-	-	-	1	(N) COMMSCOPE – SMART BIAST – ATSB1-TOP-WF-46	-
	N600 N1900 L2100 L700					1	(N) ERICSSON – 4460 B25/B66	GROUND						
G1	L1900	(N) COMMSCOPE – FW-65B-R3		270°	85°-0°	1	(N) ERICSSON – 4480 B71/B85	GROUND	-	-	-	1	(N) COMMSCOPE – SMART BIAST – ATSB1-TOP-WF-46	-
	N600 N1900 L2100 L700					1	(N) ERICSSON – 4460 B25/B66	GROUND						

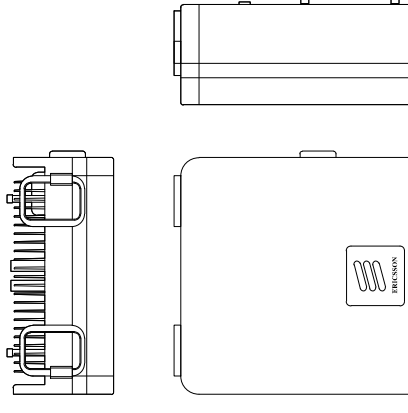


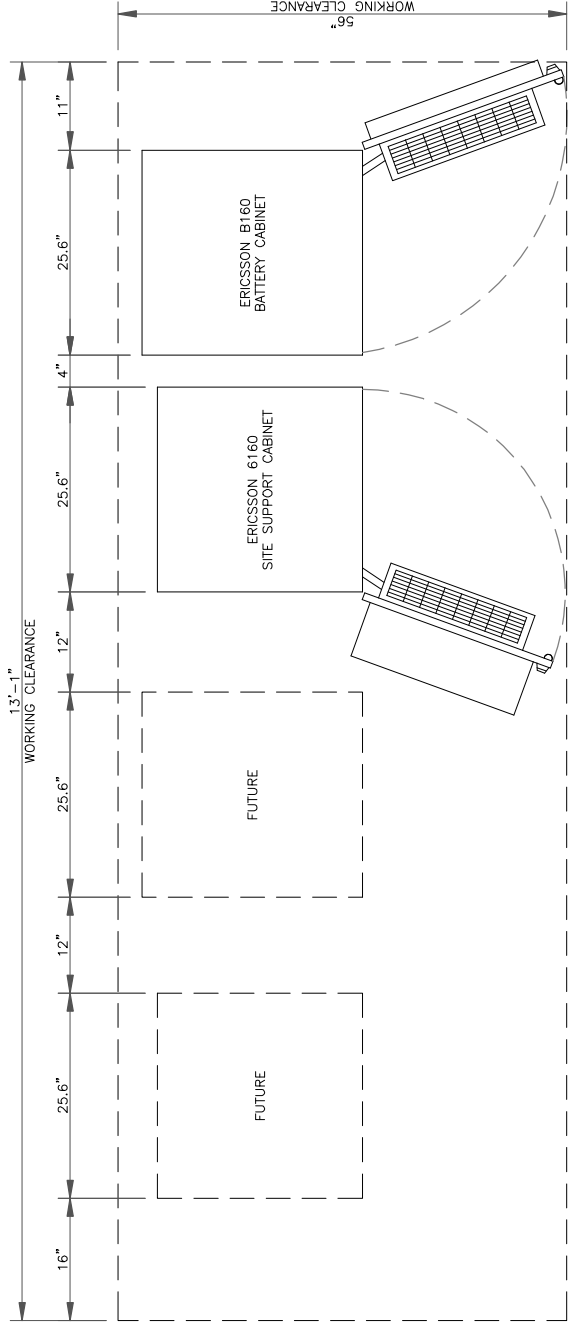
COMMScope - FW-65B-R3
WEIGHT (WITHOUT MOUNTING HARDWARE): 70.99 LBS
SIZE (HxWxD): 71.969x11.81x7.13 IN.

1 COMMScope - FW-65B-R3
SCALE: NOT TO SCALE

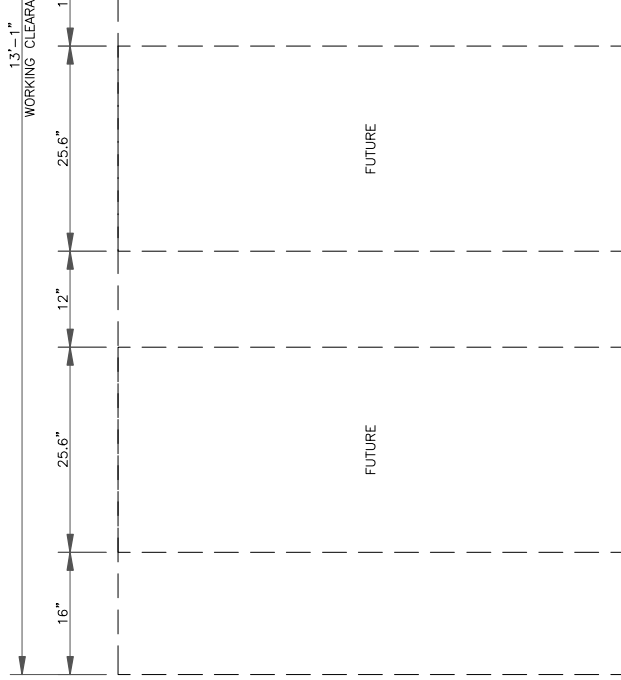


2 ICE BRIDGE DETAIL
SCALE: NOT TO SCALE





1 PLAN VIEW WORKING CLEARANCE 6160 & B160 LAYOUT
SCALE: NOT TO SCALE

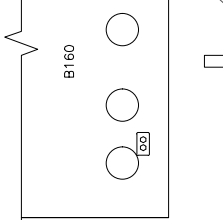
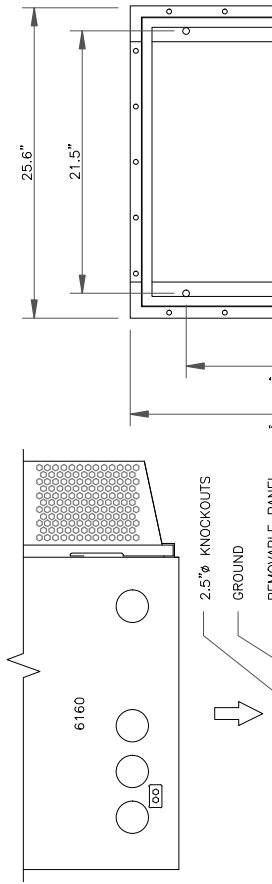
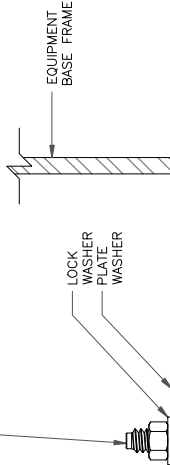


2 ELEVATION VIEW WORKING CLEARANCE
SCALE: NOT TO SCALE

MANUFACTURER:	ERICSSON
MODEL:	6160 12" BASE FRAME (SKK 125 5009/1)
DIMENSIONS (HxWxD):	12"x25.6"x25.6"
T-MOBILE SKU#	T.B.D.

MANUFACTURER:	ERICSSON
MODEL:	B160
DIMENSIONS (HxWxD):	8"x27"
T-MOBILE SKU#	T.B.D.

PROPOSED 1/2" DIAMETER, SIMPSON STRONG-TIE STRONG-BOLT 2 WEDGE ANCHOR WITH 3-3/4" NOMINAL EMBEDMENT (ICC ESR-3037), TO BE INSTALLED A MINIMUM OF (1) IN EACH CORNER OF CABINET. SEE MANUFACTURER'S EQUIPMENT INSTALLATION MANUAL FOR ANCHOR LOCATIONS. IT IS ASSUMED THAT CABINET ANCHOR LOCATIONS HAVE BEEN DESIGNED/REINFORCED BY THE MANUFACTURER TO WITHSTAND SHEAR AND UPLIFT FORCES AS CALCULATED IN THIS DESIGN



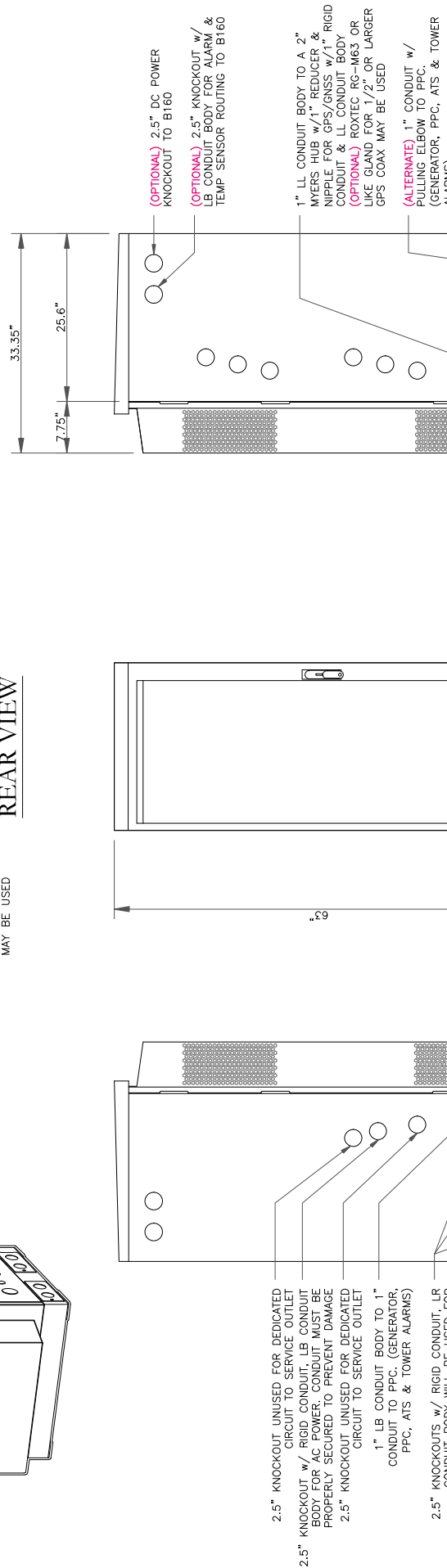
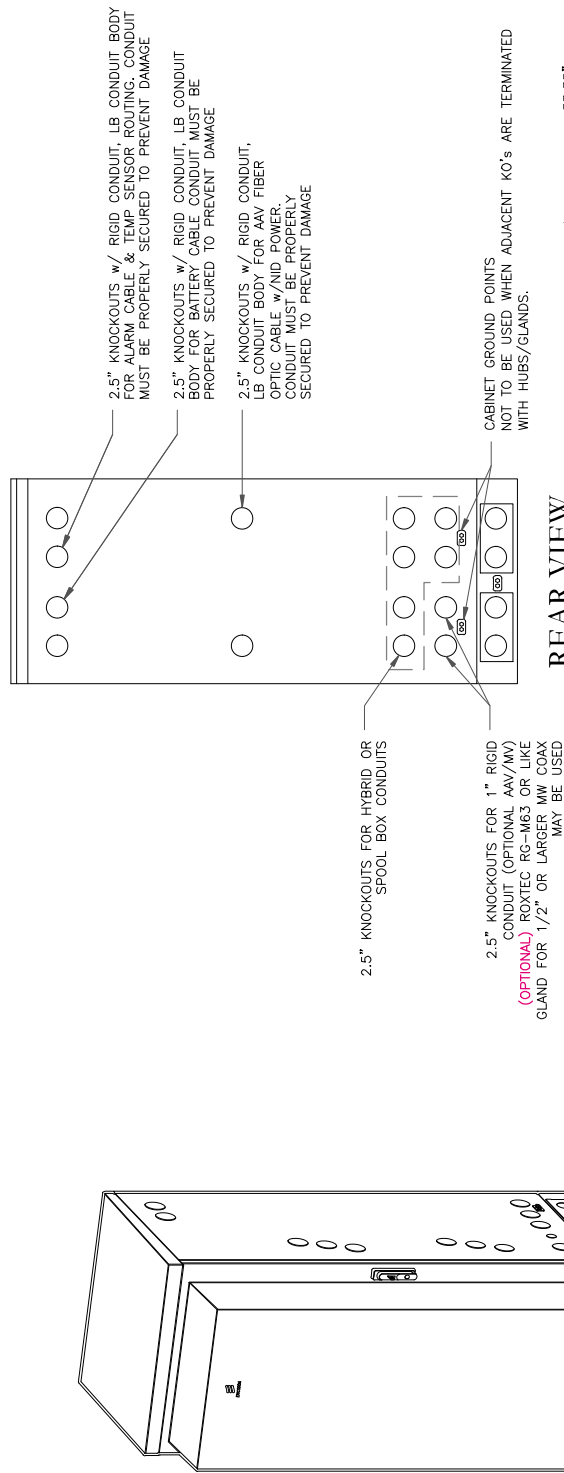
MANUFACTURER:	ERICSSON
MODEL:	(UTE6160_AC_V2) V2 CABINET
DIMENSIONS (HxWxD):	63"x25.6"x25.6"
WEIGHT:	433 LBS
SKU #:	T.B.D.

NOTE:

- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND/OR CABLING

GROUNDING NOTE:

CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED.



MANUFACTURER:	ERICSSON
MODEL:	B160 BATTERY CABINET
DIMENSIONS (HxWxD):	63"x25.6"x29.5"
WEIGHT:	295 LBS
SKU #:	T.B.D.

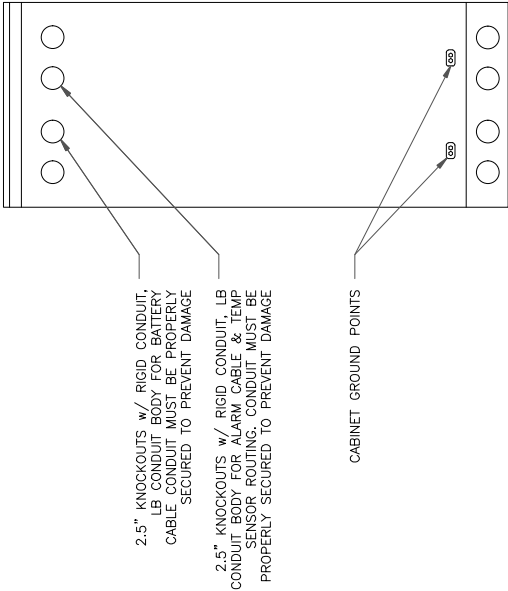
NOTE:

CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS.
DO NOT DRILL THROUGH KNOCKOUTS

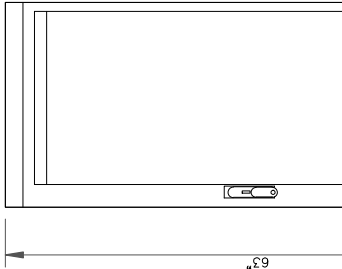
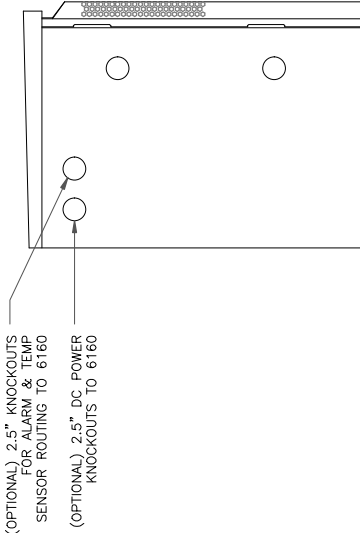
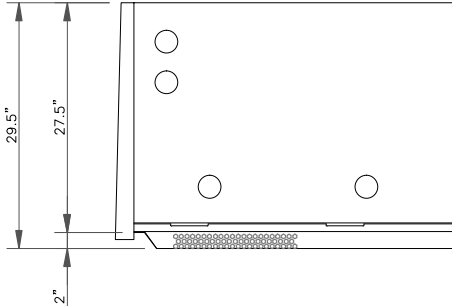
CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING

GROUNDING NOTE:

CABINET GROUNDING TO USE A SINGLE #2 BTGW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNCG TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED.



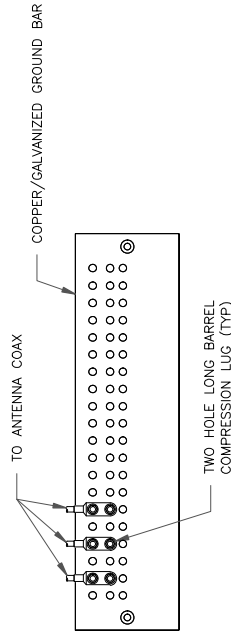
REAR VIEW



NOTES:

- 1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
- 2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- 3. ALL GROUNDING AND BONDING PER THE NEC.

T-MOBILE PANEL SCHEDULE												
MAIN: 200 AMP MAIN BREAKER				VOLTAGE/PHASE: 120/240V, 1-PHASE, 3-WIRE					SHORT CIRCUIT CURRENT RATING: N/A			
MOUNTING: INSIDE PPC ENCLOSURE				ENCLOSURE: NEMA 3R					SURGE PROTECTION DEVICE: YES			
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	LOAD (VA)		CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION	
					A-PHASE	E-PHASE						
SURGE PROTECTION DEVICE	30	C	60	1	210		2	20	NC	180	PPC PLUG	
	30	C		3		230	4	15	C	200	LED SPOT LIGHT	
EMERSON PLUG	180	NC	20	5	380		6	20	C	200	UNKNOWN	
EXISTING 6102	7200	C	100	7		7200	8					
	7200	C		9	7200		10					
				11		0	12					
				13	0		14					
				15		0	16					
				17	0		18					
				19		0	20					
				21	0		22					
				23		0	24					
C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD												
25% OF CONTINUOUS LOAD (VA) = 7790												7433
TOTAL LOAD (VA) = 1858												1853
TOTAL LOAD (A) = 81												9283
TOTAL LOAD (A) = 78												78
** INDICATES NEW LOAD. ALL OTHER LOADS ARE EXISTING. NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS, SHOWN ARE ESTIMATED VALUES												

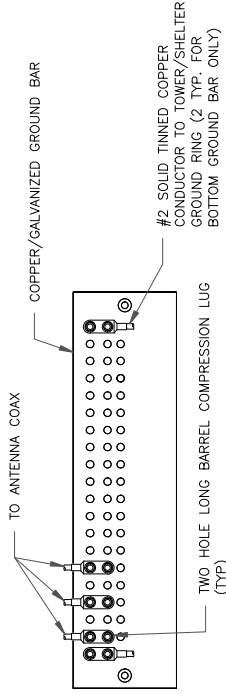


NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL

SCALE: NOT TO SCALE

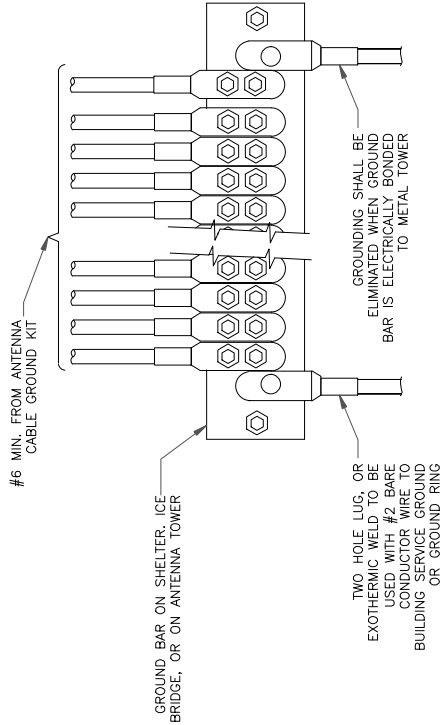


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

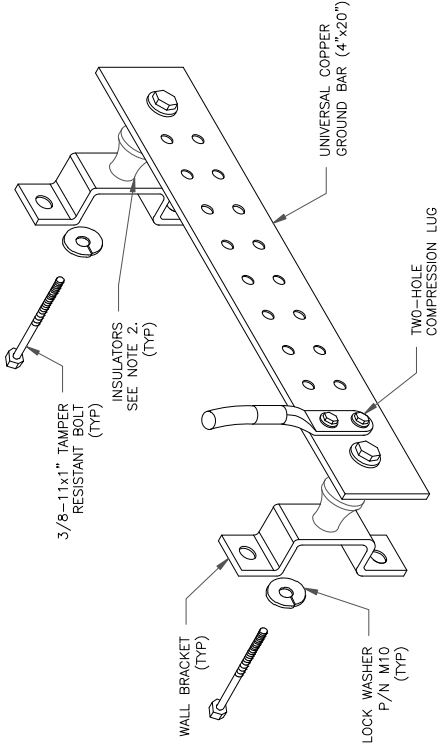
2 TOWER/SHELTER GROUND BAR DETAIL

SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION

SCALE: NOT TO SCALE

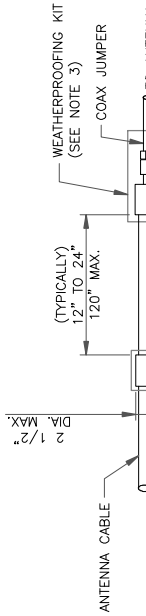


NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA TOWER. FOR THE GROUNDING CONDUCTOR POLARITY, SEE STD. 10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION. CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

5 GROUND BAR DETAIL

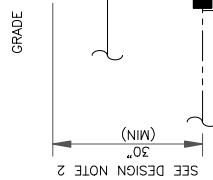
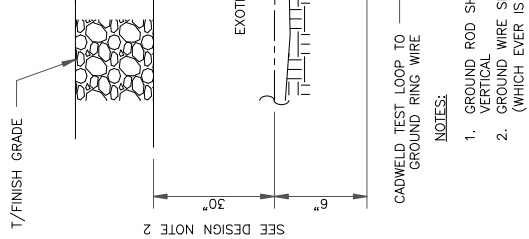
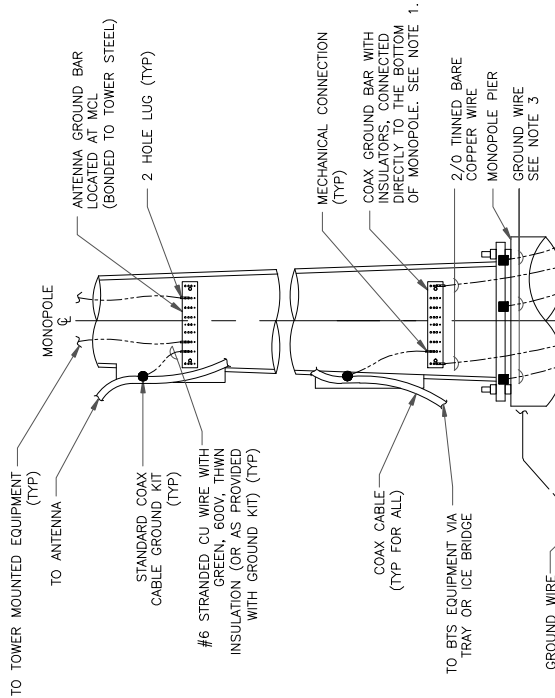
SCALE: NOT TO SCALE



1 NOT USED
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE

3 INSPECTION
SCALE: NOT TO SCALE





TYPE_HS



TYPE_2-YA-2



TYPE_XA



TYPE_YA-2



TYPE_GY



TYPE_VI



TYPE_VN



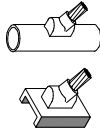
TYPE_NC



TYPE_SS



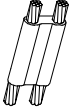
TYPE_GR



TYPE_VS



TYPE_VB



TYPE_PT



TYPE_GT

NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS

SCALE: NOT TO SCALE

NOT USED

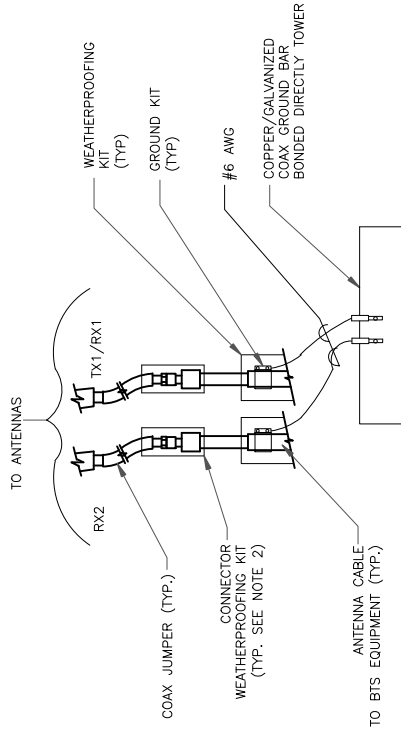
2

SCALE: NOT TO SCALE

NOT USED

3

SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

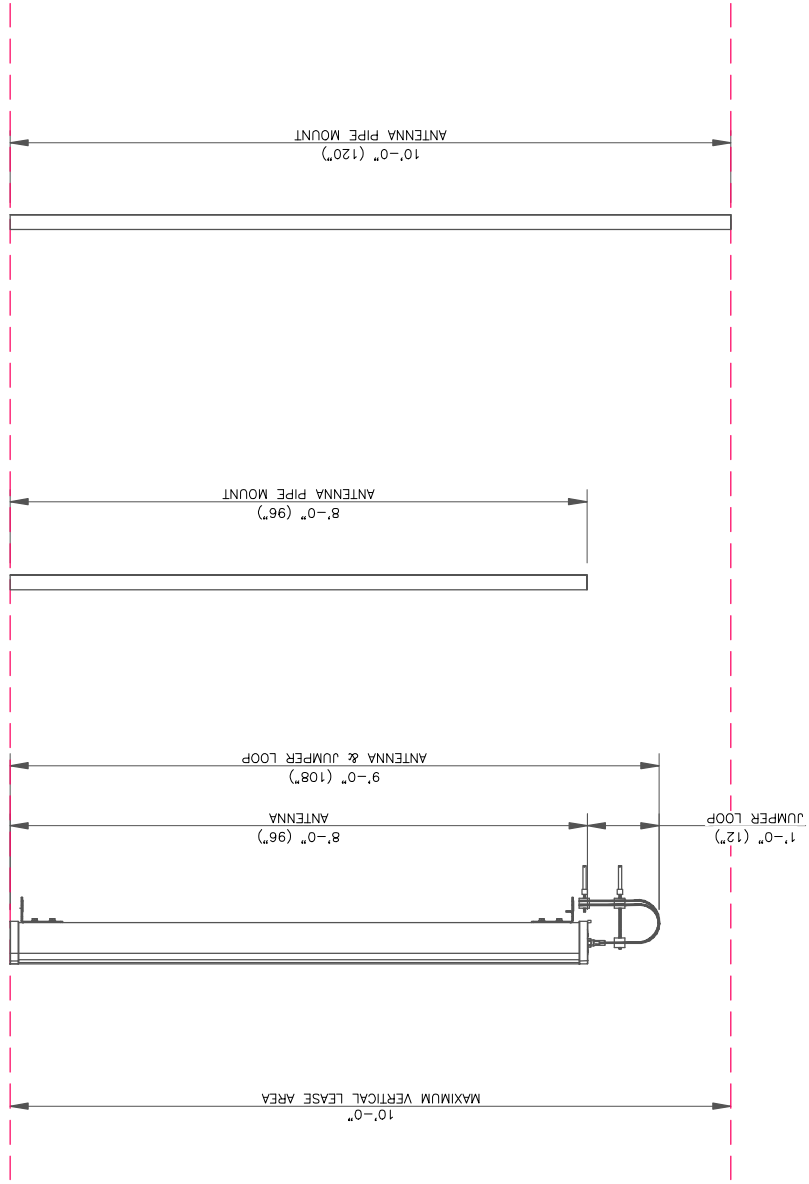
4 GROUND CABLE CONNECTION

SCALE: NOT TO SCALE

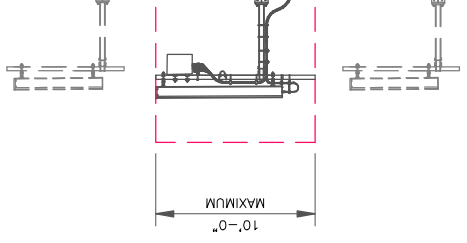
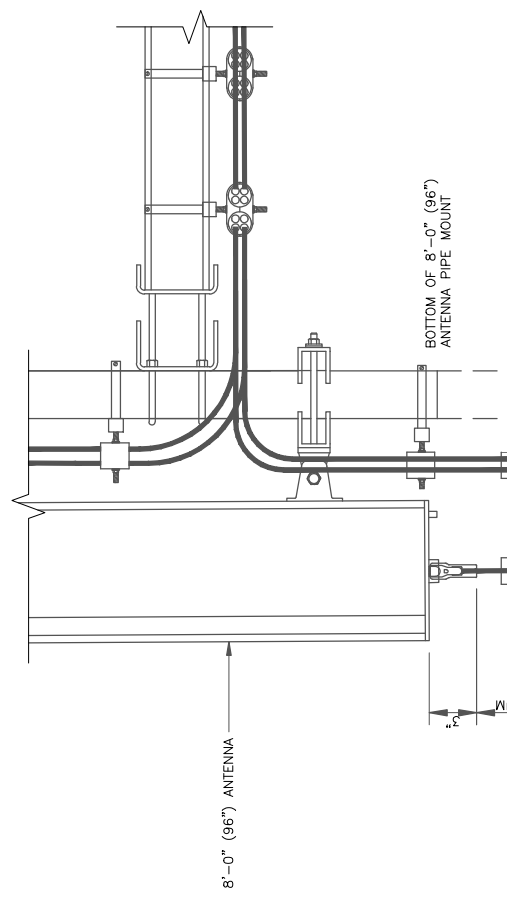
NOT USED

5

SCALE: NOT TO SCALE



1 MAXIMUM VERTICAL LEASE AREA
SCALE: NOT TO SCALE



ALERT NOTE:
• DO NOT EXCEED THE 10 FOOT VERTICAL LEASE AREA. ALL T-MOBILE EQUIPMENT, STRUCTURAL MOUNTS, PIPE MOUNTS, AND OTHER ITEMS INCLUDED IN THE DEDICATED AREA MUST BE WITHIN THE 10 FOOT VERTICAL LEASE AREA. "NO EXEMPTIONS" OR "PERMISSIONS" ARE NOT REQUIRED.