



October 2, 2023

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

Re: **Notice of Exempt Modification – Antenna and RRU Add**
Property Address: **33 Boardman Road, New Milford, CT 06776**
Applicant: **AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of twelve (12) wireless telecommunication antennas at an antenna center line height of 120-feet on an existing 150-foot Monopine Tower, owned by Quarry Stone and Gravel LLC at 112 Wall Street, Torrington, CT 06790. AT&T now intends to remove three (3) 4' Kathrein 7770 Panel Antennas, each currently installed in position [1], and remove two (4) 6' CCI HPA-65R-BUU-H6 Panel Antennas, Two (2) 8' HPA-65R-BUU-H8, all currently installed in positions [2+4]. AT&T then swap these for three (3) 6' Quintel QD6616-7 Panel Antennas, each to be installed in position [2]. Relocate the existing Two (2) 6.5' 800-10965 panel Antennas and One (1) 8' 800-10966 Panel Antenna, currently installed in position [2] to be relocated to position [4]. AT&T also intends to add three (3) RRUS-2012 B29 and three (3) 4449 B5/B12 in positions [2+4] all sectors. All of the changes will take place on a new antenna mount. This modification/proposal includes B2, B5, and B12 hardware that is both 4G(LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation 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., a copy of this letter is being sent to Willaim Murphy – Building Official, Town of New Milford at 10 Main Street, New Milford, CT 06776 and Pete Bass – Mayor, Town of New Milford at 10 Main Street, New Milford, CT 06776. A copy of this letter is being sent to the property owner Quarry Stone and Gravel LLC at 112 Wall Street, Torrington, CT 06790.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- [EM-CING-096-051007](#) - New Cingular Wireless PCS, LLC. notice of intent to modify an existing telecommunications facility located at 33 Boardman Road, New Milford, Connecticut.
- [EM-CING-096-121108](#) - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 33 Boardman Road, New Milford, Connecticut.
- [EM-CING-096-140819](#) - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 33 Boardman Road, New Milford, Connecticut.
- [EM-CING-096-150611](#) – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 33 Boardman Road, New Milford, Connecticut.
- [EM-AT&T-096-161003](#) – AT&T notice of intent to modify an existing telecommunications facility located at 33 Boardman Road, New Milford, Connecticut.
- [EM-AT&T-096-170306](#) - AT&T Wireless notice of intent to modify an existing telecommunications facility located at 33 Boardman Road, New Milford, Connecticut.
- [EM-AT&T-096-181116](#) - AT&T notice of intent to modify an existing telecommunications facility located at 33 Boardman Road, New Milford, Connecticut.



The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 120-foot level of the 150'-foot Monopole Tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require any extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

Kristina Robinson

CC w/enclosures:
William Murphy – Building Official, Town of New Milford, CT
Pete Bass – Mayor, Town of New Milford, CT
Quarry Stone and Gravel LLC - Property Owner

33 BOARDMAN RD

Location	33 BOARDMAN RD	Mblk	47 / 73 /
Acct#	005304	Owner	QUARRY STONE AND GRAVEL LLC
Assessment	\$2,990,290	Appraisal	\$5,201,730
PID	8323	Building Count	2

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$1,268,700	\$3,933,030	\$5,201,730
Assessment			
Valuation Year	Improvements	Land	Total
2020	\$888,090	\$2,102,200	\$2,990,290

Parcel Addresses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner	QUARRY STONE AND GRAVEL LLC	Sale Price	\$0
Co-Owner	% O + G INDUSTRIES	Certificate	
Address	112 WALL ST TORRINGTON, CT 06790	Book & Page	0778/0681
		Sale Date	09/11/2003
		Instrument	03

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
QUARRY STONE AND GRAVEL LLC	\$0		0778/0681	03	09/11/2003
QUARRY STONE AND GRAVEL LLC	\$0		0765/0512	03	07/08/2003
KOVACS ROBERT G + KOVACS PAUL B + KOVACS	\$0		0705/0499	29	05/23/2002
QUARRY STONE AND GRAVEL LLC	\$0		0690/0804	03	01/09/2002
KOVACS ROGER P + PAUL B + ROBERT G	\$0		0361/0142		12/24/1986

Building Information

Building 1 : Section 1

Year Built: 1989
Living Area: 9,080
Replacement Cost: \$342,599
Building Percent Good: 64
Replacement Cost
Less Depreciation: \$219,300

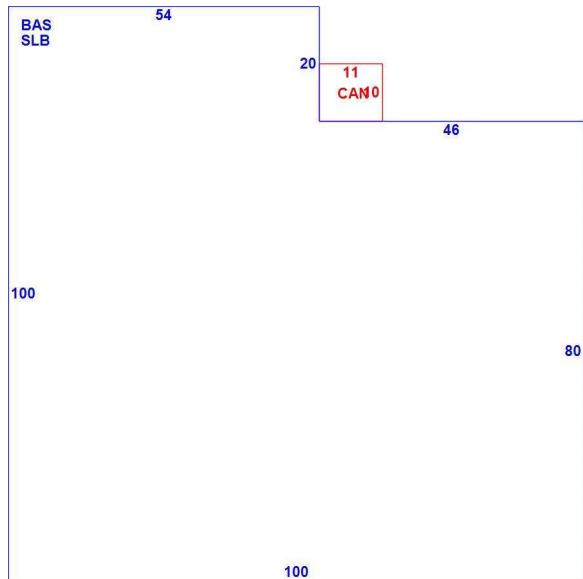
Building Attributes	
Field	Description
Style:	Pre-Eng Garage
Model	Ind/Comm
Grade	C
Stories:	1
Occupancy	1.00
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	Minimum
Roof Structure	Gable
Roof Cover	Enamel Metal
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	None
Struct Class	
Bldg Use	Sand+Gravl
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	410I
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	LIGHT
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	18.00
% Comm Wall	0.00

Building Photo



(https://images.vgsi.com/photos/NewMilfordCTPhotos/00/01/57/71.jpg)

Building Layout



(ParcelSketch.ashx?pid=8323&bid=8505)

Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	9,080	9,080
CAN	Canopy	110	0
SLB	Slab	9,080	0
		18,270	9,080

Building 2 : Section 1

Year Built: 2006
Living Area: 400
Replacement Cost: \$39,982
Building Percent Good: 90
Replacement Cost
Less Depreciation: \$36,000

Building Attributes : Bldg 2 of 2	
Field	Description
Style:	Office Bldg
Model	Ind/Comm
Grade	C-
Stories:	1
Occupancy	1.00
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shngl
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	None
Struct Class	
Bldg Use	Sand+Gravl
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	LIGHT
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	8.00
% Comm Wall	

Building Photo



(<https://images.vgsi.com/photos/NewMilfordCTPhotos//default.jpg>)

Building Layout



([ParcelSketch.ashx?pid=8323&bid=105920](#))

Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	400	400
		400	400

Extra Features

Extra Features							Legend
Code	Description	Sub Code	Sub Description	Size	Value	Assessed Value	Bldg #
MEZ2	Mezzanine Fin.			320.00 S.F.	\$6,000	\$4,200	1

Parcel Information

Use Code 410
Description Sand+Gravl
Deeded Acres 342.45

Land

Land Use

Use Code 410
Description Sand+Gravl
Zone I/R40
Neighborhood C100
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 342.45
Frontage 0
Depth 0
Assessed Value \$2,102,200
Appraised Value \$3,933,030

Outbuildings

Outbuildings							<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Assessed Value	Bldg #
SHD3	Comm Shed	CB		200.00 S.F.	\$5,400	\$3,780	1
SHD1	Shed	FR	Frame	400.00 S.F.	\$3,200	\$2,240	1
LT1	Light (1)			100.00 Units	\$93,600	\$65,520	1
SCL1	Scale			60.00 TONS	\$21,600	\$15,120	1
SCL1	Scale			60.00 TONS	\$21,600	\$15,120	1
SITE	Cell Site Tenant	TW	Tower	4.00 Units	\$862,000	\$603,400	1

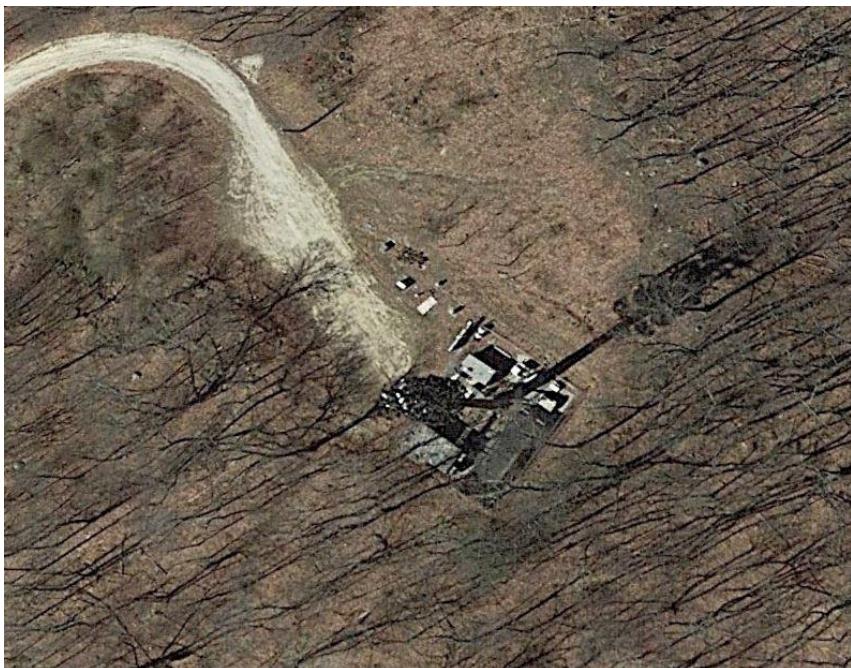
Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$1,268,700	\$3,933,030	\$5,201,730

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$888,090	\$2,102,200	\$2,990,290

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT

EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS



Site Name: NEW MILFORD-BOARDMAN ROAD
AT&T Mobility FA# 10107964
Site ID: CTL02001
Project Name: LTE
Address: 33 BOARDMAN ROAD, NEW MILFORD, CT 06776
County: LITCHFIELD
Latitude: 41.5994031
Longitude: -73.4374739
Structure Type: STEALTH POLE EXTRNL ARRAY
Property Owner: NA
Property Contact: NA

AT&T Existing Facility

Report Information

Report Writer:

Monti Kumar

Report Generated Date:

07-06-2023

Site Compliance Statement

Compliance Status	Compliant
Cumulative General Population % MPE (Ground Level)	0.2976%

July 06, 2023

Emissions Analysis for Site: **CTL02001– NEW MILFORD-BOARDMAN ROAD**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **33 BOARDMAN ROAD, NEW MILFORD, CT 06776**, for the purpose of determining whether the emissions from the Proposed AT&T 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 milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of mW/cm^2 or $\mu\text{W}/\text{cm}^2$ 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 public 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 public 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 milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the 700 and 850 MHz Bands are approximately $0.467 \text{ mW}/\text{cm}^2$ and $0.567 \text{ mW}/\text{cm}^2$ respectively or $466.667 \mu\text{W}/\text{cm}^2$ and $566.667 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 2300 MHz (WCS), 3540 MHz (DoD Band) and 3840 MHz (C-Band) bands is $1 \text{ mW}/\text{cm}^2$ or $1000 \mu\text{W}/\text{cm}^2$. 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.

1. Theoretical Calculations: Methods and Procedures

MobileComm Professionals, Inc has performed theoretical modeling of the site using a software tool, RoofMaster® Version 40.12.23.2022, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.

2. Antenna Inventory & Power Data

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (°)	H B W (°)	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density (μW/cm²)	Allowable MPE (μW/cm²)	Calculated MPE%
A	1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	30	71	12.05	6	4	40.00	2286.23	3750.77	120.00	0.088426	466.67	0.018949
A	1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	30	71	12.05	6	2	40.00	1143.12	1875.38	120.00	0.044213	466.67	0.009474
A	1	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	30	67	15.05	6	4	40.00	4561.63	7483.76	120.00	0.100977	1000.00	0.010098
A	1	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	30	62	15.55	6	4	60.00	7677.35	12595.38	120.00	0.182870	1000.00	0.018287
A	2	AT&T	Kathrein	80010965	Panel	700	LTE(B12)	30	62	12.65	6.5	4	60.00	3937.42	6459.68	120.00	0.184937	466.67	0.039629
A	2	AT&T	Kathrein	80010965	Panel	850	5G	30	60	13.45	6.5	4	60.00	4733.81	7766.25	120.00	0.167253	566.67	0.029515
A	2	AT&T	Kathrein	80010965	Panel	2300	LTE	30	56	15.95	6.5	4	25.00	3507.52	5754.40	120.00	0.073915	1000.00	0.007392
B	3	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	160	71	12.05	6	4	40.00	2286.23	3750.77	120.00	0.000009	466.67	0.000002
B	3	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	160	71	12.05	6	2	40.00	1143.12	1875.38	120.00	0.000005	466.67	0.000001
B	3	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	160	67	15.05	6	4	40.00	4561.63	7483.76	120.00	0.000006	1000.00	0.000001
B	3	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	160	62	15.55	6	4	60.00	7677.35	12595.38	120.00	0.000030	1000.00	0.000003
B	4	AT&T	Kathrein	80010965	Panel	700	LTE(B12)	160	62	12.65	6.5	4	60.00	3937.42	6459.68	120.00	0.000137	466.67	0.000029
B	4	AT&T	Kathrein	80010965	Panel	850	5G	160	60	13.45	6.5	4	60.00	4733.81	7766.25	120.00	0.000175	566.67	0.000031
B	4	AT&T	Kathrein	80010965	Panel	2300	LTE	160	56	15.95	6.5	4	25.00	3507.52	5754.40	120.00	0.000029	1000.00	0.000003
C	5	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	280	71	12.05	6	4	40.00	2286.23	3750.77	120.00	0.000212	466.67	0.000045
C	5	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	280	71	12.05	6	2	40.00	1143.12	1875.38	120.00	0.000106	466.67	0.000023
C	5	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	280	67	15.05	6	4	40.00	4561.63	7483.76	120.00	0.000113	1000.00	0.000011
C	5	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	280	62	15.55	6	4	60.00	7677.35	12595.38	120.00	0.000934	1000.00	0.000093
C	6	AT&T	Kathrein	80010966	Panel	700	LTE(B12)	280	66	13.55	8	4	60.00	4844.08	7947.15	120.00	0.000411	466.67	0.000088
C	6	AT&T	Kathrein	80010966	Panel	850	5G	280	65	14.25	8	4	60.00	5691.30	9337.08	120.00	0.000176	566.67	0.000031
C	6	AT&T	Kathrein	80010966	Panel	2300	LTE	280	57	15.95	8	4	25.00	3507.52	5754.40	120.00	0.000103	1000.00	0.000010
A	7	T-Mobile	RFS	APX16DWV-16DWV-S-E-A20	Panel	2100	LTE	60	65	15.85	4.66	2	60.00	4113.21	6748.10	140.00	0.029016	1000.00	0.002902
A	8	T-Mobile	Ericsson	AIR6449_LTE_B41	Panel	2500	LTE	60	12.5	22.65	2.75	1	40.67	7485.61	12280.81	140.00	0.100052	1000.00	0.010005
A	8	T-Mobile	Ericsson	AIR6449_NR_B41	Panel	2500	5G	60	12.5	22.65	2.75	1	67.78	12476.02	20468.02	140.00	0.166753	1000.00	0.016675
A	9	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	LTE	60	69	13.25	8	2	30.00	1130.19	1854.18	140.00	0.022973	400.00	0.005743
A	9	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	5G	60	69	13.25	8	1	80.00	1506.92	2472.24	140.00	0.030631	400.00	0.007658
A	9	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	LTE	60	64	13.65	8	2	30.00	1239.23	2033.06	140.00	0.028835	466.67	0.006179
A	9	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	GSM	60	63	16.05	8	4	30.00	4307.06	7066.12	140.00	0.063994	1000.00	0.006399
A	9	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	LTE	60	63	16.05	8	2	60.00	4307.06	7066.12	140.00	0.063994	1000.00	0.006399
B	10	T-Mobile	RFS	APX16DWV-16DWV-S-E-A20	Panel	2100	LTE	180	65	15.85	4.66	2	60.00	4113.21	6748.10	140.00	0.000016	1000.00	0.000002
B	11	T-Mobile	Ericsson	AIR6449_LTE_B41	Panel	2500	LTE	180	12.5	22.65	2.75	1	40.67	7485.61	12280.81	140.00	0.000184	1000.00	0.000018
B	11	T-Mobile	Ericsson	AIR6449_NR_B41	Panel	2500	5G	180	12.5	22.65	2.75	1	67.78	12476.02	20468.02	140.00	0.000306	1000.00	0.000031
B	12	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	LTE	180	69	13.25	8	2	30.00	1130.19	1854.18	140.00	0.000008	400.00	0.000002
B	12	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	5G	180	69	13.25	8	1	80.00	1506.92	2472.24	140.00	0.000010	400.00	0.000003
B	12	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	LTE	180	64	13.65	8	2	30.00	1239.23	2033.06	140.00	0.000020	466.67	0.000004
B	12	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	GSM	180	63	16.05	8	4	30.00	4307.06	7066.12	140.00	0.000010	1000.00	0.000001
B	12	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	LTE	180	63	16.05	8	2	60.00	4307.06	7066.12	140.00	0.000010	1000.00	0.000001

Table 2.1: Antenna Inventory & Power Data

*NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6449 antennas per guidance from AT&T.

Specifications were not available for the Ericsson AIR 6449 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6449 due to its similarity.

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (°)	H B W (°)	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated MPE%
C	13	T-Mobile	RFS	APX16DWV-16DWV-S-E-A20	Panel	2100	LTE	300	65	15.85	4.66	2	60.00	4113.21	6748.10	140.00	0.000128	1000.00	0.000013
C	14	T-Mobile	Ericsson	AIR6449_LTE_B41	Panel	2500	LTE	300	12.5	22.65	2.75	1	40.67	7485.61	12280.81	140.00	0.001327	1000.00	0.000133
C	14	T-Mobile	Ericsson	AIR6449_NR_B41	Panel	2500	5G	300	12.5	22.65	2.75	1	67.78	12476.02	20468.02	140.00	0.002212	1000.00	0.000221
C	15	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	LTE	300	69	13.25	8	2	30.00	1130.19	1854.18	140.00	0.000061	400.00	0.000015
C	15	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	5G	300	69	13.25	8	1	80.00	1506.92	2472.24	140.00	0.000082	400.00	0.000020
C	15	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	LTE	300	64	13.65	8	2	30.00	1239.23	2033.06	140.00	0.000242	466.67	0.000052
C	15	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	GSM	300	63	16.05	8	4	30.00	4307.06	7066.12	140.00	0.000077	1000.00	0.000008
C	15	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	LTE	300	63	16.05	8	2	60.00	4307.06	7066.12	140.00	0.000077	1000.00	0.000008
A	16	Verizon	CommScope	LNX-8513DS-A1M	Panel	850	CDMA	60	85	13.15	6	2	20.00	736.31	1207.98	130.00	0.018068	566.67	0.003188
A	17	Verizon	JMA Wireless	MX06FRO660-03	Panel	700	LTE	60	60.5	12.25	5.9	2	40.00	1196.99	1963.77	130.00	0.058280	466.67	0.012489
A	17	Verizon	JMA Wireless	MX06FRO660-03	Panel	850	LTE	60	53	11.85	5.9	2	40.00	1091.67	1790.98	130.00	0.052194	566.67	0.009211
A	17	Verizon	JMA Wireless	MX06FRO660-03	Panel	1900	LTE	60	55	15.85	5.9	4	40.00	5484.28	8997.46	130.00	0.091224	1000.00	0.009122
A	18	Verizon	JMA Wireless	MX06FRO660-03	Panel	700	LTE	60	60.5	12.25	5.9	2	40.00	1196.99	1963.77	130.00	0.053828	466.67	0.011535
A	18	Verizon	JMA Wireless	MX06FRO660-03	Panel	850	LTE	60	53	11.85	5.9	2	40.00	1091.67	1790.98	130.00	0.049274	566.67	0.008695
A	18	Verizon	JMA Wireless	MX06FRO660-03	Panel	2100	LTE	60	55.5	16.05	5.9	4	40.00	5742.75	9421.50	130.00	0.107451	1000.00	0.010745
A	19	Verizon	Samsung	MT6407-77A	Panel	3700	5G	60	17	22.85	2.93	4	35.00	24050.72	39457.36	130.00	0.251404	1000.00	0.025140
B	20	Verizon	CommScope	LNX-8513DS-A1M	Panel	850	CDMA	180	85	13.15	6	2	20.00	736.31	1207.98	130.00	0.000057	566.67	0.000010
B	21	Verizon	JMA Wireless	MX06FRO660-03	Panel	700	LTE	180	60.5	12.25	5.9	2	40.00	1196.99	1963.77	130.00	0.000038	466.67	0.000008
B	21	Verizon	JMA Wireless	MX06FRO660-03	Panel	850	LTE	180	53	11.85	5.9	2	40.00	1091.67	1790.98	130.00	0.000166	566.67	0.000029
B	21	Verizon	JMA Wireless	MX06FRO660-03	Panel	1900	LTE	180	55	15.85	5.9	4	40.00	5484.28	8997.46	130.00	0.000025	1000.00	0.000003
B	22	Verizon	JMA Wireless	MX06FRO660-03	Panel	700	LTE	180	60.5	12.25	5.9	2	40.00	1196.99	1963.77	130.00	0.000067	466.67	0.000014
B	22	Verizon	JMA Wireless	MX06FRO660-03	Panel	850	LTE	180	53	11.85	5.9	2	40.00	1091.67	1790.98	130.00	0.000208	566.67	0.000037
B	22	Verizon	JMA Wireless	MX06FRO660-03	Panel	2100	LTE	180	55.5	16.05	5.9	4	40.00	5742.75	9421.50	130.00	0.000038	1000.00	0.000004
B	23	Verizon	Samsung	MT6407-77A	Panel	3700	5G	180	17	22.85	2.93	4	35.00	24050.72	39457.36	130.00	0.000329	1000.00	0.000033
C	24	Verizon	CommScope	LNX-8513DS-A1M	Panel	850	CDMA	300	85	13.15	6	2	20.00	736.31	1207.98	130.00	0.000016	566.67	0.000003
C	25	Verizon	JMA Wireless	MX06FRO660-03	Panel	700	LTE	300	60.5	12.25	5.9	2	40.00	1196.99	1963.77	130.00	0.000149	466.67	0.000032
C	25	Verizon	JMA Wireless	MX06FRO660-03	Panel	850	LTE	300	53	11.85	5.9	2	40.00	1091.67	1790.98	130.00	0.000039	566.67	0.000007
C	25	Verizon	JMA Wireless	MX06FRO660-03	Panel	1900	LTE	300	55	15.85	5.9	4	40.00	5484.28	8997.46	130.00	0.000329	1000.00	0.000033
C	26	Verizon	JMA Wireless	MX06FRO660-03	Panel	700	LTE	300	60.5	12.25	5.9	2	40.00	1196.99	1963.77	130.00	0.000119	466.67	0.000026
C	26	Verizon	JMA Wireless	MX06FRO660-03	Panel	850	LTE	300	53	11.85	5.9	2	40.00	1091.67	1790.98	130.00	0.000043	566.67	0.000008
C	26	Verizon	JMA Wireless	MX06FRO660-03	Panel	2100	LTE	300	55.5	16.05	5.9	4	40.00	5742.75	9421.50	130.00	0.001196	1000.00	0.000120
C	27	Verizon	Samsung	MT6407-77A	Panel	3700	5G	300	17	22.85	2.93	4	35.00	24050.72	39457.36	130.00	0.003258	1000.00	0.000326

Table 2.2: Antenna Inventory & Power Data

*NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6449 antennas per guidance from AT&T.

Specifications were not available for the Ericsson AIR 6449 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6449 due to its similarity.

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (°)	H B W (°)	Antenna Gain (dBi)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated MPE%
A	28	Sprint	RFS	APXVSPP18-C-A20	Panel	850	CDMA	30	65	13.35	6	1	20.00	385.50	632.46	150.00	0.006458	566.67	0.001140
A	28	Sprint	RFS	APXVSPP18-C-A20	Panel	850	LTE	30	65	13.35	6	2	20.00	771.01	1264.91	150.00	0.012915	566.67	0.002279
A	28	Sprint	RFS	APXVSPP18-C-A20	Panel	1900	CDMA	30	65	15.85	6	5	16.00	2742.14	4498.73	150.00	0.024362	1000.00	0.002436
A	28	Sprint	RFS	APXVSPP18-C-A20	Panel	1900	LTE	30	65	15.85	6	2	40.00	2742.14	4498.73	150.00	0.024362	1000.00	0.002436
A	29	Sprint	CommScope	DT465B-2XR-V2	Panel	2500	LTE	30	69	16.15	6.5	8	20.00	6595.93	10817.33	150.00	0.021674	1000.00	0.002167
B	30	Sprint	RFS	APXVSPP18-C-A20	Panel	850	CDMA	170	65	13.35	6	1	20.00	385.50	632.46	150.00	0.000001	566.67	0.000000
B	30	Sprint	RFS	APXVSPP18-C-A20	Panel	850	LTE	170	65	13.35	6	2	20.00	771.01	1264.91	150.00	0.000003	566.67	0.000000
B	30	Sprint	RFS	APXVSPP18-C-A20	Panel	1900	CDMA	170	65	15.85	6	5	16.00	2742.14	4498.73	150.00	0.000059	1000.00	0.000006
B	30	Sprint	RFS	APXVSPP18-C-A20	Panel	1900	LTE	170	65	15.85	6	2	40.00	2742.14	4498.73	150.00	0.000059	1000.00	0.000006
B	31	Sprint	CommScope	DT465B-2XR-V2	Panel	2500	LTE	170	69	16.15	6.5	8	20.00	6595.93	10817.33	150.00	0.000003	1000.00	0.000000
C	32	Sprint	RFS	APXVSPP18-C-A20	Panel	850	CDMA	290	65	13.35	6	1	20.00	385.50	632.46	150.00	0.000060	566.67	0.000011
C	32	Sprint	RFS	APXVSPP18-C-A20	Panel	850	LTE	290	65	13.35	6	2	20.00	771.01	1264.91	150.00	0.000121	566.67	0.000021
C	32	Sprint	RFS	APXVSPP18-C-A20	Panel	1900	CDMA	290	65	15.85	6	5	16.00	2742.14	4498.73	150.00	0.000092	1000.00	0.000009
C	32	Sprint	RFS	APXVSPP18-C-A20	Panel	1900	LTE	290	65	15.85	6	2	40.00	2742.14	4498.73	150.00	0.000092	1000.00	0.000009
C	33	Sprint	CommScope	DT465B-2XR-V2	Panel	2500	LTE	290	69	16.15	6.5	8	20.00	6595.93	10817.33	150.00	0.000187	1000.00	0.000019
A	34	Motorola	Radiowave	HP2-4.7	Microwave	4400	LTE	0	7.1	24.25	2	1	0.30	71.17	116.71	156.00	0.000001	466.67	0.000000
A	35	Motorola	Radiowave	HP3-4.7	Microwave	4400	LTE	180	4.7	27.65	3	1	0.30	155.70	255.34	156.00	0.000000	466.67	0.000000
A	36	Motorola	RFI	BA40-41	Omni	150	LTE	360	360	3	12	1	60.00	106.74	175.05	154.00	0.000617	466.67	0.000132
															Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	2.134921%	Calculated MPE%	0.2976%	

Table 2.3: Antenna Inventory & Power Data

*NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6449 antennas per guidance from AT&T.

Specifications were not available for the Ericsson AIR 6449 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6449 due to its similarity.

3. Compliance Summary

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

The anticipated composite MPE value for this site assuming all carriers present is 0.2976% of the allowable FCC established general public limit sampled at the ground level.

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 within the allowable 100% threshold standard per the federal government.

November 14, 2022
 May 10, 2023 (Rev.1)



Smartlink, LLC
 1997 Annapolis Exchange Pkwy, Suite 200
 Annapolis, MD 21401

RE:	AT&T Site Number:	CT2001 (C-Band)
	FA Number:	10107964
	PACE Number:	MRCTB062410
	PT Number:	2051A146V2
	TEP Site Number:	317776.850722
	AT&T Site Name:	NEW MILFORD-BOARDMAN ROAD
	Site Address:	33 Boardman Road New Milford, CT 06776

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by Smartlink, LLC to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading (based on RFDS V4.0 dated May 31, 2023):

- (2) 800-10965 Antennas (78.7"x20.0"x6.9" – Wt. = 109 lbs. /each)
- (1) 800-10966 Antenna (96.0"x20.0"x6.9" – Wt. = 115 lbs.)
- (3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each) (stand-off)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each) (stand-off)
- (3) 4426 B66 RRH's (14.9"x13.2"x5.8" – Wt. = 49 lbs. /each) (stand-off)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each) (stand-off)
- (3) DC6-48-60-18-8F Surge Arrestors (31.4"x10.2"Ø – Wt. = 29 lbs./each)
- (3) QD6616-7 Antennas (72.0"x22.0"x9.6" – Wt. = 130 lbs. /each)
- (3) 2012 B29 RRH's (16.5"x13.4"x4.9" – Wt. = 60 lbs. /each) (stand-off)
- (3) 4490 B5/B12 RRH's (17.5"x15.1"x6.8" – Wt. = 68 lbs. /each) (stand-off)

*Proposed equipment shown in bold.

No original structural design documents or fabrication drawings were available for the existing mounts. TEP NE conducted a survey climb and mapping of the existing AT&T antenna mounts on October 27, 2022.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 115 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.28 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- TEP NE considers this site to be topographic category 3; tower is located at the upper half of a hill.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_s , of 0.198 and a spectral response acceleration parameter at a period of 1 second, S_1 , of 0.055.
- AT&T policy forbids walking on or suspending below T-arm mounts. This analysis does not include live load conditions for this mount.
- The existing mounts are secured to the existing monopole with ring mounts and threaded rods. TEP NE considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the existing mounts ARE CAPABLE of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	2	LC8	96%	PASS

Reference Documents:

- Mount mapping report prepared by ProVertic LLC dated November 3, 2022.

This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the monopole structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. TEP NE performed a localized analysis on the mount itself and not on the supporting monopole structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
TEP Northeast



Michael Cabral
Director

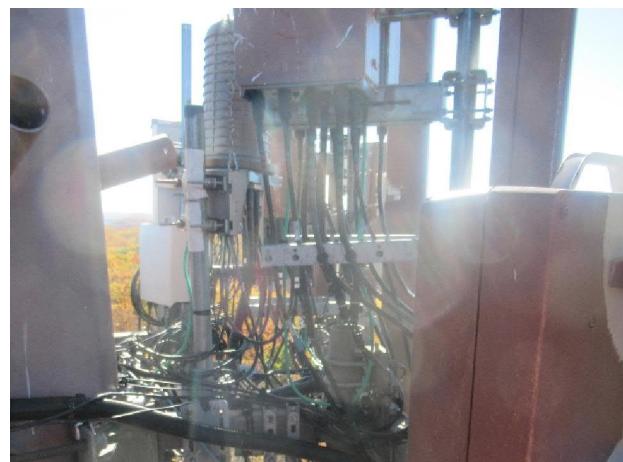


Daniel P. Hamm, PE
Vice President

FIELD PHOTOS:



FIELD PHOTOS (CONT.):





Wind & Ice Calculations

Date: 5/10/2023
 Project Name: NEW MILFORD-BOARDMAN ROAD
 Project No.: CT2001
 Designed By: RL Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

$$z = 120 \text{ (ft)}$$

$$z_g = 1200 \text{ (ft)}$$

$$K_z = 1.041$$

$$\alpha = 7.0$$

$$K_{zmin} \leq K_z \leq 2.01$$

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_c K_t / K_h)]^2$$

$$K_h = e^{(f * z / H)}$$

$$K_{zt} = 1.414933$$

$$K_h = 2.517023$$

(If Category 1 then $K_{zt} = 1.0$)

$$K_c = 0.9 \text{ (from Table 2-4)}$$

Category= 3

$$K_t = 0.53 \text{ (from Table 2-5)}$$

$$f = 2.0 \text{ (from Table 2-5)}$$

$$z = 120$$

$$z_s = 580 \text{ (Mean elevation of base of structure above sea level)}$$

$$H = 260 \text{ (Ht. of the crest above surrounding terrain)}$$

$$K_{zt} = 1.41 \text{ (from 2.6.6.2.1)}$$

$$K_e = 0.98 \text{ (from 2.6.8)}$$

2.6.10 Design Ice Thickness

Max Ice Thickness =

$$t_i = 1.00 \text{ in}$$

Importance Factor =

$$I = 1.00 \text{ (from Table 2-3)}$$

$$K_{iz} = 1.14 \text{ (from Sec. 2.6.10)}$$

$$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$$

$$t_{iz} = 1.28 \text{ in}$$

Date: 5/10/2023
 Project Name: NEW MILFORD-BOARDMAN ROAD
 Project No.: CT2001
 Designed By: RL Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$$G_h = 0.85 + 0.15 [h/150 - 3.0] \quad h = \text{ht. of structure}$$

$h =$	150	$G_h =$	0.85
-------	-----	---------	------

<u>2.6.9.2 Guyed Masts</u>	0.85
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<u>2.6.9.3 Pole Structures</u>	1.1
--------------------------------	-----

<u>2.6.9 Appurtenances</u>	1.0
----------------------------	-----

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

$G_h =$	1.35	$G_h =$	1.00
---------	------	---------	------

2.6.11.2 Design Wind Force on Appurtenances

$$F = q_z * G_h * (EPA)_A$$

$$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$$

$K_z = 1.041$ (from 2.6.5.2)

$K_{zt} = 1.4$ (from 2.6.6.2.1)

$K_s = 1.0$ (from 2.6.7)

$K_e = 0.98$ (from 2.6.8)

$K_d = 0.95$ (from Table 2-2)

$V_{max} = 115$ mph (Ultimate Wind Speed)

$V_{max (ice)} = 50$ mph

$V_{30} = 30$ mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 5/10/2023
 Project Name: NEW MILFORD-BOARDMAN ROAD
 Project No.: CT2001
 Designed By: RL Checked By: MSC



Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances			
Member Type	Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
	Ca	Ca	Ca
Flat	1.2	1.4	2.0
Square/Rectangular HSS	1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$
	C > 78 (Supercritical)	0.5	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,
 Note: Linear interpolation may be used for aspect ratios other than those shown.)

Ice Thickness =

1.28 in Angle = 0 (deg) Equivalent Angle = 180 (deg)

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area</u>	<u>Aspect Ratio</u>	<u>Ca</u>	<u>Force (lbs)</u> <u>(w/ Ice)</u>	
QD6616-7 Antenna	72.0	22.0	9.6	11.00	3.27	1.23	630	138
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	806	176
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	641	141
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	94	24
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	127	32
4426 B66 RRH	14.9	13.2	5.8	1.37	1.13	1.20	76	20
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	2.25	1.20	127	32
2012 B29 RRH	16.5	13.4	4.9	1.54	1.23	1.20	85	22
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	1.16	1.20	102	26
DC6 Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	72	18
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	11	
4" Pipe	4.5	12.0	-	0.38	0.38	1.20	21	
HSS 4x4	4.0	12.0	-	0.33	0.33	1.25	19	

Date: 5/10/2023

Project Name: NEW MILFORD-BOARDMAN ROAD

Project No.: CT2001

Designed By: RL Checked By: MSC

**WIND LOADS**

Angle = 30 (deg)

Ice Thickness = 1.28 in.

Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	630	315	551
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	806	348	691
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	641	271	548
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	94	58	85
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	115
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	76	33	65
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	115
2012 B29 RRH	16.5	13.4	4.9	1.54	0.56	1.23	3.37	1.20	1.24	85	32	72
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	102	46	88

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.6	24.6	12.2	12.72	6.30	3.04	6.13	1.22	1.36	137	75	121
800-10966 Antenna	98.6	22.6	9.5	15.45	6.48	4.37	10.41	1.28	1.51	174	86	152
800-10965 Antenna	81.3	22.6	9.5	12.74	5.34	3.60	8.58	1.25	1.45	140	68	122
4478 B14 RRH	20.7	16.0	10.9	2.29	1.56	1.29	1.90	1.20	1.20	24	16	22
RRUS-32 B2 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	29
4426 B66 RRH	17.5	15.8	8.4	1.91	1.02	1.11	2.09	1.20	1.20	20	11	18
RRUS-32 B30 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	29
2012 B29 RRH	19.1	16.0	7.5	2.11	0.99	1.19	2.55	1.20	1.20	22	10	19
4490 B5/B12 RRH	20.1	17.7	9.4	2.46	1.31	1.14	2.14	1.20	1.20	26	14	23

Date: 5/10/2023
 Project Name: NEW MILFORD-BOARDMAN ROAD
 Project No.: CT2001
 Designed By: RL Checked By: MSC



WIND LOADS

Angle = 60 (deg)

Ice Thickness = 1.28 in.

Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	630	315	394
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	806	348	462
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	641	271	363
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	94	58	67
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	90
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	76	33	44
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	90
2012 B29 RRH	16.5	13.4	4.9	1.54	0.56	1.23	3.37	1.20	1.24	85	32	46
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	102	46	60

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.6	24.6	12.2	12.72	6.30	3.04	6.13	1.22	1.36	137	75	91
800-10966 Antenna	98.6	22.6	9.5	15.45	6.48	4.37	10.41	1.28	1.51	174	86	108
800-10965 Antenna	81.3	22.6	9.5	12.74	5.34	3.60	8.58	1.25	1.45	140	68	86
4478 B14 RRH	20.7	16.0	10.9	2.29	1.56	1.29	1.90	1.20	1.20	24	16	18
RRUS-32 B2 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	24
4426 B66 RRH	17.5	15.8	8.4	1.91	1.02	1.11	2.09	1.20	1.20	20	11	13
RRUS-32 B30 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	24
2012 B29 RRH	19.1	16.0	7.5	2.11	0.99	1.19	2.55	1.20	1.20	22	10	13
4490 B5/B12 RRH	20.1	17.7	9.4	2.46	1.31	1.14	2.14	1.20	1.20	26	14	17

Date: 5/10/2023

Project Name: NEW MILFORD-BOARDMAN ROAD

Project No.: CT2001

Designed By: RL Checked By: MSC

**WIND LOADS**

Angle = 90 (deg)

Ice Thickness = 1.28 in.

Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area (normal)</u>	<u>Flat Area (side)</u>	<u>Ratio (normal)</u>	<u>Ratio (side)</u>	<u>Ca (normal)</u>	<u>Ca (side)</u>	<u>Force (lbs) (normal)</u>	<u>Force (lbs) (side)</u>	<u>Force (lbs) (angle)</u>
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	630	315	315
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	806	348	348
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	641	271	271
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	94	58	58
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	77
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	76	33	33
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	77
2012 B29 RRH	16.5	13.4	4.9	1.54	0.56	1.23	3.37	1.20	1.24	85	32	32
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	102	46	46

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.6	24.6	12.2	12.72	6.30	3.04	6.13	1.22	1.36	137	75	75
800-10966 Antenna	98.6	22.6	9.5	15.45	6.48	4.37	10.41	1.28	1.51	174	86	86
800-10965 Antenna	81.3	22.6	9.5	12.74	5.34	3.60	8.58	1.25	1.45	140	68	68
4478 B14 RRH	20.7	16.0	10.9	2.29	1.56	1.29	1.90	1.20	1.20	24	16	16
RRUS-32 B2 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	21
4426 B66 RRH	17.5	15.8	8.4	1.91	1.02	1.11	2.09	1.20	1.20	20	11	11
RRUS-32 B30 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	21
2012 B29 RRH	19.1	16.0	7.5	2.11	0.99	1.19	2.55	1.20	1.20	22	10	10
4490 B5/B12 RRH	20.1	17.7	9.4	2.46	1.31	1.14	2.14	1.20	1.20	26	14	14

Date: 5/10/2023

Project Name: NEW MILFORD-BOARDMAN ROAD

Project No.: CT2001

Designed By: RL Checked By: MSC

**WIND LOADS**

Angle = 120 (deg)

Ice Thickness = 1.28 in.

Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	630	315	394
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	806	348	462
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	641	271	363
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	94	58	67
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	90
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	76	33	44
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	90
2012 B29 RRH	16.5	13.4	4.9	1.54	0.56	1.23	3.37	1.20	1.24	85	32	46
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	102	46	60

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.6	24.6	12.2	12.72	6.30	3.04	6.13	1.22	1.36	137	75	91
800-10966 Antenna	98.6	22.6	9.5	15.45	6.48	4.37	10.41	1.28	1.51	174	86	108
800-10965 Antenna	81.3	22.6	9.5	12.74	5.34	3.60	8.58	1.25	1.45	140	68	86
4478 B14 RRH	20.7	16.0	10.9	2.29	1.56	1.29	1.90	1.20	1.20	24	16	18
RRUS-32 B2 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	24
4426 B66 RRH	17.5	15.8	8.4	1.91	1.02	1.11	2.09	1.20	1.20	20	11	13
RRUS-32 B30 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	24
2012 B29 RRH	19.1	16.0	7.5	2.11	0.99	1.19	2.55	1.20	1.20	22	10	13
4490 B5/B12 RRH	20.1	17.7	9.4	2.46	1.31	1.14	2.14	1.20	1.20	26	14	17

Date: 5/10/2023

Project Name: NEW MILFORD-BOARDMAN ROAD

Project No.: CT2001

Designed By: RL Checked By: MSC

**WIND LOADS**

Angle = 150 (deg)

Ice Thickness = 1.28 in.

Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area (normal)</u>	<u>Flat Area (side)</u>	<u>Ratio (normal)</u>	<u>Ratio (side)</u>	<u>Ca (normal)</u>	<u>Ca (side)</u>	<u>Force (lbs) (normal)</u>	<u>Force (lbs) (side)</u>	<u>Force (lbs) (angle)</u>
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	630	315	551
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	806	348	691
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	641	271	548
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	94	58	85
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	115
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	76	33	65
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	127	77	115
2012 B29 RRH	16.5	13.4	4.9	1.54	0.56	1.23	3.37	1.20	1.24	85	32	72
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	102	46	88

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.6	24.6	12.2	12.72	6.30	3.04	6.13	1.22	1.36	137	75	121
800-10966 Antenna	98.6	22.6	9.5	15.45	6.48	4.37	10.41	1.28	1.51	174	86	152
800-10965 Antenna	81.3	22.6	9.5	12.74	5.34	3.60	8.58	1.25	1.45	140	68	122
4478 B14 RRH	20.7	16.0	10.9	2.29	1.56	1.29	1.90	1.20	1.20	24	16	22
RRUS-32 B2 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	29
4426 B66 RRH	17.5	15.8	8.4	1.91	1.02	1.11	2.09	1.20	1.20	20	11	18
RRUS-32 B30 RRH	29.8	14.7	9.6	3.03	1.98	2.03	3.11	1.20	1.23	32	21	29
2012 B29 RRH	19.1	16.0	7.5	2.11	0.99	1.19	2.55	1.20	1.20	22	10	19
4490 B5/B12 RRH	20.1	17.7	9.4	2.46	1.31	1.14	2.14	1.20	1.20	26	14	23

Date: 5/10/2023
 Project Name: NEW MILFORD-BOARDMAN ROAD
 Project No.: CT2001
 Designed By: RL Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: **1.28** in.
 Density of ice: **56** pcf

QD6616-7 Antenna

Weight of ice based on total radial SF area:
 Height (in): **72.0**
 Width (in): **22.0**
 Depth (in): **9.6**
 Total weight of ice on object: **238** lbs
 Weight of object: **130.0** lbs
 Combined weight of ice and object: **368** lbs

800-10966 Antenna

Weight of ice based on total radial SF area:
 Height (in): **96.0**
 Width (in): **20.0**
 Depth (in): **6.9**
 Total weight of ice on object: **282** lbs
 Weight of object: **115.0** lbs
 Combined weight of ice and object: **397** lbs

800-10965 Antenna

Weight of ice based on total radial SF area:
 Height (in): **78.7**
 Width (in): **20.0**
 Depth (in): **6.9**
 Total weight of ice on object: **231** lbs
 Weight of object: **109.0** lbs
 Combined weight of ice and object: **340** lbs

4478 B14 RRH

Weight of ice based on total radial SF area:
 Height (in): **18.1**
 Width (in): **13.4**
 Depth (in): **8.3**
 Total weight of ice on object: **40** lbs
 Weight of object: **60.0** lbs
 Combined weight of ice and object: **100** lbs

RRUS-32 B2 RRH

Weight of ice based on total radial SF area:
 Height (in): **27.2**
 Width (in): **12.1**
 Depth (in): **7.0**
 Total weight of ice on object: **54** lbs
 Weight of object: **60.0** lbs
 Combined weight of ice and object: **114** lbs

4426 B66 RRH

Weight of ice based on total radial SF area:
 Height (in): **14.9**
 Width (in): **13.2**
 Depth (in): **5.8**
 Total weight of ice on object: **31** lbs
 Weight of object: **49.0** lbs
 Combined weight of ice and object: **80** lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:
 Height (in): **27.2**
 Width (in): **12.1**
 Depth (in): **7.0**
 Total weight of ice on object: **54** lbs
 Weight of object: **60.0** lbs
 Combined weight of ice and object: **114** lbs

2012 B29 RRH

Weight of ice based on total radial SF area:
 Height (in): **16.5**
 Width (in): **13.4**
 Depth (in): **4.9**
 Total weight of ice on object: **34** lbs
 Weight of object: **60.0** lbs
 Combined weight of ice and object: **94** lbs

4490 B5/B12 RRH

Weight of ice based on total radial SF area:
 Height (in): **17.5**
 Width (in): **15.1**
 Depth (in): **6.8**
 Total weight of ice on object: **41** lbs
 Weight of object: **68.0** lbs
 Combined weight of ice and object: **109** lbs

DC6 Surge Arrestor

Weight of ice based on total radial SF area:
 Depth (in): **31.4**
 Diameter(in): **10.2**
 Total weight of ice on object: **47** lbs
 Weight of object: **29** lbs
 Combined weight of ice and object: **76** lbs

2" Pipe

Per foot weight of ice:
 diameter (in): **2.38**
 Per foot weight of ice on object: **6** plf

HSS 4x4

Weight of ice based on total radial SF area:
 Height (in): **4**
 Width (in): **4**
 Per foot weight of ice on object: **11** plf

4" Pipe

Per foot weight of ice:
 diameter (in): **4.5**
 Per foot weight of ice on object: **9** plf



Mount Calculations
(Existing Conditions)

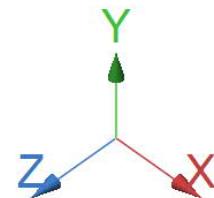
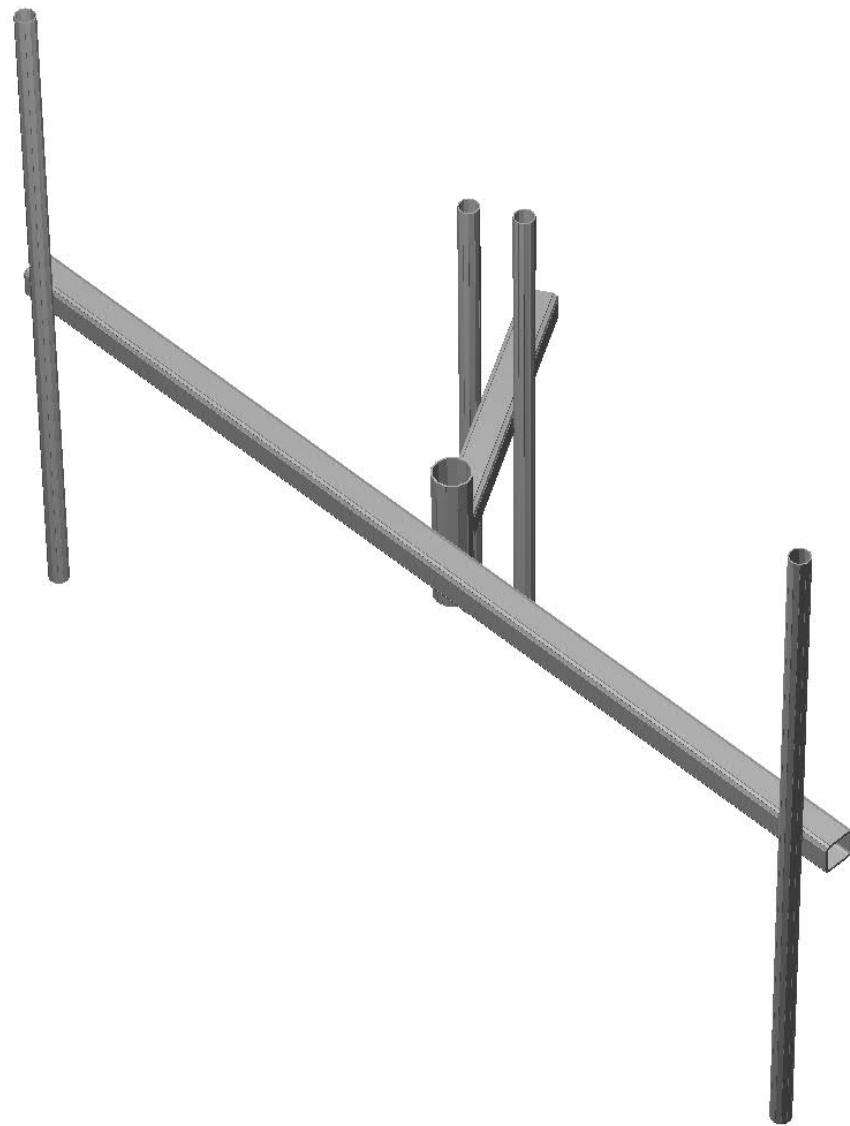


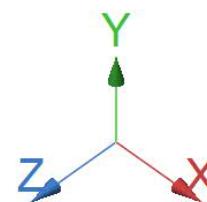
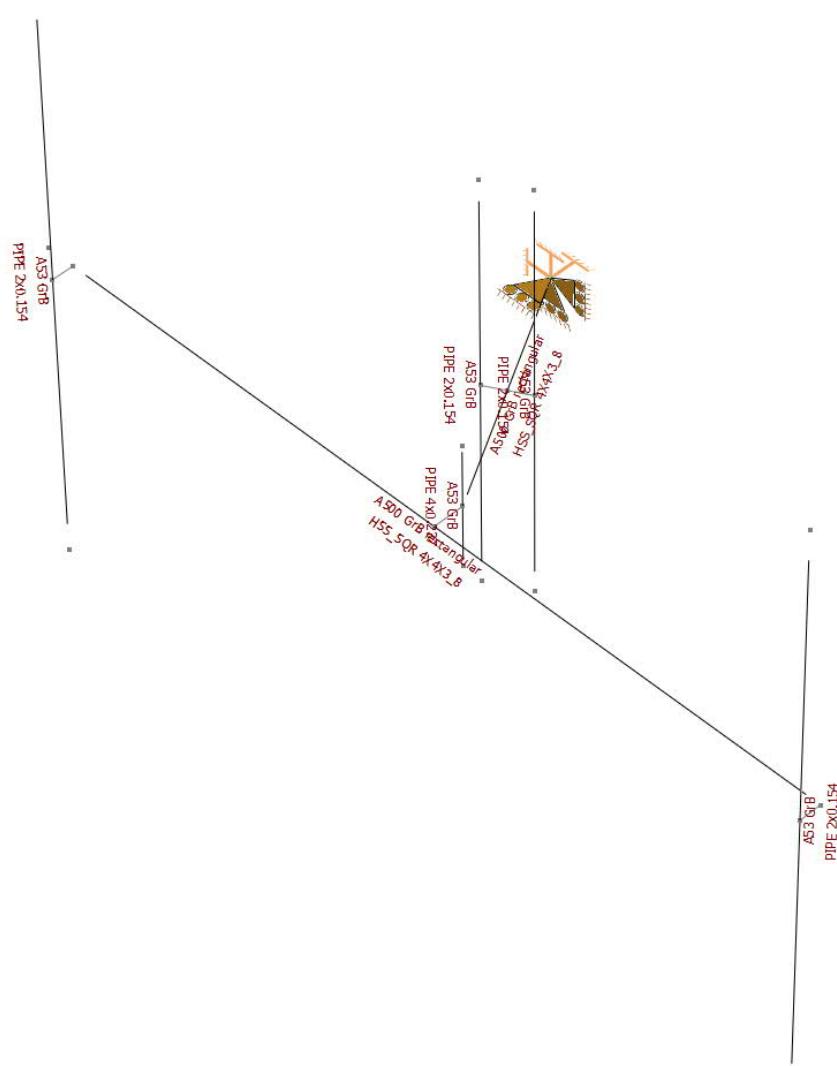
RAM® Elements
CONNECT Edition

TEP Northeast

Current Date: 5/10/2023 5:10 PM

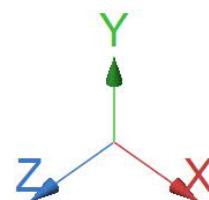
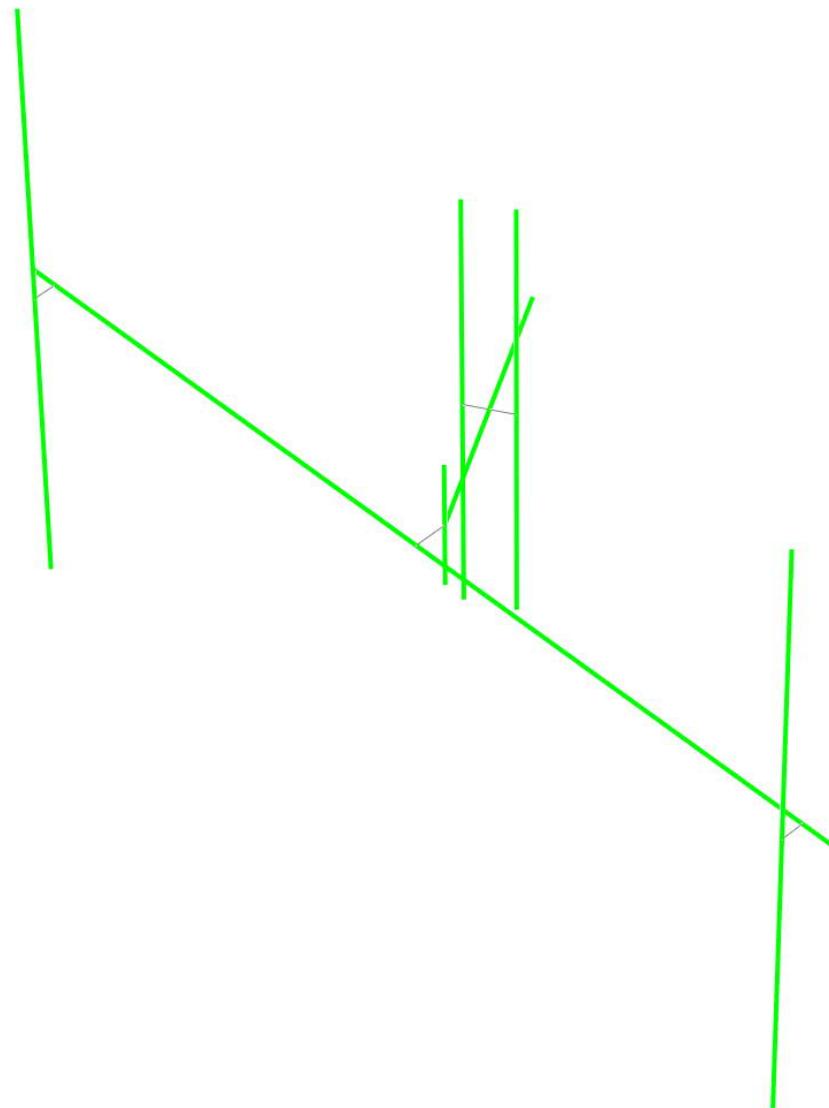
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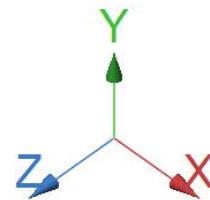
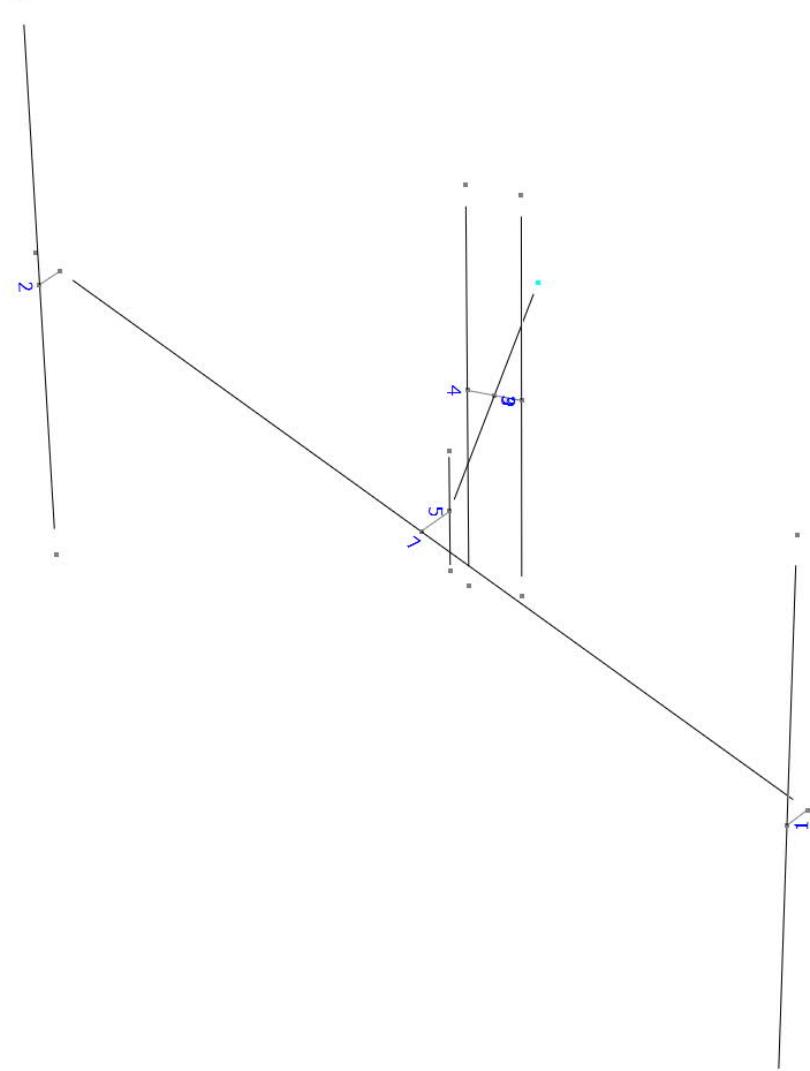






Design status
Not designed
Error on design
Design O.K.
With warnings





Current Date: 5/10/2023 5:14 PM

Units system: English

Load data

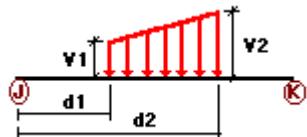
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND

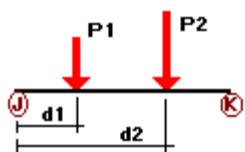
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.011	-0.011	0.00	No	100.00	Yes
	2	z	-0.011	-0.011	0.00	No	100.00	Yes
	3	z	-0.011	-0.011	0.00	No	100.00	Yes
	4	z	-0.011	-0.011	0.00	No	100.00	Yes
	5	z	-0.021	-0.021	0.00	No	100.00	Yes
	6	z	-0.019	-0.019	0.00	No	100.00	Yes
	7	z	-0.019	-0.019	0.00	No	100.00	Yes
W30	1	z	-0.011	-0.011	0.00	No	100.00	Yes
	2	z	-0.011	-0.011	0.00	No	100.00	Yes
	3	z	-0.011	-0.011	0.00	No	100.00	Yes
	4	z	-0.011	-0.011	0.00	No	100.00	Yes
	5	z	-0.021	-0.021	0.00	No	100.00	Yes
	6	z	-0.019	-0.019	0.00	No	100.00	Yes
	7	z	-0.019	-0.019	0.00	No	100.00	Yes
W60	1	x	-0.011	-0.011	0.00	No	100.00	Yes

	2	x	-0.011	-0.011	0.00	No	100.00	Yes
	3	x	-0.011	-0.011	0.00	No	100.00	Yes
	4	x	-0.011	-0.011	0.00	No	100.00	Yes
	5	x	-0.021	-0.021	0.00	No	100.00	Yes
	6	x	-0.019	-0.019	0.00	No	100.00	Yes
	7	x	-0.019	-0.019	0.00	No	100.00	Yes
W90	1	x	-0.011	-0.011	0.00	No	100.00	Yes
	2	x	-0.011	-0.011	0.00	No	100.00	Yes
	3	x	-0.011	-0.011	0.00	No	100.00	Yes
	4	x	-0.011	-0.011	0.00	No	100.00	Yes
	5	x	-0.021	-0.021	0.00	No	100.00	Yes
	6	x	-0.019	-0.019	0.00	No	100.00	Yes
	7	x	-0.019	-0.019	0.00	No	100.00	Yes
W120	1	x	-0.011	-0.011	0.00	No	100.00	Yes
	2	x	-0.011	-0.011	0.00	No	100.00	Yes
	3	x	-0.011	-0.011	0.00	No	100.00	Yes
	4	x	-0.011	-0.011	0.00	No	100.00	Yes
	5	x	-0.021	-0.021	0.00	No	100.00	Yes
	6	x	-0.019	-0.019	0.00	No	100.00	Yes
	7	x	-0.019	-0.019	0.00	No	100.00	Yes
W150	1	y	0.011	0.011	0.00	No	100.00	Yes
	2	y	0.011	0.011	0.00	No	100.00	Yes
	3	y	0.011	0.011	0.00	No	100.00	Yes
	4	y	0.011	0.011	0.00	No	100.00	Yes
	5	y	0.021	0.021	0.00	No	100.00	Yes
	6	y	0.019	0.019	0.00	No	100.00	Yes
	7	y	0.019	0.019	0.00	No	100.00	Yes
Di	1	y	-0.006	-0.006	0.00	No	100.00	Yes
	2	y	-0.006	-0.006	0.00	No	100.00	Yes
	3	y	-0.006	-0.006	0.00	No	100.00	Yes
	4	y	-0.006	-0.006	0.00	No	100.00	Yes
	5	y	-0.009	-0.009	0.00	No	100.00	Yes
	6	y	-0.011	-0.011	0.00	No	100.00	Yes
	7	y	-0.011	-0.011	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	1	y	-0.065	1.00	No
		y	-0.065	6.00	No
	2	y	-0.058	0.50	No
		y	-0.058	6.50	No
	3	y	-0.06	1.50	No
		y	-0.06	1.50	No
		y	-0.06	4.00	No
		y	-0.068	4.00	No
		y	-0.049	1.50	No
	4	y	-0.06	1.50	No
		y	-0.029	4.00	No

Wo	1	z	-0.315	1.00	No
		z	-0.315	6.00	No
	2	z	-0.403	0.50	No
		z	-0.403	6.50	No
	3	z	-0.127	1.50	No
		z	-0.102	4.00	No
	4	z	-0.127	1.50	No
		z	-0.072	4.00	No
W30	1	3	-0.276	1.00	No
		3	-0.276	6.00	No
	2	3	-0.346	0.50	No
		3	-0.346	6.50	No
	3	3	-0.115	1.50	No
		3	-0.088	4.00	No
	4	3	-0.115	1.50	No
		3	-0.072	4.00	No
W60	1	3	-0.198	1.00	No
		3	-0.198	6.00	No
	2	3	-0.232	0.50	No
		3	-0.232	6.50	No
	3	3	-0.09	1.50	No
		3	-0.06	4.00	No
	4	3	-0.09	1.50	No
		3	-0.072	4.00	No
W90	1	x	-0.158	1.00	No
		x	-0.158	6.00	No
	2	x	-0.174	0.50	No
		x	-0.174	6.50	No
	3	x	-0.058	1.50	No
		x	-0.077	1.50	No
		x	-0.032	4.00	No
		x	-0.046	4.00	No
	4	x	-0.033	1.50	No
		x	-0.077	1.50	No
		x	-0.072	4.00	No
W120	1	2	-0.198	1.00	No
		2	-0.198	6.00	No
	2	2	-0.232	0.50	No
		2	-0.232	6.50	No
	3	2	-0.09	1.50	No
		2	-0.06	4.00	No
	4	2	-0.09	1.50	No
		2	-0.072	4.00	No
W150	1	2	-0.276	1.00	No
		2	-0.276	6.00	No
	2	2	-0.346	0.50	No
		2	-0.346	6.50	No
	3	2	-0.115	1.50	No
		2	-0.088	4.00	No
	4	2	-0.115	1.50	No
		2	-0.072	4.00	No
Di	1	y	-0.119	1.00	No
		y	-0.119	6.00	No
	2	y	-0.141	0.50	No
		y	-0.141	6.50	No
	3	y	-0.04	1.50	No
		y	-0.054	1.50	No
		y	-0.034	4.00	No
		y	-0.041	4.00	No
	4	y	-0.031	1.50	No

		y	-0.054	1.50	No
		y	-0.047	4.00	No
WI0	1	z	-0.069	1.00	No
		z	-0.069	6.00	No
		z	-0.089	0.50	No
		z	-0.089	6.50	No
	2	z	-0.032	1.50	No
		z	-0.026	4.00	No
		z	-0.032	1.50	No
		z	-0.018	4.00	No
WI30	1	3	-0.061	1.00	No
		3	-0.061	6.00	No
		3	-0.076	0.50	No
		3	-0.076	6.50	No
	2	3	-0.029	1.50	No
		3	-0.023	4.00	No
		3	-0.029	1.50	No
		3	-0.018	4.00	No
WI60	1	3	-0.046	1.00	No
		3	-0.046	6.00	No
		3	-0.054	0.50	No
		3	-0.054	6.50	No
	2	3	-0.024	1.50	No
		3	-0.017	4.00	No
		3	-0.024	1.50	No
		3	-0.018	4.00	No
WI90	1	x	-0.038	1.00	No
		x	-0.038	6.00	No
		x	-0.044	0.50	No
		x	-0.044	6.50	No
	2	x	-0.016	1.50	No
		x	-0.021	1.50	No
		x	-0.01	4.00	No
		x	-0.014	4.00	No
WI120	1	2	-0.046	1.00	No
		2	-0.046	6.00	No
		2	-0.054	0.50	No
		2	-0.054	6.50	No
	2	2	-0.024	1.50	No
		2	-0.017	4.00	No
		2	-0.024	1.50	No
		2	-0.018	4.00	No
WI150	1	2	-0.061	1.00	No
		2	-0.061	6.00	No
		2	-0.076	0.50	No
		2	-0.076	6.50	No
	2	2	-0.029	1.50	No
		2	-0.023	4.00	No
		2	-0.029	1.50	No
		2	-0.018	4.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00

Current Date: 5/10/2023 5:15 PM

Units system: English

Steel Code Check

Report: Summary - Group by member
Load conditions to be included in design :

LC1=1.4D
 LC2=1.2D+Wo
 LC3=1.2D+W30
 LC4=1.2D+W60
 LC5=1.2D+W90
 LC6=1.2D+W120
 LC7=1.2D+W150
 LC8=1.2D-Wo
 LC9=1.2D-W30
 LC10=1.2D-W60
 LC11=1.2D-W90
 LC12=1.2D-W120
 LC13=1.2D-W150
 LC14=0.9D+Wo
 LC15=0.9D+W30
 LC16=0.9D+W60
 LC17=0.9D+W90
 LC18=0.9D+W120
 LC19=0.9D+W150
 LC20=0.9D-Wo
 LC21=0.9D-W30
 LC22=0.9D-W60
 LC23=0.9D-W90
 LC24=0.9D-W120
 LC25=0.9D-W150
 LC26=1.2D+Di+WI0
 LC27=1.2D+Di+WI30
 LC28=1.2D+Di+WI60
 LC29=1.2D+Di+WI90
 LC30=1.2D+Di+WI120
 LC31=1.2D+Di+WI150
 LC32=1.2D+Di-WI0
 LC33=1.2D+Di-WI30
 LC34=1.2D+Di-WI60
 LC35=1.2D+Di-WI90
 LC36=1.2D+Di-WI120
 LC37=1.2D+Di-WI150

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X3_8	6	LC13 at 100.00%	0.35	OK	
		7	LC2 at 48.44%	0.24	OK	
	PIPE 2x0.154	1	LC8 at 50.00%	0.65	OK	
		2	LC8 at 50.00%	0.96	OK	
		3	LC8 at 50.00%	0.14	OK	
		4	LC8 at 50.00%	0.11	OK	
	PIPE 4x0.237	5	LC8 at 50.00%	0.00	OK	

Current Date: 5/10/2023 5:15 PM

Units system: English

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	-1.50	0.00	-2.5981	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1

Members

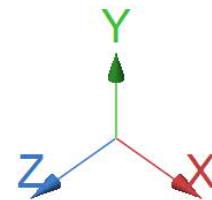
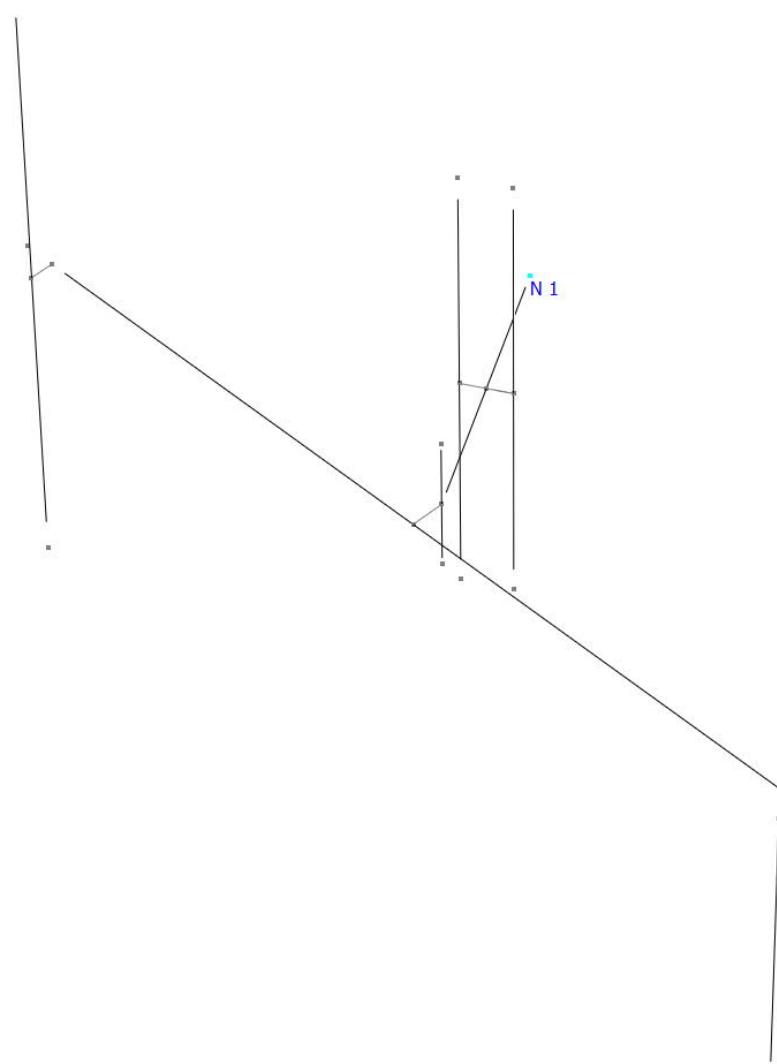
Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	9	11		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
2	8	10		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
3	19	21		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
4	20	22		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
5	14	15		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
6	13	1		HSS_SQR 4X4X3_8	A500 GrB rectangular	0.00	0.00	0.00
7	2	3		HSS_SQR 4X4X3_8	A500 GrB rectangular	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	315.00	0	0.00	0.00	0.00
2	315.00	0	0.00	0.00	0.00
3	315.00	0	0.00	0.00	0.00
4	315.00	0	0.00	0.00	0.00



Connection Check

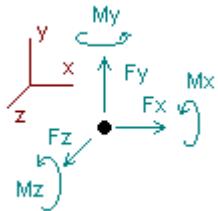


Current Date: 5/10/2023 5:16 PM

Units system: English

Analysis result

Reactions


Direction of positive forces and moments

Node	Forces [Kip]			Moments [Kip*ft]		
	FX	FY	FZ	MX	MY	MZ
Condition LC1=1.4D						
1	0.00000	1.32717	0.00000	-2.89694	0.00000	1.61931
SUM	0.00000	1.32717	0.00000	-2.89694	0.00000	1.61931
Condition LC2=1.2D+Wo						
1	0.00000	1.13757	2.37800	-2.49056	-2.32841	1.39141
SUM	0.00000	1.13757	2.37800	-2.49056	-2.32841	1.39141
Condition LC3=1.2D+W30						
1	1.15541	1.13757	1.66941	-2.49260	1.43329	1.39609
SUM	1.15541	1.13757	1.66941	-2.49260	1.43329	1.39609
Condition LC4=1.2D+W60						
1	1.17359	1.13757	0.82873	-2.49719	2.16272	1.40138
SUM	1.17359	1.13757	0.82873	-2.49719	2.16272	1.40138
Condition LC5=1.2D+W90						
1	1.40386	1.13757	0.00000	-2.48485	3.41596	1.36750
SUM	1.40386	1.13757	0.00000	-2.48485	3.41596	1.36750
Condition LC6=1.2D+W120						
1	1.17359	1.13757	-0.82873	-2.47217	3.86628	1.39904
SUM	1.17359	1.13757	-0.82873	-2.47217	3.86628	1.39904
Condition LC7=1.2D+W150						
1	1.15541	0.89057	-1.15541	-1.84458	4.23853	1.06399
SUM	1.15541	0.89057	-1.15541	-1.84458	4.23853	1.06399

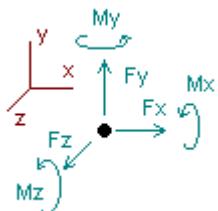
Condition LC8=1.2D-Wo						
1	0.00000	1.13757	-2.37800	-2.47560	2.32613	1.38457
SUM	0.00000	1.13757	-2.37800	-2.47560	2.32613	1.38457
Condition LC9=1.2D-W30						
1	-1.15541	1.13757	-1.66941	-2.47362	-1.43897	1.37994
SUM	-1.15541	1.13757	-1.66941	-2.47362	-1.43897	1.37994
Condition LC10=1.2D-W60						
1	-1.17359	1.13757	-0.82873	-2.46904	-2.16213	1.37463
SUM	-1.17359	1.13757	-0.82873	-2.46904	-2.16213	1.37463
Condition LC11=1.2D-W90						
1	-1.40386	1.13757	0.00000	-2.48132	-3.41236	1.40848
SUM	-1.40386	1.13757	0.00000	-2.48132	-3.41236	1.40848
Condition LC12=1.2D-W120						
1	-1.17359	1.13757	0.82873	-2.49401	-3.86415	1.37694
SUM	-1.17359	1.13757	0.82873	-2.49401	-3.86415	1.37694
Condition LC13=1.2D-W150						
1	-1.15541	1.38457	1.15541	-3.12297	-4.23492	1.71142
SUM	-1.15541	1.38457	1.15541	-3.12297	-4.23492	1.71142
Condition LC14=0.9D+Wo						
1	0.00000	0.85318	2.37800	-1.86967	-2.32841	1.04356
SUM	0.00000	0.85318	2.37800	-1.86967	-2.32841	1.04356
Condition LC15=0.9D+W30						
1	1.15541	0.85318	1.66941	-1.87122	1.43329	1.04884
SUM	1.15541	0.85318	1.66941	-1.87122	1.43329	1.04884
Condition LC16=0.9D+W60						
1	1.17359	0.85318	0.82873	-1.87608	2.16272	1.05422
SUM	1.17359	0.85318	0.82873	-1.87608	2.16272	1.05422
Condition LC17=0.9D+W90						
1	1.40386	0.85318	0.00000	-1.86364	3.41596	1.02063
SUM	1.40386	0.85318	0.00000	-1.86364	3.41596	1.02063
Condition LC18=0.9D+W120						
1	1.17359	0.85318	-0.82873	-1.85095	3.86628	1.05246
SUM	1.17359	0.85318	-0.82873	-1.85095	3.86628	1.05246
Condition LC19=0.9D+W150						
1	1.15541	0.60618	-1.15541	-1.22329	4.23853	0.71775
SUM	1.15541	0.60618	-1.15541	-1.22329	4.23853	0.71775

Condition LC20=0.9D-W0						
1	0.00000	0.85318	-2.37800	-1.85495	2.32613	1.03844
SUM	0.00000	0.85318	-2.37800	-1.85495	2.32613	1.03844
Condition LC21=0.9D-W30						
1	-1.15541	0.85318	-1.66941	-1.85345	-1.43897	1.03319
SUM	-1.15541	0.85318	-1.66941	-1.85345	-1.43897	1.03319
Condition LC22=0.9D-W60						
1	-1.17359	0.85318	-0.82873	-1.84861	-2.16213	1.02779
SUM	-1.17359	0.85318	-0.82873	-1.84861	-2.16213	1.02779
Condition LC23=0.9D-W90						
1	-1.40386	0.85318	0.00000	-1.86099	-3.41236	1.06136
SUM	-1.40386	0.85318	0.00000	-1.86099	-3.41236	1.06136
Condition LC24=0.9D-W120						
1	-1.17359	0.85318	0.82873	-1.87369	-3.86415	1.02952
SUM	-1.17359	0.85318	0.82873	-1.87369	-3.86415	1.02952
Condition LC25=0.9D-W150						
1	-1.15541	1.10018	1.15541	-2.50271	-4.23492	1.36366
SUM	-1.15541	1.10018	1.15541	-2.50271	-4.23492	1.36366
Condition LC26=1.2D+Di+WI0						
1	0.00000	2.10157	0.42400	-4.90042	-0.37001	2.38729
SUM	0.00000	2.10157	0.42400	-4.90042	-0.37001	2.38729
Condition LC27=1.2D+Di+WI30						
1	0.26375	2.10157	0.26375	-4.90213	0.46514	2.38859
SUM	0.26375	2.10157	0.26375	-4.90213	0.46514	2.38859
Condition LC28=1.2D+Di+WI60						
1	0.20011	2.10157	0.20011	-4.90289	0.32538	2.38932
SUM	0.20011	2.10157	0.20011	-4.90289	0.32538	2.38932
Condition LC29=1.2D+Di+WI90						
1	0.27500	2.10157	0.00000	-4.90038	0.66734	2.37950
SUM	0.27500	2.10157	0.00000	-4.90038	0.66734	2.37950
Condition LC30=1.2D+Di+WI120						
1	0.20011	2.10157	-0.20011	-4.89760	0.73183	2.38826
SUM	0.20011	2.10157	-0.20011	-4.89760	0.73183	2.38826
Condition LC31=1.2D+Di+WI150						
1	0.26375	2.10157	-0.26375	-4.89873	0.95509	2.38716
SUM	0.26375	2.10157	-0.26375	-4.89873	0.95509	2.38716

Condition LC32=1.2D+Di-WI0						
1	0.00000	2.10157	-0.42400	-4.89900	0.37012	2.38496
SUM	0.00000	2.10157	-0.42400	-4.89900	0.37012	2.38496
Condition LC33=1.2D+Di-WI30						
1	-0.26375	2.10157	-0.26375	-4.89730	-0.46530	2.38366
SUM	-0.26375	2.10157	-0.26375	-4.89730	-0.46530	2.38366
Condition LC34=1.2D+Di-WI60						
1	-0.20011	2.10157	-0.20011	-4.89654	-0.32543	2.38293
SUM	-0.20011	2.10157	-0.20011	-4.89654	-0.32543	2.38293
Condition LC35=1.2D+Di-WI90						
1	-0.27500	2.10157	0.00000	-4.89905	-0.66726	2.39275
SUM	-0.27500	2.10157	0.00000	-4.89905	-0.66726	2.39275
Condition LC36=1.2D+Di-WI120						
1	-0.20011	2.10157	0.20011	-4.90182	-0.73178	2.38399
SUM	-0.20011	2.10157	0.20011	-4.90182	-0.73178	2.38399
Condition LC37=1.2D+Di-WI150						
1	-0.26375	2.10157	0.26375	-4.90070	-0.95493	2.38510
SUM	-0.26375	2.10157	0.26375	-4.90070	-0.95493	2.38510

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

- LC1=1.4D
- LC2=1.2D+Wo
- LC3=1.2D+W30
- LC4=1.2D+W60
- LC5=1.2D+W90
- LC6=1.2D+W120
- LC7=1.2D+W150
- LC8=1.2D-Wo
- LC9=1.2D-W30
- LC10=1.2D-W60
- LC11=1.2D-W90
- LC12=1.2D-W120
- LC13=1.2D-W150

LC14=0.9D+Wo
 LC15=0.9D+W30
 LC16=0.9D+W60
 LC17=0.9D+W90
 LC18=0.9D+W120
 LC19=0.9D+W150
 LC20=0.9D-Wo
 LC21=0.9D-W30
 LC22=0.9D-W60
 LC23=0.9D-W90
 LC24=0.9D-W120
 LC25=0.9D-W150
 LC26=1.2D+Di+WI0
 LC27=1.2D+Di+WI30
 LC28=1.2D+Di+WI60
 LC29=1.2D+Di+WI90
 LC30=1.2D+Di+WI120
 LC31=1.2D+Di+WI150
 LC32=1.2D+Di-WI0
 LC33=1.2D+Di-WI30
 LC34=1.2D+Di-WI60
 LC35=1.2D+Di-WI90
 LC36=1.2D+Di-WI120
 LC37=1.2D+Di-WI150

Node	Forces						Moments						
	Fx	Ic	Fy	Ic	Fz	Ic	Mx	Ic	My	Ic	Mz	Ic	
	[Kip]		[Kip]		[Kip]		[Kip*ft]		[Kip*ft]		[Kip*ft]		
1	Max	1.404	LC17	2.102	LC26	2.378	LC14	-1.22329	LC19	4.23853	LC19	2.39275	LC35
	Min	-1.404	LC11	0.606	LC19	-2.378	LC8	-4.90289	LC28	-4.23492	LC13	0.71775	LC19

Date: 5/10/2023
 Project Name: NEW MILFORD-BOARDMAN ROAD
 Project No.: CT2001
 Designed By: RL Checked By: MSC



CHECK THRU BOLT CONNECTION CAPACITY → EXISTING ANCHORS

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 3/4" Threaded Rod

Allowable Tensile Load =

$$F_{Tall} = 19880 \text{ lbs.}$$

Allowable Shear Load =

$$F_{vall} = 11928 \text{ lbs.}$$

CONNECTION PLATE CONFIGURATION (2-BOLTS)

$N_{BOLT\ ROWS}$ =	2 rows	d_y =	8 in (Min.)
N_{BOLTS} =	2 bolts/row	d_x =	4 in (Min.)

TENSILE FORCES

Moment in X axis: 4903 lb-ft. (See Bentley Output)

Couple Reaction from M_x : 7355 lbs.

Moment in Y axis: 4239 lb-ft. (See Bentley Output)

Couple Reaction from M_y : 6359 lbs.

Reaction in Z direction: 2378 lbs. (See Bentley Output)

Resultant: 16092 lbs.

SHEAR FORCES

Moment in Z axis: 2393 lb-ft. (See Bentley Output)

Couple Reaction from M_z : 3590 lbs.

Reaction in X direction: 1404 lbs. (See Bentley Output)

Reaction in Y direction: 2102 lbs. (See Bentley Output)

Resultant: 7096 lbs.

Tension Design Load /Bolts =

$$f_t = 10630 \text{ lbs.} < 19880 \text{ lbs. Therefore, OK !}$$

Shear Design Load / Bolts=

$$f_v = 2177 \text{ lbs.} < 11928 \text{ lbs. Therefore, OK !}$$

CHECK COMBINED TENSION AND SHEAR

$$\begin{array}{rcl} f_t / F_T & + & f_v / F_v \\ 0.535 & + & 0.182 \end{array} \leq 1.0 = 0.717 < 1.0 \text{ Therefore, OK !}$$

Date: 5/10/2023
Project Name: NEW MILFORD-BOARDMAN ROAD
Project No.: CT2001
Designed By: RL Checked By: MSC



CHECK CONNECTION CAPACITY (Worst Case)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 5/8" Threaded Rod

Allowable Tensile Load =

$$F_{Tall} = 6673 \text{ lbs.}$$

Allowable Shear Load =

$$F_{Vall} = 4004 \text{ lbs.}$$

TENSILE FORCES

Reaction $F = 2378 \text{ lbs.}$ (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1404 lbs. (See Bentley Output)

Reactions in Z direction: 2102 lbs. (See Bentley Output)

Resultant: 2528 lbs.

No. of Supports = 1

No. of Bolts / Support = 3

Tension Design Load /Bolts =

$$f_t = 792.67 \text{ lbs.} < 6673 \text{ lbs. Therefore, OK !}$$

Shear Design Load / Bolts=

$$f_v = 842.59 \text{ lbs.} < 4004 \text{ lbs. Therefore, OK !}$$

CHECK COMBINED TENSION AND SHEAR

$$\begin{array}{ccccc} f_t / F_T & + & f_v / F_v & \leq & 1.0 \\ 0.119 & + & 0.210 & = & 0.329 < 1.0 \text{ Therefore, OK !} \end{array}$$

September 26, 2023



Tower Engineering Professionals
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Structures@tepgroup.net

Lauren Groppi
Smartlink Group, LLC
1997 Annapolis Exchange Parkway, Suite 200
Annapolis, MD 21401
(508) 572-1187

Subject: Structural Analysis Report

Carrier Designation:

AT&T Mobility Reconfiguration

Carrier Site Number: CTL02001

Carrier Site Name: New Milford-Boardman Road

FA Location Code: 10107964

Engineering Firm Designation:

TEP Project Number: 317776.873162

Site Data:

33 Boardman Road, New Milford, Litchfield County, CT 06776

Latitude 41° 35' 57.85", Longitude -73° 26' 14.91"

154± Foot - Monopine

Dear Lauren Groppi,

Tower Engineering Professionals 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 stress level for the tower and foundation structure, under the following load case, to be:

LC1: Existing + Proposed + Reserved Loading

Note: See Table 1 for the existing, proposed, and reserved loading

Sufficient Capacity

Structure Capacity	Foundation Capacity
68.5%	69.6%

The analysis has been performed in accordance with the ANSI/TIA-222-H Structural Standard for Antenna Supporting Structures, Antennas, and Small Wind Turbine Support Structures and the 2022 Connecticut State Building Code.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 1 for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Smartlink Group, LLC*. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Nicholas P. Danyluk / SDJ

Respectfully submitted by:

Aaron T. Rucker, P.E.



09/27/2023

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Existing, Proposed, and Reserved Antenna and Cable Information

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 3 - Section Capacity (Summary)

Table 4 - Tower Component Stresses vs. Capacity

Table 5 - Dish Twist/Sway Results for 60 mph Service Wind Speed

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Additional Calculations

1) INTRODUCTION

The tower is a 154± Foot Monopole designed by Engineered Endeavors Inc. in March of 2005. The original design standard and wind speed were unavailable for review. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	ANSI/TIA-222-H
Type of Analysis:	Comprehensive
Risk Category:	II
Wind Speed:	114 mph (Ultimate)
Exposure Category:	C
Topographic Procedure:	Method 2 (Kzt = 1.0)
Ice Thickness:	1.0 in
Wind Speed with Ice:	40 mph
Seismic Design Category:	B
Seismic Ss:	0.197
Seismic S1:	0.055
Service Wind Speed:	60 mph

Table 1 - Existing, Proposed, and Reserved Antenna and Cable Information

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax Location	Owner/ Tenant
Existing	151.5	162.5	1	10-ft, 2 Element Dipole	(3) Pipe Mounts	1	7/8	Inside	Town
		158.5	1	3'Ø Dish		2	7/8	Inside	Motorola
		156.5	1	2'Ø Dish					
Existing	142.0	144.0	3	Ericsson AIR 6449 B41	(3) T-Arm Mounts w/ Reinforce ment	2	6x12 Hybrid	Inside	T-Mobile
		142.0	3	RFS APXVAARR24_43-U-NA20					
			3	RFS APX16DWV-16DWVS					
			3	Ericsson Radio 4424					
			3	Ericsson Radio 4415					
			3	Ericsson Radio 4449					
			6	JMA MX06FRO660-03	(3) Double T- Arms	6 1	1-5/8 12x24 Hybrid	Inside	Verizon
Existing	132.3	132.8	3	Samsung MT6407-77A					
			3	Andrew LNX-8513DS-A1M					
			3	Samsung RRH-BRO49					
			3	Samsung RRH-BRO04C					
			1	Raycap RVZDC-6627-PF-48					
			3	<i>Quintel QD6616-7</i>					
<i>Final Loading Config.</i>	118.0	120.0	2	<i>Kathrein 800-10965</i>	(3) T-Arm Mounts	12 6 3	1-5/8 DC Fiber	Inside	AT&T
			1	<i>Kathrein 800-10966</i>					
			3	<i>Ericsson RRUS-2012 B29</i>					
			3	<i>Ericsson RRUS-4478 B14</i>					
			3	<i>Ericsson RRUS-32 B2</i>					
			3	<i>Ericsson RRUS-4426 B66</i>					
			3	<i>Ericsson RRUS-4490 B5/B12</i>					
			3	<i>Ericsson RRUS-32 B30</i>					
			3	<i>Raycap DC6-48-60-18-8F</i>					

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Source
Previous Structural Analysis	Centek Engineering, dated October 16, 2012 Project No. 12063.CO44	Smartlink
Previous Structural Analysis	All-Points Technology Corporation, dated August 5, 2021 Project No. CT141_11730	Smartlink
Existing Drone Mapping Data	AT&T Mobility	AT&T
Preliminary Construction Drawings	Tower Engineering Professionals, Inc., Site No. CTL02001	Smartlink
RFDS	AT&T Mobility, dated May 31, 2023 RFDS ID: 5123212	Smartlink
Correspondence	Correspondence in reference to the existing, proposed, and reserved loading.	Smartlink

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Analysis Assumptions

- 1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
- 2) The configuration of existing antennas, transmission cables, mounts and other appurtenances are as specified in the drone mapping data provided by AT&T.
- 3) Unless specified by the client or tower mapping, the location of the existing and proposed coax is assumed by TEP and listed in Table 1.
- 4) All tower components are in sufficient condition to carry their full design capacity.
- 5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
- 7) TEP did not have access to the original design documents. TEP assumed all tower, foundation, and soil information contained in the previous Structural Analysis by Centek Engineering (dated October 16, 2012) listed in Table 2 was correct.

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

4) ANALYSIS RESULTS

Table 3 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	σP_{allow} (k)	% Capacity	Pass / Fail
L1	154 - 134.83	Pole	TP30.03x25.25x0.188	1	-6.76	1054.23	18.2	Pass
L2	134.83 - 89.16	Pole	TP40.91x28.5743x0.313	2	-26.57	2392.00	68.5	Pass
L3	89.16 - 44.54	Pole	TP51.28x38.8851x0.5	3	-45.82	4783.85	62.8	Pass
L4	44.54 - 1	Pole	TP61x48.5744x0.563	4	-71.38	6633.82	65.9	Pass
							Summary	
						Pole (L2)	68.5	Pass
						RATING =	68.5	Pass

Table 4 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	63.6	Pass
1,2	Base Plate	-	41.8	Pass
1,2	Base Foundation Soil Interaction	-	69.6	Pass
1,2	Base Foundation Structural	-	56.3	Pass

Structure Rating (max from all components) =

69.6%

Notes:

- 1) Rating per TIA-222-H, Section 15.5
- 2) See additional documentation in "Appendix B - Additional Calculations" for calculations supporting the % capacity listed.

Table 5 - Dish Twist/Sway Results for 60 mph Service Wind Speed

Elevation (ft)	Dish Model	Beam Deflection		
		Deflection (in)	Tilt (deg)	Twist (deg)
158.5	3'Ø Dish	24.994	1.4023	0.0013
156.5	2'Ø Dish	24.994	1.4023	0.0013

4.1) Recommendations

- 1) If the load differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNX TOWER OUTPUT

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
EEI Pine Branches	153	MT6407-77A w/ Mount Pipe	132.25
2.9" Dia. x 9-ft Mount Pipe	151.5	RFV01U-D1A	132.25
2.9" Dia. x 9-ft Mount Pipe	151.5	RFV01U-D1A	132.25
2.9" Dia. x 9-ft Mount Pipe	151.5	RFV01U-D1A	132.25
10' Dipole	151.5	RFV01U-D2A	132.25
26" HP Dish	151.5	RFV01U-D2A	132.25
3" Dia. HP Dish	151.5	RFV01U-D2A	132.25
EEI Pine Branches	143	RVZDC-6627-PF-48	132.25
T-Mobile T-Arms w/ Mount Pipes	142	2.4" Dia x 6-ft Pipe	132.25
2.4" Dia. x 9-ft Pipe	142	EEI Pine Branches	123
2.4" Dia. x 9-ft Pipe	142	Valmont RMV12-496 12' T-Arm Mounts	118
2.4" Dia. x 9-ft Pipe	142	QD6616-7	118
APXVAARR24_43-U-NA20 w/ Mount Pipe	142	QD6616-7	118
APXVAARR24_43-U-NA20 w/ Mount Pipe	142	80010965	118
APXVAARR24_43-U-NA20 w/ Mount Pipe	142	80010965	118
APXVAARR24_43-U-NA20 w/ Mount Pipe	142	80010966	118
AIR 6449 B41 w/ Mount Pipe	142	2012 B29	118
AIR 6449 B41 w/ Mount Pipe	142	2012 B29	118
AIR 6449 B41 w/ Mount Pipe	142	RRUS 4478 B14	118
APX16DWV-16DWVS-C w/ Mount Pipe	142	RRUS 4478 B14	118
APX16DWV-16DWVS-C w/ Mount Pipe	142	RRUS 4478 B14	118
APX16DWV-16DWVS-C w/ Mount Pipe	142	RRUS 32 B2	118
APX16DWV-16DWVS-C w/ Mount Pipe	142	RRUS 32 B2	118
RADIO 4424	142	RRUS 4426 B66	118
RADIO 4424	142	RRUS 4426 B66	118
RADIO 4424	142	RRUS 4426 B66	118
RADIO 4415	142	RRUS 32 B30	118
RADIO 4415	142	RRUS 32 B30	118
RADIO 4415	142	RRUS 32 B30	118
RADIO 4449	142	4490 B5/B12	118
RADIO 4449	142	4490 B5/B12	118
RADIO 4449	142	4490 B5/B12	118
EEI Pine Branches	133	DC6-48-60-18-8F	118
Verizon T-Arms	132.25	DC6-48-60-18-8F	118
LNX-8513DS-A1M w/ Mount Pipe	132.25	DC6-48-60-18-8F	118
LNX-8513DS-A1M w/ Mount Pipe	132.25	(4) 2.4" Dia x 6-ft Pipe	118
LNX-8513DS-A1M w/ Mount Pipe	132.25	(4) 2.4" Dia x 6-ft Pipe	118
(2) MX06FRO660-02 w/ Mount Pipe	132.25	(4) 2.4" Dia x 6-ft Pipe	118
(2) MX06FRO660-02 w/ Mount Pipe	132.25	EEI Pine Branches	113
(2) MX06FRO660-02 w/ Mount Pipe	132.25	EEI Pine Branches	103
MT6407-77A w/ Mount Pipe	132.25	EEI Pine Branches	93
MT6407-77A w/ Mount Pipe	132.25	EEI Pine Branches	83

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

ALL REACTION 1. Tower is located in Litchfield County, Connecticut.

ARE FACTORS 2. Tower designed for Exposure C to the TIA-222-H Standard.

3. Tower designed for a 114 mph basic wind in accordance with the TIA-222-H Standard.

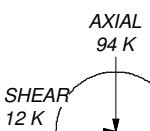
4. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.

5. Deflections are based upon a 60 mph wind.

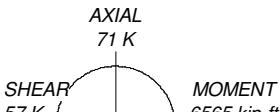
6. Tower Risk Category II.

7. Topographic Category 1 with Crest Height of 0.00 ft

8. TOWER RATING: 68.5%



TORQUE 0 kip-ft
40 mph WIND - 1.0000 in ICE



TORQUE 1 kip-ft
REACTIONS - 114 mph WIND

Section	4	50.46	3	50.29	2	50.00	1	19.17
Length (ft)			Number of Sides	18		18		18
Thickness (in)			Socket Length (ft)	0.5630	0.5000	6.92		0.1880
Top Dia (in)			Bot Dia (in)	48.5744	38.8851	51.2800		4.33
Grade			Weight (K)	61.0000	16.6	12.1		25.2500
								30.0300
								1.1

Tower Engineering Professionals, Inc.



326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job:	CT2001 10107964		
Project:	TEP No. 317776.873162		
Client:	Smartlink	Drawn by:	npdanyluk
Code:	TIA-222-H	Date:	09/26/23
Path:		Scale:	NTS
		Dwg No.	E-1

tnxTower		Job	CT2001 10107964			Page	3 of 13
Tower Engineering Professionals, Inc.		Project	TEP No. 317776.873162			Date	16:10:57 09/26/23
		Client	Smartlink			Designed by	npdanyluk

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _A A _A	Weight plf
LDF5-50A (7/8 FOAM)	B	No	No	Inside Pole	154.00 - 6.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.33 0.33

MLC HYBRID 6X12 LI(1-1/2)	B	No	No	Inside Pole	142.00 - 6.00	2	No Ice 1/2" Ice 1" Ice	0.00 1.85 1.85

LDF7-50A (1-5/8 FOAM)	B	No	No	Inside Pole	132.00 - 6.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.82 0.82
MLCH 12/24 LOW INDUCTION(2)	B	No	No	Inside Pole	132.00 - 6.00	1	No Ice 1/2" Ice 1" Ice	0.00 3.04 3.04

LDF7-50A (1-5/8 FOAM)	C	No	No	Inside Pole	120.00 - 6.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.82 0.82
DC Cable	C	No	No	Inside Pole	120.00 - 6.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.88 0.88
Fiber Cable (1-1/4")	C	No	No	Inside Pole	120.00 - 6.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.48 0.48

tnxTower		Job	CT2001 10107964			Page	4 of 13
Tower Engineering Professionals, Inc.		Project	TEP No. 317776.873162			Date	16:10:57 09/26/23
		Client	Smartlink			Designed by	npdanyluk

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L2	134.83-89.16	A	0.960	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.000	0.00
L3	89.16-44.54	A	0.911	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.000	0.56
		C	0.000	0.000	0.000	0.000	0.000	0.51
L4	44.54-1.00	A	0.820	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.000	0.49
		C	0.000	0.000	0.000	0.000	0.000	0.64

Feed Line Center of Pressure						
Section	Elevation	CP _X	CP _Z	CP _X Ice in	CP _Z Ice in	
L1	154.00-134.83	0.0000	0.0000	0.0000	0.0000	0.0000
L2	134.83-89.16	0.0000	0.0000	0.0000	0.0000	0.0000
L3	89.16-44.54	0.0000	0.0000	0.0000	0.0000	0.0000
L4	44.54-1.00	0.0000	0.0000	0.0000	0.0000	0.0000

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

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	154.00-134.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L2	134.83-89.16	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.56
		C	0.000	0.000	0.000	0.000	0.51
L3	89.16-44.54	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.56
		C	0.000	0.000	0.000	0.000	0.74
L4	44.54-1.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.49
		C	0.000	0.000	0.000	0.000	0.64

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	154.00-134.83	A	0.985	0.000	0.000	0.000	0.000	0.00

Description	Face or Leg	Offset Type	Offsets: Horz ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
EEI Pine Branches	C	None	0.0000	153.00	No Ice 90.00 1/2" Ice 130.00 1" Ice 170.00	90.00 130.00 130.00 170.00	130.00 170.00	1.50 1.90
EEI Pine Branches	C	None	0.0000	143.00	No Ice 90.00 1/2" Ice 130.00 1" Ice 170.00	90.00 130.00 130.00 170.00	130.00 170.00	1.50 2.30
EEI Pine Branches	C	None	0.0000	133.00	No Ice 90.00 1/2" Ice 130.00 1" Ice 170.00	90.00 130.00 130.00 170.00	130.00 170.00	1.50 2.30
EEI Pine Branches	C	None	0.0000	123.00	No Ice 90.00 1/2" Ice 130.00 1" Ice 170.00	90.00 130.00 130.00 170.00	130.00 170.00	1.50 2.30
EEI Pine Branches	C	None	0.0000	113.00	No Ice 90.00 1/2" Ice 130.00 1" Ice 170.00	90.00 130.00 130.00 170.00	130.00 170.00	1.50 2.30
EEI Pine Branches	C	None	0.0000	103.00	No Ice 90.00 1/2" Ice 130.00 1" Ice 170.00	90.00 130.00 130.00 170.00	130.00 170.00	1.50 2.30

ttxTower		Job	CT2001 10107964	Page	5 of 13
Tower Engineering Professionals, Inc.		Project	TEP No. 317776.873162	Date	16:10:57 09/26/23
		Client	Smartlink	Designed by	npdanyluk

Description	Face or Leg	Offset Type	Offsets: Horz ft	Vert ft	Azimuth Adjustment °	Placement ft	CsA _{Front}	CsA _{Side}	Weight ft ²	K
EEI Pine Branches	C	None	0.0000	93.00	No Ice	90.00	90.00	1.50		
					1/2" Ice	130.00	130.00	1.90		
					1" Ice	170.00	170.00	2.30		
EEI Pine Branches	C	None	0.0000	83.00	No Ice	90.00	90.00	1.50		
					1/2" Ice	130.00	130.00	1.90		
					1" Ice	170.00	170.00	2.30		

2.9" Dia. x 9-ft Mount Pipe	A	From Face	0.50	0.0000	151.50	No Ice	2.59	2.59	0.05	
			0.00			1/2" Ice	3.52	3.52	0.07	
			4.00			1" Ice	4.27	4.27	0.10	
2.9" Dia. x 9-ft Mount Pipe	B	From Face	0.50	0.0000	151.50	No Ice	2.59	2.59	0.05	
			0.00			1/2" Ice	3.52	3.52	0.07	
			4.00			1" Ice	4.27	4.27	0.10	
2.9" Dia. x 9-ft Mount Pipe	C	From Face	0.50	0.0000	151.50	No Ice	2.59	2.59	0.05	
			0.00			1/2" Ice	3.52	3.52	0.07	
			4.00			1" Ice	4.27	4.27	0.10	
10' Dipole	A	From Face	1.00	0.0000	151.50	No Ice	6.67	6.67	0.03	
			0.00			1/2" Ice	7.82	7.82	0.06	
			11.00			1" Ice	8.65	8.65	0.11	

T-Mobile T-Arms w/ Mount Pipes	A	None	0.0000	142.00	No Ice	18.40	18.40	0.82		
					1/2" Ice	22.50	22.50	1.08		
					1" Ice	26.60	26.60	1.34		
2.4" Dia. x 9-ft Pipe	A	From Face	3.00	0.0000	142.00	No Ice	2.16	2.16	0.03	
			0.00			1/2" Ice	3.09	3.09	0.05	
			0.00			1" Ice	4.03	4.03	0.07	
2.4" Dia. x 9-ft Pipe	B	From Face	3.00	0.0000	142.00	No Ice	2.16	2.16	0.03	
			0.00			1/2" Ice	3.09	3.09	0.05	
			0.00			1" Ice	4.03	4.03	0.07	
2.4" Dia. x 9-ft Pipe	C	From Face	3.00	0.0000	142.00	No Ice	2.16	2.16	0.03	
			0.00			1/2" Ice	3.09	3.09	0.05	
			0.00			1" Ice	4.03	4.03	0.07	
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Face	3.00	0.0000	142.00	No Ice	20.48	11.02	0.16	
			0.00			1/2" Ice	21.23	12.55	0.30	
			0.00			1" Ice	21.99	14.10	0.44	
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Face	3.00	0.0000	142.00	No Ice	20.48	11.02	0.16	
			0.00			1/2" Ice	21.23	12.55	0.30	
			0.00			1" Ice	21.99	14.10	0.44	
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Face	3.00	0.0000	142.00	No Ice	20.48	11.02	0.16	
			0.00			1/2" Ice	21.23	12.55	0.30	
			0.00			1" Ice	21.99	14.10	0.44	
AIR 6449 B41 w/ Mount Pipe	A	From Face	3.00	0.0000	142.00	No Ice	5.87	3.27	0.13	
			0.00			1/2" Ice	6.23	3.73	0.18	
			2.00			1" Ice	6.61	4.20	0.23	
AIR 6449 B41 w/ Mount Pipe	B	From Face	3.00	0.0000	142.00	No Ice	5.87	3.27	0.13	
			0.00			1/2" Ice	6.23	3.73	0.18	
			2.00			1" Ice	6.61	4.20	0.23	
AIR 6449 B41 w/ Mount Pipe	C	From Face	3.00	0.0000	142.00	No Ice	5.87	3.27	0.13	
			0.00			1/2" Ice	6.23	3.73	0.18	
			2.00			1" Ice	6.61	4.20	0.23	
APX16DWV-16DWVS-C w/ Mount Pipe	A	From Face	3.00	0.0000	142.00	No Ice	6.82	3.49	0.06	
			0.00			1/2" Ice	7.28	4.26	0.11	
			0.00			1" Ice	7.72	4.96	0.16	
APX16DWV-16DWVS-C w/ Mount Pipe	B	From Face	3.00	0.0000	142.00	No Ice	6.82	3.49	0.06	
			0.00			1/2" Ice	7.28	4.26	0.11	
			0.00			1" Ice	7.72	4.96	0.16	

ttxTower		Job	CT2001 10107964	Page	6 of 13
Tower Engineering Professionals, Inc.		Project	TEP No. 317776.873162	Date	16:10:57 09/26/23
		Client	Smartlink	Designed by	npdanyluk

Description	Face or Leg	Offset Type	Offsets: Horz ft	Vert ft	Azimuth Adjustment °	Placement ft	CsA _{Front}	CsA _{Side}	Weight ft ²	K
APX16DWV-16DWVS-C w/ Mount Pipe	C	From Face	3.00	0.0000	142.00	No Ice	6.82	3.49	0.06	
			0.00			1/2" Ice	7.28	4.26	0.11	
			0.00			1" Ice	7.72	4.96	0.16	
RADIO 4424	A	From Face	3.00	0.0000	142.00	No Ice	1.86	1.32	0.09	
			0.00			1/2" Ice	2.03	1.47	0.11	
			0.00			1" Ice	2.20	1.62	0.13	
RADIO 4424	B	From Face	3.00	0.0000	142.00	No Ice	1.86	1.32	0.09	
			0.00			1/2" Ice	2.03	1.47	0.11	
			0.00			1" Ice	2.20	1.62	0.13	
RADIO 4415	A	From Face	3.00	0.0000	142.00	No Ice	1.86	1.32	0.09	
			0.00			1/2" Ice	2.03	1.47	0.11	
			0.00			1" Ice	2.20	1.62	0.13	
RADIO 4415	B	From Face	3.00	0.0000	142.00	No Ice	1.86	1.32	0.09	
			0.00			1/2" Ice	2.03	1.47	0.11	
			0.00			1" Ice	2.20	1.62	0.13	
RADIO 4415	C	From Face	3.00	0.0000	142.00	No Ice	1.86	1.32	0.09	
			0.00			1/2" Ice	2.03	1.47	0.11	
			0.00			1" Ice	2.20	1.62	0.13	
RADIO 4449	A	From Face	3.00	0.0000	142.00	No Ice	1.98	1.41	0.09	
			0.00			1/2" Ice	2.16	1.57	0.10	
			0.00			1" Ice	2.34	1.73	0.12	
RADIO 4449	B	From Face	3.00	0.0000	142.00	No Ice	1.98	1.41	0.09	
			0.00			1/2" Ice	2.16	1.57	0.10	
			0.00			1" Ice	2.34	1.73	0.12	
RADIO 4449	C	From Face	3.00	0.0000	142.00	No Ice	1.98	1.41	0.09	
			0.00			1/2" Ice	2.16	1.57	0.10	
			0.00			1" Ice	2.34	1.73	0.12	
Verizon T-Arms	A	None	0.0000	132.25	No Ice	16.40	16.40	0.84		
					1/2" Ice	19.80	19.80	1.09		
					1" Ice	23.20	23.20	1.34		
LNX-8513DS-A1M w/ Mount Pipe	A	From Face	3.00	0.0000	132.25	No Ice	8.41	7.08	0.06	
			0.00			1/2" Ice	8.97	8.27	0.13	
			0.00			1" Ice	9.50	9.18	0.21	
LNX-8513DS-A1M w/ Mount Pipe	B	From Face	3.00	0.0000	132.25	No Ice	8.41	7.08	0.06	
			0.00			1/2" Ice	8.97	8.27	0.13	
			0.00			1" Ice	9.50	9.18	0.21	
LNX-8513DS-A1M w/ Mount Pipe	C	From Face	3.00	0.0000	132.25	No Ice	8.41	7.08	0.06	
			0.00			1/2" Ice	8.97	8.27	0.13	
			0.00			1" Ice	9.50	9.18	0.21	
(2) MX06FRO660-02 w/ Mount Pipe	A	From Face	3.00	0.0000	132.25	No Ice	10.11	8.99	0.07	
			0.00			1/2" Ice	10.68	10.15	0.16	
			0.00			1" Ice	11.22	11.03	0.25	
(2) MX06FRO660-02 w/ Mount Pipe	B	From Face	3.00	0.0000	132.25	No Ice	10.11	8.99	0.07	
			0.00			1/2" Ice	10.68	10.15	0.16	
			0.00			1" Ice	11.22	11.03	0.25	
(2) MX06FRO660-02 w/ Mount Pipe	C	From Face	3.00	0.0000	132.25	No Ice	10.11	8.99	0.07	
			0.00			1/2" Ice	10.68	10.15	0.16	
			0.00			1" Ice	11.22	11.03	0.25	
MT6407-77A w/ Mount Pipe	A	From Face	3.00	0.0000	132.25	No Ice	4.91	2.68	0.10	
			0.00			1/2" Ice	5.26	3.14	0.14	
			0.00			1" Ice	5.61	3.62	0.18	
MT6407-77A w/ Mount Pipe	B	From Face	3.00	0.0000	132.25	No Ice	4.91	2.68	0.10	
			0.00			1/2" Ice	5.26	3.14	0.14	

<i>tnxTower</i>	Job CT2001 10107964	Page 7 of 13
<i>Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</i>	Project TEP No. 317776.873162	Date 16:10:57 09/26/23
	Client Smartlink	Designed by npdanyluk

<i>tnxTower</i>	Job CT2001 10107964	Page 8 of 13
<i>Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</i>	Project TEP No. 317776.873162	Date 16:10:57 09/26/23
Client	Smartlink	Designed by npdanyluk

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A Front	C _A A Side	Weight K
MT6407-77A w/ Mount Pipe	C	From Face	0.50 3.00 0.00 0.50 0.00 0.00	0.0000	132.25	1" Ice No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	5.61 4.91 5.26 5.61 1.88 2.05	3.62 2.68 3.14 3.62 1.25 1.39
RFV01U-D1A	A	From Face	3.00 0.00 0.50 0.00 0.00	0.0000	132.25	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	1.25 2.22 1.54 1.88 2.05	0.08 0.10 0.12 0.08 0.10
RFV01U-D1A	B	From Face	3.00 0.00 0.50 0.00 0.00	0.0000	132.25	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	1.25 2.22 1.54 1.88 2.05	0.08 0.10 0.12 0.08 0.10
RFV01U-D1A	C	From Face	3.00 0.00 0.50 0.00 0.00	0.0000	132.25	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	1.25 2.22 1.54 1.88 2.05	0.08 0.10 0.12 0.08 0.10
RFV01U-D2A	A	From Face	3.00 0.00 0.50 0.00 0.00	0.0000	132.25	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	1.01 1.14 1.14 1.88 2.05	0.07 0.09 0.11 0.07 0.09
RFV01U-D2A	B	From Face	3.00 0.00 0.50 0.00 0.00	0.0000	132.25	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	1.01 1.14 1.14 1.88 2.05	0.07 0.09 0.11 0.07 0.09
RFV01U-D2A	C	From Face	3.00 0.00 0.50 0.00 0.00	0.0000	132.25	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	1.01 1.14 1.14 1.88 2.05	0.07 0.09 0.11 0.07 0.09
RVZDC-6627-PF-48	A	From Face	1.50 0.00 0.50 0.00 0.00	0.0000	132.25	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	3.79 4.04 4.30 1.43 1.93	2.51 2.73 2.95 0.03 0.06
2.4" Dia x 6-ft Pipe	A	From Face	1.50 0.00 0.50 0.00 0.00	0.0000	132.25	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	1.43 1.93 1.93 1.43 2.30	0.02 0.03 0.03 0.02 0.05

Valmont RMV12-496 12' T-Arm Mounts	A	None		0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	11.40 14.50 17.60 13.58 14.08	11.40 14.50 17.60 11.40 12.77
QD6616-7	A	From Face	3.00 0.00 2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	6.80 8.80 7.72 13.58 14.60	0.11 0.20 0.29 0.11 0.20
QD6616-7	B	From Face	3.00 0.00 2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	6.80 8.80 7.72 13.58 14.08	0.11 0.20 0.29 0.11 0.20
QD6616-7	C	From Face	3.00 0.00 2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	6.80 8.80 7.72 13.58 14.08	0.11 0.20 0.29 0.11 0.20
80010965	A	From Face	3.00 0.00 2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	5.83 6.32 6.82 13.81 14.35	0.10 0.17 0.26 0.10 0.17
80010965	B	From Face	3.00 0.00 2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	5.83 6.32 6.82 13.81 14.35	0.10 0.17 0.26 0.10 0.17
80010966	C	From Face	3.00 0.00 2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	7.50 8.09 8.69 17.36 17.99	0.11 0.21 0.31 0.11 0.21
2012 B29	A	From Face	3.00 0.00 2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	0.04 0.06 0.07 1.86 2.03	0.04 0.06 0.07 0.70 0.81
2012 B29	B	From Face	3.00 0.00 2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice No Ice 1/2" Ice	0.04 0.07 0.07 1.86 2.20	0.04 0.07 0.07 0.70 0.94

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _{Front}	C _A A _{Side}	Weight K	
2012 B29	C	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.86 2.03 2.20	0.70 0.81 0.94	0.04 0.06 0.07
RRUS 4478 B14	A	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	1.06 1.20 1.34	0.06 0.08 0.09
RRUS 4478 B14	B	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	1.06 1.20 1.34	0.06 0.08 0.09
RRUS 4478 B14	C	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	1.06 1.20 1.34	0.06 0.08 0.09
RRUS 32 B2	A	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2	B	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2	C	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 4426 B66	A	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.73 0.84 0.97	0.05 0.06 0.08
RRUS 4426 B66	B	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.73 0.84 0.97	0.05 0.06 0.08
RRUS 4426 B66	C	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.73 0.84 0.97	0.05 0.06 0.08
RRUS 32 B30	A	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B30	B	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B30	C	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
4490 B5/B12	A	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.58	0.85 0.98 1.11	0.02 0.04 0.06
4490 B5/B12	B	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.58	0.85 0.98 1.11	0.02 0.04 0.06
4490 B5/B12	C	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.58	0.85 0.98 1.11	0.02 0.04 0.06
DC6-48-60-18-8F	A	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.85 1.36 1.53	0.85 1.36 1.53	0.02 0.04 0.05
DC6-48-60-18-8F	B	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.85 1.36 1.53	0.85 1.36 1.53	0.02 0.04 0.05
DC6-48-60-18-8F	C	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.85 1.36 1.53	0.85 1.36 1.53	0.02 0.04 0.05

ttxTower	Job CT2001 10107964	Page 9 of 13
Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Project TEP No. 317776.873162	Date 16:10:57 09/26/23
Client Smartlink	Designed by npdanyluk	

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement	C _A A _{Front}	C _A A _{Side}	Weight
			ft	°	ft	ft ²	ft ²	K
(4) 2.4" Dia x 6-ft Pipe	A	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 0.03 0.05
(4) 2.4" Dia x 6-ft Pipe	B	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 0.03 0.05
(4) 2.4" Dia x 6-ft Pipe	C	From Face	3.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 0.03 0.05

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				ft	°	ft	ft		ft ²	K	
26" HP Dish	B	Paraboloid w/Shroud (HP)	From Face	1.00 0.00 5.00	23.0000		151.50	2.17	No Ice 1/2" Ice 1" Ice	3.69 3.98 4.27	0.03 0.05 0.07
3' Dia. HP Dish	C	Paraboloid w/Shroud (HP)	From Face	1.00 0.00 7.00	0.0000		151.50	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86	0.07 0.10 0.14

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice

ttxTower	Job CT2001 10107964	Page 10 of 13
Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Project TEP No. 317776.873162	Date 16:10:57 09/26/23
Client Smartlink	Designed by npdanyluk	Designed by npdanyluk

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

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	154 - 134.83	24.994	39	1.4023	0.0013
L2	139.16 - 89.16	20.668	39	1.3704	0.0009
L3	94.83 - 44.54	9.432	39	0.9543	0.0003
L4	51.46 - 1	2.712	39	0.4925	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft		in	in	°	°	ft
158.50	3' Dia. HP Dish	39	24.994	1.4023	0.0013	35428
156.50	26' HP Dish	39	24.994	1.4023	0.0013	35428
153.00	EEI Pine Branches	39	24.700	1.4011	0.0013	35428
151.50	2.9" Dia. x 9-ft Mount Pipe	39	24.259	1.3992	0.0012	35428
143.00	EEI Pine Branches	39	21.775	1.3834	0.0010	16111
142.00	T-Mobile T-Arms w/ Mount Pipes	39	21.486	1.3805	0.0010	14804
133.00	EEI Pine Branches	39	18.924	1.3385	0.0008	9944
132.25	Verizon T-Arms	39	18.715	1.3337	0.0008	9746
123.00	EEI Pine Branches	39	16.193	1.2614	0.0006	7824

Job		Page	
CT2001 10107964		11 of 13	
Project		Date	
TEP No. 317776.873162		16:10:57 09/26/23	
Client		Designed by	
Smartlink		npdanyluk	

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
118.00	Valmont RMV12-496 12' T-Arm Mounts	39	14.883	1.2137	0.0005	7070
113.00	EEI Pine Branches	39	13.616	1.1616	0.0005	6449
103.00	EEI Pine Branches	39	11.224	1.0490	0.0003	5484
93.00	EEI Pine Branches	39	9.052	0.9333	0.0003	4881
83.00	EEI Pine Branches	39	7.124	0.8216	0.0002	4774

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	154 - 134.83	96.200	2	5.4024	0.0048
L2	139.16 - 89.16	79.559	2	5.2793	0.0034
L3	94.83 - 44.54	36.316	2	3.6762	0.0010
L4	51.46 - 1	10.441	2	1.8969	0.0003

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
158.50	3' Dia. HP Dish	2	96.200	5.4024	0.0048	9354
156.50	26" HP Dish	2	96.200	5.4024	0.0048	9354
153.00	EEI Pine Branches	2	95.069	5.3978	0.0047	9354
151.50	2.9" Dia. x 9-ft Mount Pipe	2	93.373	5.3906	0.0046	9354
143.00	EEI Pine Branches	2	83.818	5.3294	0.0038	4253
142.00	T-Mobile T-Arms w/ Mount Pipes	2	82.704	5.3182	0.0037	3907
133.00	EEI Pine Branches	2	72.847	5.1563	0.0030	2621
132.25	Verizon T-Arms	2	72.041	5.1379	0.0029	2568
123.00	EEI Pine Branches	2	62.339	4.8593	0.0023	2058
118.00	Valmont RMV12-496 12' T-Arm Mounts	2	57.297	4.6756	0.0020	1858
113.00	EEI Pine Branches	2	52.420	4.4749	0.0017	1693
103.00	EEI Pine Branches	2	43.216	4.0410	0.0013	1437
93.00	EEI Pine Branches	2	34.854	3.5955	0.0010	1277
83.00	EEI Pine Branches	2	27.430	3.1650	0.0007	1247

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _a	Kl/r	A	P _u	ΦP _u	Ratio P _u
	ft		ft	ft		in ²	K	K	ΦP _u
L1	154 - 134.83	TP30.03x25.25x0.188	19.17	0.00	0.0	17.1628	-6.76	1004.03	0.007

Job		Page	
CT2001 10107964		12 of 13	
Project		Date	
TEP No. 317776.873162		16:10:57 09/26/23	
Client		Designed by	
Smartlink		npdanyluk	

Section No.	Elevation	Size	L	L _a	Kl/r	A	P _u	ΦP _u	Ratio P _u
	ft		ft	ft		in ²	K	K	ΦP _u
L2	134.83 - 89.16	TP40.91x28.5743x0.313	50.00	0.00	0.0	38.9419	-26.57	2278.10	0.012
L3	89.16 - 44.54	TP51.28x38.8851x0.5	50.29	0.00	0.0	77.8811	-45.82	4556.05	0.010
L4	44.54 - 1 (4)	TP61x48.5744x0.563	50.46	0.00	0.0	107.999	-71.38	6317.92	0.011

Pole Bending Design Data									
Section No.	Elevation	Size	M _{nx}	ΦM _{nx}	Ratio M _{nx}	M _{ny}	ΦM _{ny}	Ratio M _{ny}	
	ft		kip·ft	kip·ft	ΦM _{nx}	kip·ft	kip·ft	ΦM _{ny}	
L1	154 - 134.83	TP30.03x25.25x0.188	117.54	645.46	0.182	0.00	645.46	0.000	
L2	134.83 - 89.16	TP40.91x28.5743x0.313	1517.03	2155.32	0.704	0.00	2155.32	0.000	
L3	89.16 - 44.54	TP51.28x38.8851x0.5	3745.43	5780.46	0.648	0.00	5780.46	0.000	
L4	44.54 - 1 (4)	TP61x48.5744x0.563	6564.66	9650.67	0.680	0.00	9650.67	0.000	

Pole Shear Design Data

Section No.	Elevation	Size	Actual V _u	ΦV _u	Ratio V _u	Actual T _u	ΦT _u	Ratio T _u
	ft		K	K	ΦV _u	Kip·ft	Kip·ft	ΦT _u
L1	154 - 134.83	TP30.03x25.25x0.188	15.02	301.21	0.050	0.33	758.70	0.000
L2	134.83 - 89.16	TP40.91x28.5743x0.313	43.37	683.43	0.063	0.66	2346.06	0.000
L3	89.16 - 44.54	TP51.28x38.8851x0.5	54.20	1366.81	0.040	0.66	5874.15	0.000
L4	44.54 - 1 (4)	TP61x48.5744x0.563	57.18	1895.38	0.030	0.66	10031.75	0.000

Pole Interaction Design Data

Section No.	Elevation	Ratio P _u	Ratio M _{nx}	Ratio M _{ny}	Ratio V _u	Ratio T _u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	ft	ΦP _u	ΦM _{nx}	ΦM _{ny}	ΦV _u	ΦT _u			
L1	154 - 134.83	0.007	0.182	0.000	0.050	0.000	0.191	1.050	4.8.2
L2	134.83 - 89.16	0.012	0.704	0.000	0.063	0.000	0.720	1.050	4.8.2
L3	89.16 - 44.54	0.010	0.648	0.000	0.040	0.000	0.660	1.050	4.8.2
L4	44.54 - 1 (4)	0.011	0.680	0.000	0.030	0.000	0.692	1.050	4.8.2

Job	CT2001 10107964	Page	13 of 13
Project	TEP No. 317776.873162	Date	16:10:57 09/26/23
Client	Smartlink	Designed by	npdanyluk

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ax}}{\phi M_{nx}}$	Ratio $\frac{M_{ay}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	154 - 134.83	Pole	TP30.03x25.25x0.188	1	-6.76	1054.23	18.2	Pass
L2	134.83 - 89.16	Pole	TP40.91x28.5743x0.313	2	-26.57	2392.00	68.5	Pass
L3	89.16 - 44.54	Pole	TP51.28x38.8851x0.5	3	-45.82	4783.85	62.8	Pass
L4	44.54 - 1	Pole	TP61x49.5744x0.563	4	-71.38	6633.82	65.9	Pass
Summary								
Pole (L2) 68.5 Pass								
RATING = 68.5 Pass								

APPENDIX B
ADDITIONAL CALCULATIONS

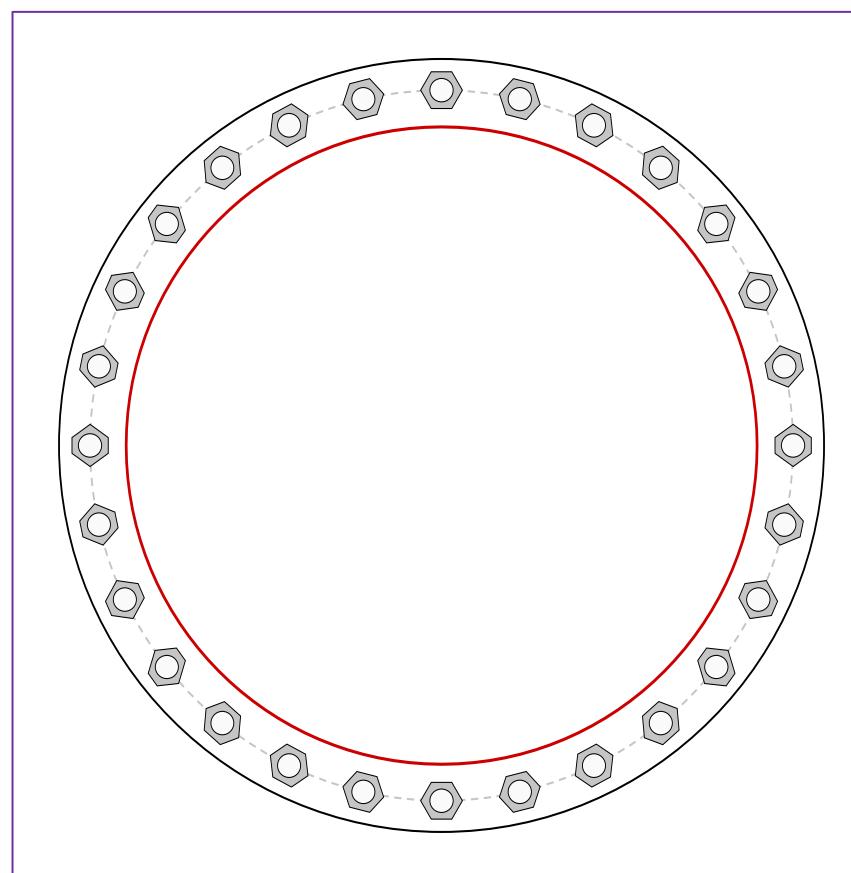
Monopole Base Plate Connection

Site Info	
Site	CTL02001 (10107964)
Site Name	Milford-Boardman R
TEP No.	317776.873162

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	2

Applied Loads	
Moment (kip-ft)	6564.65
Axial Force (kips)	71.38
Shear Force (kips)	57.18

*TIA-222-H Section 15.5 Applied



Connection Properties

Anchor Rod Data

(28) 2-1/4" \emptyset bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 68" BC

Base Plate Data

74" OD x 3" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

61" x 0.563" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary

(units of kips, kip-in)		
P_u _t = 162.87	ϕP_n _t = 243.75	Stress Rating
V_u = 2.04	ϕV_n = 149.1	63.6%
M_u = n/a	ϕM_n = n/a	Pass

Base Plate Summary

Max Stress (ksi):	23.7	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	41.8%	Pass

Pier and Pad Foundation

Site # :	CTL02001 (101079)
Site Name:	New Milford-Boardr
App. Number:	317776.873162

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	<input type="checkbox"/>
Block Foundation?:	<input type="checkbox"/>
Rectangular Pad?:	<input type="checkbox"/>

Superstructure Analysis Reactions		
Compression, P_{comp} :	71.38	kips
Base Shear, V_u _comp:	57.18	kips
Moment, M_u :	6564.65	ft-kips
Tower Height, H :	154	ft
BP Dist. Above Fdn, bp_{dist} :	2	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	334.18	57.18	16.3%	Pass
Bearing Pressure (ksf)	9.49	2.08	21.9%	Pass
Overspinning (kip*ft)	12435.14	7003.03	56.3%	Pass
Pier Flexure (Comp.) (kip*ft)	9253.63	6764.78	69.6%	Pass
Pier Compression (kip)	21089.12	99.21	0.4%	Pass
Pad Flexure (kip*ft)	12052.37	2678.89	21.2%	Pass
Pad Shear - 1-way (kips)	1352.97	302.82	21.3%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.036	20.8%	Pass
Flexural 2-way (Comp) (kip*ft)	14624.53	4058.87	26.4%	Pass

*Rating per TIA-222-H Section
15.5

Structural Rating*:	69.6%
Soil Rating*:	56.3%

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, d_{pier} :	7.5	ft
Ext. Above Grade, E :	1	ft
Pier Rebar Size, Sc :	11	
Pier Rebar Quantity, mc :	36	
Pier Tie/Spiral Size, St :	3	
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 :	32	ft
Pad Thickness, T :	4	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	11	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	42	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	100	pcf
Ultimate Net Bearing, Q_{net} :	12.000	ksf
Cohesion, C_u :		ksf
Friction Angle, φ :	10	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.45	
Neglected Depth, N :	3.75	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

--Toggle between Gross and Net

Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Monday, October 9, 2023 9:38 AM
To: Kristina Robinson
Subject: FedEx Shipment 773602314579: Your package has been delivered

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.



Hi. Your package was
delivered Mon, 10/09/2023 at
9:30am.



Delivered to 112 WALL ST, TORRINGTON, CT 06790
Received by J.POOLE

OBTAI N PROOF OF DELIVERY

How was your delivery ?



TRACKING NUMBER [773602314579](#)

FROM Smartlink LLC
85 Rangeway Road
Building 3 Suite 102
NORTH BILLERICA, MA, US, 01862

TO Quarry Stone and Gravel
112 Wall Street
TORRINGTON, CT, US, 06790

REFERENCE CTL02056 - Naugatuck

SHIPPER REFERENCE CTL02056 - Naugatuck

SHIP DATE Thu 10/05/2023 06:18 PM

DELIVERED TO Shipping/Receiving

PACKAGING TYPE FedEx Envelope

ORIGIN NORTH BILLERICA, MA, US, 01862

DESTINATION TORRINGTON, CT, US, 06790

NUMBER OF PIECES 1

SERVICE TYPE FedEx 2Day



Make your deliveries fit your life

Don't want packages sitting on the porch? Enroll in FedEx Delivery Manager® to [request to redirect a package](#) to a FedEx location for free. You can also get a QR code to show to a team member for an even easier pickup.

[SIGN UP FOR FEDEX DELIVERY MANAGER](#)

Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Tuesday, October 10, 2023 10:26 AM
To: Kristina Robinson
Subject: FedEx Shipment 773602288306: Your package has been delivered

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.



Hi. Your package was
delivered Tue, 10/10/2023 at
10:18am.



Delivered to 10 MAIN ST, NEW MILFORD, CT 06776
Received by G.FERMANDEZ

OBTAI N PROOF OF DELIVERY

How was your delivery ?



TRACKING NUMBER [773602288306](#)

FROM Smartlink LLC
85 Rangeway Road
Building 3 Suite 102
NORTH BILLERICA, MA, US, 01862

TO Town of New Milford
ATTN: Mayor Pete Bass
10 Main Street
NEW MILFORD, CT, US, 06776

REFERENCE CTL02001 - New Milford

SHIPPER REFERENCE CTL02001 - New Milford

SHIP DATE Thu 10/05/2023 06:18 PM

DELIVERED TO Receptionist/Front Desk

PACKAGING TYPE FedEx Envelope

ORIGIN NORTH BILLERICA, MA, US, 01862

DESTINATION NEW MILFORD, CT, US, 06776

NUMBER OF PIECES 1

SERVICE TYPE FedEx 2Day



Make your deliveries fit your life

Don't want packages sitting on the porch? Enroll in FedEx Delivery Manager® to [request to redirect a package](#) to a FedEx location for free. You can also get a QR code to show to a team member for an even easier pickup.

[SIGN UP FOR FEDEX DELIVERY MANAGER](#)

Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Tuesday, October 10, 2023 10:26 AM
To: Kristina Robinson
Subject: FedEx Shipment 773602274192: Your package has been delivered

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.



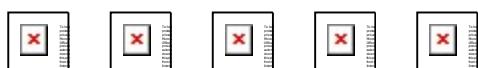
Hi. Your package was
delivered Tue, 10/10/2023 at
10:18am.



Delivered to 10 MAIN ST, NEW MILFORD, CT 06776
Received by G.FERMANDEZ

OBTAI N PROOF OF DELIVERY

How was your delivery ?



TRACKING NUMBER [773602274192](#)

FROM Smartlink LLC
85 Rangeway Road
Building 3 Suite 102
NORTH BILLERICA, MA, US, 01862

TO Town of New Milford
ATTN: Building Department William M
10 Main Street
NEW MILFORD, CT, US, 06776

REFERENCE CTL02001 - New Milford

SHIPPER REFERENCE CTL02001 - New Milford

SHIP DATE Thu 10/05/2023 06:18 PM

DELIVERED TO Receptionist/Front Desk

PACKAGING TYPE FedEx Envelope

ORIGIN NORTH BILLERICA, MA, US, 01862

DESTINATION NEW MILFORD, CT, US, 06776

NUMBER OF PIECES 1

SERVICE TYPE FedEx 2Day



Make your deliveries fit your life

Don't want packages sitting on the porch? Enroll in FedEx Delivery Manager® to [request to redirect a package](#) to a FedEx location for free. You can also get a QR code to show to a team member for an even easier pickup.

[SIGN UP FOR FEDEX DELIVERY MANAGER](#)

PROJECT INFORMATION

- SCOPE OF WORK:
- ITEMS TO BE MOUNTED ON THE EXISTING MONOPINE:
 - INSTALL ANTENNA (QD6616-7) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - RELOCATED EXISTING AT&T ANTENNA (800-10965) @ POS. 4 (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2).
 - RELOCATED EXISTING AT&T ANTENNA (800-10966) @ POS. 4 (TYP. OF 1 PER GAMMA SECTOR, TOTAL OF 1).
 - INSTALL RRUS-2012 B29 (700) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - INSTALL RRUS-4490 B5/B12 (700/850) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - RELOCATED EXISTING RRUS-32 B2 (PCS) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - RELOCATED EXISTING RRUS-4426 B66 (AWS) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - RELOCATED EXISTING RRUS-4478 B14 (700) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - RELOCATED EXISTING RRUS-32 B30 (WCS) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - RELOCATED EXISTING SURGE ARRESTOR (DC6-48-60-18-8F) (TOTAL OF 3).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD (1) 6651+XCEDE CABLE FINAL = 1x5216/1xXMU/1x6651+XCEDE CABLE
- INSTALL (2) -48V RECTIFIERS IN EXISTING DC POWER PLANT.
- INSTALL (5) NEW STRINGS OF -48V 190AH BATTERIES INSIDE EXISTING BATTERY RACK.

ITEMS TO BE REMOVED:

- DECOMMISSION EXISTING AT&T ANTENNA (7770) @ POS. 1 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T ANTENNA (HPA-65R-BUU-H6) @ POS. 2 & 4 (TYP. OF 2 PER ALPHA & BETA SECTOR, TOTAL OF 4).
- DECOMMISSION EXISTING AT&T ANTENNA (HPA-65R-BUU-H8) @ POS. 2 & 4 (TOTAL OF 2 FOR GAMMA SECTOR).
- DECOMMISSION EXISTING RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING RRUS-4478 B5 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING RRWU 02 B5 (TOTAL OF 3).
- DECOMMISSION EXISTING TMAS LGP21401 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- DECOMMISSION EXISTING DIPLEXERS ON OVERHEAD RACK
- DECOMMISSION EXISTING (4) STRINGS OF 190AH BATTERIES INSIDE EXISTING BATTERY RACK.

ITEMS TO REMAIN:

- (3) ANTENNAS, (12) RRUs, (3) SURGE ARRESTORS, (12) 1-5/8" COAX, (6) DC POWER & (3) FIBER.

RFDS: REFER TO FINAL APPROVED RFDS V4 DATED 05/31/23

SITE ADDRESS: 33 BOARDMAN ROAD
NEW MILFORD, CT 06776

LATITUDE: 41.5994031° N, 41° 35' 57.85" N

LONGITUDE: -73.4374739° W, 73° 26' 14.91" W

TYPE OF SITE: MONOPINE / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 150'-0"±

RAD CENTER: 120'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
CN-1	GENERAL NOTES	2
A-1	COMPOUND & EQUIPMENT PLANS	2
A-2	ANTENNA PLANS & ELEVATION	2
A-3	DETAILS	2
G-1	GROUNDING DETAILS	2
RF-1	RF PLUMBING DIAGRAM	2



TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SMARTLINK
1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CTL02001
SITE NAME: NEW MILFORD-BOARDMAN ROAD

33 BOARDMAN ROAD
NEW MILFORD, CT 06776
LITCHFIELD COUNTY



550 COCHITuate ROAD
FRAMINGHAM, MA 01701

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

- TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.



SITE NUMBER: CTL02001

SITE NAME: NEW MILFORD-BOARDMAN ROAD

FA CODE: 10107964

PACE ID: MRCTB062410, MRCTB062371, MRCTB062284

PROJECT: ANTENNA MODS, 4TXRX ANTENNA RETROFIT, LTE 7C 2023 UPGRADE



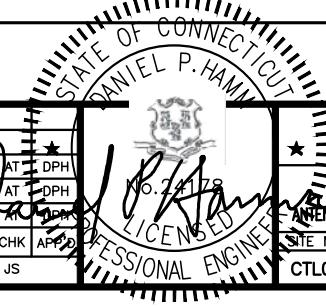
GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

UNDERGROUND SERVICE ALERT



WWW.DIGSAFE.COM
72 HOURS PRIOR



AT&T

TITLE SHEET

ANTENNA MODS, 4TXRX ANTENNA RETROFIT, LTE 7C 2023 UPGRADE

SITE NUMBER DRAWING NUMBER REV

CTL02001 T-1 2

GROUNDING NOTES

- THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
- EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR – SMARTLINK
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
- THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- SUBCONTRACTOR 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.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 ($F_y = 36$ ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E ($F_y = 36$ ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

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

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

BUILDING CODE: IBC 2021 WITH 2022 CT STATE BUILDING CODE AMENDMENTS
ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70-2020)

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H,
STRUCTURAL STANDARDS FOR STEEL

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

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		



SITE NUMBER: CTL02001
SITE NAME: NEW MILFORD-BOARDMAN ROAD

33 BOARDMAN ROAD
NEW MILFORD, CT 06776
LITCHFIELD COUNTY

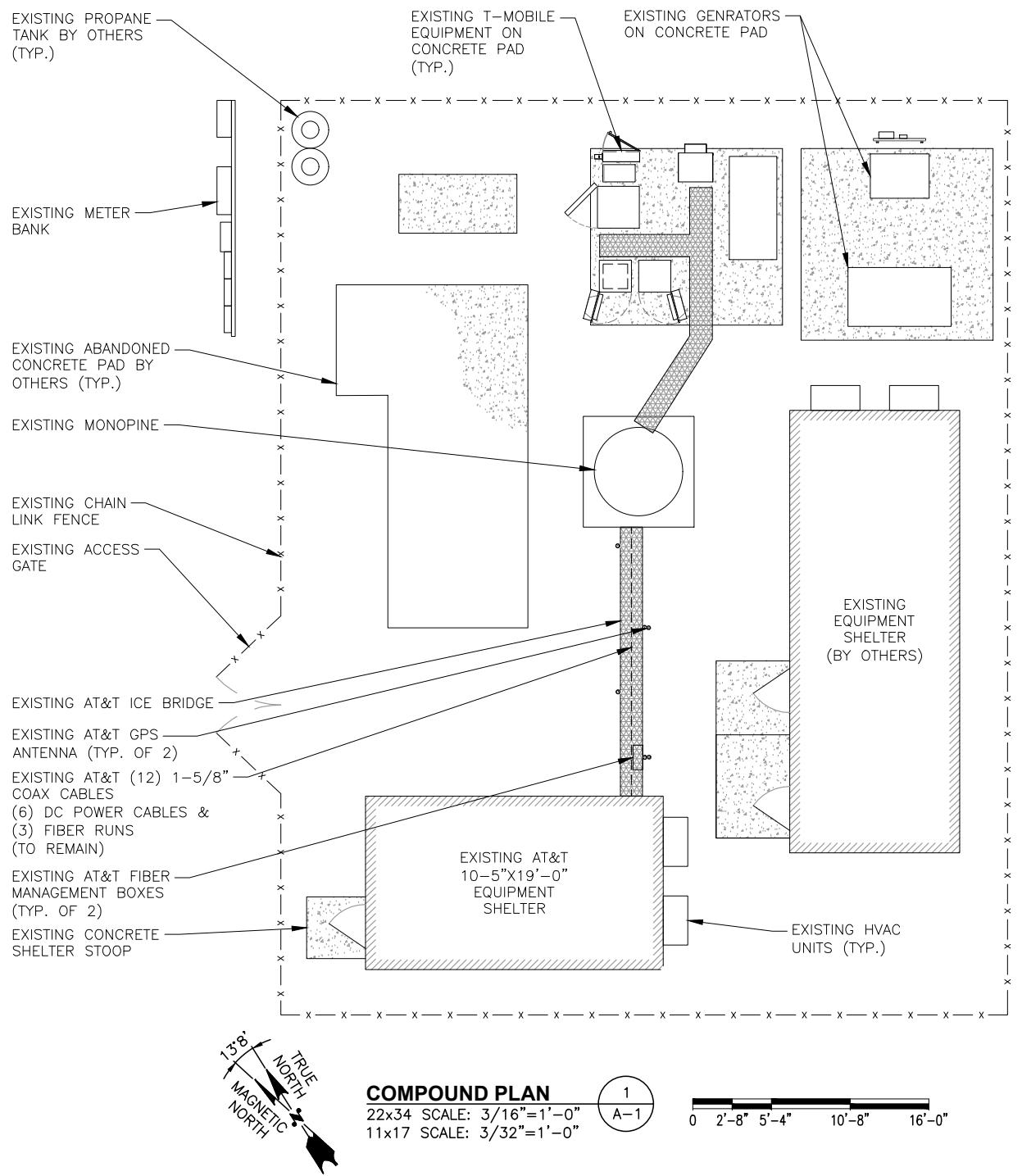


550 COCHITuate ROAD
FRAMINGHAM, MA 01701

2	08/02/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
1	06/20/23	ISSUED FOR REVIEW	KW	AT	DPH
0	11/10/22	ISSUED FOR REVIEW	JS	AT	DPH
NO. DATE		REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: JS		



AT&T
GENERAL NOTES
ANTENNA MODS, 4TRX ANTENNA RETROFIT, LTE 7C 2023 UPGRADE
SITE NUMBER: CTL02001
DRAWING NUMBER: GN-1
REV: 2



The logo for TEP Northeast, featuring the letters 'TEP' in a large, bold, grey sans-serif font. The letter 'E' has a red diagonal bar through it. Below 'TEP' is the word 'NORTHEAST' in a smaller, bold, grey sans-serif font. At the bottom, 'TEP OPCO, LLC.' is written in a smaller, grey sans-serif font. To the right of the text is a graphic element consisting of a black triangle pointing down and to the left, with a red, jagged, three-dimensional shape behind it.



SMARTLINK
1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CTL02001
SITE NAME: NEW MILFORD-BOARDMAN ROAD



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

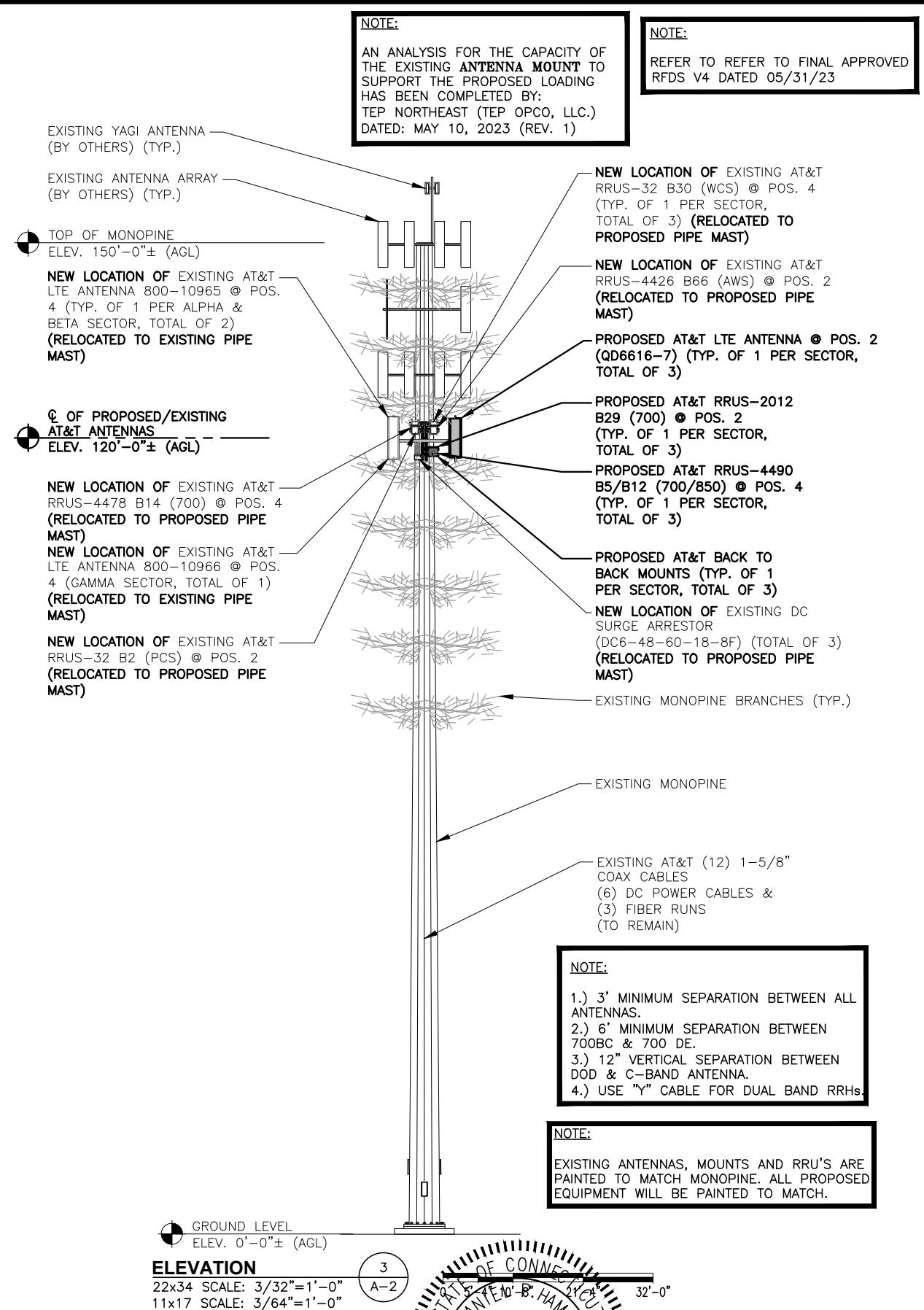
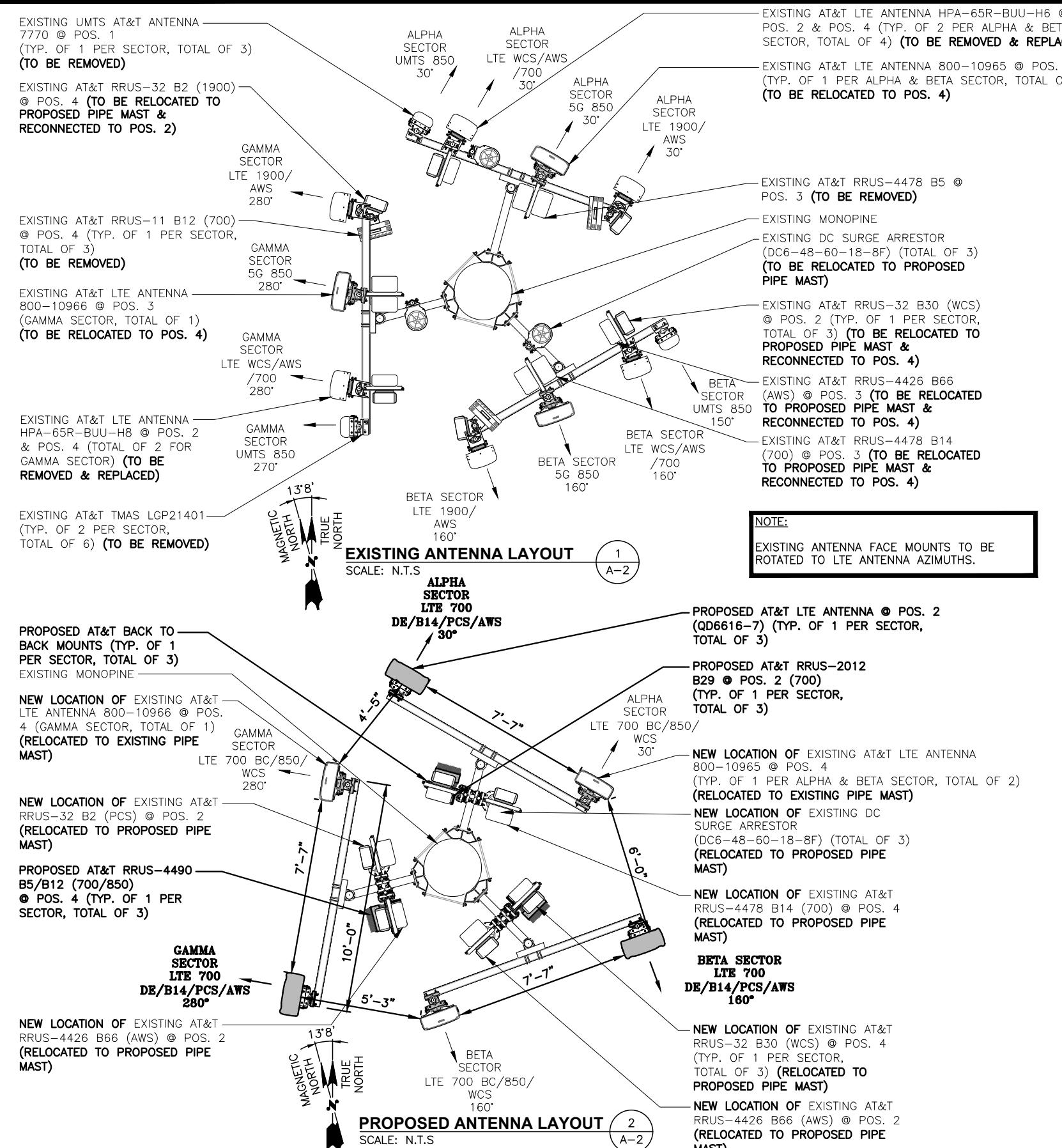
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1	06/20/23	ISSUED FOR REVIEW	W	AT	DPH
0	11/10/22	ISSUED FOR REVIEW	J	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: JS		

A circular seal for a professional engineer license. It features a crest at the top with a shield containing a bridge and the words "PROFESSIONAL ENGINEER". Below the crest, the text "No. 24178" is written. The bottom half of the seal contains the word "LICENSED" in large letters, with "PROFESSIONAL ENGINEER" written vertically along the inner edge.

AT&T

IPOUND & EQUIPMENT PLANS

4TXRX ANTENNA RETROFIT, LTE 7C 2023 UPGRADE



SITE NUMBER: CTL02001
SITE NAME: NEW MILFORD-BOARDMAN ROAD

33 BOARDMAN ROAD
NEW MILFORD, CT 06776
LITCHFIELD COUNTY



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

2	08/02/23	ISSUED FOR CONSTRUCTION	JS AT DPH
1	06/20/23	ISSUED FOR REVIEW	W AT DPH
0	11/10/22	ISSUED FOR REVIEW	JS AT DPH
NO.	DATE	REVISIONS	BY CHK APP
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: JS

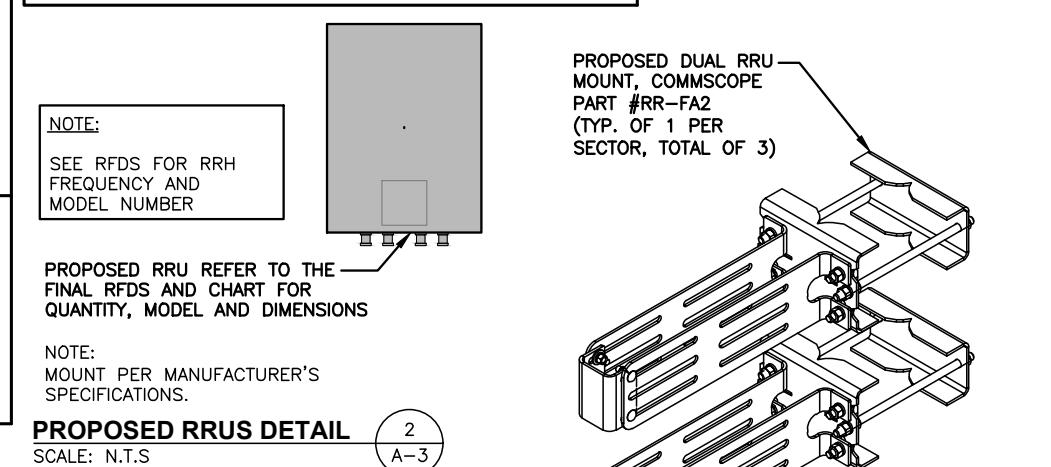
AT&T
NNA LAYOUTS & ELEVATION
TXRX ANTENNA RETROFIT, LTE 7C 2023 UPGRADE
DRAWING NUMBER RE

ANTENNA SCHEDULE										
REFER TO FINAL APPROVED RFDS V4 DATED 05/31/23										
SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA C HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER
A1	EMPTY	—	—	—	—	—	—	—	—	(4) 1-5/8" COAX
A2	PROPOSED	LTE 700 DE/B14/PCS/ AWS	QD6616-7	72"X22"X9.6"	120'-0"±	30°	—	(P)(1) RRUS-2012 B29 (700) (E)(1) RRUS-4478 B14 (700) (E)(1) RRUS-32 B2 (1900) (E)(1) RRUS-4426 B66 (AWS)	16.5"X13.4"X4.9" — — —	—
A3	EMPTY	—	—	—	—	—	—	—	—	—
A4	EXISTING	LTE 700 BC/850/WCS	800-10965	78.7"X20"X6.9"	120'-0"±	30°	—	(P)(1) RRUS-4490 B5/B12 (700/850) (E)(1) RRUS-32 B30 (WCS)	17.9"X13.2"X10.4" —	(E)(2) DC POWER (E)(1) FIBER
B1	EMPTY	—	—	—	—	—	—	—	—	(4) 1-5/8" COAX
B2	PROPOSED	LTE 700 DE/B14/PCS/ AWS	QD6616-7	72"X22"X9.6"	120'-0"±	160°	—	(P)(1) RRUS-2012 B29 (700) (E)(1) RRUS-4478 B14 (700) (E)(1) RRUS-32 B2 (1900) (E)(1) RRUS-4426 B66 (AWS)	16.5"X13.4"X4.9" — — —	—
B3	EMPTY	—	—	—	—	—	—	—	—	—
B4	EXISTING	LTE 700 BC/850/WCS	800-10965	78.7"X20"X6.9"	120'-0"±	160°	—	(P)(1) RRUS-4490 B5/B12 (700/850) (E)(1) RRUS-32 B30 (WCS)	17.9"X13.2"X10.4" —	(E)(2) DC POWER (E)(1) FIBER
C1	EMPTY	—	—	—	—	—	—	—	—	(4) 1-5/8" COAX
C2	PROPOSED	LTE 700 DE/B14/PCS/ AWS	QD6616-7	72"X22"X9.6"	120'-0"±	280°	—	(P)(1) RRUS-2012 B29 (700) (E)(1) RRUS-4478 B14 (700) (E)(1) RRUS-32 B2 (1900) (E)(1) RRUS-4426 B66 (AWS)	16.5"X13.4"X4.9" — — —	—
C3	EMPTY	—	—	—	—	—	—	—	—	—
C4	EXISTING	LTE 700 BC/850/WCS	800-10966	96"X20"X6.9"	120'-0"±	280°	—	(P)(1) RRUS-4490 B5/B12 (700/850) (E)(1) RRUS-32 B30 (WCS)	17.9"X13.2"X10.4" —	(E)(2) DC POWER (E)(1) FIBER

RRU CHART		
QUANTITY	MODEL	SIZE (L x W x D)
(P)(3)	2012 B29 (700)	16.5"x13.4"x4.9"
(P)(3)	4490 B5/B12 (700/850)	17.9"X13.9"X9.4"
(E)(3)	4478 B14 (700)	18.1"x13.4"x8.3"
(E)(3)	RRUS-32 B2 (PCS)	27.2"X12.1X7.0"
(E)(3)	4426 B66 (AWS)	14.9"X13.2"X5.8"
(E)(3)	RRUS-32 B30 (WCS)	27.2"X12.1X7.0"

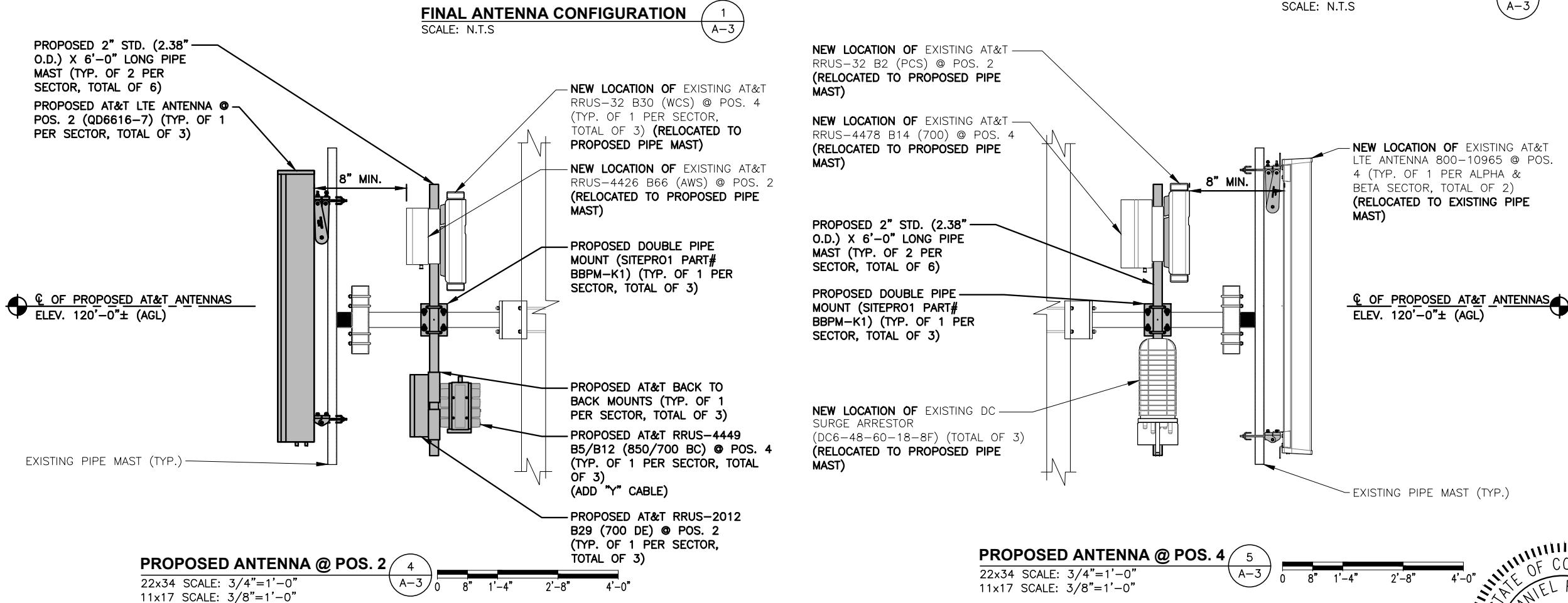
NOTE:
REFER TO FINAL APPROVED RFDS V4 DATED 05/31/23

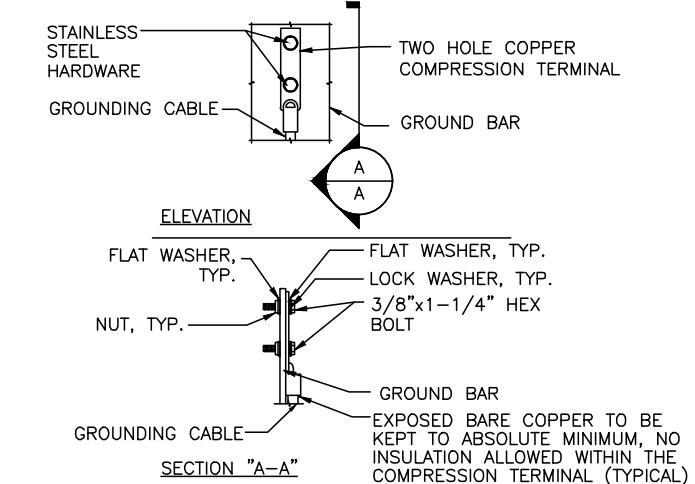
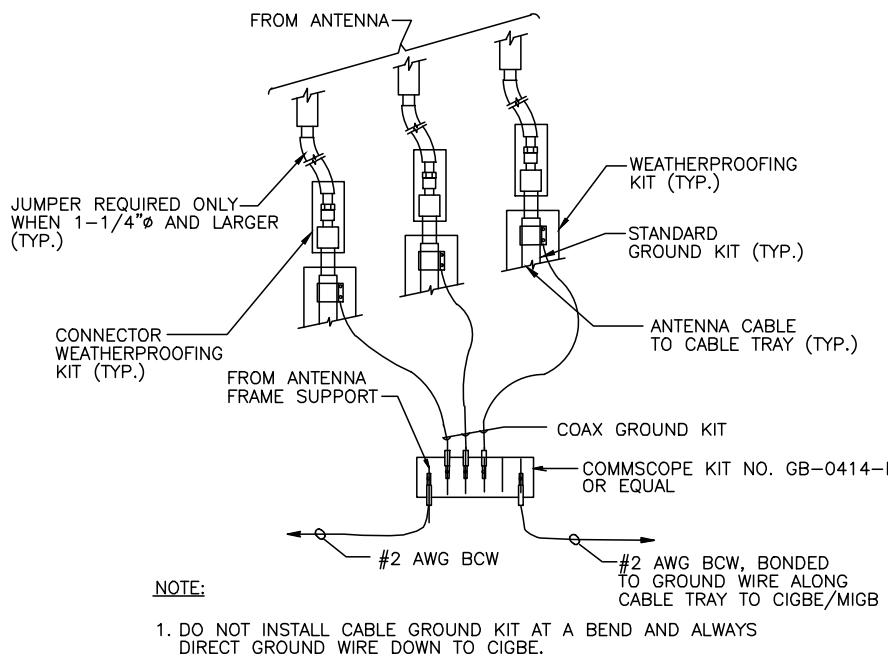
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TEP NORTHEAST (TEP OPCO, LLC.)
DATED: MAY 10, 2023 (REV. 1)



PROPOSED RRUS DETAIL
SCALE: N.T.S

PROPOSED BACK TO BACK MOUNT COMMSCOPE (RR-FA2)
SCALE: N.T.S





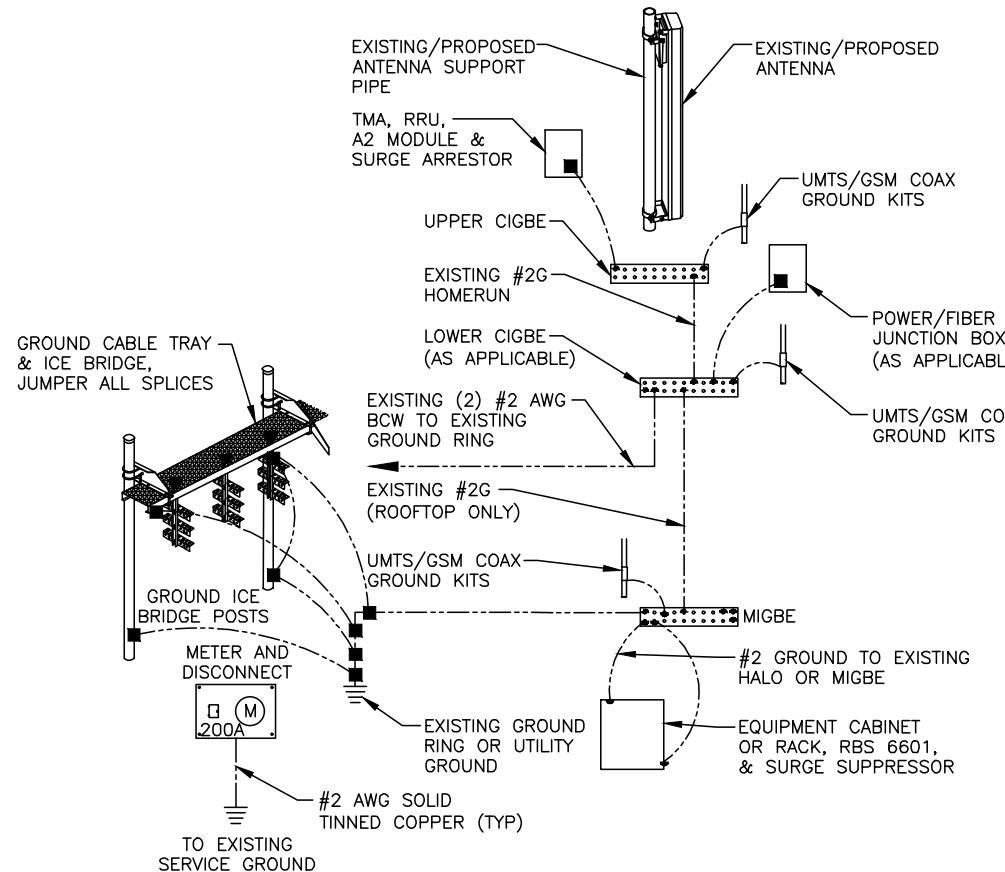
NOTES:

- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
- OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
- CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

1
G-1



AT&T GROUNDING STANDARDS TO BE FOLLOWED:

- ATT-TP-76416
- ATT-TP-76300
- ATT-CEM-18002
- ATT-002-290-531
- ATT-002-290-701
- ATT-CEM-23001

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3
G-1

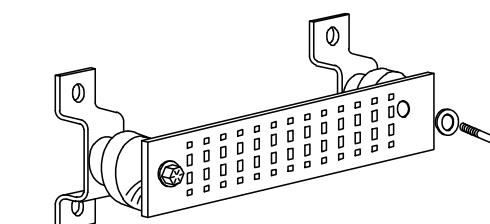
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

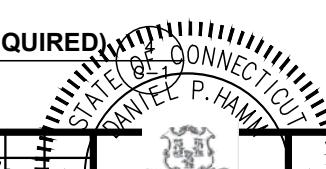
SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S



AT&T

GROUNDING DETAILS

ANTENNA MODS, 4TXRX ANTENNA RETROFIT, LTE 7C 2023 UPGRADE

SITE NUMBER DRAWING NUMBER REV

CTL02001 G-1 2

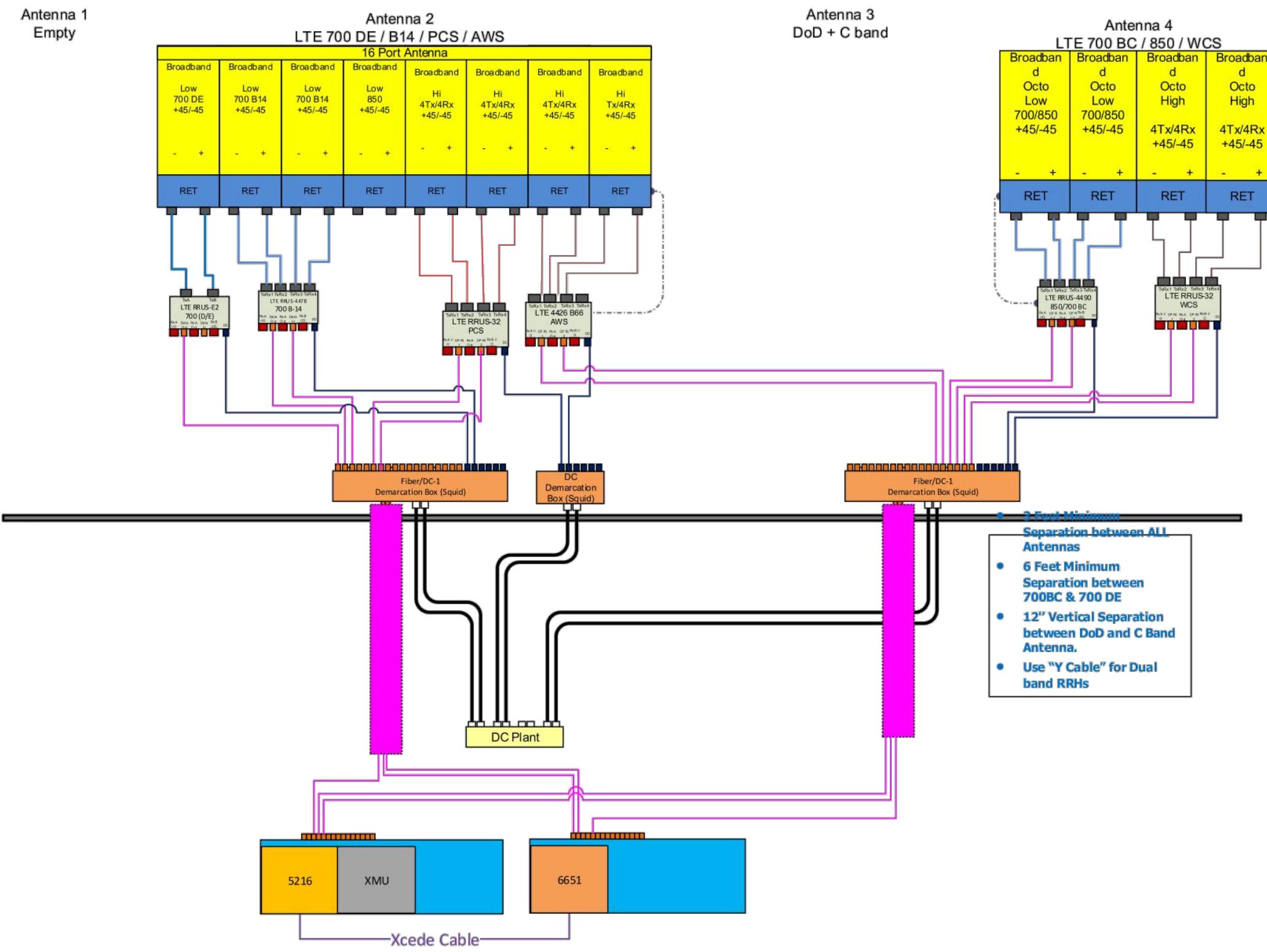
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0	11/10/22	ISSUED FOR REVIEW	JS	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: JS



REFER TO FINAL APPROVED RFDS V4 DATED 05/31/23

PLUMBING DIAGRAM FOR ALPHA, BETA, & GAMMA SECTORS



RF PLUMBING DIAGRAM
SCALE: N.T.S. 1
RF-1

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:
REFER TO FINAL APPROVED RFDS V4 DATED 05/31/23