smartlink

January 11, 2024

EM-ATT-165-240117

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:	**20 Spring Street, Windsor Locks, CT 06096**
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 nine (9) wireless telecommunication antennas at an antenna center line height of 104-feet on an existing 104-foot Monopole Tower, owned by EIP Communications I, LLC at Two Allegheny Center, NOVA Tower 2, Suite 1002, Pittsburgh, PA 15212. AT&T now intends to remove four (4) Andrew SBNH-1D6565C Panel Antennas, each currently installed in position [3+4], remove three (3) 4.5' Kathrein 800-10121 Panel Antennas located in position [1], and remove two (2) 6' KMW AM-X-CD-16-65-00T-RET Panel Antennas, currently installed in position [3+4]. AT&T then swap these for three (3) 6' CCI TPA65R-BU6DA Panel Antennas, each to be installed in position [2], and add three (3) CCI OPA65R-BU6DA Panel Antennas, in positions [4] in all sectors. AT&T also intends to remove (3) RRUS-11 and replace them with (3) RRUS-4478 B14, (3) RRUS-8843 B2/B66A, and (3) RRUS 4449 B5/B12. All of the changes will take place on the existing 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. § 16-5l0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Mark Doody– Building Official, Town of Windsor Locks at 50 Church Street, Windsor Locks, CT 06096 and Paul M. Harrington – First Selectman, Town of Windsor Locks at 50 Church Street, Windsor Locks, CT 06096. A copy of this letter is being sent to the tower owner, EIP Communications I, LLC at Two Allegheny Center, NOVA Tower 2, Suite 1002, Pittsburgh, PA 15212, and a copy I being sent to the property owner SOUTHERN NEW ENGLAND CO, DUFF & PHELPS LLC, ATTN: COMPLEX PROP/TELE, PO BOX 2629, ADDISON, TX 75001.

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

- Springwich Cellular Ltd. Partnership notice of intent to modify an existing telecommunications facility located on 20 Spring St., **Windsor Locks**.
- Springwich Cellular Ltd. Partnership notice of intent to modify an existing telecommunications facility located at 20 Spring St., **Windsor Locks**.
- **EM-SCLP-164-980717** - Springwich Cellular Limited Partnership notice of intent to modify an existing telecommunications facility located at the Southern New England Telephone Central Office at 20 Spring Street in **Windsor Locks**.
- **EM-AT&T-165-020510** - AT&T Wireless notice of intent to modify an existing telecommunications facility located at 20 Spring Street, **Windsor Locks,** Connecticut.
- **EM-CING-132-134-152-165-166-070726** – New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 151 Sand Hill Road, South Windsor; 30 Old Country Road, Stafford; 53

Dayton Road, Waterford; 20 Spring Street, Windsor Locks; and 1233 Wolcott Road, Wolcott, Connecticut.

- **EM-AT&T-165-120629 –** AT&T Mobility notice of intent to modify an existing telecommunications facility located at 20 Spring Street, Windsor Locks, 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 104-foot level of the 104'-foot Monopole Tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and 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:
Mark Doody– Building Official, Town of Windsor Locks
Paul M. Harrington – First Selectman, Town of Windsor Locks
Everest Infrastructure – Tower Owner
SOUTHERN NEW ENGLAND CO, DUFF & PHELPS LLC – Property Owner

Windsor Locks

Unique ID: 00410300 **Card No:** 1 Of 1

Location:	20 SPRING STREET	Map Id:	029-056-005-	Zone:	BDRD	Date Printed:	1/11/2024
		Neighborhood:	3000			Last Update:	1/11/2024

Owner Of Record	Volume/Page	Date	Sales Type	Valid	Sale Price
SOUTHERN NEW ENGLAND TELEPHONE CO	0130/0853	1/11/1978		No	0
DUFF & PHELPS LLC ATTN COMPLEX PROP/TELE, PO BOX 2629, ADDISON, TX 75001			Exempt		

Prior Owner History

Permit Number	Date	Permit Description
23-232B	4/13/2023	Remove and replace existing antennas, along with corresponding radios and cables
36113	12/3/2014	
34115	1/1/2010	
29882	2/26/2007	
25402	6/26/2002	
24913	10/30/2001	

Supplemental Data

Census/Tract		TylerPARID	00410300
Dev Map ID		Old ID	59-59-5-
GIS ID		Vision ID	4608
Route			
District			
Utilities			

Appraised Value

Total Land Value	303,400
Total Building Value	984,200
Total Outbldg Value	12,400
Total Market Value	1,300,000

Acres

Land Type	Acres	490	Total Value
Comm Units	1.00	0.00	205.200
Primary Site	0.86	0.00	98.170
Total	0.8600	0.00	303,400

State Item Codes

Code	Quantity	Value
32-Industrial Building	1.00	545.280
21-Commercial Land	0.86	212.380
22-Commercial Building	0.00	143.640
33-Industrial Improvement	1.00	8.700

Assessment History (Prior Years as of Oct 1)

	2023	2022	2021	2020	2019
Land	212,380	212,380	212,380	910,000	910,000
Building	688,920	688,920	697,620	0	0
Outbuilding	8,700	8,700	0	0	0
Total	910,000	910,000	910,000	910,000	910,000

490 Appraised Totals

Type	Acres	Value	Type	Acres	Value
			Totals	0.00	0

Application Date: Expiration Date:

Comments

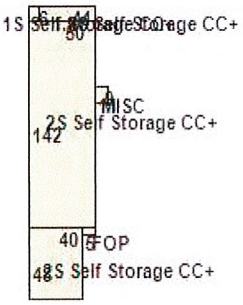
2018 BAA SETTLEMENT

Revaluation Date: 10/1/2018

Windsor Locks

Unique ID: 00410300

Location:	20 SPRING STREET	Unit	



Commercial Building Description	
Building Use	Industrial
Class	Fire Resistant
Overall Condition	Good
Construction Quality	C+
Stories	2.00
Year Built	1926
Remodel	
Percent Complete	100
GLA	18832

Basement	
Basement Area	9470

HVAC	
Heating Type	Hot Water
Fuel Type	
Cooling Type	Central

Interior	
Floors	
Walls	NORMAL
Wall Height	

Exterior	
Exterior Walls	Brick Veneer
Roof Type	
Roof Cover	

Special Features

Description	Area/Qty
Base Value	28302
Central Air	18832

Attached Component Computations

Type	Yr Blt	Area/Qty
Miscellaneous	1926	99
Open Porch	1926	50

Detached Component Computations

Type	Year	Condition	Area/Qty
Paving	1999	Average	10000

Type	Year	Condition	Area/Qty

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

Site Name:	WINDSOR LOCKS CO
AT&T Mobility FA#	10035034
Site ID:	CTV1096
Project Name:	LTE
Address:	20 SPRING STREET, WINDSOR LOCKS, CT 06096
County:	HARTFORD
Latitude:	41.9299361
Longitude:	-72.6286381
Structure Type:	MONOPOLE
Property Owner:	NA
Property Contact:	NA

AT&T Existing Facility

Report Information

Report Writer: Monti Kumar **Report Generated Date:** 04-27-2023

Site Compliance Statement

Compliance Status	Compliant
Cumulative General Population % MPE (Ground Level)	0.1497%

April 27, 2023

Emissions Analysis for Site: **CTV1096– WINDSOR LOCKS CO**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **20 SPRING STREET, WINDSOR LOCKS, CT 06096**, 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 (µW/cm2). The number of mW/cm^2 or µW/cm2 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 mW/cm^2 and 0.567 mW/cm^2 respectively or 466.667 µW/cm2 and 566.667 µW/cm2 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 mW/cm^2 or 1000 µW/cm2. 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. (^{0})	H B W (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density ($\mu W/cm^2$)	Allowable MPE ($\mu W/cm^2$)	Calculated MPE%
A	1	AT&T	CCI	TPA65R-BU6D	Panel	700	LTE(FN)	60	73	12.35	6	4	40.00	2449.74	4019.02	104.00	0.000123	466.67	0.000026
A	1	AT&T	CCI	TPA65R-BU6D	Panel	1900	LTE/5G	60	66	15.95	6	4	40.00	5612.03	9207.04	104.00	0.000121	1000.00	0.000012
A	1	AT&T	CCI	TPA65R-BU6D	Panel	2100	LTE/5G	60	66	16.25	6	4	40.00	6013.40	9865.52	104.00	0.000047	1000.00	0.000005
A	2	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	60	73	12.15	6	4	40.00	2339.48	3838.13	104.00	0.000077	466.67	0.000016
A	2	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	60	64	13.05	6	4	40.00	2878.19	4721.93	104.00	0.000086	566.67	0.000015
B	3	AT&T	CCI	TPA65R-BU6D	Panel	700	LTE(FN)	180	73	12.35	6	4	40.00	2449.74	4019.02	104.00	0.167765	466.67	0.035950
B	3	AT&T	CCI	TPA65R-BU6D	Panel	1900	LTE/5G	180	66	15.95	6	4	40.00	5612.03	9207.04	104.00	0.207907	1000.00	0.020791
B	3	AT&T	CCI	TPA65R-BU6D	Panel	2100	LTE/5G	180	66	16.25	6	4	40.00	6013.40	9865.52	104.00	0.190133	1000.00	0.019013
B	4	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	180	73	12.15	6	4	40.00	2339.48	3838.13	104.00	0.178409	466.67	0.038230
B	4	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	180	64	13.05	6	4	40.00	2878.19	4721.93	104.00	0.199835	566.67	0.035265
C	5	AT&T	CCI	TPA65R-BU6D	Panel	700	LTE(FN)	300	73	12.35	6	4	40.00	2449.74	4019.02	104.00	0.000697	466.67	0.000149
C	5	AT&T	CCI	TPA65R-BU6D	Panel	1900	LTE/5G	300	66	15.95	6	4	40.00	5612.03	9207.04	104.00	0.001488	1000.00	0.000149
C	5	AT&T	CCI	TPA65R-BU6D	Panel	2100	LTE/5G	300	66	16.25	6	4	40.00	6013.40	9865.52	104.00	0.001393	1000.00	0.000139
C	6	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	300	73	12.15	6	4	40.00	2339.48	3838.13	104.00	0.000084	466.67	0.000018
C	6	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	300	64	13.05	6	4	40.00	2878.19	4721.93	104.00	0.000034	566.67	0.000006
																Calculated Power Density ($\mu W/cm^2$)	0.948199%	Calculated MPE%	0.1497%

Table 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.*

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 0.1497% 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.

May 8, 2023

Smartlink, LLC.
85 Rangeway Road
Billerica, MA 01862

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
CLT@tepgroup.net

Subject: **Appurtenance Mount Analysis**

Carrier Designation:	***AT&T* Reconfiguration**	
	Site Number:	CTL01096
	Site Name:	Windsor Locks CO
	FA Number:	10035034
Engineering Firm Designation:	**TEP Project Number:**	25718.850718
Site Data:	**20 Spring Street, Windsor Locks, Hartford County, CT 06096** **Latitude *41° 55' 47.76"*, Longitude *-72° 37' 43.09"*** **100.0 Foot Monopole Tower** **104.0 Foot Mount Height - Platform**	

Tower Engineering Professionals is pleased to submit this **"Appurtenance Mount Analysis"** to determine the structural integrity of the antenna mount on the above-mentioned tower.

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

LC1: Existing + Proposed Loading — **Sufficient Capacity - 56.0%**
Note: See Table 2 for the existing and proposed loading

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 equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 2 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.* If you have any questions or need further assistance on this or any other projects, please give us a call.

Structural analysis prepared by: Matthew T. Weavil, P.E. / CLT

Respectfully submitted by:

Aaron T. Rucker, P.E.

STATE OF CONNECTICUT
AARON THOMAS RUCKER
32608
LICENSED
PROFESSIONAL ENGINEER

05/08/2023

ANALYSIS CRITERIA

Table 1 - Mount Analysis Parameters

Ultimate Wind Speed (MPH)	Ice Thickness (in)	Ice Wind Speed (MPH)	Exposure Category	Risk Category	Topo Category	Crest Height (ft.)	Seismic Design Category
116	***1.5***	***50***	***C***	***II***	***1.0***	***N/A***	***B***

Table 2 - Existing and Proposed Antenna Loading Configuration

Existing/ Proposed	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Owner/ Tenant
Proposed	***104.0***	***104.0***	***3***	***CCI Antenna TPA65R-BU6DA-K***	***-***	***AT&T***
			3	***CCI Antenna OPA65R-BU6DA***		
			3	***Ericsson 4478 B14***		
			3	***Ericsson 8843 B2/B66A***		
			3	***Ericsson 4449 B5/B12***		
			1	***Raycap DC9-48-60-24-8C-EV***		
Existing	104.0	104.0	-	-	Platform	AT&T
To Be Removed	*104.0*	*104.0*	*3*	*Kathrein 800 10121*	-	*AT&T*
			4	*Andrew SBNH-1D6565C*		
			2	*KMW AM-X-CD-17-65-00T-RET*		
			3	*Ericsson RRUS-11 B12*		
			1	*Raycap DC6-48-60-18-8F*		
			6	*Powerwave LGP-17201*		
			6	*Kathrein 782 10250*		
			6	*Powerwave CM1007-DBPXBC-003*		

ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

Notes	Component	% Capacity	Pass / Fail
1,3	Face Horizontals	38.5	Pass
1,3	Support Arms	39.3	Pass
1,3	Grating Supports	56.0	Pass
1,3	Supporting Rails	28.4	Pass
1,3	Mount Pipes	16.3	Pass
2,3	Connection Bolts	33.7	Pass

Notes:
1) See additional documentation in "Appendix A - RISA-3D Output" for calculations supporting the % capacity listed.
2) See additional documentation in "Appendix B - Additional Calculations" for calculations supporting the % capacity listed.
3) Rating per TIA-222-H Section 15.5

Table 4 - Documents Provided

Document	Remarks	Source
Mount Mapping Report	ProVertic, dated August 9, 2022	TEP
Construction Drawings	Hudson Design Group LLC, dated December 19, 2022	TEP
Correspondence	Correspondence from AT&T regarding the existing and proposed loading, RFDS Version 6.0 dated March 23, 2023	AT&T

RECOMMENDATIONS

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

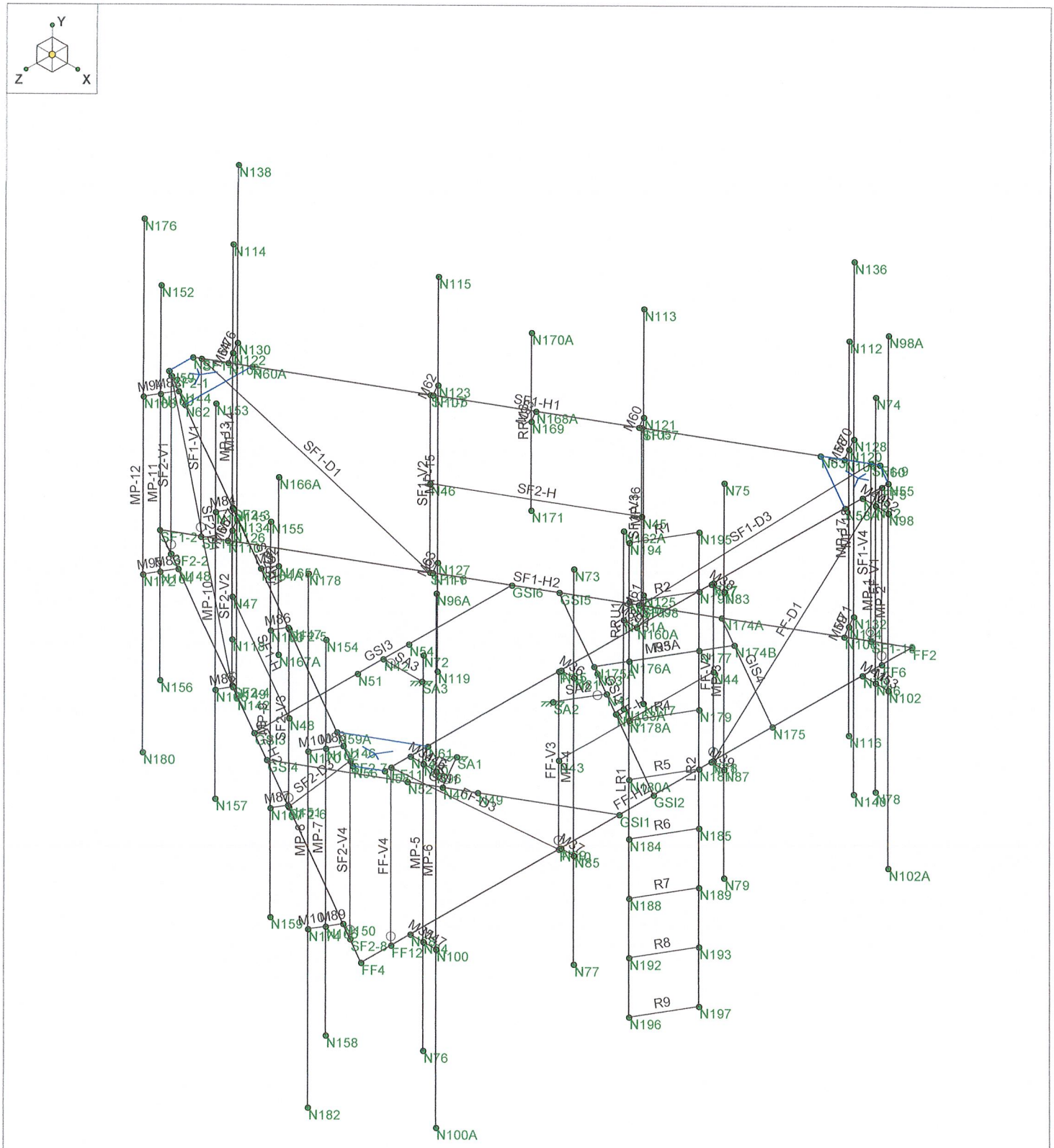
ANALYSIS ASSUMPTIONS

1) The mount was built in accordance with the manufacturer's specifications.
2) The mount has been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 2. All mount components have been assumed to be in sufficient condition to carry their full design capacity for this analysis. Refer to the issued mapping for any structural and/or maintenance issues found during our site visit.
4) 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.
5) All material grades used for this analysis, unless verified by mount manufacturer design, were assumed per AISC Table 2-4, 15th Edition. See RISA 3-D output for confirmation on grades used in this analysis.

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 mount.

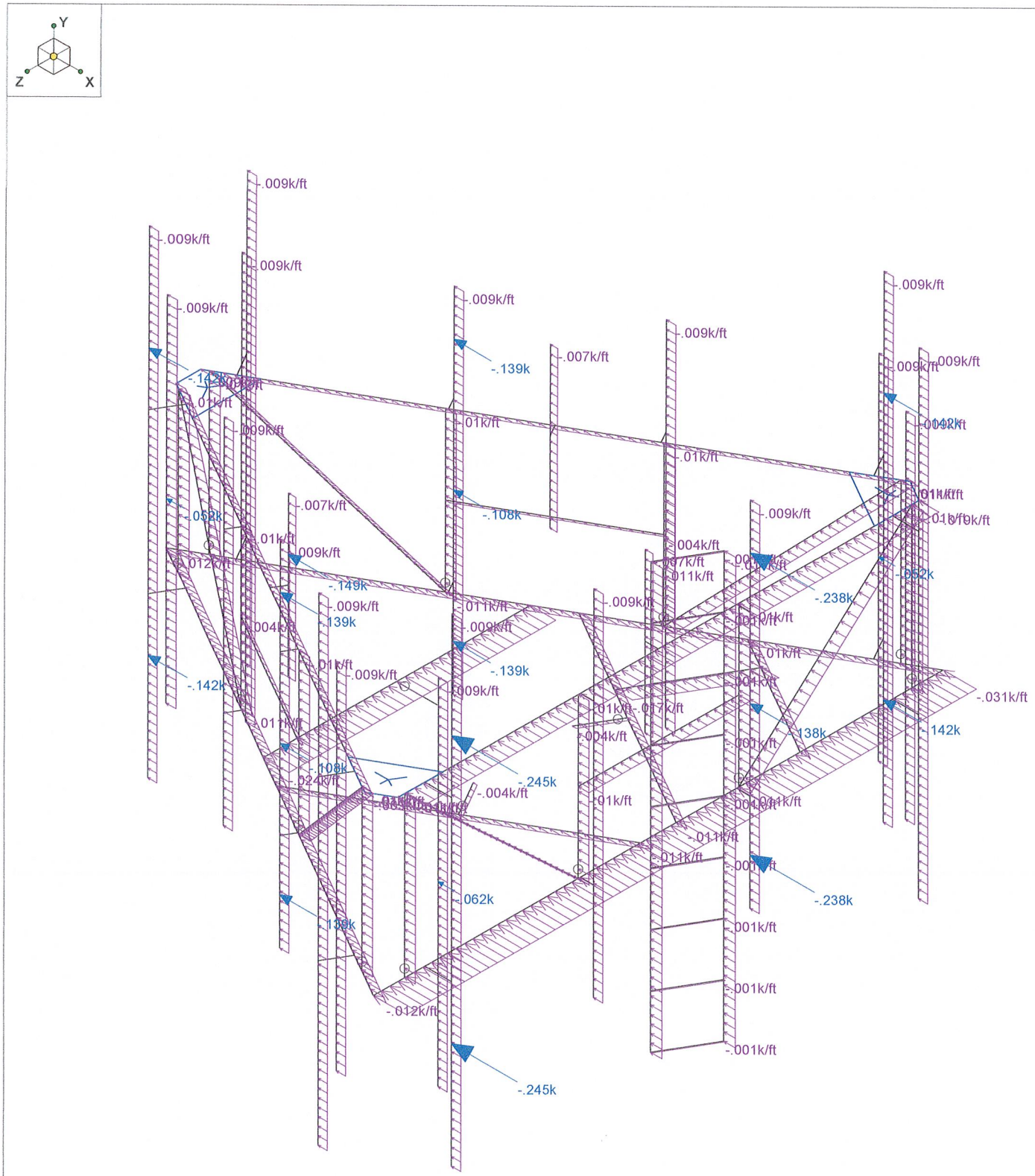
APPENDIX A

RISA-3D OUTPUT



Envelope Only Solution

Tower Engineering Profes...	Windsor Locks CO (CT1096)	SK - 1
MTW		May 8, 2023 at 4:24 PM
TEP No. 25718.850718		PL-2 Platform.r3d

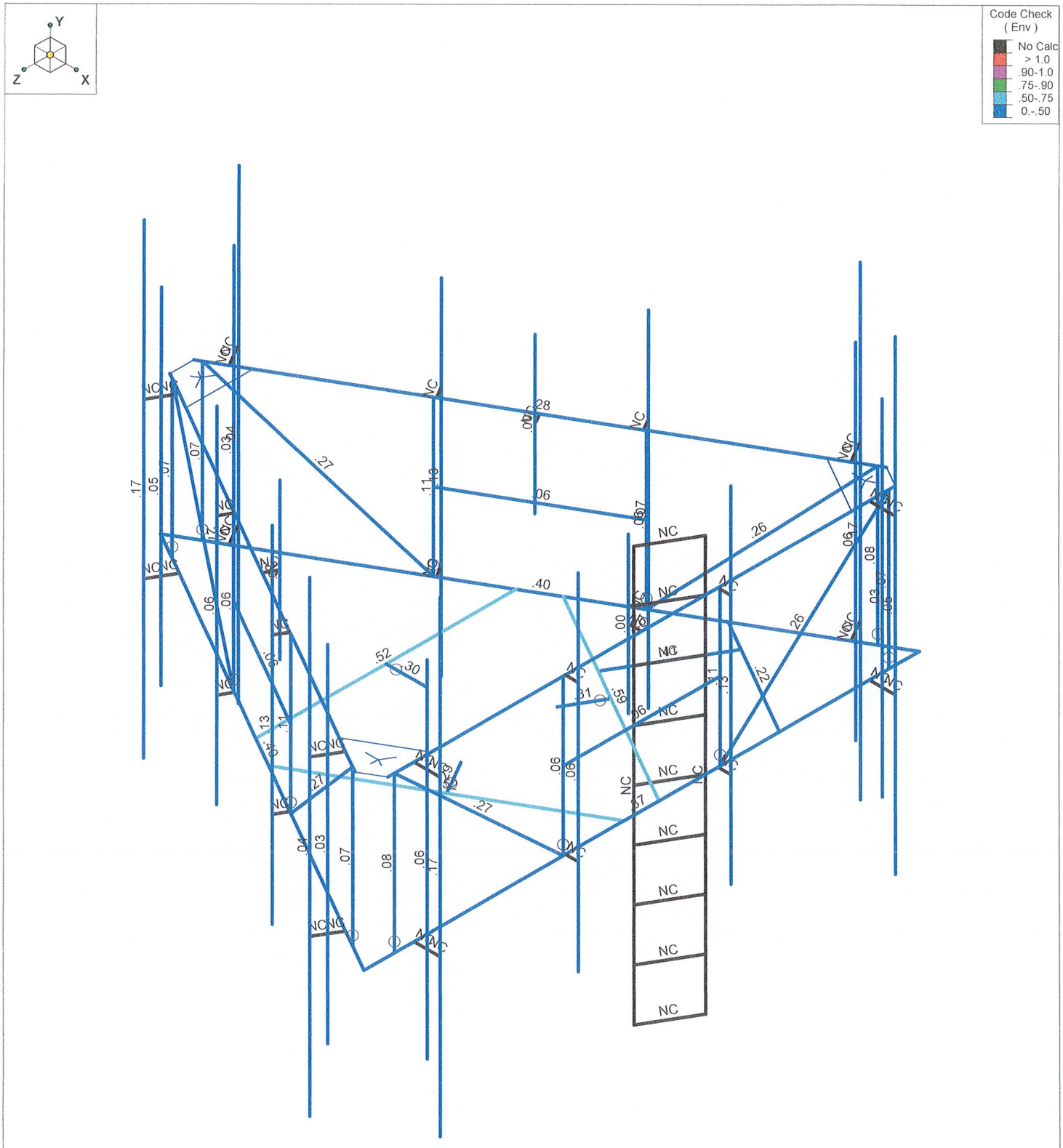


Loads: BLC 2, 0 Wind - No Ice
Envelope Only Solution

Tower Engineering Profes...	Windsor Locks CO (CT1096)	SK - 2
MTW		May 8, 2023 at 4:24 PM
TEP No. 25718.850718		PL-2 Platform.r3d

Envelope Only Solution

Tower Engineering Profes...	Windsor Locks CO (CT1096)	SK - 3
MTW		May 8, 2023 at 4:25 PM
TEP No. 25718.850718		PL-2 Platform.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Profes...		SK - 4
MTW	Windsor Locks CO (CT1096)	May 8, 2023 at 4:26 PM
TEP No. 25718.850718		PL-2 Platform.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Company : Tower Engineering Professionals
Designer : MTW
Job Number : TEP No. 25718.850718
Model Name : Windsor Locks CO (CT1096)

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(Global) Model Settings, Continued

Seismic Code	None
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53-B-35	29000	11154	.3	.65	.49	35	1.5	63	1.2

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A570 Gr.33	29500	11346	.3	.65	.49	33	52
2	A607 C1 Gr.55	29500	11346	.3	.65	.49	55	70

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Handrails	L3X3X5	Beam	Single Angle	A36 Gr.36	Typical	1.78	1.5	1.5	.06
2	Frame	C5X9	Beam	Channel	A36 Gr.36	Typical	2.64	.624	8.89	.109
3	Bracing	L1.75X1.75X4	Beam	Single Angle	A36 Gr.36	Typical	.813	.227	.227	.018
4	Connection Plate	PL1x14	Beam	RECT	A36 Gr.36	Typical	14	1.167	228.667	4.457
5	Mount Pipe	PIPE 2.0	Column	Pipe	A53-B-35	Typical	1.02	.627	.627	1.25
6	Handrail Plate	PL1x14	Beam	RECT	A36 Gr.36	Typical	14	1.167	228.667	4.457
7	Ladder Rail	L1.75X1.75X4	Column	Wide Flange	A36 Gr.36	Typical	.813	.227	.227	.018
8	Ladder Rung	0.5 SR	Beam	Pipe	A36 Gr.36	Typical	.196	.003	.003	.006

Cold Formed Steel Section Sets

	Label	Shape	Type	Design L...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	1.5CU1.25X035	Beam	None	A570 Gr.33	Typical	.131	.022	.052	5.4e-5

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	SA1	SA1	N40		90	Connection Plate	Beam	RECT	A36 Gr.36	Typical
2	SA2	SA2	N41		90	Connection Plate	Beam	RECT	A36 Gr.36	Typical
3	SA3	SA3	N42		90	Connection Plate	Beam	RECT	A36 Gr.36	Typical
4	GSI1	GSI1	GSI4		180	Frame	Beam	Channel	A36 Gr.36	Typical
5	GSI2	GSI2	GSI5			Frame	Beam	Channel	A36 Gr.36	Typical
6	GSI3	GSI3	GSI6		180	Frame	Beam	Channel	A36 Gr.36	Typical
7	FF-H1	N55	N58		90	Handrails	Beam	Single Angle	A36 Gr.36	Typical
8	FF-H2	FF2	FF4			Frame	Beam	Channel	A36 Gr.36	Typical
9	FF-V1	FF5	FF6		270	Bracing	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
10	FF-V2	FF7	FF8			Bracing	Beam	Single Angle	A36 Gr.36	Typical
11	FF-V3	FF9	FF10		270	Bracing	Beam	Single Angle	A36 Gr.36	Typical
12	FF-V4	FF11	FF12			Bracing	Beam	Single Angle	A36 Gr.36	Typical
13	FF-D1	FF8	FF5		180	Bracing	Beam	Single Angle	A36 Gr.36	Typical
14	FF-D3	FF11	FF10		180	Bracing	Beam	Single Angle	A36 Gr.36	Typical
15	SF1-H1	N57	N60		90	Handrails	Beam	Single Angle	A36 Gr.36	Typical
16	SF1-H2	SF1-2	FF2			Frame	Beam	Channel	A36 Gr.36	Typical
17	SF1-V1	SF1-3	SF1-4		150	Bracing	Beam	Single Angle	A36 Gr.36	Typical
18	SF1-V2	SF1-5	SF1-6		240	Bracing	Beam	Single Angle	A36 Gr.36	Typical
19	SF1-V3	SF1-7	SF1-8		150	Bracing	Beam	Single Angle	A36 Gr.36	Typical
20	SF1-V4	SF1-9	SF1-10		240	Bracing	Beam	Single Angle	A36 Gr.36	Typical
21	SF1-D1	SF1-6	SF1-3		180	Bracing	Beam	Single Angle	A36 Gr.36	Typical
22	SF1-D3	SF1-9	SF1-8		180	Bracing	Beam	Single Angle	A36 Gr.36	Typical
23	SF2-H1	N56	N59		90	Handrails	Beam	Single Angle	A36 Gr.36	Typical
24	SF2-H2	FF4	SF1-2			Frame	Beam	Channel	A36 Gr.36	Typical
25	SF2-V1	SF2-1	SF2-2		120	Bracing	Beam	Single Angle	A36 Gr.36	Typical
26	SF2-V2	SF2-3	SF2-4		30	Bracing	Beam	Single Angle	A36 Gr.36	Typical
27	SF2-V3	SF2-5	SF2-6		120	Bracing	Beam	Single Angle	A36 Gr.36	Typical
28	SF2-V4	SF2-7	SF2-8		30	Bracing	Beam	Single Angle	A36 Gr.36	Typical
29	SF2-D1	SF2-4	SF2-1		90	Bracing	Beam	Single Angle	A36 Gr.36	Typical
30	SF2-D3	SF2-7	SF2-6		90	Bracing	Beam	Single Angle	A36 Gr.36	Typical
31	FF-H	N43	N44		180	Bracing	Beam	Single Angle	A36 Gr.36	Typical
32	SF1-H	N47	N48		180	Bracing	Beam	Single Angle	A36 Gr.36	Typical
33	SF2-H	N45	N46		180	Bracing	Beam	Single Angle	A36 Gr.36	Typical
34	M34	N64	N80			RIGID	None	None	RIGID	Typical
35	M35	N68	N84			RIGID	None	None	RIGID	Typical
36	M36	N65	N81			RIGID	None	None	RIGID	Typical
37	M37	N69	N85			RIGID	None	None	RIGID	Typical
38	M38	N67	N83			RIGID	None	None	RIGID	Typical
39	M39	N71	N87			RIGID	None	None	RIGID	Typical
40	M40	N66	N82			RIGID	None	None	RIGID	Typical
41	M41	N70	N86			RIGID	None	None	RIGID	Typical
42	MP-5	N72	N76			Mount Pipe	Column	Pipe	A53-B-35	Typical
43	MP-4	N73	N77			Mount Pipe	Column	Pipe	A53-B-35	Typical
44	MP-3	N75	N79			Mount Pipe	Column	Pipe	A53-B-35	Typical
45	MP-1	N74	N78			Mount Pipe	Column	Pipe	A53-B-35	Typical
46	M46	N80	N96			RIGID	None	None	RIGID	Typical
47	M47	N84	N100			RIGID	None	None	RIGID	Typical
48	M52	N82	N98			RIGID	None	None	RIGID	Typical
49	M53	N86	N102			RIGID	None	None	RIGID	Typical
50	MP-6	N96A	N100A			Mount Pipe	Column	Pipe	A53-B-35	Typical
51	MP-2	N98A	N102A			Mount Pipe	Column	Pipe	A53-B-35	Typical
52	M58	N104	N120			RIGID	None	None	RIGID	Typical
53	M59	N108	N124			RIGID	None	None	RIGID	Typical
54	M60	N105	N121			RIGID	None	None	RIGID	Typical
55	M61	N109	N125			RIGID	None	None	RIGID	Typical
56	M62	N107	N123			RIGID	None	None	RIGID	Typical
57	M63	N111	N127			RIGID	None	None	RIGID	Typical
58	M64	N106	N122			RIGID	None	None	RIGID	Typical
59	M65	N110	N126			RIGID	None	None	RIGID	Typical
60	MP-17	N112	N116			Mount Pipe	Column	Pipe	A53-B-35	Typical
61	MP-16	N113	N117			Mount Pipe	Column	Pipe	A53-B-35	Typical
62	MP-15	N115	N119			Mount Pipe	Column	Pipe	A53-B-35	Typical
63	MP-13	N114	N118			Mount Pipe	Column	Pipe	A53-B-35	Typical
64	M70	N120	N128			RIGID	None	None	RIGID	Typical
65	M71	N124	N132			RIGID	None	None	RIGID	Typical
66	M76	N122	N130			RIGID	None	None	RIGID	Typical

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Company : Tower Engineering Professionals
Designer : MTW
Job Number : TEP No. 25718.850718
Model Name : Windsor Locks CO (CT1096)
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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
67	M77	N126	N134			RIGID	None	None	RIGID	Typical
68	MP-18	N136	N140			Mount Pipe	Column	Pipe	A53-B-35	Typical
69	MP-14	N138	N142			Mount Pipe	Column	Pipe	A53-B-35	Typical
70	M82	N144	N160			RIGID	None	None	RIGID	Typical
71	M83	N148	N164			RIGID	None	None	RIGID	Typical
72	M84	N145	N161			RIGID	None	None	RIGID	Typical
73	M85	N149	N165			RIGID	None	None	RIGID	Typical
74	M86	N147	N163			RIGID	None	None	RIGID	Typical
75	M87	N151	N167			RIGID	None	None	RIGID	Typical
76	M88	N146	N162			RIGID	None	None	RIGID	Typical
77	M89	N150	N166			RIGID	None	None	RIGID	Typical
78	MP-11	N152	N156			Mount Pipe	Column	Pipe	A53-B-35	Typical
79	MP-10	N153	N157			Mount Pipe	Column	Pipe	A53-B-35	Typical
80	MP-9	N155	N159			Mount Pipe	Column	Pipe	A53-B-35	Typical
81	MP-7	N154	N158			Mount Pipe	Column	Pipe	A53-B-35	Typical
82	M94	N160	N168			RIGID	None	None	RIGID	Typical
83	M95	N164	N172			RIGID	None	None	RIGID	Typical
84	M100	N162	N170			RIGID	None	None	RIGID	Typical
85	M101	N166	N174			RIGID	None	None	RIGID	Typical
86	MP-12	N176	N180			Mount Pipe	Column	Pipe	A53-B-35	Typical
87	MP-8	N178	N182			Mount Pipe	Column	Pipe	A53-B-35	Typical
88	RRU1	N162A	N163A			Mount Pipe	Column	Pipe	A53-B-35	Typical
89	M89A	N161A	N160A			RIGID	None	None	RIGID	Typical
90	RRU2	N166A	N167A			Mount Pipe	Column	Pipe	A53-B-35	Typical
91	M91	N165A	N164A			RIGID	None	None	RIGID	Typical
92	RRU3	N170A	N171			Mount Pipe	Column	Pipe	A53-B-35	Typical
93	M93	N169	N168A			RIGID	None	None	RIGID	Typical
94	GIS4	N174A	N175		180	Frame	Beam	Channel	A36 Gr.36	Typical
95	M95A	N175A	N174B		180	Frame	Beam	Channel	A36 Gr.36	Typical
96	LR1	N194	N196		270	Ladder Rail	Column	Wide Flange	A36 Gr.36	Typical
97	LR2	N195	N197		180	Ladder Rail	Column	Wide Flange	A36 Gr.36	Typical
98	R1	N195	N194			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical
99	R2	N191	N190			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical
100	R3	N177	N176A			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical
101	R4	N179	N178A			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical
102	R5	N181	N180A			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical
103	R6	N185	N184			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical
104	R7	N189	N188			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical
105	R8	N193	N192			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical
106	R9	N197	N196			Ladder Rung	Beam	Pipe	A36 Gr.36	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-tor...	Kyy	Kzz	Cb	Func...
1	SA1	Connection Plate	.755						.8	.65		Lateral
2	SA2	Connection Plate	.755						.8	.65		Lateral
3	SA3	Connection Plate	.755						.8	.65		Lateral
4	GSI1	Frame	5	2.5	2.5				.65	.65		Lateral
5	GSI2	Frame	5	2.5	2.5				.65	.65		Lateral
6	GSI3	Frame	5	2.5	2.5				.65	.65		Lateral
7	FF-H1	Handrails	9.75	3.25					1	1		Lateral
8	FF-H2	Frame	10.667	5	3.25				.65	.65		Lateral
9	FF-V1	Bracing	3						.8	.65		Lateral
10	FF-V2	Bracing	3						.65	.8		Lateral
11	FF-V3	Bracing	3						.8	.65		Lateral
12	FF-V4	Bracing	3						.65	.8		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-tor...	Kyy	Kzz	Cb	Func...
13	FF-D1	Bracing	4.423						.65	.65		Lateral
14	FF-D3	Bracing	4.423						.65	.65		Lateral
15	SF1-H1	Handrails	9.75	3.25					1	1		Lateral
16	SF1-H2	Frame	10.667	5	3.25				.65	.65		Lateral
17	SF1-V1	Bracing	3						.8	.65		Lateral
18	SF1-V2	Bracing	3						.65	.8		Lateral
19	SF1-V3	Bracing	3						.8	.65		Lateral
20	SF1-V4	Bracing	3						.65	.8		Lateral
21	SF1-D1	Bracing	4.423						.65	.65		Lateral
22	SF1-D3	Bracing	4.423						.65	.65		Lateral
23	SF2-H1	Handrails	9.75	3.25					1	1		Lateral
24	SF2-H2	Frame	10.667	5	3.25				.65	.65		Lateral
25	SF2-V1	Bracing	3						.65	.8		Lateral
26	SF2-V2	Bracing	3						.8	.65		Lateral
27	SF2-V3	Bracing	3						.65	.8		Lateral
28	SF2-V4	Bracing	3						.8	.65		Lateral
29	SF2-D1	Bracing	4.423						.65	.65		Lateral
30	SF2-D3	Bracing	4.423						.65	.65		Lateral
31	FF-H	Bracing	3						.65	.65		Lateral
32	SF1-H	Bracing	3						.65	.65		Lateral
33	SF2-H	Bracing	3						.65	.65		Lateral
34	MP-5	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
35	MP-4	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
36	MP-3	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
37	MP-1	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
38	MP-6	Mount Pipe	9	Segment	Segment				2.1	2.1		Lateral
39	MP-2	Mount Pipe	9	Segment	Segment				2.1	2.1		Lateral
40	MP-17	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
41	MP-16	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
42	MP-15	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
43	MP-13	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
44	MP-18	Mount Pipe	9	Segment	Segment				2.1	2.1		Lateral
45	MP-14	Mount Pipe	9	Segment	Segment				2.1	2.1		Lateral
46	MP-11	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
47	MP-10	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
48	MP-9	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
49	MP-7	Mount Pipe	6.667	Segment	Segment				2.1	2.1		Lateral
50	MP-12	Mount Pipe	9	Segment	Segment				2.1	2.1		Lateral
51	MP-8	Mount Pipe	9	Segment	Segment				2.1	2.1		Lateral
52	RRU1	Mount Pipe	3	Segment	Segment				2.1	2.1		Lateral
53	RRU2	Mount Pipe	3	Segment	Segment				2.1	2.1		Lateral
54	RRU3	Mount Pipe	3	Segment	Segment				2.1	2.1		Lateral
55	GIS4	Frame	2.691						.65	.65		Lateral
56	M95A	Frame	2						.65	.65		Lateral
57	LR1	Ladder Rail	8	1	1				2.1	2.1		Lateral
58	LR2	Ladder Rail	8	1	1				2.1	2.1		Lateral
59	R1	Ladder Rung	1						.65	.65		Lateral
60	R2	Ladder Rung	1						.65	.65		Lateral
61	R3	Ladder Rung	1						.65	.65		Lateral
62	R4	Ladder Rung	1						.65	.65		Lateral
63	R5	Ladder Rung	1						.65	.65		Lateral
64	R6	Ladder Rung	1						.65	.65		Lateral
65	R7	Ladder Rung	1						.65	.65		Lateral
66	R8	Ladder Rung	1						.65	.65		Lateral
67	R9	Ladder Rung	1						.65	.65		Lateral

Company : Tower Engineering Professionals
Designer : MTW
Job Number : TEP No. 25718.850718
Model Name : Windsor Locks CO (CT1096)

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Cold Formed Steel Design Parameters

Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp b...	Kyy	Kzz	Cm-yy	Cm-zz	Cb	R	y sw...	z sw...
No Data to Print ...														

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis ...	Inactive	Seismi...
1	SA1		OOOOOO				Yes				None
2	SA2		OOOOOO				Yes				None
3	SA3		OOOOOO				Yes				None
4	GSI1						Yes				None
5	GSI2						Yes				None
6	GSI3						Yes				None
7	FF-H1						Yes				None
8	FF-H2						Yes				None
9	FF-V1		OOOOOO				Yes				None
10	FF-V2		OOOOOO				Yes				None
11	FF-V3		OOOOOO				Yes				None
12	FF-V4		OOOOOO				Yes				None
13	FF-D1						Yes				None
14	FF-D3						Yes				None
15	SF1-H1						Yes				None
16	SF1-H2						Yes				None
17	SF1-V1		OOOOOO				Yes				None
18	SF1-V2		OOOOOO				Yes				None
19	SF1-V3		OOOOOO				Yes				None
20	SF1-V4		OOOOOO				Yes				None
21	SF1-D1						Yes				None
22	SF1-D3						Yes				None
23	SF2-H1						Yes				None
24	SF2-H2						Yes				None
25	SF2-V1		OOOOOO				Yes				None
26	SF2-V2		OOOOOO				Yes				None
27	SF2-V3		OOOOOO				Yes				None
28	SF2-V4		OOOOOO				Yes				None
29	SF2-D1						Yes				None
30	SF2-D3						Yes				None
31	FF-H						Yes				None
32	SF1-H						Yes				None
33	SF2-H						Yes				None
34	M34						Yes	** NA **		Exclude	None
35	M35						Yes	** NA **		Exclude	None
36	M36						Yes	** NA **		Exclude	None
37	M37						Yes	** NA **		Exclude	None
38	M38						Yes	** NA **		Exclude	None
39	M39						Yes	** NA **		Exclude	None
40	M40						Yes	** NA **		Exclude	None
41	M41						Yes	** NA **		Exclude	None
42	MP-5						Yes	** NA **			None
43	MP-4						Yes	** NA **			None
44	MP-3						Yes	** NA **			None
45	MP-1						Yes	** NA **			None
46	M46						Yes	** NA **		Exclude	None
47	M47						Yes	** NA **		Exclude	None
48	M52						Yes	** NA **		Exclude	None
49	M53						Yes	** NA **		Exclude	None
50	MP-6						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
51	MP-2						Yes	** NA **			None
52	M58						Yes	** NA **		Exclude	None
53	M59						Yes	** NA **		Exclude	None
54	M60						Yes	** NA **		Exclude	None
55	M61						Yes	** NA **		Exclude	None
56	M62						Yes	** NA **		Exclude	None
57	M63						Yes	** NA **		Exclude	None
58	M64						Yes	** NA **		Exclude	None
59	M65						Yes	** NA **		Exclude	None
60	MP-17						Yes	** NA **			None
61	MP-16						Yes	** NA **			None
62	MP-15						Yes	** NA **			None
63	MP-13						Yes	** NA **			None
64	M70						Yes	** NA **		Exclude	None
65	M71						Yes	** NA **		Exclude	None
66	M76						Yes	** NA **		Exclude	None
67	M77						Yes	** NA **		Exclude	None
68	MP-18						Yes	** NA **			None
69	MP-14						Yes	** NA **			None
70	M82						Yes	** NA **		Exclude	None
71	M83						Yes	** NA **		Exclude	None
72	M84						Yes	** NA **		Exclude	None
73	M85						Yes	** NA **		Exclude	None
74	M86						Yes	** NA **		Exclude	None
75	M87						Yes	** NA **		Exclude	None
76	M88						Yes	** NA **		Exclude	None
77	M89						Yes	** NA **		Exclude	None
78	MP-11						Yes	** NA **			None
79	MP-10						Yes	** NA **			None
80	MP-9						Yes	** NA **			None
81	MP-7						Yes	** NA **			None
82	M94						Yes	** NA **		Exclude	None
83	M95						Yes	** NA **		Exclude	None
84	M100						Yes	** NA **		Exclude	None
85	M101						Yes	** NA **		Exclude	None
86	MP-12						Yes	** NA **			None
87	MP-8						Yes	** NA **			None
88	RRU1						Yes	** NA **			None
89	M89A						Yes	** NA **			None
90	RRU2						Yes	** NA **			None
91	M91						Yes	** NA **			None
92	RRU3						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	GIS4						Yes				None
95	M95A						Yes	Default			None
96	LR1						Yes	** NA **		Exclude	None
97	LR2						Yes	** NA **		Exclude	None
98	R1						Yes			Exclude	None
99	R2						Yes			Exclude	None
100	R3						Yes			Exclude	None
101	R4						Yes			Exclude	None
102	R5						Yes			Exclude	None
103	R6						Yes			Exclude	None
104	R7						Yes			Exclude	None
105	R8						Yes			Exclude	None
106	R9						Yes			Exclude	None

Company : Tower Engineering Professionals
Designer : MTW
Job Number : TEP No. 25718.850718
Model Name : Windsor Locks CO (CT1096)

May 8, 2023
4:26 PM
Checked By: CLT

Joint Loads and Enforced Displacements (BLC 35 : Lm)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	FF2	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 36 : Lv)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	N58A	L	Y	-.25

Member Area Loads (BLC 1 : Dead)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	GSI5	FF2	GSI2		Y	Two Way	-.012
2	GSI1	FF4	GSI4		Y	Two Way	-.012
3	GSI3	SF1-2	GSI6		Y	Two Way	-.012

Member Area Loads (BLC 18 : Ice Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	GSI5	FF2	GSI2		Y	Two Way	-.016
2	GSI1	FF4	GSI4		Y	Two Way	-.016
3	GSI3	SF1-2	GSI6		Y	Two Way	-.016

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distri...	Area(Member)	Surface(Plate/Wall)
1	Dead	None		-1			22		3	
2	0 Wind - No Ice	None					22	67		
3	30 Wind - No Ice	None					44	134		
4	45 Wind - No Ice	None					44	134		
5	60 Wind - No Ice	None					44	134		
6	90 Wind - No Ice	None					22	67		
7	120 Wind - No Ice	None					44	134		
8	135 Wind - No Ice	None					44	134		
9	150 Wind - No Ice	None					44	134		
10	180 Wind - No Ice	None					22	67		
11	210 Wind - No Ice	None					44	134		
12	225 Wind - No Ice	None					44	134		
13	240 Wind - No Ice	None					44	134		
14	270 Wind - No Ice	None					22	67		
15	300 Wind - No Ice	None					44	134		
16	315 Wind - No Ice	None					44	134		
17	330 Wind - No Ice	None					44	134		
18	Ice Weight	None					22	67	3	
19	0 Wind - Ice	None					22	67		
20	30 Wind - Ice	None					44	134		
21	45 Wind - Ice	None					44	134		
22	60 Wind - Ice	None					44	134		
23	90 Wind - Ice	None					22	67		
24	120 Wind - Ice	None					44	134		
25	135 Wind - Ice	None					44	134		
26	150 Wind - Ice	None					44	134		
27	180 Wind - Ice	None					22	67		
28	210 Wind - Ice	None					44	134		
29	225 Wind - Ice	None					44	134		
30	240 Wind - Ice	None					44	134		
31	270 Wind - Ice	None					22	67		
32	300 Wind - Ice	None					44	134		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distri...	Area(Member)	Surface(Plate/Wall)
33	315 Wind - Ice	None					44	134		
34	330 Wind - Ice	None					44	134		
35	Lm	None				1				
36	Lv	None				1				
37	Seismic Load X	ELX	-1				22			
38	Seismic Load Z	ELZ			-1		22			
39	BLC 1 Transient Area Loads	None						67		
40	BLC 18 Transient Area Lo...	None						67		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4																						
2	0.9D+1.0 0-Wind	Yes	Y		1	.9	2	1																				
3	0.9D+1.0 30-Wind	Yes	Y		1	.9	3	1																				
4	0.9D+1.0 45-Wind	Yes	Y		1	.9	4	1																				
5	0.9D+1.0 60-Wind	Yes	Y		1	.9	5	1																				
6	0.9D+1.0 90-Wind	Yes	Y		1	.9	6	1																				
7	0.9D+1.0 120-Wind	Yes	Y		1	.9	7	1																				
8	0.9D+1.0 135-Wind	Yes	Y		1	.9	8	1																				
9	0.9D+1.0 150-Wind	Yes	Y		1	.9	9	1																				
10	0.9D+1.0 180-Wind	Yes	Y		1	.9	10	1																				
11	0.9D+1.0 210-Wind	Yes	Y		1	.9	11	1																				
12	0.9D+1.0 225-Wind	Yes	Y		1	.9	12	1																				
13	0.9D+1.0 240-Wind	Yes	Y		1	.9	13	1																				
14	0.9D+1.0 270-Wind	Yes	Y		1	.9	14	1																				
15	0.9D+1.0 300-Wind	Yes	Y		1	.9	15	1																				
16	0.9D+1.0 315-Wind	Yes	Y		1	.9	16	1																				
17	0.9D+1.0 330-Wind	Yes	Y		1	.9	17	1																				
18	1.2D+1.0 0-Wind	Yes	Y		1	1.2	2	1																				
19	1.2D+1.0 30-Wind	Yes	Y		1	1.2	3	1																				
20	1.2D+1.0 45-Wind	Yes	Y		1	1.2	4	1																				
21	1.2D+1.0 60-Wind	Yes	Y		1	1.2	5	1																				
22	1.2D+1.0 90-Wind	Yes	Y		1	1.2	6	1																				
23	1.2D+1.0 120-Wind	Yes	Y		1	1.2	7	1																				
24	1.2D+1.0 135-Wind	Yes	Y		1	1.2	8	1																				
25	1.2D+1.0 150-Wind	Yes	Y		1	1.2	9	1																				
26	1.2D+1.0 180-Wind	Yes	Y		1	1.2	10	1																				
27	1.2D+1.0 210-Wind	Yes	Y		1	1.2	11	1																				
28	1.2D+1.0 225-Wind	Yes	Y		1	1.2	12	1																				
29	1.2D+1.0 240-Wind	Yes	Y		1	1.2	13	1																				
30	1.2D+1.0 270-Wind	Yes	Y		1	1.2	14	1																				
31	1.2D+1.0 300-Wind	Yes	Y		1	1.2	15	1																				
32	1.2D+1.0 315-Wind	Yes	Y		1	1.2	16	1																				
33	1.2D+1.0 330-Wind	Yes	Y		1	1.2	17	1																				
34	1.2D+1.0Di+1.0 0-Wind Ice	Yes	Y		1	1.2	18	1	19	1																		
35	1.2D+1.0Di+1.0 30-Wind Ice	Yes	Y		1	1.2	18	1	20	1																		
36	1.2D+1.0Di+1.0 45-Wind Ice	Yes	Y		1	1.2	18	1	21	1																		
37	1.2D+1.0Di+1.0 60-Wind Ice	Yes	Y		1	1.2	18	1	22	1																		
38	1.2D+1.0Di+1.0 90-Wind Ice	Yes	Y		1	1.2	18	1	23	1																		
39	1.2D+1.0Di+1.0 120-Wind ...	Yes	Y		1	1.2	18	1	24	1																		
40	1.2D+1.0Di+1.0 135-Wind ...	Yes	Y		1	1.2	18	1	25	1																		
41	1.2D+1.0Di+1.0 150-Wind ...	Yes	Y		1	1.2	18	1	26	1																		
42	1.2D+1.0Di+1.0 180-Wind ...	Yes	Y		1	1.2	18	1	27	1																		
43	1.2D+1.0Di+1.0 210-Wind ...	Yes	Y		1	1.2	18	1	28	1																		
44	1.2D+1.0Di+1.0 225-Wind ...	Yes	Y		1	1.2	18	1	29	1																		

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
45	1.2D+1.0Di+1.0 240-Wind ...	Yes	Y		1	1.2	18	1	30	1																		
46	1.2D+1.0Di+1.0 270-Wind ...	Yes	Y		1	1.2	18	1	31	1																		
47	1.2D+1.0Di+1.0 300-Wind ...	Yes	Y		1	1.2	18	1	32	1																		
48	1.2D+1.0Di+1.0 315-Wind ...	Yes	Y		1	1.2	18	1	33	1																		
49	1.2D+1.0Di+1.0 330-Wind ...	Yes	Y		1	1.2	18	1	34	1																		
50	1.2D+1.5Lv	Yes	Y		36	1.5	1	1.2																				
51	1.2D+1.5Lm+1.0 0-Wind	Yes	Y		1	1.2	2	.067	35	1.5																		
52	1.2D+1.5Lm+1.0 30-Wind	Yes	Y		1	1.2	3	.067	35	1.5																		
53	1.2D+1.5Lm+1.0 45-Wind	Yes	Y		1	1.2	4	.067	35	1.5																		
54	1.2D+1.5Lm+1.0 60-Wind	Yes	Y		1	1.2	5	.067	35	1.5																		
55	1.2D+1.5Lm+1.0 90-Wind	Yes	Y		1	1.2	6	.067	35	1.5																		
56	1.2D+1.5Lm+1.0 120-Wind	Yes	Y		1	1.2	7	.067	35	1.5																		
57	1.2D+1.5Lm+1.0 135-Wind	Yes	Y		1	1.2	8	.067	35	1.5																		
58	1.2D+1.5Lm+1.0 150-Wind	Yes	Y		1	1.2	9	.067	35	1.5																		
59	1.2D+1.5Lm+1.0 180-Wind	Yes	Y		1	1.2	10	.067	35	1.5																		
60	1.2D+1.5Lm+1.0 210-Wind	Yes	Y		1	1.2	11	.067	35	1.5																		
61	1.2D+1.5Lm+1.0 225-Wind	Yes	Y		1	1.2	12	.067	35	1.5																		
62	1.2D+1.5Lm+1.0 240-Wind	Yes	Y		1	1.2	13	.067	35	1.5																		
63	1.2D+1.5Lm+1.0 270-Wind	Yes	Y		1	1.2	14	.067	35	1.5																		
64	1.2D+1.5Lm+1.0 300-Wind	Yes	Y		1	1.2	15	.067	35	1.5																		
65	1.2D+1.5Lm+1.0 315-Wind	Yes	Y		1	1.2	16	.067	35	1.5																		
66	1.2D+1.5Lm+1.0 330-Wind	Yes	Y		1	1.2	17	.067	35	1.5																		
67	(1.2+0.2Sds)D+1.0 0 Seis...	Yes	Y		1	1.2...	E...	.093	0																			
68	(1.2+0.2Sds)D+1.0 30 Sei...	Yes	Y		1	1.2...	E...	.081	ELZ	.047																		
69	(1.2+0.2Sds)D+1.0 45 Sei...	Yes	Y		1	1.2...	E...	.066	ELZ	.066																		
70	(1.2+0.2Sds)D+1.0 60 Sei...	Yes	Y		1	1.2...	E...	.047	ELZ	.081																		
71	(1.2+0.2Sds)D+1.0 90 Sei...	Yes	Y		1	1.2...	0		ELZ	.093																		
72	(1.2+0.2Sds)D+1.0 120 Se...	Yes	Y		1	1.2...	E...	-.047	ELZ	.081																		
73	(1.2+0.2Sds)D+1.0 135 Se...	Yes	Y		1	1.2...	E...	-.066	ELZ	.066																		
74	(1.2+0.2Sds)D+1.0 150 Se...	Yes	Y		1	1.2...	E...	-.081	ELZ	.047																		
75	(1.2+0.2Sds)D+1.0 180 Se...	Yes	Y		1	1.2...	E...	-.093	0																			
76	(1.2+0.2Sds)D+1.0 210 Se...	Yes	Y		1	1.2...	E...	-.081	ELZ	-.047																		
77	(1.2+0.2Sds)D+1.0 225 Se...	Yes	Y		1	1.2...	E...	-.066	ELZ	-.066																		
78	(1.2+0.2Sds)D+1.0 240 Se...	Yes	Y		1	1.2...	E...	-.047	ELZ	-.081																		
79	(1.2+0.2Sds)D+1.0 270 Se...	Yes	Y		1	1.2...	0		ELZ	-.093																		
80	(1.2+0.2Sds)D+1.0 300 Se...	Yes	Y		1	1.2...	E...	.047	ELZ	-.081																		
81	(1.2+0.2Sds)D+1.0 315 Se...	Yes	Y		1	1.2...	E...	.066	ELZ	-.066																		
82	(1.2+0.2Sds)D+1.0 330 Se...	Yes	Y		1	1.2...	E...	.081	ELZ	-.047																		
83	(0.9-0.2Sds)*DL+1.0 0 Sei...	Yes	Y		1	.863	E...	.093	0																			
84	(0.9-0.2Sds)*DL+1.0 30 S...	Yes	Y		1	.863	E...	.081	ELZ	.047																		
85	(0.9-0.2Sds)*DL+1.0 Seis...	Yes	Y		1	.863	E...	.066	ELZ	.066																		
86	(0.9-0.2Sds)*DL+1.0 60 S...	Yes	Y		1	.863	E...	.047	ELZ	.081																		
87	(0.9-0.2Sds)*DL+1.0 90 S...	Yes	Y		1	.863	0		ELZ	.093																		
88	(0.9-0.2Sds)*DL+1.0 120 ...	Yes	Y		1	.863	E...	-.047	ELZ	.081																		
89	(0.9-0.2Sds)*DL+1.0 135 ...	Yes	Y		1	.863	E...	-.066	ELZ	.066																		
90	(0.9-0.2Sds)*DL+1.0 150 ...	Yes	Y		1	.863	E...	-.081	ELZ	.047																		
91	(0.9-0.2Sds)*DL+1.0 180 ...	Yes	Y		1	.863	E...	-.093	0																			
92	(0.9-0.2Sds)*DL+1.0 210 ...	Yes	Y		1	.863	E...	-.081	ELZ	-.047																		
93	(0.9-0.2Sds)*DL+1.0 225 ...	Yes	Y		1	.863	E...	-.066	ELZ	-.066																		
94	(0.9-0.2Sds)*DL+1.0 240 ...	Yes	Y		1	.863	E...	-.047	ELZ	-.081																		
95	(0.9-0.2Sds)*DL+1.0 270 ...	Yes	Y		1	.863	0		ELZ	-.093																		
96	(0.9-0.2Sds)*DL+1.0 300 ...	Yes	Y		1	.863	E...	.047	ELZ	-.081																		
97	(0.9-0.2Sds)*DL+1.0 315 ...	Yes	Y		1	.863	E...	.066	ELZ	-.066																		
98	(0.9-0.2Sds)*DL+1.0 330 ...	Yes	Y		1	.863	E...	.081	ELZ	-.047																		

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[..	LC	Shea..	Loc[..	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [..	phi*Mn z-z [..	Cb	Eqn
1	SA1	PL1x14	.291	0	45	.194	0	y	25	438.779	453.6	9.45	132.3	1..	H1-1b
2	SA2	PL1x14	.309	0	39	.202	0	y	19	438.779	453.6	9.45	131.941	1..	H1-1b
3	SA3	PL1x14	.299	0	34	.193	0	y	22	438.779	453.6	9.45	132.3	2..	H1-1b
4	GSI1	C5X9	.517	2.5	28	.059	2.5	y	45	75.694	85.536	1.909	11.853	1..	H1-1b
5	GSI2	C5X9	.588	2.5	23	.071	2.5	y	39	75.694	85.536	1.909	11.853	1..	H1-1b
6	GSI3	C5X9	.517	2.5	18	.060	2.5	y	34	75.694	85.536	1.909	11.853	1..	H1-1b
7	FF-H1	L3X3X5	.265	3.352	26	.196	9.75	y	24	33.757	57.672	2.015	3.9	1..	H2-1
8	FF-H2	C5X9	.366	5	28	.174	5.334	z	22	60.957	85.536	1.909	11.853	1..	H1-1b
9	FF-V1	L1.75X1.75X4	.071	0	3	.015	3	y	20	18.095	26.341	.512	1.176	1..	H2-1
10	FF-V2	L1.75X1.75X4	.110	3	19	.019	0	z	25	20.558	26.341	.512	1.176	1..	H2-1
11	FF-V3	L1.75X1.75X4	.064	1.5	32	.016	3	z	18	18.095	26.341	.512	1.176	1..	H2-1
12	FF-V4	L1.75X1.75X4	.075	0	2	.012	3	z	24	20.558	26.341	.512	1.171	1..	H2-1
13	FF-D1	L1.75X1.75X4	.257	2.58	27	.007	4.423	y	22	15.368	26.341	.512	1.057	1..	H2-1
14	FF-D3	L1.75X1.75X4	.271	1.613	25	.008	4.423	z	31	15.368	26.341	.512	1.056	1..	H2-1
15	SF1-H1	L3X3X5	.283	3.352	21	.193	9.75	y	27	33.757	57.672	2.015	3.989	1..	H2-1
16	SF1-H2	C5X9	.404	5.667	18	.177	5.333	z	33	60.957	85.536	1.909	11.853	1..	H1-1b
17	SF1-V1	L1.75X1.75X4	.068	0	14	.012	3	z	30	18.095	26.341	.512	1.176	1..	H2-1
18	SF1-V2	L1.75X1.75X4	.109	3	30	.020	0	z	20	20.558	26.341	.512	1.176	1..	H2-1
19	SF1-V3	L1.75X1.75X4	.058	1.5	26	.014	0	z	21	18.095	26.341	.512	1.176	1..	H2-1
20	SF1-V4	L1.75X1.75X4	.080	0	12	.013	3	y	19	20.558	26.341	.512	1.168	1..	H2-1
21	SF1-D1	L1.75X1.75X4	.269	2.165	22	.009	0	y	32	15.368	26.341	.512	1.065	1..	H2-1
22	SF1-D3	L1.75X1.75X4	.261	1.52	19	.008	4.423	y	25	15.368	26.341	.512	1.058	1..	H2-1
23	SF2-H1	L3X3X5	.298	3.352	32	.184	9.75	y	21	33.757	57.672	2.015	3.949	1..	H2-1
24	SF2-H2	C5X9	.401	5	18	.191	5.334	z	27	60.957	85.536	1.909	11.853	1..	H1-1b
25	SF2-V1	L1.75X1.75X4	.073	0	6	.012	3	z	29	20.558	26.341	.512	1.159	1..	H2-1
26	SF2-V2	L1.75X1.75X4	.063	1.5	21	.018	0	z	32	18.095	26.341	.512	1.176	2..	H2-1
27	SF2-V3	L1.75X1.75X4	.110	3	25	.022	0	z	30	20.558	26.341	.512	1.176	2..	H2-1
28	SF2-V4	L1.75X1.75X4	.065	0	9	.013	3	z	25	18.095	26.341	.512	1.176	2..	H2-1
29	SF2-D1	L1.75X1.75X4	.271	2.672	30	.007	4.423	z	19	15.368	26.341	.512	1.056	1..	H2-1
30	SF2-D3	L1.75X1.75X4	.271	2.35	33	.008	4.423	z	27	15.368	26.341	.512	1.065	1..	H2-1
31	FF-H	L1.75X1.75X4	.060	0	30	.009	0	y	29	20.558	26.341	.512	1.176	2..	H2-1
32	SF1-H	L1.75X1.75X4	.062	0	19	.009	0	y	19	20.558	26.341	.512	1.176	2..	H2-1
33	SF2-H	L1.75X1.75X4	.062	0	24	.008	0	y	25	20.558	26.341	.512	1.176	2..	H2-1
34	MP-5	PIPE_2.0	.056	4.792	33	.064	1.875		24	19.964	32.13	1.872	1.872	3..	H1-1b
35	MP-4	PIPE_2.0	.061	4.792	23	.077	4.792		26	19.964	32.13	1.872	1.872	3..	H1-1b
36	MP-3	PIPE_2.0	.128	1.806	26	.079	4.792		33	26.899	32.13	1.872	1.872	1..	H1-1b
37	MP-1	PIPE_2.0	.033	4.792	21	.066	4.792		19	19.964	32.13	1.872	1.872	2..	H1-1b
38	MP-6	PIPE_2.0	.171	6	26	.083	3		25	19.964	32.13	1.872	1.872	2..	H1-1b
39	MP-2	PIPE_2.0	.048	3	26	.068	3		27	19.964	32.13	1.872	1.872	2..	H1-1b
40	MP-17	PIPE_2.0	.057	4.792	27	.067	4.792		27	19.964	32.13	1.872	1.872	2..	H1-1b
41	MP-16	PIPE_2.0	.067	4.792	18	.065	4.792		21	19.964	32.13	1.872	1.872	3..	H1-1b
42	MP-15	PIPE_2.0	.128	1.806	21	.089	4.792		28	26.899	32.13	1.872	1.872	1..	H1-1b
43	MP-13	PIPE_2.0	.033	4.792	31	.055	4.792		30	19.964	32.13	1.872	1.872	2..	H1-1b
44	MP-18	PIPE_2.0	.170	6	21	.088	3		20	19.964	32.13	1.872	1.872	2..	H1-1b
45	MP-14	PIPE_2.0	.037	6	22	.057	3		22	19.964	32.13	1.872	1.872	4..	H1-1b
46	MP-11	PIPE_2.0	.052	4.792	22	.064	1.875		30	19.964	32.13	1.872	1.872	2..	H1-1b
47	MP-10	PIPE_2.0	.065	4.792	28	.087	4.792		8	19.964	32.13	1.872	1.872	3..	H1-1b
48	MP-9	PIPE_2.0	.128	1.806	31	.097	4.792		23	26.899	32.13	1.872	1.872	1..	H1-1b
49	MP-7	PIPE_2.0	.032	1.875	29	.058	4.792		25	19.964	32.13	1.872	1.872	2..	H1-1b
50	MP-12	PIPE_2.0	.169	6	31	.083	3		30	19.964	32.13	1.872	1.872	2..	H1-1b
51	MP-8	PIPE_2.0	.040	3	32	.061	3		33	19.964	32.13	1.872	1.872	2..	H1-1b
52	RRU1	PIPE_2.0	.005	1.5	18	.001	1.5		18	28.526	32.13	1.872	1.872	1..	H1-1b
53	RRU2	PIPE_2.0	.053	1.5	27	.020	1.5		27	28.526	32.13	1.872	1.872	1..	H1-1b
54	RRU3	PIPE_2.0	.005	1.5	29	.001	1.5		29	28.526	32.13	1.872	1.872	1..	H1-1b
55	GIS4	C5X9	.217	0	21	.090	.673	z	39	77.544	85.536	1.909	11.853	1..	H1-1b
56	M95A	C5X9	.413	0	20	.218	.5	z	19	80.041	85.536	1.909	11.853	1..	H1-1b

Company : Tower Engineering Professionals
Designer : MTW
Job Number : TEP No. 25718.850718
Model Name : Windsor Locks CO (CT1096)

May 8, 2023
4:26 PM
Checked By: CLT

Envelope None Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[ft]	LC	Shear ..	Loc[ft]	Dir	LC	Pn[k]	Tn[k]	Mnyy[k-ft]	Mnzz[k-ft]	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

APPENDIX B

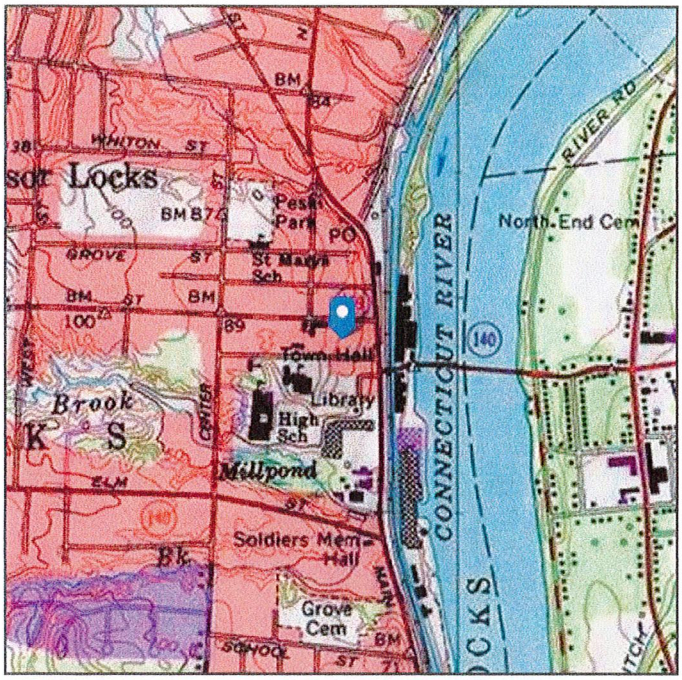
ADDITIONAL CALCULATIONS

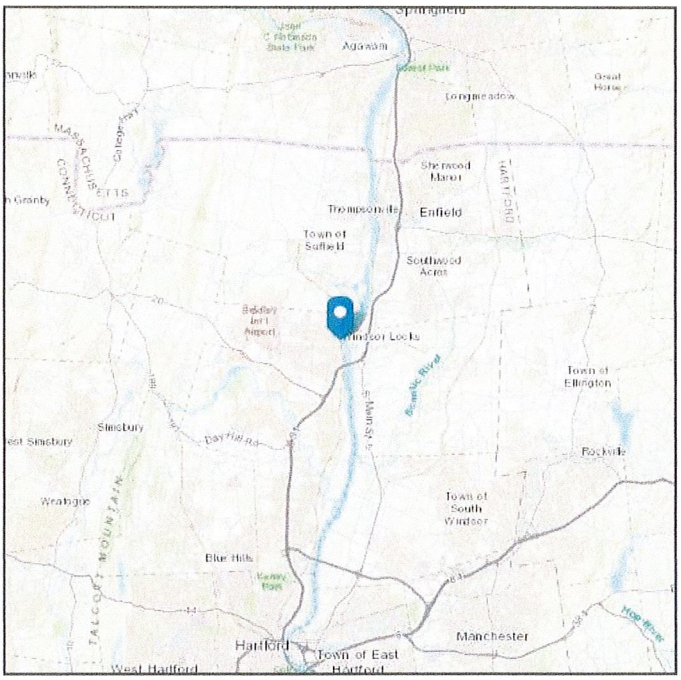
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Latitude: 41.929933
Longitude: -72.628636
Elevation: 62.846789032094556 ft (NAVD 88)





Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon May 08 2023

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

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

ASCE
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Seismic

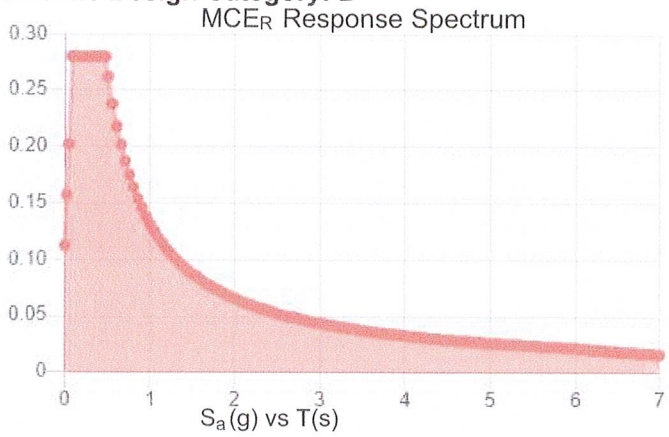
D - Default (see Section 11.4.3)

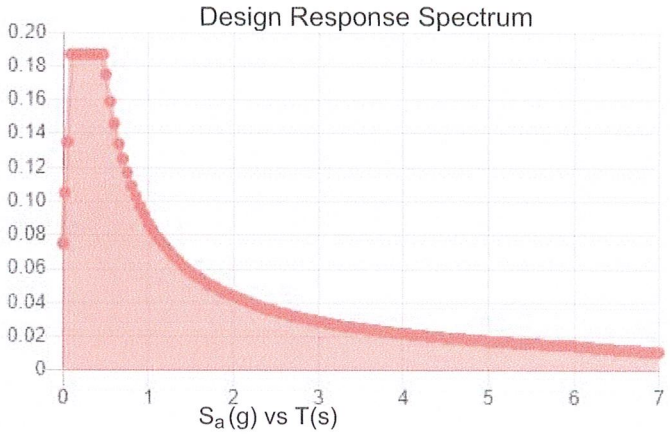
Site Soil Class:

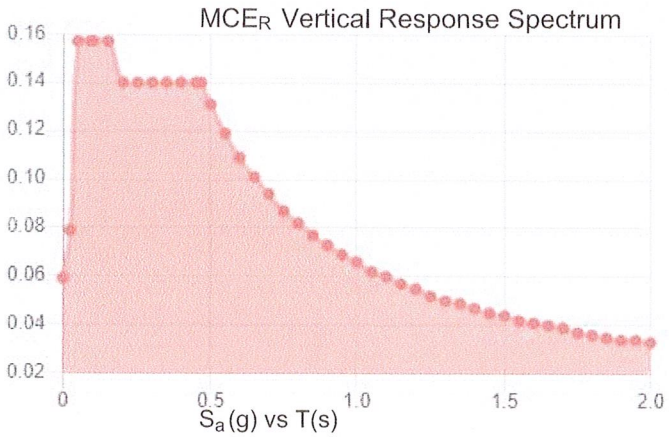
Results:

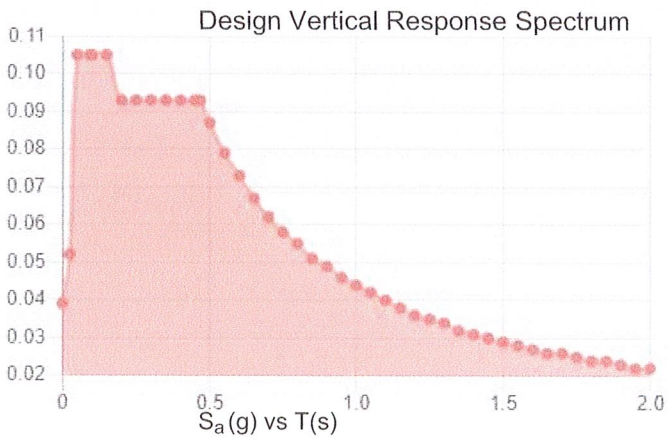
S_S :	0.175	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.092
F_v :	2.4	PGA_M :	0.148
S_{MS} :	0.28	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.187	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Mon May 08 2023**

Date Source:

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

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Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Mon May 08 2023

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

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

TOWER ENGINEERING PROFESSIONALS

Windsor Locks CO (CT1096)

TEP No.	25718.850718	
Analysis By:	MTW	5/8/2023
Checked By:	CLT	5/8/2023

Code Revisions:	TIA-222-H	IBC 2021
Tower Type:	Monopole	

Wind Inputs:

Ult. Wind Velocity:	116	mph
Live Load Velocity:	30	mph
Ice Wind Velocity:	50	mph
Base Ice Thickness:	1.50	inches
Mount Centerline:	104.0	ft
Antenna Centerline:	104.0	ft
Exposure Category:	C	
Topo Category:	1	
Risk Category:	II	
Ground Elevation:	63	ft

Wind Calculations:

K_{zt}:	1.000	Section 2.6.6
K_d:	0.950	
$K_{z\text{-Mount}}$:	1.276	Section 2.6.5.2
$K_{z\text{-Antenna}}$:	1.276	Section 2.6.5.2
K_{iz}:	1.122	Section 2.6.10
Ice Thickness:	1.682	inches - Section 2.6.10
K_e:	0.998	Table 2-6

Without Ice - (psf)		With Ice - (psf)	
$(q_zG_h)_{Mount}$:	41.67	$(q_zG_h)_{Mount}$:	7.74
$(q_zG_h)_{Antenna}$:	41.67	$(q_zG_h)_{Antenna}$:	7.74

Seismic Code Revisions:	TIA-222-H
Seismic Risk Category:	II

Seismic Input

S_{DS}:	0.187	Design Short Period Spectral Accel.
I_p:	1.0	Importance Factor
R_p:	2.0	Response Modification Factor
ρ:	1.0	
A_s:	1.0	Applification Factor - TIA-222-H Section 2.7.8.1
S_1:	0.055	Spectral Acceleration at a Period of 1 Second

Seismic Design Force TIA-H Sec 2.7.7.1.1

Cs:	0.094	kips/kip	TIA-H Sec 2.7.7.1.1
Cs-min:	0.030	kips/kip	

TOWER ENGINEERING PROFESSIONALS

Windsor Locks CO (CT1096)

TEP No.	25718.850718	
Analysis By:	MTW	5/8/2023
Checked By:	CLT	5/8/2023

Antenna Loads are Calculated in Accordance with TIA-222-H

Azimuth is the absolute angle measured clockwise from RISA-3D global X-axis.

										Distance from start node of the member		
MFR	Model	Height (in)	Width (in)	Depth (in)	Wt. (lbs)	Azimuth°	Qty	Shape	Member Label	Location #1 (ft,%)	Location #2 (ft,%)	Location #3 (ft,%)
CCI	TPA65R-BU6DA-K	71.20	20.70	7.70	69.00	0.00	1	Flat	MP-3	0.87	5.80	
CCI	OPA65R-BU6DA	72.20	21.00	7.80	60.20	0.00	1	Flat	MP-6	1.99	7.01	
Ericsson	Radio 4478 B14	18.10	13.50	8.30	54.20	0.00	1	Flat	MP-3	3.33		
Ericsson	Radio 8843 B2/B66A	14.90	13.20	10.90	72.00	0.00	1	Flat	MP-3	3.33		
Ericsson	Radio 4449 B5/B12	15.00	13.20	10.40	73.00	0.00	1	Flat	MP-5	3.33		
CCI	TPA65R-BU6DA-K	71.20	20.70	7.70	69.00	120.00	1	Flat	MP-9	0.87	5.80	
CCI	OPA65R-BU6DA	72.20	21.00	7.80	60.20	120.00	1	Flat	MP-12	1.99	7.01	
Ericsson	Radio 4478 B14	18.10	13.50	8.30	54.20	120.00	1	Flat	MP-9	3.33		
Ericsson	Radio 8843 B2/B66A	14.90	13.20	10.90	72.00	120.00	1	Flat	MP-9	3.33		
Ericsson	Radio 4449 B5/B12	15.00	13.20	10.40	73.00	120.00	1	Flat	MP-11	3.33		
Raycap	DC9-48-60-24-BC-EV	18.30	10.20	31.40	16.00	120.00	1	Flat	RRU2	1.00		
CCI	TPA65R-BU6DA-K	71.20	20.70	7.70	69.00	240.00	1	Flat	MP-15	0.87	5.80	
CCI	OPA65R-BU6DA	72.20	21.00	7.80	60.20	240.00	1	Flat	MP-18	1.99	7.01	
Ericsson	Radio 4478 B14	18.10	13.50	8.30	54.20	240.00	1	Flat	MP-15	3.33		
Ericsson	Radio 8843 B2/B66A	14.90	13.20	10.90	72.00	240.00	1	Flat	MP-15	3.33		
Ericsson	Radio 4449 B5/B12	15.00	13.20	10.40	73.00	240.00	1	Flat	MP-17	3.33		

Job Name: Windsor Locks CO (CT1096)
Job Number: TEP # 25718.850718
Calc: MTW Check: CLT
Date: 5/8/2023

Moment Bolt Group - Connection Angle

RISA 3D Results

F_x =	2.637	kip
F_y =	2.024	kip
F_z =	0.933	kip
M_x =	0.005	kip*ft
M_y =	0.472	kip*ft
M_z =	4.452	kip*ft

Code Checks Per ANSI/TIA-222-H		
Tension Capacity=	4.8%	PASS
Shear Capacity=	33.7%	PASS

Tension

$$T_{Total} = \frac{F_z}{3\ bolts} + \frac{M_y / 0.375\ ft}{1\ bolt}$$

T_{Total} = 1.57 kip

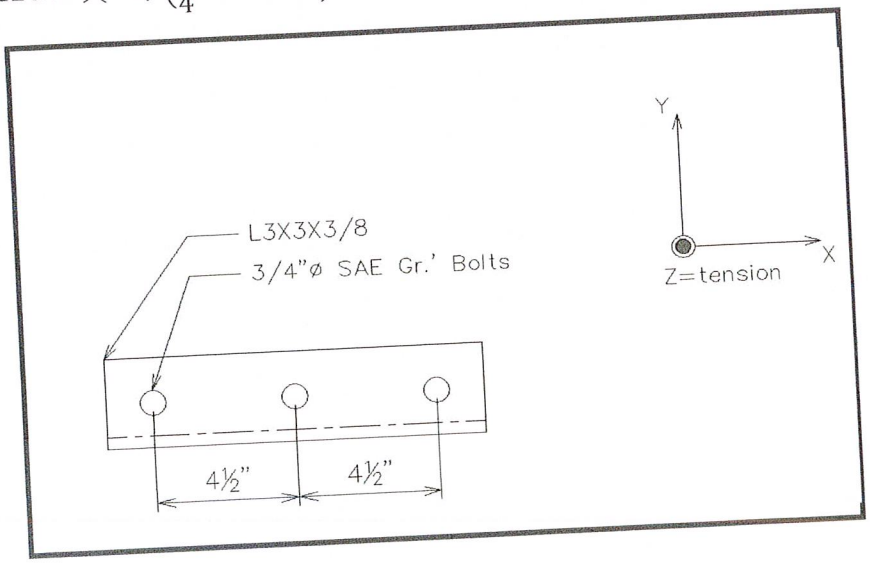
$$\emptyset T = \emptyset F_{ub} A_{nt}$$
$$\emptyset T = (.075)(120\ ksi)(0.344 in^2)$$
$\emptyset T$ = 30.96 kip

Shear

$$V_{Total} = \frac{\sqrt{F_x^2 + F_y^2}}{3\ bolts} + \frac{M_z / 0.375\ ft}{2\ bolts}$$

V_{Total} = 7.04 kip

$$\emptyset V = \emptyset(0.625) R b F_{ub} (0.8) A_b$$
$$\emptyset V = (0.75)(0.625)(1.0)(120 ksi)(0.8)\left(\frac{\pi}{4} \cdot 0.75 in^2\right)$$
$\emptyset V$ = 19.88 kip



Date: **April 26, 2023**

Vince Larson
Everest Infrastructure Partners
Two Allegheny Center, Nova Tower 2, Suite 703
Pittsburgh, PA 15212
(724) 996-7847

Tower Engineering Professionals, Inc.
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
structures@tepgroup.net

Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Reconfiguration**	
	Site Number:	CT1096
	Carrier Project Number/Name:	Windsor Locks CO
	FA Number:	10035034
Engineering Firm Designation:	**TEP Project Number:**	315790.845497
Site Data:	**20 Spring Street, Windsor Locks, Hartford County, CT 06096** **Latitude 41° 55' 47.76", Longitude -72° 37' 43.09"** **100 Foot Monopole Tower**	

Dear Vince Larson,

Tower Engineering Professionals, Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

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

LC1: Existing + Proposed + Future Loading **Sufficient Capacity**
Note: See Table 1 for the existing, proposed, and future loading

Structure Capacity	Foundation Capacity
92.1%	N/A

The analysis has been performed in accordance with the ANSI/TIA-222-H-2017 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 and the attached drawings for the determined available structural capacity to be effective.

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

Structural analysis prepared by: Kedis Wasef

Respectfully submitted by:

Aaron T. Rucker, P.E.

04/26/2023

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 104-ft monopole tower mapped by BTE Management Group in April of 2012. 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
Risk Category:	II
Wind Speed:	116 mph
Exposure Category:	C
Topographic Category:	1 (Kzt = 1.0)
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Design Category:	B
Seismic Ss:	0.175
Seismic S1:	0.055
Service Wind Speed:	60 mph

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

Existing/ Proposed	Elev. (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size (in)	Coax Location	Owner/ Tenant
Reserved	***104***	***3***	***Reserved Panels***	**-**	**-**	**-**	**-**	***AT&T***
Proposed	***104***	***3***	***CCI TPA65R-BU6DA-K***	Platform Mount RMQLP-496	***1*** ***Fiber***	***Inside***	***AT&T***	
		3	***CCI OP-A65R-BU6DA***		***1*** ***DC***			
		3	***Ericsson Radio 4478 B14***		***6*** ***Y-Cable***			
		3	***Ericsson Radio 8843 B2 B66A***					
		3	***Ericsson 4449 B5/B12***					
		1	***Raycap DC9-48-60-24-8C-EV***					
Existing	104	-	-		2	DC	Inside	AT&T
To Be Removed	*104*	*4*	*Andrew SBNH-1D6565C*	-	*6*	*1-5/8"*	*Inside*	*AT&T*
		3	*Kathrein 80010121*					
		2	*KMW AM-X-CD-17-65-00T-RET*					
		3	*Ericsson RRU 11 B12*					
		6	*Powerwave LGP-17201*					
		6	*Kathrein/Scala 78210250*					
		6	*Powerwave CM1007-DBPXBC-003*					
		1	*Raycap DC6-48-60-18-8F*					

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Source
Tower Mapping	BTE Management Group, LLC, dated April 27, 2012 TEP No. 315790.736896 - Rev.2	Everest
Previous Structural Analysis	B&T Engineering, Inc., dated May 23, 2012 B&T No. 84411	Everest
Mount Analysis Report	Tower Engineering Professionals, Inc., dated March 24, 2023 TEP No. 315790.736896 - Rev.2	TEP
Correspondence	Correspondence with Everest Infrastructure Partners regarding the existing, proposed, and future loading, dated April 18, 2023	Everest

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) 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 tower mapping report by TEP.
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.

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)	ØP_allow (K)	% Capacity	Pass / Fail
L1	100 - 87	Pole	TP16.41x14.65x0.219	1	-4.08	647.38	34.0	Pass
L2	87 - 45.58	Pole	TP21.75x15.7012x0.25	2	-7.38	980.78	76.6	Pass
L3	45.58 - 0	Pole	TP27.63x20.8785x0.344	3	-13.89	1742.85	72.2	Pass
							Summary	
						Pole (L2)	76.6	Pass
						RATING =	**76.6**	**Pass**

Table 4 - Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	38.6	Pass
1,2	Base Plate	-	91.2	Pass

Notes:
1) See additional documentation in "Appendix B - Additional Calculations" for calculations supporting the % capacity listed.
2) Rating per TIA-222-H Section 15.5
3)

Structure Rating (max from all components) =	**91.2%**

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

Elevation (ft)	Dish Model	Beam Deflection		
		Deflection (in)	Tilt (deg)	Twist (deg)
-	-	-	-	-

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 existing, proposed, and future loads. No modifications are required at this time.
3) TEP did not have sufficient information to perform a foundation analysis. If a foundation analysis is required, please provide TEP with foundation drawings and/or a geotechnical report for this site to determine the substructure capacity. If this information is not available, TEP recommends a foundation mapping and/or geotechnical investigation.

APPENDIX A

TNXTOWER OUTPUT

100.0 ft

87.0 ft

45.6 ft

0.0 ft

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	13.00	18	0.2190	2.00	14.6500	16.4100		0.5
2	43.42	18	0.2500	2.67	15.7012	21.7500	A572-65	2.2
3	48.25	18	0.3440		20.8785	27.6300		4.3
								6.9

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
RMQLP-496 w/ HRK14	100	RADIO 8843 B2/B66A	100
TPA-65R-BU6DA-K w/ Mount Pipe	100	RADIO 8843 B2/B66A	100
TPA-65R-BU6DA-K w/ Mount Pipe	100	RADIO 8843 B2/B66A	100
TPA-65R-BU6DA-K w/ Mount Pipe	100	RADIO 4449 B5/B12	100
OPA65R-BU6D w/ Mount Pipe	100	RADIO 4449 B5/B12	100
OPA65R-BU6D w/ Mount Pipe	100	RADIO 4449 B5/B12	100
OPA65R-BU6D w/ Mount Pipe	100	DC9-48-60-24-8C-EV	100
RADIO 4478 B14	100	Reserved Panel	100
RADIO 4478 B14	100	Reserved Panel	100
RADIO 4478 B14	100	Reserved Panel	100

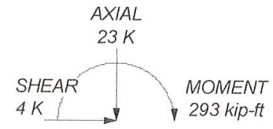
MATERIAL STRENGTH

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

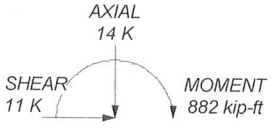
TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 76.6%

ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE



TORQUE 0 kip-ft
REACTIONS - 116 mph WIND

Tower Engineering Professionals, Inc

TOWER ENGINEERING PROFESSIONALS, INC.
326 TRYON RD
RALEIGH, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job:	*Windsor Locks CO*
Project:	*TEP No. 315790.845497*
Client: Everest Infrastructure Partners	Drawn by: Kedis Wasef
Code: TIA-222-H	Date: 04/26/23
Path: G:\Shared drives\315357 - 316038\315790P-396721 L-845497, 701777 Windsor Locks CO Structural Analysis\Windsor Locks CO.tnl	App'd:
	Scale: N
	Dwg No. E

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:
Tower base elevation above sea level: 62.80 ft.
Basic wind speed of 116 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	100.00-87.00	13.00	2.0000	18	14.6500	16.4100	0.2190	0.8760	A572-65 (65 ksi)
L2	87.00-45.58	43.42	2.6670	18	15.7012	21.7500	0.2500	1.0000	A572-65 (65 ksi)
L3	45.58-0.00	48.25		18	20.8785	27.6300	0.3440	1.3760	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in²	I in⁴	r in	C in	I/C in³	J in⁴	It/Q in²	w in	w:t
	16.6294	11.2545	372.7430	5.7478	8.3363	44.7134	745.9765	5.6283	2.5027	11.428
L2	16.1878	12.2606	369.8057	5.4852	7.9762	46.3635	740.0981	6.1314	2.3234	9.294
	22.0470	17.0603	996.3221	7.6325	11.0490	90.1731	1993.9552	8.5317	3.3880	13.552
L3	21.5265	22.4207	1194.4088	7.2897	10.6063	112.6136	2390.3892	11.2125	3.0692	8.922
	28.0032	29.7924	2802.3504	9.6865	14.0360	199.6539	5608.3882	14.8990	4.2574	12.376

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1				1	1	1			
100.00-87.00									
L2 87.00-45.58				1	1	1			
L3 45.58-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
*****											
*****											
*****											

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_f ft² / ft	Weight plf
Safety Line 3/8	C	No	No	CaAa (Out Of Face)	100.00 - 5.00	1	No Ice	0.04	0.22
							1/2" Ice	0.14	0.75
							1" Ice	0.24	1.28
							2" Ice	0.44	2.34

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2 ft	Weight plf
Climbing Pegs	C	No	No	CaAa (Out Of Face)	100.00 - 5.00	1	No Ice	0.09	1.77
							1/2" Ice	0.19	2.62
							1" Ice	0.29	4.08
							2" Ice	0.49	8.83
*****									
3/4" DC	C	No	No	Inside Pole	100.00 - 5.00	3	No Ice	0.00	1.24
							1/2" Ice	0.00	1.24
							1" Ice	0.00	1.24
							2" Ice	0.00	1.24
0.5" Fiber Cable	C	No	No	Inside Pole	100.00 - 5.00	1	No Ice	0.00	0.13
							1/2" Ice	0.00	0.13
							1" Ice	0.00	0.13
							2" Ice	0.00	0.13
Y-Cable	C	No	No	Inside Pole	100.00 - 5.00	6	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
*****									
*****									
*****									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	100.00-87.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.646	0.13
L2	87.00-45.58	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.244	0.42
L3	45.58-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.137	0.41

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	100.00-87.00	A	1.415	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	9.003	0.21
L2	87.00-45.58	A	1.366	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	28.684	0.66
L3	45.58-0.00	A	1.229	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	27.304	0.63

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	100.00-87.00	-0.7855	0.4535	-1.8269	1.0548
L2	87.00-45.58	-0.8019	0.4630	-1.9660	1.1351
L3	45.58-0.00	-0.7261	0.4192	-1.8815	1.0863

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RMQLP-496 w/ HRK14	C	None			0.0000	100.00	No Ice	33.03	33.03	2.10
							1/2" Ice	44.60	44.60	2.69
							1" Ice	56.17	56.17	3.29
							2" Ice	79.31	79.31	4.48
TPA-65R-BU6DA-K w/ Mount Pipe	A	From Face	4.00	0.00	0.0000	100.00	No Ice	18.09	10.50	0.13
			0.00	4.00			1/2" Ice	18.72	11.93	0.25
							1" Ice	19.36	13.02	0.39
							2" Ice	20.66	15.24	0.69
TPA-65R-BU6DA-K w/ Mount Pipe	B	From Face	4.00	0.00	0.0000	100.00	No Ice	18.09	10.50	0.13
			0.00	4.00			1/2" Ice	18.72	11.93	0.25
							1" Ice	19.36	13.02	0.39
							2" Ice	20.66	15.24	0.69
TPA-65R-BU6DA-K w/ Mount Pipe	C	From Face	4.00	0.00	0.0000	100.00	No Ice	18.09	10.50	0.13
			0.00	4.00			1/2" Ice	18.72	11.93	0.25
							1" Ice	19.36	13.02	0.39
							2" Ice	20.66	15.24	0.69
OPA65R-BU6D w/ Mount Pipe	A	From Face	4.00	0.00	0.0000	100.00	No Ice	13.11	7.32	0.09
			0.00	4.00			1/2" Ice	13.71	8.49	0.18
							1" Ice	14.28	9.37	0.28
							2" Ice	15.43	11.19	0.51
OPA65R-BU6D w/ Mount Pipe	B	From Face	4.00	0.00	0.0000	100.00	No Ice	13.11	7.32	0.09
			0.00	4.00			1/2" Ice	13.71	8.49	0.18
							1" Ice	14.28	9.37	0.28
							2" Ice	15.43	11.19	0.51
OPA65R-BU6D w/ Mount Pipe	C	From Face	4.00	0.00	0.0000	100.00	No Ice	13.11	7.32	0.09
			0.00	4.00			1/2" Ice	13.71	8.49	0.18
							1" Ice	14.28	9.37	0.28
							2" Ice	15.43	11.19	0.51
RADIO 4478 B14	A	From Face	4.00	0.00	0.0000	100.00	No Ice	2.02	1.25	0.06
			0.00	4.00			1/2" Ice	2.20	1.40	0.08
							1" Ice	2.39	1.55	0.10
							2" Ice	2.78	1.89	0.15
RADIO 4478 B14	B	From Face	4.00	0.00	0.0000	100.00	No Ice	2.02	1.25	0.06
			0.00				1/2" Ice	2.20	1.40	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			4.00			1" Ice	2.39	1.55	0.10
						2" Ice	2.78	1.89	0.15
RADIO 4478 B14	C	From Face	4.00	0.0000	100.00	No Ice	2.02	1.25	0.06
			0.00			1/2" Ice	2.20	1.40	0.08
			4.00			1" Ice	2.39	1.55	0.10
						2" Ice	2.78	1.89	0.15
RADIO 8843 B2/B66A	A	From Face	4.00	0.0000	100.00	No Ice	1.64	1.38	0.08
			0.00			1/2" Ice	1.80	1.53	0.09
			4.00			1" Ice	1.97	1.69	0.11
						2" Ice	2.33	2.02	0.16
RADIO 8843 B2/B66A	B	From Face	4.00	0.0000	100.00	No Ice	1.64	1.38	0.08
			0.00			1/2" Ice	1.80	1.53	0.09
			4.00			1" Ice	1.97	1.69	0.11
						2" Ice	2.33	2.02	0.16
RADIO 8843 B2/B66A	C	From Face	4.00	0.0000	100.00	No Ice	1.64	1.38	0.08
			0.00			1/2" Ice	1.80	1.53	0.09
			4.00			1" Ice	1.97	1.69	0.11
						2" Ice	2.33	2.02	0.16
RADIO 4449 B5/B12	A	From Face	4.00	0.0000	100.00	No Ice	1.64	1.30	0.07
			0.00			1/2" Ice	1.80	1.45	0.09
			4.00			1" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
RADIO 4449 B5/B12	B	From Face	4.00	0.0000	100.00	No Ice	1.64	1.30	0.07
			0.00			1/2" Ice	1.80	1.45	0.09
			4.00			1" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
RADIO 4449 B5/B12	C	From Face	4.00	0.0000	100.00	No Ice	1.64	1.30	0.07
			0.00			1/2" Ice	1.80	1.45	0.09
			4.00			1" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
DC9-48-60-24-8C-EV	B	From Face	4.00	0.0000	100.00	No Ice	1.14	1.14	0.03
			0.00			1/2" Ice	1.79	1.79	0.05
			4.00			1" Ice	2.00	2.00	0.07
						2" Ice	2.45	2.45	0.13
***									
Reserved Panel	A	From Face	4.00	0.0000	100.00	No Ice	11.68	9.84	0.10
			0.00			1/2" Ice	12.40	11.37	0.19
			4.00			1" Ice	13.14	12.91	0.29
						2" Ice	14.51	15.27	0.52
Reserved Panel	B	From Face	4.00	0.0000	100.00	No Ice	11.68	9.84	0.10
			0.00			1/2" Ice	12.40	11.37	0.19
			4.00			1" Ice	13.14	12.91	0.29
						2" Ice	14.51	15.27	0.52
Reserved Panel	C	From Face	4.00	0.0000	100.00	No Ice	11.68	9.84	0.10
			0.00			1/2" Ice	12.40	11.37	0.19
			4.00			1" Ice	13.14	12.91	0.29
						2" Ice	14.51	15.27	0.52
***									

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
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 ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 87	25.378	42	2.3097	0.0013
L2	89 - 45.58	20.182	42	2.1783	0.0007
L3	48.247 - 0	5.692	42	1.1158	0.0001

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

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	RMQLP-496 w/ HRK14	42	25.378	2.3097	0.0013	6661

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 87	101.298	8	9.2322	0.0040
L2	89 - 45.58	80.603	8	8.7120	0.0024
L3	48.247 - 0	22.763	8	4.4653	0.0018

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	RMQLP-496 w/ HRK14	8	101.298	9.2322	0.0040	1753

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in²	P_n K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	100 - 87 (1)	TP16.41x14.65x0.219	13.00	0.00	0.0	11.0662	-4.08	647.38	0.006
L2	87 - 45.58 (2)	TP21.75x15.7012x0.25	43.42	0.00	0.0	16.7654	-7.38	980.78	0.008
L3	45.58 - 0 (3)	TP27.63x20.8785x0.344	48.25	0.00	0.0	29.7924	-13.89	1742.85	0.008

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	100 - 87 (1)	TP16.41x14.65x0.219	89.09	267.59	0.333	0.00	267.59	0.000
L2	87 - 45.58 (2)	TP21.75x15.7012x0.25	408.41	539.05	0.758	0.00	539.05	0.000
L3	45.58 - 0 (3)	TP27.63x20.8785x0.344	881.92	1236.11	0.713	0.00	1236.11	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	100 - 87 (1)	TP16.41x14.65x0.219	6.84	194.21	0.035	0.00	270.77	0.000
L2	87 - 45.58 (2)	TP21.75x15.7012x0.25	8.81	294.23	0.030	0.00	544.43	0.000
L3	45.58 - 0 (3)	TP27.63x20.8785x0.344	10.69	522.86	0.020	0.08	1249.40	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	100 - 87 (1)	0.006	0.333	0.000	0.035	0.000	0.340	1.000	4.8.2
L2	87 - 45.58 (2)	0.008	0.758	0.000	0.030	0.000	0.766	1.000	4.8.2
L3	45.58 - 0 (3)	0.008	0.713	0.000	0.020	0.000	0.722	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	100 - 87	Pole	TP16.41x14.65x0.219	1	-4.08	647.38	34.0	Pass
L2	87 - 45.58	Pole	TP21.75x15.7012x0.25	2	-7.38	980.78	76.6	Pass
L3	45.58 - 0	Pole	TP27.63x20.8785x0.344	3	-13.89	1742.85	72.2	Pass
						Summary		
						Pole (L2)	76.6	Pass
						RATING =	**76.6**	**Pass**

APPENDIX B

ADDITIONAL CALCULATIONS

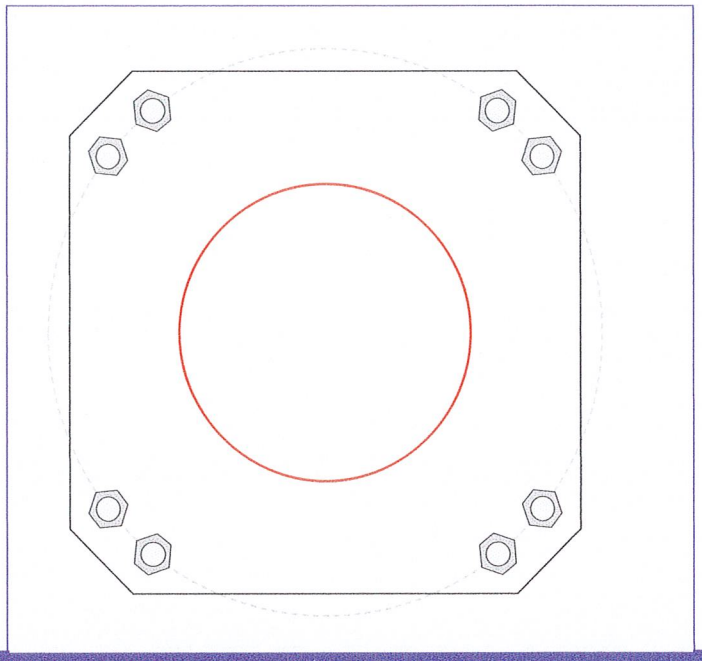
Monopole Base Plate Connection

Site Info	
BU #	10035034
Site Name	Windsor Locks CO
Order #	315790.845497

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

Applied Loads	
Moment (kip-ft)	881.93
Axial Force (kips)	13.89
Shear Force (kips)	10.69

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(8) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 52.63" BC

Anchor Spacing: 6 in

Base Plate Data

48.5" W x 2.5" Plate (S-128; Fy=60 ksi, Fu=80 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

27.63" x 0.344" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

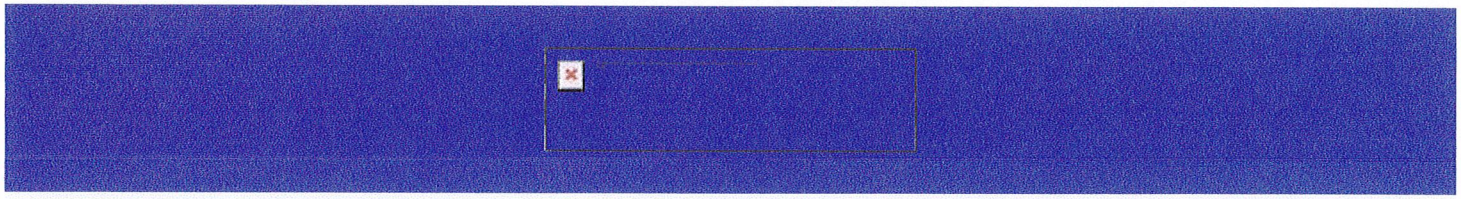
Pu_t = 98.73	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.34	ϕVn = 149.1	**38.6%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	51.69	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**91.2%**	**Pass**

Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Friday, January 12, 2024 9:43 AM
To: Kristina Robinson
Subject: FedEx Shipment 774789085655: Your package has been delivered



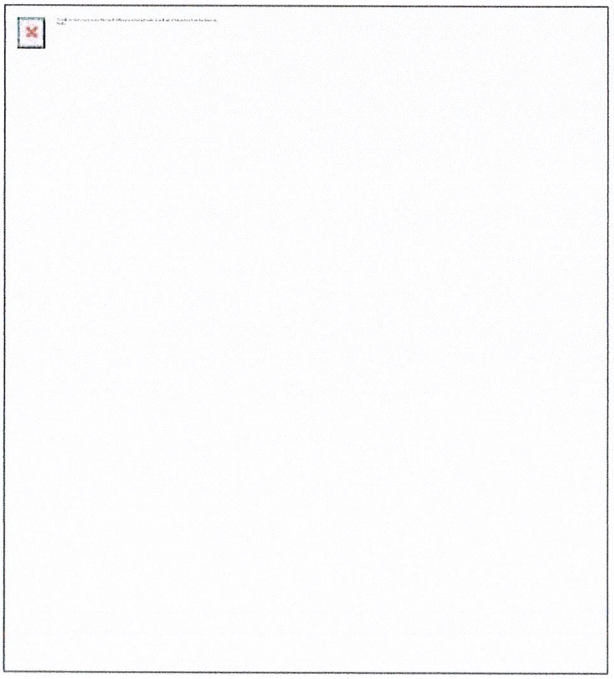
Hi. Your package was delivered Fri, 01/12/2024 at 9:35am.

Delivered to 2 ALLEGHENY CTR, PITTSBURGH, PA 15212
Received by M.SALAMACHA

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	774789085655
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	EIP Communications I, LLC ATTN: Casey Gerlach Two Allegheny Center Nova Tower 2, Suite 1002 PITTSBURGH, PA, US, 15212
REFERENCE	CTL01096 - Windsor Locks
SHIPPER REFERENCE	CTL01096 - Windsor Locks
SHIP DATE	Thu 1/11/2024 03:07 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	PITTSBURGH, PA, US, 15212
NUMBER OF PIECES	1
SERVICE TYPE	FedEx Standard Overnight



Tracking Number:

9500110255674011942806

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Your item has been delivered and is available at a PO Box at 10:55 am on January 13, 2024 in ADDISON, TX 75001.

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Delivered

Delivered, PO Box
ADDISON, TX 75001
January 13, 2024, 10:55 am

Arrived at Post Office
ADDISON, TX 75001
January 13, 2024, 7:15 am

Arrived at USPS Facility
ADDISON, TX 75001
January 13, 2024, 6:51 am

Departed USPS Regional Facility
COPPELL TX DISTRIBUTION CENTER
January 13, 2024, 6:26 am

Arrived at USPS Regional Destination Facility
COPPELL TX DISTRIBUTION CENTER
January 13, 2024, 4:22 am

In Transit to Next Facility
January 12, 2024

Arrived at USPS Regional Origin Facility
MIDDLESEX-ESSEX MA DISTRIBUTION CENTER
January 11, 2024, 8:08 pm

Departed Post Office
NORTH ANDOVER, MA 01845
January 11, 2024, 5:07 pm

USPS in possession of item
NORTH ANDOVER, MA 01845
January 11, 2024, 3:33 pm

Hide Tracking History

Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Friday, January 12, 2024 10:36 AM
To: Kristina Robinson
Subject: FedEx Shipment 774788985403: Your package has been delivered

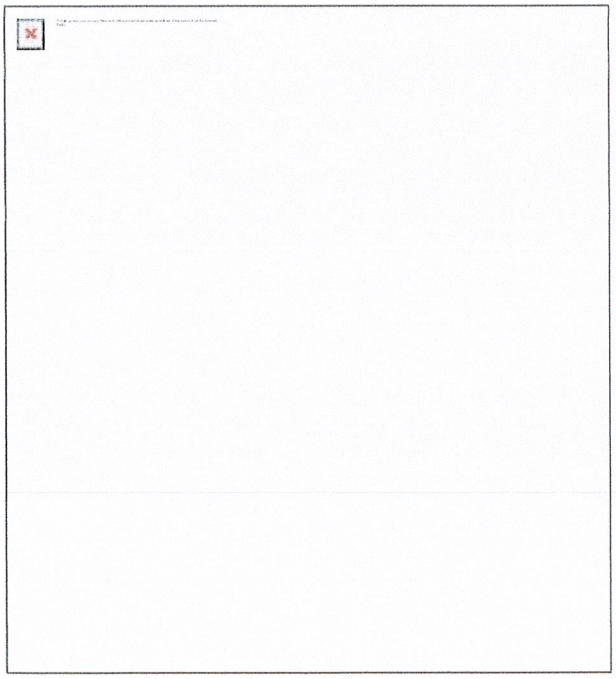
Hi. Your package was delivered Fri, 01/12/2024 at 10:21am.

Delivered to 50 CHURCH ST, WINDSOR LOCKS, CT 06096
Received by A.GHATTI

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	774788985403
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of Windsor Locks ATTN: Paul M. Harrington, First Sel 50 Church Street WINDSOR LOCKS, CT, US, 06096
REFERENCE	CTL01096 - Windsor Locks
SHIPPER REFERENCE	CTL01096 - Windsor Locks
SHIP DATE	Thu 1/11/2024 03:07 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	WINDSOR LOCKS, CT, US, 06096
NUMBER OF PIECES	1
SERVICE TYPE	FedEx Standard Overnight



Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Friday, January 12, 2024 10:32 AM
To: Kristina Robinson
Subject: FedEx Shipment 774789004114: Your package has been delivered

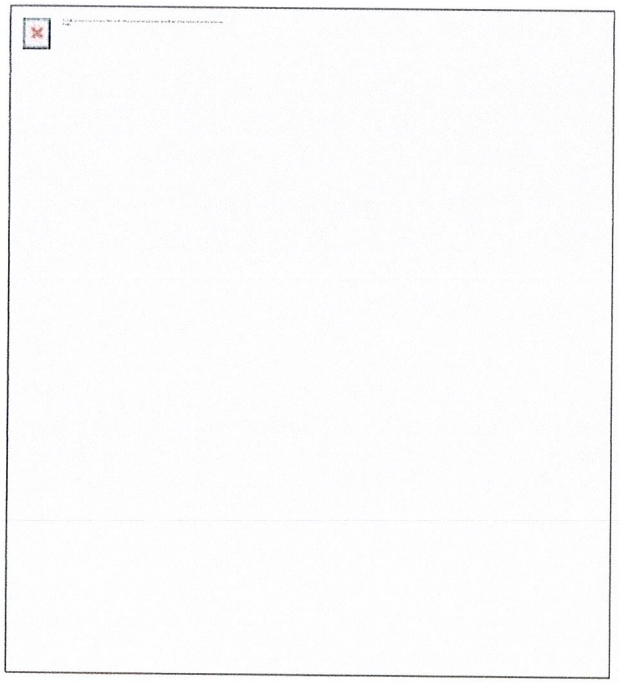
Hi. Your package was delivered Fri, 01/12/2024 at 10:21am.

Delivered to 50 CHURCH ST, WINDSOR LOCKS, CT 06096
Received by A.GHATTI

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	774789004114
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of Windsor Locks ATTN: Mark Doody, Building Official 50 Church Street WINDSOR LOCKS, CT, US, 06096
REFERENCE	CTL01096 - Windsor Locks
SHIPPER REFERENCE	CTL01096 - Windsor Locks
SHIP DATE	Thu 1/11/2024 03:07 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	WINDSOR LOCKS, CT, US, 06096
NUMBER OF PIECES	1
SERVICE TYPE	FedEx Standard Overnight



PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE TOWER:
- INSTALL AT&T ANTENNAS: TPA65R-BU6DA-K @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL AT&T ANTENNAS: OPA65R-BU6DA @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- INSTALL AT&T RRUS: 4478 B14 (700) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL AT&T RRUS: 8843 B2/B66A (1900/AWS) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL AT&T RRUS: 4449 B5/B12 (700/850) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL AT&T SURGE ARRESTOR: DC9-48-60-24-8C-EV (TOTAL OF 1)
- INSTALL AT&T (6) Y-CABLES.
- INSTALL AT&T (3) #6 AWG DC POWER CABLE & (1) 24 PAIR FIBER RUN.
- INSTALL AT&T (1) 2" INNERDUCT INSIDE MONOPOLE SHAFT

ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION:
- ADD 1X6651+XCEDE CABLE
FINAL CONFIG: 1X6630+1X6651+XCEDE CABLE.
- INSTALL BATTERY RACK WITH 5 STRINGS OF BATTERIES (TO REPLACE EXISTING BATTERIES & RACK).
- INSTALL NETSURE 7100 POWER PLANT WITH (10) RECTIFIERS & (2) +24V DC CONVERTERS
(TO REPLACE EXISTING LINEAGE 2000 POWER PLANT).
- ADD (1) DC12-48-60-RM RACK MOUNTED RAYCAP

ITEMS TO BE REMOVED:
- DECOMMISSION EXISTING AT&T ANTENNA: SBNH-1D6565C (TYP. OF 2 PER ALPHA & BETA SECTORS, TOTAL OF 4).
- DECOMMISSION EXISTING AT&T ANTENNA: 800-10121 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T ANTENNA: AM-X-CD-17-65-00T-RET (TOTAL OF 2 FOR GAMMA SECTOR).
- DECOMMISSION EXISTING AT&T RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T TMAS: DTMABP7819VG12A (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T TMAS: 78210250 (TYP. OF 2 PER SECTOR, TOTAL OF 6)
- DECOMMISSION EXISTING AT&T TMAS: 824-896MHZ (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- DECOMMISSION EXISTING (6) 1-5/8" COAX
- DECOMMISSION EXISTING (2) DC TRUNKS & (1) 12 PAIR FIBER.
- DECOMMISSION EXISTING AT&T POWER PLANT
- DECOMMISSION EXISTING RACK-MOUNTED ALPHA STAND-ALONE CONVERTER SHELF

ITEMS TO REMAIN:
- (6) 1-5/8" COAX.

RFDS:	FINAL APPROVED V7 RFDS 04/16/2023
SITE ADDRESS:	20 SPRING STREET WINDSOR LOCKS, CT 06096
LATITUDE:	41.9299361° N, 41° 55' 47.76" N
LONGITUDE:	72.6286381° W, 72° 37' 43.09" W
TYPE OF SITE:	MONOPOLE TOWER / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	100'-0"±
RAD CENTER:	104'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	4
GN-1	GENERAL NOTES	4
A-1	COMPOUND & EQUIPMENT PLAN	4
A-2	ANTENNA LAYOUTS & ELEVATION	4
A-3	DETAILS	4
G-1	GROUNDING DETAILS	4
RF-1	RF PLUMBING DIAGRAM	4

SITE NUMBER: CTL01096

SITE NAME: WINDSOR LOCKS CO

FA CODE: 10035034

PACE ID: MRCTB062170, MRCTB062307, MRCTB062367, MRCTB062348, MRCTB062353

PROJECT: LTE 3C, 5G NR 1DR-2, ANTENNA MODS, 5G NR RADIO, 5G NR 1DR-1 2023 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

HEAD SOUTH TOWARD ENTERPRISE DR, TURN LEFT ONTO ENTERPRISE DR, TURN LEFT ONTO CAPITAL BLVD, USE THE LEFT LANE TO TURN LEFT ONTO STATE HWY 411, TURN LEFT TO MERGE WITH I-91 N, MERGE WITH I-91 N, PARTS OF THIS ROAD MAY BE CLOSED AT CERTAIN TIMES OR DAYS, TAKE EXIT 42 TOWARD CT-159/WINDSOR LOCKS, TURN LEFT ONTO LAWNACRE RD, CONTINUE ONTO S MAIN ST, TURN LEFT ONTO SPRING ST, TURN LEFT, SLIGHT RIGHT, DESTINATION WILL BE ON THE RIGHT, WINDSOR LOCKS, CT 06096.

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.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

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

smartlink
SMARTLINK
1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CTL01096
SITE NAME: WINDSOR LOCKS CO

20 SPRING STREET
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
4	12/11/23	ISSUED FOR CONSTRUCTION	SG	MKT	DPH
3	03/24/23	ISSUED FOR CONSTRUCTION	JS	MKT	DPH
2	12/19/22	ISSUED FOR CONSTRUCTION	KW	MKT	DPH
1	11/09/22	ISSUED FOR REVIEW	JS	MKT	DPH
0	09/16/22	ISSUED FOR REVIEW	JS	MKT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

AT&T

TITLE SHEET
LTE 3C, 5G NR 1DR-2, ANTENNA MODS, 5G NR RADIO, 5G NR 1DR-1

SITE NUMBER	DRAWING NUMBER	REV
CTL01096	T-1	4

GROUNDING NOTES

1. 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.

2. 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.

3. 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.

4. 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.

5. 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.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. 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.

12. 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

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

   CONTRACTOR – SMARTLINK
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. 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.

3. 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.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "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.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. 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.

9. 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.

10. 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.

11. 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.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. 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 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL 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 (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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SITE NUMBER: CTL01096
SITE NAME: WINDSOR LOCKS CO

20 SPRING STREET
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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GENERAL NOTES
LTE 3C, 5G NR 1DR-2, ANTENNA MODS, 5G NR RADIO, 5G NR 1DR-1

SITE NUMBER	DRAWING NUMBER	REV
CTL01096	GN-1	4

NOTE:

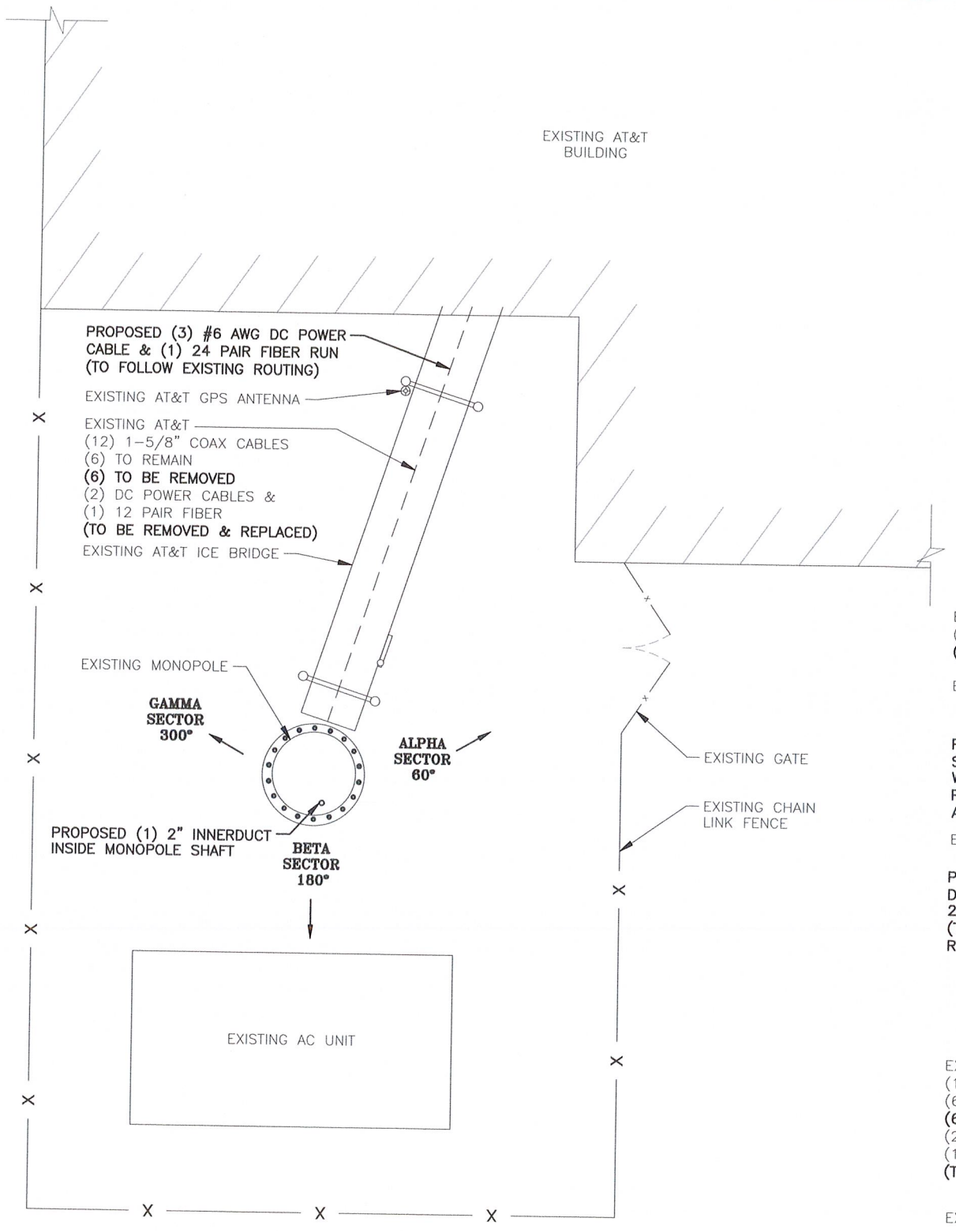
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:

REFER TO MOUNT STRUCTURAL ANALYSIS BY: TOWER ENGINEERING PROFESSIONALS DATED: MAY 8, 2023 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

REFER TO FINAL APPROVED V7 RFDS 04/16/2023

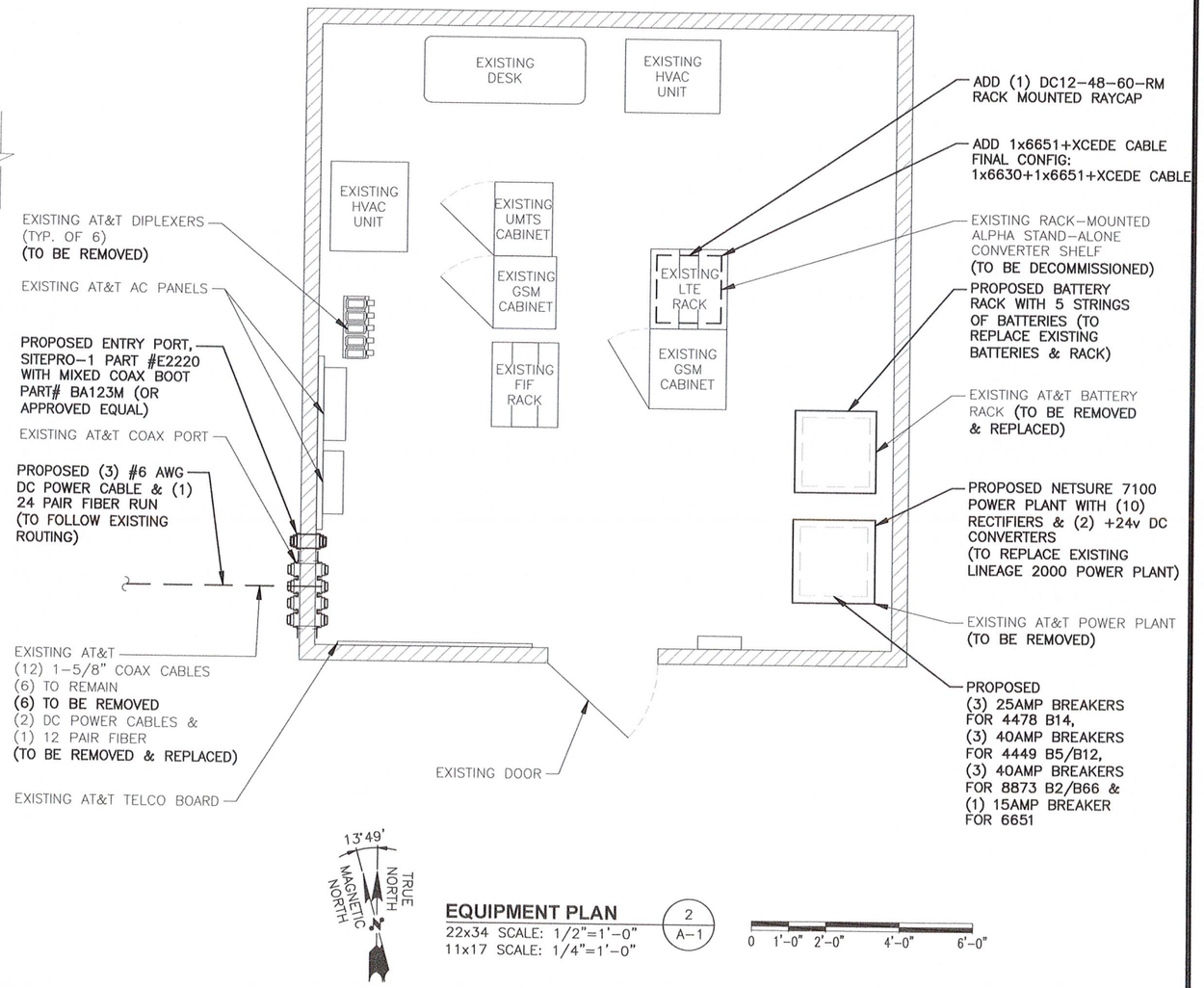


COMPOUND PLAN

1 A-1

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"



EQUIPMENT PLAN

2 A-1

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

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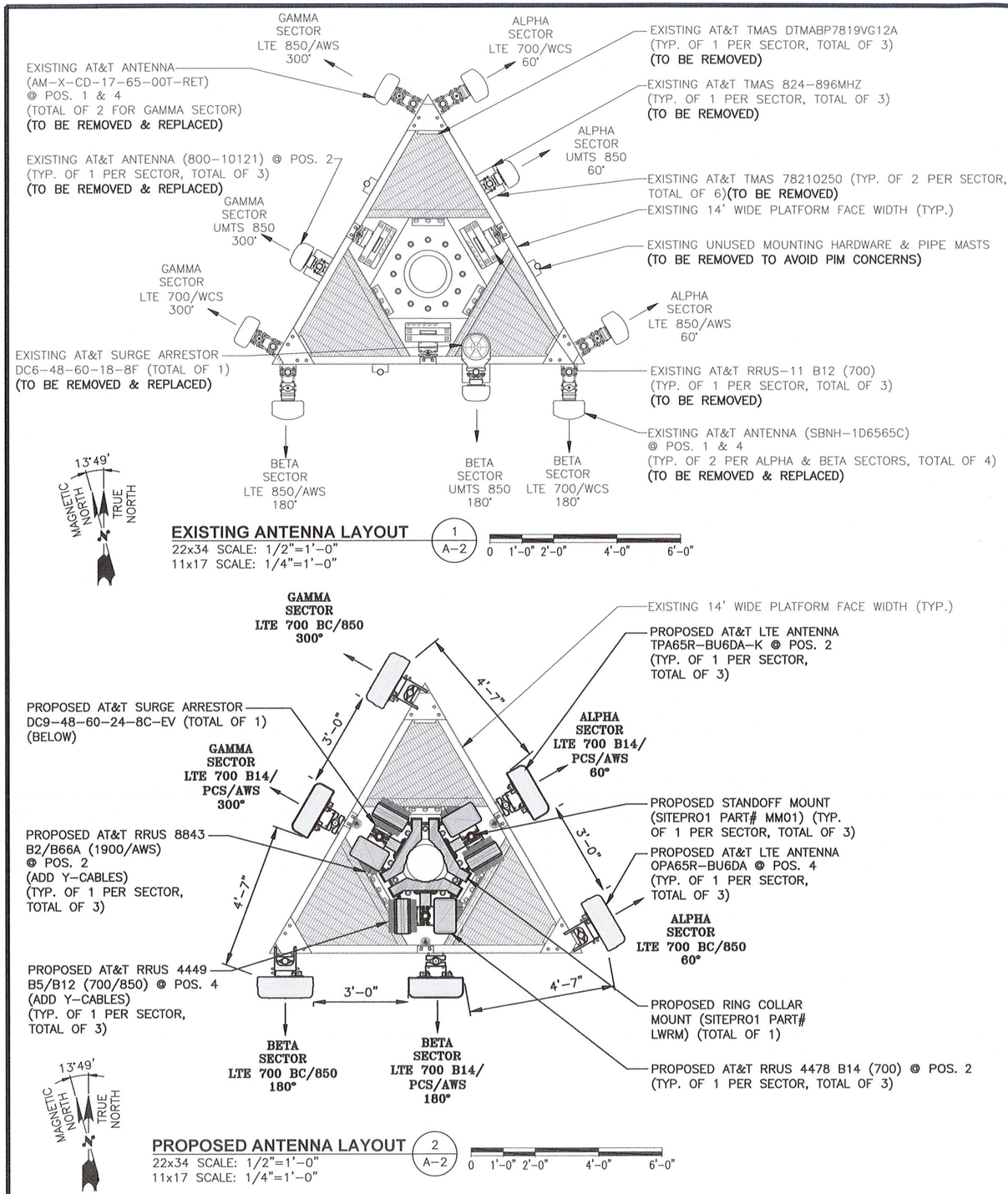
COMPOUND & EQUIPMENT PLANS
LTE 3C, 5G NR 1DR-2, ANTENNA MODS, 5G NR RADIO, 5G NR 1DR-1

SITE NUMBER	DRAWING NUMBER	REV
CTL01096	A-1	4



EXISTING ANTENNA LAYOUT

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

1 / A-2

0 1'-0" 2'-0" 4'-0" 6'-0"

PROPOSED ANTENNA LAYOUT

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

2 / A-2

0 1'-0" 2'-0" 4'-0" 6'-0"

NOTE:
REFER TO FINAL APPROVED V7 RFDS 04/16/2023

NOTE:
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NOTE:
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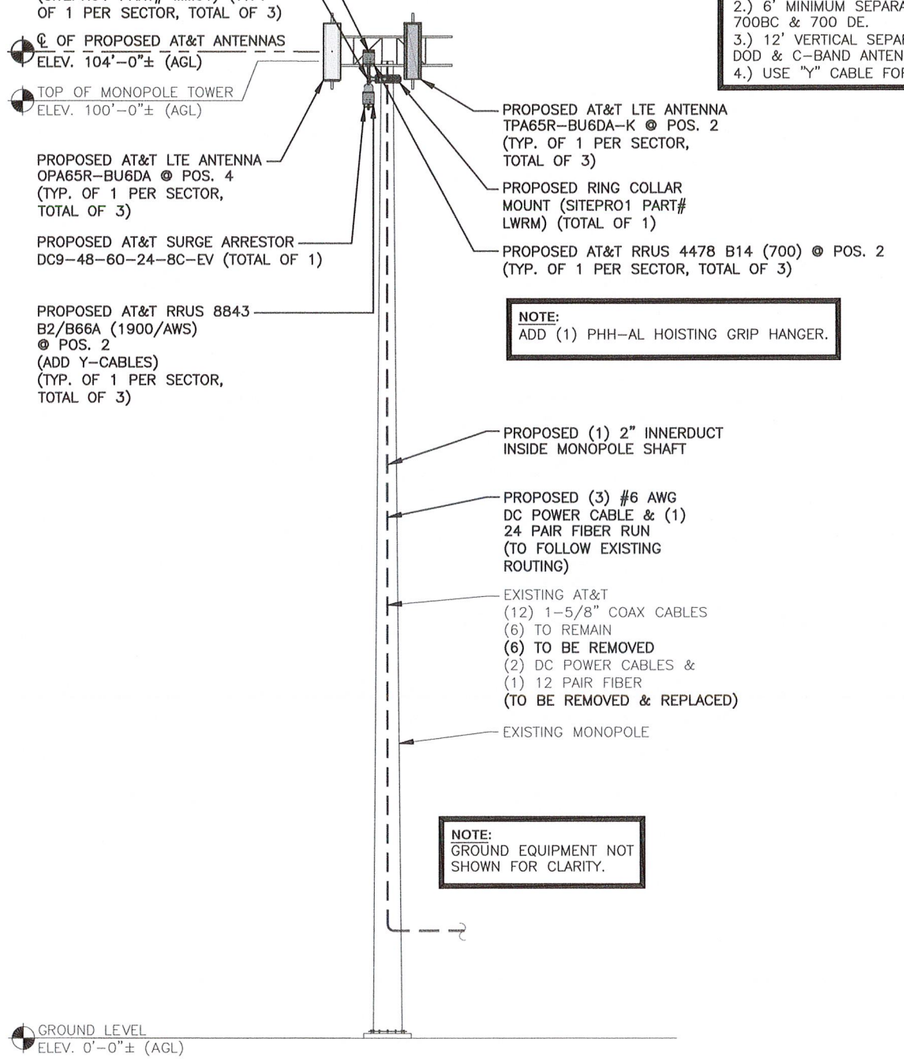
NOTE:
1.) 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
2.) 6' MINIMUM SEPARATION BETWEEN 700BC & 700 DE.
3.) 12' VERTICAL SEPARATION BETWEEN DOD & C-BAND ANTENNA.
4.) USE "Y" CABLE FOR DUAL BAND RRHs.



NOTE:
ADD (1) PHH-AL HOISTING GRIP HANGER.

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

ELEVATION

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

3 / A-2

0 4'-0" 8'-0" 16'-0" 24'-0"

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ANTENNA LAYOUTS & ELEVATION
LTE 3C, 5G NR 1DR-2, ANTENNA MODS, 5G NR RADIO, 5G NR 1DR-1

SITE NUMBER	DRAWING NUMBER	REV
CTL01096	A-2	4

ANTENNA SCHEDULE

FINAL APPROVED V7 RFDS 04/16/2023

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	(E)(2) 1-5/8" COAX	(P) (1) RAYCAP DC9-48-60-24-8C-EV
A2	PROPOSED	LTE 700 B14/ PCS/AWS	TPA65R-BU6DA-K	71.2"X20.7"X7.7"	104'-0"±	60°	–	(P)(1)RRUS-4478 B14 (700) (P)(1)RRUS-8843 B2/B66A (1900/AWS)	18.1"x13.4"x8.3" 14.9"x13.2"x10.9"	(P)(1)(Y-CABLE)	
A3	–	–	–	–	–	–	–	–	–	(P)(3) #6AWG DC POWER & (P)(1) 24 PAIR FIBER (APPROX. LENGTH=140'±)	
A4	PROPOSED	LTE 700 BC/850	OPA65R-BU6DA	71.2"X21"X7.8"	104'-0"±	60°	–	(P)(1)RRUS-4449 B5/B12 (850/700)	17.9"x13.2"x10.4"	(P)(1)(Y-CABLE)	
B1	–	–	–	–	–	–	–	–	–	(E)(2) 1-5/8" COAX	SHARED
B2	PROPOSED	LTE 700 B14/ PCS/AWS	TPA65R-BU6DA-K	71.2"X20.7"X7.7"	104'-0"±	180°	–	(P)(1)RRUS-4478 B14 (700) (P)(1)RRUS-8843 B2/B66A (1900/AWS)	18.1"x13.4"x8.3" 14.9"x13.2"x10.9"	(P)(1)(Y-CABLE)	
B3	–	–	–	–	–	–	–	–	–	–	
B4	PROPOSED	LTE 700 BC/850	OPA65R-BU6DA	71.2"X21"X7.8"	104'-0"±	180°	–	(P)(1)RRUS-4449 B5/B12 (850/700)	17.9"x13.2"x10.4"	(P)(1)(Y-CABLE)	
C1	–	–	–	–	–	–	–	–	–	(E)(2) 1-5/8" COAX	SHARED
C2	PROPOSED	LTE 700 B14/ PCS/AWS	TPA65R-BU6DA-K	71.2"X20.7"X7.7"	104'-0"±	300°	–	(P)(1)RRUS-4478 B14 (700) (P)(1)RRUS-8843 B2/B66A (1900/AWS)	18.1"x13.4"x8.3" 14.9"x13.2"x10.9"	(P)(1)(Y-CABLE)	
C3	–	–	–	–	–	–	–	–	–	–	
C4	PROPOSED	LTE 700 BC/850	OPA65R-BU6DA	71.2"X21"X7.8"	104'-0"±	300°	–	(P)(1)RRUS-4449 B5/B12 (850/700)	17.9"x13.2"x10.4"	(P)(1)(Y-CABLE)	

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:
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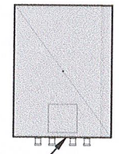
NOTE:
REFER TO FINAL APPROVED V7 RFDS 04/16/2023

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
P(3)	4449 B5/B12 (850/700)	17.9"x13.2"x10.4"
P(3)	8843 B2/B66A (PCS/AWS)	14.9"x13.2"x10.9"
P(3)	4478 B14 (700)	18.1"x13.4"x8.3"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

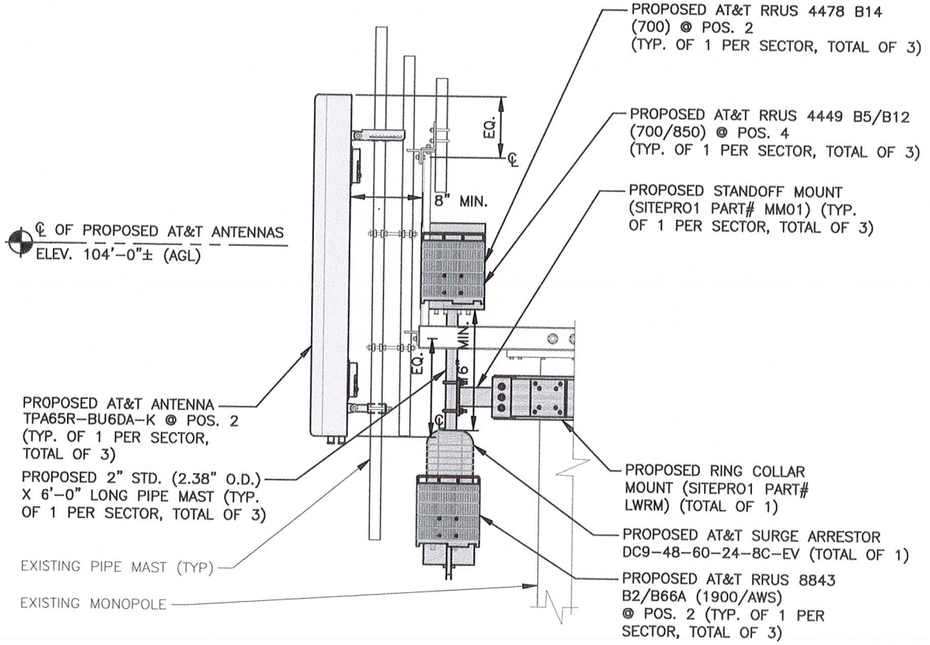


PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

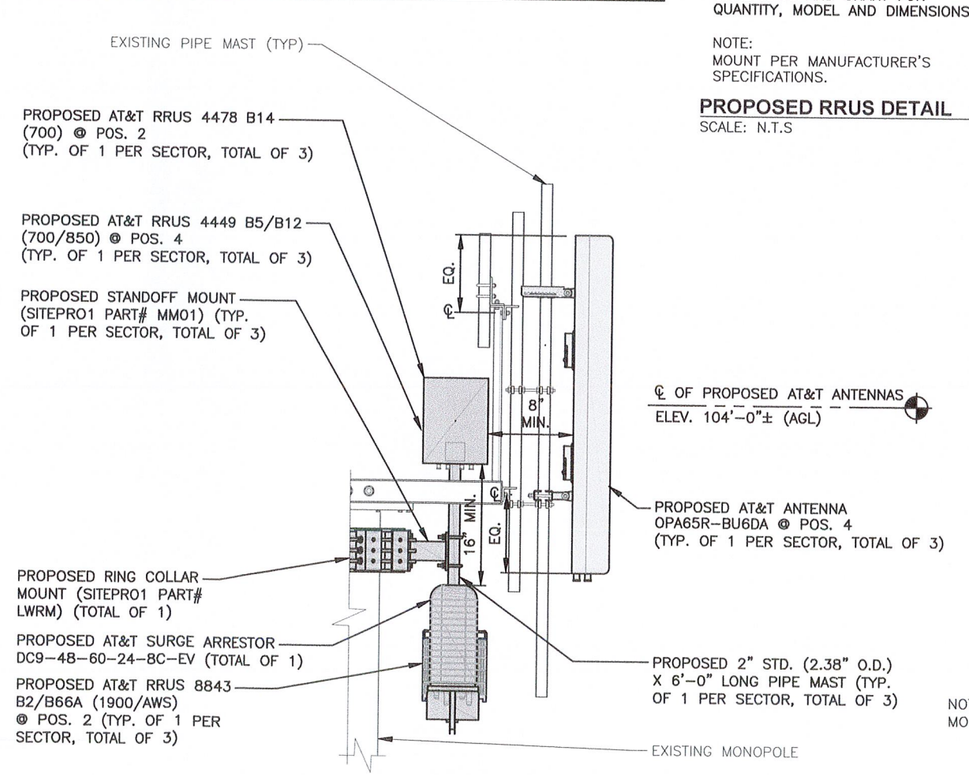
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (2 / A-3)
SCALE: N.T.S

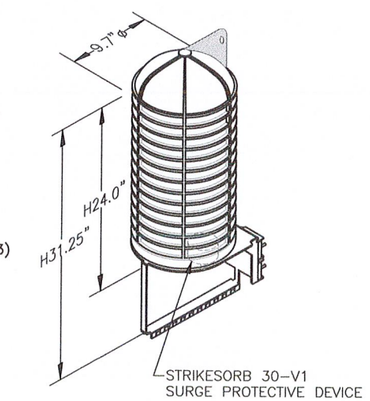
FINAL ANTENNA CONFIGURATION (1 / A-3)
SCALE: N.T.S



PROPOSED ANTENNA @ POS. 2 (3 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"



PROPOSED ANTENNA @ POS. 4 (4 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED SURGE PROTECTOR DETAIL (5 / A-3)
SCALE: N.T.S

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

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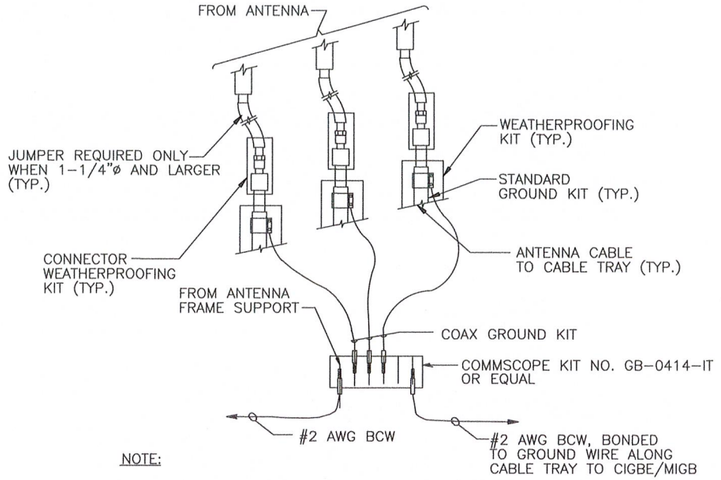
DETAILS
LTE 3C, 5G NR 1DR-2, ANTENNA MODS, 5G NR RADIO, 5G NR 1DR-1

SITE NUMBER	DRAWING NUMBER	REV
CTL01096	A-3	4



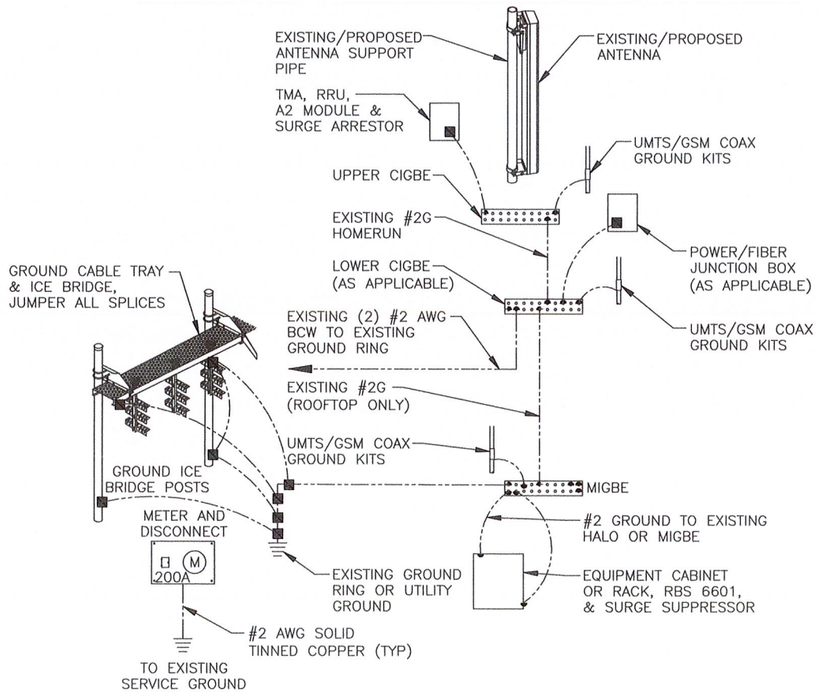
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

1 / G-1



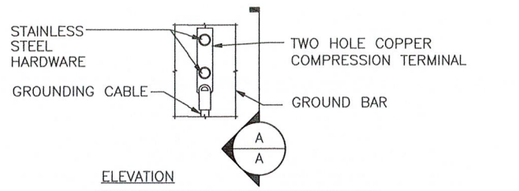
GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / 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



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

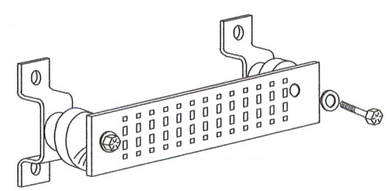
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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

4 / G-1

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GROUNDING DETAILS
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SITE NUMBER	DRAWING NUMBER	REV
CTL01096	G-1	4

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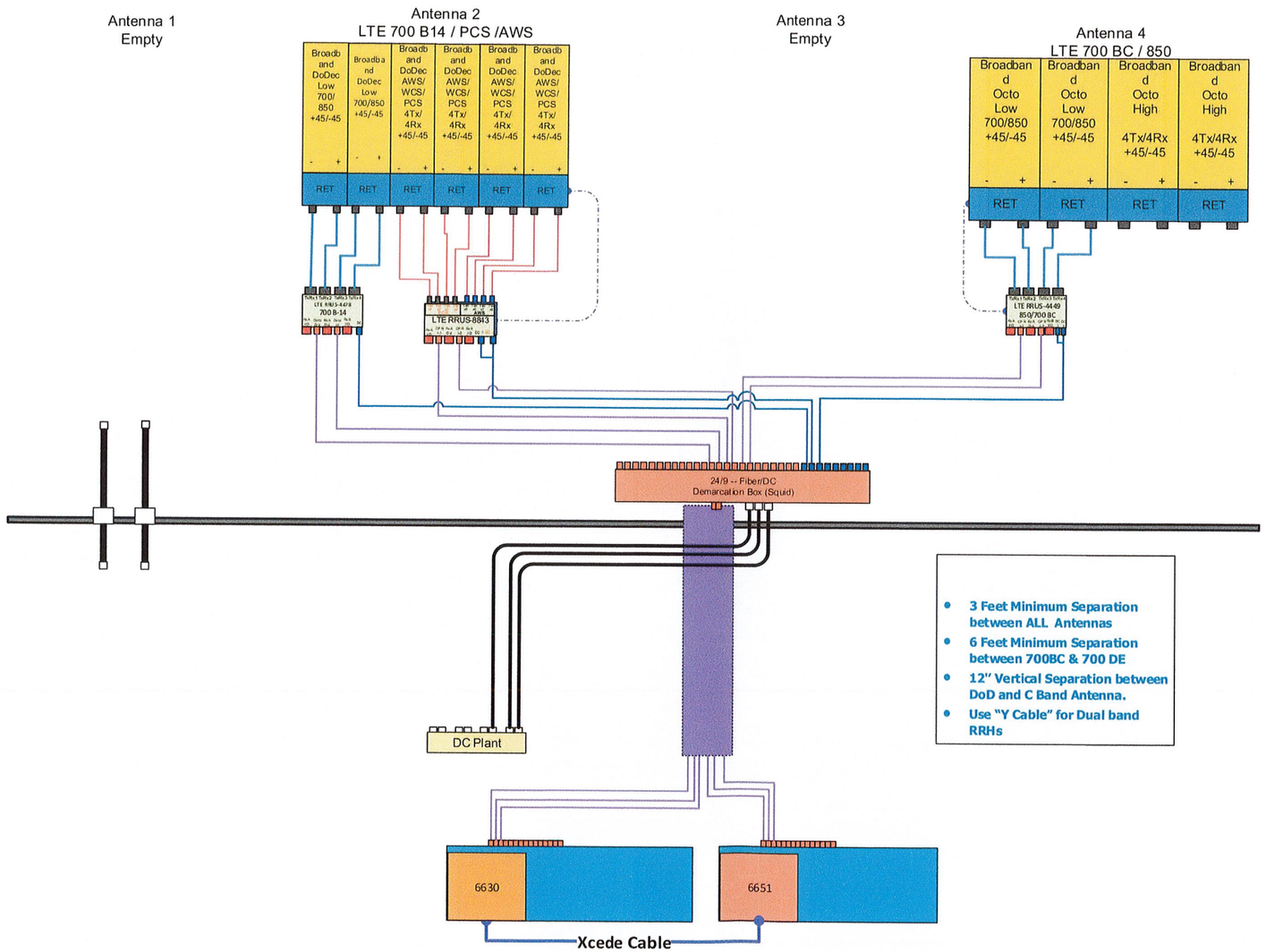

RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

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

NOTE:
REFER TO FINAL APPROVED V7 RFDS 04/16/2023

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RF PLUMBING DIAGRAM
LTE 3C, 5G NR 1DR-2, ANTENNA MODS, 5G NR RADIO, 5G NR 1DR-1

SITE NUMBER	DRAWING NUMBER	REV
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