



**T-Mobile**  
Cullen Morgan  
Site Acquisition Consultant  
750 W Center Street  
Suite 301  
West Bridgewater, MA 02379  
(941)549-7263  
[cmorgan@clinellc.com](mailto:cmorgan@clinellc.com)

November 20, 2024

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

**RE: NOTICE OF EXEMPT MODIFICATION**  
**345 Bushy Hill Road, Simsbury, CT 06070**  
**Latitude: 41.84138889**  
**Longitude: -72.8505556**  
**T-Mobile Site #: CTHA151A**

Dear Members of the Siting Council:

T-Mobile currently maintains six (6) antennas at the 77-foot level of the existing 117-foot monopole tower at 345 Bushy Hill Road, Simsbury, CT 06070. The 117-foot tower and underlying property are owned by the Simsbury Fire District. T-Mobile now intends to modify their equipment located on the existing telecommunications facility. All equipment will be installed at the 117-foot level of the tower.

**Planned Modifications:**

Remove Existing:

- (3) APX16DWV-16DWV-S-E-A20 Antennas
- (3) KRY 112-489/2 TMAs
- (6) 7/8" Coax cables
- (6) 1.99" Hybrid cable
- (1) Cabinet

Install New:

- (3) APXVLL19P\_43-C-A20 Antennas
- (3) Radio 4460 B25+B66 RRUs
- (3) 1.99" Hybrid cable
- (2) Cabinets

Existing to Remain:

- (3) APXVAALL24\_43-U-A20 Antennas
- (3) Radio 4449 B71+B85 RRUs

750 W Center St, Suite 301  
West Bridgewater, MA 02379  
781-713-4725

This facility was approved by the CT Siting Council in Petition No. 1077 dated November 19, 2013. We used the information from the previous filing. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, or construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to First Selectwoman Wendy Mackstutis, chief elected official, Henry Miga, Building Official for the Town of Simsbury as well as the property owner and the tower owner.

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

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

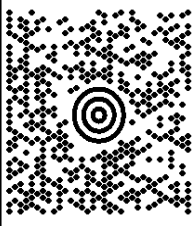
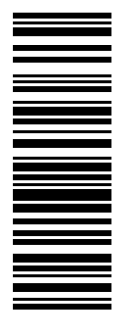
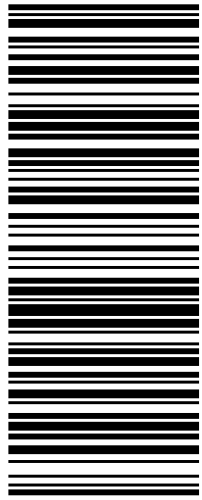

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Respectfully Submitted,



**Cullen Morgan**  
**Site Acquisition Consultant**  
**Centerline Communications, LLC (Agent to T-Mobile)**  
**Mobile: (941) 549-7263**  
[cmorgan@clinellc.com](mailto:cmorgan@clinellc.com)

cc: First Selectwoman Wendy Mackstutis, chief elected official – Town of Simsbury  
Henry Miga, Building Official – Town of Simsbury  
Simsbury Fire District – Tower & Property Owner

C/O CULLEN MORGAN 941-549-7263 CENTERLINE COMMUNICATIONS LLC 12579 SAGEWOOD DRIVE VENICE FL 34293		2 LBS	1 OF 1
<b>SHIP TO:</b> ATTN: MEMBERS OF THE COUNCIL CONNECTICUT SITING COUNCIL 10 FRANKLIN SQUARE <b>NEW BRITAIN CT 06051-2655</b>			
	<b>CT 067 9-06</b> 		
<b>UPS GROUND</b> TRACKING #: 1Z 9Y4 503 03 2742 5335			
			
BILLING: P/P			
Reference # 1: CTHA151A			
CS 24.9.00. MACNV50.49.0A 12/202.4*			
 ™			

# **EXHIBIT A**

## **Letter of Authorization**



T-Mobile Northeast LLC, a subsidiary of T-Mobile USA, Inc.

15 Commerce Way, Suite B  
Norton, MA 02766  
Attn.: Pamela Palmer

**VIA E-MAIL / RETURN RECEIPT REQUESTED**

The Simsbury Fire District,  
871 Hopmeadow St, Simsbury, CT 06070

**Re:** Standard Lease Agreement, dated March 27, 2007, (the "Agreement"), by and between The Simsbury Fire District ("Lessor") and T-Mobile Northeast LLC, as successor in interest to Omnipoint Communications, Inc., a Delaware limited liability company ("T-Mobile")  
**Site Number:** CHA151A (the "Site")  
**Site Address:** 345 Bushy Hill Road, Simsbury, CT 06070 (the "Property")

Dear Chief Baldis,

T-Mobile is in the process of updating certain equipment that supports its wireless telecommunications network. As part of this effort, T-Mobile will need to perform work at the above-referenced Property. The purpose of this letter is to obtain Landlord's consent to perform this work, which is specifically described as follows:

**The SOW is depicted on the attached drawings consisting of eight (8) pages and dated 9/23/24.**

- Swap 2 cabinets in same locations
- Swap 3 antennas
- Remove fiber cable and replace with 3 new fiber cables
- Remove all coax cables
- Remove all TMA
- Add 3 RRU

Please signify your approval by signing and dating one (1) original of this Consent Letter in the space provided below. Kindly return the Consent Letter via fax to the attention of Peter Fales at (401) 835-2033 or scan and email the Consent Letter to pfales@clinellc.com. Alternatively, the letter can be returned by regular mail to Peter Fales at Centerline Communications, 750 West Center Street, West Bridgewater, MA 02379.

Should you have any questions, please contact Peter Fales at (401) 835-2033. Thank you in advance for your cooperation in this matter.

Very truly yours,

Mark Richard  
Site Development Manager, T-Mobile

**Acknowledged, Accepted and Agreed:**

**The Simsbury Fire District**

By: J. Baldis JAMES BALDIS  
Date: 10/10/24

Please provide a contact name and telephone number so T-Mobile can schedule the necessary work.

Contact Name & Number JAMES BALDIS 860-658-1971

# **EXHIBIT B**

**Original Facility Approval**

Petition No. 1077  
Verizon  
Simsbury, Connecticut  
Staff Report  
November 19, 2013

On October 11, 2013, the Connecticut Siting Council (Council) received a petition from Celco Partnership d/b/a Verizon Wireless (Verizon) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the extension of an existing telecommunications facility at 345 Bushy Hill Road in Simsbury, Connecticut. Council member Robert Hannon and Siting Analyst David Martin visited the site on November 12, 2013 to review the proposal. Attorney Kenneth Baldwin represented Verizon at the field review.

The existing telecommunications tower is 80 feet tall and is located behind the Simsbury Volunteer Fire Department (SVFD) station at 345 Bushy Hill Road. Currently, the SVFD has two six-foot whip antennas at the top of the existing tower; T-Mobile has three flush-mounted antennas at 77 feet; and MetroPCS has three flush-mounted antennas at 70 feet. Verizon proposes to extend the tower by 26 feet to a height of 106 feet in order to install 12 antennas (three LTE antennas, three cellular antennas, three PCS antennas, and three AWS antennas) on T-arms at a centerline height of 100 feet. SVFD would re-locate its antennas to the top of the extended tower. This relocation to a higher centerline is expected to improve the fire department's service in this section of Simsbury. AT&T has also submitted correspondence indicating that it would be interested in placing antennas at a centerline height of 90 feet should the tower be extended.

Verizon would install a 12-foot by 30-foot shelter just beyond the edge of the parking area in the rear of the fire station for its ground equipment. The shelter would include a natural gas-fueled backup generator—natural gas is available on the fire station property. The shelter at this location would require some filling to extend an embankment to accommodate it. A few trees would have to be taken down for this filling. AT&T would install an 11'6" by 20' shelter for its ground equipment. It would be located a short distance from Verizon's shelter along the back of the parking area.

Although the fire house is on a main road in Simsbury (State Route 167) and is surrounded by single family homes, the visibility of the existing tower is actually minimal due to the presence of mature coniferous and deciduous trees that ring the SVFD property. The proposed 26-foot extension is estimated to increase the year-round visibility of the tower by approximately 10% to 25 acres. It should not dramatically alter the tower's presence in the surrounding vicinity.

For this petition, Verizon hired C Squared Systems to take field measurements of RF levels at this facility. C Squared added calculations for Verizon's proposed antennas to its measured readings and estimated the expected power density to be approximately 4.8% of the FCC limit for maximum permissible exposure for the general public.

Verizon provided notice to the Town of Simsbury and abutting property owners on October 11, 2013. No comments or inquiries have been received. Mary Glassman, Simsbury First Selectwoman, has no objections to the Petition.

The proposed tower extension is not expected to have any substantial adverse environmental effects. Staff recommends approval.

View of existing tower from behind fire house



View of existing tower from across Bushy Hill Road





View of tower from north along Bushy Hill Road



View of tower from south along Bushy Hill Road



# **EXHIBIT C**

**Property Card**

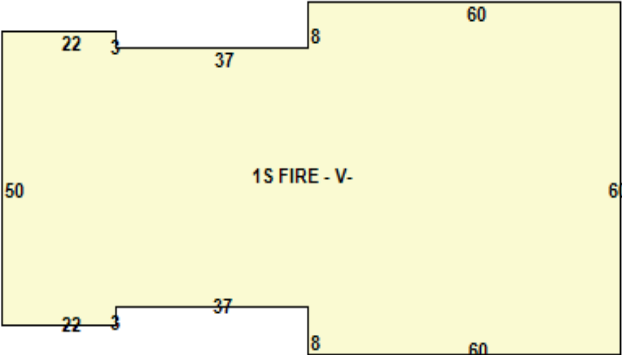
Location:		345 BUSHY HILL ROAD		Map Id:		C16 301 012A		Zone:		R-40		Date Printed:		11/20/2024	
				Neighborhood:		0225						Last Update:		11/20/2024	
Owner Of Record				Volume/Page		Date		Sales Type				Valid		Sale Price	
SIMSBURY FIRE DISTSRIC				0257/0645		12/21/1981						No		0	
869 HOPMEADOW STREET, SIMSBURY, CT 06070								Exempt							
Prior Owner History															
Permit Number		Date		Permit Description											
B-21-2048		10/28/2021		Replace existng mounts with new mounts, add (3) new antenna, (3) new RRU and (1) new hvbrid line.											
E-21-1047		9/1/2021		Install (1) 25kw AC generator on extended concrete pad: to include conduits, conductors, alarm contr											
E-20-397		10/8/2020		New 200A service 120V/240V from existng meter group to AT and T WIC (Walk in cabinet) w/ a 20kw die											
P-15-118		7/9/2015		Gas piping from new meter to new generator for Verizon equipment											
B-14-732		12/5/2014		Wireless telecommunications antennas and associate equipment on an existing tower as well as assoc											
E-14-143		5/21/2014		wiring of new cellular facility to include 600 amp service with 3 meter provisions,ground ring arou											
Supplemental Data										Appraised Value					
Census/Tract		4661010		I&E Status						Total Land Value		339,300			
Dev Map ID		Chimneys						Total Building Value		1,359,500					
GIS ID		Cross Boarder Pro						Total Outbldg Value		39,300					
Route		In Home Business						Total Market Value		1,738,100					
District		Conversion Review													
Utilities															
Acres										State Item Codes					
Land Type		Acres		490		Total Value		Code		Quantity		Value			
Primary Site		1.74		0.00		339,300		22-Commercial Building		1.00		951,650			
								21-Commercial Land		1.74		237,510			
								25-Com Outbuilding		2.00		27,510			
Total		1.7400		0.00		339,300									
Assessment History (Prior Years as of Oct 1)										490 Appraised Totals					
2024		2023		2022		2021		2020		Type		Acres		Value	
Land		237,510		237,510		237,510		216,800		216,800					
Building		951,650		951,650		951,650		681,270		681,270					
Outbuilding		27,510		27,510		27,510		24,390		24,390					
Total		1,216,670		1,216,670		1,216,670		922,460		922,460		Totals		0.00 0	
Comments										Application Date:		Expiration Date:			
9/30/2007 6 OH DOORS;															

Location:

345 BUSHY HILL ROAD

Unit

Commercial Building Description		Description	Area/Qty
Building Use	Public Use	Base Value	6328
Class	Reinforced Concrete	Central Air	2721
Overall Condition	Very Good		
Construction Quality	Good		
Stories	1.00		
Year Built	1998		
Remodel			
Percent Complete	100		
GLA	6328		
Basement			
Basement Area	0		
HVAC			
Heating Type	Hot Water	Attached Component Computations	
Fuel Type	Gas		
Cooling Type	Central		
Interior		Type	Yr Blt Area/Qty
Floors	Carpet		
Walls	Drv Wall		
Wall Height			
Exterior			
Exterior Walls	Brick		
Roof Type	Compo Built-Up		
Roof Cover			
Special Features			
Extra Plumbing Fixtures	9		



Detached Component Computations							
Type	Year	Condition	Area/Qty	Type	Year	Condition	Area/Qty
Light Poles Poles	1998	Average	1				
Paving Paving	1998	Average	19700				

# **EXHIBIT D**

## **Construction Drawings**



SITE NAME: HA151A/BUSHYHILL FD\_MP

345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SITE NUMBER: CTHA151A  
RADIO/EQUIPMENT UPGRADE  
SITE CLASS: MONOPOLE  
RF DESIGN GUIDELINE: 67D998E 6160

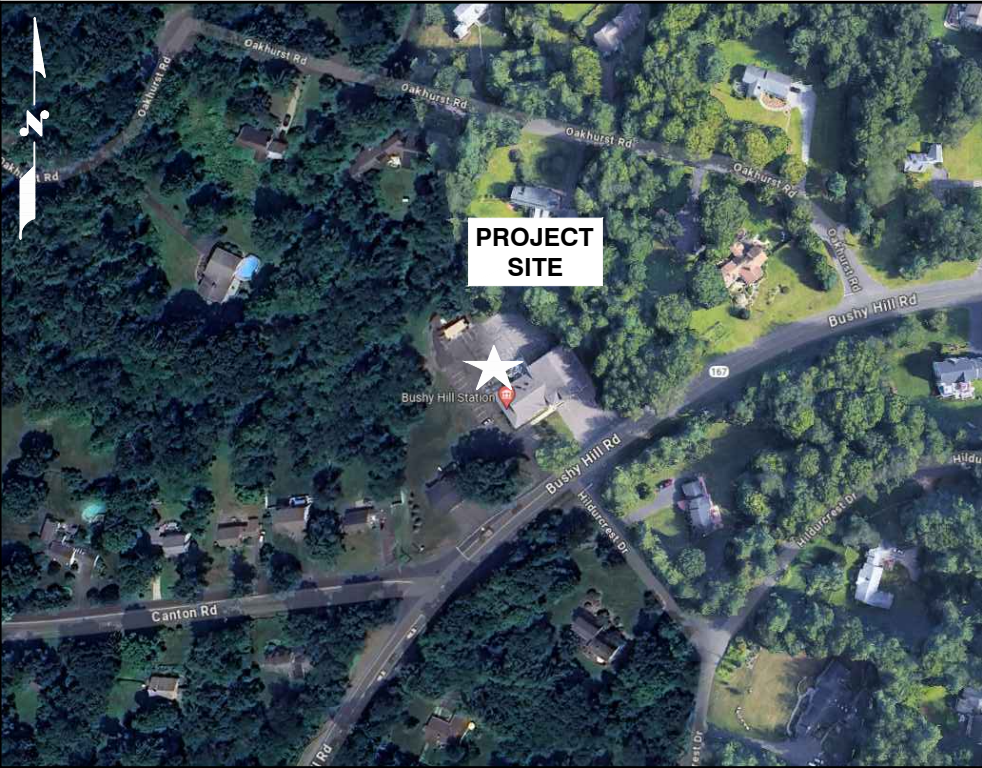
T-MOBILE TECHNICIAN SITE SAFETY NOTES	
LOCATION	SPECIAL RESTRICTIONS
SECTOR A: ANTENNA/RADIO	ACCESS NOT PERMITTED
SECTOR B: ANTENNA/RADIO	ACCESS NOT PERMITTED
SECTOR C: ANTENNA/RADIO	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

GENERAL NOTES

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. 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.

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.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



PROJECT SUMMARY

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION
ZONING JURISDICTION:	BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).
SITE ADDRESS:	345 BUSHY HILL ROAD SIMSBURY, CT 06070
LATITUDE:	41° 50' 28.9998" N / 41.84138889° N
LONGITUDE:	72° 51' 2.001" W / 72.85055556° W
JURISDICTION:	TOWN OF SIMSBURY, CT
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

PROJECT SCOPE OF WORK

– REMOVE (3) ANTENNAS	– INSTALL (3) NEW ANTENNAS
– REMOVE (3) TMAS	– INSTALL (3) NEW RADIOS
– REMOVE (1) 6201 CABINET	– INSTALL (1) 6160 EQUIPMENT CABINET
– REMOVE (6) 7/8" COAX CABLES	– INSTALL (1) B160 BATTERY CABINET
– REMOVE (1) 6X12 HCS	– INSTALL (1) NEW SLACK BOX
	– INSTALL (3) NEW 6x24 HYBRIDS

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE

72 HOURS



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



UNDERGROUND SERVICE ALERT

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ANTENNA PLANS & ELEVATION	1
A-3	TOWER EQUIPMENT DETAILS	1
A-4	GROUND EQUIPMENT DETAILS	1
SN-1	SPECIAL INSPECTIONS NOTES	1
E-1	ONE-LINE DIAGRAM & GROUNDING DETAILS	1

T-MOBILE  
NORTHEAST LLC

35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116

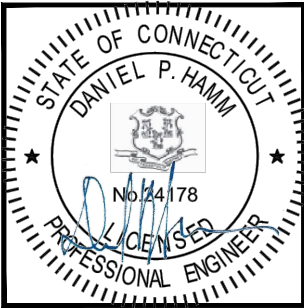


CENTERLINE

750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379



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



CHECKED BY: AT

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	09/23/24	ISSUED FOR CONSTRUCTION	RBK
0	08/26/24	ISSUED FOR REVIEW	RBK

SITE NUMBER:

CTHA151A

SITE NAME:

HA151A/BUSHYHILL  
FD\_MP

SITE ADDRESS:

345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

TITLE SHEET

(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER

T-1

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 – CENTERLINE  
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)  
OWNER – T-MOBILE
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. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH T-MOBILE SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE 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: 2021 IBC WITH 2022 CT STATE BUILDING CODES  
ELECTRICAL CODE: NEC 2020, 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

EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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

T-MOBILE  
NORTHEAST LLC

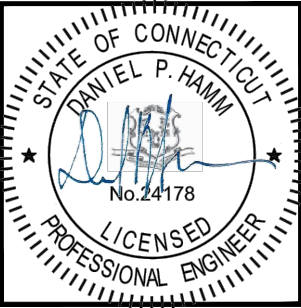
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379



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



CHECKED BY: AT

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	09/23/24	ISSUED FOR CONSTRUCTION	RBK
0	08/26/24	ISSUED FOR REVIEW	RBK

SITE NUMBER:

CTHA151A

SITE NAME:

HA151A/BUSHYHILL  
FD\_MP

SITE ADDRESS:

345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

GENERAL NOTES

(RADIO/EQUIPMENT UPGRADE)

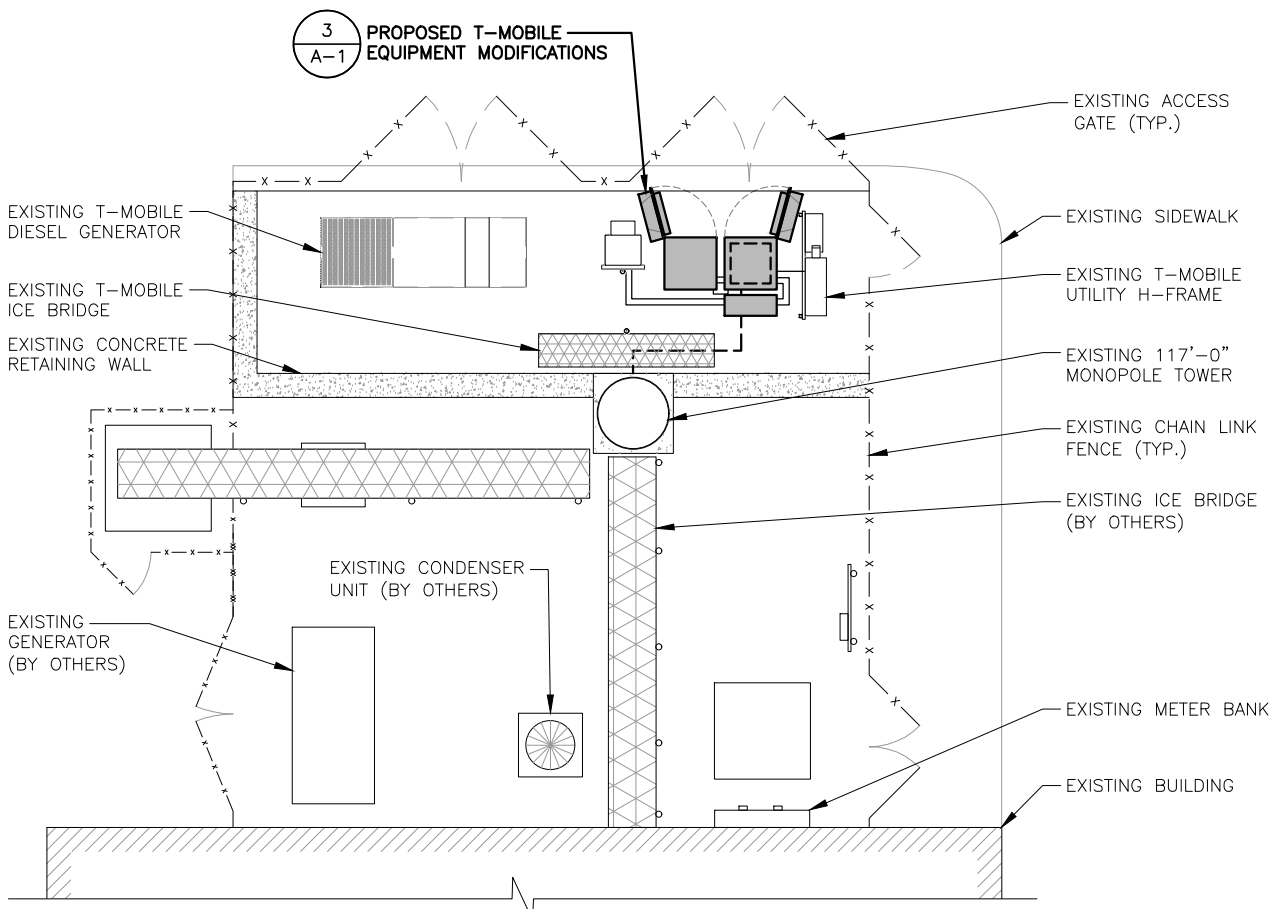
SHEET NUMBER

GN-1

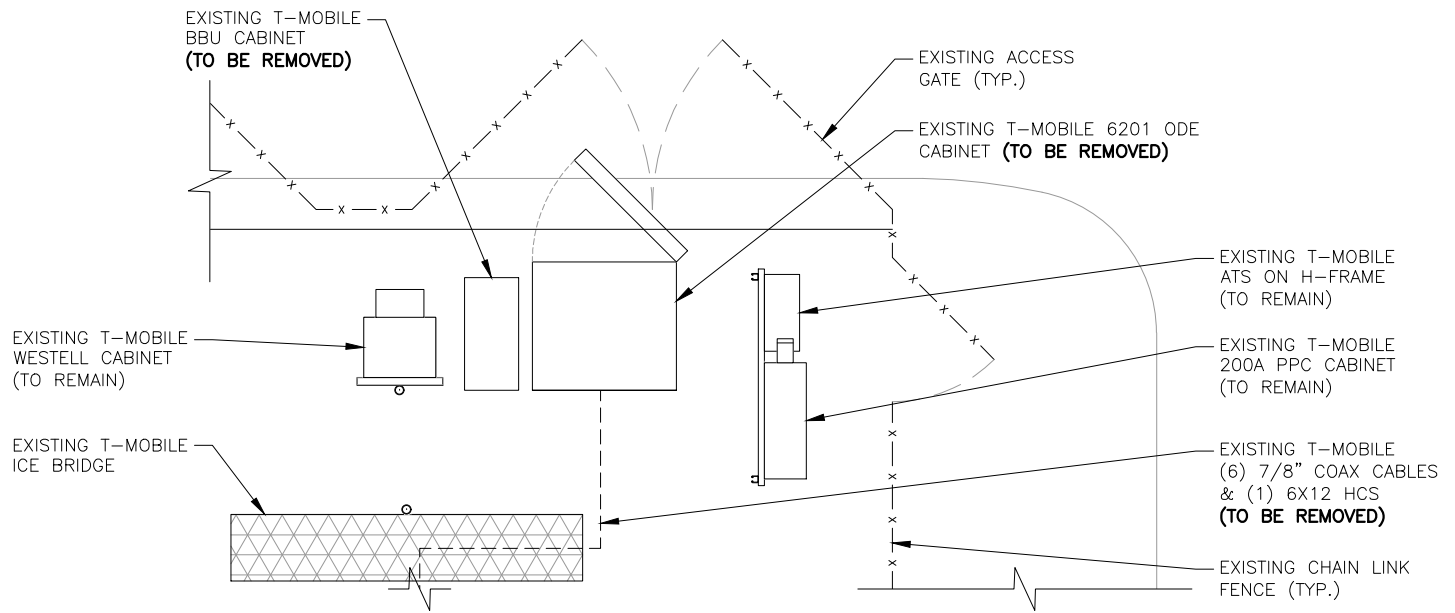


**STRUCTURAL NOTES:**  
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO MOUNT ANALYSIS PROVIDED BY TEP (TEP OPCO LLC), DATED: SEPTEMBER 20, 2024 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

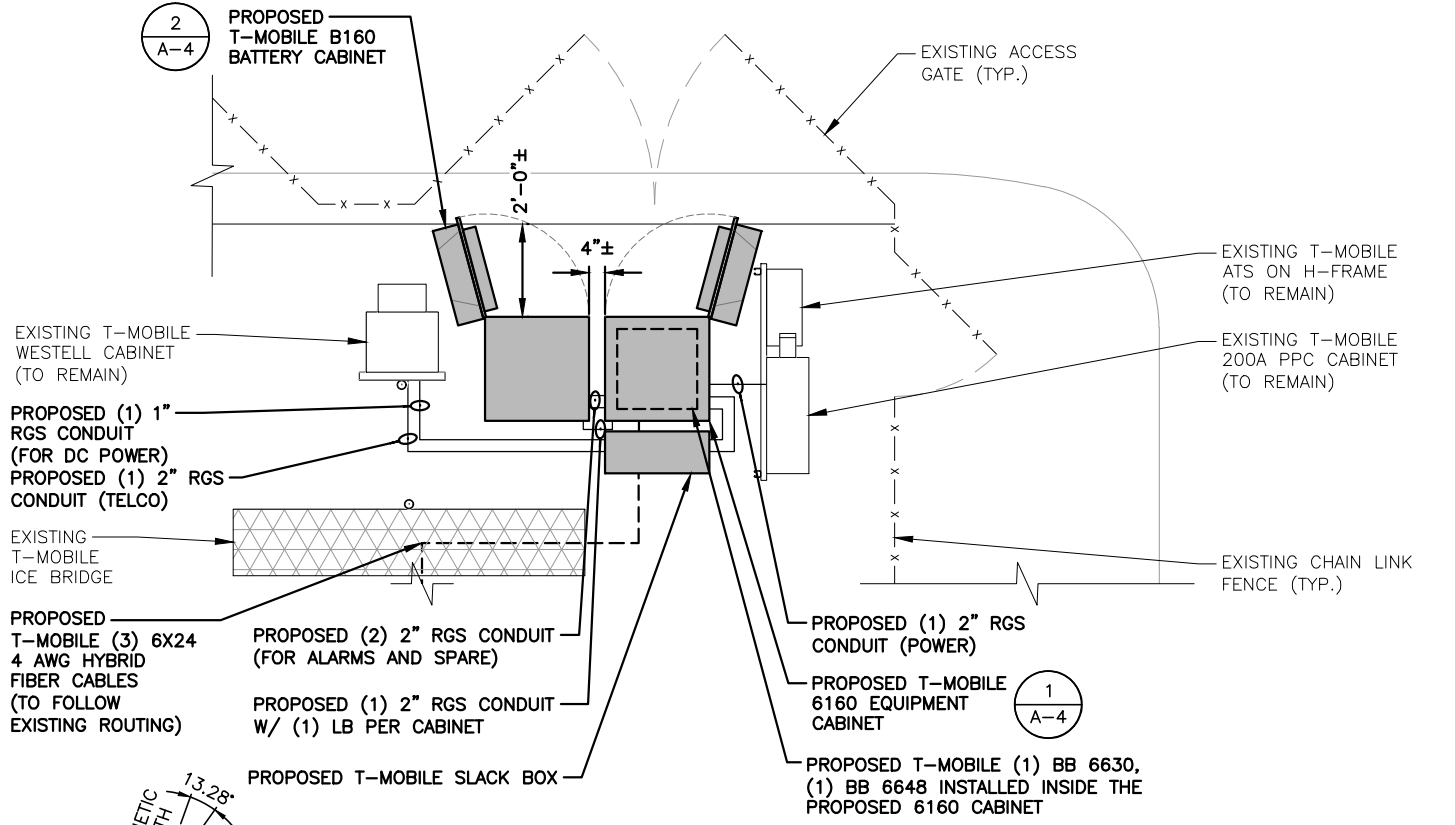
**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



**COMPOUND PLAN**  
22x34 SCALE: 1/4"=1'-0"  
11x17 SCALE: 1/8"=1'-0"



**EXISTING EQUIPMENT PLAN**  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"



**PROPOSED EQUIPMENT PLAN**  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"

**T-MOBILE  
NORTHEAST LLC**

35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116

**CENTERLINE**

750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379

**TEP**

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

STATE OF CONNECTICUT  
DANIEL P. HAMM  
No. 24178  
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: AT

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
1	09/23/24	ISSUED FOR CONSTRUCTION	RBK
0	08/26/24	ISSUED FOR REVIEW	RBK

SITE NUMBER:  
CTHA151A

SITE NAME:  
HA151A/BUSHYHILL  
FD\_MP

SITE ADDRESS:  
345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

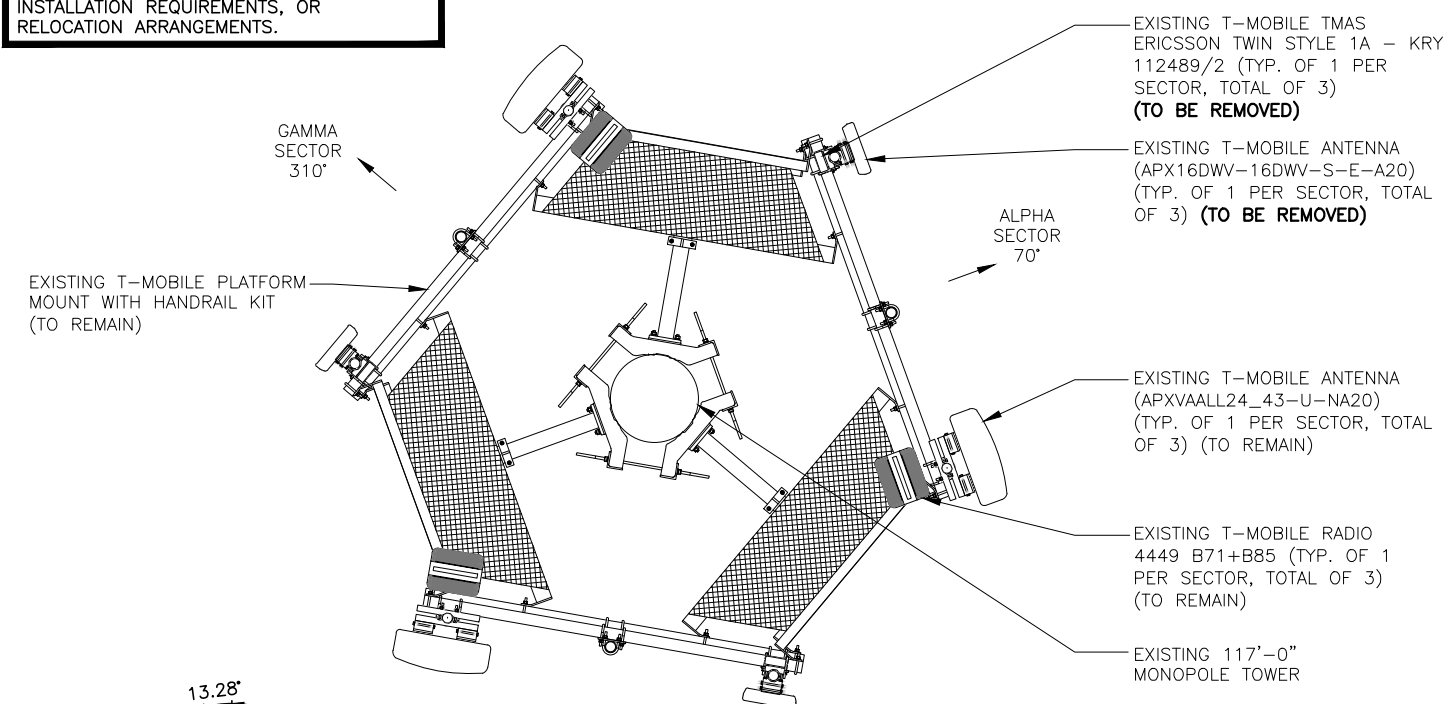
SHEET TITLE  
**COMPOUND &  
EQUIPMENT PLANS**  
(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER  
**A-1**

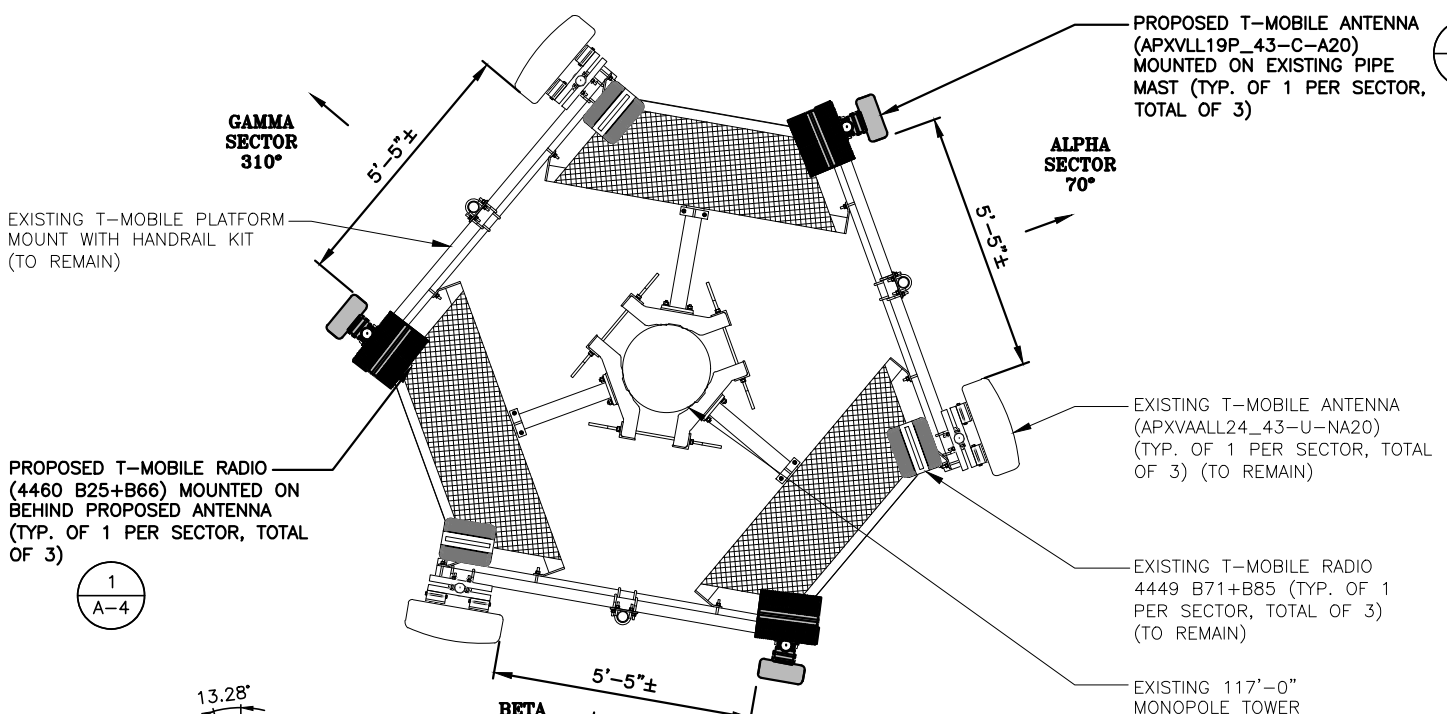


**STRUCTURAL NOTES:**  
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO MOUNT ANALYSIS PROVIDED BY TEP (TEP OPCO LLC), DATED: SEPTEMBER 20, 2024 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



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



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

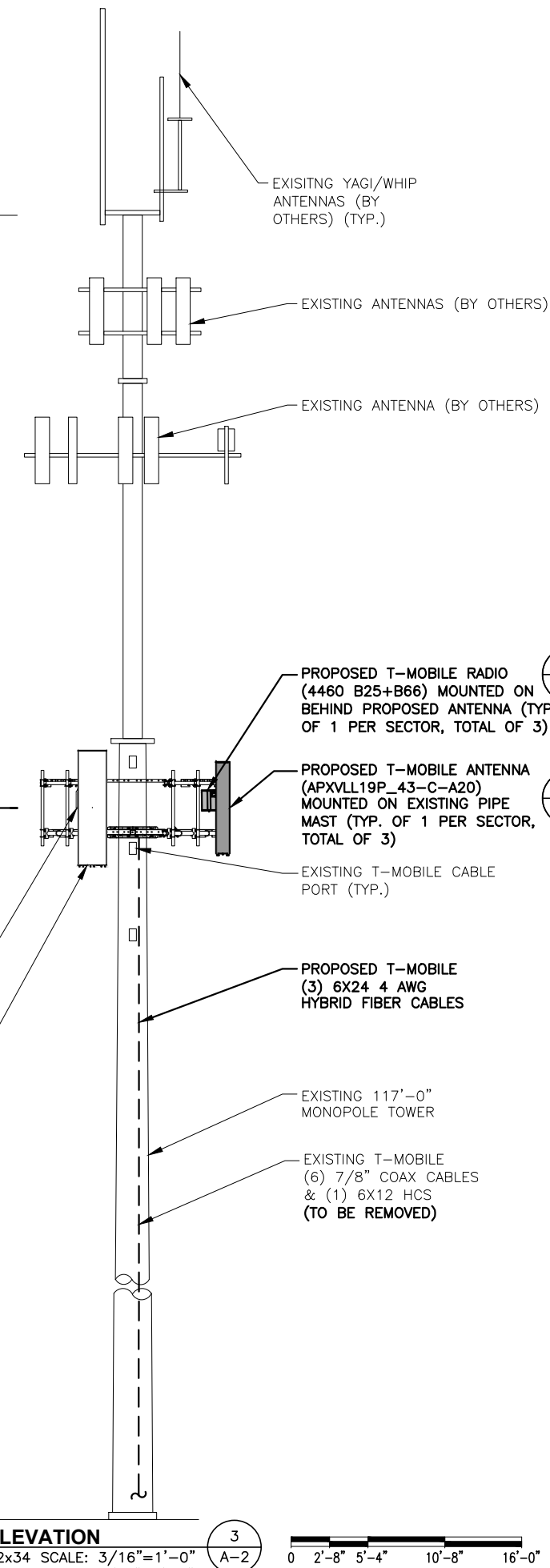
TOP OF EXISTING MONOPOLE  
ELEV. = 117'-0"± A.G.L.

CL OF EXISTING & PROPOSED  
T-MOBILE ANTENNAS  
ELEV. = 77'-0"± A.G.L.

EXISTING T-MOBILE RADIO  
4449 B71+B85 (TYP. OF 1  
PER SECTOR, TOTAL OF 3)  
(TO REMAIN)

EXISTING T-MOBILE ANTENNA  
(APXVAALL24\_43-U-NA20)  
(TYP. OF 1 PER SECTOR, TOTAL  
OF 3) (TO REMAIN)

GROUND LEVEL  
ELEV. 0'-0"± (AGL)



**ELEVATION**  
22x34 SCALE: 3/16"=1'-0"  
11x17 SCALE: 3/32"=1'-0"

## T-MOBILE NORTHEAST LLC

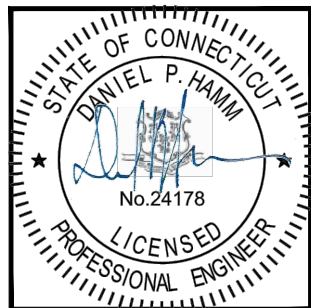
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379



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



CHECKED BY: AT

APPROVED BY: DPH

### SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	09/23/24	ISSUED FOR CONSTRUCTION	RBK
0	08/26/24	ISSUED FOR REVIEW	RBK

SITE NUMBER:

CTHA151A

SITE NAME:

HA151A/BUSHYHILL  
FD\_MP

SITE ADDRESS:

345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

ANTENNA PLANS  
& ELEVATION  
(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER

A-2

FINAL ANTENNA CONFIGURATION									
SECTOR MARK	ANTENNA MODEL	TECHNOLOGY	AZIMUTH	E-TILT	M-TILT	ANTENNA CENTERLINE	RADIO	CABLE FEED LINES	CABLE LENGTH
A-1	APXVLL19P_43-C-A20	L2100+N1900+L1900	70°	2	0	77'-0"±	(1) (P) RADIO 4460 B25+B66	(3) (E) 6X24 #4AWG HYBRID FIBER CABLES	100'±
A-2	-	-	-	-	-	-	-		
A-3	APXVAALL24_43-U-NA20	L700+N600	70°	2/2	0	77'-0"±	(1) (E) RADIO 4449 B71+B85		
B-1	APXVLL19P_43-C-A20	L2100+N1900+L1900	190°	2	0	77'-0"±	(1) (P) RADIO 4460 B25+B66		
B-2	-	-	-	-	-	-	-		
B-3	APXVAALL24_43-U-NA20	L700+N600	190°	2/2	0	77'-0"±	(1) (E) RADIO 4449 B71+B85		
C-1	APXVLL19P_43-C-A20	L2100+N1900+L1900	310°	2	0	77'-0"±	(1) (P) RADIO 4460 B25+B66		
C-2	-	-	-	-	-	-	-		
C-3	APXVAALL24_43-U-NA20	L700+N600	310°	2/2	0	77'-0"±	(1) (E) RADIO 4449 B71+B85		

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**STRUCTURAL NOTES:**  
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO MOUNT ANALYSIS PROVIDED BY TEP (TEP OPCO LLC), DATED: SEPTEMBER 20, 2024 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

T-MOBILE  
NORTHEAST LLC

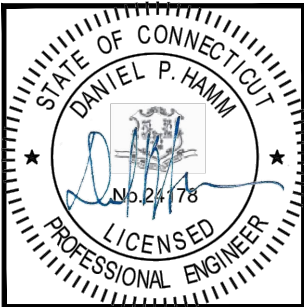
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379



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



CHECKED BY: AT

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	09/23/24	ISSUED FOR CONSTRUCTION	RBK
0	08/26/24	ISSUED FOR REVIEW	RBK

SITE NUMBER:

CTHA151A

SITE NAME:

HA151A/BUSHYHILL  
FD\_MP

SITE ADDRESS:

345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

TOWER EQUIPMENT  
DETAILS

(RADIO/EQUIPMENT UPGRADE)

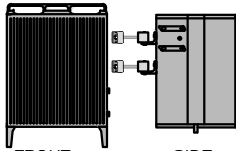
SHEET NUMBER

A-3

RADIO 4460 B25+B66 DIMENSIONS	
MODEL #	RADIO 4460 B25+B66
MANUF.	ERICSSON
HEIGHT	17.0"
WIDTH	15.1"
DEPTH	11.9"
WEIGHT	104 LBS



PLAN



FRONT

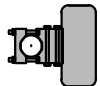
SIDE

RADIO DETAIL

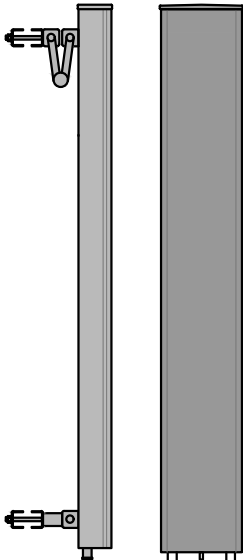
SCALE: N.T.S

1  
A-3

L21+N19+L19 ANTENNA DIMENSIONS	
MODEL #	APXVLL19P_43-C-A20 (QUAD)
MANUF.	RFS
HEIGHT	75.8"
WIDTH	11.3"
DEPTH	4.6"
WEIGHT	49.3 LBS



PLAN



FRONT

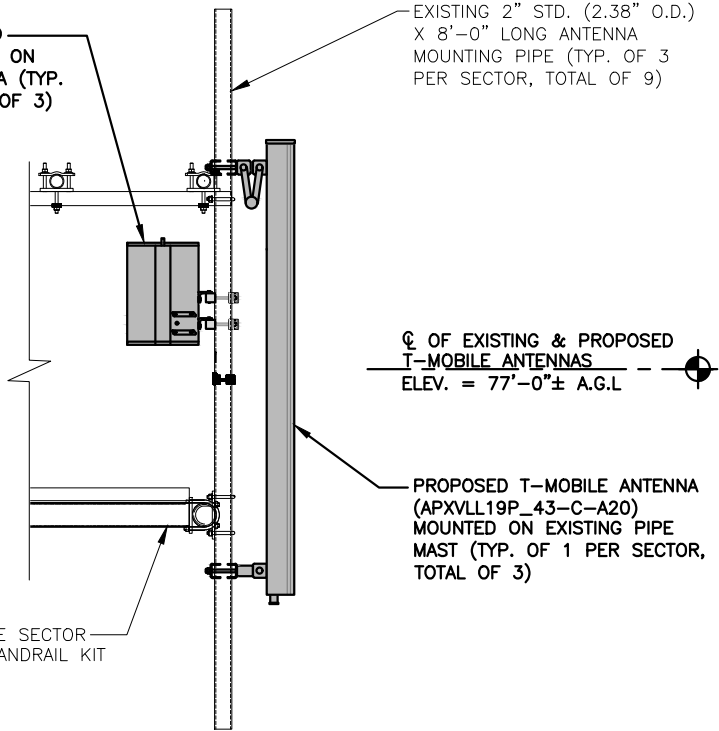
SIDE

L2100+G1900+N1900+L1900 ANTENNA DETAIL

SCALE: N.T.S

2  
A-3

PROPOSED T-MOBILE RADIO  
(4460 B25+B66) MOUNTED ON  
BEHIND PROPOSED ANTENNA (TYP.  
OF 1 PER SECTOR, TOTAL OF 3)



EXISTING 2" STD. (2.38" O.D.)  
X 8'-0" LONG ANTENNA  
MOUNTING PIPE (TYP. OF 3  
PER SECTOR, TOTAL OF 9)

C. OF EXISTING & PROPOSED  
T-MOBILE ANTENNAS  
ELEV. = 77'-0"± A.G.L.

PROPOSED T-MOBILE ANTENNA  
(APXVLL19P\_43-C-A20)  
MOUNTED ON EXISTING PIPE  
MAST (TYP. OF 1 PER SECTOR,  
TOTAL OF 3)

EXISTING T-MOBILE SECTOR  
PLATFORM WITH HANDRAIL KIT

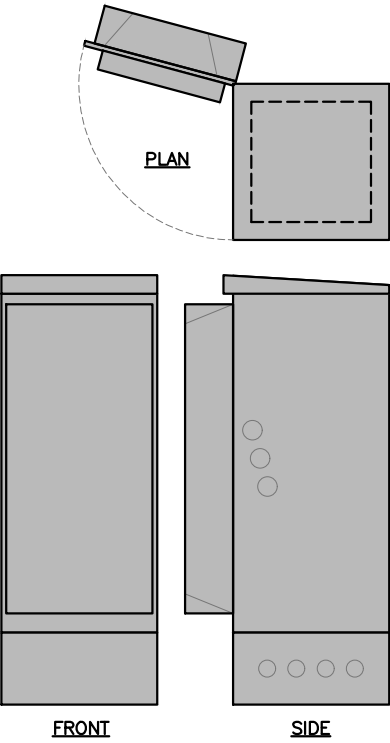
PROPOSED L2500  
ANTENNA MOUNTING DETAIL

22x34 SCALE: 3/4"=1'-0"  
11x17 SCALE: 3/8"=1'-0"

3  
A-3

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

CABINET DIMENSIONS	
MODEL #	6160 SITE SUPPORT CABINET
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
BASE DEPTH	26"
DEPTH (W/ DOOR)	34"
WEIGHT	1500 LBS MAX
(INSTALL PER MANUFACTURER'S INSTALLATION GUIDELINES)	

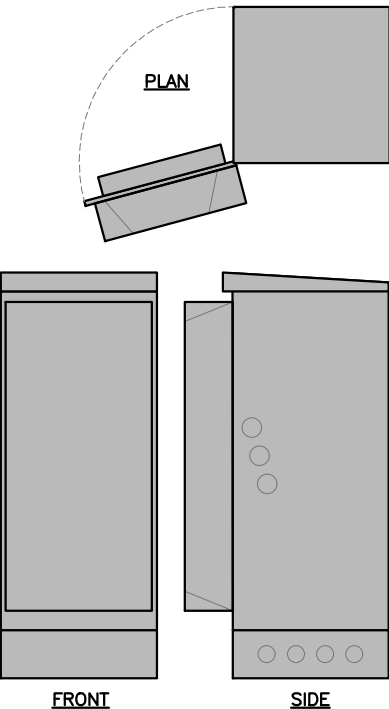


SITE SUPPORT CABINET DETAIL

SCALE: N.T.S

1  
A-4

CABINET DIMENSIONS	
MODEL #	B160 BATTERY CABINET
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
BASE DEPTH	26"
DEPTH (W/ DOOR)	34"
WEIGHT	2000 LBS MAX
(INSTALL PER MANUFACTURER'S INSTALLATION GUIDELINES)	



BATTERY CABINET DETAIL

SCALE: N.T.S

2  
A-4

T-MOBILE  
NORTHEAST LLC

35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116

 **CENTERLINE**

750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379



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

STATE OF CONNECTICUT  
DANIEL P. HAMM  
No. 24178  
LICENSED  
PROFESSIONAL ENGINEER

CHECKED BY:

AT

APPROVED BY:

DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	09/23/24	ISSUED FOR CONSTRUCTION	RBK
0	08/26/24	ISSUED FOR REVIEW	RBK

SITE NUMBER:  
CTHA151A

SITE NAME:  
HA151A/BUSHYHILL  
FD\_MP

SITE ADDRESS:  
345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

GROUND EQUIPMENT  
DETAILS  
(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER

A-4

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-70 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

**GENERAL:** WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS <sup>1</sup>
N/A	MATERIAL SPECIFICATIONS REPORT <sup>2</sup>
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS <sup>3</sup>
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS <sup>4</sup>
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION <sup>5</sup>
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS <sup>6</sup>
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:


1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:


1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"Ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

T-MOBILE  
NORTHEAST LLC

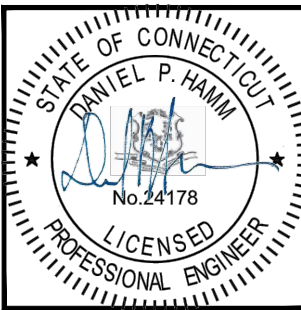
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116

CENTERLINE

750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379



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



CHECKED BY:

AT

APPROVED BY:

DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	09/23/24	ISSUED FOR CONSTRUCTION	RBK
0	08/26/24	ISSUED FOR REVIEW	RBK

SITE NUMBER:  
CTHA151A

SITE NAME:  
HA151A/BUSHYHILL  
FD\_MP

SITE ADDRESS:  
345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

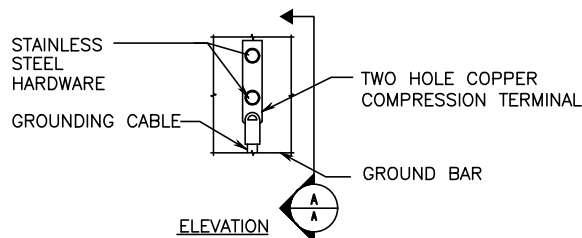
SHEET TITLE

SPECIAL  
INSPECTIONS NOTES  
(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER

SN-1



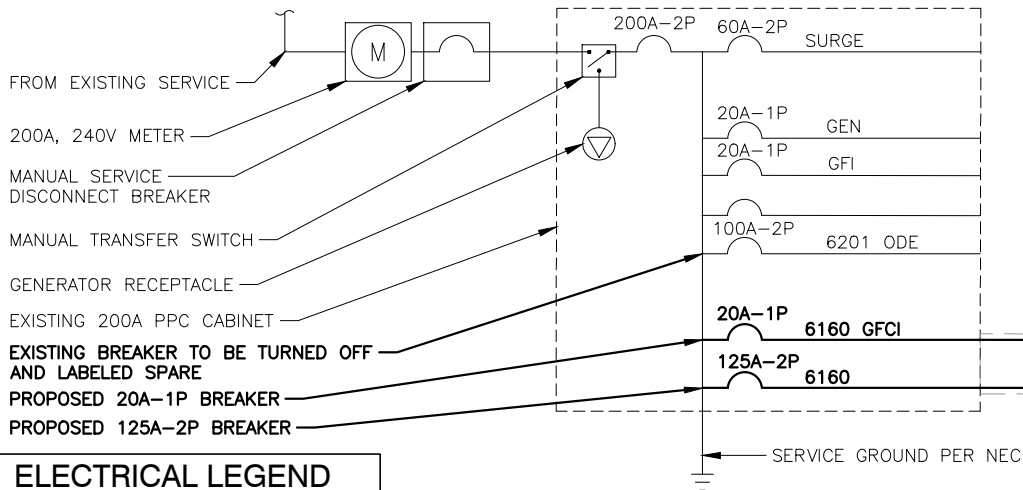


- NOTES:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
  2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
  3. CADWELD DOWNLEADS FROM UPPER AGB/EGB, LOWER EGB, AND MGB.

**TYPICAL GROUND BAR CONNECTION DETAIL**  
SCALE: N.T.S.

1  
E-1

**NOTE:**  
G.C. TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.



**ELECTRICAL LEGEND**

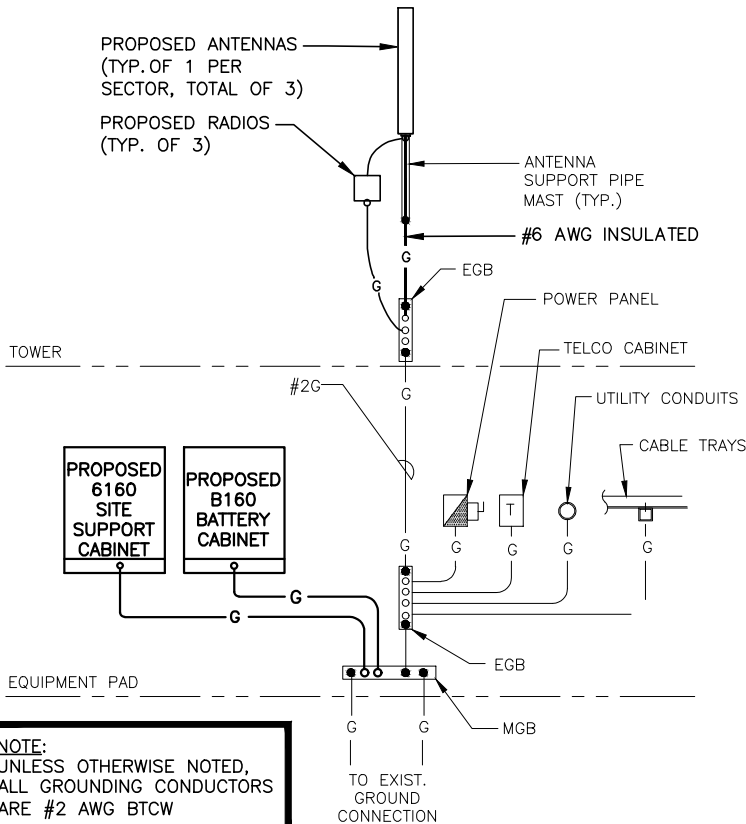
A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTWC	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
MGB	GROUND
AGB/EGB	MASTER GROUND BAR
MECHANICAL CONNECTION	MECHANICAL CONNECTION
CADWELD CONNECTION	CADWELD CONNECTION
EQUIPMENT GROUND BAR/ANTENNA GROUND BAR	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
GROUND COPPER WIRE, SIZE AS NOTED	GROUND COPPER WIRE, SIZE AS NOTED
EXPOSED WIRING	EXPOSED WIRING
INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
5/8"x8" COPPER CLAD STAINLESS STEEL GROUND ROD	5/8"x8" COPPER CLAD STAINLESS STEEL GROUND ROD
EXOTHERMIC (CAD WELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION	EXOTHERMIC (CAD WELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
OWN-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL	OWN-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

**ONE LINE POWER DIAGRAM**  
SCALE: N.T.S.

4  
E-1

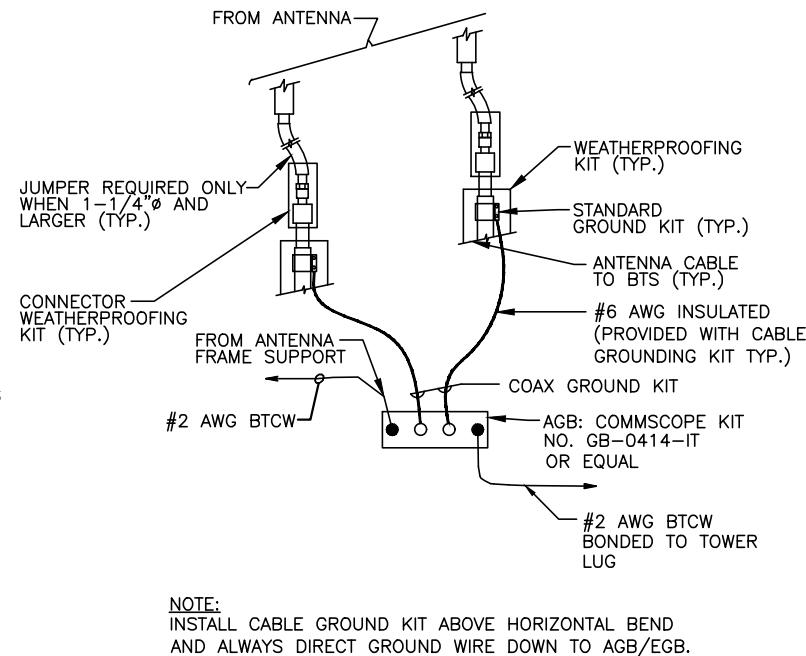
**ELECTRICAL & GROUNDING NOTES**

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.



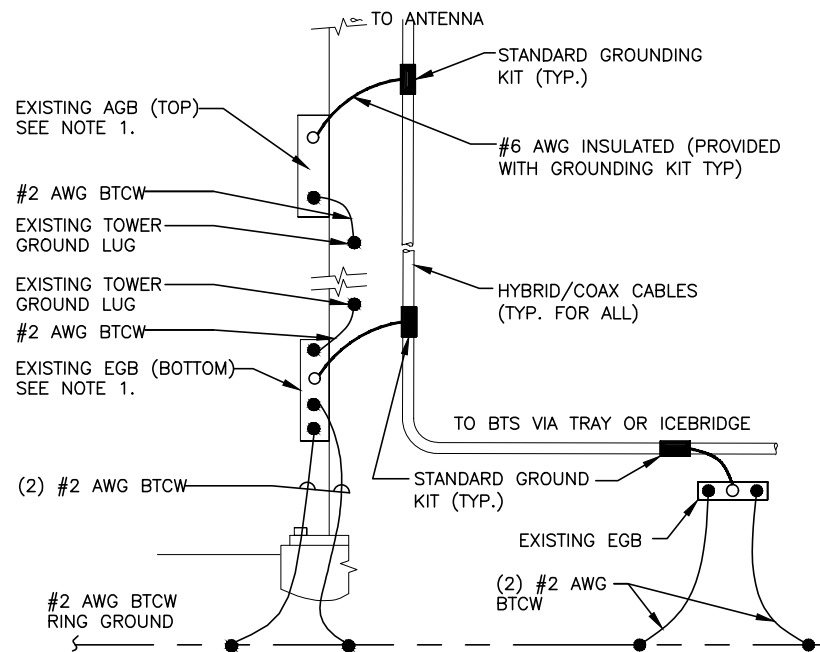
**GROUNDING RISER DIAGRAM**  
SCALE: N.T.S.

2  
E-1



**TOWER TOP CABLE GROUNDING DETAIL**  
SCALE: N.T.S.

3  
E-1



- NOTES:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE ADDITIONAL AGB/EGB AS REQUIRED.
  2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

**TOWER BOTTOM CABLE GROUNDING DETAIL**  
SCALE: N.T.S.

5  
E-1

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

**T-MOBILE  
NORTHEAST LLC**

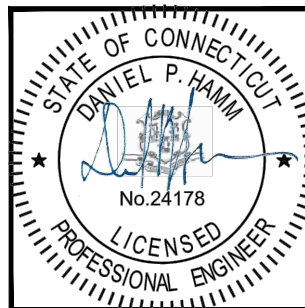
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BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379



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



CHECKED BY: AT

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
1	09/23/24	ISSUED FOR CONSTRUCTION	RBK
0	08/26/24	ISSUED FOR REVIEW	RBK

SITE NUMBER:

CTHA151A

SITE NAME:

HA151A/BUSHYHILL  
FD\_MP

SITE ADDRESS:

345 BUSHY HILL ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

**ONE-LINE DIAGRAM  
& GROUNDING  
DETAILS**  
(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER

**E-1**

# **EXHIBIT E**

## **Structural Analysis Report**

October 4, 2024

Peter Fales  
Centerline Communications  
750 West Center Street, Suite #301  
West Bridgewater, MA 02379  
(508)-386-0863



TEP OPCO, LLC  
326 Tryon Road  
Raleigh, NC 27603  
(919) 661-6351  
[Structures@tepgroup.net](mailto:Structures@tepgroup.net)

**Subject: Structural Analysis Report**

**Carrier Designation:** *T-Mobile Reconfiguration*  
**Site Number:** CTHA151A  
**Site Name:** HA151A/ BUSHYHILL FD\_MP

**Engineering Firm Designation:** **TEP Project Number:** 257186.1005095

**Site Data:** **345 Bushy Hill Road, Simsbury, Hartford County, CT 06070**  
**Latitude 41° 50' 28.99", Longitude -72° 51' 02.00"**  
**115± Foot - Monopole**

Dear Peter Fales,

TEP is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

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

LC1: Existing + Proposed + Reserved Loading

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

**Sufficient Capacity**

Structure Capacity	Foundation Capacity
87.0%	97.7%

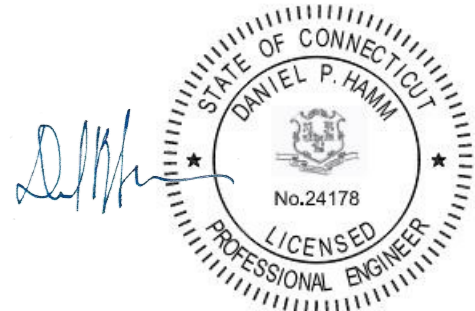
This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the International Building Code 2021 with 2022 Connecticut State Building Code.

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

We at TEP appreciate the opportunity of providing our continuing professional services to you and *Centerline Communications*. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Daniel P. Hamm, P.E.



TEP is a family of companies licensed to provide different services in different jurisdictions. Depending on the jurisdiction, professional engineering and land surveying services are provided by TEP OpCo LLC, a Delaware limited liability company, TEP Engineering, PLLC, a North Carolina professional limited liability company, or M&H Engineering, PLLC, a New York professional limited liability company. General contractor services are provided by TEPDB OpCo LLC, a Delaware limited liability company. We acquire the requisite licenses in each state. Additional information can be obtained from the company.

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Table 4 - Tower Component Stresses vs. Capacity

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tnxTower Output

### 6) APPENDIX B

Additional Calculations



## 1) INTRODUCTION

The tower is a 179-ft Monopole and based on a previous Tower Structural Analysis Report prepared by Hudson Design Group LLC dated January 28, 2021. The previous tower analysis was designed for a basic wind speed of 93 mph, a 1.0-inch radial ice thickness and 50 mph under service loads using Structure Class II, Exposure Category B, and Topographic Category 1 per ANSI/TIA/EIA-222-G. All information provided to TEP was assumed to be accurate and complete.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	ANSI/TIA-222-H
<b>Type of Analysis:</b>	Rigorous
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	120 mph (Ultimate)
<b>Exposure Category:</b>	B
<b>Topographic Procedure:</b>	Method 1 (Kzt = 1.0)
<b>Ice Thickness:</b>	1.5 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Seismic Design Category:</b>	B
<b>Seismic Ss:</b>	0.177
<b>Seismic S1:</b>	0.054
<b>Service Wind Speed:</b>	60 mph

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

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax Location	Owner/ Tenant
Existing	115.0	115.0	1	6' Omni	(3) T-Arms	3 1 1	7/8 1-5/8 1/2	Inside	Unknown
			1	Commscope DB404-B Dipole					
			1	Telewave ANT220D3 Dipole					
			1	Commscope DB201-P Plane					
Existing	110.0	110.0	6	KMW EPBQ-654L8H8	(3) Sector Mounts	6 3	DC Fiber	Inside	AT&T
			3	CCI HPA65R-BU8A					
			3	Ericsson B2/B66A 8843 RRH					
			3	Ericsson B5/B12 4449 RRH					
			3	Ericsson B14 4478 RRH					
			3	Ericsson 4415 B25 RRH					
			3	Surge Arrestors					
Existing	102.0	102.0	6	Commscope SBNHH-1D65B	(3) T-Frames	2 2	1/2 1-5/8	Inside	Verizon
			3	Amphenol BXA-171063-12CF-EDIN2					
			3	Samsung VZS01					
			3	Samsung B2/B66A RRH-BR049 RRH					
			3	Samsung B5/B13 RRH-BR04C RRH					
			2	Junction Boxes					

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax Location	Owner/ Tenant
<b>Proposed</b>	<b>77.0</b>	<b>77.0</b>	<b>3</b>	<b><i>Amphenol APXVLL19P_43-C-A20</i></b>	Platform Mount	<b>3</b>	<b>6X24</b>	<b>Inside</b>	<b>T-Mobile</b>
			<b>3</b>	<b><i>Ericsson 4460 B25/B66</i></b>					
Existing	77.0	77.0	3	Amphenol APXVAALL24_43-U-NA20		-	-	Inside	T-Mobile
			3	Ericsson 4449 B71/B85					
<i>To Be Removed</i>	<b>77.0</b>	<b>77.0</b>	<b>3</b>	<b><i>Amphenol APX16DW-16DWV-S-E-A20</i></b>	-	<b>6 1</b>	<b>7/8 6X12</b>	<b>Inside</b>	<b>T-Mobile</b>
			<b>3</b>	<b><i>Ericsson Twin Style 1A-KRY 112489/2</i></b>					

### 3) ANALYSIS PROCEDURE

**Table 2 - Documents Provided**

Document	Remarks	Source
Construction Drawings	TEP OPCO, LLC., dated September 23, 2024 Site No. CTHA151A	TEP
Mount Analysis	TEP OPCO, LLC., dated September 20, 2024 TEP No. 257186.981503	TEP
Mount Mapping Report	TEP OPCO, LLC., dated September 3, 2024 Site No. CTHA151A	TEP
Previous Structural Analysis	Hudson Design Group LLC., dated January 28, 2021 Site No. SIMSBURY 2 CT	Centerline

#### 3.1) Analysis Method

tnxTower (version 8.2.4.3), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

### 3.2) Analysis Assumptions

- 1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
- 2) The configuration of existing antennas, transmission cables, mounts and other appurtenances are as specified in the 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. TEP should be notified to determine the effect on the structural integrity of the tower.

### 4) ANALYSIS RESULTS

**Table 3 - Section Capacity (Summary)<sup>1</sup>**

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	$\phi P_{allow}$ (lb)	% Capacity	Pass / Fail
L1	115 - 106	Pole	TP12.75x12.75x0.56	1	-4914.92	851182.44	11.6	Pass
L2	106 - 80.5	Pole	TP12.75x12.75x0.625	2	-10657.20	944914.94	87.0	Pass
L3	80.5 - 80	Pole	TP22x12.75x6.3758	3	-10675.60	4343545.50	26.9	Pass
L4	80 - 62.8	Pole	TP27.5x22x0.189	4	-15994.00	1006355.62	78.6	Pass
L5	62.8 - 42	Pole	TP33.47x27.5x0.4	5	-19247.60	2500627.50	35.5	Pass
L6	42 - 19.75	Pole	TP33.47x31.6654x0.275	6	-23879.50	1779739.38	77.8	Pass
L7	19.75 - 8.25	Pole	TP33.47x33.47x0.459	7	-26604.00	2954090.75	51.3	Pass
L8	8.25 - 3	Pole	TP33.47x33.47x0.65	8	-28124.40	4159144.25	39.2	Pass
L9	3 - 0	Pole	TP33.47x33.47x0.473	9	-28778.30	3042899.75	54.8	Pass
							Summary	
						Pole (L2)	87.0	Pass
						<b>RATING =</b>	<b>87.0</b>	<b>Pass</b>

**Table 4 - Tower Component Stresses vs. Capacity**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	84.0	Pass
1,2	Base Plate	-	86.5	Pass
1,2	Flange Connection	80	39.6	Pass
1,2	Flange Connection	106	43.9	Pass
1,2	Base Foundation – Structural	-	67.3	Pass
1,2	Base Foundation – Soil Interaction	-	97.7	Pass

<b>Structure Rating (max from all components)<sup>1</sup> =</b>	<b>97.7%</b>
---	--------------

Notes:

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

#### 4.1) Recommendations

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

## **APPENDIX A**

### **TNX TOWER OUTPUT**

15.0 ft

106.0 ft

80.5 ft

62.8 ft

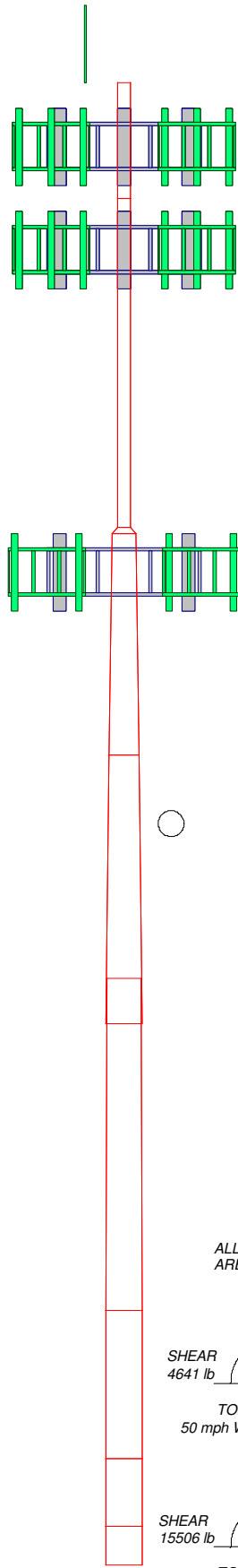
42.0 ft

19.8 ft

8.2 ft

3.0 ft

0.0 ft

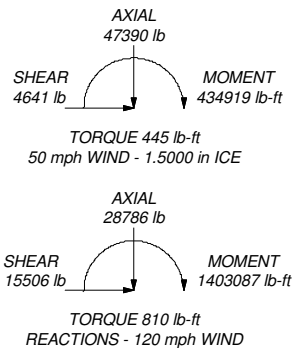


TYPE	ELEVATION	TYPE	ELEVATION
Valmont 5' T-Arm (3)	115	Sector Stabilizer kit, Site Prot 1 P/N SFS-V	102
Omni 2"x6"	115	Sector Stabilizer kit, Site Prot 1 P/N SFS-V	102
DB404-B Dipole	115	(2) SBNHH-1D65B w/ Mount Pipe	102
DB201-P Omni	115	(2) SBNHH-1D65B w/ Mount Pipe	102
ANT220D3 Dipole	115	(2) SBNHH-1D65B w/ Mount Pipe	102
Sabre 12' V-Boom	110	BXA-171063-12CF-EDIN-X w/ Mount Pipe	102
Sabre 12' V-Boom	110	BXA-171063-12CF-EDIN-X w/ Mount Pipe	102
Sabre 12' V-Boom	110	BXA-171063-12CF-EDIN-X w/ Mount Pipe	102
(2) EPBQ-654L8H8-L2 w/ Mount Pipe	110	Licensed Sub 6 Antenna w/Mounting Pipe	102
(2) EPBQ-654L8H8-L2 w/ Mount Pipe	110	Licensed Sub 6 Antenna w/Mounting Pipe	102
(2) EPBQ-654L8H8-L2 w/ Mount Pipe	110	Licensed Sub 6 Antenna w/Mounting Pipe	102
HPA65R-BUA8 w/ Mount Pipe	110	B2/B66A RRH-BR049	102
HPA65R-BUA8 w/ Mount Pipe	110	B2/B66A RRH-BR049	102
HPA65R-BUA8 w/ Mount Pipe	110	B2/B66A RRH-BR049	102
RADIO 4449 B5/B12	110	B5/B13 RRH-BR04C	102
RADIO 4449 B5/B12	110	B5/B13 RRH-BR04C	102
RADIO 4449 B5/B12	110	B5/B13 RRH-BR04C	102
RADIO 4478 B14	110	Junction Box	102
RADIO 4478 B14	110	Junction Box	102
RADIO 4478 B14	110	Valmont SNP8HR-396	77
RADIO 4415 B25	110	APXVLL19P 43-C-A20 w/ Mount Pipe	77
RADIO 4415 B25	110	APXVLL19P 43-C-A20 w/ Mount Pipe	77
RADIO 4415 B25	110	APXVLL19P 43-C-A20 w/ Mount Pipe	77
RADIO 8843 B2/B66A	110	APXVAALL24 43-U-NA20 w/ mount pipe	77
RADIO 8843 B2/B66A	110	APXVAALL24 43-U-NA20 w/ mount pipe	77
RADIO 8843 B2/B66A	110	APXVAALL24 43-U-NA20 w/ mount pipe	77
Squid Surge Arrestor	110	RADIO 4460 B2/B25 B66 TMO	77
Squid Surge Arrestor	110	RADIO 4460 B2/B25 B66 TMO	77
Squid Surge Arrestor	110	RADIO 4460 B2/B25 B66 TMO	77
T-Arm Mount [TA 602-1]	102	RADIO 4449 B71/B85A	77
T-Arm Mount [TA 602-1]	102	RADIO 4449 B71/B85A	77
T-Arm Mount [TA 602-1]	102	RADIO 4449 B71/B85A	77
2.9" Dia. x 7-ft	102	2.4" Dia.x10"	77
2.9" Dia. x 7-ft	102	2.4" Dia.x10"	77
2.9" Dia. x 7-ft	102	2.4" Dia.x10"	77
Sector Stabilizer kit, Site Prot 1 P/N SFS-V	102		

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-42	42 ksi	58 ksi	A607-65	65 ksi	80 ksi
A36	36 ksi	58 ksi			

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 87%

ALL REACTIONS  
ARE FACTORED



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### Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Tower base elevation above sea level: 347.52 ft.

Basic wind speed of 120 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.5000 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:  $K_{\text{sc}}(E_{\text{sc}}) = 0.95$   $K_{\text{sc}}(t_i) = 0.85$

Maximum demand-capacity ratio is: 1.05.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

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

### Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius in	Pole Grade
L1	115.00-106.00	9.00	0.0000	Round	12.7500	12.7500	0.5600		A500-42 (42 ksi)
L2	106.00-80.50	25.50	0.0000	Round	12.7500	12.7500	0.6250		A500-42 (42 ksi)
L3	80.50-80.00	0.50	0.0000	Round	12.7500	22.0000	6.3758		A36 (36 ksi)
L4	80.00-62.80	17.20	0.0000	18	22.0000	27.5000	0.1890	0.7560	A607-65 (65 ksi)
L5	62.80-42.00	20.80	3.5000	18	27.5000	33.4700	0.4000	1.6000	A607-65 (65 ksi)
L6	42.00-19.75	25.75	0.0000	18	31.6654	33.4700	0.2750	1.1000	A607-65 (65 ksi)
L7	19.75-8.25	11.50	0.0000	18	33.4700	33.4700	0.4590	1.8360	A607-65 (65 ksi)
L8	8.25-3.00	5.25	0.0000	18	33.4700	33.4700	0.6500	2.6000	A607-65 (65 ksi)
L9	3.00-0.00	3.00		18	33.4700	33.4700	0.4730	1.8920	A607-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	$r$ in	$C$ in	$I/C$ in <sup>3</sup>	$J$ in <sup>4</sup>	$I/Q$ in <sup>3</sup>	$w$ in	$w/t$	
L1	12.7500	21.4458	399.1854	4.3144	6.3750	62.6173	798.3707	0.0000	0	
	12.7500	21.4458	399.1854	4.3144	6.3750	62.6173	798.3707	0.0000	0	
L2	12.7500	23.8074	438.6696	4.2925	6.3750	68.8109	877.3392	0.0000	0	
	12.7500	23.8074	438.6696	4.2925	6.3750	68.8109	877.3392	0.0000	0	
L3	12.7500	127.6763	1297.2110	3.1875	6.3750	203.4841	2594.4221	63.8000	0.0000	0
	12.7500	127.6763	1297.2110	3.1875	6.3750	203.4841	2594.4221	63.8000	0.0000	0
L4	22.1392	312.553	11139.8972	5.9662	11.0000	1012.7179	22279.7944	156.3843	0.0000	0
	22.1392	13.0875	780.8972	7.7428	11.7160	70.3633	1574.1667	1.8977	3.5304	18.2748
L5	27.8951	16.3835	1543.8993	9.6054	13.9700	110.5153	4089.8032	8.1933	4.5034	13.2748
	27.8625	34.4062	3192.3628	9.6205	13.9700	228.5156	6389.9261	17.2063	4.1360	10.34
L6	32.9246	41.9857	5801.0545	11.7399	17.0028	341.1831	11608.7423	20.9968	5.1867	12.967
	32.3606	27.3991	3410.9000	11.1436	16.8600	212.0410	6826.2881	13.7022	5.0891	18.5060
L7	39.9439	28.9743	4033.6210	11.7842	17.0028	237.2333	8072.5495	14.8929	5.4067	19.6611
	39.9155	48.0926	6621.1450	11.7189	17.0028	389.4159	13251.0023	24.0509	5.0829	11.0747
L8	39.9155	48.0926	6621.1450	11.7189	17.0028	389.4159	13251.0023	24.0509	5.0829	11.0747
	38.8861	67.7109	9214.5358	11.6511	17.0028	541.9435	18441.1962	38.8619	4.7467	7.303
L9	38.8861	67.7109	9214.5358	11.6511	17.0028	541.9435	18441.1962	38.8619	4.7467	7.303
	39.9134	49.5385	6814.4198	11.7139	17.0028	400.7832	13637.8062	24.7739	5.0582	10.6694
	39.9134	49.5385	6814.4198	11.7139	17.0028	400.7832	13637.8062	24.7739	5.0582	10.6694

Tower Elevation	Gusset Area <i>(per face)</i>	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>v</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals <i>in</i>	Double Angle Stitch Bolt Spacing Horizontals <i>in</i>	Double Angle Stitch Bolt Spacing Redundants <i>in</i>
L1	f1	i1							
115.00-106.00	f2	i2		1	1	1			
L2									
106.00-80.50				1	1	1			

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Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft <sup>2</sup>	in							
L3 80.50-80.00				1	1	1			
L4 80.00-62.80				1	1	1			
L5 62.80-42.00				1	1	1			
L6 42.00-19.75				1	1	1			
L7 19.75-8.25				1	1	1			
L8 8.25-3.00				1	1	1			
L9 3.00-0.00				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 <sub>A</sub> A <sub>A</sub>	Weight
							ft <sup>2</sup> /ft	plf
Step Pegs (5/8" SR) 7-in. w/30" step	C	No	No	CaAa (Out Of Face)	115.00 - 0.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.03 0.14 0.23 0.43
Safety Line 3/8	C	No	No	CaAa (Out Of Face)	115.00 - 0.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.04 0.14 0.24 0.44
** 7/8" Coax	B	No	No	Inside Pole	115.00 - 8.00	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.30 0.30 0.30
LDF7-50A(1-5/8")	B	No	No	Inside Pole	115.00 - 8.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 1.04 1.04 1.04
1/2" dia. coax	B	No	No	Inside Pole	115.00 - 8.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.25 0.25 0.25
.820 DC Power Cable	A	No	No	Inside Pole	110.00 - 8.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.88 0.88 0.88
0.24" Fiber	A	No	No	Inside Pole	110.00 - 8.00	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.48 0.48 0.48
1/2" dia. coax	C	No	No	Inside Pole	102.00 - 8.00	2	No Ice	0.00

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C <sub>A</sub> A <sub>A</sub>	Weight
							ft <sup>2</sup> /ft	plf
LDF7-50A(1-5/8")	C	No	No	Inside Pole	102.00 - 8.00	2	1/2" Ice 1" Ice 2" Ice No Ice	0.00 0.00 0.00 0.00
							1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00
								0.00
								0.00
								0.00
**77** FDH1204-48SE2-10 0M (6x24)	C	No	No	Inside Pole	77.00 - 8.00	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00
**								

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub>	A <sub>F</sub>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight lb
L1	115.00-106.00	A	0.000	0.000	0.000	0.000	26.88
		B	0.000	0.000	0.000	0.000	19.71
		C	0.000	0.000	0.000	0.652	6.36
L2	106.00-80.50	A	0.000	0.000	0.000	0.000	171.36
		B	0.000	0.000	0.000	0.000	55.84
		C	0.000	0.000	0.000	1.849	73.50
L3	80.50-80.00	A	0.000	0.000	0.000	0.000	3.36
		B	0.000	0.000	0.000	0.000	1.09
		C	0.000	0.000	0.000	0.036	1.64
L4	80.00-62.80	A	0.000	0.000	0.000	0.000	115.58
		B	0.000	0.000	0.000	0.000	37.67
		C	0.000	0.000	0.000	1.247	205.64
L5	62.80-42.00	A	0.000	0.000	0.000	0.000	139.78
		B	0.000	0.000	0.000	0.000	45.55
		C	0.000	0.000	0.000	1.508	286.77
L6	42.00-19.75	A	0.000	0.000	0.000	0.000	149.52
		B	0.000	0.000	0.000	0.000	48.73
		C	0.000	0.000	0.000	1.613	306.76
L7	19.75-8.25	A	0.000	0.000	0.000	0.000	77.28
		B	0.000	0.000	0.000	0.000	25.18
		C	0.000	0.000	0.000	0.834	158.55
L8	8.25-3.00	A	0.000	0.000	0.000	0.000	1.68
		B	0.000	0.000	0.000	0.000	0.55
		C	0.000	0.000	0.000	0.381	6.98
L9	3.00-0.00	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	0.217	2.12

### Feed Line/Linear Appurtenances Section Areas - With Ice





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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight lb
HPA65R-BU8A w/ Mount Pipe	C	From Face	3.50 -2.00 1.00	0.0000	110.00	No Ice 11.47 1/2" Ice 12.19 1" Ice 12.92 2" Ice 14.29	10.18 11.70 13.25 15.59	86.85 177.25 277.60 512.51
RADIO 4449 B5/B12	A	From Face	3.50 -2.00 1.50	0.0000	110.00	No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 2" Ice 2.33	1.30 1.45 1.60 1.92	73.00 90.19 110.08 158.72
RADIO 4449 B5/B12	B	From Face	3.50 -2.00 1.50	0.0000	110.00	No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 2" Ice 2.33	1.30 1.45 1.60 1.92	73.00 90.19 110.08 158.72
RADIO 4449 B5/B12	C	From Face	3.50 -2.00 1.50	0.0000	110.00	No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 2" Ice 2.33	1.30 1.45 1.60 1.92	73.00 90.19 110.08 158.72
RADIO 4478 B14	A	From Face	3.50 2.50 1.00	0.5000	110.00	No Ice 2.02 1/2" Ice 2.20 1" Ice 2.39 2" Ice 2.78	1.25 1.40 1.55 1.89	59.40 77.01 97.40 147.26
RADIO 4478 B14	B	From Face	3.50 2.50 1.00	0.5000	110.00	No Ice 2.02 1/2" Ice 2.20 1" Ice 2.39 2" Ice 2.78	1.25 1.40 1.55 1.89	59.40 77.01 97.40 147.26
RADIO 4478 B14	C	From Face	3.50 2.50 1.00	0.5000	110.00	No Ice 2.02 1/2" Ice 2.20 1" Ice 2.39 2" Ice 2.78	1.25 1.40 1.55 1.89	59.40 77.01 97.40 147.26
RADIO 4415 B25	A	From Face	3.50 2.00 1.00	0.5000	110.00	No Ice 1.84 1/2" Ice 2.01 1" Ice 2.19 2" Ice 2.57	0.82 0.94 1.07 1.37	46.00 60.07 76.66 118.17
RADIO 4415 B25	B	From Face	3.50 2.00 1.00	0.5000	110.00	No Ice 1.84 1/2" Ice 2.01 1" Ice 2.19 2" Ice 2.57	0.82 0.94 1.07 1.37	46.00 60.07 76.66 118.17
RADIO 4415 B25	C	From Face	3.50 2.00 1.00	0.5000	110.00	No Ice 1.84 1/2" Ice 2.01 1" Ice 2.19 2" Ice 2.57	0.82 0.94 1.07 1.37	46.00 60.07 76.66 118.17
RADIO 8843 B2/B66A	A	From Face	3.50 -5.00 1.50	0.0000	110.00	No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 2" Ice 2.33	1.38 1.53 1.69 2.02	75.00 92.83 113.39 163.51
RADIO 8843 B2/B66A	B	From Face	3.50 -5.00 1.50	0.0000	110.00	No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 2" Ice 2.33	1.38 1.53 1.69 2.02	75.00 92.83 113.39 163.51
RADIO 8843 B2/B66A	C	From Face	3.50 -5.00 1.50	0.0000	110.00	No Ice 1.64 1/2" Ice 1.80 1" Ice 1.97 2" Ice 2.33	1.38 1.53 1.69 2.02	75.00 92.83 113.39 163.51
Squid Surge Arrestor	C	From Face	2.00 0.00 0.00	0.0000	110.00	No Ice 0.81 1/2" Ice 1.30 1" Ice 1.48 2" Ice 2.77	0.81 1.30 1.48 2.77	33.00 48.38 66.11 94.52
Squid Surge Arrestor	B	From Face	2.00	0.0000	110.00	No Ice 0.81	0.81	33.00

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight lb
			0.00 0.00			1/2" Ice 1.30 1" Ice 1.48 2" Ice 2.77	1.30 1.48 2.77	48.38 66.11 94.52
Squid Surge Arrestor	A	From Face	2.00 0.00 0.00	0.0000	110.00	No Ice 0.81 1/2" Ice 1.30 1" Ice 1.48 2" Ice 2.77	0.81 1.30 1.48 2.77	33.00 48.38 66.11 94.52
**102**								
T-Arm Mount [TA 602-1]	A	From Face	2.00 0.00 0.00	0.0000	102.00	No Ice 7.28 1/2" Ice 9.52 1" Ice 11.76 2" Ice 16.24	3.02 4.20 5.38 7.74	258.10 330.12 402.14 546.17
T-Arm Mount [TA 602-1]	B	From Face	2.00 0.00 0.00	0.0000	102.00	No Ice 7.28 1/2" Ice 9.52 1" Ice 11.76 2" Ice 16.24	3.02 4.20 5.38 7.74	258.10 330.12 402.14 546.17
T-Arm Mount [TA 602-1]	C	From Face	2.00 0.00 0.00	0.0000	102.00	No Ice 7.28 1/2" Ice 9.52 1" Ice 11.76 2" Ice 16.24	3.02 4.20 5.38 7.74	258.10 330.12 402.14 546.17
2.9" Dia. x 7-ft	A	From Face	3.50 5.00 0.00	0.0000	102.00	No Ice 2.03 1/2" Ice 2.60 1" Ice 3.03 2" Ice 3.91	2.03 2.60 3.03 3.91	40.60 55.53 75.18 129.26
2.9" Dia. x 7-ft	B	From Face	3.50 5.00 0.00	0.0000	102.00	No Ice 2.03 1/2" Ice 2.60 1" Ice 3.03 2" Ice 3.91	2.03 2.60 3.03 3.91	40.60 55.53 75.18 129.26
2.9" Dia. x 7-ft	C	From Face	3.50 5.00 0.00	0.0000	102.00	No Ice 2.03 1/2" Ice 2.60 1" Ice 3.03 2" Ice 3.91	2.03 2.60 3.03 3.91	40.60 55.53 75.18 129.26
Sector Stabilizer kit, Site Pro I P/N SFS-V	A	From Face	0.00 0.00 -2.00	0.0000	102.00	No Ice 2.84 1/2" Ice 3.30 1" Ice 3.84 2" Ice 4.68	2.67 3.09 3.58 4.35	66.00 84.00 113.00 138.00
Sector Stabilizer kit, Site Pro I P/N SFS-V	B	From Face	0.00 0.00 -2.00	0.0000	102.00	No Ice 2.84 1/2" Ice 3.30 1" Ice 3.84 2" Ice 4.68	2.67 3.09 3.58 4.35	66.00 84.00 113.00 138.00
Sector Stabilizer kit, Site Pro I P/N SFS-V	C	From Face	0.00 0.00 -2.00	0.0000	102.00	No Ice 2.84 1/2" Ice 3.30 1" Ice 3.84 2" Ice 4.68	2.67 3.09 3.58 4.35	66.00 84.00 113.00 138.00
(2) SBNHH-1D65B w/ Mount Pipe	A	From Face	3.50 -1.50 0.00	0.0000	102.00	No Ice 8.65 1/2" Ice 9.32 1" Ice 9.90 2" Ice 11.10	7.64 8.93 9.88 11.82	86.92 161.84 245.97 439.47
(2) SBNHH-1D65B w/ Mount Pipe	B	From Face	3.50 -1.50 0.00	0.0000	102.00	No Ice 8.65 1/2" Ice 9.32 1" Ice 9.90 2" Ice 11.10	7.64 8.93 9.88 11.82	86.92 161.84 245.97 439.47
(2) SBNHH-1D65B w/ Mount Pipe	C	From Face	3.50 -1.50 0.00	0.0000	102.00	No Ice 8.65 1/2" Ice 9.32 1" Ice 9.90 2" Ice 11.10	7.64 8.93 9.88 11.82	86.92 161.84 245.97 439.47
BXA-171063-12CF-EDIN-X	A	From Face	3.50	0.0000	102.00	No Ice 5.03	5.29	40.67

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight lb
w/ Mount Pipe			-2.00 0.00			1/2" Ice 5.58 1" Ice 6.10 2" Ice 7.17	6.46 7.35 9.15	86.70 140.17 273.05
BXA-171063-12CF-EDIN-X w/ Mount Pipe	B	From Face	3.50 3.00 0.00	0.0000	102.00	No Ice 5.03 1/2" Ice 5.58 1" Ice 6.10 2" Ice 7.17	5.29 6.46 7.35 9.15	40.67 86.70 140.17 273.05
BXA-171063-12CF-EDIN-X w/ Mount Pipe	C	From Face	3.50 3.00 0.00	0.0000	102.00	No Ice 5.03 1/2" Ice 5.58 1" Ice 6.10 2" Ice 7.17	5.29 6.46 7.35 9.15	40.67 86.70 140.17 273.05
Licensed Sub 6 Antenna w/Mounting Pipe	A	From Face	3.50 -5.00 0.00	0.0000	102.00	No Ice 5.43 1/2" Ice 5.97 1" Ice 6.46 2" Ice 7.59	3.27 3.99 4.59 6.15	109.00 154.17 204.90 289.68
Licensed Sub 6 Antenna w/Mounting Pipe	B	From Face	3.50 -5.00 0.00	0.0000	102.00	No Ice 5.43 1/2" Ice 5.97 1" Ice 6.46 2" Ice 7.59	3.27 3.99 4.59 6.15	109.00 154.17 204.90 289.68
Licensed Sub 6 Antenna w/Mounting Pipe	C	From Face	3.50 -5.00 0.00	0.0000	102.00	No Ice 5.43 1/2" Ice 5.97 1" Ice 6.46 2" Ice 7.59	3.27 3.99 4.59 6.15	109.00 154.17 204.90 289.68
B2/B66A RRR-BR049	A	From Face	3.50 -1.50 -1.00	0.0000	102.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.25 1.39 1.54 1.86	84.40 102.74 123.87 175.27
B2/B66A RRR-BR049	B	From Face	3.50 -1.50 -1.00	0.0000	102.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.25 1.39 1.54 1.86	84.40 102.74 123.87 175.27
B2/B66A RRR-BR049	C	From Face	3.50 -1.50 -1.00	0.0000	102.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.25 1.39 1.54 1.86	84.40 102.74 123.87 175.27
B5/B13 RRR-BR04C	A	From Face	3.50 -1.50 1.00	0.0000	102.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.01 1.14 1.28 1.59	70.30 86.73 105.83 152.80
B5/B13 RRR-BR04C	B	From Face	3.50 -1.50 1.00	0.0000	102.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.01 1.14 1.28 1.59	70.30 86.73 105.83 152.80
B5/B13 RRR-BR04C	C	From Face	3.50 -1.50 1.00	0.0000	102.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.01 1.14 1.28 1.59	70.30 86.73 105.83 152.80
Junction Box	A	From Face	2.00 0.00 0.00	90.0000	102.00	No Ice 0.53 1/2" Ice 0.63 1" Ice 0.73 2" Ice 0.95	0.27 0.34 0.41 0.59	2.43 7.26 13.58 31.47
Junction Box	C	From Face	2.00 0.00 0.00	90.0000	102.00	No Ice 0.53 1/2" Ice 0.63 1" Ice 0.73 2" Ice 0.95	0.27 0.34 0.41 0.59	2.43 7.26 13.58 31.47
**77** Valmont SNP8HR-396	C	None		0.0000	77.00	No Ice 26.80	26.80	1509.00

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	<b>Client</b>	Centerline Communications		<b>Designed by</b>	RAD	

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight lb	
APXVLL19P_43-C-A20 w/ Mount Pipe	A	From Centroid-Fa ce	3.00	0.0000	77.00	1/2" Ice	32.20	32.20	1811.00
			-3.00			1" Ice	37.60	37.60	2113.00
			0.00			2" Ice	48.40	48.40	2717.00
			No Ice			8.49	5.89	75.10	
			1/2" Ice			9.07	7.11	138.16	
			1" Ice			9.62	8.09	209.31	
			2" Ice			10.72	9.96	379.59	
APXVLL19P_43-C-A20 w/ Mount Pipe	B	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	8.49	5.89	75.10
			-3.00			1/2" Ice	9.07	7.11	138.16
			0.00			1" Ice	9.62	8.09	209.31
			No Ice			10.72	9.96	379.59	
			No Ice			8.49	5.89	75.10	
			1/2" Ice			9.07	7.11	138.16	
			1" Ice			9.62	8.09	209.31	
APXVLL19P_43-C-A20 w/ Mount Pipe	C	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	8.49	5.89	75.10
			-3.00			1/2" Ice	9.07	7.11	138.16
			0.00			1" Ice	9.62	8.09	209.31
			No Ice			10.72	9.96	379.59	
			No Ice			8.49	5.89	75.10	
			1/2" Ice			9.07	7.11	138.16	
			1" Ice			9.62	8.09	209.31	
APXVAALL24_43-U-NA20 w/ mount pipe	A	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	20.24	11.03	169.12
			3.00			1/2" Ice	20.89	12.46	305.80
			0.00			1" Ice	21.55	13.56	454.11
			No Ice			22.88	15.79	783.24	
			No Ice			20.24	11.03	169.12	
			1/2" Ice			20.89	12.46	305.80	
			1" Ice			21.55	13.56	454.11	
APXVAALL24_43-U-NA20 w/ mount pipe	B	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	20.24	11.03	169.12
			3.00			1/2" Ice	20.89	12.46	305.80
			0.00			1" Ice	21.55	13.56	454.11
			No Ice			22.88	15.79	783.24	
			No Ice			20.24	11.03	169.12	
			1/2" Ice			20.89	12.46	305.80	
			1" Ice			21.55	13.56	454.11	
APXVAALL24_43-U-NA20 w/ mount pipe	C	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	20.24	11.03	169.12
			3.00			1/2" Ice	20.89	12.46	305.80
			0.00			1" Ice	21.55	13.56	454.11
			No Ice			22.88	15.79	783.24	
			No Ice			2.14	1.69	109.00	
			1/2" Ice			2.32	1.85	131.16	
			1" Ice			2.51	2.02	156.36	
RADIO 4460 B2/B25 B66_TMO	A	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	2.14	1.69	109.00
			-3.00			1/2" Ice	2.32	1.85	131.16
			0.00			1" Ice	2.51	2.02	156.36
			No Ice			2.91	2.39	216.68	
			No Ice			2.14	1.69	109.00	
			1/2" Ice			2.32	1.85	131.16	
			1" Ice			2.51	2.02	156.36	
RADIO 4460 B2/B25 B66_TMO	B	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	2.14	1.69	109.00
			-3.00			1/2" Ice	2.32	1.85	131.16
			0.00			1" Ice	2.51	2.02	156.36
			No Ice			2.91	2.39	216.68	
			No Ice			2.14	1.69	109.00	
			1/2" Ice			2.32	1.85	131.16	
			1" Ice			2.51	2.02	156.36	
RADIO 4460 B2/B25 B66_TMO	C	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	2.14	1.69	109.00
			-3.00			1/2" Ice	2.32	1.85	131.16
			0.00			1" Ice	2.51	2.02	156.36
			No Ice			2.91	2.39	216.68	
			No Ice			1.64	1.31	74.95	
			1/2" Ice			1.80	1.46	92.22	
			1" Ice			1.97	1.61	112.19	
RADIO 4449 B71/B85A	A	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	1.64	1.31	74.95
			3.00			1/2" Ice	1.80	1.46	92.22
			0.00			1" Ice	1.97	1.61	112.19
			No Ice			2.33	1.94	161.00	
			No Ice			1.64	1.31	74.95	
			1/2" Ice			1.80	1.46	92.22	
			1" Ice			1.97	1.61	112.19	
RADIO 4449 B71/B85A	B	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	1.64	1.31	74.95
			3.00			1/2" Ice	1.80	1.46	92.22
			0.00			1" Ice	1.97	1.61	112.19
			No Ice			2.33	1.94	161.00	
			No Ice			1.64	1.31	74.95	
			1/2" Ice			1.80	1.46	92.22	
			1" Ice			1.97	1.61	112.19	
RADIO 4449 B71/B85A	C	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	1.64	1.31	74.95
			3.00			1/2" Ice	1.80	1.46	92.22
			0.00			1" Ice	1.97	1.61	112.19
			No Ice			2.33	1.94	161.00	
			No Ice			0.08	0.08	3.05	
			1/2" Ice			0.18	0.18	7.41	
			1" Ice			0.26	0.26	13.07	
2.4" Dia.x10"	A	From Centroid-Fa ce	3.00	0.0000	77.00	No Ice	0.08	0.08	3.05
			0.00			1/2" Ice	0.18	0.18	7.41
			0.00			1" Ice	0.26	0.26	13.07
			No Ice			0.44	0.44	28.87	
			No Ice			0.08	0.08	3.05	
			1/2" Ice			0.18	0.18	7.41	
			1" Ice			0.26	0.26	13.07	
2.4" Dia.x10"	B	From Centroid-Fa	3.00	0.0000	77.00	No Ice	0.08	0.08	3.05
			0.00			1/2" Ice	0.18	0.18	7.41
			0.00			1" Ice	0.26	0.26	13.07
			No Ice			0.44	0.44	28.87	
			No Ice			0.08	0.08	3.05	
			1/2" Ice			0.18	0.18	7.41	
			1" Ice			0.26	0.26	13.07	

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>S</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight lb		
2.4" Dia.x10"	C	ce	0.00	0.0000	77.00	1" Ice	0.26	13.07		
		From Centroid-Fa ce	3.00 0.00 0.00			2" Ice	0.44	28.87		
						No Ice	0.08	3.05		
						1/2" Ice	0.18	7.41		
						1" Ice	0.26	13.07		
**					2" Ice	0.44	28.87			

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

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Comb. No.	Description
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	115 - 106	Pole	Max. Tension	14	0.01	0.57	0.01
			Max. Compression	26	-12181.69	44.37	-150.27
			Max. Mx	20	-4920.07	29893.90	-202.36
			Max. My	14	-4916.76	111.95	-30070.41
			Max. Vy	20	-5702.72	29893.90	-202.36
			Max. Vx	14	5713.01	111.95	-30070.41
			Max. Torque	15			447.22
			Max. Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22473.97	787.88	-1286.58
			Max. Mx	20	-10664.94	259280.63	-1107.73
L2	106 - 80.5	Pole	Max. Mx	20	-10660.37	928.17	-260172.56
			Max. My	14	-9732.85	246894.95	-1066.78
			Max. Vy	20	9760.09	888.76	-247752.54
			Max. Vx	14			659.31
			Max. Torque	18	0.00	0.00	0.00
			Max. Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22949.39	799.57	-1302.28
			Max. Mx	20	-11137.53	264148.29	-1125.22
			Max. My	14	-11132.99	939.41	-265053.81
			Max. Vy	20	-9763.72	264148.29	-1125.22
L3	80.5 - 80	Pole	Max. Vx	14	9791.58	939.41	-265053.81
			Max. Torque	18			655.56
			Max. Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31725.88	925.65	-1411.58
			Max. Mx	20	-16000.54	481114.14	-1746.60
			Max. My	14	-15996.64	1565.69	-482569.43
			Max. Vy	20	-13420.13	481114.14	-1746.60
			Max. Vx	14	13453.46	1565.69	-482569.43
			Max. Torque	18			810.28
			Max. Tension	1	0.00	0.00	0.00
L4	80 - 62.8	Pole	Max. Compression	26	-35831.96	1046.92	-1499.51
			Max. Mx	20	-19252.82	719820.56	-2386.73
			Max. My	14	-19249.71	2196.48	-721838.70
			Max. Vy	20	-14211.50	719820.56	-2386.73
			Max. Vx	14	14244.71	2196.48	-721838.70
			Max. Torque	18			808.11
			Max. Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41749.75	1202.22	-1588.47
			Max. Mx	20	-23881.53	1096926.41	-3313.37
			Max. My	14	-23880.32	3124.67	-1099767.4
L5	62.8 - 42	Pole	Max. Vy	20	-14954.40	1096926.41	-3313.37
			Max. Vx	14	14986.17	3124.67	-1099767.4
							9
L6	42 - 19.75	Pole					

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L7	19.75 - 8.25	Pole					9
			Max. Torque	18			807.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44937.04	1262.58	-1623.26
			Max. Mx	20	-26604.85	1270577.25	-3710.27
			Max. My	14	-26604.36	3527.04	-1273773.6
							7
			Max. Vy	20	-15260.44	1270577.25	-3710.27
			Max. Vx	14	15291.57	3527.04	-1273773.6
							7
L8	8.25 - 3	Pole	Max. Torque	18			805.55
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46654.41	1286.83	-1637.21
			Max. Mx	20	-28124.78	1351035.97	-3888.70
			Max. My	14	-28124.55	3708.40	-1354392.4
							4
			Max. Vy	20	-15409.45	1351035.97	-3888.70
			Max. Vx	14	15440.31	3708.40	-1354392.4
							4
			Max. Torque	8			-806.62
L9	3 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47390.36	1298.65	-1643.96
			Max. Mx	20	-28778.32	1397321.07	-3989.61
			Max. My	14	-28778.29	3811.38	-1400768.3
							2
			Max. Vy	20	-15469.39	1397321.07	-3989.61
			Max. Vx	14	15500.03	3811.38	-1400768.3
							2
			Max. Torque	8			-810.45

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	33	47390.36	6.54	-4637.10
	Max. H <sub>x</sub>	20	28786.17	15454.79	-33.13
	Max. H <sub>y</sub>	3	21589.63	-33.13	15485.39
	Max. M <sub>x</sub>	2	1399875.83	-33.13	15485.39
	Max. M <sub>y</sub>	8	1396823.98	-15454.79	33.13
	Max. Torsion	20	810.15	15454.79	-33.13
	Min. Vert	19	21589.63	13400.81	-7771.39
	Min. H <sub>x</sub>	8	28786.17	-15454.79	33.13
	Min. H <sub>y</sub>	14	28786.17	33.13	-15485.39
	Min. M <sub>x</sub>	14	-1400768.32	33.13	-15485.39
	Min. M <sub>y</sub>	20	-1397321.07	15454.79	-33.13
	Min. Torsion	8	-810.45	-15454.79	33.13

Tower Mast Reaction Summary

Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>y</sub>	Overtuning Moment, M <sub>x</sub>	Overtuning Moment, M <sub>y</sub>	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft

Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>y</sub>	Overtuning Moment, M <sub>x</sub>	Overtuning Moment, M <sub>y</sub>	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead Only	23988.47	-0.00	0.00	342.69	192.31	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	28786.17	33.13	-15485.39	-1399875.83	-3294.33	207.05
0.9 Dead+1.0 Wind 0 deg - No Ice	21589.63	33.13	-15485.39	-1376340.97	-3301.14	208.81
1.2 Dead+1.0 Wind 30 deg - No Ice	28786.17	7756.09	-13427.31	-1214043.37	-701340.07	584.35
0.9 Dead+1.0 Wind 30 deg - No Ice	21589.63	7756.09	-13427.31	-1193645.40	-689556.81	583.06
1.2 Dead+1.0 Wind 60 deg - No Ice	28786.17	13400.81	-7771.39	-702802.57	-1211406.12	805.24
0.9 Dead+1.0 Wind 60 deg - No Ice	21589.63	13400.81	-7771.39	-691038.38	-1191006.47	801.26
1.2 Dead+1.0 Wind 90 deg - No Ice	28786.17	15454.79	-33.13	-3116.34	-1396823.98	810.45
0.9 Dead+1.0 Wind 90 deg - No Ice	21589.63	15454.79	-33.13	-3172.86	-1373291.09	804.83
1.2 Dead+1.0 Wind 120 deg - No Ice	28786.17	13367.68	7714.00	697541.25	-1207886.73	598.33
0.9 Dead+1.0 Wind 120 deg - No Ice	21589.63	13367.68	7714.00	685644.16	-1187545.83	592.59
1.2 Dead+1.0 Wind 150 deg - No Ice	28786.17	7698.70	13394.17	1211404.51	-695209.91	225.71
0.9 Dead+1.0 Wind 150 deg - No Ice	21589.63	7698.70	13394.17	1190822.91	-683532.82	221.39
1.2 Dead+1.0 Wind 180 deg - No Ice	28786.17	-33.13	15485.39	1400768.32	3811.41	-207.34
0.9 Dead+1.0 Wind 180 deg - No Ice	21589.63	-33.13	15485.39	1376990.44	3677.38	-209.08
1.2 Dead+1.0 Wind 210 deg - No Ice	28786.17	-7756.09	13427.31	1214925.18	701862.31	-584.67
0.9 Dead+1.0 Wind 210 deg - No Ice	21589.63	-7756.09	13427.31	1194284.55	689936.78	-583.38
1.2 Dead+1.0 Wind 240 deg - No Ice	28786.17	-13400.81	7771.39	703672.75	1211918.35	-805.28
0.9 Dead+1.0 Wind 240 deg - No Ice	21589.63	-13400.81	7771.39	691669.22	1191379.40	-801.30
1.2 Dead+1.0 Wind 270 deg - No Ice	28786.17	-15454.79	33.13	3989.49	1397321.07	-810.15
0.9 Dead+1.0 Wind 270 deg - No Ice	21589.63	-15454.79	33.13	3805.71	1373653.25	-804.54
1.2 Dead+1.0 Wind 300 deg - No Ice	28786.17	-13367.68	-7714.00	-696653.53	1208378.69	-597.98
0.9 Dead+1.0 Wind 300 deg - No Ice	21589.63	-13367.68	-7714.00	-685000.98	1187904.27	-592.25
1.2 Dead+1.0 Wind 330 deg - No Ice	28786.17	-7698.70	-13394.17	-1210505.16	695711.88	-225.67
0.9 Dead+1.0 Wind 330 deg - No Ice	21589.63	-7698.70	-13394.17	-1190171.42	683898.30	-221.34
1.2 Dead+1.0 Ice+1.0 Temp	47390.36	-0.02	0.03	1643.96	1298.65	-0.03
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	47390.36	6.54	-4637.10	-430531.05	606.46	-217.72
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	47390.36	2321.26	-4019.11	-372998.01	-215080.94	5.55
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	47390.36	4014.00	-2324.21	-215058.63	-372773.83	227.33
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	47390.36	4631.19	-6.54	968.85	-430218.46	388.21
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	47390.36	4007.46	2312.88	217200.46	-372021.17	445.05
1.2 Dead+1.0 Wind 150	47390.36	2309.93	4012.57	375695.92	-213774.92	382.63

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<i>Load Combination</i>	<i>Vertical</i>	<i>Shear<sub>1</sub></i>	<i>Shear<sub>2</sub></i>	<i>Overturning Moment, M<sub>1</sub></i>	<i>Overturning Moment, M<sub>2</sub></i>	<i>Torque</i>
	<i>lb</i>	<i>lb</i>	<i>lb</i>	<i>lb-ft</i>	<i>lb-ft</i>	<i>lb-ft</i>
deg+1.0 lce+1.0 Temp						
1.2 Dead+1.0 Wind 180	47390.36	-6.54	4637.10	433985.34	2117.63	217.66
deg+1.0 lce+1.0 Temp						
1.2 Dead+1.0 Wind 210	47390.36	-2321.26	4019.11	376450.31	217807.06	-5.63
deg+1.0 lce+1.0 Temp						
1.2 Dead+1.0 Wind 240	47390.36	-4014.00	2324.21	218508.18	375499.27	-227.42
deg+1.0 lce+1.0 Temp						
1.2 Dead+1.0 Wind 270	47390.36	-4631.19	6.54	2479.96	432941.18	-388.27
deg+1.0 lce+1.0 Temp						
1.2 Dead+1.0 Wind 300	47390.36	-4007.46	-2312.88	-213749.66	374741.85	-445.10
deg+1.0 lce+1.0 Temp						
1.2 Dead+1.0 Wind 330	47390.36	-2309.93	-4012.57	-372242.38	216496.29	-382.67
deg+1.0 lce+1.0 Temp						
Dead+Wind 0 deg - Service	23988.47	7.80	-3690.92	-330813.85	-622.26	50.40
Dead+Wind 30 deg - Service	23988.47	1848.61	-3200.33	-286858.41	-165722.48	140.03
Dead+Wind 60 deg - Service	23988.47	3194.09	-1852.22	-165939.91	-286362.29	192.14
Dead+Wind 90 deg - Service	23988.47	3683.72	-7.80	-459.08	-330216.95	192.77
Dead+Wind 120 deg - Service	23988.47	3186.29	1838.70	165244.09	-285534.90	141.74
Dead+Wind 150 deg - Service	23988.47	1835.10	3192.53	286769.07	-164288.47	52.72
Dead+Wind 180 deg - Service	23988.47	-7.80	3690.92	331553.05	1034.04	-50.43
Dead+Wind 210 deg - Service	23988.47	-1848.61	3200.33	287596.52	166134.25	-140.06
Dead+Wind 240 deg - Service	23988.47	-3194.09	1852.22	166678.16	286774.28	-192.15
Dead+Wind 270 deg - Service	23988.47	-3683.72	7.80	1197.22	330627.81	-192.76
Dead+Wind 300 deg - Service	23988.47	-3186.29	-1838.70	-164505.28	285945.53	-141.73
Dead+Wind 330 deg - Service	23988.47	-1835.10	-3192.53	-286029.73	164699.55	-52.72

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
28	2321.25	-47390.36	-4019.10	-2321.26	47390.36	4019.11	0.000%
29	4013.98	-47390.36	-2324.20	-4014.00	47390.36	2324.21	0.000%
30	4631.17	-47390.36	-6.54	-4631.19	47390.36	6.54	0.000%
31	4007.44	-47390.36	2312.88	-4007.46	47390.36	-2312.88	0.000%
32	2309.92	-47390.36	4012.56	-2309.93	47390.36	-4012.57	0.000%
33	-6.54	-47390.36	407.08	6.54	47390.36	-407.10	0.000%
34	-2324.25	-47390.36	4014.10	2324.22	47390.36	-4014.00	0.000%
35	-4013.98	-47390.36	2324.20	4014.00	47390.36	-2324.21	0.000%
36	-4631.17	-47390.36	6.54	4631.19	47390.36	-6.54	0.000%
37	-4007.44	-47390.36	-2312.88	4007.46	47390.36	2312.88	0.000%
38	-2309.92	-47390.36	-4012.56	2309.93	47390.36	4012.57	0.000%
39	7.80	-23988.47	-3690.92	-7.80	23988.47	3690.92	0.000%
40	1848.61	-23988.47	3200.33	-1848.61	23988.47	3200.33	0.000%
41	3194.09	-23988.47	-1852.22	-3194.09	23988.47	1852.22	0.000%
42	-3683.71	-23988.47	-7.80	-3683.72	23988.47	7.80	0.000%
43	3186.29	-23988.47	1838.70	-3186.29	23988.47	-1838.70	0.000%
44	1835.10	-23988.47	3192.53	-1835.10	23988.47	-3192.53	0.000%
45	-7.80	-23988.47	3690.92	7.80	23988.47	-3690.92	0.000%
46	-1848.61	-23988.47	3200.33	1848.61	23988.47	-3200.33	0.000%
47	-3194.09	-23988.47	1852.22	3194.09	23988.47	-1852.22	0.000%
48	-3683.71	-23988.47	7.80	3683.72	23988.47	-7.80	0.000%
49	-3186.29	-23988.47	-1838.70	3186.29	23988.47	1838.70	0.000%
50	-1835.10	-23988.47	-3192.53	1835.10	23988.47	3192.53	0.000%

### Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-23988.47	0.00	0.00	23988.47	-0.00	0.000%
2	33.13	-28786.17	-15485.39	-33.13	28786.17	15485.39	0.000%
3	33.13	-21589.63	-15485.39	-33.13	21589.63	15485.39	0.000%
4	7756.09	-28786.17	-13427.31	-7756.09	28786.17	13427.31	0.000%
5	7756.09	-21589.63	-13427.31	-7756.09	21589.63	13427.31	0.000%
6	13400.81	-28786.17	-7771.39	-13400.81	28786.17	7771.39	0.000%
7	13400.81	-21589.63	-7771.39	-13400.81	21589.63	7771.39	0.000%
8	15454.79	-28786.17	-33.13	-15454.79	28786.17	33.13	0.000%
9	15454.79	-33.13	-13367.68	-15454.79	33.13	13367.68	0.000%
10	13367.68	-28786.17	7714.00	-13367.68	28786.17	-7714.00	0.000%
11	13367.68	-21589.63	7714.00	-13367.68	21589.63	-7714.00	0.000%
12	7698.70	-28786.17	13394.17	-7698.70	28786.17	-13394.17	0.000%
13	7698.70	-21589.63	13394.17	-7698.70	21589.63	-13394.17	0.000%
14	-33.13	-28786.17	15485.39	33.13	28786.17	-15485.39	0.000%
15	-33.13	-21589.63	15485.39	33.13	21589.63	-15485.39	0.000%
16	-7756.09	-28786.17	13427.31	7756.09	28786.17	-13427.31	0.000%
17	-7756.09	-21589.63	13427.31	7756.09	21589.63	-13427.31	0.000%
18	-13400.81	-28786.17	7771.39	13400.81	28786.17	-7771.39	0.000%
19	-13400.81	-21589.63	7771.39	13400.81	21589.63	-7771.39	0.000%
20	-15454.79	-28786.17	33.13	15454.79	28786.17	-33.13	0.000%
21	-15454.79	-21589.63	33.13	15454.79	21589.63	-33.13	0.000%
22	-13367.68	-28786.17	-7714.00	13367.68	28786.17	7714.00	0.000%
23	-13367.68	-21589.63	-7714.00	13367.68	21589.63	7714.00	0.000%
24	-7698.70	-28786.17	-13394.17	7698.70	28786.17	13394.17	0.000%
25	-7698.70	-21589.63	-13394.17	7698.70	21589.63	13394.17	0.000%
26	0.00	-47390.36	0.00	0.02	47390.36	-0.03	0.000%
27	6.54	-47390.36	-4637.08	-6.54	47390.36	4637.10	0.000%

## Non-Linear Convergence Results

<i>Load Combination</i>	<i>Converged?</i>	<i>Number of Cycles</i>	<i>Displacement Tolerance</i>	<i>Force Tolerance</i>
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00015005
3	Yes	5	0.00000001	0.00087384
4	Yes	7	0.00000001	0.00046578
5	Yes	7	0.00000001	0.00011218
6	Yes	7	0.00000001	0.00044034
7	Yes	7	0.00000001	0.00010511
8	Yes	6	0.00000001	0.00022889
9	Yes	6	0.00000001	0.00008178
10	Yes	7	0.00000001	0.00045839
11	Yes	7	0.00000001	0.00011044
12	Yes	7	0.00000001	0.00044874
13	Yes	7	0.00000001	0.00010776
14	Yes	5	0.00000001	0.00088331
15	Yes	5	0.00000001	0.00045391
16	Yes	7	0.00000001	0.00044413
17	Yes	7	0.00000001	0.00010595
18	Yes	7	0.00000001	0.00046950
19	Yes	7	0.00000001	0.00011306
20	Yes	6	0.00000001	0.00030475
21	Yes	6	0.00000001	0.00010781
22	Yes	7	0.00000001	0.00044136
23	Yes	7	0.00000001	0.00010580
24	Yes	7	0.00000001	0.00045110
25	Yes	7	0.00000001	0.00010844
26	Yes	4	0.00000001	0.00069344
27	Yes	7	0.00000001	0.00038815
28	Yes	7	0.00000001	0.00072473

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29	Yes	7	0.00000001	0.00070760
30	Yes	7	0.00000001	0.00039407
31	Yes	7	0.00000001	0.00074858
32	Yes	7	0.00000001	0.00071967
33	Yes	7	0.00000001	0.00039531
34	Yes	7	0.00000001	0.00074324
35	Yes	7	0.00000001	0.00076241
36	Yes	7	0.00000001	0.00039938
37	Yes	7	0.00000001	0.00070988
38	Yes	7	0.00000001	0.00073727
39	Yes	5	0.00000001	0.00008168
40	Yes	6	0.00000001	0.00007766
41	Yes	5	0.00000001	0.00085719
42	Yes	5	0.00000001	0.00016748
43	Yes	5	0.00000001	0.00098610
44	Yes	5	0.00000001	0.00091992
45	Yes	5	0.00000001	0.00007109
46	Yes	5	0.00000001	0.00088447
47	Yes	6	0.00000001	0.00008027
48	Yes	5	0.00000001	0.00017920
49	Yes	5	0.00000001	0.00087317
50	Yes	5	0.00000001	0.00093336

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	115 - 106	20.417	46	1.7223	0.0051
L2	106 - 80.5	17.178	46	1.7076	0.0049
L3	80.5 - 80	9.086	46	1.1677	0.0020
L4	80 - 62.8	8.964	46	1.1669	0.0020
L5	62.8 - 42	5.447	46	0.7897	0.0009
L6	45.5 - 19.75	2.895	46	0.6217	0.0006
L7	19.75 - 8.25	0.477	46	0.2303	0.0002
L8	8.25 - 3	0.086	46	0.0914	0.0001
L9	3 - 0	0.013	46	0.0409	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
115.00	Valmont 5' T-Arm (3)	46	20.417	1.7223	0.0051	28835
110.00	Sabre 12' V-Boom	46	18.613	1.7303	0.0050	28835
102.00	T-Arm Mount [TA 602-1]	46	15.756	1.6417	0.0045	6375
77.00	Valmont SNP8HR-396	46	8.258	1.1414	0.0019	2431

Maximum Tower Deflections - Design Wind

<b><i>tnxTower</i></b>  <b><i>TEP OpCo, LLC</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: -	<b>Job</b>	HA151A/ BUSHYHILL FD_MP (CTHA151A)	<b>Page</b>	18 of 20
	<b>Project</b>	TEP No. 257186.1005095	<b>Date</b>	09:32:02 10/04/24
	<b>Client</b>	Centerline Communications	<b>Designed by</b>	RAD

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	115 - 106	86.194	16	7.2900	0.0213
L2	106 - 80.5	72.544	16	7.2293	0.0205
L3	80.5 - 80	38.408	16	4.9424	0.0084
L4	80 - 62.8	37.892	16	4.9391	0.0084
L5	62.8 - 42	23.029	16	3.3417	0.0039
L6	45.5 - 19.75	12.241	16	2.6299	0.0027
L7	19.75 - 8.25	2.018	16	0.9735	0.0008
L8	8.25 - 3	0.363	16	0.3862	0.0003
L9	3 - 0	0.055	16	0.1728	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
115.00	Valmont 5' T-Arm (3)	16	86.194	7.2900	0.0213	7129
110.00	Sabre 12' V-Boom	16	78.595	7.3248	0.0212	7129
102.00	T-Arm Mount [TA 602-1]	16	66.551	6.9503	0.0189	1555
77.00	Valmont SNP8HR-396	16	34.908	4.8311	0.0081	582

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>a</sub> ft	Kl/r	A in²	P <sub>a</sub> lb	ΦP <sub>a</sub> lb	Ratio $\frac{P_a}{\Phi P_a}$
L1	115 - 106 (1)	TP12.75x12.75x0.56	9.00	0.00	0.0	21.4458	-4914.92	810650.00	0.006
L2	106 - 80.5 (2)	TP12.75x12.75x0.625	25.50	0.00	0.0	23.8074	-10657.20	899919.00	0.012
L3	80.5 - 80 (3)	TP22x12.75x6.3758	0.50	0.00	0.0	127.676 0	-10675.60	4136710.00	0.003
L4	80 - 62.8 (4)	TP27.5x22x0.189	17.20	0.00	0.0	16.3835	-15994.00	958434.00	0.017
L5	62.8 - 42 (5)	TP33.47x27.5x0.4	20.80	0.00	0.0	40.7103	-19247.60	2381550.00	0.008
L6	42 - 19.75 (6)	TP33.47x31.6654x0.275	25.75	0.00	0.0	28.9743	-23879.50	1694990.00	0.014
L7	19.75 - 8.25 (7)	TP33.47x33.47x0.459	11.50	0.00	0.0	48.0926	-26604.00	2813420.00	0.009
L8	8.25 - 3 (8)	TP33.47x33.47x0.65	5.25	0.00	0.0	67.7109	-28124.40	3961090.00	0.007
L9	3 - 0 (9)	TP33.47x33.47x0.473	3.00	0.00	0.0	49.5385	-28778.30	2898000.00	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ax</sub> lb-ft	ΦM <sub>ax</sub> lb-ft	Ratio $\frac{M_{ax}}{\Phi M_{ax}}$	M <sub>cy</sub> lb-ft	ΦM <sub>cy</sub> lb-ft	Ratio $\frac{M_{cy}}{\Phi M_{cy}}$
L1	115 - 106 (1)	TP12.75x12.75x0.56	30086.83	262308.33	0.115	0.00	262308.33	0.000
L2	106 - 80.5 (2)	TP12.75x12.75x0.625	260676.67	289693.33	0.900	0.00	289693.33	0.000
L3	80.5 - 80 (3)	TP22x12.75x6.3758	260675.00	932700.00	0.279	0.00	932700.00	0.000

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**APPENDIX B**  
**ADDITIONAL CALCULATIONS**

Monopole Flange Plate Connection

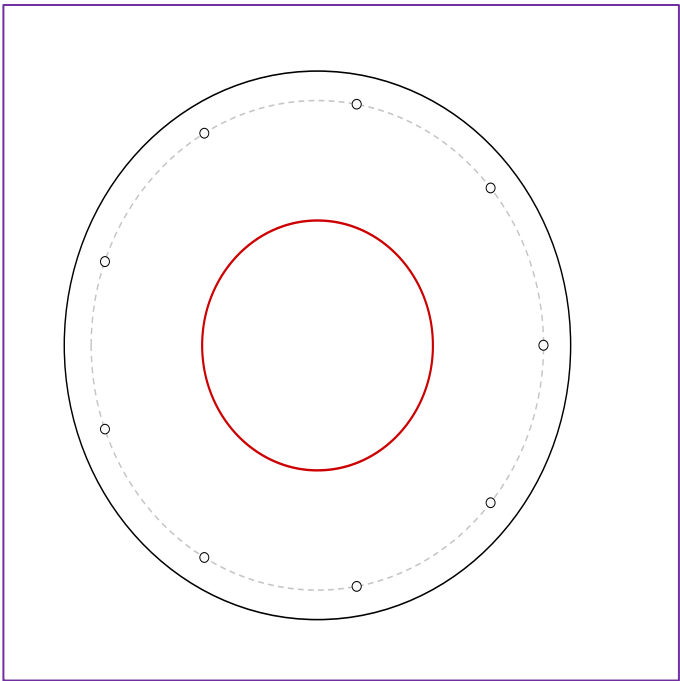
Elevation = 106 ft.

Site #	CTHA151A
Site Name	151A/BUSHYHILLFD_1
TEP #	257186.1005095
TIA-222 Revision	H

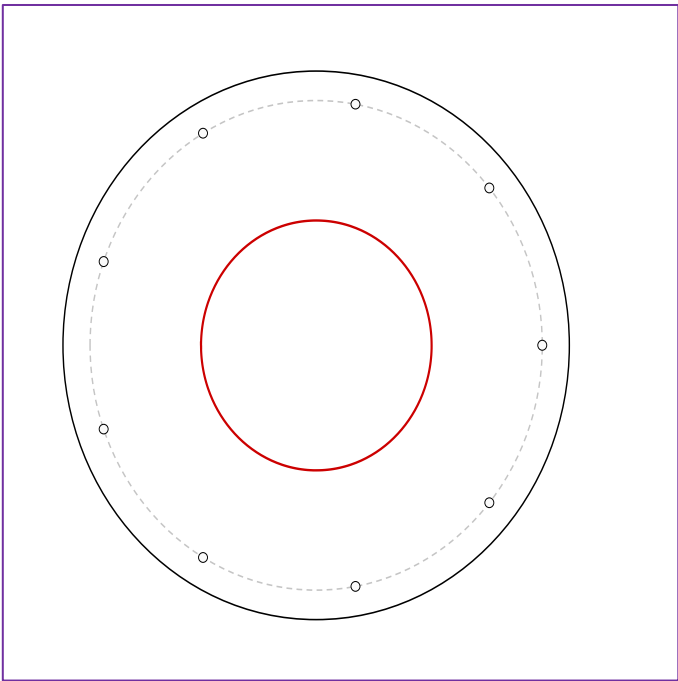
Applied Loads	
Moment (kip-ft)	30.09
Axial Force (kips)	4.91
Shear Force (kips)	5.72

\*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(9) 1/2" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 25" BC

Top Plate Data

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

Top Stiffener Data

N/A

Top Pole Data

12.75" x 0.56" round pole (A500-42; Fy=42 ksi, Fu=58 ksi)

Bottom Plate Data

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

Bottom Stiffener Data

N/A

Bottom Pole Data

12.75" x 0.625" round pole (A500-42; Fy=42 ksi, Fu=58 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	5.87
Allowable (kips)	12.75
Stress Rating:	43.9% Pass

Top Plate Capacity

Max Stress (ksi):	6.42	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	18.9%	Pass
Tension Side Stress Rating:	16.4%	Pass

Bottom Plate Capacity

Max Stress (ksi):	6.42	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	18.9%	Pass
Tension Side Stress Rating:	16.4%	Pass

Monopole Flange Plate Connection

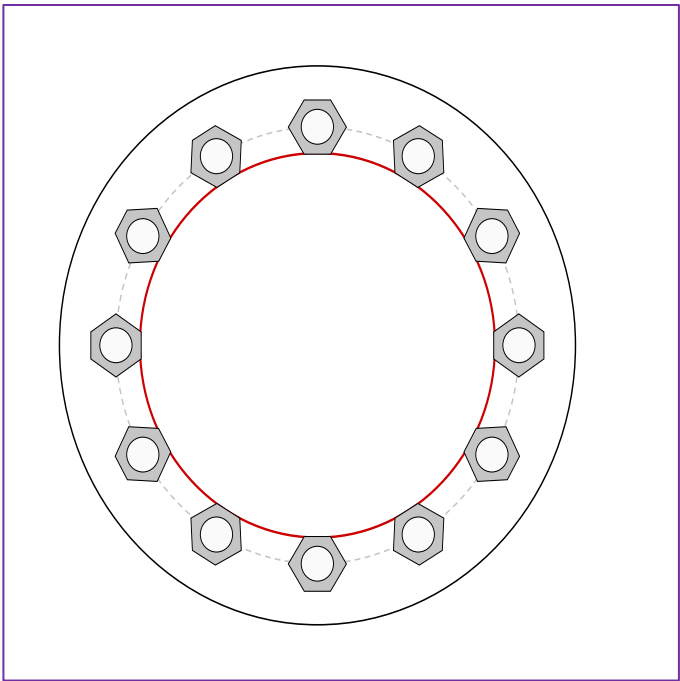
Elevation = 80 ft.

Site #	CTHA151A
Site Name	151A/BUSHYHILLFD_1
TEP #	257186.1005095
TIA-222 Revision	H

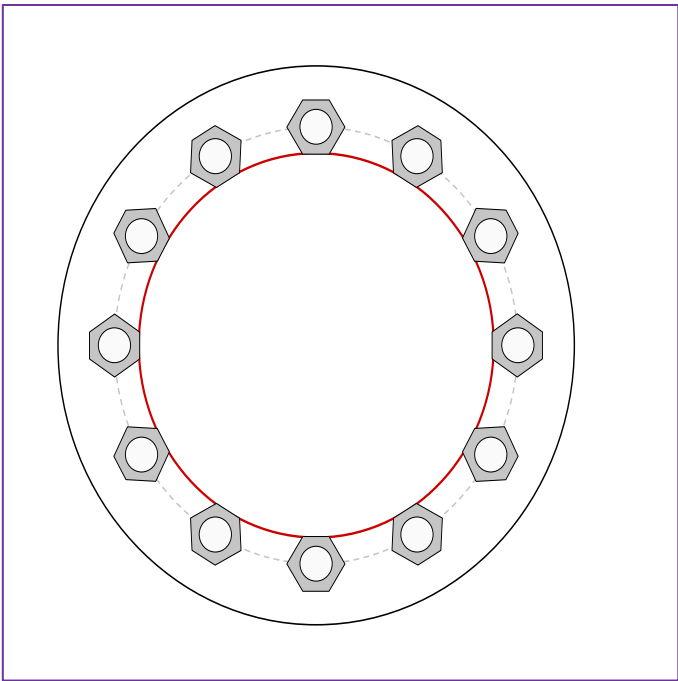
Applied Loads	
Moment (kip-ft)	265.57
Axial Force (kips)	11.13
Shear Force (kips)	9.82

\*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 2"  $\varnothing$  bolts (A325 N; Fy=81 ksi, Fu=120 ksi) on 25" BC

Top Plate Data

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

Top Stiffener Data

N/A

Top Pole Data

22" x 6.3758" round pole (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

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

Bottom Stiffener Data

N/A

Bottom Pole Data

22" x 0.189" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	41.46
Allowable (kips)	225.00
Stress Rating:	17.5% Pass

Top Plate Capacity

Max Stress (ksi):	13.46	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	39.6%	Pass
Tension Side Stress Rating:	7.1%	Pass

Bottom Plate Capacity

Max Stress (ksi):	13.46	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	39.6%	Pass
Tension Side Stress Rating:	7.1%	Pass

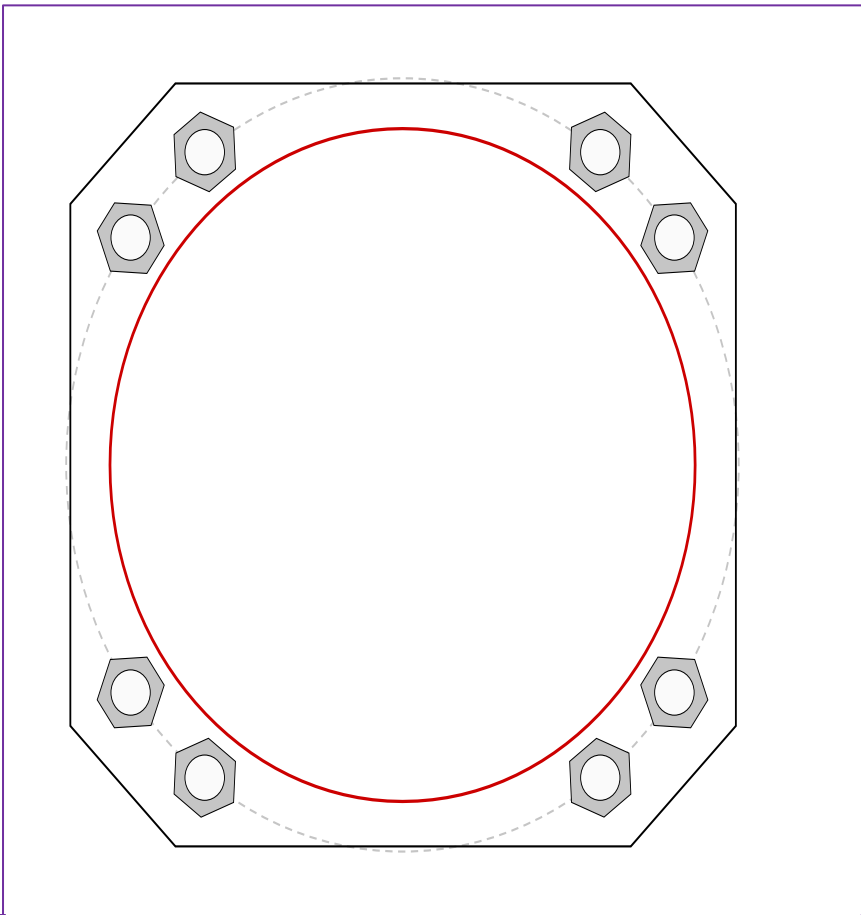
Monopole Base Plate Connection

Site Info	
Site #	CTHA151A
Site Name	151A/BUSHYHILLFD_1
TEP #	257186.1005095

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

Applied Loads	
Moment (kip-ft)	1403.09
Axial Force (kips)	28.78
Shear Force (kips)	15.52

\*TIA-222-H Section 15.5 Applied



Connection Properties		Analysis Results	
<b>Anchor Rod Data</b>		<b>Anchor Rod Summary</b> <i>(units of kips, kip-in)</i>	
(8) 2-1/4" $\varnothing$ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 38.47" BC <i>Anchor Spacing: 6 in</i>		$P_{u,t} = 214.93$	$\phi P_{n,t} = 243.75$ <b>Stress Rating</b>
		$V_u = 1.94$	$\phi V_n = 149.1$ <b>84.0%</b>
		$M_u = n/a$	$\phi M_n = n/a$ <b>Pass</b>
<b>Base Plate Data</b>		<b>Base Plate Summary</b>	
38" W x 2" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi); Clip: 6 in		Max Stress (ksi):	49.03 (Flexural)
<b>Stiffener Data</b>		Allowable Stress (ksi):	54
N/A		Stress Rating:	<b>86.5%</b> <b>Pass</b>
<b>Pole Data</b>			
33.47" x 0.473" 18-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)			

# Pier and Pad Foundation

Site #: CTHA151A  
 Site Name: HA151A/BUSHYHI  
 TEP #: 257186.1005095

TIA-222 Revision: H  
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	28.79	kips
Base Shear, $Vu_{comp}$ :	15.51	kips
Moment, $M_u$ :	1403.09	ft-kips
Tower Height, $H$ :	115	ft
BP Dist. Above Fdn, $bp_{dist}$ :	3	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, $dpier$ :	5	ft
Ext. Above Grade, $E$ :	0.5	ft
Pier Rebar Size, $Sc$ :	11	
Pier Rebar Quantity, $mc$ :	12	
Pier Tie/Spiral Size, $St$ :	4	
Pier Tie/Spiral Quantity, $mt$ :	3	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	3	in

Pad Properties		
Depth, $D$ :	6	ft
Pad Width, $W_1$ :	17	ft
Pad Thickness, $T$ :	3	ft
Pad Rebar Size (Bottom dir. 2), $Sp_2$ :	8	
Pad Rebar Quantity (Bottom dir. 2), $mp_2$ :	17	
Pad Clear Cover, $cc_{pad}$ :	3	in

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

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	100	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	5.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	30	degrees
SPT Blow Count, $N_{blows}$ :		
Base Friction, $\mu$ :	0.45	
Neglected Depth, $N$ :	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	N/A	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	122.11	15.51	12.1%	Pass
Bearing Pressure (ksf)	3.75	3.55	94.7%	Pass
Overturning (kip*ft)	1543.33	1507.78	97.7%	Pass
Pier Flexure (Comp.) (kip*ft)	2061.69	1457.38	67.3%	Pass
Pier Compression (kip)	9372.94	41.16	0.4%	Pass
Pad Flexure (kip*ft)	1856.90	749.62	38.4%	Pass
Pad Shear - 1-way (kips)	527.95	158.62	28.6%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	0.0%	Pass
Flexural 2-way (Comp) (kip*ft)	2982.70	874.43	27.9%	Pass

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	67.3%
Soil Rating*:	97.7%

<--Toggle between Gross and Net

# **EXHIBIT F**

## **Mount Analysis Report**

September 20, 2024

Peter Fales  
Centerline Communications  
750 West Center Street, Suite #301  
West Bridgewater, MA 02379  
(508)-386-0863



TEP OPCO, LLC  
326 Tryon Road  
Raleigh, NC 27603  
(919) 661-6351  
[Structures@tepgroup.net](mailto:Structures@tepgroup.net)

**Subject:** Appurtenance Mount Analysis

**Carrier Designation:** *T-Mobile Reconfiguration*  
**Site Number:** CTHA151A  
**Site Name:** HA151A/ BUSHYHILL FD\_MP

**Engineering Firm Designation:** **TEP Project Number:** 257186.981503

**Site Data:** **345 Bushy Hill Road, Simsbury, Hartford County, CT 06070**  
**Latitude 41° 50' 28.99", Longitude -72° 51' 02.00"**  
**117.0 ± Foot - Monopole**  
**77.0 Foot Mount Height – Platform Mount**

To Whom It May Concern,

TEP is pleased to submit this **"Mount Structural 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 + Reserved Loading  
Note: See Table 2 for the existing, proposed, and reserved loading

**Sufficient Capacity**

This analysis has been performed in accordance with the ANSI/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2021 with 2022 and 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 TEP appreciate the opportunity of providing our continuing professional services to you and *Centerline Communications*. If you have any questions or need further assistance on this or any other projects, please give us a call.

Respectfully submitted by:

Daniel P. Hamm, P.E.



## ANALYSIS CRITERIA

**Table 1 - Mount Analysis Parameters**

Ultimate Wind Speed (MPH)	Ice Thickness (in)	Ice Wind Speed (MPH)	Exposure Category	Risk Category	Topo Category	Kzt	Seismic Design Category	Maintenance Loads
120	1.5	50	B	II	1	1.0	B	Lm = 500 lbs Lv = 250 lbs

**Table 2 - Existing, Proposed, and Reserved Antenna Loading Configuration**

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Owner/ Tenant
Proposed	77.0	77.0	3	Amphenol APXVLL19P_43-C-A20	Platform Mount	T-Mobile
			3	Ericsson 4460 B25/B66		
Existing	77.0	77.0	3	Amphenol APXVAALL24_43-U-NA20		
			3	Ericsson 4449 B71/B85		
To Be Removed	77.0	77.0	3	Amphenol APX16DW-16DWV-S-E-A20	-	T-Mobile
			3	Ericsson Twin Style 1A-KRY 112489/2		

## ANALYSIS RESULTS

**Table 3 - Mount Component Stresses vs. Capacity**

Notes	Component	% Capacity	Pass / Fail
-	Face Horizontals	11.2	Pass
-	Support Arm	32.1	Pass
-	Mount Pipes	43.1	Pass
-	Internals	32.7	Pass
-	Support Rail	19.9	Pass
1	Connection Bolts	23.3	Pass

Notes:

- 1) See additional documentation in "Appendix B - Additional Calculations" for calculations supporting the % capacity listed.



**Table 4 - Documents Provided**

Document	Remarks	Source
Preliminary Construction Drawings	TEP Northeast, dated August 26, 2024 Site No. CTHA151A	TEP
Mount Mapping Report	TEP, dated September 3, 2024 Site No. CTHA151A	TEP
Previous Mount Analysis	Tectonic, dated November 3, 2020 Site No. CTHA151A	TEP

## RECOMMENDATIONS

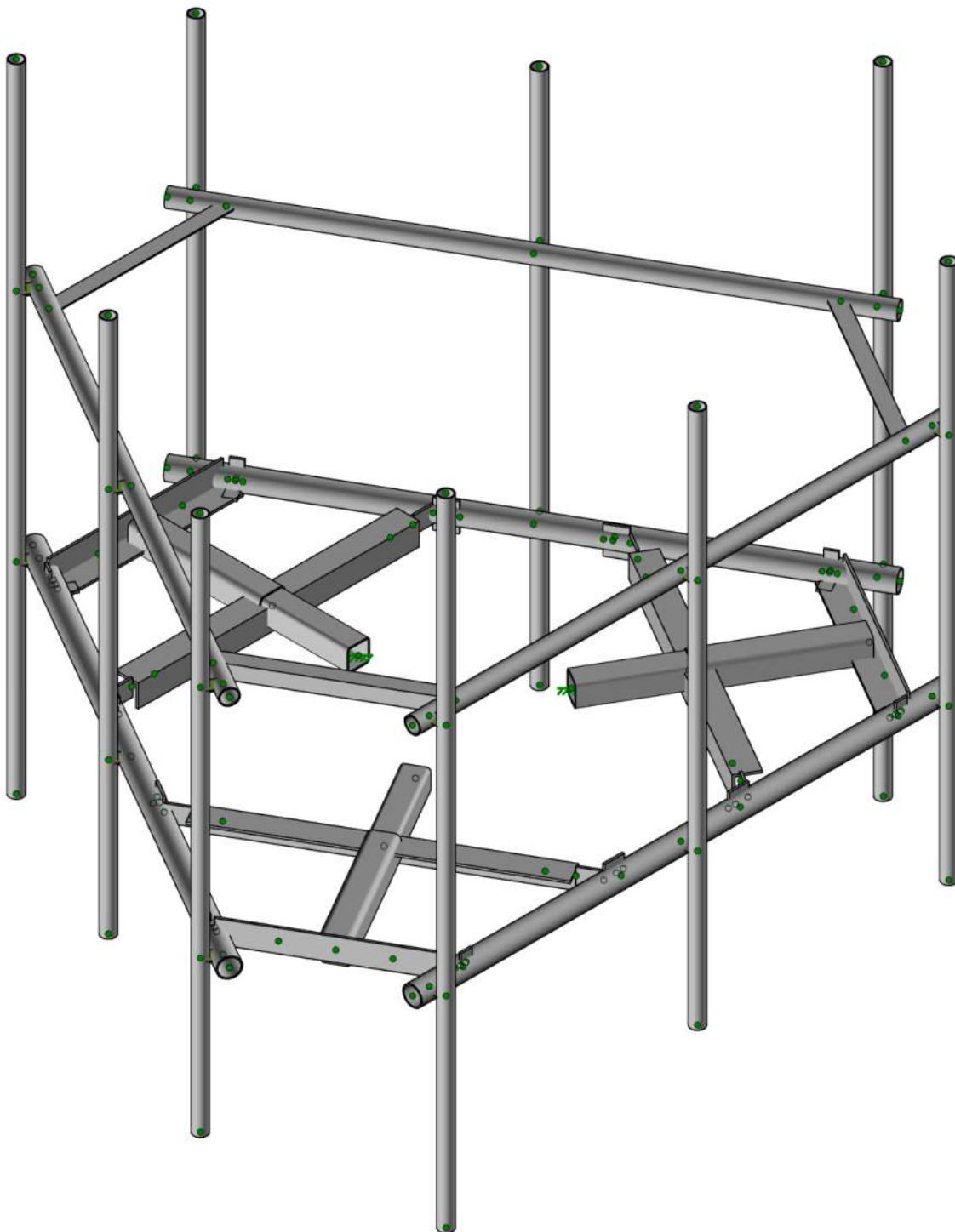
- 1) If the load differs from that described in Table 2 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The mount and its connections have sufficient capacity to carry the proposed loading configuration. No modifications 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) TEP did not analyze the collar mount connection to the pole and assumes it to have sufficient structural capacity to transfer the applied forces from the mount to the tower.
- 6) 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. TEP should be notified to determine the effect on the structural integrity of the mount.

**APPENDIX A**  
**RISA-3D OUTPUT**



TEP OPCO LLC

DRP

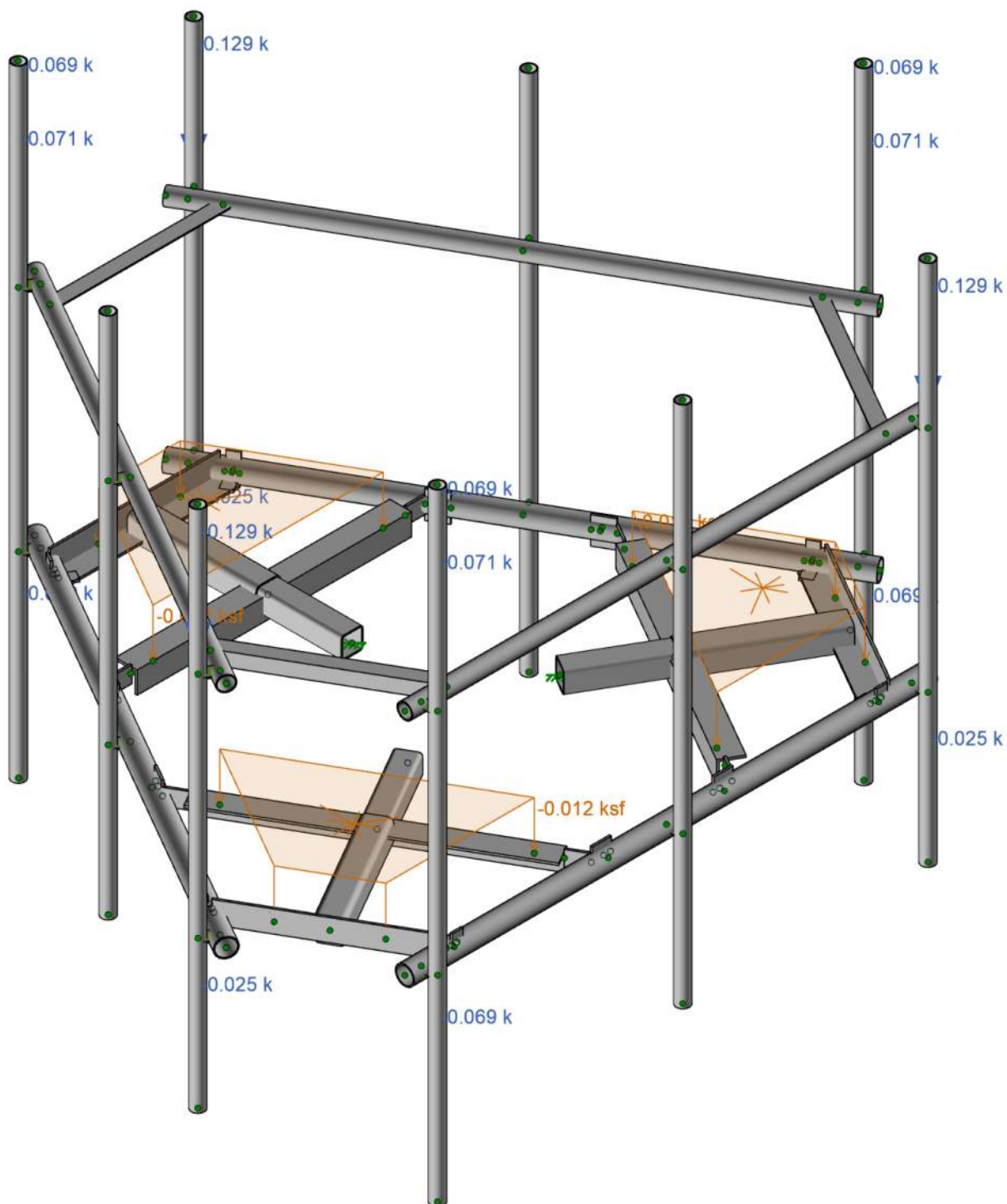
TEP No. 257186.981503

HA151A/ BUSHYHILL FD\_MP (CTHA151A)

SK-1

Sep 20, 2024 at 03:44 PM

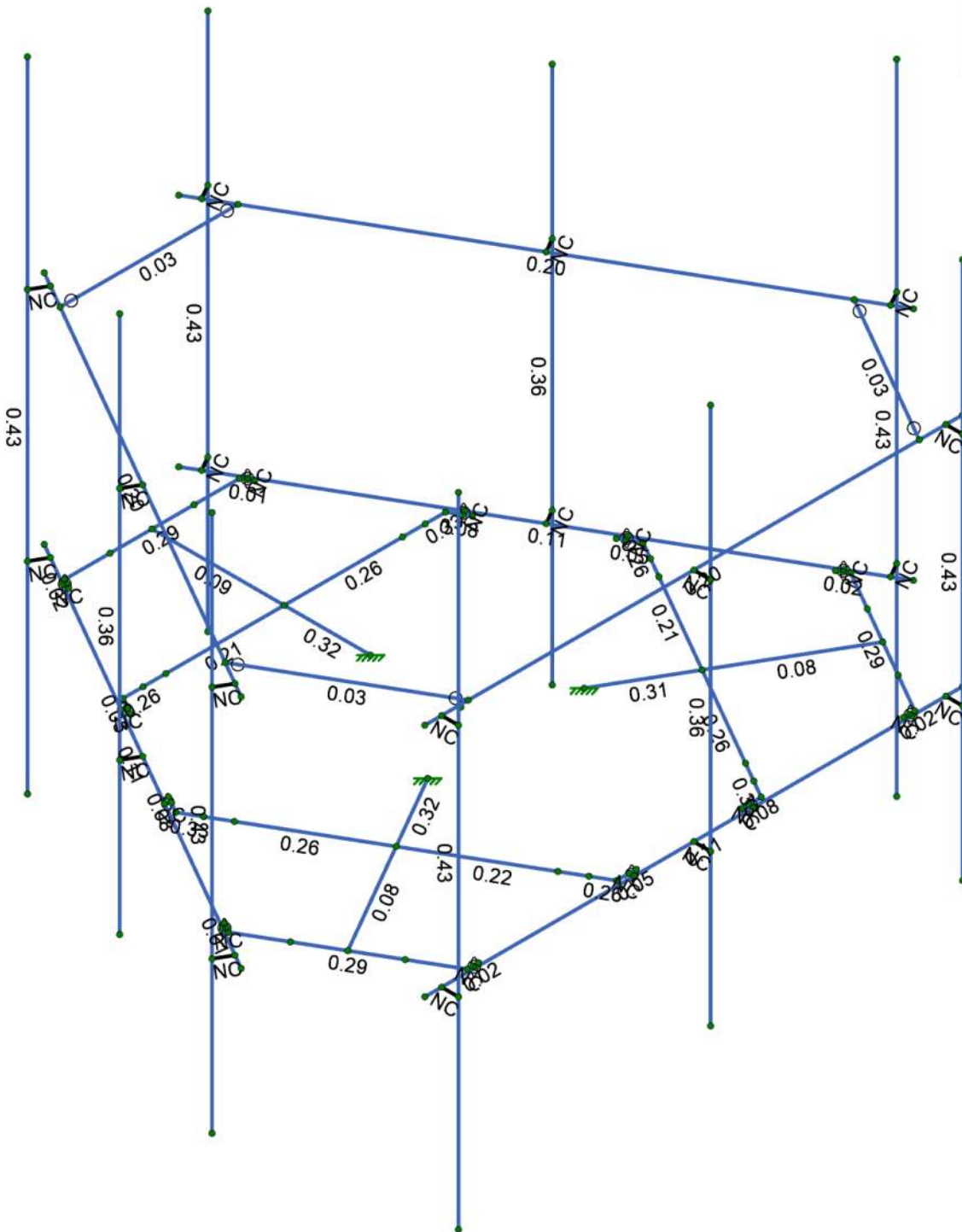
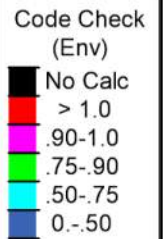
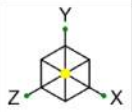
Mount.r3d



**IRISA**  
A NEARBY COMPANY

TEP No. 257186.981503

Mount.r3d



Member Code Checks Displayed (Enveloped)



TEP OPCO LLC

DRP

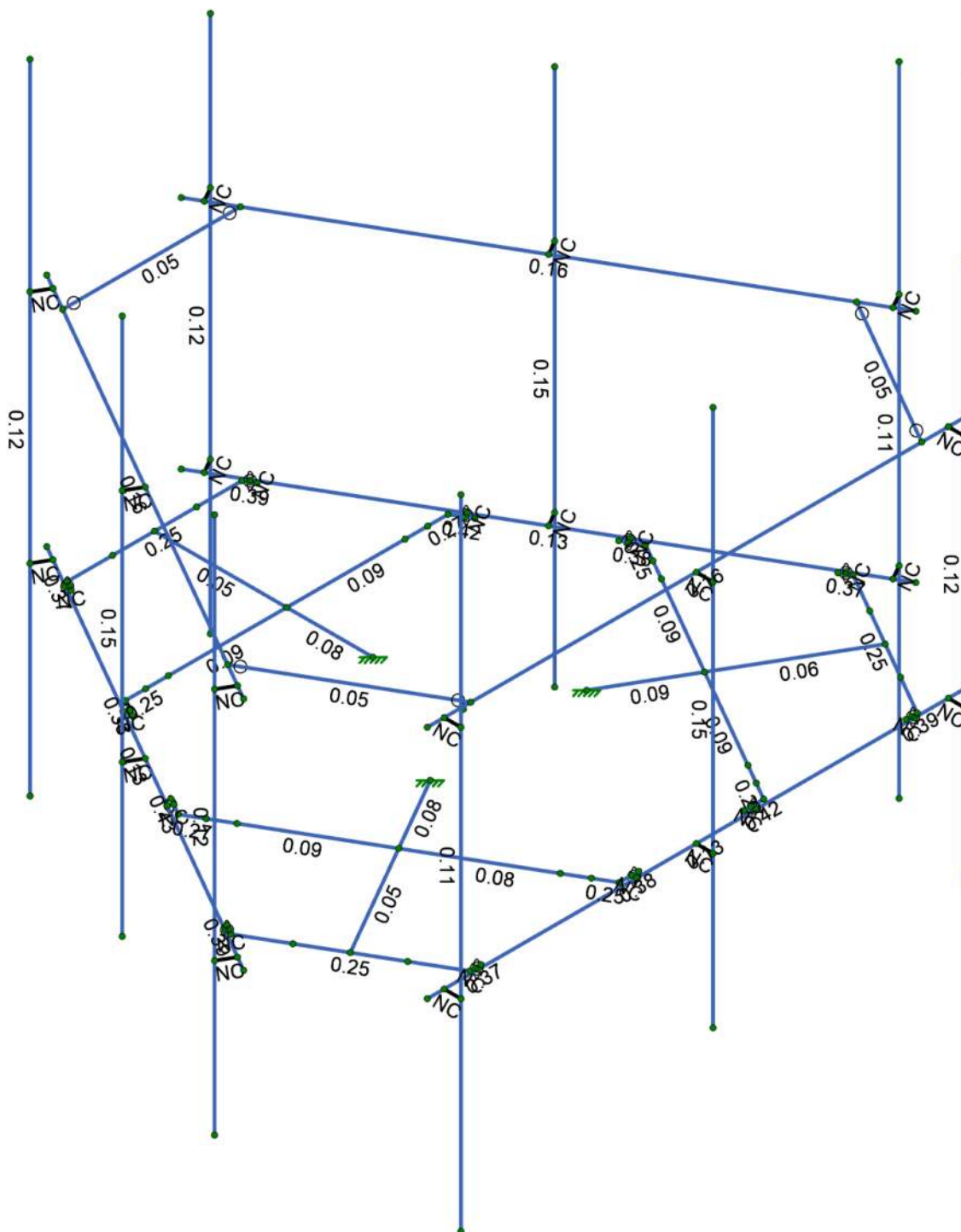
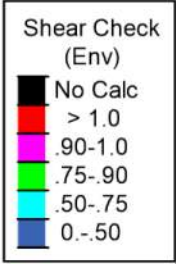
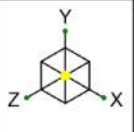
TEP No. 257186.981503

HA151A/ BUSHYHILL FD\_MP (CTHA151A)

SK-3

Sep 20, 2024 at 03:44 PM

Mount.r3d



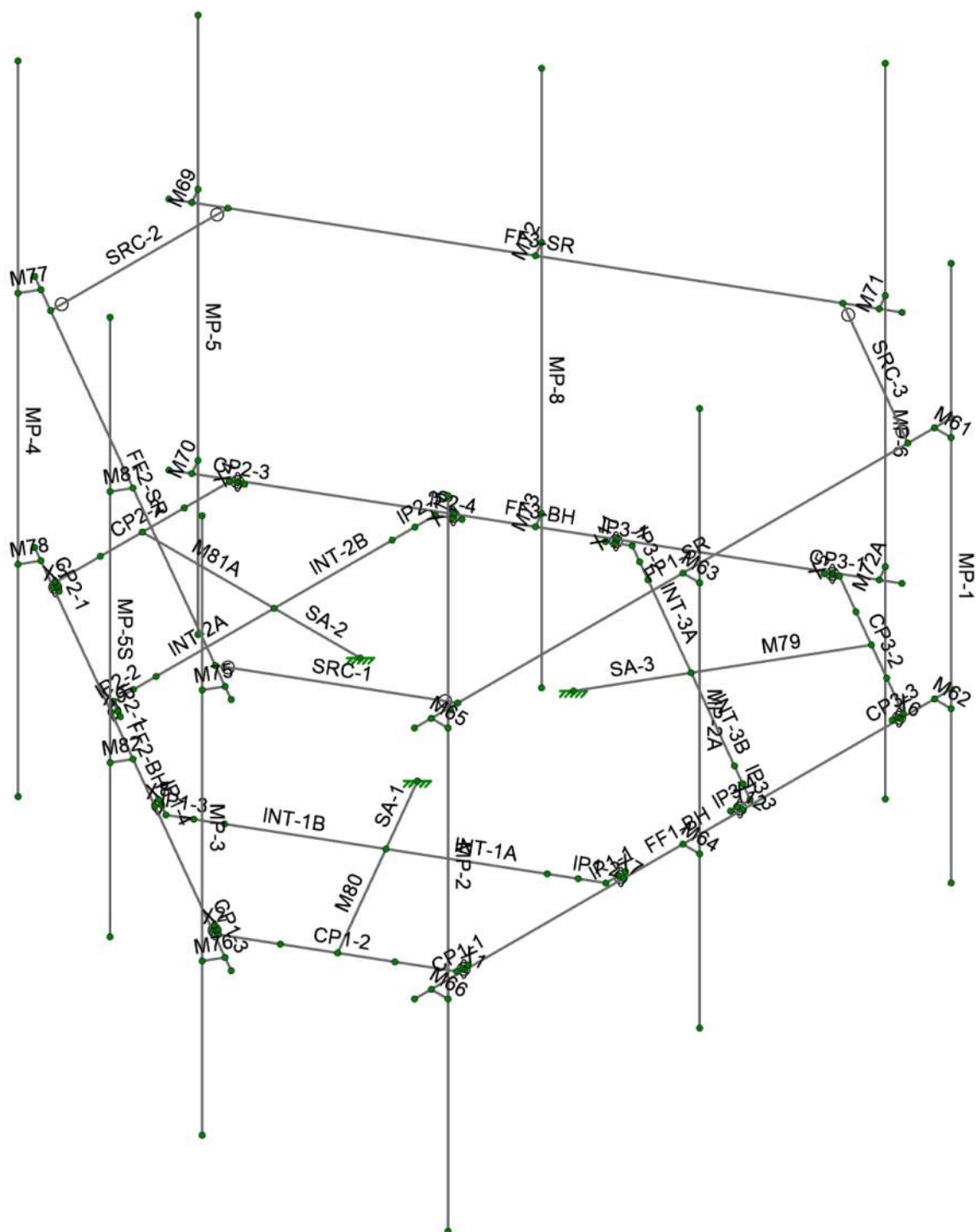
Member Shear Checks Displayed (Enveloped)



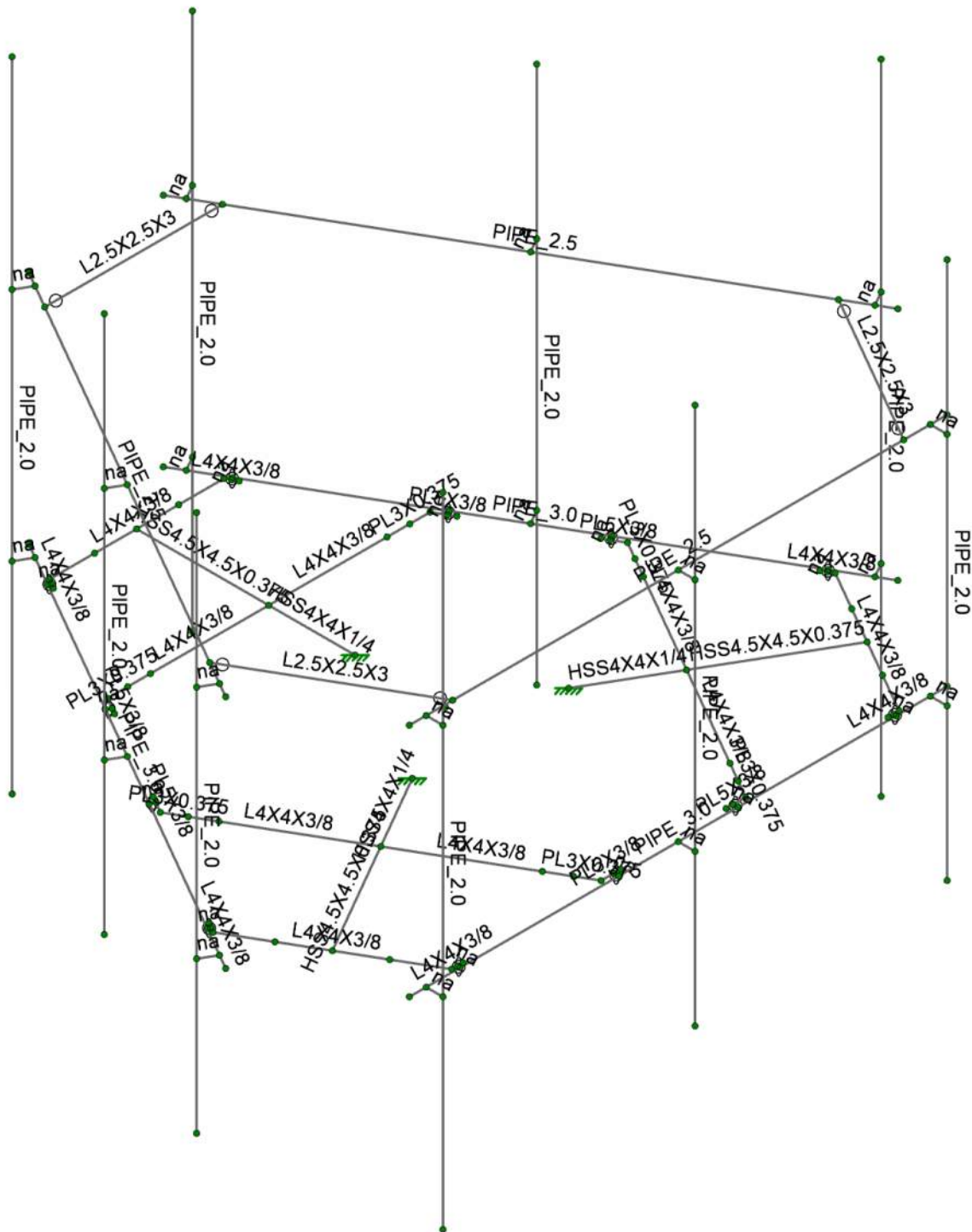
TEP OPCO LLC  
DRP  
TEP No. 257186.981503

HA151A/ BUSHYHILL FD\_MP (CTHA151A)

SK-4  
Sep 20, 2024 at 03:45 PM  
Mount.r3d









### Model Settings

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in <sup>2</sup> )	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes
Approximate Mesh Size (in)	24
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	Yes
Maximum Number of Iterations	3
Single	No
Multiple (Optimum)	Yes
Maximum	No

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes
Default Global Plane for z-axis	XZ
Plate Local Axis Orientation	Nodal

Hot Rolled Steel	AISC 15th (360-16): LRFD
Stiffness Adjustment	No
Notional Annex	None
Connections	None
Cold Formed Steel	None
Stiffness Adjustment	Yes (Iterative)
Wood	None
Temperature	< 100F
Concrete	None
Masonry	None
Aluminum	None
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	None
Stiffness Adjustment	Yes (Iterative)

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	Yes
List forces which were ignored for design in the Detail Report	Yes

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Code	ASCE 7-16
Risk Category	I or II
Drift Cat	Other

**Model Settings (Continued)**

Base Elevation (ft)	
Include the weight of the structure in base shear calcs	Yes
$S_s$ (g)	1
$SD_1$ (g)	1
$SD_s$ (g)	1
$T_1$ (sec)	5
T Z (sec)	
T X (sec)	
$C_z$	0.02
$C_x$	0.02
$C_{Exp. Z}$	0.75
$C_{Exp. X}$	0.75
R Z	3
R X	3
$\Omega_0 Z$	1
$\Omega_0 X$	1
$C_0 Z$	1
$C_0 X$	1
$\rho Z$	1
$\rho X$	1

### Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [ $10^{-6} \text{F}^{-1}$ ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3
6	A500 Gr.C Rect	29000	11154	0.3	0.65	0.49	50	1.5	62	1.2
7	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
8	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	Face Horizontal	PIPE 3.0	None	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Internal	L4X4X3/8	None	None	A36 Gr.36	Typical	2.859	4.359	4.359	0.126
3	Support Rail	PIPE 2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	0.289
4	Mount Pipes	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
5	Lower Corner	L4X4X3/8	None	None	A36 Gr.36	Typical	2.859	4.359	4.359	0.126
6	Upper Corner	L2.5X2.5X3	None	None	A36 Gr.36	Typical	0.901	0.535	0.535	0.011
7	Support Arm	HSS4X4X1/4	None	None	A500 Gr.B Rect	Typical	3.75	8.828	8.828	13.184
8	Grating Support	L2X2X2	None	None	A36 Gr.36	Typical	0.491	0.189	0.189	0.003
9	Internal Plate 1	PL3X0.375	None	None	A36 Gr.36	Typical	1.125	0.013	0.844	0.049
10	Internal Plate 2	PL5X3/8	None	None	A36 Gr.36	Typical	1.875	0.022	3.906	0.084
11	SA1	HSS4.5X4.5X0.375	None	None	A500 Gr.B Rect	Typical	6.188	17.692	17.692	26.321

### Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	X22	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	X23	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	X24	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

### Material Take-Off

	Material	Size	Pieces	Length[ft]	Weight[K]
1	General Members				
2	RIGID		30	5.2	0
3	Total General		30	5.2	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L2.5X2.5X3	3	7.9	0.024
7	A36 Gr.36	L4X4X3/8	15	21.4	0.208
8	A36 Gr.36	PL3X0.375	6	1.8	0.007
9	A36 Gr.36	PL5X3/8	6	1.8	0.011
10	A500 Gr.B Rect	HSS4.5X4.5X0.375	3	5.9	0.124
11	A500 Gr.B Rect	HSS4X4X1/4	3	3.9	0.049
12	A53 Gr.B	PIPE 2.0	9	76.5	0.266
13	A53 Gr.B	PIPE 2.5	3	24	0.131
14	A53 Gr.B	PIPE 3.0	3	24	0.169
15	Total HR Steel		51	167.1	0.99

### Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	FF1-BH	X25	X31		Face Horizontal	None	None	A53 Gr.B	Typical
2	FF2-BH	X29	X35		Face Horizontal	None	None	A53 Gr.B	Typical
3	FF3-BH	X27	X33		Face Horizontal	None	None	A53 Gr.B	Typical
4	INT-1A	X61	N156	180	Internal	None	None	A36 Gr.36	Typical
5	INT-1B	X64	N156	90	Internal	None	None	A36 Gr.36	Typical
6	INT-2A	X63	N155	180	Internal	None	None	A36 Gr.36	Typical
7	INT-2B	X66	N155	90	Internal	None	None	A36 Gr.36	Typical
8	INT-3A	X65	N157	180	Internal	None	None	A36 Gr.36	Typical
9	INT-3B	X62	N157	90	Internal	None	None	A36 Gr.36	Typical
10	IP1-2	X71	X61		Internal Plate 1	None	None	A36 Gr.36	Typical
11	IP1-3	X64	X72		Internal Plate 1	None	None	A36 Gr.36	Typical
12	IP2-2	X67	X63		Internal Plate 1	None	None	A36 Gr.36	Typical
13	IP2-3	X66	X68		Internal Plate 1	None	None	A36 Gr.36	Typical
14	IP3-2	X69	X65		Internal Plate 1	None	None	A36 Gr.36	Typical
15	IP3-3	X62	X70		Internal Plate 1	None	None	A36 Gr.36	Typical
16	IP1-1	X73	X71		Internal Plate 2	None	None	A36 Gr.36	Typical
17	IP1-4	X72	X76		Internal Plate 2	None	None	A36 Gr.36	Typical
18	IP2-1	X75	X67		Internal Plate 2	None	None	A36 Gr.36	Typical
19	IP2-4	X68	X78		Internal Plate 2	None	None	A36 Gr.36	Typical
20	IP3-1	X77	X69		Internal Plate 2	None	None	A36 Gr.36	Typical
21	IP3-4	X70	X74		Internal Plate 2	None	None	A36 Gr.36	Typical
22	CP1-1	X44	X38		Lower Corner	None	None	A36 Gr.36	Typical
23	CP1-2	X38	X39		Lower Corner	None	None	A36 Gr.36	Typical
24	CP1-3	X39	X53		Lower Corner	None	None	A36 Gr.36	Typical
25	CP2-1	X50	X40		Lower Corner	None	None	A36 Gr.36	Typical
26	CP2-2	X40	X41		Lower Corner	None	None	A36 Gr.36	Typical
27	CP2-3	X41	X59		Lower Corner	None	None	A36 Gr.36	Typical
28	CP3-1	X56	X42		Lower Corner	None	None	A36 Gr.36	Typical
29	CP3-2	X42	X37		Lower Corner	None	None	A36 Gr.36	Typical
30	CP3-3	X37	X47		Lower Corner	None	None	A36 Gr.36	Typical
31	MP-1	X3	X6		Mount Pipes	None	None	A53 Gr.B	Typical
32	MP-2A	X4	X7		Mount Pipes	None	None	A53 Gr.B	Typical
33	MP-2	X5	X8		Mount Pipes	None	None	A53 Gr.B	Typical
34	MP-5S	N131	N134		Mount Pipes	None	None	A53 Gr.B	Typical
35	MP-8	N113	N116		Mount Pipes	None	None	A53 Gr.B	Typical
36	MP-5	N129	N131A		Mount Pipes	None	None	A53 Gr.B	Typical
37	MP-6	N130	N132		Mount Pipes	None	None	A53 Gr.B	Typical
38	MP-3	N142	N144		Mount Pipes	None	None	A53 Gr.B	Typical
39	MP-4	N143A	N145		Mount Pipes	None	None	A53 Gr.B	Typical
40	M61	N109	X115		RIGID	None	None	RIGID	Typical
41	M62	N106	X112		RIGID	None	None	RIGID	Typical
42	M63	N110	X116		RIGID	None	None	RIGID	Typical
43	M64	N107	X113		RIGID	None	None	RIGID	Typical
44	M65	N111	X117		RIGID	None	None	RIGID	Typical
45	M66	N108	X114		RIGID	None	None	RIGID	Typical
46	M72	N128	N122		RIGID	None	None	RIGID	Typical
47	M73	N125	N119		RIGID	None	None	RIGID	Typical
48	M81	N146	N140		RIGID	None	None	RIGID	Typical
49	M82	N143	N137		RIGID	None	None	RIGID	Typical
50	X1	X43	X45	90	RIGID	None	None	RIGID	Typical
51	X2	X52	X54	90	RIGID	None	None	RIGID	Typical
52	X3	X49	X51	90	RIGID	None	None	RIGID	Typical
53	X4	X58	X60	90	RIGID	None	None	RIGID	Typical
54	X5	X55	X57	90	RIGID	None	None	RIGID	Typical
55	X6	X46	X48	90	RIGID	None	None	RIGID	Typical

### Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
56	X7	X79	X85	90	RIGID	None	None	RIGID	Typical
57	X8	X82	X88	90	RIGID	None	None	RIGID	Typical
58	X9	X81	X87	90	RIGID	None	None	RIGID	Typical
59	X10	X84	X90	90	RIGID	None	None	RIGID	Typical
60	X11	X83	X89	90	RIGID	None	None	RIGID	Typical
61	X12	X80	X86	90	RIGID	None	None	RIGID	Typical
62	M69	N139	N135		RIGID	None	None	RIGID	Typical
63	M70	N137A	N133		RIGID	None	None	RIGID	Typical
64	M71	N140A	N136		RIGID	None	None	RIGID	Typical
65	M72A	N138	N134A		RIGID	None	None	RIGID	Typical
66	M75	N152A	N148		RIGID	None	None	RIGID	Typical
67	M76	N150A	N146A		RIGID	None	None	RIGID	Typical
68	M77	N153B	N149A		RIGID	None	None	RIGID	Typical
69	M78	N151	N147		RIGID	None	None	RIGID	Typical
70	SA-1	X22	N156		Support Arm	None	None	A500 Gr.B Rect	Typical
71	SA-2	X24	N155		Support Arm	None	None	A500 Gr.B Rect	Typical
72	SA-3	X23	N157		Support Arm	None	None	A500 Gr.B Rect	Typical
73	FF1-SR	X26	X32		Support Rail	None	None	A53 Gr.B	Typical
74	FF2-SR	X30	X36		Support Rail	None	None	A53 Gr.B	Typical
75	FF3-SR	X28	X34		Support Rail	None	None	A53 Gr.B	Typical
76	SRC-1	X108	X109	180	Upper Corner	None	None	A36 Gr.36	Typical
77	SRC-2	X107	X111	180	Upper Corner	None	None	A36 Gr.36	Typical
78	SRC-3	X106	X110	180	Upper Corner	None	None	A36 Gr.36	Typical
79	M79	N157	X1		SA1	None	None	A500 Gr.B Rect	Typical
80	M80	N156	X2		SA1	None	None	A500 Gr.B Rect	Typical
81	M81A	N155	X9		SA1	None	None	A500 Gr.B Rect	Typical

### Member Advanced Data

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
1	FF1-BH				Yes	** NA **	None
2	FF2-BH				Yes	** NA **	None
3	FF3-BH				Yes	** NA **	None
4	INT-1A				Yes	** NA **	None
5	INT-1B				Yes	** NA **	None
6	INT-2A				Yes	** NA **	None
7	INT-2B				Yes	** NA **	None
8	INT-3A				Yes	** NA **	None
9	INT-3B				Yes	** NA **	None
10	IP1-2				Yes	** NA **	None
11	IP1-3				Yes	** NA **	None
12	IP2-2				Yes	** NA **	None
13	IP2-3				Yes	** NA **	None
14	IP3-2				Yes	** NA **	None
15	IP3-3				Yes	** NA **	None
16	IP1-1				Yes	** NA **	None
17	IP1-4				Yes	** NA **	None
18	IP2-1				Yes	** NA **	None
19	IP2-4				Yes	** NA **	None
20	IP3-1				Yes	** NA **	None
21	IP3-4				Yes	** NA **	None
22	CP1-1				Yes	** NA **	None
23	CP1-2				Yes	** NA **	None
24	CP1-3				Yes	** NA **	None
25	CP2-1				Yes	** NA **	None
26	CP2-2				Yes	** NA **	None

**Member Advanced Data (Continued)**

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
27	CP2-3				Yes	** NA **	None
28	CP3-1				Yes	** NA **	None
29	CP3-2				Yes	** NA **	None
30	CP3-3				Yes	** NA **	None
31	MP-1				Yes	** NA **	None
32	MP-2A				Yes	** NA **	None
33	MP-2				Yes	** NA **	None
34	MP-5S				Yes	** NA **	None
35	MP-8				Yes	** NA **	None
36	MP-5				Yes	** NA **	None
37	MP-6				Yes	** NA **	None
38	MP-3				Yes	** NA **	None
39	MP-4				Yes	** NA **	None
40	M61				Yes	** NA **	None
41	M62				Yes	** NA **	None
42	M63				Yes	** NA **	None
43	M64				Yes	** NA **	None
44	M65				Yes	** NA **	None
45	M66				Yes	** NA **	None
46	M72				Yes	** NA **	None
47	M73				Yes	** NA **	None
48	M81				Yes	** NA **	None
49	M82				Yes	** NA **	None
50	X1	OOOXOX			Yes	** NA **	None
51	X2	OOOXOX			Yes	** NA **	None
52	X3	OOOXOX			Yes	** NA **	None
53	X4	OOOXOX			Yes	** NA **	None
54	X5	OOOXOX			Yes	** NA **	None
55	X6	OOOXOX			Yes	** NA **	None
56	X7	OOOXOX			Yes	** NA **	None
57	X8	OOOXOX			Yes	** NA **	None
58	X9	OOOXOX			Yes	** NA **	None
59	X10	OOOXOX			Yes	** NA **	None
60	X11	OOOXOX			Yes	** NA **	None
61	X12	OOOXOX			Yes	** NA **	None
62	M69				Yes	** NA **	None
63	M70				Yes	** NA **	None
64	M71				Yes	** NA **	None
65	M72A				Yes	** NA **	None
66	M75				Yes	** NA **	None
67	M76				Yes	** NA **	None
68	M77				Yes	** NA **	None
69	M78				Yes	** NA **	None
70	SA-1				Yes	** NA **	None
71	SA-2				Yes	** NA **	None
72	SA-3				Yes	** NA **	None
73	FF1-SR				Yes	** NA **	None
74	FF2-SR				Yes	** NA **	None
75	FF3-SR				Yes	** NA **	None
76	SRC-1	BenPIN	BenPIN		Yes	** NA **	None
77	SRC-2	BenPIN	BenPIN		Yes	** NA **	None
78	SRC-3	BenPIN	BenPIN		Yes	** NA **	None
79	M79				Yes	** NA **	None
80	M80				Yes	** NA **	None
81	M81A				Yes	** NA **	None

### Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	None		-1			18		3
2	0 Wind - No Ice	None					18	51	
3	30 Wind - No Ice	None					36	102	
4	45 Wind - No Ice	None					36	102	
5	60 Wind - No Ice	None					36	102	
6	90 Wind - No Ice	None					18	51	
7	120 Wind - No Ice	None					36	102	
8	135 Wind - No Ice	None					36	102	
9	150 Wind - No Ice	None					36	102	
10	180 Wind - No Ice	None					18	51	
11	210 Wind - No Ice	None					36	102	
12	225 Wind - No Ice	None					36	102	
13	240 Wind - No Ice	None					36	102	
14	270 Wind - No Ice	None					18	51	
15	300 Wind - No Ice	None					36	102	
16	315 Wind - No Ice	None					36	102	
17	330 Wind - No Ice	None					36	102	
18	Ice Weight	None					18	51	
19	0 Wind - Ice	None					18	51	
20	30 Wind - Ice	None					36	102	
21	45 Wind - Ice	None					36	102	
22	60 Wind - Ice	None					36	102	
23	90 Wind - Ice	None					18	51	
24	120 Wind - Ice	None					36	102	
25	135 Wind - Ice	None					36	102	
26	150 Wind - Ice	None					36	102	
27	180 Wind - Ice	None					18	51	
28	210 Wind - Ice	None					36	102	
29	225 Wind - Ice	None					36	102	
30	240 Wind - Ice	None					36	102	
31	270 Wind - Ice	None					18	51	
32	300 Wind - Ice	None					36	102	
33	315 Wind - Ice	None					36	102	
34	330 Wind - Ice	None					36	102	
35	Lm	None				1			
36	Lv	None				1			
37	Seismic Load X	ELX	-1				18		
38	Seismic Load Z	ELZ			-1		18		
39	BLC 1 Transient Area Loads	None						12	

### Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y	1	1.4				
2	0.9D+1.0 0-Wind	Yes	Y	1	0.9	2	1		
3	0.9D+1.0 30-Wind	Yes	Y	1	0.9	3	1		
4	0.9D+1.0 45-Wind	Yes	Y	1	0.9	4	1		
5	0.9D+1.0 60-Wind	Yes	Y	1	0.9	5	1		
6	0.9D+1.0 90-Wind	Yes	Y	1	0.9	6	1		
7	0.9D+1.0 120-Wind	Yes	Y	1	0.9	7	1		
8	0.9D+1.0 135-Wind	Yes	Y	1	0.9	8	1		
9	0.9D+1.0 150-Wind	Yes	Y	1	0.9	9	1		
10	0.9D+1.0 180-Wind	Yes	Y	1	0.9	10	1		
11	0.9D+1.0 210-Wind	Yes	Y	1	0.9	11	1		
12	0.9D+1.0 225-Wind	Yes	Y	1	0.9	12	1		



### Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
13	0.9D+1.0 240-Wind	Yes	Y	1	0.9	13	1		
14	0.9D+1.0 270-Wind	Yes	Y	1	0.9	14	1		
15	0.9D+1.0 300-Wind	Yes	Y	1	0.9	15	1		
16	0.9D+1.0 315-Wind	Yes	Y	1	0.9	16	1		
17	0.9D+1.0 330-Wind	Yes	Y	1	0.9	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 Ice	Yes	Y	1	1.2	18	1	24	1
40	1.2D+1.0Di+1.0 135-Wind Ice	Yes	Y	1	1.2	18	1	25	1
41	1.2D+1.0Di+1.0 150-Wind Ice	Yes	Y	1	1.2	18	1	26	1
42	1.2D+1.0Di+1.0 180-Wind Ice	Yes	Y	1	1.2	18	1	27	1
43	1.2D+1.0Di+1.0 210-Wind Ice	Yes	Y	1	1.2	18	1	28	1
44	1.2D+1.0Di+1.0 225-Wind Ice	Yes	Y	1	1.2	18	1	29	1
45	1.2D+1.0Di+1.0 240-Wind Ice	Yes	Y	1	1.2	18	1	30	1
46	1.2D+1.0Di+1.0 270-Wind Ice	Yes	Y	1	1.2	18	1	31	1
47	1.2D+1.0Di+1.0 300-Wind Ice	Yes	Y	1	1.2	18	1	32	1
48	1.2D+1.0Di+1.0 315-Wind Ice	Yes	Y	1	1.2	18	1	33	1
49	1.2D+1.0Di+1.0 330-Wind Ice	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	0.062	35	1.5
52	1.2D+1.5Lm+1.0 30-Wind	Yes	Y	1	1.2	3	0.062	35	1.5
53	1.2D+1.5Lm+1.0 45-Wind	Yes	Y	1	1.2	4	0.062	35	1.5
54	1.2D+1.5Lm+1.0 60-Wind	Yes	Y	1	1.2	5	0.062	35	1.5
55	1.2D+1.5Lm+1.0 90-Wind	Yes	Y	1	1.2	6	0.062	35	1.5
56	1.2D+1.5Lm+1.0 120-Wind	Yes	Y	1	1.2	7	0.062	35	1.5
57	1.2D+1.5Lm+1.0 135-Wind	Yes	Y	1	1.2	8	0.062	35	1.5
58	1.2D+1.5Lm+1.0 150-Wind	Yes	Y	1	1.2	9	0.062	35	1.5
59	1.2D+1.5Lm+1.0 180-Wind	Yes	Y	1	1.2	10	0.062	35	1.5
60	1.2D+1.5Lm+1.0 210-Wind	Yes	Y	1	1.2	11	0.062	35	1.5
61	1.2D+1.5Lm+1.0 225-Wind	Yes	Y	1	1.2	12	0.062	35	1.5
62	1.2D+1.5Lm+1.0 240-Wind	Yes	Y	1	1.2	13	0.062	35	1.5
63	1.2D+1.5Lm+1.0 270-Wind	Yes	Y	1	1.2	14	0.062	35	1.5
64	1.2D+1.5Lm+1.0 300-Wind	Yes	Y	1	1.2	15	0.062	35	1.5
65	1.2D+1.5Lm+1.0 315-Wind	Yes	Y	1	1.2	16	0.062	35	1.5
66	1.2D+1.5Lm+1.0 330-Wind	Yes	Y	1	1.2	17	0.062	35	1.5
67	(1.2+0.2Sds)D+1.0 0 Seismic	Yes	Y	1	1.238	ELX	0.095		

### Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
68	(1.2+0.2Sds)D+1.0 30 Seismic	Yes	Y	1	1.238	ELX	0.082	ELZ	0.047
69	(1.2+0.2Sds)D+1.0 45 Seismic	Yes	Y	1	1.238	ELX	0.067	ELZ	0.067
70	(1.2+0.2Sds)D+1.0 60 Seismic	Yes	Y	1	1.238	ELX	0.047	ELZ	0.082
71	(1.2+0.2Sds)D+1.0 90 Seismic	Yes	Y	1	1.238			ELZ	0.095
72	(1.2+0.2Sds)D+1.0 120 Seismic	Yes	Y	1	1.238	ELX	-0.047	ELZ	0.082
73	(1.2+0.2Sds)D+1.0 135 Seismic	Yes	Y	1	1.238	ELX	-0.067	ELZ	0.067
74	(1.2+0.2Sds)D+1.0 150 Seismic	Yes	Y	1	1.238	ELX	-0.082	ELZ	0.047
75	(1.2+0.2Sds)D+1.0 180 Seismic	Yes	Y	1	1.238	ELX	-0.095		
76	(1.2+0.2Sds)D+1.0 210 Seismic	Yes	Y	1	1.238	ELX	-0.082	ELZ	-0.047
77	(1.2+0.2Sds)D+1.0 225 Seismic	Yes	Y	1	1.238	ELX	-0.067	ELZ	-0.067
78	(1.2+0.2Sds)D+1.0 240 Seismic	Yes	Y	1	1.238	ELX	-0.047	ELZ	-0.082
79	(1.2+0.2Sds)D+1.0 270 Seismic	Yes	Y	1	1.238			ELZ	-0.095
80	(1.2+0.2Sds)D+1.0 300 Seismic	Yes	Y	1	1.238	ELX	0.047	ELZ	-0.082
81	(1.2+0.2Sds)D+1.0 315 Seismic	Yes	Y	1	1.238	ELX	0.067	ELZ	-0.067
82	(1.2+0.2Sds)D+1.0 330 Seismic	Yes	Y	1	1.238	ELX	0.082	ELZ	-0.047
83	(0.9-0.2Sds)*DL+1.0 0 Seismic	Yes	Y	1	0.862	ELX	0.095		
84	(0.9-0.2Sds)*DL+1.0 30 Seismic	Yes	Y	1	0.862	ELX	0.082	ELZ	0.047
85	(0.9-0.2Sds)*DL+1.0 Seismic	Yes	Y	1	0.862	ELX	0.067	ELZ	0.067
86	(0.9-0.2Sds)*DL+1.0 60 Seismic	Yes	Y	1	0.862	ELX	0.047	ELZ	0.082
87	(0.9-0.2Sds)*DL+1.0 90 Seismic	Yes	Y	1	0.862			ELZ	0.095
88	(0.9-0.2Sds)*DL+1.0 120 Seismic	Yes	Y	1	0.862	ELX	-0.047	ELZ	0.082
89	(0.9-0.2Sds)*DL+1.0 135 Seismic	Yes	Y	1	0.862	ELX	-0.067	ELZ	0.067
90	(0.9-0.2Sds)*DL+1.0 150 Seismic	Yes	Y	1	0.862	ELX	-0.082	ELZ	0.047
91	(0.9-0.2Sds)*DL+1.0 180 Seismic	Yes	Y	1	0.862	ELX	-0.095		
92	(0.9-0.2Sds)*DL+1.0 210 Seismic	Yes	Y	1	0.862	ELX	-0.082	ELZ	-0.047
93	(0.9-0.2Sds)*DL+1.0 225 Seismic	Yes	Y	1	0.862	ELX	-0.067	ELZ	-0.067
94	(0.9-0.2Sds)*DL+1.0 240 Seismic	Yes	Y	1	0.862	ELX	-0.047	ELZ	-0.082
95	(0.9-0.2Sds)*DL+1.0 270 Seismic	Yes	Y	1	0.862			ELZ	-0.095
96	(0.9-0.2Sds)*DL+1.0 300 Seismic	Yes	Y	1	0.862	ELX	0.047	ELZ	-0.082
97	(0.9-0.2Sds)*DL+1.0 315 Seismic	Yes	Y	1	0.862	ELX	0.067	ELZ	-0.067
98	(0.9-0.2Sds)*DL+1.0 330 Seismic	Yes	Y	1	0.862	ELX	0.082	ELZ	-0.047

### Envelope Node Reactions

Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	X22	max	1.245	18	2.386	45	1.311	21	0.916	5	1.443	17	3.067	45
2		min	-0.92	10	-0.187	5	-0.752	13	-4.728	45	-1.454	25	-0.582	5
3	X23	max	0.992	18	2.386	39	0.853	6	5.021	39	1.448	12	2.841	56
4		min	-0.671	10	-0.187	15	-1.413	30	-0.962	15	-1.456	20	-0.502	15
5	X24	max	0.877	2	2.436	34	0.958	22	0.099	9	1.461	6	1.073	10
6		min	-1.523	26	-0.184	10	-0.957	14	-0.306	49	-1.472	30	-5.779	34
7	Totals:	max	3.022	18	6.44	42	2.995	6						
8		min	-3.022	26	1.938	83	-2.995	14						

### Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

Member	Shape	Code Check	Loc [ft]	LC	Shear	Check	Loc [ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	FF1-BH	PIPE 3.0	0.109	0.75	29	0.129	0.75	21	15.842	65.205	5.749	5.749	5.749	1	H1-1b
2	FF2-BH	PIPE 3.0	0.108	0.75	18	0.129	0.75	26	15.842	65.205	5.749	5.749	5.749	1	H1-1b
3	FF3-BH	PIPE 3.0	0.112	0.75	24	0.132	0.75	32	15.842	65.205	5.749	5.749	5.749	1	H1-1b
4	INT-1A	L4X4X3/8	0.215	2.098	42	0.085	2.098	z 18	89.509	92.644	4.462	9.943	9.943	1.499	H2-1
5	INT-1B	L4X4X3/8	0.259	2.098	47	0.09	2.098	z 25	89.51	92.644	4.462	9.943	9.943	1.5	H2-1
6	INT-2A	L4X4X3/8	0.211	2.098	48	0.085	2.098	z 24	89.509	92.644	4.462	9.943	9.943	1.5	H2-1
7	INT-2B	L4X4X3/8	0.259	2.098	36	0.09	2.098	z 30	89.51	92.644	4.462	9.943	9.943	1.498	H2-1
8	INT-3A	L4X4X3/8	0.211	2.098	37	0.085	2.098	z 29	89.51	92.644	4.462	9.943	9.943	1.5	H2-1

**Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)**

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*	Pnc [k]	phi*	Pnt [k]	phi*	Mn y-y [k-ft]	phi*	Mn z-z [k-ft]	Cb	Eqn
9	INT-3B	L4X4X3/8	0.264	2.098	42	0.09	2.098	z	19	89.509	92.644	4.462	9.943	1.497	H2-1					
10	IP1-2	PL3X0.375	0.256	0.302	39	0.254	0.302	y	18	35.099	36.45	0.285	2.278	1.267	H1-1b					
11	IP1-3	PL3X0.375	0.326	0	47	0.272	0	y	25	35.096	36.45	0.285	2.278	1.251	H1-1b					
12	IP2-2	PL3X0.375	0.256	0.302	42	0.255	0.302	y	23	35.099	36.45	0.285	2.278	1.323	H1-1b					
13	IP2-3	PL3X0.375	0.327	0	37	0.273	0	y	30	35.096	36.45	0.285	2.278	1.251	H1-1b					
14	IP3-2	PL3X0.375	0.256	0.302	34	0.255	0.302	y	29	35.096	36.45	0.285	2.278	1.264	H1-1b					
15	IP3-3	PL3X0.375	0.327	0	42	0.272	0	y	19	35.099	36.45	0.285	2.278	1.246	H1-1b					
16	IP1-1	PL5X3/8	0.052	0.292	24	0.377	0.292	y	26	58.648	60.75	0.475	6.328	2.393	H1-1b					
17	IP1-4	PL5X3/8	0.078	0	33	0.426	0	y	32	58.648	60.75	0.475	6.328	2.393	H1-1b					
18	IP2-1	PL5X3/8	0.052	0.292	30	0.378	0.292	y	31	58.648	60.75	0.475	6.328	2.393	H1-1b					
19	IP2-4	PL5X3/8	0.08	0	22	0.42	0	y	22	58.648	60.75	0.475	6.328	2.393	H1-1b					
20	IP3-1	PL5X3/8	0.05	0.292	19	0.378	0.292	y	21	58.648	60.75	0.475	6.328	2.393	H1-1b					
21	IP3-4	PL5X3/8	0.081	0	28	0.419	0	y	27	58.648	60.75	0.475	6.328	2.393	H1-1b					
22	CP1-1	L4X4X3/8	0.018	0.167	34	0.366	0.167	z	26	92.624	92.644	4.462	9.943	1.5	H2-1					
23	CP1-2	L4X4X3/8	0.289	1.3	27	0.248	1.3	y	25	90.75	92.644	4.462	9.943	1.472	H2-1					
24	CP1-3	L4X4X3/8	0.013	0	29	0.387	0	z	33	92.624	92.644	4.462	9.943	1.5	H2-1					
25	CP2-1	L4X4X3/8	0.018	0.167	38	0.367	0.167	z	31	92.624	92.644	4.462	9.943	1.5	H2-1					
26	CP2-2	L4X4X3/8	0.288	1.3	33	0.25	1.3	y	30	90.75	92.644	4.462	9.943	1.472	H2-1					
27	CP2-3	L4X4X3/8	0.013	0	18	0.388	0	z	22	92.624	92.644	4.462	9.943	1.5	H2-1					
28	CP3-1	L4X4X3/8	0.018	0.167	43	0.367	0.167	z	21	92.624	92.644	4.462	9.943	1.5	H2-1					
29	CP3-2	L4X4X3/8	0.29	1.3	22	0.254	1.3	y	20	90.75	92.644	4.462	9.943	1.472	H2-1					
30	CP3-3	L4X4X3/8	0.02	0	52	0.387	0	z	27	92.624	92.644	4.462	9.943	1.5	H2-1					
31	MP-1	PIPE 2.0	0.43	5.75	29	0.116	5.75	22	16.812	32.13	1.872	1.872	1	H1-1b						
32	MP-2A	PIPE 2.0	0.358	5.75	21	0.149	5.75	22	16.812	32.13	1.872	1.872	1	H1-1b						
33	MP-2	PIPE 2.0	0.43	6.432	32	0.115	6.432	22	16.812	32.13	1.872	1.872	1	H1-1b						
34	MP-5S	PIPE 2.0	0.357	5.75	26	0.149	5.75	27	16.812	32.13	1.872	1.872	1	H1-1b						
35	MP-8	PIPE 2.0	0.361	5.75	32	0.149	5.75	33	16.812	32.13	1.872	1.872	1	H1-1b						
36	MP-5	PIPE 2.0	0.429	5.75	23	0.116	5.75	33	16.812	32.13	1.872	1.872	1	H1-1b						
37	MP-6	PIPE 2.0	0.43	6.432	27	0.114	6.432	33	16.812	32.13	1.872	1.872	1	H1-1b						
38	MP-3	PIPE 2.0	0.428	5.75	18	0.116	5.75	27	16.812	32.13	1.872	1.872	1	H1-1b						
39	MP-4	PIPE 2.0	0.431	6.432	22	0.116	6.432	28	16.812	32.13	1.872	1.872	1	H1-1b						
40	SA-1	HSS4X4X1/4	0.318	0	42	0.08	0	y	44	144.735	155.25	18.22	18.22	1.281	H1-1b					
41	SA-2	HSS4X4X1/4	0.321	0	34	0.081	0	y	34	144.735	155.25	18.22	18.22	1.275	H1-1b					
42	SA-3	HSS4X4X1/4	0.313	0	42	0.093	0	y	57	144.735	155.25	18.22	18.22	1.281	H1-1b					
43	FF1-SR	PIPE 2.5	0.197	7.75	22	0.157	4	23	8.06	50.715	3.596	3.596	1	H1-1b						
44	FF2-SR	PIPE 2.5	0.199	7.75	28	0.156	4	29	8.06	50.715	3.596	3.596	1	H1-1b						
45	FF3-SR	PIPE 2.5	0.197	7.75	33	0.156	4	18	8.06	50.715	3.596	3.596	1	H1-1b						
46	SRC-1	L2.5X2.5X3	0.026	1.323	21	0.051	2.646	y	26	26.507	29.192	0.873	1.864	1.136	H2-1					
47	SRC-2	L2.5X2.5X3	0.026	1.323	26	0.051	2.646	y	31	26.507	29.192	0.873	1.864	1.136	H2-1					
48	SRC-3	L2.5X2.5X3	0.026	1.323	31	0.051	2.646	y	20	26.507	29.192	0.873	1.864	1.136	H2-1					
49	M79	HSS4.5X4.5X0.375	0.085	0	39	0.057	0	y	53	241.786	256.163	33.112	33.112	1.7	H1-1b					
50	M80	HSS4.5X4.5X0.375	0.085	0	45	0.045	0	y	47	241.786	256.163	33.112	33.112	1.7	H1-1b					
51	M81A	HSS4.5X4.5X0.375	0.087	0	34	0.045	0	y	37	241.786	256.163	33.112	33.112	1.699	H1-1b					

**APPENDIX B**  
**ADDITIONAL CALCULATIONS**



## HA151A/ BUSHYHILL FD\_MP (CTHA151A)

TEP No. 257186.981503

Analysis By: DRP 9/20/2024

Checked By: RAL 9/20/2024

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

Wind Inputs:		
Ult. Wind Velocity:	120	mph
Live Load Velocity:	30	mph
Ice Wind Velocity:	50	mph
Base Ice Thickness:	1.50	inches
Mount Centerline:	77.0	ft
Antenna Centerline:	77.0	ft
Exposure Category:	B	
Topo Category:	1	
Risk Category:	II	
Ground Elevation:	347	ft

Wind Calculations:		
$K_{zt}$ :	1.000	Section 2.6.6
$K_d$ :	0.950	
$K_{z-Mount}$ :	0.917	Section 2.6.5.2
$K_{z-Antenna}$ :	0.917	Section 2.6.5.2
$K_{iz}$ :	1.088	Section 2.6.10
Ice Thickness:	1.633	inches - Section 2.6.10
$K_{es-wind}$ :	0.95	Annex S (Table S-1)
$K_{es-ice}$ :	0.85	Annex S (Table S-1)
$K_e$ :	0.988	Table 2-6

Without Ice - (psf)	With Ice - (psf)
$(q_z G_h)_{Mount}$ : 30.13	$(q_z G_h)_{Mount}$ : 5.51
$(q_z G_h)_{Antenna}$ : 30.13	$(q_z G_h)_{Antenna}$ : 5.51

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

Seismic Input		
$S_{DS}$ :	0.189	Design Short Period Spectral Accel.
$I_p$ :	1.0	Importance Factor
$R_p$ :	2.0	Response Modification Factor
$\rho$ :	1.0	
$A_s$ :	1.0	Applification Factor - TIA-222-H Section 2.7.8.1
$S_1$ :	0.054	Spectral Acceleration at a Period of 1 Second

Seismic Design Force			TIA-H Sec 2.7.7.1.1
Cs:	0.095	kips/kip	TIA-H Sec 2.7.7.1.1
Cs-min:	0.030	kips/kip	



HA151A/ BUSHYHILL FD\_MP (CTHA151A)  
 TEP No. 257186.981503  
 Analysis By: DRP 9/20/2024  
 Checked By: RAL 9/20/2024

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

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

MFR	Model	Height (in)	Width (in)	Depth (in)	Wt. (lbs)	Azimuth°	Qty	Shape	Member Label	Distance from start node of the member		
										Location #1 (ft,%)	Location #2 (ft,%)	Location #3 (ft,%)
AMPHENOL	APXVLL19P_43-C-A20	75.80	11.30	4.60	50.00	0.00	1	Flat	MP-1	2.00	7.00	
AMPHENOL	APXVAALL24_43-U-NA20	95.90	24.00	8.90	138.00	0.00	1	Flat	MP-2	1.00	8.00	
ERICSSON	4460 B25/B66	15.10	17.00	11.90	104.00	90.00	1	Flat	MP-1	2.00		
ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.90	13.20	9.50	71.00	90.00	1	Flat	MP-2	2.00		
AMPHENOL	APXVLL19P_43-C-A20	75.80	11.30	4.60	50.00	120.00	1	Flat	MP-3	2.00	7.00	
AMPHENOL	APXVAALL24_43-U-NA20	95.90	24.00	8.90	138.00	120.00	1	Flat	MP-4	1.00	8.00	
ERICSSON	4460 B25/B66	15.10	17.00	11.90	104.00	210.00	1	Flat	MP-3	2.00		
ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.90	13.20	9.50	71.00	210.00	1	Flat	MP-4	2.00		
AMPHENOL	APXVLL19P_43-C-A20	75.80	11.30	4.60	50.00	240.00	1	Flat	MP-5	2.00	7.00	
AMPHENOL	APXVAALL24_43-U-NA20	95.90	24.00	8.90	138.00	240.00	1	Flat	MP-6	1.00	8.00	
ERICSSON	4460 B25/B66	15.10	17.00	11.90	104.00	330.00	1	Flat	MP-5	2.00		
ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.90	13.20	9.50	71.00	330.00	1	Flat	MP-6	2.00		



HA151A/ BUSHYHILL FD\_MP (CTHA151A)

TEP No. 257186.981503

Analysis By: DRP 9/20/2024

Checked By: RAL 9/20/2024

Member Forces are Calculated in Accordance with TIA-222-H

Member Name	Wind Proj. (in)	Length (in)	Shape	θ (°)	Perimeter (in)
FF1-BH	3.500	96.00	Round	90.00	11.00
FF2-BH	3.500	96.00	Round	-30.00	11.00
FF3-BH	3.500	96.00	Round	30.00	11.00
INT-1A	4.000	25.18	Flat	30.00	16.00
INT-1B	4.000	25.17	Flat	30.00	16.00
INT-2A	4.000	25.18	Flat	90.00	16.00
INT-2B	4.000	25.17	Flat	90.00	16.00
INT-3A	4.000	25.17	Flat	-30.00	16.00
INT-3B	4.000	25.18	Flat	-30.00	16.00
IP1-2	3.000	3.62	Flat	30.00	7.00
IP1-3	3.000	3.63	Flat	30.00	7.00
IP2-2	3.000	3.62	Flat	90.00	7.00
IP2-3	3.000	3.63	Flat	90.00	7.00
IP3-2	3.000	3.63	Flat	-30.00	7.00
IP3-3	3.000	3.62	Flat	-30.00	7.00
IP1-1	5.000	3.50	Flat	90.00	11.00
IP1-4	5.000	3.50	Flat	-30.00	11.00
IP2-1	5.000	3.50	Flat	-30.00	11.00
IP2-4	5.000	3.50	Flat	30.00	11.00
IP3-1	5.000	3.50	Flat	30.00	11.00
IP3-4	5.000	3.50	Flat	90.00	11.00
CP1-1	4.000	2.00	Flat	90.00	14.00
CP1-2	4.000	31.20	Flat	30.00	14.00
CP1-3	4.000	2.00	Flat	-30.00	14.00
CP2-1	4.000	2.00	Flat	-30.00	14.00
CP2-2	4.000	31.20	Flat	90.00	14.00
CP2-3	4.000	2.00	Flat	30.00	14.00
CP3-1	4.000	2.00	Flat	30.00	14.00
CP3-2	4.000	31.20	Flat	-30.00	14.00
CP3-3	4.000	2.00	Flat	90.00	14.00
MP-1	2.375	96.00	Round		7.46
MP-2A	2.375	96.00	Round		7.46
MP-2	2.375	114.00	Round		7.46



MP-5S	2.375	96.00	Round		7.46
MP-8	2.375	96.00	Round		7.46
MP-5	2.375	96.00	Round		7.46
MP-6	2.375	114.00	Round		7.46
MP-3	2.375	96.00	Round		7.46
MP-4	2.375	114.00	Round		7.46
SA-1	4.000	15.41	Flat	-60.00	16.00
SA-2	4.000	15.41	Flat	0.00	16.00
SA-3	4.000	15.41	Flat	60.00	16.00
FF1-SR	2.875	96.00	Round	90.00	9.03
FF2-SR	2.875	96.00	Round	-30.00	9.03
FF3-SR	2.875	96.00	Round	30.00	9.03
SRC-1	2.500	31.75	Flat	30.00	10.00
SRC-2	2.500	31.75	Flat	90.00	10.00
SRC-3	2.500	31.75	Flat	-30.00	10.00
M79	4.500	23.60	Flat	60.00	18.00
M80	4.500	23.60	Flat	-60.00	18.00
M81A	4.500	23.60	Flat	0.00	18.00



HA151A/ BUSHYHILL FD\_MP (CTHA151A)

TEP No. 257186.981503

Analysis By: DRP 9/20/2024

Checked By: RAL 9/20/2024

## Moment Bolt Group - Support Arm

Code Revisions: ANSI/TIA-222-H

Bolt Type: Headed Bolts

### Connection Inputs:

Bolt Size:	0.625	in
# Bolts:	4	
Plate Width:	8.00	in
Plate Height:	8.00	in
Bolt H Gap:	6.00	in
Bolt V Gap:	6.00	in
Plate T:	0.750	in
Slip Member Ø:	N/A	in
Bolt Grade:	A325N	

### Capacities:

Bolt Capacity=	21.0%	PASS*
Plate Capacity=	23.3%	PASS*

\*Value Adjusted per TIA-H Section 15.5

### Bolt Properties:

$F_{y_{bolt}}$ :	92.0	ksi
$F_{u_{bolt}}$ :	120.0	ksi
r:	4.2	in
J:	72.0	$\text{in}^4/\text{in}^2$
$A_{bolt}$ :	0.3	$\text{in}^2$
$A_{bolt, \text{Net Tensile}}$ :	0.2	$\text{in}^2$
Pretension:	19.0	kips

### Member Properties:

Member Shape:	Flat	
Plate $F_y$ :	36.0	ksi
Plate $F_u$ :	58.0	ksi
Member Height:	4.0	in
Member Width:	4.0	in

# **EXHIBIT G**

## **Power Density/RF Emissions Report**



# CENTERLINE

## Radio Frequency Exposure Analysis Report

October 22, 2024

T-Mobile

Site Name: HA151A/BushyHillFD\_MP

Site ID: CTHA151A

Site Address: 345 Bushy Hill Road, Simsbury, CT 06070



Michael Fischer, P.E.  
Registered Professional Engineer (Electrical)  
Connecticut License Number 33928  
Expires January 31, 2025

Signed 22 October 2024

### Site Compliance Summary

T-Mobile Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	15.99511 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	1.59965%
Cumulative Calculated Power Density (Adj. Structure):	5.79812 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Adj. Structure):	0.58024%



October 22, 2024

Centerline

Attn: Peter Fales, Vice President -- Site Acquisition  
750 W Center St, Suite 301  
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **HA151A/BushyHillFD\_MP**

Centerline was contracted to analyze the proposed T-Mobile facility at **345 Bushy Hill Road, Simsbury, CT 06070** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ) or microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in  $\text{mW}/\text{cm}^2$ ) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ( $f_{\text{MHz}}/1500$ ). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of  $1 \text{ mW}/\text{cm}^2$  ( $1000 \mu\text{W}/\text{cm}^2$ ). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

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

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, 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.



## **Calculation Methodology**

Centerline has performed theoretical modeling of the site using a software tool, RoofMaster®, 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.



## **Data & Results**

The following table details the antennas and operating parameters for the T-Mobile 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 ground level and on the adjacent 30' rooftop.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average) and on the adjacent rooftop (30-36' spatial average). The results from highest cumulative sample point at ground level surrounding the site and on the adjacent rooftop are displayed in the tables 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(s) below. The cumulative power density and cumulative % MPE are displayed at the bottom of the table(s) below.





### Ground Level

#### Maximum Calculated Cumulative Power Density (Location: approximately 556' east-northeast of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00029	1000.00	0.00003
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00029	1000.00	0.00003
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00043	1000.00	0.00004
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00022	466.67	0.00005
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00042	400.00	0.00011
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
Unknown 7	GENERIC OMNI 6FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 8	GENERIC OMNI 5FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 9	GENERIC OMNI 5FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 10	GENERIC OMNI 3FT	850	2.60	115.00	1.00	50.00	90.99	0.00001	566.67	0.00000
AT&T A 11	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	3381.58	0.00009	466.67	0.00002
AT&T A 11	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	3742.14	0.00009	566.67	0.00002
AT&T A 12	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00010	466.67	0.00002
AT&T A 12	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00007	1000.00	0.00001
AT&T A 13	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00011	1000.00	0.00001
AT&T A 13	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00010	1000.00	0.00001
AT&T B 14	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	845.40	0.00000	466.67	0.00000
AT&T B 14	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	935.53	0.00000	566.67	0.00000
AT&T B 15	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00000	466.67	0.00000
AT&T B 15	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00000	1000.00	0.00000
AT&T B 16	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
AT&T B 16	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00000	1000.00	0.00000
AT&T C 17	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	845.40	0.00000	466.67	0.00000
AT&T C 17	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	935.53	0.00000	566.67	0.00000
AT&T C 18	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00000	466.67	0.00000
AT&T C 18	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00000	1000.00	0.00000
AT&T C 19	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
AT&T C 19	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00000	1000.00	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
Verizon A 20	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	15.29163	1000.00	1.52916
Verizon A 21	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00005	466.67	0.00001
Verizon A 21	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00006	566.67	0.00001
Verizon A 21	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00011	1000.00	0.00001
Verizon A 22	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00005	466.67	0.00001
Verizon A 22	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00006	566.67	0.00001
Verizon A 22	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00012	1000.00	0.00001
Verizon A 23	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
Verizon B 24	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	0.35847	1000.00	0.03585
Verizon B 25	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon B 25	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon B 25	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00000	1000.00	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00000	1000.00	0.00000
Verizon B 27	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
Verizon C 28	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	0.34234	1000.00	0.03423
Verizon C 29	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon C 29	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon C 29	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00000	1000.00	0.00000
Verizon C 30	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon C 30	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon C 30	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00000	1000.00	0.00000
Verizon C 31	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
							<b>Cumulative Power Density:</b>	<b>15.99511 <math>\mu\text{W}/\text{cm}^2</math></b>	<b>Cumulative % MPE:</b>	<b>1.59965%</b>



### Adjacent 30' Rooftop

**Maximum Calculated Cumulative Power Density (Location: approximately 27' east of site)**

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBi)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00001	400.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00001	466.67	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00075	1000.00	0.00008
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00075	1000.00	0.00008
T-Mobile C 5	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00117	1000.00	0.00012
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00181	466.67	0.00039
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00110	400.00	0.00028
Unknown 7	GENERIC OMNI 6FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 8	GENERIC OMNI 5FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 9	GENERIC OMNI 5FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 10	GENERIC OMNI 3FT	850	2.60	115.00	1.00	50.00	90.99	0.00001	566.67	0.00000
AT&T A 11	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	3381.58	0.00000	466.67	0.00000
AT&T A 11	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	3742.14	0.00000	566.67	0.00000
AT&T A 12	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00000	466.67	0.00000
AT&T A 12	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00000	1000.00	0.00000
AT&T A 13	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
AT&T A 13	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00000	1000.00	0.00000
AT&T B 14	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	845.40	0.00000	466.67	0.00000
AT&T B 14	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	935.53	0.00000	566.67	0.00000
AT&T B 15	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00000	466.67	0.00000
AT&T B 15	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00000	1000.00	0.00000
AT&T B 16	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
AT&T B 16	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00000	1000.00	0.00000
AT&T C 17	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	845.40	0.00010	466.67	0.00002
AT&T C 17	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	935.53	0.00010	566.67	0.00002
AT&T C 18	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00010	466.67	0.00002
AT&T C 18	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00007	1000.00	0.00001
AT&T C 19	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00012	1000.00	0.00001
AT&T C 19	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00010	1000.00	0.00001



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
Verizon A 20	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	0.11063	1000.00	0.01106
Verizon A 21	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon A 21	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon A 21	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00000	1000.00	0.00000
Verizon A 22	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon A 22	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon A 22	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00000	1000.00	0.00000
Verizon A 23	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
Verizon B 24	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	0.13611	1000.00	0.01361
Verizon B 25	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon B 25	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon B 25	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00000	1000.00	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00000	1000.00	0.00000
Verizon B 27	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
Verizon C 28	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	5.54468	1000.00	0.55447
Verizon C 29	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00006	466.67	0.00001
Verizon C 29	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00006	566.67	0.00001
Verizon C 29	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00013	1000.00	0.00001
Verizon C 30	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00006	466.67	0.00001
Verizon C 30	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00006	566.67	0.00001
Verizon C 30	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00013	1000.00	0.00001
Verizon C 31	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
							<b>Cumulative Power Density:</b>	<b>0.58024 <math>\mu\text{W}/\text{cm}^2</math></b>	<b>Cumulative % MPE:</b>	<b>5.79812%</b>



## **Summary**

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level and on the adjacent 30' rooftop that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **compliant** with FCC rules and regulations.

A handwritten signature in black ink, appearing to read "Katrina Styx", with a stylized flourish at the end.

Katrina Styx  
RF EME Technical Writer II  
Centerline



# CENTERLINE

## Radio Frequency Exposure Analysis Report

October 22, 2024

T-Mobile

Site Name: HA151A/BushyHillFD\_MP

Site ID: CTHA151A

Site Address: 345 Bushy Hill Road, Simsbury, CT 06070



Michael Fischer, P.E.  
Registered Professional Engineer (Electrical)  
Connecticut License Number 33928  
Expires January 31, 2025

Signed 22 October 2024

### Site Compliance Summary

T-Mobile Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	15.99511 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	1.59965%
Cumulative Calculated Power Density (Adj. Structure):	5.79812 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Adj. Structure):	0.58024%



October 22, 2024

Centerline

Attn: Peter Fales, Vice President -- Site Acquisition  
750 W Center St, Suite 301  
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **HA151A/BushyHillFD\_MP**

Centerline was contracted to analyze the proposed T-Mobile facility at **345 Bushy Hill Road, Simsbury, CT 06070** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ) or microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in  $\text{mW}/\text{cm}^2$ ) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ( $f_{\text{MHz}}/1500$ ). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of  $1 \text{ mW}/\text{cm}^2$  ( $1000 \mu\text{W}/\text{cm}^2$ ). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

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

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, 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.





## **Calculation Methodology**

Centerline has performed theoretical modeling of the site using a software tool, RoofMaster®, 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.



## **Data & Results**

The following table details the antennas and operating parameters for the T-Mobile 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 ground level and on the adjacent 30' rooftop.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average) and on the adjacent rooftop (30-36' spatial average). The results from highest cumulative sample point at ground level surrounding the site and on the adjacent rooftop are displayed in the tables 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(s) below. The cumulative power density and cumulative % MPE are displayed at the bottom of the table(s) below.



### Ground Level

#### Maximum Calculated Cumulative Power Density (Location: approximately 556' east-northeast of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00029	1000.00	0.00003
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00029	1000.00	0.00003
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00043	1000.00	0.00004
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00022	466.67	0.00005
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00042	400.00	0.00011
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
Unknown 7	GENERIC OMNI 6FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 8	GENERIC OMNI 5FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 9	GENERIC OMNI 5FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 10	GENERIC OMNI 3FT	850	2.60	115.00	1.00	50.00	90.99	0.00001	566.67	0.00000
AT&T A 11	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	3381.58	0.00009	466.67	0.00002
AT&T A 11	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	3742.14	0.00009	566.67	0.00002
AT&T A 12	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00010	466.67	0.00002
AT&T A 12	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00007	1000.00	0.00001
AT&T A 13	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00011	1000.00	0.00001
AT&T A 13	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00010	1000.00	0.00001
AT&T B 14	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	845.40	0.00000	466.67	0.00000
AT&T B 14	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	935.53	0.00000	566.67	0.00000
AT&T B 15	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00000	466.67	0.00000
AT&T B 15	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00000	1000.00	0.00000
AT&T B 16	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
AT&T B 16	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00000	1000.00	0.00000
AT&T C 17	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	845.40	0.00000	466.67	0.00000
AT&T C 17	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	935.53	0.00000	566.67	0.00000
AT&T C 18	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00000	466.67	0.00000
AT&T C 18	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00000	1000.00	0.00000
AT&T C 19	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
AT&T C 19	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00000	1000.00	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
Verizon A 20	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	15.29163	1000.00	1.52916
Verizon A 21	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00005	466.67	0.00001
Verizon A 21	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00006	566.67	0.00001
Verizon A 21	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00011	1000.00	0.00001
Verizon A 22	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00005	466.67	0.00001
Verizon A 22	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00006	566.67	0.00001
Verizon A 22	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00012	1000.00	0.00001
Verizon A 23	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
Verizon B 24	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	0.35847	1000.00	0.03585
Verizon B 25	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon B 25	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon B 25	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00000	1000.00	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00000	1000.00	0.00000
Verizon B 27	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
Verizon C 28	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	0.34234	1000.00	0.03423
Verizon C 29	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon C 29	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon C 29	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00000	1000.00	0.00000
Verizon C 30	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon C 30	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon C 30	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00000	1000.00	0.00000
Verizon C 31	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
							<b>Cumulative Power Density:</b>	<b>15.99511 <math>\mu\text{W}/\text{cm}^2</math></b>	<b>Cumulative % MPE:</b>	<b>1.59965%</b>



### Adjacent 30' Rooftop

**Maximum Calculated Cumulative Power Density (Location: approximately 27' east of site)**

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBi)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00001	400.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00001	466.67	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00075	1000.00	0.00008
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00075	1000.00	0.00008
T-Mobile C 5	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00117	1000.00	0.00012
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	2.00	40.00	1853.92	0.00181	466.67	0.00039
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00110	400.00	0.00028
Unknown 7	GENERIC OMNI 6FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 8	GENERIC OMNI 5FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 9	GENERIC OMNI 5FT	850	5.96	115.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Unknown 10	GENERIC OMNI 3FT	850	2.60	115.00	1.00	50.00	90.99	0.00001	566.67	0.00000
AT&T A 11	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	3381.58	0.00000	466.67	0.00000
AT&T A 11	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	3742.14	0.00000	566.67	0.00000
AT&T A 12	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00000	466.67	0.00000
AT&T A 12	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00000	1000.00	0.00000
AT&T A 13	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
AT&T A 13	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00000	1000.00	0.00000
AT&T B 14	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	845.40	0.00000	466.67	0.00000
AT&T B 14	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	935.53	0.00000	566.67	0.00000
AT&T B 15	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00000	466.67	0.00000
AT&T B 15	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00000	1000.00	0.00000
AT&T B 16	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
AT&T B 16	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00000	1000.00	0.00000
AT&T C 17	KMW EPBQ-654L8H8	700	13.25	110.00	4.00	40.00	845.40	0.00010	466.67	0.00002
AT&T C 17	KMW EPBQ-654L8H8	850	13.69	110.00	4.00	40.00	935.53	0.00010	566.67	0.00002
AT&T C 18	CCI HPA65R-BU8A	700	15.30	110.00	4.00	40.00	1355.38	0.00010	466.67	0.00002
AT&T C 18	CCI HPA65R-BU8A	2300	16.40	110.00	4.00	25.00	1091.29	0.00007	1000.00	0.00001
AT&T C 19	KMW EPBQ-654L8H8	1900	15.15	110.00	4.00	40.00	1309.36	0.00012	1000.00	0.00001
AT&T C 19	KMW EPBQ-654L8H8	2100	15.48	110.00	4.00	40.00	1412.73	0.00010	1000.00	0.00001



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
Verizon A 20	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	0.11063	1000.00	0.01106
Verizon A 21	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon A 21	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon A 21	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00000	1000.00	0.00000
Verizon A 22	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon A 22	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon A 22	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00000	1000.00	0.00000
Verizon A 23	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
Verizon B 24	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	0.13611	1000.00	0.01361
Verizon B 25	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon B 25	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon B 25	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00000	1000.00	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00000	466.67	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00000	566.67	0.00000
Verizon B 26	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00000	1000.00	0.00000
Verizon B 27	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
Verizon C 28	Samsung SON_MT6407	3700	23.45	102.00	2.00	100.00	22130.95	5.54468	1000.00	0.55447
Verizon C 29	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00006	466.67	0.00001
Verizon C 29	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00006	566.67	0.00001
Verizon C 29	COMMSCOPE SBNHH-1D65B	1900	15.89	102.00	4.00	40.00	1552.60	0.00013	1000.00	0.00001
Verizon C 30	COMMSCOPE SBNHH-1D65B	700	12.38	102.00	2.00	40.00	691.93	0.00006	466.67	0.00001
Verizon C 30	COMMSCOPE SBNHH-1D65B	850	12.67	102.00	2.00	40.00	739.71	0.00006	566.67	0.00001
Verizon C 30	COMMSCOPE SBNHH-1D65B	2100	16.44	102.00	4.00	40.00	1762.22	0.00013	1000.00	0.00001
Verizon C 31	ANTEL BXA-171063-12CF-EDIN-2 (SPARE)	1900	16.50	102.00	1.00	0.00	0.00	0.00000	1000.00	0.00000
							<b>Cumulative Power Density:</b>	<b>0.58024 <math>\mu\text{W}/\text{cm}^2</math></b>	<b>Cumulative % MPE:</b>	<b>5.79812%</b>



## **Summary**

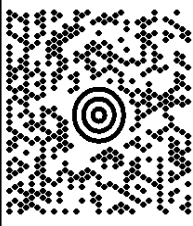
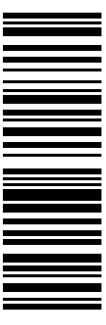
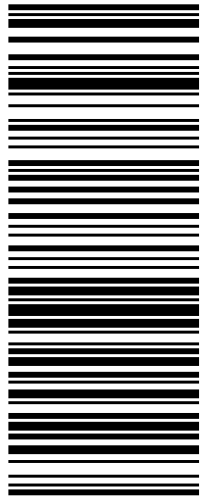

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level and on the adjacent 30' rooftop that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **compliant** with FCC rules and regulations.

Katrina Styx  
RF EME Technical Writer II  
Centerline



# **EXHIBIT H**

**Mailing Receipts/Proof of Notice**

C/O CULLEN MORGAN 941-549-7263 CENTERLINE COMMUNICATIONS LLC 12579 SAGEWOOD DRIVE VENICE FL 34293		1 LBS	1 OF 1
<b>SHIP TO:</b> FIRST SELECTWOMAN & BLDG OFFICIAL TOWN OF SIMSBURY 933 HOPMEADOW STREET <b>SIMSBURY CT 06070-1822</b>			
	<b>CT 060 9-02</b> 		
<b>UPS GROUND</b> TRACKING #: 1Z 9Y4 503 03 0270 7194			
			
BILLING: P/P			
Reference # 1: CTHA151A & CTHA152A - Town			
<div>CS 24.9.00.    MACNV50 47.0A 11/202.4*</div> <div>™</div>			

**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030302707194  
**Date:** Tuesday, November 26, 2024 at 12:36:51 PM Eastern Standard Time  
**From:** UPS <pkginfo@ups.com>  
**To:** Cullen Morgan <CMORGAN@CLINELLC.COM>

**CAUTION:** this email is from an external sender. Avoid opening attachments or links unless the sender is trusted.



**Hello, your package has been delivered.**

**Delivery Date:** Tuesday, 11/26/2024

**Delivery Time:** 12:35 PM

**Left At:** OFFICE

**Signed by:** SIMSBURY POLICE

## CENTERLINE SITE ACQUISITION

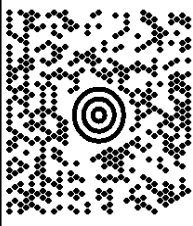
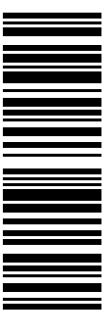
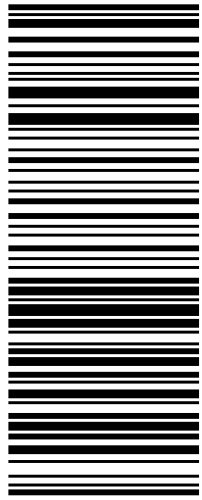

<b>Tracking Number:</b>	<a href="#">1Z9Y45030302707194</a>
<b>Ship To:</b>	TOWN OF SIMSBURY 933 HOPMEADOW STREET SIMSBURY, CT 060701822 US
<b>Number of Packages:</b>	1
<b>UPS Service:</b>	UPS Ground
<b>Package Weight:</b>	0.8 LBS
<b>Reference Number:</b>	CTHA151A & CTHA152A - TOWN

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C/O CULLEN MORGAN 941-549-7263 CENTERLINE COMMUNICATIONS LLC 12579 SAGEWOOD DRIVE VENICE FL 34293		1 LBS	1 OF 1
<b>SHIP TO:</b> SIMSBURY FIRE DISTRICT 869 HOPMEADOW STREET <b>SIMSBURY CT 06070-1821</b>			
	<b>CT 060 9-02</b> 		
<b>UPS GROUND</b> TRACKING #: 1Z 9Y4 503 03 0906 8185			
			
BILLING: P/P			
Reference # 1: CTHA151A & CTHA152A - Prop/Tower			
CS 24.9.00. MACNV50.47.0A 11/202.4*			
 ™			

**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030309068185  
**Date:** Tuesday, November 26, 2024 at 1:09:05 PM Eastern Standard Time  
**From:** UPS <pkginfo@ups.com>  
**To:** Cullen Morgan <CMORGAN@CLINELLC.COM>

**CAUTION:** this email is from an external sender. Avoid opening attachments or links unless the sender is trusted.



Hello, your package has been delivered.

**Delivery Date:** Tuesday, 11/26/2024  
**Delivery Time:** 1:07 PM  
**Left At:** DOCK  
**Signed by:** SIMSBURY FIRE

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CENTERLINE SITE ACQUISITION

Tracking Number:	<a href="#">1Z9Y45030309068185</a>
Ship To:	SIMSBURY FIRE DISTRICT 869 HOPMEADOW STREET SIMSBURY, CT 060701821 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	0.8 LBS
Reference Number:	CTHA151A & CTHA152A - PROP/TOWER