



**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**  
**344 Firetown Road, Simsbury, CT 06070**  
**Latitude: 41.894706**  
**Longitude: -72.826531**  
**T-Mobile Site #: CTHA152A**

Dear Members of the Siting Council:

T-Mobile currently maintains six (6) antennas at the 77-foot level of the existing 80-foot monopole tower at 344 Firetown Road, Simsbury, CT 06070. The 80-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 77-foot level of the tower.

**Planned Modifications:**

Remove Existing:

- (3) APX16DWV-16DWV-S-E-A20 Antennas
- (3) Twin Style 1A-PCS 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) APXVAARR24\_43-U-A20 Antennas
- (3) Radio 4480 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. 1478 dated February 25, 2022. 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.

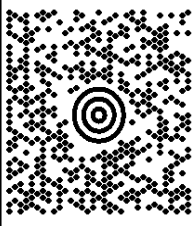
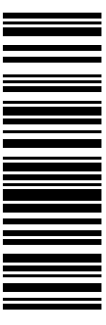
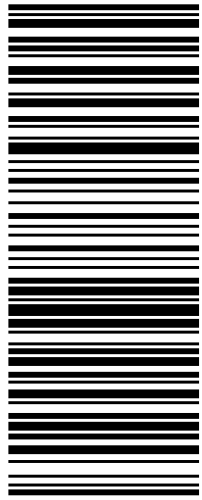

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

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 9415497263 CENTERLINE COMMUNICATIONS LLC 12579 SAGEWOOD DRIVE VENICE FL 34293		2 LBS	1 OF 1
SHIP TO: ATTN: MEMBERS OF THE COUNCIL CONNECTICUT SITING COUNCIL 10 FRANKLIN SQUARE NEW BRITAIN CT 06051-2655			
	CT 067 9-06 		
UPS GROUND			
TRACKING #: 1Z 9Y4 503 03 0582 3455			
			
BILLING: P/P			
Reference # 1: CTHA152A			
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**

Chief Baldis  
Simsbury Fire District  
871 Hopemeadow Street  
Simsbury Connecticut 06070

**Re:** Standard Lease Agreement dated June 27, 2006, (the "Lease"), by and between Simsbury Fire District, a municipal district formed pursuant to Connecticut law ("Lessor") and T-Mobile Northeast LLC, a Delaware limited liability company ("Lessee") (collectively, the "Parties").  
**Site Number:** CTHA152A (the "Site")  
**Site Address:** 344 Firetown Rd. Simsbury, CT 06070 / Hartford County (the "Property")

Dear Sir/Madame:

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 Swap 2 cabinets in same locations
- Adding 1 fiber
- Remove all coax cables
- Swapping 3 antennas
- Removing all TMA's
- Adding 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:**

**Simsbury Fire District**

By: J. Baldi 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**



STATE OF CONNECTICUT  
*CONNECTICUT SITING COUNCIL*

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

Web Site: [portal.ct.gov/csc](http://portal.ct.gov/csc)

**VIA ELECTRONIC MAIL & CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

February 25, 2022

Denise Sabo  
Northeast Site Solutions  
420 Main Street, Suite 1  
Sturbridge, MA 01566-1359  
[denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)

RE: **PETITION NO. 1478** – T-Mobile Northeast, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for proposed modifications to an existing telecommunications facility located at 344 Firetown Road, Simsbury, Connecticut.

Dear Ms. Sabo:

At a public meeting held on February 24, 2022, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need with the following conditions:

1. Approval of any project changes be delegated to Council staff;
2. Establish erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control during construction;
3. Unless otherwise approved by the Council, the validity of this action shall expire three years from the date of this letter. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. T-Mobile shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;
4. Any request for extension of the time period to complete construction shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on the Town of Simsbury;
5. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
6. Any nonfunctioning equipment at this facility owned and operated by T-Mobile shall be removed within 60 days of the date the equipment ceased to function;
7. T-Mobile shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;

8. This Declaratory Ruling may be transferred, provided T-Mobile is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated January 7, 2022, and additional information received on February 15, 2022

Enclosed for your information is a copy of the staff report on this project.

Sincerely,



Melanie A. Bachman  
Executive Director

MAB/RDM/lm

Enclosure: Staff Report dated February 24, 2022

- c: The Honorable Wendy Mackstutis, First Selectman, Town of Simsbury ([wmackstutis@simsbury-ct.gov](mailto:wmackstutis@simsbury-ct.gov))  
Maria Capriola, Town Manager, Town of Simsbury ([townmanager@simsbury-ct.gov](mailto:townmanager@simsbury-ct.gov))



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051  
Phone: (860) 827-2935 Fax: (860) 827-2950  
E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)  
Web Site: [portal.ct.gov/csc](http://portal.ct.gov/csc)

### **Petition No. 1478** **T-Mobile Northeast, LLC** **344 Firetown Road, Simsbury**

**Staff Report**  
**February 24, 2022**

#### **Introduction**

On January 18, 2022, the Connecticut Siting Council (Council) received a petition from T-Mobile Northeast, LLC (T-Mobile) for a declaratory ruling pursuant to Connecticut General Statutes §4-176 and §16-50k for the proposed modification of an existing wireless telecommunications facility located at 344 Firetown Road, Simsbury, Connecticut. Specifically, T-Mobile proposes to install an emergency backup generator for its existing equipment at the site.

Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40 on or about January 7, 2022, T-Mobile notified the abutting property owners and Town of Simsbury (Town) officials.

On January 20, 2022, the Council sent correspondence to the Town stating that the Council has received the Petition and invited the Town to contact the Council with any questions or comments by February 17, 2022. No comments were received.

The Council submitted interrogatories to T-Mobile on January 31, 2022. T-Mobile submitted responses to the interrogatories on February 15, 2022.

#### **Existing Facility**

The existing facility, owned by the Simsbury Fire District, was approved by the Town in 2003. It consists of an 80-foot monopole and associated compound located on an approximate 1.2-acre residential zoned parcel that is developed with the Simsbury Fire Department Firetown Station. The fire station is located at the corner of Hoskins Road and Firetown Road.

The Council approved T-Mobile's shared use of the tower on June 29, 2006 to locate at the 80-foot level of the facility. Verizon is located at the 67-foot level of the tower. An irregular fenced equipment compound (1,200 square feet) is located at the base of the tower that contains T-Mobile's equipment cabinets, meter equipment, and a Verizon equipment shelter.

#### **Proposed Project**

T-Mobile proposes to expand the southwest portion of the compound by 18 square feet to install a 25-kilowatt natural gas-fueled emergency backup generator. The generator would be installed on a new 6-foot by 12-foot concrete pad. An underground gas connection would be installed from the generator along the outside west fence line and within the central portion of the compound to a gas connection east of Verizon's equipment shelter.

The proposed emergency backup generator would be operated weekly on a 12-minute run cycle for testing. Noise from the operation of the emergency backup generator is exempt from the State Noise Control Regulations. Pursuant to R.C.S.A. §22a-174-3b, the generator would be managed to comply with DEEP's "permit by rule" criteria and is exempt from general air permit requirements.

Commercial Mobile Radio Service (CMRS) providers are licensed by and are under the jurisdiction and authority of the Federal Communications Commission (FCC). At present, no standards for backup power for CMRS providers have been promulgated by the FCC.

Abutting land use is residential. An existing wooded buffer is present between the abutters and the compound. The expansion area is approximately 30 feet from the west property line.

To accommodate the compound expansion landscape shrubs on the west side of the compound would be removed. Upon completion of construction, new shrubs would be planted along the fence line.

The estimated cost of the project is \$50,000. Work hours/days would be 9 AM to 5 PM, Monday-Friday or as the Fire Department allows. The total estimated duration of construction is 30 days.

### **Environmental**

The nearest wetland from the project limit of disturbance is approximately 15 feet to the west.

The compound expansion area is in a level area. No retaining wall would be necessary to support side slopes.

No substantial adverse environmental or visual impact is expected from the proposed installation.

### **Conclusion**

If approved, staff recommends the following conditions:

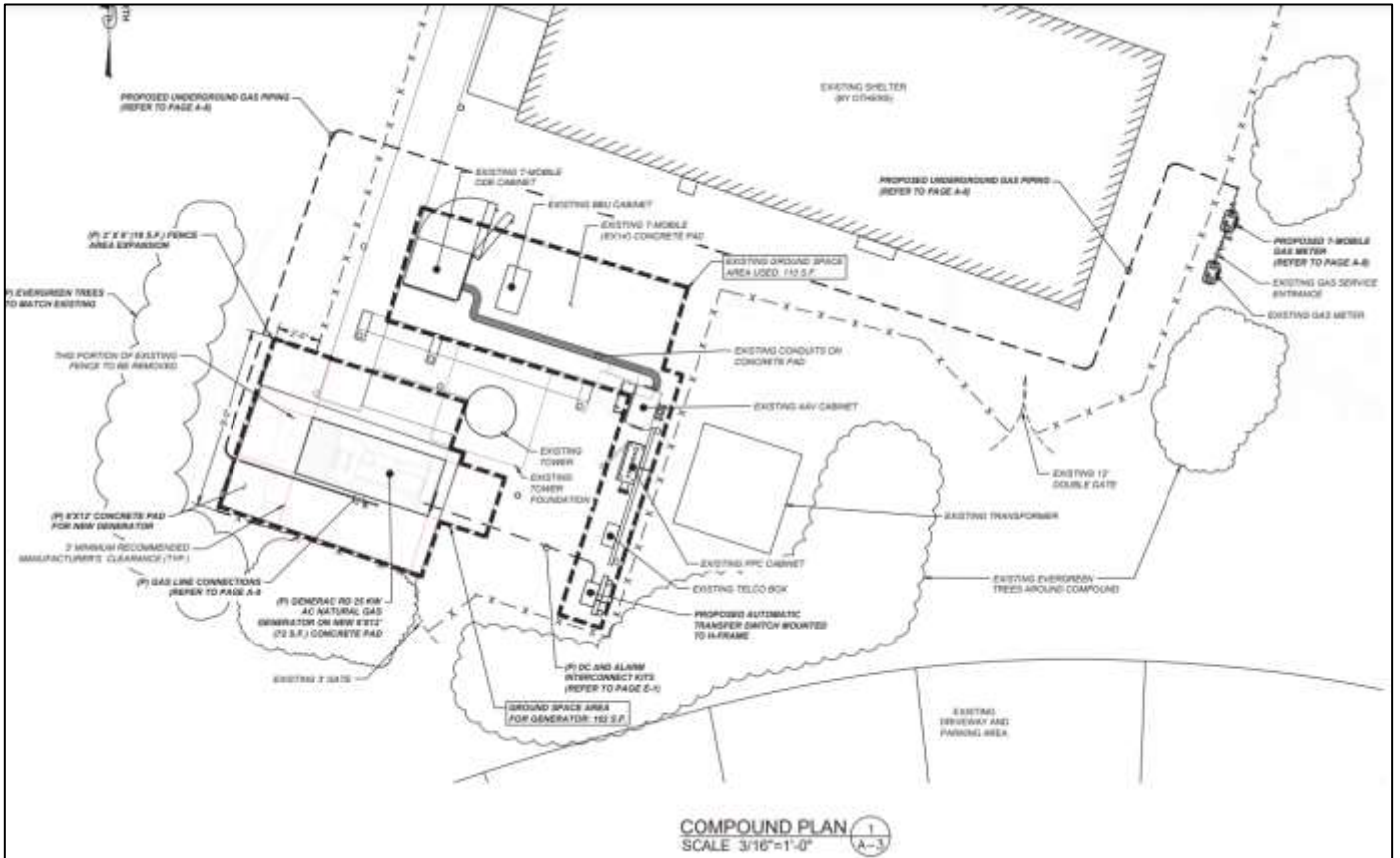
1. Approval of any project changes be delegated to Council staff; and
2. Establish erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control during construction.



Proposed Generator Location



## Site Plan







Please Reply To:  
Sam Simons  
35 Griffin Road South  
Bloomfield, CT 06002  
203-482-5156  
[Sam.Simons@T-Mobile.com](mailto:Sam.Simons@T-Mobile.com)

August 4, 2017

Attorney Melanie Bachman  
Acting Executive Director  
Connecticut Siting Council Ten  
Franklin Square  
New Britain, CT 06501

**EM-T-MOBILE-128-170426**  
T-Mobile Site ID CTHA152A  
344 Firetown Road, Simsbury CT  
Notice of Construction Completion

Dear Attorney Bachman:

The Connecticut Siting Council ("Council") acknowledged the above referenced T-Mobile Northeast LLC ("T-Mobile") notice of exempt modification on May 15, 2017. T-Mobile hereby notifies the Council that construction of the acknowledged modifications were complete as of August 2, 2017.

Please don't hesitate to contact me with any questions.

Sincerely,

Samuel Simons, Engineering Development - Connecticut

cc: Mark Richard, Engineering and Operations

# **EXHIBIT C**

**Property Card**

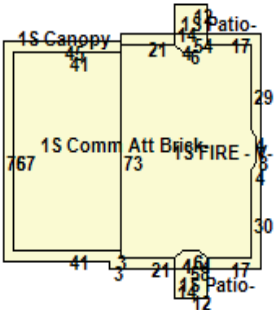
Location:		344 FIRETOWN ROAD		Map Id:	F05 302 001		Zone:	R-40		Date Printed:	11/20/2024				
				Neighborhood:		0215				Last Update:		11/20/2024			
Owner Of Record					Volume/Page		Date		Sales Type			Valid		Sale Price	
SIMSBURY FIRE DISTRICT					0142/0236		5/3/1963					No		0	
869 HOPMEADOW STREET, SIMSBURY, CT 06070							Exempt								
Prior Owner History															
Permit Number		Date		Permit Description											
B-22-0686		8/25/2022		Replace (3) existing antenna it (3) new antenna. Install (3) new RRU and (1) new hybrid. Remove (3)											
E-22-0058-1		4/18/2022		Installing a 25 Kw AC natural gas generator on concrete pad for T-Mobile's wireless cell site plan											
E-22-0058		4/18/2022		Installing a 25 Kw AC natural gas generator on concrete pad for T-Mobile's wireless cell site plan											
B-21-1781		8/18/2021		Verizon Wireless proposes to upgrade its equipment on the existing 80'?? monopoletower owned by the											
B-17-286		5/24/2017		ADD 3 NEW ANTENNA WITH MOUNTS TO EXISTING TOWER; 1 NEW BATTERY BACK-UP CABINET TO EXISTING PLATFORM											
P-16-13		1/19/2016		New gas pipe from meter to existing (2002) generator											
Supplemental Data									Appraised Value						
Census/Tract		4662010		I&E Status					Total Land Value		212,800				
Dev Map ID				Chimneys					Total Building Value		1,202,900				
GIS ID				Cross Boarder Pro					Total Outbidg Value		23,600				
Route				In Home Business					Total Market Value		1,439,300				
District				Conversion Review											
Utilities															
Acres						State Item Codes									
Land Type		Acres		490		Total Value		Code		Quantity		Value			
Primary Site		1.29		0.00		212,800		22-Commercial Building		1.00		842,030			
								21-Commercial Land		1.29		148,960			
								25-Com Outbuilding		1.00		16,520			
Total		1.2900		0.00		212,800									
Assessment History (Prior Years as of Oct 1)						490 Appraised Totals									
2024		2023		2022		2021		2020		Type		Acres		Value	
Land		148,960		148,960		148,960		138,160		138,160					
Building		842,030		842,030		842,030		672,910		672,910					
Outbuilding		16,520		16,520		16,520		15,050		15,050					
Total		1,007,510		1,007,510		1,007,510		826,120		826,120		Totals		0.00 0	
Application Date:										Expiration Date:					
Comments															
9/30/2007 LIGHTED 4FT CANOPY AROUND BLDG; FOUR OVERHEAD DOORS;															

Location:

344 FIRETOWN ROAD

Unit

Commercial Building Description		Description	Area/Qty	
Building Use	Public Use	Base Value	3618	
Class	Masonry and Wood Frame	Central Air	3618	
Overall Condition	Good	Wet Sprinklers	3618	
Construction Quality	Good			
Stories	1.00			
Year Built	2002			
Remodel				
Percent Complete	100			
GLA	3618			
Basement				
Basement Area	0			
HVAC				
Heating Type	Hot Water	Attached Component Computations		
Fuel Type	Gas			
Cooling Type	Central			
Interior				
Floors	Hardwood	Type	Yr Blt	Area/Qty
Walls	Drv Wall	Comm Concrete/Masonry P	2002	195
Wall Height		Canopy Canopy	2002	1396
		Comm Concrete/Masonry P	2002	195
		Comm Att Rubble/Brick Gar	2002	2747
Exterior				
Exterior Walls	B. V. Solid			
Roof Type	Asphalt			
Roof Cover				
Special Features				
Extra Plumbing Fixtures	10			
Wet Sprinklers	3618			
TypeYearCondition				
Paving	Paving	2002	Good	



Detached Component Computations							
Type	Year	Condition	Area/Qty	Type	Year	Condition	Area/Qty
Paving Paving	2002	Good	8400				

# **EXHIBIT D**

## **Construction Drawings**

SITE NAME: HA152/FIRETOWNFIRES\_MP

344 FIRETOWN ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

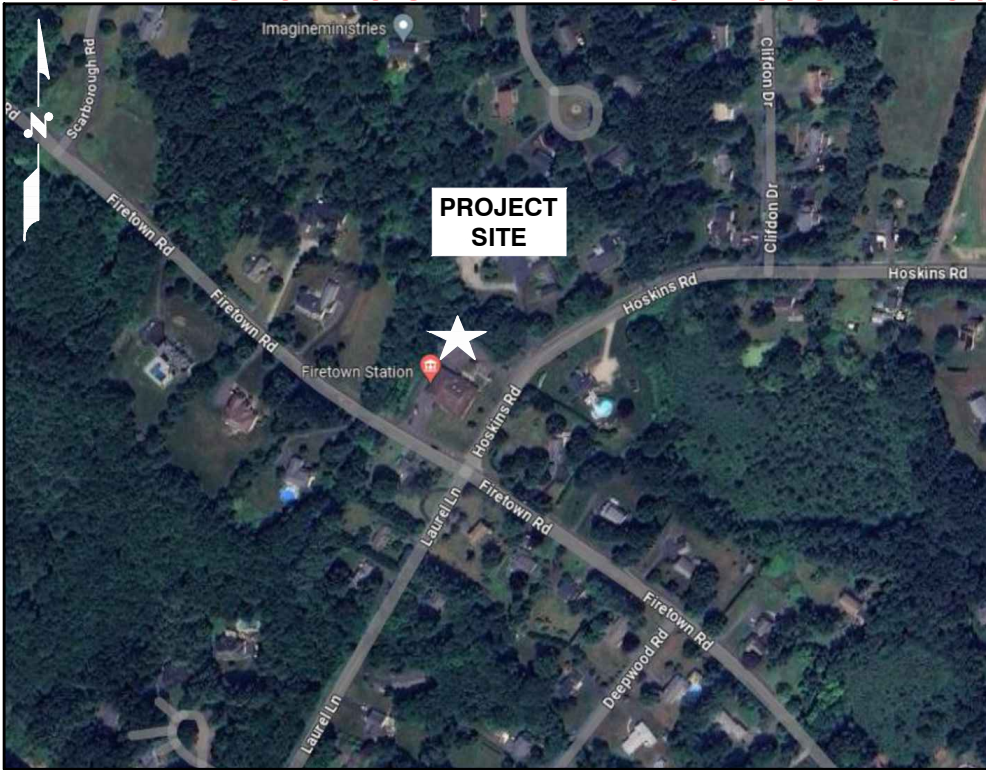
SITE NUMBER: CTHA152A  
RADIO/EQUIPMENT UPGRADE  
SITE CLASS: MONOPOLE  
RF DESIGN GUIDELINE: 67E998E 6160

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.



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

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

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:	344 FIRETOWN ROAD SIMSBURY, CT 06070
LATITUDE:	41° 54' 11.50" N / 41.894706° N
LONGITUDE:	72° 49' 16.84" W / -72.826531° 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 (6) LINES OF 7/8" COAX	- INSTALL (1) 6160 EQUIPMENT CABINET
- REMOVE (1) HYBRID CABLE	- INSTALL (1) B160 BATTERY CABINET
- REMOVE (1) 6201 ODE CABINET	- INSTALL (1) NEW SLACK BOX
	- INSTALL (2) NEW 6x24 HYBRIDS

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

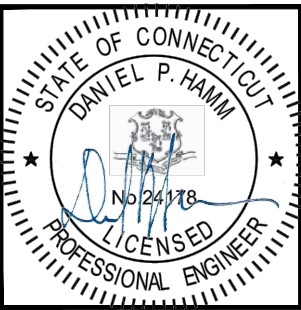


CENTERLINE

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	AKP
0	08/26/24	ISSUED FOR REVIEW	AKP

SITE NUMBER:

CTHA152A

SITE NAME:

HA152/FIRETOWNFIRES\_MP

SITE ADDRESS:

344 FIRETOWN 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.

T-MOBILE  
NORTHEAST LLC

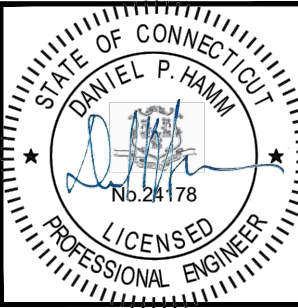
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



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	AKP
0	08/26/24	ISSUED FOR REVIEW	AKP

SITE NUMBER:

CTHA152A

SITE NAME:

HA152/FIRETOWNFIRES\_MP

SITE ADDRESS:

344 FIRETOWN ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

GENERAL NOTES

(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER

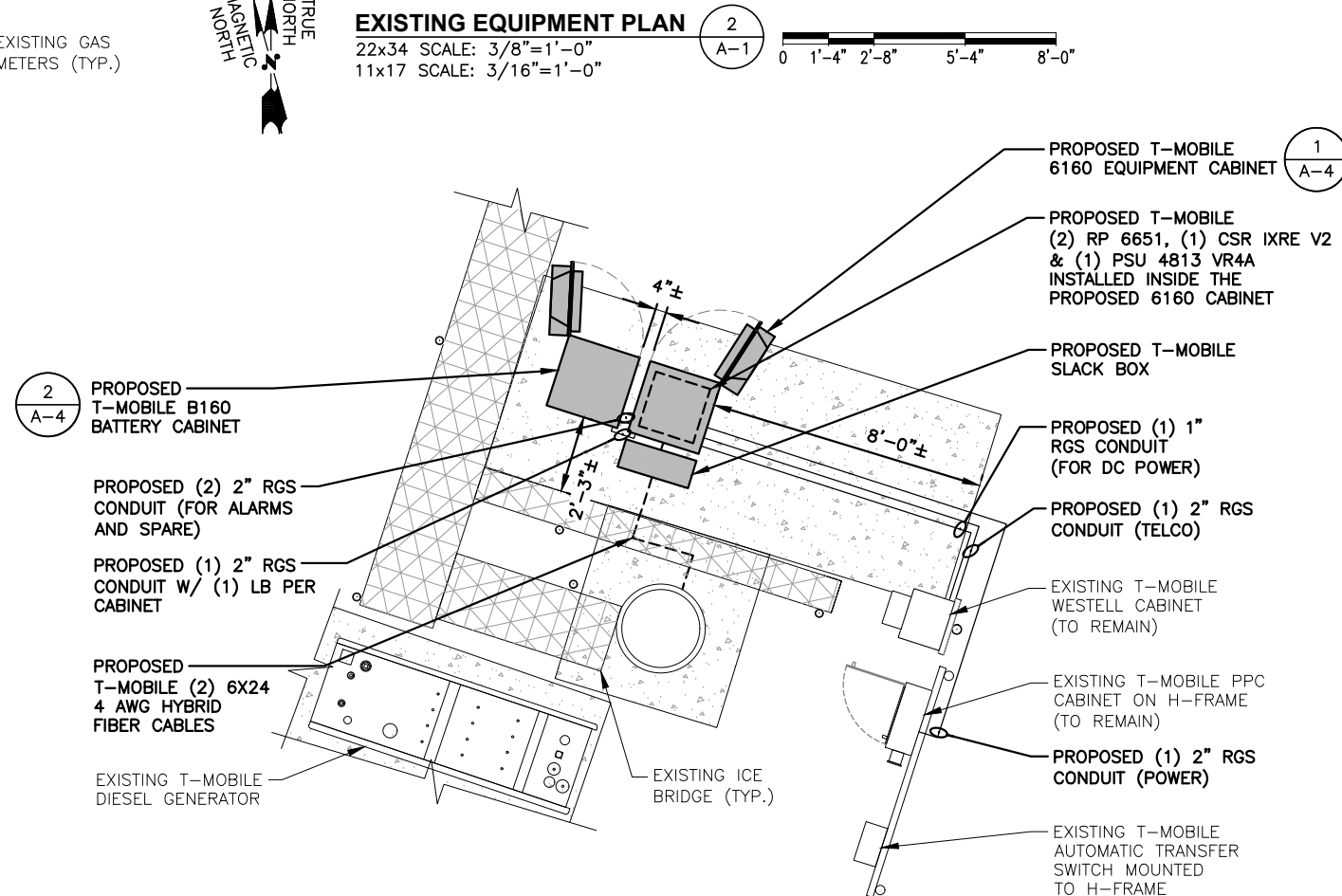
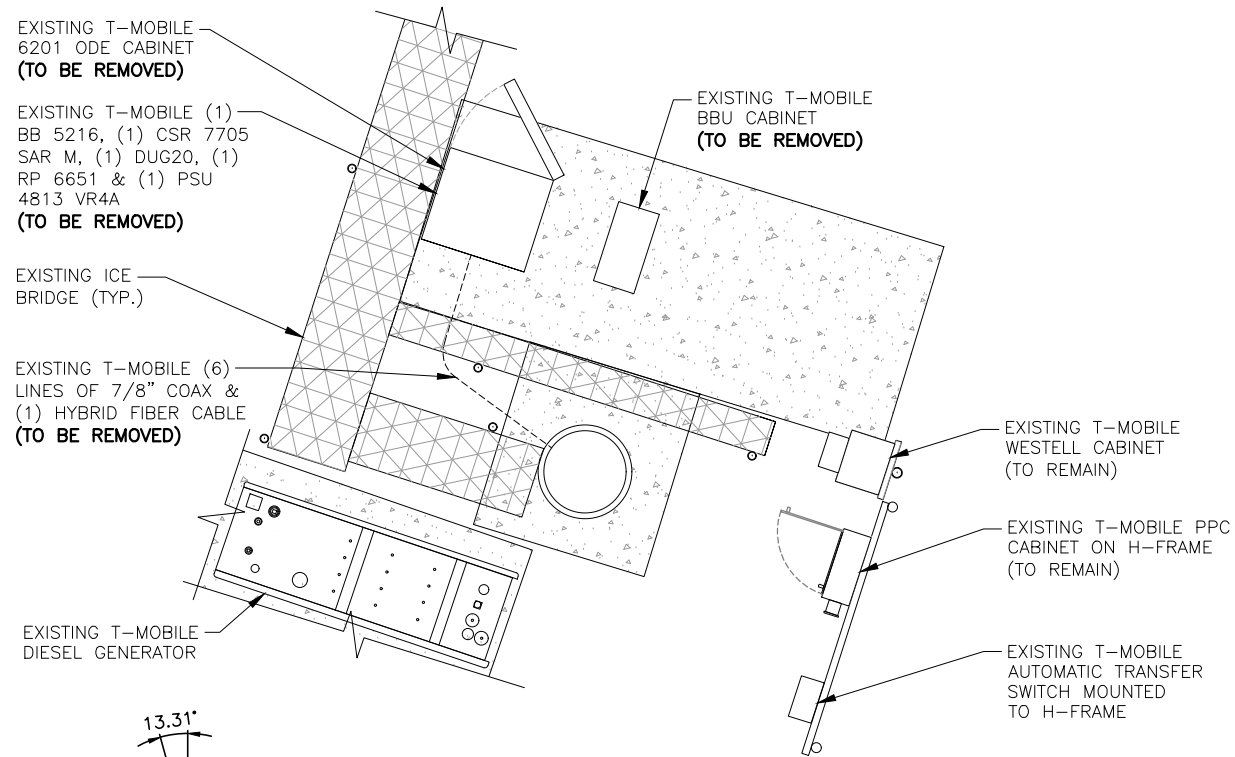
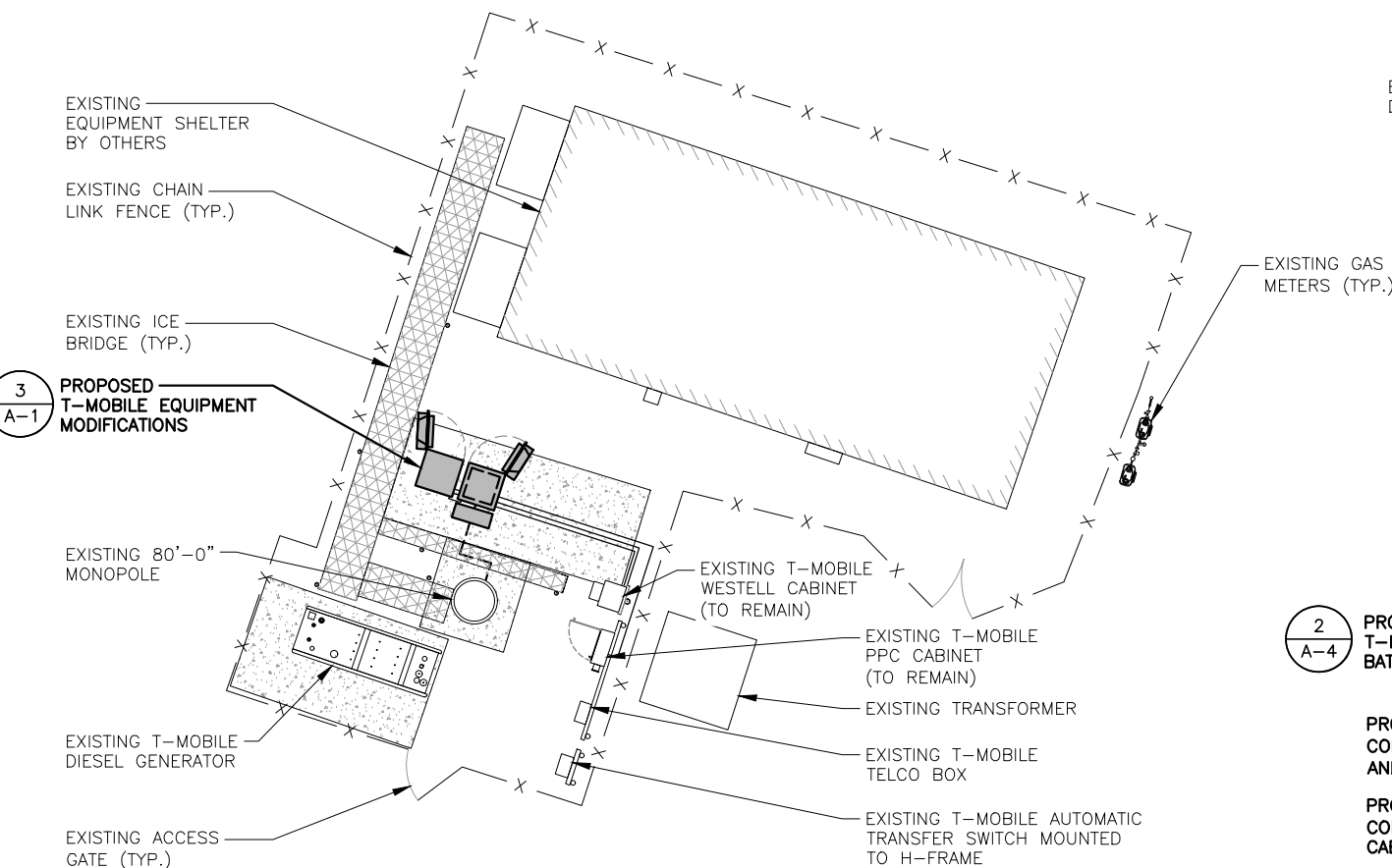
GN-1

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		

**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.



## T-MOBILE NORTHEAST LLC

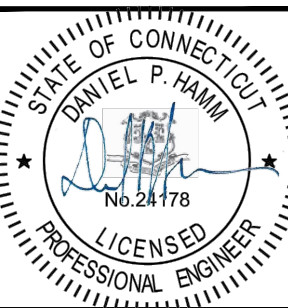
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



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	AKP
0	08/26/24	ISSUED FOR REVIEW	AKP

SITE NUMBER:

CTHA152A

SITE NAME:

HA152/FIRETOWNFIRES\_MP

SITE ADDRESS:

344 FIRETOWN ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

COMPOUND &  
EQUIPMENT PLANS  
(RADIO/EQUIPMENT UPGRADE)

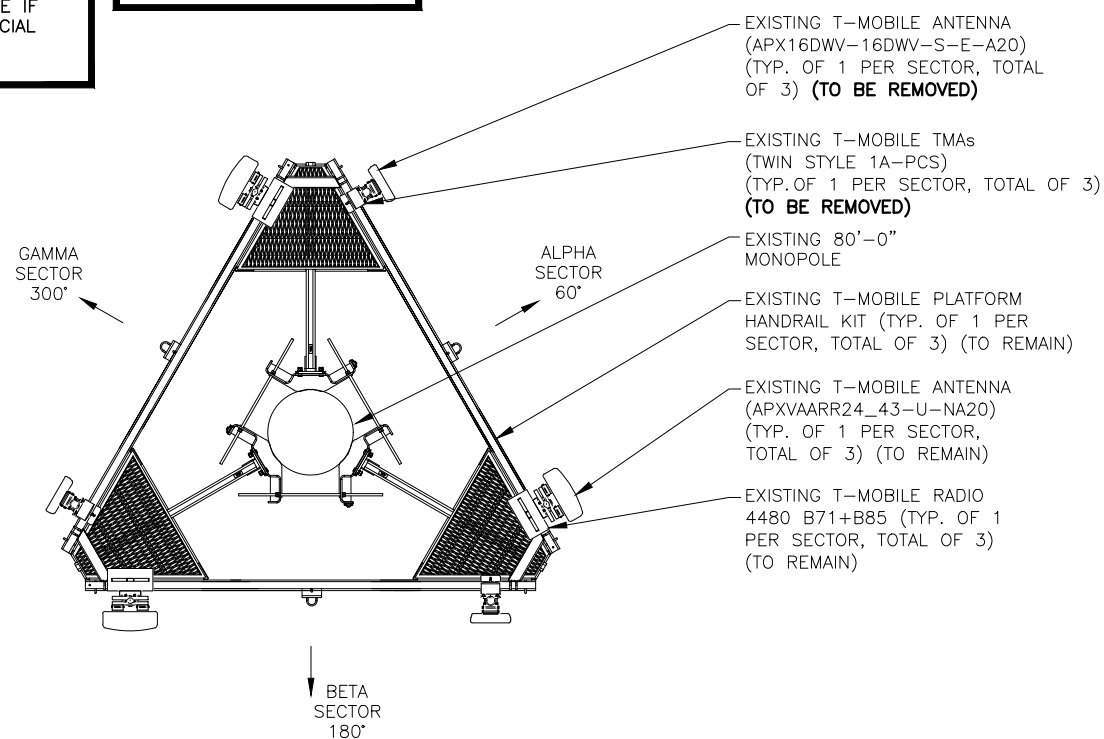
SHEET NUMBER

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.

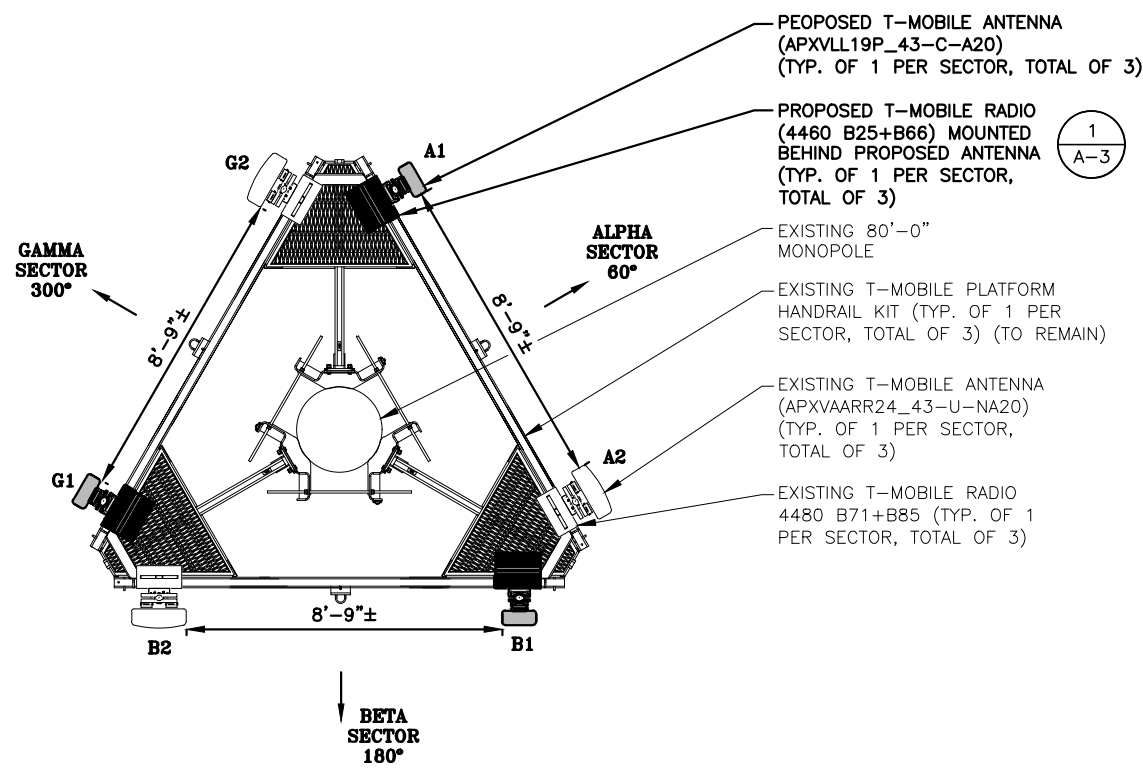
**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



**EXISTING ANTENNA PLAN**

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

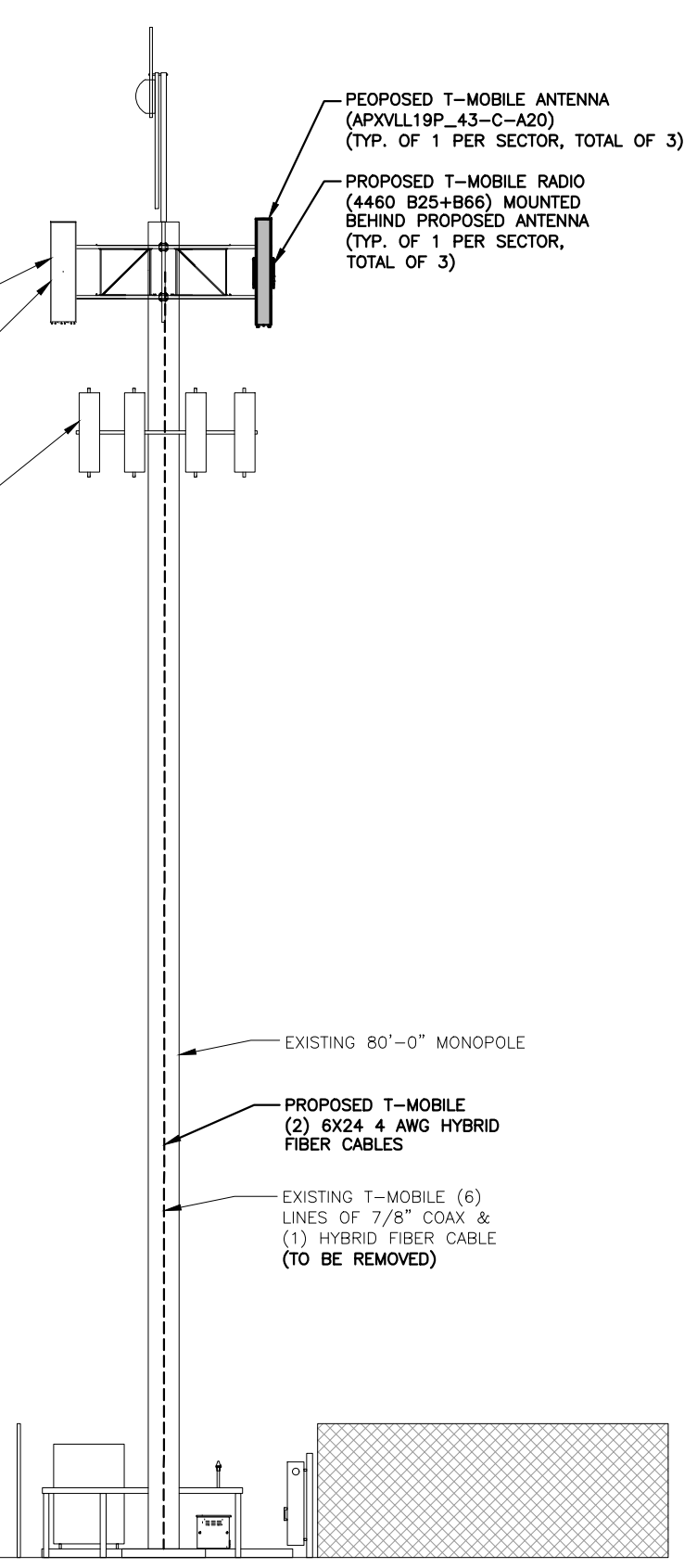
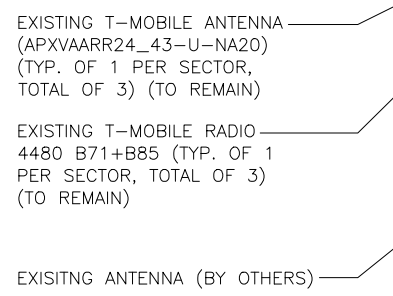
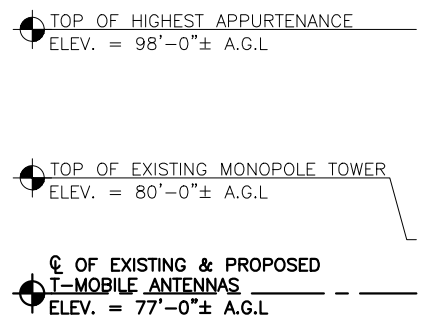
1  
A-2



**PROPOSED ANTENNA PLAN**

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

2  
A-2



**ELEVATION**

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

3  
A-2



**T-MOBILE  
NORTHEAST LLC**

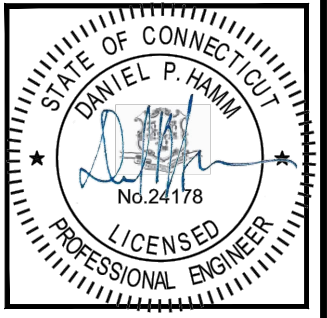
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



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	AKP
0	08/26/24	ISSUED FOR REVIEW	AKP

SITE NUMBER:

CTHA152A

SITE NAME:

HA152/FIRETOWNFIRES\_MP

SITE ADDRESS:

344 FIRETOWN 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	60°	-	-	77'-0"±	(1) (P) RADIO 4460 B25+B66	(2) (P) 6X24 #4AWG HYBRID FIBER CABLES	100'±
A-2	APXVAALL24_43-U-NA20	L700+N600	60°	-	-	77'-0"±	(1) (E) RADIO 4480 B71+B85		
B-1	APXVLL19P_43-C-A20	L2100+N1900+L1900	180°	-	-	77'-0"±	(1) (P) RADIO 4460 B25+B66		
B-2	APXVAALL24_43-U-NA20	L700+N600	180°	-	-	77'-0"±	(1) (E) RADIO 4480 B71+B85		
C-1	APXVLL19P_43-C-A20	L2100+N1900+L1900	300°	-	-	77'-0"±	(1) (P) RADIO 4460 B25+B66		
C-2	APXVAALL24_43-U-NA20	L700+N600	300°	-	-	77'-0"±	(1) (E) RADIO 4480 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**

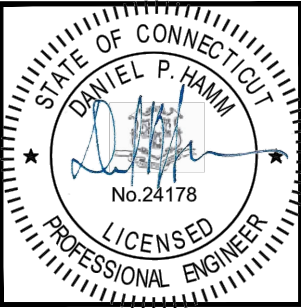
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



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
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0	08/26/24	ISSUED FOR REVIEW	AKP

SITE NUMBER:

CTHA152A

SITE NAME:

HA152/FIRETOWNFIRES\_MP

SITE ADDRESS:

344 FIRETOWN ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

SHEET TITLE

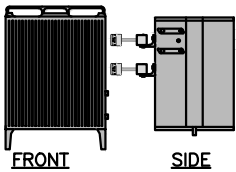
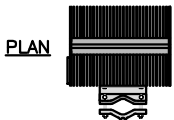
**TOWER EQUIPMENT  
DETAILS**

(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER

**A-3**

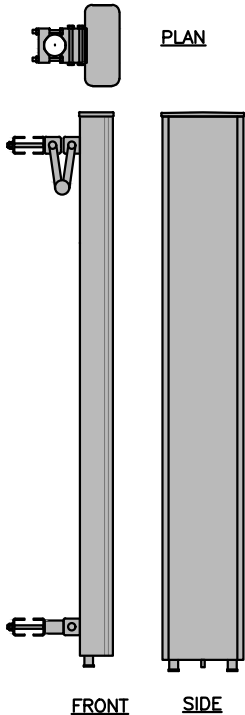
RADIO 4460 B25+B66 DIMENSIONS	
MODEL #	RADIO 4460 B25+B66
MANUF.	ERICSSON
HEIGHT	17.0"
WIDTH	15.1"
DEPTH	11.9"
WEIGHT	104 LBS



**RADIO DETAIL**  
SCALE: N.T.S

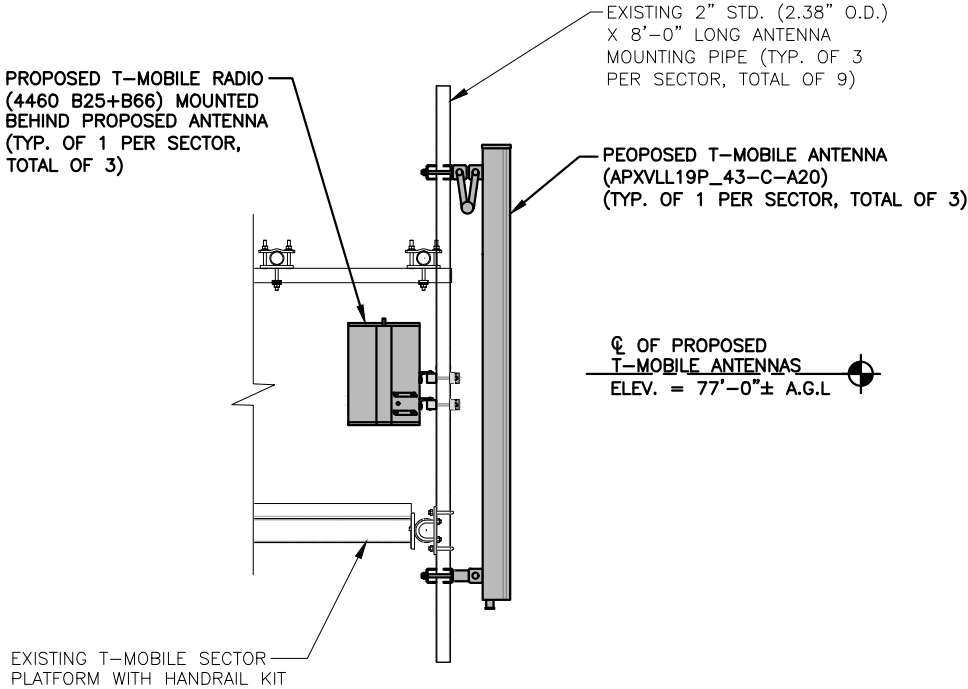
1  
A-3

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



**L2100+G1900+N1900+L1900 ANTENNA DETAIL**  
SCALE: N.T.S

2  
A-3



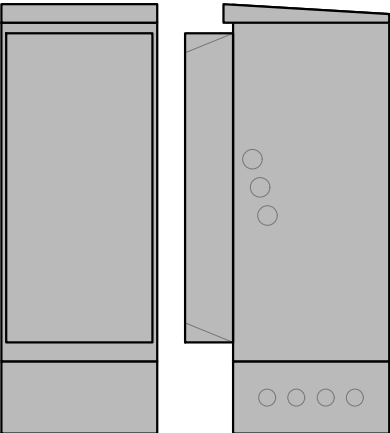
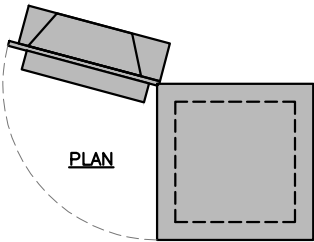
**PROPOSED N1900+L2100+G1900+N1900  
ANTENNA MOUNTING DETAIL**

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

3  
A-3

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



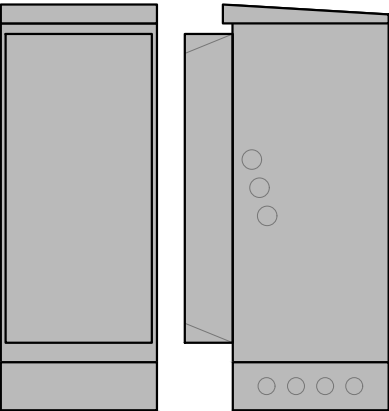
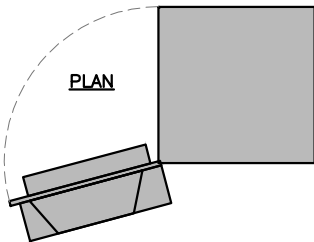
FRONT

SIDE

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)	



FRONT

SIDE

BATTERY CABINET DETAIL  
SCALE: N.T.S

2  
A-4

T-MOBILE  
NORTHEAST LLC

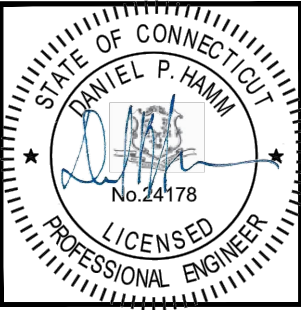
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 648-1116



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	AKP
0	08/26/24	ISSUED FOR REVIEW	AKP

SITE NUMBER:

CTHA152A

SITE NAME:

HA152/FIRETOWNFIRES\_MP

SITE ADDRESS:

344 FIRETOWN 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 KWI-K 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.

**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.

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

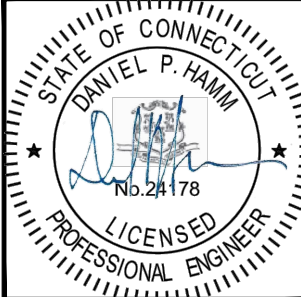
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 CENTERLINE

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45 BEECHWOOD DR.  
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CHECKED BY:

AT

APPROVED BY:

DPH

SUBMITTALS

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

SITE NUMBER:

CTHA152A

SITE NAME:

HA152/FIRETOWNFIRES\_MF

SITE ADDRESS:

344 FIRETOWN ROAD  
SIMSBURY, CT 06070  
HARTFORD COUNTY

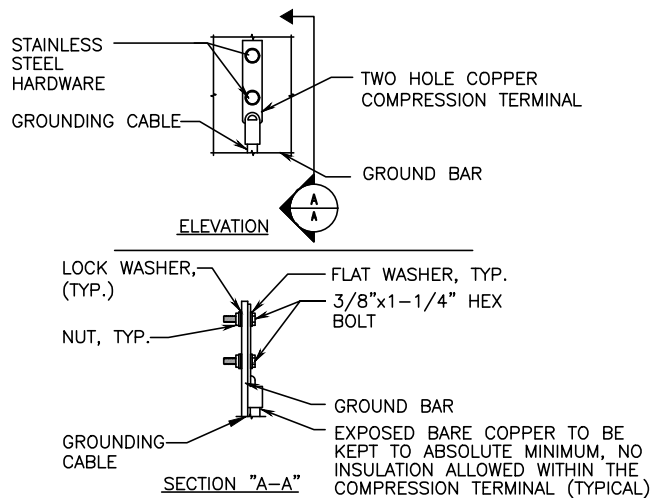
SHEET TITLE

SPECIAL  
INSPECTIONS NOTES  
(RADIO/EQUIPMENT UPGRADE)

SHEET NUMBER

SN-1



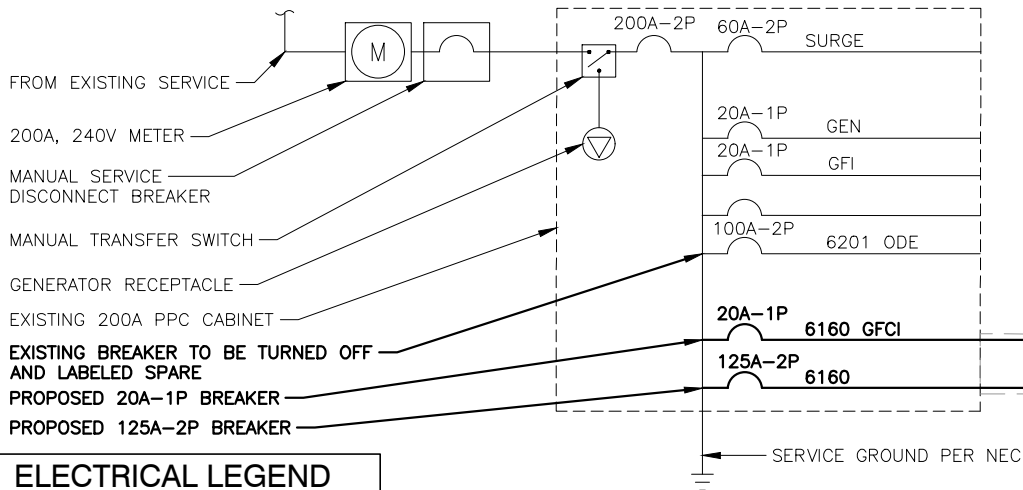


- NOTES:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
  2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
  3. CADWELD DOWNLEADS FROM UPPER AGB/EGB, LOWER EGB, AND MGB.

**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**

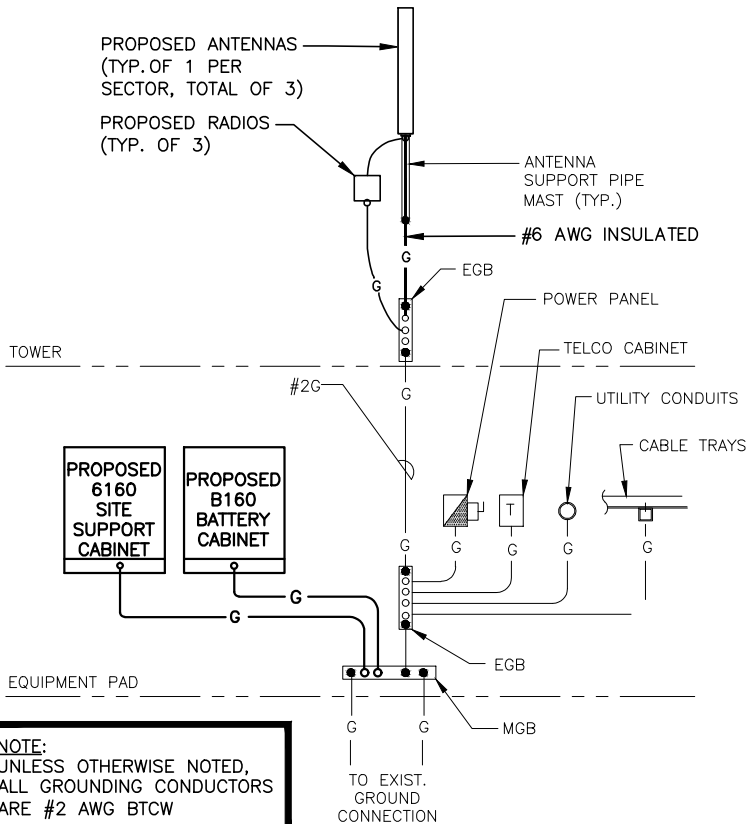
A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTWC	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
MGB	GROUND
AGB/EGB	MASTER GROUND BAR
MECHANICAL CONNECTION	MECHANICAL CONNECTION
CADWELD CONNECTION	CADWELD CONNECTION
EQUIPMENT GROUND BAR/ANTENNA 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" X 8" COPPER CLAD STAINLESS STEEL GROUND ROD	5/8" X 8" 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**

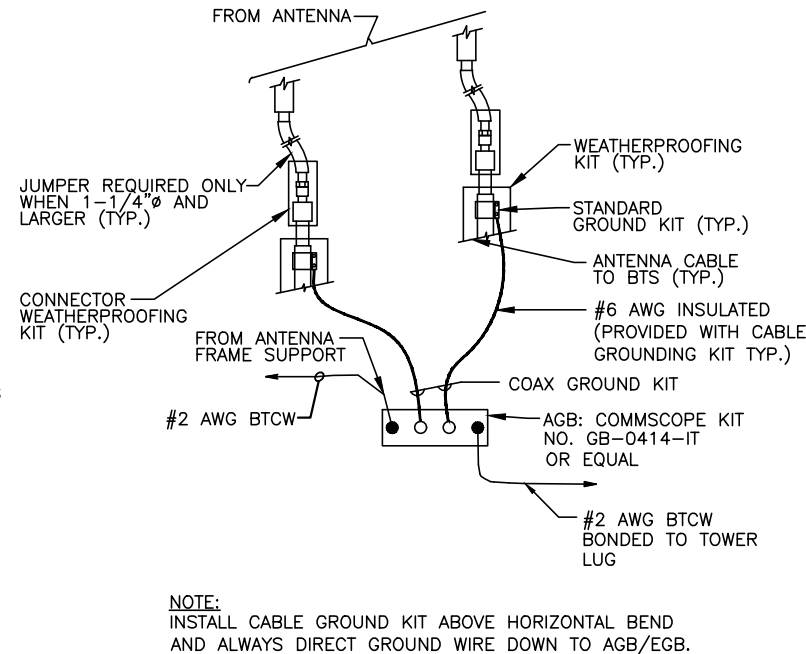
1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED 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.



**NOTE:**  
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW

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

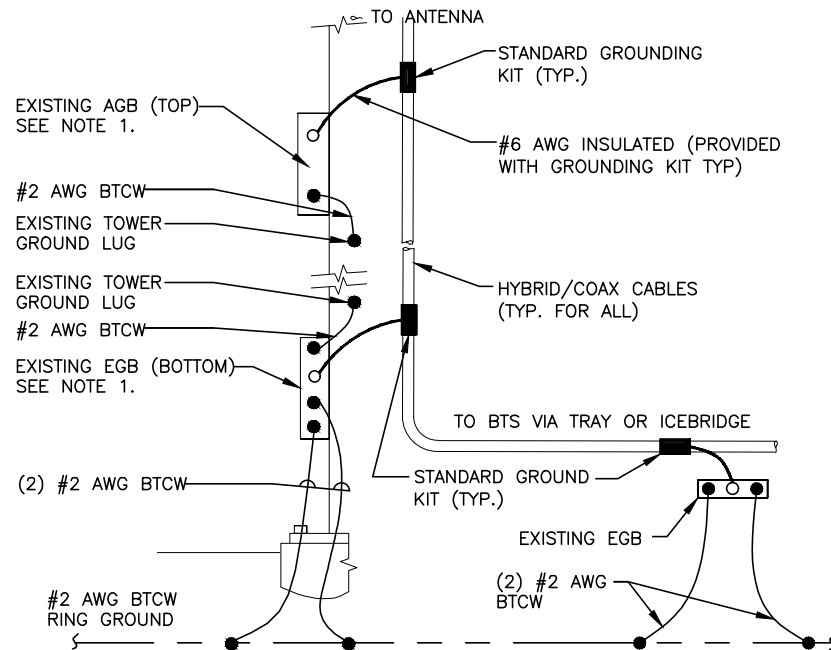
2  
E-1



**NOTE:**  
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB.

**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**

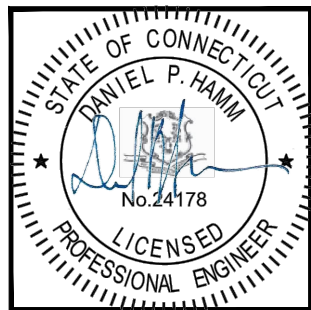
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CHECKED BY: AT

APPROVED BY: DPH

**SUBMITTALS**

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

SITE NUMBER:

CTHA152A

SITE NAME:

HA152/FIRETOWNFIRES\_MLP

SITE ADDRESS:

344 FIRETOWN 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



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*  
**Carrier Site Number:** CTHA152A  
**Carrier Site Name:** HA152/ Firetownfires\_MP

**Engineering Firm Designation:** **TEP Project Number:** 315229.1005096

**Site Data:** **344 Firetown Road, Simsbury, Hartford County, CT 06070**  
**Latitude 41° 54' 11.50", Longitude -72° 49' 16.84"**  
**80 ± Foot - Monopole Tower**

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 tower stress level for the structure and foundation, 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
80.8%	72.7%

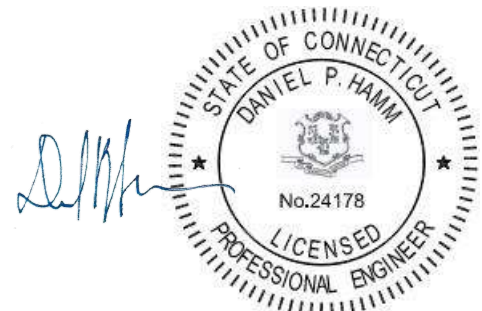
This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the International Building Code 2021 with 2022 Connecticut State Building Code.

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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tnxTower Output

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## 1) INTRODUCTION

The tower is a 80-ft Monopole and based on a previous Tower Structural Analysis Report prepared by Destek Engineering LLC dated March 17, 2017. 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 C, 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>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	120 mph
<b>Exposure Category:</b>	C
<b>Topographic Category:</b>	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>	0.173
<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	91.6	96.2	1	Unknown OMNI 2.9"Øx6'-0"	Pipe Mount	3	1-1/8	Inside	unknown
		92.3	1	Covered FM Bay					
		90.3	1	Covered FM Bay					
Existing	91.0	94.0	1	Unknown DISH 2'-0"Ø	Pipe Mount	1	3/8	Inside	unknown
Existing	81.5	80.8	1	Unknown OMNI 3"Øx8'-0"	Direct	1	5/8	Inside	unknown
<b>Proposed</b>	<b>77.0</b>	<b>77.0</b>	<b>3</b>	<b>Amphenol APXVLL19P_43-C-A20</b>	Platform Mount	<b>2</b>	<b>6x24 AWG</b>	<b>Inside</b>	<b>T-Mobile</b>
			<b>3</b>	<b>Ericsson 4460 B25/B66</b>					
Existing	77.0	77.0	3	Amphenol APXVAALL24_43-U-NA20		-	-	-	T-Mobile
			3	Ericsson 4480 B71/B85					
<i>To Be Removed</i>	77.0	77.0	3	<i>Amphenol APX16DW-16DWV-S-E-A20</i>	-	6 1	7/8 Coax Hybrid	Inside	T-Mobile
			3	<i>Generic Twin Style 1A-PCS</i>					
Existing	65.7	65.7	3	Anatel 1916-09-5344	Platform Mount	2	1 1/2	Inside	Verizon
			6	Commscope NHH-65B-R2B					
			3	Samsung C-BAND					
			6	Samsung RRH					

### 3) ANALYSIS PROCEDURE

**Table 2 - Documents Provided**

Document	Remarks	Source
Previous Structural Analysis	Destek Engineering, LLC, dated March 17, 2017 Destek Job No. 1775015	CCO
Foundation Mapping Report	TEP OPCO, LLC, dated August 30, 2022 TEP No. 315229.725944	TEP
Tower Mapping Report	TEP OPCO, LLC, dated August 30, 2022 TEP No. 315229.725946	TEP
Geotechnical Report	TEP OPCO, LLC, dated August 24, 2022 TEP No. 315229.725945	TEP
Mount Analysis	TEP OPCO, LLC, dated September 20, 2024 TEP No. 315229.981472	TEP
Construction Drawings	TEP OPCO, LLC, dated September 23, 2024 TEP No. 315229. 981471	TEP

#### 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) 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 analyze antennas supporting mounts as part of this structural analysis report.
- 7) The following material grades were assumed:
  - a) Base Plate: ASTM A572-60

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)**

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	øP <sub>allow</sub> (lb)	% Capacity	Pass / Fail
L1	80 - 41.5	Pole	TP27.7x22x0.188	1	-9373.680	986792.062	55.8	Pass
L2	41.5 - 0	Pole	TP33.47x26.807x0.25	2	-15249.100	1619162.875	80.8	Pass
							Summary	
						Pole (L2)	80.8	Pass
						<b>RATING =</b>	<b>80.8</b>	<b>Pass</b>

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

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	60.1	Pass
1,2	Base Plate	-	68.7	Pass
1,2	Base Foundation Soil Interaction	-	72.7	Pass
1,2	Base Foundation Structural	-	50.3	Pass

<b>Structure Rating (max from all components) =</b>	<b>80.8%</b>
---	--------------

Notes:

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

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

Elevation (ft)	Dish Model	Beam Deflection		
		Deflection (in)	Tilt (deg)	Twist (deg)
94.0	2.0' Dish	10.006	0.965	0.001

##### 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**  
**TNXTOWER OUTPUT**



Tower Input Data	
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Options	
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### Tapered Pole Section Geometry

Tapered Pole Properties	
-------------------------	--

[illegible]

## 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>p</sub> A <sub>t</sub> ft <sup>2</sup> /ft	Weight plf
*****								
1.2" Hybrid Cable	C	No	No	Inside Pole	80.000 - 1.500	1	No Ice	0.000
							1/2" Ice	0.000
							1" Ice	0.000
							2" Ice	0.000
1.2" Hybrid Cable	C	No	No	Inside Pole	80.000 - 1.500	1	No Ice	0.000
							1/2" Ice	0.000
							1" Ice	0.000
							2" Ice	0.000

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement  ft	Total Number	C <sub>s</sub> A <sub>s</sub>  ft²/ft	Weight  plf
1.2" Hybrid Cable	C	No	No	Inside Pole	80.000 - 1.500	1	2" Ice	0.000
							No Ice	0.000
							1/2" Ice	0.000
							1" Ice	0.000
							2" Ice	0.000
5/8" dia. coax	C	No	No	Inside Pole	80.000 - 1.500	1	No Ice	0.000
							1/2" Ice	0.000
							1" Ice	0.000
							2" Ice	0.000
							No Ice	0.000
3/8" Coax	C	No	No	Inside Pole	80.000 - 1.500	1	No Ice	0.000
							1/2" Ice	0.000
							1" Ice	0.000
							2" Ice	0.000
							No Ice	0.000
FDH1204-48SE2-10 0M (6x24)	C	No	No	Inside Pole	77.000 - 1.500	2	No Ice	0.000
							1/2" Ice	0.000
							1" Ice	0.000
							2" Ice	0.000
							No Ice	0.000
1.5" Hybrid	C	No	No	Inside Pole	65.750 - 1.500	2	No Ice	0.000
							1/2" Ice	0.000
							1" Ice	0.000
							2" Ice	0.000
							No Ice	0.000
*****								

### Feed Line/Linear Appurtenances Section Areas

<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face</i>	<i>A<sub>R</sub></i>	<i>A<sub>F</sub></i>	<i>C<sub>s</sub>A<sub>s</sub> In Face ft<sup>2</sup></i>	<i>C<sub>s</sub>A<sub>s</sub> Out Face ft<sup>2</sup></i>	<i>Weight lb</i>
L1	80.000-41.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	2.791	0.000	433.190
L2	41.500-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	2.139	0.000	495.257

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

<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face or Leg</i>	<i>Ice Thickness in</i>	<i>A<sub>R</sub></i>	<i>A<sub>F</sub></i>	<i>C<sub>s</sub>A<sub>s</sub> In Face ft<sup>2</sup></i>	<i>C<sub>s</sub>A<sub>s</sub> Out Face ft<sup>2</sup></i>	<i>Weight lb</i>
L1	80.000-41.500	A	1.354	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	23.648	0.000	651.918
L2	41.500-0.000	A	1.218	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	18.120	0.000	662.854

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### Feed Line Center of Pressure

<i>Section</i>	<i>Elevation ft</i>	<i>CP<sub>x</sub> in</i>	<i>CP<sub>z</sub> in</i>	<i>CP<sub>x</sub> Ice in</i>	<i>CP<sub>z</sub> Ice in</i>
L1	80.000-41.500	0.000	0.352	0.000	2.273
L2	41.500-0.000	0.000	0.246	0.000	1.733

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

### Shielding Factor Ka

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K<sub>a</sub> No Ice</i>	<i>K<sub>s</sub> Ice</i>
L1	1	Step Pegs (5/8" SR) 7-in. w/30" step	41.50 - 80.00	1.0000	1.0000
L1	2	Safety Line 3/8	41.50 - 80.00	1.0000	1.0000
L2	1	Step Pegs (5/8" SR) 7-in. w/30" step	12.00 - 41.50	1.0000	1.0000
L2	2	Safety Line 3/8	12.00 - 41.50	1.0000	1.0000

### Discrete Tower Loads

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horiz Lateral ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C<sub>s</sub>A<sub>s</sub> Front ft<sup>2</sup></i>	<i>C<sub>s</sub>A<sub>s</sub> Side ft<sup>2</sup></i>	<i>Weight lb</i>
*****								
4.5" Dia x 18-ft Pipe	C	None		0.000	85.000	No Ice	7.091	216.000
						1/2" Ice	11.046	277.856
						1" Ice	13.108	352.541
						2" Ice	17.283	541.006
2.5-ft x 6" Dia. Omni	A	From Leg	0.500	0.000	91.660	No Ice	0.805	15.000
						1/2" Ice	1.202	26.836
						1" Ice	1.396	41.064
						2" Ice	1.811	77.308
2.9" x 12'-6" Mount Pipe	A	From Leg	0.500	0.000	91.660	No Ice	3.594	72.500
						1/2" Ice	4.876	98.653
						1" Ice	6.175	132.887
						2" Ice	8.398	226.211
FM Antenna	A	From Leg	0.500	0.000	92.375	No Ice	3.500	25.000
						1/2" Ice	5.216	98.635
						1" Ice	5.542	177.105
FM Antenna	A	From Leg	0.500	0.000	90.375	2" Ice	6.222	349.166
						No Ice	3.500	25.000
						1/2" Ice	5.216	98.635

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>1</sub> A <sub>1</sub> Front ft <sup>2</sup>	C <sub>2</sub> A <sub>2</sub> Side ft <sup>2</sup>	Weight lb
			0.000			1" Ice 5.542	5.542	177.105
2.9" Dia. x 6-ft Mount Pipe	C	From Leg	0.500	0.000	91.000	2" Ice 6.222	6.222	349.166
			0.000			No Ice 1.725	1.725	34.800
			0.000			1/2" Ice 2.088	2.088	47.552
			0.000			1" Ice 2.460	2.460	64.415
ODU	C	From Leg	0.500	0.000	91.000	2" Ice 3.230	3.230	111.083
			0.000			No Ice 1.064	0.443	13.200
			0.000			1/2" Ice 1.193	0.535	21.698
			3.000			1" Ice 1.330	0.635	32.159
8-ft x 3" Omni	C	From Leg	0.500	0.000	81.500	2" Ice 1.626	0.857	59.751
			0.000			No Ice 2.400	2.400	25.000
			0.000			1/2" Ice 3.188	3.188	42.511
			3.330			1" Ice 3.675	3.675	65.368
						2" Ice 4.676	4.676	127.727
*****77*****								
Platform Mount [LP 301-1]	C	None		0.000	77.000	No Ice 23.810	23.810	1588.500
						1/2" Ice 30.240	30.240	2099.170
						1" Ice 36.330	36.330	2728.320
						2" Ice 48.050	48.050	4339.430
APXVAALL24_43-U-NA20 w/ mount pipe	A	From Centroid-Lc g	4.000 -3.000 0.000	0.000	77.000	No Ice 20.245	11.033	169.120
						1/2" Ice 20.893	12.463	305.799
						1" Ice 21.548	13.555	454.110
						2" Ice 22.879	15.786	783.242
APXVAALL24_43-U-NA20 w/ mount pipe	B	From Centroid-Lc g	4.000 -3.000 0.000	0.000	77.000	No Ice 20.245	11.033	169.120
						1/2" Ice 20.893	12.463	305.799
						1" Ice 21.548	13.555	454.110
						2" Ice 22.879	15.786	783.242
APXVAALL24_43-U-NA20 w/ mount pipe	C	From Centroid-Lc g	4.000 -3.000 0.000	0.000	77.000	No Ice 20.245	11.033	169.120
						1/2" Ice 20.893	12.463	305.799
						1" Ice 21.548	13.555	454.110
						2" Ice 22.879	15.786	783.242
APXVLL19P_43-C-A20 w/ Mount Pipe	A	From Centroid-Lc g	4.000 3.000 0.000	0.000	77.000	No Ice 8.488	5.893	75.096
						1/2" Ice 9.065	7.114	138.161
						1" Ice 9.615	8.088	209.307
						2" Ice 10.723	9.964	379.590
APXVLL19P_43-C-A20 w/ Mount Pipe	B	From Centroid-Lc g	4.000 3.000 0.000	0.000	77.000	No Ice 8.488	5.893	75.096
						1/2" Ice 9.065	7.114	138.161
						1" Ice 9.615	8.088	209.307
						2" Ice 10.723	9.964	379.590
APXVLL19P_43-C-A20 w/ Mount Pipe	C	From Centroid-Lc g	4.000 3.000 0.000	0.000	77.000	No Ice 8.488	5.893	75.096
						1/2" Ice 9.065	7.114	138.161
						1" Ice 9.615	8.088	209.307
						2" Ice 10.723	9.964	379.590
RADIO 4480 B71+B85	A	From Centroid-Lc g	4.000 0.000 0.000	0.000	77.000	No Ice 2.852	1.383	93.000
						1/2" Ice 3.064	1.543	114.697
						1" Ice 3.284	1.710	139.505
						2" Ice 3.745	2.073	199.233
RADIO 4480 B71+B85	B	From Centroid-Lc g	4.000 0.000 0.000	0.000	77.000	No Ice 2.852	1.383	93.000
						1/2" Ice 3.064	1.543	114.697
						1" Ice 3.284	1.710	139.505
						2" Ice 3.745	2.073	199.233
RADIO 4480 B71+B85	C	From Centroid-Lc g	4.000 0.000 0.000	0.000	77.000	No Ice 2.852	1.383	93.000
						1/2" Ice 3.064	1.543	114.697
						1" Ice 3.284	1.710	139.505
						2" Ice 3.745	2.073	199.233
4460 B25/B66	A	From Centroid-Lc	4.000 0.000	0.000	77.000	No Ice 2.569	1.972	109.130
						1/2" Ice 2.768	2.151	134.526

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>1</sub> A <sub>1</sub> Front ft <sup>2</sup>	C <sub>2</sub> A <sub>2</sub> Side ft <sup>2</sup>	Weight lb
			g 0.000			1" Ice 2.976	2.338	163.190
4460 B25/B66	B	From Centroid-Lc g	4.000	0.000	77.000	2" Ice 3.413	2.734	231.097
			0.000			No Ice 2.569	1.972	109.130
			0.000			1/2" Ice 2.768	2.151	134.526
			0.000			1" Ice 2.976	2.338	163.190
4460 B25/B66	C	From Centroid-Lc g	4.000	0.000	77.000	2" Ice 3.413	2.734	231.097
			0.000			No Ice 2.569	1.972	109.130
			0.000			1/2" Ice 2.768	2.151	134.526
			0.000			1" Ice 2.976	2.338	163.190
*****65.75*****						2" Ice 3.413	2.734	231.097
Platform Mount [LP 301-1]	C	None		0.000	65.750	No Ice 23.810	23.810	1588.500
						1/2" Ice 30.240	30.240	2099.170
						1" Ice 36.330	36.330	2728.320
						2" Ice 48.050	48.050	4339.430
Panel Antenna	A	From Centroid-Fa cc	4.000 5.000 0.000	0.000	65.750	No Ice 5.540	5.020	45.130
						1/2" Ice 6.110	6.220	91.770
						1" Ice 6.680	7.420	138.410
						2" Ice 7.820	9.820	231.690
Panel Antenna	B	From Centroid-Fa cc	4.000 5.000 0.000	0.000	65.750	No Ice 5.540	5.020	45.130
						1/2" Ice 6.110	6.220	91.770
						1" Ice 6.680	7.420	138.410
						2" Ice 7.820	9.820	231.690
Panel Antenna	C	From Centroid-Fa cc	4.000 5.000 0.000	0.000	65.750	No Ice 5.540	5.020	45.130
						1/2" Ice 6.110	6.220	91.770
						1" Ice 6.680	7.420	138.410
						2" Ice 7.820	9.820	231.690
(2) NHH 65B-R2B	A	From Centroid-Fa cc	4.000 2.000 0.000	0.000	65.750	No Ice 8.182	5.422	43.651
						1/2" Ice 8.643	5.881	94.164
						1" Ice 9.111	6.347	150.829
						2" Ice 10.068	7.301	283.390
(2) NHH 65B-R2B	B	From Centroid-Fa cc	4.000 2.000 0.000	0.000	65.750	No Ice 8.182	5.422	43.651
						1/2" Ice 8.643	5.881	94.164
						1" Ice 9.111	6.347	150.829
						2" Ice 10.068	7.301	283.390
(2) NHH 65B-R2B	C	From Centroid-Fa cc	4.000 2.000 0.000	0.000	65.750	No Ice 8.182	5.422	43.651
						1/2" Ice 8.643	5.881	94.164
						1" Ice 9.111	6.347	150.829
						2" Ice 10.068	7.301	283.390
C-Band Antenna E	A	From Centroid-Fa cc	4.000 -5.000 0.000	0.000	65.750	No Ice 5.430	3.270	109.000
						1/2" Ice 5.970	3.990	154.170
						1" Ice 6.510	4.710	199.340
						2" Ice 7.590	6.150	289.680
C-Band Antenna E	B	From Centroid-Fa cc	4.000 -5.000 0.000	0.000	65.750	No Ice 5.430	3.270	109.000
						1/2" Ice 5.970	3.990	154.170
						1" Ice 6.510	4.710	199.340
						2" Ice 7.590	6.150	289.680
C-Band Antenna E	C	From Centroid-Fa cc	4.000 -5.000 0.000	0.000	65.750	No Ice 5.430	3.270	109.000
						1/2" Ice 5.970	3.990	154.170
						1" Ice 6.510	4.710	199.340
						2" Ice 7.590	6.150	289.680
RRH	A	From Centroid-Fa cc	4.000 2.000 0.000	0.000	65.750	No Ice 1.880	1.250	84.400
						1/2" Ice 2.050	1.390	102.740
						1" Ice 2.220	1.530	121.080
						2" Ice 2.560	1.810	157.760
RRH	B	From Centroid-Fa	4.000 2.000	0.000	65.750	No Ice 1.880	1.250	84.400
						1/2" Ice 2.050	1.390	102.740



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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>u</sub> A <sub>u</sub> Front ft <sup>2</sup>	C <sub>s</sub> A <sub>s</sub> Side ft <sup>2</sup>	Weight lb
RRH	C	From Centroid-Fa ce	ce	0.000	65.750	1" Ice	2.220	121.080
			4.000			2" Ice	2.560	157.760
			2.000			No Ice	1.880	84.400
			0.000			1/2" Ice	2.050	102.740
RRH	C	From Centroid-Fa ce	4.000	0.000	65.750	1" Ice	2.220	121.080
			-2.000			2" Ice	2.560	157.760
			0.000			No Ice	1.880	84.400
			0.000			1/2" Ice	2.050	102.740
RRH	C	From Centroid-Fa ce	4.000	0.000	65.750	1" Ice	2.220	121.080
			-2.000			2" Ice	2.560	157.760
			0.000			No Ice	1.880	84.400
			0.000			1/2" Ice	2.050	102.740
RRH	C	From Centroid-Fa ce	4.000	0.000	65.750	1" Ice	2.220	121.080
			-2.000			2" Ice	2.560	157.760
			0.000			No Ice	1.880	84.400
			0.000			1/2" Ice	2.050	102.740
RRFDC-3315-PF-48	A	From Leg	2.000	0.000	65.750	1" Ice	2.220	121.080
			0.000			2" Ice	2.560	157.760
			0.000			No Ice	3.364	21.400
			0.000			1/2" Ice	3.597	49.935
RRFDC-3315-PF-48	C	From Leg	2.000	0.000	65.750	1" Ice	3.838	82.012
			0.000			2" Ice	4.343	157.568
			0.000			No Ice	3.364	21.400
			0.000			1/2" Ice	3.597	49.935
*****			2.000			1" Ice	3.838	82.012
			0.000			2" Ice	4.343	157.568
			0.000			No Ice	3.364	21.400
			0.000			1/2" Ice	3.597	49.935

### Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft <sup>2</sup>	Weight lb
2.0' Dish	C	Paraboloid w/o Radome	From Leg	1.000	30.000		91.000	2.000	No Ice	3.142
				0.000					1/2" Ice	3.409
				0.000					1" Ice	3.676
				3.000					2" Ice	6.204

### 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

<b>tnxTower</b>  <b>TEP</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: -	<b>Job</b> HA152/ Firetownfires_MP (CTHA152A)	<b>Page</b> 8 of 10
	<b>Project</b> TEP No. 315229.1005096	<b>Date</b> 12:27:25 10/04/24
	<b>Client</b> Centerline Communications	<b>Designed by</b> PRW

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

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	80 - 41.5	10.006	42	0.965	0.001
L2	45 - 0	3.588	42	0.696	0.001

<b>tnxTower</b>  <b>TEP</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: -	<b>Job</b> HA152/ Firetownfires_MP (CTHA152A)	<b>Page</b> 9 of 10
	<b>Project</b> TEP No. 315229.1005096	<b>Date</b> 12:27:25 10/04/24
	<b>Client</b> Centerline Communications	<b>Designed by</b> PRW

<b>tnxTower</b>  <b>TEP</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: -	<b>Job</b> HA152/ Firetownfires_MP (CTHA152A)	<b>Page</b> 10 of 10
	<b>Project</b> TEP No. 315229.1005096	<b>Date</b> 12:27:25 10/04/24
	<b>Client</b> Centerline Communications	<b>Designed by</b> PRW

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
94.000	2.0' Dish	42	10.006	0.965	0.001	21627
92.375	FM Antenna	42	10.006	0.965	0.001	21627
91.660	2.5-ft x 6" Dia. Omni	42	10.006	0.965	0.001	21627
91.000	2.9" Dia. x 6-ft Mount Pipe	42	10.006	0.965	0.001	21627
90.375	FM Antenna	42	10.006	0.965	0.001	21627
85.000	4.5" Dia x 18-ft Pipe	42	10.006	0.965	0.001	21627
81.500	8-ft x 3" Omni	42	10.006	0.965	0.001	21627
77.000	Platform Mount [LP 301-1]	42	9.388	0.947	0.001	21627
65.750	Platform Mount [LP 301-1]	42	7.124	0.876	0.001	7588

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	80 - 41.5	42.549	8	4.105	0.006
L2	45 - 0	15.271	8	2.962	0.003

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
94.000	2.0' Dish	8	42.549	4.105	0.006	5131
92.375	FM Antenna	8	42.549	4.105	0.006	5131
91.660	2.5-ft x 6" Dia. Omni	8	42.549	4.105	0.006	5131
91.000	2.9" Dia. x 6-ft Mount Pipe	8	42.549	4.105	0.006	5131
90.375	FM Antenna	8	42.549	4.105	0.006	5131
85.000	4.5" Dia x 18-ft Pipe	8	42.549	4.105	0.006	5131
81.500	8-ft x 3" Omni	8	42.549	4.105	0.006	5131
77.000	Platform Mount [LP 301-1]	8	39.924	4.028	0.005	5131
65.750	Platform Mount [LP 301-1]	8	30.299	3.726	0.005	1799

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L <sub>u</sub>	Kl/r	A	P <sub>u</sub>	ΦP <sub>u</sub>	Ratio P <sub>u</sub>
	ft		ft	ft		in <sup>2</sup>	lb	lb	ΦP <sub>u</sub>
L1	80 - 41.5 (1)	TP27.7x22x0.188	38.500	0.000	0.0	16.065	-9373.680	939802.000	0.010
L2	41.5 - 0 (2)	TP33.47x26.807x0.25	45.000	0.000	0.0	26.360	-15249.100	1542060.000	0.010

Section No.	Elevation	Size	L	L <sub>u</sub>	Kl/r	A	P <sub>u</sub>	ΦP <sub>u</sub>	Ratio P <sub>u</sub>
	ft		ft	ft		in <sup>2</sup>	lb	lb	ΦP <sub>u</sub>

Pole Bending Design Data

Section No.	Elevation	Size	M <sub>ux</sub>	ΦM <sub>ux</sub>	Ratio M <sub>ux</sub>	M <sub>uy</sub>	ΦM <sub>uy</sub>	Ratio M <sub>uy</sub>
	ft		lb-ft	lb-ft	ΦM <sub>ux</sub>	lb-ft	lb-ft	ΦM <sub>uy</sub>
L1	80 - 41.5 (1)	TP27.7x22x0.188	333713.333	581803.333	0.574	0.000	581803.333	0.000
L2	41.5 - 0 (2)	TP33.47x26.807x0.25	1013516.667	1211358.333	0.837	0.000	1211358.333	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V <sub>u</sub>	ΦV <sub>u</sub>	Ratio V <sub>u</sub>	Actual T <sub>u</sub>	ΦT <sub>u</sub>	Ratio T <sub>u</sub>
	ft		lb	lb	ΦV <sub>u</sub>	lb-ft	lb-ft	ΦT <sub>u</sub>
L1	80 - 41.5 (1)	TP27.7x22x0.188	12956.900	281941.000	0.046	251.321	666515.000	0.000
L2	41.5 - 0 (2)	TP33.47x26.807x0.25	17093.600	462619.000	0.037	250.627	1345866.667	0.000

Pole Interaction Design Data

Section No.	Elevation	Ratio P <sub>u</sub>	Ratio M <sub>ux</sub>	Ratio M <sub>uy</sub>	Ratio V <sub>u</sub>	Ratio T <sub>u</sub>	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	ft	ΦP <sub>u</sub>	ΦM <sub>ux</sub>	ΦM <sub>uy</sub>	ΦV <sub>u</sub>	ΦT <sub>u</sub>			
L1	80 - 41.5 (1)	0.010	0.574	0.000	0.046	0.000	0.586	1.050	
L2	41.5 - 0 (2)	0.010	0.837	0.000	0.037	0.000	0.848	1.050	

Section Capacity Table

Section No.	Elevation	Component Type	Size	Critical Element	P lb	σP <sub>allow</sub> lb	% Capacity	Pass Fail
L1	80 - 41.5	Pole	TP27.7x22x0.188	1	-9373.680	986792.062	55.8	Pass
L2	41.5 - 0	Pole	TP33.47x26.807x0.25	2	-15249.100	1619162.875	80.8	Pass
Summary								Pass
Pole (L2) RATING = 80.8								Pass

## **APPENDIX B**

### **ADDITIONAL CALCULATIONS**

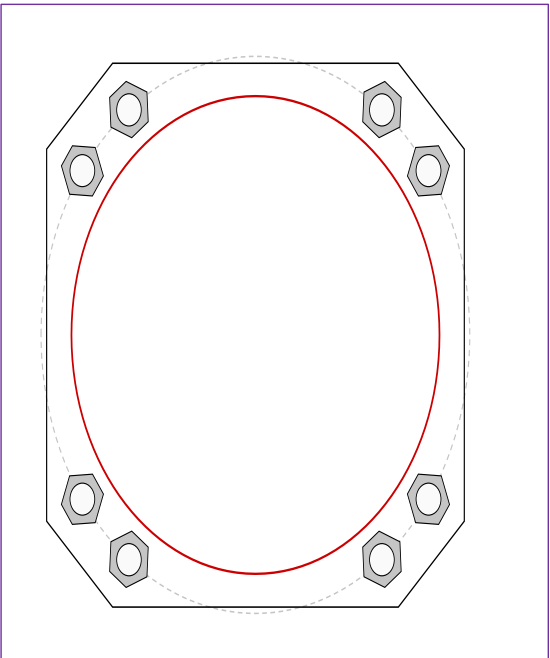
Monopole Base Plate Connection

Site Info		
Site #	CTHA152A	
Site Name	A152/ Firetownfires_M	
TEP No. #	315229.1005096	

Analysis Considerations		
TIA-222 Revision	H	
Grout Considered:	No	
I <sub>ar</sub> (in)	0	

Applied Loads		
Moment (kip-ft)	1013.52	
Axial Force (kips)	15.25	
Shear Force (kips)	17.09	

\*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 <sub>y</sub> =75 ksi, F <sub>u</sub> =100 ksi) on 39" BC		Pu <sub>t</sub> = 153.81	$\phi Pn_t$ = 243.75
Anchor Spacing: 6 in		Vu = 2.14	$\phi Vn$ = 149.1
		Mu = n/a	$\phi Mn$ = n/a
			<b>Stress Rating</b>
			<b>60.1%</b>
			<b>Pass</b>
<b>Base Plate Data</b>		<b>Base Plate Summary</b>	
38" W x 2" Plate (A572-60; F <sub>y</sub> =60 ksi, F <sub>u</sub> =75 ksi); Clip: 6 in		Max Stress (ksi):	38.93 (Flexural)
		Allowable Stress (ksi):	54
		Stress Rating:	<b>68.7%</b>
			<b>Pass</b>
<b>Stiffener Data</b>			
N/A			
<b>Pole Data</b>			
33.47" x 0.25" 18-sided pole (A607-65; F <sub>y</sub> =65 ksi, F <sub>u</sub> =80 ksi)			

# Pier and Pad Foundation

Site # : CTHA152A  
 Site Name: HA152/ Firetownfires\_MP  
 TEP No. : 315229.1005096

TIA-222 Revision: H  
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	15.25	kips
Base Shear, $Vu_{comp}$ :	17.09	kips
Moment, $M_u$ :	1013.52	ft-kips
Tower Height, $H$ :	150	ft
BP Dist. Above Fdn, $bp_{dist}$ :	3	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$ :	5	ft
Ext. Above Grade, $E$ :	0.16	ft
Pier Rebar Size, $Sc$ :	11	
Pier Rebar Quantity, $mc$ :	12	
Pier Tie/Spiral Size, $St$ :	5	
Pier Tie/Spiral Quantity, $mt$ :	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	3	in

Pad Properties		
Depth, $D$ :	6.5	ft
Pad Width, $W_1$ :	15	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, $\gamma$ :	113	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	34.675	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	36	degrees
SPT Blow Count, $N_{blows}$ :	18	
Base Friction, $\mu$ :	0.45	
Neglected Depth, $N$ :	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	16	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	137.21	17.09	11.9%	Pass
Bearing Pressure (ksf)	26.01	3.44	13.2%	Pass
Overturning (kip*ft)	1556.22	1131.61	72.7%	Pass
Pier Flexure (Comp.) (kip*ft)	2036.16	1076.07	50.3%	Pass
Pier Compression (kip)	11934.00	31.72	0.3%	Pass
Pad Flexure (kip*ft)	1850.65	523.67	26.9%	Pass
Pad Shear - 1-way (kips)	465.84	122.59	25.1%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	0.0%	Pass
Flexural 2-way (Comp) (kip*ft)	3384.91	645.64	18.2%	Pass

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	50.3%
Soil Rating*:	72.7%

<--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:** CTHA152A  
**Site Name:** HA152/ Firetownfires\_MP

**Engineering Firm Designation:** **TEP Project Number:** 315229.981472

**Site Data:** **344 Firetown Road, Simsbury, Hartford County, CT 06070**  
**Latitude 41° 54' 11.50", Longitude -72° 49' 16.84"**  
**80.0 ± 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	C	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 4480 B71/B85		
To Be Removed	77.0	77.0	3	Amphenol APX16DW-16DWV-S-E-A20	-	T-Mobile
			3	Generic Twin Style 1A-PCS		

## ANALYSIS RESULTS

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

Notes	Component	% Capacity	Pass / Fail
-	Face Horizontals	19.7	Pass
-	Support Arm	46.2	Pass
-	Mount Pipes	43.0	Pass
-	Internals	11.2	Pass
-	Support Rail	20.8	Pass
-	Plate	60.3	Pass
1	Connection Bolts	63.3	Pass

Notes:

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



**Table 4 - Documents Provided**

Document	Remarks	Source
Mount Manufacturer Drawings	SitePro1, dated July 8, 2015 Drawing No. RMQP-NP	TEP
Preliminary Construction Drawings	TEP Northeast, dated August 26, 2024 Site No. CTHA152A	TEP
Previous Mount Analysis	Efi Global, dated June 10, 2022 Site No. CTHA152A	TEP

## RECOMMENDATIONS

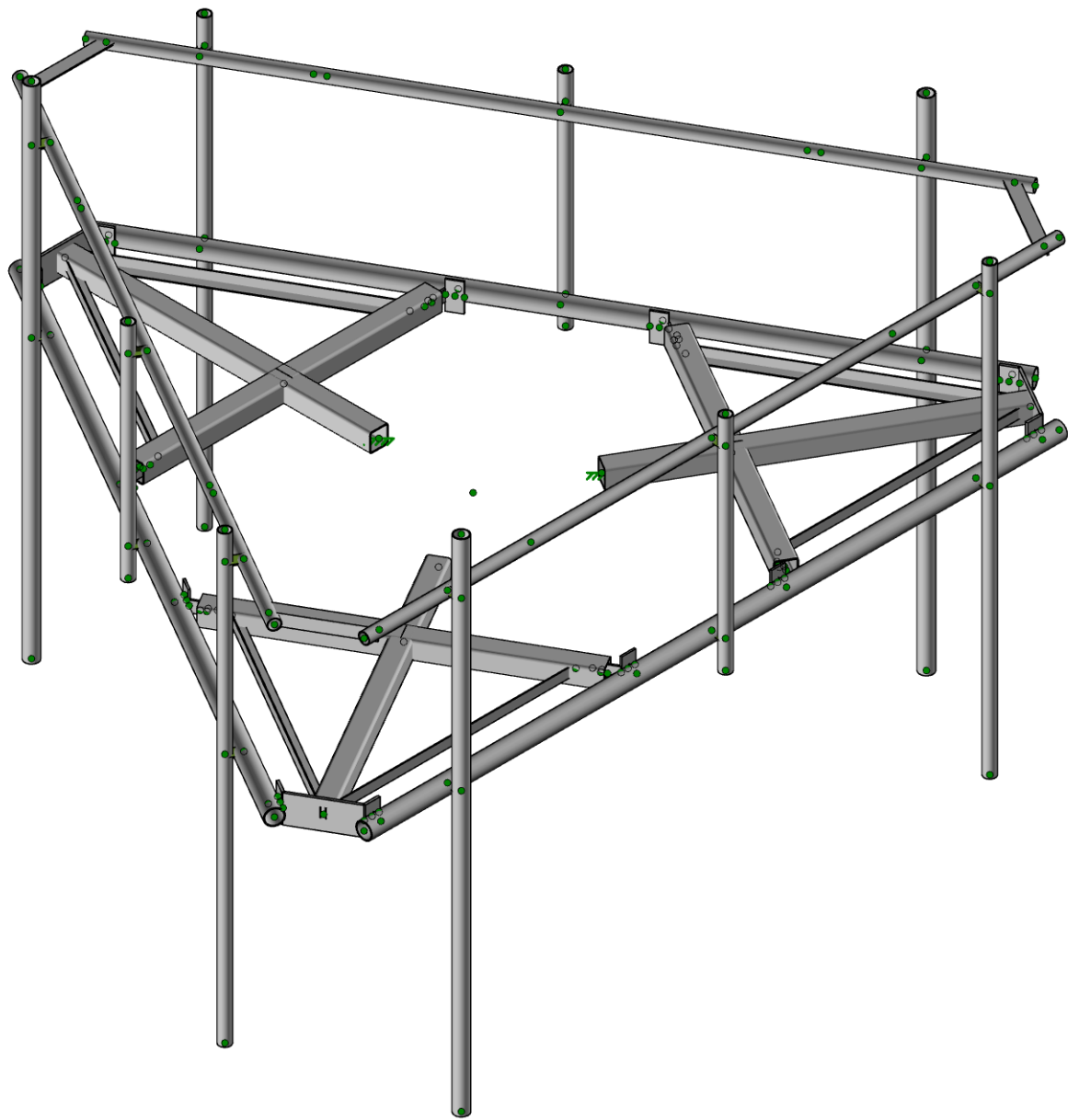
- 1) If the load differs from that described in Table 2 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The mount and its connections have sufficient capacity to carry the proposed loading configuration. No modifications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

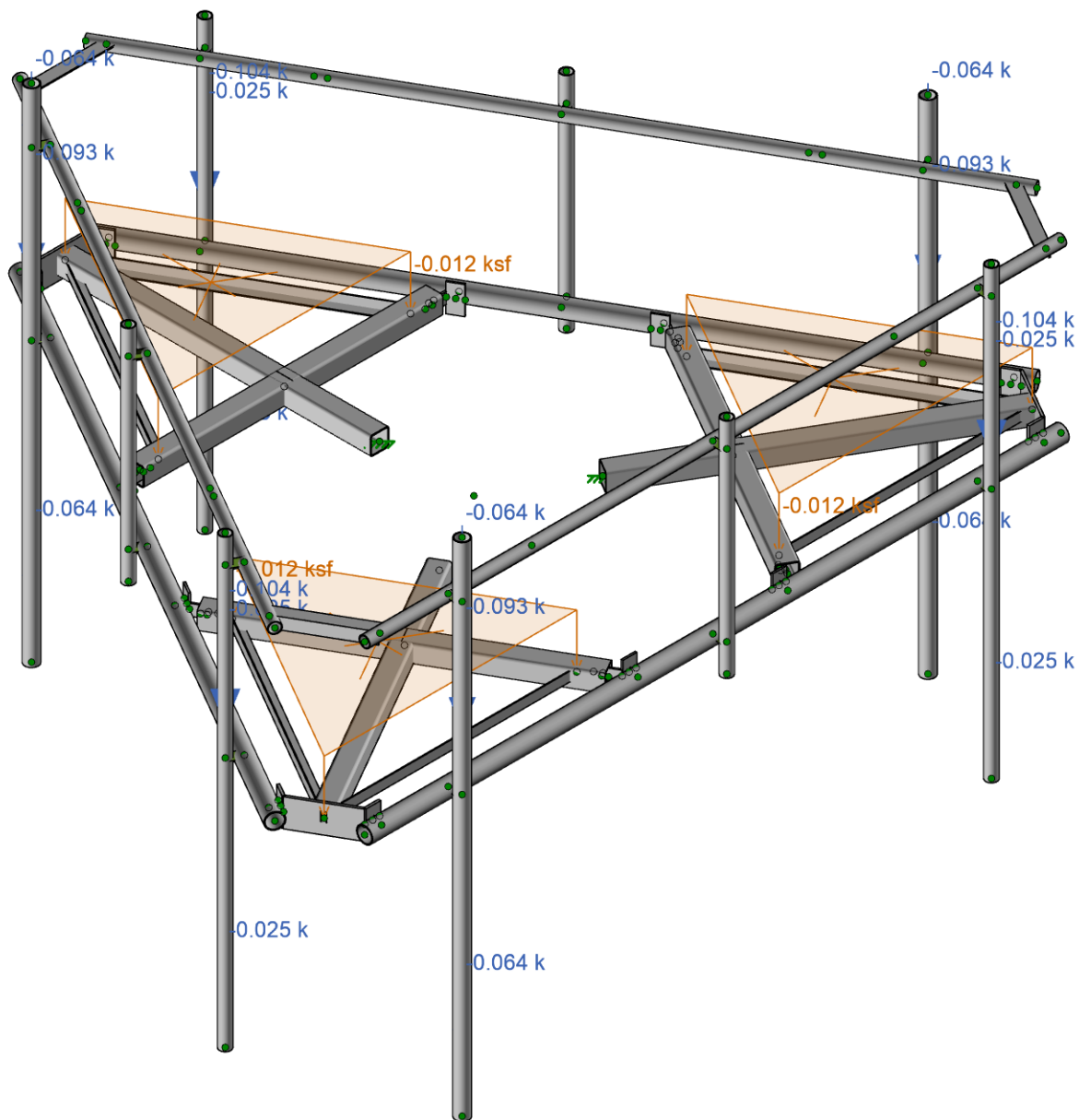
## ANALYSIS ASSUMPTIONS

- 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**





**IRISA**  
A NEMETSCHEK COMPANY

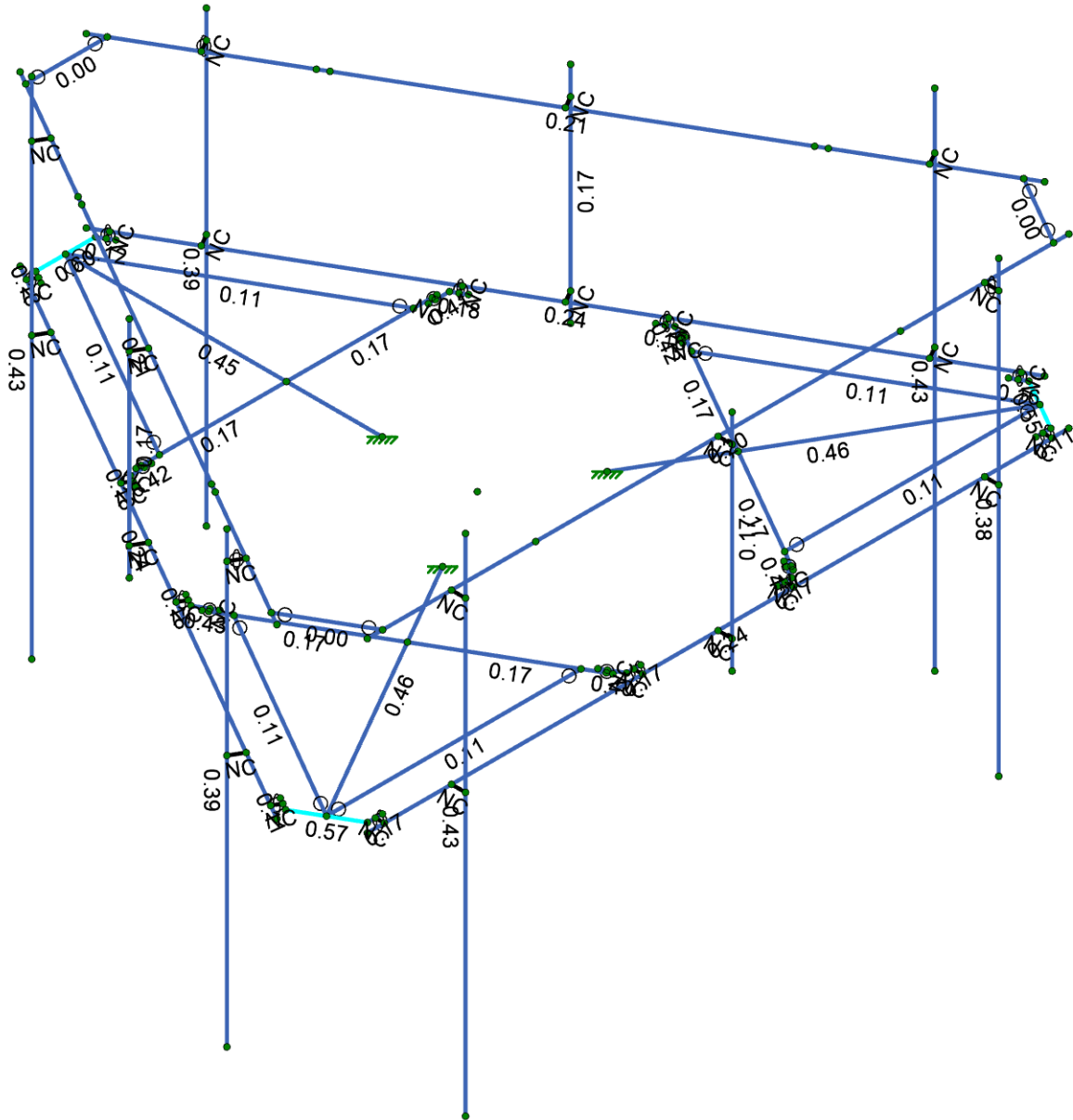
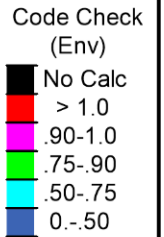
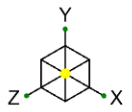
DRP

HA152/ Firetownfires\_MP (CTHA152A)

SK-2
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Sep 20, 2024 at 04:39 PM

Mount.r3d
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Member Code Checks Displayed (Enveloped)



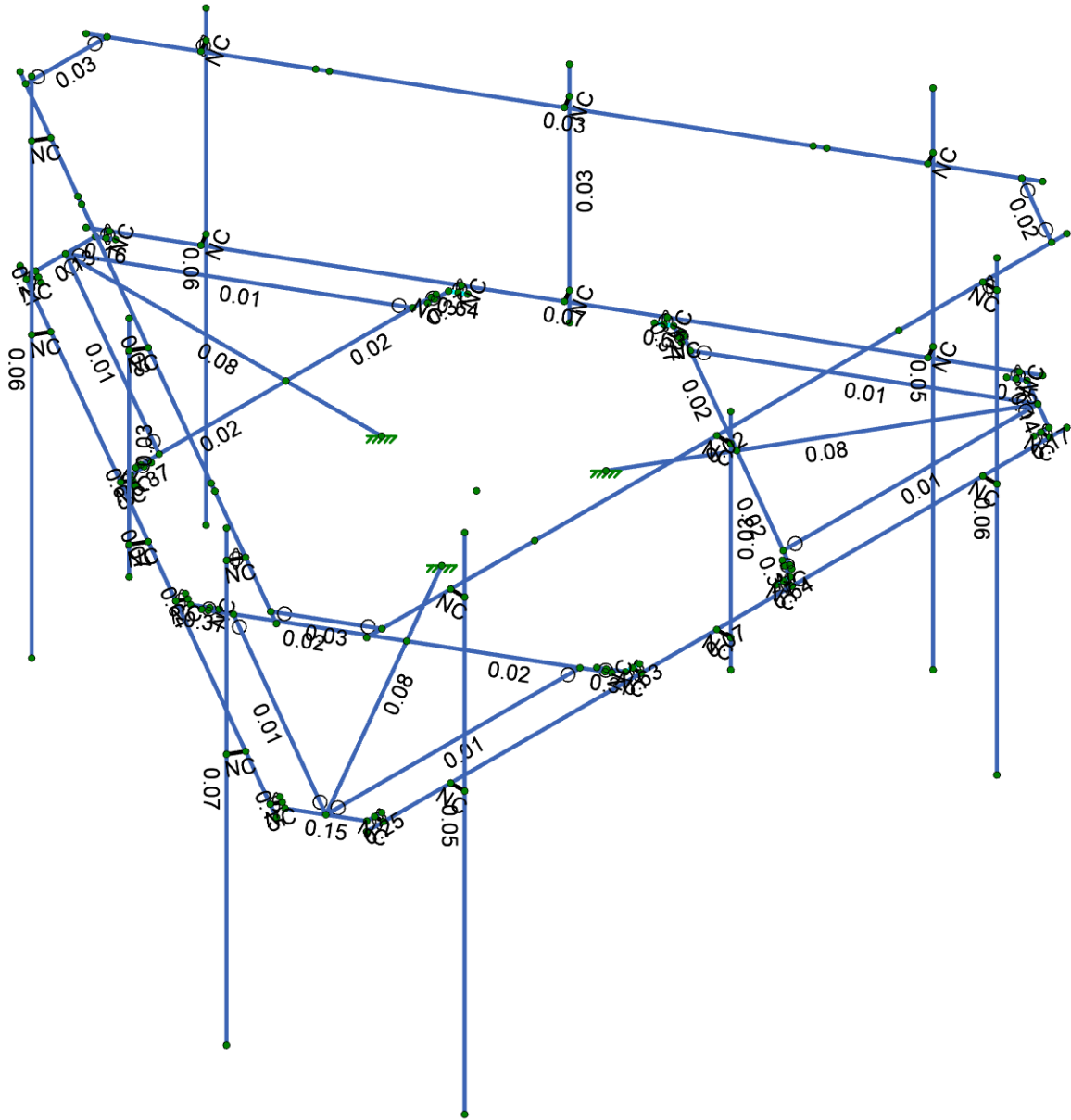
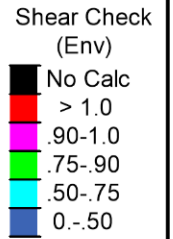
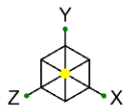
Tower Engineering Profes...  
DRP  
TEP No. 315229.981472

HA152/ Firetownfires\_MP (CTHA152A)

SK-3

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Mount.r3d



Member Shear Checks Displayed (Enveloped)



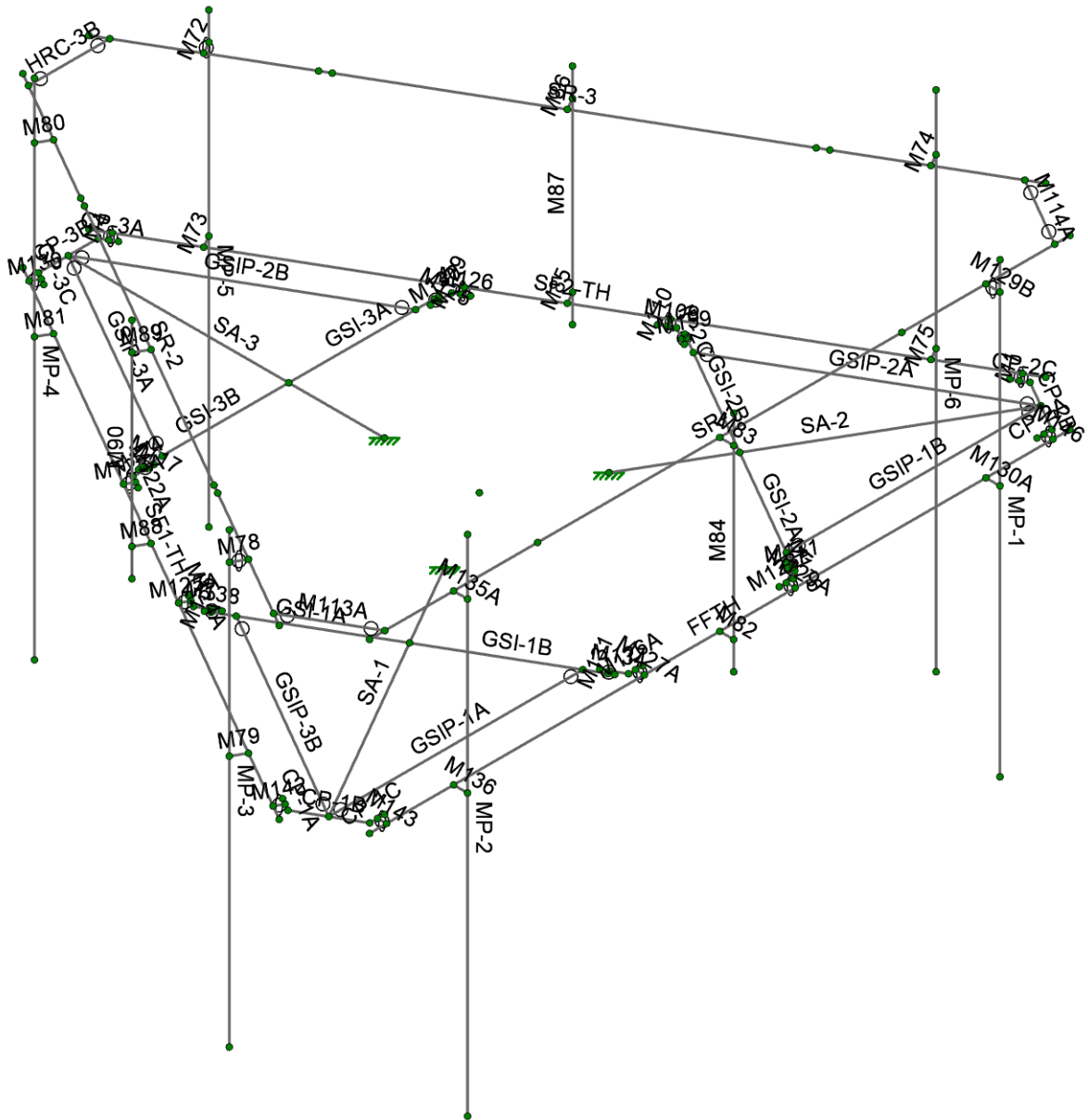
Tower Engineering Profes...  
DRP  
TEP No. 315229.981472

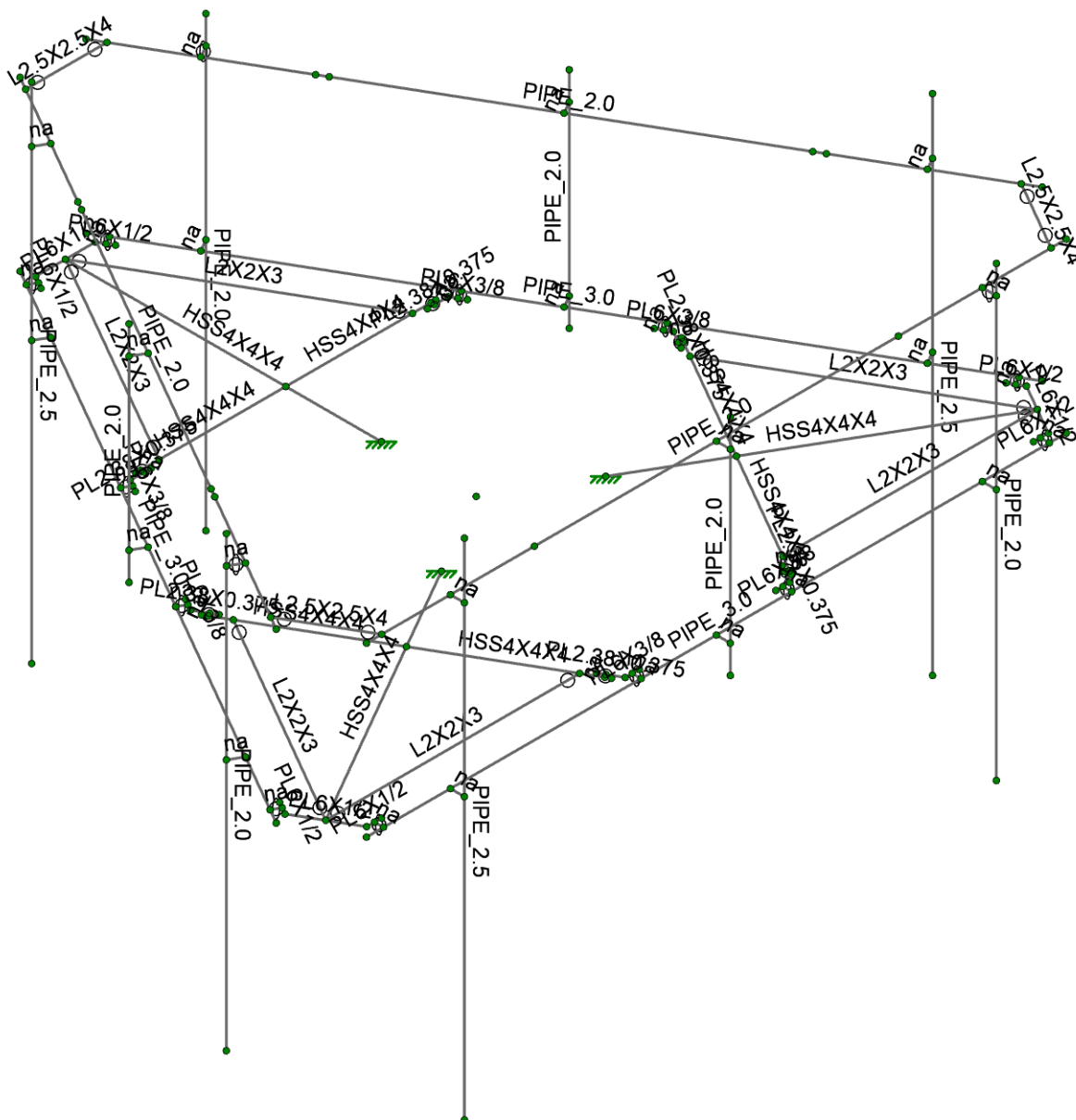
HA152/ Firetownfires\_MP (CTHA152A)

SK-4

Sep 20, 2024 at 04:40 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	AISC 15th (360-16): LRFD
Cold Formed Steel	AISI S100-16: LRFD
Stiffness Adjustment	No
Wood	None
Temperature	< 100F
Concrete	None
Masonry	None
Aluminum	AA ADM1-15: LRFD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): LRFD
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
$C_0 Z$	4
$C_0 X$	4
$\rho Z$	1
$\rho X$	1

### Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [ $10^{-6} F^{-1}$ ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	1	0.49	36	1.5	58	1.2
2	A53 Gr.B	29000	11154	0.3	1	0.49	35	1.6	60	1.2
3	A500 Gr. C	29000	11154	0.3	1	0.527	46	1.5	62	1.2

### 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	Handrail	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
2	Corner Plate	PL6X1/2	None	None	A36 Gr.36	Typical	3	0.062	9	0.237
3	Face Horiz	PIPE 3.0	None	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	SRC	L2.5X2.5X4	None	None	A36 Gr.36	Typical	1.19	0.692	0.692	0.026
5	Internal Plate 1	PL2.38X0.375	None	None	A36 Gr.36	Typical	0.892	0.01	0.421	0.038
6	Internal Plate 2	PL6X3/8	None	None	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
7	Grating Support	L2X2X3	None	None	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
8	Support Arm	HSS4X4X4	None	None	A500 Gr. C	Typical	3.37	7.8	7.8	12.8
9	Mount Pipe	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
10	Mount Pipe 2.5	PIPE 2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
11	Kicker	PIPE 2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
12	SFS-V	L2.5X2.5X3	None	None	A36 Gr.36	Typical	0.901	0.535	0.535	0.011
13	RRU Pipe	PIPE 2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
14	Internals	HSS4X4X4	None	None	A500 Gr. C	Typical	3.37	7.8	7.8	12.8
15	Plate	PL2X1/8	None	None	A36 Gr.36	Typical	0.25	0.000326	0.083	0.001
16	Pipe 3.0	PIPE 3.0	None	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69

### Material Take-Off

	Material	Size	Pieces	Length[ft]	Weight[K]
1	General Members				
2	RIGID		36	6.8	0
3	Total General		36	6.8	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L2.5X2.5X4	3	4.4	0.018
7	A36 Gr.36	L2X2X3	6	27.2	0.067
8	A36 Gr.36	PL2.38X0.375	6	2.2	0.007
9	A36 Gr.36	PL6X1/2	9	4.8	0.049
10	A36 Gr.36	PL6X3/8	6	1.5	0.011
11	A500 Gr. C	HSS4X4X4	9	33	0.407
12	A53 Gr.B	PIPE 2.0	9	73.5	0.255
13	A53 Gr.B	PIPE 2.5	3	27	0.148
14	A53 Gr.B	PIPE 3.0	3	37.5	0.264
15	Total HR Steel		54	211.2	1.226

### 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	N39	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N76	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N77	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

### Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	CP-1A	N45	N46		Corner Plate	None	None	A36 Gr.36	Typical
2	CP-1B	N46	N44		Corner Plate	None	None	A36 Gr.36	Typical
3	CP-1C	N41	N44		Corner Plate	None	None	A36 Gr.36	Typical
4	CP-2A	N16	N17		Corner Plate	None	None	A36 Gr.36	Typical
5	CP-2B	N17	N15		Corner Plate	None	None	A36 Gr.36	Typical
6	CP-2C	N10	N15		Corner Plate	None	None	A36 Gr.36	Typical
7	CP-3A	N30	N31		Corner Plate	None	None	A36 Gr.36	Typical
8	CP-3B	N31	N29		Corner Plate	None	None	A36 Gr.36	Typical
9	CP-3C	N24	N29		Corner Plate	None	None	A36 Gr.36	Typical
10	FFTH	N1	N2		Face Horiz	None	None	A53 Gr.B	Typical
11	SF1-TH	N27	N28		Face Horiz	None	None	A53 Gr.B	Typical
12	SF2-TH	N13	N14		Face Horiz	None	None	A53 Gr.B	Typical
13	GSIP-1A	N40	N7	270	Grating Support	None	None	A36 Gr.36	Typical
14	GSIP-1B	N9	N4		Grating Support	None	None	A36 Gr.36	Typical
15	GSIP-2A	N9	N3	270	Grating Support	None	None	A36 Gr.36	Typical
16	GSIP-2B	N23	N6		Grating Support	None	None	A36 Gr.36	Typical
17	GSIP-3A	N23	N5	270	Grating Support	None	None	A36 Gr.36	Typical
18	GSIP-3B	N40	N8		Grating Support	None	None	A36 Gr.36	Typical
19	SR-1	N96	N95		Handrail	None	None	A53 Gr.B	Typical
20	SR-2	N99	N100		Handrail	None	None	A53 Gr.B	Typical
21	SR-3	N101	N102		Handrail	None	None	A53 Gr.B	Typical
22	IP-2C	N276	N196		Internal Plate 1	None	None	A36 Gr.36	Typical
23	M116	N218	N232		Internal Plate 1	None	None	A36 Gr.36	Typical
24	M124	N249	N257		Internal Plate 1	None	None	A36 Gr.36	Typical
25	M130	N262	N265		Internal Plate 1	None	None	A36 Gr.36	Typical
26	M134	N268	N278		Internal Plate 1	None	None	A36 Gr.36	Typical
27	M138	N283	N286		Internal Plate 1	None	None	A36 Gr.36	Typical
28	M109	N196	N216		Internal Plate 2	None	None	A36 Gr.36	Typical
29	M122A	N257	N217A		Internal Plate 2	None	None	A36 Gr.36	Typical
30	M124A	N286	N220		Internal Plate 2	None	None	A36 Gr.36	Typical
31	M126	N265	N263		Internal Plate 2	None	None	A36 Gr.36	Typical
32	M126A	N278	N225A		Internal Plate 2	None	None	A36 Gr.36	Typical
33	M128A	N232	N228A		Internal Plate 2	None	None	A36 Gr.36	Typical
34	GSI-1A	N50	N51		Internals	None	None	A500 Gr. C	Typical
35	GSI-1B	N49	N51	180	Internals	None	None	A500 Gr. C	Typical
36	GSI-2A	N21	N22		Internals	None	None	A500 Gr. C	Typical
37	GSI-2B	N20	N22	180	Internals	None	None	A500 Gr. C	Typical
38	GSI-3A	N35	N36		Internals	None	None	A500 Gr. C	Typical
39	GSI-3B	N34	N36	180	Internals	None	None	A500 Gr. C	Typical
40	MP-1	N216B	N217B		Mount Pipe	None	None	A53 Gr.B	Typical
41	MP-2	N228	N229		Mount Pipe 2.5	None	None	A53 Gr.B	Typical
42	MP-5	N131	N132		Mount Pipe	None	None	A53 Gr.B	Typical
43	MP-6	N137	N138		Mount Pipe 2.5	None	None	A53 Gr.B	Typical
44	MP-3	N144	N145		Mount Pipe	None	None	A53 Gr.B	Typical
45	MP-4	N150	N151		Mount Pipe 2.5	None	None	A53 Gr.B	Typical
46	M1	N11	N12		RIGID	None	None	RIGID	Typical
47	M4	N32	N33		RIGID	None	None	RIGID	Typical
48	M110	N217	N212		RIGID	None	None	RIGID	Typical
49	M111	N221	N225		RIGID	None	None	RIGID	Typical
50	M117	N258	N259		RIGID	None	None	RIGID	Typical
51	M123A	N218A	N216A		RIGID	None	None	RIGID	Typical
52	M125	N264	N250		RIGID	None	None	RIGID	Typical
53	M125A	N219	N222A		RIGID	None	None	RIGID	Typical
54	M127A	N226A	N224A		RIGID	None	None	RIGID	Typical
55	M129	N251	N266		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	M129A	N227A	N230B		RIGID	None	None	RIGID	Typical
57	M129B	N215B	N214B		RIGID	None	None	RIGID	Typical
58	M130A	N218B	N219A		RIGID	None	None	RIGID	Typical
59	M131	N279	N280		RIGID	None	None	RIGID	Typical
60	M135	N285	N271		RIGID	None	None	RIGID	Typical
61	M135A	N227	N226		RIGID	None	None	RIGID	Typical
62	M136	N230	N231		RIGID	None	None	RIGID	Typical
63	M139	N236	N243		RIGID	None	None	RIGID	Typical
64	M142	N237	N240		RIGID	None	None	RIGID	Typical
65	M143	N256	N299		RIGID	None	None	RIGID	Typical
66	M146	N274	N292		RIGID	None	None	RIGID	Typical
67	M159	N270	N272		RIGID	None	None	RIGID	Typical
68	M72	N130	N129		RIGID	None	None	RIGID	Typical
69	M73	N133	N134		RIGID	None	None	RIGID	Typical
70	M74	N136	N135		RIGID	None	None	RIGID	Typical
71	M75	N139	N140		RIGID	None	None	RIGID	Typical
72	M78	N143	N142		RIGID	None	None	RIGID	Typical
73	M79	N146	N147		RIGID	None	None	RIGID	Typical
74	M80	N149	N148		RIGID	None	None	RIGID	Typical
75	M81	N152	N153		RIGID	None	None	RIGID	Typical
76	HRC-3B	N192	N204	180	SRC	None	None	A36 Gr.36	Typical
77	M113A	N209A	N210A	180	SRC	None	None	A36 Gr.36	Typical
78	M114A	N212B	N213B	180	SRC	None	None	A36 Gr.36	Typical
79	SA-1	N39	N40		Support Arm	None	None	A500 Gr. C	Typical
80	SA-2	N76	N9		Support Arm	None	None	A500 Gr. C	Typical
81	SA-3	N77	N23		Support Arm	None	None	A500 Gr. C	Typical
82	M82	N154	N156		RIGID	None	None	RIGID	Typical
83	M83	N153A	N155		RIGID	None	None	RIGID	Typical
84	M84	N158	N157		Mount Pipe	None	None	A53 Gr.B	Typical
85	M85	N161	N163		RIGID	None	None	RIGID	Typical
86	M86	N160	N162		RIGID	None	None	RIGID	Typical
87	M87	N165	N164		Mount Pipe	None	None	A53 Gr.B	Typical
88	M88	N168	N170		RIGID	None	None	RIGID	Typical
89	M89	N167	N169		RIGID	None	None	RIGID	Typical
90	M90	N172	N171		Mount Pipe	None	None	A53 Gr.B	Typical

### Member Advanced Data

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
1	CP-1A				Yes	** NA **	None
2	CP-1B				Yes	** NA **	None
3	CP-1C				Yes	** NA **	None
4	CP-2A				Yes	** NA **	None
5	CP-2B				Yes	** NA **	None
6	CP-2C				Yes	** NA **	None
7	CP-3A				Yes	** NA **	None
8	CP-3B				Yes	** NA **	None
9	CP-3C				Yes	** NA **	None
10	FFTH				Yes	** NA **	None
11	SF1-TH				Yes	** NA **	None
12	SF2-TH				Yes	** NA **	None
13	GSIP-1A	BenPIN	BenPIN		Yes	** NA **	None
14	GSIP-1B	BenPIN	BenPIN		Yes	** NA **	None
15	GSIP-2A	BenPIN	BenPIN		Yes	** NA **	None
16	GSIP-2B	BenPIN	BenPIN		Yes	** NA **	None
17	GSIP-3A	BenPIN	BenPIN		Yes	** NA **	None

**Member Advanced Data (Continued)**

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
18	GSIP-3B	BenPIN	BenPIN		Yes	** NA **	None
19	SR-1				Yes	** NA **	None
20	SR-2				Yes	** NA **	None
21	SR-3				Yes	** NA **	None
22	IP-2C				Yes	** NA **	None
23	M116				Yes	** NA **	None
24	M124				Yes	** NA **	None
25	M130				Yes	** NA **	None
26	M134				Yes	** NA **	None
27	M138				Yes	** NA **	None
28	M109				Yes	** NA **	None
29	M122A				Yes	** NA **	None
30	M124A				Yes	** NA **	None
31	M126				Yes	** NA **	None
32	M126A				Yes	** NA **	None
33	M128A				Yes	** NA **	None
34	GSI-1A				Yes	** NA **	None
35	GSI-1B				Yes	** NA **	None
36	GSI-2A				Yes	** NA **	None
37	GSI-2B				Yes	** NA **	None
38	GSI-3A				Yes	** NA **	None
39	GSI-3B				Yes	** NA **	None
40	MP-1				Yes	** NA **	None
41	MP-2				Yes	** NA **	None
42	MP-5				Yes	** NA **	None
43	MP-6				Yes	** NA **	None
44	MP-3				Yes	** NA **	None
45	MP-4				Yes	** NA **	None
46	M1	OOOXXO			Yes	** NA **	None
47	M4	OOOXXO			Yes	** NA **	None
48	M110	OOOXXO			Yes	** NA **	None
49	M111	BenPIN			Yes	** NA **	None
50	M117	BenPIN			Yes	** NA **	None
51	M123A	OOOXXO			Yes	** NA **	None
52	M125	BenPIN			Yes	** NA **	None
53	M125A	OOOXXO			Yes	** NA **	None
54	M127A	OOOXXO			Yes	** NA **	None
55	M129	OOOXXO			Yes	** NA **	None
56	M129A	OOOXXO			Yes	** NA **	None
57	M129B	OOOXOX			Yes	** NA **	None
58	M130A				Yes	** NA **	None
59	M131	BenPIN			Yes	** NA **	None
60	M135	BenPIN			Yes	** NA **	None
61	M135A				Yes	** NA **	None
62	M136				Yes	** NA **	None
63	M139	OOOXXO			Yes	** NA **	None
64	M142	OOOXXO			Yes	** NA **	None
65	M143	OOOXXO			Yes	** NA **	None
66	M146	OOOXXO			Yes	** NA **	None
67	M159	BenPIN			Yes	** NA **	None
68	M72	OOOXOX			Yes	** NA **	None
69	M73				Yes	** NA **	None
70	M74				Yes	** NA **	None
71	M75				Yes	** NA **	None
72	M78	OOOXOX			Yes	** NA **	None

### Member Advanced Data (Continued)

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
73	M79				Yes	** NA **	None
74	M80				Yes	** NA **	None
75	M81				Yes	** NA **	None
76	HRC-3B	BenPIN	BenPIN		Yes	** NA **	None
77	M113A	BenPIN	BenPIN		Yes	** NA **	None
78	M114A	BenPIN	BenPIN		Yes	** NA **	None
79	SA-1				Yes	** NA **	None
80	SA-2				Yes	** NA **	None
81	SA-3				Yes	** NA **	None
82	M82				Yes	** NA **	None
83	M83				Yes	** NA **	None
84	M84				Yes	** NA **	None
85	M85				Yes	** NA **	None
86	M86				Yes	** NA **	None
87	M87				Yes	** NA **	None
88	M88				Yes	** NA **	None
89	M89				Yes	** NA **	None
90	M90				Yes	** NA **	None

### Node Loads and Enforced Displacements (BLC 35 : Lm)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	N218B	L	Y	-0.5
2	N133	L	Y	-0.5
3	N146	L	Y	-0.5

### Node Loads and Enforced Displacements (BLC 36 : Lv)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	N2	L	Y	-0.25

### 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	54	
3	30 Wind - No Ice	None					36	108	
4	45 Wind - No Ice	None					36	108	
5	60 Wind - No Ice	None					36	108	
6	90 Wind - No Ice	None					18	54	
7	120 Wind - No Ice	None					36	108	
8	135 Wind - No Ice	None					36	108	
9	150 Wind - No Ice	None					36	108	
10	180 Wind - No Ice	None					18	54	
11	210 Wind - No Ice	None					36	108	
12	225 Wind - No Ice	None					36	108	
13	240 Wind - No Ice	None					36	108	
14	270 Wind - No Ice	None					18	54	
15	300 Wind - No Ice	None					36	108	
16	315 Wind - No Ice	None					36	108	
17	330 Wind - No Ice	None					36	108	
18	Ice Weight	None					18	54	3
19	0 Wind - Ice	None					18	54	
20	30 Wind - Ice	None					36	108	
21	45 Wind - Ice	None					36	108	



### Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
22	60 Wind - Ice	None					36	108	
23	90 Wind - Ice	None					18	54	
24	120 Wind - Ice	None					36	108	
25	135 Wind - Ice	None					36	108	
26	150 Wind - Ice	None					36	108	
27	180 Wind - Ice	None					18	54	
28	210 Wind - Ice	None					36	108	
29	225 Wind - Ice	None					36	108	
30	240 Wind - Ice	None					36	108	
31	270 Wind - Ice	None					18	54	
32	300 Wind - Ice	None					36	108	
33	315 Wind - Ice	None					36	108	
34	330 Wind - Ice	None					36	108	
35	Lm	None				3			
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						15	
40	BLC 18 Transient Area Loads	None						15	

### 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		
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		

### Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
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	1.237	ELX	0.092		
68	(1.2+0.2Sds)D+1.0 30 Seismic	Yes	Y	1	1.237	ELX	0.08	ELZ	0.046
69	(1.2+0.2Sds)D+1.0 45 Seismic	Yes	Y	1	1.237	ELX	0.065	ELZ	0.065
70	(1.2+0.2Sds)D+1.0 60 Seismic	Yes	Y	1	1.237	ELX	0.046	ELZ	0.08
71	(1.2+0.2Sds)D+1.0 90 Seismic	Yes	Y	1	1.237			ELZ	0.092
72	(1.2+0.2Sds)D+1.0 120 Seismic	Yes	Y	1	1.237	ELX	-0.046	ELZ	0.08
73	(1.2+0.2Sds)D+1.0 135 Seismic	Yes	Y	1	1.237	ELX	-0.065	ELZ	0.065
74	(1.2+0.2Sds)D+1.0 150 Seismic	Yes	Y	1	1.237	ELX	-0.08	ELZ	0.046
75	(1.2+0.2Sds)D+1.0 180 Seismic	Yes	Y	1	1.237	ELX	-0.092		
76	(1.2+0.2Sds)D+1.0 210 Seismic	Yes	Y	1	1.237	ELX	-0.08	ELZ	-0.046
77	(1.2+0.2Sds)D+1.0 225 Seismic	Yes	Y	1	1.237	ELX	-0.065	ELZ	-0.065
78	(1.2+0.2Sds)D+1.0 240 Seismic	Yes	Y	1	1.237	ELX	-0.046	ELZ	-0.08
79	(1.2+0.2Sds)D+1.0 270 Seismic	Yes	Y	1	1.237			ELZ	-0.092
80	(1.2+0.2Sds)D+1.0 300 Seismic	Yes	Y	1	1.237	ELX	0.046	ELZ	-0.08
81	(1.2+0.2Sds)D+1.0 315 Seismic	Yes	Y	1	1.237	ELX	0.065	ELZ	-0.065
82	(1.2+0.2Sds)D+1.0 330 Seismic	Yes	Y	1	1.237	ELX	0.08	ELZ	-0.046
83	(0.9-0.2Sds)*DL+1.0 0 Seismic	Yes	Y	1	0.863	ELX	0.092		
84	(0.9-0.2Sds)*DL+1.0 30 Seismic	Yes	Y	1	0.863	ELX	0.08	ELZ	0.046
85	(0.9-0.2Sds)*DL+1.0 Seismic	Yes	Y	1	0.863	ELX	0.065	ELZ	0.065
86	(0.9-0.2Sds)*DL+1.0 60 Seismic	Yes	Y	1	0.863	ELX	0.046	ELZ	0.08
87	(0.9-0.2Sds)*DL+1.0 90 Seismic	Yes	Y	1	0.863			ELZ	0.092
88	(0.9-0.2Sds)*DL+1.0 120 Seismic	Yes	Y	1	0.863	ELX	-0.046	ELZ	0.08

### Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
89	(0.9-0.2Sds)*DL+1.0 135 Seismic	Yes	Y	1	0.863	ELX	-0.065	ELZ	0.065
90	(0.9-0.2Sds)*DL+1.0 150 Seismic	Yes	Y	1	0.863	ELX	-0.08	ELZ	0.046
91	(0.9-0.2Sds)*DL+1.0 180 Seismic	Yes	Y	1	0.863	ELX	-0.092		
92	(0.9-0.2Sds)*DL+1.0 210 Seismic	Yes	Y	1	0.863	ELX	-0.08	ELZ	-0.046
93	(0.9-0.2Sds)*DL+1.0 225 Seismic	Yes	Y	1	0.863	ELX	-0.065	ELZ	-0.065
94	(0.9-0.2Sds)*DL+1.0 240 Seismic	Yes	Y	1	0.863	ELX	-0.046	ELZ	-0.08
95	(0.9-0.2Sds)*DL+1.0 270 Seismic	Yes	Y	1	0.863			ELZ	-0.092
96	(0.9-0.2Sds)*DL+1.0 300 Seismic	Yes	Y	1	0.863	ELX	0.046	ELZ	-0.08
97	(0.9-0.2Sds)*DL+1.0 315 Seismic	Yes	Y	1	0.863	ELX	0.065	ELZ	-0.065
98	(0.9-0.2Sds)*DL+1.0 330 Seismic	Yes	Y	1	0.863	ELX	0.08	ELZ	-0.046

### 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	N39	max	1.839	2	2.517	45	1.112	7	-1.53	16	3.874	17	3.316	48
2		min	-1.841	26	0.763	86	-1.123	31	-5.438	42	-3.874	25	0.86	9
3	N76	max	1.586	3	2.516	38	1.355	21	5.58	42	3.736	11	3.067	35
4		min	-1.6	27	0.763	96	-1.34	13	1.614	6	-3.736	19	0.737	11
5	N77	max	1.236	18	2.528	34	2.088	22	0.189	63	4.186	6	-1.887	91
6		min	-1.237	10	0.762	91	-2.089	14	-0.244	22	-4.182	30	-6.373	34
7	Totals:	max	4.539	18	7.501	42	4.384	6						
8		min	-4.539	10	2.306	84	-4.384	30						

### 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	CP-3B	PL6X1/2	0.603	0.534	24	0.129	0.534	y	31	88.748	97.2	1.012	12.15	1.373	H1-1b
2	CP-1B	PL6X1/2	0.566	0.534	18	0.147	0.534	y	26	88.748	97.2	1.012	12.15	1.376	H1-1b
3	CP-2B	PL6X1/2	0.554	0.545	29	0.145	0.545	y	21	88.748	97.2	1.012	12.15	2.255	H1-1b
4	SA-1	HSS4X4X4	0.462	0	42	0.078	0	y	49	90.658	139.518	16.181	16.181	2.502	H1-1b
5	SA-2	HSS4X4X4	0.456	0	35	0.079	0	y	42	90.658	139.518	16.181	16.181	2.497	H1-1b
6	SA-3	HSS4X4X4	0.451	0	39	0.078	0	y	34	90.658	139.518	16.181	16.181	2.489	H1-1b
7	MP-4	PIPE 2.5	0.43	4.031	31	0.063	3.938		26	20.573	50.715	3.596	3.596	1	H1-1b
8	MP-6	PIPE 2.5	0.43	4.031	21	0.053	3.938		30	20.573	50.715	3.596	3.596	1	H1-1b
9	MP-2	PIPE 2.5	0.43	4.031	26	0.055	3.938		19	20.573	50.715	3.596	3.596	1	H1-1b
10	M138	PL2.38X0.375	0.43	0.125	42	0.37	0.125	y	42	26.279	28.901	0.227	1.434	1.502	H1-1b
11	M124	PL2.38X0.375	0.421	0.125	22	0.365	0.125	y	34	26.279	28.901	0.227	1.434	1.502	H1-1b
12	IP-2C	PL2.38X0.375	0.417	0.125	42	0.366	0.125	y	42	26.279	28.901	0.227	1.434	1.502	H1-1b
13	M130	PL2.38X0.375	0.411	0.125	30	0.371	0.125	y	34	26.279	28.901	0.227	1.434	1.502	H1-1b
14	M116	PL2.38X0.375	0.405	0.125	36	0.37	0.125	y	38	26.279	28.901	0.227	1.434	1.502	H1-1b
15	M134	PL2.38X0.375	0.399	0.125	49	0.365	0.125	y	46	26.279	28.901	0.227	1.434	1.502	H1-1b
16	MP-5	PIPE 2.0	0.394	3.5	42	0.062	3.5		39	19.964	32.13	1.872	1.872	1	H1-1b
17	MP-3	PIPE 2.0	0.387	3.5	34	0.068	3.5		18	19.964	32.13	1.872	1.872	1	H1-1b
18	MP-1	PIPE 2.0	0.385	3.5	48	0.064	3.5		43	19.964	32.13	1.872	1.872	1	H1-1b
19	SF1-TH	PIPE 3.0	0.244	7.682	34	0.07	4.818		23	6.489	65.205	5.749	5.749	1	H1-1b
20	SF2-TH	PIPE 3.0	0.241	7.682	22	0.075	4.818		29	6.489	65.205	5.749	5.749	1	H1-1b
21	FFTH	PIPE 3.0	0.239	7.682	44	0.071	4.818		18	6.489	65.205	5.749	5.749	1	H1-1b
22	SR-2	PIPE 2.0	0.208	6.25	34	0.026	6.25		42	1.428	32.13	1.872	1.872	1	H1-1b
23	SR-3	PIPE 2.0	0.206	6.25	42	0.025	6.25		34	1.428	32.13	1.872	1.872	1	H1-1b
24	SR-1	PIPE 2.0	0.204	6.25	45	0.025	6.25		38	1.428	32.13	1.872	1.872	1	H1-1b
25	M122A	PL6X3/8	0.182	0.125	22	0.628	0	y	34	70.011	72.9	0.57	9.113	3	H1-1b
26	M126	PL6X3/8	0.181	0.125	30	0.638	0	y	34	70.011	72.9	0.57	9.113	3	H1-1b
27	M124A	PL6X3/8	0.18	0.125	25	0.636	0	y	42	70.011	72.9	0.57	9.113	3	H1-1b
28	CP-3C	PL6X1/2	0.177	0.265	24	0.215	0.265	y	31	94.742	97.2	1.012	12.15	2.884	H1-1b
29	M90	PIPE 2.0	0.174	0.5	32	0.033	0.5		29	31.708	32.13	1.872	1.872	1	H1-1b

**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
30	GSI-3A	HSS4X4X4	0.171	2.681	34	0.024	2.681	y	34			136.858	139.518	16.181	16.181	1.541	H1-1b
31	M128A	PL6X3/8	0.171	0.125	20	0.636	0	y	38			70.011	72.9	0.57	9.113	3	H1-1b
32	GSI-1A	HSS4X4X4	0.171	2.68	42	0.024	2.68	y	42			136.859	139.518	16.181	16.181	1.541	H1-1b
33	GSI-2A	HSS4X4X4	0.17	2.681	38	0.024	2.681	y	38			136.858	139.518	16.181	16.181	1.541	H1-1b
34	M87	PIPE 2.0	0.169	0.5	21	0.03	0.5		31			31.708	32.13	1.872	1.872	1	H1-1b
35	GSI-2B	HSS4X4X4	0.169	2.681	42	0.024	2.681	y	42			136.858	139.518	16.181	16.181	1.541	H1-1b
36	GSI-3B	HSS4X4X4	0.168	2.681	34	0.024	2.681	y	34			136.858	139.518	16.181	16.181	1.541	H1-1b
37	GSI-1B	HSS4X4X4	0.167	2.681	46	0.024	2.681	y	46			136.857	139.518	16.181	16.181	1.542	H1-1b
38	M84	PIPE 2.0	0.167	0.5	26	0.029	0.5		24			31.708	32.13	1.872	1.872	1	H1-1b
39	M126A	PL6X3/8	0.166	0.125	33	0.628	0	y	46			70.011	72.9	0.57	9.113	3	H1-1b
40	CP-1C	PL6X1/2	0.165	0.265	18	0.252	0.265	y	26			94.742	97.2	1.012	12.15	2.883	H1-1b
41	CP-2C	PL6X1/2	0.164	0.265	29	0.247	0.265	y	21			94.742	97.2	1.012	12.15	2.883	H1-1b
42	M109	PL6X3/8	0.161	0.125	27	0.629	0	y	42			70.011	72.9	0.57	9.113	3	H1-1b
43	CP-3A	PL6X1/2	0.119	0.265	28	0.163	0.265	y	20			94.742	97.2	1.012	12.15	2.812	H1-1b
44	GSIP-3A	L2X2X3	0.112	2.412	34	0.008	4.54	z	38			8.317	23.393	0.558	1.052	1.142	H2-1
45	GSIP-2B	L2X2X3	0.111	2.412	34	0.01	4.54	y	46			8.317	23.393	0.558	1.052	1.142	H2-1
46	GSIP-1B	L2X2X3	0.11	2.412	42	0.01	4.54	y	38			8.316	23.393	0.558	1.053	1.144	H2-1
47	GSIP-1A	L2X2X3	0.11	2.412	42	0.008	4.54	z	46			8.315	23.393	0.558	1.053	1.144	H2-1
48	GSIP-3B	L2X2X3	0.11	2.411	48	0.01	4.539	y	42			8.32	23.393	0.558	1.053	1.143	H2-1
49	GSIP-2A	L2X2X3	0.109	2.411	36	0.008	4.539	z	46			8.318	23.393	0.558	1.053	1.143	H2-1
50	CP-2A	PL6X1/2	0.109	0.265	18	0.171	0.265	y	26			94.742	97.2	1.012	12.15	2.781	H1-1b
51	CP-1A	PL6X1/2	0.107	0.265	23	0.152	0.265	y	31			94.742	97.2	1.012	12.15	2.787	H1-1b
52	M114A	L2.5X2.5X4	0.005	0.726	47	0.027	1.452	y	63			37.451	38.556	1.114	2.537	1.136	H2-1
53	M113A	L2.5X2.5X4	0.005	0.726	37	0.027	1.452	y	51			37.451	38.556	1.114	2.537	1.136	H2-1
54	HRC-3B	L2.5X2.5X4	0.005	0.726	43	0.027	1.452	y	58			37.451	38.556	1.114	2.537	1.136	H2-1

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



HA152/ Firetownfires\_MP (CTHA152A)

TEP No. 315229.981472

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:	C	
Topo Category:	1	
Risk Category:	II	
Ground Elevation:	390	ft

Wind Calculations:		
$K_{zt}$ :	1.000	Section 2.6.6
$K_d$ :	0.950	
$K_{z-Mount}$ :	1.198	Section 2.6.5.2
$K_{z-Antenna}$ :	1.198	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)
$K_e$ :	0.986	Table 2-6

Without Ice - (psf)	With Ice - (psf)
$(q_z G_h)_{Mount}$ : 39.29	$(q_z G_h)_{Mount}$ : 7.18
$(q_z G_h)_{Antenna}$ : 39.29	$(q_z G_h)_{Antenna}$ : 7.18

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

Seismic Input		
$S_{DS}$ :	0.185	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:	0.093	kips/kip	TIA-H Sec 2.7.7.1.1
Cs-min:	0.030	kips/kip	



HA152/ Firetownfires\_MP (CTHA152A)  
TEP No. 315229.981472  
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.

										Distance from start node of the member		
MFR	Model	Height (in)	Width (in)	Depth (in)	Wt. (lbs)	Azimuth°	Qty	Shape	Member Label	Location #1 (ft,%)	Location #2 (ft,%)	Location #3 (ft,%)
AMPHENOL	APXVLL19P_43-C-A20	75.80	11.30	4.60	50.00	0.00	1	Flat	MP-1	2.00	7.00	
AMPHENOL	APXVAARR24_43-U-NA20	95.90	24.00	8.70	128.00	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	3.00		
ERICSSON	RRU 4480 B71/B85	22.00	15.70	7.50	93.00	90.00	1	Flat	MP-2	3.00		
AMPHENOL	APXVLL19P_43-C-A20	75.80	11.30	4.60	50.00	120.00	1	Flat	MP-3	2.00	7.00	
AMPHENOL	APXVAARR24_43-U-NA20	95.90	24.00	8.70	128.00	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	3.00		
ERICSSON	RRU 4480 B71/B85	22.00	15.70	7.50	93.00	210.00	1	Flat	MP-4	3.00		
AMPHENOL	APXVLL19P_43-C-A20	75.80	11.30	4.60	50.00	240.00	1	Flat	MP-5	2.00	7.00	
AMPHENOL	APXVAARR24_43-U-NA20	95.90	24.00	8.70	128.00	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	3.00		
ERICSSON	RRU 4480 B71/B85	22.00	15.70	7.50	93.00	330.00	1	Flat	MP-6	3.00		



HA152/ Firetownfires\_MP (CTHA152A)

TEP No. 315229.981472

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)
CP-1A	6.000	3.18	Flat	-30.00	12.75
CP-1B	6.000	12.81	Flat	30.00	12.75
CP-1C	6.000	3.18	Flat	90.00	12.75
CP-2A	6.000	3.18	Flat	90.00	12.75
CP-2B	6.000	12.81	Flat	-30.00	12.75
CP-2C	6.000	3.18	Flat	30.00	12.75
CP-3A	6.000	3.18	Flat	30.00	12.75
CP-3B	6.000	12.81	Flat	90.00	12.75
CP-3C	6.000	3.18	Flat	-30.00	12.75
FFTH	3.500	150.00	Round	90.00	11.00
SF1-TH	3.500	150.00	Round	-30.00	11.00
SF2-TH	3.500	150.00	Round	30.00	11.00
GSIP-1A	2.000	54.48	Flat	-89.92	8.00
GSIP-1B	2.000	54.48	Flat	89.92	8.00
GSIP-2A	2.000	54.47	Flat	30.10	8.00
GSIP-2B	2.000	54.48	Flat	29.91	8.00
GSIP-3A	2.000	54.48	Flat	-29.91	8.00
GSIP-3B	2.000	54.47	Flat	-30.11	8.00
SR-1	2.375	150.00	Round	90.00	7.46
SR-2	2.375	150.00	Round	-30.00	7.46
SR-3	2.375	150.00	Round	30.00	7.46
IP-2C	2.380	4.50	Flat	-30.00	9.52
M116	2.380	4.50	Flat	-30.00	9.52
M124	2.380	4.50	Flat	90.00	9.52
M130	2.380	4.50	Flat	90.00	9.52
M134	2.380	4.50	Flat	30.00	9.52
M138	2.380	4.50	Flat	30.00	9.52
M109	6.000	3.00	Flat	30.00	5.50
M122A	6.000	3.00	Flat	-30.00	5.50
M124A	6.000	3.00	Flat	-30.00	5.50
M126	6.000	3.00	Flat	30.00	5.50
M126A	6.000	3.00	Flat	90.00	5.50
M128A	6.000	3.00	Flat	90.00	5.50



GSI-1A	4.000	32.16	Flat	30.00	16.00
GSI-1B	4.000	32.17	Flat	30.00	16.00
GSI-2A	4.000	32.17	Flat	-30.00	16.00
GSI-2B	4.000	32.17	Flat	-30.00	16.00
GSI-3A	4.000	32.17	Flat	90.00	16.00
GSI-3B	4.000	32.17	Flat	90.00	16.00
MP-1	2.375	96.00	Round		7.46
MP-2	2.875	108.00	Round		9.03
MP-5	2.375	96.00	Round		7.46
MP-6	2.875	108.00	Round		9.03
MP-3	2.375	96.00	Round		7.46
MP-4	2.875	108.00	Round		9.03
HRC-3B	2.500	17.42	Flat	90.00	10.00
M113A	2.500	17.42	Flat	30.00	10.00
M114A	2.500	17.42	Flat	-30.00	10.00
SA-1	4.000	67.72	Flat	-60.01	16.00
SA-2	4.000	67.72	Flat	60.01	16.00
SA-3	4.000	67.72	Flat	0.00	16.00
M84	2.375	48.00	Round		7.46
M87	2.375	48.00	Round		7.46
M90	2.375	48.00	Round		7.46



HA152/ Firetownfires\_MP (CTHA152A)

TEP No. 315229.981472

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:	0.500	in
Slip Member Ø:	N/A	in
Bolt Grade:	A325N	

### Capacities:

Bolt Capacity=	34.1%	PASS
Plate Capacity=	63.3%	PASS

### 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	$\text{in}^2$
$A_{bolt, Net Tensile}$ :	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: HA152/FiretownFireS\_MP

Site ID: CTHA152A

Site Address: 344 Firetown 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):	220.51381 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	22.05331%
Cumulative Calculated Power Density (Adj. Structure):	535.28243 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Adj. Structure):	53.53838%



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: **HA152/FiretownFireS\_MP**

Centerline was contracted to analyze the proposed T-Mobile facility at **344 Firetown 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 22' adjacent 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 (22-28' 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 176' 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	0.00228	1000.00	0.00023
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00228	1000.00	0.00023
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00345	1000.00	0.00035
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	4.00	20.00	1853.92	0.00134	466.67	0.00029
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00333	400.00	0.00083
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00001	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00001	1000.00	0.00000
T-Mobile B 3	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00001	1000.00	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	4.00	20.00	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	0.00002	400.00	0.00001
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00001	1000.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00001	1000.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00001	1000.00	0.00000
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	4.00	20.00	1853.92	0.00001	466.67	0.00000
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00001	400.00	0.00000
Unknown 7	GENERIC OMNI 6FT	850	5.96	96.20	1.00	25.00	98.61	0.00003	566.67	0.00001
Unknown 8	GENERIC OMNI 9.5FT	450	5.96	80.80	1.00	25.00	98.61	0.00005	300.00	0.00002
Unknown 9	GENERIC MICROWAVE 2FT 1	18000	36.95	94.00	1.00	0.10	495.45	0.00000	1000.00	0.00000
Unknown 10	GENERIC 2Bay FM	103.5	1.49	91.40	1.00	1500.00	2113.93	0.00167	200.00	0.00084
Verizon A 11	GENERIC C-BAND	3700	23.45	65.70	2.00	160.00	70819.03	217.15640	1000.00	21.71564
Verizon A 12	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	1355.47	0.00145	466.67	0.00031
Verizon A 12	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00158	566.67	0.00028
Verizon A 12	COMMSCOPE NHH-65B-R2B	1900	15.65	65.70	4.00	40.00	1469.13	0.00274	1000.00	0.00027
Verizon A 13	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00145	466.67	0.00031
Verizon A 13	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00158	566.67	0.00028
Verizon A 13	COMMSCOPE NHH-65B-R2B	2100	16.22	65.70	4.00	40.00	1675.17	0.00295	1000.00	0.00030
Verizon B 14	GENERIC C-BAND	3700	23.45	65.70	2.00	160.00	35409.52	1.46141	1000.00	0.14614
Verizon B 15	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00000	466.67	0.00000
Verizon B 15	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00000	566.67	0.00000
Verizon B 15	COMMSCOPE NHH-65B-R2B	1900	15.65	65.70	4.00	40.00	1469.13	0.00000	1000.00	0.00000
Verizon B 16	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00000	466.67	0.00000
Verizon B 16	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00000	566.67	0.00000
Verizon B 16	COMMSCOPE NHH-65B-R2B	2100	16.22	65.70	4.00	40.00	1675.17	0.00000	1000.00	0.00000
Verizon C 17	GENERIC C-BAND	3700	23.45	65.70	2.00	160.00	35409.52	1.86970	1000.00	0.18697
Verizon C 18	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00001	466.67	0.00000
Verizon C 18	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00000	566.67	0.00000
Verizon C 18	COMMSCOPE NHH-65B-R2B	1900	15.65	65.70	4.00	40.00	1469.13	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 C 19	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00001	466.67	0.00000
Verizon C 19	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00000	566.67	0.00000
Verizon C 19	COMMSCOPE NHH-65B-R2B	2100	16.22	65.70	4.00	40.00	1675.17	0.00000	1000.00	0.00000
							Cumulative Power Density:	220.51381 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	22.05331%



### Adjacent 22' Rooftop

#### Maximum Calculated Cumulative Power Density (Location: approximately 109' south 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	0.00002	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00002	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00003	1000.00	0.00000
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	4.00	20.00	1853.92	0.00007	466.67	0.00001
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.00006	400.00	0.00002
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.01190	1000.00	0.00119
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.01190	1000.00	0.00119
T-Mobile B 3	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.01800	1000.00	0.00180
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	4.00	20.00	1853.92	0.00704	466.67	0.00151
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	600	12.95	77.00	4.00	60.00	4733.81	0.01756	400.00	0.00439
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00004	1000.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	77.00	4.00	40.00	6731.63	0.00004	1000.00	0.00000
T-Mobile C 5	RFS APXVLL19P_43-C-A20	2100	17.33	77.00	4.00	60.00	12978.10	0.00003	1000.00	0.00000
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	700	13.65	77.00	4.00	20.00	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	0.00012	400.00	0.00003
Unknown 7	GENERIC OMNI 6FT	850	5.96	96.20	1.00	25.00	98.61	0.00015	566.67	0.00003
Unknown 8	GENERIC OMNI 9.5FT	450	5.96	80.80	1.00	25.00	98.61	0.00028	300.00	0.00009
Unknown 9	GENERIC MICROWAVE 2FT 1	18000	36.95	94.00	1.00	0.10	495.45	0.00000	1000.00	0.00000
Unknown 10	GENERIC 2Bay FM	103.5	1.49	91.40	1.00	1500.00	2113.93	0.00749	200.00	0.00375
Verizon A 11	GENERIC C-BAND	3700	23.45	65.70	2.00	160.00	70819.03	4.26652	1000.00	0.42665
Verizon A 12	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	1355.47	0.00004	466.67	0.00001
Verizon A 12	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00001	566.67	0.00000
Verizon A 12	COMMSCOPE NHH-65B-R2B	1900	15.65	65.70	4.00	40.00	1469.13	0.00003	1000.00	0.00000
Verizon A 13	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00004	466.67	0.00001
Verizon A 13	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00001	566.67	0.00000
Verizon A 13	COMMSCOPE NHH-65B-R2B	2100	16.22	65.70	4.00	40.00	1675.17	0.00001	1000.00	0.00000
Verizon B 14	GENERIC C-BAND	3700	23.45	65.70	2.00	160.00	35409.52	527.31899	1000.00	52.73190
Verizon B 15	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00906	466.67	0.00194
Verizon B 15	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00982	566.67	0.00173
Verizon B 15	COMMSCOPE NHH-65B-R2B	1900	15.65	65.70	4.00	40.00	1469.13	0.01707	1000.00	0.00171
Verizon B 16	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00906	466.67	0.00194
Verizon B 16	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00982	566.67	0.00173
Verizon B 16	COMMSCOPE NHH-65B-R2B	2100	16.22	65.70	4.00	40.00	1675.17	0.01841	1000.00	0.00184
Verizon C 17	GENERIC C-BAND	3700	23.45	65.70	2.00	160.00	35409.52	3.54873	1000.00	0.35487
Verizon C 18	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00002	466.67	0.00001
Verizon C 18	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00000	566.67	0.00000
Verizon C 18	COMMSCOPE NHH-65B-R2B	1900	15.65	65.70	4.00	40.00	1469.13	0.00001	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 C 19	COMMSCOPE NHH-65B-R2B	700	12.29	65.70	2.00	40.00	677.74	0.00002	466.67	0.00001
Verizon C 19	COMMSCOPE NHH-65B-R2B	850	12.70	65.70	2.00	40.00	744.83	0.00000	566.67	0.00000
Verizon C 19	COMMSCOPE NHH-65B-R2B	2100	16.22	65.70	4.00	40.00	1675.17	0.00001	1000.00	0.00000
							Cumulative Power Density:	535.28243 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	53.53838%



## **Summary**

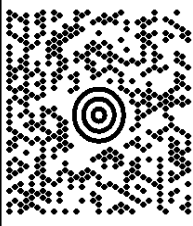
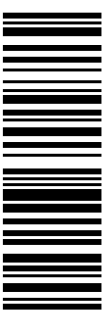
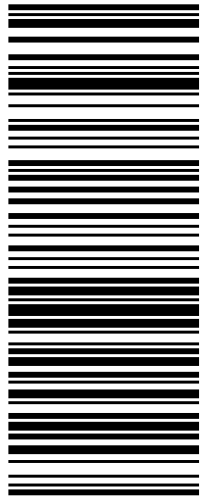

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level and on the adjacent rooftop that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **compliant** with FCC rules and regulations.

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

# **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

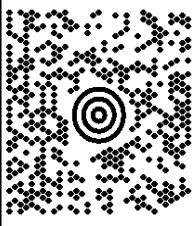
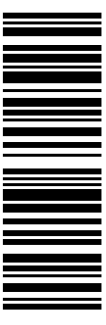
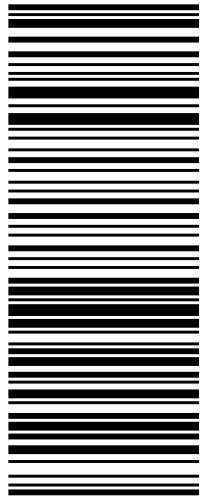

<b>Tracking Number:</b>	<a href="#">1Z9Y45030302707194</a>
<b>Ship To:</b>	TOWN OF SIMSBURY 933 HOPMEADOW STREET SIMSBURY, CT 060701822 US
<b>Number of Packages:</b>	1
<b>UPS Service:</b>	UPS Ground
<b>Package Weight:</b>	0.8 LBS
<b>Reference Number:</b>	CTHA151A & CTHA152A - TOWN

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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
SHIP TO: SIMSBURY FIRE DISTRICT 869 HOPMEADOW STREET SIMSBURY CT 06070-1821			
	CT 060 9-02 		
UPS GROUND			
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