750 West Center Street, Floor 3 / Suite 301
West Bridgewater, MA 02379 *Corporate Headquarters*
781.713.4725
617.249.0819

Centerline Communications
Ryan Clark
750 West Center Street, Floor 3
West Bridgewater, MA 02379
203-300-7310
rclark@clinellc.com

August 30, 2021

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

Notice of Exempt Modification
1 Chestnut Street Norwich, CT 06360
Latitude: 41.525660
Longitude:-72.075125
T-Mobile Site#: CT11263A_L600

Dear Ms. Bachman,

T-Mobile currently maintains six (6) antennas at the 101-foot level of the existing 93-foot lattice tower at 1 Chestnut Street Norwich, CT 06360. The 93-foot tower is owned by Everest Infrastructure Partners and the property owner is Frontier Communications. T-Mobile now intends to replace three (3) of its existing 600/700 MHz antennas and add three (3) additional 2500 MHz antennas antenna. The new antennas would be installed at the 101-foot level of the tower. New pipe mounts are to be installed as recommended in the attached Mount Analysis. The proposed modifications will make the site available for 5G at some point in the future. Included in the filing is a Structural Analysis report dated August 20, 2021 which includes an analysis of the building that the tower resides on.

Planned Modifications:

Remove and Replace:
(3) Andrew LNX-6515DS-A1M **(Remove)** - (3) RFS- APXVAALL24 600/700 MHz Antennas **(Replace)**
(3) RRUS11 B12 **(Remove) -** (3) RRU 4449 B12/B71 **(Replace)**

Install New:
(3) Fiber Hybrid Line
(3) RRU 4415
(3) RRU 4424
(3) AIR 6449 B41

Remove:
(6) TMA's
(18) Remove Coax Lines

Existing to Remain:
(3) RFS- APX16DWV-16DWV-S-E-A20

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781.713.4725
617.249.0819

Ground:
(2) New Cabinets
(2) New Equipment Racks

The CSC nor the local municipality has any records on the original approval for this site. I have attached a letter from the previous filing in regards to the local jurisdiction approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Mayor Peter A. Nystrom, Chief Elected Official and Deanna Rhodes, City Planner for the City of Norwich, Everest Infrastructure Partners as tower owner and Frontier Communications as the property 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).

Sincerely,

Ryan Clark

Ryan Clark
Mobile: 203-300-7310
Fax: 508-819-3017
Office: 750 West Center Street, Floor 3 West Bridgewater, MA 02379
Email: rclark@clinellc.com

Attachments
cc: Mayor Peter A. Nystrom, Chief Elected Official
Deanna Rhodes, City Planner for the City of Norwich
Everest Infrastructure Partners as tower owner
Frontier Communications as the property owner.

Centerline Communications LLC

CONNECTICUT SITING COUNCIL

Check: 28404
Date: 8/23/2021
Vendor: 0

Invoice	P.O. Num.	Invoice Amt	Prior Balance	Retention	Discount	Amt. Paid
572104-008-2 CT11263A		625.00	625.00	0.00	0.00	625.00
		625.00	625.00	0.00	0.00	625.00

028404

Centerline Communications LLC
750 W. Center Street
Suite 301
W. Bridgewater, MA 02379
(781) 713-4725

ROCKLAND TRUST COMPANY
MEDFIELD, MA 02052

53-447/113

28404

DATE 8/23/2021

AMOUNT **********625.00

PAY TO THE ORDER OF CONNECTICUT SITING COUNCIL

THE SUM OF SIX HUNDRED TWENTY FIVE DOLLARS AND NO CENTS **********

VOID AFTER 90 DAYS

AUTHORIZED SIGNATURE

Security features. Details on back

⑈028404⑈ ⑆011304478⑆ 292200987 9⑈

Exhibit A

Original Facility Approval

CITY OF NORWICH

Office of Planning and Development
Zoning Enforcement Division
23 Union St.
Norwich, CT 06360
(860) 823-3766

Gary A. Evans
Director of Planning & Community Development

Tianne P. Curtis
Zoning Enforcement Officer

June 24, 2016

Denise Sabo
199 Brickyard Road
Farmington CT 06032

RE: 1 Chestnut Street, Norwich CT

Dear Ms. Sabo:

In response to your inquiry regarding the telecommunication tower located at 1 Chestnut Street, the Planning Division did not find an original zoning approval. Please accept this letter as notice that we the Town of Norwich are not able to locate an original tower approval on record.

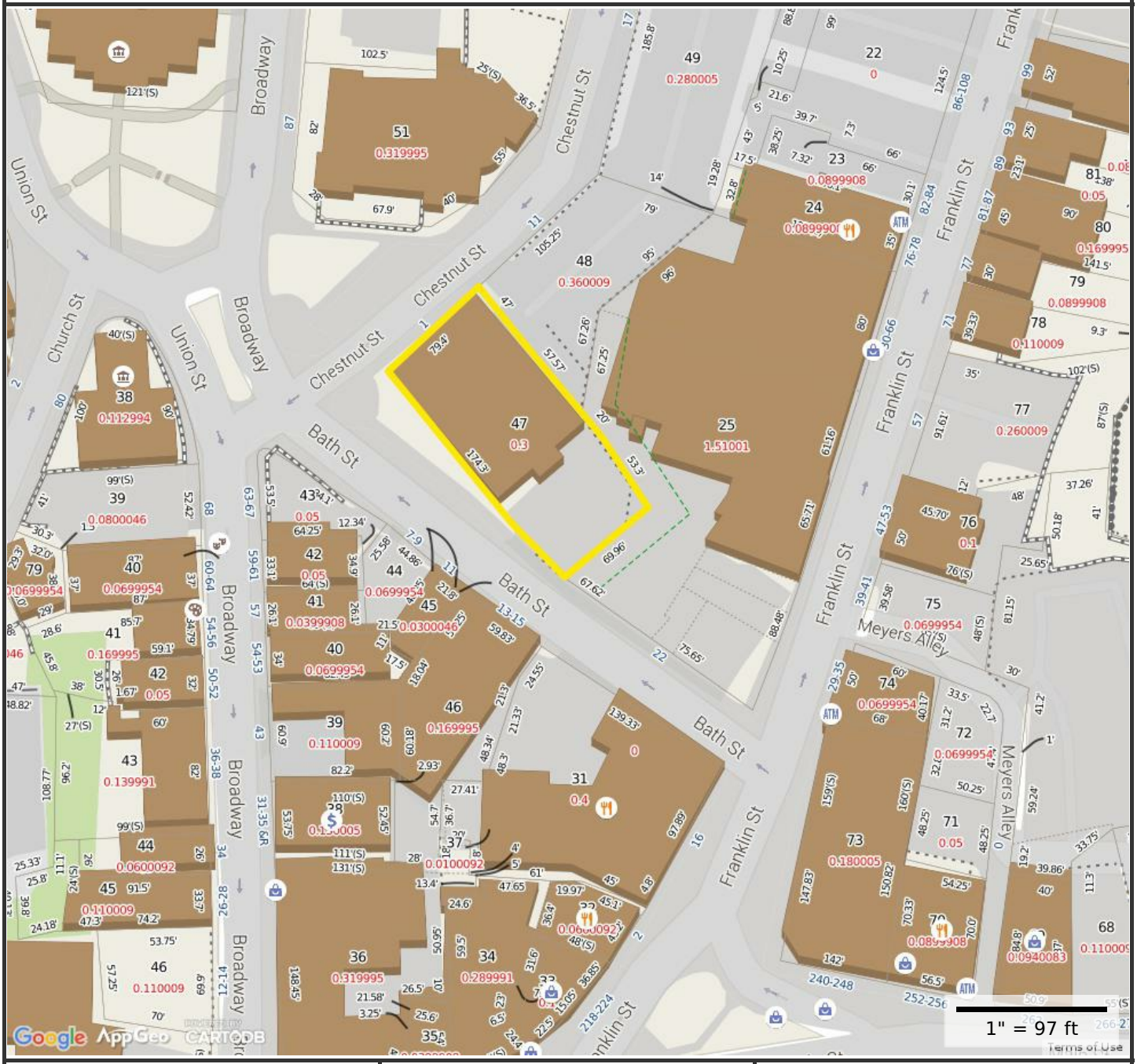
If you have any questions or concerns please feel free to contact me at (860) 823-3752.

Thank you.
Respectfully,

Tianne P. Curtis
Zoning Enforcement Officer

Exhibit B

Property Card



Property Information

Property ID	102-003-047.000-0000
Location	1 CHESTNUT ST
Owner	SOUTHERN N E TELEPHONE CO

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Norwich, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated 10/30/2014
Properties updated daily

1 CHESTNUT ST

Location	1 CHESTNUT ST	**Mblu**	102/ 3/ 47/ /
Acct#	0106470001	**Owner**	SOUTHERN N E TELEPHONE CO
Assessment	$768,600	**Appraisal**	$1,098,000
PID	10496	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$1,061,500	$36,500	$1,098,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$743,000	$25,600	$768,600

Parcel Addreses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner	SOUTHERN N E TELEPHONE CO % FRONTIER COMMUNICATIONS	**Sale Price**	$0
		Certificate	
Address	401 MERRITT 7 TAX DEPT NORWALK, CT 06851	**Book & Page**	0223/0395
		Sale Date	10/01/1942

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
SOUTHERN N E TELEPHONE CO	$0		0223/0395	10/01/1942

Building Information

Building 1 : Section 1

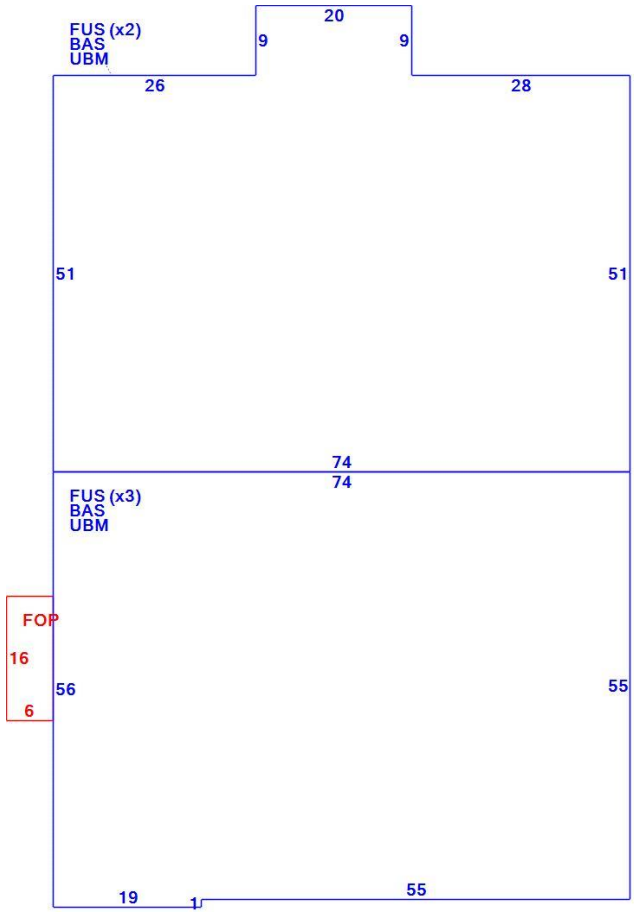
Year Built: 1954
Living Area: 28,218
Replacement Cost: $3,038,144
Building Percent Good: 33
Replacement Cost Less Depreciation: $1,002,600

Building Attributes	
Field	**Description**
STYLE	Telephone Bldg
MODEL	Ind/Lg Unf Com
Grade	Good
Stories:	4
Occupancy	1.00
Exterior Wall 1	Stone/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall/Sheet
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	Concr-Finished
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	Vapor Cooler
Struct Class	
Bldg Use	TEL X STA
Total Rooms	
Total Bedrms	00
Total Baths	0
Usrfld 218	
Usrfld 219	
1st Floor Use:	4300
Heat/AC	HEAT/AC PKGS
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	ABOVE AVERAGE
Wall Height	16.00
% Comn Wall	0.00

Building Photo

(http://images.vgsi.com/photos/NorwichCTPhotos/\00\03\04\11.jpg)

Building Layout



(ParcelSketch.ashx?pid=10496&bid=10496)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
FUS	Upper Story, Finished	20,175	20,175
BAS	First Floor	8,043	8,043
FOP	Porch, Open, Finished	96	0

UBM	Basement, Unfinished	8,043	0
		36,357	28,218

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
ELEV	Elevator	5.00 STOPS	$41,300	1
SPR1	Sprinklers	28218.00 S.F.	$9,300	1

Land

Land Use

Use Code	4300
Description	TEL X STA
Zone	CC
Neighborhood	C050
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.3
Frontage	0
Depth	0
Assessed Value	$25,600
Appraised Value	$36,500

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD5	Shed Comm Mas			216.00 S.F.	$2,700	1
PAV1	Paving Asphalt			3750.00 S.F.	$5,600	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$1,061,500	$36,500	$1,098,000
2019	$1,061,500	$36,500	$1,098,000
2018	$1,061,500	$36,500	$1,098,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$743,000	$25,600	$768,600
2019	$743,000	$25,600	$768,600
2018	$743,000	$25,600	$768,600

Exhibit C

Construction Drawings

PROJECT INFORMATION

SITE NAME:	PRESTON-2 SNET_1
SITE NUMBER:	CT11263A
SITE ADDRESS:	1 CHESTNUT STREET NORWICH, CT 06360
COUNTY	NEW LONDON
MUNICIPALITY:	CITY OF NORWICH
ZONING:	CC
LATITUDE:	N 41°31'32.38" (41.525660°) (NAD83)
LONGITUDE:	W -72°4'30.45" (-72.075125°) (NAD83)
TYPE OF SITE:	LATTICE TOWER
STRUCTURE HEIGHT:	95'-2" AGL
ANTENNA CENTER:	101-0" AGL
GROUND ELEVATION:	26.2' (NAVD 88)
BUILDING OWNER NAME:	FRONTIER COMMUNICATIONS - NORWICH CO STE
BUILDING OWNER ADDRESS:	200 STATE STREET NEW LONDON, CT 06320
APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN RD S BLOOMFIELD, CONNECTICUT 06002
APPLICANT PHONE:	(860) 692-7100
APPLICANT FAX:	

PROJECT DIRECTORY

ENGINEERING FIRM:
CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
DEREK CREASER (617) 306-3034

CARRIER:
T-MOBILE NORTHEAST, LLC.
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
PHONE: (860) 692-1700

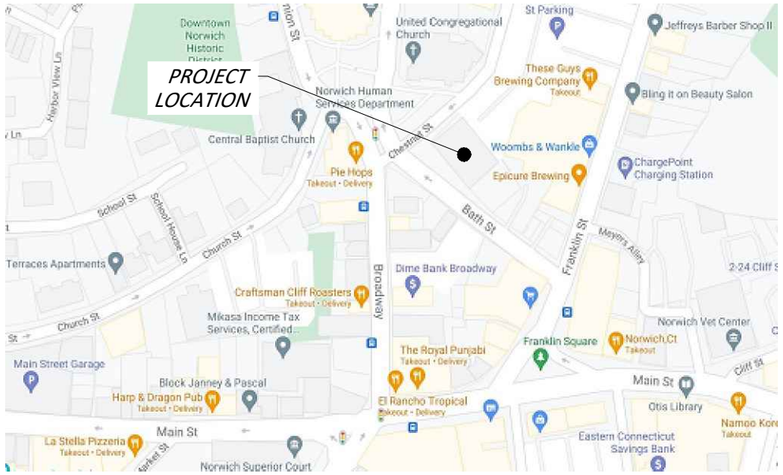
811 Know what's below. Call before you dig.

CENTERLINE COMMUNICATIONS

T - Mobile NORTHEAST LLC

SITE NAME: PRESTON-2 SNET_1
SITE ID: CT11263A
ADDRESS: 1 CHESTNUT STREET
NORWICH, CT 06360

TECHNOLOGY: 67D5A998C OUTDOOR
MODIFICATION: ANCHOR_PHASE 3 L600_L600 COVERAGE



VICINITY MAP
NOT TO SCALE

LOCATION MAP
NOT TO SCALE

GENERAL NOTES

1. 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 PURPOSE OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

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

SCOPE OF WORK

1. REMOVE THREE EXISTING ANTENNAS
2. INSTALL SIX NEW ANTENNAS
3. INSTALL NINE NEW RRUS
4. INSTALL THREE NEW 6x24 HYBRID CABLES
5. INSTALL NEW EQUIPMENT RACK W/ 6230
6. INSTALL T-MOBILE 6160 EQUIPMENT CABINET
7. REMOVE ALL UNUSED COAX CABLES

DRAWING INDEX

NO.	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES, RF NOTES, CABLING NOTES
A-1	PARTIAL ROOFTOP PLAN
A-2	EQUIPMENT LAYOUT
A-3	DETAILS
A-4	EAST ELEVATION
A-5	ANTENNA LAYOUT
SN-1	STRUCTURAL NOTES & SPECIAL INSPECTIONS
S-1	ANTENNA & RRU MOUNTING DETAILS
G-1	GROUNDING DETAILS & ONE LINE DIAGRAM

DRAWING SCALE NOTES:

THESE DRAWINGS ARE FORMATTED TO BE FULL SIZE AT 22"x34". CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

T - Mobile NORTHEAST LLC
T-MOBILE NORTHEAST, LLC.
35 GRIFFIN RD S
BLOOMFIELD, CT 026002
PHONE: (860) 629-1700

CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/17/21	REVISED FOR CONSTRUCTION	KT
0	06/2/21	ISSUED FOR CONSTRUCTION	RL
A	06/03/21	ISSUED FOR REVIEW	RL

DESIGNED BY:	APPROVED BY:
RL	WRD

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 06/17/21

SITE NAME: PRESTON-2 SNET_1
SITE ID: CT11263A
SITE ADDRESS: 1 CHESTNUT STREET NORWICH, CT 06360 NEW LONDON
SHEET TITLE: TITLE SHEET
DRAWING: T-1

RF NOTES

1. ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR
2. THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.
3. RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.
4. ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G. OUT DOORS-OCCUPIED, INDOORS-UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.
5. RADIO SIGNAL CABLE SHALL BE SUPPORTED AT MINIMUM OF EVERY THREE (3) FEET EXCEPT INSIDE MONOPOLES OR MONOPOLES WHERE CABLE AND CONNECTOR MANUFACTURERS SUPPORT RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURER RECOMMENDATION CABLES SUPPORT ACCESSORIES SHALL BE USED.
6. THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.
7. DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.
8. ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.
9. 7/16 DIN CONNECTORS REQUIRE NO ADDITIONAL WEATHER PROOFING IN INDOOR APPLICATIONS IF INSTALLED AND TORQUED PROPERLY. IN OUTDOOR APPLICATIONS WEATHER PROOFING IS REQUIRED AND THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED.
10. USING WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURER AND CONTRACTOR START TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR, AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER INCH OR TWO. PASS THE BUTYL RUBBER AND FINISH WITH A FINAL LAYER OF TAPE.
11. ANTENNAS SHALL BE PAINTED,WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY OF HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACES PREPARATION AND PAINTING REQUIREMENTS.
12. CABLE SHIELDS AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF THE TOWERS THAT ARE BETWEEN 60 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 60 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.

ANTENNA CABLE & SCHEDULING NOTES

1. SUBCONTRACTOR SHALL VERIFY THE ACTUAL LENGTH IN THE FIELD BEFORE INSTALLATION.
2. TAG AND COLOR CODE ALL MAIN CABLES AT LOCATIONS PER T-MOBILE ANTENNA CABLE MARKING STANDARD:
   - TOP OF TOWER END OF MAIN COAX
   - BOTTOM OF TOWER END OF MAIN COAX
   - DIRECTLY BEFORE AND AFTER RF EQUIPMENT
   - END OF JUMPERS AT BTS EQUIPMENT
3. ANTENNAS SHALL BE PROCURED AND INSTALLED WITH DOWN TILT MOUNTING BRACKETS SUPPLIED BY ANTENNA MANUFACTURER.
4. PRIOR APPROVAL IS REQUIRED BEFORE PERFORMING ANY WORK ON EXISTING CELL SITE EQUIPMENT.

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR - CENTERLINE COMMUNICATIONS
   SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER - T-MOBILE MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE MOBILITY SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE: IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
LIGHTNING CODE: NFPA 70-2017

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-G, STRUCTURAL STANDARDS FOR STEEL

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

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

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

T - Mobile
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN RD S
BLOOMFIELD, CT 026002
PHONE: (860) 629-1700

CENTERLINE COMMUNICATIONS

750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/17/21	REVISED FOR CONSTRUCTION	KT
0	06/2/21	ISSUED FOR CONSTRUCTION	RL
A	06/03/21	ISSUED FOR REVIEW	RL

DESIGNED BY:	APPROVED BY:
RL	WRD

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 06/17/21

SITE NAME: PRESTON-2 SNET_1

SITE ID: CT11263A

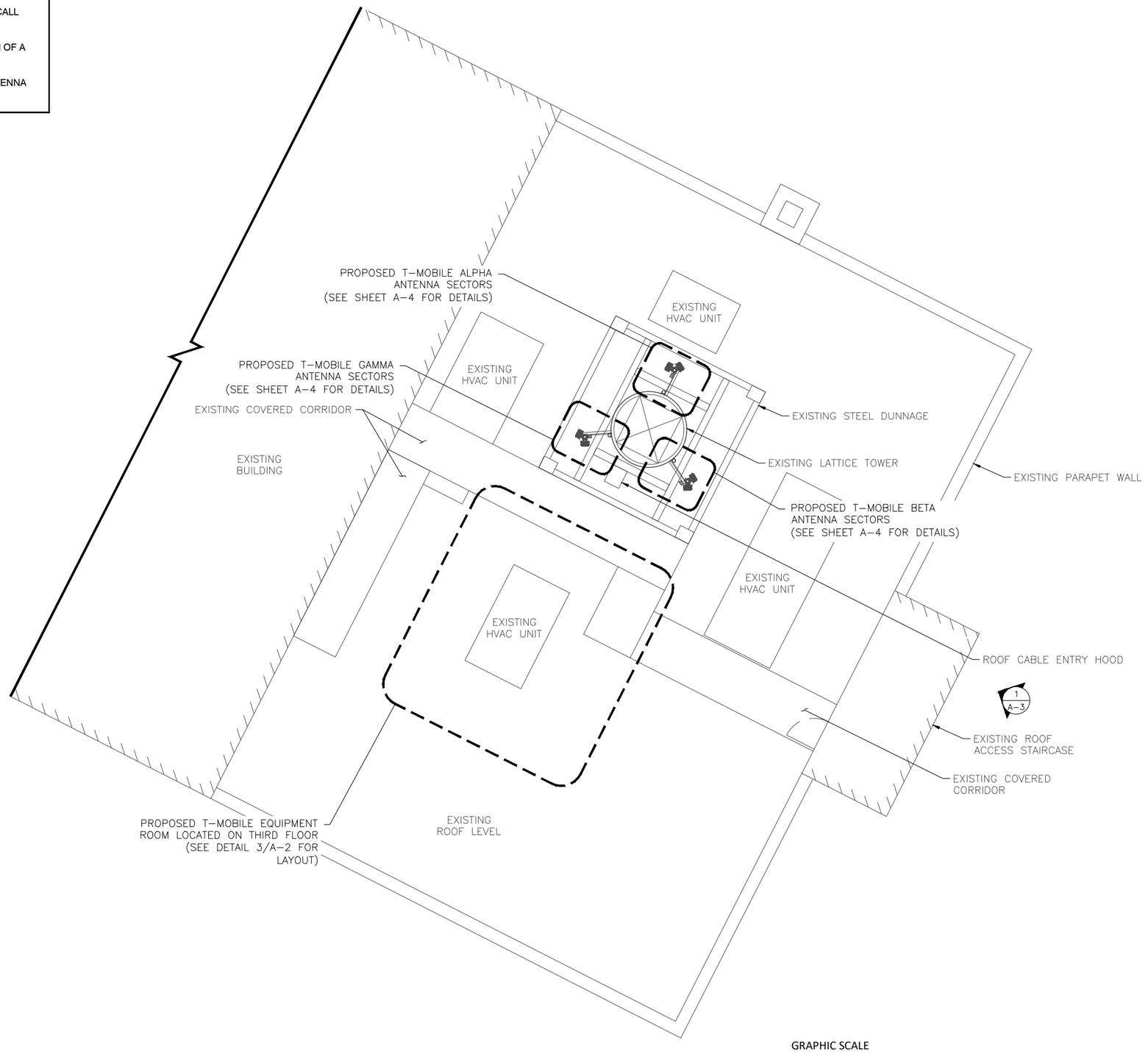
SITE ADDRESS: 1 CHESTNUT STREET
NORWICH, CT 06360
NEW LONDON

SHEET TITLE: GENERAL NOTES, RF NOTES, CABLING NOTES

DRAWING: GN-1

NOTES

1. CONTRACTOR SHALL MAKE A UTILITY 811 DIG SAFE CALL TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
2. CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING MOUNT ANALYSIS.
3. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA MODELS AND SETTINGS.



1 A-1 PARTIAL ROOFTOP PLAN

GRAPHIC SCALE

8 4 0 1 2 4 8

3/16 INCH = 1 FOOT (22X34)
3/32 INCH = 1 FOOT (11X17)

TRUE NORTH

N

T - Mobile
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DEREK J. CREASER
No. 28551
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CT11263A

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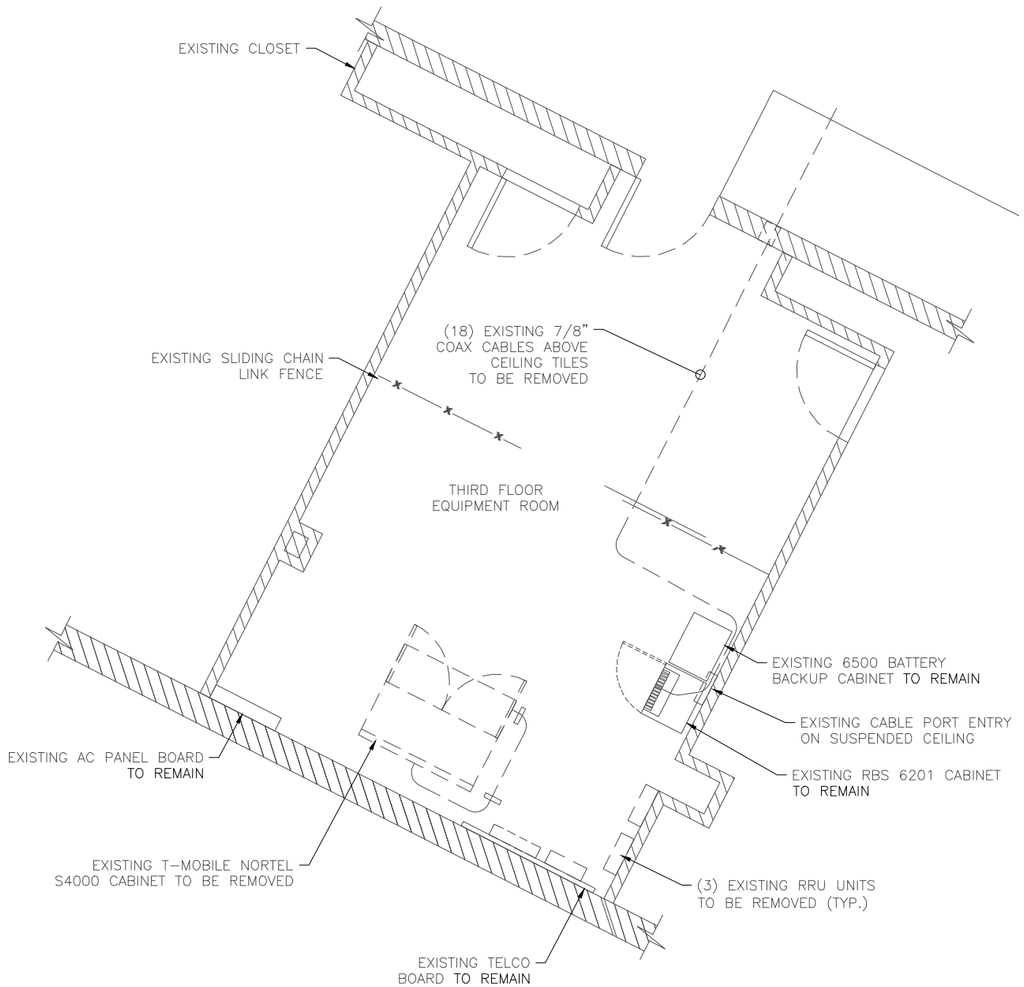
1 CHESTNUT STREET
NORWICH, CT 06360
NEW LONDON

SHEET TITLE:
PARTIAL ROOFTOP PLAN

DRAWING:
A-1

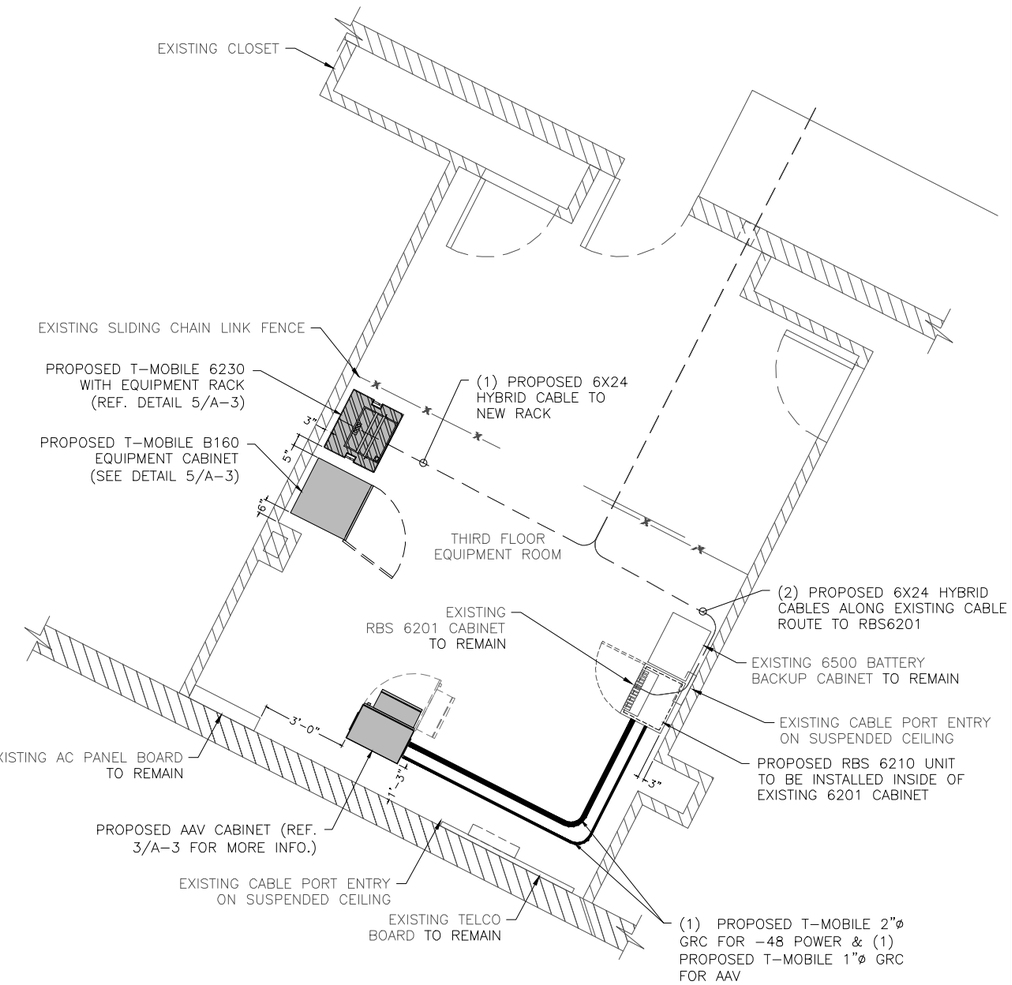


1 A-2 EXISTING EQUIPMENT PLAN

GRAPHIC SCALE

4 0 1 2 4 8

3/8 INCH = 1 FOOT (22X34)
3/16 INCH = 1 FOOT (11X17)



TRUE NORTH

N

2 A-2 PROPOSED EQUIPMENT PLAN

GRAPHIC SCALE

4 0 1 2 4 8

3/8 INCH = 1 FOOT (22X34)
3/16 INCH = 1 FOOT (11X17)

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 06/17/21

SITE NAME:
PRESTON-2 SNET_1

SITE ID:
CT11263A

SITE ADDRESS:
1 CHESTNUT STREET
NORWICH, CT 06360
NEW LONDON

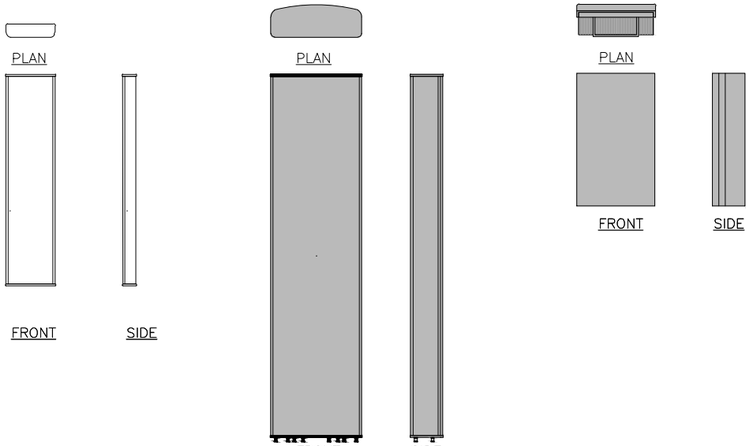
SHEET TITLE:
EQUIPMENT LAYOUT

DRAWING:
A-2

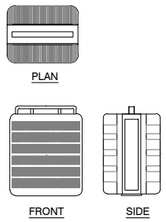
RFS APX16DWV-16DWVS-E-A20	
MODEL #	APX16DWV-16DWVS-E-A20
MANUF.	RFS
HEIGHT	55.9"
WIDTH	13.3"
DEPTH	3.15"
WEIGHT	40.7 LBS

RFS APXVAALL24_43-U-NA20	
MODEL #	APXVAALL24_43-U-NA20
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.5"
WEIGHT	128 LBS/153.3 LBS with Mounting Hardware

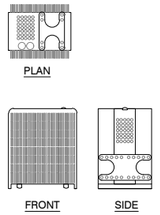
ERICSSON AIR 6449 B41	
MODEL #	AIR 6449 B41
MANUF.	ERICSSON
HEIGHT	33.1"
WIDTH	20.6"
DEPTH	8.6"
WEIGHT	104.0 LBS



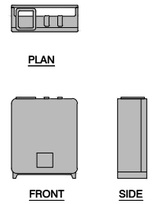
1 A-3 ANTENNA DETAILS



RADIO DIMENSIONS	
MODEL #	RADIO 4449 B71+B12 (WITH FILTER)
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.1"
DEPTH	9.2"
WEIGHT	74 LBS

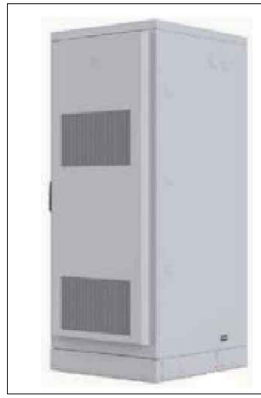


RADIO DIMENSIONS	
MODEL #	RADIO 4424 B25
MANUF.	ERICSSON
HEIGHT	17.1"
WIDTH	14.4"
DEPTH	11.3"
WEIGHT	86 LBS



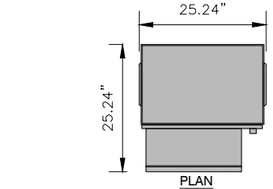
RADIO DIMENSIONS	
MODEL #	RADIO 4415 B25 & B66A
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LBS

2 A-3 RADIO DETAILS

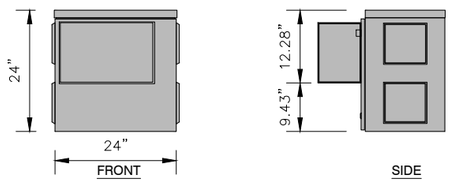


B160 BATTERY ENCLOSURE

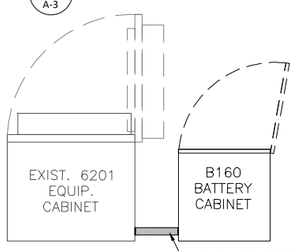
CAPACITY	
VRLA12V:	100Ah/150Ah/170Ah/190Ah/210Ah
Li-ION	24U 19"/23"
SODIUM-NICKEL	3xFIAMM
ELECTRICAL SPECIFICATIONS	
DC OUTPUT	-48VDC/200A
BATTERY BREAKERS	2x125/2p
ALARMS	DOOR OPEN, CLIMATE FAILURE, MCB CONNECTION
MECHANICAL SPECIFICATIONS	
WEIGHT	295 lbs (PLUS 3 STRINGS OF RECOMMENDED 190 aHR FOR ADDITIONAL 1588LBS)
DIMENSIONS (HWD)	63"x26"x26" (INCLUDING BASE FRAME)
BASE FRAME HEIGHT	6"
MATERIAL	GALVANIZED STEEL (180g/m²)
COLOR	POWDER PAINT NCS 2002-B
LOCKING TYPE	CYLINDER/PAD LOCK



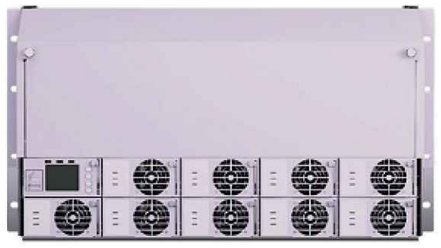
AAV CABINET	
MODEL #	NETXTEND 2416
MANUF.	EMERSON
HEIGHT	24.0"
WIDTH	24.0"
DEPTH	16.67"
WEIGHT	64 LBS/100 LBS with (4) BATERIES



3 A-3 AAV CABINET DETAIL

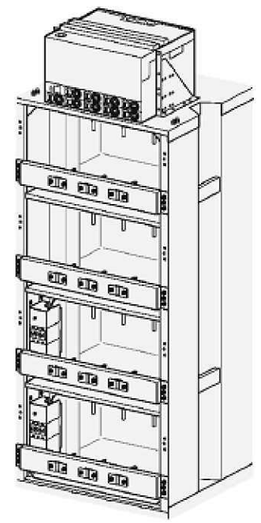


4 A-3 NEW EQUIPMENT CONDUIT DETAIL



	Power 6230
Dimensions	6U / 19" rack mount / 15.5" depth
Mounting	Rack, wall
Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 1P+N+PE: 200-250 VAC
Input power	<33 kW
Output load (-48VDC)	24 kW
Total capacity (-48VDC)	31.5 kW
PSU capacity	3500 W
PSU slots	9x
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
Ingress protection	IP20
Temperature range	0°C to +50°C
External alarms	32x

6230 POWER PLANT



EQUIPMENT RACK

5 A-3 PROPOSED EQUIPMENT CABINET SPECIFICATIONS

T - Mobile
NORTHEAST LLC
T-MOBILE NORTHEAST, LLC.
35 GRIFFIN RD S
BLOOMFIELD, CT 026002
PHONE: (860) 629-1700

CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

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DESIGNED BY:	APPROVED BY:
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STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 06/17/21

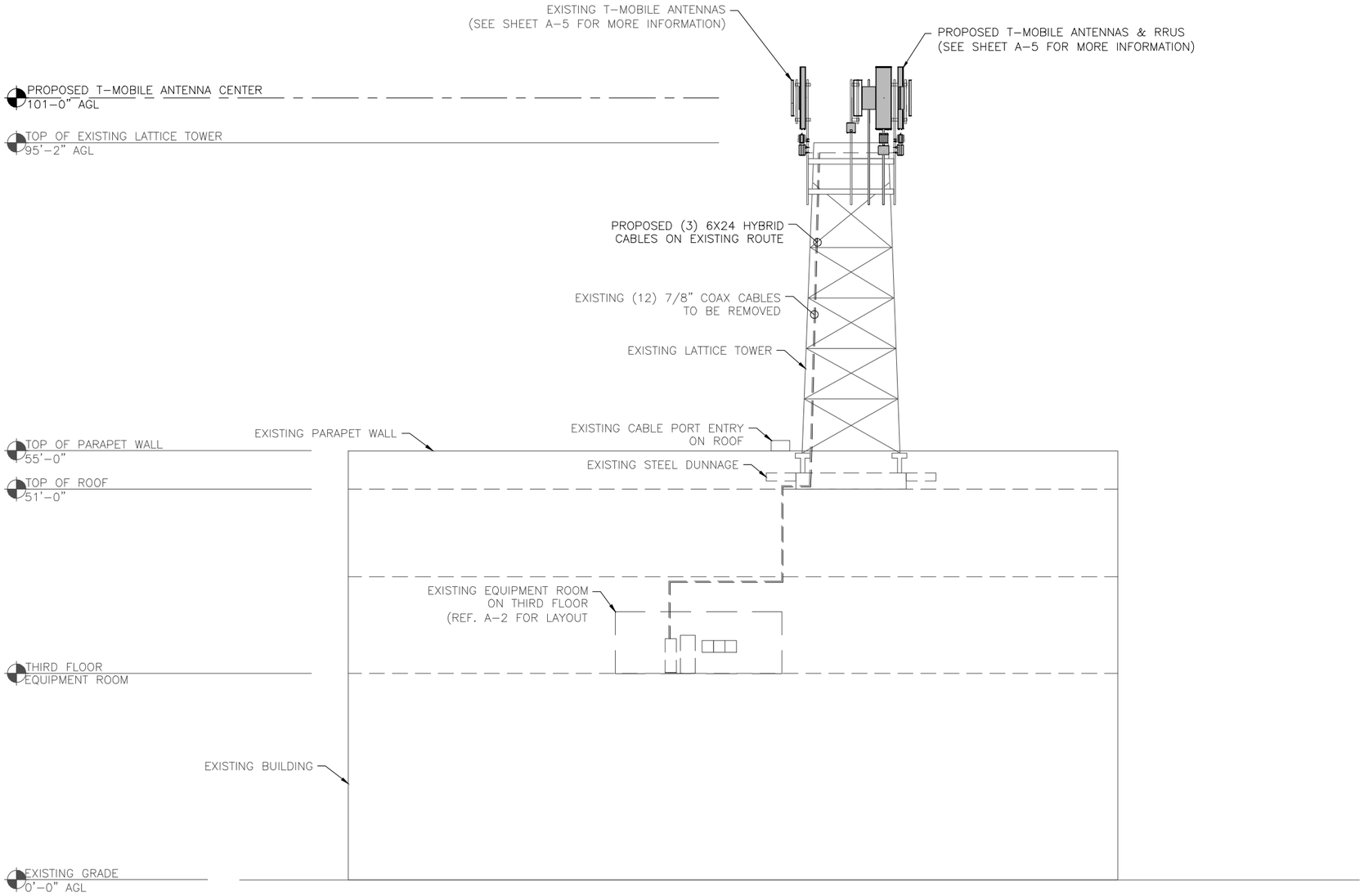
SITE NAME:
PRESTON-2 SNET_1

SITE ID:
CT11263A

SITE ADDRESS:
1 CHESTNUT STREET
NORWICH, CT 06360
NEW LONDON

SHEET TITLE:
EQUIPMENT DETAILS

DRAWING:
A-3



1 A-4 SOUTHEAST ELEVATION

GRAPHIC SCALE

16 8 0 1 2 4 8 16

1/8 INCH = 1 FOOT (22X34)
1/16 INCH = 1 FOOT (11X17)

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STATE OF CONNECTICUT
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No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 06/17/21

SITE NAME:
PRESTON-2 SNET_1

SITE ID:
CT11263A

SITE ADDRESS:
1 CHESTNUT STREET
NORWICH, CT 06360
NEW LONDON

SHEET TITLE:
SOUTHEAST ELEVATION

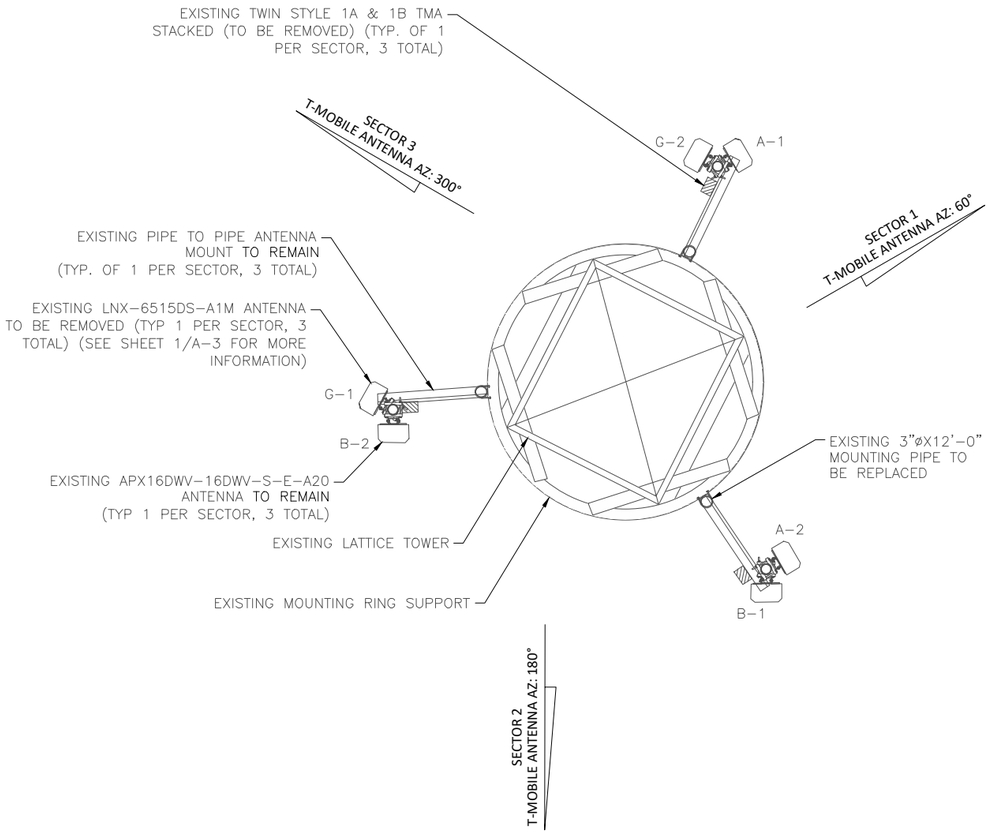
DRAWING:
A-4

ANTENNA & CABLE SCHEDULE:

ANTENNA & CABLE NOTES:

1. REFERENCE STRUCTURAL ANALYSIS BY CENTERLINE COMMUNICATIONS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.
3. REMOVE ALL UNUSED CABLE, RRUs AND TMAs.
4. PAINT ANTENNAS AND EQUIP. TO MATCH EXISTING.

	LOCATION	AZIMUTH	RAD CENTER	STATUS	TECHNOLOGY	ANTENNA MODEL NO.	MECH DOWNTILT	ELEC DOWNTILT	CABLES	DIPLEXERS	TMA/RRU	CABLE SIZE	CABLE LENGTH
ALPHA	**A-1**	**60°**	**101-0"**	**PROPOSED**	**L600,L700,N600, L1900,G1900**	**APXVAALL24_43-U-NA20**	**0°**	**0°**	**(6) COAX JUMPER 15 FT (X2) (2) FIBER JUMPERS 15 FT**	**N/A**	**RRUS 4449 B71+B85 RRUS 4424 B25**	**6x24 HYBRID**	**105'**
	A-2	**60°**	**101-0"**	**PROPOSED**	**L2500, N2500**	**AIR6449 B41**	**0°**	**0°**	**(2) FIBER JUMPER 15 FT (X2)**	**N/A**	**N/A**	SHARED	N/A
	A-3	**60°**	**101-0"**	EXISTING	L2100	APX16DWV-16DWV-S-E-A20	0°	0°	(2) COAX JUMPER (X2) (2) FIBER JUMPER 15FT	N/A	RRUS 4415 B66A	SHARED	N/A
BETA	**B-1**	**180°**	**101-0"**	**PROPOSED**	**L600,L700,N600, L1900,G1900**	**APXVAALL24_43-U-NA20**	**0°**	**0°**	**(6) COAX JUMPER 15 FT (X2) (2) FIBER JUMPERS 15 FT**	**N/A**	**RRUS 4449 B71+B85 RRUS 4424 B25**	**6x24 HYBRID**	**109'**
	B-2	**180°**	**101-0"**	**PROPOSED**	**L2500, N2500**	**AIR6449 B41**	**0°**	**0°**	**(2) FIBER JUMPER 15 FT (X2)**	**N/A**	**N/A**	SHARED	N/A
	B-3	**180°**	**101-0"**	EXISTING	L2100	APX16DWV-16DWV-S-E-A20	0°	0°	(2) COAX JUMPER (X2) (2) FIBER JUMPER 15FT	N/A	RRUS 4415 B66A	SHARED	N/A
GAMMA	**C-1**	**300°**	**101-0"**	**PROPOSED**	**L600,L700,N600, L1900,G1900**	**APXVAALL24_43-U-NA20**	**0°**	**0°**	**(6) COAX JUMPER 15 FT (X2) (2) FIBER JUMPERS 15 FT**	**N/A**	**RRUS 4449 B71+B85 RRUS 4424 B25**	**6x24 HYBRID**	**100'**
	C-2	**300°**	**101-0"**	**PROPOSED**	**L2500, N2500**	**AIR6449 B41**	**0°**	**0°**	**(2) FIBER JUMPER 15 FT (X2)**	**N/A**	**N/A**	SHARED	N/A
	C-3	**300°**	**101-0"**	EXISTING	L2100	APX16DWV-16DWV-S-E-A20	0°	0°	(2) COAX JUMPER (X2) (2) FIBER JUMPER 15FT	N/A	RRUS 4415 B66A	SHARED	N/A
NOTE: DARK TEXT IN TABLE ABOVE DENOTES PROPOSED EQUIPMENT											(3) TOTAL 6x24 HYBRID CABLES		314'

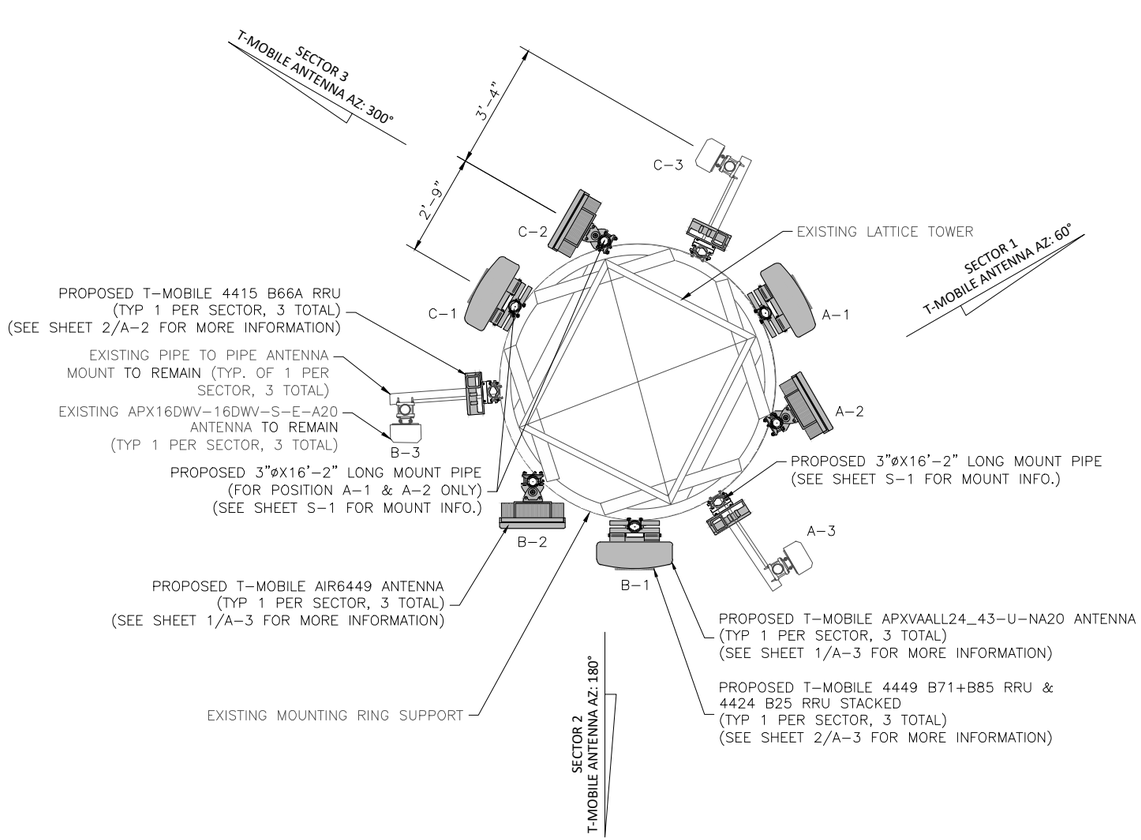


1 A-5 EXISTING ANTENNA PLAN

GRAPHIC SCALE

4 2 0 1 2 4

1/2 INCH = 1 FOOT (22X34)
1/4 INCH = 1 FOOT (11X17)



2 A-5 EXISTING ANTENNA PLAN

GRAPHIC SCALE

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1/2 INCH = 1 FOOT (22X34)
1/4 INCH = 1 FOOT (11X17)

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DESIGNED BY:	APPROVED BY:
RL	WRD

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28551 · LICENSED PROFESSIONAL ENGINEER

DATE: 06/17/21

SITE NAME: PRESTON-2 SNET_1

SITE ID: CT11263A

SITE ADDRESS: 1 CHESTNUT STREET NORWICH, CT 06360 NEW LONDON

SHEET TITLE: ANTENNA PLAN & SCHEDULE

DRAWING: A-5

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G 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 DI.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-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
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 [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
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 [6]**
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

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN RD S
BLOOMFIELD, CT 026002
PHONE: (860) 629-1700

CENTERLINE COMMUNICATIONS

750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/17/21	REVISED FOR CONSTRUCTION	KT
0	06/2/21	ISSUED FOR CONSTRUCTION	RL
A	06/03/21	ISSUED FOR REVIEW	RL

DESIGNED BY:	APPROVED BY:
RL	WRD

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 06/17/21

SITE NAME: PRESTON-2 SNET_1

SITE ID: CT11263A

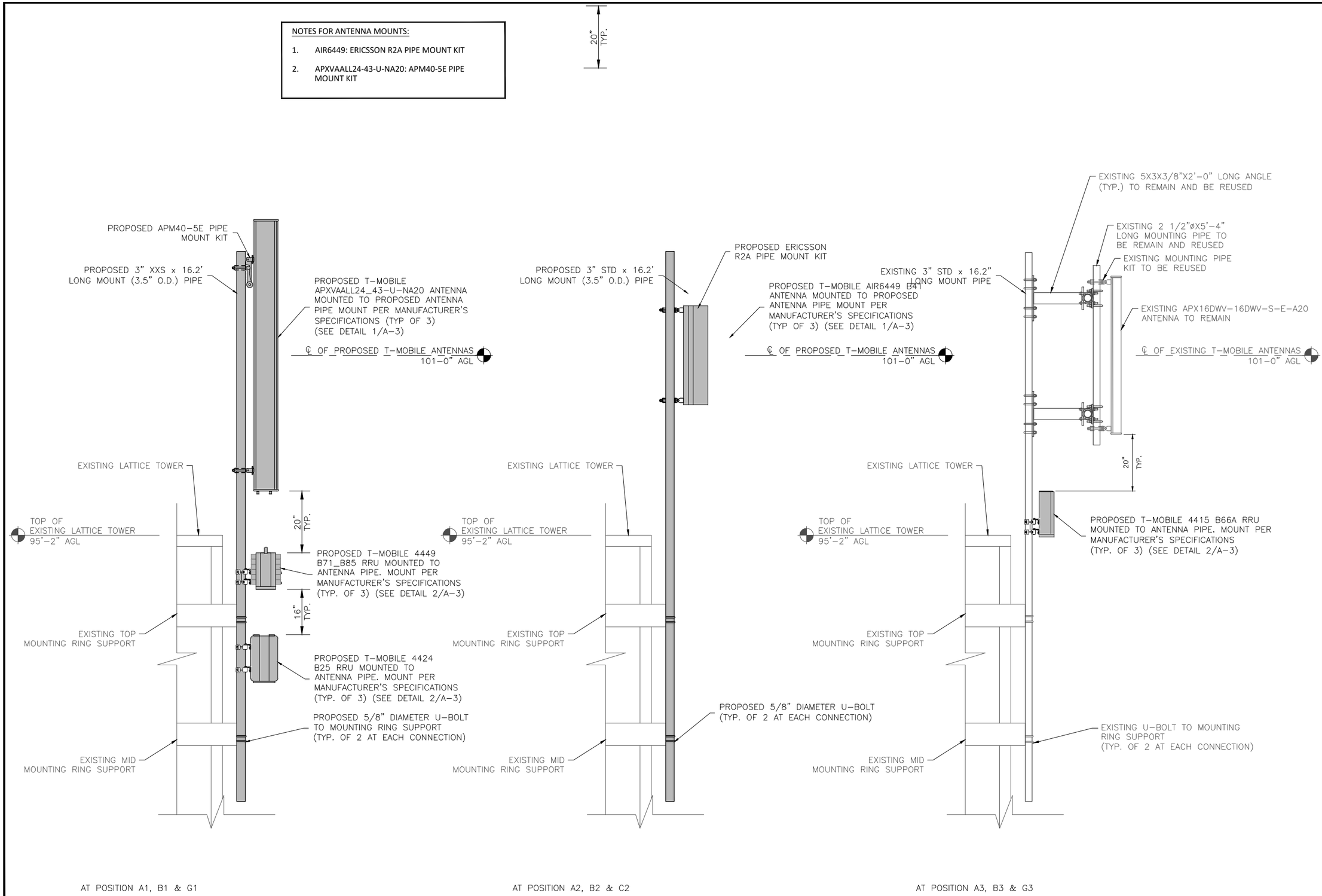
SITE ADDRESS: 1 CHESTNUT STREET
NORWICH, CT 06360
NEW LONDON

SHEET TITLE: STRUCTURAL NOTES & SPECIAL INSPECTIONS

DRAWING: SN-1

NOTES FOR ANTENNA MOUNTS:

1. AIR6449: ERICSSON R2A PIPE MOUNT KIT
2. APXVAALL24-43-U-NA20: APM40-5E PIPE MOUNT KIT



1 S-1 TYPICAL ANTENNA & RRU MOUNTING DETAIL

T - Mobile
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN RD S
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DESIGNED BY:	APPROVED BY:
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STATE OF CONNECTICUT
DEREK J. CREASER
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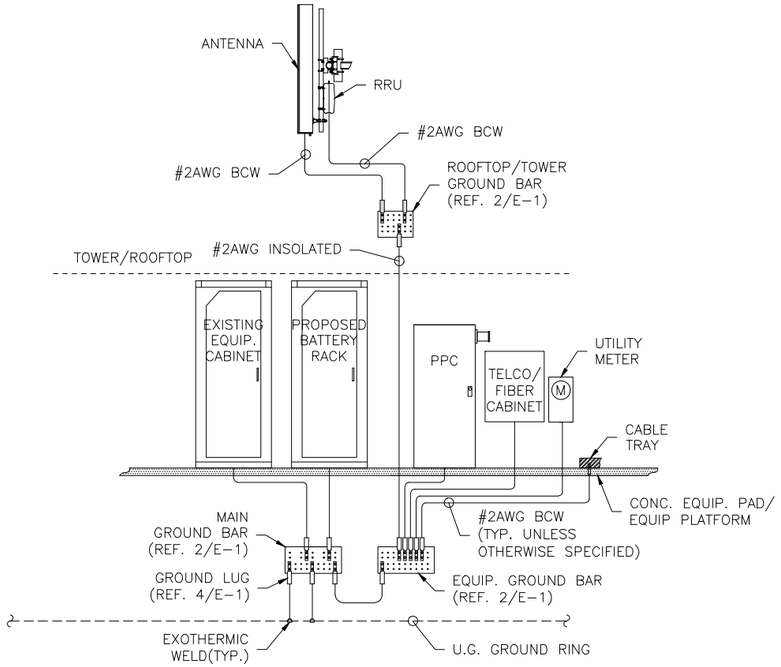
SITE ID: CT11263A

SITE ADDRESS: 1 CHESTNUT STREET
NORWICH, CT 06360
NEW LONDON

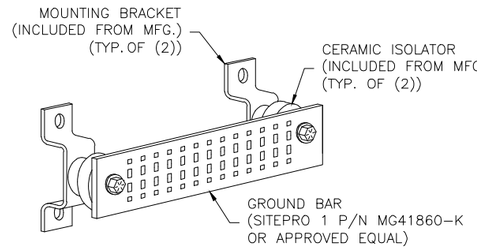
SHEET TITLE: ANTENNA & RRU MOUNTING DETAILS

DRAWING: S-1



GROUNDING RISER NOTE:
UNLESS OTHERWISE SPECIFIED ALL GROUNDING CONDUCTORS ARE TO BE #2AWG BCW

1 / G-1 GROUNDING RISER DIAGRAM



2 / G-1 GROUND BAR DETAIL

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

SECTION "P" – SURGE PRODUCERS

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

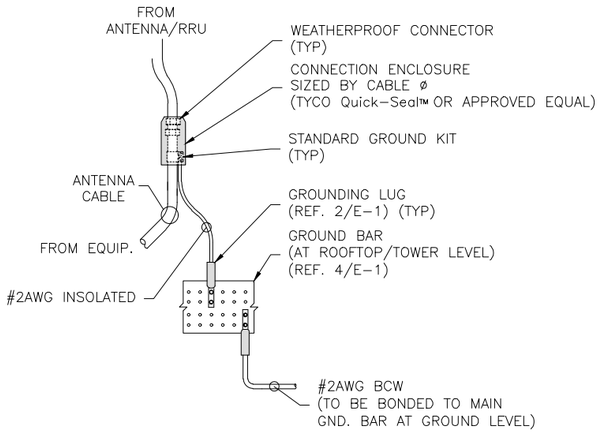
SECTION "A" – SURGE ABSORBERS

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

3 / G-1 GROUND WIRE SCHEDULE

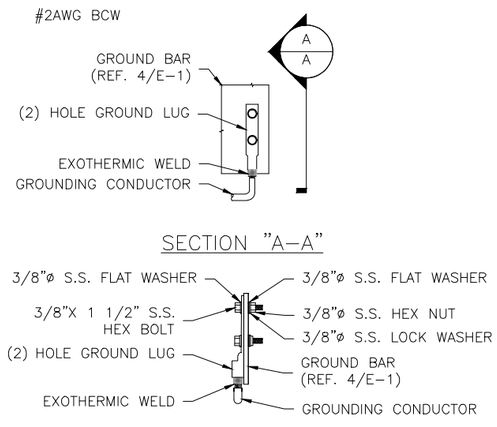
ELECTRIC PANEL NOTES:

1. TOTAL BREAKER POSITION: 40, EXISTING EMPTY BREAKER POSITIONS: 3, UNUSED BREAKER POSITIONS TO BE REMOVED: 30, PROPOSED BREAKER POSITIONS TO UTILIZE FOR T-MOBILE ANCHOR INSTALLATION: 9, EXISTING ACTIVE BREAKER POSITIONS TO REMAIN: 7, EXISTING EMPTY BREAKER POSITIONS AFTER T-MOBILE ANCHOR INSTALLATION: 24



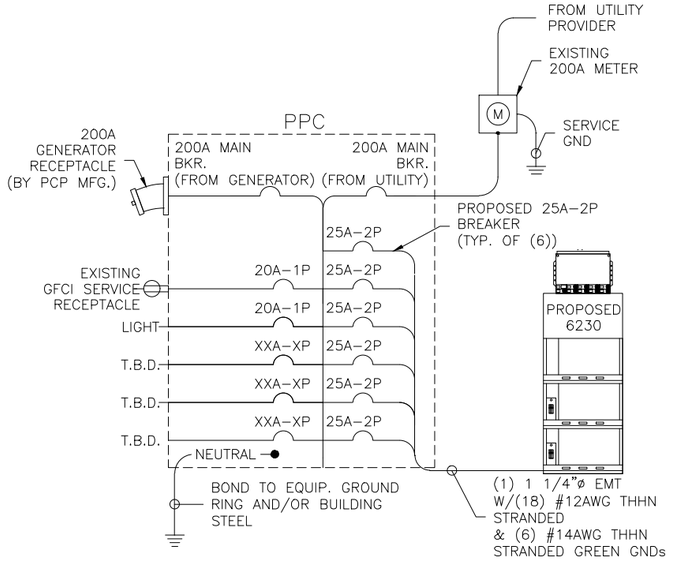
NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT BEND IN CABLE.
2. GROUND CABLES DIRECTLY TO CIGBE
3. JUMPER REQUIRED ONLY WHEN CABLE IS 1 1/4" OR LARGER

4 / G-1 ANTENNA/RRU GROUNDING DETAIL



GROUNDING LUG NOTES:
1. DO NOT DOUBLE UP OR STACK LUGS.
2. OXIDE INHIBITING COMPOUND TO BE APPLIED TO ALL LUGS.
3. ALL LUGS ARE TO BE EXOTHERMIC WELDED TO GROUNDING CONDUCTORS.
4. FOR INSOLATED GROUNDING CONDUCTORS, EXPOSED BARE COPPER TO BE KEPT TO ABSOLUTE MINIMUM.
5. NO INSULATION IS ALLOWED WITHIN THE BARREL OF THE COMPRESSION TERMINAL.

5 / G-1 GROUND LUG DETAIL



6 / G-1 ONE LINE DIAGRAM

T - Mobile
NORTHEAST LLC
T-MOBILE NORTHEAST, LLC.
35 GRIFFIN RD S
BLOOMFIELD, CT 026002
PHONE: (860) 629-1700

CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
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PHONE: 781.713.4725

REVISIONS

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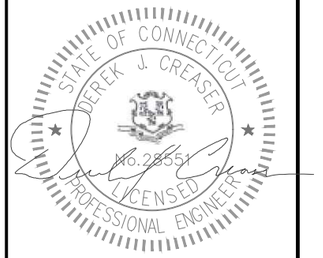
DESIGNED BY:	APPROVED BY:
RL	WRD



DATE: 06/17/21

SITE NAME:
PRESTON-2 SNET_1

SITE ID:
CT11263A

SITE ADDRESS:
1 CHESTNUT STREET
NORWICH, CT 06360
NEW LONDON

SHEET TITLE:
GROUNDING DETAILS & ONE LINE DIAGRAM

DRAWING:
G-1

Exhibit D

Structural Analysis Report

CENTERLINE COMMUNICATIONS
750 West Center Street, Suite 301
West Bridgewater, MA 02379
781.713.4725

Structural Analysis Report

Site ID: CT11263A
Site Name: Preston-2 SNET_1
Project Name: ANCHOR
Address: 1 Chestnut St
Norwich, CT 06360

Client:

T - Mobile

NORTHEAST, LLC
35 Griffin Rd S
Bloomfield, CT 06002

Date: 8/20/2021

CN = Derek J. Creaser, P.E.
email = dcreaser@clinellc.
com C = US O = Centerline
Communications OU =
Director - A&E Services
2021.08.20 14:55:31 -04'00'

Scope of Work:

Centerline Communications was authorized by T-Mobile Northeast LLC to perform an analysis of the building structure to determine its capacity to support the proposed and existing T-Mobile equipment/appurtenances listed in this report.

Existing & Proposed Equipment (Equipment Room):

(1) 6230 & Equipment Rack (Max. Weight = 600 lbs.)
(1) B160 Cabinet (Max. Weight = 1900 lbs.)
(1) AAV Cabinet (Max. Weight = 200 lbs.)
(1) RBS 6201 (Approx. Weight = 600 lbs.)
(1) 6500 Battery Cabinet (Approx. Weight = 1900 lbs.)
(1) Miscellaneous (Approx. Weight = 300 lbs.)

Existing & Proposed Equipment (Tower):

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	Number of Appurtenances	Antenna Manufacturer	Appurtenance Model	Feed Lines (in)
T-Mobile	101.0	101.0	3	RFS	APX16DWV-16DWV-S-E-A20 Antenna	**(3) 6x24 Hybrid**
			3	**RFS**	**APXVAALL24_43-U-NA20 Antenna**	
			3	**Ericsson**	**AIR6449 B41 Antenna**	
			3	Ericsson	4415 B66A RRH	
			3	**Ericsson**	**4449 B71+B85 RRH**	
			3	**Ericsson**	**4424 B25 RRH**	
			9	-	Pipe Mounts	
-	93.2	93.2	1	-	Top Mounting Ring Support	-
-	89.7	89.7	1	-	Mid Mounting Ring Support	-
Dish	*88.0*	*88.0*	*3*	*JMA Wireless*	*MX08FRO665-20*	*(1) 1-5/8 Hybrid*
			3	*Fujitsu*	*TA8025-B604*	
			3	*Fujitsu*	*TA8025-B605*	
			1	*Raycap*	*RDIDC-3045-PF-483*	
			3	*Commscope*	*MTC3975083*	
-	82.7	82.7	1	-	Bottom Mounting Ring Support	-
-	65.5	65.5	1	-	Platform Landing	-
-	58.3	58.3	1	-	GPS	(1) 1/4

Note: Proposed equipment shown in **bold**.
Note: Reserved equipment shown in *italics*.

Design Criteria:

Design Codes:

2018 Connecticut State Building Code
2015 International Building Code
ASCE 7-10
TIA-222-G Standards

Ultimate Design Wind Speed (V_{ult})	135 mph
Wind Speed with Ice	50 mph
Ice Thickness	0.75 in.
Ground Snow Load	30 psf
Exposure Category	B
Topographic Category	1
Risk Category	II
Site Soil Class (Assumed)	D – Stiff Soil
Seismic Design Category	B
Spectral Response Acceleration Parameter at a Short Periods, S_S	0.168 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.060 g
Short Period Site Coefficient, F_a	1.60
Long Period Site Coefficient, F_v	2.40

***Refer to calculations for additional design criteria.**

Conclusions:

Partial building plans for the fourth-floor addition prepared by Davis, Cochran & Miller dated January 11, 1968, were available for our reference. A limited visual survey of the tower support frame and building column location was performed on August 10, 2021. The tower support frame appears to be installed directly over building columns as shown in the attached pictures.

The results of the analysis concluded that the existing building structure *is adequate* to support the proposed and existing T-Mobile equipment loading.

	Stress Ratio	Overall Result
Equipment Room Floor	**19%**	**PASS**
Building Column (worse case)	**37%**	**PASS**

Reference Documents:

- Structural Analysis Report by Centerline Communications, dated July 30, 2021
- Dish Loading Email by Everest Infrastructure, dated July 22, 2021
- T-Mobile RFDS CT11263A_Anchor_5, dated May 19, 2021
- Site Photos and Notes by Centerline Communications, dated August 10, 2021
- Construction Drawings by Atlantis Design Group, dated June 13, 2016
- Structural Analysis by Malouf Engineering, dated May 18, 2017
- Construction Drawings by Atlantis Design Group, dated May 16, 2011
- Construction Drawings by Arcnet, dated October 7, 1997

Assumptions and Limitations:

- The tower and structures were built and maintained with the manufacturer's specifications.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in this report and the referenced drawings.
- The calculations performed by Centerline Communications are limited to the structural members in these calculations only.
- The analysis is only for the T-Mobile equipment loading listed in the report.
- The calculation assumes all structural members to be in good condition i.e. no damage, rust, or other defects.

Photos:

Existing T-Mobile Equipment Cabinets

Existing T-Mobile Equipment Cabinets

Tower Overall

Tower Support Frame

Typical Tower Support Frame Connection to Building Column

Typical Tower Support Frame Connection to Building Column

Building Structure Directly Below the Tower

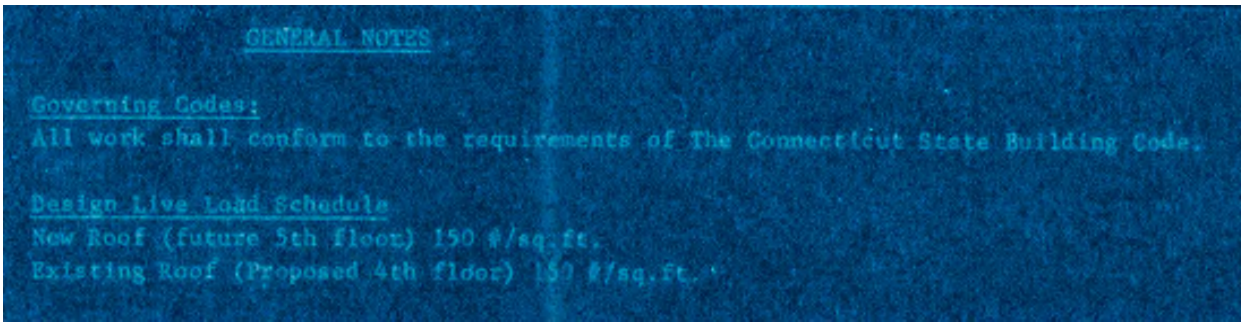
Building Structure Directly Below the Tower

Equipment Room Floor Calculations

Equipment	Weight (lbs)
6230 & Equipment Rack	600
B160 Cabinet	1900
AVV Rack	200
RBS6210 Cabinet	600
6500 Battery Cabinet	1900
Miscellaneous	300
Total Weight (lbs)	**5500**

Equipment Room	Width (ft)	Depth (ft)	Surface Area (sq. ft)
Equipment Room	12.8	15.5	**198**

	Area Load (psf)	**28**
per Building Plans	**Allowable Area Load (psf)**	150
		OK
	Stress Ratio (%)	**19**



GENERAL NOTES

Governing Codes:
All work shall conform to the requirements of The Connecticut State Building Code.

Design Live Load Schedule
New Roof (future 5th floor) 150 #/sq.ft.
Existing Roof (Proposed 4th floor) 150 #/sq.ft.

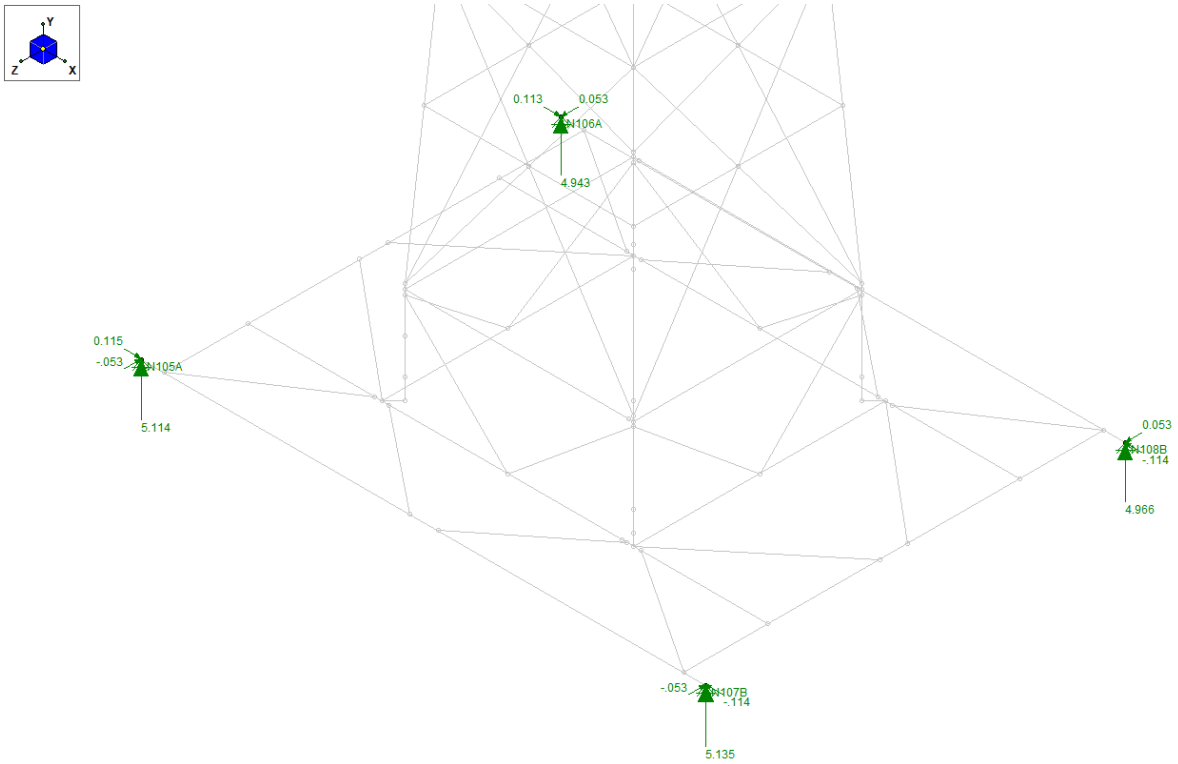
*Assume 150 psf live load for 3rd floor

Building Column Calculations

UNFACTORED DEAD LOAD

LC	JOINT LABEL	X (KIPS)	Y (KIPS)	Z (KIPS)
1	N105A	0.115	5.114	-0.053
1	N106A	0.113	4.943	0.053
1	N107B	-0.114	5.135	-0.053
1	N108B	-0.114	4.966	0.053

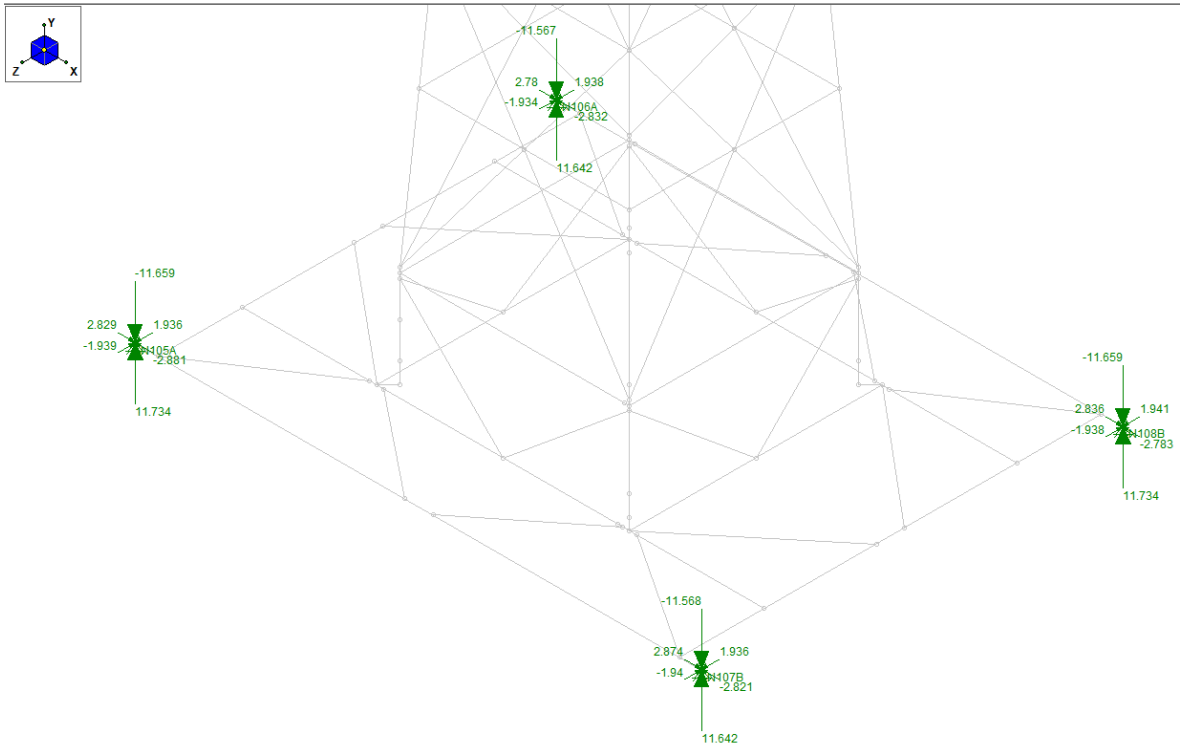
Note: Reactions are for dead load only.



ENVELOPE UNFACTORED WIND LOAD

JOINT	MIN/MAX	X (KIPS)	Y (KIPS)	Z (KIPS)
N105A	max	2.829	11.734	1.936
N105A	min	-2.881	-11.659	-1.939
N106A	max	2.78	11.642	1.938
N106A	min	-2.832	-11.567	-1.934
N107B	max	2.874	11.642	1.936
N107B	min	-2.821	-11.568	-1.94
N108B	max	2.836	11.734	1.941
N108B	min	-2.783	-11.659	-1.938

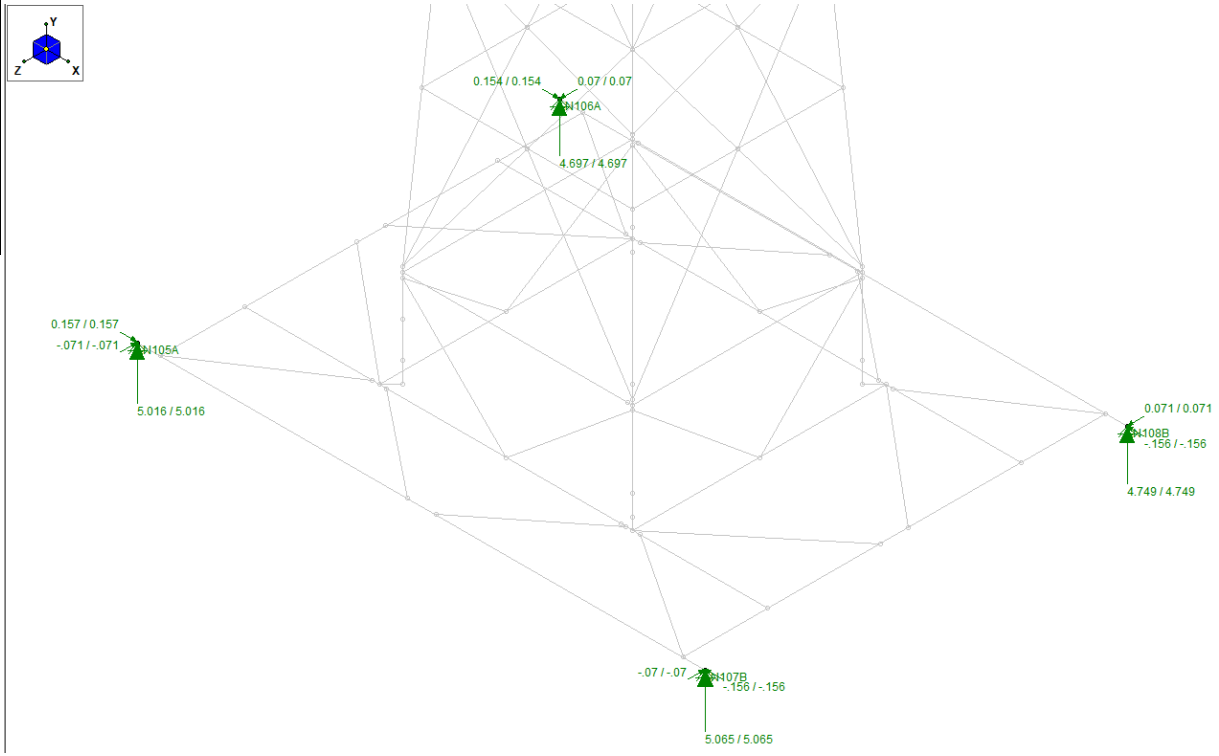
Note: Reactions are for wind load only.



ENVELOPE UNFACTORED ICED LOAD

JOINT	MIN/MAX	X (KIPS)	Y (KIPS)	Z (KIPS)
N105A	max	0.157	5.016	-0.071
N105A	min	0.157	5.016	-0.071
N106A	max	0.154	4.697	0.07
N106A	min	0.154	4.697	0.07
N107B	max	-0.156	5.065	-0.07
N107B	min	-0.156	5.065	-0.07
N108B	max	-0.156	4.749	0.071
N108B	min	-0.156	4.749	0.071

Note: Reactions are for iced load only.



Date: 08-20-2021
Project Name: Preston-2 SNET_1
Site ID: CT11263A
Designed By: AA Checked By: DC

Check Building Columns:

Interior Column - Worse Case: **12 WF 92, L = 15 ft.**

Load Breakdown:

Tributary Area: ((20 ft/ 2) + (16 ft/ 2)) * ((17 ft/2) + (17 ft/2))
= 306.00 ft^2

Live Loads

→ Snow 30 psf x 306 ft^2
= **9180.00 plf**

→ Service 150 psf x 306 ft^2
(Roof) **45900.00 plf**

→ Service 150 psf x 30 ft^2
(Floor 3) **4500.00 plf**

Dead Load

→ Roof 100 psf x 306 ft^2
= **30600.00 plf**
***Assume 8" concrete deck (150 pcf)**

→ Floor 163 psf x 306 ft^2
(Floor 3) **49878.00 plf**

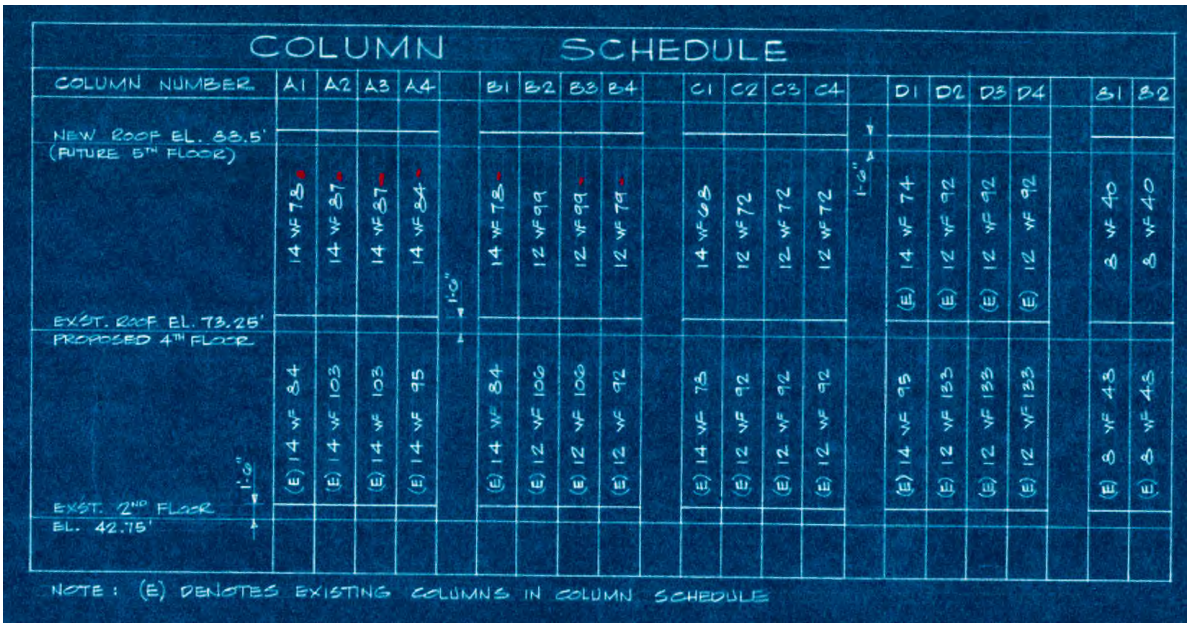
***Assume 13" concrete deck (150 pcf)**

Date: 08-20-2021
Project Name: Preston-2 SNET_1
Site ID: CT11263A
Designed By: AA Checked By: DC

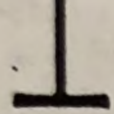
Column Loading

	Live Load (lbs.)	Dead Load (lbs.)	Total Load (lbs.)	
Tower Load	11700.00	5200.00	16900.00	
HVAC Units		3000.00	3000.00	
Roof	9180.00	30600.00	39780.00	
Third Floor	45900.00	49878.00	95778.00	
Total for 12 WF 92 =	**55080.00**	**80478.00**	**155458.00**	**< 415000 lbs. O.K.!**

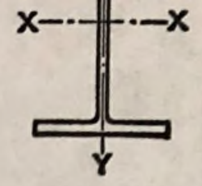
Stress Ratio (%)	**37**



*Assume same size column for the other side of the building.
**Tower is located on roof/4th floor



W SHAPES



ALLOWABLE CONCENTRIC LOADS IN KIPS

Unbraced Length Feet	Nominal Depth and Width—Weight per Foot										
	12 x 12										
	190	161	133	120	106	99	92	85	79	72	65
6	936	794	655	591	522	487	453	418	388	354	320
7	932	790	651	588	519	484	450	416	386	352	318
8	926	785	647	584	516	481	447	413	384	350	316
9	920	779	643	580	512	477	444	410	381	347	313
10	913	773	638	575	508	473	440	406	378	344	310
11	905	766	632	570	503	469	436	402	374	341	307
12	896	759	626	564	498	464	431	398	370	337	304
13	887	751	619	558	492	459	426	393	366	333	300
14	877	742	611	551	486	453	421	388	361	328	296
15	866	733	603	544	480	447	415	383	356	324	292
16	855	723	595	536	473	440	409	377	350	319	288
17	843	712	586	528	465	433	402	371	344	314	283
18	830	701	576	519	457	426	395	365	338	308	278
19	816	689	566	510	449	418	388	358	332	302	272
20	802	676	555	500	440	410	380	351	325	296	266
21	787	663	544	489	431	401	372	343	318	289	260
22	771	649	532	478	421	392	364	335	310	282	254
23	754	634	520	467	411	382	355	327	302	275	248
24	737	619	507	455	400	372	346	318	294	268	241
25	719	603	494	443	389	362	336	309	286	260	234
26	700	587	480	430	378	351	326	300	277	252	226
27	680	570	466	417	366	340	315	290	268	243	218
28	660	552	451	403	354	328	304	280	258	234	210
29	639	534	435	389	341	316	293	269	248	225	202
30	617	515	419	374	327	303	281	258	238	216	193

Unbraced length with respect to least radius of gyration

Exhibit E

Mount Analysis

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Mount Analysis Report

Site Address	1 Chestnut Street Norwich, CT 06360
Site Name	Preston-2 SNET_1
Site ID	CT11263A
Project Name	Anchor
Design Codes	2015 International Building Code ASCE 7-10 TIA-222-G Standards 2018 CT State Building Code

	Stress Ratio	Overall Result
Existing Mount with Modifications	**88%**	**PASS**

Client:

T - Mobile

NORTHEAST, LLC
15 Commerce Way, Suite B
Norton, MA 02766

STATE OF CONNECTICUT
DEREK J. CREASER
LICENSED
PROFESSIONAL ENGINEER

Date: 06/11/2021

CN = Derek J. Creaser, P.E.
email = dcreaser@clinellc.
com C = US O = Centerline
Communications OU =
Director - A&E Services
2021.06.11 14:00:23 -04'00'

Scope of Work:

Centerline Communications was authorized by T-Mobile Northeast LLC to perform an analysis of the existing antenna mounts to determine their capacity to support the existing and proposed T-Mobile equipment listed in this report. These mounts were analyzed using RISA 3D v17.0.4.

Final Appurtenances Configuration:

Elevation (ft)	Position[1]	Azimuth (degrees)	Quantity	Appurtenance	Sector
101	**MP1**	**60**	**1**	**APXVAALL24_43-U-NA20 Antenna**	Sector 1
101	**MP2**	**60**	**1**	**AIR6449 B41 Antenna**	
101	MP3	60	1	APX16DWV-16DWV-S-E-A20 Antenna	
101	**MP1**	**60**	**1**	**4449 B71+B85 RRH**	
101	**MP1**	**60**	**1**	**4424 B25 RRH**	
101	**MP4**	**60**	**1**	**4415 B66A RRH**	
101	**MP5**	**180**	**1**	**APXVAALL24_43-U-NA20 Antenna**	Sector 2
101	**MP6**	**180**	**1**	**AIR6449 B41 Antenna**	
101	MP7	180	1	APX16DWV-16DWV-S-E-A20 Antenna	
101	**MP5**	**180**	**1**	**4449 B71+B85 RRH**	
101	**MP5**	**180**	**1**	**4424 B25 RRH**	
101	**MP8**	**180**	**1**	**4415 B66A RRH**	
101	**MP9**	**300**	**1**	**APXVAALL24_43-U-NA20 Antenna**	Sector 3
101	**MP10**	**300**	**1**	**AIR6449 B41 Antenna**	
101	MP11	300	1	APX16DWV-16DWV-S-E-A20 Antenna	
101	**MP9**	**300**	**1**	**4449 B71+B85 RRH**	
101	**MP9**	**300**	**1**	**4424 B25 RRH**	
101	**MP12**	**300**	**1**	**4415 B66A RRH**	

Notes:

1. MP represent Mount Pipe.
2. Existing Appurtenance
3. **Proposed Appurtenance**

Design Criteria:

Design Codes:

2015 International Building Code
ASCE 7-10
TIA-222-G Standards
2018 CT State Building Code

Ultimate Wind Speed	135 mph
Nominal Wind Speed	105 mph
Wind Speed with Ice	50 mph
Ice Thickness	0.75 in.
Exposure Category	B
Topographic Category	1
Structure Class	II
Site Soil Class (Assumed)	D-Stiff Soil
Seismic Design Category	B
Spectral Response Acceleration Parameter at a Short Periods, S_S	0.168 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.060 g
Short Period Site Coefficient, F_a	1.6
Long Period Site Coefficient, F_v	2.4

***Refer to calculations for additional design criteria.**

Conclusion:

The results of the analysis concluded that the existing T-Mobile mounts *are adequate* to support the proposed T-Mobile equipment loading upon completion of the following modifications. Centerline recommends the following:

Alpha, Beta & Gamma Sector:

- Install (1) 3" XXS x 16.2 ft. long vertical pipe at Position 1.
- Install (1) 3" STD x 16.2 ft. long vertical pipe at Position 2.

	Stress Ratio	Overall Result
Existing Mount with Modifications	**88%**	**PASS**

Reference Documents:

- T-Mobile RFDS CT11263A_Anchor_5_draft, dated 05/19/2021
- Structural Analysis by Malouf Engineering Intl., Inc., dated 05/18/2017

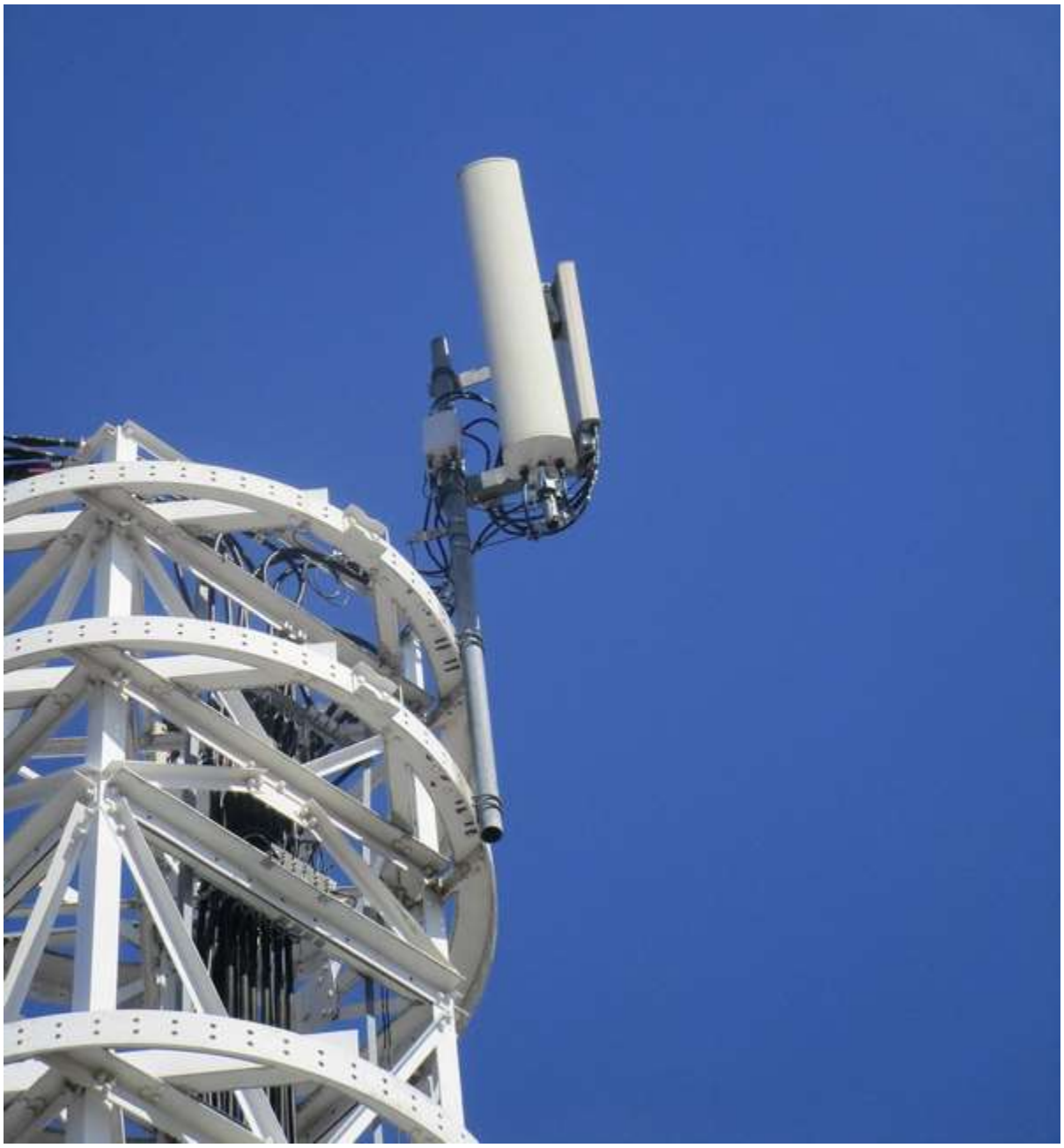
Assumptions and Limitations:

- The calculations performed by Centerline Communications are limited to the structural members in these calculations only.
- Structural calculations in this report do not check the adequacy of the supporting structure, other mounts, or coax mounting attachments.
- The calculation assumes all structural members to be in good condition i.e. no damage, rust, or other defects.

Photos:

Existing Alpha Sector

Existing Beta Sector



Existing Gamma Sector

Design Calculations

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Site Details	
Site Name	Preston-2 SNET_1
Carrier	T-Mobile
City, State	Norwich, CT
Project	Anchor

Mount Details		
Mount Type	Pipe Mount	
Mount Height, z	101	ft
Number of Sectors	3	
Tower Type	SST	
Tower Height, h	93	ft

Topographic Factors		
Topographic Category	1	
Feature	Flat	
Crest Height, H	N/A	ft
Distance from Crest, x	N/A	ft
Slope (H/L)	N/A	
Topographic Factor, K_{zt}	1.00	

Seismic Factors		
Importance Factor, I_E	1	
Short Period Spectral Acceleration, S_s	0.168	g
1 Second Period Spectral Acceleration, S_1	0.06	g
Long-Period Transition Period, T_L	6	
Design Category	B	
Short Period Site Coefficient, F_a	1.60	
Long-Period Site Coefficient, F_v	2.4	

Site Parameters		
Ultimate Wind Speed, V_{ULT}	135	mph
Nominal Wind Speed, V	105	mph
Wind Speed with Ice, V_i	50	mph
Design Ice Thickness, t_i	0.75	in
Structural Class	II	
Exposure Category	B	
Site Soil Class	D-Stiff Soil (Assumed)	

Code	
Building Code	2015 IBC
TIA Code	TIA-222-G
ASCE Code	7-10

Site Constants		
Importance Factor, I (Wind no Ice)	1.00	
Importance Factor, I (Ice Thickness)	1.00	
Importance Factor, I (wind with Ice)	1.00	
Wind Direction Prob. Factor, K_d	0.95	
Velocity Pressure Coefficient, K_z	0.99	
Gust Effect Factor, G_h	1.00	
Design Ice Thickness, t_{iz}	1.68	in
Velocity Pressure, q_z	26.57	psf
Velocity Pressure with Ice, q_{zi}	6.03	psf
Shielding Factor, K_a	1.00	
Flat Velocity Pressure (Ca =2.0)	53.15	psf
Round Velocity Pressure (Ca = 1.2)	31.89	psf
Round Velocity Pressure with Ice (Ca = 1.2)	7.23	psf
Engineer Initials	**AP**	

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Members Forces							
Member Label	**Shape**	**Type**	**w, lbs/ft**	**q_z, psf**	**w_i, lbs/ft**	**q_{zi}, psf**	**V_s, lbs/ft**
Pipe_3.0XXS	PIPE_3.0XX	Beam	17.59	31.89	10.61	7.23	2.10
L 5x3x3/8	L5X3X6	Beam	9.73	53.15	15.39	7.23	1.16
Pipe_2.0	PIPE_2.0	Beam	3.47	31.89	8.31	7.23	0.41
Pipe_3.0	PIPE_3.0	Beam	7.04	31.89	10.61	7.23	0.84
L6x6x5/16	L6X6X5	Beam	12.49	53.15	20.83	7.23	1.49

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Sector 1							
		Wind Force				Dimensions	Weights
Appurtenances	Rad. Ht., ft	Front EPA ft^2	Side EPA ft^2	0° Force lbs.	90° Force lbs.	H\W\D, in	Wt.\$Wt._{ice}$, lbs.
APXVAALL24_43-U-NA20 Antenna	101	20.24	8.89	537.90	236.19	95.9\24\8.7	153.3\411.81
AIR6449 B41 Antenna	101	5.68	2.49	150.99	66.18	33.1\20.6\8.6	104\148.3
APX16DWV-16DWV-S-E-A20 Antenna	101	6.46	2.15	171.65	57.13	55.9\13\3.15	40.7\130.12
4449 B71+B85 RRH	101	1.65	1.30	43.84	34.54	15\13.2\10.4	75\68.72
4424 B25 RRH	101	2.05	1.61	54.53	42.79	17.1\14.4\11.3	86\82.31
4415 B66A RRH	101	1.86	0.81	49.34	21.61	16.54\13.47\5.9	49.6\57.8

*Dish force coefficient is calculated per Annex C.2 of TIA-222-G, if available.

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Sector 1 Continue…								
		Wind Force with Ice				Wind Force V = 30 mph		Seismic Force
Appurtenances	Rad. Ht., ft	Front EPA ft^2	Side EPA ft^2	0° Force lbs.	90° Force lbs.	0° Force lbs.	90° Force lbs.	Vs, lbs
APXVAALL24_43-U-NA20 Antenna	101	13.67	6.88	204.35	94.98	43.91	19.28	18.31
AIR6449 B41 Antenna	101	4.25	2.16	59.82	28.00	12.33	5.40	12.42
APX16DWV-16DWV-S-E-A20 Antenna	101	4.88	2.27	68.32	26.61	14.01	4.66	4.86
4449 B71+B85 RRH	101	1.48	1.23	18.84	15.23	3.58	2.82	8.96
4424 B25 RRH	101	1.77	1.46	23.00	18.48	4.45	3.49	10.27
4415 B66A RRH	101	1.63	0.90	20.99	10.29	4.03	1.76	5.93

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Sector 2							
		Wind Force				Dimensions	Weights
Appurtenances	Rad. Ht., ft	Front EPA ft^2	Side EPA ft^2	0° Force lbs.	90° Force lbs.	H\W\D, in	Wt.\$Wt._{ice}$, lbs.
APXVAALL24_43-U-NA20 Antenna	101	20.24	8.89	311.62	462.47	95.9\24\8.7	153.3\411.81
AIR6449 B41 Antenna	101	5.68	2.49	87.39	129.79	33.1\20.6\8.6	104\148.3
APX16DWV-16DWV-S-E-A20 Antenna	101	6.46	2.15	85.76	143.02	55.9\13\3.15	40.7\130.12
4449 B71+B85 RRH	101	1.65	1.30	36.87	41.52	15\13.2\10.4	75\68.72
4424 B25 RRH	101	2.05	1.61	45.72	51.59	17.1\14.4\11.3	86\82.31
4415 B66A RRH	101	1.86	0.82	28.72	42.46	16.54\13.47\5.9	49.6\57.8

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Sector 2 Continue…								
		Wind Force with Ice				Wind Force V = 30 mph		Seismic Force
Appurtenances	Rad. Ht., ft	Front EPA ft^2	Side EPA ft^2	0° Force lbs.	90° Force lbs.	0° Force lbs.	90° Force lbs.	Vs, lbs
APXVAALL24_43-U-NA20 Antenna	101	13.67	6.88	122.33	177.01	25.44	37.75	18.31
AIR6449 B41 Antenna	101	4.25	2.16	35.95	51.86	7.13	10.60	12.42
APX16DWV-16DWV-S-E-A20 Antenna	101	4.88	2.27	37.04	57.89	7.00	11.67	4.86
4449 B71+B85 RRH	101	1.48	1.23	16.13	17.94	3.01	3.39	8.96
4424 B25 RRH	101	1.77	1.46	19.61	21.87	3.73	4.21	10.27
4415 B66A RRH	101	1.63	0.90	13.01	18.33	2.34	3.47	5.93

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Sector 3							
		Wind Force				Dimensions	Weights
Appurtenances	Rad. Ht., ft	Front EPA ft^2	Side EPA ft^2	0° Force lbs.	90° Force lbs.	H\W\D, in	Wt.\$Wt._{ice}$, lbs.
APXVAALL24_43-U-NA20 Antenna	101	20.24	8.89	311.62	462.47	95.9\24\8.7	153.3\411.81
AIR6449 B41 Antenna	101	5.68	2.49	87.39	129.79	33.1\20.6\8.6	104\148.3
APX16DWV-16DWV-S-E-A20 Antenna	101	6.46	2.15	85.76	143.02	55.9\13\3.15	40.7\130.12
4449 B71+B85 RRH	101	1.65	1.30	36.87	41.52	15\13.2\10.4	75\68.72
4424 B25 RRH	101	2.05	1.61	45.72	51.59	17.1\14.4\11.3	86\82.31
4415 B66A RRH	101	1.86	0.82	28.72	42.46	16.54\13.47\5.9	49.6\57.8

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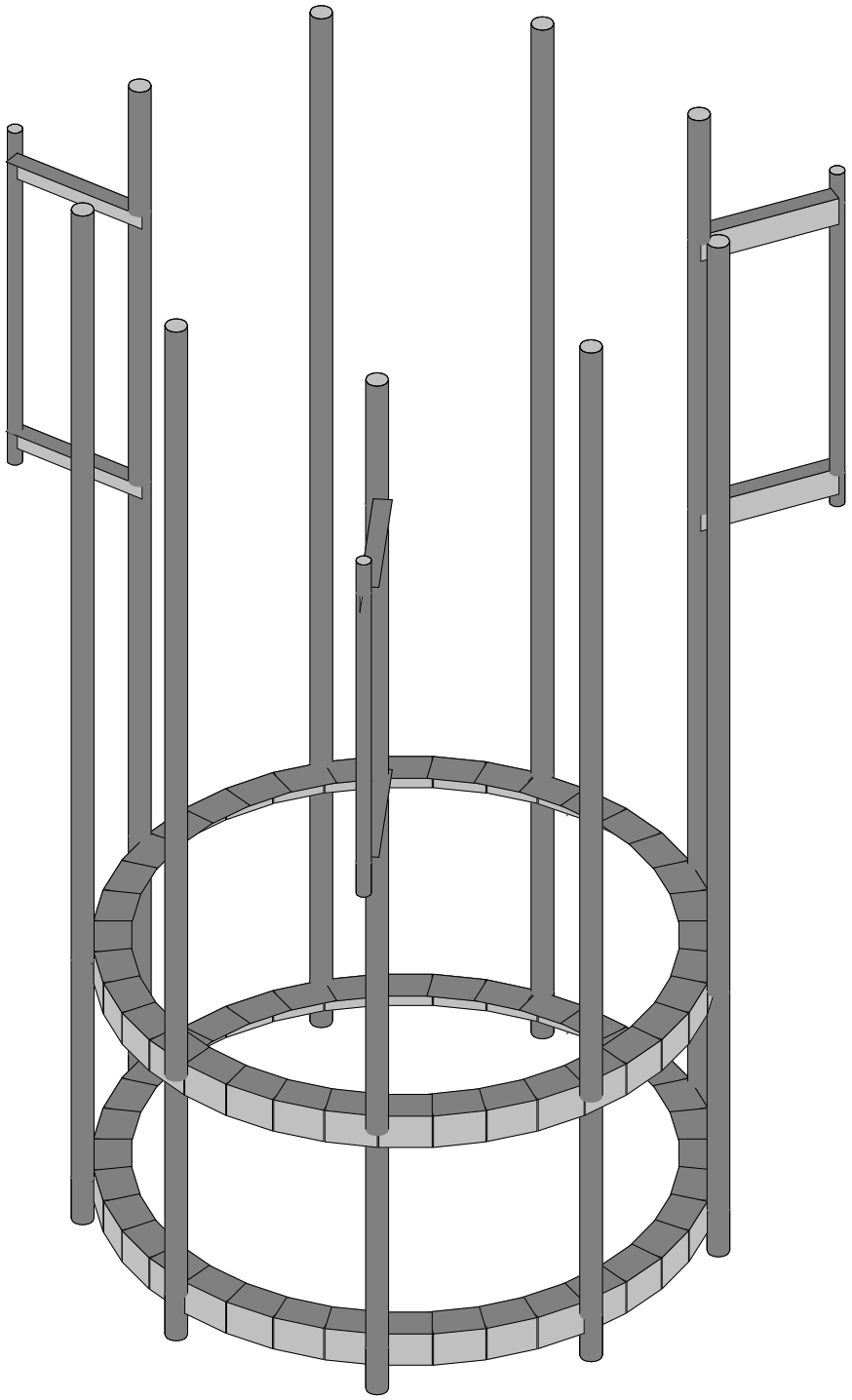
Sector 3 Continue…								
		Wind Force with Ice				Wind Force V = 30 mph		Seismic Force
Appurtenances	Rad. Ht., ft	Front EPA ft^2	Side EPA ft^2	0° Force lbs.	90° Force lbs.	0° Force lbs.	90° Force lbs.	Vs, lbs
APXVAALL24_43-U-NA20 Antenna	101	13.67	6.88	122.33	177.01	25.44	37.75	18.31
AIR6449 B41 Antenna	101	4.25	2.16	35.95	51.86	7.13	10.60	12.42
APX16DWV-16DWV-S-E-A20 Antenna	101	4.88	2.27	37.04	57.89	7.00	11.67	4.86
4449 B71+B85 RRH	101	1.48	1.23	16.13	17.94	3.01	3.39	8.96
4424 B25 RRH	101	1.77	1.46	19.61	21.87	3.73	4.21	10.27
4415 B66A RRH	101	1.63	0.90	13.01	18.33	2.34	3.47	5.93

Existing Mount with Modifications Results



Envelope Only Solution

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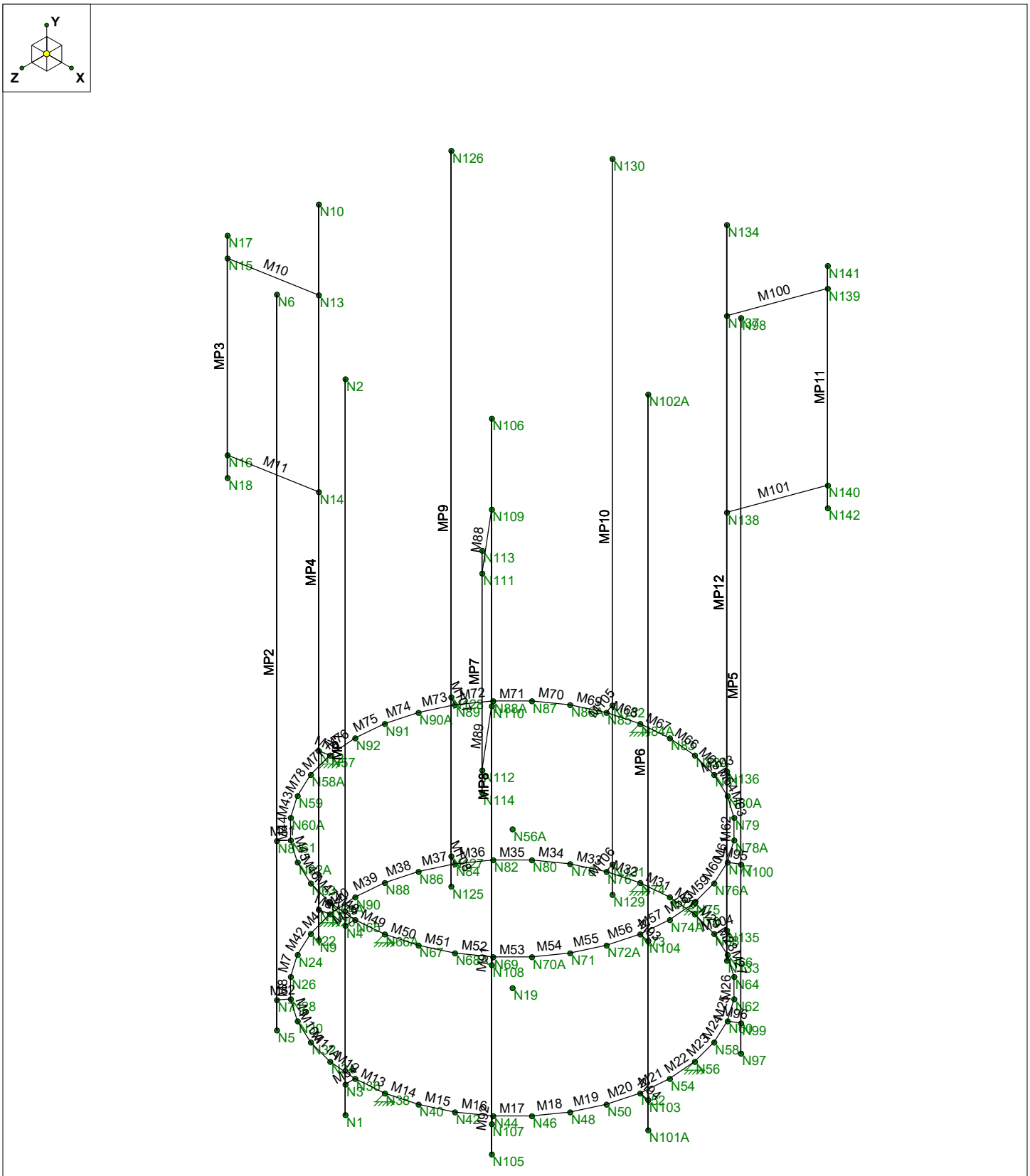

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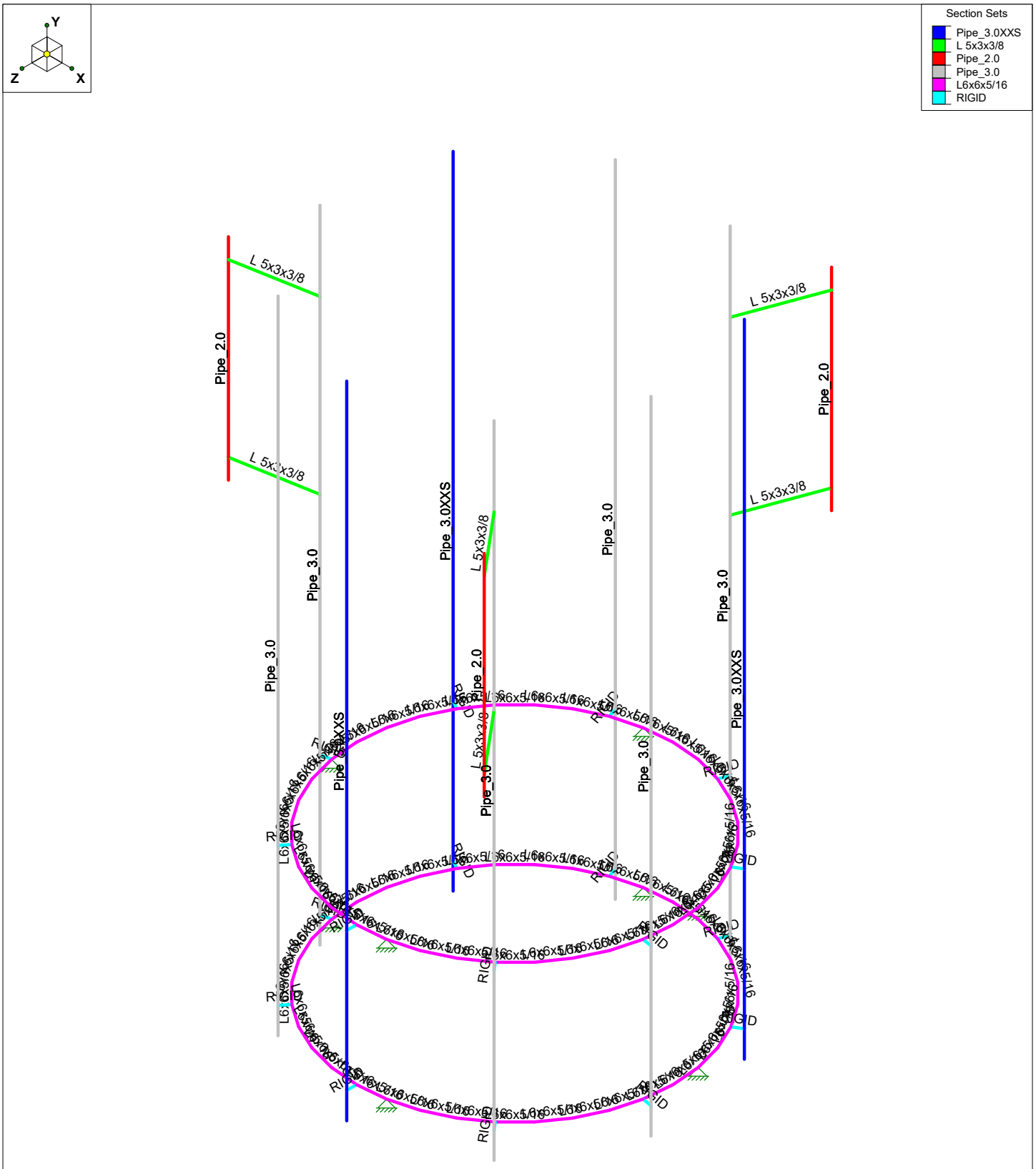

Envelope Only Solution

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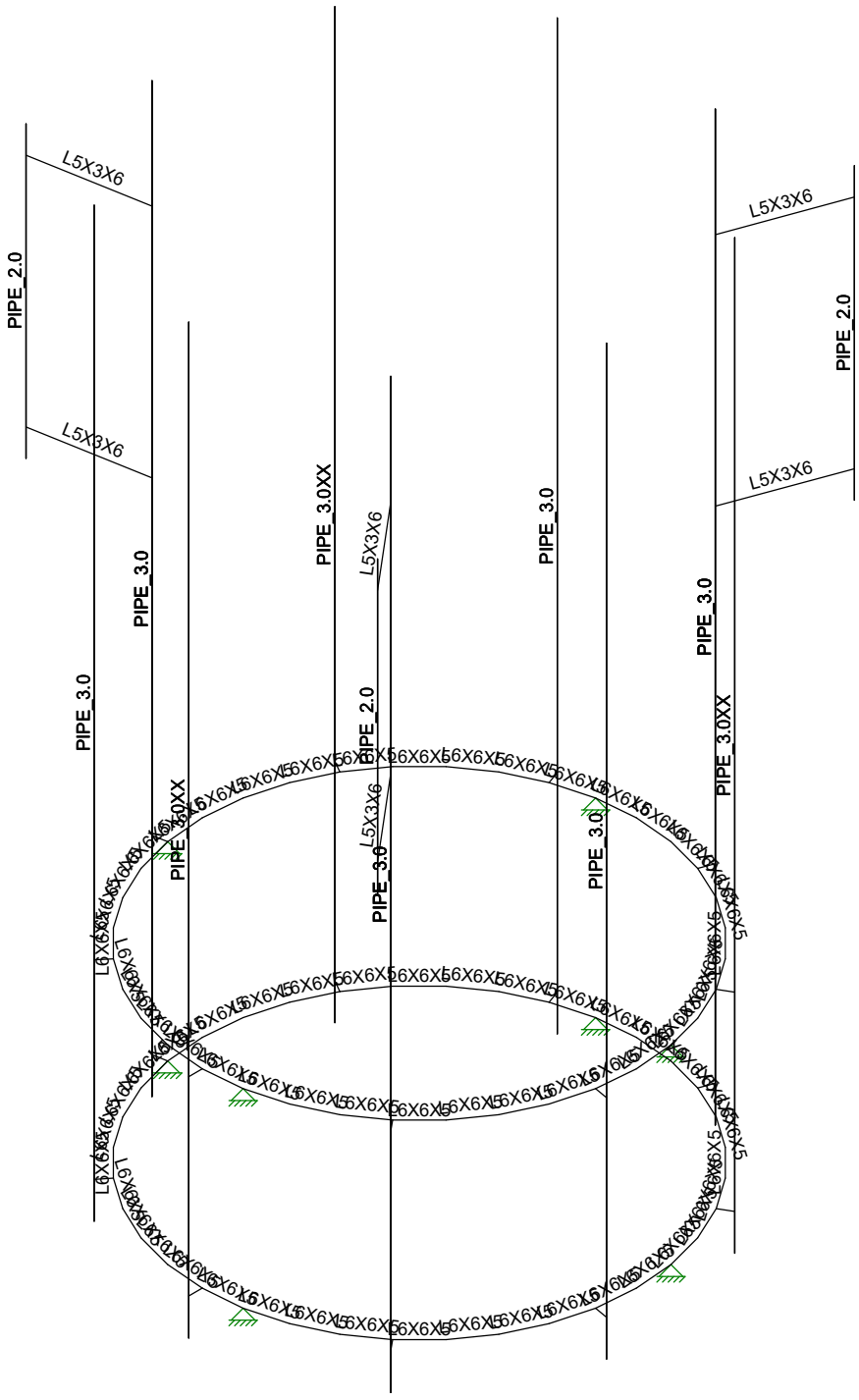

Envelope Only Solution

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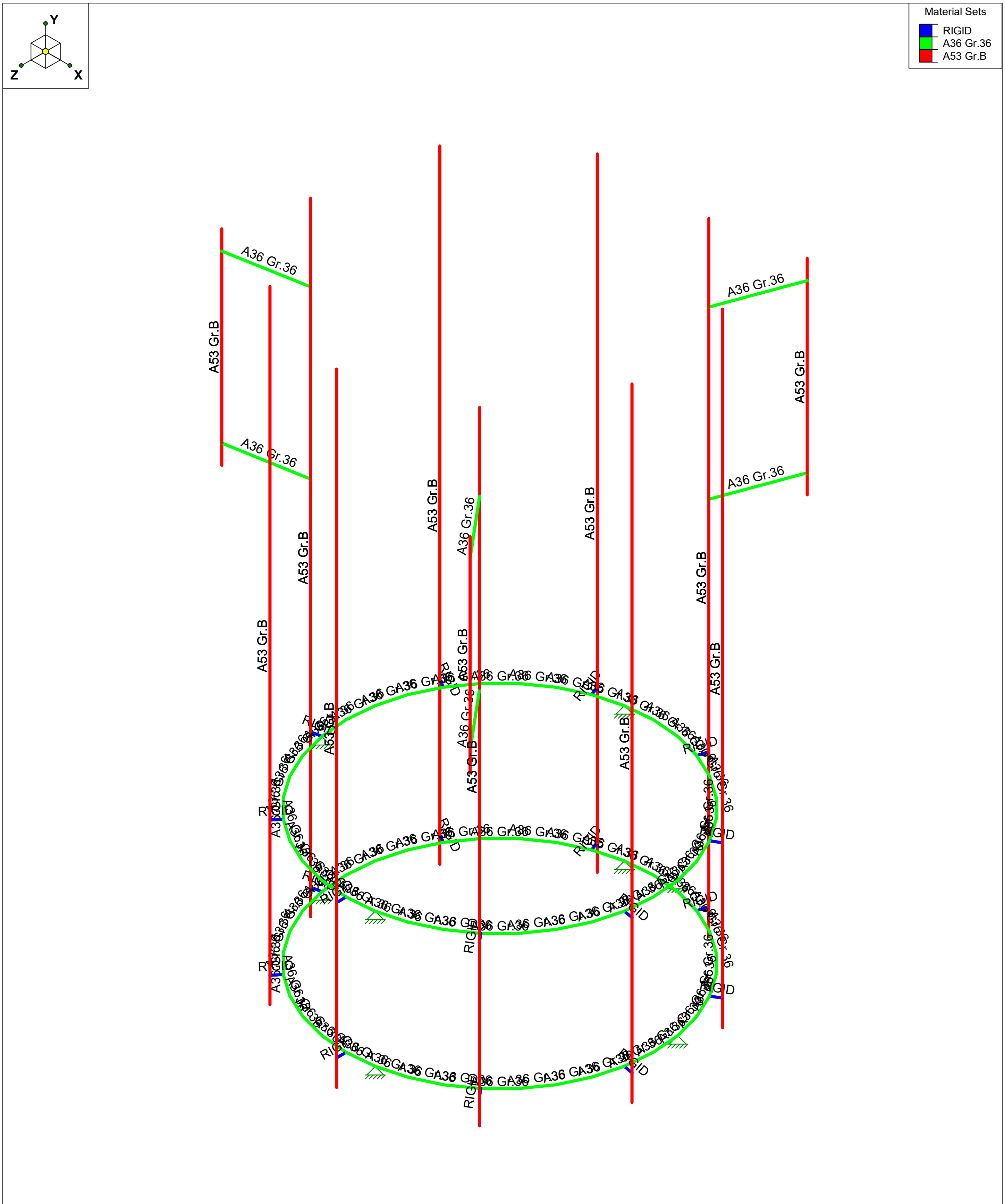

Envelope Only Solution

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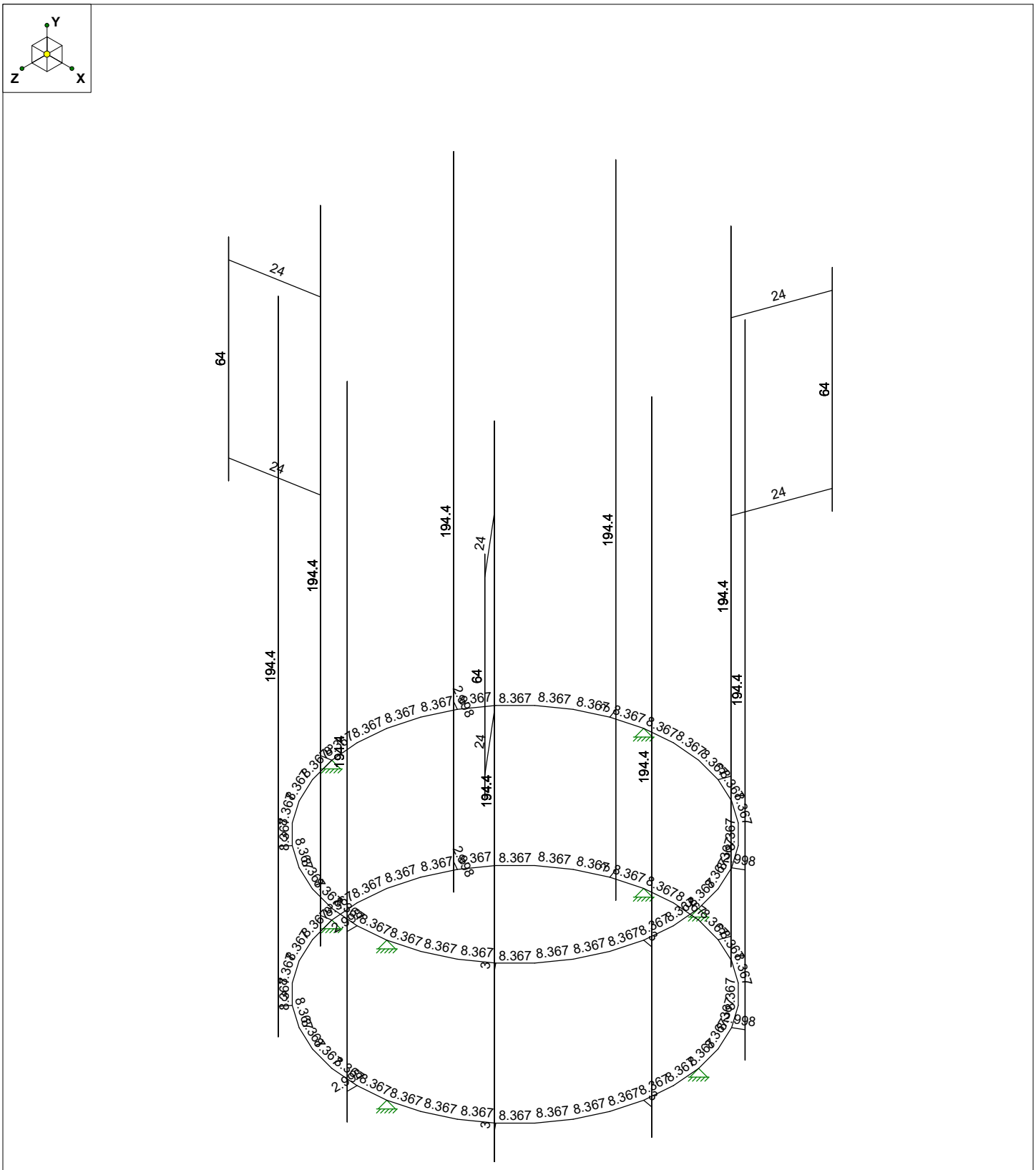

Member Length (in) Displayed
Envelope Only Solution

Centerline Communcation...	CT11263A_MA	MEMBER LENGTH
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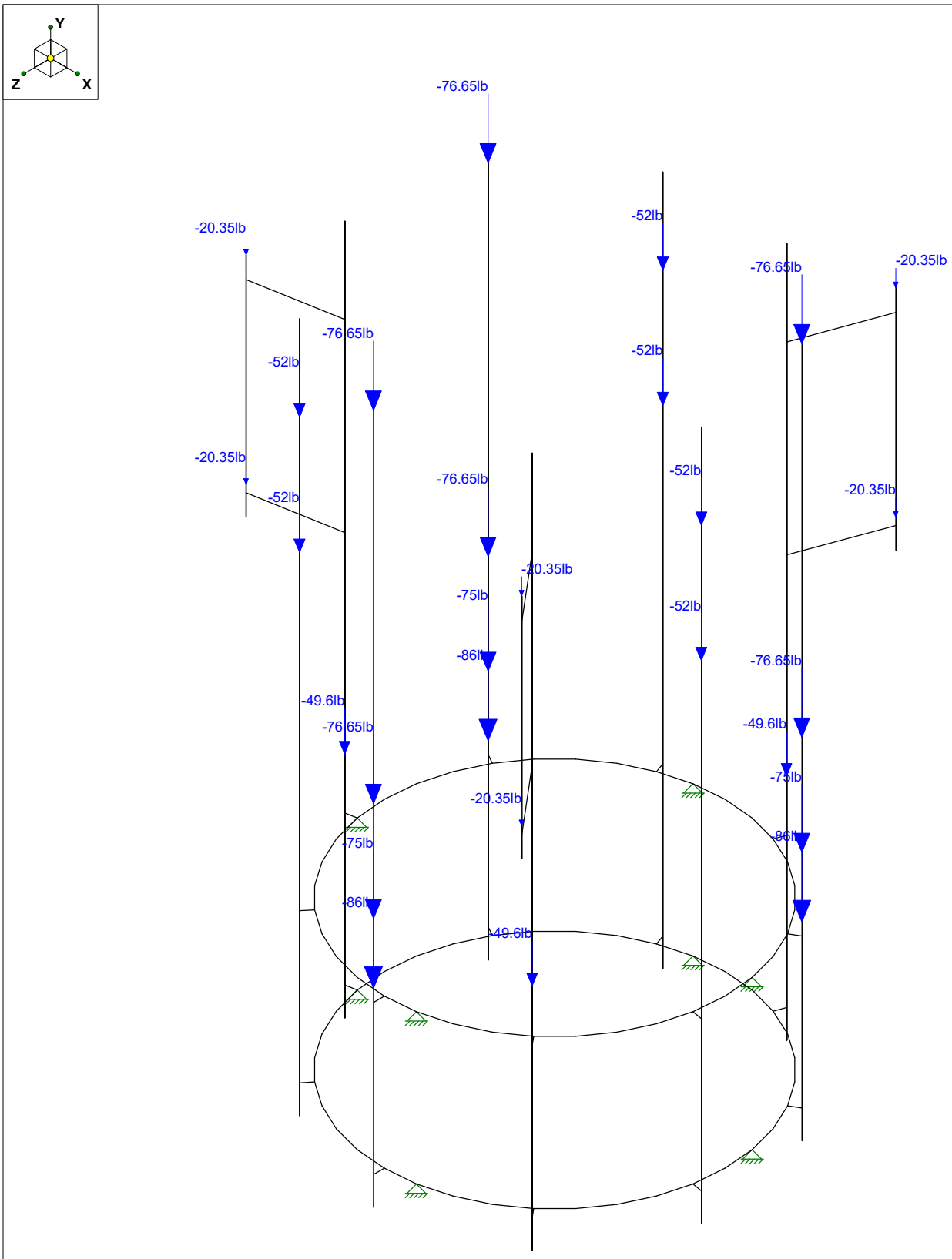

Loads: BLC 1, Dead Load
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Centerline Communcation...	CT11263A_MA	DEAD LOAD
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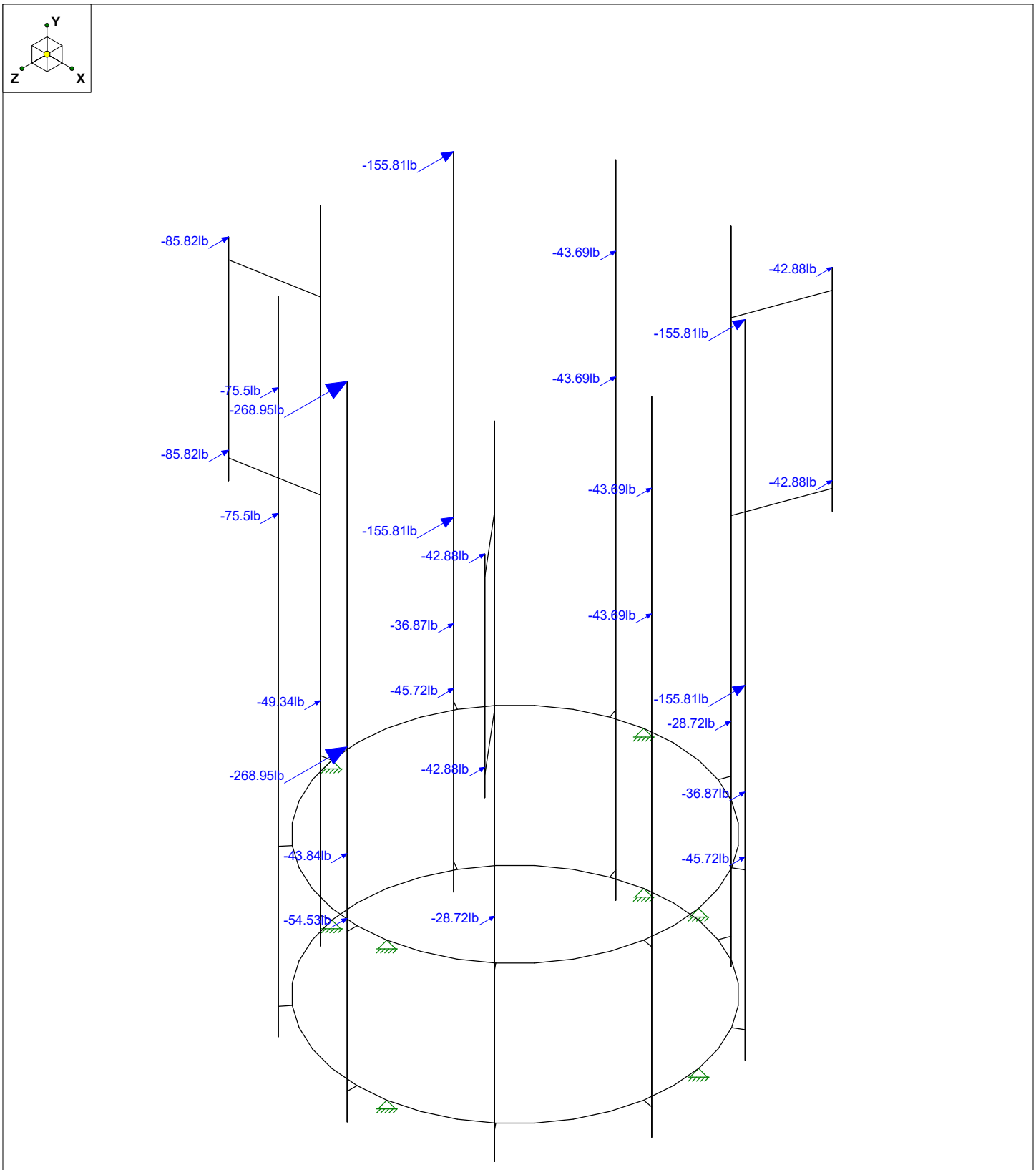
		CT11263A_MA.r3d



Loads: BLC 2, Wind 0
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Centerline Communcation...	CT11263A_MA	WIND 0
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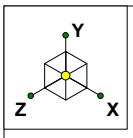

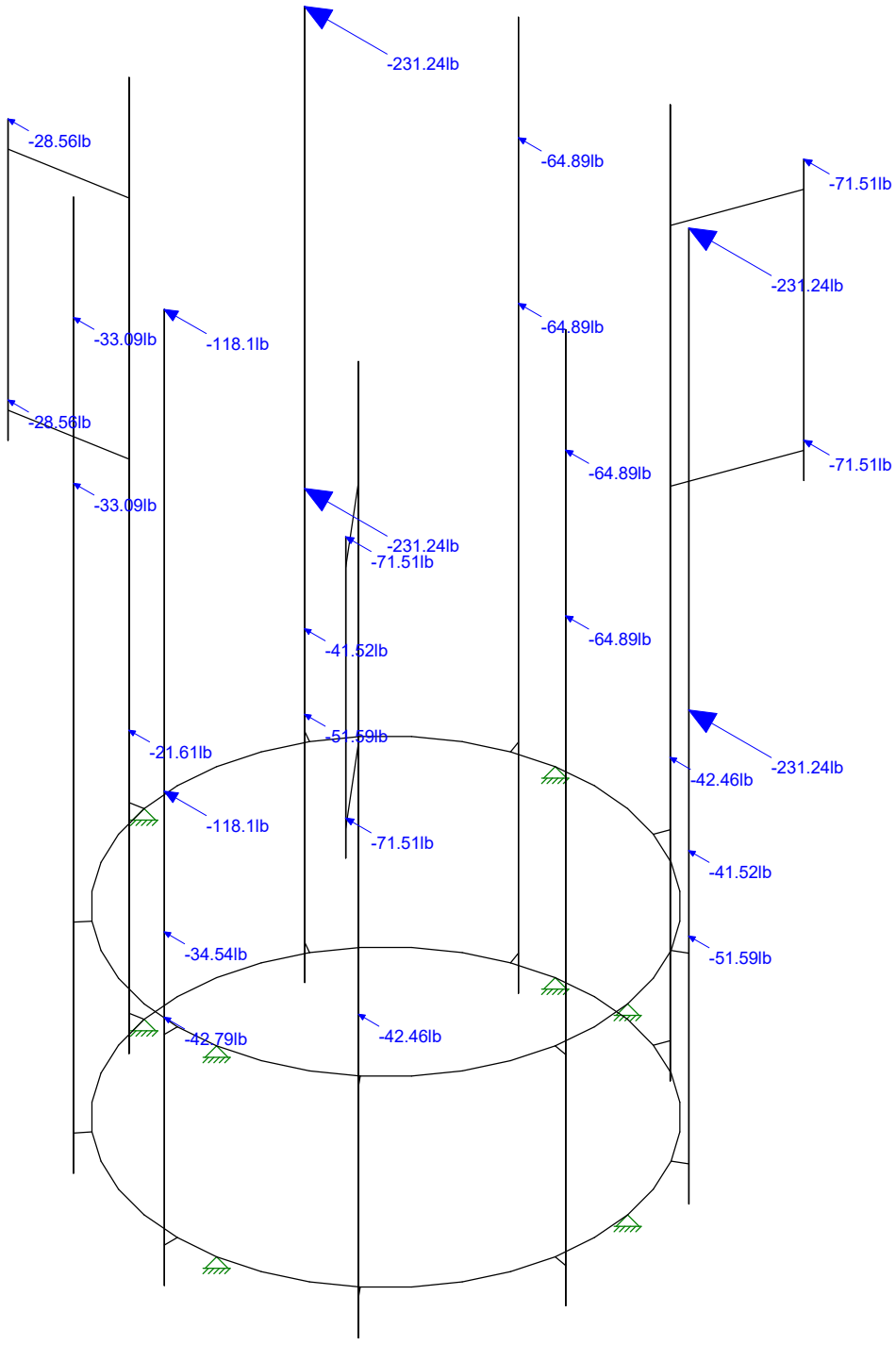

Loads: BLC 5, Wind 90
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Centerline Communcation...	CT11263A_MA	WIND 90
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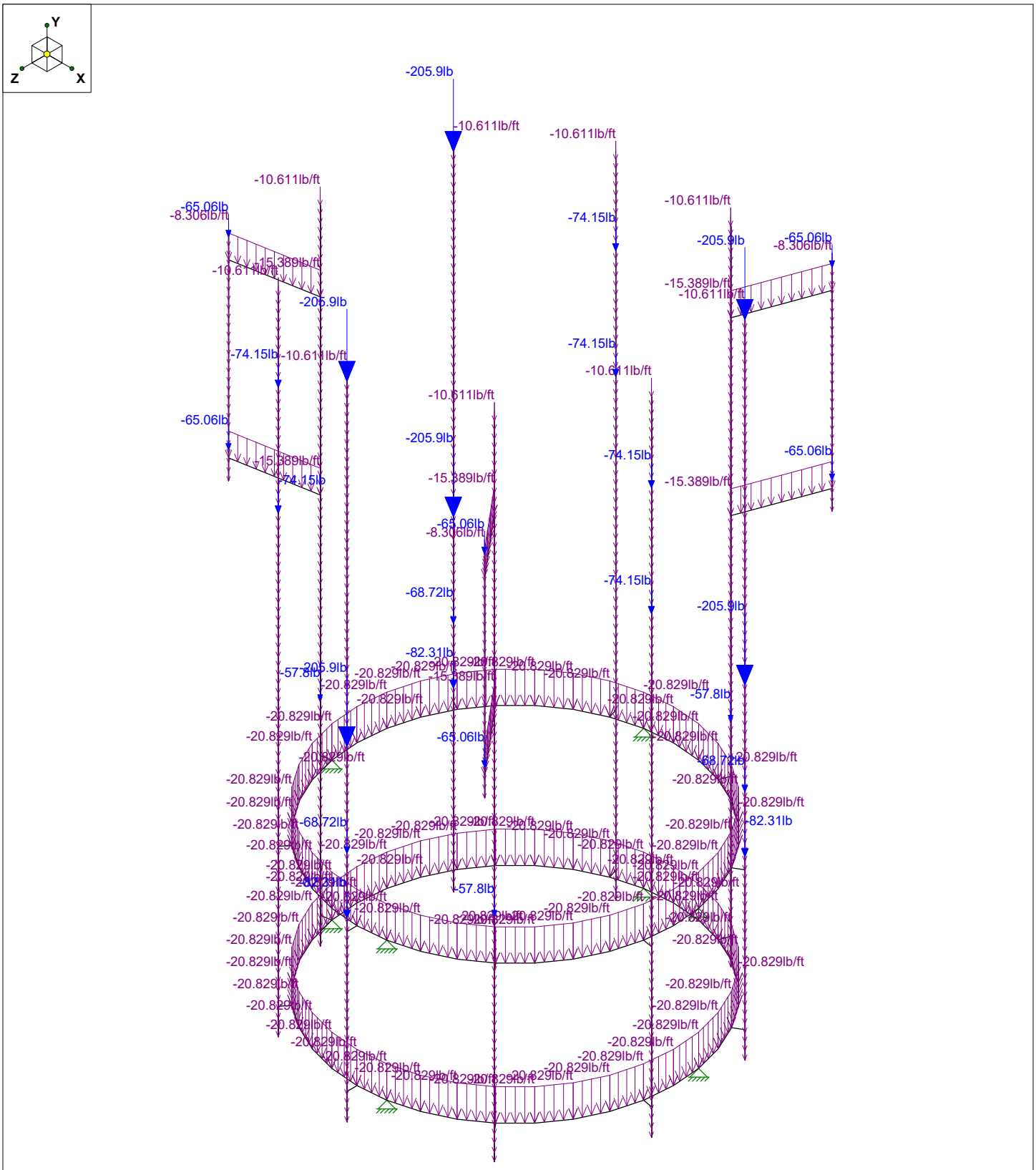
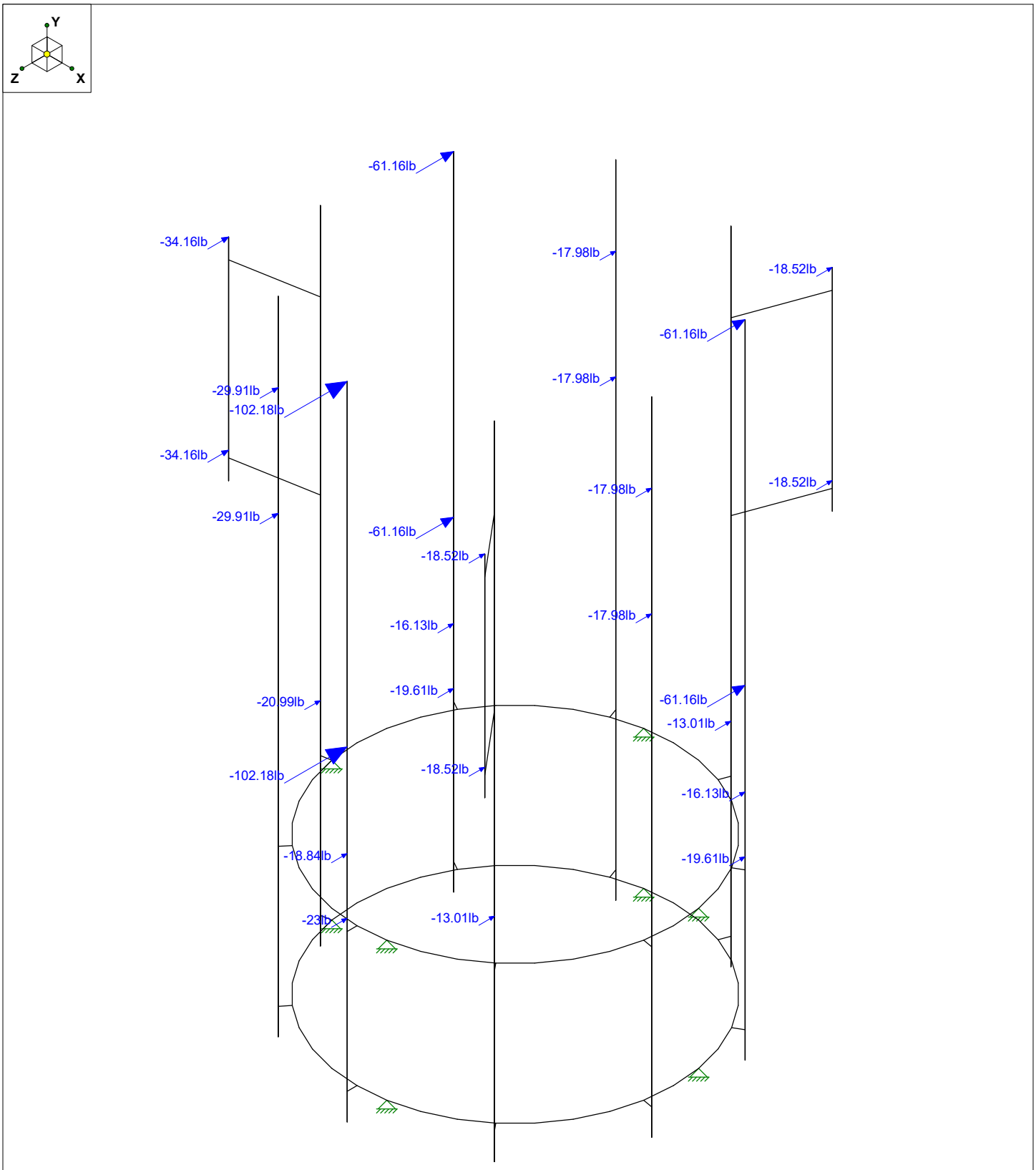


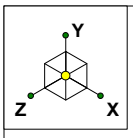
Loads: BLC 9, Ice Weight
Envelope Only Solution

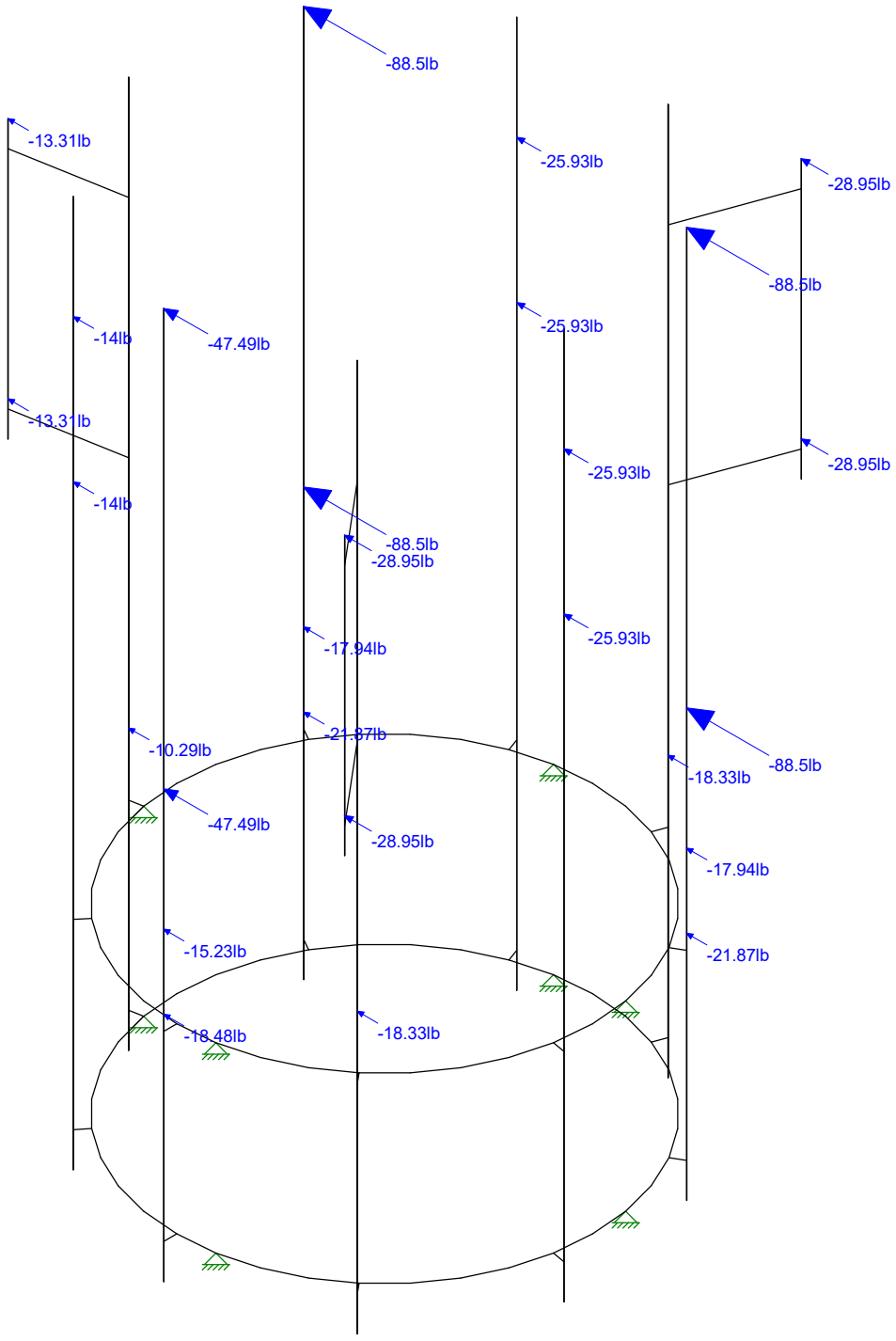
Centerline Communcation...	CT11263A_MA	ICE WEIGHT
AP		June 9, 2021 at 8:51 AM
		CT11263A_MA.r3d



Loads: BLC 10, Ice + Wind 0
Envelope Only Solution

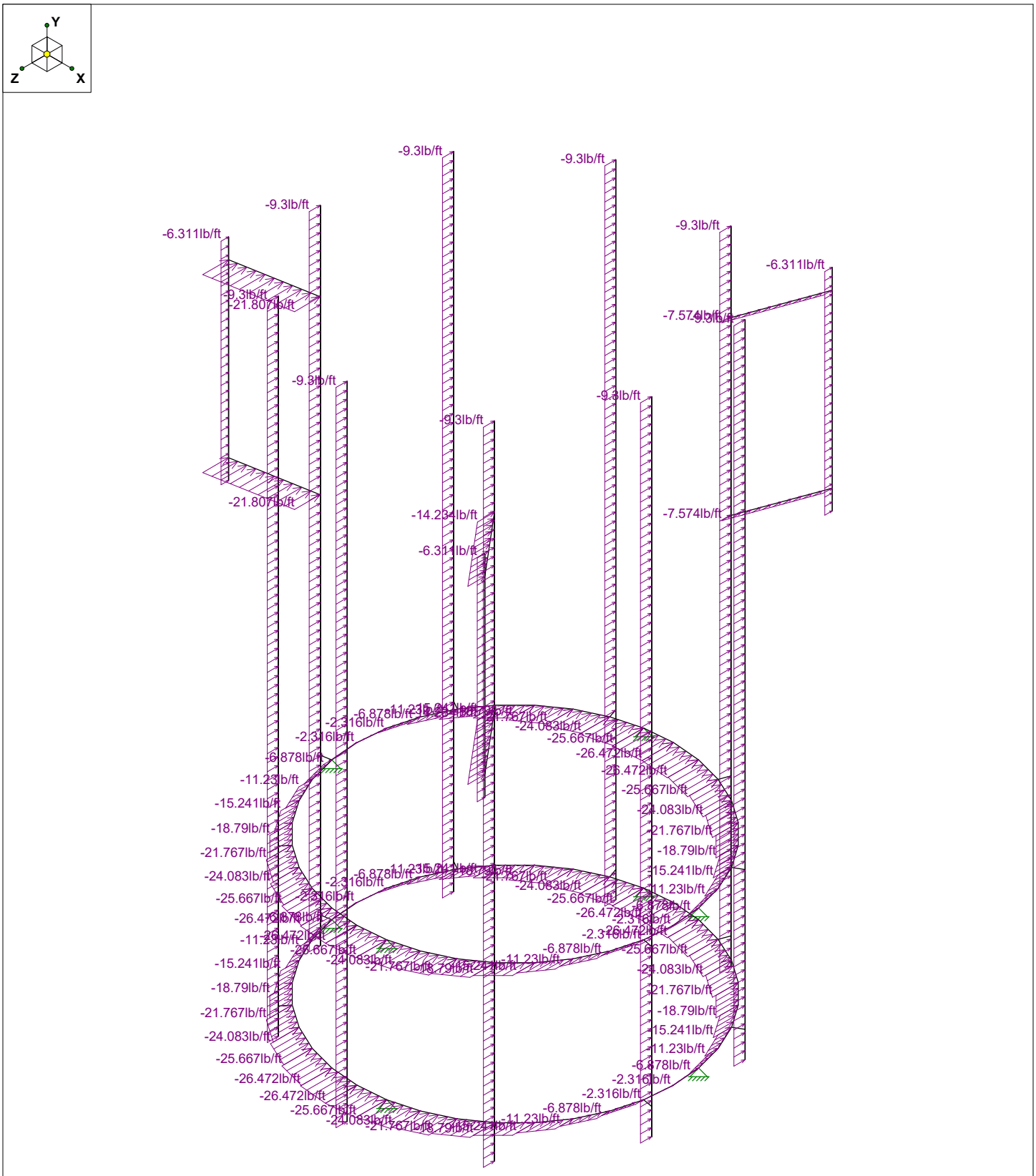
Centerline Communcation...	CT11263A_MA	ICE + WIND 0
AP		June 9, 2021 at 8:52 AM
		CT11263A_MA.r3d





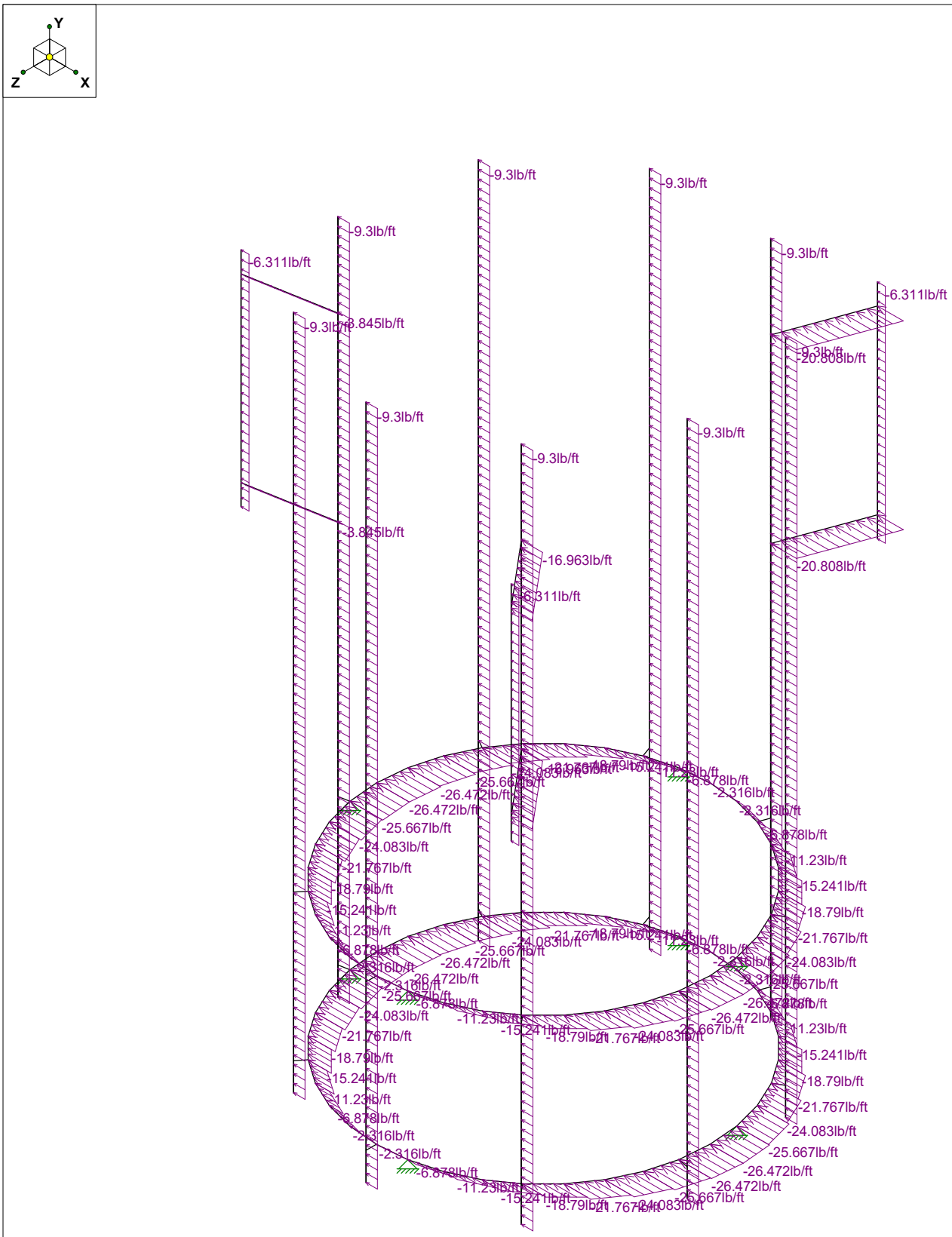
Loads: BLC 13, Ice + Wind 90
Envelope Only Solution

Centerline Communcation...	CT11263A_MA	ICE + WIND 90
AP		June 9, 2021 at 8:52 AM
		CT11263A_MA.r3d



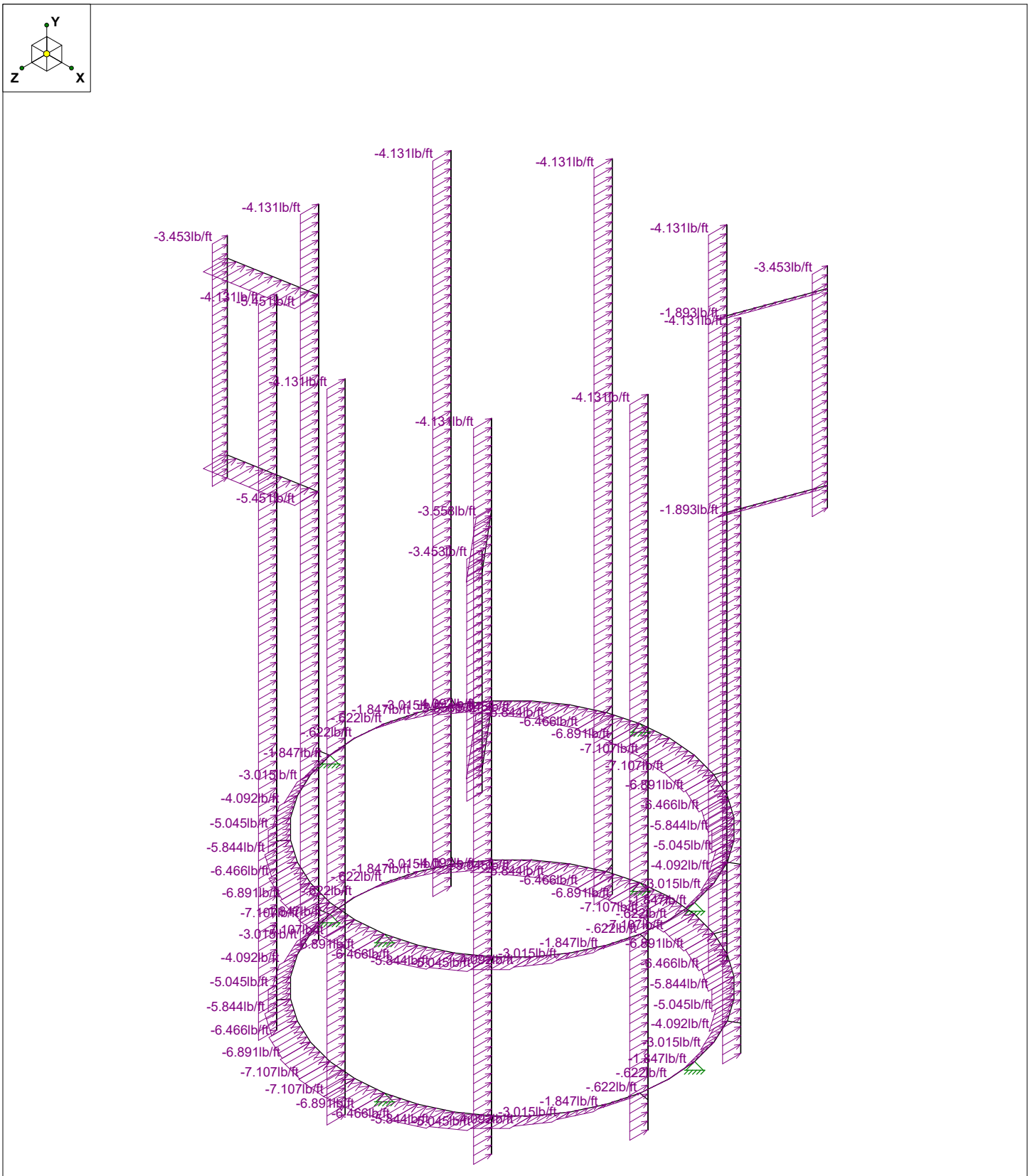
Loads: BLC 17, Distri. Wind Z
Envelope Only Solution

Centerline Communcation...		DISTR. WIND Z
AP	CT11263A_MA	June 9, 2021 at 8:52 AM
		CT11263A_MA.r3d



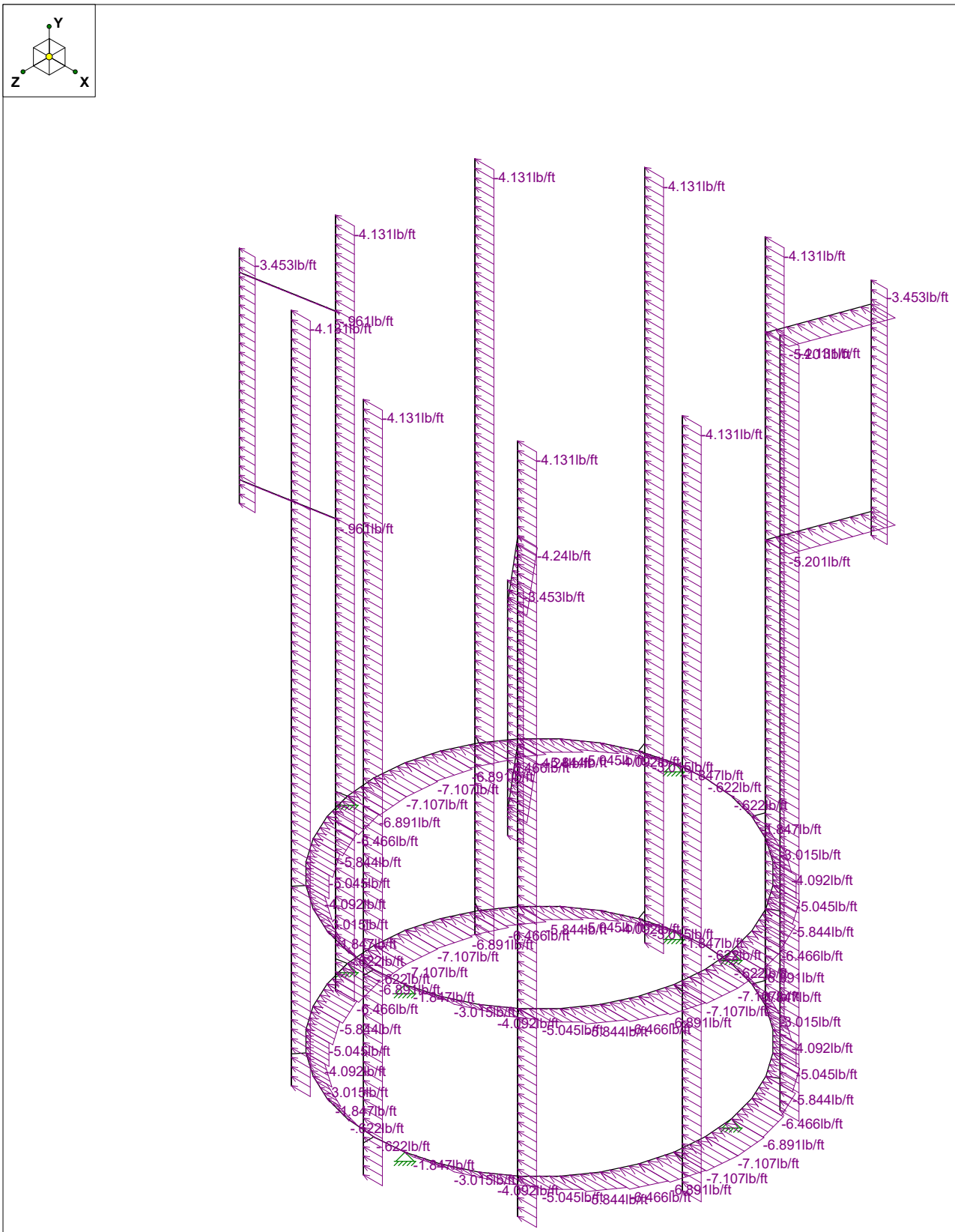
Loads: BLC 18, Distri. Wind X
Envelope Only Solution

Centerline Communcation...	CT11263A_MA	DISTR. WIND X
AP		June 9, 2021 at 8:52 AM
		CT11263A_MA.r3d



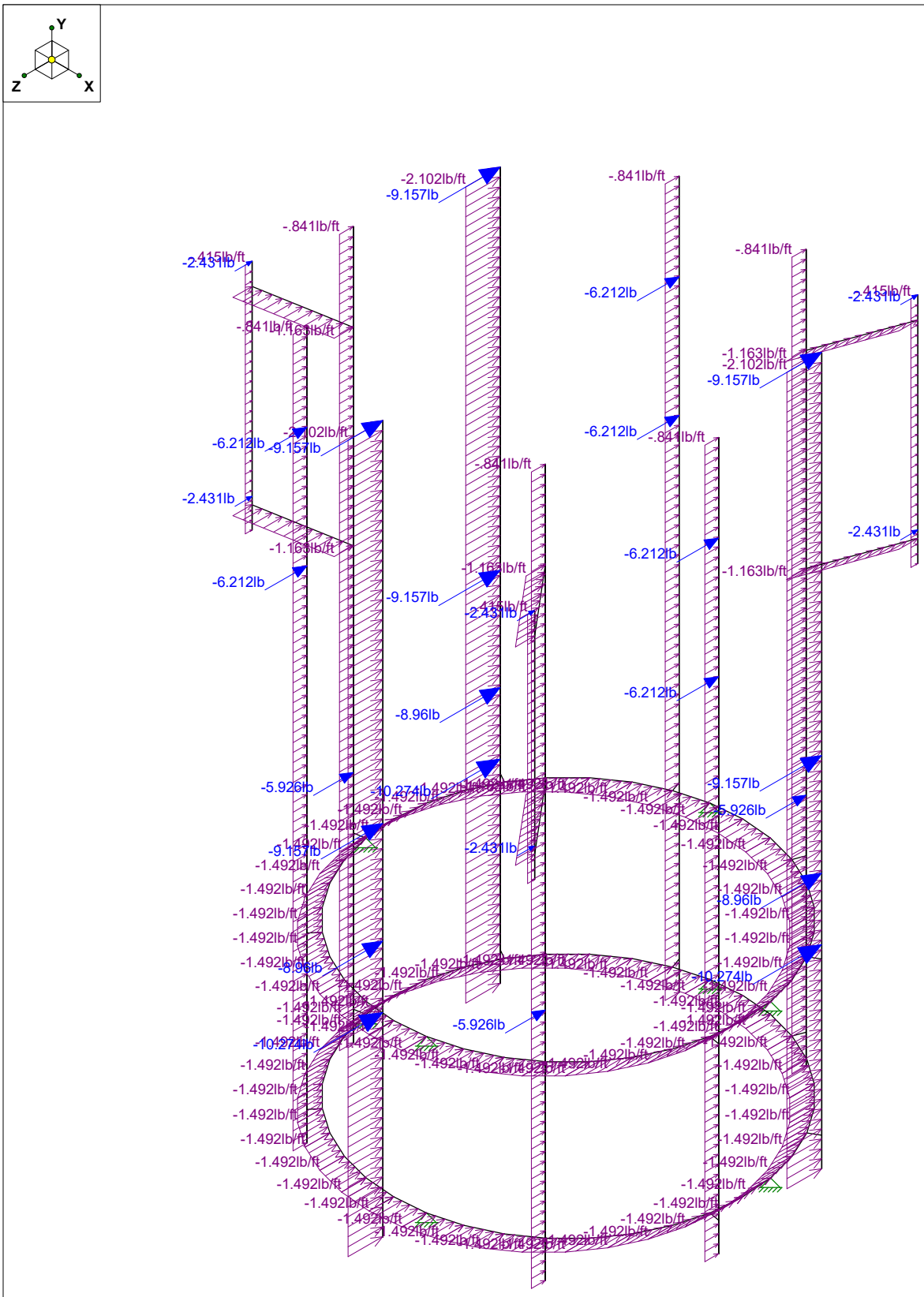
Loads: BLC 19, Distri. Ice + Wind Z
Envelope Only Solution

Centerline Communcation...		DISTR. ICE WIND Z
AP	CT11263A_MA	June 9, 2021 at 8:52 AM
		CT11263A_MA.r3d



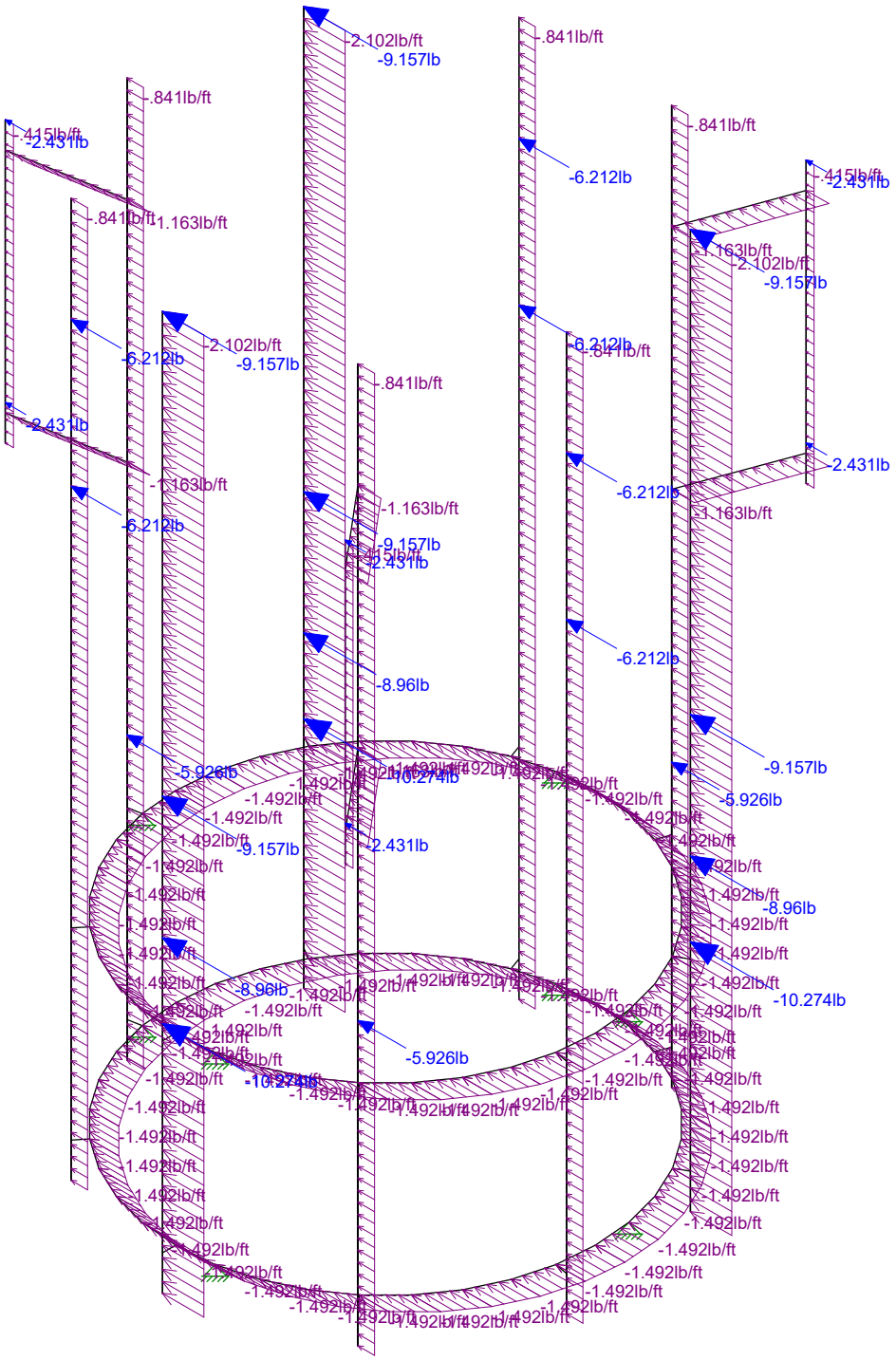
Loads: BLC 20, Distrr. Ice + Wind X
Envelope Only Solution

Centerline Communcation...	CT11263A_MA	DISTR. ICE WIND X
AP		June 9, 2021 at 8:53 AM
		CT11263A_MA.r3d



Loads: BLC 21, Seismic Load Z
Envelope Only Solution

Centerline Communcation...		SEISMIC Z
AP	CT11263A_MA	June 9, 2021 at 8:53 AM
		CT11263A_MA.r3d



Loads: BLC 22, Seismic Load X
Envelope Only Solution

Centerline Communcation...	CT11263A_MA	SEISMIC X
AP		June 9, 2021 at 8:53 AM
		CT11263A_MA.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[lb/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	490	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe 3.0XXS	PIPE 3.0XX	Beam	Pipe	A53 Gr.B	Typical	5.17	5.79	5.79	11.6
2	L 5x3x3/8	L5X3X6	Beam	Single Angle	A36 Gr.36	Typical	2.86	2.01	7.35	.141
3	Pipe 2.0	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Pipe_3.0	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	L6x6x5/16	L6X6X5	Beam	Single Angle	A36 Gr.36	Typical	3.67	13	13	.129

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	0.00987	16	50.998061	0	
2	N2	0.00987	210.4	50.998061	0	
3	N3	0.00987	24	50.998061	0	
4	N4	0.00987	66	50.998061	0	
5	N5	-32.781935	16	39.068055	0	
6	N6	-32.781935	210.4	39.068055	0	
7	N7	-32.781935	24	39.068055	0	
8	N8	-32.781935	66	39.068055	0	
9	N9	-50.225195	16	8.856057	0	
10	N10	-50.225195	210.4	8.856057	0	
11	N11	-50.225195	24	8.856057	0	
12	N12	-50.225195	66	8.856057	0	
13	N13	-50.225195	186.4	8.856057	0	
14	N14	-50.225195	134.4	8.856057	0	
15	N15	-73.860581	186.4	13.023613	0	
16	N16	-73.860581	134.4	13.023613	0	
17	N17	-73.860581	192.4	13.023613	0	
18	N18	-73.860581	128.4	13.023613	0	
19	N19	0	24	0	0	
20	N20	-47.270772	24	8.335113	0	
21	N22	-45.105246	24	16.416967	0	
22	N24	-41.569219	24	24.	0	
23	N26	-36.770133	24	30.853805	0	
24	N28	-30.853805	24	36.770133	0	
25	N30	-24.	24	41.569219	0	
26	N32	-16.416967	24	45.105246	0	
27	N34	-8.335113	24	47.270772	0	
28	N36	0.	24	48	0	
29	N38	8.335113	24	47.270772	0	
30	N40	16.416967	24	45.105246	0	
31	N42	24.	24	41.569219	0	
32	N44	30.853805	24	36.770133	0	
33	N46	36.770133	24	30.853805	0	
34	N48	41.569219	24	24.	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
35	N50	45.105246	24	16.416967	0	
36	N52	47.270772	24	8.335113	0	
37	N54	48	24	0.	0	
38	N56	47.270772	24	-8.335113	0	
39	N58	45.105246	24	-16.416967	0	
40	N60	41.569219	24	-24.	0	
41	N62	36.770133	24	-30.853805	0	
42	N64	30.853805	24	-36.770133	0	
43	N66	24.	24	-41.569219	0	
44	N68	16.416967	24	-45.105246	0	
45	N70	8.335113	24	-47.270772	0	
46	N72	0.	24	-48	0	
47	N74	-8.335113	24	-47.270772	0	
48	N76	-16.416967	24	-45.105246	0	
49	N78	-24.	24	-41.569219	0	
50	N80	-30.853805	24	-36.770133	0	
51	N82	-36.770133	24	-30.853805	0	
52	N84	-41.569219	24	-24.	0	
53	N86	-45.105246	24	-16.416967	0	
54	N88	-47.270772	24	-8.335113	0	
55	N90	-48	24	-0.	0	
56	N56A	0	66	0	0	
57	N57	-47.270772	66	8.335113	0	
58	N58A	-45.105246	66	16.416967	0	
59	N59	-41.569219	66	24.	0	
60	N60A	-36.770133	66	30.853805	0	
61	N61	-30.853805	66	36.770133	0	
62	N62A	-24.	66	41.569219	0	
63	N63	-16.416967	66	45.105246	0	
64	N64A	-8.335113	66	47.270772	0	
65	N65	0.	66	48	0	
66	N66A	8.335113	66	47.270772	0	
67	N67	16.416967	66	45.105246	0	
68	N68A	24.	66	41.569219	0	
69	N69	30.853805	66	36.770133	0	
70	N70A	36.770133	66	30.853805	0	
71	N71	41.569219	66	24.	0	
72	N72A	45.105246	66	16.416967	0	
73	N73	47.270772	66	8.335113	0	
74	N74A	48	66	0.	0	
75	N75	47.270772	66	-8.335113	0	
76	N76A	45.105246	66	-16.416967	0	
77	N77	41.569219	66	-24.	0	
78	N78A	36.770133	66	-30.853805	0	
79	N79	30.853805	66	-36.770133	0	
80	N80A	24.	66	-41.569219	0	
81	N81	16.416967	66	-45.105246	0	
82	N82A	8.335113	66	-47.270772	0	
83	N83	0.	66	-48	0	
84	N84A	-8.335113	66	-47.270772	0	
85	N85	-16.416967	66	-45.105246	0	
86	N86A	-24.	66	-41.569219	0	
87	N87	-30.853805	66	-36.770133	0	
88	N88A	-36.770133	66	-30.853805	0	
89	N89	-41.569219	66	-24.	0	
90	N90A	-45.105246	66	-16.416967	0	
91	N91	-47.270772	66	-8.335113	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
92	N92	-48	66	-0.	0	
93	N97	44.160681	16	-25.507579	0	
94	N98	44.160681	210.4	-25.507579	0	
95	N99	44.160681	24	-25.507579	0	
96	N100	44.160681	66	-25.507579	0	
97	N101A	50.224895	16	8.855961	0	
98	N102A	50.224895	210.4	8.855961	0	
99	N103	50.224895	24	8.855961	0	
100	N104	50.224895	66	8.855961	0	
101	N105	32.782168	16	39.068267	0	
102	N106	32.782168	210.4	39.068267	0	
103	N107	32.782168	24	39.068267	0	
104	N108	32.782168	66	39.068267	0	
105	N109	32.782168	186.4	39.068267	0	
106	N110	32.782168	134.4	39.068267	0	
107	N111	48.209071	186.4	57.453333	0	
108	N112	48.209071	134.4	57.453333	0	
109	N113	48.209071	192.4	57.453333	0	
110	N114	48.209071	128.4	57.453333	0	
111	N125	-44.170552	16	-25.490483	0	
112	N126	-44.170552	210.4	-25.490483	0	
113	N127	-44.170552	24	-25.490483	0	
114	N128	-44.170552	66	-25.490483	0	
115	N129	-17.442961	16	-47.924016	0	
116	N130	-17.442961	210.4	-47.924016	0	
117	N131	-17.442961	24	-47.924016	0	
118	N132	-17.442961	66	-47.924016	0	
119	N133	17.443027	16	-47.924324	0	
120	N134	17.443027	210.4	-47.924324	0	
121	N135	17.443027	24	-47.924324	0	
122	N136	17.443027	66	-47.924324	0	
123	N137	17.443027	186.4	-47.924324	0	
124	N138	17.443027	134.4	-47.924324	0	
125	N139	25.651511	186.4	-70.476947	0	
126	N140	25.651511	134.4	-70.476947	0	
127	N141	25.651511	192.4	-70.476947	0	
128	N142	25.651511	128.4	-70.476947	0	

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N56	max	237.759	15	1736.788	2	1950.089	15	0	78	0	78	0	78
2		min	-912.85	4	-2017.343	13	-2202.533	2	0	1	0	1	0	1
3	N74	max	228.428	2	3130.86	2	1031.858	4	0	78	0	78	0	78
4		min	-3434.59	5	-2124.509	15	-73.555	15	0	1	0	1	0	1
5	N20	max	485.907	7	5982.515	5	2440.537	15	0	78	0	78	0	78
6		min	-204.865	9	-454.134	9	-3135.297	3	0	1	0	1	0	1
7	N38	max	673.511	9	5018.23	8	1622.07	15	0	78	0	78	0	78
8		min	-2143.864	6	-3878.099	9	-1763.377	2	0	1	0	1	0	1
9	N57	max	1537.53	4	1079.393	2	5275.494	3	0	78	0	78	0	78
10		min	-502.271	15	-3371.99	12	-4917.478	8	0	1	0	1	0	1
11	N66A	max	4012.952	12	3385.52	2	3335.418	9	0	78	0	78	0	78
12		min	-878.074	2	-2393.316	15	-3541.372	8	0	1	0	1	0	1
13	N75	max	1737.617	4	1727.318	22	4380.365	2	0	78	0	78	0	78
14		min	-655.147	8	-576.135	9	-4214.409	15	0	1	0	1	0	1
15	N84A	max	6506.324	5	1269.284	7	1042.284	2	0	78	0	78	0	78

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
16		min	-717.211	2	-418.2	9	-1346.074	13	0	1	0	1	0	1
17	Totals:	max	7478.262	5	10245.096	21	7491.449	9						
18		min	0	15	3478.217	9	-7491.449	8						

Joint Boundary Conditions

	Joint 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	N56	Reaction	Reaction	Reaction			
2	N74	Reaction	Reaction	Reaction			
3	N20	Reaction	Reaction	Reaction			
4	N38	Reaction	Reaction	Reaction			
5	N57	Reaction	Reaction	Reaction			
6	N66A	Reaction	Reaction	Reaction			
7	N75	Reaction	Reaction	Reaction			
8	N84A	Reaction	Reaction	Reaction			

Hot Rolled Steel Design Parameters

	Label	Shape	Length[...	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Funct...
1	MP1	Pipe_3.0XXS	194.4			Lbyy						Lateral
2	MP2	Pipe_3.0	194.4			Lbyy						Lateral
3	MP4	Pipe_3.0	194.4			Lbyy						Lateral
4	M10	L 5x3x3/8	24			Lbyy						Lateral
5	M11	L 5x3x3/8	24			Lbyy						Lateral
6	MP3	Pipe_2.0	64			Lbyy						Lateral
7	M7	L6x6x5/16	8.367			Lbyy						Lateral
8	M8	L6x6x5/16	8.367			Lbyy						Lateral
9	M9	L6x6x5/16	8.367			Lbyy						Lateral
10	M10A	L6x6x5/16	8.367			Lbyy						Lateral
11	M11A	L6x6x5/16	8.367			Lbyy						Lateral
12	M12	L6x6x5/16	8.367			Lbyy						Lateral
13	M13	L6x6x5/16	8.367			Lbyy						Lateral
14	M14	L6x6x5/16	8.367			Lbyy						Lateral
15	M15	L6x6x5/16	8.367			Lbyy						Lateral
16	M16	L6x6x5/16	8.367			Lbyy						Lateral
17	M17	L6x6x5/16	8.367			Lbyy						Lateral
18	M18	L6x6x5/16	8.367			Lbyy						Lateral
19	M19	L6x6x5/16	8.367			Lbyy						Lateral
20	M20	L6x6x5/16	8.367			Lbyy						Lateral
21	M21	L6x6x5/16	8.367			Lbyy						Lateral
22	M22	L6x6x5/16	8.367			Lbyy						Lateral
23	M23	L6x6x5/16	8.367			Lbyy						Lateral
24	M24	L6x6x5/16	8.367			Lbyy						Lateral
25	M25	L6x6x5/16	8.367			Lbyy						Lateral
26	M26	L6x6x5/16	8.367			Lbyy						Lateral
27	M27	L6x6x5/16	8.367			Lbyy						Lateral
28	M28	L6x6x5/16	8.367			Lbyy						Lateral
29	M29	L6x6x5/16	8.367			Lbyy						Lateral
30	M30	L6x6x5/16	8.367			Lbyy						Lateral
31	M31	L6x6x5/16	8.367			Lbyy						Lateral
32	M32	L6x6x5/16	8.367			Lbyy						Lateral
33	M33	L6x6x5/16	8.367			Lbyy						Lateral
34	M34	L6x6x5/16	8.367			Lbyy						Lateral
35	M35	L6x6x5/16	8.367			Lbyy						Lateral
36	M36	L6x6x5/16	8.367			Lbyy						Lateral
37	M37	L6x6x5/16	8.367			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[...	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Funct...
38	M38	L6x6x5/16	8.367			Lbyy						Lateral
39	M39	L6x6x5/16	8.367			Lbyy						Lateral
40	M40	L6x6x5/16	8.367			Lbyy						Lateral
41	M41	L6x6x5/16	8.367			Lbyy						Lateral
42	M42	L6x6x5/16	8.367			Lbyy						Lateral
43	M43	L6x6x5/16	8.367			Lbyy						Lateral
44	M44	L6x6x5/16	8.367			Lbyy						Lateral
45	M45	L6x6x5/16	8.367			Lbyy						Lateral
46	M46	L6x6x5/16	8.367			Lbyy						Lateral
47	M47	L6x6x5/16	8.367			Lbyy						Lateral
48	M48	L6x6x5/16	8.367			Lbyy						Lateral
49	M49	L6x6x5/16	8.367			Lbyy						Lateral
50	M50	L6x6x5/16	8.367			Lbyy						Lateral
51	M51	L6x6x5/16	8.367			Lbyy						Lateral
52	M52	L6x6x5/16	8.367			Lbyy						Lateral
53	M53	L6x6x5/16	8.367			Lbyy						Lateral
54	M54	L6x6x5/16	8.367			Lbyy						Lateral
55	M55	L6x6x5/16	8.367			Lbyy						Lateral
56	M56	L6x6x5/16	8.367			Lbyy						Lateral
57	M57	L6x6x5/16	8.367			Lbyy						Lateral
58	M58	L6x6x5/16	8.367			Lbyy						Lateral
59	M59	L6x6x5/16	8.367			Lbyy						Lateral
60	M60	L6x6x5/16	8.367			Lbyy						Lateral
61	M61	L6x6x5/16	8.367			Lbyy						Lateral
62	M62	L6x6x5/16	8.367			Lbyy						Lateral
63	M63	L6x6x5/16	8.367			Lbyy						Lateral
64	M64	L6x6x5/16	8.367			Lbyy						Lateral
65	M65	L6x6x5/16	8.367			Lbyy						Lateral
66	M66	L6x6x5/16	8.367			Lbyy						Lateral
67	M67	L6x6x5/16	8.367			Lbyy						Lateral
68	M68	L6x6x5/16	8.367			Lbyy						Lateral
69	M69	L6x6x5/16	8.367			Lbyy						Lateral
70	M70	L6x6x5/16	8.367			Lbyy						Lateral
71	M71	L6x6x5/16	8.367			Lbyy						Lateral
72	M72	L6x6x5/16	8.367			Lbyy						Lateral
73	M73	L6x6x5/16	8.367			Lbyy						Lateral
74	M74	L6x6x5/16	8.367			Lbyy						Lateral
75	M75	L6x6x5/16	8.367			Lbyy						Lateral
76	M76	L6x6x5/16	8.367			Lbyy						Lateral
77	M77	L6x6x5/16	8.367			Lbyy						Lateral
78	M78	L6x6x5/16	8.367			Lbyy						Lateral
79	MP5	Pipe_3.0XXS	194.4			Lbyy						Lateral
80	MP6	Pipe_3.0	194.4			Lbyy						Lateral
81	MP8	Pipe_3.0	194.4			Lbyy						Lateral
82	M88	L 5x3x3/8	24			Lbyy						Lateral
83	M89	L 5x3x3/8	24			Lbyy						Lateral
84	MP7	Pipe_2.0	64			Lbyy						Lateral
85	MP9	Pipe_3.0XXS	194.4			Lbyy						Lateral
86	MP10	Pipe_3.0	194.4			Lbyy						Lateral
87	MP12	Pipe_3.0	194.4			Lbyy						Lateral
88	M100	L 5x3x3/8	24			Lbyy						Lateral
89	M101	L 5x3x3/8	24			Lbyy						Lateral
90	MP11	Pipe_2.0	64			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	MP1	N2	N1			Pipe_3.0XXS	Beam	Pipe	A53 Gr.B	Typical
2	MP2	N6	N5			Pipe_3.0	Beam	Pipe	A53 Gr.B	Typical
3	MP4	N10	N9			Pipe_3.0	Beam	Pipe	A53 Gr.B	Typical
4	M10	N13	N15		180	L 5x3x3/8	Beam	Single Angle	A36 Gr.36	Typical
5	M11	N14	N16		180	L 5x3x3/8	Beam	Single Angle	A36 Gr.36	Typical
6	MP3	N17	N18			Pipe_2.0	Beam	Pipe	A53 Gr.B	Typical
7	M7	N24	N26		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N26	N28		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N28	N30		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
10	M10A	N30	N32		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
11	M11A	N32	N34		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N34	N36		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N36	N38		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N38	N40		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N40	N42		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N42	N44		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N44	N46		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N46	N48		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
19	M19	N48	N50		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
20	M20	N50	N52		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N52	N54		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
22	M22	N54	N56		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N56	N58		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N58	N60		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
25	M25	N60	N62		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
26	M26	N62	N64		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
27	M27	N64	N66		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
28	M28	N66	N68		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
29	M29	N68	N70		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
30	M30	N70	N72		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
31	M31	N72	N74		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
32	M32	N74	N76		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
33	M33	N76	N78		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
34	M34	N78	N80		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
35	M35	N80	N82		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
36	M36	N82	N84		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
37	M37	N84	N86		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
38	M38	N86	N88		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
39	M39	N88	N90		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
40	M40	N90	N20		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
41	M41	N20	N22		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
42	M42	N22	N24		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
43	M43	N59	N60A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
44	M44	N60A	N61		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
45	M45	N61	N62A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
46	M46	N62A	N63		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
47	M47	N63	N64A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
48	M48	N64A	N65		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
49	M49	N65	N66A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
50	M50	N66A	N67		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
51	M51	N67	N68A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
52	M52	N68A	N69		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
53	M53	N69	N70A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
54	M54	N70A	N71		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
55	M55	N71	N72A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
56	M56	N72A	N73		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
57	M57	N73	N74A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
58	M58	N74A	N75		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
59	M59	N75	N76A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
60	M60	N76A	N77		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
61	M61	N77	N78A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
62	M62	N78A	N79		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
63	M63	N79	N80A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
64	M64	N80A	N81		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
65	M65	N81	N82A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
66	M66	N82A	N83		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
67	M67	N83	N84A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
68	M68	N84A	N85		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
69	M69	N85	N86A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
70	M70	N86A	N87		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
71	M71	N87	N88A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
72	M72	N88A	N89		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
73	M73	N89	N90A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
74	M74	N90A	N91		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
75	M75	N91	N92		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
76	M76	N92	N57		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
77	M77	N57	N58A		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
78	M78	N58A	N59		180	L6x6x5/16	Beam	Single Angle	A36 Gr.36	Typical
79	M79	N57	N12			RIGID	None	None	RIGID	Typical
80	M80	N20	N11			RIGID	None	None	RIGID	Typical
81	M81	N61	N8			RIGID	None	None	RIGID	Typical
82	M82	N28	N7			RIGID	None	None	RIGID	Typical
83	M83	N65	N4			RIGID	None	None	RIGID	Typical
84	M84	N36	N3			RIGID	None	None	RIGID	Typical
85	MP5	N98	N97			Pipe 3.0XXS	Beam	Pipe	A53 Gr.B	Typical
86	MP6	N102A	N101A			Pipe_3.0	Beam	Pipe	A53 Gr.B	Typical
87	MP8	N106	N105			Pipe 3.0	Beam	Pipe	A53 Gr.B	Typical
88	M88	N109	N111		180	L 5x3x3/8	Beam	Single Angle	A36 Gr.36	Typical
89	M89	N110	N112		180	L 5x3x3/8	Beam	Single Angle	A36 Gr.36	Typical
90	MP7	N113	N114			Pipe_2.0	Beam	Pipe	A53 Gr.B	Typical
91	M91	N69	N108			RIGID	None	None	RIGID	Typical
92	M92	N44	N107			RIGID	None	None	RIGID	Typical
93	M93	N73	N104			RIGID	None	None	RIGID	Typical
94	M94	N52	N103			RIGID	None	None	RIGID	Typical
95	M95	N77	N100			RIGID	None	None	RIGID	Typical
96	M96	N60	N99			RIGID	None	None	RIGID	Typical
97	MP9	N126	N125			Pipe 3.0XXS	Beam	Pipe	A53 Gr.B	Typical
98	MP10	N130	N129			Pipe_3.0	Beam	Pipe	A53 Gr.B	Typical
99	MP12	N134	N133			Pipe 3.0	Beam	Pipe	A53 Gr.B	Typical
100	M100	N137	N139		180	L 5x3x3/8	Beam	Single Angle	A36 Gr.36	Typical
101	M101	N138	N140		180	L 5x3x3/8	Beam	Single Angle	A36 Gr.36	Typical
102	MP11	N141	N142			Pipe_2.0	Beam	Pipe	A53 Gr.B	Typical
103	M103	N81	N136			RIGID	None	None	RIGID	Typical
104	M104	N68	N135			RIGID	None	None	RIGID	Typical
105	M105	N85	N132			RIGID	None	None	RIGID	Typical
106	M106	N76	N131			RIGID	None	None	RIGID	Typical
107	M107	N89	N128			RIGID	None	None	RIGID	Typical
108	M108	N84	N127			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis Offs...	Inactive	Seismi...
1	MP1						Yes				None
2	MP2						Yes	Default			None
3	MP4						Yes	Default			None
4	M10						Yes				None
5	M11						Yes				None
6	MP3						Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10A						Yes				None
11	M11A						Yes				None
12	M12						Yes				None
13	M13						Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes				None
17	M17						Yes				None
18	M18						Yes				None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes				None
24	M24						Yes				None
25	M25						Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	M28						Yes				None
29	M29						Yes				None
30	M30						Yes				None
31	M31						Yes				None
32	M32						Yes				None
33	M33						Yes				None
34	M34						Yes				None
35	M35						Yes				None
36	M36						Yes				None
37	M37						Yes				None
38	M38						Yes				None
39	M39						Yes				None
40	M40						Yes				None
41	M41						Yes				None
42	M42						Yes				None
43	M43						Yes				None
44	M44						Yes				None
45	M45						Yes				None
46	M46						Yes				None
47	M47						Yes				None
48	M48						Yes				None
49	M49						Yes				None
50	M50						Yes				None
51	M51						Yes				None
52	M52						Yes				None
53	M53						Yes				None
54	M54						Yes				None
55	M55						Yes				None
56	M56						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis Offs...	Inactive	Seismi...
57	M57						Yes				None
58	M58						Yes				None
59	M59						Yes				None
60	M60						Yes				None
61	M61						Yes				None
62	M62						Yes				None
63	M63						Yes				None
64	M64						Yes				None
65	M65						Yes				None
66	M66						Yes				None
67	M67						Yes				None
68	M68						Yes				None
69	M69						Yes				None
70	M70						Yes				None
71	M71						Yes				None
72	M72						Yes				None
73	M73						Yes				None
74	M74						Yes				None
75	M75						Yes				None
76	M76						Yes				None
77	M77						Yes				None
78	M78						Yes				None
79	M79						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	MP5						Yes				None
86	MP6						Yes	Default			None
87	MP8						Yes	Default			None
88	M88						Yes				None
89	M89						Yes				None
90	MP7						Yes				None
91	M91						Yes	** NA **			None
92	M92						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	M94						Yes	** NA **			None
95	M95						Yes	** NA **			None
96	M96						Yes	** NA **			None
97	MP9						Yes				None
98	MP10						Yes	Default			None
99	MP12						Yes	Default			None
100	M100						Yes				None
101	M101						Yes				None
102	MP11						Yes				None
103	M103						Yes	** NA **			None
104	M104						Yes	** NA **			None
105	M105						Yes	** NA **			None
106	M106						Yes	** NA **			None
107	M107						Yes	** NA **			None
108	M108						Yes	** NA **			None

Basic Load Cases

	BLC Description	Category	X Grav...	Y Grav...	Z Grav...	Joint	Point	Distrib...	Area(M...	Surfac...
1	Dead Load	DL		-1			27			
2	Wind 0	WLZ					54			
3	Wind 30	None					54			
4	Wind 60	None					54			
5	Wind 90	WLX					54			
6	Wind 120	None					54			
7	Wind 150	None					54			
8	Wind 180	WLZ					54			
9	Ice Weight	DL					27	108		
10	Ice + Wind 0	WLZ					54			
11	Ice + Wind 30	None					54			
12	Ice + Wind 60	None					54			
13	Ice + Wind 90	WLX					54			
14	Ice + Wind 120	None					54			
15	Ice + Wind 150	None					54			
16	Ice + Wind 180	WLZ					54			
17	Distri. Wind Z	WLZ						108		
18	Distri. Wind X	WLX						108		
19	Distri. Ice + Win...	WLZ						108		
20	Distrr. Ice + Win...	WLX						108		
21	Seismic Load Z	ELZ					27	108		
22	Seismic Load X	ELX					27	108		
23	Live Load 1	LL								
24	Live Load 2	LL								
25	Live Load 3	LL								

Load Combinations

	Description	S...	PDelta	SRSS	B...	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Y...	Y		1	1.4																		
2	1.2D + 1.6W 0°	Y...	Y		1	1.2	2	1.6	17	1.6	18													
3	1.2D + 1.6W 30°	Y...	Y		1	1.2	3	1.6	17	1.3...	18	.8												
4	1.2D + 1.6W 60°	Y...	Y		1	1.2	4	1.6	17	.8	18	1.3...												
5	1.2D + 1.6W 90°	Y...	Y		1	1.2	5	1.6	17		18	1.6												
6	1.2D + 1.6W 120°	Y...	Y		1	1.2	6	1.6	17	-.8	18	1.3...												
7	1.2D + 1.6W 150°	Y...	Y		1	1.2	7	1.6	17	-1....	18	.8												
8	1.2D + 1.6W 180°	Y...	Y		1	1.2	8	1.6	17	-1.6	18													
9	0.9D + 1.6W 0°	Y...	Y		1	.9	2	1.6	17	1.6	18													
10	0.9D + 1.6W 30°	Y...	Y		1	.9	3	1.6	17	1.3...	18	.8												
11	0.9D + 1.6W 60°	Y...	Y		1	.9	4	1.6	17	.8	18	1.3...												
12	0.9D + 1.6W 90°	Y...	Y		1	.9	5	1.6	17		18	1.6												
13	0.9D + 1.6W 120°	Y...	Y		1	.9	6	1.6	17	-.8	18	1.3...												
14	0.9D + 1.6W 150°	Y...	Y		1	.9	7	1.6	17	-1....	18	.8												
15	0.9D + 1.6W 180°	Y...	Y		1	.9	8	1.6	17	-1.6	18													
16	1.2D + 1.0Di + 1.0Wi 0°	Y...	Y		1	1.2	9	1	10	1	19	1	20											
17	1.2D + 1.0Di + 1.0Wi ...	Y...	Y		1	1.2	9	1	11	1	19	.866	20	.5										
18	1.2D + 1.0Di + 1.0Wi ...	Y...	Y		1	1.2	9	1	12	1	19	.5	20	.866										
19	1.2D + 1.0Di + 1.0Wi ...	Y...	Y		1	1.2	9	1	13	1	19		20	1										
20	1.2D + 1.0Di + 1.0Wi ...	Y...	Y		1	1.2	9	1	14	1	19	-.5	20	.866										
21	1.2D + 1.0Di + 1.0Wi ...	Y...	Y		1	1.2	9	1	15	1	19	-.8...	20	.5										
22	1.2D + 1.0Di + 1.0Wi ...	Y...	Y		1	1.2	9	1	16	1	19	-1	20											
23	1.2D + 1.0Eh 0°	Y...	Y		1	1.2	21	1	22															
24	1.2D + 1.0Eh 30°	Y...	Y		1	1.2	21	.866	22	.5														
25	1.2D + 1.0Eh 60°	Y...	Y		1	1.2	21	.5	22	.866														
26	1.2D + 1.0Eh 90°	Y...	Y		1	1.2	21		22	1														

Load Combinations (Continued)

	Description	S...	PDelta	SRSS	B...	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
27	1.2D + 1.0Eh 120°	Y...	Y		1	1.2	21	-.5	22	.866														
28	1.2D + 1.0Eh 150°	Y...	Y		1	1.2	21	-.8...	22	.5														
29	1.2D + 1.0Eh 180°	Y...	Y		1	1.2	21	-1	22															
30	0.9D + 1.0Eh 0°	Y...	Y		1	.9	21	1	22															
31	0.9D + 1.0Eh 30°	Y...	Y		1	.9	21	.866	22	.5														
32	0.9D + 1.0Eh 60°	Y...	Y		1	.9	21	.5	22	.866														
33	0.9D + 1.0Eh 90°	Y...	Y		1	.9	21		22	1														
34	0.9D + 1.0Eh 120°	Y...	Y		1	.9	21	-.5	22	.866														
35	0.9D + 1.0Eh 150°	Y...	Y		1	.9	21	-.8...	22	.5														
36	0.9D + 1.0Eh 180°	Y...	Y		1	.9	21	-1	22															
37	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	23	1.5	2	.292	17	.292	18											
38	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	23	1.5	3	.292	17	.253	18	.146										
39	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	23	1.5	4	.292	17	.146	18	.253										
40	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	23	1.5	5	.292	17		18	.292										
41	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	23	1.5	6	.292	17	-.1...	18	.253										
42	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	23	1.5	7	.292	17	-.2...	18	.146										
43	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	23	1.5	8	.292	17	-.2...	18											
44	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	24	1.5	2	.292	17	.292	18											
45	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	24	1.5	3	.292	17	.253	18	.146										
46	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	24	1.5	4	.292	17	.146	18	.253										
47	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	24	1.5	5	.292	17		18	.292										
48	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	24	1.5	6	.292	17	-.1...	18	.253										
49	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	24	1.5	7	.292	17	-.2...	18	.146										
50	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	24	1.5	8	.292	17	-.2...	18											
51	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	25	1.5	2	.292	17	.292	18											
52	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	25	1.5	3	.292	17	.253	18	.146										
53	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	25	1.5	4	.292	17	.146	18	.253										
54	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	25	1.5	5	.292	17		18	.292										
55	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	25	1.5	6	.292	17	-.1...	18	.253										
56	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	25	1.5	7	.292	17	-.2...	18	.146										
57	1.0D +1.5Lv + 1.0W (...	Y...	Y		1	1	25	1.5	8	.292	17	-.2...	18											
58	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	23	1	2	.082	17	.082	18											
59	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	23	1	3	.082	17	.071	18	.041										
60	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	23	1	4	.082	17	.041	18	.071										
61	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	23	1	5	.082	17		18	.082										
62	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	23	1	6	.082	17	-.0...	18	.071										
63	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	23	1	7	.082	17	-.0...	18	.041										
64	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	23	1	8	.082	17	-.0...	18											
65	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	24	1	2	.082	17	.082	18											
66	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	24	1	3	.082	17	.071	18	.041										
67	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	24	1	4	.082	17	.041	18	.071										
68	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	24	1	5	.082	17		18	.082										
69	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	24	1	6	.082	17	-.0...	18	.071										
70	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	24	1	7	.082	17	-.0...	18	.041										
71	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	24	1	8	.082	17	-.0...	18											
72	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	25	1	2	.082	17	.082	18											
73	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	25	1	3	.082	17	.071	18	.041										
74	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	25	1	4	.082	17	.041	18	.071										
75	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	25	1	5	.082	17		18	.082										
76	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	25	1	6	.082	17	-.0...	18	.071										
77	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	25	1	7	.082	17	-.0...	18	.041										
78	1.2D + 1.0Lv + 1.0W (..	Y...	Y		1	1.2	25	1	8	.082	17	-.0...	18											

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	She...	Lo...	...	...	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-z ...	Cb	Eqn
1	MP4	PIPE_3.0	.878	143.7...	8	.191	14...		2	17036.963	65205	5748.75	5748.75	1.402	H1-...
2	MP12	PIPE_3.0	.784	143.7...	5	.163	14...		5	17036.963	65205	5748.75	5748.75	2.364	H1-...
3	MP8	PIPE_3.0	.743	143.7...	12	.149	14...		6	17036.963	65205	5748.75	5748.75	2.091	H1-...
4	MP1	PIPE_3.0...	.651	143.7...	8	.063	14...		8	34611.936	162855	12836.25	12836.25	4.234	H1-...
5	MP9	PIPE_3.0...	.574	143.7...	5	.044	14...		5	34611.936	162855	12836.25	12836.25	1.671	H1-...
6	MP5	PIPE_3.0...	.574	143.7...	5	.048	14...		5	34611.936	162855	12836.25	12836.25	1.707	H1-...
7	MP2	PIPE_3.0	.560	143.7...	8	.048	14...		7	17036.963	65205	5748.75	5748.75	2.267	H1-...
8	MP6	PIPE_3.0	.509	143.7...	5	.042	14...		...	17036.963	65205	5748.75	5748.75	1.767	H1-...
9	MP10	PIPE_3.0	.508	143.7...	5	.041	14...		4	17036.963	65205	5748.75	5748.75	2.268	H1-...
10	M49	L6X6X5	.383	0	14	.196	0	y	7	98089.767	118908	8085.111	16791.128	1.063	H2-1
11	M76	L6X6X5	.368	8.367	8	.208	8.3...	y	8	98089.767	118908	8085.111	16791.128	1.364	H2-1
12	M64	L6X6X5	.361	8.367	4	.174	8.3...	y	...	98089.767	118908	8085.111	16791.128	1.398	H2-1
13	M61	L6X6X5	.357	0	4	.308	8.3...	y	5	98089.767	118908	9302.079	19858.322	1.165	H2-1
14	M72	L6X6X5	.347	8.367	13	.273	0	z	...	98089.767	118908	8085.111	16791.128	1.064	H2-1
15	M73	L6X6X5	.310	0	8	.201	8.3...	y	8	98089.767	118908	9302.079	19858.322	1.156	H2-1
16	M60	L6X6X5	.300	8.367	8	.188	0	y	7	98089.767	118908	9302.079	19858.322	1.222	H2-1
17	M13	L6X6X5	.283	0	7	.234	8.3...	y	8	98089.767	118908	9302.079	19858.322	1.701	H2-1
18	M48	L6X6X5	.273	8.367	3	.308	0	y	3	98089.767	118908	9302.079	19858.322	1.143	H2-1
19	M53	L6X6X5	.270	0	7	.220	8.3...	y	2	98089.767	118908	8085.111	16791.128	1.26	H2-1
20	M52	L6X6X5	.262	8.367	5	.202	0	y	...	98089.767	118908	9302.079	19858.322	1.148	H2-1
21	M65	L6X6X5	.256	0	5	.220	8.3...	y	...	98089.767	118908	9302.079	19858.322	1.164	H2-1
22	M77	L6X6X5	.256	0	3	.186	0	y	3	98089.767	118908	8085.111	16791.128	1.35	H2-1
23	M69	L6X6X5	.227	0	2	.154	0	y	2	98089.767	118908	8085.111	16791.128	1.232	H2-1
24	M75	L6X6X5	.211	8.367	8	.173	8.3...	y	7	98089.767	118908	8085.111	16791.128	2.208	H2-1
25	M68	L6X6X5	.210	8.367	11	.156	8.3...	y	4	98089.767	118908	8085.111	16791.128	1.154	H2-1
26	M45	L6X6X5	.202	0	11	.123	0	y	2	98089.767	118908	8085.111	16791.128	1.336	H2-1
27	M56	L6X6X5	.201	8.367	14	.171	0	y	5	98089.767	118908	9302.079	19858.322	1.245	H2-1
28	M44	L6X6X5	.192	8.367	2	.127	0	y	2	98089.767	118908	9302.079	19858.322	1.113	H2-1
29	M62	L6X6X5	.192	0	4	.147	8.3...	y	4	98089.767	118908	9302.079	19858.322	1.323	H2-1
30	M71	L6X6X5	.188	8.367	13	.135	0	y	2	98089.767	118908	8085.111	16791.128	1.185	H2-1
31	M11	L5X3X6	.185	0	7	.051	0	z	2	84807.034	92664	2820.638	9875.312	1.756	H2-1
32	M37	L6X6X5	.183	0	4	.131	8.3...	y	3	98089.767	118908	9302.079	19858.322	1.065	H2-1
33	M63	L6X6X5	.177	8.367	4	.203	8.3...	y	4	98089.767	118908	8085.111	16791.128	2.239	H2-1
34	M50	L6X6X5	.174	0	10	.133	0	y	5	98089.767	118908	9302.079	16791.128	1.051	H2-1
35	M24	L6X6X5	.172	8.367	13	.059	0	y	2	98089.767	118908	8085.111	16791.128	1.146	H2-1
36	M40	L6X6X5	.170	8.367	4	.097	8.3...	y	4	98089.767	118908	8085.111	16791.128	1.397	H2-1
37	M47	L6X6X5	.170	8.367	8	.080	0	y	...	98089.767	118908	8085.111	16791.128	1.227	H2-1
38	M78	L6X6X5	.158	0	2	.095	0	y	2	98089.767	118908	8085.111	16791.128	2.173	H2-1
39	M29	L6X6X5	.153	0	2	.060	0	y	...	98089.767	118908	9302.079	19858.322	1.21	H2-1
40	M74	L6X6X5	.151	0	8	.186	8.3...	y	7	98089.767	118908	9302.079	19858.322	1.359	H2-1
41	M101	L5X3X6	.150	0	3	.044	0	z	5	84807.034	92664	2820.638	9875.312	1.711	H2-1
42	M36	L6X6X5	.150	8.367	5	.174	8.3...	z	4	98089.767	118908	9302.079	19858.322	1.147	H2-1
43	M59	L6X6X5	.144	0	6	.154	0	y	8	98089.767	118908	9302.079	16791.128	1.01	H2-1
44	M54	L6X6X5	.144	0	7	.134	0	y	...	98089.767	118908	8085.111	16791.128	1.742	H2-1
45	M51	L6X6X5	.141	8.367	5	.107	0	y	5	98089.767	118908	9302.079	19858.322	1.394	H2-1
46	M57	L6X6X5	.140	0	3	.106	8.3...	y	...	98089.767	118908	9302.079	19858.322	1.126	H2-1
47	M67	L6X6X5	.140	8.367	5	.134	8.3...	y	5	98089.767	118908	8085.111	16791.128	1.976	H2-1
48	M89	L5X3X6	.138	0	12	.040	0	z	6	84807.034	92664	2820.638	9875.312	1.41	H2-1
49	M66	L6X6X5	.137	0	6	.118	8.3...	y	5	98089.767	118908	9302.079	19858.322	1.308	H2-1
50	M58	L6X6X5	.136	8.367	5	.077	8.3...	y	3	98089.767	118908	9302.079	16791.128	1.019	H2-1
51	M70	L6X6X5	.135	0	12	.158	8.3...	y	...	98089.767	118908	9302.079	16791.128	1.235	H2-1
52	M10	L5X3X6	.135	0	8	.012	0	z	2	84807.034	92664	2820.638	9875.312	1.643	H2-1
53	M14	L6X6X5	.135	0	8	.075	0	y	8	98089.767	118908	8085.111	16791.128	2.229	H2-1
54	M16	L6X6X5	.132	8.367	11	.072	8.3...	y	...	98089.767	118908	8085.111	16791.128	1.098	H2-1
55	M25	L6X6X5	.127	0	5	.118	0	z	...	98089.767	118908	8085.111	16791.128	1.262	H2-1
56	M31	L6X6X5	.123	8.367	2	.081	8.3...	y	2	98089.767	118908	8085.111	16791.128	1.599	H2-1

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	She...	Lo...	...	...	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-z ...	Cb	Eqn
57	M32	L6X6X5	.122	0	3	.196	0	y	2	98089.767	118908	8085.111	16791.128	2.218	H2-1
58	M100	L5X3X6	.117	0	6	.010	0	z	4	84807.034	92664	2820.638	9875.312	2.194	H2-1
59	M21	L6X6X5	.116	0	12	.071	8.3...	y	2	98089.767	118908	8085.111	16791.128	1.181	H2-1
60	M39	L6X6X5	.107	8.367	4	.088	8.3...	y	3	98089.767	118908	8085.111	16791.128	2.228	H2-1
61	M55	L6X6X5	.104	8.367	6	.136	8.3...	y	2	98089.767	118908	9302.079	19858.322	1.324	H2-1
62	M12	L6X6X5	.103	8.367	3	.145	8.3...	z	8	98089.767	118908	8085.111	16791.128	1.024	H2-1
63	M41	L6X6X5	.103	0	6	.085	0	y	6	98089.767	118908	8085.111	16791.128	1.318	H2-1
64	M88	L5X3X6	.099	0	13	.010	0	z	...	84807.034	92664	2820.638	9875.312	1.877	H2-1
65	M38	L6X6X5	.096	0	4	.071	8.3...	y	4	98089.767	118908	9302.079	19858.322	1.298	H2-1
66	M33	L6X6X5	.096	0	5	.072	0	y	4	98089.767	118908	8085.111	16791.128	2.142	H2-1
67	M43	L6X6X5	.095	0	8	.122	0	y	3	98089.767	118908	9302.079	16791.128	1.157	H2-1
68	M17	L6X6X5	.095	0	8	.115	0	z	...	98089.767	118908	9302.079	19858.322	1.079	H2-1
69	M8	L6X6X5	.094	8.367	6	.065	0	y	7	98089.767	118908	9302.079	19858.322	1.152	H2-1
70	M34	L6X6X5	.092	0	5	.078	0	y	5	98089.767	118908	9302.079	16791.128	1.195	H2-1
71	M35	L6X6X5	.089	8.367	4	.030	0	y	...	98089.767	118908	9302.079	19858.322	1.005	H2-1
72	M28	L6X6X5	.089	8.367	3	.115	8.3...	z	2	98089.767	118908	9302.079	19858.322	1.068	H2-1
73	M23	L6X6X5	.087	0	13	.102	0	y	2	98089.767	118908	9302.079	19858.322	1.683	H2-1
74	M22	L6X6X5	.084	8.367	5	.081	0	y	...	98089.767	118908	9302.079	16791.128	1.434	H2-1
75	M46	L6X6X5	.082	0	11	.169	0	y	3	98089.767	118908	8085.111	16791.128	2.198	H2-1
76	M26	L6X6X5	.075	0	5	.059	0	y	2	98089.767	118908	8085.111	16791.128	1.022	H2-1
77	M20	L6X6X5	.071	8.367	7	.093	8.3...	z	...	98089.767	118908	8085.111	16791.128	1.287	H2-1
78	M11A	L6X6X5	.071	8.367	2	.042	8.3...	z	7	98089.767	118908	8085.111	16791.128	1.001	H2-1
79	M30	L6X6X5	.069	0	2	.118	8.3...	y	2	98089.767	118908	9302.079	19858.322	1.761	H2-1
80	M42	L6X6X5	.066	0	6	.042	0	y	6	98089.767	118908	8085.111	16791.128	1.885	H2-1
81	M15	L6X6X5	.065	0	8	.114	0	y	8	98089.767	118908	9302.079	16791.128	1.299	H2-1
82	MP11	PIPE_2.0	.059	58	6	.047	58		...	22845.314	32130	1871.625	1871.625	2.852	H1-...
83	M18	L6X6X5	.057	0	8	.046	8.3...	y	6	98089.767	118908	9302.079	19858.322	1.171	H2-1
84	M27	L6X6X5	.053	8.367	2	.057	0	y	...	98089.767	118908	9302.079	19858.322	1.074	H2-1
85	MP7	PIPE_2.0	.053	58	3	.039	58		7	22845.314	32130	1871.625	1871.625	2.251	H1-...
86	M9	L6X6X5	.051	0	6	.126	0	z	7	98089.767	118908	9302.079	19858.322	1.088	H2-1
87	M7	L6X6X5	.046	8.367	6	.052	0	y	5	98089.767	118908	9302.079	19858.322	1.487	H2-1
88	M10A	L6X6X5	.045	8.367	9	.060	8.3...	y	2	98089.767	118908	8085.111	16791.128	1.103	H2-1
89	MP3	PIPE_2.0	.044	6	8	.051	58		2	22845.314	32130	1871.625	1871.625	1.997	H1-...
90	M19	L6X6X5	.040	8.367	6	.066	8.3...	y	8	98089.767	118908	8085.111	16791.128	1.224	H2-1

SITE NUMBER: CT11263A
SITE NAME: Preston-2 SNET_1
DATE: 06/09/2021
BY: AP **CHECKED BY:** JG

Calculate U-Bolt Capacity (AISC 15th Edition) (Proposed)

Threaded Rod Properties			
Nominal Diameter, d	0.5	in.	Assumed
Nominal Area, Ab	0.196	in^2	
Steel Grade	A36		Assumed
Yield Strength, Fy	36	ksi	
Tensile Strength, Fu	58	ksi	
Nominal Tensile Strength, Fnt	43.5	ksi	
Nominal Shear Strength, Fnv	26.1	ksi	

U-Bolt Capacity (LRFD)					
	Ultimate Load	**Factored Load (ϕ=0.75)**	**Safety Factor**	**# of Rods**	**Total Factored Capacity**
Tension, Tn (lbs.)	8541.2	6405.9	1	1	6405.9
Shear, Vn (lbs.)	10249.5	7687.1	1	1	7687.1

Enveloped Forces From Antenna Supports:

Tension, t (lbs.)	1755	≤	6405.9	**OK**
Shear, v (lbs.)	1818	≤	7687.1	**OK**

Interaction Check:

$(t/\phi Tn)^2 + (v/\phi Vn)^2$ ≤ **1.0**
= **0.13** **OK**

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11263A

Preston-2 SNET_1
1 Chestnut Street
Norwich, Connecticut 06360

June 18, 2021

EBI Project Number: 6221003133

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**23.63%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

June 18, 2021

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11263A - Preston-2 SNET_1

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1 Chestnut Street** in **Norwich, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 1 Chestnut Street in Norwich, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated

transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antenna mounting height centerline of the proposed antennas is 101 feet above ground level (AGL).

15) Emissions from additional carriers were not included because emissions data for the site location are not available.

16) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd
Height (AGL):	101 feet	Height (AGL):	101 feet	Height (AGL):	101 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	12,569.87	ERP (W):	12,569.87	ERP (W):	12,569.87
Antenna A1 MPE %:	**7.29%**	Antenna B1 MPE %:	**7.29%**	Antenna C1 MPE %:	**7.29%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	101 feet	Height (AGL):	101 feet	Height (AGL):	101 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**14.48%**	Antenna B2 MPE %:	**14.48%**	Antenna C2 MPE %:	**14.48%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	101 feet	Height (AGL):	101 feet	Height (AGL):	101 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A3 MPE %:	**1.86%**	Antenna B3 MPE %:	**1.86%**	Antenna C3 MPE %:	**1.86%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	23.63%
no additional carriers	N/A
Site Total MPE % :	23.63%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	23.63%
T-Mobile Sector B Total:	23.63%
T-Mobile Sector C Total:	23.63%
Site Total MPE % :	23.63%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	101.0	4.71	600 MHz LTE	400	1.18%
T-Mobile 600 MHz NR	1	1577.94	101.0	6.29	600 MHz NR	400	1.57%
T-Mobile 700 MHz LTE	2	695.22	101.0	5.54	700 MHz LTE	467	1.19%
T-Mobile 1900 MHz GSM	4	1052.26	101.0	16.77	1900 MHz GSM	1000	1.68%
T-Mobile 1900 MHz LTE	2	2104.51	101.0	16.77	1900 MHz LTE	1000	1.68%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	101.0	44.00	2500 MHz LTE 1C & 2C Traffic	1000	4.40%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	101.0	4.28	2500 MHz LTE 1C & 2C Broadcast	1000	0.43%
T-Mobile 2500 MHz NR Traffic	1	22089.26	101.0	87.99	2500 MHz NR Traffic	1000	8.80%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	101.0	8.56	2500 MHz NR Broadcast	1000	0.86%
T-Mobile 2100 MHz LTE	2	2334.27	101.0	18.60	2100 MHz LTE	1000	1.86%
						Total:	**23.63%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	23.63%
Sector B:	23.63%
Sector C:	23.63%
T-Mobile Maximum MPE % (Sector A):	23.63%
Site Total:	23.63%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **23.63%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Mailing Receipts/Proof of Notice

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

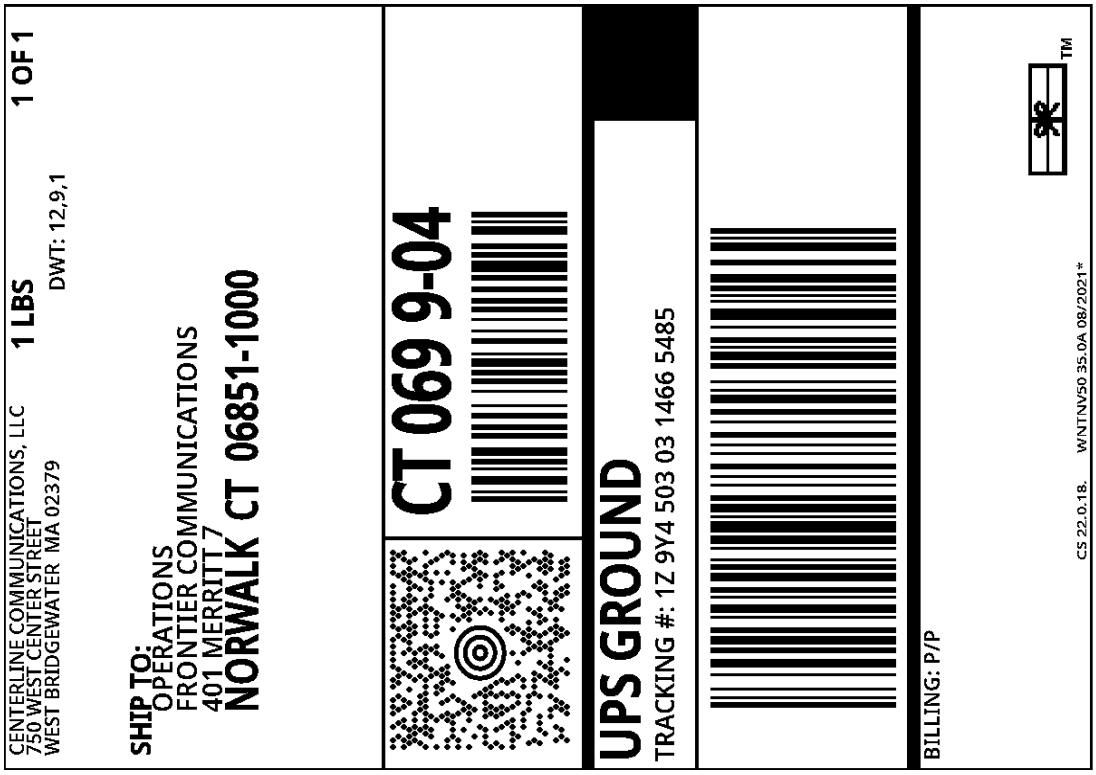
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE



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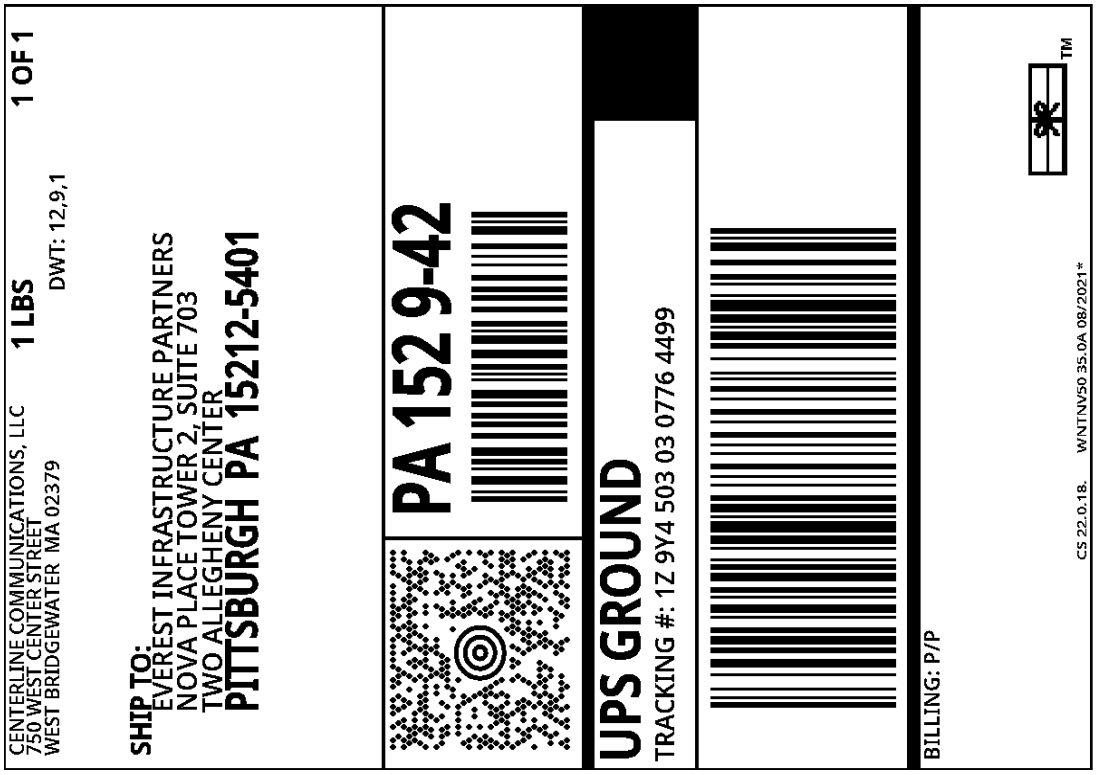

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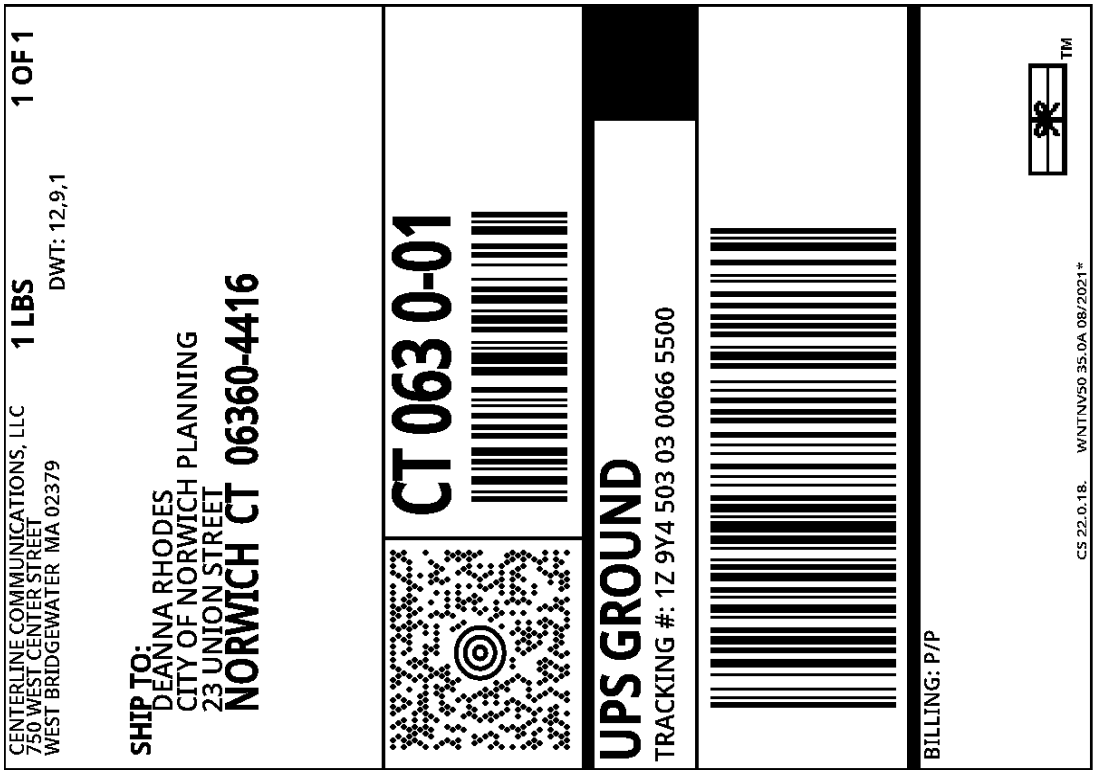

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