NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Victoria Masse
420 Main Street, #2, Sturbridge MA 01566
860-306-2326
victoria@northeastsitesolutions.com

September 22, 2020

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

RE: Notice of Exempt Modification
900 Longbrook Road, Stratford CT 06614
Latitude: 41.20177000
Longitude: -73.12885000
T-Mobile Site#: CT11872D_Anchor

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing 82-foot guyed tower located at 900 Longbrook Road, Stratford CT 06614. T-Mobile currently maintains nine (9) antennas at the 74-foot level of the existing 82-foot tower. The guyed tower is owned by the Town of Stratford. The property is owned by Town of Stratford –Police Station. T-Mobile now intends to replace three (3) existing antenna with three (3) new 2500 MHz antenna. The new antennas would be installed at the 74-foot and level of the tower.

Planned Modifications:

Remove:
(18) 7/8" Coax

Remove and Replace:
(3) AIR21 Antenna **(Remove) –** (3) AIR6449 B41 Antenna 2500MHz (**Replace)**
(3) LNX6515 Antenna **(Remove)** - APXAARR24_43-U-NA20 antenna 600/700/1900/2100 MHz (**Replace)**
(3) RRUS11 B12 **(Remove)** – RRU4449 B71+B85 **(Replace)**

Install New:
(1) Hybrid Line
(3) RRUS 4415 B25
(3) Commscope Diplexers – SDX1926Q-43

Existing to Remain:
(6) 7/8" Coax
(2) Hybrid Lines
(3) AIR32DB B66Aa B2a Antenna 1900/2100 MHz
(3) TMA

This facility was approved by the Town of Stratford PZC – Dated August 16, 2005. Please see attached.

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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 Laura R. Hoydick, Elected Official for the Town of Stratford and John Rusatsky, Town Zoning Enforcement Officer as well as the property owner and the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, #2, Sturbridge MA 01566
Email: victoria@northeastsitesolutions.com

Attachments
cc: Laura R. Hoydick- Mayor - as elected official
John Rusatsky- Zoning Enforcement Officer
Town of Stratford- Town Manger- as tower owner
Town of Stratford –Police Dept. - as property owner

Exhibit A

TOWN OF STRATFORD

ZONING-SPECIAL EXCEPTION OR VARIANCE, RECORDING, GEN. STATUTES

1. NAME OF RECORD OWNER Town of Stratford / Police Bldg.

   NAME OF APPLICANT (IF OTHER THAN OWNER) *Omnipoint Facilities Network 2 LLC*

2. DESCRIPTION OF PREMISES

   A. Street Address 900 Longbrook Ave.

   B. Lot No. 4.193 AC N/S *Name of record* N/S

   C. Description of Property (If lot number is not available)

DEED REFERENCE – VOLUME 437 Page 504 Zone RS-4

3. NATURE OF VARIANCE

NATURE OF SPECIAL CASE/SPECIAL EXCEPT to install telecommunication antennas & eqip.

NATURE OF ADMINISTRATIVE APPROVAL

4. BY-LAW, ORDINANCE OR REGULATION WHICH IS VARIED OR APPROVAL

   GRANTED HEREUNDER – Section 3.28.2 & 20 of the Zoning Regulations.

   CONDITIONS ATTACHED TO DECISION NO

* All new owners of accessory or affordable residential apartments approve under Section 4.1.6.14 of the Zoning Regulations shall notify the Zoning Office within 60 days of the sale of their intention to continue the accessory residential use.

5. DATE OF PUBLIC HEARING/ADMINISTRATIVE SESSION 8/16/05

6. DATE OF DECISION 8/16/05 DATE OF PUBLICATION 8/23/05

7. APPROVED BY: BOARD OF ZONING APPEALS
   ZONING COMMISSION
   SECRETARY/PLANNING & ZONING ADMINISTRATOR

   DATE 8/29/05

NOTE: In accordance with Section 20.3 and /or 21.2 of the Zoning Regulations of the Town of Stratford, if a building permit is not obtained within eighteen months from the date of decision, this approval is null and void.

Received for record _____ at _____ ATTEST _____

TOWN OF STRATFORD

CONNECTICUT
06615

ZONING COMMISSION
2725 MAIN STREET
STRATFORD, CT 06615
203-385-4017

August 19, 2005

Omnipoint Facilities Network 2 LLC
C/o Jennifer Young Gaudet
100 Filley St.
Bloomfield, CT 06002

Re: 900 Longbrook Ave. – Petition of Omnipoint Facilities Network 2 LLC

Dear Sir:

This is to officially notify you that at a meeting of the Zoning Commission held August 16, 2005 it was voted to grant your petition, for approval of a Special Case under Sections 3.28.2 and 20 of the Zoning Regulations in order to install telecommunication antennas and equipment on property located in an RS-4 District.

In accordance with the State Statutes the appeal period will expire on September 8, 2005.

If a building permit is not obtained within eighteen months this approval shall be considered null and void.

Regards,

GARY LORENTSON
Planning & Zoning Administrator
ZONING COMMISSION
GL/ej

Exhibit B

TOWN OF STRATFORD

Recent Sales in Neighborhood	Previous Parcel	Next Parcel	Field Definitions	Return to Main Search	Stratford Home

Owner and Parcel Information

Owner Name	TOWN OF STRATFORD POLICE STATION	**Today's Date**	May 8, 2017
Mailing Address	900 LONGBROOK AVE	**Account #**	0991600
	STRATFORD, CT 06615-5007		
Location Address	900 LONGBROOK AVE	**Census Tract**	0808
Map / Block / Lot	40 /11 / 12 / 8/ Dev Lot: 4.193 ACRES N/S	**Acreage**	4.46
Use Class / Description	931 Police Dept	**Parcel Map**	Show Parcel Map Owner List By Radius

Current Appraised Value Information

Building Value	OB Value	Land Value	Special Land Value	Total Appraised Value	Net Appraised Value	Current Assessment
No Appraisal Information available for this parcel						

Assessment History

Year	Building	OB/Misc	Land	Total Assessment
2016	$ 2,700,600	$ 134,610	$ 691,320	$ 3,526,530
2015	$ 2,700,600	$ 134,610	$ 691,320	$ 3,526,530

Land Information

Use	Class	Zoning	Area	Value
Police Dept	E	RS-4	3 AC	$ 900,000
Police Dept	E		1.46 AC	$ 87,600

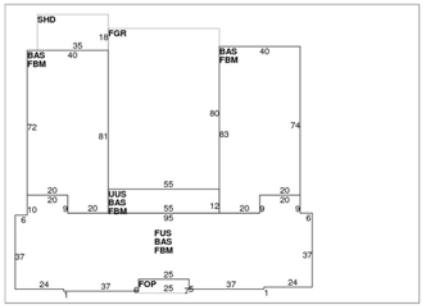
Commercial Building Information

Style	Year Built	Eff Year Built	Gross Area	Stories	Grade	Exterior Wall	Interior Wall	Wall Height	# Units
Police Station	1969	1988	37,069	2.00	B	Brick Veneer	Drywall/Sheet	10	1
Roof Cover	**Roof Structure**	**Floor Type**	**Heat Type**	**Heat Fuel**	**AC Type**	**Sprinkler**	**Construction**	**Plumbing**	**Comm Walls**
Built Up	Flat	Quarry Tile	Gas	Forced Air-Duc	Heat/AC Split	%	Masonry	Average	0%

Building Sub Areas

Code	Description	Living Area	Gross Area	Effective Area
BAS	First Floor	12,688	12,688	
FBM	Finished Basement	12,688	12,688	
FGR	Garage	0	4,400	
FOP	Finished Open Porch	0	175	
FUS	Finished Upper Story	5,828	5,828	
SHD	Shed	0	630	
UUS	Unfin Upper Story	0	660	
	Totals	**31,204**	**37,069**	**29,721**

Building Sketch Enlarge



Building Photo Enlarge

Out Buildings / Extra Features

Description	Sub Description	Area	Year Built	Value
Paving	Asphalt	20,000 S.F.	1969	$ 16,500
Shed	Frame	180 S.F.	1969	$ 1,300
Gas Canopy		816 S.F.	1987	$ 20,800
Elevator, Pass		1 Units	1987	$ 50,900
Cell Tower - Pole		1 Units	2006	$ 174,500

Sale Information

Sale Date	Sale Price	Deed Book/Page	Sale Qualification	Reason	Vacant or Improved	Owner
01/02/1968		0437/0504	Unqualified	WD	Improved	TOWN OF STRATFORD POLICE STATION

Permit Information

Permit ID	Issue Date	Type	Description	Amount	Inspection Date	% Complete	Date Complete	Comments
21688	09/08/2015	EL	Electrical Per	$ 2,000		100		RELOCATE SERVICE
21745	10/01/2014	BP	Building Permi	$ 15,000		100		1 ANTENNA TRANSCEND WIRELESS
20439	01/28/2014	EL	Electrical Per	$ 51,500		100		NEW ALARM SYS
20343	12/07/2012	BP	Building Permi	$ 216,000		100		RENOV LOCKER RM, FITNESS RM
20232	11/27/2012	EL	Electrical Per	$ 119,000		100		RENOVATIONS

19493	07/30/2012	EL	Electrical Per	$ 159,190		100		INSTL GENERATOR
20079	07/27/2012	BP	Building Permi	$ 5,000		100		REPL 6 ANTENNAS
19371	05/09/2012	EL	Electrical Per	$ 98,500		100		WIRE BOILER
19559	10/24/2011	BP	Building Permi	$ 74,000		100		31 WINDOW REPL
13564	02/26/2009	EL	Electrical Per	$ 10,000		100		ELECTRICAL
17754	01/20/2009	BP	Building Permi	$ 233,741		100		TANK REMOV/INSTALL
12030	05/08/2006	EL	Electrical Per	$ 2,000		100		INSTALL SERVICE ON STORAGE SHED IN REAR
11770	11/16/2005	EL	Electrical Per	$ 15,000	06/27/2006	100		ELECTRICAL
15095	09/09/2005	BP	Building Permi	$ 105,000	06/27/2006	100		INSTALL NEW ANTENNA
13154	06/11/2003				06/27/2006	100		ADDN $1,645,000

Reports

Parcel

View as: Google Earth | Bird's Eye | Google Maps & Street View

Selected Parcel	0991600 (Click for Card)
Property Class	931
Taxing District	(16)
Acreage	4.46
Physical Address	900 LONGBROOK AVE
Owner	TOWN OF STRATFORD POLICE STATION 900 LONGBROOK AVE STRATFORD, CT 06615-5007
Land Value	$ 987,600
Improvement Value	$ 3,786,300
Accessory Value	$ 71,700
Total Value	$ 5,037,900
Improvements on Parcel	1
Total Improvement Area (sq ft)	37,069

Two most recent parcel sales

Date	Price	Qual	Reason
01/02/1968		U	WD

Website last updated May 7, 2017
GIS Maps last updated December 04, 2014

Exhibit C

T-Mobile

NORTHEAST, LLC.

PROJECT: ANCHOR

SITE I.D. NUMBER:

CT11872D

SITE NAME:

CT872/STRATFORD PD_GT

SITE ADDRESS:

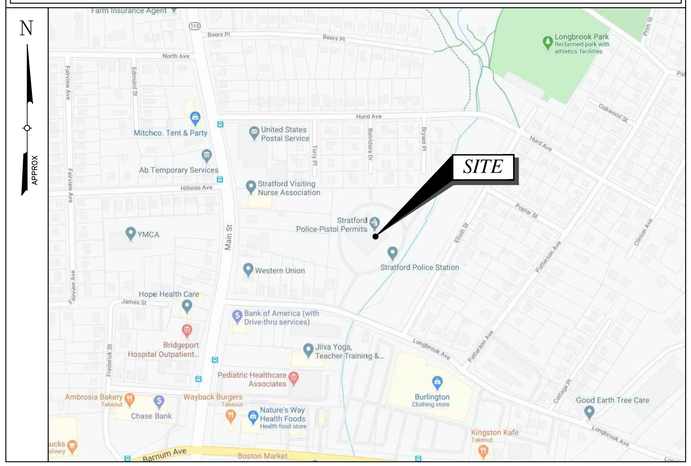
900 LONGBROOK ROAD
STRATFORD, CT 06614

PROJECT INDEX

SITE NUMBER:	CT11872D
SITE NAME:	CT872/STRATFORD PD_GT
SITE ADDRESS:	900 LONGBROOK RD STRATFORD, CT 06614
PROPERTY OWNER:	TOWN OF STRATFORD POLICE STATION 900 LONGBROOK AVE STRATFORD, CT 06615
APPLICANT:	T-MOBILE NORTHEAST LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
STRUCTURE TYPE:	ROOFTOP
LATTITUDE (NAD83):	N 41.20177000"
LONGITUDE (NAD83):	W 73.12885000"
GRADE ELEVATION:	10' AMSL (PER GOOGLE EARTH)
MUNICIPALITY:	FAIRFIELD
ZONING:	RS-4
PARCEL #:	0991600

PROJECT CLIENT:	NORTHEAST SITE SOLUTIONS, LLC
CONTACT:	SHELDON FREINCLE
PHONE:	(201) 776-8521
ENGINEER/ STRUCTURAL ENG:	TECTONIC ENGINEERING & SURVEYING CONSULTANTS, PC.
CONTACT:	EDWARD IAMICELI
PHONE:	(845) 567-6656x2811

VICINITY MAP (NTS)



SHEET INDEX

SHEET NO	DESCRIPTION	REVISION	DATE
T-1	TITLE SHEET	2	09/17/20
A-1	ROOF PLAN	2	09/17/20
A-2	BUILDING ELEVATION	2	09/17/20
A-3	EQUIPMENT, EQUIPMENT FRAME, & SCREENWALL FRAME PLANS	2	09/17/20
A-4	SECTIONS & DETAILS	2	09/17/20
A-5	EXIST/NEW T-MOBILE ANTENNA PLANS & ANTENNA SCHEMATIC	2	09/17/20
A-6	ANTENNA REINFORCING PLAN & ELEVATIONS	2	09/17/20
A-7	ANTENNA REINFORCING ELEVATIONS	2	09/17/20
A-8	DETAILS & ANTENNA SCHEMATIC	2	09/17/20
A-9	NOTES	2	09/17/20
E-1	ELECTRICAL NOTES & ONE-LINE DIAGRAM	2	09/17/20
G-1	GROUNDING DETAILS & NOTES	2	09/17/20

CODE COMPLIANCE

CODE INFORMATION

- STATE OF CONNECTICUT BUILDING CODE, LATEST EDITION
- ANSI/TIA-222-G
- NATIONAL ELECTRIC CODE, LATEST EDITION

DESIGN NOTE

DESIGN BASED ON RFDS DATED 9/10/2020, VERSION 4.

RAN TEMPLATE: 67D5A997DB OUTDOOR
A&L TEMPLATE: 67D5997DB_2xAIR+1OP (U21 MARKET)

STRUCTURAL NOTE

ANTENNA FRAME

REFER TO THE MOUNT ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

TOWER

REFER TO THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

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

STATE OF CONNECTICUT
EDWARD N. IAMICELI
PEN.0028473
LICENSED
PROFESSIONAL ENGINEER

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering & Surveying Consultants P.C.
70 Pleasant Hill Road
P.O. Box 37
Mountainville, NY 10953
Phone: (845) 534-5959
(800) 829-6531
www.tectonicengineering.com
Project Contact Info
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656

T-Mobile
NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
10473.CT11872D	EI

REV.	DATE	DESCRIPTION	DRAWN BY
0	08/19/20	FOR CONSTRUCTION	BWY
1	09/02/20	PER COMMENTS	RT
2	09/17/20	PER COMMENTS	BWY

ISSUED BY _____ DATE _____

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

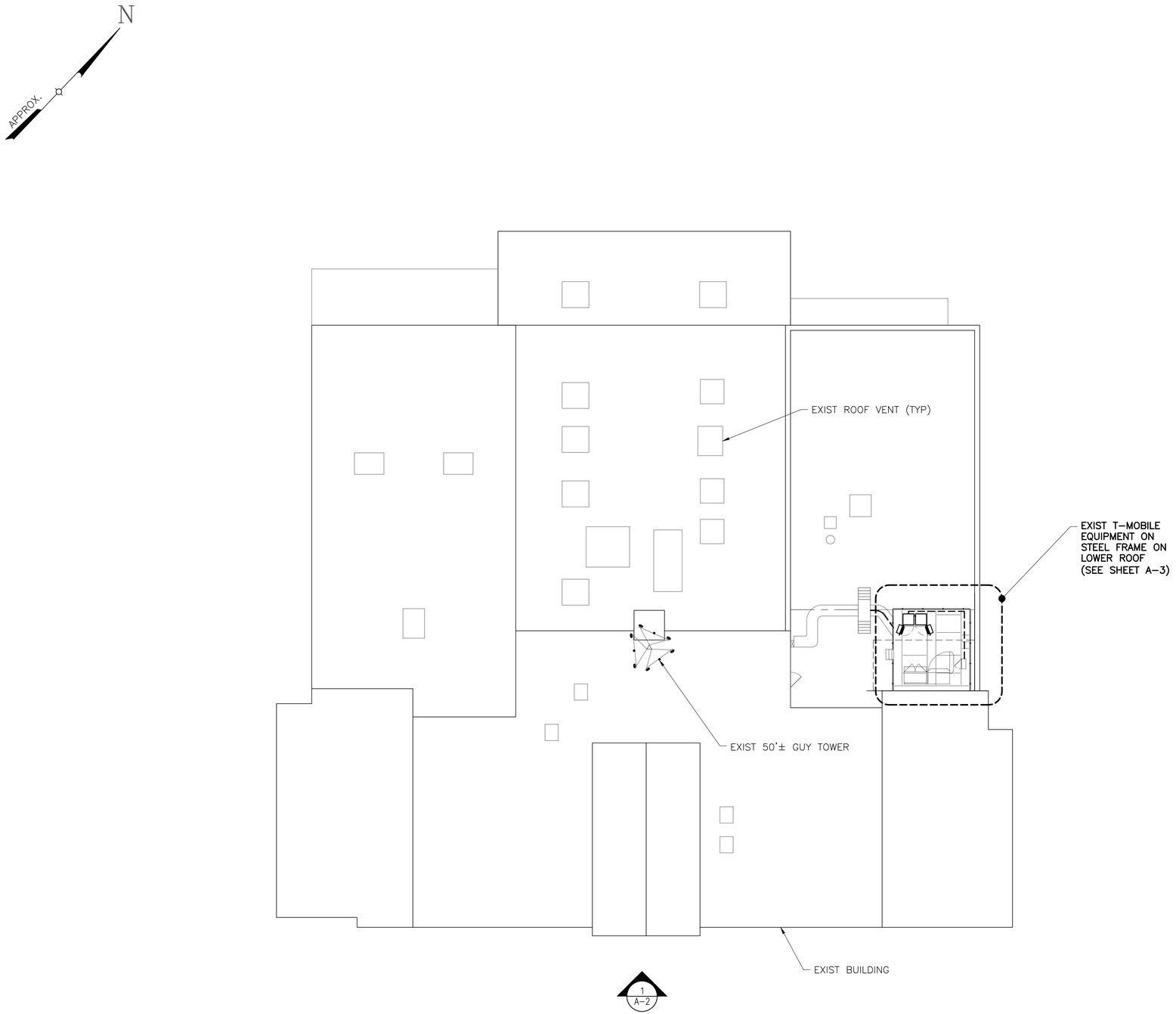
CT872/STRATFORD PD_GT
CT11872D
900 LONGBROOK AVE
STRATFORD, CT 06615

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



1 / A–1 ROOF PLAN

SCALE: 3/32" = 1'–0"

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ISSUED BY	DATE

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ORIGINAL SIZE IN INCHES

SITE INFORMATION

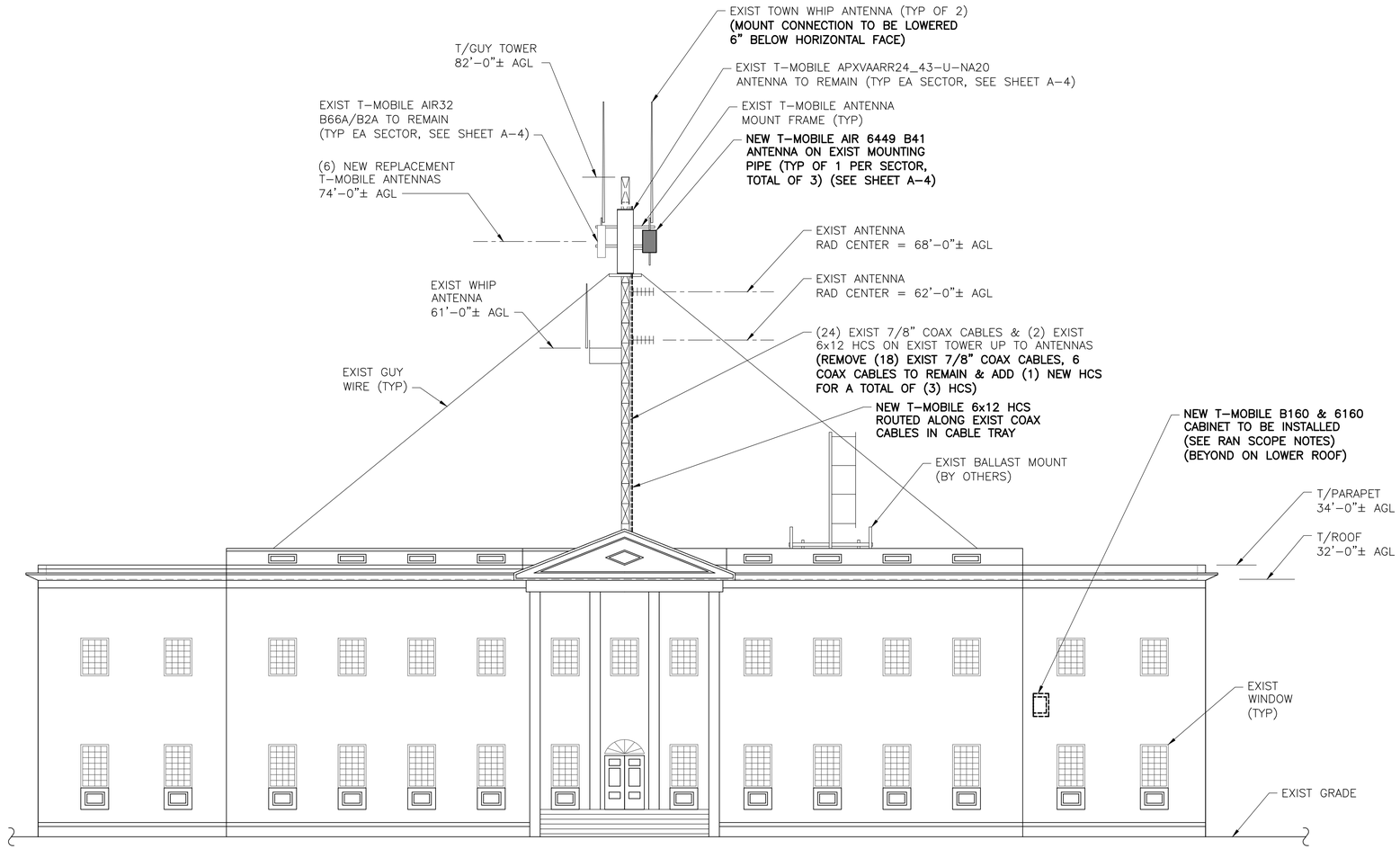
CT872/STRATFORD PD_GT
CT11872D
900 LONGBROOK AVE
STRATFORD, CT 06615

SHEET TITLE

PARTIAL SITE PLAN

SHEET NUMBER

A–1



NOTE: NOT ALL SITE FEATURES SHOWN FOR CLARITY.

1 / A-2 ELEVATION

SCALE: 1/8" = 1'-0"

STRUCTURAL NOTE

ANTENNA FRAME

REFER TO THE MOUNT ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

TOWER

REFER TO THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

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SITE INFORMATION

CT872/STRATFORD PD_GT
CT11872D
900 LONGBROOK AVE
STRATFORD, CT 06615

SHEET TITLE

BUILDING ELEVATION

SHEET NUMBER

A-2

STATE OF CONNECTICUT
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N

APPROX.

STRUCTURAL NOTE

ANTENNA FRAME

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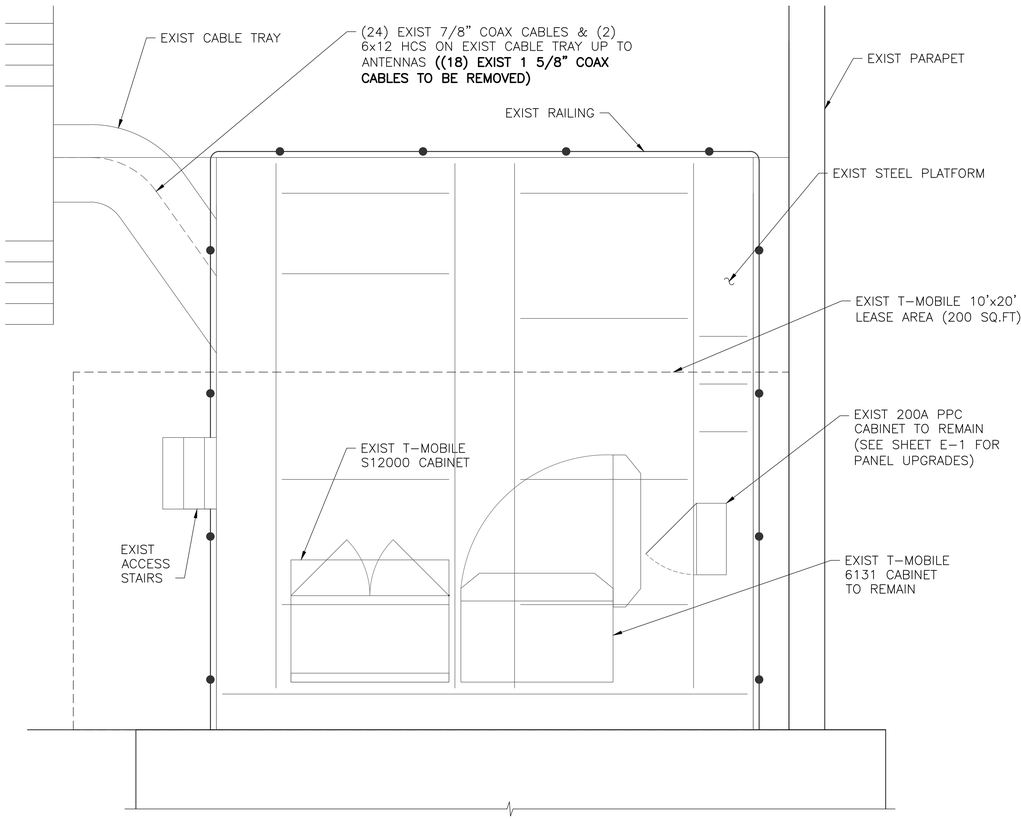
TOWER

REFER TO THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

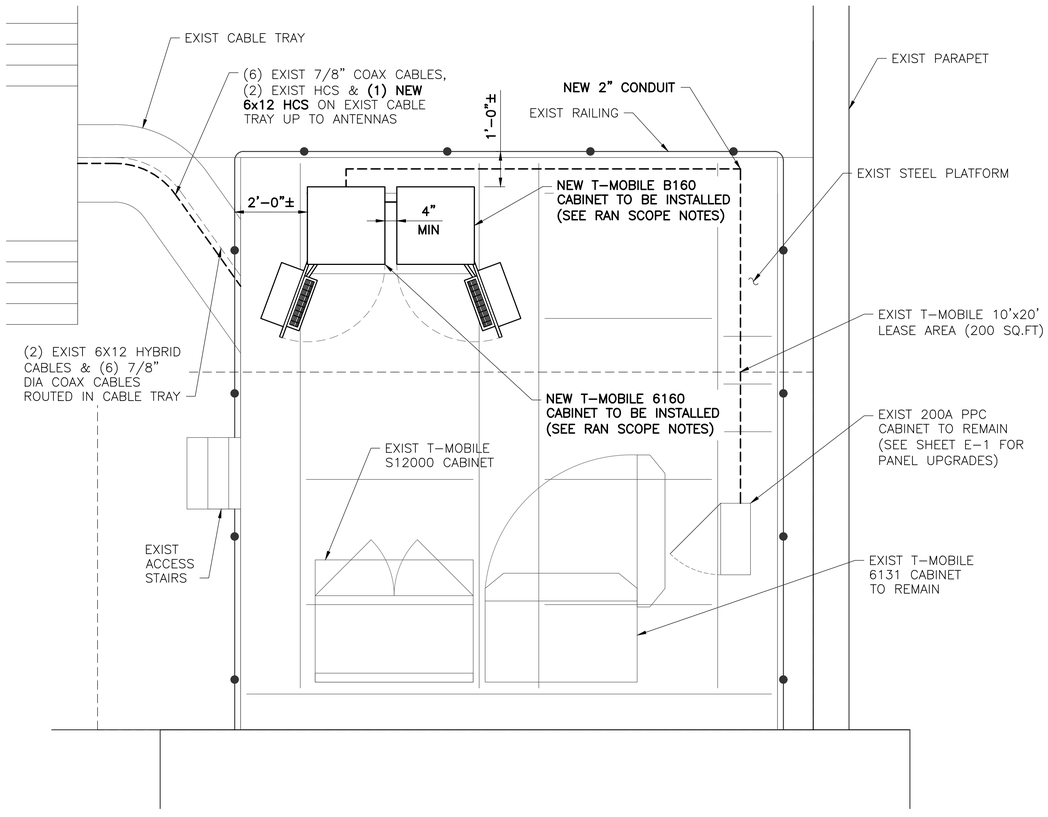
RAN SCOPE NOTES

1. CHECK AC SERVICE AND UPGRADE AC SERVICE, BREAKERS, AND PPC WHERE NECESSARY.
2. ADD (1) ENCLOSURE 6160.
3. ADD (1) BATTERY CABINET B160.
4. ADD (1) IXRE ROUTER TO NEW ENCLOSURE 6160
5. ADD (1) BB6630 FOR L2500 TO NEW ENCLOSURE 6160
6. ADD (1) BB6648 FOR N2500 TO NEW ENCLOSURE 6160
7. EXISTING (2) 6x12 HYBRID CABLES; & (24) 7/8" COAX CABLES
7. ADD (1) 6x12 HCS. LENGHT OF NEW HCS WILL MATCH THAT OF EXISTING HCS.
8. KEEP (6) COAX LINES FOR U2100.
9. REMOVE (18) UNCONNECTED COAX LINES.
10. REMOVE XMU FROM EXISTING RBS6131 CABINET IF PRESENT.
11. REMOVE (1) 9x18 HCS.
12. REPLACE BB5216 WITH (1) BB6630 FOR L2100, L1900, L700, AND L600 IN ECISTING RBS6131 CABINET IF STILL PRESENT.



1 / A-3 EXIST T-MOBILE EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"



2 / A-3 NEW T-MOBILE EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"

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ORIGINAL SIZE IN INCHES

SITE INFORMATION

CT872/STRATFORD PD_GT
CT11872D
900 LONGBROOK AVE
STRATFORD, CT 06615

SHEET TITLE

EQUIPMENT, EQUIPMENT FRAME, & SCREENWALL FRAME PLANS

SHEET NUMBER

A-3

N

APPROX.

STRUCTURAL NOTE

ANTENNA FRAME

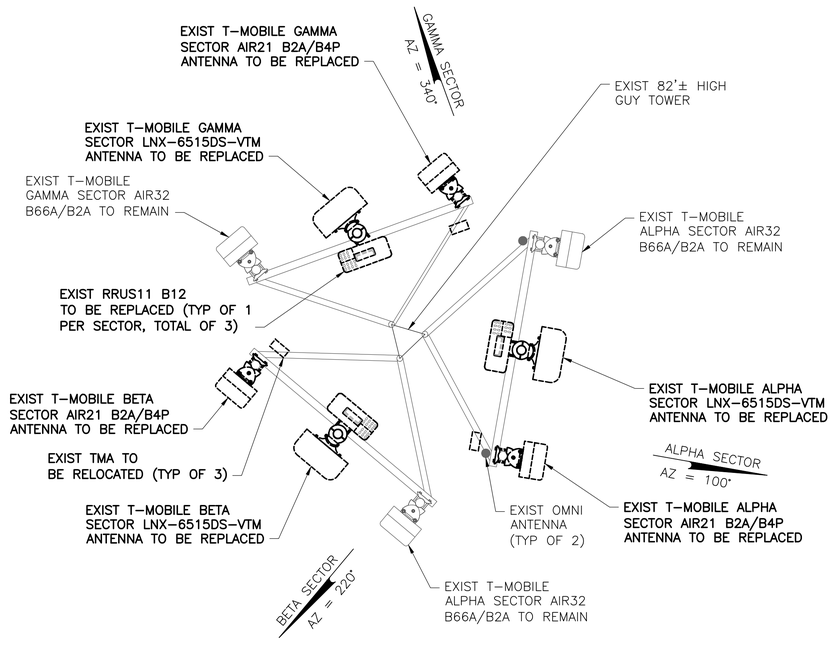
REFER TO THE MOUNT ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

TOWER

REFER TO THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

ANTENNA CABLE SCHEDULE

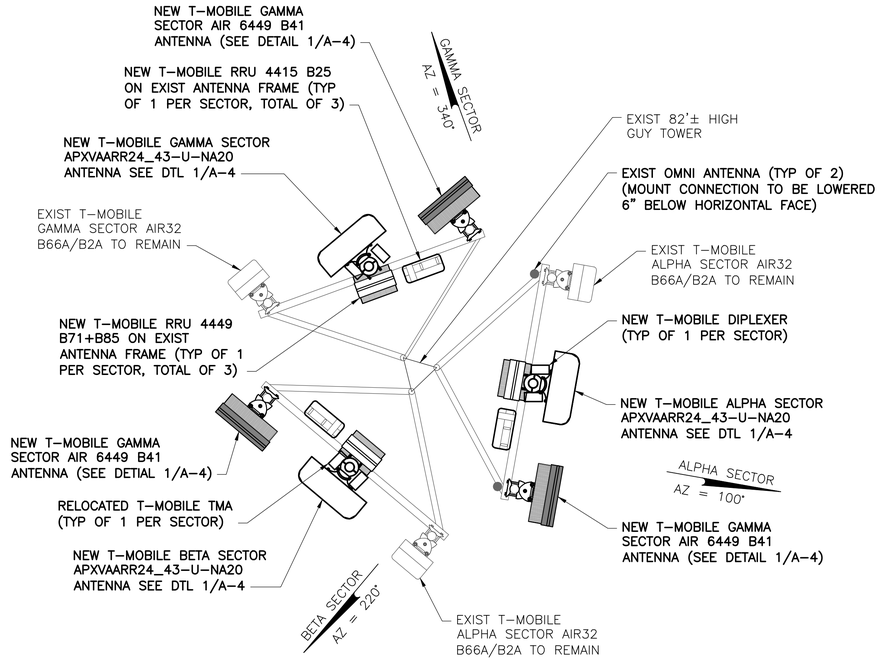
SECTOR MARK	ANTENNA MODEL	AZIMUTH	ELEC DOWNTILT	MECH DOWNTILT	ANTENNA CENTERLINE	SECTOR	STATUS	TMA/RRU	CABLE	JUMPER TYPE	CABLE LENGTH
A-1 LTE/GSM	ERICSSON AIR32 B66/B2A	100°	2°	0°	74'-0"±	LEFT ALPHA	EXIST	0/0	(2) 7/8" COAX	FIBER	175'- 0"
										FIBER	175'- 0"
A-2 LTE/UMTS	RFS APXVAARR24-43-U-NA20	100°	2°	0°	74'-0"±	CENTER ALPHA	REPLACED	1/2	EXIST 6x12 HYBRID CABLE	FIBER	175'- 0"
										FIBER	175'- 0"
A-3 LTE	ERICSSON AIR6449 B41	100°	2°	0°	74'-0"±	RIGHT ALPHA	REPLACED	0/0	NEW 6x12 HYBRID CABLE	FIBER	175'- 0"
										FIBER	175'- 0"
B-1 LTE/GSM	ERICSSON AIR32 B66/B2A	220°	2°	0°	74'-0"±	LEFT ALPHA	EXIST	0/0	(2) 7/8" COAX	FIBER	175'- 0"
										FIBER	175'- 0"
B-2 LTE/UMTS	RFS APXVAARR24-43-U-NA20	220°	2°	0°	74'-0"±	CENTER BETA	REPLACED	1/2	EXIST 6x12 HYBRID CABLE	FIBER	175'- 0"
										FIBER	175'- 0"
B-3 LTE	ERICSSON AIR6449 B41	220°	2°	0°	74'-0"±	RIGHT BETA	REPLACED	0/0	SHARED 6x12 HYBRID CABLE	FIBER	175'- 0"
										FIBER	175'- 0"
C-1 LTE/GSM	ERICSSON AIR32 B66/B2A	320°	2°	0°	74'-0"±	LEFT GAMMA	EXIST	0/0	(2) 7/8" COAX	FIBER	175'- 0"
										FIBER	175'- 0"
C-2 LTE/UMTS	RFS APXVAARR24-43-U-NA20	320°	2°	0°	74'-0"±	CENTER GAMMA	REPLACED	1/2	SHARED 6x12 HYBRID CABLE	FIBER	175'- 0"
										FIBER	175'- 0"
C-3 LTE	ERICSSON AIR6449 B41	320°	2°	0°	74'-0"±	RIGHT GAMMA	REPLACED	0/0	SHARED 6x12 HYBRID CABLE	FIBER	175'- 0"
										FIBER	175'- 0"



ALL SECTORS, CENTERLINE ELEVATION 74'-0" AGL

1/A-4 EXIST T-MOBILE ANTENNA PLAN

SCALE: 1/2" = 1'-0"



ALL SECTORS, CENTERLINE ELEVATION 74'-0" AGL

2/A-4 NEW T-MOBILE ANTENNA PLAN

SCALE: 1/2" = 1'-0"

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T-Mobile NORTHEAST, LLC.

35 GRIFFIN ROAD SOUTH
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NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD _____

RF _____

CONSTRUCTION _____

OPERATIONS _____

SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
10473.CT11872D	EI

REV.	DATE	DESCRIPTION	DRAWN BY
0	08/19/20	FOR CONSTRUCTION	BWY
1	09/02/20	PER COMMENTS	RT
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ISSUED BY	DATE

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

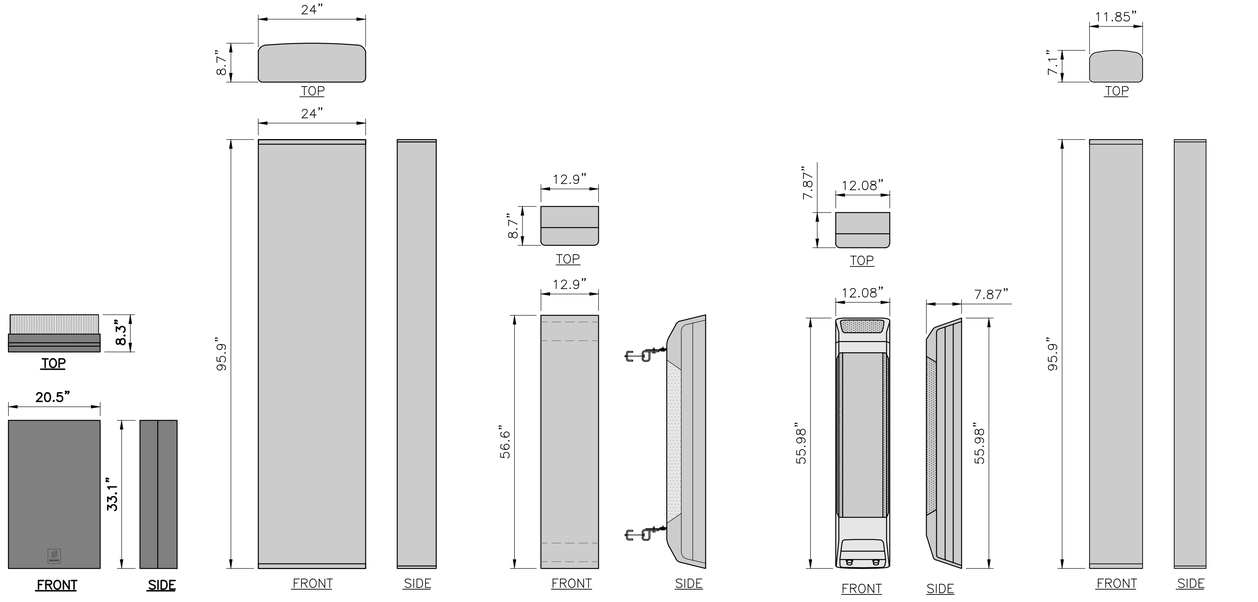
CT872/STRATFORD PD_GT
CT11872D
900 LONGBROOK AVE
STRATFORD, CT 06615

SHEET TITLE

EXIST/NEW T-MOBILE ANTENNA PLANS & ANTENNA SCHEDULE

SHEET NUMBER

A-4



AIR6449 B41
WEIGHT: 103 LBS

PROPOSED

RFS: APXVAARR24_43_U_NA20
WEIGHT: 128 LBS

PROPOSED

AIR32 DUAL BAND (DB) B66Aa/B2a
WEIGHT: 132.2 LBS

EXISTING

AIR 21 B2A/B4P ANTENNA
WEIGHT: 83 LBS

TO BE REMOVED

COMMSCOPE: LNX-6515DS-VTM
WEIGHT: 43.65 LBS

TO BE REMOVED

1/A-5 ANTENNA DETAILS

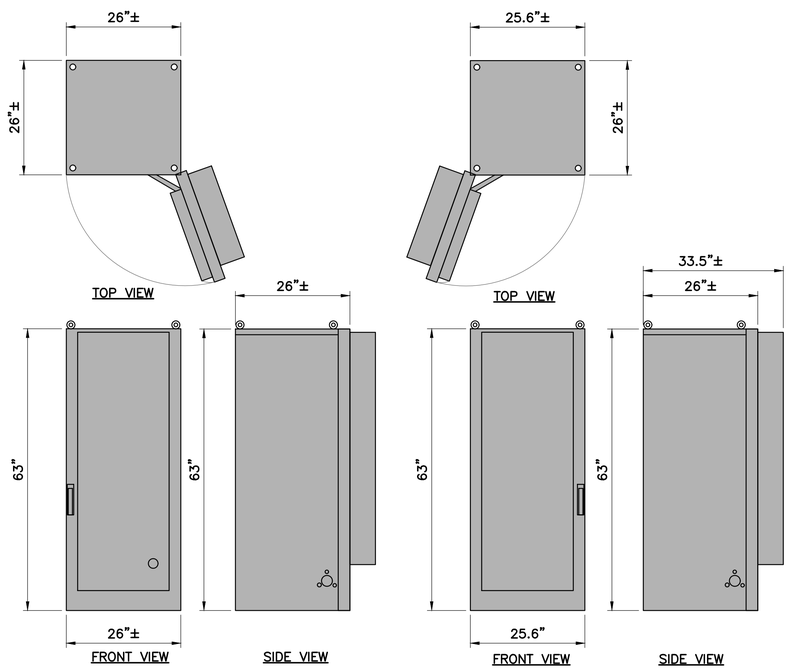
SCALE: 3/4" = 1'-0"

RRUS-4449 B71+B12
WEIGHT: 71.0 LBS

WEIGHT 46.3 LB
RRUS-4415 B25

3/A-5 RADIO DETAIL

SCALE: 1" = 1'-0"



WEIGHT: 1883 LBS (W/3 BATTERY STRINGS)

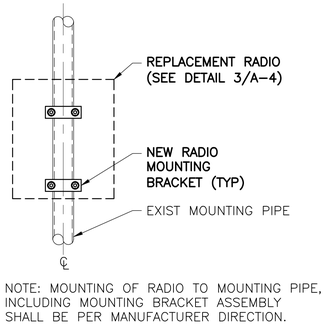
ERICSSON ENCLOSURE B160

WEIGHT: 605 LB (FULLY LOADED)

ERICSSON ENCLOSURE 6160 AC

4/A-5 EQUIPMENT CABINET SPECIFICATIONS

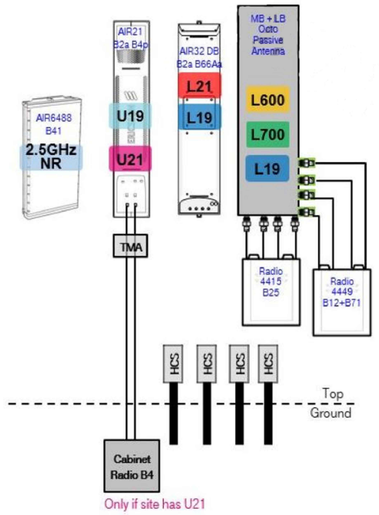
SCALE: NTS



NOTE: MOUNTING OF RADIO TO MOUNTING PIPE, INCLUDING MOUNTING BRACKET ASSEMBLY SHALL BE PER MANUFACTURER DIRECTION.

2/A-5 RADIO MOUNTING DETAIL

SCALE: 1" = 1'-0"



TYP ALL SECTORS

5/A-5 ANTENNA SCHEMATIC

SCALE: NTS

STRUCTURAL NOTE

ANTENNA FRAME

REFER TO THE MOUNT ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

TOWER

REFER TO THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED SEPTEMBER 2, 2020.

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STRATFORD, CT 06615

SHEET TITLE

DETAILS & ANTENNA SCHEMATIC

SHEET NUMBER

A-5

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF CONNECTICUT BUILDING CODE, LATEST VERSION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
3. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
4. DIMENSIONS SHOWN ARE TO FINISH SURFACES, UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE AUTHORIZED REPRESENTATIVE OR THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
5. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
6. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
7. ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE "NOTICE TO PROCEED," CONTRACTOR WILL CONTACT THE CONSTRUCTION MANAGER OF RECORD A MINIMUM OF 48 HOURS PRIOR TO WORK START.
8. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
9. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
10. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS, AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
12. CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
14. CONTRACTOR SHALL MAINTAIN LIABILITY INSURANCE TO PROTECT THE OWNER.
15. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
16. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, AND PIPING. REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.
17. REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
18. KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
19. 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 ENGINEER.
20. PROVIDE 48 HOURS WRITTEN NOTICE TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
21. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS AND OTHER DOCUMENTATION SHALL BE TURNED OVER TO AT COMPLETION OF CONSTRUCTION.
22. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE BY. ANY WORK, MATERIALS OR EQUIPMENT FOUND TO BE DEFECTIVE DURING THAT PERIOD SHALL BE CORRECTED IMMEDIATELY UPON WRITTEN NOTIFICATION AT NO ADDITIONAL COST TO T–MOBILE.

STRUCTURAL NOTES

1. 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 ENGINEER.
2. 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", LATEST EDITION.
3. STRUCTURAL STEEL BEAMS SHALL CONFORM TO ASTM A992 (Fy=50ksi). STRUCTURAL STEEL PLATES AND ANGLES SHALL CONFORM TO ASTM A36.
4. ROUND AND SQUARE HOLLOW STRUCTURAL SECTIONS (HSS) CONFORM TO ASTM A500 "COLD–FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE C.
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.
6. CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED:

   A) CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THE CITED AISC SPECIFICATION.

   B) STRUCTURAL BOLTS SHALL CONFORM TO THE LATEST ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS".

   C) WHERE THE REACTION VALUES OF BEAMS, BRACING, STRUTS, ETC., ARE NOT SHOWN ON THE DRAWINGS THE CONNECTIONS SHALL BE DESIGNED TO SUPPORT THE END REACTION DERIVED FROM THE TABLES AND FORMULA OF UNIFORM LOAD CONSTANTS IN PART 2, NINTH EDITION, OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN MEMBER SIZE, SPAN AND YIELD STRENGTH.

   D) MINIMUM 3/16" FILLET E70–XX WELD SHALL APPLY UNLESS NOTED.

   E) MINIMUM 1/2" DIA. A325 BOLTS SHALL APPLY UNLESS NOTED.

   F) MINIMUM SIZE OF CLIP ANGLES SHALL BE L3x3x3/8" UNLESS NOTED.

   G) ALL GUSSET PLATES SHALL BE 3/8" THICK UNLESS NOTED.

   H) ALL HOLES FOR BOLTS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER WITH AN EDGE DISTANCE OF AT LEAST 1 1/2 TIMES THE BOLT DIAMETER AND A SPACING OF AT LEAST 3 TIMES THE BOLT DIAMETER. ALL BOLTS SHALL BE PROVIDED WITH PALNUTS OR LOCK NUTS.
7. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS AND CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS", LATEST EDITION. BOLTS SHALL BE 3/4 INCH DIA. UNLESS OTHERWISE NOTED.
8. 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".
9. 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.
10. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
11. 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.
12. ALL STEEL SUPPORTS SHALL BE INSTALLED WITH DOUBLE NUTS AND SHALL BE INSTALLED SNUG TIGHT.
13. SLEEVE ANCHORS SHALL CONFORM TO FEDERAL SPECIFICATION FF–S–325, GROUP II, TYPE 3, CLASS 3, AS MANUFACTURED BY HILTI FASTENING SYSTEMS OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE (3) INCHES.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF–S–325, GROUP II, TYPE 4, CLASS 1, HILTI KWIK BOLT II OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE FOUR (4) INCHES.
15. EPOXY ANCHORING SYSTEM SHALL BE THE HILTI HY–270 FOR MASONRY CONSTRUCTION WITH HOLLOW BRICK OR BLOCK & THE HILTI HIT HY200 INJECTION ADHESIVE ANCHOR FOR GROUT FILLED CONCRETE MASONRY UNITS AND CONCRETE. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2"ø STAINLESS STEEL ANCHOR ROD W/NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE FOR THE HY–270 ONLY & AN EPOXY ADHESIVE (6" MIN EMBEDMENT). THE INSTALLATION PROCEDURE SHALL BE AS FOLLOWS

   A. DRILL THE HOLE USING MANUFACTURER RECOMMENDED DRILL BIT UP TO SPECIFIED DEPTH. HAMMERING IS NOT PERMITTED.

   B. CLEAN THE HOLE USING NYLON BRUSH AND/OR COMPRESSED AIR. THE HOLE SHOULD BE CLEAR OF ANY LOOSE MATERIAL. IF WET, THE MASONRY SHOULD BE ALLOWED TO DRY FULLY BEFORE ANCHOR INSTALLATION.

   C. INSERT SPECIFIED SCREEN TUBE INTO THE HOLE.

   D. FILL THE SCREEN TUBE COMPLETELY WITH ADHESIVE, BEGINNING AT THE BOTTOM END.

   E. INSERT ANCHOR ROD OR INTERNALLY THREADED INSERT INTO THE ADHESIVE–FILLED SCREEN TUBE, TWISTING SLIGHTLY.

   F. LOAD FASTENER ONLY AFTER MANUFACTURER SPECIFIED CURE TIME HAS ELAPSED.
16. GRATING SHALL BE GALVANIZED WELDED STEEL BAR GRATING TYPE W/BA WITH 1–1/4" BEARING BARS AT 1–3/16" OC. FASTEN TO SUPPORTING MEMBERS WITH SADDLE–TYPE CLIPS AT 2'–0" O.C. AND BAND ALL EXPOSED EDGES.
17. SUBMIT DRAWINGS OF ALL STRUCTURAL AND MISCELLANEOUS STEEL TO THE ENGINEER FOR APPROVAL AND INCORPORATE ALL COMMENTS PRIOR TO FABRICATION.
18. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.
19. ALL WORK SHALL BE INSPECTED BY THE ENGINEER DURING AND AT THE COMPLETION OF CONSTRUCTION.
20. CONTRACTOR TO REMOVE MASTIC ON THE EXISTING WALL/PARAPET AT EVERY STEEL SUPPORT ATTACHMENT AND REPOINT MASONRY AS REQUIRED. A BED OF SILICONE SHALL BE APPLIED BEHIND AND ALL AROUND THE STEEL SUPPORT ATTACHMENT TO MAKE IT WEATHERPROOF.
21. HAMMER DRILLS ARE NOT TO BE USED WHEN DRILLING HOLES FOR SLEEVE OR EXPANSION BOLTS INSTALLED IN MASONRY BLOCKS/BRICKS.
22. ALL HOLES TO BE ADDED IN THE FIELD SHALL BE PUNCHED OR DRILLED. NO HOLE BURNING SHALL BE ALLOWED.
23. NOTES ARE NOT PROJECT SPECIFIC.

SITE NOTES

1. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWING.
2. RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
3. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
4. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
5. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
6. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES.
7. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEER.
8. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED, AND COVERED WITH MULCH.
9. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
10. CARE SHALL BE TAKEN TO RETAIN NATURAL GROWTH AND PREVENT DAMAGE TO TREES WITHIN AND OUTSIDE THE LIMITS OF CONSTRUCTION AND SPECIFIED WORK AREAS CAUSED BY EQUIPMENT AND MATERIALS. ANY DAMAGE TO THIS NATURAL GROWTH SHALL BE RESTORED AT THE EXPENSE OF THE CONTRACTOR.
11. ALL AREAS DISTURBED BY THE CONTRACTOR WITHOUT AUTHORIZATION SHALL BE RESTORED BY THE CONTRACTOR.
12. IN THE EVENT THE CONTRACTOR DAMAGES AN EXISTING UTILITY SERVICE CAUSING AN INTERRUPTION IN SAID SERVICE, HE SHALL IMMEDIATELY COMMENCE WORK TO RESTORE SERVICE AND MAY NOT CEASE HIS WORK OPERATION UNTIL SERVICE IS RESTORED.

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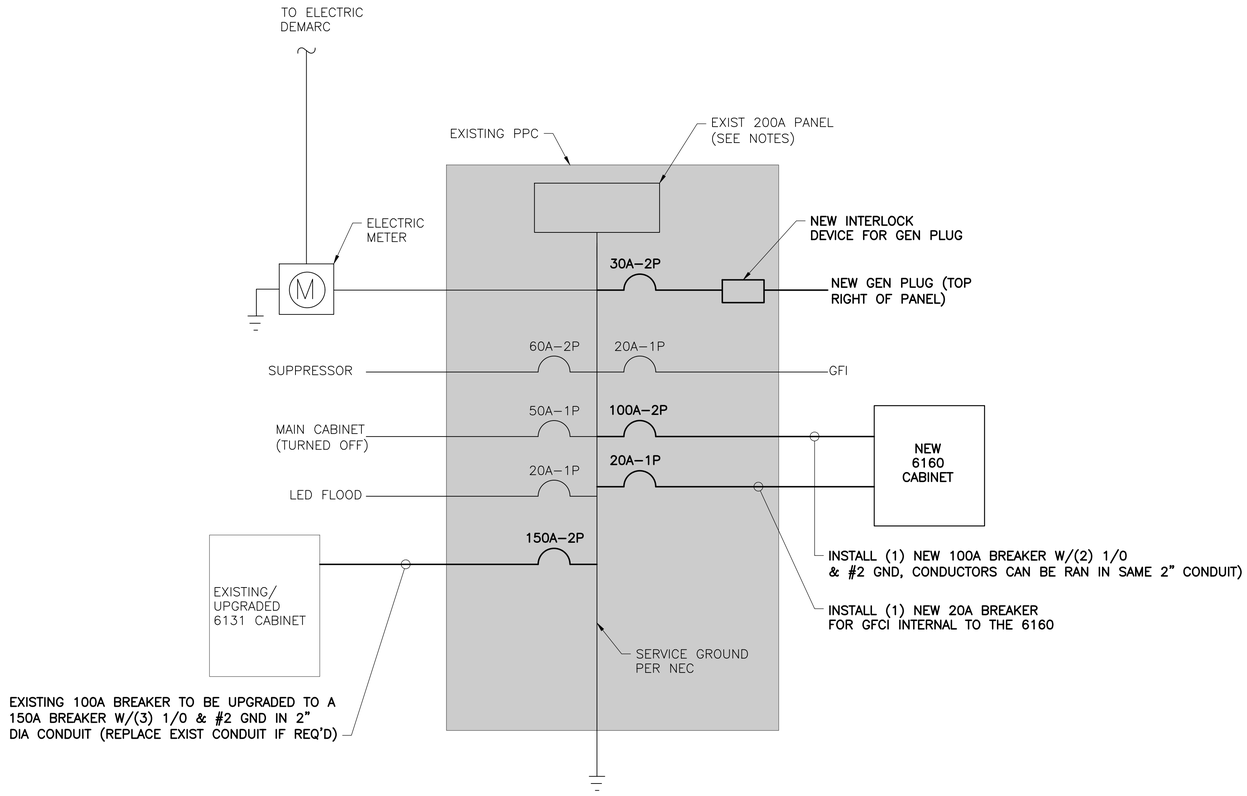

NOTES:
1. THE ABOVE DIAGRAM IS GENERIC AND ANY ELECTRICAL WORK SHALL BE COMPLETED BY A LICENSED ELECTRICIAN IN ACCORDANCE WITH NEC STANDARDS.
2. ELECTRICAL CONSULT SHALL BE PERFORMED TO CONSTRUCTION TO CONFIRM THE POWER REQUIREMENTS AND FEASIBILITY.

1 / E–1 ONE–LINE DIAGRAM

SCALE: NTS

GENERAL ELECTRICAL NOTES

1. CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ENGINEER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
2. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
3. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES (U.L.) AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. AND SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.
4. CONTRACTOR TO COORDINATE WITH SITE OWNER FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR.
5. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
6. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
7. METER SOCKETS AMPERES, VOLTAGE AND NUMBER OF PHASES SHALL BE NOTED AND SHALL BE MANUFACTURED BY SQUARE "D" COMPANY, SANGAMO OR APPROVED EQUAL. METER SOCKET SHALL BE APPROVED BY UTILITY COMPANY PRIOR TO INSTALLATION.
8. WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM WITH TYPE THHN INSULATION UNLESS SPECIFICALLY NOTED OTHERWISE.
9. ALL CONDUCTORS SHALL BE COPPER.
10. USE T–TAP CONNECTIONS ON ALL MULTI–CIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURES.
11. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULLBOX, J–BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)
12. CONDUIT:
    - A. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR.
    - B. INTERMEDIATE METAL CONDUIT SHALL BE U.L. LABEL, FITTINGS SHALL BE THREADED ALUMINUM OR STEEL AND SHALL BE USED FOR ALL EXTERIOR RUNS. THREADLESS COUPLINGS AND CONNECTORS SHALL NOT BE USED.
    - C. ELECTRICAL METALLIC TUBING (EMT) SHALL HAVE U.L. LABEL, FITTINGS SHALL BE NO SET SCREW OR CRIMP TYPE FITTINGS SHALL BE USED. GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
    - D. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL HAVE FULL SIZE GROUND WIRE.
    - E. CONDUIT SHALL BE SIZED PER THE NEC AND AS SHOWN.
    - F. CONDUIT RUNS MAY BE SURFACE MOUNTED IN CEILINGS OR WALLS UNLESS INDICATED OTHERWISE. CONDUIT INDICATED SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLING.
    - G. ALL CONDUIT ONLY (C.O.) RUNS SHALL HAVE A PULL WIRE OR ROPE.
13. COVERPLATES SHALL BE BRUSHED STAINLESS STEEL FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS, AND SHALL HAVE ENGRAVED LETTERING WHERE INDICATED WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA #WPD–8 LIFT COVERPLATES.
14. REFER TO MANUFACTURERS MANUAL FOR RECOMMENDED FUSE AND WIRE SIZES.
15. ALL FINAL CONNECTIONS TO THE EQUIPMENT ARE TO BE OF FLEXIBLE WEATHERPROOF CONDUIT TO MEET APPLICABLE CODES.
16. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
17. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2, UNLESS OTHERWISE NOTED.
18. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE CONSTRUCTION MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
19. PROVIDE CONSTRUCTION MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
20. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH GAINING APPROVALS AND PAYING ALL FEES ASSESSED BY UTILITY COMPANY FOR ELECTRICAL SERVICE.

STATE OF CONNECTICUT
EDWARD N. IANNICELLI
PEN.0028473
LICENSED
PROFESSIONAL ENGINEER

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T-Mobile NORTHEAST, LLC.

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
10473.CT11872D	EI

REV.	DATE	DESCRIPTION	DRAWN BY
0	08/19/20	FOR CONSTRUCTION	BWY
1	09/02/20	PER COMMENTS	RT
2	09/17/20	PER COMMENTS	BWY

ISSUED BY | DATE

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

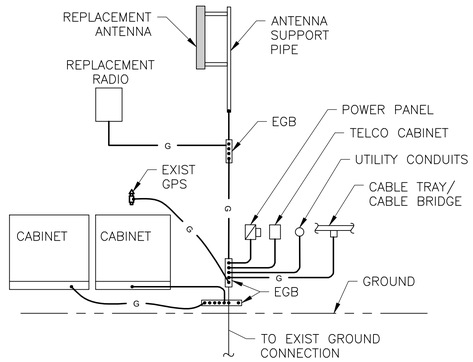
CT872/STRATFORD PD_GT
CT11872D
900 LONGBROOK AVE
STRATFORD, CT 06615

SHEET TITLE

ELECTRICAL NOTES & ONE–LINE DIAGRAM

SHEET NUMBER

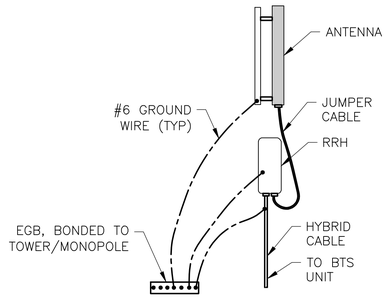
E–1



NOTE: CONTRACTOR SHALL CONFIRM ALL EQUIPMENT IS GROUNDED. IF NOT, CONTRACTOR SHALL GROUND EQUIPMENT AS SHOWN AND AS REQUIRED.

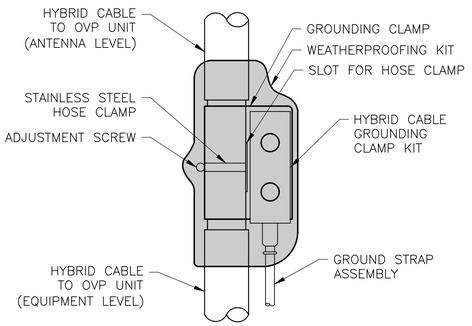
1 / G-1 GROUNDING RISER DIAGRAM

SCALE: NTS



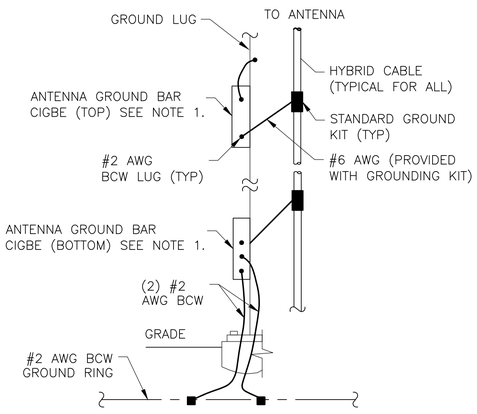
2 / G-1 HYBRID CABLE CONNECTIOND DETAIL

SCALE: NTS



3 / G-1 HYBRID CABLE GROUNDING DETAIL

SCALE: NTS

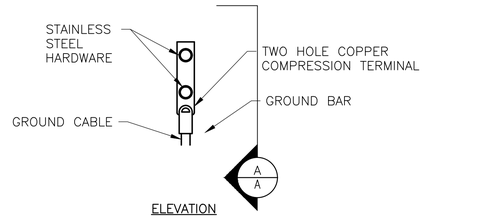


NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER. ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS UNIT IF REQUIRED.

4 / G-1 ANTENNA CABLE GROUNDING

SCALE: NTS



NOTES:

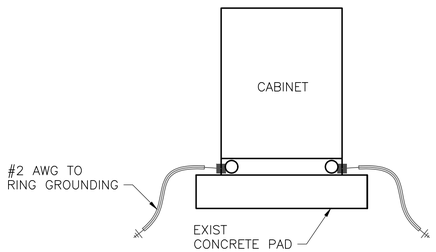
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.
4. ALL GROUND LUGS MUST NE HEAT SHRUNK AT WIRE/LUG CONNECTION.

5 / G-1 GROUND BAR CONNECTION DETAIL

SCALE: NTS

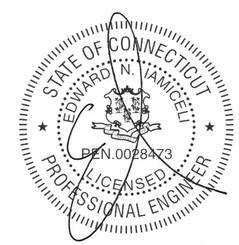
GROUNDING NOTES

1. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
2. ALL GROUNDING WORK SHALL BE IN ACCORDANCE WITH T-MOBILE STANDARD PRACTICE.
3. ALL BUS CONNECTORS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
4. ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS, T&B #TBM 8 OR EQUIVALENT.
5. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
6. ALL COPPER BUSSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
7. ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8-INCH NOMINAL RADIUS.
8. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
9. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 10 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
10. ALL ROOF TOP ANTENNA MOUNTS SHALL BE GROUNDED WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BUS. ALL CONNECTIONS ARE TO BE CAD-WELDED IF POSSIBLE.
11. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.
12. GROUNDING CONNECTION TO TRAVEL IN A DOWNWARD DIRECTION.
13. ALL EXPOSED #2 WIRE MUST BE TINN NOT BTW.
14. TECTONIC TAKES NO RESPONSIBILITY OR LIABILITY FOR THE GROUNDING SYSTEM AS SHOWN ON THIS SITE. THIS IS A STANDARD GROUNDING SYSTEM.



6 / G-1 CABINET GROUNDING DETAIL

SCALE: NTS



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NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD _____
RF _____
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PROJECT NUMBER	DESIGNED BY
10473.CT11872D	EI

REV.	DATE	DESCRIPTION	DRAWN BY
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0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

CT872/STRATFORD PD_GT
CT11872D
900 LONGBROOK AVE
STRATFORD, CT 06615

SHEET TITLE

GROUNDING DETAILS & NOTES

SHEET NUMBER

G-1

Exhibit D

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Date: **September 17, 2020**

Structural Analysis Report – Rev 2

Tower Owner:	Stratford Police Department
Carrier:	T-Mobile Northeast LLC
Site ID:	CT11872D
Site Name:	CT872/Stratford PD_GT
Site Data:	900 Longbrook Rd, Stratford, Fairfield County, CT 06614 Latitude *41° 12' 06.37"*, Longitude *-73° 07' 43.86"* 82 ft Guyed Tower
Tectonic Project Number:	10473.CT11872D – Rev 2

Tectonic Engineering & Surveying Consultants P.C. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure to be:

Structure:	**Sufficient Capacity – 44%**
Rooftop:	**Not Evaluated**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1.0 and Structure Class 3 were used in this analysis.

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

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

Structural analysis prepared by: John-Fritz Julien / Vinod Ramesh

Respectfully submitted by:
Tectonic Engineering & Surveying Consultants P.C.

Edward N. Iamiceli, P.E.
Managing Director - Structural

Project Contact Info

1279 Route 300 | Newburgh, NY 12550
845.567.6656 Tel | 845.567.8703 Fax

tectonicengineering.com
Equal Opportunity Employer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 50 ft guyed tower on the rooftop of a 32 ft building. The tower is located in Stratford Connecticut and is currently being use by T-Mobile and the City of Stratford.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Structure Class:	3
Wind Speed:	97 mph
Exposure Category:	B
Topographic Factor:	1.0
Ice Thickness:	0.75 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
74.0	T-Mobile	3	rfs	APXVARR24_43-C-NA20	1	6x12 hybrid	-
		3	ericsson	AIR6449 B41			
		3	ericsson	RADIO 4449 B12/B71			
		3	commscope	SDX1926Q-43			
		3	ericsson	RRUS 4415 B25			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
82.0	UNKNOWN	1	-	20’ Omni	1	7/8	1
		1	-	16’ Omni	1	7/8	
		1	-	Dipole w/ Mast Pipe	1	7/8	
74.0	T-Mobile	3	tower mounts	12’ Sector Frame Mount	2	6x12 hybrid	1
		3	ericsson	KRY 112 144/2			
		3	ericsson	AIR 32 B66Aa B2a	6	7/8	
		3	rfs	AIR21 B2a B4p	18	7/8	2
		3	ericsson	RRUS 11 B4 (RRH 6449)			
		3	commscope	LNX-6515DS-A1M			
72.0	UNKNOWN	2	-	3’ Yagi	2	7/8	1
68.0		1	-	3’ Yagi	1	7/8	
62.0		1	-	3’ Yagi	1	7/8	
61.0		1	-	6’ Yagi	1	7/8	
		1	tower mounts	6ft Side Arm Mount			

Notes:
1) Existing equipment
2) Existing equipment to be removed, not considered in analysis

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Dated
STRUCTURAL ANALYSIS REPORT	Destek Engineering	05/09/17
FIELDS NOTES	Tectonic	07/21/20
APPURTENANCE UPDATE, VIA EMAIL	NNS	08/19/20
STRUCTURAL ANALYSIS REPORT (Rev 1)	Tectonic	09/02/20
RFDS	T-Mobile	09/10/20

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built and maintained in accordance with the manufacturer's specifications.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2.
3) The tower geometry and material grades are based solely on previous analysis by Destek Engineering, referenced above.
4) The weight and wind area of certain appurtenances have been estimated.

This analysis is solely for the supporting tower structure and it may be affected if any assumptions are not valid or have been made in error. Tectonic should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	82 - 67	Leg	Pipe 2.5 EH	3	-13.530	80.239	16.9	Pass
T2	67 - 52	Leg	Pipe 2.5 EH	48	-13.688	67.062	20.4	Pass
T3	52 - 37	Leg	Pipe 2.5 EH	75	-14.281	66.503	21.5	Pass
T4	37 - 32	Leg	Pipe 2.5 EH	102	-15.702	83.069	18.9	Pass
T1	82 - 67	Diagonal	P1.5x.120	15	-2.516	14.897	16.9 32.0 (b)	Pass
T2	67 - 52	Diagonal	P1.5x.120	71	-1.867	10.282	18.2 24.2 (b)	Pass
T3	52 - 37	Diagonal	P1.5x.120	98	-0.591	10.225	5.8 7.5 (b)	Pass
T4	37 - 32	Horizontal	L4x4x1/4	112	-0.127	57.935	0.3	Pass
T1	82 - 67	Top Girt	P1.5x.120	4	-0.058	12.046	0.5 0.7 (b)	Pass
T2	67 - 52	Top Girt	P1.5x.120	51	-0.893	12.046	7.4 12.0 (b)	Pass
T3	52 - 37	Top Girt	P1.5x.120	77	-0.204	12.046	1.7 2.8 (b)	Pass
T4	37 - 32	Top Girt	L4x4x1/4	104	1.802	62.856	2.9	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	82 - 67	Bottom Girt	P1.5x.120	8	-0.799	12.046	6.6 13.9 (b)	Pass
T2	67 - 52	Bottom Girt	P1.5x.120	53	-0.241	12.046	2.0 3.7 (b)	Pass
T3	52 - 37	Bottom Girt	P1.5x.120	79	1.626	16.856	9.6 20.5 (b)	Pass
T4	37 - 32	Bottom Girt	L4x4x1/4	106	-1.147	60.728	2.5	Pass
T1	82 - 67	Guy A@69.8194	7/16	123	5.301	12.480	42.5	Pass
T1	82 - 67	Guy B@69.8194	7/16	120	5.454	12.480	43.7	Pass
T1	82 - 67	Guy C@69.8194	7/16	115	5.427	12.480	43.5	Pass
T1	82 - 67	Torque Arm Top@69.8194	C12x20.7	126	-2.245	173.441	16.8	Pass
							Summary	
						Leg (T3)	21.5	Pass
						Diagonal (T1)	32.0	Pass
						Horizontal (T4)	0.3	Pass
						Top Girt (T2)	12.0	Pass
						Bottom Girt (T3)	20.5	Pass
						Guy A (T1)	42.5	Pass
						Guy B (T1)	43.7	Pass
						Guy C (T1)	43.5	Pass
						Torque Arm Top (T1)	16.8	Pass
						Bolt Checks	32.0	Pass
						Rating =	43.7	Pass

Structure Rating (max from all components) =	**43.7%**

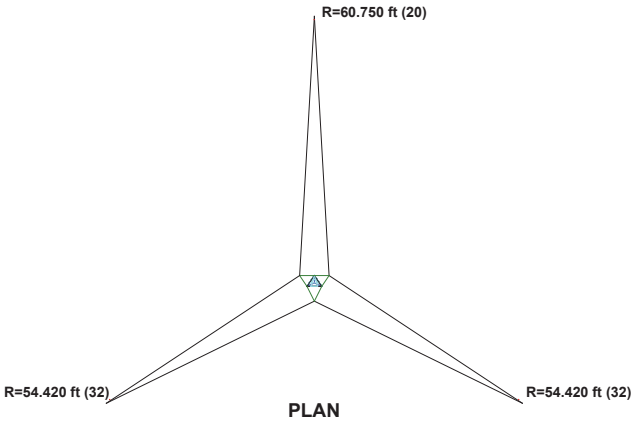
4.1) Results / Conclusions

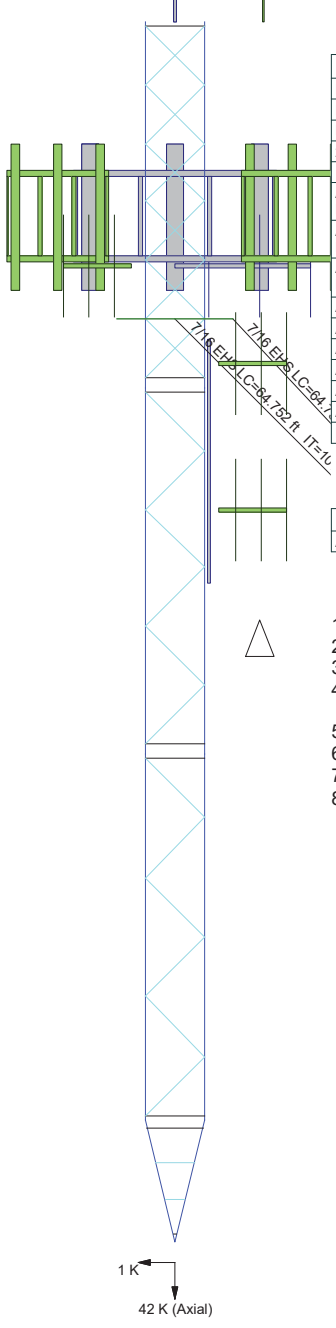
The tower have sufficient capacity to support the proposed T-Mobile load configurations. No modification is required at this time.

Information on the existing roof structure were not made available at the time of this analysis, therefore the tower base and guy anchors have not been evaluated.

APPENDIX A

TNXTOWER OUTPUT





Section	T1	T2	T3	T4	
Legs		Pipe 2.5 EH			
Leg Grade		A572-42			
Diagonals		P1.5x.120		N.A.	
Diagonal Grade		A36		N.A.	
Top Girts		P1.5x.120		L4x4x1/4	
Bottom Girts		P1.5x.120		L4x4x1/4	
Horizontals		N.A.		L4x4x1/4	
Face Width (ft)	3.5				
# Panels @ (ft)	12 @ 2.40278		6 @ 2.44444	3 @ 1.44444	2.4
Weight (K)	1.1	0.5	0.5	0.3	

DESIGNED APPURTENANCE LOADING

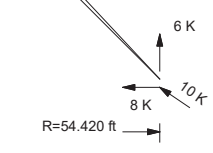
TYPE	ELEVATION	TYPE	ELEVATION
Dipole	92	RADIO 4449 B12/B71	74
Dipole	88	RADIO 4449 B12/B71	74
Mast Pipe	82	SDX1926Q-43	74
20' Omni	82	SDX1926Q-43	74
16' Omni	82	SDX1926Q-43	74
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	74	KRY 112 144/2	74
		KRY 112 144/2	74
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	74	KRY 112 144/2	74
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	74	RRUS 4415 B25	74
		RRUS 4415 B25	74
AIR 32 B66Aa B2a w/ Mount Pipe	74	RRUS 4415 B25	74
AIR 32 B66Aa B2a w/ Mount Pipe	74	12' Sector Mount	74
AIR 32 B66Aa B2a w/ Mount Pipe	74	3'x1" Yagi	72
AIR 6449 B41 w/ Mount Pipe	74	3'x1" Yagi	72
AIR 6449 B41 w/ Mount Pipe	74	3'x1" Yagi	68
AIR 6449 B41 w/ Mount Pipe	74	3'x1" Yagi	62
RADIO 4449 B12/B71	74	Dipole	61
		6ft Side Arm Mount	61

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-42	42 ksi	60 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class III.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 43.7%



ALL REACTIONS ARE FACTORED

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
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Newburgh, NY 12550
Phone: (845) 567-6656
FAX: (845) 567-8703

Job: ***10473.CT11872D - Rev 2***			
Project: ***50' Guyed Tower***			
Client: T-Mobile	Drawn by: John-Fritz Julien	App'd:	
Code: TIA-222-G	Date: 09/17/20	Scale: NTS	
Path: G:\Newburgh\Projects\10473-NSS\10473.CT11872D\Structural\Tower Analysis\Rev 2\10473.CT11872D - TowerSA.eri		Dwg No. E-1	

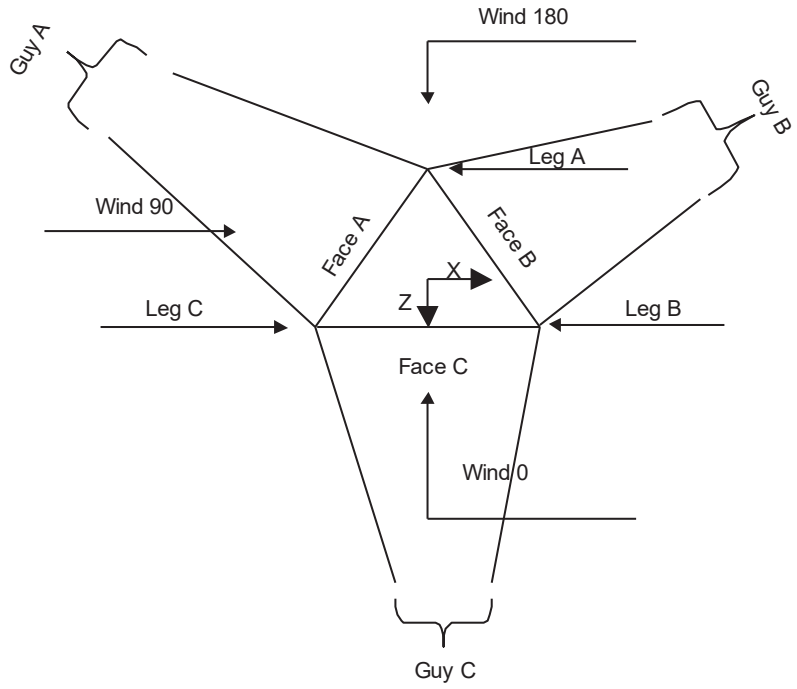
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 82.000 ft above the ground line.
The base of the tower is set at an elevation of 32.000 ft above the ground line.
The face width of the tower is 3.500 ft at the top and tapered at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

1) Tower is located in Fairfield County, Connecticut.
2) Basic wind speed of 97 mph.
3) Structure Class III.
4) Exposure Category B.
5) Topographic Category 1.
6) Crest Height 0.000 ft.
7) Nominal ice thickness of 0.750 in.
8) Ice thickness is considered to increase with height.
9) Ice density of 56.000 pcf.
10) A wind speed of 50 mph is used in combination with ice.
11) Temperature drop of 50.000 °F.
12) Deflections calculated using a wind speed of 60 mph.
13) Pressures are calculated at each section.
14) Safety factor used in guy design is 1.
15) Stress ratio used in tower member design is 1.
16) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Face Guyed

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	82.000-67.000			3.500	1	15.000
T2	67.000-52.000			3.500	1	15.000
T3	52.000-37.000			3.500	1	15.000
T4	37.000-32.000			3.500	1	5.000

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	82.000-67.000	2.403	X Brace	No	No	2.000	5.000
T2	67.000-52.000	2.403	K Brace Left	No	No	2.000	5.000
T3	52.000-37.000	2.444	K Brace Left	No	No	2.000	2.000
T4	37.000-32.000	1.444	X Brace	No	Yes	4.000	4.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 82.000-67.000	Pipe	Pipe 2.5 EH	A572-42 (42 ksi)	Pipe	P1.5x.120	A36 (36 ksi)
T2 67.000-52.000	Pipe	Pipe 2.5 EH	A572-42 (42 ksi)	Pipe	P1.5x.120	A36 (36 ksi)
T3 52.000-37.000	Pipe	Pipe 2.5 EH	A572-42 (42 ksi)	Pipe	P1.5x.120	A36 (36 ksi)
T4 37.000-32.000	Pipe	Pipe 2.5 EH	A572-42 (42 ksi)	Pipe		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 82.000-67.000	Pipe	P1.5x.120	A36 (36 ksi)	Pipe	P1.5x.120	A36 (36 ksi)
T2 67.000-52.000	Pipe	P1.5x.120	A36 (36 ksi)	Pipe	P1.5x.120	A36 (36 ksi)
T3 52.000-37.000	Pipe	P1.5x.120	A36 (36 ksi)	Pipe	P1.5x.120	A36 (36 ksi)
T4 37.000-32.000	Equal Angle	L4x4x1/4	A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T4 37.000-32.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 82.000-67.000	0.000	0.000	A36 (36 ksi)	1	1	1.03	36.000	36.000	36.000
T2 67.000-52.000	0.000	0.000	A36 (36 ksi)	1	1	1.03	36.000	36.000	36.000
T3 52.000-37.000	0.000	0.000	A36 (36 ksi)	1	1	1.03	36.000	36.000	36.000
T4 37.000-32.000	0.000	0.000	A36 (36 ksi)	1	1	1.03	36.000	36.000	36.000

Tower Section Geometry *(cont'd)*

	K Factors[1]

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 82.000-67.000	No	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T2 67.000-52.000	No	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T3 52.000-37.000	No	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T4 37.000-32.000	No	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 82.000-67.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T2 67.000-52.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T3 52.000-37.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T4 37.000-32.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 82.000-67.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T2 67.000-52.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T3 52.000-37.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T4 37.000-32.000	Flange	0.750 A325N	0	0.500 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %

69.8194	EHS	A	7/16	2.080	10%	21000.000	0.399	77.061	60.750	0.000	20.000	100%
		B	7/16	2.080	10%	21000.000	0.399	64.696	54.420	0.000	32.000	100%
		C	7/16	2.080	10%	21000.000	0.399	64.696	54.420	0.000	32.000	100%

Guy Data*(cont'd)*

Guy Elevation *ft*	*Mount Type*	*Torque-Arm Spread* *ft*	*Torque-Arm Leg Angle* °	*Torque-Arm Style*	*Torque-Arm Grade*	*Torque-Arm Type*	*Torque-Arm Size*
69.8194	Torque Arm	6.830	0.000	Channel	A36 (36 ksi)	Channel	C12x20.7

Guy Data *(cont'd)*

Guy Elevation *ft*	*Diagonal Grade*	*Diagonal Type*	*Upper Diagonal Size*	*Lower Diagonal Size*	*Is Strap.*	*Pull-Off Grade*	*Pull-Off Type*	*Pull-Off Size*
69.819	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	

Guy Data *(cont'd)*

Guy Elevation *ft*	*Cable Weight A* *K*	*Cable Weight B* *K*	*Cable Weight C* *K*	*Cable Weight D* *K*	*Tower Intercept A* *ft*	*Tower Intercept B* *ft*	*Tower Intercept C* *ft*	*Tower Intercept D* *ft*
69.8194	0.031	0.026	0.026		0.567 1.3 sec/pulse	0.400 1.1 sec/pulse	0.400 1.1 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation *ft*	*Calc K Single Angles*	*Calc K Solid Rounds*	*Torque Arm* K_x	*Torque Arm* K_y	*Pull Off* K_x	*Pull Off* K_y	*Diagonal* K_x	*Diagonal* K_y
69.8194	No	No	1	1	0.7	0.7	1	1

Guy Data *(cont'd)*

Guy Elevation *ft*	*Torque-Arm* *Bolt Size* in	*Number*	*Net Width Deduct* in	*U*	*Pull Off* *Bolt Size* in	*Number*	*Net Width Deduct* in	*U*	*Diagonal* *Bolt Size* in	*Number*	*Net Width Deduct* in	*U*
69.8194	0.000 A325N	0	0.000	1	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
69.8194	A	44.910	0.019	0.004	1.934
	B	50.910	0.019	0.004	1.958
	C	50.910	0.019	0.004	1.958

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
***													
Safety Line 3/8	B	No	No	Ar (CaAa)	82.000 - 32.000	0.000	0.25	1	1	0.375	0.375		0.000
***													
HCS 6X12 4AWG(1-5/8)	B	No	No	Ar (CaAa)	74.000 - 32.000	0.000	0.15	2	2	0.800	1.660		0.002
HCS 6X12 4AWG(1-5/8)	B	No	No	Ar (CaAa)	74.000 - 32.000	0.000	0.1	1	1	0.800	1.660		0.002
LCF78-50J(7/8")	B	No	No	Ar (CaAa)	74.000 - 32.000	0.000	0	6	3	0.500	1.100		0.001
***													
AL5-50(7/8")	B	No	No	Ar (CaAa)	82.000 - 32.000	0.000	-0.1	3	3	0.500	1.100		0.000
LCF78-50A(7/8")	B	No	No	Ar (CaAa)	59.000 - 32.000	0.000	0.1	6	6	1.090	1.090		0.000
LCF78-50A(7/8")	B	No	No	Ar (CaAa)	60.000 - 32.000	0.000	0.1	4	4	1.090	1.090		0.000
LCF78-50A(7/8")	B	No	No	Ar (CaAa)	66.000 - 32.000	0.000	0.1	3	3	1.090	1.090		0.000
LCF78-50A(7/8")	B	No	No	Ar (CaAa)	72.000 - 32.000	0.000	0.1	2	2	1.090	1.090		0.000
**													

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
**								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	82.000-67.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	14.708	0.000	0.091
		C	0.000	0.000	0.000	0.000	0.000
T2	67.000-52.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	38.797	0.000	0.220

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.000	0.000	0.000
T3	52.000-37.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	47.407	0.000	0.247
		C	0.000	0.000	0.000	0.000	0.000
T4	37.000-32.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	15.803	0.000	0.082
		C	0.000	0.000	0.000	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	82.000-67.000	A	2.034	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	52.883	0.000	0.726
		C		0.000	0.000	0.000	0.000	0.000
T2	67.000-52.000	A	1.989	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	134.273	0.000	1.824
		C		0.000	0.000	0.000	0.000	0.000
T3	52.000-37.000	A	1.932	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	161.078	0.000	2.148
		C		0.000	0.000	0.000	0.000	0.000
T4	37.000-32.000	A	1.883	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	53.020	0.000	0.696
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	82.000-67.000	2.935	-1.700	1.950	-0.825
T2	67.000-52.000	6.525	-2.391	6.524	-2.072
T3	52.000-37.000	7.188	-2.427	7.085	-2.156
T4	37.000-32.000	3.715	-1.560	1.778	-0.738

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	Safety Line 3/8	67.00 - 82.00	0.6000	0.3069
T1	5	HCS 6X12 4AWG(1-5/8)	67.00 - 74.00	0.6000	0.3069
T1	6	HCS 6X12 4AWG(1-5/8)	67.00 - 74.00	0.6000	0.3069
T1	7	LCF78-50J(7/8")	67.00 - 74.00	0.6000	0.3069
T1	9	AL5-50(7/8")	67.00 - 82.00	0.6000	0.3069
T1	13	LCF78-50A(7/8")	67.00 - 72.00	0.6000	0.3069
T2	2	Safety Line 3/8	52.00 - 67.00	0.6000	0.4933
T2	5	HCS 6X12 4AWG(1-5/8)	52.00 -	0.6000	0.4933

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
T2	6	HCS 6X12 4AWG(1-5/8)	67.00 52.00 - 67.00	0.6000	0.4933
T2	7	LCF78-50J(7/8")	52.00 - 67.00	0.6000	0.4933
T2	9	AL5-50(7/8")	52.00 - 67.00	0.6000	0.4933
T2	10	LCF78-50A(7/8")	52.00 - 59.00	0.6000	0.4933
T2	11	LCF78-50A(7/8")	52.00 - 60.00	0.6000	0.4933
T2	12	LCF78-50A(7/8")	52.00 - 66.00	0.6000	0.4933
T2	13	LCF78-50A(7/8")	52.00 - 67.00	0.6000	0.4933
T3	2	Safety Line 3/8	37.00 - 52.00	0.6000	0.5006
T3	5	HCS 6X12 4AWG(1-5/8)	37.00 - 52.00	0.6000	0.5006
T3	6	HCS 6X12 4AWG(1-5/8)	37.00 - 52.00	0.6000	0.5006
T3	7	LCF78-50J(7/8")	37.00 - 52.00	0.6000	0.5006
T3	9	AL5-50(7/8")	37.00 - 52.00	0.6000	0.5006
T3	10	LCF78-50A(7/8")	37.00 - 52.00	0.6000	0.5006
T3	11	LCF78-50A(7/8")	37.00 - 52.00	0.6000	0.5006
T3	12	LCF78-50A(7/8")	37.00 - 52.00	0.6000	0.5006
T3	13	LCF78-50A(7/8")	37.00 - 52.00	0.6000	0.5006
T4	2	Safety Line 3/8	32.00 - 37.00	0.5409	0.1539
T4	5	HCS 6X12 4AWG(1-5/8)	32.00 - 37.00	0.5409	0.1539
T4	6	HCS 6X12 4AWG(1-5/8)	32.00 - 37.00	0.5409	0.1539
T4	7	LCF78-50J(7/8")	32.00 - 37.00	0.5409	0.1539
T4	9	AL5-50(7/8")	32.00 - 37.00	0.5409	0.1539
T4	10	LCF78-50A(7/8")	32.00 - 37.00	0.5409	0.1539
T4	11	LCF78-50A(7/8")	32.00 - 37.00	0.5409	0.1539
T4	12	LCF78-50A(7/8")	32.00 - 37.00	0.5409	0.1539
T4	13	LCF78-50A(7/8")	32.00 - 37.00	0.5409	0.1539

Discrete Tower Loads

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* *°*	*Placement* *ft*	*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
***								

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
20' Omni	A	From Leg	4.000 0.000 10.000	0.000	82.000	No Ice 1/2" Ice 1" Ice	6.000 8.033 10.083	6.000 8.033 10.083	0.050 0.093 0.149
16' Omni	A	From Leg	4.000 0.000 10.000	0.000	82.000	No Ice 1/2" Ice 1" Ice	6.000 8.033 10.083	6.000 8.033 10.083	0.050 0.093 0.149
Mast Pipe	B	From Leg	4.000 0.000 5.000	0.000	82.000	No Ice 1/2" Ice 1" Ice	2.000 3.025 4.067	2.000 3.025 4.067	0.020 0.036 0.057
Dipole	B	From Leg	4.000 0.000 0.000	0.000	92.000	No Ice 1/2" Ice 1" Ice	1.311 1.600 1.896	1.311 1.600 1.896	0.030 0.038 0.050
Dipole	B	From Leg	4.000 0.000 0.000	0.000	88.000	No Ice 1/2" Ice 1" Ice	1.311 1.600 1.896	1.311 1.600 1.896	0.030 0.038 0.050
**									
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	20.480 21.231 21.990	11.024 12.550 14.099	0.186 0.322 0.469
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	20.480 21.231 21.990	11.024 12.550 14.099	0.186 0.322 0.469
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	20.480 21.231 21.990	11.024 12.550 14.099	0.186 0.322 0.469
AIR 32 B66Aa B2a w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	6.815 7.299 7.762	6.137 6.993 7.725	0.154 0.216 0.284
AIR 32 B66Aa B2a w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	6.815 7.299 7.762	6.137 6.993 7.725	0.154 0.216 0.284
AIR 32 B66Aa B2a w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	6.815 7.299 7.762	6.137 6.993 7.725	0.154 0.216 0.284
AIR 6449 B41 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	6.899 7.744 8.493	4.316 5.370 6.275	0.132 0.192 0.258
AIR 6449 B41 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	6.899 7.744 8.493	4.316 5.370 6.275	0.132 0.192 0.258
AIR 6449 B41 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	6.899 7.744 8.493	4.316 5.370 6.275	0.132 0.192 0.258
RADIO 4449 B12/B71	A	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	1.650 1.810 1.978	1.163 1.301 1.447	0.074 0.090 0.109
RADIO 4449 B12/B71	B	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	1.650 1.810 1.978	1.163 1.301 1.447	0.074 0.090 0.109

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RADIO 4449 B12/B71	C	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	1.650 1.810 1.978	1.163 1.301 1.447	0.074 0.090 0.109
SDX1926Q-43	A	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	0.241 0.306 0.379	0.101 0.144 0.195	0.006 0.009 0.012
SDX1926Q-43	B	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	0.241 0.306 0.379	0.101 0.144 0.195	0.006 0.009 0.012
SDX1926Q-43	C	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	0.241 0.306 0.379	0.101 0.144 0.195	0.006 0.009 0.012
KRY 112 144/2	A	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	0.479 0.568 0.664	0.232 0.299 0.376	0.010 0.014 0.019
KRY 112 144/2	B	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	0.479 0.568 0.664	0.232 0.299 0.376	0.010 0.014 0.019
KRY 112 144/2	C	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	0.479 0.568 0.664	0.232 0.299 0.376	0.010 0.014 0.019
RRUS 4415 B25	A	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	1.644 1.804 1.972	0.679 0.791 0.913	0.044 0.056 0.071
RRUS 4415 B25	B	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	1.644 1.804 1.972	0.679 0.791 0.913	0.044 0.056 0.071
RRUS 4415 B25	C	From Leg	4.000 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	1.644 1.804 1.972	0.679 0.791 0.913	0.044 0.056 0.071
12' Sector Mount	C	None		0.000	74.000	No Ice 1/2" Ice 1" Ice	29.820 42.210 54.430	29.820 42.210 54.430	1.673 2.266 3.052
**									
3'x1" Yagi	A	From Leg	1.000 0.000 0.000	0.000	72.000	No Ice 1/2" Ice 1" Ice	0.500 0.806 1.028	0.500 0.806 1.028	0.010 0.014 0.020
3'x1" Yagi	C	From Leg	1.000 0.000 0.000	0.000	72.000	No Ice 1/2" Ice 1" Ice	0.500 0.806 1.028	0.500 0.806 1.028	0.010 0.014 0.020
3'x1" Yagi	B	From Leg	1.000 0.000 0.000	0.000	68.000	No Ice 1/2" Ice 1" Ice	0.500 0.806 1.028	0.500 0.806 1.028	0.010 0.014 0.020
3'x1" Yagi	B	From Leg	1.000 0.000 0.000	0.000	62.000	No Ice 1/2" Ice 1" Ice	0.500 0.806 1.028	0.500 0.806 1.028	0.010 0.014 0.020
Dipole	A	From Leg	6.000 0.000 3.000	0.000	61.000	No Ice 1/2" Ice 1" Ice	2.000 2.691 3.225	2.000 2.691 3.225	0.050 0.062 0.079

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
6ft Side Arm Mount	A	From Leg	3.000 0.000 0.000	0.000	61.000	No Ice 1/2" Ice 1" Ice	0.410 0.810 1.230	3.060 5.100 7.200	0.053 0.080 0.122
*									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	82 - 67	Leg	Max Tension	4	6.773	-0.241	0.139
			Max. Compression	15	-13.530	0.025	0.261

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	5	-1.931	-0.913	0.054
			Max. My	9	-1.826	0.397	-0.772
			Max. Vy	4	-1.074	-0.416	0.206
			Max. Vx	2	1.177	0.059	0.496
		Diagonal	Max Tension	11	2.541	0.017	0.005
			Max. Compression	5	-2.516	0.011	0.006
			Max. Mx	4	1.939	-0.022	0.001
			Max. My	13	-1.741	0.002	0.011
			Max. Vy	17	0.018	-0.017	0.000
			Max. Vx	13	-0.005	0.002	0.011
		Top Girt	Max Tension	10	0.024	0.000	0.000
			Max. Compression	21	-0.058	0.000	0.000
			Max. Mx	23	-0.007	0.017	0.000
			Max. My	6	-0.024	0.000	0.000
			Max. Vy	23	0.019	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Bottom Girt	Max Tension	6	1.100	0.000	0.000
			Max. Compression	4	-0.799	0.000	0.000
			Max. Mx	14	0.209	0.017	0.000
			Max. My	6	-0.205	0.000	0.000
			Max. Vy	14	0.019	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Guy A	Bottom Tension	9	5.281		
			Top Tension	9	5.301		
			Top Cable Vert	9	3.443		
			Top Cable Norm	9	4.031		
			Top Cable Tan	9	0.011		
			Bot Cable Vert	9	-3.385		
			Bot Cable Norm	9	4.054		
			Bot Cable Tan	9	0.024		
		Guy B	Bottom Tension	12	5.439		
			Top Tension	12	5.454		
			Top Cable Vert	12	3.200		
			Top Cable Norm	12	4.416		
			Top Cable Tan	12	0.002		
			Bot Cable Vert	12	-3.153		
			Bot Cable Norm	12	4.431		
			Bot Cable Tan	12	0.001		
		Guy C	Bottom Tension	5	5.412		
			Top Tension	5	5.427		
			Top Cable Vert	5	3.185		
			Top Cable Norm	5	4.394		
			Top Cable Tan	5	0.008		
			Bot Cable Vert	5	-3.138		
			Bot Cable Norm	5	4.409		
			Bot Cable Tan	5	0.022		
		Torque Arm Top	Max Tension	12	4.525	0.000	0.000
			Max. Compression	13	-2.264	0.000	0.000
			Max. Mx	7	0.311	-11.340	0.000
			Max. My	6	-1.798	-7.488	-0.000
			Max. Vy	7	3.364	-11.340	0.000
			Max. Vx	6	-0.000	-7.488	-0.000
T2	67 - 52	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	22	-13.747	0.050	0.039
			Max. Mx	11	-1.922	-0.216	-0.109
			Max. My	8	-0.893	0.057	0.229
			Max. Vy	4	-1.072	0.031	-0.061
			Max. Vx	2	1.175	-0.005	0.006
		Diagonal	Max Tension	12	1.923	0.000	0.000
			Max. Compression	6	-1.867	0.000	0.000
			Max. Mx	16	-0.691	0.020	0.000
			Max. My	25	-0.065	0.000	-0.000
			Max. Vy	16	0.019	0.000	0.000
			Max. Vx	25	-0.000	0.000	0.000
		Top Girt	Max Tension	5	0.955	0.000	0.000
			Max. Compression	11	-0.893	0.000	0.000
			Max. Mx	14	-0.017	0.016	0.000
			Max. My	6	0.521	0.000	0.000
			Max. Vy	14	-0.019	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	6	-0.000	0.000	0.000
		Bottom Girt	Max Tension	12	0.293	0.000	0.000
			Max. Compression	6	-0.241	0.000	0.000
			Max. Mx	14	0.040	0.016	0.000
			Max. My	6	-0.241	0.000	0.000
			Max. Vy	14	-0.019	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
T3	52 - 37	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	22	-14.281	0.010	0.002
			Max. Mx	24	-13.847	0.479	0.262
			Max. My	22	-14.163	-0.008	-0.570
			Max. Vy	24	-2.463	0.479	0.262
			Max. Vx	22	2.986	-0.008	-0.570
		Diagonal	Max Tension	2	0.596	0.000	0.000
			Max. Compression	8	-0.591	0.000	0.000
			Max. Mx	20	0.147	0.019	0.000
			Max. My	25	-0.183	0.000	-0.000
			Max. Vy	20	-0.018	0.000	0.000
			Max. Vx	25	0.000	0.000	0.000
		Top Girt	Max Tension	6	0.221	0.000	0.000
			Max. Compression	12	-0.204	0.000	0.000
			Max. Mx	14	0.033	0.016	0.000
			Max. My	6	0.221	0.000	0.000
			Max. Vy	14	-0.018	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Bottom Girt	Max Tension	24	1.626	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	17	1.536	0.016	0.000
			Max. My	6	0.756	0.000	0.000
			Max. Vy	17	-0.018	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
T4	37 - 32	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	22	-15.702	-0.053	0.001
			Max. Mx	22	-14.363	0.570	-0.008
			Max. My	9	-5.972	-0.201	-0.049
			Max. Vy	16	2.635	0.532	-0.009
			Max. Vx	9	0.139	-0.164	-0.002
		Horizontal	Max Tension	23	0.038	0.058	-0.020
			Max. Compression	24	-0.127	0.055	-0.011
			Max. Mx	24	0.018	0.079	-0.028
			Max. My	23	0.018	0.078	-0.028
			Max. Vy	16	-0.056	0.056	-0.013
			Max. Vx	10	0.013	0.011	-0.005
		Top Girt	Max Tension	23	1.802	0.118	-0.038
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	24	1.728	0.173	-0.052
			Max. My	15	1.672	0.147	-0.056
			Max. Vy	24	-0.066	0.173	-0.052
			Max. Vx	24	-0.015	0.094	-0.032
		Bottom Girt	Max Tension	1	0.000	0.000	0.000
			Max. Compression	18	-1.147	0.216	-0.100
			Max. Mx	22	-1.141	0.252	-0.101
			Max. My	23	-1.142	0.250	-0.102
			Max. Vy	10	-0.495	0.149	-0.071
			Max. Vx	10	0.196	0.033	-0.025

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	15	42.140	0.192	-0.012
	Max. H_x	11	17.987	0.865	-0.086
	Max. H_z	3	17.926	-0.384	0.666
	Max. M_x	1	0.000	0.028	-0.050

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M_z	1	0.000	0.028	-0.050
	Max. Torsion	1	0.000	0.028	-0.050
	Min. Vert	33	14.467	0.028	-0.196
	Min. H_x	5	18.063	-0.796	-0.085
	Min. H_z	9	18.312	0.446	-0.781
	Min. M_x	1	0.000	0.028	-0.050
	Min. M_z	1	0.000	0.028	-0.050
	Min. Torsion	1	0.000	0.028	-0.050
Guy C @ 54.42 ft Elev 32 ft Azimuth 240 deg	Max. Vert	10	-0.030	-0.030	0.017
	Max. H_x	10	-0.030	-0.030	0.017
	Max. H_z	4	-6.059	-7.351	4.263
	Min. Vert	4	-6.059	-7.351	4.263
	Min. H_x	4	-6.059	-7.351	4.263
	Min. H_z	10	-0.030	-0.030	0.017
Guy B @ 54.42 ft Elev 32 ft Azimuth 120 deg	Max. Vert	6	-0.031	0.032	0.018
	Max. H_x	12	-5.933	7.189	4.192
	Max. H_z	12	-5.933	7.189	4.192
	Min. Vert	12	-5.933	7.189	4.192
	Min. H_x	6	-0.031	0.032	0.018
	Min. H_z	6	-0.031	0.032	0.018
Guy A @ 60.75 ft Elev 20 ft Azimuth 0 deg	Max. Vert	2	-0.135	0.001	-0.141
	Max. H_x	24	-4.128	0.128	-5.411
	Max. H_z	2	-0.135	0.001	-0.141
	Min. Vert	9	-6.686	0.038	-7.997
	Min. H_x	18	-4.146	-0.128	-5.432
	Min. H_z	9	-6.686	0.038	-7.997

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	14.550	-0.028	0.050	0.000	0.000	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	18.250	-0.052	-0.637	0.000	0.000	0.000
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	17.926	0.384	-0.666	0.000	0.000	0.000
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	17.022	0.715	-0.364	0.000	0.000	0.000
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	18.063	0.796	0.085	0.000	0.000	0.000
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	18.847	0.549	0.440	0.000	0.000	0.000
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	17.905	0.168	0.460	0.000	0.000	0.000
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	16.729	-0.046	0.750	0.000	0.000	0.000
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	18.312	-0.446	0.781	0.000	0.000	0.000
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	19.040	-0.765	0.502	0.000	0.000	0.000
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	17.987	-0.865	0.086	0.000	0.000	0.000
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	17.000	-0.647	-0.276	0.000	0.000	0.000
1.2 Dead+1.6 Wind 330 deg	17.571	-0.275	-0.320	0.000	0.000	0.000

Load Combination	*Vertical*	*Shear$_x$*	*Shear$_z$*	*Overturning Moment, M$_x$*	*Overturning Moment, M$_z$*	*Torque*
	K	*K*	*K*	*kip-ft*	*kip-ft*	*kip-ft*
- No Ice+1.0 Guy						
1.2 Dead+1.0 Ice+1.0 Temp+Guy	41.835	-0.190	0.215	0.000	0.000	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	42.140	-0.192	0.012	0.000	0.000	0.000
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	42.062	-0.061	-0.004	0.000	0.000	0.000
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	41.987	0.056	0.079	0.000	0.000	0.000
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	42.061	0.070	0.219	0.000	0.000	0.000
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	42.118	-0.009	0.319	0.000	0.000	0.000
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	41.976	-0.099	0.367	0.000	0.000	0.000
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	41.862	-0.191	0.414	0.000	0.000	0.000
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	41.950	-0.322	0.433	0.000	0.000	0.000
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	42.075	-0.439	0.357	0.000	0.000	0.000
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	42.015	-0.452	0.219	0.000	0.000	0.000
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	41.943	-0.371	0.118	0.000	0.000	0.000
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	42.030	-0.283	0.064	0.000	0.000	0.000
Dead+Wind 0 deg - Service+Guy	14.647	-0.029	-0.100	0.000	0.000	0.000
Dead+Wind 30 deg - Service+Guy	14.635	0.061	-0.105	0.000	0.000	0.000
Dead+Wind 60 deg - Service+Guy	14.601	0.129	-0.041	0.000	0.000	0.000
Dead+Wind 90 deg - Service+Guy	14.560	0.152	0.050	0.000	0.000	0.000
Dead+Wind 120 deg - Service+Guy	14.520	0.103	0.125	0.000	0.000	0.000
Dead+Wind 150 deg - Service+Guy	14.485	0.020	0.132	0.000	0.000	0.000
Dead+Wind 180 deg - Service+Guy	14.467	-0.028	0.196	0.000	0.000	0.000
Dead+Wind 210 deg - Service+Guy	14.480	-0.118	0.205	0.000	0.000	0.000
Dead+Wind 240 deg - Service+Guy	14.518	-0.189	0.142	0.000	0.000	0.000
Dead+Wind 270 deg - Service+Guy	14.560	-0.209	0.050	0.000	0.000	0.000
Dead+Wind 300 deg - Service+Guy	14.600	-0.157	-0.023	0.000	0.000	0.000
Dead+Wind 330 deg - Service+Guy	14.629	-0.077	-0.032	0.000	0.000	0.000

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.000	-7.067	0.000	0.000	7.067	0.000	0.002%
2	-0.000	-8.457	-7.399	-0.000	8.457	7.399	0.001%
3	3.891	-8.436	-6.672	-3.891	8.436	6.672	0.002%
4	6.764	-8.418	-3.868	-6.764	8.418	3.867	0.001%
5	7.782	-8.448	0.000	-7.782	8.448	0.000	0.003%
6	6.475	-8.477	3.701	-6.475	8.477	-3.701	0.002%
7	3.482	-8.459	5.963	-3.482	8.459	-5.963	0.001%
8	0.000	-8.438	7.380	-0.000	8.438	-7.380	0.001%
9	-3.891	-8.459	6.672	3.891	8.459	-6.672	0.002%
10	-6.780	-8.477	3.877	6.780	8.477	-3.877	0.001%
11	-7.782	-8.448	-0.000	7.782	8.448	0.000	0.003%
12	-6.459	-8.418	-3.692	6.459	8.418	3.692	0.001%
13	-3.482	-8.436	-5.963	3.482	8.436	5.963	0.001%
14	0.000	-30.556	0.000	0.001	30.556	-0.000	0.004%
15	-0.000	-30.571	-2.491	-0.000	30.571	2.490	0.001%
16	1.320	-30.541	-2.247	-1.320	30.541	2.246	0.001%
17	2.331	-30.514	-1.325	-2.331	30.514	1.325	0.001%
18	2.638	-30.556	0.000	-2.638	30.556	0.000	0.001%
19	2.196	-30.598	1.247	-2.196	30.598	-1.247	0.002%
20	1.241	-30.571	2.110	-1.240	30.571	-2.109	0.001%
21	0.000	-30.541	2.488	0.000	30.541	-2.487	0.003%
22	-1.320	-30.571	2.247	1.319	30.571	-2.246	0.001%
23	-2.333	-30.598	1.326	2.333	30.598	-1.326	0.001%
24	-2.638	-30.556	-0.000	2.638	30.556	0.001	0.003%
25	-2.194	-30.514	-1.246	2.194	30.514	1.246	0.002%
26	-1.241	-30.541	-2.110	1.240	30.541	2.109	0.001%
27	0.000	-7.069	-1.538	-0.000	7.069	1.538	0.005%
28	0.809	-7.065	-1.387	-0.809	7.065	1.387	0.004%
29	1.407	-7.061	-0.804	-1.406	7.061	0.804	0.002%
30	1.618	-7.067	0.000	-1.618	7.067	0.000	0.004%
31	1.347	-7.073	0.770	-1.346	7.073	-0.769	0.005%
32	0.724	-7.069	1.240	-0.724	7.069	-1.240	0.004%
33	0.000	-7.065	1.535	-0.000	7.065	-1.534	0.004%
34	-0.809	-7.069	1.387	0.809	7.069	-1.387	0.004%
35	-1.410	-7.073	0.806	1.410	7.073	-0.806	0.005%
36	-1.618	-7.067	0.000	1.618	7.067	0.000	0.004%
37	-1.343	-7.061	-0.768	1.343	7.061	0.768	0.002%
38	-0.724	-7.065	-1.240	0.724	7.065	1.240	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00004014
2	Yes	12	0.00000001	0.00003982
3	Yes	11	0.00000001	0.00006668
4	Yes	9	0.00000001	0.00002287
5	Yes	12	0.00000001	0.00009941
6	Yes	13	0.00000001	0.00006298
7	Yes	13	0.00000001	0.00002651
8	Yes	10	0.00000001	0.00003935
9	Yes	12	0.00000001	0.00008552
10	Yes	13	0.00000001	0.00003676
11	Yes	12	0.00000001	0.00009677
12	Yes	9	0.00000001	0.00003753
13	Yes	11	0.00000001	0.00005920
14	Yes	6	0.00000001	0.00006514
15	Yes	9	0.00000001	0.00005105
16	Yes	9	0.00000001	0.00003406
17	Yes	8	0.00000001	0.00003010
18	Yes	9	0.00000001	0.00003906
19	Yes	9	0.00000001	0.00006224
20	Yes	9	0.00000001	0.00004607
21	Yes	8	0.00000001	0.00008697
22	Yes	9	0.00000001	0.00002933

23	Yes	9	0.00000001	0.00004220
24	Yes	8	0.00000001	0.00009320
25	Yes	8	0.00000001	0.00004707
26	Yes	9	0.00000001	0.00003957
27	Yes	6	0.00000001	0.00005919
28	Yes	6	0.00000001	0.00004673
29	Yes	6	0.00000001	0.00002871
30	Yes	6	0.00000001	0.00005565
31	Yes	6	0.00000001	0.00007252
32	Yes	6	0.00000001	0.00005663
33	Yes	6	0.00000001	0.00004608
34	Yes	6	0.00000001	0.00005742
35	Yes	6	0.00000001	0.00007116
36	Yes	6	0.00000001	0.00005275
37	Yes	6	0.00000001	0.00002792
38	Yes	6	0.00000001	0.00004350

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	82 - 67	0.392	33	0.040	0.036
T2	67 - 52	0.269	33	0.036	0.031
T3	52 - 37	0.162	33	0.036	0.043
T4	37 - 32	0.042	33	0.039	0.050

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
92.000	Dipole	33	0.392	0.040	0.036	169832
88.000	Dipole	33	0.392	0.040	0.036	169832
82.000	20' Omni	33	0.392	0.040	0.036	169832
74.000	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	33	0.325	0.037	0.031	106145
72.000	3'x1" Yagi	33	0.308	0.037	0.031	84916
69.819	Guy	33	0.291	0.036	0.030	70644
68.000	3'x1" Yagi	33	0.277	0.036	0.031	65268
62.000	3'x1" Yagi	33	0.233	0.035	0.034	100550
61.000	Dipole	33	0.226	0.035	0.035	117284

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	82 - 67	2.661	10	0.275	0.261
T2	67 - 52	1.818	10	0.250	0.233
T3	52 - 37	1.072	10	0.247	0.291
T4	37 - 32	0.275	10	0.259	0.304

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
92.000	Dipole	10	2.661	0.275	0.261	41072
88.000	Dipole	10	2.661	0.275	0.261	41072
82.000	20' Omni	10	2.661	0.275	0.261	41072
74.000	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	10	2.200	0.260	0.236	25670
72.000	3'x1" Yagi	10	2.088	0.257	0.233	20536
69.819	Guy	10	1.968	0.253	0.231	17103
68.000	3'x1" Yagi	10	1.870	0.251	0.232	15884
62.000	3'x1" Yagi	10	1.564	0.246	0.249	25679
61.000	Dipole	10	1.515	0.246	0.253	30259

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	82	Leg	A325N	0.750	4	1.100	29.821	0.037	1	Bolt Tension
		Diagonal	A325N	0.500	1	2.541	7.934	0.320	1	Member Bearing
		Top Girt	A325N	0.500	1	0.058	7.952	0.007	1	Bolt Shear
		Bottom Girt	A325N	0.500	1	1.100	7.934	0.139	1	Member Bearing
T2	67	Leg	A325N	0.750	4	1.146	29.821	0.038	1	Bolt Tension
		Diagonal	A325N	0.500	1	1.923	7.934	0.242	1	Member Bearing
		Top Girt	A325N	0.500	1	0.955	7.934	0.120	1	Member Bearing
		Bottom Girt	A325N	0.500	1	0.293	7.934	0.037	1	Member Bearing
T3	52	Leg	A325N	0.750	4	1.180	29.821	0.040	1	Bolt Tension
		Diagonal	A325N	0.500	1	0.596	7.934	0.075	1	Member Bearing
		Top Girt	A325N	0.500	1	0.221	7.934	0.028	1	Member Bearing
		Bottom Girt	A325N	0.500	1	1.626	7.934	0.205	1	Member Bearing

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	69.819 (A) (123)	7/16 EHS	2.080	20.800	5.301	12.480	1.000	2.354
	69.819 (A) (124)	7/16 EHS	2.080	20.800	5.173	12.480	1.000	2.413
	69.819 (B) (119)	7/16 EHS	2.080	20.800	4.810	12.480	1.000	2.594
	69.819 (B) (120)	7/16 EHS	2.080	20.800	5.454	12.480	1.000	2.288
	69.819 (C) (115)	7/16 EHS	2.080	20.800	5.427	12.480	1.000	2.300
	69.819 (C) (116)	7/16 EHS	2.080	20.800	5.203	12.480	1.000	2.399

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	82 - 67	Pipe 2.5 EH	15.000	2.403	31.2 K=1.00	2.254	-13.530	80.239	0.169 [1]
T2	67 - 52	Pipe 2.5 EH	15.000	2.403	62.4 K=2.00	2.254	-13.688	67.062	0.204 [1]
T3	52 - 37	Pipe 2.5 EH	15.000	2.444	63.5 K=2.00	2.254	-14.281	66.503	0.215 [1]
T4	37 - 32	Pipe 2.5 EH	5.393	1.558	20.2 K=1.00	2.254	-15.702	83.069	0.189 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	82 - 67	P1.5x.120	4.245	1.977	48.5 K=1.00	0.520	-2.516	14.897	0.169 [1]
T2	67 - 52	P1.5x.120	4.245	3.955	96.9 K=1.00	0.520	-1.867	10.282	0.182 [1]
T3	52 - 37	P1.5x.120	4.269	3.977	97.4 K=1.00	0.520	-0.591	10.225	0.058 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	37 - 32	L4x4x1/4	2.256	2.016	30.4 K=1.00	1.940	-0.127	57.935	0.002 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	82 - 67	P1.5x.120	3.500	3.260	79.9 K=1.00	0.520	-0.058	12.046	0.005 [1]
T2	67 - 52	P1.5x.120	3.500	3.260	79.9 K=1.00	0.520	-0.893	12.046	0.074 [1]
T3	52 - 37	P1.5x.120	3.500	3.260	79.9 K=1.00	0.520	-0.204	12.046	0.017 [1]

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	82 - 67	P1.5x.120	3.500	3.260	79.9 K=1.00	0.520	-0.799	12.046	0.066 [1]
T2	67 - 52	P1.5x.120	3.500	3.260	79.9 K=1.00	0.520	-0.241	12.046	0.020 [1]
T4	37 - 32	L4x4x1/4	0.233	0.000	0.0 K=1.00	1.940	-1.147	60.728	0.019 [1]

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	82 - 67 (117)	C12x20.7	3.415	3.296	49.5 K=1.00	6.090	-1.823	173.441	0.011
T1	82 - 67 (118)	C12x20.7	3.415	3.296	49.5 K=1.00	6.090	-2.237	173.441	0.013
T1	82 - 67 (121)	C12x20.7	3.415	3.296	49.5 K=1.00	6.090	-1.243	173.441	0.007
T1	82 - 67 (122)	C12x20.7	3.415	3.296	49.5 K=1.00	6.090	-1.550	173.441	0.009
T1	82 - 67 (125)	C12x20.7	3.415	3.296	49.5 K=1.00	6.090	-1.909	173.441	0.011
T1	82 - 67 (126)	C12x20.7	3.415	3.296	49.5 K=1.00	6.090	-2.245	173.441	0.013

Torque-Arm Top Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
T1	82 - 67 (117)	C12x20.7	-10.176	68.580	0.148	-0.000	7.007	0.000
T1	82 - 67 (118)	C12x20.7	-11.034	68.580	0.161	-0.000	7.007	0.000
T1	82 - 67 (121)	C12x20.7	-10.051	68.580	0.147	0.000	7.007	0.000
T1	82 - 67 (122)	C12x20.7	-10.165	68.580	0.148	0.000	7.007	0.000
T1	82 - 67 (125)	C12x20.7	-9.994	68.580	0.146	0.000	7.007	0.000
T1	82 - 67 (126)	C12x20.7	-11.047	68.580	0.161	-0.000	7.007	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	82 - 67 (117)	C12x20.7	0.011	0.148	0.000	0.154	1.000	4.8.1
T1	82 - 67 (118)	C12x20.7	0.013	0.161	0.000	0.167	1.000	4.8.1
T1	82 - 67 (121)	C12x20.7	0.007	0.147	0.000	0.150	1.000	4.8.1
T1	82 - 67 (122)	C12x20.7	0.009	0.148	0.000	0.153	1.000	4.8.1
T1	82 - 67 (125)	C12x20.7	0.011	0.146	0.000	0.151	1.000	4.8.1
T1	82 - 67 (126)	C12x20.7	0.013	0.161	0.000	0.168	1.000	4.8.1

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	82 - 67	Pipe 2.5 EH	15.000	2.403	31.2	2.254	6.773	85.184	0.080 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	82 - 67	P1.5x.120	4.245	1.977	48.5	0.520	2.541	16.856	0.151 [1]
T2	67 - 52	P1.5x.120	4.245	3.955	96.9	0.520	1.923	16.856	0.114 [1]
T3	52 - 37	P1.5x.120	4.269	3.977	97.4	0.520	0.596	16.856	0.035 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	37 - 32	L4x4x1/4	1.244	1.005	9.6	1.940	0.038	62.856	0.001 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	82 - 67	P1.5x.120	3.500	3.260	79.9	0.520	0.024	16.856	0.001 [1]
T2	67 - 52	P1.5x.120	3.500	3.260	79.9	0.520	0.955	16.856	0.057 [1]
T3	52 - 37	P1.5x.120	3.500	3.260	79.9	0.520	0.221	16.856	0.013 [1]
T4	37 - 32	L4x4x1/4	3.267	3.027	29.1	1.940	1.802	62.856	0.029 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	82 - 67	P1.5x.120	3.500	3.260	79.9	0.520	1.100	16.856	0.065 [1]
T2	67 - 52	P1.5x.120	3.500	3.260	79.9	0.520	0.293	16.856	0.017 [1]
T3	52 - 37	P1.5x.120	3.500	3.260	79.9	0.520	1.626	16.856	0.096 [1]

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	82 - 67 (117)	C12x20.7	3.415	3.296	49.5	6.090	0.406	197.316	0.002
T1	82 - 67 (118)	C12x20.7	3.415	3.296	49.5	6.090	0.311	197.316	0.002
T1	82 - 67 (121)	C12x20.7	3.415	3.296	49.5	6.090	0.275	197.316	0.001
T1	82 - 67 (122)	C12x20.7	3.415	3.296	49.5	6.090	0.554	197.316	0.003
T1	82 - 67 (125)	C12x20.7	3.415	3.296	49.5	6.090	0.443	197.316	0.002
T1	82 - 67 (126)	C12x20.7	3.415	3.296	49.5	6.090	1.990	197.316	0.010

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	82 - 67 (117)	C12x20.7	-9.845	68.580	0.144	-0.000	7.007	0.000
T1	82 - 67 (118)	C12x20.7	-11.340	68.580	0.165	0.000	7.007	0.000
T1	82 - 67 (121)	C12x20.7	-10.016	68.580	0.146	-0.000	7.007	0.000
T1	82 - 67 (122)	C12x20.7	-9.799	68.580	0.143	0.000	7.007	0.000
T1	82 - 67 (125)	C12x20.7	-9.495	68.580	0.138	0.000	7.007	0.000
T1	82 - 67 (126)	C12x20.7	-10.326	68.580	0.151	-0.000	7.007	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	82 - 67 (117)	C12x20.7	0.002	0.144	0.000	0.145	1.000	4.8.1
T1	82 - 67 (118)	C12x20.7	0.002	0.165	0.000	0.166	1.000	4.8.1
T1	82 - 67 (121)	C12x20.7	0.001	0.146	0.000	0.147	1.000	4.8.1
T1	82 - 67 (122)	C12x20.7	0.003	0.143	0.000	0.144	1.000	4.8.1
T1	82 - 67 (125)	C12x20.7	0.002	0.138	0.000	0.140	1.000	4.8.1
T1	82 - 67 (126)	C12x20.7	0.010	0.151	0.000	0.156	1.000	4.8.1

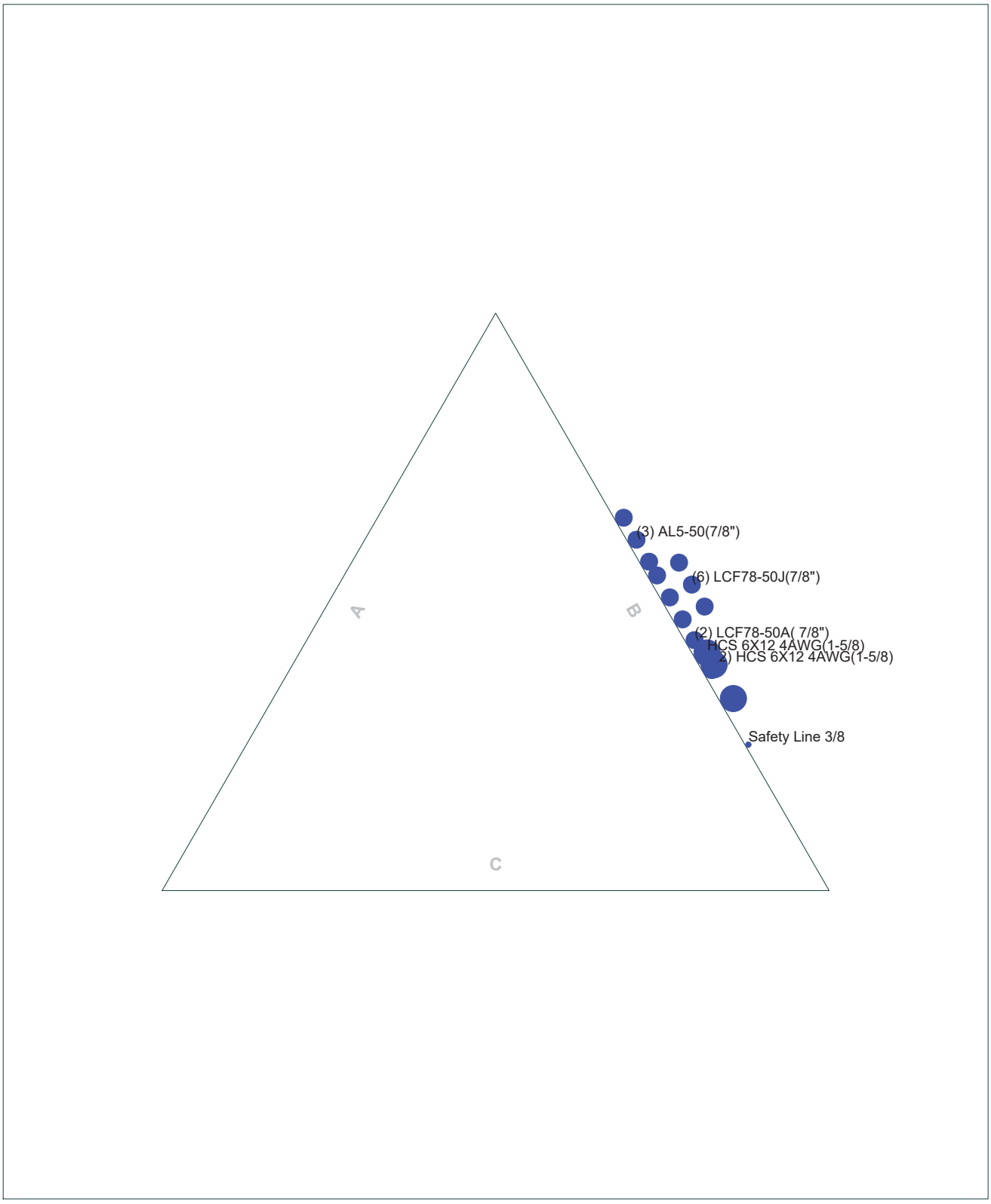
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	82 - 67	Leg	Pipe 2.5 EH	3	-13.530	80.239	16.9	Pass
T2	67 - 52	Leg	Pipe 2.5 EH	48	-13.688	67.062	20.4	Pass
T3	52 - 37	Leg	Pipe 2.5 EH	75	-14.281	66.503	21.5	Pass
T4	37 - 32	Leg	Pipe 2.5 EH	102	-15.702	83.069	18.9	Pass
T1	82 - 67	Diagonal	P1.5x.120	15	-2.516	14.897	16.9	Pass
							32.0 (b)	
T2	67 - 52	Diagonal	P1.5x.120	71	-1.867	10.282	18.2	Pass
							24.2 (b)	
T3	52 - 37	Diagonal	P1.5x.120	98	-0.591	10.225	5.8	Pass
							7.5 (b)	
T4	37 - 32	Horizontal	L4x4x1/4	112	-0.127	57.935	0.3	Pass
T1	82 - 67	Top Girt	P1.5x.120	4	-0.058	12.046	0.5	Pass
							0.7 (b)	
T2	67 - 52	Top Girt	P1.5x.120	51	-0.893	12.046	7.4	Pass
							12.0 (b)	
T3	52 - 37	Top Girt	P1.5x.120	77	-0.204	12.046	1.7	Pass
							2.8 (b)	
T4	37 - 32	Top Girt	L4x4x1/4	104	1.802	62.856	2.9	Pass
T1	82 - 67	Bottom Girt	P1.5x.120	8	-0.799	12.046	6.6	Pass
							13.9 (b)	
T2	67 - 52	Bottom Girt	P1.5x.120	53	-0.241	12.046	2.0	Pass
							3.7 (b)	
T3	52 - 37	Bottom Girt	P1.5x.120	79	1.626	16.856	9.6	Pass
							20.5 (b)	
T4	37 - 32	Bottom Girt	L4x4x1/4	106	-1.147	60.728	2.5	Pass
T1	82 - 67	Guy A@69.8194	7/16	123	5.301	12.480	42.5	Pass
T1	82 - 67	Guy B@69.8194	7/16	120	5.454	12.480	43.7	Pass
T1	82 - 67	Guy C@69.8194	7/16	115	5.427	12.480	43.5	Pass
T1	82 - 67	Torque Arm Top@69.8194	C12x20.7	126	-2.245	173.441	16.8	Pass
							Summary	
						Leg (T3)	21.5	Pass
						Diagonal (T1)	32.0	Pass
						Horizontal (T4)	0.3	Pass
						Top Girt (T2)	12.0	Pass
						Bottom Girt (T3)	20.5	Pass
						Guy A (T1)	42.5	Pass
						Guy B (T1)	43.7	Pass
						Guy C (T1)	43.5	Pass
						Torque Arm Top (T1)	16.8	Pass
						Bolt Checks	32.0	Pass
						RATING =	**43.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

Round Flat App In Face App Out Face



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Tectonic
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
FAX: (845) 567-8703

Job: ***10473.CT11872D - Rev 2***			
Project: ***50' Guyed Tower***			
Client: T-Mobile	Drawn by: John-Fritz Julien		App'd:
Code: TIA-222-G	Date: 09/17/20		Scale: NTS
Path: G:\Newburgh\Projects\10473-NSS\10473.CT11872D\Structural\Tower Analysis\10473.CT11872D - TowerSAveri			Dwg No. E-7

APPENDIX C

ADDITIONAL CALCULATIONS

CONNECTICUT DESIGN CRITERIA - STATE

Revison:

CT is NOT a Home Rule State; Tab added only for Design Criteria

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS

				Wind Design Parameters					
Municipality	**Ground Snow Load**	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)		
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV
Andover	30	0.176	0.063	120	130	140	93	101	108
Ansonia	30	0.195	0.064	115	125	135	89	97	105
Ashford	35	0.173	0.063	120	130	140	93	101	108
Avon	35	0.181	0.064	110	120	130	85	93	101
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105
Berlin	30	0.183	0.063	115	125	135	89	97	105
Bethany	30	0.189	0.063	115	125	135	89	97	105
Bethel	30	0.215	0.066	110	120	125	85	93	97
Bethlehem	35	0.190	0.065	110	120	125	85	93	97
Bloomfield	35	0.180	0.064	115	125	130	89	97	101
Bolton	30	0.177	0.063	115	125	135	89	97	105
Bozrah	30	0.170	0.061	120	135	145	93	105	112
Branford	30	0.180	0.061	120	130	140	93	101	108
Bridgeport	30	0.209	0.064	115	125	135	89	97	105
Bridgewater	35	0.201	0.066	110	120	125	85	93	97
Bristol	35	0.185	0.064	110	120	130	85	93	101
Brookfield	35	0.208	0.066	110	120	125	85	93	97
Brooklyn	35	0.171	0.062	120	130	140	93	101	108
Burlington	35	0.182	0.064	110	120	130	85	93	101
Canaan	40	0.173	0.065	105	115	120	81	89	93
Canterbury	35	0.171	0.061	120	130	140	93	101	108
Canton	35	0.180	0.064	110	120	130	85	93	101
Chaplin	35	0.173	0.062	120	130	140	93	101	108
Cheshire	30	0.186	0.063	115	125	135	89	97	105
Chester	30	0.172	0.060	120	130	140	93	101	108
Clinton	30	0.169	0.059	120	135	140	93	105	108
Colchester	30	0.174	0.061	120	130	140	93	101	108
Colebrook	40	0.174	0.065	105	115	125	81	89	97
Columbia	30	0.175	0.062	120	130	140	93	101	108
Cornwall	40	0.180	0.065	105	115	120	81	89	93
Coventry	30	0.176	0.063	120	130	140	93	101	108
Cromwell	30	0.181	0.063	115	125	135	89	97	105
Danbury	30	0.217	0.067	110	120	125	85	93	97
Darien	30	0.242	0.068	110	120	130	85	93	101
Deep River	30	0.170	0.060	120	130	140	93	101	108
Derby	30	0.195	0.064	115	125	135	89	97	105
Durham	30	0.179	0.062	115	130	140	89	101	108
Eastford	40	0.172	0.063	120	130	140	93	101	108
East Granby	35	0.177	0.065	110	120	130	85	93	101
East Haddam	30	0.172	0.061	120	130	140	93	101	108
East Hampton	30	0.177	0.062	120	130	140	93	101	108

New Milford	35	0.198	0.066	105	115	125	81	89	97
Newtown	30	0.208	0.066	110	120	130	85	93	101
Norfolk	40	0.175	0.065	105	115	125	81	89	97
North Branford	30	0.179	0.061	120	130	140	93	101	108
North Canaan	40	0.173	0.065	105	115	120	81	89	93
North Haven	30	0.184	0.062	115	125	135	89	97	105
North Stonington	30	0.163	0.059	125	135	145	97	105	112
Norwalk	30	0.232	0.067	110	120	130	85	93	101
Norwich	30	0.168	0.060	125	135	145	97	105	112
Old Lyme	30	0.164	0.059	125	135	145	97	105	112
Old Saybrook	30	0.164	0.059	125	135	145	97	105	112
Orange	30	0.192	0.063	115	125	135	89	97	105
Oxford	30	0.196	0.064	110	125	130	85	97	101
Plainfield	35	0.170	0.061	125	135	145	97	105	112
Plainville	35	0.184	0.064	115	125	135	89	97	105
Plymouth	35	0.186	0.064	110	120	130	85	93	101
Pomfret	40	0.172	0.063	120	130	140	93	101	108
Portland	30	0.180	0.063	115	130	135	89	101	105
Preston	30	0.167	0.060	125	135	145	97	105	112
Prospect	30	0.188	0.064	115	125	135	89	97	105
Putnam	40	0.172	0.063	120	130	140	93	101	108
Redding	30	0.220	0.067	110	120	130	85	93	101
Ridgefield	30	0.230	0.068	110	120	125	85	93	97
Rocky Hill	30	0.181	0.063	115	125	135	89	97	105
Roxbury	35	0.197	0.065	110	120	125	85	93	97
Salem	30	0.170	0.060	120	135	140	93	105	108
Salisbury	40	0.173	0.065	105	115	120	81	89	93
Scotland	30	0.172	0.061	120	130	140	93	101	108
Seymour	30	0.194	0.064	115	125	135	89	97	105
Sharon	40	0.179	0.065	105	115	120	81	89	93
Shelton	30	0.199	0.064	115	125	135	89	97	105
Sherman	35	0.202	0.066	105	115	120	81	89	93
Simsbury	35	0.179	0.064	110	120	130	85	93	101
Somers	35	0.174	0.064	115	125	135	89	97	105
Southbury	35	0.198	0.065	110	120	130	85	93	101
Southington	30	0.185	0.064	115	125	135	89	97	105
South Windsor	30	0.178	0.064	115	125	135	89	97	105
Sprague	30	0.171	0.061	120	130	140	93	101	108
Stafford	35	0.173	0.064	115	125	135	89	97	105
Stamford	30	0.249	0.069	110	120	130	85	93	101
Sterling	35	0.170	0.061	125	135	145	97	105	112
Stonington	30	0.159	0.058	125	140	150	97	108	116
Stratford	30	0.201	0.064	115	125	135	89	97	105
Suffield	35	0.176	0.065	110	120	130	85	93	101
Thomaston	35	0.186	0.064	110	120	130	85	93	101
Thompson	40	0.172	0.063	120	130	140	93	101	108
Tolland	35	0.175	0.064	115	125	135	89	97	105
Torrington	40	0.182	0.065	110	120	125	85	93	97
Trumbull	30	0.207	0.065	115	125	135	89	97	105
Union	40	0.172	0.064	115	125	135	89	97	105
Vernon	30	0.177	0.064	115	125	135	89	97	105
Voluntown	30	0.168	0.060	125	135	145	97	105	112
Wallingford	30	0.183	0.063	115	125	135	89	97	105

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Thu Jul 23 2020

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Date: **September 17, 2020**

Mount Analysis Report – Rev 2

Tower Owner:	Stratford Police Department
Carrier:	T-Mobile Northeast LLC
Site ID:	CT11872D
Site Name:	CT872/Stratford PD_GT
Site Data:	900 Longbrook Rd, Stratford, Fairfield County, CT 06614 Latitude *41° 12' 06.37"*, Longitude *-73° 07' 43.86"* 15 ft Sector Frame Mount
Tectonic Project Number:	10473.CT11872D – Rev 2

Tectonic Engineering & Surveying Consultants P.C. is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of the above mentioned mount.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Sector Frame: **Sufficient Capacity – 91%***

***The mount has sufficient capacity once the changes, described in the Recommendations section of this report, are completed.**

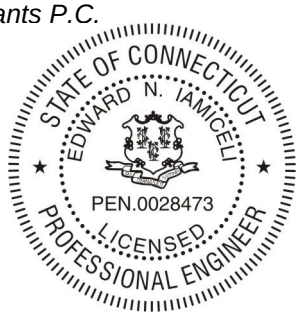
This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1.0 and Structure Class 3 were used in this analysis.

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

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

Structural analysis prepared by: John-Fritz Julien / Vinod Ramesh

Respectfully submitted by:
Tectonic Engineering & Surveying Consultants P.C.



Edward N. Iamiceli, P.E.
Managing Director - Structural

Project Contact Info

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TABLE OF CONTENTS

1) INTRODUCTION

The existing mount is a 15.0 ft sector frame mounted to a rooftop guyed tower. Emergency equipment is installed on the carrier mount and has been included in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Structure Class:	3
Wind Speed:	97 mph
Exposure Category:	B
Topographic Factor:	1.0
Ice Thickness:	0.75 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Loading Information

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Proposed Mount Type	Note
74.0	T-Mobile	3	rfs	APXVARR24_43-C-NA20	-	1
		3	ericsson	AIR6449 B41		
		3	ericsson	RADIO 4449 B12/B71		
		3	commscope	SDX1926Q-43		
		3	ericsson	RRUS 4415 B25		

Note:
1) Proposed equipment to be installed on the existing mount.

Table 2 - Existing Equipment Loading Information

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Existing Mount Type	Note
82.0	Unknown	1	-	20' Omni	Sector Frames	1
		1	-	16' Omni		
		1	-	2-Bay Dipole		
74.0	T-Mobile	3	ericsson	AIR 32 B66Aa B2a		
		3	ericsson	KRY 112 144/2		
		3	commscope	LNX-6515DS-VTM	-	2
		3	ericsson	AIR21 B2A B4P		
		3	ericsson	RRUS 11 B4 (RRH 6449)		

Notes:
1) Existing equipment.
2) Existing equipment to be removed, not considered in analysis.

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Dated
FIELD NOTES	Tectonic	07/21/20
APPURTENANCE UPDATE, VIA EMAIL	NNS	08/19/20
MOUNT ANALYSIS REPORT (Rev 1)	Tectonic	09/02/20
RFDS	T-Mobile	09/10/20

3.1) Analysis Method

A tool internally developed, using Microsoft Excel, was used to calculate wind loading on all appurtenances and mount members. This information was then used in conjunction with another program, RISA-3D, which is a commercially available analysis software package, used to check the supporting building framing and calculate member stresses for various loading cases. The selected output from the analysis is included in Appendices B and C.

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed, and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 1 and 2.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The mount members are based on similarly manufactured mounts (Rohn P/N KY1933A) and site visit photos.
5) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 4 - Mount Component Stresses vs. Capacity (Sector Mount)

Notes	Component	Mount Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontal	74.0	91	Pass
	Standoff Horizontal		64	Pass
	New Mount Pipe		71	Pass
	Standoff Brace		39	Pass
	Stiffarm Pipe		14	Pass

Structure Rating (max from all components) =	91%

Note:
1) See additional documentation in "Appendix C - Analysis Output" for calculations supporting the % capacity consumed.

4.1) Result / Conclusions

The sector frame mount will have sufficient capacity to carry the proposed T-Mobile load configurations once the following modifications have been satisfied.

1) The lower connection of the omni and dipole antennas (typical of three) to the antenna pipes shall be placed below the upper face horizontal as detailed in the report below.
2) Replace existing 2.0" STD mount pipes with 2.5" STD pipes or similar.

APPENDIX A

SOFTWARE INPUT CALCULATIONS

Tectonic	Job No.	10473.CT11872D - Rev 2		
	Sheet No.	1	of	3
	Calculated By	JJ	Date :	9/17/2020
	Checked By	VR	Date :	9/17/2020

WIND AND ICE LOADS PER TIA-222-G

W.O.	10473.CT11872D - Rev 2
Project Name	CT872/Stratford PD_GT
Location	900 Longbrook Rd, Stratford, CT
County	Fairfield

Tower Type	GT	Guyed Tower
Structure Class	3	High hazard or Essential facility
Exposure Category	B	Suburban/wooded/obstructed
Topo Category	1	Flat or rolling terrain
Height of crest	0	ft

Basic Wind Speed (3-sec gust):		
Without ice	97	mph*
With ice	50	mph
Service	60	mph
Ice thickness	0.75	in

Importance Factor	
Wind only	1.15
Wind with ice	1.00
Ice thickness	1.25
Supporting Data:	
K_e	0.90
K_t	N/A
f	N/A
z_g	1200
α	7
$K_{z,min}$	0.7
K_d	0.95
G_h	1.00

Height	z (ft)	74
	Kh	N/A
	Kzt	1.00
	Kz	0.91
	Kiz	1.08
Wind Pressure, qz (psf)	No Ice	23.86
	With Ice	5.51
	Service	9.13
(tiz)	Ice Thk	2.03
Appurtenances (qzGh)	No Ice	23.86
	With Ice	5.51
	Service	9.13

*Ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second wind gust speed of 97 mph per Section 1609.3 and Appendix N, as required for use in the TIA-222-G Standard.

Appurtenance Information

Effective Projected Area for Appurtenance $(EPA)_A=Max((EPA)_N,(EPA)_T)$

$(EPA)_T=\sum(C_aA_A)_T$ | $(EPA)_N=\sum(C_aA_A)_N$

Reduction Factor = 1

Wind Only Load Combinations

Antenna Configuration	(E) or (P)	Qty	z (ft)	Length or Diameter (ft)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna $(Ca)_T$	Antenna $(Ca)_N$	Side Face $(Aa)_T$ (ft^2)	Wind ward Side Face (CaAa)T (ft^2)	Face Normal $(A_a)_N$ (ft^2)	Windward face Normal $(C_aA_a)_N$ (ft^2)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Antenna Weight (lb)	Total Weight (lb)
AIR 6449 B41	**P**	**3**	74	2.76	20.50	8.30	Flat	1.27	1.20	1.91	7.25	4.71	16.96	135	58	103.0	309.0
APXVAARR24_43-U-NA20	**P**	**3**	74	7.99	24.00	8.70	Flat	1.53	1.27	5.79	26.67	15.98	60.73	483	212	153.3	459.9
RRU 4449 B71+B12	**P**	**3**	74	1.25	13.20	10.40	Flat	1.20	1.20	1.08	3.90	1.38	4.95	39	31	75.0	225.0
RRUS 4415 B25	**P**	**3**	74	1.24	13.20	5.40	Flat	1.21	1.20	0.56	2.03	1.37	4.92	39	16	46.3	138.9
SDX1926Q-43	**P**	**3**	74	0.35	6.93	2.91	Flat	1.20	1.20	0.08	0.30	0.20	0.72	6	2	6.2	18.5
AIR-32 B2A/B66A	E	3	74	4.72	12.90	8.70	Flat	1.38	1.28	3.42	14.14	5.07	19.53	155	112	132.2	396.6
KRY 112 144/2	E	3	74	0.72	6.65	3.19	Flat	1.21	1.20	0.19	0.70	0.40	1.44	11	6	9.7	29.1
Omni 2.5" x 20'	E	1	74	20.00	2.50	2.50	Flat	2.00	2.00	4.17	8.33	4.17	8.33	199	199	50.0	50.0
Omni 2.5" x 16'	E	1	74	16.00	2.50	2.50	Flat	2.00	2.00	3.33	6.67	3.33	6.67	159	159	40.0	40.0
										$\sum(CaAA)_T$	69.98	$\sum(CaAA)_N$	124.25				1667

Note: Appurtenances listed above are to be installed along three (3) sector mounts.

Wind with Ice Load Combinations **Ice Thk=** 2.03 in

Antenna Configuration	(E), (R) or (P)	Qty	z (ft)	Length or Diameter (ft)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna $(Ca)_T$	Antenna $(Ca)_N$	Side Face $(A_a)_T$ (ft^2)	Windward Side Face (CaAa)T (ft^2)	Face Normal $(A_a)_N$ (ft^2)	Windward Face Normal $(C_aA_a)_N$ (ft^2)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Ice Area for Weight (ft^2)	Ice Weight Alone (lbs)
AIR 6449 B41	P	3.00	74.00	3.10	24.57	12.37	Cylindrical	1.22	1.20	3.19	11.70	6.34	22.82	42	22	13.2	125.6
APXVAARR24_43-U-NA20	P	3.00	74.00	8.33	28.07	12.77	Cylindrical	1.43	1.25	8.86	37.96	19.48	72.90	134	70	43.6	413.2
RRU 4449 B71+B12	P	3.00	74.00	1.59	17.27	14.47	Cylindrical	1.20	1.20	1.92	6.89	2.29	8.23	15	13	4.9	46.6
RRUS 4415 B25	P	3.00	74.00	1.58	17.27	9.47	Cylindrical	1.20	1.20	1.25	4.49	2.27	8.19	15	8	3.8	36.5
SDX1926Q-43	P	3.00	74.00	0.69	10.99	6.98	Cylindrical	1.20	1.20	0.40	1.44	0.63	2.26	4	3	0.6	5.4
AIR-32 B2A/B66A	E	3.00	74.00	5.06	16.97	12.77	Cylindrical	1.30	1.25	5.38	20.98	7.15	26.76	49	39	17.0	161.1
KRY 112 144/2	E	3.00	74.00	1.06	10.72	7.26	Cylindrical	1.20	1.20	0.64	2.31	0.95	3.41	6	4	1.2	11.2
Omni 2.5" x 20'	E	1.00	74.00	20.34	6.57	6.57	Cylindrical	2.00	2.00	11.13	22.26	11.13	22.26	123	123	16.7	158.1
Omni 2.5" x 16'	E	1.00	74.00	16.34	6.57	6.57	Cylindrical	2.00	2.00	8.94	17.88	8.94	17.88	99	99	13.3	126.5
										$\sum(CaAA)_T$	125.90	$\sum(CaAA)_N$	184.70				1084

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No. 10473.CT11872D - Rev 2
Sheet No. 3 of 3
Calculated By JJ Date : 09/17/20
Checked By VR Date : 09/17/20

Existing Sector Mount

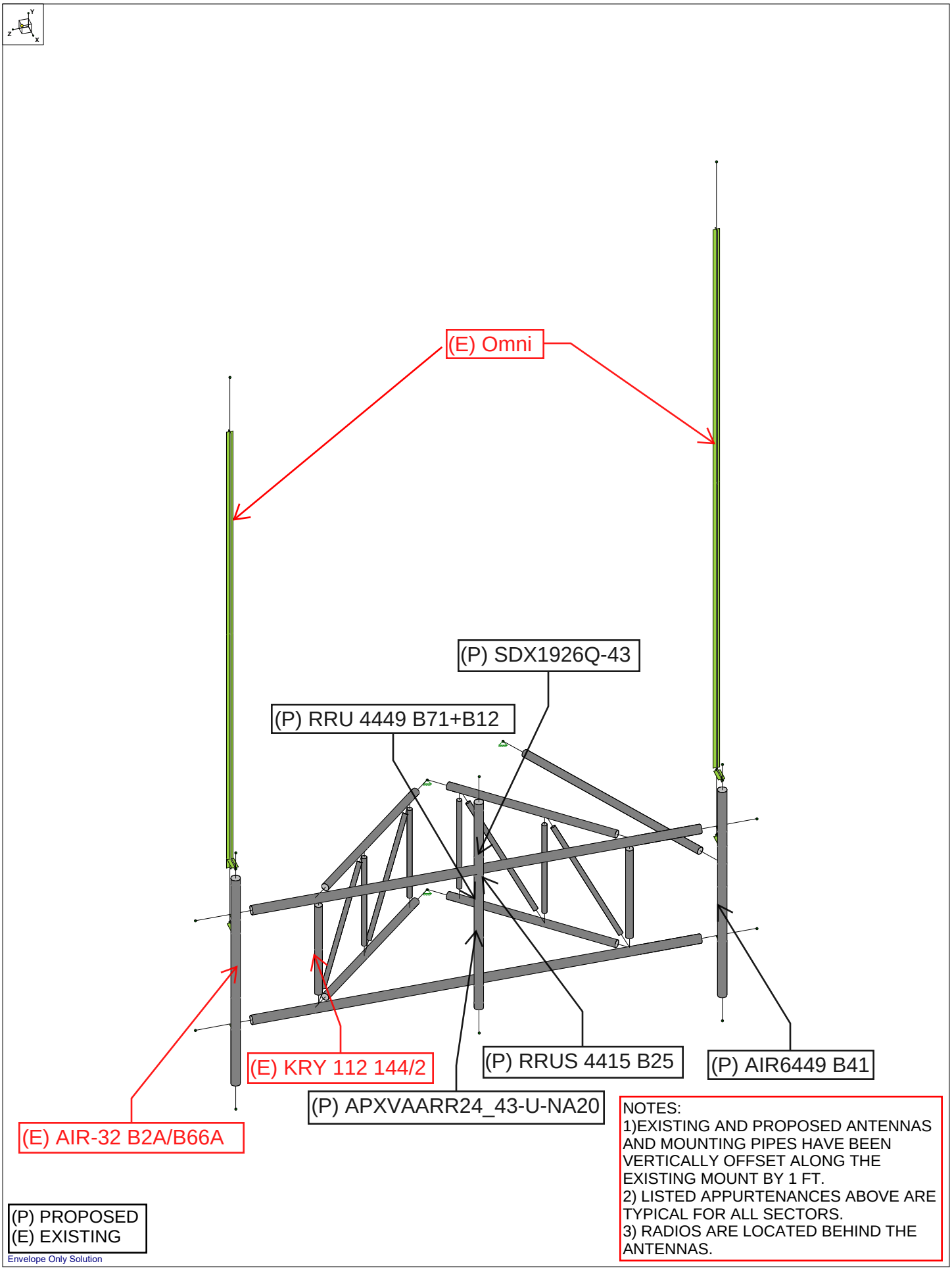
Mount Center Line=	74 ft

Reduction Factor = 1

Mount Part	Quantity	Length (ft)	Projected Width (in)	Depth (in)	Flat or Cylindrical?	Drag Factor	Projected Area (ft^2)	Wind Force (lbs/ft)	Ice Weight Area (ft^2)	Ice Weight (lbs/ft)	Projected Area with Ice (ft^2)	Wind Force Ice (lbs/ft)	Service Wind Force (lbs/ft)
Face Horizontal_2.5" STD Pipe	2	15.00	2.88	2.88	Cylindrical	1.2	8.63	6.9	22.57	7.1	20.82	3.8	2.6
Sector Horizontal_2.0" STD Pipe	4	6.00	2.38	2.38	Cylindrical	1.2	5.70	5.7	14.92	5.9	15.46	3.6	2.2
Sector Vertical_2.0" STD Pipe	2	2.29	2.38	2.38	Cylindrical	1.2	1.09	5.7	2.85	5.9	2.95	3.6	2.2
Sector Brace_1.5" x .058 Pipe	8	3.66	1.90	1.90	Cylindrical	1.2	5.56	4.5	14.56	4.7	17.47	3.3	1.7
Mount Pipe_2.5" STD	3	8.00	2.88	2.88	Cylindrical	1.2	6.91	6.9	18.09	7.1	16.67	3.8	2.6
Stiffarm Pipe_2.0" STD	1	7.49	2.38	2.38	Cylindrical	1.2	1.78	5.7	4.65	5.9	4.82	3.6	2.2

APPENDIX B

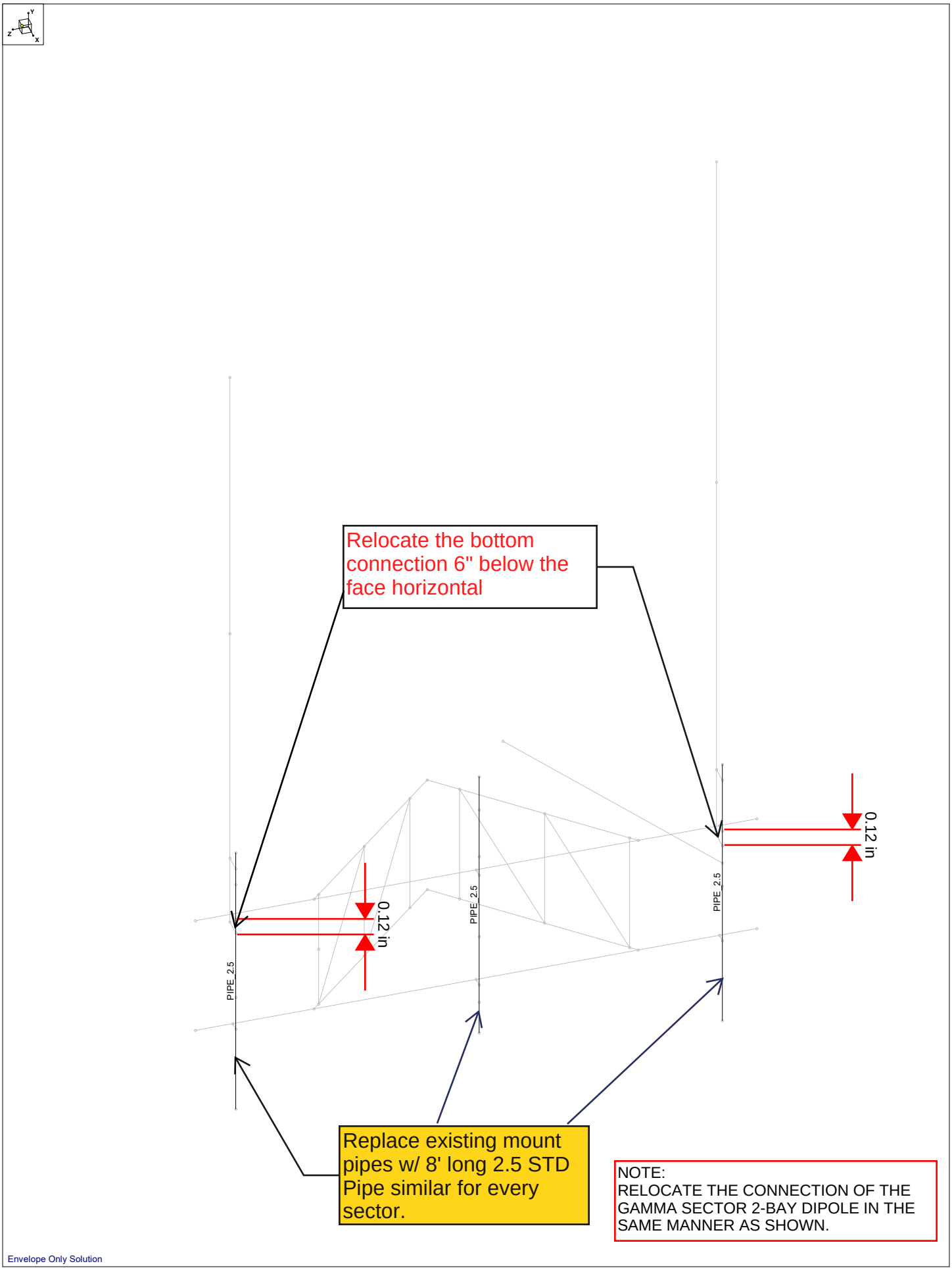
WIRE FRAME AND RENDERED MODELS

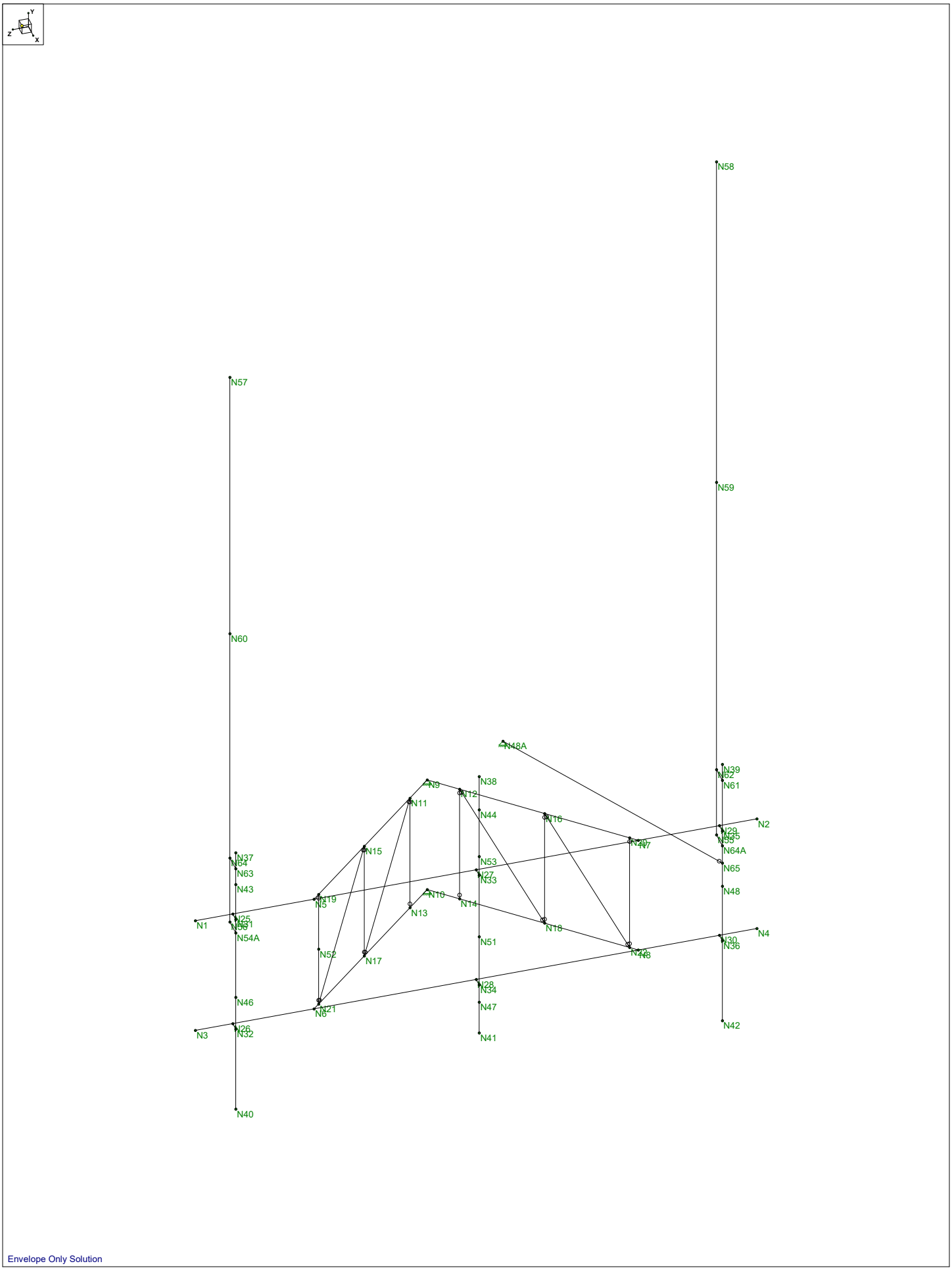


(P) PROPOSED
(E) EXISTING

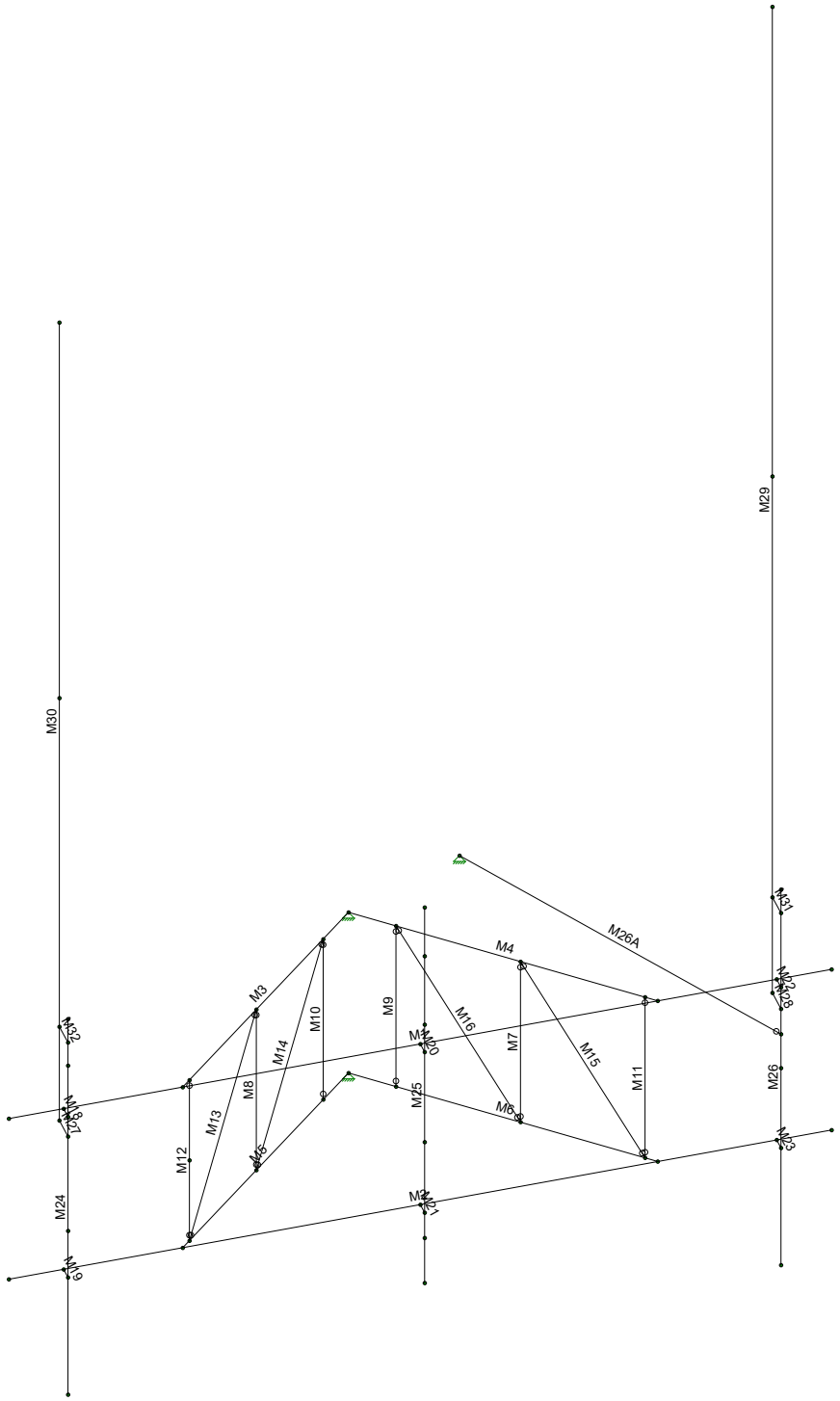
Envelope Only Solution

NOTES:
1)EXISTING AND PROPOSED ANTENNAS AND MOUNTING PIPES HAVE BEEN VERTICALLY OFFSET ALONG THE EXISTING MOUNT BY 1 FT.
2) LISTED APPURTENANCES ABOVE ARE TYPICAL FOR ALL SECTORS.
3) RADIOS ARE LOCATED BEHIND THE ANTENNAS.

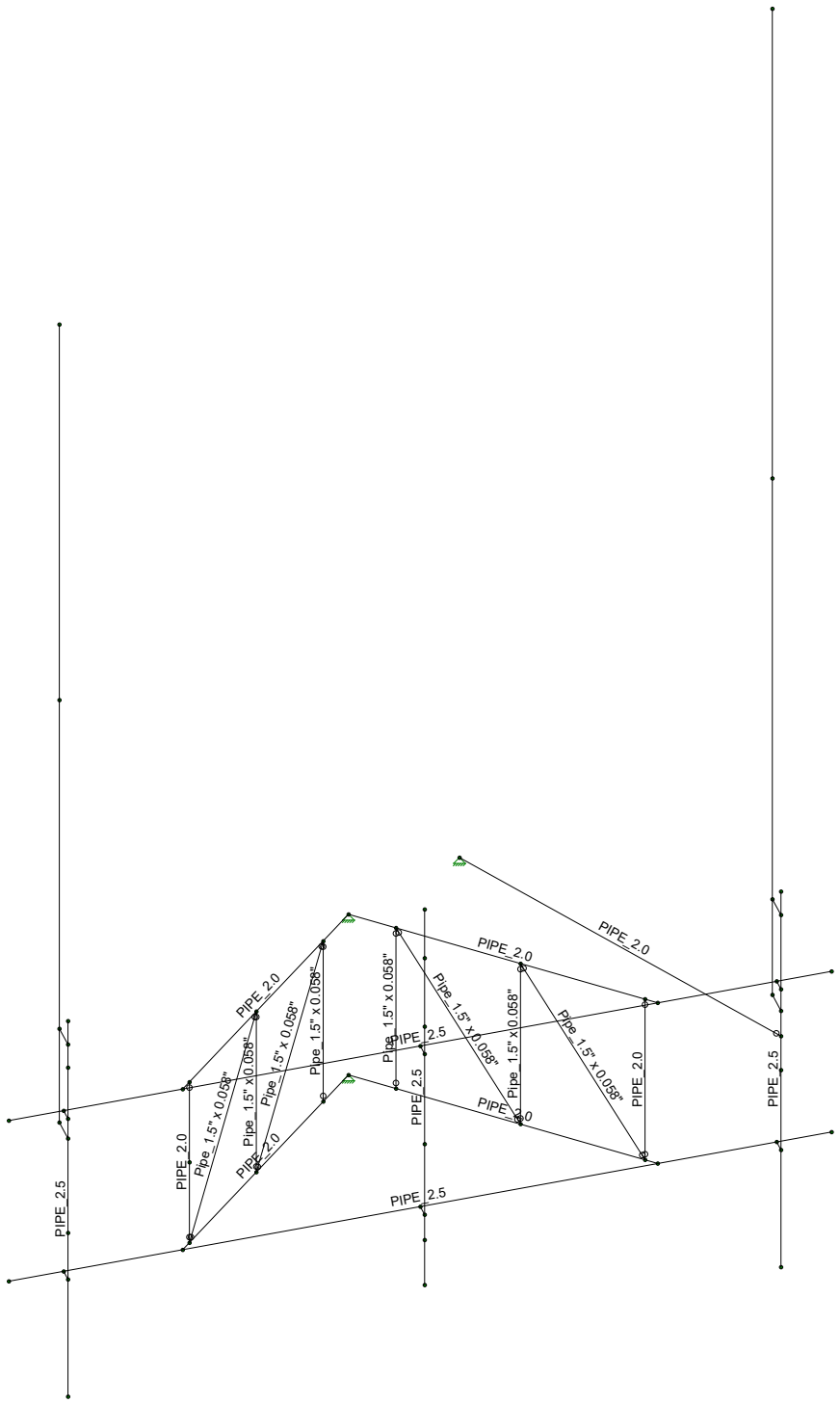

Relocate the bottom connection 6" below the face horizontal
0.12 in
0.12 in
PIPE_2.5
PIPE_2.5
PIPE_2.5
Replace existing mount pipes w/ 8' long 2.5 STD Pipe similar for every sector.
NOTE:
RELOCATE THE CONNECTION OF THE GAMMA SECTOR 2-BAY DIPOLE IN THE SAME MANNER AS SHOWN.
Envelope Only Solution



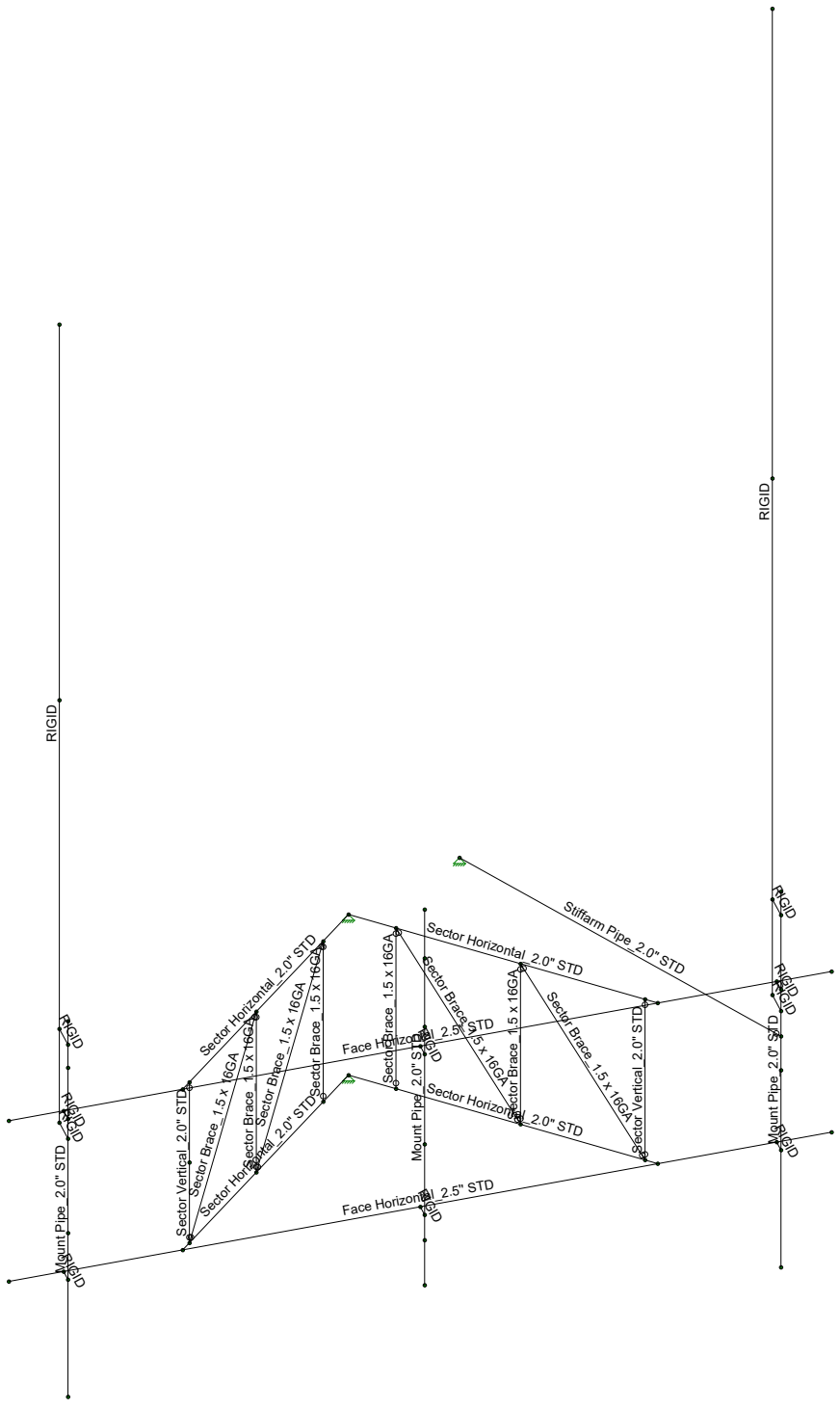
Envelope Only Solution



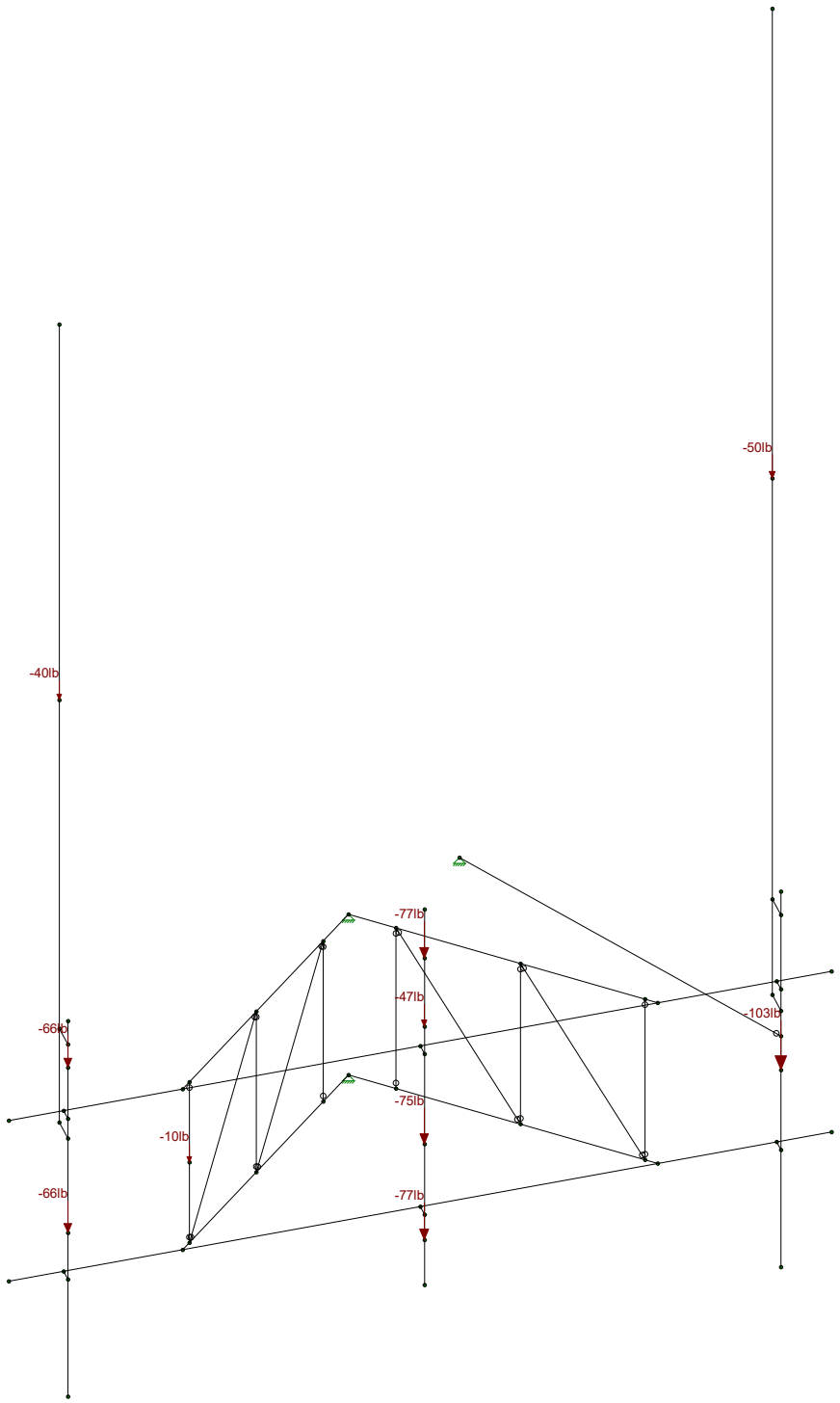
Envelope Only Solution



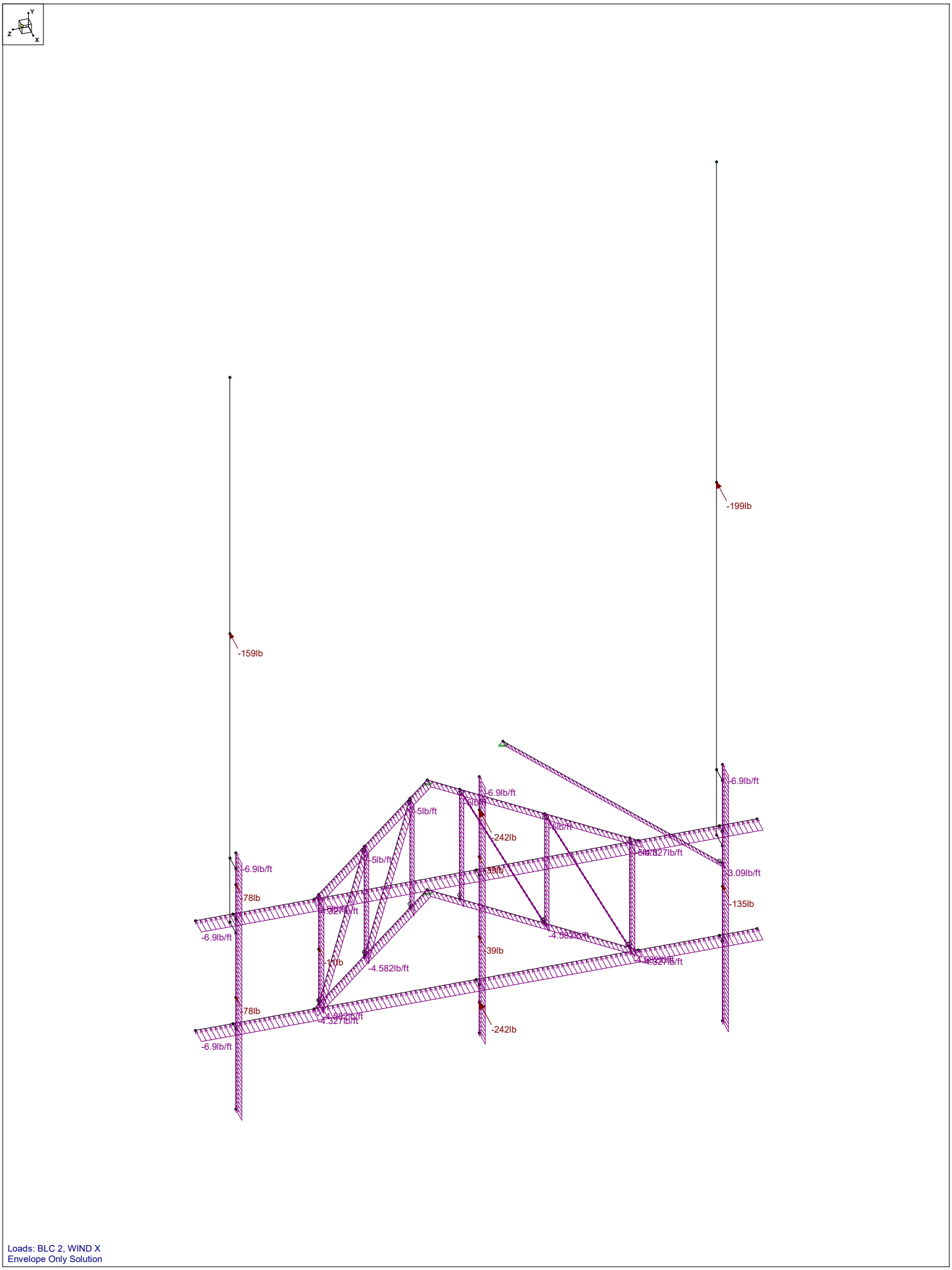
Envelope Only Solution



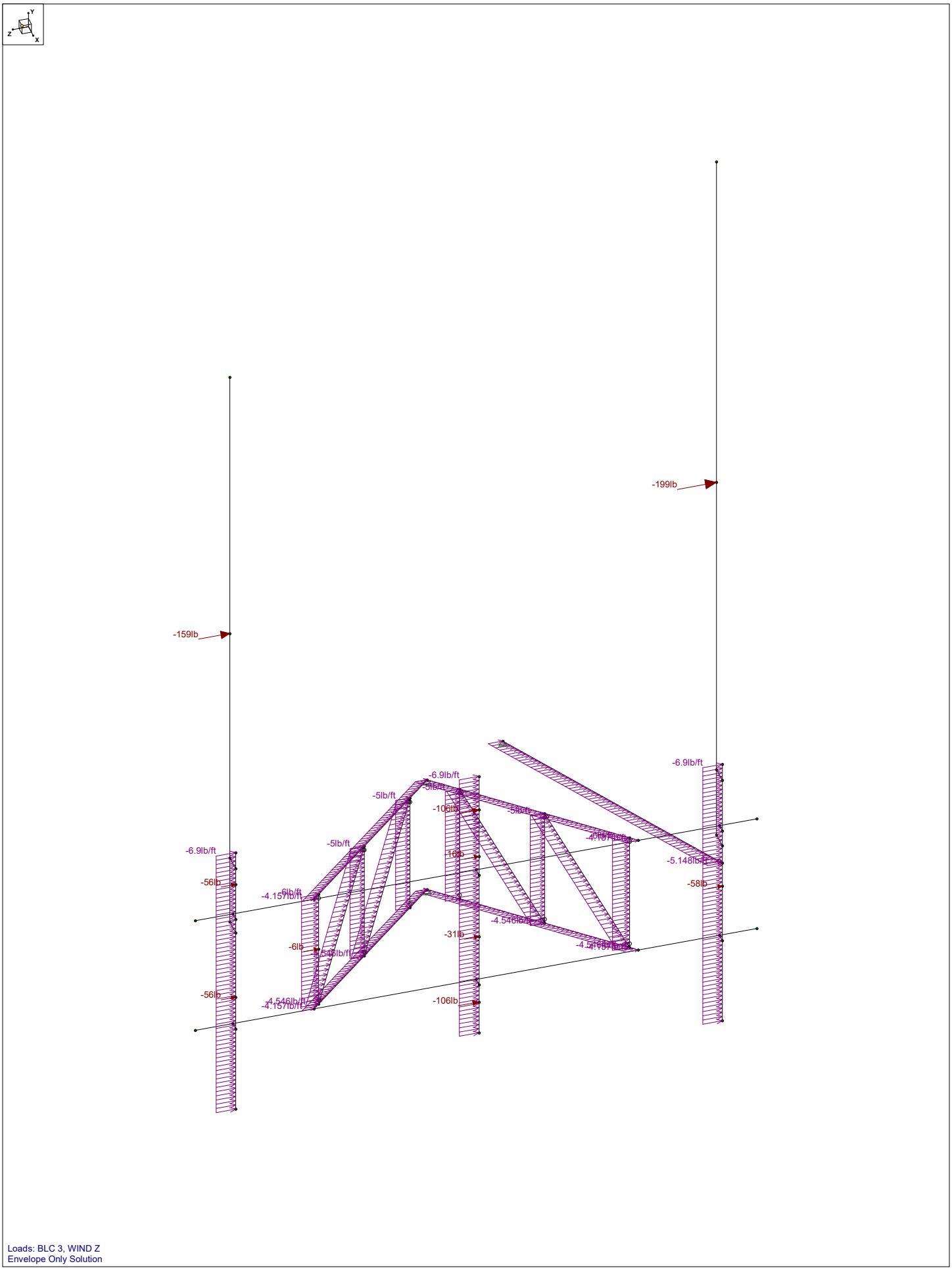
Envelope Only Solution



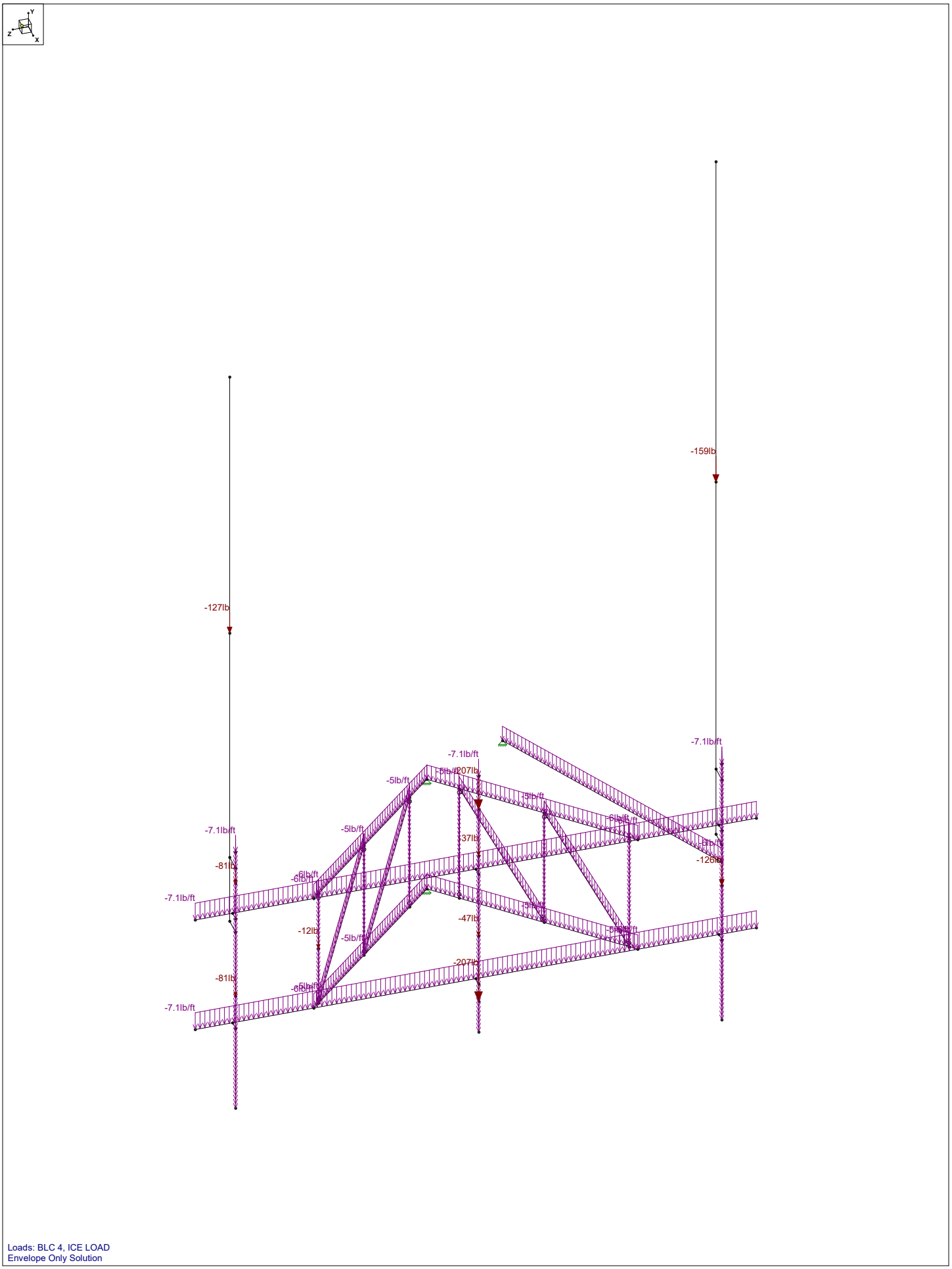
Loads: BLC 1, DEAD LOAD
Envelope Only Solution



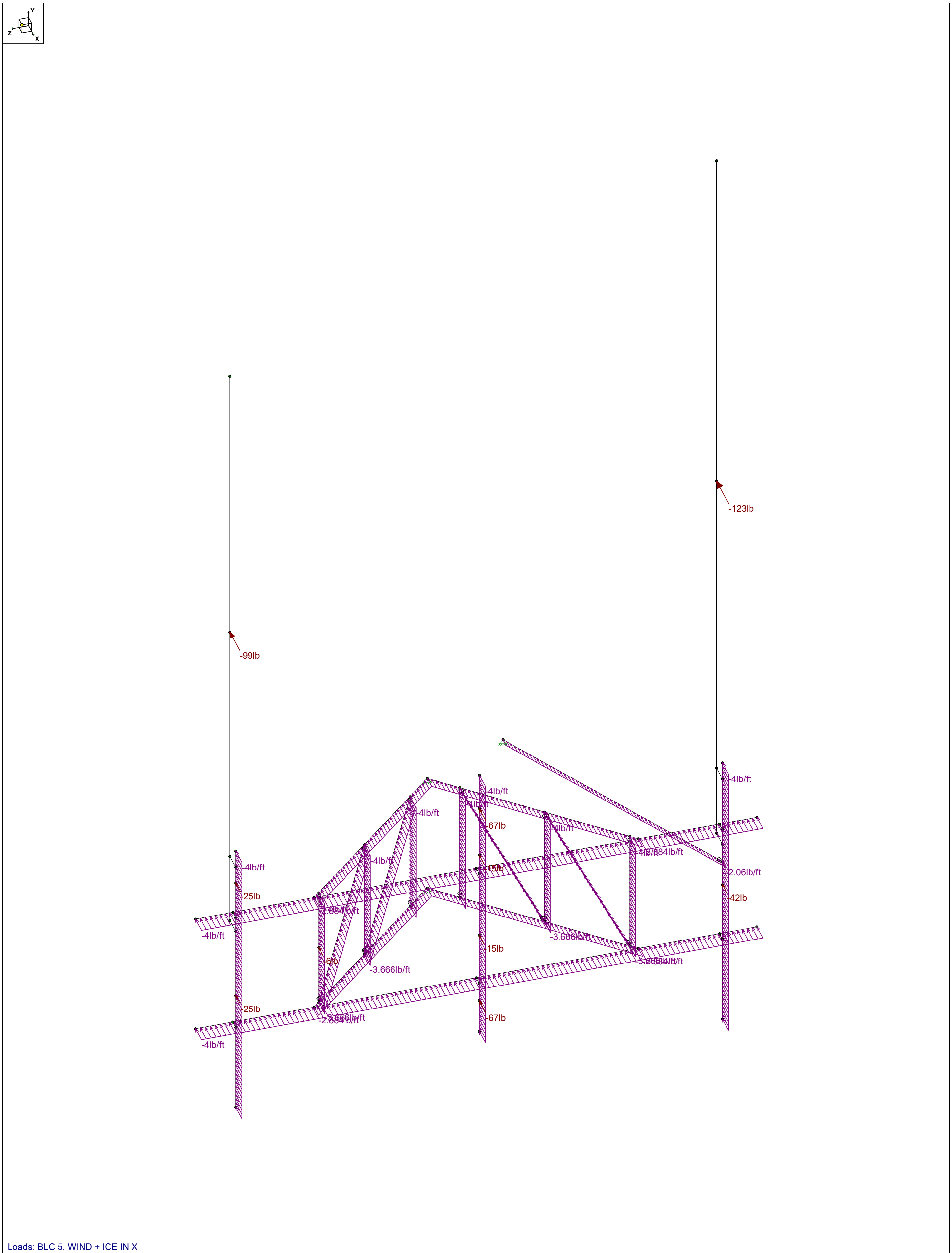
Loads: BLC 2, WIND X
Envelope Only Solution



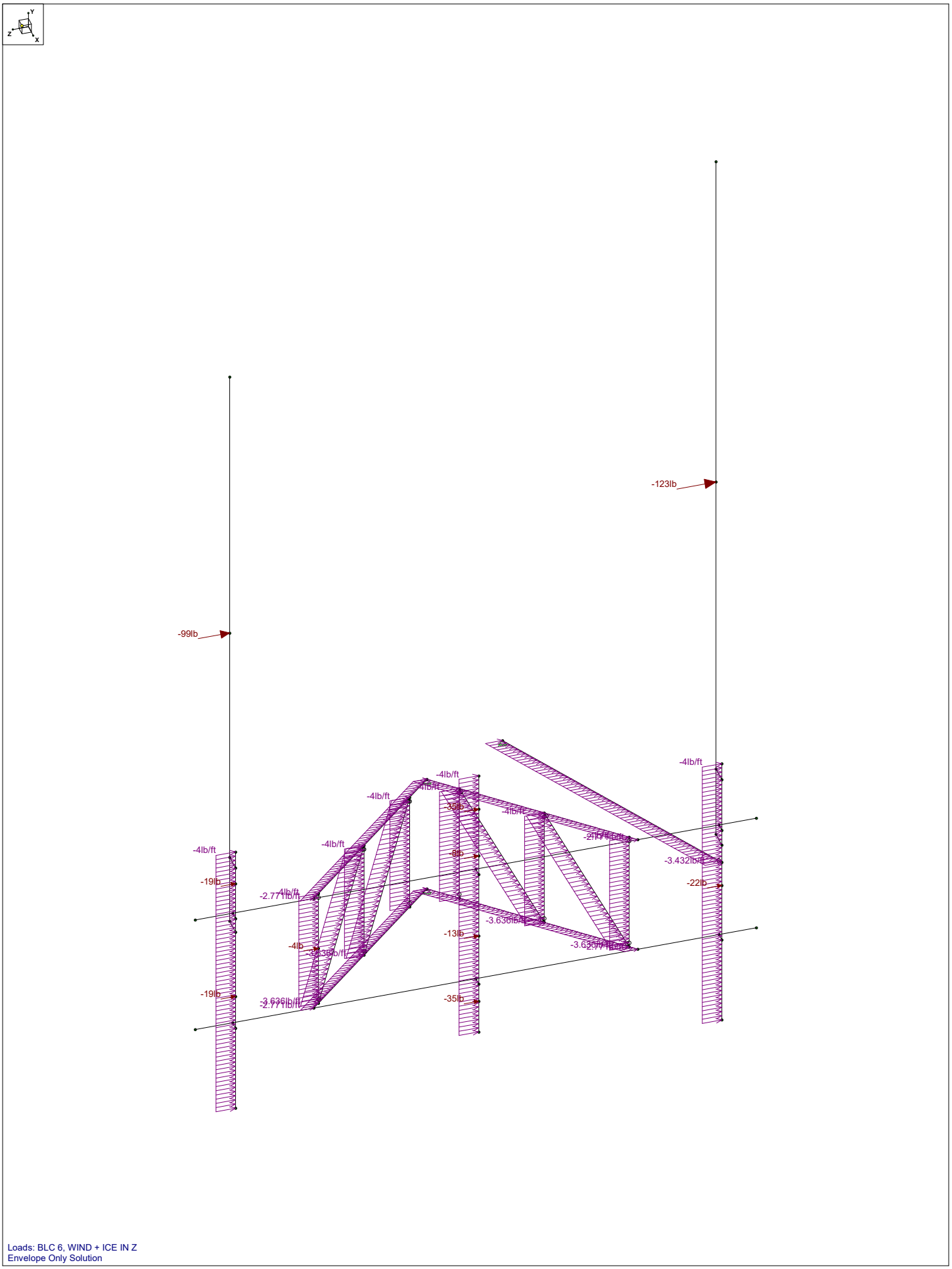
Loads: BLC 3, WIND Z
Envelope Only Solution



Loads: BLC 4, ICE LOAD
Envelope Only Solution



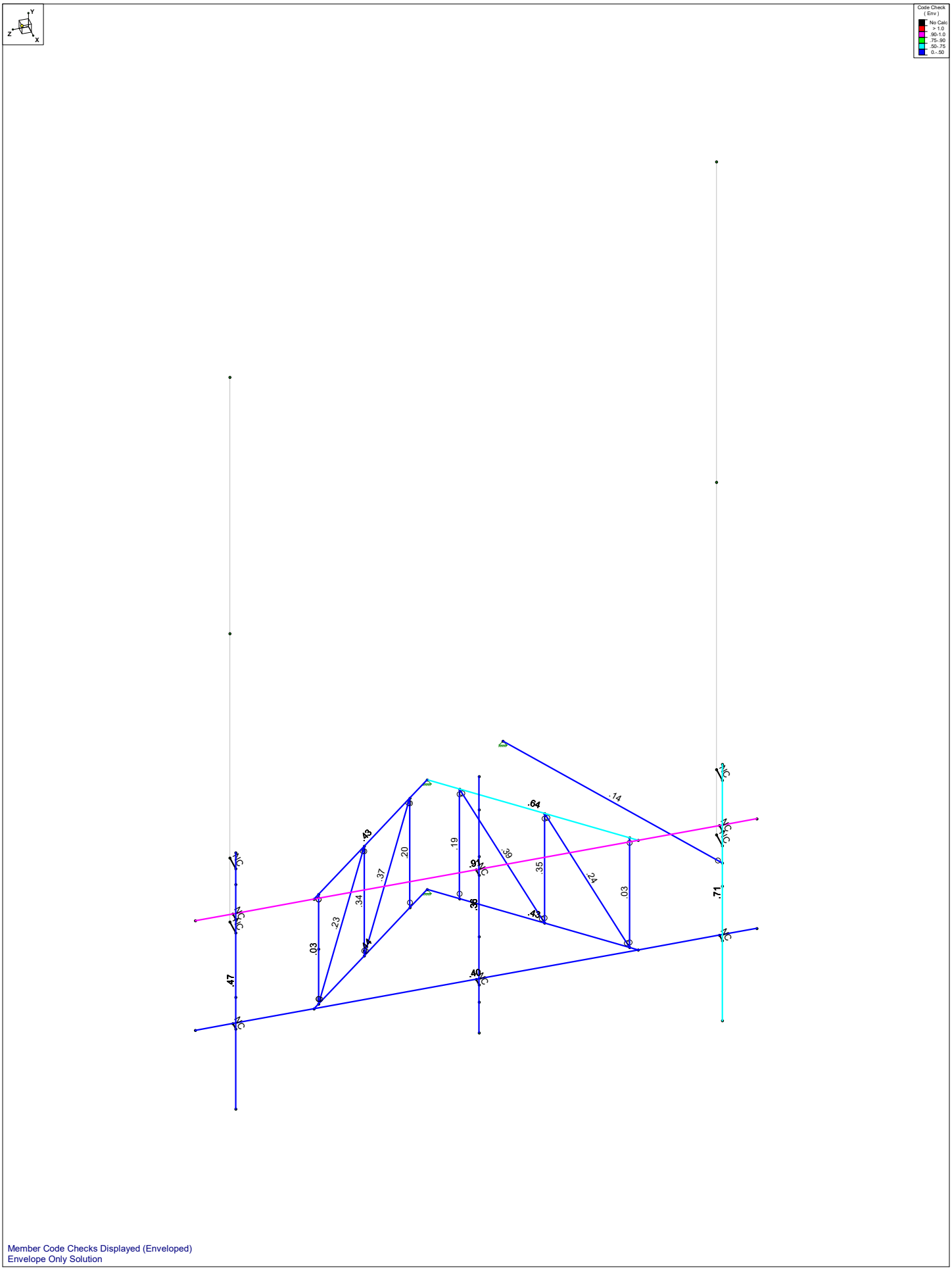
Loads: BLC 5, WIND + ICE IN X
Envelope Only Solution



Loads: BLC 6, WIND + ICE IN Z
Envelope Only Solution

APPENDIX C

SOFTWARE ANALYSIS OUTPUT



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	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	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	A53-B-42	29000	11154	.3	.65	.49	42	1.6	63	1.2

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	DEAD LOAD	DL		-1.05		10				
2	WIND X	WLX				10		20		
3	WIND Z	WLZ				10		20		
4	ICE LOAD	SL				10		20		
5	WIND + ICE IN X	WL+X				10		20		
6	WIND + ICE IN Z	WL+Z				10		20		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4																		
2	1.2D+1.6(WLX+WLZ) - 0 Deg	Yes	Y		1	1.2	2	1.6																
3	1.2D+1.6(WLX+WLZ) - 30 Deg	Yes	Y		1	1.2	2	1.3...	3	.8														
4	1.2D+1.6(WLX+WLZ) - 60 Deg	Yes	Y		1	1.2	2	.8	3	1.3...														
5	1.2D+1.6(WLX+WLZ) - 90 Deg	Yes	Y		1	1.2	2		3	1.6														
6	1.2D+1.6(WLX+WLZ) - 120 Deg	Yes	Y		1	1.2	2	-.8	3	1.3...														
7	1.2D+1.6(WLX+WLZ) - 150 Deg	Yes	Y		1	1.2	2	-1....	3	.8														
8	1.2D+1.6(WLX+WLZ) - 180 Deg	Yes	Y		1	1.2	2	-1.6	3															
9	1.2D+1.6(WLX+WLZ) - 210 Deg	Yes	Y		1	1.2	2	-1....	3	-.8														
10	1.2D+1.6(WLX+WLZ) - 240 Deg	Yes	Y		1	1.2	2	-.8	3	-1....														
11	1.2D+1.6(WLX+WLZ) - 270 Deg	Yes	Y		1	1.2	2		3	-1.6														
12	1.2D+1.6(WLX+WLZ) - 300 Deg	Yes	Y		1	1.2	2	.8	3	-1....														
13	1.2D+1.6(WLX+WLZ) - 330 Deg	Yes	Y		1	1.2	2	1.3...	3	-.8														
14	**Wind Load with Ice**																							
15	1.2D+1.0Di+1.0(WLXi+WLZi) - 0...	Yes	Y		1	1.2	4	1	5	1	6													
16	1.2D+1.0Di+1.0(WLXi+WLZi) - 3...	Yes	Y		1	1.2	4	1	5	.87	6	.5												
17	1.2D+1.0Di+1.0(WLXi+WLZi) - 6...	Yes	Y		1	1.2	4	1	5	.5	6	.87												
18	1.2D+1.0Di+1.0(WLXi+WLZi) - 9...	Yes	Y		1	1.2	4	1	5		6	1												
19	1.2D+1.0Di+1.0(WLXi+WLZi) - 1...	Yes	Y		1	1.2	4	1	5	-.5	6	.87												
20	1.2D+1.0Di+1.0(WLXi+WLZi) - 1...	Yes	Y		1	1.2	4	1	5	-.87	6	.5												
21	1.2D+1.0Di+1.0(WLXi+WLZi) - 1...	Yes	Y		1	1.2	4	1	5	-1	6													
22	1.2D+1.0Di+1.0(WLXi+WLZi) - 2...	Yes	Y		1	1.2	4	1	5	-.87	6	-.5												
23	1.2D+1.0Di+1.0(WLXi+WLZi) - 2...	Yes	Y		1	1.2	4	1	5	-.5	6	-.87												
24	1.2D+1.0Di+1.0(WLXi+WLZi) - 2...	Yes	Y		1	1.2	4	1	5		6	-1												
25	1.2D+1.0Di+1.0(WLXi+WLZi) - 3...	Yes	Y		1	1.2	4	1	5	.5	6	-.87												
26	1.2D+1.0Di+1.0(WLXi+WLZi) - 3...	Yes	Y		1	1.2	4	1	5	.87	6	-.5												

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Face Horizontal_2.5"...	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	Sector Horizontal_2....	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
3	Sector Vertical_2.0" ...	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Sector Brace_1.5 x 1...	Pipe_1.5" x 0.058"	VBrace	Pipe	A53 Gr.B	Typical	.263	.068	.068	.137
5	Mount Pipe_2.0" STD	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
6	Stiffarm Pipe_2.0" S...	PIPE_2.0	HBrace	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	2.5" Omni	PIPE_2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89

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	N9	max	2421.344	13	1713.001	16	4091.802	5	0	26	0	26	0	26
2		min	-5452.576	7	519.644	9	-4114.092	11	0	1	0	1	0	1
3	N10	max	3998.3	22	1504.814	21	920.63	11	0	26	0	26	0	26
4		min	687.121	3	472.663	2	-868.617	5	0	1	0	1	0	1
5	N48A	max	1973.504	5	102.919	11	1141.25	11	0	26	0	26	0	26
6		min	-1989.047	11	-79.576	5	-1170.975	5	0	1	0	1	0	1
7	Totals:	max	3052.616	2	3157.63	18	2052.211	5						
8		min	-3052.617	8	1307.941	11	-2052.211	11						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc....	...	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
1	M1	PIPE_2.5	.905	11.875	12	.329	11....	2	27103...	50715	3596....	3596....	1	H1-1b
2	M26	PIPE_2.5	.714	2.583	8	.362	2.5...	7	30038...	50715	3596....	3596....	2.482	H3-6
3	M4	PIPE_2.0	.640	0	12	.183	6.0...	16	20853...	32130	1871....	1871....	3.575	H1-1b
4	M24	PIPE_2.5	.475	2.5	8	.239	2.5	8	30038...	50715	3596....	3596....	2.583	H1-1b
5	M5	PIPE_2.0	.444	5.066	23	.148	.188	23	20853...	32130	1871....	1871....	2.384	H1-1b
6	M6	PIPE_2.0	.431	5.066	18	.140	6.0...	18	20853...	32130	1871....	1871....	2.367	H1-1b
7	M3	PIPE_2.0	.425	5.129	23	.171	6.0...	26	20853...	32130	1871....	1871....	2.475	H1-1b
8	M2	PIPE_2.5	.396	11.875	11	.135	3.1...	11	27103...	50715	3596....	3596....	1	H1-1b
9	M16	Pipe_1.5" x 0.0...	.386	2.138	17	.084	4.19	11	5035....	8276....	316.7...	316.7...	1.136	H1-1a
10	M14	Pipe_1.5" x 0.0...	.374	2.182	24	.063	4.19	5	5035....	8276....	316.7...	316.7...	1.136	H1-1a
11	M25	PIPE_2.5	.363	3.083	9	.141	6.5	11	30038...	50715	3596....	3596....	2.046	H1-1b
12	M7	Pipe_1.5" x 0.0...	.350	1.817	18	.060	0	11	5943....	8276....	316.7...	316.7...	1	H1-1a
13	M8	Pipe_1.5" x 0.0...	.340	1.817	24	.059	0	4	5943....	8276....	316.7...	316.7...	1	H1-1a
14	M15	Pipe_1.5" x 0.0...	.237	2.138	17	.136	0	10	5035....	8276....	316.7...	316.7...	1.136	H1-1a
15	M13	Pipe_1.5" x 0.0...	.230	2.138	25	.032	4.19	8	5035....	8276....	316.7...	316.7...	1.136	H1-1a
16	M10	Pipe_1.5" x 0.0...	.198	3.42	23	.073	0	4	5943....	8276....	316.7...	316.7...	1.136	H1-1...
17	M9	Pipe_1.5" x 0.0...	.195	3.42	18	.083	0	11	5943....	8276....	316.7...	316.7...	1	H1-1...
18	M26A	PIPE_2.0	.142	0	5	.004	7.49	24	16399...	32130	1871....	1871....	1.136	H1-1...
19	M12	PIPE_2.0	.027	3.42	18	.086	3.42	7	27925...	32130	1871....	1871....	1.316	H1-1...
20	M11	PIPE_2.0	.025	3.42	24	.114	0	8	27925...	32130	1871....	1871....	1	H1-1...

THE MAXIMUM MEMBER STRESS IS AT 91% OF ITS CAPACITY AND IS ADEQUATE TO SUPPORT THE PROPOSED UPGRADE.

SERVICE DEFLECTION = 1.397" x [(60MPH)^2/(97MPH)^2] = 0.53" < 1.6"
HENCE, OK.

BASED ON THE CURRENT REACTIONS AND STRESS RATIO'S IN THE FRAME MEMBERS, WE EXPECT THE CONNECTIONS TO BE ADEQUATE TO SUPPORT THE PROPOSED UPGRADE.

CONNECTICUT DESIGN CRITERIA - STATE

Revison:

CT is NOT a Home Rule State; Tab added only for Design Criteria

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS

Municipality	Ground Snow Load	*Wind Design Parameters*							
		MCE Spectral Accelerations (%g)		Ultimate Design Wind Speeds, V_{ult} (mph)			Nominal Design Wind Speeds, V_{asd} (mph)		
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV
Andover	30	0.176	0.063	120	130	140	93	101	108
Ansonia	30	0.195	0.064	115	125	135	89	97	105
Ashford	35	0.173	0.063	120	130	140	93	101	108
Avon	35	0.181	0.064	110	120	130	85	93	101
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105
Berlin	30	0.183	0.063	115	125	135	89	97	105
Bethany	30	0.189	0.063	115	125	135	89	97	105
Bethel	30	0.215	0.066	110	120	125	85	93	97
Bethlehem	35	0.190	0.065	110	120	125	85	93	97
Bloomfield	35	0.180	0.064	115	125	130	89	97	101
Bolton	30	0.177	0.063	115	125	135	89	97	105
Bozrah	30	0.170	0.061	120	135	145	93	105	112
Branford	30	0.180	0.061	120	130	140	93	101	108
Bridgeport	30	0.209	0.064	115	125	135	89	97	105
Bridgewater	35	0.201	0.066	110	120	125	85	93	97
Bristol	35	0.185	0.064	110	120	130	85	93	101
Brookfield	35	0.208	0.066	110	120	125	85	93	97
Brooklyn	35	0.171	0.062	120	130	140	93	101	108
Burlington	35	0.182	0.064	110	120	130	85	93	101
Canaan	40	0.173	0.065	105	115	120	81	89	93
Canterbury	35	0.171	0.061	120	130	140	93	101	108
Canton	35	0.180	0.064	110	120	130	85	93	101
Chaplin	35	0.173	0.062	120	130	140	93	101	108
Cheshire	30	0.186	0.063	115	125	135	89	97	105
Chester	30	0.172	0.060	120	130	140	93	101	108
Clinton	30	0.169	0.059	120	135	140	93	105	108
Colchester	30	0.174	0.061	120	130	140	93	101	108
Colebrook	40	0.174	0.065	105	115	125	81	89	97
Columbia	30	0.175	0.062	120	130	140	93	101	108
Cornwall	40	0.180	0.065	105	115	120	81	89	93
Coventry	30	0.176	0.063	120	130	140	93	101	108
Cromwell	30	0.181	0.063	115	125	135	89	97	105
Danbury	30	0.217	0.067	110	120	125	85	93	97
Darien	30	0.242	0.068	110	120	130	85	93	101
Deep River	30	0.170	0.060	120	130	140	93	101	108
Derby	30	0.195	0.064	115	125	135	89	97	105
Durham	30	0.179	0.062	115	130	140	89	101	108
Eastford	40	0.172	0.063	120	130	140	93	101	108
East Granby	35	0.177	0.065	110	120	130	85	93	101
East Haddam	30	0.172	0.061	120	130	140	93	101	108
East Hampton	30	0.177	0.062	120	130	140	93	101	108

New Milford	35	0.198	0.066	105	115	125	81	89	97
Newtown	30	0.208	0.066	110	120	130	85	93	101
Norfolk	40	0.175	0.065	105	115	125	81	89	97
North Branford	30	0.179	0.061	120	130	140	93	101	108
North Canaan	40	0.173	0.065	105	115	120	81	89	93
North Haven	30	0.184	0.062	115	125	135	89	97	105
North Stonington	30	0.163	0.059	125	135	145	97	105	112
Norwalk	30	0.232	0.067	110	120	130	85	93	101
Norwich	30	0.168	0.060	125	135	145	97	105	112
Old Lyme	30	0.164	0.059	125	135	145	97	105	112
Old Saybrook	30	0.164	0.059	125	135	145	97	105	112
Orange	30	0.192	0.063	115	125	135	89	97	105
Oxford	30	0.196	0.064	110	125	130	85	97	101
Plainfield	35	0.170	0.061	125	135	145	97	105	112
Plainville	35	0.184	0.064	115	125	135	89	97	105
Plymouth	35	0.186	0.064	110	120	130	85	93	101
Pomfret	40	0.172	0.063	120	130	140	93	101	108
Portland	30	0.180	0.063	115	130	135	89	101	105
Preston	30	0.167	0.060	125	135	145	97	105	112
Prospect	30	0.188	0.064	115	125	135	89	97	105
Putnam	40	0.172	0.063	120	130	140	93	101	108
Redding	30	0.220	0.067	110	120	130	85	93	101
Ridgefield	30	0.230	0.068	110	120	125	85	93	97
Rocky Hill	30	0.181	0.063	115	125	135	89	97	105
Roxbury	35	0.197	0.065	110	120	125	85	93	97
Salem	30	0.170	0.060	120	135	140	93	105	108
Salisbury	40	0.173	0.065	105	115	120	81	89	93
Scotland	30	0.172	0.061	120	130	140	93	101	108
Seymour	30	0.194	0.064	115	125	135	89	97	105
Sharon	40	0.179	0.065	105	115	120	81	89	93
Shelton	30	0.199	0.064	115	125	135	89	97	105
Sherman	35	0.202	0.066	105	115	120	81	89	93
Simsbury	35	0.179	0.064	110	120	130	85	93	101
Somers	35	0.174	0.064	115	125	135	89	97	105
Southbury	35	0.198	0.065	110	120	130	85	93	101
Southington	30	0.185	0.064	115	125	135	89	97	105
South Windsor	30	0.178	0.064	115	125	135	89	97	105
Sprague	30	0.171	0.061	120	130	140	93	101	108
Stafford	35	0.173	0.064	115	125	135	89	97	105
Stamford	30	0.249	0.069	110	120	130	85	93	101
Sterling	35	0.170	0.061	125	135	145	97	105	112
Stonington	30	0.159	0.058	125	140	150	97	108	116
Stratford	30	0.201	0.064	115	125	135	89	97	105
Suffield	35	0.176	0.065	110	120	130	85	93	101
Thomaston	35	0.186	0.064	110	120	130	85	93	101
Thompson	40	0.172	0.063	120	130	140	93	101	108
Tolland	35	0.175	0.064	115	125	135	89	97	105
Torrington	40	0.182	0.065	110	120	125	85	93	97
Trumbull	30	0.207	0.065	115	125	135	89	97	105
Union	40	0.172	0.064	115	125	135	89	97	105
Vernon	30	0.177	0.064	115	125	135	89	97	105
Voluntown	30	0.168	0.060	125	135	145	97	105	112
Wallingford	30	0.183	0.063	115	125	135	89	97	105

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Thu Jul 23 2020

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit F

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: CT11872D

CT872/Stratford PD_GT
900 Longbrook Road
Stratford, Connecticut 06614

August 12, 2020

EBI Project Number: 6220003897

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**52.79%**

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

August 12, 2020

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

Emissions Analysis for Site: CT11872D - CT872/Stratford PD_GT

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **900 Longbrook Road** in **Stratford, 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 900 Longbrook Road in Stratford, 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 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) 4 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 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 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.

8) 2 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

9) 2 NR channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

10) 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.

11) 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.

12) The antennas used in this modeling are the Ericsson AIR6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 700 MHz / 600 MHz / 600 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 2100 MHz / 1900 MHz / 1900 MHz channel(s) in Sector A, the Ericsson AIR6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 700 MHz / 600 MHz / 600 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 2100 MHz / 1900 MHz / 1900 MHz channel(s) in Sector B, the Ericsson AIR6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 700 MHz / 600 MHz / 600 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 2100 MHz / 1900 MHz / 1900 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.

13) The antenna mounting height centerline of the proposed antennas is 74 feet above ground level (AGL).

14) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

15) 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:	Ericsson AIR6449	Make / Model:	Ericsson AIR6449	Make / Model:	Ericsson AIR6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	74 feet	Height (AGL):	74 feet	Height (AGL):	74 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	25,651.93	ERP (W):	25,651.93	ERP (W):	25,651.93
Antenna A1 MPE %:	**16.84%**	Antenna B1 MPE %:	**16.84%**	Antenna C1 MPE %:	**16.84%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	700 MHz / 600 MHz / 600 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	700 MHz / 600 MHz / 600 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	700 MHz / 600 MHz / 600 MHz / 1900 MHz / 2100 MHz
Gain:	13.35 dBd / 12.95 dBd / 12.95 dBd / 15.65 dBd / 16.35 dBd	Gain:	13.35 dBd / 12.95 dBd / 12.95 dBd / 15.65 dBd / 16.35 dBd	Gain:	13.35 dBd / 12.95 dBd / 12.95 dBd / 15.65 dBd / 16.35 dBd
Height (AGL):	74 feet	Height (AGL):	74 feet	Height (AGL):	74 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	11,055.53	ERP (W):	11,055.53	ERP (W):	11,055.53
Antenna A2 MPE %:	**10.95%**	Antenna B2 MPE %:	**10.95%**	Antenna C2 MPE %:	**10.95%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	2100 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	2100 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	2100 MHz / 1900 MHz / 1900 MHz
Gain:	15.85 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.85 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.85 dBd / 15.35 dBd / 15.35 dBd
Height (AGL):	74 feet	Height (AGL):	74 feet	Height (AGL):	74 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,841.53	ERP (W):	12,841.53	ERP (W):	12,841.53
Antenna A3 MPE %:	**8.43%**	Antenna B3 MPE %:	**8.43%**	Antenna C3 MPE %:	**8.43%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	36.22%
SPD	16.57%
Site Total MPE % :	52.79%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	36.22%
T-Mobile Sector B Total:	36.22%
T-Mobile Sector C Total:	36.22%
Site Total MPE % :	52.79%

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 2500 MHz LTE	2	6412.98	74.0	84.21	2500 MHz LTE	1000	8.42%
T-Mobile 2500 MHz NR	2	6412.98	74.0	84.21	2500 MHz NR	1000	8.42%
T-Mobile 700 MHz LTE	2	648.82	74.0	8.52	700 MHz LTE	467	1.82%
T-Mobile 600 MHz LTE	2	591.73	74.0	7.77	600 MHz LTE	400	1.94%
T-Mobile 600 MHz NR	1	1577.94	74.0	10.36	600 MHz NR	400	2.59%
T-Mobile 1900 MHz LTE	2	2203.69	74.0	28.94	1900 MHz LTE	1000	2.89%
T-Mobile 2100 MHz UMTS	2	1294.56	74.0	17.00	2100 MHz UMTS	1000	1.70%
T-Mobile 2100 MHz LTE	2	2307.55	74.0	30.30	2100 MHz LTE	1000	3.03%
T-Mobile 1900 MHz LTE	2	2056.61	74.0	27.00	1900 MHz LTE	1000	2.70%
T-Mobile 1900 MHz GSM	4	1028.30	74.0	27.00	1900 MHz GSM	1000	2.70%
						Total:	**36.22%**

• 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.

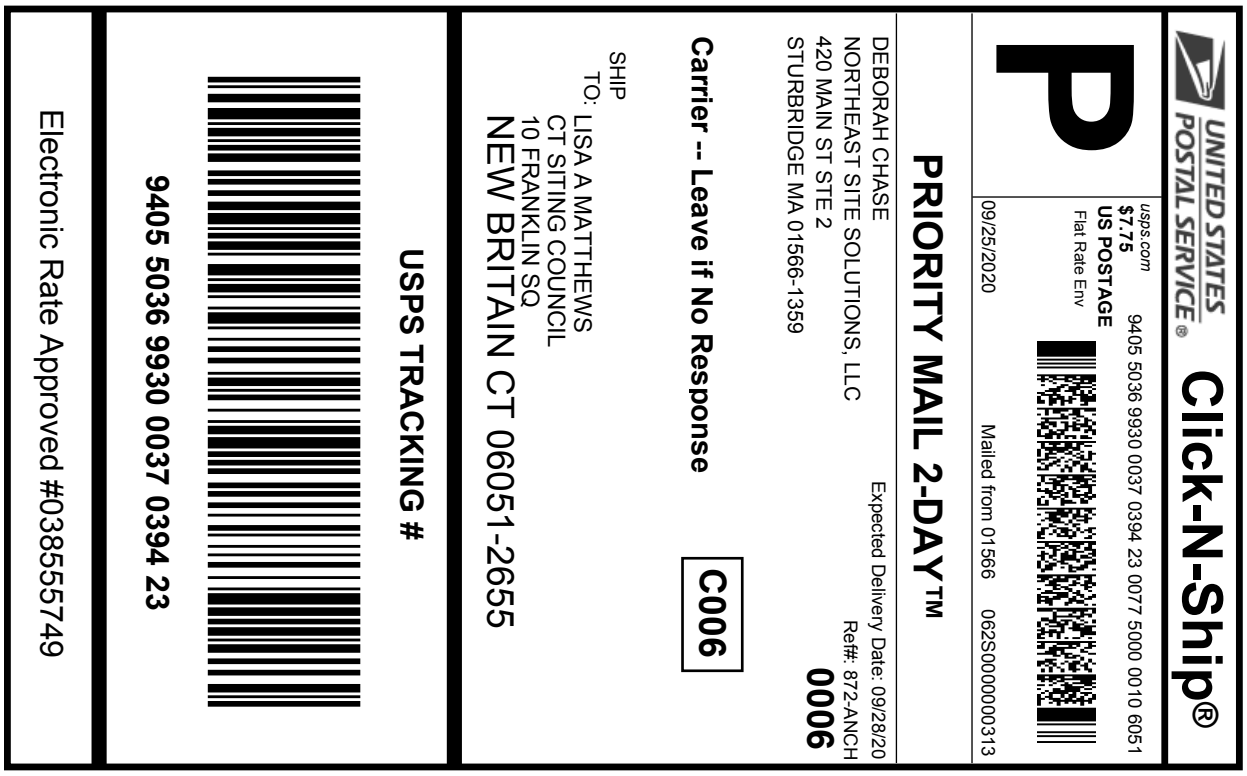
The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	36.22%
Sector B:	36.22%
Sector C:	36.22%
T-Mobile Maximum MPE % (Sector A):	36.22%
Site Total:	52.79%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **52.79%** 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



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0037 0394 23

Trans. #:	506492560
Print Date:	09/23/2020
Ship Date:	09/25/2020
Expected Delivery Date:	09/28/2020

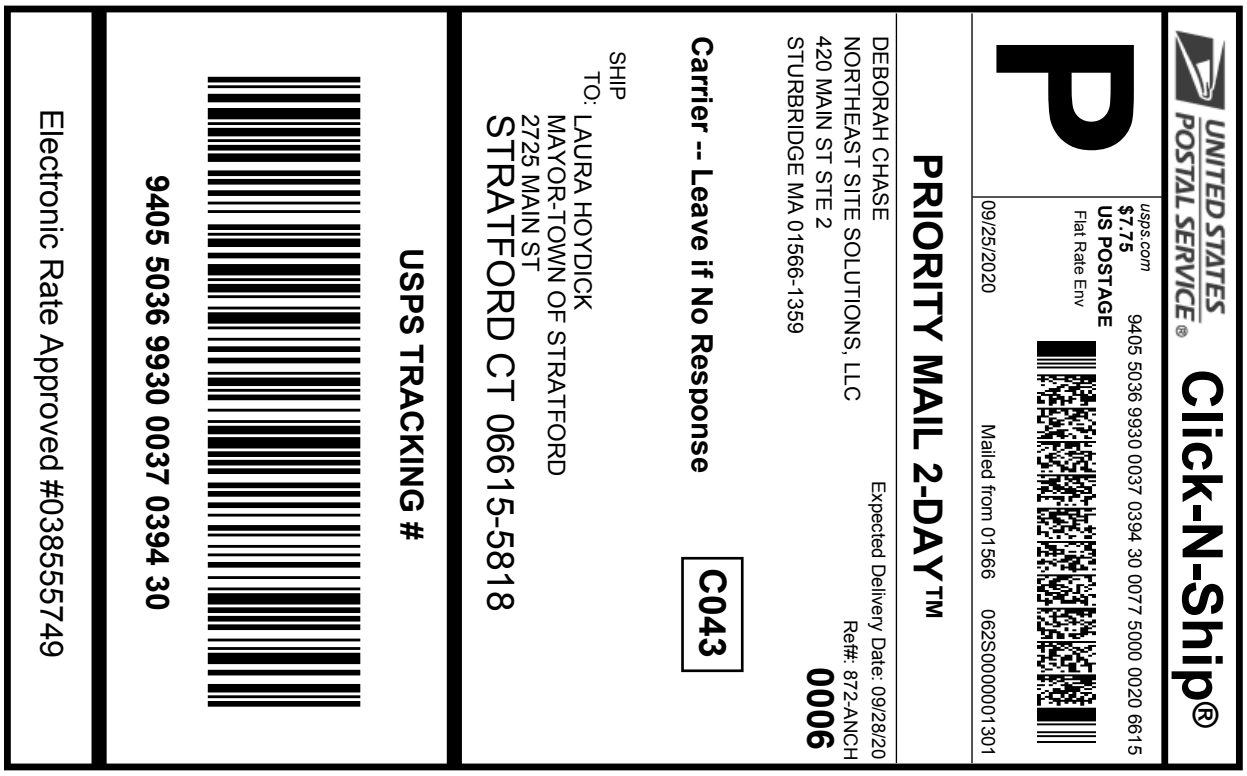
Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: 872-ANCH
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: LISA A MATTHEWS
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0037 0394 30

Trans. #:	506492560
Print Date:	09/23/2020
Ship Date:	09/25/2020
Expected Delivery Date:	09/28/2020

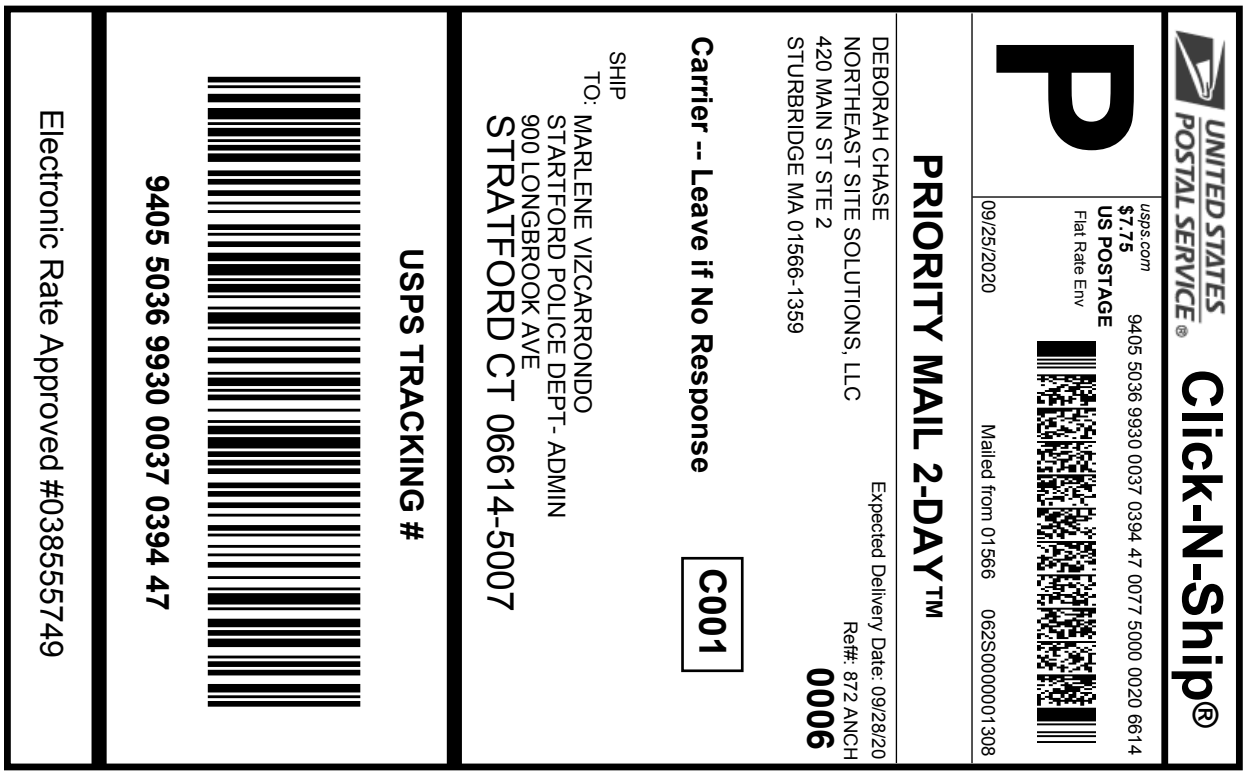
Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: 872-ANCH
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: LAURA HOYDICK
MAYOR-TOWN OF STRATFORD
2725 MAIN ST
STRATFORD CT 06615-5818

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0037 0394 47

Trans. #:	506492560
Print Date:	09/23/2020
Ship Date:	09/25/2020
Expected Delivery Date:	09/28/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: 872 ANCH
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: MARLENE VIZCARRONDO
STARTFORD POLICE DEPT- ADMIN
900 LONGBROOK AVE
STRATFORD CT 06614-5007

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0037 0394 54 0077 5000 0020 6615

usps.com
$7.75
US POSTAGE
Flat Rate Env

09/25/2020 Mailed from 01566 062S0000000313

P

PRIORITY MAIL 2-DAY™

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

Expected Delivery Date: 09/28/20
Ref#: 872 ANCH

0006

Carrier -- Leave if No Response

C043

SHIP TO: JOHN RUSATSKY
TOWN OF STRATFORD-ZONING ENFORCEMENT
2725 MAIN ST
RM 113
STRATFORD CT 06615-5818

USPS TRACKING #

9405 5036 9930 0037 0394 54

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0037 0394 54

Trans. #:	506492560
Print Date:	09/23/2020
Ship Date:	09/25/2020
Expected Delivery Date:	09/28/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: 872 ANCH
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: JOHN RUSATSKY
TOWN OF STRATFORD-ZONING ENFORCEMENT OFFICER
2725 MAIN ST
RM 113
STRATFORD CT 06615-5818

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

UNITED STATES POSTAL SERVICE®

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0037 0394 61 0077 5000 0020 6615

usps.com
$7.75
US POSTAGE
Flat Rate Env

09/25/2020 Mailed from 01566 062S0000000314

P

PRIORITY MAIL 2-DAY™

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

Expected Delivery Date: 09/28/20
Ref#: 872 ANCH

0006

Carrier -- Leave if No Response

C043

SHIP TO: SUSAN M PAWLUK
TOWN OF STRATFORD-TOWN CLERK
2725 MAIN ST
RM 106
STRATFORD CT 06615-5818

USPS TRACKING #

9405 5036 9930 0037 0394 61

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0037 0394 61

Trans. #:	506492560
Print Date:	09/23/2020
Ship Date:	09/25/2020
Expected Delivery Date:	09/28/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: 872 ANCH
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: SUSAN M PAWLUK
TOWN OF STRATFORD-TOWN CLERK
2725 MAIN ST
RM 106
STRATFORD CT 06615-5818

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

UNITED STATES POSTAL SERVICE®

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

Exhibit H

Deborah Chase

From: Deborah Chase
Sent: Wednesday, September 23, 2020 3:48 PM
To: 'jrusatsky@townofstratford.com'; 'mayor@townofstratford.com'; 'mvizcarrondo@townofstratford.com'; 'spawluk@townofstratford.com'
Subject: 900 LONGBROOK ROAD, STARTFORD, CT 06614 T-MOBILE EM APPLICATION (CT11872D-ANCHOR)
Attachments: 900 LONGBROOK ROAD, STRATFORD, CT 06614 T-MOBILE EM APPLICATION (CT11872D-ANCHOR).pdf

Good afternoon,

On behalf of our client, (T-Mobile), I am forwarding copies of T-Mobile's Exempt Modification Request to

collocate on a wireless telecommunications facility located at 900 Longbrook Road , Stratford, CT

Hard copies will be sent as well for your records.

Please do not hesitate to contact me with any questions regarding T-Mobile's Exempt Modification Request.

Thank you very much

Deborah Chase
Senior Project Coordinator & Analyst
Mobile: 860-490-8839

Save a tree. Refuse.Reduce. Reuse. Recycle.