0 Industrial Ave,
uite 3
Mahwah NJ 07430

hone: 201.684.0055
ax: 201.684.0066

Transcend Wireless

July 31, 2021

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

RE: Notice of Exempt Modification
225 Rodgers Road Norwich, CT 06360 (aka 223 Rogers Road)
Latitude: 41.53366667
Longitude: -72.1350000
T-Mobile Site#: CT11148B - L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 140-foot level 159-foot Monopole at the existing facility at 225 Rodgers Road in Norwich, CT (aka 223 Rogers Road). The property is owned by Michael Coleman. The tower is owned by American Tower. T-Mobile now intends to add (3) L700/L600/N600 antennas. The new antennas support 5G services and will be installed at the same 140-foot level of the monopole.

Planned Modifications:
Tower:
Install New:
(3) APXVAALL24 43-U-NA20 Antennas
(3) Radio 4480 B71 B85
(3) HCS 2.0 Trunk Cables
(3) Platforms

Existing to Remain:
(6) AIR21 KRC118023-1 B2A B4P Antennas

To Be Removed:
(6) 1 1/4” Coax Cables
(3) T-Arms

This facility was originally approved by the Connecticut Siting Council in Docket No. 87A on June 9, 1988. The planned upgrade does not conflict with any known conditions that would restrict exempt modifications. A copy of the original decision of the facility is attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Mayor Peter Nystrom, Elected Official, and Richard Shuck, Zoning Enforcement Officer, as well as the property and 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,

Eric Breun
Transcend Wireless
Cell: 201-658-7728
Email: ebreun@transcendwireless.com

Attachments
cc: Peter Nystrom - Mayor of Norwich
Richard Shuck - Zoning Enforcement Officer
Michael Coleman - Property Owner
American Tower - Tower Owner

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
ZONING ENFORCEMENT OFFICER
RICHARD SHUCK
1ST FLOOR
23 UNION STREET
NORWICH CT 06360

CT 063 0-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9630 4744

BILLING: P/P

Reference #1: CT11148B

XOL 21.06.14 NV45 29.0A 07/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
CONTACTS MANAGEMENT
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801

MA 018 9-04

UPS GROUND
TRACKING #: 1Z V25 742 03 9681 4738

BILLING: P/P

Reference #1: CT11148B

XOL 21.06.14 NV45 30.0A 07/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
MICHAEL COLEMAN
219 ROGERS ROAD
NORWICH CT 06360

CT 063 0-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9328 7528

BILLING: P/P

Reference #1: CT11148B

XOL 21.06.14 NV45 31.0A 07/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
MAYOR PETER NYSTROM
100 BROADWAY
NORWICH CT 06360

CT 063 0-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9581 4758

BILLING: P/P

Reference #1: CT11148B

XOL 21.06.14 NV45 29.0A 07/2021*

Hello, your package has been delivered.

Delivery Date: Wednesday, 07/28/2021

Delivery Time: 11:57 AM

Left At: INSIDE DELIV

Signed by: DEPORTED

TRANSCEND WIRELESS

Tracking Number:	1ZV257420396304744
Ship To:	RICHARD SHUCK 23 UNION STREET 1ST FLOOR NORWICH, CT 06360 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT11148B

Hello, your package has been delivered.

Delivery Date: Wednesday, 07/28/2021

Delivery Time: 11:42 AM

Left At: INSIDE DELIV

Signed by: ANCRI

TRANSCEND WIRELESS

Tracking Number:	1ZV257420396814738
Ship To:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT11148B

Hello, your package has been delivered.

Delivery Date: Wednesday, 07/28/2021

Delivery Time: 11:17 AM

Left At: INSIDE DELIV

Signed by: CUPRAK

TRANSCEND WIRELESS

Tracking Number:	1ZV257420395814758
Ship To:	MAYOR PETER NYSTROM 100 BROADWAY NORWICH, CT 06360 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT11148B

Hello, your package has been delivered.

Delivery Date: Wednesday, 07/28/2021

Delivery Time: 4:46 PM

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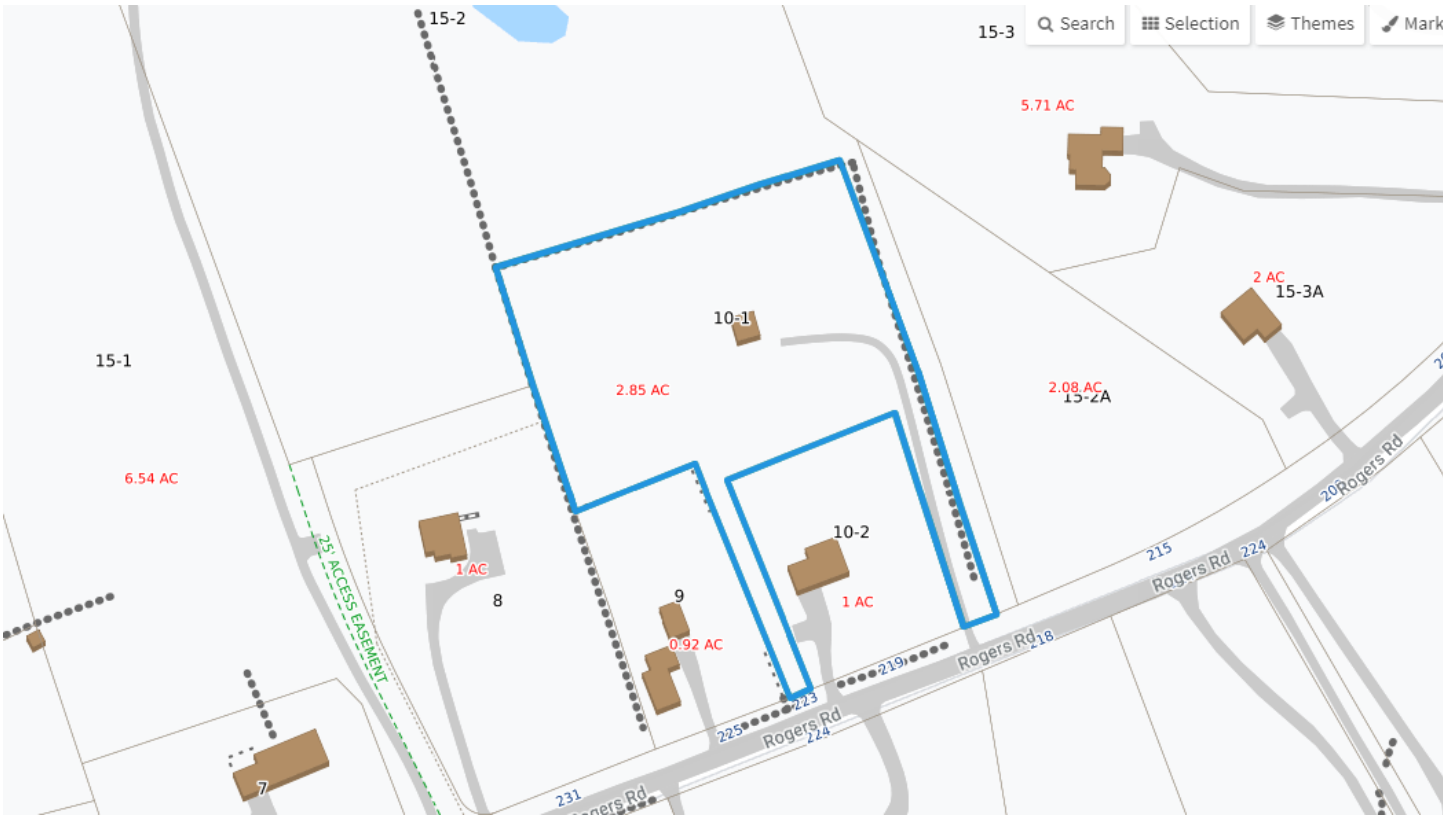
Upgrade to Premium Now

Set Delivery Instructions | Manage Preferences | View My Package

TRANSCEND WIRELESS

Tracking Number:	1ZV257420393287528
Ship To:	MICHAEL COLEMAN 219 ROGERS ROAD NORWICH, CT 06360 US
Number of Packages:	1
UPS Service:	UPS Ground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2 AC
15-3A
10-1
15-1
2.85 AC
2.08 AC
15-2A
6.54 AC
20
Rogers Rd
10-2
1 AC
25' ACCESS EASEMENT
8
9
0.92 AC
1 AC
215
Rogers Rd
224
219
218
Rogers Rd
225
223
Rogers Rd
224
231
7

223 ROGERS RD

Sales | Print | Map It

Location	223 ROGERS RD	**Mblu**	88/ 1/ 10/ 1/
Acct#	0007550001	**Owner**	COLEMAN MICHAEL J TR
Assessment	$295,200	**Appraisal**	$421,700
PID	743	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$196,100	$225,600	$421,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$137,300	$157,900	$295,200

Parcel Addreses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner	COLEMAN MICHAEL J TR C/O PROPERTY TAX DEPT	**Sale Price**	$0
		Certificate	
Address	P.O BOX 723597 ATLANTA, GA 31139	**Book & Page**	1297/0025
		Sale Date	01/22/1997

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
COLEMAN MICHAEL J TR	$0		1297/0025	01/22/1997

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

Building Photo

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Fireplaces	
Usrfld 108	
Usrfld 101	
Usrfld 102	
Usrfld 100	
Usrfld 300	
Usrfld 301	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	431V
Description	TEL REL TW M-00
Zone	R80
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.85
Frontage	0
Depth	0
Assessed Value	$157,900
Appraised Value	$225,600

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD5	Shed Comm Mas			625.00 S.F.	$7,800	1
FN4	Fence Chain 8'			240.00 L.F.	$2,000	1
TWR	CELL TOWER			150.00 UNITS	$56,300	1
MSC4	ARRAY			1.00 UNIT	$130,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$196,100	$225,600	$421,700
2019	$196,100	$225,600	$421,700
2018	$196,100	$225,600	$421,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$137,300	$157,900	$295,200
2019	$137,300	$157,900	$295,200
2018	$137,300	$157,900	$295,200

DOCKET NO. 87A - AN AMENDMENT OF SNET CELLULAR, INC., CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF A FACILITY TO PROVIDE CELLULAR TELEPHONE SERVICE IN THE TOWN OF NORWICH, CONNECTICUT.	:	Connecticut Siting Council June 9, 1988

D E C I S I O N A N D O R D E R

Pursuant to the foregoing Opinion, the Connecticut Siting Council hereby amends its Docket 87 Certificate and directs that an Amended Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k and 16-501 of the General Statutes of Connecticut (CGS) be issued to SNET Cellular, Inc., (SNET) for the construction, operation, and maintenance of a cellular telephone tower site and associated equipment at the proposed Norwich site off of Rogers Road.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The monopole tower at the Norwich site shall be no taller than necessary to provide the proposed service, and in no event shall exceed a total height of 167 feet, including antennas and associated equipment.

2. The tower shall be relocated on the site so that the fall zone of the tower is completely within the lessor's property.

3. SNET or its successor shall permit public or private entities to share space on the tower for fair consideration. If SNET refuses to permit such public or private entities to share space for specific legal, technical, economic, or environmental reasons, it shall submit such reasons in writing to the Council for determination whether sharing should be ordered. If the Council believes the reasons are not adequate, it may initiate proceedings to amend the certificate in accordance with the General Statutes of the State of Connecticut.

4. The Certificate Holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application is added to this facility.

5. The facility shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.

6. Unless necessary to comply with condition number 5, above, no lights shall be installed on this tower.

7. The Certificate Holder shall prepare a development and management (D&M) plan for the Norwich site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall provide for permanent evergreen screening around the outside perimeter of the eight-foot chain link fence which will surround the site.

8. If this facility does not provide, or permanently ceases to provide, cellular service following completion of construction, this Amended Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

9. The Certificate Holder shall comply with any future radio frequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

10. Unless otherwise approved by the Council, this Amended Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Amended Decision and Order.

Pursuant to Section 16-50p, we hereby direct that a copy of the Amended Decision and Order be served on each person listed below. A notice of issuance shall be published in the Norwich Bulletin.

By this Amended Decision and Order the Council disposes of the legal rights, duties, and priviliges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of State Agencies.

The parties or intervenors to this proceeding are:

SNET Cellular, Inc. (Applicant)
555 Long Wharf Drive
New Haven, CT 06511

Peter J. Tyrrell (Its attorney)
Senior Attorney
SNET Cellular, Inc.
227 Church Street
New Haven, CT 06506

Metro Mobile CTS of (Intervenor)
New London, Inc.

Howard L. Slater, Esq. (Its Attorney)
Jennifer Young Gaudet Esq.
Byrne, Slater, Sandler,
Schulman & Rouse, P.C.
330 Main Street
P.O. Box 3216
Hartford, CT 06103

1448E

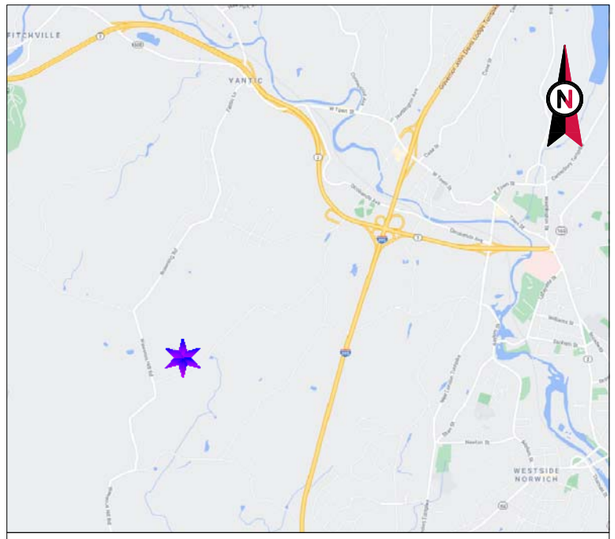
CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket 87A or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 9th day of June, 1988.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Roland Miller	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Absent
Mortimer A. Gelston	Yes
James G. Horsfall	Absent
William H. Smith	Yes
Colin C. Tait	Yes
Daniel P. Lynch, Jr.	Yes

1570E-2



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: NRWC - NORWICH
ATC SITE NUMBER: 302493
T-MOBILE SITE NAME: NORWCIH/I-395 X80_1
T-MOBILE SITE NUMBER: CT11148B
SITE ADDRESS: 225 RODGERS ROAD
NORWICH, CT 06360

LOCATION MAP

T-MOBILE L600 ANTENNA AMENDMENT PLAN
67E02C OUTDOOR CONFIGURATION

COMPLIANCE CODE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: NORWICH PUBLIC UTILITIES
PHONE: (860) 887-2555

TELEPHONE COMPANY: AT&T
PHONE: (800) 288-2020

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

PROJECT SUMMARY

SITE ADDRESS:

225 RODGERS ROAD

NORWICH, CT 06360

COUNTY: NEW LONDON COUNTY

GEOGRAPHIC COORDINATES:

LATITUDE: 41.53366667

LONGITUDE: -72.13500000

GROUND ELEVATION: 384' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

APPLICANT:

T-MOBILE
475 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034

ENGINEER:

NB+C ENGINEERING SERVICES, LLC
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615

PROPERTY OWNER:

MICHAEL J COLEMAN
225 ROGERS ROAD
NORWICH, CT 06360

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

REMOVE (6) COAX CABLE(s), AND (3) T-ARM(s)

INSTALL (3) ANTENNA(s), (3) RRH(s), (3) HCS 2.0 TRUNK CABLE(s), AND (3) Platform(s)

EXISTING (6) ANTENNA(s) TO REMAIN

THE PROPOSED PROJECT DOES NOT INCLUDE ELECTRICAL SCOPE

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

I-395 S TO EXIT 82. AT END OF EXIT GO STRAIGHT ACROSS BETWEEN SHELL AND MOBIL. FOLLOW TO FORK IN ROAD AND GO TO THE LEFT. FOLLOW ROGERS ROAD TO TOWER ON RIGHT SIDE.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	07/08/21	CCC
G-002	GENERAL NOTES	0	07/08/21	CCC
C-101	DETAILED SITE PLAN	0	07/08/21	CCC
C-201	TOWER ELEVATION	0	07/08/21	CCC
C-401	ANTENNA INFORMATION & SCHEDULE	0	07/08/21	CCC
C-501	CONSTRUCTION DETAILS	0	07/08/21	CCC
E-501	GROUNDING DETAILS	0	07/08/21	CCC
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: P-1177

NB+C™
TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

REV.	DESCRIPTION	BY	DATE
A	PRELIM	CWE	06/10/21
B	PRELIM	CCC	06/15/21
0	FOR CONSTRUCTION	CCC	07/08/21

ATC SITE NUMBER:
302493

ATC SITE NAME:
NRWC - NORWICH

T-MOBILE SITE NAME:
NORWCIH/I-395 X80_1

SITE ADDRESS:
225 RODGERS ROAD
NORWICH, CT 06360

SEAL:

T-Mobile

DATE DRAWN:	07/08/21
ATC JOB NO:	13677847
CUSTOMER ID:	NORWCIH/I-395 X80_1
CUSTOMER #:	CT11148B

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	0

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
   - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   - B. AC/TELCO INTERFACE BOX (PPC)
   - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   - D. TOWERS, MONOPOLES
   - E. TOWER LIGHTING
   - F. GENERATORS & LIQUID PROPANE TANK
   - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
   - H. ANTENNAS (INSTALLED BY OTHERS)
   - I. TRANSMISSION LINE
   - J. TRANSMISSION LINE JUMPERS
   - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   - L. TRANSMISSION LINE GROUND KITS
   - M. HANGERS
   - N. HOISTING GRIPS
   - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
   - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
   - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
   - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
   - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123, EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
   - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
   - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
   - C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
   - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
   - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
   - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
   - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES, AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
   - H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
   - I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND T- MOBILE PROJECT MANAGER IN WRITING

SPECIAL CONSTRUCTION ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
   - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OD COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
   - B. INSTALL ANTENNA AS INDICATE ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
   - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
   - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.
   - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
   - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
   - G. ANTENNA AND COAXIAL CABLE GROUNDING:
2. ALL EXTERIOR #6 GREED GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

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RALEIGH, NC 27615
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REV.	DESCRIPTION	BY	DATE
A	PRELIM	CWE	06/10/21
B	PRELIM	CCC	06/15/21
0	FOR CONSTRUCTION	CCC	07/08/21

ATC SITE NUMBER:
302493

ATC SITE NAME:
NRWC - NORWICH

T-MOBILE SITE NAME:
NORWCIH/I-395 X80_1

SITE ADDRESS:
225 RODGERS ROAD
NORWICH, CT 06360

SEAL:

T-Mobile

DATE DRAWN:	07/08/21
ATC JOB NO:	13677847
CUSTOMER ID:	NORWCIH/I-395 X80_1
CUSTOMER #:	CT11148B

GENERAL NOTES

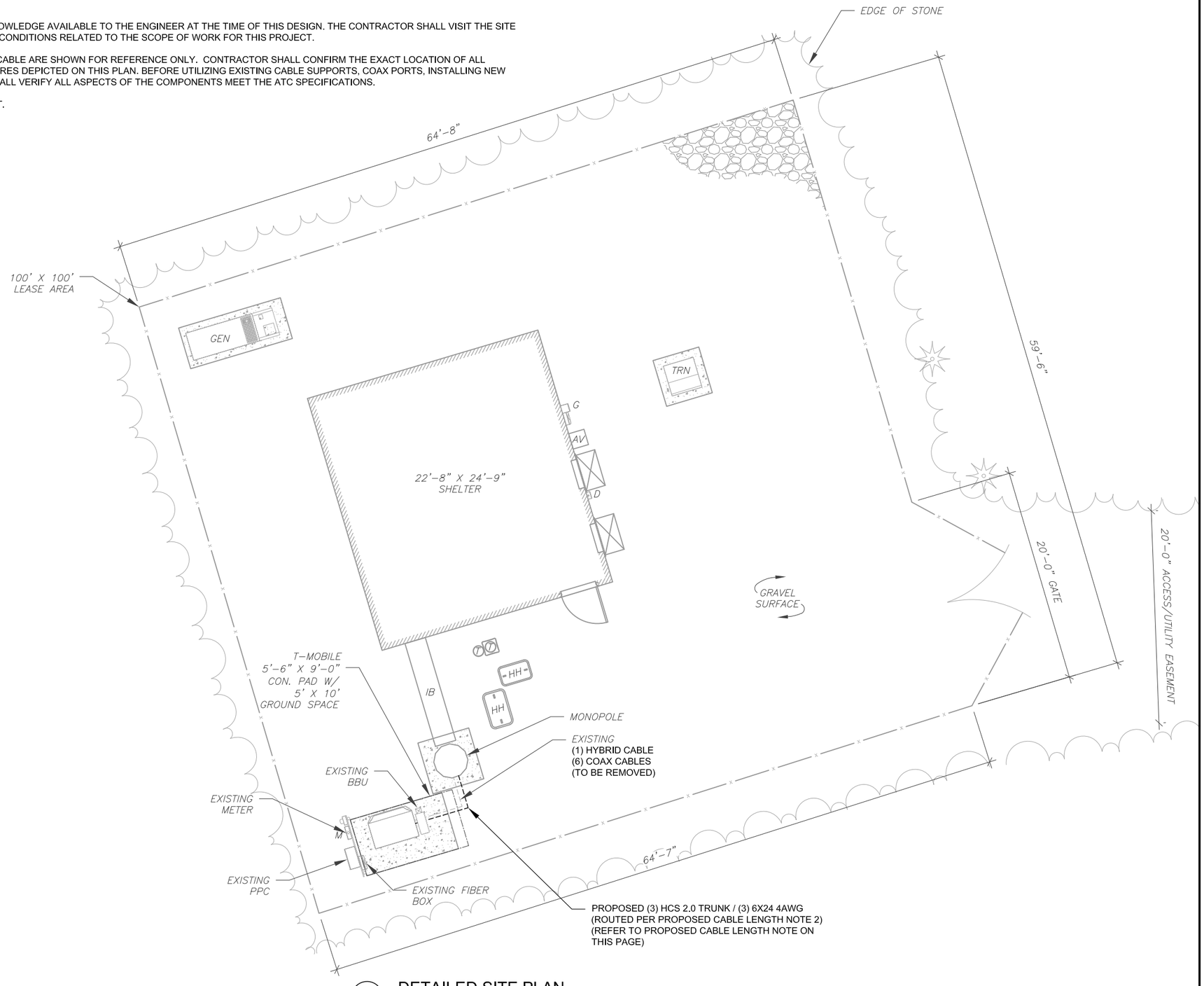
SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. NO ELECTRICAL SCOPE IS INCLUDED IN THIS PROJECT.

LEGEND

⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
——x——	CHAINLINK FENCE



1 DETAILED SITE PLAN

GRAPHIC SCALE

10 0 5 10

(IN FEET)
1 UNIT = 10 FEET

PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **170'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

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NORWICH, CT 06360

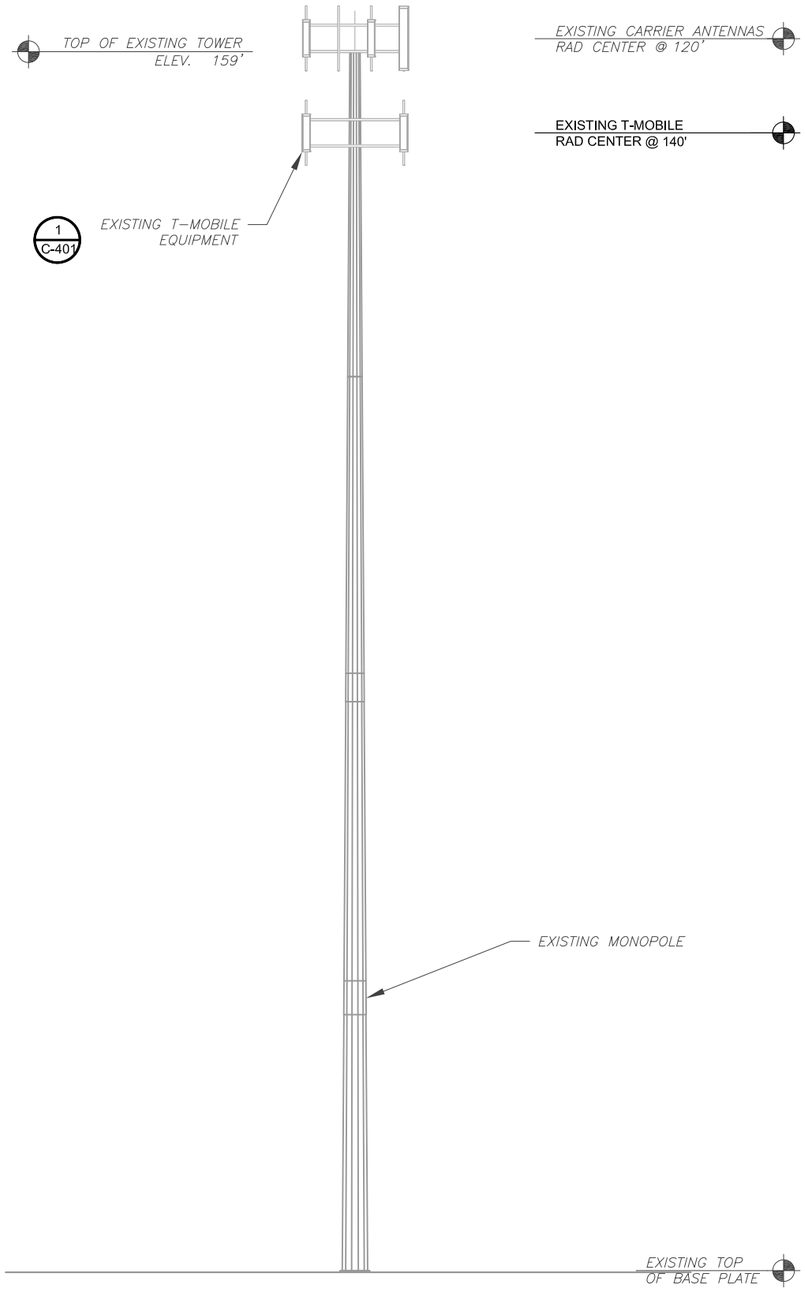
SEAL:

T··Mobile·

DATE DRAWN:	07/08/21
ATC JOB NO:	13677847
CUSTOMER ID:	NORWCIH/I-395 X80_1
CUSTOMER #:	CT11148B

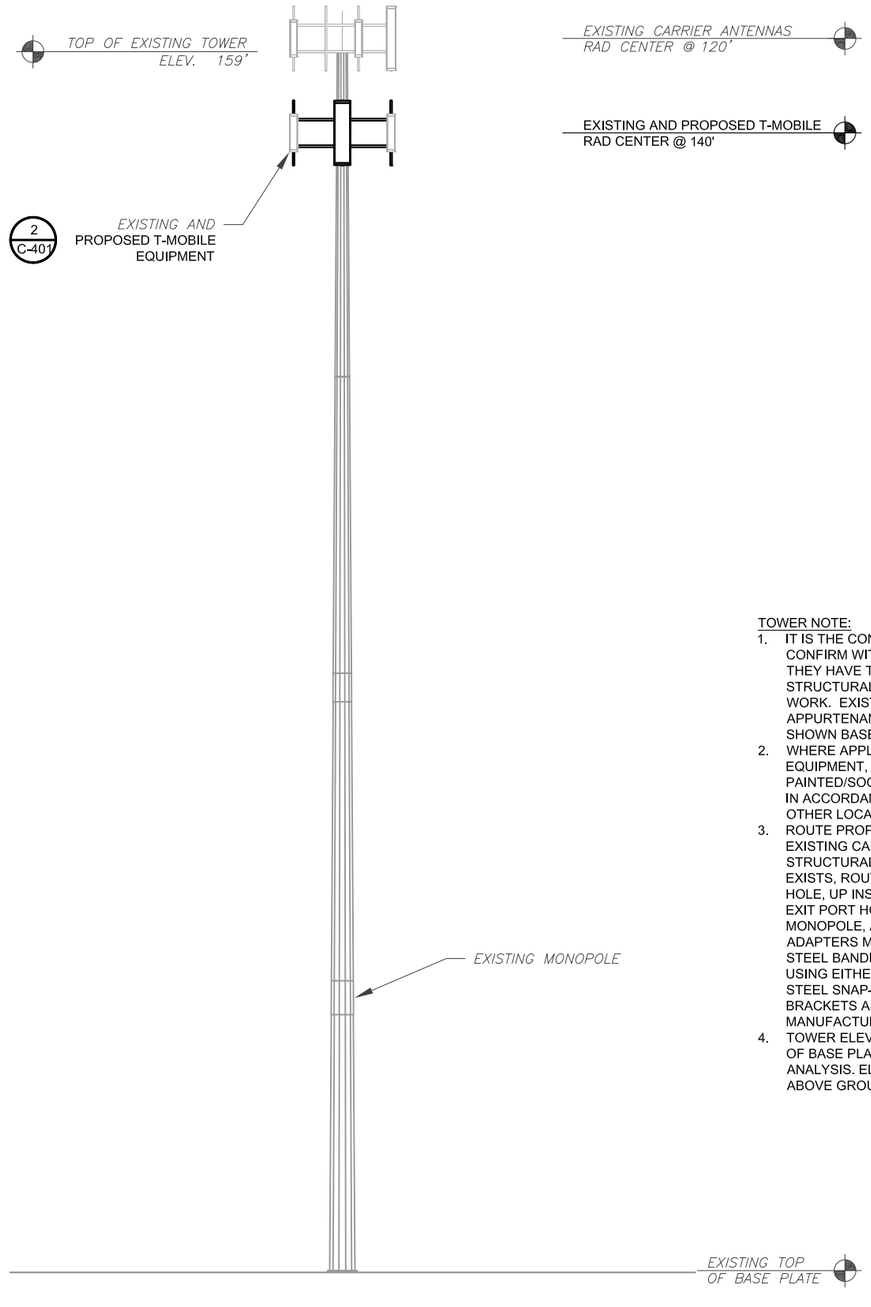
DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0



1 EXISTING TOWER ELEVATION

SCALE: N.T.S.



2 PROPOSED TOWER ELEVATION

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY SMJ INTERNATIONAL, DATED 06/10/2021, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING

TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
3. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

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T-MOBILE SITE NAME:
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SITE ADDRESS:
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NORWICH, CT 06360

SEAL:

T-Mobile

DATE DRAWN:	07/08/21
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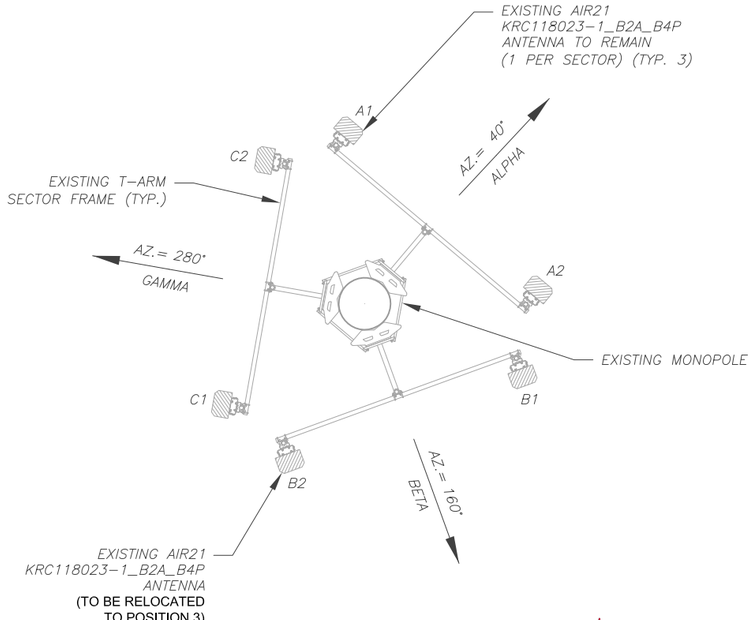
CUSTOMER ID:	NORWCIH/I-395 X80_1
CUSTOMER #:	CT11148B

TOWER ELEVATION

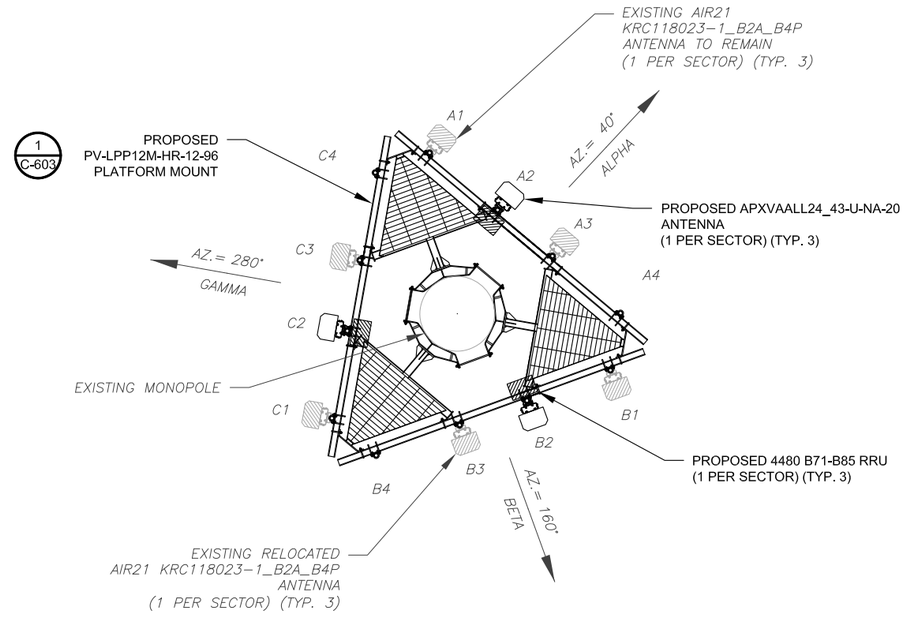
SHEET NUMBER:	REVISION:
C-201	0



1 EXISTING ANTENNA PLAN

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY SMJ INTERNATIONAL, DATED 06/10/2021, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



2 FINAL ANTENNA PLAN

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	40°	A1	AIR21 KRC118023-1_B2A_B4P	U1900 G1900 U2100	0/2/2	REL	–	–
			A2	AIR21 KRC118023-1_B2A_B4P	L2100	0/2	REL	–	–
BETA	140'	160°	B1	AIR21 KRC118023-1_B2A_B4P	U1900 G1900 U2100	0/2/2	REL	–	–
			B2	AIR21 KRC118023-1_B2A_B4P	L2100	0/2	REL	–	–
GAMMA	140'	280°	C1	AIR21 KRC118023-1_B2A_B4P	U1900 G1900 U2100	0/2/2	REL	–	–
			C2	AIR21 KRC118023-1_B2A_B4P	L2100	0/2	REL	–	–

NOTES

1. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'
RRU TO ANTENNA: 10'

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	40°	A1	AIR21 KRC118023-1_B2A_B4P	U1900 G1900	0/2/2	RMN	-	-
			A2	APXVAALL24_43-U-NA-20	L700 L600 N600	0/0	ADD	4480 B71+B85	ADD
			A3	AIR21 KRC118023-1_B2A_B4P	L2100	0/2	REL	-	-
BETA	140'	160°	B1	AIR21 KRC118023-1_B2A_B4P	U1900 G1900	0/2/2	RMN	-	-
			B2	APXVAALL24_43-U-NA-20	L700 L600 N600	0/0	ADD	4480 B71+B85	ADD
			B3	AIR21 KRC118023-1_B2A_B4P	L2100	0/2	REL	-	-
GAMMA	140'	280°	C1	AIR21 KRC118023-1_B2A_B4P	U1900 G1900	0/2/2	RMN	-	-
			C2	APXVAALL24_43-U-NA-20	L700 L600 N600	0/0	ADD	4480 B71+B85	ADD
			C3	AIR21 KRC118023-1_B2A_B4P	L2100	0/2	REL	-	-

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	(6) 1 1/4"	(1) 9X18 HCS	RMV
–	–	–	–	–

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 6/24 HCS 4AWG	ADD
-	-	-	-	-

3 EQUIPMENT SCHEDULES

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T-MOBILE SITE NAME:
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SITE ADDRESS:
225 RODGERS ROAD
NORWICH, CT 06360

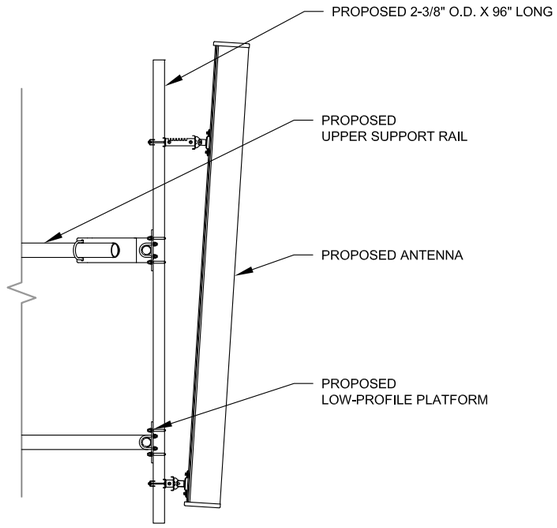
SEAL:

T-Mobile

DATE DRAWN:	07/08/21
ATC JOB NO:	13677847
CUSTOMER ID:	NORWCIH/I-395 X80_1
CUSTOMER #:	CT11148B

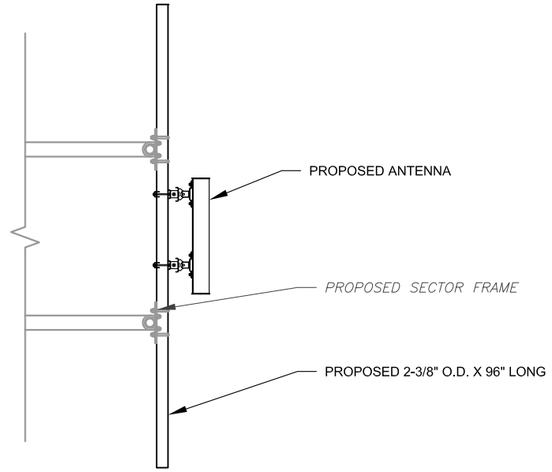
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-401	0



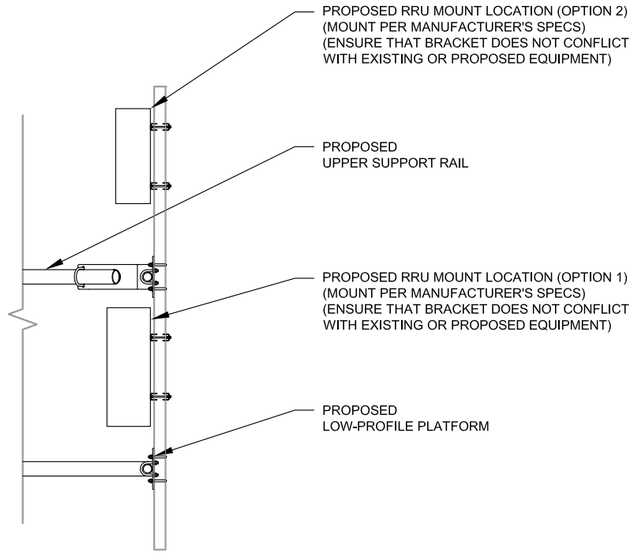
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.

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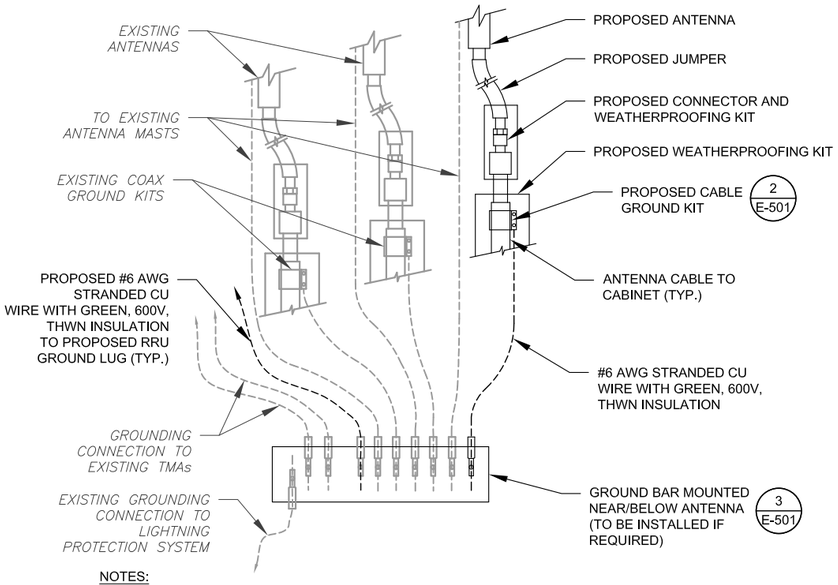
CUSTOMER #:	CT11148B

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	0

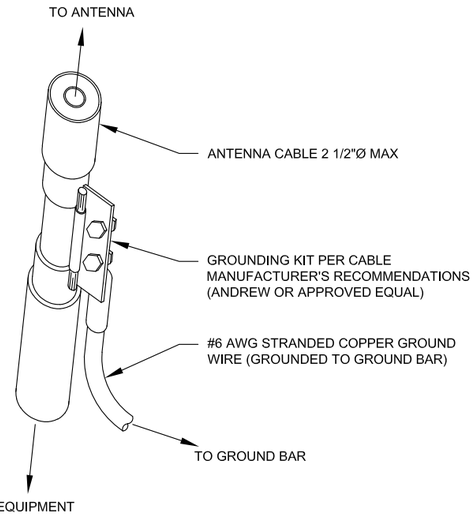


NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: N.T.S.

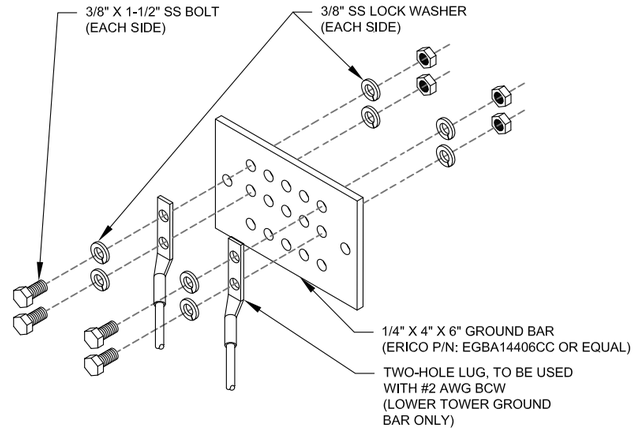


GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: N.T.S.



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL

SCALE: N.T.S.

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: P-1177

NB+C™
TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

REV.	DESCRIPTION	BY	DATE
A	PRELIM	CWE	06/10/21
B	PRELIM	CCC	06/15/21
0	FOR CONSTRUCTION	CCC	07/08/21

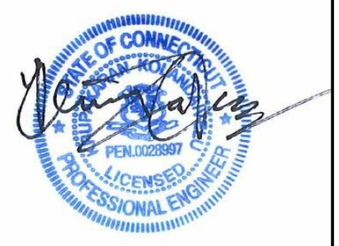
ATC SITE NUMBER:
302493

ATC SITE NAME:
NRWC - NORWICH

T-MOBILE SITE NAME:
NORWCIH/I-395 X80_1

SITE ADDRESS:
225 RODGERS ROAD
NORWICH, CT 06360

SEAL:



T-Mobile

DATE DRAWN:	07/08/21
ATC JOB NO:	13677847
CUSTOMER ID:	NORWCIH/I-395 X80_1
CUSTOMER #:	CT11148B

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Proposed RAN Equipment		
Template: 67E02C Outdoor		
Enclosure	1	2
Enclosure Type	RBS 6131	Ancillary Equipment (Ericsson)
Baseband	DUW30 (U1900) DUG20 (G1900) BB 6630 (L2100) BB 6648 (L700, L600, N600)	
Functionality Groups		Ericsson Hybrid Trunk 6/24 4AWG *Select Length* (x 3)

RAN Scope of Work:

Existing RAN Config is 2C.
Upgrade to 200A service.
Remove T-arms & add platform
Remove all existing 9/x18 and add 3 6x24.
Remove all existing coax

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

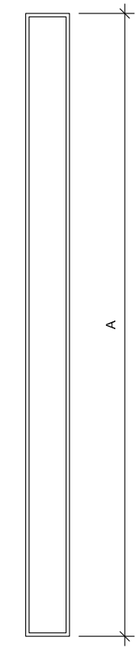
N/A

2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

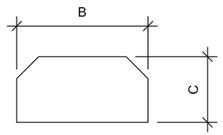
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0



FRONT VIEW

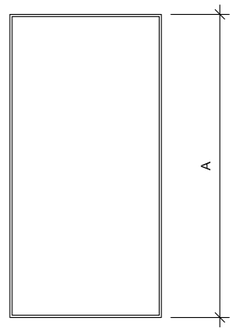


TOP VIEW

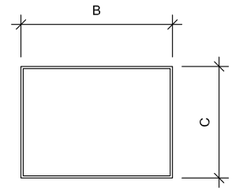
1 ANTENNA SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
APXVAALL24 43-U-NA20	95.9"	24.0"	8.5"	122.8



FRONT VIEW



TOP VIEW

2 RRU SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
4480 B71+B85	21.8"	15.7"	7.5"	84.0

SUPPLEMENTAL

SHEET NUMBER: R-602

REVISION: 0

SMJ International

SMJ International LLC
49030 Pontiac Trail, Suite 100
Wixom, MI 48393
(616) 745-4777
info@smj-llc.com

STRUCTURAL EVALUATION LETTER
ANTENNA MOUNT ANALYSIS

06-10-21

SITE INFORMATION:

ATC Site Name:	Nrwc-Norwich, CT
ATC Site Number:	302493
ATC Engineering Number:	13677847_C8_03
Site Type:	Monopole Tower
Site Address:	225 Rogers Road, Norwich, New London County, CT
T-Mobile Site Name:	Norwich/ I-395 X80_1
T-Mobile Site Number:	CT11148B

CURRENT WIND CRITERIA:

1. ANSI/TIA-222-H Standard

SUPPORTING DOCUMENTS:

1. Preview Exhibit by American Tower Corporation, dated May 24, 2021
2. Mount Photos by American Tower Corporation
3. Site Pro 1 RMQP spec sheet

ASSUMPTIONS:

1. Tower mount and connections were built in accordance with the manufacturer's specifications, ANSI/TIA-222 standard, and governing building code.
2. The tower mounting system and connections have been maintained in accordance with the manufacturer's specification.
3. Tower mount connections and attachments are assumed not to control the design of mounting system and have been assumed adequate based on main member capacities.

Table 1 - Final Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Antenna Model	Mount Pipe Position Number	Antenna Mount System
140.0	140.0	(3) Ericsson AIR 21	3	12.5' Platform with Handrails
		(3) RFS APXVAALL24 43-U-NA20	2	
		(3) Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	4	
		(3) Ericsson Radio 4480 B71+B85A	2	

CONCLUSION:

Due to customer antenna spacing/separation requirements, the existing mount cannot support the equipment as described in this report and must be replaced with the mount listed below. Based on the analysis results, the proposed mount meets the requirements, per the applicable codes listed above, and can support the equipment as described in this report. Analysis is based on new Site Pro 1 RMQP platform.

If existing conditions in the field differ from those shown on the above referenced documents or the antenna loading is modified to be other than that shown on Table 1, this review letter will be required to be revised.

Table 2 - Mount Analysis Results

Mount Centerline (ft)	Structural Components	Controlling Usage	Pass/Fail	Necessary Modification
140.0	Mount Pipes	77%	Pass (77%)	-
	Plates	48%		
	Cross Arms	16%		
	Connections	52%		
	Frame Rails	23%		
	Corner Angles	34%		
	Handrails	57%		
	Arms	57%		
	Corner Angles	64%		

We at SMJ International, LLC appreciate the opportunity of providing our continuing professional services. If you have any questions or need further assistance on this or any other projects, please give us a call.

1 MOUNT ANALYSIS

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER: R-603

REVISION: 0

PLATFORM CONFIGURATIONS

PART NUMBER	DESCRIPTION	MIN POLE DIAMETER	MAX POLE DIAMETER	WEIGHT	INCLUDED PARTS										
					PIPE-312X150	PIPE-312X174	PIPE-238X150	PIPE-238X174	PV-RM1045	PV-RM3060	PV-LPP12-01	PV-LPP14-01	PV-LPPH	PV-PHK12-B	HD26226
PV-LPP12M-B	12'6" FACE L.I.F.E. MOUNT™ PLATFORM	10"	34"	1244 LBS	3	-	-	-	1	-	3	-	1	0	3
PV-LPP14M-B	14'6" FACE L.I.F.E. MOUNT™ PLATFORM	10"	35"	1342 LBS	-	3	-	-	1	-	-	3	1	0	3
PV-LPP14L-B	14'6" FACE L.I.F.E. MOUNT™ PLATFORM, LARGE POLE	33"	60"	1347 LBS	-	3	-	-	-	1	3	-	1	0	3
PV-LPP12M-HR-B	12'6" FACE L.I.F.E. MOUNT™ PLATFORM W/ HANDRAIL	10"	34"	1499 LBS	3	-	3	-	1	-	3	-	1	1	3
PV-LPP14M-HR-B	14'6" FACE L.I.F.E. MOUNT™ PLATFORM W/ HANDRAIL	10"	35"	1619 LBS	-	3	-	3	1	-	-	3	1	1	3
PV-LPP14L-HR-B	14'6" FACE L.I.F.E. MOUNT™ PLATFORM W/ HANDRAIL, LARGE POLE	33"	60"	1624 LBS	-	3	-	3	-	1	3	-	1	1	3

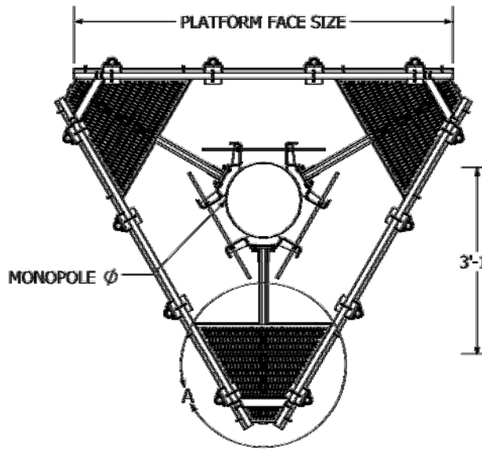
PLATFORM EPA		
PLATFORM TYPE	NO ICE (FT^2)	1/2" RADIAL ICE (FT^2)
12'6" FACE	17.42	22.79
12'6" FACE WITH HANDRAIL	30.33	38.67
14'6" FACE	19.25	25.06
14'6" FACE WITH HANDRAIL	32.79	41.85

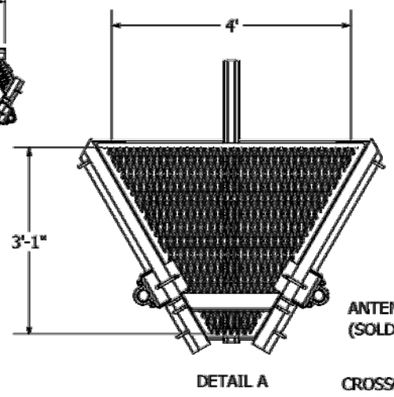
*EPA DOES NOT INCLUDE CROSSOVER PLATES OR ANTENNA PIPES

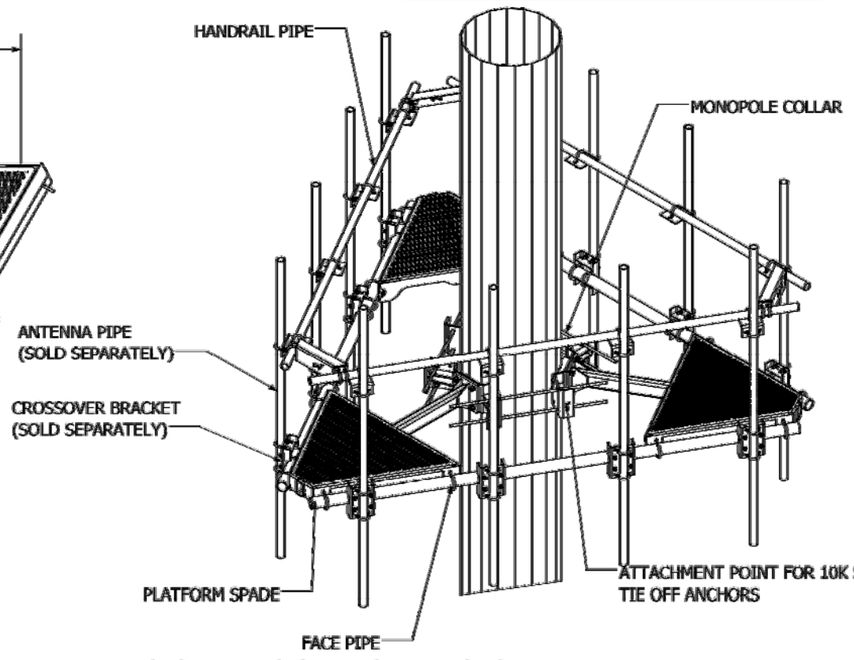
ANTENNA PIPE OPTIONS**			
OD	LENGTH	ANTENNA PIPE	WEIGHT (LBS
2-3/8"	72"	PIPE-238X72	22
	96"	PIPE-238X96	29
	126"	PIPE-238X126	38
2-7/8"	84"	PIPE-278X84	41
	96"	PIPE-278X96	46.5
	126"	PIPE-278X126	61
3-1/2"	72"	PIPE-312X72	46
	96"	PIPE-312X96	61
	126"	PIPE-312X126	80

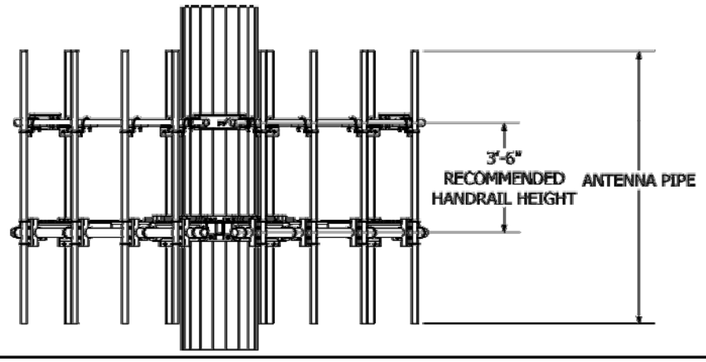
**PLATFORM WITH HANDRAIL KITS ARE ONLY COMPATIBLE WITH 2-3/8 OD ANTENNA PIPE

CROSSOVER BRACKETS		
PART NUMBER	COMPATIBLE ANTENNA PIPE	WEIGHT (LBS)
PV-XP-2030-HD	2-3/8" OD	12.5
PV-XP-2530-HD	2-7/8" OD	12.75
PV-XP-3030-HD	3-1/2" OD	13









10K SWIVEL ANCHOR ATTACHMENT NOTES:

- DO NOT INSTALL ANCHORS UNTIL AFTER RING MOUNT IS PROPERLY INSTALLED ON TOWER.
- DO NOT USE SWIVEL ANCHORS AS A RIGGING / LIFTING POINT.
- SWIVEL ANCHOR SPECS:
  - UTS:10,000 LBF
  - MAX USER WEIGHT: 310 LBS
  - WORKING LOAD: 2,000 LBS
- FOLLOW MANUFACTURER SPECIFICATIONS FOR ANCHOR INSTALLATION AND MAINTENANCE.

1 PERFECT VISION # PV-LPP12M-HR-12-69 PLATFORM DETAIL
NOT TO SCALE

FALL-SAFE L.I.F.E. MOUNTS™

PERFECT VISION MANUFACTURING
16101 La Grande Dr.
Little Rock, AR 72223
(630)-201-4012

STAMP:

REVISIONS:

NO.	DATE	DESCRIPTION	BY	CHK	APD
5					
4	2/22/16	L.I.F.E. MOUNT UPDATE™	DJN	AM	
3	12/30/15	REDESIGNED COLLAR	DJN	AM	
2	8/24/15	REDESIGNED SPACIE	DJN	AM	
1	7/17/15	ADDITIONAL MEMBER SIZES	DJN	AM	EES
0	6/24/15	INITIAL RELEASE	DJN	LL	SB

MONOPOLE LOW PROFILE PLATFORM

ENGINEERING DETAIL

E-1 | 4

SUPPLEMENTAL

SHEET NUMBER: R-604 | REVISION: 0

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Nrwc - Norwich, CT**
ATC Asset Number	:	**302493**
Engineering Number	:	**13677847_C3_04**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**Norwich/ I-395 X80_1**
Carrier Site Number	:	**CT11148B**
Site Location	:	**225 Rogers Road** **Norwich, CT 06360-4036** **41.533700,-72.135000**
County	:	**New London**
Date	:	**June 30, 2021**
Max Usage	:	**97%**
Result	:	**Pass**

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Prepared By:
Brian Davies, E.I.
Structural Engineer II

Reviewed By:

Authorized by "EOR"
30 Jun 2021 06:37:27 cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	ITT Meyer Identification #AT-8935
Foundation Drawing	SNET Job #3C159, dated November 1998
Geotechnical Report	GeoTechnologies Project #1-02-0846-EA, dated June 24, 2002
Modifications	ATC Project #50405532, dated December 18, 2012

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	121 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	49 mph (3-Second Gust) w/ 7/8" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Spectral Response:	$S_s = 0.20$, $S_1 = 0.05$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
156.0	2	Kathrein Scala 860-10025	Platform with Handrails	(3) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax (3) 2" conduit	AT&T MOBILITY
	6	Powerwave Allgon LGP13519			
	2	CCI OPA65R-BU8D			
	3	Powerwave Allgon LGP18104			
	1	Raycap DC6-48-60-18-8F (23.5" Height)			
	3	Ericsson Radio 8843 - B2 + B66A			
	6	Powerwave Allgon LGP17201			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
	1	Raycap DC9-48-60-24-8C-EV			
	3	Powerwave Allgon 7770.00			
	1	CCI DMP65R-BU4D			
	1	CCI OPA65R-BU4DA-K			
	2	CCI DMP65R-BU8D			
140.0	3	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	Platform with Handrails	(3) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson AIR 21			

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	RFS APXVAARR24_43-U-NA20	-	(6) 1 5/8" Coax	T-MOBILE
	3	Ericsson Radio 4449 B12,B71			

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson Radio 4480 B71+B85A	T-Arm	-	T-MOBILE
	3	RFS APXVAALL24 43-U-NA20			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

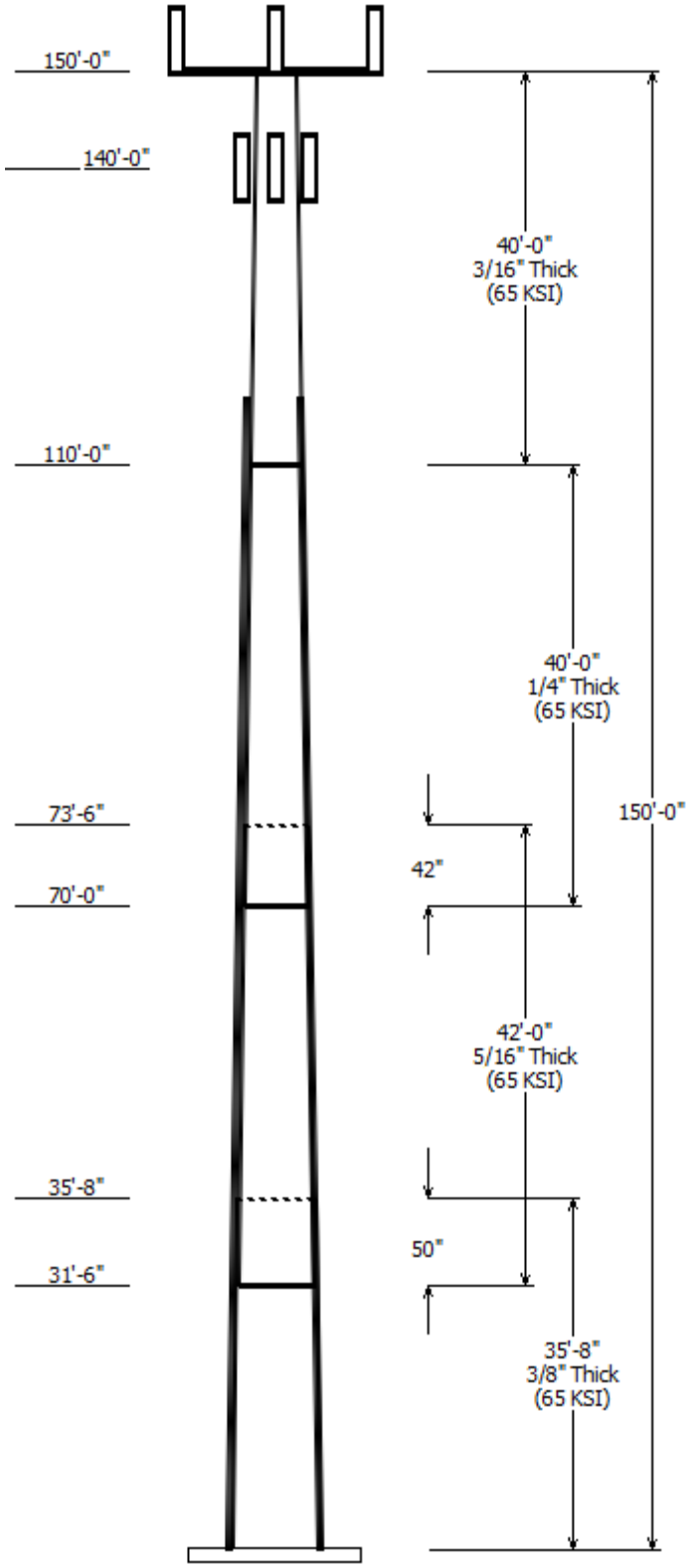
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

Client :	T-MOBILE		
Pole :	302493	Code:	ANSI/TIA-222-H
Location :	Nrwc - Norwich, CT		
Description :	150 ft ITT Meyer Type "B" Monopole	Risk Category :	II
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo Method :	Method 1
Base Elev (ft):	0.00	Topographic Category :	1
Taper:	0.156700 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.667	31.79	37.38	0.375		0.000	12 Sides	65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	12 Sides	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	12 Sides	65
4	40.000	15.00	21.26	0.188	Butt Joint	0.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	156.000	2	CCI OPA65R-BU8D
150.000	156.000	2	CCI DMP65R-BU8D
150.000	156.000	1	CCI OPA65R-BU4DA-K
150.000	156.000	1	CCI DMP65R-BU4D
150.000	156.000	3	Powerwave Allgon 7770.00
150.000	156.000	1	Raycap DC9-48-60-24-8C-EV
150.000	156.000	3	Ericsson RRUS 4449 B5, B12
150.000	156.000	3	Ericsson RRUS 4478 B14
150.000	156.000	6	Powerwave Allgon LGP17201
150.000	156.000	3	Ericsson Radio 8843 - B2 + B66
150.000	156.000	1	Raycap DC6-48-60-18-8F (23.5"
150.000	156.000	3	Powerwave Allgon LGP18104
150.000	156.000	6	Powerwave Allgon LGP13519
150.000	156.000	2	Kathrein Scala 860-10025
150.000	150.000	1	Flat Platform w/ Handrails
140.000	140.000	1	Site Pro RMPQ Platform with
140.000	140.000	3	RFS APXVAALL24 43-U-NA20
140.000	140.000	3	Ericsson AIR 21
140.000	140.000	3	Ericsson Radio 4480 B71+B85A
140.000	140.000	3	Ericsson AIR 21, 1.3M, B2A B4P

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	121.0	Reinforcing Bars	Yes
0.000	121.0	Reinforcing Bars	Yes
0.000	121.0	Reinforcing Bars	Yes
0.000	121.0	Reinforcing Bars	Yes
0.000	140.0	1 5/8" Hybriflex	No
0.000	150.0	0.39" (10mm)	No
0.000	150.0	0.39" (10mm)	No
0.000	150.0	0.78" (19.7mm) 8	No
0.000	150.0	1 1/4" Coax	No
0.000	150.0	2" conduit	No
0.000	150.0	2" conduit	No

Load Cases

1.2D + 1.0W	121 mph with No Ice
0.9D + 1.0W	121 mph with No Ice (Reduced DL)

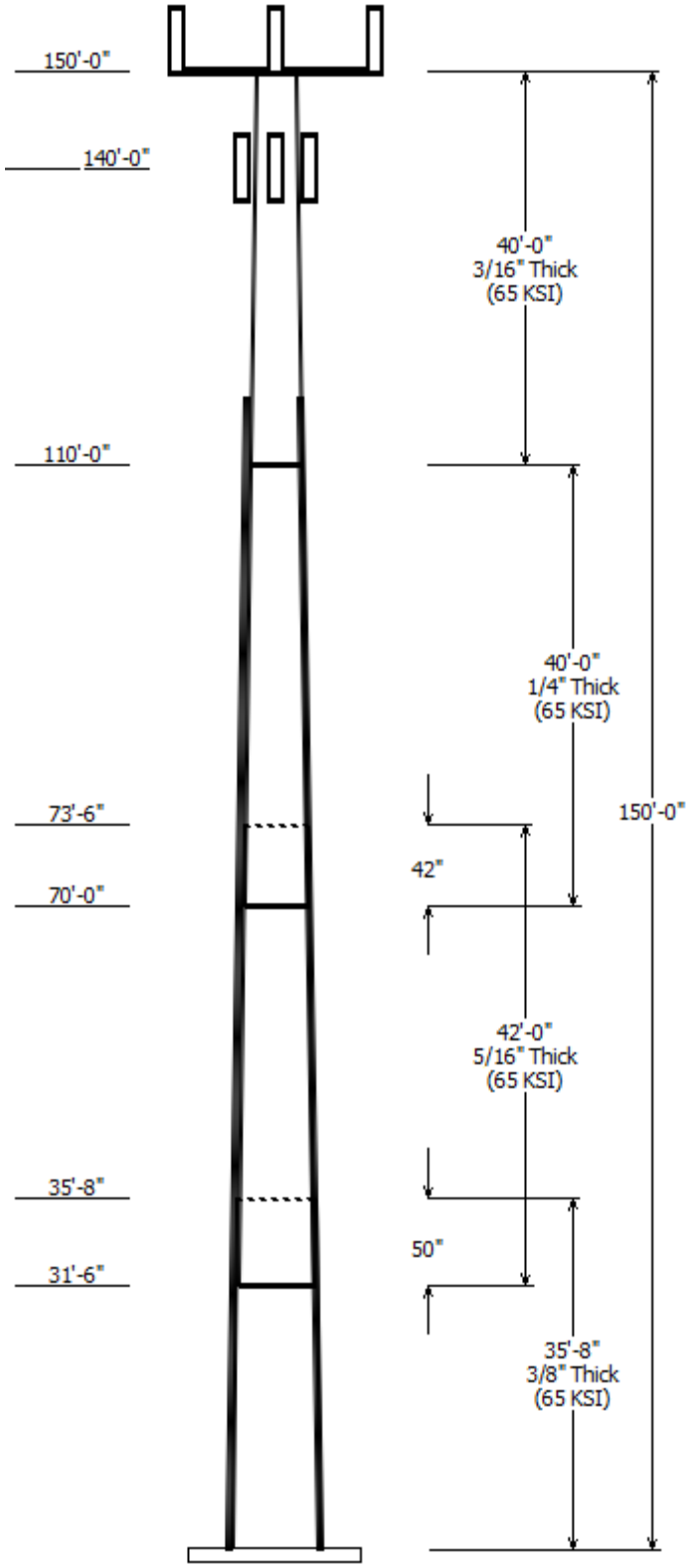
1.2D + 1.0Di + 1.0Wi	49 mph with 0.85 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

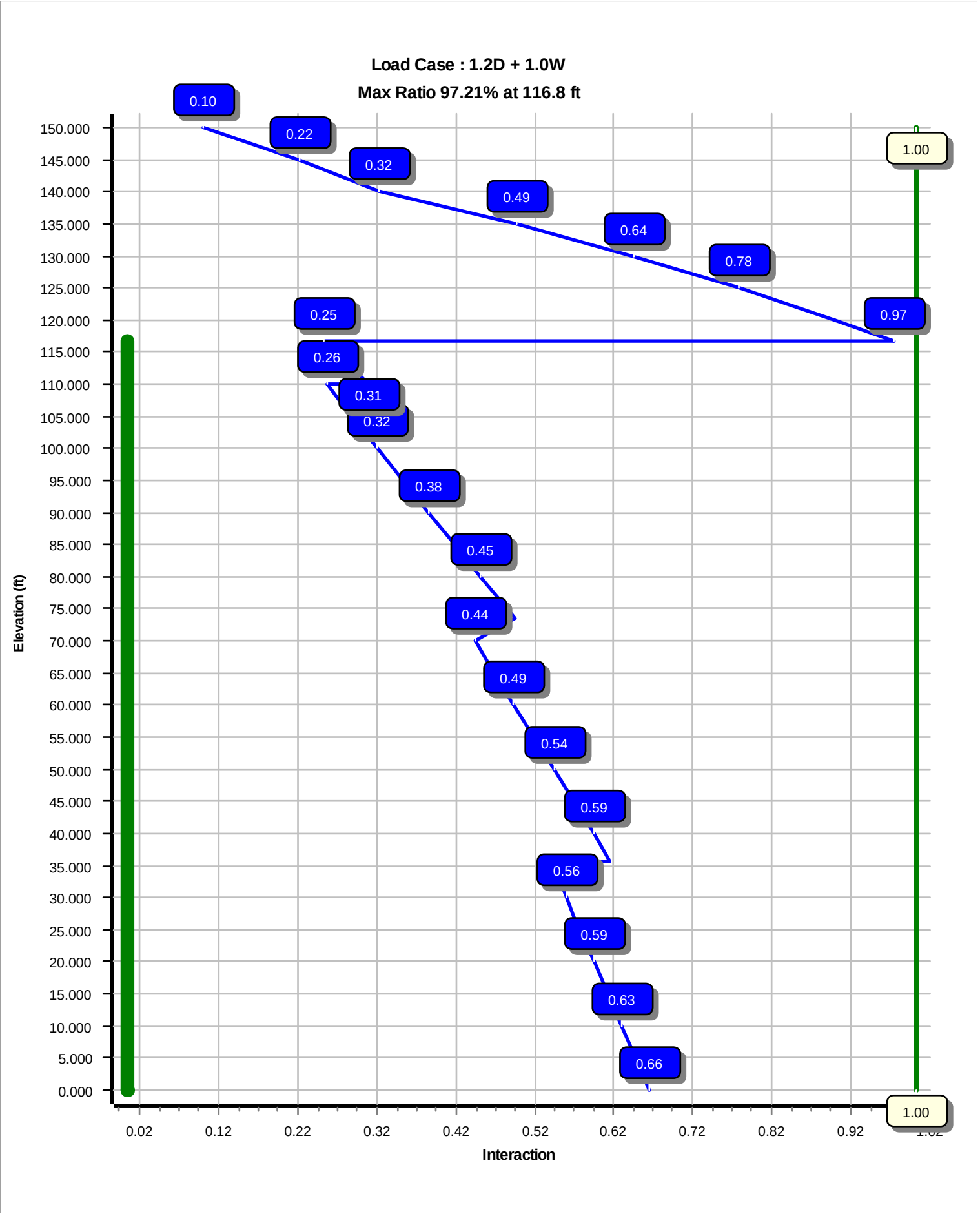
Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	2505.12	24.51	37.72
0.9D + 1.0W	2464.18	24.49	28.27
1.2D + 1.0Di + 1.0Wi	476.77	4.23	47.07
1.2D + 1.0Ev + 1.0Eh	123.54	0.95	37.59
0.9D - 1.0Ev + 1.0Eh	120.92	0.95	25.98
1.0D + 1.0W	548.03	5.40	31.48

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000




Load Case : 1.2D + 1.0W
Max Ratio 97.21% at 116.8 ft
0.10
0.22
0.32
0.49
0.64
0.78
0.97
1.00
0.25
0.26
0.31
0.32
0.38
0.45
0.44
0.49
0.54
0.59
0.56
0.59
0.63
0.66
1.00
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 302493 Code: ANSI/TIA-222-H

Site Name: Nrwc - Norwich, CT Engineering Number:13677847_C3_04 6/30/2021 12:30:30 PM

Customer: T-MOBILE

Analysis Parameters

Location :	New London County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-H	Base Diameter (in) :	37.38
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.157
Pole Manfacturer :	ITT Meyer	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.99

Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	121 mph
Risk Category:	II	Design Wind Speed With Ice:	49 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	0.85 in
Crest Height:	0 ft	HMSL:	385.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.85				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.196	S_1:	0.054	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.209	S_{d1}:	0.086		

Load Cases

1.2D + 1.0W	121 mph with No Ice
0.9D + 1.0W	121 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	49 mph with 0.85 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302493 Code: ANSI/TIA-222-H

Site Name: Nrwc - Norwich, CT Engineering Number:13677847_C3_04 6/30/2021 12:30:30 PM

Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	35.667	0.3750	65		0.00	5,014	37.38	0.00	44.68	7810.1	24.03	99.68	31.79	35.67	37.93	4778.9	20.04	84.78	0.156700
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4514.2	25.68	105.82	26.48	73.50	26.34	2303.3	20.03	84.76	0.156700
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.97	2087.4	26.83	110.14	21.26	110.00	16.92	954.0	20.12	85.07	0.156700
4-12	40.000	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.9	27.71	113.43	15.00	150.00	8.94	250.5	18.76	80.00	0.156700
				Shaft Weight		13,372													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
150.00	Kathrein Scala 860-10025	2	0.75	6.000	1.10	0.140	0.50	4.14	0.312	0.50
150.00	Powerwave Allgon LGP13519	6	0.75	6.000	5.30	0.290	0.50	10.67	0.509	0.50
150.00	Powerwave Allgon LGP18104	3	0.75	6.000	1.80	0.514	0.50	8.12	0.949	0.50
150.00	Raycap DC6-48-60-18-8F (23.5"	1	0.75	6.000	20.00	1.260	0.50	49.85	1.633	0.50
150.00	Ericsson Radio 8843 - B2 + B66A	3	0.75	6.000	71.90	1.650	0.50	106.83	2.130	0.50
150.00	Powerwave Allgon LGP17201	6	0.75	6.000	31.00	1.668	0.50	52.62	2.150	0.50
150.00	Ericsson RRUS 4478 B14	3	0.75	6.000	59.90	1.842	0.50	91.24	2.350	0.50
150.00	Ericsson RRUS 4449 B5, B12	3	0.75	6.000	71.00	1.969	0.50	107.54	2.498	0.50
150.00	Raycap DC9-48-60-24-8C-EV	1	0.75	6.000	16.00	4.788	1.00	89.18	5.622	1.00
150.00	Powerwave Allgon 7770.00	3	0.75	6.000	35.00	5.508	0.65	104.05	6.086	0.65
150.00	CCI DMP65R-BU4D	1	0.75	6.000	67.90	8.280	1.00	170.28	9.428	1.00
150.00	CCI OPA65R-BU4DA-K	1	0.75	6.000	52.50	8.435	1.00	156.41	9.591	1.00
150.00	CCI DMP65R-BU8D	2	0.75	6.000	95.70	17.871	0.72	288.37	19.960	0.72
150.00	CCI OPA65R-BU8D	2	0.75	6.000	76.50	18.089	0.72	271.97	20.182	0.72
150.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	36.000	1.00	2,805.63	46.094	1.00
140.00	Ericsson Radio 4480 B71+B85A	3	0.80	0.000	84.00	2.852	0.67	126.53	3.481	0.67
140.00	Ericsson AIR 21, 1.3M, B2A B4P	3	0.75	0.000	91.50	6.037	0.70	173.45	7.244	0.70
140.00	Ericsson AIR 21	3	0.75	0.000	91.00	6.049	0.70	172.72	7.266	0.70
140.00	RFS APXVAALL24 43-U-NA20	3	0.80	0.000	122.80	20.243	0.63	342.06	22.331	0.63
140.00	Site Pro RMPQ Platform with	1	1.00	0.000	2,000.00	27.200	1.00	2,784.31	37.867	1.00
Totals	Num Loadings:20	51			6,607.50			11,261.99		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	150.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	150.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	150.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	150.00	12	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	150.00	2	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	150.00	1	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	140.00	3	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	121.00	1	Reinforcing Bars #20	4.00	0.00	N	1	0.00	0.00	0	0.00	Y	
0.00	121.00	1	Reinforcing Bars #20	4.00	0.00	N	1	0.00	0.00	90	0.00	Y	
0.00	121.00	1	Reinforcing Bars #20	4.00	0.00	N	1	0.00	0.00	270	0.00	Y	
0.00	121.00	1	Reinforcing Bars #20	4.00	0.00	N	1	0.00	0.00	180	0.00	Y	

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections			Connectors	Continuation?
						Description	Spacing (in)	Len (in)		
0.00	116.7	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.380	44.684	7,810.1	24.03	99.68	78.5	403.6	0.0	0.0	19.64	4,816	0.0
5.00		0.3750	36.597	43.737	7,324.4	23.47	97.59	79.1	386.6	0.0	752.2	19.64	4,648	334.0
10.00		0.3750	35.813	42.791	6,859.3	22.91	95.50	79.7	370.0	0.0	736.1	19.64	4,482	334.0
15.00		0.3750	35.030	41.845	6,414.3	22.35	93.41	80.3	353.7	0.0	720.0	19.64	4,319	334.0
20.00		0.3750	34.246	40.899	5,989.0	21.79	91.32	80.9	337.8	0.0	703.9	19.64	4,159	334.0
25.00		0.3750	33.463	39.953	5,583.0	21.23	89.23	81.6	322.3	0.0	687.8	19.64	4,003	334.0
30.00		0.3750	32.679	39.007	5,195.7	20.67	87.14	81.9	307.1	0.0	671.7	19.64	3,849	334.0
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.1	20.50	86.52	81.9	302.7	0.0	198.4	19.64	3,804	100.2
35.00		0.3750	31.896	38.061	4,826.7	20.11	85.05	81.9	292.3	0.0	846.5	19.64	3,818	233.8
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.6	25.12	103.73	77.3	253.3	0.0	159.6	19.64	3,798	44.5
40.00		0.3125	31.737	31.621	3,985.6	24.53	101.56	78.0	242.6	0.0	471.3	19.64	3,668	289.5
45.00		0.3125	30.954	30.833	3,694.9	23.86	99.05	78.7	230.6	0.0	531.3	19.64	3,521	334.0
50.00		0.3125	30.170	30.044	3,418.6	23.19	96.54	79.4	218.9	0.0	517.9	19.64	3,377	334.0
55.00		0.3125	29.387	29.256	3,156.5	22.52	94.04	80.2	207.5	0.0	504.5	19.64	3,236	334.0
60.00		0.3125	28.603	28.467	2,908.1	21.85	91.53	80.9	196.4	0.0	491.0	19.64	3,098	334.0
65.00		0.3125	27.820	27.679	2,673.1	21.17	89.02	81.6	185.6	0.0	477.6	19.64	2,963	334.0
70.00	Bot - Section 3	0.3125	27.036	26.891	2,451.2	20.50	86.52	81.9	175.1	0.0	464.2	19.64	2,831	334.0
73.50	Top - Section 2	0.2500	26.988	21.524	1,964.0	26.25	107.95	76.1	140.6	0.0	575.9	19.64	2,823	233.8
75.00		0.2500	26.753	21.335	1,912.7	25.99	107.01	76.4	138.1	0.0	109.4	19.64	2,784	100.2
80.00		0.2500	25.969	20.704	1,748.0	25.15	103.88	77.3	130.0	0.0	357.6	19.64	2,656	334.0
85.00		0.2500	25.186	20.073	1,593.1	24.31	100.74	78.2	122.2	0.0	346.9	19.64	2,531	334.0
90.00		0.2500	24.402	19.442	1,447.6	23.47	97.61	79.1	114.6	0.0	336.2	19.64	2,410	334.0
95.00		0.2500	23.619	18.812	1,311.2	22.63	94.47	80.0	107.2	0.0	325.4	19.64	2,291	334.0
100.0		0.2500	22.835	18.181	1,183.7	21.79	91.34	80.9	100.1	0.0	314.7	19.64	2,175	334.0
105.0		0.2500	22.052	17.550	1,064.7	20.96	88.21	81.9	93.3	0.0	304.0	19.64	2,062	334.0
110.0	Top - Section 3	0.2500	21.268	16.919	954.0	20.12	85.07	81.9	86.7	0.0	293.2	19.64	1,952	334.0
110.0	Bot - Section 4	0.1875	21.268	12.727	721.9	27.71	113.43	74.5	65.6	0.0		19.64	1,952	
115.0		0.1875	20.485	12.254	644.4	26.59	109.25	75.7	60.8	0.0	212.5	19.64	1,846	334.0
116.7	Reinf. Top	0.1875	20.210	12.089	618.6	26.20	107.79	76.1	59.1	0.0	72.5	19.64	1,809	116.9
120.0		0.1875	19.701	11.781	572.6	25.47	105.07	76.9	56.1	0.0	132.0			
125.0		0.1875	18.918	11.308	506.4	24.35	100.89	78.2	51.7	0.0	196.4			
130.0		0.1875	18.134	10.835	445.4	23.24	96.71	79.4	47.5	0.0	188.4			
135.0		0.1875	17.351	10.362	389.6	22.12	92.54	80.6	43.4	0.0	180.3			
140.0		0.1875	16.567	9.889	338.6	21.00	88.36	81.8	39.5	0.0	172.3			
145.0		0.1875	15.784	9.416	292.3	19.88	84.18	81.9	35.8	0.0	164.2			
150.0		0.1875	15.000	8.943	250.5	18.76	80.00	81.9	32.3	0.0	156.2			
											13,372.1			7,798.9

Site Number: 302493 Code: ANSI/TIA-222-H

Site Name: Nrwc - Norwich, CT Engineering Number:13677847_C3_04 6/30/2021 12:30:30 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0W 121 mph with No Ice 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.20
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		258.4	0.0					0.0	0.0	258.4	0.0	0.0	0.0
5.00		511.4	902.6					108.0	550.5	619.3	1,453.1	0.0	0.0
10.00		500.4	883.3					108.0	550.5	608.4	1,433.8	0.0	0.0
15.00		489.5	864.0					108.0	550.5	597.4	1,414.5	0.0	0.0
20.00		478.5	844.7					108.0	550.5	586.5	1,395.2	0.0	0.0
25.00		467.6	825.4					108.0	550.5	575.5	1,375.9	0.0	0.0
30.00		299.8	806.1					108.0	550.5	407.8	1,356.5	0.0	0.0
31.50	Bot - Section 2	234.1	238.1					32.6	165.2	266.7	403.2	0.0	0.0
35.00		197.0	1,015.8					77.9	385.3	274.9	1,401.2	0.0	0.0
35.67	Top - Section 1	239.4	191.5					15.1	73.4	254.5	264.9	0.0	0.0
40.00		449.8	565.6					100.1	477.1	549.9	1,042.7	0.0	0.0
45.00		485.8	637.5					119.4	550.5	605.2	1,188.0	0.0	0.0
50.00		488.0	621.4					123.2	550.5	611.2	1,171.9	0.0	0.0
55.00		488.5	605.4					126.8	550.5	615.3	1,155.8	0.0	0.0
60.00		487.4	589.3					130.1	550.5	617.6	1,139.8	0.0	0.0
65.00		485.1	573.2					133.3	550.5	618.3	1,123.7	0.0	0.0
70.00	Bot - Section 3	413.0	557.1					136.2	550.5	549.2	1,107.6	0.0	0.0
73.50	Top - Section 2	244.2	691.1					97.0	385.3	341.3	1,076.5	0.0	0.0
75.00		314.8	131.3					42.0	165.1	356.8	296.4	0.0	0.0
80.00		480.5	429.1					141.7	550.5	622.2	979.6	0.0	0.0
85.00		474.2	416.3					144.3	550.5	618.4	966.8	0.0	0.0
90.00		467.0	403.4					146.6	550.5	613.6	953.9	0.0	0.0
95.00		459.0	390.5					147.8	550.5	606.8	941.0	0.0	0.0
100.00		450.4	377.6					148.9	550.5	599.2	928.1	0.0	0.0
105.00		441.0	364.8					150.0	550.5	591.0	915.3	0.0	0.0
110.00	Top - Section 3	431.0	351.9					151.0	550.5	582.0	902.4	0.0	0.0
115.00		286.2	255.0					152.0	550.5	438.2	805.5	0.0	0.0
116.75	Reinf. Top	207.5	87.0					53.4	192.7	260.9	279.6	0.0	0.0
120.00		336.1	158.4					99.5	97.3	435.6	255.7	0.0	0.0
125.00		356.9	235.7					153.8	149.7	510.7	385.4	0.0	0.0
130.00		305.2	226.0					0.0	149.7	305.2	375.7	0.0	0.0
135.00		295.2	216.4					0.0	149.7	295.2	366.1	0.0	0.0
140.00	Appurtenance(s)	284.8	206.7	3,416.2	0.0	0.0	3,801.5	0.0	149.7	3,701.0	4,157.9	0.0	0.0
145.00		274.0	197.1					0.0	126.3	274.0	323.4	0.0	0.0
150.00	Appurtenance(s)	134.3	187.4	4,773.8	0.0	19,400.2	4,127.5	0.0	126.3	4,908.1	4,441.2	0.0	0.0
								Totals:		24,676.3	37,778.3	0.00	0.00

Load Case: 1.2D + 1.0W 121 mph with No Ice 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.20
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.72	-24.51	0.00	-2,505.12	0.00	2,505.12	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.661
5.00	-36.15	-24.06	0.00	-2,382.57	0.00	2,382.57	3,114.35	767.59	2,623.11	2,294.24	0.15	-0.28	0.644
10.00	-34.61	-23.61	0.00	-2,262.26	0.00	2,262.26	3,070.50	750.99	2,510.89	2,212.51	0.58	-0.55	0.627
15.00	-33.09	-23.16	0.00	-2,144.22	0.00	2,144.22	3,025.61	734.39	2,401.13	2,131.46	1.31	-0.83	0.610
20.00	-31.60	-22.70	0.00	-2,028.44	0.00	2,028.44	2,979.68	717.78	2,293.82	2,051.14	2.32	-1.10	0.592
25.00	-30.13	-22.24	0.00	-1,914.95	0.00	1,914.95	2,932.71	701.18	2,188.97	1,971.59	3.63	-1.38	0.574
30.00	-28.71	-21.88	0.00	-1,803.76	0.00	1,803.76	2,875.21	684.57	2,086.57	1,886.65	5.22	-1.66	0.557
31.50	-28.26	-21.67	0.00	-1,770.93	0.00	1,770.93	2,854.29	679.59	2,056.33	1,859.14	5.76	-1.74	0.552
35.00	-26.83	-21.41	0.00	-1,695.07	0.00	1,695.07	2,805.48	667.97	1,986.62	1,795.73	7.11	-1.93	0.534
35.67	-26.52	-21.21	0.00	-1,680.80	0.00	1,680.80	2,248.07	566.94	1,717.07	1,468.70	7.38	-1.97	0.613
40.00	-25.41	-20.74	0.00	-1,588.90	0.00	1,588.90	2,218.59	554.95	1,645.23	1,418.49	9.28	-2.21	0.592
45.00	-24.14	-20.20	0.00	-1,485.21	0.00	1,485.21	2,183.60	541.11	1,564.24	1,360.97	11.74	-2.49	0.567
50.00	-22.91	-19.65	0.00	-1,384.19	0.00	1,384.19	2,147.58	527.27	1,485.29	1,303.95	14.50	-2.78	0.542
55.00	-21.69	-19.08	0.00	-1,285.93	0.00	1,285.93	2,110.52	513.44	1,408.39	1,247.47	17.56	-3.05	0.516
60.00	-20.50	-18.50	0.00	-1,190.51	0.00	1,190.51	2,072.42	499.60	1,333.53	1,191.58	20.91	-3.33	0.491
65.00	-19.33	-17.91	0.00	-1,098.00	0.00	1,098.00	2,033.27	485.77	1,260.72	1,136.35	24.54	-3.60	0.465
70.00	-18.19	-17.36	0.00	-1,008.47	0.00	1,008.47	1,982.10	471.93	1,189.95	1,075.84	28.45	-3.87	0.442
73.50	-17.11	-16.98	0.00	-947.71	0.00	947.71	1,473.96	377.74	952.81	802.32	31.35	-4.05	0.493
75.00	-16.78	-16.66	0.00	-922.24	0.00	922.24	1,466.28	374.42	936.13	791.05	32.64	-4.13	0.483
80.00	-15.78	-16.04	0.00	-838.95	0.00	838.95	1,440.00	363.35	881.62	753.69	37.10	-4.40	0.449
85.00	-14.80	-15.41	0.00	-758.77	0.00	758.77	1,412.68	352.28	828.74	716.65	41.84	-4.65	0.416
90.00	-13.84	-14.78	0.00	-681.73	0.00	681.73	1,384.32	341.21	777.50	679.98	46.84	-4.90	0.383
95.00	-12.89	-14.14	0.00	-607.85	0.00	607.85	1,354.92	330.14	727.89	643.72	52.10	-5.14	0.350
100.00	-11.97	-13.51	0.00	-537.14	0.00	537.14	1,324.47	319.08	679.91	607.94	57.60	-5.37	0.317
105.00	-11.07	-12.87	0.00	-469.61	0.00	469.61	1,292.99	308.01	633.57	572.68	63.33	-5.58	0.285
110.00	-10.19	-12.24	0.00	-405.26	0.00	405.26	1,247.14	296.94	588.87	532.29	69.27	-5.78	0.255
110.00	-10.19	-12.24	0.00	-405.26	0.00	405.26	853.24	223.37	444.19	366.34	69.27	-5.78	0.306
115.00	-9.41	-11.74	0.00	-344.08	0.00	344.08	835.00	215.06	411.80	345.06	75.41	-5.96	0.265
116.75	-9.14	-11.46	0.00	-323.54	0.00	323.54	828.36	212.16	400.75	337.66	77.61	-6.03	0.251
116.75	-9.14	-11.46	0.00	-323.54	0.00	323.54	828.36	212.16	400.75	337.66	77.61	-6.03	0.972
120.00	-8.86	-11.06	0.00	-286.28	0.00	286.28	815.71	206.76	380.63	323.96	81.74	-6.14	0.897
125.00	-8.42	-10.60	0.00	-230.96	0.00	230.96	795.39	198.46	350.69	303.09	88.52	-6.79	0.775
130.00	-7.99	-10.33	0.00	-177.94	0.00	177.94	774.02	190.16	321.97	282.49	95.92	-7.36	0.643
135.00	-7.59	-10.05	0.00	-126.30	0.00	126.30	751.62	181.86	294.48	262.21	103.88	-7.85	0.495
140.00	-3.96	-5.82	0.00	-76.07	0.00	76.07	728.18	173.55	268.22	242.31	112.28	-8.22	0.321
145.00	-3.66	-5.51	0.00	-46.97	0.00	46.97	694.06	165.25	243.18	219.79	121.00	-8.48	0.220
150.00	0.00	-4.91	0.00	-19.40	0.00	19.40	659.19	156.95	219.37	198.13	129.94	-8.64	0.099

Site Number: 302493 Code: ANSI/TIA-222-H

Site Name: Nrwc - Norwich, CT Engineering Number:13677847_C3_04 6/30/2021 12:30:33 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.0W — 121 mph with No Ice (Reduced DL) — 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		258.4	0.0					0.0	0.0	258.4	0.0	0.0	0.0
5.00		511.4	677.0					108.0	412.9	619.3	1,089.8	0.0	0.0
10.00		500.4	662.5					108.0	412.9	608.4	1,075.4	0.0	0.0
15.00		489.5	648.0					108.0	412.9	597.4	1,060.9	0.0	0.0
20.00		478.5	633.5					108.0	412.9	586.5	1,046.4	0.0	0.0
25.00		467.6	619.0					108.0	412.9	575.5	1,031.9	0.0	0.0
30.00		299.8	604.5					108.0	412.9	407.8	1,017.4	0.0	0.0
31.50	Bot - Section 2	234.1	178.5					32.6	123.9	266.7	302.4	0.0	0.0
35.00		197.0	761.9					77.9	289.0	274.9	1,050.9	0.0	0.0
35.67	Top - Section 1	239.4	143.6					15.1	55.1	254.5	198.7	0.0	0.0
40.00		449.8	424.2					100.1	357.8	549.9	782.0	0.0	0.0
45.00		485.8	478.2					119.4	412.9	605.2	891.0	0.0	0.0
50.00		488.0	466.1					123.2	412.9	611.2	879.0	0.0	0.0
55.00		488.5	454.0					126.8	412.9	615.3	866.9	0.0	0.0
60.00		487.4	441.9					130.1	412.9	617.6	854.8	0.0	0.0
65.00		485.1	429.9					133.3	412.9	618.3	842.7	0.0	0.0
70.00	Bot - Section 3	413.0	417.8					136.2	412.9	549.2	830.7	0.0	0.0
73.50	Top - Section 2	244.2	518.3					97.0	289.0	341.3	807.4	0.0	0.0
75.00		314.8	98.4					42.0	123.9	356.8	222.3	0.0	0.0
80.00		480.5	321.9					141.7	412.9	622.2	734.7	0.0	0.0
85.00		474.2	312.2					144.3	412.9	618.4	725.1	0.0	0.0
90.00		467.0	302.5					146.6	412.9	613.6	715.4	0.0	0.0
95.00		459.0	292.9					147.8	412.9	606.8	705.8	0.0	0.0
100.00		450.4	283.2					148.9	412.9	599.2	696.1	0.0	0.0
105.00		441.0	273.6					150.0	412.9	591.0	686.4	0.0	0.0
110.00	Top - Section 3	431.0	263.9					151.0	412.9	582.0	676.8	0.0	0.0
115.00		286.2	191.3					152.0	412.9	438.2	604.1	0.0	0.0
116.75	Reinf. Top	207.5	65.2					53.4	144.5	260.9	209.7	0.0	0.0
120.00		336.1	118.8					99.5	73.0	435.6	191.8	0.0	0.0
125.00		356.9	176.8					153.8	112.3	510.7	289.1	0.0	0.0
130.00		305.2	169.5					0.0	112.3	305.2	281.8	0.0	0.0
135.00		295.2	162.3					0.0	112.3	295.2	274.6	0.0	0.0
140.00	Appurtenance(s)	284.8	155.0	3,416.2	0.0	0.0	2,851.1	0.0	112.3	3,701.0	3,118.4	0.0	0.0
145.00		274.0	147.8					0.0	94.7	274.0	242.5	0.0	0.0
150.00	Appurtenance(s)	134.3	140.6	4,773.8	0.0	19,400.2	3,095.6	0.0	94.7	4,908.1	3,330.9	0.0	0.0
								Totals:		24,676.3	28,333.7	0.00	0.00

Site Number: 302493 Code: ANSI/TIA-222-H

Site Name: Nrwc - Norwich, CT Engineering Number:13677847_C3_04 6/30/2021 12:30:36 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.0W 121 mph with No Ice (Reduced DL) 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-28.27	-24.49	0.00	-2,464.18	0.00	2,464.18	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.649
5.00	-27.07	-23.99	0.00	-2,341.75	0.00	2,341.75	3,114.35	767.59	2,623.11	2,294.24	0.15	-0.27	0.631
10.00	-25.89	-23.50	0.00	-2,221.79	0.00	2,221.79	3,070.50	750.99	2,510.89	2,212.51	0.57	-0.54	0.614
15.00	-24.73	-23.01	0.00	-2,104.30	0.00	2,104.30	3,025.61	734.39	2,401.13	2,131.46	1.29	-0.81	0.597
20.00	-23.59	-22.51	0.00	-1,989.27	0.00	1,989.27	2,979.68	717.78	2,293.82	2,051.14	2.28	-1.08	0.579
25.00	-22.46	-22.02	0.00	-1,876.70	0.00	1,876.70	2,932.71	701.18	2,188.97	1,971.59	3.57	-1.36	0.560
30.00	-21.39	-21.65	0.00	-1,766.58	0.00	1,766.58	2,875.21	684.57	2,086.57	1,886.65	5.13	-1.63	0.544
31.50	-21.04	-21.43	0.00	-1,734.10	0.00	1,734.10	2,854.29	679.59	2,056.33	1,859.14	5.65	-1.71	0.539
35.00	-19.96	-21.16	0.00	-1,659.09	0.00	1,659.09	2,805.48	667.97	1,986.62	1,795.73	6.98	-1.90	0.522
35.67	-19.72	-20.95	0.00	-1,644.99	0.00	1,644.99	2,248.07	566.94	1,717.07	1,468.70	7.25	-1.93	0.598
40.00	-18.87	-20.45	0.00	-1,554.22	0.00	1,554.22	2,218.59	554.95	1,645.23	1,418.49	9.11	-2.16	0.577
45.00	-17.91	-19.90	0.00	-1,451.95	0.00	1,451.95	2,183.60	541.11	1,564.24	1,360.97	11.52	-2.44	0.553
50.00	-16.96	-19.33	0.00	-1,352.46	0.00	1,352.46	2,147.58	527.27	1,485.29	1,303.95	14.23	-2.72	0.528
55.00	-16.04	-18.75	0.00	-1,255.80	0.00	1,255.80	2,110.52	513.44	1,408.39	1,247.47	17.23	-2.99	0.503
60.00	-15.14	-18.16	0.00	-1,162.06	0.00	1,162.06	2,072.42	499.60	1,333.53	1,191.58	20.50	-3.26	0.478
65.00	-14.25	-17.55	0.00	-1,071.28	0.00	1,071.28	2,033.27	485.77	1,260.72	1,136.35	24.06	-3.53	0.452
70.00	-13.39	-17.00	0.00	-983.50	0.00	983.50	1,982.10	471.93	1,189.95	1,075.84	27.89	-3.79	0.429
73.50	-12.57	-16.64	0.00	-923.99	0.00	923.99	1,473.96	377.74	952.81	802.32	30.73	-3.97	0.479
75.00	-12.33	-16.30	0.00	-899.03	0.00	899.03	1,466.28	374.42	936.13	791.05	31.99	-4.04	0.469
80.00	-11.57	-15.68	0.00	-817.51	0.00	817.51	1,440.00	363.35	881.62	753.69	36.36	-4.30	0.436
85.00	-10.83	-15.05	0.00	-739.11	0.00	739.11	1,412.68	352.28	828.74	716.65	41.00	-4.55	0.404
90.00	-10.11	-14.43	0.00	-663.84	0.00	663.84	1,384.32	341.21	777.50	679.98	45.89	-4.79	0.372
95.00	-9.40	-13.80	0.00	-591.70	0.00	591.70	1,354.92	330.14	727.89	643.72	51.03	-5.03	0.340
100.00	-8.71	-13.17	0.00	-522.71	0.00	522.71	1,324.47	319.08	679.91	607.94	56.41	-5.25	0.308
105.00	-8.04	-12.55	0.00	-456.85	0.00	456.85	1,292.99	308.01	633.57	572.68	62.01	-5.45	0.276
110.00	-7.39	-11.93	0.00	-394.11	0.00	394.11	1,247.14	296.94	588.87	532.29	67.82	-5.65	0.247
110.00	-7.39	-11.93	0.00	-394.11	0.00	394.11	853.24	223.37	444.19	366.34	67.82	-5.65	0.297
115.00	-6.81	-11.45	0.00	-334.47	0.00	334.47	835.00	215.06	411.80	345.06	73.82	-5.83	0.257
116.75	-6.61	-11.17	0.00	-314.44	0.00	314.44	828.36	212.16	400.75	337.66	75.97	-5.89	0.243
116.75	-6.61	-11.17	0.00	-314.44	0.00	314.44	828.36	212.16	400.75	337.66	75.97	-5.89	0.942
120.00	-6.39	-10.76	0.00	-278.12	0.00	278.12	815.71	206.76	380.63	323.96	80.01	-6.00	0.869
125.00	-6.05	-10.29	0.00	-224.31	0.00	224.31	795.39	198.46	350.69	303.09	86.62	-6.63	0.750
130.00	-5.72	-10.00	0.00	-172.87	0.00	172.87	774.02	190.16	321.97	282.49	93.85	-7.19	0.622
135.00	-5.41	-9.71	0.00	-122.85	0.00	122.85	751.62	181.86	294.48	262.21	101.62	-7.66	0.479
140.00	-2.80	-5.64	0.00	-74.28	0.00	74.28	728.18	173.55	268.22	242.31	109.82	-8.02	0.311
145.00	-2.58	-5.34	0.00	-46.10	0.00	46.10	694.06	165.25	243.18	219.79	118.33	-8.27	0.215
150.00	0.00	-4.91	0.00	-19.40	0.00	19.40	659.19	156.95	219.37	198.13	127.06	-8.43	0.099

Site Number: 302493 Code: ANSI/TIA-222-H

Site Name: Nrwc - Norwich, CT Engineering Number:13677847_C3_04 6/30/2021 12:30:36 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi 49 mph with 0.85 in Radial Ice 24 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00

Dead Load Factor :1.20 Ice Importance Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		43.8	0.0					0.0	0.0	43.8	0.0	0.0	0.0
5.00		87.2	1,061.1					0.0	585.2	87.2	1,646.3	0.0	0.0
10.00		86.0	1,056.8					0.0	589.6	86.0	1,646.4	0.0	0.0
15.00		84.7	1,042.9					0.0	591.8	84.7	1,634.7	0.0	0.0
20.00		83.4	1,025.8					0.0	593.4	83.4	1,619.1	0.0	0.0
25.00		82.1	1,007.0					0.0	594.6	82.1	1,601.6	0.0	0.0
30.00		52.9	987.2					0.0	595.5	52.9	1,582.8	0.0	0.0
31.50	Bot - Section 2	41.5	292.6					0.0	178.8	41.5	471.5	0.0	0.0
35.00		35.0	1,144.5					0.0	417.5	35.0	1,562.0	0.0	0.0
35.67	Top - Section 1	42.6	216.1					0.0	79.6	42.6	295.7	0.0	0.0
40.00		80.4	723.2					0.0	517.5	80.4	1,240.7	0.0	0.0
45.00		87.4	817.2					0.0	597.7	87.4	1,415.0	0.0	0.0
50.00		88.6	798.7					0.0	598.3	88.6	1,397.0	0.0	0.0
55.00		89.4	779.9					0.0	598.9	89.4	1,378.8	0.0	0.0
60.00		90.0	760.9					0.0	599.3	90.0	1,360.2	0.0	0.0
65.00		90.4	741.7					0.0	599.8	90.4	1,341.5	0.0	0.0
70.00	Bot - Section 3	77.5	722.3					0.0	600.2	77.5	1,322.5	0.0	0.0
73.50	Top - Section 2	46.0	807.3					0.0	420.4	46.0	1,227.7	0.0	0.0
75.00		59.6	180.8					0.0	180.2	59.6	361.0	0.0	0.0
80.00		91.7	590.3					0.0	601.0	91.7	1,191.3	0.0	0.0
85.00		91.5	573.8					0.0	601.3	91.5	1,175.1	0.0	0.0
90.00		91.1	557.1					0.0	601.7	91.1	1,158.8	0.0	0.0
95.00		90.6	540.3					0.0	602.0	90.6	1,142.3	0.0	0.0
100.00		90.1	523.5					12.0	602.3	102.1	1,125.7	0.0	0.0
105.00		89.4	506.5					17.8	602.6	107.2	1,109.1	0.0	0.0
110.00	Top - Section 3	88.6	489.5					22.1	602.8	110.7	1,092.3	0.0	0.0
115.00		59.5	388.4					25.5	603.1	85.0	991.5	0.0	0.0
116.75	Reinf. Top	43.7	133.2					9.6	211.1	53.3	344.3	0.0	0.0
120.00		71.5	242.4					18.8	131.7	90.3	374.0	0.0	0.0
125.00		78.3	360.4					6.2	160.3	84.5	520.7	0.0	0.0
130.00		69.2	346.3					0.0	149.7	69.2	496.0	0.0	0.0
135.00		67.2	332.2					0.0	149.7	67.2	481.9	0.0	0.0
140.00	Appurtenance(s)	65.2	318.0	682.7	0.0	0.0	5,336.7	0.0	149.7	747.9	5,804.4	0.0	0.0
145.00		63.1	303.8					0.0	126.3	63.1	430.1	0.0	0.0
150.00	Appurtenance(s)	31.0	289.5	929.1	0.0	3,650.7	6,117.0	0.0	126.3	960.1	6,532.8	0.0	0.0
								Totals:		4,254.17	47,075.0	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 49 mph with 0.85 in Radial Ice 24 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.07	-4.23	0.00	-476.77	0.00	476.77	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.134
5.00	-45.42	-4.19	0.00	-455.61	0.00	455.61	3,114.35	767.59	2,623.11	2,294.24	0.03	-0.05	0.132
10.00	-43.77	-4.14	0.00	-434.69	0.00	434.69	3,070.50	750.99	2,510.89	2,212.51	0.11	-0.11	0.129
15.00	-42.13	-4.09	0.00	-414.00	0.00	414.00	3,025.61	734.39	2,401.13	2,131.46	0.25	-0.16	0.126
20.00	-40.51	-4.04	0.00	-393.56	0.00	393.56	2,979.68	717.78	2,293.82	2,051.14	0.45	-0.21	0.122
25.00	-38.91	-3.99	0.00	-373.37	0.00	373.37	2,932.71	701.18	2,188.97	1,971.59	0.70	-0.27	0.119
30.00	-37.32	-3.95	0.00	-353.45	0.00	353.45	2,875.21	684.57	2,086.57	1,886.65	1.00	-0.32	0.116
31.50	-36.85	-3.92	0.00	-347.53	0.00	347.53	2,854.29	679.59	2,056.33	1,859.14	1.11	-0.34	0.116
35.00	-35.29	-3.89	0.00	-333.81	0.00	333.81	2,805.48	667.97	1,986.62	1,795.73	1.37	-0.37	0.112
35.67	-34.99	-3.86	0.00	-331.21	0.00	331.21	2,248.07	566.94	1,717.07	1,468.70	1.42	-0.38	0.129
40.00	-33.74	-3.80	0.00	-314.48	0.00	314.48	2,218.59	554.95	1,645.23	1,418.49	1.79	-0.43	0.125
45.00	-32.33	-3.74	0.00	-295.46	0.00	295.46	2,183.60	541.11	1,564.24	1,360.97	2.27	-0.48	0.120
50.00	-30.93	-3.67	0.00	-276.78	0.00	276.78	2,147.58	527.27	1,485.29	1,303.95	2.81	-0.54	0.116
55.00	-29.55	-3.59	0.00	-258.46	0.00	258.46	2,110.52	513.44	1,408.39	1,247.47	3.40	-0.60	0.111
60.00	-28.18	-3.51	0.00	-240.50	0.00	240.50	2,072.42	499.60	1,333.53	1,191.58	4.06	-0.65	0.106
65.00	-26.84	-3.43	0.00	-222.94	0.00	222.94	2,033.27	485.77	1,260.72	1,136.35	4.77	-0.71	0.101
70.00	-25.52	-3.36	0.00	-205.77	0.00	205.77	1,982.10	471.93	1,189.95	1,075.84	5.54	-0.76	0.096
73.50	-24.29	-3.31	0.00	-194.02	0.00	194.02	1,473.96	377.74	952.81	802.32	6.11	-0.80	0.108
75.00	-23.93	-3.26	0.00	-189.06	0.00	189.06	1,466.28	374.42	936.13	791.05	6.37	-0.82	0.106
80.00	-22.73	-3.17	0.00	-172.77	0.00	172.77	1,440.00	363.35	881.62	753.69	7.25	-0.87	0.099
85.00	-21.56	-3.08	0.00	-156.92	0.00	156.92	1,412.68	352.28	828.74	716.65	8.19	-0.92	0.092
90.00	-20.40	-2.99	0.00	-141.53	0.00	141.53	1,384.32	341.21	777.50	679.98	9.19	-0.97	0.086
95.00	-19.25	-2.89	0.00	-126.59	0.00	126.59	1,354.92	330.14	727.89	643.72	10.23	-1.02	0.079
100.00	-18.13	-2.78	0.00	-112.13	0.00	112.13	1,324.47	319.08	679.91	607.94	11.33	-1.07	0.072
105.00	-17.02	-2.67	0.00	-98.20	0.00	98.20	1,292.99	308.01	633.57	572.68	12.48	-1.12	0.065
110.00	-15.93	-2.55	0.00	-84.86	0.00	84.86	1,247.14	296.94	588.87	532.29	13.67	-1.16	0.058
110.00	-15.93	-2.55	0.00	-84.86	0.00	84.86	853.24	223.37	444.19	366.34	13.67	-1.16	0.070
115.00	-14.94	-2.45	0.00	-72.12	0.00	72.12	835.00	215.06	411.80	345.06	14.90	-1.20	0.061
116.75	-14.59	-2.39	0.00	-67.83	0.00	67.83	828.36	212.16	400.75	337.66	15.35	-1.21	0.058
116.75	-14.59	-2.39	0.00	-67.83	0.00	67.83	828.36	212.16	400.75	337.66	15.35	-1.21	0.219
120.00	-14.22	-2.32	0.00	-60.05	0.00	60.05	815.71	206.76	380.63	323.96	16.18	-1.23	0.203
125.00	-13.69	-2.25	0.00	-48.47	0.00	48.47	795.39	198.46	350.69	303.09	17.54	-1.37	0.177
130.00	-13.19	-2.19	0.00	-37.22	0.00	37.22	774.02	190.16	321.97	282.49	19.04	-1.49	0.149
135.00	-12.71	-2.13	0.00	-26.25	0.00	26.25	751.62	181.86	294.48	262.21	20.66	-1.59	0.117
140.00	-6.93	-1.23	0.00	-15.58	0.00	15.58	728.18	173.55	268.22	242.31	22.37	-1.67	0.074
145.00	-6.50	-1.16	0.00	-9.44	0.00	9.44	694.06	165.25	243.18	219.79	24.15	-1.72	0.052
150.00	0.00	-0.96	0.00	-3.65	0.00	3.65	659.19	156.95	219.37	198.13	25.97	-1.75	0.018

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		56.9	0.0					0.0	0.0	56.9	0.0	0.0	0.0
5.00		112.7	752.2					23.8	458.7	136.5	1,210.9	0.0	0.0
10.00		110.3	736.1					23.8	458.7	134.1	1,194.8	0.0	0.0
15.00		107.9	720.0					23.8	458.7	131.7	1,178.7	0.0	0.0
20.00		105.4	703.9					23.8	458.7	129.2	1,162.7	0.0	0.0
25.00		103.0	687.8					23.8	458.7	126.8	1,146.6	0.0	0.0
30.00		66.1	671.7					23.8	458.7	89.9	1,130.5	0.0	0.0
31.50	Bot - Section 2	51.6	198.4					7.2	137.6	58.8	336.0	0.0	0.0
35.00		43.4	846.5					17.2	321.1	60.6	1,167.6	0.0	0.0
35.67	Top - Section 1	52.8	159.6					3.3	61.2	56.1	220.8	0.0	0.0
40.00		99.1	471.3					22.1	397.6	121.2	868.9	0.0	0.0
45.00		107.1	531.3					26.3	458.7	133.4	990.0	0.0	0.0
50.00		107.5	517.9					27.2	458.7	134.7	976.6	0.0	0.0
55.00		107.6	504.5					27.9	458.7	135.6	963.2	0.0	0.0
60.00		107.4	491.0					28.7	458.7	136.1	949.8	0.0	0.0
65.00		106.9	477.6					29.4	458.7	136.3	936.4	0.0	0.0
70.00	Bot - Section 3	91.0	464.2					30.0	458.7	121.0	923.0	0.0	0.0
73.50	Top - Section 2	53.8	575.9					21.4	321.1	75.2	897.1	0.0	0.0
75.00		69.4	109.4					9.3	137.6	78.6	247.0	0.0	0.0
80.00		105.9	357.6					31.2	458.7	137.1	816.4	0.0	0.0
85.00		104.5	346.9					31.8	458.7	136.3	805.6	0.0	0.0
90.00		102.9	336.2					32.3	458.7	135.2	794.9	0.0	0.0
95.00		101.2	325.4					32.9	458.7	134.0	784.2	0.0	0.0
100.00		99.2	314.7					33.3	458.7	132.6	773.4	0.0	0.0
105.00		97.2	304.0					33.8	458.7	131.0	762.7	0.0	0.0
110.00	Top - Section 3	95.0	293.2					34.3	458.7	129.3	752.0	0.0	0.0
115.00		63.1	212.5					34.7	458.7	97.8	671.3	0.0	0.0
116.75	Reinf. Top	45.7	72.5					12.3	160.6	58.0	233.0	0.0	0.0
120.00		74.1	132.0					22.9	81.1	97.0	213.1	0.0	0.0
125.00		78.6	196.4					35.6	124.7	114.2	321.2	0.0	0.0
130.00		67.3	188.4					0.0	124.7	67.3	313.1	0.0	0.0
135.00		65.0	180.3					0.0	124.7	65.0	305.1	0.0	0.0
140.00	Appurtenance(s)	62.8	172.3	752.8	0.0	0.0	3,167.9	0.0	124.7	815.6	3,464.9	0.0	0.0
145.00		60.4	164.2					0.0	105.2	60.4	269.5	0.0	0.0
150.00	Appurtenance(s)	29.6	156.2	1,052.0	0.0	4,275.2	3,439.6	0.0	105.2	1,081.6	3,701.0	0.0	0.0
								Totals:		5,444.92	31,481.9	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.48	-5.40	0.00	-548.03	0.00	548.03	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.150
5.00	-30.26	-5.30	0.00	-521.01	0.00	521.01	3,114.35	767.59	2,623.11	2,294.24	0.03	-0.06	0.146
10.00	-29.06	-5.19	0.00	-494.52	0.00	494.52	3,070.50	750.99	2,510.89	2,212.51	0.13	-0.12	0.142
15.00	-27.88	-5.09	0.00	-468.55	0.00	468.55	3,025.61	734.39	2,401.13	2,131.46	0.29	-0.18	0.138
20.00	-26.71	-4.98	0.00	-443.11	0.00	443.11	2,979.68	717.78	2,293.82	2,051.14	0.51	-0.24	0.134
25.00	-25.56	-4.88	0.00	-418.20	0.00	418.20	2,932.71	701.18	2,188.97	1,971.59	0.79	-0.30	0.129
30.00	-24.43	-4.80	0.00	-393.81	0.00	393.81	2,875.21	684.57	2,086.57	1,886.65	1.14	-0.36	0.126
31.50	-24.09	-4.75	0.00	-386.61	0.00	386.61	2,854.29	679.59	2,056.33	1,859.14	1.26	-0.38	0.125
35.00	-22.92	-4.69	0.00	-369.99	0.00	369.99	2,805.48	667.97	1,986.62	1,795.73	1.55	-0.42	0.120
35.67	-22.70	-4.64	0.00	-366.86	0.00	366.86	2,248.07	566.94	1,717.07	1,468.70	1.61	-0.43	0.138
40.00	-21.82	-4.54	0.00	-346.74	0.00	346.74	2,218.59	554.95	1,645.23	1,418.49	2.03	-0.48	0.133
45.00	-20.83	-4.42	0.00	-324.04	0.00	324.04	2,183.60	541.11	1,564.24	1,360.97	2.57	-0.54	0.128
50.00	-19.85	-4.30	0.00	-301.95	0.00	301.95	2,147.58	527.27	1,485.29	1,303.95	3.17	-0.61	0.122
55.00	-18.89	-4.17	0.00	-280.47	0.00	280.47	2,110.52	513.44	1,408.39	1,247.47	3.84	-0.67	0.116
60.00	-17.93	-4.04	0.00	-259.63	0.00	259.63	2,072.42	499.60	1,333.53	1,191.58	4.57	-0.73	0.111
65.00	-16.99	-3.91	0.00	-239.43	0.00	239.43	2,033.27	485.77	1,260.72	1,136.35	5.36	-0.79	0.105
70.00	-16.07	-3.79	0.00	-219.88	0.00	219.88	1,982.10	471.93	1,189.95	1,075.84	6.22	-0.84	0.100
73.50	-15.17	-3.71	0.00	-206.62	0.00	206.62	1,473.96	377.74	952.81	802.32	6.85	-0.88	0.111
75.00	-14.92	-3.63	0.00	-201.06	0.00	201.06	1,466.28	374.42	936.13	791.05	7.13	-0.90	0.109
80.00	-14.11	-3.50	0.00	-182.89	0.00	182.89	1,440.00	363.35	881.62	753.69	8.11	-0.96	0.101
85.00	-13.30	-3.36	0.00	-165.40	0.00	165.40	1,412.68	352.28	828.74	716.65	9.14	-1.02	0.094
90.00	-12.51	-3.22	0.00	-148.59	0.00	148.59	1,384.32	341.21	777.50	679.98	10.24	-1.07	0.087
95.00	-11.72	-3.08	0.00	-132.48	0.00	132.48	1,354.92	330.14	727.89	643.72	11.38	-1.12	0.079
100.00	-10.95	-2.95	0.00	-117.05	0.00	117.05	1,324.47	319.08	679.91	607.94	12.59	-1.17	0.072
105.00	-10.19	-2.81	0.00	-102.33	0.00	102.33	1,292.99	308.01	633.57	572.68	13.84	-1.22	0.065
110.00	-9.43	-2.67	0.00	-88.29	0.00	88.29	1,247.14	296.94	588.87	532.29	15.14	-1.26	0.058
110.00	-9.43	-2.67	0.00	-88.29	0.00	88.29	853.24	223.37	444.19	366.34	15.14	-1.26	0.070
115.00	-8.76	-2.56	0.00	-74.95	0.00	74.95	835.00	215.06	411.80	345.06	16.48	-1.30	0.060
116.75	-8.53	-2.50	0.00	-70.47	0.00	70.47	828.36	212.16	400.75	337.66	16.96	-1.32	0.057
116.75	-8.53	-2.50	0.00	-70.47	0.00	70.47	828.36	212.16	400.75	337.66	16.96	-1.32	0.219
120.00	-8.32	-2.41	0.00	-62.35	0.00	62.35	815.71	206.76	380.63	323.96	17.86	-1.34	0.203
125.00	-7.99	-2.31	0.00	-50.30	0.00	50.30	795.39	198.46	350.69	303.09	19.34	-1.48	0.176
130.00	-7.68	-2.25	0.00	-38.77	0.00	38.77	774.02	190.16	321.97	282.49	20.96	-1.61	0.147
135.00	-7.37	-2.18	0.00	-27.54	0.00	27.54	751.62	181.86	294.48	262.21	22.70	-1.71	0.115
140.00	-3.93	-1.27	0.00	-16.62	0.00	16.62	728.18	173.55	268.22	242.31	24.54	-1.79	0.074
145.00	-3.66	-1.20	0.00	-10.28	0.00	10.28	694.06	165.25	243.18	219.79	26.45	-1.85	0.052
150.00	0.00	-1.08	0.00	-4.28	0.00	4.28	659.19	156.95	219.37	198.13	28.41	-1.88	0.022

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.85
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	2.00
Total Unfactored Dead Load:	31.48 k
Seismic Base Shear (E):	0.94 k

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	147.50	261	5,688	0.022	20	325
33	142.50	269	5,472	0.021	20	335
32	137.50	297	5,616	0.021	20	369
31	132.50	305	5,356	0.020	19	379
30	127.50	313	5,090	0.019	18	389
29	122.50	321	4,820	0.018	17	399
28	118.38	213	2,986	0.011	11	265
27	115.88	233	3,129	0.012	11	289
26	112.50	671	8,496	0.032	31	834
25	107.50	752	8,690	0.033	31	934
24	102.50	763	8,013	0.031	29	947
23	97.50	773	7,353	0.028	26	960
22	92.50	784	6,710	0.026	24	974
21	87.50	795	6,086	0.023	22	987
20	82.50	806	5,483	0.021	20	1,000
19	77.50	816	4,903	0.019	18	1,014
18	74.25	247	1,362	0.005	5	307
17	71.75	897	4,618	0.018	17	1,114
16	67.50	923	4,205	0.016	15	1,146
15	62.50	936	3,658	0.014	13	1,163
14	57.50	950	3,140	0.012	11	1,179
13	52.50	963	2,655	0.010	10	1,196
12	47.50	977	2,204	0.008	8	1,213
11	42.50	990	1,788	0.007	6	1,229
10	37.83	869	1,244	0.005	4	1,079

9	35.33	221	276	0.001	1	274
8	33.25	1,168	1,291	0.005	5	1,450
7	30.75	336	318	0.001	1	417
6	27.50	1,130	855	0.003	3	1,404
5	22.50	1,147	580	0.002	2	1,424
4	17.50	1,163	356	0.001	1	1,444
3	12.50	1,179	184	0.001	1	1,464
2	7.50	1,195	67	0.000	0	1,484
1	2.50	1,211	8	0.000	0	1,504
Kathrein Scala 860-1	150.00	2	50	0.000	0	3
Powerwave Allgon LGP	150.00	32	716	0.003	3	39
Powerwave Allgon LGP	150.00	5	121	0.000	0	7
Raycap DC6-48-60-18-	150.00	20	450	0.002	2	25
Ericsson Radio 8843	150.00	216	4,853	0.019	17	268
Powerwave Allgon LGP	150.00	186	4,185	0.016	15	231
Ericsson RRUS 4478 B	150.00	180	4,043	0.015	15	223
Ericsson RRUS 4449 B	150.00	213	4,793	0.018	17	265
Raycap DC9-48-60-24-	150.00	16	360	0.001	1	20
Powerwave Allgon 777	150.00	105	2,363	0.009	9	130
CCI DMP65R-BU4D	150.00	68	1,528	0.006	6	84
CCI OPA65R-BU4DA-K	150.00	52	1,181	0.005	4	65
CCI DMP65R-BU8D	150.00	191	4,307	0.016	16	238
CCI OPA65R-BU8D	150.00	153	3,443	0.013	12	190
Flat Platform w/ Han	150.00	2,000	45,000	0.172	162	2,484
Ericsson Radio 4480	140.00	252	4,939	0.019	18	313
Ericsson AIR 21, 1.3	140.00	275	5,380	0.021	19	341
Ericsson AIR 21	140.00	273	5,351	0.020	19	339
RFS APXVAALL24 43-U-	140.00	368	7,221	0.028	26	457
Site Pro RMPQ Platfo	140.00	2,000	39,200	0.150	141	2,484
		31,482	262,180	1.000	944	39,095

Load Case 0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	147.50	261	5,688	0.022	20	224
33	142.50	269	5,472	0.021	20	231
32	137.50	297	5,616	0.021	20	255
31	132.50	305	5,356	0.020	19	262
30	127.50	313	5,090	0.019	18	269
29	122.50	321	4,820	0.018	17	276
28	118.38	213	2,986	0.011	11	183
27	115.88	233	3,129	0.012	11	200
26	112.50	671	8,496	0.032	31	576
25	107.50	752	8,690	0.033	31	645
24	102.50	763	8,013	0.031	29	655
23	97.50	773	7,353	0.028	26	664
22	92.50	784	6,710	0.026	24	673
21	87.50	795	6,086	0.023	22	682
20	82.50	806	5,483	0.021	20	691
19	77.50	816	4,903	0.019	18	701
18	74.25	247	1,362	0.005	5	212
17	71.75	897	4,618	0.018	17	770
16	67.50	923	4,205	0.016	15	792
15	62.50	936	3,658	0.014	13	804
14	57.50	950	3,140	0.012	11	815
13	52.50	963	2,655	0.010	10	827
12	47.50	977	2,204	0.008	8	838
11	42.50	990	1,788	0.007	6	850
10	37.83	869	1,244	0.005	4	746
9	35.33	221	276	0.001	1	189

8	33.25	1,168	1,291	0.005	5	1,002
7	30.75	336	318	0.001	1	288
6	27.50	1,130	855	0.003	3	970
5	22.50	1,147	580	0.002	2	984
4	17.50	1,163	356	0.001	1	998
3	12.50	1,179	184	0.001	1	1,012
2	7.50	1,195	67	0.000	0	1,025
1	2.50	1,211	8	0.000	0	1,039
Kathrein Scala 860-1	150.00	2	50	0.000	0	2
Powerwave Allgon LGP	150.00	32	716	0.003	3	27
Powerwave Allgon LGP	150.00	5	121	0.000	0	5
Raycap DC6-48-60-18-	150.00	20	450	0.002	2	17
Ericsson Radio 8843	150.00	216	4,853	0.019	17	185
Powerwave Allgon LGP	150.00	186	4,185	0.016	15	160
Ericsson RRUS 4478 B	150.00	180	4,043	0.015	15	154
Ericsson RRUS 4449 B	150.00	213	4,793	0.018	17	183
Raycap DC9-48-60-24-	150.00	16	360	0.001	1	14
Powerwave Allgon 777	150.00	105	2,363	0.009	9	90
CCI DMP65R-BU4D	150.00	68	1,528	0.006	6	58
CCI OPA65R-BU4DA-K	150.00	52	1,181	0.005	4	45
CCI DMP65R-BU8D	150.00	191	4,307	0.016	16	164
CCI OPA65R-BU8D	150.00	153	3,443	0.013	12	131
Flat Platform w/ Han	150.00	2,000	45,000	0.172	162	1,716
Ericsson Radio 4480	140.00	252	4,939	0.019	18	216
Ericsson AIR 21, 1.3	140.00	275	5,380	0.021	19	236
Ericsson AIR 21	140.00	273	5,351	0.020	19	234
RFS APXVAALL24 43-U-	140.00	368	7,221	0.028	26	316
Site Pro RMPQ Platfo	140.00	2,000	39,200	0.150	141	1,716
		31,482	262,180	1.000	944	27,017

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.59	-0.95	0.00	-123.54	0.00	123.54	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.040
5.00	-36.11	-0.96	0.00	-118.80	0.00	118.80	3,114.35	767.59	2,623.11	2,294.24	0.01	-0.01	0.040
10.00	-34.64	-0.96	0.00	-114.01	0.00	114.01	3,070.50	750.99	2,510.89	2,212.51	0.03	-0.03	0.039
15.00	-33.20	-0.97	0.00	-109.19	0.00	109.19	3,025.61	734.39	2,401.13	2,131.46	0.07	-0.04	0.038
20.00	-31.77	-0.97	0.00	-104.34	0.00	104.34	2,979.68	717.78	2,293.82	2,051.14	0.12	-0.06	0.037
25.00	-30.37	-0.98	0.00	-99.47	0.00	99.47	2,932.71	701.18	2,188.97	1,971.59	0.18	-0.07	0.036
30.00	-29.95	-0.98	0.00	-94.59	0.00	94.59	2,875.21	684.57	2,086.57	1,886.65	0.26	-0.08	0.036
31.50	-28.50	-0.98	0.00	-93.12	0.00	93.12	2,854.29	679.59	2,056.33	1,859.14	0.29	-0.09	0.035
35.00	-28.23	-0.98	0.00	-89.69	0.00	89.69	2,805.48	667.97	1,986.62	1,795.73	0.36	-0.10	0.035
35.67	-27.15	-0.98	0.00	-89.04	0.00	89.04	2,248.07	566.94	1,717.07	1,468.70	0.37	-0.10	0.040
40.00	-25.92	-0.97	0.00	-84.81	0.00	84.81	2,218.59	554.95	1,645.23	1,418.49	0.47	-0.11	0.038
45.00	-24.71	-0.97	0.00	-79.94	0.00	79.94	2,183.60	541.11	1,564.24	1,360.97	0.60	-0.13	0.037
50.00	-23.51	-0.96	0.00	-75.10	0.00	75.10	2,147.58	527.27	1,485.29	1,303.95	0.74	-0.14	0.036
55.00	-22.33	-0.96	0.00	-70.28	0.00	70.28	2,110.52	513.44	1,408.39	1,247.47	0.90	-0.16	0.034
60.00	-21.17	-0.94	0.00	-65.50	0.00	65.50	2,072.42	499.60	1,333.53	1,191.58	1.07	-0.17	0.033
65.00	-20.02	-0.93	0.00	-60.78	0.00	60.78	2,033.27	485.77	1,260.72	1,136.35	1.27	-0.19	0.031
70.00	-18.91	-0.91	0.00	-56.13	0.00	56.13	1,982.10	471.93	1,189.95	1,075.84	1.47	-0.20	0.030
73.50	-18.60	-0.91	0.00	-52.93	0.00	52.93	1,473.96	377.74	952.81	802.32	1.62	-0.21	0.034
75.00	-17.59	-0.89	0.00	-51.57	0.00	51.57	1,466.28	374.42	936.13	791.05	1.69	-0.22	0.033
80.00	-16.59	-0.87	0.00	-47.11	0.00	47.11	1,440.00	363.35	881.62	753.69	1.93	-0.23	0.031
85.00	-15.60	-0.85	0.00	-42.74	0.00	42.74	1,412.68	352.28	828.74	716.65	2.18	-0.25	0.029
90.00	-14.63	-0.83	0.00	-38.49	0.00	38.49	1,384.32	341.21	777.50	679.98	2.45	-0.26	0.027
95.00	-13.66	-0.80	0.00	-34.36	0.00	34.36	1,354.92	330.14	727.89	643.72	2.73	-0.28	0.024
100.00	-12.72	-0.77	0.00	-30.38	0.00	30.38	1,324.47	319.08	679.91	607.94	3.03	-0.29	0.022
105.00	-11.78	-0.73	0.00	-26.54	0.00	26.54	1,292.99	308.01	633.57	572.68	3.34	-0.30	0.020
110.00	-10.95	-0.70	0.00	-22.88	0.00	22.88	1,247.14	296.94	588.87	532.29	3.66	-0.31	0.018
110.00	-10.95	-0.70	0.00	-22.88	0.00	22.88	853.24	223.37	444.19	366.34	3.66	-0.31	0.022
115.00	-10.66	-0.69	0.00	-19.38	0.00	19.38	835.00	215.06	411.80	345.06	3.99	-0.32	0.019
116.75	-10.40	-0.68	0.00	-18.17	0.00	18.17	828.36	212.16	400.75	337.66	4.11	-0.33	0.019
116.75	-10.40	-0.68	0.00	-18.17	0.00	18.17	828.36	212.16	400.75	337.66	4.11	-0.33	0.066
120.00	-10.00	-0.66	0.00	-15.97	0.00	15.97	815.71	206.76	380.63	323.96	4.33	-0.33	0.062
125.00	-9.61	-0.65	0.00	-12.66	0.00	12.66	795.39	198.46	350.69	303.09	4.70	-0.37	0.054
130.00	-9.23	-0.63	0.00	-9.43	0.00	9.43	774.02	190.16	321.97	282.49	5.10	-0.40	0.045
135.00	-8.86	-0.61	0.00	-6.29	0.00	6.29	751.62	181.86	294.48	262.21	5.53	-0.42	0.036
140.00	-4.59	-0.34	0.00	-3.24	0.00	3.24	728.18	173.55	268.22	242.31	5.99	-0.44	0.020
145.00	-4.27	-0.31	0.00	-1.56	0.00	1.56	694.06	165.25	243.18	219.79	6.46	-0.45	0.013
150.00	0.00	-0.28	0.00	0.00	0.00	0.00	659.19	156.95	219.37	198.13	6.93	-0.46	0.000

Load Case 0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.98	-0.95	0.00	-120.92	0.00	120.92	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.037
5.00	-24.95	-0.95	0.00	-116.18	0.00	116.18	3,114.35	767.59	2,623.11	2,294.24	0.01	-0.01	0.037
10.00	-23.94	-0.96	0.00	-111.42	0.00	111.42	3,070.50	750.99	2,510.89	2,212.51	0.03	-0.03	0.036
15.00	-22.94	-0.96	0.00	-106.63	0.00	106.63	3,025.61	734.39	2,401.13	2,131.46	0.06	-0.04	0.035
20.00	-21.96	-0.96	0.00	-101.83	0.00	101.83	2,979.68	717.78	2,293.82	2,051.14	0.11	-0.05	0.034
25.00	-20.99	-0.96	0.00	-97.01	0.00	97.01	2,932.71	701.18	2,188.97	1,971.59	0.18	-0.07	0.033
30.00	-20.70	-0.97	0.00	-92.19	0.00	92.19	2,875.21	684.57	2,086.57	1,886.65	0.26	-0.08	0.033
31.50	-19.70	-0.96	0.00	-90.74	0.00	90.74	2,854.29	679.59	2,056.33	1,859.14	0.28	-0.09	0.032
35.00	-19.51	-0.96	0.00	-87.38	0.00	87.38	2,805.48	667.97	1,986.62	1,795.73	0.35	-0.10	0.032
35.67	-18.76	-0.96	0.00	-86.74	0.00	86.74	2,248.07	566.94	1,717.07	1,468.70	0.36	-0.10	0.036
40.00	-17.91	-0.96	0.00	-82.58	0.00	82.58	2,218.59	554.95	1,645.23	1,418.49	0.46	-0.11	0.035
45.00	-17.07	-0.95	0.00	-77.80	0.00	77.80	2,183.60	541.11	1,564.24	1,360.97	0.58	-0.13	0.034
50.00	-16.25	-0.94	0.00	-73.05	0.00	73.05	2,147.58	527.27	1,485.29	1,303.95	0.72	-0.14	0.033
55.00	-15.43	-0.93	0.00	-68.33	0.00	68.33	2,110.52	513.44	1,408.39	1,247.47	0.88	-0.16	0.031
60.00	-14.63	-0.92	0.00	-63.66	0.00	63.66	2,072.42	499.60	1,333.53	1,191.58	1.05	-0.17	0.030
65.00	-13.84	-0.91	0.00	-59.05	0.00	59.05	2,033.27	485.77	1,260.72	1,136.35	1.23	-0.18	0.029
70.00	-13.07	-0.89	0.00	-54.51	0.00	54.51	1,982.10	471.93	1,189.95	1,075.84	1.44	-0.20	0.027
73.50	-12.85	-0.89	0.00	-51.39	0.00	51.39	1,473.96	377.74	952.81	802.32	1.58	-0.21	0.031
75.00	-12.15	-0.87	0.00	-50.06	0.00	50.06	1,466.28	374.42	936.13	791.05	1.65	-0.21	0.030
80.00	-11.46	-0.85	0.00	-45.71	0.00	45.71	1,440.00	363.35	881.62	753.69	1.88	-0.23	0.028
85.00	-10.78	-0.83	0.00	-41.46	0.00	41.46	1,412.68	352.28	828.74	716.65	2.13	-0.24	0.026
90.00	-10.11	-0.80	0.00	-37.32	0.00	37.32	1,384.32	341.21	777.50	679.98	2.39	-0.26	0.024
95.00	-9.44	-0.78	0.00	-33.31	0.00	33.31	1,354.92	330.14	727.89	643.72	2.66	-0.27	0.022
100.00	-8.79	-0.75	0.00	-29.43	0.00	29.43	1,324.47	319.08	679.91	607.94	2.95	-0.28	0.020
105.00	-8.14	-0.71	0.00	-25.70	0.00	25.70	1,292.99	308.01	633.57	572.68	3.25	-0.29	0.018
110.00	-7.57	-0.68	0.00	-22.14	0.00	22.14	1,247.14	296.94	588.87	532.29	3.56	-0.30	0.016
110.00	-7.57	-0.68	0.00	-22.14	0.00	22.14	853.24	223.37	444.19	366.34	3.56	-0.30	0.020
115.00	-7.37	-0.67	0.00	-18.74	0.00	18.74	835.00	215.06	411.80	345.06	3.89	-0.31	0.017
116.75	-7.18	-0.66	0.00	-17.57	0.00	17.57	828.36	212.16	400.75	337.66	4.00	-0.32	0.017
116.75	-7.18	-0.66	0.00	-17.57	0.00	17.57	828.36	212.16	400.75	337.66	4.00	-0.32	0.061
120.00	-6.91	-0.64	0.00	-15.43	0.00	15.43	815.71	206.76	380.63	323.96	4.22	-0.32	0.056
125.00	-6.64	-0.63	0.00	-12.22	0.00	12.22	795.39	198.46	350.69	303.09	4.58	-0.36	0.049
130.00	-6.38	-0.61	0.00	-9.10	0.00	9.10	774.02	190.16	321.97	282.49	4.97	-0.39	0.040
135.00	-6.12	-0.59	0.00	-6.06	0.00	6.06	751.62	181.86	294.48	262.21	5.39	-0.41	0.031
140.00	-3.17	-0.32	0.00	-3.12	0.00	3.12	728.18	173.55	268.22	242.31	5.83	-0.43	0.017
145.00	-2.95	-0.30	0.00	-1.51	0.00	1.51	694.06	165.25	243.18	219.79	6.28	-0.44	0.011
150.00	0.00	-0.28	0.00	0.00	0.00	0.00	659.19	156.95	219.37	198.13	6.74	-0.44	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	24.51	0.00	37.72	0.00	0.00	2505.12	116.75	0.97
0.9D + 1.0W	24.49	0.00	28.27	0.00	0.00	2464.18	116.75	0.94
1.2D + 1.0Di + 1.0Wi	4.23	0.00	47.07	0.00	0.00	476.77	116.75	0.22
1.2D + 1.0Ev + 1.0Eh	0.95	0.00	37.59	0.00	0.00	123.54	116.75	0.07
0.9D - 1.0Ev + 1.0Eh	0.95	0.00	25.98	0.00	0.00	120.92	116.75	0.06
1.0D + 1.0W	5.40	0.00	31.48	0.00	0.00	548.03	116.75	0.22

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Ratio	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	116.75	(4) SOL-#20 All Thread Bar	316.6	9.5	16.8	0.565	261.6	330.5	0.791

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio
0.00	116.75	(4) SOL-#20 All Thread Bar	106.3	12.0	9	12	0.739	0.0	12.0	0	0	0.000

SMJ International

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06-10-21

STRUCTURAL EVALUATION LETTER
ANTENNA MOUNT ANALYSIS

SITE INFORMATION:

ATC Site Name:	Nrwc-Norwich, CT
ATC Site Number:	302493
ATC Engineering Number:	13677847_C8_03
Site Type:	Monopole Tower
Site Address:	225 Rogers Road, Norwich, New London County, CT
T-Mobile Site Name:	Norwich/ I-395 X80_1
T-Mobile Site Number:	CT11148B

CURRENT WIND CRITERIA:

1. ANSI/TIA-222-H Standard

SUPPORTING DOCUMENTS:

1. Preview Exhibit by American Tower Corporation, dated May 24, 2021
2. Mount Photos by American Tower Corporation
3. Site Pro 1 RMQP spec sheet

ASSUMPTIONS:

1. Tower mount and connections were built in accordance with the manufacturer's specifications, ANSI/TIA-222 standard, and governing building code.
2. The tower mounting system and connections have been maintained in accordance with the manufacturer's specification.
3. Tower mount connections and attachments are assumed not to control the design of mounting system and have been assumed adequate based on main member capacities.

Table 1 - Final Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Antenna Model	Mount Pipe Position Number	Antenna Mount System
140.0	140.0	(3) Ericsson AIR 21	3	12.5' Platform with Handrails
		(3) RFS APXVAALL24 43-U-NA20	2	
		(3) Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	4	
		(3) Ericsson Radio 4480 B71+B85A	2	

CONCLUSION:

Due to customer antenna spacing/separation requirements, the existing mount cannot support the equipment as described in this report and must be replaced with the mount listed below. Based on the analysis results, the proposed mount meets the requirements, per the applicable codes listed above, and can support the equipment as described in this report. Analysis is based on new Site Pro 1 RMQP platform.

If existing conditions in the field differ from those shown on the above referenced documents or the antenna loading is modified to be other than that shown on Table 1, this review letter will be required to be revised.

Table 2 - Mount Analysis Results

Mount Centerline (ft)	Structural Components	Controlling Usage	Pass/Fail	Necessary Modification
140.0	**Mount Pipes**	**77%**	**Pass (77%)**	-
	Plates	**48%**		
	Cross Arms	**16%**		
	Connections	**52%**		
	Frame Rails	**23%**		
	Corner Angles	**34%**		
	Handrails	**57%**		
	Arms	**57%**		
	Corner Angles	**64%**		

We at SMJ International, LLC appreciate the opportunity of providing our continuing professional services. If you have any questions or need further assistance on this or any other projects, please give us a call.

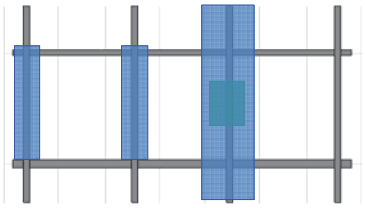
SMJ International

Date:	6/10/2021
Site Name:	Nrwc-Norwich, CT
Project Engineer:	DVA
Project No:	13677847_C8_03
Customer:	American Tower Corporation
Carrier:	T-Mobile

Building Code:	2018	
ASCE Standard:	ASCE 7-16	
TIA Standard:	H	
Mount Type:	Platform	
Mount Existing?	Proposed	
Mount Centerline:	140	ft
Superstructure Height:	151	ft
Structure Type:	Tower	

Site Information		
Exposure Category:	C	
Risk Category:	II	
Ground Elevation	383.1	ft
Ultimate Wind Speed:	124	mph
Design Wind Speed:	124	mph
Ice Thickness:	1.00	in
Ice Wind Speed:	50.0	mph
Escalated Ice Thickness:	1.16	in
Topographic Method:	2	
Topographic Category:	1	

ELEVATION VIEW



Alpha	M58	M91	M97
Beta	M112	M115	M121
Gamma	M100	M103	M109

Factors	
Gh:	1.000
K_{zmin}:	0.850
K_z:	1.359
K_d:	0.950
K_{zt}:	1.000
Ke:	0.986
Ka:	0.900
Kes(Wind)	
Kes(Ice)	
I wind:	
I ice:	1.000

q_z:	50.10	psf
Surface Wind Pressure:	0.00	psf

Run Seismic?	Yes	
Site Soil:	D (Default)	
Short-Period Accel. (Ss):	0.1960	
1-Second Accel. (S1):	0.0540	
Short-Period Design (SDS):	0.2090	
1-Second Design (SD1):	0.0870	
Short-Period Coeff. (Fa):	1.6000	
1-Second Coeff. (Fv):	2.4000	
Cs	0.1045	
Cs min	0.0300	
Amplification Factor (ap):	1.00	
Response Mod. (Rp):	2.50	
Overstrength (Ωo):	1.00	
Service Wind:	30.0	mph
Lm (man live load) =	500.0	lb
Lv (man live load) =	250.0	lb

PLAN VIEW

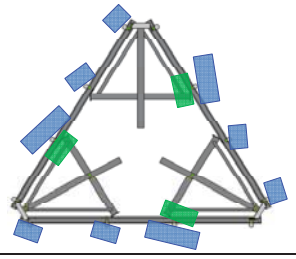


Table 1. Equipment Specifications and Wind Pressure

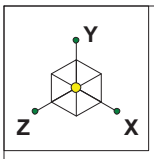
Manufacturer	Model	Elevation	Pipe Label	Weight (lb)	Height (in)	Width (in)	Depth (in)	EPA_N	EPA_T	$EPA_{N\ w/\ ice}$	$EPA_{T\ w/\ ice}$	q_z:	$q_{z\ ice}$:	$q_{z\ live}$:
ERICSSON	AIR 21	140	91, 115, 103	91.00	56	12	7.9	3.19	1.98	3.87	2.62	50.10	8.15	2.93
RFS/CELWAVE	APXVAALL24 43-U-NA20	141	97, 121, 109	122.80	95.9	24	8.5	20.24	8.73	22.52	10.83	50.18	8.16	2.94
ERICSSON	AIR, 1.3M, B2A B4P (91.5 lbs)	140	58, 112, 100	91.50	55.9	12	7.8	6.04	4.26	7.35	5.50	50.10	8.15	2.93
ERICSSON	Radio 4480 B71+B85A	140	97, 121, 109	84.00	21.8	15.7	7.5	2.73	1.38	3.46	1.97	50.10	8.15	2.93

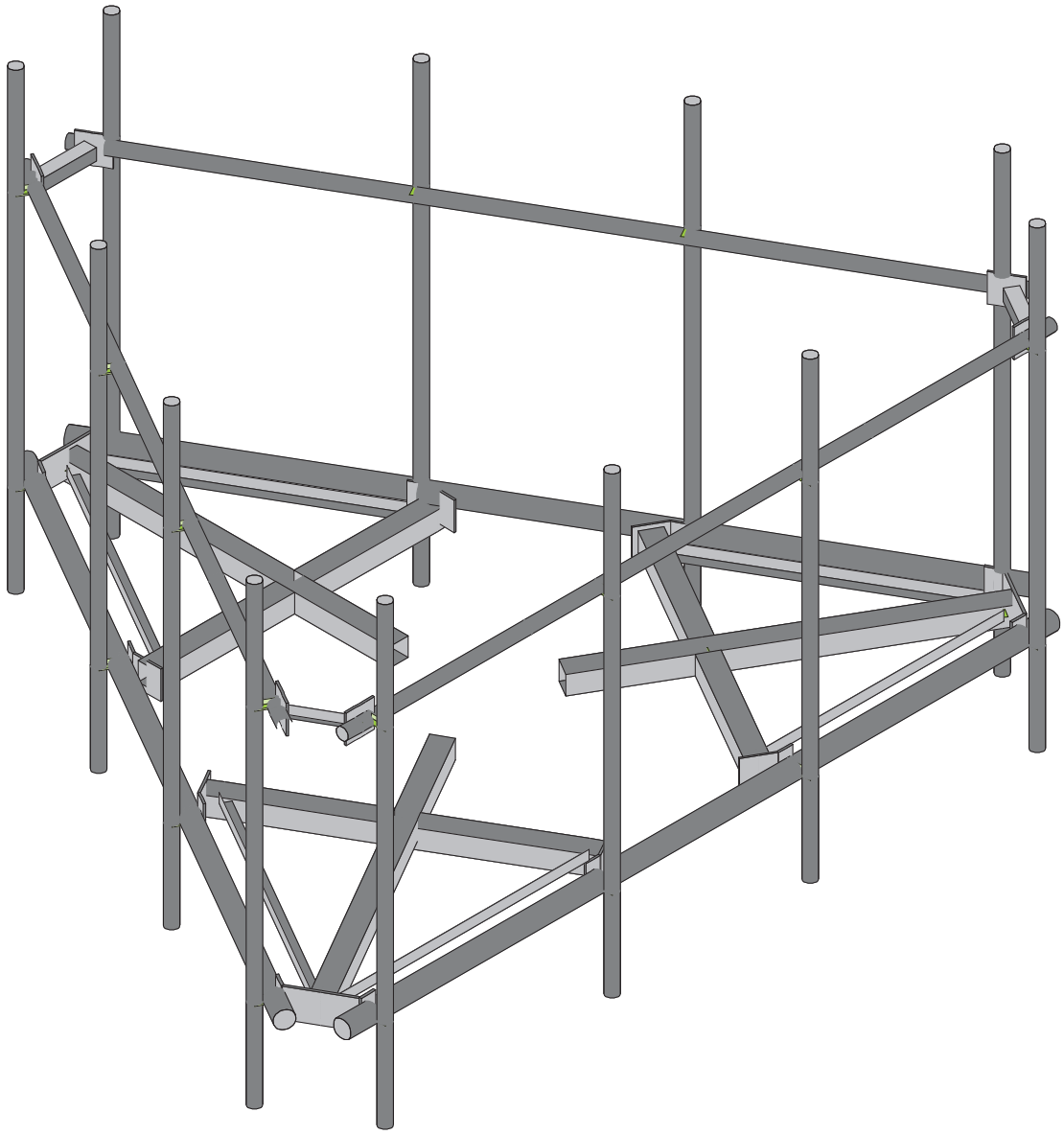
Table 2. Equipment Wind and Seismic Loads

Manufacturer	Model	Wind Load (F_A), lb		Wind Load Ice Case (F_A), lb			Wind Load Service Case		Seismic
ERICSSON	AIR 21	144	89	28	19	105	8	5	9.5
RFS/CELWAVE	APXVAALL24 43-U-NA20	914	394	165	80	307	54	23	12.8
ERICSSON	AIR, 1.3M, B2A B4P (91.5 lbs)	272	192	54	40	104	16	11	9.6
ERICSSON	Radio 4480 B71+B85A	123	62	25	14	49	7	4	8.8

Table 3. Member Capacities

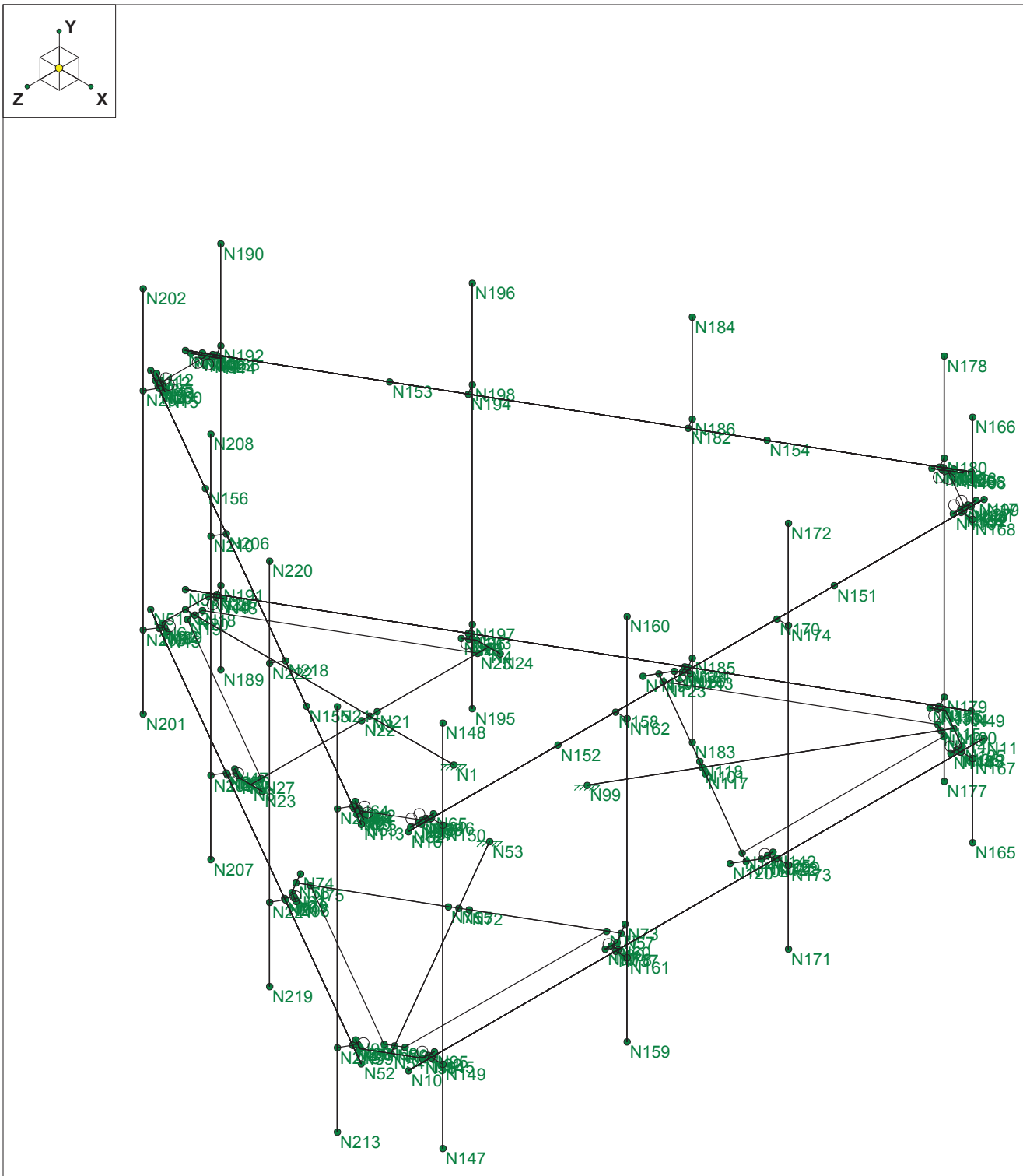
Member Name	Member Shape	Wind load (plf)	Wind Load Ice (plf)	Weight Ice (plf)	Bending Check	Shear Check	Total Capacity	Controlling Capacity
Arm	HSS4x4x4	33.40	5.43	0.76	57%	10%	57%	
Cross Arm	HSS4x4x4	33.40	5.43	0.76	16%	6%	16%	
Frame Rail	PIPE_3.0	17.54	2.85	0.70	23%	12%	23%	
Angle	L2x2x3	16.70	2.72	0.52	29%	1%	29%	
Handrail	PIPE_2.0	11.92	1.94	0.56	57%	36%	57%	77%
Mount Pipe	PIPE_2.0	11.92	1.94	0.56	77%	25%	77%	
Plate	6" x 0.5" Plate	50.10	8.15	1.00	34%	31%	34%	
Plate 2	6" x 0.375" Plate	50.10	8.15	1.00	48%	34%	48%	
Corner Angle	L2.5x2.5x3	20.88	3.39	0.58	64%	17%	64%	





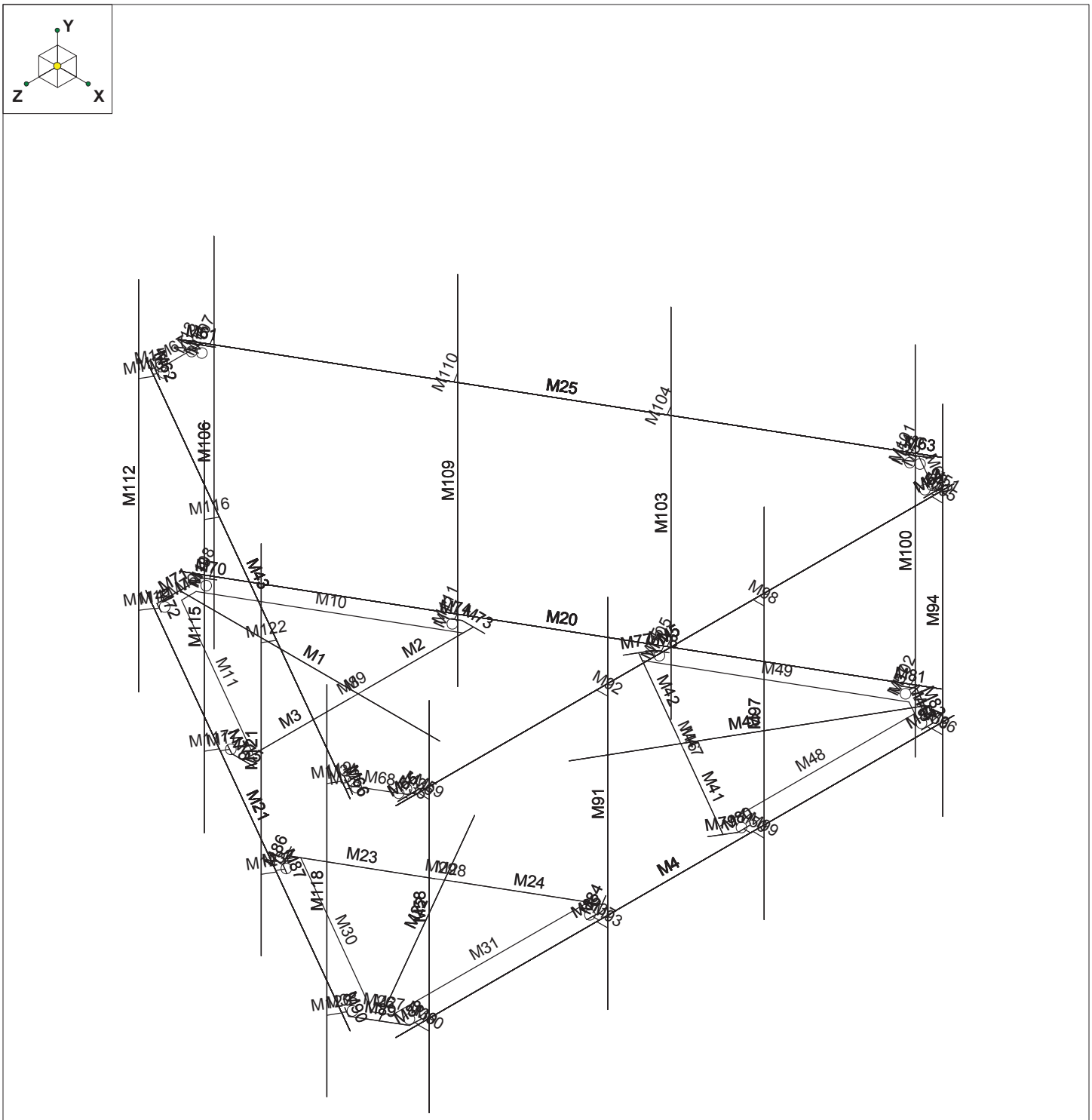
Envelope Only Solution

SMJ International, LLC		SK - 1
DVA	Nrwc-Norwich, CT	June 10, 2021 at 4:56 PM
13677847_C8_03	Platform Model	302493_13677847_C8_03_T-Mobil.



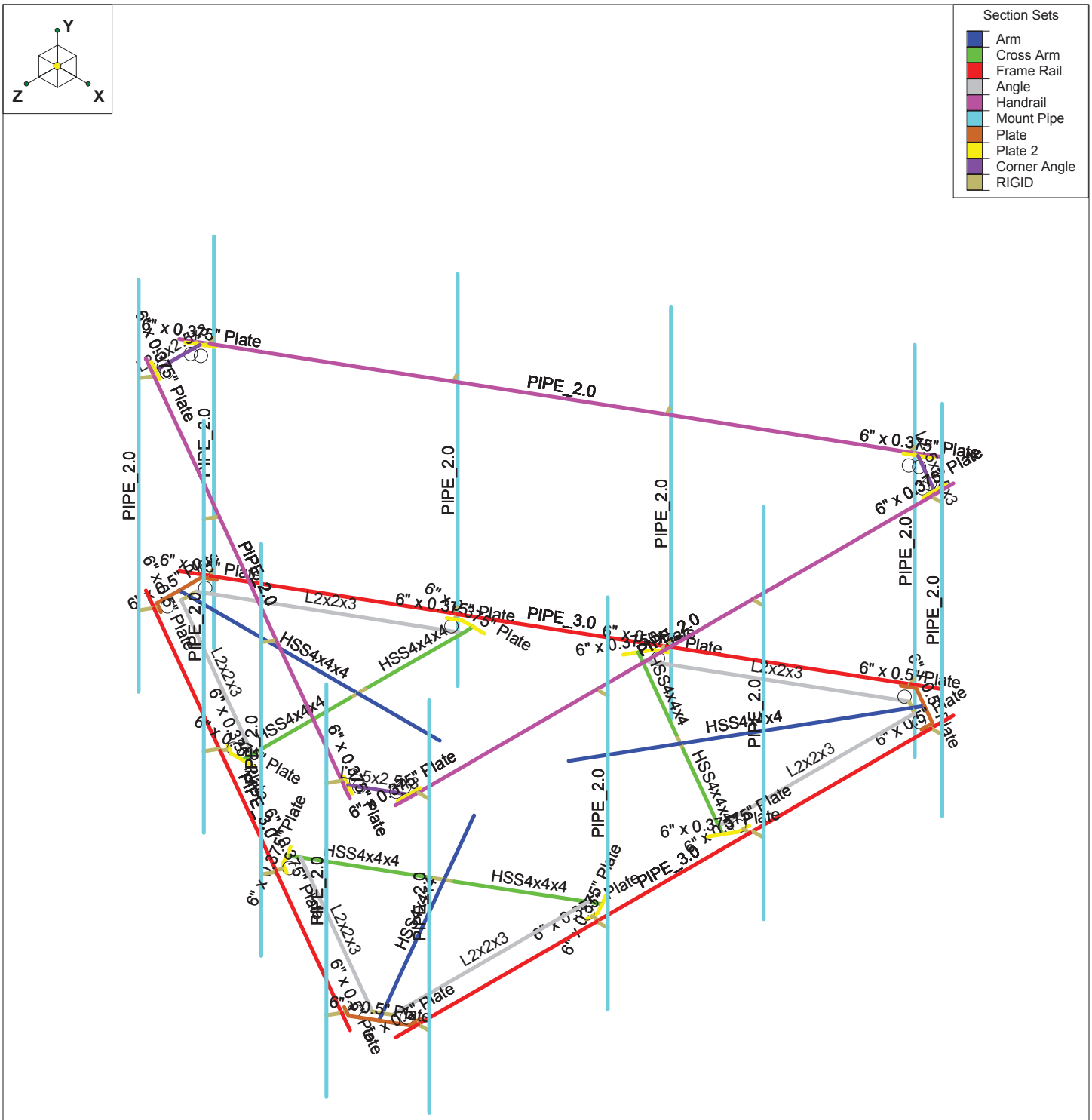
Envelope Only Solution

SMJ International, LLC		SK - 2
DVA	Nrwc-Norwich, CT	June 10, 2021 at 4:56 PM
13677847_C8_03	Joint Labels	302493_13677847_C8_03_T-Mobil.



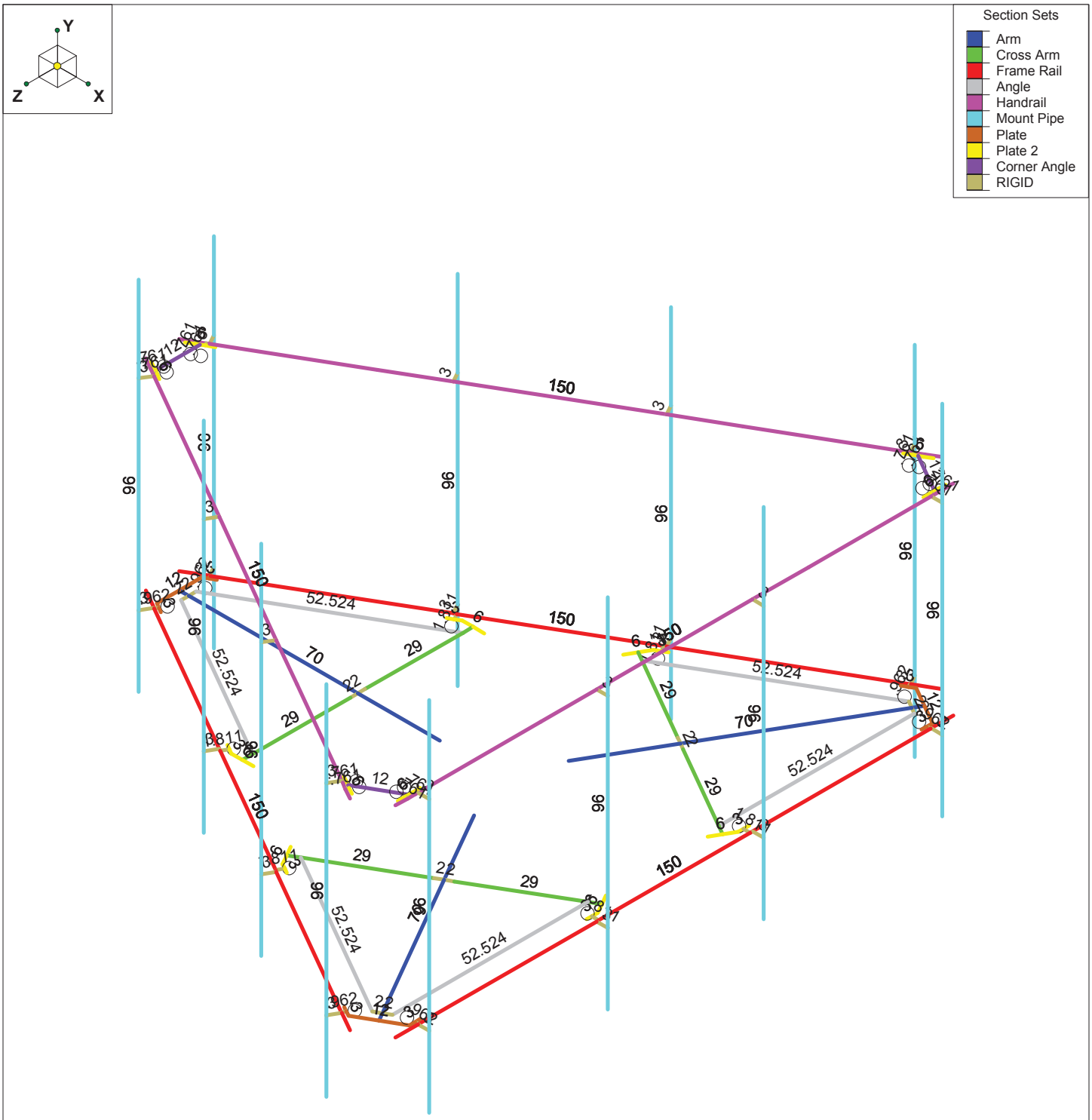
Envelope Only Solution

SMJ International, LLC		SK - 3
DVA	Nrwc-Norwich, CT	June 10, 2021 at 4:56 PM
13677847_C8_03	Member Labels	302493_13677847_C8_03_T-Mobil.



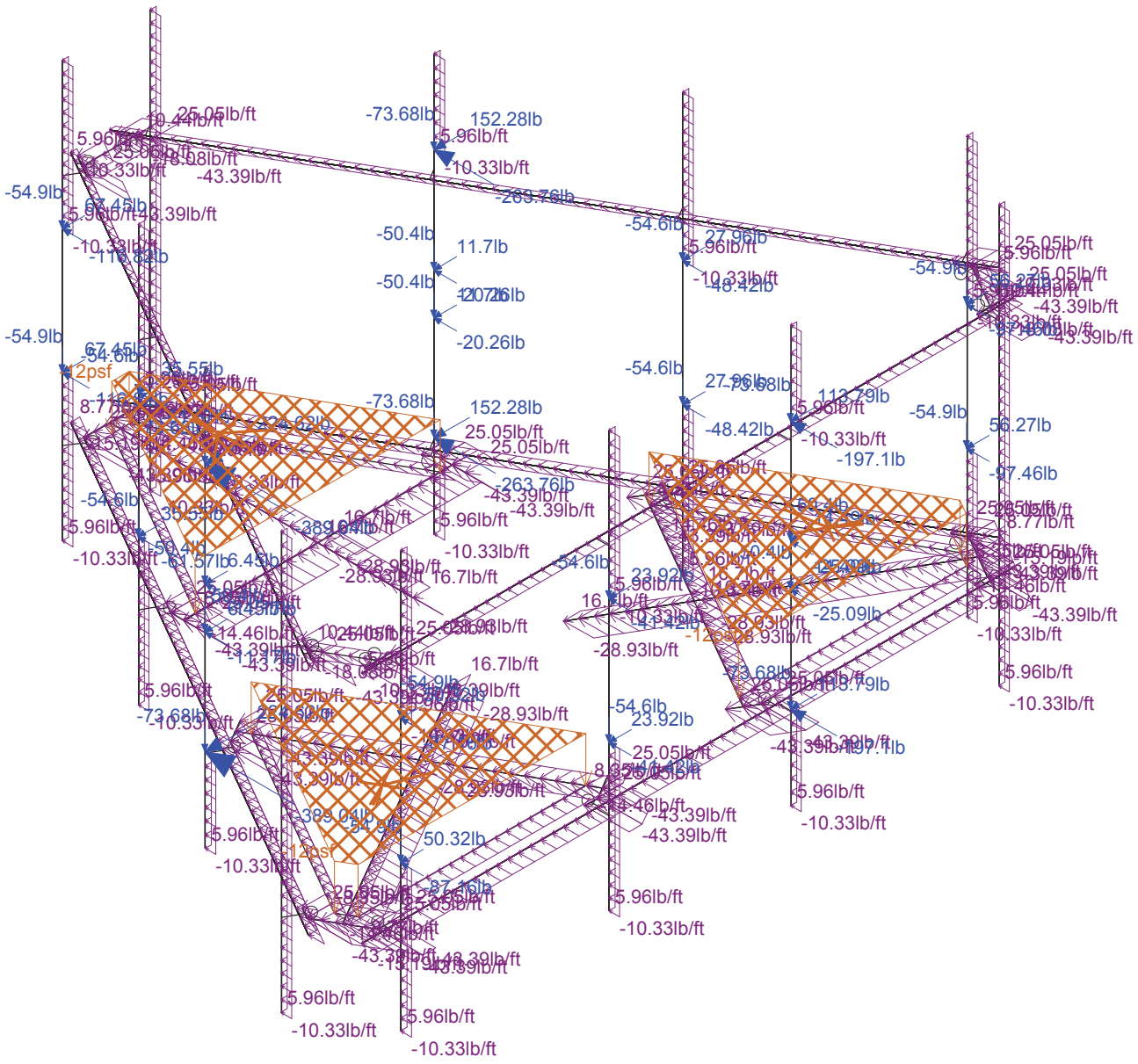
Envelope Only Solution

SMJ International, LLC		SK - 4
DVA	Nrwc-Norwich, CT	June 10, 2021 at 4:56 PM
13677847_C8_03	Member Shapes	302493_13677847_C8_03_T-Mobil.



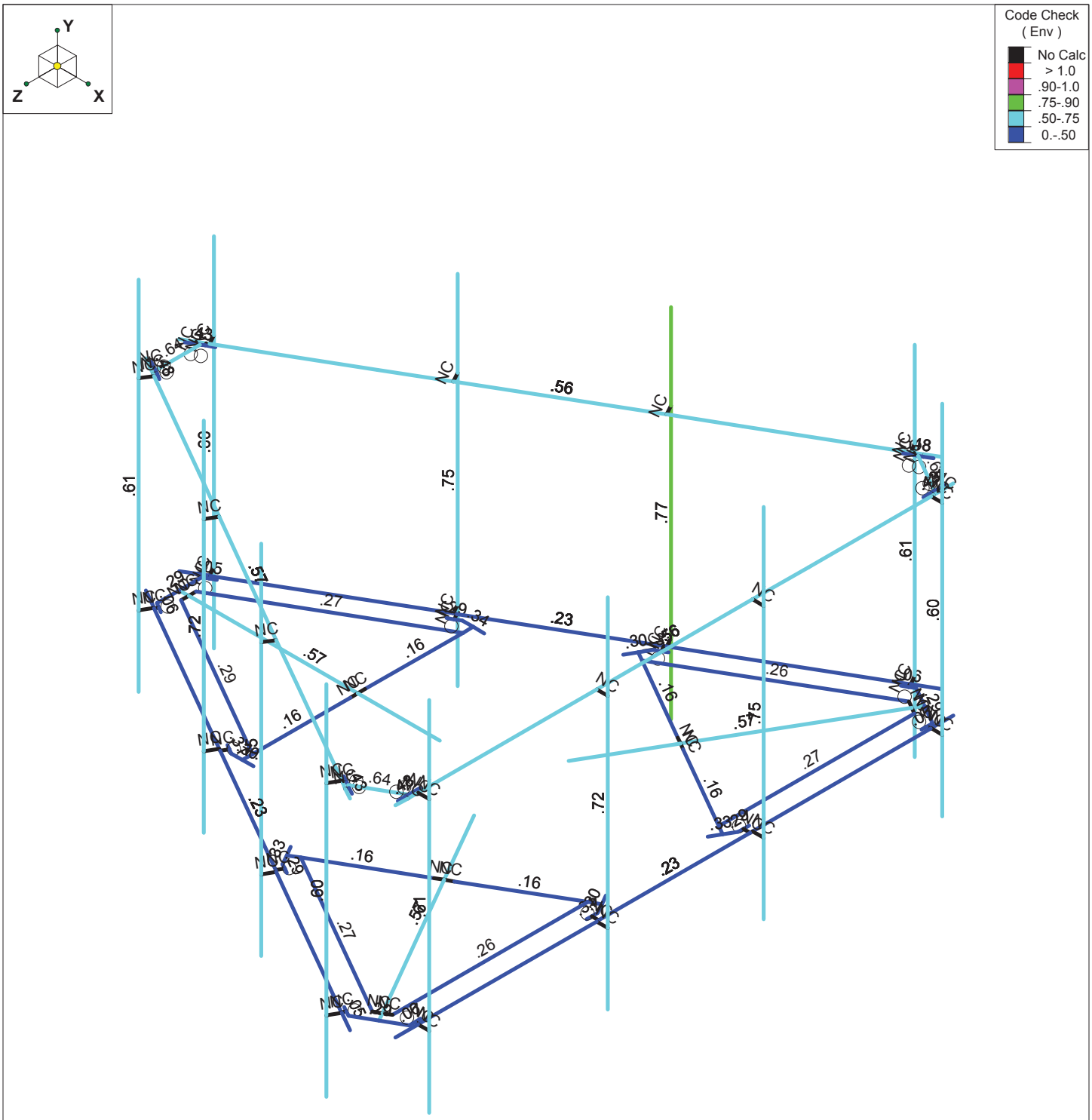
Member Length (in) Displayed
Envelope Only Solution

SMJ International, LLC		SK - 5
DVA	Nrwc-Norwich, CT	June 10, 2021 at 4:56 PM
13677847_C8_03	Member Lengths	302493_13677847_C8_03_T-Mobil.



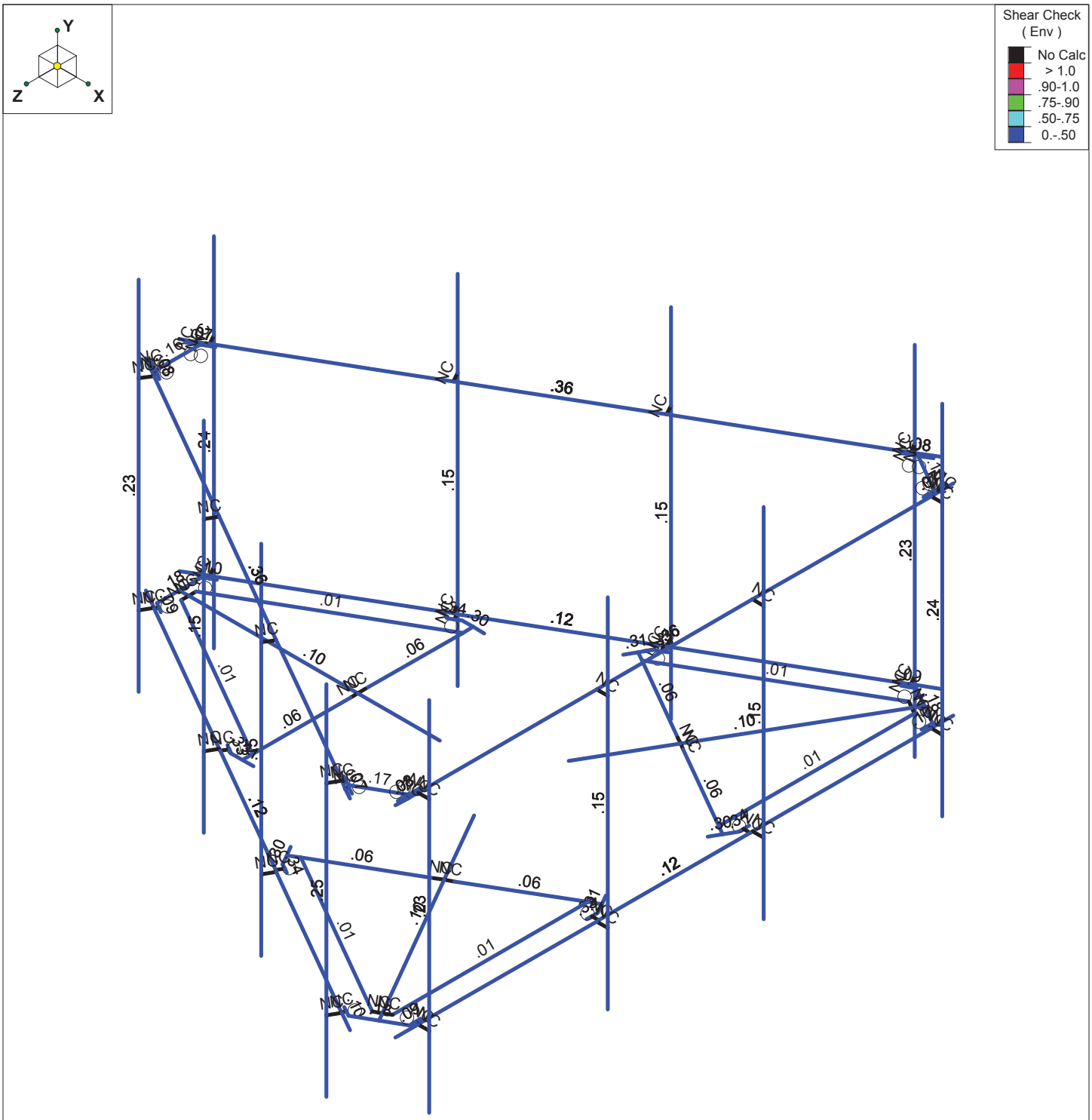
Loads: LC 13, 1.2DL + 1WL AZI 330
Envelope Only Solution

SMJ International, LLC		SK - 6
DVA	Nrwc-Norwich, CT	June 10, 2021 at 4:56 PM
13677847_C8_03	Controlling Load Case	302493_13677847_C8_03_T-Mobil.



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

SMJ International, LLC		SK - 7
DVA	Nrwc-Norwich, CT	June 10, 2021 at 4:56 PM
13677847_C8_03	Member Bending Check	302493_13677847_C8_03_T-Mobil.



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

SMJ International, LLC		SK - 8
DVA	Nrwc-Norwich, CT	June 10, 2021 at 4:56 PM
13677847_C8_03	Member Shear Check	302493_13677847_C8_03_T-Mobil.

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI S100-12: LRFD
Wood Code	AF&PA NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: Strength
Aluminum Code	AA ADM1-10: LRFD - Building

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

Global, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Om Z	1
Om X	1
Rho Z	1
Rho X	1

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate...	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Arm	Beam	Tube	A500 ...	Typical
2	M2	N21	N4			Cross Arm	Beam	Tube	A500 ...	Typical
3	M3	N22	N5			Cross Arm	Beam	Tube	A500 ...	Typical
4	M4	N10	N11			Frame Rail	Beam	Pipe	A53 G...	Typical
5	M5	N16	N17			Handrail	HBrace	Pipe	A53 G...	Typical
6	M6	N20	N18			RIGID	None	None	RIGID	Typical
7	M7	N20	N19			RIGID	None	None	RIGID	Typical
8	M8	N3	N22			RIGID	None	None	RIGID	Typical
9	M9	N3	N21			RIGID	None	None	RIGID	Typical
10	M10	N18	N25			Angle	Beam	Single An...	A36 G...	Typical
11	M11	N27	N19			Angle	Beam	Single An...	A36 G...	Typical
12	M12	N26	N29			RIGID	None	None	RIGID	Typical
13	M13	N35	N31			RIGID	None	None	RIGID	Typical
14	M14	N36	N32			RIGID	None	None	RIGID	Typical
15	M15	N37	N33			RIGID	None	None	RIGID	Typical
16	M16	N38	N34			RIGID	None	None	RIGID	Typical
17	M17	N28	N30			RIGID	None	None	RIGID	Typical
18	M18	N39	N40			RIGID	None	None	RIGID	Typical
19	M19	N41	N42			RIGID	None	None	RIGID	Typical
20	M20	N49	N50			Frame Rail	Beam	Pipe	A53 G...	Typical
21	M21	N51	N52			Frame Rail	Beam	Pipe	A53 G...	Typical
22	M22	N53	N54			Arm	Beam	Tube	A500 ...	Typical
23	M23	N71	N56			Cross Arm	Beam	Tube	A500 ...	Typical
24	M24	N72	N57			Cross Arm	Beam	Tube	A500 ...	Typical
25	M25	N66	N67			Handrail	HBrace	Pipe	A53 G...	Typical
26	M26	N70	N68			RIGID	None	None	RIGID	Typical
27	M27	N70	N69			RIGID	None	None	RIGID	Typical
28	M28	N55	N72			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate...	Section/Shape	Type	Design List	Material	Design Rules
29	M29	N55	N71			RIGID	None	None	RIGID	Typical
30	M30	N68	N75			Angle	Beam	Single An...	A36 G...	Typical
31	M31	N77	N69			Angle	Beam	Single An...	A36 G...	Typical
32	M32	N76	N79			RIGID	None	None	RIGID	Typical
33	M33	N85	N81			RIGID	None	None	RIGID	Typical
34	M34	N86	N82			RIGID	None	None	RIGID	Typical
35	M35	N87	N83			RIGID	None	None	RIGID	Typical
36	M36	N88	N84			RIGID	None	None	RIGID	Typical
37	M37	N78	N80			RIGID	None	None	RIGID	Typical
38	M38	N89	N90			RIGID	None	None	RIGID	Typical
39	M39	N91	N92			RIGID	None	None	RIGID	Typical
40	M40	N99	N100			Arm	Beam	Tube	A500 ...	Typical
41	M41	N117	N102			Cross Arm	Beam	Tube	A500 ...	Typical
42	M42	N118	N103			Cross Arm	Beam	Tube	A500 ...	Typical
43	M43	N112	N113			Handrail	HBrace	Pipe	A53 G...	Typical
44	M44	N116	N114			RIGID	None	None	RIGID	Typical
45	M45	N116	N115			RIGID	None	None	RIGID	Typical
46	M46	N101	N118			RIGID	None	None	RIGID	Typical
47	M47	N101	N117			RIGID	None	None	RIGID	Typical
48	M48	N114	N121			Angle	Beam	Single An...	A36 G...	Typical
49	M49	N123	N115			Angle	Beam	Single An...	A36 G...	Typical
50	M50	N122	N125			RIGID	None	None	RIGID	Typical
51	M51	N131	N127			RIGID	None	None	RIGID	Typical
52	M52	N132	N128			RIGID	None	None	RIGID	Typical
53	M53	N133	N129			RIGID	None	None	RIGID	Typical
54	M54	N134	N130			RIGID	None	None	RIGID	Typical
55	M55	N124	N126			RIGID	None	None	RIGID	Typical
56	M56	N135	N136			RIGID	None	None	RIGID	Typical
57	M57	N137	N138			RIGID	None	None	RIGID	Typical
58	M58	N147	N148			Mount Pipe	Column	Pipe	A53 G...	Typical
59	M59	N146	N150			RIGID	None	None	RIGID	Typical
60	M60	N145	N149			RIGID	None	None	RIGID	Typical
61	M61	N14	N13			Plate 2	Beam	BAR	A36 G...	Typical
62	M62	N15	N12			Plate 2	Beam	BAR	A36 G...	Typical
63	M63	N108	N111			Plate 2	Beam	BAR	A36 G...	Typical
64	M64	N109	N110			Plate 2	Beam	BAR	A36 G...	Typical
65	M65	N65	N62			Plate 2	Beam	BAR	A36 G...	Typical
66	M66	N63	N64			Plate 2	Beam	BAR	A36 G...	Typical
67	M67	N44	N43		90	Corner Angle	Beam	Single An...	A36 G...	Typical
68	M68	N94	N93		90	Corner Angle	Beam	Single An...	A36 G...	Typical
69	M69	N140	N139		90	Corner Angle	Beam	Single An...	A36 G...	Typical
70	M70	N48	N7			Plate	Beam	BAR	A36 G...	Typical
71	M71	N7	N6			Plate	Beam	BAR	A36 G...	Typical
72	M72	N6	N45			Plate	Beam	BAR	A36 G...	Typical
73	M73	N24	N9			Plate 2	Beam	BAR	A36 G...	Typical
74	M74	N9	N46			Plate 2	Beam	BAR	A36 G...	Typical
75	M75	N23	N8			Plate 2	Beam	BAR	A36 G...	Typical
76	M76	N8	N47			Plate 2	Beam	BAR	A36 G...	Typical
77	M77	N119	N106			Plate 2	Beam	BAR	A36 G...	Typical
78	M78	N106	N143			Plate 2	Beam	BAR	A36 G...	Typical
79	M79	N120	N107			Plate 2	Beam	BAR	A36 G...	Typical
80	M80	N107	N142			Plate 2	Beam	BAR	A36 G...	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate...	Section/Shape	Type	Design List	Material	Design Rules
81	M81	N141	N104			Plate	Beam	BAR	A36 G...	Typical
82	M82	N104	N105			Plate	Beam	BAR	A36 G...	Typical
83	M83	N105	N144			Plate	Beam	BAR	A36 G...	Typical
84	M84	N73	N60			Plate 2	Beam	BAR	A36 G...	Typical
85	M85	N60	N97			Plate 2	Beam	BAR	A36 G...	Typical
86	M86	N74	N61			Plate 2	Beam	BAR	A36 G...	Typical
87	M87	N61	N96			Plate 2	Beam	BAR	A36 G...	Typical
88	M88	N95	N58			Plate	Beam	BAR	A36 G...	Typical
89	M89	N58	N59			Plate	Beam	BAR	A36 G...	Typical
90	M90	N59	N98			Plate	Beam	BAR	A36 G...	Typical
91	M91	N159	N160			Mount Pipe	Column	Pipe	A53 G...	Typical
92	M92	N158	N162			RIGID	None	None	RIGID	Typical
93	M93	N157	N161			RIGID	None	None	RIGID	Typical
94	M94	N165	N166			Mount Pipe	Column	Pipe	A53 G...	Typical
95	M95	N164	N168			RIGID	None	None	RIGID	Typical
96	M96	N163	N167			RIGID	None	None	RIGID	Typical
97	M97	N171	N172			Mount Pipe	Column	Pipe	A53 G...	Typical
98	M98	N170	N174			RIGID	None	None	RIGID	Typical
99	M99	N169	N173			RIGID	None	None	RIGID	Typical
100	M100	N177	N178			Mount Pipe	Column	Pipe	A53 G...	Typical
101	M101	N176	N180			RIGID	None	None	RIGID	Typical
102	M102	N175	N179			RIGID	None	None	RIGID	Typical
103	M103	N183	N184			Mount Pipe	Column	Pipe	A53 G...	Typical
104	M104	N182	N186			RIGID	None	None	RIGID	Typical
105	M105	N181	N185			RIGID	None	None	RIGID	Typical
106	M106	N189	N190			Mount Pipe	Column	Pipe	A53 G...	Typical
107	M107	N188	N192			RIGID	None	None	RIGID	Typical
108	M108	N187	N191			RIGID	None	None	RIGID	Typical
109	M109	N195	N196			Mount Pipe	Column	Pipe	A53 G...	Typical
110	M110	N194	N198			RIGID	None	None	RIGID	Typical
111	M111	N193	N197			RIGID	None	None	RIGID	Typical
112	M112	N201	N202			Mount Pipe	Column	Pipe	A53 G...	Typical
113	M113	N200	N204			RIGID	None	None	RIGID	Typical
114	M114	N199	N203			RIGID	None	None	RIGID	Typical
115	M115	N207	N208			Mount Pipe	Column	Pipe	A53 G...	Typical
116	M116	N206	N210			RIGID	None	None	RIGID	Typical
117	M117	N205	N209			RIGID	None	None	RIGID	Typical
118	M118	N213	N214			Mount Pipe	Column	Pipe	A53 G...	Typical
119	M119	N212	N216			RIGID	None	None	RIGID	Typical
120	M120	N211	N215			RIGID	None	None	RIGID	Typical
121	M121	N219	N220			Mount Pipe	Column	Pipe	A53 G...	Typical
122	M122	N218	N222			RIGID	None	None	RIGID	Typical
123	M123	N217	N221			RIGID	None	None	RIGID	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		60	121.8	0
3	Total General		60	121.8	0
4					

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[LB]
5	Hot Rolled Steel				
6	A36 Gr.36	6" x 0.375" Plate	18	90	57.4
7	A36 Gr.36	6" x 0.5" Plate	9	54	45.9
8	A36 Gr.36	L2x2x3	6	315.1	64.5
9	A36 Gr.36	L2.5x2.5x3	3	36	9.2
10	A500 Gr.46	HSS4x4x4	9	384	367
11	A53 Gr.B	PIPE_2.0	15	1602	463.4
12	A53 Gr.B	PIPE_3.0	3	450	264.1
13	Total HR Steel		63	2931.1	1271.5

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
2	N2							
3	N3							
4	N4							
5	N5							
6	N6							
7	N7							
8	N8							
9	N9							
10	N10							
11	N11							
12	N12							
13	N13							
14	N14							
15	N15							
16	N16							
17	N17							
18	N18							
19	N19							
20	N20							
21	N21							
22	N22							
23	N23							
24	N24							
25	N31							
26	N35							
27	N36							
28	N37							
29	N38							
30	N49							
31	N50							
32	N51							
33	N52							
34	N53	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
35	N54							
36	N55							
37	N56							
38	N57							

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
39	N58							
40	N59							
41	N60							
42	N61							
43	N62							
44	N63							
45	N64							
46	N65							
47	N66							
48	N67							
49	N68							
50	N69							
51	N70							
52	N71							
53	N72							
54	N73							
55	N74							
56	N81							
57	N85							
58	N86							
59	N87							
60	N88							
61	N99	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
62	N100							
63	N101							
64	N102							
65	N103							
66	N104							
67	N105							
68	N106							
69	N107							
70	N108							
71	N109							
72	N110							
73	N111							
74	N112							
75	N113							
76	N114							
77	N115							
78	N116							
79	N117							
80	N118							
81	N119							
82	N120							
83	N127							
84	N131							
85	N132							
86	N133							
87	N134							

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight	DL		-1			24		3	
2	Wind Load AZI 0	WLX					48	264		
3	Wind Load AZI 30	None					48	264		
4	Wind Load AZI 60	None					48	264		
5	Wind Load AZI 90	WLZ					48	264		
6	Wind Load AZI 120	None					48	264		
7	Wind Load AZI 150	None					48	264		
8	Wind Load AZI 180	None					48	264		
9	Wind Load AZI 210	None					48	264		
10	Wind Load AZI 240	None					48	264		
11	Wind Load AZI 270	None					48	264		
12	Wind Load AZI 300	None					48	264		
13	Wind Load AZI 330	None					48	264		
14	Ice Weight	OL1					24	123	3	
15	Ice Wind Load AZI 0	OL2					48	264		
16	Ice Wind Load AZI 30	None					48	264		
17	Ice Wind Load AZI 60	None					48	264		
18	Ice Wind Load AZI 90	OL3					48	264		
19	Ice Wind Load AZI 120	None					48	264		
20	Ice Wind Load AZI 150	None					48	264		
21	Ice Wind Load AZI 180	None					48	264		
22	Ice Wind Load AZI 210	None					48	264		
23	Ice Wind Load AZI 240	None					48	264		
24	Ice Wind Load AZI 270	None					48	264		
25	Ice Wind Load AZI 300	None					48	264		
26	Ice Wind Load AZI 330	None					48	264		
27	Seismic Load X	ELX			-.105		24			
28	Seismic Load Z	ELZ	-.105				24			
29	Service Live Loads	LL								
30	Maintenance Load 1	LL					1			
31	Maintenance Load 2	LL					1			
32	Maintenance Load 3	LL					1			
33	Maintenance Load 4	LL					1			
34	Maintenance Load 5	LL					1			
35	Maintenance Load 6	LL					1			
36	Maintenance Load 7	LL					1			
37	Maintenance Load 8	LL					1			
38	Maintenance Load 9	LL					1			
39	Maintenance Load 10	LL					1			
40	Maintenance Load 11	LL					1			
41	Maintenance Load 12	LL					1			
42	Maintenance Load 13	LL					1			
43	Maintenance Load 14	LL					1			
44	Maintenance Load 15	LL					1			
45	Maintenance Load 16	LL					1			
46	Maintenance Load 17	LL					1			
47	Maintenance Load 18	LL					1			
48	Maintenance Load 19	LL					1			
49	Maintenance Load 20	LL					1			
50	Maintenance Load 21	LL					1			
55	BLC 1 Transient Area Loads	None						101		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
56	BLC 14 Transient Area Loads	None						101		

Load Combinations

	Description	Solve	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		1	1.4																		
2	1.2DL + 1WL AZI 0	Yes	Y		1	1.2	2	1																
3	1.2DL + 1WL AZI 30	Yes	Y		1	1.2	3	1																
4	1.2DL + 1WL AZI 60	Yes	Y		1	1.2	4	1																
5	1.2DL + 1WL AZI 90	Yes	Y		1	1.2	5	1																
6	1.2DL + 1WL AZI 120	Yes	Y		1	1.2	6	1																
7	1.2DL + 1WL AZI 150	Yes	Y		1	1.2	7	1																
8	1.2DL + 1WL AZI 180	Yes	Y		1	1.2	8	1																
9	1.2DL + 1WL AZI 210	Yes	Y		1	1.2	9	1																
10	1.2DL + 1WL AZI 240	Yes	Y		1	1.2	10	1																
11	1.2DL + 1WL AZI 270	Yes	Y		1	1.2	11	1																
12	1.2DL + 1WL AZI 300	Yes	Y		1	1.2	12	1																
13	1.2DL + 1WL AZI 330	Yes	Y		1	1.2	13	1																
14	0.9DL + 1WL AZI 0	Yes	Y		1	.9	2	1																
15	0.9DL + 1WL AZI 30	Yes	Y		1	.9	3	1																
16	0.9DL + 1WL AZI 60	Yes	Y		1	.9	4	1																
17	0.9DL + 1WL AZI 90	Yes	Y		1	.9	5	1																
18	0.9DL + 1WL AZI 120	Yes	Y		1	.9	6	1																
19	0.9DL + 1WL AZI 150	Yes	Y		1	.9	7	1																
20	0.9DL + 1WL AZI 180	Yes	Y		1	.9	8	1																
21	0.9DL + 1WL AZI 210	Yes	Y		1	.9	9	1																
22	0.9DL + 1WL AZI 240	Yes	Y		1	.9	10	1																
23	0.9DL + 1WL AZI 270	Yes	Y		1	.9	11	1																
24	0.9DL + 1WL AZI 300	Yes	Y		1	.9	12	1																
25	0.9DL + 1WL AZI 330	Yes	Y		1	.9	13	1																
26	1.2D + 1.0Di	Yes	Y		1	1.2	14	1																
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y		1	1.2	14	1	15	1														
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y		1	1.2	14	1	16	1														
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y		1	1.2	14	1	17	1														
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y		1	1.2	14	1	18	1														
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y		1	1.2	14	1	19	1														
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y		1	1.2	14	1	20	1														
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y		1	1.2	14	1	21	1														
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y		1	1.2	14	1	22	1														
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y		1	1.2	14	1	23	1														
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y		1	1.2	14	1	24	1														
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y		1	1.2	14	1	25	1														
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y		1	1.2	14	1	26	1														
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y		1	1.2...	27	1	28															
40	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	.866	28	.5														
41	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	.5	28	.866														
42	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27		28	1														
43	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	-.5	28	.866														
44	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	-.8...	28	.5														
45	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	-1	28															
46	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	-.8...	28	-.5														

Load Combinations (Continued)

	Description	Solve	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
47	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	-.5	28	-.8...																
48	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27		28	-1																
49	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	.5	28	-.8...																
50	(1.2 + 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	1.2...	27	.866	28	-.5																
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y		1	.858	27	1	28																	
52	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	.866	28	.5																
53	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	.5	28	.866																
54	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27		28	1																
55	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	-.5	28	.866																
56	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	-.8...	28	.5																
57	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	-1	28																	
58	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	-.8...	28	-.5																
59	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	-.5	28	-.8...																
60	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27		28	-1																
61	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	.5	28	-.8...																
62	(0.9 - 0.2Sds)DL + 1.0E AZI ...	Yes	Y		1	.858	27	.866	28	-.5																
63	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	2	.059	29	1.5																
64	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	3	.059	29	1.5																
65	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	4	.059	29	1.5																
66	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	5	.059	29	1.5																
67	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	6	.059	29	1.5																
68	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	7	.059	29	1.5																
69	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	8	.059	29	1.5																
70	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	9	.059	29	1.5																
71	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	10	.059	29	1.5																
72	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	11	.059	29	1.5																
73	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	12	.059	29	1.5																
74	1.0DL + 1.5LL + 1.0SWL (30...	Yes	Y		1	1	13	.059	29	1.5																
75	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	2	.059																
76	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	3	.059																
77	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	4	.059																
78	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	5	.059																
79	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	6	.059																
80	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	7	.059																
81	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	8	.059																
82	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	9	.059																
83	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	10	.059																
84	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	11	.059																
85	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	12	.059																
86	1.2DL + 1.5LM1 + 1SWL (30...	Yes	Y		1	1.2	34	1.5	13	.059																
87	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	2	.059																
88	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	3	.059																
89	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	4	.059																
90	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	5	.059																
91	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	6	.059																
92	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	7	.059																
93	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	8	.059																
94	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	9	.059																
95	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	10	.059																
96	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	11	.059																
97	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	12	.059																
98	1.2DL + 1.5LM2 + 1SWL (30...	Yes	Y		1	1.2	35	1.5	13	.059																

Load Combinations (Continued)

	Description	Solve	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
99	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	2	.059																
100	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	3	.059																
101	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	4	.059																
102	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	5	.059																
103	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	6	.059																
104	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	7	.059																
105	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	8	.059																
106	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	9	.059																
107	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	10	.059																
108	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	11	.059																
109	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	12	.059																
110	1.2DL + 1.5LM3 + 1SWL (30...	Yes	Y		1	1.2	36	1.5	13	.059																
111	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	2	.059																
112	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	3	.059																
113	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	4	.059																
114	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	5	.059																
115	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	6	.059																
116	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	7	.059																
117	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	8	.059																
118	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	9	.059																
119	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	10	.059																
120	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	11	.059																
121	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	12	.059																
122	1.2DL + 1.5LM4 + 1SWL (30...	Yes	Y		1	1.2	37	1.5	13	.059																
123	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	2	.059																
124	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	3	.059																
125	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	4	.059																
126	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	5	.059																
127	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	6	.059																
128	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	7	.059																
129	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	8	.059																
130	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	9	.059																
131	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	10	.059																
132	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	11	.059																
133	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	12	.059																
134	1.2DL + 1.5LM5 + 1SWL (30...	Yes	Y		1	1.2	38	1.5	13	.059																
135	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	2	.059																
136	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	3	.059																
137	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	4	.059																
138	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	5	.059																
139	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	6	.059																
140	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	7	.059																
141	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	8	.059																
142	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	9	.059																
143	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	10	.059																
144	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	11	.059																
145	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	12	.059																
146	1.2DL + 1.5LM6 + 1SWL (30...	Yes	Y		1	1.2	39	1.5	13	.059																
147	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	2	.059																
148	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	3	.059																
149	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	4	.059																
150	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	5	.059																

Load Combinations (Continued)

	Description	Solve	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
151	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	6	.059																
152	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	7	.059																
153	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	8	.059																
154	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	9	.059																
155	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	10	.059																
156	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	11	.059																
157	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	12	.059																
158	1.2DL + 1.5LM7 + 1SWL (30...	Yes	Y		1	1.2	40	1.5	13	.059																
159	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	2	.059																
160	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	3	.059																
161	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	4	.059																
162	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	5	.059																
163	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	6	.059																
164	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	7	.059																
165	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	8	.059																
166	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	9	.059																
167	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	10	.059																
168	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	11	.059																
169	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	12	.059																
170	1.2DL + 1.5LM8 + 1SWL (30...	Yes	Y		1	1.2	41	1.5	13	.059																
171	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	2	.059																
172	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	3	.059																
173	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	4	.059																
174	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	5	.059																
175	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	6	.059																
176	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	7	.059																
177	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	8	.059																
178	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	9	.059																
179	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	10	.059																
180	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	11	.059																
181	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	12	.059																
182	1.2DL + 1.5LM9 + 1SWL (30...	Yes	Y		1	1.2	42	1.5	13	.059																
183	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	2	.059																
184	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	3	.059																
185	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	4	.059																
186	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	5	.059																
187	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	6	.059																
188	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	7	.059																
189	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	8	.059																
190	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	9	.059																
191	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	10	.059																
192	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	11	.059																
193	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	12	.059																
194	1.2DL + 1.5LM10 + 1SWL (3...	Yes	Y		1	1.2	43	1.5	13	.059																
195	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	2	.059																
196	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	3	.059																
197	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	4	.059																
198	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	5	.059																
199	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	6	.059																
200	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	7	.059																
201	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	8	.059																
202	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	9	.059																

Load Combinations (Continued)

	Description	Solve	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
203	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	10	.059																
204	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	11	.059																
205	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	12	.059																
206	1.2DL + 1.5LM11 + 1SWL (3...	Yes	Y		1	1.2	44	1.5	13	.059																
207	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	2	.059																
208	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	3	.059																
209	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	4	.059																
210	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	5	.059																
211	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	6	.059																
212	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	7	.059																
213	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	8	.059																
214	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	9	.059																
215	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	10	.059																
216	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	11	.059																
217	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	12	.059																
218	1.2DL + 1.5LM12 + 1SWL (3...	Yes	Y		1	1.2	45	1.5	13	.059																
219	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	2	.059																
220	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	3	.059																
221	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	4	.059																
222	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	5	.059																
223	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	6	.059																
224	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	7	.059																
225	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	8	.059																
226	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	9	.059																
227	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	10	.059																
228	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	11	.059																
229	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	12	.059																
230	1.2DL + 1.5LM13 + 1SWL (3...	Yes	Y		1	1.2	46	1.5	13	.059																
231	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	2	.059																
232	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	3	.059																
233	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	4	.059																
234	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	5	.059																
235	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	6	.059																
236	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	7	.059																
237	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	8	.059																
238	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	9	.059																
239	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	10	.059																
240	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	11	.059																
241	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	12	.059																
242	1.2DL + 1.5LM14 + 1SWL (3...	Yes	Y		1	1.2	47	1.5	13	.059																
243	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	2	.059																
244	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	3	.059																
245	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	4	.059																
246	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	5	.059																
247	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	6	.059																
248	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	7	.059																
249	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	8	.059																
250	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	9	.059																
251	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	10	.059																
252	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	11	.059																
253	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	12	.059																
254	1.2DL + 1.5LM15 + 1SWL (3...	Yes	Y		1	1.2	48	1.5	13	.059																

Load Combinations (Continued)

	Description	Solve	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
255	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	2	.059																
256	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	3	.059																
257	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	4	.059																
258	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	5	.059																
259	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	6	.059																
260	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	7	.059																
261	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	8	.059																
262	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	9	.059																
263	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	10	.059																
264	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	11	.059																
265	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	12	.059																
266	1.2DL + 1.5LM16 + 1SWL (3...	Yes	Y		1	1.2	49	1.5	13	.059																
267	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	2	.059																
268	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	3	.059																
269	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	4	.059																
270	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	5	.059																
271	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	6	.059																
272	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	7	.059																
273	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	8	.059																
274	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	9	.059																
275	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	10	.059																
276	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	11	.059																
277	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	12	.059																
278	1.2DL + 1.5LM17 + 1SWL (3...	Yes	Y		1	1.2	50	1.5	13	.059																
279	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	2	.059																
280	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	3	.059																
281	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	4	.059																
282	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	5	.059																
283	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	6	.059																
284	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	7	.059																
285	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	8	.059																
286	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	9	.059																
287	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	10	.059																
288	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	11	.059																
289	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	12	.059																
290	1.2DL + 1.5LM18 + 1SWL (3...	Yes	Y		1	1.2	51	1.5	13	.059																
291	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	2	.059																
292	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	3	.059																
293	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	4	.059																
294	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	5	.059																
295	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	6	.059																
296	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	7	.059																
297	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	8	.059																
298	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	9	.059																
299	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	10	.059																
300	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	11	.059																
301	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	12	.059																
302	1.2DL + 1.5LM19 + 1SWL (3...	Yes	Y		1	1.2	52	1.5	13	.059																
303	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	2	.059																
304	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	3	.059																
305	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	4	.059																
306	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	5	.059																

Load Combinations (Continued)

	Description	Solve	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
307	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	6	.059														
308	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	7	.059														
309	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	8	.059														
310	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	9	.059														
311	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	10	.059														
312	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	11	.059														
313	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	12	.059														
314	1.2DL + 1.5LM20 + 1SWL (3...	Yes	Y		1	1.2	53	1.5	13	.059														
315	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	2	.059														
316	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	3	.059														
317	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	4	.059														
318	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	5	.059														
319	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	6	.059														
320	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	7	.059														
321	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	8	.059														
322	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	9	.059														
323	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	10	.059														
324	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	11	.059														
325	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	12	.059														
326	1.2DL + 1.5LM21 + 1SWL (3...	Yes	Y		1	1.2	54	1.5	13	.059														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
1	N1	max	3474.081	14	2692.377	2	1091.88	17	8347.795	137	18005.587	18	52563.12	20
2		min	-3510.995	8	-766.937	20	-1089.678	23	-7769.241	108	-17978.997	23	-102629.978	2
3	N53	max	1870.867	2	2693.069	10	3117.632	4	45448.001	16	17980.577	14	51086.821	10
4		min	-1853.995	20	-767.729	16	-3087.564	22	-89050.122	10	-17841.731	20	-26483.056	16
5	N99	max	2009.062	12	2693.365	6	2931.487	18	88781.442	6	17966.483	22	51579.231	6
6		min	-1873.575	18	-768.08	24	-3173.861	12	-45694.698	24	-17827.647	16	-26135.168	24
7	Totals:	max	6971.326	14	5825.694	27	6320.802	5						
8		min	-6971.331	8	2339.692	59	-6320.801	11						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc.....		LC	phi*Pn..	phi*Pn..	phi*M...	phi*M...	...	Eqn
1	M103	PIPE_2.0	.770	19	13	.148	19		5	14916...	32130	22459.5	22459.5	1...	H1-1b
2	M109	PIPE_2.0	.748	19	6	.148	19		4	14916...	32130	22459.5	22459.5	1...	H1-1b
3	M97	PIPE_2.0	.748	19	10	.148	19		8	14916...	32130	22459.5	22459.5	1...	H1-1b
4	M121	PIPE_2.0	.747	19	2	.149	19		13	14916...	32130	22459.5	22459.5	1...	H1-1b
5	M91	PIPE_2.0	.718	19	6	.147	19		9	14916...	32130	22459.5	22459.5	1...	H1-1b
6	M115	PIPE_2.0	.718	19	10	.146	19		7	14916...	32130	22459.5	22459.5	1...	H1-1b
7	M67	L2.5x2.5x3	.636	12	4	.159	.375	y	5	28247...	29192.4	10470...	23661...	1...	H2-1
8	M68	L2.5x2.5x3	.636	12	12	.167	12	y	13	28247...	29192.4	10470...	23661...	1...	H2-1
9	M69	L2.5x2.5x3	.636	12	8	.159	0	y	9	28247...	29192.4	10470...	23661...	1...	H2-1
10	M112	PIPE_2.0	.611	19	10	.233	73		12	14916...	32130	22459.5	22459.5	1...	H1-1b
11	M58	PIPE_2.0	.611	19	6	.233	73		8	14916...	32130	22459.5	22459.5	1...	H1-1b
12	M100	PIPE_2.0	.610	19	2	.233	73		4	14916...	32130	22459.5	22459.5	1...	H1-1b
13	M106	PIPE_2.0	.603	19	6	.244	19		5	14916...	32130	22459.5	22459.5	1...	H1-1b
14	M94	PIPE_2.0	.603	19	10	.244	19		9	14916...	32130	22459.5	22459.5	1...	H1-1b
15	M118	PIPE_2.0	.603	19	2	.252	19		13	14916...	32130	22459.5	22459.5	1...	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc.....		LC	phi*Pn..	phi*Pn..	phi*M...	phi*M...	...	Eqn
16	M40	HSS4x4x4	.572	0	6	.095	0	y	150	12099...	139518	194166	194166	2..	H1-1b
17	M22	HSS4x4x4	.571	0	10	.099	0	y	96	12099...	139518	194166	194166	2..	H1-1b
18	M1	HSS4x4x4	.571	0	2	.099	0	y	136	12099...	139518	194166	194166	2..	H1-1b
19	M43	PIPE_2.0	.570	96.875	13	.364	4.6...		4	6295....	32130	22459.5	22459.5	2..	H1-1b
20	M5	PIPE_2.0	.557	96.875	9	.364	4.6...		12	6295....	32130	22459.5	22459.5	2..	H1-1b
21	M25	PIPE_2.0	.557	96.875	5	.364	4.6...		8	6295....	32130	22459.5	22459.5	2..	H1-1b
22	M62	6" x 0.375" Plate	.479	3	4	.082	3	z	4	62014...	72900	6834....	109350	2..	H1-1b
23	M65	6" x 0.375" Plate	.479	3	12	.081	3	z	12	62014...	72900	6834....	109350	2..	H1-1b
24	M63	6" x 0.375" Plate	.479	3	8	.081	3	z	8	62014...	72900	6834....	109350	2..	H1-1b
25	M64	6" x 0.375" Plate	.433	3	5	.074	3	z	5	62014...	72900	6834....	109350	2..	H1-1b
26	M66	6" x 0.375" Plate	.433	3	9	.074	3	z	9	62014...	72900	6834....	109350	2..	H1-1b
27	M61	6" x 0.375" Plate	.425	3	13	.073	3	z	13	62014...	72900	6834....	109350	2..	H1-1b
28	M73	6" x 0.375" Plate	.335	3	12	.303	3	y	6	62014...	72900	6834....	109350	1..	H1-1b
29	M79	6" x 0.375" Plate	.334	3	4	.302	3	y	10	62014...	72900	6834....	109350	1..	H1-1b
30	M86	6" x 0.375" Plate	.334	3	8	.302	3	y	2	62014...	72900	6834....	109350	1..	H1-1b
31	M85	6" x 0.375" Plate	.308	1.5	4	.326	0	y	10	70011...	72900	6834....	109350	1..	H1-1b
32	M76	6" x 0.375" Plate	.307	1.5	8	.328	0	y	110	70011...	72900	6834....	109350	1..	H1-1b
33	M78	6" x 0.375" Plate	.307	1.5	12	.328	0	y	151	70011...	72900	6834....	109350	1..	H1-1b
34	M77	6" x 0.375" Plate	.304	3	6	.310	3	y	2	62014...	72900	6834....	109350	1..	H1-1b
35	M84	6" x 0.375" Plate	.303	3	10	.310	3	y	6	62014...	72900	6834....	109350	1..	H1-1b
36	M75	6" x 0.375" Plate	.303	3	2	.310	3	y	10	62014...	72900	6834....	109350	1..	H1-1b
37	M11	L2x2x3	.290	52.524	13	.011	0	z	12	8946....	23392.8	6692....	13719...	1..	H2-1
38	M82	6" x 0.5" Plate	.288	6	6	.181	12	y	10	67551...	97200	12150	145800	1..	H1-1b
39	M89	6" x 0.5" Plate	.288	6	10	.181	12	y	2	67551...	97200	12150	145800	1..	H1-1b
40	M71	6" x 0.5" Plate	.288	6	2	.181	0	y	6	67551...	97200	12150	145800	1..	H1-1b
41	M87	6" x 0.375" Plate	.287	1.5	4	.338	0	y	95	70011...	72900	6834....	109350	1..	H1-1b
42	M74	6" x 0.375" Plate	.287	1.5	8	.338	0	y	135	70011...	72900	6834....	109350	1..	H1-1b
43	M80	6" x 0.375" Plate	.286	1.5	12	.338	0	y	6	70011...	72900	6834....	109350	1..	H1-1b
44	M48	L2x2x3	.273	0	6	.011	52....	z	9	8946....	23392.8	6692....	13526...	1..	H2-1
45	M30	L2x2x3	.273	0	10	.012	52....	z	13	8946....	23392.8	6692....	13528...	1..	H2-1
46	M10	L2x2x3	.273	0	2	.011	52....	z	4	8946....	23392.8	6692....	13528...	1..	H2-1
47	M31	L2x2x3	.264	52.524	9	.011	0	z	8	8946....	23392.8	6692....	13750...	1..	H2-1
48	M49	L2x2x3	.261	52.524	5	.011	0	z	4	8946....	23392.8	6692....	13749...	1..	H2-1
49	M20	PIPE_3.0	.234	54.687	6	.118	96....		4	59751...	65205	68985	68985	2..	H1-1b
50	M4	PIPE_3.0	.234	54.688	10	.118	96....		8	59751...	65205	68985	68985	2..	H1-1b
51	M21	PIPE_3.0	.234	54.687	2	.118	96....		12	59751...	65205	68985	68985	2..	H1-1b
52	M3	HSS4x4x4	.162	0	13	.062	26....	z	2	13614...	139518	194166	194166	1..	H1-1b
53	M23	HSS4x4x4	.162	0	11	.064	26....	z	10	13614...	139518	194166	194166	1..	H1-1b
54	M41	HSS4x4x4	.162	0	7	.064	26....	z	6	13614...	139518	194166	194166	1..	H1-1b
55	M2	HSS4x4x4	.162	0	3	.064	26....	z	2	13614...	139518	194166	194166	1..	H1-1b
56	M42	HSS4x4x4	.159	0	5	.062	26....	z	6	13614...	139518	194166	194166	1..	H1-1b
57	M24	HSS4x4x4	.159	0	9	.062	26....	z	10	13614...	139518	194166	194166	1..	H1-1b
58	M81	6" x 0.5" Plate	.061	1.5	12	.086	3	y	8	95014...	97200	12150	145800	1..	H1-1b
59	M88	6" x 0.5" Plate	.061	1.5	4	.086	3	y	12	95014...	97200	12150	145800	1..	H1-1b
60	M72	6" x 0.5" Plate	.061	1.5	8	.086	0	y	4	95014...	97200	12150	145800	1..	H1-1b
61	M70	6" x 0.5" Plate	.055	1.5	25	.097	1.5	y	6	95014...	97200	12150	145800	1..	H1-1b
62	M83	6" x 0.5" Plate	.053	1.5	12	.097	1.5	y	10	95014...	97200	12150	145800	1..	H1-1b
63	M90	6" x 0.5" Plate	.053	1.5	4	.097	1.5	y	2	95014...	97200	12150	145800	1..	H1-1b

SMJ International

BOLT CONNECTION CALCULATION

BOLT PROPERTIES

Date:	6/10/2021
Site:	*Nrwc-Norwich, CT*
Engineer:	*DVA*
Project No:	*13677847_C8_03*
Connection Location:	*Arm to Tower*

Bolt Capacity Equation	TIA-222-H	
Connection Type	Steel	
Bolt Size, **d**	5/8	in
Threads per Inch, **n**	11	
Steel Grade	A325	
Bolt Ultimate Tensile Stress, $\mathbf{F_u}$	120	ksi
Threads Exclusion	N	
Shear Plane	1	

Net Bolt Cross-Sectional Area, **An**	0.226	in^2
Gross Bolt Cross-Sectional Area, **Ag**	0.307	in^2
Tensile Steel Strength (per bolt), $\mathbf{\varphi R_{nt}}$	20340	lbs
Shear Steel Strength (per bolt), $\mathbf{\varphi R_{nv}}$	13806	lbs

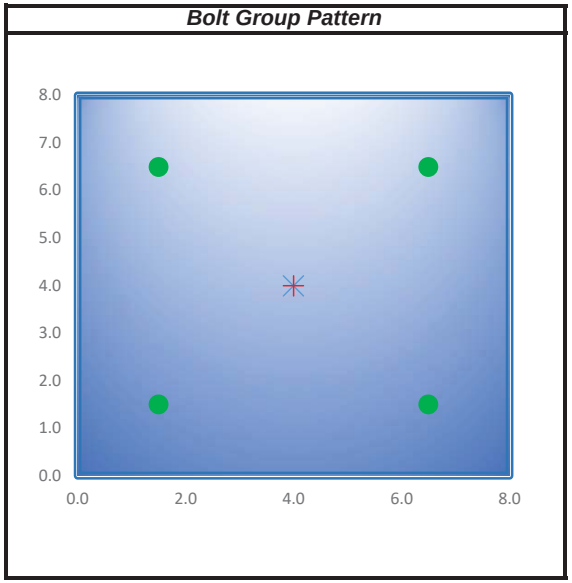
SMJ International

BOLT CONNECTION CALCULATION

BOLT GROUP CHECK

Date:	*6/10/2021*
Site:	*Nrwc-Norwich, CT*
Engineer:	*DVA*
Project No:	*13677847_C8_03*
Connection Location:	*Arm to Tower*

Bolt Group Pattern



Loads Properties					
Controlling LC:	13				
Load Point Number:	N1				
X-Coordinate (in.)	4.00				
Y-Coordinate (in.)	4.00				
Z-Coordinate (in.)	0.00				
Shear Load, Px (lbs)	-484.000	0	0	0	0
Shear Load, Py (lbs)	2455.000	0	0	0	0
Axial Load, Pz (lbs)	3246.000	0	0	0	0
Moment, Mx (lb-in)	-91995.000	0	0	0	0
Moment, My (lb-in)	-5923.000	0	0	0	0
Moment, Mz (lb-in)	1673.000	0	0	0	0

Member Properties	***X***	***Y***
Start Coordinates:	0.0	0.0
Dimentions:	8.0	8.0

Number of Bolts: 4

		Bolt Coordinates		***Bolt Loads***			***Steel Bolt Usage***		
No.	***Bolt Type***	***Xo (in)***	***Yo (in)***	***Axial (lbs)***	***Shear (lbs)***	***Tension***	***Shear***	***Combined***	***Max. Capacity***
1	Main Type	1.50	1.50	9418.70	726.81	46.3%	5.3%	46.3%	46.3%
2	Main Type	1.50	6.50	-8980.30	698.40	0.0%	5.1%	5.1%	5.1%
3	Main Type	6.50	1.50	10603.30	568.23	52.1%	4.1%	52.1%	52.1%
4	Main Type	6.50	6.50	-7795.70	531.41	0.0%	3.8%	3.8%	3.8%

Bolt Group Properties:

Xc =	4.00	in.
Yc =	4.00	in.
Ic.y =	7.67	in.^2
Ic.x =	7.67	in.^2
Ic.xy =	15.34	in.^2

Loads at Center of Gravity of Bolt Group:

Pz =	3246.00	lbs
Px =	-484.00	lbs
Py =	2455.00	lbs
Mx =	-91995.00	lb-in
My =	-5923.00	lb-in
Mz =	1673.00	lb-in

Total Capacity of Bolt Group: 52.1%

U-bolt Connection: No

RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Section 1 - Site Information

Site ID: CT11148B
Status: Draft
Version: 4
Project Type: L600
Approved: Not Approved
Approved By: Not Approved
Last Modified: 4/6/2021 1:55:11 PM
Last Modified By: Michael.Low1@T-Mobile.com

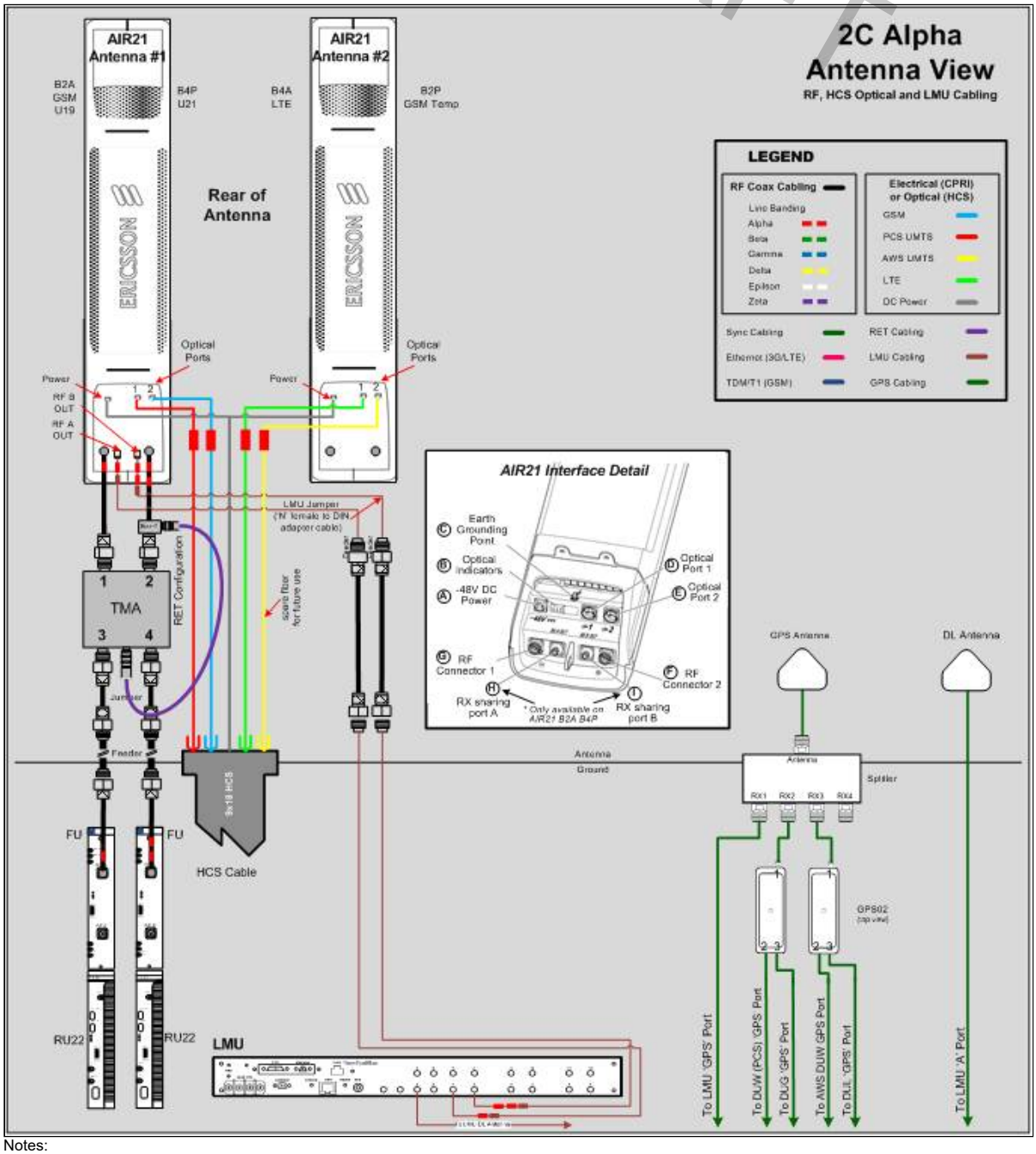
Site Name: Norwich/ I-395 X80_1
Site Class: Monopole
Site Type: Structure Non Building
Plan Year:
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: <undefined>

Latitude: 41.53370666
Longitude: -72.13499250
Address: 255 Rogers Road- SNET MOBILITY
City, State: Norwich, CT
Region: NORTHEAST

RAN Template: 67E02C Outdoor			AL Template: 67E02C_2xAIR+1OP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 3

Section 2 - Existing Template Images

AL_2C Outdoor.jpg



Notes:

Section 3 - Proposed Template Images

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Section 4 - Siteplan Images

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RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 2C Outdoor

Enclosure	1	2
Enclosure Type	RBS 6131	Ancillary Equipment (Ericsson)
Baseband	DUW30 (U1900); DUW30 (U2100 (DECOMMISSIONED)); DUG20 (G1900); BB 6630 (L2100)	
Hybrid Cable System		Ericsson 9x18 HCS *Select Length*
Radio	RUS01 B4 **(x 6)** (U2100 (DECOMMISSIONED))	

Proposed RAN Equipment

Template: 67E02C Outdoor

Enclosure	1	2
Enclosure Type	RBS 6131	Ancillary Equipment (Ericsson)
Baseband	DUW30 (U1900); DUG20 (G1900); BB 6630 (L2100); BB 6648 (L700, L600, N600)	
Functionality Groups		Ericsson Hybrid Trunk 6/24 4AWG *Select Length* **(x 3)**

RAN Scope of Work:

Existing RAN Config is 2C.
Upgrade to 200A service.
Remove T-arms & add platform
Remove all existing 9/x18 and add 3 6x24.
Remove all existing coax

RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Section 6 - A&L Equipment

Existing Template: 2C_2xAIR
Proposed Template: 67E02C_2xAIR+1OP

Sector 1 (Existing) view from behind				
Coverage Type	A - Outdoor Macro			
Antenna	**1**		**2**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	40		40	
M. Tilt				
Height	140		140	
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech.	U1900, G1900		L2100	
Dark Tech.				
Restricted Tech.				
Decomm. Tech.		U2100		
E. Tilt	2	2	2	
Cables	Fiber Jumper - 15 ft. **(x2)**	1-1/4" Coax - 178 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)**	
TMAs		Generic Twin Style 1B - AWS (AtAntenna)		
Diplexers / Combiners				
Radio				
Sector Equipment				

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	40		40				40	
M. Tilt	0		0				0	
Height	140		140				140	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	U1900 G1900		L700 L600 N600	L700 L600 N600				L2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2						2
Cables	Fiber Jumper - 15 ft. **(x2)**		Coax Jumper **(x2)**	Coax Jumper **(x2)**				Fiber Jumper - 15 ft. **(x2)**
TMAs								
Diplexers / Combiners								
Radio			Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Sector 2 (Existing) view from behind				
Coverage Type	A - Outdoor Macro			
Antenna	1		2	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	160		160	
M. Tilt				
Height	140		140	
Ports	P1	P2	P3	P4
Active Tech.	U1900 G1900		L2100	
Dark Tech.				
Restricted Tech.				
Decomm. Tech.		U2100		
E. Tilt	2	2	2	
Cables	Fiber Jumper - 15 ft. **(x2)**	1-1/4" Coax - 178 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)**	
TMAs		Generic Twin Style 1B - AWS (AtAntenna)		
Diplexers / Combiners				
Radio				
Sector Equipment				

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	160		160				160	
M. Tilt	0		0				0	
Height	140		140				140	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	U1900 G1900		L700 L600 N600	L700 L600 N600				L2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2						2
Cables	Fiber Jumper - 15 ft. **(x2)**		Coax Jumper **(x2)**	Coax Jumper **(x2)**				Fiber Jumper - 15 ft. **(x2)**
TMAs								
Diplexers / Combiners								
Radio			Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Sector 3 (Existing) view from behind				
Coverage Type	A - Outdoor Macro			
Antenna	**1**		**2**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	280		280	
M. Tilt				
Height	140		140	
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech.	U1900 G1900		L2100	
Dark Tech.				
Restricted Tech.				
Decomm. Tech.		U2100		
E. Tilt	2	2	2	
Cables	Fiber Jumper - 15 ft. **(x2)**	1-1/4" Coax - 178 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)**	
TMAs		Generic Twin Style 1B - AWS (AtAntenna)		
Diplexers / Combiners				
Radio				
Sector Equipment				

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	280		280				280	
M. Tilt	0		0				0	
Height	140		140				140	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	U1900 G1900		L700 L600 N600	L700 L600 N600				L2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2						2
Cables	Fiber Jumper - 15 ft. **(x2)**		Coax Jumper **(x2)**	Coax Jumper **(x2)**				Fiber Jumper - 15 ft. **(x2)**
TMAs								
Diplexers / Combiners								
Radio			Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E02C Outdoor	67E02C_2xAIR+1OP

CT11148B_L600_4_draft

Print Name: Standard (3)
PORs: L600_5G POPs

Section 7 - Power Systems Equipment

Existing Power Systems Equipment

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Proposed Power Systems Equipment

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: CT11148B

Norwich/ I-395 X80_1
225 Rogers Road
Norwich, Connecticut 06360

June 17, 2021

EBI Project Number: 6221003034

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.26%**

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

June 17, 2021

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

Emissions Analysis for Site: CT11148B - Norwich/ I-395 X80_1

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **225 Rogers Road** in **Norwich, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 225 Rogers Road in Norwich, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

5) 2 UMTS 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.

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

7) 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.

8) 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.

9) The antennas used in this modeling are the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector A, the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector B, the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).

11) 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.

12) 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 AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A1 MPE %:	**1.24%**	Antenna B1 MPE %:	**1.24%**	Antenna C1 MPE %:	**1.24%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	**1.98%**	Antenna B2 MPE %:	**1.98%**	Antenna C2 MPE %:	**1.98%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	**0.82%**	Antenna B3 MPE %:	**0.82%**	Antenna C3 MPE %:	**0.82%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	4.04%
AT&T	3.81%
Paging	0.24%
Omnipoint	0.11%
Nextwave	0.06%
Site Total MPE % :	8.26%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	4.04%
T-Mobile Sector B Total:	4.04%
T-Mobile Sector C Total:	4.04%
Site Total MPE % :	8.26%

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 1900 MHz GSM	4	1028.30	140.0	8.24	1900 MHz GSM	1000	0.82%
T-Mobile 1900 MHz UMTS	2	1028.30	140.0	4.12	1900 MHz UMTS	1000	0.41%
T-Mobile 600 MHz LTE	2	591.73	140.0	2.37	600 MHz LTE	400	0.59%
T-Mobile 600 MHz NR	1	1577.94	140.0	3.16	600 MHz NR	400	0.79%
T-Mobile 700 MHz LTE	2	695.22	140.0	2.78	700 MHz LTE	467	0.60%
T-Mobile 2100 MHz LTE	2	2056.61	140.0	8.24	2100 MHz LTE	1000	0.82%
						Total:	**4.04%**

• 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:	4.04%
Sector B:	4.04%
Sector C:	4.04%
T-Mobile Maximum MPE % (Sector A):	4.04%
Site Total:	8.26%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.26%** 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.