

10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066



July 2, 2021

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

RE: Notice of Exempt Modification
15 Miner Lane, Waterford, CT 06385 (AKA 85 Miner Lane)
Latitude: 41.3290951900
Longitude: -72.1246356000
T-Mobile Site#: CT11641A - Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 130' level of the existing 180' monopole at 15 Miner Lane, Waterford, CT. The property is owned by the Town of Waterford. The tower is owned by American Tower. T-Mobile now intends to remove and replace six (6) 2100/2500 MHz antennas at the 130' level of the monopole. The new antennas support 5G services.

Planned Modifications:

Tower:

Install New:

- (3) AIR6449 B41 Antennas
- (3) APX16DWV Antennas
- (3) Radio 4424 B25
- (3) Radio 4415 B66A
- (3) 1 5/8" Hybrid Cables

Existing to Remain:

- (3) APXVAARR24 Antennas
- (2) 1 5/8" Hybrid Cables
- (3) Radio 4449 B71 B85

To Be Removed:

- (3) AIR21 KRC118023 B2A B4P

(3) AIR21 KRC118023 B2P B4A

(1) 1 5/8" Hybrid Cables

Ground:

Install New:

(1) BB6648

(1) Enclosure 6160 Cabinet and (1) B160 Cabinet

To Be Removed:

(1) S8000 Outdoor and (1) DUW30

This tower facility was originally approved by the Connecticut Siting Council in Docket No. 67 on December 22, 1986. The proposed modification complies with the approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to First Selectman Robert Brule, Elected Official, and Abby Piersall, Planning Director, as well as the property owner 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: Robert Brule - First Selectman Town of Waterford
Abby Piersall - Planning Director
American Tower - Tower Owner
Town of Waterford - Property Owner

<p>ERIC BREUN 2016587728 10 INDUSTRIAL AVE MAHWAH NJ 07430</p> <p>SHIP TO: ABBY PIERSALL 115 ROPE FERRY ROAD WATERFORD CT 06385</p>	<p>1 LBS</p> <p>1 OF 1</p>
 <p>CT 063 5-02</p> 	
<p>UPS GROUND</p> <p>TRACKING #: 1Z V25 742 03 9849 4376</p> 	
<p>BILLING: P/P</p>	
<p>Reference #1: CT11641A</p>	<p>XOL 21.06.14 NV45 26.0A.06/2021* ™</p>

<p>ERIC BREUN 2016587728 10 INDUSTRIAL AVE MAHWAH NJ 07430</p> <p>SHIP TO: MAYOR ROBERT BRULE 15 ROPE FERRY ROAD WATERFORD CT 06385</p>	<p>1 LBS</p> <p>1 OF 1</p>
 <p>CT 063 5-02</p> 	
<p>UPS GROUND</p> <p>TRACKING #: 1Z V25 742 03 9211 9247</p> 	
<p>BILLING: P/P</p>	
<p>Reference #1: CT11641A</p>	<p>XOL 21.06.14 NV45 26.0A.06/2021* ™</p>

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

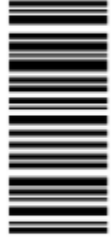
1 LBS

1 OF 1

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

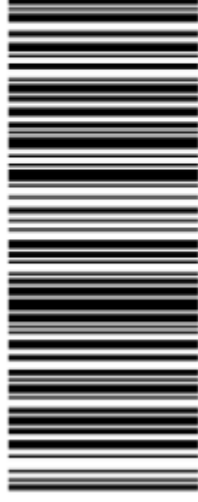


MA 018 9-04



UPS GROUND

TRACKING #: 1Z V25 742 03 9482 1251



BILLING: P/P

Reference #1: CT11641A

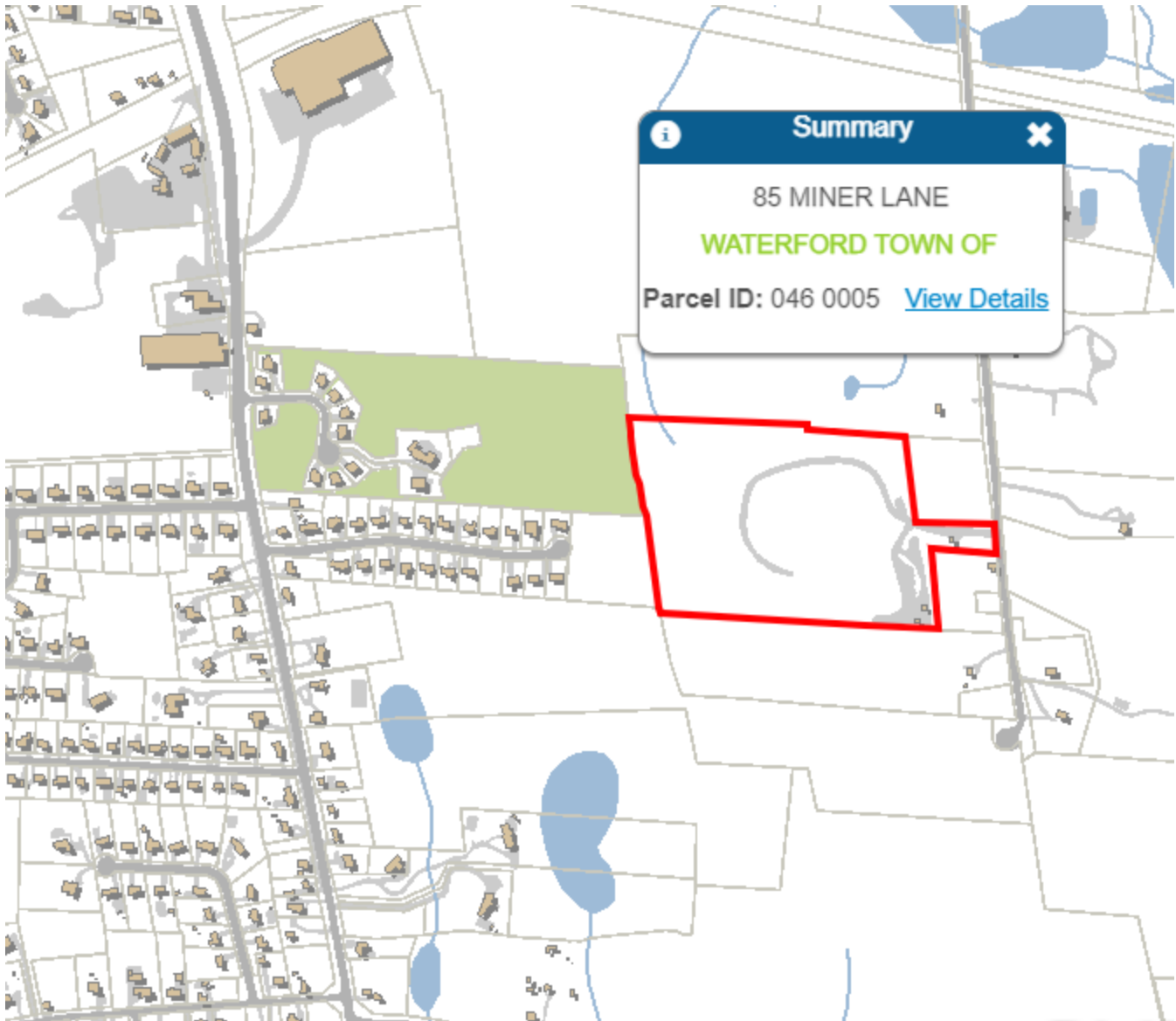
XOL 21.06.14 NV45 26.04.06/2021*



TM

Summary ✕

85 MINER LANE
WATERFORD TOWN OF
Parcel ID: 046 0005 [View Details](#)



85 MINER LANE

[Sales](#) [Print](#) [Map It](#)

Location 85 MINER LANE **Mblu** 153 / / 4766 / /
Acct# 00433700 **Owner** WATERFORD TOWN OF
Assessment \$395,920 **Appraisal** \$565,580
PID 4766 **Building Count** 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$224,800	\$340,780	\$565,580

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$157,370	\$238,550	\$395,920

Parcel Addresses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner WATERFORD TOWN OF **Sale Price** \$0
Co-Owner **Certificate**
Book & Page 0259/0774
Sale Date 05/14/1981
Instrument 00

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
WATERFORD TOWN OF	\$0		0259/0774	00	05/14/1981

Building Information

Building 1 : Section 1

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

Building Attributes	
Field	Description
Style	Outbuildings
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 Percent	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Fireplace(s)	
Extra Opening(s)	
Gas Fireplace(s)	

Building Photo



Building Layout

Building Layout

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

Land

Land Use

Use Code 900
 Description Exempt Vac ⓘ
 Zone R-40
 Neighborhood 1100
 Alt Land Appr No
 Category

Land Line Valuation

Size (Acres) 25.67
 Frontage 0
 Depth 0
 Assessed Value \$238,550
 Appraised Value \$340,780

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD1	Shed	MS	Masonry	400.00 S.F.	\$5,760	1
SHD1	Shed	FR	Frame	480.00 S.F.	\$10,580	1
MSC14	RADIO TOWER			200.00 UNIT	\$200,000	1
FN3	FENCE-6' CHAIN			96.00 L.F.	\$580	1
SHP	Work Shop	MS	Masonry	240.00 S.F.	\$7,880	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$224,800	\$340,780	\$565,580
4000	\$224,800	\$340,780	\$565,580

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$157,370	\$238,550	\$395,920
4000	\$157,370	\$238,550	\$395,920

DOCKET NO. 67

AN APPLICATION OF THE SOUTHERN : CONNECTICUT SITING
NEW ENGLAND TELEPHONE COMPANY FOR
A CERTIFICATE OF ENVIRONMENTAL
COMPATIBILITY AND PUBLIC NEED FOR THE : COUNCIL
CONSTRUCTION, MAINTENANCE, AND
OPERATION OF FACILITIES TO PROVIDE
CELLULAR SERVICE IN THE TOWNS OF
EAST LYME AND WATERFORD, CONNECTICUT. : December 22, 1986

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

Pursuant to the foregoing Opinion, the Council hereby directs that a Certificate of Environmental Compatibility and Public Need (Certificate) as provided by section 16-50k of the General Statutes of Connecticut (CGS) be issued to the Southern New England Telephone Company for the construction, operation, and maintenance of telecommunications towers and associated equipment buildings to provide cellular mobile telephone service at Scott Road, East Lyme, and the Town of Waterford landfill, Waterford.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions.

1. The towers, including antennas, shall be no taller than necessary to provide the proposed service, and in no event shall exceed
 - a) 167 feet at the East Lyme site, and
 - b) 167 feet at the Waterford site.
2. A fence not lower than eight feet shall surround each tower and its associated equipment building.
3. Unless necessary to comply with condition number four, below, no lights shall be installed on these towers.
4. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.

5. The certificate holder shall submit a Development and Management Plan (D&M plan) for the tower sites pursuant to sections 16-50j-75 through section 16-50j-77 of the Regulations of State Agencies, except that irrelevant items in section 16-50j-76 need only be identified as such. The D&M plan shall provide plans for evergreen screening around the fenced perimeter of the Waterford tower site. As stated in section 16-50j-75(d), the D&M plan must be approved by the Council prior to facility construction. Any changes in the D&M plan must be approved by the Council prior to facility operation.
6. No construction activities shall take place outside the hours of 7:00 A.M. to 7:00 P.M., Monday through Saturday.
7. The applicant or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in the D&M plan is added to these facilities.
8. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the tower, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
9. If the towers do not provide or permanently cease to provide cellular service following completion of construction, this Decision and Order shall be void and the towers and all associated equipment shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

10. Unless otherwise approved by the Council, this 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 of this Decision.
11. The certificate holder shall measure and report to the Council the radio frequency power density levels at these sites in accordance with Federal Communications Commission-specified guidelines as set forth in the Office of Science and Technology Bulletin No. 65, October, 1985, within six months of completion of construction. Pursuant to CGS section 16-50p, we hereby direct that a copy of the Decision and Order be served on each person listed below. A notice of the issuance shall be published in the New London Day and the Niantic News.

The parties to the proceeding are:

Southern New England Telephone Company
227 Church Street - Room 1021
New Haven, Connecticut 06506

(Applicant)

ATTN: Peter J. Tyrrell
Senior Attorney
(203) 771-7381

(its representative)

Metro Mobile CTS of Hartford, Inc.

represented by:

Mr. Howard L. Slater
Byrne, Slater, Sandler,
Shulman & Rouse, P.C.
330 Main Street
Post Office Box 3216
Hartford, Connecticut 06103

Waterford Planning & Zoning Commission

represented by:

Mr. Thomas V. Wagner
Town Planner
Town of Waterford
Waterford Planning &
Zoning Commission
15 Rope Ferry Road
Waterford, Connecticut 06385-2886

GEM Cellular

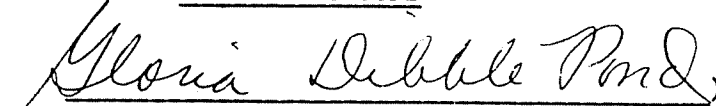

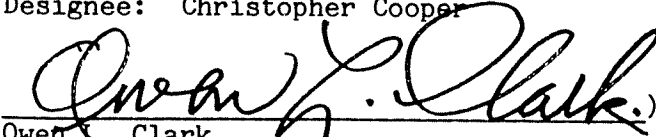
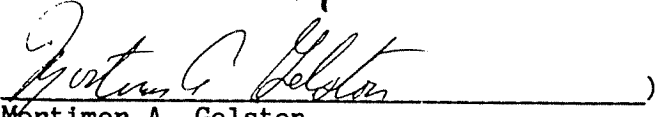
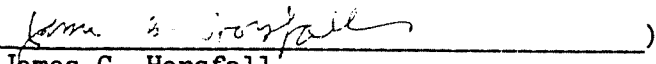
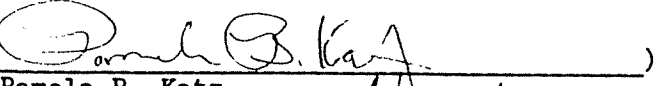
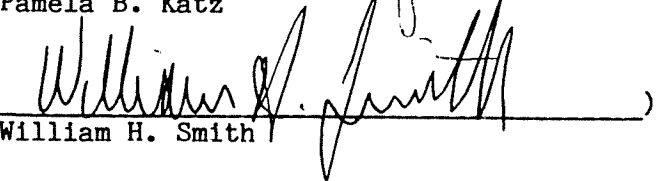
represented by:

Mr. George E. Murray
GEM Cellular
1809 Parkside Drive, N.W.
Washington, D.C. 20012

C E R T I F I C A T I O N

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

Dated at New Britain, Connecticut, this 22th day of December, 1986.

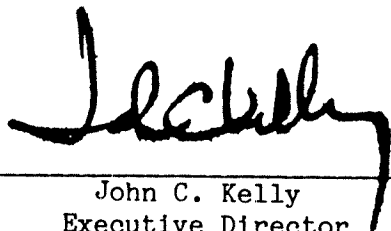
<u>Council Members</u>	<u>Vote Cast</u>
 _____ Gloria Dibble Pond Chairperson	Yes
 _____ Commissioner John Downey Designee: Commissioner Peter Boucher	Yes
 _____ Commissioner Stanley Pac Designee: Christopher Cooper	Absent
 _____ Owen L. Clark	Yes
 _____ Mortimer A. Gelston	Yes
 _____ James G. Horsfall	Yes
 _____ Pamela B. Katz	Yes
 _____ William H. Smith	Yes
 _____ Colin C. Tait	Absent

STATE OF CONNECTICUT)
 :
COUNTY OF HARTFORD)

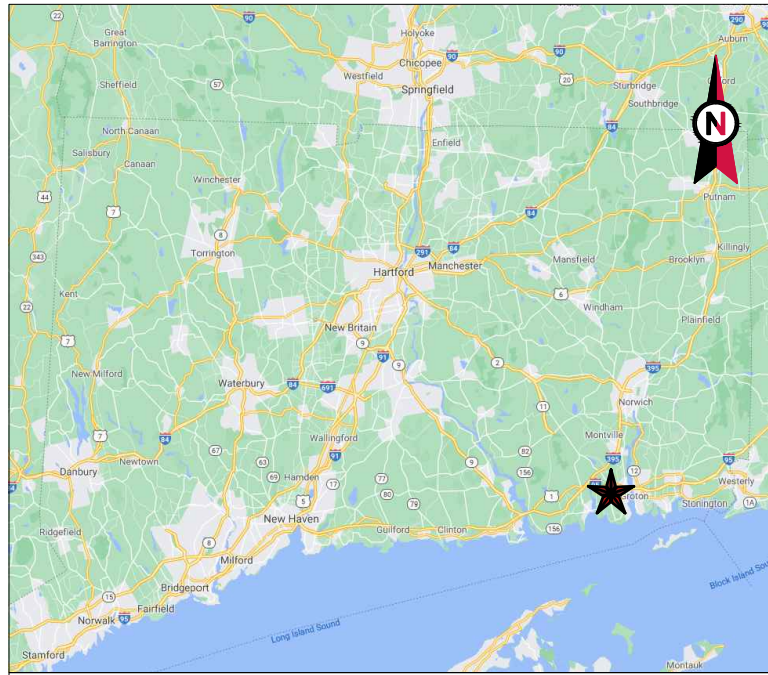
ss. New Britain, December 22, 1986

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:



John C. Kelly
Executive Director
Connecticut Siting Council



VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: WATERFORD REBUILD CT
 ATC SITE NUMBER: 310972
 T-MOBILE SITE NAME: CT641/SSITE
 WATERFORD_MP
 T-MOBILE SITE NUMBER: CT11641A
 SITE ADDRESS: 15 MINER LANE
 WATERFORD, CT, 06385
 T-MOBILE ANCHOR ANTENNA AMENDMENT PLAN
 67D5A998C CONFIGURATION



LOCATION MAP

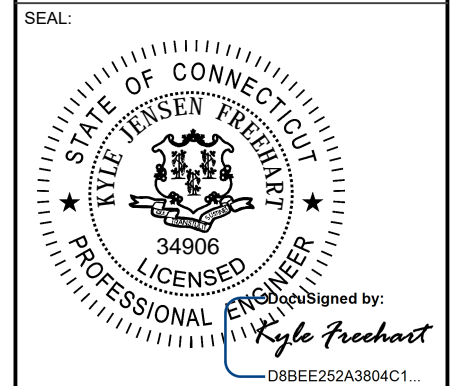


Kimley»Horn

COA: PEC.0000738
 421 FAYETTEVILLE ST, SUITE 600
 RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HG	06/02/21
0	ISSUED FOR CONSTRUCTION	NJ	06/28/21

ATC SITE NUMBER:
310972
 ATC SITE NAME:
WATERFORD REBUILD CT
 T-MOBILE SITE NAME:
CT641/SSITE WATERFORD_MP
 SITE ADDRESS:
 15 MINER LANE
 WATERFORD, CT, 06385



T-Mobile

DATE DRAWN:	06/28/21
ATC JOB NO:	13677848
CUSTOMER ID:	CT641/SSITE WATERFORD_MP
CUSTOMER #:	CT11641A

TITLE SHEET

SHEET NUMBER:
G-001
 REVISION:
0

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
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	<u>SITE ADDRESS:</u> 15 MINER LANE WATERFORD, CT, 06385 COUNTY: NEW LONDON <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.32906944 LONGITUDE: -72.12459167 GROUND ELEVATION: 94' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (3) AIR21 KRC118023-1_B2A_B4P ANTENNA(s), (3) AIR21 KRC118023-1_B2P_B4A ANTENNA(s), AND (1) 9X18 1-5/8" HYBRID CABLE INSTALL (3) AIR6449, (3) APX16DWV-16DWV-S-E-A20 ANTENNA(s), (3) 4424 B25, (3) 4415 B66A RRH(s), AND (3) 6X24 1-5/8" HYBRID CABLE(s) EXISTING (3) APXVAARR24_43-U-NA20 ANTENNA(s), (3) 4449 B71 B85 RRH(s), AND (2) 6X12 1-5/8" HYBRID CABLE(s) TO REMAIN <u>GROUND WORK:</u> REMOVE (1) S8000 OUTDOOR, (1) DUW30 INSTALL (1) ENCLOSURE 6160, (1) B160, (1) BB6648 EXISTING (1) DUG20, (2) BB6630, (1) RBS 6131 TO REMAIN	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u> <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 <u>ENGINEER:</u> KIMLEY-HORN & ASSOCIATES, INC. 421 FAYETTEVILLE ST, STE 600 RALEIGH, NC 27601 COA: PEC.0000738 <u>PROPERTY OWNER:</u> WATERFORD CT 15 MINER LANE - WATERFORD - CT - 06385	THE PROPOSED PROJECT DOES NOT INCLUDE ELECTRICAL SCOPE <u>PROJECT NOTES</u> 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.	G-001	TITLE SHEET	0	06/28/21	HG
<u>UTILITY COMPANIES</u> POWER COMPANY: EVERSOURCE PHONE: (877) 659-6326 TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (877) 641-3250	<u>APPLICANT:</u> T-MOBILE DAN REID DREID@TRANSCENDWIRELESS.COM	<u>PROJECT LOCATION DIRECTIONS</u> FROM HARTFORD TAKE I-91 SOUTH TO RT 9 SOUTH TO I-95 NORTH. TAKE EXIT 75 FOR RT 1 NORTH. TAKE RT 1 TO MINER LANE IN WATERFORD, TURN RIGHT. SITE IS TOWARDS END OF ROAD IN TOWN LANDFILL ON THE RIGHT.	G-002	GENERAL NOTES	0	06/28/21	HG
			C-101	DETAILED SITE PLAN	0	06/28/21	HG
			C-102	DETAILED GROUND PLAN	0	06/28/21	HG
			C-201	TOWER ELEVATION	0	06/28/21	HG
			C-401	ANTENNA INFORMATION & SCHEDULE	0	06/28/21	HG
			C-501	CONSTRUCTION DETAILS	0	06/28/21	HG
			E-501	GROUNDING DETAILS	0	06/28/21	HG
			R-601	SUPPLEMENTAL			
			R-602	SUPPLEMENTAL			
			R-603	SUPPLEMENTAL			
			R-604	SUPPLEMENTAL			
			R-605	SUPPLEMENTAL			

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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 NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE 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.

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 OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
 - B. INSTALL ANTENNA AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
 - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
 - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
 - 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:
 - i. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
 - ii. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

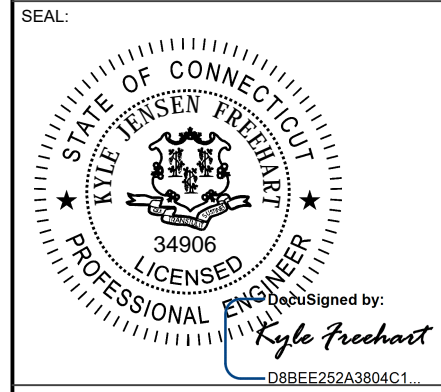
ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE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



**COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601**

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HG	06/02/21
0	ISSUED FOR CONSTRUCTION	NJ	06/28/21

ATC SITE NUMBER:
310972
ATC SITE NAME:
WATERFORD REBUILD CT
T-MOBILE SITE NAME:
CT641/SSITE WATERFORD_MP
SITE ADDRESS:
15 MINER LANE
WATERFORD, CT, 06385



DATE DRAWN:	06/28/21
ATC JOB NO:	13677848
CUSTOMER ID:	CT641/SSITE WATERFORD_MP
CUSTOMER #:	CT11641A

GENERAL NOTES

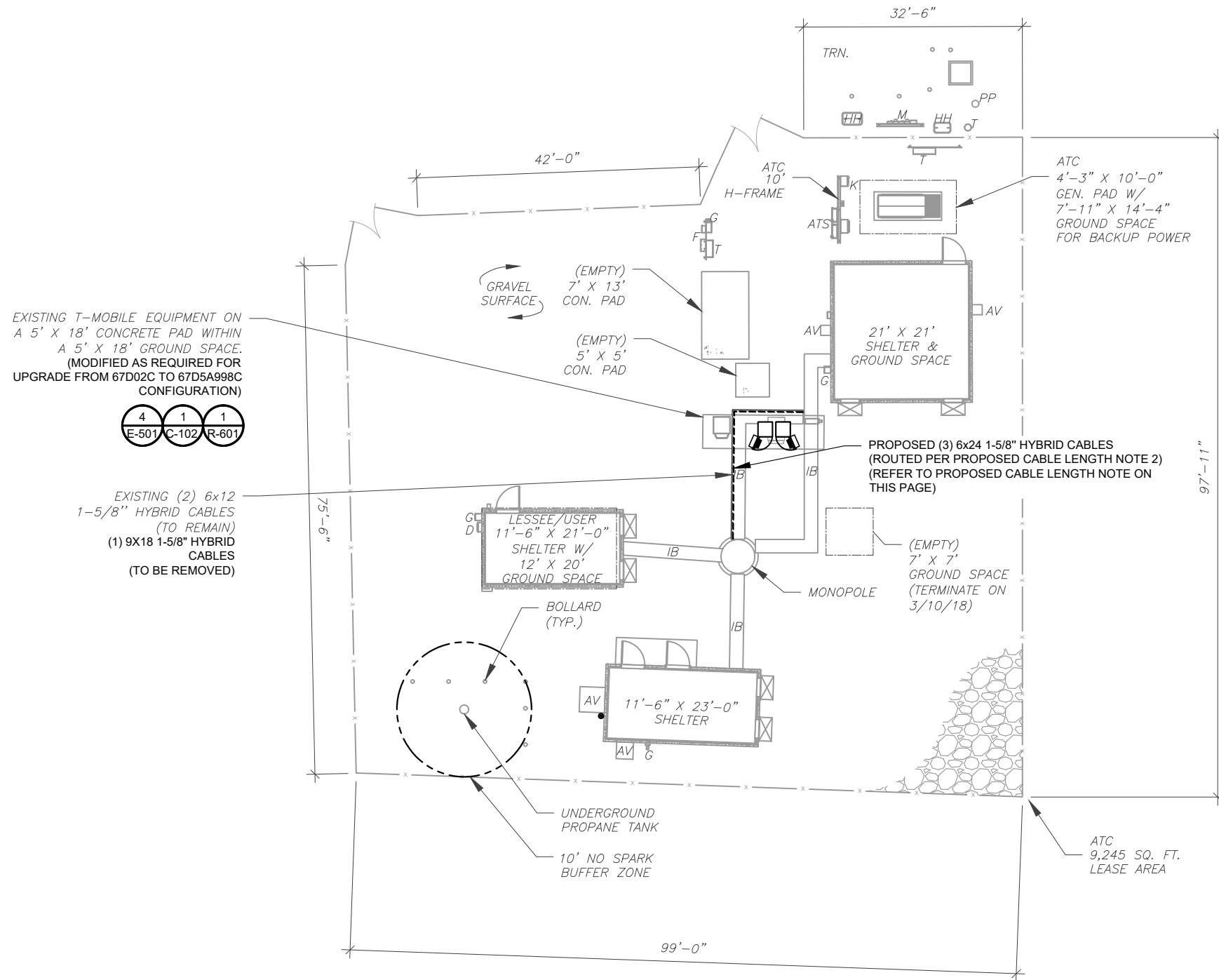
SHEET NUMBER: G-002	REVISION: 0
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SITE PLAN NOTES:

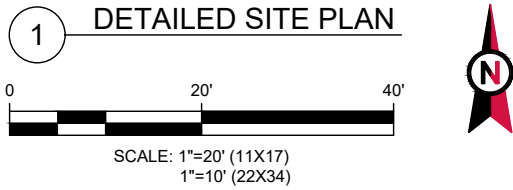
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE 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



PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **181'**. 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.

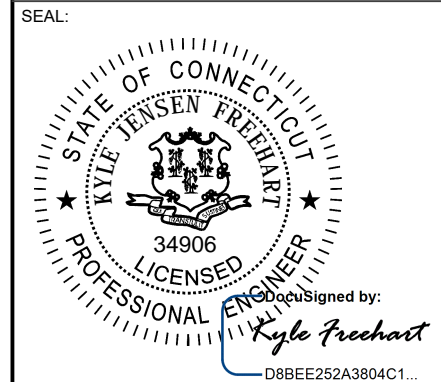


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RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HG	06/02/21
B	ISSUED FOR CONSTRUCTION	NJ	06/28/21

ATC SITE NUMBER:
310972
ATC SITE NAME:
WATERFORD REBUILD CT
T-MOBILE SITE NAME:
CT641/SSITE WATERFORD_MP
SITE ADDRESS:
15 MINER LANE
WATERFORD, CT, 06385



DATE DRAWN:	06/28/21
ATC JOB NO:	13677848
CUSTOMER ID:	CT641/SSITE WATERFORD_MP
CUSTOMER #:	CT11641A

DETAILED SITE PLAN

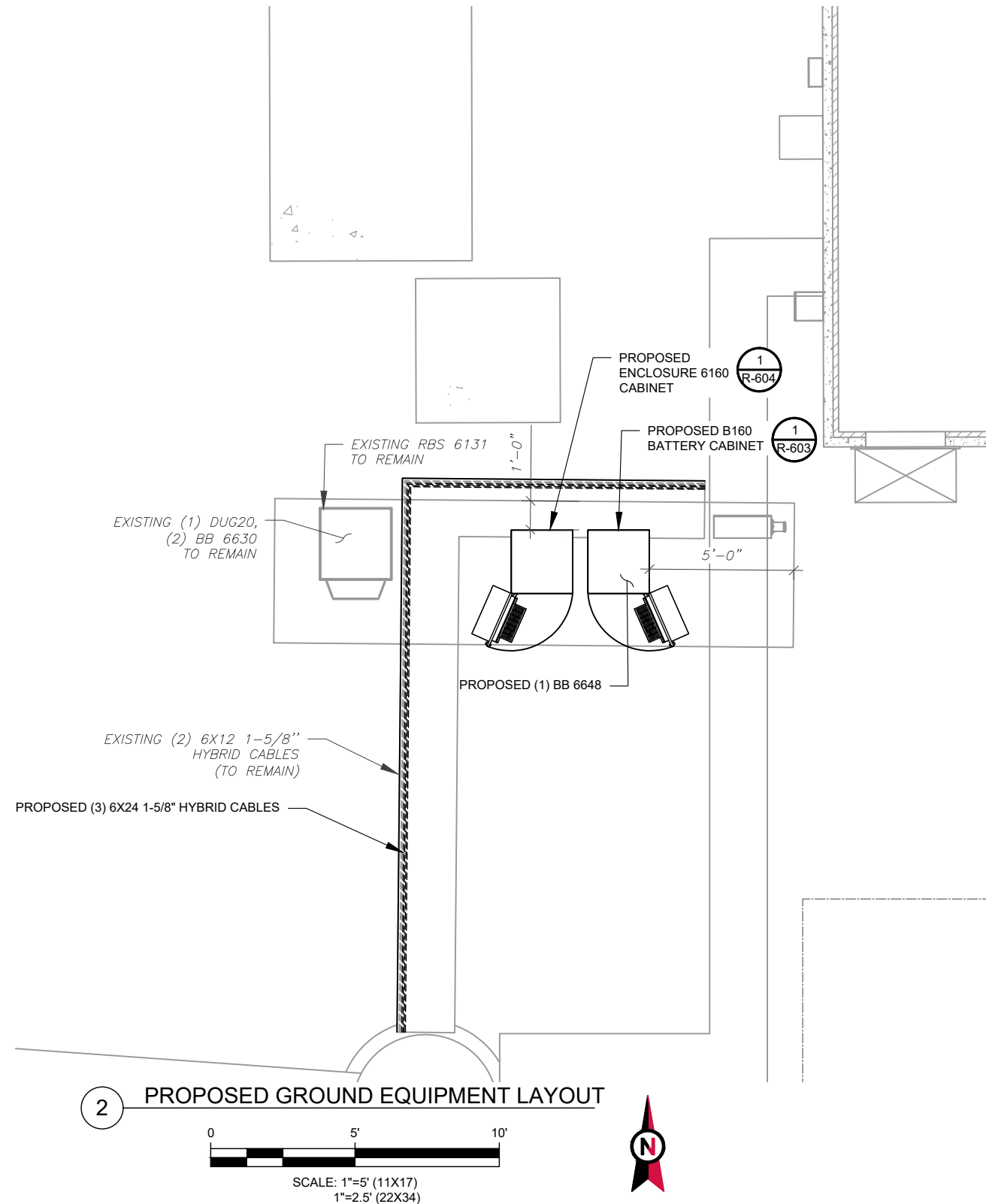
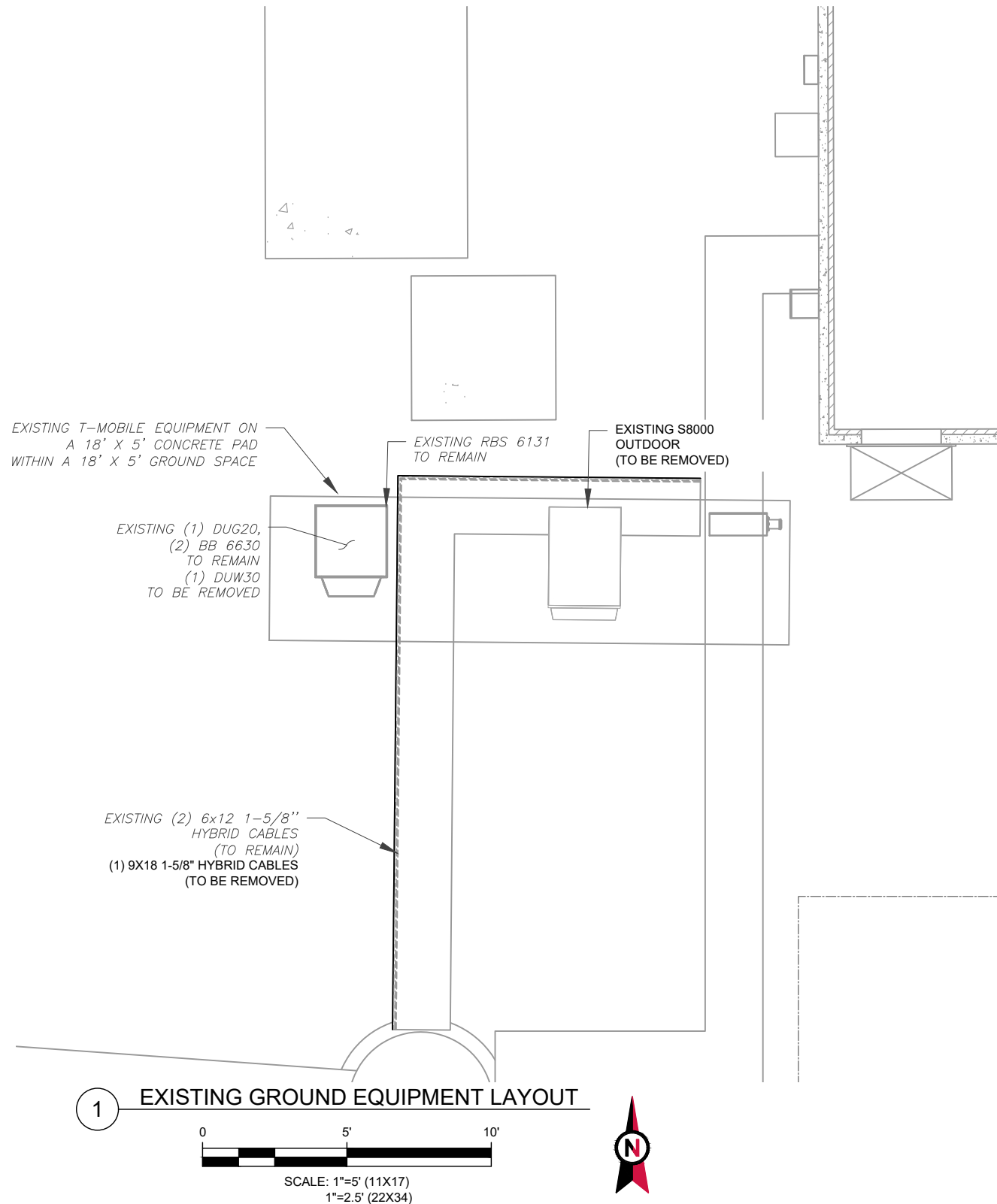
SHEET NUMBER:	REVISION:
C-101	0

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SITE PLAN NOTES:

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



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421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HG	06/02/21
0	ISSUED FOR CONSTRUCTION	NJ	06/28/21

ATC SITE NUMBER:
310972

ATC SITE NAME:
WATERFORD REBUILD CT

T-MOBILE SITE NAME:
CT641/SSITE WATERFORD_MP

SITE ADDRESS:
15 MINER LANE
WATERFORD, CT, 06385

SEAL:

Designed by:
Kyle Frechart
D8BEE252A3804C1...



DATE DRAWN:	06/28/21
ATC JOB NO:	13677848
CUSTOMER ID:	CT641/SSITE WATERFORD_MP
CUSTOMER #:	CT11641A

DETAILED GROUND PLAN

SHEET NUMBER: C-102	REVISION: 0
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 RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HG	06/02/21
0	ISSUED FOR CONSTRUCTION	NJ	06/28/21

ATC SITE NUMBER:
310972
 ATC SITE NAME:
WATERFORD REBUILD CT
 T-MOBILE SITE NAME:
CT641/SSITE WATERFORD_MP
 SITE ADDRESS:
 15 MINER LANE
 WATERFORD, CT, 06385

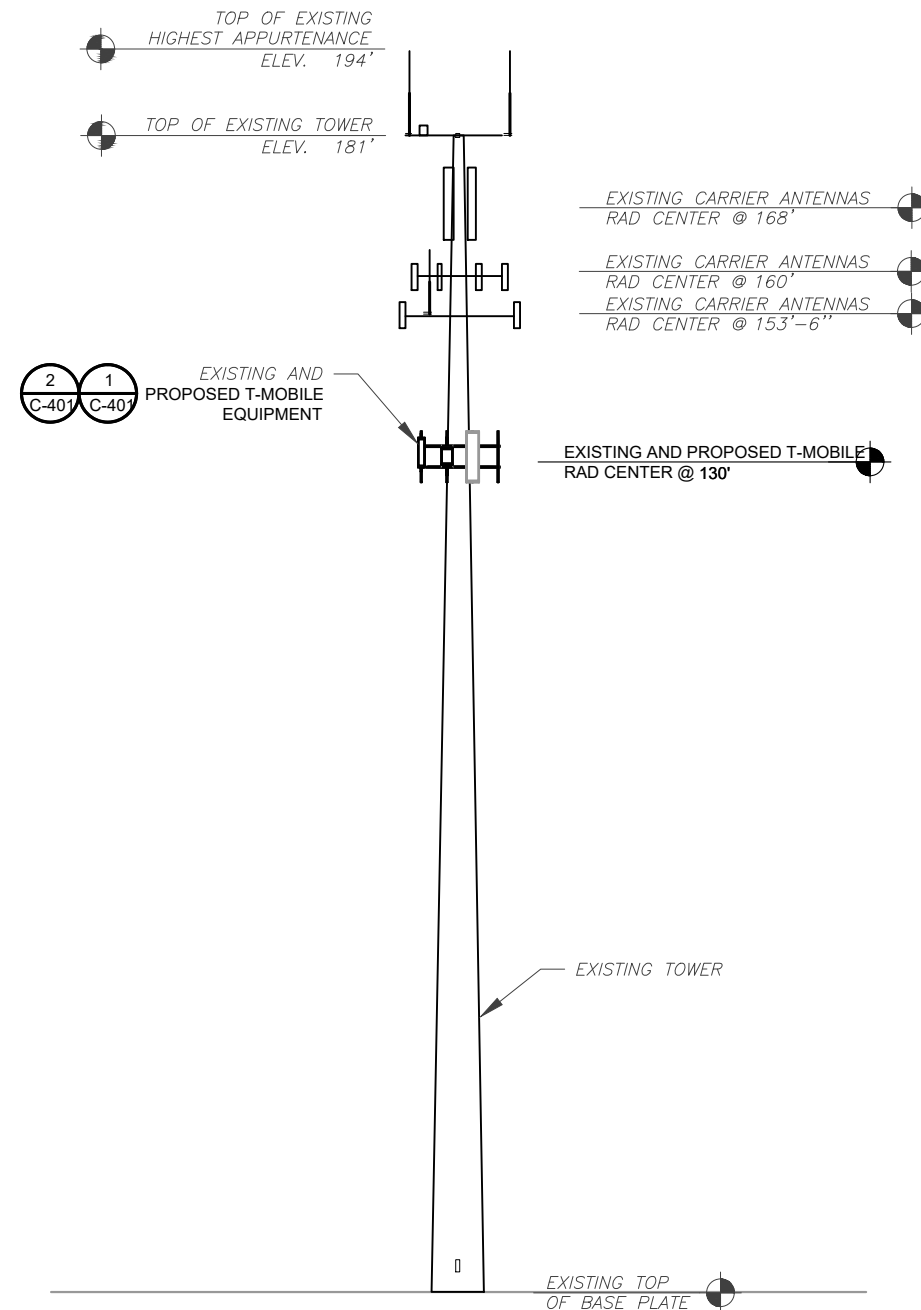
SEAL:

Signature: Kyle Freehart
 ID: D8BEE252A3804C1...

DATE DRAWN:	06/28/21
ATC JOB NO:	13677848
CUSTOMER ID:	CT641/SSITE WATERFORD_MP
CUSTOMER #:	CT11641A

TOWER ELEVATION

SHEET NUMBER: **C-201** REVISION: **0**



PER MOUNT ANALYSIS COMPLETED BY SMJ INTERNATIONAL, DATED 05/24/21, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

- TOWER NOTE:**
- 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.
 - 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.
 - 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.
 - TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

1 TOWER ELEVATION
 SCALE: N.T.S.

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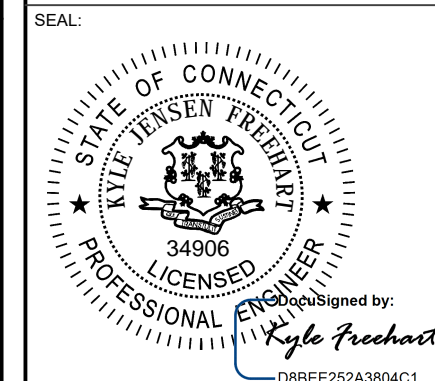


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COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HG	06/02/21
0	ISSUED FOR CONSTRUCTION	NJ	06/28/21

ATC SITE NUMBER:
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T-MOBILE SITE NAME:
CT641/SSITE WATERFORD_MP
SITE ADDRESS:
15 MINER LANE
WATERFORD, CT, 06385



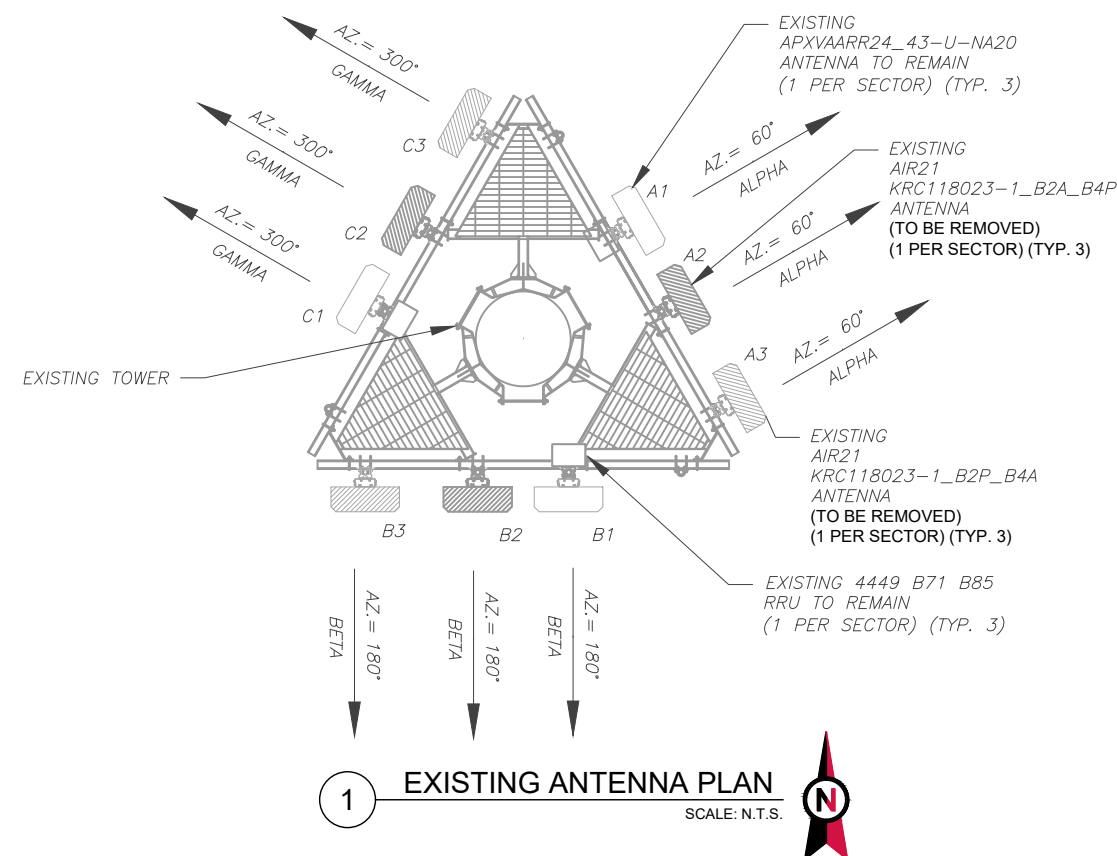
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DATE DRAWN:	06/28/21
ATC JOB NO:	13677848
CUSTOMER ID:	CT641/SITE WATERFORD_MP
CUSTOMER #:	CT11641A

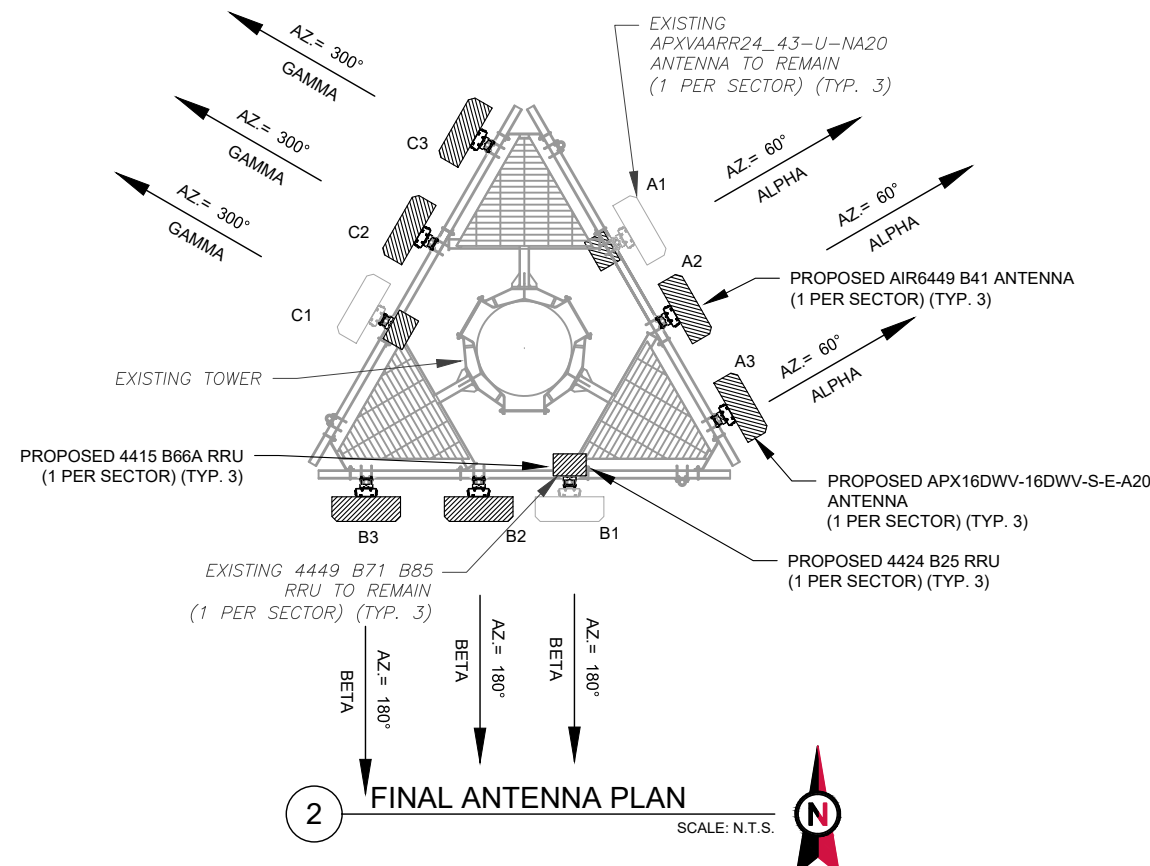
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:
C-401
REVISION:
0

PER MOUNT ANALYSIS COMPLETED BY SMJ INTERNATIONAL, DATED 05/24/21, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



1 EXISTING ANTENNA PLAN
SCALE: N.T.S.



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	130'	60°	A1	APXVAARR24_43-U-NA20	L700/L600/N600	0°/2°	RMN	4449 B71 B85	RMN
			A2	AIR21 KRC118023-1_B2A_B4P	U1900/G1900	0°/2°	RMV	-	-
			A3	AIR21 KRC118023-1_B2P_B4A	L2100	0°/2°	RMV	-	-
BETA	130'	180°	B1	APXVAARR24_43-U-NA20	L700/L600/N600	0°/2°	RMN	4449 B71 B85	RMN
			B2	AIR21 KRC118023-1_B2A_B4P	U1900/G1900	0°/2°	RMV	-	-
			B3	AIR21 KRC118023-1_B2P_B4A	L2100	0°/2°	RMV	-	-
GAMMA	130'	300°	C1	APXVAARR24_43-U-NA20	L700/L600/N600	0°/2°	RMN	4449 B71 B85	RMN
			C2	AIR21 KRC118023-1_B2A_B4P	U1900/G1900	0°/2°	RMV	-	-
			C3	AIR21 KRC118023-1_B2P_B4A	L2100	0°/2°	RMV	-	-

NOTES

- CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
- ROUTE HYBRID JUMPERS TO AVOID DAMAGE FROM BEING STEPPED UPON.

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'

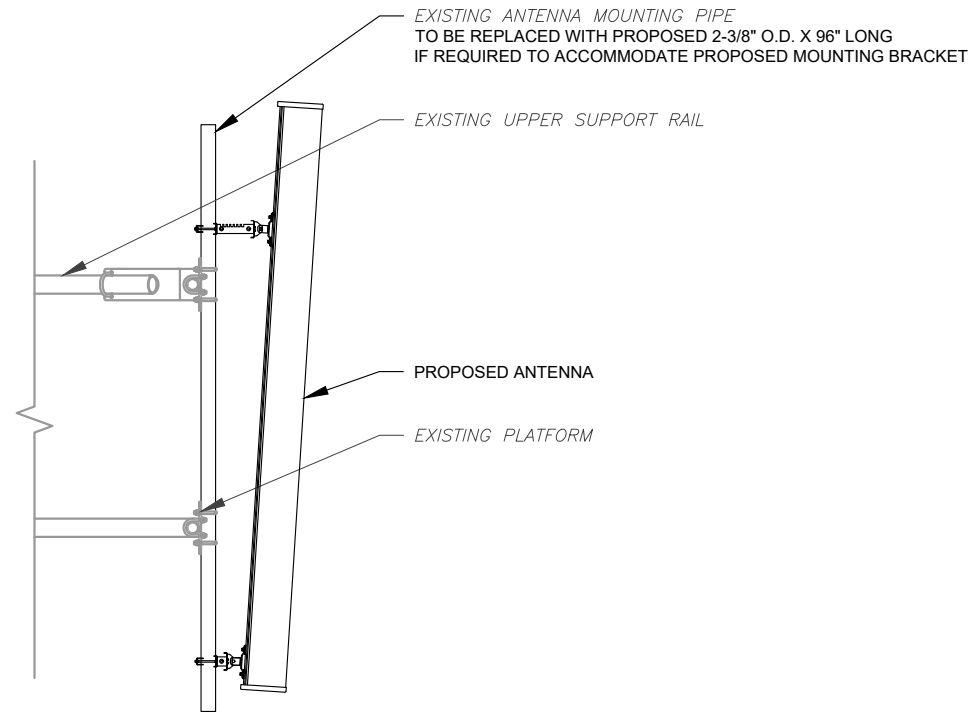
FINAL ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	130'	60°	A1	APXVAARR24_43-U-NA20	L700/L600/N600/L1900/G1900	0°/2°	RMN	4449 B71 B85A 4424 B25 4415 B66A	RMN ADD ADD
			A2	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			A3	APX16DWW-16DWW-S-E-A20	L2100	0°/2°	ADD	-	-
BETA	130'	180°	B1	APXVAARR24_43-U-NA20	L700/L600/N600/L1900/G1900	0°/2°	RMN	4449 B71 B85A 4424 B25 4415 B66A	RMN ADD ADD
			B2	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			B3	APX16DWW-16DWW-S-E-A20	L2100	0°/2°	ADD	4415 B66A	ADD
GAMMA	130'	300°	C1	APXVAARR24_43-U-NA20	L700/L600/N600/L1900/G1900	0°/2°	RMN	4449 B71 B85A 4424 B25 4415 B66A	RMN ADD ADD
			C2	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			C3	APX16DWW-16DWW-S-E-A20	L2100	0°/2°	ADD	4415 B66A	ADD

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(1) 9X18 1-5/8"	RMV
-	-	-	(2) 6X12 1-5/8"	RMN

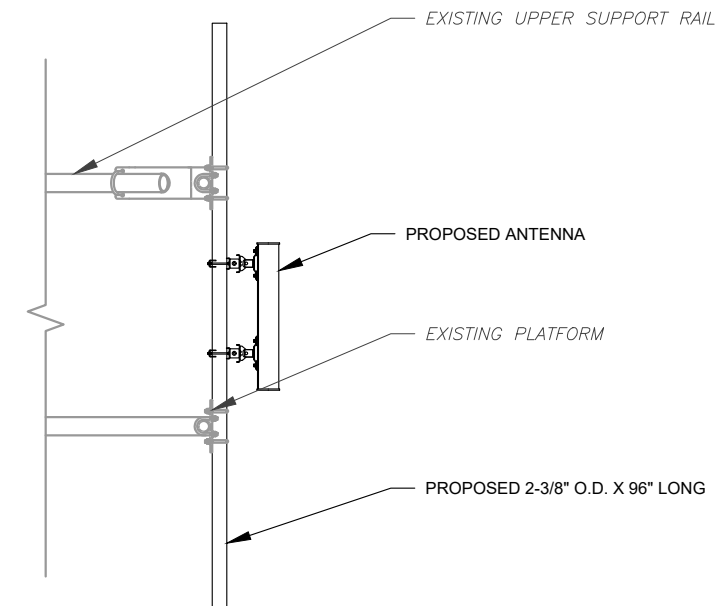
3 EQUIPMENT SCHEDULES

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(2) 6X12 1-5/8"	RMN
-	-	-	(3) 6X24 1-5/8"	ADD

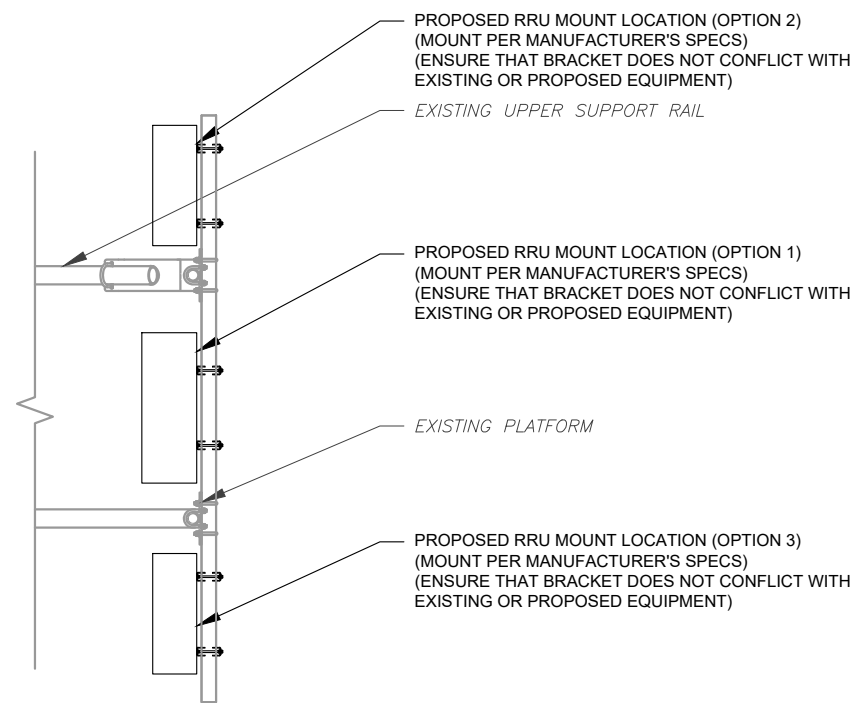
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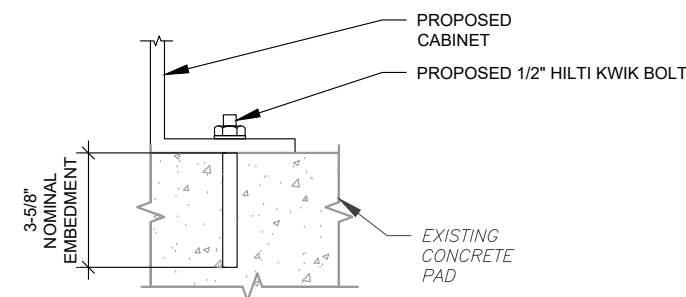
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



4 CABINET ATTACHMENT DETAIL
SCALE: NOT TO SCALE

NOTE:
INSTALL HILTI KWIK BOLT ANCHORS STRICTLY PER INSTALLATION INSTRUCTIONS INCLUDED WITH PRODUCT OR FOUND ONLINE AT WWW.US.HILTI.COM. PROPER INSTALLATION IS CRITICAL FOR FULL PERFORMANCE.



Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HG	06/02/21
0	ISSUED FOR CONSTRUCTION	NJ	06/28/21

ATC SITE NUMBER:
310972
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WATERFORD REBUILD CT
T-MOBILE SITE NAME:
CT641/SSITE WATERFORD_MP
SITE ADDRESS:
15 MINER LANE
WATERFORD, CT, 06385

SEAL:

DocuSigned by:
Kyle Frechart
D8BEE252A3804C1...

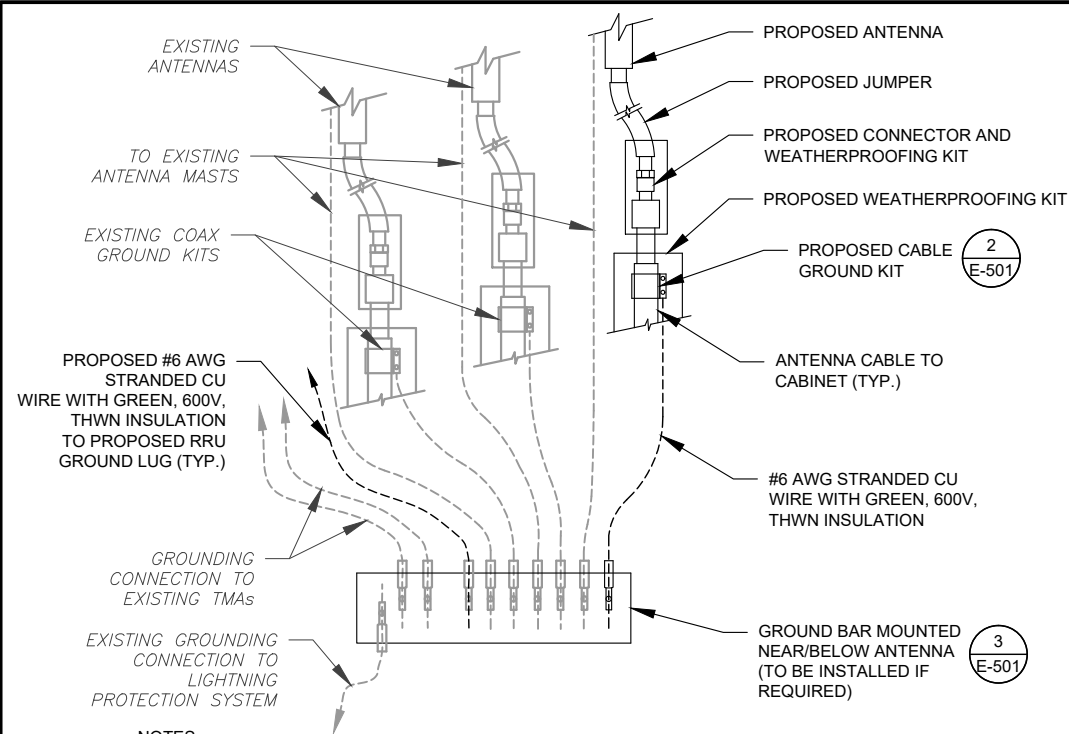


DATE DRAWN:	06/28/21
ATC JOB NO:	13677848
CUSTOMER ID:	CT641/SSITE WATERFORD_MP
CUSTOMER #:	CT11641A

CONSTRUCTION
DETAILS

SHEET NUMBER: C-501	REVISION: 0
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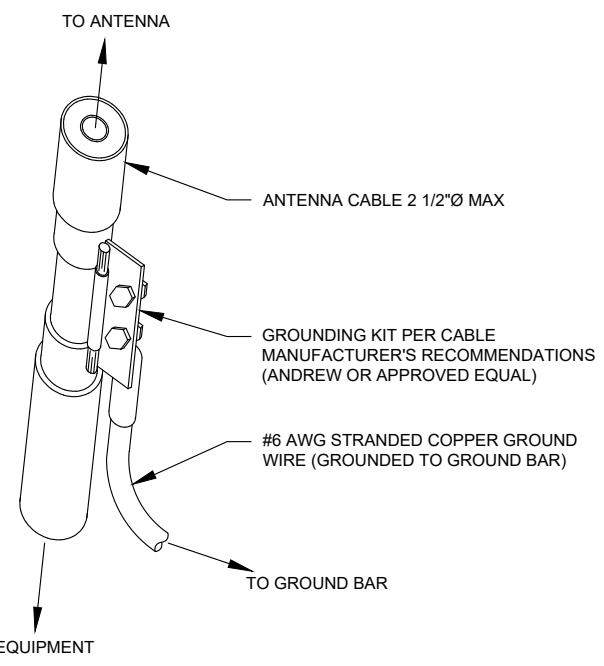
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NOTES:

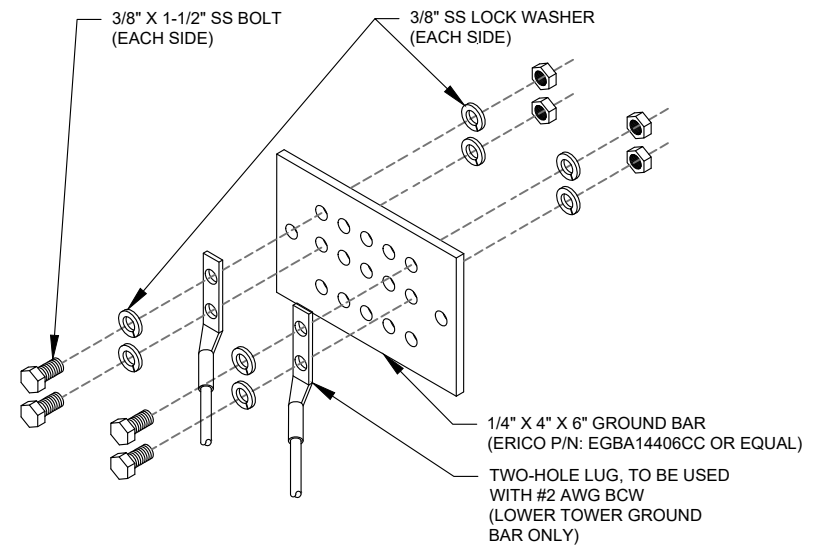
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING 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:

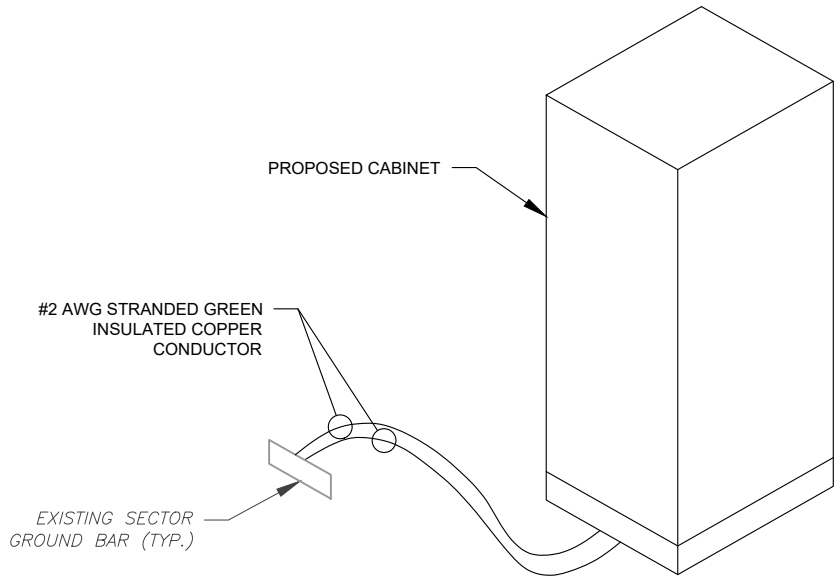
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL
SCALE: N.T.S.

ELECTRICAL NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"



4 CABINET GROUNDING DETAIL
SCALE: N.T.S.



Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HG	06/02/21
0	ISSUED FOR CONSTRUCTION	NJ	06/28/21

ATC SITE NUMBER:
310972
ATC SITE NAME:
WATERFORD REBUILD CT
T-MOBILE SITE NAME:
CT641/SSITE WATERFORD_MP
SITE ADDRESS:
15 MINER LANE
WATERFORD, CT, 06385

SEAL:

Designed by:
Kyle Frechart
D8BEE252A3804C1...



DATE DRAWN:	06/28/21
ATC JOB NO:	13677848
CUSTOMER ID:	CT641/SSITE WATERFORD_MP
CUSTOMER #:	CT11641A

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

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RAN Template: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
---	--

CT11641A_Anchor_4_draft
 Print Name: Preliminary (RFDS_for_Scoping)
 PORs: Anchor_Phase 3

Section 5 - RAN Equipment

Existing RAN Equipment			
Template: 67D02C Outdoor			
Enclosure	1	2	3
Enclosure Type	RBS 6131	Ancillary Equipment (Ericsson)	S8000 Outdoor
Baseband	DUW30 (U1900) DUG20 (G1900) BB 6630 (L700, L600, N600) BB 6630 (L2100)		
Hybrid Cable System		Ericsson 9x18 HCS *Select Length* Ericsson 6x12 HCS *Select Length & AWG* (x 2)	

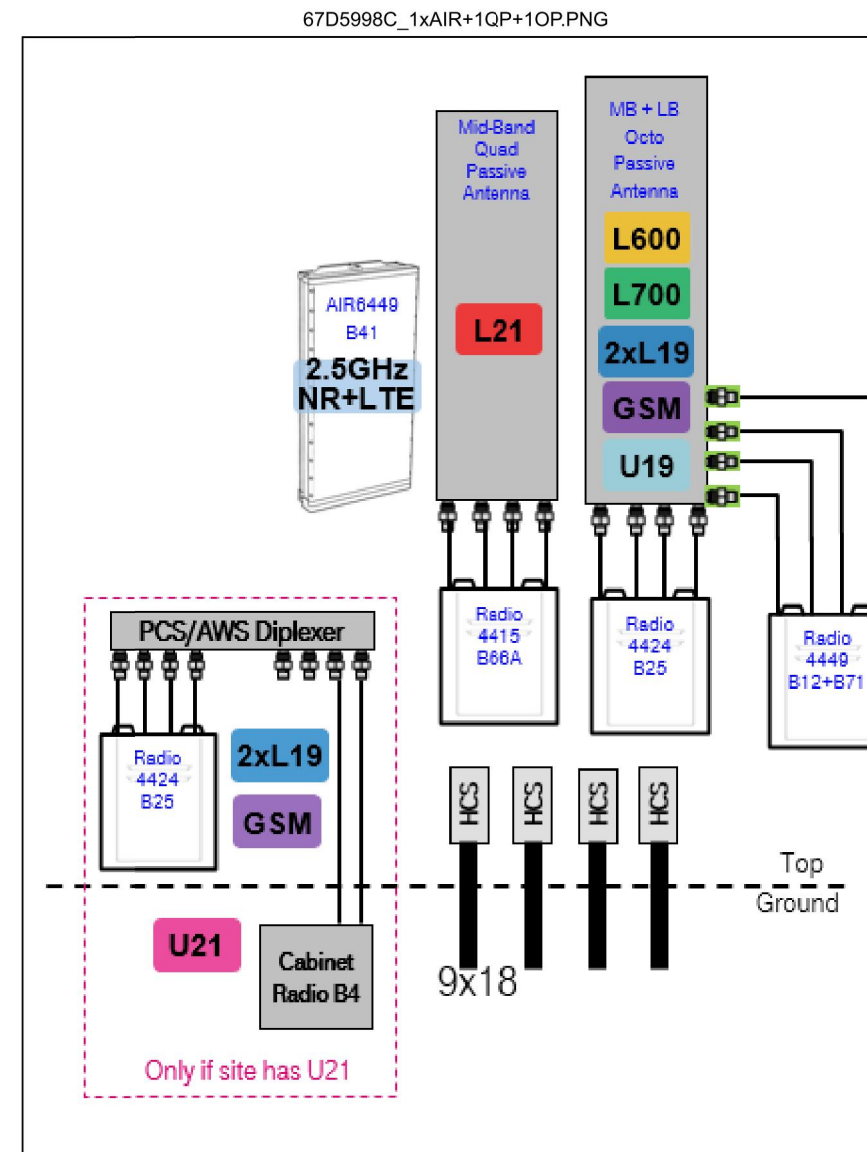
Proposed RAN Equipment			
Template: 67D5A998C Outdoor			
Enclosure	1	2	3
Enclosure Type	RBS 6131	Enclosure 6160	B160
Baseband	DUG20 (G1900) BB 6630 (L700, L600, N600) BB 6630 (L1900, L2100)	BB 6648 (L2500, N2500)	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 2)	Ericsson Hybrid Trunk 6/24 4AWG 50m (x 3) PSU 4813	
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

- Remove Nortel Cabinet.
- U1900 will be decommissioned. Remove DUW30 from existing base station cabinet.
- Add (1) Enclosure 6160.
- Add (1) Battery Cabinet B160.
- Add (1) IXRe Router to new Enclosure 6160.
- Add (1) BB6648 for L2500 and N2500 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.
- Add (1) PSU4813 Voltage Booster to new Enclosure 6160.
- Existing: (6) Coaxial Lines; (2) HCS
- Remove all coaxial lines.
- Remove 9X18 HCS if present.
- Add (3) 6X24 HCS ([1] per sector) terminating at the Enclosure 6160. Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

Section 3 - Proposed Template Images



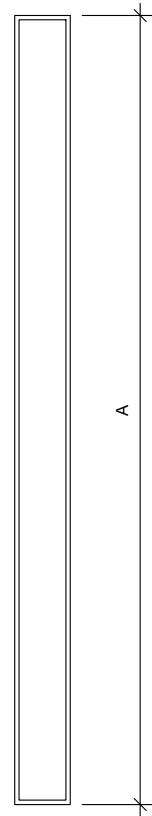
Notes:

2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

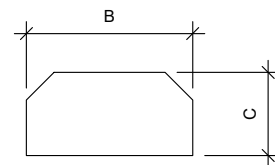
SUPPLEMENTAL

SHEET NUMBER: **R-601** REVISION: **0**

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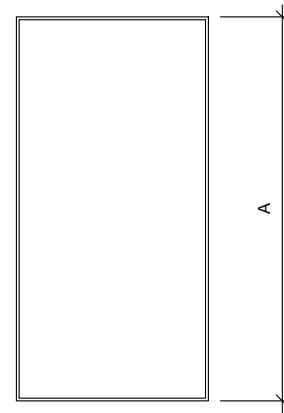
FRONT VIEW



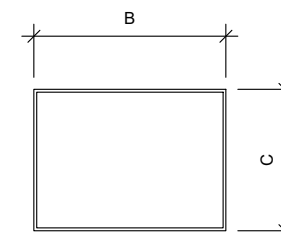
TOP VIEW

1 ANTENNA SPECIFICATIONS
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR6449 B41	33.1"	20.6"	8.6"	104.0
APX16DWV-16DWV-S-E-A20	55.9"	13.3"	3.1"	40.7



FRONT VIEW



TOP VIEW

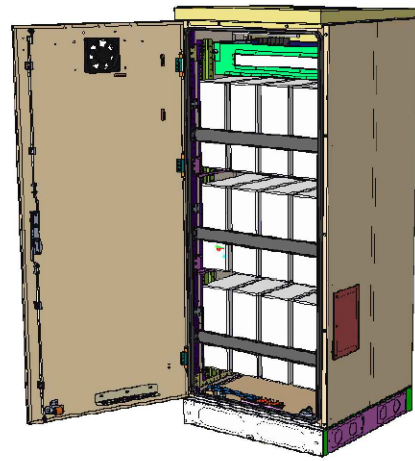
2 RRU SPECIFICATIONS
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
4424 B25	17.1"	14.4"	11.3"	86
4415 B66	15.0"	13.2	5.4"	46

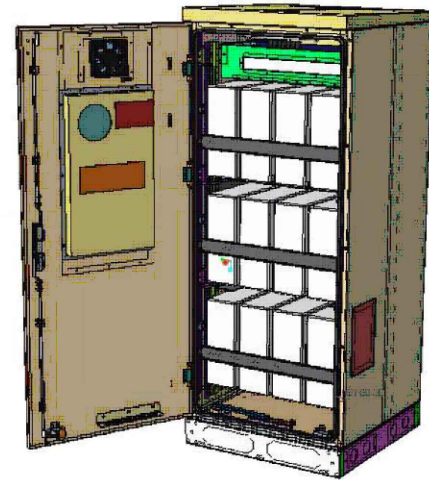
SUPPLEMENTAL

SHEET NUMBER: **R-602** REVISION: **0**

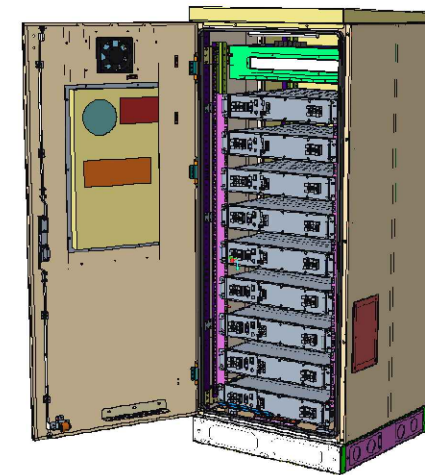
Enclosure B160



Enclosure B160
AirCon + VRLA



Enclosure B160
AirCon + Li-Ion



Enclosure B160
Convection Cooling
+ VRLA

PA1 | 2019-02-03 | Ericsson Confidential | Page 1

Enclosure B160

Capacity

- VRLA 12V: 100Ah / 150Ah / 170Ah / 190Ah / 210Ah
- Li-Ion: 24U 19" / 23"
- Sodium-Nickel: 3x FIAMM

Electrical specification

- DC Output: -48VDC/200A
- Battery breakers: 2x 125/2p
- Alarms: Door open, Climate failure, MCB Connection

Mechanical specification

- Weight: 134kg
- Dimensions: 63 x 26 x 26 in. (incl. Base frame)
- Base frame height: 6 in.
- Material: Galvanized steel (180g/m²)
- Color: Powder paint NCS 2002-B
- Door: Front access
- Locking type: Pad lock / cylinder

Environmental specification

- Ingress protection: VRLA/Sodium IP44
Li-Ion IP55
 - Relative humidity: 15-100%
- ## Climate system
- Air Conditioner
 - Fan type: DC
 - Cooling capacity: 500W @L35/L35
 - Convection cooling
 - Emergency fan

PA1 | 2019-02-03 | Ericsson Confidential | Page 2

SUPPLEMENTAL

SHEET NUMBER:

R-603

REVISION:

0

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Enclosure 6160 AC

The Enclosure 6160 is a multi-purpose site cabinet designed to support a multitude of equipment such as ERS Baseband, Transport, Li-Ion battery and 3PP vendor equipment. It also provides a highly capable power system and battery back-up - all in a streamlined design and minimized footprint to support cost efficient expansion of mobile broadband.

Being an all-in-one enclosure, the Enclosure 6160 is a very fitting choice for all types of sites where the capacity need is large or room for future expansion is needed. It is ideally used for modernizing existing sites or in greenfield scenarios to match both current and future needs.

With a robust design, IP65 compliance and a sealed Heat Exchanger (HEX) climate system the Enclosure 6160 ensures optimal environmental protection of the active equipment - enabling them for a long-lasting service. The complete system is also integrated and verified for the entire Ericsson Radio System and ensures best-in-class service.

The power system offers 31,5kW of power in total and provides 24kW of -48V DC power for both internal and external consumers.

The equipment space allows 19U of rack space ensuring well enough capacity for existing need and future expansion.

One of the main advantages of the Enclosure 6160 is its default integration with ENM - allowing for advanced remote monitoring and control such as fault management (alarms), inventory management and performance measurements. The cabinet also provides an open O&M interface for integration to 3PP O&M systems.



Preliminary technical specification for Enclosure 6160 AC

CAPACITY

Rack space user equipment	19U (19" rack)
Hardware capabilities	Power and CPRI support for multi-standard remote radios (RRU or AIR) ERS Baseband and Transport units Li-Ion batteries 3PP equipment Additional power feed available as option

MECHANICAL SPECIFICATION

Weight	145 kg (excluding active equipment) 320 lbs (excluding active equipment)
Dimension (H x W x D)	1600 x 650 x 650 mm (incl. Base frame) 63 x 26 x 26 in. (incl. Base frame)
Base frame height	150 mm 6 in.
Mounting position	Ground
Enclosure material	Aluminum
Color	Power paint NCS 2002-B
Door	Front access
Rack type	19" (IEC 60297-3-100)
Locking type	Pad lock or Cylinder

POWER SYSTEM

Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 VAC 1P+N+PE: 200-250 VAC
Input power	<33kW
Output load (-48VDC)	24kW
Total capacity (-48VDC)	31.5kW
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
PSU Slots	9x
Service outlet	Optional
Priority load	8x Circuit Breaker
LLVD 1	6x Circuit Breaker
LLVD 2	6x Circuit Breaker
CB ratings	3A / 5A / 10A / 15A / 20A / 25A / 30A / 40A / 50A / 60A / 80A / 100A
Battery Interface	2x Circuit Breaker
Battery Circuit Breaker rating	125A 2pol (200A)
PSU capacity	3500W

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SUPPLEMENTAL

SHEET NUMBER:

R-604

REVISION:

0



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 Wixom, MI 48393
 (616) 745-4777
info@smj-llc.com

**STRUCTURAL EVALUATION LETTER
 ANTENNA MOUNT ANALYSIS**

SITE INFORMATION:

ATC Site Name: Waterford Rebuild CT, CT
 ATC Site Number: 310972
 ATC Engineering Number: 13677848_C8_03
 Site Type: Monopole Tower
 Site Address: 15 Miner Lane, Waterford, New London County, CT
 T-Mobile Site Name: CT641/SSite Waterford_MP
 T-Mobile Site Number: CT11641A

CURRENT WIND CRITERIA:

1. ANSI/TIA-222-H Standard

SUPPORTING DOCUMENTS:

1. Preview Exhibit by American Tower Corporation, dated May 4, 2021
2. Mount Photos by American Tower Corporation, dated October 15, 2020
3. Construction Drawings by American Tower Corporation (ATC Job No: 12951818), dated July 25, 2019
4. Mount Analysis Report by CLS Engineering, PLLC (Project No 41124-12927128-01-MR-R1), dated July 3, 2019

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
129.0	130.0	(3) Ericsson AIR6449 B41	3	12.5' Platform with Handrails (Perfect Vision PV-LPPGS-12M-HR2-AP1)
		(3) RFS APX16DWV-16DWVS-E-A20	4	
		(3) RFS APXVAARR24_43-U-NA20	2	
		(3) Ericsson Radio 4424 B25	2	
		(3) Ericsson Radio 4449 B71 B85A	2	
		(3) Ericsson RRUS 4415 B66	2	

CONCLUSION:

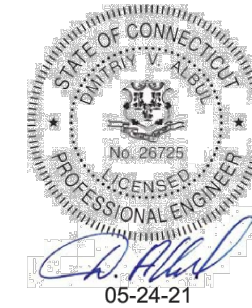
Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed. The mount can support the equipment as described in this report.

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
129.0	Mount Pipes	84%	Pass (84%)	-
	Handrails	78%		
	Cross Arms	39%		
	Kit	31%		
	Frame Rails	27%		
	Arms	25%		
	Grating Angles	13%		
	Connections	7%		

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.



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 VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

SUPPLEMENTAL

SHEET NUMBER: R-605	REVISION: 0
-------------------------------	-----------------------



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 180 ft Monopole
ATC Site Name : WATERFORD REBUILD CT, CT
ATC Asset Number : 310972
Engineering Number : 13677848_C3_02
Proposed Carrier : T-MOBILE
Carrier Site Name : CT641/SSite Waterford_MP
Carrier Site Number : CT11641A
Site Location : 15 Miner Lane
Waterford, CT 06385-3016
41.329100,-72.124600
County : New London
Date : June 4, 2021
Max Usage : 63%
Result : Pass

Prepared By:
Hussam Al Tahan
Structural Engineer II

Hussam Al Tahan

Reviewed By:



Authorized by "EOR"
07 Jun 2021 10:43:45

cosign

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
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Proposed Equipment	2
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Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	FWT Job #23766000, dated July 18, 2001
Foundation Drawing	ATC Job #42693971, dated December 8, 2008
Geotechnical Report	Tower Engineering Professionals Project #082973.01, dated November 7, 2008
Modifications	ATC Job #442108F2, dated November 9, 2009
Mount Analysis	SMJ International ATC Eng. #13677848_C8_03, dated May 24, 2021

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:	127 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" 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:	$S_s = 0.19, S_1 = 0.05$
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
184.0	2	Generic 11' Omni	Triangular Low Profile Platform	(2) 1 5/8" Coax	OTHER
	1	Generic TTA			
170.0	3	KMW HB-X-WM-17-65-00T	Side Arm	(6) 1 5/8" Coax	CLEARWIRE CORPORATION
	3	KMW HB-X-WM-17-65-00T-TTLNA (w/BKT)			
160.0	2	RFS DB-T1-6Z-8AB-0Z	Triangular Platform with Handrails	(2) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	VERIZON WIRELESS
	3	Commscope CBC78T-DS-43-2X			
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung B5/B13 RRH-BR04C			
	3	Samsung MT6407-77A			
153.0	6	Powerwave Allgon LGP17201	Triangular Platform with Handrails	(1) 3" conduit (3) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax (3) 2" conduit	AT&T MOBILITY
	3	Ericsson RRUS 11 (Band 12)			
	3	Ericsson RRUS 32 B66A			
	3	Ericsson RRUS 32 B2			
	3	Powerwave Allgon 7770.00			
	6	Commscope SBNHH-1D65A			
	3	Kathrein Scala 80010965			
	3	Ericsson RRUS 32 B30 (60 lbs)			
	3	Ericsson RRUS 4478 B14 (15")			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	1	Raycap DC6-48-60-18-8F			
	6	CCI TPX-070821			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	1	Raycap DC6-48-60-18-8C			
130.0	3	RFS APXVAARR24_43-U-NA20	Triangular Platform with Handrails (PV-LPPGS-12M-HR2-AP1)	(2) 1 5/8" Hybriflex	T-MOBILE

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
130.0	6	Ericsson AIR 21	-	(1) 1 1/4" (1.25"-31.8mm) Fiber (6) 1 5/8" Coax	T-MOBILE
	3	Ericsson Radio 4449 B12,B71			

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
130.0	3	Ericsson RRUS 4415 B66	Triangular Platform with Handrails (PV-LPPGS-12M-HR2-AP1)	(3) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson Radio 4449 B71 B85A			
	3	Ericsson 4424 B25			
	3	Ericsson Air6449 B41			
	3	RFS APX16DWV-16DWVS-E-A20			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	61%	Pass
Shaft	56%	Pass
Base Plate	11%	Pass
Flange Plate	19%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	5,615.0	7,580.3	4,014.8	53%
Shear (Kips)	38.5	52.0	32.9	63%

* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
130.0	Ericsson RRUS 4415 B66	T-MOBILE	0.830	0.724
	Ericsson Radio 4449 B71 B85A			
	Ericsson 4424 B25			
	Ericsson Air6449 B41			
	RFS APX16DWV-16DWVS-E-A20			

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H



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

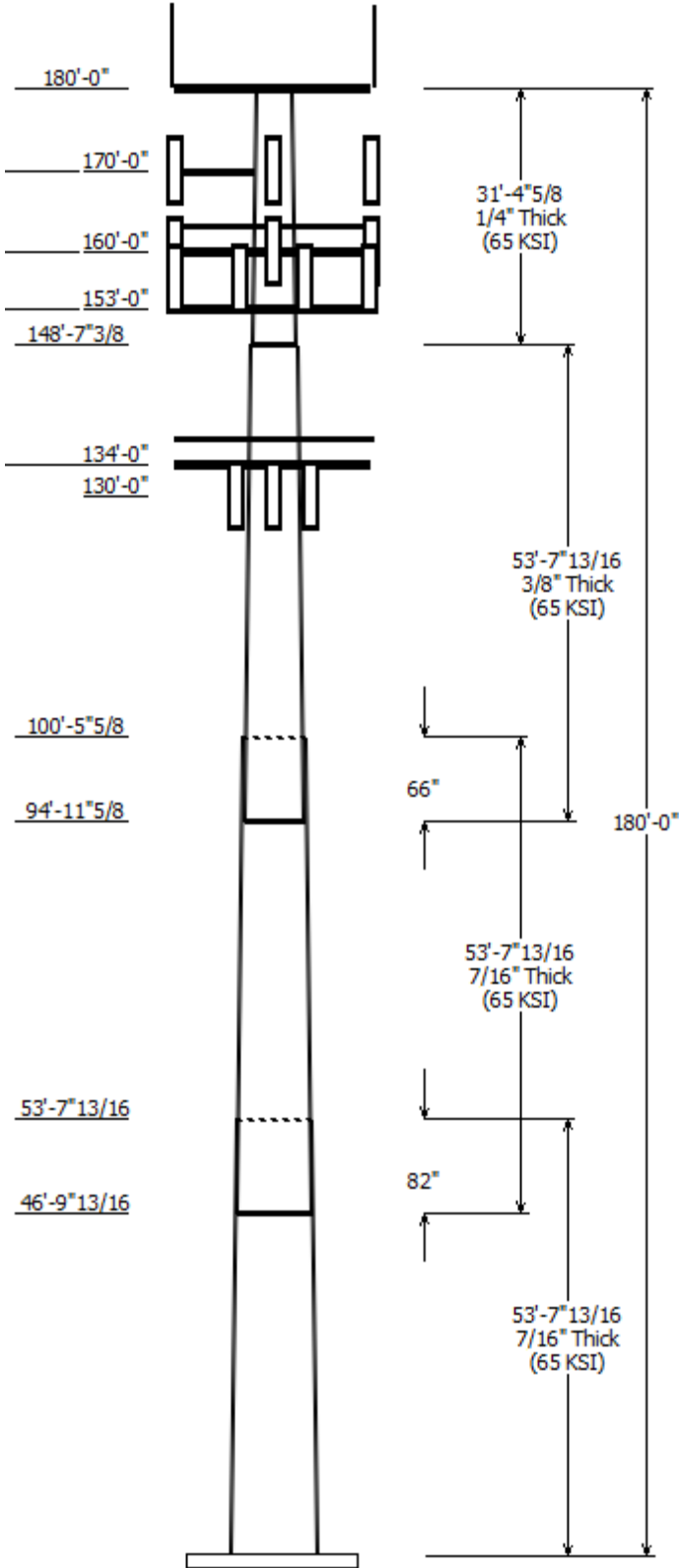
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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.

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Job Information	
Client : T-MOBILE	Code: ANSI/TIA-222-H
Pole : 310972	
Location : WATERFORD REBUILD CT, CT	
Description : 180' FWT monopole	Risk Category : II
Shape : 18 Sides	Exposure : B
Height : 180.00 (ft)	Topo Method : Method 1
Base Elev (ft): 0.00	Topographic Category : 1
Taper: 0.228194(in/ft)	

Sections Properties						
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Overlap Length (in)	Steel Grade
		Accross Top	Flats Bottom			
1	53.650	50.17	62.45	0.438	0.000	18 Sides 65
2	53.650	40.34	52.61	0.438	82.000	18 Sides 65
3	53.650	30.08	42.35	0.375	66.000	18 Sides 65
4	31.383	23.40	30.57	0.250	0.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.000	184.000	2	Generic 11' Omni
180.000	184.000	1	Generic TTA
180.000	180.000	1	Round Low Profile Platform
170.000	170.000	1	Side Arms
170.000	170.000	3	KMW HB-X-WM-17-65-00T
170.000	170.000	3	KMW HB-X-WM-17-65-00T-
160.000	160.000	1	Generic Round Platform with
160.000	160.000	6	Commscope JAHH-65B-R3B
160.000	160.000	3	Samsung MT6407-77A
160.000	160.000	2	RFS DB-T1-6Z-8AB-0Z
160.000	160.000	3	Samsung B5/B13 RRH-BR04C
160.000	160.000	3	Samsung B2/B66A RRH-BR049
160.000	160.000	3	Commscope CBC78T-DS-43-2X
153.000	156.000	3	Kathrein Scala 80010965
153.000	156.000	6	Commscope SBNHH-1D65A
153.000	156.000	3	Powerwave Allgon 7770.00
153.000	156.000	3	Ericsson RRUS 32 B2
153.000	156.000	3	Ericsson RRUS 32 B66A
153.000	156.000	3	Ericsson RRUS 11 (Band 12)
153.000	156.000	1	Raycap DC6-48-60-18-8C
153.000	156.000	6	Powerwave Allgon LGP17201
153.000	156.000	3	Ericsson RRUS 32 B30 (60 lbs)
153.000	156.000	3	Ericsson RRUS 4478 B14 (15")
153.000	153.000	1	Raycap DC6-48-60-18-8F
153.000	156.000	1	Raycap DC6-48-60-18-8F
153.000	153.000	6	CCI TPX-070821
153.000	153.000	6	Powerwave Allgon 7020.00
153.000	153.000	1	Flat Platform w/ Round Handrai
134.000	134.000	1	Perfect Vision PV-LPP12M-HR-
130.000	130.000	3	RFS APXVAARR24_43-U-NA20
130.000	130.000	3	RFS APX16DWV-16DWVS-E-A20
130.000	130.000	3	Ericsson Air6449 B41
130.000	130.000	3	Ericsson 4424 B25
130.000	130.000	3	Ericsson Radio 4449 B71 B85A
130.000	130.000	3	Ericsson RRUS 4415 B66

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	130.0	1 5/8" Hybriflex	No
0.000	130.0	1 5/8" Hybriflex	No
0.000	153.0	0.39" (10mm)	No

0.000	153.0	0.78" (19.7mm) 8	No
0.000	153.0	1 1/4" Coax	No
0.000	153.0	2" conduit	No
0.000	156.0	3" conduit	No
0.000	160.0	1 5/8" (1.63"-	No
0.000	160.0	1 5/8" Coax	No
0.000	170.0	1 5/8" Coax	No
0.000	184.0	1 5/8" Coax	No

Load Cases

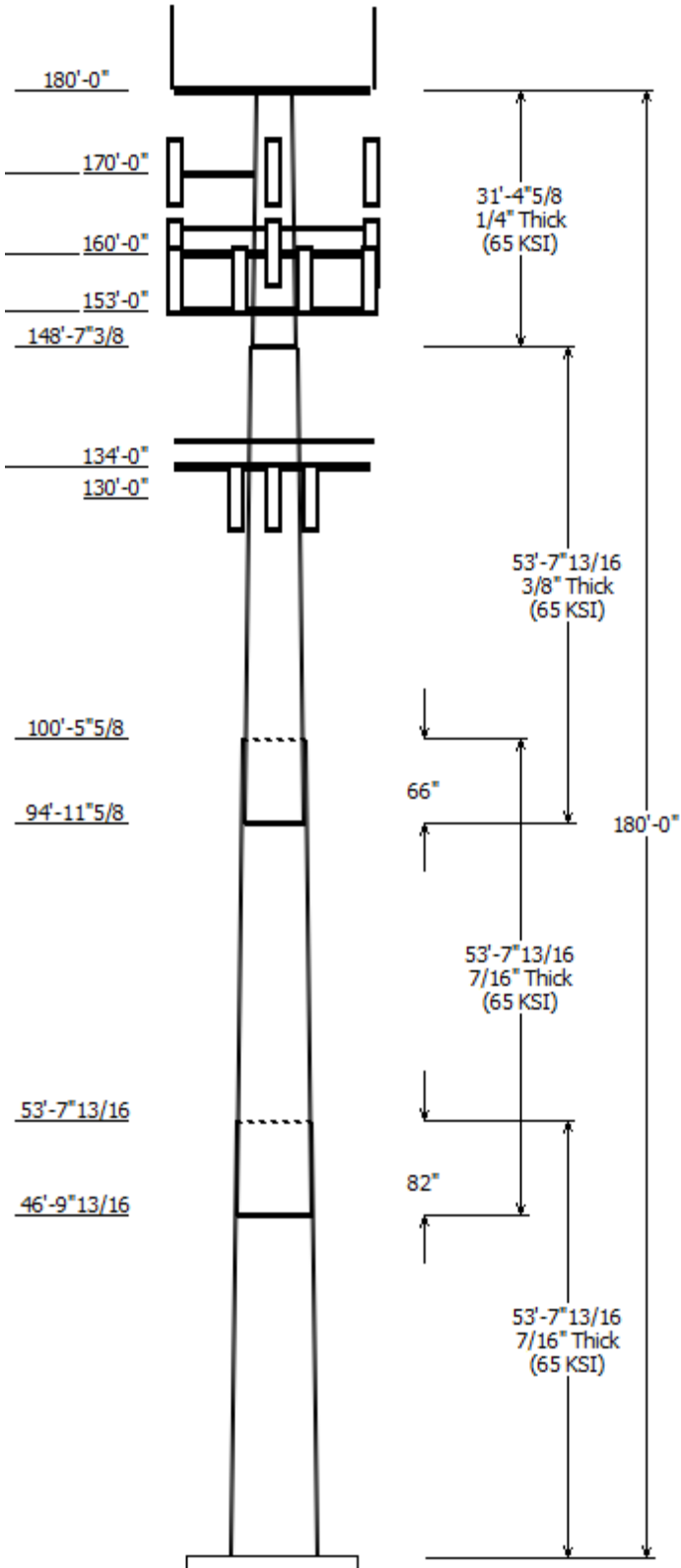
1.2D + 1.0W	127 mph with No Ice
0.9D + 1.0W	127 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions

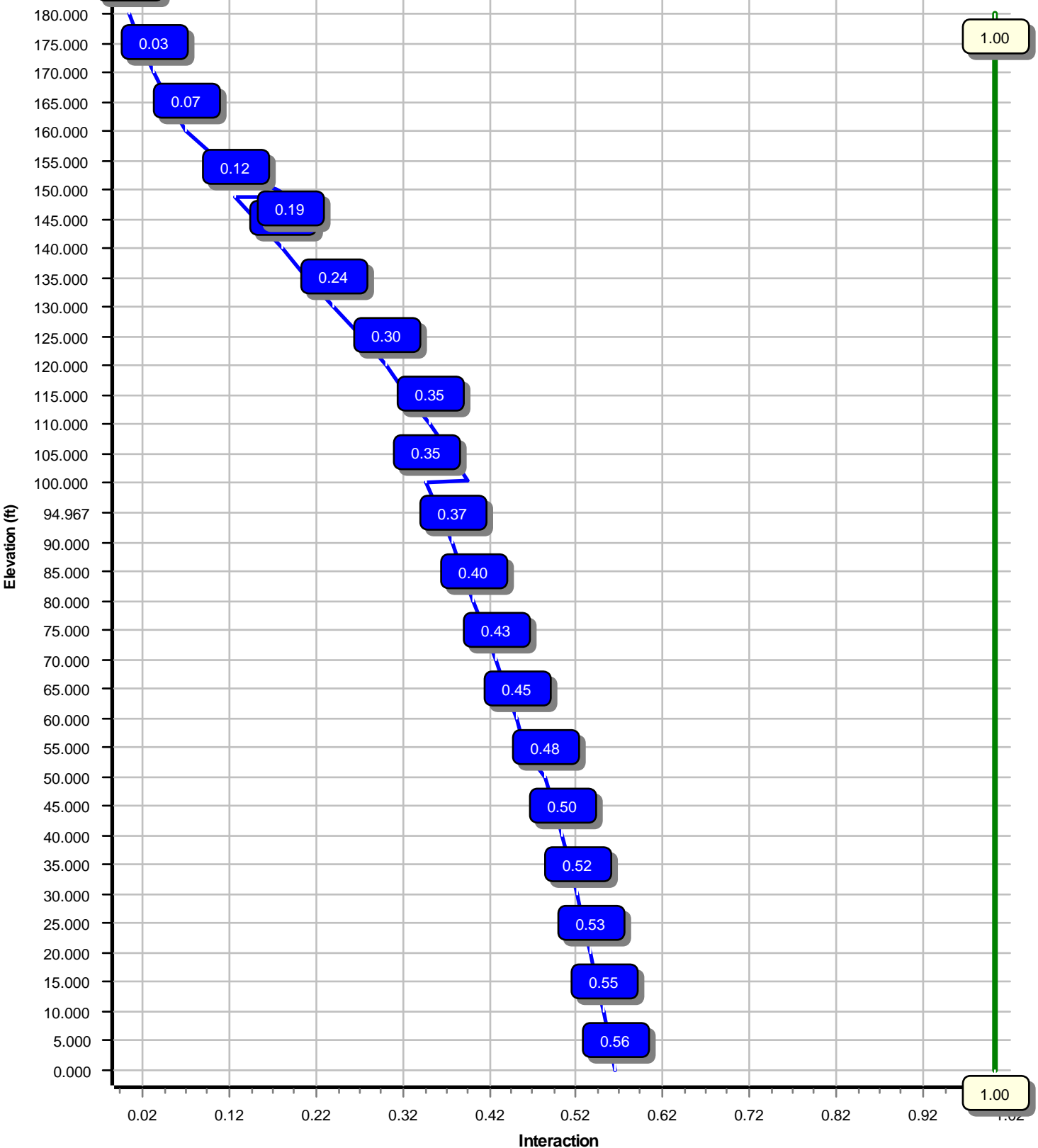
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	4014.82	32.93	69.36
0.9D + 1.0W	3964.58	32.91	52.01
1.2D + 1.0Di + 1.0Wi	969.78	8.02	87.25
1.2D + 1.0Ev + 1.0Eh	247.97	1.74	69.61
0.9D - 1.0Ev + 1.0Eh	244.07	1.74	48.21
1.0D + 1.0W	795.62	6.57	57.83

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 56.18% at 0.0 ft



Site Number: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number: 13677848_C3_02

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Customer: T-MOBILE

Analysis Parameters

Location :	New London County, CT	Height (ft) :	180
Code :	ANSI/TIA-222-H	Base Diameter (in) :	62.45
Shape :	18 Sides	Top Diameter (in) :	23.40
Pole Type :	Custom	Taper (in/ft) :	0.228
Pole Manufacturer :	FWT Inc	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	1.00

Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	127 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	94.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.62		
T _L (sec):	6	p:	1
S _s :	0.191	S ₁ :	0.052
F _a :	1.600	F _v :	2.400
S _{ds} :	0.204	S _{d1} :	0.083
		C _s :	0.030
		C _s Max:	0.030
		C _s Min:	0.030

Load Cases

1.2D + 1.0W	127 mph with No Ice
0.9D + 1.0W	127 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 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: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number: 13677848_C3_02

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Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	53.650	0.4375	65		0.00	14,165	62.45	0.00	86.11	41837.0	23.41	142.74	50.17	53.65	69.07	21590.1	18.46	114.69	0.228740
2-18	53.650	0.4375	65	Slip	82.00	11,672	52.61	46.82	72.45	24923.0	19.44	120.27	40.34	100.47	55.41	11149.7	14.50	92.22	0.228740
3-18	53.650	0.3750	65	Slip	66.00	7,788	42.35	94.97	49.96	11123.0	18.15	112.94	30.08	148.62	35.36	3941.7	12.38	80.21	0.228740
4-18	31.383	0.2500	65	Butt	0.00	2,266	30.57	148.62	24.06	2796.2	19.80	122.31	23.40	180.00	18.37	1244.1	14.74	93.61	0.228623
Shaft Weight						35,890													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
180.00	Generic TTA	1	0.80	4.000	10.00	1.200	1.00	34.46	1.693	1.00
180.00	Generic 11' Omni	2	1.00	4.000	40.00	3.300	1.00	96.62	5.982	1.00
180.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	1,940.16	34.743	1.00
170.00	KMW HB-X-WM-17-65-00T-	3	0.80	0.000	15.90	0.967	0.50	33.50	1.440	0.50
170.00	KMW HB-X-WM-17-65-00T	3	0.80	0.000	30.00	1.950	1.00	79.10	2.685	1.00
170.00	Side Arms	1	1.00	0.000	560.00	8.500	1.00	876.21	13.300	1.00
160.00	Commscope CBC78T-DS-43-2X	3	0.75	0.000	20.70	0.552	0.50	35.53	0.893	0.50
160.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	127.23	2.481	0.50
160.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	108.70	2.481	0.50
160.00	Samsung MT6407-77A	3	0.75	0.000	81.60	4.709	0.61	150.02	5.729	0.61
160.00	RFS DB-T1-6Z-8AB-OZ	2	0.75	0.000	44.00	4.800	0.72	128.49	5.754	0.72
160.00	Commscope JAHH-65B-R3B	6	0.75	0.000	60.60	9.113	0.69	196.41	10.975	0.69
160.00	Generic Round Platform with	1	1.00	0.000	2,500.00	27.200	1.00	3,587.33	43.609	1.00
153.00	Powerwave Allgon 7020.00 Dual	6	0.75	0.000	2.20	0.339	0.50	9.03	0.613	0.50
153.00	CCI TPX-070821	6	0.75	0.000	7.50	0.469	0.50	15.61	0.789	0.50
153.00	Raycap DC6-48-60-18-8F	1	0.75	3.000	20.00	1.260	0.50	55.21	1.700	0.50
153.00	Raycap DC6-48-60-18-8F	1	0.75	0.000	31.80	1.470	0.50	73.06	1.937	0.50
153.00	Ericsson RRUS 4478 B14 (15")	3	0.75	3.000	59.40	1.650	0.50	92.63	2.217	0.50
153.00	Powerwave Allgon LGP17201	6	0.75	3.000	31.00	1.668	0.50	56.50	2.237	0.50
153.00	Raycap DC6-48-60-18-8C	1	0.75	3.000	16.00	2.030	0.50	54.93	2.538	0.50
153.00	Ericsson RRUS 11 (Band 12)	3	0.75	3.000	50.00	2.566	0.67	95.58	3.266	0.67
153.00	Ericsson RRUS 32 B30 (60 lbs)	3	0.75	3.000	60.00	2.692	0.67	107.52	3.465	0.67
153.00	Ericsson RRUS 32 B66A	3	0.75	3.000	50.70	2.720	0.67	99.71	3.498	0.67
153.00	Ericsson RRUS 32 B2	3	0.75	3.000	53.00	2.743	0.67	102.18	3.525	0.67
153.00	Powerwave Allgon 7770.00	3	0.75	3.000	35.00	5.508	0.65	118.47	6.196	0.65
153.00	Commscope SBNHH-1D65A	6	0.75	3.000	33.50	5.883	0.69	124.02	7.305	0.69
153.00	Kathrein Scala 80010965	3	0.75	3.000	97.60	13.814	0.62	275.88	15.854	0.62
153.00	Flat Platform w/ Round Handrails	1	1.00	0.000	2,000.00	34.800	1.00	2,931.71	51.012	1.00
134.00	Perfect Vision PV-LPP12M-HR-	1	1.00	0.000	2,117.00	34.400	1.00	3,021.63	54.790	1.00
130.00	Ericsson RRUS 4415 B66	3	0.75	0.000	46.00	1.650	0.50	74.46	2.208	0.50
130.00	Ericsson Radio 4449 B71 B85A	3	0.75	0.000	75.00	1.650	0.50	114.53	2.208	0.50
130.00	Ericsson 4424 B25	3	0.75	0.000	86.00	2.052	0.67	133.92	2.672	0.67
130.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	193.57	6.725	0.63
130.00	RFS APX16DWV-16DWVS-E-A20	3	0.75	0.000	40.70	6.586	0.60	117.48	8.009	0.60
130.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.243	0.63	385.93	22.681	0.63
Totals	Num Loadings:35	100			13,296.20			22,772.17		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Dist Azimuth (deg)	Dist From Face (in)	Exposed To Wind Carrier
0.00	184.00	2	1 5/8" Coax	1.98	0.82	N 0	0.00	0.00	0	0.00	N Other
0.00	170.00	6	1 5/8" Coax	1.98	0.82	N 0	0.00	0.00	0	0.00	N CLEARWIRE

Site Number: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number:13677848_C3_02

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Customer: T-MOBILE

0.00	160.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	160.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	156.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	3	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	6	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	153.00	12	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	3	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	130.00	2	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	130.00	3	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	T-MOBILE

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)
0.00		0.4375	62.450	86.109	41,837.0	23.41	142.74	73.9	1319.	0.0	0.0
5.00		0.4375	61.306	84.521	39,564.6	22.95	140.13	74.4	1271.	0.0	1,451.5
10.00		0.4375	60.163	82.933	37,376.0	22.48	137.51	75.0	1223.	0.0	1,424.5
15.00		0.4375	59.019	81.345	35,269.7	22.02	134.90	75.5	1177.	0.0	1,397.5
20.00		0.4375	57.875	79.757	33,244.0	21.56	132.29	76.0	1131.	0.0	1,370.5
25.00		0.4375	56.731	78.168	31,297.4	21.10	129.67	76.6	1086.	0.0	1,343.5
30.00		0.4375	55.588	76.580	29,428.4	20.64	127.06	77.1	1042.	0.0	1,316.4
35.00		0.4375	54.444	74.992	27,635.2	20.18	124.44	77.7	999.8	0.0	1,289.4
40.00		0.4375	53.300	73.404	25,916.4	19.72	121.83	78.2	957.7	0.0	1,262.4
45.00		0.4375	52.157	71.816	24,270.4	19.26	119.22	78.8	916.5	0.0	1,235.4
46.82	Bot - Section 2	0.4375	51.741	71.239	23,690.1	19.09	118.27	78.9	901.8	0.0	442.2
50.00		0.4375	51.013	70.228	22,695.7	18.80	116.60	79.3	876.3	0.0	1,545.6
53.65	Top - Section 1	0.4375	51.053	70.284	22,749.7	18.81	116.69	79.3	877.7	0.0	1,745.2
55.00		0.4375	50.744	69.855	22,335.9	18.69	115.99	79.4	867.0	0.0	321.9
60.00		0.4375	49.601	68.267	20,846.8	18.23	113.37	80.0	827.8	0.0	1,175.0
65.00		0.4375	48.457	66.679	19,425.5	17.77	110.76	80.5	789.6	0.0	1,148.0
70.00		0.4375	47.313	65.090	18,070.3	17.31	108.14	81.0	752.3	0.0	1,121.0
75.00		0.4375	46.170	63.502	16,779.7	16.84	105.53	81.6	715.8	0.0	1,093.9
80.00		0.4375	45.026	61.914	15,552.0	16.38	102.92	82.1	680.3	0.0	1,066.9
85.00		0.4375	43.882	60.326	14,385.7	15.92	100.30	82.6	645.7	0.0	1,039.9
90.00		0.4375	42.738	58.738	13,279.2	15.46	97.69	82.6	612.0	0.0	1,012.9
94.97	Bot - Section 3	0.4375	41.602	57.160	12,237.7	15.00	95.09	82.6	579.4	0.0	979.4
95.00		0.4375	41.595	57.150	12,230.9	15.00	95.07	82.6	579.2	0.0	12.1
100.0		0.4375	40.451	55.562	11,239.4	14.54	92.46	82.6	547.3	0.0	1,797.1
100.4	Top - Section 2	0.3750	41.094	48.464	10,152.6	17.56	109.58	80.7	486.6	0.0	165.2
105.0		0.3750	40.057	47.230	9,396.5	17.07	106.82	81.3	462.0	0.0	738.1
110.0		0.3750	38.914	45.869	8,607.2	16.53	103.77	82.0	435.7	0.0	792.0
115.0		0.3750	37.770	44.508	7,863.4	16.00	100.72	82.6	410.1	0.0	768.8
120.0		0.3750	36.626	43.146	7,163.8	15.46	97.67	82.6	385.2	0.0	745.7
125.0		0.3750	35.483	41.785	6,506.9	14.92	94.62	82.6	361.2	0.0	722.5
130.0		0.3750	34.339	40.424	5,891.5	14.38	91.57	82.6	337.9	0.0	699.3
134.0		0.3750	33.424	39.335	5,428.1	13.95	89.13	82.6	319.9	0.0	542.8
135.0		0.3750	33.195	39.063	5,316.1	13.85	88.52	82.6	315.4	0.0	133.4
140.0		0.3750	32.051	37.701	4,779.5	13.31	85.47	82.6	293.7	0.0	653.0
145.0		0.3750	30.908	36.340	4,280.3	12.77	82.42	82.6	272.8	0.0	629.9
148.6	Top - Section 3	0.3750	30.080	35.356	3,941.7	12.38	80.21	82.6	258.1	0.0	441.2
148.6	Bot - Section 4	0.2500	30.577	24.064	2,796.2	19.80	122.31	78.1	180.1	0.0	
150.0		0.2500	30.261	23.813	2,709.6	19.58	121.04	78.4	176.4	0.0	112.7
153.0		0.2500	29.575	23.268	2,528.1	19.10	118.30	78.9	168.4	0.0	240.3
155.0		0.2500	29.118	22.906	2,411.6	18.77	116.47	79.3	163.1	0.0	157.1
160.0		0.2500	27.974	21.999	2,136.3	17.97	111.90	80.3	150.4	0.0	382.0
165.0		0.2500	26.831	21.091	1,882.8	17.16	107.33	81.2	138.2	0.0	366.6
170.0		0.2500	25.688	20.184	1,650.2	16.35	102.75	82.2	126.5	0.0	351.1
175.0		0.2500	24.545	19.277	1,437.6	15.55	98.18	82.6	115.4	0.0	335.7
180.0		0.2500	23.402	18.370	1,244.1	14.74	93.61	82.6	104.7	0.0	320.3
											35,889.7

Load Case: 1.2D + 1.0W	127 mph with No Ice	24 Iterations
Gust Response Factor :1.10		
Dead Load Factor :1.20		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		287.6	0.0					0.0	0.0	287.6	0.0	0.0	0.0
5.00		570.0	1,741.8					0.0	335.6	570.0	2,077.4	0.0	0.0
10.00		559.3	1,709.4					0.0	335.6	559.3	2,045.0	0.0	0.0
15.00		548.7	1,677.0					0.0	335.6	548.7	2,012.6	0.0	0.0
20.00		538.1	1,644.6					0.0	335.6	538.1	1,980.2	0.0	0.0
25.00		527.4	1,612.2					0.0	335.6	527.4	1,947.7	0.0	0.0
30.00		522.9	1,579.7					0.0	335.6	522.9	1,915.3	0.0	0.0
35.00		529.0	1,547.3					0.0	335.6	529.0	1,882.9	0.0	0.0
40.00		538.1	1,514.9					0.0	335.6	538.1	1,850.5	0.0	0.0
45.00		370.1	1,482.5					0.0	335.6	370.1	1,818.0	0.0	0.0
46.82	Bot - Section 2	276.6	530.6					0.0	121.9	276.6	652.5	0.0	0.0
50.00		381.8	1,854.7					0.0	213.7	381.8	2,068.3	0.0	0.0
53.65	Top - Section 1	280.1	2,094.2					0.0	245.0	280.1	2,339.2	0.0	0.0
55.00		356.9	386.3					0.0	90.6	356.9	476.9	0.0	0.0
60.00		562.4	1,410.0					0.0	335.6	562.4	1,745.6	0.0	0.0
65.00		562.2	1,377.6					0.0	335.6	562.2	1,713.1	0.0	0.0
70.00		560.7	1,345.1					0.0	335.6	560.7	1,680.7	0.0	0.0
75.00		558.0	1,312.7					0.0	335.6	558.0	1,648.3	0.0	0.0
80.00		554.4	1,280.3					0.0	335.6	554.4	1,615.9	0.0	0.0
85.00		549.7	1,247.9					0.0	335.6	549.7	1,583.4	0.0	0.0
90.00		542.4	1,215.4					0.0	335.6	542.4	1,551.0	0.0	0.0
94.97	Bot - Section 3	270.7	1,175.2					0.0	333.3	270.7	1,508.6	0.0	0.0
95.00		274.0	14.6					0.0	2.2	274.0	16.8	0.0	0.0
100.00		297.4	2,156.6					0.0	335.6	297.4	2,492.1	0.0	0.0
100.47	Top - Section 2	268.5	198.2					0.0	31.3	268.5	229.5	0.0	0.0
105.00		507.8	885.7					0.0	304.3	507.8	1,190.0	0.0	0.0
110.00		524.8	950.4					0.0	335.6	524.8	1,286.0	0.0	0.0
115.00		515.9	922.6					0.0	335.6	515.9	1,258.2	0.0	0.0
120.00		506.4	894.8					0.0	335.6	506.4	1,230.4	0.0	0.0
125.00		496.3	867.0					0.0	335.6	496.3	1,202.6	0.0	0.0
130.00	Appurtenance(s)	438.1	839.2	2,402.2	0.0	0.0	1,726.6	0.0	335.6	2,840.3	2,901.4	0.0	0.0
134.00	Appurtenance(s)	240.1	651.4	1,589.3	0.0	0.0	2,540.4	0.0	237.3	1,829.5	3,429.0	0.0	0.0
135.00		282.1	160.1					0.0	59.3	282.1	219.4	0.0	0.0
140.00		463.1	783.6					0.0	296.6	463.1	1,080.2	0.0	0.0
145.00		390.1	755.8					0.0	296.6	390.1	1,052.4	0.0	0.0
148.62	Top - Section 3	223.5	529.4					0.0	214.5	223.5	743.9	0.0	0.0
150.00		194.6	135.2					0.0	82.1	194.6	217.3	0.0	0.0
153.00	Appurtenance(s)	219.8	288.4	5,093.6	0.0	9,930.1	4,476.1	0.0	177.9	5,313.4	4,942.4	0.0	0.0
155.00		300.4	188.5					0.0	65.3	300.4	253.8	0.0	0.0
160.00	Appurtenance(s)	419.9	458.4	3,498.6	0.0	0.0	4,467.1	0.0	126.8	3,918.5	5,052.3	0.0	0.0
165.00		406.3	439.9					0.0	39.4	406.3	479.2	0.0	0.0
170.00	Appurtenance(s)	392.3	421.4	709.2	0.0	0.0	837.2	0.0	39.4	1,101.5	1,298.0	0.0	0.0
175.00		378.0	402.8					0.0	9.8	378.0	412.7	0.0	0.0
180.00	Appurtenance(s)	185.4	384.3	1,473.2	0.0	1,529.6	1,908.0	0.0	9.8	1,658.6	2,302.2	0.0	0.0
Totals:										33,138.0	69,402.9	0.00	0.00

Load Case: 1.2D + 1.0W

127 mph with No Ice

24 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	-69.36	-32.93	0.00	-4,014.82	0.00	4,014.82	5,724.86	1,511.21	8,464.29	7,310.45	0.00	0.00	0.562
5.00	-67.21	-32.52	0.00	-3,850.16	0.00	3,850.16	5,660.51	1,483.34	8,154.99	7,094.04	0.07	-0.13	0.555
10.00	-65.09	-32.11	0.00	-3,687.57	0.00	3,687.57	5,594.62	1,455.47	7,851.45	6,878.77	0.29	-0.27	0.548
15.00	-63.01	-31.70	0.00	-3,527.04	0.00	3,527.04	5,527.18	1,427.60	7,553.66	6,664.77	0.64	-0.41	0.541
20.00	-60.95	-31.29	0.00	-3,368.55	0.00	3,368.55	5,458.18	1,399.73	7,261.62	6,452.13	1.14	-0.55	0.534
25.00	-58.94	-30.89	0.00	-3,212.09	0.00	3,212.09	5,387.64	1,371.86	6,975.35	6,240.97	1.79	-0.69	0.526
30.00	-56.95	-30.48	0.00	-3,057.65	0.00	3,057.65	5,315.55	1,343.98	6,694.83	6,031.39	2.58	-0.83	0.518
35.00	-55.00	-30.07	0.00	-2,905.23	0.00	2,905.23	5,241.91	1,316.11	6,420.07	5,823.52	3.53	-0.97	0.510
40.00	-53.09	-29.63	0.00	-2,754.90	0.00	2,754.90	5,166.71	1,288.24	6,151.07	5,617.45	4.63	-1.12	0.501
45.00	-51.22	-29.31	0.00	-2,606.76	0.00	2,606.76	5,089.97	1,260.37	5,887.82	5,413.30	5.88	-1.27	0.492
46.82	-50.54	-29.09	0.00	-2,553.52	0.00	2,553.52	5,061.71	1,250.24	5,793.60	5,339.62	6.37	-1.32	0.489
50.00	-48.43	-28.74	0.00	-2,460.93	0.00	2,460.93	5,011.68	1,232.50	5,630.33	5,211.18	7.28	-1.42	0.482
53.65	-46.06	-28.46	0.00	-2,356.02	0.00	2,356.02	5,014.45	1,233.48	5,639.26	5,218.23	8.41	-1.53	0.461
55.00	-45.55	-28.17	0.00	-2,317.59	0.00	2,317.59	4,993.06	1,225.95	5,570.67	5,164.00	8.85	-1.57	0.458
60.00	-43.75	-27.66	0.00	-2,176.76	0.00	2,176.76	4,912.86	1,198.08	5,320.29	4,964.54	10.57	-1.71	0.448
65.00	-41.99	-27.16	0.00	-2,038.44	0.00	2,038.44	4,831.10	1,170.21	5,075.66	4,767.35	12.44	-1.86	0.437
70.00	-40.26	-26.64	0.00	-1,902.66	0.00	1,902.66	4,747.80	1,142.34	4,836.80	4,572.55	14.46	-2.00	0.425
75.00	-38.57	-26.12	0.00	-1,769.47	0.00	1,769.47	4,662.94	1,114.47	4,603.69	4,380.25	16.63	-2.14	0.413
80.00	-36.91	-25.60	0.00	-1,638.87	0.00	1,638.87	4,576.54	1,086.59	4,376.33	4,190.55	18.95	-2.29	0.400
85.00	-35.29	-25.07	0.00	-1,510.89	0.00	1,510.89	4,481.93	1,058.72	4,154.74	3,997.63	21.43	-2.43	0.386
90.00	-33.70	-24.54	0.00	-1,385.54	0.00	1,385.54	4,363.94	1,030.85	3,938.90	3,788.90	24.05	-2.58	0.374
94.97	-32.18	-24.24	0.00	-1,263.64	0.00	1,263.64	4,246.74	1,003.17	3,730.20	3,587.10	26.81	-2.72	0.360
95.00	-32.14	-24.01	0.00	-1,262.83	0.00	1,262.83	4,245.95	1,002.98	3,728.82	3,585.76	26.83	-2.72	0.360
100.00	-29.64	-23.63	0.00	-1,142.79	0.00	1,142.79	4,127.96	975.11	3,524.49	3,388.23	29.75	-2.86	0.345
100.47	-29.39	-23.39	0.00	-1,131.76	0.00	1,131.76	3,522.04	850.55	3,128.34	2,946.90	30.03	-2.87	0.393
105.00	-28.18	-22.89	0.00	-1,025.74	0.00	1,025.74	3,456.72	828.89	2,971.06	2,817.93	32.81	-3.00	0.373
110.00	-26.86	-22.36	0.00	-911.32	0.00	911.32	3,383.20	805.00	2,802.29	2,677.76	36.03	-3.14	0.349
115.00	-25.58	-21.84	0.00	-799.52	0.00	799.52	3,306.70	781.11	2,638.45	2,538.79	39.40	-3.28	0.323
120.00	-24.34	-21.31	0.00	-690.34	0.00	690.34	3,205.56	757.22	2,479.56	2,385.12	42.91	-3.42	0.298
125.00	-23.12	-20.80	0.00	-583.77	0.00	583.77	3,104.43	733.33	2,325.59	2,236.25	46.55	-3.55	0.269
130.00	-20.37	-17.81	0.00	-479.79	0.00	479.79	3,003.30	709.44	2,176.56	2,092.18	50.33	-3.66	0.237
134.00	-17.06	-15.78	0.00	-408.54	0.00	408.54	2,922.39	690.33	2,060.89	1,980.38	53.43	-3.75	0.213
135.00	-16.84	-15.50	0.00	-392.76	0.00	392.76	2,902.16	685.55	2,032.46	1,952.91	54.22	-3.77	0.207
140.00	-15.77	-14.99	0.00	-315.24	0.00	315.24	2,801.03	661.66	1,893.30	1,818.43	58.22	-3.86	0.180
145.00	-14.73	-14.55	0.00	-240.27	0.00	240.27	2,699.90	637.77	1,759.08	1,688.75	62.30	-3.95	0.148
148.62	-13.99	-14.28	0.00	-187.65	0.00	187.65	2,626.75	620.49	1,665.06	1,597.93	65.31	-4.00	0.123
148.62	-13.99	-14.28	0.00	-187.65	0.00	187.65	1,691.62	422.31	1,156.82	1,055.16	65.31	-4.00	0.187
150.00	-13.78	-14.08	0.00	-167.89	0.00	167.89	1,679.60	417.91	1,132.82	1,036.65	66.47	-4.01	0.171
153.00	-9.22	-8.44	0.00	-115.72	0.00	115.72	1,653.13	408.36	1,081.64	996.80	69.01	-4.06	0.122
155.00	-8.98	-8.13	0.00	-98.84	0.00	98.84	1,635.17	401.99	1,048.18	970.47	70.72	-4.09	0.108
160.00	-4.22	-3.86	0.00	-58.20	0.00	58.20	1,589.20	386.07	966.82	905.51	75.02	-4.13	0.067
165.00	-3.77	-3.42	0.00	-38.90	0.00	38.90	1,541.67	370.16	888.75	841.89	79.36	-4.16	0.049
170.00	-2.56	-2.23	0.00	-21.79	0.00	21.79	1,492.60	354.24	813.96	779.71	83.73	-4.19	0.030

Site Number: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number: 13677848_C3_02

6/4/2021 7:50:01 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0W

127 mph with No Ice

24 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.20

Wind Load Factor :1.00

175.00	-2.17	-1.82	0.00	-10.64	0.00	10.64	1,432.22	338.32	742.46	714.22	88.12	-4.20	0.016
180.00	0.00	-1.66	0.00	-1.53	0.00	1.53	1,364.83	322.40	674.25	648.27	92.52	-4.21	0.002

Load Case: 0.9D + 1.0W	127 mph with No Ice (Reduced DL)	24 Iterations
Gust Response Factor :1.10		
Dead Load Factor :0.90		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		287.6	0.0					0.0	0.0	287.6	0.0	0.0	0.0
5.00		570.0	1,306.4					0.0	251.7	570.0	1,558.1	0.0	0.0
10.00		559.3	1,282.1					0.0	251.7	559.3	1,533.8	0.0	0.0
15.00		548.7	1,257.7					0.0	251.7	548.7	1,509.4	0.0	0.0
20.00		538.1	1,233.4					0.0	251.7	538.1	1,485.1	0.0	0.0
25.00		527.4	1,209.1					0.0	251.7	527.4	1,460.8	0.0	0.0
30.00		522.9	1,184.8					0.0	251.7	522.9	1,436.5	0.0	0.0
35.00		529.0	1,160.5					0.0	251.7	529.0	1,412.2	0.0	0.0
40.00		538.1	1,136.2					0.0	251.7	538.1	1,387.8	0.0	0.0
45.00		370.1	1,111.8					0.0	251.7	370.1	1,363.5	0.0	0.0
46.82	Bot - Section 2	276.6	397.9					0.0	91.4	276.6	489.4	0.0	0.0
50.00		381.8	1,391.0					0.0	160.2	381.8	1,551.2	0.0	0.0
53.65	Top - Section 1	280.1	1,570.7					0.0	183.7	280.1	1,754.4	0.0	0.0
55.00		356.9	289.7					0.0	68.0	356.9	357.6	0.0	0.0
60.00		562.4	1,057.5					0.0	251.7	562.4	1,309.2	0.0	0.0
65.00		562.2	1,033.2					0.0	251.7	562.2	1,284.9	0.0	0.0
70.00		560.7	1,008.9					0.0	251.7	560.7	1,260.5	0.0	0.0
75.00		558.0	984.5					0.0	251.7	558.0	1,236.2	0.0	0.0
80.00		554.4	960.2					0.0	251.7	554.4	1,211.9	0.0	0.0
85.00		549.7	935.9					0.0	251.7	549.7	1,187.6	0.0	0.0
90.00		542.4	911.6					0.0	251.7	542.4	1,163.3	0.0	0.0
94.97	Bot - Section 3	270.7	881.4					0.0	250.0	270.7	1,131.4	0.0	0.0
95.00		274.0	10.9					0.0	1.7	274.0	12.6	0.0	0.0
100.00		297.4	1,617.4					0.0	251.7	297.4	1,869.1	0.0	0.0
100.47	Top - Section 2	268.5	148.7					0.0	23.5	268.5	172.1	0.0	0.0
105.00		507.8	664.3					0.0	228.2	507.8	892.5	0.0	0.0
110.00		524.8	712.8					0.0	251.7	524.8	964.5	0.0	0.0
115.00		515.9	691.9					0.0	251.7	515.9	943.6	0.0	0.0
120.00		506.4	671.1					0.0	251.7	506.4	922.8	0.0	0.0
125.00		496.3	650.3					0.0	251.7	496.3	901.9	0.0	0.0
130.00	Appurtenance(s)	438.1	629.4	2,402.2	0.0	0.0	1,294.9	0.0	251.7	2,840.3	2,176.0	0.0	0.0
134.00	Appurtenance(s)	240.1	488.5	1,589.3	0.0	0.0	1,905.3	0.0	177.9	1,829.5	2,571.8	0.0	0.0
135.00		282.1	120.0					0.0	44.5	282.1	164.5	0.0	0.0
140.00		463.1	587.7					0.0	222.4	463.1	810.2	0.0	0.0
145.00		390.1	566.9					0.0	222.4	390.1	789.3	0.0	0.0
148.62	Top - Section 3	223.5	397.1					0.0	160.9	223.5	557.9	0.0	0.0
150.00		194.6	101.4					0.0	61.5	194.6	163.0	0.0	0.0
153.00	Appurtenance(s)	219.8	216.3	5,093.6	0.0	9,930.1	3,357.1	0.0	133.5	5,313.4	3,706.8	0.0	0.0
155.00		300.4	141.4					0.0	49.0	300.4	190.4	0.0	0.0
160.00	Appurtenance(s)	419.9	343.8	3,498.6	0.0	0.0	3,350.3	0.0	95.1	3,918.5	3,789.2	0.0	0.0
165.00		406.3	329.9					0.0	29.5	406.3	359.4	0.0	0.0
170.00	Appurtenance(s)	392.3	316.0	709.2	0.0	0.0	627.9	0.0	29.5	1,101.5	973.5	0.0	0.0
175.00		378.0	302.1					0.0	7.4	378.0	309.5	0.0	0.0
180.00	Appurtenance(s)	185.4	288.2	1,473.2	0.0	1,529.6	1,431.0	0.0	7.4	1,658.6	1,726.6	0.0	0.0
Totals:										33,138.0	52,052.2	0.00	0.00

Load Case: 0.9D + 1.0W

127 mph with No Ice (Reduced DL)

24 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	-52.01	-32.91	0.00	-3,964.58	0.00	3,964.58	5,724.86	1,511.21	8,464.29	7,310.45	0.00	0.00	0.552
5.00	-50.38	-32.46	0.00	-3,800.02	0.00	3,800.02	5,660.51	1,483.34	8,154.99	7,094.04	0.07	-0.13	0.545
10.00	-48.77	-32.01	0.00	-3,637.74	0.00	3,637.74	5,594.62	1,455.47	7,851.45	6,878.77	0.28	-0.27	0.538
15.00	-47.19	-31.56	0.00	-3,477.71	0.00	3,477.71	5,527.18	1,427.60	7,553.66	6,664.77	0.63	-0.40	0.531
20.00	-45.64	-31.12	0.00	-3,319.91	0.00	3,319.91	5,458.18	1,399.73	7,261.62	6,452.13	1.13	-0.54	0.523
25.00	-44.11	-30.69	0.00	-3,164.31	0.00	3,164.31	5,387.64	1,371.86	6,975.35	6,240.97	1.77	-0.68	0.516
30.00	-42.60	-30.25	0.00	-3,010.88	0.00	3,010.88	5,315.55	1,343.98	6,694.83	6,031.39	2.55	-0.82	0.508
35.00	-41.13	-29.80	0.00	-2,859.64	0.00	2,859.64	5,241.91	1,316.11	6,420.07	5,823.52	3.48	-0.96	0.499
40.00	-39.67	-29.34	0.00	-2,710.64	0.00	2,710.64	5,166.71	1,288.24	6,151.07	5,617.45	4.56	-1.10	0.491
45.00	-38.27	-29.01	0.00	-2,563.96	0.00	2,563.96	5,089.97	1,260.37	5,887.82	5,413.30	5.80	-1.25	0.482
46.82	-37.75	-28.77	0.00	-2,511.27	0.00	2,511.27	5,061.71	1,250.24	5,793.60	5,339.62	6.28	-1.30	0.478
50.00	-36.16	-28.41	0.00	-2,419.69	0.00	2,419.69	5,011.68	1,232.50	5,630.33	5,211.18	7.18	-1.40	0.472
53.65	-34.37	-28.13	0.00	-2,315.99	0.00	2,315.99	5,014.45	1,233.48	5,639.26	5,218.23	8.29	-1.50	0.451
55.00	-33.98	-27.82	0.00	-2,278.01	0.00	2,278.01	4,993.06	1,225.95	5,570.67	5,164.00	8.72	-1.54	0.448
60.00	-32.62	-27.30	0.00	-2,138.91	0.00	2,138.91	4,912.86	1,198.08	5,320.29	4,964.54	10.42	-1.69	0.438
65.00	-31.29	-26.78	0.00	-2,002.40	0.00	2,002.40	4,831.10	1,170.21	5,075.66	4,767.35	12.26	-1.83	0.427
70.00	-29.98	-26.25	0.00	-1,868.51	0.00	1,868.51	4,747.80	1,142.34	4,836.80	4,572.55	14.25	-1.97	0.415
75.00	-28.70	-25.72	0.00	-1,737.26	0.00	1,737.26	4,662.94	1,114.47	4,603.69	4,380.25	16.38	-2.11	0.403
80.00	-27.45	-25.19	0.00	-1,608.67	0.00	1,608.67	4,576.54	1,086.59	4,376.33	4,190.55	18.67	-2.25	0.390
85.00	-26.23	-24.65	0.00	-1,482.73	0.00	1,482.73	4,481.93	1,058.72	4,154.74	3,997.63	21.11	-2.39	0.377
90.00	-25.03	-24.12	0.00	-1,359.46	0.00	1,359.46	4,363.94	1,030.85	3,938.90	3,788.90	23.69	-2.53	0.365
94.97	-23.88	-23.83	0.00	-1,239.65	0.00	1,239.65	4,246.74	1,003.17	3,730.20	3,587.10	26.40	-2.67	0.352
95.00	-23.85	-23.59	0.00	-1,238.85	0.00	1,238.85	4,245.95	1,002.98	3,728.82	3,585.76	26.42	-2.67	0.352
100.00	-21.97	-23.23	0.00	-1,120.93	0.00	1,120.93	4,127.96	975.11	3,524.49	3,388.23	29.29	-2.81	0.337
100.47	-21.78	-22.98	0.00	-1,110.09	0.00	1,110.09	3,522.04	850.55	3,128.34	2,946.90	29.56	-2.82	0.384
105.00	-20.87	-22.47	0.00	-1,005.93	0.00	1,005.93	3,456.72	828.89	2,971.06	2,817.93	32.30	-2.95	0.364
110.00	-19.88	-21.95	0.00	-893.56	0.00	893.56	3,383.20	805.00	2,802.29	2,677.76	35.47	-3.09	0.340
115.00	-18.91	-21.43	0.00	-783.82	0.00	783.82	3,306.70	781.11	2,638.45	2,538.79	38.78	-3.23	0.315
120.00	-17.97	-20.91	0.00	-676.70	0.00	676.70	3,205.56	757.22	2,479.56	2,385.12	42.23	-3.36	0.290
125.00	-17.06	-20.39	0.00	-572.16	0.00	572.16	3,104.43	733.33	2,325.59	2,236.25	45.82	-3.48	0.262
130.00	-15.03	-17.45	0.00	-470.20	0.00	470.20	3,003.30	709.44	2,176.56	2,092.18	49.53	-3.60	0.230
134.00	-12.57	-15.47	0.00	-400.40	0.00	400.40	2,922.39	690.33	2,060.89	1,980.38	52.58	-3.68	0.207
135.00	-12.41	-15.19	0.00	-384.93	0.00	384.93	2,902.16	685.55	2,032.46	1,952.91	53.35	-3.70	0.202
140.00	-11.61	-14.69	0.00	-308.97	0.00	308.97	2,801.03	661.66	1,893.30	1,818.43	57.28	-3.80	0.175
145.00	-10.83	-14.27	0.00	-235.50	0.00	235.50	2,699.90	637.77	1,759.08	1,688.75	61.29	-3.88	0.144
148.62	-10.28	-14.01	0.00	-183.91	0.00	183.91	2,626.75	620.49	1,665.06	1,597.93	64.25	-3.93	0.120
148.62	-10.28	-14.01	0.00	-183.91	0.00	183.91	1,691.62	422.31	1,156.82	1,055.16	64.25	-3.93	0.181
150.00	-10.12	-13.81	0.00	-164.53	0.00	164.53	1,679.60	417.91	1,132.82	1,036.65	65.39	-3.94	0.166
153.00	-6.79	-8.26	0.00	-113.16	0.00	113.16	1,653.13	408.36	1,081.64	996.80	67.88	-3.99	0.118
155.00	-6.61	-7.95	0.00	-96.65	0.00	96.65	1,635.17	401.99	1,048.18	970.47	69.56	-4.01	0.104
160.00	-3.11	-3.77	0.00	-56.91	0.00	56.91	1,589.20	386.07	966.82	905.51	73.79	-4.06	0.065
165.00	-2.78	-3.35	0.00	-38.04	0.00	38.04	1,541.67	370.16	888.75	841.89	78.05	-4.09	0.047
170.00	-1.88	-2.18	0.00	-21.31	0.00	21.31	1,492.60	354.24	813.96	779.71	82.34	-4.11	0.029

Site Number: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number: 13677848_C3_02

6/4/2021 7:50:04 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.0W

127 mph with No Ice (Reduced DL)

24 Iterations

Gust Response Factor :1.10

Dead Load Factor :0.90

Wind Load Factor :1.00

175.00	-1.60	-1.78	0.00	-10.42	0.00	10.42	1,432.22	338.32	742.46	714.22	86.66	-4.13	0.016
180.00	0.00	-1.66	0.00	-1.53	0.00	1.53	1,364.83	322.40	674.25	648.27	90.98	-4.13	0.002

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	23 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

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		75.1	0.0					0.0	0.0	75.1	0.0	0.0	0.0
5.00		149.0	2,042.3					0.0	335.6	149.0	2,377.9	0.0	0.0
10.00		146.6	2,039.1					0.0	335.6	146.6	2,374.7	0.0	0.0
15.00		144.1	2,017.7					0.0	335.6	144.1	2,353.3	0.0	0.0
20.00		141.5	1,990.4					0.0	335.6	141.5	2,326.0	0.0	0.0
25.00		138.9	1,960.0					0.0	335.6	138.9	2,295.6	0.0	0.0
30.00		137.9	1,927.7					0.0	335.6	137.9	2,263.3	0.0	0.0
35.00		139.7	1,894.1					0.0	335.6	139.7	2,229.7	0.0	0.0
40.00		142.3	1,859.5					0.0	335.6	142.3	2,195.1	0.0	0.0
45.00		97.9	1,824.2					0.0	335.6	97.9	2,159.7	0.0	0.0
46.82	Bot - Section 2	73.2	654.8					0.0	121.9	73.2	776.7	0.0	0.0
50.00		101.1	2,074.0					0.0	213.7	101.1	2,287.7	0.0	0.0
53.65	Top - Section 1	74.2	2,343.5					0.0	245.0	74.2	2,588.4	0.0	0.0
55.00		94.7	478.3					0.0	90.6	94.7	569.0	0.0	0.0
60.00		149.3	1,745.5					0.0	335.6	149.3	2,081.0	0.0	0.0
65.00		149.5	1,708.3					0.0	335.6	149.5	2,043.8	0.0	0.0
70.00		149.3	1,670.8					0.0	335.6	149.3	2,006.3	0.0	0.0
75.00		148.8	1,633.0					0.0	335.6	148.8	1,968.5	0.0	0.0
80.00		148.0	1,594.9					0.0	335.6	148.0	1,930.5	0.0	0.0
85.00		147.0	1,556.7					0.0	335.6	147.0	1,892.2	0.0	0.0
90.00		145.2	1,518.2					0.0	335.6	145.2	1,853.8	0.0	0.0
94.97	Bot - Section 3	72.5	1,469.9					0.0	333.3	72.5	1,803.2	0.0	0.0
95.00		73.5	16.6					0.0	2.2	73.5	18.8	0.0	0.0
100.00		79.8	2,452.0					0.0	335.6	79.8	2,787.5	0.0	0.0
100.47	Top - Section 2	72.1	225.8					0.0	31.3	72.1	257.1	0.0	0.0
105.00		136.5	1,147.7					0.0	304.3	136.5	1,452.0	0.0	0.0
110.00		141.3	1,232.6					0.0	335.6	141.3	1,568.2	0.0	0.0
115.00		139.2	1,198.1					0.0	335.6	139.2	1,533.6	0.0	0.0
120.00		136.9	1,163.4					0.0	335.6	136.9	1,498.9	0.0	0.0
125.00		134.5	1,128.6					0.0	335.6	134.5	1,464.1	0.0	0.0
130.00	Appurtenance(s)	119.0	1,093.6	436.6	0.0	0.0	2,993.5	0.0	335.6	555.5	4,422.7	0.0	0.0
134.00	Appurtenance(s)	65.3	850.4	392.4	0.0	0.0	3,248.1	0.0	237.3	457.7	4,335.8	0.0	0.0
135.00		76.9	209.6					0.0	59.3	76.9	268.9	0.0	0.0
140.00		126.4	1,023.5					0.0	296.6	126.4	1,320.1	0.0	0.0
145.00		106.7	988.3					0.0	296.6	106.7	1,284.9	0.0	0.0
148.62	Top - Section 3	61.2	693.7					0.0	214.5	61.2	908.2	0.0	0.0
150.00		53.4	198.5					0.0	82.1	53.4	280.6	0.0	0.0
153.00	Appurtenance(s)	60.3	422.9	1,034.4	0.0	1,878.3	7,115.0	0.0	177.9	1,094.7	7,715.8	0.0	0.0
155.00		82.7	277.0					0.0	65.3	82.7	342.3	0.0	0.0
160.00	Appurtenance(s)	115.8	671.8	740.9	0.0	0.0	6,483.3	0.0	126.8	856.7	7,281.9	0.0	0.0
165.00		112.4	645.6					0.0	39.4	112.4	684.9	0.0	0.0
170.00	Appurtenance(s)	109.0	619.3	164.6	0.0	0.0	1,243.8	0.0	39.4	273.6	1,902.4	0.0	0.0
175.00		105.4	592.9					0.0	9.8	105.4	602.8	0.0	0.0
180.00	Appurtenance(s)	51.8	566.5	375.1	0.0	417.7	2,363.8	0.0	9.8	426.9	2,940.1	0.0	0.0
Totals:										8,070.15	87,248.4	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	23 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	-87.25	-8.02	0.00	-969.78	0.00	969.78	5,724.86	1,511.21	8,464.29	7,310.45	0.00	0.00	0.148
5.00	-84.86	-7.92	0.00	-929.68	0.00	929.68	5,660.51	1,483.34	8,154.99	7,094.04	0.02	-0.03	0.146
10.00	-82.48	-7.82	0.00	-890.09	0.00	890.09	5,594.62	1,455.47	7,851.45	6,878.77	0.07	-0.07	0.144
15.00	-80.13	-7.72	0.00	-851.01	0.00	851.01	5,527.18	1,427.60	7,553.66	6,664.77	0.15	-0.10	0.142
20.00	-77.80	-7.62	0.00	-812.43	0.00	812.43	5,458.18	1,399.73	7,261.62	6,452.13	0.28	-0.13	0.140
25.00	-75.50	-7.52	0.00	-774.35	0.00	774.35	5,387.64	1,371.86	6,975.35	6,240.97	0.43	-0.17	0.138
30.00	-73.23	-7.41	0.00	-736.78	0.00	736.78	5,315.55	1,343.98	6,694.83	6,031.39	0.62	-0.20	0.136
35.00	-71.00	-7.31	0.00	-699.70	0.00	699.70	5,241.91	1,316.11	6,420.07	5,823.52	0.85	-0.23	0.134
40.00	-68.80	-7.20	0.00	-663.16	0.00	663.16	5,166.71	1,288.24	6,151.07	5,617.45	1.12	-0.27	0.131
45.00	-66.64	-7.12	0.00	-627.16	0.00	627.16	5,089.97	1,260.37	5,887.82	5,413.30	1.42	-0.31	0.129
46.82	-65.86	-7.06	0.00	-614.22	0.00	614.22	5,061.71	1,250.24	5,793.60	5,339.62	1.54	-0.32	0.128
50.00	-63.57	-6.98	0.00	-591.74	0.00	591.74	5,011.68	1,232.50	5,630.33	5,211.18	1.76	-0.34	0.126
53.65	-60.98	-6.91	0.00	-566.28	0.00	566.28	5,014.45	1,233.48	5,639.26	5,218.23	2.03	-0.37	0.121
55.00	-60.41	-6.83	0.00	-556.96	0.00	556.96	4,993.06	1,225.95	5,570.67	5,164.00	2.13	-0.38	0.120
60.00	-58.32	-6.70	0.00	-522.81	0.00	522.81	4,912.86	1,198.08	5,320.29	4,964.54	2.55	-0.41	0.117
65.00	-56.27	-6.57	0.00	-489.30	0.00	489.30	4,831.10	1,170.21	5,075.66	4,767.35	3.00	-0.45	0.114
70.00	-54.27	-6.44	0.00	-456.45	0.00	456.45	4,747.80	1,142.34	4,836.80	4,572.55	3.49	-0.48	0.111
75.00	-52.30	-6.30	0.00	-424.26	0.00	424.26	4,662.94	1,114.47	4,603.69	4,380.25	4.01	-0.52	0.108
80.00	-50.36	-6.17	0.00	-392.74	0.00	392.74	4,576.54	1,086.59	4,376.33	4,190.55	4.57	-0.55	0.105
85.00	-48.47	-6.03	0.00	-361.90	0.00	361.90	4,481.93	1,058.72	4,154.74	3,997.63	5.16	-0.59	0.101
90.00	-46.61	-5.89	0.00	-331.74	0.00	331.74	4,363.94	1,030.85	3,938.90	3,788.90	5.80	-0.62	0.098
94.97	-44.81	-5.82	0.00	-302.47	0.00	302.47	4,246.74	1,003.17	3,730.20	3,587.10	6.46	-0.65	0.095
95.00	-44.79	-5.75	0.00	-302.27	0.00	302.27	4,245.95	1,002.98	3,728.82	3,585.76	6.46	-0.65	0.095
100.00	-42.00	-5.66	0.00	-273.50	0.00	273.50	4,127.96	975.11	3,524.49	3,388.23	7.16	-0.69	0.091
100.47	-41.74	-5.59	0.00	-270.86	0.00	270.86	3,522.04	850.55	3,128.34	2,946.90	7.23	-0.69	0.104
105.00	-40.29	-5.46	0.00	-245.51	0.00	245.51	3,456.72	828.89	2,971.06	2,817.93	7.90	-0.72	0.099
110.00	-38.72	-5.32	0.00	-218.20	0.00	218.20	3,383.20	805.00	2,802.29	2,677.76	8.68	-0.76	0.093
115.00	-37.19	-5.18	0.00	-191.59	0.00	191.59	3,306.70	781.11	2,638.45	2,538.79	9.49	-0.79	0.087
120.00	-35.69	-5.05	0.00	-165.67	0.00	165.67	3,205.56	757.22	2,479.56	2,385.12	10.33	-0.82	0.081
125.00	-34.22	-4.91	0.00	-140.44	0.00	140.44	3,104.43	733.33	2,325.59	2,236.25	11.21	-0.85	0.074
130.00	-29.81	-4.30	0.00	-115.90	0.00	115.90	3,003.30	709.44	2,176.56	2,092.18	12.11	-0.88	0.065
134.00	-25.48	-3.78	0.00	-98.71	0.00	98.71	2,922.39	690.33	2,060.89	1,980.38	12.86	-0.90	0.059
135.00	-25.21	-3.70	0.00	-94.93	0.00	94.93	2,902.16	685.55	2,032.46	1,952.91	13.05	-0.91	0.057
140.00	-23.89	-3.57	0.00	-76.41	0.00	76.41	2,801.03	661.66	1,893.30	1,818.43	14.01	-0.93	0.051
145.00	-22.60	-3.44	0.00	-58.58	0.00	58.58	2,699.90	637.77	1,759.08	1,688.75	14.99	-0.95	0.043
148.62	-21.70	-3.37	0.00	-46.12	0.00	46.12	2,626.75	620.49	1,665.06	1,597.93	15.72	-0.96	0.037
148.62	-21.70	-3.37	0.00	-46.12	0.00	46.12	1,691.62	422.31	1,156.82	1,055.16	15.72	-0.96	0.057
150.00	-21.42	-3.32	0.00	-41.46	0.00	41.46	1,679.60	417.91	1,132.82	1,036.65	16.00	-0.97	0.053
153.00	-13.72	-2.09	0.00	-29.64	0.00	29.64	1,653.13	408.36	1,081.64	996.80	16.61	-0.98	0.038
155.00	-13.38	-2.01	0.00	-25.45	0.00	25.45	1,635.17	401.99	1,048.18	970.47	17.02	-0.98	0.034
160.00	-6.11	-1.03	0.00	-15.42	0.00	15.42	1,589.20	386.07	966.82	905.51	18.06	-1.00	0.021
165.00	-5.43	-0.90	0.00	-10.29	0.00	10.29	1,541.67	370.16	888.75	841.89	19.10	-1.00	0.016
170.00	-3.53	-0.59	0.00	-5.79	0.00	5.79	1,492.60	354.24	813.96	779.71	20.16	-1.01	0.010

Site Number: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number: 13677848_C3_02

6/4/2021 7:50:08 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

23 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

175.00	-2.93	-0.48	0.00	-2.81	0.00	2.81	1,432.22	338.32	742.46	714.22	21.22	-1.01	0.006
180.00	0.00	-0.43	0.00	-0.42	0.00	0.42	1,364.83	322.40	674.25	648.27	22.28	-1.02	0.001

Load Case: 1.0D + 1.0W	Serviceability 60 mph	23 Iterations
Gust Response Factor :1.10		
Dead Load Factor :1.00		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		57.4	0.0					0.0	0.0	57.4	0.0	0.0	0.0
5.00		113.8	1,451.5					0.0	279.7	113.8	1,731.2	0.0	0.0
10.00		111.7	1,424.5					0.0	279.7	111.7	1,704.2	0.0	0.0
15.00		109.6	1,397.5					0.0	279.7	109.6	1,677.1	0.0	0.0
20.00		107.5	1,370.5					0.0	279.7	107.5	1,650.1	0.0	0.0
25.00		105.3	1,343.5					0.0	279.7	105.3	1,623.1	0.0	0.0
30.00		104.4	1,316.4					0.0	279.7	104.4	1,596.1	0.0	0.0
35.00		105.6	1,289.4					0.0	279.7	105.6	1,569.1	0.0	0.0
40.00		107.5	1,262.4					0.0	279.7	107.5	1,542.0	0.0	0.0
45.00		73.9	1,235.4					0.0	279.7	73.9	1,515.0	0.0	0.0
46.82	Bot - Section 2	55.2	442.2					0.0	101.6	55.2	543.8	0.0	0.0
50.00		76.2	1,545.6					0.0	178.0	76.2	1,723.6	0.0	0.0
53.65	Top - Section 1	55.9	1,745.2					0.0	204.1	55.9	1,949.3	0.0	0.0
55.00		71.3	321.9					0.0	75.5	71.3	397.4	0.0	0.0
60.00		112.3	1,175.0					0.0	279.7	112.3	1,454.6	0.0	0.0
65.00		112.3	1,148.0					0.0	279.7	112.3	1,427.6	0.0	0.0
70.00		112.0	1,121.0					0.0	279.7	112.0	1,400.6	0.0	0.0
75.00		111.4	1,093.9					0.0	279.7	111.4	1,373.6	0.0	0.0
80.00		110.7	1,066.9					0.0	279.7	110.7	1,346.6	0.0	0.0
85.00		109.8	1,039.9					0.0	279.7	109.8	1,319.5	0.0	0.0
90.00		108.3	1,012.9					0.0	279.7	108.3	1,292.5	0.0	0.0
94.97	Bot - Section 3	54.1	979.4					0.0	277.8	54.1	1,257.2	0.0	0.0
95.00		54.7	12.1					0.0	1.9	54.7	14.0	0.0	0.0
100.00		59.4	1,797.1					0.0	279.7	59.4	2,076.8	0.0	0.0
100.47	Top - Section 2	53.6	165.2					0.0	26.1	53.6	191.3	0.0	0.0
105.00		101.4	738.1					0.0	253.5	101.4	991.6	0.0	0.0
110.00		104.8	792.0					0.0	279.7	104.8	1,071.6	0.0	0.0
115.00		103.0	768.8					0.0	279.7	103.0	1,048.5	0.0	0.0
120.00		101.1	745.7					0.0	279.7	101.1	1,025.3	0.0	0.0
125.00		99.1	722.5					0.0	279.7	99.1	1,002.2	0.0	0.0
130.00	Appurtenance(s)	87.5	699.3	479.7	0.0	0.0	1,438.8	0.0	279.7	567.2	2,417.8	0.0	0.0
134.00	Appurtenance(s)	48.0	542.8	317.4	0.0	0.0	2,117.0	0.0	197.7	365.4	2,857.5	0.0	0.0
135.00		56.3	133.4					0.0	49.4	56.3	182.8	0.0	0.0
140.00		92.5	653.0					0.0	247.2	92.5	900.2	0.0	0.0
145.00		77.9	629.9					0.0	247.2	77.9	877.0	0.0	0.0
148.62	Top - Section 3	44.6	441.2					0.0	178.8	44.6	619.9	0.0	0.0
150.00		38.9	112.7					0.0	68.4	38.9	181.1	0.0	0.0
153.00	Appurtenance(s)	43.9	240.3	1,017.2	0.0	1,983.1	3,730.1	0.0	148.3	1,061.1	4,118.7	0.0	0.0
155.00		60.0	157.1					0.0	54.4	60.0	211.5	0.0	0.0
160.00	Appurtenance(s)	83.9	382.0	698.7	0.0	0.0	3,722.6	0.0	105.7	782.5	4,210.3	0.0	0.0
165.00		81.1	366.6					0.0	32.8	81.1	399.4	0.0	0.0
170.00	Appurtenance(s)	78.3	351.1	141.6	0.0	0.0	697.7	0.0	32.8	220.0	1,081.6	0.0	0.0
175.00		75.5	335.7					0.0	8.2	75.5	343.9	0.0	0.0
180.00	Appurtenance(s)	37.0	320.3	294.2	0.0	305.5	1,590.0	0.0	8.2	331.2	1,918.5	0.0	0.0
Totals:										6,617.86	57,835.7	0.00	0.00

Load Case: 1.0D + 1.0W

Serviceability 60 mph

23 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	-57.83	-6.57	0.00	-795.62	0.00	795.62	5,724.86	1,511.21	8,464.29	7,310.45	0.00	0.00	0.119
5.00	-56.10	-6.49	0.00	-762.76	0.00	762.76	5,660.51	1,483.34	8,154.99	7,094.04	0.01	-0.03	0.117
10.00	-54.39	-6.40	0.00	-730.33	0.00	730.33	5,594.62	1,455.47	7,851.45	6,878.77	0.06	-0.05	0.116
15.00	-52.71	-6.31	0.00	-698.34	0.00	698.34	5,527.18	1,427.60	7,553.66	6,664.77	0.13	-0.08	0.114
20.00	-51.06	-6.23	0.00	-666.78	0.00	666.78	5,458.18	1,399.73	7,261.62	6,452.13	0.23	-0.11	0.113
25.00	-49.43	-6.14	0.00	-635.65	0.00	635.65	5,387.64	1,371.86	6,975.35	6,240.97	0.35	-0.14	0.111
30.00	-47.84	-6.06	0.00	-604.94	0.00	604.94	5,315.55	1,343.98	6,694.83	6,031.39	0.51	-0.16	0.109
35.00	-46.26	-5.97	0.00	-574.66	0.00	574.66	5,241.91	1,316.11	6,420.07	5,823.52	0.70	-0.19	0.108
40.00	-44.72	-5.88	0.00	-544.81	0.00	544.81	5,166.71	1,288.24	6,151.07	5,617.45	0.92	-0.22	0.106
45.00	-43.20	-5.81	0.00	-515.42	0.00	515.42	5,089.97	1,260.37	5,887.82	5,413.30	1.16	-0.25	0.104
46.82	-42.66	-5.77	0.00	-504.85	0.00	504.85	5,061.71	1,250.24	5,793.60	5,339.62	1.26	-0.26	0.103
50.00	-40.93	-5.70	0.00	-486.50	0.00	486.50	5,011.68	1,232.50	5,630.33	5,211.18	1.44	-0.28	0.102
53.65	-38.98	-5.64	0.00	-465.70	0.00	465.70	5,014.45	1,233.48	5,639.26	5,218.23	1.67	-0.30	0.097
55.00	-38.58	-5.58	0.00	-458.08	0.00	458.08	4,993.06	1,225.95	5,570.67	5,164.00	1.75	-0.31	0.096
60.00	-37.13	-5.48	0.00	-430.18	0.00	430.18	4,912.86	1,198.08	5,320.29	4,964.54	2.09	-0.34	0.094
65.00	-35.70	-5.38	0.00	-402.79	0.00	402.79	4,831.10	1,170.21	5,075.66	4,767.35	2.46	-0.37	0.092
70.00	-34.29	-5.27	0.00	-375.91	0.00	375.91	4,747.80	1,142.34	4,836.80	4,572.55	2.86	-0.40	0.089
75.00	-32.92	-5.17	0.00	-349.56	0.00	349.56	4,662.94	1,114.47	4,603.69	4,380.25	3.29	-0.42	0.087
80.00	-31.57	-5.06	0.00	-323.73	0.00	323.73	4,576.54	1,086.59	4,376.33	4,190.55	3.75	-0.45	0.084
85.00	-30.25	-4.96	0.00	-298.42	0.00	298.42	4,481.93	1,058.72	4,154.74	3,997.63	4.24	-0.48	0.081
90.00	-28.96	-4.85	0.00	-273.65	0.00	273.65	4,363.94	1,030.85	3,938.90	3,788.90	4.76	-0.51	0.079
94.97	-27.70	-4.79	0.00	-249.56	0.00	249.56	4,246.74	1,003.17	3,730.20	3,587.10	5.30	-0.54	0.076
95.00	-27.68	-4.74	0.00	-249.40	0.00	249.40	4,245.95	1,002.98	3,728.82	3,585.76	5.31	-0.54	0.076
100.00	-25.61	-4.67	0.00	-225.69	0.00	225.69	4,127.96	975.11	3,524.49	3,388.23	5.89	-0.57	0.073
100.47	-25.41	-4.62	0.00	-223.51	0.00	223.51	3,522.04	850.55	3,128.34	2,946.90	5.94	-0.57	0.083
105.00	-24.42	-4.52	0.00	-202.56	0.00	202.56	3,456.72	828.89	2,971.06	2,817.93	6.49	-0.59	0.079
110.00	-23.35	-4.42	0.00	-179.95	0.00	179.95	3,383.20	805.00	2,802.29	2,677.76	7.13	-0.62	0.074
115.00	-22.30	-4.31	0.00	-157.87	0.00	157.87	3,306.70	781.11	2,638.45	2,538.79	7.80	-0.65	0.069
120.00	-21.27	-4.21	0.00	-136.31	0.00	136.31	3,205.56	757.22	2,479.56	2,385.12	8.49	-0.68	0.064
125.00	-20.27	-4.11	0.00	-115.26	0.00	115.26	3,104.43	733.33	2,325.59	2,236.25	9.21	-0.70	0.058
130.00	-17.86	-3.52	0.00	-94.73	0.00	94.73	3,003.30	709.44	2,176.56	2,092.18	9.96	-0.72	0.051
134.00	-15.01	-3.12	0.00	-80.67	0.00	80.67	2,922.39	690.33	2,060.89	1,980.38	10.57	-0.74	0.046
135.00	-14.82	-3.06	0.00	-77.55	0.00	77.55	2,902.16	685.55	2,032.46	1,952.91	10.73	-0.74	0.045
140.00	-13.92	-2.96	0.00	-62.25	0.00	62.25	2,801.03	661.66	1,893.30	1,818.43	11.52	-0.76	0.039
145.00	-13.05	-2.87	0.00	-47.45	0.00	47.45	2,699.90	637.77	1,759.08	1,688.75	12.33	-0.78	0.033
148.62	-12.43	-2.82	0.00	-37.05	0.00	37.05	2,626.75	620.49	1,665.06	1,597.93	12.92	-0.79	0.028
148.62	-12.43	-2.82	0.00	-37.05	0.00	37.05	1,691.62	422.31	1,156.82	1,055.16	12.92	-0.79	0.043
150.00	-12.25	-2.78	0.00	-33.15	0.00	33.15	1,679.60	417.91	1,132.82	1,036.65	13.15	-0.79	0.039
153.00	-8.14	-1.66	0.00	-22.82	0.00	22.82	1,653.13	408.36	1,081.64	996.80	13.65	-0.80	0.028
155.00	-7.93	-1.60	0.00	-19.49	0.00	19.49	1,635.17	401.99	1,048.18	970.47	13.99	-0.81	0.025
160.00	-3.73	-0.76	0.00	-11.48	0.00	11.48	1,589.20	386.07	966.82	905.51	14.84	-0.82	0.015
165.00	-3.33	-0.67	0.00	-7.67	0.00	7.67	1,541.67	370.16	888.75	841.89	15.70	-0.82	0.011
170.00	-2.26	-0.44	0.00	-4.30	0.00	4.30	1,492.60	354.24	813.96	779.71	16.56	-0.83	0.007

Site Number: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number: 13677848_C3_02

6/4/2021 7:50:12 PM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W

Serviceability 60 mph

23 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.00

Wind Load Factor :1.00

175.00	-1.91	-0.36	0.00	-2.10	0.00	2.10	1,432.22	338.32	742.46	714.22	17.43	-0.83	0.004
180.00	0.00	-0.33	0.00	-0.31	0.00	0.31	1,364.83	322.40	674.25	648.27	18.30	-0.83	0.000

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.05
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.08
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):	2.62
Redundancy Factor (ρ):	1.00
Seismic Force Distribution Exponent (k):	2.00
Total Unfactored Dead Load:	57.84 k
Seismic Base Shear (E):	1.74 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)
43	177.50	328	10,349	0.016	28	408
42	172.50	344	10,233	0.016	28	427
41	167.50	384	10,772	0.017	29	476
40	162.50	399	10,546	0.017	29	496
39	157.50	488	12,097	0.019	33	605
38	154.00	212	5,016	0.008	14	262
37	151.50	389	8,919	0.014	24	482
36	149.31	181	4,036	0.006	11	225
35	146.81	620	13,361	0.021	36	769
34	142.50	877	17,809	0.028	48	1,088
33	137.50	900	17,019	0.027	46	1,117
32	134.50	183	3,307	0.005	9	227
31	132.00	741	12,903	0.020	35	919
30	127.50	979	15,915	0.025	43	1,215
29	122.50	1,002	15,039	0.024	41	1,243
28	117.50	1,025	14,156	0.022	38	1,272
27	112.50	1,048	13,270	0.021	36	1,301
26	107.50	1,072	12,384	0.019	34	1,330
25	102.73	992	10,466	0.016	28	1,230
24	100.23	191	1,922	0.003	5	237
23	97.50	2,077	19,742	0.031	54	2,577
22	94.98	14	126	0.000	0	17
21	92.48	1,257	10,753	0.017	29	1,560
20	87.50	1,293	9,896	0.015	27	1,604
19	82.50	1,320	8,981	0.014	24	1,637

18	77.50	1,347	8,088	0.013	22	1,671
17	72.50	1,374	7,220	0.011	20	1,704
16	67.50	1,401	6,381	0.010	17	1,738
15	62.50	1,428	5,577	0.009	15	1,771
14	57.50	1,455	4,809	0.008	13	1,805
13	54.33	397	1,173	0.002	3	493
12	51.83	1,949	5,236	0.008	14	2,419
11	48.41	1,724	4,039	0.006	11	2,139
10	45.91	544	1,146	0.002	3	675
9	42.50	1,515	2,737	0.004	7	1,880
8	37.50	1,542	2,169	0.003	6	1,913
7	32.50	1,569	1,657	0.003	5	1,947
6	27.50	1,596	1,207	0.002	3	1,980
5	22.50	1,623	822	0.001	2	2,014
4	17.50	1,650	505	0.001	1	2,047
3	12.50	1,677	262	0.000	1	2,081
2	7.50	1,704	96	0.000	0	2,114
1	2.50	1,731	11	0.000	0	2,148
Generic TTA	180.00	10	324	0.001	1	12
Generic 11' Omni	180.00	80	2,592	0.004	7	99
Round Low Profile PI	180.00	1,500	48,600	0.076	132	1,861
KMW HB-X-WM-17-65-00	170.00	48	1,379	0.002	4	59
KMW HB-X-WM-17-65-00	170.00	90	2,601	0.004	7	112
Side Arms	170.00	560	16,184	0.025	44	695
Commscope CBC78T-DS-	160.00	62	1,590	0.002	4	77
Samsung B2/B66A RRH-	160.00	253	6,482	0.010	18	314
Samsung B5/B13 RRH-B	160.00	211	5,399	0.008	15	262
Samsung MT6407-77A	160.00	245	6,267	0.010	17	304
RFS DB-T1-6Z-8AB-0Z	160.00	88	2,253	0.004	6	109
Commscope JAHH-65B-R	160.00	364	9,308	0.015	25	451
Generic Round Platfo	160.00	2,500	64,000	0.100	174	3,102
Powerwave Allgon 702	153.00	13	309	0.000	1	16
CCI TPX-070821	153.00	45	1,053	0.002	3	56
Raycap DC6-48-60-18-	153.00	20	468	0.001	1	25
Raycap DC6-48-60-18-	153.00	32	744	0.001	2	39
Ericsson RRUS 4478 B	153.00	178	4,171	0.007	11	221
Powerwave Allgon LGP	153.00	186	4,354	0.007	12	231
Raycap DC6-48-60-18-	153.00	16	375	0.001	1	20
Ericsson RRUS 11 (Ba	153.00	150	3,511	0.005	10	186
Ericsson RRUS 32 B30	153.00	180	4,214	0.007	11	223
Ericsson RRUS 32 B66	153.00	152	3,561	0.006	10	189
Ericsson RRUS 32 B2	153.00	159	3,722	0.006	10	197
Powerwave Allgon 777	153.00	105	2,458	0.004	7	130
Commscope SBNHH-1D65	153.00	201	4,705	0.007	13	249
Kathrein Scala 80010	153.00	293	6,854	0.011	19	363
Flat Platform w/ Rou	153.00	2,000	46,818	0.073	127	2,481
Perfect Vision PV-LP	134.00	2,117	38,013	0.060	103	2,627
Ericsson RRUS 4415 B	130.00	138	2,332	0.004	6	171
Ericsson Radio 4449	130.00	225	3,803	0.006	10	279
Ericsson 4424 B25	130.00	258	4,360	0.007	12	320
Ericsson Air6449 B41	130.00	312	5,273	0.008	14	387
RFS APX16DWV-16DWVS-	130.00	122	2,063	0.003	6	151
RFS APXVAARR24_43-U-	130.00	384	6,485	0.010	18	476
		57,836	638,776	1.000	1,735	71,760

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)
43	177.50	328	10,349	0.016	28	282
42	172.50	344	10,233	0.016	28	295

41	167.50	384	10,772	0.017	29	330
40	162.50	399	10,546	0.017	29	343
39	157.50	488	12,097	0.019	33	419
38	154.00	212	5,016	0.008	14	182
37	151.50	389	8,919	0.014	24	334
36	149.31	181	4,036	0.006	11	156
35	146.81	620	13,361	0.021	36	533
34	142.50	877	17,809	0.028	48	754
33	137.50	900	17,019	0.027	46	773
32	134.50	183	3,307	0.005	9	157
31	132.00	741	12,903	0.020	35	636
30	127.50	979	15,915	0.025	43	841
29	122.50	1,002	15,039	0.024	41	861
28	117.50	1,025	14,156	0.022	38	881
27	112.50	1,048	13,270	0.021	36	901
26	107.50	1,072	12,384	0.019	34	921
25	102.73	992	10,466	0.016	28	852
24	100.23	191	1,922	0.003	5	164
23	97.50	2,077	19,742	0.031	54	1,784
22	94.98	14	126	0.000	0	12
21	92.48	1,257	10,753	0.017	29	1,080
20	87.50	1,293	9,896	0.015	27	1,111
19	82.50	1,320	8,981	0.014	24	1,134
18	77.50	1,347	8,088	0.013	22	1,157
17	72.50	1,374	7,220	0.011	20	1,180
16	67.50	1,401	6,381	0.010	17	1,203
15	62.50	1,428	5,577	0.009	15	1,227
14	57.50	1,455	4,809	0.008	13	1,250
13	54.33	397	1,173	0.002	3	341
12	51.83	1,949	5,236	0.008	14	1,675
11	48.41	1,724	4,039	0.006	11	1,481
10	45.91	544	1,146	0.002	3	467
9	42.50	1,515	2,737	0.004	7	1,302
8	37.50	1,542	2,169	0.003	6	1,325
7	32.50	1,569	1,657	0.003	5	1,348
6	27.50	1,596	1,207	0.002	3	1,371
5	22.50	1,623	822	0.001	2	1,395
4	17.50	1,650	505	0.001	1	1,418
3	12.50	1,677	262	0.000	1	1,441
2	7.50	1,704	96	0.000	0	1,464
1	2.50	1,731	11	0.000	0	1,488
Generic TTA	180.00	10	324	0.001	1	9
Generic 11' Omni	180.00	80	2,592	0.004	7	69
Round Low Profile PI	180.00	1,500	48,600	0.076	132	1,289
KMW HB-X-WM-17-65-00	170.00	48	1,379	0.002	4	41
KMW HB-X-WM-17-65-00	170.00	90	2,601	0.004	7	77
Side Arms	170.00	560	16,184	0.025	44	481
Commscope CBC78T-DS-	160.00	62	1,590	0.002	4	53
Samsung B2/B66A RRH-	160.00	253	6,482	0.010	18	218
Samsung B5/B13 RRH-B	160.00	211	5,399	0.008	15	181
Samsung MT6407-77A	160.00	245	6,267	0.010	17	210
RFS DB-T1-6Z-8AB-0Z	160.00	88	2,253	0.004	6	76
Commscope JAHH-65B-R	160.00	364	9,308	0.015	25	312
Generic Round Platfo	160.00	2,500	64,000	0.100	174	2,148
Powerwave Allgon 702	153.00	13	309	0.000	1	11
CCI TPX-070821	153.00	45	1,053	0.002	3	39
Raycap DC6-48-60-18-	153.00	20	468	0.001	1	17
Raycap DC6-48-60-18-	153.00	32	744	0.001	2	27
Ericsson RRUS 4478 B	153.00	178	4,171	0.007	11	153
Powerwave Allgon LGP	153.00	186	4,354	0.007	12	160
Raycap DC6-48-60-18-	153.00	16	375	0.001	1	14
Ericsson RRUS 11 (Ba	153.00	150	3,511	0.005	10	129
Ericsson RRUS 32 B30	153.00	180	4,214	0.007	11	155
Ericsson RRUS 32 B66	153.00	152	3,561	0.006	10	131

Site Number: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number: 13677848_C3_02

6/4/2021 7:50:12 PM

Customer: T-MOBILE

Ericsson RRUS 32 B2	153.00	159	3,722	0.006	10	137
Powerwave Allgon 777	153.00	105	2,458	0.004	7	90
Commscope SBNHH-1D65	153.00	201	4,705	0.007	13	173
Kathrein Scala 80010	153.00	293	6,854	0.011	19	252
Flat Platform w/ Rou	153.00	2,000	46,818	0.073	127	1,719
Perfect Vision PV-LP	134.00	2,117	38,013	0.060	103	1,819
Ericsson RRUS 4415 B	130.00	138	2,332	0.004	6	119
Ericsson Radio 4449	130.00	225	3,803	0.006	10	193
Ericsson 4424 B25	130.00	258	4,360	0.007	12	222
Ericsson Air6449 B41	130.00	312	5,273	0.008	14	268
RFS APX16DWV-16DWVS-	130.00	122	2,063	0.003	6	105
RFS APXVAARR24_43-U-	130.00	384	6,485	0.010	18	330
		57,836	638,776	1.000	1,735	49,696

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	-69.61	-1.74	0.00	-247.97	0.00	247.97	5,724.86	1,511.21	8,464.29	7,310.45	0.00	0.00	0.046
5.00	-67.50	-1.75	0.00	-239.27	0.00	239.27	5,660.51	1,483.34	8,154.99	7,094.04	0.00	-0.01	0.046
10.00	-65.42	-1.76	0.00	-230.53	0.00	230.53	5,594.62	1,455.47	7,851.45	6,878.77	0.02	-0.02	0.045
15.00	-63.37	-1.77	0.00	-221.74	0.00	221.74	5,527.18	1,427.60	7,553.66	6,664.77	0.04	-0.03	0.045
20.00	-61.35	-1.77	0.00	-212.92	0.00	212.92	5,458.18	1,399.73	7,261.62	6,452.13	0.07	-0.03	0.044
25.00	-59.37	-1.78	0.00	-204.06	0.00	204.06	5,387.64	1,371.86	6,975.35	6,240.97	0.11	-0.04	0.044
30.00	-57.43	-1.78	0.00	-195.18	0.00	195.18	5,315.55	1,343.98	6,694.83	6,031.39	0.16	-0.05	0.043
35.00	-55.51	-1.78	0.00	-186.29	0.00	186.29	5,241.91	1,316.11	6,420.07	5,823.52	0.22	-0.06	0.043
40.00	-53.63	-1.78	0.00	-177.38	0.00	177.38	5,166.71	1,288.24	6,151.07	5,617.45	0.29	-0.07	0.042
45.00	-52.96	-1.78	0.00	-168.49	0.00	168.49	5,089.97	1,260.37	5,887.82	5,413.30	0.37	-0.08	0.042
46.82	-50.82	-1.77	0.00	-165.25	0.00	165.25	5,061.71	1,250.24	5,793.60	5,339.62	0.40	-0.08	0.041
50.00	-48.40	-1.76	0.00	-159.61	0.00	159.61	5,011.68	1,232.50	5,630.33	5,211.18	0.46	-0.09	0.040
53.65	-47.91	-1.76	0.00	-153.19	0.00	153.19	5,014.45	1,233.48	5,639.26	5,218.23	0.53	-0.10	0.039
55.00	-46.10	-1.75	0.00	-150.81	0.00	150.81	4,993.06	1,225.95	5,570.67	5,164.00	0.56	-0.10	0.038
60.00	-44.33	-1.74	0.00	-142.07	0.00	142.07	4,912.86	1,198.08	5,320.29	4,964.54	0.67	-0.11	0.038
65.00	-42.59	-1.72	0.00	-133.39	0.00	133.39	4,831.10	1,170.21	5,075.66	4,767.35	0.79	-0.12	0.037
70.00	-40.89	-1.71	0.00	-124.77	0.00	124.77	4,747.80	1,142.34	4,836.80	4,572.55	0.92	-0.13	0.036
75.00	-39.22	-1.69	0.00	-116.23	0.00	116.23	4,662.94	1,114.47	4,603.69	4,380.25	1.06	-0.14	0.035
80.00	-37.58	-1.67	0.00	-107.80	0.00	107.80	4,576.54	1,086.59	4,376.33	4,190.55	1.20	-0.15	0.034
85.00	-35.98	-1.64	0.00	-99.47	0.00	99.47	4,481.93	1,058.72	4,154.74	3,997.63	1.36	-0.16	0.033
90.00	-34.42	-1.61	0.00	-91.27	0.00	91.27	4,363.94	1,030.85	3,938.90	3,788.90	1.53	-0.17	0.032
94.97	-34.40	-1.61	0.00	-83.26	0.00	83.26	4,246.74	1,003.17	3,730.20	3,587.10	1.71	-0.18	0.031
95.00	-31.82	-1.56	0.00	-83.21	0.00	83.21	4,245.95	1,002.98	3,728.82	3,585.76	1.71	-0.18	0.031
100.00	-31.58	-1.55	0.00	-75.43	0.00	75.43	4,127.96	975.11	3,524.49	3,388.23	1.90	-0.18	0.030
100.47	-30.35	-1.52	0.00	-74.70	0.00	74.70	3,522.04	850.55	3,128.34	2,946.90	1.92	-0.19	0.034
105.00	-29.02	-1.49	0.00	-67.80	0.00	67.80	3,456.72	828.89	2,971.06	2,817.93	2.10	-0.19	0.032
110.00	-27.72	-1.45	0.00	-60.36	0.00	60.36	3,383.20	805.00	2,802.29	2,677.76	2.31	-0.20	0.031
115.00	-26.45	-1.41	0.00	-53.09	0.00	53.09	3,306.70	781.11	2,638.45	2,538.79	2.52	-0.21	0.029
120.00	-25.21	-1.37	0.00	-46.02	0.00	46.02	3,205.56	757.22	2,479.56	2,385.12	2.75	-0.22	0.027
125.00	-23.99	-1.33	0.00	-39.15	0.00	39.15	3,104.43	733.33	2,325.59	2,236.25	2.99	-0.23	0.025
130.00	-21.29	-1.22	0.00	-32.51	0.00	32.51	3,003.30	709.44	2,176.56	2,092.18	3.23	-0.24	0.023
134.00	-18.44	-1.10	0.00	-27.64	0.00	27.64	2,922.39	690.33	2,060.89	1,980.38	3.44	-0.24	0.020
135.00	-17.32	-1.05	0.00	-26.55	0.00	26.55	2,902.16	685.55	2,032.46	1,952.91	3.49	-0.25	0.020
140.00	-16.23	-0.99	0.00	-21.32	0.00	21.32	2,801.03	661.66	1,893.30	1,818.43	3.75	-0.25	0.018
145.00	-15.46	-0.96	0.00	-16.35	0.00	16.35	2,699.90	637.77	1,759.08	1,688.75	4.01	-0.26	0.015
148.62	-15.24	-0.94	0.00	-12.89	0.00	12.89	2,626.75	620.49	1,665.06	1,597.93	4.21	-0.26	0.014
148.62	-15.24	-0.94	0.00	-12.89	0.00	12.89	1,691.62	422.31	1,156.82	1,055.16	4.21	-0.26	0.021
150.00	-14.75	-0.92	0.00	-11.58	0.00	11.58	1,679.60	417.91	1,132.82	1,036.65	4.29	-0.26	0.020
153.00	-9.87	-0.65	0.00	-8.83	0.00	8.83	1,653.13	408.36	1,081.64	996.80	4.45	-0.27	0.015
155.00	-9.26	-0.61	0.00	-7.53	0.00	7.53	1,635.17	401.99	1,048.18	970.47	4.56	-0.27	0.013
160.00	-4.15	-0.30	0.00	-4.48	0.00	4.48	1,589.20	386.07	966.82	905.51	4.84	-0.27	0.008
165.00	-3.67	-0.27	0.00	-2.98	0.00	2.98	1,541.67	370.16	888.75	841.89	5.13	-0.27	0.006
170.00	-2.38	-0.18	0.00	-1.64	0.00	1.64	1,492.60	354.24	813.96	779.71	5.42	-0.27	0.004
175.00	-1.97	-0.15	0.00	-0.75	0.00	0.75	1,432.22	338.32	742.46	714.22	5.70	-0.28	0.002
180.00	0.00	-0.14	0.00	0.00	0.00	0.00	1,364.83	322.40	674.25	648.27	5.99	-0.28	0.000

Site Number: 310972

Code: ANSI/TIA-222-H

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Site Name: WATERFORD REBUILD CT, CT Engineering Number: 13677848_C3_02

6/4/2021 7:50:12 PM

Customer: T-MOBILE

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	-48.21	-1.74	0.00	-244.07	0.00	244.07	5,724.86	1,511.21	8,464.29	7,310.45	0.00	0.00	0.042
5.00	-46.74	-1.74	0.00	-235.38	0.00	235.38	5,660.51	1,483.34	8,154.99	7,094.04	0.00	-0.01	0.041
10.00	-45.30	-1.75	0.00	-226.65	0.00	226.65	5,594.62	1,455.47	7,851.45	6,878.77	0.02	-0.02	0.041
15.00	-43.88	-1.75	0.00	-217.91	0.00	217.91	5,527.18	1,427.60	7,553.66	6,664.77	0.04	-0.02	0.041
20.00	-42.49	-1.76	0.00	-209.13	0.00	209.13	5,458.18	1,399.73	7,261.62	6,452.13	0.07	-0.03	0.040
25.00	-41.12	-1.76	0.00	-200.34	0.00	200.34	5,387.64	1,371.86	6,975.35	6,240.97	0.11	-0.04	0.040
30.00	-39.77	-1.76	0.00	-191.54	0.00	191.54	5,315.55	1,343.98	6,694.83	6,031.39	0.16	-0.05	0.039
35.00	-38.44	-1.76	0.00	-182.74	0.00	182.74	5,241.91	1,316.11	6,420.07	5,823.52	0.22	-0.06	0.039
40.00	-37.14	-1.76	0.00	-173.94	0.00	173.94	5,166.71	1,288.24	6,151.07	5,617.45	0.29	-0.07	0.038
45.00	-36.67	-1.76	0.00	-165.15	0.00	165.15	5,089.97	1,260.37	5,887.82	5,413.30	0.36	-0.08	0.038
46.82	-35.19	-1.75	0.00	-161.96	0.00	161.96	5,061.71	1,250.24	5,793.60	5,339.62	0.39	-0.08	0.037
50.00	-33.52	-1.73	0.00	-156.40	0.00	156.40	5,011.68	1,232.50	5,630.33	5,211.18	0.45	-0.09	0.037
53.65	-33.18	-1.73	0.00	-150.07	0.00	150.07	5,014.45	1,233.48	5,639.26	5,218.23	0.52	-0.10	0.035
55.00	-31.93	-1.72	0.00	-147.73	0.00	147.73	4,993.06	1,225.95	5,570.67	5,164.00	0.55	-0.10	0.035
60.00	-30.70	-1.71	0.00	-139.12	0.00	139.12	4,912.86	1,198.08	5,320.29	4,964.54	0.66	-0.11	0.034
65.00	-29.50	-1.69	0.00	-130.58	0.00	130.58	4,831.10	1,170.21	5,075.66	4,767.35	0.77	-0.12	0.033
70.00	-28.31	-1.68	0.00	-122.11	0.00	122.11	4,747.80	1,142.34	4,836.80	4,572.55	0.90	-0.13	0.033
75.00	-27.16	-1.66	0.00	-113.72	0.00	113.72	4,662.94	1,114.47	4,603.69	4,380.25	1.04	-0.13	0.032
80.00	-26.02	-1.63	0.00	-105.44	0.00	105.44	4,576.54	1,086.59	4,376.33	4,190.55	1.18	-0.14	0.031
85.00	-24.91	-1.61	0.00	-97.27	0.00	97.27	4,481.93	1,058.72	4,154.74	3,997.63	1.34	-0.15	0.030
90.00	-23.83	-1.58	0.00	-89.23	0.00	89.23	4,363.94	1,030.85	3,938.90	3,788.90	1.50	-0.16	0.029
94.97	-23.82	-1.58	0.00	-81.39	0.00	81.39	4,246.74	1,003.17	3,730.20	3,587.10	1.68	-0.17	0.028
95.00	-22.04	-1.52	0.00	-81.34	0.00	81.34	4,245.95	1,002.98	3,728.82	3,585.76	1.68	-0.17	0.028
100.00	-21.87	-1.52	0.00	-73.72	0.00	73.72	4,127.96	975.11	3,524.49	3,388.23	1.86	-0.18	0.027
100.47	-21.02	-1.49	0.00	-73.01	0.00	73.01	3,522.04	850.55	3,128.34	2,946.90	1.88	-0.18	0.031
105.00	-20.10	-1.46	0.00	-66.25	0.00	66.25	3,456.72	828.89	2,971.06	2,817.93	2.06	-0.19	0.029
110.00	-19.20	-1.42	0.00	-58.97	0.00	58.97	3,383.20	805.00	2,802.29	2,677.76	2.26	-0.20	0.028
115.00	-18.32	-1.38	0.00	-51.87	0.00	51.87	3,306.70	781.11	2,638.45	2,538.79	2.48	-0.21	0.026
120.00	-17.46	-1.34	0.00	-44.95	0.00	44.95	3,205.56	757.22	2,479.56	2,385.12	2.70	-0.22	0.024
125.00	-16.61	-1.30	0.00	-38.25	0.00	38.25	3,104.43	733.33	2,325.59	2,236.25	2.93	-0.23	0.022
130.00	-14.74	-1.19	0.00	-31.77	0.00	31.77	3,003.30	709.44	2,176.56	2,092.18	3.17	-0.23	0.020
134.00	-12.77	-1.07	0.00	-27.01	0.00	27.01	2,922.39	690.33	2,060.89	1,980.38	3.37	-0.24	0.018
135.00	-11.99	-1.02	0.00	-25.94	0.00	25.94	2,902.16	685.55	2,032.46	1,952.91	3.42	-0.24	0.017
140.00	-11.24	-0.97	0.00	-20.83	0.00	20.83	2,801.03	661.66	1,893.30	1,818.43	3.67	-0.25	0.015
145.00	-10.71	-0.93	0.00	-15.98	0.00	15.98	2,699.90	637.77	1,759.08	1,688.75	3.93	-0.25	0.013
148.62	-10.55	-0.92	0.00	-12.60	0.00	12.60	2,626.75	620.49	1,665.06	1,597.93	4.13	-0.26	0.012
148.62	-10.55	-0.92	0.00	-12.60	0.00	12.60	1,691.62	422.31	1,156.82	1,055.16	4.13	-0.26	0.018
150.00	-10.22	-0.90	0.00	-11.32	0.00	11.32	1,679.60	417.91	1,132.82	1,036.65	4.20	-0.26	0.017
153.00	-6.83	-0.63	0.00	-8.63	0.00	8.63	1,653.13	408.36	1,081.64	996.80	4.36	-0.26	0.013
155.00	-6.41	-0.60	0.00	-7.37	0.00	7.37	1,635.17	401.99	1,048.18	970.47	4.47	-0.26	0.012
160.00	-2.87	-0.29	0.00	-4.39	0.00	4.39	1,589.20	386.07	966.82	905.51	4.75	-0.26	0.007
165.00	-2.54	-0.26	0.00	-2.92	0.00	2.92	1,541.67	370.16	888.75	841.89	5.03	-0.27	0.005
170.00	-1.65	-0.18	0.00	-1.61	0.00	1.61	1,492.60	354.24	813.96	779.71	5.31	-0.27	0.003
175.00	-1.37	-0.15	0.00	-0.73	0.00	0.73	1,432.22	338.32	742.46	714.22	5.59	-0.27	0.002
180.00	0.00	-0.14	0.00	0.00	0.00	0.00	1,364.83	322.40	674.25	648.27	5.87	-0.27	0.000

Analysis Summary

Load Case	Reactions						Max Usage	
	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	32.93	0.00	69.36	0.00	0.00	4014.82	0.00	0.56
0.9D + 1.0W	32.91	0.00	52.01	0.00	0.00	3964.58	0.00	0.55
1.2D + 1.0Di + 1.0Wi	8.02	0.00	87.25	0.00	0.00	969.78	0.00	0.15
1.2D + 1.0Ev + 1.0Eh	1.74	0.00	69.61	0.00	0.00	247.97	0.00	0.05
0.9D - 1.0Ev + 1.0Eh	1.74	0.00	48.21	0.00	0.00	244.07	0.00	0.04
1.0D + 1.0W	6.57	0.00	57.83	0.00	0.00	795.62	0.00	0.12



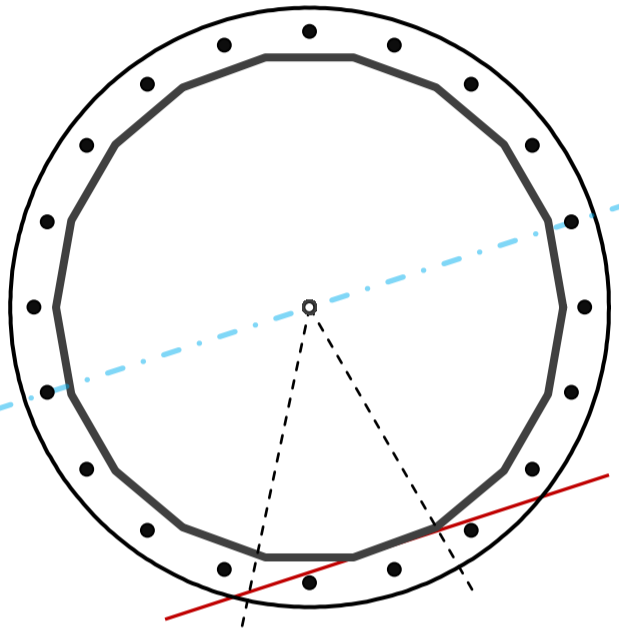
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	62.45	in
Thickness	7/16	in
Orientation Offset		°

Base Reactions		
Moment, Mu	4,014.8	k-ft
Axial, Pu	69.4	k
Shear, Vu	32.9	k
Neutral Axis	198	°

Report Capacities		
Component	Capacity	Result
Base Plate	11%	Pass
Anchor Rods	61%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ϕ	75	in
Thickness	2 3/4	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	299.7	k
Bending Stress, ϕMn	2835.0	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, ϕ	2 1/4	in
Bolt Circle	69	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	10.8	in
Orientation Offset		°
Applied Force, Pu	148.0	k
Anchor Rods, ϕPn	243.6	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	32.9	4014.8	1.00
Anchor Rod Forces	32.9	4014.8	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	84.8008	4.7112	0.3016		40768.65
Bolt	3.9761	3.2477	0.8393	4.5	36057.13
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate

Shape	Round	-
Diameter, D	75	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	41.533	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods

Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	69	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	148.0	k
Applied Shear, Vu	0.8	k
Compressive Capacity, ϕP_n	243.6	k
Tensile Capacity, ϕR_n	0.608	OK
Interaction Capacity	0.614	OK

External Base Plate

Chord Length AA	34.592	in
Additional AA	5.500	in
Section Modulus, Z	75.799	in ³
Applied Moment, Mu	411.0	k-ft
Bending Capacity, ϕM_n	4093.2	k-ft
Capacity, Mu/ ϕM_n	0.100	OK

Chord Length AB	32.785	in
Additional AB	5.500	in
Section Modulus, Z	72.383	in ³
Applied Moment, Mu	228.3	k-ft
Bending Capacity, ϕM_n	3908.7	k-ft
Capacity, Mu/ ϕM_n	0.058	OK

Bend Line Length	27.768	in
Additional Bend Line	0.000	in
Section Modulus, Z	52.499	in ³
Applied Moment, Mu	299.7	k-ft
Bending Capacity, ϕM_n	2835.0	k-ft
Capacity, Mu/ ϕM_n	0.106	OK

Internal Base Plate

Arc Length	0.000	in
Section Modulus, Z	0.000	in ³
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕM_n	0.0	k-ft
Capacity, Mu/ ϕM_n		

Flange Plate Analysis

Flange Plate	Plate Type	Flange	@ 149 ft
	Pole Diameter	30.08	in
	Pole Thickness	0.25	in
	Plate Diameter	37.5	in
	Plate Thickness	2	in
	Plate Fy	50	ksi
	Weld Length	5/16	in
	f _s Resistance	177.19	k-in
	Applied	13.74	k-in

Code Rev. **H**

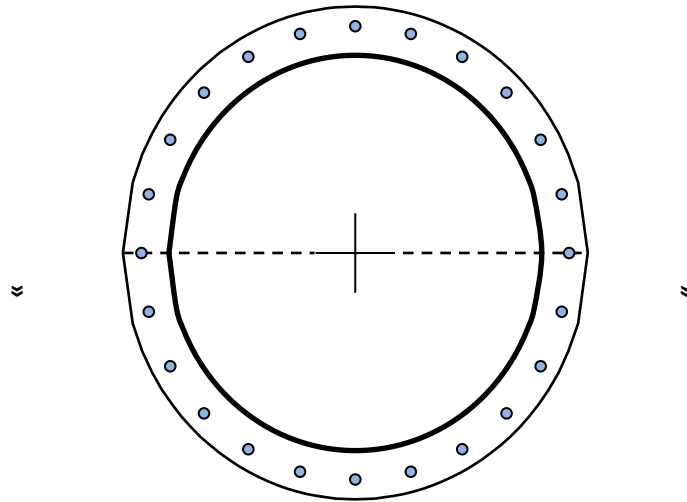
Date	6/4/2021
Engineer	H.Altahan
Site #	310972
Carrier	TMO

Moment 187.7 k-ft
Axial 14.0 k

Required Flange Thickness:
0.56 in OK

Stiffeners	#	
------------	---	--

Bolts	#	24	
	Bolt Circle	34.5	in
	(R)adial / (S)quare	R	
	Diameter	1	in
	Hole Diameter	1 1/8	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	f _s Resistance	54.52	k
	Applied	10.29	k



Reinforcement	#	
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Plate Stress Ratio:
8% Pass

Bolt Stress Ratio:
19% Pass

Extra Bolts O	#	
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**STRUCTURAL EVALUATION LETTER
 ANTENNA MOUNT ANALYSIS**

SITE INFORMATION:

ATC Site Name: Waterford Rebuild CT, CT
 ATC Site Number: 310972
 ATC Engineering Number: 13677848_C8_03
 Site Type: Monopole Tower
 Site Address: 15 Miner Lane, Waterford, New London County, CT
 T-Mobile Site Name: CT641/SSite Waterford_MP
 T-Mobile Site Number: CT11641A

CURRENT WIND CRITERIA:

1. ANSI/TIA-222-H Standard

SUPPORTING DOCUMENTS:

1. Preview Exhibit by American Tower Corporation, dated May 4, 2021
2. Mount Photos by American Tower Corporation, dated October 15, 2020
3. Construction Drawings by American Tower Corporation (ATC Job No: 12951818), dated July 25, 2019
4. Mount Analysis Report by CLS Engineering, PLLC (Project No 41124-12927128-01-MR-R1), dated July 3, 2019

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
129.0	130.0	(3) Ericsson AIR6449 B41	3	12.5' Platform with Handrails (Perfect Vision PV-LPPGS-12M-HR2-AP1)
		(3) RFS APX16DWV-16DWVS-E-A20	4	
		(3) RFS APXVAARR24_43-U-NA20	2	
		(3) Ericsson Radio 4424 B25	2	
		(3) Ericsson Radio 4449 B71 B85A	2	
		(3) Ericsson RRUS 4415 B66	2	

CONCLUSION:

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed. The mount can support the equipment as described in this report.

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
129.0	Mount Pipes	84%	Pass (84%)	-
	Handrails	78%		
	Cross Arms	39%		
	Kit	31%		
	Frame Rails	27%		
	Arms	25%		
	Grating Angles	13%		
	Connections	7%		

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Date:	5/24/2021
Site Name:	Waterford Rebuild CT, CT
Project Engineer:	DVA
Project No.:	13677848_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?	Existing	
Mount Centerline:	129	ft
Superstructure Height:	180	ft
Structure Type:	Tower	

Factors	
Gh:	1.000
K _{z min} :	0.850
K _z :	1.335
K _d :	0.950
K _{z'} :	1.000
Ke:	0.997
Ka:	0.900
Kes(Wind):	0.950
Kes(Ice):	0.850
I wind:	-
I ice:	1.000

q _z :	52.20	psf
Surface Wind Pressure:	0.00	psf

Site Information		
Exposure Category:	C	
Risk Category:	II	
Ground Elevation:	95.2	ft
Ultimate Wind Speed:	127	mph
Design Wind Speed:	127	mph
Ice Thickness:	1.00	in
Ice Wind Speed:	50.0	mph
Escalated Ice Thickness:	0.97	in
Topographic Method:	2	
Topographic Category:	1	
Topographic Feature:	0.00	
Crest Height (H):	0.00	ft
Slope Distance (L):	0.00	ft
Distance from Crest (x):	0.00	ft

Run Seismic?	Yes
Site Soil:	D (Default)
Short-Period Accel. (Ss):	0.191
1-Second Accel. (S1):	0.052
Short-Period Design (SDS):	0.203
1-Second Design (SD1):	0.084
Short-Period Coeff. (Fa):	1.600
1-Second Coeff. (Fv):	2.400
Cs	0.102
Cs min	0.030
Amplification Factor (ap):	1.0
Response Mod. (Rp):	2.5
Overstrength (Do):	1.0

Service Wind:	30.0	mph
Lm (man live load) =	500.0	lb
Lv (man live load) =	250.0	lb

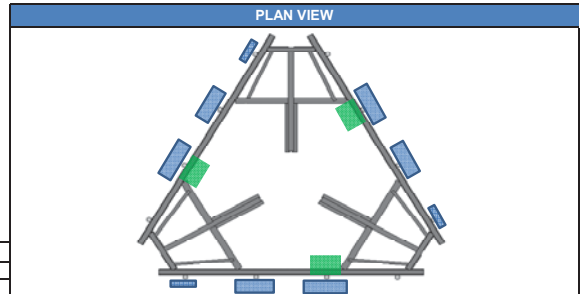
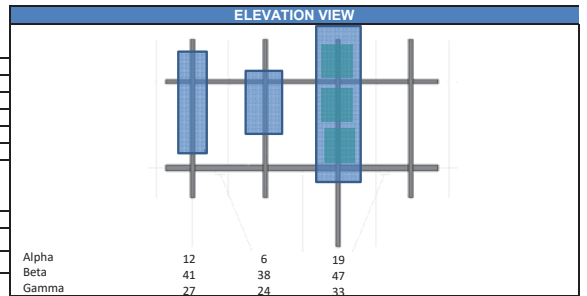


Table 1. Equipment Specifications and Wind Pressure

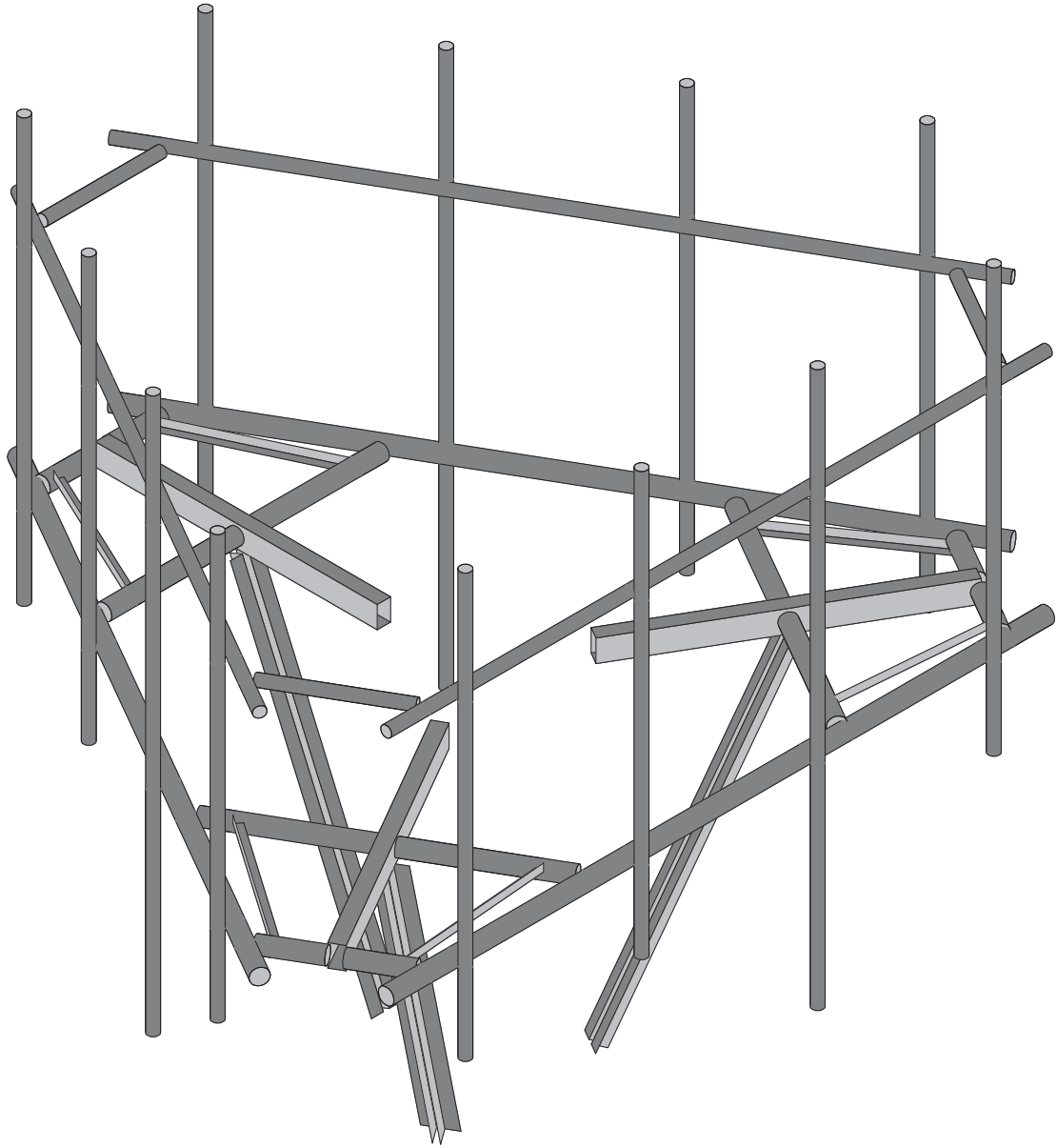
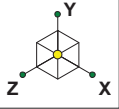
Manufacturer	Model	Elevation	Pipe Label	Weight (lb)	Height (in)	Width (in)	Depth (in)	EPA _N	EPA _T	EPA _{N w/ ice}	EPA _{T w/ ice}	q _z '	q _{z ice} '	q _{z live} '
Ericsson	AIR6449 B41	130	6, 38, 24	104.00	33.1	20.6	8.6	5.49	2.49	6.36	3.17	52.28	8.10	2.92
RFS	APX16DWV-16DWVS-E-A20	130	12, 41, 27	40.70	55.9	13.3	3.1	6.59	2.13	7.70	3.14	52.28	8.10	2.92
RFS	APXVAARR24 43-U-NA20	130	19, 47, 33	127.90	95.9	24	8.7	20.24	8.89	22.15	10.66	52.28	8.10	2.92
Ericsson	Radio 4424 B25	129	19, 47, 33	86.00	17.1	14.4	11.3	1.95	1.55	2.47	2.02	52.20	8.09	2.91
Ericsson	Radio 4449 B71 B85A	131	19, 47, 33	75.00	15	13.2	10.5	1.57	1.26	2.03	1.68	52.37	8.12	2.92
Ericsson	RRUS 4415 B66	132	19, 47, 33	46	15	13.2	5.4	1.57	0.68	2.03	1.03	52.45	8.13	2.93

Table 2. Equipment Wind and Seismic Loads

Manufacturer	Model	Wind Load (F _w), lb	Wind Load Ice Case (F _w), lb	Wind Load Service Case	Seismic				
Ericsson	AIR6449 B41	246	111	44	78	14	7	10.6	
RFS	APX16DWV-16DWVS-E-A20	294	95	53	22	83	17	6	4.1
RFS	APXVAARR24 43-U-NA20	905	397	154	74	258	53	23	13.0
Ericsson	Radio 4424 B25	87	69	17	14	33	5	4	8.7
Ericsson	Radio 4449 B71 B85A	70	56	14	12	27	4	3	7.6
Ericsson	RRUS 4415 B66	70	31	14	7	23	4	2	4.7

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	HSS5x3x6	0.00	0.00	0.00	25%	17%	25%	84%
Cross Arm	PIPE 3.0	0.00	0.00	0.00	39%	20%	39%	
Frame Rail	PIPE 3.0	0.00	0.00	0.00	20%	27%	27%	
Grating Angle	L1.75x1.75x2	14.46	2.01	0.37	13%	1%	13%	
Handrails	PIPE 2.0	11.80	1.64	0.44	78%	64%	78%	
Mount Pipe	PIPE 2.0	11.80	1.64	0.44	84%	24%	84%	
Kit	LL3x3x3x6	24.79	3.44	0.50	31%	1%	31%	



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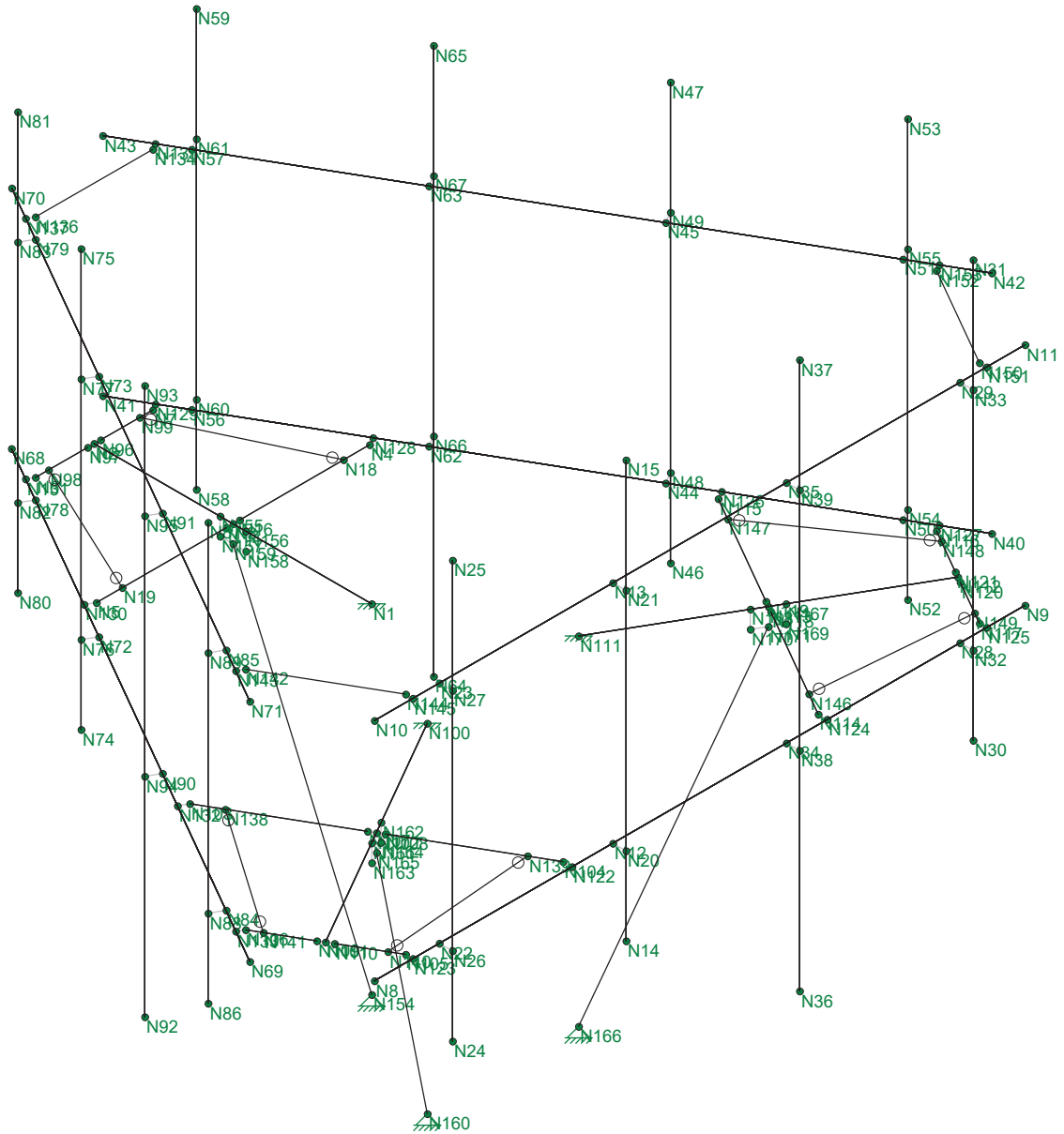
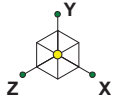
13677848_C8_03

Waterford Rebuild CT, CT
Platform Model

SK - 1

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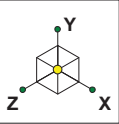
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Joint Labels

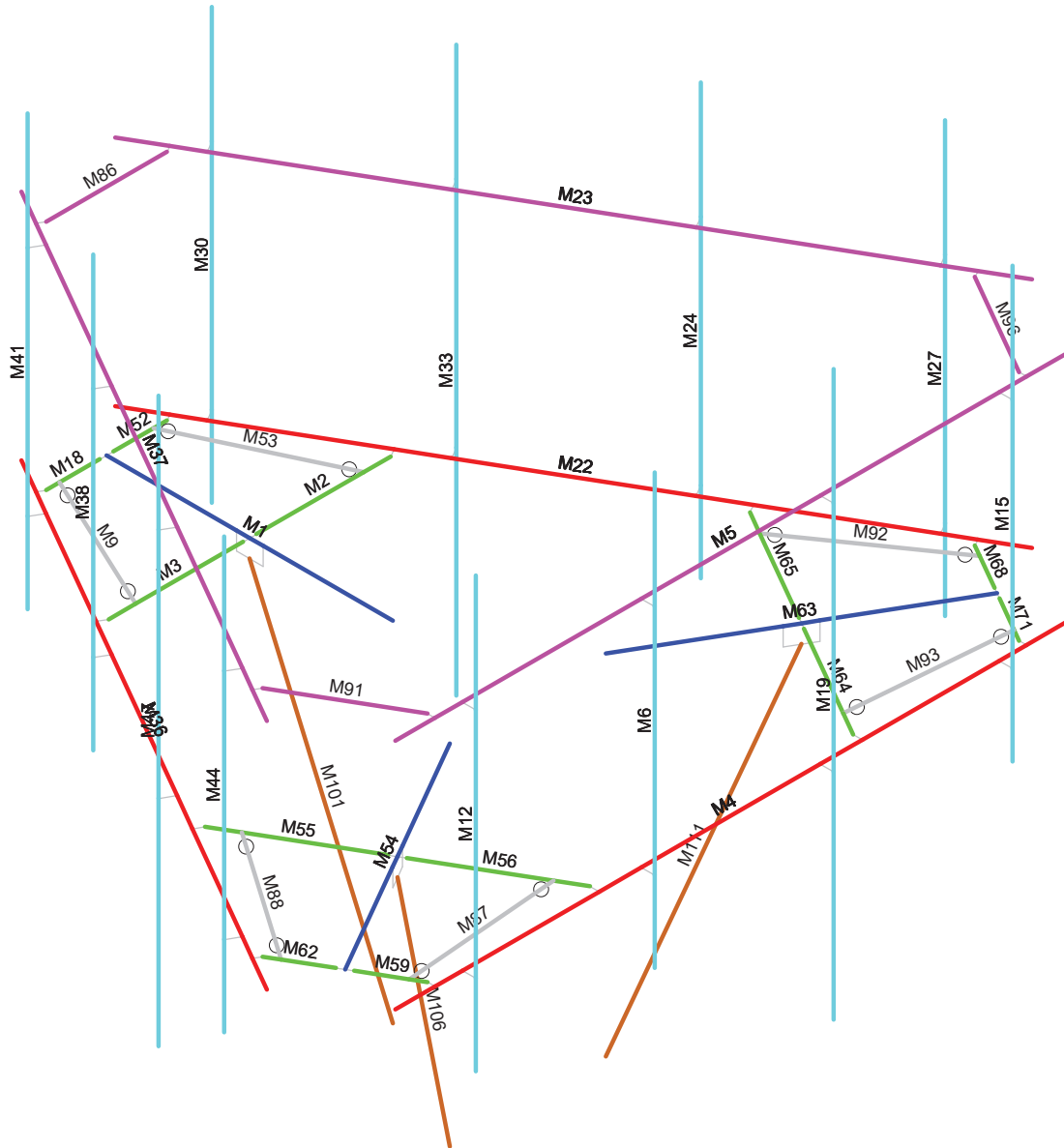
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Section Sets	
█	Arm
█	Cross Arm
█	Frame Rail
█	Grating Angle
█	Handrails
█	Mount Pipe
█	Kit
█	RIGID



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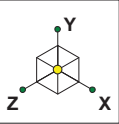
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Member Labels

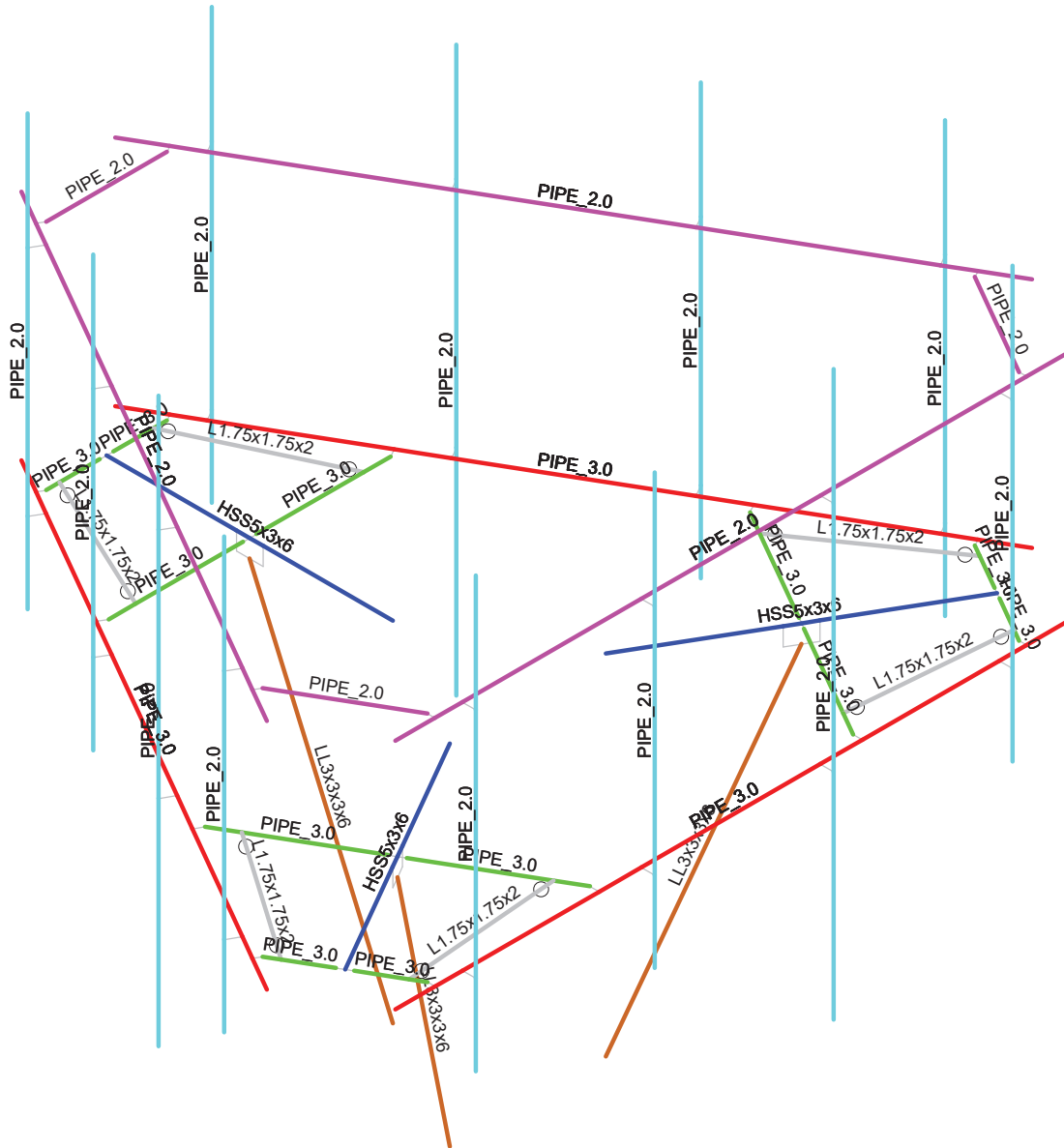
SK - 3

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Section Sets	
Blue	Arm
Green	Cross Rail
Red	Frame Rail
Grey	Grating Angle
Purple	Handrails
Cyan	Mount Pipe
Brown	Kit
Yellow	RIGID



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DVA

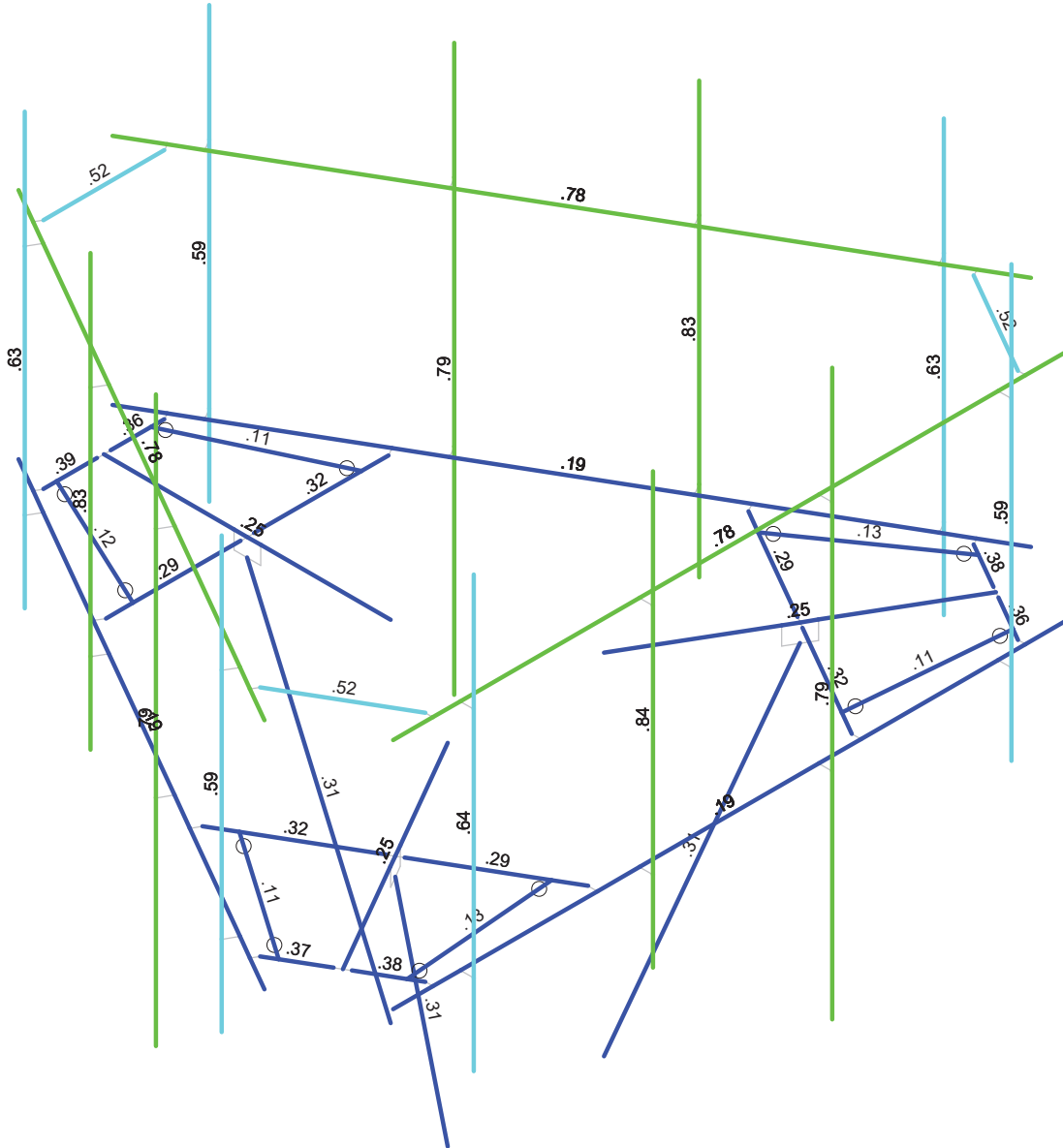
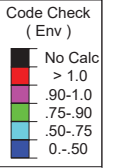
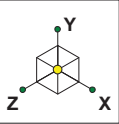
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Waterford Rebuild CT, CT
Member Shapes

SK - 4

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Member Code Checks Displayed (Enveloped)
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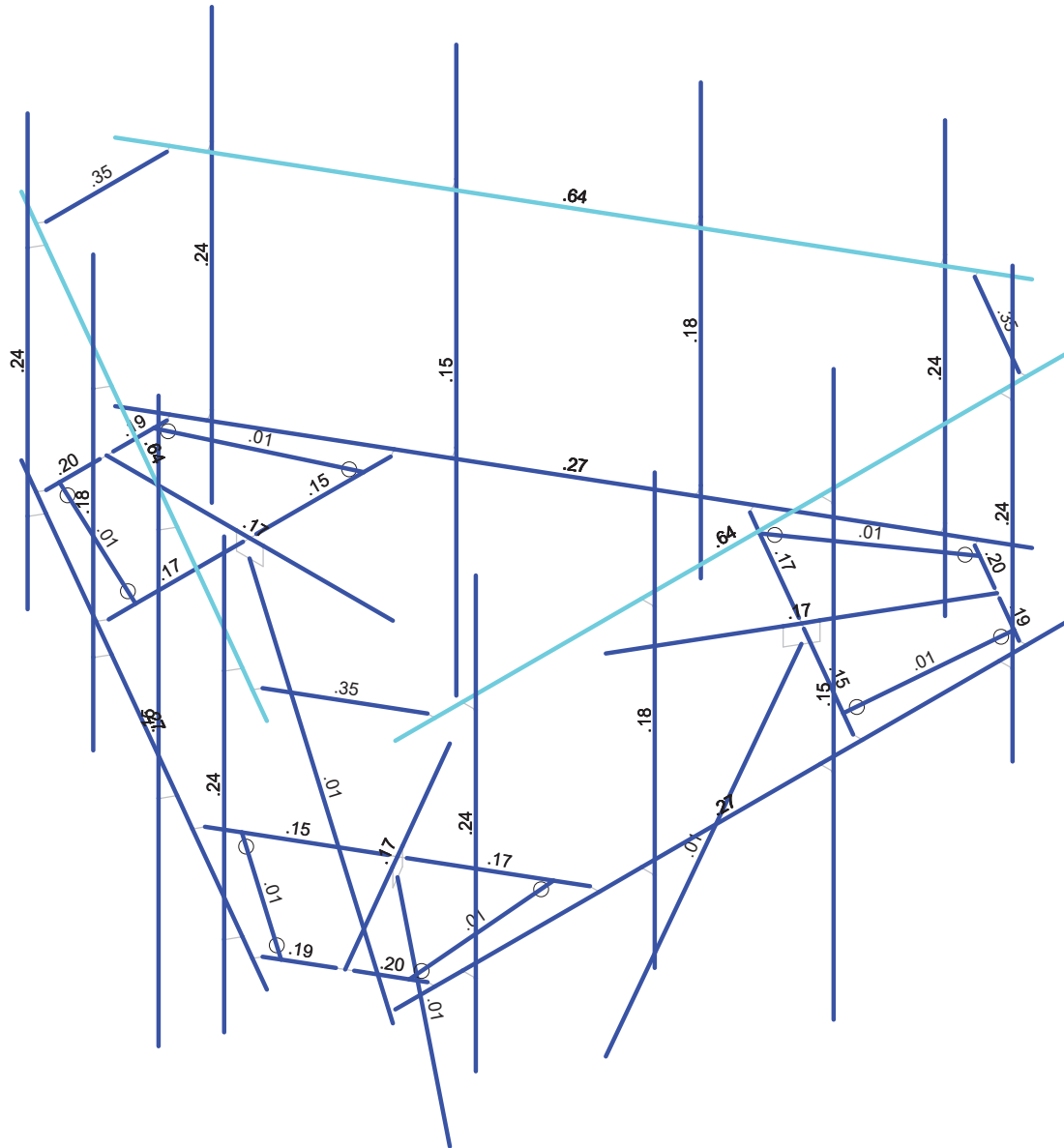
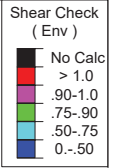
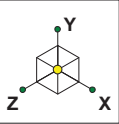
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Waterford Rebuild CT, CT
Member Bending Check

SK - 7

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Member Shear Checks Displayed (Enveloped)
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Waterford Rebuild CT, CT

Member Shear Check

SK - 8

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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
Parame 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

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	N16							
13	N17							
14	N40							
15	N41							
16	N42							
17	N43							
18	N68							
19	N69							
20	N70							
21	N71							
22	N96							
23	N97							
24	N98							
25	N99							
26	N100	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
27	N101							
28	N102							
29	N103							
30	N104							
31	N105							
32	N106							
33	N107							



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
34	N108							
35	N109							
36	N110							
37	N111	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
38	N112							
39	N113							
40	N114							
41	N115							
42	N116							
43	N117							
44	N118							
45	N119							
46	N120							
47	N121							
48	N122							
49	N123							
50	N124							
51	N125							
52	N126							
53	N127							
54	N128							
55	N129							
56	N130							
57	N131							
58	N132							
59	N133							
60	N134							
61	N135							
62	N136							
63	N137							
64	N140							
65	N141							
66	N142							
67	N143							
68	N144							
69	N145							
70	N148							
71	N149							
72	N150							
73	N151							
74	N152							
75	N153							
76	N154	Reaction	Reaction	Reaction				
77	N155							
78	N156							
79	N157							
80	N158							
81	N160	Reaction	Reaction	Reaction				
82	N161							
83	N162							
84	N163							
85	N164							
86	N166	Reaction	Reaction	Reaction				
87	N167							
88	N168							
89	N169							
90	N170							



Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Arm	Beam	Pipe	A500 Gr.46	Typical
2	M2	N16	N4			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
3	M3	N17	N5			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
4	M4	N8	N9			Frame Rail	Beam	Pipe	A53 Gr.B	Typical
5	M5	N10	N11			Handrails	HBrace	Pipe	A53 Gr.B	Typical
6	M6	N14	N15			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
7	M7	N3	N17			RIGID	None	None	RIGID	Typical
8	M8	N3	N16			RIGID	None	None	RIGID	Typical
9	M9	N19	N98			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N13	N21			RIGID	None	None	RIGID	Typical
11	M11	N12	N20			RIGID	None	None	RIGID	Typical
12	M12	N24	N25			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
13	M13	N23	N27			RIGID	None	None	RIGID	Typical
14	M14	N22	N26			RIGID	None	None	RIGID	Typical
15	M15	N30	N31			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
16	M16	N29	N33			RIGID	None	None	RIGID	Typical
17	M17	N28	N32			RIGID	None	None	RIGID	Typical
18	M18	N97	N6			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
19	M19	N36	N37			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
20	M20	N35	N39			RIGID	None	None	RIGID	Typical
21	M21	N34	N38			RIGID	None	None	RIGID	Typical
22	M22	N40	N41			Frame Rail	Beam	Pipe	A53 Gr.B	Typical
23	M23	N42	N43			Handrails	HBrace	Pipe	A53 Gr.B	Typical
24	M24	N46	N47			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
25	M25	N45	N49			RIGID	None	None	RIGID	Typical
26	M26	N44	N48			RIGID	None	None	RIGID	Typical
27	M27	N52	N53			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
28	M28	N51	N55			RIGID	None	None	RIGID	Typical
29	M29	N50	N54			RIGID	None	None	RIGID	Typical
30	M30	N58	N59			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
31	M31	N57	N61			RIGID	None	None	RIGID	Typical
32	M32	N56	N60			RIGID	None	None	RIGID	Typical
33	M33	N64	N65			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
34	M34	N63	N67			RIGID	None	None	RIGID	Typical
35	M35	N62	N66			RIGID	None	None	RIGID	Typical
36	M36	N68	N69			Frame Rail	Beam	Pipe	A53 Gr.B	Typical
37	M37	N70	N71			Handrails	HBrace	Pipe	A53 Gr.B	Typical
38	M38	N74	N75			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
39	M39	N73	N77			RIGID	None	None	RIGID	Typical
40	M40	N72	N76			RIGID	None	None	RIGID	Typical
41	M41	N80	N81			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
42	M42	N79	N83			RIGID	None	None	RIGID	Typical
43	M43	N78	N82			RIGID	None	None	RIGID	Typical
44	M44	N86	N87			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
45	M45	N85	N89			RIGID	None	None	RIGID	Typical
46	M46	N84	N88			RIGID	None	None	RIGID	Typical
47	M47	N92	N93			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
48	M48	N91	N95			RIGID	None	None	RIGID	Typical
49	M49	N90	N94			RIGID	None	None	RIGID	Typical
50	M50	N2	N97			RIGID	None	None	RIGID	Typical
51	M51	N2	N96			RIGID	None	None	RIGID	Typical
52	M52	N96	N7			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
53	M53	N99	N18			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
54	M54	N100	N101			Arm	Beam	Pipe	A500 Gr.46	Typical
55	M55	N107	N103			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
56	M56	N108	N104			Cross Arm	Beam	Pipe	A53 Gr.B	Typical



Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
57	M57	N102	N108			RIGID	None	None	RIGID	Typical
58	M58	N102	N107			RIGID	None	None	RIGID	Typical
59	M59	N110	N105			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
60	M60	N101	N110			RIGID	None	None	RIGID	Typical
61	M61	N101	N109			RIGID	None	None	RIGID	Typical
62	M62	N109	N106			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
63	M63	N111	N112			Arm	Beam	Pipe	A500 Gr.46	Typical
64	M64	N118	N114			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
65	M65	N119	N115			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
66	M66	N113	N119			RIGID	None	None	RIGID	Typical
67	M67	N113	N118			RIGID	None	None	RIGID	Typical
68	M68	N121	N116			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
69	M69	N112	N121			RIGID	None	None	RIGID	Typical
70	M70	N112	N120			RIGID	None	None	RIGID	Typical
71	M71	N120	N117			Cross Arm	Beam	Pipe	A53 Gr.B	Typical
72	M72	N105	N123			RIGID	None	None	RIGID	Typical
73	M73	N104	N122			RIGID	None	None	RIGID	Typical
74	M74	N114	N124			RIGID	None	None	RIGID	Typical
75	M75	N117	N125			RIGID	None	None	RIGID	Typical
76	M76	N116	N127			RIGID	None	None	RIGID	Typical
77	M77	N115	N126			RIGID	None	None	RIGID	Typical
78	M78	N4	N128			RIGID	None	None	RIGID	Typical
79	M79	N7	N129			RIGID	None	None	RIGID	Typical
80	M80	N6	N131			RIGID	None	None	RIGID	Typical
81	M81	N5	N130			RIGID	None	None	RIGID	Typical
82	M82	N103	N132			RIGID	None	None	RIGID	Typical
83	M83	N106	N133			RIGID	None	None	RIGID	Typical
84	M84	N134	N135			RIGID	None	None	RIGID	Typical
85	M85	N136	N137			RIGID	None	None	RIGID	Typical
86	M86	N136	N134			Handrails	HBrace	Pipe	A53 Gr.B	Typical
87	M87	N139	N140			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
88	M88	N141	N138			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
89	M89	N142	N143			RIGID	None	None	RIGID	Typical
90	M90	N144	N145			RIGID	None	None	RIGID	Typical
91	M91	N144	N142			Handrails	HBrace	Pipe	A53 Gr.B	Typical
92	M92	N147	N148			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
93	M93	N149	N146			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
94	M94	N150	N151			RIGID	None	None	RIGID	Typical
95	M95	N152	N153			RIGID	None	None	RIGID	Typical
96	M96	N152	N150			Handrails	HBrace	Pipe	A53 Gr.B	Typical
97	M97	N155	N157			RIGID	None	None	RIGID	Typical
98	M98	N156	N158			RIGID	None	None	RIGID	Typical
99	M99	N157	N159			RIGID	None	None	RIGID	Typical
100	M100	N159	N158			RIGID	None	None	RIGID	Typical
101	M101	N154	N159			Kit	VBrace	Double Angle (...)	A36 Gr.36	Typical
102	M102	N161	N163			RIGID	None	None	RIGID	Typical
103	M103	N162	N164			RIGID	None	None	RIGID	Typical
104	M104	N163	N165			RIGID	None	None	RIGID	Typical
105	M105	N165	N164			RIGID	None	None	RIGID	Typical
106	M106	N160	N165			Kit	VBrace	Double Angle (...)	A36 Gr.36	Typical
107	M107	N167	N169			RIGID	None	None	RIGID	Typical
108	M108	N168	N170			RIGID	None	None	RIGID	Typical
109	M109	N169	N171			RIGID	None	None	RIGID	Typical
110	M110	N171	N170			RIGID	None	None	RIGID	Typical
111	M111	N166	N171			Kit	VBrace	Double Angle (...)	A36 Gr.36	Typical



Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		66	164.4	0
3	Total General		66	164.4	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L1.75x1.75x2	6	212	25.4
7	A36 Gr.36	LL3x3x3x6	3	241.9	149.5
8	A500 Gr.46	HSS5x3x6	3	192	260.2
9	A53 Gr.B	PIPE 2.0	18	1773	512.8
10	A53 Gr.B	PIPE 3.0	15	702	412.1
11	Total HR Steel		45	3120.9	1360

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me... Surface(...
1	Self Weight	DL		-1			36	3
2	Wind Load AZI 0	WLX					72	240
3	Wind Load AZI 30	None					72	240
4	Wind Load AZI 60	None					72	240
5	Wind Load AZI 90	WLZ					72	240
6	Wind Load AZI 120	None					72	240
7	Wind Load AZI 150	None					72	240
8	Wind Load AZI 180	None					72	240
9	Wind Load AZI 210	None					72	240
10	Wind Load AZI 240	None					72	240
11	Wind Load AZI 270	None					72	240
12	Wind Load AZI 300	None					72	240
13	Wind Load AZI 330	None					72	240
14	Ice Weight	OL1					36	111
15	Ice Wind Load AZI 0	OL2					72	240
16	Ice Wind Load AZI 30	None					72	240
17	Ice Wind Load AZI 60	None					72	240
18	Ice Wind Load AZI 90	OL3					72	240
19	Ice Wind Load AZI 120	None					72	240
20	Ice Wind Load AZI 150	None					72	240
21	Ice Wind Load AZI 180	None					72	240
22	Ice Wind Load AZI 210	None					72	240
23	Ice Wind Load AZI 240	None					72	240
24	Ice Wind Load AZI 270	None					72	240
25	Ice Wind Load AZI 300	None					72	240
26	Ice Wind Load AZI 330	None					72	240
27	Seismic Load X	ELX			-.102		36	
28	Seismic Load Z	ELZ	-.102				36	
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	



Company : SMJ International, LLC
 Designer : DVA
 Job Number : 13677848_C8_03
 Model Name : Waterford Rebuild CT, CT

May 24, 2021

Checked By: _____

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(...
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						96	
56	BLC 14 Transient Area Loads	None						96	

Load Combinations

	Description	So..PD...	SR..	BLCFac...	BLC Fac...	BLC Fac...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
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 ...	Yes	Y	1	1.2	6	1						
7	1.2DL + 1WL AZI ...	Yes	Y	1	1.2	7	1						
8	1.2DL + 1WL AZI ...	Yes	Y	1	1.2	8	1						
9	1.2DL + 1WL AZI ...	Yes	Y	1	1.2	9	1						
10	1.2DL + 1WL AZI ...	Yes	Y	1	1.2	10	1						
11	1.2DL + 1WL AZI ...	Yes	Y	1	1.2	11	1						
12	1.2DL + 1WL AZI ...	Yes	Y	1	1.2	12	1						
13	1.2DL + 1WL AZI ...	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 ...	Yes	Y	1	.9	6	1						
19	0.9DL + 1WL AZI ...	Yes	Y	1	.9	7	1						
20	0.9DL + 1WL AZI ...	Yes	Y	1	.9	8	1						
21	0.9DL + 1WL AZI ...	Yes	Y	1	.9	9	1						
22	0.9DL + 1WL AZI ...	Yes	Y	1	.9	10	1						
23	0.9DL + 1WL AZI ...	Yes	Y	1	.9	11	1						
24	0.9DL + 1WL AZI ...	Yes	Y	1	.9	12	1						
25	0.9DL + 1WL AZI ...	Yes	Y	1	.9	13	1						
26	1.2D + 1.0Di	Yes	Y	1	1.2	14	1						
27	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	15	1				
28	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	16	1				
29	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	17	1				
30	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	18	1				
31	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	19	1				
32	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	20	1				
33	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	21	1				
34	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	22	1				
35	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	23	1				
36	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	24	1				
37	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	25	1				
38	1.2D + 1.0Di + 1.0...	Yes	Y	1	1.2	14	1	26	1				
39	(1.2 + 0.2Sds)DL ...	Yes	Y	1	1.2...	27	1	28					
40	(1.2 + 0.2Sds)DL ...	Yes	Y	1	1.2...	27	.866	28	.5				



Company : SMJ International, LLC
 Designer : DVA
 Job Number : 13677848_C8_03
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Load Combinations (Continued)

	Description	So.	PD	SR	BLCFac	BLC Fac	BLC Fac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac
41	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27	.5	28	.866				
42	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27		28	1				
43	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27	-.5	28	.866				
44	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27	-.866	28	.5				
45	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27	-1	28					
46	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27	-.866	28	-.5				
47	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27	-.5	28	-.866				
48	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27		28	-1				
49	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27	.5	28	-.866				
50	(1.2 + 0.2Sds)DL ...	Yes	Y		1	1.2...	27	.866	28	-.5				
51	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	1	28					
52	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	.866	28	.5				
53	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	.5	28	.866				
54	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27		28	1				
55	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	-.5	28	.866				
56	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	-.866	28	.5				
57	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	-1	28					
58	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	-.866	28	-.5				
59	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	-.5	28	-.866				
60	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27		28	-1				
61	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	.5	28	-.866				
62	(0.9 - 0.2Sds)DL +...	Yes	Y		1	.859	27	.866	28	-.5				
63	1.0DL + 1.5LL + 1...	Yes	Y		1	1	2	.056	29	1.5				
64	1.0DL + 1.5LL + 1...	Yes	Y		1	1	3	.056	29	1.5				
65	1.0DL + 1.5LL + 1...	Yes	Y		1	1	4	.056	29	1.5				
66	1.0DL + 1.5LL + 1...	Yes	Y		1	1	5	.056	29	1.5				
67	1.0DL + 1.5LL + 1...	Yes	Y		1	1	6	.056	29	1.5				
68	1.0DL + 1.5LL + 1...	Yes	Y		1	1	7	.056	29	1.5				
69	1.0DL + 1.5LL + 1...	Yes	Y		1	1	8	.056	29	1.5				
70	1.0DL + 1.5LL + 1...	Yes	Y		1	1	9	.056	29	1.5				
71	1.0DL + 1.5LL + 1...	Yes	Y		1	1	10	.056	29	1.5				
72	1.0DL + 1.5LL + 1...	Yes	Y		1	1	11	.056	29	1.5				
73	1.0DL + 1.5LL + 1...	Yes	Y		1	1	12	.056	29	1.5				
74	1.0DL + 1.5LL + 1...	Yes	Y		1	1	13	.056	29	1.5				
75	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	2	.056				
76	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	3	.056				
77	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	4	.056				
78	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	5	.056				
79	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	6	.056				
80	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	7	.056				
81	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	8	.056				
82	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	9	.056				
83	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	10	.056				
84	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	11	.056				
85	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	12	.056				
86	1.2DL + 1.5LM1 + ...	Yes	Y		1	1.2	34	1.5	13	.056				
87	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	2	.056				
88	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	3	.056				
89	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	4	.056				
90	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	5	.056				
91	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	6	.056				
92	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	7	.056				
93	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	8	.056				
94	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	9	.056				
95	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	10	.056				
96	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	11	.056				
97	1.2DL + 1.5LM2 + ...	Yes	Y		1	1.2	35	1.5	12	.056				



Company : SMJ International, LLC
 Designer : DVA
 Job Number : 13677848_C8_03
 Model Name : Waterford Rebuild CT, CT

May 24, 2021

Checked By: _____

Load Combinations (Continued)

	Description	So.	PD	SR	BLCFac	BLC Fac	BLC Fac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac
98	1.2DL + 1.5LM2 + ..	Yes	Y		1	1.2	35	1.5	13	.056				
99	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	2	.056				
100	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	3	.056				
101	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	4	.056				
102	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	5	.056				
103	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	6	.056				
104	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	7	.056				
105	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	8	.056				
106	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	9	.056				
107	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	10	.056				
108	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	11	.056				
109	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	12	.056				
110	1.2DL + 1.5LM3 + ..	Yes	Y		1	1.2	36	1.5	13	.056				
111	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	2	.056				
112	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	3	.056				
113	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	4	.056				
114	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	5	.056				
115	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	6	.056				
116	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	7	.056				
117	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	8	.056				
118	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	9	.056				
119	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	10	.056				
120	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	11	.056				
121	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	12	.056				
122	1.2DL + 1.5LM4 + ..	Yes	Y		1	1.2	37	1.5	13	.056				
123	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	2	.056				
124	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	3	.056				
125	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	4	.056				
126	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	5	.056				
127	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	6	.056				
128	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	7	.056				
129	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	8	.056				
130	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	9	.056				
131	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	10	.056				
132	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	11	.056				
133	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	12	.056				
134	1.2DL + 1.5LM5 + ..	Yes	Y		1	1.2	38	1.5	13	.056				
135	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	2	.056				
136	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	3	.056				
137	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	4	.056				
138	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	5	.056				
139	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	6	.056				
140	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	7	.056				
141	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	8	.056				
142	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	9	.056				
143	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	10	.056				
144	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	11	.056				
145	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	12	.056				
146	1.2DL + 1.5LM6 + ..	Yes	Y		1	1.2	39	1.5	13	.056				
147	1.2DL + 1.5LM7 + ..	Yes	Y		1	1.2	40	1.5	2	.056				
148	1.2DL + 1.5LM7 + ..	Yes	Y		1	1.2	40	1.5	3	.056				
149	1.2DL + 1.5LM7 + ..	Yes	Y		1	1.2	40	1.5	4	.056				
150	1.2DL + 1.5LM7 + ..	Yes	Y		1	1.2	40	1.5	5	.056				
151	1.2DL + 1.5LM7 + ..	Yes	Y		1	1.2	40	1.5	6	.056				
152	1.2DL + 1.5LM7 + ..	Yes	Y		1	1.2	40	1.5	7	.056				
153	1.2DL + 1.5LM7 + ..	Yes	Y		1	1.2	40	1.5	8	.056				
154	1.2DL + 1.5LM7 + ..	Yes	Y		1	1.2	40	1.5	9	.056				



Load Combinations (Continued)

	Description	So.	PD	SR	BLCFac	BLC Fac	BLC Fac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac
155	1.2DL + 1.5LM7 + ...	Yes	Y		1	1.2	40	1.5	10	.056				
156	1.2DL + 1.5LM7 + ...	Yes	Y		1	1.2	40	1.5	11	.056				
157	1.2DL + 1.5LM7 + ...	Yes	Y		1	1.2	40	1.5	12	.056				
158	1.2DL + 1.5LM7 + ...	Yes	Y		1	1.2	40	1.5	13	.056				
159	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	2	.056				
160	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	3	.056				
161	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	4	.056				
162	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	5	.056				
163	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	6	.056				
164	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	7	.056				
165	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	8	.056				
166	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	9	.056				
167	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	10	.056				
168	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	11	.056				
169	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	12	.056				
170	1.2DL + 1.5LM8 + ...	Yes	Y		1	1.2	41	1.5	13	.056				
171	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	2	.056				
172	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	3	.056				
173	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	4	.056				
174	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	5	.056				
175	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	6	.056				
176	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	7	.056				
177	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	8	.056				
178	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	9	.056				
179	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	10	.056				
180	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	11	.056				
181	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	12	.056				
182	1.2DL + 1.5LM9 + ...	Yes	Y		1	1.2	42	1.5	13	.056				
183	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	2	.056				
184	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	3	.056				
185	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	4	.056				
186	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	5	.056				
187	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	6	.056				
188	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	7	.056				
189	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	8	.056				
190	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	9	.056				
191	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	10	.056				
192	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	11	.056				
193	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	12	.056				
194	1.2DL + 1.5LM10 ...	Yes	Y		1	1.2	43	1.5	13	.056				
195	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	2	.056				
196	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	3	.056				
197	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	4	.056				
198	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	5	.056				
199	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	6	.056				
200	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	7	.056				
201	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	8	.056				
202	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	9	.056				
203	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	10	.056				
204	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	11	.056				
205	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	12	.056				
206	1.2DL + 1.5LM11 ...	Yes	Y		1	1.2	44	1.5	13	.056				
207	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	2	.056				
208	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	3	.056				
209	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	4	.056				
210	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	5	.056				
211	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	6	.056				



Load Combinations (Continued)

	Description	So.	PD	SR	BLCFac	BLC Fac	BLC Fac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac
212	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	7	.056				
213	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	8	.056				
214	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	9	.056				
215	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	10	.056				
216	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	11	.056				
217	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	12	.056				
218	1.2DL + 1.5LM12 ...	Yes	Y		1	1.2	45	1.5	13	.056				
219	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	2	.056				
220	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	3	.056				
221	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	4	.056				
222	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	5	.056				
223	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	6	.056				
224	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	7	.056				
225	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	8	.056				
226	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	9	.056				
227	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	10	.056				
228	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	11	.056				
229	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	12	.056				
230	1.2DL + 1.5LM13 ...	Yes	Y		1	1.2	46	1.5	13	.056				
231	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	2	.056				
232	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	3	.056				
233	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	4	.056				
234	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	5	.056				
235	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	6	.056				
236	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	7	.056				
237	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	8	.056				
238	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	9	.056				
239	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	10	.056				
240	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	11	.056				
241	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	12	.056				
242	1.2DL + 1.5LM14 ...	Yes	Y		1	1.2	47	1.5	13	.056				
243	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	2	.056				
244	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	3	.056				
245	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	4	.056				
246	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	5	.056				
247	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	6	.056				
248	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	7	.056				
249	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	8	.056				
250	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	9	.056				
251	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	10	.056				
252	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	11	.056				
253	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	12	.056				
254	1.2DL + 1.5LM15 ...	Yes	Y		1	1.2	48	1.5	13	.056				
255	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	2	.056				
256	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	3	.056				
257	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	4	.056				
258	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	5	.056				
259	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	6	.056				
260	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	7	.056				
261	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	8	.056				
262	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	9	.056				
263	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	10	.056				
264	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	11	.056				
265	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	12	.056				
266	1.2DL + 1.5LM16 ...	Yes	Y		1	1.2	49	1.5	13	.056				
267	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	2	.056				
268	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	3	.056				



Load Combinations (Continued)

	Description	So.	PD	SR	BLCFac	BLC Fac	BLC Fac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac	BLCFac
269	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	4	.056				
270	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	5	.056				
271	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	6	.056				
272	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	7	.056				
273	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	8	.056				
274	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	9	.056				
275	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	10	.056				
276	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	11	.056				
277	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	12	.056				
278	1.2DL + 1.5LM17 ...	Yes	Y		1	1.2	50	1.5	13	.056				
279	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	2	.056				
280	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	3	.056				
281	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	4	.056				
282	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	5	.056				
283	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	6	.056				
284	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	7	.056				
285	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	8	.056				
286	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	9	.056				
287	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	10	.056				
288	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	11	.056				
289	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	12	.056				
290	1.2DL + 1.5LM18 ...	Yes	Y		1	1.2	51	1.5	13	.056				
291	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	2	.056				
292	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	3	.056				
293	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	4	.056				
294	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	5	.056				
295	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	6	.056				
296	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	7	.056				
297	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	8	.056				
298	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	9	.056				
299	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	10	.056				
300	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	11	.056				
301	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	12	.056				
302	1.2DL + 1.5LM19 ...	Yes	Y		1	1.2	52	1.5	13	.056				
303	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	2	.056				
304	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	3	.056				
305	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	4	.056				
306	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	5	.056				
307	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	6	.056				
308	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	7	.056				
309	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	8	.056				
310	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	9	.056				
311	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	10	.056				
312	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	11	.056				
313	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	12	.056				
314	1.2DL + 1.5LM20 ...	Yes	Y		1	1.2	53	1.5	13	.056				
315	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	2	.056				
316	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	3	.056				
317	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	4	.056				
318	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	5	.056				
319	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	6	.056				
320	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	7	.056				
321	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	8	.056				
322	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	9	.056				
323	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	10	.056				
324	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	11	.056				
325	1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	12	.056				



Company : SMJ International, LLC
 Designer : DVA
 Job Number : 13677848_C8_03
 Model Name : Waterford Rebuild CT, CT

May 24, 2021

Checked By: _____

Load Combinations (Continued)

Description	So.	PD	SR	BLC Fac.	BLC Fac.	BLC Fac.	BLC Fac.	BLC Fac.	BLC Fac.	BLC Fac.	BLC Fac.	BLC Fac.	BLC Fac.
326 1.2DL + 1.5LM21 ...	Yes	Y		1	1.2	54	1.5	13	.056				

Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1 N1	max 5818.197	2	1380.6	20	2854.059	5	1521.882	5	4285.089	5	1101.601	2
2	min -4780.026	20	-1789.884	2	-2833.822	23	-1433.767	23	-4249.348	23	-963.171	20
3 N100	max 2703.967	14	1380.652	16	4269.142	16	1224.335	8	3965.871	13	1272.395	18
4	min -3220.535	8	-1789.919	10	-5173.258	10	-1145.155	14	-4280.024	19	-1415.247	12
5 N111	max 2871.107	14	1380.708	24	4904.589	6	1029.164	25	4284.516	9	1430.579	10
6	min -3398.285	8	-1789.979	6	-4010.568	24	-1155.201	7	-4280.073	15	-1423.863	4
7 N154	max 882.468	20	4656.563	2	117.612	23	0	1	0	1	0	1
8	min -1973.208	2	-2121.149	20	-129.743	5	0	1	0	1	0	1
9 N160	max 979.574	10	4656.675	10	1712.954	10	0	1	0	1	0	1
10	min -444.454	16	-2121.299	16	-762.446	16	0	1	0	1	0	1
11 N166	max 993.664	6	4656.786	6	766.189	24	0	1	0	1	0	1
12	min -438.057	24	-2121.398	24	-1704.876	6	0	1	0	1	0	1
13 Totals:	max 9040.321	14	5710.551	29	8564.555	5						
14	min -9040.319	20	2611.542	59	-8607.138	23						

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn y	phi*Mn z	Cb	Eqn
1	M6	PIPE 2.0	.837	18 13	.181	18		9	14916.0...	32130	1871.625	1871.625	2...	H1-1b
2	M38	PIPE 2.0	.832	18 5	.179	18		13	14916.0...	32130	1871.625	1871.625	2...	H1-1b
3	M24	PIPE 2.0	.832	18 9	.181	18		5	14916.0...	32130	1871.625	1871.625	2...	H1-1b
4	M47	PIPE 2.0	.793	48.563 7	.155	48.563		11	8922.084	32130	1871.625	1871.625	2...	H1-1b
5	M19	PIPE 2.0	.793	48.563 3	.155	48.563		7	8922.084	32130	1871.625	1871.625	2...	H1-1b
6	M33	PIPE 2.0	.793	48.563 11	.155	48.563		3	8922.084	32130	1871.625	1871.625	1...	H1-1b
7	M37	PIPE 2.0	.779	95.312 12	.644	140....		7	6295.422	32130	1871.625	1871.625	3...	H3-6
8	M23	PIPE 2.0	.779	95.312 4	.644	140....		11	6295.422	32130	1871.625	1871.625	3...	H3-6
9	M5	PIPE 2.0	.779	95.313 8	.644	140....		3	6295.422	32130	1871.625	1871.625	3...	H3-6
10	M12	PIPE 2.0	.638	18 13	.240	18		8	14916.0...	32130	1871.625	1871.625	2...	H1-1b
11	M41	PIPE 2.0	.629	18 5	.240	18		12	14916.0...	32130	1871.625	1871.625	1...	H1-1b
12	M27	PIPE 2.0	.629	18 9	.240	18		4	14916.0...	32130	1871.625	1871.625	2...	H1-1b
13	M30	PIPE 2.0	.586	18 12	.242	18		4	14916.0...	32130	1871.625	1871.625	2...	H1-1b
14	M15	PIPE 2.0	.586	18 4	.242	18		8	14916.0...	32130	1871.625	1871.625	2...	H1-1b
15	M44	PIPE 2.0	.585	18 8	.242	18		12	14916.0...	32130	1871.625	1871.625	2...	H1-1b
16	M86	PIPE 2.0	.518	27 10	.351	0		11	30237.7...	32130	1871.625	1871.625	2...	H3-6
17	M91	PIPE 2.0	.518	27 6	.351	0		7	30237.7...	32130	1871.625	1871.625	2...	H3-6
18	M96	PIPE 2.0	.518	27 2	.351	0		3	30237.7...	32130	1871.625	1871.625	2...	H3-6
19	M18	PIPE 3.0	.392	0 13	.202	9		6	64856.8...	65205	5748.75	5748.75	1...	H1-1b
20	M68	PIPE 3.0	.378	0 5	.202	9		10	64856.8...	65205	5748.75	5748.75	1...	H1-1b
21	M59	PIPE 3.0	.378	0 9	.202	9		2	64856.8...	65205	5748.75	5748.75	1...	H1-1b
22	M62	PIPE 3.0	.365	0 11	.193	9		6	64856.8...	65205	5748.75	5748.75	1...	H1-1b
23	M52	PIPE 3.0	.365	0 3	.193	9		10	64856.8...	65205	5748.75	5748.75	1...	H1-1b
24	M71	PIPE 3.0	.365	0 7	.193	9		2	64856.8...	65205	5748.75	5748.75	1...	H1-1b
25	M55	PIPE 3.0	.324	0 12	.153	0		7	63059.5...	65205	5748.75	5748.75	1...	H1-1b
26	M2	PIPE 3.0	.324	0 4	.153	0		11	63059.5...	65205	5748.75	5748.75	1...	H1-1b
27	M64	PIPE 3.0	.324	0 8	.153	0		3	63059.5...	65205	5748.75	5748.75	1...	H1-1b
28	M101	LL3x3x3x6	.307	80.623 12	.013	80.623 z		5	43688.5...	70632	6361.6	2344.607	1...	H1-1b
29	M111	LL3x3x3x6	.307	80.623 4	.013	80.623 z		9	43688.5...	70632	6361.6	2344.607	1...	H1-1b
30	M106	LL3x3x3x6	.307	80.623 8	.014	80.623 z		13	43688.5...	70632	6361.6	2344.607	1...	H1-1b
31	M65	PIPE 3.0	.294	0 4	.169	0		10	63059.5...	65205	5748.75	5748.75	1...	H1-1b
32	M3	PIPE 3.0	.294	0 12	.169	0		6	63059.5...	65205	5748.75	5748.75	1...	H1-1b
33	M56	PIPE 3.0	.294	0 8	.169	0		2	63059.5...	65205	5748.75	5748.75	1...	H1-1b



Company : SMJ International, LLC
 Designer : DVA
 Job Number : 13677848_C8_03
 Model Name : Waterford Rebuild CT, CT

May 24, 2021

Checked By: _____

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn y	phi*Mn z	Cb	Eqn
34	M63	HSS5x3x6	.251	0	3	.170	0	z	9	160291....	197892	17595	25323	2...H1-1b
35	M54	HSS5x3x6	.251	0	7	.167	0	z	13	160291....	197892	17595	25323	2...H1-1b
36	M1	HSS5x3x6	.250	0	11	.170	0	z	5	160291....	197892	17595	25323	2...H1-1b
37	M22	PIPE 3.0	.195	134....	12	.266	46.875		10	59751.68	65205	5748.75	5748.75	2...H1-1b
38	M4	PIPE 3.0	.195	134....	4	.266	46.875		2	59751.68	65205	5748.75	5748.75	2...H1-1b
39	M36	PIPE 3.0	.195	134....	8	.266	46.875		6	59751.68	65205	5748.75	5748.75	2...H1-1b
40	M87	L1.75x1.75x2	.126	18.039	9	.008	35.341	z	13	7783.514	13668.75	300.367	561.47	1...H2-1
41	M92	L1.75x1.75x2	.126	18.039	5	.008	0	z	9	7783.514	13668.75	300.367	561.461	1...H2-1
42	M9	L1.75x1.75x2	.120	18.039	13	.008	0	z	5	7783.514	13668.75	300.367	561.465	1...H2-1
43	M93	L1.75x1.75x2	.113	17.302	7	.008	0	z	3	7783.514	13668.75	300.367	564.011	1...H2-1
44	M53	L1.75x1.75x2	.113	17.302	3	.008	0	z	11	7783.514	13668.75	300.367	564.015	1...H2-1
45	M88	L1.75x1.75x2	.112	17.302	11	.008	35.341	z	7	7783.514	13668.75	300.367	564.018	1...H2-1



BOLT CONNECTION CALCULATION

BOLT PROPERTIES

Date:	5/24/2021
Site:	Waterford Rebuild CT, CT
Engineer:	DVA
Project No:	13677848_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, F_u	120	ksi
Threads Exclusion	N	
Shear Plane	1	
Net Bolt Cross-Sectional Area, A_n	0.226	in ²
Gross Bolt Cross-Sectional Area, A_g	0.307	in ²
Tensile Steel Strength (per bolt), φR_{nt}	20340	lbs
Shear Steel Strength (per bolt), φR_{nv}	13806	lbs

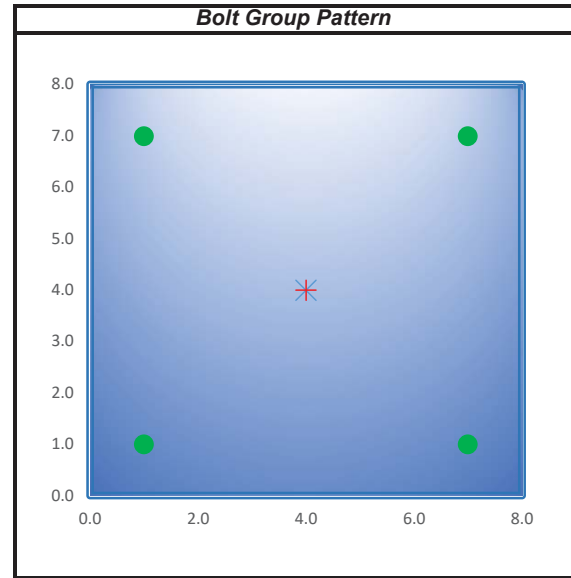
BOLT CONNECTION CALCULATION

BOLT GROUP CHECK

Date:	5/24/2021
Contractor:	SMJ International
Site:	Waterford Rebuild CT, CT
Engineer:	DVA
Project No:	13677848_C8_03
Connection Location:	Arm to Tower

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)	-571.000	0	0	0	0
Shear Load, Py (lbs)	-1663.000	0	0	0	0
Axial Load, Pz (lbs)	5018.000	0	0	0	0
Moment, Mx (lb-in)	1031.000	0	0	0	0
Moment, My (lb-in)	-410.000	0	0	0	0
Moment, Mz (lb-in)	686.000	0	0	0	0

Member Properties		
	X	Y
Start Coordinates:	0.0	0.0
Dimensions:	8.0	8.0



Number of Bolts

No.	Bolt Type	Bolt Coordinates		Bolt Loads			Steel Bolt Usage		
		Xo (in)	Yo (in)	Axial (lbs)	Shear (lbs)	Tension	Shear	Combined	Max. Capacity
1	Main Type	1.0	1.0	1134.42	423.38	5.6%	3.1%	5.6%	5.6%
2	Main Type	7.0	1.0	1202.75	476.22	5.9%	3.4%	5.9%	5.9%
3	Main Type	1.0	7.0	1306.25	403.65	6.4%	2.9%	6.4%	6.4%
4	Main Type	7.0	7.0	1374.58	458.77	6.8%	3.3%	6.8%	6.8%

Bolt Group Properties:	
Xc =	4.00 in.
Yc =	4.00 in.
Ic.y =	11.04 in.^2
Ic.x =	11.04 in.^2
Ic.xy =	22.09 in.^2

Loads at Center of Gravity of Bolt Group:		
Pz =	5018.00	lbs
Px =	-571.00	lbs
Py =	-1663.00	lbs
Mx =	1031.00	lb-in
My =	-410.00	lb-in
Mz =	686.00	lb-in

Total Capacity of Bolt Group:

RAN Template: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
---	--

Section 1 - Site Information

Site ID: CT11641A
Status: Draft
Version: 4
Project Type: Anchor
Approved: Not Approved
Approved By: Not Approved
Last Modified: 4/17/2021 11:16:28 PM
Last Modified By: Dominic.Kallas2@T-Mobile.com

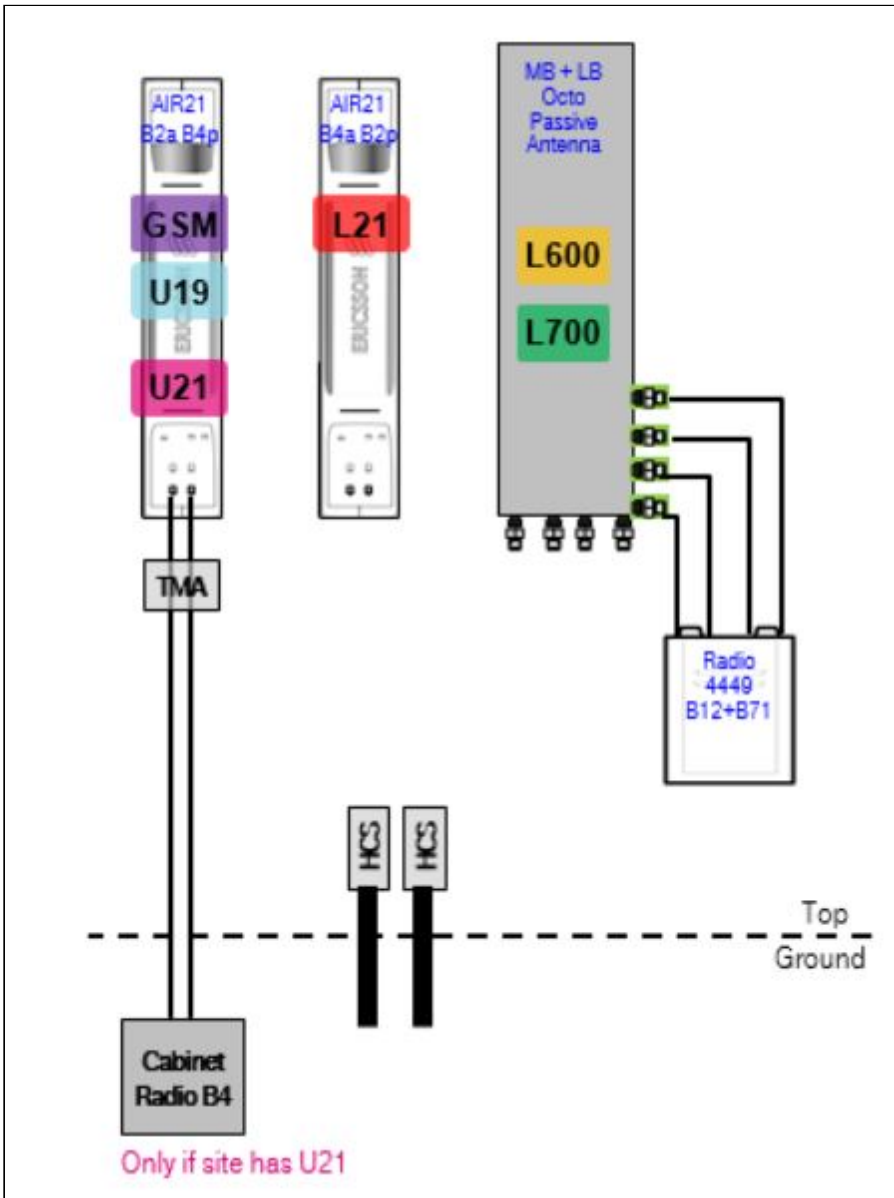
Site Name: CT641/SSite Waterford_MP
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Spectrasite

Latitude: 41.32909519
Longitude: -72.12463560
Address: 85 Miner Lane
City, State: Waterford, CT
Region: NORTHEAST

RAN Template: 67D5A998C Outdoor		AL Template: 67D5998C_1xAIR+1QP+1OP		
Sector Count: 3	Antenna Count: 9	Coax Line Count: 0	TMA Count: 0	RRU Count: 9

Section 2 - Existing Template Images

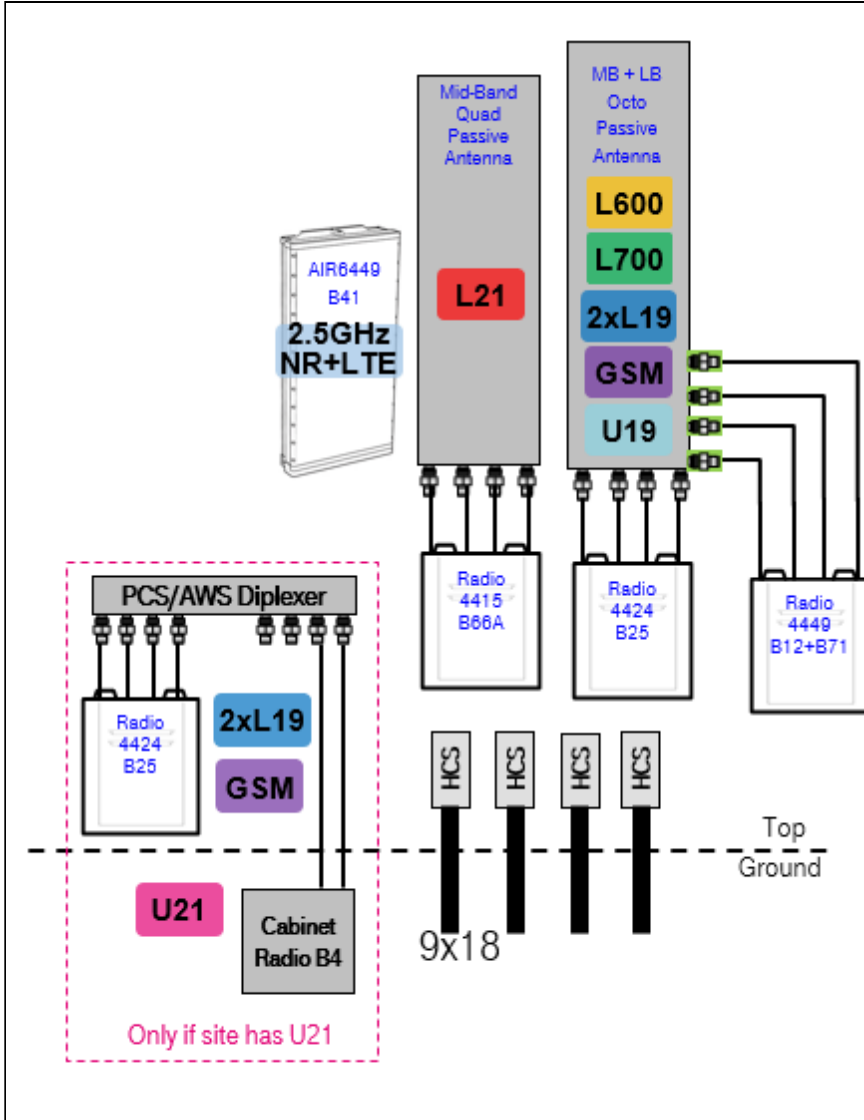
67D02C.JPG



Notes:

Section 3 - Proposed Template Images

67D5998C_1xAIR+1QP+1OP.PNG



Notes:

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

RAN Template: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
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Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67D02C Outdoor

Enclosure	1	2	3
Enclosure Type	RBS 6131	Ancillary Equipment (Ericsson)	S8000 Outdoor
Baseband	DUW30 U1900 DUG20 G1900 BB 6630 L700 L600 N600 BB 6630 L2100		
Hybrid Cable System		Ericsson 9x18 HCS *Select Length* Ericsson 6x12 HCS *Select Length & AWG* (x 2)	

Proposed RAN Equipment

Template: 67D5A998C Outdoor

Enclosure	1	2	3
Enclosure Type	RBS 6131	Enclosure 6160	B160
Baseband	DUG20 G1900 BB 6630 L700 L600 N600 BB 6630 L1900 L2100	BB 6648 L2500 N2500	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 2)	Ericsson Hybrid Trunk 6/24 4AWG 50m (x 3) PSU 4813	
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

- Remove Nortel Cabinet.
- U1900 will be decommissioned. Remove DUW30 from existing base station cabinet.
- Add (1) Enclosure 6160.
- Add (1) Battery Cabinet B160.
- Add (1) iXRe Router to new Enclosure 6160.
- Add (1) BB6648 for L2500 and N2500 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.
- Add (1) PSU4813 Voltage Booster to new Enclosure 6160.
- Existing: (6) Coaxial Lines; (2) HCS
- Remove all coaxial lines.
- Remove 9X18 HCS if present.
- Add (3) 6X24 HCS ([1] per sector) terminating at the Enclosure 6160. Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster.

RAN Template: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
---	--

Section 6 - A&L Equipment

Existing Template: 67D02C_2xAIR+1OP
Proposed Template: 67D5998C_1xAIR+1QP+1OP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2			3		
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		
Azimuth	60		60			60		
M. Tilt	0		0			0		
Height	130		130			130		
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				2	
Cables	Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 160 ft. (x2)	Fiber Jumper - 15 ft. (x2) Coax Jumper (x2)	Coax Jumper (x2)			Fiber Jumper - 15 ft. (x2)	
TMA's								
Diplexers / Combiners								
Radio			Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (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: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
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Sector 1 (Proposed) view from behind											
Coverage Type	A - Outdoor Macro										
Antenna	1		2				3				
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)				
Azimuth	60		60				60				
M. Tilt	0		0				0				
Height	130		130				130				
Ports	P1		P2		P3	P4	P5	P6	P7		P8
Active Tech.	L2500	N2500	L2500	N2500	L700	L700	L1900	L1900	L2100	L2100	
Dark Tech.					L600	L600	G1900	G1900			
Restricted Tech.					N600	N600					
Decomm. Tech.											
E. Tilt	2	2	2	2	2	2	2	2	2	2	
Cables	Fiber Jumper (x2)	Fiber Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Fiber Jumper	Coax Jumper (x2)	Fiber Jumper
TMA's											
Diplexers / Combiners											
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4424 B25 (At Antenna)	SHARED Radio 4424 B25 (At Antenna)	Radio 4415 B66A (At Antenna)	SHARED Radio 4415 B66A (At Antenna)			
Sector Equipment											

Unconnected Equipment:

Scope of Work:

- Remove all TMA's.
- Remove all coaxial lines.
- Remove AIR21 B2A/B4P from Position 1.
- Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.
- Add (1) Radio 4424 B25 for L1900 (Both Carriers) and GSM to Position 2 near antenna, and connect its ports to the Mid-Band ports of the Octo Antenna.
- Replace AIR21 B2P/B4A with (1) Mid-Band Quad for L2100 in Position 3.
- Add (1) Radio 4415 B66 for L2100 to Position 3 at antenna.
- Ensure RET control is enabled for all technology layers according to the Design Documents.

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

RAN Template: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
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Sector 2 (Existing) view from behind								
Coverage Type	A - Outdoor Macro							
Antenna	1		2			3		
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		
Azimuth	180		180			180		
M. Tilt	0		0			0		
Height	130		130			130		
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				2	
Cables	Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 160 ft. (x2)	Fiber Jumper - 15 ft. (x2) Coax Jumper (x2)	Coax Jumper (x2)			Fiber Jumper - 15 ft. (x2)	
TMA's								
Diplexers / Combiners								
Radio			Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (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: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
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Sector 2 (Proposed) view from behind										
Coverage Type	A - Outdoor Macro									
Antenna	1		2				3			
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)			
Azimuth	180		180				180			
M. Tilt	0		0				0			
Height	130		130				130			
Ports	P1		P2		P3	P4	P5	P6	P7	P8
Active Tech.	L2500	N2500	L2500	N2500	L700	L700	L1900	L1900	L2100	L2100
Dark Tech.					L600	L600	G1900	G1900		
Restricted Tech.					N600	N600				
Decomm. Tech.										
E. Tilt	2	2	2	2	2	2	2	2	2	
Cables	Fiber Jumper (x2)	Fiber Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)	Coax Jumper (x2)
TAMs			Fiber Jumper	Fiber Jumper	Fiber Jumper (x2)	Fiber Jumper (x2)	Fiber Jumper (x2)	Fiber Jumper (x2)	Fiber Jumper	Fiber Jumper
Diplexers / Combiners										
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4424 B25 (At Antenna)	SHARED Radio 4424 B25 (At Antenna)	Radio 4415 B66A (At Antenna)	SHARED Radio 4415 B66A (At Antenna)		
Sector Equipment										

Unconnected Equipment:

Scope of Work:

- Remove all TAMs.
- Remove all coaxial lines.
- Remove AIR21 B2A/B4P from Position 1.
- Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.
- Add (1) Radio 4424 B25 for L1900 (Both Carriers) and GSM to Position 2 near antenna, and connect its ports to the Mid-Band ports of the Octo Antenna.
- Replace AIR21 B2P/B4A with (1) Mid-Band Quad for L2100 in Position 3.
- Add (1) Radio 4415 B66 for L2100 to Position 3 at antenna.
- Ensure RET control is enabled for all technology layers according to the Design Documents.

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

RAN Template: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
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Sector 3 (Existing) view from behind										
Coverage Type	A - Outdoor Macro									
Antenna	1		2				3			
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)			
Azimuth	300		300				300			
M. Tilt	0		0				0			
Height	130		130				130			
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				2	
Cables	Fiber Jumper - 15 ft. (x2)		1-5/8" Coax - 160 ft. (x2)		Fiber Jumper - 15 ft. (x2) Coax Jumper (x2)	Coax Jumper (x2)			Fiber Jumper - 15 ft. (x2)	
TMA's										
Diplexers / Combiners										
Radio					Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (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: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
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Sector 3 (Proposed) view from behind										
Coverage Type	A - Outdoor Macro									
Antenna	1		2				3			
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)			
Azimuth	300		300				300			
M. Tilt	0		0				0			
Height	130		130				130			
Ports	P1		P2		P3	P4	P5	P6	P7	P8
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L1900 G1900	L1900 G1900	L2100	L2100		
Dark Tech.										
Restricted Tech.										
Decomm. Tech.										
E. Tilt	2	2	2	2	2	2	2	2	2	
Cables	Fiber Jumper (x2)	Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	
TMAS										
Diplexers / Combiners										
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4424 B25 (At Antenna)	SHARED Radio 4424 B25 (At Antenna)	Radio 4415 B66A (At Antenna)	SHARED Radio 4415 B66A (At Antenna)		
Sector Equipment										

Unconnected Equipment:

Scope of Work:

- Remove all TMAs.
- Remove all coaxial lines.
- Remove AIR21 B2A/B4P from Position 1.
- Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.
- Add (1) Radio 4424 B25 for L1900 (Both Carriers) and GSM to Position 2 near antenna, and connect its ports to the Mid-Band ports of the Octo Antenna.
- Replace AIR21 B2P/B4A with (1) Mid-Band Quad for L2100 in Position 3.
- Add (1) Radio 4415 B66 for L2100 to Position 3 at antenna.
- Ensure RET control is enabled for all technology layers according to the Design Documents.

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

RAN Template: 67D5A998C Outdoor	A&L Template: 67D5998C_1xAIR+1QP+1OP
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Section 7 - Power Systems Equipment

Existing Power Systems Equipment

----- This section is intentionally blank. -----

Proposed Power Systems Equipment

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

T-Mobile Existing Facility

Site ID: CT11641A

CT641/SSite Waterford_MP
85 Miner Lane
Waterford, Connecticut 06385

June 23, 2021

EBI Project Number: 6221003177

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	20.20%

June 23, 2021

T-Mobile

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

Emissions Analysis for Site: CT11641A - CT641/SSite Waterford_MP

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **85 Miner Lane in Waterford, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is $1000 \mu\text{W}/\text{cm}^2$. 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 85 Miner Lane in Waterford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 13) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values

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

- 14) The antenna mounting height centerline of the proposed antennas is 130 feet above ground level (AGL).
- 15) 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.
- 16) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna AI MPE %:	8.50%	Antenna BI MPE %:	8.50%	Antenna CI MPE %:	8.50%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	12,873.80	ERP (W):	12,873.80	ERP (W):	12,873.80
Antenna A2 MPE %:	4.32%	Antenna B2 MPE %:	4.32%	Antenna C2 MPE %:	4.32%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APX16DWWV-16DWWV-S-E-A20	Make / Model:	RFS APX16DWWV-16DWWV-S-E-A20	Make / Model:	RFS APX16DWWV-16DWWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A3 MPE %:	1.09%	Antenna B3 MPE %:	1.09%	Antenna C3 MPE %:	1.09%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	13.92%
AT&T	2.64%
Clearwire	0.12%
Town of Waterford	0.4%
USA Mobility	0.3%
Springwich Paging	0.25%
Cingular Yagi	0.3%
Verizon	2.27%
Site Total MPE % :	20.20%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	13.92%
T-Mobile Sector B Total:	13.92%
T-Mobile Sector C Total:	13.92%
Site Total MPE % :	20.20%

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 ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	130.0	25.82	2500 MHz LTE IC & 2C Traffic	1000	2.58%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	130.0	2.51	2500 MHz LTE IC & 2C Broadcast	1000	0.25%
T-Mobile 2500 MHz NR Traffic	1	22089.26	130.0	51.65	2500 MHz NR Traffic	1000	5.16%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	130.0	5.02	2500 MHz NR Broadcast	1000	0.50%
T-Mobile 600 MHz LTE	2	591.73	130.0	2.77	600 MHz LTE	400	0.69%
T-Mobile 600 MHz NR	1	1577.94	130.0	3.69	600 MHz NR	400	0.92%
T-Mobile 700 MHz LTE	2	648.82	130.0	3.03	700 MHz LTE	467	0.65%
T-Mobile 1900 MHz GSM	4	1101.85	130.0	10.31	1900 MHz GSM	1000	1.03%
T-Mobile 1900 MHz LTE	2	2203.69	130.0	10.31	1900 MHz LTE	1000	1.03%
T-Mobile 2100 MHz LTE	2	2334.27	130.0	10.92	2100 MHz LTE	1000	1.09%
						Total:	13.92%

• 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:	13.92%
Sector B:	13.92%
Sector C:	13.92%
T-Mobile Maximum MPE % (Sector A):	13.92%
Site Total:	20.20%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **20.20%** 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.