



10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

June 28, 2019

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

RE: Notice of Exempt Modification
515 Post Road East, Westport, CT 06880
Latitude: 41.1402760000
Longitude: -73.3463850000
T-Mobile Site#: CT11295A – L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 82-foot level of the existing 148-foot monopole at 515 Post Road East, Westport, CT. The 148-foot monopole and property are owned by the Town of Westport. T-Mobile now intends to remove the nine (9) existing antennas and install six (6) new 600/700/1900/2100 MHz antennas. The new antennas will be installed at the same 82-foot level of the tower. Modifications to the existing mounts will also be completed to accommodate the modified equipment.

Planned Modifications:

Tower:

Remove

(3) APXV18-206516S-C-A20 Antenna

Remove and Replace:

(3) LNX-6515DS (Remove) - APXVAARR24_43-U-NA20 Antenna (Replace) 600/700/1900/2100 MHz

(3) APXV18-206516S-C-A20 (Remove) – AIR 32 B66A B2A Antenna (Replace) 1900/2100 Mhz

(3) RRRUS11B12 (Remove) – Radio 4449 B71+B12 (Replace)

Install New:

(3) 1-3/8" Hybrid Cables

Platform/Handrail Reinforcement Kit

Mounting Pipe

Existing to Remain:

(6) TMA

(12) 7/8" coax

(6) cables

Ground:

Install New: Equipment inside existing 6102 cabinet

This tower facility was approved by the Town of Westport on January 23, 1997 in Resolution #96-130. This modification complies with this approval. Please see the enclosed.

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 -Jim Marpe, Elected Official, and Mary Young, Planning and Zoning Director for the Town of Westport.

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,

Kyle Richers

Transcend Wireless

Cell: 908-447-4716

Email: krichers@transcendwireless.com

Attachments

cc: Jim Marpe – Town of Westport First Selectman

Mary Young– Town of Westport Planning & Zoning Director

UPS Internet Shipping: View/Print Label

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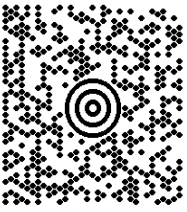
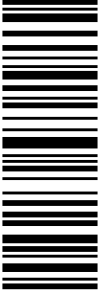
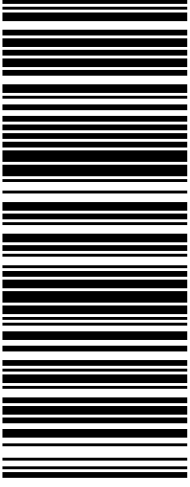

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FOLD HERE

NEIL GUERRIERO 3473040176 TRANSCEND WIRELESS 10 INDUSTRIAL AVE MAHWAH NJ 07430	1 LBS 1 OF 1	SHIP TO: MARY YOUNG TOWN OF WESTPORT ROOM 203 110 MYRTLE AVENUE WESTPORT CT 06880-3514		CT 066 9-02 	UPS GROUND TRACKING #: 1Z V25 742 42 9491 0046 	BILLING: P/P SIGNATURE REQUIRED	Reference No.1: CT11295A CSC ZO <small>UIS 21.2.09. WINTNV50 12.04.04/2019</small> 
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515 POST RD E**Location** 515 POST RD E**Mblu** E09/ / 064/000 /**Acct#** 531816**Owner** WESTPORT TOWN OF**Assessment** \$4,161,200**Appraisal** \$5,944,600**PID** 10376**Building Count** 1**Current Value**

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$3,167,800	\$2,776,800	\$5,944,600
Assessment			
Valuation Year	Improvements	Land	Total
2015	\$2,217,400	\$1,943,800	\$4,161,200

Owner of Record

Owner WESTPORT TOWN OF
Co-Owner FIRE HOUSE
Address 110 MYRTLE AVE
 WESTPORT, CT 06880


Sale Price \$0
Certificate 1
Book & Page 523/ 172
Sale Date 09/17/1979
Instrument 29

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
WESTPORT TOWN OF	\$0	1	523/ 172	29	09/17/1979

Building Information**Building 1 : Section 1**

Year Built: 1900
Living Area: 19,523
Replacement Cost: \$3,901,085
Building Percent Good: 80
Replacement Cost Less Depreciation: \$3,120,900

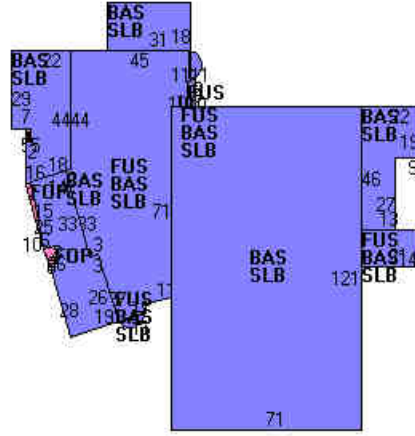
Building Photo
 Building Photo

(<http://images.vgsi.com/photos2/WestportCTPhotos/\00\03\19/>)

Building Attributes

No Data for Building Attributes

Building Layout



(<http://images.vgsi.com/photos2/WestportCTPhotos//Sketches/1>)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	15,653	15,653
FUS	Upper Story, Finished	3,870	3,870
FOP	Porch, Open	60	0
SLB	Slab	15,653	0
		35,236	19,523

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 928
Description Fire Dept
Zone GBD
Neighborhood I
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 1.28
Frontage 0
Depth 0
Assessed Value \$1,943,800
Appraised Value \$2,776,800

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	Paving Asph.			25000 S.F.	\$46,900	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$3,167,800	\$2,776,800	\$5,944,600
2017	\$3,167,800	\$2,776,800	\$5,944,600
2016	\$3,167,800	\$2,776,800	\$5,944,600

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$2,217,400	\$1,943,800	\$4,161,200
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2016	\$2,217,400	\$1,943,800	\$4,161,200

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#355



WESTPORT CONNECTICUT

PLANNING & ZONING DEPARTMENT
TOWN HALL, 110 MYRTLE AVENUE
WESTPORT, CONNECTICUT 06880
(203) 226-8311

Hearing: January 23, 1997
Decision: January 23, 1997

January 27, 1997

Richard Gough, Fire Chief/Fire Marshall
Town of Westport Fire Department
515 Post Road East
Westport, CT 06880

Re: 515 Post Road East, Appl. #96-130

Dear Mr. Gough:

This is to certify that at a meeting of the Westport Planning and Zoning Commission held on January 23, 1997 it was moved by Bill Crowther and seconded by David Marks to adopt the following resolution.

RESOLUTION #96-130

WHEREAS, the Planning and Zoning Commission met on January 23, 1997 and made the following findings:

1. The Communications Tower will provide enhanced transmission service to the citizens of this town, and the region.
2. The Town of Westport will be able to locate its own transmission equipment on the Tower.
3. The tower will be constructed at no cost to the Town.
4. The tower has received a height variance from the Zoning Board of Appeals.

NOW THEREFORE, BE IT RESOLVED that Application #96-130 by the Westport Fire Department & Sprint for property owned by the Town of Westport for a Special Permit and Site Plan review to replace existing 100' monopole tower with new 150' monopole tower to improve communications; in a CBD.

JAN 30 '97 09:55 TOWN OF WESTPORT CT

P.5/6

**WESTPORT CONNECTICUT**

PLANNING & ZONING DEPARTMENT
TOWN HALL, 110 MYRTLE AVENUE
WESTPORT, CONNECTICUT 06880
(203) 226-8311

Hearing: January 23, 1997
Decision: January 23, 1997

January 27, 1997

Honorable Joseph Arcudi, First Selectman
110 Myrtle Avenue
Town Hall
Westport, CT 06880

Re: §8-24 Report, Leasing of portion of Fire Station premises for siting of a telecommunications tower

Dear Mr. Arcudi:

In response to your request for an §8-24 report on the leasing of a telecommunications tower to Sprint Spectrum for telecommunications purposes the Planning and Zoning Commission offers the following findings and recommendations for your consideration:

I. BACKGROUND:

- A. 1987 Town Plan of Development: No particular comments
- B. Existing Zoning: GBD
- C. Existing Land Use: Municipal, Fire and Building Departments, plus existing telecommunications tower.
- D. Public Utilities: All public utilities exist on site.
- E. Description: The proposed tower will be constructed by and leased to Sprint Spectrum, as per conditions outlined in the lease. Town telecommunications equipment will also be located on the tower. The tower will become the property of the Town upon conclusion of the lease and extension periods. Construction of the tower will be at Sprint Spectrum's expense.

515 Post Road East, Appl. #96-130
Page 2

Map 5318-1, Lot 6 be Granted for the following reasons and subject to the conditions listed below:

Reasons:

Whereas, the proposed use has been found to be in conformance with the Town Plan of Development; and it will

1. be in conformance with the applicable zoning regulations of the Town of Westport; and
2. not prevent or inhibit the orderly growth and development of the area; and
3. not have a significant adverse affect on adjacent areas located within the close proximity to the use, and
4. not obstruct significant views which are important elements in maintaining the character of the Town or neighborhood for the purpose of promoting the general welfare and conserving the value of buildings; and
5. be in scale with and compatible with surrounding uses, buildings, streets and open spaces.

Conditions:

1. Conformance to ZBA Variance #5347 which states:
 - Mindful of the mandate of the Telecommunications Act of 1996, The Town shall not unreasonably discriminate among providers of functionally equivalent services; The Town shall encourage co-location of other commercial providers of such services on this monopole. The Town shall retain the discretion to allow additional commercial users licensed by the FCC on this monopole.
 - The proposed tower can not exceed 150' in total height
2. Conformance to Existing Conditions Map prepared by Christopher Moomaw, dated 3/23/81, revised to 8/3/81 and received by P&Z on 11/22/96.
3. Conformance to Preliminary Site Plan and Base Equipment, prepared by Jerry Gore, dated 9/27, and

Honorable Joseph Arcudi, First Selectman
Page 2

F. Other Information: The Zoning Board of Appeals granted a height variance on January 21, 1997, that allows the monopole tower to be up to 150' in height, measured from ground level.

II. FINDINGS

- a. The required variance has been received from the Zoning Board of Appeals, and the Special Permit/Site Plan Approval has been approved by the Planning and Zoning Commission.
- b. The Town Attorney has reviewed the lease and his revisions should be incorporated into the final version.
- c. The Board of Selectman will vote on the lease.


After discussion, it was moved by William Crowther and seconded by David Marks to issue a positive report to the First Selectman on the lease of this property.

VOTE:

Ayes: -7- (Lowenstein, Graham, Porro,
MacLachlan, Marks, Mimms, Crowther)

Nays: -0-

Abstentions: -0-

Sincerely,

 Eleanor Lowenstein,
 Chairman;
 Planning and Zoning Commission

cc: Board of Selectman
 Chairman, Board of Finance
 RTM Moderator
 Chairman, P&Z Study Committee
 Director of Public Works
 Conservation Director
 Chief, Fire Department
 Town Attorney

SITE NAME: WESTPORT FD SPRINT TOWER

515 POST RD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY

SITE NUMBER: CT11295A

RF DESIGN GUIDELINE: 67D94DB Hybrid

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A: ANTENNA/TMA/RADIO	ACCESS NOT PERMITTED
SECTOR B: ANTENNA/TMA/RADIO	ACCESS NOT PERMITTED
SECTOR C: ANTENNA/TMA/RADIO	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED CAUTION: OSHA-APPROVED PORTABLE 8' STEP-LADDER REQUIRED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

T-MOBILE NORTHEAST LLC

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

Transcend Wireless

TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

HG
HUDSON
Design Group LLC

45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

GENERAL NOTES

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

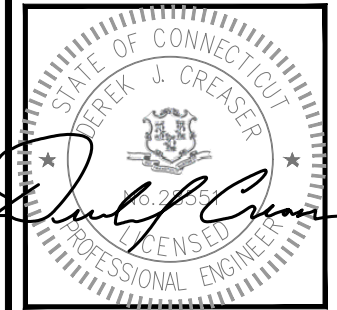
THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

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



PROJECT SUMMARY

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION
ZONING JURISDICTION:	BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).
SITE ADDRESS:	515 POST RD EAST WESTPORT, CT 06880
LATITUDE:	41° 08' 24.60" N
LONGITUDE:	73° 20' 50.20" W
JURISDICTION:	TOWN OF FAIRFIELD, CT
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY



CHECKED BY: RP

APPROVED BY: DJC



SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/25/19	REVISED FOR CONSTRUCTION	VP
0	06/05/19	ISSUED FOR CONSTRUCTION	SG

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE

72 HOURS

 **CALL BEFORE YOU DIG** 
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

DRAWING INDEX

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A-3	DETAILS	1
SN-1	SPECIAL INSPECTIONS NOTES	1
S-1	STRUCTURAL DETAILS	1
E-1	ONE-LINE DIAGRAM AND GROUNDING DETAILS	1

SITE NUMBER:
CT11295A

SITE NAME:
WESTPORT FD
SPRINT TOWER
SITE ADDRESS:
515 POST RD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY

SHEET TITLE

TITLE SHEET
(L600)

SHEET NUMBER

T-1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – TRANSCEND WIRELESS
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – T-MOBILE
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
 BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
 ELECTRICAL CODE: 2017 NATIONAL ELECTRIC CODE (NFPA 70)
 LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

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

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

ABBREVIATIONS					
AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

**T-MOBILE
NORTHEAST LLC**

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

Transcend Wireless

TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

**HG
HUDSON
Design Group LLC**

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N. ANDOVER, MA 01845
TEL: (978) 557-5553
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APPROVED BY: DJC

SUBMITTALS			
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0	06/05/19	ISSUED FOR CONSTRUCTION	SG

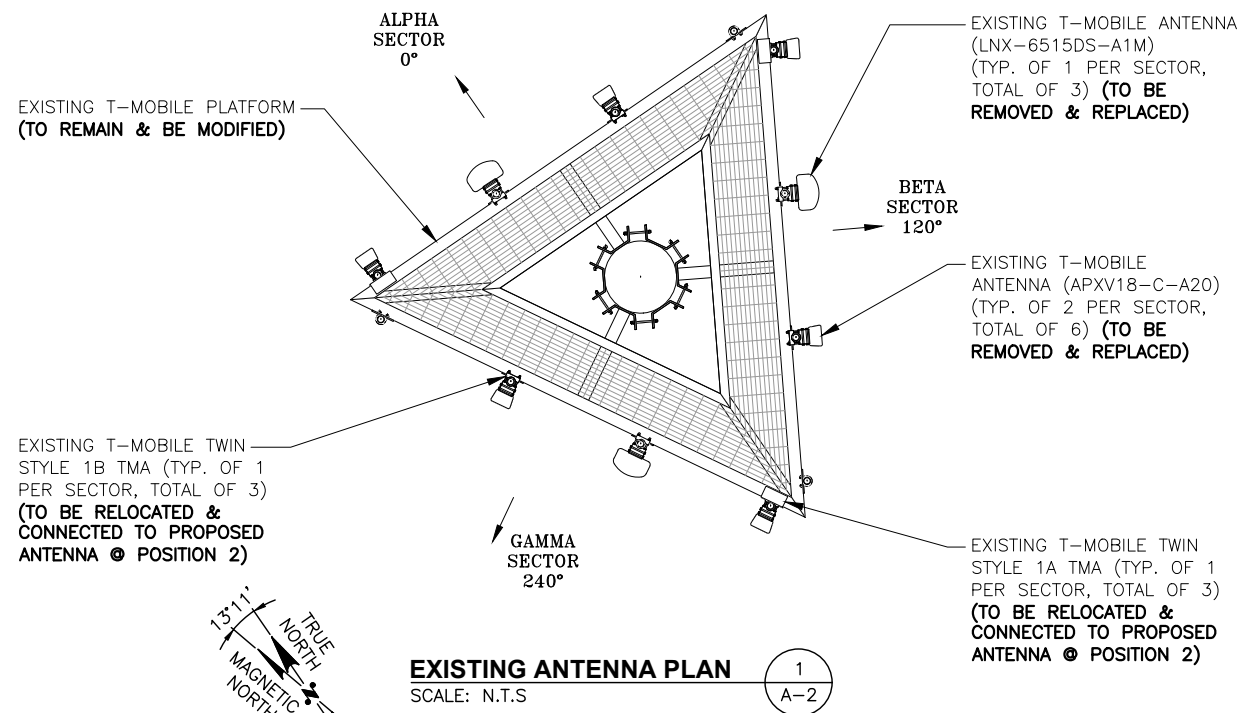
SITE NUMBER:
CT11295A
SITE NAME:
WESTPORT FD
SPRINT TOWER
SITE ADDRESS:
515 POST RD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY

SHEET TITLE
GENERAL NOTES
(L600)

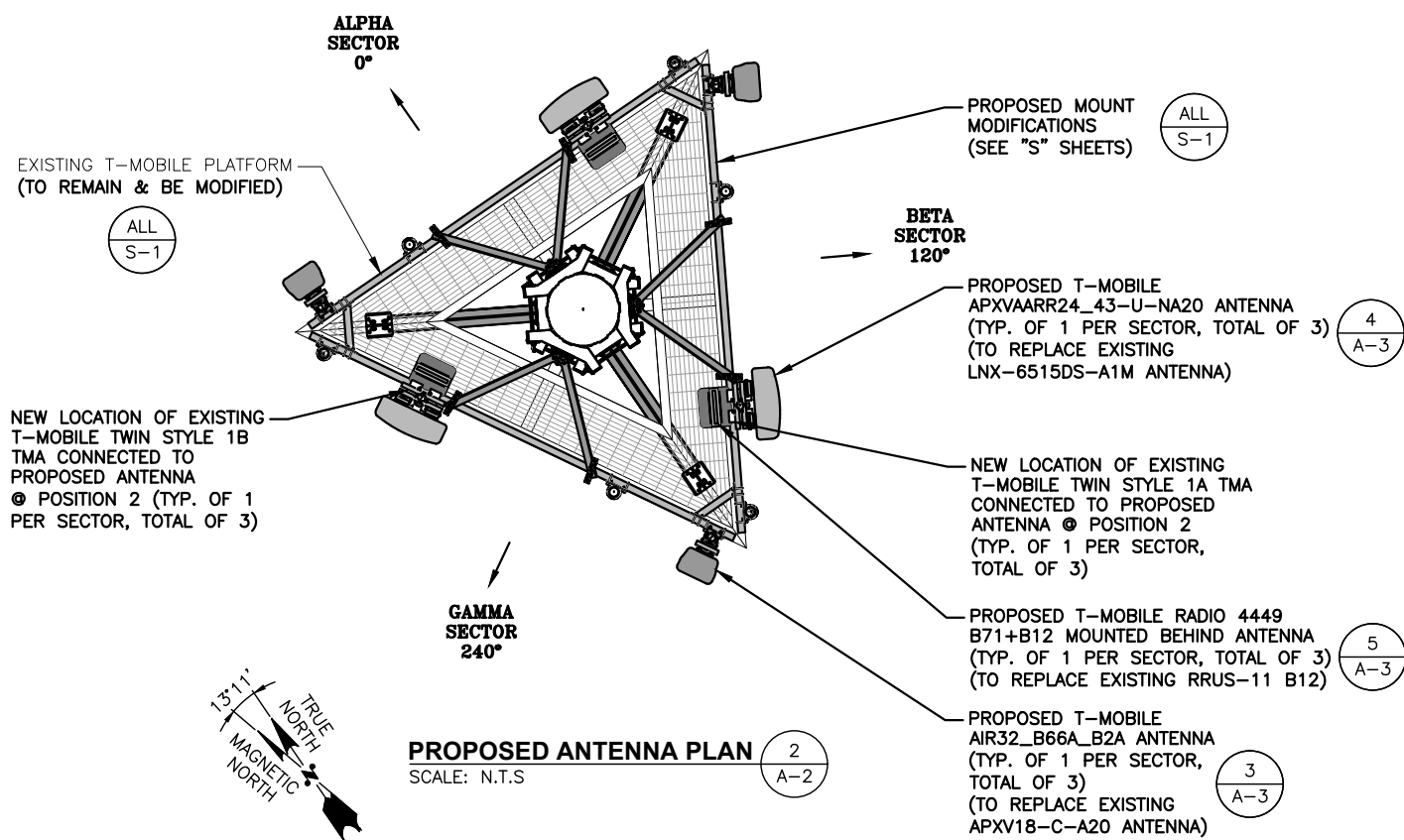
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STRUCTURAL NOTES:
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NOTE:
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

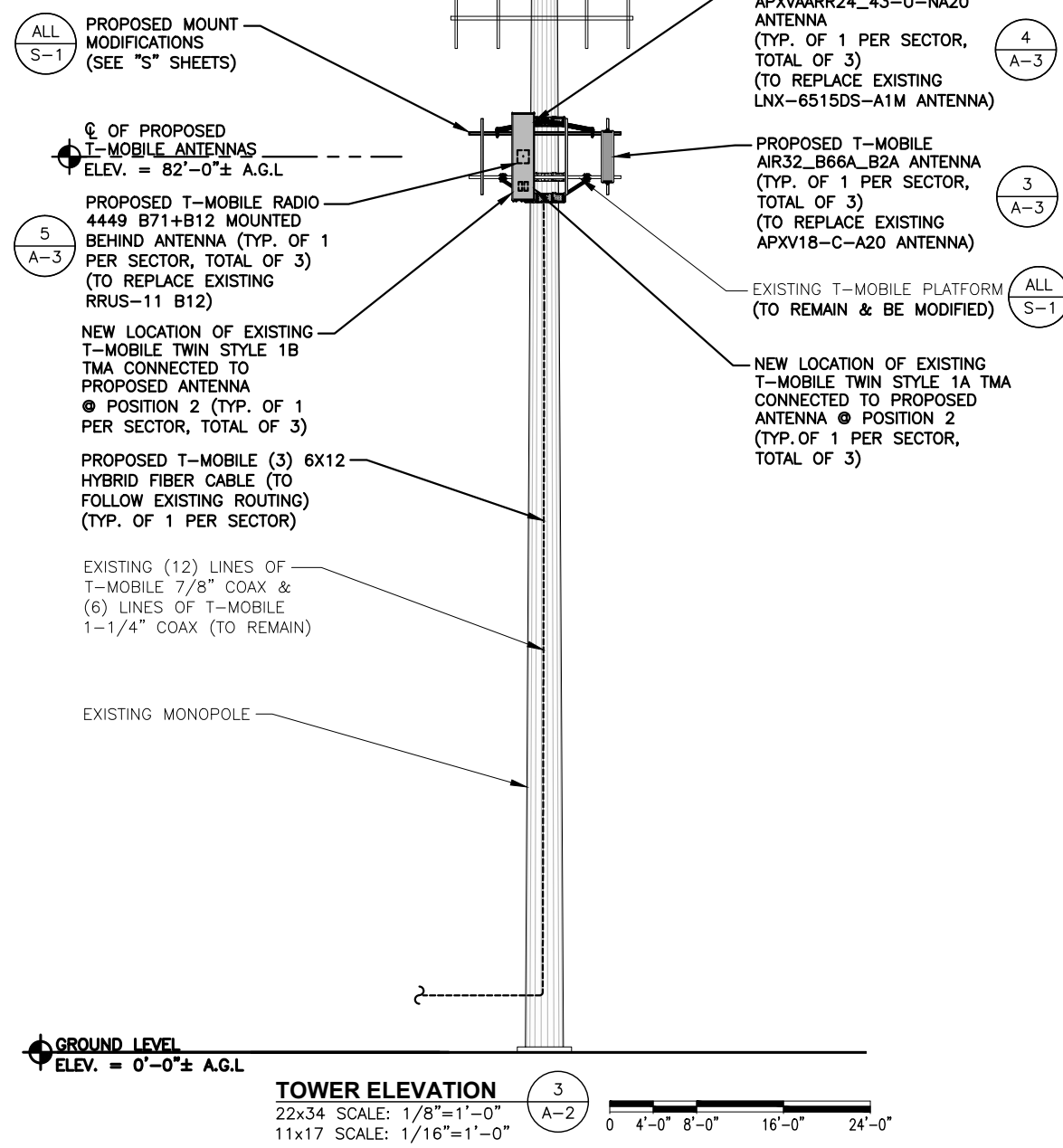


EXISTING ANTENNA PLAN
 SCALE: N.T.S.



PROPOSED ANTENNA PLAN
 SCALE: N.T.S.

TOP OF EXISTING MONOPOLE
 ELEV. = 148'-0"± A.G.L.



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 45 BEECHWOOD DRIVE
 N. ANDOVER, MA 01845
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STATE OF CONNECTICUT
 DEREK J. CREASER
 LICENSED PROFESSIONAL ENGINEER
 06-2035

CHECKED BY: RP

APPROVED BY: DJC

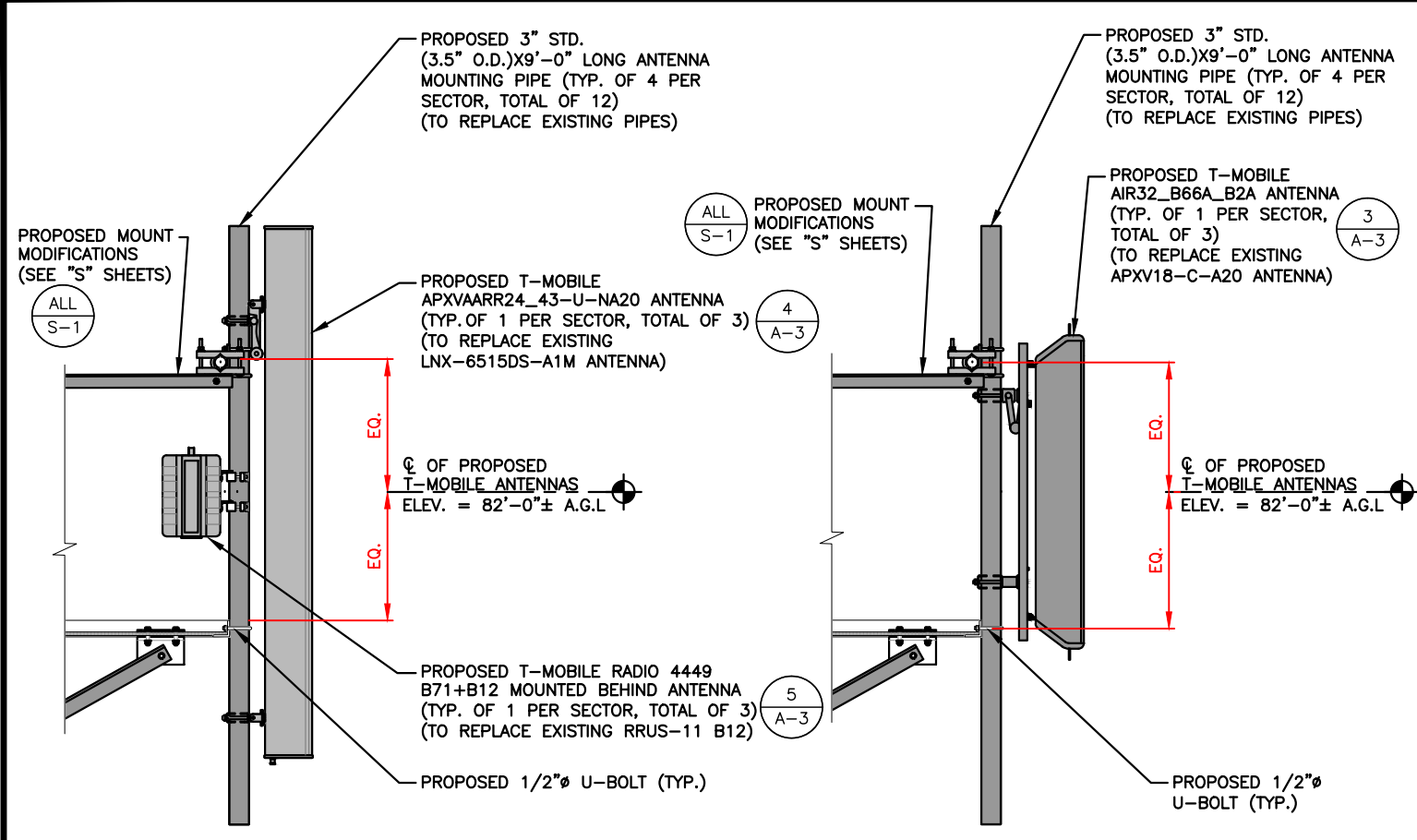
SUBMITTALS

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SHEET TITLE
 ANTENNA LAYOUTS & ELEVATION
 (L600)

SHEET NUMBER
A-2

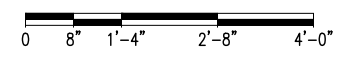


NOTE:
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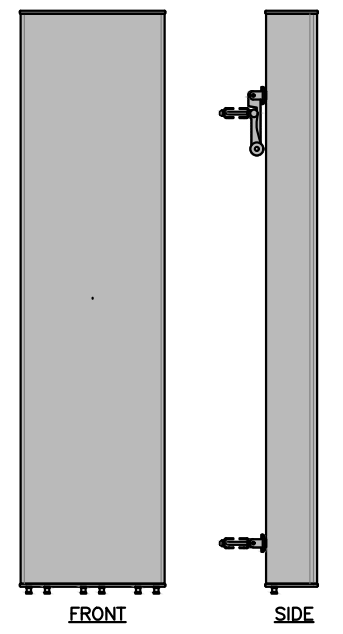
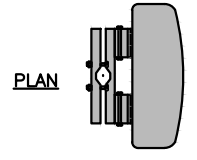
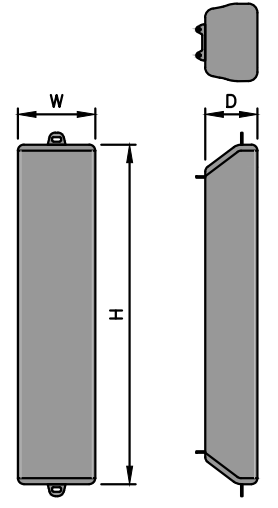
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PROPOSED ANTENNA MOUNTING DETAIL 1
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

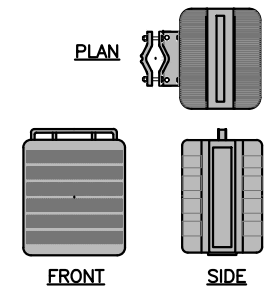


AIR32 ANTENNA DIMENSIONS	
MODEL #	AIR32 B66A B2A (OCTO)
MANUF.	ERICSSON
HEIGHT	56.6"
WIDTH	12.9"
DEPTH	8.7"
WEIGHT	132.2 LBS



L600+L700 ANTENNA DIMENSIONS	
MODEL #	APXVAARR24_43-U-NA20 (OCTO)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24"
DEPTH	8.7"
WEIGHT	128 LBS

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



T-MOBILE ELEVATION PHOTO DETAIL 2
SCALE: N.T.S.

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BLOOMFIELD, CT 06002
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STATE OF CONNECTICUT
Derek J. Creaser
LICENSED PROFESSIONAL ENGINEER
06-2035

CHECKED BY: RP

APPROVED BY: DJC

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DETAILS
(L600)

SHEET NUMBER
A-3

STRUCTURAL NOTES:

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi). MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS ¹
N/A	MATERIAL SPECIFICATIONS REPORT ²
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS ³
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS ⁴
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION ⁵
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS ⁶
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
- PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
- PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
- HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
- ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
- AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4" A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
- CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
- EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

**T-MOBILE
NORTHEAST LLC**

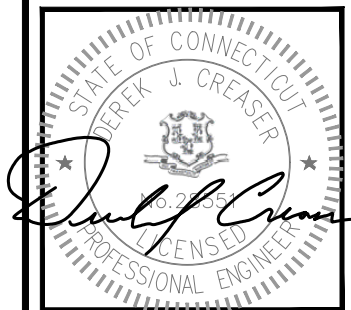
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SPECIAL
INSPECTIONS NOTES
(L600)

SHEET NUMBER

SN-1

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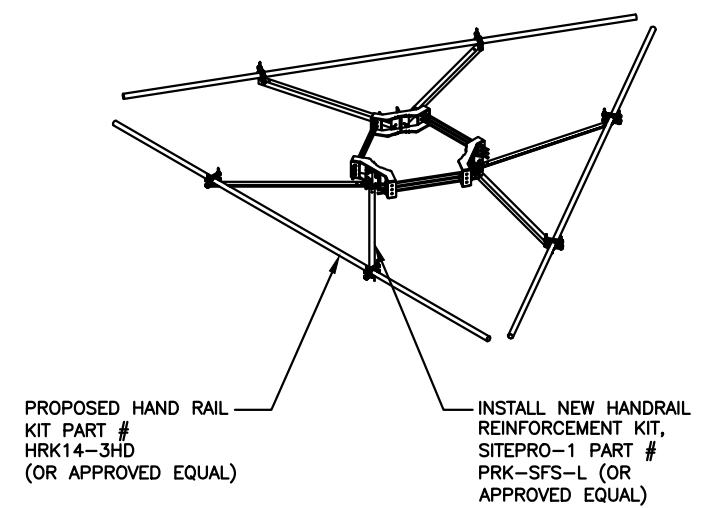
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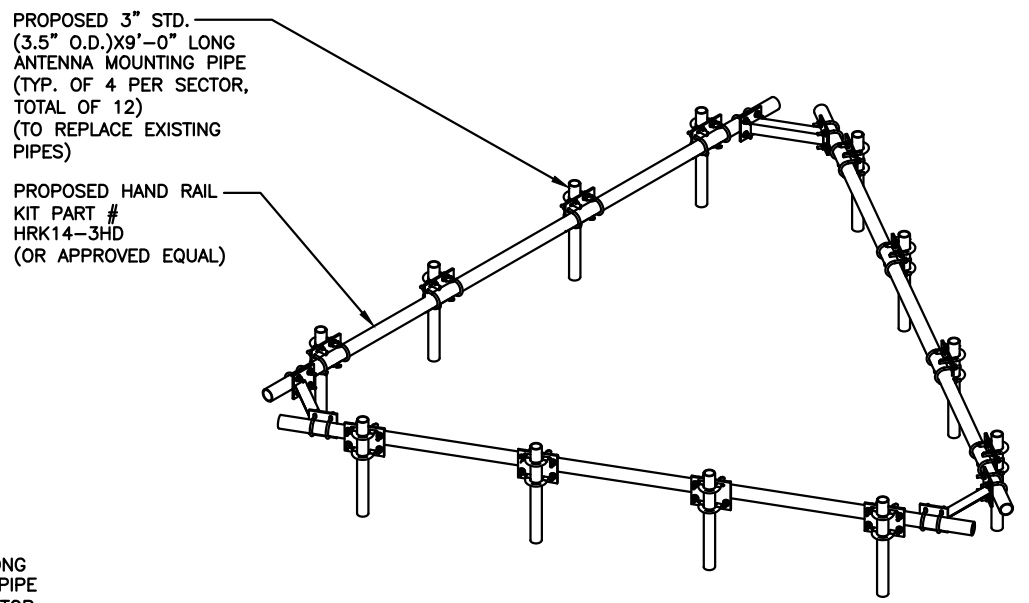
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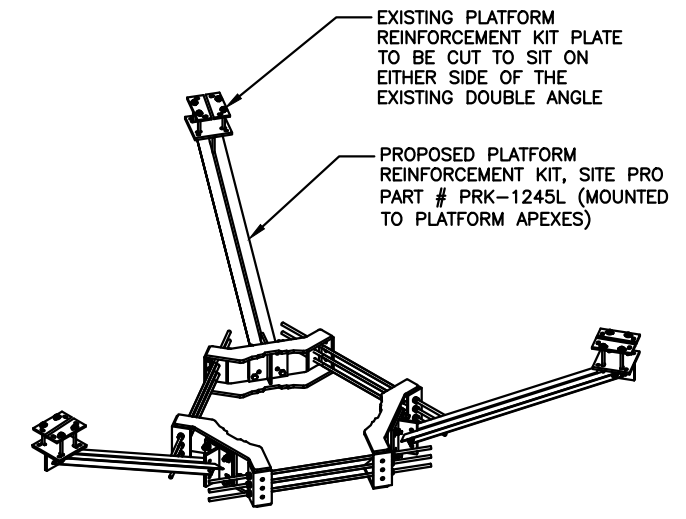
SHEET NUMBER
S-1



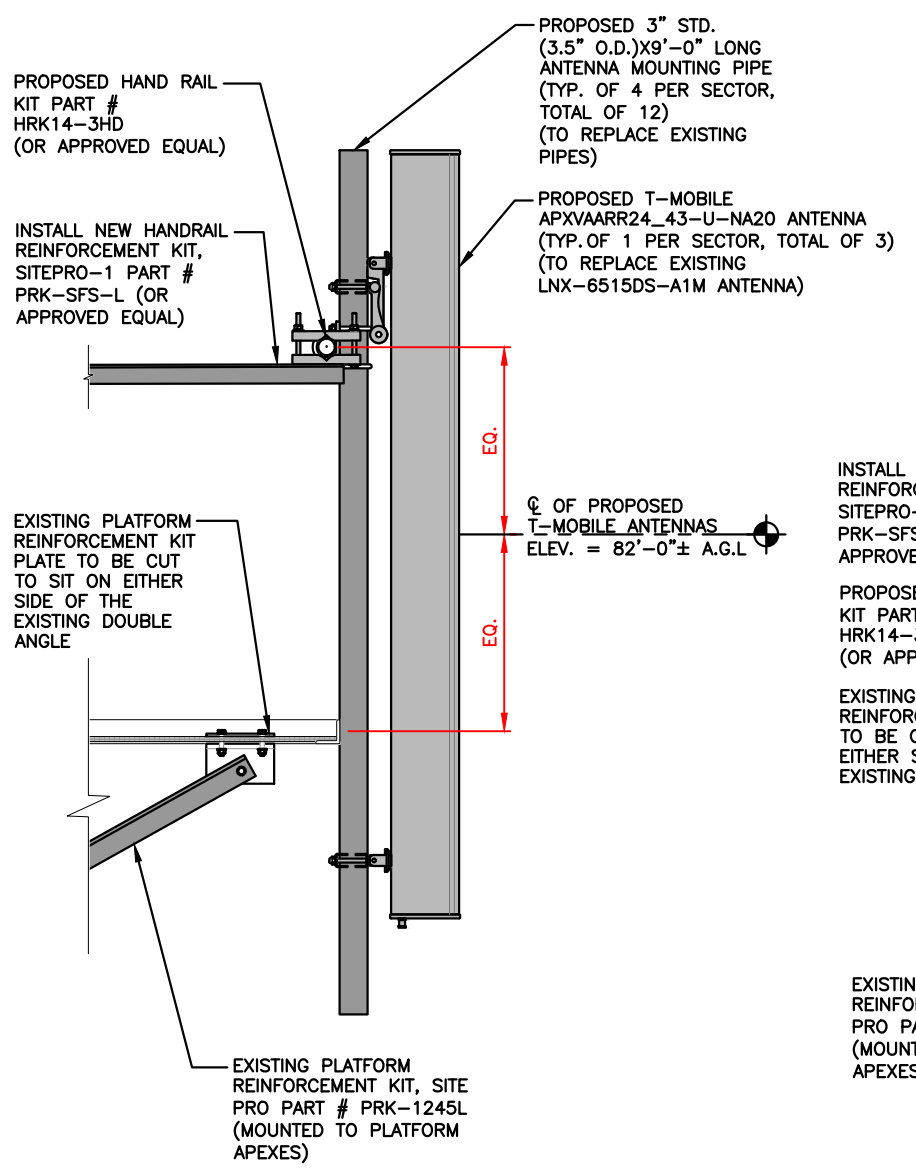
PROPOSED SECTOR FRAME STABILIZER KIT 1
SCALE: N.T.S



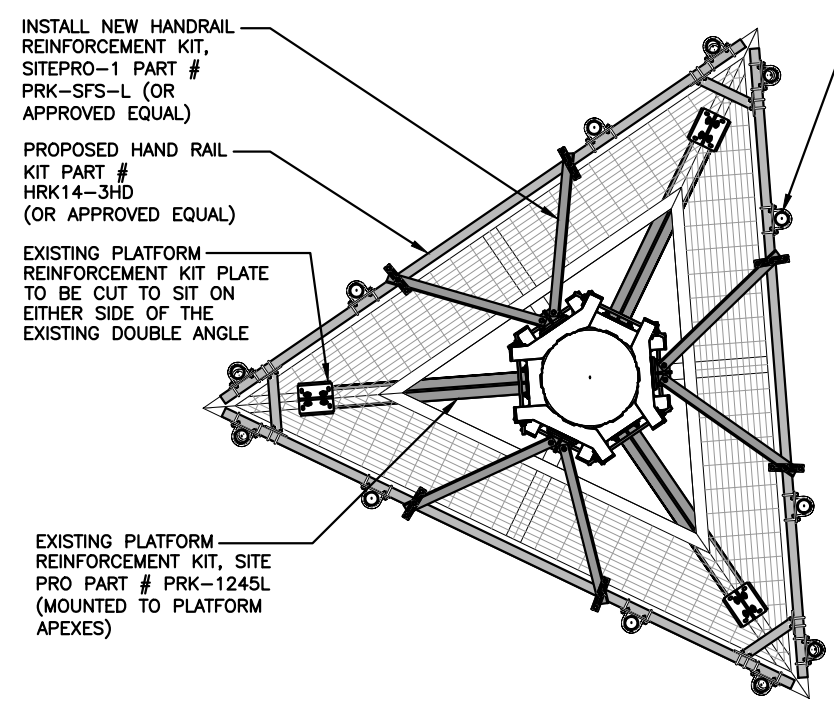
PROPOSED HANDRAIL KIT 2
SCALE: N.T.S



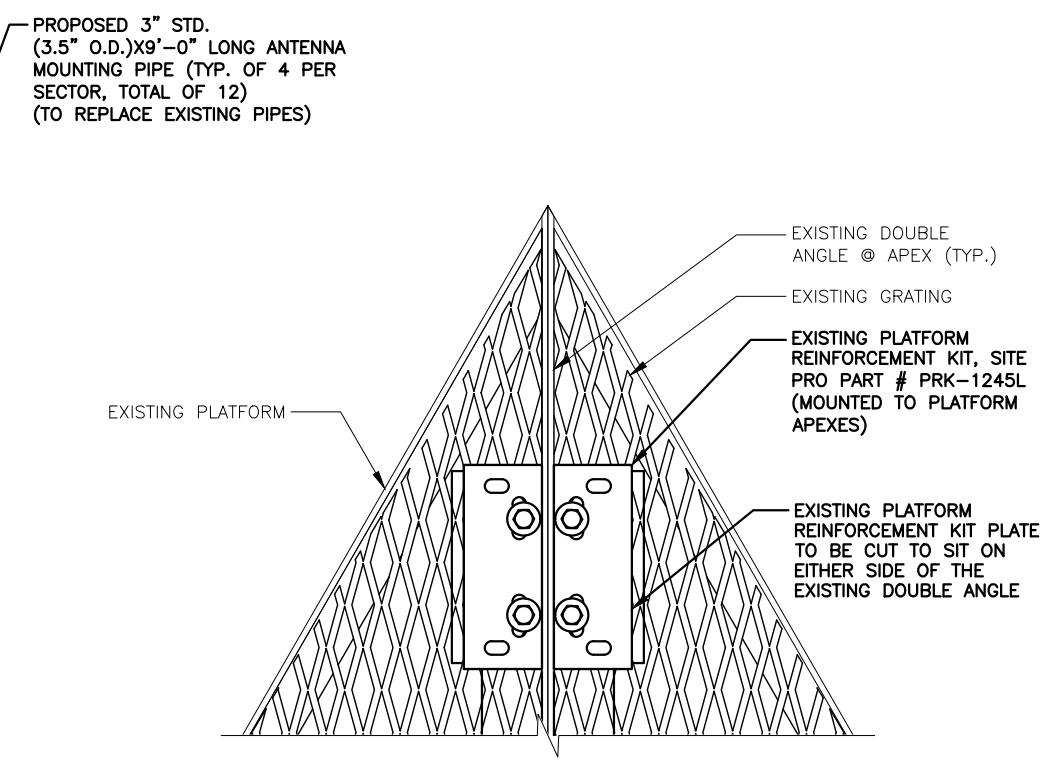
PROPOSED PLATFORM REINFORCEMENT MOUNT DETAIL 3
SCALE: N.T.S



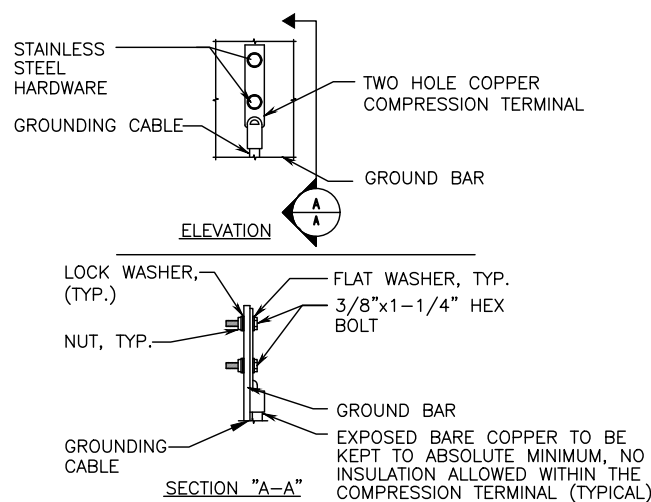
PROPOSED MOUNT MODIFICATION DETAIL 4
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"



MOUNT MODIFICATION PLAN 5
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"



PLATFORM REINFORCEMENT PLAN (ENLARGED) 6
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"



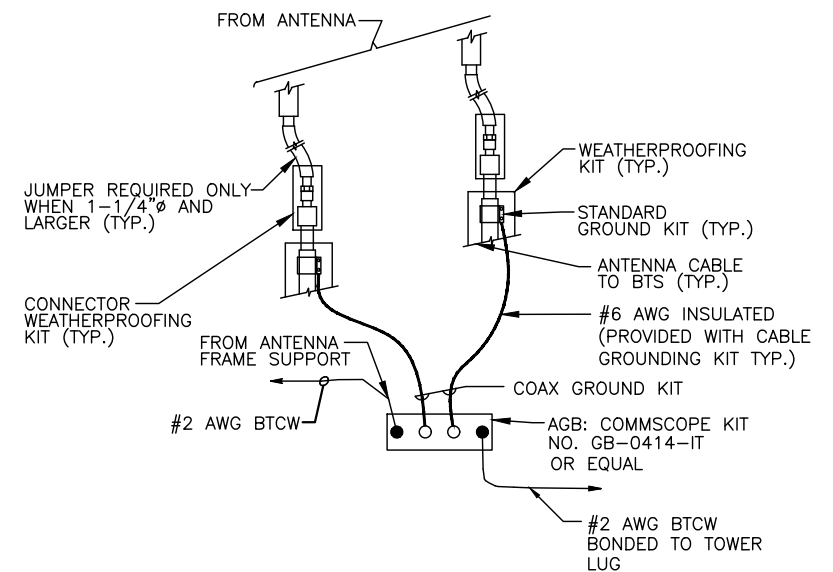
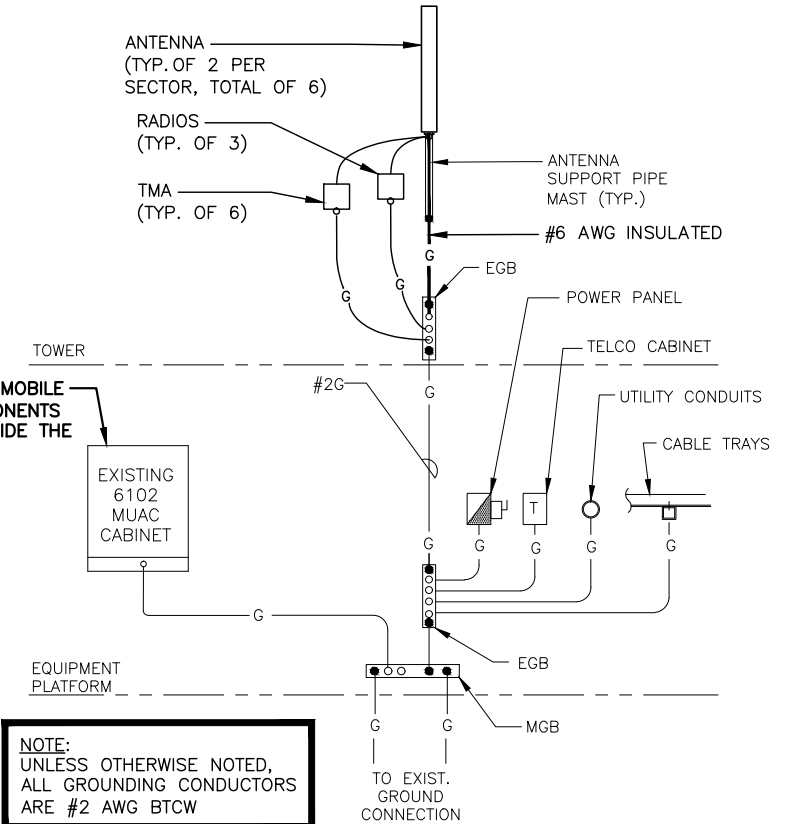
NOTE:
 1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
 3. CADWELD DOWNLEADS FROM UPPER AGB/EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL
 SCALE: N.T.S

NOTE:
 G.C. TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

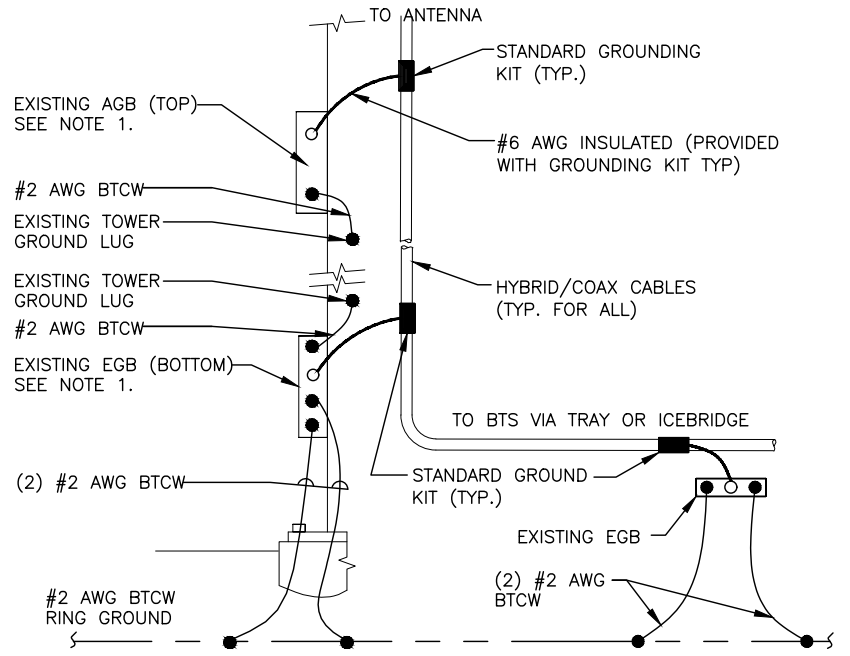
NOTE:
 UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW

GROUNDING RISER DIAGRAM
 SCALE: N.T.S



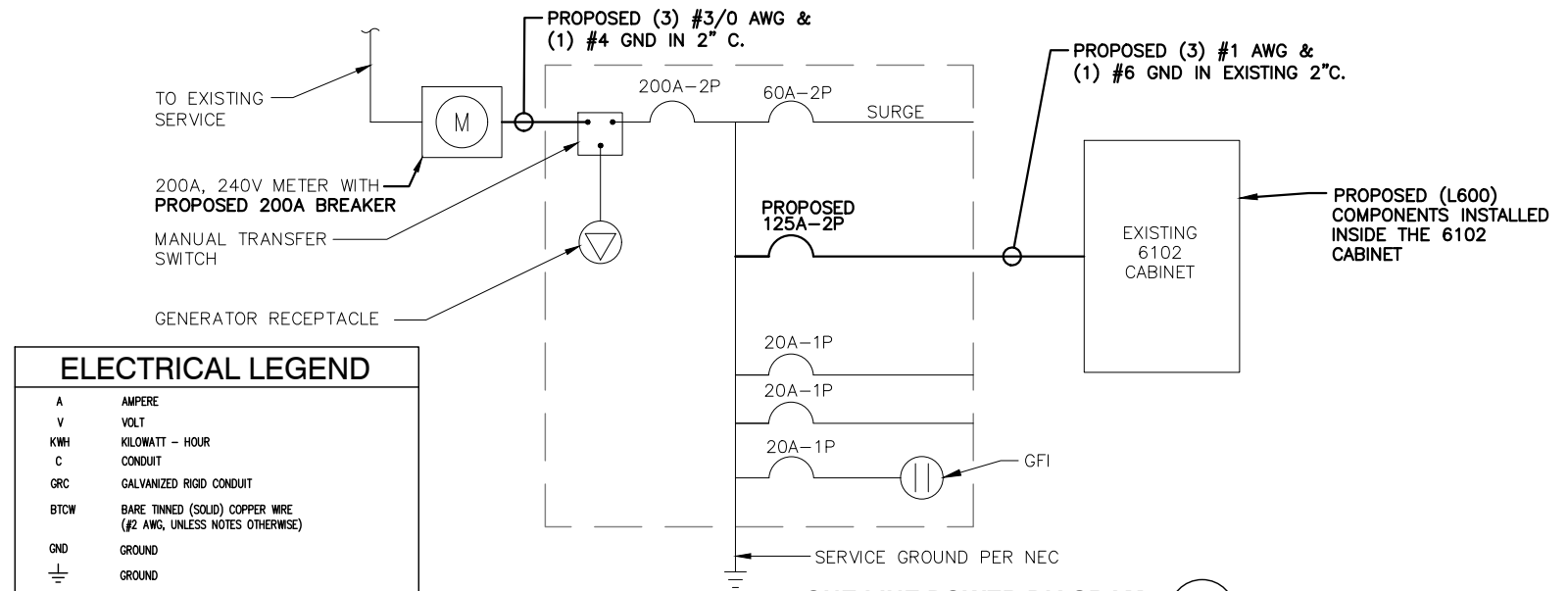
NOTE:
 INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB.

TOWER TOP CABLE GROUNDING DETAIL
 SCALE: N.T.S



NOTE:
 1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE ADDITIONAL AGB/EGB AS REQUIRED.
 2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

TOWER BOTTOM CABLE GROUNDING DETAIL
 SCALE: N.T.S



ONE LINE POWER DIAGRAM
 SCALE: N.T.S

ELECTRICAL LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRG	GALVANIZED RIGID CONDUIT
BTCW	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
GND	GROUND
⊕	GROUND
GFI	GROUND FAULT INTERRUPTER
H.P	HORSE POWER
MGB	MASTER GROUND BAR
○●	MECHANICAL CONNECTION
○●	CADWELD CONNECTION
○●	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
○●	GROUND COPPER WIRE, SIZE AS NOTED
—	EXPOSED WIRING
—	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
⊙	5/8" COPPER CLAD STAINLESS STEEL GROUND ROD
●	EXOTHERMIC (CAD WELD) OR MECHANICAL CONNECTION
NEC	NATIONAL ELECTRIC CODE
∅	PHASE
PPC	POWER PROTECTION CABINET
P	POLE
PVC	POLYVINYL CHLORIDE
UL	UNDERWRITER LABORATORIES
⊗	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

- ELECTRICAL & GROUNDING NOTES**
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
 - ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
 - THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
 - GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS, ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
 - RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
 - ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
 - RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
 - RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
 - ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
 - GROUNDING SHALL COMPLY WITH NEC ART. 250.
 - GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
 - USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
 - ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
 - ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
 - CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGG GROUND IN BTS UNIT).
 - CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
 - APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
 - BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
 - BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
 - TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
 - BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
 - VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

T-MOBILE NORTHEAST LLC

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

Transcend Wireless

TRANSCEND WIRELESS
 10 INDUSTRIAL AVE
 MAHWAH, NJ 07430
 TEL: (201) 684-0055
 FAX: (201) 684-0066

HG HUDSON Design Group LLC

45 BEECHWOOD DRIVE
 N. ANDOVER, MA 01845
 TEL: (978) 557-5553
 FAX: (978) 336-5586

STATE OF CONNECTICUT
 DEREK J. CREASER
 LICENSED PROFESSIONAL ENGINEER
 06.2005

CHECKED BY: RP

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/25/19	REVISED FOR CONSTRUCTION	VP
0	06/05/19	ISSUED FOR CONSTRUCTION	SG

SITE NUMBER:
 CT11295A
 SITE NAME:
 WESTPORT FD SPRINT TOWER
 SITE ADDRESS:
 515 POST RD EAST
 WESTPORT, CT 06880
 FAIRFIELD COUNTY

SHEET TITLE
ONE-LINE DIAGRAM & GROUNDING DETAILS (L600)

SHEET NUMBER
E-1

STRUCTURAL ANALYSIS REPORT

For

CT11295A

WESTPORT FD SPRINT TOWER

515 POST RD EAST
WESTPORT, CT 06880

Antennas Mounted to the Monopole



Prepared for:

Transcend Wireless

T-Mobile

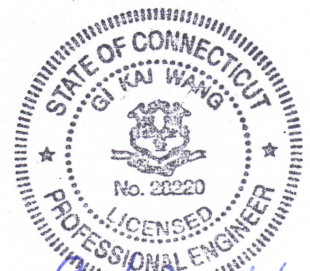
Dated: June 21, 2019

Prepared by:



HUDSON
Design Group LLC

45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com



John Wang 6/21/2019



HUDSON
Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by T-MOBILE to conduct a structural evaluation of the 148' monopole supporting the proposed T-MOBILE's antennas located at elevation 82' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of T-MOBILE's existing and proposed antennas listed below.

Record drawings of the existing monopole were not available for our use. The previous structural analysis report prepared by Destek Engineering, dated August 24, 2018, was available and obtained for our use. The previous structural analysis report prepared by Ramaker & Associates, Inc., dated May 13, 2019, was provided to this office.

Hudson Design Group LLC (HDG) performed mount analysis on the existing T-MOBILE antenna mount on May 30, 2019, mount analysis is under separate submission. The existing mount is capable of supporting the proposed antenna installation with the following modifications:

- **Install new Platform Reinforcement Kit P/N PRK-1245L (or approved equal). Platform Reinforcement kit is required to stabilize existing cantilevered antennas.**
- **Install new Handrail Reinforcement Kit P/N PRK-SFS-L (or approved equal). Handrail kit is required to stabilize existing cantilevered antennas.**
- **Install new Heavy Duty Handrail Kit P/N HRK14-3HD (or approved equal). Handrail kit is required to stabilize existing cantilevered antennas.**
- **Install new 2-1/2" std. (2.88 O.D) pipe masts behind new APXVAARR24_43-U-NA20 antennas secured to the proposed mount (typ. of 1 per sector, total of 3).**

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing monopole and foundation **are in conformance** with the ANSI/TIA-222-G Standard for the loading considered under the criteria listed in this report. **The monopole structure is rated at 81.4% - (Pole section L21 from EL.35.13' to EL.42.98' Controlling).**



APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	DB420-B	158'	Low Profile Platform
	(2) VHLP800-11	152'	Low Profile Platform
	(3) NNVV-65B-R4 Antennas	148'	Low Profile Platform
	(3) AAHC	148'	Low Profile Platform
	(6) RRH-800	151'	Low Profile Platform
	(3) RRH-1900	148'	Low Profile Platform
	(6) Mount Pipes	148'	Low Profile Platform
	VHLPX2.5-10W	144'	Pipe Mount
	(3) 7770 Antennas	120'	Low Profile Platform
	(3) QS66512-2 Antennas	120'	Low Profile Platform
	(3) HPA-65R-BUU-H6 Antennas	120'	Low Profile Platform
	(6) LGP21401	120'	Low Profile Platform
	(3) RRUS-11	120'	Low Profile Platform
	(9) RRUS-32	120'	Low Profile Platform
	(2) DC6-48-60-18-8F	120'	Low Profile Platform
	(3) Mount Pipes	120'	Low Profile Platform
	PD220	110'	Low Profile Platform
	DB205-A	108'	Low Profile Platform
	DB420-B	107'	Low Profile Platform
	DB224	107'	Low Profile Platform
	(2) PD1110	105'	Low Profile Platform
	(2) PD201-1	105'	Low Profile Platform
	DB806-XT	105'	Low Profile Platform
	(3) PD83-1	90'	Low Profile Platform
	(10) Mount Pipes	96'	Low Profile Platform
<i>T-Mobile</i>	(6) TMA	82'	Low Profile Platform <i>w/Handrail</i>
<i>T-Mobile</i>	(3) APXVAARR24_43-U-NA20 Antennas	82'	Low Profile Platform <i>w/Handrail</i>
<i>T-Mobile</i>	(3) AIR 32 B66Aa/B2a Antennas	82'	Low Profile Platform <i>w/Handrail</i>
<i>T-Mobile</i>	(3) Radio 4449	82'	Low Profile Platform <i>w/Handrail</i>
	(3) 800 10504 Antennas	72'	Pipe Mount
	(2) BSA150B	53'	Side Mount Standoff
	BULLET III	50'	Side Mount Standoff

**Proposed T-Mobile Appurtenances shown in Bold.*



T-MOBILE EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
<i>T-Mobile</i>	(12) 7/8" Cables	82'	Inside Monopole
<i>T-Mobile</i>	(6) Fiber Cables	82'	Inside Monopole
<i>T-Mobile</i>	(3) Fiber Cables	82'	Inside Monopole

**Proposed T-Mobile Coax Cables shown in Bold.*

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	9.3 %	143 – 148	PASS	
Pole Section-L2	15.8%	138 – 143	PASS	
Pole Section-L3	21.9 %	133 – 138	PASS	
Pole Section-L4	27.6 %	128 – 133	PASS	
Pole Section-L5	33.0 %	123 – 128	PASS	
Pole Section-L6	40.3 %	118 – 123	PASS	
Pole Section-L7	49.5 %	113 – 118	PASS	
Pole Section-L8	63.7 %	100.5 – 113	PASS	
Pole Section-L9	43.6 %	99.5 – 100.5	PASS	
Pole Section-L10	48.1 %	94.5 – 99.5	PASS	
Pole Section-L11	52.4 %	89.5 – 94.5	PASS	
Pole Section-L12	56.4 %	84.5 – 89.5	PASS	
Pole Section-L13	61.2 %	79.5 – 84.5	PASS	
Pole Section-L14	66.2 %	74.5 – 79.5	PASS	
Pole Section-L15	70.2 %	70.42 – 74.5	PASS	
Pole Section-L16	76.6 %	58.25 – 70.42	PASS	
Pole Section-L17	69.3 %	57.25 – 58.25	PASS	
Pole Section-L18	71.6 %	52.98 – 57.25	PASS	
Pole Section-L19	74.5 %	47.98 – 52.98	PASS	
Pole Section-L20	77.3 %	42.98 – 47.98	PASS	
Pole Section-L21	81.4 %	35.13 – 42.98	PASS	Controlling
Pole Section-L22	55.6 %	28.75 – 35.13	PASS	
Pole Section-L23	53.9 %	27.75 – 28.75	PASS	
Pole Section-L24	75.0 %	25.75 – 27.75	PASS	
Pole Section-L25	51.7 %	20.5 – 25.75	PASS	
Pole Section-L26	53.3 %	15.5 – 20.5	PASS	
Pole Section-L27	53.9 %	10.5 – 15.5	PASS	
Pole Section-L28	55.5 %	5.5 – 10.5	PASS	
Pole Section-L29	56.1 %	0 – 5.5	PASS	
Base Plate & Anchor Bolts	71.3 %	0	PASS	



HUDSON
Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures
2. 2018 Connecticut State Building Code
 - City/Town: Westport
 - County: Fairfield
 - Wind Load: 101 mph
 - Structural Class: III
 - Exposure Category: B
 - Topographic Category: 1
 - Ice Thickness: 0.75 inch
3. Approximate height above grade to proposed antennas: 82'

ASSUMPTIONS:

1. The geometry and material strength of the monopole, base plate and anchor bolts are as indicated in the previous structural analysis report prepared by Destek Engineering, dated August 24, 2018.
2. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. The appurtenances configuration is as stated in the previous structural analysis report prepared by Destek Engineering, dated August 24, 2018. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.
5. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas and radios be mounted on the existing steel platform supported by the monopole.



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Photo 1: Photo illustrating the Tower with Appurtenances shown.



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Design Group LLC

CALCULATIONS

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job	CT11295A	Page	1 of 12
	Project	148 ft Monopole	Date	11:34:13 06/21/19
	Client	T-MOBILE	Designed by	kw

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Basic wind speed of 101.0 mph.

Structure Class III.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56.0 pcf.

A wind speed of 50.0 mph is used in combination with ice.

Temperature drop of 50.0 °F.

Deflections calculated using a wind speed of 60.0 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	148.00-143.00	5.00	0.00	12	22.0000	23.0151	0.2500	1.0000	A607-60 (60 ksi)
L2	143.00-138.00	5.00	0.00	12	23.0151	24.0301	0.2500	1.0000	A607-60 (60 ksi)
L3	138.00-133.00	5.00	0.00	12	24.0301	25.0452	0.2500	1.0000	A607-60 (60 ksi)
L4	133.00-128.00	5.00	0.00	12	25.0452	26.0602	0.2500	1.0000	A607-60 (60 ksi)
L5	128.00-123.00	5.00	0.00	12	26.0602	27.0753	0.2500	1.0000	A607-60 (60 ksi)
L6	123.00-118.00	5.00	0.00	12	27.0753	28.0903	0.2500	1.0000	A607-60 (60 ksi)
L7	118.00-113.00	5.00	0.00	12	28.0903	29.1054	0.2500	1.0000	A607-60 (60 ksi)
L8	113.00-100.50	12.50	4.00	12	29.1054	31.6430	0.2500	1.0000	A607-60 (60 ksi)
L9	100.50-99.50	5.00	0.00	12	30.3310	31.3460	0.3750	1.5000	A607-60 (60 ksi)
L10	99.50-94.50	5.00	0.00	12	31.3460	32.3610	0.3750	1.5000	A607-60 (60 ksi)
L11	94.50-89.50	5.00	0.00	12	32.3610	33.3761	0.3750	1.5000	A607-60 (60 ksi)
L12	89.50-84.50	5.00	0.00	12	33.3761	34.3911	0.3750	1.5000	A607-60 (60 ksi)
L13	84.50-79.50	5.00	0.00	12	34.3911	35.4061	0.3750	1.5000	A607-60

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job	CT11295A	Page	2 of 12
	Project	148 ft Monopole	Date	11:34:13 06/21/19
	Client	T-MOBILE	Designed by	kw

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L14	79.50-74.50	5.00	0.00	12	35.4061	36.4211	0.3750	1.5000	(60 ksi) A607-60
L15	74.50-70.42	4.08	0.00	12	36.4211	37.2500	0.3750	1.5000	(60 ksi) A607-60
L16	70.42-58.25	12.17	5.00	12	37.2500	39.7200	0.3750	1.5000	(60 ksi) A607-60
L17	58.25-57.25	6.00	0.00	12	37.9550	39.1731	0.4375	1.7500	(60 ksi) A607-60
L18	57.25-52.98	4.27	0.00	12	39.1731	40.0401	0.4375	1.7500	(60 ksi) A607-60
L19	52.98-47.98	5.00	0.00	12	40.0401	41.0552	0.4375	1.7500	(60 ksi) A607-60
L20	47.98-42.98	5.00	0.00	12	41.0552	42.0703	0.4375	1.7500	(60 ksi) A607-60
L21	42.98-35.13	7.85	0.00	12	42.0703	43.6648	0.4375	1.7500	(60 ksi) A607-60
L22	35.13-28.75	6.38	3.75	12	43.6648	44.9590	0.6375	2.5500	(60 ksi) A607-60
L23	28.75-27.75	4.75	0.00	12	42.9234	44.2869	0.7000	2.8000	(60 ksi) A607-60
L24	27.75-25.75	2.00	0.00	12	44.2869	44.6929	0.5000	2.0000	(60 ksi) A607-60
L25	25.75-20.50	5.25	0.00	12	44.6929	45.7586	0.7500	3.0000	(60 ksi) A607-60
L26	20.50-15.50	5.00	0.00	12	45.7586	46.7736	0.7375	2.9500	(60 ksi) A607-60
L27	15.50-10.50	5.00	0.00	12	46.7736	47.7885	0.7375	2.9500	(60 ksi) A607-60
L28	10.50-5.50	5.00	0.00	12	47.7885	48.8035	0.7250	2.9000	(60 ksi) A607-60
L29	5.50-0.00	5.50		12	48.8035	49.9200	0.7250	2.9000	(60 ksi) A607-60

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
1 1/4 Fiber Cable	C	No	No	Inside Pole	148.00 - 0.00	4	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
1 1/4	C	No	No	Inside Pole	148.00 - 0.00	1	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
1/2	C	No	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
3/8	C	No	No	Inside Pole	148.00 - 0.00	6	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
2" Rigid Conduit	C	No	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	2.80
							1/2" Ice	0.00	2.80
							1" Ice	0.00	2.80

EW90	C	No	No	Inside Pole	144.00 - 0.00	1	No Ice	0.00	0.32

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	Project	148 ft Monopole	Date	11:34:13 06/21/19
	Client	T-MOBILE	Designed by	kw

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
							1/2" Ice	0.00	0.32
							1" Ice	0.00	0.32

LDF7-50A (1-5/8 FOAM)	C	No	No	Inside Pole	120.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
FB-L98B-002	C	No	No	Inside Pole	120.00 - 0.00	2	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
WR-VG122ST-BRD A	C	No	No	Inside Pole	120.00 - 0.00	1	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25

LDF4-50A (1/2 FOAM)	C	No	No	Inside Pole	96.00 - 0.00	5	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
LDF5-50A (7/8 FOAM)	C	No	No	Inside Pole	96.00 - 0.00	7	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33

HJ7-50A (1-5/8 AIR)	C	No	No	Inside Pole	72.00 - 0.00	6	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04

LDF4-50A (1/2 FOAM)	C	No	No	Inside Pole	53.00 - 0.00	2	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
LDF4-50A (1/2 FOAM)	C	No	No	Inside Pole	53.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15

7/8 (T-Mobile - existing)	A	No	No	Inside Pole	82.00 - 0.00	12	No Ice	0.00	0.54
							1/2" Ice	0.00	0.54
							1" Ice	0.00	0.54
1 1/4 Fiber Cable	A	No	No	Inside Pole	82.00 - 0.00	6	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66

1 1/4 Fiber Cable (T-Mobile - proposed)	A	No	No	Inside Pole	82.00 - 0.00	3	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
DB420-B	A	From Leg	0.00	0.0000	148.00	No Ice	3.33	3.33	34.00
			0.00			1/2" Ice	5.99	5.99	44.20
			10.00			1" Ice	8.66	8.66	54.40
2"x6' pipe	A	From Leg	0.00	0.0000	148.00	No Ice	1.43	1.43	22.00
			0.00			1/2" Ice	1.93	1.93	32.85

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	Client	T-MOBILE	Designed by	kw

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral	Vert					
					1.00		1" Ice	2.30	2.30	47.75

NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.00	0.0000	148.00	No Ice	12.51	7.41	102.95	
			0.00			1/2" Ice	13.11	8.60	193.58	
			3.00			1" Ice	13.67	9.50	292.74	
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.00	0.0000	148.00	No Ice	12.51	7.41	102.95	
			0.00			1/2" Ice	13.11	8.60	193.58	
			3.00			1" Ice	13.67	9.50	292.74	
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.00	0.0000	148.00	No Ice	12.51	7.41	102.95	
			0.00			1/2" Ice	13.11	8.60	193.58	
			3.00			1" Ice	13.67	9.50	292.74	
AAHC	A	From Leg	4.00	0.0000	148.00	No Ice	4.20	2.06	103.40	
			0.00			1/2" Ice	4.46	2.25	135.65	
			0.00			1" Ice	4.72	2.45	171.65	
AAHC	B	From Leg	4.00	0.0000	148.00	No Ice	4.20	2.06	103.40	
			0.00			1/2" Ice	4.46	2.25	135.65	
			0.00			1" Ice	4.72	2.45	171.65	
AAHC	C	From Leg	4.00	0.0000	148.00	No Ice	4.20	2.06	103.40	
			0.00			1/2" Ice	4.46	2.25	135.65	
			0.00			1" Ice	4.72	2.45	171.65	
(2) RRH-800	A	From Leg	3.00	0.0000	148.00	No Ice	2.13	2.76	64.00	
			0.00			1/2" Ice	2.32	2.96	91.74	
			3.00			1" Ice	2.51	3.18	122.88	
(2) RRH-800	B	From Leg	3.00	0.0000	148.00	No Ice	2.13	2.76	64.00	
			0.00			1/2" Ice	2.32	2.96	91.74	
			3.00			1" Ice	2.51	3.18	122.88	
(2) RRH-800	C	From Leg	3.00	0.0000	148.00	No Ice	2.13	2.76	64.00	
			0.00			1/2" Ice	2.32	2.96	91.74	
			3.00			1" Ice	2.51	3.18	122.88	
RRH-1900	A	From Leg	3.00	0.0000	148.00	No Ice	2.32	3.14	60.00	
			0.00			1/2" Ice	2.53	3.36	88.32	
			0.00			1" Ice	2.74	3.60	120.15	
RRH-1900	B	From Leg	3.00	0.0000	148.00	No Ice	2.32	3.14	60.00	
			0.00			1/2" Ice	2.53	3.36	88.32	
			0.00			1" Ice	2.74	3.60	120.15	
RRH-1900	C	From Leg	3.00	0.0000	148.00	No Ice	2.32	3.14	60.00	
			0.00			1/2" Ice	2.53	3.36	88.32	
			0.00			1" Ice	2.74	3.60	120.15	
(2) 2"x6' pipe	A	From Leg	4.00	0.0000	148.00	No Ice	1.43	1.43	22.00	
			0.00			1/2" Ice	1.93	1.93	32.85	
			0.00			1" Ice	2.30	2.30	47.75	
(2) 2"x6' pipe	B	From Leg	4.00	0.0000	148.00	No Ice	1.43	1.43	22.00	
			0.00			1/2" Ice	1.93	1.93	32.85	
			0.00			1" Ice	2.30	2.30	47.75	
(2) 2"x6' pipe	C	From Leg	4.00	0.0000	148.00	No Ice	1.43	1.43	22.00	
			0.00			1/2" Ice	1.93	1.93	32.85	
			0.00			1" Ice	2.30	2.30	47.75	
PIROD 13' Platform w/handrail	C	None		0.0000	148.00	No Ice	31.30	31.30	1822.00	
						1/2" Ice	40.20	40.20	2452.00	
						1" Ice	49.10	49.10	3082.00	
Misc NA 507-1	C	None		0.0000	148.00	No Ice	4.80	4.80	250.00	
						1/2" Ice	6.70	6.70	295.00	
						1" Ice	8.60	8.60	340.00	

PM 601-1	C	None		0.0000	144.00	No Ice	3.00	0.90	65.00	
						1/2" Ice	3.74	1.12	79.00	
						1" Ice	4.48	1.34	93.00	

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	Client	T-MOBILE	Designed by	kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb

Powerwave 7770 w/mount pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	5.65 6.03 6.42	4.10 4.75 5.42	57.25 103.17 155.38
Powerwave 7770 w/mount pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	5.65 6.03 6.42	4.10 4.75 5.42	57.25 103.17 155.38
Powerwave 7770 w/mount pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	5.65 6.03 6.42	4.10 4.75 5.42	57.25 103.17 155.38
Quintel QS66512-2 w/mpount pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	8.61 9.27 9.90	8.70 9.99 11.12	140.20 218.50 305.14
Quintel QS66512-2 w/mpount pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	8.61 9.27 9.90	8.70 9.99 11.12	140.20 218.50 305.14
Quintel QS66512-2 w/mpount pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	8.61 9.27 9.90	8.70 9.99 11.12	140.20 218.50 305.14
HPA-65R-BUU-H6 w/mount pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.72 10.29 10.83	7.15 8.33 9.23	68.55 144.37 228.36
HPA-65R-BUU-H6 w/mount pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.72 10.29 10.83	7.15 8.33 9.23	68.55 144.37 228.36
HPA-65R-BUU-H6 w/mount pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.72 10.29 10.83	7.15 8.33 9.23	68.55 144.37 228.36
(2) Powerwave TMA LGP21401	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.05 1.18 1.32	0.38 0.47 0.57	14.10 21.29 30.37
(2) Powerwave TMA LGP21401	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.05 1.18 1.32	0.38 0.47 0.57	14.10 21.29 30.37
(2) Powerwave TMA LGP21401	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.05 1.18 1.32	0.38 0.47 0.57	14.10 21.29 30.37
Ericsson RRUS-11	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	50.70 71.57 95.48
Ericsson RRUS-11	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	50.70 71.57 95.48
Ericsson RRUS-11	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	50.70 71.57 95.48
(3) Ericsson RRUS-32	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47
(3) Ericsson RRUS-32	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47
(3) Ericsson RRUS-32	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47
(2) DC6-48-60-18-8F	A	From Leg	4.00 0.00	0.0000	120.00	No Ice 1/2" Ice	0.79 1.27	0.79 1.27	20.00 35.12

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	
2"x6' pipe	A	From Leg	0.00		0.0000	120.00	1" Ice	1.45	1.45	52.57
			4.00				No Ice	1.43	1.43	22.00
			0.00				1/2" Ice	1.93	1.93	32.85
			0.00				1" Ice	2.30	2.30	47.75
2"x6' pipe	B	From Leg	4.00		0.0000	120.00	No Ice	1.43	1.43	22.00
			0.00				1/2" Ice	1.93	1.93	32.85
			0.00				1" Ice	2.30	2.30	47.75
			4.00				No Ice	1.43	1.43	22.00
2"x6' pipe	C	From Leg	0.00		0.0000	120.00	1/2" Ice	1.93	1.93	32.85
			0.00				1" Ice	2.30	2.30	47.75
			4.00				No Ice	1.43	1.43	22.00
			0.00				1/2" Ice	1.93	1.93	32.85
LP 712-1	C	None			0.0000	120.00	1" Ice	2.30	2.30	47.75
							No Ice	24.53	24.53	1340.00
							1/2" Ice	29.94	29.94	1650.00

PD220	C	From Leg	4.00		0.0000	96.00	No Ice	3.56	3.56	23.00
			0.00				1/2" Ice	7.13	7.13	46.00
			14.00				1" Ice	10.70	10.70	69.00
DB205-A	B	From Leg	4.00		0.0000	96.00	No Ice	1.20	1.20	38.00
			0.00				1/2" Ice	2.16	2.16	49.40
			12.00				1" Ice	3.12	3.12	60.80
DB420-B	A	From Leg	4.00		0.0000	96.00	No Ice	3.33	3.33	34.00
			0.00				1/2" Ice	5.99	5.99	44.20
			11.00				1" Ice	8.66	8.66	54.40
DB224	C	From Leg	4.00		0.0000	96.00	No Ice	3.15	3.15	32.00
			0.00				1/2" Ice	5.67	5.67	41.60
			11.00				1" Ice	8.19	8.19	51.20
(2) PD1110	A	From Leg	4.00		0.0000	96.00	No Ice	3.06	3.06	25.00
			0.00				1/2" Ice	5.10	5.10	60.00
			9.00				1" Ice	7.14	7.14	95.00
PD201-1	A	From Leg	4.00		0.0000	96.00	No Ice	0.63	0.63	4.00
			0.00				1/2" Ice	1.54	1.54	10.65
			9.00				1" Ice	2.47	2.47	23.00
PD201-1	B	From Leg	4.00		0.0000	96.00	No Ice	0.63	0.63	4.00
			0.00				1/2" Ice	1.54	1.54	10.65
			9.00				1" Ice	2.47	2.47	23.00
DB806-XT	C	From Leg	4.00		0.0000	96.00	No Ice	1.14	1.14	21.00
			0.00				1/2" Ice	1.68	1.68	29.93
			9.00				1" Ice	2.03	2.03	42.71
(2) PD83-1	A	From Leg	4.00		0.0000	96.00	No Ice	3.70	3.70	17.00
			0.00				1/2" Ice	5.58	5.58	45.48
			-6.00				1" Ice	7.47	7.47	85.62
PD83-1	B	From Leg	4.00		0.0000	96.00	No Ice	3.70	3.70	17.00
			0.00				1/2" Ice	5.58	5.58	45.48
			-6.00				1" Ice	7.47	7.47	85.62
(4) 2"x6' pipe	A	From Leg	4.00		0.0000	96.00	No Ice	1.43	1.43	22.00
			0.00				1/2" Ice	1.93	1.93	32.85
			0.00				1" Ice	2.30	2.30	47.75
(3) 2"x6' pipe	B	From Leg	4.00		0.0000	96.00	No Ice	1.43	1.43	22.00
			0.00				1/2" Ice	1.93	1.93	32.85
			0.00				1" Ice	2.30	2.30	47.75
(3) 2"x6' pipe	C	From Leg	4.00		0.0000	96.00	No Ice	1.43	1.43	22.00
			0.00				1/2" Ice	1.93	1.93	32.85
			0.00				1" Ice	2.30	2.30	47.75
LP 712-1	C	None			0.0000	96.00	No Ice	24.53	24.53	1340.00
							1/2" Ice	29.94	29.94	1650.00
							1" Ice	35.35	35.35	1960.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
PIROD 13' Platform w/handrail (T-Mobile - existing)	A	None			0.0000	82.00	No Ice 31.30 1/2" Ice 40.20 1" Ice 49.10	31.30 40.20 49.10	1822.00 2452.00 3082.00
ETW190VS12UB	A	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 0.57 1/2" Ice 0.67 1" Ice 0.77	0.32 0.40 0.48	14.60 19.54 26.01
ETW190VS12UB	B	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 0.57 1/2" Ice 0.67 1" Ice 0.77	0.32 0.40 0.48	14.60 19.54 26.01
ETW190VS12UB	C	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 0.57 1/2" Ice 0.67 1" Ice 0.77	0.32 0.40 0.48	14.60 19.54 26.01
RFS ATMAA1412D-1A20	A	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 1.00 1/2" Ice 1.13 1" Ice 1.26	0.41 0.50 0.59	13.00 20.62 30.11
RFS ATMAA1412D-1A20	B	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 1.00 1/2" Ice 1.13 1" Ice 1.26	0.41 0.50 0.59	13.00 20.62 30.11
RFS ATMAA1412D-1A20	C	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 1.00 1/2" Ice 1.13 1" Ice 1.26	0.41 0.50 0.59	13.00 20.62 30.11

APXVAARR24_43-U-NA20 w/mount pipe (T-Mobile - proposed)	A	From Leg	4.00 0.00 0.00		0.0000	82.00	No Ice 20.24 1/2" Ice 20.89 1" Ice 21.55	11.19 12.62 13.71	174.32 311.78 460.89
APXVAARR24_43-U-NA20 w/mount pipe	B	From Leg	4.00 0.00 0.00		0.0000	82.00	No Ice 20.24 1/2" Ice 20.89 1" Ice 21.55	11.19 12.62 13.71	174.32 311.78 460.89
APXVAARR24_43-U-NA20 w/mount pipe	C	From Leg	4.00 0.00 0.00		0.0000	82.00	No Ice 20.24 1/2" Ice 20.89 1" Ice 21.55	11.19 12.62 13.71	174.32 311.78 460.89
AIR 32 B66Aa/B2a w/mount pipe	A	From Leg	4.00 0.00 0.00		0.0000	82.00	No Ice 6.81 1/2" Ice 7.30 1" Ice 7.76	6.14 6.99 7.73	153.90 215.61 284.26
AIR 32 B66Aa/B2a w/mount pipe	B	From Leg	4.00 0.00 0.00		0.0000	82.00	No Ice 6.81 1/2" Ice 7.30 1" Ice 7.76	6.14 6.99 7.73	153.90 215.61 284.26
AIR 32 B66Aa/B2a w/mount pipe	C	From Leg	4.00 0.00 0.00		0.0000	82.00	No Ice 6.81 1/2" Ice 7.30 1" Ice 7.76	6.14 6.99 7.73	153.90 215.61 284.26
Radio 4449	A	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 1.65 1/2" Ice 1.81 1" Ice 1.98	1.16 1.30 1.45	74.00 90.16 108.95
Radio 4449	B	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 1.65 1/2" Ice 1.81 1" Ice 1.98	1.16 1.30 1.45	74.00 90.16 108.95
Radio 4449	C	From Leg	3.00 0.00 0.00		0.0000	82.00	No Ice 1.65 1/2" Ice 1.81 1" Ice 1.98	1.16 1.30 1.45	74.00 90.16 108.95

Kathrein 800 10504 w/mount pipe	A	From Leg	1.00 0.00 0.00		0.0000	72.00	No Ice 3.71 1/2" Ice 4.18 1" Ice 4.62	3.29 4.11 4.82	41.90 75.82 115.69
Kathrein 800 10504 w/mount pipe	B	From Leg	1.00 0.00 0.00		0.0000	72.00	No Ice 3.71 1/2" Ice 4.18 1" Ice 4.62	3.29 4.11 4.82	41.90 75.82 115.69
Kathrein 800 10504 w/mount pipe	C	From Leg	1.00 0.00 0.00		0.0000	72.00	No Ice 3.71 1/2" Ice 4.18 1" Ice 4.62	3.29 4.11 4.82	41.90 75.82 115.69

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
pipe			0.00			1/2" Ice	4.18	4.11	75.82
			0.00			1" Ice	4.62	4.82	115.69
PM 601-3	A	From Leg	1.00		0.0000	No Ice	4.39	4.39	200.00
			0.00			1/2" Ice	5.48	5.48	240.00
			0.00			1" Ice	6.57	6.57	280.00

BSA150B	A	From Leg	4.00		0.0000	No Ice	2.33	2.33	15.00
			0.00			1/2" Ice	3.50	3.50	52.23
			-3.00			1" Ice	3.81	3.81	93.47
BSA150B	A	From Leg	4.00		0.0000	No Ice	2.33	2.33	15.00
			0.00			1/2" Ice	3.50	3.50	52.23
			3.00			1" Ice	3.81	3.81	93.47
BULLET III	C	From Leg	4.00		0.0000	No Ice	0.07	0.07	3.00
			0.00			1/2" Ice	0.10	0.10	4.00
			0.00			1" Ice	0.14	0.14	5.00
SO 702-1	A	None			0.0000	No Ice	1.00	1.43	30.00
						1/2" Ice	1.25	2.05	40.00
						1" Ice	1.50	2.67	50.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz	Lateral							
				ft	ft	°	°	ft	ft	ft ²	lb	
Andrew VHLP800-11	B	Paraboloid w/Shroud (HP)	From Leg	1.00		40.0000		148.00	2.50	No Ice	6.00	49.00
				0.00						1/2" Ice	6.40	77.00
				4.00						1" Ice	6.80	105.00
Andrew VHLP800-11	C	Paraboloid w/Shroud (HP)	From Leg	1.00		-20.0000		148.00	2.50	No Ice	6.00	49.00
				0.00						1/2" Ice	6.40	77.00
				4.00						1" Ice	6.80	105.00
Andrew VHLPX2.5-10W	A	Paraboloid w/Shroud (HP)	From Leg	1.00		0.0000		144.00	2.92	No Ice	6.68	49.00
				0.00						1/2" Ice	7.07	77.00
				0.00						1" Ice	7.46	105.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	26	94596.40	-0.00	0.01
	Max. H _x	20	55186.48	43245.49	43.90
	Max. H _z	2	55186.48	-89.07	43668.35
	Max. M _x	2	4305155.56	-89.07	43668.35
	Max. M _z	8	4245709.20	-43294.35	144.66
	Max. Torsion	9	5949.91	-43294.35	144.66
	Min. Vert	19	41389.86	37358.83	-22004.45
	Min. H _x	8	55186.48	-43294.35	144.66
	Min. H _z	14	55186.48	77.31	-43600.10

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Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. M _x	14	-4290295.01	77.31	-43600.10
	Min. M _z	20	-4238248.36	43245.49	43.90
	Min. Torsion	21	-5914.81	43245.49	43.90

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	45988.74	0.00	0.00	-1336.55	93.35	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	55186.48	89.07	-43668.35	-4305155.56	-13962.44	-383.88
0.9 Dead+1.6 Wind 0 deg - No Ice	41389.86	89.07	-43668.34	-4270607.28	-13846.39	-385.14
1.2 Dead+1.6 Wind 30 deg - No Ice	55186.48	21544.40	-37900.42	-3741434.94	-2106907.07	-3212.96
0.9 Dead+1.6 Wind 30 deg - No Ice	41389.86	21544.40	-37900.42	-3711321.72	-2090329.68	-3213.37
1.2 Dead+1.6 Wind 60 deg - No Ice	55186.48	37453.46	-21959.21	-2172597.17	-3670744.22	-5206.11
0.9 Dead+1.6 Wind 60 deg - No Ice	41389.86	37453.46	-21959.21	-2154911.97	-3641789.83	-5206.68
1.2 Dead+1.6 Wind 90 deg - No Ice	55186.48	43294.35	-144.66	-24166.74	-4245709.20	-5949.49
0.9 Dead+1.6 Wind 90 deg - No Ice	41389.86	43294.35	-144.66	-23509.36	-4212201.65	-5949.91
1.2 Dead+1.6 Wind 120 deg - No Ice	55186.48	37349.05	21932.19	2164310.83	-3654495.29	-4487.76
0.9 Dead+1.6 Wind 120 deg - No Ice	41389.86	37349.05	21932.19	2147538.98	-3625711.70	-4488.25
1.2 Dead+1.6 Wind 150 deg - No Ice	55186.48	21512.87	37827.08	3725755.04	-2101745.81	-2076.67
0.9 Dead+1.6 Wind 150 deg - No Ice	41389.86	21512.87	37827.08	3696638.31	-2085227.38	-2076.81
1.2 Dead+1.6 Wind 180 deg - No Ice	55186.48	-77.31	43600.10	4290295.01	12333.32	521.33
0.9 Dead+1.6 Wind 180 deg - No Ice	41389.86	-77.31	43600.09	4256737.20	12176.88	521.83
1.2 Dead+1.6 Wind 210 deg - No Ice	55186.48	-21537.13	37855.00	3730151.21	2105799.00	3012.21
0.9 Dead+1.6 Wind 210 deg - No Ice	41389.86	-21537.13	37855.00	3700988.92	2089181.68	3013.85
1.2 Dead+1.6 Wind 240 deg - No Ice	55186.48	-37358.83	22004.45	2175718.52	3656250.75	4763.82
0.9 Dead+1.6 Wind 240 deg - No Ice	41389.86	-37358.83	22004.45	2158828.70	3627391.55	4765.39
1.2 Dead+1.6 Wind 270 deg - No Ice	55186.48	-43245.49	-43.90	-8240.43	4238248.36	5913.95
0.9 Dead+1.6 Wind 270 deg - No Ice	41389.86	-43245.49	-43.90	-7748.21	4204759.12	5914.81
1.2 Dead+1.6 Wind 300 deg - No Ice	55186.48	-37436.67	-21896.49	-2162698.70	3668348.31	4841.90
0.9 Dead+1.6 Wind 300 deg - No Ice	41389.86	-37436.67	-21896.49	-2145115.52	3639359.97	4841.83
1.2 Dead+1.6 Wind 330 deg - No Ice	55186.48	-21479.09	-37839.78	-3731896.45	2096841.29	2489.64

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586</p>	<p style="text-align: center;">Job</p> <p style="text-align: center;">CT11295A</p>	<p style="text-align: center;">Page</p> <p style="text-align: center;">10 of 12</p>
	<p style="text-align: center;">Project</p> <p style="text-align: center;">148 ft Monopole</p>	<p style="text-align: center;">Date</p> <p style="text-align: center;">11:34:13 06/21/19</p>
	<p style="text-align: center;">Client</p> <p style="text-align: center;">T-MOBILE</p>	<p style="text-align: center;">Designed by</p> <p style="text-align: center;">kw</p>

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
0.9 Dead+1.6 Wind 330 deg - No Ice	41389.86	-21479.09	-37839.78	-3701880.37	2080309.91	2488.44
1.2 Dead+1.0 Ice+1.0 Temp	94596.40	0.00	-0.01	-9012.19	-434.21	-0.06
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	94596.40	14.63	-9306.54	-999373.51	-2886.20	-438.06
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	94596.40	4606.12	-8073.05	-868915.60	-487872.07	-1437.72
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	94596.40	8000.41	-4673.45	-507533.65	-848357.80	-2065.97
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	94596.40	9245.69	-23.60	-13035.94	-980711.15	-2162.99
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	94596.40	7983.46	4668.72	488287.52	-845541.40	-1584.32
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	94596.40	4600.90	8060.72	848376.14	-486953.39	-619.30
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	94596.40	-12.70	9294.97	978982.92	1677.51	453.49
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	94596.40	-4604.84	8065.22	849148.39	486736.30	1415.77
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	94596.40	-7985.06	4680.59	490270.75	844925.94	2002.92
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	94596.40	-9237.67	-7.05	-10272.15	978488.51	2161.23
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	94596.40	-7997.65	-4663.15	-505814.78	847014.18	1636.94
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	94596.40	-4595.39	-8063.09	-867254.04	485195.77	674.77
Dead+Wind 0 deg - Service	45988.74	15.29	-7493.83	-736939.67	-2306.63	-70.89
Dead+Wind 30 deg - Service	45988.74	3697.19	-6504.01	-640580.88	-360034.40	-547.95
Dead+Wind 60 deg - Service	45988.74	6427.31	-3768.37	-372431.50	-627308.08	-894.24
Dead+Wind 90 deg - Service	45988.74	7429.65	-24.82	-5236.46	-725567.66	-1024.15
Dead+Wind 120 deg - Service	45988.74	6409.39	3763.74	368794.61	-624527.67	-778.74
Dead+Wind 150 deg - Service	45988.74	3691.78	6491.43	635682.75	-359151.67	-364.74
Dead+Wind 180 deg - Service	45988.74	-13.27	7482.12	732182.89	2183.65	86.31
Dead+Wind 210 deg - Service	45988.74	-3695.94	6496.22	636436.28	360000.83	526.37
Dead+Wind 240 deg - Service	45988.74	-6411.07	3776.14	370744.70	624986.02	829.27
Dead+Wind 270 deg - Service	45988.74	-7421.27	-7.53	-2517.11	724443.66	1022.99
Dead+Wind 300 deg - Service	45988.74	-6424.43	-3757.61	-370738.86	627049.79	833.56
Dead+Wind 330 deg - Service	45988.74	-3685.98	-6493.61	-638944.42	358466.54	421.45

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 143	16.8992	39	1.0330	0.0039
L2	143 - 138	15.8204	39	1.0263	0.0039
L3	138 - 133	14.7523	39	1.0126	0.0037
L4	133 - 128	13.7017	39	0.9930	0.0035
L5	128 - 123	12.6743	39	0.9686	0.0034
L6	123 - 118	11.6745	39	0.9402	0.0032
L7	118 - 113	10.7064	39	0.9081	0.0031
L8	113 - 100.5	9.7747	39	0.8702	0.0030
L9	104.5 - 99.5	8.2914	39	0.7941	0.0027
L10	99.5 - 94.5	7.4708	39	0.7703	0.0027
L11	94.5 - 89.5	6.6837	39	0.7326	0.0025
L12	89.5 - 84.5	5.9374	39	0.6923	0.0023

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	Client	T-MOBILE	Designed by	kw

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L13	84.5 - 79.5	5.2344	39	0.6500	0.0020
L14	79.5 - 74.5	4.5765	39	0.6061	0.0018
L15	74.5 - 70.417	3.9657	39	0.5602	0.0016
L16	70.417 - 58.25	3.5032	39	0.5214	0.0015
L17	63.25 - 57.25	2.7732	39	0.4509	0.0012
L18	57.25 - 52.979	2.2251	39	0.4175	0.0011
L19	52.979 - 47.979	1.8695	39	0.3775	0.0010
L20	47.979 - 42.979	1.4988	39	0.3303	0.0008
L21	42.979 - 35.125	1.1778	39	0.2828	0.0007
L22	35.125 - 28.75	0.7742	39	0.2079	0.0005
L23	32.4966 - 27.75	0.6645	39	0.1905	0.0004
L24	27.75 - 25.75	0.4832	39	0.1717	0.0004
L25	25.75 - 20.5	0.4149	39	0.1541	0.0003
L26	20.5 - 15.5	0.2628	39	0.1227	0.0002
L27	15.5 - 10.5	0.1501	39	0.0926	0.0002
L28	10.5 - 5.5	0.0688	39	0.0627	0.0001
L29	5.5 - 0	0.0188	39	0.0327	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.00	Andrew VHLP800-11	39	16.8992	1.0330	0.0039	27900
148.00	DB420-B	39	16.8992	1.0330	0.0039	27900
144.00	Andrew VHLPX2.5-10W	39	16.0356	1.0281	0.0039	27900
120.00	Powerwave 7770 w/mount pipe	39	11.0896	0.9214	0.0032	8828
96.00	PD220	39	6.9159	0.7451	0.0026	7787
82.00	PiROD 13' Platform w/handrail	39	4.8997	0.6283	0.0019	6494
72.00	Kathrein 800 10504 w/mount pipe	39	3.6784	0.5370	0.0015	5799
53.00	BSA150B	39	1.8711	0.3777	0.0010	6163
50.00	BULLET III	39	1.6426	0.3490	0.0009	5996

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	148 - 143	Pole	TP23.0151x22x0.25	1	-3948.87	1243390.00	9.3	Pass
L2	143 - 138	Pole	TP24.0301x23.0151x0.25	2	-4350.53	1280700.00	15.8	Pass
L3	138 - 133	Pole	TP25.0452x24.0301x0.25	3	-4774.48	1316460.00	21.9	Pass
L4	133 - 128	Pole	TP26.0602x25.0452x0.25	4	-5220.87	1350670.00	27.6	Pass
L5	128 - 123	Pole	TP27.0753x26.0602x0.25	5	-5689.90	1383330.00	33.0	Pass
L6	123 - 118	Pole	TP28.0903x27.0753x0.25	6	-9357.08	1414450.00	40.3	Pass
L7	118 - 113	Pole	TP29.1054x28.0903x0.25	7	-9966.50	1444010.00	49.5	Pass
L8	113 - 100.5	Pole	TP31.643x29.1054x0.25	8	-11074.60	1490720.00	63.7	Pass
L9	100.5 - 99.5	Pole	TP31.346x30.331x0.375	9	-12359.70	2544520.00	43.6	Pass
L10	99.5 - 94.5	Pole	TP32.361x31.346x0.375	10	-15217.00	2627920.00	48.1	Pass
L11	94.5 - 89.5	Pole	TP33.3761x32.361x0.375	11	-16221.00	2711310.00	52.4	Pass
L12	89.5 - 84.5	Pole	TP34.3911x33.3761x0.375	12	-17260.70	2790220.00	56.4	Pass
L13	84.5 - 79.5	Pole	TP35.4061x34.3911x0.375	13	-21791.60	2846760.00	61.2	Pass
L14	79.5 - 74.5	Pole	TP36.4211x35.4061x0.375	14	-23002.00	2901760.00	66.2	Pass
L15	74.5 - 70.417	Pole	TP37.25x36.4211x0.375	15	-24383.90	2945530.00	70.2	Pass
L16	70.417 - 58.25	Pole	TP39.72x37.25x0.375	16	-26286.30	3019850.00	76.6	Pass

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	Project	148 ft Monopole	Date	11:34:13 06/21/19
	Client	T-MOBILE	Designed by	kw

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail	
L17	58.25 - 57.25	Pole	TP39.1731x37.955x0.4375	17	-28956.00	3712860.00	69.3	Pass	
L18	57.25 - 52.979	Pole	TP40.0401x39.1731x0.4375	18	-30326.60	3792330.00	71.6	Pass	
L19	52.979 - 47.979	Pole	TP41.0552x40.0401x0.4375	19	-31903.40	3858560.00	74.5	Pass	
L20	47.979 - 42.979	Pole	TP42.0703x41.0552x0.4375	20	-33512.50	3923250.00	77.3	Pass	
L21	42.979 - 35.125	Pole	TP43.6648x42.0703x0.4375	21	-36111.10	4021730.00	81.4	Pass	
L22	35.125 - 28.75	Pole	TP44.959x43.6648x0.6375	22	-37270.60	6084110.00	55.6	Pass	
L23	28.75 - 27.75	Pole	TP44.2869x42.9234x0.7	23	-40393.90	6640530.00	53.9	Pass	
L24	27.75 - 25.75	Pole	TP44.6929x44.2869x0.5	24	-41591.60	4841080.00	75.0	Pass	
L25	25.75 - 20.5	Pole	TP45.7586x44.6929x0.75	25	-44297.10	7395660.00	51.7	Pass	
L26	20.5 - 15.5	Pole	TP46.7736x45.7586x0.7375	26	-46888.50	7438420.00	53.3	Pass	
L27	15.5 - 10.5	Pole	TP47.7885x46.7736x0.7375	27	-49531.60	7602410.00	53.9	Pass	
L28	10.5 - 5.5	Pole	TP48.8035x47.7885x0.725	28	-52189.90	7636760.00	55.5	Pass	
L29	5.5 - 0	Pole	TP49.92x48.8035x0.725	29	-55172.00	7814100.00	56.1	Pass	
							Summary		
							Pole (L21)	81.4	Pass
							RATING =	81.4	Pass

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: 0
 Site Name: CT11295A
 App #: 0

Anchor Rod Data

Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, F_y :	75	ksi
Strength, F_u :	100	ksi
Bolt Circle:	58	in
Anchor Spacing:	4	in

Plate Data

W=Side:	60	in
Thick:	2.75	in
Grade:	50	ksi
Clip Distance:	6	in

Stiffener Data (Welding at both sides)

Configuration:	Stiffened	
Weld Type:	Both	**
Groove Depth:	0.5	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.375	in
Fillet V. Weld:	0.375	in
Width:	6	in
Height:	18	in
Thick:	1	in
Notch:	0.75	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data

Diam:	49.92	in
Thick:	0.725	in
Grade:	60	ksi
# of Sides:	12	"0" IF Round

Base Reactions

TIA Revision:	G	
Factored Moment, M_u :	4305	ft-kips
Factored Axial, P_u :	55	kips
Factored Shear, V_u :	44	kips

Anchor Rod Results

TIA G --> Max Rod ($C_u + V_u/\eta$): 185.3 Kips
 Axial Design Strength, $\Phi * F_u * A_{net}$: 260.0 Kips
 Anchor Rod Stress Ratio: 71.3% **Pass**

Base Plate Results

Base Plate Stress: 5.5 ksi
 PL Design Bending Strength, $\Phi * F_y$: 27.0 ksi
 Base Plate Stress Ratio: 20.3% **Pass**

Shear Check Only

PL Ref. Data

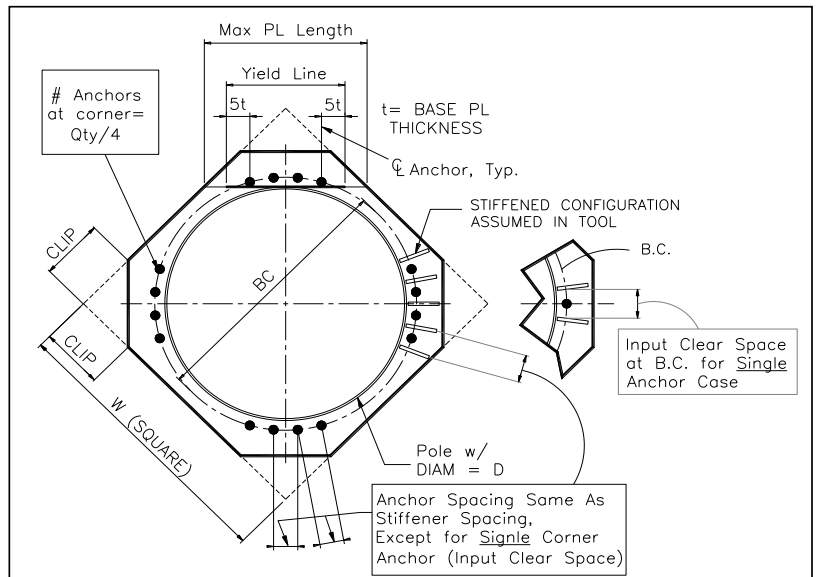
Yield Line (in):	N/A, Roark
Max PL Length:	34.93

Stiffener Results

Horizontal Weld : 40.6% **Pass**
 Vertical Weld: 35.6% **Pass**
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: 10.0% **Pass**
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: 41.4% **Pass**
 Plate Comp. (AISC Bracket): 42.4% **Pass**

Pole Results

Pole Punching Shear Check: 6.0% **Pass**



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

BU: _____
 Site Name: CT11295A
 App Number: _____
 Work Order: _____

Monopole Drilled Pier

Input

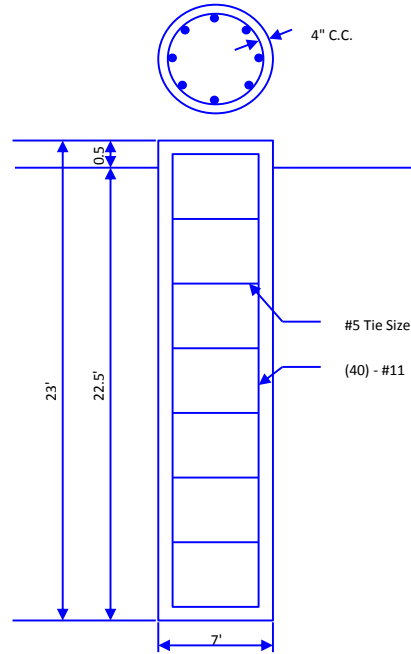
Criteria
 TIA Revision: G
 ACI 318 Revision: 2008
 Seismic Category: B

Forces
 Compression: 55 kips
 Shear: 44 kips
 Moment: 4305 k-ft
 Swelling Force: 0 kips

Foundation Dimensions
 Pier Diameter: 7 ft
 Ext. above grade: 0.5 ft
 Depth below grade: 22.5 ft

Material Properties
 Number of Rebar: 40
 Rebar Size: 11
 Tie Size: 5
 Rebar tensile strength: 60 ksi
 Concrete Strength: 3000 psi
 Ultimate Concrete Strain: 0.003 in/in
 Clear Cover to Ties: 4 in

Soil Profile: Profile 1



Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	8	0	8	100	0	0	0	0		0
2	5	8	13	135		45				
3	5	13	18	135		45				
4	4.5	18	22.5	135		45				

Analysis Results

Soil Lateral Capacity
 Depth to Zero Shear: 8.85 ft
 Max Moment, Mu: 4726.54 k-ft
 Soil Safety Factor: 2.05
 Safety Factor Req'd: 1.33
RATING: 64.9%

Soil Axial Capacity
 Skin Friction (k): 297.78 kips
 End Bearing (k): 0.00 kips
 Comp. Capacity (k), φCn: 297.78 kips
 Comp. (k), Cu: 55.00 kips
RATING: 18.5%

Concrete/Steel Check
 Mu (from soil analysis) 4726.54 k-ft
 φMn 9091.52 k-ft
RATING: 52.0%

rho provided 1.13
 rho required 0.33 **OK**

Rebar Spacing 4.35
 Spacing required 22.56 **OK**

Dev. Length required 13.32
 Dev. Length provided 61.78 **OK**

Overall Foundation Rating: 64.9%



May 30, 2019

Transcend Wireless

T-Mobile

Transcend Wireless LLC
10 Industrial Ave. #3
Mahwah, NJ 07430

RE: Site Number: CT11295A
 Site Name: WESTPORT FD SPRINT TOWER
 Site Address: 515 POST RD EAST
 WESTPORT, CT 06880

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by T-Mobile to perform a mount analysis on the existing T-Mobile antenna mounts to determine their capability of supporting the following equipment installation:

- (3) ATMA4P4DBP-1A20 TMA's (11.2"x8.0"x4.9" – Wt. = 16 lbs. /each)
- (3) Twin Style 1B - AWS TMA's (11.2"x8.0"x4.9" – Wt. = 16 lbs. /each)
- **(3) AIR 32 B66A B2A Antenna (56.6"x12.9"x8.7" – Wt. = 133 lbs. /each)**
- **(3) APXVAARR24_43-U-NA20 Antenna (95.9"x24"x8.7" – Wt. = 128 lbs. /each)**
- **(3) RRUS 4449 B71 & B12 RRH's (14.9"x13.1"x9.2" – Wt. = 74 lbs. /each)**

**Proposed Loading Shown in Bold.*

No original structural design documents or fabrication drawings were available for the existing mount. HDE used mapping data from similar sites to perform this mount analysis.

Based on our analysis, we have determined that the existing mount **IS CAPABLE** of supporting the proposed antenna installation with the following modification:

- **Install new Platform Reinforcement Kit P/N PRK-1245L (or approved equal). Platform Reinforcement kit is required to stabilize existing cantilevered antennas.**
- **Install new Handrail Reinforcement Kit P/N PRK-SFS-L (or approved equal). Handrail kit is required to stabilize existing cantilevered antennas.**
- **Install new Heavy Duty Handrail Kit P/N HRK14-3HD (or approved equal). Handrail kit is required to stabilize existing cantilevered antennas.**
- **Install new 2-1/2" std. (2.88 O.D) pipe masts behind new APXVAARR24_43-U-NA20 antennas secured to the proposed mount (typ. of 1 per sector, total of 3).**

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	1	LC2	403%	FAIL
Modified Mount Rating	14	LC1	88%	PASS

This analysis was conducted in accordance with EIA/TIA-222-G, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the International Building Code 2015 AND 2018 Connecticut State Building Code. (See the attached analysis).

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mounts have been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to T-Mobile's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Structural Dept. Head



The seal is circular with the text "STATE OF CONNECTICUT" at the top, "DANIEL HAMM" in the center, "24178" below the name, and "PROFESSIONAL ENGINEER LICENSED" around the bottom edge.

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:





HUDSON
Design Group LLC

**Wind & Ice
Calculations**

Date: 05/30/2019
 Project Name: WESTPORT FD SPRINT TOWER
 Project No.: CT11295A
 Designed By: BCP Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

$K_z =$ **0.934**

$z =$ 82 (ft)
 $z_g =$ 1200 (ft)
 $\alpha =$ 7.0

$K_{zmin} \leq K_z \leq 2.01$

Table 2-4

Exposure	Z _g	α	K _{zmin}	K _e
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.4 Topographic Factor:

Table 2-5

Topo. Category	K _t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_e K_t / K_h)]^2$$

$$K_h = e^{(fz/H)}$$

$K_{zt} =$ **1**

$K_h =$ 1

$K_e =$ 0 (from Table 2-4)

$K_t =$ 0 (from Table 2-5)

$f =$ 0 (from Table 2-5)

$z =$ 82

$H =$ 141 (Ht. of the crest above surrounding terrain)

$K_{zt} =$ 1.00

$K_{iz} =$ 1.10 (from Sec. 2.6.8)

(If Category 1 then $K_{zt} = 1.0$)

Category = **1**

2.6.8 Design Ice Thickness

Max Ice Thickness =

$t_i =$ **0.75 in**

Importance Factor, $I_{ice} =$

$I_{ice} =$ **1.00** (from Table 2-3)

$$t_{iz} = 2.0 * t_i * I_{ice} * K_{iz} * (K_{zt})^{0.35}$$

$t_{iz} =$ **1.64 in**

Date: 05/30/2019
 Project Name: WESTPORT FD SPRINT TOWER
 Project No.: CT11295A
 Designed By: BCP Checked By: MSC



2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

$Gh = 0.85 + 0.15 [h/150 - 3.0]$

h = ht. of structure

h = 85

Gh = 0.85

2.6.7.2 Guyed Masts

Gh = 0.85

2.6.7.3 Pole Structures

Gh = 1.1

2.6.9 Appurtenances

Gh = 1.0

2.6.7.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5))

Gh = 1.35

Gh = 1.00

2.6.9.2 Design Wind Force on Appurtenances

$F = q_z * Gh * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2 * I$

$q_z = 27.48$

$q_z (ice) = 5.68$

$K_z = 0.934$

$K_{zt} = 1.0$

$K_d = 0.95$ (from Table 2-2)

$V_{max} = 110$

$V_{max (ice)} = 50$

$I = 1.0$ (from Table 2-3)

$I_{wice} = 1.0$ (from Table 2-3)

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

Date: 05/30/2019
 Project Name: WESTPORT FD SPRINT TOWER
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 Designed By: BCP Checked By: MSC



Determine Ca:

Table 2-8

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance, and the section length considered to have uniform wind load).

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.64 in**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ice)
APXVAARR24_43-U-NA20 Antenna	95.9	24.0	8.7	15.98	4.00	1.27	556	135
AIR 32 B66A B2A Antenna	56.6	12.9	8.7	5.07	4.39	1.28	179	49
4449 B71+B12 RRH	14.9	13.1	9.2	1.36	1.14	1.20	45	14
ATMA4P4DBP-1A20 TMA	11.2	8.0	4.9	0.62	1.40	1.20	21	8
Twin Style 1B - AWS TMA	11.2	8.0	4.9	0.62	1.40	1.20	21	8
2" Pipe	2.4	12.0		0.20	0.20	1.20	7	4
L 3x3x1_4	3.0	12.0		0.25	0.25	1.20	8	5
L 2-1_2x2-1_2x3_16	2.5	12.0		0.21	0.21	1.20	7	4
HSS 4x4	4.0	12.0		0.33	0.33	1.20	11	5
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	8	4

Date: 05/30/2019
 Project Name: WESTPORT FD SPRINT TOWER
 Project No.: CT11295A
 Designed By: BCP Checked By: MSC



WIND LOADS

Angle = 60 (deg) Ice Thickness = 1.64 in.

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
APXVAARR24_43-U-N	95.9	24.0	8.7	15.98	5.79	4.00	11.02	1.27	1.53	556	244	322
AIR 32 B66A B2A Ante	56.6	12.9	8.7	5.07	3.42	4.39	6.51	1.28	1.38	179	129	142
4449 B71+B12 RRH	14.9	13.1	9.2	1.36	0.95	1.14	1.62	1.20	1.20	45	31	35
ATMA4P4DBP-1A20 T	11.2	8.0	4.9	0.62	0.38	1.40	2.29	1.20	1.20	21	13	15
Twin Style 1B - AWS T	11.2	8.0	4.9	0.62	0.38	1.40	2.29	1.20	1.20	21	13	15

WIND LOADS WITH ICE:

APXVAARR24_43-U-N	97.5	25.6	10.3	17.37	7.01	3.80	9.43	1.26	1.48	124	59	75
AIR 32 B66A B2A Ante	58.2	14.5	10.3	5.88	4.18	4.00	5.63	1.27	1.34	42	32	34
4449 B71+B12 RRH	16.5	14.7	10.8	1.69	1.25	1.12	1.53	1.20	1.20	12	8	9
ATMA4P4DBP-1A20 T	12.8	9.6	6.5	0.86	0.58	1.33	1.96	1.20	1.20	6	4	4
Twin Style 1B - AWS T	12.8	9.6	6.5	0.86	0.58	1.33	1.96	1.20	1.20	6	4	4

Date: 5/31/2019

Project Name: WESTPORT FD SPRINT TOWER

Project No.: CT11295A

Designed By: BCP Checked By: MSC



HUDSON
Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.64 in.
Density of ice: 56 pcf

APXVAARR24_43-U-NA20 Antenna

Weight of ice based on total radial SF area:

Height (in): 95.9
Width (in): 24.0
Depth (in): 8.7

Total weight of ice on object: 435 lbs

Weight of object: 128.0 lbs

Combined weight of ice and object: 563 lbs

AIR 32 B66A B2A Antenna

Weight of ice based on total radial SF area:

Height (in): 56.6
Width (in): 12.9
Depth (in): 8.7

Total weight of ice on object: 163 lbs

Weight of object: 133.0 lbs

Combined weight of ice and object: 296 lbs

4449 B71+B12 RRH

Weight of ice based on total radial SF area:

Height (in): 14.9
Width (in): 13.1
Depth (in): 9.2

Total weight of ice on object: 44 lbs

Weight of object: 74.0 lbs

Combined weight of ice and object: 118 lbs

ATMA4P4DBP-1A20 TMA

Weight of ice based on total radial SF area:

Height (in): 11.2
Width (in): 8.0
Depth (in): 4.9

Total weight of ice on object: 21 lbs

Weight of object: 16.0 lbs

Combined weight of ice and object: 37 lbs

Twin Style 1B - AWS TMA

Weight of ice based on total radial SF area:

Height (in): 11.2
Width (in): 8.0
Depth (in): 4.9

Total weight of ice on object: 21 lbs

Weight of object: 16.0 lbs

Combined weight of ice and object: 37 lbs

2" pipe

Per foot weight of ice:

diameter (in): 2.38

Per foot weight of ice on object: 8 plf

L 3x3 Angles

Weight of ice based on total radial SF area:

Height (in): 3
Width (in): 3

Per foot weight of ice on object: 12 plf

HSS 3x3

Weight of ice based on total radial SF area:

Height (in): 3
Width (in): 3

Per foot weight of ice on object: 12 plf

3/4" Round Bar

Per foot weight of ice:

diameter (in): 0.75

Per foot weight of ice on object: 5 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in): 2.88

Per foot weight of ice on object: 9 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

Height (in): 2.5
Width (in): 2.5

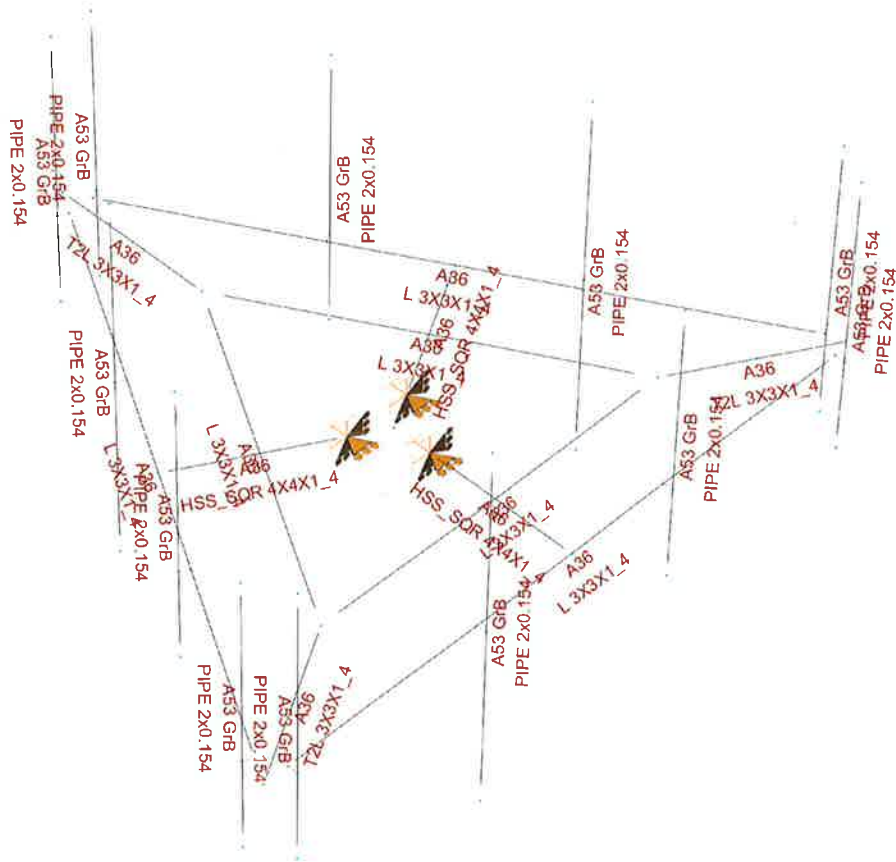
Per foot weight of ice on object: 10 plf



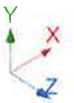
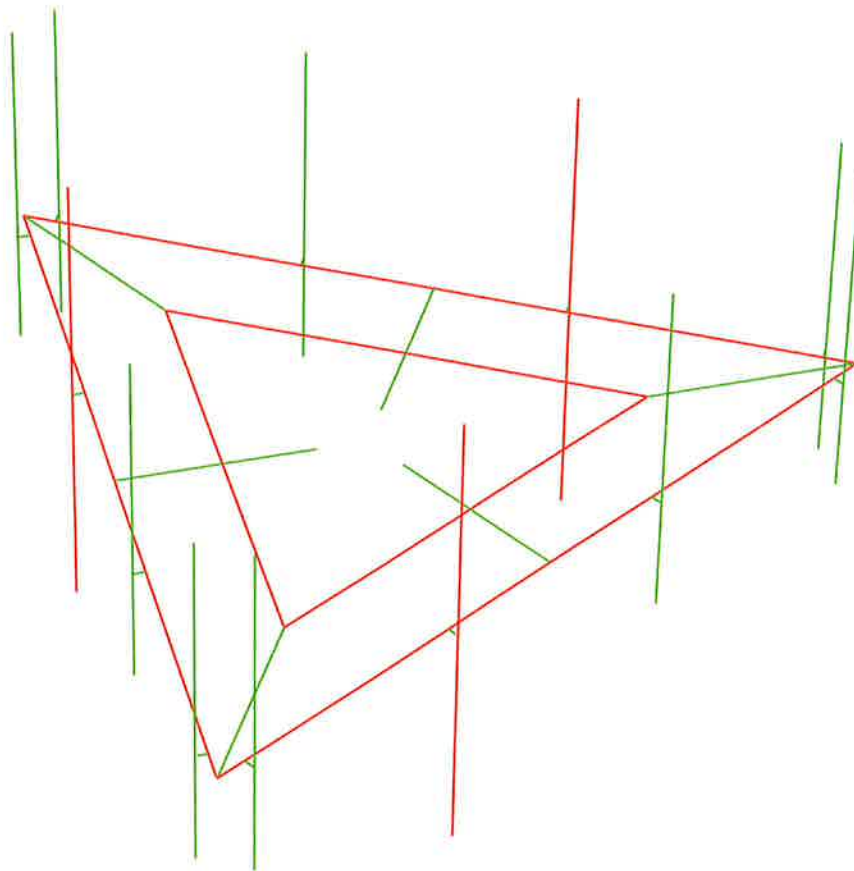
HUDSON
Design Group LLC

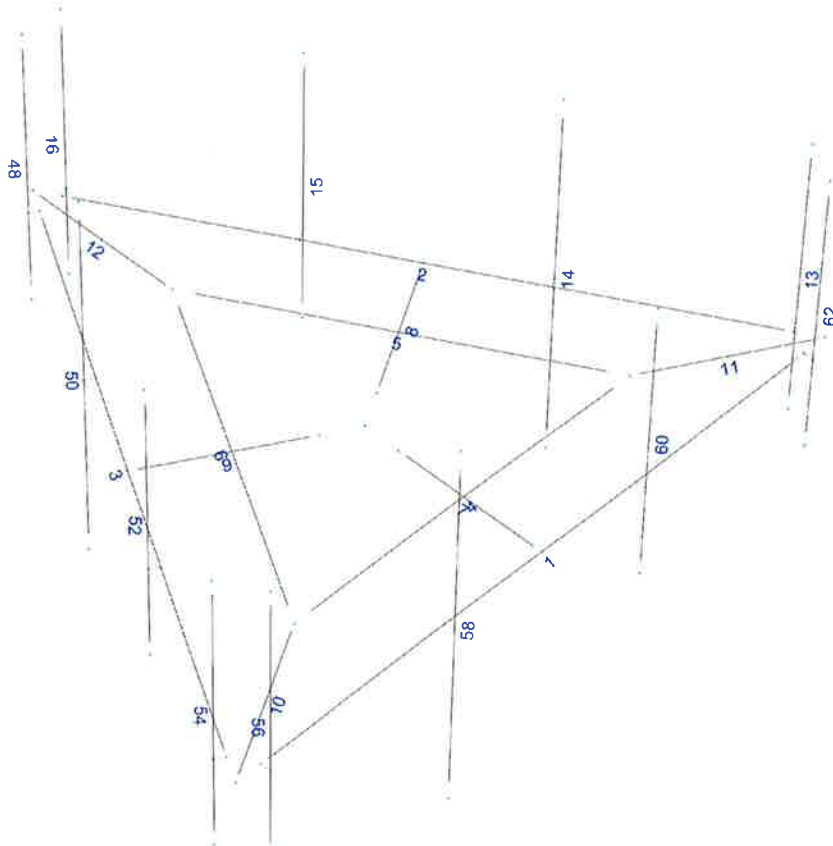
**Mount Calculations
(Proposed Conditions)**





- Not designed
- Error on design
- Design O.K.
- With warnings





Current Date: 5/31/2019 12:50 PM

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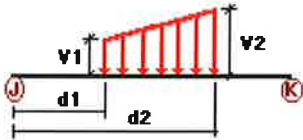
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wo	Wind Load (No Ice)	No	WIND
Wi	Wind Load (With Ice)	No	WIND
Di	Ice Load	No	LL

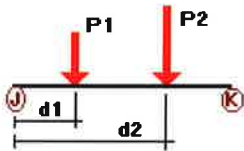
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	1	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	2	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	3	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	4	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	5	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	6	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
Wo	1	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	2	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	3	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	13	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	14	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	15	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	16	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	48	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	50	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	52	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	54	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	56	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	58	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
60	Z	-0.007	-0.007	0.00	Yes	100.00	Yes	
62	Z	-0.007	-0.007	0.00	Yes	100.00	Yes	
Di	1	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	2	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	3	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	4	Y	-0.012	-0.012	0.00	Yes	100.00	Yes

5	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
6	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
7	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
8	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
9	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
10	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
11	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
12	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
13	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
14	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
15	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
16	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
48	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
50	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
52	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
54	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
56	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
58	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
60	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
62	Y	-0.008	-0.008	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%	
DL	14	Y	-0.064	0.50	No	
		Y	-0.064	7.50	No	
		y	-0.074	3.00	No	
		Y	-0.016	5.00	No	
		Y	-0.016	5.00	No	
		16	Y	-0.067	0.50	No
			Y	-0.067	3.50	No
		50	Y	-0.064	0.50	No
			Y	-0.064	7.50	No
			y	-0.074	3.00	No
	Y		-0.016	5.00	No	
	Y		-0.016	5.00	No	
	54	Y	-0.067	0.50	No	
		Y	-0.067	3.50	No	
	58	Y	-0.064	0.50	No	
		Y	-0.064	7.50	No	
		y	-0.074	3.00	No	
		Y	-0.016	5.00	No	
		Y	-0.016	5.00	No	
	62	Y	-0.067	0.50	No	
Y		-0.067	3.50	No		
Wo	14	Z	-0.166	0.50	No	
		Z	-0.166	7.50	No	
		Z	-0.035	3.00	No	
		Z	-0.015	5.00	No	
		Z	-0.015	5.00	No	

		Z	-0.015	5.00	No
	16	Z	-0.071	0.50	No
		Z	-0.071	3.50	No
	50	Z	-0.166	0.50	No
		Z	-0.166	7.50	No
		Z	-0.035	3.00	No
		Z	-0.015	5.00	No
		Z	-0.015	5.00	No
	54	Z	-0.071	0.50	No
		Z	-0.071	3.50	No
	58	Z	-0.278	0.50	No
		Z	-0.278	7.50	No
	62	Z	-0.089	0.50	No
		Z	-0.089	3.50	No
Wi	14	Z	-0.037	0.50	No
		Z	-0.037	7.50	No
		Z	-0.009	3.00	No
		Z	-0.004	5.00	No
		Z	-0.004	5.00	No
	16	Z	-0.017	0.50	No
		Z	-0.017	3.50	No
	50	Z	-0.037	0.50	No
		Z	-0.037	7.50	No
		Z	-0.009	3.00	No
		Z	-0.004	5.00	No
		Z	-0.004	5.00	No
	54	Z	-0.017	0.50	No
		Z	-0.017	3.50	No
	58	Z	-0.067	0.50	No
		Z	-0.067	7.50	No
	62	Z	-0.024	0.50	No
		Z	-0.024	3.50	No
Di	14	Y	-0.221	0.50	No
		Y	-0.221	7.50	No
		y	-0.045	3.00	No
		Y	-0.021	5.00	No
		Y	-0.021	5.00	No
	16	Y	-0.083	0.50	No
		Y	-0.083	3.50	No
	50	Y	-0.221	0.50	No
		Y	-0.221	7.50	No
		y	-0.045	3.00	No
		Y	-0.021	5.00	No
		Y	-0.021	5.00	No
	54	Y	-0.083	0.50	No
		Y	-0.083	3.50	No
	58	Y	-0.221	0.50	No
		Y	-0.221	7.50	No
		y	-0.045	3.00	No
		Y	-0.021	5.00	No
		Y	-0.021	5.00	No
	62	Y	-0.083	0.50	No
		Y	-0.083	3.50	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (No Ice)	No	0.00	0.00	0.00
Wi	Wind Load (With Ice)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wo	0.00	0.00	0.00
Wi	0.00	0.00	0.00
Di	0.00	0.00	0.00

Current Date: 5/31/2019 12:51 PM

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+1.6Wo

LC2=0.9DL+1.6Wo

LC3=1.2DL+Wi+Di

LC4=1.2DL

LC5=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
<i>HSS_SQR 4X4X1_4</i>		7	LC3 at 0.00%	0.72	OK	Eq. H1-1b
		8	LC3 at 0.00%	0.74	OK	Eq. H1-1b
		9	LC3 at 0.00%	0.75	OK	Eq. H1-1b
<i>L 3X3X1_4</i>		1	LC2 at 100.00%	4.03	N.G.	Eq. H3-8
		2	LC3 at 50.00%	2.39	N.G.	Eq. H2-1
		3	LC3 at 48.96%	2.24	N.G.	Eq. H2-1
		4	LC3 at 50.00%	1.30	N.G.	Sec. F1
		5	LC3 at 53.13%	1.26	N.G.	Sec. F1
		6	LC3 at 50.00%	1.31	N.G.	Sec. F1
<i>PIPE 2x0.154</i>		13	LC1 at 65.63%	0.10	OK	Eq. H1-1b
		14	LC1 at 50.00%	1.17	N.G.	Eq. H1-1b
		15	LC1 at 34.38%	0.10	OK	Eq. H1-1b
		16	LC1 at 65.63%	0.58	OK	Eq. H1-1b
		48	LC1 at 65.63%	0.10	OK	Eq. H1-1b
		50	LC1 at 50.00%	1.17	N.G.	Eq. H1-1b
		52	LC1 at 65.63%	0.10	OK	Eq. H1-1b
		54	LC1 at 65.63%	0.58	OK	Eq. H1-1b
		56	LC1 at 65.63%	0.07	OK	Eq. H1-1b
		58	LC1 at 50.00%	1.33	N.G.	Eq. H1-1b
		60	LC1 at 65.63%	0.07	OK	Eq. H1-1b
		62	LC1 at 65.63%	0.52	OK	Eq. H1-1b
<i>RndBar 1-1_2</i>		28	LC1 at 0.00%	0.08	OK	Eq. H3-1
		31	LC1 at 0.00%	0.78	OK	Eq. H3-6
		49	LC1 at 0.00%	0.08	OK	Eq. H3-1
		53	LC1 at 0.00%	0.08	OK	Eq. H3-1
		55	LC1 at 0.00%	0.78	OK	Eq. H3-6
		57	LC1 at 100.00%	0.07	OK	Eq. H1-1b
		61	LC1 at 100.00%	0.07	OK	Eq. H1-1b
		63	LC1 at 100.00%	0.69	OK	Eq. H1-1b
<i>RndBar 1-3_4</i>		29	LC3 at 0.00%	0.13	OK	Eq. H1-1b
		30	LC1 at 0.00%	0.05	OK	Eq. H3-1
		51	LC3 at 0.00%	0.13	OK	Eq. H1-1b
		59	LC3 at 0.00%	0.12	OK	Eq. H1-1b
<i>T2L 3X3X1_4</i>		10	LC3 at 100.00%	0.32	OK	Eq. H2-1
		11	LC2 at 100.00%	0.33	OK	Eq. H2-1
		12	LC3 at 100.00%	0.33	OK	Eq. H2-1

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Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\T-MOBILE\CT\CT11295\CT11295 Base.ret\

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
3	4.6476	4.00	-4.0971	0
4	0.00	0.00	-3.1359	0
5	-0.6752	0.00	-4.3054	0
6	-3.8563	0.00	-1.6891	0
7	6.689	4.00	-0.5614	0
8	-6.782	0.00	0.00	0
12	0.00	0.00	-8.3685	0
13	-3.391	0.00	-5.8734	0
16	0.00	0.00	-11.7467	0
17	2.4809	-2.00	-7.85	0
18	0.6752	0.00	-4.3054	0
19	3.8563	0.00	-1.6891	0
20	0.4396	4.00	-11.3857	0
21	6.782	0.00	0.00	0
25	3.391	0.00	-5.8734	0
28	4.6476	-4.00	-4.0971	0
29	6.689	-2.00	-0.5614	0
30	2.4809	4.00	-7.85	0
31	0.4396	-2.00	-11.3857	0
40	-5.3192	0.00	-0.8446	0
41	5.3192	0.00	-0.8446	0

42	0.00	0.00	-10.0576	0
49	0.00	0.00	-3.9157	0
50	6.5158	0.00	-0.4614	0
51	4.4744	0.00	-3.9971	0
52	0.2664	0.00	-11.2857	0
53	2.3077	0.00	-7.75	0
54	2.4809	0.00	-7.85	0
55	0.4396	0.00	-11.3857	0
56	4.6476	0.00	-4.0971	0
57	6.689	0.00	-0.5614	0
90	-0.4396	4.00	-11.3857	0
91	-0.4396	-2.00	-11.3857	0
92	-0.2664	0.00	-11.2857	0
93	-0.4396	0.00	-11.3857	0
94	-2.4809	4.00	-7.85	0
95	-2.4809	-4.00	-7.85	0
96	-2.3077	0.00	-7.75	0
97	-2.4809	0.00	-7.85	0
98	-4.6476	4.00	-4.0971	0
99	-4.6476	-2.00	-4.0971	0
100	-4.4744	0.00	-3.9971	0
101	-4.6476	0.00	-4.0971	0
102	-6.689	4.00	-0.5614	0
103	-6.689	-2.00	-0.5614	0
104	-6.5158	0.00	-0.4614	0
105	-6.689	0.00	-0.5614	0
106	-6.2494	4.00	0.20	0
107	-6.2494	-2.00	0.20	0
108	-6.2494	0.00	0.00	0
109	-6.2494	0.00	0.20	0
110	-2.1667	4.00	0.20	0
111	-2.1667	-4.00	0.20	0
112	-2.1667	0.00	0.00	0
113	-2.1667	0.00	0.20	0
114	2.1667	4.00	0.20	0
115	2.1667	-2.00	0.20	0
116	2.1667	0.00	0.00	0
117	2.1667	0.00	0.20	0
118	6.2494	4.00	0.20	0
119	6.2494	-2.00	0.20	0
120	6.2494	0.00	0.00	0
121	6.2494	0.00	0.20	0
172	2.9581	0.00	-5.6235	0
175	-2.9581	0.00	-5.6235	0
176	0.00	0.00	-0.50	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
4	1	1	1	1	1	1
5	1	1	1	1	1	1
18	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	8	21		L 3X3X1_4	A36	0.00	0.00	0.00
2	21	16		L 3X3X1_4	A36	0.00	0.00	0.00
3	16	8		L 3X3X1_4	A36	0.00	0.00	0.00
4	6	19		L 3X3X1_4	A36	0.00	0.00	0.00
5	19	12		L 3X3X1_4	A36	0.00	0.00	0.00
6	12	6		L 3X3X1_4	A36	0.00	0.00	0.00
7	4	1		HSS_SQR 4X4X1_4	A36	0.00	0.00	0.00
8	18	25		HSS_SQR 4X4X1_4	A36	0.00	0.00	0.00
9	5	13		HSS_SQR 4X4X1_4	A36	0.00	0.00	0.00
10	8	6		T2L 3X3X1_4	A36	0.00	0.00	0.00
11	19	21		T2L 3X3X1_4	A36	0.00	0.00	0.00
12	16	12		T2L 3X3X1_4	A36	0.00	0.00	0.00
13	7	29		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
14	3	28		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
15	17	30		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
16	20	31		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	50	57		RndBar 1-1_2	A36	0.00	0.00	0.00
29	51	56		RndBar 1-3_4	A36	0.00	0.00	0.00
30	53	54		RndBar 1-3_4	A36	0.00	0.00	0.00
31	52	55		RndBar 1-1_2	A36	0.00	0.00	0.00
48	90	91		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
49	92	93		RndBar 1-1_2	A36	0.00	0.00	0.00
50	94	95		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
51	96	97		RndBar 1-3_4	A36	0.00	0.00	0.00
52	98	99		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
53	100	101		RndBar 1-1_2	A36	0.00	0.00	0.00
54	102	103		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
55	104	105		RndBar 1-1_2	A36	0.00	0.00	0.00
56	106	107		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
57	108	109		RndBar 1-1_2	A36	0.00	0.00	0.00
58	110	111		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
59	112	113		RndBar 1-3_4	A36	0.00	0.00	0.00
60	114	115		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
61	116	117		RndBar 1-1_2	A36	0.00	0.00	0.00
62	118	119		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
63	120	121		RndBar 1-1_2	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	270.00	0	0.00	0.00	0.00
2	270.00	0	0.00	0.00	0.00
3	270.00	0	0.00	0.00	0.00
10	180.00	0	0.00	0.00	0.00
11	180.00	0	0.00	0.00	0.00
12	180.00	0	0.00	0.00	0.00
13	0.00	2	-0.50	0.00	-0.866
14	0.00	2	-0.50	0.00	-0.866
15	0.00	2	-0.50	0.00	-0.866
16	0.00	2	-0.50	0.00	-0.866
48	0.00	2	-0.50	0.00	0.866
50	0.00	2	-0.50	0.00	0.866
52	0.00	2	-0.50	0.00	0.866
54	0.00	2	-0.50	0.00	0.866

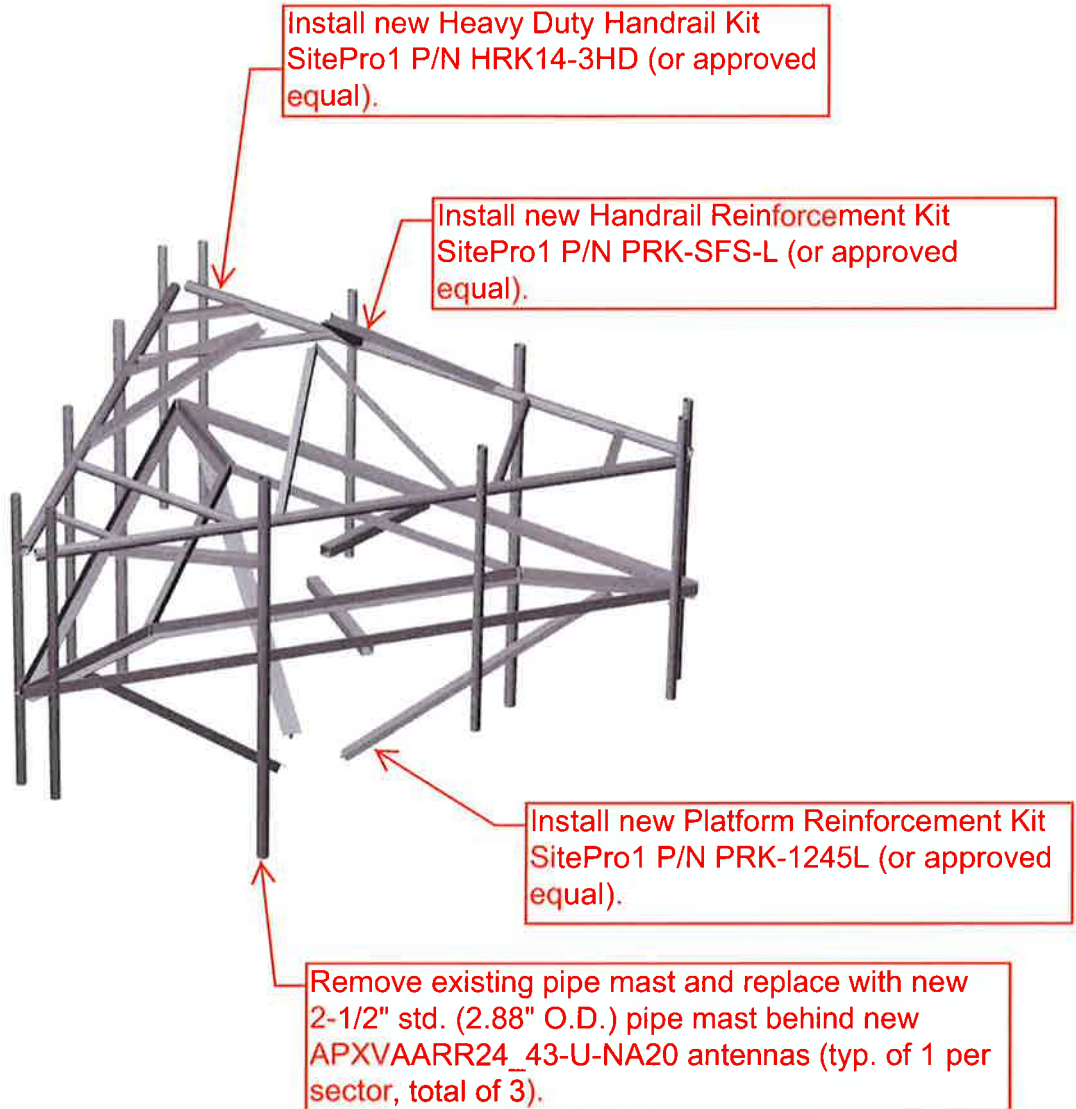
Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
1	0.00	2.00	0.00	0.00	2.00	0.00
2	0.00	2.00	0.00	0.00	2.00	0.00
3	0.00	2.00	0.00	0.00	2.00	0.00
4	0.00	2.00	0.00	0.00	2.00	0.00
5	0.00	2.00	0.00	0.00	2.00	0.00
6	0.00	2.00	0.00	0.00	2.00	0.00
10	0.00	2.00	0.00	0.00	2.00	0.00
11	0.00	2.00	0.00	0.00	2.00	0.00
12	0.00	2.00	0.00	0.00	2.00	0.00

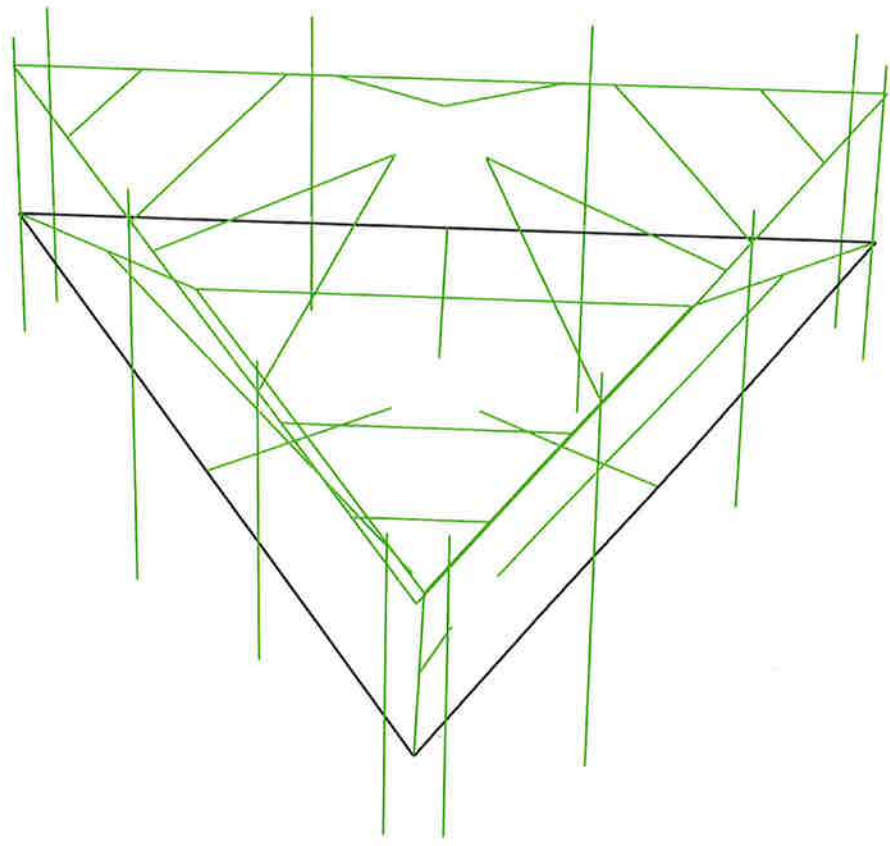


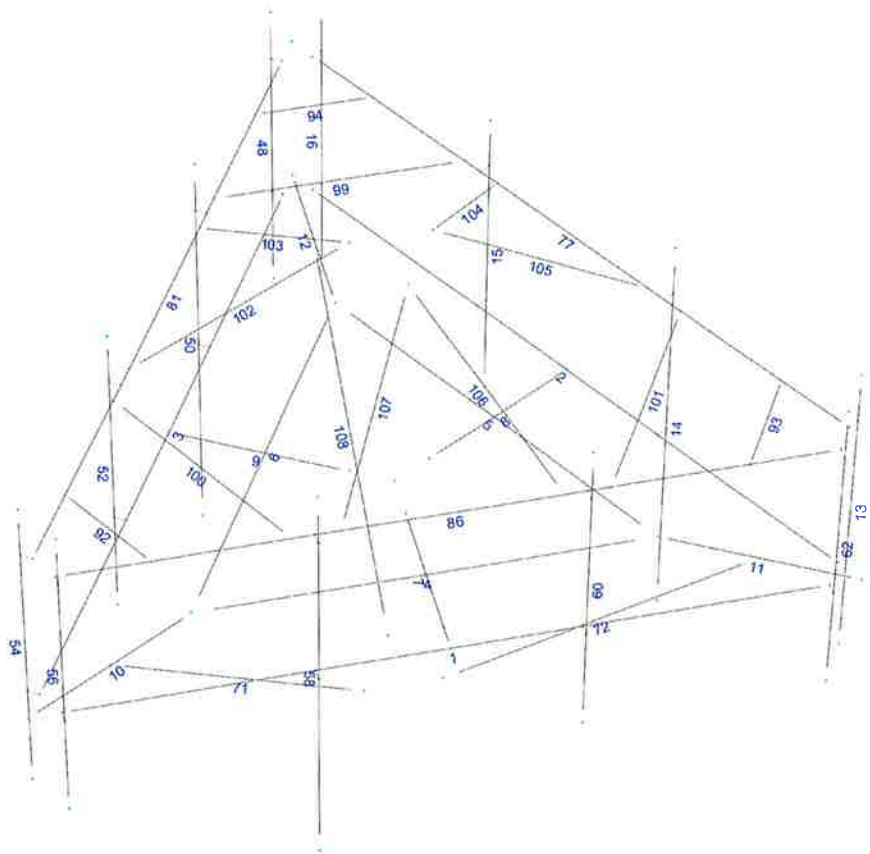
HUDSON
Design Group LLC

**Mount Calculations
(Modified Conditions)**



- Not designed
- Error on design
- Design O.K.
- With warnings





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Units system: English

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Load data

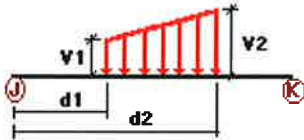
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wo	Wind Load (No Ice)	No	WIND
Wi	Wind Load (With Ice)	No	WIND
Di	Ice Load	No	LL

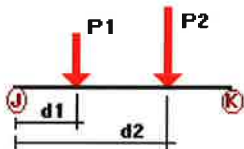
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	1	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	2	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	3	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	4	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	5	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	6	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
Wo	1	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	2	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	3	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	13	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	14	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	15	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	16	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	48	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	50	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	52	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	54	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	56	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	58	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	60	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
62	Z	-0.007	-0.007	0.00	Yes	100.00	Yes	
Di	1	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	2	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	3	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	4	Y	-0.012	-0.012	0.00	Yes	100.00	Yes

5	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
6	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
7	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
8	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
9	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
10	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
11	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
12	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
13	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
14	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
15	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
16	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
48	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
50	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
52	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
54	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
56	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
58	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
60	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
62	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
71	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
92	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
72	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
93	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
94	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
99	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
100	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
101	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
102	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
103	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
104	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
105	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
106	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
107	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
108	Y	-0.01	-0.01	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	14	Y	-0.064	0.50	No
		Y	-0.064	7.50	No
		y	-0.074	3.00	No
		Y	-0.016	5.00	No
		Y	-0.016	5.00	No
	16	Y	-0.067	0.50	No
		Y	-0.067	3.50	No
	50	Y	-0.064	0.50	No
		Y	-0.064	7.50	No
		y	-0.074	3.00	No

		Y	-0.016	5.00	No
		Y	-0.016	5.00	No
	54	Y	-0.067	0.50	No
		Y	-0.067	3.50	No
	58	Y	-0.064	0.50	No
		Y	-0.064	7.50	No
		y	-0.074	3.00	No
		Y	-0.016	5.00	No
		Y	-0.016	5.00	No
	62	Y	-0.067	0.50	No
		Y	-0.067	3.50	No
Wo	14	Z	-0.161	0.50	No
		Z	-0.161	7.50	No
		Z	-0.035	3.00	No
		Z	-0.015	5.00	No
		Z	-0.015	5.00	No
	16	Z	-0.071	0.50	No
		Z	-0.071	3.50	No
	50	Z	-0.161	0.50	No
		Z	-0.161	7.50	No
		Z	-0.035	3.00	No
		Z	-0.015	5.00	No
		Z	-0.015	5.00	No
	54	Z	-0.071	0.50	No
		Z	-0.071	3.50	No
	58	Z	-0.278	0.50	No
		Z	-0.278	7.50	No
	62	Z	-0.089	0.50	No
		Z	-0.089	3.50	No
Wi	14	Z	-0.037	0.50	No
		Z	-0.037	7.50	No
		Z	-0.009	3.00	No
		Z	-0.004	5.00	No
		Z	-0.004	5.00	No
	16	Z	-0.017	0.50	No
		Z	-0.017	3.50	No
	50	Z	-0.037	0.50	No
		Z	-0.037	7.50	No
		Z	-0.009	3.00	No
		Z	-0.004	5.00	No
		Z	-0.004	5.00	No
	54	Z	-0.017	0.50	No
		Z	-0.017	3.50	No
	58	Z	-0.067	0.50	No
		Z	-0.067	7.50	No
	62	Z	-0.024	0.50	No
		Z	-0.024	3.50	No
Di	14	Y	-0.221	0.50	No
		Y	-0.221	7.50	No
		y	-0.045	3.00	No
		Y	-0.021	5.00	No
		Y	-0.021	5.00	No
	16	Y	-0.083	0.50	No
		Y	-0.083	3.50	No
	50	Y	-0.221	0.50	No
		Y	-0.221	7.50	No
		y	-0.045	3.00	No
		Y	-0.021	5.00	No
		Y	-0.021	5.00	No
	54	Y	-0.083	0.50	No

	Y	-0.083	3.50	No
58	Y	-0.221	0.50	No
	Y	-0.221	7.50	No
	y	-0.045	3.00	No
	Y	-0.021	5.00	No
	Y	-0.021	5.00	No
62	Y	-0.083	0.50	No
	Y	-0.083	3.50	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (No Ice)	No	0.00	0.00	0.00
Wi	Wind Load (With Ice)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wo	0.00	0.00	0.00
Wi	0.00	0.00	0.00
Di	0.00	0.00	0.00

Current Date: 5/31/2019 2:18 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\T-MOBILE\CT\CT11295\CT11295 (MOD).retxl

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+1.6Wo

LC2=0.9DL+1.6Wo

LC3=1.2DL+Wi+Di

LC4=1.2DL

LC5=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
<i>HSS_SQR 3X3X3_16</i>		7	LC1 at 100.00%	0.27	OK	Eq. H1-1b
		8	LC3 at 0.00%	0.43	OK	Eq. H1-1b
		9	LC3 at 0.00%	0.48	OK	Eq. H1-1b
<i>L 2-1_2X2-1_2X3_16</i>		92	LC1 at 0.00%	0.16	OK	Sec. F1
		93	LC1 at 100.00%	0.27	OK	Sec. F1
		94	LC3 at 100.00%	0.20	OK	Sec. F1
		102	LC3 at 0.00%	0.28	OK	Eq. H2-1
		103	LC3 at 0.00%	0.37	OK	Eq. H2-1
		104	LC3 at 0.00%	0.35	OK	Eq. H2-1
		105	LC3 at 0.00%	0.30	OK	Eq. H2-1
		106	LC3 at 0.00%	0.22	OK	Eq. H2-1
		107	LC3 at 100.00%	0.25	OK	Eq. H2-1
<i>L 3X3X1_4</i>		1	LC2 at 48.96%	0.88	With warnings	Eq. H2-1
		2	LC3 at 66.67%	0.46	With warnings	Eq. H2-1
		3	LC1 at 33.33%	0.48	With warnings	Eq. H2-1
		4	LC3 at 0.00%	0.09	OK	Eq. H2-1
		5	LC3 at 53.13%	0.40	OK	Eq. H2-1
		6	LC3 at 46.88%	0.36	OK	Eq. H2-1
<i>PIPE 2-1_2x0.203</i>		14	LC1 at 50.00%	0.60	OK	Eq. H1-1b
		50	LC1 at 50.00%	0.60	OK	Eq. H1-1b
		58	LC2 at 47.92%	0.77	OK	Eq. H1-1b
		109	LC3 at 69.32%	0.30	OK	Eq. H1-1b
		110	LC3 at 30.68%	0.46	OK	Eq. H1-1b
		111	LC3 at 30.68%	0.34	OK	Eq. H1-1b
<i>PIPE 2x0.154</i>		13	LC3 at 16.67%	0.05	OK	Eq. H1-1b
		15	LC3 at 16.67%	0.32	OK	Eq. H1-1b
		16	LC3 at 16.67%	0.37	OK	Eq. H1-1b
		48	LC3 at 16.67%	0.34	OK	Eq. H1-1b
		52	LC3 at 64.58%	0.09	OK	Eq. H1-1b
		54	LC3 at 64.58%	0.12	OK	Eq. H1-1b
		56	LC1 at 64.58%	0.05	OK	Eq. H1-1b
		60	LC3 at 64.58%	0.05	OK	Eq. H1-1b
		62	LC3 at 64.58%	0.12	OK	Eq. H1-1b
		99	LC3 at 0.00%	0.19	OK	Eq. H1-1b
		100	LC3 at 0.00%	0.22	OK	Eq. H1-1b
		101	LC3 at 0.00%	0.20	OK	Eq. H1-1b
<i>T2L 2-1_2X2-1_2X3_16</i>		71	LC3 at 0.00%	0.32	OK	Eq. H2-1
		72	LC3 at 100.00%	0.32	OK	Eq. H2-1
		108	LC3 at 100.00%	0.33	OK	Eq. H2-1

T2L 3X3X1_4

10	LC1 at 0.00%	0.29	OK	Eq. H2-1
11	LC3 at 100.00%	0.25	OK	Eq. H2-1
12	LC3 at 50.00%	0.19	OK	Eq. H2-1

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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
3	4.6476	4.00	-4.0971	0
4	0.00	0.00	-3.1359	0
5	-0.6752	0.00	-4.3054	0
6	-3.8563	0.00	-1.6891	0
7	6.689	4.00	-0.5614	0
8	-6.782	0.00	0.00	0
12	0.00	0.00	-8.3685	0
13	-3.391	0.00	-5.8734	0
16	0.00	0.00	-11.7467	0
17	2.4809	4.00	-7.85	0
18	0.6752	0.00	-4.3054	0
19	3.8563	0.00	-1.6891	0
20	0.4396	4.00	-11.3857	0
21	6.782	0.00	0.00	0
25	3.391	0.00	-5.8734	0
28	4.6476	-4.00	-4.0971	0
29	6.689	-2.00	-0.5614	0
30	2.4809	-2.00	-7.85	0
31	0.4396	-2.00	-11.3857	0
40	-5.3192	0.00	-0.8446	0
41	5.3192	0.00	-0.8446	0

49	0.00	0.00	-3.9157	0
50	6.5158	0.00	-0.4614	0
51	4.4744	0.00	-3.9971	0
52	0.2664	0.00	-11.2857	0
53	2.3077	0.00	-7.75	0
54	2.4809	0.00	-7.85	0
55	0.4396	0.00	-11.3857	0
56	4.6476	0.00	-4.0971	0
57	6.689	0.00	-0.5614	0
90	-0.4396	4.00	-11.3857	0
91	-0.4396	-2.00	-11.3857	0
92	-0.2664	0.00	-11.2857	0
93	-0.4396	0.00	-11.3857	0
94	-2.4809	4.00	-7.85	0
95	-2.4809	-4.00	-7.85	0
96	-2.3077	0.00	-7.75	0
97	-2.4809	0.00	-7.85	0
98	-4.6476	4.00	-4.0971	0
99	-4.6476	-2.00	-4.0971	0
100	-4.4744	0.00	-3.9971	0
101	-4.6476	0.00	-4.0971	0
102	-6.689	4.00	-0.5614	0
103	-6.689	-2.00	-0.5614	0
104	-6.5158	0.00	-0.4614	0
105	-6.689	0.00	-0.5614	0
106	-6.2494	4.00	0.20	0
107	-6.2494	-2.00	0.20	0
108	-6.2494	0.00	0.00	0
109	-6.2494	0.00	0.20	0
110	-2.1667	4.00	0.20	0
111	-2.1667	-4.00	0.20	0
112	-2.1667	0.00	0.00	0
113	-2.1667	0.00	0.20	0
114	2.1667	4.00	0.20	0
115	2.1667	-2.00	0.20	0
116	2.1667	0.00	0.00	0
117	2.1667	0.00	0.20	0
118	6.2494	4.00	0.20	0
119	6.2494	-2.00	0.20	0
120	6.2494	0.00	0.00	0
121	6.2494	0.00	0.20	0
183	0.00	-4.00	-4.3054	0
185	0.6752	-4.00	-3.1359	0
186	-0.6752	-4.00	-3.1359	0
196	0.00	0.00	-0.50	0
197	2.3077	3.00	-7.75	0
198	2.4809	3.00	-7.85	0
199	0.2664	3.00	-11.2857	0
200	0.4396	3.00	-11.3857	0
201	-0.2664	3.00	-11.2857	0
202	-0.4396	3.00	-11.3857	0
203	-2.3077	3.00	-7.75	0
204	-2.4809	3.00	-7.85	0
205	-4.4744	3.00	-3.9971	0
206	-4.6476	3.00	-4.0971	0
207	-6.5158	3.00	-0.4614	0
208	-6.689	3.00	-0.5614	0
209	-6.2494	3.00	0.00	0
210	-6.2494	3.00	0.20	0
211	-2.1667	3.00	0.00	0

212	-2.1667	3.00	0.20	0
213	2.1667	3.00	0.00	0
214	2.1667	3.00	0.20	0
215	6.2494	3.00	0.00	0
216	6.2494	3.00	0.20	0
217	6.5158	3.00	-0.4614	0
218	6.689	3.00	-0.5614	0
219	4.4744	3.00	-3.9971	0
220	4.6476	3.00	-4.0971	0
224	-4.782	3.00	0.00	0
225	4.782	3.00	0.00	0
226	5.7821	3.00	-1.7322	0
227	-5.7821	3.00	-1.7322	0
228	-1.0001	3.00	-10.0149	0
229	1.0001	3.00	-10.0149	0
250	2.5379	3.00	0.00	0
269	4.66	3.00	-3.6757	0
279	-2.5379	3.00	0.00	0
280	-4.66	3.00	-3.6757	0
290	-2.1222	3.00	-8.0714	0
309	2.1222	3.00	-8.0714	0
310	-0.6752	5.00	-4.3054	0
311	0.6752	5.00	-4.3054	0
312	0.00	5.00	-3.1359	0
313	-4.2775	3.00	-4.3383	0
322	-2.5047	3.00	-7.4088	0
323	2.5047	3.00	-7.4088	0
332	4.2775	3.00	-4.3383	0
333	1.7728	3.00	0.00	0
342	-1.7728	3.00	0.00	0
343	0.00	0.00	-10.0576	0
349	-6.6392	3.00	-0.2475	0
355	-6.4963	3.00	0.00	0
361	6.4963	3.00	0.00	0
362	6.6392	3.00	-0.2475	0
363	0.1429	3.00	-11.4993	0
364	-0.1429	3.00	-11.4993	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
4	1	1	1	1	1	1
5	1	1	1	1	1	1
18	1	1	1	1	1	1
185	1	1	1	1	1	1
186	1	1	1	1	1	1
310	1	1	1	1	1	1
311	1	1	1	1	1	1
312	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	8	21		L 3X3X1_4	A36	0.00	0.00	0.00
2	21	16		L 3X3X1_4	A36	0.00	0.00	0.00
3	16	8		L 3X3X1_4	A36	0.00	0.00	0.00
4	6	19		L 3X3X1_4	A36	0.00	0.00	0.00
5	19	12		L 3X3X1_4	A36	0.00	0.00	0.00
6	12	6		L 3X3X1_4	A36	0.00	0.00	0.00
7	4	1		HSS_SQR 3X3X3_16	A36	0.00	0.00	0.00
8	18	25		HSS_SQR 3X3X3_16	A36	0.00	0.00	0.00
9	5	13		HSS_SQR 3X3X3_16	A36	0.00	0.00	0.00
10	8	6		T2L 3X3X1_4	A36	0.00	0.00	0.00
11	19	21		T2L 3X3X1_4	A36	0.00	0.00	0.00
12	16	12		T2L 3X3X1_4	A36	0.00	0.00	0.00
13	7	29		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
14	3	28		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
15	17	30		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
16	20	31		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	50	57		RndBar 1-1_2	A36	0.00	0.00	0.00
29	51	56		RndBar 1-1_2	A36	0.00	0.00	0.00
30	53	54		RndBar 1-1_2	A36	0.00	0.00	0.00
31	52	55		RndBar 1-1_2	A36	0.00	0.00	0.00
48	90	91		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
49	92	93		RndBar 1-1_2	A36	0.00	0.00	0.00
50	94	95		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
51	96	97		RndBar 1-1_2	A36	0.00	0.00	0.00
52	98	99		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
53	100	101		RndBar 1-1_2	A36	0.00	0.00	0.00
54	102	103		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
55	104	105		RndBar 1-1_2	A36	0.00	0.00	0.00
56	106	107		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
57	108	109		RndBar 1-1_2	A36	0.00	0.00	0.00
58	110	111		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
59	112	113		RndBar 1-1_2	A36	0.00	0.00	0.00
60	114	115		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
61	116	117		RndBar 1-1_2	A36	0.00	0.00	0.00
62	118	119		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
63	120	121		RndBar 1-1_2	A36	0.00	0.00	0.00
71	40	186		T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
78	197	198		RndBar 1-1_2	A36	0.00	0.00	0.00
79	199	200		RndBar 1-1_2	A36	0.00	0.00	0.00
80	201	202		RndBar 1-1_2	A36	0.00	0.00	0.00
82	203	204		RndBar 1-3_4	A36	0.00	0.00	0.00
83	205	206		RndBar 1-1_2	A36	0.00	0.00	0.00
84	207	208		RndBar 1-1_2	A36	0.00	0.00	0.00
85	209	210		RndBar 1-1_2	A36	0.00	0.00	0.00
87	211	212		RndBar 1-1_2	A36	0.00	0.00	0.00
88	213	214		RndBar 1-1_2	A36	0.00	0.00	0.00
89	215	216		RndBar 1-1_2	A36	0.00	0.00	0.00
90	217	218		RndBar 1-1_2	A36	0.00	0.00	0.00
91	219	220		RndBar 1-1_2	A36	0.00	0.00	0.00
92	227	224		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
72	185	41		T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
93	226	225		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
94	229	228		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
99	309	290		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
100	280	279		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
101	250	269		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
102	313	310		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
103	310	322		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
104	323	311		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
105	332	311		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

106	333	312	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
107	312	342	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
108	183	343	T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
109	355	361	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
110	363	362	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
111	349	364	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	270.00	0	0.00	0.00	0.00
2	270.00	0	0.00	0.00	0.00
3	270.00	0	0.00	0.00	0.00
10	180.00	0	0.00	0.00	0.00
11	180.00	0	0.00	0.00	0.00
12	180.00	0	0.00	0.00	0.00
13	0.00	2	-0.50	0.00	-0.866
14	0.00	2	-0.50	0.00	-0.866
15	0.00	2	-0.50	0.00	-0.866
16	0.00	2	-0.50	0.00	-0.866
48	0.00	2	-0.50	0.00	0.866
50	0.00	2	-0.50	0.00	0.866
52	0.00	2	-0.50	0.00	0.866
54	0.00	2	-0.50	0.00	0.866
92	90.00	0	0.00	0.00	0.00
93	180.00	0	0.00	0.00	0.00
94	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
1	0.00	2.00	0.00	0.00	2.00	0.00
2	0.00	2.00	0.00	0.00	2.00	0.00
3	0.00	2.00	0.00	0.00	2.00	0.00
4	0.00	2.00	0.00	0.00	2.00	0.00
5	0.00	2.00	0.00	0.00	2.00	0.00
6	0.00	2.00	0.00	0.00	2.00	0.00
10	0.00	2.00	0.00	0.00	2.00	0.00
11	0.00	2.00	0.00	0.00	2.00	0.00
12	0.00	2.00	0.00	0.00	2.00	0.00

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

T-Mobile Existing Facility

Site ID: CT11295A

Westport FD Sprint Tower
515 Post Road East
Westport, Connecticut 06880

May 24, 2019

EBI Project Number: 6219001813

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	23.54%

May 24, 2019

T-Mobile

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

Emissions Analysis for Site: CT11295A - Westport FD Sprint Tower

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **515 Post Road East in Westport, 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 515 Post Road East in Westport, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 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.
- 3) 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.
- 4) 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.
- 5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 1900 MHz / 2100 MHz / 600 MHz / 700 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 1900 MHz / 2100 MHz / 600 MHz / 700 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 1900 MHz / 2100 MHz / 600 MHz / 700 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerline of the proposed antennas is 82 feet above ground level (AGL).
- 11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 12) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	82 feet	Height (AGL):	82 feet	Height (AGL):	82 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):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A1 MPE %:	4.67%	Antenna B1 MPE %:	4.67%	Antenna C1 MPE %:	4.67%
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:	1900 MHz / 2100 MHz / 600 MHz / 700 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 600 MHz / 700 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 600 MHz / 700 MHz
Gain:	15.65 dBd / 16.35 dBd / 12.95 dBd / 13.35 dBd	Gain:	15.65 dBd / 16.35 dBd / 12.95 dBd / 13.35 dBd	Gain:	15.65 dBd / 16.35 dBd / 12.95 dBd / 13.35 dBd
Height (AGL):	82 feet	Height (AGL):	82 feet	Height (AGL):	82 feet
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts
ERP (W):	9,477.59	ERP (W):	9,477.59	ERP (W):	9,477.59
Antenna A2 MPE %:	6.81%	Antenna B2 MPE %:	6.81%	Antenna C2 MPE %:	6.81%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	11.48%
Sprint/Nextel	1.08%
Town	1.23%
Westport Fire Dept.	0.01%
Clearwire	0.08%
Metro PCS	5.1%
AT&T	4.56%
Site Total MPE % :	23.54%

T-Mobile Sector A Total:	11.48%
T-Mobile Sector B Total:	11.48%
T-Mobile Sector C Total:	11.48%
Site Total:	23.54%

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 1900 MHz LTE	2	2056.61	82.0	21.99	1900 MHz LTE	1000	2.20%
T-Mobile 2100 MHz LTE	2	2307.55	82.0	24.68	2100 MHz LTE	1000	2.47%
T-Mobile 1900 MHz GSM	4	1101.85	82.0	23.57	1900 MHz GSM	1000	2.36%
T-Mobile 2100 MHz UMTS	2	1294.56	82.0	13.84	2100 MHz UMTS	1000	1.38%
T-Mobile 600 MHz LTE	2	591.73	82.0	6.33	600 MHz LTE	400	1.58%
T-Mobile 700 MHz LTE	2	648.82	82.0	6.94	700 MHz LTE	467	1.49%
						Total:	11.48%

• 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:	11.48%
Sector B:	11.48%
Sector C:	11.48%
T-Mobile Maximum MPE % (Sector A):	11.48%
Site Total:	23.54%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **23.54%** 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.