



10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

September 22, 2022

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

RE: Notice of Exempt Modification
173.5 West Rocks Road, Norwalk, CT 06851
Latitude: 41.143506
Longitude: -73.418967
T-Mobile Site#: CT11076B – Anchor/L600

Dear Ms. Bachman:

T-Mobile has plans to collocate on the newly constructed 130-foot monopole located at 173.5 West Rocks Road in Norwalk, CT. This tower and facility were approved by the Connecticut Siting Council in Docket No. 489 on November 19, 2021. The tower and property are owned by the City of Norwalk First Taxing District. T-Mobile will be removing equipment from its current location on the water tank on the property, and relocating on the new monopole structure. T-Mobile intends to install nine (9) new 600/700/1900/2100/2500 MHz antenna. The new antennas will support 5G services and will be installed at the 106-foot level of the tower.

Planned Modifications:

Tower:

Remove

(3) TMA
(12) 1-1/4" coax

Remove and Replace:

(3) AIR 21 for (3) Commscope VV-65A-R1 1900/2100 MHz antennas

Install New:

(3) RFS APXVAALL24_43-U-NA20 600/700 MHz antennas
(3) AIR 6419 2500 Mhz antennas
(3) Radio 4460 B25+B66 RRUs
(3) Radio 4480 B71+B85 RRUs
(3) 1-5/8" Hybrid

Ground:

Install new 10' X 20' concrete pad

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 Mayor -Harry Rilling, Elected Official, and Steven Kleppin, Director of Planning and Zoning for the City of Norwalk, as well as the owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Kyle Richers

Transcend Wireless

Cell: 908-447-4716

Email: krichers@transcendwireless.com

Attachments

cc: Harry Rilling – Mayor – City of Norwalk

Steven Kleppin – Director – Planning and Zoning – City of Norwalk

City of Norwalk First Taxing District (Water Department) – Owner

Kyle Richers

From: UPS <pkginfo@ups.com>
Sent: Monday, September 26, 2022 10:38 AM
To: KRICHERS@TRANSCENDWIRELESS.COM
Subject: UPS Delivery Notification, Tracking Number 1ZV257424292123749



Hello, your package has been delivered.

Delivery Date: Monday, 09/26/2022

Delivery Time: 10:36 AM

Left At: FRONT DESK

Signed by: town clerk

TRANSCEND WIRELESS

Tracking Number: [1ZV257424292123749](#)

Ship To: CITY OF NORWALK
125 EAST AVENUE
ROOM 129
NORWALK, CT 06851
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: CT11076B CSC ZO

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Kyle Richers

From: UPS <pkginfo@ups.com>
Sent: Monday, September 26, 2022 10:38 AM
To: KRICHERS@TRANSCENDWIRELESS.COM
Subject: UPS Delivery Notification, Tracking Number 1ZV257424291825733



Hello, your package has been delivered.

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Signed by: town clerk

TRANSCEND WIRELESS

Tracking Number: [1ZV257424291825733](#)

Ship To:
CITY OF NORWALK
125 EAST AVENUE
NORWALK, CT 06851
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: CT11076B CSC EO

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Kyle Richers

From: UPS <pkginfo@ups.com>
Sent: Tuesday, September 27, 2022 2:00 PM
To: KRICHERS@TRANSCENDWIRELESS.COM
Subject: UPS Delivery Notification, Tracking Number 1ZV257424295309445



Hello, your package has been delivered.

Delivery Date: Tuesday, 09/27/2022

Delivery Time: 1:58 PM

TRANSCEND WIRELESS

Tracking Number: [1ZV257424295309445](#)

Ship To: NORWALK FIRST TAXING DISTRICT
3 BELDEN AVE
NORWALK, CT 06850
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: CT11076B CSC OWNER

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173 1/2 WEST ROCKS RD

Location 173 1/2 WEST ROCKS RD

Mblu 5/ 22A/ 18/ 0/

Acct# 13222

Owner FIRST TAXING DISTRICT

Assessment \$1,503,080

Appraisal \$2,147,260

PID 13222

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$1,451,940	\$695,320	\$2,147,260

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$1,016,360	\$486,720	\$1,503,080

Owner of Record

Owner FIRST TAXING DISTRICT
Co-Owner (WATER DEPT - WATER TANK)
Address 3 BELDEN AVE
NORWALK, CT 06850-3303

Sale Price \$0
Certificate
Book & Page 365/140
Sale Date 12/31/1940

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
FIRST TAXING DISTRICT	\$0		365/140	12/31/1940

Building Information

Building 1 : Section 1

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

Building Attributes

Field	Description
Style	Outbuildings
Model:	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Floor 1	
Interior Floor 2	
Heat Fuel	
Heat Type	
AC Type	
Bedrooms	
Full Baths	
Half Baths	
Extra Fixtures	
Total Rooms	
Bath Style	
Kitchen Style	
Extra Kitchens	
Frame	
Insulation	
Bsmt Garage	
Foundation	
FBM Area	
FBM Quality	
Fireplaces	
# of Heat Systems	
Central Vac	
Solar HW	
Electrical	
Heat Percent	

Building Photo



(<https://images.vgsi.com/photos/NorwalkCTPhotos//00\00\37\60.jpg>)

Building Layout

 Building Layout (ParcelSketch.aspx?pid=13222&bid=13222)

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

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code 920V
Description Mun Land Comm
Zone A1
Neighborhood C201

Land Line Valuation

Size (Acres) 1.85
Frontage
Depth
Assessed Value \$486,720
Appraised Value \$695,320

Outbuildings

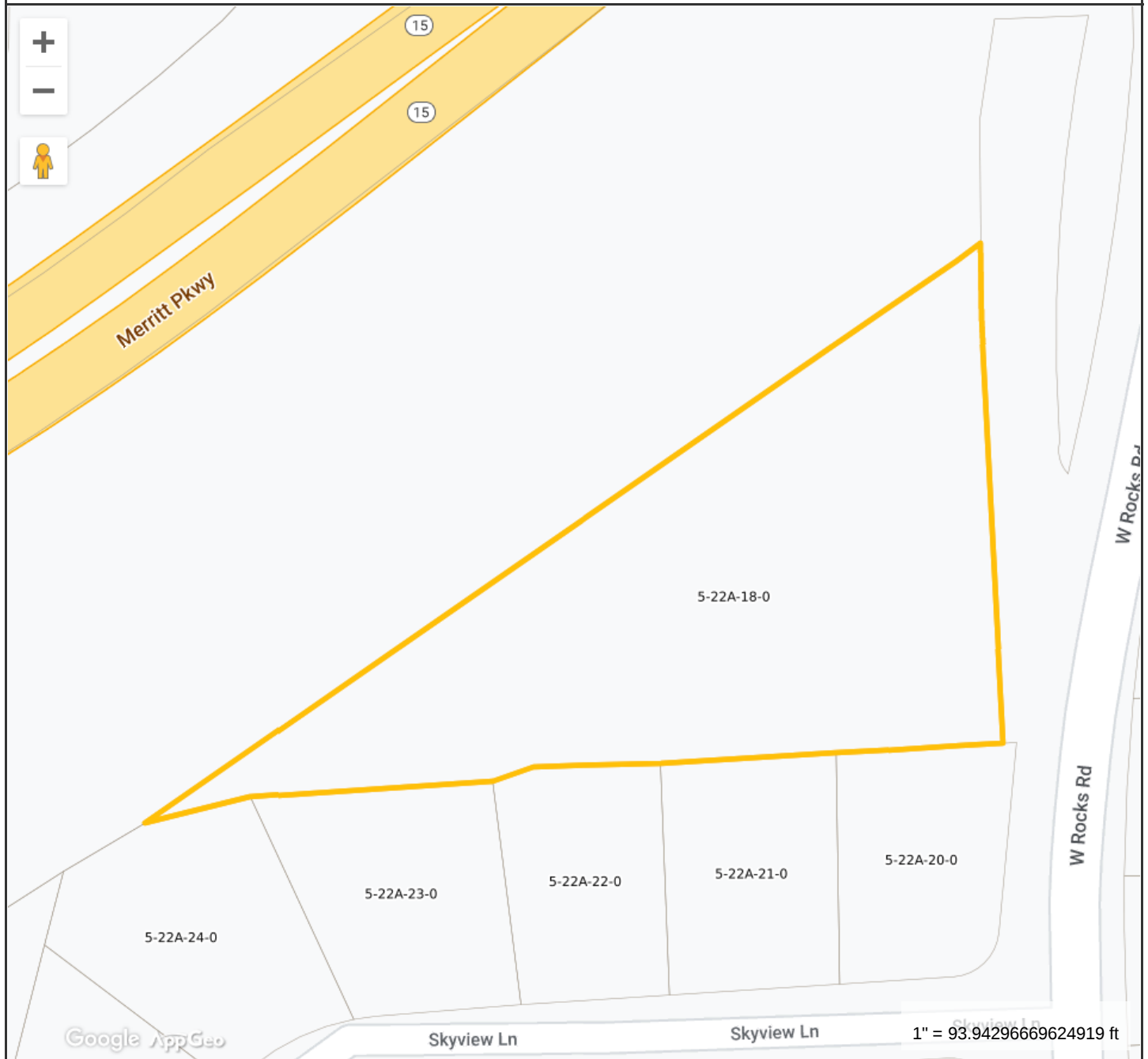
Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
TWR	Water Tower			250000.00 GAL	\$1,125,000	1
FN6	Fence 6'			290.00 L.F.	\$2,640	1
SHD4	Cell Equip	FR	Frame	220.00 S.F.	\$33,000	1
SHD4	Cell Equip	FR	Frame	574.00 S.F.	\$86,100	1
SHD4	Cell Equip	FR	Frame	168.00 S.F.	\$25,200	1
SHD4	Cell Equip	FR	Frame	200.00 S.F.	\$30,000	1
CEL2	Cell Rooftop			4.00 UNITS	\$150,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2021	\$1,451,940	\$695,320	\$2,147,260
2020	\$1,451,940	\$695,320	\$2,147,260
2019	\$1,451,940	\$695,320	\$2,147,260

Assessment			
Valuation Year	Improvements	Land	Total
2021	\$1,016,360	\$486,720	\$1,503,080
2020	\$1,016,360	\$486,720	\$1,503,080
2019	\$1,016,360	\$486,720	\$1,503,080

CT11076 GIS MAP



Norwalk Information

ID 103-5-22A-18-0
Site Address 173 1/2 WEST ROCKS RD
Owner FIRST TAXING DISTRICT
Co-Owner (WATER DEPT - WATER TANK)
Owner Address 3 BELDEN AVE



**MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT**

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STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

November 19, 2021

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
kbaldwin@rc.com

RE: **DOCKET NO. 489** – The First Taxing District Water Department of Norwalk Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 173 ½ West Rocks Road, Norwalk, Connecticut.

Dear Attorney Baldwin:

At a public meeting of the Connecticut Siting Council (Council) held on November 18, 2021, the Council considered and approved the Development and Management (D&M) Plan submitted for this project on October 1, 2021.

This approval applies only to the D&M Plan submitted on October 1, 2021, and additional information received on October 20, 2021 and October 28, 2021. Requests for any changes to the D&M Plan shall be approved by Council staff in accordance with Regulations of Connecticut State Agencies Section (RCSA) §16-50j-77(b).

The Certificate Holder is responsible for compliance with the reporting requirements under RCSA 16-50j-77, including:

1. Contact information for the personnel of the contractor assigned to the project;
2. Notification of commencement of construction;
3. Quarterly construction progress reports;
4. Notification of completion of construction and commencement of operation; and
5. Final report.

Please be advised that deviations from the approved D&M Plan and non-compliance with the D&M Plan reporting requirements are enforceable under Connecticut General Statutes § 16-50u.

Enclosed is a copy of the staff report for this D&M Plan, dated November 18, 2021.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/MP/lm

Enclosure: Staff Report, dated November 18, 2021



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

Docket No. 489

The First Taxing District Water Department of Norwalk

173 ½ West Rocks Road, Norwalk

Development and Management Plan

Staff Report

November 18, 2021

On November 23, 2020, the Connecticut Siting Council (Council) issued a Certificate of Environmental Compatibility and Public Need (Certificate) to The First Taxing District Water Department of Norwalk (FTD) for the construction, maintenance, and operation of a 130-foot wireless telecommunications facility located at 173 ½ West Rocks Road, Norwalk, Connecticut. As required in the Council's Decision and Order (D&O), FTD submitted a Development and Management (D&M) Plan to the Council, the City of Norwalk and parties and intervenors on October 1, 2021.

On October 7, 2021, the Council issued interrogatories to FTD. On October 20, 2021, FTD submitted responses to the Council's interrogatories. On October 28, 2021, FTD submitted its revised landscaping plan.

The site is located on a 1.90-acre parcel owned by FTD and used for water company purposes. Land uses south and east of the subject property are residential. An Eversource transmission line corridor is located directly to the north and west of the subject property, and the Merritt Parkway (Route 15) is located farther to the north and west on the opposite side of the Eversource transmission corridor.

FTD currently maintains an existing 115-foot tall 100,000-gallon water tank in the northeast portion of the subject property that supports the antennas of New Cingular Wireless PCS, LLC (AT&T), Cellco Partnership d/b/a Verizon Wireless (Cellco), T-Mobile Northeast, LLC (T-Mobile), and Sprint Spectrum (Sprint) (collectively, the "Wireless Carriers"). FTD received Norwalk Zoning Commission approval to install a new 116-foot tall 500,000-gallon replacement water tank in the central portion of the subject property, and FTD will remove the existing water tank.

Consistent with the Council's D&O, FTD will construct a 130-foot monopole to accommodate the Wireless Carriers, and it will be designed in accordance with the EIA/TIA standard "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures- Revision H". The tower will be located approximately 100 feet west-southwest of the planned replacement water tank. The tower can support four levels of antennas and the potential for a 20-foot extension to accommodate additional future tower sharing. AT&T will install six panel antennas, 12 remote radio heads (RRHs) and three surge arresters on T-arm mounts at a centerline height of 126 feet above ground level. Cellco will install nine panel antennas and six RRHs on T-arm mounts at a centerline height of 116 feet agl. T-Mobile and Sprint will share one level on the tower and install nine panel antennas and six RRHs on T-arm mounts at a centerline height of 106 feet agl¹.

The nearest property boundary is approximately 49 feet to the northwest. In accordance with D&O Condition 2(b), the tower is designed with a yield point or hinge point at approximately 110 feet above ground level to ensure that the tower setback radius remains within the boundaries of the subject property.

FTD will construct a 3,518 square foot irregularly shaped equipment compound at the site. The compound will be enclosed by a 6-foot high black vinyl-coated chain link fence with a 12-foot wide double-swing gate on the northeastern side of the compound. Black vinyl privacy slats will be installed along the southern

¹ The 96-foot level of tower was originally proposed to be occupied by Sprint; this location on the tower will now be available for a future carrier co-location.

side of the compound fence for screening for the residential properties to the south. Cellco will install two equipment cabinets on a 20-foot by 10-foot concrete pad within the compound. AT&T will install one approximately 6-foot 8-inch square by 9-foot 5-inch high walk-in equipment cabinet on a 20-foot by 10-foot concrete pad within the compound. T-Mobile/Sprint will install two equipment cabinets on a 20-foot by 10-foot concrete pad within the compound. The equipment pads for Cellco and T-Mobile/Sprint will have 10-foot high canopies on top. AT&T's equipment pad will have a 12-foot high canopy to accommodate its taller walk-in equipment cabinet.

Access to the site from West Rocks Road will be provided over a portion of an access drive serving the new FTD water tank and will continue over a new approximately 350-foot long gravel driveway extension to reach the tower compound.

Utilities will be installed underground from Pole #9701 on West Rocks Road and will run generally parallel to and directly north of the access drive route to reach the compound area.

Emergency power will be provided to Cellco's equipment by both a battery cabinet and a 30-kW propane-fueled backup generator on its 20-foot by 10-foot concrete pad within the compound. AT&T will install a 20-kW propane-fueled generator on its 20-foot by 10-foot concrete pad within the compound. T-Mobile/Sprint will utilize battery backup only. Two 500-gallon propane fuel tanks (one for Cellco and one for AT&T) will be installed on a 17-foot 4-inch by 12-foot concrete pad within the compound, and it will have a 10-foot high canopy on top.

Fourteen trees will be removed to develop the tower site. There are no wetlands or watercourses within the construction limits of the new access drive or compound.

In accordance Condition 2(e) of the Council's D&O, FTD will implement an Aquifer Protection Plan (APP) to be protective of the DEEP-designated Kellogg-Deering Aquifer Protection Area. The APP will include, but not be limited to, the following: protective measures/precautions; monitoring and notification plans in accordance with DEEP recommendations; proper installation and monitoring of erosion and sedimentation controls; a petroleum/hazardous materials storage and spill prevention plan; herbicide/pesticide best management practices; proper treatment of stormwater runoff; and notification and reporting to FTD and the Council.

The tower and all tower-mounted equipment will be painted Sherwin Williams SW 4069 Emerald Ice color. This will match the top portion of the new water tank and comply with a recommendation of the State Historic Preservation Office. Twelve Norway spruce trees approximately seven to eight feet in height will be planted along the southern and eastern side of the compound.

Construction activities will comply with the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control*.

Construction hours will be 7 AM to 8 PM on Monday through Friday and 8 AM to 8 PM on Saturday.

Consistent with the Council's D&O, the cumulative worst-case radio frequency power density level at the base of the tower will be 26.6 percent of the FCC's General Public/Uncontrolled Maximum Permissible Exposure limit taking into account a 10 dB off-beam pattern loss to account for the relative gain below the antennas.

The D&M Plan is consistent with the Council's D&O for Docket No. 489.

T-Mobile

NORTHEAST, LLC.

NEW SITE DEVELOPMENT (NSD)

CT076 - NORWALK/ CHESTNUT
173.5 WEST ROCKS ROAD
NORWALK, CT 06851

SITE DIRECTIONS

START: 35 GRIFFEN ROAD
 BLOOMFIELD, CT 06002

END: 173.5 WEST ROCKS ROAD
 NORWALK, CT 06851

- | | |
|--|---------|
| 1. HEAD NORTH EAST TOWARD GRIFFIN ROAD N. | 85 FT |
| 2. TURN LEFT ONTO GRIFFIN ROAD N. | 0.2 MI |
| 3. TURN RIGHT ONTO DAY HILL ROAD | 3.6 MI |
| 4. USE RIGHT LANE TO MERGE ONTO I-91S VIA THE RAMP TO HARTFORD | 0.4 MI |
| 5. MERGE ONTO I-91 S | 6.9 MI |
| 6. KEEP LEFT TO STAY ON I-91 S | 0.4 MI |
| 7. KEEP LEFT TO STAY ON I-91 S | 10.6 MI |
| 8. KEEP LEFT TO STAY ON I-91 S | 8.2 MI |
| 9. TAKE EXIT 17 TO MERGE ONTO CT-15 S | 0.7 MI |
| 10. KEEP RIGHT TO STAY ON CT-15 S, FOLLOW SIGNS FOR W CROSS PKWY | 5.1 MI |
| 11. KEEP LEFT TO STAY ON CT-15 S | 41.3 MI |
| 12. TAKE EXIT 40B TOWARD US-7 N/ DANBURY | 279 FT |
| 13. TURN RIGHT ONTO CREEPING HEMLOCK DR. | 1.6 MI |
| 14. TURN RIGHT ONTO BUTTERNUT LN. | 0.1 MI |
| 15. TURN RIGHT ONTO W ROCKS RD | 1.0 MI |
| 16. TURN RIGHT | 72 FT |
| 17. TURN RIGHT (DESTINATION ON THE RIGHT) | 180 FT |



VICINITY MAP

DRAWING INDEX

T-1 TITLE SHEET

SP-1 SITE PLAN

C-1 COMPOUND PLAN & SOUTH ELEVATION

C-2 EQUIPMENT AREA PLAN & DETAILS

C-3 EQUIPMENT DETAILS

E-1 ELECTRICAL PLAN, SCHEDULES & NOTES

E-2 ONE-LINE DIAGRAM, DETAILS & NOTES

E-3 EQUIPMENT GROUNDING PLAN, SCHEMATICS & NOTES

E-4 GROUNDING DETAILS

N-1 NOTES & SPECIFICATIONS

811 "CALL BEFORE YOU DIG"

CALL US TOLL FREE 1-800-922-4455 OR 811

EMERGENCY
 CALL 911

GOVERNING CODES/STANDARDS:
 2015 IBC AS AMENDED BY THE
 2018 CONNECTICUT STATE BUILDING CODE/ASCE 7-10
 NATIONAL ELECTRIC CODE
 ANSI TIA-222H

PROJECT INFORMATION

T-MOBILE SITE NAME: "CT076 - NORWALK/ CHESTNUT"
 T-MOBILE SITE NUMBER: CT11076B
 SITE ADDRESS: 173.5 WEST ROCKS ROAD,
 NORWALK, CT 06852

LOCATION: 173.5 WEST ROCKS ROAD
 NORWALK, CT 06851

- PROJECT SCOPE:
- INSTALLATION OF (9) NEW PANEL ANTENNAS.
 - INSTALLATION OF (6) NEW RRUS
 - INSTALLATION OF (1) NEW ERICSSON 6160 RADIO CABINET, (1) NEW ERICSSON B160 BATTERY CABINET, (1) NEW VERTIV NEXTEND™ JUICEBOX INTEGRATED ENCLOSURE & (1) NEW VERTIV NEXTEND™ FIBER CABINET ON PENDING 10'x20' CONC. PAD (BY OTHERS)

PROJECT SCOPE BASED ON:
 - RFDS ID #CT11076B
 - VERSION DRAFT
 - LAST UPDATED 03/28/22.

MAP/BLOCK/LOT: 5-22A-18-0

ZONING DISTRICT: A RESIDENTIAL

LATITUDE: 41° 08' 36.6271" N (41.14350753° N)

LONGITUDE: 73° 25' 08.2799" W (73.41896665° W)

GROUND ELEVATION: 220.9± AMSL

PROPERTY OWNER: FIRST TAXING DISTRICT (WATER DEPARTMENT)
 12 NEW CANAAN AVENUE
 NORWALK, CT 06852

APPLICANT: T-MOBILE
 35 GRIFFEN ROAD
 BLOOMFIELD, CT 06002

SITE TYPE: MONOPOLE COLO / GROUND EQUIPMENT

STRUCTURE HEIGHT: 130.0± AGL

ANTENNA CENTERLINE: 106.0± AGL

ENGINEER CONTACT: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
 567 VAUXHALL STREET EXTENSION - SUITE 311
 WATERFORD, CT 06385
 860 663-1697

COORDINATES & GROUND ELEVATION INDICATED HEREIN WERE ESTABLISHED FROM AN FAA 1-A SURVEY CERTIFICATION, AS PREPARED BY WILLIAM W. SEYMOUR & ASSOCIATES, P.C. DATED OCTOBER 01, 2019.

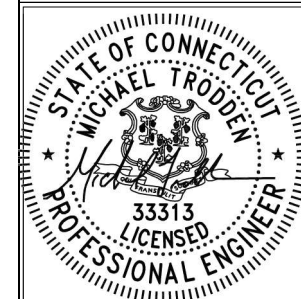
ALL-POINTS
 TECHNOLOGY CORPORATION
 567 VAUXHALL STREET EXTENSION - SUITE 311
 WATERFORD, CT 06385 PHONE: (860)-663-1697
 WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

T-Mobile
 NORTHEAST, LLC.

35 GRIFFIN ROAD
 BLOOMFIELD, CT 06002
 OFFICE: (860)-692-7100

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	04/21/22	FOR REVIEW: JRM
1	09/21/22	FOR REVIEW: JRM
2		
3		
4		
5		
6		



DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
 COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
 ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

DEVELOPER: TRANSCEND WIRELESS
 ADDRESS: 1 INTERNATIONAL BLVD, SUITE 400 MAHWAH, NJ 07495

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T-MOBILE
CT076 - NORWALK/
CHESTNUT

SITE 173.5 WEST ROCKS ROAD
 ADDRESS: NORWALK, CT 06851

APT FILING NUMBER: CT256230

T-MOBILE SITE NUMBER: CT11076B

DATE: 04/21/22 DRAWN BY: DRA
 CHECKED BY: JRM

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

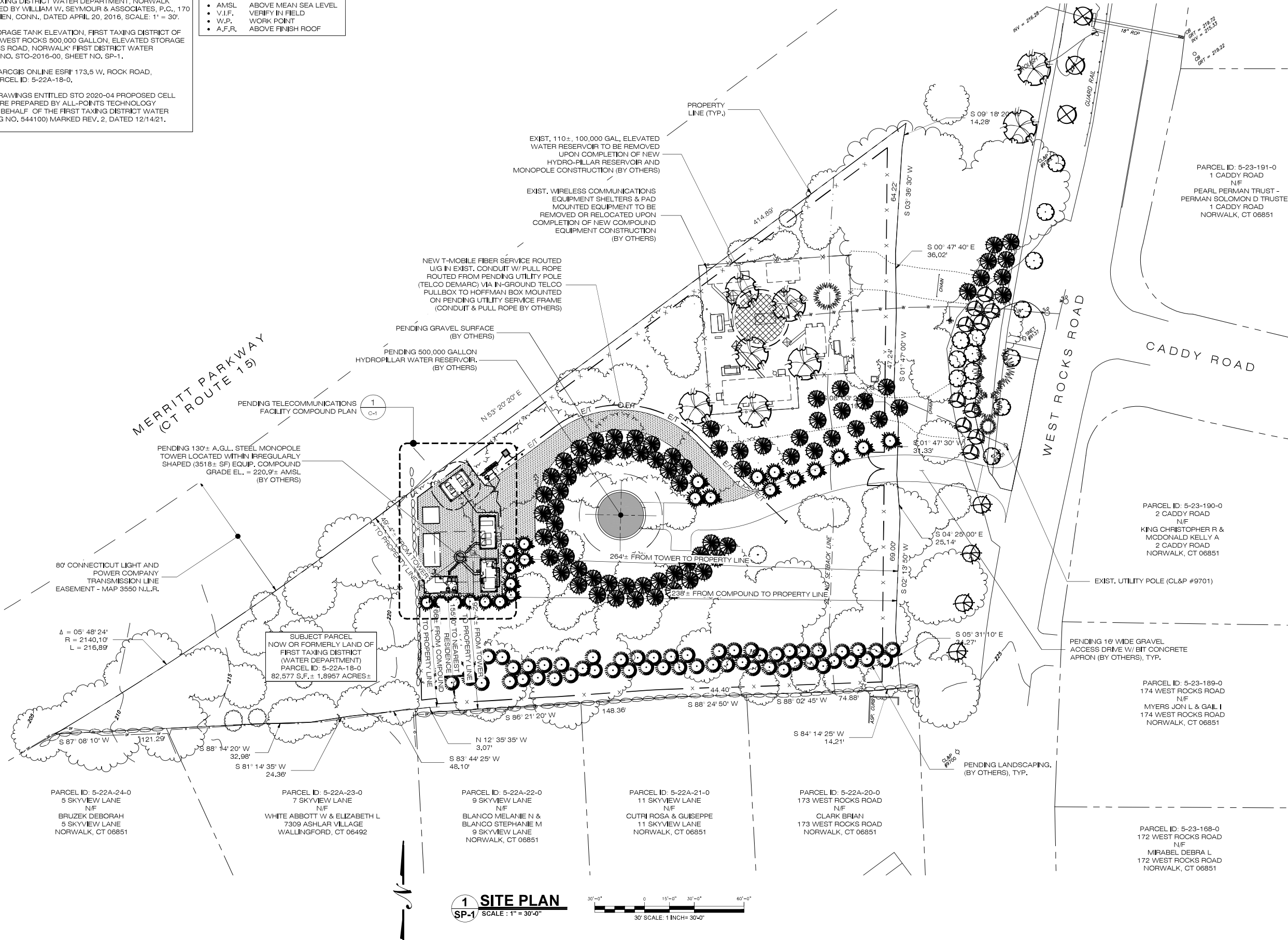
T-1

MAP REFERENCES:

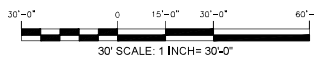
- 'ZONING LOCATION & TOPOGRAPHIC SURVEY, 173 1/2 WEST ROCKS ROAD, PREPARED FOR FIRST TAXING DISTRICT WATER DEPARTMENT, NORWALK CONNECTICUT, PREPARED BY WILLIAM W. SEYMOUR & ASSOCIATES, P.C., 170 NOROTON AVENUE, DARIEN, CONN., DATED APRIL 20, 2016, SCALE: 1" = 30'.
- 'SITE PLAN & WATER STORAGE TANK ELEVATION, FIRST TAXING DISTRICT OF THE CITY OF NORWALK, WEST ROCKS 500,000 GALLON, ELEVATED STORAGE TANK, 173.5 WEST ROCKS ROAD, NORWALK' FIRST DISTRICT WATER DEPARTMENT, PROJECT NO. STO-2016-00, SHEET NO. SP-1.
- 'CITY OF NORWALK, CT-ARCGIS ONLINE ESRI' 173.5 W. ROCK ROAD, NORWALK, CT 06851, PARCEL ID: 5-22A-18-0.
- BASE CONSTRUCTION DRAWINGS ENTITLED STO 2020-04 PROPOSED CELL SERVICE INFRASTRUCTURE PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION, P.C., ON BEHALF OF THE FIRST TAXING DISTRICT WATER DEPARTMENT (APT FILING NO. 544100) MARKED REV. 2, DATED 12/14/21.

GENERAL ABBREVIATION LIST:

- ABP ABOVE BASE PLATE
- AGL ABOVE GROUND LEVEL
- AMSL ABOVE MEAN SEA LEVEL
- V.I.F. VERIFY IN FIELD
- W.P. WORK POINT
- A.F.R. ABOVE FINISH ROOF



1 SITE PLAN
SP-1 SCALE: 1" = 30'-0"



567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-683-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-683-0935

T-Mobile
NORTHEAST, LLC.

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	04/21/22	FOR REVIEW: JRM
1	09/21/22	FOR REVIEW: JRM
2		
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DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

DEVELOPER: TRANSCEND WIRELESS
ADDRESS: 1 INTERNATIONAL BLVD, SUITE 400 MAHWAH, NJ 07495

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T-MOBILE CT076 - NORWALK/ CHESTNUT

SITE 173.5 WEST ROCKS ROAD
ADDRESS: NORWALK, CT 06851

APT FILING NUMBER: CT256230

T-MOBILE SITE NUMBER: CT11076B

DATE: 04/21/22 DRAWN BY: DRA
CHECKED BY: JRM

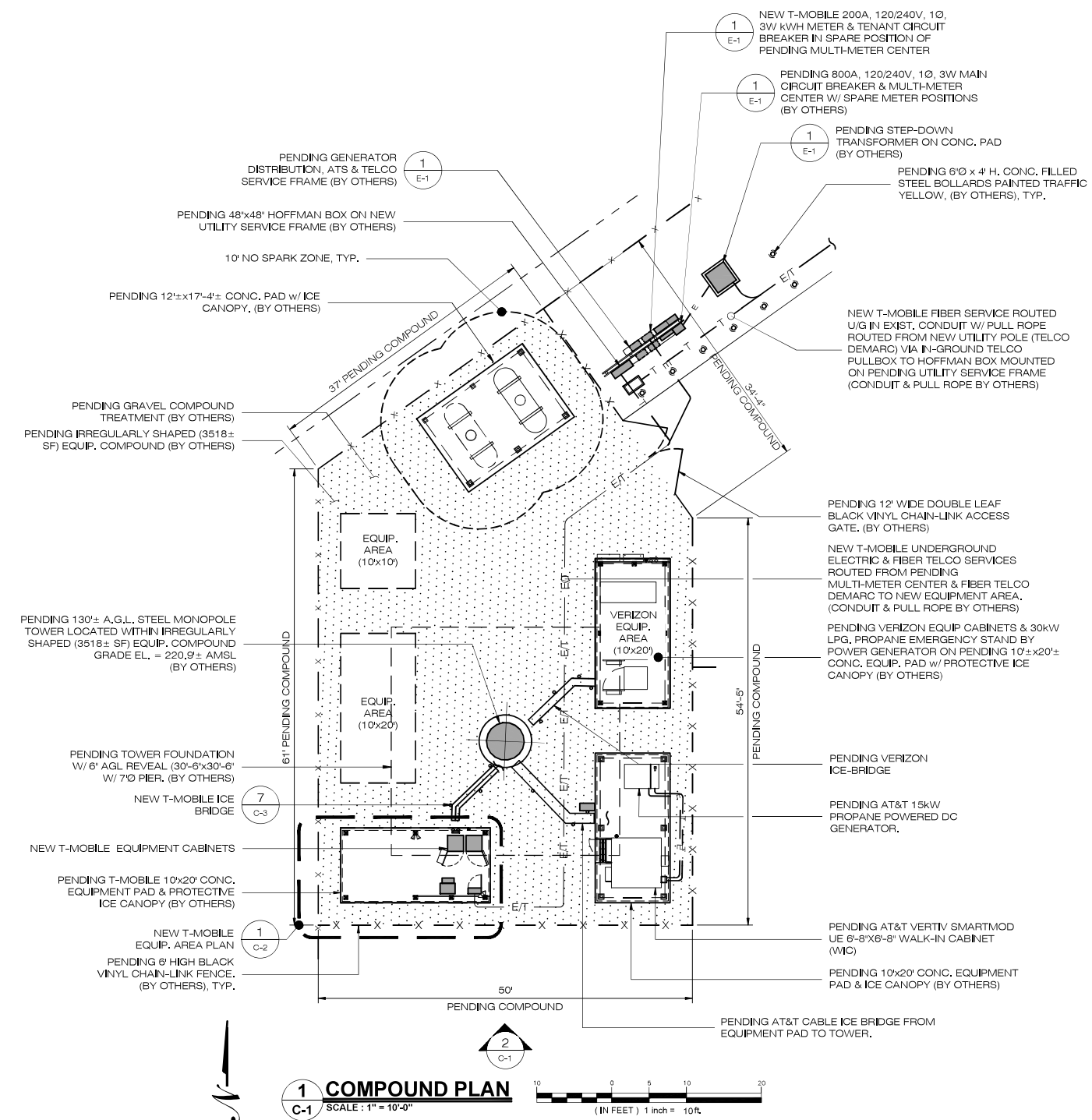
SHEET TITLE:

SITE PLAN

SHEET NUMBER:

SP-1

- EXCAVATION & TRENCHING NOTES:**
- CONTRACTOR SHALL ENGAGE THE SERVICES OF AN UNDERGROUND UTILITY LOCATING COMPANY TO LOCATE ALL UNDERGROUND UTILITIES, GROUNDING & EQUIPMENT IN THE TRENCHING AREA TO AVOID ANY DAMAGE.
 - HAND EXCAVATE WITHIN 5' OF EXIST. UNDERGROUND UTILITIES (V.I.F.), MAINTAIN 18" MIN. CLEARANCE.
 - CONTRACTOR TO COORDINATE TRENCHING OPERATIONS w/ OWNER AND/OR MANAGEMENT COMPANY SO AS TO MINIMIZE DISRUPTIONS TO THE EXIST. PROPERTY OPERATIONS.



1 COMPOUND PLAN
SCALE: 1" = 10'-0"
(IN FEET) 1 inch = 10ft

ANTENNA AND APPURTENANCE PAINT NOTES:
ALL T-MOBILE ANTENNAS, APPURTENANCES, PIPE MASTS AND ASSOCIATED HARDWARE SHALL BE PAINTED TO MATCH NEW HYDROPIILLAR TANK BOWL. PAINT COLOR: SHERWIN WILLIAMS SW 4069 EMERALD ICE. COORDINATE w/ OWNER & T-MOBILE CONSTRUCTION MANAGER.

(9) NEW T-MOBILE PANEL ANTENNAS (40', 130', 250') (3 PER SECTOR) w/ (6) RRU's (2 PER SECTOR) MOUNTED ON (3) 6FT DOUBLE T-ARMS (BY OTHERS) w/ ANTENNA CL @ 106.0'± AGL.

NEW T-MOBILE (3) 2" (6x24) HCS FIBER CABLES ROUTED WITHIN PENDING MONOPOLE TOWER.

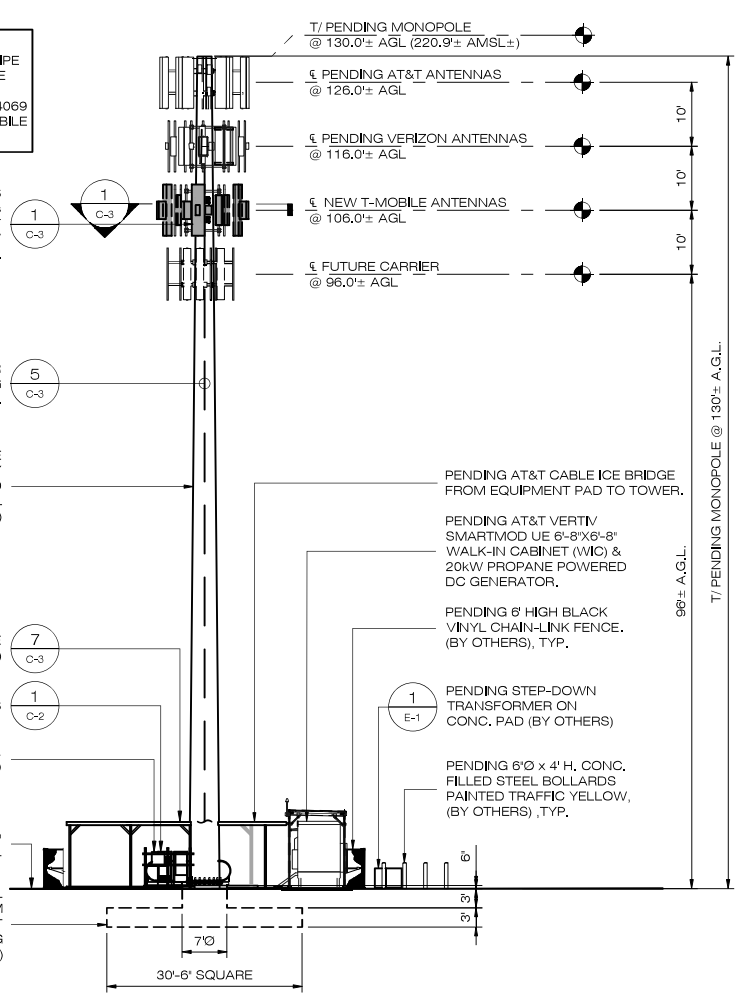
PENDING 130± A.G.L. STEEL MONOPOLE TOWER LOCATED WITHIN IRREGULARLY SHAPED (3518± SF) EQUIP. COMPOUND GRADE EL. = 220.9± AMSL (BY OTHERS)

NEW T-MOBILE ICE BRIDGE (BEYOND)

NEW T-MOBILE EQUIPMENT CABINETS

PENDING 10'±x20'± CONC. EQUIP. PAD & PROTECTIVE ICE CANOPY, (BY OTHERS)

PENDING TOWER FOUNDATION w/ 6" AGL REVEAL (30'-6"x30'-6" w/ 7'± PIER - PER DESIGN FROM "VALMONT STRUCTURES" JOB #512236, SITE: FIRST TAXING DISTRICT - NORWALK, CT FOR FIRST TAXING DISTRICT OF NORWALK, DATED 08/16/21 (BY OTHERS)



2 SOUTH ELEVATION
SCALE: 1" = 15'-0"
(IN FEET) 1 inch = 15ft

NOTE:
EXISTING AND PENDING PLANTINGS OMITTED FOR CLARITY.

STRUCTURAL ANALYSIS NOTE:

- REFER TO STRUCTURAL ANALYSIS REPORT PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION, P.C. MARKED REV1 DATED SEPTEMBER 21, 2022, AVAILABLE UNDER SEPARATE COVER.
- REFER TO MOUNT ANALYSIS PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION MARKED REV0 DATED APRIL 21, 2022, AVAILABLE UNDER SEPARATE COVER.

T-Mobile
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ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

DEVELOPER: TRANSCEND WIRELESS
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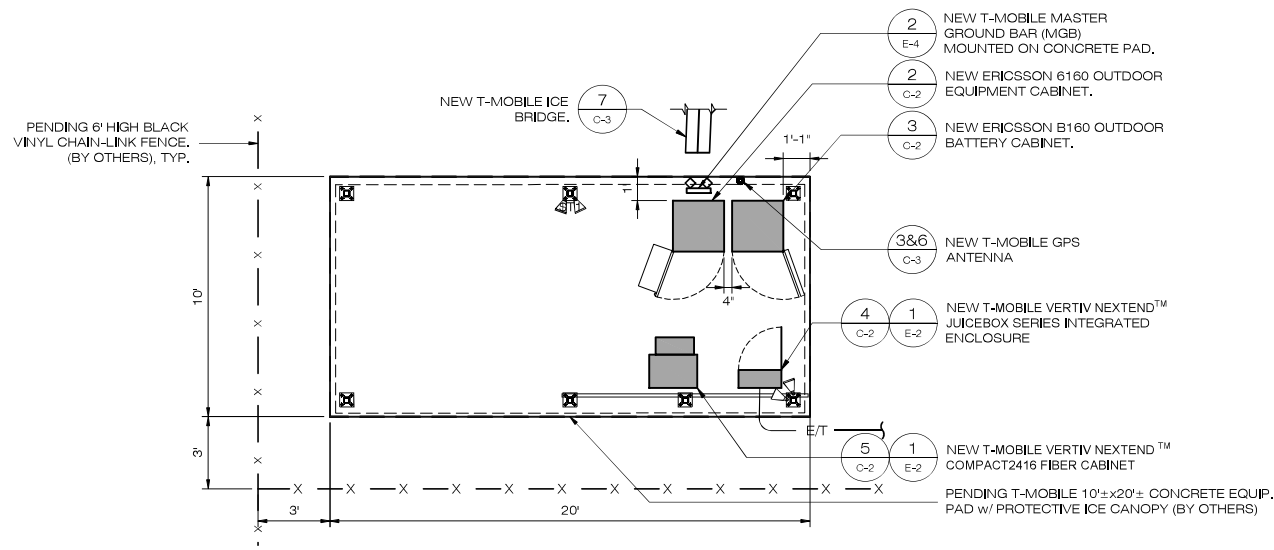
T-MOBILE CT076 - NORWALK/ CHESTNUT

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ADDRESS: NORWALK, CT 06851
APT FILING NUMBER: CT256230
T-MOBILE SITE NUMBER: CT11076B

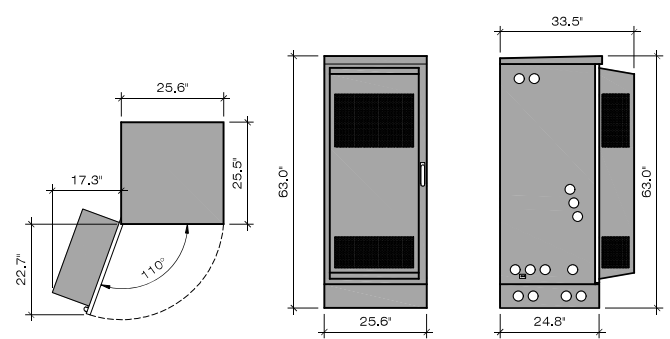
DATE: 04/21/22 **DRAWN BY:** DRA
CHECKED BY: JRM

SHEET TITLE:
COMPOUND PLAN & SOUTH ELEVATION

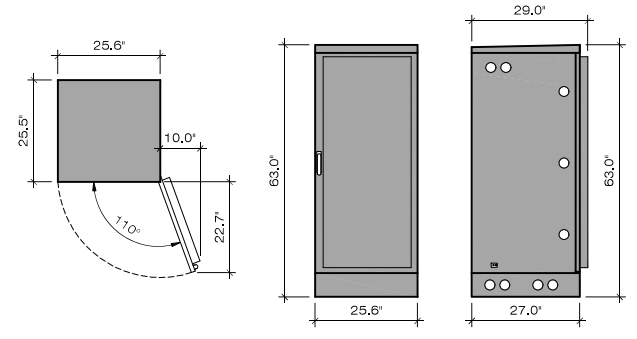
SHEET NUMBER:
C-1



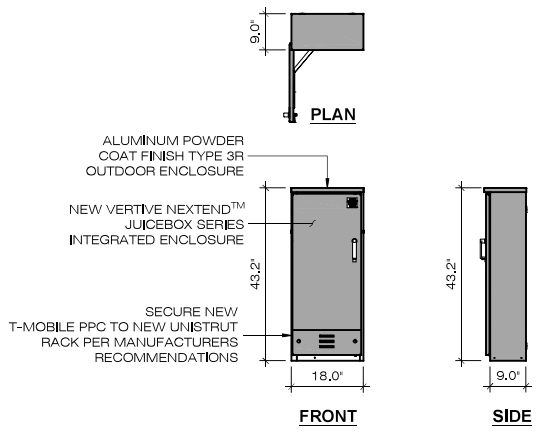
1 EQUIP. AREA PLAN
C-2 SCALE: 1/4" = 1'-0"



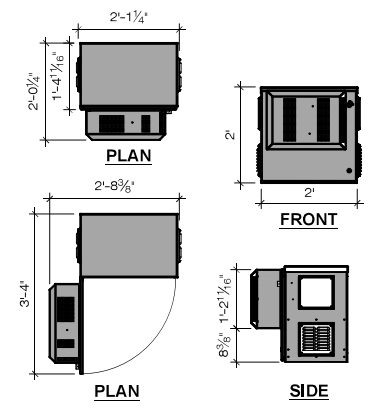
2 T-MOBILE ERICSSON 6160 EQUIPMENT CABINET
C-2 SCALE: 1/2" = 1'-0"



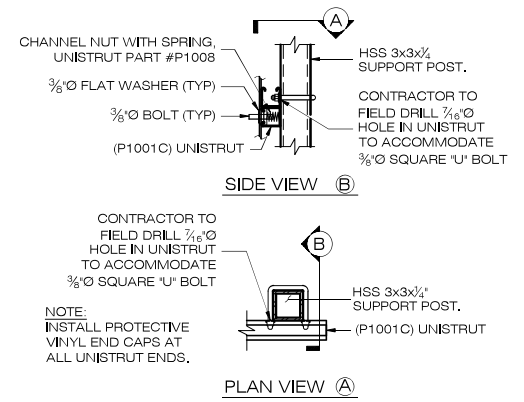
3 T-MOBILE ERICSSON B160 BATTERY CABINET
C-2 SCALE: 1/2" = 1'-0"



4 T-MOBILE VERTIV NEXTEND™ JUICEBOX SERIES INTEGRATED ENCLOSURE
C-2 SCALE: 1/2" = 1'-0"



5 T-MOBILE VERTIV NEXTEND™ COMPACT 2146 FIBER CABINET
C-2 SCALE: 1/2" = 1'-0"

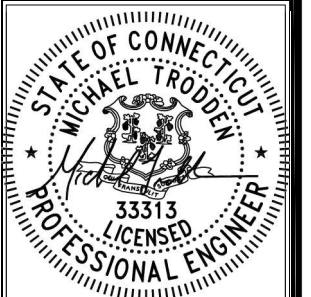


6 SERVICE FRAME CONN. DETAIL
C-2 SCALE: 1 1/2" = 1'-0"

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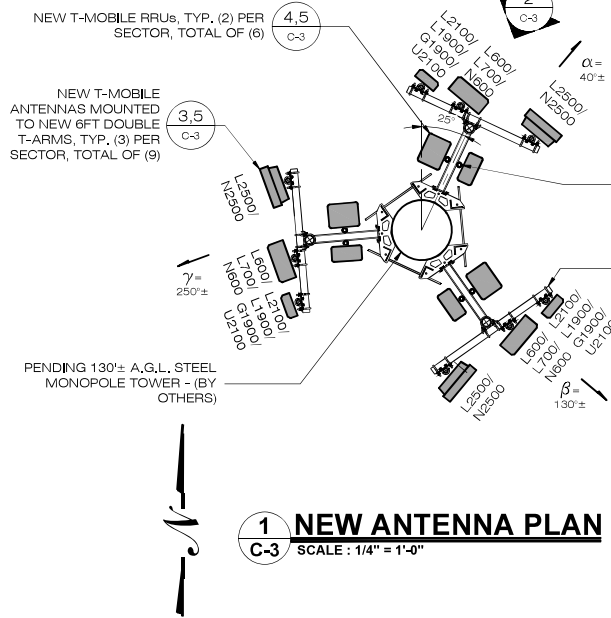
DATE: 04/21/22 DRAWN BY: DRA
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SHEET TITLE:

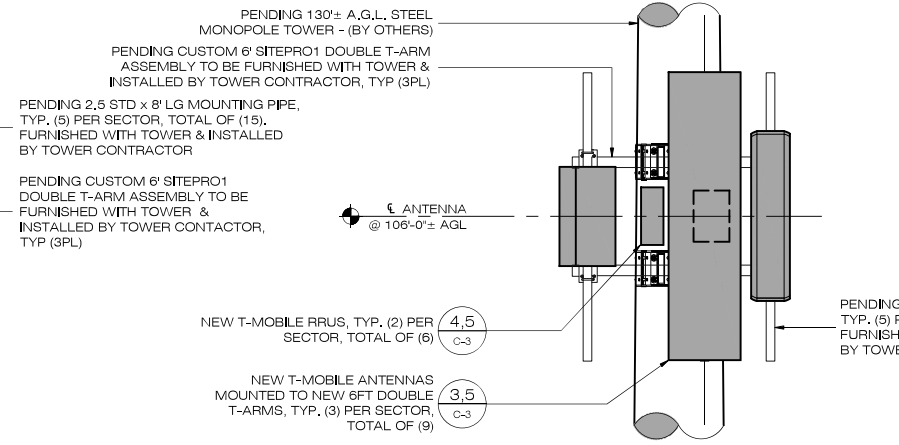
EQUIPMENT AREA PLAN & DETAILS

SHEET NUMBER:
C-2

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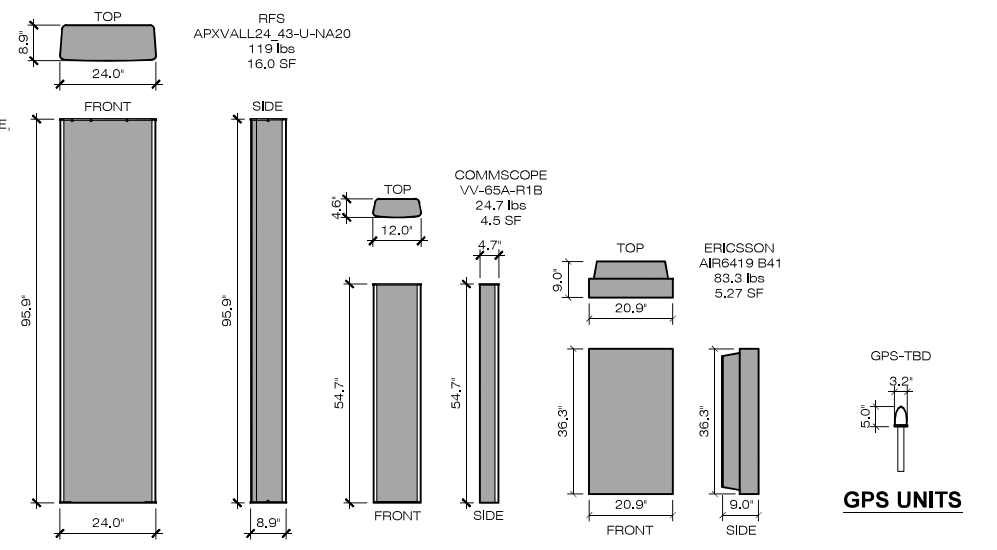


1 NEW ANTENNA PLAN
 C-3 SCALE: 1/4" = 1'-0"

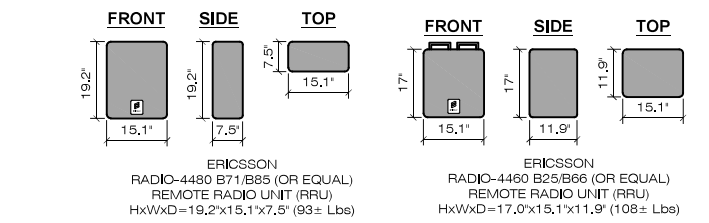


2 ANTENNA MOUNT DETAIL
 C-3 SCALE: 1/4" = 1'-0"

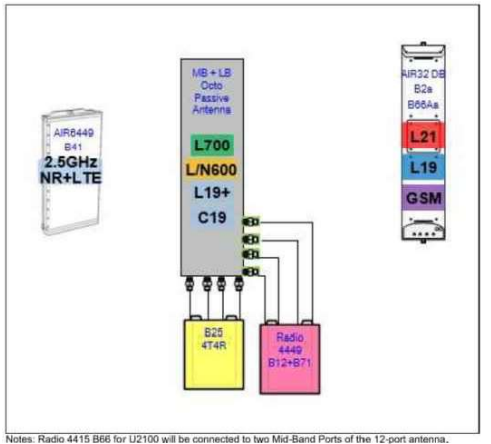
ANTENNA SPECIFICATIONS											ANTENNA MODELS, DOWN-TILTS & AZIMUTHS PER RFDS DATED 03/28/22		
SECTOR	MODEL	QTY	M-D - TILT	E-D - TILT	ANTENNA STATUS	ANTENNA ELEV. (FT)	AZIMUTH	RRU	CABLE STATUS	CABLE LENGTH	OVP		
ALPHA	A1: COMMSCOPE VV-65A-R1B	1	0°	4°	NEW	106'	40°	(1) ERICSSON RRU 4480 B71&B85	(3) 2' (6x24) HCS FIBER CABLES	160±	N/A		
	A2: RFS APXVALL24_43-U-NA20	1	0°	2°	NEW	106'		(1) ERICSSON RRU 4460 B25&B66					
	A3: ERICSSON AIR6419 B41	1	0°	2°	NEW	106'							
BETA	B1: COMMSCOPE VV-65A-R1B	1	0°	4°	NEW	106'	130°	(1) ERICSSON RRU 4480 B71&B85	(3) 2' (6x24) HCS FIBER CABLES	160±	N/A		
	B2: RFS APXVALL24_43-U-NA20	1	0°	2°	NEW	106'		(1) ERICSSON RRU 4460 B25&B66					
	B3: ERICSSON AIR6419 B41	1	0°	2°	NEW	106'							
GAMMA	G1: COMMSCOPE VV-65A-R1B	1	0°	4°	NEW	106'	250°	(1) ERICSSON RRU 4480 B71&B85	(3) 2' (6x24) HCS FIBER CABLES	160±	N/A		
	G2: RFS APXVALL24_43-U-NA20	1	0°	2°	NEW	106'		(1) ERICSSON RRU 4460 B25&B66					
	G3: ERICSSON AIR6419 B41	1	0°	2°	NEW	106'							
GPS				(1) NEW			N/A		(1) 1/2"	20±			



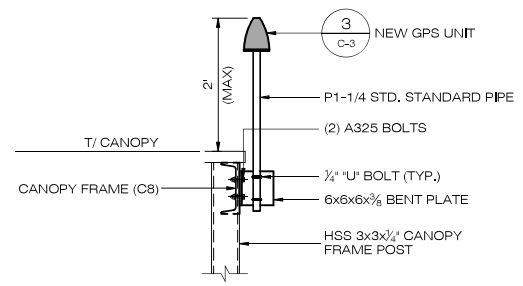
3 ANTENNA DETAILS
 C-3 SCALE: 1/2" = 1'-0"



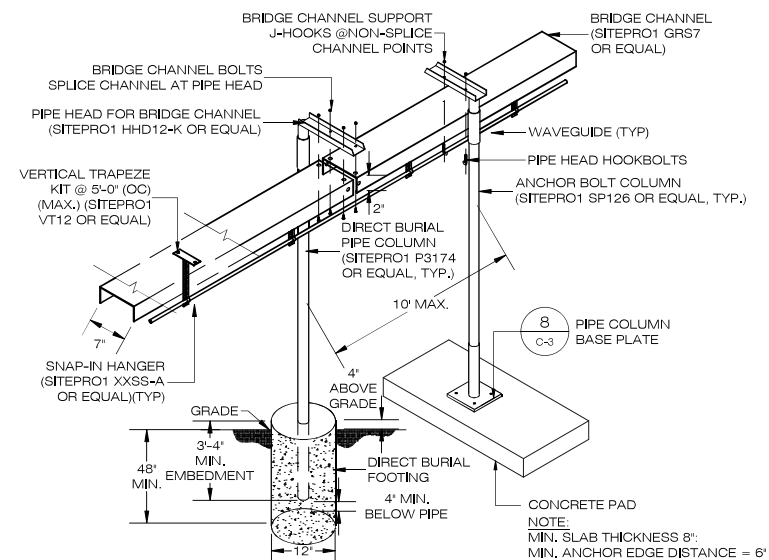
4 RRU EQUIPMENT
 C-3 SCALE: 1" = 1'-0"



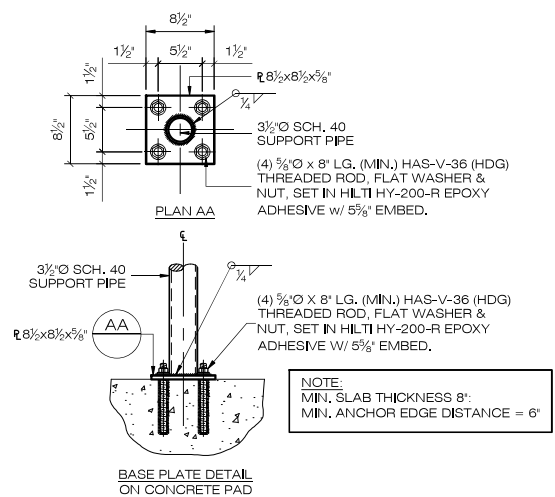
5 ANTENNA CABLING SCHEMATIC
 C-3 SCALE: 1" = 1'-0"



6 GPS MOUNT
 C-3 SCALE: N.T.S.



7 CABLE BRIDGE & COAX HANGER DETAIL
 C-3 SCALE: N.T.S.



8 PIPE BASE PLATE
 C-3 SCALE: N.T.S.

ALL-POINTS TECHNOLOGY CORPORATION
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SHEET TITLE:
EQUIPMENT DETAILS

SHEET NUMBER:
C-3

ELECTRICAL SYMBOL & ABBREVIATION LIST			
SYMBOL	DESCRIPTION	ABBREV.	DESCRIPTION
	FUSED DISCONNECT SWITCH (VOLTAGE AS REQUIRED)	AFF	ABOVE FINISHED FLOOR
	ELECTRICAL CONDUIT & CABLES	AFG	ABOVE FINISHED GRADE
	TELCO/FIBER CONDUIT & DRAG LINE	AGB	ANTENNA GROUND BAR
	GROUND CONDUIT & WIRE	AWG	AMERICAN WIRE GAGE
	DUPLEX RECEPTACLE WITH PANEL DP1 CIRCUIT INDICATED. (MOUNTED 42" AFF)	BCW	BARE COPPER WIRE
	ELECTRIC METER AND BASE. COORDINATE WITH UTILITY COMPANY	C	CONDUIT
	TRANSFORMER	DP	DISTRIBUTION PANEL
	NON-FUSED DISCONNECT SWITCH (VOLTAGE AS REQUIRED)	ECB	ENCLOSED CIRCUIT BREAKER
	GROUND BAR	EGB	EQUIPMENT GROUND BAR
	SPECIAL PURPOSE OUTLET	FACP	FIRE ALARM CONTROL PANEL
	GROUND ROD	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
	GROUND CONNECTION	GRC	GALVANIZED RIGID CONDUIT
	INTEGRATED LOAD CENTER w/ XFER SWITCH	KWH	KILO-WATT-HOUR
	12 HR. TIMER SWITCH (MOUNTED 48" AFG.)	LFMC	LIQUID TIGHT FLEXIBLE METALLIC CONDUIT
	DUPLEX RECEPTACLE WITH GFCI AND WEATHERPROOF COVER 'WHILE IN-USE'	MGB	MASTER GROUND BAR
	GROUND BAR	MTS	MANUAL TRANSFER SWITCH
	LIGHT FIXTURE	NF	NON-FUSED
		N.O.	NORMALLY OPEN
		RGS	RIGID STEEL CONDUIT
		SA	SURGE ARRESTOR
		TL	TWIST-LOCK
		UNO	UNLESS NOTED OTHERWISE
		WP	WEATHERPROOF

LIGHTING FIXTURE SCHEDULE					
TYPE	MANUFACTURER CATALOG/MODEL No.	GENERAL DESCRIPTION	LAMP	MOUNTING	NOTES
A	RAB LIGHTING INC. LED MODEL # BULLET2X12W.	BULLET FLOOD 2X12W	LED (2480Lm)	SURFACE	1,2
-	-	-	-	-	-

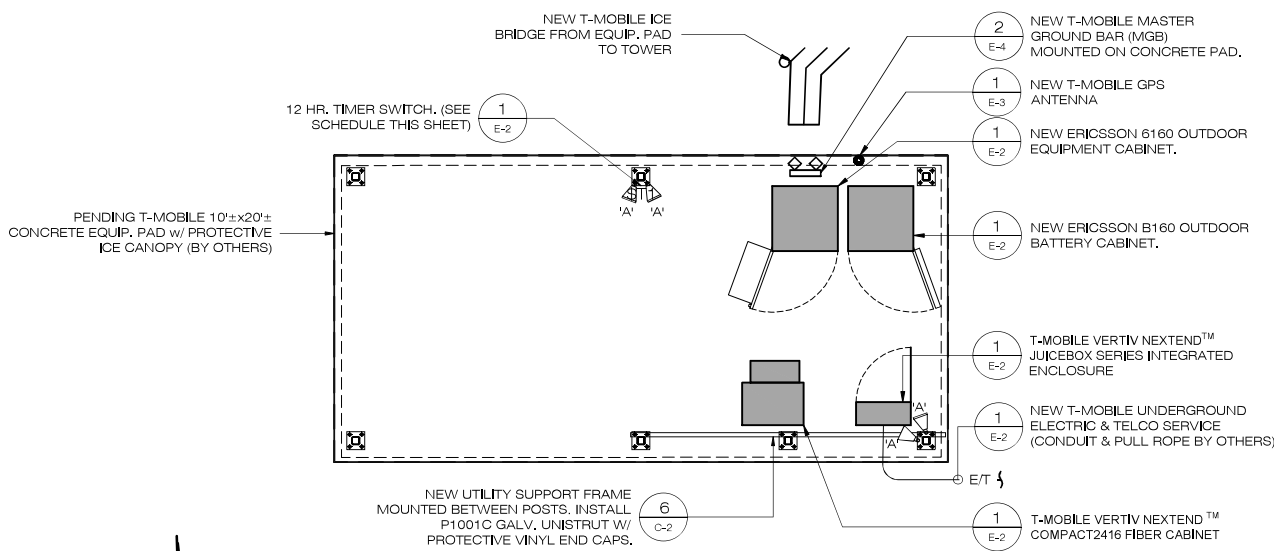
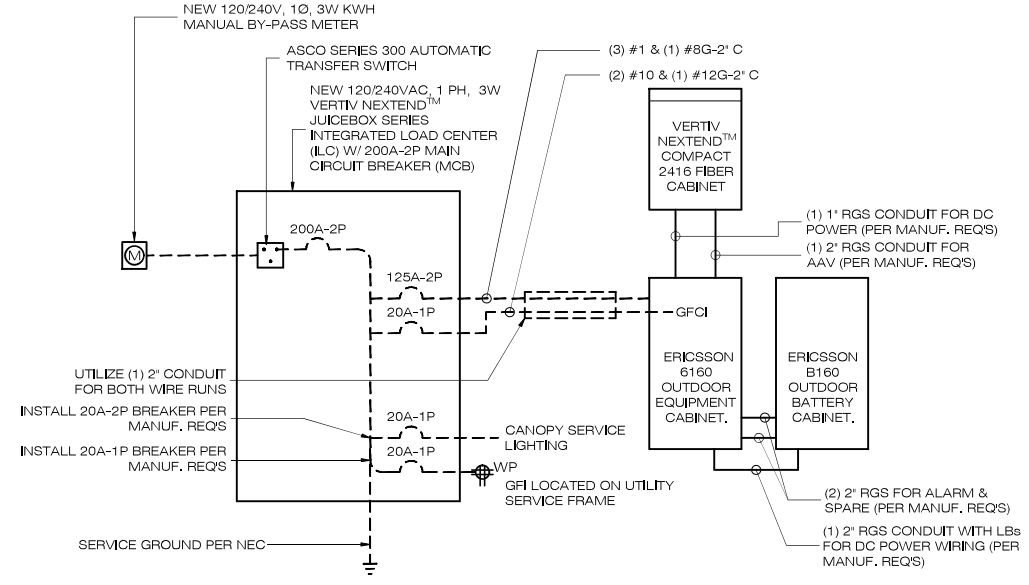
NOTES:

- ALUMINUM ROUND WEATHERPROOF BOX MCMMASTER-CARR MODEL# 7219K71.
- ALUMINUM WEATHERPROOF COVER MCMMASTER-CARR MODEL# 7219K13.

EQUIPMENT LEGEND	
DESIGNATION	DESCRIPTION
ILC	120/240VAC, 1 PH, 3W VERTIV NEXTEND™ JUICEBOX SERIES INTEGRATED LOAD CENTER (ILC) W/ 200A-2P MAIN CIRCUIT BREAKER (MCB) & ASCO SERIES 300 ATS (NORMAL POWER AND GENERATOR), NEMA 3R ENCLOSURE, MIN. TWO YEAR MANF. WARRANTY, FURNISH BOLT-ON CIRCUIT BREAKERS - TOTAL 42 POLES, 25KAIC.
ST1	<ol style="list-style-type: none"> 20A @ 125V, 12 HOUR TIMER SWITCH - MCMMASTER-CARR MODEL# 7014K49. (SEE NOTE 2 BELOW). DOUBLE GANG WEATHER PROOF OUTLET BOX - MCMMASTER-CARR MODEL# 7219K26. DOUBLE GANG WEATHER PROOF COVER - INTERMATIC MODEL# WP1230C.

SITE UTILITY NOTES:

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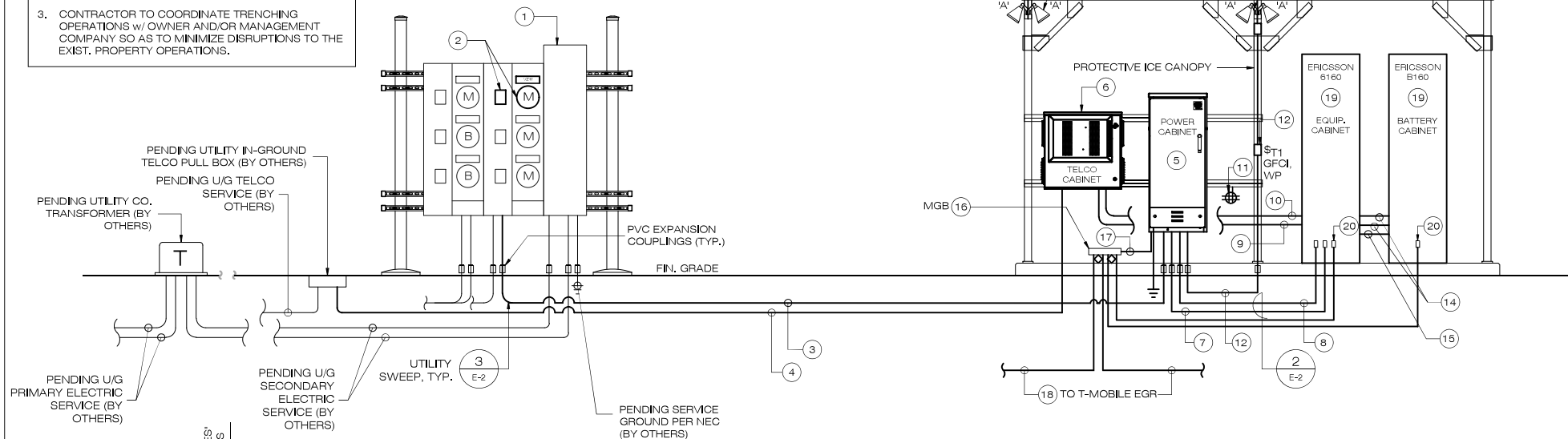
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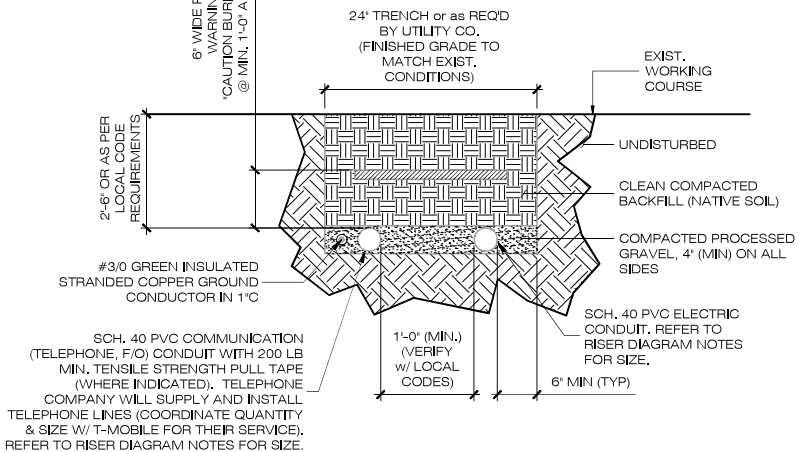
SHEET TITLE:
ELECTRICAL PLAN SCHEDULE & NOTES

SHEET NUMBER:
E-1

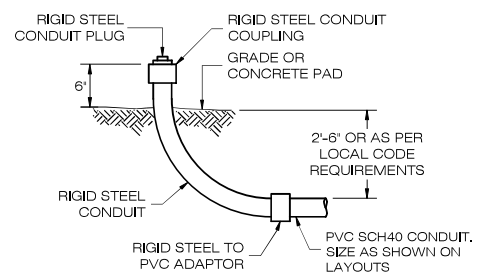
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1 SCHEMATIC ONE-LINE RISER DIAGRAM
E-2 SCALE: N.T.S.

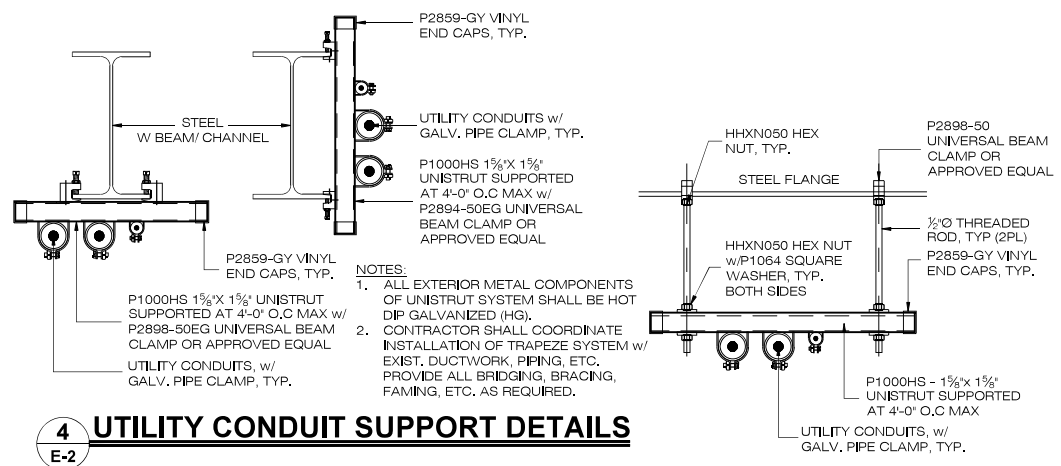


2 UTILITY TRENCH DETAIL
E-2 SCALE: N.T.S.



3 UTILITY SWEEP
E-2 SCALE: N.T.S.

- STRUT ATTACHMENT NOTES:**
- EXIST. CMU WALL (HOLLOW & GROUT-FILLED)**
FASTEN TO CMU w/ 3/8" DIA. SS HILTI HLC-HX 3/8"x1-7/8" HLC SLEEVE ANCHORS (MIN. 2 PER UNI-STRUT)
- MIN. EMBED: 1 1/2"
- MIN. SPACING: 8"
- MIN. EDGE DISTANCE: 12"
 - CONCRETE WALL/CEILING**
UNI-STRUT ANCHORED TO WALL/CEILING w/ 1/2" DIA. SS HAS-E ROD (MIN. 2 UNI-STRUT) W/ HILTI HY200 EPOXY ADHESIVE
- MIN. EMBED: 2 3/4"
- MIN. SPACING: 6"
- MIN. EDGE DISTANCE: 8"
 - BRICK MASONRY WALL/CEILING**
UNI-STRUT ANCHORED TO WALL w/ 1/2" Ø SS HAS-E THREADED ROD W/ HILTI HY270 EPOXY ADHESIVE (MIN. 2 PER BRACKET) W/ LOCK WASHERS AND NUTS.
- MIN. 3/8" EMBED.
- MIN. SPACING: 16" (VERT & HORZ.)
- MIN. EDGE DISTANCE: 16"
 - WD. JOIST CEILING**
UNI-STRUT ANCHORED TO U/S OF EXIST. WD. JOIST @ 8'-0" O.C. MAX W/ #10X 1 1/2" LG. SIMPSON SD CONNECTOR SCREWS W/ FLAT WASHERS (MODEL NO. SD10112), TYP. 2 PER STRUT.
1. USE STAINLESS STEEL ANCHORS INTO CONCRETE.
2. USE CARBON STEEL ANCHORS INTO BRICK OR MASONRY.
3. INSTALL ALL ANCHORS PER MANUFACTURERS RECOMMENDATIONS.



4 UTILITY CONDUIT SUPPORT DETAILS
E-2

ELECTRICAL ONE-LINE RISER KEY NOTES:

- PENDING 1Ø, 3W, 120/240V, 2P-800A, 65,000 AIC MAIN CIRCUIT BREAKER & (2) 1Ø, 3W, 120/240V, 1200A RATED METER CENTER BRANCH UNITS w/ LEVER BYPASS SOCKETS (V.I.F.).
NEW 120/240V, 1Ø, 3W KWH MANUAL BY-PASS METER SCHNEIDER ELECTRIC (OR EQUAL) W/200A, 2P TENANT CIRCUIT BREAKER COORDINATE INSTALLATION AND ACTIVATION OF METER WITH UTILITY COMPANY. REFER TO 1Ø-1 FOR LOCATION, VERIFY LOCATION OF METER WITH UTILITY COMPANY AND LOCAL ELECTRICAL INSPECTOR. METER SOCKET SHALL BE CLEARLY LABELED 'CARRIER NAME' SERVICE ENTRANCE, 200A, 120/240V, 1Ø, 3W.'
 - (3)#3/0 & (1)#6 G IN 2" C TO SUPPORT 200A, 120/240V, 1Ø, 3W NORMAL POWER SERVICE FROM LOAD SIDE OF T-MOBILE COMBINATION METER SOCKET TO NORMAL TERMINAL OF T-MOBILE I.L.C. (CONDUIT & PULL ROPE BY OTHERS).
 - NEW T-MOBILE TELCO/FIBER SERVICE - (1) 4" TELCO/FIBER CONDUIT W/ FULL-LENGTH PULL ROPE (CONDUIT & PULL ROPE BY OTHERS), COORDINATE FIBER INSTALLATION WITH LOCAL UTILITY COMPANY AND AUTHORITY HAVING JURISDICTION (AHJ).
 - NEW T-MOBILE 120/240V, 1 PH, 3W, NEMA 3R VERTIV NEXTENT™ JUICEBOX SERIES INTEGRATED LOAD CENTER W/ 200A-2P MAIN CIRCUIT BREAKER (MCB) & ASCO SERIES 300 ATS, REFER TO E-1 FOR SPECIFICATIONS. CONTRACTOR SHALL PROVIDE TYPE WRITTEN CARD WITH AS-BUILT BRANCH CIRCUITING AND PROVIDE ONE COPY FOR T-MOBILE CONSTRUCTION MANAGER AND FURNISH SECOND COPY WITH I.L.C. PROVIDE LABEL ON FRONT OF PANEL WITH BLACK LETTERS ON WHITE BACKGROUND MARKED 'T-MOBILE'. MOUNT T-MOBILE LOAD CENTER BETWEEN EQUIPMENT SUPPORT POSTS ON P1001C GALV. UNISTRUT AND INSTALL PROTECTIVE VINYL END CAPS.
 - NEW T-MOBILE VERTIV NEXTENT™ COMPACT 2416 FIBER CABINET, MOUNT BETWEEN EQUIPMENT CANOPY POSTS ON P1001C GALV. UNISTRUT AND INSTALL PROTECTIVE VINYL END CAPS.
 - (3) #1 & (1) #8G IN 2" C
 - (2) #10 & (1) #12G IN 2" C
 - (1) 2" RGS CONDUIT FOR AAV (PER MANUF. REQ'S)
 - (1) 1" RGS CONDUIT DC POWER (PER MANUF. REQ'S)
 - (2) #12 & (1) #12G IN 3/4" C TO FEED NEW 20A/120V GFCI OUTLET (NEMA 5-20R) IN NEMA 3R ENCLOSURE LOCATED ON T-MOBILE SERVICE FRAME. INSTALL APPROX. 48" A.F.G. REFER TO EQUIPMENT LEGEND ON DRAWING E-1 FOR SPECIFICATIONS AND 1/E-1 FOR LOCATION.
 - (2) #12 & (1) #12G IN 3/4" C TO FEED NEW 20A/120V 12 HR TIMER SWITCH IN NEMA 3R ENCLOSURE MOUNTED ON ICE CANOPY SUPPORT POST. INSTALL APPROX. 48" A.F.G. REFER TO DRAWING E-1 EQUIPMENT LEGEND, SPECIFICATIONS & LOCATION.
 - NEW SERVICE LIGHT FIXTURE. SECURE LIGHT FIXTURE TO J-BOX. REFER TO DRAWING E-1 EQUIPMENT LEGEND, SPECIFICATIONS & LOCATION. WIRE SWITCH TO CONTROL ALL LIGHTS SIMULTANEOUSLY (TYP.)
 - (2) 2" RGS FOR ALARM & SPARE (PER MANUF. REQ'S)
 - (1) 2" RGS CONDUIT WITH LB'S FOR DC POWER WIRING (PER MANUF. REQ'S)
 - MASTER GROUND BAR (MGB), REFER TO E-3 FOR MORE INFORMATION & E-4 FOR DETAILS.
 - #6 AWG GREEN INSULATED STRANDED COPPER WIRE IN 1" C AND GROUND T-MOBILE LOAD CENTER TO MAIN GROUND BAR (MGB), REFER TO DRAWING E-3 FOR LOCATION AND GROUNDING NOTES.
 - #3/0 AWG GREEN INSULATED STRANDED COPPER WIRE (EGR) IN 1" C TO EGR (TYP 2PL). BOND METALLIC CONDUIT WITH #6 AWG GREEN INSULATED STRANDED COPPER WIRE AT BOTH ENDS. REFER TO 2/E-1 LOCATION.
 - T-MOBILE EQUIPMENT & BATTERY CABINETS, COORDINATE INSTALLATION WITH T-MOBILE CONSTRUCTION MANAGER
 - BOND EQUIPMENT & BATTERY CABINET TO MAIN GROUND BAR (MGB) PER EQUIPMENT CABINET MANUFACTURER SPECIFICATIONS. MIN #2 AWG GREEN INSULATED STRANDED COPPER WIRE. INSTALL CABINET INTERNAL GROUNDING PER MANUFACTURERS SPECIFICATIONS.
- (GENERAL) USE GRC FOR ALL EXTERIOR APPLICATIONS, INCLUDING SWEEPS.
(GENERAL) COORDINATE ALL OUTAGES WITH OWNER AND PROVIDE TEMPORARY POWER AS REQUIRED.
(GENERAL) PAINT ALL EXPOSED EXTERIOR CONDUITS TO MATCH EXTERIOR OF EXIST. BUILDING (WHERE APPLICABLE).
(GENERAL) CONTRACTOR SHALL VERIFY THAT ALL BUILDING/ STRUCTURE GROUNDING ELECTRODES ARE BONDED WITH APPROPRIATELY SIZED CONDUCTORS PER NEC.
(GENERAL) ALL ENTRY HOLE(S) TO BE SEALED WATER TIGHT (WHERE APPLICABLE).

ALL-POINTS TECHNOLOGY CORPORATION
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T-Mobile
NORTHEAST, LLC.
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	04/21/22	FOR REVIEW: JRM
1	09/21/22	FOR REVIEW: JRM
2		
3		
4		
5		
6		



DESIGN PROFESSIONALS OF RECORD
PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385
DEVELOPER: TRANSCEND WIRELESS
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T-MOBILE CT076 - NORWALK/ CHESTNUT
SITE 173.5 WEST ROCKS ROAD ADDRESS: NORWALK, CT 06851
APT FILING NUMBER: CT256230
T-MOBILE SITE NUMBER: CT11076B
DATE: 04/21/22 DRAWN BY: DRA
CHECKED BY: JRM
SHEET TITLE:
ONE-LINE DIAGRAM, DETAILS & NOTES

SHEET NUMBER:
E-2

GENERAL GROUNDING NOTES

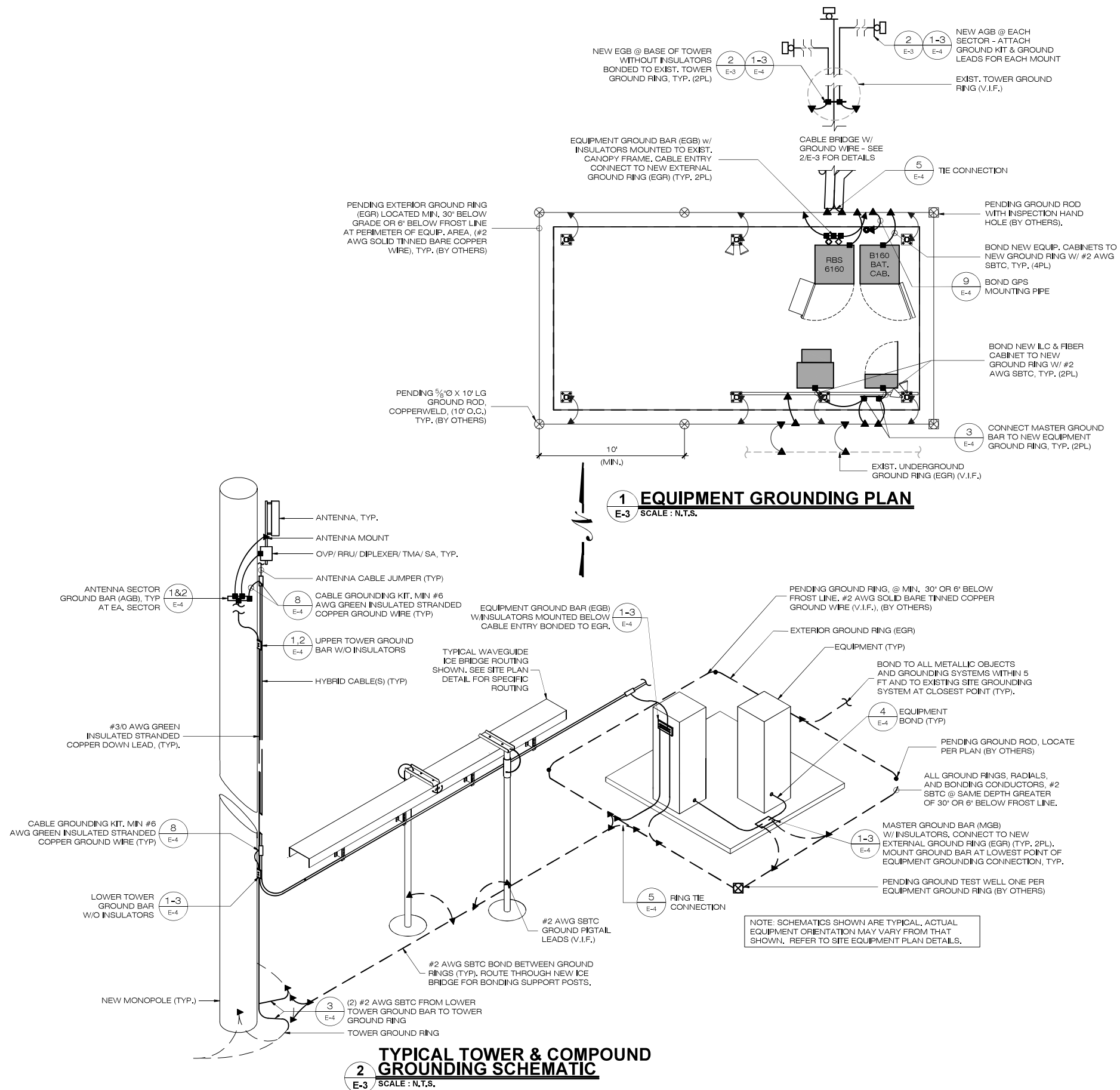
1. ALL SURGE SUPPRESSION DEVICES (WHERE APPLICABLE) SHALL BE BONDED TO EQUIPMENT GROUND BAR (EGB) PER MANUFACTURERS SPECIFICATIONS.
2. ALL GROUND BARS SHALL HAVE A CONTIGUOUS GROUND PATH.
3. REFER TO GROUNDING NOTES & SPECIFICATIONS ON SHEET N-1 FOR MORE INFORMATION.
4. ALL IN-GROUND RINGS, RADIALS, AND BONDING CONDUCTORS SHALL BE #2 AWG SOLID BARE TINNED COPPER (SBTC) ALL AT SAME 30 IN. DEPTH OR 6 IN. BELOW FROST LINE, WHICHEVER IS GREATER.
5. ALL GROUND RINGS SHALL BE MIN 2 FT FROM FOUNDATION BEING ENCIRCLED.
6. COMBINE IN-GROUND RINGS, RADIALS, AND BONDING CONDUCTORS INTO SINGLE CONDUCTOR FOR ALL PORTIONS PARALLEL 2 FT APART OR CLOSER.
7. UNLESS NOTED OTHERWISE, ALL ABOVE GROUND CONDUCTORS SHALL BE MIN #6 AWG INSULATED STRANDED COPPER.
8. CONDUCTORS BONDING ABOVE-GROUND CONNECTIONS TO IN-GROUND CONNECTIONS SHALL BE MIN #2 AWG SBTC UNLESS NOTED OTHERWISE AND SHALL BE PROTECTED BY LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR ALL PORTIONS ABOVE GROUND.

GROUNDING LEGEND

SYMBOL	DESCRIPTION
▶	EXOTHERMIC WELD
■	MECHANICAL CONNECTION
⊗	GROUND ROD
---	GROUND CONDUCTOR
⊗	GROUND ROD w/ INSPECTION HAND HOLE

SITE UTILITY NOTES:

1. CONTRACTOR SHALL ENGAGE THE SERVICES OF AN UNDERGROUND UTILITY LOCATING COMPANY TO LOCATE ALL UNDERGROUND EQUIPMENT IN THE TRENCHING AREA TO AVOID ANY DAMAGE.
2. HAND EXCAVATE WITHIN 5' OF EXIST. UNDERGROUND UTILITIES (V.I.F.) MAINTAIN 18" MIN. CLEARANCE.
3. CONTRACTOR TO COORDINATE TRENCHING OPERATIONS w/ OWNER AND/OR MANAGEMENT COMPANY SO AS TO MINIMIZE DISRUPTIONS TO THE EXIST. PROPERTY OPERATIONS.



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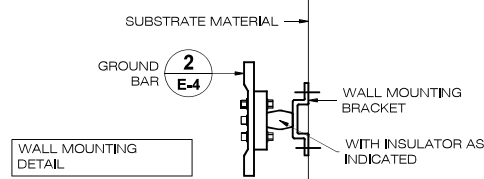
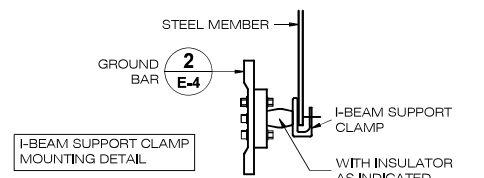
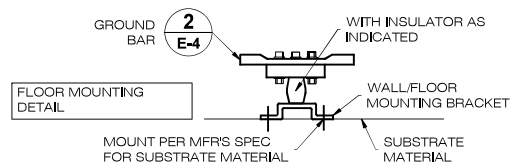
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T-MOBILE
CT076 - NORWALK/
CHESTNUT
SITE 173.5 WEST ROCKS ROAD
ADDRESS: NORWALK, CT 06851
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T-MOBILE SITE NUMBER: CT11076B

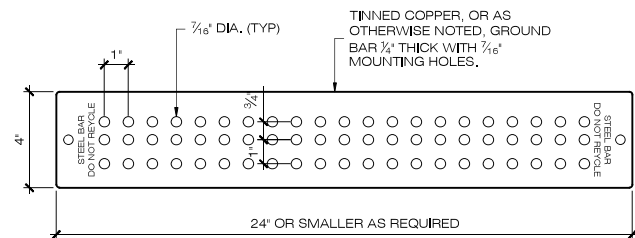
DATE: 04/21/22 DRAWN BY: DRA
CHECKED BY: JRM

SHEET TITLE:
EQUIPMENT GROUNDING PLAN, SCHEMATIC & NOTES

SHEET NUMBER:
E-3

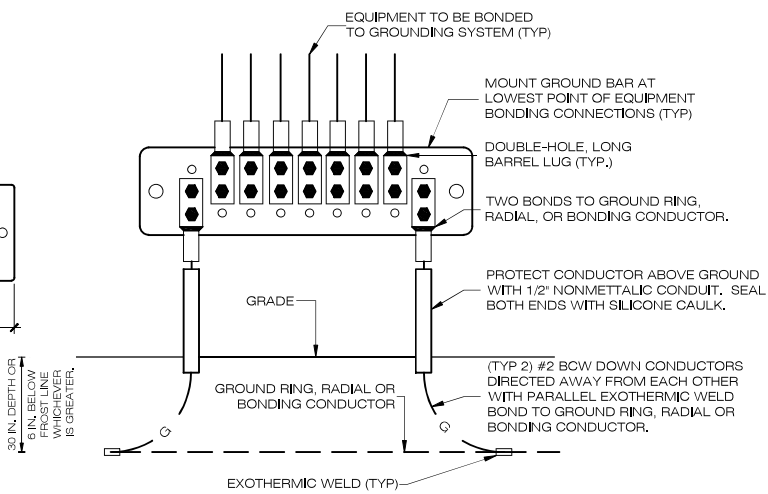


1 GROUND BAR MOUNTING DETAILS
E-4 / SCALE: NTS

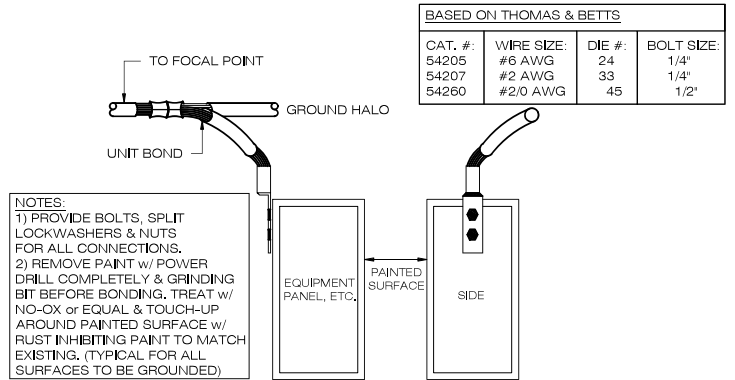


2 GROUND BARS
E-4 / SCALE: N.T.S.

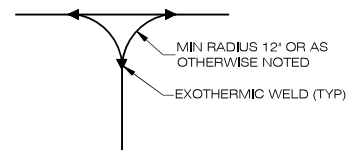
NOTES:
1. NO EXOTHERMIC WELDS TO GROUND BAR, ATTACH CONDUCTORS WITH (2) HOLE COPPER COMPRESSION TERMINATIONS AND ALL STAINLESS STEEL HARDWARE
2. DOUBLE UP CONNECTIONS ON BACKSIDE OF GROUND BAR ONLY AS NECESSARY.
3. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
4. ALL STAINLESS STEEL MOUNTING HARDWARE.



3 GROUND BAR CONNECTION DETAIL
E-4 / SCALE: NTS



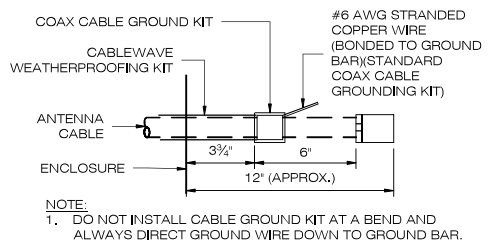
4 (2) HOLE LUG BONDS
E-4 / SCALE: N.T.S.



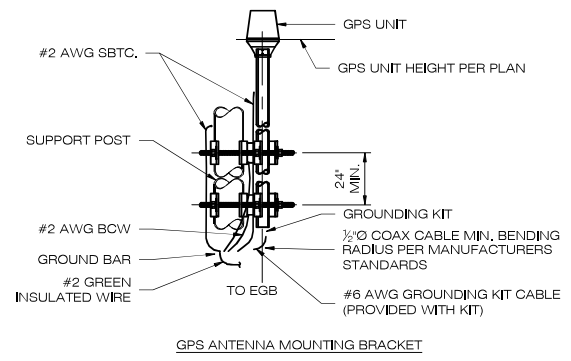
5 TIE CONNECTION DETAIL
E-4 / SCALE: NTS

6 GROUND ROD DETAIL
E-4 / SCALE: N.T.S.

7 TEST WELL DETAIL
E-4 / SCALE: NTS



8 ANTENNA CABLE GROUNDING DETAIL
E-4 / SCALE: N.T.S.



9 GPS AND MOUNTING BRACKET GROUNDING DETAIL
E-4 / SCALE: N.T.S.

N.I.C.

N.I.C.

CONSTRUCTION DOCUMENTS

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T-MOBILE CT076 - NORWALK/ CHESTNUT

SITE 173.5 WEST ROCKS ROAD
ADDRESS: NORWALK, CT 06851
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DATE: 04/21/22 DRAWN BY: DRA
CHECKED BY: JRM

SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER:
E-4



STRUCTURAL ANALYSIS REPORT
130-ft +/- MONOPOLE TOWER
NORWALK, CONNECTICUT

Prepared for
Transcend Wireless



T-Mobile Site Ref:
CT11076B; Norwalk/Chestnut

Site Address: 173 West Rocks Road, Norwalk, CT 06851

Project Type: Anchor/New Site Development (NSD)

APT Filing No. CT265230

Rev. 0 April 21, 2022
Rev. 1 September 21, 2022



STRUCTURAL ANALYSIS REPORT
130-ft +/- MONOPOLE TOWER
NORWALK, CONNECTICUT
prepared for
Transcend Wireless

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a structural analysis of a pending 130-foot +/- monopole tower structure to support a proposed T-Mobile equipment installation.

The proposed T-Mobile antenna and appurtenance installation consists of nine (9) panel antennas and six (6) Remote Radio Heads (RRHs). Equipment shall be installed on three (3) 6-ft SitePro1 Double T-arms at 106' +/- AGL and be fed by three (3) 6x24 hybrid feed line cables, as referenced in the following table.

Our analysis indicates that the monopole structure meets the requirements of the 2015 International Building Code (IBC), as amended by the 2018 Connecticut State Building Code, and the ANSI/TIA-222-H standard with T-Mobile's proposed equipment installation and reserved equipment loading.

Evaluation of the existing foundation was limited to a comparison of the calculated base reactions under the proposed and reserved loads against the design reactions indicated within original design drawings prepared by Valmont. Reactions imposed by the proposed installation are less than the published design reactions, indicating that the tower foundation is adequately sized.

INTRODUCTION:

A structural analysis of this communications tower was performed by APT for Transcend Wireless. The tower is located at 173 West Rocks Road in Norwalk, Connecticut.

The following information was utilized in the preparation of this analysis:

-) Construction Drawings prepared by APT (Project No. CT265230), marked Rev. 1 dated 09/21/22.
-) RFDS detailing T-Mobile's proposed equipment changes, latest version.
-) Structural Analysis Report prepared by APT (Project No. CT141_13250), dated 04/08/22.
-) Structural Analysis Report prepared by APT (Project No. CT1931650), marked Rev. 1, dated 03/08/22.
-) Communication Structure Design Calculations prepared by Valmont Structures (File ID No. 512236-PI) dated 08/16/21 and signed and sealed on 09/30/21.
-) Tower and Foundation Drawings prepared by Valmont (File ID No. 512236-PI) dated 08/16/21, signed and sealed on 09/30/21.

The structure is a 130-foot +/-, galvanized steel, 18-sided monopole tower structure designed and manufactured by Valmont.

The analysis was conducted using the following antenna inventory (proposed equipment changes shown in **bold** text, reserved/future equipment shown in *italics*):

Carrier	Antenna and Appurtenance Make/Model	Elevation	Status	Mount Type	Coax/Feed-Line
AT&T	(3) <i>CCI DMP65R-BU6DA & CCI TPA65R-BU6DA-K antennas,</i> (3) <i>Ericsson B5/B12 4449 RRHs,</i> (3) <i>Ericsson 4415 4T4R RRHs,</i> (3) <i>Ericsson B2/B66A 8843 RRHs,</i> (3) <i>Ericsson B14 4478 RRHs,</i> (3) <i>Raycap DC6-48-60-18-8C-EV DC "squids"</i> (6) <i>JMA Wireless MX06FRO660-03 antennas,</i> (3) <i>Samsung XXDWMM-12.5-65-8TCBRS w/integrated RRHs,</i> (3) <i>Samsung MT6407-77A antennas w/integrated RRHs,</i> (3) <i>Samsung B2/B66A RRH ORAN (RF4439d-25A) RRHs,</i> (3) <i>Samsung B5/B13 RRH ORAN (RF4440d-13A) RRHs,</i> (1) <i>12OVP</i>	126'	R	(3) <i>SitePro1 6' Double T-Arms w/ (15) 2-7/8" x 8' Lg. Pipe Mounts</i>	(2) <i>DC fiber,</i> (6) <i>DC power (6AWG6)</i>
Verizon	(3) <i>Commscope VV-65A-R1B,</i> (3) <i>RFS APXVAALL24_43-U-NA20 & (3) Ericsson 6419 B41 antennas,</i> (3) <i>Ericsson Radio 4460 B25+B66 RRHs,</i> (3) <i>Ericsson Radio 4480 B71+B85 RRHs</i>	116'	R	(3) <i>SitePro1 6' Double T-Arms w/ (15) 2-7/8" x 8' Lg. Pipe Mounts</i>	(1) <i>12x24 hybrid</i>
T-Mobile	(3) <i>Commscope VV-65A-R1B,</i> (3) <i>RFS APXVAALL24_43-U-NA20 & (3) Ericsson 6419 B41 antennas,</i> (3) <i>Ericsson Radio 4460 B25+B66 RRHs,</i> (3) <i>Ericsson Radio 4480 B71+B85 RRHs</i>	106'	P	(3) <i>SitePro1 6' Double T-Arms w/ (15) 2-7/8" x 8' Lg. Pipe Mounts</i>	(3) <i>6x24 hybrid</i>
	(9) <i>96" x 21" antennas,</i> (12) <i>22" x 18" RRHs,</i> (3) <i>DC6-48-60-18-8C-EV OVP</i>	96'	F	(3) <i>SitePro1 6' Double T-Arms w/ (15) 2-7/8" x 8' Lg. Pipe Mounts</i>	(3) <i>1-5/8"</i>

Notes:

1. ETR = Existing to Remain; ERL = Existing to be Relocated; P = Proposed; R = Reserved; F = Future.
2. Elevations are measured above ground level (AGL). Tower is approximately 1' above grade.
3. Mounts to be furnished and installed by others.
4. All feed-lines noted above shall be routed within interior of the pole unless otherwise noted.

STRUCTURAL ANALYSIS:

Methodology:

This structural analysis has been prepared in accordance with the ANSI/TIA-222-H standard entitled "Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures"; American Institute of Steel Construction (AISC) Manual of Steel Construction, and the 2015 International Building Code (IBC), as amended by the 2018 Connecticut State Building Code.

Antenna, appurtenance and mount assembly loads were evaluated utilizing the ANSI/TIA-222-H standard.

- o Load Case 1: 120 mph (3-second gust) Ultimate wind speed, 0" ice
- o Load Case 2: 50mph (3-second gust) w/ 1.00" ice thickness required
- o Load Case 3: 60mph (3-second gust) (Service Load)
- o Risk Category: II
- o Exposure Category: C
- o Topographic Category: 1

Analysis Results:

The following table summarizes the capacity of the monopole based on combined axial and bending stresses:

Elevation	Capacity ¹
110'-130'	14%
79.3'-110'	30%
41.9'-79.3'	45%
1'-41.9'	51%

Notes:

1. Based on ASTM A572 Gr. 65 18-sided monopole. Pole diameter and thickness vary.

Base Plate, Anchor Bolts, and Base Foundation:

Evaluation of the pending base plate, anchor bolts, and base foundation was performed by comparing reactions calculated under the proposed and reserved loads with the design reactions indicated within the aforementioned original Valmont design drawings. Reactions imposed by the proposed installation are less than the published design reactions, indicating that the tower foundation is adequately sized.

The calculated base reactions utilized in the analysis of the foundation system with the proposed loading are as follows:

Load Effect	Original Design (TIA-222-H)	Calculated Reactions
Compression	62.6 k	52.7 k
Base Shear	55.9 k	37.5 k
Overturning Moment	6,363 ft-k	3,526 ft-k

CONCLUSIONS:

In conclusion, our analysis indicates that the pending 130-ft +/- monopole tower structure located at 173 West Rocks Road in Norwalk, Connecticut meets the requirements of the 2015 International Building Code (IBC), as amended by the 2018 Connecticut State Building Code, and the ANSI/TIA-222-H standard with T-Mobile's proposed equipment installation and reserved/future equipment loading.

Sincerely,
All-Points Technology Corp. P.C.



Michael S. Trodden, P.E.
Senior Structural Engineer



Prepared By:
All-Points Technology Corp. P.C.



Ali M. Adair
Project Scientist

LIMITATIONS:

This report is based on the following:

1. Tower/structure is properly installed and maintained.
2. All members and components are in a non-deteriorated condition.
3. All required members are in place.
4. All bolts are in place and are properly tightened.
5. Tower/structure is in plumb condition.
6. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
7. Material yield stress values as follows:
 - Monopole: 65 ksi
 - Base plate: 50 ksi
 - Anchor bolts: 75 ksi

All-Points Technology Corporation, P.C. (APT) is not responsible for any modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

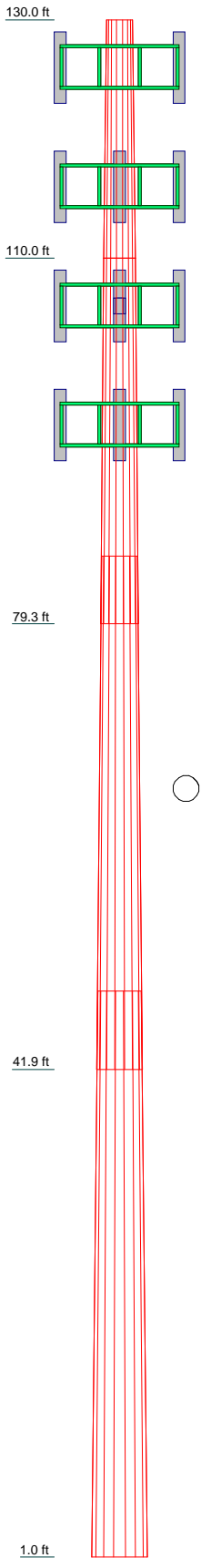
1. Replacing or reinforcing bracing members.
2. Reinforcing members in any manner.
3. Adding or relocating antennas.
4. Installing antenna mounts or waveguide cables.
5. Extending tower.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Appendix A

Tower Schematic

Section	1	2	3	4
Length (ft)	20.00	30.67	43.08	47.50
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.3750	0.4380	0.5000
Socket Length (ft)		5.67	6.58	
Top Dia (in)	26.7100	31.4300	36.5740	44.3021
Bot Dia (in)	31.4300	38.8600	46.7300	55.5000
Grade			A572-65	
Weight (lb)	1556.3	4306.2	8399.8	12671.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DMP65R-BU6DA (AT)	126	SAMSUNG B5/B13 RRH (RF4440d-13A) (Verizon)	116
DMP65R-BU6DA (AT)	126		
DMP65R-BU6DA (AT)	126	SAMSUNG B5/B13 RRH (RF4440d-13A) (Verizon)	116
TPA65R-BU6DA-K (AT)	126	Raycap RDC-6627-PF-48 OVP (Verizon)	116
TPA65R-BU6DA-K (AT)	126	(5) 8'x2 7/8" Pipe Mount (Verizon)	116
Ericsson Radio 4478 B14 (AT)	126	(5) 8'x2 7/8" Pipe Mount (Verizon)	116
Ericsson Radio 4478 B14 (AT)	126	(5) 8'x2 7/8" Pipe Mount (Verizon)	116
Ericsson Radio 4478 B14 (AT)	126	SitePro1 Double 6' T-Arm (Verizon)	116
Ericsson B2/B66A 8843 RRH (AT)	126	Commscope VV-65A-R1B (T-Mobile)	106
Ericsson B2/B66A 8843 RRH (AT)	126	Commscope VV-65A-R1B (T-Mobile)	106
Ericsson B2/B66A 8843 RRH (AT)	126	Commscope VV-65A-R1B (T-Mobile)	106
Ericsson RRUS 4415 4T4R (AT)	126	Commscope VV-65A-R1B (T-Mobile)	106
Ericsson RRUS 4415 4T4R (AT)	126	APXVAALL24_43-U-NA20 (T-Mobile)	106
Ericsson RRUS 4415 4T4R (AT)	126	APXVAALL24_43-U-NA20 (T-Mobile)	106
Ericsson RRUS 4415 4T4R (AT)	126	APXVARR24_43-C-NA20 (T-Mobile)	106
Ericsson B5/B12 4449 RRH (AT)	126	AIR6419 B41 (T-Mobile)	106
Ericsson B5/B12 4449 RRH (AT)	126	AIR6419 B41 (T-Mobile)	106
Ericsson B5/B12 4449 RRH (AT)	126	AIR6419 B41 (T-Mobile)	106
DC6-48-60-0-8C-EV (AT)	126	Radio 4460 B2/B66 (T-Mobile)	106
DC6-48-60-0-8C-EV (AT)	126	Radio 4460 B2/B66 (T-Mobile)	106
DC6-48-60-0-8C-EV (AT)	126	Radio 4460 B2/B66 (T-Mobile)	106
(5) 8'x2 7/8" Pipe Mount (AT)	126	Radio 4480 B71/B85 (T-Mobile)	106
(5) 8'x2 7/8" Pipe Mount (AT)	126	Radio 4480 B71/B85 (T-Mobile)	106
(5) 8'x2 7/8" Pipe Mount (AT)	126	Radio 4480 B71/B85 (T-Mobile)	106
SitePro1 6' Double T-Arm (AT)	126	(5) 8'x2 7/8" Pipe Mount (T-Mobile)	106
(2) JMA MX06FRO660-03 (Verizon)	116	(5) 8'x2 7/8" Pipe Mount (T-Mobile)	106
(2) JMA MX06FRO660-03 (Verizon)	116	(5) 8'x2 7/8" Pipe Mount (T-Mobile)	106
(2) JMA MX06FRO660-03 (Verizon)	116	SitePro1 6' Double T-Arm (T-Mobile)	106
MT6407-77A (Verizon)	116	(3) 96" x 21" x 6.3" panel antenna (Future)	96
MT6407-77A (Verizon)	116	(3) 96" x 21" x 6.3" panel antenna (Future)	96
MT6407-77A (Verizon)	116	(3) 96" x 21" x 6.3" panel antenna (Future)	96
CBRS RRH-RT 4401-48A w/ XXDWM-12.5-65-8T antenna (Verizon)	116	(3) 96" x 21" x 6.3" panel antenna (Future)	96
CBRS RRH-RT 4401-48A w/ XXDWM-12.5-65-8T antenna (Verizon)	116	(4) 22" x 18" x 12" RRH (Future)	96
CBRS RRH-RT 4401-48A w/ XXDWM-12.5-65-8T antenna (Verizon)	116	(4) 22" x 18" x 12" RRH (Future)	96
CBRS RRH-RT 4401-48A w/ XXDWM-12.5-65-8T antenna (Verizon)	116	Raycap DC6-48-60-18-8F surge suppressor (Future)	96
SAMSUNG B2/B66a RRH (RF4439d-25A) (Verizon)	116	Raycap DC6-48-60-18-8F surge suppressor (Future)	96
SAMSUNG B2/B66a RRH (RF4439d-25A) (Verizon)	116	Raycap DC6-48-60-18-8F surge suppressor (Future)	96
SAMSUNG B2/B66a RRH (RF4439d-25A) (Verizon)	116	(5) 8'x2 7/8" Pipe Mount (Future)	96
SAMSUNG B2/B66a RRH (RF4439d-25A) (Verizon)	116	(5) 8'x2 7/8" Pipe Mount (Future)	96
SAMSUNG B5/B13 RRH (RF4440d-13A) (Verizon)	116	(5) 8'x2 7/8" Pipe Mount (Future)	96
SAMSUNG B5/B13 RRH (RF4440d-13A) (Verizon)	116	SitePro1 6' Double T-Arm (Future)	96

MATERIAL STRENGTH

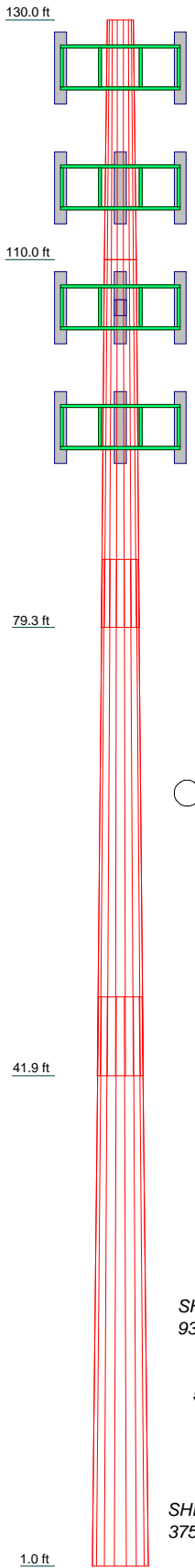
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft

All Points Technology		Job: 130' Monopole Tower	
567 Vauxhall St. Ext., Suite 300		Project: CT141_13250 North Norwalk CT	
Waterford, CT 06385		Client: Transcend; T-Mobile Site #CT11076B	Drawn by: AMA
Phone: (860) 663-1697		Code: TIA-222-H	Date: 09/21/22
FAX: (860) 663-0935		Path:	Scale: NTS
		Dwg No. E-1	

Section	1	2	3	4
Length (ft)	20.00	30.67	43.08	47.50
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.3750	0.4380	0.5000
Socket Length (ft)		5.67	6.58	
Top Dia (in)	26.7100	31.4300	36.5740	44.3021
Bot Dia (in)	31.4300	38.6600	46.7300	55.5000
Grade			A572-65	
Weight (lb)	1556.3	4306.2	8399.8	12671.9
				26934.3



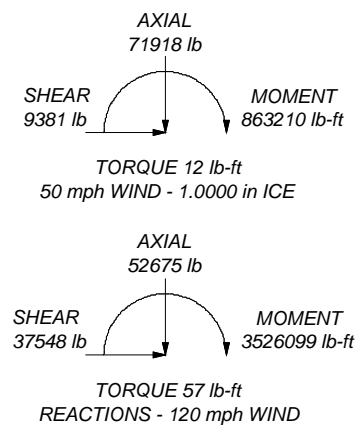
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 51.1%

ALL REACTIONS
ARE FACTORED



All Points Technology 567 Vauxhall St. Ext., Suite 300 Waterford, CT 06385 Phone: (860) 663-1697 FAX: (860) 663-0935	Job: 130' Monopole Tower
	Project: CT141_13250 North Norwalk CT
	Client: Transcend; T-Mobile Site #CT11076B
	Code: TIA-222-H
	Drawn by: AMA
	Date: 09/21/22
	Scale: NTS
	Path:
	Dwg No. E-1

Appendix B

Calculations

tnxTower All Points Technology 567 Vauxhall St. Ext., Suite 311 Waterford, CT 06385 Phone: (860) 663-1697 FAX: (860) 663-0935	Job	130' Monopole Tower	Page	1 of 7
	Project	CT141_13250 North Norwalk CT	Date	10:16:32 09/21/22
	Client	Transcend; T-Mobile Site #CT11076B	Designed by	AMA

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

Tower base elevation above sea level: 222.00 ft.

Basic wind speed of 120 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 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.

Feed Line/Linear Appurtenances

<i>Description</i>	<i>Face or Leg</i>	<i>Allow Shield</i>	<i>Exclude From Torque Calculation</i>	<i>Component Type</i>	<i>Placement ft</i>	<i>Total Number</i>		<i>C_AA_A</i>	<i>Weight</i>
								<i>ft²/ft</i>	<i>plf</i>
3/4" power 6AWG6 (AT&T)	C	No	Yes	Inside Pole	126.00 - 4.00	6	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
5/16" Fiberoptic cable (AT&T)	C	No	Yes	Inside Pole	126.00 - 4.00	2	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
2" hybrid (12x24) (Verizon)	C	No	Yes	Inside Pole	116.00 - 4.00	1	No Ice	0.00	3.04
							1/2" Ice	0.00	3.04
							1" Ice	0.00	3.04
6x24 fiber cable (T-Mobile)	C	No	Yes	Inside Pole	106.00 - 4.00	3	No Ice	0.00	2.22
							1/2" Ice	0.00	2.22
							1" Ice	0.00	2.22
1 5/8 (Reserved)	C	No	Yes	Inside Pole	96.00 - 4.00	3	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04

tnxTower All Points Technology 567 Vauxhall St. Ext., Suite 311 Waterford, CT 06385 Phone: (860) 663-1697 FAX: (860) 663-0935	Job	130' Monopole Tower	Page	2 of 7
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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
DMP65R-BU6DA (AT&T)	A	From Leg	4.00	0.0000	126.00	No Ice	12.71	5.62	85.00
			0.00			1/2" Ice	13.21	6.07	158.96
			0.00			1" Ice	13.71	6.53	239.56
DMP65R-BU6DA (AT&T)	B	From Leg	4.00	0.0000	126.00	No Ice	12.71	5.62	85.00
			0.00			1/2" Ice	13.21	6.07	158.96
			0.00			1" Ice	13.71	6.53	239.56
DMP65R-BU6DA (AT&T)	C	From Leg	4.00	0.0000	126.00	No Ice	12.71	5.62	85.00
			0.00			1/2" Ice	13.21	6.07	158.96
			0.00			1" Ice	13.71	6.53	239.56
TPA65R-BU6DA-K (AT&T)	A	From Leg	4.00	0.0000	126.00	No Ice	12.87	5.67	75.00
			0.00			1/2" Ice	13.37	6.13	150.03
			0.00			1" Ice	13.87	6.59	231.75
TPA65R-BU6DA-K (AT&T)	B	From Leg	4.00	0.0000	126.00	No Ice	12.87	5.67	75.00
			0.00			1/2" Ice	13.37	6.13	150.03
			0.00			1" Ice	13.87	6.59	231.75
TPA65R-BU6DA-K (AT&T)	C	From Leg	4.00	0.0000	126.00	No Ice	12.87	5.67	75.00
			0.00			1/2" Ice	13.37	6.13	150.03
			0.00			1" Ice	13.87	6.59	231.75
Ericsson Radio 4478 B14 (AT&T)	A	From Leg	3.50	0.0000	126.00	No Ice	2.02	1.25	65.00
			0.00			1/2" Ice	2.20	1.40	82.66
			0.00			1" Ice	2.39	1.56	103.08
Ericsson Radio 4478 B14 (AT&T)	B	From Leg	3.50	0.0000	126.00	No Ice	2.02	1.25	65.00
			0.00			1/2" Ice	2.20	1.40	82.66
			0.00			1" Ice	2.39	1.56	103.08
Ericsson Radio 4478 B14 (AT&T)	C	From Leg	3.50	0.0000	126.00	No Ice	2.02	1.25	65.00
			0.00			1/2" Ice	2.20	1.40	82.66
			0.00			1" Ice	2.39	1.56	103.08
Ericsson B2/B66A 8843 RRH (AT&T)	A	From Leg	3.50	0.0000	126.00	No Ice	1.98	1.70	75.00
			0.00			1/2" Ice	2.16	1.86	95.54
			0.00			1" Ice	2.34	2.04	119.02
Ericsson B2/B66A 8843 RRH (AT&T)	B	From Leg	3.50	0.0000	126.00	No Ice	1.98	1.70	75.00
			0.00			1/2" Ice	2.16	1.86	95.54
			0.00			1" Ice	2.34	2.04	119.02
Ericsson B2/B66A 8843 RRH (AT&T)	C	From Leg	3.50	0.0000	126.00	No Ice	1.98	1.70	75.00
			0.00			1/2" Ice	2.16	1.86	95.54
			0.00			1" Ice	2.34	2.04	119.02
Ericsson RRUS 4415 4T4R (AT&T)	A	From Leg	3.50	0.0000	126.00	No Ice	1.84	0.82	55.00
			0.00			1/2" Ice	2.01	0.94	69.07
			0.00			1" Ice	2.19	1.07	85.66
Ericsson RRUS 4415 4T4R (AT&T)	B	From Leg	3.50	0.0000	126.00	No Ice	1.84	0.82	55.00
			0.00			1/2" Ice	2.01	0.94	69.07
			0.00			1" Ice	2.19	1.07	85.66
Ericsson RRUS 4415 4T4R (AT&T)	C	From Leg	3.50	0.0000	126.00	No Ice	1.84	0.82	55.00
			0.00			1/2" Ice	2.01	0.94	69.07
			0.00			1" Ice	2.19	1.07	85.66
Ericsson B5/B12 4449 RRH (AT&T)	A	From Leg	3.50	0.0000	126.00	No Ice	1.98	1.41	80.00
			0.00			1/2" Ice	2.16	1.57	98.55
			0.00			1" Ice	2.34	1.73	119.93
Ericsson B5/B12 4449 RRH (AT&T)	B	From Leg	3.50	0.0000	126.00	No Ice	1.98	1.41	80.00
			0.00			1/2" Ice	2.16	1.57	98.55
			0.00			1" Ice	2.34	1.73	119.93
Ericsson B5/B12 4449 RRH (AT&T)	C	From Leg	3.50	0.0000	126.00	No Ice	1.98	1.41	80.00
			0.00			1/2" Ice	2.16	1.57	98.55
			0.00			1" Ice	2.34	1.73	119.93

tnxTower All Points Technology 567 Vauxhall St. Ext., Suite 311 Waterford, CT 06385 Phone: (860) 663-1697 FAX: (860) 663-0935	Job	130' Monopole Tower	Page	3 of 7
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	Client	Transcend; T-Mobile Site #CT11076B	Designed by	AMA

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight lb
DC6-48-60-0-8C-EV (AT&T)	A	From Leg	3.50 0.00 0.00	0.0000	126.00	No Ice 1.09 1/2" Ice 1.70 1" Ice 1.91	1.09 1.70 1.91	30.00 49.14 71.01
DC6-48-60-0-8C-EV (AT&T)	B	From Leg	3.50 0.00 0.00	0.0000	126.00	No Ice 1.09 1/2" Ice 1.70 1" Ice 1.91	1.09 1.70 1.91	30.00 49.14 71.01
DC6-48-60-0-8C-EV (AT&T)	C	From Leg	3.50 0.00 0.00	0.0000	126.00	No Ice 1.09 1/2" Ice 1.70 1" Ice 1.91	1.09 1.70 1.91	30.00 49.14 71.01
(5) 8'x2 7/8" Pipe Mount (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	126.00	No Ice 2.30 1/2" Ice 3.13 1" Ice 3.62	2.30 3.13 3.62	46.32 63.20 85.40
(5) 8'x2 7/8" Pipe Mount (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	126.00	No Ice 2.30 1/2" Ice 3.13 1" Ice 3.62	2.30 3.13 3.62	46.32 63.20 85.40
(5) 8'x2 7/8" Pipe Mount (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	126.00	No Ice 2.30 1/2" Ice 3.13 1" Ice 3.62	2.30 3.13 3.62	46.32 63.20 85.40
SitePro1 6' Double T-Arm (AT&T)	C	None		0.0000	126.00	No Ice 12.87 1/2" Ice 0.00 1" Ice 18.74	12.87 0.00 18.74	1728.00 0.00 2130.00
(2) JMA MX06FRO660-03 (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 9.87 1/2" Ice 10.34 1" Ice 10.82	7.34 7.78 8.24	65.00 133.84 209.18
(2) JMA MX06FRO660-03 (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 9.87 1/2" Ice 10.34 1" Ice 10.82	7.34 7.78 8.24	65.00 133.84 209.18
(2) JMA MX06FRO660-03 (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 9.87 1/2" Ice 10.34 1" Ice 10.82	7.34 7.78 8.24	65.00 133.84 209.18
MT6407-77A (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 4.69 1/2" Ice 4.98 1" Ice 5.28	1.84 2.06 2.29	81.20 110.44 143.55
MT6407-77A (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 4.69 1/2" Ice 4.98 1" Ice 5.28	1.84 2.06 2.29	81.20 110.44 143.55
MT6407-77A (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 4.69 1/2" Ice 4.98 1" Ice 5.28	1.84 2.06 2.29	81.20 110.44 143.55
CBRS RRH-RT 4401-48A w/ XXDWMM-12.5-65-8T antenna (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 1.00 1/2" Ice 1.20 1" Ice 1.40	0.65 0.87 1.09	23.14 54.00 84.86
CBRS RRH-RT 4401-48A w/ XXDWMM-12.5-65-8T antenna (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 1.00 1/2" Ice 1.20 1" Ice 1.40	0.65 0.87 1.09	23.14 54.00 84.86
CBRS RRH-RT 4401-48A w/ XXDWMM-12.5-65-8T antenna (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 1.00 1/2" Ice 1.20 1" Ice 1.40	0.65 0.87 1.09	23.14 54.00 84.86
SAMSUNG B2/B66a RRH (RF4439d-25A) (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 1.87 1/2" Ice 2.03 1" Ice 2.21	1.25 1.39 1.54	100.00 118.32 139.42
SAMSUNG B2/B66a RRH (RF4439d-25A) (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice 1.87 1/2" Ice 2.03 1" Ice 2.21	1.25 1.39 1.54	100.00 118.32 139.42

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	Client	Transcend; T-Mobile Site #CT11076B	Designed by	AMA

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
SAMSUNG B2/B66a RRH (RF4439d-25A) (Verizon)	C	From Leg	4.00	0.00	0.0000	116.00	No Ice 1.87	1.25	100.00
			0.00	0.00			1/2" Ice 2.03	1.39	118.32
			0.00	0.00			1" Ice 2.21	1.54	139.42
SAMSUNG B5/B13 RRH (RF4440d-13A) (Verizon)	A	From Leg	4.00	0.00	0.0000	116.00	No Ice 1.87	1.13	85.00
			0.00	0.00			1/2" Ice 2.03	1.27	102.32
			0.00	0.00			1" Ice 2.21	1.41	122.37
SAMSUNG B5/B13 RRH (RF4440d-13A) (Verizon)	B	From Leg	4.00	0.00	0.0000	116.00	No Ice 1.87	1.13	85.00
			0.00	0.00			1/2" Ice 2.03	1.27	102.32
			0.00	0.00			1" Ice 2.21	1.41	122.37
SAMSUNG B5/B13 RRH (RF4440d-13A) (Verizon)	C	From Leg	4.00	0.00	0.0000	116.00	No Ice 1.87	1.13	85.00
			0.00	0.00			1/2" Ice 2.03	1.27	102.32
			0.00	0.00			1" Ice 2.21	1.41	122.37
Raycap RDC-6627-PF-48 OVP (Verizon)	C	None			0.0000	116.00	No Ice 4.06	3.10	32.00
							1/2" Ice 4.32	3.34	68.49
							1" Ice 4.58	3.58	108.97
(5) 8'x2 7/8" Pipe Mount (Verizon)	A	From Leg	3.00	0.00	0.0000	116.00	No Ice 2.30	2.30	46.32
			0.00	0.00			1/2" Ice 3.13	3.13	63.20
			0.00	0.00			1" Ice 3.62	3.62	85.40
(5) 8'x2 7/8" Pipe Mount (Verizon)	B	From Leg	3.00	0.00	0.0000	116.00	No Ice 2.30	2.30	46.32
			0.00	0.00			1/2" Ice 3.13	3.13	63.20
			0.00	0.00			1" Ice 3.62	3.62	85.40
(5) 8'x2 7/8" Pipe Mount (Verizon)	C	From Leg	3.00	0.00	0.0000	116.00	No Ice 2.30	2.30	46.32
			0.00	0.00			1/2" Ice 3.13	3.13	63.20
			0.00	0.00			1" Ice 3.62	3.62	85.40
SitePro1 Double 6' T-Arm (Verizon)	C	None			0.0000	116.00	No Ice 12.87	12.87	1728.00
							1/2" Ice 0.00	0.00	0.00
							1" Ice 18.74	18.74	2130.00
Commscope VV-65A-R1B (T-Mobile)	A	From Leg	4.00	0.00	0.0000	106.00	No Ice 5.89	2.78	24.70
			0.00	0.00			1/2" Ice 6.25	3.12	58.48
			0.00	0.00			1" Ice 6.62	3.47	97.08
Commscope VV-65A-R1B (T-Mobile)	B	From Leg	4.00	0.00	0.0000	106.00	No Ice 5.89	2.78	24.70
			0.00	0.00			1/2" Ice 6.25	3.12	58.48
			0.00	0.00			1" Ice 6.62	3.47	97.08
Commscope VV-65A-R1B (T-Mobile)	C	From Leg	4.00	0.00	0.0000	106.00	No Ice 5.89	2.78	24.70
			0.00	0.00			1/2" Ice 6.25	3.12	58.48
			0.00	0.00			1" Ice 6.62	3.47	97.08
APXVAALL24_43-U-NA20 (T-Mobile)	A	From Leg	4.00	0.00	0.0000	106.00	No Ice 20.24	8.73	65.00
			0.00	0.00			1/2" Ice 20.89	9.33	176.81
			0.00	0.00			1" Ice 21.54	9.93	297.14
APXVAALL24_43-U-NA20 (T-Mobile)	B	From Leg	4.00	0.00	0.0000	106.00	No Ice 20.24	8.73	65.00
			0.00	0.00			1/2" Ice 20.89	9.33	176.81
			0.00	0.00			1" Ice 21.54	9.93	297.14
APXVARR24_43-C-NA20 (T-Mobile)	C	From Leg	4.00	0.00	0.0000	106.00	No Ice 20.24	8.89	128.00
			0.00	0.00			1/2" Ice 20.89	9.49	240.59
			0.00	0.00			1" Ice 21.54	10.09	361.72
AIR6419 B41 (T-Mobile)	A	From Leg	4.00	0.00	0.0000	106.00	No Ice 6.32	2.88	83.30
			0.00	0.00			1/2" Ice 6.64	3.12	126.75
			0.00	0.00			1" Ice 6.97	3.38	174.68
AIR6419 B41 (T-Mobile)	B	From Leg	4.00	0.00	0.0000	106.00	No Ice 6.32	2.88	83.30
			0.00	0.00			1/2" Ice 6.64	3.12	126.75
			0.00	0.00			1" Ice 6.97	3.38	174.68
AIR6419 B41 (T-Mobile)	C	From Leg	4.00	0.00	0.0000	106.00	No Ice 6.32	2.88	83.30
			0.00	0.00			1/2" Ice 6.64	3.12	126.75
			0.00	0.00			1" Ice 6.97	3.38	174.68
Radio 4460 B2/B66 (T-Mobile)	A	From Leg	3.50	0.00	0.0000	106.00	No Ice 1.50	2.14	108.00
			0.00	0.00			1/2" Ice 1.65	2.32	130.16
			0.00	0.00			1" Ice 1.81	2.51	155.36

tnxTower All Points Technology 567 Vauxhall St. Ext., Suite 311 Waterford, CT 06385 Phone: (860) 663-1697 FAX: (860) 663-0935	Job	130' Monopole Tower	Page	5 of 7
	Project	CT141_13250 North Norwalk CT	Date	10:16:32 09/21/22
	Client	Transcend; T-Mobile Site #CT11076B	Designed by	AMA

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
Radio 4460 B2/B66 (T-Mobile)	B	From Leg	3.50	0.0000	106.00	No Ice	1.50	2.14	108.00
			0.00			1/2" Ice	1.65	2.32	130.16
			0.00			1" Ice	1.81	2.51	155.36
Radio 4460 B2/B66 (T-Mobile)	C	From Leg	3.50	0.0000	106.00	No Ice	1.50	2.14	108.00
			0.00			1/2" Ice	1.65	2.32	130.16
			0.00			1" Ice	1.81	2.51	155.36
Radio 4480 B71/B85 (T-Mobile)	A	From Leg	3.50	0.0000	106.00	No Ice	0.94	2.42	93.00
			0.00			1/2" Ice	1.07	2.61	112.12
			0.00			1" Ice	1.21	2.81	134.14
Radio 4480 B71/B85 (T-Mobile)	B	From Leg	3.50	0.0000	106.00	No Ice	0.94	2.42	93.00
			0.00			1/2" Ice	1.07	2.61	112.12
			0.00			1" Ice	1.21	2.81	134.14
Radio 4480 B71/B85 (T-Mobile)	C	From Leg	3.50	0.0000	106.00	No Ice	0.94	2.42	93.00
			0.00			1/2" Ice	1.07	2.61	112.12
			0.00			1" Ice	1.21	2.81	134.14
(5) 8'x2 7/8" Pipe Mount (T-Mobile)	A	From Leg	3.00	0.0000	106.00	No Ice	2.30	2.30	46.32
			0.00			1/2" Ice	3.13	3.13	63.20
			0.00			1" Ice	3.62	3.62	85.40
(5) 8'x2 7/8" Pipe Mount (T-Mobile)	B	From Leg	3.00	0.0000	106.00	No Ice	2.30	2.30	46.32
			0.00			1/2" Ice	3.13	3.13	63.20
			0.00			1" Ice	3.62	3.62	85.40
(5) 8'x2 7/8" Pipe Mount (T-Mobile)	C	From Leg	3.00	0.0000	106.00	No Ice	2.30	2.30	46.32
			0.00			1/2" Ice	3.13	3.13	63.20
			0.00			1" Ice	3.62	3.62	85.40
SitePro1 6' Double T-Arm (T-Mobile)	C	None		0.0000	106.00	No Ice	12.87	12.87	1728.00
						1/2" Ice	0.00	0.00	0.00
						1" Ice	18.74	18.74	2130.00
(3) 96" x 21" x 6.3" panel antenna (Future)	A	From Leg	4.00	0.0000	96.00	No Ice	18.09	7.03	115.00
			0.00			1/2" Ice	18.72	7.62	208.25
			0.00			1" Ice	19.36	8.21	309.68
(3) 96" x 21" x 6.3" panel antenna (Future)	B	From Leg	4.00	0.0000	96.00	No Ice	18.09	7.03	115.00
			0.00			1/2" Ice	18.72	7.62	208.25
			0.00			1" Ice	19.36	8.21	309.68
(3) 96" x 21" x 6.3" panel antenna (Future)	C	From Leg	4.00	0.0000	96.00	No Ice	18.09	7.03	115.00
			0.00			1/2" Ice	18.72	7.62	208.25
			0.00			1" Ice	19.36	8.21	309.68
(4) 22" x 18" x 12" RRH (Future)	A	From Leg	3.50	0.0000	96.00	No Ice	3.30	2.20	40.00
			0.00			1/2" Ice	3.53	2.39	70.11
			0.00			1" Ice	3.76	2.59	103.78
(4) 22" x 18" x 12" RRH (Future)	B	From Leg	3.50	0.0000	96.00	No Ice	3.30	2.20	40.00
			0.00			1/2" Ice	3.53	2.39	70.11
			0.00			1" Ice	3.76	2.59	103.78
(4) 22" x 18" x 12" RRH (Future)	C	From Leg	3.50	0.0000	96.00	No Ice	3.30	2.20	40.00
			0.00			1/2" Ice	3.53	2.39	70.11
			0.00			1" Ice	3.76	2.59	103.78
Raycap DC6-48-60-18-8F surge suppressor (Future)	A	From Leg	3.50	0.0000	96.00	No Ice	0.74	0.74	30.00
			0.00			1/2" Ice	1.20	1.20	44.34
			0.00			1" Ice	1.37	1.37	60.93
Raycap DC6-48-60-18-8F surge suppressor (Future)	B	From Leg	3.50	0.0000	96.00	No Ice	0.74	0.74	30.00
			0.00			1/2" Ice	1.20	1.20	44.34
			0.00			1" Ice	1.37	1.37	60.93
Raycap DC6-48-60-18-8F surge suppressor (Future)	C	From Leg	3.50	0.0000	96.00	No Ice	0.74	0.74	30.00
			0.00			1/2" Ice	1.20	1.20	44.34
			0.00			1" Ice	1.37	1.37	60.93
(5) 8'x2 7/8" Pipe Mount (Future)	A	From Leg	3.00	0.0000	96.00	No Ice	2.30	2.30	46.32
			0.00			1/2" Ice	3.13	3.13	63.20
			0.00			1" Ice	3.62	3.62	85.40

tnxTower All Points Technology 567 Vauxhall St. Ext., Suite 311 Waterford, CT 06385 Phone: (860) 663-1697 FAX: (860) 663-0935	Job	130' Monopole Tower	Page	6 of 7
	Project	CT141_13250 North Norwalk CT	Date	10:16:32 09/21/22
	Client	Transcend; T-Mobile Site #CT11076B	Designed by	AMA

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
(5) 8'x2 7/8" Pipe Mount (Future)	B	From Leg	3.00	0.0000	96.00	No Ice	2.30	2.30	46.32
			0.00			1/2" Ice	3.13	3.13	63.20
			0.00			1" Ice	3.62	3.62	85.40
(5) 8'x2 7/8" Pipe Mount (Future)	C	From Leg	3.00	0.0000	96.00	No Ice	2.30	2.30	46.32
			0.00			1/2" Ice	3.13	3.13	63.20
			0.00			1" Ice	3.62	3.62	85.40
SitePro1 6' Double T-Arm (Future)	C	None		0.0000	96.00	No Ice	12.87	12.87	1728.00
						1/2" Ice	0.00	0.00	0.00
						1" Ice	18.74	18.74	2130.00

Solution Summary

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
ft		in		°	°
L1	130 - 110	10.751	62	0.6548	0.0000
L2	110 - 79.3333	8.032	62	0.6331	0.0000
L3	85 - 41.9167	4.927	62	0.5360	0.0000
L4	48.5 - 1	1.611	62	0.3067	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
126.00	DMP65R-BU6DA	62	10.201	0.6526	0.0000	94053
116.00	(2) JMA MX06FRO660-03	62	8.836	0.6435	0.0000	33590
106.00	Commscope VV-65A-R1B	62	7.506	0.6232	0.0000	20486
96.00	(3) 96" x 21" x 6.3" panel antenna	62	6.235	0.5882	0.0000	15495

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
ft		in		°	°
L1	130 - 110	48.198	18	2.9358	0.0002
L2	110 - 79.3333	36.013	18	2.8387	0.0002
L3	85 - 41.9167	22.095	18	2.4037	0.0001
L4	48.5 - 1	7.224	18	1.3756	0.0000

tnxTower All Points Technology 567 Vauxhall St. Ext., Suite 311 Waterford, CT 06385 Phone: (860) 663-1697 FAX: (860) 663-0935	Job	130' Monopole Tower	Page	7 of 7
	Project	CT141_13250 North Norwalk CT	Date	10:16:32 09/21/22
	Client	Transcend; T-Mobile Site #CT11076B	Designed by	AMA

Critical Deflections and Radius of Curvature - Design Wind

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
126.00	DMP65R-BU6DA	18	45.731	2.9257	0.0002	21127
116.00	(2) JMA MX06FRO660-03	18	39.614	2.8851	0.0002	7545
106.00	Commscope VV-65A-R1B	18	33.656	2.7942	0.0001	4598
96.00	(3) 96" x 21" x 6.3" panel antenna	18	27.959	2.6378	0.0001	3474

Section Capacity Table

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Size</i>	<i>Critical Element</i>	<i>P lb</i>	<i>φP_{allow} lb</i>	<i>% Capacity</i>	<i>Pass Fail</i>	
L1	130 - 110	Pole	TP31.43x26.71x0.25	1	-10384.00	1447370.00	13.5	Pass	
L2	110 - 79.3333	Pole	TP38.66x31.43x0.375	2	-23520.00	2572750.00	29.7	Pass	
L3	79.3333 - 41.9167	Pole	TP46.73x36.574x0.438	3	-34067.80	3638600.00	45.2	Pass	
L4	41.9167 - 1	Pole	TP55.5x44.3021x0.5	4	-52653.60	5106170.00	51.1	Pass	
							Summary		
							Pole (L4)	51.1	Pass
							RATING =	51.1	Pass



April 21, 2022 (Rev 0)

T-Mobile Northeast LLC
35 Griffin Road
Bloomfield, CT 06002

Re: Mount Analysis Report – Proposed Equipment Installation
T-Mobile Site Name: “CT11076B – Norwalk/ Chestnut”
173.5 West Rocks Road
Norwalk, CT 06851

T-Mobile Site ID: CT11076B
APT Filing No.: CT544100

To Whom It May Concern,

All-Points Technology Corporation, P.C., a professional engineering corporation licensed in the State of Connecticut, has been retained by T-Mobile to assess the structural adequacy of the proposed T-Mobile mounting assemblies and related connections to support the proposed equipment installation.

Our mount evaluation has indicated that the proposed T-Mobile mounting assembly meets the requirements of the applicable ANSI/TIA standards and local building codes. Reference can be made to the Construction Drawings prepared by this office, marked Rev 0, dated 04/21/2022.

The following table summarizes the usage under the proposed equipment loading utilizing the local design criteria:

Antenna Mount Usage	
Mounting Members	0.27
Connection	0.17

Note:

- Usage values noted above compared to unity (i.e. < 1.0) are deemed adequate.

If there are any further questions regarding this project or if we may be of further assistance, please do not hesitate to call.

Sincerely,
All-Points Technology Corp., P.C

Michael S. Trodden, P.E.
Senior Structural Engineer



Prepared by,
All-Points Technology Corp., P.C.

Jeremy P. Vassell
Project Structural Engineer

**Structural Analysis and Design Report
Norwalk, Connecticut
prepared for
T-Mobile**

INTRODUCTION:

All-Points Technology Corporation, P.C. (APT) performed a structural analysis and design for the purpose of a proposed antenna installation, located at 173.5 West Rocks Road, Norwalk, Connecticut. The proposed mounting assemblies consist of three (3) 6' SitePRO1 Double T-Arms (furnished and installed by others).

Details of the proposed antenna and appurtenance configuration are included within the table on the following page. Reference can be made to the aforementioned Construction Drawings prepared by this office.

The analysis was limited to a structural evaluation of the proposed antenna mounting assembly with the proposed equipment installation and its connection to the host tower structure.

REFERENCES:

The following information was utilized in the preparation of this analysis:

- Equipment manufacturer's specifications, drawings, etc.
- RFDS provided by T-Mobile dated 03/21/2022.

STRUCTURAL ANALYSIS:

The analysis of the existing antenna mounting assemblies & host structure evaluation has been prepared in accordance with the following design codes & standards:

- ANSI/TIA-222-H-2018 – Structural Standards for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures.
- ASCE/SEI 7-16 – Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
- AISC – Manual of Steel Construction, 15th Edition.
- 2015 International Building Code (IBC) as amended by the 2018 Connecticut State Building Code.

DESIGN CRITERIA FOR STRUCTURAL ANALYSIS:

The analysis of the modified antenna mount assembly was prepared utilizing the following design criteria:

- 120 mph (3-second gust) Ultimate Design Wind Speed.
- 50 mph (3-second gust) Design Wind Speed w/ 0.75" design ice thickness
- 30 mph (3-second gust) Maintenance Wind Speed
- Structure Class II
- Exposure Category C
- Topographic Category 1.
- Maintenance Live Load, $L_m = 500$ lbs & $L_v = 250$ lbs
- Ground Snow Load, $P_g = 30$ psf.

Equipment Summary:

The proposed T-Mobile antenna/appurtenance and mount assembly loading consists of the following equipment (proposed equipment shown in **bold text**):

Antenna and Appurtenance Make/Model	Quantity	Status	Mount Type ²	Elevation
Commscope VV-65A-R1 panel antennas	3	P	Three (3) SitePRO1 6' Double Monopole Tri-sector T-Arm with antenna pipes.	106.0 ft± AGL
RFS APXVAALL24_43-U-NA20 panel antennas	3	P		
Ericsson AIR 6419 B41 panel antennas	3	P		
Ericsson 4460 B25 + B66 RRH Remote Radio Units (RRUs)	3	P		
Ericsson 4480 B71 + B85 RRH Remote Radio Units (RRUs)	3	P		
6x24 HCS Hybrid Cables	3	P	n/a	n/a

Notes:

1. ETR = Existing to Remain; **P = Proposed.**
2. Mount to be furnished and installed by others.

Conclusions and Recommendations:

In conclusion, our mount analysis indicates that the proposed T-Mobile mounting assemblies and all related connections meet the requirements of the IBC 2015/2018 Connecticut State Building Code and ANSI/TIA-222-H standard with T-Mobile's proposed equipment installation.

Sincerely,
 All-Points Technology Corp., P.C.



Michael S. Trodden, P.E.
 Sr. Structural Engineer

Prepared by,
 All-Points Technology Corp., P.C.



Jeremy P. Vassell
 Project Structural Engineer

LIMITATIONS:

This report is based on the following:

1. Mounting assemblies are properly installed and maintained.
2. All members are in an undeteriorated condition.
3. All required members are in place.
4. All bolts are in place and are properly tightened.
5. All mounting platform members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.

All-Points Technology Corporation, P.C. (APT) is not responsible for modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

1. Replacing or strengthening bracing members.
2. Reinforcing vertical members in any manner.
3. Adding or relocating torque arms or guys.
4. Installing antenna mounting gates or side arms.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which is contrary to that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication and erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Appendix A

Design Criteria

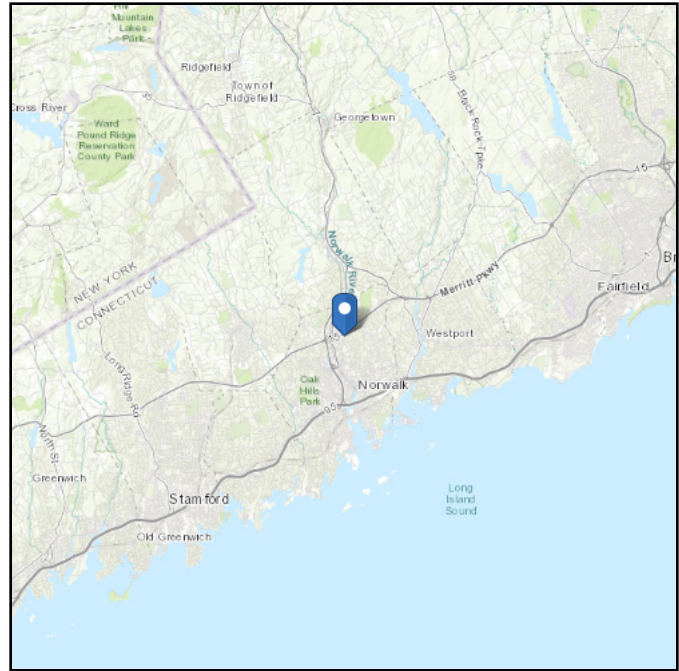
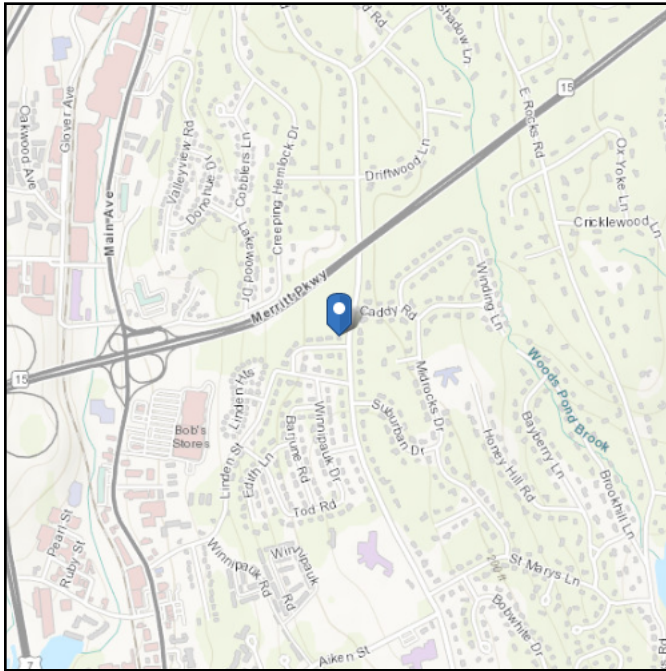
(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
Municipality	Ground Snow Load (psf)	MCE Spectral Acceleration s (%g)		Wind Design Parameters								
		S_s	S₁	Ultimate Design Wind Speeds, V_{ult} (mph)			Nominal Design Wind Speeds, V_{asd} (mph)			Wind-Borne Debris Regions¹		Hurricane-Prone Regions
				Risk Cat. I	Risk Cat. II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
Montville	30	0.165	0.059	125	135	145	97	105	112		Type A	Yes
Morris	35	0.187	0.065	110	120	125	85	93	97			Yes
Naugatuck	30	0.190	0.064	110	125	135	85	97	105			Yes
New Britain	30	0.183	0.064	115	125	135	89	97	105			Yes
New Canaan	30	0.240	0.068	110	120	130	85	93	101			Yes
New Fairfield	35	0.212	0.067	105	115	125	81	89	97			
New Hartford	40	0.180	0.065	110	120	130	85	93	101			Yes
New Haven	30	0.186	0.062	115	125	135	89	97	105		Type C	Yes
Newington	30	0.182	0.064	115	125	135	89	97	105			Yes
New London	30	0.161	0.058	125	135	145	97	105	112	Type B	Type A	Yes
New Milford	35	0.198	0.066	105	115	125	81	89	97			
Newtown	30	0.208	0.066	110	120	130	85	93	101			Yes
Norfolk	40	0.175	0.065	105	115	125	81	89	97			
North Branford	30	0.179	0.061	120	130	140	93	101	108			Yes
North Canaan	40	0.173	0.065	105	115	120	81	89	93			
North Haven	30	0.184	0.062	115	125	135	89	97	105			Yes
North Stonington	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Norwalk	30	0.232	0.067	110	120	130	85	93	101			Yes
Norwich	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Old Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Old Saybrook	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Orange	30	0.192	0.063	115	125	135	89	97	105			Yes
Oxford	30	0.196	0.064	110	125	130	85	97	101			Yes
Plainfield	35	0.170	0.061	125	135	145	97	105	112		Type A	Yes
Plainville	35	0.184	0.064	115	125	135	89	97	105			Yes
Plymouth	35	0.186	0.064	110	120	130	85	93	101			Yes
Pomfret	40	0.172	0.063	120	130	140	93	101	108			Yes
Portland	30	0.180	0.063	115	130	135	89	101	105			Yes
Preston	30	0.167	0.060	125	135	145	97	105	112		Type A	Yes
Prospect	30	0.188	0.064	115	125	135	89	97	105			Yes
Putnam	40	0.172	0.063	120	130	140	93	101	108			Yes
Redding	30	0.220	0.067	110	120	130	85	93	101			Yes
Ridgefield	30	0.230	0.068	110	120	125	85	93	97			Yes
Rocky Hill	30	0.181	0.063	115	125	135	89	97	105			Yes
Roxbury	35	0.197	0.065	110	120	125	85	93	97			Yes
Salem	30	0.170	0.060	120	135	140	93	105	108		Type A	Yes
Salisbury	40	0.173	0.065	105	115	120	81	89	93			
Scotland	30	0.172	0.061	120	130	140	93	101	108			Yes
Seymour	30	0.194	0.064	115	125	135	89	97	105			Yes
Sharon	40	0.179	0.065	105	115	120	81	89	93			
Shelton	30	0.199	0.064	115	125	135	89	97	105			Yes
Sherman	35	0.202	0.066	105	115	120	81	89	93			

ASCE 7 Hazards Report

Address:
173 W Rocks Rd
Norwalk, Connecticut
06851

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: undefined

Elevation: 224.39 ft (NAVD 88)
Latitude: 41.143138
Longitude: -73.418175



Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Thu Apr 14 2022

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Appendix B

Mount Analysis



Project ID: CT265230
 Site Name: CT076 - Norwalk/Chestnut
 Date: 4/14/2022

(Based on ANSI/TIA-222-H-2018)

<u>Site Name:</u>	CT076 - Norwalk/Chestnut
<u>Site Address:</u>	173 West Rocks Road Norwalk, CT 06851
<u>Site County:</u>	Fairfield

Design Criteria

Risk Category =	II		<i>Sect. 2.2 & Table 2-1</i>
Exposure Category =	C		<i>Section 2.6.5</i>
Ultimate Design Wind Speed, V =	120	mph	<i>Fig. B-2 & ASCE 7-16 Fig. 26.5-1B</i>
Design Wind Speed with Ice, V _i =	50	mph	<i>Fig. B-9</i>
Design Ice Thickness, t _i =	1.00	in	<i>Fig. B-9</i>
Importance Factor, I =	1.00		<i>Table 2-3</i>
Basic Wind Speed, V _m =	30	mph	<i>Section 16.3</i>
Maintenance Load, L _m =	500.0	lbs	<i>Section 16.3</i>
Maintenance Load, L _v =	250.0	lbs	<i>Section 16.3</i>

Wind Pressure Analysis:

$$q_z = 0.00256K_zK_{zt}K_sK_eK_dV^2$$

Section 2.6.11.6

K_z:

See Next Sheet

z_g = 900 *Table 2-4*

α = 9.5 *Table 2-4*

K_{zmin} = 0.85 *Table 2-4*

K_{zt}:

K_{zt} = 1.00 *Section 2.6.6*

K_s:

K_s = 1.00 *Section 2.6.7*

K_e:

K_e = 1.00 *Section 2.6.8*

K_d:

K_d = 0.95 *Section 16.6*

q_z' = 35.02 psf

q_{zi}' = 6.08 psf

q_{zm}' = 2.19 psf

$$F = q_z G_h (EPA)_A = q_z G_h K_a [(EPA)_N \cos^2(\Theta) + (EPA)_T \sin^2(\Theta)]$$

Section 2.6.11.2

G_h = 1.00 *Section 16.6*

K_a = 0.90 *Section 16.6*



(Based on ANSI/TIA-222-H-2018)

Project ID: CT265230
 Site Name: CT076 - Norwalk/Chestnut
 Date: 4/14/2022

Design Criteria: (From Previous Sheet)

q_s' = 35.02 psf
 q_h' = 6.08 psf
 q_{hw}' = 2.19 psf
 t_i = 1.00 in

G_n = 1.00 Section 16.6
 K_h = 0.90 Section 16.6

Description	#/Sector	Elev. z, ft	K_z	q_w , psf	Dimensions				Flat Panel Front Coefficient				Flat Panel Side Coefficient				Front Wind Side Wind		
					Height, in	Width, in	Depth, in	Wght., lbs	Area, ft ²	Aspect Ratio	Ca	C_pA_s	Area, ft ²	Aspect Ratio	Ca	C_pA_s	Force, lbs	Force, lbs	Weight, lbs
APXVALL24_43-U-NA20	1.0	106.0	1.281	44.87	95.9	24.0	8.9	135.5	15.98	3.996	1.27	20.24	5.927	10.775	1.53	9.044	818.0	366.0	135.5
VV-65A-R1B	1.0	106.0	1.281	44.87	54.7	12.0	4.7	33.3	4.56	4.558	1.29	5.89	1.785	11.638	1.55	2.776	238.0	113.0	33.298
AIR6449 B41	1.0	106.0	1.281	44.87	33.1	20.6	8.6	104.0	4.74	1.607	1.20	5.68	1.977	3.849	1.26	2.491	230.0	101.0	104
4480 B71/B85 RRH	1.0	106.0	1.281	44.87	19.2	15.1	7.5	93.0	2.01	1.272	1.20	2.42	1.000	2.560	1.20	1.203	98.0	49.0	93
4460 B25/B66 RRH	1.0	106.0	1.281	44.87	17.0	15.1	11.9	108.0	1.78	1.126	1.20	2.14	1.405	1.429	1.20	1.686	87.0	69.0	108.0

Description	#/Sector	z, ft	K_z	q_w , psf	Dimensions with Ice				Flat Panel Front Coefficient				Flat Panel Side Coefficient				Front Wind Side Wind		
					Ice Thick., t_{iw} , in	Height, in	Dc, in	Ice Wght., lbs	Area, ft ²	Aspect Ratio	Ca	C_pA_s	Area, ft ²	Aspect Ratio	Ca	C_pA_s	Force, lbs	Force, lbs	Weight, lbs
APXVALL24_43-U-NA20	1.0	106.0	1.281	7.790	1.12	98.15	25.60	300.1	17.89	3.83	0.73	13.053	7.598	3.83	0.73	5.544	92.0	39.0	435.6
VV-65A-R1B	1.0	106.0	1.281	7.790	1.12	56.95	12.89	91.3	5.63	4.42	0.74	4.184	2.748	4.42	0.74	2.040	30.0	15.0	124.6
AIR6449 B41	1.0	106.0	1.281	7.790	1.12	35.35	22.32	94.8	5.61	1.58	0.70	3.926	2.663	1.58	0.70	1.864	28.0	14.0	198.8
4480 B71/B85 RRH	1.0	106.0	1.281	7.790	1.12	21.45	16.86	44.1	2.58	1.27	0.70	1.809	1.452	1.27	0.70	1.016	13.0	8.0	137.1
4460 B25/B66 RRH	1.0	106.0	1.281	7.790	1.12	19.25	19.23	44.8	2.32	1.00	0.70	1.623	1.891	1.00	0.70	1.324	12.0	10.0	152.8

Description	#/Sector	Elev. z, ft	K_z	q_w , psf	Dimensions				Flat Panel Front Coefficient				Flat Panel Side Coefficient				Front Wind Side Wind		
					Height, in	Width, in	Depth, in	Wght. ¹ , lbs	Area, ft ²	Aspect Ratio	Ca	C_pA_s	Area, ft ²	Aspect Ratio	Ca	C_pA_s	Force, lbs	Force, lbs	Weight, lbs
APXVALL24_43-U-NA20	1.0	106.0	1.281	2.80	95.9	24.0	8.9	135.5	15.98	3.996	1.27	20.24	5.927	10.775	1.53	9.044	52.0	23.0	135.5
VV-65A-R1B	1.0	106.0	1.281	2.80	54.7	12.0	4.7	33.3	4.56	4.558	1.29	5.89	1.785	11.638	1.55	2.776	15.0	8.0	33.298
AIR6449 B41	1.0	106.0	1.281	2.80	33.1	20.6	8.6	104.0	4.74	1.607	1.20	5.68	1.977	3.849	1.26	2.491	15.0	7.0	104
4480 B71/B85 RRH	1.0	106.0	1.281	2.80	19.2	15.1	7.5	93.0	2.01	1.272	1.20	2.42	1.000	2.560	1.20	1.203	7.0	4.0	93
4460 B25/B66 RRH	1.0	106.0	1.281	2.80	17.0	15.1	11.9	108.0	1.78	1.126	1.20	2.14	1.405	1.429	1.20	1.686	6.0	5.0	108.0



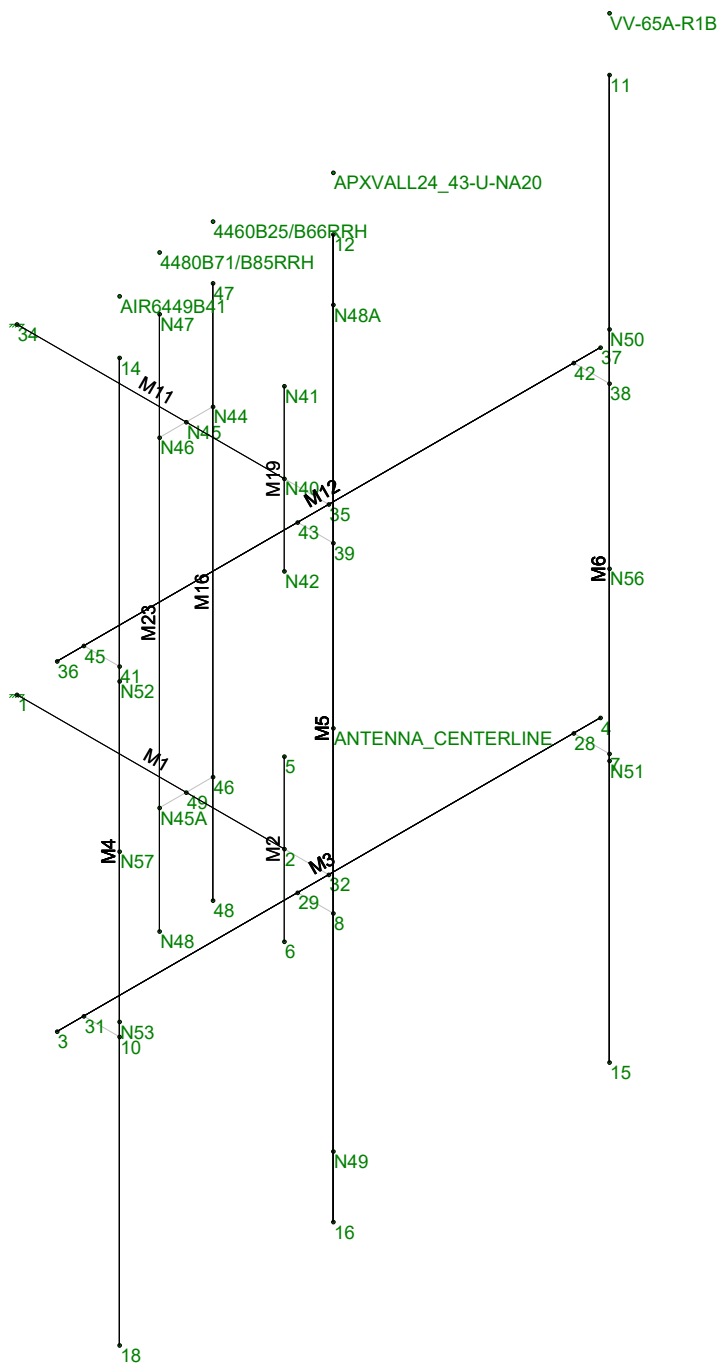
Project ID: CT265230
 Site Name: CT076 - Norwalk/Chestnut
 Date: 4/14/2022

(Based on ANSI/TIA-222-H-2018)

Design Criteria: (From Previous Sheet)

$q_z' = 35.02$ psf $G_h = 1.00$ Section 16.6
 $q_{d1}' = 6.08$ psf $K_s = 0.90$ Section 16.6
 $q_{tw}' = 2.19$ psf
 $t_i = 1.00$ in

Description	Elev. z, ft	K_z	Ice Thick.,				Dimensions				Loading, No Ice			With Ice				Maintenance		
			q_z , psf	t_{iz} , in	q_{zi} , psf	q_{iw} , psf	Width or Dia, in	Depth, in	Thickness, in	Weight, lbs/ft	Flat or Round	Ca	Wind, lbs/ft	Width or Dia, in	Dc, in	Weight, lbs/ft	Ca	Wind, lbs/ft	Ca	Wind, lbs/ft
HSS4x4x3/16	106.0	1.281	44.87	1.12	7.79	2.80	4.000	4.000	0.188	9.40	HSS	1.37	18.40	6.25	5.657	9.31	1.20	4.38	1.37	1.15
3.0" STD	106.0	1.281	44.87	1.12	7.79	2.80	3.500	3.500	0.216	7.59	ROUND	1.20	14.13	5.75	3.500	6.35	1.20	4.03	1.20	0.88
2.5" STD	106.0	1.281	44.87	1.12	7.79	2.80	2.875	2.875	0.203	5.84	ROUND	1.20	11.61	5.12	2.875	5.49	1.20	3.59	1.20	0.73
4" STD	106.0	1.281	44.87	1.12	7.79	2.80	4.500	4.500	0.237	10.87	ROUND	1.20	18.17	6.75	4.500	7.72	1.20	4.73	1.20	1.14

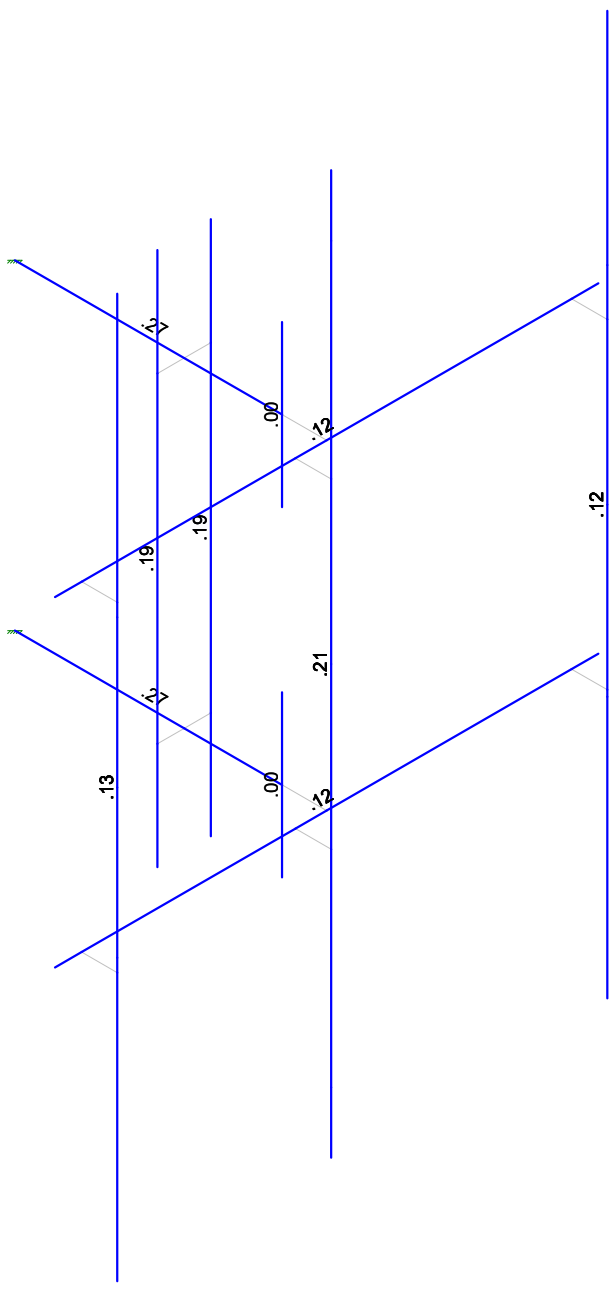


APT		
JV	6' Double T-ARM	
First Taxing District	NODE & MEMBER LABELS	First Taxing District - 6' double T-A...



Code Check
(Env.)

Black	No Calc
Red	> 1.0
Yellow	90-1.0
Green	75-90
Cyan	50-75
Blue	0-50



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.4DL

APT	6' Double T-ARM BENDING STRESSES	
JV		
First Taxing District		First Taxing District - 6' double T-A...



Company : APT
 Designer : JV
 Job Number : First Taxing District
 Model Name : 6' Double T-ARM

Checked By: MST

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.5	58	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	Q235	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HSS4x4x3/16	HSS4x4x3	Beam	SquareTube	Q235	Typical	2.58	6.21	6.21	10
2	3" STD	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	2.5" STD	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
4	4" STD	PIPE_4.0	Column	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	HSS4x4x3/16	30									Lateral
2	M2	4" STD	18									Lateral
3	M3	3" STD	61									Lateral
4	M4	2.5" STD	96									Lateral
5	M5	2.5" STD	96									Lateral
6	M6	2.5" STD	96									Lateral
7	M11	HSS4x4x3/16	30									Lateral
8	M12	3" STD	61									Lateral
9	M16	2.5" STD	60									Lateral
10	M19	4" STD	18									Lateral
11	M23	2.5" STD	60									Lateral

Load Combinations

	Description	S...	PDelta	S...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		DL	1.4												
2																		
3	1.2DL + WLX	Yes	Y		DL	1.2	WLX	1										
4	1.2DL + 0.75WLX + 0.25...	Yes	Y		DL	1.2	WLX	.75	WLZ	.25								
5	1.2DL + 0.25WLX + 0.75...	Yes	Y		DL	1.2	WLX	.25	WLZ	.75								
6	1.2DL + WLZ	Yes	Y		DL	1.2	WLZ	1										
7	1.2DL + 0.25WL-X + 0.7...	Yes	Y		DL	1.2	WLX	-.25	WLZ	.75								
8	1.2DL + 0.75WL-X + 0.2...	Yes	Y		DL	1.2	WLX	-.75	WLZ	.25								
9	1.2DL + WL-X	Yes	Y		DL	1.2	WLX	-1										
10	1.2DL + 0.75WL-X + 0.2...	Yes	Y		DL	1.2	WLX	-.75	WLZ	-.25								
11	1.2DL + 0.25WL-X + 0.7...	Yes	Y		DL	1.2	WLX	-.25	WLZ	-.75								
12	1.2DL + WL-Z	Yes	Y		DL	1.2	WLZ	-1										
13	1.2DL + 0.25WLX + 0.75...	Yes	Y		DL	1.2	WLX	.25	WLZ	-.75								
14	1.2DL + 0.75WLX + 0.25...	Yes	Y		DL	1.2	WLX	.75	WLZ	-.25								
15																		
16	1.2DL + DLi + WLXi	Yes	Y		DL	1.2	OL1	1	WL...	1								
17	1.2DL + DLi + 0.75WLXi ...	Yes	Y		DL	1.2	OL1	1	WL...	.75	W...	.25						
18	1.2DL + DLi + 0.25WLXi ...	Yes	Y		DL	1.2	OL1	1	WL...	.25	W...	.75						
19	1.2DL + DLi + WLZi	Yes	Y		DL	1.2	OL1	1	WL...	1								



Company : APT
 Designer : JV
 Job Number : First Taxing District
 Model Name : 6' Double T-ARM

Checked By: MST

Load Combinations (Continued)

	Description	S...	PDelta	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	
20	1.2DL + DLi + 0.25WL-Xi...	Yes	Y		DL	1.2	OL1	1	WL	-.25	W...	.75																				
21	1.2DL + DLi + 0.75WL-Xi...	Yes	Y		DL	1.2	OL1	1	WL	-.75	W...	.25																				
22	1.2DL + DLi + WL-Xi	Yes	Y		DL	1.2	OL1	1	WL	-1																						
23	1.2DL + DLi + 0.75WL-Xi...	Yes	Y		DL	1.2	OL1	1	WL	-.75	W...	-.25																				
24	1.2DL + DLi + 0.25WL-Xi...	Yes	Y		DL	1.2	OL1	1	WL	-.25	W...	-.75																				
25	1.2DL + DLi + WL-Zi	Yes	Y		DL	1.2	OL1	1	WL	-1																						
26	1.2DL + DLi + 0.25WLXi	Yes	Y		DL	1.2	OL1	1	WL	.25	W...	-.75																				
27	1.2DL + DLi + 0.75WLXi	Yes	Y		DL	1.2	OL1	1	WL	.75	W...	-.25																				
28																																
29	1.2DL + 1.5Lm(1) + WLX	Yes	Y		DL	1.2	OL2	1.5	WL	1																						
30	1.2DL + 1.5Lm(1) + 0.75...	Yes	Y		DL	1.2	OL2	1.5	WL	.75	W...	.25																				
31	1.2DL + 1.5Lm(1) + 0.25...	Yes	Y		DL	1.2	OL2	1.5	WL	.25	W...	.75																				
32	1.2DL + 1.5Lm(1) + WLZ	Yes	Y		DL	1.2	OL2	1.5	WL	1																						
33	1.2DL + 1.5Lm(1) + 0.25...	Yes	Y		DL	1.2	OL2	1.5	WL	-.25	W...	.75																				
34	1.2DL + 1.5Lm(1) + 0.75...	Yes	Y		DL	1.2	OL2	1.5	WL	-.75	W...	.25																				
35	1.2DL + 1.5Lm(1) + WL...	Yes	Y		DL	1.2	OL2	1.5	WL	-1																						
36	1.2DL + 1.5Lm(1) + 0.75...	Yes	Y		DL	1.2	OL2	1.5	WL	-.75	W...	-.25																				
37	1.2DL + 1.5Lm(1) + 0.25...	Yes	Y		DL	1.2	OL2	1.5	WL	-.25	W...	-.75																				
38	1.2DL + 1.5Lm(1) + WL...	Yes	Y		DL	1.2	OL2	1.5	WL	-1																						
39	1.2DL + 1.5Lm(1) + 0.25...	Yes	Y		DL	1.2	OL2	1.5	WL	.25	W...	-.75																				
40	1.2DL + 1.5Lm(1) + 0.75...	Yes	Y		DL	1.2	OL2	1.5	WL	.75	W...	-.25																				
41																																
42	1.2DL + 1.5Lm(2) + WLX	Yes	Y		DL	1.2	OL3	1.5	WL	1																						
43	1.2DL + 1.5Lm(2) + 0.75...	Yes	Y		DL	1.2	OL3	1.5	WL	.75	W...	.25																				
44	1.2DL + 1.5Lm(2) + 0.25...	Yes	Y		DL	1.2	OL3	1.5	WL	.25	W...	.75																				
45	1.2DL + 1.5Lm(2) + WLZ	Yes	Y		DL	1.2	OL3	1.5	WL	1																						
46	1.2DL + 1.5Lm(2) + 0.25...	Yes	Y		DL	1.2	OL3	1.5	WL	-.25	W...	.75																				
47	1.2DL + 1.5Lm(2) + 0.75...	Yes	Y		DL	1.2	OL3	1.5	WL	-.75	W...	.25																				
48	1.2DL + 1.5Lm(2) + WL...	Yes	Y		DL	1.2	OL3	1.5	WL	-1																						
49	1.2DL + 1.5Lm(2) + 0.75...	Yes	Y		DL	1.2	OL3	1.5	WL	-.75	W...	-.25																				
50	1.2DL + 1.5Lm(2) + 0.25...	Yes	Y		DL	1.2	OL3	1.5	WL	-.25	W...	-.75																				
51	1.2DL + 1.5Lm(2) + WL...	Yes	Y		DL	1.2	OL3	1.5	WL	-1																						
52	1.2DL + 1.5Lm(2) + 0.25...	Yes	Y		DL	1.2	OL3	1.5	WL	.25	W...	-.75																				
53	1.2DL + 1.5Lm(2) + 0.75...	Yes	Y		DL	1.2	OL3	1.5	WL	.75	W...	-.25																				
54																																
55	1.2DL + 1.5Lm(3) + WLX	Yes	Y		DL	1.2	OL4	1.5	WL	1																						
56	1.2DL + 1.5Lm(3) + 0.75...	Yes	Y		DL	1.2	OL4	1.5	WL	.75	W...	.25																				
57	1.2DL + 1.5Lm(3) + 0.25...	Yes	Y		DL	1.2	OL4	1.5	WL	.25	W...	.75																				
58	1.2DL + 1.5Lm(3) + WLZ	Yes	Y		DL	1.2	OL4	1.5	WL	1																						
59	1.2DL + 1.5Lm(3) + 0.25...	Yes	Y		DL	1.2	OL4	1.5	WL	-.25	W...	.75																				
60	1.2DL + 1.5Lm(3) + 0.75...	Yes	Y		DL	1.2	OL4	1.5	WL	-.75	W...	.25																				
61	1.2DL + 1.5Lm(3) + WL...	Yes	Y		DL	1.2	OL4	1.5	WL	-1																						
62	1.2DL + 1.5Lm(3) + 0.75...	Yes	Y		DL	1.2	OL4	1.5	WL	-.75	W...	-.25																				
63	1.2DL + 1.5Lm(3) + 0.25...	Yes	Y		DL	1.2	OL4	1.5	WL	-.25	W...	-.75																				
64	1.2DL + 1.5Lm(3) + WL...	Yes	Y		DL	1.2	OL4	1.5	WL	-1																						
65	1.2DL + 1.5Lm(3) + 0.25...	Yes	Y		DL	1.2	OL4	1.5	WL	.25	W...	-.75																				
66	1.2DL + 1.5Lm(3) + 0.75...	Yes	Y		DL	1.2	OL4	1.5	WL	.75	W...	-.25																				
67																																
68	1.2DL + 1.5Lm(4) + WLX	Yes	Y		DL	1.2	OL5	1.5	WL	1																						
69	1.2DL + 1.5Lm(4) + 0.75...	Yes	Y		DL	1.2	OL5	1.5	WL	.75	W...	.25																				
70	1.2DL + 1.5Lm(4) + 0.25...	Yes	Y		DL	1.2	OL5	1.5	WL	.25	W...	.75																				
71	1.2DL + 1.5Lm(4) + WLZ	Yes	Y		DL	1.2	OL5	1.5	WL	1																						
72	1.2DL + 1.5Lm(4) + 0.25...	Yes	Y		DL	1.2	OL5	1.5	WL	-.25	W...	.75																				
73	1.2DL + 1.5Lm(4) + 0.75...	Yes	Y		DL	1.2	OL5	1.5	WL	-.75	W...	.25																				
74	1.2DL + 1.5Lm(4) + WL...	Yes	Y		DL	1.2	OL5	1.5	WL	-1																						
75	1.2DL + 1.5Lm(4) + 0.75...	Yes	Y		DL	1.2	OL5	1.5	WL	-.75	W...	-.25																				
76	1.2DL + 1.5Lm(4) + 0.25...	Yes	Y		DL	1.2	OL5	1.5	WL	-.25	W...	-.75																				



Company : APT
 Designer : JV
 Job Number : First Taxing District
 Model Name : 6' Double T-ARM

Checked By: MST

Load Combinations (Continued)

Description	S...	PDelta	S...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	B...	B...	B...	B...	B...	B...	B...	B...	B...	B...	B...
77	1.2DL + 1.5Lm(4) + WL...	Yes	Y	DL 1.2	OL5	1.5	WL...	-1										
78	1.2DL + 1.5Lm(4) + 0.25...	Yes	Y	DL 1.2	OL5	1.5	WL...	.25	W...	-.75								
79	1.2DL + 1.5Lm(4) + 0.75...	Yes	Y	DL 1.2	OL5	1.5	WL...	.75	W...	-.25								
80																		
81	1.2DL + 1.5Lv	Yes	Y	DL 1.2	LL	1.5												

Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC		
1	1	max	1346.48	9	1242.57	81	708.36	12	200.45	35	1645.14	6	1971.74	81
2		min	-619.99	3	86.29	3	-582.89	6	-259.29	68	-1846.03	12	561.43	3
3	34	max	650.42	9	1244.3	81	593.87	12	200.25	38	1863.08	6	1971.67	81
4		min	-1376.91	3	86.35	9	-719.34	6	-259.09	71	-1662.81	12	562.4	9
5	Totals:	max	1996.9	9	2486.87	81	1302.23	12						
6		min	-1996.9	3	986.87	3	-1302.23	6						

Joint Reactions (By Combination)

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [lb-ft]	MY [lb-ft]	MZ [lb-ft]
1	1	423.79	575.5	73.19	-38.07	-117.05	834.91
2	34	-423.79	575.85	-73.19	-38.07	116.95	834.91
3	Totals:	0	1151.35	0			
4	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
5	1	-619.99	86.29	61.62	-38.1	-223.75	561.43
6	34	-1376.91	900.58	-61.62	-30.52	-17.74	868.81
7	Totals:	-1996.9	986.87	0			
8	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
9	1	-374.18	182.2	-99.51	-37.38	242.68	597.78
10	34	-1123.49	804.67	-226.05	-31.76	451.66	832.71
11	Totals:	-1497.68	986.87	-325.56			
12	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
13	1	117.43	374.04	-421.77	-35.95	1177.12	670.5
14	34	-616.66	612.83	-554.91	-34.23	1392.07	760.52
15	Totals:	-499.23	986.87	-976.67			
16	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
17	1	363.24	469.99	-582.89	-35.23	1645.14	706.87
18	34	-363.24	516.88	-719.34	-35.47	1863.08	724.41
19	Totals:	0	986.87	-1302.23			
20	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
21	1	609.05	577.6	-421.21	-33.22	1240.53	747.62
22	34	-109.83	409.27	-555.46	-35.29	1452.77	683.92
23	Totals:	499.22	986.87	-976.67			
24	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
25	1	1100.67	792.87	-97.84	-29.18	429.98	829.16
26	34	397	194	-227.72	-34.92	630.82	602.91
27	Totals:	1497.68	986.87	-325.56			
28	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
29	1	1346.48	900.52	63.85	-27.17	24.04	869.93
30	34	650.42	86.35	-63.85	-34.74	219.17	562.4
31	Totals:	1996.9	986.87	0			
32	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
33	1	1100.68	804.53	224.98	-27.88	-444.28	833.54
34	34	397	182.34	100.58	-33.5	-252.13	598.53
35	Totals:	1497.68	986.87	325.56			
36	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
37	1	609.07	612.59	547.23	-29.32	-1379.31	760.78



Company : APT
 Designer : JV
 Job Number : First Taxing District
 Model Name : 6' Double T-ARM

Checked By: MST

Joint Reactions (By Combination) (Continued)

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [lb-ft]	MY [lb-ft]	MZ [lb-ft]	
38	11	34	-109.84	374.28	429.44	-31.03	-1193.12	670.76
39	11	Totals:	499.23	986.87	976.67			
40	11	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
41	12	1	363.26	516.64	708.36	-30.04	-1846.03	724.41
42	12	34	-363.26	470.23	593.87	-29.8	-1662.81	706.87
43	12	Totals:	0	986.87	1302.23			
44	12	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
45	13	1	117.45	409.03	546.67	-32.05	-1439.79	683.66
46	13	34	-616.67	577.84	430	-29.98	-1250.87	747.36
47	13	Totals:	-499.22	986.87	976.67			
48	13	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
49	14	1	-374.18	193.86	223.3	-36.08	-628.66	602.17
50	14	34	-1123.5	793.01	102.26	-30.34	-428.33	828.33
51	14	Totals:	-1497.68	986.87	325.56			
52	14	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
53	16	1	579.04	888.69	89.5	-47.02	-158.73	1386.2
54	16	34	-924.26	994.21	-89.5	-46.12	128.39	1425.72
55	16	Totals:	-345.22	1882.9	0			
56	16	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
57	17	1	621.71	901.11	58.33	-47.01	-72.64	1390.95
58	17	34	-880.62	981.79	-121.12	-46.2	214.85	1421.07
59	17	Totals:	-258.92	1882.9	-62.79			
60	17	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
61	18	1	707.05	925.95	-4.01	-46.99	99.6	1400.45
62	18	34	-793.35	956.94	-184.35	-46.35	387.81	1411.78
63	18	Totals:	-86.31	1882.9	-188.36			
64	18	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
65	19	1	749.72	938.38	-35.18	-46.98	185.74	1405.19
66	19	34	-749.72	944.52	-215.97	-46.43	474.31	1407.13
67	19	Totals:	0	1882.9	-251.15			
68	19	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
69	20	1	792.39	952.07	-3.94	-46.66	107.34	1410.42
70	20	34	-706.08	930.83	-184.42	-46.47	395.22	1402
71	20	Totals:	86.3	1882.9	-188.36			
72	20	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
73	21	1	877.73	979.45	58.54	-46.02	-49.49	1420.87
74	21	34	-618.81	903.45	-121.33	-46.56	236.98	1391.76
75	21	Totals:	258.92	1882.9	-62.79			
76	21	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
77	22	1	920.4	993.14	89.78	-45.7	-127.93	1426.09
78	22	34	-575.18	889.76	-89.78	-46.61	157.85	1386.63
79	22	Totals:	345.22	1882.9	0			
80	22	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
81	23	1	877.73	980.71	120.95	-45.71	-214.08	1421.35
82	23	34	-618.81	902.19	-58.16	-46.53	71.34	1391.28
83	23	Totals:	258.92	1882.9	62.79			
84	23	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
85	24	1	792.39	955.87	183.29	-45.73	-386.33	1411.85
86	24	34	-706.08	927.03	5.07	-46.38	-101.64	1400.57
87	24	Totals:	86.31	1882.9	188.36			
88	24	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
89	25	1	749.72	943.45	214.46	-45.74	-472.43	1407.1
90	25	34	-749.72	939.45	36.69	-46.31	-188.1	1405.22
91	25	Totals:	0	1882.9	251.15			
92	25	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
93	26	1	707.05	929.76	183.22	-46.06	-393.98	1401.87
94	26	34	-793.35	953.14	5.14	-46.26	-108.95	1410.35



Company : APT
 Designer : JV
 Job Number : First Taxing District
 Model Name : 6' Double T-ARM

Checked By: MST

Joint Reactions (By Combination) (Continued)

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [lb-ft]	MY [lb-ft]	MZ [lb-ft]	
95	26	Totals:	-86.3	1882.9	188.36			
96	26	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
97	27	1	621.71	902.38	120.74	-46.7	-237.14	1391.43
98	27	34	-880.62	980.52	-57.95	-46.17	49.29	1420.59
99	27	Totals:	-258.92	1882.9	62.79			
100	27	COG (in):	X: 44.26	Y: 6.16	Z: 46.8			
101	29	1	692.59	841.85	-355.11	199.74	538.58	1334.28
102	29	34	-822.78	895.02	355.11	200.23	-554.27	1354
103	29	Totals:	-130.19	1736.87	0			
104	29	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
105	30	1	708.62	848.02	-365.68	199.78	569.43	1336.63
106	30	34	-806.26	888.85	344.31	200.16	-523.24	1351.69
107	30	Totals:	-97.64	1736.87	-21.37			
108	30	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
109	31	1	740.68	860.36	-386.82	199.84	631.13	1341.33
110	31	34	-773.22	876.51	322.7	200.03	-461.16	1347.06
111	31	Totals:	-32.55	1736.87	-64.12			
112	31	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
113	32	1	756.7	866.52	-397.39	199.88	661.99	1343.68
114	32	34	-756.7	870.35	311.9	199.97	-430.12	1344.75
115	32	Totals:	0	1736.87	-85.49			
116	32	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
117	33	1	772.73	873.42	-386.78	200.02	635.4	1346.3
118	33	34	-740.18	863.45	322.66	199.97	-457.1	1342.16
119	33	Totals:	32.55	1736.87	-64.12			
120	33	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
121	34	1	804.78	887.2	-365.56	200.31	582.21	1351.55
122	34	34	-707.14	849.67	344.19	199.98	-511.07	1336.99
123	34	Totals:	97.64	1736.87	-21.37			
124	34	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
125	35	1	820.81	894.1	-354.96	200.45	555.61	1354.17
126	35	34	-690.62	842.77	354.96	199.98	-538.06	1334.41
127	35	Totals:	130.19	1736.87	0			
128	35	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
129	36	1	804.78	887.93	-344.39	200.42	524.76	1351.82
130	36	34	-707.14	848.94	365.76	200.05	-569.1	1336.72
131	36	Totals:	97.64	1736.87	21.37			
132	36	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
133	37	1	772.73	875.59	-323.25	200.35	463.05	1347.12
134	37	34	-740.18	861.28	387.37	200.18	-631.18	1341.35
135	37	Totals:	32.55	1736.87	64.12			
136	37	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
137	38	1	756.7	869.43	-312.68	200.32	432.2	1344.77
138	38	34	-756.7	867.44	398.17	200.25	-662.21	1343.66
139	38	Totals:	0	1736.87	85.49			
140	38	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
141	39	1	740.67	862.53	-323.29	200.18	458.8	1342.15
142	39	34	-773.22	874.34	387.41	200.24	-635.22	1346.24
143	39	Totals:	-32.55	1736.87	64.12			
144	39	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
145	40	1	708.62	848.75	-344.5	199.89	511.99	1336.9
146	40	34	-806.26	888.12	365.88	200.23	-581.25	1351.42
147	40	Totals:	-97.64	1736.87	21.37			
148	40	COG (in):	X: 46.26	Y: 6.05	Z: 34.38			
149	42	1	692.58	841.81	115.19	-63.55	-186.27	1334.26
150	42	34	-822.77	895.06	-115.19	-63.08	169.39	1354.02
151	42	Totals:	-130.19	1736.87	0			



Company : APT
 Designer : JV
 Job Number : First Taxing District
 Model Name : 6' Double T-ARM

Checked By: MST

Joint Reactions (By Combination) (Continued)

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [lb-ft]	MY [lb-ft]	MZ [lb-ft]	
152	42	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
153	43	1	708.61	847.97	104.62	-63.52	-155.43	1336.61
154	43	34	-806.25	888.9	-126	-63.14	200.44	1351.7
155	43	Totals:	-97.64	1736.87	-21.37			
156	43	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
157	44	1	740.67	860.31	83.48	-63.46	-93.74	1341.31
158	44	34	-773.22	876.56	-147.6	-63.28	262.52	1347.08
159	44	Totals:	-32.55	1736.87	-64.12			
160	44	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
161	45	1	756.7	866.48	72.92	-63.42	-62.89	1343.66
162	45	34	-756.7	870.39	-158.41	-63.34	293.57	1344.77
163	45	Totals:	0	1736.87	-85.49			
164	45	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
165	46	1	772.73	873.37	83.52	-63.28	-89.49	1346.28
166	46	34	-740.18	863.5	-147.64	-63.34	266.59	1342.18
167	46	Totals:	32.55	1736.87	-64.12			
168	46	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
169	47	1	804.79	887.16	104.74	-62.99	-142.68	1351.53
170	47	34	-707.15	849.71	-126.11	-63.33	212.63	1337.01
171	47	Totals:	97.64	1736.87	-21.37			
172	47	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
173	48	1	820.82	894.05	115.35	-62.85	-169.28	1354.15
174	48	34	-690.63	842.82	-115.35	-63.32	185.65	1334.42
175	48	Totals:	130.19	1736.87	0			
176	48	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
177	49	1	804.79	887.88	125.92	-62.88	-200.13	1351.8
178	49	34	-707.15	848.99	-104.54	-63.26	154.6	1336.74
179	49	Totals:	97.64	1736.87	21.37			
180	49	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
181	50	1	772.73	875.55	147.06	-62.94	-261.82	1347.1
182	50	34	-740.18	861.32	-82.94	-63.12	92.51	1341.36
183	50	Totals:	32.55	1736.87	64.12			
184	50	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
185	51	1	756.7	869.38	157.63	-62.97	-292.67	1344.75
186	51	34	-756.7	867.49	-72.14	-63.06	61.46	1343.68
187	51	Totals:	0	1736.87	85.49			
188	51	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
189	52	1	740.67	862.49	147.02	-63.12	-266.07	1342.13
190	52	34	-773.22	874.38	-82.9	-63.06	88.45	1346.26
191	52	Totals:	-32.55	1736.87	64.12			
192	52	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
193	53	1	708.61	848.7	125.8	-63.41	-212.87	1336.89
194	53	34	-806.25	888.17	-104.43	-63.07	142.41	1351.43
195	53	Totals:	-97.64	1736.87	21.37			
196	53	COG (in):	X: 46.26	Y: 6.05	Z: 47.76			
197	55	1	299.18	467.19	62.66	-32.98	-108.82	705.73
198	55	34	-429.37	519.68	-62.66	-32.51	92.12	725.48
199	55	Totals:	-130.19	986.87	0			
200	55	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
201	56	1	315.2	473.35	52.09	-32.95	-77.98	708.07
202	56	34	-412.84	513.52	-73.46	-32.58	123.17	723.15
203	56	Totals:	-97.64	986.87	-21.37			
204	56	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
205	57	1	347.23	485.69	30.94	-32.89	-16.31	712.75
206	57	34	-379.78	501.18	-95.06	-32.72	185.28	718.51
207	57	Totals:	-32.55	986.87	-64.12			
208	57	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			



Company : APT
 Designer : JV
 Job Number : First Taxing District
 Model Name : 6' Double T-ARM

Checked By: MST

Joint Reactions (By Combination) (Continued)

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [lb-ft]	MY [lb-ft]	MZ [lb-ft]	
209	58	1	363.25	491.86	20.37	-32.86	14.53	715.09
210	58	34	-363.25	495.01	-105.86	-32.78	216.33	716.19
211	58	Totals:	0	986.87	-85.49			
212	58	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
213	59	1	379.27	498.75	30.98	-32.72	-12.06	717.7
214	59	34	-346.72	488.12	-95.1	-32.78	189.35	713.59
215	59	Totals:	32.55	986.87	-64.12			
216	59	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
217	60	1	411.3	512.54	52.2	-32.43	-65.24	722.93
218	60	34	-313.66	474.33	-73.57	-32.76	135.37	708.4
219	60	Totals:	97.64	986.87	-21.37			
220	60	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
221	61	1	427.32	519.43	62.81	-32.28	-91.83	725.54
222	61	34	-297.14	467.44	-62.81	-32.76	108.38	705.8
223	61	Totals:	130.19	986.87	0			
224	61	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
225	62	1	411.3	513.26	73.38	-32.31	-122.67	723.2
226	62	34	-313.66	473.61	-52	-32.69	77.32	708.13
227	62	Totals:	97.64	986.87	21.37			
228	62	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
229	63	1	379.27	500.93	94.52	-32.37	-184.35	718.52
230	63	34	-346.72	485.94	-30.4	-32.55	15.21	712.77
231	63	Totals:	32.55	986.87	64.12			
232	63	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
233	64	1	363.25	494.76	105.09	-32.4	-215.18	716.18
234	64	34	-363.25	492.11	-19.6	-32.48	-15.84	715.1
235	64	Totals:	0	986.87	85.49			
236	64	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
237	65	1	347.23	487.87	94.48	-32.54	-188.59	713.57
238	65	34	-379.78	499	-30.36	-32.49	11.15	717.69
239	65	Totals:	-32.55	986.87	64.12			
240	65	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
241	66	1	315.2	474.08	73.26	-32.84	-135.4	708.35
242	66	34	-412.84	512.79	-51.89	-32.5	65.13	722.88
243	66	Totals:	-97.64	986.87	21.37			
244	66	COG (in):	X: 42.65	Y: 6.09	Z: 47.58			
245	68	1	692.59	841.84	484.7	-259.29	-777.7	1334.27
246	68	34	-822.78	895.03	-484.7	-258.82	759.69	1354.01
247	68	Totals:	-130.19	1736.87	0			
248	68	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
249	69	1	708.62	848	474.13	-259.26	-746.86	1336.62
250	69	34	-806.26	888.87	-495.5	-258.89	790.74	1351.69
251	69	Totals:	-97.64	1736.87	-21.37			
252	69	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
253	70	1	740.67	860.34	452.99	-259.2	-685.17	1341.32
254	70	34	-773.22	876.53	-517.11	-259.02	852.83	1347.07
255	70	Totals:	-32.55	1736.87	-64.12			
256	70	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
257	71	1	756.7	866.51	442.42	-259.16	-654.33	1343.67
258	71	34	-756.7	870.36	-527.91	-259.09	883.88	1344.76
259	71	Totals:	0	1736.87	-85.49			
260	71	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
261	72	1	772.73	873.4	453.03	-259.02	-680.93	1346.3
262	72	34	-740.18	863.47	-517.14	-259.08	856.91	1342.17
263	72	Totals:	32.55	1736.87	-64.12			
264	72	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
265	73	1	804.78	887.19	474.24	-258.74	-734.14	1351.54



Company : APT
 Designer : JV
 Job Number : First Taxing District
 Model Name : 6' Double T-ARM

Checked By: MST

Joint Reactions (By Combination) (Continued)

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [lb-ft]	MY [lb-ft]	MZ [lb-ft]	
266	73	34	-707.14	849.68	-495.61	-259.08	802.96	1337
267	73	Totals:	97.64	1736.87	-21.37			
268	73	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
269	74	1	820.81	894.08	484.85	-258.59	-760.74	1354.16
270	74	34	-690.62	842.79	-484.85	-259.07	775.98	1334.41
271	74	Totals:	130.19	1736.87	0			
272	74	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
273	75	1	804.78	887.91	495.42	-258.63	-791.59	1351.81
274	75	34	-707.14	848.96	-474.05	-259.01	744.93	1336.73
275	75	Totals:	97.64	1736.87	21.37			
276	75	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
277	76	1	772.73	875.58	516.56	-258.69	-853.28	1347.11
278	76	34	-740.18	861.29	-452.44	-258.88	682.84	1341.35
279	76	Totals:	32.55	1736.87	64.12			
280	76	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
281	77	1	756.7	869.41	527.13	-258.72	-884.13	1344.76
282	77	34	-756.7	867.46	-441.64	-258.81	651.79	1343.66
283	77	Totals:	0	1736.87	85.49			
284	77	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
285	78	1	740.68	862.52	516.52	-258.87	-857.52	1342.14
286	78	34	-773.22	874.35	-452.41	-258.81	678.77	1346.25
287	78	Totals:	-32.55	1736.87	64.12			
288	78	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
289	79	1	708.62	848.73	495.31	-259.15	-804.31	1336.9
290	79	34	-806.26	888.14	-473.94	-258.82	732.72	1351.42
291	79	Totals:	-97.64	1736.87	21.37			
292	79	COG (in):	X: 46.26	Y: 6.05	Z: 58.13			
293	81	1	984.21	1242.57	67.07	-26.12	-122.61	1971.74
294	81	34	-984.21	1244.3	-67.07	-26.12	122.27	1971.67
295	81	Totals:	0	2486.87	0			
296	81	COG (in):	X: 45.28	Y: 6.04	Z: 45.72			

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

Member	Shape	Code Che...	Loc[jin]	LC	Shear Check	Loc[ji...	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn y-y	phi*Mn z-z	Cb	Eqn	
1	M1	HSS4x4x3	.269	0	12	.085	19.74	y	68	79729.47	81270	9633.75	9633.75	2.09	H1-1b
2	M2	PIPE 4.0	.001	9	3	.000	9		3	92571.33	93240	10631.25	10631.25	1.56	H1-1b
3	M3	PIPE 3.0	.124	30.5	81	.074	30.5		3	56781.49	65205	5748.75	5748.75	1.62	H1-1b
4	M4	PIPE 2.5	.125	65.68	74	.027	30.32		71	30038.46	50715	3596.25	3596.25	4.44	H1-1b
5	M5	PIPE 2.5	.209	27.79	3	.029	27.79		3	30038.46	50715	3596.25	3596.25	1.35	H1-1b
6	M6	PIPE 2.5	.120	65.68	35	.025	48		81	30038.46	50715	3596.25	3596.25	4.38	H1-1b
7	M11	HSS4x4x3	.271	0	6	.085	19.74	y	74	79729.47	81270	9633.75	9633.75	2.09	H1-1b
8	M12	PIPE 3.0	.124	30.5	81	.071	30.5		9	56781.49	65205	5748.75	5748.75	1.62	H1-1b
9	M16	PIPE 2.5	.186	47.37	81	.042	12.63		68	41331.9	50715	3596.25	3596.25	1.63	H1-1b
10	M19	PIPE 4.0	.001	9	3	.000	9		3	92571.33	93240	10631.25	10631.25	1.56	H1-1b
11	M23	PIPE 2.5	.190	47.37	81	.046	12.63		68	41331.9	50715	3596.25	3596.25	1.63	H1-1b

Member: **M10**

Shape:

Material: **RIGID**

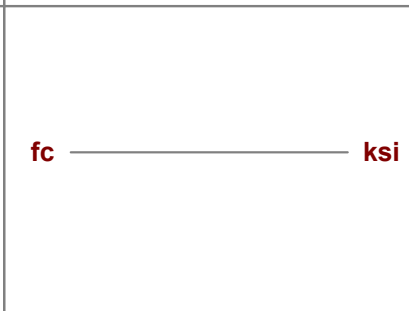
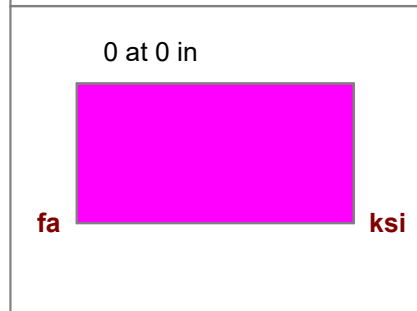
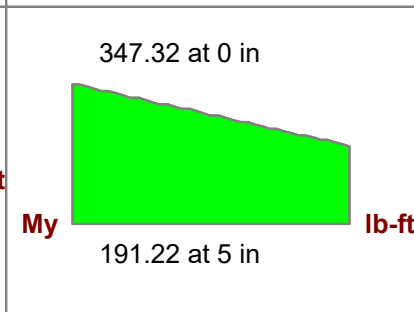
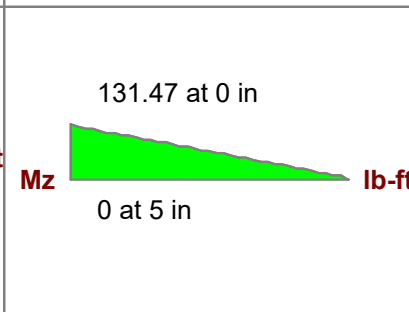
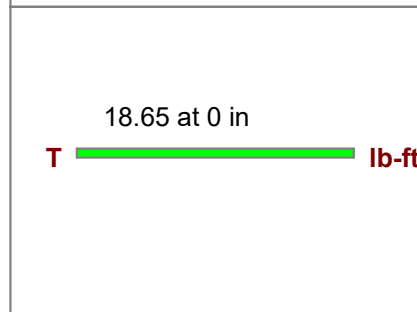
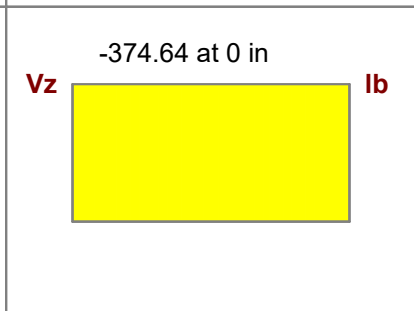
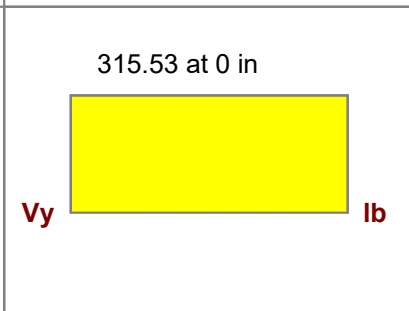
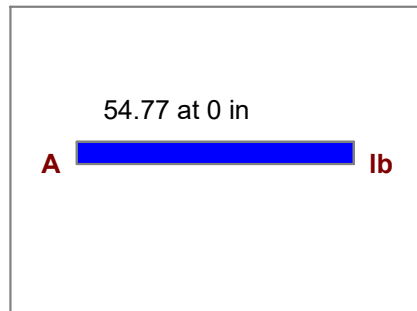
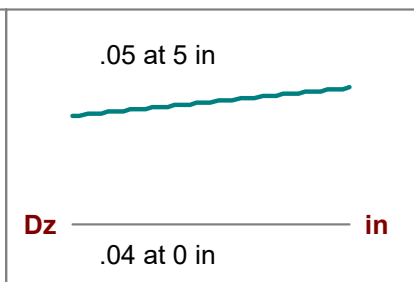
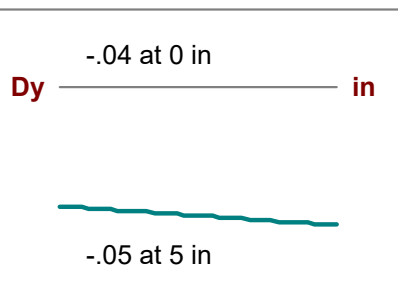
Length: **5 in**

I Joint: **2**

J Joint: **32**

Code Check: **No Calc**

Report Based On 39 Sections





Project ID: CT265230
 Site Name: CT076 - Norwalk/ Chestnut
 Prepared By: J. Vassell
 Checked By: M. Trodden

PROPOSED CONNECTION CHECK

>> Max Reactions per RISA Output: N34, LC6
 (Axial) Fx = 840.3 lbs Mx = 35.4 lbs-ft
 Fy = 511.6 lbs My = 1862.6 lbs-ft
 Fz = 719.4 lbs Mz = 0.0 lbs-ft

>> Proposed Connection:

Member Size =	L, in		W, in		
	4	x	4		
Plate =	L, in		W, in		t, in
	8	x	8	x	0.75
Bolt Spac. =	6 in		Bolt Dia =	0.625 in	
# of Bolts =	4		Grade =	A325	

>> Check Proposed Bolts: 5/8" DIA A325 Bolts

Tall = 20700 lbs	Vall = 12400 lbs
T _{My} = 1862.6 lbs	V _{Fyz} = 220.68 lbs
T _{Mz} = 0 lbs	V _{MX} = 35.39 lbs
T _{Fa} = 210.09 lbs	
Ft = 2072.7 lbs	Fv = 256.1 lbs

>> Bolt Interaction:

$$0.1001 + 0.021 = 0.121 < 1.0, \text{ OK}$$

>> Check Existing Plate:

Sx = 0.75 in ³	
Flange Arm = 1.0 in	(Face of Member to Centerline of Bolt)
f _{act.} = 5.5 ksi	Fy = 36.0 ksi
	f _{all} = 32.4 ksi

>> Plate Interaction: 0.171 < 1.0, OK

Appendix C

REFERENCES

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
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CT11076B_Anchor_4_draft

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Radio Upgrade_4460
Anchor_Phase 3
L600_CMP5

Section 1 - Site Information

Site ID: CT11076B Status: Draft Version: 4 Project Type: Anchor Approved: Not Approved Approved By: Not Approved Last Modified: 3/21/2022 7:21:37 PM Last Modified By: Pratik.Patil30@T-Mobile.com	Site Name: CT076 - Norwalk/ Chestnut Site Class: Watertank Site Type: Structure Non Building Plan Year: 2020 Market: CONNECTICUT CT Vendor: Ericsson Landlord: <undefined>	Latitude: 41.14395700 Longitude: -73.41825300 Address: 173 West Rocks Road City, State: Norwalk, CT Region: NORTHEAST
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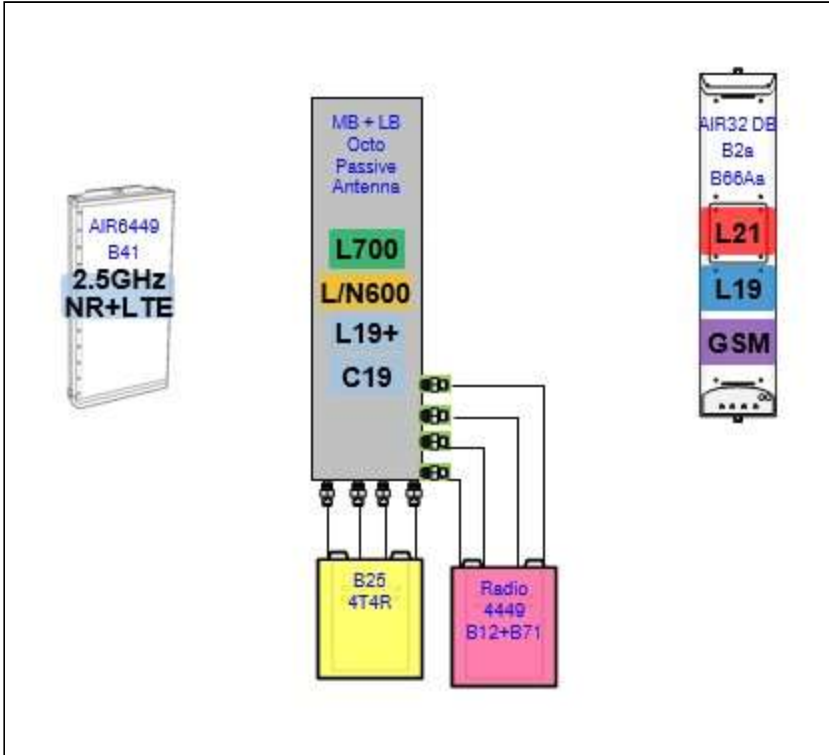
RAN Template: 67E5D998E Hybrid		AL Template: 67E5998E_1xAIR+1OP+1QP		
Sector Count: 3	Antenna Count: 9	Coax Line Count: 0	TMA Count: 0	RRU Count: 6

Section 2 - Existing Template Images

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

Section 3 - Proposed Template Images

67D5997DB_B25_2xAIR+1xOP.jpg



Notes: Radio 4415 B66 for U2100 will be connected to two Mid-Band Ports of the 12-port antenna.

Section 4 - Siteplan Images

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

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
--	--

CT11076B_Anchor_4_draft

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Radio Upgrade_4460
 Anchor_Phase 3
 L600_CMP5

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 94DB Outdoor (evolved from 4B)

Enclosure	1	2
Enclosure Type	RBS 6102	RBS 3106
Baseband	DUW30 U2100 DUW30 U1900 (DARK) DUG20 G1900 BB 6630 L1900 L2100	
Radio	RUS01 B4 (x 3) U2100 RUS01 B4 (x 3) L2100	

Proposed RAN Equipment

Template: 67E5D998E Hybrid

Enclosure	1	2	3
Enclosure Type	Enclosure 6160 AC V1	B160	RBS 6102
Baseband	RP 6651 L2500 N2500		DUG20 G1900 DUW30 U2100 RP 6651 L700 L600 N600 BB 6630 L1900 L2100
Hybrid Cable System	PSU 4813 vR4A (Kit) Ericsson Hybrid Trunk 6/24 4AWG 50m		Ericsson Hybrid Trunk 6/24 4AWG 50m (x 2) PSU 4813 vR4A (Kit)
Transport System	CSR IXRe V2 (Gen2)		

RAN Scope of Work:

- Remove and return cabinet Radios from existing cabinet 6102.
- Add (1) Enclosure 6160.
- Add (1) iXRe Router to new Enclosure 6160.
- Add (1) RP 6651 for L2500/N2500 to new Enclosure 6160.
- Add(1) RP 6651 to existing cabinet for L600, L700, N600.
- Add (1) PSU4813 Voltage Booster to new Enclosure 6160.
- Add (1) PSU4813 Voltage Booster to existing cabinet 6102..
- Add (1) Battery Cabinet B160.
- Existing :
- Remove all Coax, remove
- Add (1) 6X24 HCS terminating at the Enclosure 6160. and (2) 6x24 terminating at 6102. Connect DC for the AIR6419 B41 to the PSU4813 Voltage Booster.

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
--	--

CT11076B_Anchor_4_draft

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Radio Upgrade_4460
 Anchor_Phase 3
 L600_CMP5

Section 6 - A&L Equipment

Existing Template:
Proposed Template: 67E5998E_1xAIR+1OP+1QP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	40	
M. Tilt	0	
Height	108	
Ports	P1	P2
Active Tech.	L1900 G1900	U2100 L2100
Dark Tech.	U1900	
Restricted Tech.		
Decomm. Tech.		
E. Tilt	4	4
Cables	Fiber Jumper - 15 ft. (x2) 1-1/4" LMU Coax - 133 ft. (x2)	1-1/4" Coax - 133 ft. (x2)
TMA's		Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners		
Radio		
Sector Equipment		
Unconnected Equipment:		
Scope of Work:		

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
--	--

CT11076B_Anchor_4_draft

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Radio Upgrade_4460
 Anchor_Phase 3
 L600_CMP5

Sector 1 (Proposed) view from behind											
Coverage Type	A - Outdoor Macro										
Antenna	1		2			3					
Antenna Model	Commscope_VV-65A-R1 (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)			AIR 6419 B41 (Active Antenna - Massive MIMO)					
Azimuth	40		40			40					
M. Tilt	0		0			0					
Height	106		106			106					
Ports	P1		P2		P3	P4	P5	P6	P7		P8
Active Tech.	L2100 L1900 G1900 U2100	L2100 L1900 G1900 U2100	L700 L600 N600	L700 L600 N600				L2500 N2500	L2500 N2500		
Dark Tech.											
Restricted Tech.											
Decomm. Tech.											
E. Tilt	4	4	2	2				2	2		
Cables	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper				Fiber Jumper	Fiber Jumper		
TMA's											
Diplexers / Combiners											
Radio	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)							
Sector Equipment											

Unconnected Equipment:

Scope of Work:

Remove existing AIR 21 antenna from Position 1.
 Install (1) Commscope VV65A-R1 in Position 1
 Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), U2100 and GSM to Position 1 at antenna.
 Install (1) Low-Band/Mid-Band Octo in Position 2.
 Add (1) Radio 4480 B71+B85 for L600, L700, and N600 to Position 2 at antenna, and connect its ports to the four Low-Band ports of the Low-Band/Mid-Band antenna
 Install (1) AIR6419 B41 for L2500 and N2500 in Position 3.

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

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
--	--

CT11076B_Anchor_4_draft

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Radio Upgrade_4460
 Anchor_Phase 3
 L600_CMP5

Sector 2 (Existing) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	130	
M. Tilt	2	
Height	108	
Ports	P1	P2
Active Tech.	L1900 G1900	U2100 L2100
Dark Tech.	U1900	
Restricted Tech.		
Decomm. Tech.		
E. Tilt	6	6
Cables	Fiber Jumper - 15 ft. (x2) 1-1/4" LMU Coax - 140 ft. (x2)	1-1/4" Coax - 140 ft. (x2)
TMA's		Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners		
Radio		
Sector Equipment		
Unconnected Equipment:		
Scope of Work:		

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
--	--

CT11076B_Anchor_4_draft

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Radio Upgrade_4460
 Anchor_Phase 3
 L600_CMP5

Sector 2 (Proposed) view from behind											
Coverage Type	A - Outdoor Macro										
Antenna	1		2			3					
Antenna Model	Commscope_VV-65A-R1 (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)			AIR 6419 B41 (Active Antenna - Massive MIMO)					
Azimuth	130		130			130					
M. Tilt	2		2			2					
Height	106		106			106					
Ports	P1		P2		P3	P4	P5	P6	P7		P8
Active Tech.	L1900 G1900 L2100 U2100	L1900 G1900 L2100 U2100	L700 L600 N600	L700 L600 N600					L2500 N2500	L2500 N2500	
Dark Tech.											
Restricted Tech.											
Decomm. Tech.											
E. Tilt	4	4	2	2					2	2	
Cables	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper					Fiber Jumper	Fiber Jumper	
TMA's											
Diplexers / Combiners											
Radio	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)							
Sector Equipment											

Unconnected Equipment:

Scope of Work:

Remove existing AIR 21 antenna from Position 1.
 Install (1) Commscope VV65A-R1 in Position 1
 Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), U2100 and GSM to Position 1 at antenna.
 Install (1) Low-Band/Mid-Band Octo in Position 2.
 Add (1) Radio 4480 B71+B85 for L600, L700, and N600 to Position 2 at antenna, and connect its ports to the four Low-Band ports of the Low-Band/Mid-Band antenna
 Install (1) AIR6419 B41 for L2500 and N2500 in Position 3.

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

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
--	--

CT11076B_Anchor_4_draft

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Radio Upgrade_4460
 Anchor_Phase 3
 L600_CMP5

Sector 3 (Existing) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	250	
M. Tilt	0	
Height	92	
Ports	P1	P2
Active Tech.	L1900 G1900	U2100 L2100
Dark Tech.	U1900	
Restricted Tech.		
Decomm. Tech.		
E. Tilt	4	4
Cables	1-1/4" LMU Coax - 152 ft. (x2) Fiber Jumper - 15 ft. (x2)	1-1/4" Coax - 152 ft. (x2)
TMA's		Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners		
Radio		
Sector Equipment		
Unconnected Equipment:		
Scope of Work:		

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
--	--

Sector 3 (Proposed) view from behind											
Coverage Type	A - Outdoor Macro										
Antenna	1		2			3					
Antenna Model	Commscope_VV-65A-R1 (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)			AIR 6419 B41 (Active Antenna - Massive MIMO)					
Azimuth	250		250			250					
M. Tilt	0		0			0					
Height	92		92			92					
Ports	P1		P2		P3	P4	P5	P6	P7		P8
Active Tech.	L1900 G1900 L2100 U2100	L1900 G1900 L2100 U2100	L700 L600 N600	L700 L600 N600				L2500 N2500	L2500 N2500		
Dark Tech.											
Restricted Tech.											
Decomm. Tech.											
E. Tilt	4	4	2	2				2	2		
Cables	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper				Fiber Jumper	Fiber Jumper		
TMA's											
Diplexers / Combiners											
Radio	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)							
Sector Equipment											

Unconnected Equipment:

Scope of Work:

Remove existing AIR 21 antenna from Position 1.
 Install (1) Commscope VV65A-R1 in Position 1
 Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), U2100 and GSM to Position 1 at antenna.
 Install (1) Low-Band/Mid-Band Octo in Position 2.
 Add (1) Radio 4480 B71+B85 for L600, L700, and N600 to Position 2 at antenna, and connect its ports to the four Low-Band ports of the Low-Band/Mid-Band antenna
 Install (1) AIR6419 B41 for L2500 and N2500 in Position 3.

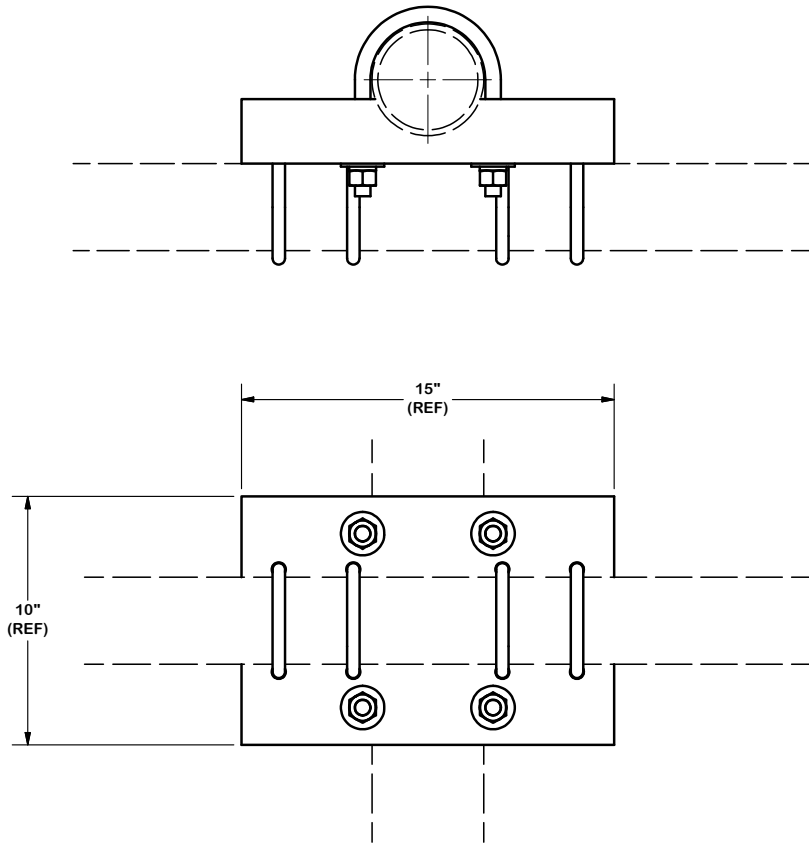
*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template: 67E5D998E Hybrid	A&L Template: 67E5998E_1xAIR+1OP+1QP
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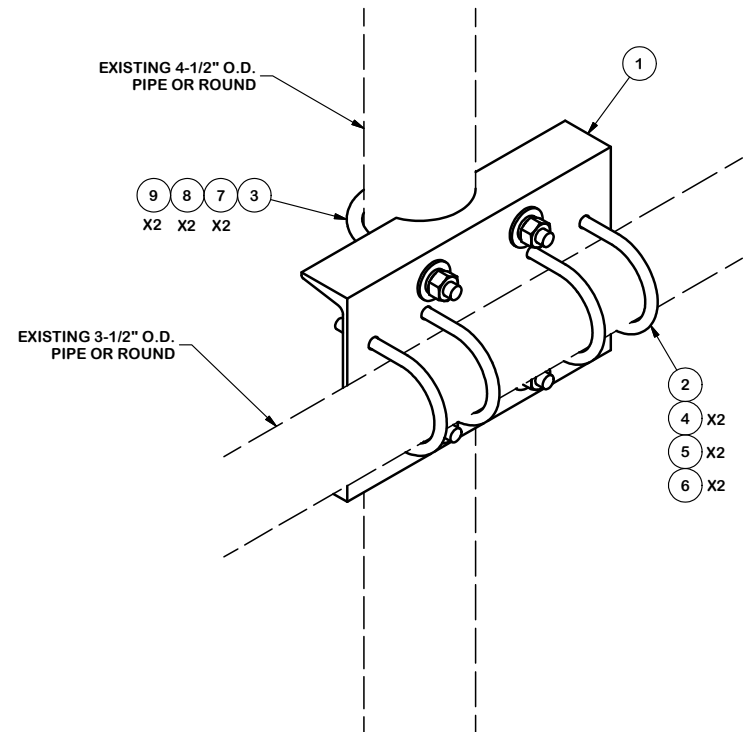
Section 7 - Power Systems Equipment
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Existing Power Systems Equipment
----- This section is intentionally blank. -----

Proposed Power Systems Equipment	
Enclosure	1
Enclosure Type	Enclosure 6160 AC V1



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-SP216	LARGE SUPPORT CROSS PLATE		20.83	20.83
2	4	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.81	3.24
3	2	X-UB5458	5/8" X 4-5/8" X 7" X 3" U-BOLT (HDG.)		1.61	3.22
4	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
5	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
6	8	G12FW	1/2" HDG USS FLATWASHER		0.03	0.27
7	4	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.52
8	4	G58LW	5/8" HDG LOCKWASHER		0.03	0.10
9	4	G58FW	5/8" HDG USS FLATWASHER		0.07	0.28
					TOTAL WT. #	28.84



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION	PIPE SUPPORT CROSS PLATE 3-1/2" PIPE AND 4-1/2" PIPE
-------------	---

SITE PRO 1
 A valmont COMPANY

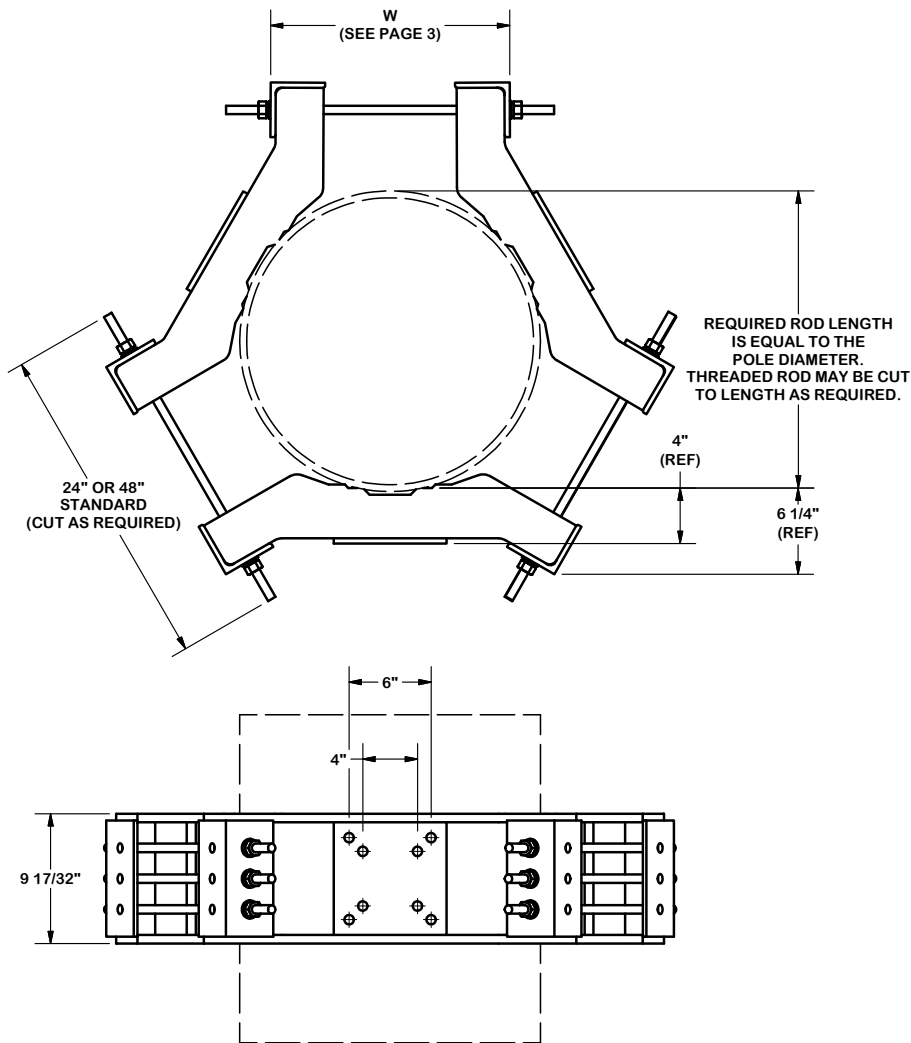
Engineering Support Team:
 1-888-753-7446

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

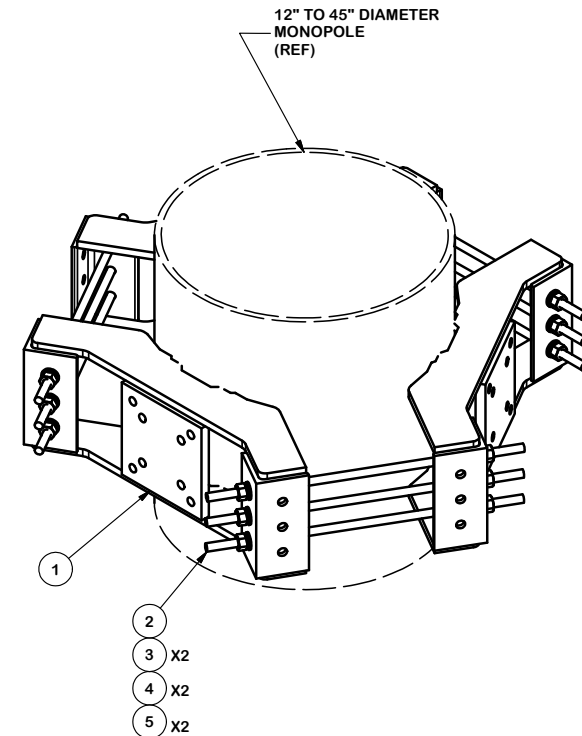
A	REDRAWN IN INV. UPDATED VIEWS & TABLE	KC8	8/17/2012
REV	DESCRIPTION OF REVISIONS	CPD	BY DATE
REVISION HISTORY			

CPD NO.	DRAWN BY	ENG. APPROVAL
81	BMC 6/24/2009	
CLASS	DRAWING USAGE	CHECKED BY
81	CUSTOMER	CEK 2/18/2013

PART NO.	SP216
DWG. NO.	SP216



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.16	204.48
2	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	4.94
2	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	4.94
3	18	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.61
4	18	G58LW	5/8" HDG LOCKWASHER		0.03	0.47
5	18	A58NUT	5/8" HDG A325 HEX NUT		0.13	2.34
					TOTAL WT. #	264.35



TOLERANCE NOTES

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 ALL OTHER ASSEMBLY ($\pm 0.060"$)

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DESCRIPTION
RING MOUNT ASSEMBLY
 12" TO 45" DIAMETER POLE

SITE PRO 1
 A valmont COMPANY

Engineering Support Team:
 1-888-753-7446

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

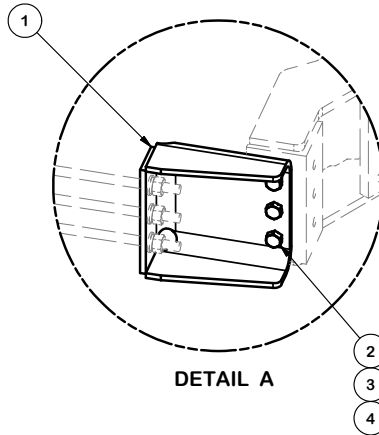
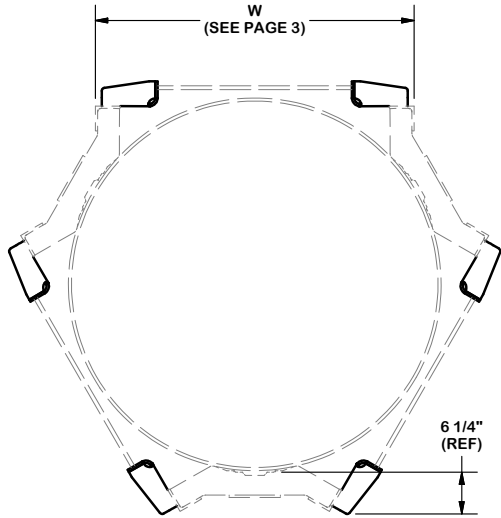
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REDRAWN IN INV. UPDATED TABLES & VIEWS		KC8	7/25/2012

CPD NO. 4433	DRAWN BY BMC 3/17/2009	ENG. APPROVAL
CLASS 81	SUB 01	DRAWING USAGE CUSTOMER
CHECKED BY CEK 8/24/2012		

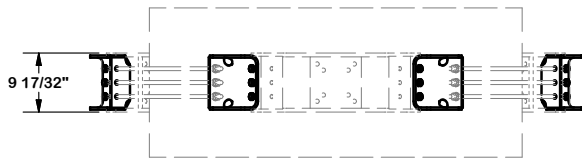
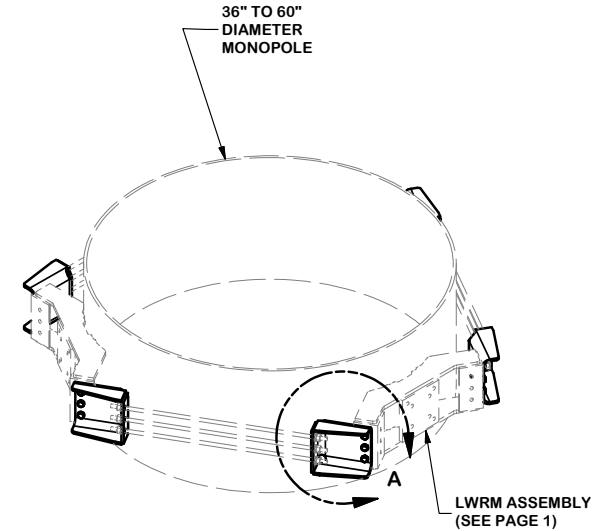
PART NO. LWRM	
DWG. NO. LWRM	

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-178627	BENT EXTENSION BRACKET		15.80	94.79
2	18	A5802	5/8" x 2" HDG A325 HEX BOLT		0.27	4.89
3	18	G58LW	5/8" HDG LOCKWASHER		0.03	0.47
4	18	A58NUT	5/8" HDG A325 HEX NUT		0.13	2.34

TOTAL WEIGHT: 105.90#



P/N RM-ADK
 OPTIONAL LARGE DIAMETER ADAPTER ASSEMBLY
 FOR USE WITH LWRM (SOLD SEPARATELY)
 ON 36" TO 60" DIAMETER MONOPOLES



TOLERANCE NOTES

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 ALL OTHER ASSEMBLY ($\pm 0.060"$)

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 VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
**RING MOUNT
 ASSEMBLY**
 12" TO 45" DIAMETER POLE



Engineering
 Support Team:
 1-888-753-7446

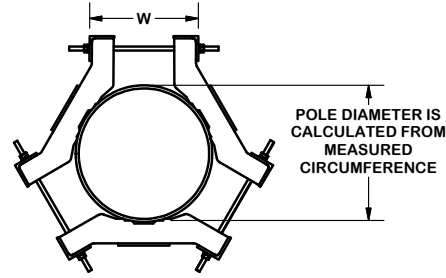
Locations:
 New York, NY
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 Los Angeles, CA
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 Dallas, TX

CPD NO. 4433	DRAWN BY BMC 3/17/2009	ENG. APPROVAL
CLASS 81	SUB 01	DRAWING USAGE CUSTOMER
CHECKED BY CEK 8/24/2012		

PART NO. RM-ADK	PAGE 2 OF 3
DWG. NO. LWRM	

A	REDRAWN IN INV. UPDATED TABLES & VIEWS	KC8	7/25/2012
REV	DESCRIPTION OF REVISIONS	CPD	BY DATE
REVISION HISTORY			

VALMONT IS SUPPLYING THE VALUE OF THE "W" DIMENSIONS TO ASSIST THE ERECTOR IN PRE-ASSEMBLING THE CLAMPS & TIE RODS.



THE CIRCUMFERENCE IS THE DISTANCE MEASURED AROUND THE OUTSIDE OF THE POLE AT THE LOCATION OF THE CLAMP.

CIRCUMF	DIA (REF)	W	CIRCUMF	DIA (REF)	W	CIRCUMF	DIA (REF)	W	CIRCUMF	DIA (REF)	W	CIRCUMF	DIA (REF)	W	CIRCUMF	DIA (REF)	W
38"	12-1/8"	9-3/16"	63"	20-1/16"	16-3/16"	88"	28"	23-3/16"	113"	36"	30-3/16"	138"	43-15/16"	37-1/4"	163"	51-7/8"	44-5/16"
39"	12-7/16"	9-7/16"	64"	20-3/8"	16-7/16"	89"	28-5/16"	23-1/2"	114"	36-5/16"	30-1/2"	139"	44-1/4"	37-1/2"	164"	52-3/16"	44-9/16"
40"	12-3/4"	9-3/4"	65"	20-11/16"	16-3/4"	90"	28-5/8"	23-3/4"	115"	36-5/8"	30-3/4"	140"	44-9/16"	37-13/16"	165"	52-1/2"	44-7/8"
41"	13-1/16"	10"	66"	21"	17"	91"	28-15/16"	24-1/16"	116"	36-15/16"	31-1/16"	141"	44-7/8"	38-1/16"	166"	52-13/16"	45-3/16"
42"	13-3/8"	10-5/16"	67"	21-5/16"	17-5/16"	92"	29-5/16"	24-5/16"	117"	37-1/4"	31-5/16"	142"	45-3/16"	38-3/8"	167"	53-3/16"	45-7/16"
43"	13-11/16"	10-9/16"	68"	21-5/8"	17-9/16"	93"	29-5/8"	24-5/8"	118"	37-9/16"	31-5/8"	143"	45-1/2"	38-9/16"	168"	53-1/2"	45-3/4"
44"	14"	10-7/8"	69"	21-15/16"	17-7/8"	94"	29-15/16"	24-7/8"	119"	37-7/8"	31-7/8"	144"	45-13/16"	38-7/8"	169"	53-13/16"	46"
45"	14-5/16"	11-2/16"	70"	22-5/16"	18-1/8"	95"	30-1/4"	25-1/8"	120"	38-3/16"	32-3/16"	145"	46-1/8"	39-1/8"	170"	54-1/8"	46-5/16"
46"	14-5/8"	11-3/8"	71"	22-5/8"	18-7/16"	96"	30-9/16"	25-7/16"	121"	38-1/2"	32-7/16"	146"	46-1/2"	39-7/16"	171"	54-7/16"	46-9/16"
47"	14-15/16"	11-11/16"	72"	22-15/16"	18-11/16"	97"	30-7/8"	25-11/16"	122"	38-13/16"	32-3/4"	147"	46-13/16"	39-3/4"	172"	54-3/4"	46-7/8"
48"	15-1/4"	11-15/16"	73"	23-1/4"	19"	98"	31-3/16"	26"	123"	39-1/8"	33"	148"	47-1/8"	40"	173"	55-1/16"	47-1/8"
49"	15-5/8"	12-1/4"	74"	23-9/16"	19-1/4"	99"	31-1/2"	26-1/4"	124"	39-1/2"	33-5/16"	149"	47-7/16"	40-5/16"	174"	55-3/8"	47-7/16"
50"	15-15/16"	12-1/2"	75"	23-7/8"	19-9/16"	100"	31-13/16"	26-9/16"	125"	39-13/16"	33-9/16"	150"	47-3/4"	40-9/16"	175"	55-11/16"	47-11/16"
51"	16-1/4"	12-13/16"	76"	24-1/4"	19-13/16"	101"	32-1/8"	26-13/16"	126"	40-1/8"	33-7/8"	151"	48-1/16"	40-7/8"	176"	56"	48"
52"	16-9/16"	13-1/16"	77"	24-1/2"	20-1/8"	102"	32-7/16"	27"	127"	40-7/16"	34-1/8"	152"	48-3/8"	41-3/16"	177"	56-5/16"	48-1/4"
53"	16-7/8"	13-3/8"	78"	24-13/16"	20-3/8"	103"	32-13/16"	27-3/8"	128"	40-3/4"	34-7/16"	153"	48-11/16"	41-7/16"	178"	56-11/16"	48-9/16"
54"	17-3/16"	13-5/8"	79"	25-1/8"	20-11/16"	104"	33-1/8"	27-11/16"	129"	41-1/16"	31-11/16"	154"	49"	41-3/4"	179"	57"	48-7/8"
55"	17-1/2"	13-15/16"	80"	25-7/16"	20-15/16"	105"	33-7/16"	27-15/16"	130"	41-3/8"	35"	155"	49-5/16"	42"	180"	57-5/16"	49-1/8"
56"	17-13/16"	14-3/16"	81"	25-13/16"	21-1/4"	106"	33-3/4"	28-1/4"	131"	41-11/16"	35-1/4"	156"	49-11/16"	42-5/16"	181"	57-5/8"	49-7/16"
57"	18-1/8"	14-1/2"	82"	26-1/8"	21-1/2"	107"	34-1/16"	28-1/2"	132"	42"	35-9/16"	157"	50"	42-5/8"	182"	57-15/16"	49-11/16"
58"	18-7/16"	14-3/4"	83"	26-7/16"	21-13/16"	108"	34-3/8"	28-13/16"	133"	42-5/16"	35-13/16"	158"	50-5/16"	42-7/8"	183"	58-1/4"	50"
59"	18-3/4"	15-1/16"	84"	26-3/4"	22-1/16"	109"	34-11/16"	29-1/16"	134"	42-5/8"	36-1/8"	159"	50-5/8"	43-3/16"	184"	58-9/16"	50-1/4"
60"	19-1/8"	15-5/16"	85"	27-1/16"	22-3/8"	110"	35"	29-3/8"	135"	43"	36-3/8"	160"	50-15/16"	43-7/16"	185"	58-7/8"	50-9/16"
61"	19-7/16"	15-5/8"	86"	27-3/8"	22-5/8"	111"	35-5/16"	29-5/8"	136"	43-5/16"	36-11/16"	161"	51-1/4"	43-3/4"	186"	59-3/16"	50-13/16"
62"	19-3/4"	15-7/8"	87"	27-11/16"	22-15/16"	112"	35-5/8"	29-15/16"	137"	43-5/8"	36-15/16"	162"	51-9/16"	44"	187"	59-1/2"	51"
															188"	59-13/16"	51-3/8"
															189"	60-3/16"	51-11/16"

TOLERANCE NOTES

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DESCRIPTION
RING MOUNT ASSEMBLY
 12" TO 45" DIAMETER POLE

CPD NO. 4433	DRAWN BY BMC 3/17/2009	ENG. APPROVAL
CLASS 81	SUB 01	DRAWING USAGE CUSTOMER
CHECKED BY CEK 8/24/2012		



Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

Engineering Support Team:
 1-888-753-7446

PART NO. **LWRM**

DWG. NO. **LWRM**

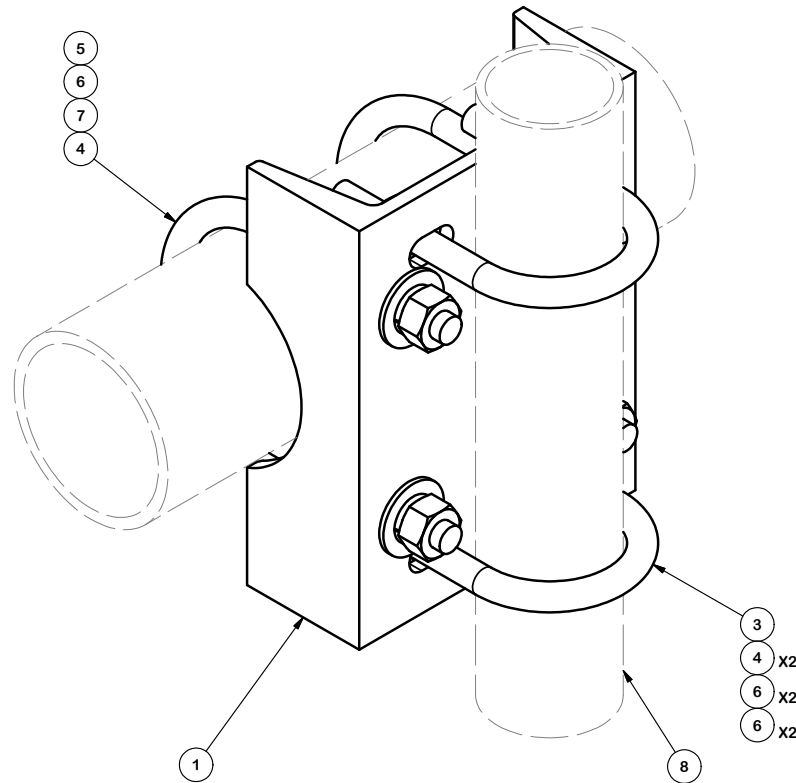
A	REDRAWN IN INV. UPDATED TABLES & VIEWS	CPD	KC8	7/25/12
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

2-7/8" O.D. VERTICAL MOUNTING PIPES

ASSEMBLY "A"	PART NO. "B"	PART DESCRIPTION	LENGTH "C"	UNIT WT. "D"	NET WT. "E"	TOTAL WEIGHT
SP219-96H	P3096	2-7/8" DIA X 63" SCH 40 GALVANIZED PIPE	96"	49.24	49.24	62.45
SP219-120H	P30126	2-7/8" DIA X 63" SCH 40 GALVANIZED PIPE	126"	76.94	76.94	89.15

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	8.61
3	2	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	0.51
3	2	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	1.48
4	2	X-UB1306	1/2" X 3-5/8" X 6" X 3" GALV U-BOLT		0.83	1.66
5	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
6	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
7	8	G12FW	1/2" HDG USS FLATWASHER		0.03	0.27
8	1	"B"	2-7/8" O.D. VERTICAL MOUNTING PIPES	"C"	"D"	"E"



TOLERANCE NOTES

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 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
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DESCRIPTION
 2-7/8" PIPE MOUNT KITS

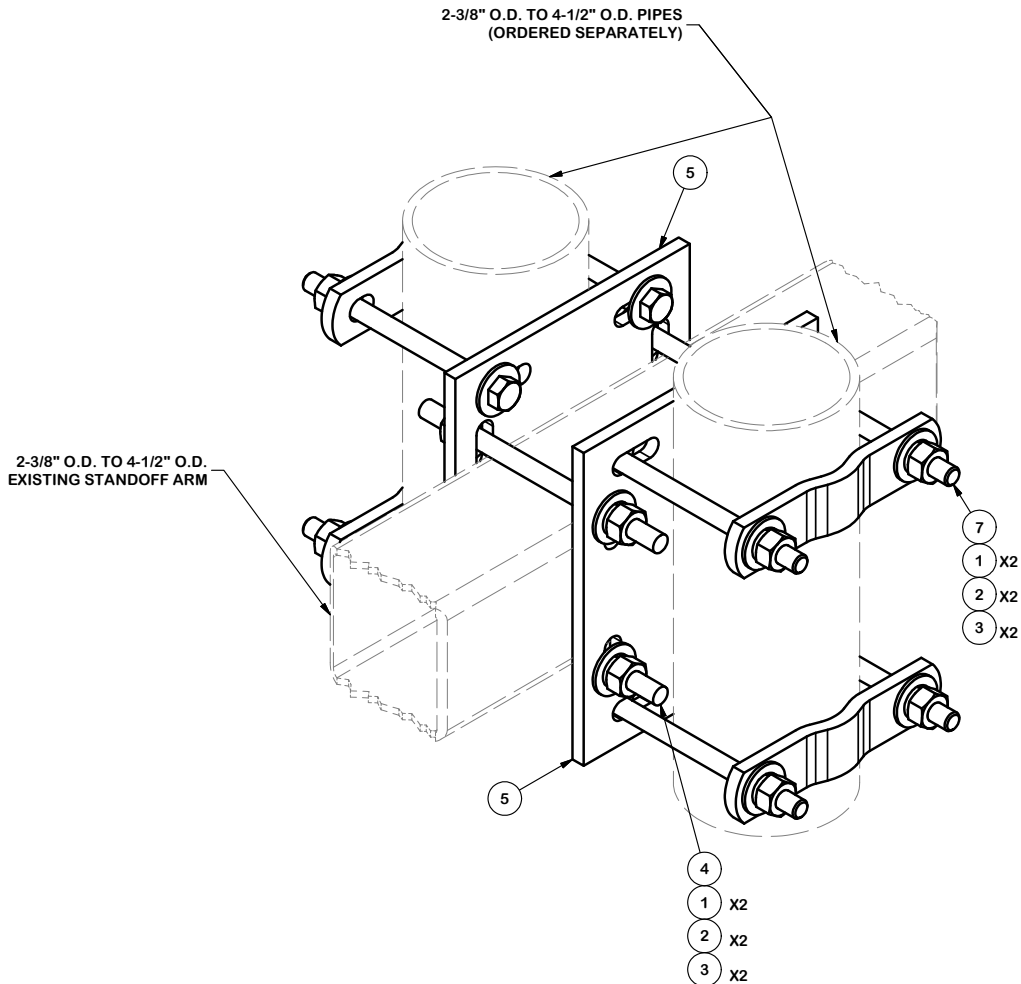


Engineering Support Team:
 1-888-753-7446

Locations:
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 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL
CLASS	DRAWING USAGE	CHECKED BY
81	01	CUSTOMER
		BMC 2/2/2016

PART NO.	SP219-xxxH
DWG. NO.	SP219-xxxH



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	24	G12FW	1/2" HDG USS FLATWASHER		0.03	0.82
2	16	G12LW	1/2" HDG LOCKWASHER		0.01	0.22
3	16	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.15
4	4	G12R-8	1/2" x 8" THREADED ROD (HDG.)		0.35	1.41
5	2	SCX3	CROSSOVER PLATE	9 1/4 in	7.19	14.38
6	4	X-115765	5" V-CLAMP		1.02	4.07
7	8	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	3.28
					TOTAL WT. #	25.33

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

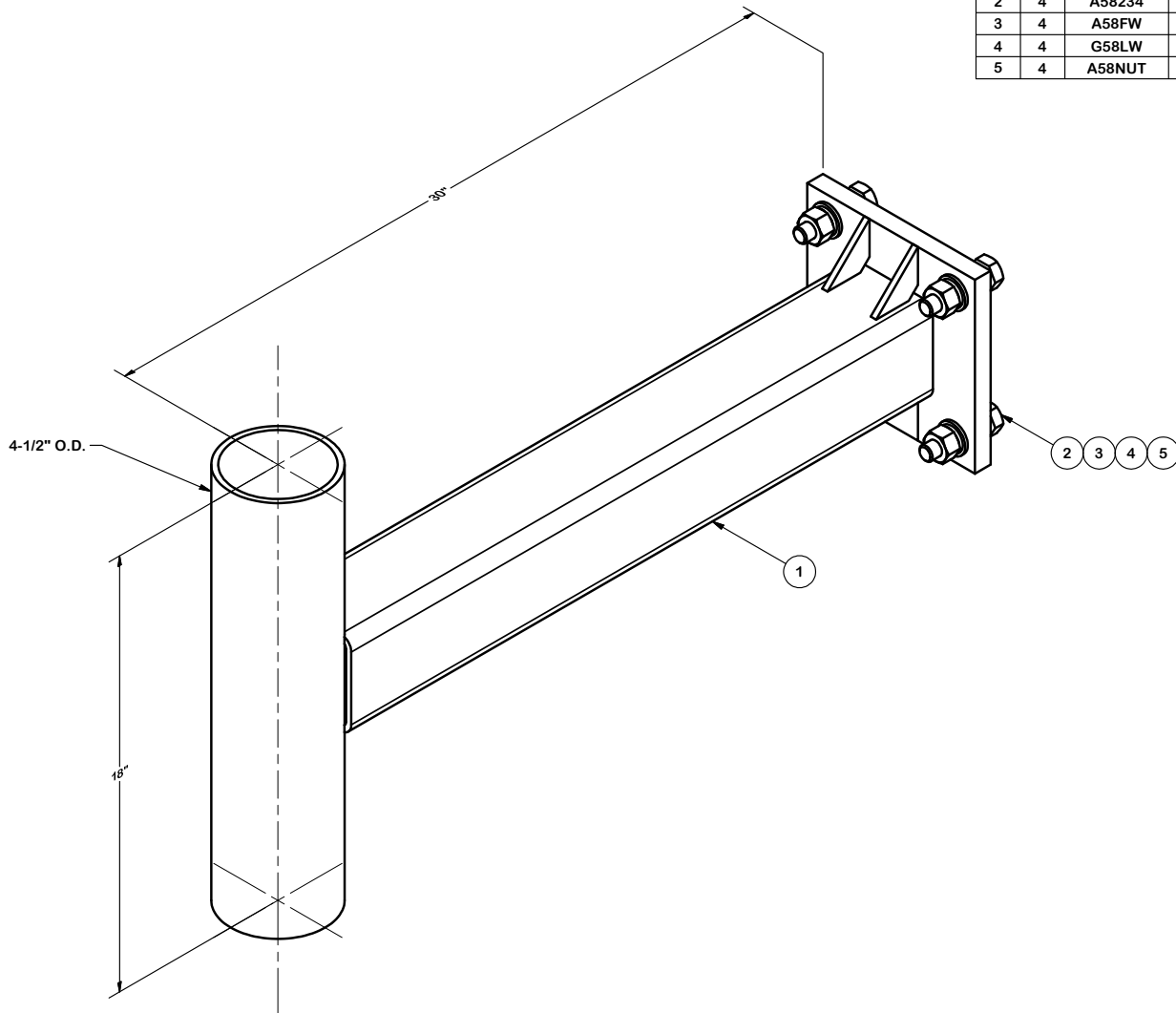
DESCRIPTION
**UNIVERSAL
 BACK TO BACK
 PIPE MOUNT**



Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX
 Engineering
 Support Team:
 1-888-753-7446

CPD NO.	DRAWN BY	ENG. APPROVAL
CLASS	DRAWING USAGE	CHECKED BY
81	03	CUSTOMER
		BMC 1/30/2013

PART NO.	BBPM-U
DWG. NO.	BBPM-U



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-SV197-30	SUPPORT ARM WELDMENT - 30"		57.94	57.94
2	4	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	1.42
3	4	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.14
4	4	G58LW	5/8" HDG LOCKWASHER		0.03	0.10
5	4	A58NUT	5/8" HDG A325 HEX NUT		0.13	0.52
TOTAL WT. #						60.18

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION
 30"
 SUPPORT
 ARM

SITE PRO 1
 Engineering Support Team:
 1-888-753-7446

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL
81	CEK 4/15/2015	BMC 4/17/2015
CLASS	SUB	DRAWING USAGE
81	02	CUSTOMER

PART NO.	SV197-30
DWG. NO.	SV197-30

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

T-Mobile Existing Facility

Site ID: CT11076B

CT076 - Norwalk/ Chestnut
173 West Rocks Road
Norwalk, Connecticut 06851

September 6, 2022

EBI Project Number: 6222005533

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	38.51%

September 6, 2022

T-Mobile

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

Emissions Analysis for Site: CT11076B - CT076 - Norwalk/ Chestnut

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **173 West Rocks Road** in **Norwalk, 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 173 West Rocks Road in Norwalk, 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) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts per Channel.
- 4) 1 GSM channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 10 Watts per Channel.
- 5) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 160 Watts per Channel.
- 6) 1 UMTS channel (AWS Band - 2100 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 10 Watts per Channel.

- 7) 1 LTE channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 160 Watts per Channel.
- 8) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 45 Watts.
- 9) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 15 Watts.
- 10) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 90 Watts.
- 11) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 30 Watts.
- 12) 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.
- 13) 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.
- 14) The antennas used in this modeling are the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 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.

- 15) The antenna mounting height centerline of the proposed antennas is 106 feet above ground level (AGL).
- 16) 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.
- 17) 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:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz
Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd
Height (AGL):	106 feet	Height (AGL):	106 feet	Height (AGL):	106 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	340.00 Watts	Total TX Power (W):	340.00 Watts	Total TX Power (W):	340.00 Watts
ERP (W):	12,947.86	ERP (W):	12,947.86	ERP (W):	12,947.86
Antenna A1 MPE %:	4.65%	Antenna B1 MPE %:	4.65%	Antenna C1 MPE %:	4.65%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	106 feet	Height (AGL):	106 feet	Height (AGL):	106 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts
ERP (W):	3,293.87	ERP (W):	3,293.87	ERP (W):	3,293.87
Antenna A2 MPE %:	2.84%	Antenna B2 MPE %:	2.84%	Antenna C2 MPE %:	2.84%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd
Height (AGL):	106 feet	Height (AGL):	106 feet	Height (AGL):	106 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	180.00 Watts	Total TX Power (W):	180.00 Watts	Total TX Power (W):	180.00 Watts
ERP (W):	23,258.96	ERP (W):	23,258.96	ERP (W):	23,258.96
Antenna A3 MPE %:	8.36%	Antenna B3 MPE %:	8.36%	Antenna C3 MPE %:	8.36%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	15.86%
AT&T	8.88%
Verizon	6.29%
Sprint	7.48%
Site Total MPE % :	38.51%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	15.86%
T-Mobile Sector B Total:	15.86%
T-Mobile Sector C Total:	15.86%
Site Total MPE % :	38.51%

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 GSM	1	358.92	106.0	1.29	1900 MHz GSM	1000	0.13%
T-Mobile 1900 MHz LTE	1	5742.75	106.0	20.65	1900 MHz LTE	1000	2.06%
T-Mobile 2100 MHz UMTS	1	402.72	106.0	1.45	2100 MHz UMTS	1000	0.14%
T-Mobile 2100 MHz LTE	1	6443.47	106.0	23.17	2100 MHz LTE	1000	2.32%
T-Mobile 600 MHz LTE	1	788.97	106.0	2.84	600 MHz LTE	400	0.71%
T-Mobile 600 MHz NR	1	1577.94	106.0	5.67	600 MHz NR	400	1.42%
T-Mobile 700 MHz LTE	1	926.96	106.0	3.33	700 MHz LTE	467	0.71%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	7214.60	106.0	25.94	2500 MHz LTE IC & 2C Traffic	1000	2.59%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	538.38	106.0	1.94	2500 MHz LTE IC & 2C Broadcast	1000	0.19%
T-Mobile 2500 MHz NR Traffic	1	14429.21	106.0	51.88	2500 MHz NR Traffic	1000	5.19%
T-Mobile 2500 MHz NR Broadcast	1	1076.77	106.0	3.87	2500 MHz NR Broadcast	1000	0.39%
						Total:	15.86%

• 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:	15.86%
Sector B:	15.86%
Sector C:	15.86%
T-Mobile Maximum MPE % (Sector A):	15.86%
Site Total:	38.51%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **38.51%** 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.