Filed by:
G. Scott Shepherd, Site Development Specialist II - SBA Communications 134 Flanders Rd., Suite 125, Westborough, MA 01581 508.251.0720 x 3807 - GShepherd@sbasite.com

August 31, 2021

Melanie A.
Bachman Executive
Director
Connecticut Siting
Council Ten
Franklin Square
New Britain, CT 06051

Application for Tower Share
5 Tyler Drive,
Franklin, CT06254
Latitude: 41.625300
Longitude: -72.156300
T-Mobile/Sprint #: CTNL124A

Dear Ms. Bachman:

Please accept this letter as notification pursuant to the Connecticut General Statutes § 16-50aa and R.C.S.A § 16-50j-88 of T-Mobile's Application for Tower Sharing at the existing 180-foot Self-Supporting Tower at 5 Tyler Drive, North Franklin, CT.

- **The new antennas would support 5G services and would be installed at the 155-foot level of the tower.**

Per the requirements under R.C.S.A §16-50j-89 please find the following statements in support of T-Mobile's Application:

1. Facility and Proposed Modifications

   A. Existing Facility and Appurtenances

This facility was originally approved by the Town of Franklin at their Regular Meeting held December 9, 2009 by the Inland Wetlands and Watercourses Commission (IWWC):

- 1. Application #09-05: Town of Franklin / Mariner Tower II, LLC & AT&T: Proposed new non-residential site plan: Property located at 5 Tyler Drive, Assessor's Map 16 Lot 7, Zoned C-2, existing use municipal activities, proposed use Municipal and Communications Tower
  Action: Approved as Jurisdictional Ruling

There were no other stipulations set forth by the Town of Franklin. Please see attached.

- Latitude / Longitude: 41.625300 / -72.156300
- Height of Tower: 180'
- Tower Owned by: Town of Franklin / Managed by: SBA Site Management
- Property Owner: Town of Franklin
- Size/Components of existing equipment compound:

  - 69'5" x 69'9" fenced compound with chain link fence area containing:
    - 180-foot Self Supporting Tower
    - AT&T equipment shelter [southeast of tower w/in compound]
    - Existing 4' x 11' concrete pad [southeast of tower w/in compound]
  - Components of existing tower:
- AT&T
- 182", 187', 186.5', 183' & 169'

  - Lightning Rod @ 182'
  - 20' Omni Antenna @ 187'
  - 20' Omni Antenna @ 186.5'
  - 8' Dipole Antenna @ 183'
  - 7770 Antennas @ 169'
  - 7750 Antenna @ 169'
  - TT08-19DB 111-001 TMA's @ 169'
  - (2) 800 10965 Antennas @ 169'
  - (1) 800 10966 Antenna @ 169'
  - HPA-65R-BU6AA Antennas @ 169'
  - HPA-65R-BU8AA Antenna @ 169'
  - B5/B12 4449 RRH's @ 169'
  - B2/B66A 8843 RRH's @ 169'
  - Squid Surge Arrestors @ 169'

B. Nature and Extent of Proposed Modifications

T-Mobile/Sprint proposes to install (6) panel antennas at the 155' level of the existing 180'-foot Self supporting Tower and occupy a ground lease area of 10'x20' within the existing 69' 5" x 65' 9" fenced compound. T-Mobile/Sprint's fully proposed scope of work is as follows:

Remove:

- N/A

Remove and Replace:

- N/A

- T-Mobile:
- Install @ 155' & 100.5'

    - (3) APX16DWV-16DWV-S-E-A20 - Panel Antennas
    - (3) RFS APXVAALL24_43-U-NA20 – Panel Antennas
    - (3) AIR6449 B41 – Panel Antennas
    - (3) 4460 B25+B66 – RRH's
    - (3) 4480 B71+b85 RRH's
    - (1) 20' Omni antenna (@100.5')
    - (3) Hybrid cables

Ground (within existing compound):

- 10'x20' reinforced concrete pad (w/space reserved for a future generator)
- 10' x 20' Ice canopy mounted to proposed concrete pad
- Underground power & Telco conduit from existing meter bank to proposed equipment
- Future T-Mobile automatic transfer switch (ATS) mounted proposed H-Frame
- Breakers within Proposed PPC
- Purcell RAC24 cabinet mounted to proposed unistrut on H-Frame
- 2" RGS conduit for AAV to RAC24 cabinet
- 2" RGS conduit for power from existing PPC
- Ericsson B160 Battery cabinet
- 2" conduit for alarm & Spare
- 2" RGS conduit with LBs for DC Power wiring
- Ericsson 6160 Equipment cabinet
- Cable ice bridge
- GPS antenna mounted proposed cable bridge post

Remain: N/A

C. This Proposal is technically, legally, environmentally, and economically feasible and meets public safety concerns per Connecticut General Statute Section 16-50aa.

T-Mobile/Sprint proposes to collocate at the above-referenced existing telecommunication facility rather than to require additional tower construction. The need for the site was dictated by the existing lack of, or extremely poor service, and projected future capacity and coverage requirements for this particular geographic area. Because new wireless telecommunications sites must function as an integral part of an existing network, their locations affect the services areas of all surrounding site. In order to use mobile communications services, users must be "handed-off" efficiently from one site to the next as they travel. To accomplish this goal, new sites must be placed on very exact, calculated locations.

When the need for a new site in the North Franklin area was established, SBA system engineers identified a target area in which to locate the facility. Within the general target area, there are no other tall structures that are suitable for this purpose. The Selection of this specific site location was determined by local topographic and geographic factors, mitigation of the antenna mounting structure's visual impact, compatibility with existing land use, and the ability to negotiate a mutually beneficial lease with a landlord. SBA engineers believe

that the 5 Tyler Drive site is ideally suited for the tower facility. One carrier is currently on the tower.

The parcel owned by Town of Franklin Assessor's Map 16 Lot 7, Zoned C-2.

The proposed collocation meets with all legal and technical requirements. This Application contains all required information and statements per R.C.S.A §16-50j-89 and the proposed installation has been drafted per current code, and studied with regard to structural feasibility and RF emissions output. Drawings and Reports are attached. T-Mobile's proposed collocation presents no known material changes to environmental conditions from those as documented in the Council's original Findings of Fact and presents no known public safety concerns.

2. Engineering Drawings per the requirements under R.C.S.A. §16-50j-89 are enclosed herewith.

3. Engineering and Structural Analysis per the requirements under R.C.S.A. §16-50j-89 is enclosed herewith.

4. Engineering and Mount Analysis per the requirements under R.C.S.A. §16-50j-89 is enclosed herewith.

5. A Letter from SBA, as Owner of the Facility, agreeing to the proposed shared use of the facility, is enclosed herewith.

6. With regard to any potential environmental impact:

   A. T-Mobile's collocation will not have any significant adverse visual impact on the surrounding areas. The antennas should result in only marginal additional equipment visibility from areas that already have views of the existing tower. The proposed work would not require any Federal Aviation Administration obstruction marking or lighting.

   B. The proposed collocation does not affect or alter the existing site with regard to wetlands, water resources or air quality. National Wetlands Inventory Maps indicated that the site was not within the 100 year floor zone.

   The proposed work is not thought to have any substantial adverse environmental impact. Public Need for the additional coverage outweighs any minor environmental effects that would result from the construction, operation, and maintenance of the proposed collocation.

7. The operation of T-Mobile/Sprint's new antennas will not increase the total radio frequency electromagnetic power density at the site to a level at or above the applicable standards. The anticipated Maximum Composite contributions from the T-Mobile/Sprint's facility are only 5.59864200% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 5.59872800% of the allowable FCC established general public limit sampled at the ground level. FCC guidelines state that if a site is to be out of compliance (over allowable thresholds), the carriers over 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 per the federal government. A Power Density / RF Report per the requirements under R.C.S.A. §16-50j-89 is enclosed herewith.

8. Per the Connecticut Siting Council's Guidelines, one original hard copy of this Tower Share Application and fifteen (15) copies are being submitted, along with check in the amount of $625 for the filing fee per

Conn. Gen. Stat.
§4-189j; Regs., Conn. State Agencies §16-50v-1a.

A. A copy of this Application and all attachments is being sent to:
   i. The Town of Franklin's First Selectman, Charles Grant
   ii. The Town of Franklin's Zoning Enforcement Officer, Roanld Chalecki
   iii. The Property is owned by the Town of Franklin
   iv. Tower Owner: Town of Franklin

Please note, additionally: 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 modification 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 modification will not cause a significant change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

T-Mobile/Sprint respectfully submits for the Council's review and approval this Application for Tower

Share. Sincerely,

G. Scott Shepherd

Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA
01581 508.251.0720
x3807 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbasite.com

Attachments

cc: Charles Grant, First Selectman / with attachments
Town of Franklin, 7 Meetinghouse Hill Rd., Franklin, CT 06254
Ronald Chalecki, Zoning Enforcement Officer / with attachments
Town of Franklin, 7 Meetinghouse Hill Rd., Franklin, CT 06254

EXHIBIT LIST

Exhibit 1	Copy of Check	X
Exhibit 2	Letter of Intent to Allow Shared Use of the Existing SBA Telecommunications Site	X
Exhibit 3	Notification Receipts	x
Exhibit 4	Property Card	x
Exhibit 5	Property Map	x
Exhibit 6	Original Zoning Approval	Town of Franklin IWWC #09-05 12/17/09
Exhibit 7	EME Report	Centerline 8/27/21
Exhibit 8	Structural Analysis	Hudson Design 8/2/21
Exhibit 9	Mount Analysis	Hudson Design 7/13/21
Exhibit 10	Construction Drawings	Chappell 7/13/21

EXHIBIT 1

Copy of check

EXHIBIT 2
Letter of Intent

August 30, 2021

Melanie A. Bachman
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **Notice of Intent to Allow Shared Use of the Existing SBA Telecommunications Site**
Location: **5 Tyler Drive, Franklin, CT**
T-Mobile Site No: CTNL124A
SBA Site No: CT46122-A

Dear Ms. Bachman:

Please let the following serve as Evidence of Intent to allow T-Mobile's shared use of the existing SBA telecommunications site at **5 Tyler Drive, Franklin, CT**.

SBA Site Management ("Tower Manager"), Mariner Tower II, LLC (Owner) and T-Mobile ("Tenant") are entering into a Site Lease Agreement. Tenant will be provided ground space within the existing site compound for its base station equipment and space at the height of 155'' for antennas and associated equipment.

Thank you,

Rick Woods
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

508.251.0720 x3800 + T
508.366.2610 + F
508.614.0389 + C
rwoods@sbasite.com

EXHIBIT 3

Fedex Labels

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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TRACK ANOTHER SHIPMENT

774682388714

ADD NICKNAME

Scheduled delivery:
Wednesday, September 1, 2021 before 10:30 am

PICKED UP
FRAMINGHAM, MA

GET STATUS UPDATES

FROM	TO
WESTBOROUGH, MA US	NEW BRITAIN, CT US

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Tuesday, August 31, 2021

2:14 PM	FRAMINGHAM, MA	Picked up
8:33 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER 774682388714	**SERVICE** FedEx Priority Overnight	**WEIGHT** 5 lbs / 2.27 kgs
TOTAL PIECES 1	**TOTAL SHIPMENT WEIGHT** 5 lbs / 2.27 kgs	**TERMS** Shipper
SHIPPER REFERENCE 10-56-92009-6089	**PACKAGING** FedEx Box	**SPECIAL HANDLING SECTION** Deliver Weekday
ACTUAL PICK UP 8/31/21	**STANDARD TRANSIT** 9/1/21 before 10:30 am	**SCHEDULED DELIVERY** 9/1/21 before 10:30 am

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Travel History

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Tuesday, August 31, 2021

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8:34 AM		Shipment information sent to FedEx

Shipment Facts

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TOTAL PIECES 1	**TOTAL SHIPMENT WEIGHT** 5 lbs / 2.27 kgs	**TERMS** Shipper
SHIPPER REFERENCE 10-56-92009-6089	**PACKAGING** FedEx Box	**SPECIAL HANDLING SECTION** Deliver Weekday
ACTUAL PICK UP 8/31/21	**STANDARD TRANSIT** 9/1/21 before 10:30 am	**SCHEDULED DELIVERY** 9/1/21 before 10:30 am

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8:36 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER 774682438929	**SERVICE** FedEx Priority Overnight	**WEIGHT** 0.5 lbs / 0.23 kgs
TOTAL PIECES 1	**TOTAL SHIPMENT WEIGHT** 0.5 lbs / 0.23 kgs	**TERMS** Shipper
SHIPPER REFERENCE 10-56-92009-6089	**PACKAGING** FedEx Envelope	**SPECIAL HANDLING SECTION** Deliver Weekday
ACTUAL PICK UP 8/31/21	**STANDARD TRANSIT** 9/1/21 before 10:30 am	**SCHEDULED DELIVERY** 9/1/21 before 10:30 am

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774682456310

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Scheduled delivery:
Wednesday, September 1, 2021 before 10:30 am

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FRAMINGHAM, MA

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WESTBOROUGH, MA US	NORTH FRANKLIN, CT US

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Tuesday, August 31, 2021

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8:38 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER 774682456310	**SERVICE** FedEx Priority Overnight	**WEIGHT** 0.5 lbs / 0.23 kgs
TOTAL PIECES 1	**TOTAL SHIPMENT WEIGHT** 0.5 lbs / 0.23 kgs	**TERMS** Distribuidor
SHIPPER REFERENCE 10-56-92009-6089	**PACKAGING** FedEx Envelope	**SPECIAL HANDLING SECTION** Deliver Weekday
ACTUAL PICK UP 8/31/21	**STANDARD TRANSIT** 9/1/21 before 10:30 am	**SCHEDULED DELIVERY** 9/1/21 before 10:30 am

EXHIBIT 4

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.

Information on the Property Records for the Municipality of Franklin was last updated on 8/24/2021.

Parcel Information

Location:	5 TYLER DR	Property Use:	Public Use	Primary Use:	Governmental Building
Unique ID:	L1021300	Map Block Lot:	16 7	Acres:	12.02
490 Acres:	0.00	Zone:	C-2	Volume / Page:	0061/0302
Developers Map / Lot:		Census:			

Value Information

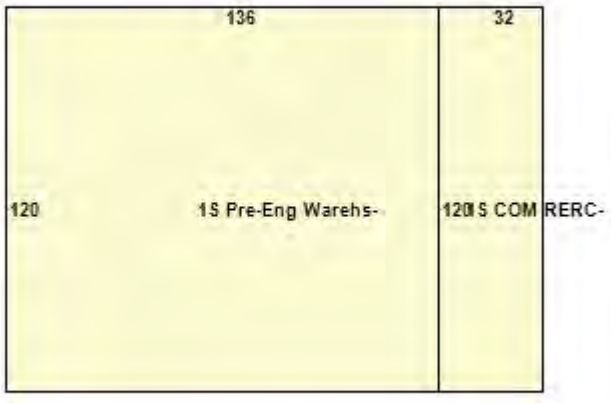
	Appraised Value	Assessed Value
Land	200,760	140,540
Buildings	3,257,021	2,279,910
Detached Outbuildings	49,330	34,530

	Appraised Value	Assessed Value
Total	3,507,111	2,454,980

Owner's Information

Owner's Data
FRANKLIN TOWN OF 7 MEETINGHOUSE HILL RD FRANKLIN CT 06254

Building 1



Category:	Industrial	Use:	Pre-Eng Warehs	GLA:	20,160

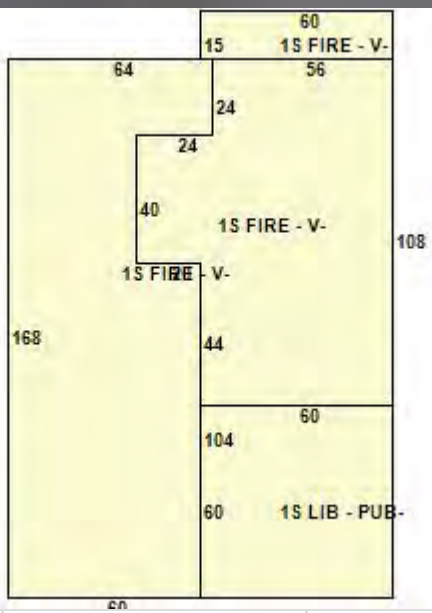
Stories:	1.00	Construction:	Steel	Year Built:	1973
Heating:	Forced Hot Air	Fuel:	Natural Gas	Cooling Percent:	19
Siding:	Masonry	Roof Material:	Metal	Beds/Units:	0

Special Features

OH Doors Steel	2

Attached Components

Building 2



Category:	Public Use	Use:	Fire Station - Volunteer	GLA:	21,060
Stories:	1.00	Construction:	Masonry	Year Built:	1973
Heating:	Forced Hot Air	Fuel:	Natural Gas	Cooling Percent:	62
Siding:	Masonry	Roof Material:	Metal	Beds/Units:	1

Special Features

OH Doors Steel	5

Attached Components

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Farm Utility Storage Shed	2016	12.00	16.00	192
Farm Utility Storage Shed	2010	12.00	20.00	240
10 Ft+ Chain Fence	2013	0.00	0.00	2,240
Paving	1973	0.00	0.00	30,000
Metal Shed	2011	120.00	0.00	120

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
FRANKLIN TOWN OF	0061	0302	06/13/2001		$0
AMRESCO NEW ENGLAND L P	0051	0793	12/04/1996		$0

Building Permits

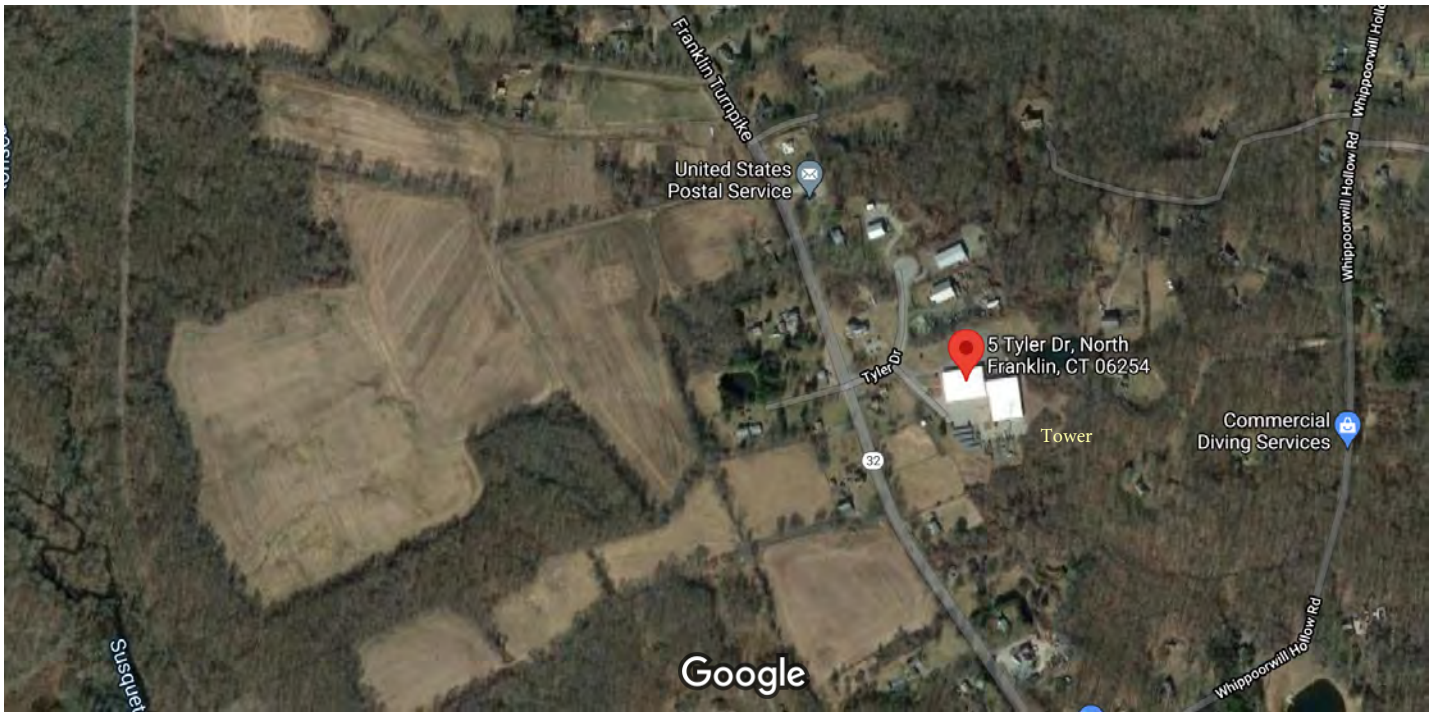
Permit Number	Permit Type	Date Opened	Reason
1101-20	Other	11/10/2020	12 X 16 PAVILION CEDAR STRUCTURE
807-19	Electrical	08/13/2019	REPLACE 6 ANTENNAS ON EXISTING WIRELESS TELE TOWER
106-19	Comm Renovations	01/29/2019	REPLACE FIRE ALARM SYS
1208-16	Comm Renovations	12/20/2016	REPLACE 4 WNDOWS
506-16	Shed	05/16/2016	12 X 16 SHED
1012-14	Electrical	10/21/2014	44 KW SOLAR PHOTOVOLTAIC SYSTEM GROUND MOUNTED
913-13	Electrical	09/24/2013	100 AMP SERVICE & DATA LINE TO ANTENNA
1010-10	Shed	10/26/2010	10X12 SHED
2/9/2009	Residential Addition	02/09/2009	12X20 EQ SHED
202-10	Residential Addition	02/09/2009	180 FT TOWER INC FD FENCE UTL

Permit Number	Permit Type	Date Opened	Reason
709-08	Electrical	07/22/2008	WIRE NEW CONFERENCE RM
1007-07	Electrical	10/09/2007	INSTAL EMERG GEN.
101005		10/25/2005	
81204		08/11/2004	
71004		07/20/2004	
102-03		12/31/2002	
301-02	Remodel	03/02/2002	FIRE DEPT

EXHIBIT 5

Property Map

Google Maps 5 Tyler Dr



Imagery ©2021 CNES / Airbus, Maxar Technologies, USDA Farm Service Agency, Map data ©2021 500 ft

5 Tyler Dr

Building

Directions Save Nearby Send to your phone Share

5 Tyler Dr, North Franklin, CT 06254

At this place

Janet Carlson Calvert Library

5.0 ★★★★★ (2)

Public library

Open until 5:00 PM

EXHIBIT 6

Zoning Approval

TOWN OF FRANKLIN

INLAND WETLANDS AND WATERCOURSES COMMISSION (IWWC)
7 Meetinghouse Hill Rd.
Franklin, Connecticut 06254

Phone: 860-642-7352 Ext. 17
Fax: 860-642-6606
franklinlanduse@99main.com

December 17, 2009

TO: Town of Franklin
First Selectman, Richard Matters
7 Meetinghouse Hill Rd.,
Franklin, CT 06254

FROM: IWWC
Herman Weingart, Chairman

RE: IWWC APPLICATION #09-05 TELECOMMUNICATIONS TOWER & FACILITY

NOTICE OF DECISION

At their Regular Meeting held December 9, 2009, The Franklin Inland Wetlands and Watercourse Commission rendered the following decision:

> Application #09-05: TOWN OF FRANKLIN / MARINER TOWER II, LLC, & AT&T: Proposed new non-residential site plan: Property located 5 Tyler Drive, Assessor's Map 16 Lot 7, Zoned C-2, existing use municipal activities, proposed use Municipal and Communications Tower
>
> **ACTION: APPROVED AS JURISDICTIONAL RULING**

Herman Weingart, Chairman

***Note**: Legal Notice published in the Norwich Bulletin on Thursday, December 17, 2009

Herman Weingart, Chairman
Sherry Pollard, Land Use Administrative Assistant

cc: Mariner Tower, II, LLC: ATTN: Facility Manager, PO BOX 2600, Kennebunkport, ME 04046
File

EXHIBIT 7

EME Report

Radio Frequency Emissions Analysis Report

August 27, 2021

Centerline Communications on behalf of T-Mobile

Site Name: CTNL124A
Site Address: 5 Tyler Dr, North Franklin, CT 06254

Site Compliance Summary

Compliance Status:	Compliant
Carrier MPE% of FCC General Population Allowable Limit:	5.59864200%
Composite MPE% of FCC General Population Allowable Limit:	5.59872800%

750 West Center St. Suite 301 | West Bridgewater, MA 02379

August 27, 2021

T-Mobile Connecticut
Attn: Ryan Clark, Site Acquisition Consultant

Emissions Analysis for Site: **CTNL124A**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed T-Mobile facility to be located a tower near **5 Tyler Dr, North Franklin CT 06254** for the purpose of determining whether the emissions from the proposed facility 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 (µW/cm2). The number of µW/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.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm^2). The general population exposure limits for the the 600MHz (LTE and NR) is 400 µW/cm^2, 700MHz (LTE) is 467 µW/cm^2, 1900MHz (PCS), 2100MHz (B46), and 2500MHz (LTE and NR) bands is 1000 µW/cm^2.

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, 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 performed for the proposed facility using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing focused omnidirectional 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 manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. This is a very conservative estimate since the gain reduction in actual applications is typically greater than 10 dB in the direction of ground immediately surrounding the facility. Real world emissions values from this facility are expected to be lower than values listed in this report at ground level. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

RRH #	Frequency Band	Technology	Channel Count	Transmit Power per Channel (W)
1	2100	LTE	2	80
1	1900	LTE	2	80
2	1900	GSM	1	15
3	700	LTE	4	60
3	600	LTE	4	40
3	600	NR	4	40
4	2500	LTE	1	30
4	2500	NR	1	30
4	2500	LTE	1	90
4	2500	NR	1	90
5	2100	LTE	2	80
5	1900	LTE	2	80
6	1900	GSM	1	15
7	700	LTE	4	60
7	600	LTE	4	40

7	600	NR	4	40
8	2500	LTE	1	30
8	2500	NR	1	30
8	2500	LTE	1	90
8	2500	NR	1	90
9	2100	LTE	2	80
9	1900	LTE	2	80
10	1900	GSM	1	15
11	700	LTE	4	60
11	600	LTE	4	40
11	600	NR	4	40
12	2500	LTE	1	30
12	2500	NR	1	30
12	2500	LTE	1	90
12	2500	NR	1	90

Table 1: Channel Data Table

The following antennas listed in Table 2 were used in the modeling for transmission in the 600MHz (LTE and NR), 700MHz (LTE), 1900MHz (PCS), 2100MHz (B46), and 2500MHz (LTE and NR) frequency bands. This is based on information from the carrier with regard to anticipated antenna selection.

Sector	Antenna Number	Make / Model	Centerline (ft)
A	1	RFS APX16DWV-16DWVS-E-A20	155.0
A	1	RFS APX16DWV-16DWVS-E-A20	155.0
A	1	RFS APX16DWV-16DWVS-E-A20	155.0
A	2	RFS APXVAALL24 43-U-NA20	155.0
A	2	RFS APXVAALL24 43-U-NA20	155.0
A	2	RFS APXVAALL24 43-U-NA20	155.0
A	3	ERICSSON AIR6449 LTE BrM 02DT	155.0
A	3	ERICSSON AIR6449 NR BrM 02DT	155.0
A	3	ERICSSON SON_AIR6449 2500 LTE TB	155.0
A	3	ERICSSON SON_AIR6449 2500 NR TB	155.0
B	4	RFS APX16DWV-16DWVS-E-A20	155.0
B	4	RFS APX16DWV-16DWVS-E-A20	155.0
B	4	RFS APX16DWV-16DWVS-E-A20	155.0
B	5	RFS APXVAALL24 43-U-NA20	155.0
B	5	RFS APXVAALL24 43-U-NA20	155.0
B	5	RFS APXVAALL24 43-U-NA20	155.0
B	6	ERICSSON AIR6449 LTE BrM 02DT	155.0
B	6	ERICSSON AIR6449 NR BrM 02DT	155.0
B	6	ERICSSON SON_AIR6449 2500 LTE TB	155.0
B	6	ERICSSON SON_AIR6449 2500 NR TB	155.0
C	7	RFS APX16DWV-16DWVS-E-A20	155.0
C	7	RFS APX16DWV-16DWVS-E-A20	155.0
C	7	RFS APX16DWV-16DWVS-E-A20	155.0
C	8	RFS APXVAALL24 43-U-NA20	155.0
C	8	RFS APXVAALL24 43-U-NA20	155.0
C	8	RFS APXVAALL24 43-U-NA20	155.0
C	9	ERICSSON AIR6449 LTE BrM 02DT	155.0
C	9	ERICSSON AIR6449 NR BrM 02DT	155.0
C	9	ERICSSON SON_AIR6449 2500 LTE TB	155.0
C	9	ERICSSON SON_AIR6449 2500 NR TB	155.0

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Results

Per the calculations completed for the proposed T-Mobile configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

ID	Make / Model	Frequency Band	Gain (dBd)	Centerline (ft)	Channel Count	TX Power (W)	ERP (W)	MPE %
T-Mobile A 1	RFS APX16DWV-16DWVS-E-A20	2100	16.25	155.0	2	80	6747.14	0.000009000
T-Mobile A 1	RFS APX16DWV-16DWVS-E-A20	1900	16.25	155.0	2	80	6747.14	0.000009000
T-Mobile A 1	RFS APX16DWV-16DWVS-E-A20	1900	16.25	155.0	1	15	632.54	0.000001000
T-Mobile A 2	RFS APXVAALL24 43-U-NA20	700	13.65	155.0	4	60	5561.75	0.000017000
T-Mobile A 2	RFS APXVAALL24 43-U-NA20	600	12.95	155.0	4	40	3155.88	0.000009000
T-Mobile A 2	RFS APXVAALL24 43-U-NA20	600	12.95	155.0	4	40	3155.88	0.000007000
T-Mobile A 3	ERICSSON AIR6449	2500	15.15	155.0	1	30	982.02	0.000002000
T-Mobile A 3	ERICSSON AIR6449	2500	15.15	155.0	1	30	982.02	0.000002000
T-Mobile A 3	ERICSSON AIR6449	2500	22.35	155.0	1	90	15461.18	0.933150000
T-Mobile A 3	ERICSSON AIR6449	2500	22.35	155.0	1	90	15461.18	0.933150000
T-Mobile B 4	RFS APX16DWV-16DWVS-E-A20	2100	16.25	155.0	2	80	6747.14	0.000009000
T-Mobile B 4	RFS APX16DWV-16DWVS-E-A20	1900	16.25	155.0	2	80	6747.14	0.000009000
T-Mobile B 4	RFS APX16DWV-16DWVS-E-A20	1900	16.25	155.0	1	15	632.54	0.000001000
T-Mobile B 5	RFS APXVAALL24 43-U-NA20	700	13.65	155.0	4	60	5561.75	0.000017000
T-Mobile B 5	RFS APXVAALL24 43-U-NA20	600	12.95	155.0	4	40	3155.88	0.000009000
T-Mobile B 5	RFS APXVAALL24 43-U-NA20	600	12.95	155.0	4	40	3155.88	0.000007000
T-Mobile B 6	ERICSSON AIR6449	2500	15.15	155.0	1	30	982.02	0.000002000
T-Mobile B 6	ERICSSON AIR6449	2500	15.15	155.0	1	30	982.02	0.000002000
T-Mobile B 6	ERICSSON AIR6449	2500	22.35	155.0	1	90	15461.18	0.933150000
T-Mobile B 6	ERICSSON AIR6449	2500	22.35	155.0	1	90	15461.18	0.933150000
T-Mobile C 7	RFS APX16DWV-16DWVS-E-A20	2100	16.25	155.0	2	80	6747.14	0.000009000
T-Mobile C 7	RFS APX16DWV-16DWVS-E-A20	1900	16.25	155.0	2	80	6747.14	0.000009000
T-Mobile C 7	RFS APX16DWV-16DWVS-E-A20	1900	16.25	155.0	1	15	632.54	0.000001000
T-Mobile C 8	RFS APXVAALL24 43-U-NA20	700	13.65	155.0	4	60	5561.75	0.000017000
T-Mobile C 8	RFS APXVAALL24 43-U-NA20	600	12.95	155.0	4	40	3155.88	0.000009000
T-Mobile C 8	RFS APXVAALL24 43-U-NA20	600	12.95	155.0	4	40	3155.88	0.000007000
T-Mobile C 9	ERICSSON AIR6449	2500	15.15	155.0	1	30	982.02	0.000002000
T-Mobile C 9	ERICSSON AIR6449	2500	15.15	155.0	1	30	982.02	0.000002000
T-Mobile C 9	ERICSSON AIR6449	2500	22.35	155.0	1	90	15461.18	0.932937000
T-Mobile C 9	ERICSSON AIR6449	2500	22.35	155.0	1	90	15461.18	0.932937000
T-Mobile MPE%								**5.59864200 %**

Table 3: T-Mobile Antenna Inventory & Power Level

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 4* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-Mobile sector(s).

Frequency Band	Technology	Centerline (ft.)	# of Channels	ERP W (Per Channel)	Total Power Density ($\mu W/cm^2$)	Allowable MPE ($\mu W/cm^2$)	MPE %
2100	LTE	155.0	4	6747.14	0.0000930	1000	0.00000900
1900	LTE	155.0	4	6747.14	0.0000930	1000	0.00000900
1900	GSM	155.0	1	632.54	0.0000090	1000	0.00000100
700	LTE	155.0	4	5561.75	0.0000820	467	0.00001700
600	LTE	155.0	2	3155.88	0.0000370	400	0.00000900
600	NR	155.0	2	3155.88	0.0000270	400	0.00000700
2500	LTE	155.0	1	982.02	0.0000170	1000	0.00000200
2500	NR	155.0	1	982.02	0.0000170	1000	0.00000200
2500	LTE	155.0	1	15461.18	9.3315020	1000	0.93315000
2500	NR	155.0	1	15461.18	9.3315020	1000	0.93315000
2100	LTE	155.0	4	6747.14	0.0000940	1000	0.00000900
1900	LTE	155.0	4	6747.14	0.0000950	1000	0.00000900
1900	GSM	155.0	1	632.54	0.0000090	1000	0.00000100
700	LTE	155.0	4	5561.75	0.0000820	467	0.00001700
600	LTE	155.0	2	3155.88	0.0000360	400	0.00000900
600	NR	155.0	2	3155.88	0.0000270	400	0.00000700
2500	LTE	155.0	1	982.02	0.0000170	1000	0.00000200
2500	NR	155.0	1	982.02	0.0000170	1000	0.00000200
2500	LTE	155.0	1	15461.18	9.3315020	1000	0.93315000
2500	NR	155.0	1	15461.18	9.3315020	1000	0.93315000
2100	LTE	155.0	4	6747.14	0.0000940	1000	0.00000900
1900	LTE	155.0	4	6747.14	0.0000930	1000	0.00000900
1900	GSM	155.0	1	632.54	0.0000090	1000	0.00000100
700	LTE	155.0	4	5561.75	0.0000810	467	0.00001700
600	LTE	155.0	2	3155.88	0.0000370	400	0.00000900
600	NR	155.0	2	3155.88	0.0000280	400	0.00000700
2500	LTE	155.0	1	982.02	0.0000170	1000	0.00000200
2500	NR	155.0	1	982.02	0.0000170	1000	0.00000200
2500	LTE	155.0	1	15461.18	9.3293720	1000	0.93293700
2500	NR	155.0	1	15461.18	9.3293720	1000	0.93293700
T-Mobile MPE%							**5.59864200 %**

Table 4: T-Mobile Maximum Sector MPE Power Values

AT&T Results

Per the calculations completed for the proposed AT&Tconfigurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

ID	Make / Model	Frequency Band	Gain (dBd)	Centerline (ft)	Channel Count	TX Power (W)	ERP (W)	MPE %
AT&T A 10	POWERWAVE 7750 00	1900	15.55	171.1	1	40	1435.6877	0.000001000
AT&T A 11	KATHREIN 80010966	700	13.15	171.1	4	40	3304.6082	0.000007000
AT&T A 11	KATHREIN 80010966	850	13.85	171.1	4	40	3882.5762	0.000006000
AT&T A 11	KATHREIN 80010966	1900	15.75	171.1	4	40	6013.3985	0.000005000
AT&T A 11	KATHREIN 80010966	2100	16.65	171.1	4	40	7398.0963	0.000005000
AT&T A 12	CCI HPA65R-BU8A	2300	16.4	171.1	4	25	4365.1583	0.000002000
AT&T B 13	POWERWAVE 7770 00	1900	13.35	171.1	1	40	865.0874	0.000001000
AT&T B 14	KATHREIN 80010965	700	12.15	171.1	4	40	2624.9436	0.000008000
AT&T B 14	KATHREIN 80010965	850	13.45	171.1	4	40	3540.9515	0.000006000
AT&T B 14	KATHREIN 80010965	1900	15.65	171.1	4	40	5876.5168	0.000005000
AT&T B 14	KATHREIN 80010965	2100	16.45	171.1	4	40	7065.1272	0.000004000
AT&T B 15	CCI HPA65R-BU6A	2300	15.25	171.1	4	25	3349.6544	0.000002000
AT&T C 16	POWERWAVE 7770 00	1900	13.35	171.1	1	40	865.0874	0.000001000
AT&T C 17	KATHREIN 80010965	700	12.15	171.1	4	40	2624.9436	0.000008000
AT&T C 17	KATHREIN 80010965	850	13.45	171.1	4	40	3540.9515	0.000007000
AT&T C 17	KATHREIN 80010965	1900	15.65	171.1	4	40	5876.5168	0.000005000
AT&T C 17	KATHREIN 80010965	2100	16.45	171.1	4	40	7065.1272	0.000004000
AT&T C 18	CCI HPA65R-BU6A	2300	15.25	171.1	4	25	3349.6544	0.000002000
AT&T MPE%								**0.00007900%**

Table 3: AT&T Antenna Inventory & Power Level

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 4* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s).

Frequency Band	Technology	Centerline (ft.)	# of Channels	ERP W (Per Channel)	Total Power Density ($\mu W/cm^2$)	Allowable MPE ($\mu W/cm^2$)	MPE %
1900	0	171.1	1	1435.687739	0.0000100	1000	0.00000100
700	0	171.1	4	826.1520623	0.0000320	467	0.00000700
850	0	171.1	4	970.644038	0.0000340	567	0.00000600
1900	0	171.1	4	1503.349617	0.0000500	1000	0.00000500
2100	0	171.1	4	1849.524086	0.0000480	1000	0.00000500
2300	0	171.1	4	1091.289581	0.0000210	1000	0.00000200
1900	0	171.1	1	865.0874095	0.0000080	1000	0.00000100
700	0	171.1	4	656.2359093	0.0000360	467	0.00000800
850	0	171.1	4	885.2378838	0.0000360	567	0.00000600
1900	0	171.1	4	1469.129202	0.0000470	1000	0.00000500
2100	0	171.1	4	1766.281789	0.0000380	1000	0.00000400
2300	0	171.1	4	837.4135979	0.0000200	1000	0.00000200
1900	0	171.1	1	865.0874095	0.0000090	1000	0.00000100
700	0	171.1	4	656.2359093	0.0000390	467	0.00000800
850	0	171.1	4	885.2378838	0.0000390	567	0.00000700
1900	0	171.1	4	1469.129202	0.0000500	1000	0.00000500
2100	0	171.1	4	1766.281789	0.0000410	1000	0.00000400
2300	0	171.1	4	837.4135979	0.0000220	1000	0.00000200
AT&T MPE%							**0.00007900%**

Table 4: AT&T Maximum Sector MPE Power Values

Unknown Carrier Results

Per the calculations completed for the proposed Unknown Carrier configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

ID	Make / Model	Frequency Band	Gain (dBd)	Centerline (ft)	Channel Count	TX Power (W)	ERP (W)	MPE %
Unknown 19	GENERIC OMNI	850	8.96	186.7	1	100	787.0458	0.000001000
Unknown 20	GENERIC OMNI	850	8.96	186.7	1	100	787.0458	0.000001000
Unknown 21	GENERIC OMNI	850	5.96	183.3	1	100	394.4573	0.000001000
Unknown 22	GENERIC OMNI	850	8.96	102.2	1	100	787.0458	0.000004000
Unknown Carrier MPE%								**0.00000700 %**

Table 3: Unknown Carrier Antenna Inventory & Power Level

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 4* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated Unknown Carrier sector(s).

Frequency Band	Technology	Centerline (ft.)	# of Channels	ERP W (Per Channel)	Total Power Density ($\mu W/cm^2$)	Allowable MPE ($\mu W/cm^2$)	MPE %
850	0	186.7	1	787.0457897	0.0000060	567	0.00000100
850	0	186.7	1	787.0457897	0.0000060	567	0.00000100
850	0	183.3	1	394.4573021	0.0000060	567	0.00000100
850	0	102.2	1	787.0457897	0.0000220	567	0.00000400
Unknown Carrier MPE%							**0.00000700 %**

Table 4: Unknown Carrier Maximum Sector MPE Power Values

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:

Carrier	Predicted MPE %
T-Mobile	5.59864200%
AT&T	0.00007900%
Unknown	0.00000700%
Composite	**5.59872800%**

Table 5: Total Predicted MPE(%) by Carrier

Compliance Status:

The anticipated composite MPE value for this site assuming all carriers present is **5.59872800%** of the allowable FCC established general population limit sampled at the ground level.

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.

Samuel Cosgrove
RF Compliance Consultant
Centerline Communications, LLC
750 West Center St. Suite 301
West Bridgewater, MA 02379

EXHIBIT 8

Structural Analysis

STRUCTURAL ANALYSIS REPORT

For

SITE NUMBER: CTNL124A (NSB)
SBA ID NUMBER: CT34702-M-02
SITE NAME: NORTH FRANKLIN, CT

5 Tyler Drive
North Franklin, CT 06254

Antennas Mounted on the Tower

Prepared for:

SBA T-Mobile

Dated: August 2, 2021 (Rev.1)
July 19, 2021

Prepared by:

HDG HUDSON Design Group LLC

STATE OF CONNECTICUT
DANIEL HAMM
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SCOPE OF WORK:

Hudson Design Group, LLC (HDG) has been authorized by T-Mobile to conduct a structural evaluation of the 180' self-supporting tower supporting the proposed T-Mobile's antennas located at elevation 155' above the ground level.

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

The following documents were used for our reference:

- Tower Design Drawings prepared by Valmont Industries, Inc., dated February 4, 2010.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing tower **is in conformance** with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **98.9 %** - (Diagonals at Tower Section - T2 from EL.150' to EL.170' Controlling).

HUDSON
Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	(1) Lightning Rod	182'	Side Mount Standoff
	(1) 20' Omni Antenna	187'	Side Mount Standoff
	(1) 20' Omni Antenna	186.5'	Side Mount Standoff
	(1) 8' Dipole Antenna	183'	Side Mount Standoff
	(2) 7770 Antennas	169'	T - Frame Mount
	(1) 7750 Antenna	169'	T - Frame Mount
	(3) TT08-19DB111-001 TMA's	169'	T - Frame Mount
	(2) 800 10965 Antennas	169'	T - Frame Mount
	(1) 800 10966 Antenna	169'	T - Frame Mount
	(2) HPA-65R-BU6AA Antennas	169'	T - Frame Mount
	(1) HPA-65R-BU8AA Antenna	169'	T - Frame Mount
	(3) B5/B12 4449 RRH's	169'	T - Frame Mount
	(3) B2/B66A 8843 RRH's	169'	T - Frame Mount
	(2) Squid Surge Arrestors	169'	Tower Leg
T-Mobile	**(3) APX16DWV-16DWV-S-E-A20 Antennas**	155'	V – Frame Mount
T-Mobile	**(3) APXVAALL24_43-U-NA20 Antennas**	155'	V – Frame Mount
T-Mobile	**(3) AIR6449 B41 Antennas**	155'	V – Frame Mount
T-Mobile	**(3) 4460 B25+B66 RRH's**	155'	V – Frame Mount
T-Mobile	**(3) 4480 B71+B85 RRH's**	155'	V – Frame Mount
	(1) 20' Omni Antenna	100.5'	Side Mount Standoff

Proposed T-Mobile Appurtenances shown in Bold.

T-MOBILE EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
T-Mobile	**(3) Hybrid Cables**	155'	Tower Face

Proposed T-Mobile Coax Cables shown in Bold.

HUDSON Design Group LLC

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Legs	69.1 %	80 – 100	PASS	
Diagonals	**98.9 %**	150 – 170	PASS	**Controlling**
Top Girt	9.6 %	150 – 170	PASS	

FOUNDATION COMPARISON SUMMARY:

	Original Design Reactions	Proposed Reactions	Pass/Fail	Comments
Compression	572.0 k	**365.0 k**	PASS	
Uplift	526.0 k	**327.1 k**	PASS	
Shear	95.0 k	**57.0 k**	PASS	

DESIGN CRITERIA:

1. EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   County: New London
   Ultimate Wind Speed: 130 mph (3 second gust)
   Structural Class: II
   Exposure Category: C
   Topographic Category: 1
   Nominal Ice Thickness: 1 inch

2. Approximate height above grade to proposed antennas: 155'.

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

2. The tower and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

SUPPORT RECOMMENDATIONS:

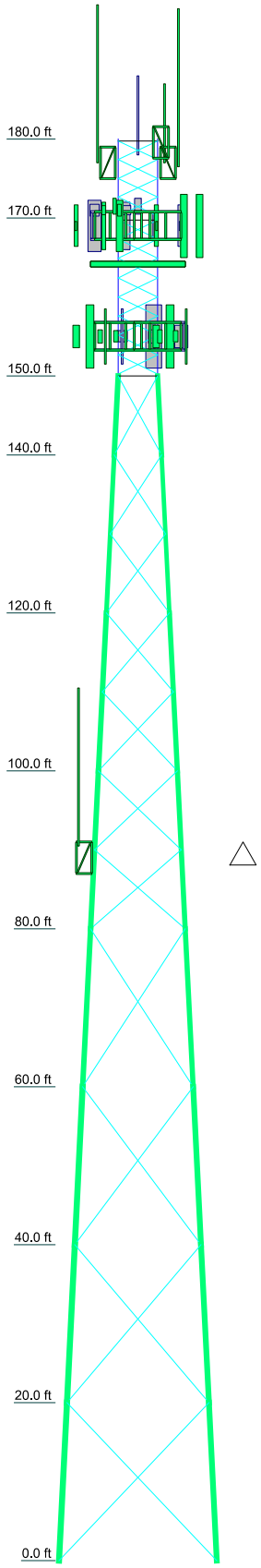
HDG recommends that the proposed antennas and RRHs be mounted on the proposed mount supported by the tower.

Photo 1: Photo illustrating the Tower with Appurtenances shown.

HUDSON
Design Group LLC

CALCULATIONS

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs		SR 1 3/4		A	Pirod 105217	Pirod 105218		Pirod 105219	Pirod 105220 (CT1264)	Pirod 105221 (CT1264)	
Leg Grade		A572-50									
Diagonals		SR 7/8		B	L3x3x3/16	L3x3x5/16		2L3 1/2x3 1/2x1/4			
Diagonal Grade		A572-50			A36						
Top Girts		SR 1		L3x3x3/16	N.A.						
Face Width (ft)	20	5		6	8	10	12	14	16	18	
# Panels @ (ft)		4 @ 2.375	8 @ 2.4375		7 @ 10			4 @ 20			
Weight (lb)	31368.2	557.5	1077.5	1234.4	2316.3	2758.5	3240.3	4349.0	4843.6	5449.4	5541.7



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Omni 3"x20'	187	12'-6" 2" Steel Pipe	166
Omni 3"x20'	186.5	Sector Stabilizer Kit SFS-V	166
8' Dipole	183	12'-6" 2" Steel Pipe	166
Lightning Rod	182	Sector Stabilizer Kit SFS-V	166
1' Side Mount Standoff	179.6	SitePro1 VFA12-HD Mount	155
3' Side Mount Standoff	177	APX16DWV-16DWVS-E-A20 w/ Mounting Pipe	155
3' Side Mount Standoff	177	7'x2" Antenna Mount Pipe	155
3' Side Mount Standoff	177	APXVAALL24_43-U-NA20 w/Mounting Pipe	155
PiROD 12' T-Frame	169	AIR 6449 B41 w/Mounting Pipe	155
800-10965 w/ Mounting Pipe	169	4460 B25 + B66 RRH	155
OPA65R-BU6DA w/ Mounting Pipe	169	4480 B71 + B85 RRH	155
Powerwave 7770 w/Mounting Pipe	169	SitePro1 VFA12-HD Mount	155
B5/B12 4449 RRH	169	APX16DWV-16DWVS-E-A20 w/ Mounting Pipe	155
B2/B66A 8843 RRH	169	7'x2" Antenna Mount Pipe	155
TT08-19DB111-001 TMA	169	APXVAALL24_43-U-NA20 w/Mounting Pipe	155
Squid Surge Arrestor	169	AIR 6449 B41 w/Mounting Pipe	155
PiROD 12' T-Frame	169	4460 B25 + B66 RRH	155
800-10965 w/ Mounting Pipe	169	4480 B71 + B85 RRH	155
OPA65R-BU6DA w/ Mounting Pipe	169	SitePro1 VFA12-HD Mount	155
Powerwave 7770 w/Mounting Pipe	169	APX16DWV-16DWVS-E-A20 w/ Mounting Pipe	155
B5/B12 4449 RRH	169	7'x2" Antenna Mount Pipe	155
B2/B66A 8843 RRH	169	APXVAALL24_43-U-NA20 w/Mounting Pipe	155
TT08-19DB111-001 TMA	169	AIR 6449 B41 w/Mounting Pipe	155
Squid Surge Arrestor	169	4460 B25 + B66 RRH	155
PiROD 12' T-Frame	169	4480 B71 + B85 RRH	155
800-10966 w/ Mounting Pipe	169	SitePro1 VFA12-HD Mount	155
OPA65R-BU8DA w/ Mounting Pipe	169	APX16DWV-16DWVS-E-A20 w/ Mounting Pipe	155
Powerwave 7770 w/Mounting Pipe	169	7'x2" Antenna Mount Pipe	155
B5/B12 4449 RRH	169	APXVAALL24_43-U-NA20 w/Mounting Pipe	155
B2/B66A 8843 RRH	169	AIR 6449 B41 w/Mounting Pipe	155
TT08-19DB111-001 TMA	169	4460 B25 + B66 RRH	155
12'-6" 2" Steel Pipe	166	4480 B71 + B85 RRH	155
Sector Stabilizer Kit SFS-V	166	Omni 3"x20'	100.5
		3' Side Mount Standoff	89

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pirod 105245	B	L2 1/2x2 1/2x3/16

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

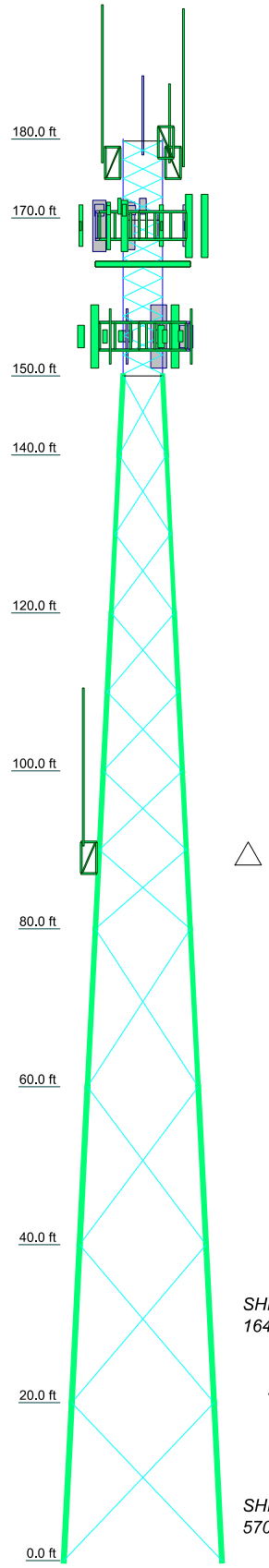
TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft

Hudson Design Group LLC
45 Beechwood Drive
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: ***CTNL124A***		
Project: ***180 ft Self Supporting Tower***		
Client: T-Mobile	Drawn by: RL	App'd:
Code: TIA-222-H	Date: 08/02/21	Scale: NTS
Path: Z:\Shared\Work\2-DSTRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\TnxTower\Tnx Projects\T-MOBILE\CT\CTNL124A - SST\NS\BCTNL124A.eri		Dwg No. E-1

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10		
Legs			SR 1 3/4	A	Pirod 105217	Pirod 105218		Pirod 105219	Pirod 105220 (CT1264)	Pirod 105221 (CT1264)			
Leg Grade							A572-50						
Diagonals				SR 7/8	B	L3x3x3/16	L3x3x5/16		2L3 1/2x3 1/2x1/4				
Diagonal Grade				A572-50			A36						
Top Girts				SR 1	L3x3x3/16		N.A.						
Face Width (ft)	20	5			6	8	10	12	14	16	18		
# Panels @ (ft)		4 @ 2.375	8 @ 2.4375			7 @ 10			4 @ 20				
Weight (lb)	31368.2	557.5	1077.5	1234.4	2316.3	2758.5	3240.3	4349.0	4843.6	5449.4	5541.7		



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pirod 105245	B	L2 1/2x2 1/2x3/16

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

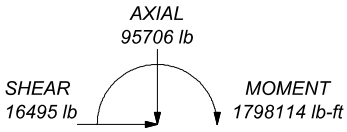
TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 98.9%

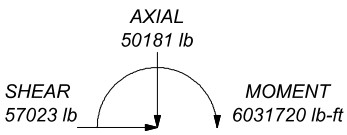
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 364968 lb
SHEAR: 36812 lb

UPLIFT: -327087 lb
SHEAR: 33523 lb



TORQUE 39023 lb-ft
50 mph WIND - 1.0000 in ICE



TORQUE 107125 lb-ft
REACTIONS - 130 mph WIND

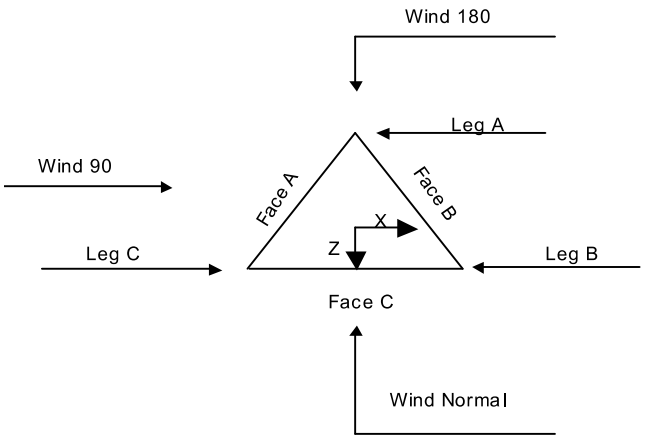
Hudson Design Group LLC
45 Beechwood Drive
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: **CTNL124A**		
Project: ***180 ft Self Supporting Tower***		
Client: T-Mobile	Drawn by: RL	App'd:
Code: TIA-222-H	Date: 08/02/21	Scale: NTS
Path: Z:\Shared\Work2-DSTRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\TnxTower\Tnx Projects\T-MOBILE\CT\CTNL124A - SST\NS\CTNL124A.eri		Dwg No. E-1

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 20.00 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Tower base elevation above sea level: 0.00 ft.
Basic wind speed of 130 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 tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	180.00-170.00			5.00	1	10.00
T2	170.00-150.00			5.00	1	20.00
T3	150.00-140.00			5.00	1	10.00
T4	140.00-120.00			6.00	1	20.00
T5	120.00-100.00			8.00	1	20.00
T6	100.00-80.00			10.00	1	20.00
T7	80.00-60.00			12.00	1	20.00
T8	60.00-40.00			14.00	1	20.00
T9	40.00-20.00			16.00	1	20.00
T10	20.00-0.00			18.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	180.00-170.00	2.38	X Brace	No	No	3.0000	3.0000
T2	170.00-150.00	2.44	X Brace	No	No	3.0000	3.0000
T3	150.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T5	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T6	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	20.00	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	20.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	20.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-170.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 170.00-150.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 150.00-140.00	Truss Leg	Pirod 105245	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T4 140.00-120.00	Truss Leg	Pirod 105217	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T5 120.00-100.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 100.00-80.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T7 80.00-60.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)
T8 60.00-40.00	Truss Leg	Pirod 105220 (CT1264)	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)
T9 40.00-20.00	Truss Leg	Pirod 105221 (CT1264)	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)
T10 20.00-0.00	Truss Leg	Pirod 105221 (CT1264)	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-170.00	Solid Round	1	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T2 170.00-150.00	Solid Round	1	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T3 150.00-140.00	Equal Angle	L3x3x3/16	A36 (36 ksi)	Pipe		A36 (36 ksi)

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
7/8" Coax Line	A	No	No	CaAa (In Face)	177.00 - 6.00	-3.0000	-0.5	3	No Ice 1/2" Ice 1" Ice	0.09 0.20 0.29	0.30 1.19 2.68
7/8" Coax Line	A	No	No	CaAa (In Face)	89.00 - 6.00	-3.0000	-0.5	1	No Ice 1/2" Ice 1" Ice	0.09 0.20 0.29	0.30 1.19 2.68
**********											
1 5/8 Cable	A	No	No	CaAa (In Face)	169.00 - 6.00	-3.0000	-0.5	12	No Ice 1/2" Ice 1" Ice	0.16 0.26 0.36	1.04 2.34 4.25
Fiber	A	No	No	CaAa (In Face)	169.00 - 6.00	-3.0000	-0.5	2	No Ice 1/2" Ice 1" Ice	0.13 0.23 0.32	0.25 1.32 3.00
DC Cable	A	No	No	CaAa (In Face)	169.00 - 6.00	-3.0000	-0.5	4	No Ice 1/2" Ice 1" Ice	0.13 0.20 0.30	0.25 1.14 2.64
**********											
Hybrid Cable	C	No	No	CaAa (In Face)	155.00 - 6.00	-3.0000	-0.5	3	No Ice 1/2" Ice 1" Ice	0.13 0.23 0.32	2.35 3.42 5.09

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Omni 3"x20'	C	From Leg	3.00	0.0000	187.00	No Ice	5.99	5.99	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00			1" Ice	10.08	10.08	149.01
Omni 3"x20'	B	From Leg	3.00	0.0000	186.50	No Ice	5.99	5.99	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00			1" Ice	10.08	10.08	149.01
8' Dipole	A	From Leg	3.00	0.0000	183.00	No Ice	2.40	2.40	25.00
			0.00			1/2" Ice	3.19	3.19	42.51
			0.00			1" Ice	3.67	3.67	65.37
Lightning Rod	B	From Leg	1.00	0.0000	182.00	No Ice	0.75	0.75	10.00
			0.00			1/2" Ice	1.25	1.25	40.00
			0.00			1" Ice	1.75	1.75	70.00
1' Side Mount Standoff	B	From Leg	0.50	0.0000	179.60	No Ice	0.13	0.40	30.00
			0.00			1/2" Ice	0.18	0.49	34.31
			0.00			1" Ice	0.24	0.59	40.11
3' Side Mount Standoff	C	From Leg	1.50	0.0000	177.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
3' Side Mount Standoff	B	From Leg	1.50	0.0000	177.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
3' Side Mount Standoff	A	From Leg	1.50	0.0000	177.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
**********									
PiROD 12' T-Frame	C	From Leg	0.00	0.0000	169.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
12'-6" 2" Steel Pipe	C	From Leg	0.00	0.0000	166.00	No Ice	2.97	0.05	45.75
			0.00			1/2" Ice	3.82	0.08	74.07
			-1.50			1" Ice	4.68	0.11	112.62
Sector Stabilizer Kit SFS-V	C	From Leg	0.00	0.0000	166.00	No Ice	2.84	2.67	66.00
			0.00			1/2" Ice	3.30	3.09	84.00
			-1.50			1" Ice	3.84	3.58	113.00
800-10965 w/ Mounting Pipe	C	From Leg	3.00	0.0000	169.00	No Ice	13.81	7.26	130.90
			-5.50			1/2" Ice	14.35	8.25	223.32
			0.00			1" Ice	14.89	9.12	324.46
OPA65R-BU6DA w/ Mounting Pipe	C	From Leg	3.00	0.0000	169.00	No Ice	7.87	7.43	79.90
			-1.50			1/2" Ice	8.32	8.39	148.27
			0.00			1" Ice	8.79	9.22	224.43
Powerwave 7770 w/Mounting Pipe	C	From Leg	3.00	0.0000	169.00	No Ice	6.64	4.90	49.90
			5.50			1/2" Ice	7.11	5.79	102.83
			0.00			1" Ice	7.56	6.55	162.75
B5/B12 4449 RRH	C	From Leg	3.00	0.0000	169.00	No Ice	1.97	1.40	73.00
			-5.50			1/2" Ice	2.15	1.56	91.48
			2.00			1" Ice	2.33	1.72	112.77
B2/B66A 8843 RRH	C	From Leg	3.00	0.0000	169.00	No Ice	1.64	1.35	72.00
			-1.50			1/2" Ice	1.80	1.50	89.60
			2.00			1" Ice	1.97	1.65	109.91
TT08-19DB111-001 TMA	C	From Leg	3.00	0.0000	169.00	No Ice	0.79	0.64	22.00
			5.50			1/2" Ice	0.91	0.75	29.63
			0.00			1" Ice	1.04	0.87	39.15
Squid Surge Arrestor	C	From Leg	0.50	0.0000	169.00	No Ice	0.81	0.81	33.00
			0.00			1/2" Ice	1.30	1.30	48.38

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			2.50			1" Ice	1.48	1.48	66.11
PiROD 12' T-Frame	A	From Leg	0.00	0.0000	169.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
12'-6" 2" Steel Pipe	A	From Leg	0.00	0.0000	166.00	No Ice	2.97	0.05	45.75
			0.00			1/2" Ice	3.82	0.08	74.07
			-1.50			1" Ice	4.68	0.11	112.62
Sector Stabilizer Kit SFS-V	A	From Leg	0.00	0.0000	166.00	No Ice	2.84	2.67	66.00
			0.00			1/2" Ice	3.30	3.09	84.00
			-1.50			1" Ice	3.84	3.58	113.00
800-10965 w/ Mounting Pipe	A	From Leg	3.00	0.0000	169.00	No Ice	13.81	7.26	130.90
			-5.50			1/2" Ice	14.35	8.25	223.32
			0.00			1" Ice	14.89	9.12	324.46
OPA65R-BU6DA w/ Mounting Pipe	A	From Leg	3.00	0.0000	169.00	No Ice	7.87	7.43	79.90
			-1.50			1/2" Ice	8.32	8.39	148.27
			0.00			1" Ice	8.79	9.22	224.43
Powerwave 7770 w/Mounting Pipe	A	From Leg	3.00	0.0000	169.00	No Ice	6.64	4.90	49.90
			5.50			1/2" Ice	7.11	5.79	102.83
			0.00			1" Ice	7.56	6.55	162.75
B5/B12 4449 RRH	A	From Leg	3.00	0.0000	169.00	No Ice	1.97	1.40	73.00
			-5.50			1/2" Ice	2.15	1.56	91.48
			2.00			1" Ice	2.33	1.72	112.77
B2/B66A 8843 RRH	A	From Leg	3.00	0.0000	169.00	No Ice	1.64	1.35	72.00
			-1.50			1/2" Ice	1.80	1.50	89.60
			2.00			1" Ice	1.97	1.65	109.91
TT08-19DB111-001 TMA	A	From Leg	3.00	0.0000	169.00	No Ice	0.79	0.64	22.00
			5.50			1/2" Ice	0.91	0.75	29.63
			0.00			1" Ice	1.04	0.87	39.15
Squid Surge Arrestor	A	From Leg	0.50	0.0000	169.00	No Ice	0.81	0.81	33.00
			0.00			1/2" Ice	1.30	1.30	48.38
			2.50			1" Ice	1.48	1.48	66.11
PiROD 12' T-Frame	B	From Leg	0.00	0.0000	169.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
12'-6" 2" Steel Pipe	B	From Leg	0.00	0.0000	166.00	No Ice	2.97	0.05	45.75
			0.00			1/2" Ice	3.82	0.08	74.07
			-1.50			1" Ice	4.68	0.11	112.62
Sector Stabilizer Kit SFS-V	B	From Leg	0.00	0.0000	166.00	No Ice	2.84	2.67	66.00
			0.00			1/2" Ice	3.30	3.09	84.00
			-1.50			1" Ice	3.84	3.58	113.00
800-10966 w/ Mounting Pipe	B	From Leg	3.00	0.0000	169.00	No Ice	17.36	9.40	144.20
			-5.50			1/2" Ice	17.99	10.82	257.48
			0.00			1" Ice	18.63	12.09	380.99
OPA65R-BU8DA w/ Mounting Pipe	B	From Leg	3.00	0.0000	169.00	No Ice	18.09	10.10	106.20
			-1.50			1/2" Ice	18.72	11.52	226.28
			0.00			1" Ice	19.36	12.80	356.73
Powerwave 7770 w/Mounting Pipe	B	From Leg	3.00	0.0000	169.00	No Ice	6.64	4.90	49.90
			5.50			1/2" Ice	7.11	5.79	102.83
			0.00			1" Ice	7.56	6.55	162.75
B5/B12 4449 RRH	B	From Leg	3.00	0.0000	169.00	No Ice	1.97	1.40	73.00
			-5.50			1/2" Ice	2.15	1.56	91.48
			2.00			1" Ice	2.33	1.72	112.77
B2/B66A 8843 RRH	B	From Leg	3.00	0.0000	169.00	No Ice	1.64	1.35	72.00
			-1.50			1/2" Ice	1.80	1.50	89.60
			2.00			1" Ice	1.97	1.65	109.91
TT08-19DB111-001 TMA	B	From Leg	3.00	0.0000	169.00	No Ice	0.79	0.64	22.00
			5.50			1/2" Ice	0.91	0.75	29.63

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	1.04	0.87	39.15
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SitePro1 VFA12-HD Mount	C	From Leg	0.00	0.0000	155.00	No Ice	13.20	9.20	658.00
			0.00			1/2" Ice	19.50	14.60	804.00
			0.00			1" Ice	25.80	19.50	1015.00
APX16DWV-16DWVS-E-A20 w/ Mounting Pipe	C	From Leg	3.00	0.0000	155.00	No Ice	6.91	3.60	62.90
			-5.50			1/2" Ice	7.39	4.44	112.44
			0.00			1" Ice	7.86	5.15	168.54
7'x2" Antenna Mount Pipe	C	From Leg	3.00	0.0000	155.00	No Ice	1.66	1.66	26.00
			-2.00			1/2" Ice	2.39	2.39	38.58
			0.00			1" Ice	2.83	2.83	55.84
APXVAALL24_43-U-NA20 w/Mounting Pipe	C	From Leg	3.00	0.0000	155.00	No Ice	20.24	10.63	179.20
			2.00			1/2" Ice	20.89	12.06	312.11
			0.00			1" Ice	21.55	13.34	455.62
AIR 6449 B41 w/Mounting Pipe	C	From Leg	3.00	0.0000	155.00	No Ice	6.42	3.89	124.90
			5.50			1/2" Ice	7.00	4.62	179.59
			0.00			1" Ice	7.50	5.22	240.17
4460 B25 + B66 RRH	C	From Leg	1.50	0.0000	155.00	No Ice	2.14	1.69	104.00
			-2.00			1/2" Ice	2.32	1.85	126.16
			0.00			1" Ice	2.51	2.02	151.36
4480 B71 + B85 RRH	C	From Leg	1.50	0.0000	155.00	No Ice	2.43	1.20	93.00
			2.00			1/2" Ice	2.63	1.35	112.21
			0.00			1" Ice	2.83	1.51	134.33
SitePro1 VFA12-HD Mount	A	From Leg	0.00	0.0000	155.00	No Ice	13.20	9.20	658.00
			0.00			1/2" Ice	19.50	14.60	804.00
			0.00			1" Ice	25.80	19.50	1015.00
APX16DWV-16DWVS-E-A20 w/ Mounting Pipe	A	From Leg	3.00	0.0000	155.00	No Ice	6.91	3.60	62.90
			-5.50			1/2" Ice	7.39	4.44	112.44
			0.00			1" Ice	7.86	5.15	168.54
7'x2" Antenna Mount Pipe	A	From Leg	3.00	0.0000	155.00	No Ice	1.66	1.66	26.00
			-2.00			1/2" Ice	2.39	2.39	38.58
			0.00			1" Ice	2.83	2.83	55.84
APXVAALL24_43-U-NA20 w/Mounting Pipe	A	From Leg	3.00	0.0000	155.00	No Ice	20.24	10.63	179.20
			2.00			1/2" Ice	20.89	12.06	312.11
			0.00			1" Ice	21.55	13.34	455.62
AIR 6449 B41 w/Mounting Pipe	A	From Leg	3.00	0.0000	155.00	No Ice	6.42	3.89	124.90
			5.50			1/2" Ice	7.00	4.62	179.59
			0.00			1" Ice	7.50	5.22	240.17
4460 B25 + B66 RRH	A	From Leg	1.50	0.0000	155.00	No Ice	2.14	1.69	104.00
			-2.00			1/2" Ice	2.32	1.85	126.16
			0.00			1" Ice	2.51	2.02	151.36
4480 B71 + B85 RRH	A	From Leg	1.50	0.0000	155.00	No Ice	2.43	1.20	93.00
			2.00			1/2" Ice	2.63	1.35	112.21
			0.00			1" Ice	2.83	1.51	134.33
SitePro1 VFA12-HD Mount	B	From Leg	0.00	0.0000	155.00	No Ice	13.20	9.20	658.00
			0.00			1/2" Ice	19.50	14.60	804.00
			0.00			1" Ice	25.80	19.50	1015.00
APX16DWV-16DWVS-E-A20 w/ Mounting Pipe	B	From Leg	3.00	0.0000	155.00	No Ice	6.91	3.60	62.90
			-5.50			1/2" Ice	7.39	4.44	112.44
			0.00			1" Ice	7.86	5.15	168.54
7'x2" Antenna Mount Pipe	B	From Leg	3.00	0.0000	155.00	No Ice	1.66	1.66	26.00
			-2.00			1/2" Ice	2.39	2.39	38.58
			0.00			1" Ice	2.83	2.83	55.84
APXVAALL24_43-U-NA20 w/Mounting Pipe	B	From Leg	3.00	0.0000	155.00	No Ice	20.24	10.63	179.20
			2.00			1/2" Ice	20.89	12.06	312.11
			0.00			1" Ice	21.55	13.34	455.62
AIR 6449 B41 w/Mounting	B	From Leg	3.00	0.0000	155.00	No Ice	6.42	3.89	124.90

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Pipe			5.50			1/2" Ice	7.00	4.62	179.59
			0.00			1" Ice	7.50	5.22	240.17
4460 B25 + B66 RRH	B	From Leg	1.50	0.0000	155.00	No Ice	2.14	1.69	104.00
			-2.00			1/2" Ice	2.32	1.85	126.16
			0.00			1" Ice	2.51	2.02	151.36
4480 B71 + B85 RRH	B	From Leg	1.50	0.0000	155.00	No Ice	2.43	1.20	93.00
			2.00			1/2" Ice	2.63	1.35	112.21
			0.00			1" Ice	2.83	1.51	134.33
**********									
Omni 3"x20'	C	From Leg	3.00	0.0000	100.50	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00			1" Ice	10.08	10.08	149.01
3' Side Mount Standoff	C	From Leg	1.50	0.0000	89.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	364968.11	32142.94	-17942.99
	Max. H_x	18	364968.11	32142.94	-17942.99
	Max. H_z	5	-282099.25	-24072.17	16483.77
	Min. Vert	7	-325782.55	-29197.11	16244.68
	Min. H_x	7	-325782.55	-29197.11	16244.68
	Min. H_z	18	364968.11	32142.94	-17942.99
Leg B	Max. Vert	10	364055.14	-33320.15	-15867.29
	Max. H_x	23	-326468.00	30427.39	14141.55
	Max. H_z	23	-326468.00	30427.39	14141.55
	Min. Vert	23	-326468.00	30427.39	14141.55
	Min. H_x	10	364055.14	-33320.15	-15867.29
	Min. H_z	10	364055.14	-33320.15	-15867.29
Leg A	Max. Vert	2	363225.65	-2386.31	36772.50
	Max. H_x	15	-327087.36	2436.56	-33434.17
	Max. H_z	2	363225.65	-2386.31	36772.50
	Min. Vert	15	-327087.36	2436.56	-33434.17
	Min. H_x	2	363225.65	-2386.31	36772.50
	Min. H_z	15	-327087.36	2436.56	-33434.17

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	41817.38	0.00	-0.00	12317.36	7587.20	0.14
1.2 Dead+1.0 Wind 0 deg - No Ice	50180.86	-0.00	-57022.68	-6001533.40	9407.23	-83521.34
0.9 Dead+1.0 Wind 0 deg - No Ice	37635.65	-0.00	-57022.69	-5999266.79	7111.89	-83506.18
1.2 Dead+1.0 Wind 30 deg - No Ice	50180.86	27806.89	-48162.93	-5105242.53	-2946865.81	-37536.44
0.9 Dead+1.0 Wind 30 deg - No Ice	37635.65	27806.88	-48162.93	-5103838.00	-2946186.97	-37535.78

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.0 Wind 60 deg - No Ice	50180.86	47756.21	-27572.06	-2923797.39	-5080886.93	18398.98
0.9 Dead+1.0 Wind 60 deg - No Ice	37635.65	47756.21	-27572.06	-2924564.55	-5078057.11	18385.57
1.2 Dead+1.0 Wind 90 deg - No Ice	50180.86	55613.76	-0.01	15030.34	-5903007.96	69404.81
0.9 Dead+1.0 Wind 90 deg - No Ice	37635.65	55613.76	-0.00	11314.70	-5899363.50	69384.12
1.2 Dead+1.0 Wind 120 deg - No Ice	50180.86	49383.09	28511.35	3023309.60	-5201055.17	101921.00
0.9 Dead+1.0 Wind 120 deg - No Ice	37635.65	49383.10	28511.35	3016593.46	-5198154.98	101892.22
1.2 Dead+1.0 Wind 150 deg - No Ice	50180.86	27806.88	48162.94	5135075.47	-2946626.76	107124.67
0.9 Dead+1.0 Wind 150 deg - No Ice	37635.65	27806.88	48162.94	5126209.32	-2945950.33	107101.82
1.2 Dead+1.0 Wind 180 deg - No Ice	50180.86	0.00	55144.12	5892239.98	9374.56	83519.38
0.9 Dead+1.0 Wind 180 deg - No Ice	37635.65	0.00	55144.12	5882608.81	7086.61	83504.54
1.2 Dead+1.0 Wind 210 deg - No Ice	50180.86	-27806.87	48162.93	5134854.08	2965256.95	37535.71
0.9 Dead+1.0 Wind 210 deg - No Ice	37635.65	-27806.88	48162.93	5125998.02	2960011.85	37535.23
1.2 Dead+1.0 Wind 240 deg - No Ice	50180.86	-49383.09	28511.34	3023080.35	5219446.95	-18400.05
0.9 Dead+1.0 Wind 240 deg - No Ice	37635.65	-49383.09	28511.34	3016366.92	5211967.21	-18386.40
1.2 Dead+1.0 Wind 270 deg - No Ice	50180.86	-55613.76	-0.01	15018.26	5921286.39	-69404.28
0.9 Dead+1.0 Wind 270 deg - No Ice	37635.65	-55613.76	-0.00	11305.69	5913058.79	-69383.70
1.2 Dead+1.0 Wind 300 deg - No Ice	50180.86	-47756.21	-27572.06	-2923590.82	5099303.65	-101918.28
0.9 Dead+1.0 Wind 300 deg - No Ice	37635.65	-47756.21	-27572.06	-2924355.32	5091886.95	-101889.99
1.2 Dead+1.0 Wind 330 deg - No Ice	50180.86	-27806.89	-48162.93	-5105029.89	2965544.45	-107124.83
0.9 Dead+1.0 Wind 330 deg - No Ice	37635.65	-27806.89	-48162.93	-5103612.39	2960272.70	-107101.93
1.2 Dead+1.0 Ice+1.0 Temp	95706.43	0.00	-0.00	59212.90	62632.36	-0.38
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	95706.43	0.00	-16494.84	-1654803.55	62910.03	-30479.49
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	95706.43	8168.64	-14148.50	-1415959.95	-788827.69	-13792.11
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	95706.43	14103.02	-8142.38	-790656.68	-1409447.81	6614.41
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	95706.43	16337.28	-0.00	59491.19	-1640644.28	25248.89
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	95706.43	14284.95	8247.42	916503.86	-1421626.52	37091.51
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	95706.43	8168.64	14148.50	1534591.41	-788967.22	39023.02
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	95706.43	0.00	16284.77	1759206.68	62735.06	30492.33
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	95706.43	-8168.64	14148.50	1534361.41	914511.53	13792.20
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	95706.43	-14284.95	8247.42	916318.44	1547117.79	-6610.76
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	95706.43	-16337.28	-0.00	59445.56	1766083.16	-25249.01

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	95706.43	-14103.02	-8142.38	-790667.61	1534950.28	-37106.76
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	95706.43	-8168.64	-14148.50	-1415954.22	914568.58	-39023.04
Dead+Wind 0 deg - Service	41817.38	0.00	-12149.41	-1268909.31	7648.32	-17796.43
Dead+Wind 30 deg - Service	41817.38	5924.64	-10261.78	-1077983.23	-621885.15	-8010.48
Dead+Wind 60 deg - Service	41817.38	10175.14	-5874.62	-613452.25	-1076333.78	3914.50
Dead+Wind 90 deg - Service	41817.38	11849.28	-0.00	12374.56	-1251408.15	14790.93
Dead+Wind 120 deg - Service	41817.38	10521.70	6074.70	653026.69	-1101982.12	21711.37
Dead+Wind 150 deg - Service	41817.38	5924.64	10261.78	1102717.99	-621892.22	22808.39
Dead+Wind 180 deg - Service	41817.38	0.00	11749.24	1263986.45	7620.55	17793.69
Dead+Wind 210 deg - Service	41817.38	-5924.64	10261.78	1102689.36	637126.79	8010.49
Dead+Wind 240 deg - Service	41817.38	-10521.70	6074.70	652976.69	1117192.71	-3914.99
Dead+Wind 270 deg - Service	41817.38	-11849.28	-0.00	12372.44	1266631.75	-14790.93
Dead+Wind 300 deg - Service	41817.38	-10175.14	-5874.62	-613444.25	1091565.55	-21708.20
Dead+Wind 330 deg - Service	41817.38	-5924.64	-10261.78	-1077984.81	637144.85	-22808.40

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-41817.38	-0.00	-0.00	41817.38	0.00	0.000%
2	0.00	-50180.86	-57022.69	0.00	50180.86	57022.68	0.000%
3	0.00	-37635.65	-57022.69	0.00	37635.65	57022.69	0.000%
4	27806.88	-50180.86	-48162.93	-27806.89	50180.86	48162.93	0.000%
5	27806.88	-37635.65	-48162.93	-27806.88	37635.65	48162.93	0.000%
6	47756.20	-50180.86	-27572.06	-47756.21	50180.86	27572.06	0.000%
7	47756.20	-37635.65	-27572.06	-47756.21	37635.65	27572.06	0.000%
8	55613.76	-50180.86	-0.00	-55613.76	50180.86	0.01	0.000%
9	55613.76	-37635.65	-0.00	-55613.76	37635.65	0.00	0.000%
10	49383.10	-50180.86	28511.34	-49383.09	50180.86	-28511.35	0.000%
11	49383.10	-37635.65	28511.34	-49383.10	37635.65	-28511.35	0.000%
12	27806.88	-50180.86	48162.93	-27806.88	50180.86	-48162.94	0.000%
13	27806.88	-37635.65	48162.93	-27806.88	37635.65	-48162.94	0.000%
14	0.00	-50180.86	55144.12	-0.00	50180.86	-55144.12	0.000%
15	0.00	-37635.65	55144.12	-0.00	37635.65	-55144.12	0.000%
16	-27806.88	-50180.86	48162.93	27806.87	50180.86	-48162.93	0.000%
17	-27806.88	-37635.65	48162.93	27806.88	37635.65	-48162.93	0.000%
18	-49383.10	-50180.86	28511.34	49383.09	50180.86	-28511.34	0.000%
19	-49383.10	-37635.65	28511.34	49383.09	37635.65	-28511.34	0.000%
20	-55613.76	-50180.86	-0.00	55613.76	50180.86	0.01	0.000%
21	-55613.76	-37635.65	-0.00	55613.76	37635.65	0.00	0.000%
22	-47756.20	-50180.86	-27572.06	47756.21	50180.86	27572.06	0.000%
23	-47756.20	-37635.65	-27572.06	47756.21	37635.65	27572.06	0.000%
24	-27806.88	-50180.86	-48162.93	27806.89	50180.86	48162.93	0.000%
25	-27806.88	-37635.65	-48162.93	27806.89	37635.65	48162.93	0.000%
26	0.00	-95706.43	-0.00	-0.00	95706.43	0.00	0.000%
27	0.00	-95706.43	-16494.84	-0.00	95706.43	16494.84	0.000%
28	8168.64	-95706.43	-14148.50	-8168.64	95706.43	14148.50	0.000%
29	14103.02	-95706.43	-8142.38	-14103.02	95706.43	8142.38	0.000%
30	16337.29	-95706.43	-0.00	-16337.28	95706.43	0.00	0.000%
31	14284.95	-95706.43	8247.42	-14284.95	95706.43	-8247.42	0.000%
32	8168.64	-95706.43	14148.50	-8168.64	95706.43	-14148.50	0.000%
33	0.00	-95706.43	16284.77	-0.00	95706.43	-16284.77	0.000%
34	-8168.64	-95706.43	14148.50	8168.64	95706.43	-14148.50	0.000%
35	-14284.95	-95706.43	8247.42	14284.95	95706.43	-8247.42	0.000%
36	-16337.29	-95706.43	-0.00	16337.28	95706.43	0.00	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
37	-14103.02	-95706.43	-8142.38	14103.02	95706.43	8142.38	0.000%
38	-8168.64	-95706.43	-14148.50	8168.64	95706.43	14148.50	0.000%
39	0.00	-41817.38	-12149.41	-0.00	41817.38	12149.41	0.000%
40	5924.64	-41817.38	-10261.78	-5924.64	41817.38	10261.78	0.000%
41	10175.14	-41817.38	-5874.62	-10175.14	41817.38	5874.62	0.000%
42	11849.28	-41817.38	-0.00	-11849.28	41817.38	0.00	0.000%
43	10521.70	-41817.38	6074.70	-10521.70	41817.38	-6074.70	0.000%
44	5924.64	-41817.38	10261.78	-5924.64	41817.38	-10261.78	0.000%
45	0.00	-41817.38	11749.24	-0.00	41817.38	-11749.24	0.000%
46	-5924.64	-41817.38	10261.78	5924.64	41817.38	-10261.78	0.000%
47	-10521.70	-41817.38	6074.70	10521.70	41817.38	-6074.70	0.000%
48	-11849.28	-41817.38	-0.00	11849.28	41817.38	0.00	0.000%
49	-10175.14	-41817.38	-5874.62	10175.14	41817.38	5874.62	0.000%
50	-5924.64	-41817.38	-10261.78	5924.64	41817.38	10261.78	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 170	4.290	47	0.2335	0.0854
T2	170 - 150	3.801	47	0.2322	0.0833
T3	150 - 140	2.839	47	0.2031	0.0713
T4	140 - 120	2.408	47	0.1881	0.0586
T5	120 - 100	1.673	47	0.1488	0.0423
T6	100 - 80	1.093	47	0.1164	0.0288
T7	80 - 60	0.659	47	0.0819	0.0206
T8	60 - 40	0.354	47	0.0552	0.0143
T9	40 - 20	0.163	47	0.0342	0.0088
T10	20 - 0	0.038	47	0.0168	0.0041

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
187.00	Omni 3"x20'	47	4.290	0.2335	0.0854	318206
186.50	Omni 3"x20'	47	4.290	0.2335	0.0854	318206
183.00	8' Dipole	47	4.290	0.2335	0.0854	318206
182.00	Lightning Rod	47	4.290	0.2335	0.0854	318206
179.60	1' Side Mount Standoff	47	4.271	0.2335	0.0853	318206
177.00	3' Side Mount Standoff	47	4.144	0.2338	0.0848	318206
169.00	PiROD 12' T-Frame	47	3.752	0.2315	0.0830	334527
166.00	12'-6" 2" Steel Pipe	47	3.605	0.2286	0.0821	331303
155.00	SitePro1 VFA12-HD Mount	47	3.071	0.2115	0.0760	37577
100.50	Omni 3"x20'	47	1.105	0.1172	0.0291	31895
89.00	3' Side Mount Standoff	47	0.837	0.0973	0.0238	35135

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	180 - 170	Leg	1 3/4	2	-3446.14	79364.40	4.3	Pass
T2	170 - 150	Leg	1 3/4	31	-51785.40	78062.10	66.3	Pass
T3	150 - 140	Leg	Pirod 105245	85	-68268.00	214859.00	35.3	Pass
T4	140 - 120	Leg	Pirod 105217	97	-120780.00	214859.00	56.2	Pass
T5	120 - 100	Leg	Pirod 105218	112	-165183.00	300681.00	54.9	Pass
T6	100 - 80	Leg	Pirod 105218	127	-207862.00	300681.00	69.1	Pass
T7	80 - 60	Leg	Pirod 105219	142	-232135.00	356293.00	65.2	Pass
T8	60 - 40	Leg	Pirod 105220 (CT1264)	151	-274341.00	451148.00	60.8	Pass
T9	40 - 20	Leg	Pirod 105221 (CT1264)	160	-312017.00	557267.00	56.0	Pass
T10	20 - 0	Leg	Pirod 105221 (CT1264)	169	-345050.00	557267.00	61.9	Pass
T1	180 - 170	Diagonal	7/8	13	-647.22	7719.11	8.4	Pass
T2	170 - 150	Diagonal	7/8	38	-7559.41	7644.08	98.9	Pass
T3	150 - 140	Diagonal	L2 1/2x2 1/2x3/16	92	-10606.00	16304.10	65.1	Pass
T4	140 - 120	Diagonal	L3x3x3/16	107	-10466.70	22830.50	45.8	Pass
T5	120 - 100	Diagonal	L3x3x3/16	116	-9518.43	18018.40	52.8	Pass
T6	100 - 80	Diagonal	L3x3x5/16	130	-10527.20	23095.10	45.6	Pass
T7	80 - 60	Diagonal	2L3 1/2x3 1/2x1/4	146	-17613.60	56070.30	31.4	Pass
T8	60 - 40	Diagonal	2L3 1/2x3 1/2x1/4	155	-16378.90	51051.70	32.1	Pass
T9	40 - 20	Diagonal	2L3 1/2x3 1/2x1/4	164	-15580.40	46313.40	33.6	Pass
T10	20 - 0	Diagonal	2L3 1/2x3 1/2x1/4	173	-18410.10	41934.30	43.9	Pass
T1	180 - 170	Top Girt	1	4	-160.59	6669.94	2.4	Pass
T2	170 - 150	Top Girt	1	36	-638.59	6669.94	9.6	Pass
T3	150 - 140	Top Girt	L3x3x3/16	89	-94.11	26332.20	0.4	Pass
							Summary	
						Leg (T6)	69.1	Pass
						Diagonal (T2)	98.9	Pass
						Top Girt (T2)	9.6	Pass
						RATING =	**98.9**	**Pass**

EXHIBIT 9

Antenna Mount Analysis

July 13, 2021

SBA Communications Corporation
134 Flanders Rd., Suite 125
Westborough, MA 01581

RE:		
	Site Number:	CTNL124A (NSB)
	SBA ID Number:	CT34402-M-02
	Site Name:	NORTH FRANKLIN, CT
	Site Address:	5 Tyler Drive North Franklin, CT 06254

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SBA Communications to perform a mount analysis on the new T-Mobile antenna/RRH mounts to determine their capability of supporting the following additional loading:

- **(3) APX16DWV-16DWS-S-E-A-20 Antennas (55.9”x13.3”x3.2” – Wt. = 55 lbs. /each)**
- **(3) APXVAALL24_43-U-NA20 Antennas (95.9”x24.0”x8.5” – Wt. = 150 lbs. /each)**
- **(3) AIR6449 B41 Antennas (33.1”x20.5”x8.5” – Wt. = 103 lbs. /each)**
- **(3) 4460 B25+B66 RRH’s (17.0”x15.1”x11.9” – Wt. = 104 lbs. /each)**
- **(3) 4480 B71+B85 RRH’s (19.2”x15.1”x7.5” – Wt. = 93 lbs. /each)**

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1 P/N VFA12-HD, dated December 13, 2017 were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, and the International Building Code 2015 with 2018 Connecticut State Building Code.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.17 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.172 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.061.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the New SitePro1 P/N VFA12-HD mounts **ARE CAPABLE** of supporting the proposed installation with the following modifications:

- **Install new 2-1/2" std. (2.88" O.D.) pipe masts behind new APXVAALL24_43-U-NA20 Antenna secured to the new mount (typ. of 1 per sector, total of 3).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
New Mount Rating	3	LC7	106%	**FAIL**
Modified Mount Rating	16	LC83	85%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N VFA12-HD, dated December 13, 2017.

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
Project No.: CTNL124A
Designed By: RL **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

	z=	155	(ft)
	z_g=	900	(ft)
K_z= 1.388	α=	9.5	

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

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

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}= 1	K_h=	1	
	K_c=	1.0	(from Table 2-4)
(If Category 1 then K_{zt}=1.0)	K_t=		(from Table 2-5)
	f=		(from Table 2-5)
Category= **1**	z=	155	
	z_s=	430	(Mean elevation of base of structure above sea level)
	H=		(Ht. of the crest above surrounding terrain)
	K_{zt}=	1.00	(from 2.6.6.2.1)
	K_e=	0.98	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =	t_i =	1.00	in
Importance Factor =	I=	1.00	(from Table 2-3)
	K_{iz} =	1.17	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.17 in

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
Project No.: CTNL124A
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	180	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

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

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	1.388	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**50.25**	K_e=	0.98	(from 2.6.8)
$q_{z\ (ice)}$=	**7.43**	K_d=	0.85	(from Table 2-2)
$q_{z\ (30)}$=	**2.68**	V_{max}=	130	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
Project No.: CTNL124A
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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		**Aspect Ratio ≤ 2.5**	**Aspect Ratio = 7**	**Aspect Ratio ≥ 25**
		Ca	**Ca**	**Ca**
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

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

Ice Thickness = **1.17** **in** | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
APX16DWV-16DWS-S-E-A-20 Antenna	55.9	13.3	3.2	5.16	4.20	1.28	**331**	**60**	**18**
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	4.00	1.27	**1017**	**169**	**54**
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.61	1.20	**284**	**50**	**15**
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.13	1.20	**107**	**21**	**6**
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.27	1.20	**121**	**23**	**6**
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	**12**		
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	**14**		
5/8" Round Bar	0.6	12.0	-	0.05	0.05	1.20	**3**		
3/4" Round Bar	0.8	12.0	-	0.06	0.06	1.20	**4**		
PL 3-1/2x5/8	0.6	12.0	-	0.05	0.05	2.00	**5**		
PL 11-1/4x5/8	0.6	12.0	-	0.05	0.05	2.00	**5**		

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
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HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
APX16DWV-16DWS-S-E-A-20 Anten	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	331	109	276
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	1017	439	873
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	284	124	244
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	107	85	102
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	121	60	106

WIND LOADS WITH ICE:

APX16DWV-16DWS-S-E-A-20 Anten	58.2	15.6	5.5	6.32	2.24	3.72	10.52	1.25	1.52	59	25	51
APXVAALL24_43-U-NA20 Antenna	98.2	26.3	10.8	17.97	7.39	3.73	9.07	1.25	1.47	168	81	146
AIR6449 B41 Antenna	35.4	22.8	10.8	5.62	2.67	1.55	3.27	1.20	1.23	50	24	44
4460 B25+B66 RRH	19.3	17.4	14.2	2.34	1.91	1.11	1.36	1.20	1.20	21	17	20
4480 B71+B85 RRH	21.5	17.4	9.8	2.61	1.47	1.24	2.19	1.20	1.20	23	13	21

WIND LOADS AT 30 MPH:

APX16DWV-16DWS-S-E-A-20 Anten	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	18	6	15
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	54	23	46
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	15	7	13
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	6	5	5
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	6	3	6

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
Project No.: CTNL124A
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.17 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
APX16DWV-16DWS-S-E-A-20 Anter	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	331	109	165
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	1017	439	583
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	284	124	164
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	107	85	90
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	121	60	76

WIND LOADS WITH ICE:

APX16DWV-16DWS-S-E-A-20 Anter	58.2	15.6	5.5	6.32	2.24	3.72	10.52	1.25	1.52	59	25	34
APXVAALL24_43-U-NA20 Antenna	98.2	26.3	10.8	17.97	7.39	3.73	9.07	1.25	1.47	168	81	102
AIR6449 B41 Antenna	35.4	22.8	10.8	5.62	2.67	1.55	3.27	1.20	1.23	50	24	31
4460 B25+B66 RRH	19.3	17.4	14.2	2.34	1.91	1.11	1.36	1.20	1.20	21	17	18
4480 B71+B85 RRH	21.5	17.4	9.8	2.61	1.47	1.24	2.19	1.20	1.20	23	13	16

WIND LOADS AT 30 MPH:

APX16DWV-16DWS-S-E-A-20 Anter	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	18	6	9
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	54	23	31
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	15	7	9
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	6	5	5
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	6	3	4

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
Project No.: CTNL124A
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
APX16DWV-16DWS-S-E-A-20 Anten	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	331	109	109
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	1017	439	439
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	284	124	124
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	107	85	85
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	121	60	60

WIND LOADS WITH ICE:

APX16DWV-16DWS-S-E-A-20 Anten	58.2	15.6	5.5	6.32	2.24	3.72	10.52	1.25	1.52	59	25	25
APXVAALL24_43-U-NA20 Antenna	98.2	26.3	10.8	17.97	7.39	3.73	9.07	1.25	1.47	168	81	81
AIR6449 B41 Antenna	35.4	22.8	10.8	5.62	2.67	1.55	3.27	1.20	1.23	50	24	24
4460 B25+B66 RRH	19.3	17.4	14.2	2.34	1.91	1.11	1.36	1.20	1.20	21	17	17
4480 B71+B85 RRH	21.5	17.4	9.8	2.61	1.47	1.24	2.19	1.20	1.20	23	13	13

WIND LOADS AT 30 MPH:

APX16DWV-16DWS-S-E-A-20 Anten	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	18	6	6
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	54	23	23
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	15	7	7
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	6	5	5
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	6	3	3

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
Project No.: CTNL124A
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
APX16DWV-16DWS-S-E-A-20 Anten	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	331	109	165
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	1017	439	583
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	284	124	164
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	107	85	90
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	121	60	76

WIND LOADS WITH ICE:

APX16DWV-16DWS-S-E-A-20 Anten	58.2	15.6	5.5	6.32	2.24	3.72	10.52	1.25	1.52	59	25	34
APXVAALL24_43-U-NA20 Antenna	98.2	26.3	10.8	17.97	7.39	3.73	9.07	1.25	1.47	168	81	102
AIR6449 B41 Antenna	35.4	22.8	10.8	5.62	2.67	1.55	3.27	1.20	1.23	50	24	31
4460 B25+B66 RRH	19.3	17.4	14.2	2.34	1.91	1.11	1.36	1.20	1.20	21	17	18
4480 B71+B85 RRH	21.5	17.4	9.8	2.61	1.47	1.24	2.19	1.20	1.20	23	13	16

WIND LOADS AT 30 MPH:

APX16DWV-16DWS-S-E-A-20 Anten	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	18	6	9
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	54	23	31
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	15	7	9
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	6	5	5
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	6	3	4

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
Project No.: CTNL124A
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
APX16DWV-16DWS-S-E-A-20 Antenı	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	331	109	276
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	1017	439	873
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	284	124	244
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	107	85	102
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	121	60	106

WIND LOADS WITH ICE:

APX16DWV-16DWS-S-E-A-20 Antenı	58.2	15.6	5.5	6.32	2.24	3.72	10.52	1.25	1.52	59	25	51
APXVAALL24_43-U-NA20 Antenna	98.2	26.3	10.8	17.97	7.39	3.73	9.07	1.25	1.47	168	81	146
AIR6449 B41 Antenna	35.4	22.8	10.8	5.62	2.67	1.55	3.27	1.20	1.23	50	24	44
4460 B25+B66 RRH	19.3	17.4	14.2	2.34	1.91	1.11	1.36	1.20	1.20	21	17	20
4480 B71+B85 RRH	21.5	17.4	9.8	2.61	1.47	1.24	2.19	1.20	1.20	23	13	21

WIND LOADS AT 30 MPH:

APX16DWV-16DWS-S-E-A-20 Antenı	55.9	13.3	3.2	5.16	1.24	4.20	17.47	1.28	1.75	18	6	15
APXVAALL24_43-U-NA20 Antenna	95.9	24.0	8.5	15.98	5.66	4.00	11.28	1.27	1.54	54	23	46
AIR6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	15	7	13
4460 B25+B66 RRH	17.0	15.1	11.9	1.78	1.40	1.13	1.43	1.20	1.20	6	5	5
4480 B71+B85 RRH	19.2	15.1	7.5	2.01	1.00	1.27	2.56	1.20	1.20	6	3	6

Date: 7/8/2021
Project Name: NORTH FRANKLIN, CT
Project No.: CTNL124A
Designed By: RL **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.17 in.
Density of ice: 56 pcf

APX16DWV-16DWS-S-E-A-20 Antenna

Weight of ice based on total radial SF area:

Height (in):	55.9	
Width (in):	13.3	
Depth (in):	3.2	
Total weight of ice on object:		99 lbs
Weight of object:	55.0 lbs	
Combined weight of ice and object:		154 lbs

APXVAALL24_43-U-NA20 Antenna

Weight of ice based on total radial SF area:

Height (in):	95.9	
Width (in):	24.0	
Depth (in):	8.5	
Total weight of ice on object:		304 lbs
Weight of object:	150.0 lbs	
Combined weight of ice and object:		454 lbs

AIR6449 B41 Antenna

Weight of ice based on total radial SF area:

Height (in):	33.1	
Width (in):	20.5	
Depth (in):	8.5	
Total weight of ice on object:		92 lbs
Weight of object:	103.0 lbs	
Combined weight of ice and object:		195 lbs

4460 B25+B66 RRH

Weight of ice based on total radial SF area:

Height (in):	17.0	
Width (in):	15.1	
Depth (in):	11.9	
Total weight of ice on object:		41 lbs
Weight of object:	104.0 lbs	
Combined weight of ice and object:		145 lbs

4480 B71+B85 RRH

Weight of ice based on total radial SF area:

Height (in):	19.2	
Width (in):	15.1	
Depth (in):	7.5	
Total weight of ice on object:		41 lbs
Weight of object:	93.0 lbs	
Combined weight of ice and object:		134 lbs

2" Pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

2-1/2" Pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		6 plf

5/8" Round Bar

Per foot weight of ice:

diameter (in):	0.63	
Per foot weight of ice on object:		3 plf

3/4" Round Bar

Per foot weight of ice:

diameter (in):	0.75	
Per foot weight of ice on object:		3 plf

PL 3-1/2x5/8

Weight of ice based on total radial SF area:

Height (in):	3.5	
Width (in):	0.63	
Per foot weight of ice on object:		7 plf

PL 11-1/4x5/8

Weight of ice based on total radial SF area:

Height (in):	11.25	
Width (in):	0.63	
Per foot weight of ice on object:		18 plf

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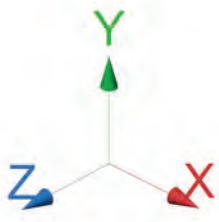
Mount Calculations
(New Conditions)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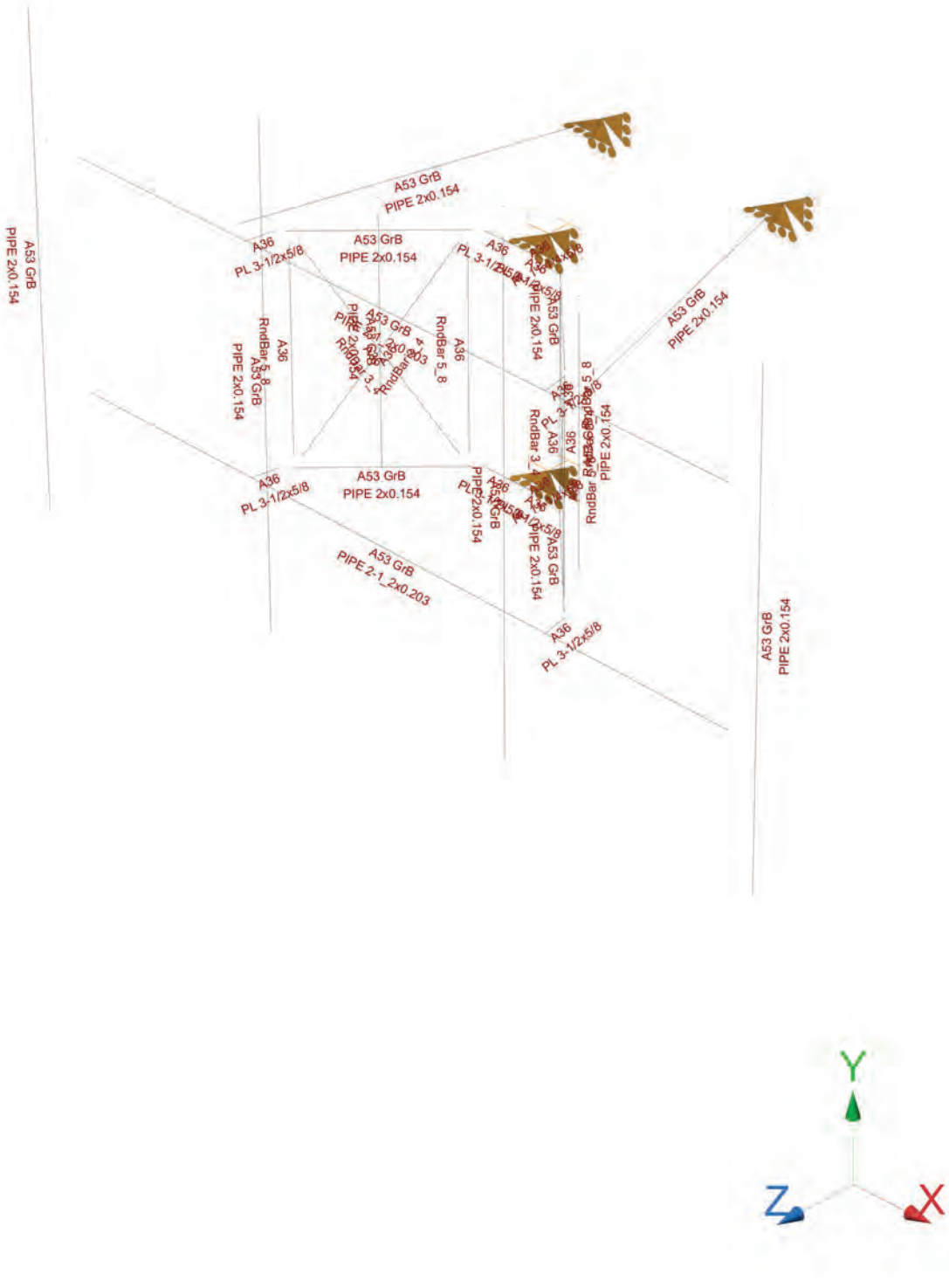
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PIPE 2x0.154
A36
PL 3-1/2x5/8
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PL 3-1/2x5/8
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RndBar 5_8
A36
RndBar 5_8
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A53 GrB
PIPE 2x0.154
A36
PL 3-1/2x5/8
A53 GrB
PIPE 2x0.154
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PIPE 2x0.154
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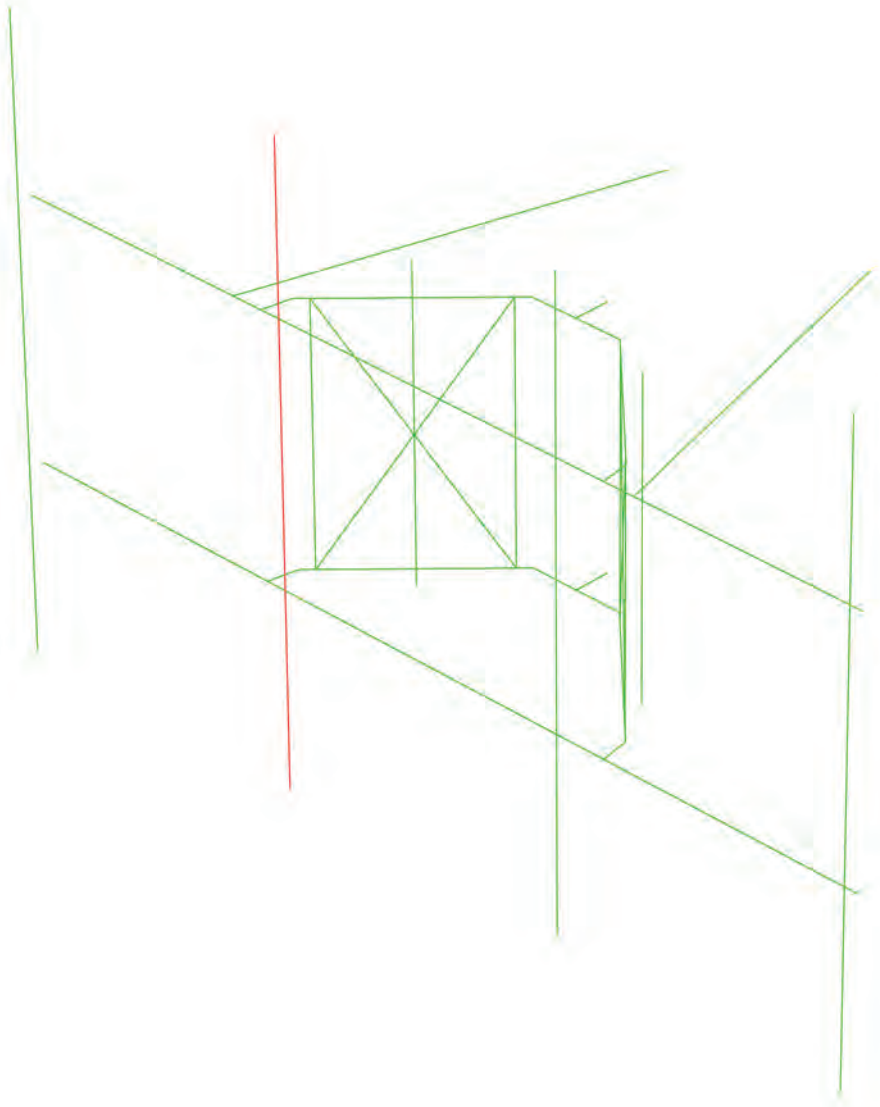


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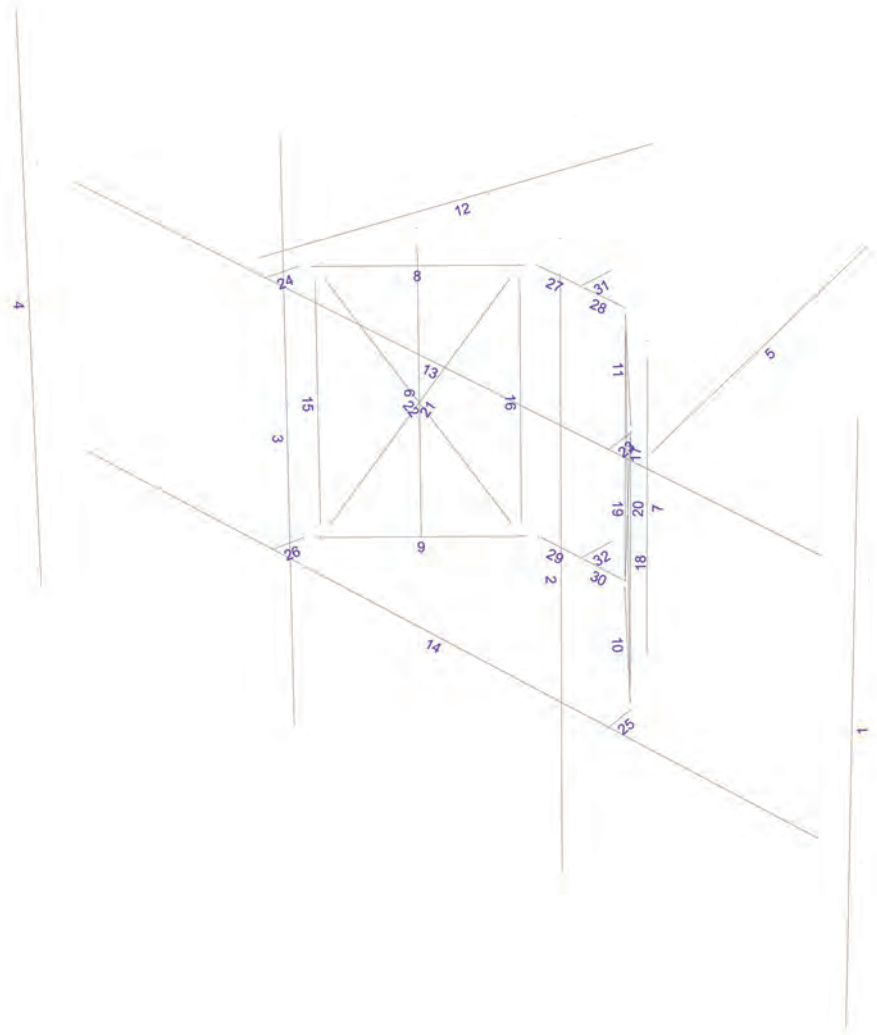
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Load data

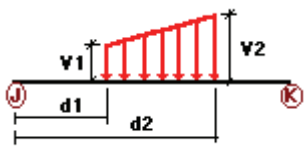
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL
LLa4	500 lb Live Load Antenna 4	No	LL

Distributed force on members



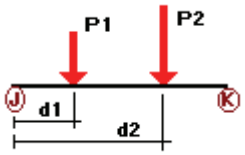
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	2	z	-0.012	-0.012	0.00	No	100.00	Yes
	5	z	-0.012	-0.012	0.00	No	100.00	Yes
	6	z	-0.012	-0.012	0.00	No	100.00	Yes
	7	z	-0.012	-0.012	0.00	No	100.00	Yes
	8	z	-0.012	-0.012	0.00	No	100.00	Yes
	9	z	-0.012	-0.012	0.00	No	100.00	Yes
	10	z	-0.012	-0.012	0.00	No	100.00	Yes
	11	z	-0.012	-0.012	0.00	No	100.00	Yes
	12	z	-0.012	-0.012	0.00	No	100.00	Yes
	13	z	-0.014	-0.014	0.00	No	100.00	Yes
	14	z	-0.014	-0.014	0.00	No	100.00	Yes
	15	z	-0.003	-0.003	0.00	No	100.00	Yes
	16	z	-0.003	-0.003	0.00	No	100.00	Yes
	17	z	-0.003	-0.003	0.00	No	100.00	Yes
	18	z	-0.003	-0.003	0.00	No	100.00	Yes
	19	z	-0.004	-0.004	0.00	No	100.00	Yes
	20	z	-0.004	-0.004	0.00	No	100.00	Yes
	21	z	-0.004	-0.004	0.00	No	100.00	Yes
	22	z	-0.004	-0.004	0.00	No	100.00	Yes
	27	z	-0.005	-0.005	0.00	No	100.00	Yes
	28	z	-0.005	-0.005	0.00	No	100.00	Yes
	29	z	-0.005	-0.005	0.00	No	100.00	Yes
	30	z	-0.005	-0.005	0.00	No	100.00	Yes
W30	1	z	-0.012	-0.012	0.00	No	100.00	Yes
	2	z	-0.012	-0.012	0.00	No	100.00	Yes
	3	z	-0.012	-0.012	0.00	No	100.00	Yes
	4	z	-0.012	-0.012	0.00	No	100.00	Yes
	5	z	-0.012	-0.012	0.00	No	100.00	Yes
	6	z	-0.012	-0.012	0.00	No	100.00	Yes
	7	z	-0.012	-0.012	0.00	No	100.00	Yes
	8	z	-0.012	-0.012	0.00	No	100.00	Yes
	9	z	-0.012	-0.012	0.00	No	100.00	Yes
	10	z	-0.012	-0.012	0.00	No	100.00	Yes
	11	z	-0.012	-0.012	0.00	No	100.00	Yes
	12	z	-0.012	-0.012	0.00	No	100.00	Yes
	13	z	-0.014	-0.014	0.00	No	100.00	Yes
	14	z	-0.014	-0.014	0.00	No	100.00	Yes
	15	z	-0.003	-0.003	0.00	No	100.00	Yes
	16	z	-0.003	-0.003	0.00	No	100.00	Yes
	17	z	-0.003	-0.003	0.00	No	100.00	Yes
	18	z	-0.003	-0.003	0.00	No	100.00	Yes
	19	z	-0.004	-0.004	0.00	No	100.00	Yes
	20	z	-0.004	-0.004	0.00	No	100.00	Yes
	21	z	-0.004	-0.004	0.00	No	100.00	Yes
	22	z	-0.004	-0.004	0.00	No	100.00	Yes
	23	z	-0.005	-0.005	0.00	No	100.00	Yes
	24	z	-0.005	-0.005	0.00	No	100.00	Yes
	25	z	-0.005	-0.005	0.00	No	100.00	Yes
	26	z	-0.005	-0.005	0.00	No	100.00	Yes
	27	z	-0.005	-0.005	0.00	No	100.00	Yes
	28	z	-0.005	-0.005	0.00	No	100.00	Yes
	29	z	-0.005	-0.005	0.00	No	100.00	Yes
	30	z	-0.005	-0.005	0.00	No	100.00	Yes
	31	z	-0.005	-0.005	0.00	No	100.00	Yes
	32	z	-0.005	-0.005	0.00	No	100.00	Yes
W60	1	x	-0.012	-0.012	0.00	No	100.00	Yes
	2	x	-0.012	-0.012	0.00	No	100.00	Yes
	3	x	-0.012	-0.012	0.00	No	100.00	Yes
	4	x	-0.012	-0.012	0.00	No	100.00	Yes
	5	x	-0.012	-0.012	0.00	No	100.00	Yes

	6	x	-0.012	-0.012	0.00	No	100.00	Yes
	7	x	-0.012	-0.012	0.00	No	100.00	Yes
	8	x	-0.012	-0.012	0.00	No	100.00	Yes
	9	x	-0.012	-0.012	0.00	No	100.00	Yes
	10	x	-0.012	-0.012	0.00	No	100.00	Yes
	11	x	-0.012	-0.012	0.00	No	100.00	Yes
	12	x	-0.012	-0.012	0.00	No	100.00	Yes
	13	x	-0.014	-0.014	0.00	No	100.00	Yes
	14	x	-0.014	-0.014	0.00	No	100.00	Yes
	15	x	-0.003	-0.003	0.00	No	100.00	Yes
	16	x	-0.003	-0.003	0.00	No	100.00	Yes
	17	x	-0.003	-0.003	0.00	No	100.00	Yes
	18	x	-0.003	-0.003	0.00	No	100.00	Yes
	19	x	-0.004	-0.004	0.00	No	100.00	Yes
	20	x	-0.004	-0.004	0.00	No	100.00	Yes
	21	x	-0.004	-0.004	0.00	No	100.00	Yes
	22	x	-0.004	-0.004	0.00	No	100.00	Yes
	23	x	-0.005	-0.005	0.00	No	100.00	Yes
	24	x	-0.005	-0.005	0.00	No	100.00	Yes
	25	x	-0.005	-0.005	0.00	No	100.00	Yes
	26	x	-0.005	-0.005	0.00	No	100.00	Yes
	27	x	-0.005	-0.005	0.00	No	100.00	Yes
	28	x	-0.005	-0.005	0.00	No	100.00	Yes
	29	x	-0.005	-0.005	0.00	No	100.00	Yes
	30	x	-0.005	-0.005	0.00	No	100.00	Yes
	31	x	-0.005	-0.005	0.00	No	100.00	Yes
	32	x	-0.005	-0.005	0.00	No	100.00	Yes
W90	1	x	-0.012	-0.012	0.00	No	100.00	Yes
	2	x	-0.012	-0.012	0.00	No	100.00	Yes
	3	x	-0.012	-0.012	0.00	No	100.00	Yes
	4	x	-0.012	-0.012	0.00	No	100.00	Yes
	5	x	-0.012	-0.012	0.00	No	100.00	Yes
	6	x	-0.012	-0.012	0.00	No	100.00	Yes
	7	x	-0.012	-0.012	0.00	No	100.00	Yes
	8	x	-0.012	-0.012	0.00	No	100.00	Yes
	9	x	-0.012	-0.012	0.00	No	100.00	Yes
	10	x	-0.012	-0.012	0.00	No	100.00	Yes
	11	x	-0.012	-0.012	0.00	No	100.00	Yes
	12	x	-0.012	-0.012	0.00	No	100.00	Yes
	15	x	-0.003	-0.003	0.00	No	100.00	Yes
	16	x	-0.003	-0.003	0.00	No	100.00	Yes
	17	x	-0.003	-0.003	0.00	No	100.00	Yes
	18	x	-0.003	-0.003	0.00	No	100.00	Yes
	19	x	-0.004	-0.004	0.00	No	100.00	Yes
	20	x	-0.004	-0.004	0.00	No	100.00	Yes
	21	x	-0.004	-0.004	0.00	No	100.00	Yes
	22	x	-0.004	-0.004	0.00	No	100.00	Yes
	23	x	-0.005	-0.005	0.00	No	100.00	Yes
	24	x	-0.005	-0.005	0.00	No	100.00	Yes
	25	x	-0.005	-0.005	0.00	No	100.00	Yes
	26	x	-0.005	-0.005	0.00	No	100.00	Yes
	31	x	-0.005	-0.005	0.00	No	100.00	Yes
	32	x	-0.005	-0.005	0.00	No	100.00	Yes
W120	1	x	-0.012	-0.012	0.00	No	100.00	Yes
	2	x	-0.012	-0.012	0.00	No	100.00	Yes
	3	x	-0.012	-0.012	0.00	No	100.00	Yes
	4	x	-0.012	-0.012	0.00	No	100.00	Yes
	5	x	-0.012	-0.012	0.00	No	100.00	Yes
	6	x	-0.012	-0.012	0.00	No	100.00	Yes
	7	x	-0.012	-0.012	0.00	No	100.00	Yes

	8	x	-0.012	-0.012	0.00	No	100.00	Yes
	9	x	-0.012	-0.012	0.00	No	100.00	Yes
	10	x	-0.012	-0.012	0.00	No	100.00	Yes
	11	x	-0.012	-0.012	0.00	No	100.00	Yes
	12	x	-0.012	-0.012	0.00	No	100.00	Yes
	13	x	-0.014	-0.014	0.00	No	100.00	Yes
	14	x	-0.014	-0.014	0.00	No	100.00	Yes
	15	x	-0.003	-0.003	0.00	No	100.00	Yes
	16	x	-0.003	-0.003	0.00	No	100.00	Yes
	17	x	-0.003	-0.003	0.00	No	100.00	Yes
	18	x	-0.003	-0.003	0.00	No	100.00	Yes
	19	x	-0.004	-0.004	0.00	No	100.00	Yes
	20	x	-0.004	-0.004	0.00	No	100.00	Yes
	21	x	-0.004	-0.004	0.00	No	100.00	Yes
	22	x	-0.004	-0.004	0.00	No	100.00	Yes
	23	x	-0.005	-0.005	0.00	No	100.00	Yes
	24	x	-0.005	-0.005	0.00	No	100.00	Yes
	25	x	-0.005	-0.005	0.00	No	100.00	Yes
	26	x	-0.005	-0.005	0.00	No	100.00	Yes
	27	x	-0.005	-0.005	0.00	No	100.00	Yes
	28	x	-0.005	-0.005	0.00	No	100.00	Yes
	29	x	-0.005	-0.005	0.00	No	100.00	Yes
	30	x	-0.005	-0.005	0.00	No	100.00	Yes
	31	x	-0.005	-0.005	0.00	No	100.00	Yes
	32	x	-0.005	-0.005	0.00	No	100.00	Yes
W150	1	z	0.012	0.012	0.00	No	100.00	Yes
	2	z	0.012	0.012	0.00	No	100.00	Yes
	3	z	0.012	0.012	0.00	No	100.00	Yes
	4	z	0.012	0.012	0.00	No	100.00	Yes
	5	z	0.012	0.012	0.00	No	100.00	Yes
	6	z	0.012	0.012	0.00	No	100.00	Yes
	7	z	0.012	0.012	0.00	No	100.00	Yes
	8	z	0.012	0.012	0.00	No	100.00	Yes
	9	z	0.012	0.012	0.00	No	100.00	Yes
	10	z	0.012	0.012	0.00	No	100.00	Yes
	11	z	0.012	0.012	0.00	No	100.00	Yes
	12	z	0.012	0.012	0.00	No	100.00	Yes
	13	z	0.014	0.014	0.00	No	100.00	Yes
	14	z	0.014	0.014	0.00	No	100.00	Yes
	15	z	0.003	0.003	0.00	No	100.00	Yes
	16	z	0.003	0.003	0.00	No	100.00	Yes
	17	z	0.003	0.003	0.00	No	100.00	Yes
	18	z	0.003	0.003	0.00	No	100.00	Yes
	19	z	0.004	0.004	0.00	No	100.00	Yes
	20	z	0.004	0.004	0.00	No	100.00	Yes
	21	z	0.004	0.004	0.00	No	100.00	Yes
	22	z	0.004	0.004	0.00	No	100.00	Yes
	23	z	0.005	0.005	0.00	No	100.00	Yes
	24	z	0.005	0.005	0.00	No	100.00	Yes
	25	z	0.005	0.005	0.00	No	100.00	Yes
	26	z	0.005	0.005	0.00	No	100.00	Yes
	27	z	0.005	0.005	0.00	No	100.00	Yes
	28	z	0.005	0.005	0.00	No	100.00	Yes
	29	z	0.005	0.005	0.00	No	100.00	Yes
	30	z	0.005	0.005	0.00	No	100.00	Yes
	31	z	0.005	0.005	0.00	No	100.00	Yes
	32	z	0.005	0.005	0.00	No	100.00	Yes
Di	1	y	-0.005	-0.005	0.00	No	100.00	Yes
	2	y	-0.005	-0.005	0.00	No	100.00	Yes
	3	y	-0.005	-0.005	0.00	No	100.00	Yes

4	y	-0.005	-0.005	0.00	No	100.00	Yes
5	y	-0.005	-0.005	0.00	No	100.00	Yes
6	y	-0.005	-0.005	0.00	No	100.00	Yes
7	y	-0.005	-0.005	0.00	No	100.00	Yes
8	y	-0.005	-0.005	0.00	No	100.00	Yes
9	y	-0.005	-0.005	0.00	No	100.00	Yes
10	y	-0.005	-0.005	0.00	No	100.00	Yes
11	y	-0.005	-0.005	0.00	No	100.00	Yes
12	y	-0.005	-0.005	0.00	No	100.00	Yes
13	y	-0.006	-0.006	0.00	No	100.00	Yes
14	y	-0.006	-0.006	0.00	No	100.00	Yes
15	y	-0.003	-0.003	0.00	No	100.00	Yes
16	y	-0.003	-0.003	0.00	No	100.00	Yes
17	y	-0.003	-0.003	0.00	No	100.00	Yes
18	y	-0.003	-0.003	0.00	No	100.00	Yes
19	y	-0.003	-0.003	0.00	No	100.00	Yes
20	y	-0.003	-0.003	0.00	No	100.00	Yes
21	y	-0.003	-0.003	0.00	No	100.00	Yes
22	y	-0.003	-0.003	0.00	No	100.00	Yes
23	y	-0.007	-0.007	0.00	No	100.00	Yes
24	y	-0.007	-0.007	0.00	No	100.00	Yes
25	y	-0.007	-0.007	0.00	No	100.00	Yes
26	y	-0.007	-0.007	0.00	No	100.00	Yes
27	y	-0.007	-0.007	0.00	No	100.00	Yes
28	y	-0.007	-0.007	0.00	No	100.00	Yes
29	y	-0.007	-0.007	0.00	No	100.00	Yes
30	y	-0.007	-0.007	0.00	No	100.00	Yes
31	y	-0.018	-0.018	0.00	No	100.00	Yes
32	y	-0.018	-0.018	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	1	y	-0.028	2.00	No
		y	-0.028	5.50	No
	3	y	-0.075	0.50	No
		y	-0.075	7.50	No
	4	y	-0.052	3.00	No
		y	-0.052	5.00	No
	6	y	-0.104	2.00	No
	7	y	-0.093	2.00	No
Wo	1	z	-0.166	2.00	No
		z	-0.166	5.50	No
	3	z	-0.509	0.50	No
		z	-0.509	7.50	No
	4	z	-0.143	3.00	No
		z	-0.143	5.00	No
	6	z	-0.107	2.00	No
	7	z	-0.121	2.00	No

W30	1	3	-0.138	2.00	No
		3	-0.138	5.50	No
	3	3	-0.437	0.50	No
		3	-0.437	7.50	No
	4	3	-0.123	3.00	No
		3	-0.123	5.00	No
	6	3	-0.102	2.00	No
	7	3	-0.106	2.00	No
W60	1	3	-0.083	2.00	No
		3	-0.083	5.50	No
	3	3	-0.292	0.50	No
		3	-0.292	7.50	No
	4	3	-0.082	3.00	No
		3	-0.082	5.00	No
	6	3	-0.09	2.00	No
	7	3	-0.076	2.00	No
W90	1	x	-0.055	2.00	No
		x	-0.055	5.50	No
	3	x	-0.22	0.50	No
		x	-0.22	7.50	No
	4	x	-0.062	3.00	No
		x	-0.062	5.00	No
	6	x	-0.085	2.00	No
	7	x	-0.06	2.00	No
W120	1	2	-0.083	2.00	No
		2	-0.083	5.50	No
	3	2	-0.292	0.50	No
		2	-0.292	7.50	No
	4	2	-0.082	3.00	No
		2	-0.082	5.00	No
	6	2	-0.09	2.00	No
	7	2	-0.076	2.00	No
W150	1	2	-0.138	2.00	No
		2	-0.138	5.50	No
	3	2	-0.437	0.50	No
		2	-0.437	7.50	No
	4	2	-0.123	3.00	No
		2	-0.123	5.00	No
	6	2	-0.102	2.00	No
	7	2	-0.106	2.00	No
Di	1	y	-0.05	2.00	No
		y	-0.05	5.50	No
	3	y	-0.152	0.50	No
		y	-0.152	7.50	No
	4	y	-0.046	3.00	No
		y	-0.046	5.00	No
	6	y	-0.041	2.00	No
	7	y	-0.041	2.00	No
WI0	1	z	-0.03	2.00	No
		z	-0.03	5.50	No
	3	z	-0.085	0.50	No
		z	-0.085	7.50	No
	4	z	-0.026	3.00	No
		z	-0.026	5.00	No
	6	z	-0.021	2.00	No
	7	z	-0.023	2.00	No
WI30	1	3	-0.026	2.00	No
		3	-0.026	5.50	No
	3	3	-0.073	0.50	No
		3	-0.073	7.50	No

	4	3	-0.022	3.00	No
		3	-0.022	5.00	No
	6	3	-0.02	2.00	No
	7	3	-0.021	2.00	No
WI60	1	3	-0.017	2.00	No
		3	-0.017	5.50	No
	3	3	-0.052	0.50	No
		3	-0.052	7.50	No
	4	3	-0.016	3.00	No
		3	-0.016	5.00	No
	6	3	-0.018	2.00	No
	7	3	-0.016	2.00	No
WI90	1	x	-0.013	2.00	No
		x	-0.013	5.50	No
	3	x	-0.041	0.50	No
		x	-0.041	7.50	No
	4	x	-0.013	3.00	No
		x	-0.013	5.00	No
	6	x	-0.017	2.00	No
	7	x	-0.013	2.00	No
WI120	1	2	-0.017	2.00	No
		2	-0.017	5.50	No
	3	2	-0.052	0.50	No
		2	-0.052	7.50	No
	4	2	-0.016	3.00	No
		2	-0.016	5.00	No
	6	2	-0.018	2.00	No
	7	2	-0.016	2.00	No
WI150	1	2	-0.026	2.00	No
		2	-0.026	5.50	No
	3	2	-0.073	0.50	No
		2	-0.073	7.50	No
	4	2	-0.022	3.00	No
		2	-0.022	5.00	No
	6	2	-0.02	2.00	No
	7	2	-0.021	2.00	No
WL0	1	z	-0.009	2.00	No
		z	-0.009	5.50	No
	3	z	-0.028	0.50	No
		z	-0.028	7.50	No
	4	z	-0.008	3.00	No
		z	-0.008	5.00	No
	6	z	-0.006	2.00	No
	7	z	-0.006	2.00	No
WL30	1	3	-0.008	2.00	No
		3	-0.008	5.50	No
	3	3	-0.024	0.50	No
		3	-0.024	7.50	No
	4	3	-0.007	3.00	No
		3	-0.007	5.00	No
	6	3	-0.005	2.00	No
	7	3	-0.006	2.00	No
WL60	1	3	-0.005	2.00	No
		3	-0.005	5.50	No
	3	3	-0.016	0.50	No
		3	-0.016	7.50	No
	4	3	-0.005	3.00	No
		3	-0.005	5.00	No
	6	3	-0.005	2.00	No
	7	3	-0.004	2.00	No

WL90	1	x	-0.003	2.00	No
		x	-0.003	5.50	No
	3	x	-0.012	0.50	No
		x	-0.012	7.50	No
	4	x	-0.004	3.00	No
		x	-0.004	5.00	No
	6	x	-0.005	2.00	No
	7	x	-0.003	2.00	No
WL120	1	2	-0.005	2.00	No
		2	-0.005	5.50	No
	3	2	-0.016	0.50	No
		2	-0.016	7.50	No
	4	2	-0.005	3.00	No
		2	-0.005	5.00	No
	6	2	-0.005	2.00	No
	7	2	-0.004	2.00	No
WL150	1	2	-0.008	2.00	No
		2	-0.008	5.50	No
	3	2	-0.024	0.50	No
		2	-0.024	7.50	No
	4	2	-0.007	3.00	No
		2	-0.007	5.00	No
	6	2	-0.005	2.00	No
	7	2	-0.006	2.00	No
LL1	13	y	-0.25	50.00	Yes
LL2	13	y	-0.25	100.00	Yes
LL3	13	y	-0.25	0.00	Yes
LLa1	1	y	-0.50	50.00	Yes
LLa2	2	y	-0.50	50.00	Yes
LLa3	3	y	-0.50	50.00	Yes
LLa4	4	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00

WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Current Date: 7/13/2021 3:57 PM
Units system: English
File name: Z:\Shared\Work2.0\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\T-MOBILE\CT\CTNL124A\NSB\CTNL124A.retx

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.5LL1
LC38=1.2D+1.5LL2
LC39=1.2D+1.5LL3
LC40=1.2D+WL0+1.5LLa1
LC41=1.2D+WL30+1.5LLa1
LC42=1.2D+WL60+1.5LLa1
LC43=1.2D+WL90+1.5LLa1
LC44=1.2D+WL120+1.5LLa1
LC45=1.2D+WL150+1.5LLa1
LC46=1.2D-WL0+1.5LLa1
LC47=1.2D-WL30+1.5LLa1
LC48=1.2D-WL60+1.5LLa1
LC49=1.2D-WL90+1.5LLa1
LC50=1.2D-WL120+1.5LLa1
LC51=1.2D-WL150+1.5LLa1
LC52=1.2D+WL0+1.5LLa2

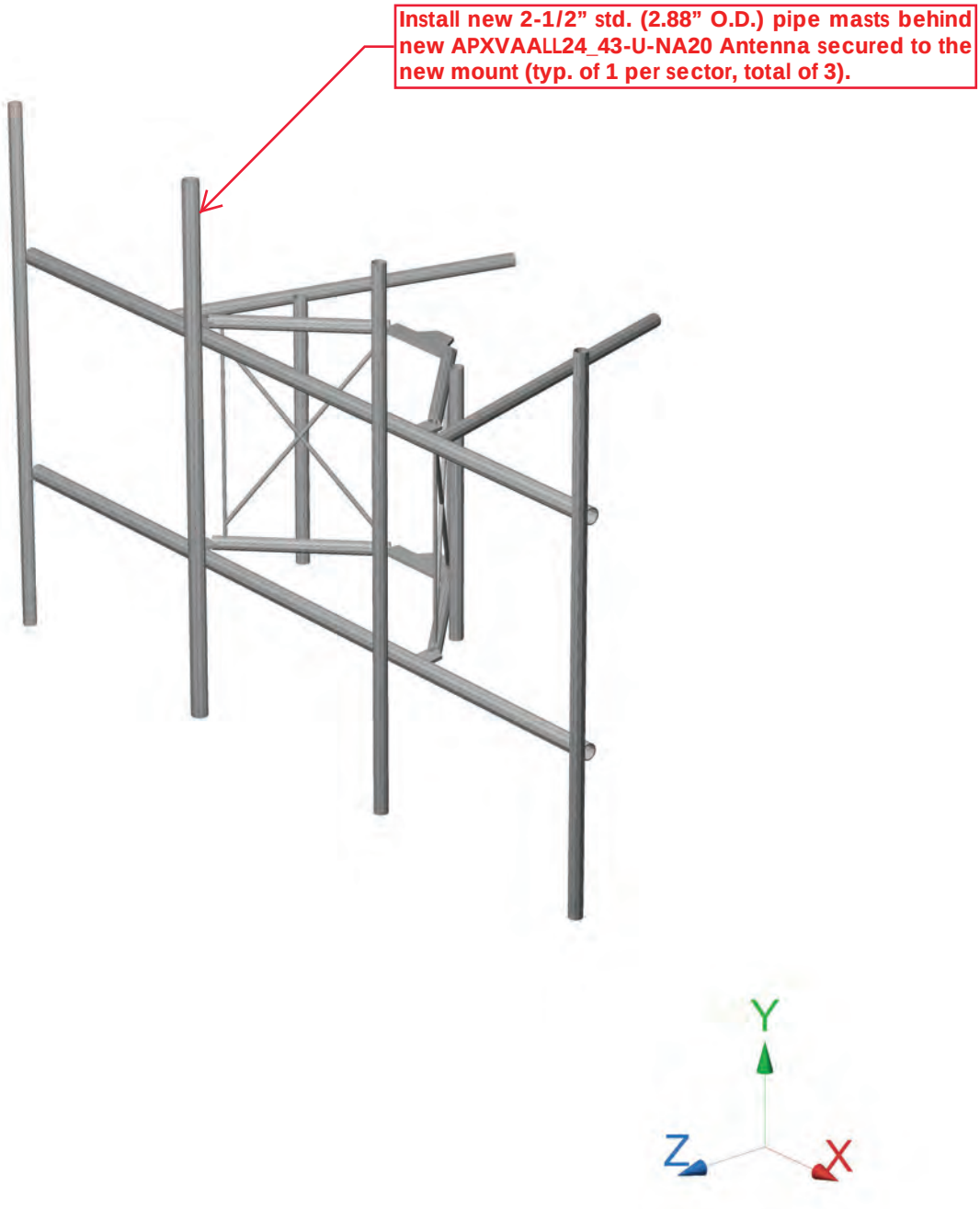
LC53=1.2D+WL30+1.5LLa2
LC54=1.2D+WL60+1.5LLa2
LC55=1.2D+WL90+1.5LLa2
LC56=1.2D+WL120+1.5LLa2
LC57=1.2D+WL150+1.5LLa2
LC58=1.2D-WL0+1.5LLa2
LC59=1.2D-WL30+1.5LLa2
LC60=1.2D-WL60+1.5LLa2
LC61=1.2D-WL90+1.5LLa2
LC62=1.2D-WL120+1.5LLa2
LC63=1.2D-WL150+1.5LLa2
LC64=1.2D+WL0+1.5LLa3
LC65=1.2D+WL30+1.5LLa3
LC66=1.2D+WL60+1.5LLa3
LC67=1.2D+WL90+1.5LLa3
LC68=1.2D+WL120+1.5LLa3
LC69=1.2D+WL150+1.5LLa3
LC70=1.2D-WL0+1.5LLa3
LC71=1.2D-WL30+1.5LLa3
LC72=1.2D-WL60+1.5LLa3
LC73=1.2D-WL90+1.5LLa3
LC74=1.2D-WL120+1.5LLa3
LC75=1.2D-WL150+1.5LLa3
LC76=1.2D+WL0+1.5LLa4
LC77=1.2D+WL30+1.5LLa4
LC78=1.2D+WL60+1.5LLa4
LC79=1.2D+WL90+1.5LLa4
LC80=1.2D+WL120+1.5LLa4
LC81=1.2D+WL150+1.5LLa4
LC82=1.2D-WL0+1.5LLa4
LC83=1.2D-WL30+1.5LLa4
LC84=1.2D-WL60+1.5LLa4
LC85=1.2D-WL90+1.5LLa4
LC86=1.2D-WL120+1.5LLa4
LC87=1.2D-WL150+1.5LLa4

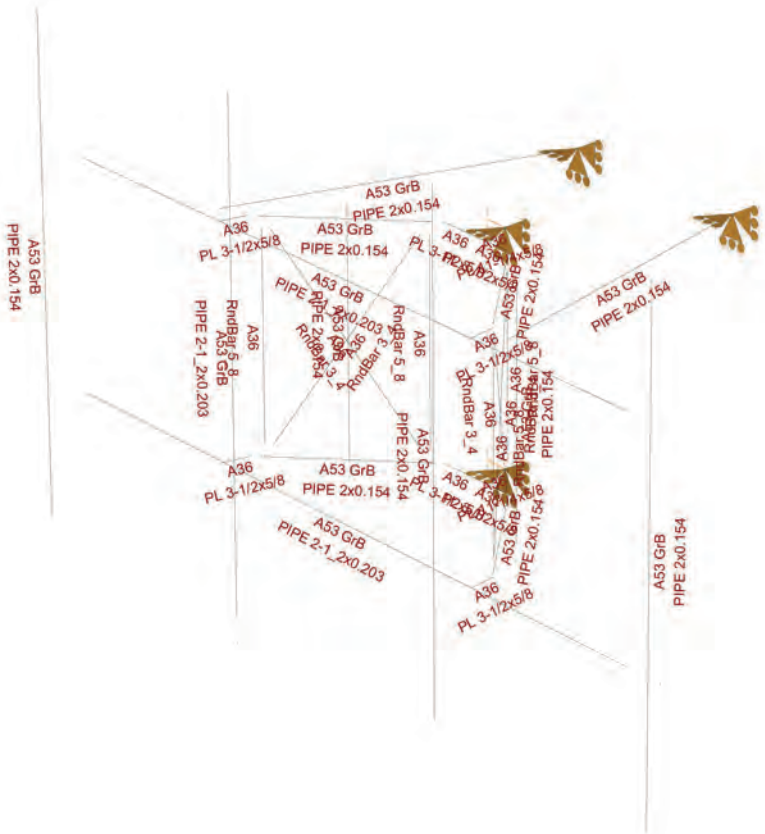
Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	**13**	LC83 at 29.46%	0.46	OK	Eq. H1-1b
		14	LC76 at 28.75%	**0.55**	**OK**	Eq. H1-1b
	PIPE 2x0.154	**1**	LC47 at 29.17%	0.69	OK	Eq. H1-1b
		2	LC9 at 29.17%	0.29	OK	Eq. H1-1b
		3	LC7 at 70.83%	**1.06**	**N.G.**	Eq. H1-1b
		4	LC77 at 29.17%	0.74	OK	Eq. H1-1b
		5	LC5 at 50.00%	0.07	OK	Eq. H1-1b
		6	LC79 at 8.33%	0.20	OK	Eq. H1-1b
		7	LC47 at 8.33%	0.17	OK	Eq. H1-1b
		8	LC81 at 93.75%	0.42	OK	Eq. H1-1b
		9	LC87 at 93.75%	0.37	OK	Eq. H1-1b
		10	LC41 at 93.75%	0.32	OK	Eq. H1-1b
		11	LC47 at 93.75%	0.36	OK	Eq. H1-1b
		12	LC14 at 100.00%	0.11	OK	Sec. E1
	PL 11-1/4x5/8	**31**	LC25 at 100.00%	**0.53**	**OK**	Eq. H1-1b
		32	LC31 at 100.00%	0.43	OK	Eq. H1-1b
	PL 3-1/2x5/8	**23**	LC41 at 100.00%	0.40	OK	Eq. H1-1b
		24	LC1 at 100.00%	0.55	OK	Eq. H1-1b
		25	LC41 at 100.00%	0.48	OK	Eq. H1-1b
		26	LC7 at 100.00%	0.68	OK	Eq. H1-1b
		27	LC77 at 100.00%	0.63	OK	Eq. H1-1b
		28	LC40 at 0.00%	0.55	OK	Eq. H1-1b
		29	LC87 at 100.00%	**0.71**	**OK**	Eq. H1-1b
		30	LC41 at 0.00%	0.62	OK	Eq. H1-1b

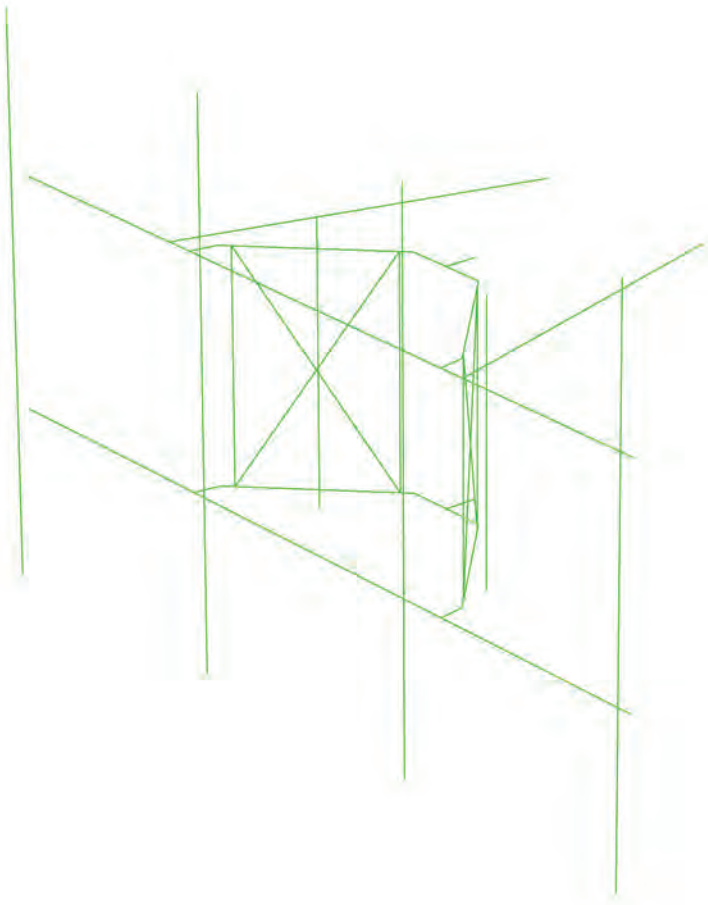
RndBar 3_4	**19**	LC41 at 0.00%	0.31	OK	Eq. H1-1a
	20	LC41 at 0.00%	0.25	OK	Eq. H1-1b
	21	LC83 at 100.00%	**0.38**	**OK**	Eq. H1-1a
	22	LC87 at 100.00%	0.30	OK	Eq. H1-1b
RndBar 5_8	**15**	LC1 at 62.50%	**0.87**	**OK**	Eq. H1-1a
	16	LC83 at 87.50%	0.85	OK	Eq. H1-1a
	17	LC41 at 87.50%	0.72	OK	Eq. H1-1a
	18	LC40 at 87.50%	0.69	OK	Eq. H1-1a

HUDSON
Design Group LLC

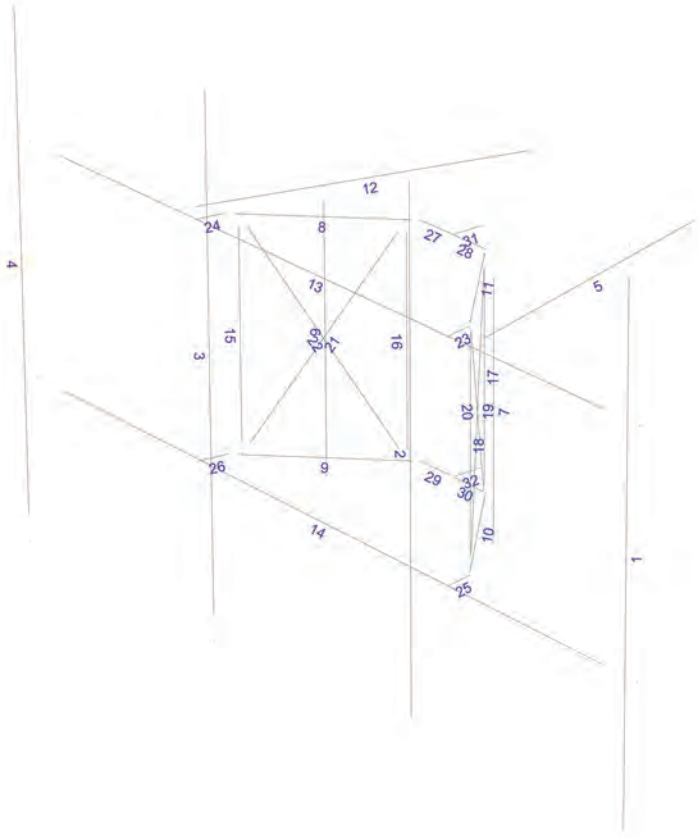
Mount Calculations
(Modified Conditions)


Install new 2-1/2" std. (2.88" O.D.) pipe masts behind new APXVAALL24_43-U-NA20 Antenna secured to the new mount (typ. of 1 per sector, total of 3).
Y
Z
X


A53 GrB
PIPE 2x0.154
A36
PL 3-1/2x5/8
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2-1_2x0.203
A36
RndBar 5_8
A36
RndBar 3_4
A53 GrB
PIPE 2x0.154
A36
PL 3-1/2x5/8
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2-1_2x0.203
A36
PL 3-1/2x5/8
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
Y
Z
X




Y
Z
X


12
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Y
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X

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.5LL1
LC38=1.2D+1.5LL2
LC39=1.2D+1.5LL3
LC40=1.2D+WL0+1.5LLa1
LC41=1.2D+WL30+1.5LLa1
LC42=1.2D+WL60+1.5LLa1
LC43=1.2D+WL90+1.5LLa1
LC44=1.2D+WL120+1.5LLa1
LC45=1.2D+WL150+1.5LLa1
LC46=1.2D-WL0+1.5LLa1
LC47=1.2D-WL30+1.5LLa1
LC48=1.2D-WL60+1.5LLa1
LC49=1.2D-WL90+1.5LLa1
LC50=1.2D-WL120+1.5LLa1
LC51=1.2D-WL150+1.5LLa1
LC52=1.2D+WL0+1.5LLa2

LC53=1.2D+WL30+1.5LLa2
LC54=1.2D+WL60+1.5LLa2
LC55=1.2D+WL90+1.5LLa2
LC56=1.2D+WL120+1.5LLa2
LC57=1.2D+WL150+1.5LLa2
LC58=1.2D-WL0+1.5LLa2
LC59=1.2D-WL30+1.5LLa2
LC60=1.2D-WL60+1.5LLa2
LC61=1.2D-WL90+1.5LLa2
LC62=1.2D-WL120+1.5LLa2
LC63=1.2D-WL150+1.5LLa2
LC64=1.2D+WL0+1.5LLa3
LC65=1.2D+WL30+1.5LLa3
LC66=1.2D+WL60+1.5LLa3
LC67=1.2D+WL90+1.5LLa3
LC68=1.2D+WL120+1.5LLa3
LC69=1.2D+WL150+1.5LLa3
LC70=1.2D-WL0+1.5LLa3
LC71=1.2D-WL30+1.5LLa3
LC72=1.2D-WL60+1.5LLa3
LC73=1.2D-WL90+1.5LLa3
LC74=1.2D-WL120+1.5LLa3
LC75=1.2D-WL150+1.5LLa3
LC76=1.2D+WL0+1.5LLa4
LC77=1.2D+WL30+1.5LLa4
LC78=1.2D+WL60+1.5LLa4
LC79=1.2D+WL90+1.5LLa4
LC80=1.2D+WL120+1.5LLa4
LC81=1.2D+WL150+1.5LLa4
LC82=1.2D-WL0+1.5LLa4
LC83=1.2D-WL30+1.5LLa4
LC84=1.2D-WL60+1.5LLa4
LC85=1.2D-WL90+1.5LLa4
LC86=1.2D-WL120+1.5LLa4
LC87=1.2D-WL150+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	**3**	LC7 at 70.83%	**0.55**	**OK**	Eq. H1-1b
		13	LC83 at 29.46%	0.46	OK	Eq. H1-1b
		14	LC76 at 28.75%	0.55	OK	Eq. H1-1b
	PIPE 2x0.154	**1**	LC47 at 29.17%	0.69	OK	Eq. H1-1b
		2	LC9 at 29.17%	0.28	OK	Eq. H1-1b
		4	LC77 at 29.17%	**0.72**	**OK**	Eq. H1-1b
		5	LC5 at 50.00%	0.07	OK	Eq. H1-1b
		6	LC79 at 8.33%	0.20	OK	Eq. H1-1b
		7	LC47 at 8.33%	0.17	OK	Eq. H1-1b
		8	LC81 at 93.75%	0.42	OK	Eq. H1-1b
		9	LC87 at 93.75%	0.37	OK	Eq. H1-1b
		10	LC41 at 93.75%	0.32	OK	Eq. H1-1b
		11	LC47 at 93.75%	0.36	OK	Eq. H1-1b
		12	LC14 at 100.00%	0.11	OK	Sec. E1
	PL 11-1/4x5/8	**31**	LC25 at 100.00%	**0.54**	**OK**	Eq. H1-1b
		32	LC31 at 100.00%	0.44	OK	Eq. H1-1b
	PL 3-1/2x5/8	**23**	LC41 at 100.00%	0.41	OK	Eq. H1-1b
		24	LC87 at 100.00%	0.46	OK	Eq. H1-1b
		25	LC41 at 100.00%	0.48	OK	Eq. H1-1b
		26	LC83 at 100.00%	0.59	OK	Eq. H1-1b
		27	LC77 at 100.00%	0.63	OK	Eq. H1-1b
		28	LC40 at 0.00%	0.55	OK	Eq. H1-1b
		29	LC87 at 100.00%	**0.72**	**OK**	Eq. H1-1b
		30	LC41 at 0.00%	0.62	OK	Eq. H1-1b

RndBar 3_4	**19**	LC41 at 0.00%	0.32	OK	Eq. H1-1a
	20	LC41 at 0.00%	0.25	OK	Eq. H1-1b
	21	LC83 at 100.00%	**0.38**	**OK**	Eq. H1-1a
	22	LC83 at 100.00%	0.30	OK	Eq. H1-1b
RndBar 5_8	**15**	LC76 at 87.50%	0.80	OK	Eq. H1-1a
	16	LC83 at 87.50%	**0.85**	**OK**	Eq. H1-1a
	17	LC41 at 87.50%	0.73	OK	Eq. H1-1a
	18	LC40 at 87.50%	0.69	OK	Eq. H1-1a

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Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
142	0.00	1.6667	0.00	0
144	0.00	-1.6667	0.00	0
157	1.50	1.6667	-2.50	0
175	-1.50	1.6667	-2.50	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
142	1	1	1	1	0	1
144	1	1	1	1	0	1
157	1	1	1	0	0	0
175	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	153	152		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
2	181	180		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
3	177	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
4	155	154		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
5	156	157		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
6	218	220		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
7	219	221		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
8	162	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
9	163	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	164	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
11	165	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
12	174	175		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
13	158	159		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
14	160	161		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
15	166	167		RndBar 5_8	A36	0.00	0.00	0.00
16	168	169		RndBar 5_8	A36	0.00	0.00	0.00
17	170	171		RndBar 5_8	A36	0.00	0.00	0.00
18	172	173		RndBar 5_8	A36	0.00	0.00	0.00
19	170	173		RndBar 3_4	A36	0.00	0.00	0.00
20	171	172		RndBar 3_4	A36	0.00	0.00	0.00
21	167	168		RndBar 3_4	A36	0.00	0.00	0.00
22	166	169		RndBar 3_4	A36	0.00	0.00	0.00
23	165	185		PL 3-1/2x5/8	A36	0.00	0.00	0.00
24	162	184		PL 3-1/2x5/8	A36	0.00	0.00	0.00
25	164	186		PL 3-1/2x5/8	A36	0.00	0.00	0.00
26	163	187		PL 3-1/2x5/8	A36	0.00	0.00	0.00
27	143	208		PL 3-1/2x5/8	A36	0.00	0.00	0.00
28	208	147		PL 3-1/2x5/8	A36	0.00	0.00	0.00
29	145	209		PL 3-1/2x5/8	A36	0.00	0.00	0.00
30	209	146		PL 3-1/2x5/8	A36	0.00	0.00	0.00
31	208	142		PL 11-1/4x5/8	A36	11.25	4.00	0.00
32	209	144		PL 11-1/4x5/8	A36	11.25	4.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	315.00	0	0.00	0.00	0.00
2	315.00	0	0.00	0.00	0.00
3	315.00	0	0.00	0.00	0.00
4	315.00	0	0.00	0.00	0.00
6	315.00	0	0.00	0.00	0.00
7	315.00	0	0.00	0.00	0.00
15	0.00	2	0.00	0.00	1.00
16	0.00	2	0.00	0.00	1.00
17	0.00	2	0.00	0.00	1.00
18	0.00	2	0.00	0.00	1.00
23	90.00	0	0.00	0.00	0.00
24	90.00	0	0.00	0.00	0.00
25	90.00	0	0.00	0.00	0.00
26	90.00	0	0.00	0.00	0.00
27	90.00	0	0.00	0.00	0.00
28	90.00	0	0.00	0.00	0.00
29	90.00	0	0.00	0.00	0.00
30	90.00	0	0.00	0.00	0.00
31	90.00	0	0.00	0.00	0.00

32	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
19	0.00	-3.50	0.00	0.00	3.50	0.00
20	0.00	3.50	0.00	0.00	-3.50	0.00
21	0.00	3.50	0.00	0.00	-3.50	0.00
22	0.00	-3.50	0.00	0.00	3.50	0.00
31	0.00	-0.625	0.00	0.00	-0.625	0.00
32	0.00	-0.625	0.00	0.00	-0.625	0.00

Hinges

	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
5	1	1	0	0	0	0	0	0	0	0	Full
12	1	1	0	0	0	0	0	0	0	0	Full
20	0	0	0	0	0	0	0	0	0	0	Tension only
22	0	0	0	0	0	0	0	0	0	0	Tension only
23	1	1	0	0	0	0	0	0	0	0	Full
24	1	1	0	0	0	0	0	0	0	0	Full
25	1	1	0	0	0	0	0	0	0	0	Full
26	1	1	0	0	0	0	0	0	0	0	Full

EXHIBIT 10

Construction Drawings

CTNL124A

5 TYLER DRIVE
NORTH FRANKLIN, CT 06254
NEW LONDON COUNTY

SITE NO.: CTNL124A

RF DESIGN GUIDELINE: 67E5A998E 6160

APPROVALS

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

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

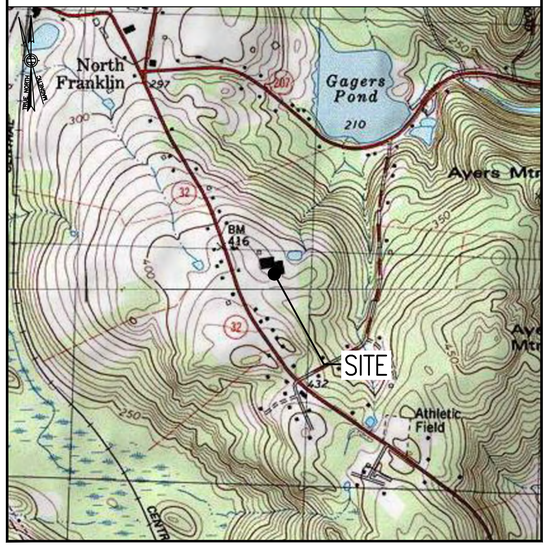
GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMNIPOINT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

VICINITY MAP

SCALE: 1" = 1000'-0"



DIRECTIONS

TURN LEFT ONTO S WASHINGTON ST. TURN RIGHT ONTO MA-123 E. TURN LEFT TO MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. MERGE ONTO I-495 NORTH. TAKE EXIT 13B TO MERGE ONTO I-95 SOUTH TOWARD PROVIDENCE RI. TAKE EXIT 6 FOR I-295 SOUTH TOWARD WOONSOCKET/WARWICK. TAKE EXIT 9C-A FOR US-6 WEST TOWARD HARTFORD CT. KEEP RIGHT AT THE FORK, FOLLOW THE SIGNS FOR JOHNSTON. SLIGHT LEFT ONTO CONNECTICUT TURNPIKE. TAKE EXIT ON THE LEFT ONTO I-395 SOUTH. TAKE EXIT 14 TOWARD CT-2 WEST. TURN RIGHT ONTO WEST TOWN STREET. CONTINUE ONTO CT-32 NORTH. TURN RIGHT ONTO TYLER DRIVE. TURN RIGHT, SITE WILL BE ON THE LEFT.

SHEET INDEX

SHT. NO.	DESCRIPTION	VER.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	TOWER ELEVATION & ANTENNA PLANS	1
A-3	SITE DETAILS 1 OF 2	1
A-4	SITE DETAILS 2 OF 2	1
A-5	ANTENNA & FEEDLINE CHARTS	1
E-1	SITE ELECTRIC & GROUNDING DETAILS 1 OF 2	1
E-2	SITE ELECTRIC & GROUNDING DETAILS 2 OF 2	1
E-3	ANTENNA ELECTRIC & GROUNDING DETAILS	1

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SCOPE OF WORK

INSTALL:

- 9 ANTENNAS
- 6 RRUs
- 1 B160 BATTERY CABINET
- 1 6160 CABINET
- 1 PPC CABINET
- 1 PURCELL CABINET
- 1 GPS ANTENNA
- 3 HYBRID CABLES
- 3 SECTOR FRAME MOUNTS
- 1 GENERATOR
- 1 AUTOMATIC TRANSFER SWITCH
- 1 20'x10' CONCRETE PAD
- 1 20'x10' ICE CANOPY
- 1 ICE BRIDGE

SITE NOTES

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
   - ADA COMPLIANCE NOT REQUIRED.
   - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

PROJECT SUMMARY

SITE NUMBER:	CTNL124A
SBA SITE NUMBER:	CT34702-M
SBA SITE NAME:	NORTH FRANKLIN, CT
SITE ADDRESS:	5 TYLER DRIVE NORTH FRANKLIN, CT 06254
PROPERTY OWNER:	TOWN OF FRANKLIN 7 MEETINGHOUSE HILL ROAD FRANKLIN, CT 06254
TOWER OWNER:	SBA SITE MANAGEMENT 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON COUNTY
ZONING DISTRICT:	C-2 COMMERCIAL
STRUCTURE TYPE:	SELF-SUPPORT TOWER
STRUCTURE HEIGHT:	180'
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	ROBERT ROBESKI PHONE: 732-404-9360 x2245 EMAIL: RRobeski@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: N.41.625300° N.41°37'31.08" LONGITUDE W.72.156300° W.72°09'22.68"

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil ·Structural ·Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
7/13/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/13/21	ISSUED FOR CONSTRUCTION	CMC
0	06/24/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTNL124A

SITE ADDRESS:
5 TYLER DRIVE
NORTH FRANKLIN, CT 06254

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.240

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – T–MOBILE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH ALL T–MOBILE STANDARDS AND SPECIFICATIONS.

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T–MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER
   OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.

7. CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T–MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.

4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.

5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL

6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUN, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T–MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).

8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
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7/13/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/13/21	ISSUED FOR CONSTRUCTION	CMC
0	06/24/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTNL124A

SITE ADDRESS:
5 TYLER DRIVE
NORTH FRANKLIN, CT 06254

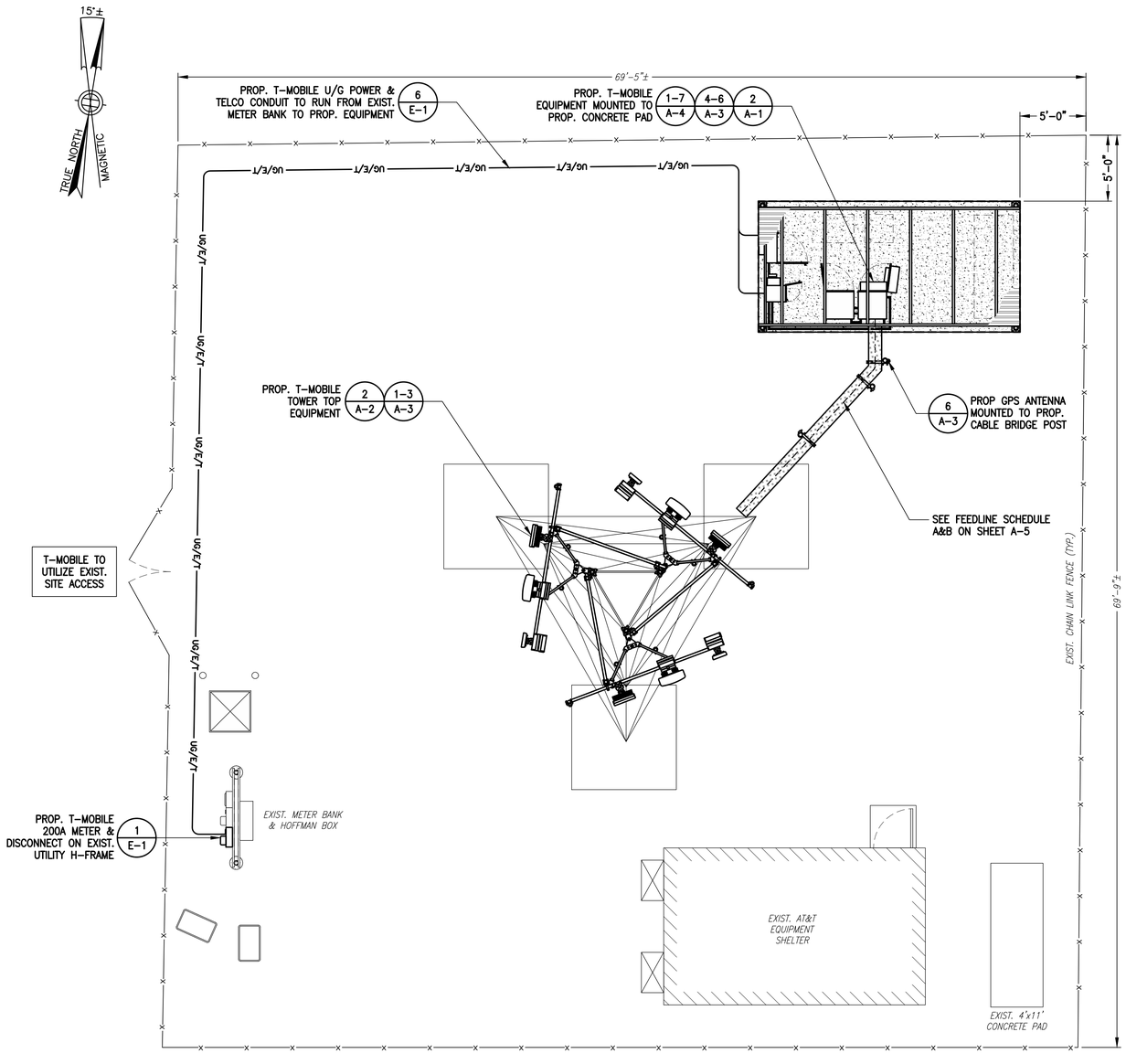
SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

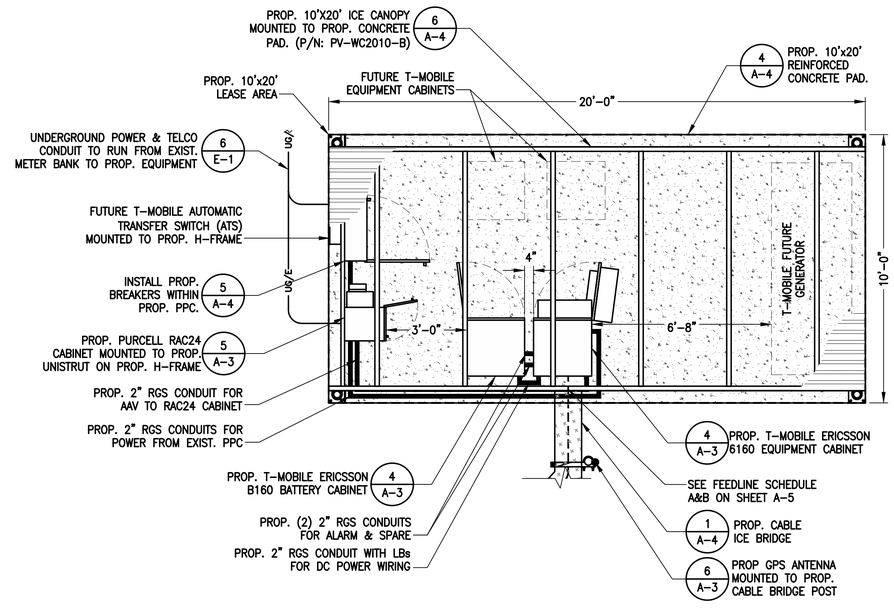
1815.240

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).



COMPOUND PLAN (1 / A-1)
SCALE: 1" = 5'-0"
0 5'-0" 10'-0 15'-0"



PROPOSED EQUIPMENT PLAN (2 / A-1)
SCALE: 3/8" = 1'-0"
0 2'-8" 5'-4" 8'-0"

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SHEET TITLE
COMPOUND & EQUIPMENT PLAN

SHEET NUMBER
A-1

1815.240

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GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

SPECIAL CONSTRUCTION NOTE:
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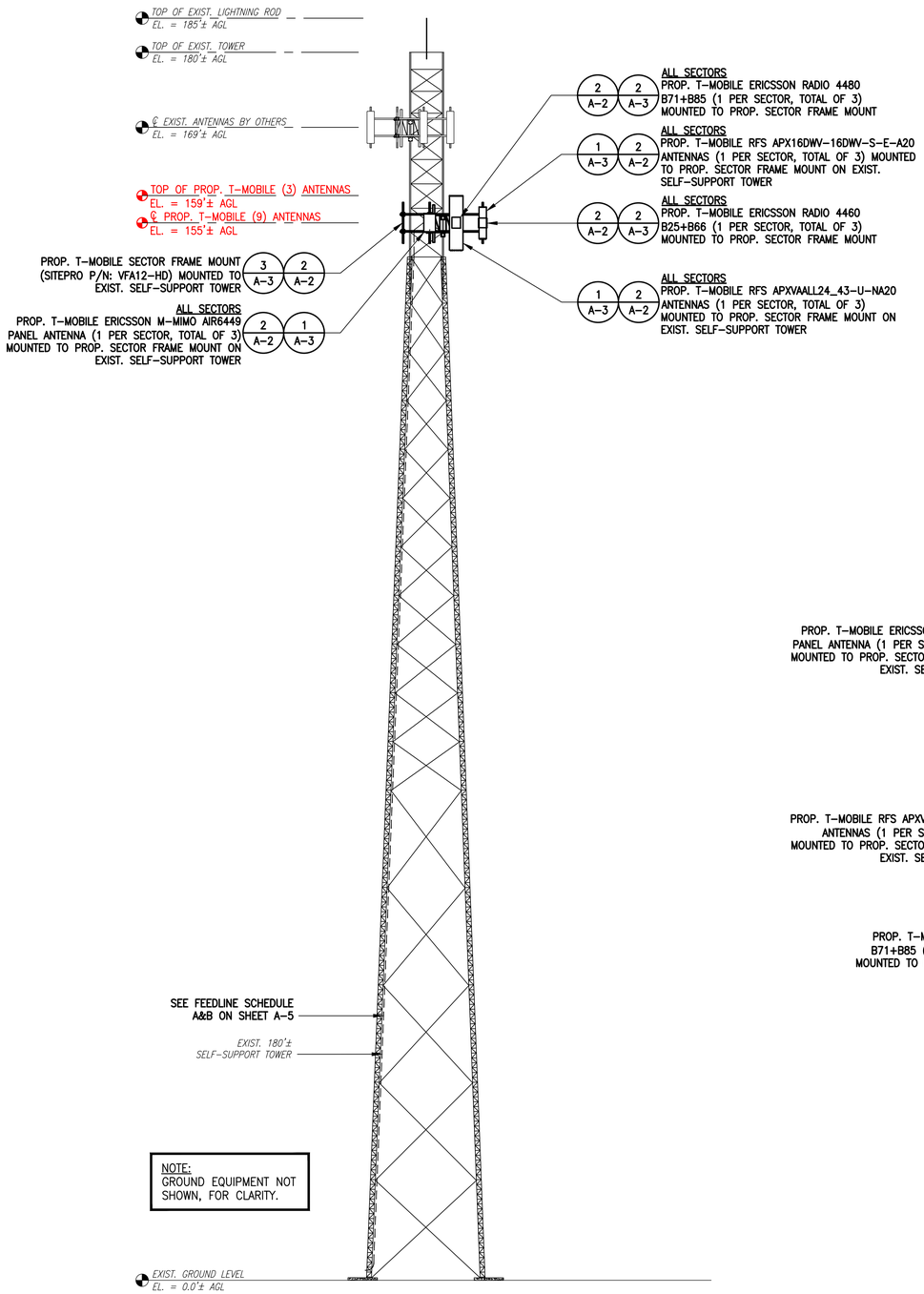
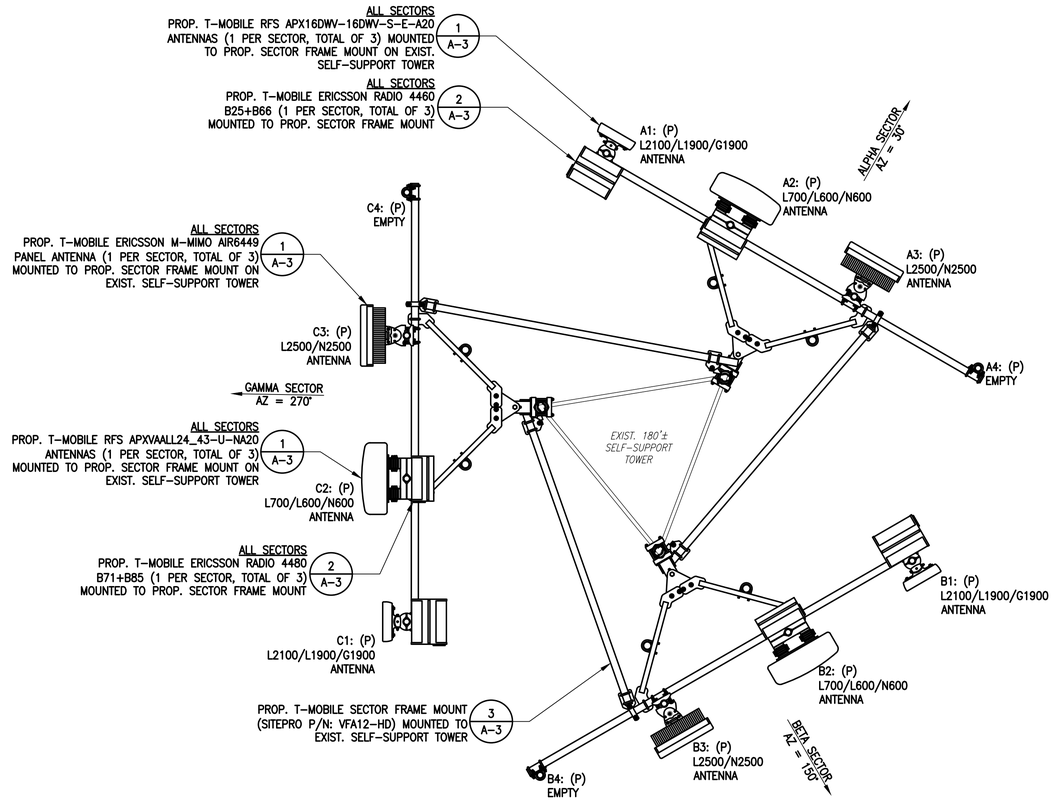
RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.



NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION 1 A-2
SCALE: 1" =10'-0"
0 10'-0" 20'-0" 30'-0"



PROPOSED ANTENNA PLAN 2 A-2
SCALE: 1/2" = 1'-0"

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

ANTENNA STATUS LEGEND:

EMPTY - EMPTY PIPE

(E) - EXISTING
(P) - INSTALL
(F) - FUTURE

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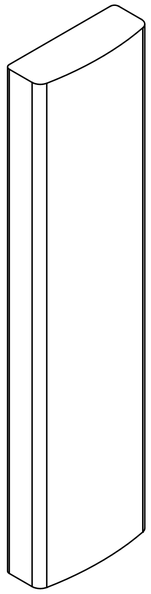
SHEET TITLE
TOWER ELEVATION & ANTENNA PLAN

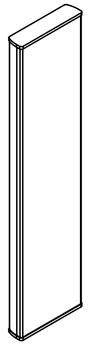
SHEET NUMBER
A-2

1815.240



RFS APXVAALL24_43-U-NA20 ANTENNA

DIMENSIONS: 95.9"H x 24.0"W x 8.7"D
WEIGHT: 128.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



RFS APX16DWV-16DWV-S-E-A20 ANTENNA

DIMENSIONS: 55.9"H x 13.0"W x 3.15"D
WEIGHT: 40.7 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ERICSSON M-MIMO AIR6449 B41 ANTENNA

DIMENSIONS: 33.1"H x 20.5"W x 8.3"D
WEIGHT: 103.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ANTENNA DETAILS
SCALE: N.T.S.
1 / A-3

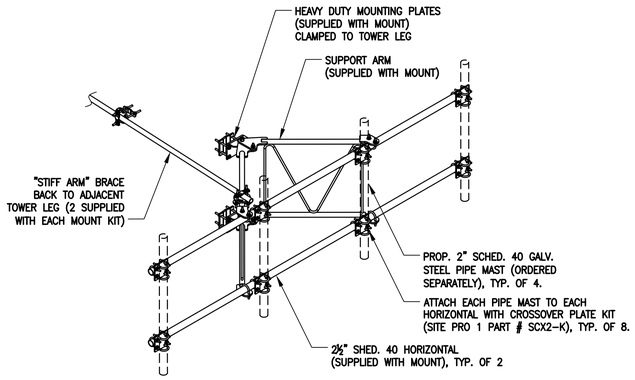
ERICSSON RADIO 4460 B25+B66

DIMENSIONS: 17.0"H x 15.1"W x 11.9"D
WEIGHT: 104.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ERICSSON RADIO 4480 B71+B85

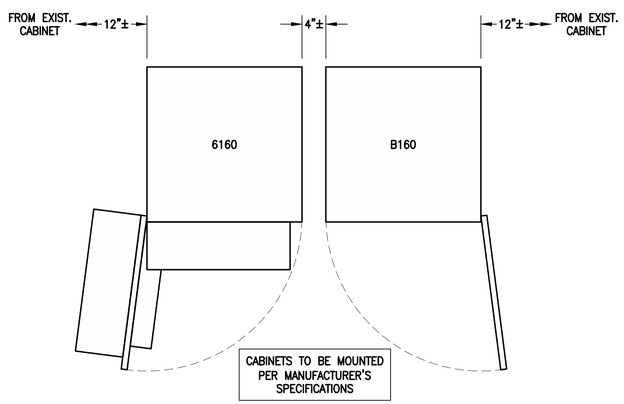
DIMENSIONS: 19.2"H x 15.1"W x 7.5"D
WEIGHT: 92.6 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO DETAILS
SCALE: N.T.S.
2 / A-3



SITE-PRO 1 12'-6" HEAVY-DUTY V-FRAME
PART NUMBER: VFA12-HD
(TOTAL OF 3 REQUIRED)

TYPICAL SITE PRO 1, 12'-6" HEAVY DUTY V-FRAME ASSEMBLY
SCALE: N.T.S.
3 / A-3



ERICSSON 6160 SITE SUPPORT CABINET

DIMENSIONS: 63.25"H x 26.0"W x 34.0"D
WEIGHT: 680.0 lbs
QUANTITY: TOTAL OF 1

ERICSSON B160 BATTERY CABINET

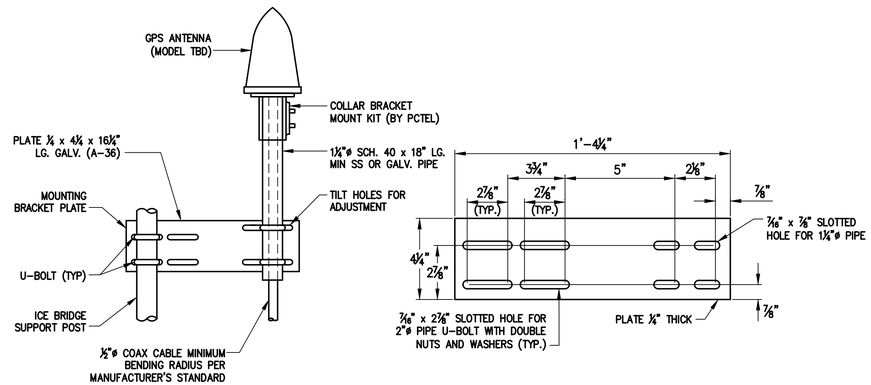
DIMENSIONS: 63.25"H x 26.0"W x 26.0"D
WEIGHT: 1771.0 lbs
QUANTITY: TOTAL OF 1

EQUIPMENT DETAIL
SCALE: N.T.S.
4 / A-3

PURCELL SITE SUPPORT CABINET RAC24

DIMENSIONS: 24.0"H x 15.7"W x 20.0"D
QUANTITY: TOTAL OF 1

SSC DETAILS
SCALE: N.T.S.
5 / A-3



GPS ANTENNA MOUNTING BRACKET

MOUNTING BRACKET PLATE

1. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1"-1½" DIAMETER GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
2. THE MOUNTING PLATE SHALL BE FASTENED AS SHOWN AND ATTACHED TO THE APPROPRIATE SUPPORT STRUCTURE USING U-BOLTS. THE SUPPORT PIPE SHALL THEN BE ATTACHED TO THE MOUNTING PLATE USING THE OVERSIZE U-BOLTS PROVIDED TO ALLOW ADJUSTMENT. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.

GPS MOUNTING DETAIL
SCALE: NTS
6 / A-3

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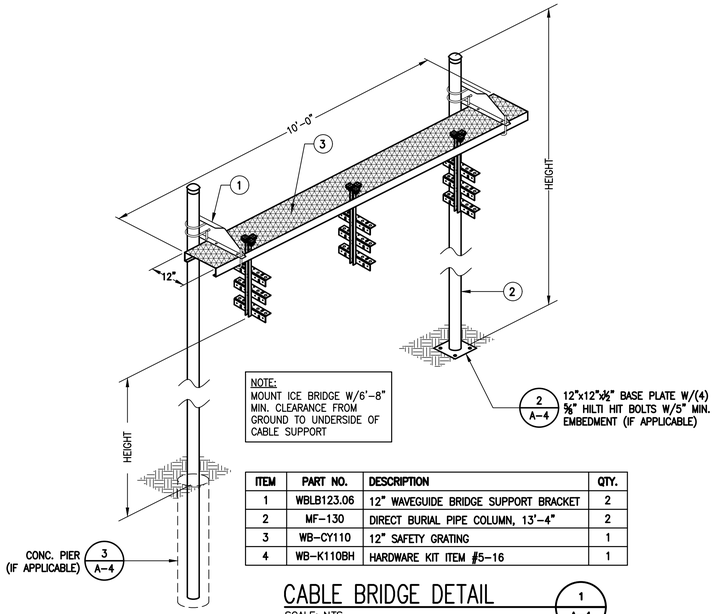
SHEET TITLE
SITE DETAILS
1 OF 2

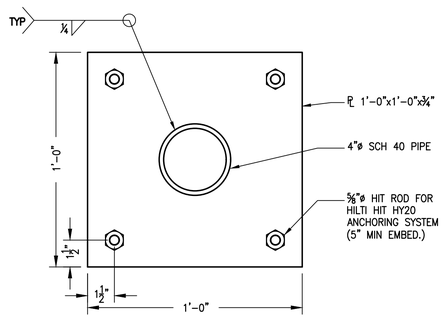
SHEET NUMBER
A-3

1815.240

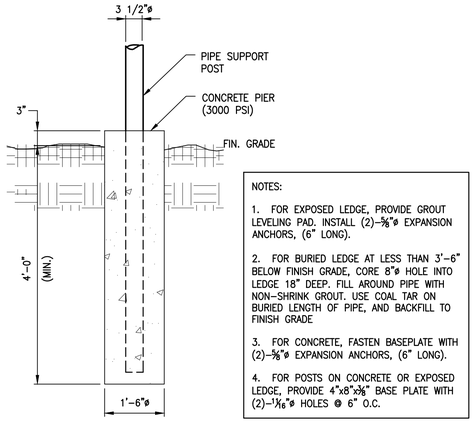


ITEM	PART NO.	DESCRIPTION	QTY.
1	WBLB123.06	12" WAVEGUIDE BRIDGE SUPPORT BRACKET	2
2	MF-130	DIRECT BURIAL PIPE COLUMN, 13'-4"	2
3	WB-CY110	12" SAFETY GRATING	1
4	WB-K110BH	HARDWARE KIT ITEM #5-16	1

CABLE BRIDGE DETAIL 1 A-4
SCALE: NTS



CABLE BRIDGE BASE PLATE 2 A-4
SCALE: NTS



NOTES:

1. FOR EXPOSED LEDGE, PROVIDE GROUT LEVELING PAD. INSTALL (2)-⅝"ø EXPANSION ANCHORS, (6" LONG).
2. FOR BURIED LEDGE AT LESS THAN 3'-6" BELOW FINISH GRADE, CORE 8"ø HOLE INTO LEDGE 18" DEEP. FILL AROUND PIPE WITH NON-SHRINK GROUT. USE COAL TAR ON BURIED LENGTH OF PIPE, AND BACKFILL TO FINISH GRADE
3. FOR CONCRETE, FASTEN BASEPLATE WITH (2)-⅝"ø EXPANSION ANCHORS, (6" LONG).
4. FOR POSTS ON CONCRETE OR EXPOSED LEDGE, PROVIDE 4"x8"x⅜" BASE PLATE WITH (2)-$^{13}/_{16}$"ø HOLES @ 6" O.C.

CABLE BRIDGE PIER 3 A-4
SCALE: NTS

EMERSON CAC-A75201090 PPC
DIMENSIONS: 24.0"H x 15.7"W x 20.0"D
QUANTITY: TOTAL OF 1

PPC DETAIL 5 A-4
SCALE: N.T.S.

CONCRETE GENERAL NOTES

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND TO THE PROJECT SPECIFICATIONS.
2. ALL CONCRETE IS TO BE NORMAL DENSITY CONCRETE WITH A MAXIMUM SLUMP OF 4 INCHES. MAXIMUM AGGREGATE SIZE ¾ INCH. NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE AT THE JOB SITE.
3. PROVIDE AIR ENTRAINMENT OF 4 TO 6 PERCENT IN ALL EXPOSED CONCRETE WORK WITH AIR-ENTRAINING ADMIXTURE COMPLYING WITH ASTM C 260. AT TROWEL-FINISHED FLOORS, DO NOT EXCEED AIR-ENTRAINMENT CONTENT OF 3 PERCENT.
4. NO HOLES OR SLEEVES SHALL BE MADE THROUGH CONCRETE WORK OTHER THAN THOSE INDICATED ON THE STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
5. ALL FORMWORK OFFSET TOLERANCES (PER ACI 117) TO BE CLASS A.
6. FLOOR SLAB TOLERANCES TO ASTM E1155; SPECIFIED OVERALL MINIMUM VALUE OF FLATNESS F F=25 WITH LOCAL MINIMUM F F=17, AND MINIMUM VALUE OF LEVELNESS F F=20 WITH LOCAL MINIMUM F I AND F F WITHIN 72 HOURS OF SLAB CONSTRUCTION.
7. CABINETS ON SLAB (IF APPLICABLE). ALLOWABLE CAPACITY OF CONCRETE USED IN DESIGN MIN. 4000 PSI.

FOUNDATION NOTES:

1. DESIGN INFORMATION AND GENERAL REQUIREMENTS

1.1 CODES

A. DESIGN CONFORMS TO INTERNATIONAL BUILDING CODE 2012.

B. AMERICAN CONCRETE INSTITUTE "BUILDING COADE REQUIREMENTS FOR REINFORCED CONCRETE," ACI 318-08.

2. EARTHWORK

2.1 FOUNDATIONS

A. FOUNDATIONS HAVE BEEN DESIGNED TO BEAR ON (UNDISTURBED RESIDUAL SOILS/COMPACTED STRUCTURAL FIL), CAPABLE OF SAFELY SUPPORTING A NET ALLOWABLE BEARING PRESSURE OF 2000 PSF. IF FOUNDATION CONDITIONS PROVE UNACCEPTABLE AT ELEVATIONS SHOWN, EXCAVATION SHALL BE CARRIED DEEPER AND SHALL BE BACKFILLED WITH LEAN CONCRETE TO PLAN FOOTING BOTTOM, OR REDESIGN OF FOUNDATIONS WILL BE REQUIRED AT THE DIRECTION OF THE ENGINEER.

B. DESIGN, FURNISH AND INSTALL ALL TEMPORARY SHEETING, SHORING AND DRAINAGE NECESSARY TO MAINTAIN THE EXCAVATION AND PROTECT SURROUNDING STRUCTURES AND UTILITIES.

C. THOROUGHLY COMPACT ALL BOTTOM OF FOOTINGS PRIOR TO PLACING ANY CONCRETE.

3. CONCRETE

3.1 FORMWORK

A. CONCRETE CONSTRUCTION SHALL CONFORM TO "SPECIFICATIONS FOR STRUCTURAL, CONCRETE FOR BUILDINGS," (ACI 301-89).

B. FORMWORK SHALL CONFORM TO ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS."

3.2 REINFORCEMENT

A. REINFORCING STEEL ASTM A615, GRADE 60. WELDED WIRE ASTM A185 (FLAT SHEET). LAPS 40 BAR DIAMETERS UNLESS NOTED. BARS SHALL BE SECURELY HELD IN ACCURATE POSITION BY SUITABLE ACCESSORIES, TIE BARS, SUPPORT BARS, ETC. HOOK LENGTHS SHALL BE 12 BAR DIAMETERS.

B. CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

FOOTINGS & SLABS CAST AGAINST GROUND	3"
CONCRETE TO BE IN CONTACT WITH GROUND OR WEATHER AT BARS GREATER THAN #5	2"
AT BARS #5 OR LESS	1-1/2"
CONCRETE NOT TO BE EXPOSED TO GROUND OR WEATHER BEAMS, GIRDERS & COLUMNS	1-1/2"
SLABS & WALLS	3/4"

3.3 CAST-IN-PLACE-CONCRETE

A. MINIMUM 28 DAY CYLINDER STRENGHT AND MAXIMUM SLUMP, PRIOR TO ADDITION OF SUPER PLASTICIZERS, AS FOLLOWS:

	F'C (PSI)	SLUMP
CLASS I FOOTINGS	4000	3"
CLASS II FOOTINGS	4000	3"
CLASS III INTERIOR ELEVATED SLABS & WALLS	4000	4"
CLASS V OTHER WORK	4000	4"
CLASS VI LEAN CONCRETE FOR OVER EXCAVATION OF FOUNDATIONS	2000	N/A

B. MIX DESIGN TO BE IN ACCORDANCE WITH ACI 318, CHAPTER 5. NO CALCIUM CHLORIDE OR ADMIXTURE CONTAINING CHLORIDES SHALL BE USED IN ANY CONCRETE.

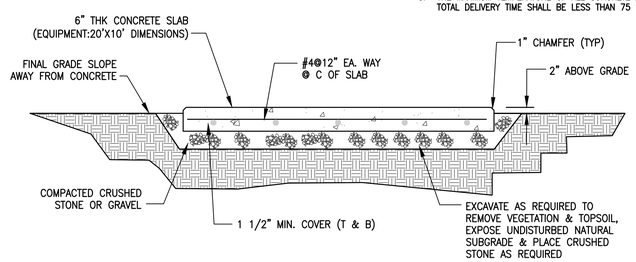
C. COARSE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 SIZE $57. COARSE AGGREGATE FOR LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C330 GRADED 3/4" TO 1/4".

D. COLD WEATHER PLACEMENT SHALL COMPLY WITH ACI 306.1.

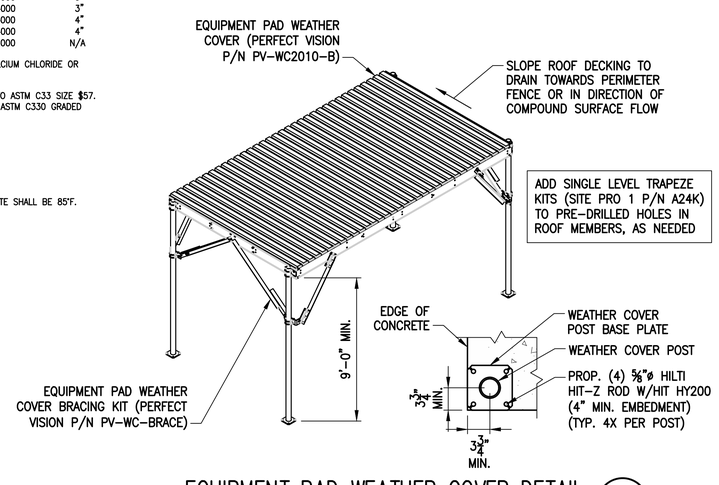
E. HOT WEATHER PLACEMENT SHALL COMPLY WITH ACI 305 R.

F. CHAMFER ALL EXPOSED EDGES 3/4".

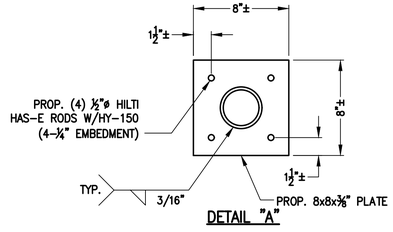
G. THE MAXIMUM TEMPERATURE OF ALL CONCRETE AT DELIVERY TO THE SITE SHALL BE 85°F. TOTAL DELIVERY TIME SHALL BE LESS THAN 75 MINUTES.



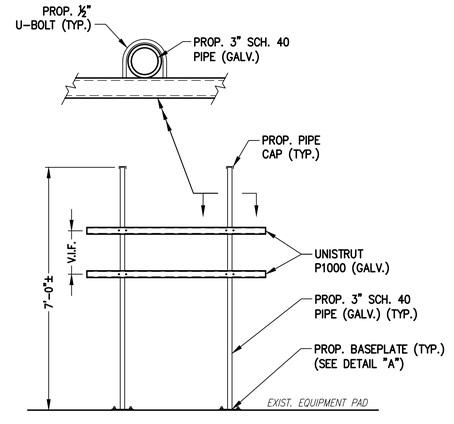
CONCRETE PAD DETAIL 4 A-4
SCALE: N.T.S.



EQUIPMENT PAD WEATHER COVER DETAIL 6 A-4
SCALE: N.T.S.



DETAIL "A"



H-FRAME DETAIL 7 A-4
SCALE: N.T.S.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED PROFESSIONAL CIVIL ENGINEER
7/13/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/13/21	ISSUED FOR CONSTRUCTION	CMC
0	06/24/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTNL124A

SITE ADDRESS:
5 TYLER DRIVE
NORTH FRANKLIN, CT 06254

SHEET TITLE
SITE DETAILS
2 OF 2

SHEET NUMBER
A-4

1815.240

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1 RFS APX16DWV-16DWV-S-E-A20	155'± AGL	30°	0°	2°	L2100/L1900/G1900	RADIO 4460 B25+B66	(3) 2" (6x24) HCS FIBER CABLES
	A2 RFS APXVAALL24_43-U-NA20	155'± AGL	30°	0°	2°	L700/L600/N600	RADIO 4480 B71+B85	
	A3 ERICSSON M-MIMO AIR6449	155'± AGL	30°	0°	2°	L2500/N2500	–	
BETA	B1 RFS APX16DWV-16DWV-S-E-A20	155'± AGL	150°	0°	2°	L2100/L1900/G1900	RADIO 4460 B25+B66	
	B2 RFS APXVAALL24_43-U-NA20	155'± AGL	150°	0°	2°	L700/L600/N600	RADIO 4480 B71+B85	
	B3 ERICSSON M-MIMO AIR6449	155'± AGL	150°	0°	2°	L2500/N2500	–	
GAMMA	C1 RFS APX16DWV-16DWV-S-E-A20	155'± AGL	270°	0°	2°	L2100/L1900/G1900	RADIO 4460 B25+B66	
	C2 RFS APXVAALL24_43-U-NA20	155'± AGL	270°	0°	2°	L700/L600/N600	RADIO 4480 B71+B85	
	C3 ERICSSON M-MIMO AIR6449	155'± AGL	270°	0°	2°	L2500/N2500	–	

CABLE NOTE: SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV1 – 06/09/21

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES	LOCATION
A	*EXISTING TO REMAIN:* *NONE* *EXISTING TO BE REMOVED:* *NONE*	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (1) ½" COAX CABLE FOR GPS ANTENNA (3) 2" (6x24) HCS FIBER CABLES	

NOTE:
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

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SITE NUMBER:
CTNL124A

SITE ADDRESS:
5 TYLER DRIVE
NORTH FRANKLIN, CT 06254

SHEET TITLE
ANTENNA & FEEDLINE CHARTS

SHEET NUMBER
A-5

1815.240

NOTES TO CONTRACTOR:

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE ENGINEER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS REQUIRED WITH LOCAL AUTHORITY.
3. UTILITY SERVICES SHOWN ARE PROPOSED, THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, ROUTING AND ASSOCIATED REQUIREMENTS WITH LOCAL UTILITY COMPANIES & SPRINT CONSTRUCTION MANAGER.
4. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER AND LIGHTING AS REQUIRED FOR THE WORK.
5. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.
6. THE CONDUIT RUNS AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.
7. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.
8. ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.
9. ALL CONDUIT TERMINATIONS SHALL BE PROVIDED WITH PLASTIC THROAT INSULATING GROUNDING BUSHINGS.
10. ALL WIRE SHALL BE TYPE THWN, SOLID, ANNEALED COPPER UP TO SIZE #10 AWG (#8 AND LARGER SHALL BE CONCENTRIC STRANDED) 75 DEGREE C, (167 DEGREES F), 98% CONDUCTIVITY, MINIMUM #12.
11. ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS, ACTION CRAFT, BRADY, OR APPROVED EQUAL.
12. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
13. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.
14. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN.
15. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, AND ALL DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.
16. THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS, DOCUMENT ANY AND ALL WIRING AND EQUIPMENT CONDITIONS AND CHANGES WHILE COMPLETING THIS CONTRACT. SUBMIT AT SUBSTANTIAL COMPLETION.
17. ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL LOCATIONS FED FROM (NO EXCEPTIONS.)
18. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTION MANAGERS APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

   NOTE: ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN AND SOME EQUIPMENT CHARACTERISTICS MAY NOT BE CORRECT AS SHOWN ON THESE DRAWINGS). LOCATION OF OUTLETS, BOXES, ETC. AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
19. ALL UNDERGROUND CONDUIT ROUTING SHALL BE COORDINATED IN FIELD BETWEEN SPRINT WIE, CONTRACTOR, AND RESPECTIVE UTILITY COMPANIES.
20. ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.
21. CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH 6" WIDE. 6 MIL THICK ALUMINIZED PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.
22. ELECTRICAL CONTRACTOR SHALL PROVIDE A SECTION OF SEALTITE CONDUIT FOR TELCO CONNECTION TO THE PRIMARY RADIO CABINET. COORDINATE EXACT CONNECTION TYPE WITH LUCENT.
23. ELECTRICAL CONTRACTOR SHALL PROVIDE A SECTION OF SEALTITE CONDUIT FOR POWER CONNECTION TO THE PRIMARY RADIO CABINET. THE CONTRACTOR SHALL PROVIDE AN ADDITIONAL 6'-0" COIL OF WIRE AT THE END OF THE SEALTITE.
24. GROUND IN ACCORD W/LOCAL CODE & SHEET E-2.
25. PROVIDE (2) 4" GALVANIZED RIGID STEEL CONDUIT RISER WITH 1/4" NYLON DRAG LINE INCLUDING 90° GRC SWEEP AT POLE (UP TO 20'-0" AFG). SECURE TO POLE PER UTILITY COMPANY REQUIREMENTS. PRIMARY CABLES BY UTILITY COMPANY.

ELECTRICAL SPECIFICATIONS

SECTION 16010 – GENERAL PROVISIONS

A. REQUIREMENTS: FURNISH ALL LABOR, MATERIALS, SERVICE, EQUIPMENT, AND APPLIANCES REQUIRED TO COMPLETE THE INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND CONTRACT DRAWINGS.

B. REQUIREMENTS OF REGULATORY AGENCIES AND STANDARDS: INSTALLATION, MATERIAL, EQUIPMENT AND WORKMANSHIP SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (NEC) – APPLICABLE STATE ELECTRIC CODES, THE NATIONAL ELECTRICAL SAFETY CODE (NESC), AND THE TERMS AND THE CONDITIONS OF THE AUTHORITIES HAVING LAWFUL JURISDICTION PERTAINING TO THE WORK REQUIRED. ALL MODIFICATIONS REQUIRED BY THESE CODES, RULES, REGULATIONS, AND AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE OWNER.

C. UNDERWRITER'S LABORATORIES (UL): ALL MATERIALS, APPLIANCES, EQUIPMENT, OR OR DEVICES SHALL CONFORM TO THE APPLICABLE STANDARDS OF UNDERWRITER'S LABORATORIES, INC. THE LABEL OF, OR LISTING BY. UL, IS REQUIRED.

SECTION 16110 – RACEWAYS, BOXES AND FITTINGS

A. CONDUIT FITTINGS, CONNECTORS AND COUPLINGS, EMT COUPLINGS AND CONNECTORS EITHER STEEL OR MALLEABLE IRON ONLY. "CONCRETE TIGHT" OR "RAIN TIGHT" AND EITHER THE GLAND AND RING COMPRESSION TYPE OR STAINLESS STEEL MULTIPLE POINT LOCKING TYPE. CONNECTORS TO HAVE INSULATED THROATS. EMT FITTINGS USING SET SCREWS OR INDENTATIONS AS A MEANS OF ATTACHMENT ARE NOT PERMITTED.

B. BUSHINGS: INSULATED TYPE, DESIGNED TO PREVENT ABRASION OF WIRES WITHOUT IMPAIRING THE CONTINUITY OF THE CONDUIT GROUNDING SYSTEM, FOR RIGID STEEL CONDUIT, IMC AND RIGID ALUMINUM CONDUIT.

C. CONDUIT INSTALLATIONS: CONDUIT SYSTEMS, EMT, OR RIGID NON-METALLIC CONDUIT UNLESS NOTED. INSTALL CONCEALED CONDUIT AND EMT IN AS DIRECT LINES AS POSSIBLE. INSTALL EXPOSED CONDUITS AND EMT PARALLEL TO OR AT RIGHT ANGLES TO THE LINES OF THE BUILDING. RIGHT ANGLE BENDS IN EXPOSED CONDUIT AND EMT RUNS SHALL BE MADE WITH STANDARD ELBOWS, SCREW JOINTED CONDUIT FITTINGS OR CONDUIT BENT TO RADIUS NO LESS THAN THOSE OF STANDARD ELBOWS.

D. CONDUIT SUPPORTS: PROVIDE SUPPORTS FOR HORIZONTAL CONDUITS AND EMT NOT MORE THAN 8 FEET APART WITH NOT LESS THAN TWO SUPPORTS FOR EACH 10 FOOT STRAIGHT LENGTH AND ONE SUPPORT NEAR EACH ELBOW OR BEND INCLUDING RUNS ABOVE SUSPENDED CEILINGS AND WITHIN 3 FEET OF ALL JUNCTION BOXES, SWITCHES, FITTINGS, ETC. INSTALL ONE HOLE PIPE STRAPS ON CONDUITS 1 INCH OR SMALLER INSTALL INDIVIDUAL PIPE HANGERS FOR CONDUITS LARGER THAN 1 INCH. SPRING STEEL FASTENERS WITH HANGER RODS MAY BE USED IN DRY LOCATIONS IN LIEU OF PIPE STRAPS.

SECTION 16120 – CONDUCTORS

A. WIRES AND CABLES (600 VOLTS): CONFORM TO THE APPLICABLE UL AND ICEA STANDARDS FOR THE USE INTENDED. USE COPPER CONDUCTORS WITH 600 VOLTS INSULATION UNLESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS. USE STRANDED CONDUCTORS FOR NO. 8 OR LARGER WHERE ELSEWHERE SPECIFIED OR NOTED OTHERWISE ON THE DRAWINGS. USE OF ALUMINUM CONDUCTORS WILL NOT BE PERMITTED. INSULATION SHALL BE TYPE THHN/THWN, 75°C, FOR ALL CONDUCTORS, USELESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS.

B. COLOR CODING. PHASE, NEUTRAL, AND GROUND CONDUCTORS COLOR-CODED IN ACCORDANCE WITH NEC. CONNECT ALL CONDUCTORS OF THE SAME COLOR TO THE SAME PHASE CONDUCTOR, COLOR CODING SHALL BE BLACK, RED, BLUE, WHITE (120/208) OR BROWN ORANGE, YELLOW, GRAY (277/480) WITH GREEN FOR ALL GROUND CONDUCTORS.

C. CONNECTORS AND LUGS: FOR COPPER CONDUCTORS NO. 6 AND SMALLER: 3M SCOTCH-LOK OR T & B STA-KON COMPRESSION OR INDENT TYPE CONNECTORS WITH INTEGRAL OR SEPARATE INSULATING CAPS. FOR COPPER CONDUCTORS LARGER THAN NO. 6 SOLDERLESS, INDENT, HEX SCREW OR BOLT TYPE PRESSURE CONNECTORS, PROPERLY TAPED OR INSULATED.

D. SPLICES: (480 VOLTS AND UNDER): CONDUCTOR LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPLICES UNLESS APPROVED BY THE BUILDING INSPECTOR.

SECTION 16220 – CIRCUIT BREAKERS

A. PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO OR THREE POLE BRANCH CIRCUIT BREAKERS AS SHOWN ON DRAWINGS. MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP. AIC RATING TO MATCH EXISTING OR AS REQUIRED FOR AVAILABLE FAULT CURRENTS.

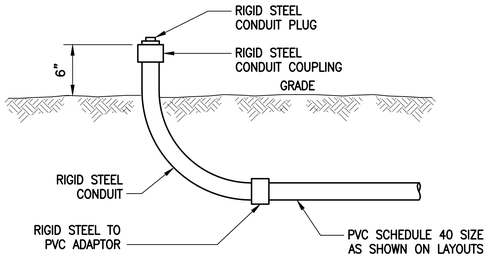
ELECTRICAL LEGEND

SYMBOLS

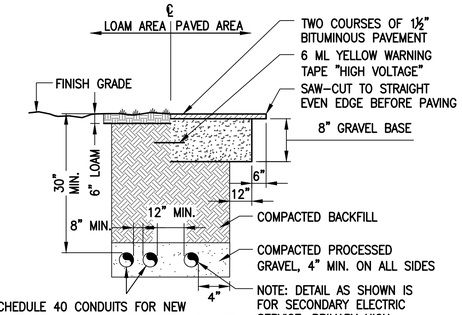
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- CONDUIT RUN UNDERGROUND
- CONDUIT RUN ABOVE GROUND
- (M) METER ON METER/BREAKER UNIT
- 5/8" x 10'-0" COPPER CLAD GROUND ROD
- EXOTHERMIC TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- G — G GROUND RING. #2 AWG SOLID TINNED BARE COPPER GROUND CONDUCTOR 6" BELOW FROST LINE AND 24" OFF CONCRETE PLATFORM
- XXX / XXX REPRESENTS DETAIL NUMBER; REF. DRAWING NUMBER
- XXX DETAIL NUMBER

ABBREVIATIONS

ACCA	ANTENNA CABLE COVER ASSEMBLY
AGB	COPPER ANTENNA GROUND BAR
AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
BTS	BASE TRANSMISSION SYSTEM
CIBGE	COAX ISOLATED GROUND BAR EXTERNAL
DWG	DRAWING
EMT	ELECTRICAL METALLIC TUBING
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GR	GROWTH
IGR	INTERIOR GROUND RING (HALO)
LAGB	LOWER ANTENNA COPPER GROUND BAR
MIGB	MASTER ISOLATED GROUND BAR
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
PRC	PRIMARY RADIO CABINET
RGS	RIGID GALVANIZED STEEL
RWY	RACEWAY
TYP	TYPICAL
SSLP	SPRINT SPECTRUM LIMITED PARTNERSHIP
UAGB	UPPER ANTENNA COPPER GROUND BAR
EXIST.	EXISTING
PROP.	PROPOSED



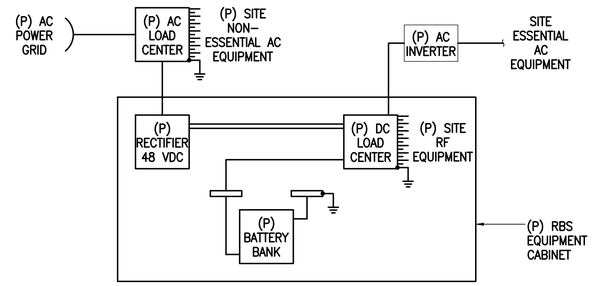
TYPICAL CONDUIT STUB-UP DETAIL 3/E-1
SCALE: NONE



SCHEDULE 40 CONDUITS FOR NEW ELECTRICAL AND TELEPHONE SERVICES. SEE UTILITY AND SITE PLANS. PROVIDE APPROVED PULL BOXES AS REQUIRED, AND COORDINATE INSTALLATION W/ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL ROPES (TYP.).

NOTE: DETAIL AS SHOWN IS FOR SECONDARY ELECTRIC SERVICE. PRIMARY HIGH VOLTAGE SERVICE REQUIRES 4" CONCRETE ENCASEMENT.

BURIED CONDUIT DETAIL 4/E-1
SCALE: NOT TO SCALE



WIRING DIAGRAM 5/E-1
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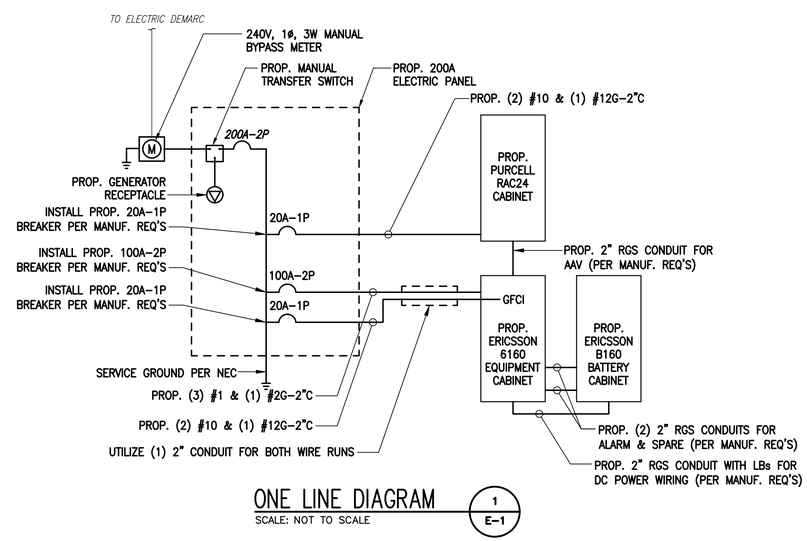
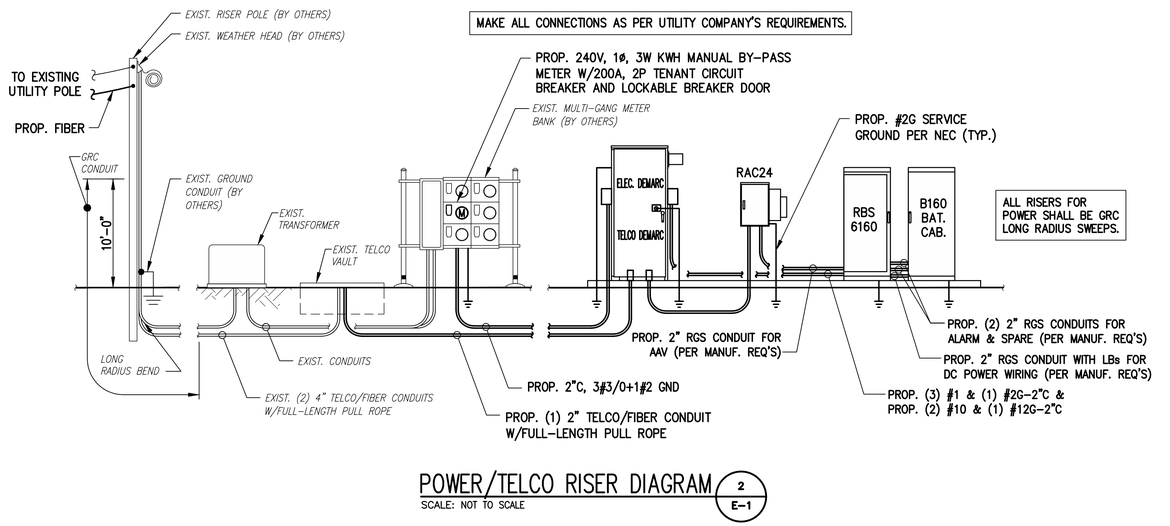


ONE LINE DIAGRAM 1/E-1
SCALE: NOT TO SCALE



POWER/TELCO RISER DIAGRAM 2/E-1
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT * JAMES M. FITZGERALD * No. 25937 LICENSED PROFESSIONAL CIVIL ENGINEER
7/13/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/13/21	ISSUED FOR CONSTRUCTION	CMC
0	06/24/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTNL124A

SITE ADDRESS:
5 TYLER DRIVE
NORTH FRANKLIN, CT 06254

SHEET TITLE
SITE ELECTRIC & GROUNDING DETAILS
1 OF 2

SHEET NUMBER
E-1

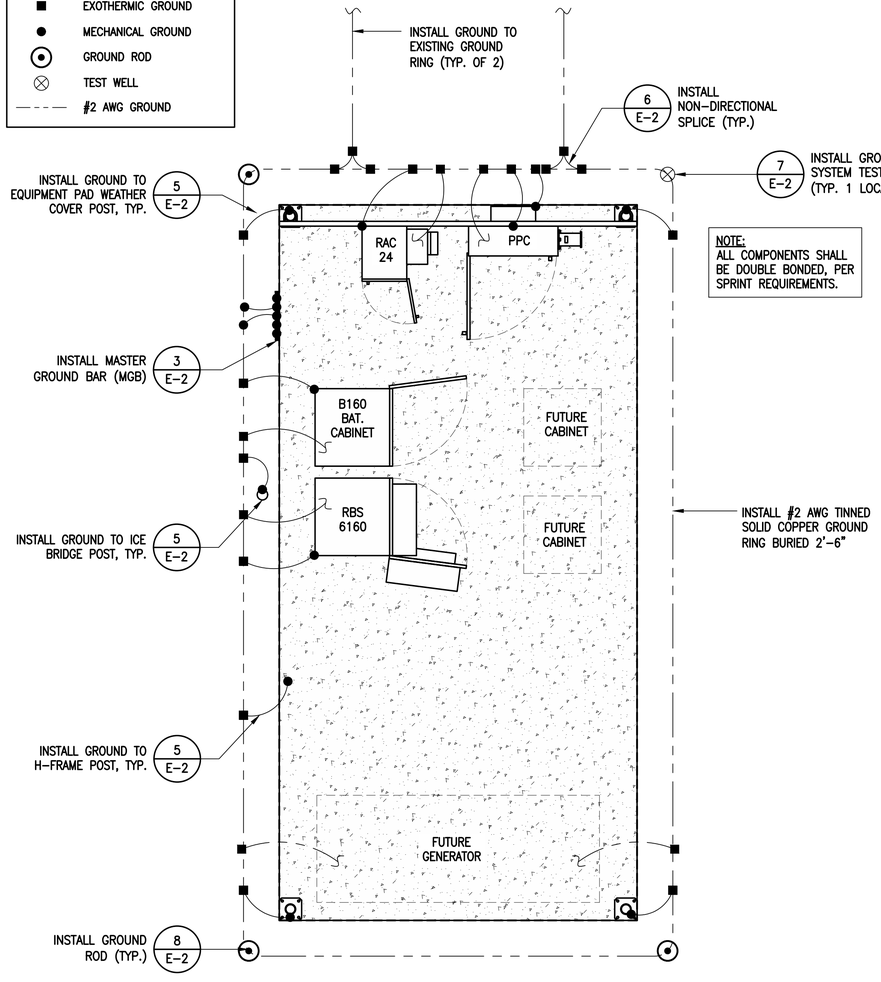
1815.240

PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
    -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12
    -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12

GROUNDING LEGEND

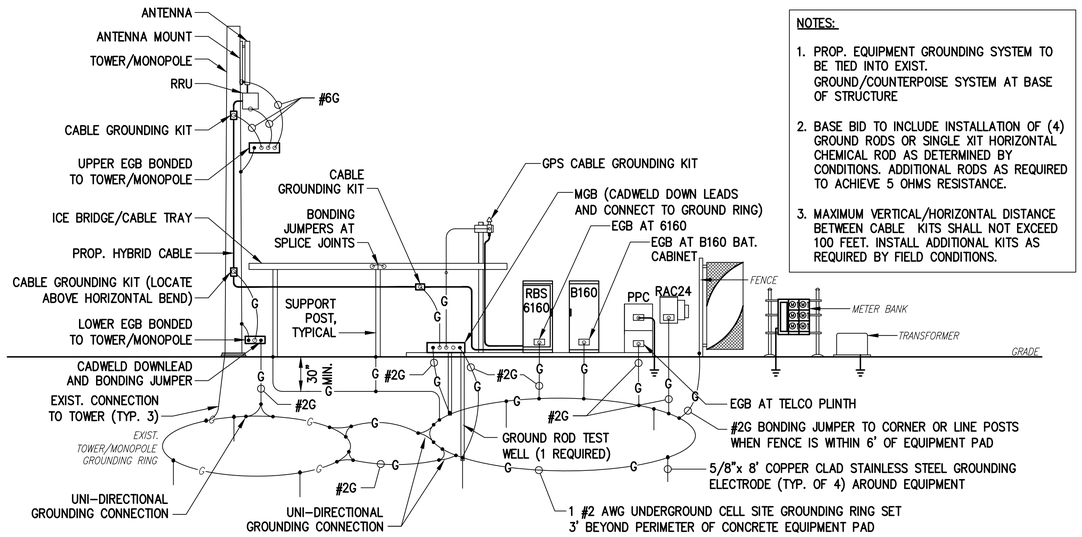
- EXOTHERMIC GROUND
- MECHANICAL GROUND
- GROUND ROD
- TEST WELL
- #2 AWG GROUND



NOTE:
ALL COMPONENTS SHALL BE DOUBLE BONDED, PER SPRINT REQUIREMENTS.

GROUNDING PLAN

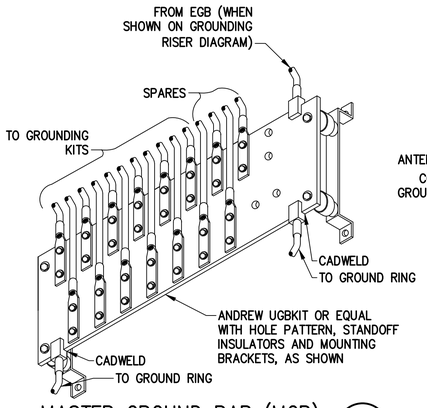
SCALE: N.T.S. — 1 / E-2



NOTES:
1. PROP. EQUIPMENT GROUNDING SYSTEM TO BE TIED INTO EXIST. GROUND/COUNTERPOISE SYSTEM AT BASE OF STRUCTURE
2. BASE BID TO INCLUDE INSTALLATION OF (4) GROUND RODS OR SINGLE XIT HORIZONTAL CHEMICAL ROD AS DETERMINED BY CONDITIONS. ADDITIONAL RODS AS REQUIRED TO ACHIEVE 5 OHMS RESISTANCE.
3. MAXIMUM VERTICAL/HORIZONTAL DISTANCE BETWEEN CABLE KITS SHALL NOT EXCEED 100 FEET. INSTALL ADDITIONAL KITS AS REQUIRED BY FIELD CONDITIONS.

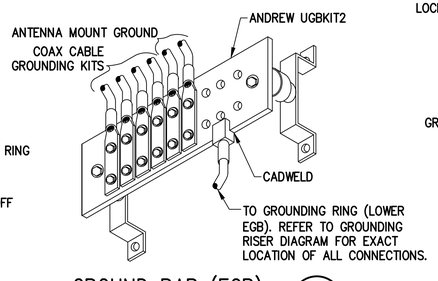
GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE — 2 / E-2



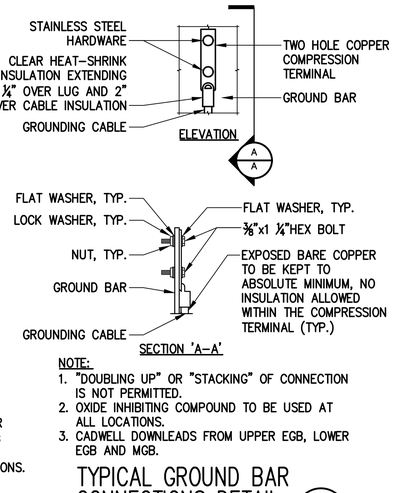
MASTER GROUND BAR (MGB)

SCALE: NOT TO SCALE — 3 / E-2



GROUND BAR (EGB)

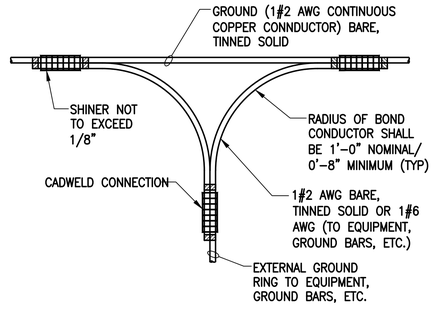
SCALE: NOT TO SCALE — 4 / E-2



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

TYPICAL GROUND BAR CONNECTIONS DETAIL

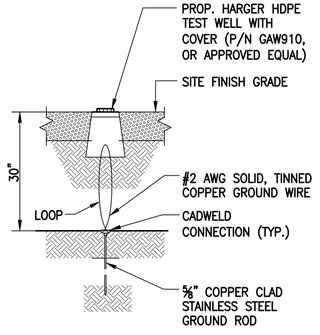
SCALE: NOT TO SCALE — 5 / E-2



NOTE: ALL CONNECTION TO GROUND SHALL BE NON-DIRECTIONAL.

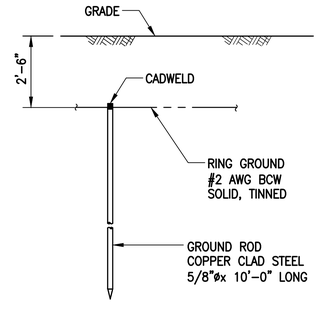
NON-DIRECTIONAL SPLICE

SCALE: NOT TO SCALE — 6 / E-2



GROUND ROD TEST WELL DETAIL

SCALE: NOT TO SCALE — 7 / E-2



GROUND ROD

SCALE: NOT TO SCALE — 8 / E-2

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SHEET TITLE
SITE ELECTRIC & GROUNDING DETAILS 2 OF 2

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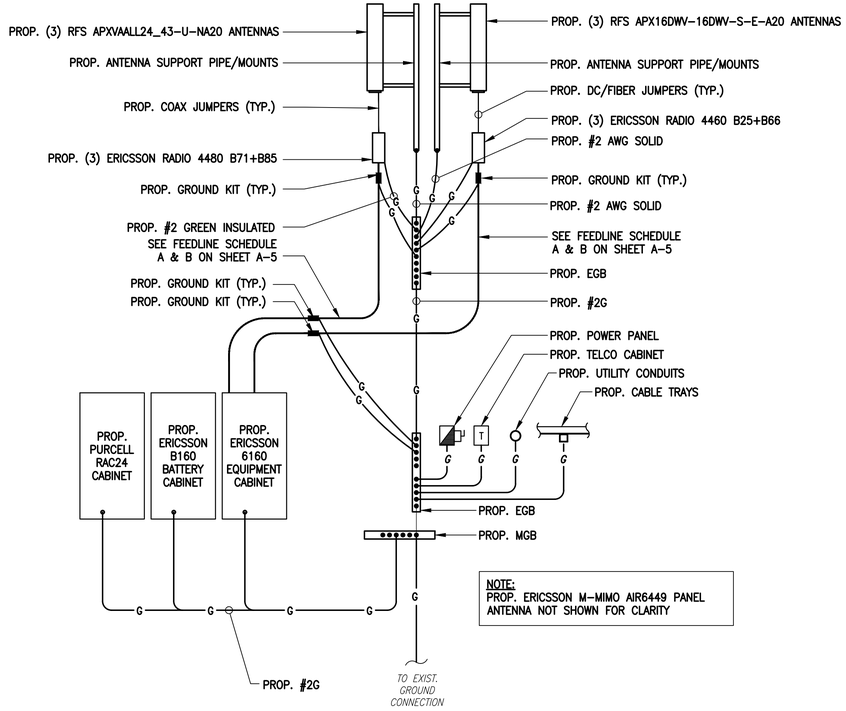
E-2

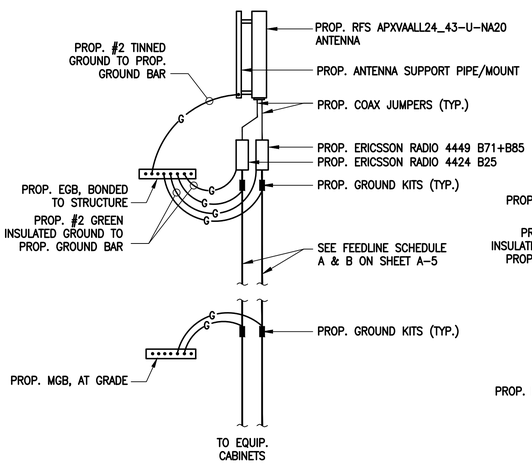
1815.240



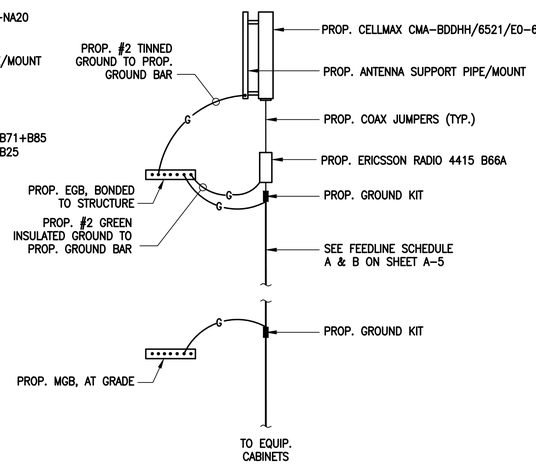
GROUNDING RISER DIAGRAM (1 / E-3)
SCALE: NOT TO SCALE

ELECTRICAL AND GROUNDING NOTES

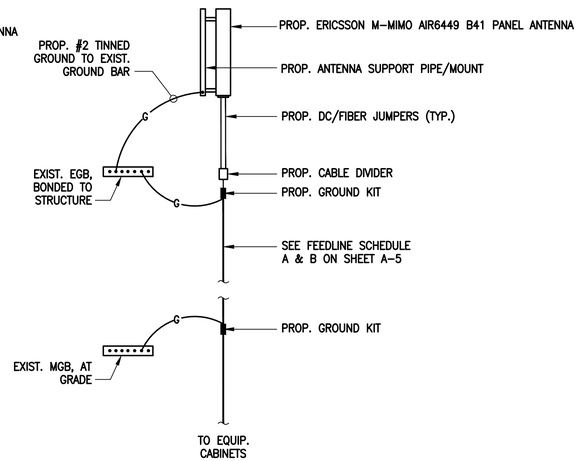
1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHNINSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN PROP. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.



L700/L600/N600 ANTENNA



L2100/L1900/G1900 ANTENNA



L2500/N2500 ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL (2 / E-3)
SCALE: NOT TO SCALE

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