Filed by:
Rick Woods Site Development Manager- SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3800 - rwoods@sbasite.com

December 17, 2024

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

RE: Notice of Exempt Modification
160 Witch Meadow Road, Salem CT
Latitude: 41.502828
Longitude: -72.297052
T-Mobile Site #: CTHA101F

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 175-foot level of the existing 195-foot Monopole Tower at 160 Witch Meadow Road, Salem, CT. The 195-foot tower is owned by SBA Properties, LLC. The property is owned by Ronald Renz. T-Mobile now intends to replace three (3) existing antennas with three (3) new antennas and other ancillary equipment listed below.

TOWER

Remove:
- (3) RFS APX16DWV-16DWV-S-E-A20 antennas
- (6) Ericsson RRUS11 RRUs
- (2) 1-5/8" hybrid cables

Install New:
- (3) RFS APXVLL19P_43-C-A20 antennas
- (3) Ericsson 4460 B25+B66 RRUs

Existing Equipment to Remain:
- (3) RFS APXVAALL24-43-U-NA20 antennas
- (3) Ericsson 4449 B71+B85 RRUs

Reserved Lease Entitlements:
- (3) Ericsson APX16DWV-16DWVS-E-A20 antennas
- (6) Ericsson RRUS11 B2

GROUND

Install New:

- (1) 6160 equipment cabinet
- (1) B160 battery cabinet
- (1) Slackbox

Remain:

- (1) Generator
- (1) Emerson Nextend 2416 fiber cabinet
- (1) 200A PPC

This facility was approved by the Town of Salem's Planning and Zoning Commission on February 3, 2000. Approval was given for a galvanized steel pole located on the east side of the access road to 160 With Meadow Road (Phillips property) with the following conditions: 1. Extra silt fencing will be kept on site during construction and the anti-tracking pad will be in place prior to construction; 2. Utilities will be below ground; 3. Street name should read: "Witch Meadow Road"; 4. The pole shall be galvanized steel; 5. If the facility is not in use for 12 consecutive months, it shall be removed at Owner's expense and shall occur within 90-days of the end of such 12-month period. There were no post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Salem's First Selectman, Ed Chmielewski, and Wetlands/Zoning Enforcement Officer, Manuel Medina, as well as to the property owner, Ronal Renz. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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 change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Rick Woods
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3800 + T / 508.366.2610 + F
508.614.0389 + C
rwoods@sbasite.com

Attachments:

cc: Ed Chmielewski, First Selectman / with attachments
Town of Salem, 270 Hartford Road, Salem, CT 06420
Manuel Medina, Wetlands/Zoning Enforcement officer / with attachments
Town of Salem, 270 Hartford Road, Salem, CT 06420
Ronald Renz / with attachments
c/o Renz Construction Company, 44 Mustang Drive Monroe CT 06468 (SBA Overnight address on file)

EXHIBIT LIST

Exhibit 1	Check Copy	X
Exhibit 2	Notification Receipts	X
Exhibit 3	Property Card	X
Exhibit 4	Property Map	X
Exhibit 5	Original Zoning Approval	Town of Salem's P&Z Commission 2/3/00
Exhibit 6	EME Report	Centerline 12/10/2024
Exhibit 7	Mount Analysis	TES 10/10/2024
Exhibit 8	Structural Analysis	TES 10/13/2024
Exhibit 9	Construction Drawings	Chappell 11/13/2024

Exhibit 1

Exhibit 2

ORIGIN ID:BBFA (508) 768-7960
JOHN MORRISON
SBA COMMUNICATIONS CORPORATION
134 FLANDERS
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 17DEC24
ACTWGT: 1.00 LB
CAD: 255382542/INET4535

BILL SENDER

TO **ED CHMIELEWSKI**
TOWN OF SALEM FIRST SELECTMAN
270 HARTFORD ROAD

SALEM CT 06420

(508) 614-0389
INV:
PO:

REF: 10-56-92009-6089

DEPT:

58CJ5/49B9/C6C4

FedEx Express

J244024091001uv

WED - 18 DEC 5:00P
STANDARD OVERNIGHT

TRK# 0201 **7708 4455 4088**

EB SKKA

06420
CT-US BDL

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CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH
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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 Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:BBFA (508) 768-7960
JOHN MORRISON
SBA COMMUNICATIONS CORPORATION
134 FLANDERS
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 17DEC24
ACTWGT: 1.00 LB
CAD: 255382542/INET4535

BILL SENDER

TO **MANUEL MEDIAN**
TOWN OF SALEM ZONING ENFORCEMENT
270 HARTFORD ROAD

SALEM CT 06420
(508) 614-0389
INV:
PO:

REF: 10-56-92009-6089
DEPT:

580J5/49B9/C6C4

FedEx Express

J244024091001uv

TRK# 7708 4464 6222
0201

WED - 18 DEC 5:00P
STANDARD OVERNIGHT

EB SKKA

06420
CT-US BDL

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ORIGIN ID:BBFA (508) 768-7960
JOHN MORRISON
SBA COMMUNICATIONS CORPORATION
134 FLANDERS
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 17DEC24
ACTWGT: 1.00 LB
CAD: 255382542/INET4535

BILL SENDER

TO **RONALD RENZ**

44 MUSTANG DRIVE

MONROE CT 06468

(508) 614-0389
INV:
PO:

REF: 10-56-92009-6089

DEPT:

580J5/49B9/C6C4

FedEx Express

J244024091001uv

TRK# 0201 **7708 4486 7524**

WED - 18 DEC 5:00P
STANDARD OVERNIGHT

EB BCCA

06468

CT-US BDL

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Exhibit 3

Town of Salem, CT

Property Listing Report

Map Block Lot **10-044-000** Account **659**

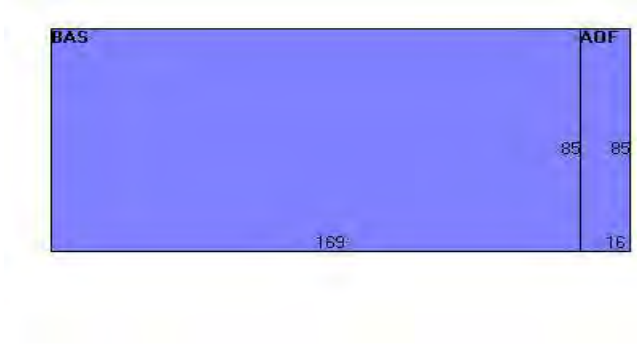
Property Information

Property Location	160 WITCH MEADOW RD
Owner	RENZ RONALD R
Co-Owner	
Mailing Address	PO BOX 2100 SALEM CT 06420-0000
Land Use	3222 Comm Bldg
Land Class	C
Zoning Code	I
Census Tract	7151

Neighborhood	C075
Acreage	100.8
Utilities	
Lot Setting/Desc	
Additional Info	

Photo

Sketch



Primary Construction Details

Year Built	1990
Stories	1
Building Style	Pre Engrd Gar
Building Use	Indus/Comm
Building Condition	03
Floors	Concrete
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Gable Or Hip
Roof Cover	Metal Or Tin

Exterior Walls	Wood Frame
Interior Walls	Wall Brd/Wood
Heating Type	None
Heating Fuel	None
AC Type	None/Partial
Gross Bldg Area	15725
Total Living Area	15725

Report Created On 6/18/2019

Town of Salem, CT

Property Listing Report | Map Block Lot **10-044-000** | Account **659**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	358200	250700
Extras	3000	2100
Improvements	361200	252800
Outbuildings	0	0
Land	848100	372780
Total	1209300	625580

Outbuilding and Extra Items

Type	Description
Forced air heat	1360 S.F

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	15725	15725

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
RENZ RONALD R	0133/0303	11/5/2001	0
NATIONWIDE 1031	127/ 439	1/12/2001	1167000
PHILLIPS ROGER L & LINDA F	35/ 609	12/26/1984	80500

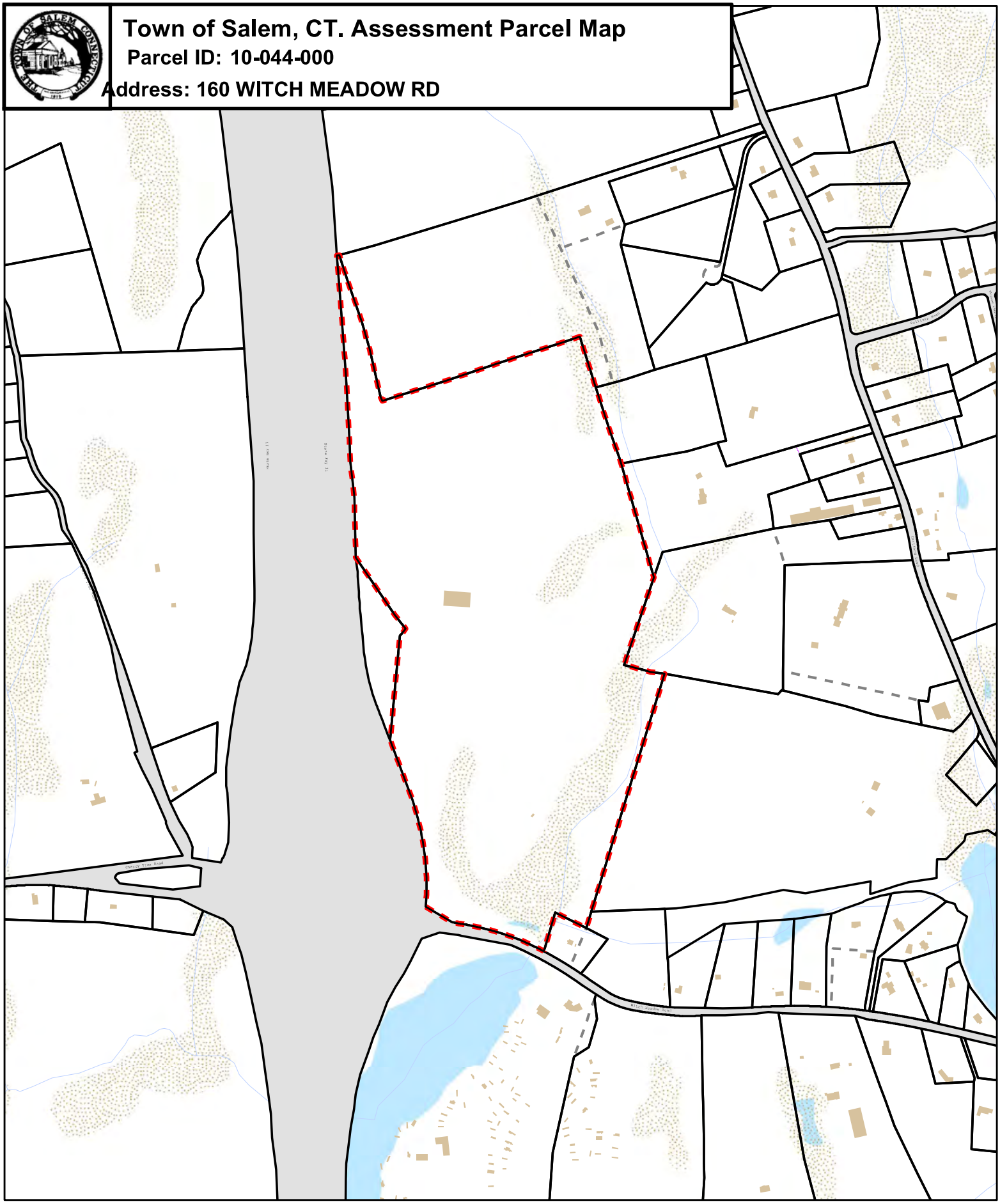
Report Created On 6/18/2019

Exhibit 4

Town of Salem, CT. Assessment Parcel Map

Parcel ID: 10-044-000

Address: 160 WITCH MEADOW RD



300 0 300 600 900 1,200

Feet

Map Produced: December 2018

Exhibit 5

LEGAL NOTICE
SALEM PLANNING AND ZONING COMMISSION

At a meeting of the Salem Planning and Zoning Commission held on Thursday, February 3, 2000, the Commission took the following action:

1. Approved, with conditions, the Special Exception application of SBA/Sprint for the construction of a telecommunications tower on the east side of the access road to 160 Witch Meadow Road (Phillips property).

Lawrence Stevens, Chairman

270 HARTFORD ROAD • SALEM, CONNECTICUT 06420-3809

M/S/C (Duncan/Asafaylo) to approve the Special Exception application of SBA/Sprint for the construction of a telecommunications tower on the east side of the access road to 160 Witch Meadow Road (Phillips property) with the following conditions:

1) It is stated in the Erosion & Sedimentation Control Narrative that extra silt fencing will be kept on site during construction and the anti-tracking pad will be in place prior to construction.
2) In the project summary box on drawing number T-1, the third paragraph shall be changed to state that the utilities will be <u>below</u> ground.
3) In the address box on drawing number T-1, the street name shall be corrected. It should read: "Witch Meadow Road".
4) Delete "or as otherwise shown on the contract drawings" under note #2 for access.
5) The pole shall be galvanized steel.
6) The site plan shall state that if the facility is not in use for 12 consecutive months, it shall be removed by the facility owner at his or her expense. The removal shall occur within 90 days of the end of such 12 month period.

Vote: approved unanimously.

Exhibit 6

Radio Frequency Exposure Analysis Report

December 10, 2024

T-Mobile

Site Name: CTHA101F
Site ID: CTHA101F
Site Address: 160 Witch Meadow Rd, Salem, CT 06420

Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2025

Signed 10 December 2024

Site Compliance Summary

T-Mobile Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	1.61876 µW/cm^2
Cumulative General Population % MPE (Ground Level):	0.19567%

December 10, 2024

T-Mobile
Attn: Adam Sullivan
15 Commerce Way, Suite B
Norton, MA 02379

RF Exposure Analysis for Site: **CTHA101F**

Centerline was contracted to analyze the proposed T-Mobile facility at **160 Witch Meadow Rd, Salem, MA 06420** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{MHz}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of 1 mW/cm^2 (1000 $\mu W/cm^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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.

Calculation Methodology

Centerline has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

Data & Results

The following table details the antennas and operating parameters for the T-Mobile antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at ground level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table(s) below. The cumulative power density and cumulative % MPE are displayed at the bottom of the table(s) below.

Maximum Calculated Cumulative Power Density (Location: approximately 12' northeast of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (μW/cm²)	General Population MPE Limit (μW/cm²)	General Population % MPE
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	175.00	4.00	40.00	6731.63	0.05051	1000.00	0.00505
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	175.00	4.00	40.00	6731.63	0.05051	1000.00	0.00505
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	175.00	4.00	60.00	12978.10	0.07911	1000.00	0.00791
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	700	13.65	175.00	4.00	40.00	3707.83	0.04333	466.67	0.00928
T-Mobile A 2	RFS APXVAALL24_43-U-NA20	600	12.95	175.00	4.00	40.00	3155.88	0.03686	400.00	0.00921
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	175.00	4.00	40.00	6731.63	0.00021	1000.00	0.00002
T-Mobile B 3	RFS APXVLL19P_43-C-A20	1900	16.24	175.00	4.00	40.00	6731.63	0.00021	1000.00	0.00002
T-Mobile B 3	RFS APXVLL19P_43-C-A20	2100	17.33	175.00	4.00	60.00	12978.10	0.00019	1000.00	0.00002
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	700	13.65	175.00	4.00	40.00	3707.83	0.00002	466.67	0.00000
T-Mobile B 4	RFS APXVAALL24_43-U-NA20	600	12.95	175.00	4.00	40.00	3155.88	0.00032	400.00	0.00008
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	175.00	4.00	40.00	6731.63	0.00008	1000.00	0.00001
T-Mobile C 5	RFS APXVLL19P_43-C-A20	1900	16.24	175.00	4.00	40.00	6731.63	0.00008	1000.00	0.00001
T-Mobile C 5	RFS APXVLL19P_43-C-A20	2100	17.33	175.00	4.00	60.00	12978.10	0.00009	1000.00	0.00001
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	700	13.65	175.00	4.00	40.00	3707.83	0.00039	466.67	0.00008
T-Mobile C 6	RFS APXVAALL24_43-U-NA20	600	12.95	175.00	4.00	40.00	3155.88	0.00010	400.00	0.00003
AT&T A 7	GENERIC PANEL 6FT	850	12.62	185.00	4.00	40.00	2924.96	0.04816	566.67	0.00850
AT&T A 7	GENERIC PANEL 6FT	2300	16.22	185.00	4.00	25.00	4187.94	0.03416	1000.00	0.00342
AT&T A 8	GENERIC PANEL 6FT	1900	15.84	185.00	4.00	40.00	6139.32	0.04848	1000.00	0.00485
AT&T A 8	GENERIC PANEL 6FT	2100	16.39	185.00	4.00	40.00	6968.19	0.04952	1000.00	0.00495
AT&T A 9	GENERIC PANEL 4FT	700	11.30	186.00	4.00	40.00	2158.34	0.07085	466.67	0.01518
AT&T B 10	GENERIC PANEL 6FT	850	12.62	185.00	4.00	40.00	2924.96	0.00001	566.67	0.00000
AT&T B 10	GENERIC PANEL 6FT	2300	16.22	185.00	4.00	25.00	1046.98	0.00001	1000.00	0.00000
AT&T B 11	GENERIC PANEL 6FT	1900	15.84	185.00	4.00	40.00	1534.83	0.00002	1000.00	0.00000
AT&T B 11	GENERIC PANEL 6FT	2100	16.39	185.00	4.00	40.00	1742.05	0.00003	1000.00	0.00000
AT&T B 12	GENERIC PANEL 4FT	700	11.30	186.00	4.00	40.00	539.59	0.00035	466.67	0.00008
AT&T C 13	GENERIC PANEL 6FT	850	12.62	185.00	4.00	40.00	731.24	0.00010	566.67	0.00002
AT&T C 13	GENERIC PANEL 6FT	2300	16.22	185.00	4.00	25.00	1046.98	0.00008	1000.00	0.00001
AT&T C 14	GENERIC PANEL 6FT	1900	15.84	185.00	4.00	40.00	1534.83	0.00005	1000.00	0.00001
AT&T C 14	GENERIC PANEL 6FT	2100	16.39	185.00	4.00	40.00	1742.05	0.00003	1000.00	0.00000
AT&T C 15	GENERIC PANEL 4FT	700	11.30	186.00	4.00	40.00	539.59	0.00026	466.67	0.00006
Verizon A 16	GENERIC PANEL 6FT	700	12.33	165.00	4.00	40.00	684.01	0.05857	466.67	0.01255
Verizon A 16	GENERIC PANEL 6FT	850	12.62	165.00	4.00	40.00	731.24	0.06021	566.67	0.01063
Verizon A 17	GENERIC PANEL 6FT	1900	15.84	165.00	4.00	40.00	1534.83	0.06060	1000.00	0.00606
Verizon A 17	GENERIC PANEL 6FT	2100	16.39	165.00	4.00	40.00	1742.05	0.06190	1000.00	0.00619
Verizon A 18	GENERIC PANEL 2.5FT	3700	23.45	165.00	2.00	100.00	22130.95	0.82594	1000.00	0.08259
Verizon B 19	GENERIC PANEL 6FT	700	12.33	165.00	4.00	40.00	684.01	0.00028	466.67	0.00006
Verizon B 19	GENERIC PANEL 6FT	850	12.62	165.00	4.00	40.00	731.24	0.00001	566.67	0.00000
Verizon B 20	GENERIC PANEL 6FT	1900	15.84	165.00	4.00	40.00	1534.83	0.00002	1000.00	0.00000

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (µW/cm²)	General Population MPE Limit (µW/cm²)	General Population % MPE
Verizon B 20	GENERIC PANEL 6FT	2100	16.39	165.00	4.00	40.00	1742.05	0.00004	1000.00	0.00000
Verizon B 21	GENERIC PANEL 2.5FT	3700	23.45	165.00	2.00	100.00	22130.95	0.01648	1000.00	0.00165
Verizon C 22	GENERIC PANEL 6FT	700	12.33	165.00	4.00	40.00	684.01	0.00008	466.67	0.00002
Verizon C 22	GENERIC PANEL 6FT	850	12.62	165.00	4.00	40.00	731.24	0.00013	566.67	0.00002
Verizon C 23	GENERIC PANEL 6FT	1900	15.84	165.00	4.00	40.00	1534.83	0.00007	1000.00	0.00001
Verizon C 23	GENERIC PANEL 6FT	2100	16.39	165.00	4.00	40.00	1742.05	0.00004	1000.00	0.00000
Verizon C 24	GENERIC PANEL 2.5FT	3700	23.45	165.00	2.00	100.00	22130.95	0.02027	1000.00	0.00203
							Cumulative Power Density:	**1.61876 µW/cm²**	**Cumulative % MPE:**	**0.19567%**

Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **compliant** with FCC rules and regulations.

Katrina Styx
RF EME Technical Writer II
Centerline

Exhibit 7

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Antenna Mount Analysis Report

Existing 199-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT01916-S-SBA

Customer Site Name: North Salem

Carrier Name: T-Mobile (App#: 262772, V1)

Carrier Site ID / Name: CTHA101F / North Salem

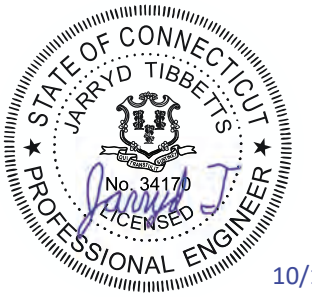
Site Location: 160 Witch Meadow Road

Salem, Connecticut

New London County

Latitude: 41.502828

Longitude: -72.297052



10/10/2024

Analysis Result:

Max Structural Usage: 67.00% [Pass]

Report Prepared By: Sarath Basamsetti

Introduction

The purpose of this report is to summarize the analysis results on the (1) Platform w/Support Rail at 175.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount Mapping by: Vulcan TM, dated: 09/24//2024
Antenna Loading	SBA, Application #: 262772, v1 dated: 10/08/2024
Existing Modifications	TES Project: 78239, dated: 07/30/2019

Analysis Criteria

Wind Speed Used in the Analysis: 123 mph (3-Sec. Gust) (Ultimate Wind Speed)
Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent
Service Load Wind Speed: 30 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-H/IBC-2021
Exposure Category: B
Risk Category: II
Topographic Category: 1
Crest Height (Ft): 0
Ground Elevation Factor: 0.988

The site is a Risk Category II structure per IBC Table 1604.5. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

Mount Information

(1) Platform w/Support Rail at 175.00' elevation.

Final Antenna Configuration

3	RFS APXVAALL24_43-U-NA20
3	RFS APX16DWV-16DWVS-E-A20
3	Ericsson 4449 B71 + B85
6	Ericsson RRUS11 B2
3	RFS APXVLL19P_43-C-A20
3	Ericsson 4460 B25 + B66

In addition to the proposed equipment loading, a 500 lb serviceability load was also considered in this analysis in accordance with TIA requirements.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 67.00%, which occurs in the flange connection. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

1. Mount Photos
2. Antenna Placement Diagram
3. Mount Mapping Information
4. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.

2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.

4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.

5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.

8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.

9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.


09/24/2024 10:23


09/24/2024 09:05

Structure: CT01916-S-SBA - North Salem

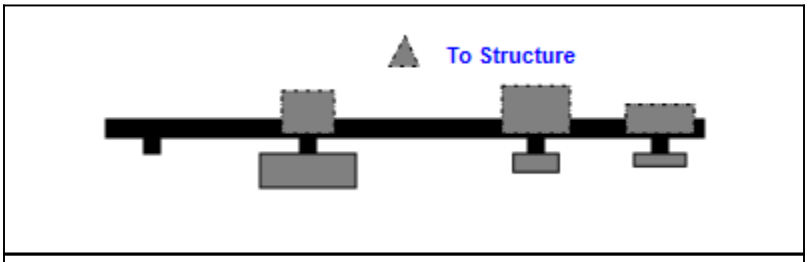
Sector: A

Structure Type: Monopole

Mount Elev: 175.00

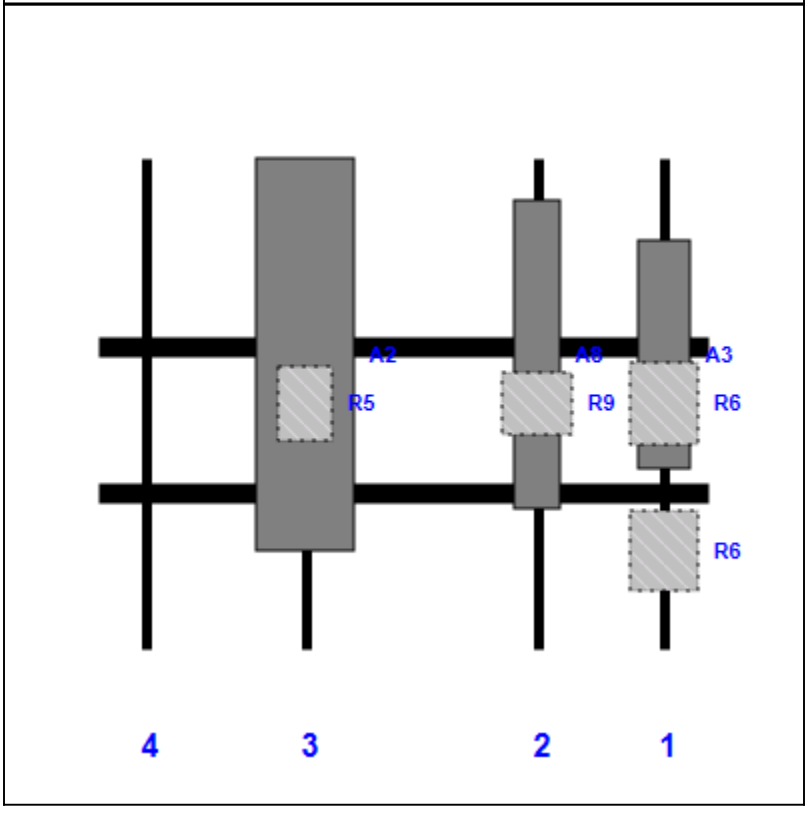
10/10/2024

Plan View



Front View

Looking Toward Structure



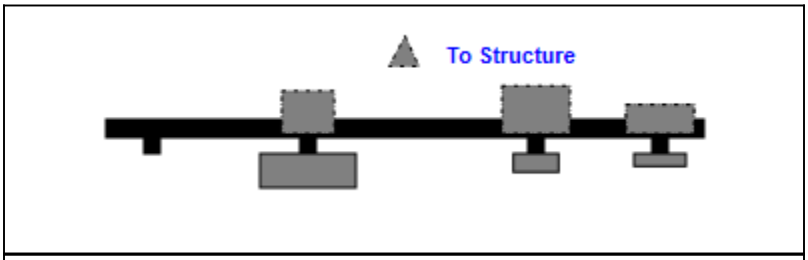
Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A3	APX16DWV-16DWVS-E-A20	55.90	13.00	139.00	1	a	Front	48.00			
R6	RRUS11 B2	19.68	16.97	139.00	1	a	Behind	60.00			
R6	RRUS11 B2	19.68	16.97	139.00	1	b	Behind	96.00			
A8	APXVLL19P_43-C-A20	75.80	11.30	108.00	2	a	Front	48.00			
R9	4460 B25 + B66	15.10	17.00	108.00	2	a	Behind	60.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	51.00	3	a	Front	48.00			
R5	4449 B71 + B85	17.90	13.10	51.00	3	a	Behind	60.00			

Structure: CT01916-S-SBA - North Salem

Sector: B
Structure Type: Monopole
Mount Elev: 175.00

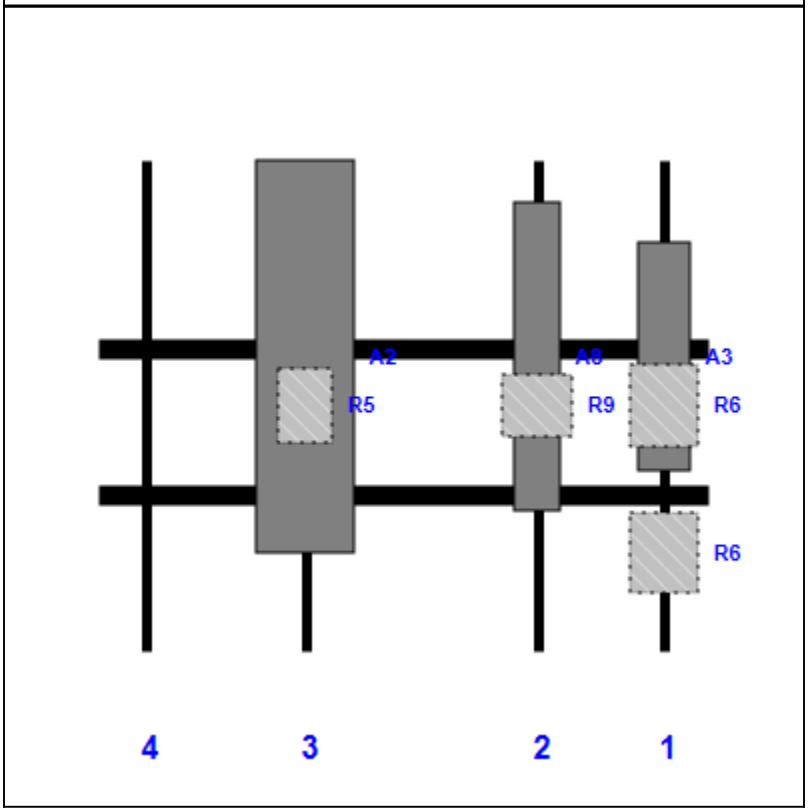
10/10/2024

Plan View



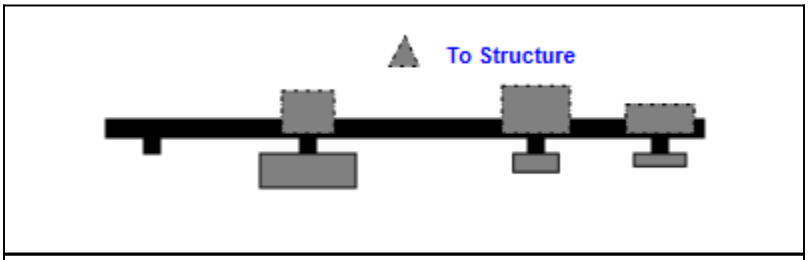
Front View

Looking Toward Structure



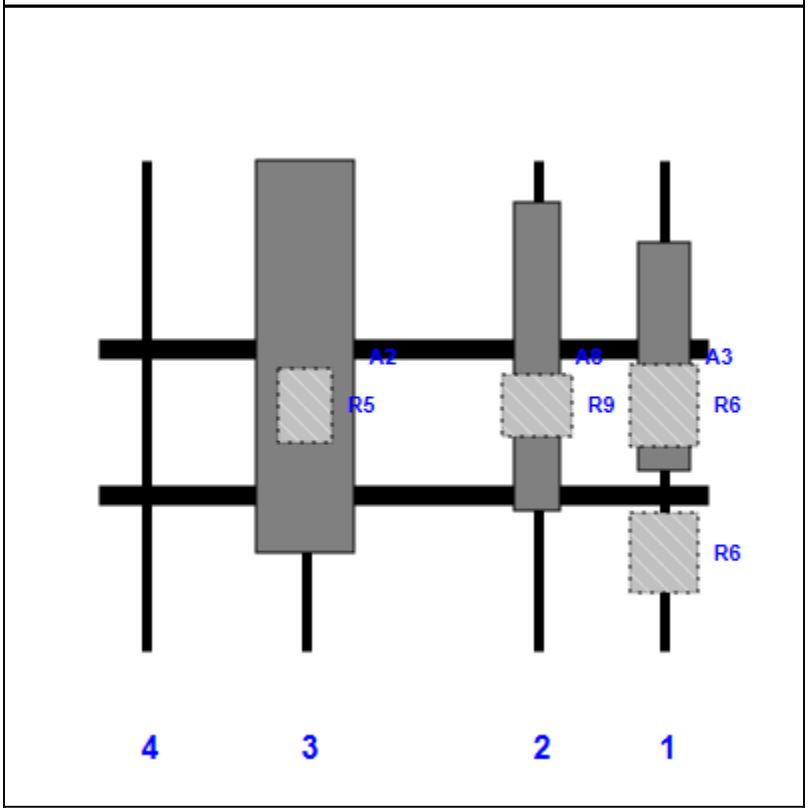
Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A3	APX16DWV-16DWVS-E-A20	55.90	13.00	139.00	1	a	Front	48.00			
R6	RRUS11 B2	19.68	16.97	139.00	1	a	Behind	60.00			
R6	RRUS11 B2	19.68	16.97	139.00	1	b	Behind	96.00			
A8	APXVLL19P_43-C-A20	75.80	11.30	108.00	2	a	Front	48.00			
R9	4460 B25 + B66	15.10	17.00	108.00	2	a	Behind	60.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	51.00	3	a	Front	48.00			
R5	4449 B71 + B85	17.90	13.10	51.00	3	a	Behind	60.00			

Plan View



Front View

Looking Toward Structure



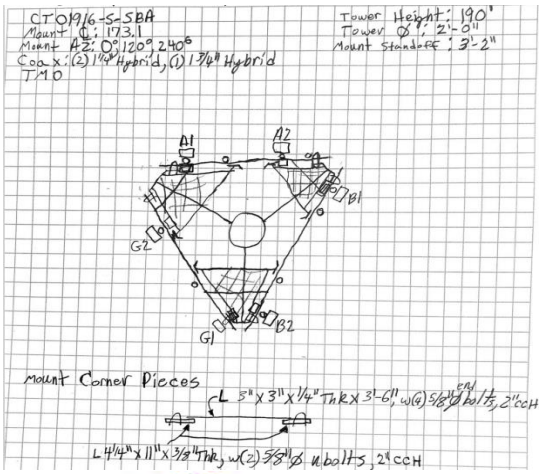
Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A3	APX16DWV-16DWVS-E-A20	55.90	13.00	139.00	1	a	Front	48.00			
R6	RRUS11 B2	19.68	16.97	139.00	1	a	Behind	60.00			
R6	RRUS11 B2	19.68	16.97	139.00	1	b	Behind	96.00			
A8	APXVLL19P_43-C-A20	75.80	11.30	108.00	2	a	Front	48.00			
R9	4460 B25 + B66	15.10	17.00	108.00	2	a	Behind	60.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	51.00	3	a	Front	48.00			
R5	4449 B71 + B85	17.90	13.10	51.00	3	a	Behind	60.00			

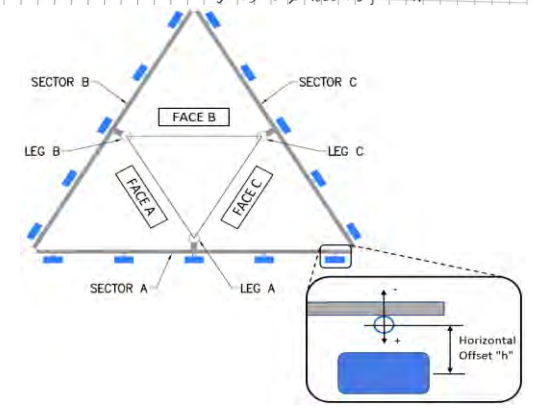
V4.1 Updated on 12-17-2021

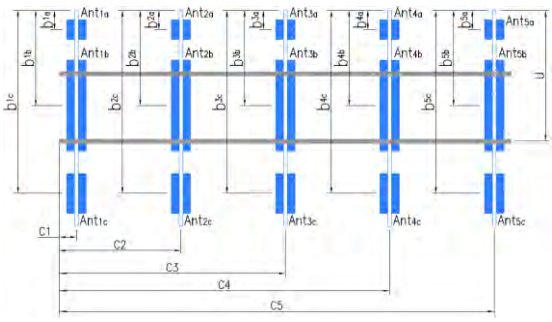
Antenna Mount Mapping Form (PATENT PENDING)

FCC # 1216456

Tower Owner:	SBA	**Mapping Date:**	9/24//2024
Site Name:	North Salem	**Tower Type:**	Monopole
Site Number or ID:	CT01916-S-SBA	**Tower Height (Ft.):**	190
Mapping Contractor:	Vulcan TM	**Mount Elevation (Ft.):**	173.1







Antenna Layout (Looking Out From Tower)

Mount Pipe Configuration and Geometries [Unit = Inches]

Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."
A1	P2.4" x 5/32" x 8'	45.00	10.75	C1	P2.4" x 5/32" x 8'	45.00	10.75
A2	P2.4" x 5/32" x 6'	43.25	44.00	C2	P2.4" x 5/32" x 6'	43.25	44.00
A3	P2.4" x 5/32" x 10'	82.25	103.50	C3	P2.4" x 5/32" x 10'	82.25	103.50
A4	P2.4" x 5/32" x 8'	58.25	138.50	C4	P2.4" x 5/32" x 8'	58.25	138.50
A5				C5			
A6				C6			
B1	P2.4" x 5/32" x 8'	45.00	10.75	D1			
B2	P2.4" x 5/32" x 6'	43.25	44.00	D2			
B3	P2.4" x 5/32" x 10'	82.25	103.50	D3			
B4	P2.4" x 5/32" x 8'	58.25	138.50	D4			
B5				D5			
B6				D6			

Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :

Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :

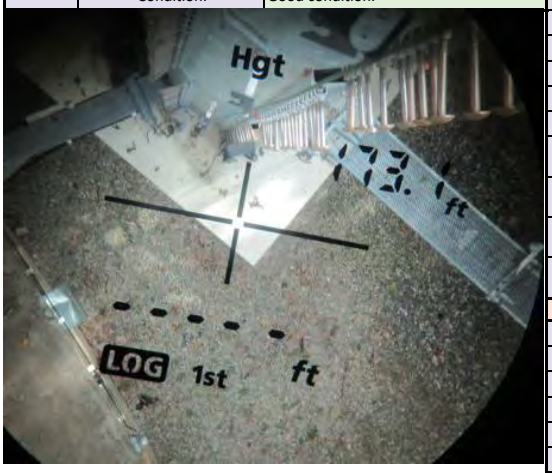
Please enter additional infomation or comments below.

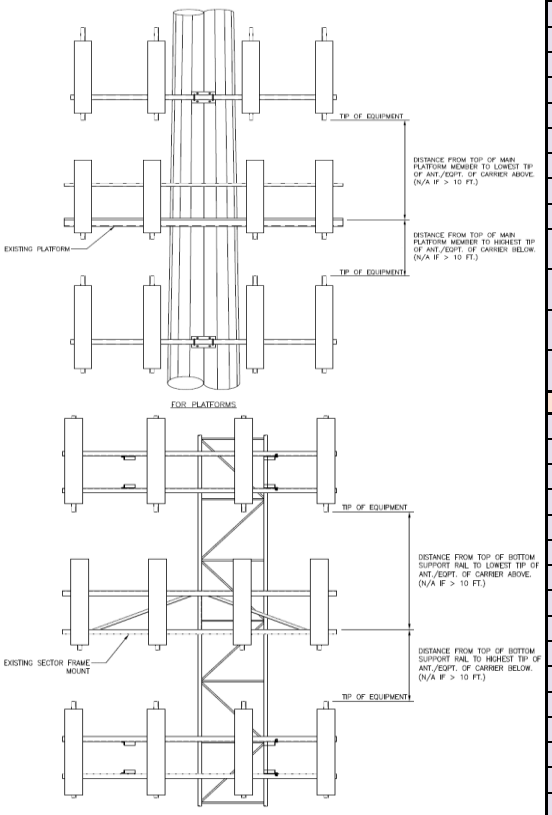
Tower Face Width at Mount Elev. (ft.): | Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.): 24

Ants. Items	Enter antenna model. If not labeled, enter "Unknown". Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Mounting Locations [Units are inches and degrees] Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b}...." (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)	Antenna Azimuth (Degrees)	Photos of antennas Photo Numbers
Sector A										
Ant_{1a}	Ericsson RRUS 11 B4	17.00	7.00	17.50	1/4" Hybr	175	22.00	9.00		211-212
Ant_{1b}	RFS	13.25	3.25	55.75	1/4" Hybr	175	25.00	7.00	0.00	209-210
Ant_{1c}	Ericsson RRUS 11 B2	17.00	7.00	17.50	1/4" Hybr	172	71.00	9.00		213-214
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}	Ericsson 4449 B71 B85	13.25	10.50	18.00	3/4" Hybr	175	58.00	8.00		218-219
Ant_{3b}	RFS	24.25	8.25	96.00	3/4" Hybr	176	50.50	10.50	0.00	216-217
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Mount Azimuth (Degree) for Each Sector				Tower Leg Azimuth (Degree) for Each Sector	
Sector A:	0.00	Deg	Leg A:		Deg
Sector B:	120.00	Deg	Leg B:		Deg
Sector C:	240.00	Deg	Leg C:		Deg
Sector D:		Deg	Leg D:		Deg

Climbing Facility Information			
Location:		Deg	
Climbing Facility	Corrosion Type:		Good condition.
	Access:		Climbing path was unobstructed.
	Condition:		Good condition.





Sector B										
Ant_{1a}	Ericsson RRUS 11 B4	17.00	7.00	17.50	1/4" Hybr	175	22.00	9.00		167-170
Ant_{1b}	RFS	13.25	3.25	55.75	1/4" Hybr	175	25.00	7.00	120.00	162-166
Ant_{1c}	Ericsson RRUS 11 B2	17.00	7.00	17.50	1/4" Hybr	172	71.00	9.00		171-176
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}	Ericsson 4449 B71 B85	13.25	10.50	18.00	3/4" Hybr	175	58.00	8.00		188-191
Ant_{3b}	RFS	24.25	8.25	96.00	3/4" Hybr	176	50.50	10.50	120.00	183-187
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector C										
Ant_{1a}	Ericsson RRUS 11 B2	17.00	7.00	17.50	1/4" Hybr	175	22.00	9.00		198-199
Ant_{1b}	RFS	13.25	3.25	55.75	1/4" Hybr	175	25.00	7.00	240.00	196-197
Ant_{1c}	Ericsson RRUS 11 B4	17.00	7.00	17.50	1/4" Hybr	172	71.00	9.00		200-201
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}	Ericsson 4449 B71 B85	13.25	10.50	18.00	3/4" Hybr	175	58.00	8.00		205-206
Ant_{3b}	RFS	24.25	8.25	96.00	3/4" Hybr	176	50.50	10.50	240.00	203-204
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector D										
Ant_{1a}										
Ant_{1b}										
Ant_{1c}										
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}										
Ant_{3b}										
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #
1		
2		
3		
4		
5		
6		
7		
8		

Mapping Notes
1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)
2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness.
3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.
4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.
5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.
6. Please measure and report the size and length of all existing antenna mounting pipes.
7. Please measure and report the antenna information for all sectors.
8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

Standard Conditions
1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.

Antenna Mount Mapping Form (PATENT PENDING)

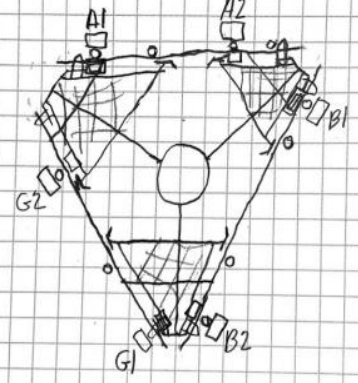
FCC # 1216456

Tower Owner:	SBA	**Mapping Date:**	9/24//2024
Site Name:	North Salem	**Tower Type:**	Monopole
Site Number or ID:	CT01916-S-SBA	**Tower Height (Ft.):**	190
Mapping Contractor:	Vulcan TM	**Mount Elevation (Ft.):**	173.1

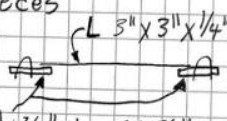
Please Insert Sketches of the Antenna Mount

CT0191 6-S-SBA
Mount ℄: 173.1
Mount Az: 0°, 120°, 240°
Coax: (2) 1¼" Hybrid, (1) 1¾" Hybrid
TMO

Tower Height: 190'
Tower Ø: 2'-0"
Mount Standoff: 3'-2"

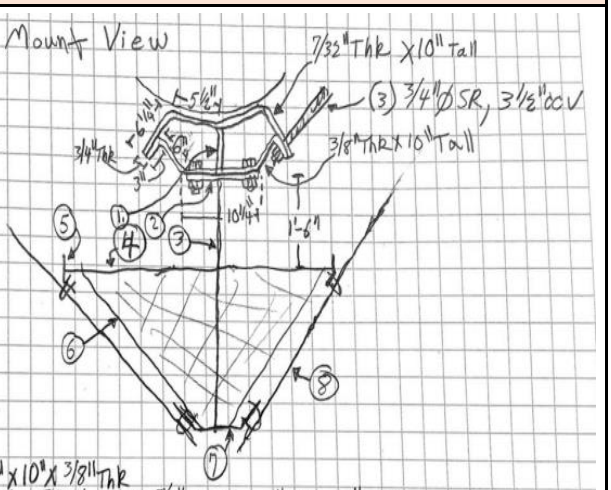


Mount Corner Pieces

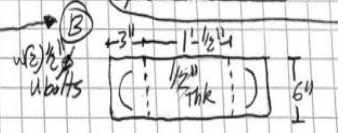


L 4¼"x11"x⅜" Thk, w(2) 5/8"Ø u bolts, 2" CCH

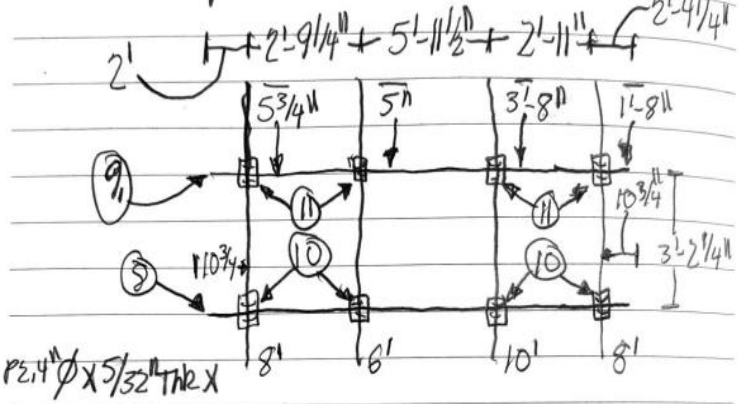
Above Mount View



① PL 5½"x10"x⅜" Thk
② PL 10"x10"x ⅝" Thk, w(4) ⅝"Ø bolts, 7" CCH, 7" CCV
③ TS 4"x4"x.25" Thk x 5'-2¼"
④ TS 4"x4"x.25" Thk x 2'-4½"
⑤ BP See detail A.
⑥ L 2"x2"x¼" Thk x 4'-4"
⑦ See detail B.
⑧ P 3.55"Ø x ⅜" Thk x 12'-6"



Mount Pipe View



P2.4"Ø x 5/32" Thk x

⑨ P 3.5"Ø x ¼" Thk x 14'-0"
⑩ [2"x6"x⅜" Thk x 8", w(4) ½"Ø u bolts 4" CCH, 6" CCV
⑪ PL 7"x10"x⅜" Thk, w(4) 5/8"Ø u bolts 5" CCH, 7¾" CCV

Exhibit 8

Tower Engineering Solutions, LLC
1320 Greenway Drive, Suite 600, Irving, Texas 75038
Phone: (972) 483-0607, Fax: (972) 975-9615

Structural Analysis Report

Structure Information	*Tower Type*	*Existing 195 ft Nudd Corporation Monopole*
Customer Information	*Name*	SBA Communications Corp
	Site Number	CT01916-S
	Site Name	North Salem
Carrier Information	*Name*	*T-Mobile*
	Site ID / Name	*CTHA101F / North Salem*
	App #	*262772-1,*
Site Information	*Address:*	*160 Witch Meadow Road* *Salem, Connecticut , New London County*
	Latitude:	*41.502828°*
	Longitude:	*-72.297052°*

Analysis Result:

Max Structural Usage: **75.5% [Pass]**

Max Foundation Usage**: 37.0% [Pass]**

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Tawfeeq Alajaj

Exp. 01/31/2025

10/14/2024

Introduction

The purpose of this report is to summarize the analysis results on the 195 ft Nudd Corporation Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Document Type	Remarks
Tower Drawings	Nudd Corporation, Project #7014 dated February 2, 2000
Foundation Drawing	Nudd Corporation, Project #7014 dated February 2, 2000
Geotechnical Report	FDH Engineering, Project #1207124EG1 dated August 10, 2012
Modification Drawings	Semaan Engineering, Project #CT-01916 dated May 6, 2002 FDH Engineering, Inc., Project #13SBAH1400 dated September 25, 2013 TES, PCI, Job# 93520, Dated 06/29/20
Mount Analysis	TES# 152499. Dated 10/10/2024.

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the TIA-222-H. In accordance with this standard, the structure was analyzed using TESPoles, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Codes and Standards	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code	
Wind Parameters	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	123.0 mph
	Ice Wind Speed (3-sec. Gust):	50 mph
	Design Ice Thickness:	1.00”
	Service Load Wind Speed:	60 mph + 0” Radial ice
	Exposure Category:	B
	Risk Category:	II
	Ground Elevation Factor (K_e):	0.988
Topographic Parameters	Method:	Method 1
	Feature Type:	
	Crest Height (H):	0 ft
	Length of Feature (L):	0.0 ft
	Distance to crest (x):	0.0 ft
Seismic Parameters:	S_S	0.206 g
	S_1	0.055 g

This structural analysis is based upon the tower being classified as a Risk Category II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
6	185.0	3	Powerwave 7770 - Panel	(3) Modified Sector Frame [(3) SitePro 1 SFS-L w/ handrail kit] (3) SitePro 1 HRK14-3HD (3) SitePro 1 PRK-SFS-L (3) Horizontal Pipe (6) Pipe Mast	(12) 1 1/4" (4) 2" Conduit * (1) 1/2"	AT&T
7		3	Ericsson 4449 B5/B12 RRU			
8		6	Powerwave LGP21401 TMA			
9		6	Powerwave LGP21903 Diplexer			
10		6	Cci DMP65R-BU8DA - Panel			
11		3	Ericsson RRUS 4478 B14 RRU			
12		3	Ericsson RRUS 8843 B2 B66A RRU			
13		1	Raycap DC6-48-60-18-8F SP			
14		1	Raycap DC6-48-60-18-8C SP			
15		1	Raycap DC6-48-60-0-8C-EV SP			
16	175.0	3	RFS APX16DWV-16DWVS-E-A20 - Panel	Modified Low Profile Platform w/ Add Support Rail with End Connection Kit (MS-HRECP-35)	(2) 1 5/8" Hybrid (1) 1-1/4" Hybrid	T-Mobile
17		3	RFS APXVAALL24_43-U-NA20 - Panel			
18		3	Ericsson 4449 B71 + B85			
19		6	Ericsson RRUS11 B2			
20		3	Ericsson RRUS11 B4			
21		3	Commscope LNX-6515DS-A1M - Panel			
22	165.0	15	Commscope NHH-65B-R2B- Panel	Platform w/ Handrail (SitePro1 RMQLP-4096-HK) + (3) Commscope BSAMNT-SBS-1-2]	(10) 1 5/8" Coax (2) 1 5/8" Hybrid	Verizon
23		6	Samsung MT6413-77A- Panel			
24		12	Samsung B2/B66A RRH ORAN (RF4439d-25A)- RRH			
25		12	Samsung RF4461d-13A- RRH			
26		9	Raycap RVZDC-6627-PF-48- OVP			

* (1) 2" Conduit housing (2) 3/4" DC Power & (1) 1/2" Fiber cables.
(1) 2" Conduit housing (1) 1/2" Fiber cable.
(2) 2" Conduits housing (4) 3/4" DC Power cables.

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
11	175.0	3	RFS - RFS APX16DWV-16DWVS-E-A20 - Panel	Modified Low Profile Platform w/ Add Support Rail with End Connection Kit (MS-HRECP-35)	(2) 1.9" Fiber	T-Mobile
12		3	RFS - RFS APXVAALL24_43-U-NA20 - Panel			
13		3	RFS - APXVLL19P_43-C-A20 - Panel			
14		6	Ericsson RRUS11 B2			
15		3	4460 B25 + B66			
16		3	Ericsson 4449 B71 + B85			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

Tower Component	Utilization %	Pass / Fail
Pole Shaft	67.6%	Pass
Anchor Bolt	47.4%	Pass
Base Plate	75.5%	Pass
Structure Rating – *(Controlling Utilization of all Components)*	**75.5%**	

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	5084.9	36.2	68.7

* Per section 15.6.2 of the TIA-222-H standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Service Load Condition (Rigidity)

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.4868 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a comprehensive structural analysis.

Usage Diagram - Max Ratio 67.65% at 0.0ft

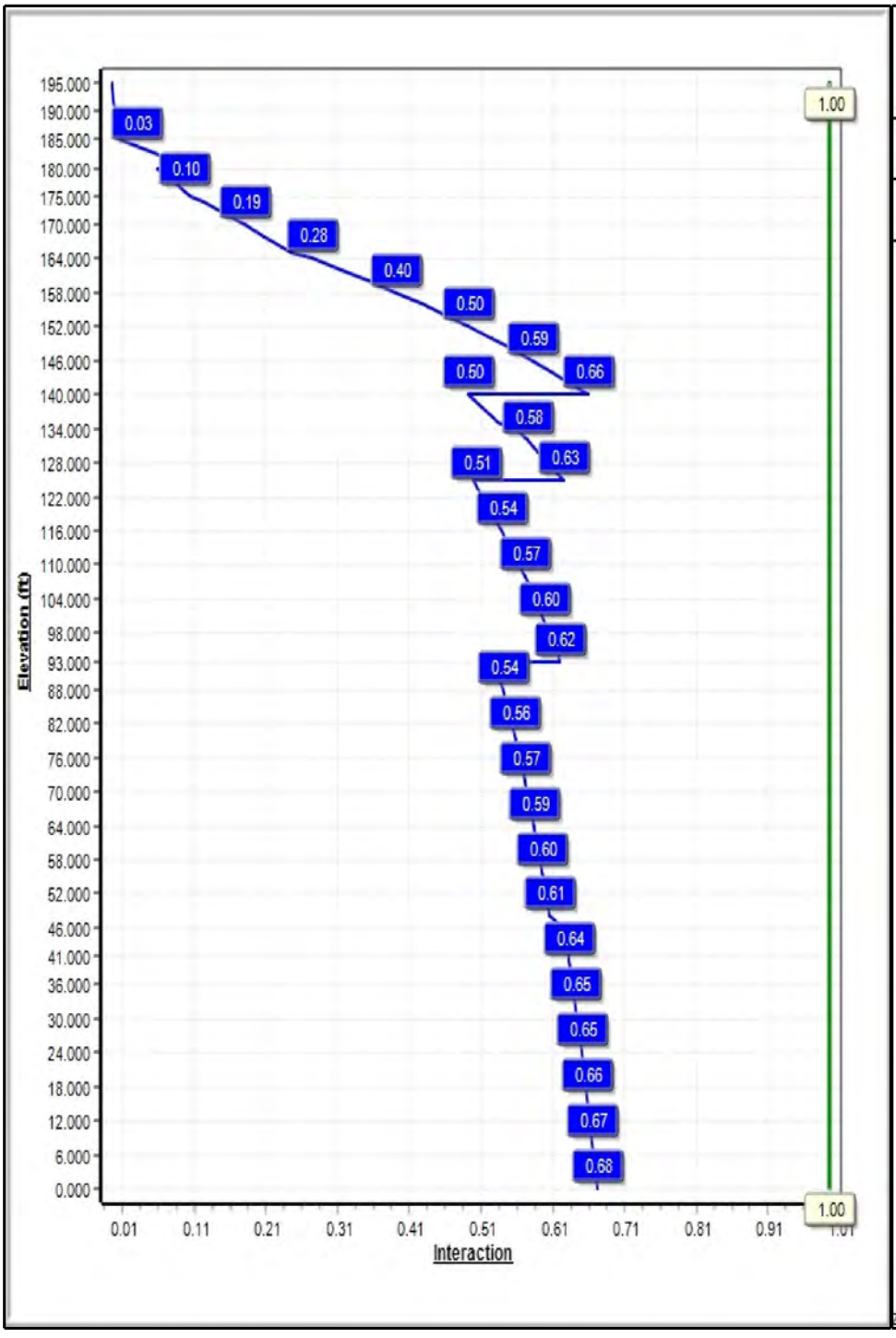
Structure:	CT01916-S-SBA	**Code:**	EIA/TIA-222-H	10/13/2024
Site Name:	North Salem	**Exposure:**	B	
Height:	195.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

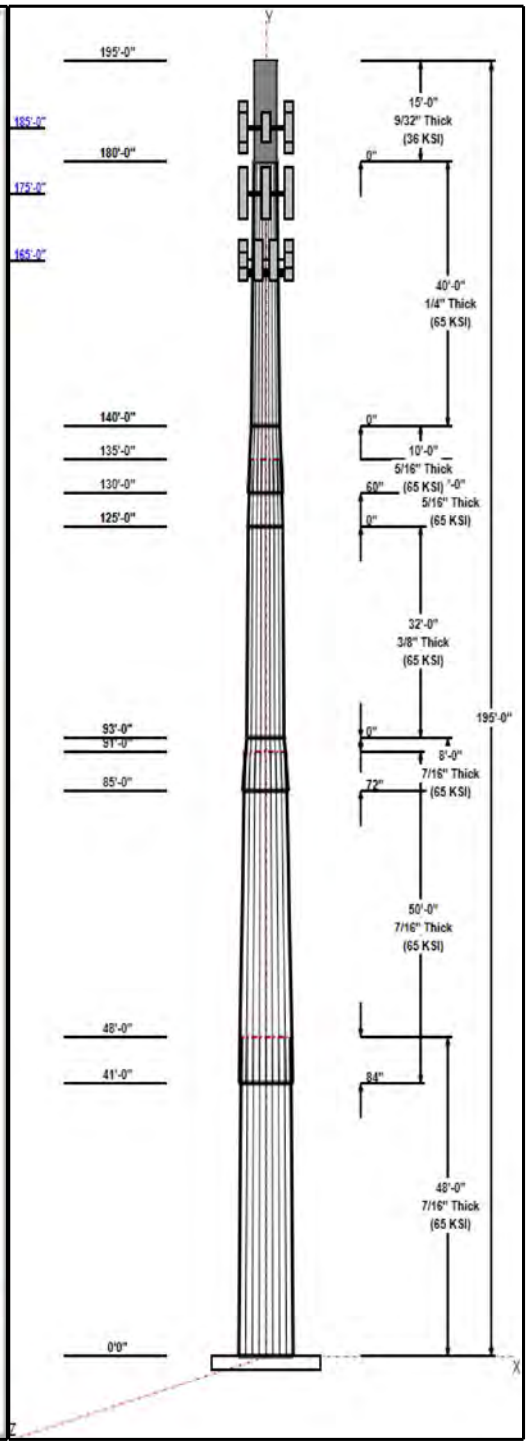
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.00

Load Case : 1.2D + 1.0W 123 mph Wind

Iterations: 31





Structure: CT01916-S-SBA

Type: Custom
Site Name: North Salem
Height: 195.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23819

10/13/2024

Tower Engineering Solutions

Shaft Properties

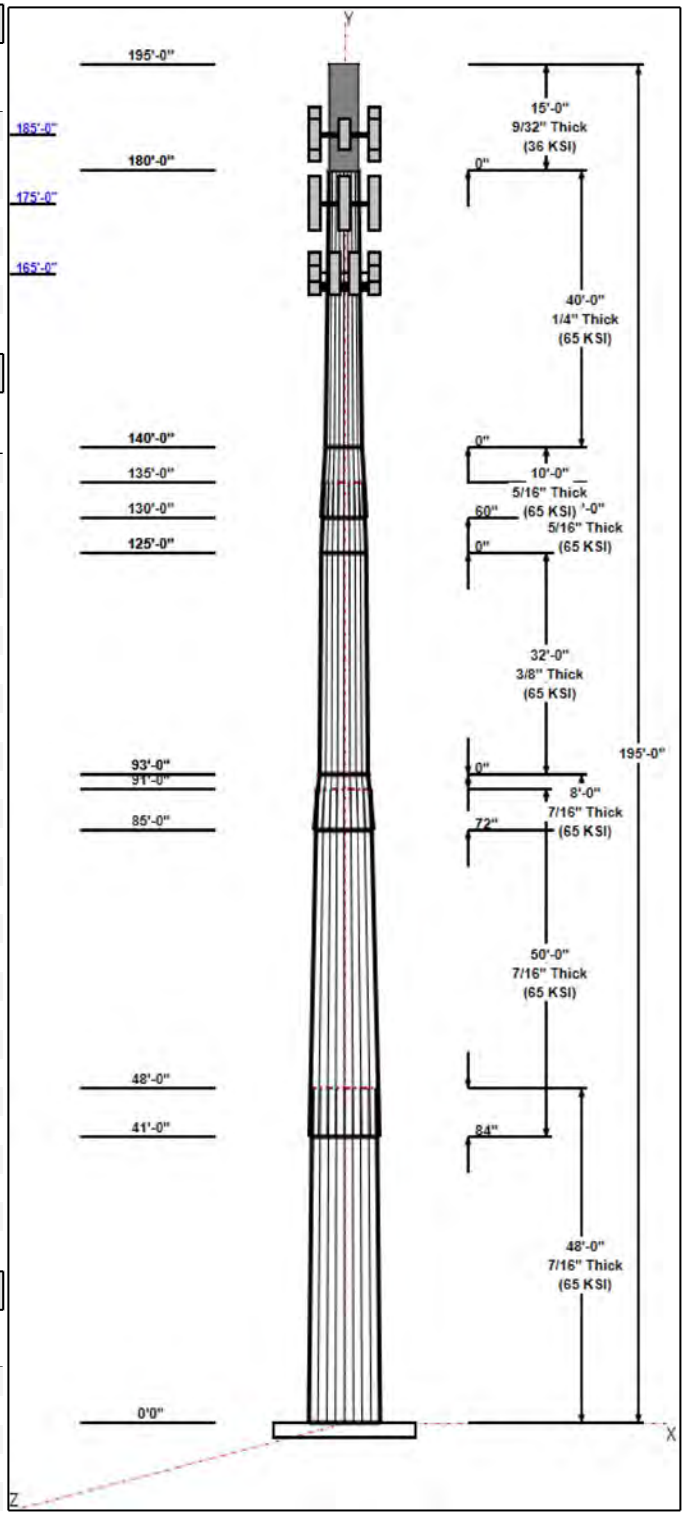
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	53.07	64.50	0.438		0.23819	65
2	50.00	43.70	55.61	0.438	Slip	0.23819	65
3	8.00	44.10	46.00	0.438	Slip	0.23819	65
4	32.00	36.48	44.10	0.375	Butt	0.23819	65
5	10.00	34.09	36.48	0.313	Butt	0.23819	65
6	10.00	33.53	35.91	0.313	Slip	0.23819	65
7	40.00	24.00	33.53	0.250	Butt	0.23819	65
8	15.00	24.00	24.00	0.281	Butt	0.00000	36

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
185.00	185.00	3	Powerwave 7770	AT&T
185.00	185.00	3	Ericsson 4449 B5/B12	AT&T
185.00	185.00	6	Powerwave LGP21401	AT&T
185.00	185.00	6	Powerwave LGP21903	AT&T
185.00	185.00	1	Sector Frames	AT&T
185.00	185.00	6	Cci DMP65R-BU8DA	AT&T
185.00	185.00	1	(3) SitePro 1 PRK-SFS-L &	AT&T
185.00	185.00	1	(3) SitePro 1 SFS-L with	AT&T
185.00	185.00	1	(3) SitePro 1 HRK14-3HD	AT&T
185.00	185.00	3	Ericsson RRUS 4478 B14	AT&T
185.00	185.00	3	Ericsson RRUS 8843 B2	AT&T
185.00	185.00	1	Raycap DC6-48-60-18-8F	AT&T
185.00	185.00	1	Raycap DC6-48-60-18-8C	AT&T
185.00	185.00	1	Raycap	AT&T
175.00	175.00	3	RFS	T-Mobile
175.00	175.00	3	RFS	T-Mobile
175.00	175.00	1	Platform w/ Hand Rail	T-Mobile
175.00	175.00	6	Ericsson RRUS11 B2	T-Mobile
175.00	175.00	3	APXVLL19P_43-C-A20	T-Mobile
175.00	175.00	3	4460 B25 + B66	T-Mobile
175.00	175.00	3	Ericsson 4449 B71 + B85	T-Mobile
165.00	165.00	15	Commscope	Verizon
165.00	165.00	6	Samsung MT6407-77A	Verizon
165.00	165.00	12	Samsung B2/B66A RRH	Verizon
165.00	165.00	12	Samsung RF4461d-13A	Verizon
165.00	165.00	9	Raycap	Verizon
165.00	165.00	1	RMQLP-4096-HK Plat. +	Verizon
165.00	165.00	3	BSAMNT-SBS-1-2	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	185.00	Inside	1 1/4" Coax	AT&T
0.00	185.00	Inside	1/2" Coax	AT&T
0.00	185.00	Inside	1/2" Fiber	AT&T
0.00	185.00	Inside	2" Conduit	AT&T
0.00	185.00	Inside	3/4" DC	AT&T
177.75	182.25	Outside	(3) Bypass Stiffeners	
0.00	175.00	Inside	1.9" Fiber	T-Mobile
0.00	165.00	Inside	1 5/8" Coax	Verizon
0.00	165.00	Inside	1 5/8" Hybrid	Verizon
0.00	143.00	Outside	(4) C6x10.5	



0.00	55.00	Outside	(4) C5x9

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
29	2.00" A687	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	64.5	50.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 123 mph Wind	5084.9	36.2	68.7
0.9D + 1.0W 123 mph Wind	5006.4	36.2	51.5
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1337.1	9.8	92.8
1.2D + 1.0Ev + 1.0Eh	145.0	0.8	71.3
0.9D + 1.0Ev + 1.0Eh	142.5	0.8	54.0
1.0D + 1.0W 60 mph Wind	1080.5	7.8	57.3

Structure: CT01916-S-SBA - Coax Line Placement

Type: Monopole
Site Name: North Salem
Height: 195.00 (ft)

10/13/2024

Tower Engineering Solutions

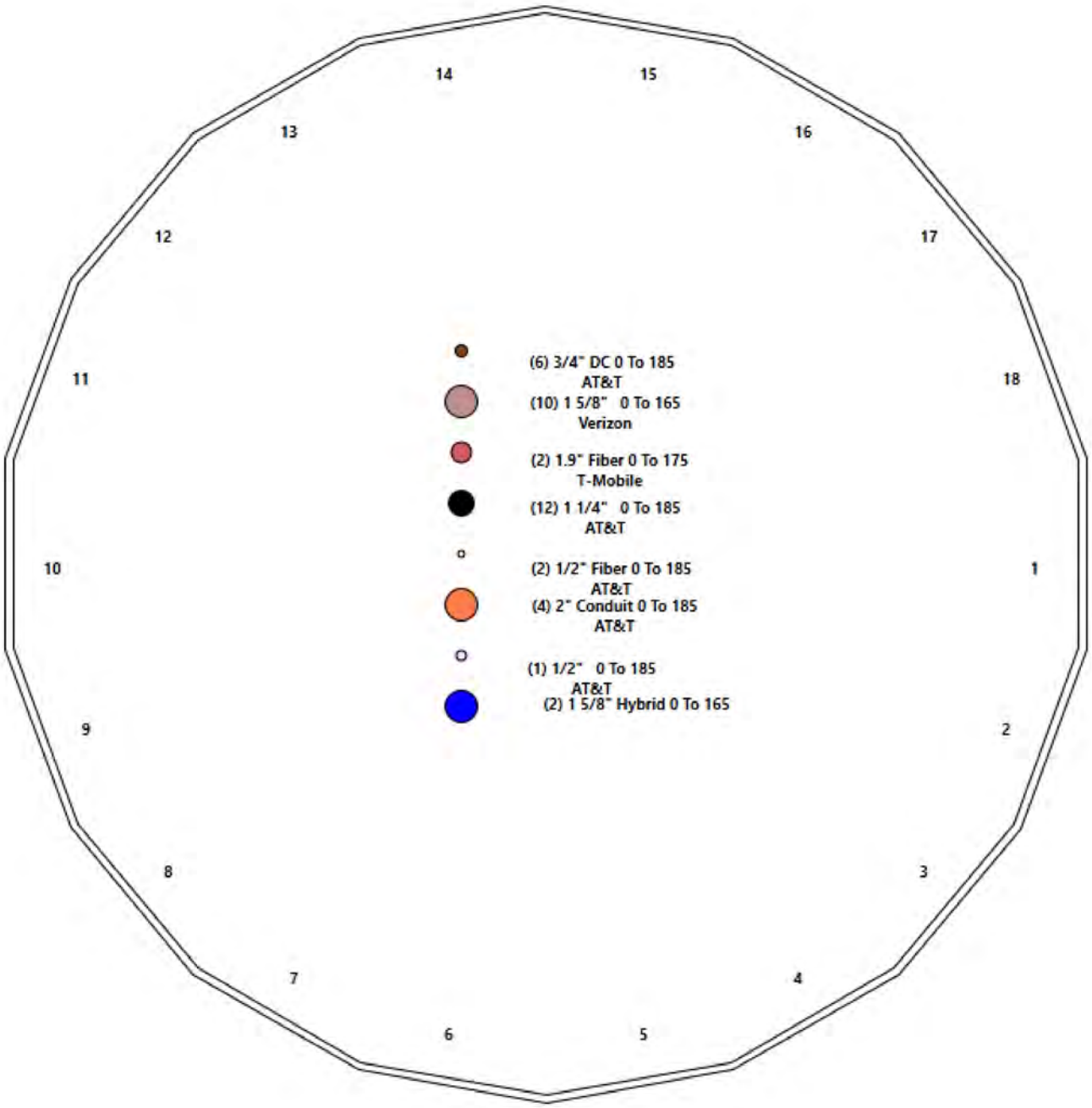


Exhibit 9

T··Mobile·®

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
SECTOR D:	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

CTHA101F

160 WITCH MEADOW ROAD
SALEM, CT 06420
NEW LONDON COUNTY

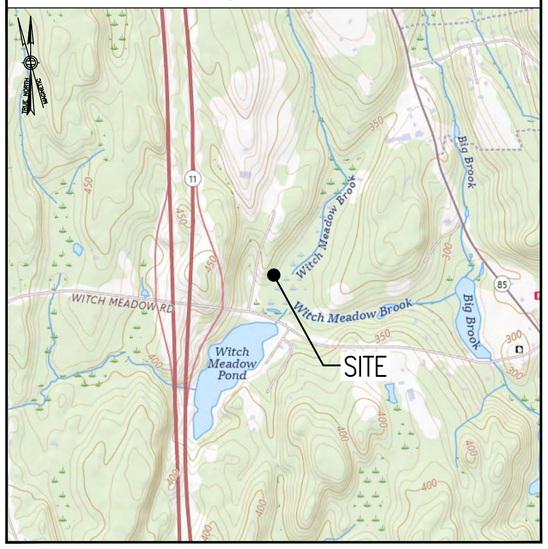
SITE NO.: CTHA101F

SITE TYPE: 195'± MONOPOLE

PROJECT: EQUIPMENT UPGRADE
RF DESIGN GUIDELINE: 67D998E 6160

VICINITY MAP

SCALE: 1" = 1000'



DIRECTIONS

FROM NORTON, TAKE I-495 NORTH TOWARD MANSFIELD/MARLBORO. TAKE EXIT 33B TO MERGE ONTO I-95 SOUTH TOWARD PROVIDENCE RI. USE RIGHT 2 LANES TO TAKE EXIT 6 FOR I-295. CONTINUE ONTO I-295 SOUTH. ENTER RHODE ISLAND. USE RIGHT LANE TO TAKE EXIT 9C-A FOR US-6 WEST TOWARD HARTFORD CT. TAKE SLIGHT RIGHT ONTO THE RAMP TO JOHNSTON/SCITUATE/FOSTER. MERGE ONTO US-6 WEST. CONTINUE STRAIGHT TO STAY ON US-6 WEST. TAKE SLIGHT LEFT TO STAY ON US-6 WEST. ENTER CONNECTICUT. TAKE SLIGHT LEFT ONTO CONNECTICUT TURNPIKE/GOVERNOR JOHN DAVIS LODGE TURNPIKE. MERGE ONTO I-395 SOUTH/CONNECTICUT TURNPIKE/GOVERNOR JOHN DAVIS LODGE TURNPIKE. TAKE EXIT 11 FOR CT-82 TOWARD DOWNTOWN/NORWICH/SALEM. TURN RIGHT ONTO CT-82 WEST/SALEM TURNPIKE. CONTINUE TO FOLLOW CT-82 WEST. AT TRAFFIC CIRCLE, TAKE 1ST EXIT ONTO CT-85 NORTH. TURN LEFT ONTO WITCH MEADOW ROAD. TURN RIGHT INTO RENZ CONSTRUCTION CORPORATION. THE SITE IS LOCATED ON THE RIGHT HAND SIDE.

SHEET INDEX

SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	TOWER ELEVATIONS & ANTENNA PLANS	1
A-3	SITE DETAILS	1
RF-1	RF DATA	1
E-1	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

REMOVE:
- (3) ANTENNAS
- (6) RADIOS
- (2) HYBRID CABLES
- (1) RBS6102 MU AC EQUIPMENT CABINET

INSTALL:
- (3) ANTENNAS
- (3) RADIOS
- (2) HYBRID CABLES
- (1) SLACKBOX FOR FIBER MANAGEMENT
- (1) 6160 V2 AC EQUIPMENT CABINET
- (1) B160 BATTERY CABINET
- RAN EQUIPMENT (REFER TO SHEET RF-1)
- (1) CIRCUIT BREAKER

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: 2022 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-H STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

PROJECT SUMMARY

SITE NUMBER:	CTHA101F
SITE NAME:	CTHA101F
SBA SITE NUMBER:	CT01916-S
SBA SITE NAME:	NORTH SALEM
SBA COLLO APP NUMBER:	N/A
SITE ADDRESS:	160 WITCH MEADOW ROAD SALEM, CT 06420
PROPERTY OWNER:	RONALD R. RENZ C/O RENZ CONSTRUCTION COMPANY 44 MUSTANG DRIVE MONROE, CT 06468
TOWER OWNER:	SBA PROPERTIES, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON
ZONING DISTRICT:	I (INDUSTRIAL)
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	195'±
STRUCTURE HEIGHT W/APPURT.:	199'±
GROUND ELEVATION:	336'±
TOTAL AMSL:	535'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
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: 41.5028° N41°30'10.18" LONGITUDE: -72.2971° W72°17'49.39"

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·
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700

SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
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CHAPPELL ENGINEERING ASSOCIATES, LLC
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STATE OF CONNECTICUT
CLEMENT J. SALEK
No. 26876
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/13/24	ISSUED FOR CONSTRUCTION	CMC
0	09/25/24	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CTHA101F

SITE ADDRESS:
160 WITCH MEADOW ROAD
SALEM, CT 06420

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.563

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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SALEM, CT 06420

SHEET TITLE
GENERAL NOTES

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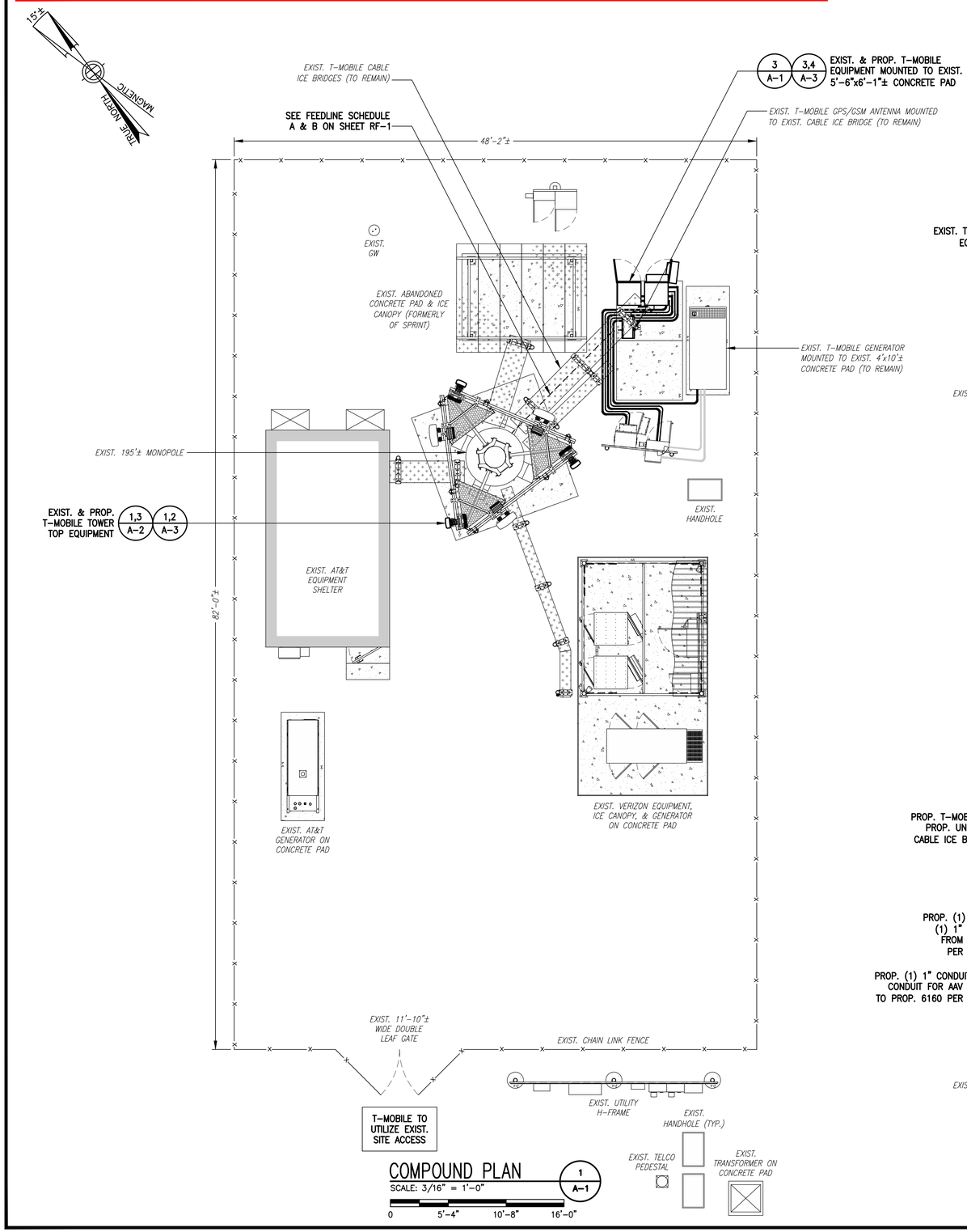
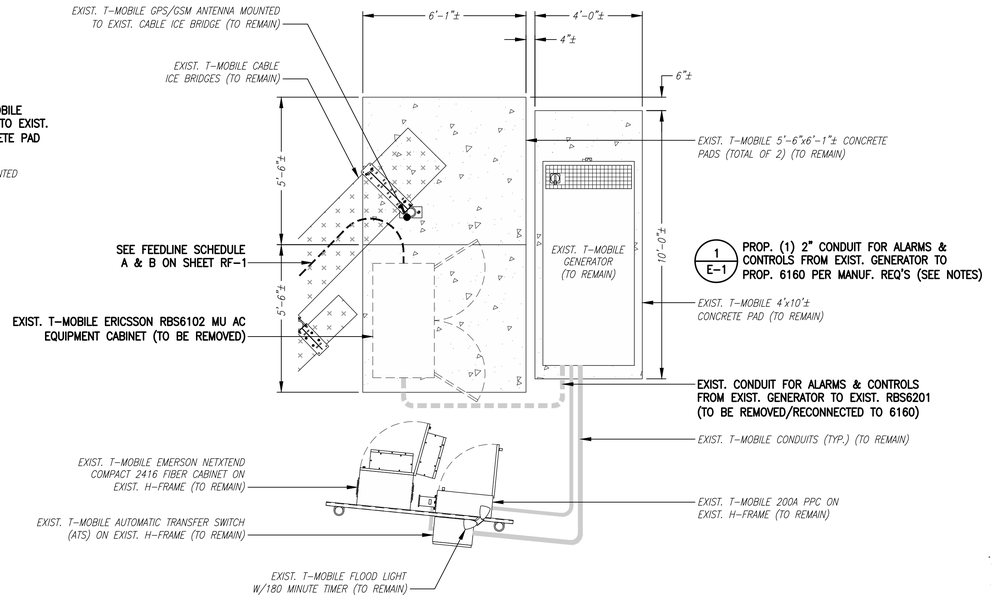
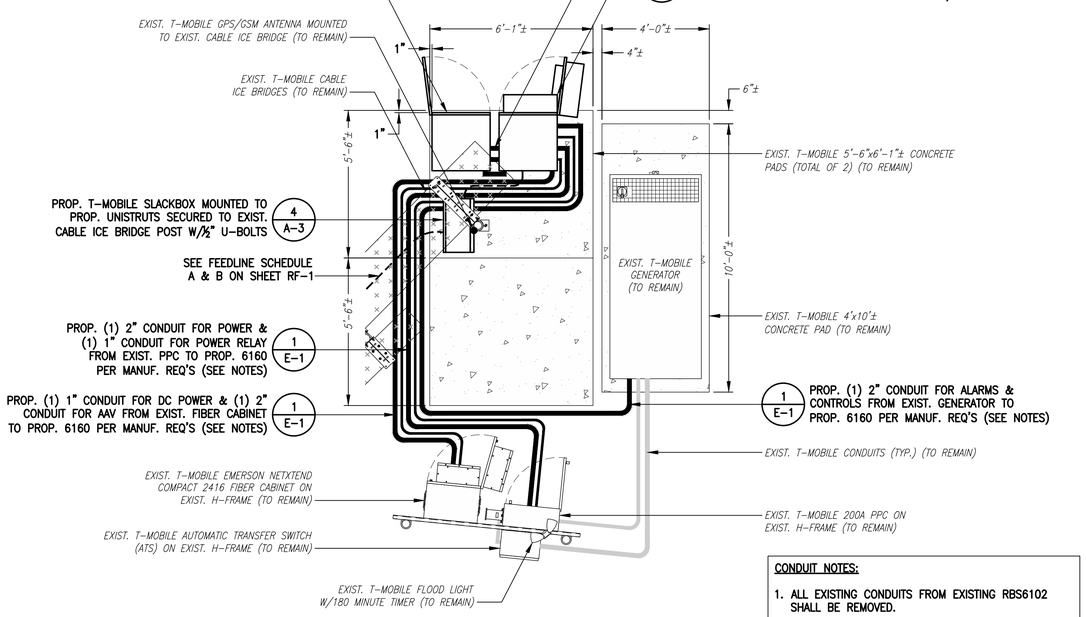
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



COMPOUND PLAN
1 A-1
SCALE: 3/16" = 1'-0"
0 5'-4" 10'-8" 16'-0"



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



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

CONDUIT NOTES:

1. ALL EXISTING CONDUITS FROM EXISTING RBS6102 SHALL BE REMOVED.
2. ALL NEW CONDUITS SHALL BE ROUTED UNDERGROUND TO AVOID TRIP HAZARD, WHERE APPLICABLE.
3. ALL UNDERGROUND CONDUITS SHALL BE PVC. ALL ABOVEGROUND CONDUITS SHALL BE RGS.

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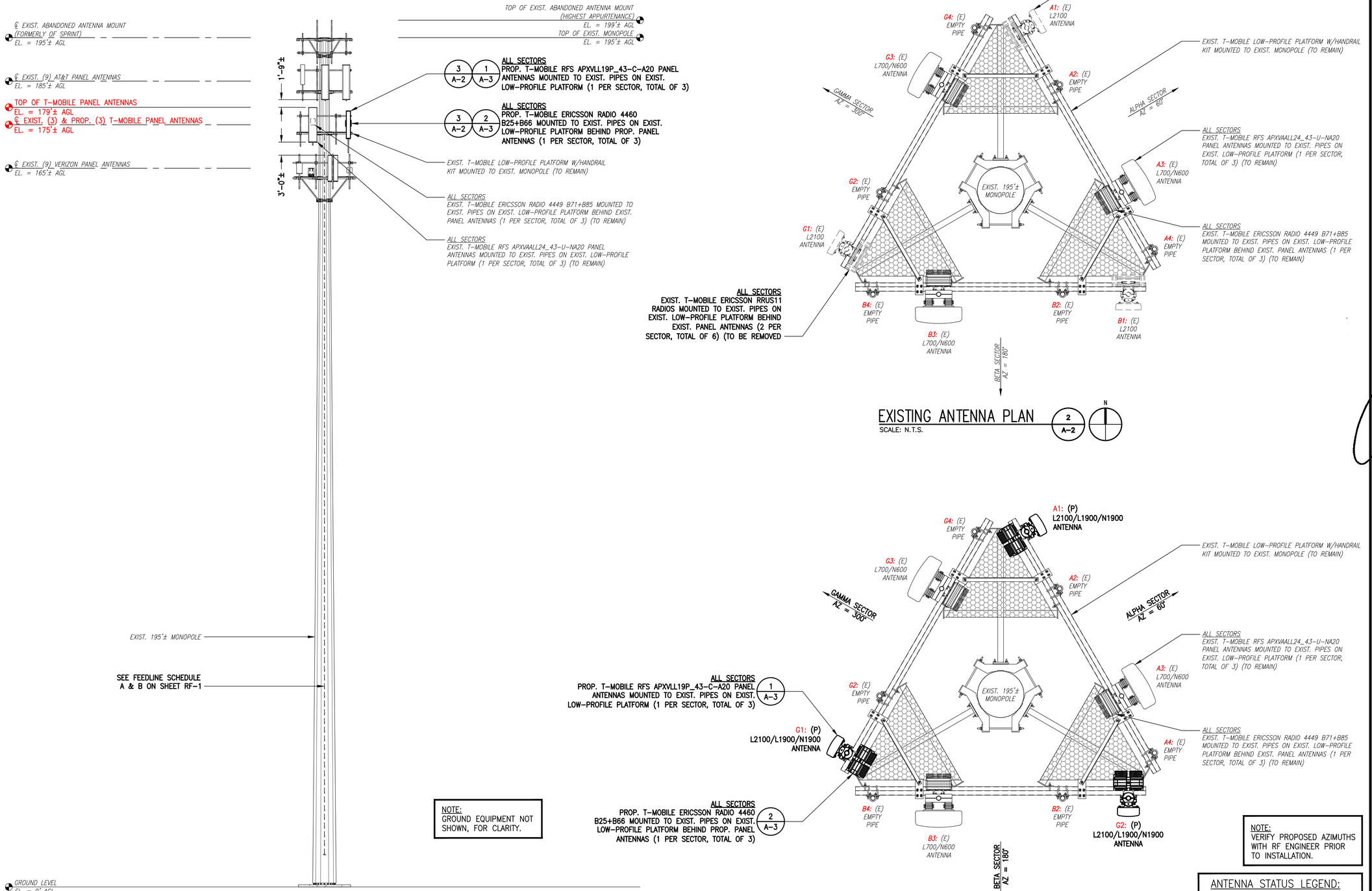
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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

RAD CENTER NOTE:
T-MOBILE ANTENNA AND MOUNT RAD CENTER SHOWN IN ELEVATION ARE ACCORDING TO STRUCTURAL ANALYSIS DONE BY OTHERS AND MAY DIFFER FROM RAD CENTER ON RFDS PROVIDED BY T-MOBILE.



TOWER ELEVATION 1 A-2
SCALE: 3/32" = 1'-0"
0 10'-8" 21'-4" 32'-0"

NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

EXISTING ANTENNA PLAN 2 A-2
SCALE: N.T.S.

PROPOSED ANTENNA PLAN 3 A-2
SCALE: N.T.S.

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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STATE OF CONNECTICUT
CLEMENT J. SAJEK
No. 26876
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/13/24	ISSUED FOR CONSTRUCTION	CMC
0	09/25/24	ISSUED FOR REVIEW	CMC

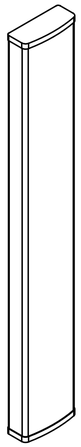
SITE NUMBER:
CTHA101F

SITE ADDRESS:
160 WITCH MEADOW ROAD
SALEM, CT 06420

SHEET TITLE
TOWER ELEVATION & ANTENNA PLANS

SHEET NUMBER
A-2

1815.563



RFS APXVLL19P_43-C-A20 ANTENNA

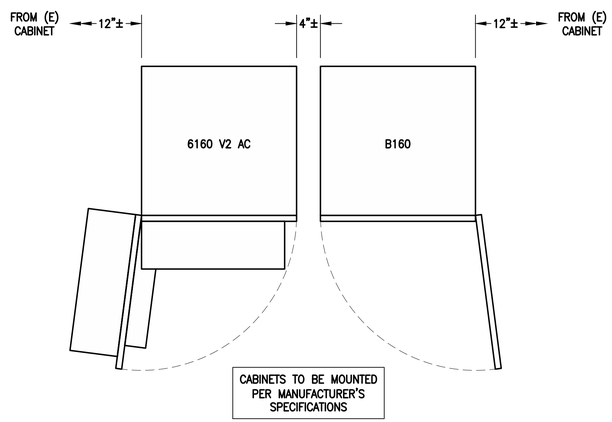
DIMENSIONS: 75.8"H x 11.3"W x 4.6"D
WEIGHT: 49.3 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3
SECTORS: ALPHA, BETA, GAMMA

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

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
SECTORS: ALPHA, BETA, GAMMA

RADIO DETAIL (2 / A-3)
SCALE: N.T.S.



ERICSSON 6160 V2 AC EQUIPMENT CABINET

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

ERICSSON B160 BATTERY CABINET

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

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

SLACKBOX – HOFFMAN 32FH91 NEMA 3R ENCLOSURE

DIMENSIONS: 24.0"H x 24.0"W x 12.0"D
QUANTITY: TOTAL OF 1

SSC DETAILS (4 / A-3)
SCALE: N.T.S.

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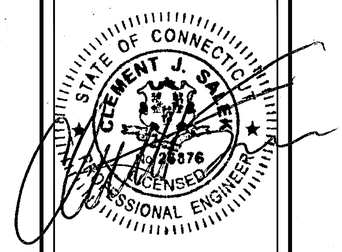

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SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.563

FINAL ANTENNA CONFIGURATION

SECTOR		ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	SBTS/TMAS/MULTIPLEXERS/RADIOS	CABLES
ALPHA	A1	RFS APXVLL19P_43-C-A20	175'± AGL	60°	0°	2°	L2100/L1900/N1900	ERICSSON RADIO 4460 B25+B66	PROP. (2) 2" (6x24) HCS FIBER CABLE (80m±)
	A2	EMPTY PIPE	–	–	–	–	–	–	
	A3	RFS APXVAALL24_43-U-NA20	175'± AGL	60°	0°	2°	L700/N600	ERICSSON RADIO 4449 B71+B85	
	A4	EMPTY PIPE	–	–	–	–	–	–	
BETA	B1	RFS APXVLL19P_43-C-A20	175'± AGL	180°	0°	2°	L2100/L1900/N1900	ERICSSON RADIO 4460 B25+B66	
	B2	EMPTY PIPE	–	–	–	–	–	–	
	B3	RFS APXVAALL24_43-U-NA20	175'± AGL	180°	0°	2°	L700/N600	ERICSSON RADIO 4449 B71+B85	
	B4	EMPTY PIPE	–	–	–	–	–	–	
GAMMA	G1	RFS APXVLL19P_43-C-A20	175'± AGL	300°	0°	2°	L2100/L1900/N1900	ERICSSON RADIO 4460 B25+B66	
	G2	EMPTY PIPE	–	–	–	–	–	–	
	G3	RFS APXVAALL24_43-U-NA20	175'± AGL	300°	0°	2°	L700/N600	ERICSSON RADIO 4449 B71+B85	
	G4	EMPTY PIPE	–	–	–	–	–	–	

CABLE NOTE: EXISTING (2) 1-5/8" (6x12) HCS FIBER CABLES & (1) 2" (6x24) HCS FIBER CABLE TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV5 – 09/06/24

RAD CENTER NOTE:
T-MOBILE ANTENNA RAD CENTER SHOWN IN ABOVE SCHEDULE IS ACCORDING TO RFDS PROVIDED BY T-MOBILE AND MIGHT DIFFER FROM ACTUAL ANTENNA RAD CENTER ON STRUCTURAL ANALYSIS.

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES		LOCATION
A	EXISTING TO REMAIN:	(1) ½" COAXIAL CABLE FOR GPS ANTENNA	ROUTED PER STRUCTURAL ANALYSIS
	EXISTING TO BE REMOVED:	(2) 1-5/8" (6x12) HCS FIBER CABLES (1) 2" (6x24) HCS FIBER CABLE	
B	PROPOSED:	(2) 2" (6x24) HCS FIBER CABLES (80m±)	

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

RAN EQUIPMENT

CABINET	EXISTING	PROPOSED
ERICSSON 6160 V2 AC	N/A	(1) BB 6630 (1) BB 6648 (1) CSR IXRe V2 (GEN2)

NOTE:
RAN EQUIPMENT IS BASED ON RFDS REV5 DATED 09/06/24.

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SALEM, CT 06420

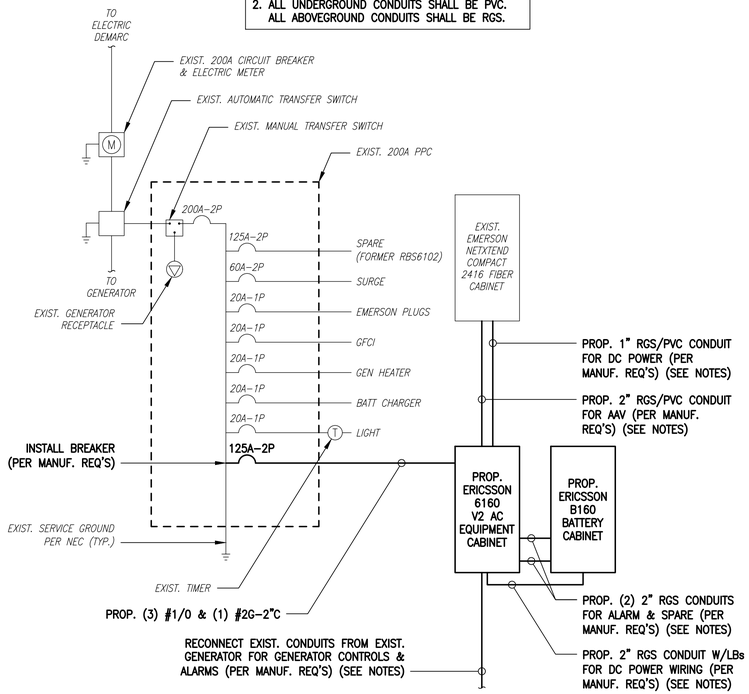
SHEET TITLE
RF DATA

SHEET NUMBER
RF-1

1815.563

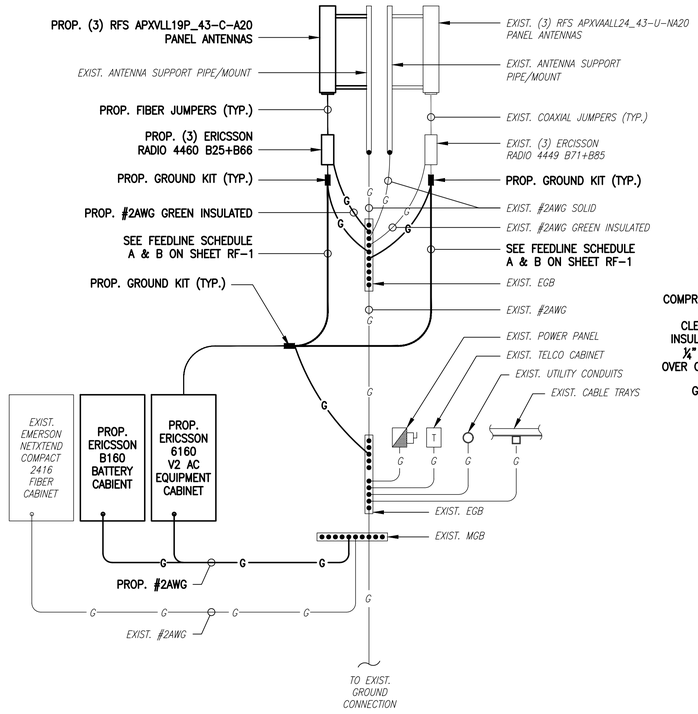
CONDUIT NOTES:

1. ALL CONDUITS SHALL BE ROUTED UNDERGROUND TO AVOID TRIP HAZARD, WHERE APPLICABLE.
2. ALL UNDERGROUND CONDUITS SHALL BE PVC. ALL ABOVEGROUND CONDUITS SHALL BE RGS.



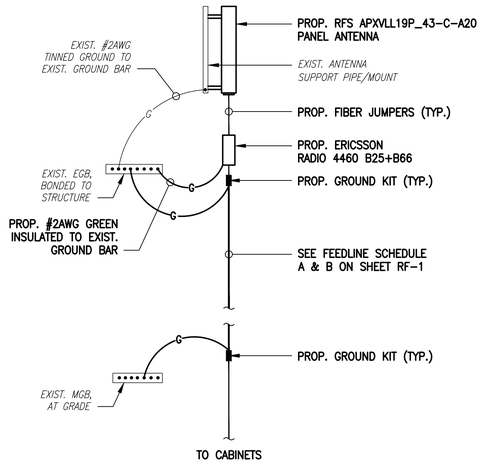
ONE-LINE DIAGRAM

SCALE: NOT TO SCALE — 1 / E-1

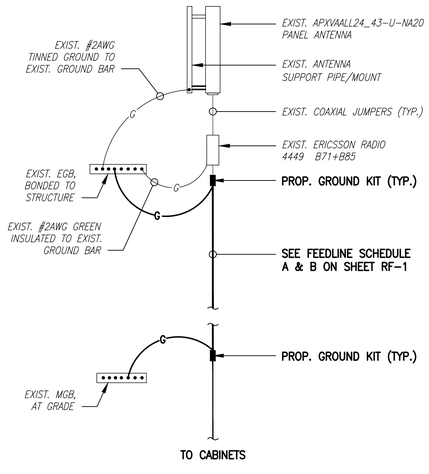


GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE — 2 / E-1



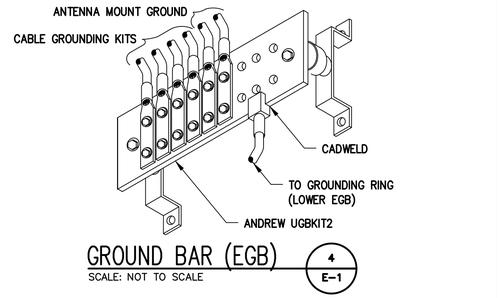
L2100/L1900/N1900 ANTENNA



L700/N600 ANTENNA

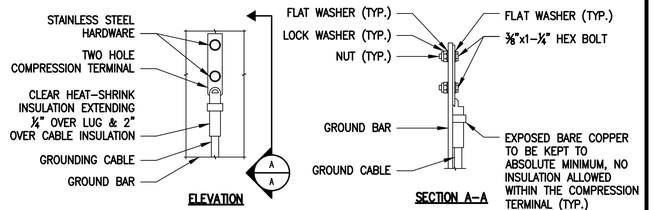
COAX CABLE CONNECTION AND GROUNDING DETAIL

SCALE: NOT TO SCALE — 3 / E-1



GROUND BAR (EGB)

SCALE: NOT TO SCALE — 4 / E-1



NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, & MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL

SCALE: NOT TO SCALE — 5 / E-1

ELECTRICAL & 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 THHN INSULATION.
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 EXIST. 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.

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