Jon Ritter

16 Chestnut Street, Suite 420
Foxboro, MA 02035
Tel (774) 264-0016
jritter@trmcom.com

1/19/2015

Melanie Bachman
Acting Executive Director
Connecticut Siting Counsel
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification**
289H Mountain Road, Hartford, CT 06114
41.726487 /-72.708119

Dear Ms. Bachman:

T-Mobile Northeast, LLC (T-Mobile) currently maintains six (6) antennas at the eighty seven (87') foot level of the existing one-hundred and nine (109') foot Monopole at 289H Mountain Road, Hartford, CT. The monopole tower is owned by American Tower Corporation. The property is owned by Springwhich Cellular Tower Holdings, LLC. T-Mobile now intends to add Three (3) new 700MHz antennas. These antennas would be installed at the eighty seven (87') foot level of the tower. T-Mobile will remove three (3) antennas at the eighty seven (87') foot level to complete the project.

This facility was not originally approved by the Connecticut Siting Council. The original zoning decision, (docket 40.2) dated May 15th, 1984 has been included with this filing. The decision includes the conditions that the tower shall not exceed 100 Feet, approved as existing at 110' in Petition 0920. Additionally, only daylight working hours can be utilized for construction activities.

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 Chief Elected Official, Mayor, Luke Bronin for the City of Hartford, as well as the property owner and the tower owner.

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

1) The proposed modification will not result in an increase in the height of the existing structure.

2) The modifications will not require an extension of the site boundary.

3) The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4) The operation and replacement of antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5) The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6) The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Jonathan H Ritter

Jon Ritter
On behalf of American Tower Corporation
c/o Tower Resource Management, Inc.
16 Chestnut Street, Suite 420
Foxboro, MA 02035
774-264-0016
jritter@trmcom.com

cc: **Chief Elected Official, Mayor, Luke Bronin, City of Hartford**
American Tower Corporation
Meadow Street Realty LLC

Exhibit 1

Site Plan

Exhibit 2

Power Density Report

Exhibit 3

Structural Analysis

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

T-Mobile Existing Facility

Site ID: CT11769B

CT769/ SSite Hartford #2
289 H Mountain Road
Hartford, CT 06114

December 10, 2015

EBI Project Number: 6215006363

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	26.00 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
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December 10, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11769B – CT769/ SSite Hartford #2**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **289 H Mountain Road, Hartford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public 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 public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **289 H Mountain Road, Hartford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

1) 2 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) Since the radios are ground mounted there are additional cabling losses accounted for. For each RF path the following losses were calculated. 0.62 dB of additional cable loss for all 700 MHz Channels, 1.13 dB of additional cable loss for all 1900 MHz channels and 1.17 dB of additional cable loss at 2100 MHz. This is based on manufacturers Specifications for 110 feet of 1-5/8” coax cable on each path.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-ACU** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-ACU** has a maximum gain of **16.3 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is **91 feet** above ground level (AGL).

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-E-ACU	Make / Model:	RFS APX16DWV-16DWVS-E-ACU	Make / Model:	RFS APX16DWV-16DWVS-E-ACU
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	91	Height (AGL):	91	Height (AGL):	91
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	7,838.17	ERP (W):	7,838.17	ERP (W):	7,838.17
Antenna A1 MPE%	**3.90**	Antenna B1 MPE%	**3.90**	Antenna C1 MPE%	**3.90**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	91	Height (AGL):	91	Height (AGL):	91
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	750.10	ERP (W):	750.10	ERP (W):	750.10
Antenna A2 MPE%	**0.80**	Antenna B2 MPE%	**0.80**	Antenna C2 MPE%	**0.80**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**4.70 %**
AT&T	3.08 %
Clearwire	0.15 %
MetroPCS	2.48 %
SNET Paging	0.46 %
Town of W. Hartford	0.83 %
Verizon Wireless	14.30 %
Site Total MPE %:	**26.00 %**

T-Mobile Sector 1 Total:	4.70 %
T-Mobile Sector 2 Total:	4.70 %
T-Mobile Sector 3 Total:	4.70 %
Site Total:	26.00 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**1955.02**	**91**	**19.46**	**2100**	**1000**	**1.95 %**
T-Mobile 1900 MHz (PCS) GSM/UMTS	**2**	**986.55**	**91**	**9.82**	**1900**	**1000**	**0.98 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**977.51**	**91**	**9.73**	**2100**	**1000**	**0.97 %**
T-Mobile 700 MHz LTE	**1**	**750.10**	**91**	**3.73**	**700**	**467**	**0.80 %**
						Total:	**4.70%**

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	4.70 %
Sector 2:	4.70 %
Sector 3 :	4.70 %
T-Mobile Per Sector Maximum:	4.70 %
Site Total:	26.00 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **26.00%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

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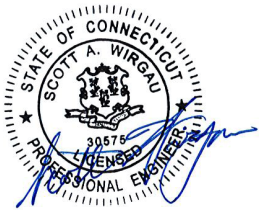
This report was prepared for American Tower Corporation by

CLS Group

Structural Analysis Report

Structure	:	**110 ft Monopole**
ATC Site Name	:	**Hrfr - South, CT**
ATC Site Number	:	**302481**
Engineering Number	:	**64295622**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**CT769/SSite Hartford #2**
Carrier Site Number	:	**CT11769B**
Site Location	:	**Mountain Road** **Hartford, CT 06106-4121** **41.726569,-72.708169**
County	:	**Hartford**
Date	:	**January 15, 2016**
Max Usage	:	**100%**
Result	:	**Pass**

Reviewed by:
Scott Wirgau, PE
Structural Team Leader



Prepared By:
Zachary A. Medoff

Jan 18 2016 4:01 PM

COA: PEC.0001553

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 110 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	Mapped by Smith Cullum Site #CT-0017(A), dated June 6, 2001
Foundation Drawing	Girard & Co Engineering Job #39902, dated April 29, 1988
Geotechnical Report	TEP Project #071162.01, dated July 23, 2007
Modifications	ATC Project #42719232, dated January 12, 2009 ATC Project #43595333, dated July 1, 2009 ATC Project #43930034, dated September 15, 2009 ATC Project #44662232, dated March 30, 2010

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	95 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	4
Crest Height:	36 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
110.0	110.0	3	DragonWave Horizon Compact	Side Arms	(6) 5/16" Coax (3) 1/2" Coax (1) 2" Conduit	Clearwire
		1	DragonWave A-ANT-23G-1-C			
		3	NextNet BTS-2500			
		3	Argus LLPX310R			
		2	DragonWave A-ANT-11G-2.5-C			
100.0	105.0	2	Raycap DC6-48-60-18-8F	Platform w/ Handrails	(12) 1 5/8" Coax (4) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk (1) 3" Conduit	AT&T Mobility
	104.0	3	Powerwave 7770.00			
		2	KMW AM-X-CD-16-65-00T-RET			
		2	CCI OPA-65R-LCUU-H6			
		1	Andrew SBNH-1D6565C			
		1	CCI OPA-65R-LCUU-H8			
	102.0	6	Kathrein 860-10025			
		6	Ericsson RRUS-11			
		3	Ericsson RRUS-32			
	100.0	3	Powerwave TT19-08BP111-001			
		6	Powerwave LGP21401			
89.5	91.0	3	RFS APX16DWV-16DWV-S-E-ACU	Low Profile Platform	(18) 1 5/8" Coax	T-Mobile
80.0	80.0	3	Alcatel-Lucent RRH2X60-AWS	Low Profile Platform	(12) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2x60 700			
		6	Antel BXA-171063-12CF-EDIN-5			
		2	RFS DB-T1-6Z-8AB-0Z			
		6	Antel BXA-70063-6CF-EDIN-2			
77.0	77.0	1	Scala 840 10212	Stand Offs	(1) 7/8" Coax	West Hartford
		1	TX RX Systems 421-86A-10-18-12-N			
60.0	60.0	1	Scala 840 10212	Stand Off	(1) 1/4" Coax (1) 7/8" Coax	
		1	Radio Waves SP2-4.7 w/ Radome			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
89.5	91.0	3	RFS APXV18-206516S-C	-	-	T-Mobile
		6	CCI DTMA-1819-DD-12			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
89.5	91.0	3	Kathrein Smart Bias Tee	Low Profile Platform	-	T-Mobile
		3	Ericsson KRY 112 144/1			
		3	Ericsson KRY 112 489/1			
		3	Commscope LNX-6515DS-VTM			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	36%	Pass
Shaft	100%	Pass
Base Plate	67%	Pass
Flanges	22%	Pass
Reinforcement	97%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,632.3	81%
Axial (Kips)	76.3	17%
Shear (Kips)	23.5	76%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
110.0	DragonWave A-ANT-23G-1-C	Clearwire	1.610	1.503
	DragonWave A-ANT-11G-2.5-C			
89.5	Kathrein Smart Bias Tee	T-Mobile	1.088	1.343
	Ericsson KRY 112 144/1			
	Ericsson KRY 112 489/1			
	Commscope LNX-6515DS-VTM			
60.0	Radio Waves SP2-4.7 w/ Radome	West Hartford	0.523	0.929

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

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Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

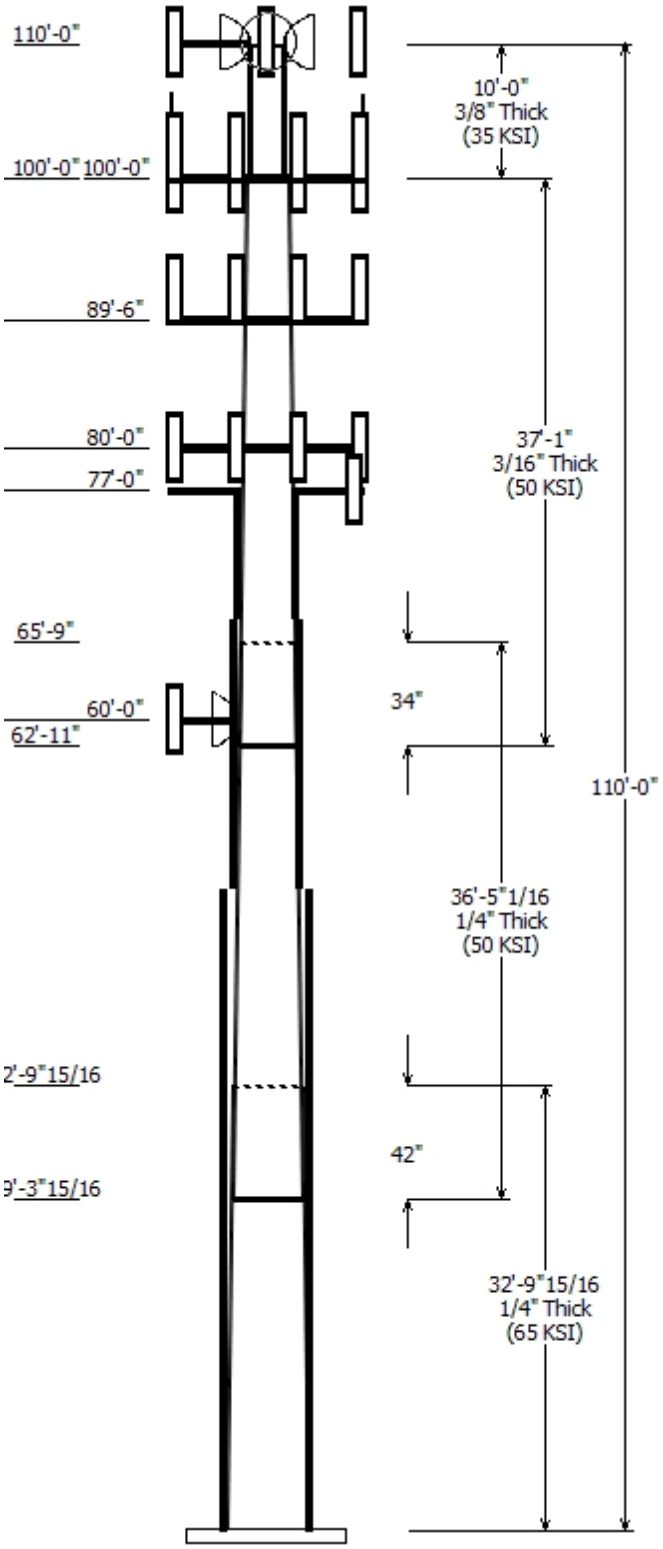
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Job Information

Pole :	302481	Code:	ANSI/TIA-222-G
Description :	110 ft ITT Meyer Monopole		
Client :	T- Mobile	Struct Class :	II
Location :	Hrfr - South, CT		
Shape :	12 Sides	Exposure :	B
Height :	110.00 (ft)	Topo :	4
Base Elev (ft):	0.00		
Taper:	0.16375 (in/ft)		

Sections Properties

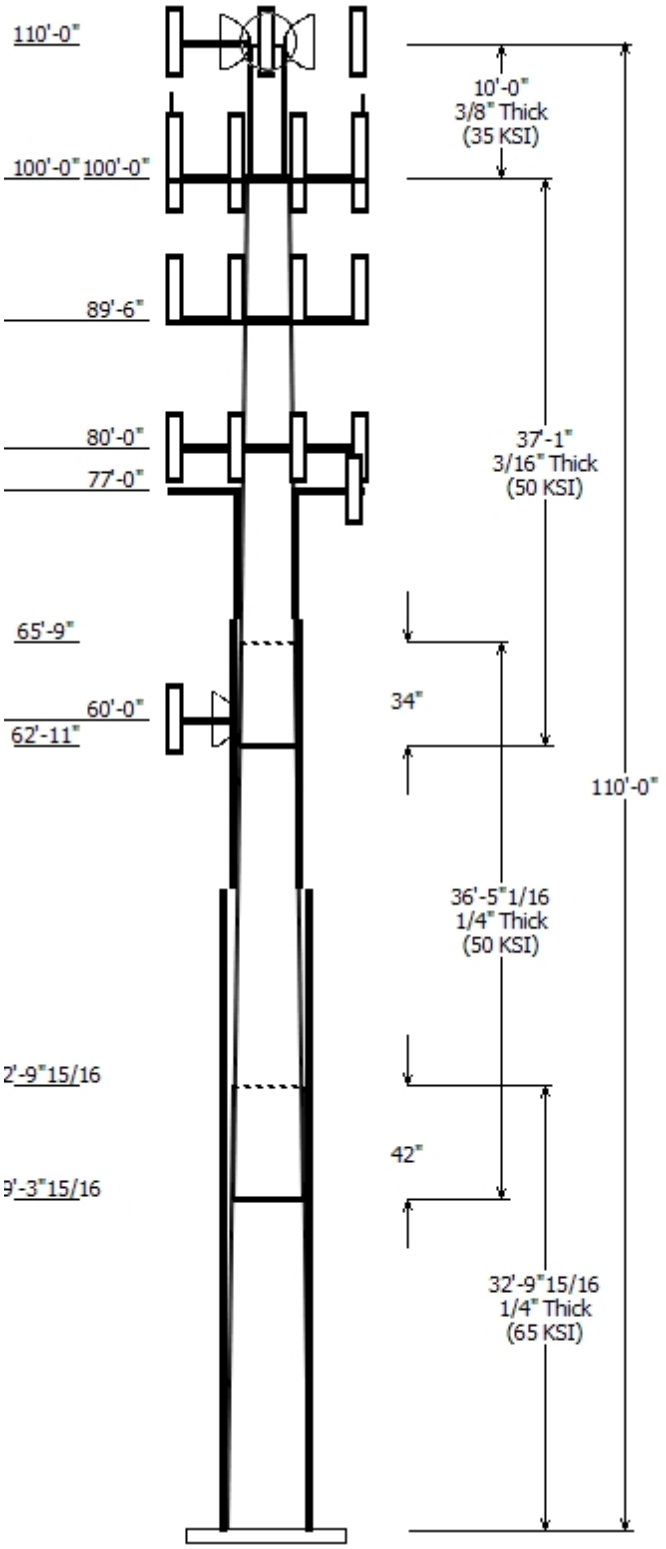
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	32.830	24.62	30.00	0.250		0.000	0.163800	65
2	36.420	19.73	25.69	0.250	Slip Joint	42.000	0.163800	50
3	37.083	14.50	20.57	0.188	Slip Joint	34.000	0.163800	50
4	10.000	12.75	12.75	0.375	Butt Joint	0.000	0.000000	35

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
110.000	110.000	1	Side Arms
110.000	110.000	1	DragonWave A-ANT-23G-1-C
110.000	110.000	3	Argus LLPX310R
110.000	110.000	3	NextNet BTS-2500
110.000	110.000	2	DragonWave A-ANT-11G-2.5-C
110.000	110.000	3	DragonWave Horizon Compact
100.000	102.000	6	Ericsson RRUS-11
100.000	104.000	1	CCI OPA-65R-LCUU-H8
100.000	104.000	2	CCI OPA-65R-LCUU-H6
100.000	102.000	3	Ericsson RRUS-32
100.000	105.000	2	Raycap DC6-48-60-18-8F
100.000	104.000	3	Powerwave 7770.00
100.000	104.000	1	Andrew SBNH-1D6565C
100.000	104.000	2	KMW AM-X-CD-16-65-00T-RET
100.000	102.000	6	Kathrein 860-10025
100.000	100.000	1	Flat Platform w/ Handrails
100.000	100.000	3	Powerwave TT19-08BP111-001
100.000	100.000	6	Powerwave LGP21401
89.500	91.000	3	Commscope LNX-6515DS-VTM
89.500	91.000	3	Ericsson KRY 112 489/1
89.500	91.000	3	Ericsson KRY 112 144/1
89.500	91.000	3	Kathrein Smart Bias Tee
89.500	91.000	3	RFS APX16DWV-16DWV-S-E-
89.500	89.500	1	Flat Low Profile Platform
80.000	80.000	1	Round Low Profile Platform
80.000	80.000	3	Alcatel-Lucent RRH2x60 700
80.000	80.000	3	Alcatel-Lucent RRH2X60-AWS
80.000	80.000	2	RFS DB-T1-6Z-8AB-0Z
80.000	80.000	6	Antel BXA-70063-6CF-EDIN-2
80.000	80.000	6	Antel BXA-171063-12CF-EDIN-5
77.000	77.000	2	Stand Offs
77.000	77.000	1	TX RX Systems 421-86A-10-18-
77.000	77.000	1	Scala 840 10212
60.000	60.000	1	Stand Off
60.000	60.000	1	Scala 840 10212
60.000	60.000	1	Radio Waves SP2-4.7 w/

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	60.000	1/4" Coax	Yes
0.000	60.000	7/8" Coax	Yes



0.000	77.000	7/8" Coax	Yes
0.000	80.000	1 5/8" Coax	Yes
0.000	80.000	1 5/8" Hybriflex	Yes
0.000	81.000	#20 DYWIDAG	Yes
0.000	89.500	1 5/8" Coax	Yes
0.000	100.0	0.39" Fiber Trunk	No
0.000	100.0	0.78" 8 AWG 6	No
0.000	100.0	0.78" 8 AWG 6	No
0.000	100.0	1 5/8" Coax	No
0.000	100.0	1 5/8" Coax	Yes
0.000	100.0	3" Conduit	No
0.000	110.0	1/2" Coax	Yes
0.000	110.0	2" Conduit	Yes
0.000	110.0	5/16" Coax	No

Load Cases

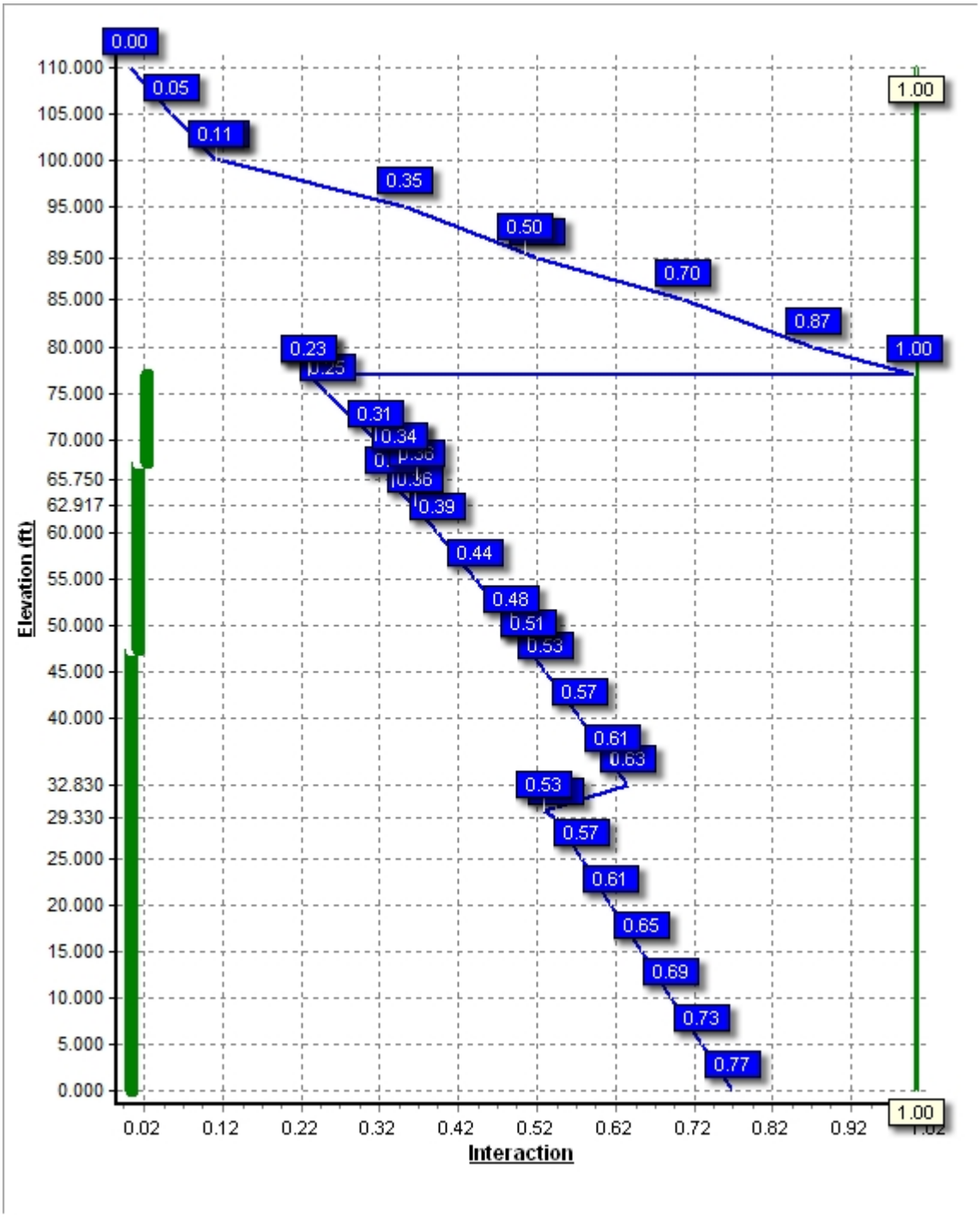
1.2D + 1.6W	95 mph with No Ice
0.9D + 1.6W	95 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1632.27	23.47	29.70
0.9D + 1.6W	1603.99	23.38	22.25
1.2D + 1.0Di + 1.0Wi	476.96	6.33	76.34
(1.2 + 0.2Sds) * DL + E ELFM	91.62	1.04	29.50
(1.2 + 0.2Sds) * DL + E EMAM	113.67	1.29	29.50
(0.9 - 0.2Sds) * DL + E ELFM	90.11	1.03	20.51
(0.9 - 0.2Sds) * DL + E EMAM	111.67	1.29	20.51
1.0D + 1.0W	402.30	5.85	24.81

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	60.00	6.273	0.929
1.0D + 1.0W	110.00	19.320	1.503
1.0D + 1.0W	110.00	19.320	1.503


0.00
0.05
0.11
0.35
0.50
0.70
0.87
1.00
0.23
0.25
0.31
0.34
0.36
0.39
0.44
0.48
0.51
0.53
0.57
0.61
0.63
0.53
0.57
0.61
0.65
0.69
0.73
0.77
1.00
110.000
105.000
100.000
95.000
89.500
85.000
80.000
75.000
70.000
65.750
62.917
60.000
55.000
50.000
45.000
40.000
32.830
29.330
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	**302481**	**Code: ANSI/TIA-222-G**	
Site Name:	**Hrfr - South, CT**	**Engineering Number: 64295622**	**1/15/2016 11:37:56 AM**
Customer:	**T- Mobile**		

Analysis Parameters

Location:	**Hartford County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**110**
Shape:	**12 Sides. Sect 4: Round**	**Base Diameter (in):**	**30.00**
Pole Type:	**Custom**	**Top Diameter (in):**	**12.75**
Pole Manfacturer:	**ITT Meyer**	**Taper (in/ft) :**	**0.164**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**95 mph**
Exposure Category:	**B**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Category:	**4**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**36.4 ft**	**Design Ice Thickness:**	**1.00 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**2.13**				
T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.032**
S_s:	**0.181**	**S_1:**	**0.064**	**C_s Max:**	**0.032**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.193**	**S_{d1}:**	**0.102**		

Load Cases

1.2D + 1.6W	**95 mph with No Ice**
0.9D + 1.6W	**95 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 1.00 in Radial Ice**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Site Number:	**302481**	**Code: ANSI/TIA-222-G**	
Site Name:	**Hrfr - South, CT**	**Engineering Number: 64295622**	**1/15/2016 11:37:56 AM**
Customer:	**T- Mobile**		

Shaft Section Properties

							Bottom						Top						
Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	32.830	0.2500	65		0.00	2,434	30.00	0.00	23.95	2705.5	29.47	120.00	24.62	32.83	19.62	1487.9	23.71	98.50	0.163751
2-12	36.420	0.2500	50	Slip	42.00	2,241	25.69	29.33	20.49	1693.2	24.86	102.79	19.73	65.75	15.68	759.9	18.47	78.93	0.163751
3-12	37.083	0.1875	50	Slip	34.00	1,322	20.57	62.92	12.31	652.8	26.72	109.72	14.50	100.00	8.64	225.9	18.04	77.33	0.163751
4-R	10.000	0.3750	35	Butt	0.00	496	12.75	100.00	14.58	279.3	0.00	34.00	12.75	110.00	14.58	279.3	0.00	34.00	0.000000
				Shaft Weight		6,493													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
110.00	Argus LLPX310R	3	28.60	4.290	0.63	178.50	5.481	0.63	0.000	0.000
110.00	DragonWave A-ANT-11G-2.5-	2	47.60	8.670	0.90	213.26	10.914	0.90	0.000	0.000
110.00	DragonWave A-ANT-23G-1-C	1	15.00	1.610	0.90	60.90	2.594	0.90	0.000	0.000
110.00	DragonWave Horizon	3	10.60	0.430	0.50	54.59	0.772	0.50	0.000	0.000
110.00	NextNet BTS-2500	3	35.00	1.820	0.64	115.53	2.551	0.64	0.000	0.000
110.00	Side Arms	1	560.00	8.500	1.00	1,168.26	17.733	1.00	0.000	0.000
100.00	Andrew SBNH-1D6565C	1	60.80	11.450	0.70	418.19	13.597	0.70	0.000	4.000
100.00	CCI OPA-65R-LCUU-H6	2	73.00	9.660	0.66	386.34	11.449	0.66	0.000	4.000
100.00	CCI OPA-65R-LCUU-H8	1	88.00	12.750	0.67	469.44	14.867	0.67	0.000	4.000
100.00	Ericsson RRUS-11	6	50.00	2.570	0.50	162.11	3.424	0.50	0.000	2.000
100.00	Ericsson RRUS-32	3	77.00	3.310	0.50	202.47	4.964	0.50	0.000	2.000
100.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,833.54	69.457	1.00	0.000	0.000
100.00	Kathrein 860-10025	6	1.10	0.140	0.50	15.26	0.398	0.50	0.000	2.000
100.00	KMW AM-X-CD-16-65-00T-	2	48.50	8.020	0.67	305.89	9.719	0.67	0.000	4.000
100.00	Powerwave 7770.00	3	35.00	5.510	0.65	220.58	6.897	0.65	0.000	4.000
100.00	Powerwave LGP21401	6	14.10	1.100	0.50	62.42	1.718	0.50	0.000	0.000
100.00	Powerwave TT19-08BP111-	3	16.00	0.640	0.50	56.20	1.018	0.50	0.000	0.000
100.00	Raycap DC6-48-60-18-8F	2	32.80	1.280	1.00	160.37	2.146	1.00	0.000	5.000
89.50	Commscope LNX-6515DS-	3	50.30	11.440	0.70	404.69	13.582	0.70	0.000	1.500
89.50	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	35.30	0.734	0.50	0.000	1.500
89.50	Ericsson KRY 112 489/1	3	15.40	0.650	0.50	51.19	1.027	0.50	0.000	1.500
89.50	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,330.16	50.563	1.00	0.000	0.000
89.50	Kathrein Smart Bias Tee	3	3.31	0.090	0.50	14.25	0.312	0.50	0.000	1.500
89.50	RFS APX16DWV-16DWV-S-E-	3	39.60	6.080	0.60	216.46	7.483	0.60	0.000	1.500
80.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.150	0.50	167.11	2.966	0.50	0.000	0.000
80.00	Alcatel-Lucent RRH2X60-	3	44.00	1.880	0.50	138.50	2.654	0.50	0.000	0.000
80.00	Antel BXA-171063-12CF-EDIN-	6	12.80	4.800	0.72	178.78	6.394	0.72	0.000	0.000
80.00	Antel BXA-70063-6CF-EDIN-2	6	17.00	7.570	0.66	251.70	9.210	0.66	0.000	0.000
80.00	RFS DB-T1-6Z-8AB-0Z	2	44.00	4.800	0.50	235.83	5.932	0.50	0.000	0.000
80.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,325.80	46.171	1.00	0.000	0.000
77.00	Scala 840 10212	1	6.70	2.170	1.00	93.16	3.042	1.00	0.000	0.000
77.00	Stand Offs	2	75.00	2.500	1.00	121.55	3.741	1.00	0.000	0.000
77.00	TX RX Systems 421-86A-10-	1	15.00	2.220	1.00	86.10	3.018	1.00	0.000	0.000
60.00	Radio Waves SP2-4.7 w/	1	26.00	2.710	1.00	154.90	3.188	1.00	0.000	0.000
60.00	Scala 840 10212	1	6.70	2.170	1.00	92.43	3.036	1.00	0.000	0.000
60.00	Stand Off	1	75.00	2.500	1.00	121.27	4.152	1.00	0.000	0.000
	Totals	93	8332.53			23,588.40			Number of Loadings :	36

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	110.00	3	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire

0.00	110.00	1	2" Conduit	2.38	3.65	N	2.38	Y	Clearwire
0.00	110.00	6	5/16" Coax	0.31	0.05	N	0.00	N	Clearwire
0.00	100.00	2	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	100.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	100.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	100.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	100.00	6	1 5/8" Coax	1.98	0.82	N	3.96	Y	AT&T Mobility
0.00	100.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	89.50	18	1 5/8" Coax	1.98	0.82	N	1.98	Y	T-Mobile (4*1.09 - 2.38)
0.00	81.00	4	#20 DYWIDAG	8.00	0.00	N	0.00	Y	--
0.00	80.00	12	1 5/8" Coax	1.98	0.82	N	0.00	Y	Verizon
0.00	80.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	Y	Verizon
0.00	77.00	1	7/8" Coax	1.09	0.33	N	0.00	Y	West Hartford
0.00	60.00	1	1/4" Coax	0.34	0.06	N	0.00	Y	West Hartford
0.00	60.00	1	7/8" Coax	1.09	0.33	N	0.00	Y	West Hartford

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	— Intermediate Connections — Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	47.50	4	SOL #20 All Thread	80	2.31	6" Angle Bracket	39.0	3.31	5/8" A36 U-Bolt	Yes
47.50	67.50	4	SOL #20 All Thread	80	2.31	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes
67.50	77.04	4	SOL #20 All Thread	80	2.31	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.2500	30.000	23.949	2,705.5	29.47	120.00	72.6	174.2	0.0	0.0	19.64	3,462	0.0
5.00		0.2500	29.181	23.290	2,488.2	28.60	116.72	73.5	164.7	0.0	401.9	19.64	3,308	334.0
10.00		0.2500	28.362	22.631	2,282.9	27.72	113.45	74.5	155.5	0.0	390.6	19.64	3,157	334.0
15.00		0.2500	27.544	21.971	2,089.2	26.84	110.17	75.4	146.5	0.0	379.4	19.64	3,010	334.0
20.00		0.2500	26.725	21.312	1,906.7	25.96	106.90	76.4	137.8	0.0	368.2	19.64	2,866	334.0
25.00		0.2500	25.906	20.653	1,735.2	25.09	103.62	77.4	129.4	0.0	357.0	19.64	2,726	334.0
29.33	Bot - Section 2	0.2500	25.197	20.083	1,595.3	24.33	100.79	78.2	122.3	0.0	300.1	19.64	2,607	289.2
30.00		0.2500	25.087	19.994	1,574.4	24.21	100.35	78.3	121.2	0.0	92.3	19.64	2,672	44.8
32.83	Top - Section 1	0.2500	25.124	20.024	1,581.3	24.25	100.50	62.7	121.6	0.0	385.4	19.64	2,595	189.0
35.00		0.2500	24.769	19.738	1,514.5	23.87	99.07	63.0	118.1	0.0	146.8	19.64	2,537	145.0
40.00		0.2500	23.950	19.078	1,367.8	22.99	95.80	63.0	110.3	0.0	330.2	19.64	2,405	334.0
45.00		0.2500	23.131	18.419	1,230.9	22.11	92.52	63.0	102.8	0.0	319.0	19.64	2,277	334.0
47.50	Reinf. Top Reinf	0.2500	22.722	18.090	1,166.0	21.67	90.89	63.0	99.1	0.0	155.3	19.64	2,214	167.0
50.00		0.2500	22.312	17.760	1,103.4	21.23	89.25	63.0	95.5	0.0	152.5	19.64	2,152	167.0
55.00		0.2500	21.494	17.101	985.1	20.36	85.97	63.0	88.5	0.0	296.6	19.64	2,031	334.0
60.00		0.2500	20.675	16.442	875.5	19.48	82.70	63.0	81.8	0.0	285.4	19.64	1,913	334.0
62.92	Bot - Section 3	0.2500	20.197	16.058	815.5	18.97	80.79	63.0	78.0	0.0	161.3	19.64	1,846	194.8
65.00		0.2500	19.856	15.783	774.4	18.60	79.42	63.0	75.3	0.0	199.4	19.64	1,850	139.2
65.75	Top - Section 2	0.1875	20.108	12.027	609.2	26.06	107.24	61.4	58.5	0.0	70.9	19.64	1,833	50.1
67.50	Reinf. Top Reinf	0.1875	19.822	11.854	583.3	25.65	105.72	61.7	56.8	0.0	71.1	19.64	1,794	116.9
70.00		0.1875	19.412	11.607	547.6	25.06	103.53	62.1	54.5	0.0	99.8	19.64	1,738	167.0
75.00		0.1875	18.594	11.113	480.5	23.89	99.17	63.0	49.9	0.0	193.3	19.64	1,629	334.0
77.00		0.1875	18.266	10.915	455.3	23.42	97.42	63.0	48.2	0.0	75.0	19.64	1,587	133.6
77.04	Reinf. Top	0.1875	18.259	10.911	454.8	23.41	97.38	63.0	48.1	0.0	1.5	19.64	1,586	2.8
80.00		0.1875	17.775	10.618	419.2	22.72	94.80	63.0	45.6	0.0	108.4			
85.00		0.1875	16.956	10.124	363.4	21.55	90.43	63.0	41.4	0.0	176.5			
89.50		0.1875	16.219	9.679	317.5	20.50	86.50	63.0	37.8	0.0	151.6			
90.00		0.1875	16.137	9.630	312.7	20.38	86.07	63.0	37.4	0.0	16.4			
95.00		0.1875	15.319	9.135	267.0	19.21	81.70	63.0	33.7	0.0	159.6			
100.0	Top - Section 3	0.1875	14.500	8.641	225.9	18.04	77.33	63.0	30.1	0.0	151.2			
100.0	Bot - Section 4	0.3750	12.750	14.579	279.3	0.00	34.00	35.0	43.8	57.4				
105.0		0.3750	12.750	14.579	279.3	0.00	34.00	35.0	43.8	57.4	248.0			
110.0		0.3750	12.750	14.579	279.3	0.00	34.00	35.0	43.8	57.4	248.0			
											6,492.7			5,146.3

Site Number: 302481 | Code: ANSI/TIA-222-G |

Site Name: Hrfr - South, CT | Engineering Number: 64295622 | 1/15/2016 11:37:56 AM

Customer: T- Mobile

Load Case: 1.2D + 1.6W | 95 mph with No Ice | 23 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		520.0	0.0					0.0	0.0	520.0	0.0	0.0	0.0
5.00		958.5	482.2					251.5	714.1	1,210.0	1,196.3	0.0	0.0
10.00		815.0	468.8					224.8	714.1	1,039.8	1,182.9	0.0	0.0
15.00		704.9	455.3					204.0	714.1	908.9	1,169.4	0.0	0.0
20.00		619.2	441.9					187.8	714.1	807.0	1,156.0	0.0	0.0
25.00		518.1	428.4					175.1	714.1	693.2	1,142.5	0.0	0.0
29.33	Bot - Section 2	261.4	360.1					143.0	618.4	404.4	978.5	0.0	0.0
30.00		175.4	110.8					21.4	95.7	196.7	206.5	0.0	0.0
32.83	Top - Section 1	247.0	462.4					89.5	404.2	336.5	866.6	0.0	0.0
35.00		341.3	176.2					68.1	309.9	409.5	486.1	0.0	0.0
40.00		461.0	396.2					155.5	714.1	616.5	1,110.3	0.0	0.0
45.00		334.6	382.8					153.9	714.1	488.6	1,096.9	0.0	0.0
47.50	Reinf. Top Reinf	216.3	186.3					76.6	357.0	292.8	543.4	0.0	0.0
50.00		314.9	183.0					76.4	357.0	391.3	540.0	0.0	0.0
55.00		407.9	355.9					152.5	714.1	560.4	1,070.0	0.0	0.0
60.00	Appertunance(s)	313.4	342.4	270.8	0.0	0.0	129.2	152.5	714.1	736.7	1,185.8	0.0	0.0
62.92	Bot - Section 3	194.3	193.5					89.1	415.2	283.4	608.7	0.0	0.0
65.00		109.8	239.3					63.8	296.6	173.6	535.8	0.0	0.0
65.75	Top - Section 2	95.5	85.1					23.0	106.7	118.5	191.9	0.0	0.0
67.50	Reinf. Top Reinf	160.5	85.3					53.7	249.1	214.3	334.5	0.0	0.0
70.00		276.5	119.8					76.9	355.9	353.4	475.6	0.0	0.0
75.00		253.9	231.9					154.5	711.8	408.4	943.7	0.0	0.0
77.00	Appertunance(s)	72.7	89.9	351.0	0.0	0.0	206.0	62.1	284.7	485.8	580.7	0.0	0.0
77.04	Reinf. Top	104.8	1.9					1.3	5.9	106.1	7.8	0.0	0.0
80.00	Appertunance(s)	272.9	130.0	2,664.5	0.0	0.0	2,482.7	92.2	182.8	3,029.6	2,795.5	0.0	0.0
85.00		316.5	211.7					156.9	234.3	473.4	446.1	0.0	0.0
89.50	Appertunance(s)	163.0	181.9	2,121.2	0.0	1,686.5	2,230.6	142.4	210.9	2,426.5	2,623.4	0.0	0.0
90.00		172.4	19.7					12.1	14.6	184.5	34.3	0.0	0.0
95.00		306.0	191.6					121.8	145.8	427.8	337.4	0.0	0.0
100.00	Top - Section 3	228.4	181.5	3,734.7	0.0	7,135.8	3,879.1	123.0	145.8	4,086.0	4,206.4	0.0	0.0
105.00		158.2	297.7					0.0	26.4	158.2	324.1	0.0	0.0
110.00	Appertunance(s)	79.5	297.7	1,270.6	0.0	0.0	1,071.4	0.0	26.4	1,350.1	1,395.4	0.0	0.0
								Totals:		23,891.6	29,772.3	0.00	0.00

Site Number: 302481 Code: ANSI/TIA-222-G

Site Name: Hrfr - South, CT Engineering Number: 64295622 1/15/2016 11:37:58 AM

Customer: T- Mobile

Load Case: 1.2D + 1.6W 95 mph with No Ice 23 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.70	-23.47	0.00	-1,632.27	0.00	1,632.27	1,564.13	782.07	1,919.99	948.21	0.00	0.00	0.766
5.00	-28.36	-22.43	0.00	-1,514.93	0.00	1,514.93	1,541.15	770.57	1,839.28	908.35	0.20	-0.36	0.727
10.00	-27.06	-21.55	0.00	-1,402.77	0.00	1,402.77	1,517.03	758.51	1,758.81	868.61	0.77	-0.72	0.688
15.00	-25.78	-20.78	0.00	-1,295.02	0.00	1,295.02	1,491.77	745.88	1,678.72	829.05	1.72	-1.07	0.650
20.00	-24.52	-20.10	0.00	-1,191.12	0.00	1,191.12	1,465.38	732.69	1,599.10	789.74	3.03	-1.42	0.612
25.00	-23.29	-19.50	0.00	-1,090.64	0.00	1,090.64	1,437.85	718.92	1,520.08	750.71	4.70	-1.76	0.574
29.33	-22.27	-19.13	0.00	-1,006.21	0.00	1,006.21	1,413.09	706.55	1,452.23	717.20	6.43	-2.05	0.541
30.00	-22.03	-18.97	0.00	-993.40	0.00	993.40	1,409.19	704.59	1,441.78	712.04	6.72	-2.10	0.526
32.83	-21.13	-18.66	0.00	-939.72	0.00	939.72	1,130.07	565.03	1,157.93	571.86	8.02	-2.28	0.633
35.00	-20.59	-18.31	0.00	-899.24	0.00	899.24	1,119.12	559.56	1,130.16	558.15	9.09	-2.42	0.613
40.00	-19.41	-17.74	0.00	-807.70	0.00	807.70	1,081.75	540.87	1,055.58	521.31	11.79	-2.72	0.572
45.00	-18.28	-17.27	0.00	-718.99	0.00	718.99	1,044.38	522.19	983.54	485.73	14.79	-3.00	0.529
47.50	-17.71	-16.99	0.00	-675.83	0.00	675.83	1,025.69	512.85	948.47	468.41	16.40	-3.15	0.507
47.50	-17.71	-16.99	0.00	-675.83	0.00	675.83	1,025.69	512.85	948.47	468.41	16.40	-3.15	0.507
50.00	-17.14	-16.63	0.00	-633.36	0.00	633.36	1,007.01	503.50	914.04	451.41	18.08	-3.28	0.485
55.00	-16.03	-16.07	0.00	-550.22	0.00	550.22	969.64	484.82	847.09	418.35	21.66	-3.54	0.438
60.00	-14.85	-15.31	0.00	-469.85	0.00	469.85	932.27	466.13	782.69	386.54	25.50	-3.78	0.390
62.92	-14.23	-15.02	0.00	-425.20	0.00	425.20	910.47	455.23	746.30	368.57	27.86	-3.92	0.362
65.00	-13.69	-14.82	0.00	-393.91	0.00	393.91	894.90	447.45	720.83	355.99	29.59	-4.01	0.334
65.75	-13.49	-14.70	0.00	-382.80	0.00	382.80	664.38	332.19	545.54	269.42	30.22	-4.04	0.364
67.50	-13.15	-14.48	0.00	-357.07	0.00	357.07	658.03	329.02	532.49	262.97	31.71	-4.11	0.343
67.50	-13.15	-14.48	0.00	-357.07	0.00	357.07	658.03	329.02	532.49	262.97	31.71	-4.11	0.343
70.00	-12.67	-14.13	0.00	-320.87	0.00	320.87	648.81	324.40	513.97	253.83	33.89	-4.21	0.312
75.00	-11.73	-13.67	0.00	-250.23	0.00	250.23	629.79	314.89	477.45	235.80	38.40	-4.39	0.250
77.00	-11.18	-13.15	0.00	-222.89	0.00	222.89	618.88	309.44	460.75	227.55	40.25	-4.45	0.227
77.04	-11.17	-13.05	0.00	-222.34	0.00	222.34	618.65	309.32	460.40	227.37	40.29	-4.45	0.226
77.04	-11.17	-13.05	0.00	-222.34	0.00	222.34	618.65	309.32	460.40	227.37	40.29	-4.45	0.998
80.00	-8.57	-9.86	0.00	-183.72	0.00	183.72	602.06	301.03	435.93	215.29	43.08	-4.54	0.869
85.00	-8.09	-9.42	0.00	-134.42	0.00	134.42	574.04	287.02	396.08	195.61	48.12	-5.08	0.702
89.50	-5.67	-6.78	0.00	-90.35	0.00	90.35	548.81	274.41	361.85	178.70	53.11	-5.48	0.517
90.00	-5.64	-6.61	0.00	-86.96	0.00	86.96	546.01	273.00	358.14	176.87	53.68	-5.52	0.503
95.00	-5.31	-6.18	0.00	-53.89	0.00	53.89	517.98	258.99	322.11	159.08	59.63	-5.84	0.350
100.00	-1.55	-1.68	0.00	-15.86	0.00	15.86	489.95	244.98	288.00	142.23	65.86	-6.04	0.115
100.00	-1.55	-1.68	0.00	-15.86	0.00	15.86	459.24	229.62	229.69	150.79	65.86	-6.04	0.109
105.00	-1.24	-1.49	0.00	-7.46	0.00	7.46	459.24	229.62	229.69	150.79	72.22	-6.12	0.052
110.00	0.00	-1.35	0.00	0.00	0.00	0.00	459.24	229.62	229.69	150.79	78.62	-6.13	0.000

Site Number: 302481	**Code:** ANSI/TIA-222-G		
Site Name: Hrfr - South, CT	**Engineering Number:** 64295622	**1/15/2016 11:37:58 AM**	
Customer: T- Mobile			

Load Case: 0.9D + 1.6W — 95 mph with No Ice (Reduced DL) — 23 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		520.0	0.0					0.0	0.0	520.0	0.0	0.0	0.0
5.00		958.5	361.7					251.5	535.6	1,210.0	897.2	0.0	0.0
10.00		815.0	351.6					224.8	535.6	1,039.8	887.2	0.0	0.0
15.00		704.9	341.5					204.0	535.6	908.9	877.1	0.0	0.0
20.00		619.2	331.4					187.8	535.6	807.0	867.0	0.0	0.0
25.00		518.1	321.3					175.1	535.6	693.2	856.9	0.0	0.0
29.33	Bot - Section 2	261.4	270.1					143.0	463.8	404.4	733.9	0.0	0.0
30.00		175.4	83.1					21.4	71.8	196.7	154.8	0.0	0.0
32.83	Top - Section 1	247.0	346.8					89.5	303.1	336.5	649.9	0.0	0.0
35.00		341.3	132.1					68.1	232.5	409.5	364.6	0.0	0.0
40.00		461.0	297.2					155.5	535.6	616.5	832.8	0.0	0.0
45.00		334.6	287.1					153.9	535.6	488.6	822.7	0.0	0.0
47.50	Reinf. Top Reinf	216.3	139.8					76.6	267.8	292.8	407.5	0.0	0.0
50.00		314.9	137.2					76.4	267.8	391.3	405.0	0.0	0.0
55.00		407.9	266.9					152.5	535.6	560.4	802.5	0.0	0.0
60.00	Appertunance(s)	313.4	256.8	270.8	0.0	0.0	96.9	152.5	535.6	736.7	889.3	0.0	0.0
62.92	Bot - Section 3	194.3	145.1					89.1	311.4	283.4	456.5	0.0	0.0
65.00		109.8	179.5					63.8	222.4	173.6	401.9	0.0	0.0
65.75	Top - Section 2	95.5	63.8					23.0	80.1	118.5	143.9	0.0	0.0
67.50	Reinf. Top Reinf	160.5	64.0					53.7	186.8	214.3	250.8	0.0	0.0
70.00		276.5	89.8					76.9	266.9	353.4	356.7	0.0	0.0
75.00		253.9	173.9					154.5	533.8	408.4	707.8	0.0	0.0
77.00	Appertunance(s)	72.7	67.5	351.0	0.0	0.0	154.5	62.1	213.5	485.8	435.5	0.0	0.0
77.04	Reinf. Top	104.8	1.4					1.3	4.4	106.1	5.8	0.0	0.0
80.00	Appertunance(s)	272.9	97.5	2,664.5	0.0	0.0	1,862.0	92.2	137.1	3,029.6	2,096.7	0.0	0.0
85.00		316.5	158.8					156.9	175.8	473.4	334.6	0.0	0.0
89.50	Appertunance(s)	163.0	136.5	2,121.2	0.0	1,686.5	1,672.9	142.4	158.2	2,426.5	1,967.6	0.0	0.0
90.00		172.4	14.8					12.1	10.9	184.5	25.7	0.0	0.0
95.00		306.0	143.7					121.8	109.3	427.8	253.0	0.0	0.0
100.00	Top - Section 3	212.1	136.1	3,734.7	0.0	7,135.8	2,909.3	123.0	109.3	4,069.7	3,154.8	0.0	0.0
105.00		125.5	223.2					0.0	19.8	125.5	243.0	0.0	0.0
110.00	Appertunance(s)	63.1	223.2	1,270.6	0.0	0.0	803.5	0.0	19.8	1,333.7	1,046.6	0.0	0.0
								Totals:		23,826.4	22,329.2	0.00	0.00

Site Number: 302481 Code: ANSI/TIA-222-G

Site Name: Hrfr - South, CT Engineering Number: 64295622 1/15/2016 11:38:00 AM

Customer: T- Mobile

Load Case: 0.9D + 1.6W — 95 mph with No Ice (Reduced DL) — 23 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-22.25	-23.38	0.00	-1,603.99	0.00	1,603.99	1,564.13	782.07	1,919.99	948.21	0.00	0.00	0.751
5.00	-21.22	-22.30	0.00	-1,487.10	0.00	1,487.10	1,541.15	770.57	1,839.28	908.35	0.19	-0.36	0.711
10.00	-20.22	-21.37	0.00	-1,375.63	0.00	1,375.63	1,517.03	758.51	1,758.81	868.61	0.76	-0.71	0.672
15.00	-19.23	-20.56	0.00	-1,268.77	0.00	1,268.77	1,491.77	745.88	1,678.72	829.05	1.68	-1.05	0.635
20.00	-18.27	-19.85	0.00	-1,165.95	0.00	1,165.95	1,465.38	732.69	1,599.10	789.74	2.97	-1.39	0.597
25.00	-17.33	-19.22	0.00	-1,066.73	0.00	1,066.73	1,437.85	718.92	1,520.08	750.71	4.61	-1.73	0.560
29.33	-16.55	-18.84	0.00	-983.49	0.00	983.49	1,413.09	706.55	1,452.23	717.20	6.31	-2.01	0.527
30.00	-16.37	-18.67	0.00	-970.87	0.00	970.87	1,409.19	704.59	1,441.78	712.04	6.59	-2.05	0.512
32.83	-15.68	-18.35	0.00	-918.03	0.00	918.03	1,130.07	565.03	1,157.93	571.86	7.87	-2.23	0.616
35.00	-15.26	-17.99	0.00	-878.20	0.00	878.20	1,119.12	559.56	1,130.16	558.15	8.91	-2.37	0.596
40.00	-14.37	-17.41	0.00	-788.26	0.00	788.26	1,081.75	540.87	1,055.58	521.31	11.55	-2.66	0.556
45.00	-13.51	-16.93	0.00	-701.22	0.00	701.22	1,044.38	522.19	983.54	485.73	14.49	-2.94	0.514
47.50	-13.08	-16.65	0.00	-658.90	0.00	658.90	1,025.69	512.85	948.47	468.41	16.07	-3.08	0.492
47.50	-13.08	-16.65	0.00	-658.90	0.00	658.90	1,025.69	512.85	948.47	468.41	16.07	-3.08	0.492
50.00	-12.64	-16.28	0.00	-617.28	0.00	617.28	1,007.01	503.50	914.04	451.41	17.72	-3.21	0.470
55.00	-11.81	-15.72	0.00	-535.91	0.00	535.91	969.64	484.82	847.09	418.35	21.22	-3.47	0.425
60.00	-10.92	-14.96	0.00	-457.31	0.00	457.31	932.27	466.13	782.69	386.54	24.98	-3.70	0.378
62.92	-10.46	-14.67	0.00	-413.66	0.00	413.66	910.47	455.23	746.30	368.57	27.28	-3.83	0.350
65.00	-10.05	-14.48	0.00	-383.10	0.00	383.10	894.90	447.45	720.83	355.99	28.97	-3.92	0.323
65.75	-9.90	-14.36	0.00	-372.24	0.00	372.24	664.38	332.19	545.54	269.42	29.59	-3.95	0.352
67.50	-9.65	-14.14	0.00	-347.11	0.00	347.11	658.03	329.02	532.49	262.97	31.05	-4.02	0.331
67.50	-9.65	-14.14	0.00	-347.11	0.00	347.11	658.03	329.02	532.49	262.97	31.05	-4.02	0.331
70.00	-9.28	-13.79	0.00	-311.74	0.00	311.74	648.81	324.40	513.97	253.83	33.18	-4.12	0.301
75.00	-8.58	-13.35	0.00	-242.80	0.00	242.80	629.79	314.89	477.45	235.80	37.58	-4.29	0.241
77.00	-8.18	-12.83	0.00	-216.11	0.00	216.11	618.88	309.44	460.75	227.55	39.39	-4.35	0.218
77.04	-8.17	-12.73	0.00	-215.57	0.00	215.57	618.65	309.32	460.40	227.37	39.43	-4.35	0.218
77.04	-8.17	-12.73	0.00	-215.57	0.00	215.57	618.65	309.32	460.40	227.37	39.43	-4.35	0.963
80.00	-6.26	-9.59	0.00	-177.90	0.00	177.90	602.06	301.03	435.93	215.29	42.15	-4.43	0.838
85.00	-5.89	-9.13	0.00	-129.96	0.00	129.96	574.04	287.02	396.08	195.61	47.08	-4.96	0.676
89.50	-4.13	-6.56	0.00	-87.17	0.00	87.17	548.81	274.41	361.85	178.70	51.94	-5.34	0.496
90.00	-4.10	-6.38	0.00	-83.89	0.00	83.89	546.01	273.00	358.14	176.87	52.50	-5.38	0.482
95.00	-3.86	-5.95	0.00	-51.98	0.00	51.98	517.98	258.99	322.11	159.08	58.30	-5.69	0.335
100.00	-1.13	-1.58	0.00	-15.10	0.00	15.10	489.95	244.98	288.00	142.23	64.37	-5.89	0.109
100.00	-1.13	-1.58	0.00	-15.10	0.00	15.10	459.24	229.62	229.69	150.79	64.37	-5.89	0.103
105.00	-0.90	-1.44	0.00	-7.18	0.00	7.18	459.24	229.62	229.69	150.79	70.56	-5.96	0.050
110.00	0.00	-1.33	0.00	0.00	0.00	0.00	459.24	229.62	229.69	150.79	76.80	-5.97	0.000

Site Number: 302481	**Code:** ANSI/TIA-222-G		
Site Name: Hrfr - South, CT	**Engineering Number:** 64295622	**1/15/2016 11:38:01 AM**	
Customer: T- Mobile			

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

Gust Response Factor : 1.10 | Ice Dead Load Factor : 1.00 | Wind Importance Factor : 1.00
Dead Load Factor : 1.20 | Ice Importance Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		102.6	0.0					0.0	0.0	102.6	0.0	0.0	0.0
5.00		190.0	914.1					124.1	2,110.6	314.1	3,024.6	0.0	0.0
10.00		162.9	917.2					111.7	2,204.5	274.6	3,121.8	0.0	0.0
15.00		141.5	895.4					99.2	2,217.3	240.7	3,112.6	0.0	0.0
20.00		124.7	868.1					88.9	2,211.2	213.7	3,079.3	0.0	0.0
25.00		104.7	839.6					80.8	2,200.0	185.5	3,039.6	0.0	0.0
29.33	Bot - Section 2	52.9	704.7					64.8	1,895.9	117.7	2,600.7	0.0	0.0
30.00		35.5	164.7					9.7	292.7	45.2	457.4	0.0	0.0
32.83	Top - Section 1	50.1	685.7					40.4	1,234.3	90.5	1,920.0	0.0	0.0
35.00		69.4	344.7					30.7	944.6	100.1	1,289.3	0.0	0.0
40.00		94.1	771.4					70.0	2,171.0	164.0	2,942.4	0.0	0.0
45.00		68.5	744.8					69.1	2,165.5	137.7	2,910.3	0.0	0.0
47.50	Reinf. Top Reinf	44.5	364.1					34.4	1,081.4	78.8	1,445.4	0.0	0.0
50.00		65.0	357.6					34.3	1,080.8	99.3	1,438.4	0.0	0.0
55.00		84.6	693.2					68.4	2,160.5	153.0	2,853.7	0.0	0.0
60.00	Appertunance(s)	65.3	668.1	65.9	0.0	0.0	363.6	68.4	2,160.5	199.6	3,192.2	0.0	0.0
62.92	Bot - Section 3	40.6	379.6					40.0	1,217.3	80.6	1,596.9	0.0	0.0
65.00		23.0	372.5					28.6	870.0	51.6	1,242.5	0.0	0.0
65.75	Top - Section 2	20.1	132.8					10.3	313.2	30.4	446.0	0.0	0.0
67.50	Reinf. Top Reinf	33.8	195.3					24.1	731.2	57.9	926.5	0.0	0.0
70.00		58.5	274.0					34.5	1,045.1	93.0	1,319.1	0.0	0.0
75.00		53.9	529.3					69.4	2,092.5	123.4	2,621.8	0.0	0.0
77.00	Appertunance(s)	15.5	207.2	87.6	0.0	0.0	606.7	27.9	838.0	131.1	1,652.0	0.0	0.0
77.04	Reinf. Top	22.5	4.3					0.6	17.1	23.1	21.4	0.0	0.0
80.00	Appertunance(s)	58.8	299.6	708.3	0.0	0.0	6,511.0	41.5	978.8	808.6	7,789.4	0.0	0.0
85.00		68.7	487.3					70.7	928.4	139.4	1,415.6	0.0	0.0
89.50	Appertunance(s)	35.6	421.2	573.6	0.0	358.9	4,667.6	64.3	762.8	673.5	5,851.6	0.0	0.0
90.00		38.0	46.2					5.1	39.0	43.1	85.3	0.0	0.0
95.00		68.0	445.3					50.9	391.0	118.8	836.3	0.0	0.0
100.00	Top - Section 3	62.7	424.3	932.2	0.0	1,548.3	9,415.7	51.5	392.1	1,046.4	10,232.1	0.0	0.0
105.00		58.9	504.2					0.0	128.8	58.9	633.0	0.0	0.0
110.00	Appertunance(s)	29.6	505.1	333.7	0.0	0.0	2,611.2	0.0	129.4	363.2	3,245.7	0.0	0.0
									Totals:	6,360.10	76,342.7	0.00	0.00

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

Gust Response Factor : 1.10 | Ice Dead Load Factor : 1.00 | Wind Importance Factor : 1.00
Dead Load Factor : 1.20 | Ice Importance Factor : 1.00
Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-76.34	-6.33	0.00	-476.96	0.00	476.96	1,564.13	782.07	1,919.99	948.21	0.00	0.00	0.248
5.00	-73.30	-6.15	0.00	-445.31	0.00	445.31	1,541.15	770.57	1,839.28	908.35	0.06	-0.11	0.236
10.00	-70.17	-5.99	0.00	-414.57	0.00	414.57	1,517.03	758.51	1,758.81	868.61	0.23	-0.21	0.225
15.00	-67.05	-5.86	0.00	-384.60	0.00	384.60	1,491.77	745.88	1,678.72	829.05	0.50	-0.32	0.214
20.00	-63.96	-5.74	0.00	-355.30	0.00	355.30	1,465.38	732.69	1,599.10	789.74	0.89	-0.42	0.202
25.00	-60.91	-5.63	0.00	-326.60	0.00	326.60	1,437.85	718.92	1,520.08	750.71	1.39	-0.52	0.191
29.33	-58.31	-5.54	0.00	-302.22	0.00	302.22	1,413.09	706.55	1,452.23	717.20	1.90	-0.61	0.181
30.00	-57.85	-5.52	0.00	-298.51	0.00	298.51	1,409.19	704.59	1,441.78	712.04	1.99	-0.62	0.176
32.83	-55.92	-5.46	0.00	-282.88	0.00	282.88	1,130.07	565.03	1,157.93	571.86	2.37	-0.68	0.212
35.00	-54.63	-5.41	0.00	-271.04	0.00	271.04	1,119.12	559.56	1,130.16	558.15	2.69	-0.72	0.206
40.00	-51.68	-5.28	0.00	-244.01	0.00	244.01	1,081.75	540.87	1,055.58	521.31	3.49	-0.81	0.193
45.00	-48.77	-5.16	0.00	-217.60	0.00	217.60	1,044.38	522.19	983.54	485.73	4.38	-0.90	0.180
47.50	-47.32	-5.09	0.00	-204.71	0.00	204.71	1,025.69	512.85	948.47	468.41	4.87	-0.94	0.173
47.50	-47.32	-5.09	0.00	-204.71	0.00	204.71	1,025.69	512.85	948.47	468.41	4.87	-0.94	0.173
50.00	-45.88	-5.01	0.00	-191.99	0.00	191.99	1,007.01	503.50	914.04	451.41	5.37	-0.98	0.166
55.00	-43.02	-4.87	0.00	-166.92	0.00	166.92	969.64	484.82	847.09	418.35	6.44	-1.06	0.151
60.00	-39.83	-4.65	0.00	-142.59	0.00	142.59	932.27	466.13	782.69	386.54	7.59	-1.13	0.135
62.92	-38.23	-4.56	0.00	-129.04	0.00	129.04	910.47	455.23	746.30	368.57	8.29	-1.17	0.126
65.00	-36.99	-4.49	0.00	-119.55	0.00	119.55	894.90	447.45	720.83	355.99	8.81	-1.20	0.118
65.75	-36.54	-4.46	0.00	-116.18	0.00	116.18	664.38	332.19	545.54	269.42	9.00	-1.21	0.129
67.50	-35.62	-4.40	0.00	-108.38	0.00	108.38	658.03	329.02	532.49	262.97	9.45	-1.23	0.122
67.50	-35.62	-4.40	0.00	-108.38	0.00	108.38	658.03	329.02	532.49	262.97	9.45	-1.23	0.122
70.00	-34.30	-4.30	0.00	-97.38	0.00	97.38	648.81	324.40	513.97	253.83	10.10	-1.26	0.112
75.00	-31.67	-4.14	0.00	-75.86	0.00	75.86	629.79	314.89	477.45	235.80	11.45	-1.32	0.092
77.00	-30.03	-3.98	0.00	-67.58	0.00	67.58	618.88	309.44	460.75	227.55	12.01	-1.34	0.084
77.04	-30.00	-3.96	0.00	-67.42	0.00	67.42	618.65	309.32	460.40	227.37	12.02	-1.34	0.084
77.04	-30.00	-3.96	0.00	-67.42	0.00	67.42	618.65	309.32	460.40	227.37	12.02	-1.34	0.345
80.00	-22.23	-3.01	0.00	-55.70	0.00	55.70	602.06	301.03	435.93	215.29	12.86	-1.36	0.296
85.00	-20.81	-2.88	0.00	-40.67	0.00	40.67	574.04	287.02	396.08	195.61	14.37	-1.52	0.244
89.50	-14.98	-2.06	0.00	-27.35	0.00	27.35	548.81	274.41	361.85	178.70	15.87	-1.64	0.180
90.00	-14.89	-2.03	0.00	-26.31	0.00	26.31	546.01	273.00	358.14	176.87	16.04	-1.66	0.176
95.00	-14.06	-1.91	0.00	-16.15	0.00	16.15	517.98	258.99	322.11	159.08	17.84	-1.75	0.129
100.00	-3.86	-0.55	0.00	-5.06	0.00	5.06	489.95	244.98	288.00	142.23	19.71	-1.81	0.043
100.00	-3.86	-0.55	0.00	-5.06	0.00	5.06	459.24	229.62	229.69	150.79	19.71	-1.81	0.042
105.00	-3.23	-0.47	0.00	-2.34	0.00	2.34	459.24	229.62	229.69	150.79	21.62	-1.84	0.023
110.00	0.00	-0.36	0.00	0.00	0.00	0.00	459.24	229.62	229.69	150.79	23.55	-1.84	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		129.6	0.0					0.0	0.0	129.6	0.0	0.0	0.0
5.00		239.0	401.9					70.4	595.1	309.4	996.9	0.0	0.0
10.00		203.2	390.6					61.1	595.1	264.3	985.7	0.0	0.0
15.00		175.7	379.4					54.0	595.1	229.7	974.5	0.0	0.0
20.00		154.4	368.2					48.5	595.1	202.9	963.3	0.0	0.0
25.00		129.2	357.0					44.3	595.1	173.4	952.1	0.0	0.0
29.33	Bot - Section 2	65.2	300.1					35.6	515.3	100.8	815.4	0.0	0.0
30.00		43.7	92.3					5.3	79.8	49.0	172.1	0.0	0.0
32.83	Top - Section 1	61.6	385.4					22.3	336.8	83.9	722.2	0.0	0.0
35.00		85.1	146.8					17.0	258.3	102.1	405.1	0.0	0.0
40.00		114.9	330.2					38.8	595.1	153.7	925.3	0.0	0.0
45.00		83.4	319.0					38.4	595.1	121.8	914.1	0.0	0.0
47.50	Reinf. Top Reinf	53.9	155.3					19.1	297.5	73.0	452.8	0.0	0.0
50.00		78.5	152.5					19.0	297.5	97.5	450.0	0.0	0.0
55.00		101.7	296.6					38.0	595.1	139.7	891.6	0.0	0.0
60.00	Appertunance(s)	78.1	285.4	67.5	0.0	0.0	107.7	38.0	595.1	183.7	988.1	0.0	0.0
62.92	Bot - Section 3	48.4	161.3					22.2	346.0	70.7	507.3	0.0	0.0
65.00		27.4	199.4					15.9	247.2	43.3	446.5	0.0	0.0
65.75	Top - Section 2	23.8	70.9					5.7	89.0	29.6	159.9	0.0	0.0
67.50	Reinf. Top Reinf	40.0	71.1					13.4	207.6	53.4	278.7	0.0	0.0
70.00		68.9	99.8					19.2	296.6	88.1	396.4	0.0	0.0
75.00		63.3	193.3					38.5	593.1	101.8	786.4	0.0	0.0
77.00	Appertunance(s)	18.1	75.0	87.5	0.0	0.0	171.7	15.5	237.3	121.1	483.9	0.0	0.0
77.04	Reinf. Top	26.1	1.5					0.3	4.9	26.5	6.5	0.0	0.0
80.00	Appertunance(s)	68.0	108.4	664.3	0.0	0.0	2,068.9	23.0	152.3	755.3	2,329.6	0.0	0.0
85.00		78.9	176.5					39.1	195.3	118.0	371.7	0.0	0.0
89.50	Appertunance(s)	40.6	151.6	528.8	0.0	420.5	1,858.8	35.5	175.8	605.0	2,186.2	0.0	0.0
90.00		43.0	16.4					3.0	12.1	46.0	28.6	0.0	0.0
95.00		76.3	159.6					30.4	121.5	106.7	281.1	0.0	0.0
100.00	Top - Section 3	52.9	151.2	931.1	0.0	1,779.0	3,232.6	30.7	121.5	1,014.6	3,505.3	0.0	0.0
105.00		31.3	248.0					0.0	22.0	31.3	270.0	0.0	0.0
110.00	Appertunance(s)	15.7	248.0	316.8	0.0	0.0	892.8	0.0	22.0	332.5	1,162.8	0.0	0.0
								Totals:		5,958.23	24,810.2	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00
Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.81	-5.85	0.00	-402.30	0.00	402.30	1,564.13	782.07	1,919.99	948.21	0.00	0.00	0.195
5.00	-23.80	-5.57	0.00	-373.06	0.00	373.06	1,541.15	770.57	1,839.28	908.35	0.05	-0.09	0.185
10.00	-22.81	-5.34	0.00	-345.19	0.00	345.19	1,517.03	758.51	1,758.81	868.61	0.19	-0.18	0.175
15.00	-21.83	-5.14	0.00	-318.48	0.00	318.48	1,491.77	745.88	1,678.72	829.05	0.42	-0.26	0.165
20.00	-20.86	-4.96	0.00	-292.77	0.00	292.77	1,465.38	732.69	1,599.10	789.74	0.75	-0.35	0.156
25.00	-19.90	-4.81	0.00	-267.94	0.00	267.94	1,437.85	718.92	1,520.08	750.71	1.16	-0.43	0.146
29.33	-19.08	-4.72	0.00	-247.11	0.00	247.11	1,413.09	706.55	1,452.23	717.20	1.58	-0.50	0.138
30.00	-18.91	-4.68	0.00	-243.95	0.00	243.95	1,409.19	704.59	1,441.78	712.04	1.66	-0.52	0.134
32.83	-18.18	-4.60	0.00	-230.72	0.00	230.72	1,130.07	565.03	1,157.93	571.86	1.97	-0.56	0.161
35.00	-17.77	-4.51	0.00	-220.74	0.00	220.74	1,119.12	559.56	1,130.16	558.15	2.24	-0.59	0.156
40.00	-16.85	-4.37	0.00	-198.19	0.00	198.19	1,081.75	540.87	1,055.58	521.31	2.90	-0.67	0.146
45.00	-15.93	-4.25	0.00	-176.36	0.00	176.36	1,044.38	522.19	983.54	485.73	3.64	-0.74	0.135
47.50	-15.47	-4.18	0.00	-165.74	0.00	165.74	1,025.69	512.85	948.47	468.41	4.03	-0.77	0.129
47.50	-15.47	-4.18	0.00	-165.74	0.00	165.74	1,025.69	512.85	948.47	468.41	4.03	-0.77	0.129
50.00	-15.02	-4.09	0.00	-155.30	0.00	155.30	1,007.01	503.50	914.04	451.41	4.45	-0.81	0.124
55.00	-14.13	-3.95	0.00	-134.86	0.00	134.86	969.64	484.82	847.09	418.35	5.33	-0.87	0.112
60.00	-13.14	-3.76	0.00	-115.12	0.00	115.12	932.27	466.13	782.69	386.54	6.27	-0.93	0.100
62.92	-12.63	-3.69	0.00	-104.15	0.00	104.15	910.47	455.23	746.30	368.57	6.85	-0.96	0.093
65.00	-12.19	-3.64	0.00	-96.47	0.00	96.47	894.90	447.45	720.83	355.99	7.28	-0.98	0.086
65.75	-12.03	-3.61	0.00	-93.74	0.00	93.74	664.38	332.19	545.54	269.42	7.43	-0.99	0.094
67.50	-11.75	-3.56	0.00	-87.42	0.00	87.42	658.03	329.02	532.49	262.97	7.80	-1.01	0.088
67.50	-11.75	-3.56	0.00	-87.42	0.00	87.42	658.03	329.02	532.49	262.97	7.80	-1.01	0.088
70.00	-11.35	-3.47	0.00	-78.53	0.00	78.53	648.81	324.40	513.97	253.83	8.34	-1.03	0.081
75.00	-10.56	-3.36	0.00	-61.18	0.00	61.18	629.79	314.89	477.45	235.80	9.44	-1.08	0.065
77.00	-10.08	-3.23	0.00	-54.47	0.00	54.47	618.88	309.44	460.75	227.55	9.90	-1.09	0.059
77.04	-10.08	-3.20	0.00	-54.34	0.00	54.34	618.65	309.32	460.40	227.37	9.91	-1.09	0.059
77.04	-10.08	-3.20	0.00	-54.34	0.00	54.34	618.65	309.32	460.40	227.37	9.91	-1.09	0.255
80.00	-7.76	-2.41	0.00	-44.86	0.00	44.86	602.06	301.03	435.93	215.29	10.59	-1.11	0.221
85.00	-7.38	-2.30	0.00	-32.79	0.00	32.79	574.04	287.02	396.08	195.61	11.83	-1.25	0.181
89.50	-5.21	-1.65	0.00	-22.00	0.00	22.00	548.81	274.41	361.85	178.70	13.06	-1.34	0.133
90.00	-5.18	-1.61	0.00	-21.17	0.00	21.17	546.01	273.00	358.14	176.87	13.20	-1.35	0.129
95.00	-4.90	-1.50	0.00	-13.11	0.00	13.11	517.98	258.99	322.11	159.08	14.66	-1.43	0.092
100.00	-1.42	-0.40	0.00	-3.82	0.00	3.82	489.95	244.98	288.00	142.23	16.19	-1.48	0.030
100.00	-1.42	-0.40	0.00	-3.82	0.00	3.82	459.24	229.62	229.69	150.79	16.19	-1.48	0.028
105.00	-1.15	-0.36	0.00	-1.81	0.00	1.81	459.24	229.62	229.69	150.79	17.75	-1.50	0.015
110.00	0.00	-0.33	0.00	0.00	0.00	0.00	459.24	229.62	229.69	150.79	19.32	-1.50	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.13
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.82
Total Unfactored Dead Load:	24.81 k
Seismic Base Shear (E):	1.03 k

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.13
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
31	107.50	270	1.805	1.562	0.986	0.316	74	233
30	102.50	270	1.641	0.911	0.727	0.220	52	233
29	97.50	273	1.485	0.464	0.525	0.140	33	235
28	92.50	281	1.336	0.174	0.369	0.075	18	242
27	89.75	29	1.258	0.067	0.300	0.046	1	25
26	87.25	327	1.189	-0.005	0.247	0.024	7	282
25	82.50	372	1.063	-0.088	0.165	-0.009	-3	320
24	78.52	261	0.963	-0.117	0.114	-0.027	-6	225
23	77.02	6	0.927	-0.121	0.098	-0.031	0	6
22	76.00	312	0.902	-0.122	0.088	-0.033	-9	269
21	72.50	786	0.821	-0.115	0.060	-0.036	-24	677
20	68.75	396	0.738	-0.098	0.038	-0.032	-11	341
19	66.62	279	0.693	-0.085	0.029	-0.027	-7	240
18	65.37	160	0.668	-0.077	0.024	-0.023	-3	138
17	63.96	447	0.639	-0.067	0.020	-0.019	-7	385
16	61.46	507	0.590	-0.049	0.013	-0.009	-4	437
15	57.50	880	0.516	-0.022	0.008	0.007	5	758
14	52.50	892	0.431	0.008	0.006	0.026	20	768
13	48.75	450	0.371	0.027	0.008	0.036	14	388
12	46.25	453	0.334	0.037	0.010	0.042	16	390
11	42.50	914	0.282	0.049	0.014	0.047	37	787
10	37.50	925	0.220	0.060	0.021	0.050	40	797
9	33.91	405	0.180	0.065	0.026	0.050	17	349
8	31.41	722	0.154	0.068	0.030	0.049	31	622
7	29.66	172	0.137	0.069	0.032	0.049	7	148
6	27.16	815	0.115	0.070	0.035	0.048	34	702
5	22.50	952	0.079	0.072	0.040	0.046	38	820
4	17.50	963	0.048	0.071	0.042	0.044	37	830
3	12.50	975	0.024	0.066	0.039	0.041	35	839
2	7.50	986	0.009	0.053	0.031	0.034	29	849
1	2.50	997	0.001	0.024	0.013	0.017	15	859
DragonWave Horizon C	110.00	32	1.890	1.980	1.140	0.369	10	27
DragonWave A-ANT-23G	110.00	15	1.890	1.980	1.140	0.369	5	13
NextNet BTS-2500	110.00	105	1.890	1.980	1.140	0.369	34	90

Argus LLPX310R	110.00	86	1.890	1.980	1.140	0.369	27	74
Side Arms	110.00	560	1.890	1.980	1.140	0.369	179	482
DragonWave A-ANT-11G	110.00	95	1.890	1.980	1.140	0.369	30	82
Kathrein 860-10025	100.00	7	1.562	0.666	0.620	0.178	1	6
Powerwave TT19-	100.00	48	1.562	0.666	0.620	0.178	7	41
Powerwave LGP21401	100.00	85	1.562	0.666	0.620	0.178	13	73
Raycap DC6-48-60-18-	100.00	66	1.562	0.666	0.620	0.178	10	57
Ericsson RRUS-11	100.00	300	1.562	0.666	0.620	0.178	46	258
Ericsson RRUS-32	100.00	231	1.562	0.666	0.620	0.178	36	199
Powerwave 7770.00	100.00	105	1.562	0.666	0.620	0.178	16	90
KMW AM-X-CD-16-65-00	100.00	97	1.562	0.666	0.620	0.178	15	84
CCI OPA-65R-LCUU-H6	100.00	146	1.562	0.666	0.620	0.178	23	126
Andrew SBNH-1D6565C	100.00	61	1.562	0.666	0.620	0.178	9	52
CCI OPA-65R-LCUU-H8	100.00	88	1.562	0.666	0.620	0.178	14	76
Flat Platform w/ Han	100.00	2,000	1.562	0.666	0.620	0.178	309	1,723
Kathrein Smart Bias	89.50	10	1.251	0.058	0.295	0.044	0	9
Ericsson KRY 112 144	89.50	33	1.251	0.058	0.295	0.044	1	28
Ericsson KRY 112 489	89.50	46	1.251	0.058	0.295	0.044	2	40
RFS APX16DWV-16DWV-	89.50	119	1.251	0.058	0.295	0.044	5	102
Commscope LNX-	89.50	151	1.251	0.058	0.295	0.044	6	130
Flat Low Profile Pla	89.50	1,500	1.251	0.058	0.295	0.044	57	1,292
Alcatel-Lucent RRH2X	80.00	132	1.000	-0.110	0.131	-0.021	-2	114
Alcatel-Lucent RRH2x	80.00	170	1.000	-0.110	0.131	-0.021	-3	147
RFS DB-T1-6Z-8AB-0Z	80.00	88	1.000	-0.110	0.131	-0.021	-2	76
Antel BXA-171063-12C	80.00	77	1.000	-0.110	0.131	-0.021	-1	66
Antel BXA-70063-6CF-	80.00	102	1.000	-0.110	0.131	-0.021	-2	88
Round Low Profile Pl	80.00	1,500	1.000	-0.110	0.131	-0.021	-28	1,292
Scala 840 10212	77.00	7	0.926	-0.121	0.098	-0.031	0	6
TX RX Systems 421-86	77.00	15	0.926	-0.121	0.098	-0.031	0	13
Stand Offs	77.00	150	0.926	-0.121	0.098	-0.031	-4	129
Scala 840 10212	60.00	7	0.562	-0.039	0.011	-0.003	0	6
Stand Off	60.00	75	0.562	-0.039	0.011	-0.003	0	65
Radio Waves SP2-4.7	60.00	26	0.562	-0.039	0.011	-0.003	0	22
		24,810	67.675	22.027	21.312	5.550	1,299	21,371

Load Case (1.2 + 0.2Sds) * DL + E EMAM **Seismic Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
31	107.50	270	1.805	1.562	0.986	0.316	74	233
30	102.50	270	1.641	0.911	0.727	0.220	52	233
29	97.50	273	1.485	0.464	0.525	0.140	33	235
28	92.50	281	1.336	0.174	0.369	0.075	18	242
27	89.75	29	1.258	0.067	0.300	0.046	1	25
26	87.25	327	1.189	-0.005	0.247	0.024	7	282
25	82.50	372	1.063	-0.088	0.165	-0.009	-3	320
24	78.52	261	0.963	-0.117	0.114	-0.027	-6	225
23	77.02	6	0.927	-0.121	0.098	-0.031	0	6
22	76.00	312	0.902	-0.122	0.088	-0.033	-9	269
21	72.50	786	0.821	-0.115	0.060	-0.036	-24	677
20	68.75	396	0.738	-0.098	0.038	-0.032	-11	341
19	66.62	279	0.693	-0.085	0.029	-0.027	-7	240
18	65.37	160	0.668	-0.077	0.024	-0.023	-3	138
17	63.96	447	0.639	-0.067	0.020	-0.019	-7	385
16	61.46	507	0.590	-0.049	0.013	-0.009	-4	437
15	57.50	880	0.516	-0.022	0.008	0.007	5	758
14	52.50	892	0.431	0.008	0.006	0.026	20	768
13	48.75	450	0.371	0.027	0.008	0.036	14	388
12	46.25	453	0.334	0.037	0.010	0.042	16	390
11	42.50	914	0.282	0.049	0.014	0.047	37	787

10	37.50	925	0.220	0.060	0.021	0.050	40	797
9	33.91	405	0.180	0.065	0.026	0.050	17	349
8	31.41	722	0.154	0.068	0.030	0.049	31	622
7	29.66	172	0.137	0.069	0.032	0.049	7	148
6	27.16	815	0.115	0.070	0.035	0.048	34	702
5	22.50	952	0.079	0.072	0.040	0.046	38	820
4	17.50	963	0.048	0.071	0.042	0.044	37	830
3	12.50	975	0.024	0.066	0.039	0.041	35	839
2	7.50	986	0.009	0.053	0.031	0.034	29	849
1	2.50	997	0.001	0.024	0.013	0.017	15	859
DragonWave Horizon C	110.00	32	1.890	1.980	1.140	0.369	10	27
DragonWave A-ANT-23G	110.00	15	1.890	1.980	1.140	0.369	5	13
NextNet BTS-2500	110.00	105	1.890	1.980	1.140	0.369	34	90
Argus LLPX310R	110.00	86	1.890	1.980	1.140	0.369	27	74
Side Arms	110.00	560	1.890	1.980	1.140	0.369	179	482
DragonWave A-ANT-11G	110.00	95	1.890	1.980	1.140	0.369	30	82
Kathrein 860-10025	100.00	7	1.562	0.666	0.620	0.178	1	6
Powerwave TT19-	100.00	48	1.562	0.666	0.620	0.178	7	41
Powerwave LGP21401	100.00	85	1.562	0.666	0.620	0.178	13	73
Raycap DC6-48-60-18-	100.00	66	1.562	0.666	0.620	0.178	10	57
Ericsson RRUS-11	100.00	300	1.562	0.666	0.620	0.178	46	258
Ericsson RRUS-32	100.00	231	1.562	0.666	0.620	0.178	36	199
Powerwave 7770.00	100.00	105	1.562	0.666	0.620	0.178	16	90
KMW AM-X-CD-16-65-00	100.00	97	1.562	0.666	0.620	0.178	15	84
CCI OPA-65R-LCUU-H6	100.00	146	1.562	0.666	0.620	0.178	23	126
Andrew SBNH-1D6565C	100.00	61	1.562	0.666	0.620	0.178	9	52
CCI OPA-65R-LCUU-H8	100.00	88	1.562	0.666	0.620	0.178	14	76
Flat Platform w/ Han	100.00	2,000	1.562	0.666	0.620	0.178	309	1,723
Kathrein Smart Bias	89.50	10	1.251	0.058	0.295	0.044	0	9
Ericsson KRY 112 144	89.50	33	1.251	0.058	0.295	0.044	1	28
Ericsson KRY 112 489	89.50	46	1.251	0.058	0.295	0.044	2	40
RFS APX16DWV-16DWV-	89.50	119	1.251	0.058	0.295	0.044	5	102
Commscope LNX-	89.50	151	1.251	0.058	0.295	0.044	6	130
Flat Low Profile Pla	89.50	1,500	1.251	0.058	0.295	0.044	57	1,292
Alcatel-Lucent RRH2X	80.00	132	1.000	-0.110	0.131	-0.021	-2	114
Alcatel-Lucent RRH2x	80.00	170	1.000	-0.110	0.131	-0.021	-3	147
RFS DB-T1-6Z-8AB-0Z	80.00	88	1.000	-0.110	0.131	-0.021	-2	76
Antel BXA-171063-12C	80.00	77	1.000	-0.110	0.131	-0.021	-1	66
Antel BXA-70063-6CF-	80.00	102	1.000	-0.110	0.131	-0.021	-2	88
Round Low Profile Pl	80.00	1,500	1.000	-0.110	0.131	-0.021	-28	1,292
Scala 840 10212	77.00	7	0.926	-0.121	0.098	-0.031	0	6
TX RX Systems 421-86	77.00	15	0.926	-0.121	0.098	-0.031	0	13
Stand Offs	77.00	150	0.926	-0.121	0.098	-0.031	-4	129
Scala 840 10212	60.00	7	0.562	-0.039	0.011	-0.003	0	6
Stand Off	60.00	75	0.562	-0.039	0.011	-0.003	0	65
Radio Waves SP2-4.7	60.00	26	0.562	-0.039	0.011	-0.003	0	22
		24,810	67.675	22.027	21.312	5.550	1,299	21,371

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
31	107.50	270	1.805	1.562	0.986	0.316	74	233
30	102.50	270	1.641	0.911	0.727	0.220	52	233
29	97.50	273	1.485	0.464	0.525	0.140	33	235
28	92.50	281	1.336	0.174	0.369	0.075	18	242
27	89.75	29	1.258	0.067	0.300	0.046	1	25
26	87.25	327	1.189	-0.005	0.247	0.024	7	282
25	82.50	372	1.063	-0.088	0.165	-0.009	-3	320
24	78.52	261	0.963	-0.117	0.114	-0.027	-6	225

23	77.02	6	0.927	-0.121	0.098	-0.031	0	6
22	76.00	312	0.902	-0.122	0.088	-0.033	-9	269
21	72.50	786	0.821	-0.115	0.060	-0.036	-24	677
20	68.75	396	0.738	-0.098	0.038	-0.032	-11	341
19	66.62	279	0.693	-0.085	0.029	-0.027	-7	240
18	65.37	160	0.668	-0.077	0.024	-0.023	-3	138
17	63.96	447	0.639	-0.067	0.020	-0.019	-7	385
16	61.46	507	0.590	-0.049	0.013	-0.009	-4	437
15	57.50	880	0.516	-0.022	0.008	0.007	5	758
14	52.50	892	0.431	0.008	0.006	0.026	20	768
13	48.75	450	0.371	0.027	0.008	0.036	14	388
12	46.25	453	0.334	0.037	0.010	0.042	16	390
11	42.50	914	0.282	0.049	0.014	0.047	37	787
10	37.50	925	0.220	0.060	0.021	0.050	40	797
9	33.91	405	0.180	0.065	0.026	0.050	17	349
8	31.41	722	0.154	0.068	0.030	0.049	31	622
7	29.66	172	0.137	0.069	0.032	0.049	7	148
6	27.16	815	0.115	0.070	0.035	0.048	34	702
5	22.50	952	0.079	0.072	0.040	0.046	38	820
4	17.50	963	0.048	0.071	0.042	0.044	37	830
3	12.50	975	0.024	0.066	0.039	0.041	35	839
2	7.50	986	0.009	0.053	0.031	0.034	29	849
1	2.50	997	0.001	0.024	0.013	0.017	15	859
DragonWave Horizon C	110.00	32	1.890	1.980	1.140	0.369	10	27
DragonWave A-ANT-23G	110.00	15	1.890	1.980	1.140	0.369	5	13
NextNet BTS-2500	110.00	105	1.890	1.980	1.140	0.369	34	90
Argus LLPX310R	110.00	86	1.890	1.980	1.140	0.369	27	74
Side Arms	110.00	560	1.890	1.980	1.140	0.369	179	482
DragonWave A-ANT-11G	110.00	95	1.890	1.980	1.140	0.369	30	82
Kathrein 860-10025	100.00	7	1.562	0.666	0.620	0.178	1	6
Powerwave TT19-	100.00	48	1.562	0.666	0.620	0.178	7	41
Powerwave LGP21401	100.00	85	1.562	0.666	0.620	0.178	13	73
Raycap DC6-48-60-18-	100.00	66	1.562	0.666	0.620	0.178	10	57
Ericsson RRUS-11	100.00	300	1.562	0.666	0.620	0.178	46	258
Ericsson RRUS-32	100.00	231	1.562	0.666	0.620	0.178	36	199
Powerwave 7770.00	100.00	105	1.562	0.666	0.620	0.178	16	90
KMW AM-X-CD-16-65-00	100.00	97	1.562	0.666	0.620	0.178	15	84
CCI OPA-65R-LCUU-H6	100.00	146	1.562	0.666	0.620	0.178	23	126
Andrew SBNH-1D6565C	100.00	61	1.562	0.666	0.620	0.178	9	52
CCI OPA-65R-LCUU-H8	100.00	88	1.562	0.666	0.620	0.178	14	76
Flat Platform w/ Han	100.00	2,000	1.562	0.666	0.620	0.178	309	1,723
Kathrein Smart Bias	89.50	10	1.251	0.058	0.295	0.044	0	9
Ericsson KRY 112 144	89.50	33	1.251	0.058	0.295	0.044	1	28
Ericsson KRY 112 489	89.50	46	1.251	0.058	0.295	0.044	2	40
RFS APX16DWV-16DWV-	89.50	119	1.251	0.058	0.295	0.044	5	102
Commscope LNX-	89.50	151	1.251	0.058	0.295	0.044	6	130
Flat Low Profile Pla	89.50	1,500	1.251	0.058	0.295	0.044	57	1,292
Alcatel-Lucent RRH2X	80.00	132	1.000	-0.110	0.131	-0.021	-2	114
Alcatel-Lucent RRH2x	80.00	170	1.000	-0.110	0.131	-0.021	-3	147
RFS DB-T1-6Z-8AB-0Z	80.00	88	1.000	-0.110	0.131	-0.021	-2	76
Antel BXA-171063-12C	80.00	77	1.000	-0.110	0.131	-0.021	-1	66
Antel BXA-70063-6CF-	80.00	102	1.000	-0.110	0.131	-0.021	-2	88
Round Low Profile Pl	80.00	1,500	1.000	-0.110	0.131	-0.021	-28	1,292
Scala 840 10212	77.00	7	0.926	-0.121	0.098	-0.031	0	6
TX RX Systems 421-86	77.00	15	0.926	-0.121	0.098	-0.031	0	13
Stand Offs	77.00	150	0.926	-0.121	0.098	-0.031	-4	129
Scala 840 10212	60.00	7	0.562	-0.039	0.011	-0.003	0	6
Stand Off	60.00	75	0.562	-0.039	0.011	-0.003	0	65
Radio Waves SP2-4.7	60.00	26	0.562	-0.039	0.011	-0.003	0	22
		24,810	67.675	22.027	21.312	5.550	1,299	21,371

Load Case (0.9 - 0.2Sds) * DL + E EMAM **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
31	107.50	270	1.805	1.562	0.986	0.316	74	233
30	102.50	270	1.641	0.911	0.727	0.220	52	233
29	97.50	273	1.485	0.464	0.525	0.140	33	235
28	92.50	281	1.336	0.174	0.369	0.075	18	242
27	89.75	29	1.258	0.067	0.300	0.046	1	25
26	87.25	327	1.189	-0.005	0.247	0.024	7	282
25	82.50	372	1.063	-0.088	0.165	-0.009	-3	320
24	78.52	261	0.963	-0.117	0.114	-0.027	-6	225
23	77.02	6	0.927	-0.121	0.098	-0.031	0	6
22	76.00	312	0.902	-0.122	0.088	-0.033	-9	269
21	72.50	786	0.821	-0.115	0.060	-0.036	-24	677
20	68.75	396	0.738	-0.098	0.038	-0.032	-11	341
19	66.62	279	0.693	-0.085	0.029	-0.027	-7	240
18	65.37	160	0.668	-0.077	0.024	-0.023	-3	138
17	63.96	447	0.639	-0.067	0.020	-0.019	-7	385
16	61.46	507	0.590	-0.049	0.013	-0.009	-4	437
15	57.50	880	0.516	-0.022	0.008	0.007	5	758
14	52.50	892	0.431	0.008	0.006	0.026	20	768
13	48.75	450	0.371	0.027	0.008	0.036	14	388
12	46.25	453	0.334	0.037	0.010	0.042	16	390
11	42.50	914	0.282	0.049	0.014	0.047	37	787
10	37.50	925	0.220	0.060	0.021	0.050	40	797
9	33.91	405	0.180	0.065	0.026	0.050	17	349
8	31.41	722	0.154	0.068	0.030	0.049	31	622
7	29.66	172	0.137	0.069	0.032	0.049	7	148
6	27.16	815	0.115	0.070	0.035	0.048	34	702
5	22.50	952	0.079	0.072	0.040	0.046	38	820
4	17.50	963	0.048	0.071	0.042	0.044	37	830
3	12.50	975	0.024	0.066	0.039	0.041	35	839
2	7.50	986	0.009	0.053	0.031	0.034	29	849
1	2.50	997	0.001	0.024	0.013	0.017	15	859
DragonWave Horizon C	110.00	32	1.890	1.980	1.140	0.369	10	27
DragonWave A-ANT-23G	110.00	15	1.890	1.980	1.140	0.369	5	13
NextNet BTS-2500	110.00	105	1.890	1.980	1.140	0.369	34	90
Argus LLPX310R	110.00	86	1.890	1.980	1.140	0.369	27	74
Side Arms	110.00	560	1.890	1.980	1.140	0.369	179	482
DragonWave A-ANT-11G	110.00	95	1.890	1.980	1.140	0.369	30	82
Kathrein 860-10025	100.00	7	1.562	0.666	0.620	0.178	1	6
Powerwave TT19-	100.00	48	1.562	0.666	0.620	0.178	7	41
Powerwave LGP21401	100.00	85	1.562	0.666	0.620	0.178	13	73
Raycap DC6-48-60-18-	100.00	66	1.562	0.666	0.620	0.178	10	57
Ericsson RRUS-11	100.00	300	1.562	0.666	0.620	0.178	46	258
Ericsson RRUS-32	100.00	231	1.562	0.666	0.620	0.178	36	199
Powerwave 7770.00	100.00	105	1.562	0.666	0.620	0.178	16	90
KMW AM-X-CD-16-65-00	100.00	97	1.562	0.666	0.620	0.178	15	84
CCI OPA-65R-LCUU-H6	100.00	146	1.562	0.666	0.620	0.178	23	126
Andrew SBNH-1D6565C	100.00	61	1.562	0.666	0.620	0.178	9	52
CCI OPA-65R-LCUU-H8	100.00	88	1.562	0.666	0.620	0.178	14	76
Flat Platform w/ Han	100.00	2,000	1.562	0.666	0.620	0.178	309	1,723
Kathrein Smart Bias	89.50	10	1.251	0.058	0.295	0.044	0	9
Ericsson KRY 112 144	89.50	33	1.251	0.058	0.295	0.044	1	28
Ericsson KRY 112 489	89.50	46	1.251	0.058	0.295	0.044	2	40
RFS APX16DWV-16DWV-	89.50	119	1.251	0.058	0.295	0.044	5	102
Commscope LNX-	89.50	151	1.251	0.058	0.295	0.044	6	130
Flat Low Profile Pla	89.50	1,500	1.251	0.058	0.295	0.044	57	1,292
Alcatel-Lucent RRH2X	80.00	132	1.000	-0.110	0.131	-0.021	-2	114

Alcatel-Lucent RRH2x	80.00	170	1.000	-0.110	0.131	-0.021	-3	147
RFS DB-T1-6Z-8AB-0Z	80.00	88	1.000	-0.110	0.131	-0.021	-2	76
Antel BXA-171063-12C	80.00	77	1.000	-0.110	0.131	-0.021	-1	66
Antel BXA-70063-6CF-	80.00	102	1.000	-0.110	0.131	-0.021	-2	88
Round Low Profile Pl	80.00	1,500	1.000	-0.110	0.131	-0.021	-28	1,292
Scala 840 10212	77.00	7	0.926	-0.121	0.098	-0.031	0	6
TX RX Systems 421-86	77.00	15	0.926	-0.121	0.098	-0.031	0	13
Stand Offs	77.00	150	0.926	-0.121	0.098	-0.031	-4	129
Scala 840 10212	60.00	7	0.562	-0.039	0.011	-0.003	0	6
Stand Off	60.00	75	0.562	-0.039	0.011	-0.003	0	65
Radio Waves SP2-4.7	60.00	26	0.562	-0.039	0.011	-0.003	0	22
		24,810	67.675	22.027	21.312	5.550	1,299	21,371

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	23.47	0.00	29.70	0.00	0.00	1632.27	77.04	1.00
0.9D + 1.6W	23.38	0.00	22.25	0.00	0.00	1603.99	77.04	0.96
1.2D + 1.0Di + 1.0Wi	6.33	0.00	76.34	0.00	0.00	476.96	77.04	0.35
(1.2 + 0.2Sds) * DL + E ELFM	1.04	0.00	29.50	0.00	0.00	91.62	77.04	0.08
(1.2 + 0.2Sds) * DL + E EMAM	1.29	0.00	29.50	0.00	0.00	113.67	77.04	0.14
(0.9 - 0.2Sds) * DL + E ELFM	1.03	0.00	20.51	0.00	0.00	90.11	77.04	0.08
(0.9 - 0.2Sds) * DL + E EMAM	1.29	0.00	20.51	0.00	0.00	111.67	77.04	0.13
1.0D + 1.0W	5.85	0.00	24.81	0.00	0.00	402.30	77.04	0.26

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	47.5	(4) SOL-#20 All Thre	369.9	14.4	16.8	0.0	12.0	0	0	0.0	12.0	0	0	295.8	315.5	0.938
47.5	67.5	(4) SOL-#20 All Thre	403.4	12.1	16.8	0.0	12.0	0	0	0.0	12.0	0	0	178.9	330.5	0.541
67.5	77.0	(4) SOL-#20 All Thre	408.9	12.3	16.8	81.4	12.0	7	7	0.0	12.0	0	0	121.4	330.5	0.367

Base/Flange Plate	Plate Type	***Baseplate***	
	Pole Diameter	30	in
	Pole Thickness	0.25	in
	Plate Length	44	in
	Plate Thickness	2	in
	Plate Fy	60	ksi
	Weld Length	0.1875	in
	ϕ_s Resistance	1598.36	k-in
	Applied	1066.86	k-in
Stiffeners	#	***0***	

Bolts	#	***8***	
	Bolt Circle	44	in
	(R)adial / (S)quare	S	
	Bolt Gap	6	in
●	Diameter	2.25	in
	Hole Diameter	2.375	in
	Type	A615-75	
	Fy	75	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	94.83	k
Reinforcement	#	***4***	
●	DYW. Circle	38.6	in
	Offset Angle	0	°
	Type	#20	
	Diameter	2.5	in
	Fu	100	ksi
Extra Bolts O	#	***0***	

Code Rev.	***G***	**Date**	1/15/2016
		Engineer	ZAM
		Site #	302481
Moment	1632.3 k-ft	**Carrier**	T-Mobile
Axial	29.7 k		

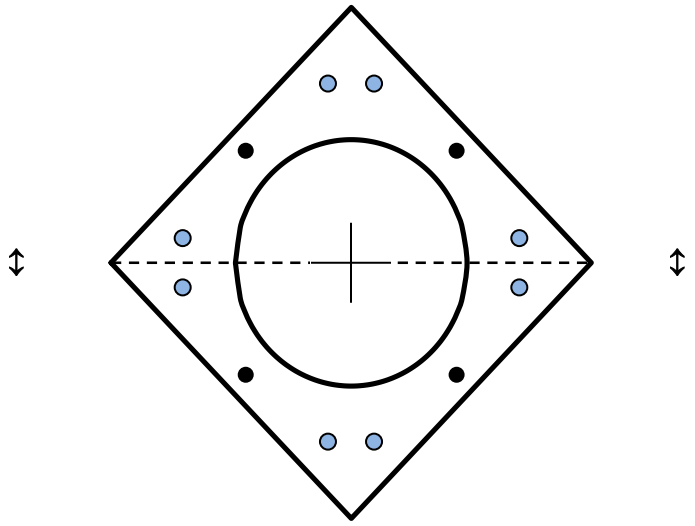


Plate Stress Ratio:

0.67 (Pass)

Bolt Stress Ratio:

0.36 (Pass)

Base/Flange Plate	Plate Type	***Flange***	***@ 100.0 ft***
	Pole Diameter	12.75	in
	Pole Thickness	0.375	in
	Plate Diameter	28.5	in
	Plate Thickness	1.5	in
	Plate Fy	36	ksi
	Weld Length	0.25	in
	ϕ_s Resistance	60.83	k-in
	Applied	13.51	k-in
Stiffeners	#	***0***	

Bolts	#	***12***	
	Bolt Circle	26	in
	(R)adial / (S)quare	R	
●	Diameter	1	in
	Hole Diameter	1.0625	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	ϕ_s Resistance	54.52	k
	Applied	2.31	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev. ***G***

Moment 15.9 k-ft
Axial 1.6 k

Date	1/15/2016
Engineer	ZAM
Site #	302481
Carrier	T-Mobile

Required Flange Thickness:
0.71 in OK

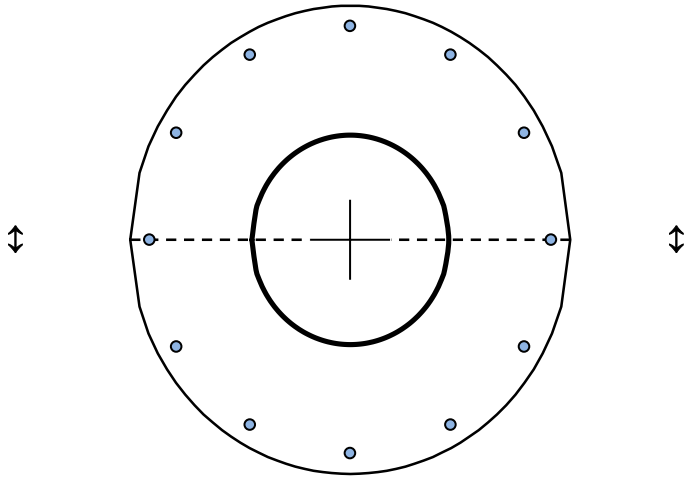


Plate Stress Ratio:
0.22 (Pass)

Bolt Stress Ratio:
0.04 (Pass)

Site Name:	**Hrfr - South, CT**
Site Number:	**302481**
Engineering Number:	**64295622**
Engineer:	**ZAM**
Date:	**1/15/2016**

Design Base Loads (Factored) - Design per TIA-222-G Standard

Moment (Overturning) (M_u):	1632.3	k-ft
Shear/Leg (V_u):	23.5	k
Compression/Leg (P_u):	29.7	k
Uplift/Leg (T_u):		k
Tower Type (GT / SST / MP):	MP	

Length / Width of Block:	6.0	ft
Thickness of Block:	6.0	ft
Block Height Above Ground:	0.5	ft
Depth Below Ground Surface to Water Table (w):	99.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil:	125.0	pcf
Unit Weight of Water:	62.4	pcf
Ultimate Compressive Bearing Pressure:	10000	psf
Capacity Increase (Due to Transient Loads):	1.00	
Pullout Angle:	30.0	degrees
Rod Diameter:	1.00	in
Rod Ultimate Strength:	38	ksi
Rod Net Area:	2.65	in^2
Number of Rods:	18	
Diameter of Cored Hole:	2.00	in
Ultimate Grout / Rock Interface Bond Strength:	200	psi
Ultimate Grout / Rock Anchor Interface Bond Strength:	600	psi
Overall Rod Embedment Length:	72	in
Rod Exposure Above Lock Off Nut in Foundation:	60	in
Rod Embedment Circle:	60	in
Free Stress Length:	0	in
Soil / Concrete Friction Coefficient:	0.44	
Rock Anchor Design Plastic or Elastic:	Elastic	
Ignore Pullout Weight Resistance (Y/N):	Y	
Weight of Concrete (Buoyancy Effect Considered):	32.4	k
Compressive Bearing Resistance:	282.7	k
Pullout Weight / Rod:		k - Ignored
Rock / Grout Bond Strength / Rod:	90.5	k
Grout / Rod Bond Strength / Rod:	135.7	k
Rod Mechanical Strength / Rod:	100.7	k
Soil Strength Reduction Factor (ϕ_s):	0.75	
Factored Nominal Moment Capacity per Leg ($\phi_s M_n$):	2188.0	k
Factored Nominal Uplift Capacity per Leg ($\phi_s T_n$):	1272.9	k
Factored Nominal Compressive Capacity per Leg ($\phi_s P_n$):	212.1	k
Factored Nominal Shear Capacity per Leg ($\phi_s V_n$):	815.7	k
M_u:	1773.3	k-ft
T_u:	0.0	k
P_u:	35.6	k
V_u:	23.5	k
$T_u/\phi_s T_n + M_u/\phi_s M_n$:	0.81	Result: OK
$P_u/\phi_s P_n$:	0.17	Result: OK
$V_u/\phi_s V_n$:	0.03	Result: OK

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	74	Minimum # of vertical rebar met
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	4	
Horizontal Tie / Stirrup Area:	0.20	in^2
Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	40	ksi
Anchor Rod Nut Diameter:	2.02	in
Rebar Cage Diameter:	64.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression/Bearing Reduction Factor ($\phi_{P/B}$):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	1773.3	k-ft
Factored Nominal Moment Capacity ($\phi_B M_n$):	16253.8	k-ft - ACI318-05 - 10.2
$M_u/\phi_B M_n$:	0.11	Result: OK
Design Shear (V_u):	305.5	k
Factored Nominal Shear Capacity ($\phi_V V_n$):	402.2	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.76	Result: OK
Design Tension (T_u):	0.0	k
Factored Nominal Tension Capacity ($\phi_T T_n$):	6233.8	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	29.7	k
Factored Nominal Compression Capacity ($\phi_P P_n$):	6171.5	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.00	Result: OK

DOCKET NO. 40

ORIGINAL

AN APPLICATION SUBMITTED BY THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN THE HARTFORD AND MIDDLESEX COUNTIES.	:	CONNECTICUT SITING COUNCIL
	:	May 15, 1984

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

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to Southern New England Telephone for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Shuttle Meadow Road, Southington, Connecticut;
Mountain Street, Hartford, Connecticut;
Prestige Park Road, East Hartford, Connecticut;
Beckley Road, Berlin, Connecticut;
Slicer tract, Niederwerfer Road, South Windsor, Connecticut; and
Kikapoo Road, Middlefield, Connecticut.

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

1. The towers shall be no taller than necessary to provide the proposed service and in no event shall exceed

   a) 150 feet at the Southington site,
   b) 100 feet at the Hartford site,
   c) 150 feet at the East Hartford site,
   d) 150 feet at the Berlin site,
   e) 75 feet at the South Windsor site, and
   f) 75 feet at the Middlefield site.

2. A fence not lower than eight feet shall surround each tower and its associated equipment.

3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities.
4. The applicant or its successor shall permit in accordance with representations made by it during the proceeding public or private entities to share space on the facilities, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
5. Unless necessary to comply with condition number seven, below, no lights shall be installed on any of these towers.
6. The facility construction shall be conducted in accordance with all applicable federal, state, and municipal laws and regulations.
7. The applicant shall submit a development and management plan (D&M) for the South Windsor, Southington, and Berlin sites pursuant to sections 16-50j-85 through 16-50j-87 of the regulations of state agencies, except that irrelevant items in section 16-50j-86 need only be identified as such. The D&M plans shall include appropriate evergreen screening of the sites. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites. The applicant shall consult with Mrs. Claire Aubin and the Town of South Windsor in the preparation of the South Windsor site D&M.
8. Construction activities shall take place during daylight working hours.
9. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed,

or reapplication for any new use shall be made to the Connecticut Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction.

10. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p(c) of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, Journal Inquirer, and the Middletown Press.

The parties to this proceeding are

Southern New England Telephone Company Room 314 227 Church Street New Haven, Connecticut 06506	(Applicant)
ATTN: Mr. Peter J. Tyrrell, Esquire	(its attorney)
Town of South Windsor 1540 Sullivan Avenue South Windsor, Connecticut 06074	represented by: Mr. Richard M. Rittenband Town Attorney 1734 Ellington Road South Windsor, Connecticut 06074
Frank Niederwerfer 260 Niederwerfer Road South Windsor, Connecticut 06074	(service waived)
Claire Aubin 407 Niederwerfer Road South Windsor, Connecticut 06074	(service waived)

Betty S. Kleiner
Chairman
Hartford Audubon Society, Inc.
5 Flintlock Ridge
Simsbury, Connecticut 06070

(service waived)

Roger Thorpe
2916 Ellington Road
South Windsor, Connecticut 06074

Intervenors in this proceeding are

Dwight A. Johnson
Murtha, Cullina, Richter
and Pinney
101 Pearl Street
P.O. Box 3197
Hartford, Connecticut 06103-0197

representing:

Metromedia TeleCommunications
Nutmeg Telecommunications, Inc.
CSI of New Haven
CSI of Stamford
Cellular Communications, Inc.
LIN Cellular Corp.
Cellular Mobile Services
Maxcell TeleCommunications, Inc.
Mobile Cellular Telephone, Inc.
Cellular Dynamics
Connecticut Corridor Cellular
Chase/Post Cellular

CERTIFICATION

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

Dated at New Britain, Connecticut, this 15th day of May, 1984.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner John Downey Designee: Commissioner Peter G. Boucher	Yes
Commissioner Stanley Pac Designee: Christopher Cooper	Yes
Owen L. Clark	Yes
Fred J. Doocy	~~Yes~~ Abstain
Mortimer A. Gelston	Yes
James G. Horsfall	Absent
Janet Sitty	Yes
Colin C. Tait	Absent

STATE OF CONNECTICUT)
: ss. New Britain, May 15, 1984
COUNTY OF HARTFORD)

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

ATTEST:

Christopher S. Wood, Executive Director
Connecticut Siting Council

Petition No. 920
Clearwire
Hartford, Connecticut
Staff Report
November 19, 2009

On October 29, 2009, the Connecticut Siting Council (Council) received a petition from Clearwire Corporation (Clearwire) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for proposed modifications to an existing 100-foot monopole telecommunications tower located at 289H Mountain Road in Hartford, Connecticut. Council member Brian Golembiewski visited the property with staff member David Martin on November 10, 2009 to review the proposal. Jennifer Young Gaudet represented Clearwire at the field review.

Clearwire seeks to install a 10-foot tower extension at the top of the existing tower in order to install three panel antennas, three tower mounted amplifiers, two microwave dishes, and two related radio units at a centerline height of 110 feet above ground level. With the extension, Clearwire's antennas would reach an overall height of 113 feet above ground level.

Currently, the tower hosts antennas of AT&T/Cingular, T-Mobile, Verizon, and the Town of West Hartford. The Council recently acknowledged the addition of three flush mount antennas by Pocket Wireless. These antennas were not installed on the tower at the time of the Council's field review, but they have been included in the structural analysis performed for Clearwire's proposed modifications.

The structural analysis for Clearwire's modifications indicates that the existing tower needs reinforcements to accommodate Clearwire's antennas. These reinforcements would consist of the extension of reinforcing bars on the tower and an addition to the tower's foundation to increase overturning capacity. This tower's cumulative power density with the addition of Clearwire's antennas would be 89.3% of the FCC maximum permissible emission.

The existing tower is located at the western edge of a small ridge in the southwestern corner of Hartford, near the boundaries of Newington, West Hartford, and Wethersfield. Avery Heights, a retirement community that includes independent and assisted living housing, is located immediately to the north and east of the tower. Small lot, single family residential neighborhoods are located to the west of the tower and beyond Avery Heights to the east. Cedar Hill Cemetery is located to the south of the tower. The existing tower is prominently visible to the residential and commercials areas to the west. There are fewer, limited views to the east and south. The proposed ten-foot extension to the tower should not significantly increase the tower's overall visibility.

Clearwire notified abutting property owners of its planned extension. Neither the Council nor the applicant has received any calls regarding this proposal.

Staff recommends that if the petition is approved, Clearwire be required to submit a letter signed by a professional engineer duly licensed in Connecticut certifying that the structural modifications identified in the American Tower Structural Analysis Report dated September 10, 2009 have been completed and that the tower is within 100% of its structural capacity.

View of existing tower and compound

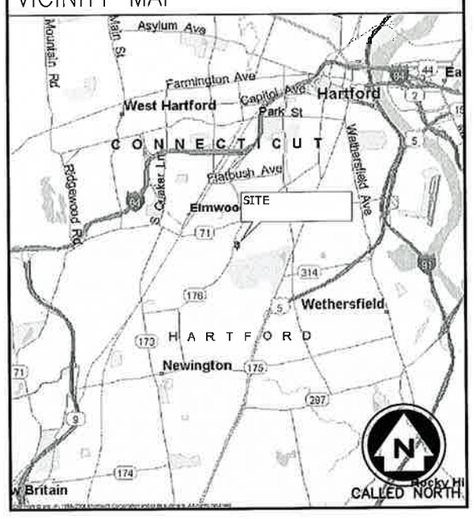
T-MOBILE NORTHEAST LLC

CT11769B
CT769/SSITE HARTFORD #2

289H MOUNTAIN ROAD
HARTFORD, CT 06114

(704Bu CONFIGURATION)

VICINITY MAP



DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL:
"CALL BEFORE YOU DIG"
WWW.CBYD.COM
CALL 811, OR 1-800-922-4455
CALL THREE WORKING DAYS PRIOR TO DIGGING
SAFETY PRECAUTIONS SHALL BE IMPLEMENTED BY CONTRACTOR(S) AT ALL TRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

COLOR CODE FOR UTILITY LOCATIONS

ELECTRIC	– RED	SEWER	– GREEN
GAS/OIL	– YELLOW	SURVEY	– PINK
TEL/CATV	– ORANGE	PROPOSED EXCAVATION	– WHITE
WATER	– BLUE	RECLAIMED WATER	– PURPLE

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 CONSTRUCT 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 T–MOBILE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF THE CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES, THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXPENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING OF 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 ADDENDUM 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 CONTRACT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND INSPECTIONS WHICH ARE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY, OR LOCAL GOVERNMENT AUTHORITY.
11. 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.
12. 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 PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS, AS WELL AS THE LATEST EDITIONS OF ANY PERTINENT STATE SAFETY REGULATIONS.
14. THE CONTRACTOR SHALL NOTIFY THE T–MOBILE 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 T–MOBILE REPRESENTATIVE.
15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC., ON THE JOB.
16. THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION AT THE COMPLETION OF WORK.

PROJECT SUMMARY

SITE NUMBER:	CT11769B	APPLICANT:	T–MOBILE NORTHEAST LLC 103 MONARCH DR. LIVERPOOL, NY 13088
SITE NAME:	CT769/SSITE HARTFORD #2		
SITE ADDRESS:	289H MOUNTAIN ROAD HARTFORD, CT 06114	PROJECT MANAGER:	AMERICAN TOWER CORPORATION 35 GRIFFIN RD SOUTH BLOOMFIELD, CT 06002
PROPERTY OWNER:	AMERICAN TOWER CORPORATION		
PARCEL:	144–714–129	CONTACT:	BRUCE HOFFMASTER (484) 942–6339
ZONING:	R5		
JURISDICTION:	CITY OF HARTFORD	ARCHITECT/ENGINEER:	INFINIGY ENGINEERING 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205
ATC SITE NUMBER:	302481		
LAT./LONG.:	N 41.726487° / W –72.708119°		
CONSTRUCTION TYPE:	L700 UPGRADE	CONTACT:	ALEX WELLER 518–690–0790

PROJECT DESCRIPTION

☒ EXISTING MONOPOLE	☒ EXISTING CABINET(S)	☒ OUTDOOR
☐ EXISTING LATTICE TOWER	☐ EXISTING S12000	☐ INDOOR
☐ EXISTING GUYED TOWER	☒ EXISTING GSM 3106	☒ EXISTING CONCRETE PAD
☐ EXISTING WATER TANK	☒ EXISTING RBS 6102	☐ EXISTING STEEL PLATFORM
☐ EXISTING BUILDING	☐ SITE SUPPORT KIT	☒ EXISTING PPC
☐ EXISTING FLAGPOLE	☐ SITE SUPPORT CABINET	☐ PANELBOARD
☐ EXISTING FORT WORTH	☒ GPS	

T–MOBILE NORTHEAST LLC PROPOSES THE MODIFICATION OF AN UNMANNED WIRELESS BROADBAND FACILITY. ADDITION OF PROPOSED LTE 700 PANEL ANTENNAS AND PROPOSED GROUND MOUNTED RRUS. REUSE, GPS ANTENNA AND EXISTING EQUIPMENT CABINETS.

2005 CONNECTICUT BUILDING CODE WITH 2013 AMENDMENT
2011 NATIONAL ELECTRIC CODE
2009 INTERNATIONAL RESIDENTIAL CODE

SHEET INDEX

SHEET	DESCRIPTION	REVISION
T–1	TITLE SHEET	1
C–1	SITE PLAN	1
C–2	COMPOUND PLAN & ELEVATION	1
C–3	ANTENNA DETAIL & RF SCHEDULE	1
C–4	EQUIPMENT SPECIFICATIONS	1
E–1	GROUNDING AND POWER DIAGRAMS	1
E–2	COAX/FIBER PLUMBING DIAGRAM	1
N–1	GENERAL AND ELECTRICAL NOTES	1

T-MOBILE NORTHEAST LLC
35 GRIFFIN RD SOUTH
BLOOMFIELD, CT 06002

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0750
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
10/29/15	FOR PERMIT	0
1/27/16	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RTE.			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11769B

SITE NAME:
CT769/SSITE HARTFORD #2

289H MOUNTAIN ROAD
HARTFORD, CT 06114

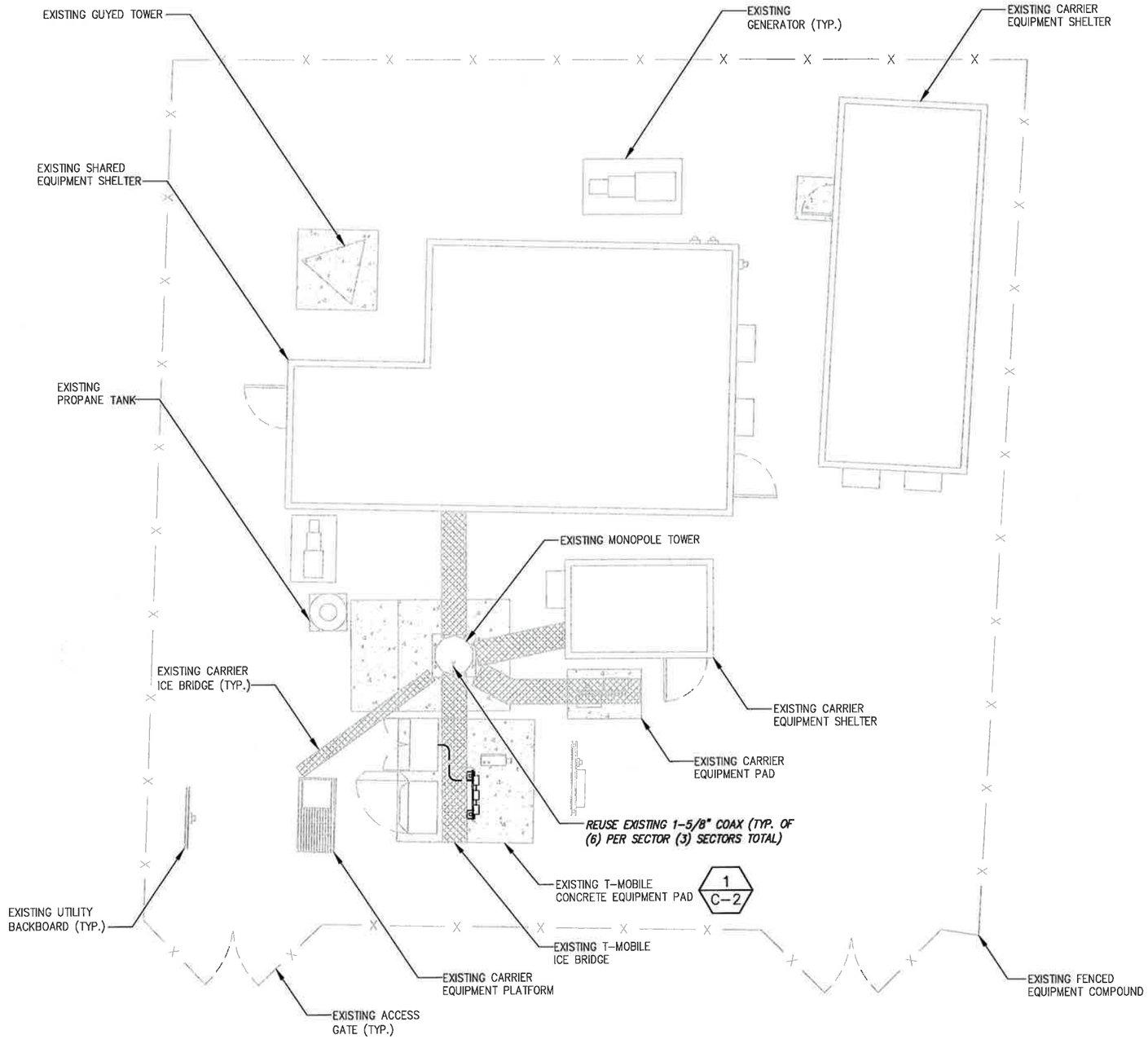
SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

SHEET 1 OF 8 SHEETS



CALLED NORTH

1 COMPOUND PLAN
SCALE: AS NOTED

GENERAL SITE NOTES:

1. A COMPLETE BOUNDARY SURVEY OF THE HOST PARCEL HAS NOT BEEN PERFORMED BY INFINIGY. BOUNDARY INFORMATION IF SHOWN WAS OBTAINED FROM INFORMATION PROVIDED BY OTHERS. PROPERTY IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
2. BASEMAPPING INFORMATION BASED ON PROVIDED INFORMATION.
3. CONTRACTOR TO FIELD VERIFY DIMENSIONS AS NECESSARY BEFORE CONSTRUCTION.
4. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE SIGNS OF ADVERTISING.
5. THE PROPOSED DEVELOPMENT IS UNMANNED AND THEREFORE DOES NOT REQUIRE A MEANS OF WATER SUPPLY OR SEWAGE DISPOSAL.
6. NO LANDSCAPING WORK IS PROPOSED IN CONJUNCTION WITH THIS DEVELOPMENT OTHER THAN THAT WHICH IS SHOWN.
7. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
8. UTILITIES SHOWN ON PLAN ARE TAKEN FROM OWNERS RECORDS AND FIELD LOCATION OF VISIBLE SURFACE FEATURES. THE EXISTENCE, EXTENT AND EXACT HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES HAS NOT BEEN VERIFIED. ANY CONTRACTOR PERFORMING WORK ON THIS SITE MUST CONTACT MISS UTILITY AT LEAST 48 HOURS PRIOR TO COMMENCING WORK.
9. ALL OBSOLETE OR UNUSED FACILITIES SHALL BE REMOVED WITHIN 12 MONTHS OF CESSATION OF OPERATIONS.

SITE LEGEND

————	SITE PROPERTY LINE
————	STREET OR ROAD
—x—x—	CHAIN LINK FENCE
—□—□—	OPAQUE WOODEN FENCE
	TREES/SHRUBS
	TREE LINE
⊠	UTILITY POLE
(E)	EXISTING
(N)	NEW
(P)	PROPOSED
(F)	FUTURE

GRAPHIC SCALE

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

T-Mobile
T-MOBILE NORTHEAST LLC
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INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
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1/27/16	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

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SITE NUMBER:
CT11769B

SITE NAME:
CT769/SSITE HARTFORD #2

289H MOUNTAIN ROAD
HARTFORD, CT 06114

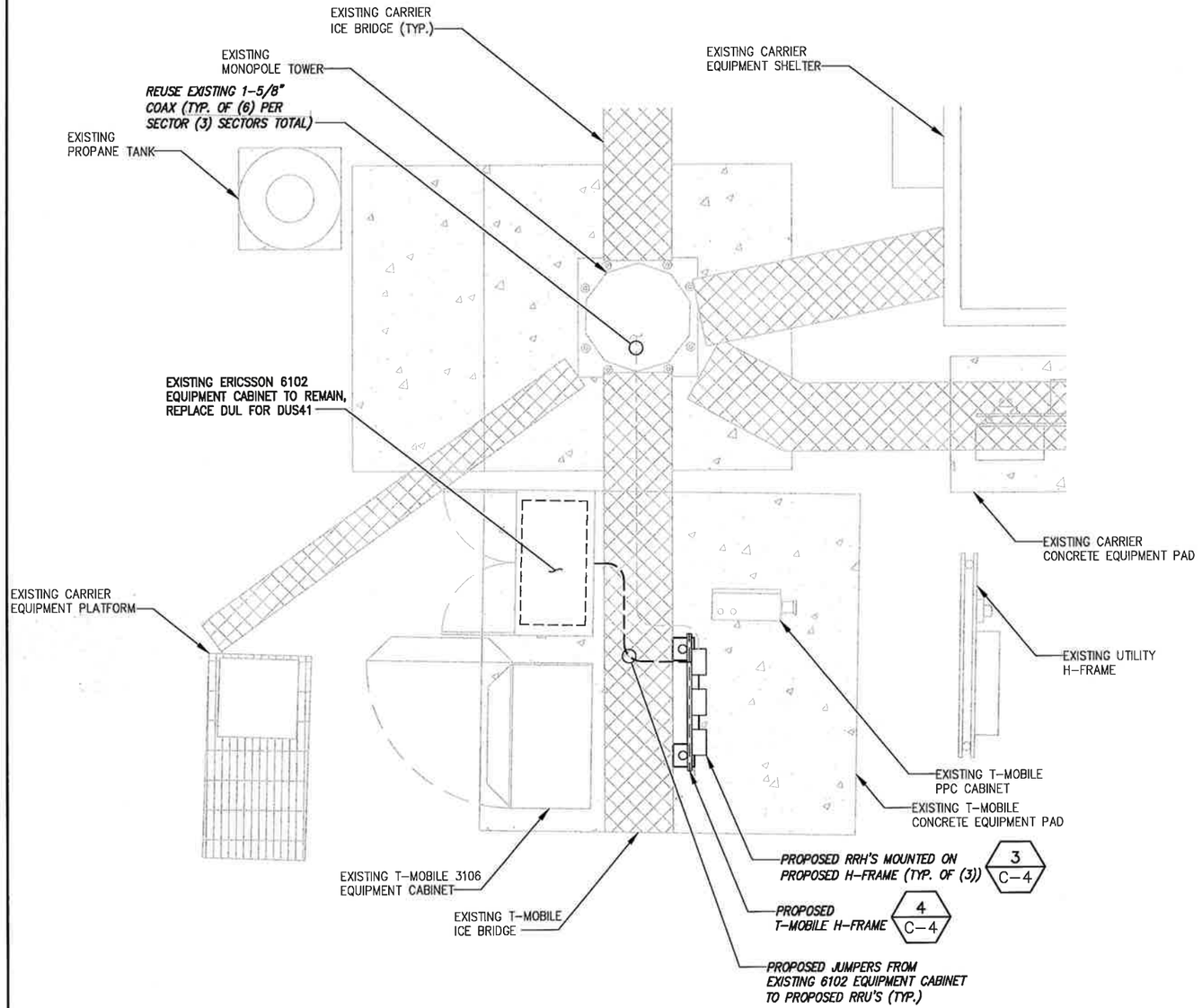
SHEET TITLE

SITE PLAN

SHEET NUMBER

C-1

SHEET 2 OF **8** SHEETS



N

CALLED NORTH

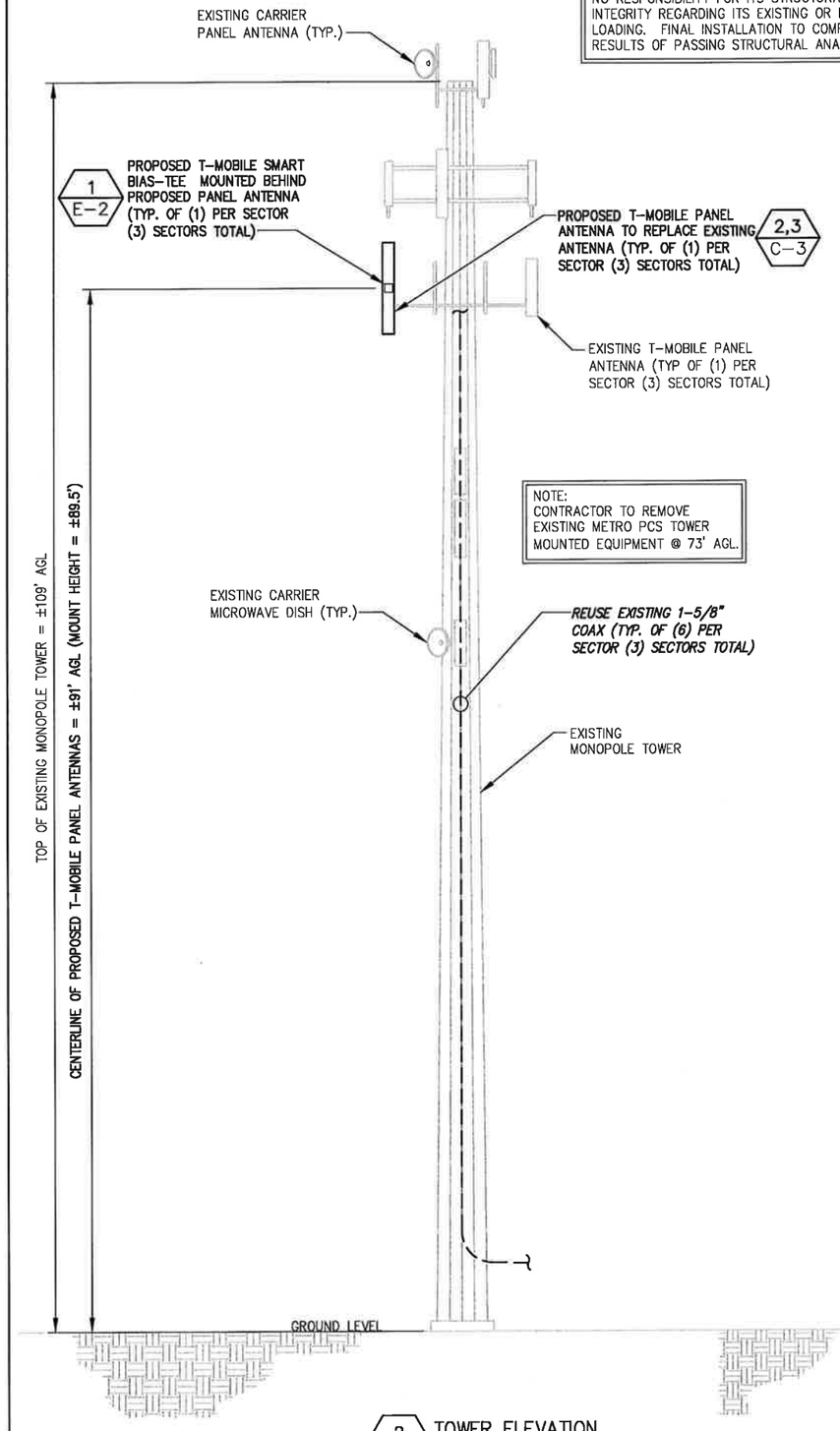
1 — COMPOUND PLAN
SCALE: AS NOTED

GRAPHIC SCALE

4' 2' 0 2' 4'

SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

NOTE:
INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER OR LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSIS.



2 — TOWER ELEVATION
NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN RD SOUTH
BLOOMFIELD, CT 06002

INFINIGY
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Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS		
DATE	DESCRIPTION	REVISION
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1/27/16	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

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SITE NUMBER:
CT11769B

SITE NAME:
CT769/SSITE HARTFORD #2

289H MOUNTAIN ROAD
HARTFORD, CT 06114

SHEET TITLE

COMPOUND PLAN & ELEVATION

SHEET NUMBER

C-2

SHEET 3 OF 8 SHEETS

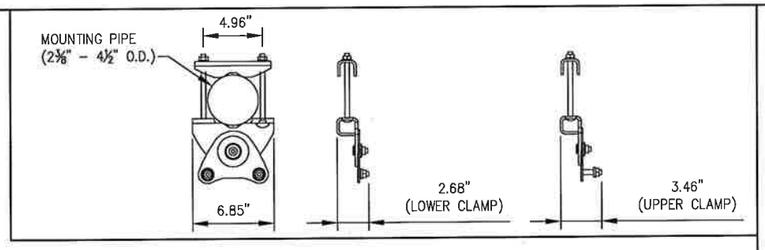
RF SYSTEM SCHEDULE (704Bu CONFIGURATION)

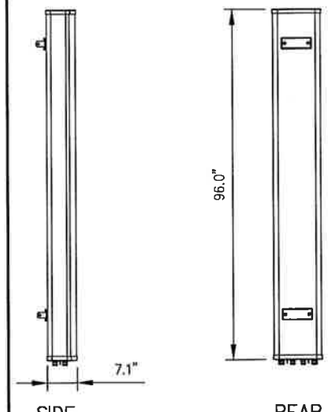
SECTOR	TECHNOLOGY	ANTENNA PORT	BAND	ANTENNA MODEL #	VENDOR	QTY (REMOVED)	QTY (NEW)	AZIMUTH	M-TILT	E-TILT	ANTENNA CENTERLINE	TMA MODEL #	VENDOR	RRU MODEL #	VENDOR	CABLE LENGTH	CABLE DIAMETER	CABLE TYPE	CABLE MODEL #	VENDOR	CABLE TAGGING	COLOR CODING	JUMPER TYPE	JUMPER TAGGING	COLOR CODING
A	GSM/UMTS	OPTICAL #1	B2P	APX16DWV_16DWVS	RFS	0	0	60°	2°	8°	91'-0"	KRY 112 144/1	ERICSSON	–	–	*(2)EXISTING*	1⅝"	*COAX*	*EXISTING*	*N/A*	–	–	COAX	–	–
	UMTS/LTE	OPTICAL #1	B4P						2°	8°		KRY 112 489/1	ERICSSON	–	–	*(2)EXISTING*	1⅝"	*COAX*	*EXISTING*	*N/A*	–	–	COAX	–	–
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**1**	**1**	**60°**	**0°**	**2°**	**91'-0"**	–	–	**(PROPOSED) RRUS 11**	***ERICSSON***	***(2) ±110'***	**1⅝"**	***COAX***	***EXISTING***	***N/A***	–	–	**COAX**	**LTE 700 COAX**	–
B	GSM/UMTS	OPTICAL #1	B2P	APX16DWV_16DWVS	RFS	0	0	180°	2°	8°	91'-0"	KRY 112 144/1	ERICSSON	–	–	*(2)EXISTING*	1⅝"	*COAX*	*EXISTING*	*N/A*	–	–	COAX	–	–
	UMTS/LTE	OPTICAL #1	B4P						2°	8°		KRY 112 489/1	ERICSSON	–	–	*(2)EXISTING*	1⅝"	*COAX*	*EXISTING*	*N/A*	–	–	COAX	–	–
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**1**	**1**	**180°**	**0°**	**2°**	**91'-0"**	–	–	**(PROPOSED) RRUS 11**	***ERICSSON***	***(2) ±110'***	**1⅝"**	***COAX***	***EXISTING***	***N/A***	–	–	**COAX**	**LTE 700 COAX**	–
C	GSM/UMTS	OPTICAL #1	B2P	APX16DWV_16DWVS	RFS	0	0	270°	2°	8°	91'-0"	KRY 112 144/1	ERICSSON	–	–	*(2)EXISTING*	1⅝"	*COAX*	*EXISTING*	*N/A*	–	–	COAX	–	–
	UMTS/LTE	OPTICAL #1	B4P						2°	8°		KRY 112 489/1	ERICSSON	–	–	*(2)EXISTING*	1⅝"	*COAX*	*EXISTING*	*N/A*	–	–	COAX	–	–
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**1**	**1**	**270°**	**0°**	**2°**	**91'-0"**	–	–	**(PROPOSED) RRUS 11**	***ERICSSON***	***(2) ±110'***	**1⅝"**	***COAX***	***EXISTING***	***N/A***	–	–	**COAX**	**LTE 700 COAX**	–

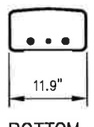
KEY

EXISTING	R – RED – GSM	G – GREEN – UMTS 1900
PROPOSED	B – BLUE – UMTS AWS	P – PURPLE – LTE
FIBER CONNECTION	O – ORANGE – FIBER CABLE	

1 RF SYSTEM SCHEDULE
NOT TO SCALE

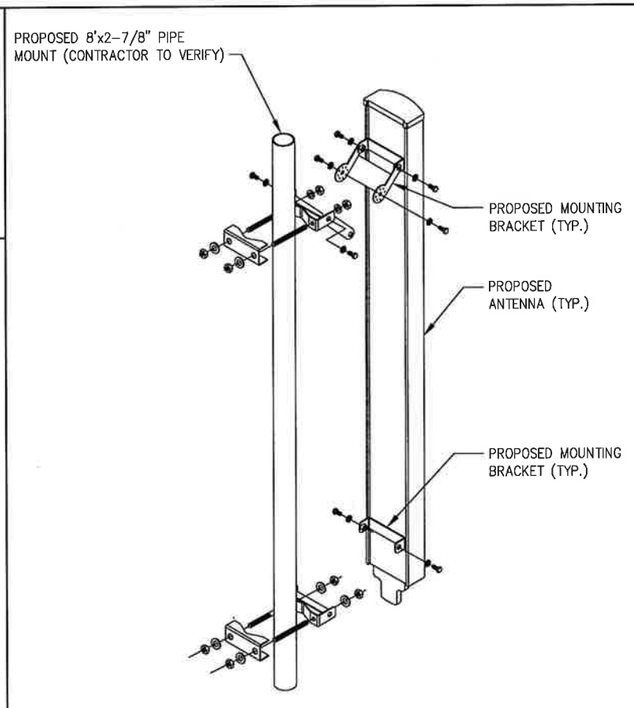




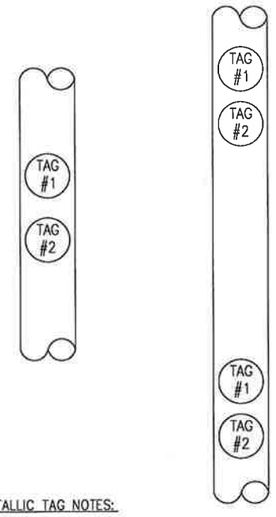


COMMSCOPE MODEL NO.:	LNX-6515DS-VTM
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	96.0"x11.9"x7.1" (2438 x 301 x 181 mm)
WEIGHT, W/ PRE-MOUNTED BRACKETS:	50.3 LBS (22.8 kg)
CONNECTOR:	(2) 7-16 DIN FEMALE/BOTTOM

2 ANTENNA DETAILS
NOT TO SCALE



3 MOUNTING DETAIL
NOT TO SCALE



METALLIC TAG NOTES:

1. TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET.
2. CABLES LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE.
3. TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP TIES APPROPRIATE FOR CABLE DIAMETER.
4. STANDARDIZED METALLIC TAG KITS WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMODATE ALL CONFIGURATIONS.

3/4 METALLIC TAG DETAIL
NOT TO SCALE

T-MOBILE NORTHEAST LLC
35 GRIFFIN RD SOUTH
BLOOMFIELD, CT 06002

INFINIGY
1033 Watervliet Shaker Rd
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Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
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1/27/16	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: 317-000
DRAWN BY: JLM
CHECKED BY: ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11769B

SITE NAME:
CT769/SSITE HARTFORD #2

289H MOUNTAIN ROAD
HARTFORD, CT 06114

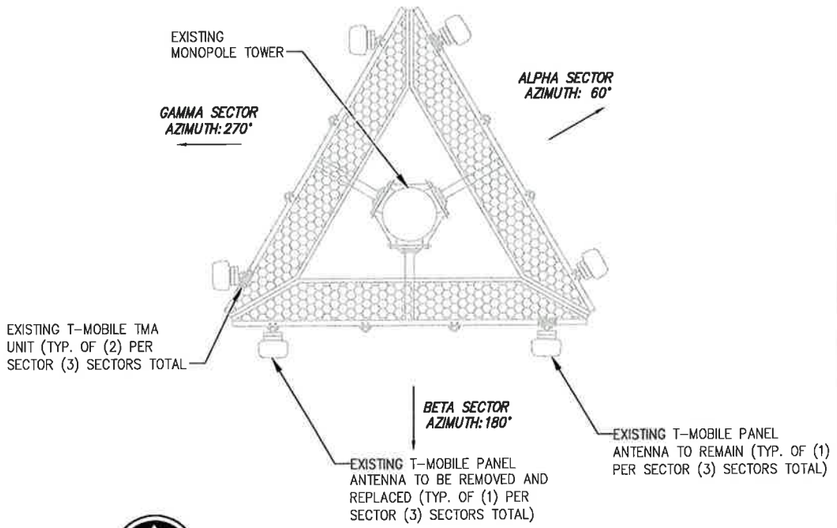
SHEET TITLE

ANTENNA DETAIL & RF SCHEDULE

SHEET NUMBER

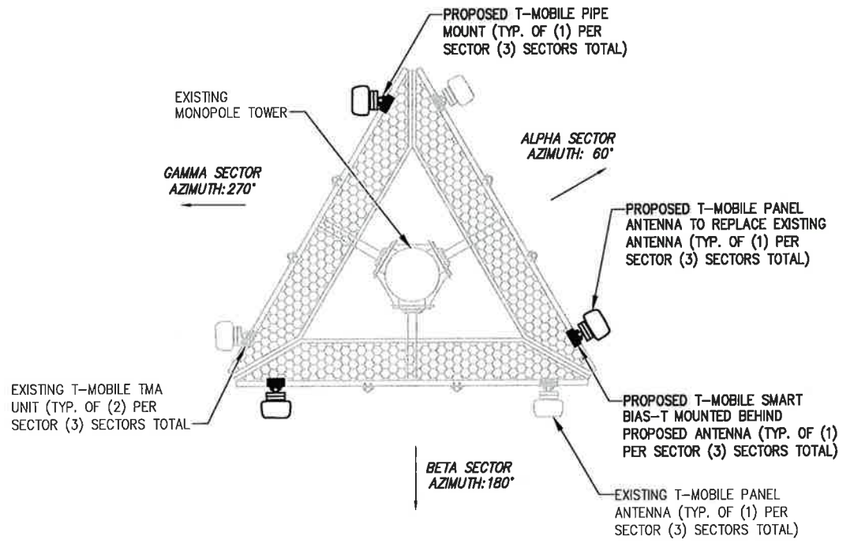
C-3

SHEET 4 OF **8** SHEETS



CALLED NORTH

1 EXISTING ANTENNA ORIENTATION PLAN
NOT TO SCALE

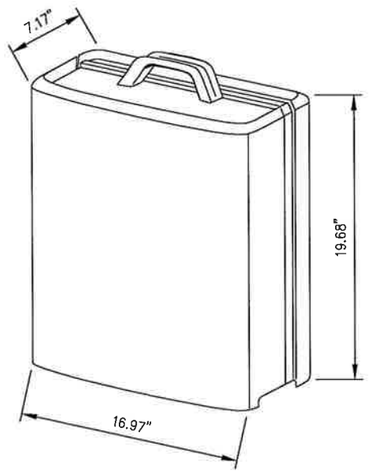


CALLED NORTH

2 PROPOSED ANTENNA ORIENTATION PLAN
NOT TO SCALE

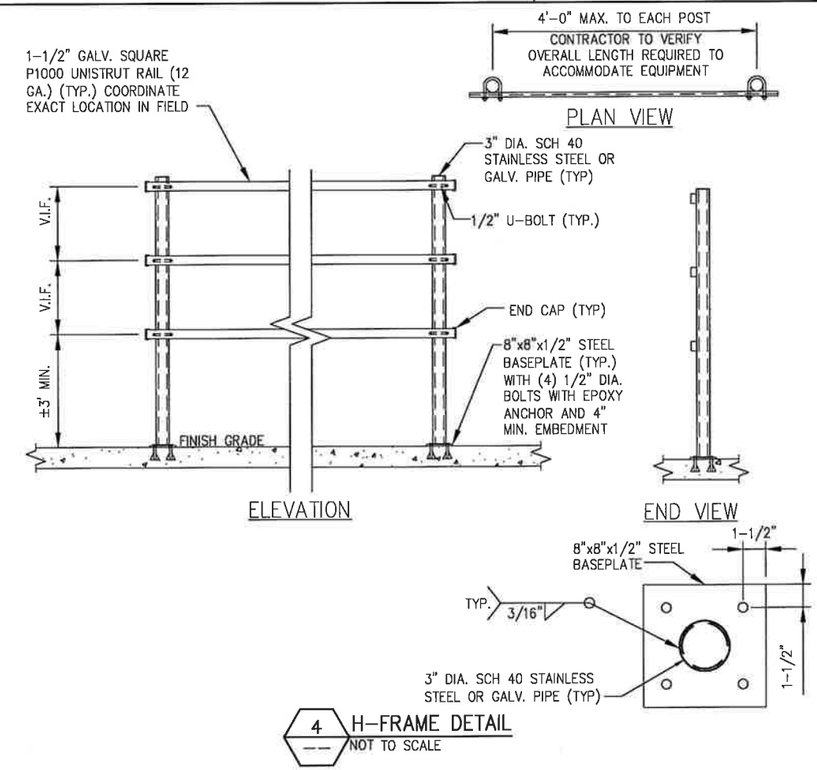
STRUCTURAL NOTES:

1. SPECIFICATIONS / CODES:
   - CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE ACI CODE.
   - STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, 9tH EDITION.
   - WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-92 "STRUCTURAL WELDING" CODE-STEEL.
   - REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE."
2. MATERIALS:
   - CONCRETE: fc' - 3000psi. (MIN. U.N.O.)
   - REINFORCING STEEL: ASTM A615, GRADE 60.
   - WIRE MESH: ASTM A185.
   - STRUCTURAL STEEL: ASTM A36.
   - ELECTRODES FOR WELDING: E 70xx.
   - GALVANIZING: ASTM A153 (BOLTS) OR ASTM A123 (SHAPES, PLATES).
   - EXPANSION BOLTS: HILTI KWIK BOLT II, STAINLESS STEEL, 3/4"øx43/4" EMBEDMENT OR AN APPROVED EQUAL.



ERICSSON MODEL NO.:	RRUS11
COLOR:	GRAY
DIMENSIONS, HxWxD:	19.68"x16.97"x7.17" (500 x 431 x 182 mm)
WEIGHT:	50.71 LBS (23 kg)

3 RRUS 11 DETAIL
NOT TO SCALE



4 H-FRAME DETAIL
NOT TO SCALE

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1/27/16	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
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RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

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289H MOUNTAIN ROAD
HARTFORD, CT 06114

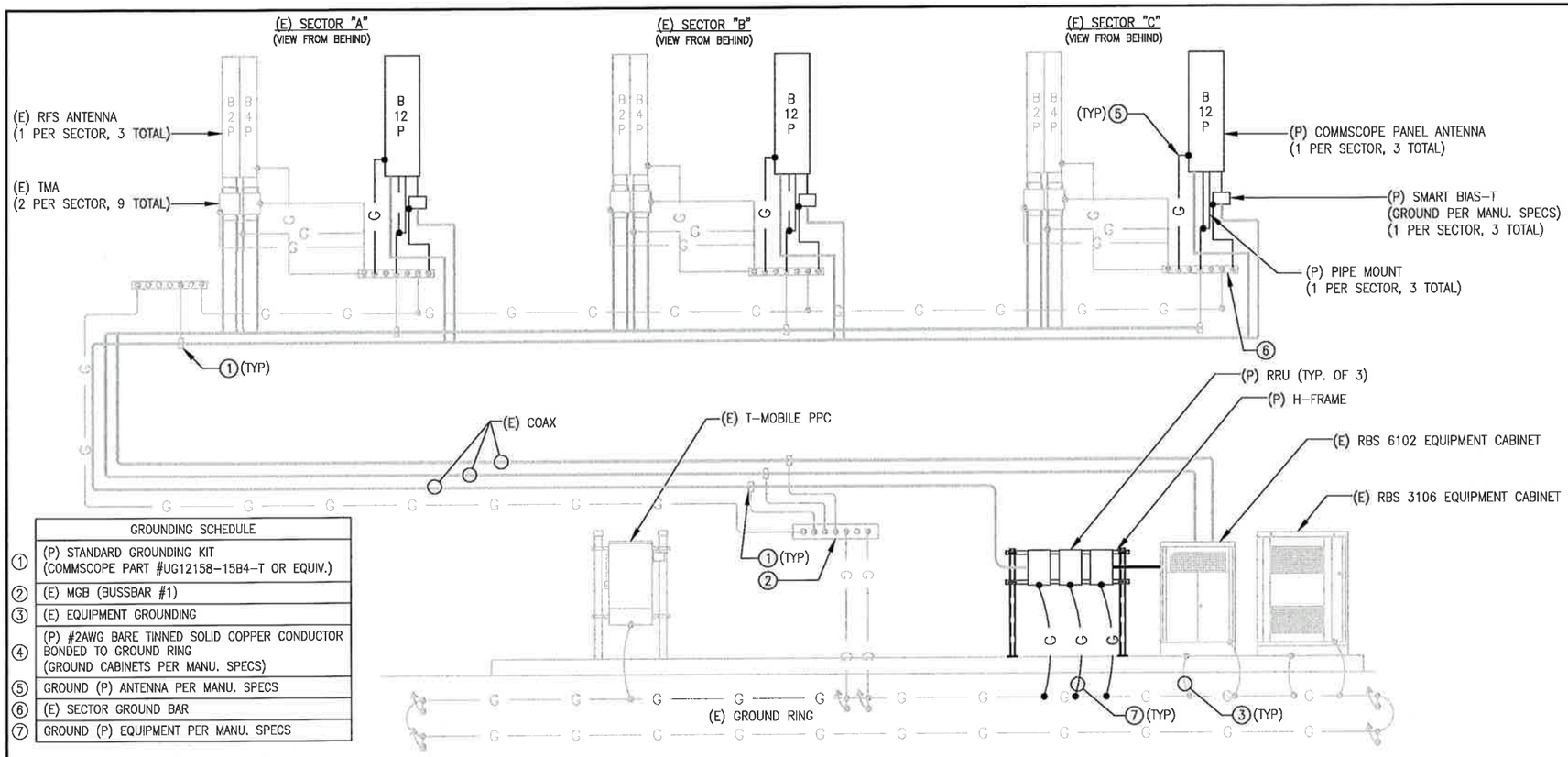
SHEET TITLE

EQUIPMENT SPECIFICATIONS

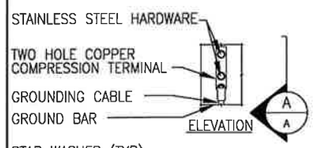
SHEET NUMBER

C-4

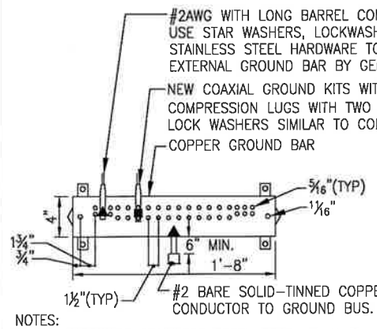
SHEET 5 OF 8 SHEETS



GROUNDING SCHEDULE	
①	(P) STANDARD GROUNDING KIT (COMMSCOPE PART #UG12158-15B4-T OR EQUIV.)
②	(E) MGB (BUSSBAR #1)
③	(E) EQUIPMENT GROUNDING
④	(P) #2AWG BARE TINNED SOLID COPPER CONDUCTOR BONDED TO GROUND RING (GROUND CABINETS PER MANU. SPECS)
⑤	GROUND (P) ANTENNA PER MANU. SPECS
⑥	(E) SECTOR GROUND BAR
⑦	GROUND (P) EQUIPMENT PER MANU. SPECS



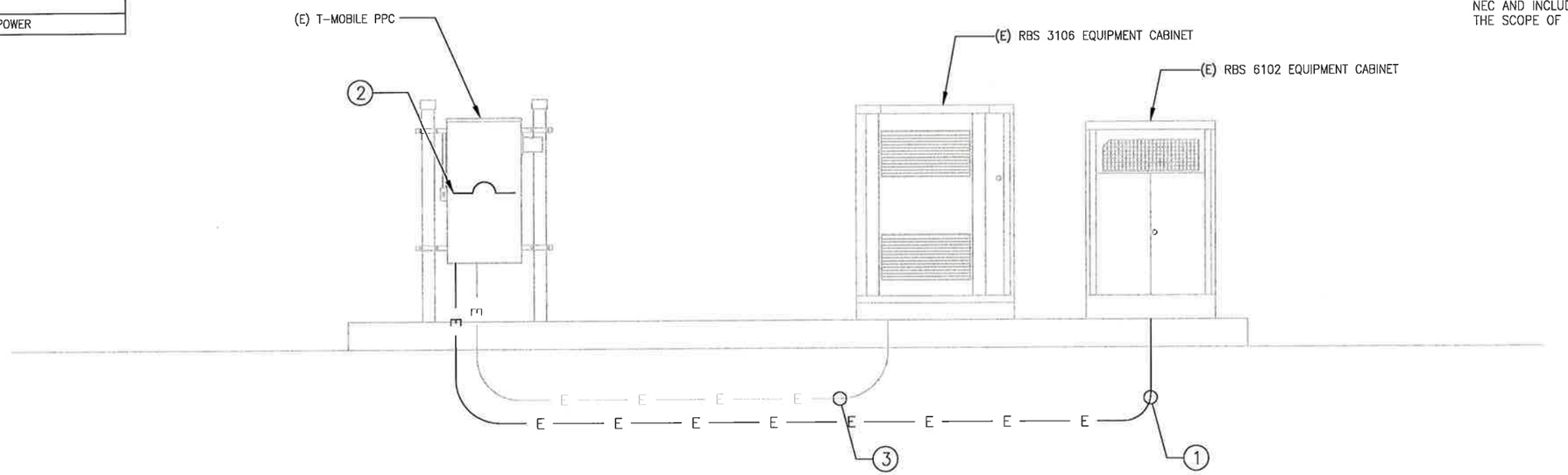
NOTES:
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



NOTES:
1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HOLES ARE COUNTERSUNK 1/16".

2 GROUND BAR CONNECTION DETAILS
SCALE: NOT TO SCALE

CONDUIT SCHEDULE	
①	(P) WIRE AND CONDUIT UPGRADE FOR POWER
②	(P) 100A BREAKER UPGRADE
③	(E) WIRE AND COUNDUIT FOR POWER



3 POWER DIAGRAM
SCALE: NOT TO SCALE

CONTRACTOR NOTE:
CONTRACTOR TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSE LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN RD SOUTH
BLOOMFIELD, CT 06002

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS		
DATE	DESCRIPTION	REVISION
10/29/15	FOR PERMIT	0
1/27/16	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11769B

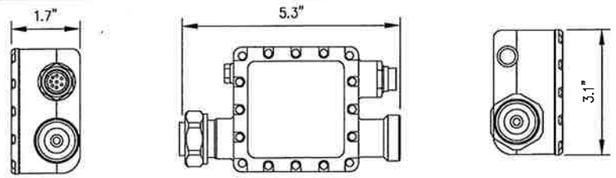
SITE NAME:
CT769/SSITE HARTFORD #2

289H MOUNTAIN ROAD
HARTFORD, CT 06114

SHEET TITLE
GROUNDING & POWER DIAGRAMS

SHEET NUMBER
E-1

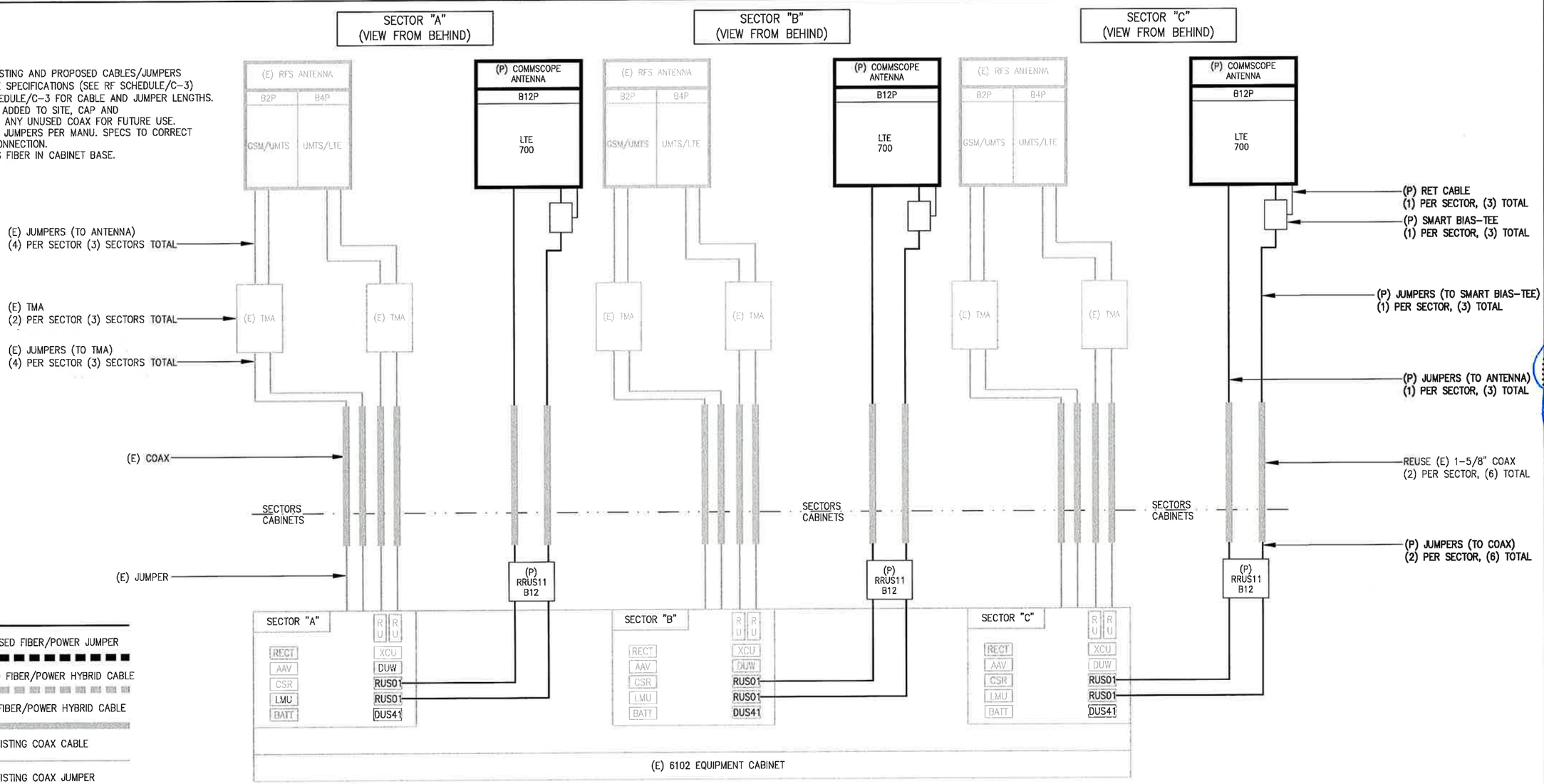
SHEET 6 OF 8 SHEETS



KATHREIN SCALA SMART BIAS-TEE
WEIGHT: 3.3 LBS

1 SMART BIAS-TEE DETAIL
NOT TO SCALE

NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS (SEE RF SCHEDULE/C-3)
2. SEE RF SCHEDULE/C-3 FOR CABLE AND JUMPER LENGTHS.
3. IF NEW GPS ADDED TO SITE, CAP AND WEATHERPROOF ANY UNUSED COAX FOR FUTURE USE.
4. TRIM POWER JUMPERS PER MANU. SPECS TO CORRECT LENGTH FOR CONNECTION.
5. COIL EXCESS FIBER IN CABINET BASE.



2 704Bu CONFIGURATION COAX/FIBER PLUMBING DIAGRAM
NOT TO SCALE

T-MOBILE NORTHEAST LLC
35 GRIFFIN RD SOUTH
BLOOMFIELD, CT 06002

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
10/29/15	FOR PERMIT	0
1/27/16	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: 317-000
DRAWN BY: JLM
CHECKED BY: ASW

STATE OF CONNECTICUT JOHN S. STEVENS No. 24705 LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11769B

SITE NAME:
CT769/SSITE HARTFORD #2

289H MOUNTAIN ROAD
HARTFORD, CT 06114

SHEET TITLE
COAX/FIBER PLUMBING DIAGRAM

SHEET NUMBER
E-2

SHEET 7 OF 8 SHEETS

ELECTRICAL NOTES:

WORK INCLUDED
1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   A. PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS.
   B. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
   C. SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
   D. EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT. FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK. COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
   E. PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND EQUIPMENT PROVIDED OR INSTALLED UNDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS.
   F. MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS, CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION PURPOSES.
2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS, IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS
1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
3. LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY ENGINEER.
4. EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES. FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH SHADED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.
5. GENERAL
   A. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER, IN WRITING, OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND SPECIFICATIONS.
   B. VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
6. QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
   A. PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT. WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE PROPER FUNCTIONING OF THE WORK.
   B. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
   C. PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THE CONTRACT DOCUMENT OR NOT.
   D. MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR EXPLANATION THEREOF.
   E. PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVIATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY WITH ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT.

GUARANTEE
1. GUARANTEE MATERIALS, PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD, MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.

CLEANING
1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.

COORDINATION AND SUPERVISION
1. CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS. IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

SUBMITTALS
1. AS-BUILT DRAWINGS:
   A. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
2. SERVICE MANUALS:
   A. UPON COMPLETION OF THE WORK, FULLY INSTRUCT T-MOBILE AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, EQUIPMENT AND SYSTEMS.
   B. PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING
1. PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
2. OBTAIN OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS OR WALLS FOR PIPING OR CONDUIT.

TESTS, INSPECTION AND APPROVAL
1. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE, OPERATIONAL CONDITION.
2. PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS
1. DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
2. WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

GROUNDING
1. ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
2. ROUTE 500 KCMIL CU. THHN CONDUCTOR FROM THE MGB LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE GROUNDING ELECTRODE CONDUCTOR (GEC).
3. MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS, SIZED AS REQUIRED.
4. USE 1 HOLE, CRIMP TYPE, BURNDY COMPRESSIONS TERMINATIONS, SIZED AS REQUIRED, AT EQUIPMENT GROUND CONNECTIONS.
5. HIRE AN INDEPENDENT LAB TO PERFORM THE SPECIFIED OHMS TESTING. PROVIDE 4 SETS OF THE CERTIFIED DOCUMENTS TO THE OWNER FOR VERIFICATION PRIOR TO THE PROJECT COMPLETION.

RACEWAYS
1. ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
   A. EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
   B. EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
   C. ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO BE EMT.
   D. INSTALL PULL ROPES IN ALL NEW EMPTY CONDUITS INSTALLED ON THIS PROJECT.
   E. ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "T-MOBILE". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL.
   F. INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL COMPRESSION FITTINGS.
   G. MINIMUM SIZE CONDUIT TO BE ¾" TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
   H. FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
   I. CONDUIT TO BE RUN CONCEALED IN CEILINGS, FINISHED AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED.
   J. THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND CLEARANCES.
   K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D
   L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR CEILING.
   M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
   N. CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
   O. PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
   P. WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS, PER BUILDING.

WIRES AND CABLES
1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER-CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE, PRIOR TO BID.
2. ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR.
3. ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THWN/THHN INSULATION, EXCEPT AS NOTED.
4. WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO. 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED.
5. CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE. CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED FOR PLENUM USE. ALL CONTROL WIRE TO BE 600VOLT RATED.
6. WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED.
7. HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V CIRCUITS:

LENGTH (FT.)	HOME RUN WIRE SIZE
0 TO 50	NO. 12
51 TO 100	NO. 10
101 TO 150	NO. 8

8. VOLTAGE DROP IS NOT TO EXCEED 3%.
9. MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.

WIRING DEVICES
1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION.

DISCONNECT SWITCHES AND FUSES
1. DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
2. PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
3. PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
4. DISCONNECT SWITCHES TO BE MANUFACTURED BY:
   A. GENERAL ELECTRIC COMPANY
   B. SQUARE-D
5. PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE.

INSTALLATION
1. INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS.
2. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES MUST MATCH IN TYPE AND RATING.
3. FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.
4. FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:
   A. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60A, USED FOR INITIAL FUSING.
   B. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING. IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.

GENERAL NOTES:

INTENT
1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH
3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
4. THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

CONFLICTS
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
2. THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
3. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

CONTRACTS AND WARRANTIES
1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
2. SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE
1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

CLEANUP
1. THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK. THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE.
2. EXTERIOR
   A. VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.
3. INTERIOR
   A. VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS, FLOOR, AND CEILING.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. REMOVE PAINT DROPPINGS, SPOTS, STAINS, AND DIRT FROM FINISHED SURFACES.

CHANGE ORDER PROCEDURE:
1. REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA.

RELATED DOCUMENTS AND COORDINATION
1. GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHOP DRAWINGS
1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
2. ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

PRODUCTS AND SUBSTITUTIONS
1. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
2. SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

QUALITY ASSURANCE
1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY. SEE "CODE COMPLIANCE" T-1.

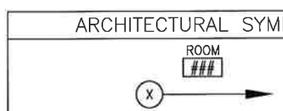
ADMINISTRATION
1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
3. PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
4. CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
5. DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL WPCS SAFETY REQUIREMENTS IN THEIR AGREEMENT.
6. PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE OWNER.
7. COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.
8. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

INSURANCE AND BONDS
1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
2. THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
3. CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

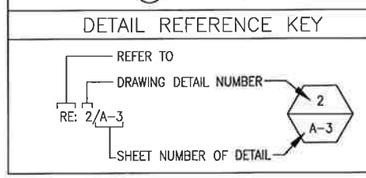
ABBREVIATIONS

ADJ	ADJUSTABLE
AGL	ABOVE GROUND LINE
&	AND
APPROX	APPROXIMATE
@	AT
BTS	BASE TRANSMISSION STATION
CAB	CABINET
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
DIA OR ø	DIAMETER
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EGB	EQUIPMENT GROUND BAR
(E)	EXISTING
EXT	EXTERIOR
FF	FINISHED FLOOR
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRND	GROUND
LG	LONG
MAX	MAXIMUM
MECH	MECHANICAL
MW	MICROWAVE DISH
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
(P)	PROPOSED
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SS	STAINLESS STEEL
STL	STEEL
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TYP	TYPICAL
VIF	VERIFY IN FIELD
UON	UNLESS OTHERWISE NOTED
WWF	WELDED WIRE FABRIC
W/	WITH

ARCHITECTURAL SYMBOLS



DETAIL REFERENCE KEY



T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN RD SOUTH
BLOOMFIELD, CT 06002

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
10/29/15	FOR PERMIT	0
1/27/16	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11769B

SITE NAME:
CT769/SSITE HARTFORD #2

289H MOUNTAIN ROAD
HARTFORD, CT 06114

SHEET TITLE

GENERAL AND ELECTRICAL NOTES

SHEET NUMBER

N-1

SHEET 8 OF 8 SHEETS