November 19, 2014

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

RE: Notice of Exempt Modification
277 Huckleberry Hill Rd
Avon, CT 06013
N 41° 47' 17.6"
W 72° 55' 05.7"
TMO Site CTHA510A

Dear Mr. Martin and Members of the Siting Council:

On behalf of T-Mobile, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 277 Huckleberry Hill Rd., Avon, CT.

The 277 Huckleberry Hill Road facility consists of a 100' MONOPOLE Tower owned and operated by SBA 2012 TC Assets, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

As part of T-Mobile's modernization project, T-Mobile desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in T-Mobile's operations at the site along with the required fee of $625.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be

significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The overall height of the structure will be unaffected.

2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than the new equipment cabinets.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.

4. The changes in radio frequency power density will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, SBA Communications on behalf of T-Mobile, respectfully submits that he proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (508) 251-0720 x 3804 with any questions you may have concerning this matter.

Thank you,

Kri Pelletier
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3804 + T
508-251-1755 + F
203-446-7700 + C
kpelletier@sbasite.com

T-Mobile

Equipment Modification

277 Huckleberry Hill Rd., Avon, CT
Site number CTHA510A

Tower Owner: SBA 2012 TC Assets, LLC

Equipment Configuration: Monopole Tower

Current and/or approved:

- (3) RFS APXV18-206517
- (12) 7/8" lines

Planned Modifications:

- (3) RFS APX16DWV-16DWVS-C
- (3) RFS ATMAA1412D-1A20 TMAs
- (12) 7/8" lines

Structural Information:

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed modifications.

Power Density:

The anticipated Maximum Composite contributions from the T-Mobile (Metro MobilePCS) facility are 1.555% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 78.545% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Metro MobilePCS	1.555%
AT&T	69.530%
Sprint	7.460%
Total Site MPE %	78.545%

November 19, 2014

Mr. Brandon Robertson
Town Manager
Town of Avon
60 West Main Street
Avon, CT 06001

RE: Telecommunications Facility @ 277 Huckleberry Hill Rd., Avon, CT
TMO Site No. CTHA510A

Dear Mr. Robertson,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (R.C.S.A.) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review T-Mobile's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes T-Mobile's proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at (508) 614-0389.

Thank you,

Kri Pelletier
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3804 + T
508-251-1755 + F
203-446-7700 + C
kpelletier@sbasite.com

EBI Consulting
environmental | engineering | due diligence

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

Metro MobilePCS Existing Facility

Site ID: CTHA510A

SBA Avon Monopole
277 Huckleberry Hill Road
Avon, CT 06013

July 21, 2014

EBI Project Number: 62143994

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

EBI Consulting
environmental | engineering | due diligence

July 21, 2014

Metro MobilePCS USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CTHA510A - SBA Avon Monopole**

EBI Consulting was directed to analyze the proposed Metro MobilePCS facility located at 277 Huckleberry Hill Road, Avon, CT, for the purpose of determining whether the emissions from the Proposed Metro MobilePCS 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 µW/cm2 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 (µW/cm2). The general population exposure limit for the cellular band is 567 µW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 µW/cm2. 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 Metro MobilePCS Wireless antenna facility located at 277 Huckleberry Hill Road, Avon, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Metro MobilePCS is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is 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 channels (1935.000 MHz—to 1945.000 MHz) were considered for each sector of the proposed installation.
2) 2 UMTS channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
3) 2 LTE channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
4) 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.
5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
6) The antenna used in this modeling is the RFS APX16DWV-16DWVS-E-A20 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 16.3 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications.

7) The antenna mounting height centerline of the proposed antennas is **80 feet** above ground level (AGL).
8) 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.

Site ID	CTHA510A - SBA Avon Monopole
Site Address	277 Huckleberry Hill Road, Avon, CT 06013
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APX16DWV-16DWVS-E-A20	Passive	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.25	80	74	7/8"	1.2	0	21.535316	1.413819	0.14138%
1B	RFS	APX16DWV-16DWVS-E-A20	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-3.25	80	74	7/8"	1.2	0	57.42751	3.770184	0.37702%
														Sector total Power Density Value:		0.518%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APX16DWV-16DWVS-E-A20	Passive	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.25	80	74	7/8"	1.2	0	21.535316	1.413819	0.14138%
1B	RFS	APX16DWV-16DWVS-E-A20	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-3.25	80	74	1-5/8"	1.2	0	57.42751	3.770184	0.37702%
														Sector total Power Density Value:		0.518%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APX16DWV-16DWVS-E-A20	Passive	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.25	80	74	7/8"	1.2	0	21.535316	1.413819	0.14138%
1B	RFS	APX16DWV-16DWVS-E-A20	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-3.25	80	74	1-5/8"	1.2	0	57.42751	3.770184	0.37702%
														Sector total Power Density Value:		0.518%	

Site Composite MPE %

Carrier	MPE %
Metro MobilePCS	1.555%
AT&T	69.530%
Sprint	7.460%
Total Site MPE %	**78.545%**

Summary

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

The anticipated Maximum Composite contributions from the Metro MobilePCS facility are **1.555% (0.518% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **78.545%** 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

FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

Structural Analysis for SBA Network Services, Inc.

100 ft Glu-Lam Monopole

SBA Site Name: Burlington-Avon Landfill
SBA Site ID: CT46143-A-03
T-Mobile Site ID: CTHA510A

FDH Project Number 146EW81400

Analysis Results

Tower Components	86.9%	Sufficient
Foundation	91.0%	Sufficient

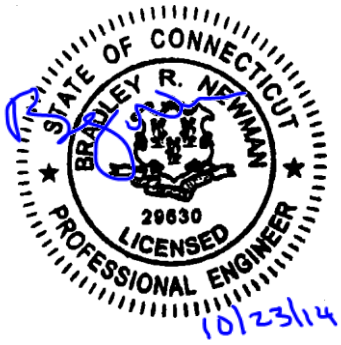
Prepared By:

Joshua A Shaw, EI
Project Engineer

Reviewed By:

Bradley R. Newman, PE
Senior Project Engineer
CT PE License No. 29630

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012
info@fdh-inc.com



October 23, 2014

Prepared pursuant to 2005 Edition of the Nation Design Specification (NDS) for Wood Construction & the 2005 Connecticut Building Code (CBC)

TABLE OF CONTENTS

EXECUTIVE SUMMARY 3

Conclusions 3

Recommendations 3

APPURTENANCE LISTING 4

RESULTS 5

GENERAL COMMENTS 6

LIMITATIONS 6

APPENDIX 7

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the glu-lam monopole located in Avon, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *2005 Edition of the National Design Specifications (NDS) for Wood Construction and the 2005 Connecticut Building Code*. Information pertaining to the existing/proposed antenna loading, geotechnical data, current tower geometry, foundation dimensions, and member sizes was obtained from:

- Laminated Wood Systems, Inc. (DWG No. SPSM-0079) original design drawings dated April 7, 2005
- Dr. Clarence Welti, P.E., P.C. Geotechnical Engineering (Project Name Avon Landfill Sprint Site) geotechnical report dated March 25, 2005
- Vertical Solutions, Inc. (Project No. 091061.01) Rigorous Structural Analysis dated August 27, 2009
- FDH Engineering, Inc. (Project No. 1303591700) Modification Inspection Report dated January 7, 2014
- FDH Engineering, Inc. (Project No. 146EW81400) Modification Drawings for a 100' Laminated Wood Pole dated October 23, 2014
- SBA Network Services, Inc.

The *basic design wind speed* per the *2005 Connecticut Building Code* standards is 80 mph without ice and 38 mph with 1.0" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the current and proposed antennas from T-Mobile at 80 ft, the tower meets the requirements of the *2005 Connecticut Building Code* and the *2005 NDS* standards, provided the **Recommendations** listed below are satisfied. Furthermore, given the existing foundation dimensions (see Laminated Wood Systems, Inc. DWG No. SPSM-0079), utilizing the existing soil parameters (see Dr. Clarence Welti, P.E., P.C. Geotechnical Engineering Project Name Avon Landfill Sprint Site), and considering the modification (see FDH Engineering, Inc. (Project No. 1309511400) the foundations should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e. the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *2005 Connecticut Building Code* and the *2005 NDS* standards are met with the existing and proposed loading in place, we have the following recommendations:

1. The existing coax shall be installed adjacent to the existing coax.
2. The modifications shown in the FDH Engineering, Inc. (Project No. 146EW81400) Modification Drawings for a 100' Laminated Wood Pole dated October 23, 2014 must be installed as specified.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from this layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 – Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
99[1]	(3) EMS RR65-18-00DPL2-R (3) AMB36-2.5EXT	(6) 1-5/8"	Sprint	99	(3) Flush Mounts
90[2]	(1) KMW AM-X-CD-16-65-00T-RET (1) Andrew SBNH-1D6565C (1) Powerwave P65-17-XLH-RR (3) Powerwave LGP21401 TMAs (3) CCI DTMABP7819VG12A TMAs (3) Powerwave 7020 RETs (6) Powerwave LGP13519 Diplexers (3) Andrew APTDC-BDFDM-DBW Surge Arrestors	(6) 1-5/8" (1) 7/16" Fiber (2) 3/4" DC Cables	AT&T	90	(3) Flush Mounts
80[3]	(3) RFS APXV18-206517	(12) 7/8"	T-Mobile	80	(3) Flush Mounts

1. Sprint has (6) 1-5/8" coax installed on the outside in a single row from 0 to 90' and double stacked 3-on-3 from 90 to 99'.
2. AT&T has (6) 1-5/8", (1) 7/16", and (2) 3/4" coax installed on the outside in a single row.
3. Pocket has (12) 7/8" coax installed on the outside in a single row.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
80	(3) RFS APX16DWV-16DWVS-C (3) RFS ATMAA1412D-1A20 TMAs	(12) 7/8"	T-Mobile	80	(3) Flush Mounts

RESULTS

Based on information obtained from the original design drawings, the yield strength of the individual members was as follows:

Table 2 - Material Strength

Member Type	Yield Strength
Tower Shaft Sections	F_b = 2.4 ksi (strong direction) F_b = 1.75 ksi (weak direction)

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information.

Table 3 – Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	100 – 80	Glu Laminated Pole	26.25"x30.25" at base tapering to 26.25"x12" at top	11.2	Pass
L2	80 – 60			21.3	Pass
L3	60 – 40			26.5	Pass
L4	40 – 20			42.3	Pass
L5	20 – 0			86.9	Pass
		Guy A@75	1/2	18.3	Pass
		Guy B@75	1/2	20.2	Pass
		Guy C@75	1/2	69.0	Pass
		Guy D@75	1/2	62.1	Pass
		Guy A@55	7/16	18.3	Pass
		Guy B@55	7/16	20.2	Pass
		Guy C@55	7/16	67.8	Pass
		Guy D@55	7/16	54.4	Pass

Table 4 – Maximum Base Reactions

	Current Analysis *(2005 CBC)**			Original Design		
Reaction	Horizontal	Vertical	Moment	Horizontal	Vertical	Moment
Tower Base	5 k	48 k	212 k-ft	13 k	24 k	725 k-ft
Anchor	7 k	15 k	--	--		

* Foundation determined to be adequate per independent analysis.

GENERAL COMMENTS

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX

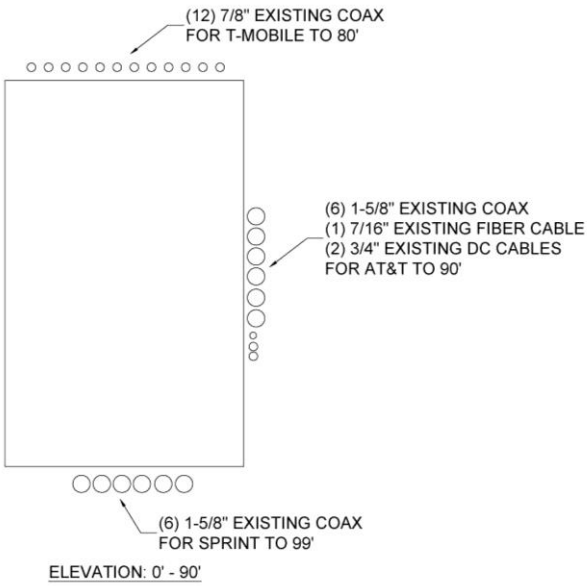
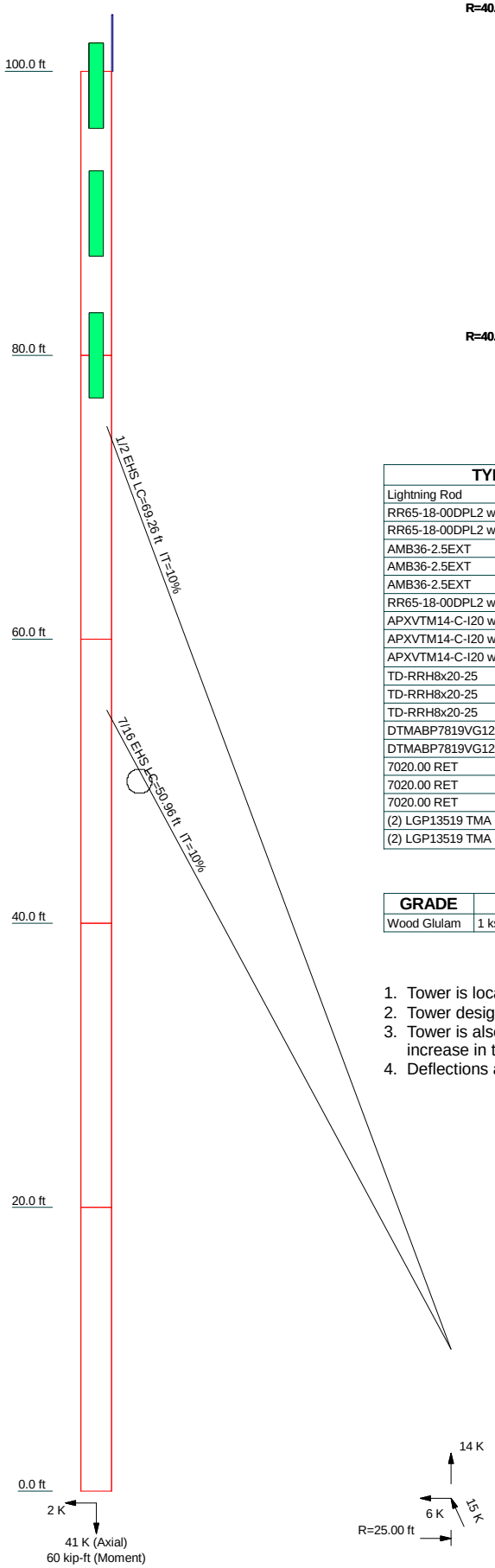
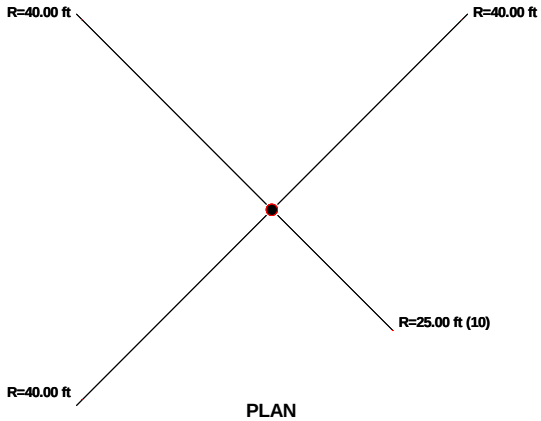


Figure 1—Assumed Coax Layout

Section	Length (ft)	Number of Sides	Thickness (in)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	20.00	1	6.0000	26.2500	26.2500	Wood Glulam	1.4
2	20.00	1	7.8250	26.2500	26.2500		1.7
3	20.00	1	9.6500	26.2500	26.2500		1.9
4	20.00	1	11.4750	26.2500	26.2500		2.0
5	20.00	1	13.3000	26.2500	26.2500		2.0
							9.0





PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	100	(2) LGP13519 TMA	90
RR65-18-00DPL2 w/Mount Pipe	99	APTDC-BDFDM-DB Surge Arrestors	90
RR65-18-00DPL2 w/Mount Pipe	99	APTDC-BDFDM-DB Surge Arrestors	90
AMB36-2.5EXT	99	APTDC-BDFDM-DB Surge Arrestors	90
AMB36-2.5EXT	99	SBNH-1D6565C w/ Mount Pipe	90
AMB36-2.5EXT	99	SBNH-1D6565C w/ Mount Pipe	90
RR65-18-00DPL2 w/Mount Pipe	99	SBNH-1D6565C w/ Mount Pipe	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
TD-RRH8x20-25	99	DTMABP7819VG12A TMA	90
TD-RRH8x20-25	99	APX16DWV-16DWVS-C w/ Mount Pipe	80
TD-RRH8x20-25	99	APX16DWV-16DWVS-C w/ Mount Pipe	80
DTMABP7819VG12A TMA	90	APX16DWV-16DWVS-C w/ Mount Pipe	80
DTMABP7819VG12A TMA	90	ATMAA1412D-1A20 TMA	80
7020.00 RET	90	ATMAA1412D-1A20 TMA	80
7020.00 RET	90	ATMAA1412D-1A20 TMA	80
7020.00 RET	90		
(2) LGP13519 TMA	90		
(2) LGP13519 TMA	90		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
Wood Glulam	1 ksi	2 ksi			

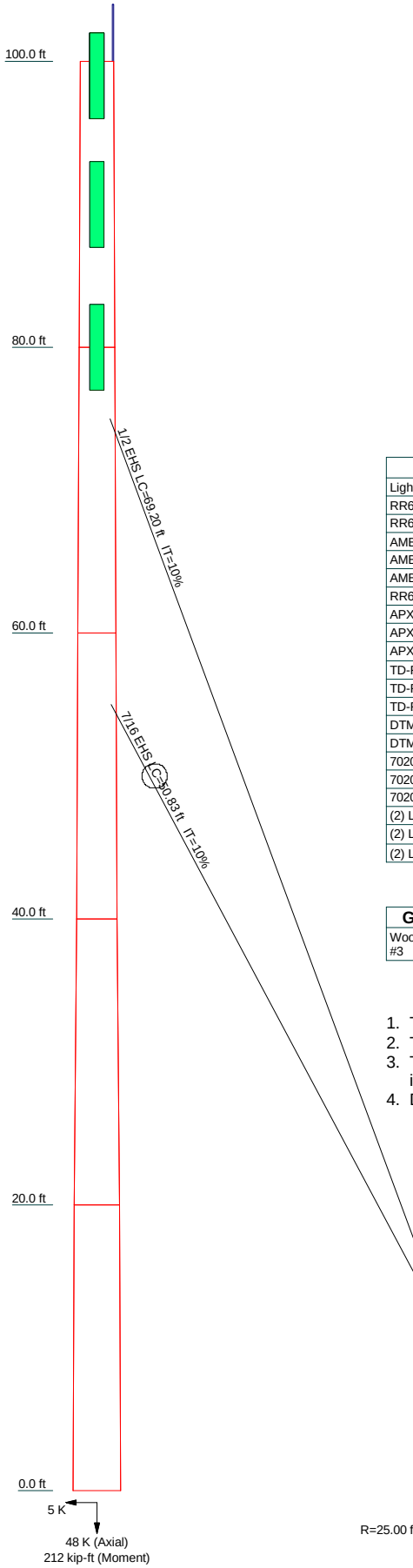
TOWER DESIGN NOTES

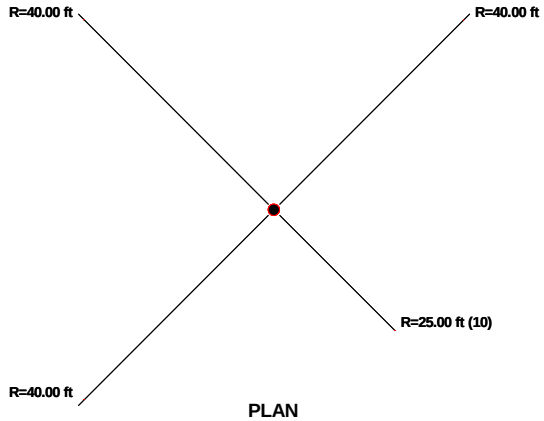
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.

FDH Engineering, Inc.
6521 Meridien Dr.
Raleigh, NC
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

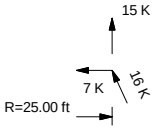
Job:	***Burlington Landfill, CT46143-A-03***		
Project:	***146EW81400 (0 DEG)***		
Client: SBA Network Services, Inc.	Drawn by: Joshua A Shaw		App'd:
Code: TIA/EIA-222-F	Date: 10/23/14		Scale: NTS
Path:			Dwg No. E-1

Section	Length (ft)	Number of Sides	Thickness (in)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	20.00	1	6.0000	27.0468	29.7162	Wood Grade #3	1.7
2	20.00	1	8.0000	29.7162	32.2087		2.4
3	20.00	1	10.0000	32.2087	34.7897		3.0
4	20.00	1	12.0000	34.7897	37.3706		3.7
5	20.00	1	14.0000	37.3706	39.9957		4.4
							15.2





PLAN



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	100	APTDC-BDFDM-DB Surge Arrestors	90
RR65-18-00DPL2 w/Mount Pipe	99	APTDC-BDFDM-DB Surge Arrestors	90
RR65-18-00DPL2 w/Mount Pipe	99	APTDC-BDFDM-DB Surge Arrestors	90
AMB36-2.5EXT	99	AM-X-CD-16-65-00T-RET w/ Mount Pipe	90
AMB36-2.5EXT	99		
AMB36-2.5EXT	99	SBNH-1D6565C w/ Mount Pipe	90
RR65-18-00DPL2 w/Mount Pipe	99	P65-17-XLH-RR w/Mount Pipe	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
TD-RRH8x20-25	99	DTMABP7819VG12A TMA	90
TD-RRH8x20-25	99	APX16DWV-16DWVS-C w/ Mount Pipe	80
TD-RRH8x20-25	99		
DTMABP7819VG12A TMA	90	APX16DWV-16DWVS-C w/ Mount Pipe	80
DTMABP7819VG12A TMA	90	APX16DWV-16DWVS-C w/ Mount Pipe	80
7020.00 RET	90		
7020.00 RET	90	ATMAP1412D-1A20 TMA	80
7020.00 RET	90	ATMAP1412D-1A20 TMA	80
(2) LGP13519 TMA	90	ATMAP1412D-1A20 TMA	80
(2) LGP13519 TMA	90		
(2) LGP13519 TMA	90		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
Wood Grade #3	1 ksi	2 ksi			

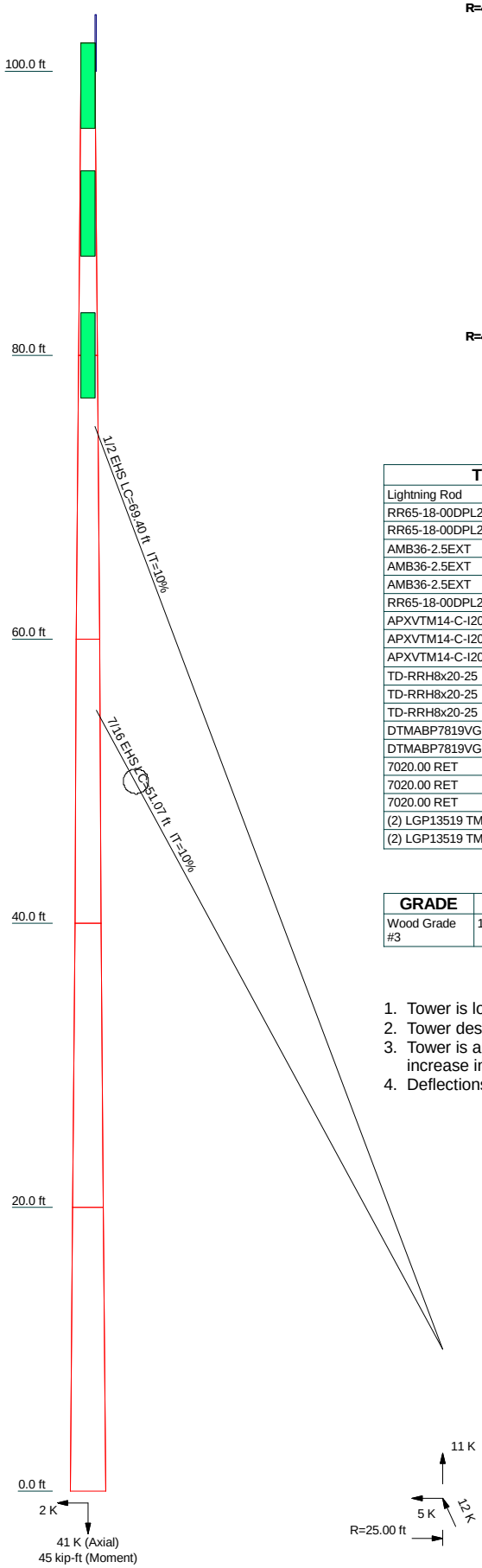
TOWER DESIGN NOTES

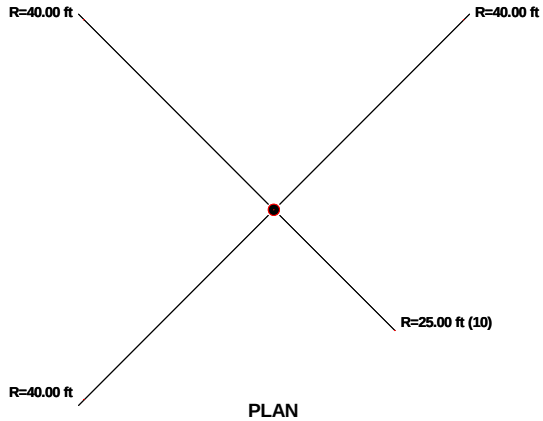
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.

FDH Engineering, Inc.
6521 Meridien Dr.
Raleigh, NC
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job:	Burlington Landfill, CT46143-A-03		
Project:	146EW8400 (45 DEG)		
Client:	SBA Network Services, Inc.	Drawn by: Joshua A Shaw	App'd:
Code:	TIA/EIA-222-F	Date: 10/23/14	Scale: NTS
Path:			Dwg No. E-1

Section	Length (ft)	Number of Sides	Thickness (in)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	20.00	1	5.9000	12.0000	15.6500	Wood Grade #3	0.6
2	20.00	1	12.9000	15.6500	19.3000		0.8
3	20.00	1	12.9000	19.3000	22.9500		1.4
4	20.00	1	12.9000	22.9500	26.6000		2.0
5	20.00	1	12.9000	26.6000	30.2500		2.6
							7.2





PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	100	(2) LGP13519 TMA	90
RR65-18-00DPL2 w/Mount Pipe	99	APTDC-BDFDM-DB Surge Arrestors	90
RR65-18-00DPL2 w/Mount Pipe	99	APTDC-BDFDM-DB Surge Arrestors	90
AMB36-2.5EXT	99	APTDC-BDFDM-DB Surge Arrestors	90
AMB36-2.5EXT	99	SBNH-1D6565C w/ Mount Pipe	90
AMB36-2.5EXT	99	SBNH-1D6565C w/ Mount Pipe	90
RR65-18-00DPL2 w/Mount Pipe	99	SBNH-1D6565C w/ Mount Pipe	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
APXVTM14-C-I20 w/ Mount Pipe	99	LGP21401 TMA	90
TD-RRH8x20-25	99	DTMABP7819VG12A TMA	90
TD-RRH8x20-25	99	APX16DWV-16DWVS-C w/ Mount Pipe	80
TD-RRH8x20-25	99	APX16DWV-16DWVS-C w/ Mount Pipe	80
DTMABP7819VG12A TMA	90	APX16DWV-16DWVS-C w/ Mount Pipe	80
DTMABP7819VG12A TMA	90	ATMAA1412D-1A20 TMA	80
7020.00 RET	90	ATMAA1412D-1A20 TMA	80
7020.00 RET	90	ATMAA1412D-1A20 TMA	80
7020.00 RET	90		
(2) LGP13519 TMA	90		
(2) LGP13519 TMA	90		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
Wood Grade #3	1 ksi	2 ksi			

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4. Deflections are based upon a 50 mph wind.

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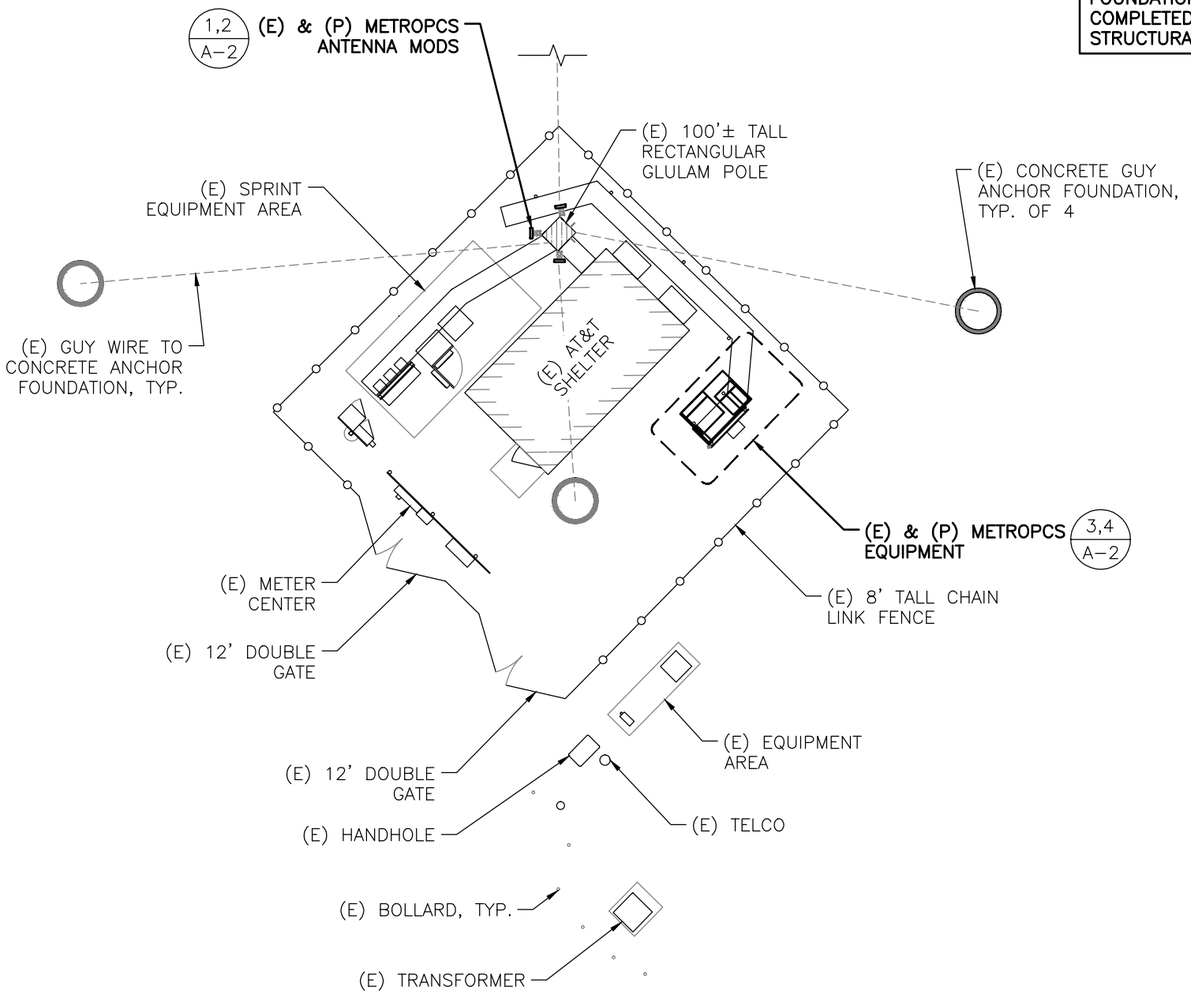
6521 Meridien Dr.
Raleigh, NC
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job: Burlington Landfill, CT46143-A-03			
Project: 146EW81400 (90 DEG)			
Client: SBA Network Services, Inc.	Drawn by: Joshua A Shaw	App'd:	
Code: TIA/EIA-222-F	Date: 10/23/14	Scale: NTS	
Path:		Dwg No. E-1	

STRUCTURAL FAILURE NOTE:
NO WORK IS TO BEGIN ON THIS TOWER UNTIL A FOUNDATION AND TOWER MODIFICATION DESIGN IS COMPLETED AND APPROVED AND A PASSING STRUCTURAL ANALYSIS HAS BEEN COMPLETED.



N

COMPOUND PLAN (1 / A–1)

SCALE: 1"=15' (11x17)
1"=7.5' (22x34)

15 7.5 0 15

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

*NOTE:
ANTENNA ELEVATION BASED ON CLIENT–PROVIDED INFORMATION

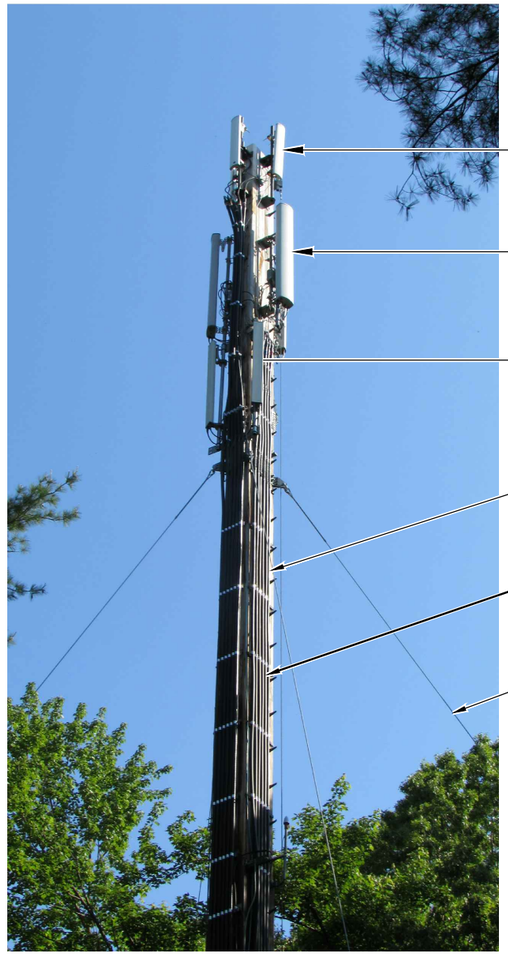


IMAGE SOURCE: PROTERRA 6/03/14

EXISTING ELEVATION (2 / A–1)

SCALE: N.T.S.

STATE OF CONNECTICUT
JESSE M. MORENO
No. 24389
LICENSED PROFESSIONAL ENGINEER
6-27-14

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33 BOSTON POST ROAD WEST, SUITE 320
MARLBOROUGH, MA 01752
PHONE: 508–251–0720

SITE NUMBER: CTHA510A
SITE NAME: SBA AVON MONOPOLE

277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

metroPCS
Unlimit Yourself.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

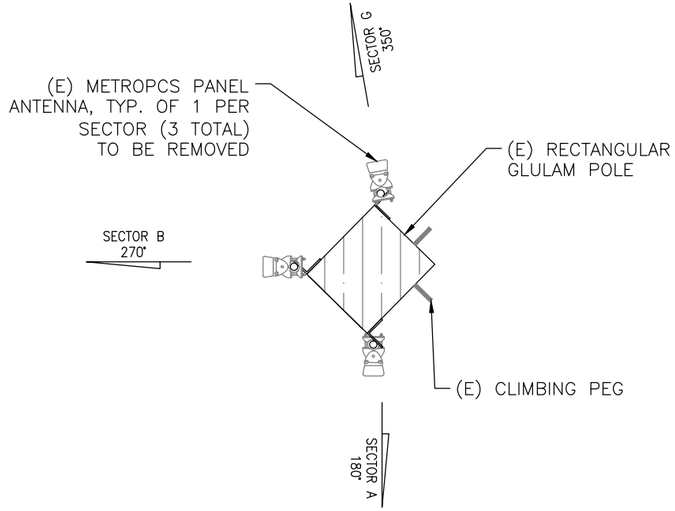
NO.	DATE	REVISIONS	BY	CHK	APP'D
1	6/27/14	CONSTRUCTION FINAL	TBD	TEJ	JMM
0	6/12/14	CONSTRUCTION	TBD	TEJ	JMM

SCALE: AS SHOWN | DESIGNED BY: JMM/TEJ | DRAWN BY: TBD

METROPCS

COMPOUND PLAN AND ELEVATION

JOB NUMBER	SHEET	REV
#13–062	A–1	0



N

EXISTING ANTENNA PLAN

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

4 2 0 4

1 / A-2

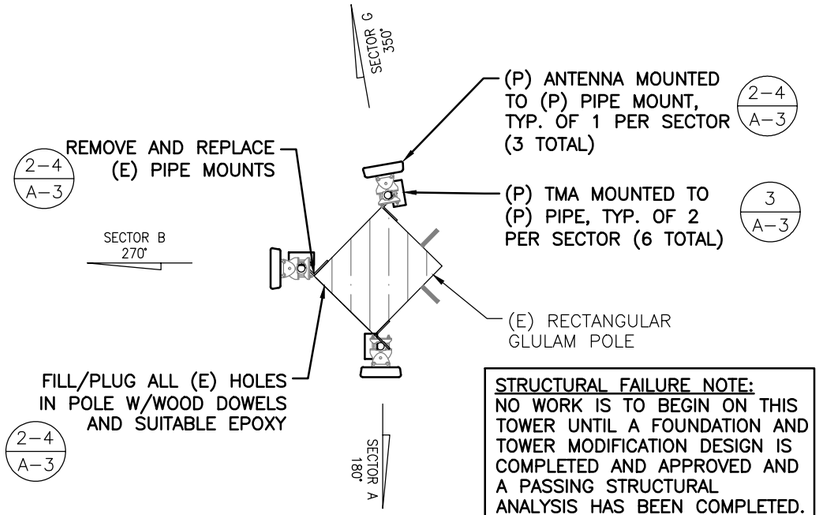
EXISTING ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	RFS	APXV18-206517S-C	6.8x3.2x72.0
SECTOR B:	RFS	APXV18-206517S-C	6.8x3.2x72.0
SECTOR C:	RFS	APXV18-206517S-C	6.8x3.2x72.0

PROPOSED ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	RFS	APX16DWV-16DWVS-C	13.3x3.2x55.9
SECTOR B:	RFS	APX16DWV-16DWVS-C	13.3x3.2x55.9
SECTOR C:	RFS	APX16DWV-16DWVS-C	13.3x3.2x55.9

NOTE:
1. REFER TO FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



STRUCTURAL FAILURE NOTE:
NO WORK IS TO BEGIN ON THIS TOWER UNTIL A FOUNDATION AND TOWER MODIFICATION DESIGN IS COMPLETED AND APPROVED AND A PASSING STRUCTURAL ANALYSIS HAS BEEN COMPLETED.

N

PROPOSED ANTENNA PLAN

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

4 2 0 4

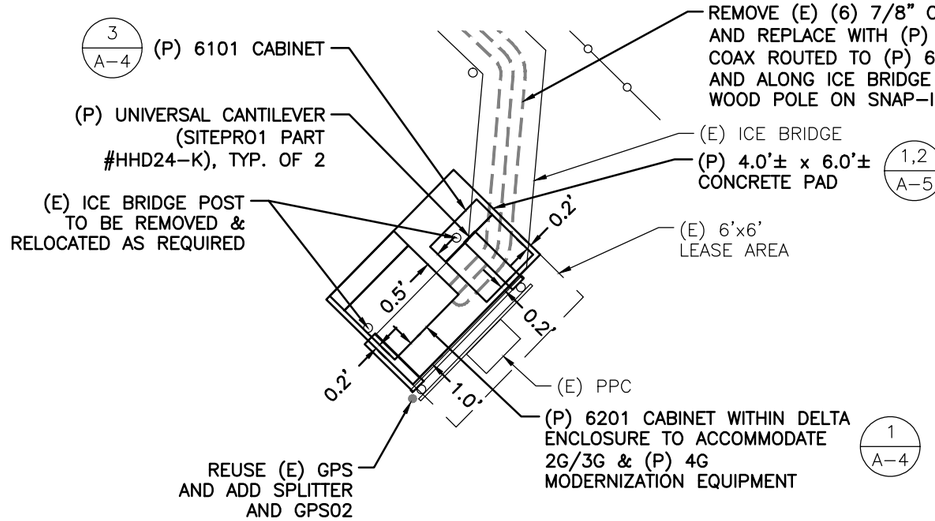
2 / A-2

IMAGE SOURCE: PROTERRA 6/03/14

EXISTING EQUIPMENT AREA

SCALE: N.T.S.

3 / A-2



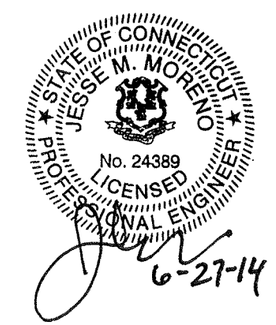
N

PROPOSED EQUIPMENT AREA

SCALE: 1"=5' (11x17)
1"=2.5' (22x34)

5 2.5 0 5

4 / A-2



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PHONE: 508-251-0720

SITE NUMBER: CTHA510A
SITE NAME: SBA AVON MONOPOLE

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NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	6/12/14	CONSTRUCTION	TBD	TEJ	JMM

SCALE: AS SHOWN | DESIGNED BY: JMM/TEJ | DRAWN BY: TBD

METROPCS

PLANS AND ANTENNA SCHEDULES

JOB NUMBER	SHEET	REV
#13-062	A-2	0

IMAGE SOURCE: PROTERRA 6/03/14

EXISTING ANTENNA MOUNT, TYP. 1/A-3

SCALE: N.T.S.

IMAGE SOURCE: PROTERRA 6/03/14

PROPOSED ANTENNA MOUNT, TYP. 2/A-3

SCALE: N.T.S.

STRUCTURAL FAILURE NOTE:
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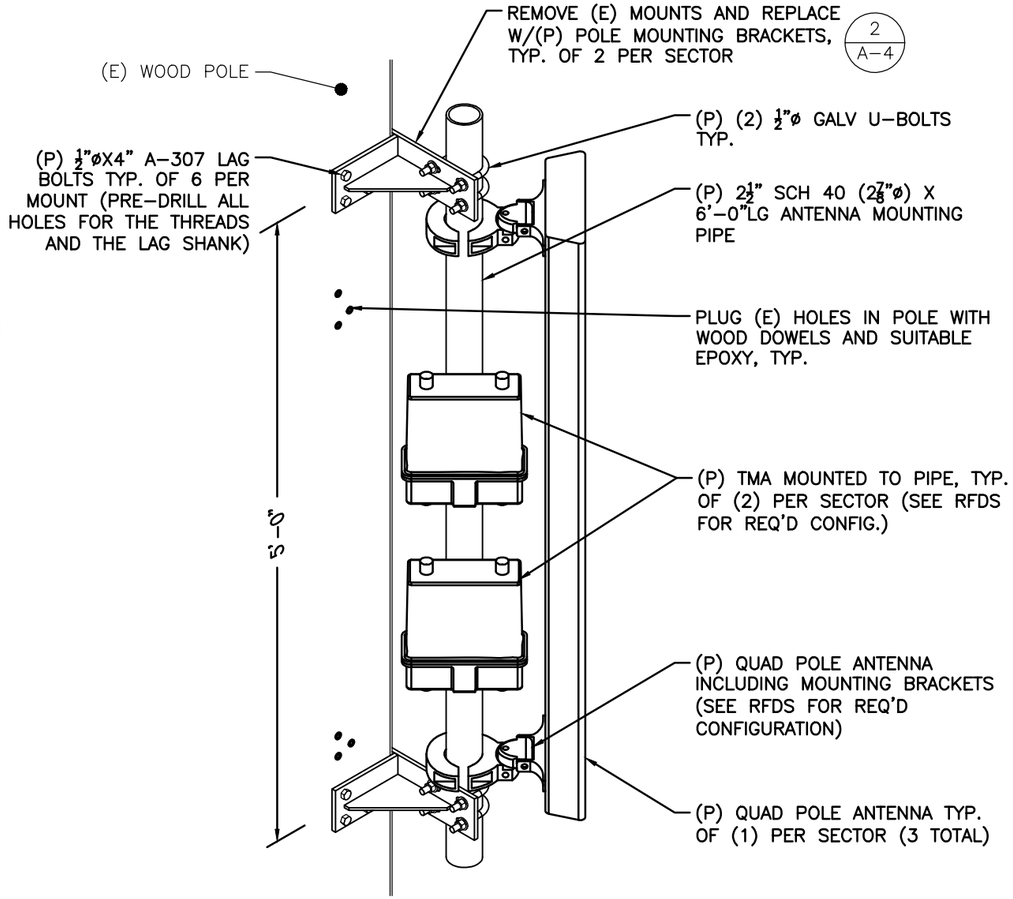
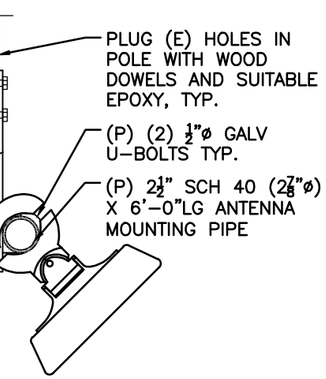


ANTENNA MOUNT ISOMETRIC 3/A-3

SCALE: N.T.S.



ANTENNA MOUNT SECTION 4/A-3

SCALE: N.T.S.

STATE OF CONNECTICUT
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LICENSED PROFESSIONAL ENGINEER
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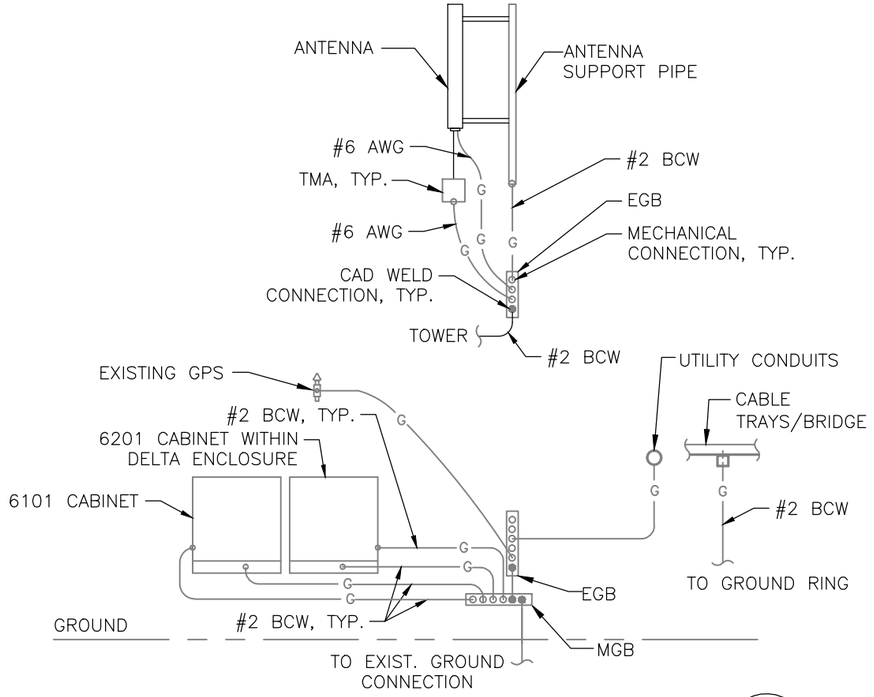
SCALE: AS SHOWN | DESIGNED BY: JMM/TEJ | DRAWN BY: TBD

METROPCS

DETAILS

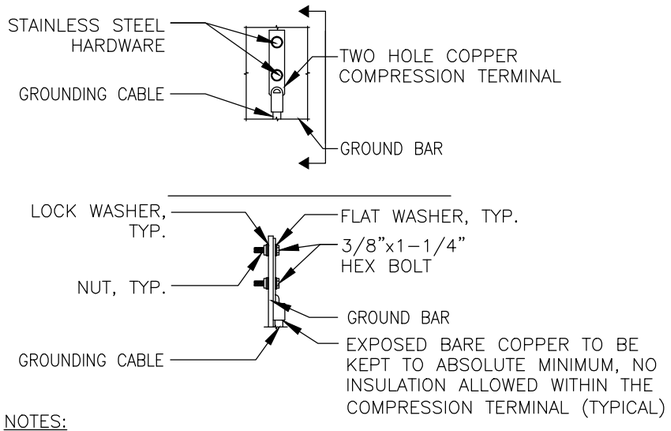
JOB NUMBER	SHEET	REV
#13-062	A-3	0



TYPICAL GROUND RISER DIAGRAM

SCALE: N.T.S.

1 / G-1

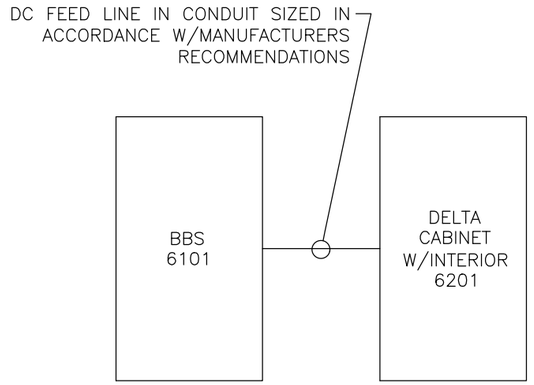


NOTES:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.
4. ALL GROUND LUGS MUST BE HEAT SHRUNK AT WIRE/LUG CONNECTION

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.

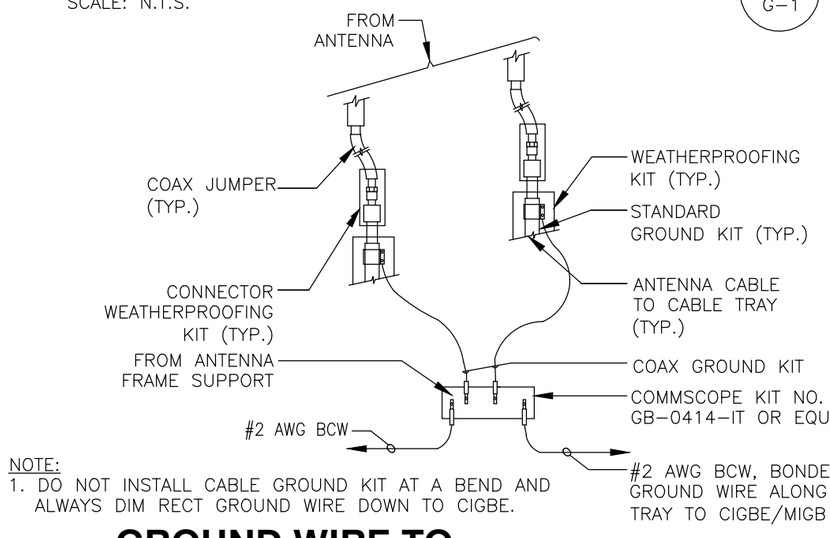
2 / G-1



DC ONE-LINE

SCALE: NTS

5 / G-1

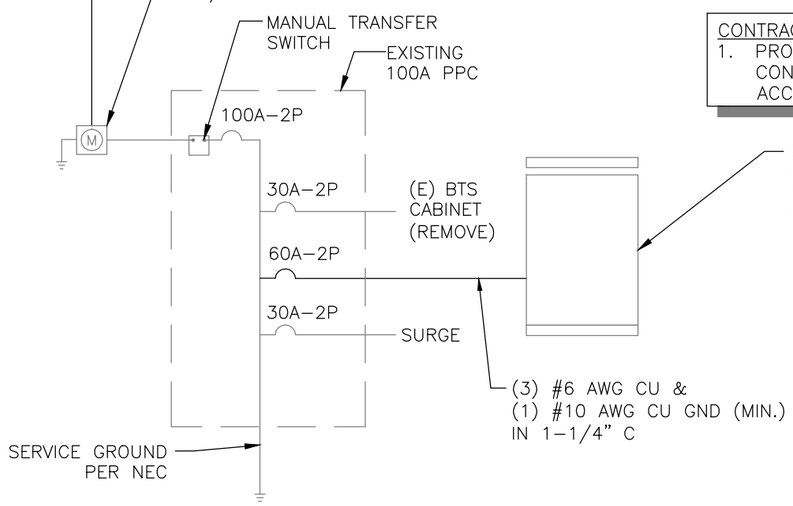


NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIM RECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.

3 / G-1



CONTRACTOR NOTES:
1. PROVIDE ALL CONDUIT & CONDUCTORS REQUIRED IN ACCORDANCE WITH NEC.

ONE LINE POWER DIAGRAM

SCALE: N.T.S.

4 / G-1

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SCALE: AS SHOWN | DESIGNED BY: JMM/TEJ | DRAWN BY: TBD

METROPCS

GROUNDING, ONE-LINE DIAGRAM & DETAILS

JOB NUMBER	SHEET	REV
#13-062	G-1	0