Pinnacle Wireless

800 Marshall Phelps Rd
Building 2A
Windsor, CT 06095

RECEIVED
JUL 14 2014
CONNECTICUT
SITING COUNCIL

July 9, 2014

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

RE: **EM-CING-004-130327** – New Cingular Wireless PCS, LLC notification of completion of construction at 227 Huckleberry Road, Avon, CT.

Dear Ms. Bachman:

This letter is submitted on behalf of New Cingular Wireless PCS, LLC ("AT&T"), whose notice of intent to modify an existing telecommunications facility was acknowledged by the Connecticut Siting Council ("Council") on April 15th, 2013.

Please accept this letter as notification of completion of construction by AT&T as required as a condition of the Council's acknowledgement. In addition, please refer to the attached documentation from AT&T's Engineer confirming that the installation was completed as designed.

Respectfully Yours,

Cecilia Post
Project Coordinator

Cc: Kevin Mason, AT&T

FDH
ENGINEERING INNOVATION

6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012 P
(919) 755-1031 F

January 7, 2014

Tim Rosa
Regional Site Manager
SBA Network Services
2490 Bruen Lane
Easton, PA 18040

Subject:	Modification Inspection Report	
SBA Designation:	SBA Site Number: SBA Site Name:	CT46143-A Burlington - Avon Landfill
Inspection Firm Designation:	FDH Inc. Project Number:	1303591700
Site Data:	277 Huckleberry Hill Road, Avon, CT 06013 Latitude: 41.7881° Longitude: -72.9182° 100' Wood Pole	

FDH Engineering, Inc. is pleased to submit this **"Modification Inspection Report"** (MI Report) to SBA Network Services for the modification/reinforcement to the subject structure. This Modification Inspection (MI) was performed in accordance with Contract Documents, and FDH Inspection Standards. The purpose of this MI is to confirm that the modification installation configuration and workmanship are in accordance with the contract document(s) listed in Table 1. The MI is not a review of the adequacy or effectiveness of the modification solution.

Table 1 – General Information

	Company	Contact
MI Inspector	FDH Engineering Inc.	Rakesh Khan, P.E. 919-755-1012
~~Independent~~	**EOR**	~~Turnkey~~
Modification Design EOR	FDH Engineering Inc.	919-755-1012
General Contractor	Patriot Towers Inc.	Jeremy King 585-889-3391
Sub to the General Contractor	NA	NA
Field CWI for the General Contractor	IQS, LLC	Kevin J. Adair, CWI 315-589-9389
Field NDE for the General Contractor	NA	NA

Table 2 – Design Documents

Document(s)	Remarks	Source
Tower Modification Drawings	FDH Engineering 1309511400 Dated 06-28-2013	FDH Engineering, Inc.

Based on our inspection, FDH Engineering determines this project:

X_PASSING MI

The configuration, materials and/or workmanship of the modifications are installed in accordance with the Contract Documents and no deficiencies were found.

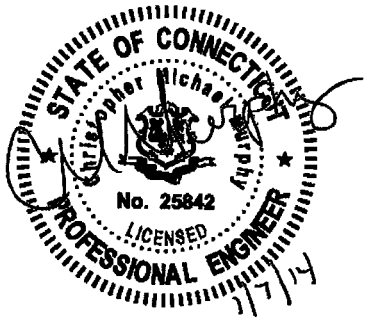
- Issues noted on the MI field notes were approved by the EOR and/or fixed by the GC with approved documentation.
- "Foundation Inspection" was verified via photographs and approved by the EOR before concrete was poured by the GC

All observations were performed after the construction was complete and that FDH Engineering, Inc. was not present during the construction phase.

We at FDH Engineering, Inc. appreciate the opportunity of providing our continuing professional services to you and SBA Network Services. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

Christopher M. Murphy, P.E.
Connecticut License #25842



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

April 15, 2013

Melanie Howlett
HPC Wireless Services
46 Mill Plain Road, Floor 2
Danbury, CT 06811

RE: **EM-CING-004-130327- -** New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 227 Huckleberry Road, Avon, Connecticut.

Dear Ms. Howlett:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Prior to antenna installation, the tower reinforcements identified in the Structural Analysis Report prepared by FDH Engineering dated January 14, 2013, and stamped by J. Darrin Holt shall be implemented;
- The existing coax shall be re-used in accordance with recommendations made in the same FDH Structural Analysis Report; and
- Within 45 days following completion of the antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended modifications have been completed and the structure and foundation do not exceed 100 percent of the post-construction structural rating.
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated March 25, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies

electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Mark W. Zacchio, Chairman Town Council, Town of Avon
Steven V. Kushner, Town Planner, Town of Avon

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
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www.ct.gov/csc

March 28, 2013

The Honorable Mark W. Zacchio
Chairman Town Council
Town of Avon
60 West Main Street
Avon, CT 06001-3743

RE: **EM-CING-004-130327- -** New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 227 Huckleberry Road, Avon, Connecticut.

Dear Chairman Town Council Zacchio:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72, a copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by April 11, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/cm

c: Brandon Robertson, Town Manager, Town of Avon
Steven V. Kushner, Town Planner, Town of Avon

ORIGINAL

EM-CING-004-130327

HPC Wireless Services
46 Mill Plain Rd.
Floor 2
Danbury, CT, 06811
P.: 203.797.1112

HPC WIRELESS SERVICES

March 25, 2013

RECEIVED
MAR 27 2013
CONNECTICUT
SITING COUNCIL

HAND DELIVERED

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Attn: Ms. Linda Roberts, Executive Director

Re: New Cingular Wireless PCS, LLC – Exempt Modification
277 Huckleberry Road, Avon

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of New Cingular Wireless PCS, LLC ("AT&T"). AT&T is making modifications to certain existing sites in its Connecticut system in order to implement LTE technology. Please accept this letter and attachments as notification, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies ("R.S.C.A."), of construction that 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 Chairman of the Town Council for the Town of Avon.

AT&T plans to modify the existing wireless communications facility owned by Tower Co., LLC and SBA Communications, Inc., and located at 277 Huckleberry Road, Avon (coordinates 41°-47'-17.43" N, 72°-55'-5.69" W). Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration, subject to modifications detailed in the attached structural documentation. Also included is a power density report reflecting the modification to AT&T's operations at the site.

The changes to the facility do not constitute a modification 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. 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. AT&T will add three (3) LTE panel antennas on new pipes and mounts and remove the six (6) existing antennas at a centerline height of approximately 90'. AT&T

will also place DC power and fiber runs from the equipment to the antennas along the existing coaxial cable run. These changes will not extend the height of the approximately 100' structure.

2. AT&T will place related equipment in the existing room in the existing Equipment Shelter, and will also mount a new GPS antenna to the existing Ice Bridge. These changes will be within the existing compound and will have no effect on the site boundaries.

3. The proposed changes will not increase the noise level at the existing facility by six (6) decibels or more. The incremental effect of the proposed changes will be negligible.

4. The changes to the facility 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. As indicated on the attached report prepared by C Squared Systems, LLC, AT&T's operations at the site will result in a power density of approximately 6.96%; the combined site operations will result in a total power density of approximately 26.87%.

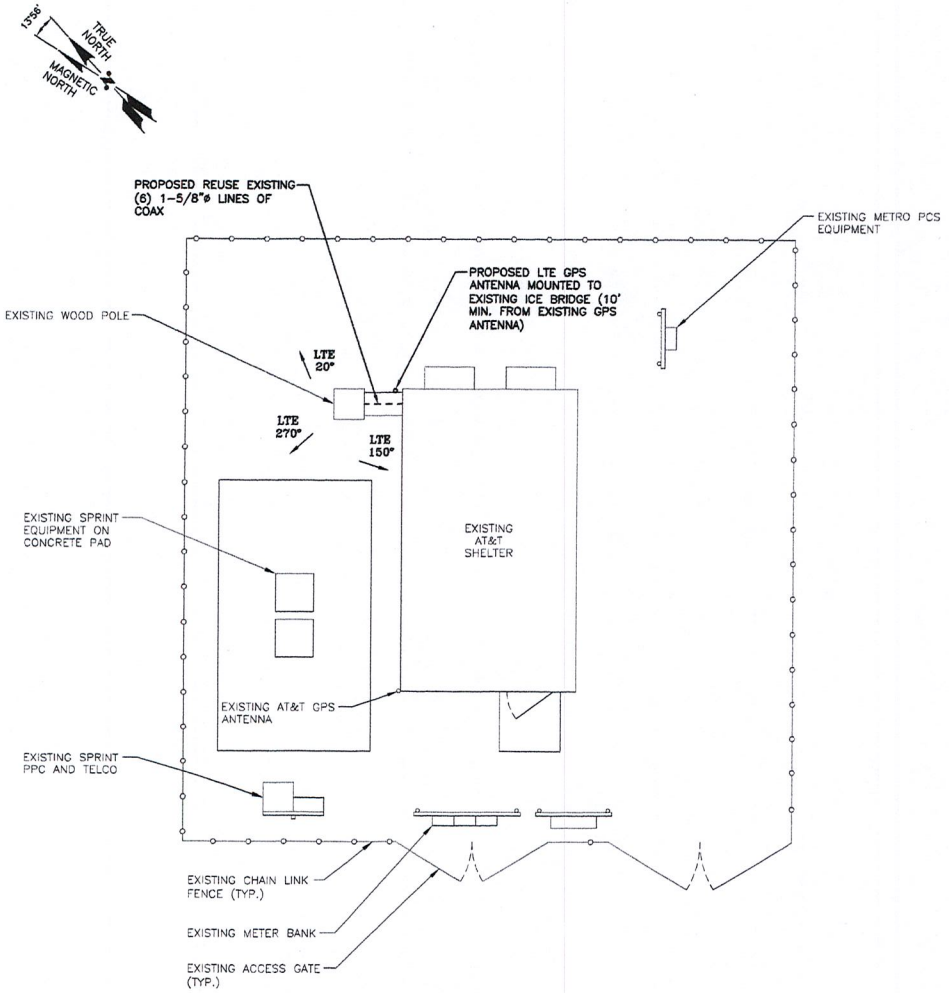
Please contact me by phone at (203) 610-1071 or by e-mail at mjhowlett@optonline.net with questions concerning this matter. Thank you for your consideration.

Respectfully yours,

Melanie J. Howlett

Attachments

cc: Honorable Mark W. Zacchio, Chairman, Town Council, Town of Avon
Town of Avon (underlying property owner)



COMPOUND PLAN

SCALE: 1/4"=1'-0"

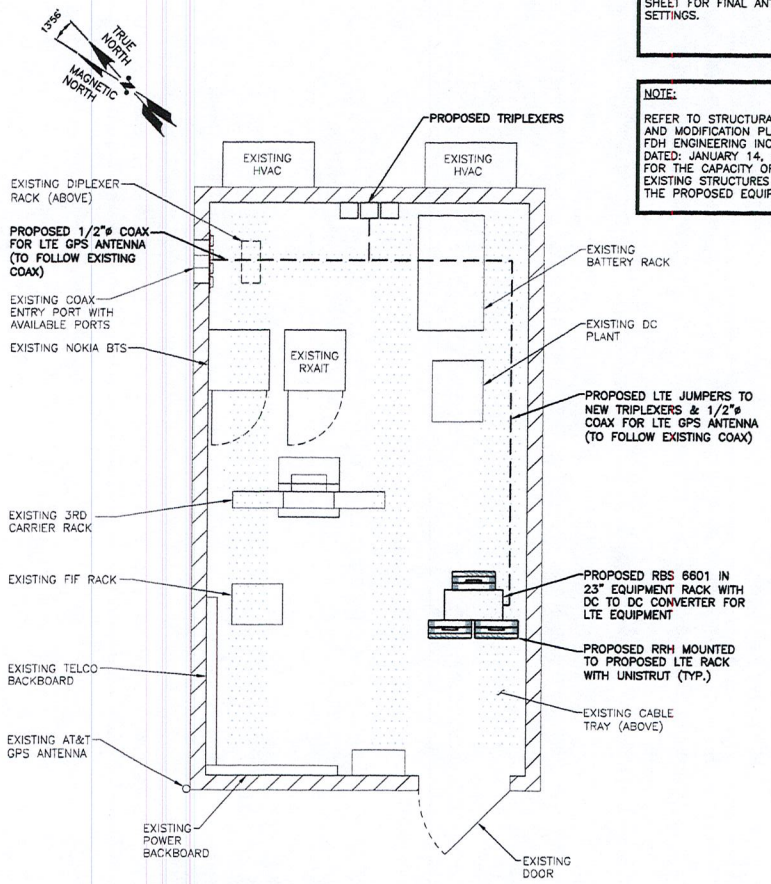
0 2'-0" 4'-0" 8'-0" 12'-0"

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO STRUCTURAL ANALYSIS AND MODIFICATION PLAN BY: FDH ENGINEERING INC, DATED: JANUARY 14, 2013, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



EQUIPMENT PLAN

SCALE: 1/2"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

Pinnacle Wireless
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT# 2A
WINDSOR, CT 06095

SITE NUMBER: CT1175
SITE NAME: BURLINGTON-AVON LANDFILL
277 HUCKLEBERRY HILL ROAD
AVON, CT 06001
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	03/20/13	ISSUED FOR CONSTRUCTION	DC	DPH	
1	11/05/12	ISSUED FOR PERMITTING	DC	DPH	
0	07/26/12	ISSUED FOR REVIEW	RM	DC	DPH

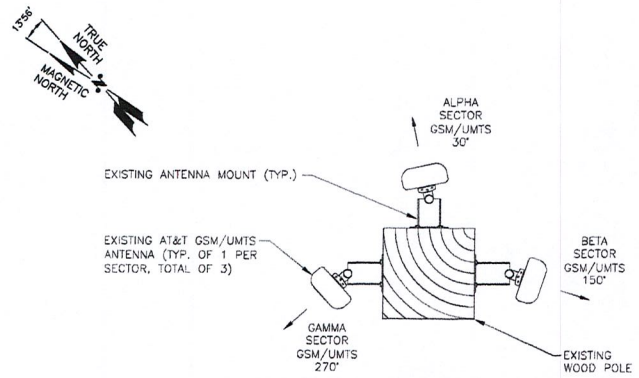
SCALE: AS SHOWN | DESIGNED BY: RP | DRAWN BY: RM

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND PLAN & EQUIPMENT PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1175.01	A-1	2



EXISTING GSM/UMTS ANTENNA PLAN

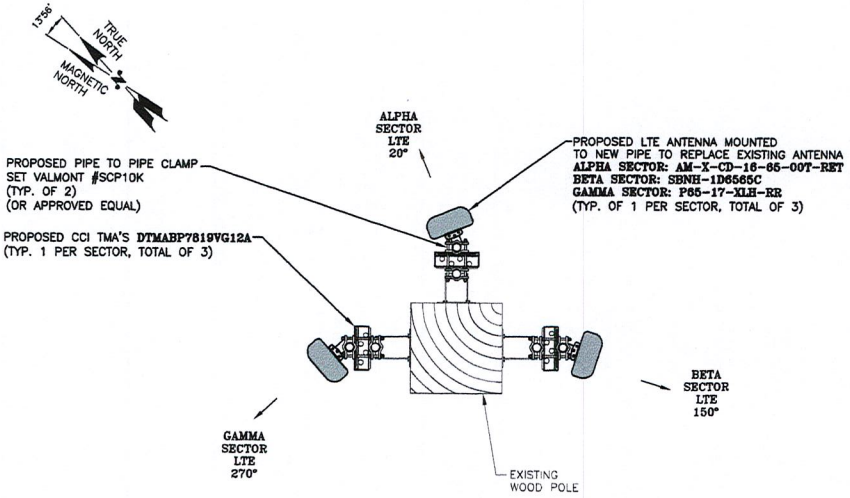
SCALE: N.T.S.

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

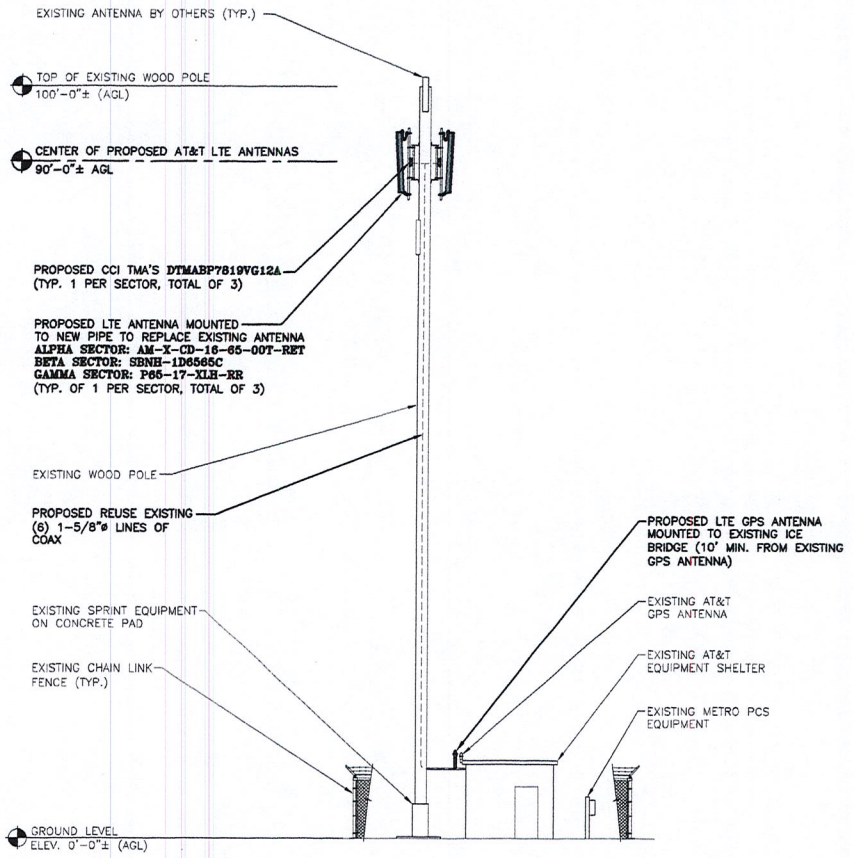
NOTE:

REFER TO STRUCTURAL ANALYSIS AND MODIFICATION PLAN BY: FDH ENGINEERING INC, DATED: JANUARY 14, 2013, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



PROPOSED LTE ANTENNA PLAN

SCALE: N.T.S.



SOUTHWEST ELEVATION

SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
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SCALE: AS SHOWN | DESIGNED BY: RP | DRAWN BY: RM

STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA PLAN & ELEVATION (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1175.01	A-2	2

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 Landfill, CT
SBA Site ID: CT46143-A-01
AT&T Site Name: Avon Huckleberry Hill Road
AT&T Site ID: CT1175

FDH Project Number 12-12603E S1

Analysis Results

Tower Components	**164.2%**	**Insufficient**
Foundation	55.6%	Sufficient

Prepared By:

Adam Bryan, EI
Project Engineer

Reviewed By:

J. Darrin Holt, P.E., PhD
Principal
CT PE License No. 22988

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

1/14/13

January 14, 2013

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the glu-lam monopole located in Raleigh, NC 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, current tower geometry, 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
- SBA Network Services, Inc.

The *basic design wind speed* per the *2005 Connecticut Building Code* standards is 95 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 AT&T at 90 ft, the tower does not meet the requirements of the *2005 Connecticut Building Code* and the *2005 NDS* standards. However, given the existing foundation dimensions (see Laminated Wood Systems, Inc. DWG No. SPSM-0079) and per the soil parameters (see Dr. Clarence Welti, P.E., P.C. Geotechnical Engineering Project Name Avon Landfill Sprint Site), the foundation 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 re-used with the proposed loading.
2. Reinforcement of the tower shaft is required to support the existing and proposed loading. See the **Results** section of this report for locations.

We would anticipate the construction cost for a turnkey design/build modification project of this nature to exceed $100,000 (which should include the engineering design fees, inspection fees, and construction fees).

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]	(3) Powerwave 7770.00 (6) Powerwave LGP21401 TMAs (3) Powerwave 7020 RETs (6) Powerwave LGP13519 Diplexers	(6) 1-5/8"	AT&T	90	(3) Flush Mounts
80[3]	(3) RFS APXV18-206517	(6) 1-5/8"	Pocket Communications	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" coax installed on the outside in a single row.
3. Pocket has (6) 1-5/8" coax installed on the outside in a single row.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
90	(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

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	Fb = 2.4 ksi (strong direction) Fb = 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	9.5	Pass
L2	80 – 60			33.0	Pass
L3	60 – 40			66.7	Pass
L4	40 – 20			**110.3**	**Fail**
L5	20 – 0			**164.2**	**Fail**

Table 4 – Maximum Base Reactions

Base Reactions	Current Analysis *(2005 CBC)**	Original Design
Axial	18 k	24 k
Shear	13 k	13 k
Moment	770 k-ft	725 k-ft

* Foundation determined adequate based on independent analysis based on normal soils.

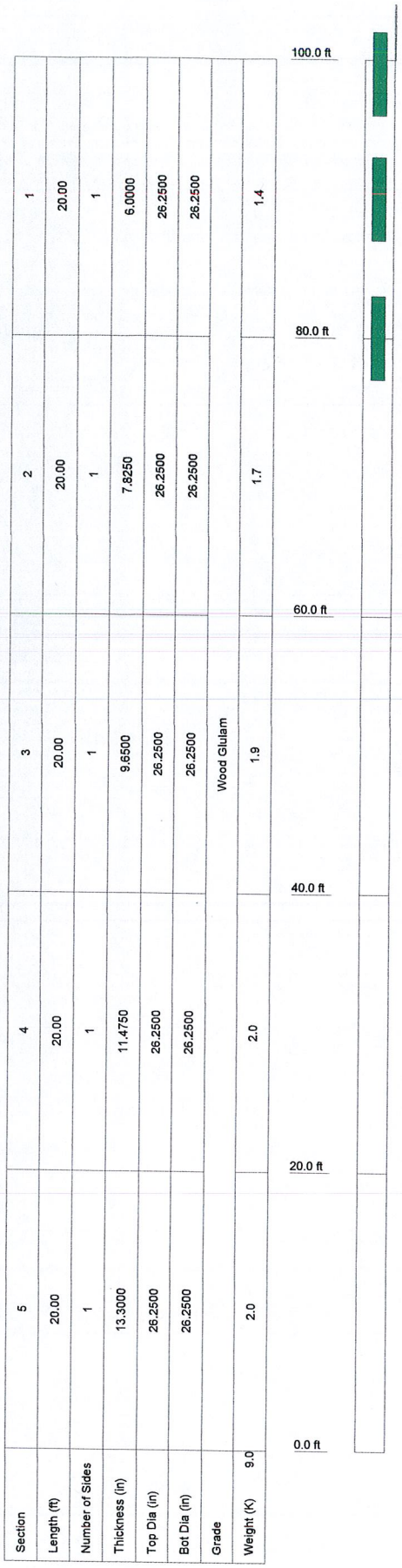
GENERAL COMMENTS

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

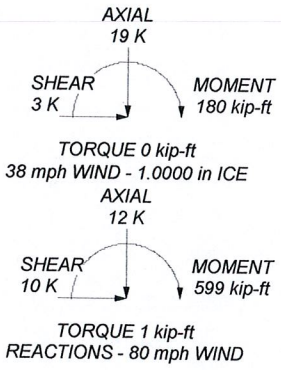
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided 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



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

9.0



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	100	DTMABP7819VG12A TMA	90
RR65-18-00DPL2 w/Mount Pipe	99	7020.00 RET	90
RR65-18-00DPL2 w/Mount Pipe	99	7020.00 RET	90
AMB36-2.5EXT	99	7020.00 RET	90
AMB36-2.5EXT	99	(2) LGP13519 TMA	90
AMB36-2.5EXT	99	(2) LGP13519 TMA	90
RR65-18-00DPL2 w/Mount Pipe	99	(2) LGP13519 TMA	90
SBNH-1D6565C w/ Mount Pipe	90	APTDC-BDFDM-DB Surge Arrestors	90
SBNH-1D6565C w/ Mount Pipe	90	APTDC-BDFDM-DB Surge Arrestors	90
LGP21401 TMA	90	APTDC-BDFDM-DB Surge Arrestors	90
LGP21401 TMA	90	SBNH-1D6565C w/ Mount Pipe	90
LGP21401 TMA	90	APXV18-206517S-A20 w/Mount Pipe	80
DTMABP7819VG12A TMA	90	APXV18-206517S-A20 w/Mount Pipe	80
DTMABP7819VG12A TMA	90	APXV18-206517S-A20 w/Mount Pipe	80

MATERIAL STRENGTH

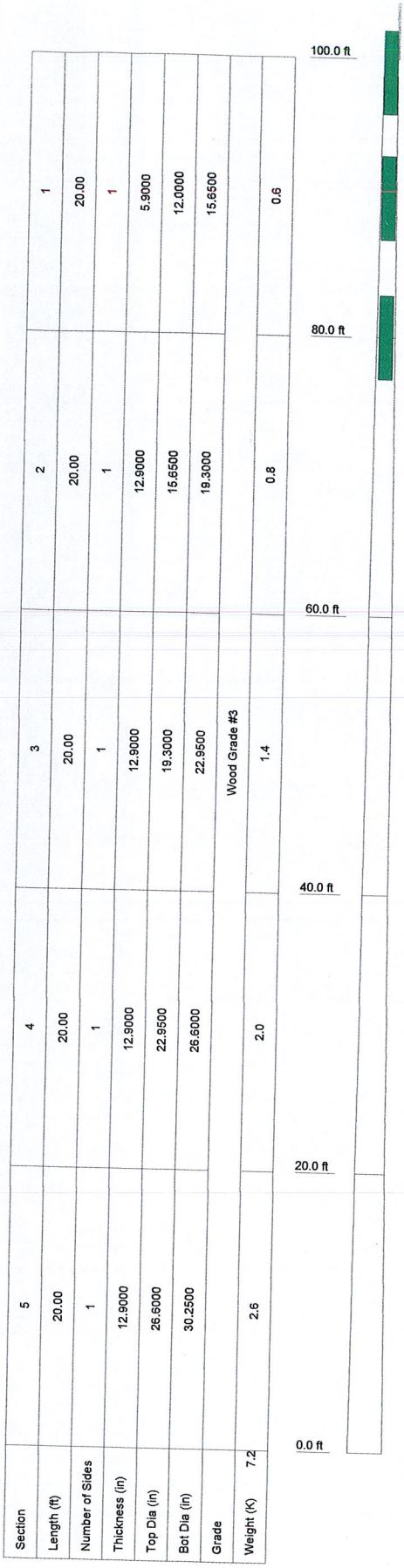
GRADE	Fy	Fu	GRADE	Fy	Fu
Wood Glulam	1 ksi	2 ksi			

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 Drive, Suite 107
Raleigh, NC 27616
Phone: 919-7551012
FAX: 919-7551031
Tower Analysis

Job: Burlington Landfill, CT46143-A-01			
Project: 12-12603E S1 (0 DEG)			
Client: SBA Network Services, Inc.	Drawn by: Adam Bryan	App'd:	
Code: TIA/EIA-222-F	Date: 01/15/13	Scale: NTS	
Path:		Dwg No. E-1	



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

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	100	DTMABP7819VG12A TMA	90
RR65-18-00DPL2 w/Mount Pipe	99	7020.00 RET	90
RR65-18-00DPL2 w/Mount Pipe	99	7020.00 RET	90
AMB36-2.5EXT	99	7020.00 RET	90
AMB36-2.5EXT	99	(2) LGP13519 TMA	90
AMB36-2.5EXT	99	(2) LGP13519 TMA	90
RR65-18-00DPL2 w/Mount Pipe	99	(2) LGP13519 TMA	90
SBNH-1D6565C w/ Mount Pipe	90	APTDC-BDFDM-DB Surge Arrestors	90
SBNH-1D6565C w/ Mount Pipe	90	APTDC-BDFDM-DB Surge Arrestors	90
LGP21401 TMA	90	APTDC-BDFDM-DB Surge Arrestors	90
LGP21401 TMA	90	SBNH-1D6565C w/ Mount Pipe	90
LGP21401 TMA	90	APXV18-206517S-A20 w/Mount Pipe	80
DTMABP7819VG12A TMA	90	APXV18-206517S-A20 w/Mount Pipe	80
DTMABP7819VG12A TMA	90	APXV18-206517S-A20 w/Mount Pipe	80

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 Drive, Suite 107
Raleigh, NC 27616
Phone: 919-7551012
FAX: 919-7551031
Tower Analysis

Job: Burlington Landfill, CT46143-A-01			
Project: 12-12603E S1 (90 DEG)			
Client: SBA Network Services, Inc.	Drawn by: Adam Bryan	App'd:	
Code: TIA/EIA-222-F	Date: 01/15/13	Scale: NTS	
Path:		Dwg No. E-1	

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

15.2

100.0 ft
80.0 ft
60.0 ft
40.0 ft
20.0 ft
0.0 ft

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	100	7020.00 RET	90
RR65-18-00DPL2 w/Mount Pipe	99	7020.00 RET	90
RR65-18-00DPL2 w/Mount Pipe	99	7020.00 RET	90
AMB36-2.5EXT	99	(2) LGP13519 TMA	90
AMB36-2.5EXT	99	(2) LGP13519 TMA	90
AMB36-2.5EXT	99	(2) LGP13519 TMA	90
RR65-18-00DPL2 w/Mount Pipe	99	APTDC-BDFDM-DB Surge Arrestors	90
SBNH-1D6565C w/ Mount Pipe	90	APTDC-BDFDM-DB Surge Arrestors	90
P65-17-XLH-RR w/Mount Pipe	90	APTDC-BDFDM-DB Surge Arrestors	90
LGP21401 TMA	90	AM-X-CD-16-65-00T-RET w/ Mount Pipe	90
LGP21401 TMA	90		
LGP21401 TMA	90	APXV18-206517S-A20 w/Mount Pipe	80
DTMABP7819VG12A TMA	90	APXV18-206517S-A20 w/Mount Pipe	80
DTMABP7819VG12A TMA	90	APXV18-206517S-A20 w/Mount Pipe	80
DTMABP7819VG12A 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.
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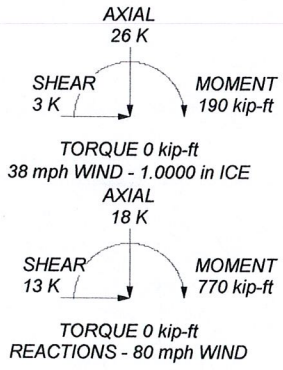

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Tower Analysis

Job: Burlington Landfill, CT46143-A-01			
Project: 12-12603E S1 (45 DEG)			
Client: SBA Network Services, Inc.	Drawn by: Adam Bryan	App'd:	
Code: TIA/EIA-222-F	Date: 01/15/13	Scale: NTS	
Path:		Dwg No. E-1	

THE MODIFICATIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED BY FDH ENGINEERING, INC., PROJECT NO. 12-12603E S1 DATED JANUARY 14, 2013.

THIS REPORT WAS BASED ON A SPECIFIC ANTENNA AND COAX CONFIGURATION PROVIDED BY THE TOWER OWNER. ANY CHANGE TO THIS INFORMATION MUST BE REVIEWED BY FDH ENGINEERING, INC.

ALL DIMENSIONS, MEASUREMENTS, QUANTITIES, PART NUMBERS AND COAX/ANTENNA PLACEMENTS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO MATERIAL ORDERS AND CONSTRUCTION.

FOR INQUIRIES REGARDING THE CONTENT OF THESE MODIFICATION DRAWINGS, PLEASE CONTACT STEVEN STRICKLAND WITH THE FDH CONSTRUCTION DEPARTMENT (919) 755-1012

PROJECT DESCRIPTION:

MODIFICATION DRAWINGS FOR A 100' LAMINATED WOOD POLE

SBA

SITE NAME:

BURLINGTON - AVON LANDFILL

SITE NUMBER:

CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

COORDINATES:
LATITUDE: 41.7881°
LONGITUDE: -72.9182°

SHEET INDEX

PREPARED BY:
FDH
9521 MERIDIEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031
ENGINEERING INNOVATION

PREPARED FOR:
SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	JMR
CHECKED BY:	AB
ENG APPV'D:	CMM
PROJECT NO:	1309511400

SUBMITTALS

DATE	DESCRIPTION	REV
03/18/13	PRELIMINARY/REVIEW	A

SITE NAME:
BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

PCI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED	REPORT ITEM
PRE-CONSTRUCTION	
X	PCI CHECKLIST DRAWING
N/A	EOR APPROVED SHOP DRAWINGS
N/A	FABRICATION INSPECTION
X	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
X	FOUNDATION INSPECTIONS
X	CONCRETE COMP. STRENGTH AND SLUMP TESTS
N/A	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
X	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	PCI INSPECTOR REDLINE OR RECORD DRAWING(S)
N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PCI REPORT
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PCI REPORT

POST CONSTRUCTION INSPECTION NOTES:

GENERAL

1. THE POST CONSTRUCTION INSPECTION (PCI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).
2. THE PCI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE PCI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.
3. ALL PCI'S SHALL BE CONDUCTED BY A PCI INSPECTOR THAT IS APPROVED TO PERFORM ELEVATED WORK FOR FDH ENGINEERING, INC.
4. TO ENSURE THAT THE REQUIREMENTS OF THE PCI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE PCI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR FDH POINT OF CONTACT (POC).
5. REFER TO CCR-01 : CONTRACTOR CLOSEOUT REQUIREMENTS FOR FURTHER DETAILS AND REQUIREMENTS.

PCI INSPECTOR

1. THE PCI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE PCI TO, AT A MINIMUM:
   - REVIEW THE REQUIREMENTS OF THE PCI CHECKLIST
   - WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
2. THE PCI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE PCI REPORT TO FDH.

CORRECTION OF FAILING PCI'S

1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE PCI ("FAILED PCI"), THE GC SHALL WORK WITH FDH TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
   - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT PCI.
   - OR, WITH FDH'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.

REQUIRED PHOTOS

1. BETWEEN THE GC AND THE PCI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE PCI REPORT:
   - PRE-CONSTRUCTION GENERAL SITE CONDITION
   - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
     - RAW MATERIALS
     - PHOTOS OF ALL CRITICAL DETAILS
     - FOUNDATION MODIFICATIONS
     - WELD PREPARATION
     - BOLT INSTALLATION AND TORQUE
     - FINAL INSTALLED CONDITION
     - SURFACE COATING REPAIR
   - POST CONSTRUCTION PHOTOGRAPHS
     - FINAL INFIELD CONDITION
2. PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

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BOCA RATON, FL 33487
(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	JMR
CHECKED BY:	AB
ENG APPV'D:	CMM
PROJECT NO:	1309511400

SUBMITTALS		
DATE	DESCRIPTION	REV
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SITE NAME:
BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

SHEET TITLE
POST CONSTRUCTION INSPECTION NOTES

SHEET NUMBER
N-1

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL PERMITS NECESSARY TO COMPLETE THE PROJECT AND ABIDE BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS 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 FDH ENGINEERING FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
3. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO FDH ENGINEERING PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE FDH ENGINEERING APPROVAL.
4. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AFTER THE COMPLETION OF THE PROJECT.
5. CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRECONSTRUCTION CONDITION.

CONTRACTOR QUALIFICATION NOTES:

1. ALL REPAIRS SHALL BE PERFORMED BY A TOWER CONTRACTOR WITH A MINIMUM 5 YEARS EXPERIENCE IN TOWER ERECTION AND RETROFIT AND WITH WORKING KNOWLEDGE OF THE TIA/EIA 222-F "STRUCTURAL STANDARD FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
2. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. SHOULD THE CONTRACTOR REQUIRE DIRECT CONSULTATION, FDH ENGINEERING, INC. IS WILLING TO OFFER SERVICES BASED UPON AN AGREED FEE FOR THE WORK REQUIRED.
3. ALL SUBMITTAL INFORMATION MUST BE SENT TO FDH ENGINEERING, INC. 6521 MERIDIEN DRIVE, RALEIGH NC, 27616, TEL. (919) 755-1012, FAX. (919) 755-1031, E-MAIL INFO@FDH-INC.COM. ANY VARIATION OF THESE SPECIFICATIONS OR DRAWINGS WITHOUT CONSENT FROM FDH ENGINEERING, INC. WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS FDH ENGINEERING, INC.

JOB SITE SAFETY & NOTES:

1. NEITHER THE PROFESSIONAL ACTIVITIES OF FDH ENGINEERING, INC. NOR THE PRESENCE OF FDH ENGINEERING, INC. OR EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND OR SUBCONTRACTORS AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE GENERAL CONTRACTOR AND OR SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY, AND WARRANTS THAT THIS INTENT IS EVIDENT BY ACCEPTING THIS WORK.

SUBSTITUTES AND/OR EQUALS:

1. IF CONTRACTOR WISHES TO FURNISH OR USE A SUBSTITUTE ITEM OF MATERIAL OR EQUIPMENT, CONTRACTOR SHALL FIRST MAKE WRITTEN APPLICATION TO ENGINEER OF RECORD FOR ACCEPTANCE THEREOF, CERTIFYING THAT THE PROPOSED SUBSTITUTE WILL PERFORM ADEQUATELY THE FUNCTIONS AND ACHIEVE THE RESULTS CALLED FOR BY THE GENERAL DESIGN, BE SIMILAR IN SUBSTANCE TO THAT SPECIFIED AND SUITED TO THE SAME USE AS THAT SPECIFIED. ALL VARIATIONS OF THE PROPOSED SUBSTITUTE FROM THAT SPECIFIED WILL BE IDENTIFIED IN THE APPLICATION AND AVAILABLE MAINTENANCE, REPAIR AND REPLACEMENT SERVICE WILL BE INDICATED. THE APPLICATION WILL ALSO CONTAIN AN ITEMIZED ESTIMATE OF ALL COSTS OR CREDITS THAT WILL RESULT DIRECTLY OR INDIRECTLY FROM ACCEPTANCE OF SUCH SUBSTITUTE INCLUDING COSTS OF REDESIGN AND CLAIMS OF OTHER CONTRACTORS AFFECTED BY THE RESULTING CHANGE, ALL OF WHICH WILL BE CONSIDERED BY ENGINEER OF RECORD IN EVALUATION OF THE PROPOSED SUBSTITUTE. ENGINEER OF RECORD MAY REQUIRE CONTRACTOR TO FURNISH ADDITIONAL DATA ABOUT THE PROPOSED SUBSTITUTE.

STEEL:

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.

   *ALL STEEL PLATE SHALL BE ASTM A36 (Fy=36KSI) UNLESS OTHERWISE SPECIFIED.

   *ALL GUY WIRE SHALL BE EHS ASTM A475 UNLESS OTHERWISE SPECIFIED.

   *ALL STEEL W-SHAPES SHALL BE ASTM A992-50 (Fy=50 KSI) UNLESS OTHERWISE SPECIFIED.
2. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E-70XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325N, THREAD INCLUDED WITH SHEAR PLANE (UNLESS OTHERWISE NOTED).
3. ALL BOLTED CONNECTIONS TO BE INSTALLED TO A SNUG-TIGHTENED CONDITION IN ACCORDANCE WITH AISC 13 PART 16.2, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", SECTION 8.1, UNLESS OTHERWISE SPECIFIED. WHEN "X" TYPE BOLTS ARE USED, CONTRACTOR MAY BE REQUIRED TO STACK ADDITIONAL WASHERS TO OBTAIN PROPER SNUG TIGHT INSTALLATION. ALL NUTS SHALL BE HEAVY HEX UNLESS OTHERWISE NOTED.
4. ALL STEEL, AFTER FABRICATION, SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH MULTIPLE COATS OF ZRC COLD GALVANIZING COMPOUND ACHEIVING A MINIMUM OF 4 MILS DRY FILM PER ASTM A 780.
5. ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS QUALIFIED AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED. CONTRACTOR IS REQUIRED TO PROVIDE FDH ENGINEERING, INC. WITH A PASSING CERTIFIED WELDING INSPECTION FOR ALL WELDS.
6. STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.

MISC. NOTES:

1. ALL MODIFICATIONS ARE ASSUMED TO BE MADE ON AN EMPTY TOWER. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS AND TRANSMISSION LINES. MODIFICATIONS MUST BE CONTINUOUS THROUGH ALL AREAS SHOWN.
2. CONTRACTOR FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FABRICATION NOTES:

1. ALL DIMENSIONS ARE PRELIMINARY UNTIL FIELD VERIFIED BY CONTRACTOR. ANY CHANGES MUST BE APPROVED BY ENGINEER OF RECORD IN WRITING PRIOR TO FABRICATION AND INSTALLATION.
2. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

PREPARED BY:

FDH ENGINEERING INNOVATION

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ENG APPVD:	CMM
PROJECT NO:	1309511400

SUBMITTALS

DATE	DESCRIPTION	REV
03/18/13	PRELIMINARY/REVIEW	A

SITE NAME:
BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

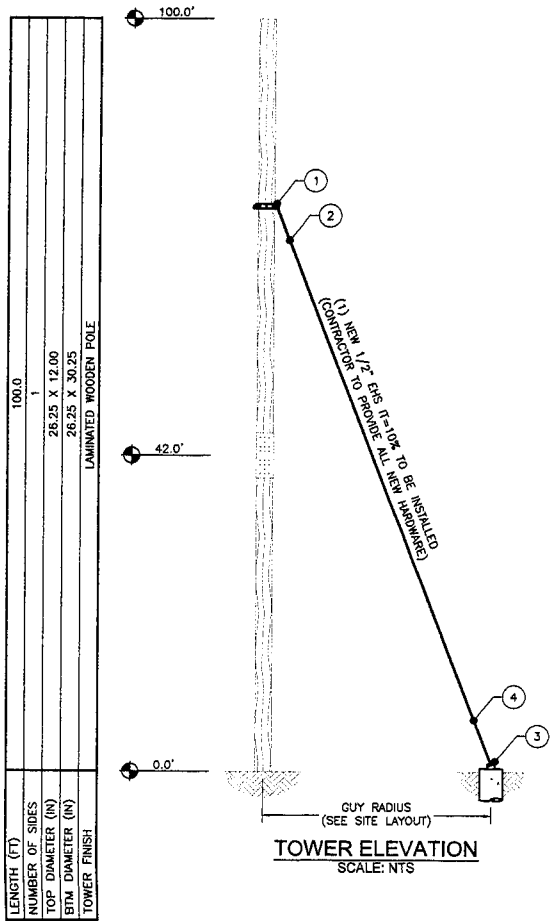
SHEET TITLE
GENERAL
NOTES

SHEET NUMBER
N-2

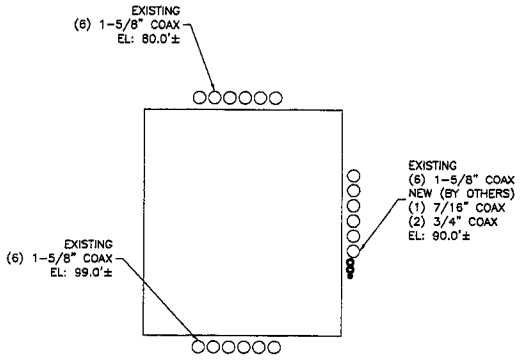
- APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION.
- ANTENNA GRAPHICS NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING.

TOWER MODIFICATION SCHEDULE

NO.	TYPE OF MODIFICATION	BOTTOM ELEV. (FT)	TOP ELEV. (FT)
1	INSTALLATION OF (1) NEW GUY LUG. SEE S-2 & S-3 FOR DETAILS.	–	75.0±
2	INSTALLATION OF (4) NEW 1/2" EHS GUY WIRES IT=10%. SEE S-8 AND S-9 FOR DETAILS. (CONTRACTOR TO PROVIDE ALL NEW HARDWARE)	–	75.0±
3	INSTALLATION OF (4) NEW GUY ANCHOR FOUNDATIONS. SEE S-4 THROUGH S-7 FOR DETAILS.	-10.0±	VARIES
4	CONTRACTOR TO PLUMB TOWER & TENSION ALL GUY WIRES TO INITIAL TENSION (IT) AS SHOWN. SEE S-8 AND S-9 FOR DETAILS.	–	75.0±



TOWER ELEVATION
SCALE: NTS



COAX LAYOUT
SCALE: NTS

PREPARED BY:
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AVON, CT 06013

SHEET TITLE
MODIFICATION SCHEDULE

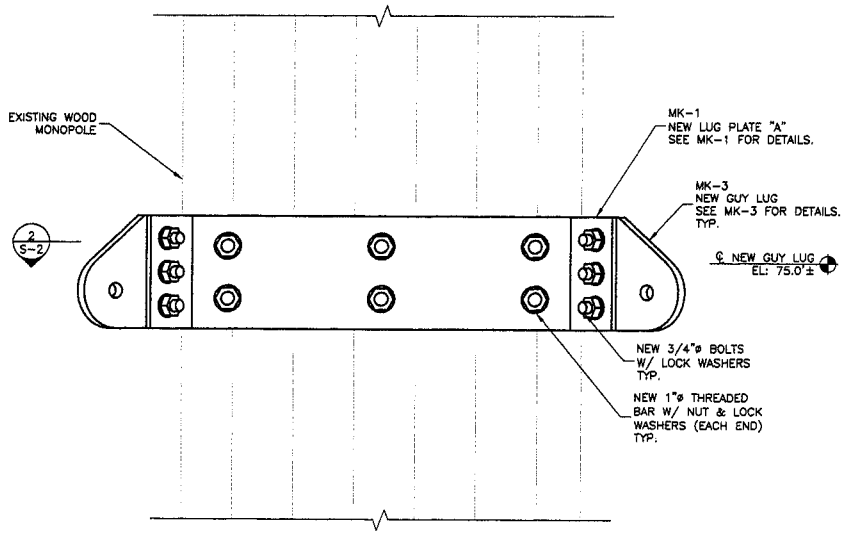
SHEET NUMBER
S-1

GUY LUG COLLAR MATERIAL LIST

PART NO.	QTY.	DESCRIPTION	ELEVATION
MK-1	2	LUG PLATE "A". SEE S-3 FOR DETAILS.	75'-0"
MK-2	2	LUG PLATE "B". SEE S-3 FOR DETAILS.	75'-0"
MK-3	4	GUY LUG	75'-0"
-	12	3/4"ø BOLTS W/ LOCK WASHERS	-
-	8	1"ø x1'-9" THREADED BAR W/ (2) NUTS AND LOCK WASHERS	-

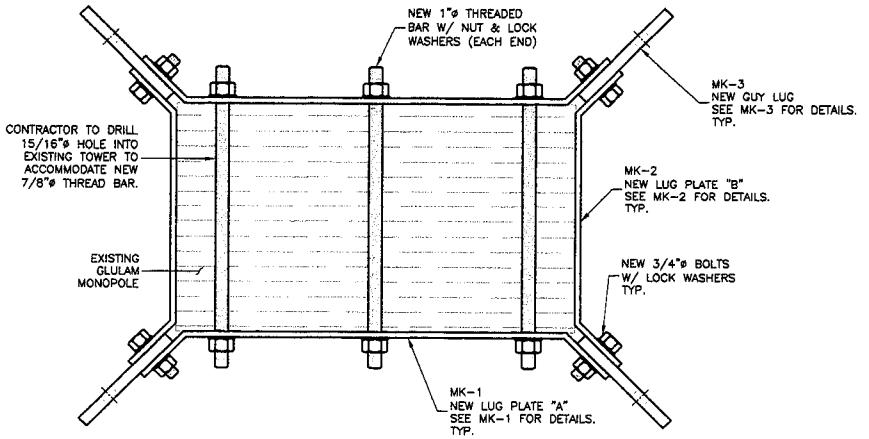
EXISTING SAFETY CABLE TO BE RE-ROUTED AROUND NEW GUY LUG IF INTERFERENCES OCCUR.

NEW LUG PLATES TO BE INSTALLED UNDER EXISTING COAX SHROUDS.



NEW GUY LUG LAYOUT
ELEVATION VIEW

1 / S-2 ELEVATION
NTS



NEW GUY LUG LAYOUT
PLAN VIEW

2 / S-2 PLAN
NTS

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(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	JMR
CHECKED BY:	AB
ENG APPV'D:	CMM
PROJECT NO:	1309511400

SUBMITTALS		
DATE	DESCRIPTION	REV
03/18/13	PRELIMINARY/REVIEW	A

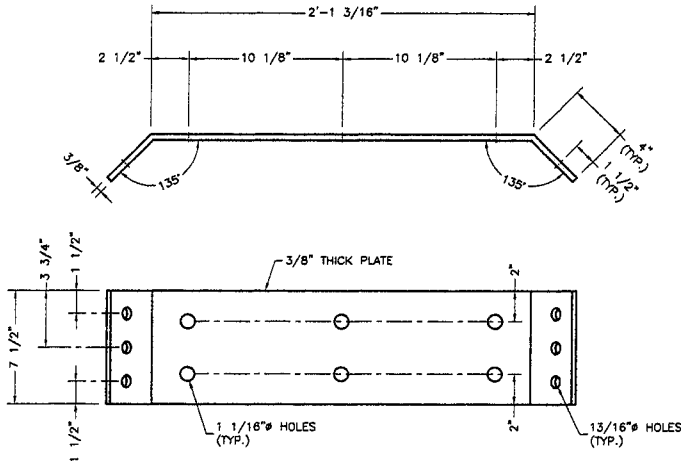
SITE NAME:
BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

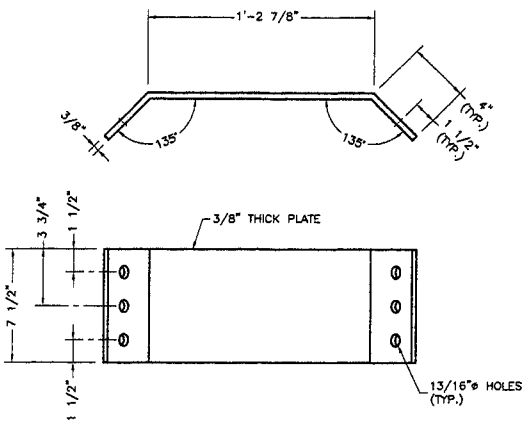
SHEET TITLE
NEW GUY LUG
COLLAR DETAILS I

SHEET NUMBER
S-2



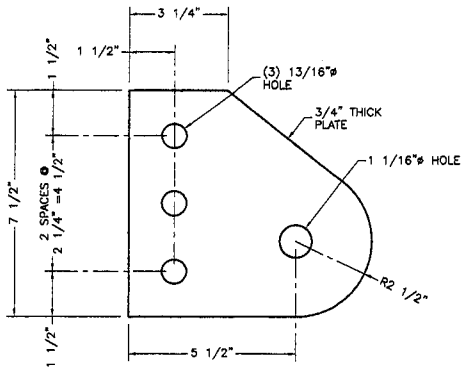
LUG PLATE "A"
TOP & FRONT VIEW

MK-1 / S-3 **ELEVATION**
SCALE: 1 1/2" = 1'-0"



LUG PLATE "B"
TOP & FRONT VIEW

MK-2 / S-3 **ELEVATION**
SCALE: 1 1/2" = 1'-0"



GUY LUG
FRONT VIEW

MK-3 / S-3 **DETAIL**
NTS

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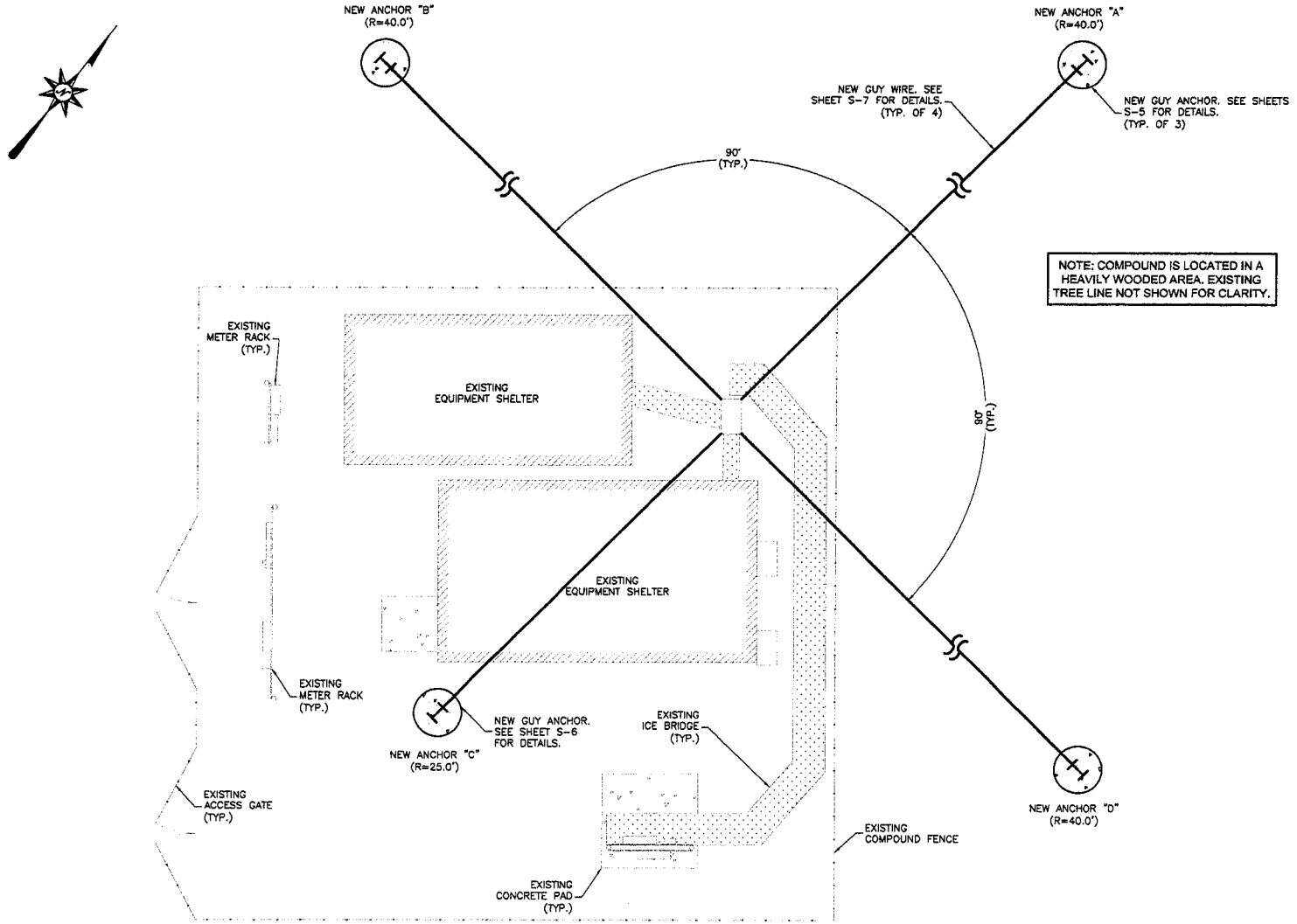
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

SHEET TITLE
NEW GUY LUG
COLLAR DETAILS II

SHEET NUMBER
S-3



SITE PLAN
PLAN VIEW

1/S-4 PLAN
NTS

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CONNECTICUT LIC. NO. 25842

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ENG APPV'D:	CMM
PROJECT NO:	1309511400

SUBMITTALS

DATE	DESCRIPTION	REV
03/18/13	PRELIMINARY/REVIEW	A

SITE NAME:
BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

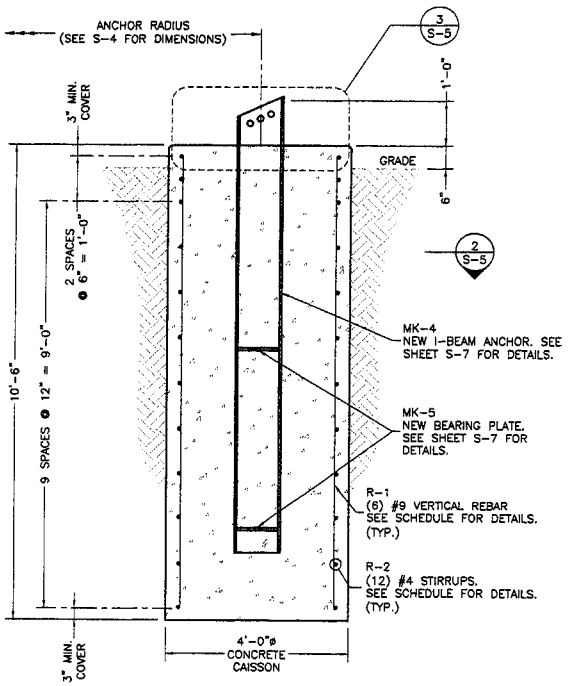
SHEET TITLE
SITE PLAN

SHEET NUMBER
S-4

FOUNDATION MODIFICATION MATERIAL LIST

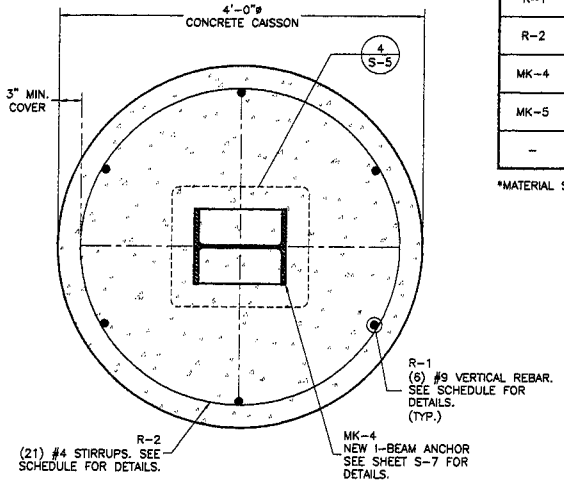
PART NO.	SHAPE	QTY.	LENGTH	DESCRIPTION
R-1	——	6	10'-0"	#9 VERTICAL REBAR
R-2	◯	12	12'-0"	#4 REBAR STIRRUPS WITH MIN. 12" OVERLAP
MK-4	–	1	10'-0"	W12X53 I-BEAM ANCHOR SEE SHEET S-7 FOR DETAILS
MK-5	–	2	–	BEARING PLATE SEE SHEET S-7 FOR DETAILS
–		1	4.8± CU. YD.	4000 PSI CONCRETE

*MATERIAL SCHEDULE FOR (1) CAISSON FOUNDATION. (3) REQUIRED.



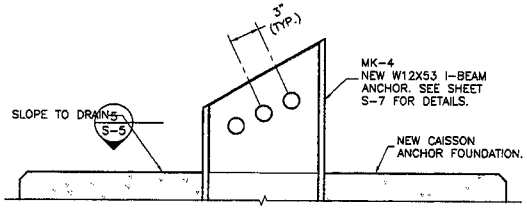
NEW CAISSON ANCHOR FOUNDATION
ELEVATION VIEW

1 / S-5 ELEVATION
SCALE: 3/8" = 1'-0"



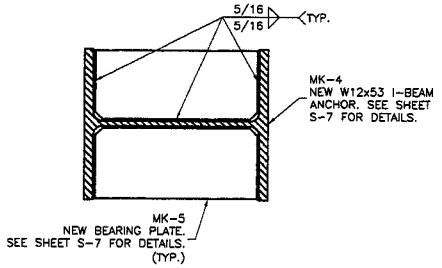
NEW CAISSON ANCHOR FOUNDATION
PLAN VIEW

2 / S-5 PLAN
SCALE: 3/4" = 1'-0"



NEW ANCHOR HEAD
ELEVATION VIEW

3 / S-5 DETAIL
SCALE: 1" = 1'-0"



BEARING PLATE DETAIL
SECTION VIEW

4 / S-5 SECTION
SCALE: 1-1/2" = 1'-0"

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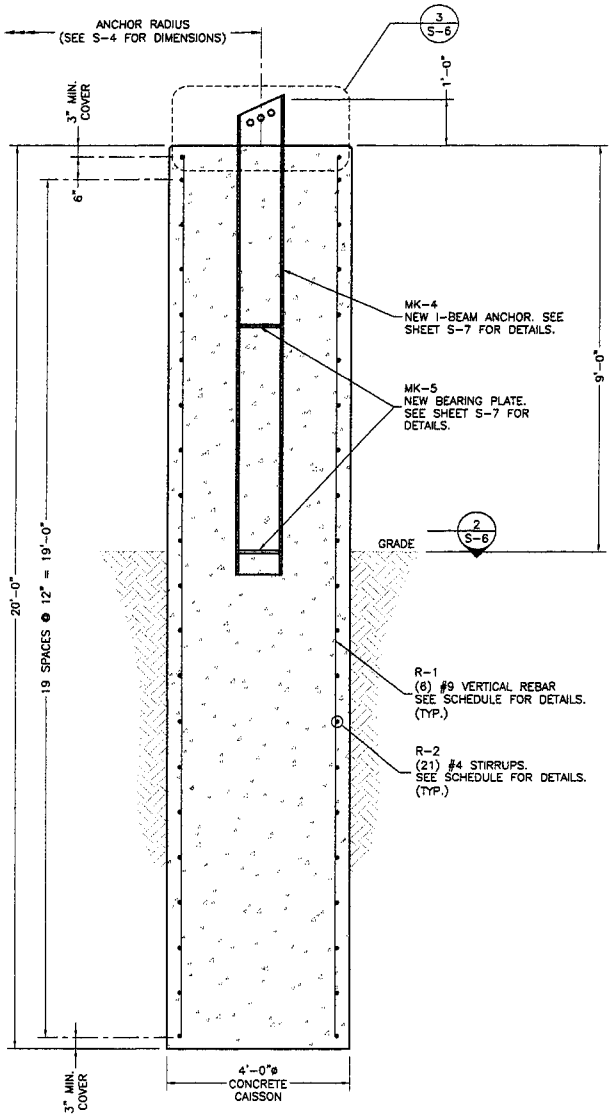
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

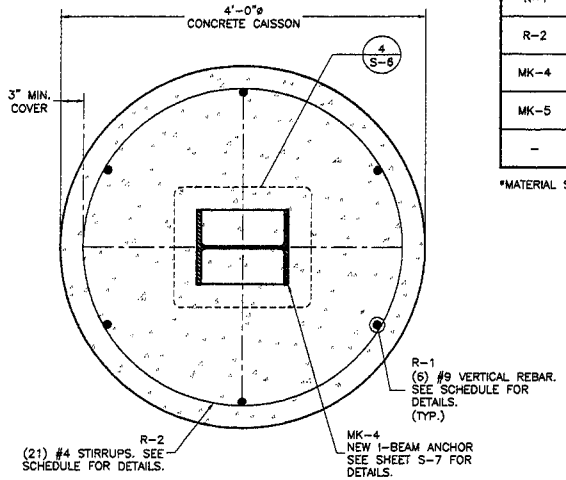
SHEET TITLE
NEW GUY ANCHOR
FOUNDATION DETAILS I

SHEET NUMBER
S-5



NEW CAISSON ANCHOR FOUNDATION
ELEVATION VIEW

1 / S-6 ELEVATION
SCALE: 3/8" = 1'-0"



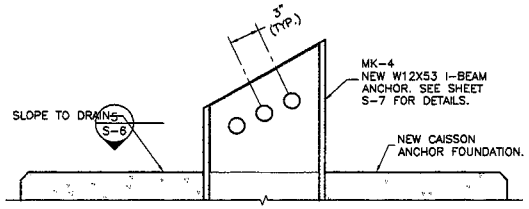
NEW CAISSON ANCHOR FOUNDATION
PLAN VIEW

2 / S-6 PLAN
SCALE: 3/4" = 1'-0"

FOUNDATION MODIFICATION MATERIAL LIST

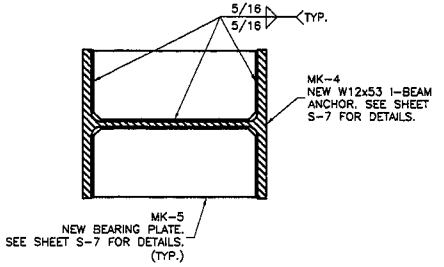
PART NO.	SHAPE	QTY.	LENGTH	DESCRIPTION
R-1	——	6	19'-6"	#9 VERTICAL REBAR
R-2	◯	21	12'-0"	#4 REBAR STIRRUPS WITH MIN. 12" OVERLAP
MK-4	–	1	10'-0"	W12X53 I-BEAM ANCHOR SEE SHEET S-7 FOR DETAILS
MK-5	–	4	–	BEARING PLATE SEE SHEET S-7 FOR DETAILS
–		1	9.5± CU. YD.	4000 PSI CONCRETE

*MATERIAL SCHEDULE FOR (1) CAISSON FOUNDATION. (1) REQUIRED.



NEW ANCHOR HEAD
ELEVATION VIEW

3 / S-6 DETAIL
SCALE: 1" = 1'-0"



BEARING PLATE DETAIL
SECTION VIEW

4 / S-6 SECTION
SCALE: 1-1/2" = 1'-0"

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FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	JMR
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PROJECT NO:	1309511400

SUBMITTALS		
DATE	DESCRIPTION	REV
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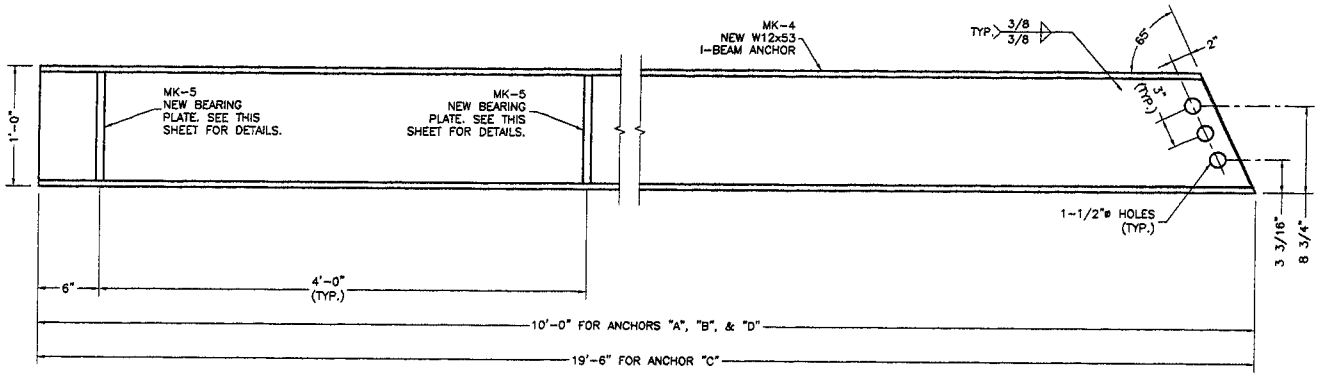
SITE NAME:
BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

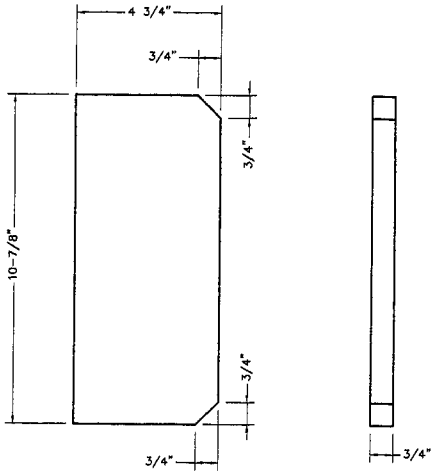
SHEET TITLE
NEW GUY ANCHOR
FOUNDATION DETAILS II

SHEET NUMBER
S-6



I-BEAM ANCHOR DETAIL
SIDE VIEW

MK-4 / S-7 DETAIL
SCALE: 1"=1'-0"



BEARING PLATE DETAIL
SIDE & FRONT VIEW

MK-5 / S-7 DETAIL
SCALE: 3"=1'-0"

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ENGINEERING INNOVATION

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BOCA RATON, FL 33487
(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	JMR
CHECKED BY:	AB
ENG APPV'D:	CMM
PROJECT NO:	1309511400

SUBMITTALS

DATE	DESCRIPTION	REV
03/18/13	PRELIMINARY/REVIEW	A

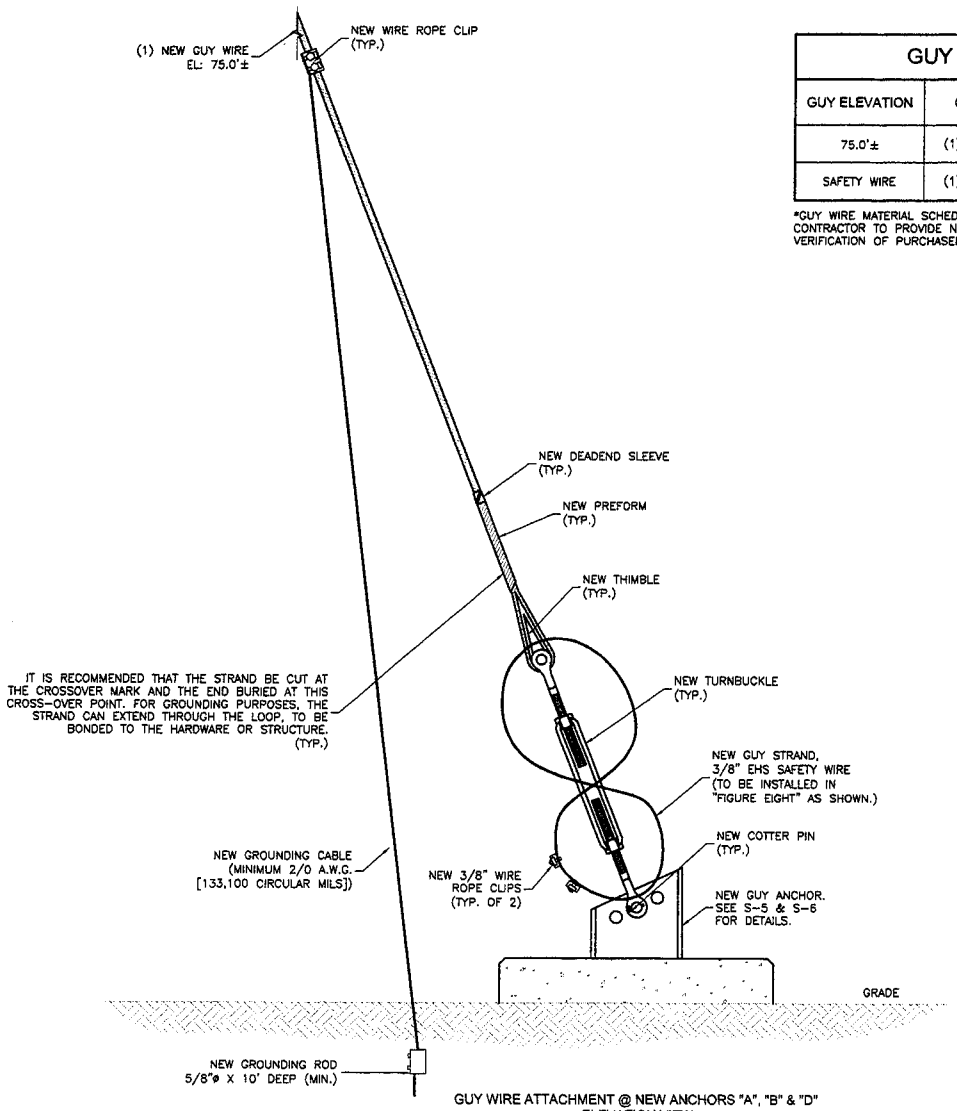
SITE NAME:
BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

SHEET TITLE
NEW GUY ANCHOR
FOUNDATION DETAILS III

SHEET NUMBER
S-7

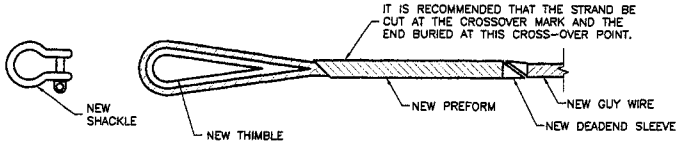


GUY WIRE ATTACHMENT @ NEW ANCHORS "A", "B" & "D"
ELEVATION VIEW

1 / S-8 DETAIL NTS

GUY WIRE INSTALLATION SCHEDULE ANCHORS "A", "B", & "D"						
GUY ELEVATION	GUY SIZE	TURNBUCKLE	DEADEND SLEEVE	PREFORM	THIMBLE	SHACKLE
75.0'±	(1) 1/2" EHS	(1) 7/8"X12"J/J	(2) 1/2"	(2) 1/2"	(2) 5/8" HVY	(1) 5/8" SPA (TOP)
SAFETY WIRE	(1) 3/8" EHS	-	-	-	-	-

*GUY WIRE MATERIAL SCHEDULE LISTS COMPONENTS FOR (1) GUY ANCHOR, (3) TOTAL ARE REQUIRED.
CONTRACTOR TO PROVIDE NEW HARDWARE ON NEW AND RELOCATED WIRES & SHALL SUBMIT VERIFICATION OF PURCHASED MATERIAL TO FDH CONSTRUCTION MANAGER PRIOR TO INSTALLATION.



GUY WIRE ATTACHMENT AT TOWER
ELEVATION VIEW

2 / S-8 DETAIL NTS

WIRE INSTALLATION SHOULD NOT BE PERFORMED IF WIND SPEED EXCEEDS 20 MPH.

THE CONTRACTOR SHALL CLEARLY LABEL ALL GUY WIRES AT GUY ANCHORS INDICATING THE PERCENT BREAKING STRENGTH THE GUY WIRES ARE TENSIONED TO. CONTACT TOWER OWNER FOR PREFERRED LABELING PROCEDURE.

GUY #	HEIGHT (ft.)	DIA. (in)	RADIUS (ft.)	ANCHOR ELEV. (ft.)	GUY LENGTH (ft.)
1	75	1/2" EHS	40	0	85.0

Initial Tension	Temp. (F)	Guy tension (kips)	(KN)	Time For 10 Pulses(Seconds)
10%	0	3.02	13.43	3.92
	10	2.97	13.19	3.96
	20	2.91	12.94	3.99
	30	2.86	12.70	4.03
	40	2.80	12.45	4.07
	50	2.75	12.21	4.11
	60	**2.69**	**11.97**	**4.15**
	70	2.63	11.72	4.20
	80	2.58	11.48	4.24
	90	2.52	11.23	4.29
	100	2.47	10.99	4.33

PULSE CHARTS

3 / S-8 NEW ANCHORS "A", "B", & "D" NTS

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CONNECTICUT LIC. NO. 25842

DRAWN BY:	JMR
CHECKED BY:	AB
ENG APPV'D:	CMM
PROJECT NO:	1309511400

SUBMITTALS		
DATE	DESCRIPTION	REV.
03/18/13	PRELIMINARY/REVIEW	A

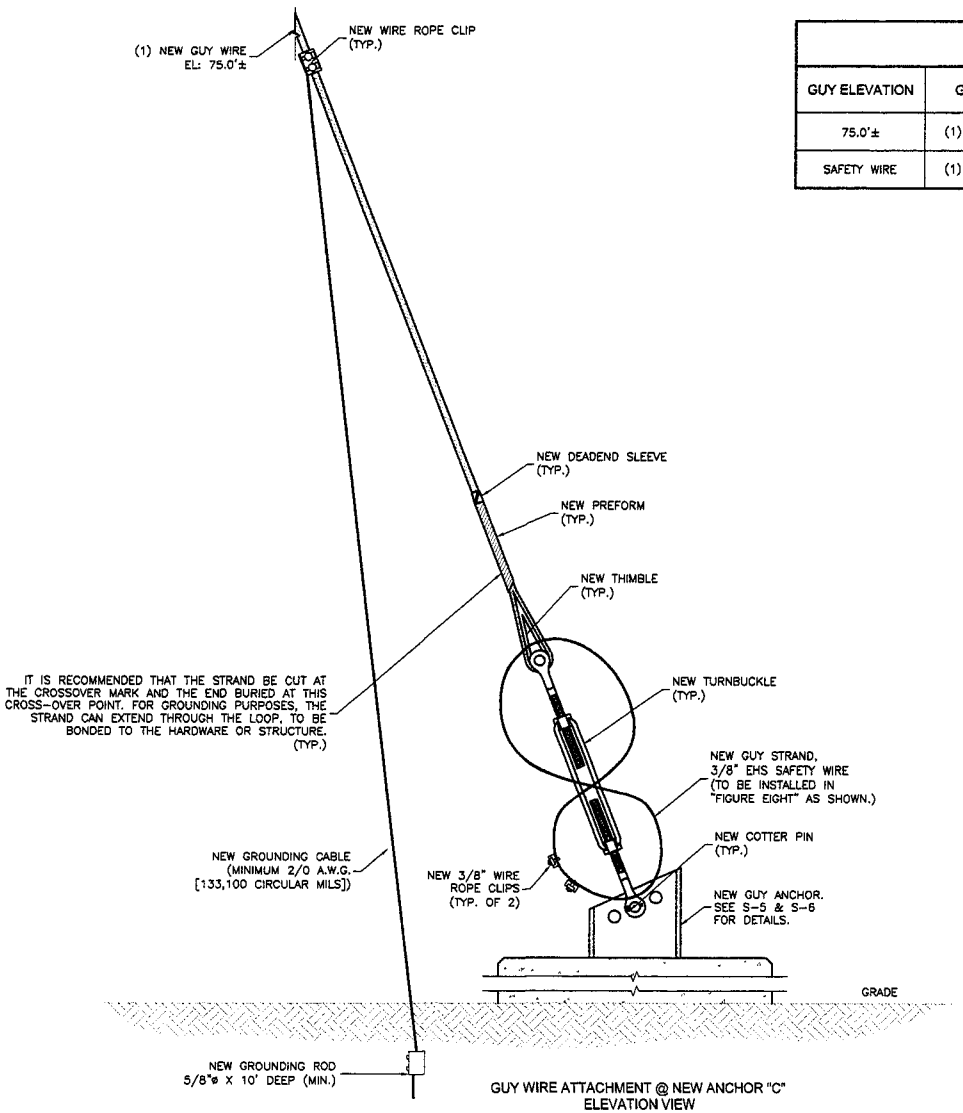
SITE NAME:
BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

SHEET TITLE
GUY WIRE DETAILS I
& PULSE CHARTS

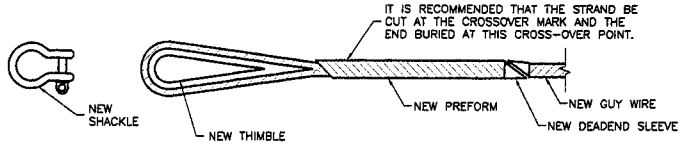
SHEET NUMBER
S-8



GUY WIRE ATTACHMENT @ NEW ANCHOR "C"
ELEVATION VIEW

1 / S-9 DETAIL
NTS

GUY WIRE INSTALLATION SCHEDULE ANCHOR "C"						
GUY ELEVATION	GUY SIZE	TURNBUCKLE	DEADEND SLEEVE	PREFORM	THIMBLE	SHACKLE
75.0'±	(1) 1/2" EHS	(1) 7/8"X12"J/J	(2) 1/2"	(2) 1/2"	(2) 5/8" HVY	(1) 5/8" SPA (TOP)
SAFETY WIRE	(1) 3/8" EHS	-	-	-	-	-



GUY WIRE ATTACHMENT AT TOWER
ELEVATION VIEW

2 / S-9 DETAIL
NTS

WIRE INSTALLATION SHOULD NOT BE PERFORMED IF WIND SPEED EXCEEDS 20 MPH.

THE CONTRACTOR SHALL CLEARLY LABEL ALL GUY WIRES AT GUY ANCHORS INDICATING THE PERCENT BREAKING STRENGTH THE GUY WIRES ARE TENSIONED TO. CONTACT TOWER OWNER FOR PREFERRED LABELING PROCEDURE.

GUY #	HEIGHT (ft.)	DIA. (in)	RADIUS ANCHOR (ft.)	ELEV. (ft.)	GUY LENGTH (ft.)
1	75	1/2" EHS	25	10	69.6

Initial Tension	Temp. (F)	Guy tension (kips)	(KN)	Time For 10 Pulses(Seconds)
10%	0	3.07	13.64	3.19
	10	3.00	13.36	3.22
	20	2.94	13.08	3.25
	30	2.88	12.80	3.29
	40	2.82	12.52	3.33
	50	2.75	12.24	3.36
	60	**2.69**	**11.97**	**3.40**
	70	2.63	11.69	3.44
	80	2.56	11.41	3.49
	90	2.50	11.13	3.53
	100	2.44	10.85	3.57

PULSE CHARTS

3 / S-9 NEW ANCHOR "C"
NTS

PREPARED BY:
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BURLINGTON
AVON LANDFILL

SITE NUMBER:
CT46143-A

SITE ADDRESS:
277 HUCKLEBERRY HILL ROAD
AVON, CT 06013

SHEET TITLE
GUY WIRE DETAILS II
& PULSE CHARTS

SHEET NUMBER
S-9

C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions

at&t

CT1175

(Burlington – Avon Landfill)

277 Huckleberry Hill Road, Avon, CT 06001

March 21, 2013

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the wood pole located at 277 Huckleberry Hill Road in Avon, CT. The coordinates of the tower are 41° 47' 17.6" N, 72° 55' 5.7" W.

AT&T is proposing the following modifications:

1) Replace three existing dual-band antennas with three multi-band (700/850/1900/2100 MHz) antennas.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Cingular	*90*	*880*	*6*	*296*	*0.0788*	*0.5867*	*13.44%*
Cingular	*90*	*1930*	*3*	*427*	*0.0569*	*1.0000*	*5.69%*
Sprint	100	1962.5	11	234.7	0.0928	1.0000	9.28%
Pocket (now MetroPCS)	80	2130	3	631	0.1064	1.0000	10.64%
AT&T UMTS	90	880	2	1294	0.0115	0.5867	1.96%
AT&T UMTS	90	1900	2	1556	0.0138	1.0000	1.38%
AT&T LTE	90	734	1	1615	0.0072	0.4893	1.47%
AT&T GSM	90	880	1	647	0.0029	0.5867	0.49%
AT&T GSM	90	1900	4	934	0.0166	1.0000	1.66%
						Total	**26.87%**

Table 1: Carrier Information[1] [2] [3]

[1] The existing CSC filing for Cingular should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 1/14/2013. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

[2] In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

[3] Antenna height listed for AT&T is in reference to the FDH Engineering, Inc. Structural Analysis dated January 14, 2013.

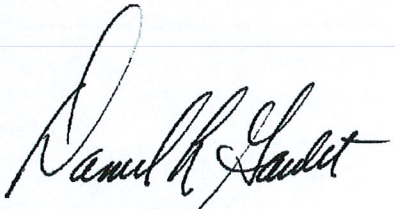
5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **26.87% of the FCC limit.**

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel L. Goulet
C Squared Systems, LLC

March 21, 2013
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[4] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[5] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

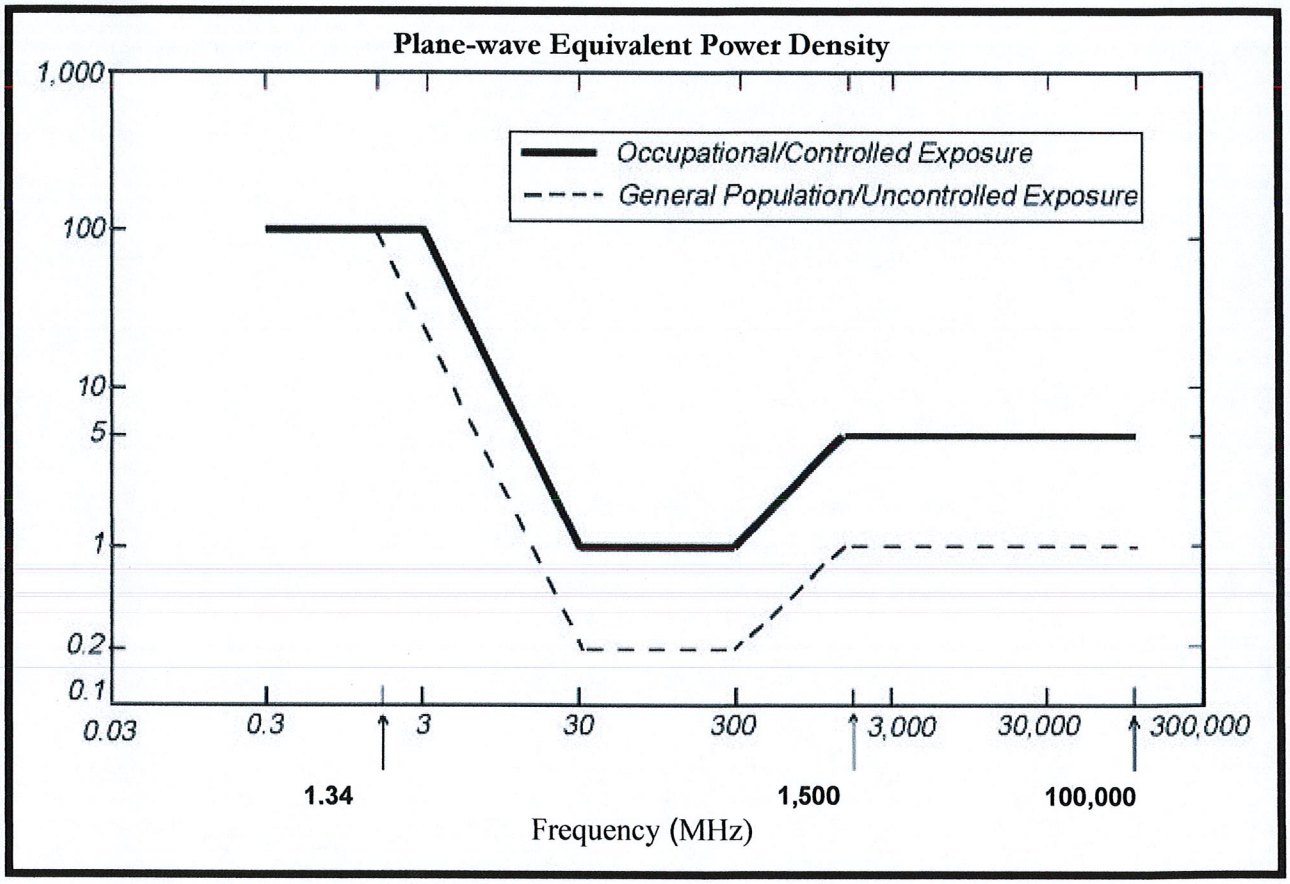
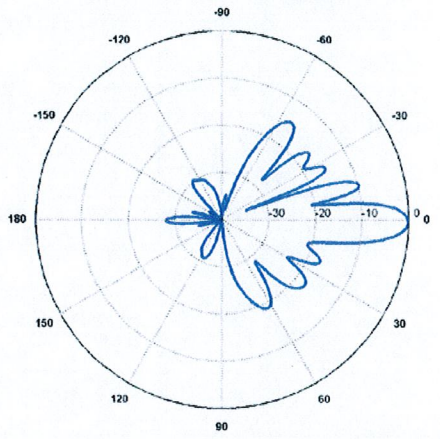


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

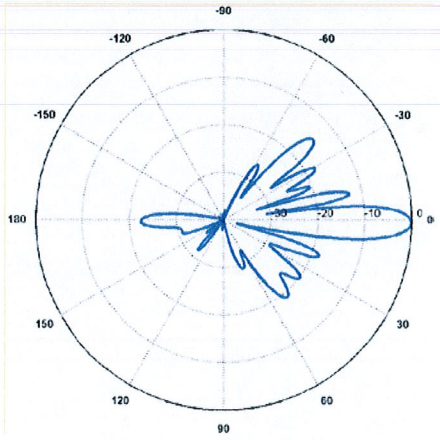
700 MHz

Manufacturer:	Powerwave
Model #:	P65-17-XLH-RR
Frequency Band:	698-806 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	8.4°
Horizontal Beamwidth:	70°
Polarization:	± 45°
Size L x W x D:	96" x 12" x 6"



850 MHz

Manufacturer:	Powerwave
Model #:	P65-17-XLH-RR
Frequency Band:	806-894 MHz
Gain:	15.1 dBd
Vertical Beamwidth:	8.4°
Horizontal Beamwidth:	63°
Polarization:	Dual Linear ± 45°
Size L x W x D:	96" x 12" x 6"



1900 MHz

Manufacturer:	Commscope
Model #:	SBNH-1D6565C
Frequency Band:	1850-1990 MHz
Gain:	15.9 dBd
Vertical Beamwidth:	5.1°
Horizontal Beamwidth:	57°
Polarization:	Dual Linear ± 45°
Size L x W x D:	96.42" x 11.85" x 7.1"