



April 25<sup>th</sup>, 2019

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

**Re: Notice of Exempt Modification – Antenna and RRU Add**  
**Property Address: 196 Tolland Turnpike, Willington, CT 06279**  
**Applicant: AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of twelve (12) wireless telecommunication antennas at an antenna center line height of 156-feet on an existing 159-foot monopole, owned by American Tower Corporation at 10 Presidential Way, Woburn, MA 01801. AT&T now intends to remove nine (9) SBNH-1D6565C Andrew Panel Antennas, each currently installed in positions [2 +3 +4], and swap these for three (3) HPA65R-BU8A CCI Panel Antennas, and six (6) 800-10966 Kathrein Panel Antennas, each to be installed in position [2 +3 +4], all sectors. AT&T also intends on removing nine (9) existing RRUS-11, and swap these for (3) RRUS-4415 B25, three (3) RRUS-4449 B5, B12, and three (3) RRUS-8843 B2, B66A, for a total of nine (9) new RRUs. AT&T is also proposing to add one (1) fiber line and (2) DC Power Cables to their equipment configuration. All of the changes will take place on the existing antenna mount.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Jim Rupert – Town Building Inspector, Town of Willington, CT at 40 Old Farms Road, Willington, CT 06279 and Erika Wicewski – First Selectman, Town of Willington, CT at 40 Old Farm Road, Willington, CT 06279. A copy of this letter is being sent to the property owner Lawrence Becker at P.O. Box 535, Willington, CT 06279 and to the tower company, American Tower Corporation at 10 Presidential Way, Woburn, MA 01801.

There have been no exempt modifications filings at this site since the tower was originally approved by the CSC on February 14, 2013.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 105-foot level of the 147-foot self-support tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.



5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

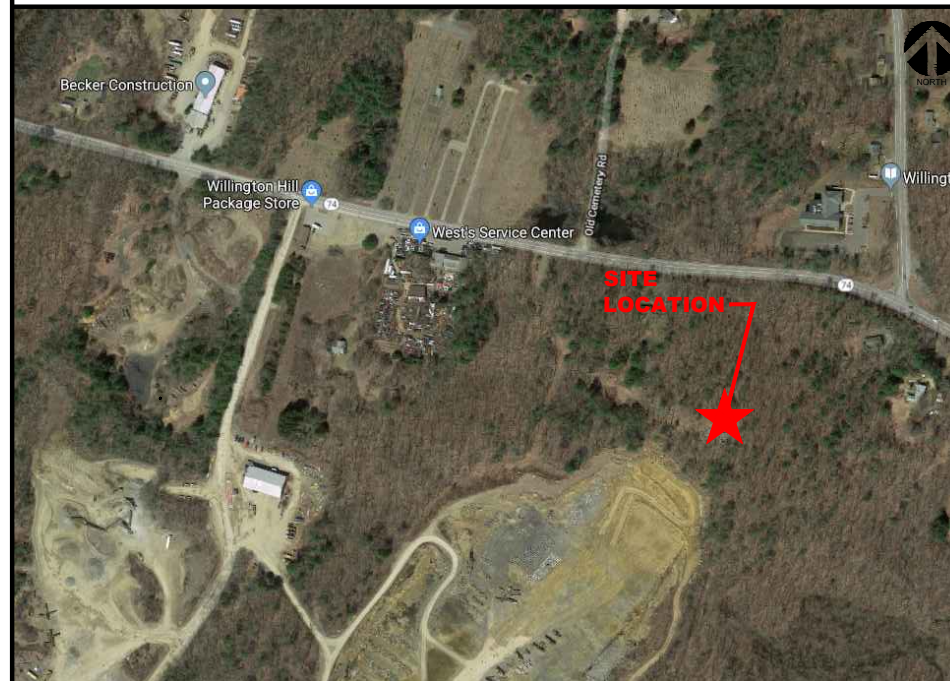
Kristina Cottone

CC w/enclosures:  
Jim Rupert – Town Building Inspector, Town of Willington, CT  
Erika Wiecenski – First Selectman, Town of Willington, CT  
Lawrence Becker – Property Owner  
American Tower Corporation – Tower Company

**PROJECT NOTES:**

1. SITE INFORMATION OBTAINED FROM THE FOLLOWING:
  - A. PLAN ENTITLED "WILLINGTON" PREPARED BY CLOUGH HARBOUR & ASSOCIATES LLP OF ROCKY HILL, CT LAST REVISED 06/03/2013
  - B. LIMITED FIELD OBSERVATION BY RAMAKER & ASSOCIATES ON 02/07/2019.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. THE PROPOSED FACILITY WILL CAUSE NO INCREASE IN STORM WATER RUNOFF, THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
11. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
12. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
13. THE FACILITY DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
14. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTHS WITH RF ENGINEERING PRIOR TO INSTALLATION.
15. THE TOWER, MOUNTS AND ANTENNAS SHALL BE DESIGNED TO MEET EIA/TIA-222-G AS PER IBC REQUIREMENTS.
16. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
17. CONTRACTOR MUST FIELD LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
18. CONSTRUCTION SHALL NOT COMMENCE UNTIL COMPLETION OF A PASSING STRUCTURAL ANALYSIS CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. THE STRUCTURAL ANALYSIS IS TO BE PERFORMED BY OTHERS.
19. CONTRACTOR SHALL CONTACT STATE SPECIFIC ONE CALL SYSTEM THREE WORKING DAYS PRIOR TO ANY EARTH MOVING ACTIVITIES.

**AERIAL MAP:**



**CODE COMPLIANCE:**

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE
2. ANSI/TIA-222 STRUCTURAL STANDARD FOR ANTENNA STRUCTURES
3. NFPA 780 - LIGHTNING PROTECTION CODE
4. NATIONAL ELECTRIC CODE



**at&t**

**SITE NAME:** WILLINGTON  
**FA NUMBER:** 10133907  
**SITE NUMBER:** CTL01041  
**SCOPE:** 2C - MRCTB037916 3C - MRCTB037980  
 4C - MRCTB038114  
**SOFTWARE RETROFIT - MRCTB038061**  
**ADDRESS:** TOLLAND TURNPIKE  
 WILLINGTON, CT 06279

**PROJECT INFORMATION:**

**SITE INFORMATION:**

LATITUDE: 41.875667° N  
 LONGITUDE: 72.269361° W  
 JURISDICTION: TOLLAND COUNTY

**APPLICANT/LESSEE:**

COMPANY: AT&T  
 ADDRESS: NEW ENGLAND MARKET

**PROPERTY OWNER:**

PROPERTY OWNER: TBD  
 ADDRESS: TBD  
 CITY, STATE, ZIP: TBD

**CLIENT REPRESENTATIVE:**

COMPANY: SMARTLINK, LLC  
 ADDRESS: 85 RANGWAY ROAD  
 BUILDING 3, SUITE 102  
 NORTH BILLERICA, MA 01862  
 CONTACT: APRIL GRASSO  
 E-MAIL: APRIL.GRASSO@SMARTLINK.COM

**SITE ACQUISITION:**

COMPANY: SMARTLINK, LLC  
 ADDRESS: 85 RANGWAY ROAD  
 BUILDING 3, SUITE 102  
 NORTH BILLERICA, MA 01862  
 CONTACT: SHARON KEEFE  
 E-MAIL: SHARON.KEEFE@SMARTLINK.COM

**CONSTRUCTION MANAGER:**

COMPANY: SMARTLINK, LLC  
 ADDRESS: 85 RANGWAY ROAD  
 BUILDING 3, SUITE 102  
 NORTH BILLERICA, MA 01862  
 CONTACT: MARK DONNELLY  
 E-MAIL: MARK.DONNELLY@SMARTLINK.COM

**ENGINEER:**

COMPANY: RAMAKER & ASSOCIATES, INC.  
 ADDRESS: 855 COMMUNITY DRIVE  
 CITY, STATE, ZIP: SAUK CITY, WI 53583  
 CONTACT: ANGELA KVALHEIM  
 E-MAIL: AKVALHEIM@RAMAKER.COM

**PROJECT DESCRIPTION/ SCOPE OF WORK**

- INSTALL (9) NEW RRU's, (3) PER SECTOR
- REMOVE (3) EXISTING RRU's, (1) PER SECTOR
- INSTALL (9) NEW ANTENNAS, (3) PER SECTOR
- REMOVE (9) EXISTING ANTENNAS, (3) PER SECTOR
- INSTALL (2) NEW DC-6 SURGE SUPPRESSION DOMES
- INSTALL (4) NEW DC POWER CABLES
- INSTALL (1) NEW FIBER CABLE
- SWAP DUS WITH 6630
- ADD (1) ADDITIONAL 6630 FOR 5G

PROPOSED PROJECT SCOPE BASED ON RFDS  
 ID# 2742416, VERSION 2.0, LAST UPDATED 3/07/2019.  
**CONTRACTOR TO VERIFY IN FIELD**

**SHEET INDEX**

SHEET NUMBER	SHEET DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
C-1	COMPOUND PLAN
C-2	EQUIPMENT LAYOUT PLAN
C-3	ANTENNA LAYOUTS AND ANTENNA SCHEDULE
A-1	CONSTRUCTION DETAILS
A-2	CONSTRUCTION DETAILS
A-3	RF PLUMBING DIAGRAM
S-1	STRUCTURAL DETAILS
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS

Certification & Seal:  
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.



Signature: *James R. Skowronski* Date: 4/24/2019

PROJECT TITLE: <b>WILLINGTON FA# 10133907 SITE# CTL01041</b>		
PROJECT INFORMATION: TOLLAND TURNPIKE WILLINGTON, CT 06279 TOLLAND COUNTY		
SHEET TITLE: <b>TITLE SHEET</b>		
SCALE: NONE		
PROJECT NUMBER	42861	
SHEET NUMBER	T-1	







**GENERAL NOTES:**


1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HNS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
 CONTRACTOR - SMARTLINK  
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)  
 OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE

- SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (FY = 36 KSI) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (FY = 36 KSI). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.





**85 RANGEWAY ROAD - BLDG 3, SUITE 102**  
**NORTH BILLERICA, MA 01862**  
**SMARTLINKLLC.COM**



**100% EMPLOYEE-OWNED**  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com

Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

MARK	DATE	DESCRIPTION
2	04/24/19	FINAL CDs REVISED
1	04/04/19	FINAL CDs ISSUED
0	03/20/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL      DATE ISSUED: 04/04/2019

PROJECT TITLE:  
**WILLINGTON  
 FA# 10133907  
 SITE# CTL01041**

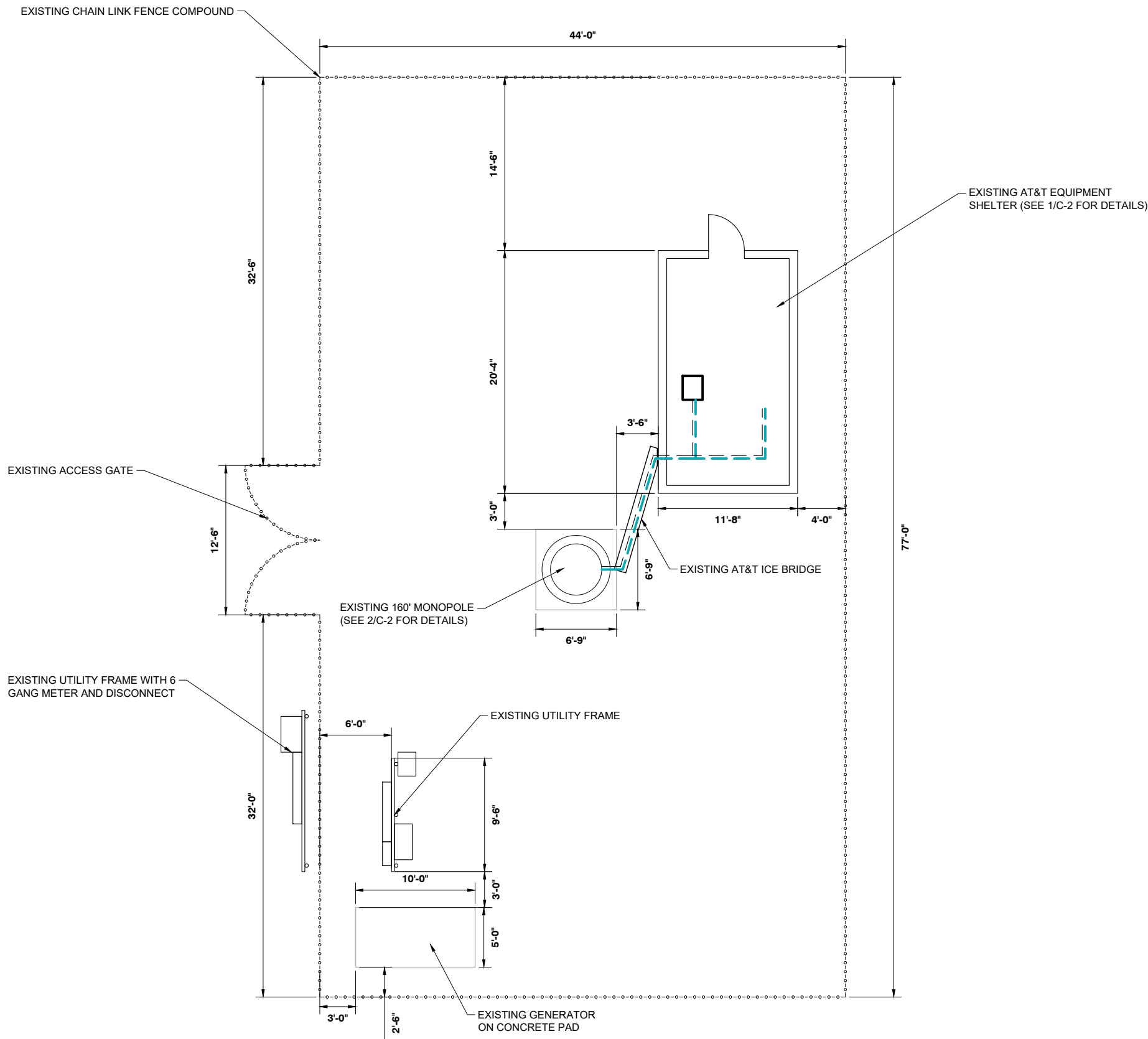
PROJECT INFORMATION:  
 TOLLAND TURNPIKE  
 WILLINGTON, CT 06279  
 TOLLAND COUNTY

SHEET TITLE:  
**NOTES**

SCALE: NONE

PROJECT NUMBER	42861
SHEET NUMBER	GN-1





85 RANGEWAY ROAD - BLDG 3, SUITE 102  
 NORTH BILLERICA, MA 01862  
 SMARTLINKLLC.COM



855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com  
 Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:

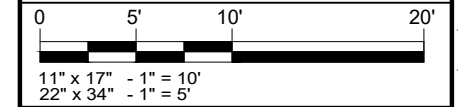

MARK	DATE	DESCRIPTION
2	04/24/19	FINAL CDs REVISED
1	04/04/19	FINAL CDs ISSUED
0	03/20/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL DATE ISSUED: 04/04/2019

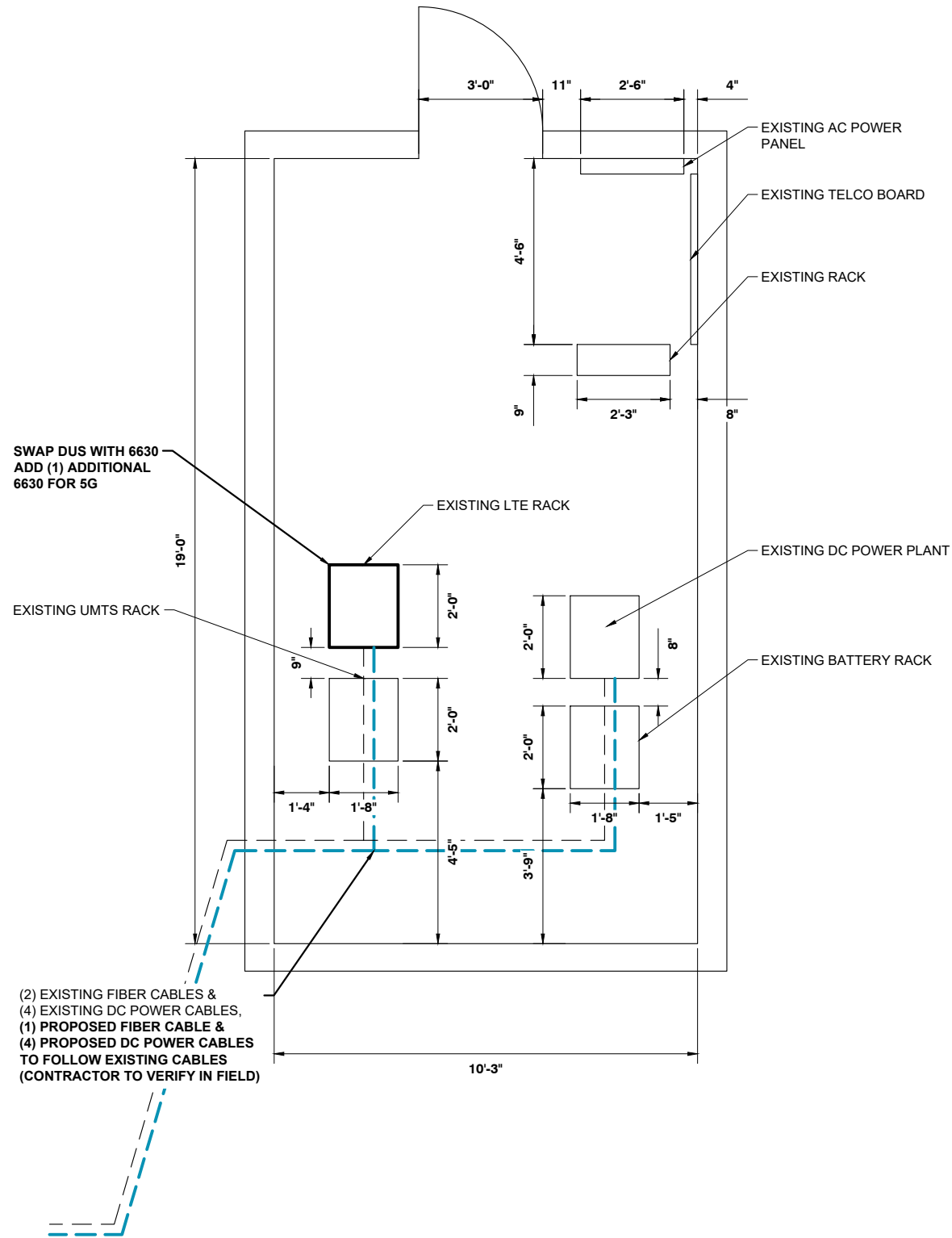
PROJECT TITLE:  
**WILLINGTON**  
**FA# 10133907**  
**SITE# CTL01041**

PROJECT INFORMATION:  
 TOLLAND TURNPIKE  
 WILLINGTON, CT 06279  
 TOLLAND COUNTY

SHEET TITLE:  
**COMPOUND PLAN**



**COMPOUND PLAN** ①  
 SCALE: 1" = 10'



SWAP DUS WITH 6630  
 ADD (1) ADDITIONAL  
 6630 FOR 5G

(2) EXISTING FIBER CABLES &  
 (4) EXISTING DC POWER CABLES,  
 (1) PROPOSED FIBER CABLE &  
 (4) PROPOSED DC POWER CABLES  
 TO FOLLOW EXISTING CABLES  
 (CONTRACTOR TO VERIFY IN FIELD)

**EQUIPMENT LAYOUT**

SCALE: 1" = 3.75'

1

TOP OF EXISTING TOWER  
 @ ±160'-0" AGL  
 EXISTING & PROPOSED AT&T  
 PANEL ANTENNAS & EQUIPMENT  
 C/L @ ±156'-0" AGL

(2) EXISTING FIBER CABLES &  
 (4) EXISTING DC POWER CABLES TO REMAIN,  
 (1) PROPOSED FIBER CABLE &  
 (4) PROPOSED DC POWER CABLES TO  
 FOLLOW EXISTING CABLES  
 (CONTRACTOR TO VERIFY IN FIELD)

EXISTING MONOPOLE

EXISTING AT&T  
 EQUIPMENT SHELTER

EXISTING FENCE

**NOTE:**  
 A MOUNT ASSESSMENT OF THE ANTENNA AND  
 EQUIPMENT MOUNTING STRUCTURE HAS BEEN  
 COMPLETED BY RAMAKER & ASSOCIATES, INC.,  
 DATED APRIL 3, 2019. STRUCTURAL  
 MODIFICATIONS TO THE EXISTING MOUNTING  
 STRUCTURE TO BE COMPLETED PRIOR TO  
 ANTENNA AND EQUIPMENT INSTALLATION.  
 SEE S-1 FOR STRUCTURAL DETAILS.

PROPOSED HANDRAIL KIT  
 (SEE SHEET S-1 FOR DETAILS)

TOP OF EXISTING MONOPOLE AT ±160'-0" AGL

**ELEVATION VIEW**

SCALE: 1" = 20'

2



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1	04/04/19	FINAL CDs ISSUED
0	03/20/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL DATE ISSUED: 04/04/2019

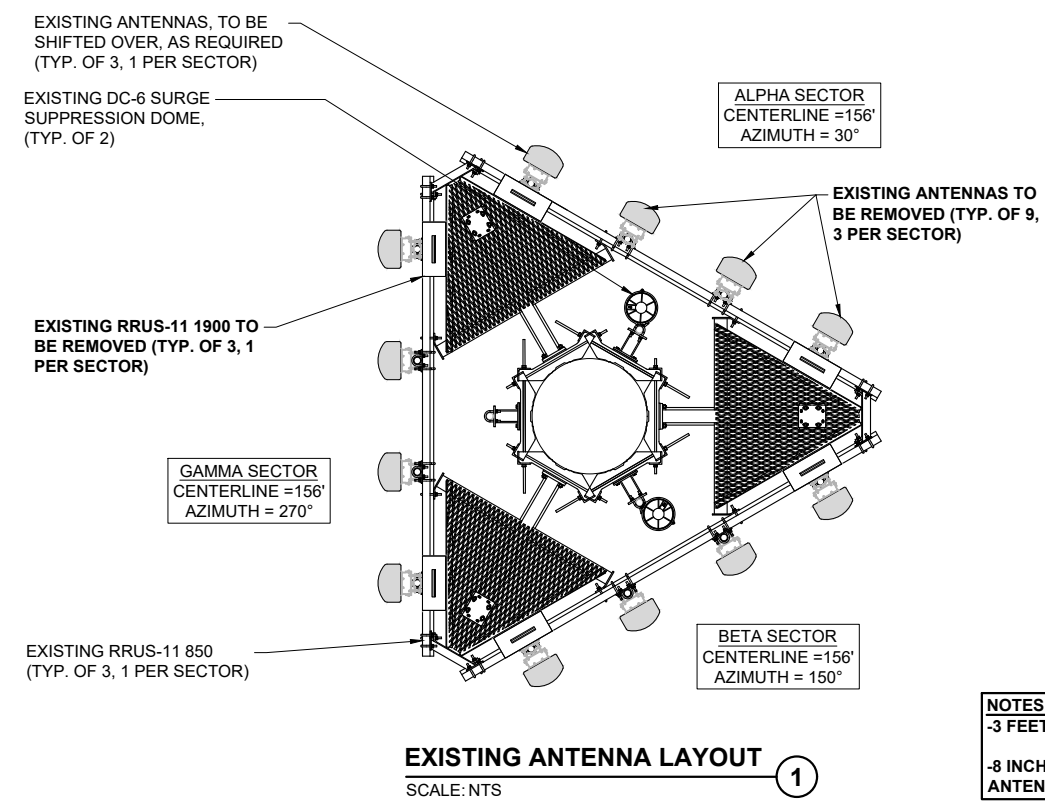
PROJECT TITLE:  
**WILLINGTON  
 FA# 10133907  
 SITE# CTL01041**

PROJECT INFORMATION:  
 TOLLAND TURNPIKE  
 WILLINGTON, CT 06279  
 TOLLAND COUNTY

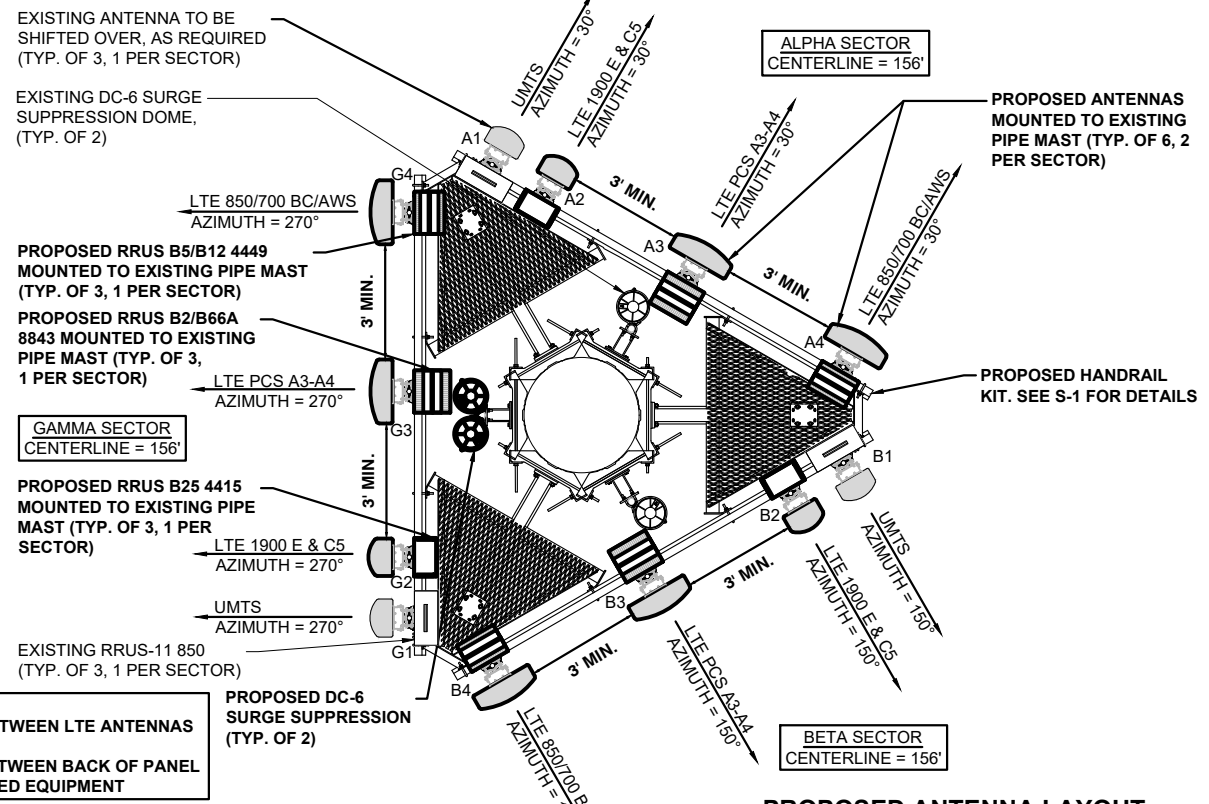
SHEET TITLE:  
**EQUIPMENT LAYOUT AND  
 ELEVATION VIEW**

SCALE:  
 AS NOTED

PROJECT NUMBER: 42861  
 SHEET NUMBER: C-2



**EXISTING ANTENNA LAYOUT**  
 SCALE: NTS



**PROPOSED ANTENNA LAYOUT**  
 SCALE: NTS

**NOTES:**  
 -3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS  
 -8 INCH MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND EXISTING/PROPOSED EQUIPMENT

BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND\_CONNECTICUT\_CTL01041\_2019-LTE-NEXT-CARRIER\_LTE\_SP656B\_PTN\_10133907\_105267\_12-18-2018\_FINAL-APPROVED\_V2.00" LAST REVISED 3/07/2019.

SECTOR	EXISTING ANTENNA	PROPOSED ANTENNA	TECHNOLOGY	ANTENNA STATUS	HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)	WEIGHT (LBS.)	ANTENNA AZIMUTH (DEG.)	ANT. C/L ELEV. (FT.)	REMOTE RADIO/TMA CONFIGURATION	TRANSMISSION CABLE		
												QUANTITY	TYPE	STATUS
SECTOR A	1 ANDREW SBNH-1D6565C	ANDREW SBNH-1D6565C	UMTS	EXISTING	96.4	11.9	7.1	66	30	156	RRUS-11 850	1 2	FIBER DC POWER	EXISTING
	2 ANDREW (REMOVE) SBNH-1D6565C	CCI HPA65R-BU8AA	LTE 1900 E & C5	REPLACED	96	11.7	7.6	54	30	156	B25 4415	1	FIBER	EXISTING
	3 ANDREW (REMOVE) SBNH-1D6565C	KATHREIN 800-10966	LTE PCS A3-A4	REPLACED	96	20	6.9	114.6	30	156	B2/B66A 8843	2 2	FIBER DC POWER DC POWER	EXISTING EXISTING PROPOSED
	4 ANDREW (REMOVE) SBNH-1D6565C	KATHREIN 800-10966	LTE 850/ 700 BC/ AWS	REPLACED	96	20	6.9	114.6	30	156	B5/B12 4449	1 2	FIBER DC POWER	PROPOSED
SECTOR B	1 ANDREW SBNH-1D6565C	ANDREW SBNH-1D6565C	UMTS	EXISTING	96.4	11.9	7.1	66	150	156	RRUS-11 850	-	-	-
	2 ANDREW (REMOVE) SBNH-1D6565C	CCI HPA65R-BU8AA	LTE 1900 E & C5	REPLACED	96	11.7	7.6	54	150	156	B25 4415	-	-	-
	3 ANDREW (REMOVE) SBNH-1D6565C	KATHREIN 800-10966	LTE PCS A3-A4	REPLACED	96	20	6.9	114.6	150	156	B2/B66A 8843	-	-	-
	4 ANDREW (REMOVE) SBNH-1D6565C	KATHREIN 800-10966	LTE 850/ 700 BC/ AWS	REPLACED	96	20	6.9	114.6	150	156	B5/B12 4449	-	-	-
SECTOR C	1 ANDREW SBNH-1D6565C	ANDREW SBNH-1D6565C	UMTS	EXISTING	96.4	11.9	7.1	66	270	156	RRUS-11 850	-	-	-
	2 ANDREW (REMOVE) SBNH-1D6565C	CCI HPA65R-BU8AA	LTE 1900 E & C5	REPLACED	96	11.7	7.6	54	270	156	B25 4415	-	-	-
	3 ANDREW (REMOVE) SBNH-1D6565C	KATHREIN 800-10966	LTE PCS A3-A4	REPLACED	96	20	6.9	114.6	270	156	B2/B66A 8843	-	-	-
	4 ANDREW (REMOVE) SBNH-1D6565C	KATHREIN 800-10966	LTE 850/ 700 BC/ AWS	REPLACED	96	20	6.9	114.6	270	156	B5/B12 4449	-	-	-

**ANTENNA SCHEDULE**  
 SCALE: NTS



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ISSUE	FINAL	DATE ISSUED 04/04/2019

PROJECT TITLE:  
**WILLINGTON  
 FA# 10133907  
 SITE# CTL01041**

PROJECT INFORMATION:  
 TOLLAND TURNPIKE  
 WILLINGTON, CT 06279  
 TOLLAND COUNTY

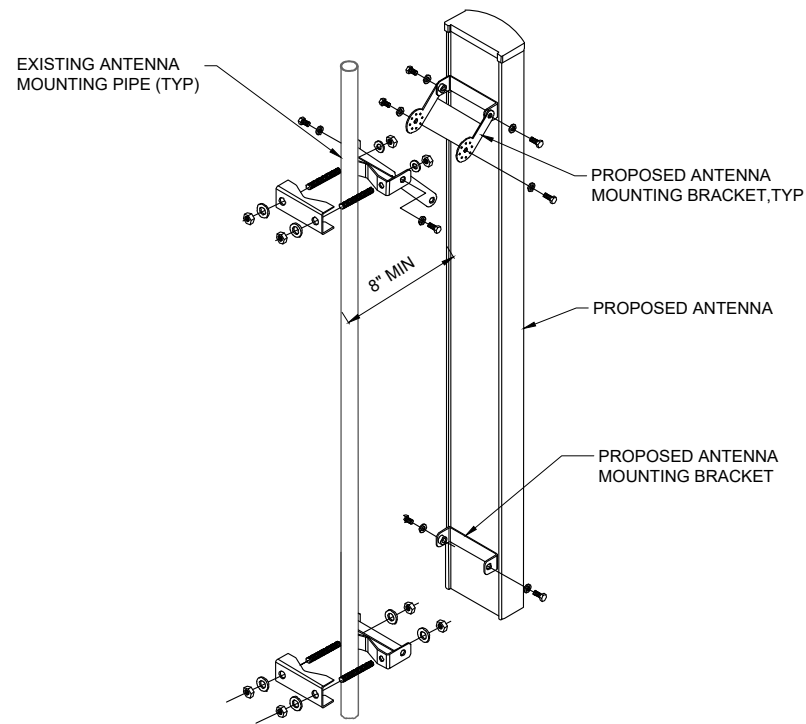
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 ANTENNA SCHEDULE**

SCALE: NONE

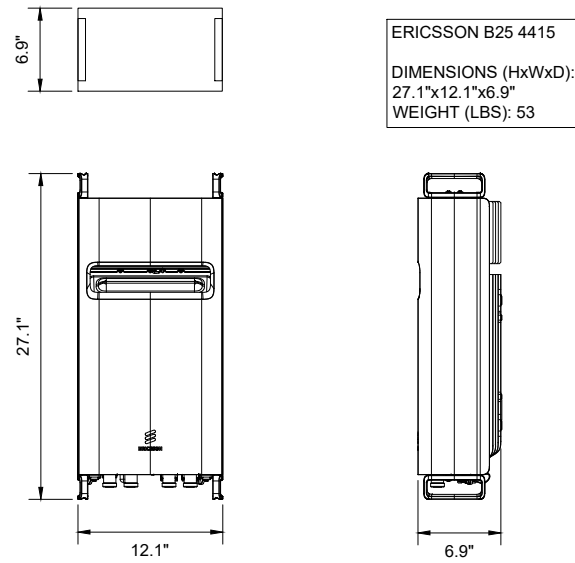
PROJECT NUMBER	42861
SHEET NUMBER	C-3



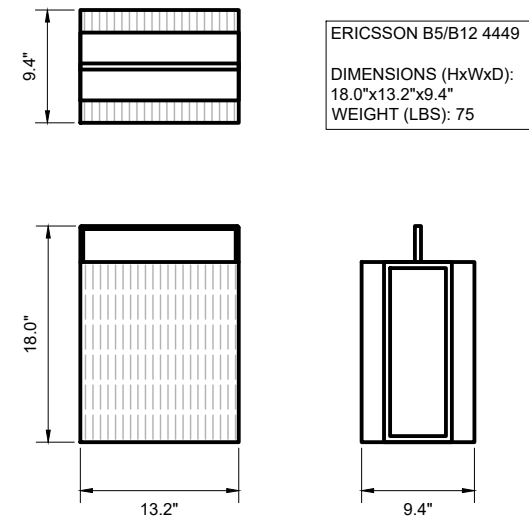
**NOTES:**  
 -3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS  
 -8 INCH MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND EXISTING/PROPOSED EQUIPMENT



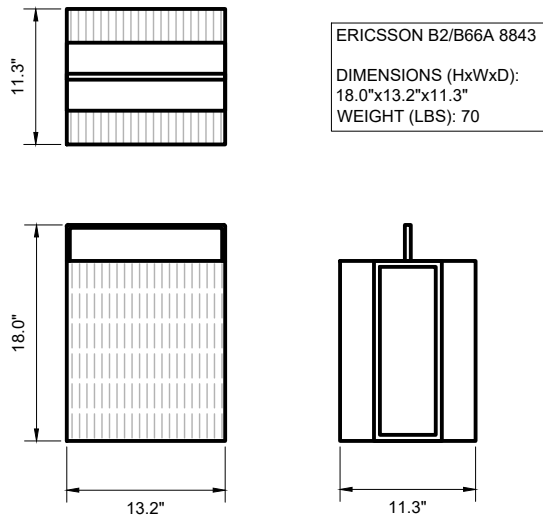
**ANTENNA MOUNTING DETAIL 1**  
 SCALE: NTS



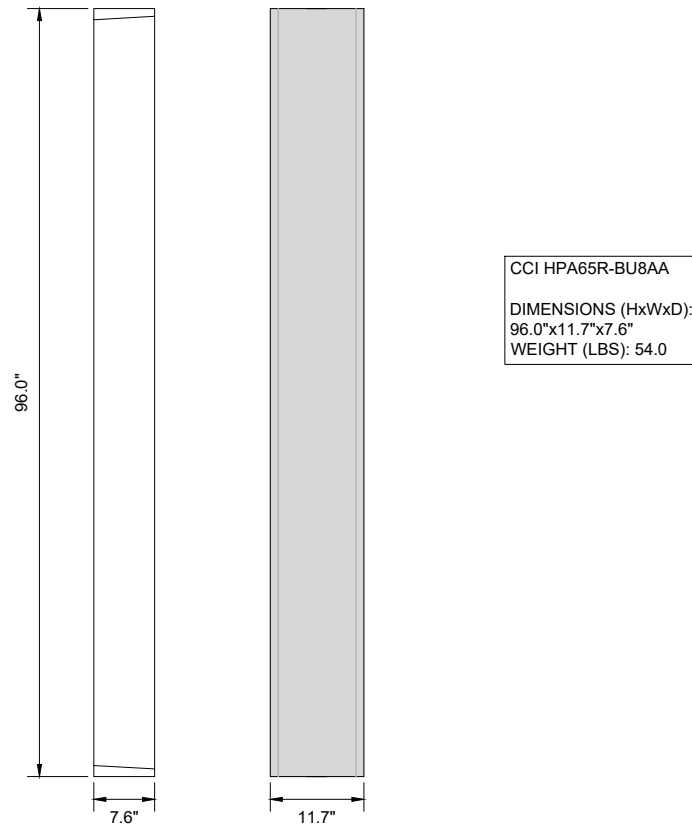
**RRUS-B25 4415 DETAIL 2**  
 SCALE: NTS



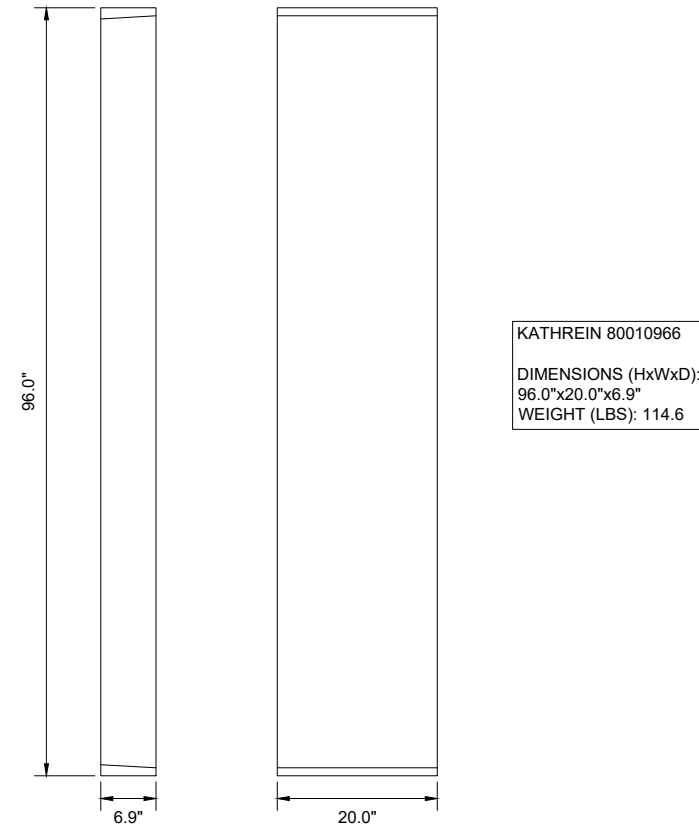
**RRUS-B5/B12 4449 DETAIL 3**  
 SCALE: NTS



**RRUS-B2/B66A 8843 DETAIL 4**  
 SCALE: NTS



**ANTENNA DETAIL 5**  
 SCALE: NTS



**ANTENNA DETAIL 6**  
 SCALE: NTS



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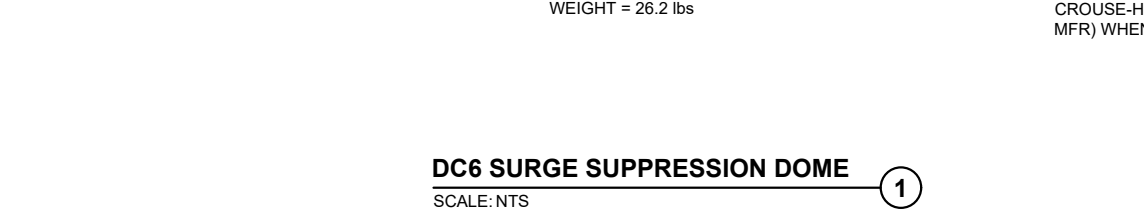
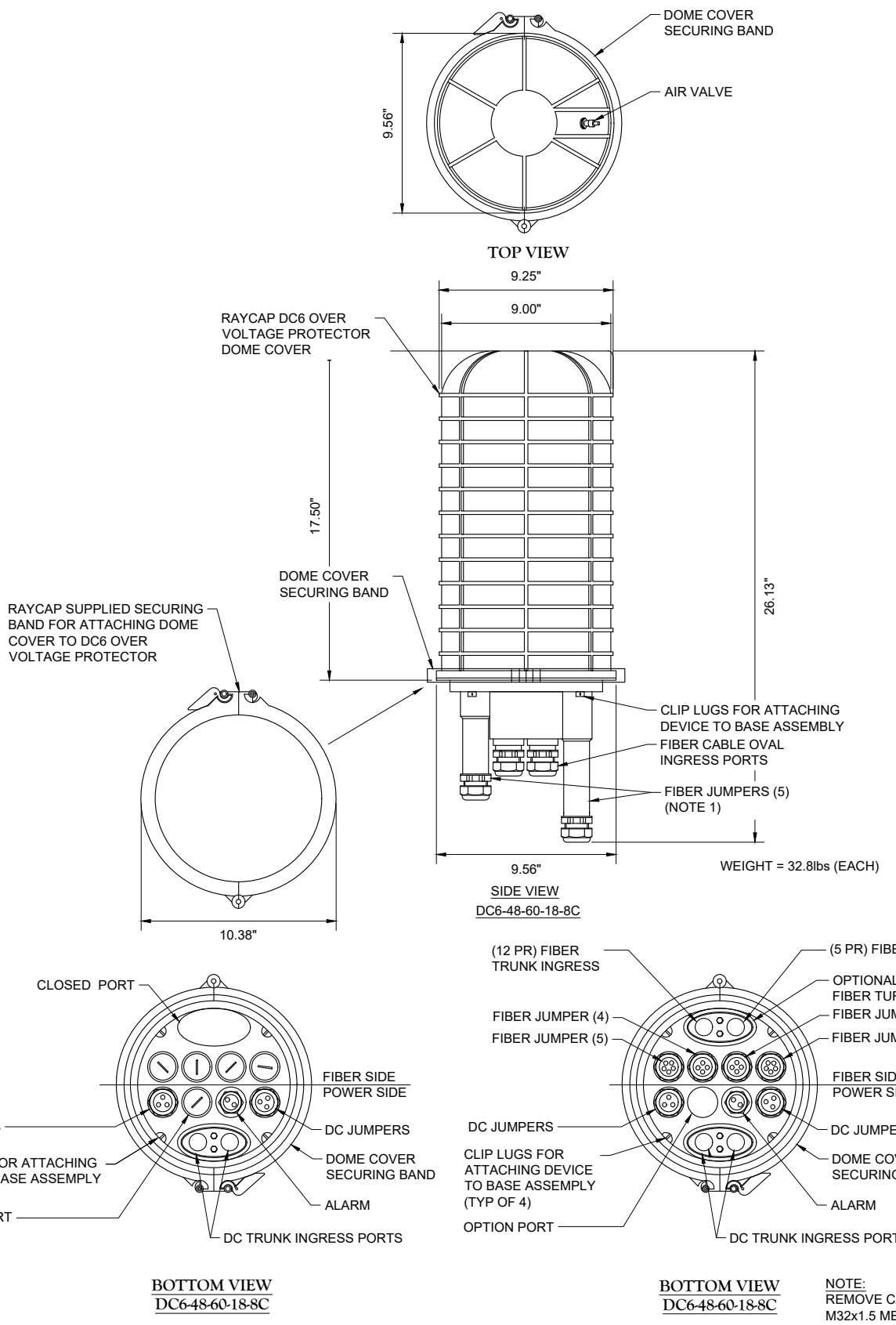
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**WILLINGTON  
 FA# 10133907  
 SITE# CTL01041**

PROJECT INFORMATION:  
 TOLLAND TURNPIKE  
 WILLINGTON, CT 06279  
 TOLLAND COUNTY

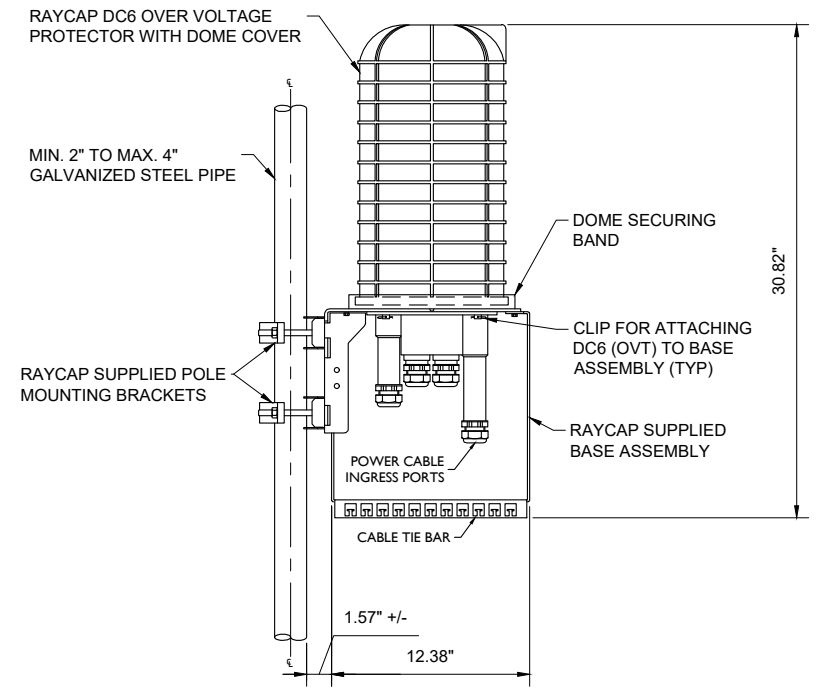
SHEET TITLE:  
**CONSTRUCTION DETAILS**

SCALE: NONE

PROJECT NUMBER: 42861  
 SHEET NUMBER: A-1



**DC6 SURGE SUPPRESSION DOME**  
 SCALE: NTS ①



NOTE:  
 RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE

**DC6 SURGE SUPPRESSION DOME**  
**POLE MOUNT ASSEMBLY**  
 NOT TO SCALE

**DC6 SURGE SUPPRESSION DOME**  
**POLE MOUNT ASSEMBLY**  
 SCALE: NTS ②



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ISSUE PHASE: FINAL DATE ISSUED: 04/04/2019

PROJECT TITLE: WILLINGTON FA# 10133907 SITE# CTL01041

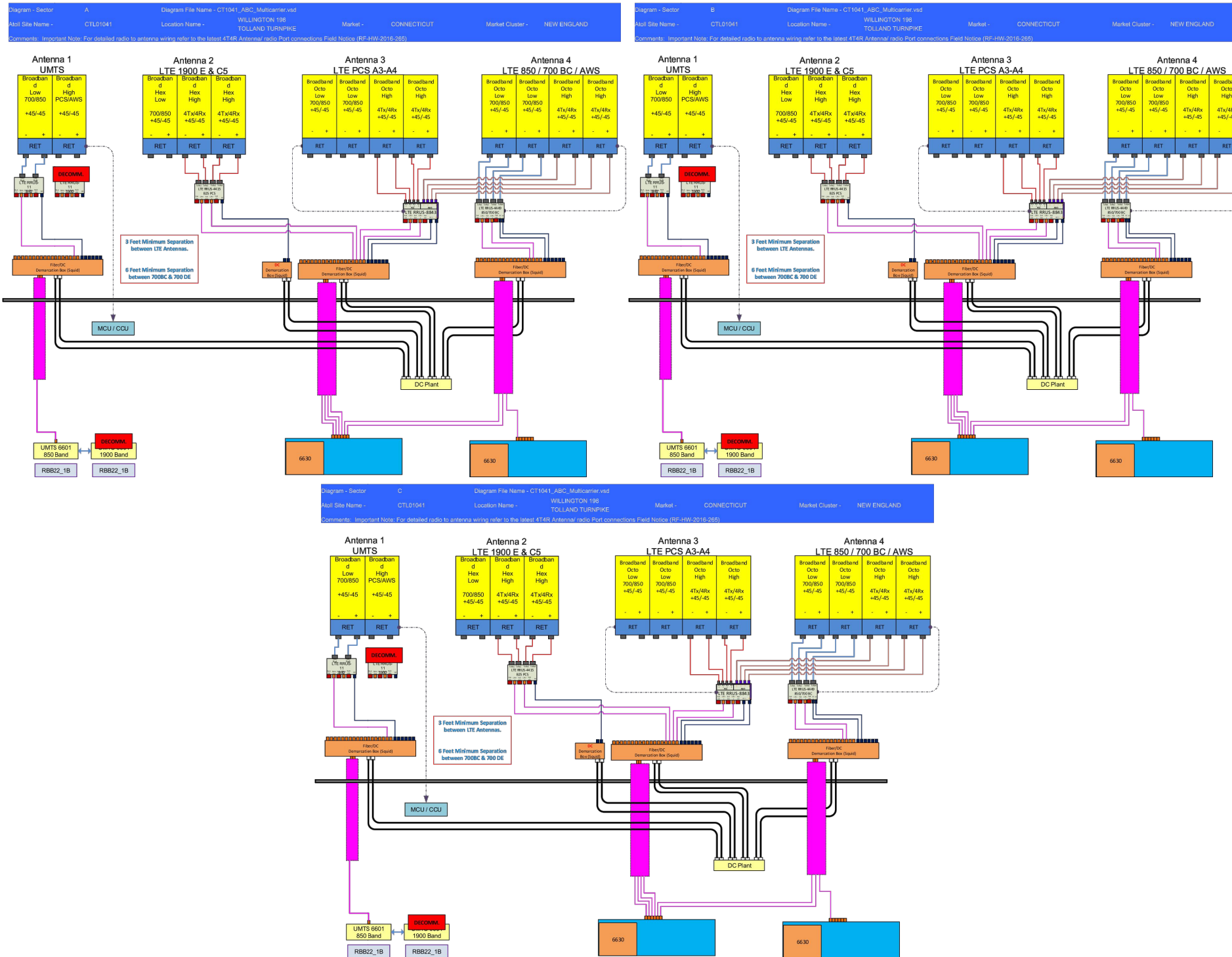
PROJECT INFORMATION:

TOLLAND TURNPIKE  
 WILLINGTON, CT 06279  
 TOLLAND COUNTY

SHEET TITLE: CONSTRUCTION DETAILS

SCALE: NONE

PROJECT NUMBER	42861
SHEET NUMBER	A-2



BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND\_CONNECTICUT\_CTL01041\_2019-LTE-NEXT-CARRIER\_LTE\_SP656B\_PTN\_10133907\_105267\_12-18-2018\_FINAL-APPROVED\_V2.00" LAST REVISED 3/07/2019.

**RF PLUMBING DIAGRAMS**  
SCALE: NTS



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ISSUE PHASE: FINAL  
DATE ISSUED: 04/04/2019  
PROJECT TITLE:  
**WILLINGTON  
FA# 10133907  
SITE# CTL01041**

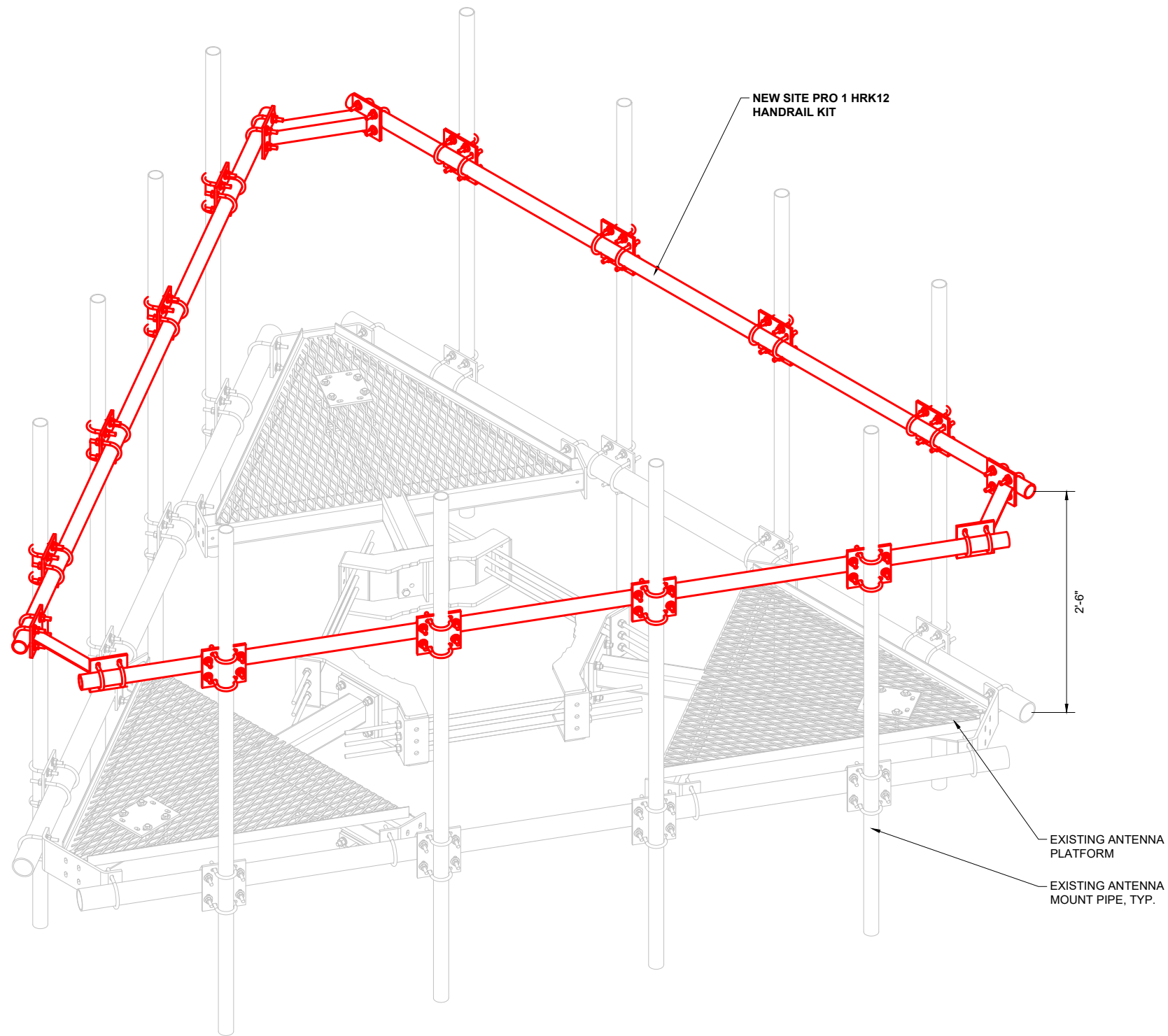
PROJECT INFORMATION:  
TOLLAND TURNPIKE  
WILLINGTON, CT 06279  
TOLLAND COUNTY

SHEET TITLE:  
**RF PLUMBING DIAGRAMS**

SCALE: NONE

PROJECT NUMBER: 42861  
SHEET NUMBER: A-3





**MOUNT MODIFICATION DETAIL**

SCALE: NTS

1



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ISSUE PHASE	FINAL	DATE ISSUED
		04/04/2019

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 SITE# CTL01041**

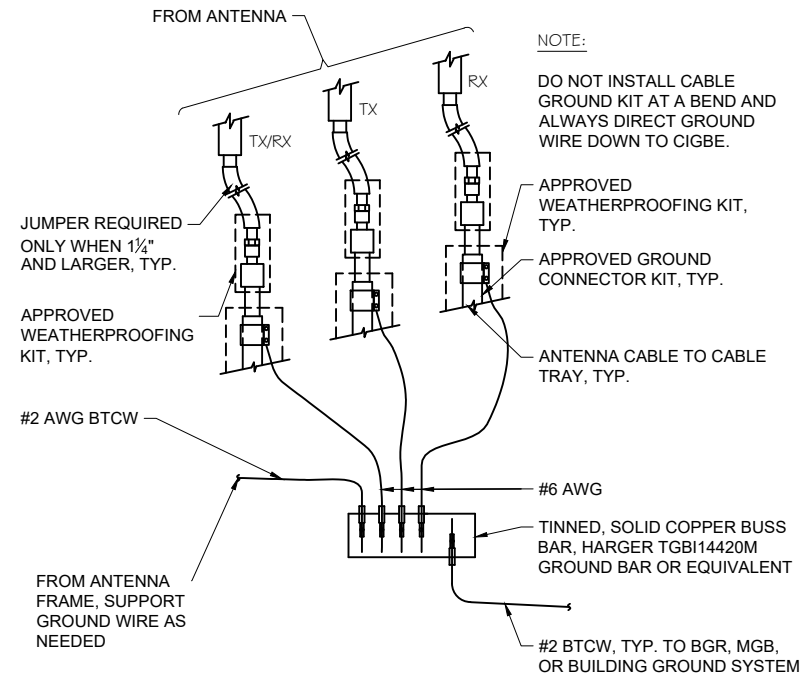
PROJECT INFORMATION:  
 TOLLAND TURNPIKE  
 WILLINGTON, CT 06279  
 TOLLAND COUNTY

SHEET TITLE:

**STRUCTURAL DETAILS**

SCALE: NONE

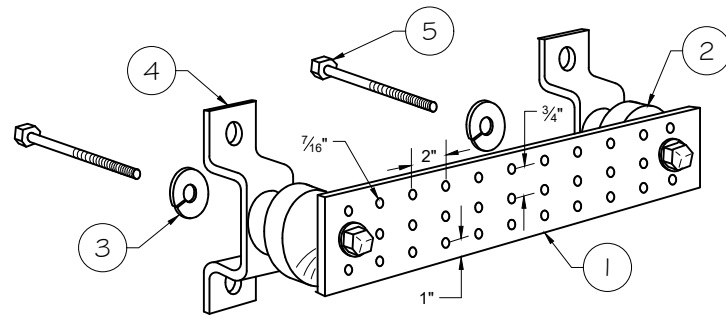
PROJECT NUMBER	42861
SHEET NUMBER	S-1



**GROUND WIRE TO GROUND BAR DETAIL**  
 SCALE: NTS

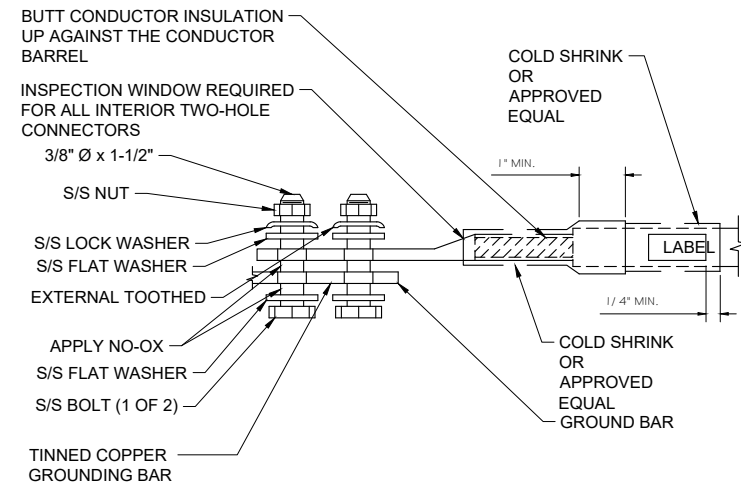
**NOTES:**

1. ALL MOUNTING HARDWARE CAN BE USED ON 6", 12", 18", ETC. GROUND BARS.
2. ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGB114420M.

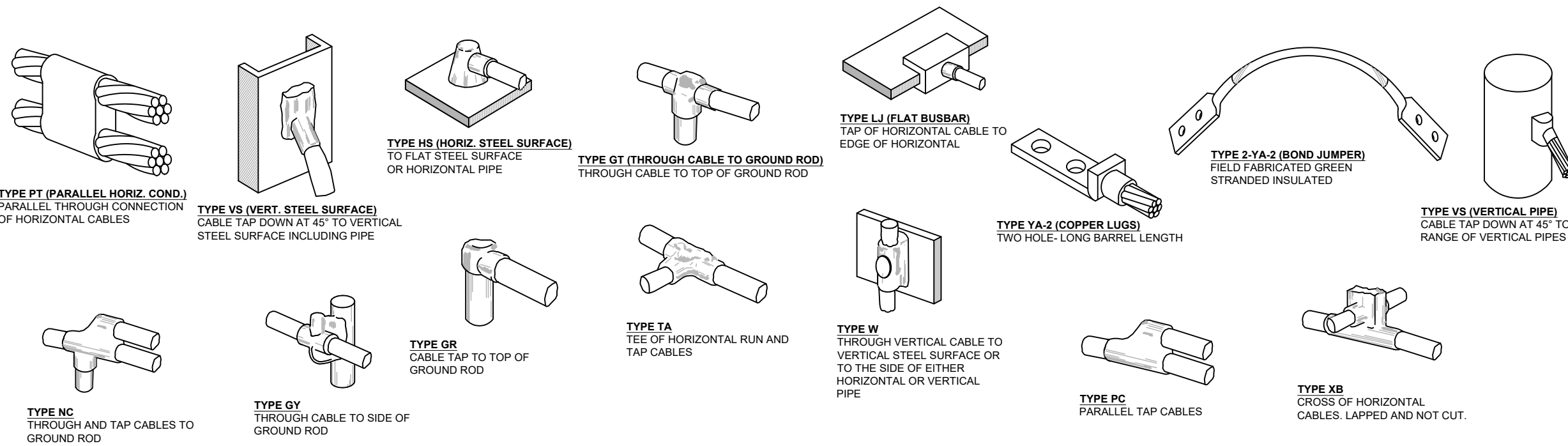


- LEGEND**
1. TINNED COPPER GROUND BAR, 1/2" x 4" x 20", NEWTON CO., HARGER TGB114420M, OR EQUIVALENT. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
  2. INSULATORS. INSTRUMENT CO. CAT. NO. 3061-4 OR HARGER EQUIVALENT.
  3. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
  4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
  5. 5/8" x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

**TYPICAL GROUND BAR DETAIL**  
 SCALE: NTS



**TYPICAL GROUND BAR CONNECTION DETAIL**  
 SCALE: NTS



**TYPICAL CADWELD TYPES DETAIL**  
 SCALE: NTS



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 FA# 10133907  
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 WILLINGTON, CT 06279  
 TOLLAND COUNTY

SHEET TITLE:

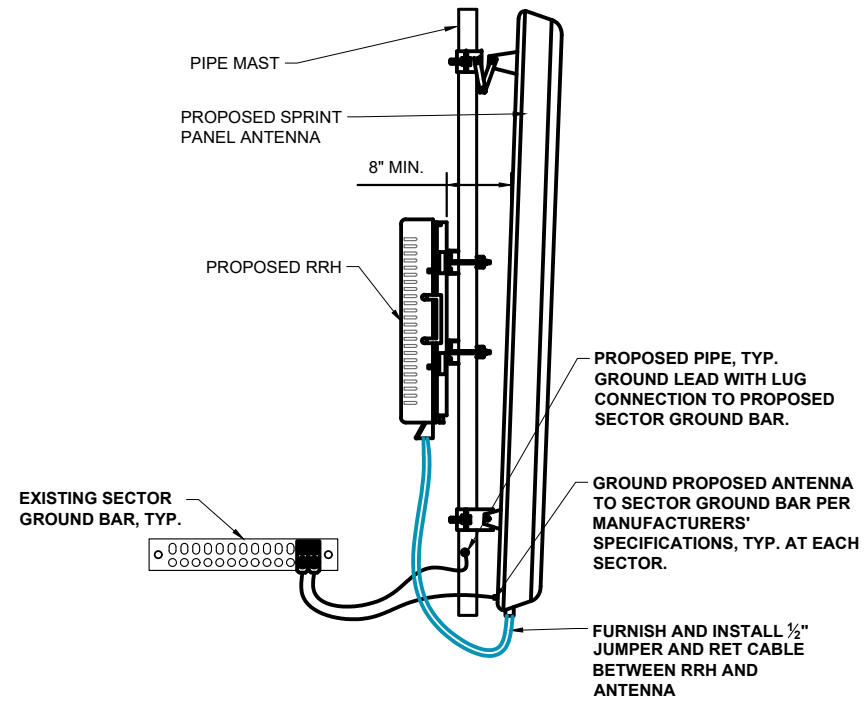
**GROUNDING DETAILS**

SCALE: NONE

PROJECT NUMBER 42861

SHEET NUMBER G-1

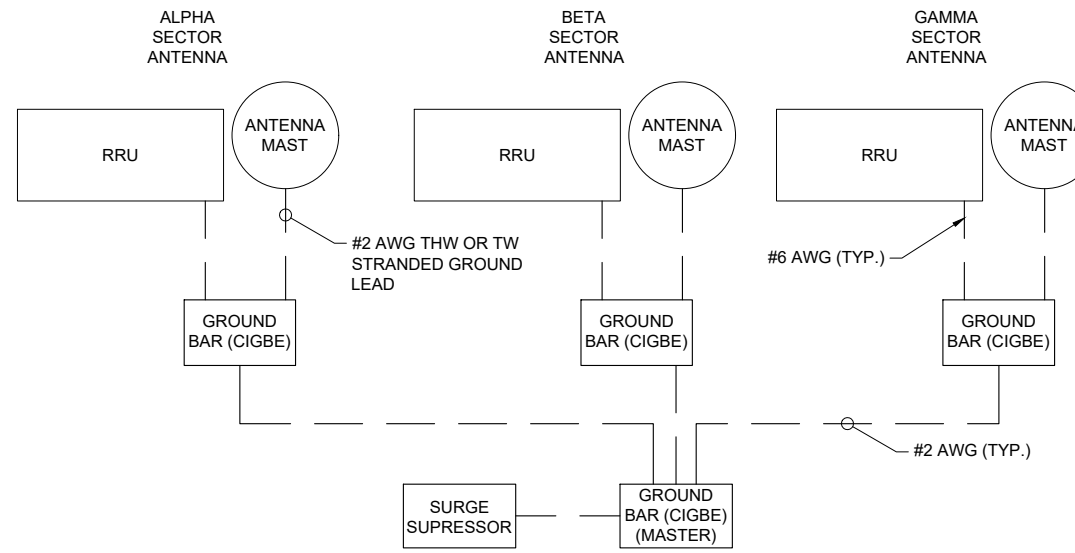
**NOTES:**  
 -3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS  
 -8 INCH MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND EXISTING/PROPOSED EQUIPMENT



**ANTENNA & RRU GROUNDING DETAIL**

SCALE: NTS

1



**SCHEMATIC DIAGRAM GROUNDING SYSTEM**

SCALE: NTS

2



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PROJECT INFORMATION:  
 TOLLAND TURNPIKE  
 WILLINGTON, CT 06279  
 TOLLAND COUNTY

SHEET TITLE:  
**GROUNDING DETAILS**

SCALE: NONE

PROJECT NUMBER: 42861  
 SHEET NUMBER: G-2





**Smartlink on behalf of  
AT&T Mobility, LLC  
Site FA – 10133907  
USID – 105267  
Site ID – CT1041 (MRCTB037980-  
MRCTB037916)  
Site Name – WILLINGTON**

**196 TOLLAND TURNPIKE  
WILLINGTON, CT 06279**

Latitude: N41-52-32.56  
Longitude: W72-16-09.74  
Structure Type: Monopole

Report generated date: April 23, 2019  
Report by: Zyotty Thamsil  
Customer Contact: Kristina Cottone

---

**AT&T Mobility, LLC will be compliant when the  
remediation recommended in Section 5.2 or  
other appropriate remediation is implemented.**

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# 1 General Site Summary

## 1.1 Report Summary

AT&T Mobility, LLC	Summary
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
Compliant per FCC Rules and Regulations?	Will Be Compliant
Compliant per AT&T Mobility, LLC's Policy?	Yes

The following documents were provided by the client and were utilized to create this report:

**RFDS:** NEW-ENGLAND\_CONNECTICUT\_CTL01041\_2019-LTE-Next-Carrier\_LTE\_sp656b\_PTN\_10133907\_105267\_12-18-2018\_Final-Approved\_v2.00

**CD's:** 10133907\_AE201\_190404\_CTL01041\_Rev1 2C-3C-4C-Retrofit

**RF Powers Used:** Max RRH Power

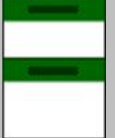








## 1.2 Fall Arrest Anchor Point Summary

Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	N	N/A	N












### 1.3 Signage Summary

#### a. Existing AT&T Signage

AT&T Signage Locations									
	Information 1	Information 2	Notice	Notice 2	Caution	Caution 2	Warning	Warning 2	Barriers
Access Point(s)									
Alpha									
Beta									
Gamma									
Delta									
Epsilon									

#### b. Proposed AT&T Signage

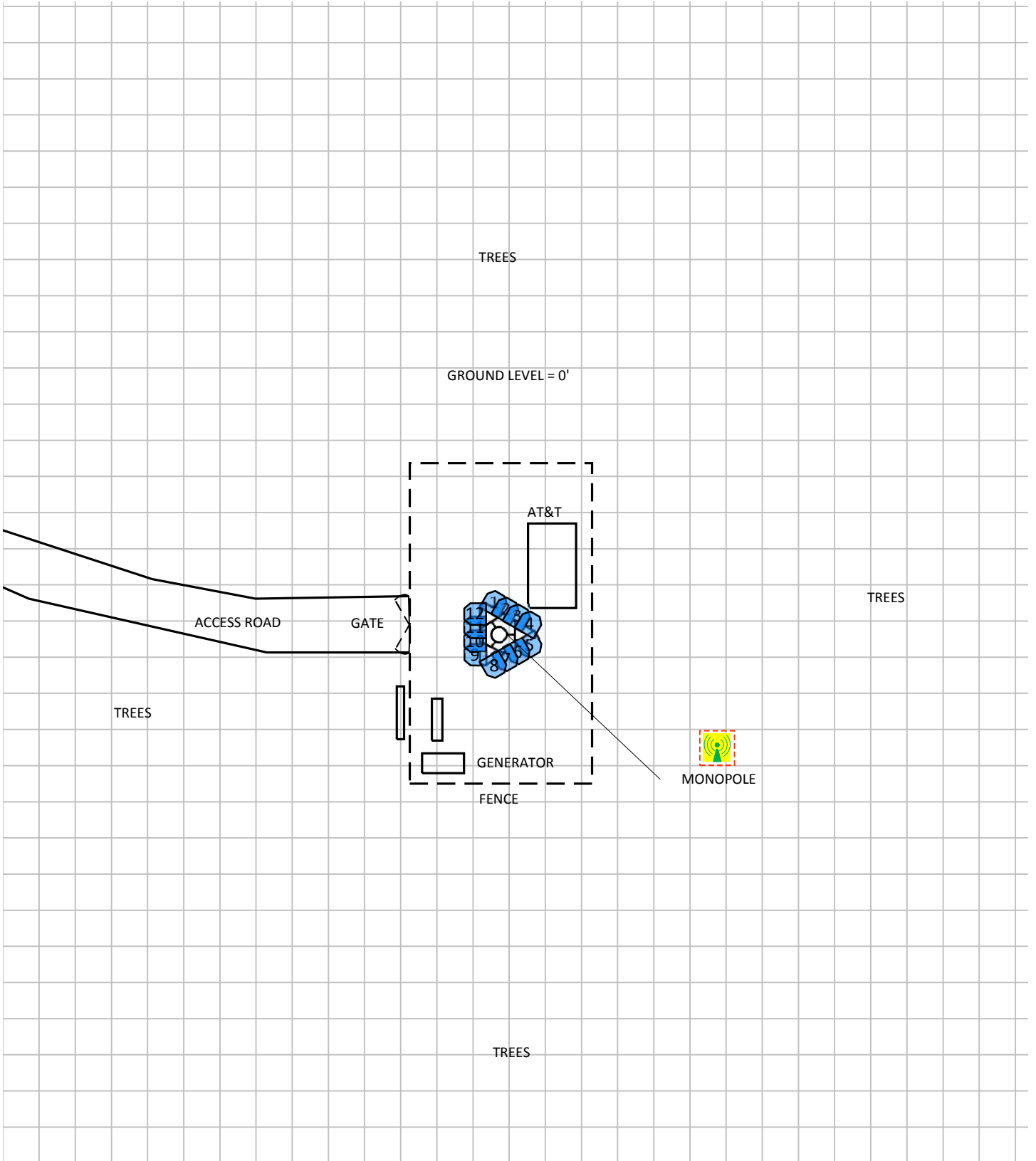
AT&T Signage Locations									
	Information 1	Information 2	Notice	Notice 2	Caution	Caution 2	Warning	Warning 2	Barriers
Access Point(s)						1			
Alpha									
Beta									
Gamma									
Delta									
Epsilon									

## 2 Scale Maps of Site

The following diagrams are included:

- ) Site Scale Map
- ) RF Exposure Diagram
- ) RF Exposure Diagram – All Sector Detailed View
- ) RF Exposure Diagram – Elevation View

# Site Scale Map For: WILLINGTON



(Feet)  
 0 16.5 33.1  
 www.sitesafe.com  
 Site Name: WILLINGTON  
 4/23/2019 10:15:15 AM

		<b>Carrier Identification</b>						
● AT&T MOBILITY LLC	● VERIZON WIRELESS	● T-MOBILE	● SPRINT	● UNKNOWN CARRIER				
		<b>Sign Legend</b>						
Caution 1	Caution 2	Notice 2	Notice 1	Warning	Warning 2	Info 1	Info 2	RF Safety Plan
<b>Barrier</b>				<b>Proposed Barriers/ Signs</b>				

### 3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z (AGL)	MDT	EDT
1	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	850	UMTS	30	67	8	40	TPO	Watt	0	1	974.7	13.868	152'	0°	2°
2	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas HPA65R-BU8AA	Panel	1900	LTE	30	60.6	8	160	TPO	Watt	0	1	4678.6	14.66	152'	0°	2°
3	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	1900	LTE	30	66	8	160	TPO	Watt	0	1	6153.5	15.85	152'	0°	3°
4	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	737	LTE	30	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	152'	0°	1°
4	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	850	LTE	30	66	8	80	TPO	Watt	0	1	2128.6	14.25	152'	0°	1°
4	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	5G 850	LTE	30	66	8	80	TPO	Watt	0	1	2128.6	14.25	152'	0°	1°
4	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	2100	LTE	30	64.4	8	160	TPO	Watt	0	1	6593.6	16.15	152'	0°	3°
5	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	850	UMTS	150	67	8	40	TPO	Watt	0	1	974.7	13.868	152'	0°	2°
6	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas HPA65R-BU8AA	Panel	1900	LTE	150	60.6	8	160	TPO	Watt	0	1	4678.6	14.66	152'	0°	2°
7	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	1900	LTE	150	66	8	160	TPO	Watt	0	1	6153.5	15.85	152'	0°	3°
8	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	737	LTE	150	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	152'	0°	1°
8	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	850	LTE	150	66	8	80	TPO	Watt	0	1	2128.6	14.25	152'	0°	1°
8	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	5G 850	LTE	150	66	8	80	TPO	Watt	0	1	2128.6	14.25	152'	0°	1°
8	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	2100	LTE	150	64.4	8	160	TPO	Watt	0	1	6593.6	16.15	152'	0°	3°
9	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	850	UMTS	270	67	8	40	TPO	Watt	0	1	974.7	13.868	152'	0°	2°
10	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas HPA65R-BU8AA	Panel	1900	LTE	270	60.6	8	160	TPO	Watt	0	1	4678.6	14.66	152'	0°	2°
11	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	1900	LTE	270	66	8	160	TPO	Watt	0	1	6153.5	15.85	152'	0°	3°
12	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	737	LTE	270	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	152'	0°	1°
12	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	850	LTE	270	66	8	80	TPO	Watt	0	1	2128.6	14.25	152'	0°	1°
12	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	5G 850	LTE	270	66	8	80	TPO	Watt	0	1	2128.6	14.25	152'	0°	1°



Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z (AGL)	MDT	EDT
12	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	2100	LTE	270	64.4	8	160	TPO	Watt	0	1	6593.6	16.15	152'	0°	3°

NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

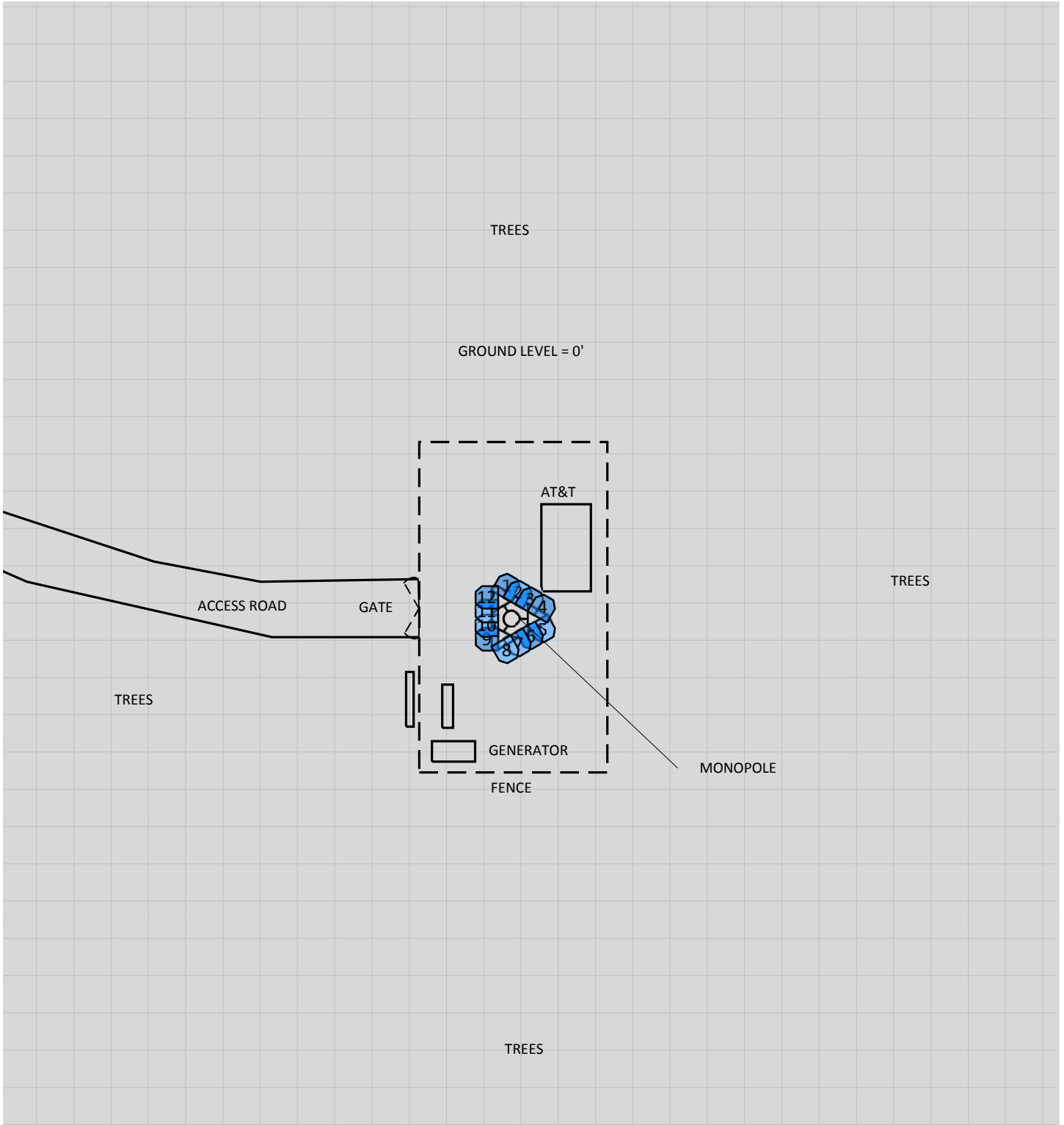
## 4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

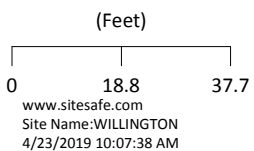
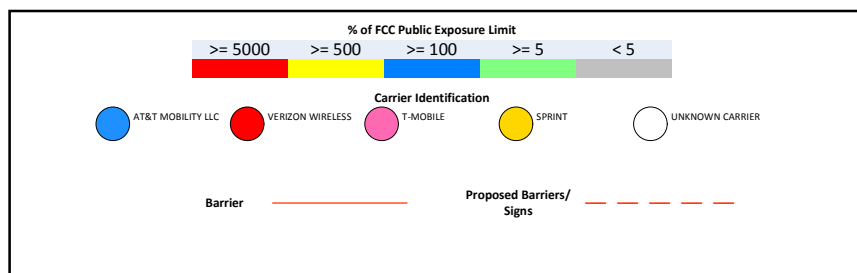
) Ground Level = 0'

The Antenna Inventory heights are referenced to the same level.

# RF Exposure Simulation For: WILLINGTON

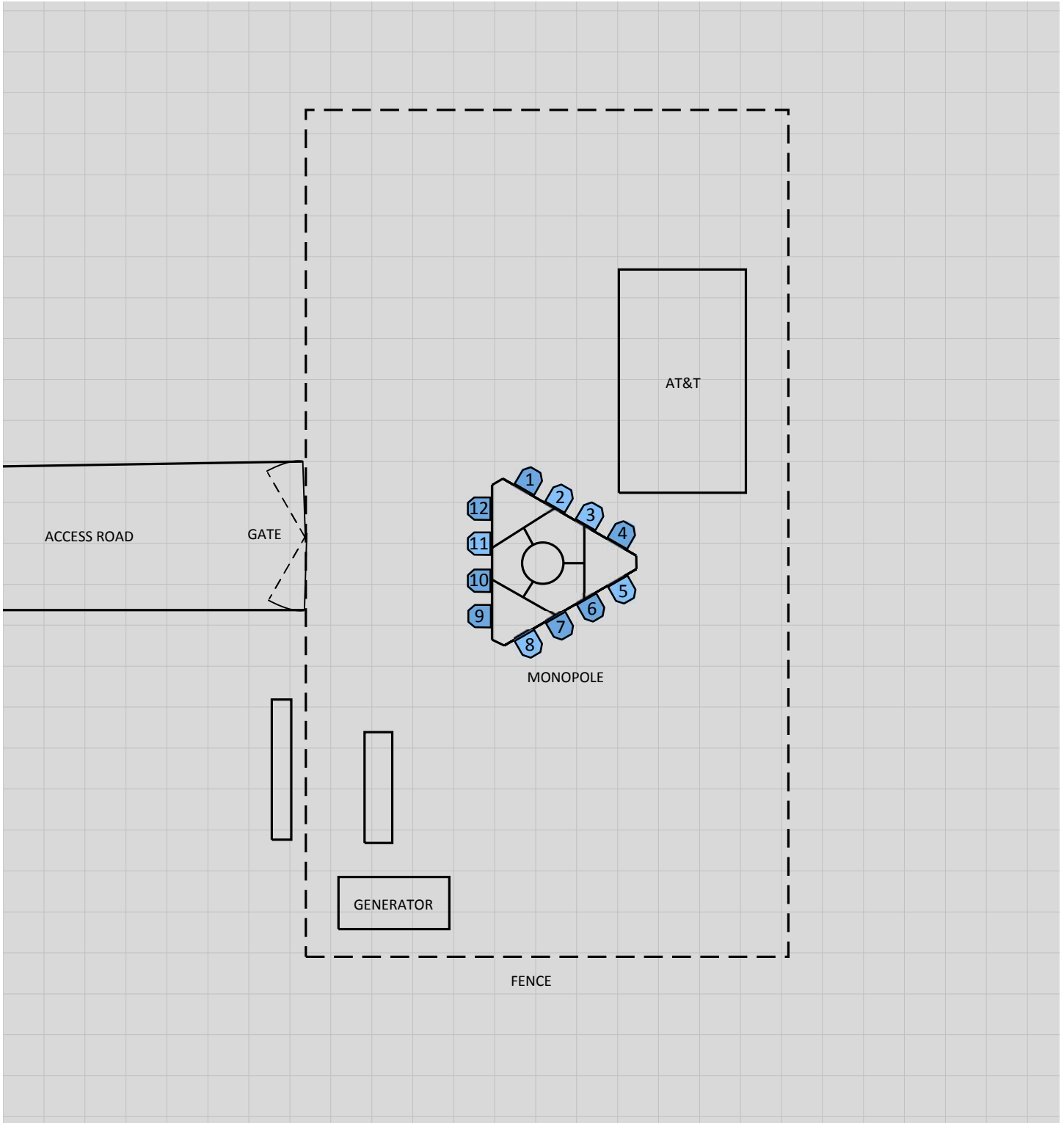


% of FCC Public Exposure Limit  
Spatial average 0' - 6'

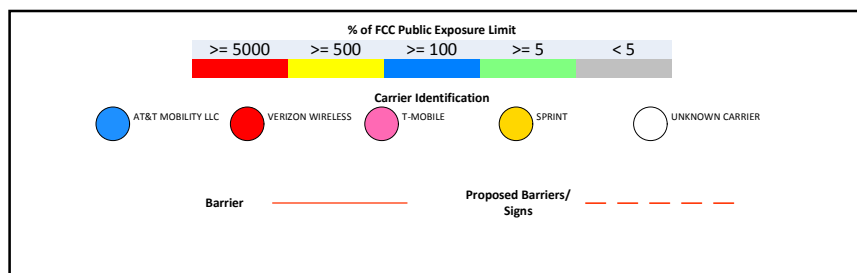


Sitesafe OET-65 Model  
Near Field Boundary:  
1.5 \* Aperture  
Reflection Factor: 1  
Spatially Averaged

# RF Exposure Simulation For: WILLINGTON All Sector Detailed View



% of FCC Public Exposure Limit  
Spatial average 0' - 6'



(Feet)

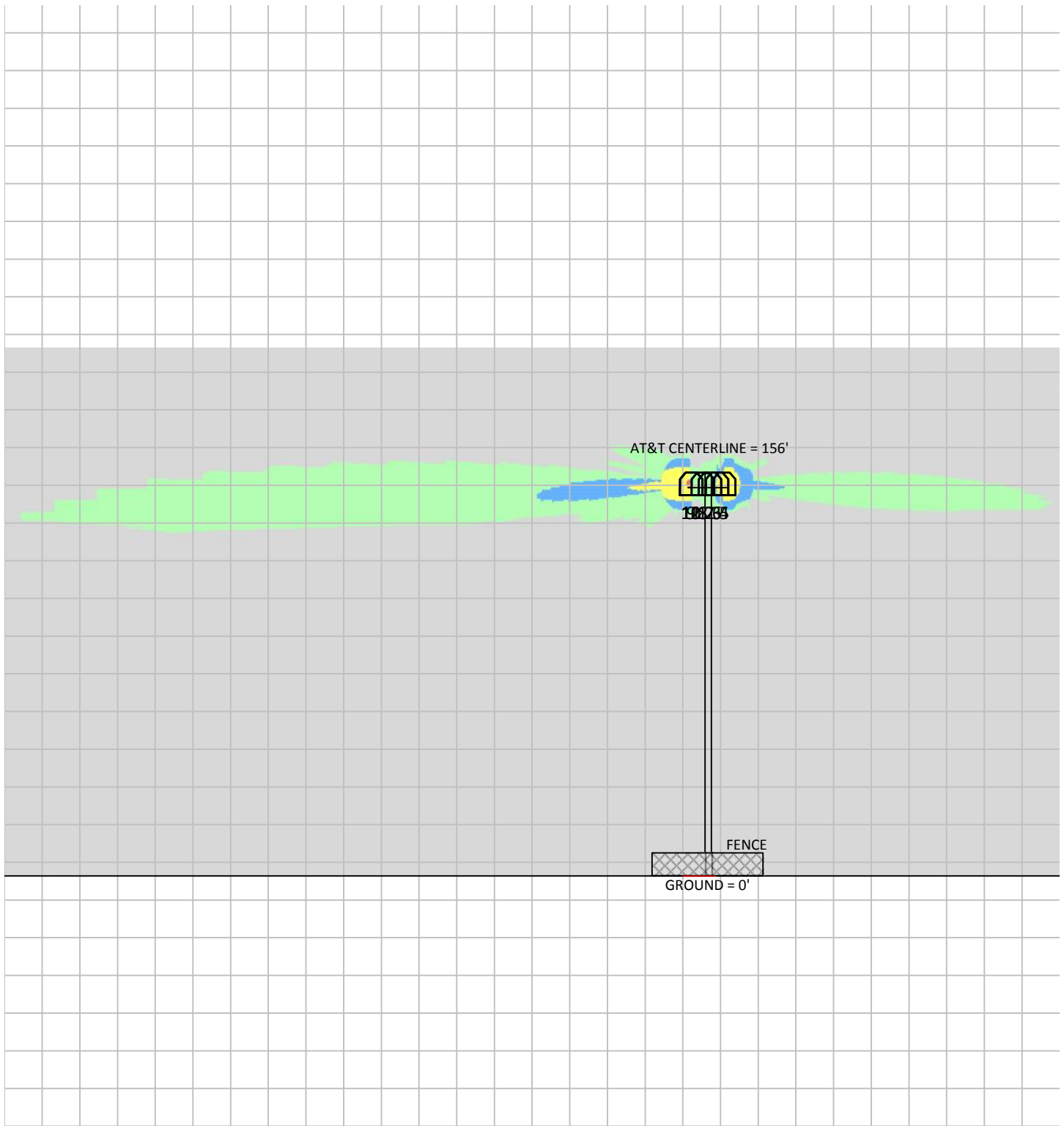
0      6.8      13.7

www.sitesafe.com  
Site Name: WILLINGTON  
4/23/2019 10:06:21 AM

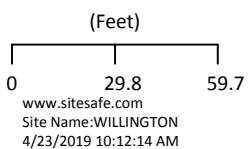
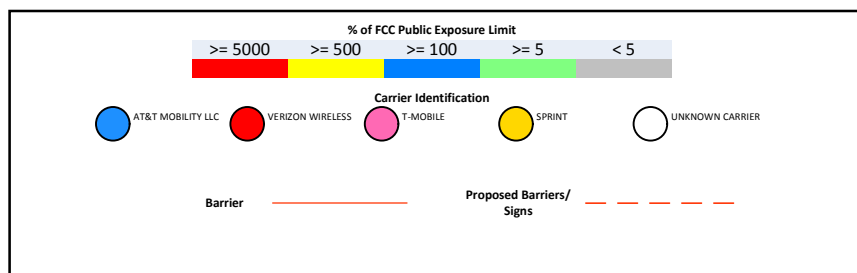
Sitesafe OET-65 Model  
Near Field Boundary:  
1.5 \* Aperture  
Reflection Factor: 1  
Spatially Averaged



# RF Exposure Simulation For: WILLINGTON Elevation View



% of FCC Public Exposure Limit



Sitesafe OET-65 Model  
Near Field Boundary:  
1.5 \* Aperture  
Reflection Factor: 1  
Single Level (0)

## 5 Site Compliance

### 5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

### 5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

#### **Monopole Access Location**

(1) Blue Notice 2B sign(s) required.

#### **Notes:**

- ) Signage may already be in place. Sitesafe does not have record of any existing signage because there were no previous visits or data supplied regarding them. All remediation is based on a worst-case scenario.
- ) Any existing signage that conflicts with the proposed signage in this report should be removed per AT&T Signage Posting Rules.

## 6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Sitesafe, LLC., in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Zyotty Thamsil.

April 23, 2019

## Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.



## Appendix B – Regulatory Background Information

### FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

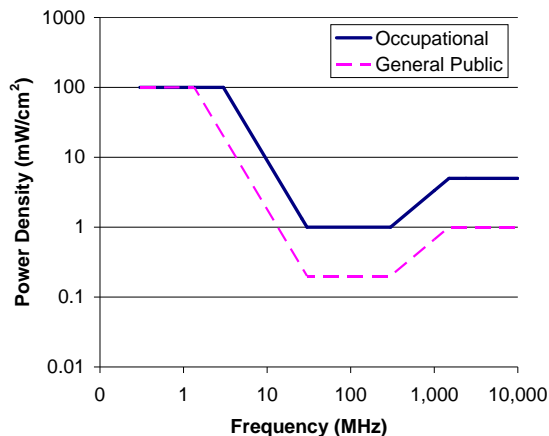
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:

**FCC Limits for Maximum Permissible Exposure (MPE)**  
Plane-wave Equivalent Power Density



### Limits for Occupational/Controlled Exposure (MPE)

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

### Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	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

### OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

## Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

**General Maintenance Work:** Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

**Training and Qualification Verification:** All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

**Physical Access Control:** Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- ) Locked door or gate
- ) Alarmed door
- ) Locked ladder access
- ) Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

**RF Signage:** Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

**Assume all antennas are active:** Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

**Maintain a 3 foot clearance from all antennas:** There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

**Site RF Emissions Diagram:** Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

## Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- J Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit.
- J Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- J Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers.**
- J Yellow represents areas predicted to exceed Occupational MPE limits. Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.
- J Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.



## Appendix E – Assumptions and Definitions

### General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

### Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

## Definitions

**5% Rule** – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

**Compliance** – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

**Decibel (dB)** – A unit for measuring power or strength of a signal.

**Duty Cycle** – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

**Effective (or Equivalent) Isotropic Radiated Power (EIRP)** – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

**Effective Radiated Power (ERP)** – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

**Gain (of an antenna)** – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

**General Population/Uncontrolled Environment** – Defined by the FCC, as an area where exposure to RF energy may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

**Generic Antenna** – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

**Isotropic Antenna** – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

**Maximum Measurement** – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

**Maximum Permissible Exposure (MPE)** – The maximum levels of RF exposure a person may be exposed to without harmful effect and with acceptable safety factor.

**Occupational/Controlled Environment** – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are aware of the

potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

**OET Bulletin 65** – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

**OSHA (Occupational Safety and Health Administration)** – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit [www.osha.gov](http://www.osha.gov).

**Radio Frequency (RF)** – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

**Radio Frequency Exposure (RFE)** – The amount of RF power density that a person is or might be exposed to.

**Spatial Average Measurement** – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average power density an average sized human will be exposed to at a location.

**Transmitter Power Output (TPO)** – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.



## Appendix F – References

The following references can be followed for further information about RF Health and Safety.

Sitesafe, LLC.

<http://www.sitesafe.com>

FCC Radio Frequency Safety

<http://www.fcc.gov/encyclopedia/radio-frequency-safety>

National Council on Radiation Protection and Measurements (NCRP)

<http://www.ncrponline.org>

Institute of Electrical and Electronics Engineers, Inc., (IEEE)

<http://www.ieee.org>

American National Standards Institute (ANSI)

<http://www.ansi.org>

Environmental Protection Agency (EPA)

<http://www.epa.gov/radtown/wireless-tech.html>

National Institutes of Health (NIH)

<http://www.niehs.nih.gov/health/topics/agents/emf/>

Occupational Safety and Health Agency (OSHA)

<http://www.osha.gov/SLTC/radiofrequencyradiation/>

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

<http://www.icnirp.org>

World Health Organization (WHO)

<http://www.who.int/peh-emf/en/>

National Cancer Institute

<http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones>

American Cancer Society (ACS)

[http://www.cancer.org/docroot/PED/content/PED\\_1\\_3X\\_Cellular\\_Phone\\_Towers.asp?sitearea=PED](http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?sitearea=PED)

European Commission Scientific Committee on Emerging and Newly Identified Health Risks

[http://ec.europa.eu/health/ph\\_risk/committees/04\\_scenihp/docs/scenihp\\_o\\_022.pdf](http://ec.europa.eu/health/ph_risk/committees/04_scenihp/docs/scenihp_o_022.pdf)

Fairfax County, Virginia Public School Survey

<http://www.fcps.edu/fts/safety-security/RFEESurvey/>

UK Health Protection Agency Advisory Group on Non-ionising Radiation

[http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb\\_C/1317133826368](http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368)

Norwegian Institute of Public Health

<http://www.fhi.no/dokumenter/545eea7147.pdf>

## Kristina Cottone

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**From:** TrackingUpdates@fedex.com  
**Sent:** Friday, April 26, 2019 9:24 AM  
**To:** Kristina Cottone  
**Subject:** FedEx Shipment 775062295067 Delivered

# Your package has been delivered

Tracking # [775062295067](#)

Ship date:  
**Thu, 4/25/2019**

Delivery date:  
**Fri, 4/26/2019 9:20 am**

**Kristina Cottone**  
Smartlink LLC  
NORTH BILLERICA, MA 01862  
US



**Delivered**

**Ryan Tierney**  
American Tower Corporation  
10 Presidential Way  
WOBURN, MA 01801  
US

## Shipment Facts

Our records indicate that the following package has been delivered.

**Tracking number:** [775062295067](#)

**Status:** Delivered: 04/26/2019 09:20 AM  
Signed for By: P.ANCRI

**Reference:** CTL01041 - CSC

**Signed for by:** P.ANCRI

**Delivery location:** WOBURN, MA

**Delivered to:** Receptionist/Front Desk

**Service type:** FedEx Express Saver®


**Packaging type:** FedEx® Envelope

**Number of pieces:** 1

**Weight:** 0.50 lb.

**Special handling/Services:** Deliver Weekday

**Standard transit:** 4/30/2019 by 4:30 pm

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All weights are estimated.

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# USPS Tracking®

[Track Another Package](#) +

Tracking Number: 9505510019679115229375

On Time

Expected Delivery on

**SATURDAY**

**27** APRIL 2019 ⓘ

by **8:00pm** ⓘ

Status

 **Delivered**

April 27, 2019 at 11:00 am  
Delivered, PO Box  
WILLINGTON, CT 06279

[Get Updates](#) ▼

---

[Text & Email Updates](#)

---

[Tracking History](#)

April 27, 2019, 11:00 am  
Delivered, PO Box  
WILLINGTON, CT 06279

Your item has been delivered and is available at a PO Box at 11:00 am on April 27, 2019 in WILLINGTON, CT 06279.



Tracking

FAQs >

Remove X

Delivered




## Kristina Cottone

---

**From:** TrackingUpdates@fedex.com  
**Sent:** Tuesday, April 30, 2019 11:42 AM  
**To:** Kristina Cottone  
**Subject:** FedEx Shipment 775062409909 Delivered

# Your package has been delivered


Tracking # 775062409909

Ship date: <b>Thu, 4/25/2019</b>	Delivery date: <b>Tue, 4/30/2019 11:38 am</b>
<b>Kristina Cottone</b> Smartlink LLC NORTH BILLERICA, MA 01862 US	 <b>Delivered</b> Town of Willington 40 Old Farms Road WILLINGTON, CT 06279 US
<b>Building Department : Jim Rupert</b>	

## Shipment Facts

Our records indicate that the following package has been delivered.

<b>Tracking number:</b>	<a href="#">775062409909</a>
<b>Status:</b>	Delivered: 04/30/2019 11:38 AM Signed for By: L.LAMB
<b>Reference:</b>	CTL01041 - CSC
<b>Signed for by:</b>	L.LAMB
<b>Delivery location:</b>	WILLINGTON, CT
<b>Delivered to:</b>	Receptionist/Front Desk
<b>Service type:</b>	FedEx Express Saver®
<b>Packaging type:</b>	FedEx® Envelope
<b>Number of pieces:</b>	1
<b>Weight:</b>	1.00 lb.
<b>Special handling/Services:</b>	Deliver Weekday
<b>Standard transit:</b>	4/30/2019 by 4:30 pm

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All weights are estimated.

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## Kristina Cottone


---

**From:** TrackingUpdates@fedex.com  
**Sent:** Tuesday, April 30, 2019 11:42 AM  
**To:** Kristina Cottone  
**Subject:** FedEx Shipment 775062361040 Delivered

# Your package has been delivered

Tracking # 775062361040


Ship date: <b>Thu, 4/25/2019</b>	Delivery date: <b>Tue, 4/30/2019 11:38 am</b>
<b>Kristina Cottone</b> Smartlink LLC NORTH BILLERICA, MA 01862 US	<b>First Selectman: Erika Wicenski</b> Town of Willington 40 Old Farms Road WILLINGTON, CT 06279 US

 **Delivered**

## Shipment Facts

Our records indicate that the following package has been delivered.

<b>Tracking number:</b>	<a href="#">775062361040</a>
<b>Status:</b>	Delivered: 04/30/2019 11:38 AM Signed for By: L.LAMB
<b>Reference:</b>	CTL01041- CSC
<b>Signed for by:</b>	L.LAMB
<b>Delivery location:</b>	WILLINGTON, CT
<b>Delivered to:</b>	Receptionist/Front Desk
<b>Service type:</b>	FedEx Express Saver®
<b>Packaging type:</b>	FedEx® Envelope
<b>Number of pieces:</b>	1
<b>Weight:</b>	1.00 lb.
<b>Special handling/Services:</b>	Deliver Weekday
<b>Standard transit:</b>	4/30/2019 by 4:30 pm

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:42 AM CDT on 04/30/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

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CORPORATION

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**TOWER  
ENGINEERING  
PROFESSIONALS**

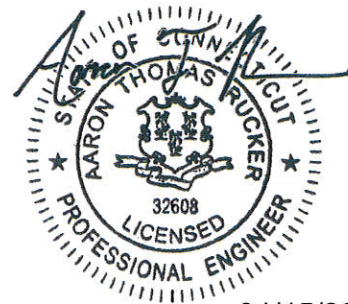
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## Structural Analysis Report

**Structure** : 159 ft Monopole  
**ATC Site Name** : Willington CT, CT  
**ATC Site Number** : 281416  
**Engineering Number** : OAA747052\_C3\_02  
**Proposed Carrier** : AT&T Mobility  
**Carrier Site Name** : Willington Tolland Turnpike  
**Carrier Site Number** : CTL01041 / 10133907  
**Site Location** : 196 Tolland Turnpike  
Willington, CT 06279-1318  
41.875700,-72.269400  
**County** : Tolland  
**Date** : April 12, 2019  
**Max Usage** : 55%  
**Result** : Pass

Prepared By:  
Aaron T. Rucker  
TEP

Reviewed By:



04/15/2019

**COA: PEC.0001553**



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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 159 ft monopole to reflect the change in loading by AT&T MOBILITY.

## Supporting Documents

<b>Tower Drawings</b>	Valmont Dwg #226762, dated August 5, 2013
<b>Foundation Drawing</b>	ATC # 54066971, dated August 7, 2013
<b>Geotechnical Report</b>	Clarence Welti Association, Inc., dated May 7, 2013

## Analysis

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

<b>Basic Wind Speed:</b>	97 mph (3-Second Gust, $V_{asd}$ ) / 125 mph (3-Second Gust, $V_{ult}$ )
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	C
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.17$ , $S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

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

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



**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
156.0	3	Andrew SBNH-1D6565C (60.8 lbs)	Low Profile Platform w/ New Site Pro 1 HRK12 Handrail Kit	(18) 1 5/8" Coax	AT&T MOBILITY
	6	Raycap DC6-48-60-18-8F ("Squid")			

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
156.0	9	Andrew SBNH-1D6565C (60.8 lbs)	-	-	AT&T MOBILITY
	15	Ericsson RRUS			

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
156.0	3	Ericsson RRUS 8843 B2, B66A	Low Profile Platform w/ New Site Pro 1 HRK12 Handrail Kit	(3) 0.39" (10mm) Fiber Trunk (8) 0.78" (19.7mm) 8 AWG 6	AT&T MOBILITY
	3	Ericsson RRUS 4415 B25			
	3	Ericsson RRUS 4449 B5, B12			
	6	Ericsson RRUS-11			
	3	CCI HPA65R-BU8A			
	6	Kathrein Scala 80010966			

<sup>1</sup>Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	48%	Pass
Shaft	49%	Pass
Base Plate	16%	Pass

**Foundations**

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	4,805.8	2,372.7	49%
Shear (Kips)	39.5	21.9	55%

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

**Deflection and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
156.0	Ericsson RRUS 8843 B2, B66A	AT&T MOBILITY	1.705	1.217
	Ericsson RRUS 4415 B25			
	Ericsson RRUS 4449 B5, B12			
	Ericsson RRUS-11			
	CCI HPA65R-BU8A			
	Kathrein Scala 80010966			

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





## **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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



Job Information	
Pole : 281416	Code: ANSI/TIA-222-G
Location : WILLINGTON CT, CT	
Description : Monopole	
Client : AT&T MOBILITY	Struct Class : II
Shape : 18 Sides	Exposure : C
Height : 159.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.18750@in/ft	

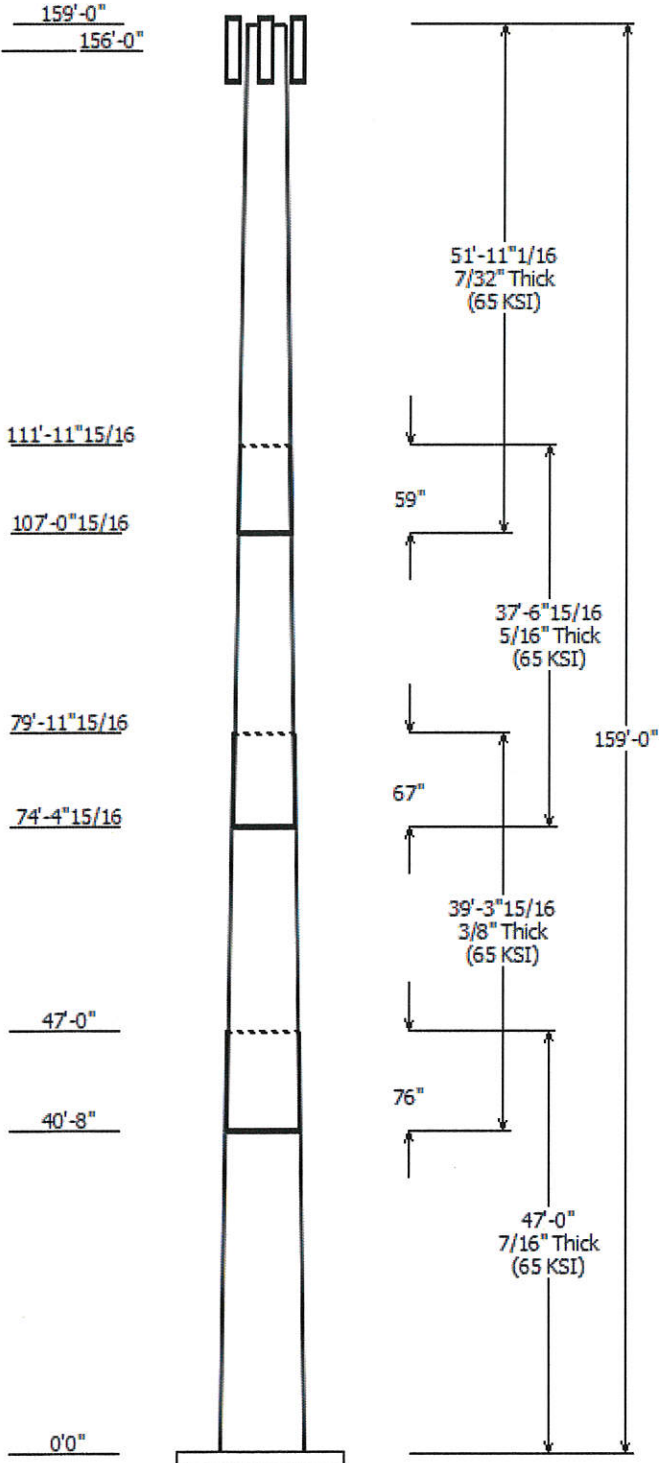
Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Steel Shape	Grade (ksi)
		Across Top	Flats Bottom					
1	47.000	41.43	50.25	0.438		0.000	18 Sides	65
2	39.330	36.00	43.37	0.375	Slip Joint	76.000	18 Sides	65
3	37.580	30.62	37.67	0.313	Slip Joint	67.000	18 Sides	65
4	51.923	22.25	31.98	0.219	Slip Joint	59.000	18 Sides	65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
156.000	156.000	1	Low Profile Platform w/ New
156.000	156.000	3	Andrew SBNH-1D6565C (60.8
156.000	156.000	6	Raycap DC6-48-60-18-8F
156.000	156.000	6	Kathrein Scala 80010966
156.000	156.000	3	CCI HPA65R-BU8A
156.000	156.000	6	Ericsson RRUS-11
156.000	156.000	3	Ericsson RRUS 4449 B5, B12
156.000	156.000	3	Ericsson RRUS 4415 B25
156.000	156.000	3	Ericsson RRUS 8843 B2, B66A

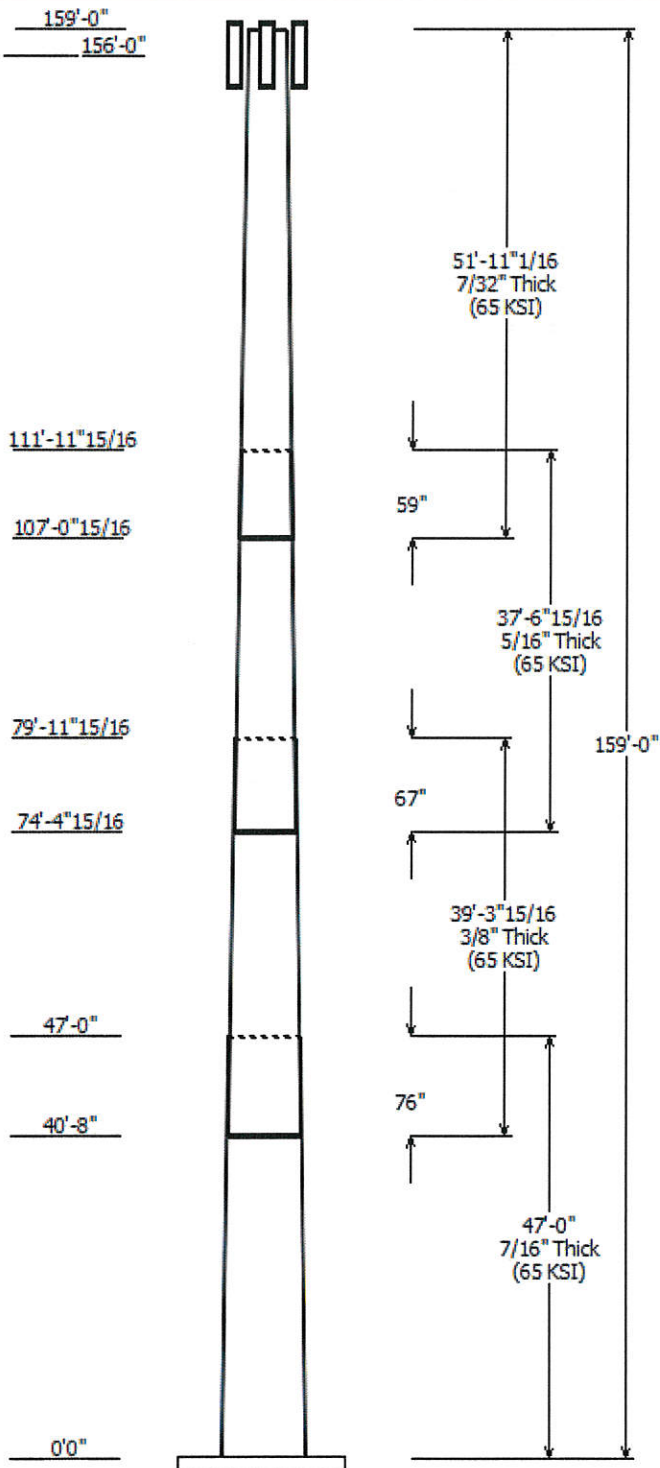
Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	156.0	0.39" (10mm)	No
0.000	156.0	0.78" (19.7mm) 8	No
0.000	156.0	1 5/8" Coax	No

Load Cases	
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

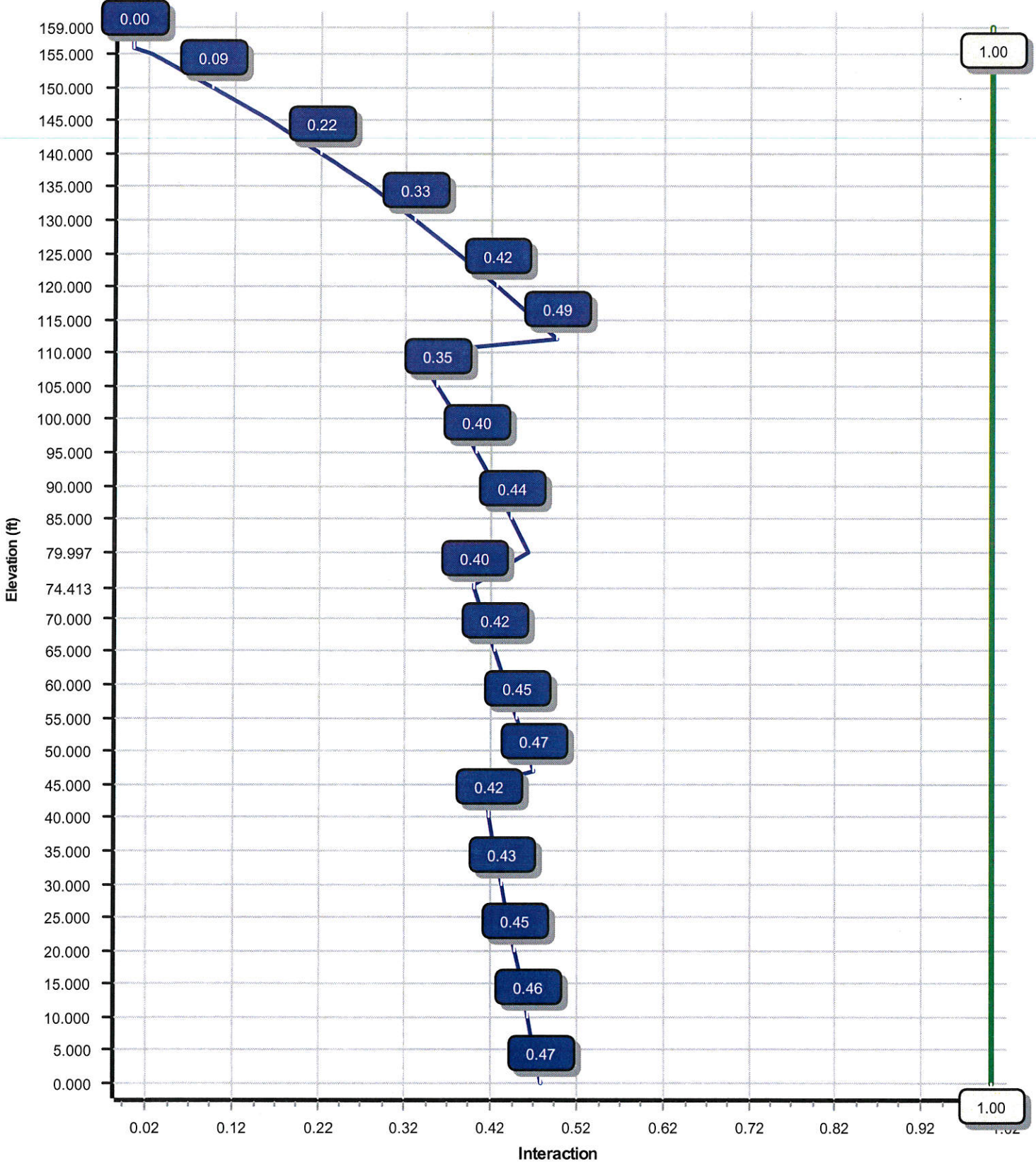
Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2372.67	21.87	37.32
0.9D + 1.6W	2349.48	21.86	27.98
1.2D + 1.0Di + 1.0Wi	730.25	6.80	59.64
(1.2 + 0.2Sds) * DL + E ELFM	119.40	0.94	36.94
(1.2 + 0.2Sds) * DL + E EMAM	189.15	1.51	36.94
(0.9 - 0.2Sds) * DL + E ELFM	117.99	0.94	25.77
(0.9 - 0.2Sds) * DL + E EMAM	186.76	1.51	25.77
1.0D + 1.0W	564.21	5.23	31.12



Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000



Load Case : 1.2D + 1.6W  
Max Ratio 49.44% at 112.0 ft



Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

4/12/2019 5:49:14 PM

Customer: AT&T MOBILITY

Analysis Parameters

Location :	Tolland County, CT	Height (ft) :	159
Code :	ANSI/TIA-222-G	Base Diameter (in) :	50.25
Shape :	18 Sides	Top Diameter (in) :	22.25
Pole Type :	Taper	Taper (in/ft) :	0.188
Pole Manufacturer :	Valmont	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.24		
T <sub>L</sub> (sec):	6	p:	1
S <sub>s</sub> :	0.174	S <sub>1</sub> :	0.063
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.186	S <sub>d1</sub> :	0.101
		C <sub>s</sub> :	0.030
		C <sub>s</sub> Max:	0.030
		C <sub>s</sub> Min:	0.030

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph



Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

4/12/2019 5:49:14 PM

Customer: AT&T MOBILITY

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip		Weight (lb)	Bottom					Top					Taper (in/ft)		
				Joint Type	Joint Len (in)		Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )		W/t Ratio	D/t Ratio
1-18	47.000	0.4375	65		0.00	10,084	50.25	0.00	69.17	21683.9	18.49	114.86	41.43	47.00	56.93	12091.3	14.94	94.71	0.187500
2-18	39.330	0.3750	65	Slip	76.00	6,262	43.37	40.67	51.18	11955.9	18.63	115.67	36.00	80.00	42.40	6799.3	15.16	96.00	0.187500
3-18	37.580	0.3125	65	Slip	67.00	4,292	37.67	74.41	37.06	6534.5	19.49	120.55	30.62	111.99	30.07	3490.7	15.52	98.00	0.187500
4-18	51.923	0.2188	65	Slip	59.00	3,300	31.98	107.08	22.06	2812.0	24.02	146.22	22.25	159.00	15.30	938.0	16.17	101.71	0.187500
Shaft Weight						23,937													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
156.00	Raycap DC6-48-60-18-8F	6	0.75	0.000	31.80	1.470	1.00	114.53	2.407	1.00
156.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.640	0.50	154.19	2.774	0.50
156.00	Ericsson RRUS 4415 B25	3	0.75	0.000	46.00	1.650	0.50	104.05	2.789	0.50
156.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.970	0.50	157.42	3.221	0.50
156.00	Ericsson RRUS-11	6	0.75	0.000	55.00	3.790	0.61	175.38	5.511	0.61
156.00	CCI HPA65R-BU8A	3	0.75	0.000	54.00	11.230	0.71	365.49	15.552	0.71
156.00	Andrew SBNH-1D6565C (60.8 lbs)	3	0.75	0.000	60.80	11.440	0.70	368.46	15.779	0.70
156.00	Kathrein Scala 80010966	6	0.75	0.000	114.60	17.360	0.63	545.16	22.306	0.63
156.00	Low Profile Platform w/ New Site	1	1.00	0.000	2,000.00	27.200	1.00	3,868.28	52.609	1.00
Totals	Num Loadings:9	34			4,119.80			12,327.55		

**Linear Appurtenance Properties**

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Width (in)	Exposed To Wind	Carrier	
0.00	156.00	3	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T MOBILITY
0.00	156.00	8	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T MOBILITY
0.00	156.00	18	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T MOBILITY

Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

4/12/2019 5:49:14 PM

Customer: AT&T MOBILITY

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.4375	50.250	69.168	21,683.9	18.49	114.86	79.7	849.9	0.0	0.0
5.00		0.4375	49.313	67.867	20,482.5	18.11	112.71	80.1	818.1	0.0	1,165.7
10.00		0.4375	48.375	66.565	19,326.3	17.73	110.57	80.5	786.9	0.0	1,143.6
15.00		0.4375	47.438	65.263	18,214.4	17.36	108.43	81.0	756.3	0.0	1,121.5
20.00		0.4375	46.500	63.961	17,146.1	16.98	106.29	81.4	726.3	0.0	1,099.3
25.00		0.4375	45.563	62.659	16,120.3	16.60	104.14	81.9	696.9	0.0	1,077.2
30.00		0.4375	44.625	61.358	15,136.3	16.22	102.00	82.3	668.1	0.0	1,055.0
35.00		0.4375	43.688	60.056	14,193.2	15.84	99.86	82.6	639.9	0.0	1,032.9
40.00		0.4375	42.750	58.754	13,290.1	15.47	97.71	82.6	612.3	0.0	1,010.7
40.67	Bot - Section 2	0.4375	42.625	58.581	13,172.7	15.42	97.43	82.6	608.7	0.0	133.1
45.00		0.4375	41.813	57.452	12,426.1	15.09	95.57	82.6	585.3	0.0	1,603.0
47.00	Top - Section 1	0.3750	42.188	49.766	10,992.4	18.07	112.50	80.1	513.2	0.0	729.4
50.00		0.3750	41.625	49.096	10,554.7	17.81	111.00	80.5	499.4	0.0	504.6
55.00		0.3750	40.688	47.980	9,851.3	17.37	108.50	81.0	476.9	0.0	825.8
60.00		0.3750	39.750	46.864	9,179.9	16.93	106.00	81.5	454.9	0.0	806.8
65.00		0.3750	38.813	45.749	8,539.7	16.49	103.50	82.0	433.4	0.0	787.9
70.00		0.3750	37.875	44.633	7,929.9	16.05	101.00	82.5	412.4	0.0	768.9
74.41	Bot - Section 3	0.3750	37.048	43.648	7,416.5	15.66	98.79	82.6	394.3	0.0	662.9
75.00		0.3750	36.938	43.517	7,349.9	15.60	98.50	82.6	391.9	0.0	160.9
80.00	Top - Section 2	0.3125	36.626	36.017	6,000.5	18.90	117.20	79.2	322.7	0.0	1,350.7
80.00		0.3125	36.625	36.016	6,000.2	18.90	117.20	79.2	322.7	0.0	0.4
85.00		0.3125	35.688	35.086	5,547.3	18.37	114.20	79.8	306.2	0.0	604.9
90.00		0.3125	34.750	34.156	5,117.9	17.84	111.20	80.4	290.1	0.0	589.0
95.00		0.3125	33.813	33.227	4,711.2	17.32	108.20	81.0	274.4	0.0	573.2
100.00		0.3125	32.875	32.297	4,326.6	16.79	105.20	81.7	259.2	0.0	557.4
105.00		0.3125	31.938	31.367	3,963.6	16.26	102.20	82.3	244.4	0.0	541.6
107.00	Bot - Section 4	0.3125	31.548	30.981	3,819.0	16.04	100.95	82.5	238.4	0.0	220.3
110.00		0.3125	31.000	30.437	3,621.4	15.73	99.20	82.6	230.1	0.0	523.0
111.90	Top - Section 3	0.2188	31.064	21.415	2,574.2	23.28	142.01	74.0	163.2	0.0	351.3
115.00		0.2188	30.500	21.024	2,435.6	22.82	139.43	74.6	157.3	0.0	217.1
120.00		0.2188	29.562	20.373	2,216.4	22.07	135.14	75.4	147.7	0.0	352.2
125.00		0.2188	28.625	19.722	2,010.6	21.31	130.86	76.3	138.3	0.0	341.1
130.00		0.2188	27.687	19.071	1,818.1	20.55	126.57	77.2	129.3	0.0	330.0
135.00		0.2188	26.750	18.420	1,638.2	19.80	122.29	78.1	120.6	0.0	318.9
140.00		0.2188	25.812	17.769	1,470.6	19.04	118.00	79.0	112.2	0.0	307.9
145.00		0.2188	24.875	17.119	1,314.8	18.29	113.71	79.9	104.1	0.0	296.8
150.00		0.2188	23.937	16.468	1,170.5	17.53	109.43	80.8	96.3	0.0	285.7
155.00		0.2188	23.000	15.817	1,037.1	16.78	105.14	81.7	88.8	0.0	274.6
156.00		0.2188	22.812	15.687	1,011.7	16.63	104.29	81.8	87.4	0.0	53.6
159.00		0.2188	22.250	15.296	938.0	16.17	101.71	82.4	83.0	0.0	158.1
											23,936.9



Site Number: 281416  
 Site Name: WILLINGTON CT, CT  
 Customer: AT&T MOBILITY

Code: ANSI/TIA-222-G  
 Engineering Number: OAA747052\_C3\_02

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4/12/2019 5:49:14 PM

Load Case: 1.2D + 1.6W	97 mph with No Ice	25 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

### Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		234.3	0.0					0.0	0.0	234.3	0.0	0.0	0.0
5.00		464.2	1,398.9					0.0	118.0	464.2	1,516.9	0.0	0.0
10.00		455.4	1,372.3					0.0	118.0	455.4	1,490.3	0.0	0.0
15.00		453.6	1,345.7					0.0	118.0	453.6	1,463.7	0.0	0.0
20.00		463.8	1,319.2					0.0	118.0	463.8	1,437.1	0.0	0.0
25.00		476.5	1,292.6					0.0	118.0	476.5	1,410.5	0.0	0.0
30.00		485.1	1,266.0					0.0	118.0	485.1	1,384.0	0.0	0.0
35.00		490.7	1,239.4					0.0	118.0	490.7	1,357.4	0.0	0.0
40.00		279.3	1,212.9					0.0	118.0	279.3	1,330.8	0.0	0.0
40.67	Bot - Section 2	251.3	159.7					0.0	15.7	251.3	175.4	0.0	0.0
45.00		319.2	1,923.6					0.0	102.2	319.2	2,025.8	0.0	0.0
47.00	Top - Section 1	252.2	875.3					0.0	47.2	252.2	922.5	0.0	0.0
50.00		403.2	605.5					0.0	70.8	403.2	676.3	0.0	0.0
55.00		502.7	991.0					0.0	118.0	502.7	1,108.9	0.0	0.0
60.00		500.3	968.2					0.0	118.0	500.3	1,086.2	0.0	0.0
65.00		496.8	945.4					0.0	118.0	496.8	1,063.4	0.0	0.0
70.00		463.8	922.6					0.0	118.0	463.8	1,040.6	0.0	0.0
74.41	Bot - Section 3	245.5	795.5					0.0	104.1	245.5	899.6	0.0	0.0
75.00		275.3	193.0					0.0	13.8	275.3	206.9	0.0	0.0
80.00	Top - Section 2	246.4	1,620.8					0.0	117.9	246.4	1,738.7	0.0	0.0
80.00		243.5	0.5					0.0	0.1	243.5	0.6	0.0	0.0
85.00		483.4	725.8					0.0	118.0	483.4	843.8	0.0	0.0
90.00		476.4	706.9					0.0	118.0	476.4	824.8	0.0	0.0
95.00		468.8	687.9					0.0	118.0	468.8	805.8	0.0	0.0
100.00		460.8	668.9					0.0	118.0	460.8	786.8	0.0	0.0
105.00		321.9	649.9					0.0	118.0	321.9	767.9	0.0	0.0
107.08	Bot - Section 4	225.8	264.3					0.0	49.0	225.8	313.3	0.0	0.0
110.00		221.5	627.6					0.0	69.0	221.5	696.5	0.0	0.0
111.99	Top - Section 3	222.5	421.6					0.0	47.0	222.5	468.6	0.0	0.0
115.00		351.0	260.5					0.0	70.9	351.0	331.5	0.0	0.0
120.00		430.6	422.6					0.0	118.0	430.6	540.6	0.0	0.0
125.00		420.5	409.3					0.0	118.0	420.5	527.3	0.0	0.0
130.00		410.1	396.0					0.0	118.0	410.1	514.0	0.0	0.0
135.00		399.4	382.7					0.0	118.0	399.4	500.7	0.0	0.0
140.00		388.4	369.4					0.0	118.0	388.4	487.4	0.0	0.0
145.00		377.0	356.1					0.0	118.0	377.0	474.1	0.0	0.0
150.00		365.4	342.9					0.0	118.0	365.4	460.8	0.0	0.0
155.00		215.0	329.6					0.0	118.0	215.0	447.5	0.0	0.0
156.00	Appurtenance(s)	139.5	64.3	7,573.7	0.0	0.0	4,943.8	0.0	23.6	7,713.2	5,031.7	0.0	0.0
159.00		104.3	189.8					0.0	0.0	104.3	189.8	0.0	0.0
Totals:										22,058.9	37,348.4	0.00	0.00

Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

4/12/2019 5:49:15 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W

97 mph with No Ice

25 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total			
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation		
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	Ratio	
0.00	-37.32	-21.87	0.00	-2,372.67	0.00	2,372.67	4,958.59	2,479.29	10,139.9	5,077.52	0.00	0.00	0.475	
5.00	-35.75	-21.50	0.00	-2,263.30	0.00	2,263.30	4,892.41	2,446.20	9,814.71	4,914.65	0.08	-0.15	0.468	
10.00	-34.20	-21.13	0.00	-2,155.78	0.00	2,155.78	4,825.19	2,412.59	9,492.54	4,753.32	0.32	-0.31	0.461	
15.00	-32.68	-20.76	0.00	-2,050.11	0.00	2,050.11	4,756.92	2,378.46	9,173.57	4,593.60	0.73	-0.46	0.453	
20.00	-31.20	-20.37	0.00	-1,946.31	0.00	1,946.31	4,687.62	2,343.81	8,857.94	4,435.55	1.29	-0.62	0.446	
25.00	-29.74	-19.96	0.00	-1,844.48	0.00	1,844.48	4,617.28	2,308.64	8,545.77	4,279.23	2.02	-0.77	0.438	
30.00	-28.30	-19.53	0.00	-1,744.70	0.00	1,744.70	4,545.89	2,272.95	8,237.17	4,124.71	2.92	-0.93	0.429	
35.00	-26.90	-19.09	0.00	-1,647.05	0.00	1,647.05	4,461.85	2,230.93	7,911.67	3,961.72	3.98	-1.09	0.422	
40.00	-25.55	-18.82	0.00	-1,551.60	0.00	1,551.60	4,365.13	2,182.57	7,570.72	3,790.99	5.21	-1.25	0.415	
40.67	-25.35	-18.60	0.00	-1,539.06	0.00	1,539.06	4,352.24	2,176.12	7,525.83	3,768.51	5.38	-1.27	0.414	
45.00	-23.30	-18.28	0.00	-1,458.44	0.00	1,458.44	4,268.42	2,134.21	7,237.27	3,624.02	6.60	-1.41	0.408	
47.00	-22.36	-18.04	0.00	-1,421.88	0.00	1,421.88	3,589.52	1,794.76	6,160.31	3,084.74	7.21	-1.48	0.467	
50.00	-21.65	-17.67	0.00	-1,367.77	0.00	1,367.77	3,554.97	1,777.49	6,018.22	3,013.58	8.17	-1.58	0.460	
55.00	-20.50	-17.20	0.00	-1,279.43	0.00	1,279.43	3,496.57	1,748.28	5,783.60	2,896.10	9.92	-1.76	0.448	
60.00	-19.38	-16.72	0.00	-1,193.45	0.00	1,193.45	3,437.12	1,718.56	5,551.84	2,780.05	11.86	-1.94	0.435	
65.00	-18.29	-16.25	0.00	-1,109.84	0.00	1,109.84	3,376.63	1,688.32	5,323.05	2,665.48	13.98	-2.11	0.422	
70.00	-17.22	-15.79	0.00	-1,028.61	0.00	1,028.61	3,315.10	1,657.55	5,097.35	2,552.47	16.29	-2.29	0.408	
74.41	-16.31	-15.54	0.00	-958.91	0.00	958.91	3,242.82	1,621.41	4,875.09	2,441.17	18.48	-2.45	0.398	
75.00	-16.09	-15.28	0.00	-949.80	0.00	949.80	3,233.09	1,616.55	4,845.74	2,426.47	18.78	-2.47	0.396	
80.00	-14.34	-14.98	0.00	-873.46	0.00	873.46	2,566.23	1,283.12	3,826.28	1,915.98	21.46	-2.65	0.462	
80.00	-14.32	-14.76	0.00	-873.41	0.00	873.41	2,566.20	1,283.10	3,826.16	1,915.93	21.46	-2.65	0.462	
85.00	-13.45	-14.28	0.00	-799.61	0.00	799.61	2,519.59	1,259.80	3,658.86	1,832.15	24.34	-2.85	0.442	
90.00	-12.61	-13.81	0.00	-728.20	0.00	728.20	2,471.95	1,235.97	3,493.70	1,749.45	27.43	-3.04	0.421	
95.00	-11.78	-13.33	0.00	-659.17	0.00	659.17	2,423.26	1,211.63	3,330.81	1,667.88	30.71	-3.23	0.400	
100.00	-10.98	-12.86	0.00	-592.50	0.00	592.50	2,373.53	1,186.76	3,170.31	1,587.51	34.20	-3.42	0.378	
105.00	-10.21	-12.52	0.00	-528.18	0.00	528.18	2,322.75	1,161.38	3,012.32	1,508.40	37.88	-3.61	0.355	
107.08	-9.89	-12.29	0.00	-502.18	0.00	502.18	2,301.36	1,150.68	2,947.47	1,475.93	39.47	-3.68	0.345	
110.00	-9.19	-12.04	0.00	-466.25	0.00	466.25	2,261.32	1,130.66	2,844.87	1,424.55	41.76	-3.79	0.331	
111.99	-8.72	-11.80	0.00	-442.26	0.00	442.26	1,426.72	713.36	1,809.64	906.16	43.35	-3.86	0.494	
115.00	-8.38	-11.45	0.00	-406.79	0.00	406.79	1,410.75	705.38	1,756.46	879.53	45.82	-3.96	0.469	
120.00	-7.83	-11.01	0.00	-349.55	0.00	349.55	1,383.37	691.69	1,668.66	835.57	50.09	-4.19	0.424	
125.00	-7.30	-10.58	0.00	-294.50	0.00	294.50	1,354.95	677.48	1,581.78	792.06	54.58	-4.39	0.377	
130.00	-6.79	-10.15	0.00	-241.61	0.00	241.61	1,325.49	662.75	1,495.92	749.07	59.28	-4.58	0.328	
135.00	-6.29	-9.73	0.00	-190.87	0.00	190.87	1,294.99	647.49	1,411.22	706.66	64.16	-4.75	0.275	
140.00	-5.82	-9.31	0.00	-142.23	0.00	142.23	1,263.44	631.72	1,327.80	664.88	69.22	-4.90	0.219	
145.00	-5.37	-8.91	0.00	-95.67	0.00	95.67	1,230.86	615.43	1,245.77	623.81	74.40	-5.01	0.158	
150.00	-4.93	-8.51	0.00	-51.14	0.00	51.14	1,197.23	598.61	1,165.25	583.49	79.69	-5.09	0.092	
155.00	-4.50	-8.25	0.00	-8.62	0.00	8.62	1,162.56	581.28	1,086.38	544.00	85.04	-5.13	0.020	
156.00	-0.18	-0.12	0.00	-0.36	0.00	0.36	1,155.50	577.75	1,070.81	536.20	86.11	-5.13	0.001	
159.00	0.00	-0.10	0.00	0.00	0.00	0.00	1,134.07	567.04	1,024.54	513.03	89.33	-5.13	0.000	

<b>Load Case:</b> 0.9D + 1.6W	97 mph with No Ice (Reduced DL)	25 Iterations
Gust Response Factor : 1.10		Wind Importance Factor : 1.00
Dead Load Factor : 0.90		
Wind Load Factor : 1.60		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		234.3	0.0					0.0	0.0	234.3	0.0	0.0	0.0
5.00		464.2	1,049.2					0.0	88.5	464.2	1,137.6	0.0	0.0
10.00		455.4	1,029.2					0.0	88.5	455.4	1,117.7	0.0	0.0
15.00		453.6	1,009.3					0.0	88.5	453.6	1,097.8	0.0	0.0
20.00		463.8	989.4					0.0	88.5	463.8	1,077.8	0.0	0.0
25.00		476.5	969.4					0.0	88.5	476.5	1,057.9	0.0	0.0
30.00		485.1	949.5					0.0	88.5	485.1	1,038.0	0.0	0.0
35.00		490.7	929.6					0.0	88.5	490.7	1,018.0	0.0	0.0
40.00		279.3	909.6					0.0	88.5	279.3	998.1	0.0	0.0
40.67	Bot - Section 2	251.3	119.8					0.0	11.8	251.3	131.6	0.0	0.0
45.00		319.2	1,442.7					0.0	76.7	319.2	1,519.4	0.0	0.0
47.00	Top - Section 1	252.2	656.5					0.0	35.4	252.2	691.9	0.0	0.0
50.00		403.2	454.1					0.0	53.1	403.2	507.2	0.0	0.0
55.00		502.7	743.2					0.0	88.5	502.7	831.7	0.0	0.0
60.00		500.3	726.2					0.0	88.5	500.3	814.6	0.0	0.0
65.00		496.8	709.1					0.0	88.5	496.8	797.5	0.0	0.0
70.00		463.8	692.0					0.0	88.5	463.8	780.5	0.0	0.0
74.41	Bot - Section 3	245.5	596.6					0.0	78.1	245.5	674.7	0.0	0.0
75.00		275.3	144.8					0.0	10.4	275.3	155.2	0.0	0.0
80.00	Top - Section 2	246.4	1,215.6					0.0	88.4	246.4	1,304.0	0.0	0.0
80.00		243.5	0.4					0.0	0.1	243.5	0.4	0.0	0.0
85.00		483.4	544.4					0.0	88.5	483.4	632.8	0.0	0.0
90.00		476.4	530.1					0.0	88.5	476.4	618.6	0.0	0.0
95.00		468.8	515.9					0.0	88.5	468.8	604.4	0.0	0.0
100.00		460.8	501.7					0.0	88.5	460.8	590.1	0.0	0.0
105.00		321.9	487.4					0.0	88.5	321.9	575.9	0.0	0.0
107.08	Bot - Section 4	225.8	198.3					0.0	36.7	225.8	235.0	0.0	0.0
110.00		221.5	470.7					0.0	51.7	221.5	522.4	0.0	0.0
111.99	Top - Section 3	222.5	316.2					0.0	35.3	222.5	351.5	0.0	0.0
115.00		351.0	195.4					0.0	53.2	351.0	248.6	0.0	0.0
120.00		430.6	316.9					0.0	88.5	430.6	405.4	0.0	0.0
125.00		420.5	307.0					0.0	88.5	420.5	395.4	0.0	0.0
130.00		410.1	297.0					0.0	88.5	410.1	385.5	0.0	0.0
135.00		399.4	287.0					0.0	88.5	399.4	375.5	0.0	0.0
140.00		388.4	277.1					0.0	88.5	388.4	365.5	0.0	0.0
145.00		377.0	267.1					0.0	88.5	377.0	355.6	0.0	0.0
150.00		365.4	257.1					0.0	88.5	365.4	345.6	0.0	0.0
155.00		215.0	247.2					0.0	88.5	215.0	335.6	0.0	0.0
156.00	Appurtenance(s)	139.5	48.2	7,573.7	0.0	0.0	3,707.8	0.0	17.7	7,713.2	3,773.8	0.0	0.0
159.00		104.3	142.3					0.0	0.0	104.3	142.3	0.0	0.0
<b>Totals:</b>										22,058.9	28,011.3	0.00	0.00

Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

4/12/2019 5:49:16 PM

Customer: AT&T MOBILITY

<b>Load Case:</b> 0.9D + 1.6W	97 mph with No Ice (Reduced DL)	25 Iterations
Gust Response Factor : 1.10		Wind Importance Factor : 1.00
Dead Load Factor : 0.90		
Wind Load Factor : 1.60		

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-27.98	-21.86	0.00	-2,349.48	0.00	2,349.48	4,958.59	2,479.29	10,139.9	5,077.52	0.00	0.00	0.468
5.00	-26.79	-21.47	0.00	-2,240.18	0.00	2,240.18	4,892.41	2,446.20	9,814.71	4,914.65	0.08	-0.15	0.461
10.00	-25.62	-21.08	0.00	-2,132.84	0.00	2,132.84	4,825.19	2,412.59	9,492.54	4,753.32	0.32	-0.30	0.454
15.00	-24.47	-20.68	0.00	-2,027.47	0.00	2,027.47	4,756.92	2,378.46	9,173.57	4,593.60	0.72	-0.46	0.447
20.00	-23.34	-20.27	0.00	-1,924.07	0.00	1,924.07	4,687.62	2,343.81	8,857.94	4,435.55	1.28	-0.61	0.439
25.00	-22.23	-19.84	0.00	-1,822.73	0.00	1,822.73	4,617.28	2,308.64	8,545.77	4,279.23	2.00	-0.77	0.431
30.00	-21.15	-19.40	0.00	-1,723.52	0.00	1,723.52	4,545.89	2,272.95	8,237.17	4,124.71	2.89	-0.92	0.423
35.00	-20.09	-18.95	0.00	-1,626.53	0.00	1,626.53	4,461.85	2,230.93	7,911.67	3,961.72	3.94	-1.08	0.415
40.00	-19.07	-18.68	0.00	-1,531.81	0.00	1,531.81	4,365.13	2,182.57	7,570.72	3,790.99	5.15	-1.24	0.409
40.67	-18.91	-18.45	0.00	-1,519.36	0.00	1,519.36	4,352.24	2,176.12	7,525.83	3,768.51	5.32	-1.26	0.408
45.00	-17.37	-18.12	0.00	-1,439.41	0.00	1,439.41	4,268.42	2,134.21	7,237.27	3,624.02	6.53	-1.40	0.401
47.00	-16.66	-17.88	0.00	-1,403.17	0.00	1,403.17	3,589.52	1,794.76	6,160.31	3,084.74	7.13	-1.46	0.460
50.00	-16.12	-17.50	0.00	-1,349.53	0.00	1,349.53	3,554.97	1,777.49	6,018.22	3,013.58	8.08	-1.56	0.452
55.00	-15.25	-17.02	0.00	-1,262.03	0.00	1,262.03	3,496.57	1,748.28	5,783.60	2,896.10	9.81	-1.74	0.440
60.00	-14.40	-16.54	0.00	-1,176.92	0.00	1,176.92	3,437.12	1,718.56	5,551.84	2,780.05	11.72	-1.91	0.428
65.00	-13.57	-16.06	0.00	-1,094.22	0.00	1,094.22	3,376.63	1,688.32	5,323.05	2,665.48	13.82	-2.09	0.415
70.00	-12.77	-15.60	0.00	-1,013.94	0.00	1,013.94	3,315.10	1,657.55	5,097.35	2,552.47	16.10	-2.26	0.401
74.41	-12.08	-15.35	0.00	-945.08	0.00	945.08	3,242.82	1,621.41	4,875.09	2,441.17	18.26	-2.42	0.391
75.00	-11.91	-15.09	0.00	-936.08	0.00	936.08	3,233.09	1,616.55	4,845.74	2,426.47	18.56	-2.44	0.390
80.00	-10.60	-14.80	0.00	-860.71	0.00	860.71	2,566.23	1,283.12	3,826.28	1,915.98	21.21	-2.61	0.453
80.00	-10.58	-14.57	0.00	-860.66	0.00	860.66	2,566.20	1,283.10	3,826.16	1,915.93	21.21	-2.61	0.453
85.00	-9.92	-14.09	0.00	-787.79	0.00	787.79	2,519.59	1,259.80	3,658.86	1,832.15	24.05	-2.81	0.434
90.00	-9.29	-13.62	0.00	-717.33	0.00	717.33	2,471.95	1,235.97	3,493.70	1,749.45	27.10	-3.00	0.414
95.00	-8.66	-13.15	0.00	-649.24	0.00	649.24	2,423.26	1,211.63	3,330.81	1,667.88	30.34	-3.19	0.393
100.00	-8.06	-12.68	0.00	-583.51	0.00	583.51	2,373.53	1,186.76	3,170.31	1,587.51	33.78	-3.38	0.371
105.00	-7.48	-12.34	0.00	-520.13	0.00	520.13	2,322.75	1,161.38	3,012.32	1,508.40	37.42	-3.56	0.348
107.08	-7.24	-12.11	0.00	-494.50	0.00	494.50	2,301.36	1,150.68	2,947.47	1,475.93	38.98	-3.64	0.338
110.00	-6.71	-11.86	0.00	-459.10	0.00	459.10	2,261.32	1,130.66	2,844.87	1,424.55	41.24	-3.74	0.325
111.99	-6.36	-11.63	0.00	-435.45	0.00	435.45	1,426.72	713.36	1,809.64	906.16	42.81	-3.81	0.485
115.00	-6.10	-11.28	0.00	-400.49	0.00	400.49	1,410.75	705.38	1,756.46	879.53	45.24	-3.91	0.460
120.00	-5.69	-10.84	0.00	-344.09	0.00	344.09	1,383.37	691.69	1,668.66	835.57	49.46	-4.13	0.416
125.00	-5.29	-10.41	0.00	-289.88	0.00	289.88	1,354.95	677.48	1,581.78	792.06	53.89	-4.33	0.370
130.00	-4.91	-9.99	0.00	-237.82	0.00	237.82	1,325.49	662.75	1,495.92	749.07	58.52	-4.52	0.321
135.00	-4.54	-9.57	0.00	-187.87	0.00	187.87	1,294.99	647.49	1,411.22	706.66	63.34	-4.69	0.270
140.00	-4.19	-9.17	0.00	-140.01	0.00	140.01	1,263.44	631.72	1,327.80	664.88	68.32	-4.83	0.214
145.00	-3.85	-8.77	0.00	-94.18	0.00	94.18	1,230.86	615.43	1,245.77	623.81	73.44	-4.94	0.154
150.00	-3.53	-8.38	0.00	-50.36	0.00	50.36	1,197.23	598.61	1,165.25	583.49	78.65	-5.02	0.089
155.00	-3.21	-8.13	0.00	-8.48	0.00	8.48	1,162.56	581.28	1,086.38	544.00	83.93	-5.06	0.019
156.00	-0.13	-0.12	0.00	-0.35	0.00	0.35	1,155.50	577.75	1,070.81	536.20	84.99	-5.06	0.001
159.00	0.00	-0.10	0.00	0.00	0.00	0.00	1,134.07	567.04	1,024.54	513.03	88.16	-5.06	0.000

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	24 Iterations
Gust Response Factor : 1.10	Ice Dead Load Factor : 1.00	Wind Importance Factor : 1.00
Dead Load Factor : 1.20		Ice Importance Factor : 1.00
Wind Load Factor : 1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		76.2	0.0					0.0	0.0	76.2	0.0	0.0	0.0
5.00		151.6	1,891.1					0.0	118.0	151.6	2,009.1	0.0	0.0
10.00		149.7	1,913.5					0.0	118.0	149.7	2,031.4	0.0	0.0
15.00		149.7	1,905.6					0.0	118.0	149.7	2,023.6	0.0	0.0
20.00		153.6	1,887.9					0.0	118.0	153.6	2,005.8	0.0	0.0
25.00		158.4	1,865.0					0.0	118.0	158.4	1,983.0	0.0	0.0
30.00		161.7	1,839.0					0.0	118.0	161.7	1,957.0	0.0	0.0
35.00		164.1	1,810.8					0.0	118.0	164.1	1,928.7	0.0	0.0
40.00		93.6	1,780.9					0.0	118.0	93.6	1,898.8	0.0	0.0
40.67	Bot - Section 2	84.3	235.8					0.0	15.7	84.3	251.5	0.0	0.0
45.00		107.1	2,420.7					0.0	102.2	107.1	2,522.9	0.0	0.0
47.00	Top - Section 1	84.8	1,104.5					0.0	47.2	84.8	1,151.7	0.0	0.0
50.00		135.9	946.8					0.0	70.8	135.9	1,017.6	0.0	0.0
55.00		169.8	1,552.3					0.0	118.0	169.8	1,670.2	0.0	0.0
60.00		169.5	1,522.4					0.0	118.0	169.5	1,640.4	0.0	0.0
65.00		168.8	1,492.0					0.0	118.0	168.8	1,610.0	0.0	0.0
70.00		158.1	1,461.0					0.0	118.0	158.1	1,579.0	0.0	0.0
74.41	Bot - Section 3	83.8	1,264.2					0.0	104.1	83.8	1,368.3	0.0	0.0
75.00		94.2	256.4					0.0	13.8	94.2	270.2	0.0	0.0
80.00	Top - Section 2	84.3	2,149.7					0.0	117.9	84.3	2,267.6	0.0	0.0
80.00		83.6	0.8					0.0	0.1	83.6	0.9	0.0	0.0
85.00		166.2	1,245.7					0.0	118.0	166.2	1,363.7	0.0	0.0
90.00		164.3	1,217.0					0.0	118.0	164.3	1,335.0	0.0	0.0
95.00		162.3	1,188.0					0.0	118.0	162.3	1,306.0	0.0	0.0
100.00		160.2	1,158.7					0.0	118.0	160.2	1,276.7	0.0	0.0
105.00		112.2	1,129.2					0.0	118.0	112.2	1,247.1	0.0	0.0
107.08	Bot - Section 4	78.9	461.8					0.0	49.0	78.9	510.8	0.0	0.0
110.00		77.5	905.4					0.0	69.0	77.5	974.4	0.0	0.0
111.99	Top - Section 3	78.0	609.4					0.0	47.0	78.0	656.4	0.0	0.0
115.00		123.5	539.6					0.0	70.9	123.5	610.5	0.0	0.0
120.00		152.0	875.1					0.0	118.0	152.0	993.1	0.0	0.0
125.00		149.2	850.4					0.0	118.0	149.2	968.4	0.0	0.0
130.00		146.3	825.6					0.0	118.0	146.3	943.6	0.0	0.0
135.00		143.2	800.6					0.0	118.0	143.2	918.5	0.0	0.0
140.00		140.1	775.4					0.0	118.0	140.1	893.4	0.0	0.0
145.00		136.8	750.1					0.0	118.0	136.8	868.1	0.0	0.0
150.00		133.5	724.6					0.0	118.0	133.5	842.6	0.0	0.0
155.00		78.9	699.0					0.0	118.0	78.9	817.0	0.0	0.0
156.00	Appurtenance(s)	51.5	137.8	1,871.9	0.0	0.0	11,365.1	0.0	23.6	1,923.3	11,526.6	0.0	0.0
159.00		38.5	405.6					0.0	0.0	38.5	405.6	0.0	0.0
<b>Totals:</b>										6,847.68	59,645.1	0.00	0.00



Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

4/12/2019 5:49:17 PM

Customer: AT&T MOBILITY

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	24 Iterations
Gust Response Factor : 1.10	Ice Dead Load Factor : 1.00	Wind Importance Factor : 1.00
Dead Load Factor : 1.20		Ice Importance Factor : 1.00
Wind Load Factor : 1.00		

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-59.64	-6.80	0.00	-730.25	0.00	730.25	4,958.59	2,479.29	10,139.9	5,077.52	0.00	0.00	0.156
5.00	-57.63	-6.69	0.00	-696.27	0.00	696.27	4,892.41	2,446.20	9,814.71	4,914.65	0.03	-0.05	0.153
10.00	-55.59	-6.58	0.00	-662.82	0.00	662.82	4,825.19	2,412.59	9,492.54	4,753.32	0.10	-0.09	0.151
15.00	-53.56	-6.47	0.00	-629.90	0.00	629.90	4,756.92	2,378.46	9,173.57	4,593.60	0.22	-0.14	0.148
20.00	-51.55	-6.36	0.00	-597.53	0.00	597.53	4,687.62	2,343.81	8,857.94	4,435.55	0.40	-0.19	0.146
25.00	-49.56	-6.23	0.00	-565.73	0.00	565.73	4,617.28	2,308.64	8,545.77	4,279.23	0.62	-0.24	0.143
30.00	-47.60	-6.10	0.00	-534.56	0.00	534.56	4,545.89	2,272.95	8,237.17	4,124.71	0.90	-0.29	0.140
35.00	-45.67	-5.97	0.00	-504.04	0.00	504.04	4,461.85	2,230.93	7,911.67	3,961.72	1.22	-0.34	0.137
40.00	-43.77	-5.88	0.00	-474.19	0.00	474.19	4,365.13	2,182.57	7,570.72	3,790.99	1.60	-0.38	0.135
40.67	-43.52	-5.82	0.00	-470.27	0.00	470.27	4,352.24	2,176.12	7,525.83	3,768.51	1.65	-0.39	0.135
45.00	-40.99	-5.71	0.00	-445.06	0.00	445.06	4,268.42	2,134.21	7,237.27	3,624.02	2.03	-0.43	0.132
47.00	-39.84	-5.64	0.00	-433.63	0.00	433.63	3,589.52	1,794.76	6,160.31	3,084.74	2.21	-0.45	0.152
50.00	-38.82	-5.52	0.00	-416.72	0.00	416.72	3,554.97	1,777.49	6,018.22	3,013.58	2.51	-0.48	0.149
55.00	-37.14	-5.37	0.00	-389.10	0.00	389.10	3,496.57	1,748.28	5,783.60	2,896.10	3.05	-0.54	0.145
60.00	-35.50	-5.22	0.00	-362.23	0.00	362.23	3,437.12	1,718.56	5,551.84	2,780.05	3.64	-0.59	0.141
65.00	-33.89	-5.07	0.00	-336.13	0.00	336.13	3,376.63	1,688.32	5,323.05	2,665.48	4.29	-0.65	0.136
70.00	-32.30	-4.92	0.00	-310.79	0.00	310.79	3,315.10	1,657.55	5,097.35	2,552.47	4.99	-0.70	0.132
74.41	-30.94	-4.83	0.00	-289.09	0.00	289.09	3,242.82	1,621.41	4,875.09	2,441.17	5.66	-0.75	0.128
75.00	-30.66	-4.75	0.00	-286.25	0.00	286.25	3,233.09	1,616.55	4,845.74	2,426.47	5.76	-0.75	0.127
80.00	-28.40	-4.65	0.00	-262.51	0.00	262.51	2,566.23	1,283.12	3,826.28	1,915.98	6.57	-0.81	0.148
80.00	-28.39	-4.58	0.00	-262.50	0.00	262.50	2,566.20	1,283.10	3,826.16	1,915.93	6.57	-0.81	0.148
85.00	-27.03	-4.42	0.00	-239.60	0.00	239.60	2,519.59	1,259.80	3,658.86	1,832.15	7.45	-0.87	0.142
90.00	-25.69	-4.26	0.00	-217.49	0.00	217.49	2,471.95	1,235.97	3,493.70	1,749.45	8.39	-0.93	0.135
95.00	-24.38	-4.10	0.00	-196.18	0.00	196.18	2,423.26	1,211.63	3,330.81	1,667.88	9.39	-0.98	0.128
100.00	-23.11	-3.94	0.00	-175.67	0.00	175.67	2,373.53	1,186.76	3,170.31	1,587.51	10.45	-1.04	0.120
105.00	-21.86	-3.82	0.00	-155.96	0.00	155.96	2,322.75	1,161.38	3,012.32	1,508.40	11.57	-1.09	0.113
107.08	-21.35	-3.74	0.00	-148.02	0.00	148.02	2,301.36	1,150.68	2,947.47	1,475.93	12.05	-1.12	0.110
110.00	-20.37	-3.66	0.00	-137.08	0.00	137.08	2,261.32	1,130.66	2,844.87	1,424.55	12.74	-1.15	0.105
111.99	-19.72	-3.57	0.00	-129.79	0.00	129.79	1,426.72	713.36	1,809.64	906.16	13.23	-1.17	0.157
115.00	-19.11	-3.45	0.00	-119.05	0.00	119.05	1,410.75	705.38	1,756.46	879.53	13.97	-1.20	0.149
120.00	-18.11	-3.30	0.00	-101.79	0.00	101.79	1,383.37	691.69	1,668.66	835.57	15.26	-1.26	0.135
125.00	-17.15	-3.15	0.00	-85.29	0.00	85.29	1,354.95	677.48	1,581.78	792.06	16.62	-1.32	0.120
130.00	-16.20	-2.99	0.00	-69.56	0.00	69.56	1,325.49	662.75	1,495.92	749.07	18.04	-1.38	0.105
135.00	-15.29	-2.84	0.00	-54.60	0.00	54.60	1,294.99	647.49	1,411.22	706.66	19.51	-1.43	0.089
140.00	-14.40	-2.68	0.00	-40.41	0.00	40.41	1,263.44	631.72	1,327.80	664.88	21.02	-1.47	0.072
145.00	-13.53	-2.53	0.00	-26.99	0.00	26.99	1,230.86	615.43	1,245.77	623.81	22.58	-1.50	0.054
150.00	-12.69	-2.38	0.00	-14.33	0.00	14.33	1,197.23	598.61	1,165.25	583.49	24.16	-1.52	0.035
155.00	-11.88	-2.28	0.00	-2.43	0.00	2.43	1,162.56	581.28	1,086.38	544.00	25.76	-1.53	0.015
156.00	-0.40	-0.05	0.00	-0.15	0.00	0.15	1,155.50	577.75	1,070.81	536.20	26.09	-1.53	0.001
159.00	0.00	-0.04	0.00	0.00	0.00	0.00	1,134.07	567.04	1,024.54	513.03	27.05	-1.53	0.000

<b>Load Case:</b> 1.0D + 1.0W	Serviceability 60 mph	24 Iterations
Gust Response Factor : 1.10		Wind Importance Factor : 1.00
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		56.0	0.0					0.0	0.0	56.0	0.0	0.0	0.0
5.00		111.0	1,165.7					0.0	98.3	111.0	1,264.0	0.0	0.0
10.00		108.9	1,143.6					0.0	98.3	108.9	1,241.9	0.0	0.0
15.00		108.5	1,121.5					0.0	98.3	108.5	1,219.8	0.0	0.0
20.00		110.9	1,099.3					0.0	98.3	110.9	1,197.6	0.0	0.0
25.00		113.9	1,077.2					0.0	98.3	113.9	1,175.5	0.0	0.0
30.00		116.0	1,055.0					0.0	98.3	116.0	1,153.3	0.0	0.0
35.00		117.3	1,032.9					0.0	98.3	117.3	1,131.2	0.0	0.0
40.00		66.8	1,010.7					0.0	98.3	66.8	1,109.0	0.0	0.0
40.67	Bot - Section 2	60.1	133.1					0.0	13.1	60.1	146.2	0.0	0.0
45.00		76.3	1,603.0					0.0	85.2	76.3	1,688.2	0.0	0.0
47.00	Top - Section 1	60.3	729.4					0.0	39.3	60.3	768.7	0.0	0.0
50.00		96.4	504.6					0.0	59.0	96.4	563.6	0.0	0.0
55.00		120.2	825.8					0.0	98.3	120.2	924.1	0.0	0.0
60.00		119.6	806.8					0.0	98.3	119.6	905.1	0.0	0.0
65.00		118.8	787.9					0.0	98.3	118.8	886.2	0.0	0.0
70.00		110.9	768.9					0.0	98.3	110.9	867.2	0.0	0.0
74.41	Bot - Section 3	58.7	662.9					0.0	86.8	58.7	749.6	0.0	0.0
75.00		65.8	160.9					0.0	11.5	65.8	172.4	0.0	0.0
80.00	Top - Section 2	58.9	1,350.7					0.0	98.2	58.9	1,448.9	0.0	0.0
80.00		58.2	0.4					0.0	0.1	58.2	0.5	0.0	0.0
85.00		115.6	604.9					0.0	98.3	115.6	703.2	0.0	0.0
90.00		113.9	589.0					0.0	98.3	113.9	687.3	0.0	0.0
95.00		112.1	573.2					0.0	98.3	112.1	671.5	0.0	0.0
100.00		110.2	557.4					0.0	98.3	110.2	655.7	0.0	0.0
105.00		77.0	541.6					0.0	98.3	77.0	639.9	0.0	0.0
107.08	Bot - Section 4	54.0	220.3					0.0	40.8	54.0	261.1	0.0	0.0
110.00		53.0	523.0					0.0	57.5	53.0	580.5	0.0	0.0
111.99	Top - Section 3	53.2	351.3					0.0	39.2	53.2	390.5	0.0	0.0
115.00		83.9	217.1					0.0	59.1	83.9	276.2	0.0	0.0
120.00		103.0	352.2					0.0	98.3	103.0	450.5	0.0	0.0
125.00		100.6	341.1					0.0	98.3	100.6	439.4	0.0	0.0
130.00		98.1	330.0					0.0	98.3	98.1	428.3	0.0	0.0
135.00		95.5	318.9					0.0	98.3	95.5	417.2	0.0	0.0
140.00		92.9	307.9					0.0	98.3	92.9	406.2	0.0	0.0
145.00		90.2	296.8					0.0	98.3	90.2	395.1	0.0	0.0
150.00		87.4	285.7					0.0	98.3	87.4	384.0	0.0	0.0
155.00		51.4	274.6					0.0	98.3	51.4	372.9	0.0	0.0
156.00	Appurtenance(s)	33.4	53.6	1,811.1	0.0	0.0	4,119.8	0.0	19.7	1,844.5	4,193.1	0.0	0.0
159.00		24.9	158.1					0.0	0.0	24.9	158.1	0.0	0.0
Totals:										5,275.01	31,123.7	0.00	0.00



Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

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Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

24 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.12	-5.23	0.00	-564.21	0.00	564.21	4,958.59	2,479.29	10,139.9	5,077.52	0.00	0.00	0.117
5.00	-29.85	-5.14	0.00	-538.07	0.00	538.07	4,892.41	2,446.20	9,814.71	4,914.65	0.02	-0.04	0.116
10.00	-28.61	-5.04	0.00	-512.39	0.00	512.39	4,825.19	2,412.59	9,492.54	4,753.32	0.08	-0.07	0.114
15.00	-27.39	-4.95	0.00	-487.17	0.00	487.17	4,756.92	2,378.46	9,173.57	4,593.60	0.17	-0.11	0.112
20.00	-26.19	-4.85	0.00	-462.41	0.00	462.41	4,687.62	2,343.81	8,857.94	4,435.55	0.31	-0.15	0.110
25.00	-25.01	-4.75	0.00	-438.14	0.00	438.14	4,617.28	2,308.64	8,545.77	4,279.23	0.48	-0.18	0.108
30.00	-23.85	-4.65	0.00	-414.37	0.00	414.37	4,545.89	2,272.95	8,237.17	4,124.71	0.69	-0.22	0.106
35.00	-22.72	-4.54	0.00	-391.12	0.00	391.12	4,461.85	2,230.93	7,911.67	3,961.72	0.95	-0.26	0.104
40.00	-21.61	-4.48	0.00	-368.41	0.00	368.41	4,365.13	2,182.57	7,570.72	3,790.99	1.24	-0.30	0.102
40.67	-21.46	-4.42	0.00	-365.42	0.00	365.42	4,352.24	2,176.12	7,525.83	3,768.51	1.28	-0.30	0.102
45.00	-19.77	-4.35	0.00	-346.25	0.00	346.25	4,268.42	2,134.21	7,237.27	3,624.02	1.57	-0.34	0.100
47.00	-19.00	-4.29	0.00	-337.55	0.00	337.55	3,589.52	1,794.76	6,160.31	3,084.74	1.71	-0.35	0.115
50.00	-18.44	-4.20	0.00	-324.69	0.00	324.69	3,554.97	1,777.49	6,018.22	3,013.58	1.94	-0.37	0.113
55.00	-17.51	-4.09	0.00	-303.69	0.00	303.69	3,496.57	1,748.28	5,783.60	2,896.10	2.36	-0.42	0.110
60.00	-16.60	-3.97	0.00	-283.26	0.00	283.26	3,437.12	1,718.56	5,551.84	2,780.05	2.82	-0.46	0.107
65.00	-15.71	-3.86	0.00	-263.40	0.00	263.40	3,376.63	1,688.32	5,323.05	2,665.48	3.32	-0.50	0.103
70.00	-14.85	-3.75	0.00	-244.11	0.00	244.11	3,315.10	1,657.55	5,097.35	2,552.47	3.87	-0.54	0.100
74.41	-14.10	-3.69	0.00	-227.57	0.00	227.57	3,242.82	1,621.41	4,875.09	2,441.17	4.39	-0.58	0.098
75.00	-13.92	-3.63	0.00	-225.41	0.00	225.41	3,233.09	1,616.55	4,845.74	2,426.47	4.46	-0.59	0.097
80.00	-12.47	-3.56	0.00	-207.29	0.00	207.29	2,566.23	1,283.12	3,826.28	1,915.98	5.10	-0.63	0.113
80.00	-12.47	-3.50	0.00	-207.28	0.00	207.28	2,566.20	1,283.10	3,826.16	1,915.93	5.10	-0.63	0.113
85.00	-11.77	-3.39	0.00	-189.76	0.00	189.76	2,519.59	1,259.80	3,658.86	1,832.15	5.78	-0.68	0.108
90.00	-11.08	-3.28	0.00	-172.82	0.00	172.82	2,471.95	1,235.97	3,493.70	1,749.45	6.52	-0.72	0.103
95.00	-10.41	-3.16	0.00	-156.44	0.00	156.44	2,423.26	1,211.63	3,330.81	1,667.88	7.30	-0.77	0.098
100.00	-9.75	-3.05	0.00	-140.62	0.00	140.62	2,373.53	1,186.76	3,170.31	1,587.51	8.13	-0.81	0.093
105.00	-9.11	-2.97	0.00	-125.36	0.00	125.36	2,322.75	1,161.38	3,012.32	1,508.40	9.00	-0.86	0.087
107.08	-8.85	-2.92	0.00	-119.20	0.00	119.20	2,301.36	1,150.68	2,947.47	1,475.93	9.38	-0.87	0.085
110.00	-8.27	-2.86	0.00	-110.67	0.00	110.67	2,261.32	1,130.66	2,844.87	1,424.55	9.92	-0.90	0.081
111.99	-7.88	-2.80	0.00	-104.98	0.00	104.98	1,426.72	713.36	1,809.64	906.16	10.30	-0.92	0.121
115.00	-7.60	-2.72	0.00	-96.56	0.00	96.56	1,410.75	705.38	1,756.46	879.53	10.89	-0.94	0.115
120.00	-7.15	-2.61	0.00	-82.98	0.00	82.98	1,383.37	691.69	1,668.66	835.57	11.90	-0.99	0.104
125.00	-6.71	-2.51	0.00	-69.91	0.00	69.91	1,354.95	677.48	1,581.78	792.06	12.97	-1.04	0.093
130.00	-6.28	-2.41	0.00	-57.36	0.00	57.36	1,325.49	662.75	1,495.92	749.07	14.08	-1.09	0.081
135.00	-5.86	-2.31	0.00	-45.32	0.00	45.32	1,294.99	647.49	1,411.22	706.66	15.25	-1.13	0.069
140.00	-5.46	-2.21	0.00	-33.78	0.00	33.78	1,263.44	631.72	1,327.80	664.88	16.45	-1.16	0.055
145.00	-5.06	-2.11	0.00	-22.72	0.00	22.72	1,230.86	615.43	1,245.77	623.81	17.68	-1.19	0.041
150.00	-4.68	-2.02	0.00	-12.15	0.00	12.15	1,197.23	598.61	1,165.25	583.49	18.94	-1.21	0.025
155.00	-4.31	-1.96	0.00	-2.05	0.00	2.05	1,162.56	581.28	1,086.38	544.00	20.21	-1.22	0.007
156.00	-0.16	-0.03	0.00	-0.08	0.00	0.08	1,155.50	577.75	1,070.81	536.20	20.46	-1.22	0.000
159.00	0.00	-0.02	0.00	0.00	0.00	0.00	1,134.07	567.04	1,024.54	513.03	21.23	-1.22	0.000

### Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.17
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Long-Period Transition Period ( $T_L$ ):	6
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$	0.03
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	2.24
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	1.87
Total Unfactored Dead Load:	31.12 k
Seismic Base Shear (E):	0.93 k

Load Case (1.2 + 0.2S<sub>ds</sub>) \* DL + E ELFM      Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
39	157.50	158	2,022	0.015	14	196
38	155.50	73	914	0.007	6	91
37	152.50	373	4,489	0.033	31	461
36	147.50	384	4,343	0.032	30	475
35	142.50	395	4,189	0.031	29	489
34	137.50	406	4,029	0.030	28	502
33	132.50	417	3,862	0.029	27	516
32	127.50	428	3,689	0.028	26	530
31	122.50	439	3,512	0.026	24	544
30	117.50	450	3,331	0.025	23	557
29	113.50	276	1,914	0.014	13	342
28	111.00	391	2,596	0.019	18	483
27	108.54	580	3,700	0.028	26	718
26	106.04	261	1,594	0.012	11	323
25	102.50	640	3,665	0.027	26	792
24	97.50	656	3,421	0.026	24	811
23	92.50	672	3,175	0.024	22	831
22	87.50	687	2,929	0.022	20	850
21	82.50	703	2,685	0.020	19	870
20	80.00	0	2	0.000	0	1
19	77.50	1,449	4,922	0.037	34	1,793
18	74.71	172	547	0.004	4	213
17	72.21	750	2,231	0.017	16	927

Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

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Customer: AT&T MOBILITY

16	67.50	867	2,275	0.017	16	1,073
15	62.50	886	2,014	0.015	14	1,096
14	57.50	905	1,760	0.013	12	1,120
13	52.50	924	1,516	0.011	11	1,143
12	48.50	564	797	0.006	6	697
11	46.00	769	985	0.007	7	951
10	42.83	1,688	1,893	0.014	13	2,088
9	40.33	146	147	0.001	1	181
8	37.50	1,109	970	0.007	7	1,372
7	32.50	1,131	757	0.006	5	1,399
6	27.50	1,153	565	0.004	4	1,427
5	22.50	1,175	396	0.003	3	1,454
4	17.50	1,198	252	0.002	2	1,482
3	12.50	1,220	137	0.001	1	1,509
2	7.50	1,242	54	0.000	0	1,536
1	2.50	1,264	7	0.000	0	1,564
Raycap DC6-48-60-18-	156.00	191	2,396	0.018	17	236
Ericsson RRUS 8843 B	156.00	216	2,712	0.020	19	267
Ericsson RRUS 4415 B	156.00	138	1,733	0.013	12	171
Ericsson RRUS 4449 B	156.00	213	2,675	0.020	19	264
Ericsson RRUS-11	156.00	330	4,144	0.031	29	408
CCI HPA65R-BU8A	156.00	162	2,034	0.015	14	200
Andrew SBNH-1D6565C	156.00	182	2,291	0.017	16	226
Kathrein Scala 80010	156.00	688	8,635	0.064	60	851
Low Profile Platform	156.00	2,000	25,115	0.187	175	2,474
		31,124	134,018	1.000	935	38,504

Load Case (0.9 - 0.2Sds) \* DL + E ELMF

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
39	157.50	158	2,022	0.015	14	136
38	155.50	73	914	0.007	6	63
37	152.50	373	4,489	0.033	31	322
36	147.50	384	4,343	0.032	30	331
35	142.50	395	4,189	0.031	29	341
34	137.50	406	4,029	0.030	28	350
33	132.50	417	3,862	0.029	27	360
32	127.50	428	3,689	0.028	26	370
31	122.50	439	3,512	0.026	24	379
30	117.50	450	3,331	0.025	23	389
29	113.50	276	1,914	0.014	13	238
28	111.00	391	2,596	0.019	18	337
27	108.54	580	3,700	0.028	26	501
26	106.04	261	1,594	0.012	11	225
25	102.50	640	3,665	0.027	26	552
24	97.50	656	3,421	0.026	24	566
23	92.50	672	3,175	0.024	22	579
22	87.50	687	2,929	0.022	20	593
21	82.50	703	2,685	0.020	19	607
20	80.00	0	2	0.000	0	0
19	77.50	1,449	4,922	0.037	34	1,250
18	74.71	172	547	0.004	4	149
17	72.21	750	2,231	0.017	16	647
16	67.50	867	2,275	0.017	16	748
15	62.50	886	2,014	0.015	14	765
14	57.50	905	1,760	0.013	12	781
13	52.50	924	1,516	0.011	11	797
12	48.50	564	797	0.006	6	486
11	46.00	769	985	0.007	7	663

Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

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Customer: AT&T MOBILITY

10	42.83	1,688	1,893	0.014	13	1,457
9	40.33	146	147	0.001	1	126
8	37.50	1,109	970	0.007	7	957
7	32.50	1,131	757	0.006	5	976
6	27.50	1,153	565	0.004	4	995
5	22.50	1,175	396	0.003	3	1,014
4	17.50	1,198	252	0.002	2	1,033
3	12.50	1,220	137	0.001	1	1,052
2	7.50	1,242	54	0.000	0	1,072
1	2.50	1,264	7	0.000	0	1,091
Raycap DC6-48-60-18-	156.00	191	2,396	0.018	17	165
Ericsson RRUS 8843 B	156.00	216	2,712	0.020	19	186
Ericsson RRUS 4415 B	156.00	138	1,733	0.013	12	119
Ericsson RRUS 4449 B	156.00	213	2,675	0.020	19	184
Ericsson RRUS-11	156.00	330	4,144	0.031	29	285
CCI HPA65R-BU8A	156.00	162	2,034	0.015	14	140
Andrew SBNH-1D6565C	156.00	182	2,291	0.017	16	157
Kathrein Scala 80010	156.00	688	8,635	0.064	60	593
Low Profile Platform	156.00	2,000	25,115	0.187	175	1,726
		31,124	134,018	1.000	935	26,856

Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

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Customer: AT&T MOBILITY

Load Case (1.2 + 0.2SDs) \* DL + E ELMF

Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.94	-0.94	0.00	-119.40	0.00	119.40	4,958.59	2,479.29	10,139.9	5,077.52	0.00	0.00	0.031
5.00	-35.40	-0.94	0.00	-114.72	0.00	114.72	4,892.41	2,446.20	9,814.71	4,914.65	0.00	-0.01	0.031
10.00	-33.89	-0.94	0.00	-110.01	0.00	110.01	4,825.19	2,412.59	9,492.54	4,753.32	0.02	-0.02	0.030
15.00	-32.41	-0.95	0.00	-105.30	0.00	105.30	4,756.92	2,378.46	9,173.57	4,593.60	0.04	-0.02	0.030
20.00	-30.96	-0.95	0.00	-100.57	0.00	100.57	4,687.62	2,343.81	8,857.94	4,435.55	0.07	-0.03	0.029
25.00	-29.53	-0.95	0.00	-95.83	0.00	95.83	4,617.28	2,308.64	8,545.77	4,279.23	0.10	-0.04	0.029
30.00	-28.13	-0.94	0.00	-91.10	0.00	91.10	4,545.89	2,272.95	8,237.17	4,124.71	0.15	-0.05	0.028
35.00	-26.76	-0.94	0.00	-86.38	0.00	86.38	4,461.85	2,230.93	7,911.67	3,961.72	0.20	-0.06	0.028
40.00	-26.58	-0.94	0.00	-81.68	0.00	81.68	4,365.13	2,182.57	7,570.72	3,790.99	0.27	-0.06	0.028
40.67	-24.49	-0.93	0.00	-81.05	0.00	81.05	4,352.24	2,176.12	7,525.83	3,768.51	0.28	-0.07	0.027
45.00	-23.54	-0.92	0.00	-77.03	0.00	77.03	4,268.42	2,134.21	7,237.27	3,624.02	0.34	-0.07	0.027
47.00	-22.84	-0.92	0.00	-75.19	0.00	75.19	3,589.52	1,794.76	6,160.31	3,084.74	0.37	-0.08	0.031
50.00	-21.70	-0.91	0.00	-72.44	0.00	72.44	3,554.97	1,777.49	6,018.22	3,013.58	0.42	-0.08	0.030
55.00	-20.58	-0.90	0.00	-67.91	0.00	67.91	3,496.57	1,748.28	5,783.60	2,896.10	0.51	-0.09	0.029
60.00	-19.48	-0.88	0.00	-63.42	0.00	63.42	3,437.12	1,718.56	5,551.84	2,780.05	0.61	-0.10	0.028
65.00	-18.41	-0.87	0.00	-59.00	0.00	59.00	3,376.63	1,688.32	5,323.05	2,665.48	0.72	-0.11	0.028
70.00	-17.48	-0.85	0.00	-54.65	0.00	54.65	3,315.10	1,657.55	5,097.35	2,552.47	0.84	-0.12	0.027
74.41	-17.27	-0.85	0.00	-50.88	0.00	50.88	3,242.82	1,621.41	4,875.09	2,441.17	0.96	-0.13	0.026
75.00	-15.48	-0.81	0.00	-50.38	0.00	50.38	3,233.09	1,616.55	4,845.74	2,426.47	0.97	-0.13	0.026
80.00	-15.48	-0.82	0.00	-46.31	0.00	46.31	2,566.23	1,283.12	3,826.28	1,915.98	1.11	-0.14	0.030
80.00	-14.61	-0.80	0.00	-46.31	0.00	46.31	2,566.20	1,283.10	3,826.16	1,915.93	1.11	-0.14	0.030
85.00	-13.75	-0.78	0.00	-42.32	0.00	42.32	2,519.59	1,259.80	3,658.86	1,832.15	1.26	-0.15	0.029
90.00	-12.92	-0.75	0.00	-38.44	0.00	38.44	2,471.95	1,235.97	3,493.70	1,749.45	1.43	-0.16	0.027
95.00	-12.11	-0.73	0.00	-34.67	0.00	34.67	2,423.26	1,211.63	3,330.81	1,667.88	1.60	-0.17	0.026
100.00	-11.32	-0.70	0.00	-31.02	0.00	31.02	2,373.53	1,186.76	3,170.31	1,587.51	1.78	-0.18	0.024
105.00	-11.00	-0.69	0.00	-27.49	0.00	27.49	2,322.75	1,161.38	3,012.32	1,508.40	1.98	-0.19	0.023
107.08	-10.28	-0.67	0.00	-26.05	0.00	26.05	2,301.36	1,150.68	2,947.47	1,475.93	2.06	-0.19	0.022
110.00	-9.80	-0.65	0.00	-24.10	0.00	24.10	2,261.32	1,130.66	2,844.87	1,424.55	2.18	-0.20	0.021
111.99	-9.46	-0.63	0.00	-22.81	0.00	22.81	1,426.72	713.36	1,809.64	906.16	2.26	-0.20	0.032
115.00	-8.90	-0.61	0.00	-20.91	0.00	20.91	1,410.75	705.38	1,756.46	879.53	2.39	-0.21	0.030
120.00	-8.35	-0.59	0.00	-17.86	0.00	17.86	1,383.37	691.69	1,668.66	835.57	2.61	-0.22	0.027
125.00	-7.82	-0.56	0.00	-14.93	0.00	14.93	1,354.95	677.48	1,581.78	792.06	2.85	-0.23	0.025
130.00	-7.31	-0.53	0.00	-12.14	0.00	12.14	1,325.49	662.75	1,495.92	749.07	3.10	-0.24	0.022
135.00	-6.81	-0.50	0.00	-9.49	0.00	9.49	1,294.99	647.49	1,411.22	706.66	3.35	-0.25	0.019
140.00	-6.32	-0.47	0.00	-6.98	0.00	6.98	1,263.44	631.72	1,327.80	664.88	3.61	-0.25	0.015
145.00	-5.84	-0.44	0.00	-4.62	0.00	4.62	1,230.86	615.43	1,245.77	623.81	3.88	-0.26	0.012
150.00	-5.38	-0.41	0.00	-2.43	0.00	2.43	1,197.23	598.61	1,165.25	583.49	4.16	-0.26	0.009
155.00	-5.29	-0.40	0.00	-0.40	0.00	0.40	1,162.56	581.28	1,086.38	544.00	4.44	-0.27	0.005
156.00	0.00	0.00	0.00	0.00	0.00	0.00	1,155.50	577.75	1,070.81	536.20	4.49	-0.27	0.000
159.00	0.00	0.00	0.00	0.00	0.00	0.00	1,134.07	567.04	1,024.54	513.03	4.66	-0.27	0.000

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 Engineering Number: OAA747052\_C3\_02

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Load Case (0.9 - 0.2Sds) \* DL + E ELMF

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.77	-0.94	0.00	-117.99	0.00	117.99	4,958.59	2,479.29	10,139.9	5,077.52	0.00	0.00	0.028
5.00	-24.69	-0.94	0.00	-113.31	0.00	113.31	4,892.41	2,446.20	9,814.71	4,914.65	0.00	-0.01	0.028
10.00	-23.64	-0.94	0.00	-108.62	0.00	108.62	4,825.19	2,412.59	9,492.54	4,753.32	0.02	-0.02	0.028
15.00	-22.61	-0.94	0.00	-103.92	0.00	103.92	4,756.92	2,378.46	9,173.57	4,593.60	0.04	-0.02	0.027
20.00	-21.59	-0.94	0.00	-99.21	0.00	99.21	4,687.62	2,343.81	8,857.94	4,435.55	0.06	-0.03	0.027
25.00	-20.60	-0.94	0.00	-94.51	0.00	94.51	4,617.28	2,308.64	8,545.77	4,279.23	0.10	-0.04	0.027
30.00	-19.62	-0.94	0.00	-89.81	0.00	89.81	4,545.89	2,272.95	8,237.17	4,124.71	0.15	-0.05	0.026
35.00	-18.66	-0.93	0.00	-85.13	0.00	85.13	4,461.85	2,230.93	7,911.67	3,961.72	0.20	-0.06	0.026
40.00	-18.54	-0.93	0.00	-80.47	0.00	80.47	4,365.13	2,182.57	7,570.72	3,790.99	0.26	-0.06	0.025
40.67	-17.08	-0.92	0.00	-79.85	0.00	79.85	4,352.24	2,176.12	7,525.83	3,768.51	0.27	-0.06	0.025
45.00	-16.42	-0.91	0.00	-75.88	0.00	75.88	4,268.42	2,134.21	7,237.27	3,624.02	0.33	-0.07	0.025
47.00	-15.93	-0.91	0.00	-74.05	0.00	74.05	3,589.52	1,794.76	6,160.31	3,084.74	0.37	-0.08	0.028
50.00	-15.13	-0.90	0.00	-71.33	0.00	71.33	3,554.97	1,777.49	6,018.22	3,013.58	0.41	-0.08	0.028
55.00	-14.35	-0.89	0.00	-66.85	0.00	66.85	3,496.57	1,748.28	5,783.60	2,896.10	0.50	-0.09	0.027
60.00	-13.59	-0.87	0.00	-62.42	0.00	62.42	3,437.12	1,718.56	5,551.84	2,780.05	0.60	-0.10	0.026
65.00	-12.84	-0.86	0.00	-58.05	0.00	58.05	3,376.63	1,688.32	5,323.05	2,665.48	0.71	-0.11	0.026
70.00	-12.19	-0.84	0.00	-53.76	0.00	53.76	3,315.10	1,657.55	5,097.35	2,552.47	0.83	-0.12	0.025
74.41	-12.04	-0.84	0.00	-50.04	0.00	50.04	3,242.82	1,621.41	4,875.09	2,441.17	0.94	-0.13	0.024
75.00	-10.79	-0.80	0.00	-49.55	0.00	49.55	3,233.09	1,616.55	4,845.74	2,426.47	0.96	-0.13	0.024
80.00	-10.79	-0.80	0.00	-45.53	0.00	45.53	2,566.23	1,283.12	3,826.28	1,915.98	1.10	-0.14	0.028
80.00	-10.19	-0.79	0.00	-45.53	0.00	45.53	2,566.20	1,283.10	3,826.16	1,915.93	1.10	-0.14	0.028
85.00	-9.59	-0.77	0.00	-41.60	0.00	41.60	2,519.59	1,259.80	3,658.86	1,832.15	1.25	-0.15	0.027
90.00	-9.01	-0.74	0.00	-37.78	0.00	37.78	2,471.95	1,235.97	3,493.70	1,749.45	1.41	-0.16	0.025
95.00	-8.45	-0.72	0.00	-34.06	0.00	34.06	2,423.26	1,211.63	3,330.81	1,667.88	1.58	-0.17	0.024
100.00	-7.90	-0.69	0.00	-30.47	0.00	30.47	2,373.53	1,186.76	3,170.31	1,587.51	1.76	-0.18	0.023
105.00	-7.67	-0.68	0.00	-27.00	0.00	27.00	2,322.75	1,161.38	3,012.32	1,508.40	1.95	-0.19	0.021
107.08	-7.17	-0.66	0.00	-25.59	0.00	25.59	2,301.36	1,150.68	2,947.47	1,475.93	2.03	-0.19	0.020
110.00	-6.83	-0.64	0.00	-23.67	0.00	23.67	2,261.32	1,130.66	2,844.87	1,424.55	2.15	-0.20	0.020
111.99	-6.59	-0.62	0.00	-22.40	0.00	22.40	1,426.72	713.36	1,809.64	906.16	2.23	-0.20	0.029
115.00	-6.21	-0.60	0.00	-20.53	0.00	20.53	1,410.75	705.38	1,756.46	879.53	2.36	-0.20	0.028
120.00	-5.83	-0.57	0.00	-17.53	0.00	17.53	1,383.37	691.69	1,668.66	835.57	2.58	-0.22	0.025
125.00	-5.46	-0.55	0.00	-14.65	0.00	14.65	1,354.95	677.48	1,581.78	792.06	2.81	-0.23	0.023
130.00	-5.10	-0.52	0.00	-11.91	0.00	11.91	1,325.49	662.75	1,495.92	749.07	3.05	-0.24	0.020
135.00	-4.75	-0.49	0.00	-9.31	0.00	9.31	1,294.99	647.49	1,411.22	706.66	3.30	-0.24	0.017
140.00	-4.41	-0.46	0.00	-6.85	0.00	6.85	1,263.44	631.72	1,327.80	664.88	3.56	-0.25	0.014
145.00	-4.07	-0.43	0.00	-4.54	0.00	4.54	1,230.86	615.43	1,245.77	623.81	3.82	-0.26	0.011
150.00	-3.75	-0.40	0.00	-2.38	0.00	2.38	1,197.23	598.61	1,165.25	583.49	4.10	-0.26	0.007
155.00	-3.69	-0.39	0.00	-0.39	0.00	0.39	1,162.56	581.28	1,086.38	544.00	4.37	-0.26	0.004
156.00	0.00	0.00	0.00	0.00	0.00	0.00	1,155.50	577.75	1,070.81	536.20	4.42	-0.26	0.000
159.00	0.00	0.00	0.00	0.00	0.00	0.00	1,134.07	567.04	1,024.54	513.03	4.59	-0.26	0.000



**Equivalent Modal Forces Analysis**

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.17
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	2.24
Redundancy Factor (p):	1.00

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	157.50	158	1.855	1.798	1.074	0.333	35	196
38	155.50	73	1.808	1.574	0.991	0.304	15	91
37	152.50	373	1.739	1.274	0.875	0.264	66	461
36	147.50	384	1.626	0.863	0.707	0.203	52	475
35	142.50	395	1.518	0.547	0.565	0.150	39	489
34	137.50	406	1.413	0.310	0.446	0.103	28	502
33	132.50	417	1.312	0.138	0.347	0.063	17	516
32	127.50	428	1.215	0.020	0.266	0.030	8	530
31	122.50	439	1.122	-0.057	0.201	0.003	1	544
30	117.50	450	1.032	-0.100	0.148	-0.016	-5	557
29	113.50	276	0.963	-0.117	0.114	-0.027	-5	342
28	111.00	391	0.921	-0.121	0.096	-0.032	-8	483
27	108.54	580	0.881	-0.121	0.080	-0.035	-13	718
26	106.04	261	0.841	-0.118	0.066	-0.036	-6	323
25	102.50	640	0.785	-0.109	0.050	-0.035	-15	792
24	97.50	656	0.711	-0.090	0.032	-0.030	-13	811
23	92.50	672	0.640	-0.067	0.020	-0.019	-9	831
22	87.50	687	0.572	-0.043	0.012	-0.006	-3	850
21	82.50	703	0.509	-0.019	0.007	0.008	4	870
20	80.00	0	0.478	-0.008	0.006	0.014	0	1
19	77.50	1,449	0.449	0.002	0.006	0.021	20	1,793
18	74.71	172	0.417	0.013	0.006	0.027	3	213
17	72.21	750	0.390	0.021	0.007	0.032	16	927
16	67.50	867	0.341	0.035	0.009	0.039	23	1,073
15	62.50	886	0.292	0.047	0.013	0.044	26	1,096
14	57.50	905	0.247	0.056	0.017	0.047	29	1,120
13	52.50	924	0.206	0.062	0.022	0.048	30	1,143
12	48.50	564	0.176	0.066	0.026	0.048	18	697
11	46.00	769	0.158	0.067	0.029	0.048	25	951
10	42.83	1,688	0.137	0.069	0.032	0.047	53	2,088
9	40.33	146	0.122	0.070	0.034	0.047	5	181
8	37.50	1,109	0.105	0.071	0.036	0.046	34	1,372
7	32.50	1,131	0.079	0.072	0.040	0.045	34	1,399
6	27.50	1,153	0.057	0.071	0.042	0.044	34	1,427

5	22.50	1,175	0.038	0.070	0.041	0.042	33	1,454
4	17.50	1,198	0.023	0.066	0.039	0.040	32	1,482
3	12.50	1,220	0.012	0.057	0.033	0.035	29	1,509
2	7.50	1,242	0.004	0.042	0.024	0.027	23	1,536
1	2.50	1,264	0.000	0.017	0.009	0.012	10	1,564
Raycap DC6-48-60-18-	156.00	191	1.819	1.628	1.011	0.311	40	236
Ericsson RRUS 8843 B	156.00	216	1.819	1.628	1.011	0.311	45	267
Ericsson RRUS 4415 B	156.00	138	1.819	1.628	1.011	0.311	29	171
Ericsson RRUS 4449 B	156.00	213	1.819	1.628	1.011	0.311	44	264
Ericsson RRUS-11	156.00	330	1.819	1.628	1.011	0.311	68	408
CCI HPA65R-BU8A	156.00	162	1.819	1.628	1.011	0.311	34	200
Andrew SBNH-1D6565C	156.00	182	1.819	1.628	1.011	0.311	38	226
Kathrein Scala 80010	156.00	688	1.819	1.628	1.011	0.311	143	851
Low Profile Platform	156.00	2,000	1.819	1.628	1.011	0.311	415	2,474
		31,124	41.568	21.175	15.666	4.782	1,518	38,504

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	157.50	158	1.855	1.798	1.074	0.333	35	136
38	155.50	73	1.808	1.574	0.991	0.304	15	63
37	152.50	373	1.739	1.274	0.875	0.264	66	322
36	147.50	384	1.626	0.863	0.707	0.203	52	331
35	142.50	395	1.518	0.547	0.565	0.150	39	341
34	137.50	406	1.413	0.310	0.446	0.103	28	350
33	132.50	417	1.312	0.138	0.347	0.063	17	360
32	127.50	428	1.215	0.020	0.266	0.030	8	370
31	122.50	439	1.122	-0.057	0.201	0.003	1	379
30	117.50	450	1.032	-0.100	0.148	-0.016	-5	389
29	113.50	276	0.963	-0.117	0.114	-0.027	-5	238
28	111.00	391	0.921	-0.121	0.096	-0.032	-8	337
27	108.54	580	0.881	-0.121	0.080	-0.035	-13	501
26	106.04	261	0.841	-0.118	0.066	-0.036	-6	225
25	102.50	640	0.785	-0.109	0.050	-0.035	-15	552
24	97.50	656	0.711	-0.090	0.032	-0.030	-13	566
23	92.50	672	0.640	-0.067	0.020	-0.019	-9	579
22	87.50	687	0.572	-0.043	0.012	-0.006	-3	593
21	82.50	703	0.509	-0.019	0.007	0.008	4	607
20	80.00	0	0.478	-0.008	0.006	0.014	0	0
19	77.50	1,449	0.449	0.002	0.006	0.021	20	1,250
18	74.71	172	0.417	0.013	0.006	0.027	3	149
17	72.21	750	0.390	0.021	0.007	0.032	16	647
16	67.50	867	0.341	0.035	0.009	0.039	23	748
15	62.50	886	0.292	0.047	0.013	0.044	26	765
14	57.50	905	0.247	0.056	0.017	0.047	29	781
13	52.50	924	0.206	0.062	0.022	0.048	30	797
12	48.50	564	0.176	0.066	0.026	0.048	18	486
11	46.00	769	0.158	0.067	0.029	0.048	25	663
10	42.83	1,688	0.137	0.069	0.032	0.047	53	1,457
9	40.33	146	0.122	0.070	0.034	0.047	5	126
8	37.50	1,109	0.105	0.071	0.036	0.046	34	957
7	32.50	1,131	0.079	0.072	0.040	0.045	34	976
6	27.50	1,153	0.057	0.071	0.042	0.044	34	995
5	22.50	1,175	0.038	0.070	0.041	0.042	33	1,014
4	17.50	1,198	0.023	0.066	0.039	0.040	32	1,033
3	12.50	1,220	0.012	0.057	0.033	0.035	29	1,052
2	7.50	1,242	0.004	0.042	0.024	0.027	23	1,072
1	2.50	1,264	0.000	0.017	0.009	0.012	10	1,091

Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

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Customer: AT&T MOBILITY

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Raycap DC6-48-60-18-	156.00	191	1.819	1.628	1.011	0.311	40	165
Ericsson RRUS 8843 B	156.00	216	1.819	1.628	1.011	0.311	45	186
Ericsson RRUS 4415 B	156.00	138	1.819	1.628	1.011	0.311	29	119
Ericsson RRUS 4449 B	156.00	213	1.819	1.628	1.011	0.311	44	184
Ericsson RRUS-11	156.00	330	1.819	1.628	1.011	0.311	68	285
CCI HPA65R-BU8A	156.00	162	1.819	1.628	1.011	0.311	34	140
Andrew SBNH-1D6565C	156.00	182	1.819	1.628	1.011	0.311	38	157
Kathrein Scala 80010	156.00	688	1.819	1.628	1.011	0.311	143	593
Low Profile Platform	156.00	2,000	1.819	1.628	1.011	0.311	415	1,726
		31,124	41.568	21.175	15.666	4.782	1,518	26,856

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Site Name: WILLINGTON CT, CT

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Customer: AT&T MOBILITY

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.94	-1.51	0.00	-189.15	0.00	189.15	4,958.59	2,479.29	10,139.9	5,077.52	0.00	0.00	0.045
5.00	-35.40	-1.50	0.00	-181.60	0.00	181.60	4,892.41	2,446.20	9,814.71	4,914.65	0.01	-0.01	0.044
10.00	-33.89	-1.47	0.00	-174.11	0.00	174.11	4,825.19	2,412.59	9,492.54	4,753.32	0.03	-0.02	0.044
15.00	-32.41	-1.45	0.00	-166.74	0.00	166.74	4,756.92	2,378.46	9,173.57	4,593.60	0.06	-0.04	0.043
20.00	-30.96	-1.42	0.00	-159.50	0.00	159.50	4,687.62	2,343.81	8,857.94	4,435.55	0.10	-0.05	0.043
25.00	-29.53	-1.39	0.00	-152.39	0.00	152.39	4,617.28	2,308.64	8,545.77	4,279.23	0.16	-0.06	0.042
30.00	-28.13	-1.36	0.00	-145.42	0.00	145.42	4,545.89	2,272.95	8,237.17	4,124.71	0.24	-0.08	0.041
35.00	-26.76	-1.33	0.00	-138.60	0.00	138.60	4,461.85	2,230.93	7,911.67	3,961.72	0.32	-0.09	0.041
40.00	-26.58	-1.33	0.00	-131.93	0.00	131.93	4,365.13	2,182.57	7,570.72	3,790.99	0.42	-0.10	0.041
40.67	-24.49	-1.28	0.00	-131.04	0.00	131.04	4,352.24	2,176.12	7,525.83	3,768.51	0.44	-0.10	0.040
45.00	-23.54	-1.26	0.00	-125.50	0.00	125.50	4,268.42	2,134.21	7,237.27	3,624.02	0.54	-0.12	0.040
47.00	-22.84	-1.24	0.00	-122.99	0.00	122.99	3,589.52	1,794.76	6,160.31	3,084.74	0.59	-0.12	0.046
50.00	-21.70	-1.21	0.00	-119.27	0.00	119.27	3,554.97	1,777.49	6,018.22	3,013.58	0.67	-0.13	0.046
55.00	-20.58	-1.19	0.00	-113.21	0.00	113.21	3,496.57	1,748.28	5,783.60	2,896.10	0.81	-0.15	0.045
60.00	-19.48	-1.16	0.00	-107.28	0.00	107.28	3,437.12	1,718.56	5,551.84	2,780.05	0.98	-0.16	0.044
65.00	-18.41	-1.14	0.00	-101.47	0.00	101.47	3,376.63	1,688.32	5,323.05	2,665.48	1.15	-0.18	0.044
70.00	-17.48	-1.13	0.00	-95.76	0.00	95.76	3,315.10	1,657.55	5,097.35	2,552.47	1.35	-0.20	0.043
74.41	-17.27	-1.13	0.00	-90.78	0.00	90.78	3,242.82	1,621.41	4,875.09	2,441.17	1.54	-0.21	0.043
75.00	-15.47	-1.10	0.00	-90.12	0.00	90.12	3,233.09	1,616.55	4,845.74	2,426.47	1.56	-0.21	0.042
80.00	-15.47	-1.10	0.00	-84.61	0.00	84.61	2,566.23	1,283.12	3,826.28	1,915.98	1.79	-0.23	0.050
80.00	-14.60	-1.10	0.00	-84.61	0.00	84.61	2,566.20	1,283.10	3,826.16	1,915.93	1.79	-0.23	0.050
85.00	-13.75	-1.10	0.00	-79.11	0.00	79.11	2,519.59	1,259.80	3,658.86	1,832.15	2.04	-0.25	0.049
90.00	-12.92	-1.11	0.00	-73.59	0.00	73.59	2,471.95	1,235.97	3,493.70	1,749.45	2.31	-0.27	0.047
95.00	-12.11	-1.13	0.00	-68.02	0.00	68.02	2,423.26	1,211.63	3,330.81	1,667.88	2.61	-0.29	0.046
100.00	-11.32	-1.14	0.00	-62.39	0.00	62.39	2,373.53	1,186.76	3,170.31	1,587.51	2.92	-0.31	0.044
105.00	-10.99	-1.15	0.00	-56.68	0.00	56.68	2,322.75	1,161.38	3,012.32	1,508.40	3.25	-0.33	0.042
107.08	-10.28	-1.16	0.00	-54.30	0.00	54.30	2,301.36	1,150.68	2,947.47	1,475.93	3.39	-0.33	0.041
110.00	-9.79	-1.17	0.00	-50.91	0.00	50.91	2,261.32	1,130.66	2,844.87	1,424.55	3.60	-0.35	0.040
111.99	-9.45	-1.17	0.00	-48.58	0.00	48.58	1,426.72	713.36	1,809.64	906.16	3.75	-0.35	0.060
115.00	-8.89	-1.18	0.00	-45.06	0.00	45.06	1,410.75	705.38	1,756.46	879.53	3.98	-0.37	0.058
120.00	-8.35	-1.17	0.00	-39.19	0.00	39.19	1,383.37	691.69	1,668.66	835.57	4.37	-0.39	0.053
125.00	-7.82	-1.17	0.00	-33.31	0.00	33.31	1,354.95	677.48	1,581.78	792.06	4.79	-0.41	0.048
130.00	-7.30	-1.15	0.00	-27.49	0.00	27.49	1,325.49	662.75	1,495.92	749.07	5.24	-0.44	0.042
135.00	-6.80	-1.12	0.00	-21.76	0.00	21.76	1,294.99	647.49	1,411.22	706.66	5.70	-0.45	0.036
140.00	-6.31	-1.08	0.00	-16.17	0.00	16.17	1,263.44	631.72	1,327.80	664.88	6.19	-0.47	0.029
145.00	-5.84	-1.02	0.00	-10.80	0.00	10.80	1,230.86	615.43	1,245.77	623.81	6.69	-0.48	0.022
150.00	-5.37	-0.95	0.00	-5.69	0.00	5.69	1,197.23	598.61	1,165.25	583.49	7.20	-0.49	0.014
155.00	-5.28	-0.94	0.00	-0.94	0.00	0.94	1,162.56	581.28	1,086.38	544.00	7.72	-0.50	0.006
156.00	0.00	0.00	0.00	0.00	0.00	0.00	1,155.50	577.75	1,070.81	536.20	7.82	-0.50	0.000
159.00	0.00	0.00	0.00	0.00	0.00	0.00	1,134.07	567.04	1,024.54	513.03	8.14	-0.50	0.000

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.77	-1.51	0.00	-186.76	0.00	186.76	4,958.59	2,479.29	10,139.9	5,077.52	0.00	0.00	0.042
5.00	-24.69	-1.49	0.00	-179.21	0.00	179.21	4,892.41	2,446.20	9,814.71	4,914.65	0.01	-0.01	0.042
10.00	-23.64	-1.47	0.00	-171.74	0.00	171.74	4,825.19	2,412.59	9,492.54	4,753.32	0.03	-0.02	0.041
15.00	-22.61	-1.44	0.00	-164.40	0.00	164.40	4,756.92	2,378.46	9,173.57	4,593.60	0.06	-0.04	0.041
20.00	-21.59	-1.41	0.00	-157.19	0.00	157.19	4,687.62	2,343.81	8,857.94	4,435.55	0.10	-0.05	0.040
25.00	-20.60	-1.38	0.00	-150.13	0.00	150.13	4,617.28	2,308.64	8,545.77	4,279.23	0.16	-0.06	0.040
30.00	-19.62	-1.35	0.00	-143.22	0.00	143.22	4,545.89	2,272.95	8,237.17	4,124.71	0.23	-0.07	0.039
35.00	-18.66	-1.32	0.00	-136.46	0.00	136.46	4,461.85	2,230.93	7,911.67	3,961.72	0.32	-0.09	0.039
40.00	-18.54	-1.32	0.00	-129.86	0.00	129.86	4,365.13	2,182.57	7,570.72	3,790.99	0.42	-0.10	0.039
40.67	-17.08	-1.26	0.00	-128.98	0.00	128.98	4,352.24	2,176.12	7,525.83	3,768.51	0.43	-0.10	0.038
45.00	-16.42	-1.24	0.00	-123.50	0.00	123.50	4,268.42	2,134.21	7,237.27	3,624.02	0.53	-0.11	0.038
47.00	-15.93	-1.22	0.00	-121.02	0.00	121.02	3,589.52	1,794.76	6,160.31	3,084.74	0.58	-0.12	0.044
50.00	-15.13	-1.20	0.00	-117.35	0.00	117.35	3,554.97	1,777.49	6,018.22	3,013.58	0.66	-0.13	0.043
55.00	-14.35	-1.17	0.00	-111.37	0.00	111.37	3,496.57	1,748.28	5,783.60	2,896.10	0.80	-0.14	0.043
60.00	-13.59	-1.14	0.00	-105.53	0.00	105.53	3,437.12	1,718.56	5,551.84	2,780.05	0.96	-0.16	0.042
65.00	-12.84	-1.12	0.00	-99.81	0.00	99.81	3,376.63	1,688.32	5,323.05	2,665.48	1.14	-0.18	0.041
70.00	-12.19	-1.11	0.00	-94.19	0.00	94.19	3,315.10	1,657.55	5,097.35	2,552.47	1.33	-0.19	0.041
74.41	-12.04	-1.11	0.00	-89.30	0.00	89.30	3,242.82	1,621.41	4,875.09	2,441.17	1.51	-0.21	0.040
75.00	-10.79	-1.08	0.00	-88.65	0.00	88.65	3,233.09	1,616.55	4,845.74	2,426.47	1.54	-0.21	0.040
80.00	-10.79	-1.09	0.00	-83.24	0.00	83.24	2,566.23	1,283.12	3,826.28	1,915.98	1.77	-0.23	0.048
80.00	-10.18	-1.08	0.00	-83.24	0.00	83.24	2,566.20	1,283.10	3,826.16	1,915.93	1.77	-0.23	0.047
85.00	-9.59	-1.08	0.00	-77.83	0.00	77.83	2,519.59	1,259.80	3,658.86	1,832.15	2.01	-0.24	0.046
90.00	-9.01	-1.09	0.00	-72.41	0.00	72.41	2,471.95	1,235.97	3,493.70	1,749.45	2.28	-0.26	0.045
95.00	-8.44	-1.11	0.00	-66.94	0.00	66.94	2,423.26	1,211.63	3,330.81	1,667.88	2.57	-0.28	0.044
100.00	-7.89	-1.12	0.00	-61.41	0.00	61.41	2,373.53	1,186.76	3,170.31	1,587.51	2.87	-0.30	0.042
105.00	-7.67	-1.13	0.00	-55.80	0.00	55.80	2,322.75	1,161.38	3,012.32	1,508.40	3.20	-0.32	0.040
107.08	-7.17	-1.14	0.00	-53.45	0.00	53.45	2,301.36	1,150.68	2,947.47	1,475.93	3.34	-0.33	0.039
110.00	-6.83	-1.15	0.00	-50.12	0.00	50.12	2,261.32	1,130.66	2,844.87	1,424.55	3.55	-0.34	0.038
111.99	-6.59	-1.15	0.00	-47.83	0.00	47.83	1,426.72	713.36	1,809.64	906.16	3.69	-0.35	0.057
115.00	-6.20	-1.16	0.00	-44.37	0.00	44.37	1,410.75	705.38	1,756.46	879.53	3.91	-0.36	0.055
120.00	-5.82	-1.16	0.00	-38.58	0.00	38.58	1,383.37	691.69	1,668.66	835.57	4.30	-0.38	0.050
125.00	-5.45	-1.15	0.00	-32.80	0.00	32.80	1,354.95	677.48	1,581.78	792.06	4.72	-0.41	0.045
130.00	-5.09	-1.13	0.00	-27.07	0.00	27.07	1,325.49	662.75	1,495.92	749.07	5.16	-0.43	0.040
135.00	-4.74	-1.10	0.00	-21.42	0.00	21.42	1,294.99	647.49	1,411.22	706.66	5.62	-0.45	0.034
140.00	-4.40	-1.06	0.00	-15.92	0.00	15.92	1,263.44	631.72	1,327.80	664.88	6.09	-0.46	0.027
145.00	-4.07	-1.00	0.00	-10.63	0.00	10.63	1,230.86	615.43	1,245.77	623.81	6.59	-0.48	0.020
150.00	-3.75	-0.94	0.00	-5.61	0.00	5.61	1,197.23	598.61	1,165.25	583.49	7.09	-0.49	0.013
155.00	-3.68	-0.92	0.00	-0.92	0.00	0.92	1,162.56	581.28	1,086.38	544.00	7.60	-0.49	0.005
156.00	0.00	0.00	0.00	0.00	0.00	0.00	1,155.50	577.75	1,070.81	536.20	7.70	-0.49	0.000
159.00	0.00	0.00	0.00	0.00	0.00	0.00	1,134.07	567.04	1,024.54	513.03	8.01	-0.49	0.000

Site Number: 281416

Code: ANSI/TIA-222-G

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Site Name: WILLINGTON CT, CT

Engineering Number: OAA747052\_C3\_02

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Customer: AT&T MOBILITY

### Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	21.87	0.00	37.32	0.00	0.00	2372.67	111.99	0.49
0.9D + 1.6W	21.86	0.00	27.98	0.00	0.00	2349.48	111.99	0.49
1.2D + 1.0Di + 1.0Wi	6.80	0.00	59.64	0.00	0.00	730.25	111.99	0.16
(1.2 + 0.2Sds) * DL + E ELFM	0.94	0.00	36.94	0.00	0.00	119.40	111.99	0.03
(1.2 + 0.2Sds) * DL + E EMAM	1.51	0.00	36.94	0.00	0.00	189.15	111.99	0.06
(0.9 - 0.2Sds) * DL + E ELFM	0.94	0.00	25.77	0.00	0.00	117.99	111.99	0.03
(0.9 - 0.2Sds) * DL + E EMAM	1.51	0.00	25.77	0.00	0.00	186.76	111.99	0.06
1.0D + 1.0W	5.23	0.00	31.12	0.00	0.00	564.21	111.99	0.12





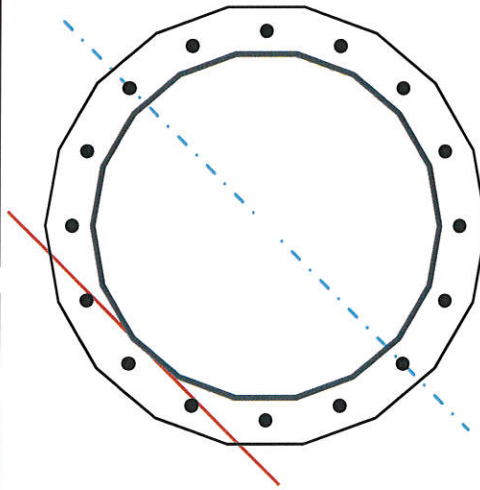
## Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	50.25	in
Thickness	0.4375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2372.7	k-ft
Axial, Pu	37.3	k
Shear, Vu	21.9	k
Neutral Axis	135	°

Report Capacities		
Component	Capacity	Result
Base Plate	16%	Pass
Anchor Rods	48%	Pass
Dwyidag	-	-

Base Plate		
Number of Sides	18	-
Diameter, $\phi$	64.51	in
Thickness	3 1/4	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	706.9	k
Bending Stress, $\phi Mn$	4508.0	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, $\phi$	2 1/4	in
Bolt Circle	57.53	in
Grade	A615-75	-
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	11.3	in
Orientation Offset	0	°
Applied Force, Pu	126.0	k
Anchor Rods, $\phi Pn$	259.8	k

# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	21.9	2372.7	1.00
Anchor Rod Forces	21.9	2372.7	1.00
Additional Bolt (Grp1) Forces			
Additional Bolt (Grp2) Forces			
Dywidag Forces			
Stiffener Forces			

## Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	68.1176	3.7843	0.2425		21131.75
Bolt	3.9761	3.2477	0.8393	4.5	21511.19
Bolt1					
Bolt2					
Dywidag					
Stiffener					

Base Plate		
Shape	18	-
Width, W	64.51	in
Thickness, t	3.25	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	40.453	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	57.53	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	126.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	259.8	k
Tensile Capacity, φRnt	0.485	OK
Interaction Capacity	0.485	OK

External Base Plate		
Chord Length AA	40.481	in
Additional AA	6.500	in
Section Modulus, Z	124.059	in <sup>3</sup>
Applied Moment, Mu	706.9	k-ft
Bending Capacity, φMn	5582.7	k-ft
Capacity, Mu/φMn	0.127	OK

Chord Length AB	39.698	in
Additional AB	6.500	in
Section Modulus, Z	121.992	in <sup>3</sup>
Applied Moment, Mu	566.4	k-ft
Bending Capacity, φMn	5489.6	k-ft
Capacity, Mu/φMn	0.103	OK

Bend Line Length	37.937	in
Additional Bend Line	0.000	in
Section Modulus, Z	100.177	in <sup>3</sup>
Applied Moment, Mu	706.9	k-ft
Bending Capacity, φMn	4508.0	k-ft
Capacity, Mu/φMn	0.157	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

# 196 TOLLAND TPKE

**Location** 196 TOLLAND TPKE

**Mblu** 23 / 062-00 /

**Acct#** 00011000

**Owner** HOLT MOUNTAIN LLC

**Assessment** \$22,430

**Appraisal** \$114,630

**PID** 2568

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$0	\$114,630	\$114,630
Assessment			
Valuation Year	Improvements	Land	Total
2018	\$0	\$22,430	\$22,430

## Owner of Record

**Owner** HOLT MOUNTAIN LLC

**Sale Price** \$0

**Co-Owner**

**Certificate**

**Address** PO BOX 535

**Book & Page** 205/891

WILLINGTON, CT 06279

**Sale Date** 09/26/2013

**Instrument** 03

## Building Information

### Building 1 : Section 1

**Year Built:**

**Living Area:** 0

**Replacement Cost:** \$0

**Building Percent**

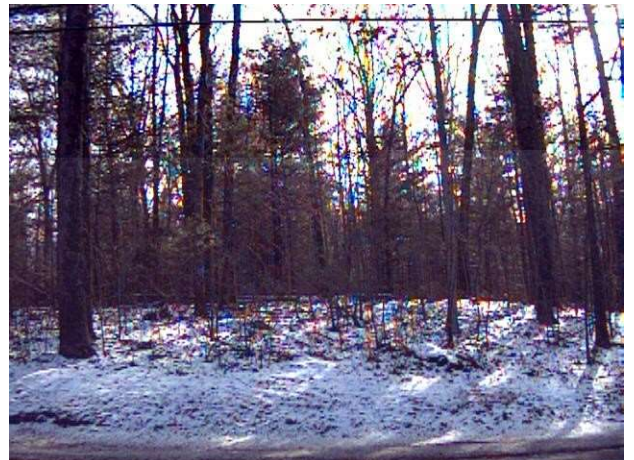
**Good:**

**Replacement Cost**

**Less Depreciation:** \$0

Building Attributes	
Field	Description
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	

## Building Photo



(<http://images.vgsi.com/photos/WillingtonCTPhotos//00\00\02/>)

## Building Layout

Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Bsmt Garage	

(ParcelSketch.ashx?pid=2568&bid=2568)

<b>Building Sub-Areas (sq ft)</b>	<b><u>Legend</u></b>
No Data for Building Sub-Areas	

### Extra Features

<b>Extra Features</b>	<b><u>Legend</u></b>
No Data for Extra Features	

### Land

#### Land Use

<b>Use Code</b>	4100
<b>Description</b>	SAND&GRAVL
<b>Zone</b>	R80
<b>Neighborhood</b>	100
<b>Alt Land Appr Category</b>	No

#### Land Line Valuation

<b>Size (Acres)</b>	47.7
<b>Frontage</b>	277
<b>Depth</b>	
<b>Assessed Value</b>	\$22,430
<b>Appraised Value</b>	\$114,630

### Outbuildings

<b>Outbuildings</b>	<b><u>Legend</u></b>
No Data for Outbuildings	

### Valuation History

<b>Appraisal</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2017	\$0	\$124,930	\$124,930

<b>Assessment</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2017	\$0	\$20,170	\$20,170

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