



January 18th, 2018

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

Re: Notice of Exempt Modification – Antenna Swap and RRU Add
Property Address: 316 Woodhouse Ave. Wallingford CT 06492
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 nine (9) wireless telecommunication antennas at an antenna center line height of 128-feet on an existing 150-foot monopole, owned by Crown Castle at 12 Gill St. Suite 5800, Woburn, MA 01801. AT&T now intends to swap (3) 6' KMW AM-X-CD-16-65-00T-RET Panel Antennas out of position [3] and install (3) 6' CCI HPA-65R-BUU-H6 Panel Antennas in position [2], each sector, for a total of three (3) antennas being swapped. AT&T also wishes to add (1) RRUS-32 B2 on position [2] all sectors, for a total of (3) RRUs 32 B2s being added. All of the changes will take place on the existing antenna mount.

Per the attached documentation, issued by the Town of Wallingford Planning and Zoning Commission, the construction of the above mentioned tower was approved by the Willington Planning and Zoning Commission on February 16th, 2000 with no conditions.

In addition, 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 Amy Torres, Zoning Enforcement Officer – Town of Wallingford, Planning and Zoning Department, 45 South Main St., Room #G-40, Wallingford, CT 06492 and William W. Dickinson, Jr. Mayor – Town of Wallingford, 45 South Main St., Room #310, Wallingford, CT 06492. A copy of this letter is also being sent to the property owner The Connecticut Street Rod Association Inc. PO BOX 1517, Wallingford, CT 06492 and to the tower company, Crown Castle, Corporate Park Drive, Suite 101, Clifton Park, NY 12065.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **TS-AT&T-148-000703** - AT&T Wireless Services request for an order to approve tower sharing at an existing telecommunications tower located at 316 Woodhouse Avenue, **Wallingford**, Connecticut.
- **EM-AT&T-097-107-117-130-148-156-161-164-020124** - AT&T Wireless notice of intent to modify existing telecommunications facilities located at twelve sites throughout the State of Connecticut.
- **EM-CING-148-060721** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 316 Woodhouse Avenue, **Wallingford**, Connecticut.



- **EM-AT&T-148-120615** – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 316 Woodhouse Avenue, **Wallingford**, Connecticut.

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 128-foot level of the 150-foot monopole.
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,

A handwritten signature in black ink that reads 'Romina Kirchmaier'.

Romina Kirchmaier

CC w/enclosures:

Amy Torres, Zoning Officer, Town of Wallingford
William W. Dickinson, Mayor – Town of Wallingford
The Connecticut Street Rod Association Inc. Land Owner
Crown Castle, Tower Company

Date

2/22/00

Application #

226-98

PLANNING AND ZONING COMMISSION

AUTHORIZATION FOR ISSUANCE OF BUILDING PERMIT

Name of Applicant Omnipoint Communications

Location of Building Lot 316 Woodhouse Avenue

Permitted Use(s) 150' Monopole and slated equipment cabinetry for PCS wireless service

Sq. Ft. of Building _____

Date of PZC Approval February 16, 2000

Miscellaneous Info _____

Conditions _____

BY

X Bush

Designated Agent

Wallingford Planning & Zoning Commission

PLANNING AND ZONING COMMISSION, TOWN OF WALLINGFORD
MINUTES OF FEBRUARY 16, 2000

PAGE INDEX

1 Approval of Minutes - 1/10/00 & 1/24/00 - APPROVED AS PRESENTED
1 Election of Officers - HELD TONIGHT

PUBLIC HEARINGS:

- 2 1. Special Permit/Fill & Excavation/PN/A/N. Plains Industrial Rd. - #419-99
P. HRG. CONT'D TO 3/31/00, 7:00 P.M.
- 4 2. Resubdivision/Plainfield Airport Business & Harvard Realty/Research
Parkway - #110-99 - P. HRG. NOT OPENED; RESCHED. TO 3/13/00
- 14 3. Zoning Regulation Amendment/Wallingford Equities, LLC/Sec. 5.1.C.**/
Building Heights in I-5 District - #508-99 -P. HRG. CONT'D TO 3/13/00
- 17 4. Subdivision Regulation Amendment/Deeds, Easements & Boundary
Markers/Sec. IV H - #507-99 - WITHDRAWN

NEW BUSINESS:

- 6 5. Subdivision/Wiedenmann/George Washington Trail & Scard Rd. -
#101-00 - TABLED TO 3/13/00

RECEIPT AND ACTION REQUESTED:

- 4 6. Accessory Apartment/Smith/Highland Avenue- #201-00-APPR. W/COND.
- 5 7. Accessory Apartment/Good & McPhee/High Hill Road - #202-00 -
APPR. W/COND.

5 8. Site Plan/Onnipoint/Woodhouse Avenue - #226-98 - APPROVED

BOND RELEASES AND REDUCTIONS:

- 17 9. Subdivision/Williams/Williams Road - #104-97 - NO ACTION
- 17 10. Site Plan/Midwood Management/Northrop Road- #258-98 -NO ACTION
- 18 11. Site Plan/Jeneric Pentron/North Plains Industrial Rd-#229-98-RELEASED
- 17-18 12. Ahearn/941, 957 Durham Road - NO ACTION;
Ahearn/959, 965 Durham Road - RELEASED
- 17 13. Subdivision/Wall/Williams Road - #103-92 - NO ACTION
- 17 14. Subdivision/Laura/North Elm Street - #113-98 - NO ACTION
- 17 15. Subdivision/Vitali/North Elm Street & Seiter Hill Road - #108-92 - N.A.
- 17 16. Site Plan/Wallingford PropertyAssoc/North Plains Hwy.- #218-98 - N.A.
- 17 17. Special Permit/Bristol-Myers/Research Parkway - #410-97 - N.A.
- 18 17a. Subdivision/Brockett's Wood/DelFavero/Chimney Hill Road -
#116-90R - BOND REDUCED

CALLING OF BONDS:

- 18 18. Site Plan/Cassello/North Colony Street - #216-88 - APPROVED
- 18 19. Guidone/163 Parker Farms Road - APPROVED

ROAD ACCEPTANCES:

- 19 20. Subdivision/Robison/Quarry Run Court - #115-88 - NO ACTION
- 19 21. Subdivision/Dighello/Meadow Brook/Stoney Brook Road & Amie Lane
- #108-95 - ROADS ACCEPTED & BOND REDUCED
- 19 22. Subdivision/Beaudoin/High Hill Park/Sec(s) III,IV, V, VIII&IX/Nathan
Hale Dr, Hemingway Dr. & Tammy Hill Rd.- #113-93 - NO ACTION

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- 19 23. Subdivision/Circle M/Atwater Place & Barker Drive - #108-95- ROADS
ACCEPTED, COND. ON SIGN-OFFS & BOND REDUCTIONS TO
BE MADE

WAIVER OF IMPROVEMENTS REQUESTED:

- 19 24. Subdivision/W&W Properties/Williams Road - #104-95 - NO ACTION
19 25. Subdivision/Your Father's Moustache/Williams Rd. - #102-92 - N.A.
19 26. Subdivision/Meadow Brook/Dighele/East Center St. & Williams Rd. -
#108-95 - NO ACTION
19 26a. Subdivision/Delfavero/Chimney Hill Rd. - #429-90R - VOTED AS A
MINOR REQUEST; NO ACTION ON WAIVER REQUEST

CORRESPONDENCE:

- 21 27. HR2372/Private Property Rights Implementation Act of 1999 - NOTED
21 28. CFPZA/Annual Meeting Notice - NOTED
22 29. Wallingford Landfill/Hamel - DISCUSSED: NO SPECIAL PERMIT
NEEDED
22 30. NMHC/Multi-family Housing - NOTED

REPORTS OF OFFICERS AND STAFF:

- 22 31. ZBA Agenda - NOTED
22 32. Mobil Oil/Main Street, Yalesville/Town Attorney - FILE CLOSED
22 33. Administrative Approval/Change of Use/Vessichio/Yale Avenue -
#301-00 - NOTED
22 34. Videotaping of P&Z Program 2/29/00 - NOTED by Chm. Whitney & Staff
22 35. CYTEC Industries' Inquiry - DISCUSSED: TO SHOW WORKPOND
ON PERMIT RENEWAL PLANS

PLANNING AND ZONING COMMISSION, TOWN OF WALLINGFORD
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1. Final Inspection by the Zoning Enforcement Officer.

The motion was approved unanimously by Messrs. Menard, Seichter, DiNatale, Fitzsimmons, and Whitney.

7. Accessory Apartment/Good & McPhee/High Hill Road - #202-00

There was no correspondence on this item #7. Appearing for the applicants was Attorney Robert Regan of Wallingford.

Attorney Regan: Last month we went to the Zoning Board of Appeals, who approved a 648-square-foot accessory apartment. It is totally above the garage, with separate entrances on either end above the garage. I think we now comply.

MOTION: A motion was made by Mr. Seichter and seconded by Mr. Fitzsimmons to approve a 648 sq. ft. accessory apartment for Good & McPhee at 52 High Hill Road, subject to:

1. Final Inspection by the Zoning Enforcement Officer.

The motion was approved unanimously by Messrs. Menard, Seichter, DiNatale, Fitzsimmons, and Whitney.

8. Site Plan/Omnipoint/Woodhouse Avenue - #226-98

Reference is made to the memorandum from Corporation Counsel Adam Mantzaris to the Commission dated February 16, 2000 (Attachment 8A).

Chairman Whitney: This item is a result of a judgment against the Town of Wallingford for denying Omnipoint's application. The judge ruled against us and ordered approval of the plan. Unless anyone has questions, I'd entertain a motion to approve the site plan.

Mr. Seichter: Are we approving the plan to April 18, 1998?

Ms. Bush: This plan is "revised to 5/30/98 per Town comments".

Mr. Seichter: I think there were comments from a Town department that the utilities must be underground. Is that on the revised plan?

Ms. Bush: Mr. Talbot made copies of all the staff comments. Let me see if I can find that in the file. The utilities must be underground, per your regulations, so you don't need to make it a condition. I don't remember discussion of having either overhead or underground utilities for Omnipoint. No, I don't see any mention of, or utilities shown on, this drawing; but they will have to be underground.

Chairman Whitney: I understand that the judge reviewed the entire application that we would be approving.

PLANNING AND ZONING COMMISSION, TOWN OF WALLINGFORD
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Omnipoint Communications' attorney, Mr. Paul Tusch, came to the front of the audience, but he did not address the Commission.

Chairman Whitney: I'd call a five-minute recess to see if we can find anything in the office pertaining to this.

Ms. Bush: No. I brought the entire file up here.

RECESS: Chairman Whitney announced a five-minute recess of the meeting at 7:30 p.m. During the recess, Ms. Bush looked through the Omnipoint file. She showed the Return of Record list to the Commissioners. No Electric Division comments were listed. Mr. Talbot suggested looking in the prior meeting minutes. Chairman Whitney reconvened the meeting at 7:39 p.m. with the same Commissioners, staff, and audience present.

Chairman Whitney: The meeting is called to order. The Commission will resume discussion of item #8 for Omnipoint. We were ordered to approve this.

MOTION: A motion was made by Mr. Seichter and seconded by Mr. DiNatale to approve the Site Plan application for Omnipoint Communications for a 150-foot-high monopole and related equipment cabinetry for PCS Wireless Service at 316 Woodhouse Avenue as shown on plans entitled "Omnipoint Communications, Inc., Junior Achievement, 316 Woodhouse Avenue, Town of Wallingford", dated 04/18/98, revised to 05/30/98, subject to no conditions.

The motion was approved unanimously by Messrs. Menard, Seichter, DiNatale, Fitzsimmons, and Whitney.

NEW BUSINESS:

5. Subdivision/Wiedenmann/George Washington Trail & Scard Rd. - #101-00

Secretary Mr. Menard acknowledged the correspondence received from: Fire Marshal Joe Micolizzi dated 1/12/00 (Attachment 5A); Director of Health Maryann Cherniak Lexius and Town Sanitarian George Yasensky to PZC Chairman Austin, the Town Planner, and Environmental Planner Brent Smith dated 1/24/00 (Attachment 5B—two pages); the Town Planner to Mr. Robert Wiedenmann, Jr., dated 1/31/00 (Attachment 5C); the Town Engineer to PZC Chairman William Austin dated 1/27/00 (Attachment 5D—two pages); Mr. Bruce Soroka, P.E., L.S., to Ms. Maryann Cherniak Lexius, Director of Health, dated 2/1/00 (Attachment 5E); Environmental Planner Brent Smith dated 2/4/00 (Attachment 5F); and from Water & Sewer Divisions Sr. Engineer Vincent Mascia dated 2/14/00 (Attachment 5G—enclosing Mr. Mascia's two-page memo of 12/21/99 to Environmental Planner Brent Smith). Appearing were Attorney Joan Molloy of Wallingford, applicant Mr. Robert Wiedenmann, Jr., and Mr. Robert Trottier, P.E., of Conklin & Soroka.

Attorney Molloy: This is about 47 acres, comprised of two parcels. The 9-acre parcel will be subdivided into two: 34 Washington Trail and 1364 Scard Road. The smallest lot

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MINUTES OF FEBRUARY 16, 2000

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200 North Glebe Road, Suite 1000, Arlington, VA 22203-3728
703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com



**SmartLink, LLC on behalf of
AT&T Mobility, LLC
Site FA – 10071340
Site ID – CT5111 (MRCTB025442)
USID – 44020
Site Name – Wallingford-Pond Hill
Site Compliance Report**

**316 Woodhouse Avenue
Wallingford, CT 06492**

Latitude: N41-26-02.01
Longitude: W72-48-06.12
Structure Type: Monopole

Report generated date: December 18, 2017
Report by: Brandon Green
Customer Contact: Romina Kirchmaier

**AT&T Mobility, LLC will be compliant when the
remediation recommended in Section 6.2 or
other appropriate remediation is implemented.**

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1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Access to Antennas Locked?	Yes
RF Sign(s) @ access point(s)	None
RF Sign(s) @ antennas	None
Barrier(s) @ sectors	None
Max cumulative simulated RFE level on the Ground	<1% General Public Limit
FCC & AT&T Compliant?	Will Be Compliant

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

RFDS: NEW-ENGLAND_CONNECTICUT_CTU5111_2018-LTE-Next-Carrier_LTE-2C_mm093q_2051A0DB5R_10071340_44020_06-26-2017_Preliminary-Approved_v1.00

CD's: 10071340_AE201_171026_CTL05111_REV1

RF Powers Used:

For 850 UMTS: AT&T Mobility, LLC Approved Powers - 10-9-17

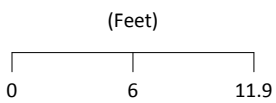
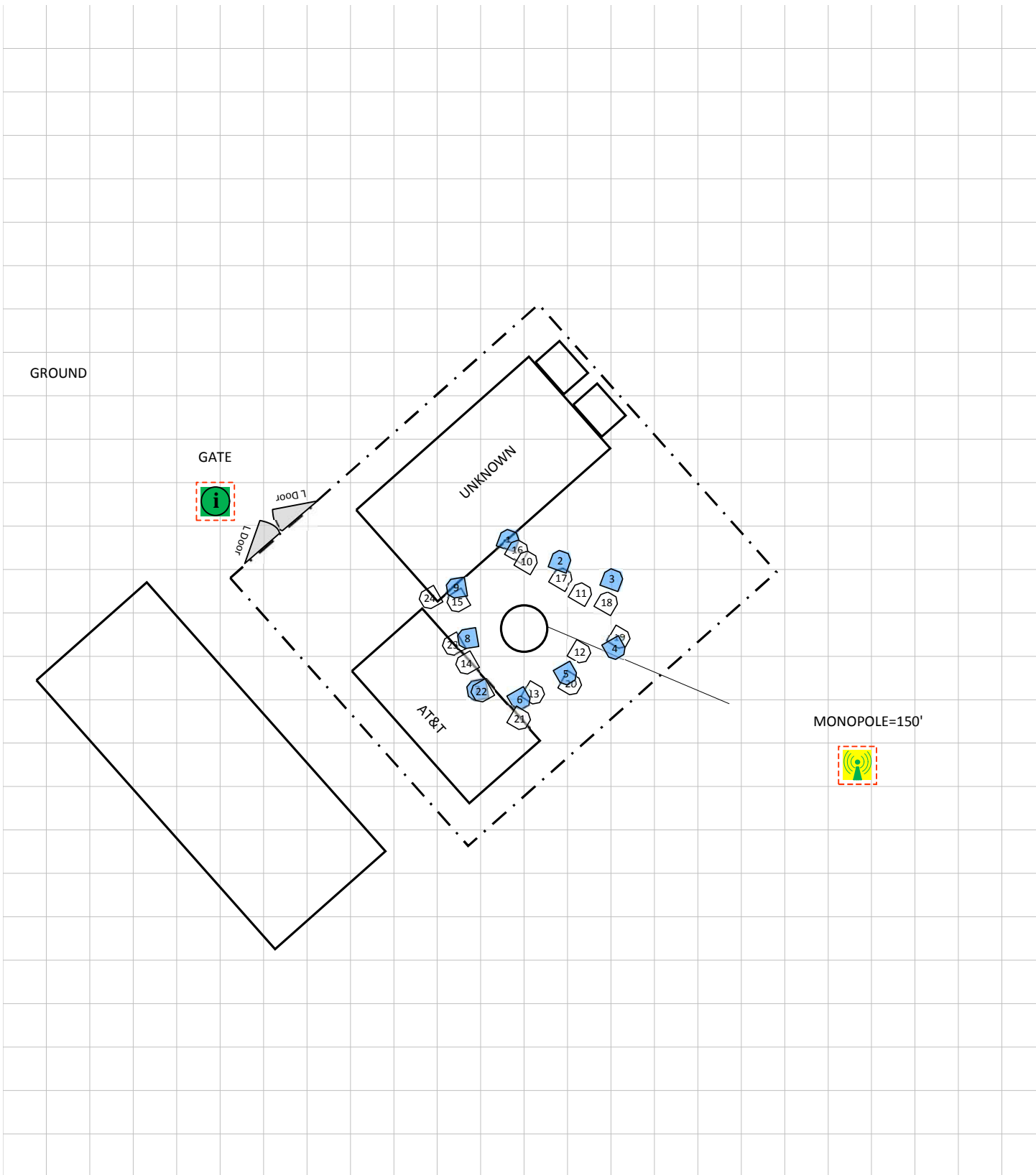
For 737LTE and 1900: LTE NEW-ENGLAND_CONNECTICUT_CTU5111_2018-LTE-Next-Carrier_LTE-2C_mm093q_2051A0DB5R_10071340_44020_06-26-2017_Preliminary-Approved_v1.00

2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- RF Exposure Diagram – Elevation View
- AT&T Mobility, LLC Contribution

Site Scale Map For: Wallingford-Pond Hill



www.sitesafe.com
Site Name: Wallingford-Pond Hill
12/18/2017 1:58:02 PM

Carrier Identification					
	AT&T MOBILITY LLC		VERIZON WIRELESS		T-MOBILE
	SPRINT		UNKNOWN CARRIER		

Sign Legend					
	Caution 1		Caution 2		Notice 2
	Notice 1		Warning		Info 1
	Info 2				

Proposed Barriers/ Signs	
	Barrier
	Proposed Barriers/ Signs

3 Antenna Inventory

The following antenna inventory on this and the following page, were obtained by the customer and were utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	20	82	4.6	11.51	0	1	0	849.5	110.1'	146.1'	125.7'
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	737	20	66.2	6	11.68	0	0	1	1475.7	114.6'	144.3'	125'
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	1900	20	61.1	6	14.53	0	0	1	4842	114.6'	144.3'	125'
3	AT&T MOBILITY LLC (Decommissioned)	Powerwave 7770	Panel	850	20	82	4.6	11.51	1	0	0	0	119.1'	142.7'	125.7'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	150	82	4.6	11.51	0	1	0	849.5	119.3'	136.8'	125.7'
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	737	150	66.2	6	11.68	0	0	1	1475.7	115.1'	134.6'	125'
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	1900	150	61.1	6	14.53	0	0	1	4842	115.1'	134.6'	125'
6	AT&T MOBILITY LLC (Decommissioned)	Powerwave 7770	Panel	850	150	82	4.6	11.51	1	0	0	0	111.1'	132.4'	125.7'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	260	82	4.6	11.51	0	1	0	849.5	107.4'	133.2'	125.7'
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	737	260	66.2	6	11.68	0	0	1	1475.7	106.6'	137.6'	125'
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	1900	260	61.1	6	14.53	0	0	1	4842	106.6'	137.6'	125'
9	AT&T MOBILITY LLC (Decommissioned)	Powerwave 7770	Panel	850	260	82	4.6	11.51	1	0	0	0	105.7'	142'	125.7'
10	UNKNOWN CARRIER	Generic	Panel	1900	30	65	6.3	16.26	-	-	-	2536	111.7'	144.3'	137.9'
11	UNKNOWN CARRIER	Generic	Panel	1900	30	65	6.3	16.26	-	-	-	2536	116.4'	141.5'	137.9'
12	UNKNOWN CARRIER	Generic	Panel	1900	120	65	6.3	16.26	-	-	-	2536	116.3'	136.4'	137.9'
13	UNKNOWN CARRIER	Generic	Panel	1900	120	65	6.3	16.26	-	-	-	2536	112.3'	132.9'	137.9'
14	UNKNOWN CARRIER	Generic	Panel	1900	240	65	6.3	16.26	-	-	-	2536	106.5'	135.5'	137.9'
15	UNKNOWN CARRIER	Generic	Panel	1900	240	65	6.3	16.26	-	-	-	2536	105.8'	140.8'	137.9'
16	UNKNOWN CARRIER	Generic	Panel	1900	30	65	6.3	16.26	-	-	-	2536	110.9'	145.2'	148.9'
17	UNKNOWN CARRIER	Generic	Panel	1900	30	65	6.3	16.26	-	-	-	2536	114.7'	142.8'	148.9'
18	UNKNOWN CARRIER	Generic	Panel	1900	30	65	6.3	16.26	-	-	-	2536	118.7'	140.7'	148.9'
19	UNKNOWN CARRIER	Generic	Panel	1900	120	65	6.3	16.26	-	-	-	2536	119.7'	137.7'	148.9'
20	UNKNOWN CARRIER	Generic	Panel	1900	120	65	6.3	16.26	-	-	-	2536	115.5'	133.7'	148.9'
21	UNKNOWN CARRIER	Generic	Panel	1900	120	65	6.3	16.26	-	-	-	2536	111.1'	130.7'	148.9'

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z
22	UNKNOWN CARRIER	Generic	Panel	1900	240	65	6.3	16.26	-	-	-	2536	107.8'	133.1'	148.9'
23	UNKNOWN CARRIER	Generic	Panel	1900	240	65	6.3	16.26	-	-	-	2536	105.4'	137.1'	148.9'
24	UNKNOWN CARRIER	Generic	Panel	1900	240	65	6.3	16.26	-	-	-	2536	103.4'	141.1'	148.9'

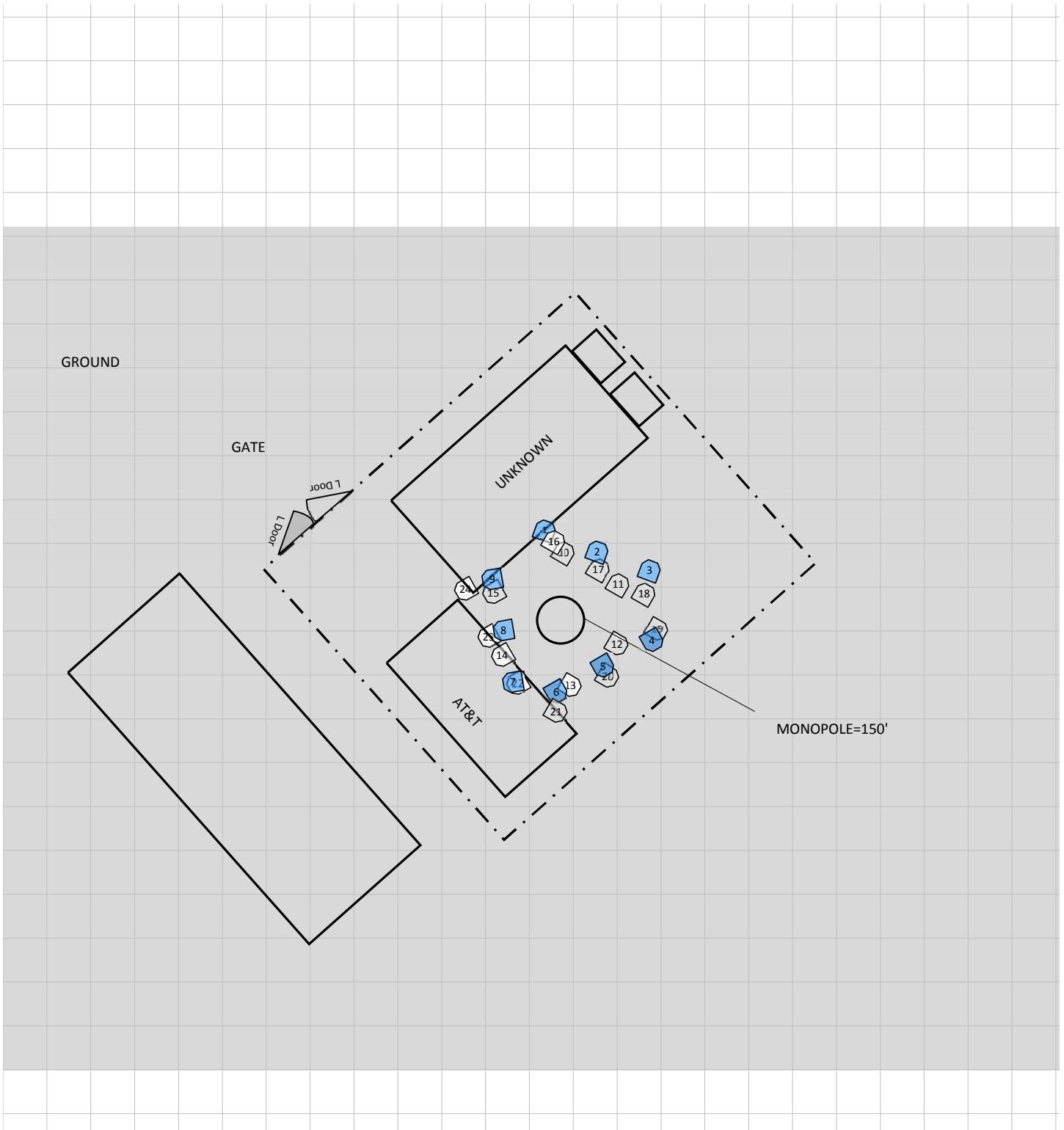
NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. The distance to the bottom 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

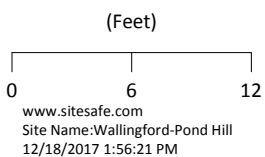
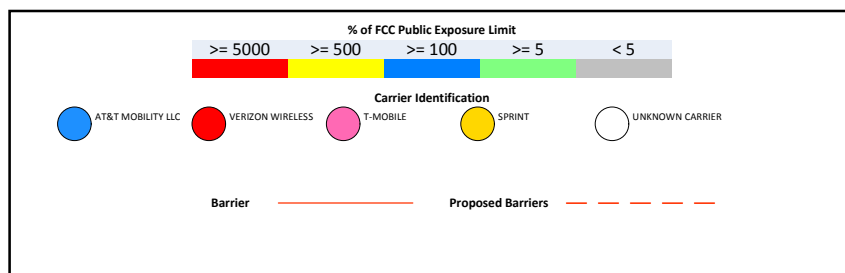
In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main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

The Antenna Inventory heights are referenced to the same level.

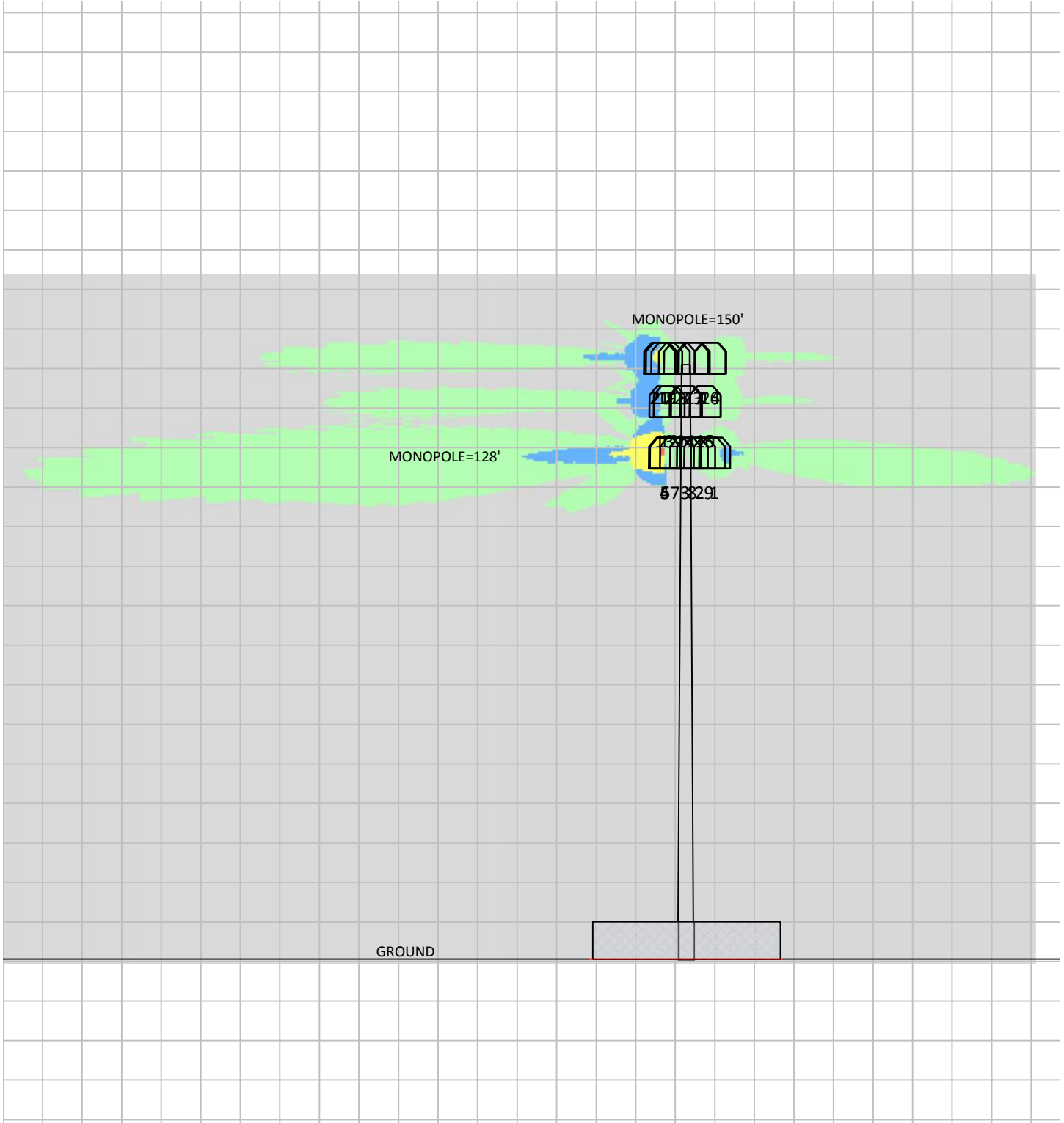
RF Exposure Simulation For: Wallingford-Pond Hill



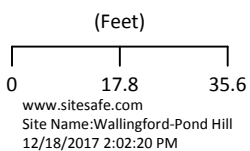
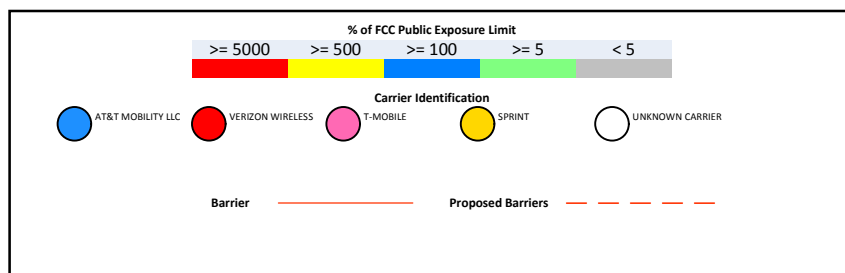
% of FCC Public Exposure Limit
Spatial average 0' - 6'



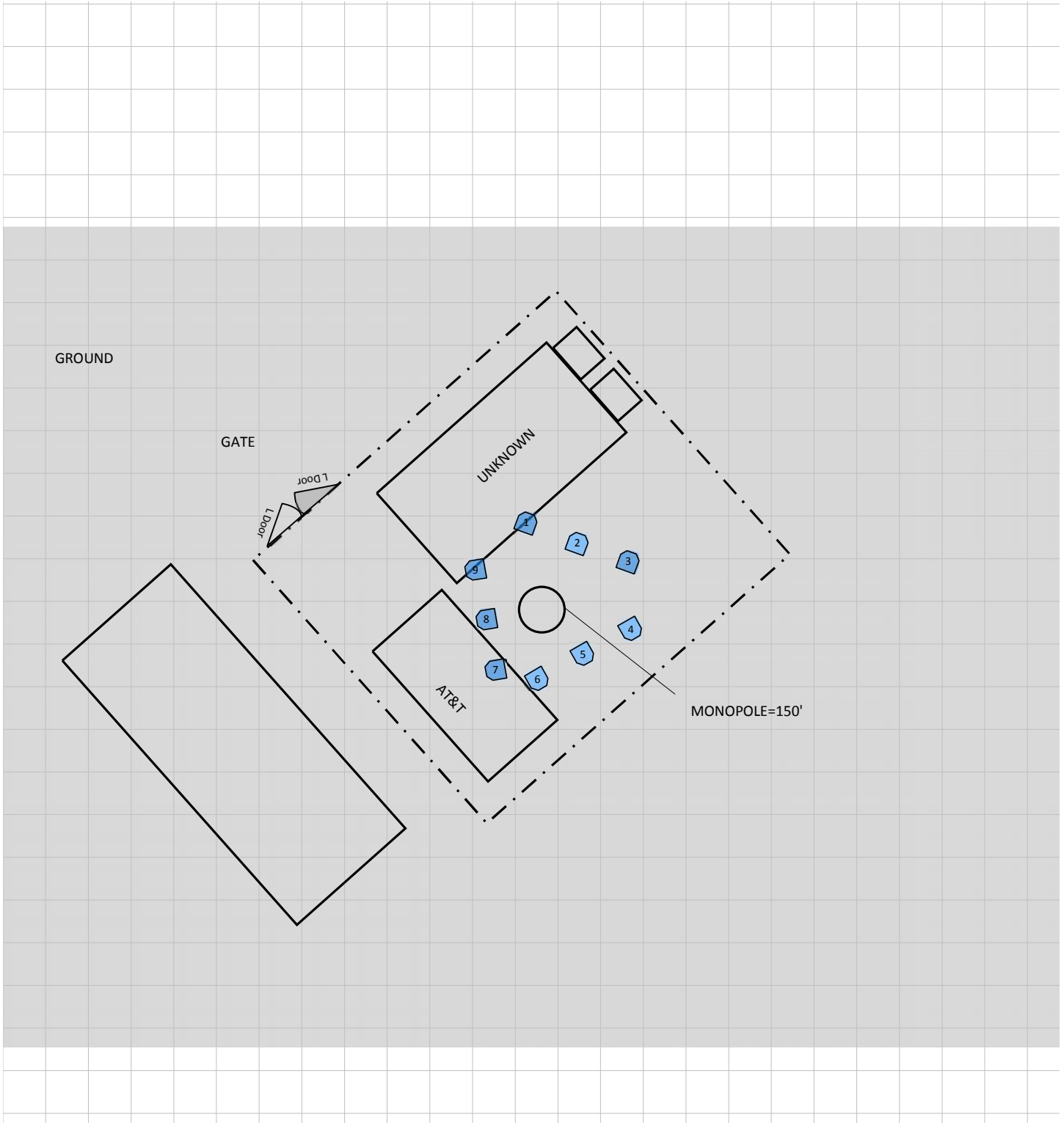
RF Exposure Simulation For: Wallingford-Pond Hill



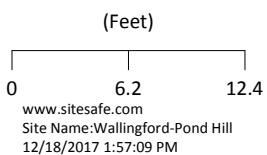
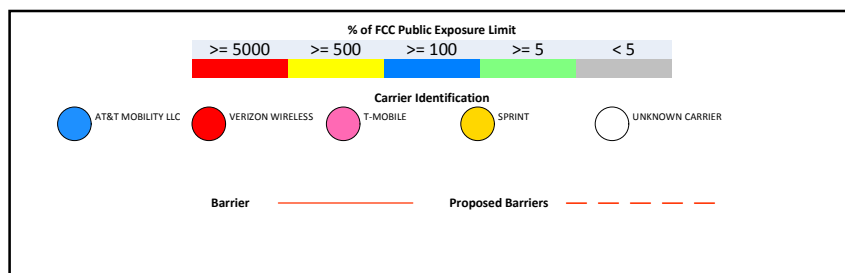
% of FCC Public Exposure Limit
Spatial average 0' - 6'



RF Exposure Simulation For: Wallingford-Pond Hill AT&T Mobility, LLC Contribution



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



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:

Compound Gate

Information 1 sign required.

Site Access Location

Yellow caution 2 sign required.

6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Sitesafe, Inc., in Arlington, 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 Brandon Green.

December 18, 2017

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.

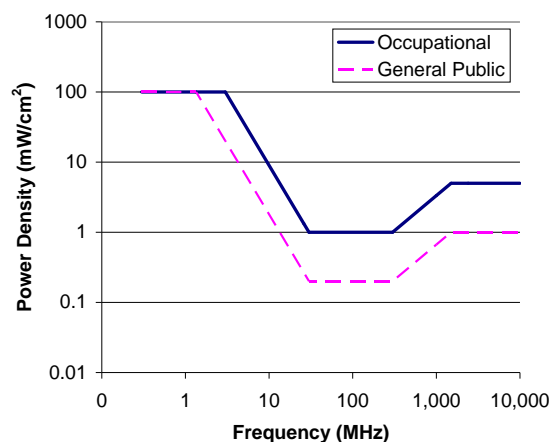
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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 ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

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 ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

*Plane-wave equivalent power density

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:

- 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.**
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- 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.**
- 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.**
- 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.

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, Inc.

<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

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

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

Norwegian Institute of Public Health

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

StartAntennaData It is advisable to provide an ID (ant 1) for all antennas

ID	Name	Freq (MHz)	Trans Power	Trans Count	Coax Len	Coax Type	Other Losses	Input Power	Calc Power	Mfg	Model	X (ft)	Y (ft)	Z (ft)	Type	Aper (ft)	dBd Gain	BWdth Pt Dir	Uptime Profile	ON flag
1	AT&T MOB	850	60	1	0			60		Powerwave	7770	110.142	146.142	125.7085	Panel	4.583	11.51 82;20	100%	ON•	
2	AT&T MOB	737	100.2301	1	0			100.2301		CCI Antenn	HPA-65R-B	114.6319	144.342	125	Panel	6	11.68 66.2;20	100%	ON•	
2	AT&T MOB	1900	170.618	1	0			170.618		CCI Antenn	HPA-65R-B	114.6319	144.342	125	Panel	6	14.53 61.1;120	100%	ON•	
3	AT&T MOB	850	0	1	0			0		Powerwave	7770	119.1086	142.742	125.7085	Panel	4.583	11.51 82;20	100%	ON•	
4	AT&T MOB	850	60	1	0			60		Powerwave	7770	119.3355	136.7631	125.7085	Panel	4.583	11.51 82;150	100%	ON•	
5	AT&T MOB	737	100.2301	1	0			100.2301		CCI Antenn	HPA-65R-B	115.1355	134.5631	125	Panel	6	11.68 66.2;150	100%	ON•	
5	AT&T MOB	1900	170.618	1	0			170.618		CCI Antenn	HPA-65R-B	115.1355	134.5631	125	Panel	6	14.53 61.1;150	100%	ON•	
6	AT&T MOB	850	0	1	0			0		Powerwave	7770	111.1355	132.3631	125.7085	Panel	4.583	11.51 82;150	100%	ON•	
7	AT&T MOB	850	60	1	0			60		Powerwave	7770	107.4319	133.1964	125.7085	Panel	4.583	11.51 82;260	100%	ON•	
8	AT&T MOB	737	100.2301	1	0			100.2301		CCI Antenn	HPA-65R-B	106.6319	137.6239	125	Panel	6	11.68 66.2;260	100%	ON•	
8	AT&T MOB	1900	170.618	1	0			170.618		CCI Antenn	HPA-65R-B	106.6319	137.6239	125	Panel	6	14.53 61.1;260	100%	ON•	
9	AT&T MOB	850	0	1	0			0		Powerwave	7770	105.6603	141.9964	125.7085	Panel	4.583	11.51 82;260	100%	ON•	
10	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	111.7355	144.2774	137.854	Panel	6.292	16.26 65;30	100%	ON•	
11	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	116.4319	141.5355	137.854	Panel	6.292	16.26 65;30	100%	ON•	
12	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	116.3355	136.4333	137.854	Panel	6.292	16.26 65;120	100%	ON•	
13	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	112.3355	132.8809	137.854	Panel	6.292	16.26 65;120	100%	ON•	
14	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	106.5202	135.4498	137.854	Panel	6.292	16.26 65;240	100%	ON•	
15	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	105.7631	140.8239	137.854	Panel	6.292	16.26 65;240	100%	ON•	
16	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	110.9355	145.2239	148.854	Panel	6.292	16.26 65;30	100%	ON•	
17	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	114.7355	142.8239	148.854	Panel	6.292	16.26 65;30	100%	ON•	
18	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	118.6588	140.7355	148.854	Panel	6.292	16.26 65;30	100%	ON•	
19	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	119.7355	137.6809	148.854	Panel	6.292	16.26 65;120	100%	ON•	
20	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	115.5355	133.6809	148.854	Panel	6.292	16.26 65;120	100%	ON•	
21	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	111.1355	130.6809	148.854	Panel	6.292	16.26 65;120	100%	ON•	
22	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	107.8319	133.0498	148.854	Panel	6.292	16.26 65;240	100%	ON•	
23	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	105.3631	137.0758	148.854	Panel	6.292	16.26 65;240	100%	ON•	
24	UNKNOWN	1900	60	1	0			60		Generic	6 Ft./65 De	103.3631	141.1061	148.854	Panel	6.292	16.26 65;240	100%	ON•	

StartSymbolData



316 Woodhouse Ave

Show search results for 316 Woodho...



200ft
-72.798 41.436 Degrees



Layer List

Operational layers

- Commercial/Industrial Parcels
- 2013

Lot Classification:THE

Lot Boundaries

Options Filter by map extent Zoom to Clear selection Refresh

Street Name	Street Number	Building Area	Land Area AC.	Zoning	Model Description	Grantee	Co Grantees Name	Mailing Address	City
WOODHOUSE AVE	316	5,000	3.22	CA40	Commercial	CONNECTICUT STREET ROD ASSOCIATION INC	THE	BOX 1517	WALLING

App State

Click to restore the map extent and layers visibility where you left off.

1 features 1 selected

Date: **November 7, 2017**

Cheryl Schultz
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6632



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
crown@tepgroup.net

Subject: Structural Analysis Report

Carrier Designation: **AT&T Mobility Co-Locate**
Carrier Site Number: CTL05111
Carrier Site Name: Wallingford - Pond Hill

Crown Castle Designation: **Crown Castle BU Number:** 828915
Crown Castle Site Name: Wallingford/ I-91/ X14/ S
Crown Castle JDE Job Number: 468568
Crown Castle Work Order Number: 1484887
Crown Castle Application Number: 413039 Rev. 1

Engineering Firm Designation: **TEP Project Number:** 83248.142686

Site Data: **316 Woodhouse Avenue, Wallingford, New Haven County, CT 06492**
Latitude 41° 26' 2.76", Longitude -72° 48' 5.26"
147.1 Foot - Monopole Tower

Dear Cheryl Schultz,

Tower Engineering Professionals is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1103183, in accordance with application 413039, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Existing + Proposed Equipment

Sufficient Capacity*

Note: See Table I and Table II for the proposed and existing loading, respectively.

***The structure has sufficient capacity once the loading changes described in the Recommendations section of this report are completed.**

This analysis has been performed in accordance with the 2016 Connecticut State Building Code (2012 International Building Code) based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawing for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Crown Castle*. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Kelly E. Hoiness, E.I. / JDR

Respectfully submitted by:

William H. Martin, P.E., S.E.



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1) INTRODUCTION

This tower is a 147.1-ft monopole tower designed by Pirod in March of 2000. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F for the appurtenances listed in Table 3. TEP did not visit the site. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the ANSI/TIA-222-G-2-2009 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a nominal 3-second gust wind speed of 97 mph with no ice, 50 mph with 0.75-inch ice thickness, and 60 mph under service loads with the following design criteria:

Type of Analysis: **Rigorous Structural Analysis**

Classification of Structure: **Class II**

Exposure Category: **Exposure C**

Topographic Category: **Category 1**

Earthquake Category: **Not Considered**

Earthquake effects may be ignored per this standard for site locations where S_s does not exceed 1.0. (New Haven County Max $S_s = 0.32$).

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
128.0	128.0	3	CCI Antennas	HPA-65R-BUU-H6 w/ Mount Pipe	1 2	3/8 7/16	1
		3	Ericsson	RRUS 32 B2			
		12	Kathrein	860 10025			
		3	Kathrein	782-10250			

Notes:

- 1) See "Appendix B - Base Level Drawing" for assumed feed line configuration.

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
148.0	148.0	3	Ericsson	AIR 21 B2A B4P w/ Mount Pipe	13	1-5/8	1
		3	Commscope	LNx-6515DS-VTM w/ Mount Pipe			
		3	Ericsson	AIR 21 B4A B2P w/ Mount Pipe			
		3	Ericsson	KRY 112 144/1			
		3	Ericsson	RRUS 11 B12			
		1	Tower Mounts	Platform Mount [LP 403-1]			
135.0	135.0	3	Argus Technologies	LLPX310R w/ Mount Pipe	6 1	5/16 1/2	1
		1	Dragonwave	A-ANT-23G-2-C			
		3	Samsung Telecomm.	RRH-B4			
		1	Tower Mounts	Pipe Mount [PM 601-3]			
		1	Tower Mounts	Platform Mount [LP 403-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
128.0	128.0	6	Powerwave Technologies	7770.00 w/ Mount Pipe	12	1-5/8	1
		1	Raycap	DC6-48-60-18-8F			
		3	Ericsson	RRUS 11			
		6	Powerwave Technologies	LGP21401			
		1	Tower Mounts	Side Arm Mount [SO 102-3]			
		1	Tower Mounts	Platform Mount [LP 403-1]			
		3	KMW Comm.	AM-X-CD-16-65-00T-RET w/ Mount Pipe	3	3/8	2
3	Ericsson	RRUS 11	6	1-5/8	3		
118.0	118.0	3				RFS Celwave	APXV18-206517S-C w/ Mount Pipe

- Notes:
 1) Existing equipment
 2) Existing equipment to be removed; not considered in this analysis
 3) Abandoned equipment; considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.1	147.1	6	Andrew	RR90-17	12	1-5/8
		12	Generic	Mast Head Amplifiers		
138.0	138.0	12	Andrew	RR90-17	12	1-5/8
128.0	128.0	12	Andrew	RR90-17	12	1-5/8

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	Clarence Welti Associates	3590826	CCISites
Foundation Mapping	FDH Engineering	3590825	CCISites
Tower Manufacturer Drawings	PiRod	3822414	CCISites

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and foundation were built in accordance with the manufacturer's specifications.
- 2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and "Appendix B – Base Level Drawing".
- 4) All tower components are in sufficient condition to carry their full design capacity.
- 5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not analyze antennas supporting mounts as part of this structural analysis report.
- 7) The foundation steel reinforcement was assumed to be the minimum required per ACI 318.
- 8) The following material grades were assumed:
 - a) Concrete compressive strength: $f'c = 3$ ksi
 - b) Foundation reinforcement (ties): $f_y = 40$ ksi
 - c) Foundation flexural reinforcement: $f_y = 60$ ksi
- 9) Per photos from CCISites, (3) Ericsson KRY 112 144/1 at 148-ft are installed directly behind the panel antennas and oriented such that they are completely shielded from the front, but not the sides.
- 10) Per photos from CCISites, (3) Ericsson RRUS 11 B12 at 148-ft are installed directly behind the panel antennas and oriented such that they are partially shielded from the front, but not the sides.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	ΦP_{allow} (K)	% Capacity	Pass / Fail
L1	147.083 - 136.583	Pole	TP17.6875x15x0.25	1	-2.84	997.82	15.5	Pass
L2	136.583 - 101.083	Pole	TP26x16.6756x0.25	2	-11.37	1475.15	68.9	Pass
L3	101.083 - 66.5	Pole	TP34.0625x24.7748x0.3125	3	-17.22	2387.42	70.2	Pass
L4	66.5 - 32.8333	Pole	TP41.75x32.4881x0.375	4	-25.16	3492.65	62.7	Pass
L5	32.8333 - 0	Pole	TP49.0625x39.8474x0.375	5	-36.06	3984.00	67.4	Pass
							Summary	
						Pole (L3)	70.2	Pass
						RATING =	70.2	Pass

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	76.4	Pass
1,2	Base Plate	-	76.4	Pass
1	Base Foundation Soil Interaction	-	99.1	Pass
1	Base Foundation Structural	-	96.9	Pass
Structure Rating (max from all components) =				99.1%

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Base and flange plate design methodology of the manufacturer has been reviewed and found to be an acceptable means of designing to resist the full capacity of the bolts and shaft. Base plates have the same capacity as their respective anchor rods.

4.1) Recommendations

- 1) If the load differs from that described in Tables 1 and 2 of this report, "Appendix B – Base Level Drawing" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and foundation have sufficient capacity to carry the proposed load configuration. In order for the results of this analysis to be considered valid the loading modification listed below must be completed.
 Loading Changes:
 - a) The (3) proposed Ericsson RRUS 32 B2 at 128-ft are to be installed directly behind the panel antennas and oriented such that they are completely shielded from the front.
 No structural modifications are required at this time, provided that the above listed changes are implemented.



PROJECT: LTE 2C
SITE NUMBER: CTL05111
FA NUMBER: 10071340
PTN NUMBER: 2051A0DB5R
PACE NUMBER: MRCTB025442
CROWN BU#: 828915
SITE NAME: WALLINGFORD POND HILL
SITE ADDRESS: 316 WOODHOUSE AVENUE
 WALLINGFORD, CT 06492


 550 COCHITUATE ROAD
 SUITE 550 13 AND 14
 FRAMINGHAM, MA 01701


smartlink
 1362 MELLON ROAD
 SUITE 140
 HANOVER, MD 21076


FULLERTON
 ENGINEERING • DESIGN
 1100 E. WOODFIELD ROAD, SUITE 500
 SCHAUMBURG, ILLINOIS 60173
 TEL: 847-908-8400
 COA# PEC.0001444
 www.FullertonEngineering.com

PROJECT INFORMATION

SITE NAME: WALLINGFORD POND HILL
SITE NUMBER: CTL05111
SITE ADDRESS: 316 WOODHOUSE AVENUE
 WALLINGFORD, CT 06492
FA NUMBER: 10071340
PTN NUMBER: 2051A0DB5R
PACE NUMBER: MRCTB025442
USID NUMBER: 44020
CROWN BU#: 828915
APPLICANT: AT&T WIRELESS
 550 COCHITUATE ROAD SUITE 550 13 AND 14
 FRAMINGHAM, MA 01701
TOWER OWNER: CROWN CASTLE INTERNATIONAL
 12 GILL STREET, SUITE 5800
 WOBURN, MA 01801
JURISDICTION: TOWN OF WALLINGFORD
COUNTY: NEW HAVEN
SITE COORDINATES FROM (RFDS):
LATITUDE: 41.4338919°
LONGITUDE: -72.8016989°
GROUND ELEV.: 218'
PROPOSED USE: TELECOMMUNICATIONS FACILITY
AT&T RF MANAGER: DEEPAK RATHORE
PHONE: (860) 965-3068
EMAIL: dr701e@att.com

SCOPE OF WORK

LTE 850 WILL BE 2C AT THE SITE WITH BRONZE CONFIGURATION.
 PROPOSED 2C PROJECT SCOPE HEREIN BASED ON RFDS ID # 1842299, VERSION 1.00
 LAST UPDATED 09/07/17.

- (3) NEW ANTENNAS TO REPLACE (3) EXISTING ANTENNAS
- (3) NEW RRUS-32
- UPGRADE DUS TO 5216 AND ADD XMU

- CONTRACTOR SHALL FURNISH ALL MATERIAL WITH THE EXCEPTION OF AT&T SUPPLIED MATERIAL.
- ALL MATERIAL SHALL BE INSTALLED BY THE CONTRACTOR, UNLESS STATED OTHERWISE.

APPLICABLE BUILDING CODES AND STANDARDS

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

BUILDING CODE: 2012 INTERNATIONAL BUILDING CODE
 2016 CONNECTICUT STATE BUILDING CODE SUPPLEMENT

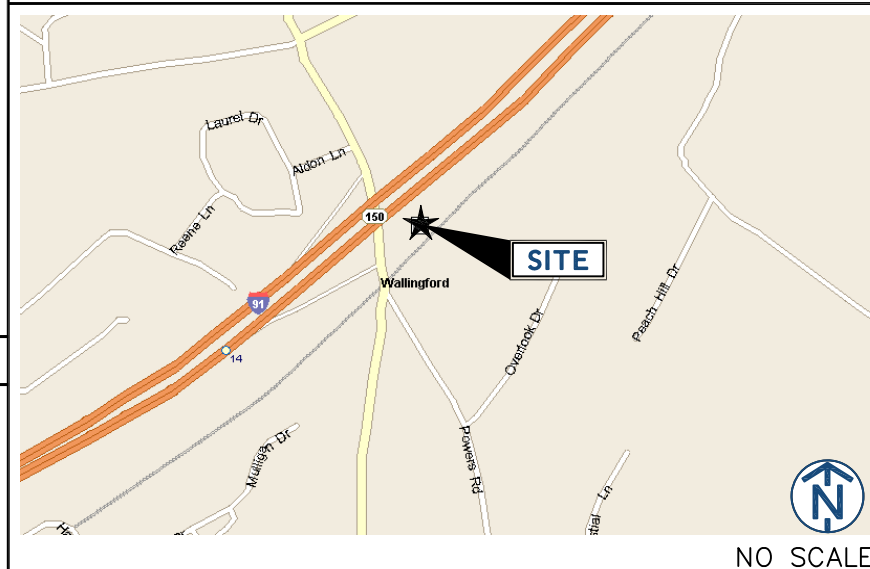
ELECTRICAL CODE: 2014 NATIONAL ELECTRIC CODE

- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- ADA ACCESS REQUIREMENTS ARE NOT REQUIRED.
- THIS FACILITY DOES NOT REQUIRE POTABLE WATER AND WILL NOT PRODUCE ANY SEWAGE

REV	DATE	DESCRIPTION	BY
0	10/24/17	90% REVIEW	EB
1	10/26/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

SITE LOCATION MAP



DRAWING INDEX

TITLE	DESCRIPTION
T1	TITLE SHEET
SP1	NOTES AND SPECIFICATIONS
SP2	NOTES AND SPECIFICATIONS
A1	COMPOUND PLAN
A2	EQUIPMENT PLAN
A3	ELEVATIONS
A4	ANTENNA PLANS
A5	EQUIPMENT DETAILS
A6	ANTENNA & CABLE CONFIGURATION
A7	CABLE NOTES AND COLOR CODING
A8	GROUNDING DETAILS

SITE NAME
WALLINGFORD POND HILL

PROJECT CONSULTANTS

PROJECT MANAGER: SMARTLINK
 85 RANGEWAY ROAD, SUITE 102
 NORTH BILLERICA, MA 01862
CONTACT: EDWARD WEISSMAN (917) 528-1857
EMAIL: Edward.Weissman@smartlinkllc.com
SITE ACQUISITION: SMARTLINK
 85 RANGEWAY ROAD, SUITE 102
 NORTH BILLERICA, MA 01862
CONTACT: SHARON KEEFE (978) 930-3918
EMAIL: Sharon.Keefe@smartlinkllc.com
ENGINEER/ARCHITECT: FULLERTON ENGINEERING
 1100 E. WOODFIELD ROAD, SUITE 500
 SCHAUMBURG, IL 60173
CONTACT: MILEN DIMITROV (847) 908-8439
EMAIL: MDimitrov@FullertonEngineering.com
CONSTRUCTION: SMARTLINK
 85 RANGEWAY ROAD, SUITE 102
 NORTH BILLERICA, MA 01862
CONTACT: MARK DONNELLY (617) 515-2080
EMAIL: mark.donnely@smartlinkllc.com

DIRECTIONS

SCAN QR CODE FOR LINK TO SITE LOCATION MAP



NOTE: DRAWING SCALES ARE FOR 11"x17" SHEETS UNLESS OTHERWISE NOTED

SITE NUMBER:
CTL05111
SITE ADDRESS
316 WOODHOUSE AVENUE
WALLINGFORD, CT 06492

SHEET NAME
TITLE SHEET

SHEET NUMBER
T1

THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

GENERAL CONSTRUCTION

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR/CM – SMARTLINK
OWNER – AT&T WIRELESS
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.

20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OT 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED 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.
24. 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.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.

ANTENNA MOUNTING

40. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL

CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.

41. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
42. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
43. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
44. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
45. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
46. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
47. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.
48. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
49. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
50. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.

TORQUE REQUIREMENTS

51. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
52. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.
B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.

FIBER & POWER CABLE MOUNTING

53. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
54. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES. A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
55. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

62. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
63. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
64. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.
65. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN

TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".

66. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
67. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
68. CONTRACTOR SHALL GROUND ALL EQUIPMENT INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
69. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
70. CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.

GENERAL CABLE AND EQUIPMENT NOTES

71. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMA'S, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
72. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
73. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
74. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
75. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
A. TEMPERATURE SHALL BE ABOVE 50° F.
B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS
76. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
A. GROUNDING AT THE ANTENNA LEVEL.
B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDING REQUIRED.
C. GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
D. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
77. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.



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SUITE 140
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POND HILL**

SITE NUMBER:
CTL05111

SITE ADDRESS
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WALLINGFORD, CT 06492**

SHEET NAME
**NOTES AND
SPECIFICATIONS**

SHEET NUMBER
SP1

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NOTICE

Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC General Population Exposure Limits.

Follow all posted signs and site guidelines for working in a RF environment.

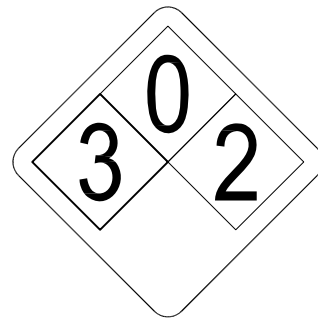
Ref: 47CFR 1.1307(b)

CAUTION

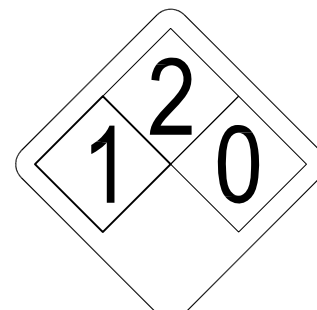
Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC Occupational Exposure Limits.

Obey all posted signs and site guidelines for working in a RF environment.

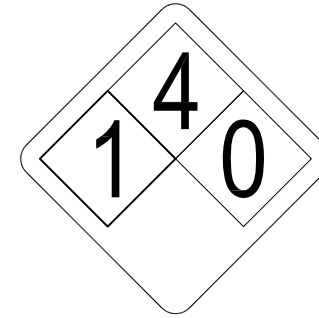
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ALERTING SIGN
(FOR CELL SITE BATTERIES)



ALERTING SIGN
(FOR DIESEL FUEL)



ALERTING SIGN
(FOR PROPANE)

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ALERTING SIGNS

WARNING!

DANGER DO NOT TOUCH TOWER!
SERIOUS "RF" BURN HAZARD!

MAINTAIN AN ADEQUATE CLEARANCE BETWEEN TOWER SUPPORTS AND GUY WIRES

FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN A RADIO FREQUENCY ENVIRONMENT COULD RESULT IN SERIOUS INJURY. CONTACT CURRENT MAY EXCEED LIMITS PRESCRIBED IN ANSI, IEEE C95.1-1992 FOR CONTROLLED ENVIRONMENTS.

PROPERTY OF AT&T

AUTHORIZED PERSONNEL ONLY

IN CASE OF EMERGENCY, OR PRIOR TO PERFORMING MAINTENANCE ON THIS SITE, CALL 800-638-2822 AND REFERENCE CELL SITE NUMBER _____

ALERTING SIGN

INFO SIGN #4

GENERAL SIGNAGE GUIDELINES

STRUCTURE TYPE	INFO SIGN #1	INFO SIGN #2	INFO SIGN #3	INFO SIGN #4	STRIPING	NOTICE SIGN	CAUTION SIGN
TOWERS							
MONOPOLE/MONOPINE/MONOPALM	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			AT THE HEIGHT OF THE FIRST CLIMBING STEP, MIN 9 FT ABOVE GROUND
SEC TOWERS/TOWERS WITH HIGH VOLTAGE	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
LIGHT POLES/FLAG POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
UTILITY WOOD POLES (JPA)	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		IF GP MAX VALUE OF MPE AT ANTENNA LEVEL IS: 0-99%; NOTICE SIGN; OVER 99%; CAUTION SIGN AT NO LESS THAN 3FT BELOW ANTENNA AND 9FT ABOVE GROUND	
MICROCELLS MOUNTED ON NON-JPA POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		NOTICE OR CAUTION SIGN AT NO LESS THAN 9FT ABOVE GROUND; ONLY IF THE EXPOSURE EXCEEDS 90% OF THE GENERAL PUBLIC EXPOSURE AT EXPOSURE AT 6FT ABOVE GROUND OR AT OUTSIDE OF SURFACE OF ADJACENT BUILDING	
TOWERS							
AT ALL ACCESS POINTS TO THE ROOF	X			X			
ON ANTENNAS	X		X	X			
CONCEALED ANTENNAS	X	X		X			
ANTENNAS MOUNTED FACING OUTSIDE THE BUILDING	X	X		X			
ANTENNAS ON SUPPORT STRUCTURE	X	X		X			
ROOFVIEW GRAPH							
RADIATION AREA IS WITHIN 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X		EITHER NOTICE OR CAUTION SIGN (BASED ON ROOFVIEW RESULTS) AT ANTENNA /BARRIER	
RADIATION AREA IS BEYOND 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X	DIAGONAL, YELLOW STRIPING AS TO ROOFVIEW GRAPH		
CHURCH STEEPLES	ACCESS TO STEEPLE	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO STEEPLE			CAUTION SIGN AT THE ANTENNAS
WATER STATIONS	ACCESS TO LADDER	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO LADDER			CAUTION SIGN BESIDE INFO SIGN #1, MIN. 9FT ABOVE GROUND

STAY BACK 3 FEET FROM ANTENNA

INFORMATION

AT&T operates telecommunications antennas at this location. Remain at least 3 feet away from any antenna and obey all posted signs.

Contact the owner(s) of the antenna(s) before working closer than 3 feet from the antenna.

Contact AT&T at _____ prior to performing any maintenance or repairs near AT&T antennas. This is Site # _____

Contact the management office if this door/hatch/gate is found unlocked.

INFORMACION

En esta propiedad se ubican antenas de telecomunicaciones operadas por AT&T. Favor mantener una distancia de no menos de 3 pies y obedecer todos los avisos.

Comuníquese con el propietario o los propietarios de las antenas antes de trabajar o caminar a una distancia de menos de 3 pies de la antena.

Comuníquese con AT&T _____ antes de realizar cualquier mantenimiento o reparaciones cerca de la antena de AT&T.

Esta es la estación base maestra. _____

Favor comunicarse con la oficina de la administración del edificio si esta puerta o compuerta se encuentra sin candado.

INFORMATION

ACTIVE ANTENNAS ARE MOUNTED

ON THE OUTSIDE OF THIS BUILDING

BEHIND THIS PANEL

ON THIS STRUCTURE

STAY BACK A MINIMUM OF 3 FEET FROM THESE ANTENNAS

Contact AT&T at _____ and follow their instructions prior to performing any maintenance or repairs closer than 3 feet from the antennas.

This is AT&T site # _____

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NOTES AND SPECIFICATIONS

SHEET NUMBER
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INFO SIGN #1

INFO SIGN #2

INFO SIGN #3

SIGNAGE GUIDELINES CHART

NOTES FOR ROOFTOP SITES:

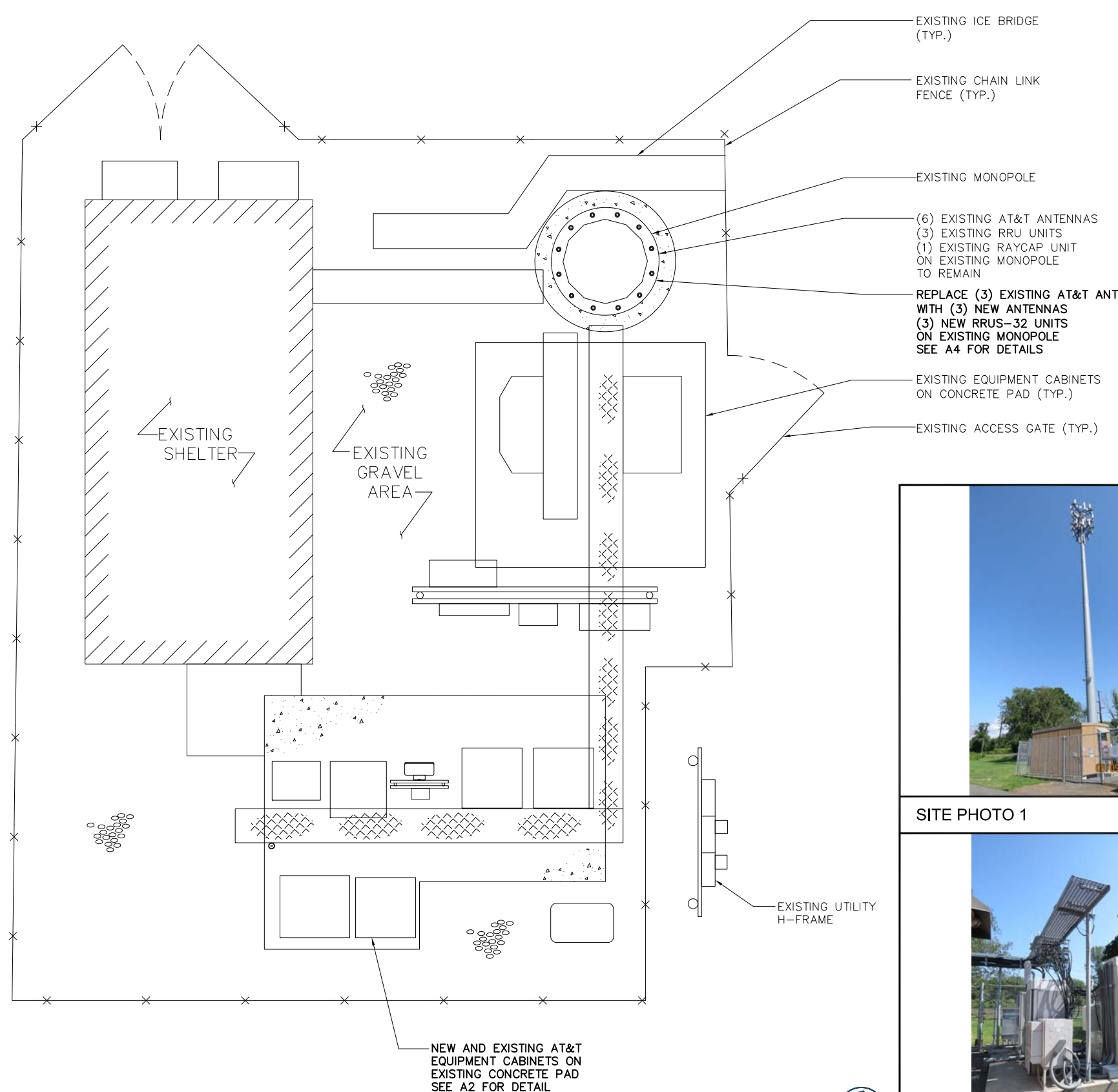
- EITHER NOTICE OR CAUTION SIGNS NEED TO BE POSTED AT EACH SECTOR AS CLOSE AS POSSIBLE TO: THE OUTER EDGE OF THE STRIPED OFF AREA OR THE OUTER ANTENNAS OF THE SECTOR
- IF ROOFVIEWS SHOWS: ONLY BLUE = NOTICE SIGN, BLUE AND YELLOW = CAUTION SIGN, ONLY YELLOW = CAUTION SIGN TO BE INSTALLED
- SHOULD THE REQUIRED STRIPING AREAS INTERFERE WITH ANY STRUCTURE OR EQUIPMENT (A/C, VENTS, ROOF HATCH, DOORS, OTHER ANTENNAS, DISHES, ETC.). PLEASE NOTIFY AT&T TO MODIFY THE STRIPING AREA, PRIOR TO STARTING THE WORK.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AGL	ABOVE GRADE LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BTS	BASE TRANSMISSION STATION
CL	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
DWG	DRAWING
FT	FOOT(FEET)
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATION
EQUIP	EQUIPMENT
(E)	EXISTING
EXT	EXTERIOR
FND	FOUNDATION
F	FIBER
FIF	FACILITY INTERFACE FRAME
GA	GAUGE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE COMMUNICATION
LTE	LONG TERM EVOLUTION
MAX	MAXIMUM
MCPA	MULTI-CARRIER POWER AMPLIFIER
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTS	MANUAL TRANSFER SWITCH
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OE/OT	OVERHEAD ELECTRIC/TELCO
PPC	POWER PROTECTION CABINET
PL	PROPERTY LINE
RBS	RADIO BASED STATION
RET	REMOTE ELECTRIC TILT
RRU	REMOTE RADIO UNIT
RGS	RIGID GALVANIZED STEEL
IN	INCH(ES)
INT	INTERIOR
LB(S), #	POUND(S)
SF	SQUARE FOOT
STL	STEEL
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UE/UT	UNDERGROUND ELECTRIC/TELCO
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELE-COMMUNICATION SYSTEM
VIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

SYMBOLS

	REVISION
	WORK POINT
	UTILITY POLE
	COMPRESSED STONE
	BRICK
	CONCRETE
	EARTH
	GRAVEL
	MASONRY
	STEEL
	CENTERLINE
	PROPERTY LINE
	LEASE LINE
	EASEMENT LINE
	CHAIN LINK FENCE
	WOOD FENCE
	BELOW GRADE ELECTRIC
	BELOW GRADE TELEPHONE
	OVERHEAD ELECTRIC/TELEPHONE
	SECTION REFERENCE



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SITE NUMBER:

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SITE ADDRESS

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SHEET NAME

**COMPOUND
PLAN**

SHEET NUMBER

A1



SITE PHOTO 1

SCALE: N.T.S.

2



SITE PHOTO 2

SCALE: N.T.S.

3

COMPOUND PLAN

SCALE: 3/16" = 1'-0"

1

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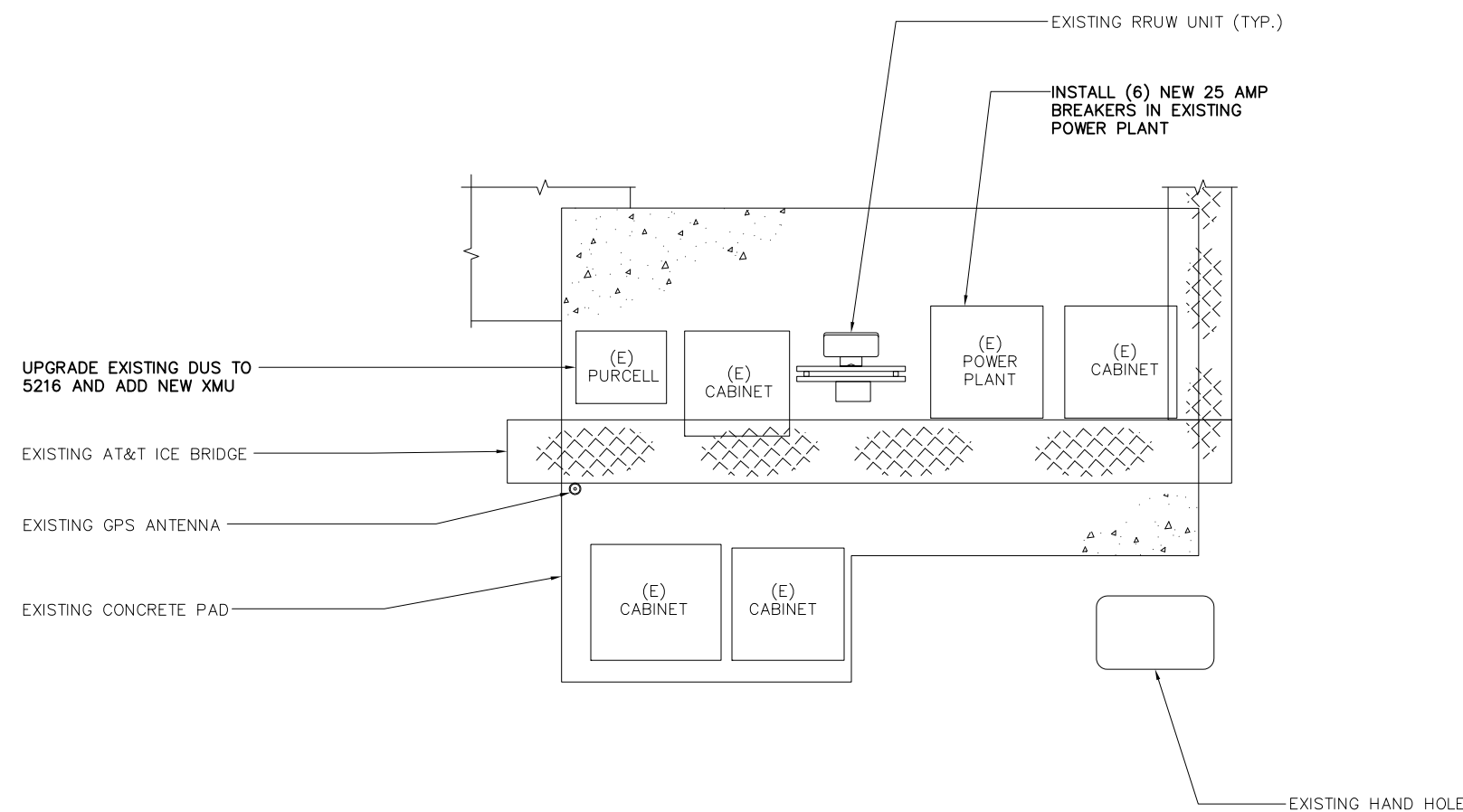
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SHEET NAME

**EQUIPMENT
PLAN**

SHEET NUMBER

A2

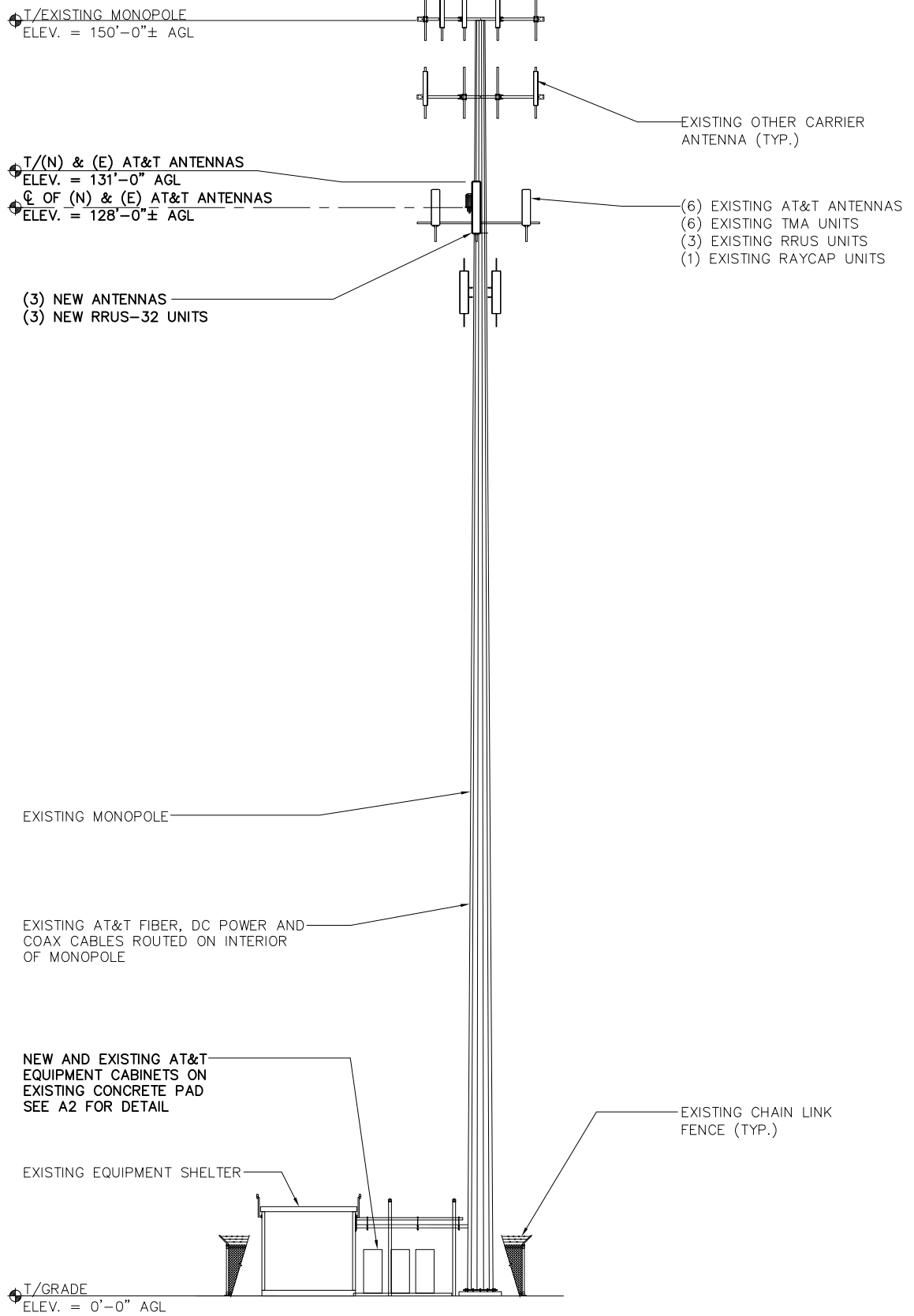
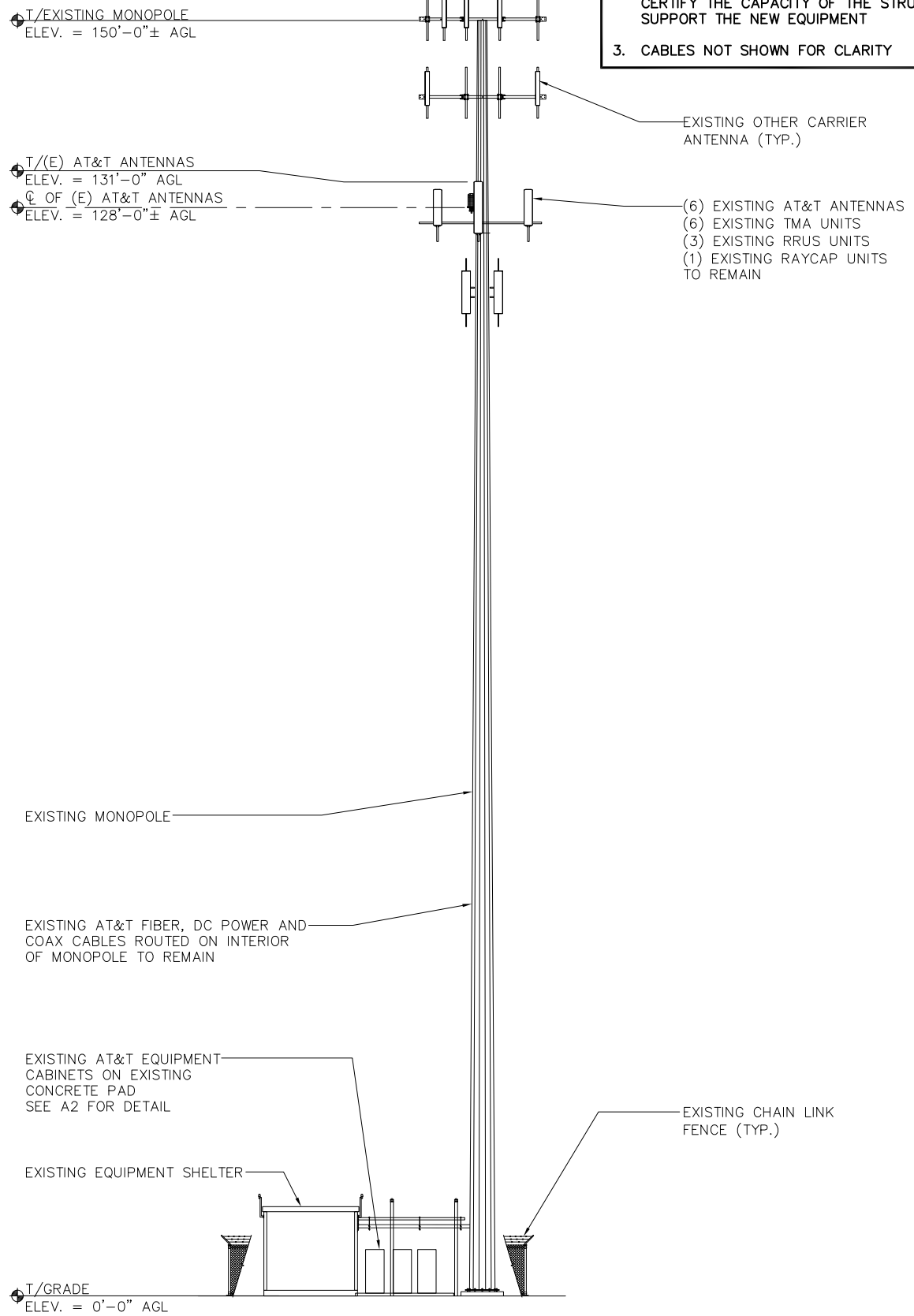


NOTES:

1. CALCULATIONS FOR THE STRUCTURE WERE PREPARED BY OTHERS AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
2. CALCULATIONS FOR THE ANTENNA MOUNTS WERE PREPARED BY FULLERTON AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
3. CABLES NOT SHOWN FOR CLARITY

NOTES:

1. ALL EQUIPMENT (ANTENNAS, LINES, ETC.) TO BE INSTALLED IN ACCORDANCE WITH PASSING STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE.
2. TAPE DROP FORMS AND PHOTOGRAPHS TO BE SUBMITTED PER CCI AND AT&T CLOSEOUT REQUIREMENTS.



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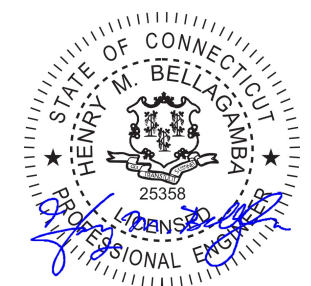
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SHEET NAME
ELEVATIONS

SHEET NUMBER
A3

EXISTING ELEVATION

SCALE: 1/16" = 1'-0" 1

NEW ELEVATION

SCALE: 1/16" = 1'-0" 2

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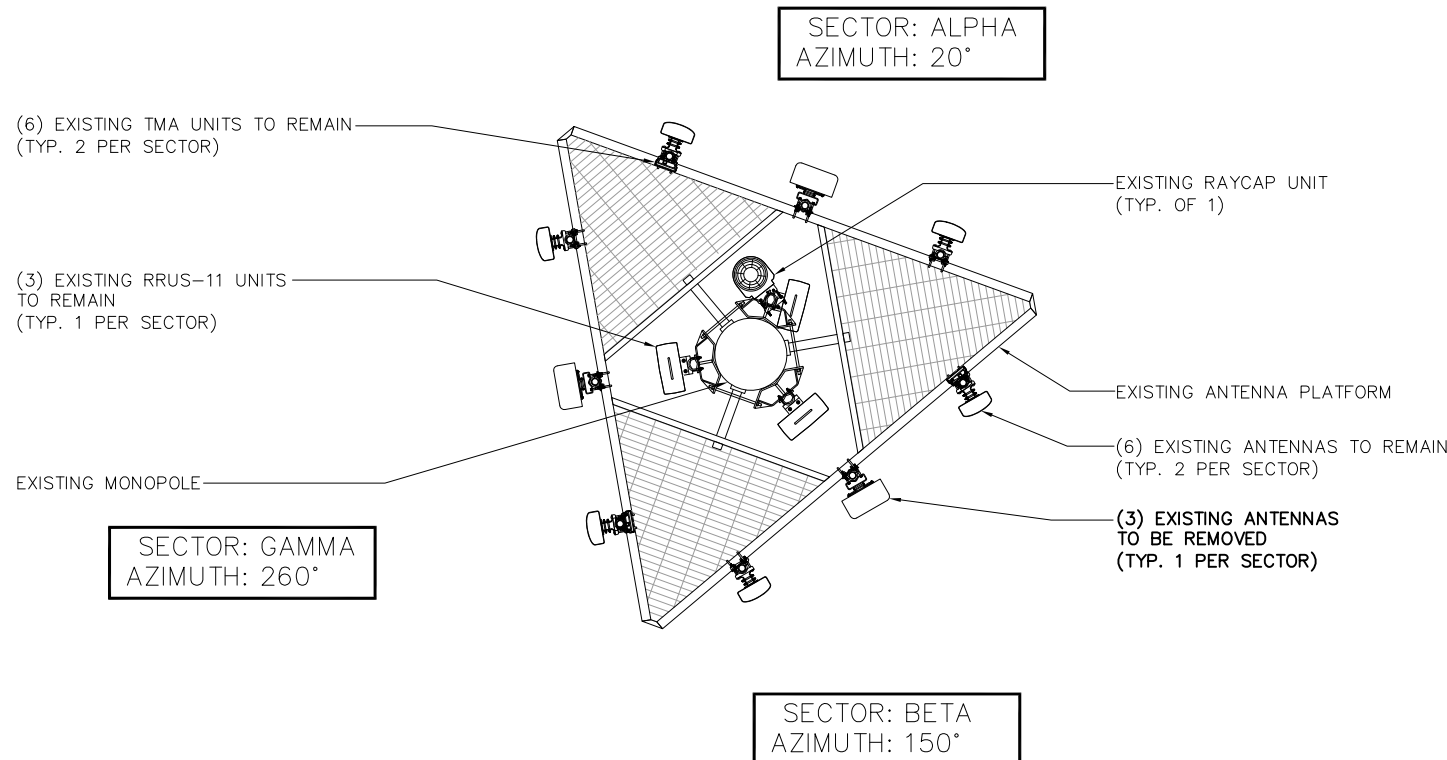
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SHEET NAME

ANTENNA
PLANS

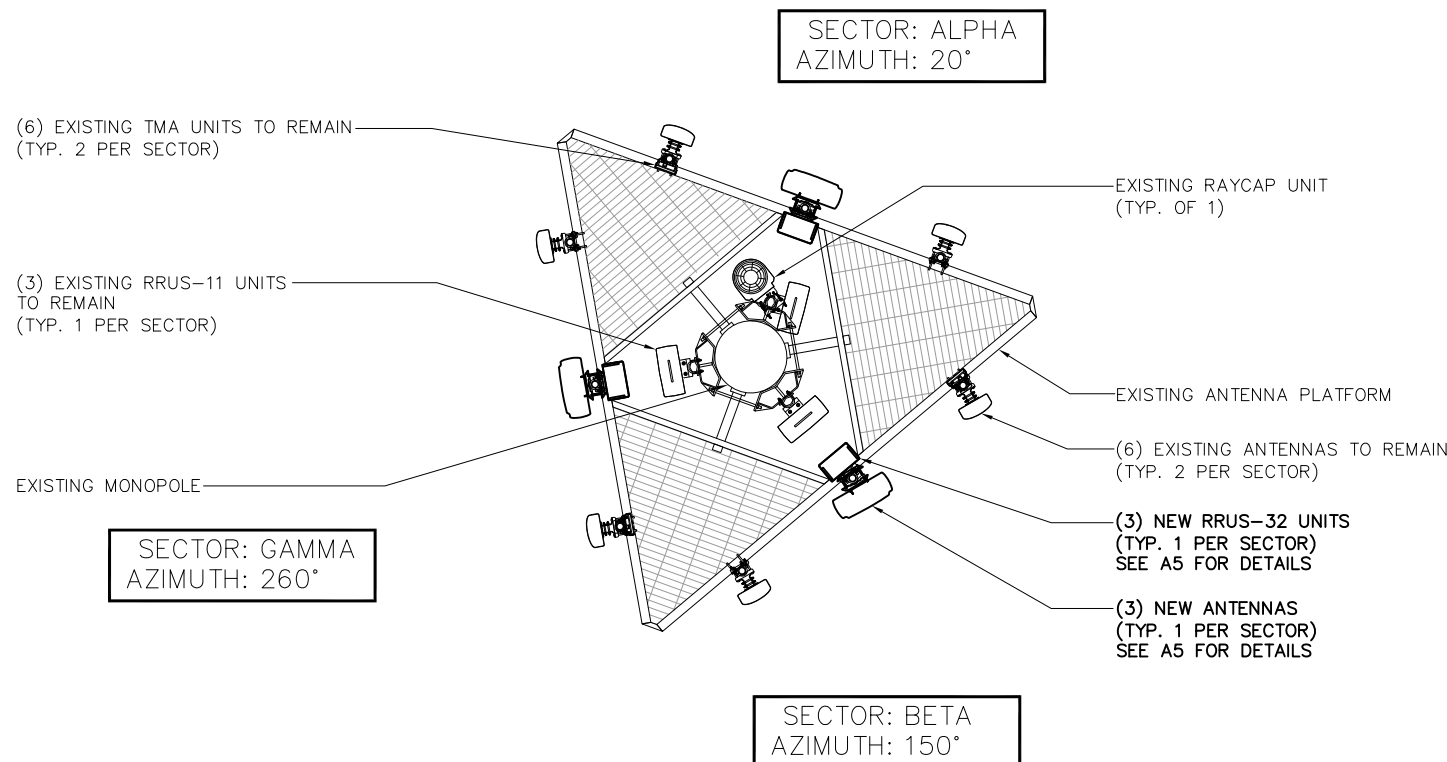
SHEET NUMBER

A4



EXISTING ANTENNA PLAN

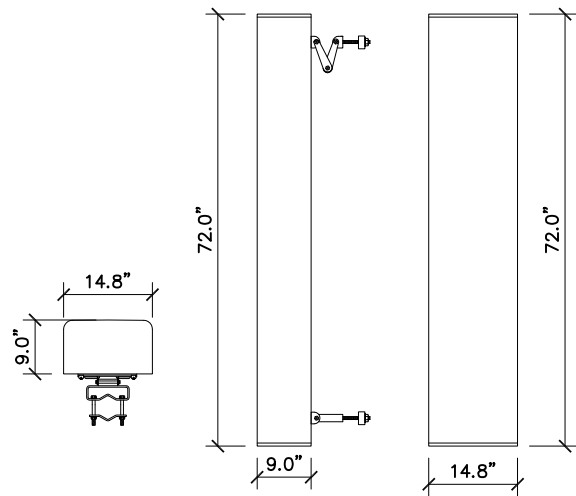
SCALE: 3/16" = 1'-0" | 1



FINAL ANTENNA PLAN

SCALE: 3/16" = 1'-0" | 2

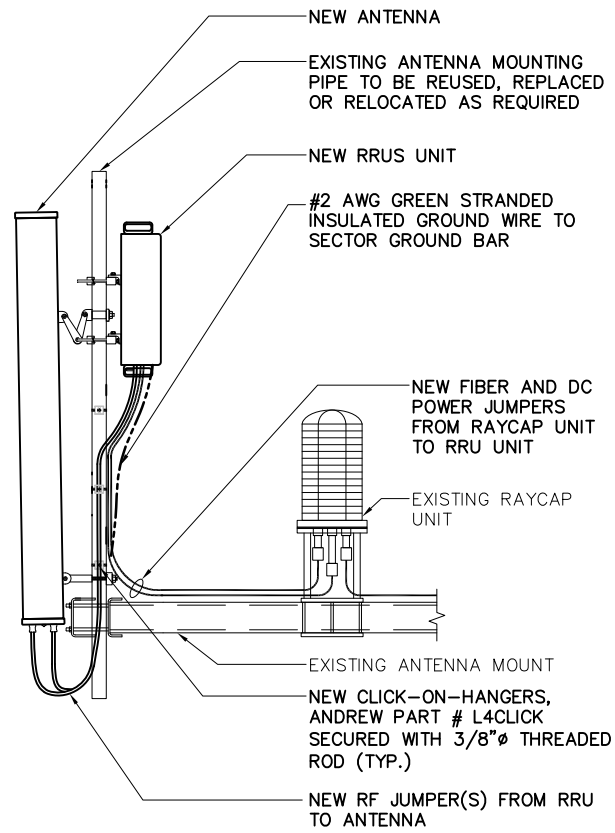




PLAN VIEW SIDE VIEW FRONT VIEW

CCI - HPA-65R-BUU-H6

HEXPOR MULTI-BAND ANTENNA
 FREQUENCY RANGE 698-806 MHz
 824-894 MHz
 1850-1990 MHz
 1710-1755/2110-2170 MHz
 2305-2360 MHz
 ANTENNA WITH BRACKET 51 Lbs
 61 Lbs

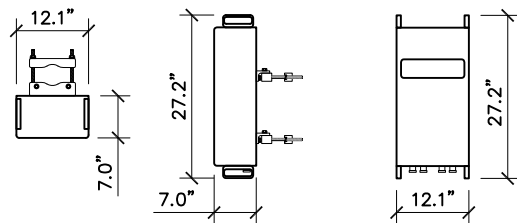


ANTENNA SPEC SCALE: N.T.S. 1

ANTENNA SCHEMATIC SCALE: N.T.S. 2

NOT USED SCALE: N.T.S. 3

NOT USED SCALE: N.T.S. 4



PLAN VIEW SIDE VIEW FRONT VIEW

ERICSSON - RRUS 32 B30

UNIT WEIGHT 60 Lbs

RRU SPEC SCALE: N.T.S. 5

NOT USED SCALE: N.T.S. 6

NOT USED SCALE: N.T.S. 7

NOT USED SCALE: N.T.S. 8

at&t
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 SUITE 550 13 AND 14
 FRAMINGHAM, MA 01701

smartlink
 1362 MELLON ROAD
 SUITE 140
 HANOVER, MD 21076

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 ENGINEERING • DESIGN
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WALLINGFORD POND HILL

SITE NUMBER:
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SITE ADDRESS
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 WALLINGFORD, CT 06492

SHEET NAME
EQUIPMENT DETAILS

SHEET NUMBER
A5

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SCHAUMBURG, ILLINOIS 60173
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CTL05111

SITE ADDRESS

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WALLINGFORD, CT 06492

SHEET NAME

**ANTENNA &
CABLE
CONFIGURATION**

SHEET NUMBER

A6

FINAL ANTENNA CONFIGURATION AND CABLE SCHEDULE
SUPPLIED BY AT&T WIRELESS, FROM RF CONFIG. DATED (09/07/17)

SECTOR	ANTENNA NUMBER	ANTENNA STATUS & TYPE	ANTENNA MODEL NUMBER	ANTENNA VENDOR	TMA/RRU UNIT	AZIMUTH	ANTENNA CL FROM GROUND	CABLE FEEDER		RAYCAP UNIT
								TYPE	LENGTH	
ALPHA	A-1	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNITS	20°	128'-0"	1-5/8"φ LDF7-50A	190'-0"	(1) (E) DC6-48-60-18-8F UNIT
	A-2	(E) LTE1C & (N) 2C ANTENNA	HPA-65R-BUU-H6	CCI	(1) EXISTING RRUS-11 UNIT AND (1) NEW RRUS-32 UNIT	20°	128'-0"	(1) EXISTING FIBER CABLE (2) EXISTING DC POWER CABLES	190'-0"	
	A-3	-	-	-	-	-	-	-	-	
	A-4	(E) GSM ANTENNA	7770	POWERWAVE	-	20°	128'-0"	1-5/8"φ LDF7-50A 1-5/8"φ LDF7-50A	190'-0"	
BETA	B-1	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNITS	150°	128'-0"	1-5/8"φ LDF7-50A 1-5/8"φ LDF7-50A	190'-0"	
	B-2	(E) LTE1C & (N) 2C ANTENNA	HPA-65R-BUU-H6	CCI	(1) EXISTING RRUS-11 UNIT AND (1) NEW RRUS-32 UNIT	150°	128'-0"	SEE ANTENNA A-2 FOR CABLE TYPE AND LENGTH	-	
	B-3	-	-	-	-	-	-	-	-	
	B-4	(E) GSM ANTENNA	7770	POWERWAVE	-	150°	128'-0"	1-5/8"φ LDF7-50A 1-5/8"φ LDF7-50A	190'-0"	
GAMMA	C-1	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNITS	260°	128'-0"	1-5/8"φ LDF7-50A 1-5/8"φ LDF7-50A	190'-0"	
	C-2	(E) LTE1C & (N) 2C ANTENNA	HPA-65R-BUU-H6	CCI	(1) EXISTING RRUS-11 UNIT AND (1) NEW RRUS-32 UNIT	260°	128'-0"	SEE ANTENNA A-2 FOR CABLE TYPE AND LENGTH	-	
	C-3	-	-	-	-	-	-	-	-	
	C-4	(E) GSM ANTENNA	7770	POWERWAVE	-	260°	128'-0"	1-5/8"φ LDF7-50A 1-5/8"φ LDF7-50A	190'-0"	

LEGEND

(N) - NEW
(E) - EXISTING

1. CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
2. THE SIZE, HEIGHT, AND DIRECTION OF THE ANTENNAS SHALL BE ADJUSTED TO ACHIEVE THE AZIMUTHS SPECIFIED AND LIMIT SHADOWING AND TO MEET THE SYSTEM REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY THE HEIGHT OF THE ANTENNA WITH THE AT&T WIRELESS PROJECT MANAGER.
4. VERIFY TYPE AND SIZE OF TOWER LEG PRIOR TO ORDERING ANY ANTENNA MOUNT.
5. UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY.
6. ANTENNA AZIMUTHS ARE DEGREES OFF OF TRUE NORTH, BEARING CLOCKWISE, IN WHICH ANTENNA FACE IS DIRECTED. ALL ANTENNAS (AND SUPPORTING STRUCTURES AS PRACTICAL) SHALL BE ACCURATELY ORIENTED IN THE SPECIFIED DIRECTION.
7. CONTRACTOR SHALL VERIFY ALL RF INFORMATION PRIOR TO CONSTRUCTION.
8. SWEEP TEST SHALL BE PERFORMED BY GENERAL CONTRACTOR AND SUBMITTED TO AT&T WIRELESS CONSTRUCTION SPECIALIST. TEST SHALL BE PERFORMED PER AT&T WIRELESS STANDARDS.
9. CABLE LENGTHS WERE DETERMINED BASED ON THE DESIGN DRAWING. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
10. CONTRACTOR TO USE ROSENBERGER FIBER LINE HANGER COMPONENTS (OR ENGINEER APPROVED EQUAL).

ANTENNA AND CABLING NOTES

SCALE: N.T.S. 1

RF, DC, & COAX CABLE MARKING LOCATIONS TABLE	
NO	LOCATIONS
1	EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
3	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.

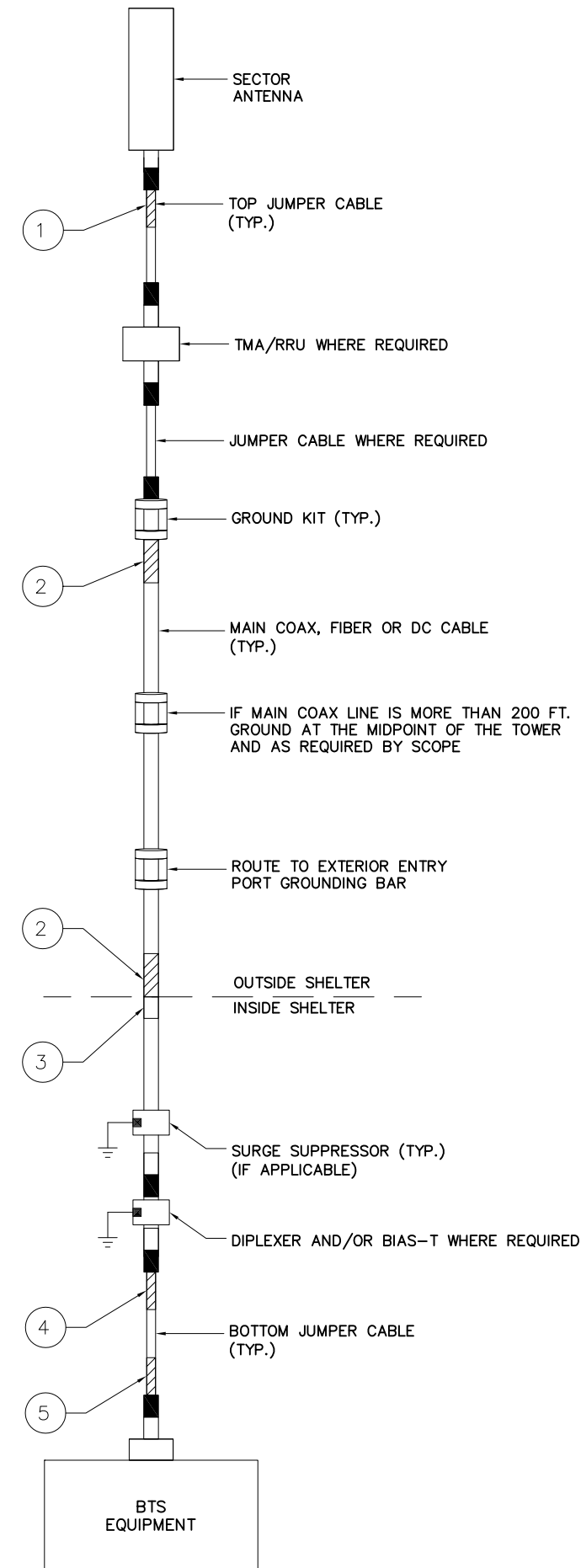
CABLE MARKING DIAGRAM

SCALE: N.T.S. 2

1. THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE.
2. THE STANDARD IS BASED ON EIGHT COLORED TAPES-RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE, AND VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR CONTRACTOR ON SITE.
3. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE COLOR CHART".
4. WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN TECHNOLOGIES IS ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING STANDARD. IN THE ABSENCE OF AN EXISTING COLOR CODING AND TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
5. ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) THREE WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
6. ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE, AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE BETWEEN EACH COLOR.
7. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
8. IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE NEW TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

CABLE MARKING NOTES

SCALE: N.T.S. 3



CABLE COLOR CODING DIAGRAM

SCALE: N.T.S. 4



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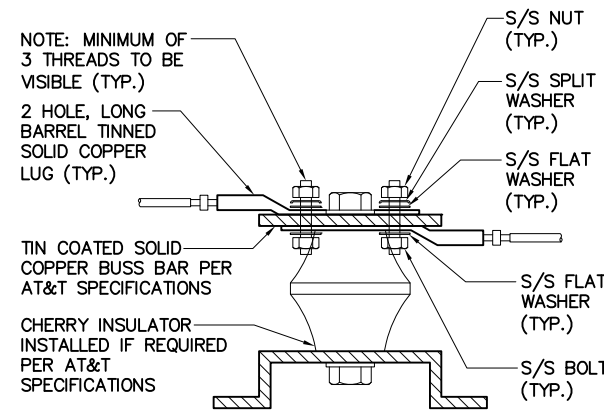
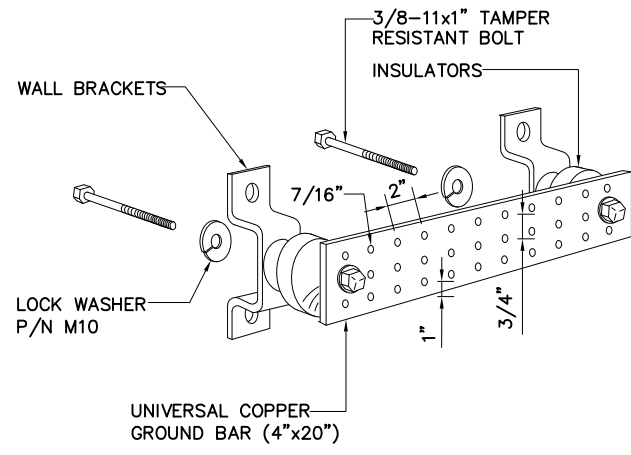
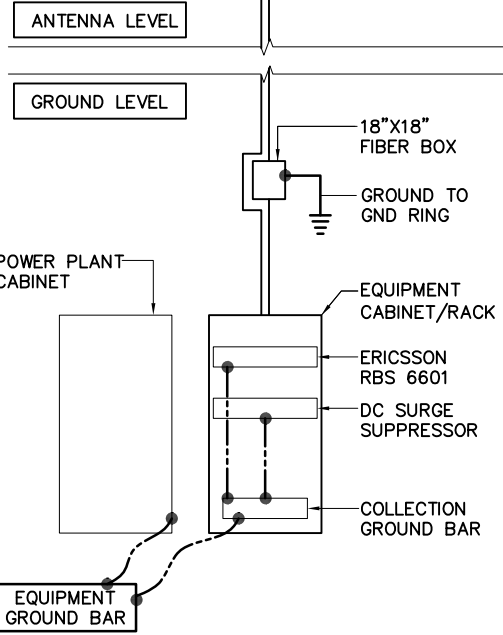
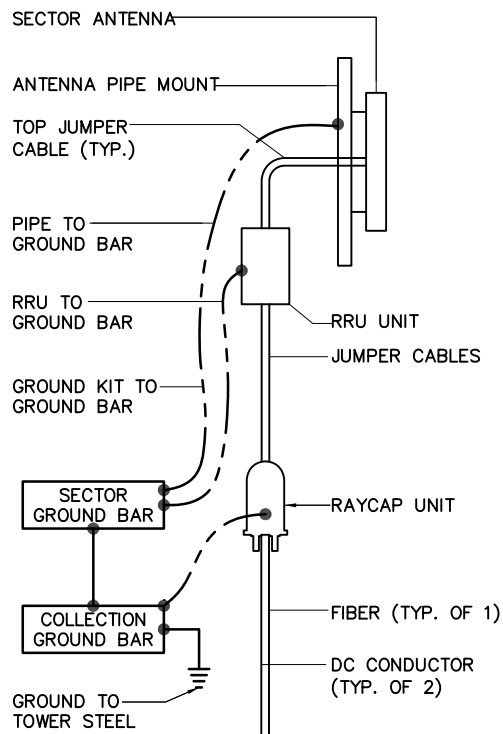
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SHEET NAME
CABLE NOTES AND COLOR CODING

SHEET NUMBER

A7

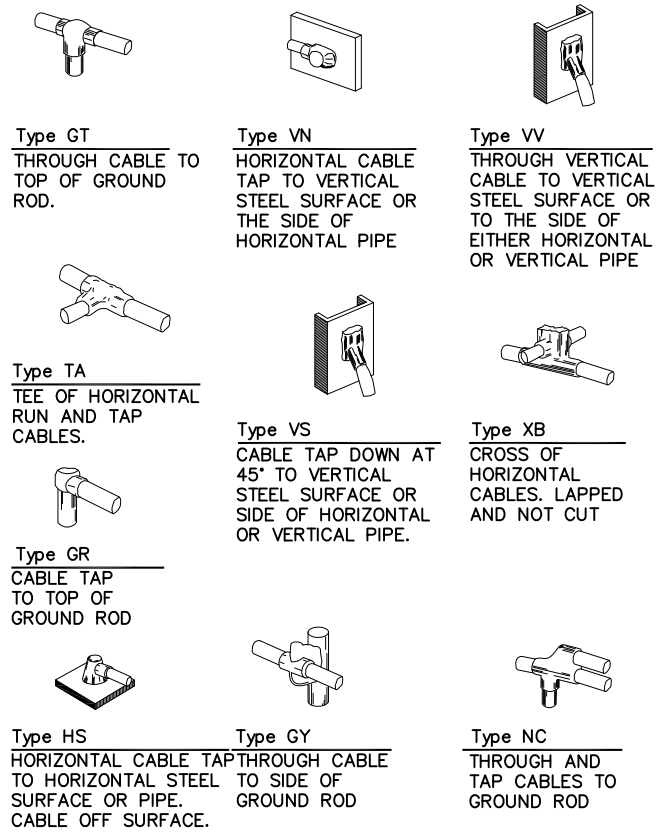
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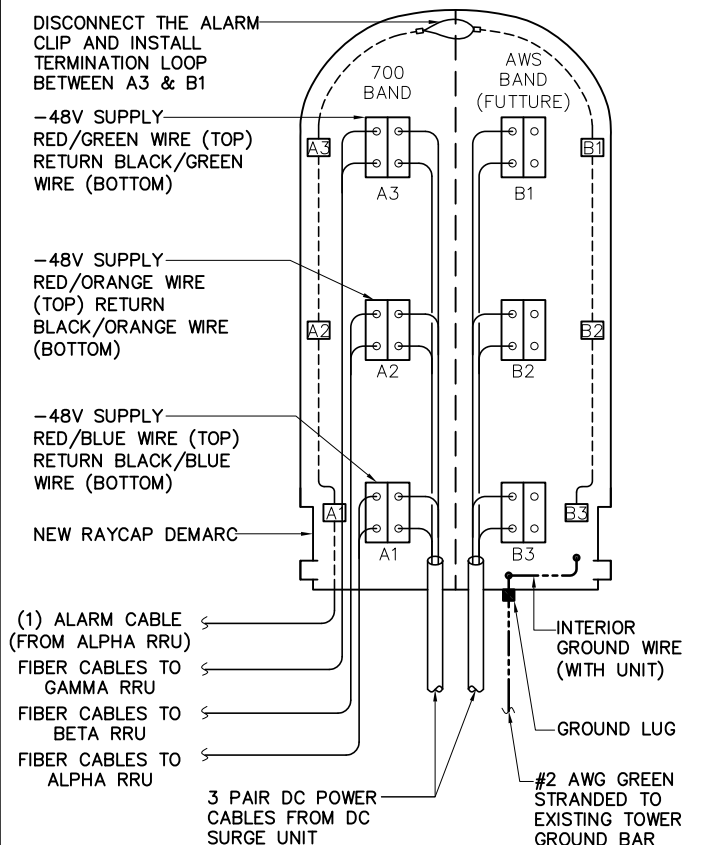
- NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
 2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
 3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

GROUND BAR DETAIL SCALE: N.T.S. 2

LUG DETAIL SCALE: N.T.S. 3



EXOTHERMIC WELD DETAILS SCALE: N.T.S. 4



RAYCAP DC POWER AND ALARM DET. SCALE: N.T.S. 5

NOT USED SCALE: N.T.S. 6



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SUITE 550 13 AND 14
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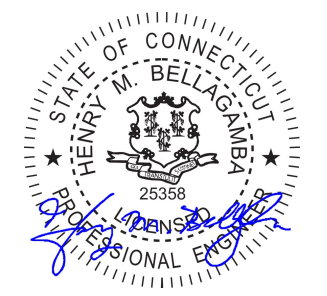
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SHEET NAME

GROUNDING
DETAILS

SHEET NUMBER

A8

GROUNDING SCHEMATIC SCALE: N.T.S. 1

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