

UPS CampusShip: View/Print Label

- 1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
- 2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.

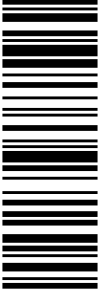
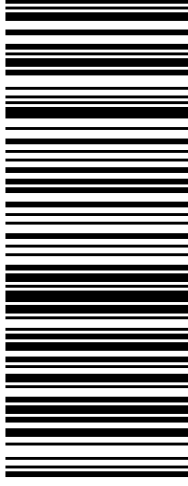

Hand the package to any UPS driver in your area.

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450 E CENTER ST
WEST BRIDGEWATER, MA 02379

UPS Access Point™
M&M SEAFOOD
1124 MAIN ST
BROCKTON, MA 02301

UPS Access Point™
BOOST MOBILE 649
649 WARREN AVE
BROCKTON, MA 02301

FOLD HERE

<p>JENNIFER ILIADES 9789441804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p>SHIP TO: LYNNE VANDERSLICE FIRST SELECTWOMAN 2035630100 TOWN OF WILTON 238 DANBURY ROAD WILTON CT 06897-4008</p>	<p>1 OF 1</p> <p>1 LBS</p>	<p>CT 069 9-04</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 03 0003 7966</p> 
<p>BILLING: P/P</p>		<p>Reference # 1: CT5063 - CSC TO FIRST SELECTWOMAN</p> <p><small>CS 21.1.23. WNTNVS0 12.04.04/2019</small></p> 	

Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, July 3, 2019 12:04 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030300037966



Your package has been delivered.

Delivery Date: Wednesday, 07/03/2019
Delivery Time: 11:59 AM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030300037966
Ship To:	Lynne Vanderslice First Selectwoman Town of Wilton 238 DANBURY RD WILTON, CT 06897 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	OFFICE REES
Reference Number 1:	CT5063 - CSC to First Selectwoman

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Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.


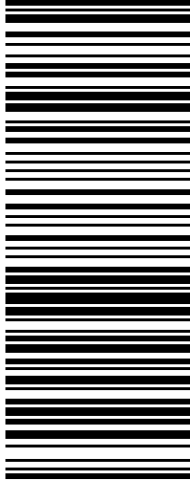

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BROCKTON, MA 02301

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<p style="text-align: right;">1 OF 1</p> <p>1 LBS</p> <p>JENNIFER ILIADES 9789441804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p>SHIP TO: TIMOTHY BUNTING, ZONING ENFORCEMENT 2035630185 TOWN OF WILTON 238 DANBURY ROAD WILTON CT 06897-4008</p>	<p>CT 069 9-04</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 03 1104 4955</p> 	<p style="text-align: center;">BILLING: P/P</p> <p>Reference # 1: CT5063 - CSC TO ZONING</p> <p style="font-size: small; text-align: right;">CS 21.1.23. WNTNVS0 12.04.04/2019</p> 
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Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, July 3, 2019 12:04 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030311044955



Your package has been delivered.

Delivery Date: Wednesday, 07/03/2019
Delivery Time: 11:59 AM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030311044955
Ship To:	Timothy Bunting, Zoning Enforcement Town of Wilton 238 DANBURY RD WILTON, CT 06897 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	OFFICE REES
Reference Number 1:	CT5063 - CSC to Zoning

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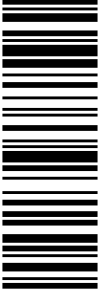
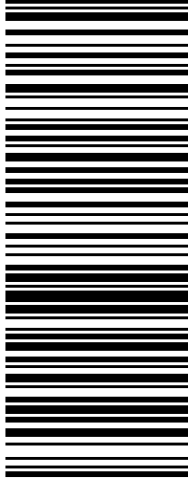

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UPS Access Point™
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BROCKTON, MA 02301

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<p style="text-align: right;">1 OF 1</p> <p>1 LBS</p> <p>JENNIFER ILIADES 9789441804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p>SHIP TO: ROBERT NERNEY, DIR. PLANNING 2035630185 TOWN OF WILTON 238 DANBURY ROAD WILTON CT 06897-4008</p>	<p style="font-size: 2em;">CT 069 9-04</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 03 0025 3946</p> 
<p>BILLING: P/P</p>		
 <p>Reference # 1: CT5063 - CSC TO PLANNING</p> <p style="font-size: 0.8em;">CS 21.1.23. WNTNVS0 12.04.04/2019</p>		

Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, July 3, 2019 12:04 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030300253946



Your package has been delivered.

Delivery Date: Wednesday, 07/03/2019
Delivery Time: 11:59 AM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030300253946
Ship To:	Robert Nerney, Dir. Planning Town of Wilton 238 DANBURY RD WILTON, CT 06897 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	OFFICE REES
Reference Number 1:	CT5063 - CSC to Planning

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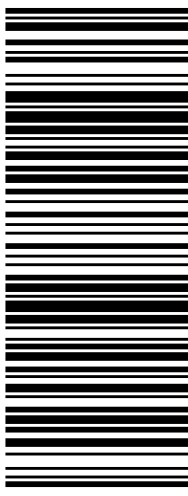

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BROCKTON, MA 02301

UPS Access Point™
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BROCKTON, MA 02301

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<p style="text-align: right;">1 OF 1</p> <p>1 LBS</p> <p>JENNIFER ILLADES 978-944-1804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p>SHIP TO: REMO TARTAGLIA REMO WILTON ASSOCIATES LLC 477 MAIN STREET MONROE CT 06468-1155</p>	<p>CT 068 0-02</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 03 1422 9983</p> 	<p>BILLING: P/P</p> <p>Reference # 1: CT5063 - CSC to Ground Owner</p> <p style="font-size: small;">CS 21.1.23. WNTNVS0 12.04.04/2019</p> 
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Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, July 3, 2019 12:48 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030314229983



Your package has been delivered.

Delivery Date: Wednesday, 07/03/2019
Delivery Time: 12:46 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	<u>1Z9Y45030314229983</u>
Ship To:	Remo Tartaglia Remo-Wilton Associates LLC 477 MAIN ST ROOM 212 MONROE, CT 06468 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	RECEIVER QUIERI
Reference Number 1:	CT5063 - CSC to Ground Owner

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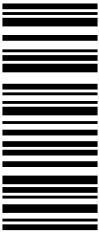


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<p>1 LBS</p> <p>JENNIFER ILIADES 9789441804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p>SHIP TO: CHRISTINE TROTTA, PROJECT MANAGER 5183733511 CROWN CASTLE SUITE 101 3 CORPORATE PARK DRIVE CLIFTON PARK NY 12065</p>	<p>1 OF 1</p> <p>NY 122 9-02</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 03 0763 2970</p> 	<p>BILLING: P/P</p> <p>Reference # 1: CT5063 - CSC TO CROWN</p> <p>CS 21.1.23. WNTNVS0 12.04.04/2019</p> 
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Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, July 8, 2019 10:38 AM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030307632970



Your package has been delivered.

Delivery Date: Monday, 07/08/2019
Delivery Time: 10:31 AM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	<u>1Z9Y45030307632970</u>
Ship To:	Christine Trotta, Project Manager Crown Castle 3 CORPORATE DR CLIFTON PARK, NY 12065 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	RECEIVER RHOADES
Reference Number 1:	CT5063 - CSC to Crown

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June 21, 2019

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

Regarding: Notice of Exempt Modification – AT&T Site CT5063
Address: 922 Danbury Road (aka 920 Danbury Road), Wilton, CT 06516

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (“AT&T”) currently maintains a wireless telecommunications facility on an existing 89.1-foot concealment tower at the above-referenced address, latitude 41.2568919, longitude -73.4338989. Said concealment tower is operated by Crown Castle.

AT&T desires to modify its existing telecommunications facility by swapping three (3) antennas, adding six (6) coax, swapping three (3) TMA and adding three (3) TMA within a new expanded 36” concealment canister. The centerline height of the existing antennas is and will remain at 76 feet.

Please accept this letter 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). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Lynne Vanderslice, First Selectwoman of the Town of Wilton, Robert Nerney, Director, Planning & Land Use Management for the Town of Wilton, Timothy Bunting, Zoning Enforcement Officer of the Town of Wilton, Remo-Wilton Associates LLC as ground owner and Crown Castle as tower operator/owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). Specifically:

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require an extension of the site boundary.
3. The proposed modifications will not increase 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 emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated June 18, 2019 by Centek Engineering enclosed herewith.*

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

Sincerely,



Jennifer Iliades
Site Acquisition Consultant
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
jiliades@clinellc.com

Enclosures: Exhibit 1 – Field Card and GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation

cc: Lynne Vanderslice, First Selectwoman of the Town of Wilton
Robert Nerney, Director, Planning & Land Use Management for the Town of Wilton
Timothy Bunting, Zoning Enforcement Officer of the Town of Wilton
Remo-Wilton Associates LLC, Ground Owner
Crown Castle, Tower Operator/Owner

EXHIBIT 1

920 DANBURY RD

Location 920 DANBURY RD

Mblu 12 / 98 / /

Acct# 005980

Owner REMO-WILTON ASSOCIATES
LLC

Assessment \$5,139,610

Appraisal \$7,342,300

PID 539

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$3,681,300	\$3,661,000	\$7,342,300

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$2,576,910	\$2,562,700	\$5,139,610

Owner of Record

Owner REMO-WILTON ASSOCIATES LLC
Co-Owner C/O REMO TARTAGLIA
Address 477 MAIN ST
MONROE, CT 06468

Sale Price \$0
Certificate
Book & Page 2222/0165
Sale Date 12/19/2011
Instrument QC

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
REMO-WILTON ASSOCIATES LLC	\$0		2222/0165	QC	12/19/2011
TARTAGLIA SEBASTIANA, LORRAINE,	\$0		2221/0331	QC	12/16/2011
TARTAGLIA REMO	\$0		1020/0140	00	12/13/1996
REMO WILTON ASSOCIATES INC, % REMO TARTA	\$1,360,000		0703/0176	00	11/29/1989

Building Information

Building 1 : Section 1

Year Built: 1972
Living Area: 36,260
Replacement Cost: \$4,456,775
Building Percent 78
Good:

MEZ2	Mezzanine Fin	480 S.F.	\$4,900	1
SPR1	Sprinklers Wet	34673 S.F.	\$40,600	1
SPR3	Sprinklers Dry	3075 S.F.	\$3,600	1
VLT2	Vault Good	128 S.F.	\$2,000	1
ATM1	Auto Teller	1 UNITS	\$27,300	1

Land

Land Use		Land Line Valuation	
Use Code	2-1	Size (Acres)	3.77
Description	Commercial	Frontage	
Zone	GB	Depth	
Neighborhood	4500	Assessed Value	\$2,562,700
Alt Land Appr Category	No	Appraised Value	\$3,661,000

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	Paving Asphaul			75500 S.F.	\$75,500	1
LT4	Lights (4)			2 UNITS	\$1,500	1
LT2	Lights (2)			1 UNITS	\$600	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$3,681,300	\$3,661,000	\$7,342,300
2017	\$2,462,200	\$2,913,600	\$5,375,800
2016	\$2,462,200	\$2,913,600	\$5,375,800

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$2,576,910	\$2,562,700	\$5,139,610
2017	\$1,723,540	\$2,039,520	\$3,763,060
2016	\$1,723,540	\$2,039,520	\$3,763,060

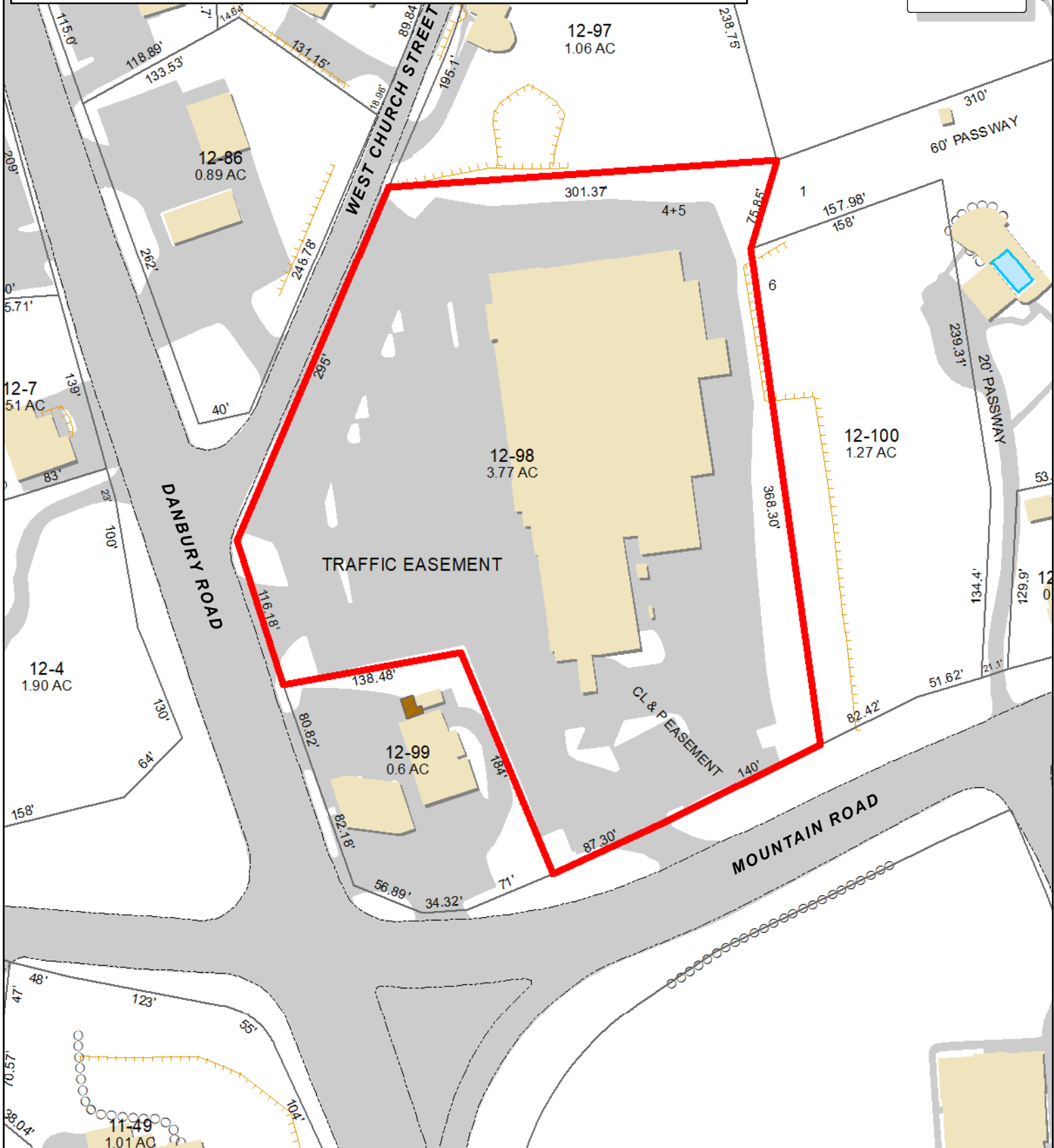
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Town of Wilton, Connecticut - Assessment Parcel Map

MBL: 12-98

Address: 920 DANBURY RD

12-1
1.490



Approximate Scale:
1 inch = 100 feet

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Wilton and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Grand List Date: Oct 2017
0 50 100 150 Feet

EXHIBIT 2



WIRELESS COMMUNICATIONS FACILITY

CT5063 LTE 2C 1900 / LTE 3C 850

NORTH WILTON GEORGETOWN

922 DANBURY ROAD

WILTON, CT 06897

GENERAL NOTES

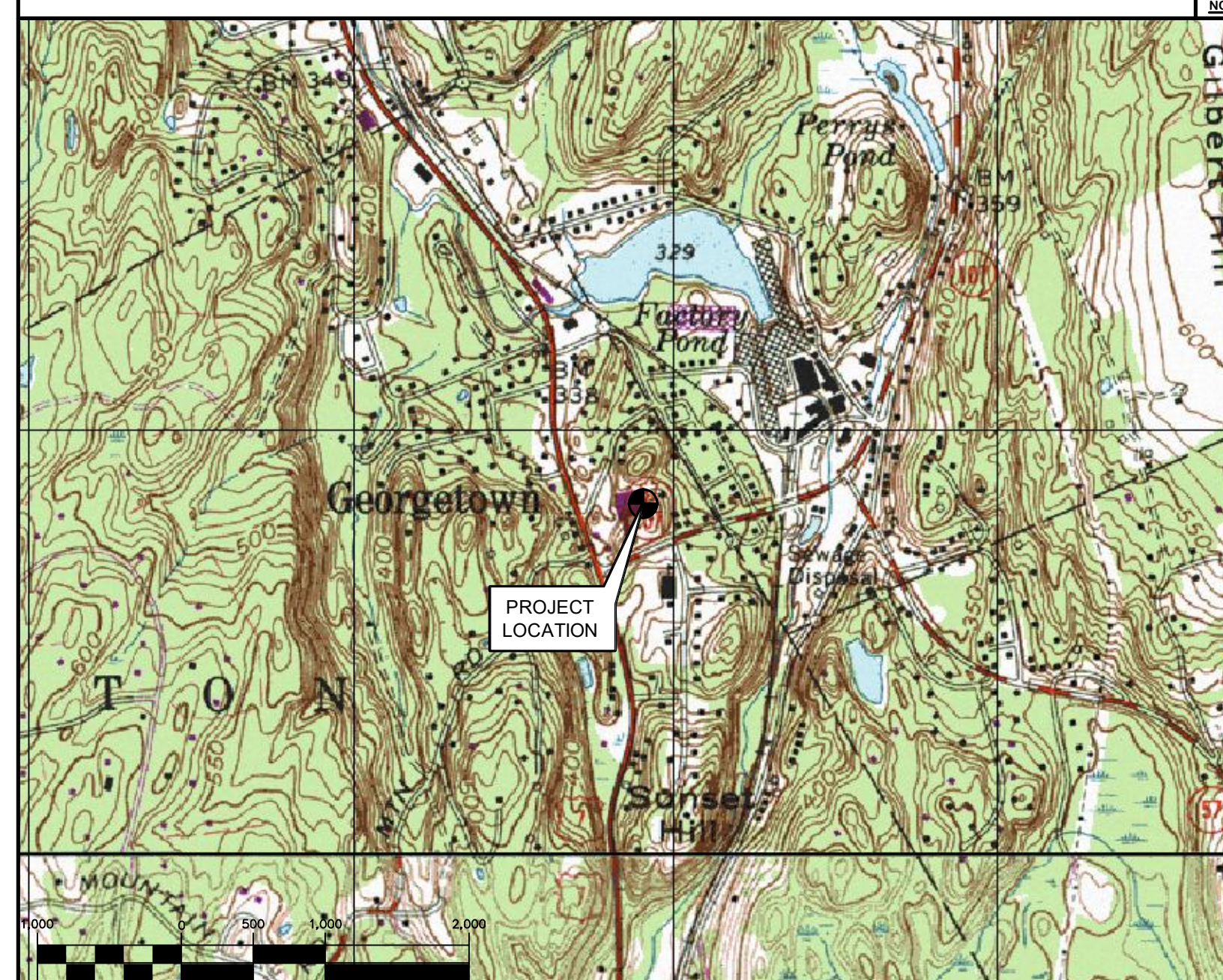
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE, INCLUDING THE TIA-222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2018 CONNECTICUT FIRE SAFETY CODE AND, 2017 NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM:	500 ENTERPRISE DRIVE ROCKY HILL, CONNECTICUT	TO:	922 DANBURY ROAD WILTON, CONNECTICUT
1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.37 MI	
2.	TURN LEFT ONTO CAPITAL BLVD	0.27 MI	
3.	TURN LEFT ONTO WEST ST	0.30 MI	
4.	TURN LEFT TO MERGE ONTO I-91 S TOWARD NEW HAVEN	9.59 MI	
5.	MERGE ONTO CT-15 S VIA EXIT 17 TOWARD E MAIN ST.	43.26 MI	
6.	TAKE THE CT-57 EXIT, EXIT 42, TOWARD WESTON/WESTPORT	0.17 MI	
7.	TURN LEFT ONTO WESTON RD/CT-57	3.64 MI	
8.	TURN LEFT ONTO GEORGETOWN RD/CR-57	4.01 MI	
9.	TURN LEFT ONTO REDDING RD/CT-107. CONTINUE TO FOLLOW CT-107	0.36 MI	
10.	TURN RIGHT ONTO DANBURY RD/US-7 N	0.04 MI	
11.	DESTINATION IS ON THE RIGHT		

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
 - A. WORK AT THE EXISTING RF TRANSPARENT FLAGPOLE TOWER:
 - MODIFICATIONS TO THE EXISTING POLE ARE REQUIRED TO INCREASE THE RADOME DIAMETER TO ACCOMMODATE THE PROPOSED REPLACEMENT ANTENNAS. THE POLE MODIFICATION DESIGN WILL BE PERFORMED BY TOWER OWNER AND IS NOT PART OF THIS SITE UPGRADE SCOPE.
 - B. WORK AT ALPHA/BETA/GAMMA SECTORS:
 - REMOVE AND REPLACE THE (3) EXISTING ANTENNAS AT WITH (3) KATHRIEN 800-10798 ANTENNAS
 - REMOVE AND REPLACE THE (3) EXISTING TMA'S WITH (6) NEW TMA'S (COMMSCOPE TMAT192123B68-31)
 - C. WORK AT EXISTING EQUIPMENT PAD AT GRADE:
 - ADD NEW RRU SUPPORT FRAME;
 - ADD (6) NEW COAX ANTENNA CABLES;
 - ADD (3) 4478 B5 RRUS;
 - ADD (3) 4415 B25 RRUS;
 - ADD (24) TSXDC-4310FM ARRESTORS AT PROPOSED RRUS;
 - ADD (12) KAEIUS QBC0007F1V51-1 QUADRUPLIXERS;
 - ADD (1) 850 RXAIT;
 - SWAP DUS WITH (1) 5216;
 - ADD (1) 6630;
 - ADD XMU;
 - REMOVE EXISTING POWER PLANT CABINET AND STANDALONE CONVERTER SHELVES. INSTALL NEW "NETSURE 7100" POWER PLANT AND RE-CABLE EXISTING EQUIPMENT TO NEW POWER PLANT.

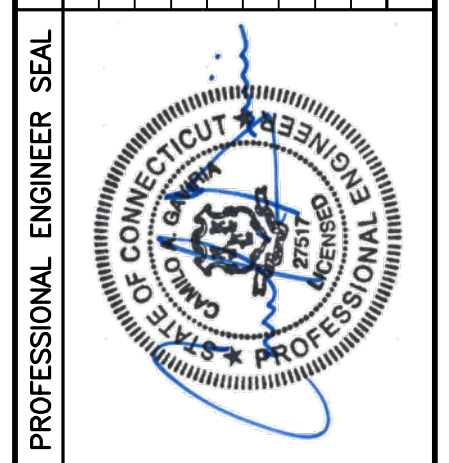
PROJECT INFORMATION

AT&T SITE NUMBER:	CT5063
AT&T SITE NAME:	NORTH WILTON GEORGETOWN
SITE ADDRESS:	922 DANBURY ROAD WILTON, CT 06897
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
AT&T PACE JOB	PACE JOB 1 - MRCTB030819 PACE JOB 2 - MRCTB031812
AT&T FA LOCATION CODE	10071179
ENGINEER:	CENITEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-15'-24.8112" N LONGITUDE: 73°-26'-2.0358" W GROUND ELEVATION: ±358' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES, SPECIFICATIONS AND DETAILS	0
C-1	PLANS AND ELEVATION	0
C-2	ANTENNA CONFIGURATION DETAILS	0
C-3	EQUIPMENT DETAILS	0
E-1	SCHEMATIC DIAGRAM AND NOTES	0
E-2	WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0

0	REV.	06/18/19	DATE	DMD	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
						DRAWN BY/CHKD BY/DESCRIPTION



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CT5063 - LTE 2C 1900/3C 850
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WILTON, CT 06897

DATE: 10/01/18
SCALE: AS NOTED
JOB NO. 18000.69

TITLE SHEET

T-1

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CT STATE BUILDING CODE.

1. DESIGN CRITERIA:

FLAGPOLE TOWER

- WIND LOAD: PER NESC C2-2012 SECTION 25 RULE 250C (TOWER & FOUNDATION) 110 MPH (3 SECOND GUST)
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

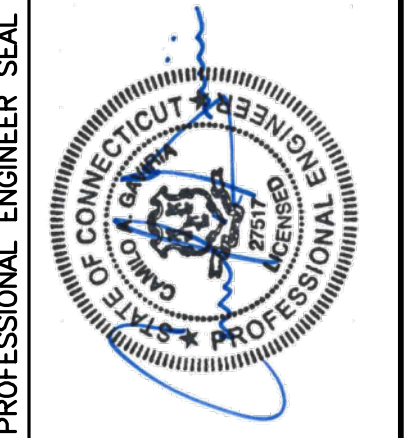
GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Ø HEIGHT	AZIMUTH	(E/P) TMA/DIPLEXER/TRIPLEXER (QTY) (LOCATION)	(E/P) RRU (QTY) (LOCATION)	(E/P) FEEDER TYPE / LENGTH (QTY)	(E/P) RAYCAP (QTY) (LOCATION)
A1	PROPOSED	LTE 700 BC/PCS/850/UMTS 850	KATHRIEN (80010798)	78.5 x 14.8 x 6.7	76'	30'	(P) TMA: COMMSCOPE TMAT192123B68-31 (2) (AT ANTENNAS), (P) DIPLEXER: KAELUS QBC007F1V51-1 (4) (AT EQUIPMENT LOCATION)	(E) RRUS-11 (REUSE ONLY) (1) (AT EQUIPMENT), (P) 4478 B5 (1)(AT EQUIPMENT), (P) 4415 B25 (1) (AT EQUIPMENT)	(E) 7/8" COAX. / ±120FT (2) (P) 7/8" COAX. / ±120FT (2)	(E) RAYCAP DC6-48-60-18-8C (1) (AT EQUIPMENT) (P) DC6 BOX (AT EQUIPMENT)
B1	PROPOSED	LTE 700 BC/PCS/850/UMTS 850	KATHRIEN (80010798)	78.5 x 14.8 x 6.7	76'	150'	(P) TMA: COMMSCOPE TMAT192123B68-31 (2) (AT ANTENNAS) (P) DIPLEXER: KAELUS QBC007F1V51-1 (4) (AT EQUIPMENT LOCATION)	(E) RRUS-11 (REUSE ONLY) (1) (AT EQUIPMENT), (P) 4478 B5 (1)(AT EQUIPMENT), (P) 4415 B25 (1) (AT EQUIPMENT)	(E) 7/8" COAX. / ±120FT (2) (P) 7/8" COAX. / ±120FT (2)	
C1	PROPOSED	LTE 700 BC/PCS/850/UMTS 850	KATHRIEN (80010798)	78.5 x 14.8 x 6.7	76'	270'	(P) TMA: COMMSCOPE TMAT192123B68-31 (2) (AT ANTENNAS), (P) DIPLEXER: KAELUS QBC007F1V51-1 (4) (AT EQUIPMENT LOCATION)	(E) RRUS-11 (REUSE ONLY) (1) (AT EQUIPMENT), (P) 4478 B5 (1)(AT EQUIPMENT), (P) 4415 B25 (1) (AT EQUIPMENT)	(E) 7/8" COAX. / ±120FT (2) (P) 7/8" COAX. / ±120FT (2)	

RRU	SIZE (INCHES) (L x W x D)
4478 B5	16.5 x 13.4 x 7.7
4415 B25	16.5 x 13.4 x 5.9



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DATE: 10/01/18
SCALE: AS NOTED
JOB NO. 18000.69

NOTES,
SPECIFICATIONS
AND DETAILS

N-1

CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
DRAWN BY: CHKD
DATE: 06/18/19
REV: 0

TOP OF EXISTING FLAGPOLE
EL. ±90' A.G.L.

ANTENNAS (BY OTHERS)
EL. ±86'-0" A.G.L.

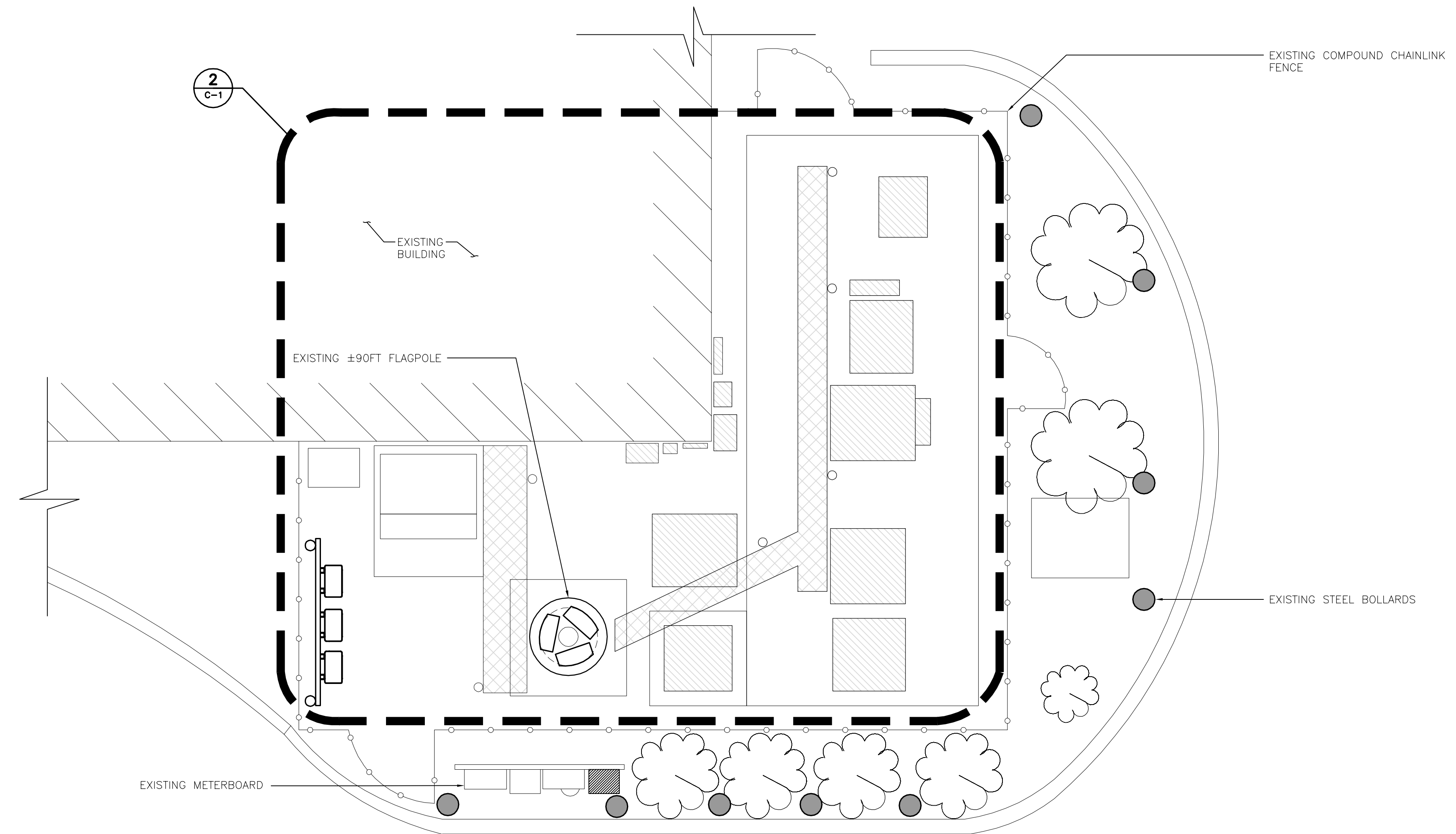
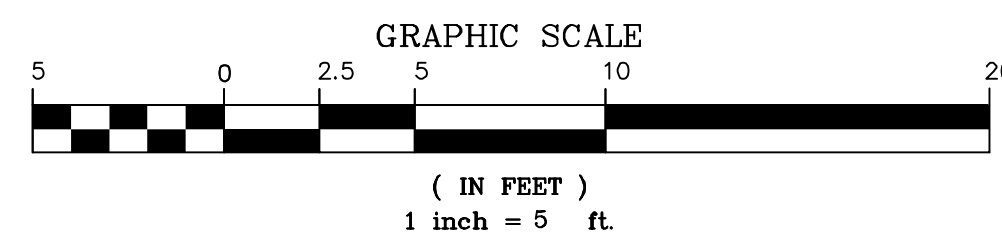
PROPOSED AT&T ANTENNAS
EL. ±76'-0" A.G.L.

PROPOSED MODIFICATION/EXPANSION OF THE POLE RADOME (DESIGN BY OTHERS) TO ACCOMMODATE THE PROPOSED LARGER AT&T REPLACEMENT ANTENNAS

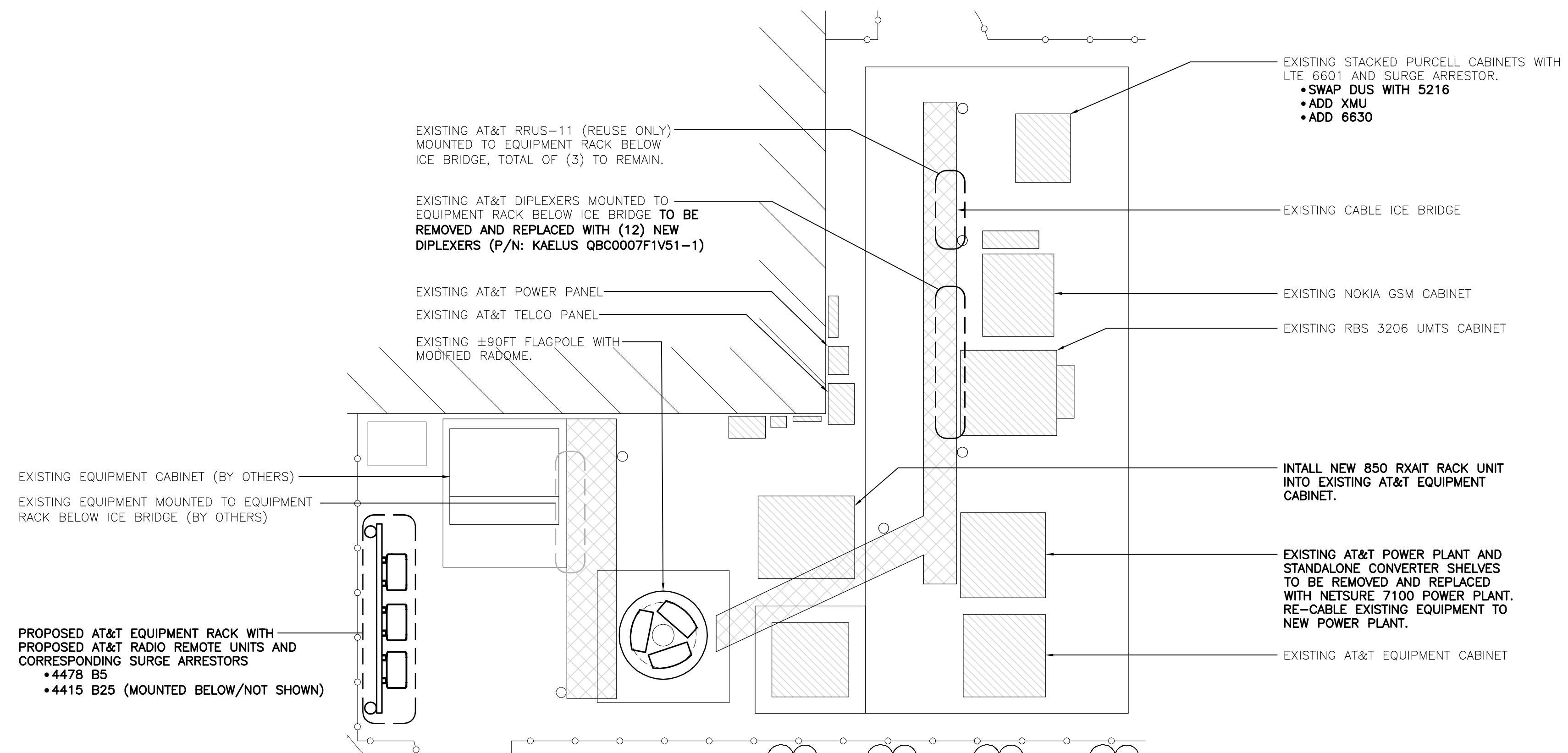
EXISTING ±90' TALL FLAGPOLE

GRADE

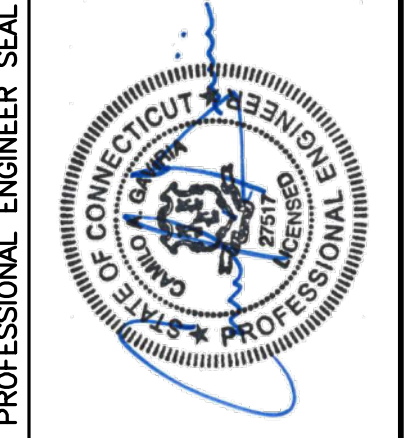
3 TOWER ELEVATION - PROPOSED
C-1 SCALE: 1" = 5'-0"



1 COMPOUND PLAN - PROPOSED
C-1 SCALE: 3/8" = 1'-0"



2 EQUIPMENT LAYOUT PLAN - PROPOSED
C-1 SCALE: 3/8" = 1'-0"



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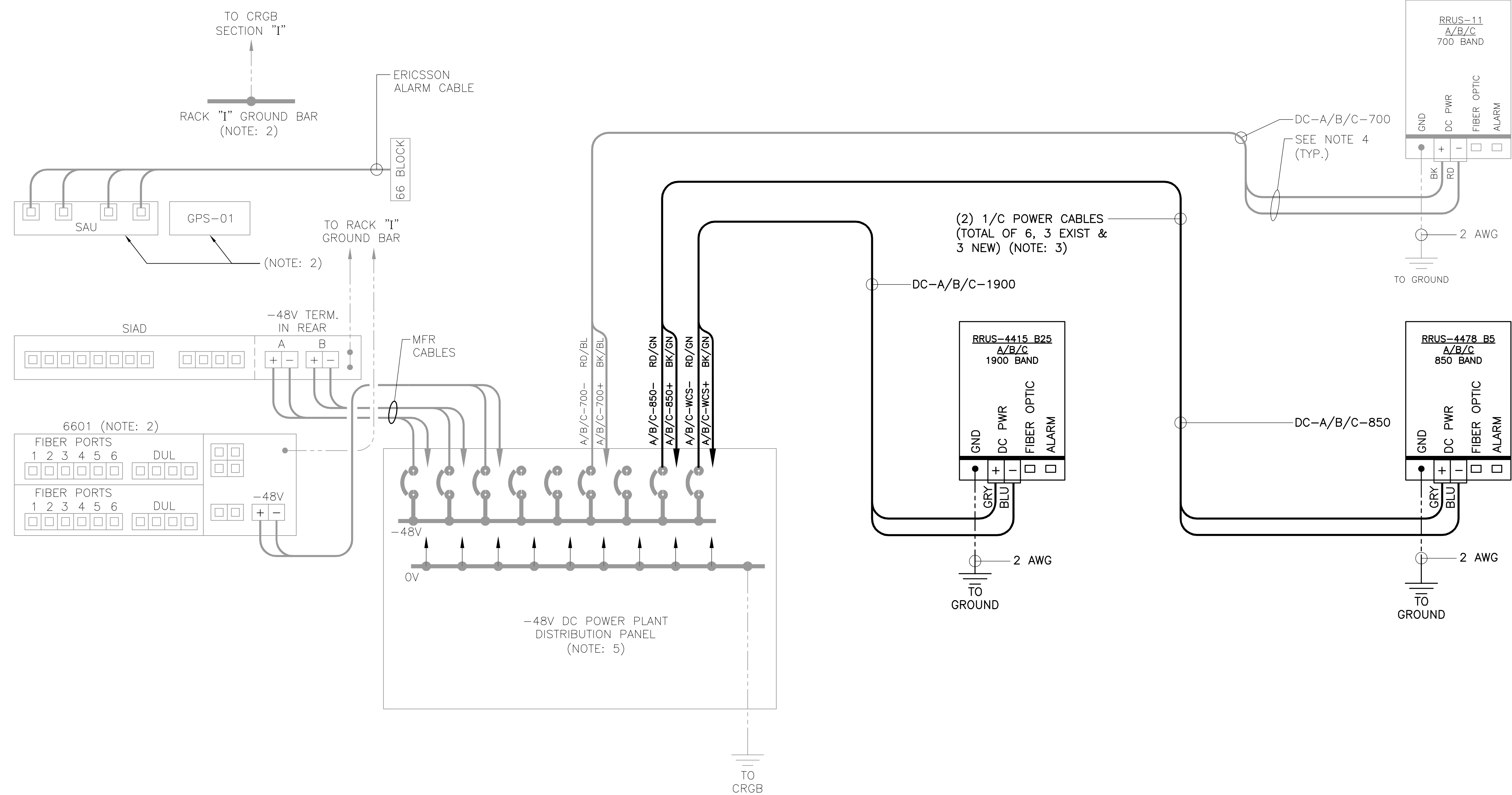
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PLANS AND ELEVATION

C-1

REV.	DATE	DMD	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
0	06/18/19			DRAWN BY/CHKD BY/DESCRIPTION

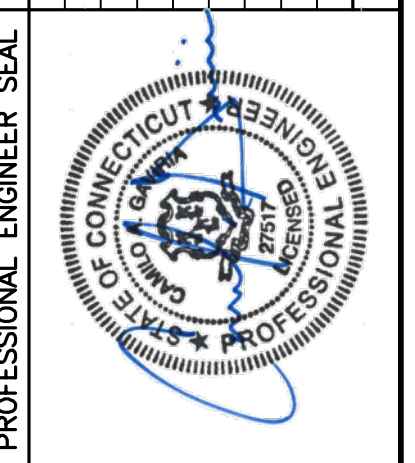


LTE WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-1900+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

1 LTE WIRING DIAGRAM
E-2 NOT TO SCALE

REV	DATE	DMD	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
0	06/18/19			DRAWN BY/CHKD BY/DESCRIPTION

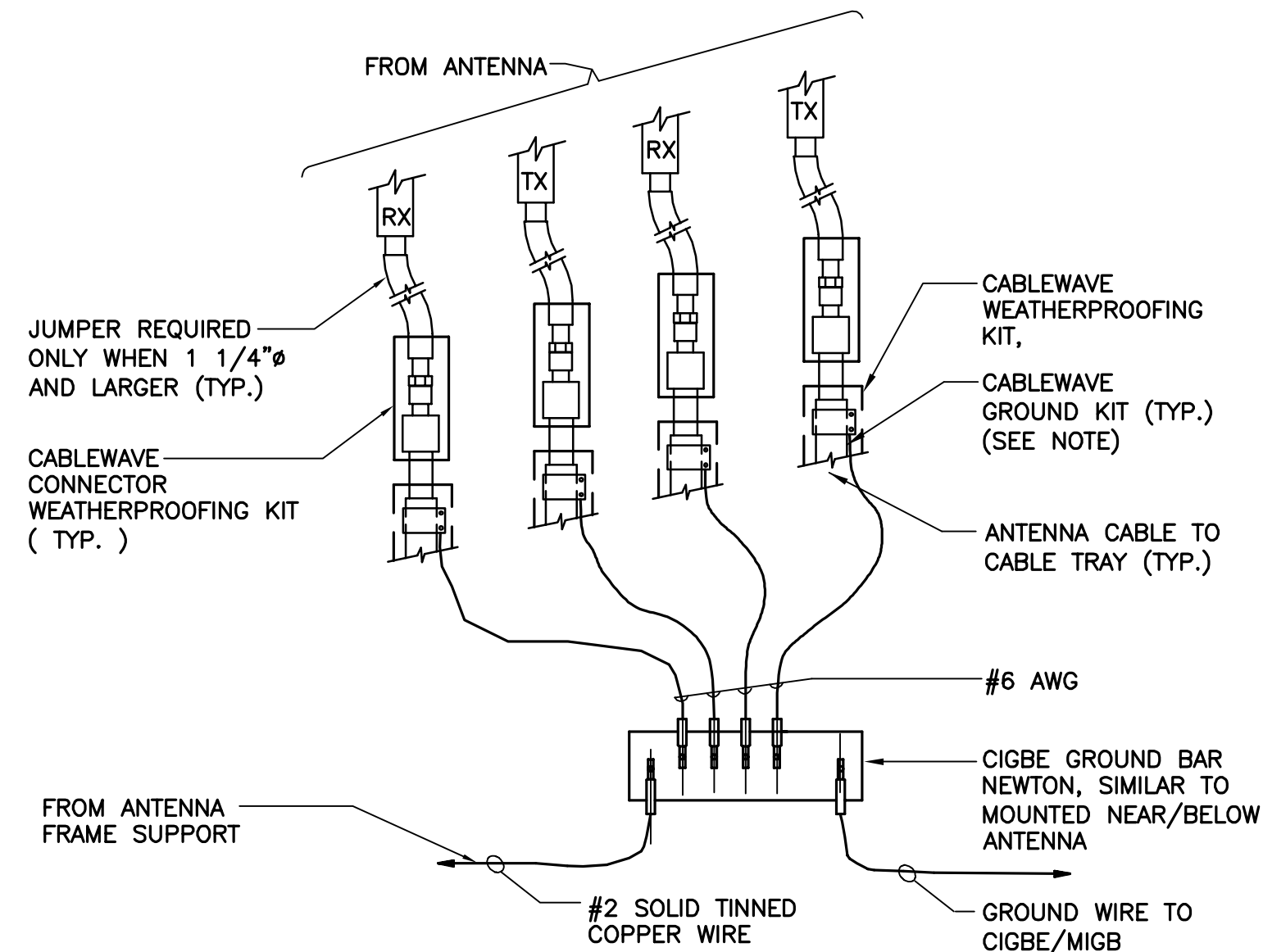


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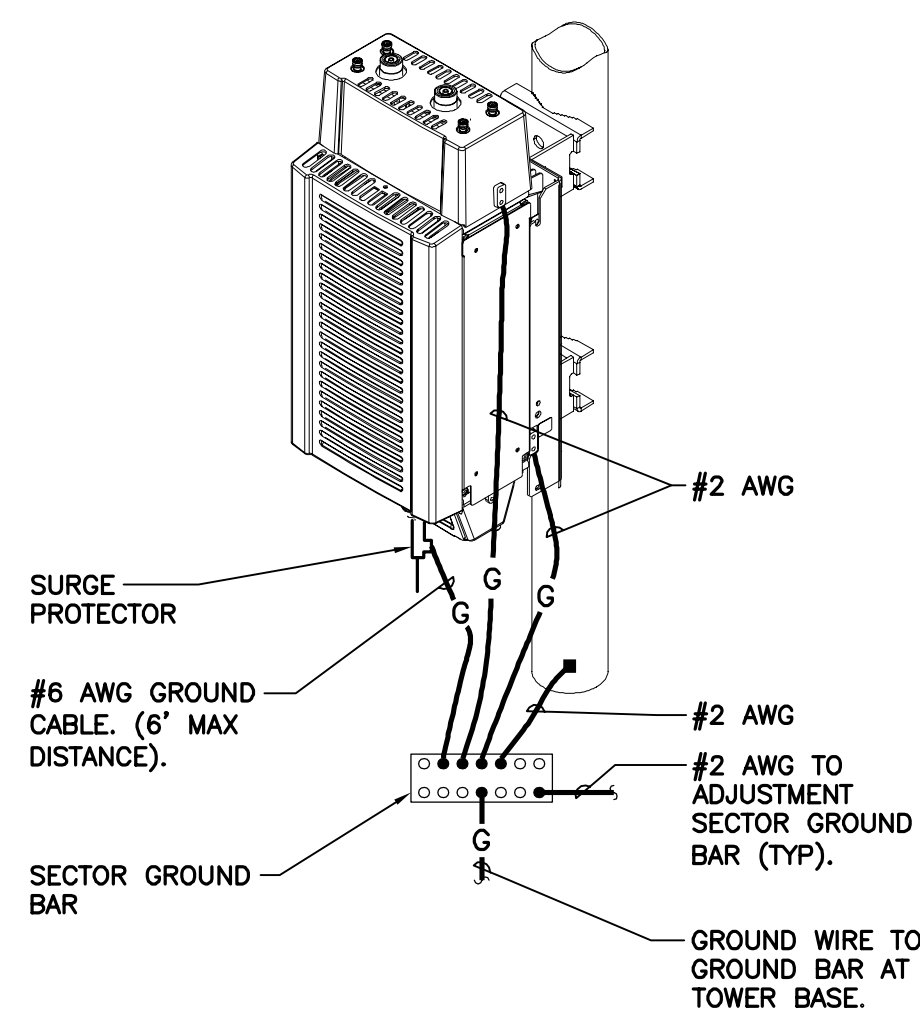
WIRING DIAGRAM



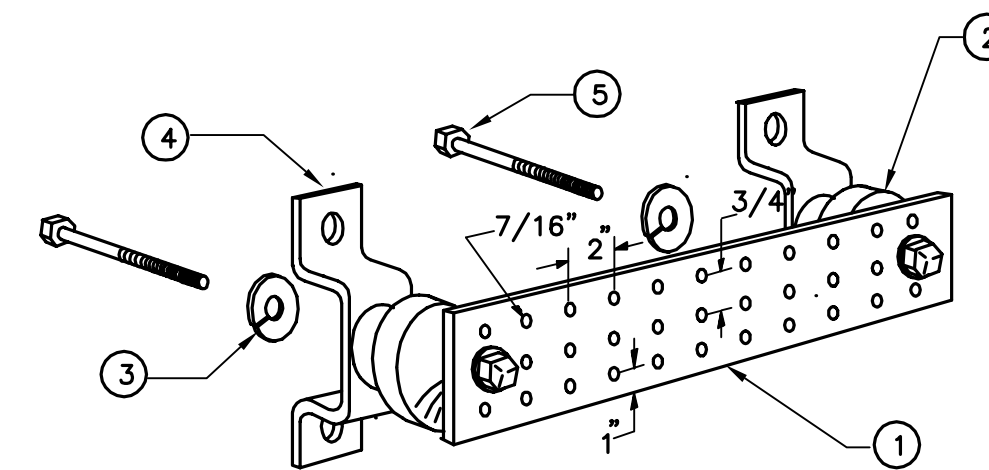
NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

1 CONNECTION OF GROUND WIRES TO GROUND BAR
E-3 NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



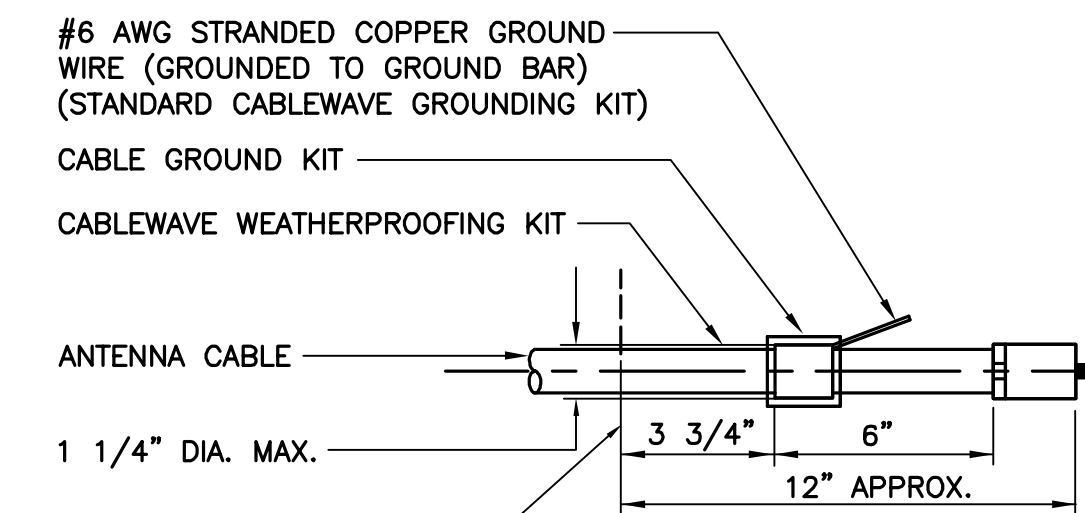
2 RRU POLE MOUNT GROUNDING
E-3 NOT TO SCALE



LEGEND

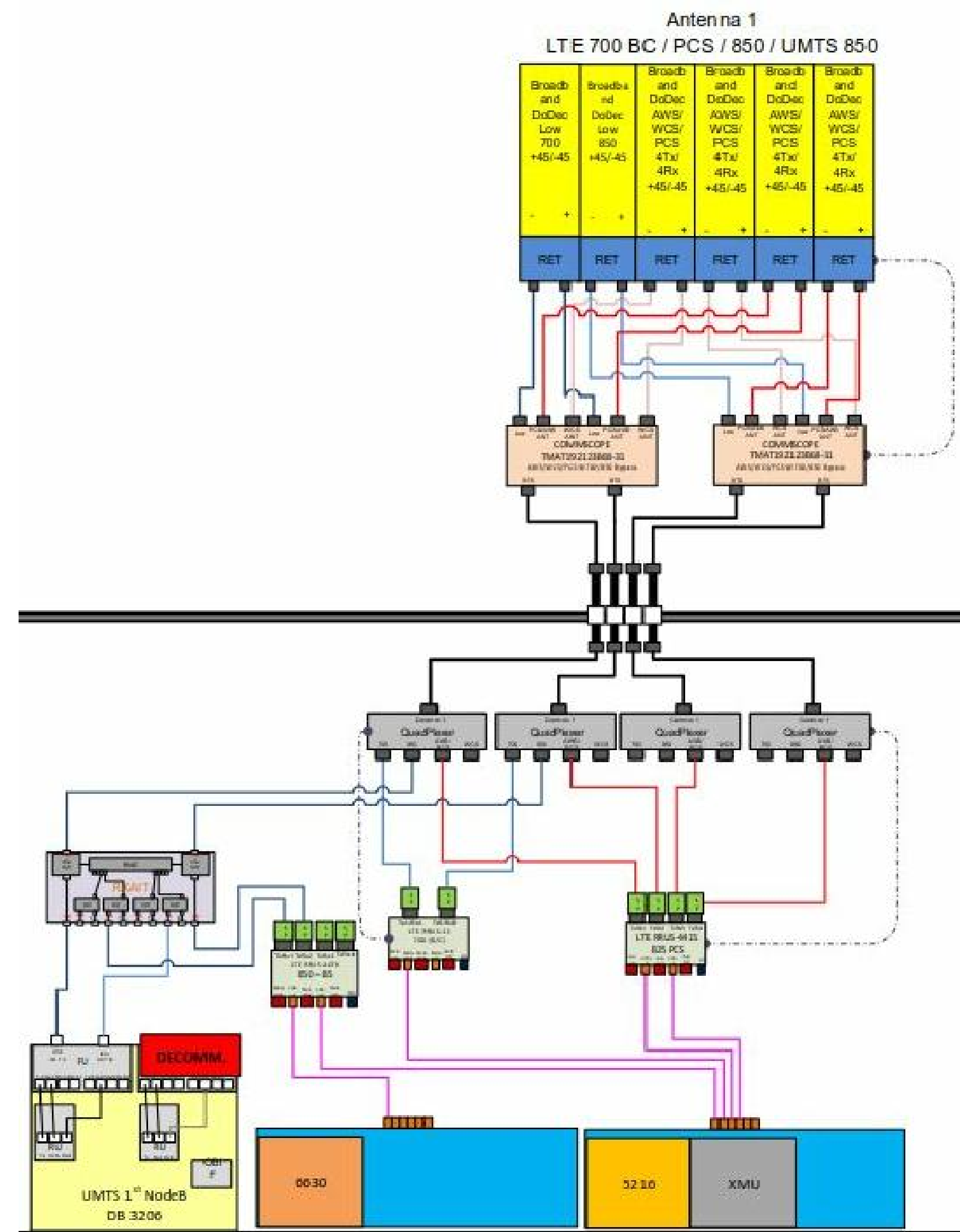
1. TINNED COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

3 GROUND BAR DETAIL
E-3 NOT TO SCALE

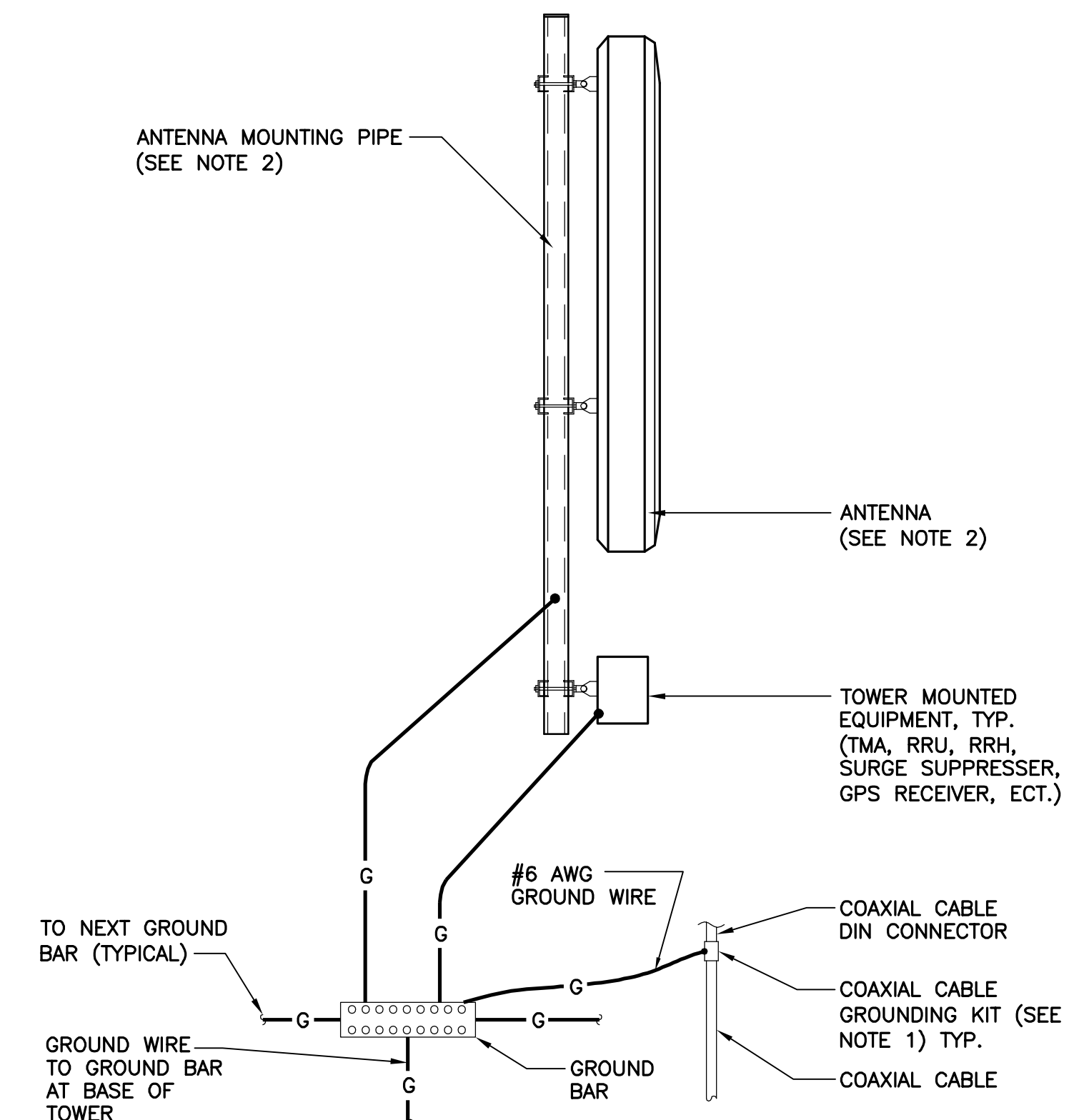


NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

4 ANTENNA CABLE GROUNDING DETAIL
E-3 NOT TO SCALE



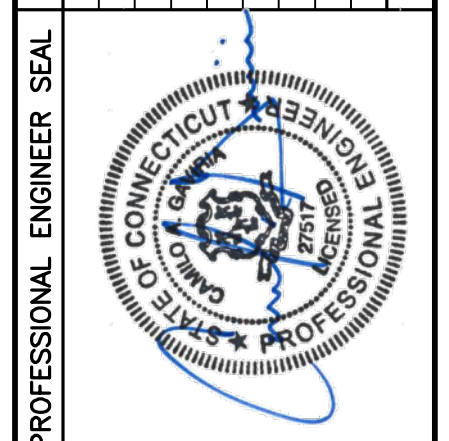
6 RF PLUMBING DIAGRAM (ALPHA/BETA/GAMMA SECTOR)
E-3 NOT TO SCALE



- NOTES:**
1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
 2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
 3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

5 TYPICAL ANTENNA GROUNDING DETAIL
E-3 NOT TO SCALE

REV	0	06/18/19	DMD	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
DATE					DRAWN BY/CHKD BY/DESCRIPTION



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NORTH WILTON GEORGETOWN
CT5063 - LTE 2C 1900/3C 850
922 DANBURY ROAD
WILTON, CT 06897

DATE: 10/01/18
SCALE: AS NOTED
JOB NO. 18000.69

TYPICAL ELECTRICAL DETAILS

EXHIBIT 3

Date: **June 7, 2019**

Rebecca Klein
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation: **AT&T Mobility Co-Locate**
Carrier Site Number: CT5063
Carrier Site Name: North Wilton Georgetown

Crown Castle Designation: **Crown Castle BU Number:** 829115
Crown Castle Site Name: Wilton/Georgetown/Rt7
Crown Castle JDE Job Number: 564764
Crown Castle Work Order Number: 1743971
Crown Castle Order Number: 485500 Rev. 1

Engineering Firm Designation: **TEP Project Number:** 154669.259200

Site Data: **922 Danbury Road, Wilton, Fairfield County, CT 06897**
Latitude 41° 15' 22.96", Longitude -73° 26' 2.21"
89.1 Foot - Concealment Tower

Dear Rebecca Klein,

Tower Engineering Professionals is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above-mentioned tower.

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: Proposed Equipment Configuration

Sufficient Capacity - 66.1%

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Travis L. Infante, E.I. / JCR

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

06/07/2019

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1) INTRODUCTION

This tower is a 69.1-ft concealment tower designed by Paul J. Ford and Company. The base of the tower is 69.1-ft and the concealment spine extends from 69.1-ft to 89.1-ft. The canister sections were designed by Stealth Concealment Solutions, Inc. The tower and the concealment sections were designed for a wind speed of 105 mph per TIA-222-G. A proposed canister expansion was considered in this analysis, enlarging the canister sections to 36-in diameter. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	1.50 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
84.1	84.1	1	Generic	36" OD x 10' Tall Concealment Canister	-	-
76.0	76.0	3	Kathrein	80010798	12	7/8
	71.0	6	Commscope	TMAT192123B68-31		
74.1	74.1	1	Generic	36" OD x 10' Tall Concealment Canister	-	-

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
85.0	85.0	3	RFS Celwave	APX16DWV-16DWVS-C	12	7/8
	82.0	3	Andrew	ETW190VS12UB		
	81.0	3	Andrew	ETW190VS12UB		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	Dr. Clarence Welti, P.E., P.C.	3594542	CCISites
Tower Foundation Drawings	Paul J. Ford and Company	3886758	CCISites
Tower Manufacturer Drawings	Paul J. Ford and Company / Stealth Concealment Solutions, Inc.	3777970	CCISites

3.1) Analysis Method

tnxTower (version 8.0.5.0), 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.

SolidWorks, a commercially available analysis software package, was used to create a finite element model of the canister spine flange connection at the 69.1-ft level. Selected output from the analysis is included in Appendix C - Additional Calculations.

3.2) Assumptions

- 1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.
- 3) All tower components are in sufficient condition to carry their full design capacity.
- 4) 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.
- 5) 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 perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.

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 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	ϕP_{allow} (lb)	% Capacity	Pass / Fail
L1	89.06 - 72.06	Pole	P4x0.5	1	-1485.16	389656.03	53.5	Pass
L2	72.06 - 69.06	Pole	P4x0.5	2	-1637.43	389656.03	66.1	Pass
L3	69.06 - 35	Pole	P24x0.375	3	-6118.86	920561.21	20.2	Pass
L4	35 - 1	Pole	P24x0.375	4	-10369.70	920561.21	43.6	Pass
L5	1 - 0	Pole	P20x0.5	5	-10508.80	1013105.05	47.7	Pass
							Summary	
						Pole (L2)	66.1	Pass
						RATING =	66.1	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection (Stiffeners)	69.1	Sufficient	Pass
1,2	Flange Bolts	69.1	34.7	Pass
1,2	Flange Connection	35.0	28.8	Pass
1,2	Anchor Rods	-	43.4	Pass
1,2	Base Plate	-	40.4	Pass
1,2	Base Foundation Soil Interaction	-	55.3	Pass
1,2	Base Foundation Structural	-	24.6	Pass

Structure Rating (max from all components) =	66.1%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H Section 15.5

4.1) Recommendations

- 1) If the load differs from that described in Tables 1 and 2 of this report, the referenced drawings, or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

89.1 ft

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Truck Ball	89.81	36" OD x 10' Tall Concealment Canister	84.1
Canister Load1	89.06	Canister Load2	79.06
Flag	89.06	(2) TMAT192123B68-31	76
ETW190VS12UB	85	(2) TMAT192123B68-31	76
ETW190VS12UB	85	80010798	76
ETW190VS12UB	85	(2) TMAT192123B68-31	76
ETW190VS12UB	85	80010798	76
ETW190VS12UB	85	80010798	76
APX16DWV-16DWVS-C	85	36" OD x 10' Tall Concealment Canister	74.1
APX16DWV-16DWVS-C	85	Canister Load3	69.06
APX16DWV-16DWVS-C	85		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
ASTM A513 D.O.M.	75 ksi	85 ksi	A53-B-35	35 ksi	60 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 66.1%

1	P4X0.5	17.00	ASTM A513 D.O.M.	318.0
2	P4X0.5	3.00		56.1
3	P24X0.375	34.06	A53-B-35	3225.8
4	P24X0.375	34.00		3220.1
5	P20X0.5	1.00		6924.2042

72.1 ft

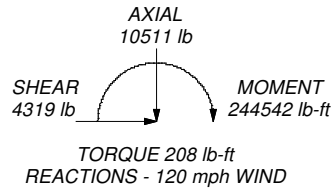
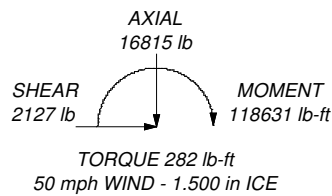
69.1 ft


35.0 ft

1.0 ft

0.0 ft

ALL REACTIONS ARE FACTORED



 Tower Engineering Professional	Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603-5263 Phone: (919) 661-6351 FAX: (919) 661-6350		Job: Wilton/Georgetown/Rt7 (BU 829115)
	Project: TEP No. 154669.259200	Client: Crown Castle	Drawn by: TLI
	Code: TIA-222-H	Date: 06/07/19	Scale: NTS
	Path: <small>C:\Users\infante\Desktop\154669.259200\WiltonGeorgetownRt7\InxTower\829115_1743971_LCS.dwg</small>		Dwg No. E-1

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	Project TEP No. 154669.259200	Date 09:32:15 06/07/19
	Client Crown Castle	Designed by TLI

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

- Tower is located in Fairfield County, Connecticut.
- Tower base elevation above sea level: 355.00 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.05.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets √ Pole Without Linear Attachments √ Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known |
|--|---|---|

Pole Section Geometry

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	Client	Crown Castle	Designed by	TLI

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	89.06-72.06	17.00	P4x0.5	ASTM A513 D.O.M. (75 ksi)	
L2	72.06-69.06	3.00	P4x0.5	ASTM A513 D.O.M. (75 ksi)	
L3	69.06-35.00	34.06	P24x0.375	A53-B-35 (35 ksi)	
L4	35.00-1.00	34.00	P24x0.375	A53-B-35 (35 ksi)	
L5	1.00-0.00	1.00	P20x0.5	A53-B-35 (35 ksi)	

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 89.06-72.06				1	0	1			
L2 72.06-69.06				1	0	1			
L3 69.06-35.00				1	1	1			
L4 35.00-1.00				1	1	1			
L5 1.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
LDF5-50A(7/8")	C	No	No	Inside Pole	85.00 - 0.00	12	No Ice	0.00	0.330
							1/2" Ice	0.00	0.330
							1" Ice	0.00	0.330
							2" Ice	0.00	0.330
LDF5-50A(7/8")	C	No	No	Inside Pole	76.00 - 0.00	12	No Ice	0.00	0.330
							1/2" Ice	0.00	0.330
							1" Ice	0.00	0.330
							2" Ice	0.00	0.330
Halyard Line 3/8"	C	No	No	CaAa (Out Of Face)	89.06 - 0.00	2	No Ice	0.04	0.220
							1/2" Ice	0.14	0.750
							1" Ice	0.24	1.278
							2" Ice	0.44	2.340

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight lb
---------------	-----------------------	------	-----------------------------------	-----------------------------------	---	--	--------------

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	Client	Crown Castle	Designed by	TLI

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
L1	89.06-72.06	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.275	74.32
L2	72.06-69.06	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.225	25.08
L3	69.06-35.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.555	284.74
L4	35.00-1.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.550	284.24
L5	1.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.075	8.36

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
L1	89.06-72.06	A	1.394	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.754	124.52
L2	72.06-69.06	A	1.376	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.876	33.82
L3	69.06-35.00	A	1.335	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	20.745	381.06
L4	35.00-1.00	A	1.203	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	18.915	370.87
L5	1.00-0.00	A	0.839	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.410	10.14

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	89.06-72.06	-1.732	1.000	-1.732	1.000
L2	72.06-69.06	-1.732	1.000	-1.732	1.000
L3	69.06-35.00	-0.799	0.462	-2.073	1.197
L4	35.00-1.00	-0.799	0.462	-1.942	1.121
L5	1.00-0.00	-0.787	0.455	-1.483	0.856

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

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Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
---------------	----------------------	-------------	-------------------------	-----------------------	--------------------

User Defined Loads

Description	Elevation	Offset From Centroid	Azimuth Angle	Weight	F _x	F _z	Wind Force	C _{AAc}	
	ft	ft	°	lb	lb	lb	lb	ft ²	
Flag	89.06	0.000	0.000	No Ice	22.68	0.00	0.00	417.19	8.88
				Ice	690.61	0.00	0.00	75.20	9.22
				Service	22.68	0.00	0.00	104.30	9.93

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	lb

**								
APX16DWV-16DWVS-C	A	From Leg	0.50 0.000 0.000	0.000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	40.00 74.23 112.65 204.92
APX16DWV-16DWVS-C	B	From Leg	0.50 0.000 0.000	0.000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	40.00 74.23 112.65 204.92
APX16DWV-16DWVS-C	C	From Leg	0.50 0.000 0.000	0.000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	40.00 74.23 112.65 204.92
ETW190VS12UB	A	From Leg	0.50 0.000 -3.000	0.000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	10.00 19.54 26.01 44.32
ETW190VS12UB	B	From Leg	0.50 0.000 -3.000	0.000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	10.00 19.54 26.01 44.32
ETW190VS12UB	C	From Leg	0.50 0.000 -3.000	0.000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	10.00 19.54 26.01 44.32
ETW190VS12UB	A	From Leg	0.50 0.000 -4.000	0.000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	10.00 19.54 26.01 44.32

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	Client	Crown Castle	Designed by	TLI

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	
ETW190VS12UB	B	From Leg	0.50	0.000	0.000	85.00	No Ice	0.00	0.00	10.00
			0.000				1/2" Ice	0.00	0.00	19.54
			-4.000				1" Ice	0.00	0.00	26.01
							2" Ice	0.00	0.00	44.32
ETW190VS12UB	C	From Leg	0.50	0.000	0.000	85.00	No Ice	0.00	0.00	10.00
			0.000				1/2" Ice	0.00	0.00	19.54
			-4.000				1" Ice	0.00	0.00	26.01
							2" Ice	0.00	0.00	44.32

80010798	A	From Leg	0.50	0.000	0.000	76.00	No Ice	0.00	0.00	80.00
			0.000				1/2" Ice	0.00	0.00	142.58
			0.000				1" Ice	0.00	0.00	210.44
							2" Ice	0.00	0.00	366.96
80010798	B	From Leg	0.50	0.000	0.000	76.00	No Ice	0.00	0.00	80.00
			0.000				1/2" Ice	0.00	0.00	142.58
			0.000				1" Ice	0.00	0.00	210.44
							2" Ice	0.00	0.00	366.96
80010798	C	From Leg	0.50	0.000	0.000	76.00	No Ice	0.00	0.00	80.00
			0.000				1/2" Ice	0.00	0.00	142.58
			0.000				1" Ice	0.00	0.00	210.44
							2" Ice	0.00	0.00	366.96
(2) TMAT192123B68-31	A	From Leg	0.50	0.000	0.000	76.00	No Ice	0.00	0.00	20.00
			0.000				1/2" Ice	0.00	0.00	27.43
			-5.000				1" Ice	0.00	0.00	35.92
							2" Ice	0.00	0.00	59.00
(2) TMAT192123B68-31	B	From Leg	0.50	0.000	0.000	76.00	No Ice	0.00	0.00	20.00
			0.000				1/2" Ice	0.00	0.00	27.43
			-5.000				1" Ice	0.00	0.00	35.92
							2" Ice	0.00	0.00	59.00
(2) TMAT192123B68-31	C	From Leg	0.50	0.000	0.000	76.00	No Ice	0.00	0.00	20.00
			0.000				1/2" Ice	0.00	0.00	27.43
			-5.000				1" Ice	0.00	0.00	35.92
							2" Ice	0.00	0.00	59.00
*										
36" OD x 10' Tall Concealment Canister	C	None		0.000	0.000	84.10	No Ice	0.00	0.00	0.00
							1/2" Ice	0.00	0.00	0.00
							1" Ice	0.00	0.00	0.00
							2" Ice	0.00	0.00	0.00
36" OD x 10' Tall Concealment Canister	C	None		0.000	0.000	74.10	No Ice	0.00	0.00	0.00
							1/2" Ice	0.00	0.00	0.00
							1" Ice	0.00	0.00	0.00
							2" Ice	0.00	0.00	0.00
Canister Load1	C	None		0.000	0.000	89.06	No Ice	6.75	6.75	94.25
							1/2" Ice	16.96	16.96	205.73
							1" Ice	17.42	17.42	320.27
							2" Ice	18.33	18.33	558.51
Canister Load2	C	None		0.000	0.000	79.06	No Ice	13.50	13.50	218.82
							1/2" Ice	33.92	33.92	441.78
							1" Ice	34.83	34.83	670.86
							2" Ice	36.67	36.67	1147.33
Canister Load3	C	None		0.000	0.000	69.06	No Ice	6.75	6.75	232.08
							1/2" Ice	16.96	16.96	343.57
							1" Ice	17.42	17.42	458.10
							2" Ice	18.33	18.33	696.34
Truck Ball	C	None		0.000	0.000	89.81	No Ice	0.88	0.88	50.00
							1/2" Ice	1.38	1.38	67.43
							1" Ice	1.53	1.53	86.79

<p>tnxTower</p> <p><i>Tower Engineering Professionals, Inc.</i> 326 Tryon Road Raleigh, NC 27603-5263 Phone: (919) 661-6351 FAX: (919) 661-6350</p>	<p>Job</p> <p>Wilton/Georgetown/Rt7 (BU 829115)</p>	<p>Page</p> <p>6 of 9</p>
	<p>Project</p> <p>TEP No. 154669.259200</p>	<p>Date</p> <p>09:32:15 06/07/19</p>
	<p>Client</p> <p>Crown Castle</p>	<p>Designed by</p> <p>TLI</p>

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			ft ft ft	°	ft	ft ²	ft ²	lb	
						2" Ice	1.85	1.85	131.72

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service

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	Client Crown Castle	Designed by TLI

Comb. No.	Description
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	89.06 - 72.06	8.406	48	1.858	0.001
L2	72.06 - 69.06	2.983	47	0.777	0.001
L3	69.06 - 35	2.646	47	0.278	0.000
L4	35 - 1	0.860	47	0.206	0.000
L5	1 - 0	0.001	47	0.011	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
89.81	Truck Ball	48	8.406	1.858	0.001	1330
89.06	Canister Load1	48	8.406	1.858	0.001	1330
85.00	APX16DWV-16DWVS-C	47	6.778	1.780	0.001	1330
84.10	36" OD x 10' Tall Concealment Canister	47	6.429	1.756	0.001	1330
79.06	Canister Load2	47	4.647	1.530	0.001	665
76.00	80010798	47	3.774	1.279	0.001	511
74.10	36" OD x 10' Tall Concealment Canister	47	3.340	1.066	0.001	477
69.06	Canister Load3	47	2.646	0.278	0.000	1137

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	89.06 - 72.06	36.389	20	7.974	0.009
L2	72.06 - 69.06	13.094	20	3.370	0.004
L3	69.06 - 35	11.629	20	1.221	0.002
L4	35 - 1	3.783	18	0.906	0.002
L5	1 - 0	0.005	18	0.047	0.000

Critical Deflections and Radius of Curvature - Design Wind

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Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
89.81	Truck Ball	20	36.389	7.974	0.009	320
89.06	Canister Load1	20	36.389	7.974	0.009	320
85.00	APX16DWV-16DWVS-C	20	29.404	7.656	0.008	320
84.10	36" OD x 10' Tall Concealment Canister	20	27.908	7.557	0.008	320
79.06	Canister Load2	20	20.258	6.600	0.007	159
76.00	80010798	20	16.506	5.529	0.006	121
74.10	36" OD x 10' Tall Concealment Canister	20	14.636	4.611	0.005	113
69.06	Canister Load3	20	11.629	1.221	0.002	266

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio
	ft		ft	ft		in ²	lb	lb	$\frac{P_u}{\phi P_n}$
L1	89.06 - 72.06 (1)	P4x0.5	17.00	0.00	0.0	5.498	-1485.16	371101.00	0.004
L2	72.06 - 69.06 (2)	P4x0.5	3.00	0.00	0.0	5.498	-1637.43	371101.00	0.004
L3	69.06 - 35 (3)	P24x0.375	34.06	0.00	0.0	27.833	-6118.86	876725.00	0.007
L4	35 - 1 (4)	P24x0.375	34.00	0.00	0.0	27.833	-10369.70	876725.00	0.012
L5	1 - 0 (5)	P20x0.5	1.00	0.00	0.0	30.631	-10508.80	964862.00	0.011

Pole Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{rx}	Ratio	M _{uy}	φM _{ny}	Ratio
	ft		lb-ft	lb-ft	$\frac{M_{ux}}{\phi M_{rx}}$	lb-ft	lb-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L1	89.06 - 72.06 (1)	P4x0.5	19332.17	34687.50	0.557	0.00	34687.50	0.000
L2	72.06 - 69.06 (2)	P4x0.5	23900.75	34687.50	0.689	0.00	34687.50	0.000
L3	69.06 - 35 (3)	P24x0.375	110641.67	538741.67	0.205	0.00	538741.67	0.000
L4	35 - 1 (4)	P24x0.375	240231.67	538741.67	0.446	0.00	538741.67	0.000
L5	1 - 0 (5)	P20x0.5	244542.50	499187.50	0.490	0.00	499187.50	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V _u	φV _n	Ratio	Actual T _u	φT _n	Ratio
	ft		lb	lb	$\frac{V_u}{\phi V_n}$	lb-ft	lb-ft	$\frac{T_u}{\phi T_n}$
L1	89.06 - 72.06 (1)	P4x0.5	1551.48	111330.00	0.014	0.00	34257.92	0.000

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	Project	TEP No. 154669.259200	Date	09:32:15 06/07/19
	Client	Crown Castle	Designed by	TLI

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L2	72.06 - 69.06 (2)	P4x0.5	1509.53	111330.00	0.014	0.00	34257.92	0.000
L3	69.06 - 35 (3)	P24x0.375	3252.02	263018.00	0.012	0.00	546306.67	0.000
L4	35 - 1 (4)	P24x0.375	4306.33	263018.00	0.016	0.00	546306.67	0.000
L5	1 - 0 (5)	P20x0.5	4323.42	289459.00	0.015	0.00	496250.00	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	89.06 - 72.06 (1)	0.004	0.557	0.000	0.014	0.000	0.562	1.050	4.8.2
L2	72.06 - 69.06 (2)	0.004	0.689	0.000	0.014	0.000	0.694	1.050	4.8.2
L3	69.06 - 35 (3)	0.007	0.205	0.000	0.012	0.000	0.213	1.050	4.8.2
L4	35 - 1 (4)	0.012	0.446	0.000	0.016	0.000	0.458	1.050	4.8.2
L5	1 - 0 (5)	0.011	0.490	0.000	0.015	0.000	0.501	1.050	4.8.2

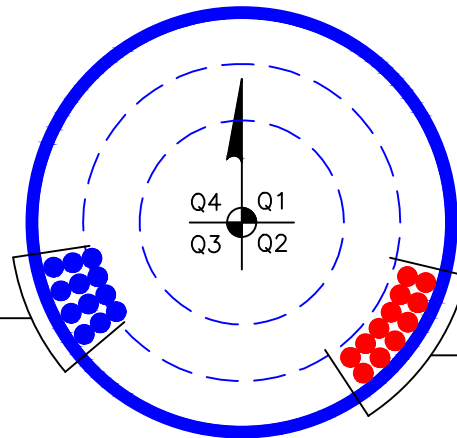
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	89.06 - 72.06	Pole	P4x0.5	1	-1485.16	389656.03	53.5	Pass
L2	72.06 - 69.06	Pole	P4x0.5	2	-1637.43	389656.03	66.1	Pass
L3	69.06 - 35	Pole	P24x0.375	3	-6118.86	920561.21	20.2	Pass
L4	35 - 1	Pole	P24x0.375	4	-10369.70	920561.21	43.6	Pass
L5	1 - 0	Pole	P20x0.5	5	-10508.80	1013105.05	47.7	Pass
Summary								
Pole (L2)							66.1	Pass
RATING =							66.1	Pass

APPENDIX B
BASE LEVEL DRAWING



(OTHER CONSIDERED EQUIPMENT)
(12) 7/8" TO 85 FT LEVEL



(PROPOSED EQUIPMENT CONFIGURATION)
(12) 7/8" TO 76 FT LEVEL

BUSINESS UNIT: 829115 TOWER ID: C_BASELEVEL

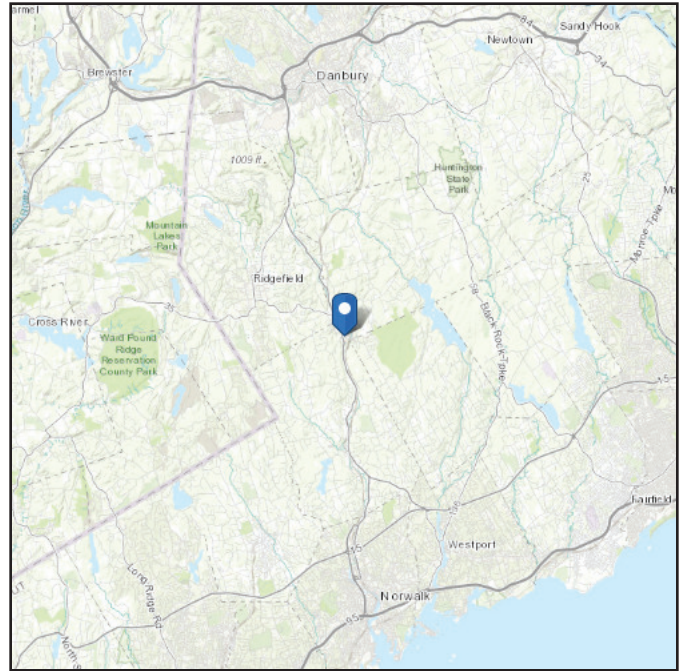
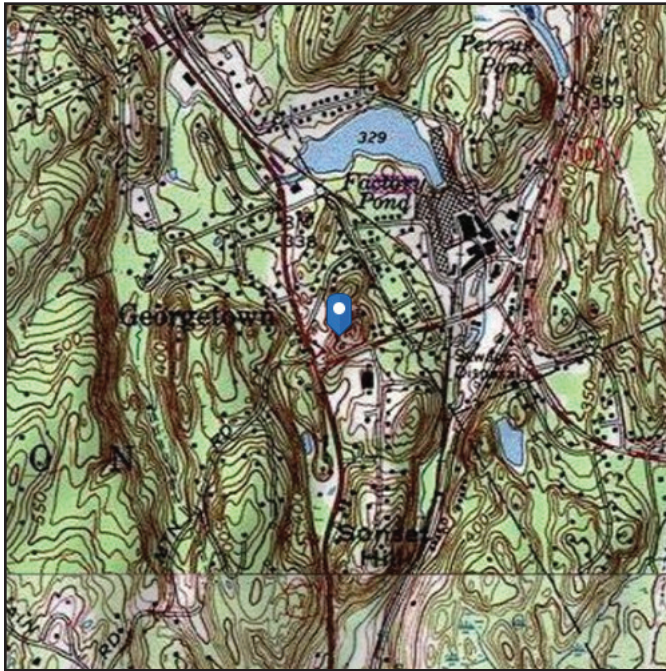
APPENDIX C
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 355.26 ft (NAVD 88)
Latitude: 41.256378
Longitude: -73.433947



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	97 Vmph

*120 Vmph required per jurisdiction

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Tue May 21 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

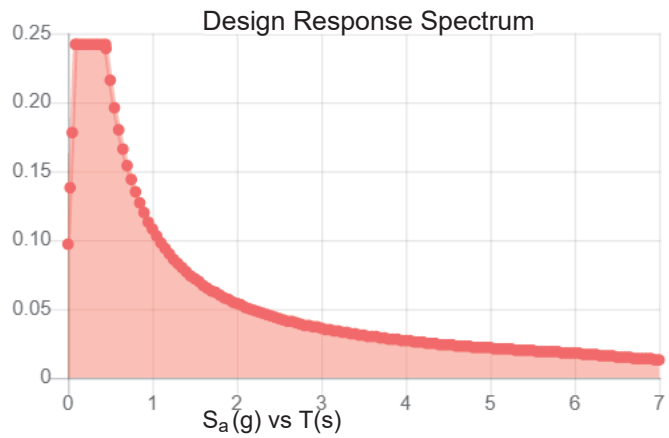
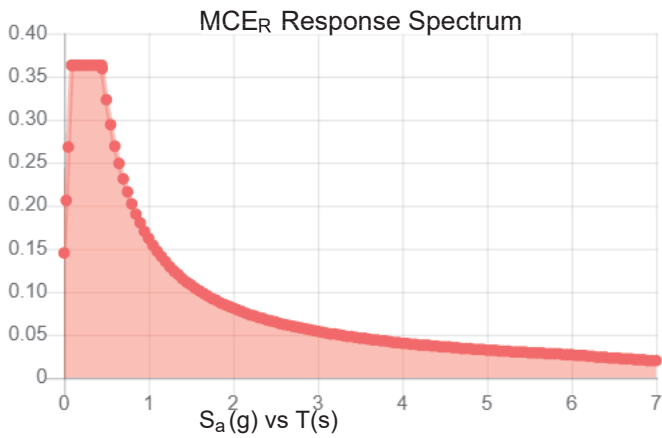
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.227	S_{DS} :	0.242
S_1 :	0.067	S_{D1} :	0.108
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.127
S_{MS} :	0.363	PGA_M :	0.196
S_{M1} :	0.162	F_{PGA} :	1.546
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue May 21 2019

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Tue May 21 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

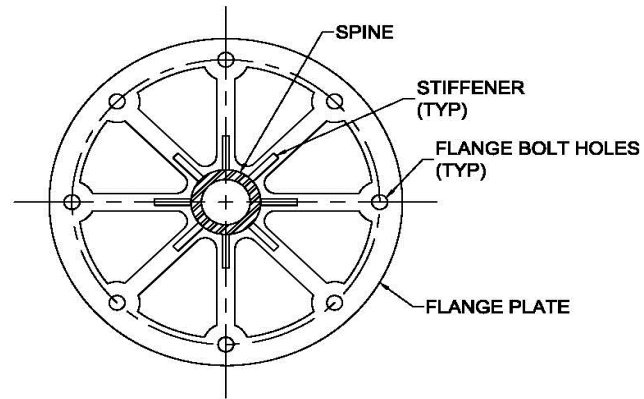
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CCI Flagpole Tool



Site Data	
BU#:	829115
Site Name:	Wilton/Georgetown/Rt7
Order #:	485500 Rev. 1

Code	
Code:	TIA-222-H
Ice Thickness:	1.5 in
Windspeed (V):	120 mph
Ice Wind Speed (V):	50 mph
Exposure Category:	C
Topographic Feature:	N/A
Risk Category:	II



FLANGE PLATE
(TYPE 4: SOLIDITY RATIO 0.55)

Tower Information	
Total Tower Height:	89.06 ft
Base Tower Height:	69.06 ft
Total Canister Length:	20 ft
Number of Canister Assembly Sections:	2

Canister Section Number *:	Canister Assembly Length (ft):	Canister Assembly Diameter (in):	Number of Sides Canister Section	Plate Type:	Mating Flange Plate Thickness (in)**:	Mating Flange Plate Diameter (in):	Solidity Ratio	Plate Weight (Kip):	Canister Weight (Kip)	Vent Length (ft):
1	10	36	Round	4	0.25	22.25	0.55	0.030	0.188	0-0
2	10	36	Round	3	1.50	20.3125	0.5	0.138	0.188	0-0

* Sections are numbered from the top of the tower down

** Mating Flange Plate Thickness at the bottom of canister section

Flag on Tower:	Yes
Flag Width:	18 ft
Flag Height:	12 ft
Flag Elevation(z):	89.06 ft

Truck Ball on Tower:	Yes
Diameter of Ball:	18 in

Geometry : Base Tower + Spine			
Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides
89.06	17		0
72.06	3		0
69.06	34.06		0
35	34		0
1	1		0

829115_1743971_LC5 OG.eri (last saved 06/06 9:46 pm)

Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
4	4	0.5	n/a	A36
4	4	0.5	n/a	A36
24	24	0.375	n/a	A53-B-35
24	24	0.375	n/a	A53-B-35
20	20	0.5	n/a	A53-B-35

Delete
[x]
[x]
[x]
[x]
[x]

Discrete Loads: Truck Ball	Apply $C_a A_A$ at Elevation(z) (ft)	$C_a A_A$ No Ice (ft ²)	$C_a A_A$ 1/2" Ice (ft ²)	$C_a A_A$ 1" Ice (ft ²)	$C_a A_A$ 2" Ice (ft ²)	$C_a A_A$ 4" Ice (ft ²)	Weight No Ice (Kip)	Weight 1/2" Ice (Kip)
		89.81	0.884	1.378	1.527	1.848	2.581	0.05

Discrete Loads : $C_F A_F$ for Canister Assembly								
Canister Loading	Apply $C_F A_F$ at Elevation(z) (ft)	$C_F A_F$ No Ice (ft ²)	$C_F A_F$ 1/2" Ice (ft ²)	$C_F A_F$ 1" Ice (ft ²)	$C_F A_F$ 2" Ice (ft ²)	$C_F A_F$ 4" Ice (ft ²)	Canister Assembly Weight No Ice (Kip)	Canister Assembly Weight 1/2" Ice (Kip)
	Canister Load 1	89.06	6.750	16.958	17.417	18.333	20.167	0.094
Canister Load 2	79.06	13.500	33.917	34.833	36.667	40.333	0.219	0.442
Canister Load 3	69.06	6.750	16.958	17.417	18.333	20.167	0.232	0.344

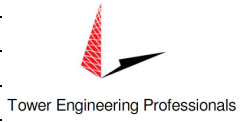
User Forces: Flag Force Calculation Per ANSI/NAAMM FP 1001-07	
Wind _{FORCE} =	0.417 Kip
Weight=	0.023 Kip
Wind _{FORCE, ICE} =	0.075 Kip
Weight _{ICE} =	0.691 Kip
W _{FORCE, SERVICE WIND} =	0.104 Kip
Weight=	0.023 Kip

← Flag force should be included at the top of the flag attachment elevation. If the attachment of the flag to the halyard distributes forces equally to the pole, apply flag forces accordingly in tnx file.

Deflection Check Required:	Yes	Import Deflection Results
3% Spine Deflection Check		
Allowable (3%) Horizontal Spine Deflection (inches)	Actual Deflection ***(inches)	Sufficient/ Insufficient
7.200	5.649	Sufficient

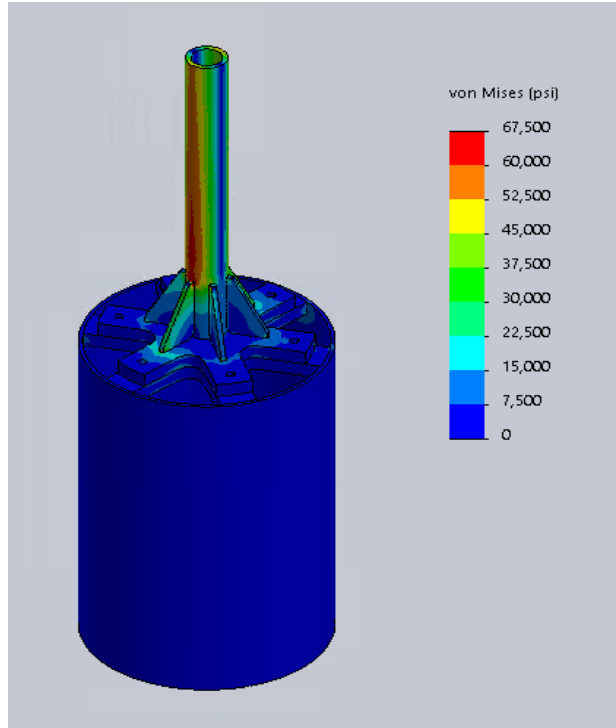
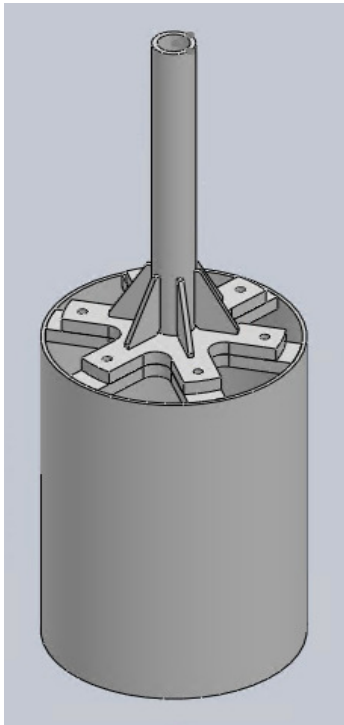
*** Relative deflection under service level wind speed

Client Site Name: Wilton/Georgetown/Rt7
Client Site Number: BU 829115
Client Order Number: 485500 Rev. 1
TEP Project Number: 154669.259200



Engineer: TLI
Check: JCR
Date: 6/7/2019
Page: 1

Simulation of Concealment Flange - 69.1-ft Elevation



Model Loads

Axial	1,445	lb
Shear	1,283	lb
Moment	17,006	lb-ft
Self-Weight Factor	1.2	

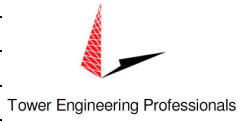
Overall Results

Sufficient

Model Part Information

Part	Part Grade
Spine Stub Section	A513 Gr. 75
Stiffeners	A572-50
Top Flange	A572-50
Bottom Flange	A572-50
Tower Stub Section	A53-B-35

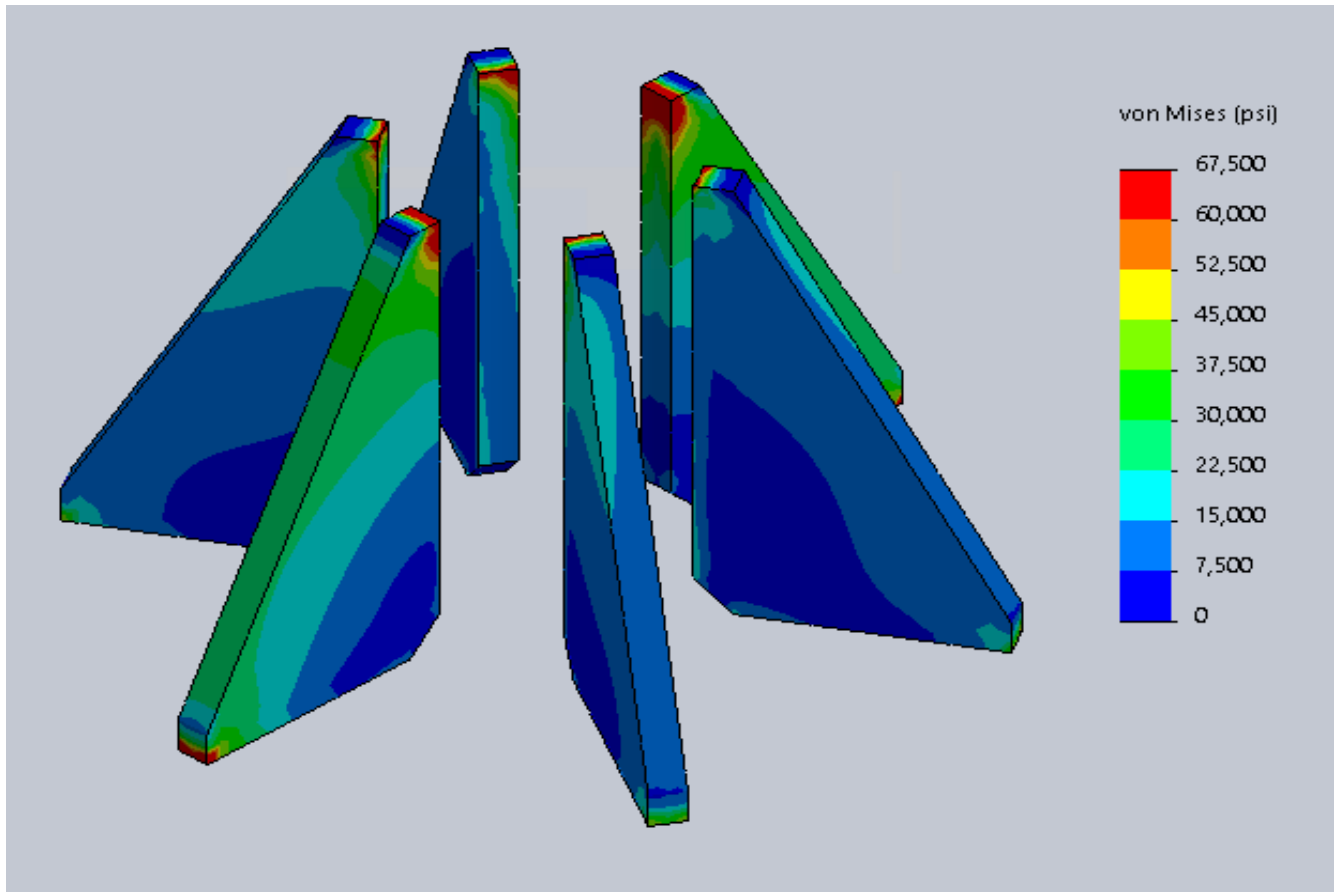
Client Site Name: Wilton/Georgetown/Rt7
Client Site Number: BU 829115
Client Order Number: 485500 Rev. 1
TEP Project Number: 154669.2592



Engineer: TLI
Check: JCR
Date: 6/7/2019
Page: 2

Study: 0 Degree

Stiffeners



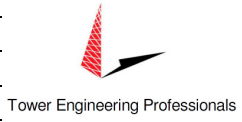
Assumptions

N/A

Results

Sufficient

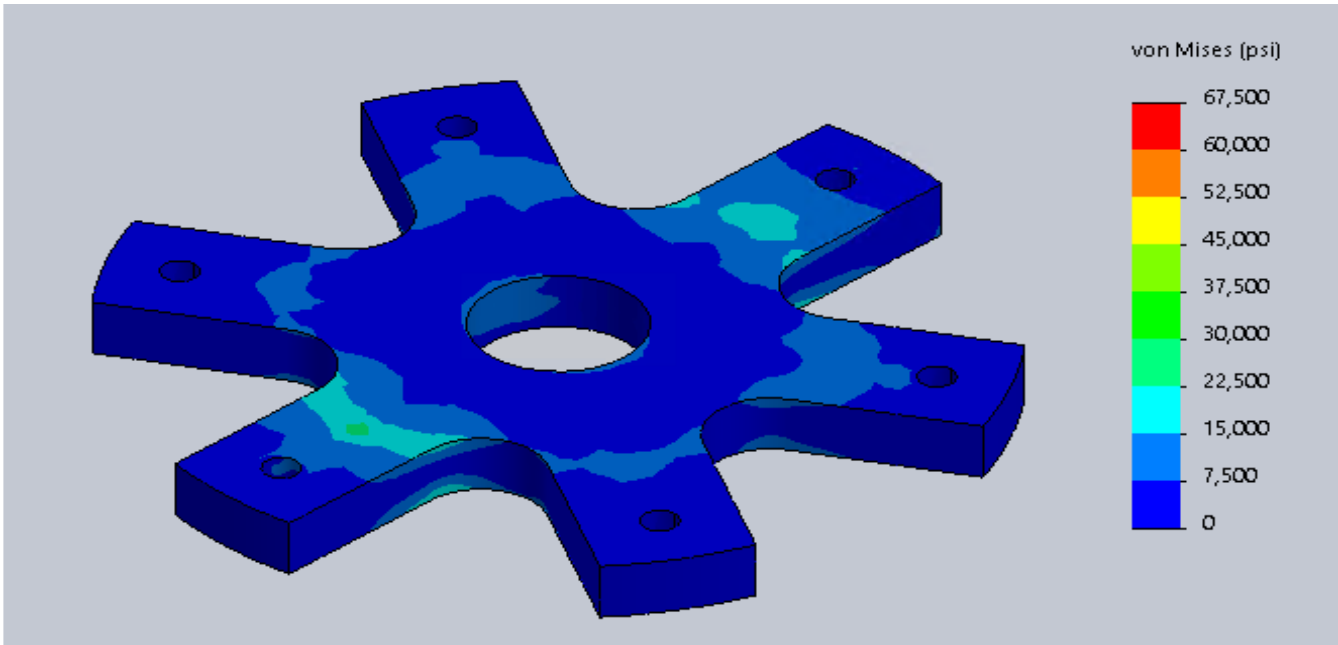
Client Site Name: Wilton/Georgetown/Rt7
Client Site Number: BU 829115
Client Order Number: 485500 Rev. 1
TEP Project Number: 154669.2592



Engineer: TLI
Check: JCR
Date: 6/7/2019
Page: 3

Study: 0 Degree

Top Flange



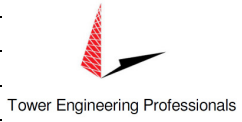
Assumptions

N/A

Results

Sufficient

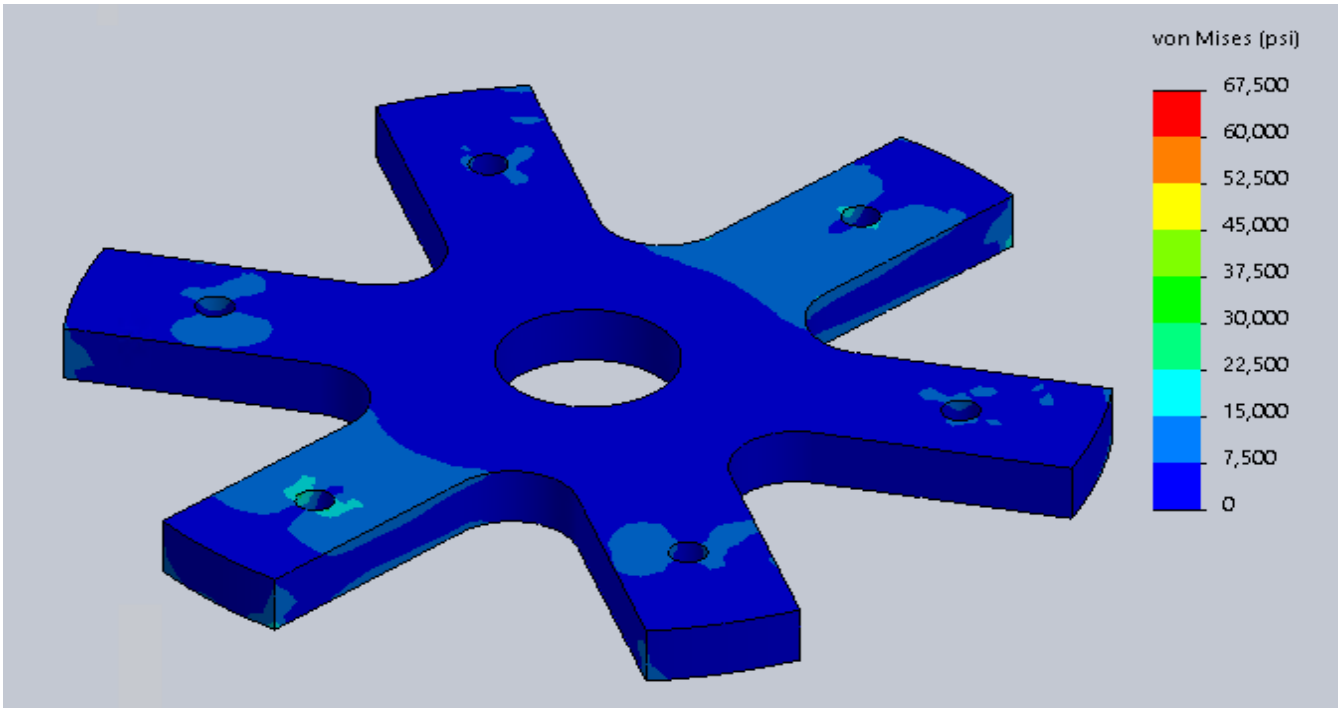
Client Site Name: Wilton/Georgetown/Rt7
Client Site Number: BU 829115
Client Order Number: 485500 Rev. 1
TEP Project Number: 154669.2592



Engineer: TLI
Check: JCR
Date: 6/7/2019
Page: 4

Study: 0 Degree

Bottom Flange



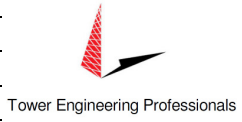
Assumptions

N/A

Results

Sufficient

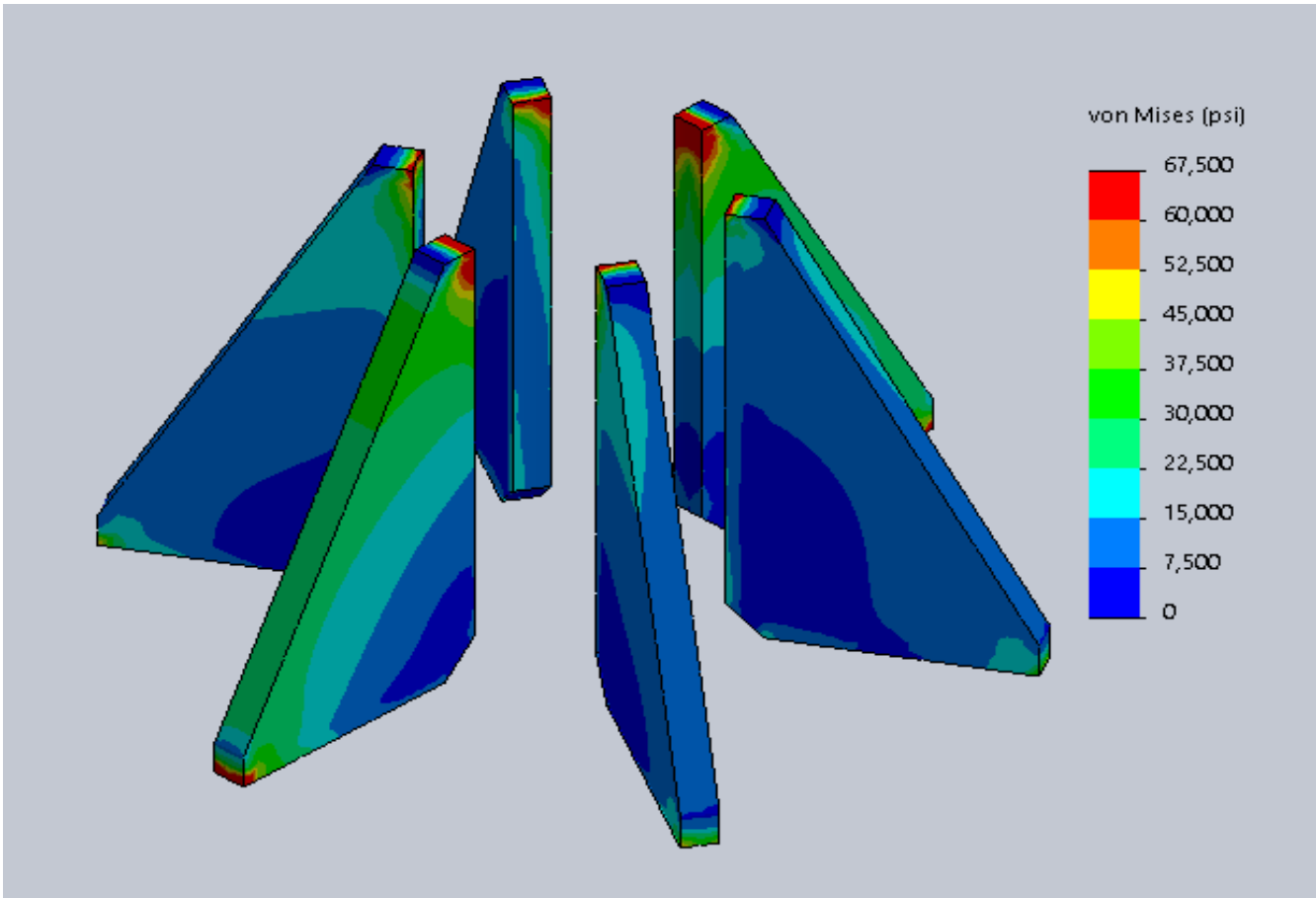
Client Site Name: Wilton/Georgetown/Rt7
Client Site Number: BU 829115
Client Order Number: 485500 Rev. 1
TEP Project Number: 154669.2592



Engineer: TLI
Check: JCR
Date: 6/7/2019
Page: 5

Study: 30 Degree

Stiffeners



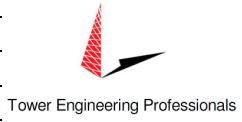
Assumptions

N/A

Results

Sufficient

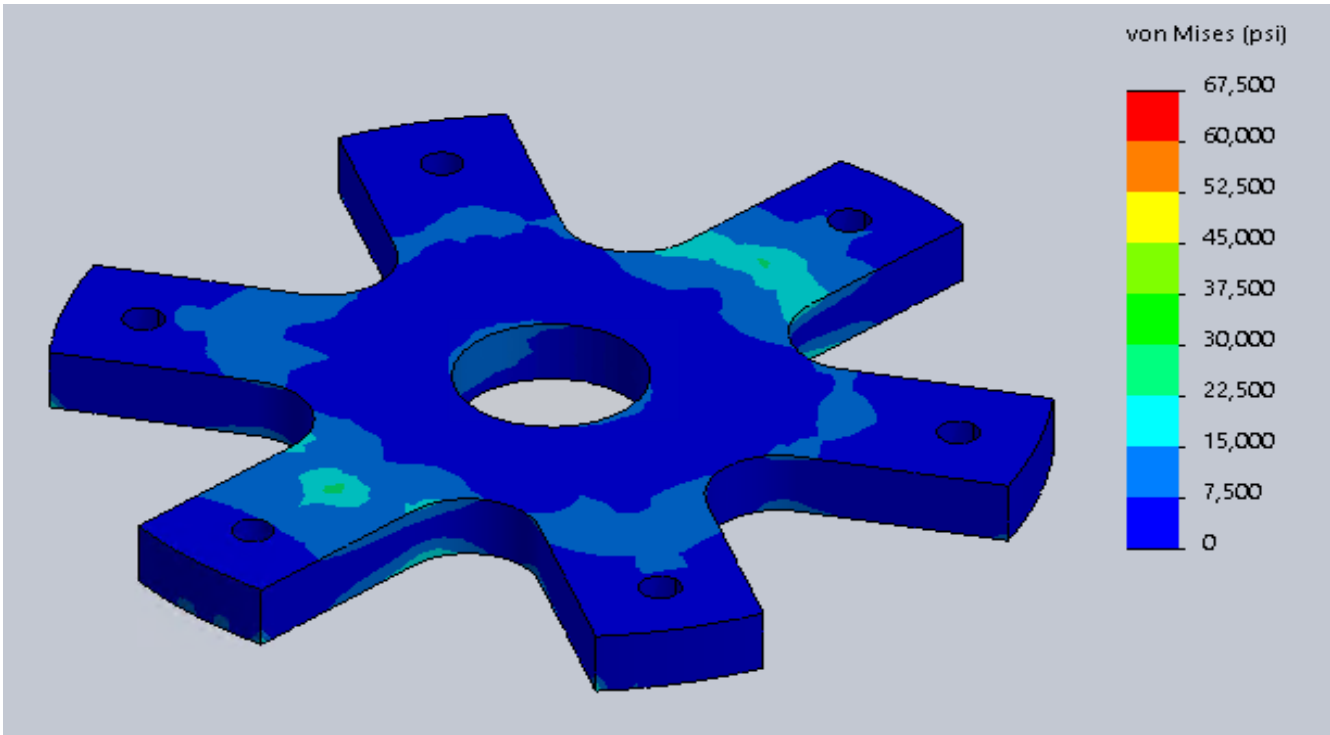
Client Site Name: Wilton/Georgetown/Rt7
Client Site Number: BU 829115
Client Order Number: 485500 Rev. 1
TEP Project Number: 154669.2592



Engineer: TLI
Check: JCR
Date: 6/7/2019
Page: 6

Study: 30 Degree

Top Flange



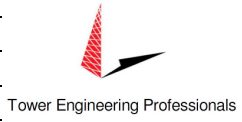
Assumptions

N/A

Results

Sufficient

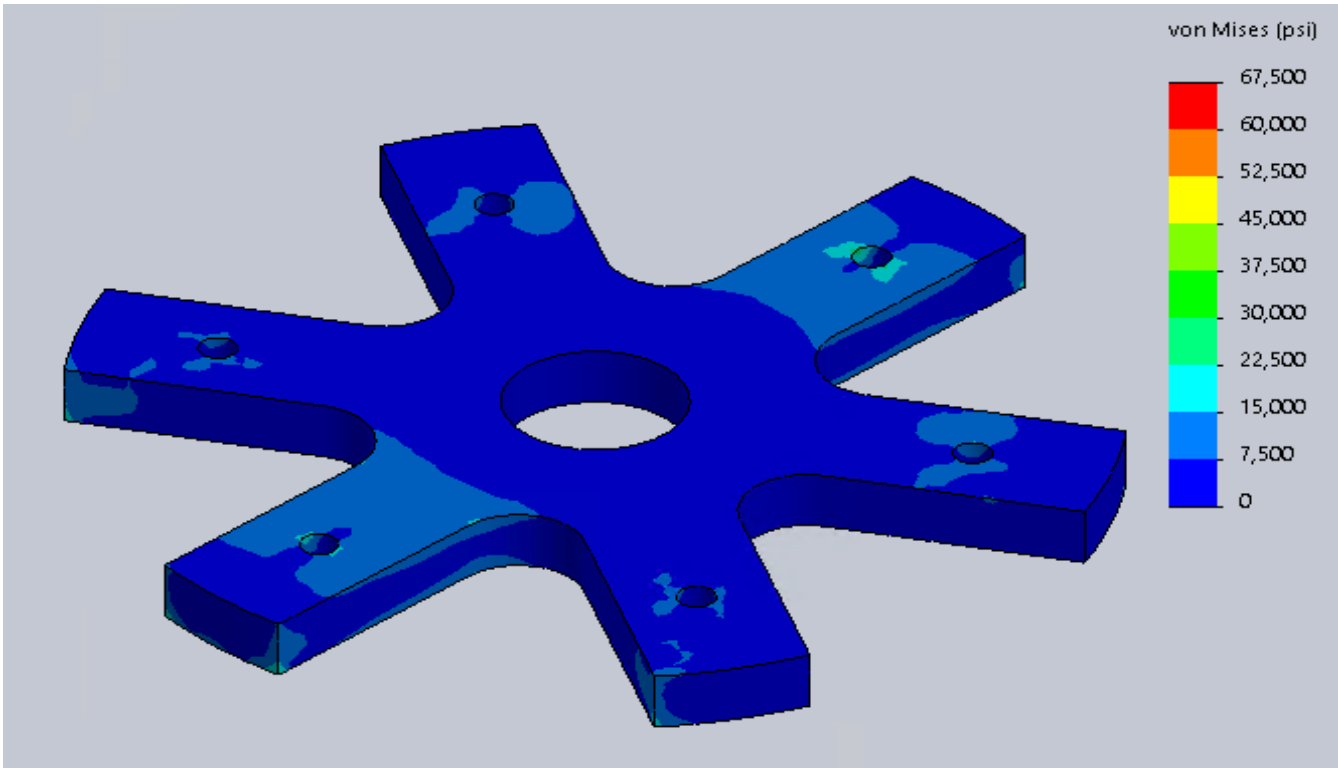
Client Site Name: Wilton/Georgetown/Rt7
Client Site Number: BU 829115
Client Order Number: 485500 Rev. 1
TEP Project Number: 154669.2592



Engineer: TLI
Check: JCR
Date: 6/7/2019
Page: 7

Study: 30 Degree

Bottom Flange



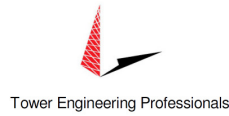
Assumptions

N/A

Results

Sufficient

Client Site Name: Wilton/Georgetown/Rt7
Client Site Number: BU 829115
Client Order Number: 485500 Rev. 1
TEP Project Number: 154669.259200



Engineer: TLI
Check: JCR
Date: 6/7/2019
Page: 1

Spine Fillet Weld Check - 69.1ft

Model Loads

Axial	1,497	lb
Shear	1,203	lb
Moment	23,329	lb-ft

Pole Properties

Spine Diameter	4	in
Spine grade	A513 Gr. 75	
Weld Type	Butt	
Upper Weld Size	3/8	in

Weld Properties

Total Area	11.8174	in ²
Total Inertia	77.5076	in ⁴
Extreme Fiber	6.0000	in
Elastic Section Modulus	12.9179	in ³

Flange & Stiffener Properties

Flange Thickness	1.50	in
Flange Grade	A572-50	
Weld Grade	E70XX	
Stiffener Quantity	6	
Stiffener Width	4.00	in
Stiffener Notch Size	0.50	in
Horizontal Weld Size	1/4	in

Weld Check

r_{mu}	21.671	ksi
r_{vu}	0.102	ksi
r_{pu}	0.127	ksi
Total Weld Stress	21.798	ksi
Weld Capacity	31.500	ksi
*RATING	65.9%	Pass

Fusion Zone Check

Shear Fusion Zone	10.969	k/in
Tensile Fusion Zone	18.281	k/in
Weld Capacity	8.353	k/in
Check Fusion Zone	OK	

Flange Shear Plane Check

Base Metal Capacity	43.875	k/in
Weld Capacity	8.353	k/in
Min Flange Thickness	0.286	in
Check Thickness	OK	
*RATING	11.9%	Pass

Overall Results

SUFFICIENT

*Ratings per TIA-222-H Section 15.5

Monopole Flange Plate Connection

Elevation = 69.06 ft.



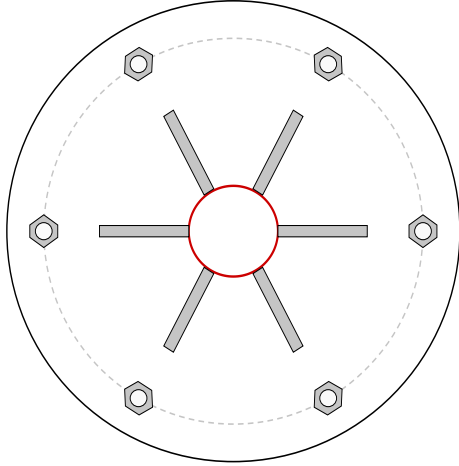
BU #	829115
Site Name	Vilton/Georgetown/Rt
Order #	485500 Rev. 1

Applied Loads	
Moment (kip-ft)	23.90
Axial Force (kips)	1.64
Shear Force (kips)	1.51

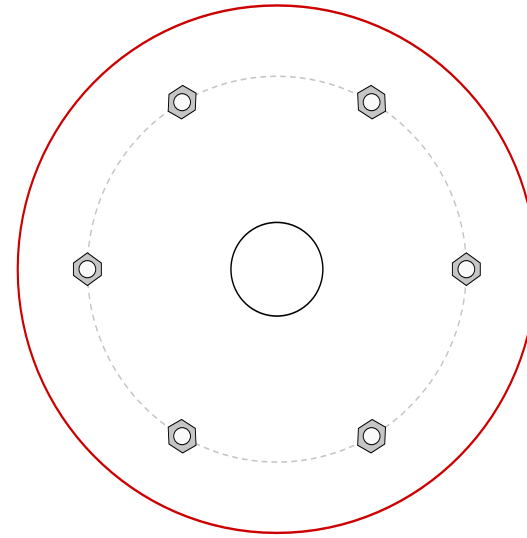
TIA-222 Revision	H
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*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(6) 3/4" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 17" BC

Top Plate Data

20.3125" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

4.125" ID x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

(6) 7"H x 4"W x 0.5"T, Notch: 0.5"
 plate: Fy= 50 ksi ; weld: Fy= 70 ksi
 horiz. weld: 0.25" fillet
 vert. weld: 0.25" fillet

Bottom Stiffener Data

N/A

Top Pole Data

4" x 0.5" round pole (ASTM A513 D.O.M.; Fy=75 ksi, Fu=85 ksi)

Bottom Pole Data

24" x 0.375" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	10.97
Allowable (kips)	30.06
Stress Rating:	34.7% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	N/A
Tension Side Stress Rating:	N/A

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	N/A
Tension Side Stress Rating:	N/A

Top Stiffener Capacity

Horizontal Weld:	N/A
Vertical Weld:	N/A
Plate Flexure+Shear:	N/A
Plate Tension+Shear:	N/A
Plate Compression:	N/A

Bottom Stiffener Capacity

Horizontal Weld:	N/A
Vertical Weld:	N/A
Plate Flexure+Shear:	N/A
Plate Tension+Shear:	N/A
Plate Compression:	N/A

Top Pole Capacity

Punching Shear:	N/A
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Bottom Pole Capacity

Punching Shear:	N/A
-----------------	------------

Monopole Flange Plate Connection

Elevation = 35 ft.

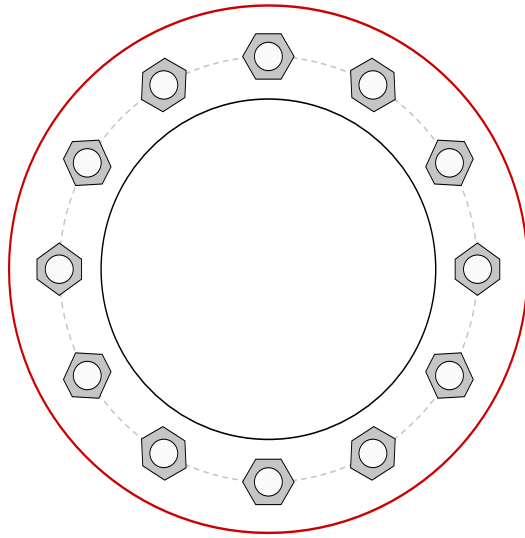


BU #	829115
Site Name	Vilton/Georgetown/Rt
Order #	485500 Rev. 1
TIA-222 Revision	H

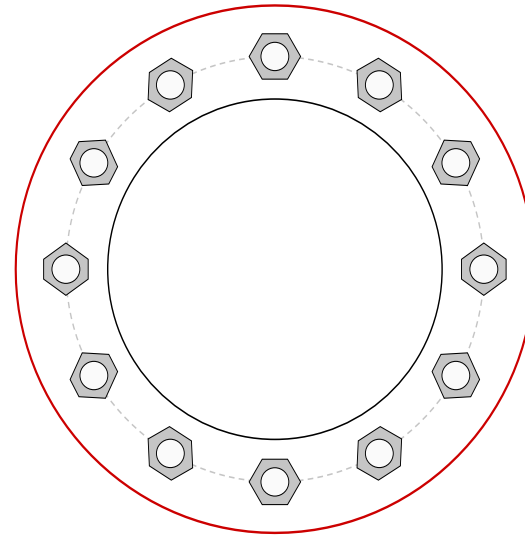
Applied Loads	
Moment (kip-ft)	110.64
Axial Force (kips)	6.12
Shear Force (kips)	3.25

*TIA-222-H Section 15.5 Applied

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

(12) 1-1/4" ϕ bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 18.75" BC

Top Plate Data

15" ID x 2.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Plate Data

15" ID x 2.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

24" x 0.375" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	23.05
Allowable (kips)	76.31
Stress Rating:	28.8% Pass

Top Plate Capacity

Max Stress (ksi):	7.03	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	14.9%	Pass
Tension Side Stress Rating:	4.4%	Pass

Bottom Plate Capacity

Max Stress (ksi):	7.03	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	14.9%	Pass
Tension Side Stress Rating:	4.4%	Pass

Monopole Base Plate Connection

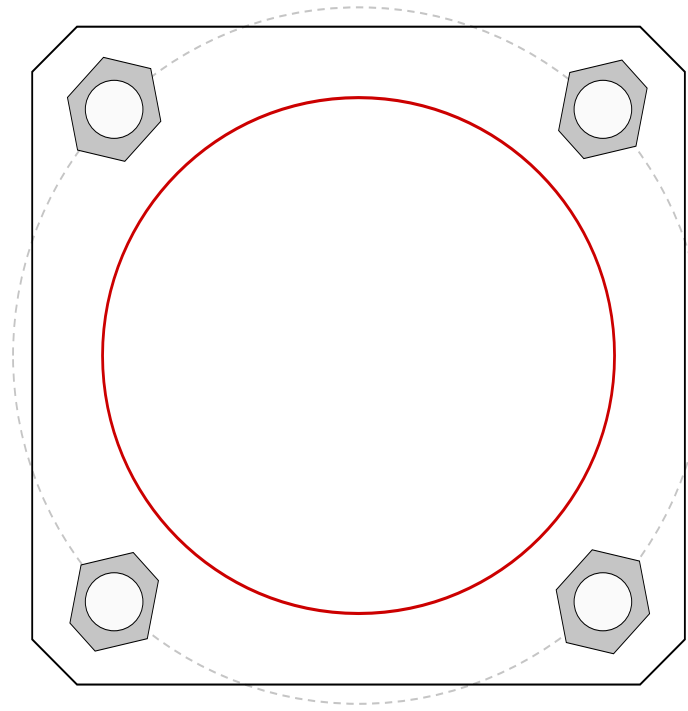


Site Info	
BU #	829115
Site Name	Wilton/Georgetown/Rt
Order #	485500 Rev. 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.5

Applied Loads	
Moment (kip-ft)	244.54
Axial Force (kips)	10.51
Shear Force (kips)	4.32

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
(4) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 27" BC
Base Plate Data
25.5" OD x 2.25" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)
Stiffener Data
N/A
Pole Data
20" x 0.5" round pole (A53-B-35; $F_y=35$ ksi, $F_u=60$ ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
$P_{u_c} = 111.01$	$\phi P_{n_c} = 243.75$	Stress Rating
$V_u = 1.08$	$\phi V_n = 73.13$	43.4%
$M_u = n/a$	$\phi M_n = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	19.11	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	40.4%	Pass

Pier and Pad Foundation



BU #: 829115
 Site Name: Wilton/Georgetown
 App. Number: 485500 Rev. 1

TIA-222 Revision: H
 Tower Type: Monopole

Top & Bot. Pad Rein. Different?:
 Block Foundation?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	10.511	kips
Base Shear, V_{u_comp} :	4.319	kips
Moment, M_u :	244.542	ft-kips
Tower Height, H :	89.06	ft
BP Dist. Above Fdn, bp_{dist} :	3.75	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	85.00	4.32	4.8%	Pass
<i>Bearing Pressure (ksf)</i>	6.00	2.94	46.6%	Pass
<i>Overtuning (kip*ft)</i>	503.45	278.28	55.3%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	1032.04	266.14	24.6%	Pass
<i>Pier Compression (kip)</i>	7637.76	24.91	0.3%	Pass
<i>Pad Flexure (kip*ft)</i>	1201.91	78.01	6.2%	Pass
<i>Pad Shear - 1-way (kips)</i>	261.99	19.07	6.9%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.010	5.7%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	2403.81	159.68	6.3%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, d_{pier} :	4	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, S_c :	9	
Pier Rebar Quantity, m_c :	12	
Pier Tie/Spiral Size, S_t :	4	
Pier Tie/Spiral Quantity, m_t :	14	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Soil Rating*:	55.3%
Structural Rating*:	24.6%

Pad Properties		
Bottom of Pad Depth, D :	7	ft
Pad Width, W :	10.5	ft
Pad Thickness, T :	2.5	ft
Pad Rebar Size (Bottom), S_p :	9	
Pad Rebar Quantity (Bottom), m_p :	11	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	125	pcf
Ultimate Gross Bearing, Q_{ult} :	8.000	ksf
Cohesion, C_u :		ksf
Friction Angle, ϕ :	34	degrees
SPT Blow Count, N_{blows} :	25	
Base Friction, μ :		
Neglected Depth, N :	3.50	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	6	ft

<--Toggle between Gross and Net

EXHIBIT 4



Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5063

North Wilton Georgetown
922 Danbury Road

Wilton, CT 06897

June 28, 2019

Centerline Communications Project Number: 950012-228

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	12.37 %



June 28, 2019

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5063 – North Wilton Georgetown**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **922 Danbury Road in Wilton, Connecticut** for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **922 Danbury Road in Wilton, Connecticut**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
5G	850 MHz	2	25
LTE	850 MHz	2	40
LTE	700 MHz	2	40
LTE	1900 MHz (PCS)	5	40

Table 1: Channel Data Table



The following antennas listed in Table 2 were used in the modeling for transmission in the 700 MHz, 850 MHz, and 1900 MHz (PCS frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Kathrein 80010798	76
B	1	Kathrein 80010798	76
C	1	Kathrein 80010798	76

Table 2: Antenna Data

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



RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX	ERP (W)	MPE %
Antenna A1	Kathrein 80010798	850 MHz / 700 MHz / 1900 MHz / 1900 MHz / 850 MHz / 850 MHz	13.65 dBd / 12.05 dBd / 13.65 dBd / 13.65 dBd / 13.65 dBd / 13.65 dBd	18	670	14,955.22	12.31
Sector A Composite MPE%							12.31
Antenna B1	Kathrein 80010798	850 MHz / 700 MHz / 1900 MHz / 1900 MHz / 850 MHz / 850 MHz	13.65 dBd / 12.05 dBd / 13.65 dBd / 13.65 dBd / 13.65 dBd / 13.65 dBd	18	670	14,955.22	12.31
Sector B Composite MPE%							12.31
Antenna C1	Kathrein 80010798	850 MHz / 700 MHz / 1900 MHz / 1900 MHz / 850 MHz / 850 MHz	13.65 dBd / 12.05 dBd / 13.65 dBd / 13.65 dBd / 13.65 dBd / 13.65 dBd	18	670	14,955.22	12.31
Sector C Composite MPE%							12.31

Table 3: AT&T Emissions Levels



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
AT&T – Max Per Sector Value	12.31 %
T-Mobile	0.06%
Site Total MPE %:	12.37 %

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	12.31 %
AT&T Sector B Total:	12.31 %
AT&T Sector C Total:	12.31 %
Site Total:	12.37 %

Table 5: Site MPE Summary



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (i.tW/cm ²)	Frequency (MHz)	Allowable MPE (i.tW/cm ²)	Calculated % MPE
AT&T 850 MHz UMTS	2	695.22	76.0	8.65	850 MHz UMTS	567	1.53%
AT&T 700 MHz LTE	2	641.30	76.0	7.98	700 MHz LTE	467	1.71%
AT&T 1900 MHz LTE	5	926.96	76.0	28.85	1900 MHz LTE	1000	2.88%
AT&T 1900 MHz LTE	5	926.96	76.0	28.85	1900 MHz LTE	1000	2.88%
AT&T 850 MHz LTE	2	926.96	76.0	11.54	850 MHz LTE	567	2.04%
AT&T 850 MHz 5G	2	579.35	76.0	7.21	850 MHz 5G	567	1.27%
						Total:	12.31 %

Table 6: AT&T Maximum Sector MPE Power Values



Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	12.31 %
Sector B:	12.31 %
Sector C:	12.31 %
AT&T Maximum Total (per sector):	12.31 %
Site Total:	12.37 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **12.37 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

A handwritten signature in black ink that reads 'Ryan B. McManus'.

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