brownrudnick

THOMAS J. REGAN

November 18, 2021

VIA E-MAIL (SITING.COUNCIL@CT.GOV) &
(MELANIE.BACHMAN@CT.GOV)
& OVERNIGHT MAIL

Connecticut Siting Council
Attn: Melanie A. Bachman, Esq., Executive Director
Ten Franklin Square
New Britain, CT 06051

RE: Petition for Declaratory Ruling – 343 Daleville Rd., Willington

Dear Executive Director Bachman:

Please find enclosed for filing one copy of New Cingular Wireless PCS, LLC d/b/a AT&T's ("AT&T") Petition for Declaratory Ruling that no certificate of environmental compatibility and public need is required for AT&T to increase the height of an existing monopole located at 343 Daleville Road in Willington, Connecticut. Also enclosed is a check in the amount of $625.00 representing the filing fee.

A complete copy of the filing will be provided in PDF format electronically via One Drive.

Sincerely,

BROWN RUDNICK LLP

Thomas J. Regan

cc w/ complete copy of Petition:

Erika Wiecenski, First Selectman
Town Office Building
40 Old Farm Road
Willington, CT 06279

Mike D'Amato, Zoning Agent
Town Office Building
40 Old Farm Road
Willington, CT 06279

Robin Campbell, Town Clerk
Town Office Building
40 Old Farm Road
Willington, CT 06279

Peter Andersen, Chair, Conservation Commission
Town Office Building
40 Old Farm Road
Willington, CT 06279

Rosa Chinchilla, Chair, Historic District Commission
Town Office Building
40 Old Farm Road
Willington, CT 06279

Antonia Moran, Mayor
Audrey P. Beck Municipal Building
4 S. Eagleville Road
Storrs Mansfield, CT 06268

Linda Painter, Director of Planning
Audrey P. Beck Municipal Building
4 S. Eagleville Road
Storrs Mansfield, CT 06268

Sara-Ann Chaine, Town Clerk
Audrey P. Beck Municipal Building
4 S. Eagleville Road
Storrs Mansfield, CT 06268

Gail Bruhn, Chair, Historic District Commission
Audrey P. Beck Municipal Building
4 S. Eagleville Road
Storrs Mansfield, CT 06268

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:		
NEW CINGULAR WIRELESS PCS, LLC (AT&T)	**)**	**PETITION NO. _____**
PETITION FOR A DECLARATORY RULING THAT	**)**	
NO CERTIFICATE OF ENVIRONMENTAL	**)**	**NOVEMBER 18, 2021**
COMPATIBILITY AND PUBLIC NEED IS REQUIRED	**)**	
TO MODIFY AN EXISTING WIRELESS	**)**	
TELECOMMUNICATIONS FACILITY ON PROPERTY	**)**	
LOCATED AT 343 DALEVILLE ROAD, WILLINGTON,	**)**	
CONNECTICUT.		

PETITION FOR A DECLARATORY RULING TO MODIFY AN EXISTING WIRELESS FACILITY
343 DALEVILLE ROAD, WILLINGTON, CONNECTICUT

I. INTRODUCTION

On behalf of New Cingular Wireless PCS, LLC d/b/a AT&T ("AT&T" or the "Petitioner"), we respectfully submit this petition (the "Petition") to the Connecticut Siting Council (the "Council") pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A.") for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required pursuant to Section 16-50k of Connecticut General Statutes to modify an existing wireless facility owned by American Tower and located at 343 Daleville Road in Willington, Connecticut (the "Site"). AT&T planned modifications include extending the existing 104' above ground level ("AGL") monopole (the "Monopole") to a height of 160' AGL and collocating six (6) panel antennas at the 155' AGL antenna centerline height on the Monopole, as extended. **Attachment 1** contains correspondence from American Tower and the underlying property owners authorizing AT&T to file this Petition. The modifications and collocation will allow AT&T to provide its enhanced, state-of-the-art services, including 5G services, to its customers.

II. HISTORY OF EXISTING TELECOMMUNICATIONS FACILITY

The existing Monopole is owned by American Tower and was approved by the Council on July 29, 2010 in Docket No. 400. As noted in the Decision and Order in Docket 400 (included as **Attachment 2**), the Monopole was not to exceed a height of 105' AGL.

III. PROPOSED MODIFICATIONS

AT&T is licensed by the Federal Communications Commission ("FCC") to provide wireless services in this area of the State of Connecticut. AT&T proposes to extend the existing 104' AGL Monopole to a height of 160' AGL and collocate six (6) panel antennas at the 155' AGL antenna centerline height. On the monopole AT&T will also install related amplifiers,

cables, fiber and other associated antenna equipment, including, without limitation, remote radio heads, surge arrestors, and a global positioning system antenna. Within the existing compound AT&T plans to install its associated electronic equipment in a walk-in-cabinet as well as an emergency backup power propane-fueled generator, and other appurtenances, on a proposed equipment pad and propane tank (the "Facility") as depicted on the site plans (**Attachment 3** (the "Plans")). The Site is located within the R-80 (Residential) zoning district. The surrounding area is a mix of rural residential uses.

Attachment 4 contains a copy of the structural report evidencing that the proposed modifications can be supported in accordance with applicable codes. Notice to the FAA is not required for the proposed modifications as demonstrated in **Attachment 5**. Please refer to **Attachment 6** which contains a viewshed analysis of the proposed modifications to the Monopole along with photographs and photo simulations.

The backup power generator will be supported with a 500-gallon propane fuel tank. The generator typically exercises once a week and will otherwise operate during power outages to support continuity of telecommunications services. Based on estimated fuel consumption and reasonably assuming a maximum of 400 gallons of propane in the tank, while operating at full loading the generator should provide electrical power to the Facility for approximately 112 hours (4.5 days) before refueling. **Attachment 7** contains the equipment specifications for the proposed generator and propane fuel tank.

Once AT&T receives all required approvals, the installation of the Facility will take approximately three (3) to four (4) weeks and will be constructed during normal business hours. Construction is scheduled to commence in 2022.

While there is a state and federal listed species area within a quarter mile to the east and north of the Site, given that AT&T's proposed Facility will be located on a Monopole on land which has previously been disturbed, AT&T respectfully asserts that the proposed Facility will not impact any state listed species. Please refer to the Avian Resources Evaluation with DEEP Map submitted as **Attachment 8**.

IV. AT&T's PROPOSED MODIFICATIONS WILL NOT HAVE SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

AT&T's proposed modifications will not result in significant or substantial environmental impacts. The proposed extension of the Monopole will be consistent with the existing design and materials. AT&T's antennas will be mounted in similar fashion to the existing antennas on the Monopole. The proposed extension will match the color of the existing Monopole and AT&T's antennas will be a nonreflective neutral color which will be consistent with the existing antennas on the Monopole. The substantially wooded parcel is about twenty-two (22) acres in size and will continue to provide generous setbacks to the nearest lot lines; the nearest lot line is over 360' away from the Monopole. The photosimulations illustrate that the increase in visibility of the extended Monopole will be minimal. The Facility will not produce unreasonable noise, smoke, odor, waste or significant amounts of traffic. Moreover, the Facility will be unmanned and will not require water or sewer services. AT&T's proposed modifications will not entail any expansion of the footprint of the Monopole or fenced compound area. Access to the Site will be via existing ways.

V. MAXIMUM PERMISSIBLE EXPOSURE COMPLIANCE

The power density levels for AT&T's proposed Facility, along with the existing antennas on the Monopole, are calculated not to exceed 6.78% of the federally permitted emission standards for the public. Please refer to the Radio Frequency Emissions analysis submitted as **Attachment 9**. The total radio frequency power density will comply with the standards adopted by the Connecticut Department of Environmental Protection and the Maximum Permissible Exposure limits of the FCC.

VI. PROPOSED MODIFICATION NECESSARY TO PROVIDE RELIABLE SERVICE

AT&T has provided radio frequency coverage maps at **Attachment 10** which depict AT&T's existing coverage without the modifications and with the extended Monopole with antenna centerline height of 155'. AT&T needs the modifications in order to provide reliable service within this area of Willington. Though the Council does not have to find a public need for the proposed Facility as part of a ruling, the submitted coverage maps illustrates the need to provide reliable wireless services to this area of Willington.

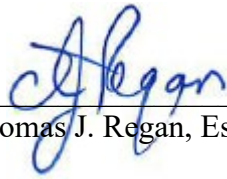
VII. NOTICE TO GOVERNMENT OFFICIALS, AGENCIES AND ABUTTING PROPERTY OWNERS

AT&T sent notice of its filing of this Petition to the appropriate state and federal government agencies. AT&T also sent notice of the filing of this Petition to municipal officials in the Town of Willington and to each abutting property owner as listed in the Town of Willington's Assessor records. In addition, AT&T sent notice to abutting property owners in the adjoining Town of Mansfield, as well as the appropriate municipal officials in the Town of Mansfield. Included as **Attachment 11** are: a certificate of service for government officials, a certificate of service for abutters, a sample notice, the list of abutters, the Town of Willington abutters map and the Town of Mansfield abutters map.

VIII. CONCLUSION

AT&T respectfully asserts that its proposed modifications will not result in any significant adverse environmental effects as specified in Section 16-50p of the Connecticut General Statutes. Furthermore, the proposed extension of the existing Monopole eliminates the need to construct an additional tower in the immediate area in keeping with Sections 16-50g and 16-50aa of the Connecticut General Statutes. For the foregoing reasons, AT&T respectfully requests that the Council determine that AT&T's proposed Facility does not require a Certificate of Environmental Compatibility and Public Need and issue an order approving AT&T's proposed wireless telecommunications facility accordingly.

Respectfully submitted,



Thomas J. Regan, Esq.

64118902 v11-WorkSiteUS-024519/1588

ATTACHMENT 1

Letter of Authorization

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION

Licensee Name: New Cingular Wireless PCS, LLC d/b/a AT&T Mobility
ATC Site No/ Name / Project: 283563 / Mansfield CT / OAA761009
Site Address: 343 Daleville Road, Willington, CT 06279
APN: WILL-000000-000000-115400

I, **MURIEL KREUSCHER / RICHARD KREUSCHER**, owners of the property identified above or duly authorized agent thereof, authorize **New Cingular Wireless PCS d/b/a AT&T Mobility**, American Tower*, their parents, subsidiaries, affiliates, successors, assigns, contractors and agents, to file and consummate such land-use or construction permit application(s) in their name as may be required by the applicable permitting authorities for **New Cingular Wireless PCS d/b/a AT&T Mobility's** proposed equipment, per the following project description:

SCOPE OF WORK: TELECOMMUNICATIONS FACILITY (NSB A EXISTING 104'-0" A.G.L. TALL MONOPOLE WITH PROPOSED 60'-0" EXTENSION. PROPOSED WALK-IN CABINET, AND GENERATOR WILL BE INSTALLED AT GRADE INSIDE AN EXISTING FENCED-IN COMPOUND. PROPOSED (3) TPA65-R-BU8DA-K, (3) DMP65R-BU8DA-K, (3) B14 4478, (3) 4449 B5/B12, (3) 8843 B2/B66A, (3) 4415 B30 & (2) SURGE ARRESTORS WILL BE INSTALLED AT A HEIGHT OF 155'-0" A.G.L.):

Signature: Muriel Kreuscher
Print Name: MURIEL KREISCHER

Signature: Richard Kreuscher
Print Name: RICHARD KREISCHER

***American Tower as used herein includes any affiliates or subsidiaries of American Tower Corporation**

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION

ATC Site No./Name/Project: 283563 / Mansfield CT / OAA761009
Site Address: 343 Daleville Road, Willington, CT 06279
APN: WILL-000000-000000-115400

I, Margaret Robinson, Senior Counsel for American Tower*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize **New Cingular Wireless PCS, LLC dba AT&T Mobility,** its successors and assigns, and/or its agent, (collectively, the "Licensee") to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for Licensee's telecommunications' installation.

We understand that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee's installation and any such conditions of approval or modifications will be Licensee's sole responsibility.

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*

NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel for American Tower*, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal, this 7th of April 2021.

NOTARY SEAL

ANGELICA R. LEMOS-BARTHELEMY
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires On
March 25, 2027

Notary Public
My Commission Expires: March 25, 2027

***American Tower includes all affiliates and subsidiaries of American Tower Corporation.**

ATTACHMENT 2

Docket No. 400 (343 Daleville Rd., Willington)
Decision & Order

DOCKET NO. 400 - Cellco Partnership d/b/a Verizon Wireless application for a Certificate of Environmental Compatibility and Public need for the construction, maintenance and operation of a telecommunications facility located at 343 Daleville Road, Willington, Connecticut.	}	Connecticut
	}	Siting
	}	Council

July 29, 2010

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, management, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Cellco Partnership d/b/a Verizon Wireless, hereinafter referred to as the Certificate Holder, for a telecommunications facility located at 343 Daleville Road, Willington, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Verizon Wireless and other entities, both public and private, but such tower shall not exceed a height of 105 feet above ground level.

2. The facility compound shall be relocated towards the south, on the flatter portion of the knoll, as depicted on the site plan dated June 10, 2010.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Willington (Town) for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
    c) development of a identification/relocation program for the wood turtle, a state species of special concern, that may be encountered during site construction.

4. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

9. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

10. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town. Any proposed modifications to this Decision and Order shall likewise be so served.

11. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

12. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

13. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

14. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Willimantic Chronicle.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
Cellco Partnership d/b/a Verizon Wireless	Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103-3597

ATTACHMENT 3

Site Plans

PROJECT INFORMATION

SCOPE OF WORK:	TELECOMMUNICATIONS FACILITY (NSB A EXISTING 104'–0" A.G.L. TALL MONOPOLE WITH PROPOSED 56'–0" EXTENSION. PROPOSED WALK–IN CABINET, AND GENERATOR WILL BE INSTALLED AT GRADE INSIDE AN EXISTING FENCED–IN COMPOUND. PROPOSED (3) TPA65–R–BU8DA–K, (3) DMP65R–BU8DA–K, (3) B14 4478, (3) 4449 B5/B12, (3) 8843 B2/B66A, (3) 4415 B30 & (2) SURGE ARRESTORS WILL BE INSTALLED AT A HEIGHT OF 155'–0" A.G.L.):
SITE ADDRESS:	343 DALEVILLE ROAD WILLINGTON, CT 06279
APPLICANT:	AT&T 550 COCHITUATE ROAD FRAMINGHAM, MA 01701
SITE OWNER:	KREUSCHER MURIEL & RICHARD 343 DALEVILLE RD WILLINGTON, CT 06279
LATITUDE:	41.836606 N, 41° 50' 11.7" N
LONGITUDE:	72.254976 W, 72° 15' 17.9" W
TYPE OF SITE:	MONOPOLE/ WALK–IN CABINET
EXISTING TOWER HEIGHT:	104'–0"±
TOWER HEIGHT WITH PROPOSED EXTENSION:	160'–0"±
RAD CENTER:	155'–0"±
APPLICABLE CODES:	ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE CT STATE BUILDING CODE, NATIONAL ELECTRIC CODE (NEC 2017), ANSI/EIA/TIA–222 H & COMPLY WITH AT&T MOBILITY SPECIFICATIONS

SITE NUMBER: CT1377

SITE NAME: WILLINGTON DALEVILLE ROAD

FA CODE:13935188

PACE ID: MRCTB048935

PROJECT: NSB

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	2
GN–1	GENERAL NOTES	2
SN–1	SPECIAL INSPECTIONS NOTES	2
C–1	ABUTTERS PLAN	2
A–1	COMPOUND & EQUIPMENT PLANS	2
A–2	ANTENNA LAYOUT & ELEVATIONS	2
A–3	DETAILS	2
A–4	DETAILS	2
A–5	DETAILS	2
E–1	ELECTRICAL NOTES & ONE–LINE DIAGRAM	2
G–1	GROUNDING DETAILS	2
RF–1	RF PLUMBING DIAGRAM	2

ATC SITE NAME: MANSFIELD CT
ATC SITE #: 283563

VICINITY MAP

DIRECTIONS TO SITE:
GET ON I–90 W, HEAD NORTHWEST TOWARD LEGGATT MCCALL CONN, TURN LEFT ONTO LEGGATT MCCALL CONN, CONTINUE ONTO BURR ST, TURN LEFT ONTO COCHITUATE RD, USE THE RIGHT LANE TO MERGE ONTO I–90 W VIA THE RAMP TO SPRINGFIELD, (TOLL ROAD), FOLLOW I–90 W AND I–84 TO CT–320 S IN WILLINGTON. TAKE EXIT 71 FROM I–84, MERGE ONTO I–90 W, (TOLL ROAD), USE THE RIGHT 2 LANES TO TAKE EXIT 9 FOR I–84 TOWARD HARTFORD CT/NEW YORK CITY, (TOLL ROAD), CONTINUE ONTO I–84, (TOLL ROAD), ENTERING CONNECTICUT, TAKE EXIT 71 FOR CT–320 TOWARD RUBY RD, CONTINUE ON CT–320 S. TAKE ELDREDGE RD TO DALEVILLE RD, TURN LEFT ONTO CT–320 S, TURN LEFT TO STAY ON CT–320 S, TURN RIGHT TO STAY ON CT–320 S, TURN LEFT ONTO CT–320 S/CT–74 E, TURN RIGHT ONTO CT–320 S, TURN LEFT ONTO ELDREDGE RD, TURN RIGHT ONTO MARCO RD, CONTINUE ONTO DALEVILLE RD, DESTINATION WILL BE ON THE LEFT

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

UNDERGROUND SERVICE ALERT

811 DigSafe MA·ME·NH·RI·VT

WWW.DIGSAFE.COM
72 HOURS PRIOR

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1377
SITE NAME: WILLINGTON DALEVILLE ROAD

343 DALEVILLE ROAD
WILLINGTON, CT 06279
TOLLAND COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/21/21	ISSUED FOR CONSTRUCTION	VP	JC	DPH
1	03/25/21	ISSUED FOR REVIEW	AR	JC	DPH
0	02/12/21	ISSUED FOR REVIEW	AR	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: AR

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

AT&T

TITLE SHEET
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	T–1	2

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: AR

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

AT&T

GENERAL NOTES
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	GN-1	2

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
REQUIRED	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
REQUIRED	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

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SITE NAME: WILLINGTON DALEVILLE ROAD

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TOLLAND COUNTY

at&t
550 COCHITUATE ROAD
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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: AR

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

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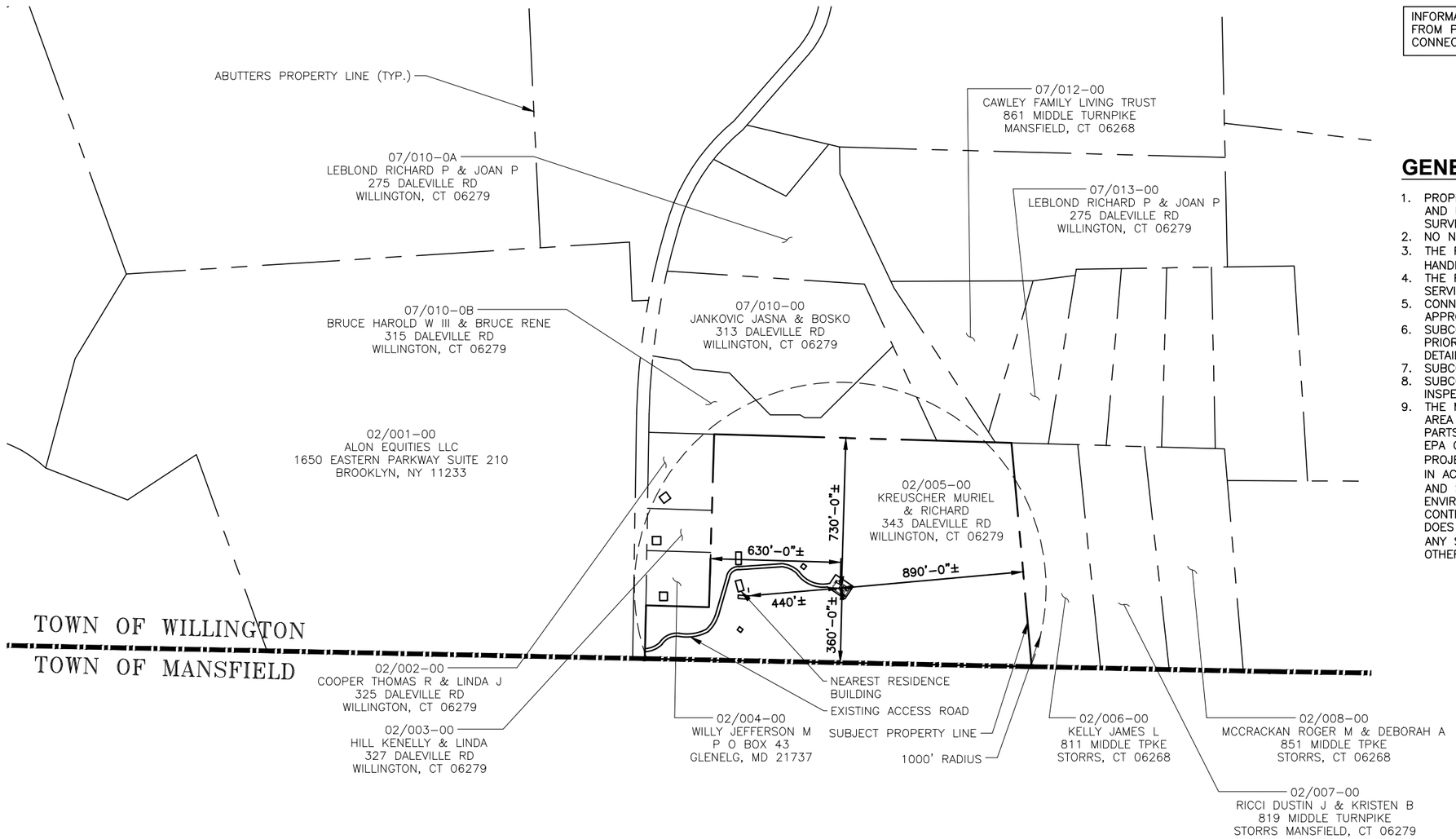
SPECIAL INSPECTIONS NOTES (NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	SN-1	2



INFORMATION TAKEN FROM PLANS BY CONNECTICUT GIS

ZONING INFORMATION		
ZONING DISTRICT:	R–80: RESIDENTIAL	
DIMENSIONS REQUIREMENTS:	REQUIRED	PROPOSED
ANTENNA SETBACKS		
FRONT YARD SETBACK:	200'	630'±
SIDE YARD SETBACK:	200'	360± & 730'±
REAR YARD SETBACK:	200'	890'±
(ALL MEASUREMENTS ARE IN FEET ± UNLESS OTHERWISE NOTED) (SETBACK TO EXISTING EQUIPMENT SHELTER UNLESS OTHERWISE NOTED)		

GENERAL NOTES:

1. PROPERTY LINE INFORMATION (WHEN APPLICABLE) WAS PREPARED USING TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUCTED AS A BOUNDARY SURVEY.
2. NO NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
3. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (THERE IS NO HANDICAP ACCESS REQUIRED).
4. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
5. CONNECTION TO ELECTRICAL & TELEPHONE UTILITIES TO BE DETERMINED BY THE APPROPRIATE UTILITY COMPANY.
6. SUBCONTRACTOR TO VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEER PRIOR TO INSTALLATION. SEE ANTENNA CONFIGURATION SHEETS FOR SITE SPECIFIC DETAILS.
7. SUBCONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
8. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION.
9. THE MAXIMUM AREA OF DISTURBANCE IS LESS THAN 1 ACRE. THE PROJECT IMPACT AREA IS BELOW THE EXEMPTION THRESHOLD OF 43,560 SQUARE FEET IN 40 CFR PARTS 9, 122–124 AND THEREFORE IS NOT SUBJECT TO REGULATION UNDER THE EPA OR STATE–MANAGED NPDES GENERAL CONSTRUCTION PERMIT PROGRAM. THE PROJECT OWNER'S GENERAL CONTRACTOR SHALL CONDUCT ALL SITE DEVELOPMENT IN ACCORDANCE WITH THE "LOW RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL" ISSUED BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION. ADDITIONALLY, THE PROJECT OWNERS GENERAL CONTRACTOR SHALL CONDUCT ALL CONSTRUCTION ACTIVITIES IN A MANNER THAT DOES NOT RESULT IN STORM WATER DISCHARGES WITH AN ADVERSE IMPACT ON ANY STORM WATER COLLECTION/CONVEYANCE SYSTEM, WETLAND, WATER BODY, OR OTHER WATER RESOURCE AREAS.

LIST OF HOMES WITHIN 1,000 FEET RADIUS			
PARCEL ID	QTY	PARCEL ID	QTY
02/002–00	1	02/004–00	1
02/003–00	1	02/005–00	1
TOTAL: 4			

ABUTTERS PLAN (1 / C–1)
22x34 SCALE: 1"=300'
11x17 SCALE: 1"=600'

0 150' 300' 600' 900'

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SPECIAL INSPECTIONS NOTES
(NSB)

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NOTE:

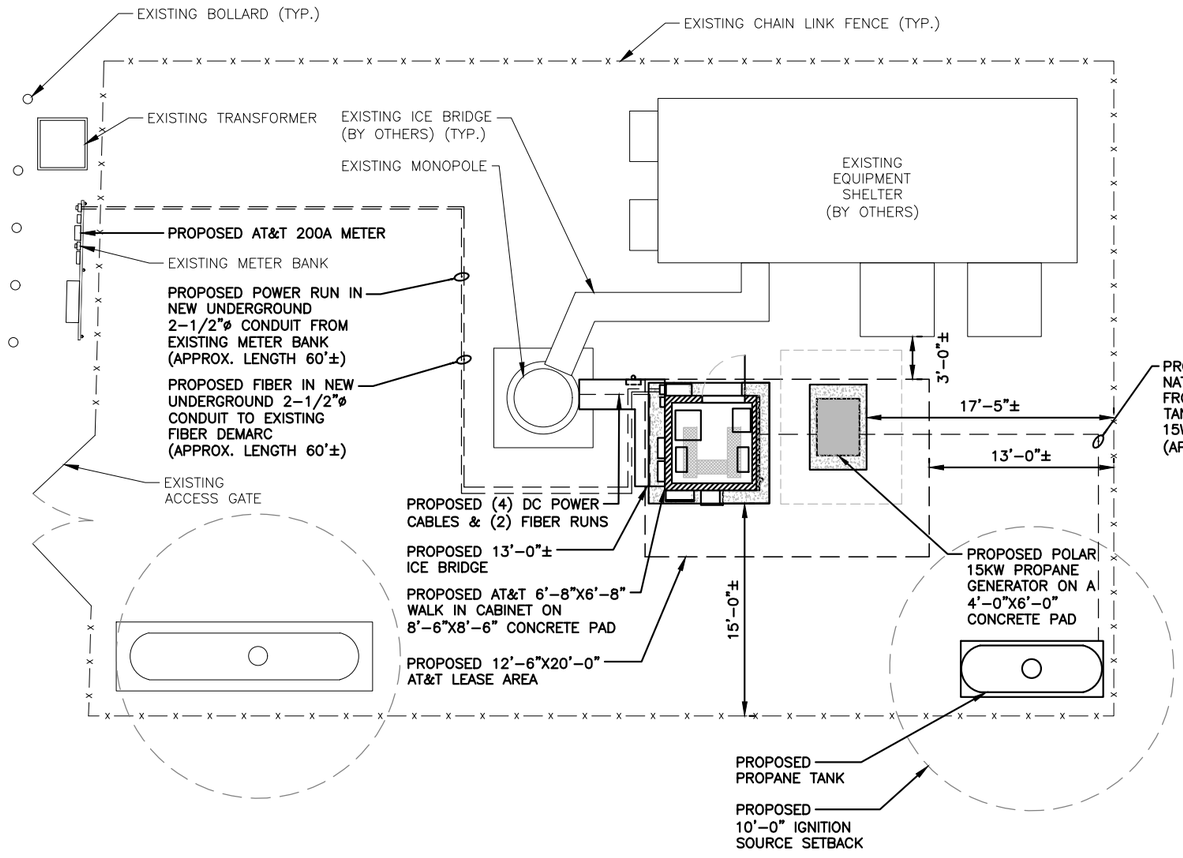
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

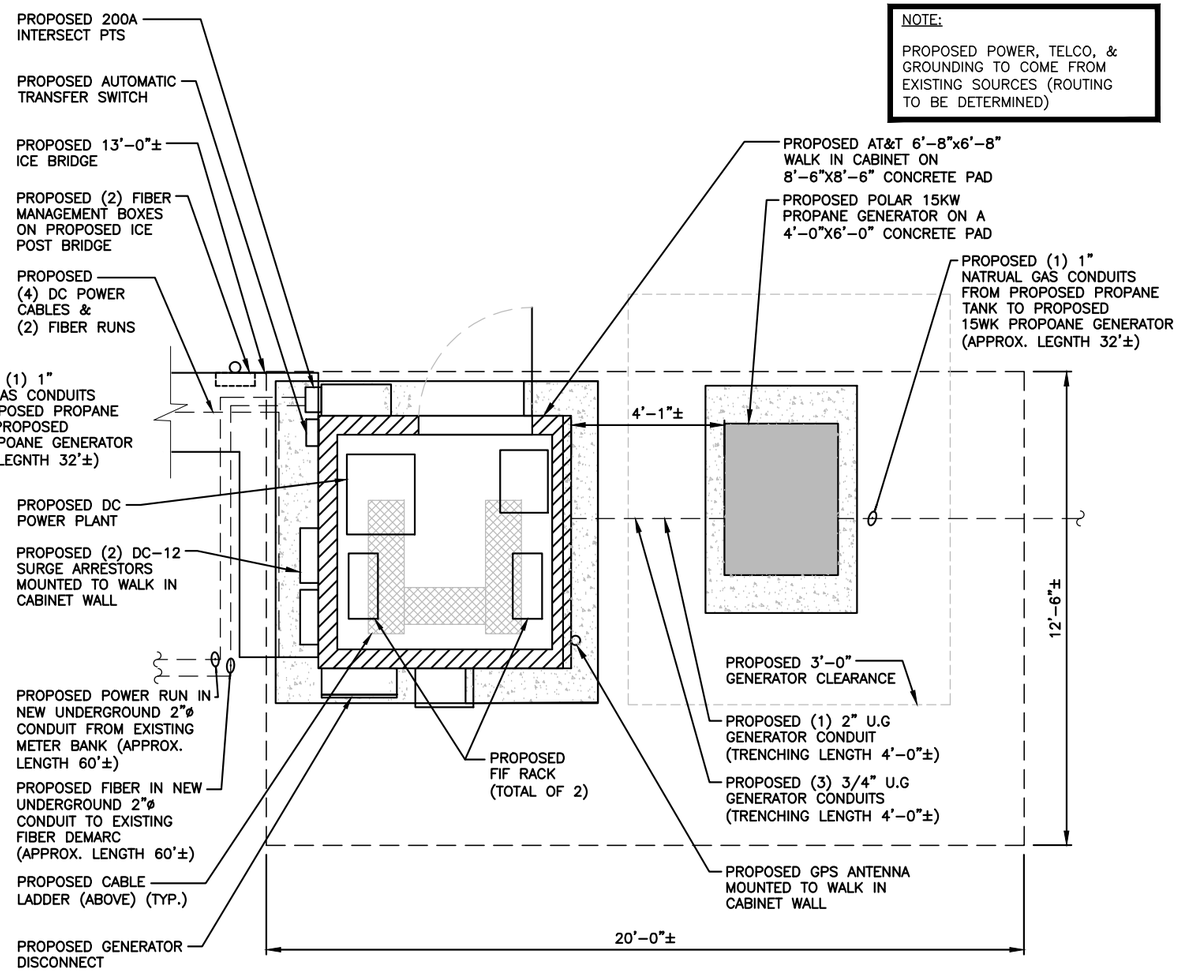
NOTE:

REFER TO STRUCTURAL ANALYSIS BY: AMERICAN TOWER CORPORATION DATED: DECEMBER 04, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

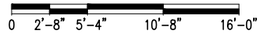
NOTE:

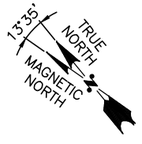
PROPOSED POWER, TELCO, & GROUNDING TO COME FROM EXISTING SOURCES (ROUTING TO BE DETERMINED)





COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"





EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

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SITE NAME: WILLINGTON DALEVILLE ROAD

343 DALEVILLE ROAD
WILLINGTON, CT 06279
TOLLAND COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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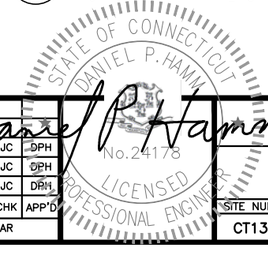
SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: AR



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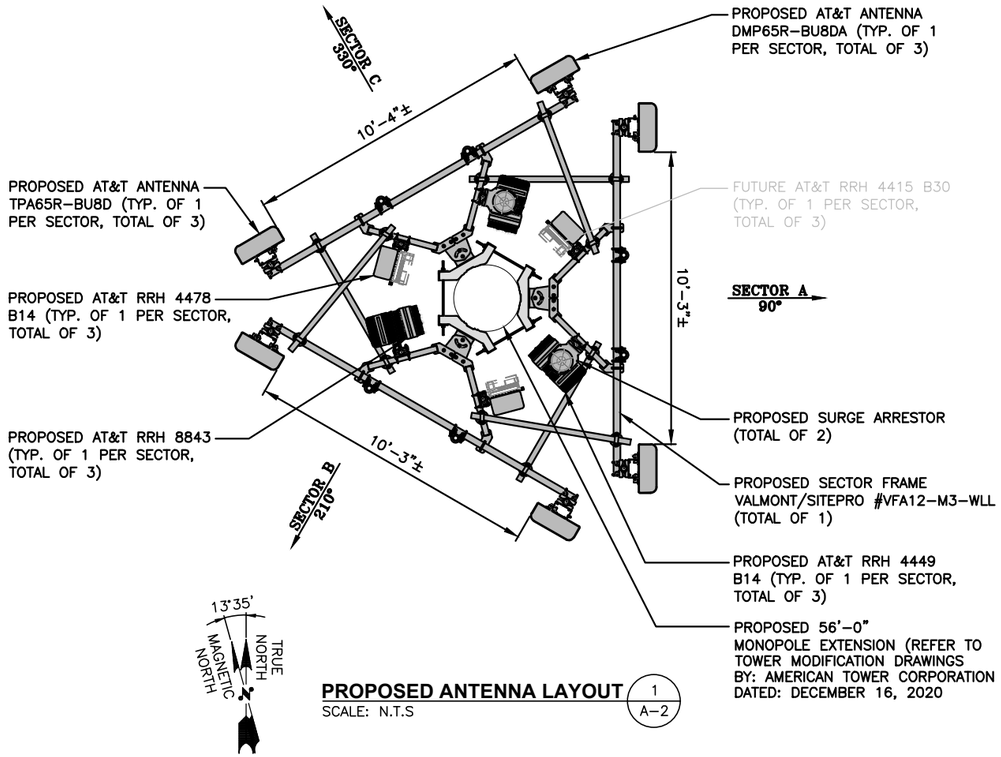
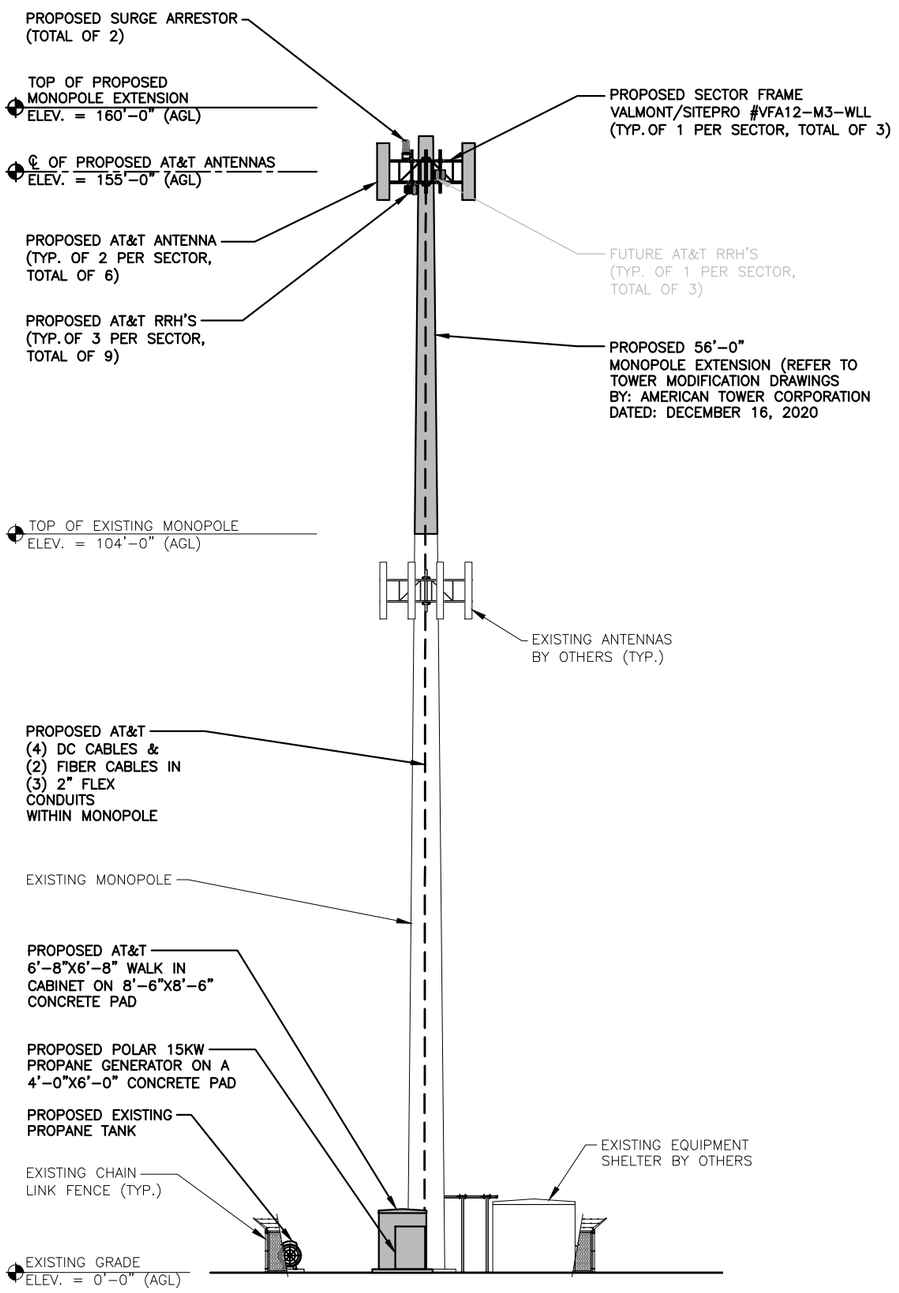
COMPOUND & EQUIPMENT PLANS (NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	A-1	2



PROPOSED ANTENNA LAYOUT (1 / A-2)
SCALE: N.T.S



ELEVATION (2 / A-2)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"
0 4'-0" 8'-0" 16'-0" 24'-0"

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: DECEMBER 14, 2020

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

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: AMERICAN TOWER CORPORATION DATED: DECEMBER 04, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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

HUDSON Design Group LLC
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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: AR

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ANTENNA LAYOUT & ELEVATIONS (NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	A-2	2

NOTE:

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DATED: DECEMBER 14, 2020

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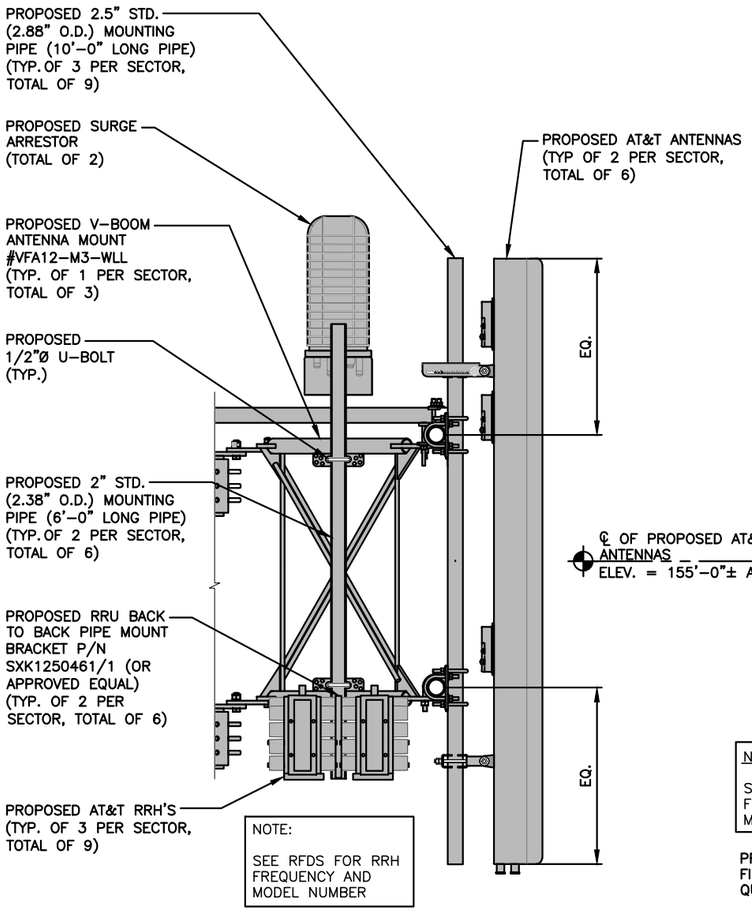


PROPOSED SECTOR FRAME, ANTENNA,SURGE SUPPRESSOR & RRH'S MOUNTING DETAIL (2 / A-3)
SCALE: N.T.S

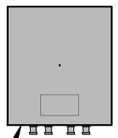
ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	PROPOSED	LTE B14/AWS/WCS	TPA65R-BU8DA-K	96X21X7.8	155'-0"	90°	(P) (1) B14 4478 (F) (1) 4415 B30	18.1X13.4X8.31 6.5X13.4X5.9	(4) DC POWER (2) FIBER RUNS	(P) (1) RAYCAP DC6-48-60-18-8C-EV (P) (1) RAYCAP DC9-48-60-24-8C-EV
A2	PROPOSED	LTE 700BC/850/PCS	DMP65R-BU8DA-K	96X20.7X7.7	155'-0"	90°	(P) (1) 4449 B5/B12 (P) (1) 8843 B2/B66A	14.9X13.2X10.4 14.9X13.2X10.9		
A3	–	–	–	–	–	–	–	–		
A4	–	–	–	–	–	–	–	–		
B1	PROPOSED	LTE B14/AWS/WCS	TPA65R-BU8DA-K	96X21X7.8	155'-0"	210°	(P) (1) B14 4478 (F) (1) 4415 B30	18.1X13.4X8.31 6.5X13.4X5.9		
B2	PROPOSED	LTE 700BC/850/PCS	DMP65R-BU8DA-K	96X20.7X7.7	155'-0"	210°	(P) (1) 4449 B5/B12 (P) (1) 8843 B2/B66A	14.9X13.2X10.4 14.9X13.2X10.9		
B3	–	–	–	–	–	–	–	–		
B4	–	–	–	–	–	–	–	–		
C1	PROPOSED	LTE B14/AWS/WCS	TPA65R-BU8DA-K	96X21X7.8	155'-0"	330°	(P) (1) B14 4478 (F) (1) 4415 B30	18.1X13.4X8.31 6.5X13.4X5.9		
C2	PROPOSED	LTE 700BC/850/PCS	DMP65R-BU8DA-K	96X20.7X7.7	155'-0"	330°	(P) (1) 4449 B5/B12 (P) (1) 8843 B2/B66A	14.9X13.2X10.4 14.9X13.2X10.9		
C3	–	–	–	–	–	–	–	–		
C4	–	–	–	–	–	–	–	–		

FINAL ANTENNA SCHEDULE (1 / A-3)
SCALE: N.T.S

NOTE:

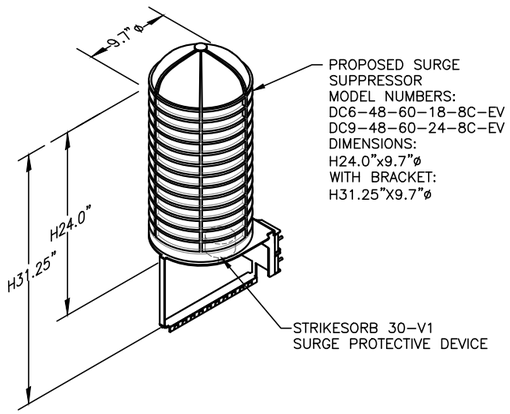
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

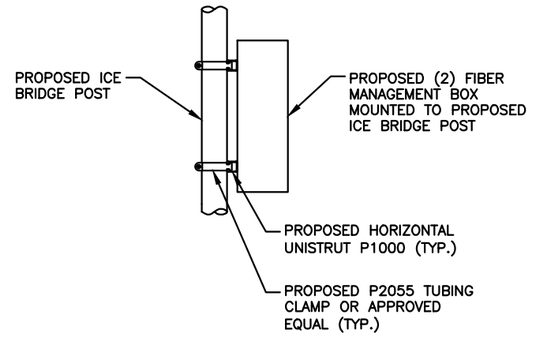
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (3 / A-3)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (4 / A-3)
SCALE: N.T.S



PROPOSED FIBER MANAGEMENT BOX MOUNTING DETAIL (5 / A-3)
SCALE: N.T.S

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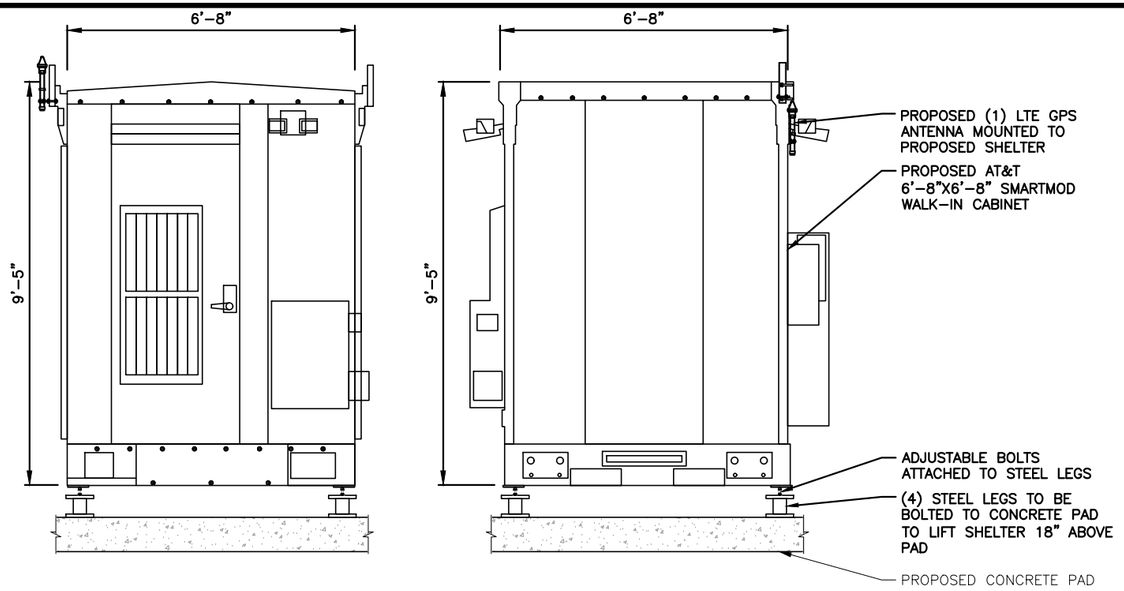
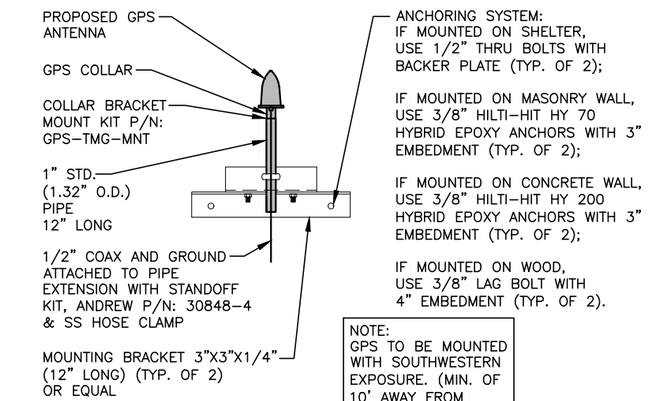
DETAILS
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	A-3	2

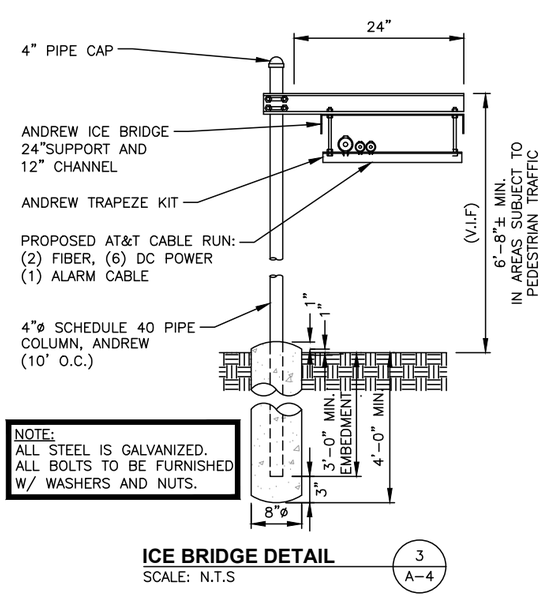


NOTE:
SHELTER SHALL BE MOUNTED PER MANUFACTURER'S SPECIFICATIONS.

TYPICAL SHELTER DETAIL 1 / A-4
SCALE: N.T.S



GPS MOUNTING DETAIL 2 / A-4
22x34 SCALE: N.T.S

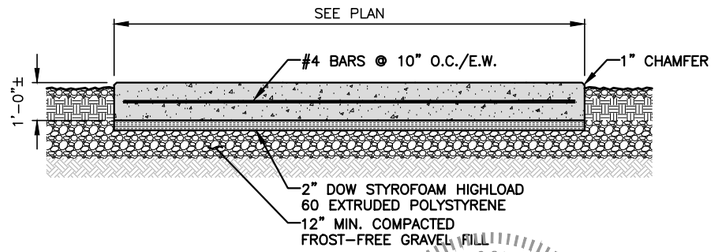


NOTE:
ALL STEEL IS GALVANIZED.
ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.

ICE BRIDGE DETAIL 3 / A-4
SCALE: N.T.S

FOUNDATION NOTES & CONCRETE SPECIFICATIONS:

1. FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
2. UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
3. CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=4000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%)
4. REINFORCING BAR TO BE ASTM A615 GRADE 60.
5. WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.
6. COORDINATE WITH MANUFACTURER OF PREFABRICATED SHELTER FOR LOCATION OF ATTACHMENTS TO BASE SLAB.
7. ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
8. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 AND APPLICABLE STATE BUILDING CODE.



CONCRETE PAD DETAIL 4 / A-4
22x34 SCALE: N.T.S

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

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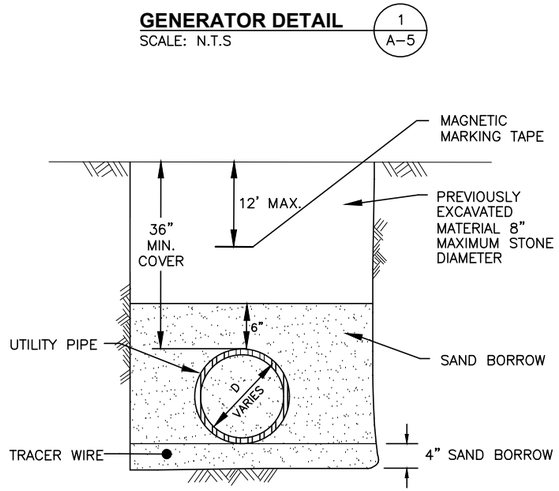
DETAILS
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	A-4	2

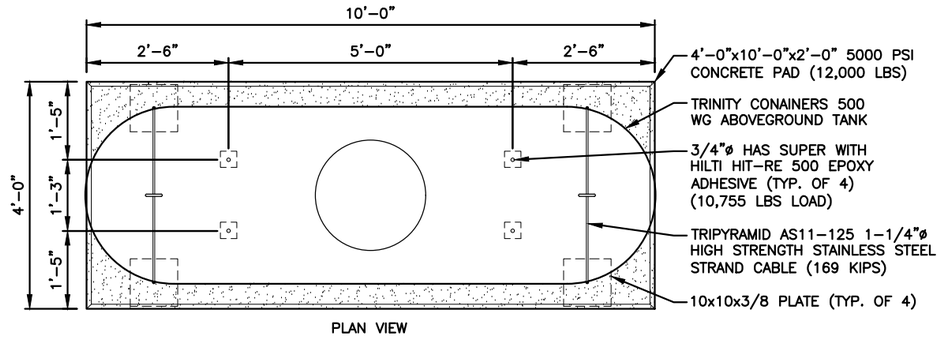
PROPOSED POLAR 15KW PROPANE GENERATOR
MODEL#: 8340-100-LP-15-03

GENERATOR DETAIL (1 / A-5)
SCALE: N.T.S

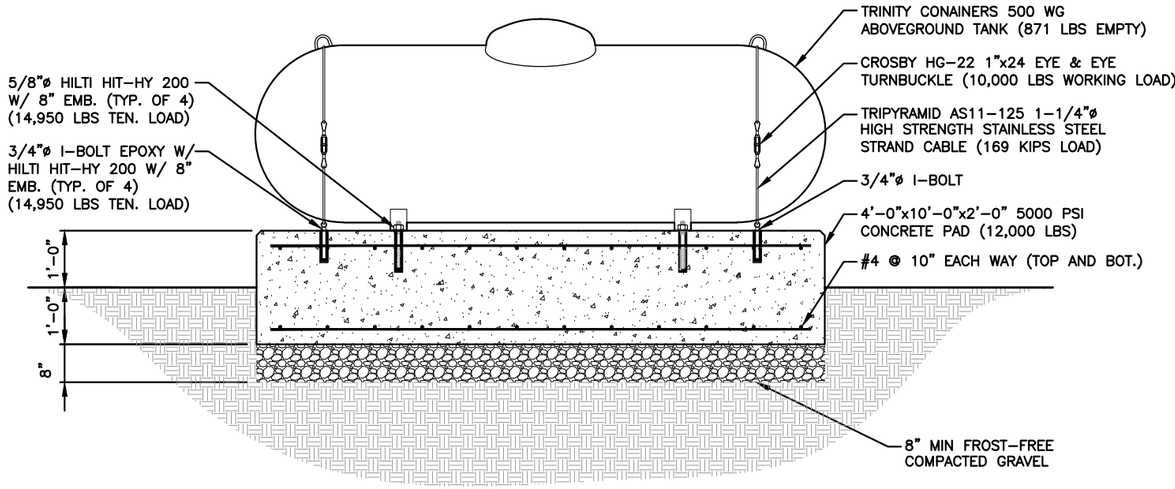


NOTES: 1 COMPACT ALL BACKFILL MATERIAL WITH VIBRATORY PLATE EQUIPMENT (MINIMUM TWO PASSES) TO A MINIMUM DENSITY OF 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698. 2 PLACE BACKFILL MATERIALS IN MAXIMUM ONE FOOT LIFTS.

GAS PIPING TRENCH SECTION (2 / A-5)
SCALE: N.T.S



PLAN VIEW



ELEVATION VIEW

PROPANE TANK MOUNTING (3 / A-5)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

GRAPHIC SCALE
0 8" 1'-4" 2'-8" 4'-0"

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DETAILS
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
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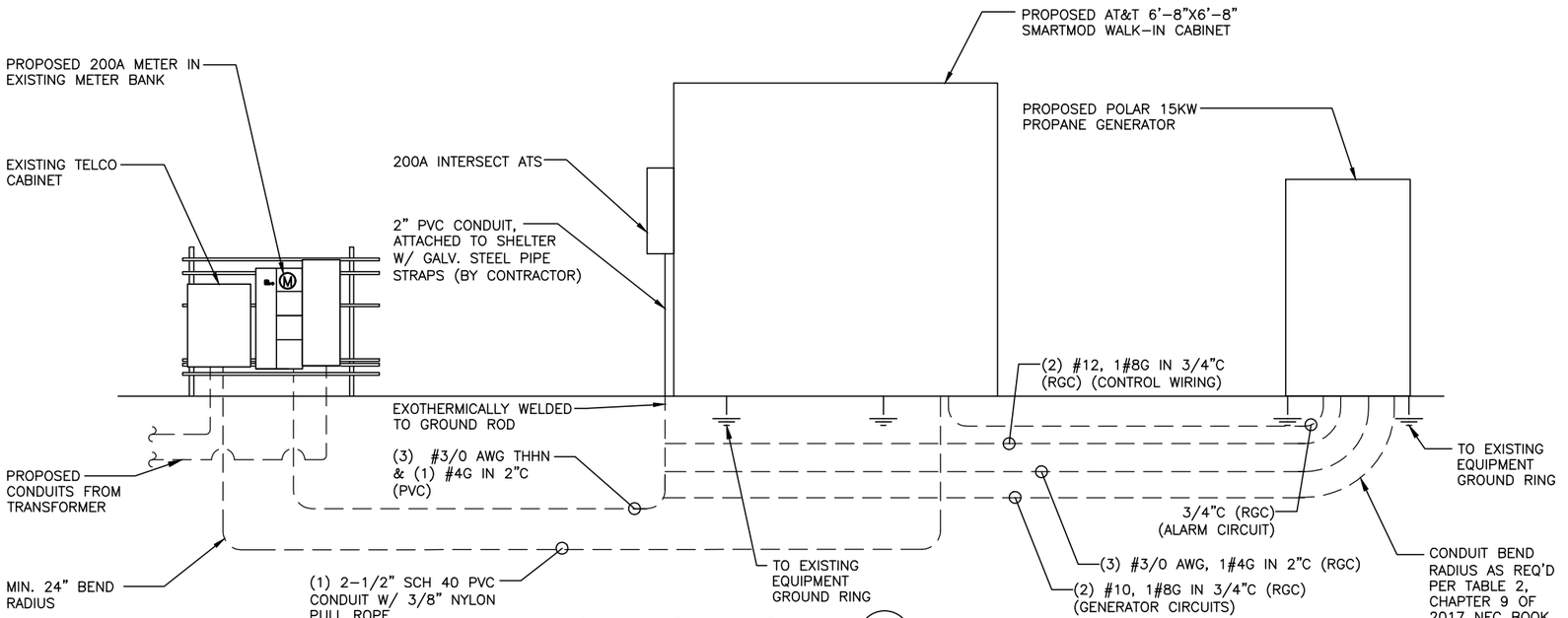
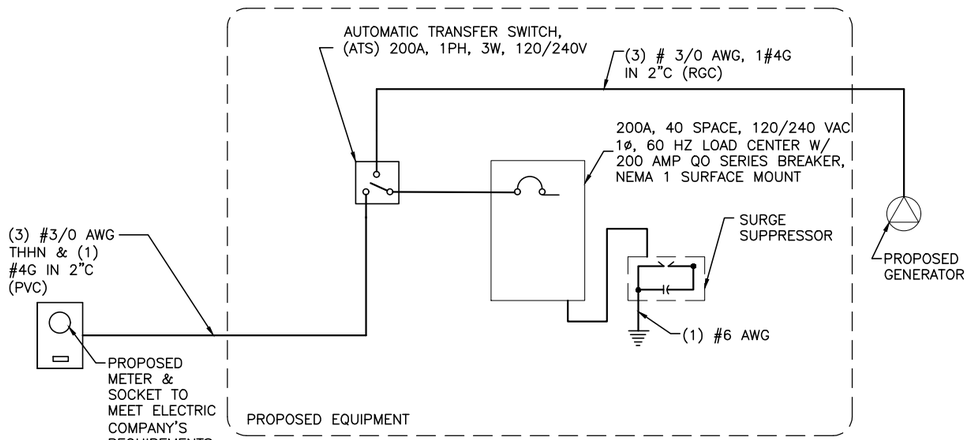
NOTES:

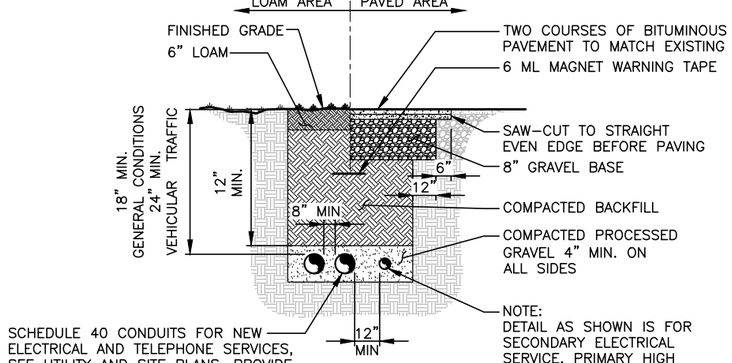
1. GROUND [ATS] TO EXISTING GROUND BAR
2. GROUND GENERATOR TO EXISTING GROUND RING WITH (2) #2 AWG GROUND WIRES.



GENERATOR WIRING DETAIL (1 / E-1)
SCALE: N.T.S



TYPICAL ONE-LINE DIAGRAM (2 / E-1)
SCALE: N.T.S



INSTALL (2) PULL STRINGS AND CAP THE TELCO CONDUITS INSIDE THE VAULT AND MESA CABINET TO AVOID WATER/ICE FILL UP.

BURIED CONDUIT DETAIL (3 / E-1)
SCALE: N.T.S

ELECTRICAL LEGEND & ABBREVIATIONS

	NEW PANEL BOARD, SURFACE MOUNTED
	EXISTING PANEL BOARD, SURFACE MOUNTED
T	DRY TYPE TRANSFORMER
M	METER
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
F	FUSIBLE DISCONNECT SWITCH, MOUNTED 54"A.F.F.
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR WITH BUILT-IN FUSES, SURFACE MOUNTED
	DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
J	JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
	EXPOSED WIRING
	HOME RUNS, MINIMUM 2#10 + 1#8G IN 3/4" CONDUIT U.O.N.
A.F.F.	ABOVE FINISHED FLOOR
U.O.N.	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF
GFI	GROUND FAULT INTERRUPTER
A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
PVC	POLYVINYL CHLORIDE
HZ	HERTZ
PH, ø	PHASE
W	WATTS
NEC	NATIONAL ELECTRIC CODE
PPC	POWER PROTECTION CABINET
UL	UNDERWRITER LABORATORIES
PTS	POWER TRANSFER SWITCH
QO	QUICK OPEN
GRC	GALVANIZED RIGID CONDUIT
G	GROUND
	GROUND
MGB	MASTER GROUND BAR — ○ MECHANICAL CONNECTION ● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
G	GROUND COPPER WIRE, SIZE AS NOTED
	EXPOSED WIRING
	COAXIAL CABLE
	5/8"x8" COPPER CLAD STAINLESS STEEL GROUND ROD
	● EXOTHERMIC (CAD WELD) OR ○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PF	POWER FACTOR

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250.
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
21. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
22. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
23. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
24. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL, MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1377
SITE NAME: WILLINGTON DALEVILLE ROAD

343 DALEVILLE ROAD
WILLINGTON, CT 06279
TOLLAND COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/21/21	ISSUED FOR CONSTRUCTION	VP	JC	DPH
1	03/25/21	ISSUED FOR REVIEW	AR	JC	DPH
0	02/12/21	ISSUED FOR REVIEW	AR	JC	DPH

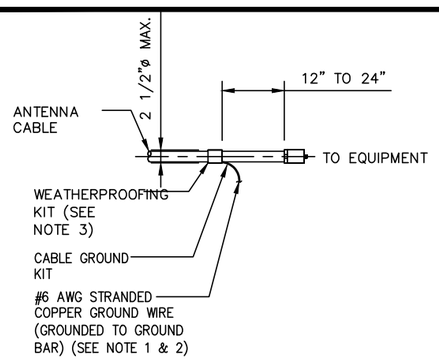
SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: AR

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

AT&T

ELECTRICAL NOTES & ONE-LINE DIAGRAM (NSB)

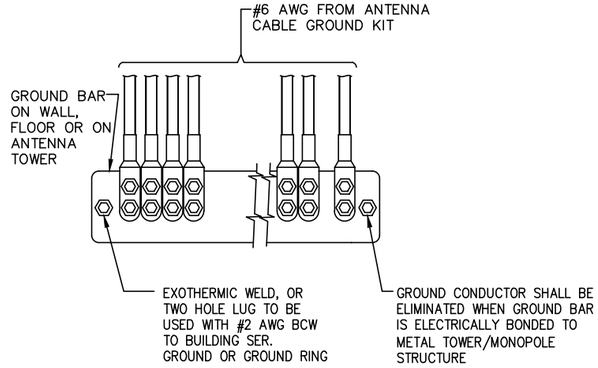
SITE NUMBER	DRAWING NUMBER	REV
CT1377	E-1	2



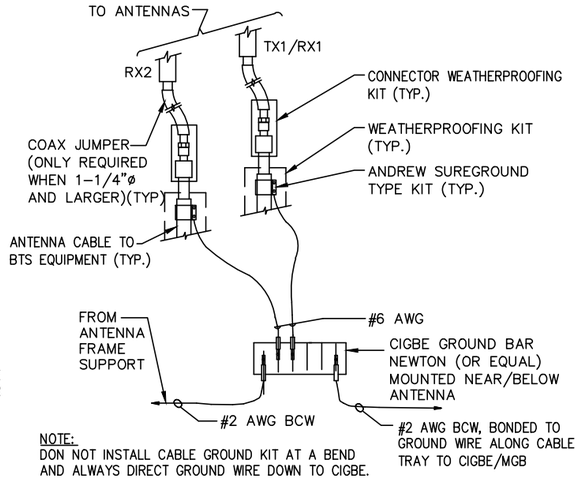
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE 1 G-1
SCALE: N.T.S



INSTALLATION OF GROUND WIRE TO GROUND BAR 2 G-1
SCALE: N.T.S



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

INSTALLATION OF GROUND WIRE TO GROUNDING BAR TOWER 3 G-1
SCALE: N.T.S

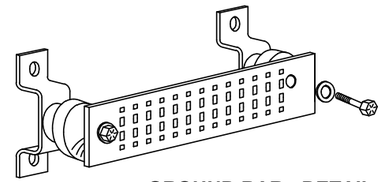
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

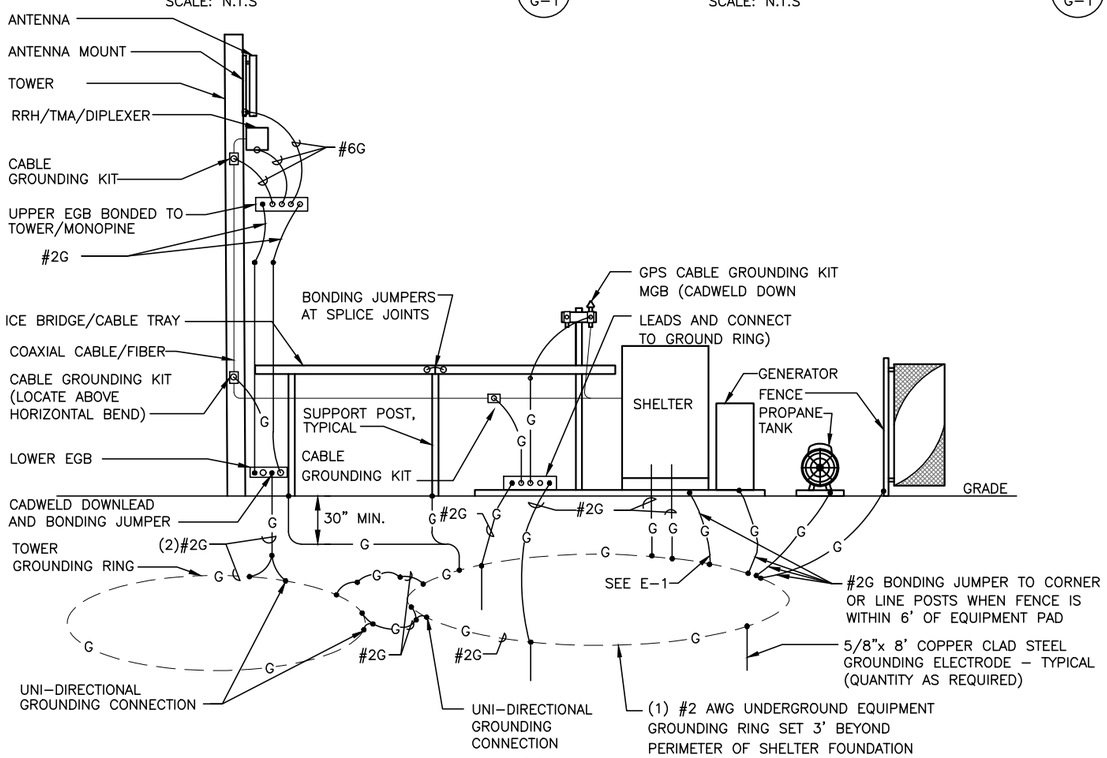
CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

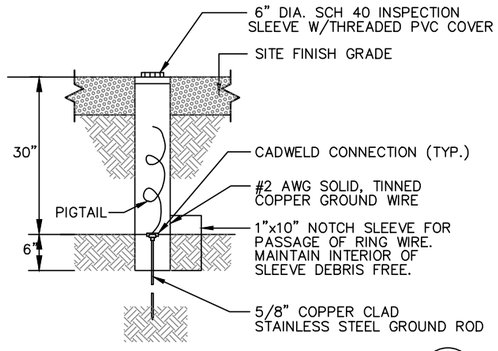
INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



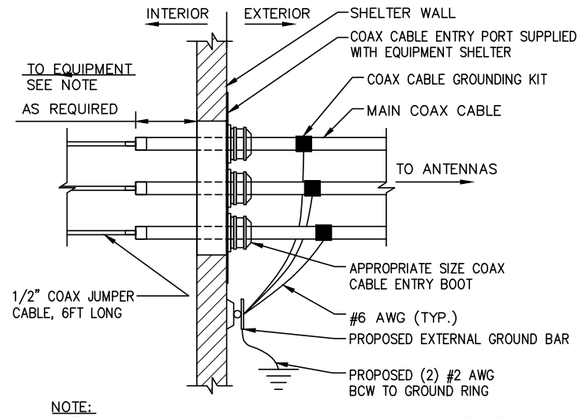
GROUND BAR - DETAIL 4 G-1
SCALE: N.T.S



GROUNDING ONE-LINE DIAGRAM 5 G-1
SCALE: N.T.S



GROUND ROD TEST WELL DETAIL 6 G-1
SCALE: N.T.S



NOTE:
EXTEND MAIN COAXIAL CABLE AS CLOSE AS POSSIBLE TO BTS EQUIPMENT. MAX LENGTH OF BTS JUMPER IS 6 FT.

INSTALLATION OF GROUND WIRE TO GROUND BAR 7 G-1
SCALE: N.T.S

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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TEL: (978) 557-5553
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SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1377
SITE NAME: WILLINGTON DALEVILLE ROAD

343 DALEVILLE ROAD
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TOLLAND COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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1	03/25/21	ISSUED FOR REVIEW	AR	JC	DPH
0	02/12/21	ISSUED FOR REVIEW	AR	JC	DPH

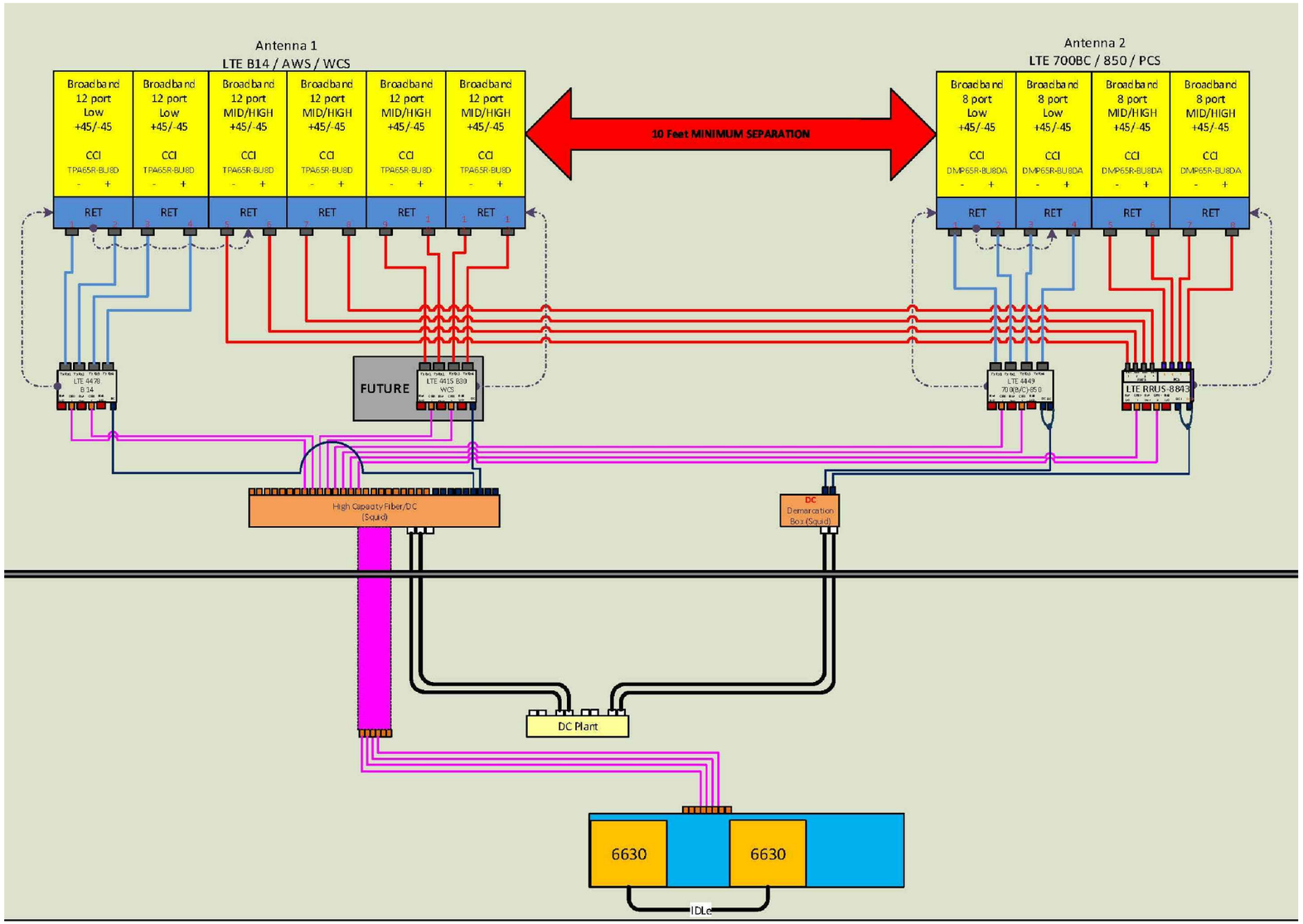
SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: AR

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

AT&T

GROUNDING DETAILS
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	G-1	2



RF PLUMBING DIAGRAM 1 / RF–1
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

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

HUDSON Design Group LLC
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NORTH ANDOVER, MA 01845
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12 INDUSTRIAL WAY
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SITE NUMBER: CT1377
SITE NAME: WILLINGTON DALEVILLE ROAD

343 DALEVILLE ROAD
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0	02/12/21	ISSUED FOR REVIEW	AR	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: AR

AT&T

RF PLUMBING DIAGRAM
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1377	RF–1	2

ATTACHMENT 4

Structural Report

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**104 ft Monopole with Proposed 56 Ft Extension**
ATC Site Name	:	**MANSFIELD CT, CT**
ATC Asset Number	:	**283563**
Engineering Number	:	**OAA761009_C3_03**
Proposed Carrier	:	**AT&T MOBILITY**
Carrier Site Name	:	**WILLINGTON DALEVILLE ROAD**
Carrier Site Number	:	**CT1377**
Site Location	:	**343 Daleville Road** **Willington, CT 06279-2014** **41.836600,-72.255000**
County	:	**Tolland**
Date	:	**December 4, 2020**
Max Usage	:	**58%**
Result	:	**Pass**

Prepared By:
Thomas Pham
Structural Engineer I

Reviewed By:

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 104 ft monopole with proposed 56 ft extension to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	TransAmerican Order #TP-11556, dated August 1, 2013
Foundation Drawing	TransAmerican Job #23513-0339, dated July 30, 2013
Geotechnical Report	Design Eart Technology Job #2010-11, dated September 10, 2010

Analysis

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

Basic Wind Speed:	119 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1 1/2" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.05
Site Class:	D - Stiff Soil

Conclusion

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

- Proposed extension to be designed in a future service by ATC

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
96.0	3	Alcatel-Lucent RRH2x40-AWS	Low Profile Platform	(18) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	6	Antel BXA-171063/12CF			
	6	Antel BXA-70063/6CF_			
	3	Alcatel-Lucent RRH2x40 (700)			
	1	RFS DB-T1-6Z-8AB-0Z			
50.0	1	Generic 2" x 8" GPS	Flush	-	

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
155.0	3	Ericsson RRUS 8843 B2, B66A	Sector Frame	(2) 0.40" (10.3mm) Fiber (4) 0.92" (23.4mm) Cable (3) 2" conduit	AT&T MOBILITY
	3	Ericsson RRUS 4415 B30			
	3	Ericsson RRUS 4449 B5, B12			
	3	Ericsson RRUS 4478 B14			
	1	Raycap DC6-48-60-18-8C-EV			
	1	Raycap DC9-48-60-24-8C-EV			
	3	CCI DMP65R-BU8D			
	3	CCI TPA65R-BU8D			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	47%	Pass
Shaft	58%	Pass
Base Plate	21%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,709.8	31%
Axial (Kips)	34.6	17%
Shear (Kips)	16.7	17%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
155.0	Ericsson RRUS 8843 B2, B66A	AT&T MOBILITY	1.616	1.076
	Ericsson RRUS 4415 B30			
	Ericsson RRUS 4449 B5, B12			
	Ericsson RRUS 4478 B14			
	Raycap DC6-48-60-18-8C-EV			
	Raycap DC9-48-60-24-8C-EV			
	CCI DMP65R-BU8D			
	CCI TPA65R-BU8D			

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

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Standard Conditions

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

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

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

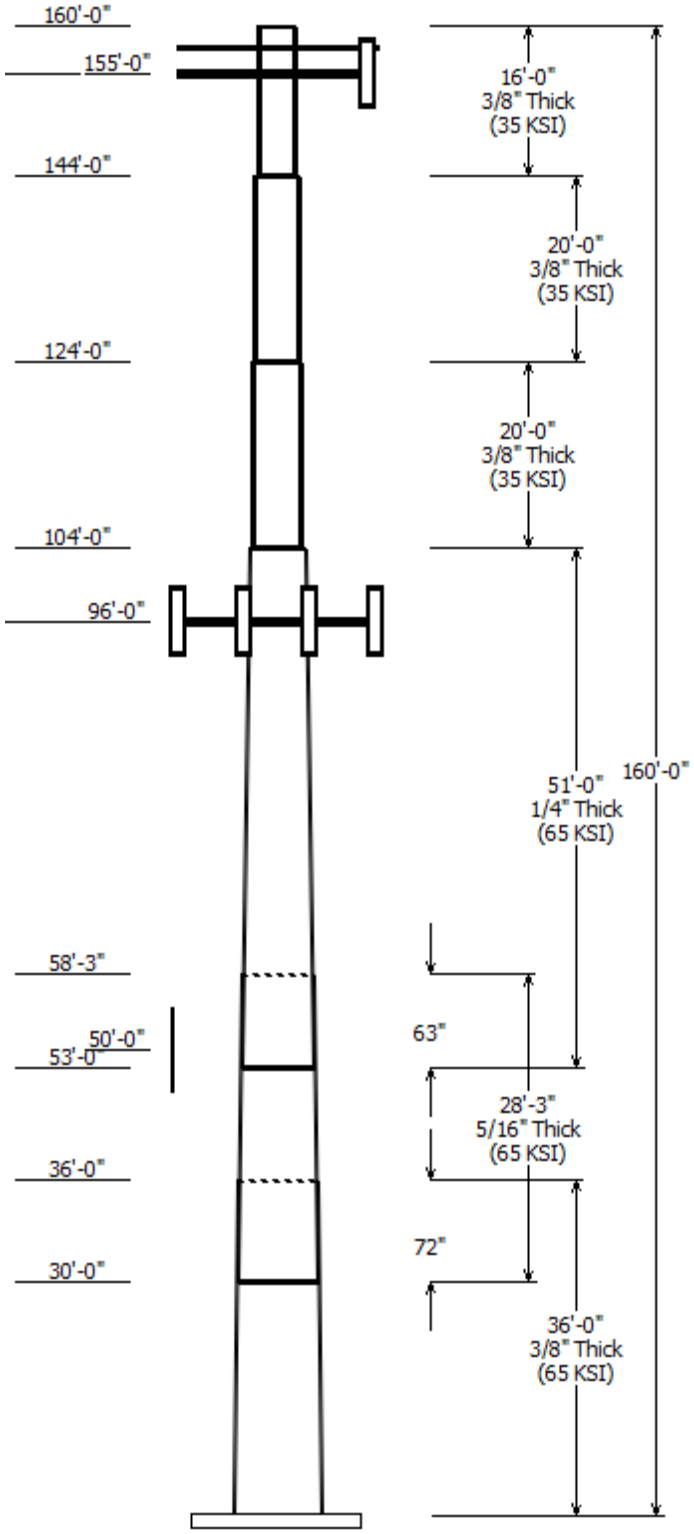
All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

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

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

Job Information

Client :	AT&T MOBILITY		
Pole :	283563	Code:	ANSI/TIA-222-H
Location :	MANSFIELD CT, CT		
Description :	104 ft TransAmerican Monopole with Proposed 60 Ft Extension	Risk Category :	II
Shape :	18 Sides	Exposure :	B
Height :	160.00 (ft)	Topo Method :	Method 1
Base Elev (ft):	0.00	Topographic Category :	1
Taper:	0.202644 (in/ft)		



Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Steel Grade Shape	(ksi)
1	36.000	40.70	48.00	0.375		0.000	18 Sides	65
2	28.250	36.82	42.54	0.313	Slip Joint	72.000	18 Sides	65
3	51.000	28.05	38.38	0.250	Slip Joint	63.000	18 Sides	65
4	20.000	26.00	26.00	0.375	Butt Joint	0.000	Round	35
5	20.000	24.00	24.00	0.375	Butt Joint	0.000	Round	35
6	16.000	20.00	20.00	0.375	Butt Joint	0.000	Round	35

Discrete Appurtenance

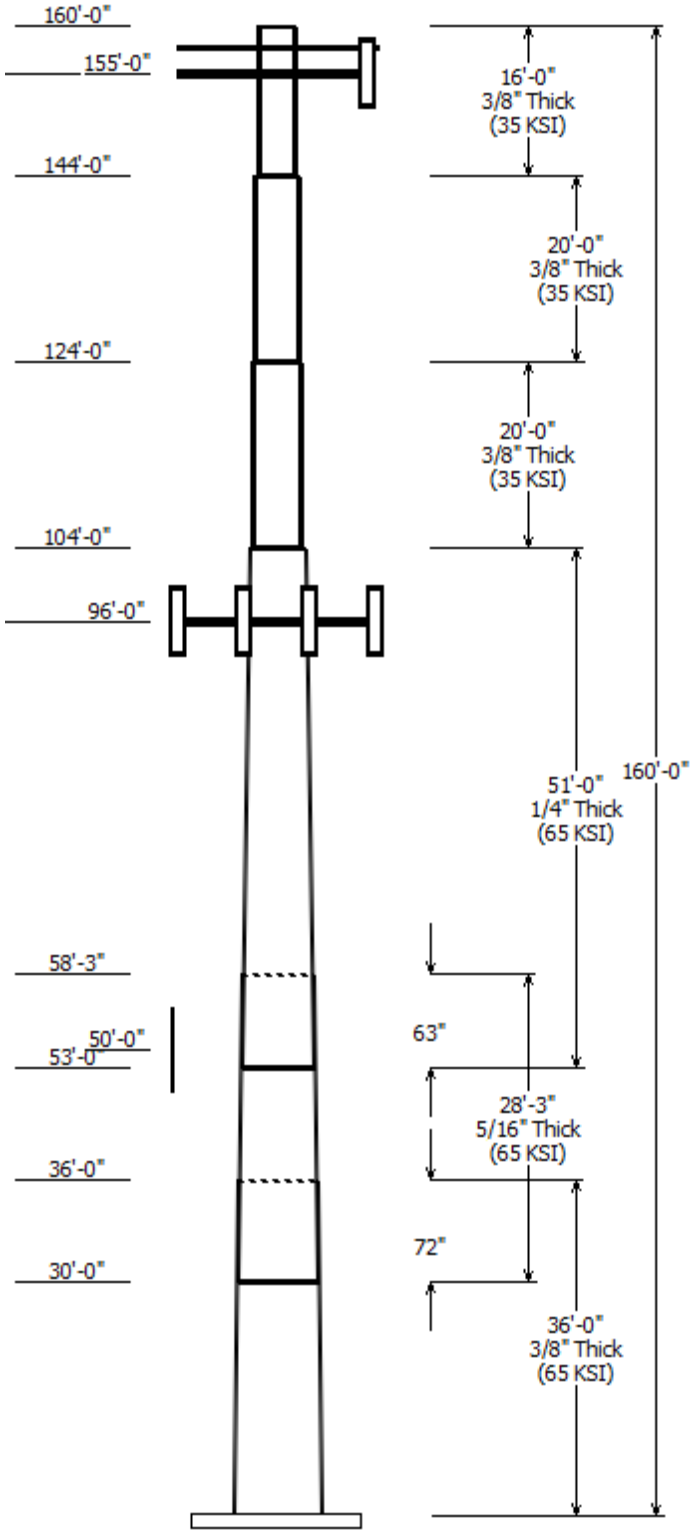
Attach Elev (ft)	Force Elev (ft)	Qty	Description
155.000	155.000	3	Generic Flat Light Sector Fram
155.000	155.000	3	CCI TPA65R-BU8D
155.000	155.000	3	CCI DMP65R-BU8D
155.000	155.000	1	Raycap DC9-48-60-24-8C-EV
155.000	155.000	1	Raycap DC6-48-60-18-8C-EV
155.000	155.000	3	Ericsson RRUS 4478 B14
155.000	155.000	3	Ericsson RRUS 4449 B5, B12
155.000	155.000	3	Ericsson RRUS 4415 B30
155.000	155.000	3	Ericsson RRUS 8843 B2, B66A
96.000	96.000	1	Generic Round Low Profile
96.000	96.000	6	Antel BXA-70063/6CF_
96.000	96.000	1	RFS DB-T1-6Z-8AB-0Z
96.000	96.000	6	Antel BXA-171063/12CF
96.000	96.000	3	Alcatel-Lucent RRH2x40-AWS
96.000	96.000	3	Alcatel-Lucent RRH2x40 (700)
50.000	50.000	1	Generic 2" x 8" GPS

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	102.0	1 5/8" Coax	No
0.000	102.0	1 5/8" Hybriflex	No
0.000	155.0	0.40" (10.3mm)	No
0.000	155.0	0.92" (23.4mm)	No
0.000	155.0	2" conduit	No

Load Cases

1.2D + 1.0W	119 mph with No Ice
0.9D + 1.0W	119 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.50 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

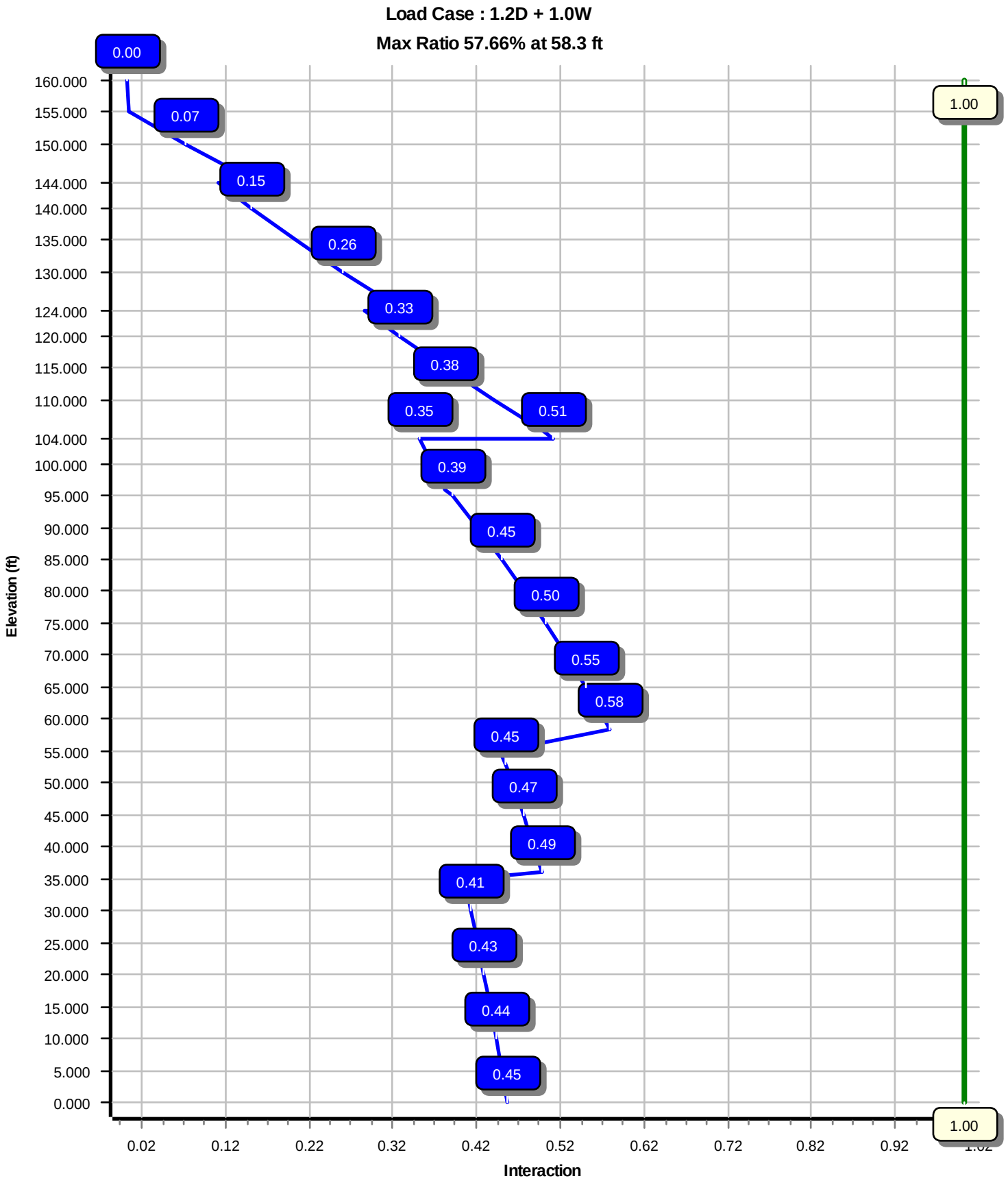


Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	1709.80	16.68	34.63
0.9D + 1.0W	1687.22	16.67	25.97
1.2D + 1.0Di + 1.0Wi	537.02	5.12	50.98
1.2D + 1.0Ev + 1.0Eh	110.92	0.87	34.40
0.9D - 1.0Ev + 1.0Eh	109.07	0.87	23.90
1.0D + 1.0W	385.68	3.79	28.87

Dish Deflections

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


Load Case : 1.2D + 1.0W
Max Ratio 57.66% at 58.3 ft
0.00
0.07
0.15
0.26
0.33
0.38
0.35
0.51
0.39
0.45
0.50
0.55
0.58
0.45
0.47
0.49
0.41
0.43
0.44
0.45
1.00
1.00
160.000
155.000
150.000
144.000
140.000
135.000
130.000
124.000
120.000
115.000
110.000
104.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 283563 Code: ANSI/TIA-222-H

Site Name: MANSFIELD CT, CT Engineering Number:OAA761009_C3_03 12/4/2020 2:26:30 PM

Customer: AT&T MOBILITY

Analysis Parameters

Location :	Tolland County, CT	Height (ft) :	160
Code :	ANSI/TIA-222-H	Base Diameter (in) :	48.00
Shape :	18 Sides. Sect 4: Round. Sect 5: Round. Sect 6: Round	Top Diameter (in) :	20.00
Pole Type :	Custom	Taper (in/ft) :	0.203
Pole Manfacturer :		Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.98

Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	119 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.50 in
Crest Height:	0 ft	HMSL:	472.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.61				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.174	S_1:	0.063	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.195	S_{d1}:	0.088		

Load Cases

1.2D + 1.0W	119 mph with No Ice
0.9D + 1.0W	119 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.50 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Site Number: 283563 Code: ANSI/TIA-222-H

Site Name: MANSFIELD CT, CT Engineering Number:OAA761009_C3_03 12/4/2020 2:26:30 PM

Customer: AT&T MOBILITY

Shaft Section Properties

							Bottom						Top						
Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip Joint Type	Joint Len (in)	Weight (lb)	Dia (in)	Elev (ft)	Area (in²)	Ix (in⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in²)	Ix (in⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	36.000	0.3750	65		0.00	6,412	48.00	0.00	56.68	16243.5	20.81	128.00	40.70	36.00	48.00	9864.0	17.38	108.55	0.202644
2-18	28.250	0.3125	65	Slip	72.00	3,754	42.54	30.00	41.89	9439.6	22.24	136.15	36.82	58.25	36.21	6097.8	19.01	117.83	0.202644
3-18	51.000	0.2500	65	Slip	63.00	4,540	38.38	53.00	30.26	5559.7	25.31	153.54	28.05	104.00	22.06	2153.9	18.02	112.20	0.202644
4-R	20.000	0.3750	35	Butt	0.00	2,055	26.00	104.00	30.19	2479.8	0.00	69.33	26.00	124.00	30.19	2479.8	0.00	69.33	0.000000
5-R	20.000	0.3750	35	Butt	0.00	1,894	24.00	124.00	27.83	1943.3	0.00	64.00	24.00	144.00	27.83	1943.3	0.00	64.00	0.000000
6-R	16.000	0.3750	35	Butt	0.00	1,259	20.00	144.00	23.12	1113.9	0.00	53.33	20.00	160.00	23.12	1113.9	0.00	53.33	0.000000
				Shaft Weight		19,913													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
155.00	Ericsson RRUS 8843 B2, B66A	3	0.80	0.000	72.00	1.639	0.50	133.52	2.487	0.50
155.00	Ericsson RRUS 4415 B30	3	0.80	0.000	46.00	1.842	0.50	95.21	2.742	0.50
155.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.969	0.50	135.69	2.905	0.50
155.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.40	2.021	0.67	121.00	2.968	0.67
155.00	Raycap DC6-48-60-18-8C-EV	1	0.80	0.000	16.00	4.788	1.00	145.61	6.264	1.00
155.00	Raycap DC9-48-60-24-8C-EV	1	0.80	0.000	16.00	4.788	1.00	145.58	6.264	1.00
155.00	CCI DMP65R-BU8D	3	0.80	0.000	95.70	17.871	0.63	436.84	21.570	0.63
155.00	Generic Flat Light Sector Frame	3	0.75	0.000	400.00	17.900	0.75	702.07	33.045	0.75
155.00	CCI TPA65R-BU8D	3	0.80	0.000	82.50	18.089	0.63	428.57	21.795	0.63
96.00	Alcatel-Lucent RRH2x40 (700)	3	0.80	0.000	50.00	2.125	0.67	120.33	3.074	0.67
96.00	Alcatel-Lucent RRH2x40-AWS	3	0.80	0.000	44.00	2.155	0.67	102.04	3.154	0.67
96.00	Antel BXA-171063/12CF	6	0.80	0.000	15.00	4.790	0.72	106.59	7.050	0.72
96.00	RFS DB-T1-6Z-8AB-0Z	1	0.80	0.000	44.00	4.800	1.00	164.55	6.161	1.00
96.00	Antel BXA-70063/6CF_	6	0.80	0.000	17.00	7.569	0.65	152.45	10.210	0.65
96.00	Generic Round Low Profile	1	1.00	0.000	1,875.00	21.700	1.00	2,650.70	40.089	1.00
50.00	Generic 2" x 8" GPS	1	1.00	0.000	10.00	0.141	1.00	14.94	0.443	1.00
Totals	Num Loadings:16	44			4,914.80			11,501.49		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	155.00	2	0.40" (10.3mm) Fiber	0.40	0.09	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	155.00	4	0.92" (23.4mm) Cable	0.92	0.89	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	155.00	3	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	102.00	18	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	102.00	2	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	48.000	56.684	16,243.5	20.81	128.00	76.9	666.5	0.0	0.0
5.00		0.3750	46.987	55.478	15,228.7	20.33	125.30	77.5	638.4	0.0	954.1
10.00		0.3750	45.974	54.272	14,257.0	19.85	122.60	78.0	610.8	0.0	933.6
15.00		0.3750	44.960	53.066	13,327.6	19.38	119.89	78.6	583.9	0.0	913.1
20.00		0.3750	43.947	51.860	12,439.5	18.90	117.19	79.2	557.5	0.0	892.6
25.00		0.3750	42.934	50.654	11,591.7	18.42	114.49	79.7	531.8	0.0	872.1
30.00	Bot - Section 2	0.3750	41.921	49.448	10,783.3	17.95	111.79	80.3	506.6	0.0	851.6
35.00		0.3750	40.907	48.242	10,013.5	17.47	109.09	80.9	482.1	0.0	1,535.2
36.00	Top - Section 1	0.3125	41.330	40.683	8,647.6	21.56	132.26	76.0	412.1	0.0	302.5
40.00		0.3125	40.519	39.879	8,145.0	21.10	129.66	76.6	395.9	0.0	548.3
45.00		0.3125	39.506	38.874	7,544.6	20.53	126.42	77.3	376.1	0.0	669.9
50.00		0.3125	38.493	37.869	6,974.5	19.96	123.18	77.9	356.9	0.0	652.8
53.00	Bot - Section 3	0.3125	37.885	37.266	6,646.6	19.61	121.23	78.3	345.6	0.0	383.5
55.00		0.3125	37.480	36.864	6,433.8	19.38	119.93	78.6	338.1	0.0	457.1
58.25	Top - Section 2	0.2500	37.321	29.415	5,107.2	24.56	149.28	72.5	269.5	0.0	732.3
60.00		0.2500	36.966	29.133	4,962.1	24.31	147.87	72.8	264.4	0.0	174.3
65.00		0.2500	35.953	28.329	4,562.5	23.59	143.81	73.6	249.9	0.0	488.8
70.00		0.2500	34.940	27.525	4,185.0	22.88	139.76	74.5	235.9	0.0	475.2
75.00		0.2500	33.927	26.721	3,828.9	22.17	135.71	75.3	222.3	0.0	461.5
80.00		0.2500	32.913	25.918	3,493.6	21.45	131.65	76.2	209.1	0.0	447.8
85.00		0.2500	31.900	25.114	3,178.4	20.74	127.60	77.0	196.2	0.0	434.1
90.00		0.2500	30.887	24.310	2,882.9	20.02	123.55	77.9	183.8	0.0	420.4
95.00		0.2500	29.874	23.506	2,606.2	19.31	119.50	78.7	171.8	0.0	406.8
96.00		0.2500	29.671	23.345	2,553.1	19.16	118.68	78.9	169.5	0.0	79.7
100.0		0.2500	28.861	22.702	2,347.8	18.59	115.44	79.5	160.2	0.0	313.4
104.0	Top - Section 3	0.2500	28.050	22.059	2,153.9	18.02	112.20	80.2	151.2	0.0	304.6
104.0	Bot - Section 4	0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	
105.0		0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	102.7
110.0		0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	513.6
115.0		0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	513.6
120.0		0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	513.6
124.0	Top - Section 4	0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	410.9
124.0	Bot - Section 5	0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	
125.0		0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	94.7
130.0		0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	473.5
135.0		0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	473.5
140.0		0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	473.5
144.0	Top - Section 5	0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	378.8
144.0	Bot - Section 6	0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	
145.0		0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	78.7
150.0		0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	393.4
155.0		0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	393.4
160.0		0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	393.4
											19,912.8

Load Case: 1.2D + 1.0W — 119 mph with No Ice — 27 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.20
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		191.2	0.0					0.0	0.0	191.2	0.0	0.0	0.0
5.00		378.3	1,145.0					0.0	192.3	378.3	1,337.3	0.0	0.0
10.00		370.2	1,120.4					0.0	192.3	370.2	1,312.7	0.0	0.0
15.00		362.0	1,095.7					0.0	192.3	362.0	1,288.0	0.0	0.0
20.00		353.8	1,071.1					0.0	192.3	353.8	1,263.4	0.0	0.0
25.00		345.7	1,046.5					0.0	192.3	345.7	1,238.8	0.0	0.0
30.00	Bot - Section 2	344.1	1,021.9					0.0	192.3	344.1	1,214.2	0.0	0.0
35.00		208.3	1,842.2					0.0	192.3	208.3	2,034.5	0.0	0.0
36.00	Top - Section 1	176.2	363.0					0.0	38.5	176.2	401.5	0.0	0.0
40.00		319.2	657.9					0.0	153.8	319.2	811.8	0.0	0.0
45.00		357.3	803.9					0.0	192.3	357.3	996.2	0.0	0.0
50.00	Appurtenance(s)	286.9	783.4	4.3	0.0	0.0	12.0	0.0	192.3	291.2	987.7	0.0	0.0
53.00	Bot - Section 3	180.5	460.2					0.0	115.4	180.5	575.6	0.0	0.0
55.00		191.0	548.5					0.0	76.9	191.0	625.4	0.0	0.0
58.25	Top - Section 2	181.8	878.7					0.0	125.0	181.8	1,003.7	0.0	0.0
60.00		244.8	209.2					0.0	67.3	244.8	276.5	0.0	0.0
65.00		361.2	586.6					0.0	192.3	361.2	778.9	0.0	0.0
70.00		358.6	570.2					0.0	192.3	358.6	762.5	0.0	0.0
75.00		355.1	553.8					0.0	192.3	355.1	746.1	0.0	0.0
80.00		350.9	537.4					0.0	192.3	350.9	729.7	0.0	0.0
85.00		346.1	520.9					0.0	192.3	346.1	713.2	0.0	0.0
90.00		340.6	504.5					0.0	192.3	340.6	696.8	0.0	0.0
95.00		202.3	488.1					0.0	192.3	202.3	680.4	0.0	0.0
96.00	Appurtenance(s)	165.7	95.7	2,640.6	0.0	0.0	2,871.6	0.0	38.5	2,806.3	3,005.7	0.0	0.0
100.00		262.4	376.0					0.0	153.8	262.4	529.9	0.0	0.0
104.00	Top - Section 3	154.3	365.5					0.0	112.2	154.3	477.7	0.0	0.0
105.00		146.3	123.3					0.0	17.6	146.3	140.9	0.0	0.0
110.00		245.8	616.4					0.0	88.1	245.8	704.5	0.0	0.0
115.00		249.0	616.4					0.0	88.1	249.0	704.5	0.0	0.0
120.00		226.5	616.4					0.0	88.1	226.5	704.5	0.0	0.0
124.00	Top - Section 4	124.8	493.1					0.0	70.5	124.8	563.6	0.0	0.0
125.00		141.9	113.6					0.0	17.6	141.9	131.3	0.0	0.0
130.00		238.0	568.2					0.0	88.1	238.0	656.4	0.0	0.0
135.00		240.6	568.2					0.0	88.1	240.6	656.4	0.0	0.0
140.00		218.6	568.2					0.0	88.1	218.6	656.4	0.0	0.0
144.00	Top - Section 5	118.1	454.6					0.0	70.5	118.1	525.1	0.0	0.0
145.00		123.3	94.4					0.0	17.6	123.3	112.0	0.0	0.0
150.00		206.6	472.0					0.0	88.1	206.6	560.2	0.0	0.0
155.00	Appurtenance(s)	182.4	472.0	4,255.9	0.0	0.0	3,014.2	0.0	88.1	4,438.2	3,574.3	0.0	0.0
160.00		78.6	472.0					0.0	0.0	78.6	472.0	0.0	0.0
								Totals:		16,829.8	34,650.2	0.00	0.00

Load Case: 1.2D + 1.0W — 119 mph with No Ice — 27 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.20
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.63	-16.68	0.00	-1,709.80	0.00	1,709.80	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.454
5.00	-33.25	-16.39	0.00	-1,626.39	0.00	1,626.39	3,869.00	973.63	4,099.11	3,709.95	0.08	-0.15	0.447
10.00	-31.90	-16.10	0.00	-1,544.45	0.00	1,544.45	3,812.27	952.47	3,922.86	3,575.45	0.31	-0.29	0.441
15.00	-30.57	-15.81	0.00	-1,463.97	0.00	1,463.97	3,754.32	931.30	3,750.48	3,442.23	0.70	-0.44	0.434
20.00	-29.27	-15.52	0.00	-1,384.93	0.00	1,384.93	3,695.16	910.14	3,581.98	3,310.34	1.25	-0.60	0.427
25.00	-27.99	-15.23	0.00	-1,307.34	0.00	1,307.34	3,634.78	888.98	3,417.35	3,179.89	1.95	-0.75	0.419
30.00	-26.74	-14.95	0.00	-1,231.17	0.00	1,231.17	3,573.18	867.81	3,256.59	3,050.92	2.82	-0.91	0.411
35.00	-24.69	-14.74	0.00	-1,156.43	0.00	1,156.43	3,510.36	846.65	3,099.70	2,923.54	3.86	-1.06	0.403
36.00	-24.27	-14.59	0.00	-1,141.69	0.00	1,141.69	2,784.37	713.98	2,645.12	2,350.45	4.08	-1.10	0.495
40.00	-23.42	-14.32	0.00	-1,083.32	0.00	1,083.32	2,748.65	699.87	2,541.62	2,274.10	5.06	-1.22	0.485
45.00	-22.39	-14.01	0.00	-1,011.70	0.00	1,011.70	2,702.91	682.23	2,415.15	2,179.46	6.44	-1.41	0.473
50.00	-21.38	-13.75	0.00	-941.63	0.00	941.63	2,655.95	664.60	2,291.91	2,085.80	8.01	-1.59	0.460
53.00	-20.78	-13.59	0.00	-900.38	0.00	900.38	2,627.19	654.01	2,219.51	2,030.10	9.05	-1.70	0.452
55.00	-20.14	-13.41	0.00	-873.20	0.00	873.20	2,607.78	646.96	2,171.89	1,993.18	9.78	-1.78	0.446
58.25	-19.12	-13.23	0.00	-829.60	0.00	829.60	1,919.69	516.23	1,728.46	1,465.89	11.03	-1.90	0.577
60.00	-18.82	-13.03	0.00	-806.44	0.00	806.44	1,909.04	511.29	1,695.55	1,443.71	11.74	-1.97	0.569
65.00	-18.01	-12.71	0.00	-741.31	0.00	741.31	1,877.79	497.18	1,603.27	1,380.63	13.92	-2.19	0.547
70.00	-17.21	-12.38	0.00	-677.78	0.00	677.78	1,845.32	483.07	1,513.57	1,317.98	16.33	-2.41	0.524
75.00	-16.44	-12.06	0.00	-615.86	0.00	615.86	1,811.64	468.96	1,426.45	1,255.86	18.98	-2.63	0.500
80.00	-15.68	-11.73	0.00	-555.57	0.00	555.57	1,776.74	454.85	1,341.92	1,194.34	21.85	-2.85	0.475
85.00	-14.94	-11.41	0.00	-496.90	0.00	496.90	1,740.62	440.74	1,259.97	1,133.49	24.95	-3.06	0.448
90.00	-14.23	-11.08	0.00	-439.87	0.00	439.87	1,703.29	426.63	1,180.60	1,073.39	28.27	-3.27	0.419
95.00	-13.54	-10.87	0.00	-384.48	0.00	384.48	1,664.74	412.52	1,103.81	1,014.12	31.81	-3.48	0.388
96.00	-10.69	-7.90	0.00	-373.61	0.00	373.61	1,656.88	409.70	1,088.76	1,002.37	32.54	-3.52	0.380
100.00	-10.16	-7.63	0.00	-342.02	0.00	342.02	1,624.97	398.41	1,029.60	955.76	35.56	-3.68	0.364
104.00	-9.68	-7.46	0.00	-311.49	0.00	311.49	1,592.28	387.13	972.10	909.77	38.70	-3.84	0.349
104.00	-9.68	-7.46	0.00	-311.49	0.00	311.49	950.95	285.28	642.72	624.60	38.70	-3.84	0.510
105.00	-9.54	-7.33	0.00	-304.02	0.00	304.02	950.95	285.28	642.72	624.60	39.51	-3.88	0.497
110.00	-8.83	-7.06	0.00	-267.39	0.00	267.39	950.95	285.28	642.72	624.60	43.66	-4.04	0.438
115.00	-8.13	-6.78	0.00	-232.12	0.00	232.12	950.95	285.28	642.72	624.60	47.96	-4.18	0.381
120.00	-7.44	-6.51	0.00	-198.24	0.00	198.24	950.95	285.28	642.72	624.60	52.41	-4.31	0.326
124.00	-6.88	-6.35	0.00	-172.19	0.00	172.19	950.95	285.28	642.72	624.60	56.05	-4.39	0.283
124.00	-6.88	-6.35	0.00	-172.19	0.00	172.19	876.73	263.02	546.31	539.02	56.05	-4.39	0.328
125.00	-6.75	-6.21	0.00	-165.84	0.00	165.84	876.73	263.02	546.31	539.02	56.97	-4.41	0.316
130.00	-6.10	-5.93	0.00	-134.81	0.00	134.81	876.73	263.02	546.31	539.02	61.65	-4.52	0.258
135.00	-5.46	-5.64	0.00	-105.17	0.00	105.17	876.73	263.02	546.31	539.02	66.43	-4.61	0.202
140.00	-4.82	-5.38	0.00	-76.95	0.00	76.95	876.73	263.02	546.31	539.02	71.29	-4.68	0.149
144.00	-4.30	-5.22	0.00	-55.44	0.00	55.44	876.73	263.02	546.31	539.02	75.22	-4.72	0.108
144.00	-4.30	-5.22	0.00	-55.44	0.00	55.44	728.28	218.49	376.97	379.17	75.22	-4.72	0.153
145.00	-4.20	-5.09	0.00	-50.22	0.00	50.22	728.28	218.49	376.97	379.17	76.20	-4.72	0.139
150.00	-3.66	-4.84	0.00	-24.78	0.00	24.78	728.28	218.49	376.97	379.17	81.17	-4.77	0.071
155.00	-0.46	-0.12	0.00	-0.59	0.00	0.59	728.28	218.49	376.97	379.17	86.18	-4.79	0.002
160.00	0.00	-0.08	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	91.18	-4.79	0.000

Load Case: 0.9D + 1.0W — 119 mph with No Ice (Reduced DL) — 27 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		191.2	0.0					0.0	0.0	191.2	0.0	0.0	0.0
5.00		378.3	858.7					0.0	144.2	378.3	1,003.0	0.0	0.0
10.00		370.2	840.3					0.0	144.2	370.2	984.5	0.0	0.0
15.00		362.0	821.8					0.0	144.2	362.0	966.0	0.0	0.0
20.00		353.8	803.3					0.0	144.2	353.8	947.6	0.0	0.0
25.00		345.7	784.9					0.0	144.2	345.7	929.1	0.0	0.0
30.00	Bot - Section 2	344.1	766.4					0.0	144.2	344.1	910.6	0.0	0.0
35.00		208.3	1,381.7					0.0	144.2	208.3	1,525.9	0.0	0.0
36.00	Top - Section 1	176.2	272.3					0.0	28.8	176.2	301.1	0.0	0.0
40.00		319.2	493.4					0.0	115.4	319.2	608.8	0.0	0.0
45.00		357.3	602.9					0.0	144.2	357.3	747.2	0.0	0.0
50.00	Appurtenance(s)	286.9	587.6	4.3	0.0	0.0	9.0	0.0	144.2	291.2	740.8	0.0	0.0
53.00	Bot - Section 3	180.5	345.1					0.0	86.5	180.5	431.7	0.0	0.0
55.00		191.0	411.4					0.0	57.7	191.0	469.1	0.0	0.0
58.25	Top - Section 2	181.8	659.0					0.0	93.7	181.8	752.8	0.0	0.0
60.00		244.8	156.9					0.0	50.5	244.8	207.4	0.0	0.0
65.00		361.2	439.9					0.0	144.2	361.2	584.2	0.0	0.0
70.00		358.6	427.6					0.0	144.2	358.6	571.9	0.0	0.0
75.00		355.1	415.3					0.0	144.2	355.1	559.6	0.0	0.0
80.00		350.9	403.0					0.0	144.2	350.9	547.2	0.0	0.0
85.00		346.1	390.7					0.0	144.2	346.1	534.9	0.0	0.0
90.00		340.6	378.4					0.0	144.2	340.6	522.6	0.0	0.0
95.00		202.3	366.1					0.0	144.2	202.3	510.3	0.0	0.0
96.00	Appurtenance(s)	165.7	71.7	2,640.6	0.0	0.0	2,153.7	0.0	28.8	2,806.3	2,254.3	0.0	0.0
100.00		262.4	282.0					0.0	115.4	262.4	397.4	0.0	0.0
104.00	Top - Section 3	154.3	274.2					0.0	84.1	154.3	358.3	0.0	0.0
105.00		146.3	92.5					0.0	13.2	146.3	105.7	0.0	0.0
110.00		245.8	462.3					0.0	66.1	245.8	528.4	0.0	0.0
115.00		249.0	462.3					0.0	66.1	249.0	528.4	0.0	0.0
120.00		226.5	462.3					0.0	66.1	226.5	528.4	0.0	0.0
124.00	Top - Section 4	124.8	369.8					0.0	52.9	124.8	422.7	0.0	0.0
125.00		141.9	85.2					0.0	13.2	141.9	98.5	0.0	0.0
130.00		238.0	426.2					0.0	66.1	238.0	492.3	0.0	0.0
135.00		240.6	426.2					0.0	66.1	240.6	492.3	0.0	0.0
140.00		218.6	426.2					0.0	66.1	218.6	492.3	0.0	0.0
144.00	Top - Section 5	118.1	340.9					0.0	52.9	118.1	393.8	0.0	0.0
145.00		123.3	70.8					0.0	13.2	123.3	84.0	0.0	0.0
150.00		206.6	354.0					0.0	66.1	206.6	420.1	0.0	0.0
155.00	Appurtenance(s)	182.4	354.0	4,255.9	0.0	0.0	2,260.6	0.0	66.1	4,438.2	2,680.8	0.0	0.0
160.00		78.6	354.0					0.0	0.0	78.6	354.0	0.0	0.0
								Totals:		16,829.8	25,987.7	0.00	0.00

Site Number: 283563 Code: ANSI/TIA-222-H

Site Name: MANSFIELD CT, CT Engineering Number:OAA761009_C3_03 12/4/2020 2:26:33 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.0W 119 mph with No Ice (Reduced DL) 27 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.97	-16.67	0.00	-1,687.22	0.00	1,687.22	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.446
5.00	-24.92	-16.35	0.00	-1,603.87	0.00	1,603.87	3,869.00	973.63	4,099.11	3,709.95	0.08	-0.14	0.439
10.00	-23.90	-16.04	0.00	-1,522.10	0.00	1,522.10	3,812.27	952.47	3,922.86	3,575.45	0.31	-0.29	0.432
15.00	-22.89	-15.73	0.00	-1,441.89	0.00	1,441.89	3,754.32	931.30	3,750.48	3,442.23	0.69	-0.44	0.425
20.00	-21.91	-15.43	0.00	-1,363.22	0.00	1,363.22	3,695.16	910.14	3,581.98	3,310.34	1.23	-0.59	0.418
25.00	-20.94	-15.13	0.00	-1,286.07	0.00	1,286.07	3,634.78	888.98	3,417.35	3,179.89	1.93	-0.74	0.410
30.00	-20.00	-14.83	0.00	-1,210.43	0.00	1,210.43	3,573.18	867.81	3,256.59	3,050.92	2.78	-0.89	0.403
35.00	-18.45	-14.62	0.00	-1,136.31	0.00	1,136.31	3,510.36	846.65	3,099.70	2,923.54	3.80	-1.05	0.394
36.00	-18.13	-14.46	0.00	-1,121.69	0.00	1,121.69	2,784.37	713.98	2,645.12	2,350.45	4.02	-1.08	0.484
40.00	-17.49	-14.18	0.00	-1,063.83	0.00	1,063.83	2,748.65	699.87	2,541.62	2,274.10	4.98	-1.21	0.475
45.00	-16.71	-13.86	0.00	-992.93	0.00	992.93	2,702.91	682.23	2,415.15	2,179.46	6.34	-1.38	0.462
50.00	-15.94	-13.59	0.00	-923.64	0.00	923.64	2,655.95	664.60	2,291.91	2,085.80	7.89	-1.57	0.449
53.00	-15.50	-13.42	0.00	-882.88	0.00	882.88	2,627.19	654.01	2,219.51	2,030.10	8.91	-1.68	0.441
55.00	-15.01	-13.24	0.00	-856.04	0.00	856.04	2,607.78	646.96	2,171.89	1,993.18	9.62	-1.75	0.436
58.25	-14.24	-13.06	0.00	-813.00	0.00	813.00	1,919.69	516.23	1,728.46	1,465.89	10.86	-1.87	0.563
60.00	-14.01	-12.84	0.00	-790.15	0.00	790.15	1,909.04	511.29	1,695.55	1,443.71	11.56	-1.94	0.555
65.00	-13.39	-12.51	0.00	-725.94	0.00	725.94	1,877.79	497.18	1,603.27	1,380.63	13.70	-2.15	0.534
70.00	-12.79	-12.18	0.00	-663.38	0.00	663.38	1,845.32	483.07	1,513.57	1,317.98	16.07	-2.37	0.511
75.00	-12.20	-11.85	0.00	-602.49	0.00	602.49	1,811.64	468.96	1,426.45	1,255.86	18.67	-2.58	0.487
80.00	-11.63	-11.51	0.00	-543.27	0.00	543.27	1,776.74	454.85	1,341.92	1,194.34	21.49	-2.80	0.462
85.00	-11.07	-11.18	0.00	-485.71	0.00	485.71	1,740.62	440.74	1,259.97	1,133.49	24.53	-3.01	0.436
90.00	-10.53	-10.85	0.00	-429.81	0.00	429.81	1,703.29	426.63	1,180.60	1,073.39	27.79	-3.21	0.407
95.00	-10.01	-10.64	0.00	-375.57	0.00	375.57	1,664.74	412.52	1,103.81	1,014.12	31.26	-3.41	0.377
96.00	-7.92	-7.71	0.00	-364.93	0.00	364.93	1,656.88	409.70	1,088.76	1,002.37	31.98	-3.45	0.369
100.00	-7.52	-7.45	0.00	-334.07	0.00	334.07	1,624.97	398.41	1,029.60	955.76	34.93	-3.61	0.355
104.00	-7.16	-7.28	0.00	-304.28	0.00	304.28	1,592.28	387.13	972.10	909.77	38.02	-3.76	0.339
104.00	-7.16	-7.28	0.00	-304.28	0.00	304.28	950.95	285.28	642.72	624.60	38.02	-3.76	0.495
105.00	-7.05	-7.14	0.00	-296.99	0.00	296.99	950.95	285.28	642.72	624.60	38.81	-3.80	0.484
110.00	-6.52	-6.88	0.00	-261.28	0.00	261.28	950.95	285.28	642.72	624.60	42.88	-3.96	0.426
115.00	-6.00	-6.61	0.00	-226.88	0.00	226.88	950.95	285.28	642.72	624.60	47.10	-4.10	0.370
120.00	-5.47	-6.35	0.00	-193.85	0.00	193.85	950.95	285.28	642.72	624.60	51.46	-4.22	0.317
124.00	-5.06	-6.20	0.00	-168.43	0.00	168.43	950.95	285.28	642.72	624.60	55.03	-4.31	0.275
124.00	-5.06	-6.20	0.00	-168.43	0.00	168.43	876.73	263.02	546.31	539.02	55.03	-4.31	0.319
125.00	-4.96	-6.06	0.00	-162.23	0.00	162.23	876.73	263.02	546.31	539.02	55.93	-4.32	0.307
130.00	-4.48	-5.79	0.00	-131.94	0.00	131.94	876.73	263.02	546.31	539.02	60.51	-4.43	0.250
135.00	-4.00	-5.52	0.00	-102.99	0.00	102.99	876.73	263.02	546.31	539.02	65.20	-4.52	0.196
140.00	-3.52	-5.26	0.00	-75.40	0.00	75.40	876.73	263.02	546.31	539.02	69.96	-4.58	0.144
144.00	-3.14	-5.12	0.00	-54.34	0.00	54.34	876.73	263.02	546.31	539.02	73.81	-4.62	0.105
144.00	-3.14	-5.12	0.00	-54.34	0.00	54.34	728.28	218.49	376.97	379.17	73.81	-4.62	0.148
145.00	-3.06	-4.99	0.00	-49.22	0.00	49.22	728.28	218.49	376.97	379.17	74.78	-4.63	0.135
150.00	-2.66	-4.75	0.00	-24.28	0.00	24.28	728.28	218.49	376.97	379.17	79.65	-4.68	0.068
155.00	-0.35	-0.11	0.00	-0.54	0.00	0.54	728.28	218.49	376.97	379.17	84.55	-4.69	0.002
160.00	0.00	-0.08	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	89.46	-4.69	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.50 in Radial Ice — 26 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		58.2	0.0					0.0	0.0	58.2	0.0	0.0	0.0
5.00		115.4	1,494.5					0.0	192.3	115.4	1,686.8	0.0	0.0
10.00		113.5	1,503.3					0.0	192.3	113.5	1,695.6	0.0	0.0
15.00		111.4	1,490.7					0.0	192.3	111.4	1,683.0	0.0	0.0
20.00		109.3	1,471.1					0.0	192.3	109.3	1,663.4	0.0	0.0
25.00		107.0	1,447.8					0.0	192.3	107.0	1,640.1	0.0	0.0
30.00	Bot - Section 2	106.8	1,422.2					0.0	192.3	106.8	1,614.5	0.0	0.0
35.00		64.7	2,245.9					0.0	192.3	64.7	2,438.2	0.0	0.0
36.00	Top - Section 1	54.9	444.1					0.0	38.5	54.9	482.6	0.0	0.0
40.00		99.6	978.4					0.0	153.8	99.6	1,132.2	0.0	0.0
45.00		111.7	1,199.4					0.0	192.3	111.7	1,391.7	0.0	0.0
50.00	Appurtenance(s)	89.9	1,173.6	2.4	0.0	0.0	16.1	0.0	192.3	92.2	1,382.0	0.0	0.0
53.00	Bot - Section 3	56.6	692.7					0.0	115.4	56.6	808.1	0.0	0.0
55.00		60.0	704.6					0.0	76.9	60.0	781.6	0.0	0.0
58.25	Top - Section 2	57.2	1,129.4					0.0	125.0	57.2	1,254.4	0.0	0.0
60.00		77.1	343.6					0.0	67.3	77.1	410.9	0.0	0.0
65.00		114.1	962.6					0.0	192.3	114.1	1,154.9	0.0	0.0
70.00		113.6	939.0					0.0	192.3	113.6	1,131.3	0.0	0.0
75.00		112.8	915.0					0.0	192.3	112.8	1,107.3	0.0	0.0
80.00		111.8	890.8					0.0	192.3	111.8	1,083.1	0.0	0.0
85.00		110.7	866.3					0.0	192.3	110.7	1,058.6	0.0	0.0
90.00		109.3	841.5					0.0	192.3	109.3	1,033.8	0.0	0.0
95.00		65.1	816.5					0.0	192.3	65.1	1,008.8	0.0	0.0
96.00	Appurtenance(s)	53.5	161.1	714.5	0.0	0.0	5,119.1	0.0	38.5	767.9	5,318.6	0.0	0.0
100.00		84.9	631.8					0.0	153.8	84.9	785.7	0.0	0.0
104.00	Top - Section 3	51.8	615.6					0.0	112.2	51.8	727.8	0.0	0.0
105.00		58.4	180.2					0.0	17.6	58.4	197.8	0.0	0.0
110.00		98.1	901.7					0.0	88.1	98.1	989.9	0.0	0.0
115.00		99.4	903.1					0.0	88.1	99.4	991.2	0.0	0.0
120.00		90.5	904.4					0.0	88.1	90.5	992.6	0.0	0.0
124.00	Top - Section 4	49.9	724.5					0.0	70.5	49.9	795.0	0.0	0.0
125.00		57.3	167.4					0.0	17.6	57.3	185.1	0.0	0.0
130.00		96.1	837.9					0.0	88.1	96.1	926.0	0.0	0.0
135.00		97.2	839.0					0.0	88.1	97.2	927.1	0.0	0.0
140.00		88.3	840.0					0.0	88.1	88.3	928.2	0.0	0.0
144.00	Top - Section 5	47.9	672.8					0.0	70.5	47.9	743.3	0.0	0.0
145.00		51.1	140.6					0.0	17.6	51.1	158.2	0.0	0.0
150.00		85.7	703.3					0.0	88.1	85.7	791.5	0.0	0.0
155.00	Appurtenance(s)	82.9	704.2	1,074.3	0.0	0.0	6,389.1	0.0	88.1	1,157.2	7,181.4	0.0	0.0
160.00		39.9	705.0					0.0	0.0	39.9	705.0	0.0	0.0
								Totals:		5,154.36	50,986.9	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.50 in Radial Ice — 26 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-50.98	-5.12	0.00	-537.02	0.00	537.02	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.153
5.00	-49.29	-5.04	0.00	-511.44	0.00	511.44	3,869.00	973.63	4,099.11	3,709.95	0.02	-0.05	0.151
10.00	-47.59	-4.96	0.00	-486.24	0.00	486.24	3,812.27	952.47	3,922.86	3,575.45	0.10	-0.09	0.149
15.00	-45.91	-4.89	0.00	-461.43	0.00	461.43	3,754.32	931.30	3,750.48	3,442.23	0.22	-0.14	0.146
20.00	-44.24	-4.81	0.00	-437.00	0.00	437.00	3,695.16	910.14	3,581.98	3,310.34	0.39	-0.19	0.144
25.00	-42.60	-4.73	0.00	-412.95	0.00	412.95	3,634.78	888.98	3,417.35	3,179.89	0.61	-0.24	0.142
30.00	-40.98	-4.65	0.00	-389.28	0.00	389.28	3,573.18	867.81	3,256.59	3,050.92	0.89	-0.29	0.139
35.00	-38.54	-4.60	0.00	-366.01	0.00	366.01	3,510.36	846.65	3,099.70	2,923.54	1.21	-0.34	0.136
36.00	-38.05	-4.56	0.00	-361.42	0.00	361.42	2,784.37	713.98	2,645.12	2,350.45	1.29	-0.35	0.167
40.00	-36.92	-4.48	0.00	-343.19	0.00	343.19	2,748.65	699.87	2,541.62	2,274.10	1.59	-0.39	0.164
45.00	-35.52	-4.40	0.00	-320.79	0.00	320.79	2,702.91	682.23	2,415.15	2,179.46	2.03	-0.44	0.160
50.00	-34.14	-4.32	0.00	-298.81	0.00	298.81	2,655.95	664.60	2,291.91	2,085.80	2.53	-0.50	0.156
53.00	-33.33	-4.27	0.00	-285.86	0.00	285.86	2,627.19	654.01	2,219.51	2,030.10	2.85	-0.54	0.154
55.00	-32.55	-4.22	0.00	-277.31	0.00	277.31	2,607.78	646.96	2,171.89	1,993.18	3.08	-0.56	0.152
58.25	-31.29	-4.17	0.00	-263.59	0.00	263.59	1,919.69	516.23	1,728.46	1,465.89	3.48	-0.60	0.196
60.00	-30.88	-4.11	0.00	-256.29	0.00	256.29	1,909.04	511.29	1,695.55	1,443.71	3.70	-0.62	0.194
65.00	-29.72	-4.02	0.00	-235.72	0.00	235.72	1,877.79	497.18	1,603.27	1,380.63	4.39	-0.69	0.187
70.00	-28.58	-3.93	0.00	-215.61	0.00	215.61	1,845.32	483.07	1,513.57	1,317.98	5.16	-0.76	0.179
75.00	-27.47	-3.83	0.00	-195.96	0.00	195.96	1,811.64	468.96	1,426.45	1,255.86	6.00	-0.83	0.171
80.00	-26.39	-3.74	0.00	-176.79	0.00	176.79	1,776.74	454.85	1,341.92	1,194.34	6.91	-0.90	0.163
85.00	-25.33	-3.64	0.00	-158.10	0.00	158.10	1,740.62	440.74	1,259.97	1,133.49	7.89	-0.97	0.154
90.00	-24.29	-3.54	0.00	-139.90	0.00	139.90	1,703.29	426.63	1,180.60	1,073.39	8.94	-1.04	0.145
95.00	-23.28	-3.47	0.00	-122.20	0.00	122.20	1,664.74	412.52	1,103.81	1,014.12	10.06	-1.10	0.135
96.00	-17.98	-2.61	0.00	-118.73	0.00	118.73	1,656.88	409.70	1,088.76	1,002.37	10.30	-1.12	0.129
100.00	-17.19	-2.53	0.00	-108.28	0.00	108.28	1,624.97	398.41	1,029.60	955.76	11.25	-1.17	0.124
104.00	-16.46	-2.47	0.00	-98.18	0.00	98.18	1,592.28	387.13	972.10	909.77	12.25	-1.22	0.118
104.00	-16.46	-2.47	0.00	-98.18	0.00	98.18	950.95	285.28	642.72	624.60	12.25	-1.22	0.175
105.00	-16.27	-2.41	0.00	-95.71	0.00	95.71	950.95	285.28	642.72	624.60	12.51	-1.23	0.170
110.00	-15.28	-2.31	0.00	-83.64	0.00	83.64	950.95	285.28	642.72	624.60	13.82	-1.28	0.150
115.00	-14.29	-2.20	0.00	-72.10	0.00	72.10	950.95	285.28	642.72	624.60	15.19	-1.33	0.131
120.00	-13.29	-2.09	0.00	-61.11	0.00	61.11	950.95	285.28	642.72	624.60	16.59	-1.36	0.112
124.00	-12.50	-2.02	0.00	-52.75	0.00	52.75	950.95	285.28	642.72	624.60	17.75	-1.39	0.098
124.00	-12.50	-2.02	0.00	-52.75	0.00	52.75	876.73	263.02	546.31	539.02	17.75	-1.39	0.112
125.00	-12.32	-1.97	0.00	-50.73	0.00	50.73	876.73	263.02	546.31	539.02	18.04	-1.40	0.108
130.00	-11.39	-1.85	0.00	-40.89	0.00	40.89	876.73	263.02	546.31	539.02	19.52	-1.43	0.089
135.00	-10.47	-1.74	0.00	-31.62	0.00	31.62	876.73	263.02	546.31	539.02	21.03	-1.46	0.071
140.00	-9.54	-1.63	0.00	-22.93	0.00	22.93	876.73	263.02	546.31	539.02	22.56	-1.48	0.053
144.00	-8.80	-1.56	0.00	-16.42	0.00	16.42	876.73	263.02	546.31	539.02	23.81	-1.49	0.041
144.00	-8.80	-1.56	0.00	-16.42	0.00	16.42	728.28	218.49	376.97	379.17	23.81	-1.49	0.055
145.00	-8.64	-1.51	0.00	-14.86	0.00	14.86	728.28	218.49	376.97	379.17	24.12	-1.49	0.051
150.00	-7.85	-1.40	0.00	-7.31	0.00	7.31	728.28	218.49	376.97	379.17	25.69	-1.50	0.030
155.00	-0.70	-0.06	0.00	-0.29	0.00	0.29	728.28	218.49	376.97	379.17	27.26	-1.51	0.002
160.00	0.00	-0.04	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	28.84	-1.51	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		43.5	0.0					0.0	0.0	43.5	0.0	0.0	0.0
5.00		86.1	954.1					0.0	160.3	86.1	1,114.4	0.0	0.0
10.00		84.2	933.6					0.0	160.3	84.2	1,093.9	0.0	0.0
15.00		82.3	913.1					0.0	160.3	82.3	1,073.4	0.0	0.0
20.00		80.5	892.6					0.0	160.3	80.5	1,052.8	0.0	0.0
25.00		78.6	872.1					0.0	160.3	78.6	1,032.3	0.0	0.0
30.00	Bot - Section 2	78.3	851.6					0.0	160.3	78.3	1,011.8	0.0	0.0
35.00		47.4	1,535.2					0.0	160.3	47.4	1,695.4	0.0	0.0
36.00	Top - Section 1	40.1	302.5					0.0	32.1	40.1	334.6	0.0	0.0
40.00		72.6	548.3					0.0	128.2	72.6	676.5	0.0	0.0
45.00		81.3	669.9					0.0	160.3	81.3	830.2	0.0	0.0
50.00	Appurtenance(s)	65.3	652.8	1.0	0.0	0.0	10.0	0.0	160.3	66.2	823.1	0.0	0.0
53.00	Bot - Section 3	41.1	383.5					0.0	96.2	41.1	479.6	0.0	0.0
55.00		43.4	457.1					0.0	64.1	43.4	521.2	0.0	0.0
58.25	Top - Section 2	41.4	732.3					0.0	104.2	41.4	836.4	0.0	0.0
60.00		55.7	174.3					0.0	56.1	55.7	230.4	0.0	0.0
65.00		82.2	488.8					0.0	160.3	82.2	649.1	0.0	0.0
70.00		81.6	475.2					0.0	160.3	81.6	635.4	0.0	0.0
75.00		80.8	461.5					0.0	160.3	80.8	621.7	0.0	0.0
80.00		79.8	447.8					0.0	160.3	79.8	608.0	0.0	0.0
85.00		78.7	434.1					0.0	160.3	78.7	594.4	0.0	0.0
90.00		77.5	420.4					0.0	160.3	77.5	580.7	0.0	0.0
95.00		46.0	406.8					0.0	160.3	46.0	567.0	0.0	0.0
96.00	Appurtenance(s)	37.7	79.7	600.6	0.0	0.0	2,393.0	0.0	32.1	638.3	2,504.8	0.0	0.0
100.00		59.7	313.4					0.0	128.2	59.7	441.6	0.0	0.0
104.00	Top - Section 3	35.1	304.6					0.0	93.5	35.1	398.1	0.0	0.0
105.00		33.3	102.7					0.0	14.7	33.3	117.4	0.0	0.0
110.00		55.9	513.6					0.0	73.4	55.9	587.1	0.0	0.0
115.00		56.6	513.6					0.0	73.4	56.6	587.1	0.0	0.0
120.00		51.5	513.6					0.0	73.4	51.5	587.1	0.0	0.0
124.00	Top - Section 4	28.4	410.9					0.0	58.8	28.4	469.7	0.0	0.0
125.00		32.3	94.7					0.0	14.7	32.3	109.4	0.0	0.0
130.00		54.1	473.5					0.0	73.4	54.1	547.0	0.0	0.0
135.00		54.7	473.5					0.0	73.4	54.7	547.0	0.0	0.0
140.00		49.7	473.5					0.0	73.4	49.7	547.0	0.0	0.0
144.00	Top - Section 5	26.9	378.8					0.0	58.8	26.9	437.6	0.0	0.0
145.00		28.0	78.7					0.0	14.7	28.0	93.4	0.0	0.0
150.00		47.0	393.4					0.0	73.4	47.0	466.8	0.0	0.0
155.00	Appurtenance(s)	41.5	393.4	968.0	0.0	0.0	2,511.8	0.0	73.4	1,009.5	2,978.6	0.0	0.0
160.00		17.9	393.4					0.0	0.0	17.9	393.4	0.0	0.0
								Totals:		3,828.10	28,875.2	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-28.87	-3.79	0.00	-385.68	0.00	385.68	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.108
5.00	-27.76	-3.72	0.00	-366.73	0.00	366.73	3,869.00	973.63	4,099.11	3,709.95	0.02	-0.03	0.106
10.00	-26.66	-3.65	0.00	-348.12	0.00	348.12	3,812.27	952.47	3,922.86	3,575.45	0.07	-0.07	0.104
15.00	-25.59	-3.58	0.00	-329.86	0.00	329.86	3,754.32	931.30	3,750.48	3,442.23	0.16	-0.10	0.103
20.00	-24.53	-3.52	0.00	-311.94	0.00	311.94	3,695.16	910.14	3,581.98	3,310.34	0.28	-0.13	0.101
25.00	-23.50	-3.45	0.00	-294.37	0.00	294.37	3,634.78	888.98	3,417.35	3,179.89	0.44	-0.17	0.099
30.00	-22.48	-3.38	0.00	-277.13	0.00	277.13	3,573.18	867.81	3,256.59	3,050.92	0.64	-0.20	0.097
35.00	-20.79	-3.33	0.00	-260.22	0.00	260.22	3,510.36	846.65	3,099.70	2,923.54	0.87	-0.24	0.095
36.00	-20.45	-3.30	0.00	-256.89	0.00	256.89	2,784.37	713.98	2,645.12	2,350.45	0.92	-0.25	0.117
40.00	-19.77	-3.24	0.00	-243.69	0.00	243.69	2,748.65	699.87	2,541.62	2,274.10	1.14	-0.28	0.114
45.00	-18.94	-3.16	0.00	-227.51	0.00	227.51	2,702.91	682.23	2,415.15	2,179.46	1.45	-0.32	0.111
50.00	-18.12	-3.10	0.00	-211.69	0.00	211.69	2,655.95	664.60	2,291.91	2,085.80	1.80	-0.36	0.108
53.00	-17.64	-3.07	0.00	-202.38	0.00	202.38	2,627.19	654.01	2,219.51	2,030.10	2.04	-0.38	0.106
55.00	-17.11	-3.03	0.00	-196.25	0.00	196.25	2,607.78	646.96	2,171.89	1,993.18	2.20	-0.40	0.105
58.25	-16.28	-2.98	0.00	-186.42	0.00	186.42	1,919.69	516.23	1,728.46	1,465.89	2.48	-0.43	0.136
60.00	-16.05	-2.94	0.00	-181.20	0.00	181.20	1,909.04	511.29	1,695.55	1,443.71	2.64	-0.44	0.134
65.00	-15.39	-2.86	0.00	-166.52	0.00	166.52	1,877.79	497.18	1,603.27	1,380.63	3.14	-0.49	0.129
70.00	-14.76	-2.79	0.00	-152.21	0.00	152.21	1,845.32	483.07	1,513.57	1,317.98	3.68	-0.54	0.124
75.00	-14.13	-2.71	0.00	-138.28	0.00	138.28	1,811.64	468.96	1,426.45	1,255.86	4.27	-0.59	0.118
80.00	-13.53	-2.64	0.00	-124.72	0.00	124.72	1,776.74	454.85	1,341.92	1,194.34	4.92	-0.64	0.112
85.00	-12.93	-2.56	0.00	-111.53	0.00	111.53	1,740.62	440.74	1,259.97	1,133.49	5.62	-0.69	0.106
90.00	-12.35	-2.49	0.00	-98.72	0.00	98.72	1,703.29	426.63	1,180.60	1,073.39	6.36	-0.74	0.099
95.00	-11.78	-2.44	0.00	-86.28	0.00	86.28	1,664.74	412.52	1,103.81	1,014.12	7.16	-0.78	0.092
96.00	-9.28	-1.77	0.00	-83.84	0.00	83.84	1,656.88	409.70	1,088.76	1,002.37	7.33	-0.79	0.089
100.00	-8.84	-1.71	0.00	-76.76	0.00	76.76	1,624.97	398.41	1,029.60	955.76	8.00	-0.83	0.086
104.00	-8.44	-1.67	0.00	-69.91	0.00	69.91	1,592.28	387.13	972.10	909.77	8.71	-0.86	0.082
104.00	-8.44	-1.67	0.00	-69.91	0.00	69.91	950.95	285.28	642.72	624.60	8.71	-0.86	0.121
105.00	-8.33	-1.64	0.00	-68.24	0.00	68.24	950.95	285.28	642.72	624.60	8.89	-0.87	0.118
110.00	-7.74	-1.58	0.00	-60.03	0.00	60.03	950.95	285.28	642.72	624.60	9.83	-0.91	0.104
115.00	-7.15	-1.52	0.00	-52.13	0.00	52.13	950.95	285.28	642.72	624.60	10.79	-0.94	0.091
120.00	-6.57	-1.46	0.00	-44.54	0.00	44.54	950.95	285.28	642.72	624.60	11.79	-0.97	0.078
124.00	-6.10	-1.42	0.00	-38.70	0.00	38.70	950.95	285.28	642.72	624.60	12.61	-0.99	0.068
124.00	-6.10	-1.42	0.00	-38.70	0.00	38.70	876.73	263.02	546.31	539.02	12.61	-0.99	0.079
125.00	-5.99	-1.39	0.00	-37.27	0.00	37.27	876.73	263.02	546.31	539.02	12.82	-0.99	0.076
130.00	-5.44	-1.33	0.00	-30.31	0.00	30.31	876.73	263.02	546.31	539.02	13.87	-1.02	0.062
135.00	-4.89	-1.27	0.00	-23.66	0.00	23.66	876.73	263.02	546.31	539.02	14.95	-1.04	0.049
140.00	-4.35	-1.21	0.00	-17.32	0.00	17.32	876.73	263.02	546.31	539.02	16.04	-1.05	0.037
144.00	-3.91	-1.17	0.00	-12.48	0.00	12.48	876.73	263.02	546.31	539.02	16.93	-1.06	0.028
144.00	-3.91	-1.17	0.00	-12.48	0.00	12.48	728.28	218.49	376.97	379.17	16.93	-1.06	0.038
145.00	-3.82	-1.15	0.00	-11.30	0.00	11.30	728.28	218.49	376.97	379.17	17.15	-1.06	0.035
150.00	-3.35	-1.09	0.00	-5.58	0.00	5.58	728.28	218.49	376.97	379.17	18.27	-1.07	0.019
155.00	-0.39	-0.03	0.00	-0.13	0.00	0.13	728.28	218.49	376.97	379.17	19.39	-1.08	0.001
160.00	0.00	-0.02	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	20.52	-1.08	0.000

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.61	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	28.88	k
Seismic Base Shear (E):	0.87	k

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	157.50	393	9,758	0.042	36	487
38	152.50	467	10,856	0.046	40	578
37	147.50	467	10,156	0.043	37	578
36	144.50	93	1,949	0.008	7	116
35	142.00	438	8,824	0.038	33	542
34	137.50	547	10,342	0.044	38	678
33	132.50	547	9,603	0.041	35	678
32	127.50	547	8,892	0.038	33	678
31	124.50	109	1,696	0.007	6	136
30	122.00	470	6,990	0.030	26	582
29	117.50	587	8,105	0.035	30	727
28	112.50	587	7,430	0.032	27	727
27	107.50	587	6,784	0.029	25	727
26	104.50	117	1,282	0.005	5	145
25	102.00	398	4,142	0.018	15	493
24	98.00	442	4,241	0.018	16	547
23	95.50	112	1,019	0.004	4	138
22	92.50	567	4,851	0.021	18	703
21	87.50	581	4,446	0.019	16	719
20	82.50	594	4,045	0.017	15	736
19	77.50	608	3,652	0.016	13	753
18	72.50	622	3,268	0.014	12	770
17	67.50	635	2,895	0.012	11	787
16	62.50	649	2,535	0.011	9	804
15	59.13	230	805	0.003	3	285

14	56.63	836	2,682	0.011	10	1,036
13	54.00	521	1,520	0.006	6	646
12	51.50	480	1,272	0.005	5	594
11	47.50	813	1,835	0.008	7	1,007
10	42.50	830	1,500	0.006	6	1,029
9	38.00	676	977	0.004	4	838
8	35.50	335	422	0.002	2	415
7	32.50	1,695	1,791	0.008	7	2,101
6	27.50	1,012	765	0.003	3	1,254
5	22.50	1,032	523	0.002	2	1,279
4	17.50	1,053	322	0.001	1	1,305
3	12.50	1,073	168	0.001	1	1,330
2	7.50	1,094	62	0.000	0	1,355
1	2.50	1,114	7	0.000	0	1,381
Ericsson RRUS 8843 B	155.00	216	5,189	0.022	19	268
Ericsson RRUS 4415 B	155.00	138	3,315	0.014	12	171
Ericsson RRUS 4449 B	155.00	213	5,117	0.022	19	264
Ericsson RRUS 4478 B	155.00	178	4,281	0.018	16	221
Raycap DC6-48-60-18-	155.00	16	384	0.002	1	20
Raycap DC9-48-60-24-	155.00	16	384	0.002	1	20
CCI DMP65R-BU8D	155.00	287	6,898	0.029	25	356
Generic Flat Light S	155.00	1,200	28,830	0.123	106	1,487
CCI TPA65R-BU8D	155.00	248	5,946	0.025	22	307
Alcatel-Lucent RRH2x	96.00	150	1,382	0.006	5	186
Alcatel-Lucent RRH2x	96.00	132	1,217	0.005	4	164
Antel BXA-171063/12C	96.00	90	829	0.004	3	112
RFS DB-T1-6Z-8AB-0Z	96.00	44	406	0.002	1	55
Antel BXA-70063/6CF_	96.00	102	940	0.004	3	126
Generic Round Low Pr	96.00	1,875	17,280	0.074	64	2,323
Generic 2" x 8" GPS	50.00	10	25	0.000	0	12
		28,875	234,838	1.000	866	35,778

Load Case 0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	157.50	393	9,758	0.042	36	339
38	152.50	467	10,856	0.046	40	402
37	147.50	467	10,156	0.043	37	402
36	144.50	93	1,949	0.008	7	80
35	142.00	438	8,824	0.038	33	377
34	137.50	547	10,342	0.044	38	471
33	132.50	547	9,603	0.041	35	471
32	127.50	547	8,892	0.038	33	471
31	124.50	109	1,696	0.007	6	94
30	122.00	470	6,990	0.030	26	404
29	117.50	587	8,105	0.035	30	505
28	112.50	587	7,430	0.032	27	505
27	107.50	587	6,784	0.029	25	505
26	104.50	117	1,282	0.005	5	101
25	102.00	398	4,142	0.018	15	343
24	98.00	442	4,241	0.018	16	380
23	95.50	112	1,019	0.004	4	96
22	92.50	567	4,851	0.021	18	488
21	87.50	581	4,446	0.019	16	500
20	82.50	594	4,045	0.017	15	512
19	77.50	608	3,652	0.016	13	524
18	72.50	622	3,268	0.014	12	535
17	67.50	635	2,895	0.012	11	547
16	62.50	649	2,535	0.011	9	559
15	59.13	230	805	0.003	3	198

14	56.63	836	2,682	0.011	10	720
13	54.00	521	1,520	0.006	6	449
12	51.50	480	1,272	0.005	5	413
11	47.50	813	1,835	0.008	7	700
10	42.50	830	1,500	0.006	6	715
9	38.00	676	977	0.004	4	582
8	35.50	335	422	0.002	2	288
7	32.50	1,695	1,791	0.008	7	1,460
6	27.50	1,012	765	0.003	3	871
5	22.50	1,032	523	0.002	2	889
4	17.50	1,053	322	0.001	1	906
3	12.50	1,073	168	0.001	1	924
2	7.50	1,094	62	0.000	0	942
1	2.50	1,114	7	0.000	0	959
Ericsson RRUS 8843 B	155.00	216	5,189	0.022	19	186
Ericsson RRUS 4415 B	155.00	138	3,315	0.014	12	119
Ericsson RRUS 4449 B	155.00	213	5,117	0.022	19	183
Ericsson RRUS 4478 B	155.00	178	4,281	0.018	16	153
Raycap DC6-48-60-18-	155.00	16	384	0.002	1	14
Raycap DC9-48-60-24-	155.00	16	384	0.002	1	14
CCI DMP65R-BU8D	155.00	287	6,898	0.029	25	247
Generic Flat Light S	155.00	1,200	28,830	0.123	106	1,033
CCI TPA65R-BU8D	155.00	248	5,946	0.025	22	213
Alcatel-Lucent RRH2x	96.00	150	1,382	0.006	5	129
Alcatel-Lucent RRH2x	96.00	132	1,217	0.005	4	114
Antel BXA-171063/12C	96.00	90	829	0.004	3	77
RFS DB-T1-6Z-8AB-0Z	96.00	44	406	0.002	1	38
Antel BXA-70063/6CF_	96.00	102	940	0.004	3	88
Generic Round Low Pr	96.00	1,875	17,280	0.074	64	1,614
Generic 2" x 8" GPS	50.00	10	25	0.000	0	9
		28,875	234,838	1.000	866	24,860

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.40	-0.87	0.00	-110.92	0.00	110.92	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.038
5.00	-33.04	-0.87	0.00	-106.58	0.00	106.58	3,869.00	973.63	4,099.11	3,709.95	0.01	-0.01	0.037
10.00	-31.71	-0.88	0.00	-102.22	0.00	102.22	3,812.27	952.47	3,922.86	3,575.45	0.02	-0.02	0.037
15.00	-30.41	-0.88	0.00	-97.83	0.00	97.83	3,754.32	931.30	3,750.48	3,442.23	0.05	-0.03	0.037
20.00	-29.13	-0.88	0.00	-93.42	0.00	93.42	3,695.16	910.14	3,581.98	3,310.34	0.08	-0.04	0.036
25.00	-27.87	-0.89	0.00	-89.00	0.00	89.00	3,634.78	888.98	3,417.35	3,179.89	0.13	-0.05	0.036
30.00	-25.77	-0.88	0.00	-84.58	0.00	84.58	3,573.18	867.81	3,256.59	3,050.92	0.19	-0.06	0.035
35.00	-25.36	-0.88	0.00	-80.17	0.00	80.17	3,510.36	846.65	3,099.70	2,923.54	0.26	-0.07	0.035
36.00	-24.52	-0.88	0.00	-79.29	0.00	79.29	2,784.37	713.98	2,645.12	2,350.45	0.27	-0.07	0.043
40.00	-23.49	-0.88	0.00	-75.77	0.00	75.77	2,748.65	699.87	2,541.62	2,274.10	0.34	-0.08	0.042
45.00	-22.48	-0.87	0.00	-71.38	0.00	71.38	2,702.91	682.23	2,415.15	2,179.46	0.43	-0.10	0.041
50.00	-21.88	-0.87	0.00	-67.01	0.00	67.01	2,655.95	664.60	2,291.91	2,085.80	0.54	-0.11	0.040
53.00	-21.23	-0.87	0.00	-64.39	0.00	64.39	2,627.19	654.01	2,219.51	2,030.10	0.61	-0.12	0.040
55.00	-20.19	-0.86	0.00	-62.66	0.00	62.66	2,607.78	646.96	2,171.89	1,993.18	0.66	-0.12	0.039
58.25	-19.91	-0.86	0.00	-59.87	0.00	59.87	1,919.69	516.23	1,728.46	1,465.89	0.74	-0.13	0.051
60.00	-19.10	-0.85	0.00	-58.37	0.00	58.37	1,909.04	511.29	1,695.55	1,443.71	0.79	-0.14	0.050
65.00	-18.32	-0.84	0.00	-54.12	0.00	54.12	1,877.79	497.18	1,603.27	1,380.63	0.94	-0.15	0.049
70.00	-17.55	-0.83	0.00	-49.91	0.00	49.91	1,845.32	483.07	1,513.57	1,317.98	1.11	-0.17	0.047
75.00	-16.79	-0.82	0.00	-45.74	0.00	45.74	1,811.64	468.96	1,426.45	1,255.86	1.30	-0.18	0.046
80.00	-16.06	-0.81	0.00	-41.63	0.00	41.63	1,776.74	454.85	1,341.92	1,194.34	1.50	-0.20	0.044
85.00	-15.34	-0.79	0.00	-37.59	0.00	37.59	1,740.62	440.74	1,259.97	1,133.49	1.72	-0.22	0.042
90.00	-14.63	-0.78	0.00	-33.61	0.00	33.61	1,703.29	426.63	1,180.60	1,073.39	1.95	-0.23	0.040
95.00	-14.49	-0.78	0.00	-29.72	0.00	29.72	1,664.74	412.52	1,103.81	1,014.12	2.20	-0.25	0.038
96.00	-10.98	-0.67	0.00	-28.95	0.00	28.95	1,656.88	409.70	1,088.76	1,002.37	2.26	-0.25	0.036
100.00	-10.49	-0.65	0.00	-26.29	0.00	26.29	1,624.97	398.41	1,029.60	955.76	2.47	-0.26	0.034
104.00	-10.34	-0.65	0.00	-23.69	0.00	23.69	1,592.28	387.13	972.10	909.77	2.70	-0.28	0.033
104.00	-10.34	-0.65	0.00	-23.69	0.00	23.69	950.95	285.28	642.72	624.60	2.70	-0.28	0.049
105.00	-9.62	-0.62	0.00	-23.04	0.00	23.04	950.95	285.28	642.72	624.60	2.76	-0.28	0.047
110.00	-8.89	-0.59	0.00	-19.95	0.00	19.95	950.95	285.28	642.72	624.60	3.05	-0.29	0.041
115.00	-8.16	-0.56	0.00	-17.00	0.00	17.00	950.95	285.28	642.72	624.60	3.37	-0.30	0.036
120.00	-7.58	-0.53	0.00	-14.22	0.00	14.22	950.95	285.28	642.72	624.60	3.69	-0.31	0.031
124.00	-7.44	-0.52	0.00	-12.10	0.00	12.10	950.95	285.28	642.72	624.60	3.95	-0.32	0.027
124.00	-7.44	-0.52	0.00	-12.10	0.00	12.10	876.73	263.02	546.31	539.02	3.95	-0.32	0.031
125.00	-6.77	-0.49	0.00	-11.58	0.00	11.58	876.73	263.02	546.31	539.02	4.02	-0.32	0.029
130.00	-6.09	-0.45	0.00	-9.14	0.00	9.14	876.73	263.02	546.31	539.02	4.35	-0.33	0.024
135.00	-5.41	-0.41	0.00	-6.90	0.00	6.90	876.73	263.02	546.31	539.02	4.70	-0.33	0.019
140.00	-4.87	-0.37	0.00	-4.87	0.00	4.87	876.73	263.02	546.31	539.02	5.05	-0.34	0.015
144.00	-4.75	-0.36	0.00	-3.38	0.00	3.38	876.73	263.02	546.31	539.02	5.33	-0.34	0.012
144.00	-4.75	-0.36	0.00	-3.38	0.00	3.38	728.28	218.49	376.97	379.17	5.33	-0.34	0.015
145.00	-4.18	-0.32	0.00	-3.02	0.00	3.02	728.28	218.49	376.97	379.17	5.40	-0.34	0.014
150.00	-3.60	-0.28	0.00	-1.40	0.00	1.40	728.28	218.49	376.97	379.17	5.76	-0.34	0.009
155.00	0.00	0.00	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	6.12	-0.34	0.000
160.00	0.00	0.00	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	6.47	-0.34	0.000

Load Case 0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-23.90	-0.87	0.00	-109.07	0.00	109.07	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.034
5.00	-22.96	-0.87	0.00	-104.73	0.00	104.73	3,869.00	973.63	4,099.11	3,709.95	0.00	-0.01	0.034
10.00	-22.03	-0.87	0.00	-100.38	0.00	100.38	3,812.27	952.47	3,922.86	3,575.45	0.02	-0.02	0.034
15.00	-21.13	-0.88	0.00	-96.01	0.00	96.01	3,754.32	931.30	3,750.48	3,442.23	0.04	-0.03	0.034
20.00	-20.24	-0.88	0.00	-91.63	0.00	91.63	3,695.16	910.14	3,581.98	3,310.34	0.08	-0.04	0.033
25.00	-19.37	-0.88	0.00	-87.25	0.00	87.25	3,634.78	888.98	3,417.35	3,179.89	0.13	-0.05	0.033
30.00	-17.91	-0.87	0.00	-82.86	0.00	82.86	3,573.18	867.81	3,256.59	3,050.92	0.18	-0.06	0.032
35.00	-17.62	-0.87	0.00	-78.50	0.00	78.50	3,510.36	846.65	3,099.70	2,923.54	0.25	-0.07	0.032
36.00	-17.04	-0.87	0.00	-77.63	0.00	77.63	2,784.37	713.98	2,645.12	2,350.45	0.27	-0.07	0.039
40.00	-16.32	-0.87	0.00	-74.15	0.00	74.15	2,748.65	699.87	2,541.62	2,274.10	0.33	-0.08	0.039
45.00	-15.62	-0.86	0.00	-69.82	0.00	69.82	2,702.91	682.23	2,415.15	2,179.46	0.42	-0.09	0.038
50.00	-15.20	-0.86	0.00	-65.52	0.00	65.52	2,655.95	664.60	2,291.91	2,085.80	0.53	-0.11	0.037
53.00	-14.75	-0.85	0.00	-62.94	0.00	62.94	2,627.19	654.01	2,219.51	2,030.10	0.60	-0.11	0.037
55.00	-14.03	-0.84	0.00	-61.23	0.00	61.23	2,607.78	646.96	2,171.89	1,993.18	0.65	-0.12	0.036
58.25	-13.83	-0.84	0.00	-58.49	0.00	58.49	1,919.69	516.23	1,728.46	1,465.89	0.73	-0.13	0.047
60.00	-13.27	-0.83	0.00	-57.01	0.00	57.01	1,909.04	511.29	1,695.55	1,443.71	0.78	-0.13	0.046
65.00	-12.73	-0.83	0.00	-52.84	0.00	52.84	1,877.79	497.18	1,603.27	1,380.63	0.93	-0.15	0.045
70.00	-12.19	-0.82	0.00	-48.71	0.00	48.71	1,845.32	483.07	1,513.57	1,317.98	1.09	-0.16	0.044
75.00	-11.67	-0.80	0.00	-44.63	0.00	44.63	1,811.64	468.96	1,426.45	1,255.86	1.27	-0.18	0.042
80.00	-11.16	-0.79	0.00	-40.61	0.00	40.61	1,776.74	454.85	1,341.92	1,194.34	1.47	-0.20	0.040
85.00	-10.66	-0.78	0.00	-36.66	0.00	36.66	1,740.62	440.74	1,259.97	1,133.49	1.68	-0.21	0.038
90.00	-10.17	-0.76	0.00	-32.78	0.00	32.78	1,703.29	426.63	1,180.60	1,073.39	1.91	-0.23	0.037
95.00	-10.07	-0.76	0.00	-28.99	0.00	28.99	1,664.74	412.52	1,103.81	1,014.12	2.16	-0.24	0.035
96.00	-7.63	-0.65	0.00	-28.23	0.00	28.23	1,656.88	409.70	1,088.76	1,002.37	2.21	-0.25	0.033
100.00	-7.29	-0.63	0.00	-25.64	0.00	25.64	1,624.97	398.41	1,029.60	955.76	2.42	-0.26	0.031
104.00	-7.19	-0.63	0.00	-23.10	0.00	23.10	1,592.28	387.13	972.10	909.77	2.64	-0.27	0.030
104.00	-7.19	-0.63	0.00	-23.10	0.00	23.10	950.95	285.28	642.72	624.60	2.64	-0.27	0.045
105.00	-6.68	-0.60	0.00	-22.47	0.00	22.47	950.95	285.28	642.72	624.60	2.70	-0.27	0.043
110.00	-6.18	-0.57	0.00	-19.45	0.00	19.45	950.95	285.28	642.72	624.60	2.99	-0.28	0.038
115.00	-5.67	-0.54	0.00	-16.58	0.00	16.58	950.95	285.28	642.72	624.60	3.29	-0.29	0.033
120.00	-5.27	-0.52	0.00	-13.86	0.00	13.86	950.95	285.28	642.72	624.60	3.61	-0.30	0.028
124.00	-5.17	-0.51	0.00	-11.80	0.00	11.80	950.95	285.28	642.72	624.60	3.86	-0.31	0.024
124.00	-5.17	-0.51	0.00	-11.80	0.00	11.80	876.73	263.02	546.31	539.02	3.86	-0.31	0.028
125.00	-4.70	-0.47	0.00	-11.29	0.00	11.29	876.73	263.02	546.31	539.02	3.93	-0.31	0.026
130.00	-4.23	-0.44	0.00	-8.92	0.00	8.92	876.73	263.02	546.31	539.02	4.26	-0.32	0.021
135.00	-3.76	-0.40	0.00	-6.73	0.00	6.73	876.73	263.02	546.31	539.02	4.60	-0.32	0.017
140.00	-3.38	-0.36	0.00	-4.75	0.00	4.75	876.73	263.02	546.31	539.02	4.94	-0.33	0.013
144.00	-3.30	-0.35	0.00	-3.30	0.00	3.30	876.73	263.02	546.31	539.02	5.21	-0.33	0.010
144.00	-3.30	-0.35	0.00	-3.30	0.00	3.30	728.28	218.49	376.97	379.17	5.21	-0.33	0.013
145.00	-2.90	-0.32	0.00	-2.94	0.00	2.94	728.28	218.49	376.97	379.17	5.28	-0.33	0.012
150.00	-2.50	-0.27	0.00	-1.36	0.00	1.36	728.28	218.49	376.97	379.17	5.63	-0.33	0.007
155.00	0.00	0.00	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	5.98	-0.33	0.000
160.00	0.00	0.00	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	6.33	-0.33	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	16.68	0.00	34.63	0.00	0.00	1709.80	58.25	0.58
0.9D + 1.0W	16.67	0.00	25.97	0.00	0.00	1687.22	58.25	0.56
1.2D + 1.0Di + 1.0Wi	5.12	0.00	50.98	0.00	0.00	537.02	58.25	0.20
1.2D + 1.0Ev + 1.0Eh	0.87	0.00	34.40	0.00	0.00	110.92	58.25	0.05
0.9D - 1.0Ev + 1.0Eh	0.87	0.00	23.90	0.00	0.00	109.07	58.25	0.05
1.0D + 1.0W	3.79	0.00	28.87	0.00	0.00	385.68	58.25	0.14

Site Name: Mansfield CT, CT
Site Number: 283563
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

Monolithic Mat & Pier Foundation Analysis

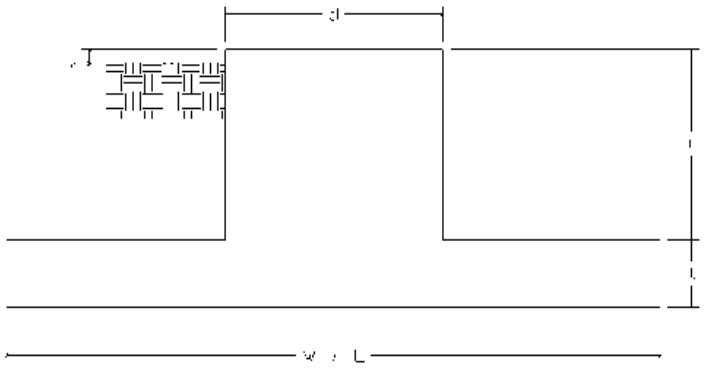
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:	34.6	k
Uplift/Leg:	0.0	k
Total Shear:	16.7	k
Moment:	1,709.8	k-ft
Tower + Appurtenance Weight:	34.6	k
Depth to Base of Foundation (l + t - h):	6	ft
Diameter of Pier (d):	7	ft
Length of Pier (l):	3.5	ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	24	ft
Length of Pad (L):	24	ft
Thickness of Pad (t):	3	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	131	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	68.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.2	-
Ultimate Compressive Bearing Pressure:	14,050	psf
Ultimate Passive Pressure on Pad Face:	1,509	psf
$f_{Soil\ and\ Concrete\ Weight}$:	0.9	-
f_{Soil}:	0.75	-

Overturning Moment Usage		
Design OTM:	1818.2	k-ft
OTM Resistance:	5950.2	k-ft
Design OTM / OTM Resistance:	31%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	1747	psf
Factored Nominal Bearing Pressure:	10538	psf
Factored Nominal (Net) Bearing Pressure:	17%	Pass
Load Direction Controling Design Bearing Pressure:	*Diagonal to Pad Edge*	

Sliding Factor of Safety		
Ultimate Friction Resistance:	103.9	k
Ultimate Passive Pressure Resistance:	81.5	k
Total Factored Sliding Resistance:	139.0	k
Sliding Design / Sliding Resistance:	12%	Pass

Foundation Steel Parameters		
Shear/Leg (Compression):	11.1	k
Shear/Leg (Uplift):	9.2	k
Concrete Strength (f'_c):	4,000	psi
Pad Tension Steel Depth:	32.38	in
Dead Load Factor:	0.9	-
f_{Shear}:	0.75	-
$f_{Flexure\ /\ Tension}$:	0.9	-
$f_{Compression:}$	0.65	-
b:	0.85	-
Bottom Pad Rebar Size #:	10	-
# of Bottom Pad Rebar:	25	-
Pad Bottom Steel Area:	31.75	in^2
Pad Steel F_y:	60,000	psi
Top Pad Rebar Size #:	10	-
# of Top Pad Rebar:	25	-
Pad Top Steel Area:	31.75	in^2
Pier Rebar Size #:	10	-
Pier Steel Area (Single Bar):	1.27	in^2
# of Pier Rebar:	36	-
Pier Steel F_y:	60,000	psi
Pier Cage Diameter:	75.5	in
Rebar Strain Limit:	0.008	-
Steel Elastic Modulus:	29,000	ksi
Tie Rebar Size #:	5	-
Tie Steel Area (Single Bar):	0.31	in^2
Tie Spacing:	6	in
Tie Steel F_y:	40,000	psi
Clear Cover:	3	in



Pad Strength Capacity			
Factored One Way Shear (V_u):	150.8	k	
One Way Shear Capacity (fV_c):	884.6	k	*ACI 318-14 25.5.5.1*
V_u / fV_c:	17%	Pass	
Load Direction Controling Shear Capacity:	*Parallel to Pad Edge*		
Lower Steel Pad Factored Moment (M_u):	944.2	k-ft	
Lower Steel Pad Moment Capacity (fM_n):	4507.4	k-ft	*ACI 318-14 22.3.1.1*
M_u / fM_n:	21%	Pass	
Load Direction Controling Flexural Capacity:	*Parallel to Pad Edge*		
Upper Steel Pad Factored Moment (M_u):	479.8	k-ft	
Upper Steel Pad Moment Capacity (fM_n):	4507.4	k-ft	
M_u / fM_n:	11%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0034		*OK - ACI 318-14 7.6.1.1 & 8.6.1.1*
Upper Pad Flexural Reinforcement Ratio:	0.0034		*OK - ACI 318-14 7.6.1.1 & 8.6.1.1*
Pad Shrinkage Reinforcement Ratio:	0.0068		*OK - ACI 318-14 24.4.3.2*
Lower Pad Reinforcement Spacing:	11.7	in	*OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3*
Upper Pad Reinforcement Spacing:	11.7	in	*OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3*
Ultimate Punching Shear Stress, v_u:	18.77	psi	*ACI 318-14 R8.4.4.2.3*
Nominal Punching Shear Capacity (f_cv_c):	189.7	psi	*ACI 318-14 22.6.5.2*
v_u / f_cv_c:	10%	Pass	
Pier Moment Pad Flexure Transfer Ratio, γ_f:	0.60		*TIA-222-H 9.4.2*
Moment Transfer Effective Flexural Width, B_{eff}:	16.00	ft	*TIA-222-H 9.4.2*
Moment Transfer Through Pad Flexure:	12730.90	k-in	*TIA-222-H 9.4.2*
Moment Transfer Flexural Capacity ($fM_{sc,f}$):	37553.84	k-in	
g_fM_{sc} / $fM_{sc,f}$:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	1768.2	k-ft	
Pier Moment Capacity (fM_n):	7596.2	k-ft	
M_u / fM_n:	23%	Pass	
Factored Shear in Pier (V_u):	16.7	k	
Pier Shear Capacity (fV_n):	735.7	k	*ACI 318-14 22.5.1.1*
V_u / fV_c:	2%	Pass	
Pier Shear Reinforcement Ratio:	0.0007		*OK - No Ties Necessary for Shear - ACI11.5.6.1*
Factored Tension in Pier (T_u):	0.0	k	
Pier Tension Capacity (fT_n):	2468.9	k	
T_u / fT_n:	0%	Pass	
Factored Compression in Pier (P_u):	34.6	k	
Pier Compression Capacity (fP_n):	9756.6	k	*ACI 318-14 22.4.2.1*
P_u / fP_n:	0%	Pass	
Pier Compression Reinforcement Ratio:	0.008		*OK - TIA-222-H 9.4.1*
Minimum Depth to Develop Vertical Rebar:	45	in	*ACI 318-14 25.4.2.3*
Minimum Hook Development Length:	24	in	*ACI 318-14 25.4.3.1*
Minimum Mat Thickness / Edge Distance from Pier:	27.0	in	
Minimum Foundation Depth:	6.27	ft	
$M_u/f_BM_n + T_u/f_TT_n$:	23%	Pass	

Base Plate & Anchor Rod Analysis

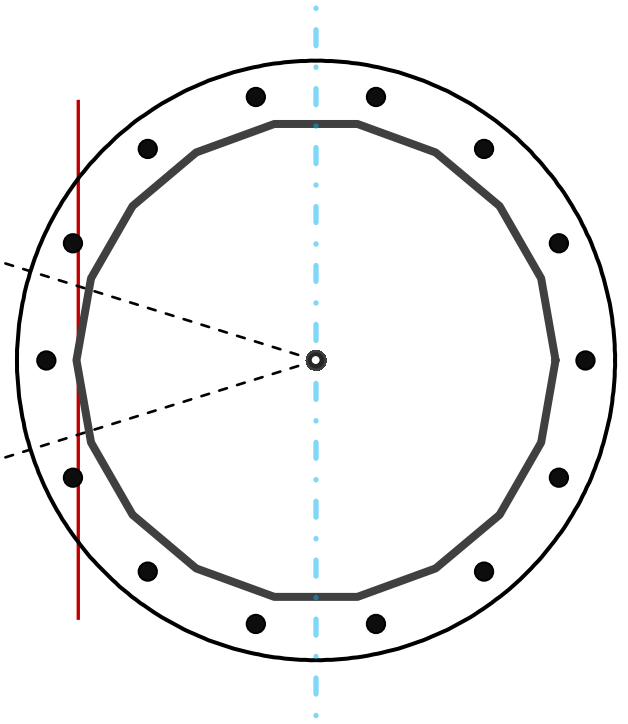
Pole Dimensions		
Number of Sides	18	-
Diameter	48	in
Thickness	3/8	in
Orientation Offset		°

Base Reactions		
Moment, Mu	1,709.8	k-ft
Axial, Pu	34.6	k
Shear, Vu	16.7	k
Neutral Axis	90	°

Report Capacities		
Component	Capacity	Result
Base Plate	21%	Pass
Anchor Rods	47%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	61	in
Thickness	2 1/4	in
Grade	A572-55	
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	256.0	k
Bending Stress, ϕMn	1229.8	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	14	-
Diameter, ø	2 1/4	in
Bolt Circle	55	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	12.3	in
Orientation Offset		°
Applied Force, Pu	113.8	k
Anchor Rods, ϕPn	243.6	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	16.7	1709.8	1.00
Anchor Rod Forces	16.7	1709.8	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

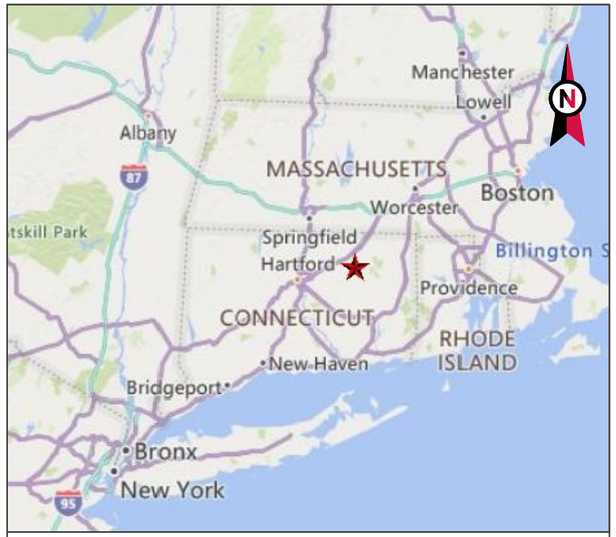
Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	55.8225	3.1012	0.1459		15829.28
Bolt	3.9761	3.2477	0.8393	4.5	15751.46
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	61	in
Thickness, t	2.25	in
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Base Plate Chord	37.643	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	14	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	55	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	113.8	k
Applied Shear, Vu	0.4	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.467	OK
Interaction Capacity	0.471	OK

External Base Plate		
Chord Length AA	31.468	in
Additional AA	4.500	in
Section Modulus, Z	45.522	in^3
Applied Moment, Mu	256.0	k-ft
Bending Capacity, ϕMn	2253.3	k-ft
Capacity, Mu/ϕMn	0.114	OK
Chord Length AB	30.302	in
Additional AB	4.500	in
Section Modulus, Z	44.047	in^3
Applied Moment, Mu	213.8	k-ft
Bending Capacity, ϕMn	2180.3	k-ft
Capacity, Mu/ϕMn	0.098	OK
Bend Line Length	19.630	in
Additional Bend Line	0.000	in
Section Modulus, Z	24.844	in^3
Applied Moment, Mu	256.0	k-ft
Bending Capacity, ϕMn	1229.8	k-ft
Capacity, Mu/ϕMn	0.208	OK

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



VICINITY MAP

AMERICAN TOWER®

SITE NAME: MANSFIELD CT
SITE NUMBER: 283563
ATC PROJECT NUMBER: OAA761009_C6_04
SITE ADDRESS: 343 DALEVILLE ROAD
WILLINGTON, CT 06279

LOCATION MAP

104 FT MONOPOLE W/ PROPOSED 56 FT EXTENSION

PROJECT TEAM

TOWER OWNER

AMERICAN TOWER
10 PRESIDENTAL WAY
WOBURN, MA 01801

ENGINEERED BY

ATC TOWER SERVICES
3500 REGENCY PARKWAY, SUITE 100
CARY, NC 27518

CARRIER INFORMATION

CARRIER: AT&T MOBILITY
CARRIER SITE NAME: WILLINGTON DALEVILLE ROAD
CARRIER SITE NUMBER: CT1377

811 Know what's below. Call before you dig.

PROJECT DESCRIPTION

THE MODIFICATIONS PRESENTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER OAA761009_C3_03 DATED 12/04/20. SATISFACTORY COMPLETION OF THE WORK INDICATED ON THESE DRAWINGS WILL RESULT IN THE STRUCTURE MEETING THE REQUIREMENTS OF THE SPECIFICATIONS UNDER WHICH THE STRUCTURAL WAS COMPLETED.

COMPLIANCE CODE

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

1. ANSI/TIA/EIA: STRUCTURAL STANDARDS (222-H EDITION)
2. INTERNATIONAL BUILDING CODE (2015 IBC)
3. CONNECTICUT STATE BUILDING CODE (2018)

PROJECT LOCATION

GEOGRAPHIC COORDINATES

LATITUDE: 41.83660611

LONGITUDE: -72.2549763

SHEET	SHEET TITLE	REV.
G-002	IBC GENERAL NOTES	0
G-003	SPECIAL INSPECTION CHECKLIST	0
G-004	BILL OF MATERIALS	0
C-101	SITE PLAN	0
S-201	MODIFICATION PROFILE	0
S-501	20 FT MONOPOLE EXTENSION INSTALLATION DETAILS - [26"Ø O.D.]	0
S-502	20 FT MONOPOLE EXTENSION INSTALLATION DETAILS - [24"Ø O.D.]	0
S-503	16 FT MONOPOLE EXTENSION INSTALLATION DETAILS - [20"Ø O.D.]	0
Z-501	20 FT MONOPOLE EXTENSION WELDMENT FABRICATION DETAILS - [26"Ø O.D.]	0
Z-502	20 FT MONOPOLE EXTENSION WELDMENT FABRICATION DETAILS - [24"Ø O.D.]	0
Z-503	16 FT MONOPOLE EXTENSION WELDMENT FABRICATION DETAILS - [20"Ø O.D.]	0
Z-504	MONOPOLE EXTENSION WELDMENT FABRICATION DETAILS (CONT'D)	0
Z-505	CAP PLATE FABRICATION DETAILS	0

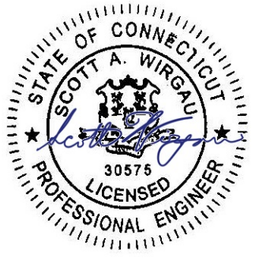
AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	NYG	12/16/20

ATC SITE NUMBER:
283563

ATC SITE NAME:
MANSFIELD CT
CONNECTICUT

SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279



DRAWN BY:	NYG
APPROVED BY:	IPD
DATE DRAWN:	12/16/20
ATC JOB NO:	OAA761009_C6_04

COVER

SHEET NUMBER:	REVISION:
G-001	0

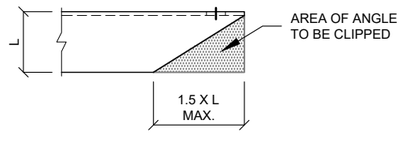
GENERAL

1. ALL WORK TO BE COMPLETED PER APPLICABLE LOCAL, STATE, FEDERAL CODES AND ORDINANCES AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS FOR WIRELESS TOWER SITES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND ABIDING BY ALL REQUIRED PERMITS.
2. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS FOR THIS JOB.
4. ANY SUBSTITUTIONS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
5. ANY MANUFACTURED DESIGN ELEMENTS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS AND SHOULD BE SIMILAR TO THOSE SHOWN. THESE DESIGN ELEMENTS MUST BE STAMPED BY AN ENGINEER PROFESSIONALLY REGISTERED IN THE STATE OF THE PROJECT, AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
6. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND OSHA SAFETY REGULATIONS.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY, PER ANSI/TIA-322 AND ANSI/ASSE A10.48, TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
8. CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

STRUCTURAL STEEL

1. ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS, LATEST EDITION.
2. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
3. ALL U-BOLTS SHALL BE ASTM A36 OR EQUIVALENT, WITH LOCKING DEVICE, UNLESS NOTED OTHERWISE.
4. FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH.
5. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES & GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
6. ALL STRUCTURAL STEEL EMBEDDED IN THE CONCRETE SHALL BE APPLIED WITH (2) BRUSHED COATS OF POLYGUARD CA-14 MASTIC OR EQUIVALENT. REFER TO THE MANUFACTURER SPECIFICATIONS FOR SURFACE PREPARATION AND APPLICATION. APPLICATION OF POLYGUARD 400 WRAP IS NOT ESSENTIAL.
7. CONTRACTOR SHALL PERFORM WORK ON ONLY ONE (1) TOWER FACE AND REPLACE/REINFORCE ONE (1) BOLT/MEMBER AT A TIME.
8. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.

MAXIMUM ALLOWABLE ANGLE CLIP



PAINT

1. AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 70/7460-1L.

WELDING

1. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
2. ALL WELDS SHALL BE INSPECTED VISUALLY. IF DIRECTED BY ENGINEER OF RECORD, 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE (100% IF REJECTABLE DEFECTS ARE FOUND) TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
3. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
4. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER AND/OR BASE METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
5. IN CASES WHERE BASE METAL GRADE IS UNKNOWN, ALL WELDING ON LATTICE TOWERS SHALL BE DONE WITH E70XX ELECTRODES; ALL WELDING ON POLE STRUCTURES SHALL BE DONE WITH E80XX ELECTRODES, UNLESS NOTED OTHERWISE.
6. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

BOLT TIGHTENING PROCEDURE

1. STRUCTURAL CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC SPECIFICATIONS.
2. FLANGE BOLTS SHALL BE INSTALLED AND TIGHTENED USING DIRECT TENSION INDICATING (DTI) SQUIRTER WASHERS. DTI SQUIRTER WASHERS ARE TO BE INSTALLED AND ORIENTED / TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
3. IN LIEU OF USING DTI SQUIRTER WASHERS, FLANGE BOLTS MAY BE TIGHTENED USING AISC / RCSC "TURN-OF-THE-NUT" METHOD, PENDING APPROVAL BY THE ENGINEER OF RECORD (EOR). TIGHTEN FLANGE BOLTS USING THE CHART BELOW:

BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS

1/2"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
5/8"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
3/4"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
7/8"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS UP TO AND INCLUDING 4.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS UP TO AND INCLUDING 5.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS UP TO AND INCLUDING 5.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS UP TO AND INCLUDING 6.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER FOUR DIAMETERS BUT NOT EXCEEDING EIGHT DIAMETERS

1/2"	BOLTS 2.25 TO 4.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
5/8"	BOLTS 2.75 TO 5.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
3/4"	BOLTS 3.25 TO 6.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
7/8"	BOLTS 3.75 TO 7.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS 4.75 TO 9.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS 5.25 TO 10.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS 5.75 TO 11.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS 6.25 TO 12.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT

4. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS", LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

   FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

   8.2.1 TURN-OF-NUT PRETENSIONING
   BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

5. ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.

   ALL BOLT HOLES SHALL BE ALIGNED TO PERMIT INSERTION OF THE BOLTS WITHOUT UNDUE DAMAGE TO THE THREADS. BOLTS SHALL BE PLACED IN ALL HOLES WITH WASHERS POSITIONED AS REQUIRED AND NUTS THREADED TO COMPLETE THE ASSEMBLY. COMPACTING THE JOINT TO THE SNUG-TIGHT CONDITION SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT. THE SNUG-TIGHTENED CONDITION IS THE TIGHTNESS THAT IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.

APPLICABLE CODES AND STANDARDS

1. ANSI/TIA: STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES, 222-H EDITION.
2. 2018 CONNECTICUT STATE BUILDING CODE.
3. 2015 INTERNATIONAL BUILDING CODE.
4. ACI 318: AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE. REFERENCE LATEST APPROPRIATE EDITION TO MATCH LOCAL AND/OR INTERNATIONAL BUILDING CODE(S) LISTED ABOVE.
5. CRSI: CONCRETE REINFORCING STEEL INSTITUTE, MANUAL OF STANDARD PRACTICE, LATEST EDITION.
6. AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, LATEST EDITION.
7. AWS: AMERICAN WELDING SOCIETY D1.1, STRUCTURAL WELDING CODE, LATEST EDITION.

SPECIAL INSPECTION

1. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH IBC 2015, SECTION 1704 AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
   a) STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELD ONLY)
   b) HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 EXTENSION FLANGE BOLTS TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD)
2. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER IN ACCORDANCE WITH IBC 2015, SECTION 1704, UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM SUCH WORK WITHOUT THE SPECIAL INSPECTIONS.

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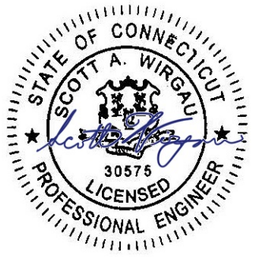
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	NYG	12/16/20

ATC SITE NUMBER:
283563

ATC SITE NAME:
MANSFIELD CT

CONNECTICUT

SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279



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ATC JOB NO:	OAA761009_C6_04

IBC GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

MODIFICATION INSPECTION NOTES

THE SPECIAL INSPECTION (SI) PROCEDURE IS INTENDED TO CONFIRM THAT CONSTRUCTION AND INSTALLATION MEETS ENGINEERING DESIGN, ATC PROCEDURES AND ATC STANDARD SPECIFICATIONS FOR WIRELESS TOWER SITES.

TO ENSURE THAT THE REQUIREMENTS OF THE SI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR AND THE INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED FROM AMERICAN TOWER CORPORATION (ATC). IT IS EXPECTED THAT EACH PARTY WILL PROACTIVELY REACH OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR AMERICAN TOWER POINT OF CONTACT.

SPECIAL INSPECTOR

THE SPECIAL INSPECTOR IS REQUIRED TO CONTACT THE GENERAL CONTRACTOR AS SOON AS RECEIVING A PO FROM ATC. UPON RECEIVING A PO FROM ATC THE SPECIAL INSPECTOR AT A MINIMUM MUST:

- REVIEW THE REQUIREMENTS OF THE SI CHECKLIST.
- WORK WITH THE GENERAL CONTRACTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
- ANY CONCERNS WITH THE SCOPE OF WORK OR PROJECT COMMITMENT MUST BE RELAYED TO THE ATC POINT OF CONTACT IMMEDIATELY.

THE SPECIAL INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR INSPECTION AND TEST REPORTS, REVIEWING THESE DOCUMENTS FOR ADHERENCE TO CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE SI REPORT TO AMERICAN TOWER CORPORATION.

GENERAL CONTRACTOR

THE GENERAL CONTRACTOR IS REQUIRED TO CONTACT THE SI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE SI CHECKLIST.
- WORK WITH THE SI TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.

THE GENERAL CONTRACTOR SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE SI CHECKLIST.

SPECIAL INSPECTION CHECKLIST

INSPECTION DOCUMENT	DESCRIPTION	INSPECTION TESTING REQUIRED	RESPONSIBILITY	SI REVIEW REQUIRED			INSPECTION FREQUENCY	
				PRE CX	DURING CX	POST CX	PERIODIC	CONTINUOUS
SPECIAL INSPECTION FIELD WORK & REPORT	DOCUMENTATION AND SITE VISIT CONDUCTED BY AN ATC APPROVED SPECIAL INSPECTOR AS REQUIRED BY ATC AND OTHER AUTHORITIES HAVING JURISDICTION. INSPECTION PARAMETERS TO FOLLOW ATC'S STANDARD SPECIFICATION FOR WIRELESS TOWER SITES.	✔	SI			✔		
ENGINEERING ASSEMBLY DRAWINGS	GC SHALL SUBMIT DRAWINGS TO SI FOR INCLUSION IN SI REPORT	✔	GC	✔				
FABRICATED MATERIAL VERIFICATION & INSPECTION	MTR AND OR MILL CERTIFICATIONS FOR SUPPLIED MATERIALS GC SHALL SUPPLY SI WITH REPORTS TO BE INCLUDED IN SI REPORT WHEN REQUIRED BY ATC	✔	SI	✔				
CERTIFIED WELD INSPECTION	INSPECTION AND REPORT OF STRUCTURAL WELDING PERFORMED DURING PROJECT COMPLETED BY A CWI AND INCLUDED WITHIN SI REPORT		GC / TA					
FOUNDATION INSPECTION & VERIFICATION	VISUAL OBSERVATION AND APPROVAL OF FOUNDATION EXCAVATION, REBAR PLACEMENT, CASING/SHORING/FORMING PLACEMENT, AND ANCHOR TEMPLATE AND ANCHOR PLACEMENT - TO BE SI APPROVED PRIOR TO CONCRETE POUR AND DOCUMENTED IN THE SI REPORT		SI					
ANCHOR, ROCK ANCHOR OR HELICAL PULL-OUT TEST	PULL TESTING OF INSTALLED ANCHORS TO BE COMPLETED AND DOCUMENTED IN SI REPORT		GC / TA					
CONCRETE INSPECTION & VERIFICATION	CONCRETE MIX DESIGN, SLUMP TEST, COMPRESSIVE TESTING, AND SAMPLE GATHERING TECHNIQUES ARE TO BE PROVIDED FOR INCLUSION IN THE SI REPORT. SI SHALL VERIFY CONCRETE PLACEMENT AS REQUIRED BY THE DESIGN DOCUMENTS (INSPECTION FREQUENCY IS MARKED CONTINUOUS)		GC / TA					
DYWIDAG PLACEMENT/ANCHOR BOLT EMBEDMENT - EPOXY/GROUT INSTALL	ANCHOR/BAR EMBEDMENT, HOLE SIZE, EPOXY/GROUT TYPE, INSTALLATION TEMPERATURE AND INSTALLATION SHALL BE VERIFIED BY THE SI AND INCLUDED IN THE SI REPORT		GC / SI					
BASE PLATE GROUT INSPECTION & VERIFICATION	BASE PLATE GROUTING TYPE AND PLACEMENT SHALL BE CONFIRMED BY THE SI AND INCLUDED IN THE SI REPORT		GC / SI					
EARTHWORK INSPECTION & VERIFICATION	EXCAVATION, FILL, SLOPE, GRADE AND OTHER EARTHWORK REQUIREMENTS PER PLANS SHALL BE VERIFIED BY THE SI AND INCLUDED IN THE SI REPORT		GC / TA					
COMPACTION VERIFICATION	CONTRACTOR SHALL PROVIDE AN INDEPENDENT THIRD PARTY CERTIFIED INSPECTION WHICH PROVIDES TEST RESULTS FOR COMPACTION TEST OF SOILS IN PLACE TO ASTM STANDARDS.		GC / TA					
GROUND TESTING & VERIFICATION	GC SHALL PROVIDE DOCUMENTATION SHOWING THAT THE GROUNDING SYSTEM SHALL HAVE A MEASURED RESISTANCE TO THE GROUND OF NOT MORE THAN THE RECOMMENDED 10 OHMS. PER THE ATC CONSTRUCTION SPECIFICATION UNDER SECTION 2.15 THIS DOCUMENTATION MUST BE AN INDEPENDENT CERTIFICATION.		GC					
STEEL CONSTRUCTION INSPECTION & VERIFICATION	VISUAL OBSERVATION AND APPROVAL OF STEEL CONSTRUCTION TO BE PERFORMED BY THE SI. INSPECTION TO INCLUDE VERIFICATION OF NEW CONSTRUCTION OR MODIFICATION OF EXISTING CONSTRUCTION PER ENGINEERED PLANS. DETAILED VERIFICATION SHALL BE INCLUDED IN SI REPORT.	✔	SI			✔	✔	
ON-SITE COLD GALVANIZING VERIFICATION	SI SHALL VERIFY WITH GC ALL COLD GALVANIZATION TYPE AND APPLICATION AND INCLUDE SUMMARY IN SI REPORT	✔	GC			✔	✔	
GUY WIRE TENSIONING & TOWER ALIGNMENT REPORT	GC SHALL PROVIDE SI EVIDENCE OF PROPER GUY TENSIONING AND TOWER PLUMB PER PLANS. SI SHALL VERIFY AND INCLUDE PLUMB AND TENSION REPORTING IN SI REPORT.		GC					
GC AS-BUILT DRAWINGS WITH CONSTRUCTION RED-LINES	GC SHALL SUBMIT "AS-BUILT" DRAWINGS INDICATING ANY APPROVED CHANGES TO ENGINEERED PLANS TO SI FOR APPROVAL/REVIEW AND INCLUSION IN SI REPORT	✔	GC			✔		
SI AS-BUILT DRAWINGS WITH INSPECTION RED-LINES (AS REQUIRED)	SI SHALL SUBMIT "AS-BUILT" DRAWINGS INDICATING ANY APPROVED CHANGES TO ENGINEERED PLANS WITHIN SI REPORT	✔	SI			✔		
TIA INSPECTION	SI SHALL COMPLETE TIA INSPECTION AND PROVIDE SEPARATE TIA INSPECTION DOCUMENTATION TO ATC CM		SI					
PHOTOGRAPHS	PHOTOGRAPHIC EVIDENCE OF SPECIAL INSPECTION, ON SITE REMEDIATION, AND ITEMS FAILING INSPECTION & REQUIRING FOLLOW UP TO BE INCLUDED WITHIN THE SI REPORT. COMPLETE PHOTO LOG IS TO BE SUBMITTED WITHIN SI REPORT.	✔	GC / SI			✔		

NOTE: SPECIAL INSPECTIONS ARE INTENDED TO BE A COLLABORATIVE EFFORT BETWEEN GC AND SI. WHENEVER POSSIBLE GC IS TO PROVIDE SI WITH PHOTOGRAPHIC OR OTHER ACCEPTABLE EVIDENCE OF PROPER INSTALLATION IF PERIODIC INSPECTION FREQUENCY IS ACCEPTABLE. THE GC AND SI SHALL WORK TO COMPILE EVIDENCE OF PROPER CONSTRUCTION AND LIMIT THE NUMBER OF SI SITE VISITS REQUIRED.

TABLE KEY:
SI - ATC APPROVED SPECIAL INSPECTOR
GC - GENERAL CONTRACTOR
TA - 3RD PARTY TESTING AGENCY
CX - CONSTRUCTION
CM - CONSTRUCTION MANAGER
ATC - AMERICAN TOWER CORPORATION

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283563

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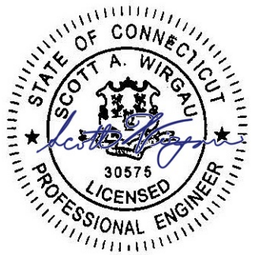
CONNECTICUT

SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279



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ATC JOB NO:	OAA761009_C6_04

SPECIAL INSPECTION CHECKLIST

SHEET NUMBER:	REVISION:
G-003	0

BILL OF MATERIALS

QUANTITY REQUIRED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTION	LENGTH	SHEET LIST	PART WEIGHT	WEIGHT (lb)	NOTES
			20 FT EXTENSION MATERIAL & HARDWARE					
1	1	283563-1	26" OD PIPE EXTENSION WELDMENT	20'-0"	S-501, Z-501, Z-504	2655.4	2655	
12	13	---	BOLT, 1"Ø A325	4 1/4"	---	---	---	W/ HHN-LKW-FW, GALVANIZED
12	13	SW-1000-A325	DTI SQUIRTER WASHER, 1"Ø (A325 RATED)	---	---	---	---	ALLFASTENERS - 2DTIG100A325
			20 FT EXTENSION MATERIAL & HARDWARE					
1	1	283563-2	24" OD PIPE EXTENSION WELDMENT	20'-0"	S-502, Z-502, Z-504	2500.7	2501	
18	19	---	BOLT, 1"Ø A325	4 3/4"	---	---	---	W/ HHN-LKW-FW, GALVANIZED
18	19	SW-1000-A325	DTI SQUIRTER WASHER, 1"Ø (A325 RATED)	---	---	---	---	ALLFASTENERS - 2DTIG100A325
			16 FT EXTENSION MATERIAL & HARDWARE					
1	1	283563-3	20" OD PIPE EXTENSION WELDMENT	16'-0"	S-503, Z-503, Z-504	1762.1	1762	
1	1	283563-4	PL 1/8" X 28"	2'-4"	Z-505	22.9	23	
2	3	BK-100-350-A325	BOLT, 1"Ø A325 W/ HHN-LKW-FW, GALVANIZED	3 1/2"	---	---	---	ALLFASTENERS - 2STBG01312A325-A
12	13	---	BOLT, 1"Ø A325	4 3/4"	---	---	---	W/ HHN-LKW-FW, GALVANIZED
12	13	SW-1000-A325	DTI SQUIRTER WASHER, 1"Ø (A325 RATED)	---	---	---	---	ALLFASTENERS - 2DTIG100A325
			SAFETY CLIMB					
1	1	---	SAFETY CLIMB SYSTEM, 3/8"	160'-0"	---	---	---	GALVANIZED, STAINLESS STEEL CABLE
48	50	SB-625-8250	STEP BOLT	---	---	---	---	
96	100	---	LOCK WASHER, 5/8"Ø	---	---	---	---	GALVANIZED
96	100	---	HEAVY HEX NUT, 5/8"Ø ASTM A563 DH	---	---	---	---	GALVANIZED
						TOTAL WEIGHT (lb)	**6,941**	**PAGE 1 OF 1**

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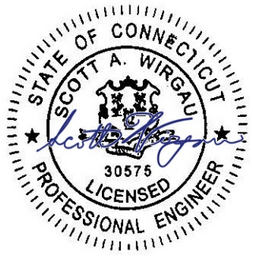

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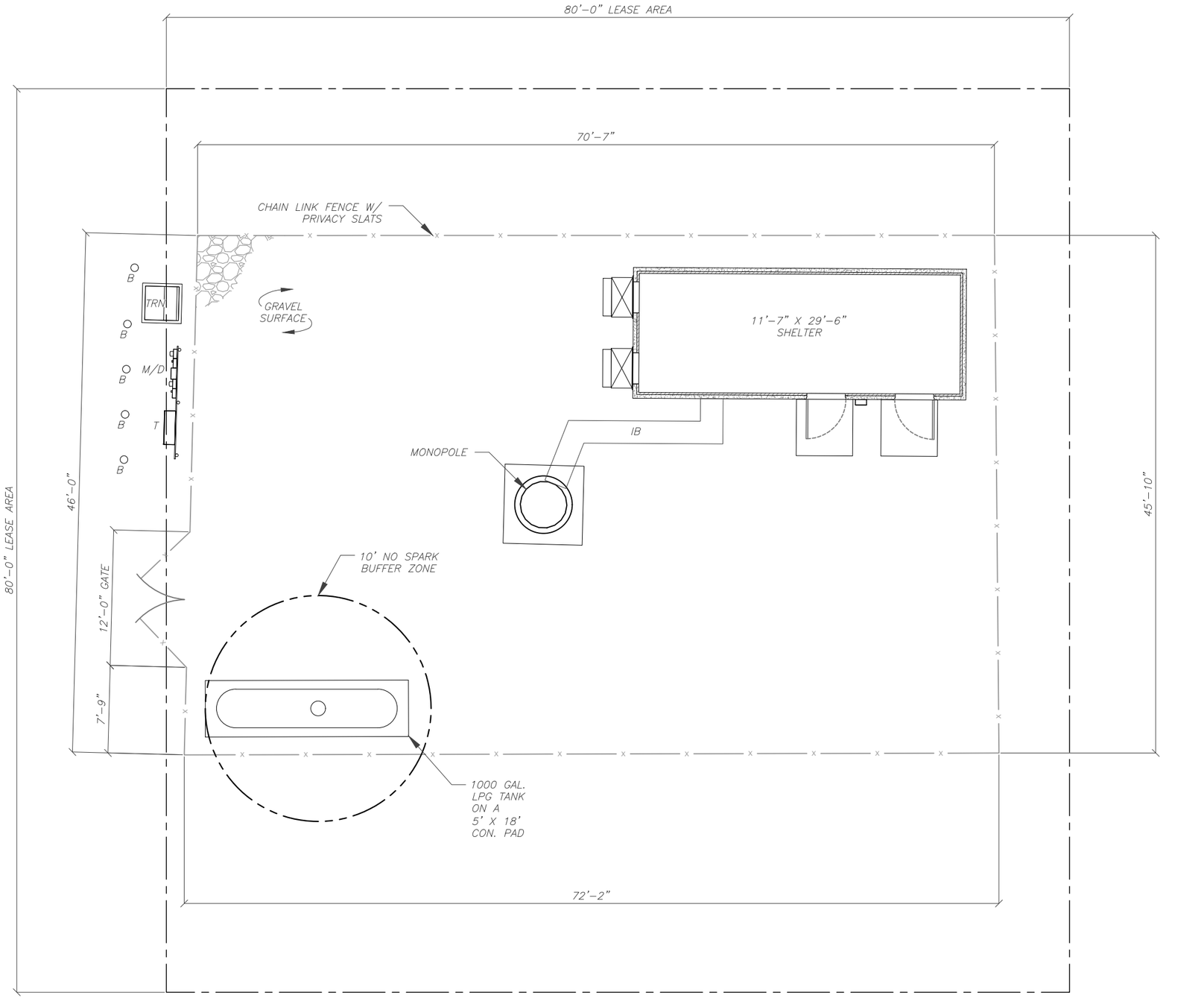
BILL OF MATERIALS

SHEET NUMBER:	REVISION:
G-004	0

LEGEND

⊗	GROUNDING TEST WELL
AV, A/V	AIR VENT
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
C	CABINET
CS	COAX SHROUD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACLE
HH, V	HAND HOLE, VAULT
HFC	HYDROGEN FUEL CELL
HSM	HYDROGEN STORAGE MATERIAL
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
LPG	LIQUID PROPANE GAS
M	METER
OHW	OVERHEAD WIRE
P	POWER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	LEASE AREA
	EASEMENT
	WOOD FENCE
	WIRE FENCE
	METAL FENCE
	GUARD RAIL
	CHAINLINK FENCE
	ROAD (DIRT)
	ROAD (STONE)
	ROAD (PAVED)



0 10' 20'

SCALE: 1"=10' (11X17)
1"=5' (22X34)

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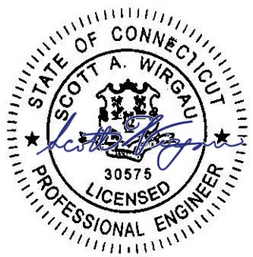

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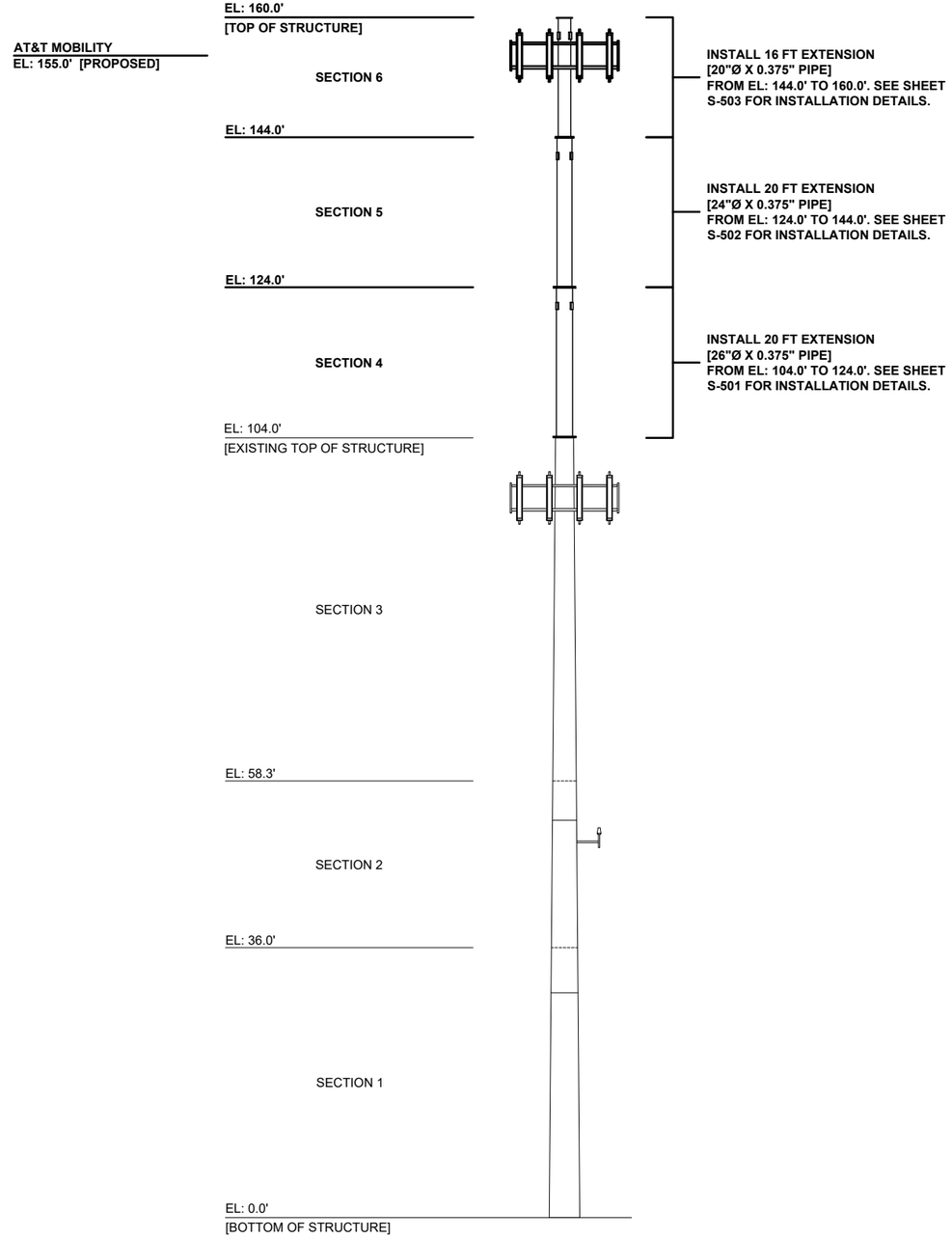
SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0



TOWER ELEVATION VIEW

NOTES:

1. **PROPOSED AT&T MOBILITY COAX TO BE INSTALLED INSIDE MONOPOLE.**
2. **BASE FLANGE WELD AND STIFFENER PLATE WELDS (WHEN PRESENT) ARE TO BE INSPECTED VISUALLY AND BY NDT METHODS BY A CERTIFIED WELD INSPECTOR WITH NDT LEVEL II CERTIFICATION. RESULTS ARE TO BE SENT TO PMI@AMERICANTOWER.COM .**
3. **CONTACT AMERICAN TOWER FIELD OPERATIONS WHEN EXISTING EQUIPMENT INTERFERES WITH INSTALLATION OF MODIFICATIONS. ONCE APPROVED, EXISTING EQUIPMENT MAY BE TEMPORARILY MOVED DURING INSTALLATION & REINSTALLED TO THE ORIGINAL HEIGHT & LOCATION BY CONTRACTOR POST COMPLETION OF MODIFICATIONS.**

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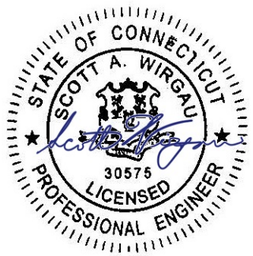

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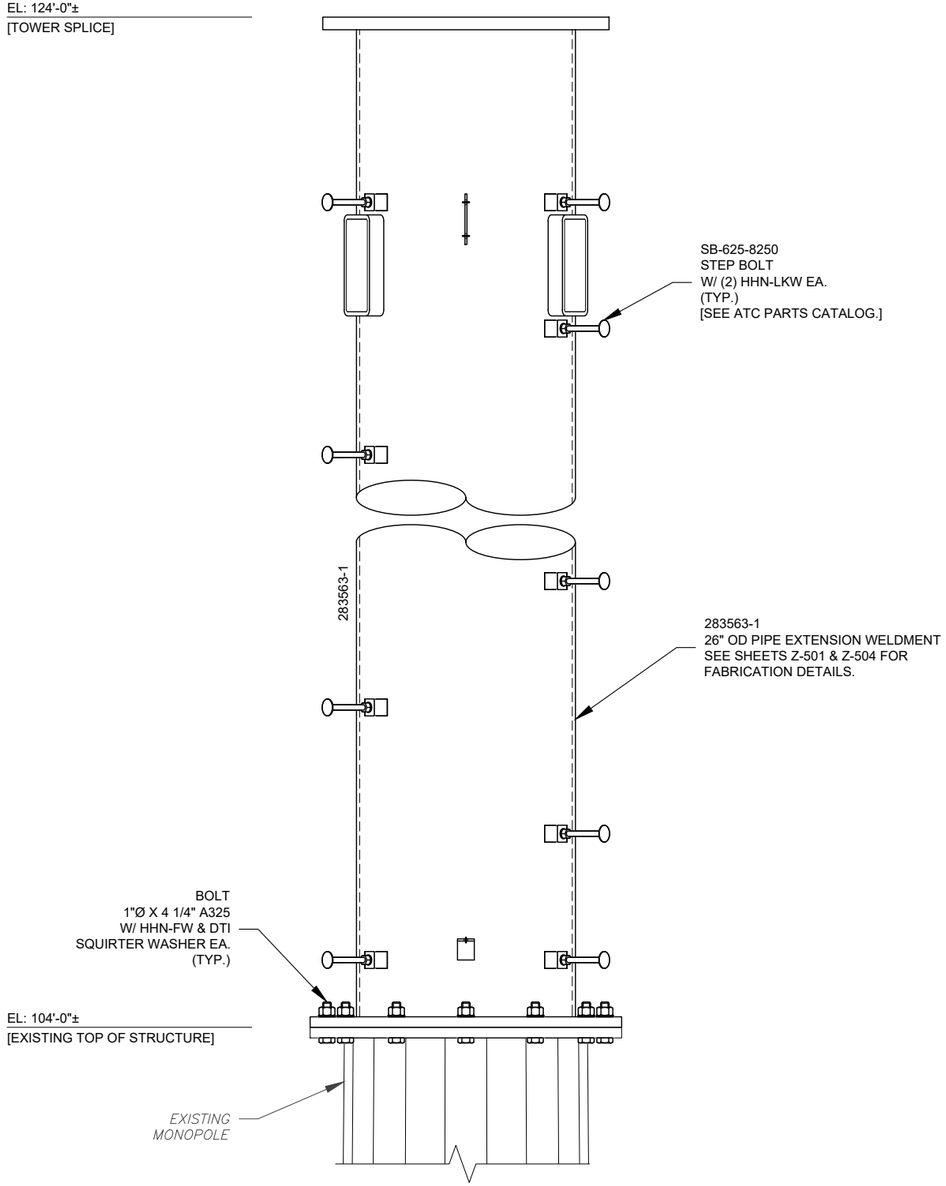
MODIFICATION PROFILE

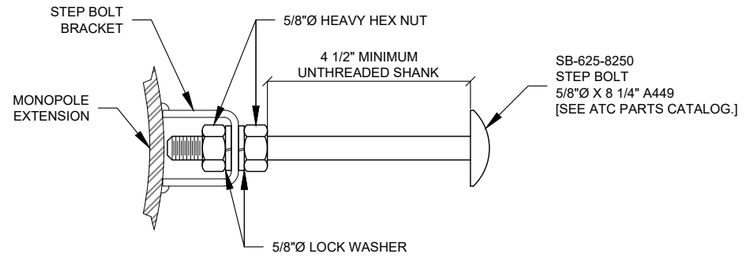
SHEET NUMBER:	REVISION:
S-201	0



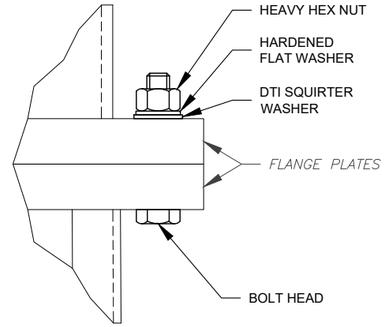
ELEVATION VIEW
MONOPOLE EXTENSION INSTALLATION

NOTES:

1. **ALIGN NEW EXTENSION WELDMENT SAFETY CLIMB BRACKETS TO MATCH EXISTING SAFETY CLIMB SYSTEM AND CLIMBING PATH.**
2. **REMOVE EXISTING SAFETY CLIMB CABLE AND ASSOCIATED HARDWARE / MOUNTS. INSTALL NEW ATC-APPROVED SAFETY CLIMB SYSTEM WITH NEW 3/8"Ø SAFETY CLIMB CABLE. ENSURE 100% TIE-OFF IS MAINTAINED AND CABLE IS FREE OF ALL OBSTRUCTIONS. CONTRACTOR SHALL INSTALL THE PROVIDED SAFETY CLIMB IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.**



STEP BOLT INSTALLATION
TYPICAL DETAIL



FLANGE BOLT INSTALLATION
TYPICAL DETAIL

1. **ALL FLANGE BOLTS SHALL BE TIGHTENED USING DTI SQUIRTER WASHERS FOR TENSION VERIFICATION. SEE SHEET G-002 FOR DETAILS.**
2. **PROPER TORQUE GENERATING EQUIPMENT, WHICH MAY INCLUDE IMPACT WRENCHES, IS REQUIRED IN ORDER TO ACHIEVE DTI COMPRESSION WITH SQUIRT INDICATION. MANUFACTURER GUIDELINES FOR DTI INSTALLATION ARE TO BE FOLLOWED.**

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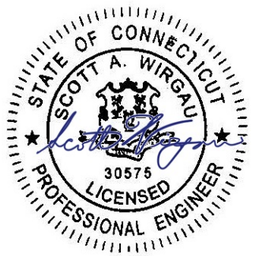

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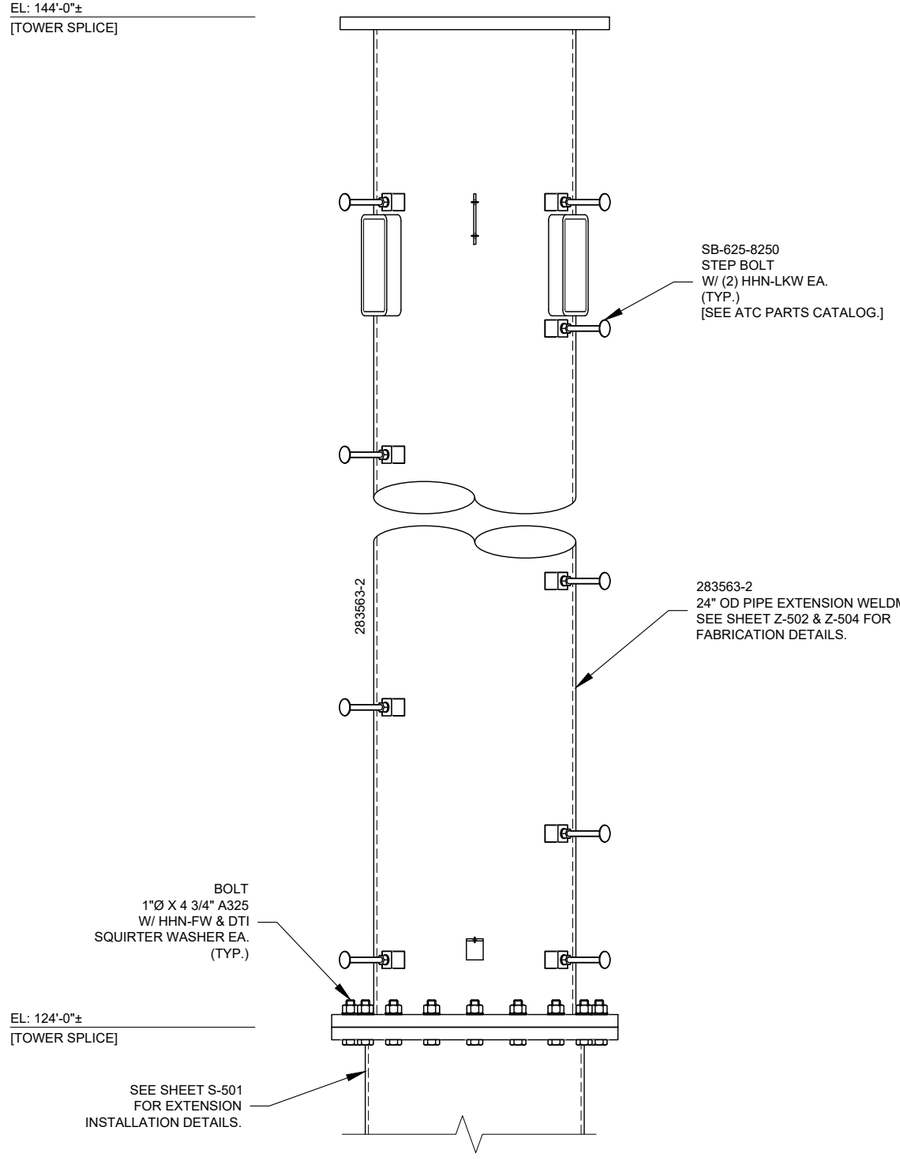
20 FT MONOPOLE EXTENSION
INSTALLATION DETAILS
[26"Ø O.D.]

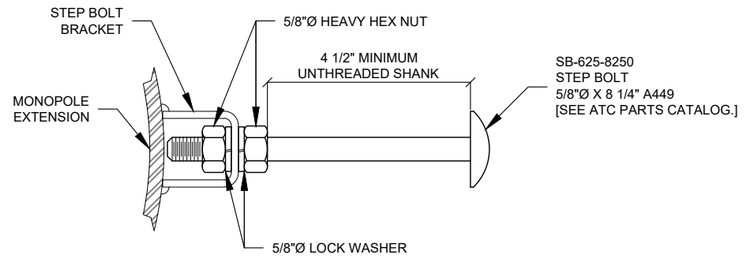
SHEET NUMBER:	REVISION:
S-501	0



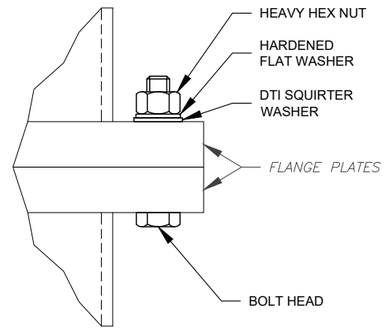
ELEVATION VIEW
MONOPOLE EXTENSION INSTALLATION

NOTES:

1. **ALIGN NEW EXTENSION WELDMENT SAFETY CLIMB BRACKETS TO MATCH EXISTING SAFETY CLIMB SYSTEM AND CLIMBING PATH.**
2. **REMOVE EXISTING SAFETY CLIMB CABLE AND ASSOCIATED HARDWARE / MOUNTS. INSTALL NEW ATC-APPROVED SAFETY CLIMB SYSTEM WITH NEW 3/8"Ø SAFETY CLIMB CABLE. ENSURE 100% TIE-OFF IS MAINTAINED AND CABLE IS FREE OF ALL OBSTRUCTIONS. CONTRACTOR SHALL INSTALL THE PROVIDED SAFETY CLIMB IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.**



STEP BOLT INSTALLATION
TYPICAL DETAIL



FLANGE BOLT INSTALLATION
TYPICAL DETAIL

1. **ALL FLANGE BOLTS SHALL BE TIGHTENED USING DTI SQUIRTER WASHERS FOR TENSION VERIFICATION. SEE SHEET G-002 FOR DETAILS.**
2. **PROPER TORQUE GENERATING EQUIPMENT, WHICH MAY INCLUDE IMPACT WRENCHES, IS REQUIRED IN ORDER TO ACHIEVE DTI COMPRESSION WITH SQUIRT INDICATION. MANUFACTURER GUIDELINES FOR DTI INSTALLATION ARE TO BE FOLLOWED.**

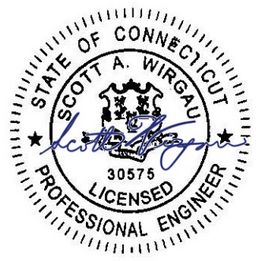
AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	NYG	12/16/20

ATC SITE NUMBER:
283563

ATC SITE NAME:
MANSFIELD CT
CONNECTICUT

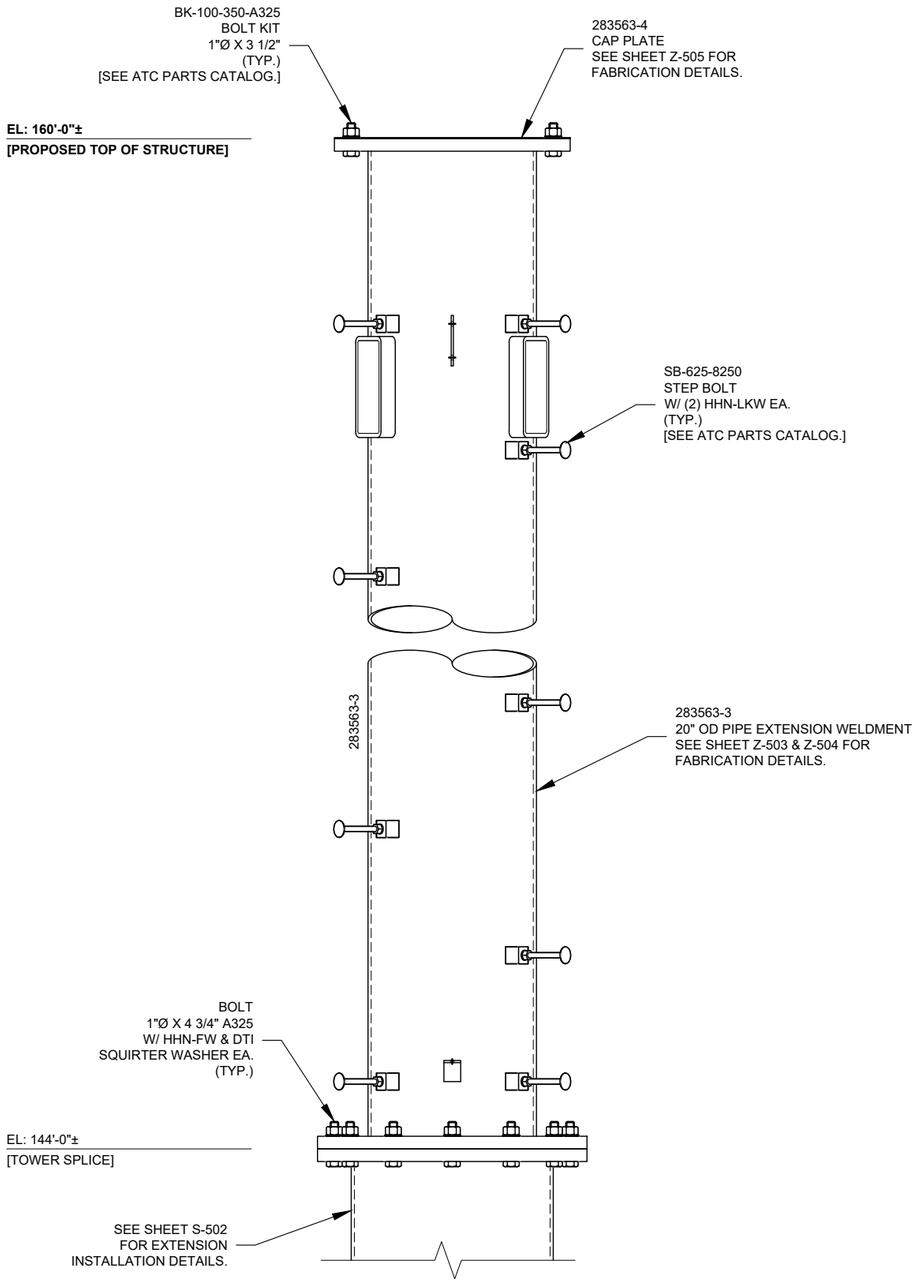
SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279



DRAWN BY:	NYG
APPROVED BY:	IPD
DATE DRAWN:	12/16/20
ATC JOB NO:	OAA761009_C6_04

20 FT MONOPOLE EXTENSION
INSTALLATION DETAILS
[24"Ø O.D.]

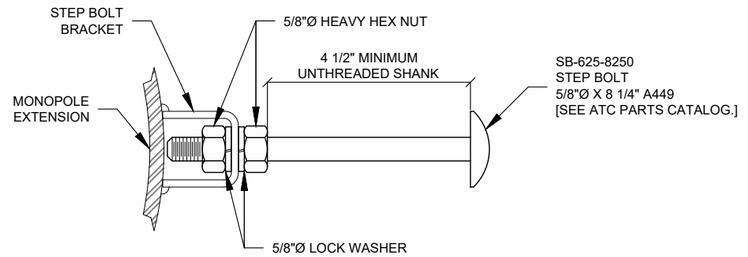
SHEET NUMBER:	REVISION:
S-502	0



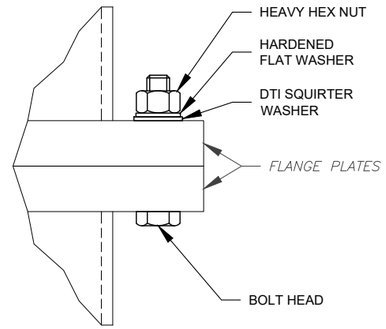
ELEVATION VIEW
MONOPOLE EXTENSION INSTALLATION

NOTES:

1. **ALIGN NEW EXTENSION WELDMENT SAFETY CLIMB BRACKETS TO MATCH EXISTING SAFETY CLIMB SYSTEM AND CLIMBING PATH.**
2. **REMOVE EXISTING SAFETY CLIMB CABLE AND ASSOCIATED HARDWARE / MOUNTS. INSTALL NEW ATC-APPROVED SAFETY CLIMB SYSTEM WITH NEW 3/8"Ø SAFETY CLIMB CABLE. ENSURE 100% TIE-OFF IS MAINTAINED AND CABLE IS FREE OF ALL OBSTRUCTIONS. CONTRACTOR SHALL INSTALL THE PROVIDED SAFETY CLIMB IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.**



STEP BOLT INSTALLATION
TYPICAL DETAIL



FLANGE BOLT INSTALLATION
TYPICAL DETAIL

1. **ALL FLANGE BOLTS SHALL BE TIGHTENED USING DTI SQUIRTER WASHERS FOR TENSION VERIFICATION. SEE SHEET G-002 FOR DETAILS.**
2. **PROPER TORQUE GENERATING EQUIPMENT, WHICH MAY INCLUDE IMPACT WRENCHES, IS REQUIRED IN ORDER TO ACHIEVE DTI COMPRESSION WITH SQUIRT INDICATION. MANUFACTURER GUIDELINES FOR DTI INSTALLATION ARE TO BE FOLLOWED.**

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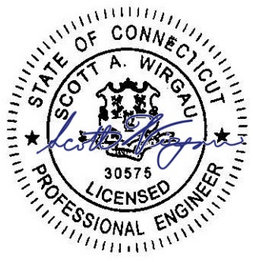
283563

ATC SITE NAME:
MANSFIELD CT
CONNECTICUT

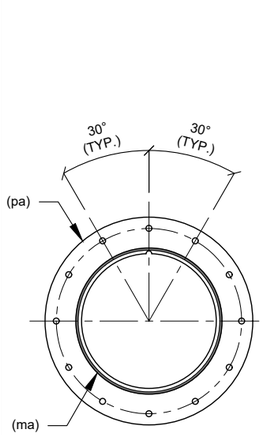
SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279



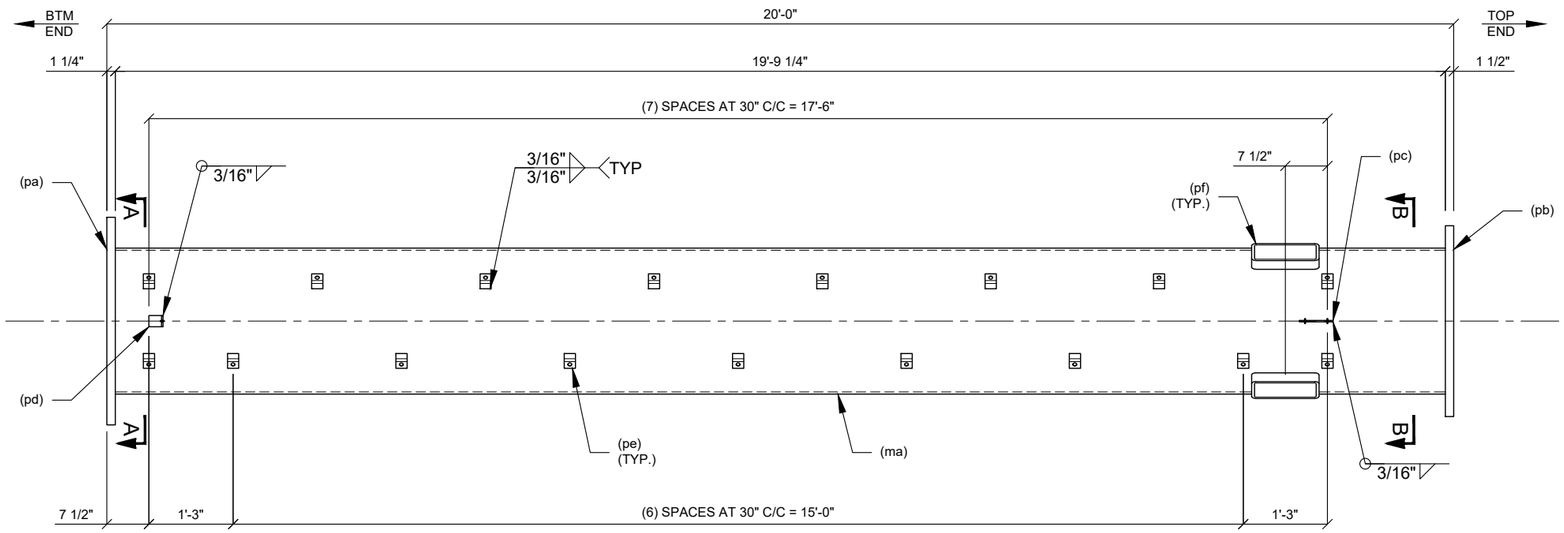
DRAWN BY:	NYG
APPROVED BY:	IPD
DATE DRAWN:	12/16/20
ATC JOB NO:	OAA761009_C6_04

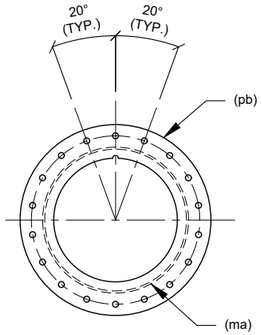
16 FT MONOPOLE EXTENSION
INSTALLATION DETAILS
[20"Ø O.D.]

SHEET NUMBER:	REVISION:
S-503	0



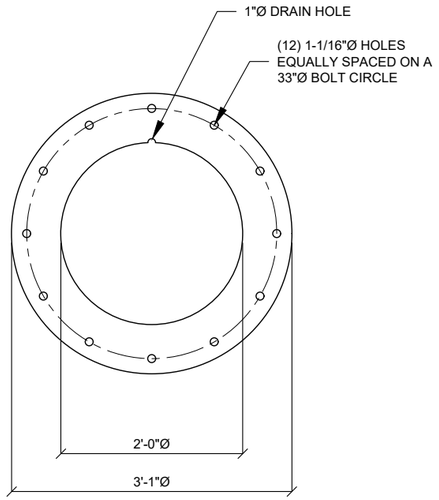
SECTION "A-A"





TOP VIEW

283563-1
26" OD PIPE EXTENSION WELDMENT



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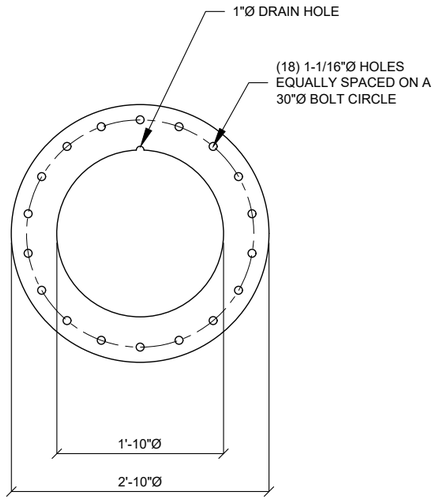

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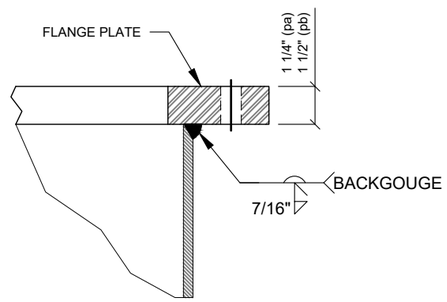
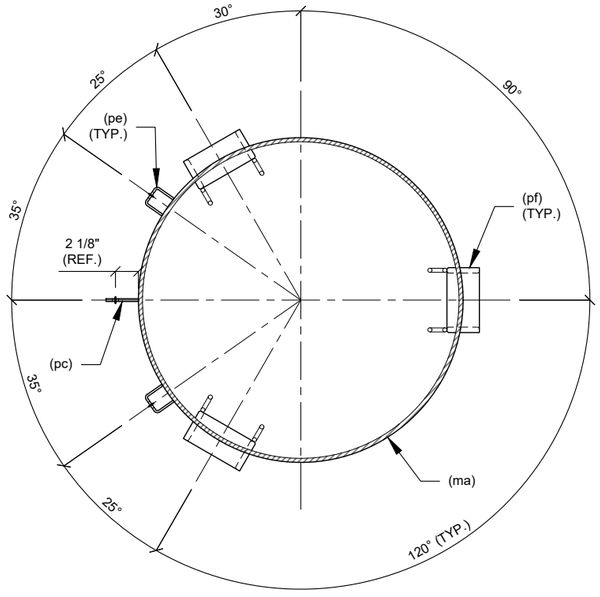


FLANGE PLATE WELD DETAIL
TYPICAL DETAIL



SECTION "B-B"

(pf)	3	PORTHOLE WELDMENT	0'-3"		Z-504	42.6#
(pe)	17	STEP BOLT BRACKET	0'-2"		Z-504	10.2#
(pd)	1	L 3" X 2 1/2" X 1/4"	0'-2"		Z-504	0.8#
(pc)	1	PL 1/4" X 3"	0'-6"		Z-504	1.3#
(pb)	1	PL 1 1/2" X 34"	2'-10"	A572 GR. 50 / ROUND	Z-501	224.3#
(pa)	1	PL 1 1/4" X 37"	3'-1"	A572 GR. 50 / ROUND	Z-501	220.6#
(ma)	1	26" OD X 0.375" PIPE	19'-9 1/4"	A53 GR. B / SC2E	Z-501	2029.1#
283563-1	1	26" OD PIPE EXTENSION WELDMENT	20'-0"		Z-501	2528.9#
PART NO.	**QTY**	**DESCRIPTION**	**LENGTH**	**NOTES**	**SHEET**	**BLK WT**
MATERIAL: A36 U.N.O.		**FINISH:** GALVANIZED	**HOLES:** AS NOTED		**GALV WT:**	2655.4#

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REV.	DESCRIPTION	BY	DATE
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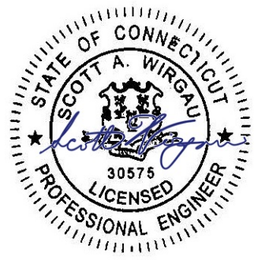
ATC SITE NUMBER:
283563

ATC SITE NAME:
MANSFIELD CT
CONNECTICUT

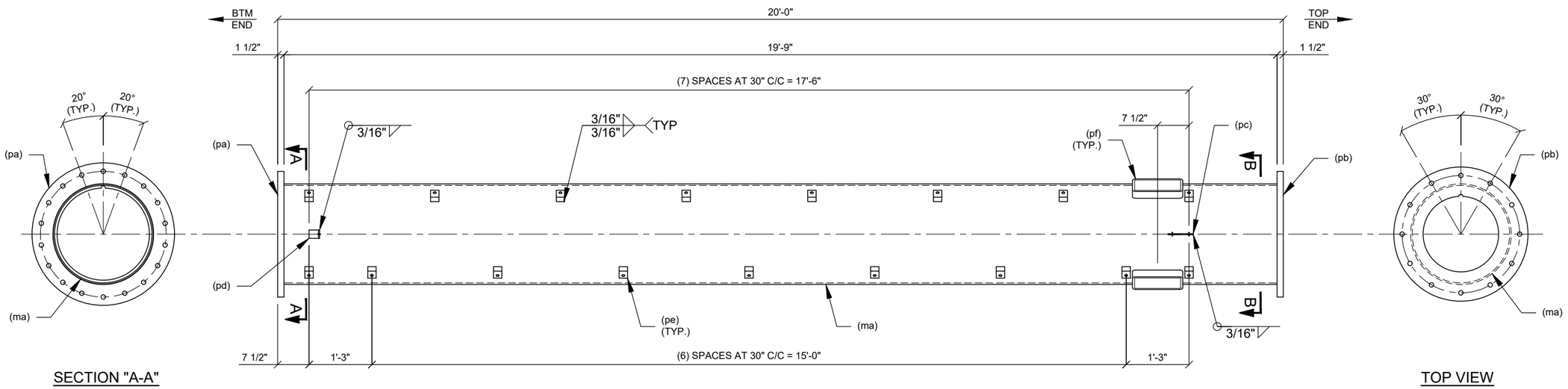
SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279



DRAWN BY:	NYG
APPROVED BY:	IPD
DATE DRAWN:	12/16/20
ATC JOB NO:	OAA761009_C6_04

20 FT MONOPOLE
EXTENSION WELDMENT
FABRICATION DETAILS
[26"Ø O.D.]

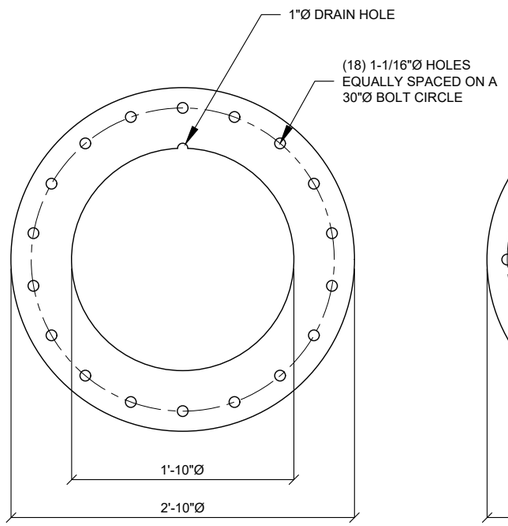
SHEET NUMBER:	REVISION:
Z-501	0



SECTION "A-A"

TOP VIEW

283563-2
24" OD PIPE EXTENSION WELDMENT



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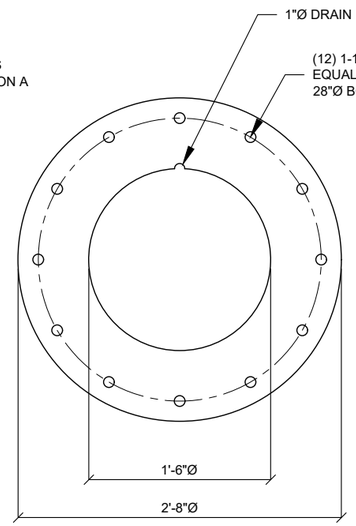

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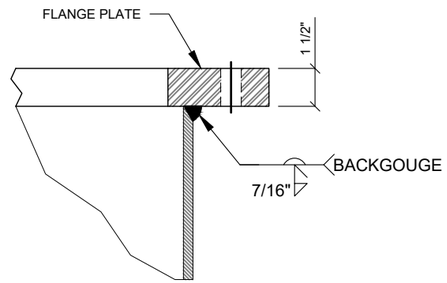
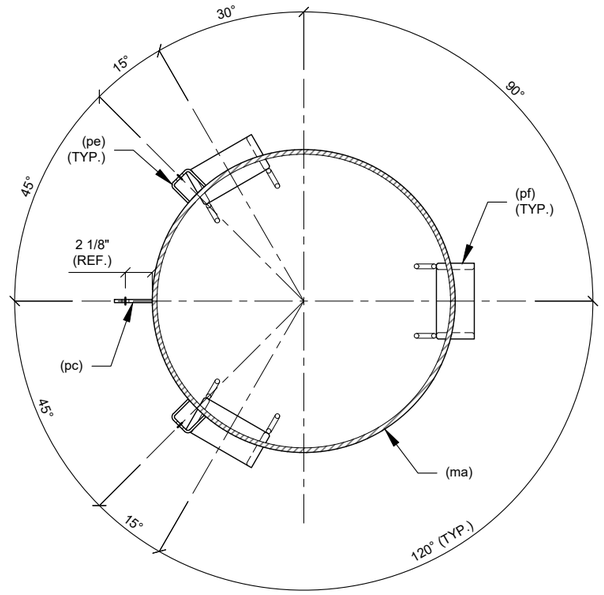


FLANGE PLATE WELD DETAIL
TYPICAL DETAIL



SECTION "B-B"

(pf)	3	PORTHOLE WELDMENT	0'-3"		Z-504	42.6#
(pe)	17	STEP BOLT BRACKET	0'-2"		Z-504	10.2#
(pd)	1	L 3" X 2 1/2" X 1/4"	0'-2"		Z-504	0.8#
(pc)	1	PL 1/4" X 3"	0'-6"		Z-504	1.3#
(pb)	1	PL 1 1/2" X 32"	2'-8"	A572 GR. 50 / ROUND	Z-502	233.7#
(pa)	1	PL 1 1/2" X 34"	2'-10"	A572 GR. 50 / ROUND	Z-502	224.3#
(ma)	1	24" OD X 0.375" PIPE	19'-9"	A53 GR. B / SC2E	Z-502	1868.7#
283563-2	1	24" OD PIPE EXTENSION WELDMENT	20'-0"		Z-502	2381.6#
PART NO.	**QTY**	**DESCRIPTION**	**LENGTH**	**NOTES**	**SHEET**	**BLK WT**
MATERIAL: A36 U.N.O.		**FINISH:** GALVANIZED	**HOLES:** AS NOTED		**GALV WT:**	2500.7#

AMERICAN TOWER®
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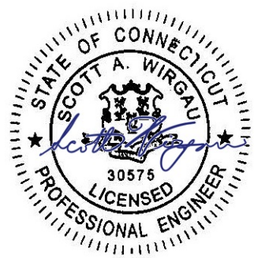
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	NYG	12/16/20

ATC SITE NUMBER:
283563

ATC SITE NAME:
MANSFIELD CT
CONNECTICUT

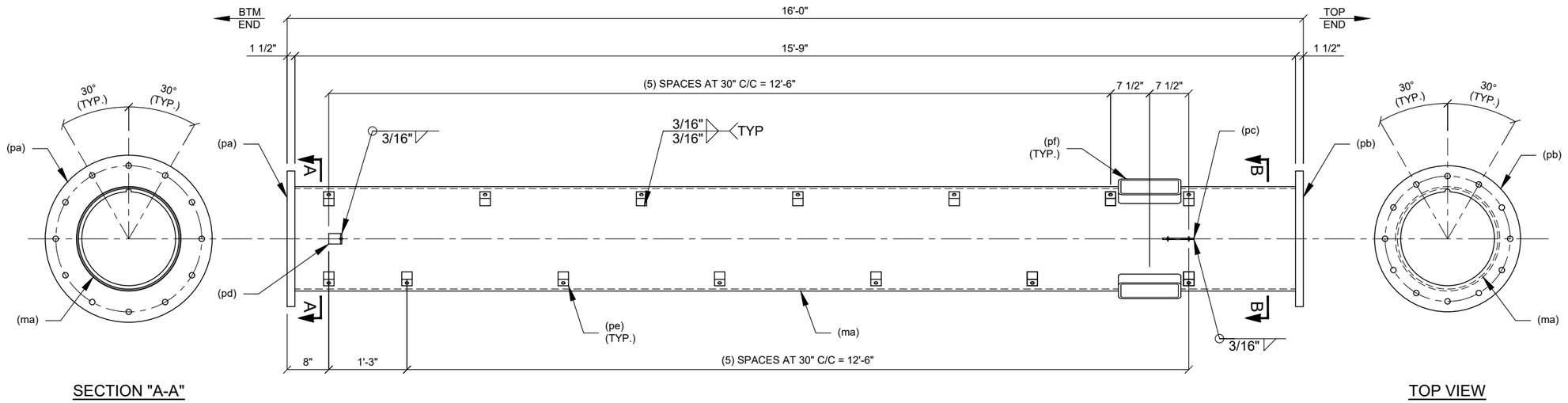
SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279



DRAWN BY:	NYG
APPROVED BY:	IPD
DATE DRAWN:	12/16/20
ATC JOB NO:	OAA761009_C6_04

20 FT MONOPOLE
EXTENSION WELDMENT
FABRICATION DETAILS
[24"Ø O.D.]

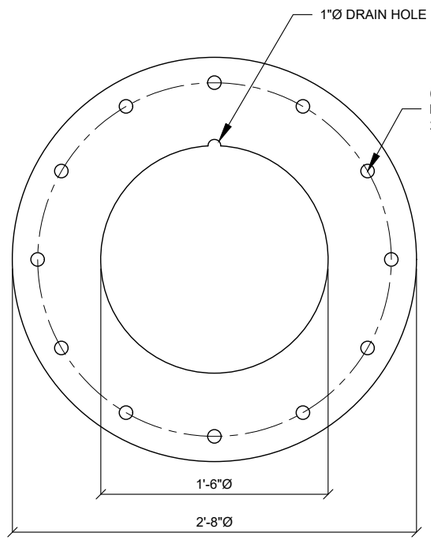
SHEET NUMBER:	REVISION:
Z-502	0



SECTION "A-A"

TOP VIEW

283563-3
20" OD PIPE EXTENSION WELDMENT



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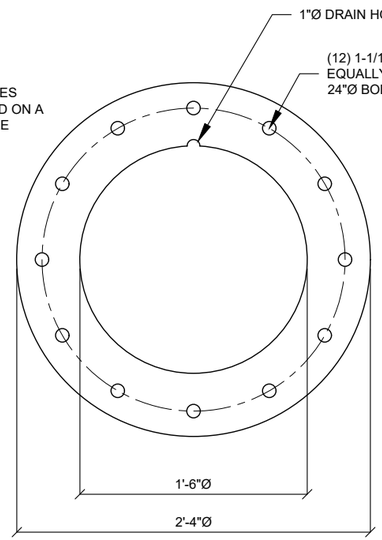

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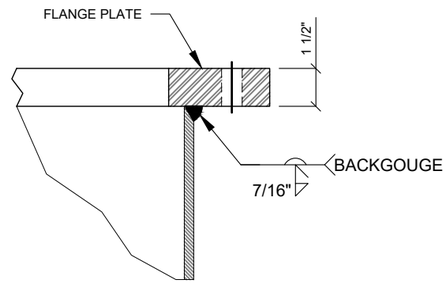
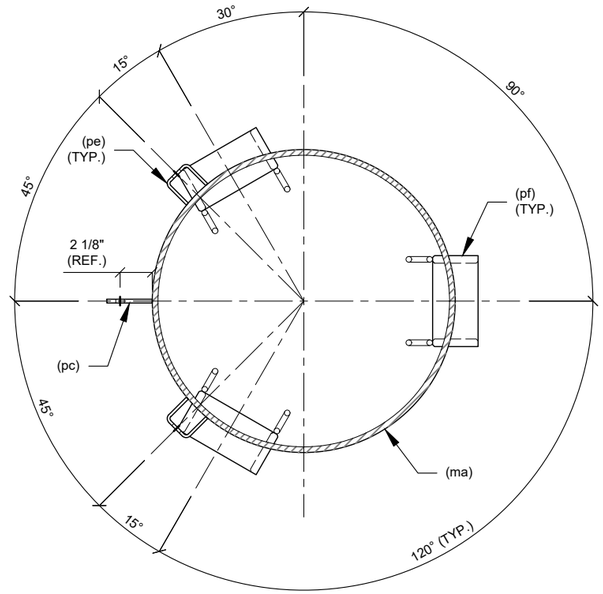


FLANGE PLATE WELD DETAIL
TYPICAL DETAIL



SECTION "B-B"

(pf)	3	PORTHOLE WELDMENT	0'-3"		Z-504	42.6#
(pe)	14	STEP BOLT BRACKET	0'-2"		Z-504	8.4#
(pd)	1	L 3" X 2 1/2" X 1/4"	0'-2"		Z-504	0.8#
(pc)	1	PL 1/4" X 3"	0'-6"		Z-504	1.3#
(pb)	1	PL 1 1/2" X 28"	2'-4"	A572 GR. 50 / ROUND	Z-503	153.5#
(pa)	1	PL 1 1/2" X 32"	2'-8"	A572 GR. 50 / ROUND	Z-503	233.7#
(ma)	1	20" OD X 0.375" PIPE	15'-9"	A53 GR. B / SC2E	Z-503	1238.0#
283563-3	1	20" OD PIPE EXTENSION WELDMENT	16'-0"		Z-503	1678.2#
PART NO.	**QTY**	**DESCRIPTION**	**LENGTH**	**NOTES**	**SHEET**	**BLK WT**
MATERIAL: A36 U.N.O.		**FINISH:** GALVANIZED	**HOLES:** AS NOTED		**GALV WT:**	1762.1#

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CONNECTICUT

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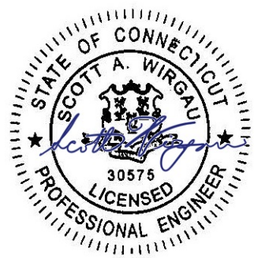
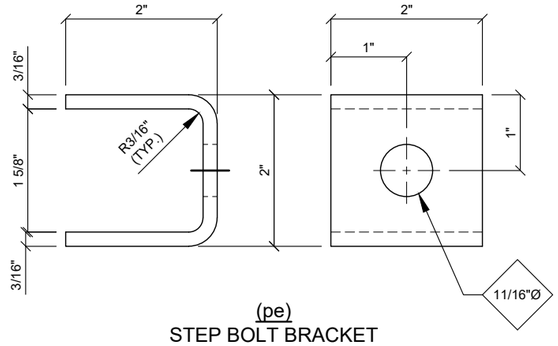


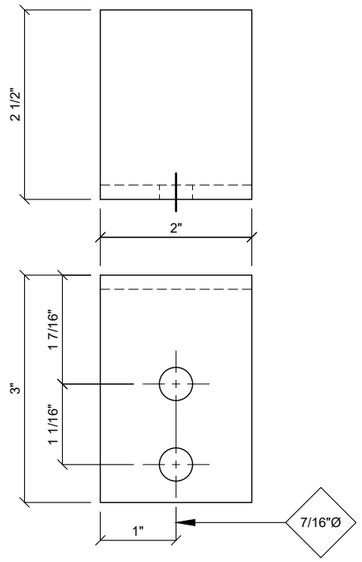
DRAWN BY:	NYG
APPROVED BY:	IPD
DATE DRAWN:	12/16/20
ATC JOB NO:	OAA761009_C6_04

16 FT MONOPOLE
EXTENSION WELDMENT
FABRICATION DETAILS
[20"Ø O.D.]

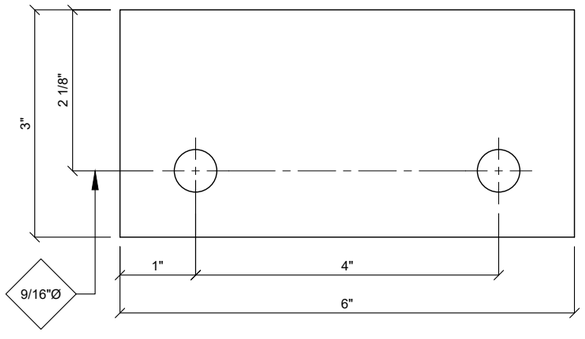
SHEET NUMBER:	REVISION:
Z-503	0



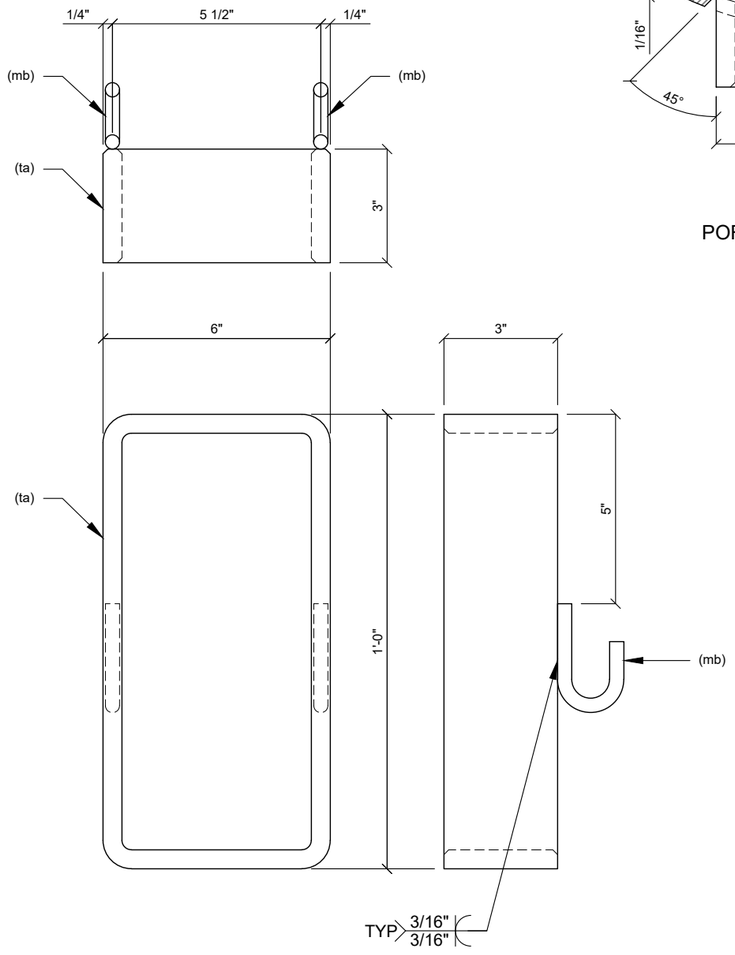
(pe)
STEP BOLT BRACKET



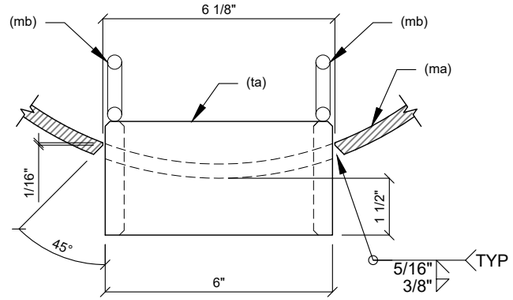
(pd)
SAFETY CLIMB STANDOFF BRACKET



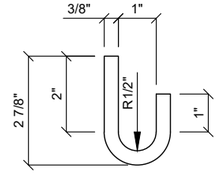
(pc)
SAFETY CLIMB TOP BRACKET



(pf)
PORTHOLE DETAIL
NOTE: CHAMFER ALL
INSIDE EDGES 1/8" (TYP.)



(pf)
PORTHOLE INSTALLATION
WELDING DETAIL



(mb)
KELLUM HOOK

(mb)	2	3/8"Ø SR	0'-5 1/16"		0.3#
(ta)	1	HSS 12" X 6" X 0.500"	0'-3"	A500 GR. B	13.9#
(pf)	1	PORTHOLE WELDMENT	0'-3"		14.2#
PART NO.	**QTY**	**DESCRIPTION**	**LENGTH**	**NOTES**	**BLK WT**
MATERIAL: A36 U.N.O.		**FINISH:** GALVANIZED	**HOLES:** N/A	**GALV WT:** N/A	

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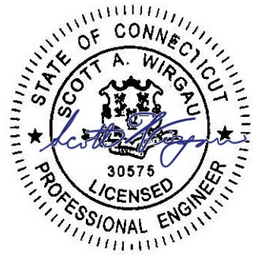
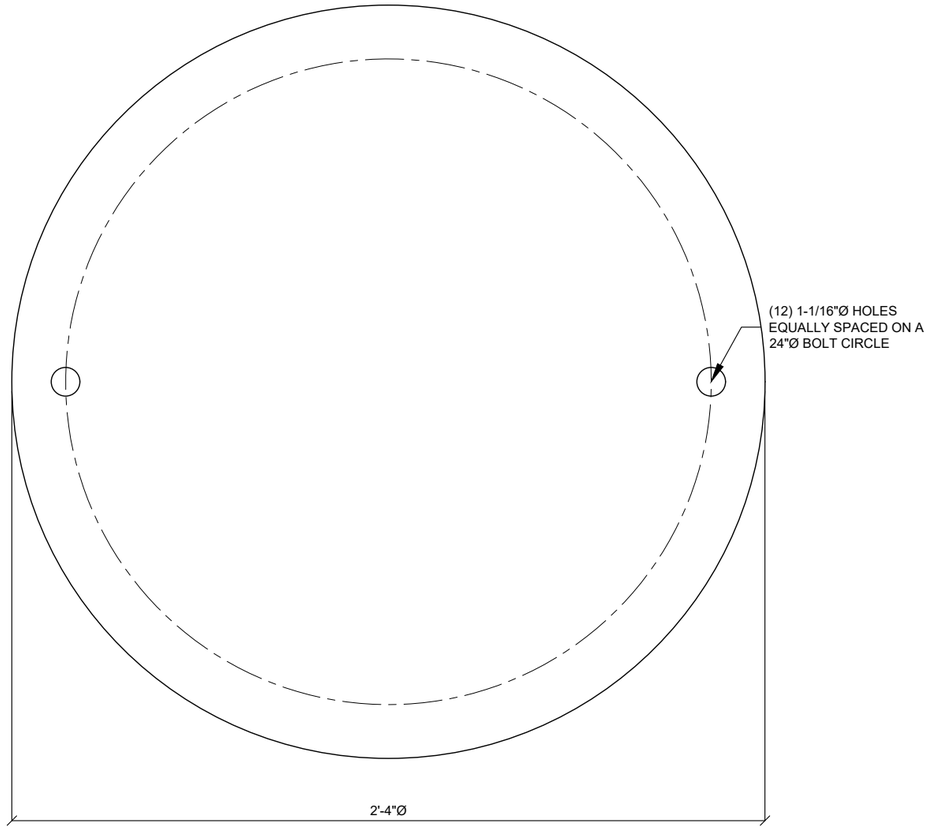
343 DALEVILLE ROAD
WILLINGTON, CT 06279



DRAWN BY:	NYG
APPROVED BY:	IPD
DATE DRAWN:	12/16/20
ATC JOB NO:	OAA761009_C6_04

MONOPOLE EXTENSION
WELDMENT FABRICATION
DETAILS (CONT'D)

SHEET NUMBER:	REVISION:
Z-504	0



283563-5
CAP PLATE

283563-5	PL 1/8" X 28"	2'-4"	ROUND	21.8#	22.9#
PART NO.	**DESCRIPTION**	**LENGTH**	**NOTES**	**BLK WT**	**GALV WT**
MATERIAL: A36		**FINISH:** GALVANIZED		**HOLES:** 1-1/16"Ø	

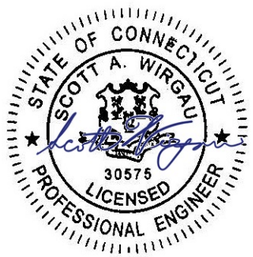
AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	NYG	12/16/20

ATC SITE NUMBER:
283563

ATC SITE NAME:
MANSFIELD CT
CONNECTICUT

SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279



DRAWN BY:	NYG
APPROVED BY:	IPD
DATE DRAWN:	12/16/20
ATC JOB NO:	OAA761009_C6_04

CAP PLATE
FABRICATION DETAILS

SHEET NUMBER:	REVISION:
Z-505	0

December 14, 2020

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT1377 (NSB)
	FA Number:	13935188
	PACE Number:	MRCTB048375
	PT Number:	2051A0WDW6
	Site Name:	WILLINGTON DALEVILLE ROAD
	Site Address:	343 Daleville Road Willington, CT 06279

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the new AT&T antenna/RRH mount to determine their capability of supporting the following additional loading:

- **(3) TPA65R-BU8DA-K Antennas (96.0"x21.0"x7.8" – Wt. = 87 lbs. /each)**
- **(3) DMP65R-BU8DA-K Antennas (96.0"x20.7"x7.7" – Wt. = 96 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.5" – Wt. = 71 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(3) 4415 B30 RRH's (16.5"x13.4"x5.9" – Wt. = 46 lbs. /each)**
- **(2) Squid Surge Arrestors (24.0"x9.7" Ø – Wt. = 33 lbs.)**

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1 P/N VFA12-M3-WLL, dated October 29, 2018 were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.75 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.174 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.063.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the New SitePro1 VFA12-M3-WLL mount **IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
New Mount Rating	94	LC9	62%	**PASS**

Reference Documents:

- Mount fabrication drawings prepared by SitePro1 P/N VFA12-M3-WLL, dated October 29, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mount will be adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mount must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
Project No.: CT1377
Designed By: LBW **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01 (z/z_g)^{2/\alpha}$

z=	155	(ft)
z_g=	1200	(ft)
α=	7.0	

K_z= 1.120

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= 1

(If Category 1 then K_{zt} =1.0)

Category= **1**

K_h=	1	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	155	
z_s=	500	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.98	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i = 1.50 in
Importance Factor = I= 1.0 (from Table 2-3)
K_{iz} = 1.17 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 1.75 in

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
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Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	160	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	1.120	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**41.80**	K_e=	0.98	(from 2.6.8)
$q_{z\ (ice)}$=	**6.69**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.41**	V_{max}=	125	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
Project No.: CT1377
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.75** in | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	4.57	1.29	**756**	**146**	**44**
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	4.64	1.30	**747**	**145**	**43**
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	**84**	**20**	**5**
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	**52**	**14**	**3**
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	4.36	1.28	**28**	**10**	**2**
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	**82**	**20**	**5**
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	**59**	**15**	**3**
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	3.81	1.26	**31**	**10**	**2**
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	**69**	**17**	**4**
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	**57**	**15**	**3**
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	2.73	1.21	**29**	**9**	**2**
4415 B30 RRH	16.5	13.4	5.9	1.54	1.23	1.20	**77**	**19**	**4**
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	**34**	**11**	**2**
4415 B30 RRH (Shielded)	16.5	3.0	13.4	0.34	5.59	1.34	**19**	**8**	**1**
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	**47**	**12**	**3**
2" Pipe	2.4	12.0		0.20	0.20	1.20	**10**		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	**12**		
5/8" Round Bar	0.6	12.0		0.05	0.05	1.20	**3**		
3/4" Round Bar	0.8	12.0		0.06	0.06	1.20	**3**		

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
Project No.: CT1377
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.75	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	756	343	653
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	747	339	645
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	84	52	76
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	43	84	53
B14 4478 RRH (Shielded)	18.1	3.4	13.4	0.42	1.68	5.40	1.35	1.33	1.20	23	84	39
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	82	59	76
4449 B5/B12 RRH (Side)	17.9	6.6	13.2	0.82	1.64	0.00	1.36	1.20	1.20	41	82	51
4449 B5/B12 RRH (Shielded)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	41	82	52
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	69	57	66
B2/B66A 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	0.00	1.13	1.20	1.20	34	69	43
B2/B66A 8843 RRH (Shielded)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	34	69	43
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	77	34	66
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	0.00	1.23	1.20	1.20	39	77	48
4415 B30 RRH (Shielded)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	39	77	48

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.5	24.5	11.3	16.93	7.81	4.06	8.80	1.27	1.46	144	76	127
DMP65R-BU8DA-K Antenna	99.5	24.2	11.2	16.72	7.74	4.11	8.88	1.27	1.46	142	76	126
B14 4478 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	20	14	19
B14 4478 RRH (Side)	21.6	8.5	16.9	1.27	2.54	2.56	1.28	1.20	1.20	10	20	13
B14 4478 RRH (Shielded)	21.6	4.2	16.9	0.63	2.54	5.11	1.28	1.32	1.20	6	20	9
4449 B5/B12 RRH	21.4	16.7	12.9	2.48	1.92	1.28	1.66	1.20	1.20	20	15	19
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.48	1.66	1.28	1.20	1.20	15	20	17
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.22	2.48	2.61	1.28	1.20	1.20	10	20	12
B2/B66A 8843 RRH	18.4	16.7	14.4	2.13	1.84	1.10	1.28	1.20	1.20	17	15	17
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	15	17	15
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.14	2.13	2.06	1.10	1.20	1.20	9	17	11
4415 B30 RRH	20.0	16.9	9.4	2.35	1.31	1.18	2.13	1.20	1.20	19	10	17
4415 B30 RRH (Side)	20.0	9.4	16.9	1.31	2.35	2.13	1.18	1.20	1.20	10	19	13
4415 B30 RRH (Shielded)	20.0	6.5	16.9	0.90	2.35	3.10	1.18	1.23	1.20	7	19	10

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	44	20	38
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	43	20	37
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	2	5	3
B14 4478 RRH (Shielded)	18.1	3.4	13.4	0.42	1.68	5.40	1.35	1.33	1.20	1	5	2
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
4449 B5/B12 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	2	5	3
4449 B5/B12 RRH (Shielded)	17.9	3.3	13.2	0.41	1.64	5.42	1.36	1.33	1.20	1	5	2
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
B2/B66A 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	2
B2/B66A 8843 RRH (Shielded)	14.9	3.3	13.2	0.34	1.37	4.52	1.13	1.29	1.20	1	4	2
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	4
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	2	4	3
4415 B30 RRH (Shielded)	16.5	3.4	13.4	0.38	1.54	4.93	1.23	1.31	1.20	1	4	2

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
Project No.: CT1377
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.75 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	756	343	446
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	747	339	441
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	84	52	60
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	63	84	79
B14 4478 RRH (Shielded)	18.1	7.5	13.4	0.95	1.68	2.40	1.35	1.20	1.20	48	84	75
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	82	59	65
4449 B5/B12 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	62	82	77
4449 B5/B12 RRH (Shielded)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	62	82	77
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	69	57	60
B2/B66A 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	51	69	64
B2/B66A 8843 RRH (Shielded)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	51	69	64
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	77	34	45
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	58	77	72
4415 B30 RRH (Shielded)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	58	77	72

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.5	24.5	11.3	16.93	7.81	4.06	8.80	1.27	1.46	144	76	93
DMP65R-BU8DA-K Antenna	99.5	24.2	11.2	16.72	7.74	4.11	8.88	1.27	1.46	142	76	92
B14 4478 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	20	14	16
B14 4478 RRH (Side)	21.6	12.7	16.9	1.90	2.54	1.70	1.28	1.20	1.20	15	20	19
B14 4478 RRH (Shielded)	21.6	9.5	16.9	1.43	2.54	2.27	1.28	1.20	1.20	11	20	18
4449 B5/B12 RRH	21.4	16.7	12.9	2.48	1.92	1.28	1.66	1.20	1.20	20	15	17
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.48	1.66	1.28	1.20	1.20	15	20	19
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.22	2.48	2.61	1.28	1.20	1.20	10	20	17
B2/B66A 8843 RRH	18.4	16.7	14.4	2.13	1.84	1.10	1.28	1.20	1.20	17	15	15
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	15	17	17
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.14	2.13	2.06	1.10	1.20	1.20	9	17	15
4415 B30 RRH	20.0	16.9	9.4	2.35	1.31	1.18	2.13	1.20	1.20	19	10	13
4415 B30 RRH (Side)	20.0	9.4	16.9	1.31	2.35	2.13	1.18	1.20	1.20	10	19	17
4415 B30 RRH (Shielded)	20.0	6.5	16.9	0.90	2.35	3.10	1.18	1.23	1.20	7	19	16

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	44	20	26
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	43	20	25
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	4	5	5
B14 4478 RRH (Shielded)	18.1	7.5	13.4	0.95	1.68	2.40	1.35	1.20	1.20	3	5	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
4449 B5/B12 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	4	5	4
4449 B5/B12 RRH (Shielded)	17.9	7.4	13.2	0.92	1.64	2.41	1.36	1.20	1.20	3	5	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH (Shielded)	14.9	7.4	13.2	0.77	1.37	2.01	1.13	1.20	1.20	2	4	4
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	3
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	3	4	4
4415 B30 RRH (Shielded)	16.5	7.5	13.4	0.86	1.54	2.19	1.23	1.20	1.20	2	4	4

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
Project No.: CT1377
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.75	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	756	343	343
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	747	339	339
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	84	52	52
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	84
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	28	84	84
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	82	59	59
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	59	82	82
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	31	82	82
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	69	57	57
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	57	69	69
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	29	69	69
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	77	34	34
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	34	77	77
4415 B30 RRH (Shielded)	16.5	3.0	13.4	0.34	1.54	5.59	1.23	1.34	1.20	19	77	77

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.5	24.5	11.3	16.93	7.81	4.06	8.80	1.27	1.46	144	76	76
DMP65R-BU8DA-K Antenna	99.5	24.2	11.2	16.72	7.74	4.11	8.88	1.27	1.46	142	76	76
B14 4478 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	20	14	14
B14 4478 RRH (Side)	21.6	11.8	16.9	1.77	2.54	1.83	1.28	1.20	1.20	14	20	20
B14 4478 RRH (Shielded)	21.6	7.7	16.9	1.15	2.54	2.82	1.28	1.21	1.20	9	20	20
4449 B5/B12 RRH	21.4	16.7	12.9	2.48	1.92	1.28	1.66	1.20	1.20	20	15	15
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.48	1.66	1.28	1.20	1.20	15	20	20
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.22	2.48	2.61	1.28	1.20	1.20	10	20	20
B2/B66A 8843 RRH	18.4	16.7	14.4	2.13	1.84	1.10	1.28	1.20	1.20	17	15	15
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	15	17	17
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.14	2.13	2.06	1.10	1.20	1.20	9	17	17
4415 B30 RRH	20.0	16.9	9.4	2.35	1.31	1.18	2.13	1.20	1.20	19	10	10
4415 B30 RRH (Side)	20.0	9.4	16.9	1.31	2.35	2.13	1.18	1.20	1.20	10	19	19
4415 B30 RRH (Shielded)	20.0	6.5	16.9	0.90	2.35	3.10	1.18	1.23	1.20	7	19	19

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	44	20	20
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	43	20	20
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	2	5	5
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	5
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	2	5	5
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	4	4
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	2
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	4
4415 B30 RRH (Shielded)	16.5	3.0	13.4	0.34	1.54	5.59	1.23	1.34	1.20	1	4	4

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
Project No.: CT1377
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.75	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	756	343	446
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	747	339	441
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	84	52	60
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	63	84	79
B14 4478 RRH (Shielded)	18.1	7.5	13.4	0.95	1.68	2.40	1.35	1.20	1.20	48	84	75
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	82	59	65
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	59	82	76
4449 B5/B12 RRH (Shielded)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	62	82	77
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	69	57	60
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	57	69	66
B2/B66A 8843 RRH (Shielded)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	51	69	64
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	77	34	45
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	34	77	66
4415 B30 RRH (Shielded)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	58	77	72

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.5	24.5	11.3	16.93	7.81	4.06	8.80	1.27	1.46	144	76	93
DMP65R-BU8DA-K Antenna	99.5	24.2	11.2	16.72	7.74	4.11	8.88	1.27	1.46	142	76	92
B14 4478 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	20	14	16
B14 4478 RRH (Side)	21.6	12.7	16.9	1.90	2.54	1.70	1.28	1.20	1.20	15	20	19
B14 4478 RRH (Shielded)	21.6	9.5	16.9	1.43	2.54	2.27	1.28	1.20	1.20	11	20	18
4449 B5/B12 RRH	21.4	16.7	12.9	2.48	1.92	1.28	1.66	1.20	1.20	20	15	17
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.48	1.66	1.28	1.20	1.20	15	20	19
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.22	2.48	2.61	1.28	1.20	1.20	10	20	17
B2/B66A 8843 RRH	18.4	16.7	14.4	2.13	1.84	1.10	1.28	1.20	1.20	17	15	15
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	15	17	17
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.14	2.13	2.06	1.10	1.20	1.20	9	17	15
4415 B30 RRH	20.0	16.9	9.4	2.35	1.31	1.18	2.13	1.20	1.20	19	10	13
4415 B30 RRH (Side)	20.0	9.4	16.9	1.31	2.35	2.13	1.18	1.20	1.20	10	19	17
4415 B30 RRH (Shielded)	20.0	6.5	16.9	0.90	2.35	3.10	1.18	1.23	1.20	7	19	16

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	44	20	26
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	43	20	25
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	4	5	5
B14 4478 RRH (Shielded)	18.1	7.5	13.4	0.95	1.68	2.40	1.35	1.20	1.20	3	5	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
4449 B5/B12 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	4	5	4
4449 B5/B12 RRH (Shielded)	17.9	7.4	13.2	0.92	1.64	2.41	1.36	1.20	1.20	3	5	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH (Shielded)	14.9	7.4	13.2	0.77	1.37	2.01	1.13	1.20	1.20	2	4	4
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	3
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	3	4	4
4415 B30 RRH (Shielded)	16.5	7.5	13.4	0.86	1.54	2.19	1.23	1.20	1.20	2	4	4

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
Project No.: CT1377
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.75	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	756	343	653
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	747	339	645
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	84	52	76
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	43	84	53
B14 4478 RRH (Shielded)	18.1	3.4	13.4	0.42	1.68	5.40	1.35	1.33	1.20	23	84	39
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	82	59	76
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	59	82	65
4449 B5/B12 RRH (Shielded)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	41	82	52
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	69	57	66
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	57	69	60
B2/B66A 8843 RRH (Shielded)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	34	69	43
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	77	34	66
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	34	77	45
4415 B30 RRH (Shielded)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	39	77	48

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	99.5	24.5	11.3	16.93	7.81	4.06	8.80	1.27	1.46	144	76	127
DMP65R-BU8DA-K Antenna	99.5	24.2	11.2	16.72	7.74	4.11	8.88	1.27	1.46	142	76	126
B14 4478 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	20	14	19
B14 4478 RRH (Side)	21.6	8.5	16.9	1.27	2.54	2.56	1.28	1.20	1.20	10	20	13
B14 4478 RRH (Shielded)	21.6	4.2	16.9	0.63	2.54	5.11	1.28	1.32	1.20	6	20	9
4449 B5/B12 RRH	21.4	16.7	12.9	2.48	1.92	1.28	1.66	1.20	1.20	20	15	19
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.48	1.66	1.28	1.20	1.20	15	20	17
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.22	2.48	2.61	1.28	1.20	1.20	10	20	12
B2/B66A 8843 RRH	18.4	16.7	14.4	2.13	1.84	1.10	1.28	1.20	1.20	17	15	17
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	15	17	15
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.14	2.13	2.06	1.10	1.20	1.20	9	17	11
4415 B30 RRH	20.0	16.9	9.4	2.35	1.31	1.18	2.13	1.20	1.20	19	10	17
4415 B30 RRH (Side)	20.0	9.4	16.9	1.31	2.35	2.13	1.18	1.20	1.20	10	19	13
4415 B30 RRH (Shielded)	20.0	6.5	16.9	0.90	2.35	3.10	1.18	1.23	1.20	7	19	10

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	44	20	38
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	43	20	37
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	2	5	3
B14 4478 RRH (Shielded)	18.1	3.4	13.4	0.42	1.68	5.40	1.35	1.33	1.20	1	5	2
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
4449 B5/B12 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	2	5	3
4449 B5/B12 RRH (Shielded)	17.9	3.3	13.2	0.41	1.64	5.42	1.36	1.33	1.20	1	5	2
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
B2/B66A 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	2
B2/B66A 8843 RRH (Shielded)	14.9	3.3	13.2	0.34	1.37	4.52	1.13	1.29	1.20	1	4	2
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	4
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	2	4	3
4415 B30 RRH (Shielded)	16.5	3.4	13.4	0.38	1.54	4.93	1.23	1.31	1.20	1	4	2

Date: 12/7/2020
Project Name: WILLINGTON DALEVILLE ROAD
Project No.: CT1377
Designed By: LBW **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.75 in.
Density of ice: 56 pcf

TPA65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	21.0	
Depth (in):	7.8	
Total weight of ice on object:		413 lbs
Weight of object:	87.0 lbs	
Combined weight of ice and object:		500 lbs

DMP65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		408 lbs
Weight of object:	96.0 lbs	
Combined weight of ice and object:		504 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		56 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		116 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		57 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		130 lbs

B2/B66A 8843 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		50 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		122 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	16.5	
Width (in):	13.4	
Depth (in):	5.9	
Total weight of ice on object:		48 lbs
Weight of object:	46.0 lbs	
Combined weight of ice and object:		94 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		49 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		82 lbs

5/8" Round Bar

Per foot weight of ice:

diameter (in):	0.75	
Per foot weight of ice on object:		5 plf

3/4" Round Bar

Per foot weight of ice:

diameter (in):	0.75	
Per foot weight of ice on object:		5 plf

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		9 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		10 plf

PL 3-1/2x5/8

Weight of ice based on total radial SF area:

Height (in):	3.5	
Width (in):	0.625	
Per foot weight of ice on object:		11 plf

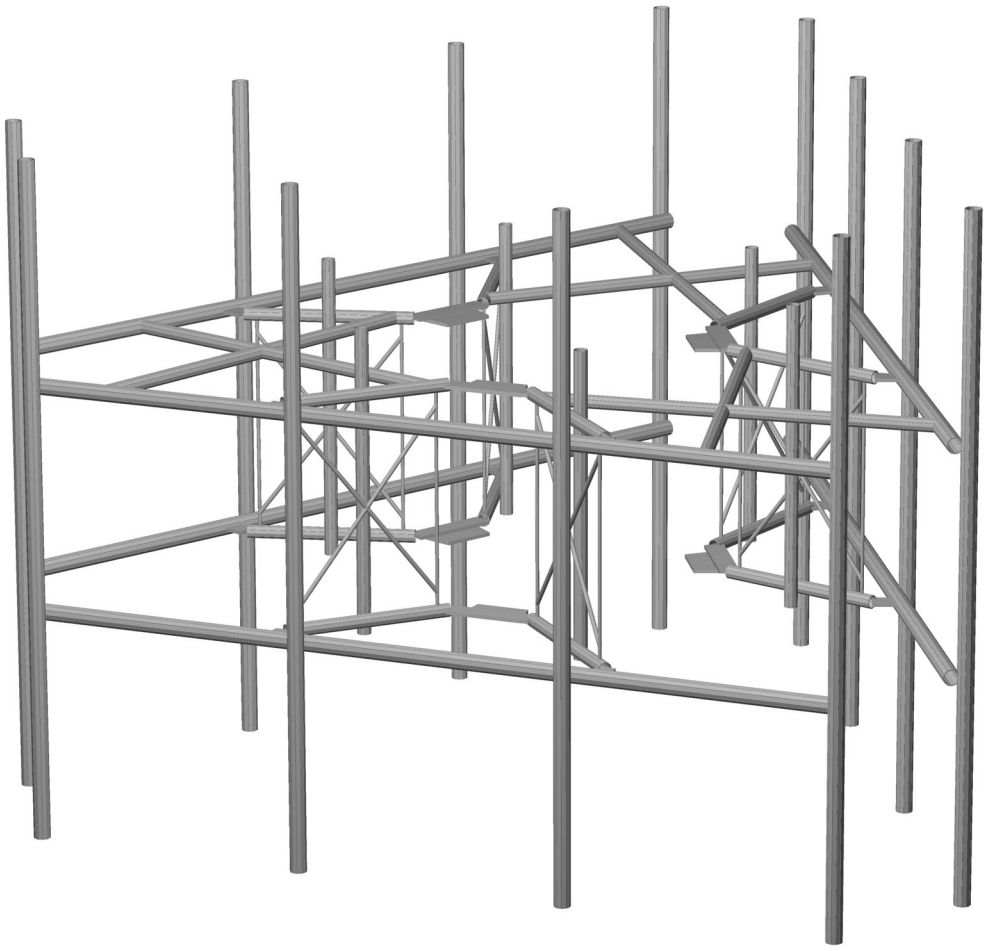
PL 11-1/4x5/8

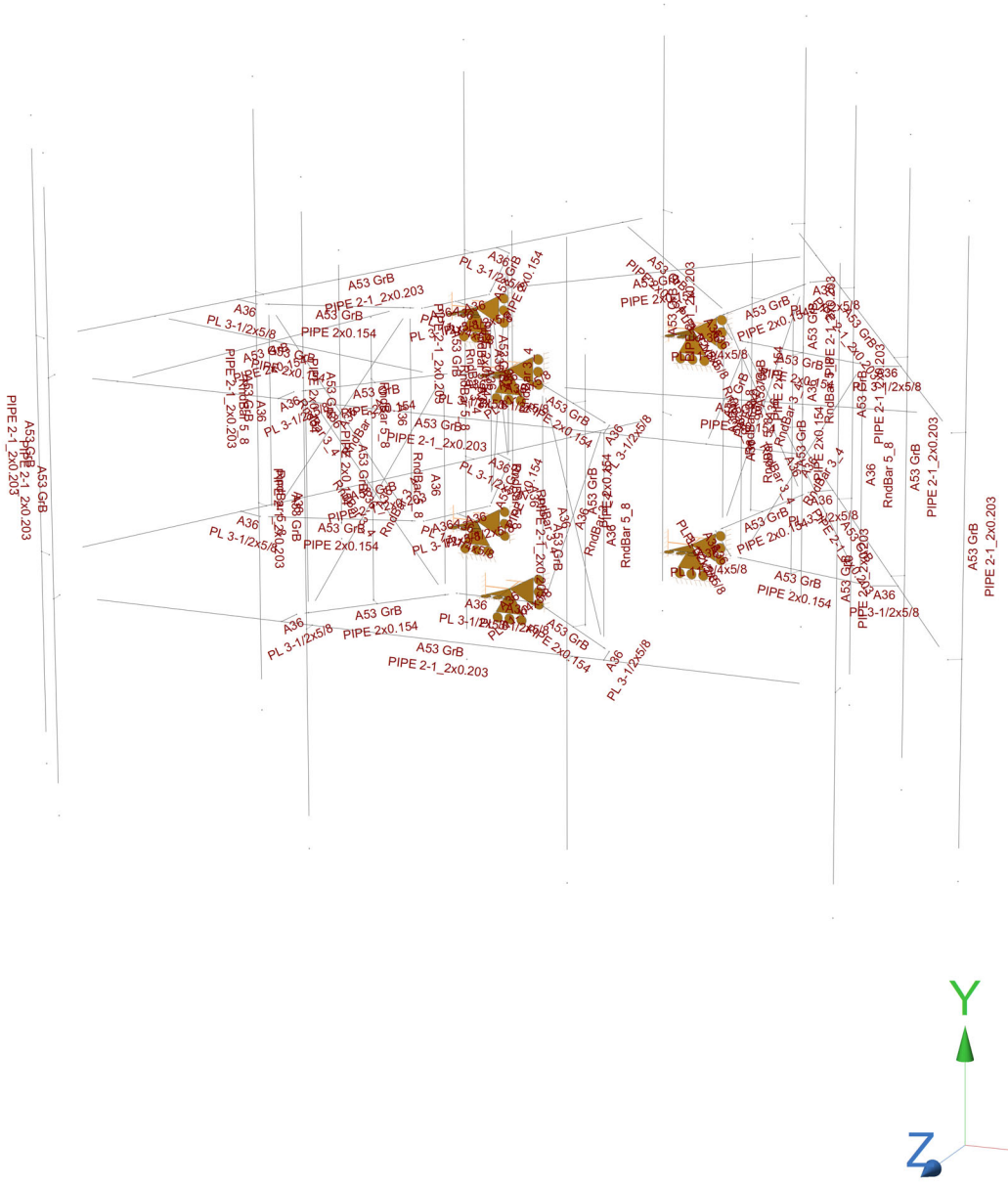
Weight of ice based on total radial SF area:

Height (in):	11.25	
Width (in):	0.625	
Per foot weight of ice on object:		28 plf

HUDSON
Design Group LLC

New Mount
Calculations


Y
X
Z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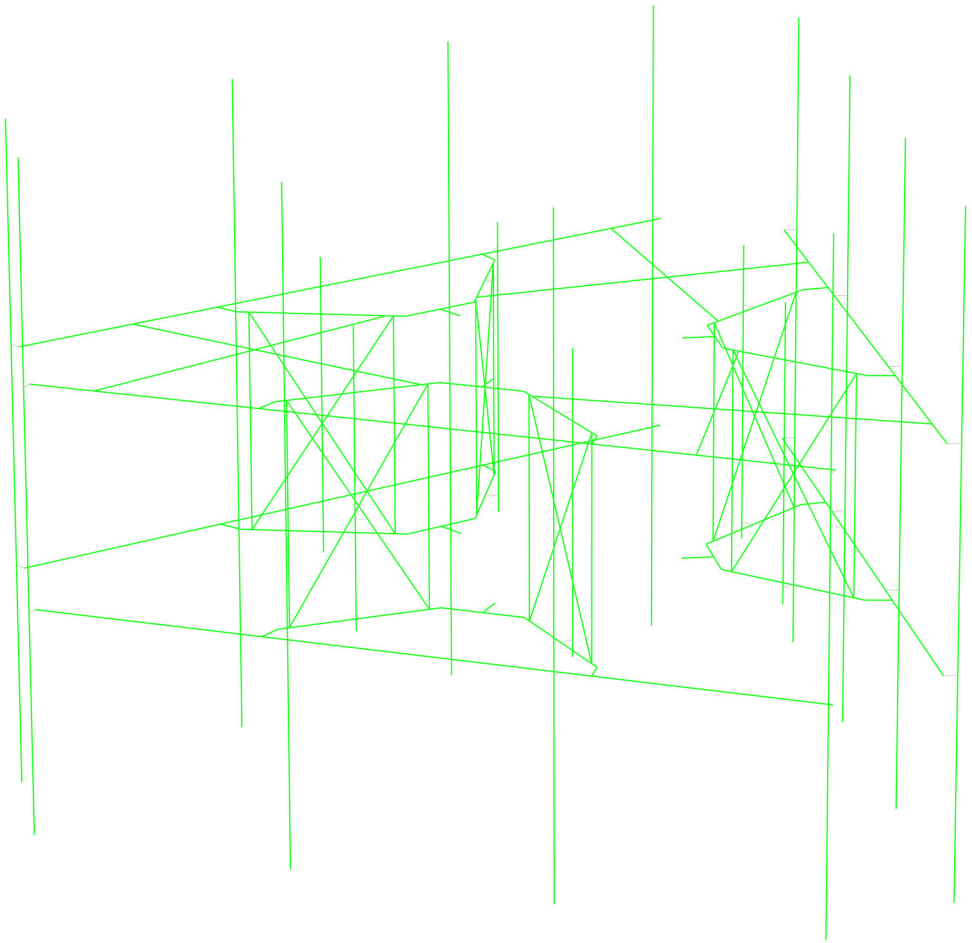
PIPE 2-1_2x0.203
A36
PL 3-1/2x5/8
PIPE 2x0.154
RndBar 5_8
RndBar 3_4
PL 4x5/8
Y
Z
X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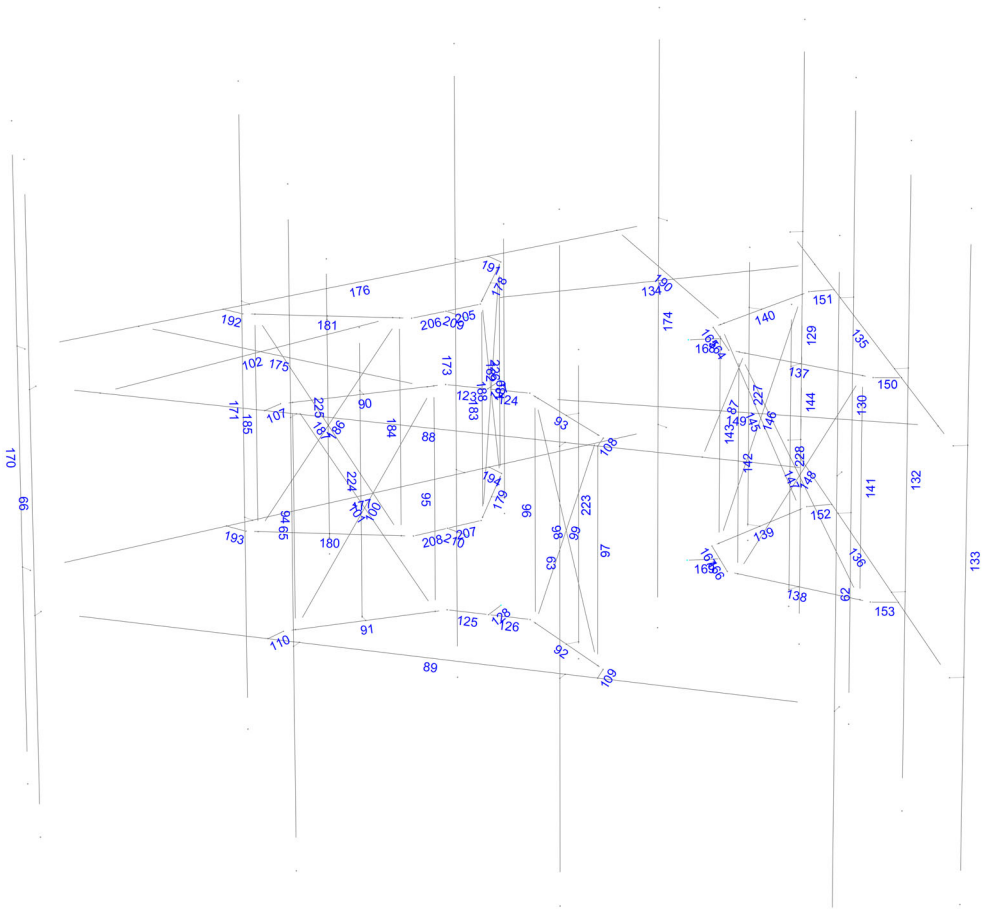
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Load data

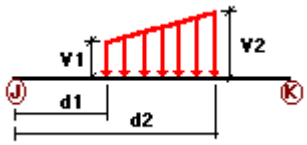
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	63	z	-0.012	0.00	0.00	No	0.00	No
	87	z	-0.01	0.00	0.00	No	0.00	No
	90	z	-0.01	0.00	0.00	No	0.00	No
	91	z	-0.01	0.00	0.00	No	0.00	No
	92	z	-0.01	0.00	0.00	No	0.00	No
	93	z	-0.01	0.00	0.00	No	0.00	No
	94	z	-0.003	0.00	0.00	No	0.00	No
	95	z	-0.003	0.00	0.00	No	0.00	No
	96	z	-0.003	0.00	0.00	No	0.00	No
	97	z	-0.003	0.00	0.00	No	0.00	No
	98	z	-0.003	0.00	0.00	No	0.00	No
	99	z	-0.003	0.00	0.00	No	0.00	No
	100	z	-0.003	0.00	0.00	No	0.00	No
	101	z	-0.003	0.00	0.00	No	0.00	No
	102	z	-0.01	0.00	0.00	No	0.00	No

	130	z	-0.012	0.00	0.00	No	0.00	No
	132	z	-0.012	0.00	0.00	No	0.00	No
	133	z	-0.012	0.00	0.00	No	0.00	No
	134	z	-0.01	0.00	0.00	No	0.00	No
	135	z	-0.012	0.00	0.00	No	0.00	No
	136	z	-0.012	0.00	0.00	No	0.00	No
	137	z	-0.01	0.00	0.00	No	0.00	No
	138	z	-0.01	0.00	0.00	No	0.00	No
	139	z	-0.01	0.00	0.00	No	0.00	No
	140	z	-0.01	0.00	0.00	No	0.00	No
	141	z	-0.003	0.00	0.00	No	0.00	No
	142	z	-0.003	0.00	0.00	No	0.00	No
	143	z	-0.003	0.00	0.00	No	0.00	No
	144	z	-0.003	0.00	0.00	No	0.00	No
	145	z	-0.003	0.00	0.00	No	0.00	No
	146	z	-0.003	0.00	0.00	No	0.00	No
	147	z	-0.003	0.00	0.00	No	0.00	No
	148	z	-0.003	0.00	0.00	No	0.00	No
	149	z	-0.01	0.00	0.00	No	0.00	No
	170	z	-0.012	0.00	0.00	No	0.00	No
	175	z	-0.01	0.00	0.00	No	0.00	No
	176	z	-0.012	0.00	0.00	No	0.00	No
	177	z	-0.012	0.00	0.00	No	0.00	No
	178	z	-0.01	0.00	0.00	No	0.00	No
	179	z	-0.01	0.00	0.00	No	0.00	No
	180	z	-0.01	0.00	0.00	No	0.00	No
	181	z	-0.01	0.00	0.00	No	0.00	No
	182	z	-0.003	0.00	0.00	No	0.00	No
	183	z	-0.003	0.00	0.00	No	0.00	No
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	185	z	-0.003	0.00	0.00	No	0.00	No
	186	z	-0.003	0.00	0.00	No	0.00	No
	187	z	-0.003	0.00	0.00	No	0.00	No
	188	z	-0.003	0.00	0.00	No	0.00	No
	189	z	-0.003	0.00	0.00	No	0.00	No
	190	z	-0.01	0.00	0.00	No	0.00	No
	88	z	-0.012	0.00	0.00	No	0.00	No
	89	z	-0.012	0.00	0.00	No	0.00	No
	65	z	-0.012	0.00	0.00	No	0.00	No
	224	z	-0.01	0.00	0.00	No	0.00	No
	174	z	-0.012	0.00	0.00	No	0.00	No
	129	z	-0.012	0.00	0.00	No	0.00	No
	173	z	-0.012	0.00	0.00	No	0.00	No
	226	z	-0.01	0.00	0.00	No	0.00	No
	171	z	-0.012	0.00	0.00	No	0.00	No
	225	z	-0.01	0.00	0.00	No	0.00	No
	223	z	-0.01	0.00	0.00	No	0.00	No
	228	z	-0.01	0.00	0.00	No	0.00	No
	227	z	-0.01	0.00	0.00	No	0.00	No
W30	62	x	-0.012	0.00	0.00	No	0.00	No
	63	x	-0.012	0.00	0.00	No	0.00	No
	87	x	-0.01	0.00	0.00	No	0.00	No
	90	x	-0.01	0.00	0.00	No	0.00	No
	91	x	-0.01	0.00	0.00	No	0.00	No
	92	x	-0.01	0.00	0.00	No	0.00	No
	93	x	-0.01	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
	96	x	-0.003	0.00	0.00	No	0.00	No
	97	x	-0.003	0.00	0.00	No	0.00	No

	98	x	-0.003	0.00	0.00	No	0.00	No
	99	x	-0.003	0.00	0.00	No	0.00	No
	100	x	-0.003	0.00	0.00	No	0.00	No
	101	x	-0.003	0.00	0.00	No	0.00	No
	102	x	-0.01	0.00	0.00	No	0.00	No
	130	x	-0.012	0.00	0.00	No	0.00	No
	132	x	-0.012	0.00	0.00	No	0.00	No
	134	x	-0.01	0.00	0.00	No	0.00	No
	135	x	-0.012	0.00	0.00	No	0.00	No
	136	x	-0.012	0.00	0.00	No	0.00	No
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	139	x	-0.01	0.00	0.00	No	0.00	No
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	177	x	-0.012	0.00	0.00	No	0.00	No
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	179	x	-0.01	0.00	0.00	No	0.00	No
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	182	x	-0.003	0.00	0.00	No	0.00	No
	183	x	-0.003	0.00	0.00	No	0.00	No
	184	x	-0.003	0.00	0.00	No	0.00	No
	185	x	-0.003	0.00	0.00	No	0.00	No
	186	x	-0.003	0.00	0.00	No	0.00	No
	187	x	-0.003	0.00	0.00	No	0.00	No
	188	x	-0.003	0.00	0.00	No	0.00	No
	189	x	-0.003	0.00	0.00	No	0.00	No
	190	x	-0.01	0.00	0.00	No	0.00	No
	66	x	-0.012	0.00	0.00	No	0.00	No
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	226	x	-0.01	0.00	0.00	No	0.00	No
	171	x	-0.012	0.00	0.00	No	0.00	No
	225	x	-0.01	0.00	0.00	No	0.00	No
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Di	62	y	-0.01	0.00	0.00	No	0.00	No
	63	y	-0.01	0.00	0.00	No	0.00	No
	87	y	-0.009	0.00	0.00	No	0.00	No
	90	y	-0.009	0.00	0.00	No	0.00	No
	91	y	-0.009	0.00	0.00	No	0.00	No
	92	y	-0.009	0.00	0.00	No	0.00	No
	93	y	-0.009	0.00	0.00	No	0.00	No
	94	y	-0.005	0.00	0.00	No	0.00	No
	95	y	-0.005	0.00	0.00	No	0.00	No

96	y	-0.005	0.00	0.00	No	0.00	No
97	y	-0.005	0.00	0.00	No	0.00	No
98	y	-0.005	0.00	0.00	No	0.00	No
99	y	-0.005	0.00	0.00	No	0.00	No
100	y	-0.005	0.00	0.00	No	0.00	No
101	y	-0.005	0.00	0.00	No	0.00	No
102	y	-0.009	0.00	0.00	No	0.00	No
107	y	-0.011	0.00	0.00	No	0.00	No
108	y	-0.011	0.00	0.00	No	0.00	No
109	y	-0.011	0.00	0.00	No	0.00	No
110	y	-0.011	0.00	0.00	No	0.00	No
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139	y	-0.009	0.00	0.00	No	0.00	No
140	y	-0.009	0.00	0.00	No	0.00	No
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142	y	-0.005	0.00	0.00	No	0.00	No
143	y	-0.005	0.00	0.00	No	0.00	No
144	y	-0.005	0.00	0.00	No	0.00	No
145	y	-0.005	0.00	0.00	No	0.00	No
146	y	-0.005	0.00	0.00	No	0.00	No
147	y	-0.005	0.00	0.00	No	0.00	No
148	y	-0.005	0.00	0.00	No	0.00	No
149	y	-0.009	0.00	0.00	No	0.00	No
150	y	-0.011	0.00	0.00	No	0.00	No
151	y	-0.011	0.00	0.00	No	0.00	No
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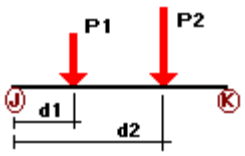
164	y	-0.011	0.00	0.00	No	0.00	No
165	y	-0.011	0.00	0.00	No	0.00	No
166	y	-0.011	0.00	0.00	No	0.00	No
167	y	-0.011	0.00	0.00	No	0.00	No
168	y	-0.028	0.00	0.00	No	0.00	No
169	y	-0.028	0.00	0.00	No	0.00	No
170	y	-0.01	0.00	0.00	No	0.00	No
175	y	-0.009	0.00	0.00	No	0.00	No
176	y	-0.01	0.00	0.00	No	0.00	No
177	y	-0.01	0.00	0.00	No	0.00	No
178	y	-0.009	0.00	0.00	No	0.00	No
179	y	-0.009	0.00	0.00	No	0.00	No
180	y	-0.009	0.00	0.00	No	0.00	No
181	y	-0.009	0.00	0.00	No	0.00	No
182	y	-0.005	0.00	0.00	No	0.00	No
183	y	-0.005	0.00	0.00	No	0.00	No
184	y	-0.005	0.00	0.00	No	0.00	No
185	y	-0.005	0.00	0.00	No	0.00	No
186	y	-0.005	0.00	0.00	No	0.00	No
187	y	-0.005	0.00	0.00	No	0.00	No

188	y	-0.005	0.00	0.00	No	0.00	No
189	y	-0.005	0.00	0.00	No	0.00	No
190	y	-0.009	0.00	0.00	No	0.00	No
191	y	-0.011	0.00	0.00	No	0.00	No
192	y	-0.011	0.00	0.00	No	0.00	No
193	y	-0.011	0.00	0.00	No	0.00	No
194	y	-0.011	0.00	0.00	No	0.00	No
205	y	-0.011	0.00	0.00	No	0.00	No
206	y	-0.011	0.00	0.00	No	0.00	No
207	y	-0.011	0.00	0.00	No	0.00	No
208	y	-0.011	0.00	0.00	No	0.00	No
209	y	-0.028	0.00	0.00	No	0.00	No
210	y	-0.028	0.00	0.00	No	0.00	No
88	y	-0.01	0.00	0.00	No	0.00	No
89	y	-0.01	0.00	0.00	No	0.00	No
66	y	-0.01	0.00	0.00	No	0.00	No
65	y	-0.01	0.00	0.00	No	0.00	No
224	y	-0.009	0.00	0.00	No	0.00	No
174	y	-0.01	0.00	0.00	No	0.00	No
129	y	-0.01	0.00	0.00	No	0.00	No
173	y	-0.01	0.00	0.00	No	0.00	No
171	y	-0.01	0.00	0.00	No	0.00	No
225	y	-0.009	0.00	0.00	No	0.00	No
223	y	-0.009	0.00	0.00	No	0.00	No
228	y	-0.009	0.00	0.00	No	0.00	No
227	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	62	y	-0.044	1.50	No
		y	-0.044	8.50	No
	133	y	-0.048	1.50	No
		y	-0.048	8.50	No
	170	y	-0.044	1.50	No
		y	-0.044	8.50	No
	66	y	-0.048	1.50	No
		y	-0.048	8.50	No
	224	y	-0.033	0.25	No
		y	-0.073	75.00	Yes
		y	-0.072	75.00	Yes
	174	y	-0.048	1.50	No
		y	-0.048	8.50	No
	129	y	-0.044	1.50	No
		y	-0.044	8.50	No
	226	y	-0.033	0.25	No
		y	-0.073	75.00	Yes
		y	-0.072	75.00	Yes
	225	y	-0.06	50.00	Yes

		y	-0.046	50.00	Yes
	223	y	-0.06	50.00	Yes
		y	-0.046	50.00	Yes
	228	y	-0.073	50.00	Yes
		y	-0.072	50.00	Yes
	227	y	-0.06	50.00	Yes
		y	-0.046	50.00	Yes
W0	62	z	-0.379	1.50	No
		z	-0.379	8.50	No
	133	z	-0.221	1.50	No
		z	-0.221	8.50	No
	170	z	-0.224	1.50	No
		z	-0.224	8.50	No
	66	z	-0.374	1.50	No
		z	-0.374	8.50	No
	224	z	-0.047	0.25	No
		z	-0.031	75.00	Yes
		z	-0.029	75.00	Yes
	174	z	-0.221	1.50	No
		z	-0.221	8.50	No
	129	z	-0.224	1.50	No
		z	-0.224	8.50	No
	226	z	-0.047	0.25	No
		z	-0.077	75.00	Yes
		z	-0.064	75.00	Yes
	225	z	-0.075	50.00	Yes
		z	-0.072	50.00	Yes
	223	z	-0.028	50.00	Yes
		z	-0.019	50.00	Yes
	228	z	-0.077	75.00	Yes
		z	-0.064	75.00	Yes
	227	z	-0.075	50.00	Yes
		z	-0.072	50.00	Yes
W30	62	x	-0.172	1.50	No
		x	-0.172	8.50	No
	133	x	-0.323	1.50	No
		x	-0.323	8.50	No
	170	x	-0.327	1.50	No
		x	-0.327	8.50	No
	66	x	-0.17	1.50	No
		x	-0.17	8.50	No
	224	x	-0.047	0.25	No
		x	-0.082	75.00	Yes
	174	x	-0.323	1.50	No
		x	-0.323	8.50	No
	129	x	-0.327	1.50	No
		x	-0.327	8.50	No
	226	x	-0.047	0.25	No
		x	-0.052	75.00	Yes
		x	-0.043	75.00	Yes
	225	x	-0.039	50.00	Yes
		x	-0.048	50.00	Yes
	223	x	-0.084	50.00	Yes
	228	x	-0.052	75.00	Yes
		x	-0.043	75.00	Yes
	227	x	-0.039	50.00	Yes
		x	-0.048	50.00	Yes
Di	62	y	-0.207	1.50	No
		y	-0.207	8.50	No
	133	y	-0.204	1.50	No

		y	-0.204	8.50	No
	170	y	-0.207	1.50	No
		y	-0.207	8.50	No
	66	y	-0.204	1.50	No
		y	-0.204	8.50	No
	224	y	-0.049	0.25	No
		y	-0.057	75.00	Yes
		y	-0.05	75.00	Yes
	174	y	-0.204	1.50	No
		y	-0.204	8.50	No
	129	y	-0.207	1.50	No
		y	-0.207	8.50	No
	226	y	-0.049	0.25	No
		y	-0.057	75.00	Yes
		y	-0.05	75.00	Yes
	225	y	-0.056	50.00	Yes
		y	-0.048	50.00	Yes
	223	y	-0.056	50.00	Yes
		y	-0.048	50.00	Yes
	228	y	-0.057	50.00	Yes
		y	-0.05	50.00	Yes
	227	y	-0.056	50.00	Yes
		y	-0.048	50.00	Yes
Wi0	62	z	-0.074	1.50	No
		z	-0.074	8.50	No
	133	z	-0.047	1.50	No
		z	-0.047	8.50	No
	170	z	-0.047	1.50	No
		z	-0.047	8.50	No
	66	z	-0.073	1.50	No
		z	-0.073	8.50	No
	224	z	-0.012	0.25	No
		z	-0.009	75.00	Yes
		z	-0.01	75.00	Yes
	174	z	-0.047	1.50	No
		z	-0.047	8.50	No
	129	z	-0.047	1.50	No
		z	-0.047	8.50	No
	226	z	-0.012	0.25	No
		z	-0.017	75.00	Yes
		z	-0.015	75.00	Yes
	225	z	-0.018	50.00	Yes
		z	-0.016	50.00	Yes
	223	z	-0.01	50.00	Yes
		z	-0.008	50.00	Yes
	228	z	-0.017	75.00	Yes
		z	-0.015	75.00	Yes
	227	z	-0.018	50.00	Yes
		z	-0.016	50.00	Yes
Wi30	62	x	-0.039	1.50	No
		x	-0.039	8.50	No
	133	x	-0.063	1.50	No
		x	-0.063	8.50	No
	170	x	-0.064	1.50	No
		x	-0.064	8.50	No
	66	x	-0.038	1.50	No
		x	-0.038	8.50	No
	224	x	-0.012	0.25	No
		x	-0.02	75.00	Yes
	174	x	-0.063	1.50	No

		x	-0.063	8.50	No
	129	x	-0.064	1.50	No
		x	-0.064	8.50	No
	226	x	-0.012	0.25	No
		x	-0.012	75.00	Yes
		x	-0.011	75.00	Yes
	225	x	-0.009	50.00	Yes
		x	-0.01	50.00	Yes
	223	x	-0.02	50.00	Yes
	228	x	-0.012	75.00	Yes
		x	-0.011	75.00	Yes
	227	x	-0.009	50.00	Yes
		x	-0.01	50.00	Yes
WL0	62	z	-0.022	1.50	No
		z	-0.022	8.50	No
	133	z	-0.013	1.50	No
		z	-0.013	8.50	No
	170	z	-0.013	1.50	No
		z	-0.013	8.50	No
	66	z	-0.022	1.50	No
		z	-0.022	8.50	No
	224	z	-0.003	0.25	No
		z	-0.002	75.00	Yes
		z	-0.002	75.00	Yes
	174	z	-0.013	1.50	No
		z	-0.013	8.50	No
	129	z	-0.013	1.50	No
		z	-0.013	8.50	No
	226	z	-0.003	0.25	No
		z	-0.004	75.00	Yes
		z	-0.004	75.00	Yes
	225	z	-0.004	50.00	Yes
		z	-0.004	50.00	Yes
	223	z	-0.002	50.00	Yes
		z	-0.001	50.00	Yes
	228	z	-0.004	75.00	Yes
		z	-0.004	75.00	Yes
	227	z	-0.004	50.00	Yes
		z	-0.004	50.00	Yes
WL30	62	x	-0.01	1.50	No
		x	-0.01	8.50	No
	133	x	-0.019	1.50	No
		x	-0.019	8.50	No
	170	x	-0.019	1.50	No
		x	-0.019	8.50	No
	66	x	-0.01	1.50	No
		x	-0.01	8.50	No
	224	x	-0.003	0.25	No
		x	-0.005	75.00	Yes
	174	x	-0.019	1.50	No
		x	-0.019	8.50	No
	129	x	-0.019	1.50	No
		x	-0.019	8.50	No
	226	x	-0.003	0.25	No
		x	-0.002	75.00	Yes
		x	-0.002	75.00	Yes
	225	x	-0.002	50.00	Yes
		x	-0.002	50.00	Yes
	223	x	-0.005	50.00	Yes
	228	x	-0.002	75.00	Yes

		x	-0.002	75.00	Yes
	227	x	-0.002	50.00	Yes
		x	-0.002	50.00	Yes
LL1	89	y	-0.25	50.00	Yes
LL2	89	y	-0.25	0.00	Yes
LLa1	62	y	-0.25	50.00	Yes
LLa2	63	y	-0.25	50.00	Yes
LLa3	65	y	-0.25	50.00	Yes
LLa4	66	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Current Date: 12/14/2020 1:53 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1377\NSB\CT1377 (NSB).retx

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0+1.6LLa4
LC29=1.2DL+WL30+1.6LLa4
LC30=1.2DL-WL0+1.6LLa4
LC31=1.2DL-WL30+1.6LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	**62**	LC1 at 33.33%	0.36	OK	Eq. H1-1b
		63	LC12 at 33.33%	0.17	OK	Eq. H1-1b
		65	LC1 at 64.58%	0.20	OK	Eq. H1-1b
		66	LC3 at 33.33%	0.39	OK	Eq. H1-1b
		88	LC3 at 83.04%	0.45	OK	Eq. H1-1b
		89	LC3 at 71.25%	0.51	OK	Eq. H1-1b
		129	LC4 at 33.33%	0.38	OK	Eq. H1-1b
		130	LC10 at 33.33%	0.18	OK	Eq. H1-1b
		132	LC11 at 33.33%	0.18	OK	Eq. H1-1b
		133	LC11 at 33.33%	0.32	OK	Eq. H1-1b
		135	LC3 at 71.43%	0.46	OK	Eq. H1-1b
		136	LC2 at 28.75%	0.42	OK	Eq. H1-1b
		170	LC2 at 66.67%	0.34	OK	Eq. H1-1b
		171	LC11 at 33.33%	0.18	OK	Eq. H1-1b
		173	LC9 at 33.33%	0.18	OK	Eq. H1-1b
		174	LC2 at 33.33%	0.46	OK	Eq. H1-1b
		176	LC4 at 71.43%	0.42	OK	Eq. H1-1b
		177	LC4 at 71.25%	**0.54**	**OK**	Eq. H1-1b

PIPE 2x0.154	**87**	LC1 at 100.00%	0.35	OK	Eq. H1-1b
	90	LC12 at 93.75%	0.37	OK	Eq. H1-1b
	91	LC9 at 93.75%	0.30	OK	Eq. H1-1b
	92	LC9 at 93.75%	0.28	OK	Eq. H1-1b
	93	LC1 at 100.00%	0.39	OK	Eq. H1-1b
	102	LC4 at 100.00%	0.35	OK	Eq. H1-1b
	134	LC2 at 100.00%	0.33	OK	Eq. H1-1b
	137	LC1 at 93.75%	0.37	OK	Eq. H1-1b
	138	LC10 at 93.75%	0.28	OK	Eq. H1-1b
	139	LC10 at 93.75%	0.27	OK	Eq. H1-1b
	140	LC11 at 93.75%	0.36	OK	Eq. H1-1b
	149	LC2 at 100.00%	0.25	OK	Eq. H1-1b
	175	LC4 at 100.00%	0.26	OK	Eq. H1-1b
	178	LC2 at 88.75%	0.39	OK	Eq. H1-1b
	179	LC12 at 93.75%	0.29	OK	Eq. H1-1b
	180	LC12 at 93.75%	0.28	OK	Eq. H1-1b
	181	LC4 at 100.00%	**0.42**	**OK**	Eq. H1-1b
	190	LC3 at 100.00%	0.31	OK	Eq. H1-1b
	223	LC12 at 20.83%	0.16	OK	Eq. H1-1b
	224	LC10 at 20.83%	0.18	OK	Eq. H1-1b
	225	LC11 at 20.83%	0.14	OK	Eq. H1-1b
	226	LC9 at 20.83%	0.17	OK	Eq. H1-1b
	227	LC9 at 20.83%	0.16	OK	Eq. H1-1b
	228	LC11 at 20.83%	0.14	OK	Eq. H1-1b
PL 11-1/4x5/8	**127**	LC9 at 100.00%	**0.38**	**OK**	Eq. H1-1b
	128	LC11 at 100.00%	0.29	OK	Eq. H1-1b
	168	LC10 at 100.00%	0.37	OK	Eq. H1-1b
	169	LC9 at 100.00%	0.29	OK	Eq. H1-1b
	209	LC11 at 100.00%	0.38	OK	Eq. H1-1b
	210	LC10 at 100.00%	0.29	OK	Eq. H1-1b
PL 3-1/2x5/8	**107**	LC9 at 100.00%	0.29	OK	Eq. H1-1b
	108	LC9 at 100.00%	0.30	OK	Eq. H1-1b
	109	LC11 at 100.00%	0.35	OK	Eq. H1-1b
	110	LC12 at 100.00%	0.34	OK	Eq. H1-1b
	123	LC9 at 100.00%	0.62	OK	Eq. H1-1b
	124	LC12 at 0.00%	0.58	OK	Eq. H1-1b
	125	LC9 at 100.00%	0.60	OK	Eq. H1-1b
	126	LC9 at 0.00%	0.56	OK	Eq. H1-1b
	150	LC10 at 100.00%	0.29	OK	Eq. H1-1b
	151	LC10 at 100.00%	0.30	OK	Eq. H1-1b
	152	LC12 at 100.00%	0.35	OK	Eq. H1-1b
	153	LC9 at 100.00%	0.34	OK	Eq. H1-1b
	164	LC11 at 100.00%	0.58	OK	Eq. H1-1b
	165	LC9 at 0.00%	0.59	OK	Eq. H1-1b
	166	LC10 at 100.00%	0.58	OK	Eq. H1-1b
	167	LC11 at 0.00%	0.57	OK	Eq. H1-1b
	191	LC12 at 100.00%	0.28	OK	Eq. H1-1b
	192	LC12 at 100.00%	0.29	OK	Eq. H1-1b
	193	LC9 at 100.00%	0.35	OK	Eq. H1-1b
	194	LC10 at 100.00%	0.35	OK	Eq. H1-1b
	205	LC9 at 100.00%	**0.62**	**OK**	Eq. H1-1b
	206	LC10 at 0.00%	0.59	OK	Eq. H1-1b
	207	LC11 at 100.00%	0.60	OK	Eq. H1-1b
	208	LC12 at 0.00%	0.57	OK	Eq. H1-1b
RndBar 3_4	**98**	LC10 at 0.00%	0.21	OK	Eq. H1-1b
	99	LC9 at 0.00%	0.22	OK	Eq. H1-1b
	100	LC10 at 0.00%	0.24	OK	Eq. H1-1b
	101	LC9 at 100.00%	**0.25**	**OK**	Eq. H1-1b
	145	LC12 at 0.00%	0.22	OK	Eq. H1-1b
	146	LC11 at 0.00%	0.22	OK	Eq. H1-1b

	147	LC11 at 0.00%	0.22	OK	Eq. H1-1b
	148	LC10 at 100.00%	0.23	OK	Eq. H1-1b
	186	LC9 at 0.00%	0.22	OK	Eq. H1-1b
	187	LC12 at 0.00%	0.22	OK	Eq. H1-1b
	188	LC9 at 0.00%	0.24	OK	Eq. H1-1b
	189	LC11 at 100.00%	0.24	OK	Eq. H1-1b
RndBar 5_8	**94**	LC9 at 87.50%	**0.62**	**OK**	Eq. H1-1a
	95	LC9 at 87.50%	0.60	OK	Eq. H1-1a
	96	LC10 at 87.50%	0.57	OK	Eq. H1-1a
	97	LC9 at 87.50%	0.60	OK	Eq. H1-1a
	141	LC10 at 87.50%	0.60	OK	Eq. H1-1a
	142	LC10 at 87.50%	0.57	OK	Eq. H1-1a
	143	LC11 at 87.50%	0.57	OK	Eq. H1-1a
	144	LC11 at 87.50%	0.59	OK	Eq. H1-1a
	182	LC11 at 87.50%	0.61	OK	Eq. H1-1a
	183	LC11 at 87.50%	0.59	OK	Eq. H1-1a
	184	LC12 at 87.50%	0.57	OK	Eq. H1-1a
	185	LC12 at 87.50%	0.60	OK	Eq. H1-1a

Current Date: 12/14/2020 1:54 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1377\NSB\CT1377 (NSB).retx

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
211	1.7321	0.00	-1.00	0
213	1.7321	-3.3333	-1.00	0
142	0.00	0.00	2.00	0
144	0.00	-3.3333	2.00	0
270	-1.7321	0.00	-1.00	0
272	-1.7321	-3.3333	-1.00	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
211	1	1	1	1	0	1
213	1	1	1	1	0	1
142	1	1	1	1	0	1
144	1	1	1	1	0	1
270	1	1	1	1	0	1
272	1	1	1	1	0	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
62	153	152		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
63	181	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
87	156	157		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
90	162	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	163	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	164	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	165	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	166	167		RndBar 5_8	A36	0.00	0.00	0.00
95	168	169		RndBar 5_8	A36	0.00	0.00	0.00
96	170	171		RndBar 5_8	A36	0.00	0.00	0.00
97	172	173		RndBar 5_8	A36	0.00	0.00	0.00
98	170	173		RndBar 3_4	A36	0.00	0.00	0.00
99	171	172		RndBar 3_4	A36	0.00	0.00	0.00
100	167	168		RndBar 3_4	A36	0.00	0.00	0.00
101	166	169		RndBar 3_4	A36	0.00	0.00	0.00
102	174	175		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
107	162	184		PL 3-1/2x5/8	A36	0.00	0.00	0.00
108	165	185		PL 3-1/2x5/8	A36	0.00	0.00	0.00
109	164	186		PL 3-1/2x5/8	A36	0.00	0.00	0.00
110	163	187		PL 3-1/2x5/8	A36	0.00	0.00	0.00
123	143	208		PL 3-1/2x5/8	A36	0.00	0.00	0.00
124	208	147		PL 3-1/2x5/8	A36	0.00	0.00	0.00
125	145	209		PL 3-1/2x5/8	A36	0.00	0.00	0.00
126	209	146		PL 3-1/2x5/8	A36	0.00	0.00	0.00
127	208	142		PL 11-1/4x5/8	A36	11.25	9.25	0.00
128	209	144		PL 11-1/4x5/8	A36	11.25	9.25	0.00
130	244	243		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
132	242	241		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
133	220	219		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
134	221	222		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	223	224		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
136	225	226		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
137	227	212		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
138	228	214		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
139	229	215		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
140	230	216		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
141	231	232		RndBar 5_8	A36	0.00	0.00	0.00
142	233	234		RndBar 5_8	A36	0.00	0.00	0.00
143	235	236		RndBar 5_8	A36	0.00	0.00	0.00
144	237	238		RndBar 5_8	A36	0.00	0.00	0.00
145	235	238		RndBar 3_4	A36	0.00	0.00	0.00
146	236	237		RndBar 3_4	A36	0.00	0.00	0.00
147	232	233		RndBar 3_4	A36	0.00	0.00	0.00
148	231	234		RndBar 3_4	A36	0.00	0.00	0.00
149	239	240		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
150	227	245		PL 3-1/2x5/8	A36	0.00	0.00	0.00
151	230	246		PL 3-1/2x5/8	A36	0.00	0.00	0.00
152	229	247		PL 3-1/2x5/8	A36	0.00	0.00	0.00
153	228	248		PL 3-1/2x5/8	A36	0.00	0.00	0.00
164	212	267		PL 3-1/2x5/8	A36	0.00	0.00	0.00
165	267	216		PL 3-1/2x5/8	A36	0.00	0.00	0.00
166	214	268		PL 3-1/2x5/8	A36	0.00	0.00	0.00
167	268	215		PL 3-1/2x5/8	A36	0.00	0.00	0.00
168	267	211		PL 11-1/4x5/8	A36	11.25	9.25	0.00
169	268	213		PL 11-1/4x5/8	A36	11.25	9.25	0.00
170	277	276		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
175	280	281		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
176	282	283		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

177	284	285	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
178	286	271	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
179	287	273	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
180	288	274	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
181	289	275	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
182	290	291	RndBar 5_8	A36	0.00	0.00	0.00
183	292	293	RndBar 5_8	A36	0.00	0.00	0.00
184	294	295	RndBar 5_8	A36	0.00	0.00	0.00
185	296	297	RndBar 5_8	A36	0.00	0.00	0.00
186	294	297	RndBar 3_4	A36	0.00	0.00	0.00
187	295	296	RndBar 3_4	A36	0.00	0.00	0.00
188	291	292	RndBar 3_4	A36	0.00	0.00	0.00
189	290	293	RndBar 3_4	A36	0.00	0.00	0.00
190	298	299	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
191	286	304	PL 3-1/2x5/8	A36	0.00	0.00	0.00
192	289	305	PL 3-1/2x5/8	A36	0.00	0.00	0.00
193	288	306	PL 3-1/2x5/8	A36	0.00	0.00	0.00
194	287	307	PL 3-1/2x5/8	A36	0.00	0.00	0.00
205	271	326	PL 3-1/2x5/8	A36	0.00	0.00	0.00
206	326	275	PL 3-1/2x5/8	A36	0.00	0.00	0.00
207	273	327	PL 3-1/2x5/8	A36	0.00	0.00	0.00
208	327	274	PL 3-1/2x5/8	A36	0.00	0.00	0.00
209	326	270	PL 11-1/4x5/8	A36	11.25	9.25	0.00
210	327	272	PL 11-1/4x5/8	A36	11.25	9.25	0.00
88	158	159	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	160	161	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	155	154	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
65	177	176	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
224	366	360	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
174	279	278	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
129	218	217	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
173	301	300	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
226	371	364	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
171	303	302	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
225	370	365	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
223	367	361	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
228	368	362	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
227	369	363	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
63	0.00	2	0.7071	0.00	-0.7071
94	0.00	2	0.00	0.00	1.00
95	0.00	2	0.00	0.00	1.00
96	0.00	2	0.00	0.00	1.00
97	0.00	2	0.00	0.00	1.00
107	90.00	0	0.00	0.00	0.00
108	90.00	0	0.00	0.00	0.00
109	90.00	0	0.00	0.00	0.00
110	90.00	0	0.00	0.00	0.00
123	90.00	0	0.00	0.00	0.00
124	90.00	0	0.00	0.00	0.00
125	90.00	0	0.00	0.00	0.00
126	90.00	0	0.00	0.00	0.00

127	90.00	0	0.00	0.00	0.00
128	90.00	0	0.00	0.00	0.00
130	0.00	2	-0.9659	0.00	-0.2588
132	0.00	2	-0.9659	0.00	-0.2588
133	0.00	2	-0.9659	0.00	-0.2588
141	0.00	2	0.866	0.00	-0.50
142	0.00	2	0.866	0.00	-0.50
143	0.00	2	0.866	0.00	-0.50
144	0.00	2	0.866	0.00	-0.50
150	90.00	0	0.00	0.00	0.00
151	90.00	0	0.00	0.00	0.00
152	90.00	0	0.00	0.00	0.00
153	90.00	0	0.00	0.00	0.00
164	90.00	0	0.00	0.00	0.00
165	90.00	0	0.00	0.00	0.00
166	90.00	0	0.00	0.00	0.00
167	90.00	0	0.00	0.00	0.00
168	90.00	0	0.00	0.00	0.00
169	90.00	0	0.00	0.00	0.00
170	0.00	2	0.2588	0.00	0.9659
182	0.00	2	-0.866	0.00	-0.50
183	0.00	2	-0.866	0.00	-0.50
184	0.00	2	-0.866	0.00	-0.50
185	0.00	2	-0.866	0.00	-0.50
191	90.00	0	0.00	0.00	0.00
192	90.00	0	0.00	0.00	0.00
193	90.00	0	0.00	0.00	0.00
194	90.00	0	0.00	0.00	0.00
205	90.00	0	0.00	0.00	0.00
206	90.00	0	0.00	0.00	0.00
207	90.00	0	0.00	0.00	0.00
208	90.00	0	0.00	0.00	0.00
209	90.00	0	0.00	0.00	0.00
210	90.00	0	0.00	0.00	0.00
65	0.00	2	0.7071	0.00	-0.7071
174	0.00	2	0.2588	0.00	0.9659
129	0.00	2	-0.9659	0.00	-0.2588
173	0.00	2	0.2588	0.00	0.9659
171	0.00	2	0.2588	0.00	0.9659

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
98	0.00	-3.50	0.00	0.00	3.50	0.00
99	0.00	3.50	0.00	0.00	-3.50	0.00
100	0.00	3.50	0.00	0.00	-3.50	0.00
101	0.00	-3.50	0.00	0.00	3.50	0.00
127	0.00	-0.625	0.00	0.00	-0.625	0.00
128	0.00	-0.625	0.00	0.00	-0.625	0.00
145	0.00	-3.50	0.00	0.00	3.50	0.00
146	0.00	3.50	0.00	0.00	-3.50	0.00
147	0.00	3.50	0.00	0.00	-3.50	0.00
148	0.00	-3.50	0.00	0.00	3.50	0.00
168	0.00	-0.625	0.00	0.00	-0.625	0.00
169	0.00	-0.625	0.00	0.00	-0.625	0.00

186	0.00	-3.50	0.00	0.00	3.50	0.00
187	0.00	3.50	0.00	0.00	-3.50	0.00
188	0.00	3.50	0.00	0.00	-3.50	0.00
189	0.00	-3.50	0.00	0.00	3.50	0.00
209	0.00	-0.625	0.00	0.00	-0.625	0.00
210	0.00	-0.625	0.00	0.00	-0.625	0.00

Hinges

	Node-J				Node-K						
Member	**M33**	**M22**	**V3**	**V2**	**M33**	**M22**	**V3**	**V2**	**TOR**	**AXL**	**Axial rigidity**
87	1	1	0	0	0	0	0	0	0	0	Full
99	0	0	0	0	0	0	0	0	0	0	Tension only
101	0	0	0	0	0	0	0	0	0	0	Tension only
102	1	1	0	0	0	0	0	0	0	0	Full
107	1	1	0	0	0	0	0	0	0	0	Full
108	1	1	0	0	0	0	0	0	0	0	Full
109	1	1	0	0	0	0	0	0	0	0	Full
110	1	1	0	0	0	0	0	0	0	0	Full
134	1	1	0	0	0	0	0	0	0	0	Full
146	0	0	0	0	0	0	0	0	0	0	Tension only
148	0	0	0	0	0	0	0	0	0	0	Tension only
149	1	1	0	0	0	0	0	0	0	0	Full
150	1	1	0	0	0	0	0	0	0	0	Full
151	1	1	0	0	0	0	0	0	0	0	Full
152	1	1	0	0	0	0	0	0	0	0	Full
153	1	1	0	0	0	0	0	0	0	0	Full
175	1	1	0	0	0	0	0	0	0	0	Full
187	0	0	0	0	0	0	0	0	0	0	Tension only
189	0	0	0	0	0	0	0	0	0	0	Tension only
190	1	1	0	0	0	0	0	0	0	0	Full
191	1	1	0	0	0	0	0	0	0	0	Full
192	1	1	0	0	0	0	0	0	0	0	Full
193	1	1	0	0	0	0	0	0	0	0	Full
194	1	1	0	0	0	0	0	0	0	0	Full

ATTACHMENT 5

FAA Summary Report

****
* Federal Airways & Airspace *
* Summary Report: Alteration Of Existing Structure *
* Antenna Structure *
****

Airspace User: Not Identified

File: 13935188

Location: Stafford Springs, CT

Latitude: 41°-50'-11.8" Longitude: 72°-15'-17.9"

SITE ELEVATION AMSL.....497 ft.
STRUCTURE HEIGHT.....160 ft.
OVERALL HEIGHT AMSL.....657 ft.

NOTICE CRITERIA
FAR 77.9(a): NNR (DNE 200 ft AGL)
FAR 77.9(b): NNR (DNE Notice Slope)
FAR 77.9(c): NNR (Not a Traverse Way)
FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for IJD
FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for 7B9
FAR 77.9(d): NNR (Off Airport Construction)

NR = Notice Required
NNR = Notice Not Required
PNR = Possible Notice Required (depends upon actual IFR procedure)
For new construction review Air Navigation Facilities at bottom of this report.

If the proposed construction is an alteration to an existing structure, notice requirements may be superceded by the item exemptions listed below.

The location and analysis were based upon an existing structure. However, no existing aeronautical study number was identified. If the 'existing' structure penetrates an obstruction surface defined by CFR 77.17, 77.19, 77.21 or 77.23 (see below) it is strongly recommended the FAA be notified of the 'existing' structure to determine obstruction marking or lighting requirements. It is not uncommon for the FAA to issue a Determination of No Hazard (DNH) for an existing structure and modify the airspace to accommodate the structure, should that be required. If the FAA issues a DNH enter the aeronautical study number (ASN) in the space provided on the Airspace Analysis Window Form and re-run Airspace.

No frequencies were identified in this alteration are included in the FAA's Co-Location Policy published in the Federal Register November 15, 2007. Therefore, application of the Co-Location Policy notice exemption rule can not be applied.

OBSTRUCTION STANDARDS
  FAR 77.17(a)(1): DNE 499 ft AGL
  FAR 77.17(a)(2): DNE - Airport Surface
  FAR 77.19(a):   DNE - Horizontal Surface
  FAR 77.19(b):   DNE - Conical Surface
  FAR 77.19(c):   DNE - Primary Surface
  FAR 77.19(d):   DNE - Approach Surface
  FAR 77.19(e):   DNE - Approach Transitional Surface
  FAR 77.19(e):   DNE - Abeam Transitional Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: IJD: WINDHAM
Type: A   RD: 37956.82   RE: 235.3
  FAR 77.17(a)(1):   DNE
  FAR 77.17(a)(2):   DNE - Greater Than 5.99 NM.
  VFR Horizontal Surface: DNE
  VFR Conical Surface: DNE
  VFR Primary Surface: DNE
  VFR Approach Surface: DNE
  VFR Transitional Surface: DNE

VFR TRAFFIC PATTERN AIRSPACE FOR: 7B9: ELLINGTON
Type: A   RD: 63335.3   RE: 253.3
  FAR 77.17(a)(1):   DNE
  FAR 77.17(a)(2):   Does Not Apply.
  VFR Horizontal Surface: DNE
  VFR Conical Surface: DNE
  VFR Primary Surface: DNE
  VFR Approach Surface: DNE
  VFR Transitional Surface: DNE

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, Volume 4)
  FAR 77.17(a)(3) Departure Surface Criteria (40:1)
  DNE Departure Surface

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)
  FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
  The Maximum Height Permitted is 1500 ft AMSL

PRIVATE LANDING FACILITIES
  No Private Landing Facilites Are Within 6 NM

AIR NAVIGATION ELECTRONIC FACILITIES

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRND ANGLE	APCH BEAR
HFD	VOR/DME	R	114.9	228.15	106992	-192	CT	HARTFORD	-.1	
PUT	VOR/DME	R	117.4	68.7	119960	+5	CT	PUTNAM	0.00	
BDL	RADAR	I		287.84	122193	+421	CT	BRADLEY INTL	.20	
ORW	VOR/DME	I	110.0	145.72	123697	+347	CT	NORWICH	.16	
BDL	VORTAC	D	109.0	288.00	124041	+497	CT	BRADLEY	.23	
CEF	TACAN	R	114.0	330.81	150780	+416	MA	WESTOVER	.16	
BAF	VORTAC	R	113.0	313.55	172549	+390	MA	BARNES	.13	

PVD	RADAR	I	2735.	103.48	183997	+91	RI	THEODORE FRANCIS .03
ORH	RADAR WXL	Y		33.19	189792	-346	MA	WORCESTER -.1
GON	VOR/DME	R	110.8	163.31	192637	+648	CT	GROTON .19

CFR Title 47, §1.30000-§1.30004
AM STUDY NOT REQUIRED: Structure is not near a FCC licensed AM station.
Movement Method Proof as specified in §73.151(c) is not required.
Please review 'AM Station Report' for details.

Nearest AM Station: WILI @ 14573 meters.

Airspace® Summary Version 21.3.608

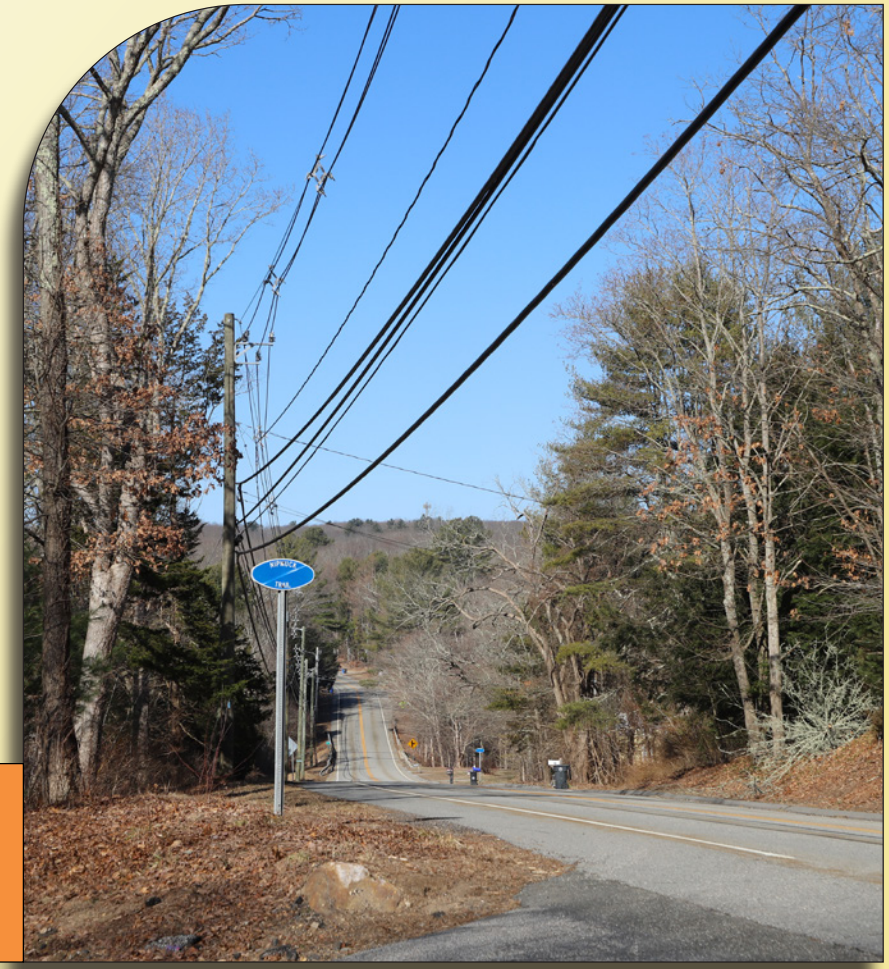
04-26-2021
13:09:24

ATTACHMENT 6

Visual Report

Visual Assessment & Photo-Simulations

CT1377
WILLINGTON DALEVILLE ROAD
343 DALEVILLE ROAD
WILLINGTON, CT



Prepared in June 2021 by:
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Prepared for AT&T

ALL-POINTS
TECHNOLOGY CORPORATION

VISUAL ASSESSMENT & PHOTO-SIMULATIONS

New Cingular Wireless PCS, LLC, d/b/a AT&T ("AT&T) is seeking approval for the extension of an existing wireless communications facility (the "Facility") at 343 Daleville Road in Willington, Connecticut. At the request of AT&T, All-Points Technology Corporation, P.C. ("APT") completed this assessment to evaluate the potential visual effects of the proposed Facility extension from within a 2-mile radius (the "Study Area") and prepared computer-generated photo-simulations depicting the extended Facility. The Study Area includes portions of the municipalities of Willington, Mansfield and Ashford; the Willington-Mansfield municipal boundary bisects the Study Area in an east-west direction.

Project Setting

The ±22-acre Host Property is located east of Daleville Road and north of U.S. Route 44 in the central portion of a sparsely developed residential area. Woodlands and a few homes surround the Host Property. The municipal boundary between the town of Willington and the Town of Mansfield forms the southern property boundary.

The topography within the Study Area consists of relatively hilly terrain. Ground elevations range from approximately 268 feet above mean sea level ("AMSL") in the southeastern portion of the Study Area to approximately 740 feet AMSL in the southwestern portion of the Study Area. Tree cover within the Study Area (consisting primarily of mixed deciduous hardwoods with interspersed stands of conifers) occupies approximately 6,173 acres (or ±76.76%) of the 8,042-acre Study Area. Open water occupies approximately 50.5 acres (±0.63%) of the Study Area.

Project Undertaking

The Facility consists of an existing ±104' tall steel monopole tower (the "existing tower") and an associated fenced compound. AT&T is proposing to extend the existing tower by 56', bringing the top of the monopole to a height of ±160' above ground level ("AGL"). AT&T would install six (6) panel antennas, six (6) remote radio heads ("RRHs"), and two (2) surge arrestors on a new frame at an approximate centerline height of 155' AGL. Related ground equipment would be placed within the existing Facility compound.

Please refer to the Site Drawings prepared by A.T. Engineering Service, PLLC, Rev. 0, dated December 16, 2020, and provided under separate cover, for details regarding the proposed installation.

Methodology

APT used the combination of a predictive computer model, in-field analysis, and a review of various data sources to evaluate the visibility associated with the proposed Facility on both a quantitative and qualitative basis. The predictive model provides a measurable assessment of visibility throughout the entire Study Area, including private properties and other areas inaccessible for direct observations. The in-field analysis consisted of a balloon float and field reconnaissance of the Study Area to record existing conditions, verify results of the model, inventory seasonal and year-round view locations, and provide photographic documentation from publicly accessible areas. A description of the procedures used in the analysis is provided below.

Preliminary Computer Modeling

To conduct this assessment, a predictive computer model was developed specifically for this project using ESRI's ArcMap GIS[1] software and available GIS data. The predictive model incorporates Project and Study Area-specific data, including the Site location, its ground elevation and the proposed Facility height, as well as the surrounding topography, existing vegetation, and structures (the primary features that can block direct lines of sight).

A digital surface model ("DSM"), capturing both the natural and built features on the Earth's surface, was generated for the extent of the Study Area utilizing State of Connecticut 2016 LiDAR[2] LAS[3] data points. LiDAR is a remote-sensing technology that develops elevation data by measuring the time it takes for laser light to return from the surface to the instrument's sensors. The varying reflectivity of objects also means that the "returns" can be classified based on the characteristics of the reflected light, normally into categories such as "bare earth," "vegetation," "road," "surface water" or "building." Derived from the 2016 LiDAR data, the LAS datasets contain the corresponding elevation point data and return classification values. The Study Area DSM incorporates the first return LAS dataset values that are associated with the highest feature in the landscape, typically a treetop, top of a building, and/or the highest point of other tall structures.

Once the DSM was generated, ESRI's Viewshed Tool was utilized to identify locations within the Study Area where the proposed Facility may be visible. ESRI's Viewshed Tool predicts visibility by identifying those cells[4] within the DSM that can be seen from an observer location. Cells

[1] ArcMap is a Geographic Information System desktop application developed by the Environmental Systems Research Institute for creating maps, performing spatial analysis, and managing geographic data.

[2] Light Detection and Ranging

[3] An LAS file is an industry-standard binary format for storing airborne LiDAR data.

[4] Each DSM cell size is 1 square meter.

where visibility was indicated were extracted and converted from a raster dataset to a polygon feature which was then overlaid onto aerial photograph and topographic base maps. Since the DSM includes the highest relative feature in the landscape, isolated "visible" cells are often indicated within heavily forested areas (e.g., from the top of the highest tree) or on building rooftops during the initial processing. It is recognized that these areas do not represent typical viewer locations and overstate visibility. As such, the resulting polygon feature is further refined by extracting those areas. The viewshed results are also cross-checked against the most current aerial photographs to assess whether significant changes (a new housing development, for example) have occurred since the time the LiDAR-based LAS datasets were captured.

The results of the preliminary analysis are intended to provide a representation of those areas where portions of the Facility may potentially be visible to the human eye without the aid of magnification, based on a viewer eye-height of five (5) feet above the ground and the combination of intervening topography, trees and other vegetation, and structures. However, the Facility may not necessarily be visible from all locations within those areas identified by the predictive model, which has its limitations. For instance, the computer model cannot account for mass density, tree diameters and branching variability of trees, or the degradation of views that occur with distance. As a result, some areas depicted on the viewshed maps as theoretically offering potential visibility of the Facility may be over-predictive because the quality of those views is not sufficient for the human eye to recognize the Facility or discriminate it from other surrounding or intervening objects.

Seasonal Visibility

Visibility also varies seasonally with increased, albeit obstructed, views occurring during "leaf-off" conditions. Beyond the variabilities associated with density of woodland stands found within any given Study Area, each individual tree also has its own unique trunk, pole timber and branching patterns that provide varying degrees of screening in leafless conditions which, as introduced above, cannot be precisely modeled. Seasonal visibility is therefore estimated based on a combination of factors including the type, size, and density of trees within a given area; topographic constraints; and other visual obstructions that may be present. Taking into account these considerations, areas depicting seasonal visibility on the viewshed maps are intended to represent locations from where there is a potential for views through intervening trees, as opposed to indicating that leaf-off views will exist from within an entire seasonally-shaded area.

Balloon Float and Field Reconnaissance

To supplement and fine tune the results of the computer modeling efforts, APT completed in-field verification activities consisting of a balloon float, vehicular and pedestrian reconnaissance, and photo-documentation. The balloon float and field reconnaissance were completed on March

22, 2021. The balloon float involved raising a brightly-colored, approximately 4-foot diameter, helium-filled balloon tethered to a string height of ±164 feet AGL[5] at the proposed Site. Weather conditions were favorable for the in-field activities with light winds and mostly clear skies.

APT conducted a Study Area reconnaissance by driving local and State roads and other publicly accessible locations to document and inventory where the balloon could be seen above and through the tree canopy and other visual obstructions. Visual observations from the reconnaissance were also used to evaluate the results of the preliminary visibility mapping and identify any discrepancies in the initial modeling.

Photographic Documentation and Simulations

During the field reconnaissance, APT obtained photographs from representative locations for presentation in this report. At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") technology. Photographs were taken with a Canon EOS 6D digital camera body[6] and Canon EF 24 to 105 millimeter ("mm") zoom lens. APT typically uses a standard focal length of 50mm to present a consistent field of view. On occasion, photos are taken at lower focal lengths to provide a greater depth of field and to provide context to the scene by including surrounding features within the photograph. During this evaluation, six (6) photographs were taken at a 24mm focal length and one (1) photograph was taken at a 35 mm focal length as noted in Table 1 – Photo Locations.

Photographic simulations were generated to portray scaled renderings of the proposed Facility from seven (7) locations presented herein where the Facility may be recognizable. Using field data, site plan information and 3-dimensional (3D) modeling software, spatially referenced models of the extended Facility were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. Photo-simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs, which were ultimately composited and merged with the existing conditions photographs (using Photoshop image editing software). The scale of the subjects in the photograph (the balloon and existing tower) and the corresponding simulation (depicting the extended Facility components) is proportional to their surroundings.

For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format. When reproducing the images in this format size, we believe it is

[5] The proposed Facility extension was reduced from 60 feet down to 56 feet after completion of the field reconnaissance. The bottom of the balloon represents 164' AGL for the top of the proposed Facility.

[6] The Canon EOS 6D is a full-framed camera which includes a lens receptor of the same size as the film used in 35mm cameras. As such, the images produced are comparable to those taken with a conventional 35mm camera.

important to present the largest view while providing key contextual landscape elements (existing developments, street signs, utility poles, etc.) so that the viewer can determine the proportionate scale of each object within the scene. Photographs presented in the attachment at the end of this report include documentation of existing conditions and photo-simulations of the modified Facility. The photo-simulations are intended to provide the reader with a general understanding of the different view characteristics associated with the Facility from various locations. Photographs were taken from publicly accessible areas and unobstructed view lines were chosen wherever possible.

The table on the following page summarizes the photographs and simulations presented in the attachment to this report, and includes a description of each location, view orientation, and distance from where the photo was taken relative to the proposed Facility. The photo locations are depicted on the photolog provided as an attachment to this report.

Table 1 – Photo Locations

Photo	Location	Orientation	Distance to Site	Visibility
1	Daleville Road*	Southeast	± 0.31 Mile	Not Visible
2	Daleville Road	Southeast	± 0.27 Mile	Seasonal
3	Daleville Road	East	± 0.17 Mile	Year Round
4	Willington Oaks Apartments*	East	± 0.29 Mile	Not Visible
5	Willington Oaks Apartments	East	± 0.22 Mile	Seasonal
6	Daleville Road – Mansfield**	Northeast	± 0.19 Mile	Year Round
7	Daleville Road – Mansfield*	Northeast	± 0.24 Mile	Not Visible
8	Middle Turnpike – Mansfield*	Northwest	± 0.23 Mile	Not Visible
9	Middle Turnpike – Mansfield	Northeast	± 0.69 Mile	Not Visible
10	Old Turnpike Road – Mansfield	North	± 0.43 Mile	Not Visible
11	Old Turnpike Road – Mansfield	North	± 0.38 Mile	Seasonal
12	Old Turnpike Road – Mansfield	Northwest	± 0.41 Mile	Not Visible
13	Old Turnpike Road – Mansfield	Northwest	± 0.42 Mile	Seasonal
14	Old Turnpike Road – Mansfield*	Northwest	± 0.45 Mile	Not Visible
15	Nipmuck Road*	West	± 0.56 Mile	Not Visible
16	Old Turnpike Road – Mansfield	Northwest	± 0.75 Mile	Not Visible
17	Old Turnpike Road at Middle Turnpike – Mansfield	Northwest	± 0.80 Mile	Year Round
18	Middle Turnpike at Codfish Falls Road – Mansfield	West	± 0.93 Mile	Not Visible
19	Daleville Road	Southwest	± 1.33 Miles	Not Visible
20	Willington Hill Road at Eldredge Road	Southeast	± 1.36 Mile	Not Visible
21	Thomas Drive at Sumner Drive – Mansfield	Northeast	± 0.87 Mile	Not Visible
22	Birch Road at Middle Turnpike – Mansfield	Northeast	± 1.57 Mile	Not Visible

**Photograph was taken at 24 mm focal length.*
***Photograph was taken at 35 mm focal length.*

Conclusions

Neither the existing tower nor the proposed extended Facility have a significant visual presence in the area. Predicted year-round visibility is estimated to increase from 0.4 acre to 0.6 acre in total. Predicted seasonal visibility of the proposed Facility is estimated to include an additional ±15 acres. Collectively, this represents ±0.2 percent of the 8,042-acre Study Area.

As presented on the attached viewshed maps, views of the extended Facility would be limited primarily to locations within less than 0.5 mile of the Site. Visibility will increase in the areas closest to the Facility (within ±0.25 Mile from the existing tower). However, the increase in visibility (either through a few new locations or a change in the existing view due to the extended height) would not significantly alter the characteristics of the area. Year-round visibility is predicted to increase negligibly. Photos 3 and 6 depict representative year-round views closest to the Facility. Similarly, seasonal visibility is not predicted to increase substantively from current conditions. Photos 5, 11 and 13 depict representative seasonal views within the Study Area.

The combination of undulating terrain and mature tree growth in the area helps to mitigate the visibility beyond the area immediately surrounding the Facility.

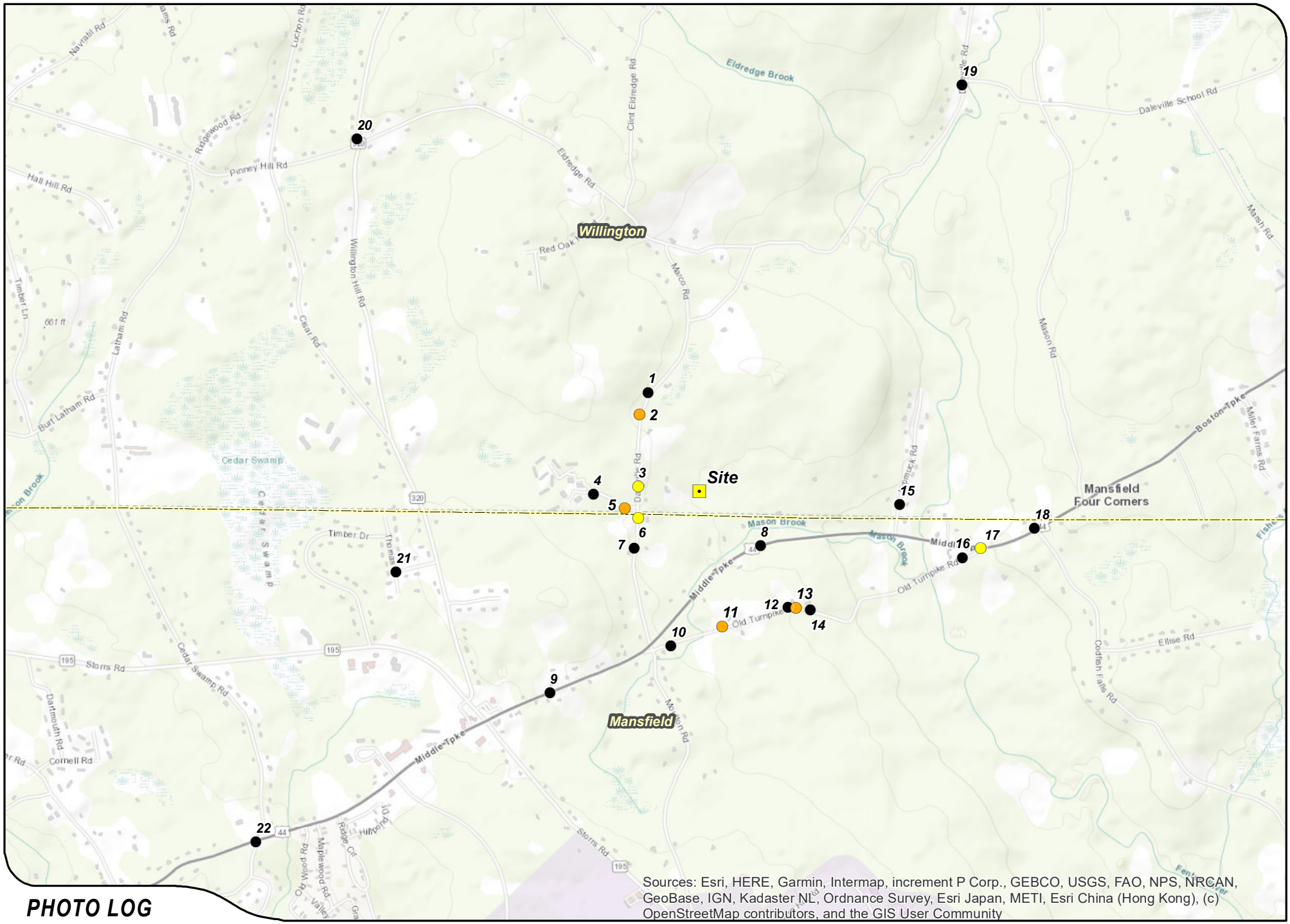
Proximity to Schools And Commercial Child Day Care Centers

No schools or commercial child day care centers are located within 250 feet of the proposed Facility. Dorothy C Goodwin School is located approximately 1.94 miles southwest of the Site at 321 Hunting Lodge Road in Storrs/Mansfield. The nearest commercial child care center is Educational Playcare approximately 2.4 miles to the southeast of the Site at 28 Wilbur Cross Way in Storrs/Mansfield. No visibility is predicted from or in the vicinity of the school or the day care center.

Limitations

The photo-simulations provide a representation of the Facility under similar settings as those encountered during the field review and reconnaissance. Views of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds); the location, angle and intensity of the sun; and the specific viewer location. Weather conditions on the day of the field review included light winds and mostly clear skies.

ATTACHMENTS



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

PHOTO LOG

Legend

Site | Visible | Seasonal | Not Visible | Municipal Boundary

N W E S

1 inch = 1,800 feet

1,800 900 0 1,800 Feet

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24mm Focal Length

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**DALEVILLE ROAD**	**SOUTHEAST**	**+/- 0.31 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**DALEVILLE ROAD**	**SOUTHEAST**	**+/- 0.27 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**DALEVILLE ROAD**	**SOUTHEAST**	**+/- 0.27 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**DALEVILLE ROAD**	**EAST**	**+/- 0.17 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**DALEVILLE ROAD**	**EAST**	**+/- 0.17 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

24mm Focal Length

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**WILLINGTON OAKS APARTMENTS**	**EAST**	**+/- 0.29 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**WILLINGTON OAKS APARTMENTS**	**EAST**	**+/- 0.22 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**WILLINGTON OAKS APARTMENTS**	**EAST**	**+/- 0.22 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

35mm Focal Length

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**DALEVILLE ROAD - MANSFIELD**	**NORTHEAST**	**+/- 0.19 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**DALEVILLE ROAD - MANSFIELD**	**NORTHEAST**	**+/- 0.19 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

24mm Focal Length

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**DALEVILLE ROAD - MANSFIELD**	**NORTHEAST**	**+/- 0.24 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

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24mm Focal Length

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	**MIDDLE TURNPIKE - MANSFIELD**	**NORTHWEST**	**+/- 0.23 MILE**	**NOT VISIBLE**

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PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**MIDDLE TURNPIKE - MANSFIELD**	**NORTHEAST**	**+/- 0.69 MILE**	**NOT VISIBLE**

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PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**OLD TURNPIKE ROAD - MANSFIELD**	**NORTH**	**+/- 0.43 MILE**	**NOT VISIBLE**

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PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**OLD TURNPIKE ROAD - MANSFIELD**	**NORTH**	**+/- 0.38 MILE**	**SEASONAL**

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PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**OLD TURNPIKE ROAD - MANSFIELD**	**NORTH**	**+/- 0.38 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	**OLD TURNPIKE ROAD - MANSFIELD**	**NORTHWEST**	**+/- 0.41 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**OLD TURNPIKE ROAD - MANSFIELD**	**NORTHWEST**	**+/- 0.42 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**OLD TURNPIKE ROAD - MANSFIELD**	**NORTHWEST**	**+/- 0.42 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

24mm Focal Length

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**OLD TURNPIKE ROAD - MANSFIELD**	**NORTHWEST**	**+/- 0.45 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

24mm Focal Length

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	**NIPMUCK ROAD**	**WEST**	**+/- 0.56 MILE**	**NOT VISIBLE**

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PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	**OLD TURNPIKE ROAD - MANSFIELD**	**NORTHWEST**	**+/- 0.75 MILE**	**NOT VISIBLE**

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PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	**OLD TURNPIKE ROAD AT MIDDLE TURNPIKE - MANSFIELD**	**NORTHWEST**	**+/- 0.80 MILE**	**YEAR ROUND**

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PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	**OLD TURNPIKE ROAD AT MIDDLE TURNPIKE - MANSFIELD**	**NORTHWEST**	**+/- 0.80 MILE**	**YEAR ROUND**

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at&t

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	**MIDDLE TURNPIKE AT CODFISH FALLS ROAD - MANSFIELD**	**WEST**	**+/- 0.93 MILE**	**NOT VISIBLE**

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PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	**DALEVILLE ROAD**	**SOUTHWEST**	**+/- 1.33 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	**WILLINGTON HILL ROAD AT ELDREDGE ROAD**	**SOUTHEAST**	**+/- 1.36 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
21	**THOMAS DRIVE AT SUMNER DRIVE - MANSFIELD**	**NORTHEAST**	**+/- 0.87 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

PHOTOGRAPHED ON 3/22/2021

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
22	**BIRCH ROAD AT MIDDLE TURNPIKE - MANSFIELD**	**NORTHEAST**	**+/- 1.57 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

at&t

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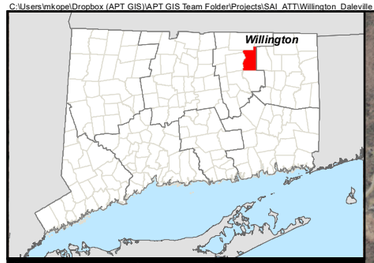
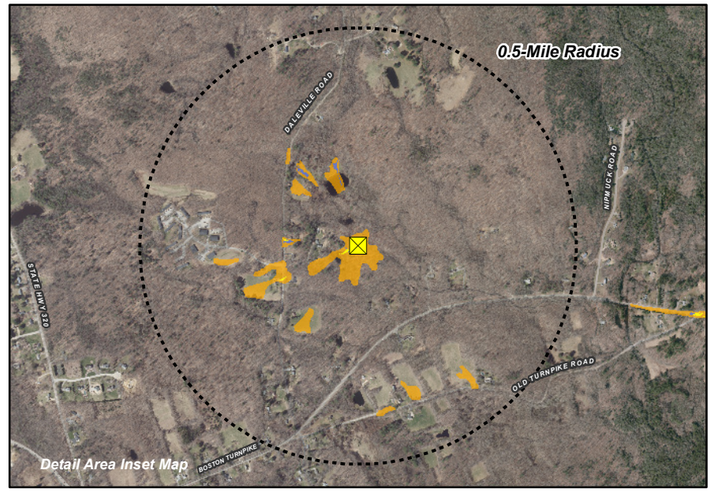


Statewide and Regional Overview Map



Detail Area Inset Map

Comparative Viewshed Analysis Map

Proposed Wireless Telecommunications Facility
CT1377 - Willington Daleville Road
343 Daleville Road
Willington, Connecticut

Existing facility height is 104 feet AGL; Proposed facility height is 160 feet AGL.
Forest canopy height is derived from LiDAR data.
Study area encompasses a two-mile radius and includes 8,042 acres.
Map information field verified by APT on March 22, 2021
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Date: May 2021

Legend

- Proposed Site
- Study Area (2-Mile Radius)
- Year-Round Visibility 104' AGL and 160' AGL (0.4 Acres)
- Year-Round Visibility 160' AGL (0.6 Additional Acres)
- Areas of Potential Seasonal Visibility - 104' AGL and/or 160' AGL (15 Acres)

Photo Locations (March 22, 2021)

- Not Visible
- Seasonal
- Visible
- Municipal Boundary
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2016 LiDAR LAS data points. The DSM captures the natural and built features on the Earth's surface.

Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP. Scenic Roads: CTDOT State Scenic Highways (2015); Municipal Scenic Roads (compiled by APT)

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

***Not all the sources listed above appear on the Viewshed Maps. Only those features within the scale of the graphic are shown.*

Limitations

This map depicts areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography, tree canopy and structures. This analysis may not account for all visible locations, as it is based on the combination of computer modeling, incorporating the DSM, 2019 digital aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties beyond the Host Property was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

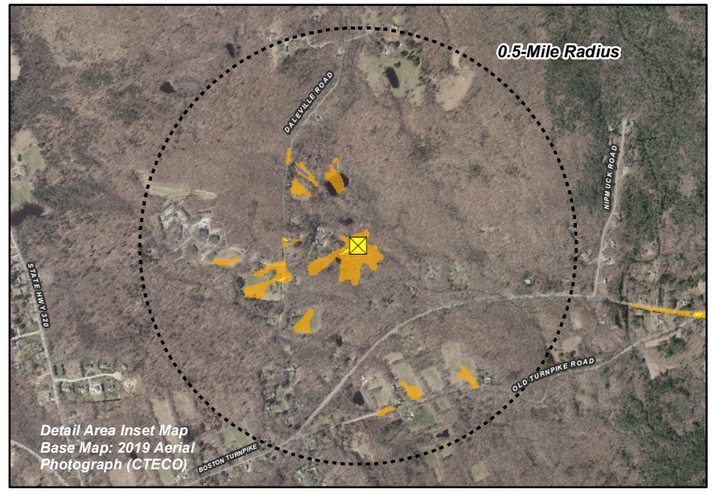
0.5 0.25 0 0.5 Miles

at&t

ALL-POINTS TECHNOLOGY CORPORATION

C:\Users\mkope\Dropbox (APT GIS)\APT GIS Team Folder\Projects\SAI_ATT\Willington_Daleville_Road\mxd\Willington Viewshed USGS.mxd

Statewide and Regional Overview Map



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Willington, Connecticut

Existing facility height is 104 feet AGL; Proposed facility height is 160 feet AGL.
Forest canopy height is derived from LiDAR data.
Study area encompasses a two-mile radius and includes 8,042 acres.
Map information field verified by APT on March 24, 2021
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Coventry, CT (1983) and Spring Hill, CT (1983)
Map Date: May 2021

Legend

- Proposed Site
- Study Area (2-Mile Radius)
- Year-Round Visibility 104' AGL and 160' AGL (0.5 Acres)
- Year-Round Visibility 160' AGL (0.5 Additional Acres)
- Areas of Potential Seasonal Visibility - 104' AGL and/or 160' AGL (15 Acres)

Photo Locations (March 22, 2021)

- Not Visible
- Seasonal
- Visible
- Municipal Boundary
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2016 LiDAR LAS data points. The DSM captures the natural and built features on the Earth's surface.

Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP. Scenic Roads: CTDOT State Scenic Highways (2015); Municipal Scenic Roads (compiled by APT)

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

***Not all the sources listed above appear on the Viewshed Maps. Only those features within the scale of the graphic are shown.*

Limitations

This map depicts areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography, tree canopy and structures. This analysis may not account for all visible locations, as it is based on the combination of computer modeling, incorporating the DSM, 2019 digital aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties beyond the Host Property was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

0.5 0.25 0 0.5 Miles

at&t

ALL-POINTS TECHNOLOGY CORPORATION

ATTACHMENT 7

Generator Specifications

NATIONAL ENERGY EQUIPMENT INC.

TRINITY ASME STORAGE TANKS

Above Ground ASME Tanks

Domestic Storage tanks manufactured by Trinity Containers, LLC conform to the latest edition and addenda of the ASME Code for Pressure Vessels, Section VIII Division I. Complies with NFPA 58 and B149 code requirements.

All tanks are pre-purged and ready to be filled. They are rated at 250 psig, from -20° F. to 125° F. Tanks may be evacuated to a full (14.7 psi) vacuum. CRN (Canadian Registration Numbers) provided for all provinces and territories. **Vessel Finish:** Coated with TGIC powder paint for durable lasting Finnish. Please read and understand all warranty and installation instructions before installing the tank.

Trinity Industries, Inc.

NEE #	Description	Working Pressure PSI	Weight	Height	Leg Spacing	Leg Width	Length	O.D.	Water Capacity
250WG	250 WG	250	472 lbs	3'-3 3/4"	3'-6"	12 3/4"	7'-2 1/2"	31.5"	250 USWG, 946.4 L
320WG	320 USWG		588 lbs		4'-0 1/4"		8'-11 3/4"		320 USWG, 1211.3 L
500WG	500 WG		871lbs	3'-9 3/4"	5'-0"	15"	9'-10"	37.42"	500 USWG, 1892.7 L
1000WG	1000 WG		1729 lbs	4'-1 3/8"	9'-0"	16 1/4"	15'-10 7/8"	40.96"	1000 USWG, 3785.4 L
2000WG	2000 WG		3676 lbs	4'-7"	20'-0"	21"	23'-9"	46.77"	2000 USWG, 7570.8 L

Tank Replacement Parts

Tank Size	Multi Valve	Check Lock Valves Bottom 1-1/4"	Check Lock Valves Top 3/4"	Relief Valve	Fill Valve	Float Gauges Screw-In	Float Gauges Jr. Bolt-In	Float Gauges Screw-In	Float Gauges Jr. Bolt-In
250 WG	67-0720	ME462	ME460	66-1128	PVE623C/ 66-1232	B8981-1230	6281-15.75-30	TA160	JA154I
320 WG									
500 WG				66-1129		B8981-04037	6284-193/4	TA194	JA192J
1000 WG				66-1130		B8981-04041	6281-00641	TA210A	JA2061

Underground ASME Storage Tanks

Trinity Underground Tanks conform to the latest edition and addenda of the ASME Code for Pressure Vessels, Section VIII Division I. Complies with NFPA 58 and B149.

All tanks are pre- purged and ready to be filled. They are rated at 250 psig, from -20° F. to 125° F. Tanks may be evacuated to a full (14.7 psi) vacuum. **Vessel Finish**: Coated with epoxy red powder paint. Please read and understand all warranty and installation instructions before installing the tank.

Applicable federal, provincial or local regulations may contain specific requirements for protective coatings and cathodic protection. The purchaser and installer are responsible for compliance with such federal, provincial or local regulations.

NEE #	Water Capacity	O.D.	Head Type	O.A.L.	Overall Height	Weight
250WG-UG	250 USWG, 946.4 L	31.5" (800.1 mm)	Hemi	7' 2 1/2" (2197.1 mm)	14" riser - 4'- 5/8" (1235.1 mm), 28" riser - 5'- 2 1/16" (1576.4 mm)	490 lbs (222.3 kg)
320WG-UG	320 USWG, 1211.3 L	31.5" (800.1 mm)		8' 11 3/4" (2736.9 mm)		610 lbs (276.7 kg)
500WG-UG	500 USWG, 1892.7 L	37.42" (950.5 mm)		9' 10" (2997.2 mm)	14" riser - 4'- 6 1/2" (1384.3 mm), 28" riser - 5'- 8 1/8" (1730.4 mm)	920 lbs (417.3 kg)
1000WG-UG	1,000 USWG, 3785.4 L	40.96" (1040.4 mm)		15' 10 7/8" (4846.6 mm)	14" riser - 4'- 9 1/2" (1460.5 mm), 28" riser - 6'- 0" (1730.4 mm)	1760 lbs (798.3 kg)
2000WG-UG	2,000 USWG, 7570.8 L	46.614" (1184 mm)	Ellip	23' 9 3/8" (7245.5 mm)	14" riser - 5'- 3 7/8" (1722.4 mm), 28" riser - 6'- 5" (1955.3 mm)	3520 lbs (1596.6 kg)

Note: An additional set of lifting lugs on 500wg & 1,000wg vessels come complete with a 28" riser height only.

Accessories

NEE #	Description
DOM LID 500/1000	Dome lid for 500 & 1000 Gallon Tanks

NEE #	Description
0907032	17 lb Magnesium Anode bag w/ 10' #12 wire lead

8340-100 series

RUGGED POWER

POLAR POWER INC.

PRIME POWER DC GENERATOR SET

Founded in 1979 Polar Power specialized in solar photovoltaic systems, solar air conditioning and refrigeration. We developed and provided photovoltaic charging controls for telecommunications in the 1980s along with DC generators for the military. In 1994 we were first to provide DC generators with remote control and monitoring to the telecommunications industry.

Polar's success is based on engineering generators to meet the very specific needs of each application. Telecom site optimization is best met with the DC generator technology as the loads and batteries are DC. It makes no sense to install an AC generator and convert the output to DC. The AC generators are designed for a wide range of applications and they are not specifically produced for telecom applications so there are issues with reliability, space, and fuel efficiency.

Polar can save you considerable time and cost in permitting, installing, purchasing, and maintaining a backup generator. We reduce CAPEX and OPEX costs while improving backup reliability.

Intertek 4003706
Conforms to UL STD 2200
Certified to CSA STD C22.2 No. 100

Meets EPA Emission Regulations
CA/MA Emissions Compliant

2 year standard warranty

Available Models:

- **8340-100-LP-15-03** LPG 15 kW -48 VDC

Made in USA

The concepts and features behind Polar's Hybrid application generator for telecommunications include:

SMALL FOOTPRINT. Polar's DC generator is considerably smaller in size than an AC generator. You can now backup sites that could not accommodate an AC generator. Smaller also means less cost for space leasing.

LOW MAINTENANCE. Due to oversized oil sump, and oil/fuel filtration system.

LOW ACOUSTIC NOISE. <62 dBA @ 7 meters for LPG, and low vibration so as not to disturb the local residents or building landlords.

LIGHTWEIGHT. Up to 1/3 the weight of a comparable AC generator.

CORROSION RESISTANT. All-aluminum enclosure with stainless hardware for low maintenance, and long service life.

FUEL EFFICIENT. Up to 85% fuel savings due to smaller engine displacement, high efficiency alternator, and variable speed operation.

RODENT RESISTANT. Small animals can quickly destroy a generator set by gnawing on wires, fuel lines, radiator hoses, etc. Cooling air inlets and outlets have perforated aluminum screens to keep small rodents and large insects out. Stainless steel wire braid is placed over fuel and radiator lines to prevent damage.

SUPERCAPACITOR STARTER. Failure to start is the number one problem plaguing generator reliability and typically this is caused by a bad starting battery. Polar unique design has replaced the starting battery with a Super Capacitor. Capacitors are more reliable and last longer than batteries (10-15 year life).

LONG LIFE. Controls and wire harnesses are designed to exceed a 20 year life. Higher grade, longer life electrical wire (UL 3173), weather tight connectors, gold plated connector pins on signal circuits. No transfer switches are required.

ADVANCED MONITORING. Remote diagnostics, control, and monitoring. Ethernet and RS232 standard, with optional SNMP.

POLAR POWER INC.

APPLICATION AND ENGINEERING DATA

COMPARING THE COST OF AC vs DC

	AC	DC
Transfer switch required	Yes	No
Permitting costs	$$	$
Shipping to site and installation cost	$$	$
Site preparation/reinforcing structures	$$$	$
Ethernet/RS232 remote control and monitoring	Extra	Standard

PERMITTING IS FACILITATED

- Small engine horsepower
- DC generator is fully isolated from the utility grid
- No transfer switch
- Low acoustic noise
- Incorporates all requirements made by local Fire Marshals

8220 ALTERNATOR FEATURES

- No mechanical adjustments
- Very lightweight
- High quality electrical output
- Voltage and current regulation
- Up to 94% efficiency
- Class 220° C insulation
- Anodized type III process for aluminum parts
- Nickel plating for steel parts
- Stator is varnished

8220 ALTERNATOR SPECIFICATIONS

Type	Permanent Magnets, NdFeB
Weight (lb/kg)	46.5/21
Regulation Type	Variable engine speed
Stator	3 phase/32 poles
Overcurrent Protection (A)	350
Disconnect Means	Pull fuse block, sized for each generator kW
Voltage Range (VDC)	44 to 62
Alternator Exhaust Flow (cfm/cmm)	130 to 180 / 3.68 to 5.1
MTBF (hr)	100,000+

ENCLOSURE

Model	88-25-0100
Type	Weather Protective
Materials	Marine Grade Aluminum
Door Hardware	Pad Locked with Removable Side Panels
Mounting	Secure Mounting Tabs

STARTER SUPERCAPACITOR SPECIFICATIONS

Model	20-16-0001
Storage Rating (Farads)	500
Voltage (VDC)	13-14.4
Weight (lb/kg)	12.1/5.5
Operating Temperature (°C/°F)	-40 to 65 / -40 to 149
Service Life (year)	10 to 15

CHARGER SPECIFICATIONS

Model	00-10-0015
Input Voltage (VDC)	28.8 to 60
Output Voltage (VDC)	14 to 14.4
Recharge time from 0 VDC (min)	10
Recharge time from 8 VDC (min)	2
Weight (lb/kg)	2.2/1

SOUND EMISSIONS

Contact us for current sound data.

SPECIFICATIONS NATURAL GAS and LPG

Engine Model	Natural Gas - Kubota DG972 LPG - Kubota WG972
Cylinders	3 In-line
Displacement (L)	0.962
Bore (in./mm)	2.93/74.5
Stroke (in./mm)	2.9/73.6
Intake Air System	Naturally Aspirated
Engine HP	18
Emissions Compliance	EPA and CARB Certified
Variable RPM	2650 to 3150

ENVIRONMENTAL

Operating Temperature (°C/°F)	-40 to 72 or -40 to 162
Operating Humidity %	100
Cold Start Aids	Glow Plugs

PROPANE ENGINE FUEL CONSUMPTION

	Output (kW)	gal/hr	L/hr
Kubota 972	4	0.97	3.67
	5	1.1	4.16
	6	1.26	4.77
	7	1.475	5.58
	8	1.69	6.4
	9	1.945	7.36
	10	2.2	8.33
	12	2.52	9.54
	15	3.55	13.44

ENGINE LUBRICATION SYSTEM

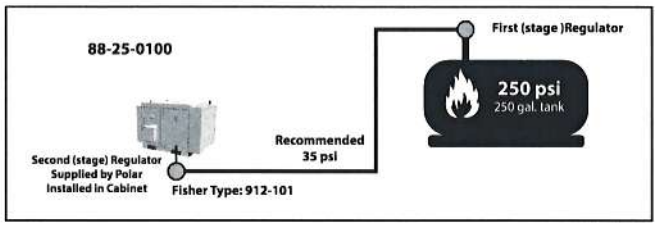
Oil Filter Type	Full flow spin-on canister
Oil Capacity	3.7 L - DG972/WG972
Oil Pressure Switch	Yes
Oil Pressure Transducer	Optional

ENGINE COOLING SYSTEM

Type	Pressurized Aluminum Radiator
Water Pump	Belt-driven, Pre-lubed, self-sealing
Fan Type	Electric Fans
Airflow CFM or M³/hr	1300 or 2200
Fan Mode	Pusher
Temperature Switch	Yes

FUEL SYSTEM

Type	Natural Gas or Propane
Fuel Tank/Line	Supplied By Customer
Max Fuel Flow Rate (BTU/hr)	15 kW - 340,000



Pressure Chart

Minimum	Recommended	Maximum
0.14 psi	0.39 psi	0.5 psi
4 in H2O	11 in H2O	13.9 in H2O
10 mbar	27.4 mbar	34.5 mbar

POWER ADJUSTMENT FOR AMBIENT CONDITIONS

Temperature Deration	1% derate for every 5.6 °C (10 °F) above 25 °C (77 °F)
Altitude Deration	3% derate for every 300 m (1000 ft) above 91 m (300 ft)

WEIGHTS AND DIMENSIONS

Dry Weight (lb/kg)	680/308
Dimensions (LxWxH) (in/cm)	54 x 38 x 38/137 x 97 x 97

POLAR POWER INC.

OPERATING DATA

ENGINE COOLING

System coolant capacity (gal/L)	2.2/8.3
Maximum operation air temperature on radiator (°C/°F)	54/129
Maximum ambient temperature (°C/°F)	49/120

COMBUSTION REQUIREMENTS

Flow at rated power (cfm/cmm)	47/1.34

EXHAUST

Exhaust flow at rated output (cfm/cmm)	90/2.55
Exhaust temperature at rated output (°C/°F)	480/900

CONTROLLER FEATURES

Controller Type.....Supra Model 250
4-Line Plain Text LCD Display.....Simple user interface for ease of operation
Engine Run Hours Indication.....Standard
Programmable Start Delay.....Standard
Run/Alarm/Maintenance Logs.....Standard
Engine Start Sequence.....Cyclic cranking: 5 sec on, 45 sec rest (3 attempts maximum)
Starter Supercapacitor Charger.....Standard
Automatic Voltage Regulation with Over and Under Voltage Protection.....Standard
Automatic Low Oil Pressure/High Oil Temperature Shutdown.....Standard
Overcrank/Overspeed.....Standard
Automatic High Engine Temperature Shutdown.....Standard
Field Upgradeable Firmware.....Standard
Glow Plug Delay.....Automatic With Temperature
Engine Start Delay.....Adjustable, Set at 60 sec
Return to Utility Delay.....Adjustable, Set at 60 sec
Engine Cooldown.....Adjustable, Set at 60 sec
Exerciser.....Programmable, weekly/bi-weekly

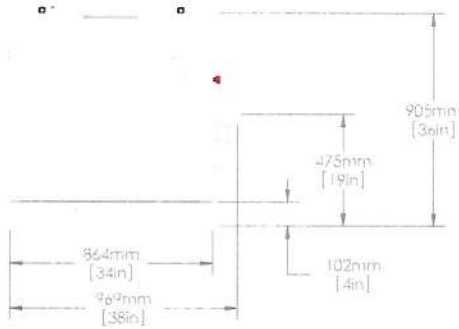
WARNING ALARMS

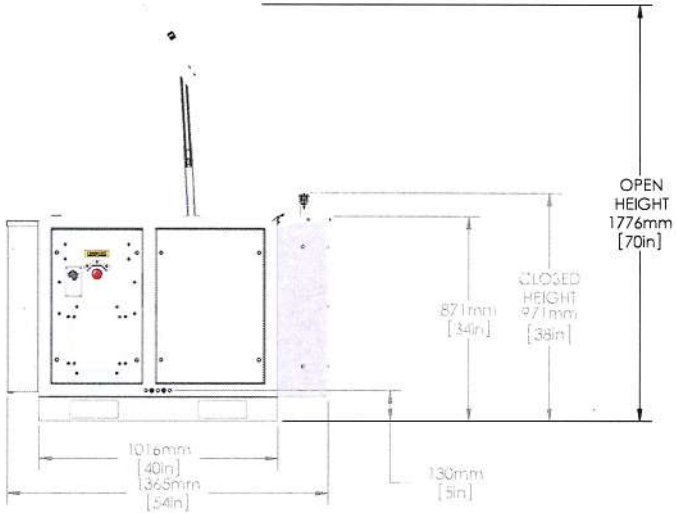
Low/High Supercapacitor Voltage.....Standard
High Water Temperature.....Standard
Low Oil Pressure.....Standard

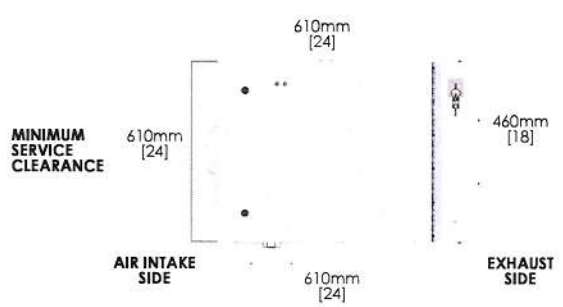
CONTACT CLOSURE FOR REMOTE INDICATION (PN 84-12-0640)

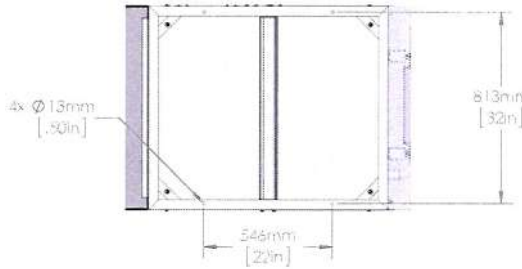
Shutdown Alarm.....Optional
Warning Alarm.....Optional
Engine Run.....Optional
E-Stop Depressed.....Optional

249 E. Gardena Blvd, Gardena CA, 90248 | 310.830.9153 | www.polarpower.com | info@polarpowerinc.com









COMMENTS:

REV	DESCRIPTION	ECO#	BY	DATE
A	INITIAL RELEASE	–		07/23/12

NEXT ASSY | USED ON | APPLICATION | DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ±1/32" DECIMALS X.X±0.1" X.XX±0.03" X.XXX±0.010" ANGLES ±1/2°
MATERIAL
FINISH

CAD GENERATED DRAWING
DO NOT MANUALLY UPDATE

APPROVALS	DATE
DRAWN	
CHECKED	07/23/12
ENG APPR.	
MFG APPR.	
Q.A.	

POLAR POWER INC.
22520 AVALON BLVD, CARSON, CA 90745

TITLE: AL Enclosure - Kubota DG972 w/ Sump

SIZE	DWG. NO.	REV
B	88-25-0043	A

SCALE: 1:16 WEIGHT: 653 Lbs SHEET 1 OF 2

POLAR POWER INC.
INSTALLATION LAYOUT
100 series
5 of 5

ATTACHMENT 8

Avian Resources Evaluation

AVIAN RESOURCES EVALUATION

June 22, 2021

AT&T
550 Cochituate Road
Framingham, MA 01701

Re: Proposed Willington Daleville Road Facility
343 Daleville Road, Willington, CT 06279
APT Project No. CT1931680

AT&T proposes to modify an existing monopole tower telecommunications facility (the "existing Facility") at 343 Daleville Road in Willington, Connecticut (the "Site"). The proposed undertaking consists of extending an existing 104-foot-tall monopole tower to 160 feet and adding a walk-in cabinet, propane generator and associated propane tank. The Site is an approximately 22.0-acre parcel that is developed with a single-family house and the existing Facility.

The purpose of this evaluation is to document the existing Facility's proximity to avian resource areas and its compliance with recommended guidelines of the United States Fish and Wildlife Service ("USFWS") for minimizing potential impacts to bird species from telecommunications towers.

On behalf of AT&T, All-Points Technology Corporation, P.C. ("APT") reviewed several publicly available sources of avian data for the state of Connecticut to provide the following information with respect to potential impacts on migratory birds associated with the proposed development. This desktop analysis and attached graphics identify avian resources and their proximities to the existing Facility. Resources within approximately three (3) miles of the Site are graphically depicted on the attached Avian Resources Map. Some of the data referenced herein are not located in proximity to the Site and are therefore not visible on the referenced map due to its scale. In those cases, the distances separating the Site from the resources are identified in the discussions below.

Proximity to Important Bird Areas

The National Audubon Society has identified 27 Important Bird Areas ("IBAs") in the state of Connecticut. IBAs are sites that provide essential habitat for breeding, wintering, and/or migrating birds. To achieve this designation, an IBA must support species of conservation concern, restricted-range species, species vulnerable due to concentration in one general habitat type or biome, or species vulnerable due to their occurrence at high densities as a result of their congregatory behavior.[1] The closest IBA to the host Property is the District of Willimantic Chimney Swift Roosts in Windham, located approximately 8.1 miles to the southeast. This IBA consists of chimneys within the Tax District of Willimantic, the surrounding neighborhoods, a section of the Willimantic River, and areas of deciduous forest within the District's limits. The chimney at Windham Town Hall (979 Main Street) and other large chimneys within the District are important to Chimney Swifts as evening roost sites for non-breeding individuals in summer and migrating birds in spring and fall, while the smaller chimneys of nearby residences likely support breeding pairs. Due to its distance from the Site, this IBA would not experience an adverse impact from the proposed modifications to the existing facility.

Supporting Migratory Bird Data

The following analysis and attached graphics identify several additional avian resources and their proximities to the Site. Although these data sources may not represent habitat indicative of IBAs, they may indicate possible bird concentrations[2] or migratory pathways.

Critical Habitat

Connecticut Critical Habitats is a database developed by the Connecticut Department of Energy and Environmental Protection ("DEEP"), and available through the Connecticut Environmental Conditions Online (CT ECO)[3] website that depicts the classification and distribution of 25 rare and specialized wildlife habitats in the state. The compilation represents ecological information collected over many years by state agencies, conservation organizations and individuals. These habitats range in size from less than one acre to tens of acres in extent. The Connecticut Critical Habitats information can serve to highlight ecologically significant areas and to target areas of species diversity for land conservation and protection, but may not necessarily be indicative of habitat for bird species. The nearest Critical Habitat to the proposed Facility is a palustrine forested acidic Atlantic white cedar swamp area associated with Willington Cedar Swamp and located approximately 1.2 miles to the northwest. Due to the separating distance, this Critical Habitat would not experience an adverse impact from the proposed modifications to the existing facility.

[1] http://web4.audubon.org/bird/iba/iba_intro.html

[2] The term "bird concentrations" is found in the USFWS *Revised Voluntary Guidelines for communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning* (September 27, 2013) analysis provided at the end of this document

[3] CT ECO is a partnership between the Connecticut Department of Energy and Environmental Protection and the University of Connecticut.

Avian Survey Routes and Points

Breeding Bird Survey Route

The North American Breeding Bird Survey is a cooperative effort between various agencies and volunteer groups to monitor the status and trends of North American bird populations. Routes are randomly located to sample habitats that are representative of an entire region and do not necessarily represent concentrations of avifauna or identification of critical avian habitats. Each year during the height of the avian breeding season (June for most of the United States) participants skilled in avian identification collect bird population data along roadside survey routes. Each survey route is approximately 24.5 miles long and contains 50 stops located at 0.5-mile intervals. At each stop, a three-minute count is conducted. During each count, every bird seen or heard within a 0.25-mile radius is recorded. The resulting data is used by conservation managers, scientists, and the general public to estimate population trends and relative abundances and to assess bird conservation priorities.

The nearest survey route to the host Property is the Willimantic Breeding Bird Survey Route (Route #18007) located approximately 1.9 miles to the southwest. This ±24-mile-long bird survey route begins in Chaplin and winds its way west through Mansfield and Coventry before terminating in Vernon. Since bird survey routes represent randomly selected data collection areas, they do not necessarily represent a potential restriction to development projects.

Hawk Watch Site

The Hawk Migration Association of North America ("HMANA") is a membership-based organization committed to the conservation of raptors through the scientific study, enjoyment and appreciation of raptor migration. HMANA collects hawk count data from almost 200 affiliated raptor monitoring sites throughout the United States, Canada and Mexico, identified as "Hawk Watch Sites". In Connecticut, Hawk Watch Sites are typically situated on prominent hills and mountains that tend to concentrate migrating raptors. The nearest Hawk Watch Site, Beelzebub Street, is located in South Windsor, approximately 13.6 miles southwest of the proposed Facility.

Further, most hawks migrate during the day (diurnal) to take advantage of two theorized benefits: (1) diurnal migration allows for the use of updrafts or rising columns of air called thermals to gain lift without flapping, thereby reducing energy loss; and (2) day migrants can search for prey and forage as they migrate.

Based on the distance separating the existing Facility from the Beelzebub Street Hawk Watch Site and hawk migration behavior occurring during the daytime under favorable weather conditions when thermals form, no adverse impacts to migrating hawks are anticipated from the proposed modifications to the existing facility.

Bald Eagle Survey Route

Bald Eagle Survey Routes consist of locations of midwinter Bald Eagle counts from 1986 to 2005 with an update provided in 2008. Initiated by the National Wildlife Federation, this database includes information on statewide, regional and national trends. Survey routes are included in the database only if they were surveyed consistently in at least four years and where at least four eagles were counted in a single year. The nearest Bald Eagle Survey Route is the Connecticut River Survey Route Number 3 that follows the Connecticut River from Route 291 to the Massachusetts State Line in South Windsor, Windsor, East Windsor, Windsor Locks, Enfield, and Suffield; it is located approximately 19.3 miles northwest of the Site.

Bald eagle migration patterns are complex, dependent on age of the individual, climate (particularly during the winter) and availability of food.[4] Adult birds typically migrate alone and generally as needed when food becomes unavailable, although concentrations of migrants can occur at communal feeding and roost sites. Migration typically occurs during the middle of the day (10:30–17:00) as thermals provide opportunities to soar up with limited energy expense; Bald Eagle migration altitudes are estimated to average 1,500 to 3,050 meters by ground observers.[5] Four adults tracked by fixed-wing aircraft in Montana averaged 98 km/d during spring migration and migrated at 200 to 600 meters above the ground (McClelland et al. 1996).[6]

The USFWS's *National Bald Eagle Management Guidelines* (May 2007) recommend a 660-foot buffer to bald eagle nests if the activity will be visible from the nest, with an additional management practice recommendation of retaining mature trees and old growth stands, particularly within 0.5 mile from water. No known bald eagle nests occur in the vicinity of the Facility.

Therefore, no adverse impacts to migrating bald eagles are anticipated with the proposed modifications to the existing facility. This conclusion is based on the 160-foot height of the extended Facility, eagle migration patterns during the daytime under favorable weather conditions when thermals form, and compliance with USFWS bald eagle management guidelines.

Flyways

The Site is located in Tolland County, approximately 35.6 miles north of Long Island Sound. The Connecticut coast lies within the Atlantic Flyway, one of four generally recognized regional primary migratory bird flyways (Mississippi, Central and Pacific being the others). This regional flyway is used by migratory birds travelling to and from summering and wintering grounds. The Atlantic Flyway is particularly important for many species of migratory waterfowl and shorebirds, and Connecticut's coast serves as vital stopover habitat. Migratory land birds also stop along coastal habitats before making their way inland. Smaller inland migratory flyways (secondary flyways) are often concentrated along major riparian areas as

[4] Buehler, David A. 2000. Bald Eagle (*Haliaeetus leucocephalus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/506 [Accessed 09/09/13].

[5] Harmata, A. R. 1984. Bald Eagles of the San Luis valley, Colorado: their winter ecology and spring migration. Ph.D. Thesis. Montana State Univ. Bozeman.

[6] McClelland, B. R., P. T. McClelland, R. E. Yates, E. L. Caton, and M. E. McFadden. 1996. Fledging and migration of juvenile Bald Eagles from Glacier National Park, Montana. J. Raptor Res. 30:79-89.

birds use these valuable stopover habitats to rest and refuel as they make their way further inland to their preferred breeding habitats. The Connecticut Migratory Bird Stopover Habitat Project (Stokowski, 2002)[7] identified potential flyways along the Housatonic, Naugatuck, Thames, and Connecticut Rivers. This study paralleled a similar earlier study conducted by the Silvio O. Conte National Fish & Wildlife Refuge (Neotropical Migrant Bird Stopover Habitat Survey[8]), which consisted of collection of migratory bird data along the Connecticut River and the following major Connecticut River tributaries: Farmington, Hockanum, Scantic, Park, Mattabesset, Salmon, and Eight Mile Rivers. Of these potential flyways, the nearest to the proposed Facility is the Hockanum River, located approximately 12 miles to the northwest. The Fenton River riparian corridor, located 0.6 mile east of the proposed Facility, is not identified as a potential flyway but potentially forms a secondary flyway as birds move northward from the Connecticut River corridor during the spring migration. These major riparian corridors may provide secondary flyways as they likely offer more food and protection than more exposed upland sites, particularly during the spring migration.[9]

Siting of tower structures within flyways can be a concern, particularly for tall towers and even more particularly for tall towers with guy wires and lighting. The majority of studies on bird mortality due to towers focuses on very tall towers (greater than 1000 feet), illuminated with non-flashing lights, and guyed. These types of towers, particularly if sited in major migratory pathways, do result in significant bird mortality (Manville, 2005).[10] Neither the existing Facility nor the proposed extended Facility is this type of tower, being an unlit, unguyed monopole structure. More recent studies of short communication towers (<300 feet) reveal that they rarely kill migratory birds.[11] Studies of the mean flight altitude of migrating birds reveal flight altitudes of 410 meters (1350 feet), with flight altitudes on nights with bad weather between 200 and 300 meters above ground level (656 to 984 feet).[12]

No adverse impacts to migrating bird species are anticipated from the proposed modifications to the existing Facility, based on its design (unlit and unguyed) and 160-foot height. The design and height of the proposed Facility, combined with distance from the Site, would also mitigate the potential for migratory bird impacts should the Fenton River be used as a secondary flyway.

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[7] Stokowski, J.T. 2002. Migratory Bird Stopover Habitat Project Finishes First Year. Connecticut Wildlife, November/December 2002. P.4.

[8] The Silvio O. Conte National Fish & Wildlife Refuge Neotropical Migrant Bird Stopover Habitat Survey http://www.science.smith.edu/stopoverbirds/index.html

[9] The Silvio O. Conte National Fish & Wildlife Refuge Neotropical Migrant Bird Stopover Habitat Survey. http://www.science.smith.edu/stopoverbirds/Chapter5_Conclusions&Recommendations.html

[10] Manville, A.M. II. 2005. Bird strikes and electrocutions at power lines, communications towers, and wind turbines: state of the art and state of the science - next steps toward mitigation. Bird Conservation Implementation in the Americas: Proceedings 3rd International Partners in Flight Conference 2002. C.J. Ralph and T.D. Rich, editors. USDA Forest Service General Technical Report PSW-GTR-191. Pacific Southwest Research Station, Albany CA. pp. 1-51-1064.

[11] Kerlinger, P. 2000. Avian Mortality at Communication Towers: A Review of Recent Literature, Research, and Methodology. Prepared for U.S. Fish and Wildlife Service Office of Migratory Bird Management.

[12] Mabee, T.J., B.A. Cooper, J.H. Plissner, D.P. Young. 2006. Nocturnal bird migration over an Appalachian ridge at a proposed wind power project. Wildlife Society Bulletin 34:682-690.

Waterfowl Focus Areas

The Atlantic Coast Joint Venture ("ACJV") is an affiliation of federal, state, regional and local partners working together to address bird conservation planning along the Atlantic Flyway. The ACJV has identified waterfowl focus areas recognizing the most important habitats for waterfowl along the Atlantic Flyway. Connecticut contains several of these waterfowl focus areas. The nearest waterfowl focus area to the Site is the Lower Thames River System area, which is located approximately 22 miles to the southeast. Please refer to the attached Connecticut Waterfowl Focus Areas Map. Based on the distance of this waterfowl focus area to the Site, no impact to migratory waterfowl would result from proposed modifications to the existing Facility.

DEEP Migratory Waterfowl Data

The DEEP created a Geographic Information System ("GIS") data layer in 1999 identifying concentration areas of migratory waterfowl at specific locations in Connecticut. The intent of this data layer is to assist in the identification of migratory waterfowl resource areas in the event of an oil spill or other condition that might be a threat to waterfowl species. This data layer identifies conditions at a particular point in time and has not been updated since 1999.

The nearest migratory waterfowl area, located at the Hockanum River in Vernon, is approximately 12.0 miles to the northwest of the Site. The associated species are identified as American Black Duck, Mallard, Green Wing Teal, and Wood Duck. Based on the distance of this migratory waterfowl area to the Site, no impact to migratory waterfowl would result from the proposed modifications to the existing Facility.

DEEP Natural Diversity Data Base

DEEP's Natural Diversity Data Base ("NDDB") program performs hundreds of environmental reviews each year to determine the impact of proposed development projects on state listed species and to help landowners conserve the state's biodiversity. State agencies are required to ensure that any activity authorized, funded or performed by a state agency does not threaten the continued existence of endangered or threatened species. Maps have been developed to serve as a pre-screening tool to help applicants determine if there is a potential impact to state listed species.

The NDDB maps represent approximate locations of endangered, threatened and special concern species and significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by DEEP staff, scientists, conservation groups, and landowners. In some cases, an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded areas on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowners' rights whenever species occur on private property.

No known areas of state-listed species are depicted on the most recent DEEP NDDB maps in the location of the proposed Facility or within 0.25 mile to the Site. The nearest NDDB buffer area is ±0.28 mile

southeast of the Site. Since the Facility is not located within a NDDB buffer area, consultation with DEEP is not required in accordance with their review policy or the Connecticut Siting Council's NDDB review policy.

Based on these factors, the proposed modifications to the existing Facility are not anticipated to adversely impact any federal or state threatened, endangered or species of special concern.

USFWS Communications Towers Compliance

In April 2018, the USFWS issued its *Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning*. These suggested best practices were instituted to assist tower developers in designing their structures in a way that minimizes the risk to migratory birds and threatened and endangered species. The following avoidance and minimization measures, when used comprehensively, are recommended by USFWS to reduce the risk of bird mortality at communication towers. APT offers the following responses to each of the USFWS recommendations, which are abridged from the original document.

1. *Contact with USFWS Field Office. Communicate project plans to nearest USFWS Field Office.*

   As this is an existing telecommunications facility and no clearing or increase in the facility footprint is involved, project plans have not been provided to USFWS.

2. *Co-location. Co-locate communications equipment on existing communication towers or other structures (e.g., billboard, water and transmission tower, distribution pole, or building mounts). This recommendation is intended to reduce the number of towers across the landscape.*

   This is an existing tower that AT&T proposes to modify.

3. *Placement. All new towers should be sited to minimize environmental impacts to the maximum extent practicable.*

   a. *Place new towers within existing "antenna farms" (i.e., clusters of towers) when possible.*

      N/A – No new tower is proposed; an existing tower is utilized.

   b. *Select already degraded areas for tower placement.*

      This site is already developed with an existing telecommunications facility.

   c. *Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state or federal refuges, staging areas, rookeries, and Important Bird Areas), or in known migratory bird movement routes, daily movement flyways, areas of breeding concentration, in habitat of threatened or endangered species, key habitats for Birds of Conservation Concern or near the breeding areas ("leks") of prairie grouse.*

      The Facility is not within wetlands, a known bird concentration area, migratory or daily movement flyway, or habitat of avian threatened/endangered species.

d. Towers should avoid ridgelines, coastal areas, wetlands or other known bird concentration areas.

The Facility is not located near ridgelines, coastal areas, wetlands, or other known bird concentration areas.

e. Towers and associated facilities should be designed, sited, and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint". In addition, several shorter, un-guyed towers may be preferable to one, tall guyed, lit tower.

The proposed modifications would stay within the footprint of the existing telecommunications facility compound. The facility would be a 160-foot-tall monopole structure (existing structure is 104 foot tall), which requires neither guy wires nor lighting and is therefore consistent with USFWS' environmentally preferred "gold standard".

4. Construction. During construction, the following considerations can reduce the risk of take of birds:

a. Schedule all vegetation removal and maintenance (e.g., general landscaping activities, trimming, grubbing) activities outside of the peak bird breeding season to reduce the risk of bird take.

No tree clearing is required for this project, as all proposed work is within the existing facility footprint.

b. When vegetation removal activities cannot avoid the bird breeding season, conduct nest clearance surveys:

i. Surveys should be conducted no more than five days prior to the scheduled activity to ensure recently constructed nests are identified;

ii. Timing and dimensions of the area to be surveyed vary and will depend on the nature of the project, location, and expected level of vegetation disturbance; and

iii. If active nests are identified within or in the vicinity of the project site, avoid the site until nestlings have fledged or the nest fails. If the activity must occur, establish a buffer zone around the nest and no activities will occur within that zone until nestlings have fledged. The dimension of the buffer zone will depend on the proposed activity, habitat type, and species present. The buffer should be a distance that does not elicit a flight response by the adult birds and can be 0.5 – 1 mile for hawks and eagles.

Not applicable. No tree clearing is required.

c. Prevent the introduction of invasive plants during construction to minimize vegetation community degradation by:

i. Use only native and local (when possible) seed stock for all temporary and permanent vegetation establishment; and

ii. Use vehicle wash stations prior to entering sensitive habitat areas to prevent accidental introduction of non-native plants.

No landscaping or other vegetation plantings are proposed. No sensitive habitat areas exist at the Site.

5. Tower Design. Tower design should consider the following attributes:

a. Tower Height. It is recommended that new towers should be not more than 199 ft. above ground level (AGL). This height increases the mean free airspace between the top of the tower and average bird flight height, even in weather conditions with reduced cloud ceiling;

b. Guy Wires. We recommend using free standing towers such as lattice towers or monopole structures.

i. The minimum number of guy wires necessary should be used; and

ii. Guy wired towers that are proposed to be located in known raptor or waterbird concentrations areas, daily movement routes, major daytime migratory bird movement routes, staging areas, or stopover sites should have daytime visual markers or bird flight diverters installed on the guy wires to attempt to prevent daytime collisions.

c. Lighting System. Lights are a primary source of bird aggregation around towers, thus minimizing all light is recommended, including:

i. No tower lighting is the preferred option if Federal Aviation Administration (FAA) regulations and lighting standards (FAA 2015, Patterson 2012) permit.

ii. If taller (> 199 ft. AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used.

iii. For some towers, the FAA can permit an Aircraft Detection Lighting System (ADLS), which maintains a communication tower of any height to be unlit until the ADLS radars detect nearby aircraft, at which time the tower lighting system is triggered to illuminate until the aircraft is out of radar range.

iv. If taller (> 199 ft. AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white or red flashing lights should be used at night, and these should follow FAA obstruction and marking standards with regards to the minimum number of lights, minimum intensity (< 2,000 candela), and minimum number of flashes per minute (i.e., longest duration between flashes and "dark phase"). Avoid using non-flashing warning lights at night (FAA 2015, Patterson 2012). Owners of existing towers lit with lighting systems that include non-flashing lights should submit plans to the FAA explaining how and when they will transition to the new standards.

v. Security lighting for on-ground facilities, equipment, and infrastructure should be motion- or heat-sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attraction and eliminate constant nighttime illumination while still allowing safe nighttime access to the site.

The proposed modifications to the existing Facility would consist of a 160-foot tall monopole structure which requires neither guy wires nor lighting and is therefore consistent with USFWS' environmentally preferred "gold standard". Security lighting for on-ground facilities would be down-shielded using Dark Sky compliant fixtures set on motion sensor with timer to eliminate constant nighttime illumination.

Summary and Conclusions

Based on the results of this desktop evaluation, no migratory bird species are anticipated to be impacted by the modifications to the proposed development. The Site is not proximate to an Important Bird Area and the proposed Facility would comply with the USFWS guidelines for minimizing the potential impacts to bird species.

Figures

- Avian Resources Map
- Connecticut Waterfowl Focus Areas Map

Avian Resources Map

Proposed Wireless
Telecommunications Facility
CT1377
Willington Daleville Road
343 Daleville Road
Willington, Connecticut

Proposed Willington Daleville Road (CT1377) Wireless Telecommunications Facility
Lat: 41 50 11.7
Long: 72 15 17.9
+/- 496' AMSL

Legend

- Proposed Facility
- Bald Eagle Site*
- Hawk Watch Site*
- Important Bird Site
- Important Bird Area*
- Bald Eagle Survey Route*
- Breeding Bird Survey Route
- Migratory Waterfowl (CTDEEP, 1999)*
- Protected Open Space (CTDEEP, 2011)
- Federal Open Space (CTDEEP, 2004)

CT DEP Property (CT DEEP, 12/2010)

- State Forest
- State Park*
- DEP Owned Waterbody
- State Park Scenic Reserve*
- Historic Preserve*
- Natural Area Preserve*
- Fish Hatchery*
- Flood Control*
- State Park Trail*
- Water Access
- Wildlife Area
- Wildlife Sanctuary
- Other*
- Open Water
- Town Boundary

*None within mapped extents

Avian Source Information:
Bald Eagle Sites: U.S. Geological Survey, National Biological Information Infrastr, 2008, Midwinter Bald Eagle Counts, 1986-2005 (update 2008).
Hawk Watch Sites: Hawk Migration Association of North America (HMANA), Hawk Count website: http://hawkcount.org/sitesel.php?country=USA&stateprov=Connecticut
Migratory Waterfowl: CTDEEP GIS, 1999
Important Bird Sites/Areas: National Audubon Society, Audbon Connecticut
http://ct.audubon.org/BirdSci_IBAs.html
Breeding Bird Survey Routes: Patuxent Wildlife Research Center of the U.S. Geological Survey and the Canadian Wildlife Service's National Wildlife Research Centre
http://www.nationalatlas.gov/mld/bbsrtsl.html

Base Map Source: ESRI Shaded Relief

Map Date: June 2021

N W E S

0.5 0.25 0 0.5 Miles

at&t

All-Points Technology Corporation

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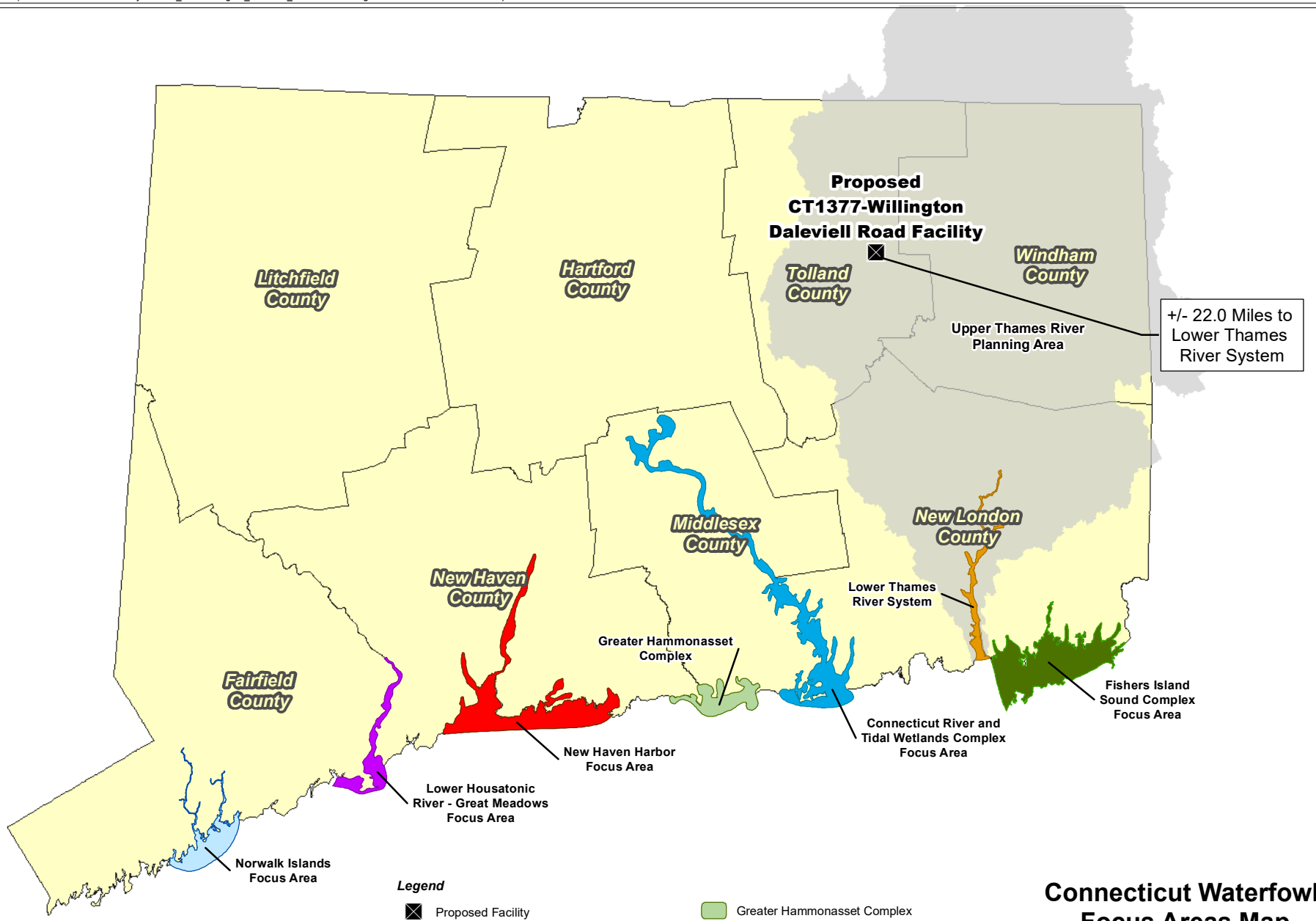
C:\Users\mkope\Dropbox (APT GIS)\APT GIS Team Folder\Projects\SAI_ATT\Willington_Daleville_Road\mxd\Willington Waterfowl Focus Areas Map.mxd



Legend

- Proposed Facility

Waterfowl Planning Area

- Upper Thames River

Waterfowl Focus Areas

- Connecticut River and Tidal Wetlands Complex
- Fishers Island Sound Complex
- Greater Hammonasset Complex
- Lower Housatonic River - Great Meadows
- Lower Thames River System
- New Haven Harbor
- Norwalk Islands

N W E S

10 5 0 10 Miles

Connecticut Waterfowl Focus Areas Map

Proposed Wireless Telecommunications Facility
CT1377
Willington Daleville Road
343 Daleville Road
Willington, Connecticut

Waterfowl Data Source: Atlantic Coast Joint Venture Partnership
Map Date: June 2021

at&t

ALL-POINTS TECHNOLOGY CORPORATION

Natural Diversity Data Base Areas

WILLINGTON, CT

June 2021

State and Federal Listed Species

Critical Habitat

Town Boundary

NOTE: This map shows general locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources . Exact locations of species have been buffered to produce the generalized locations.

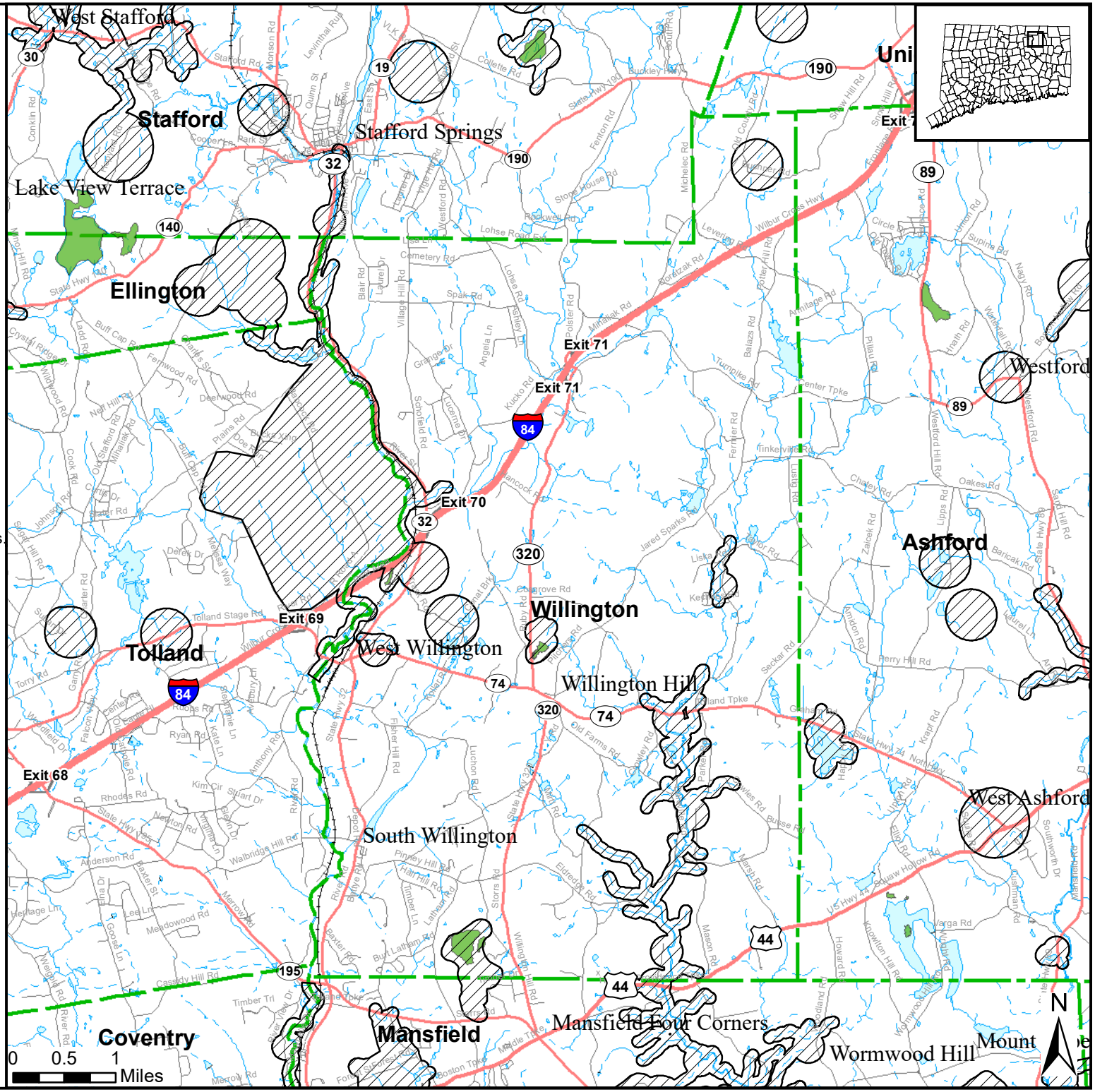
This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a hatched area there may be a potential conflict with a listed species. For more information, complete a Request for Natural Diversity Data Base State Listed Species Review form (DEP-APP-007), and submit it to the NDDB along with the required maps and information. More detailed instructions are provided with the request form on our website.

www.ct.gov/deep/nddbrequest

Use the CTECO Interactive Map Viewers at http://cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011

Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



ATTACHMENT 9

RF Emissions Report

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

Calculated Radio Frequency Emissions

CT1377

Willington Daleville Road

343 Daleville Road, Willington, CT 06279

January 21, 2021

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of AT&T antenna arrays to be mounted on an extension of the existing monopole tower located at 343 Daleville Road in Willington, CT. The coordinates of the tower are 41° 50' 11.78" N, 72° 15' 17.91" W.

AT&T is proposing the following:

1) Install six (6) multi-band antennas (two per sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T[1] to derive the resulting % MPE of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

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

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

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

[1] As referenced to AT&T's Radio Frequency Design Sheet updated 11/23/2020.

3. RF Exposure Calculation Methods

The power density calculation results were generated using the following formula as outlined in FCC bulletin OET 65, and Connecticut Siting Council recommendations:

$$\text{Power Density} = \left(\frac{1.6^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

ERP = Effective Radiated Power

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

H = Horizontal Distance from antenna

V = Vertical Distance from radiation center of antenna

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

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

4. Calculation Results

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

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	% MPE
Verizon	97	1970	11	270	0.0129	1.0000	1.29%
Verizon	97	869	9	270	0.0106	0.5793	1.82%
Verizon	97	698	1	878	0.0038	0.4653	0.82%
Verizon	97	2145	1	1750	0.0076	1.0000	0.76%
AT&T	155	739	1	3156	0.0051	0.4927	1.04%
AT&T	155	763	1	3541	0.0057	0.5087	1.13%
AT&T	155	885	1	3883	0.0063	0.5900	1.07%
AT&T	155	1900	1	5877	0.0095	1.0000	0.95%
AT&T	155	2100	1	9890	0.0160	1.0000	1.60%
AT&T	155	2300	1	6153	0.0100	1.0000	1.00%
						Total	**6.78%**

Table 1: Carrier Information[2] [3]

[2] Please note that % MPE values listed are rounded to two decimal points and the total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not identically match the total value reflected in the table.

[3] Antenna height listed for AT&T is in reference to the American Tower Corporation Structural Analysis Report dated December 4, 2020.

5. Conclusion

The above analysis concludes that RF exposure at ground level from the proposed site modifications will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using conservative calculation methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **6.78% of the FCC General Population/Uncontrolled limit**.

As noted previously, the calculated % MPE levels are more conservative (higher) than the actual % MPE levels will be from the finished modifications.

6. Statement of Certification

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

Report Prepared By: Marc Salas
RF Engineer
C Squared Systems, LLC

January 21, 2021
Date

Reviewed/Approved By: Martin Lavin
Senior RF Engineer
C Squared Systems, LLC

January 21, 2021
Date

Attachment A: References

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

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

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

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

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

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

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

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

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

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

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

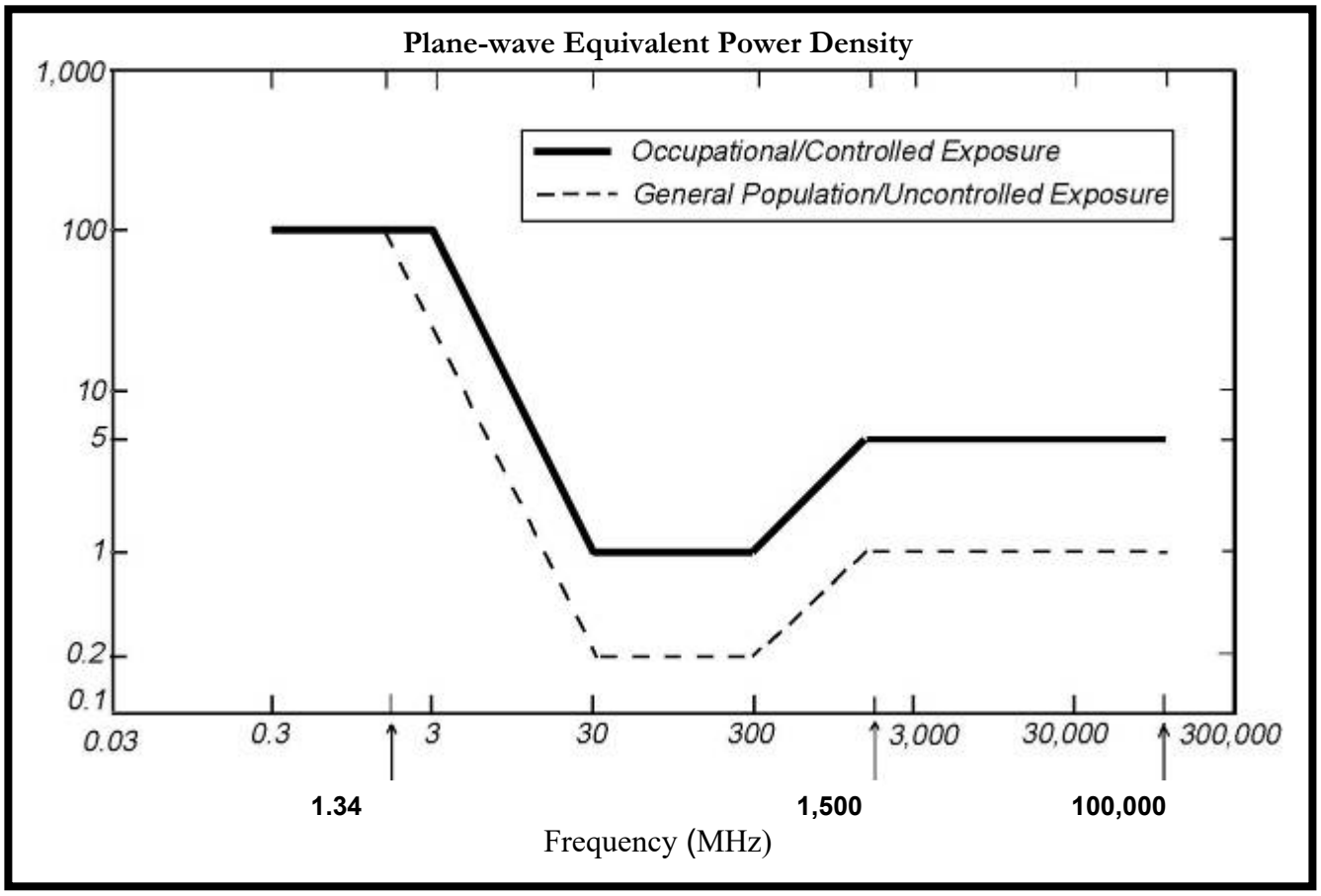
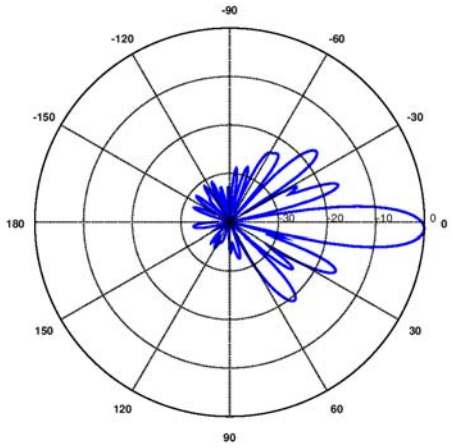


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

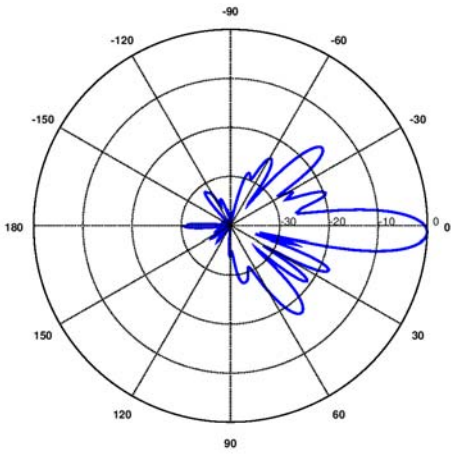
739 MHz

Manufacturer:	CCI
Model #:	DMP65R-BU8DA
Frequency Band:	698-798 MHz
Gain:	15.1 dBi
Vertical Beamwidth:	9.5°
Horizontal Beamwidth:	75°
Polarization:	±45°
Dimensions (L x W x D):	96.0” x 20.7” x 7.7”



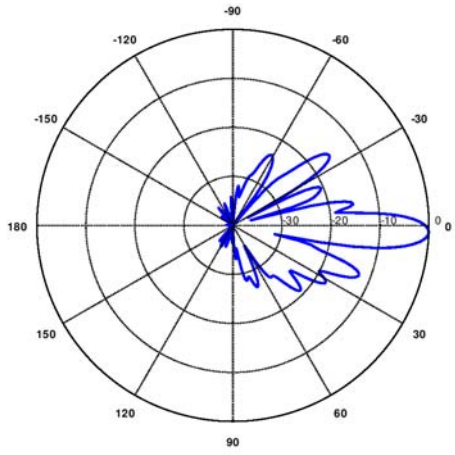
763 MHz

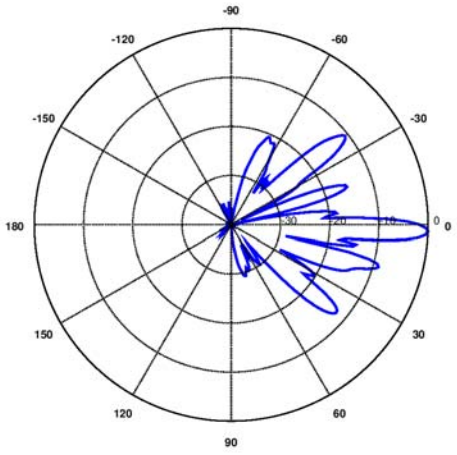
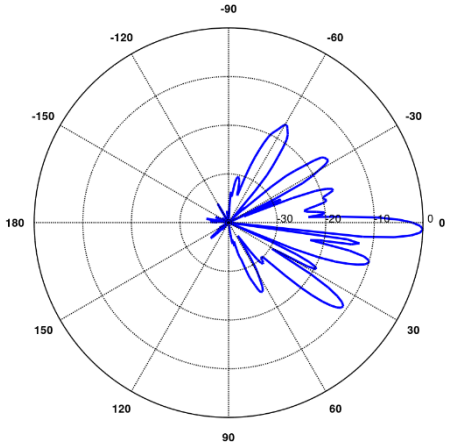
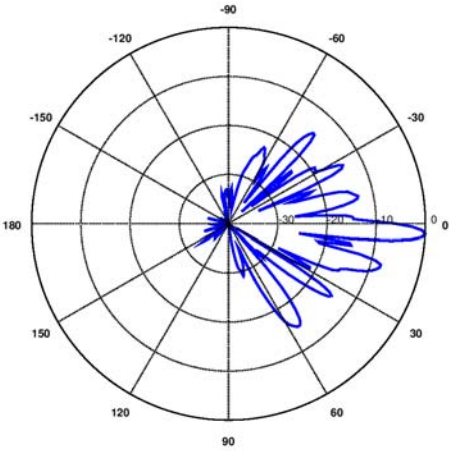
Manufacturer:	CCI
Model #:	TPA65R-BU8D
Frequency Band:	698-806 MHz
Gain:	15.6 dBi
Vertical Beamwidth:	9.5°
Horizontal Beamwidth:	74°
Polarization:	±45°
Dimensions (L x W x D):	96.0” x 20.7” x 7.7”



885 MHz

Manufacturer:	CCI
Model #:	DMP65R-BU8DA
Frequency Band:	824-896 MHz
Gain:	16.0 dBi
Vertical Beamwidth:	8.0°
Horizontal Beamwidth:	64°
Polarization:	±45°
Dimensions (L x W x D):	96.0” x 20.7” x 7.7”



1900 MHz Manufacturer: CCI Model #: DMP65R-BU8DA Frequency Band: 1910-2180 MHz Gain: 17.8 dBi Vertical Beamwidth: 5.1° Horizontal Beamwidth: 68° Polarization: ±45° Dimensions (L x W x D): 96.0” x 20.7” x 7.7”	
2100 MHz Manufacturer: CCI Model #: TPA65R-BU8D Frequency Band: 1920-2180 MHz Gain: 18.3 dBi Vertical Beamwidth: 4.7° Horizontal Beamwidth: 67° Polarization: ±45° Dimensions (L x W x D): 96.0” x 20.7” x 7.7”	
2300 MHz Manufacturer: CCI Model #: TPA65R-BU8D Frequency Band: 2300-2400 MHz Gain: 18.0 dBi Vertical Beamwidth: 4.1° Horizontal Beamwidth: 62° Polarization: ±45° Dimensions (L x W x D): 96.0” x 20.7” x 7.7”	

ATTACHMENT 10

RF Coverage Report

Radio Frequency Analysis Report

CT1377
343 Daleville Road Willington, CT 06279

June 21, 2021

C Squared Systems, LLC
65 Dartmouth Drive, A3
Auburn, NH 03032

Phone: (603) 644-2800
Fax: (603) 644-2801
Support@csquaredsystems.com

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List of Tables

List of Attachments

1. Overview

C Squared Systems was retained by New Cingular Wireless PCS, LLC ("AT&T") to evaluate the proposed wireless communications facility at 343 Daleville Road, Willington, CT. AT&T is proposing to attach a 56 foot extension to the existing 104 foot monopole at this location and mount its antennas at 155 feet AGL.

AT&T is licensed by the FCC to provide wireless communications services throughout the State of Connecticut including the Town of Willington where the proposed facility would be located. The proposed facility has been selected as suitable for implementation of the National Public Safety Broadband Network ("NPSBN"), while also addressing a substantial gap in 4G LTE coverage for AT&T's network.

This report addresses AT&T's need for the proposed wireless facility and confirms that there are no other suitable existing structures that could address the coverage gaps in their wireless communications network.

The coverage analysis completed by C Squared Systems confirms that AT&T has a significant gap in reliable service in Willington, and that the Proposed Facility provides AT&T with coverage in that service gap. Included as attachments in this report are coverage maps detailing the existing network and expected coverage from the proposed facility, pertinent site information, terrain and network layout maps.

2. Technology Advances & Design Evolution

AT&T provides digital voice and data services using 3rd Generation (3G) UMTS technology in the 800 MHz and 1900 MHz frequency band, and advanced 4th Generation (4G) services over LTE technology in the 700 MHz and 1900 MHz frequency bands as allocated by the FCC. These data networks are used by mobile devices for fast web browsing, media streaming, and other applications that require broadband connections. The mobile devices that benefit from these advanced data networks are not limited to basic handheld phones, but also include devices such as smartphones, PDA's, tablets, and laptop air-cards. 4G LTE services and devices have enabled AT&T customers to have even faster connections to people, information, and entertainment.

AT&T will also deploy FirstNet services from this facility. FirstNet is a federal agency with a mandate to create a nationwide, interoperable public safety broadband network for first responders. First responders across the country currently rely on more than 10,000 separate radio networks which oftentimes do not interoperate with one another. By deploying a nationwide broadband public safety network built specifically to meet the communications needs of first responders, the FirstNet network will provide a solution to the decades-long interoperability and communications challenges first responders have experienced, and which was highlighted by the 9/11 Commission's 2004 Final Report.

FirstNet selected AT&T to build, manage and operate the National Public Safety Broadband Network ("NPSBN") using FirstNet's Band 14 spectrum (Call Sign WQQE234, 20 MHz of the 700 MHz spectrum), together with AT&T's own wireless network. Using a combination of new and existing wireless facilities, AT&T provides prioritized, preemptive wireless services for first responders across Connecticut, New England and nationwide, while also improving 4G LTE coverage for AT&T customers.

It is important to note that with AT&T's migration from 3G to 4G services come changes in the base station infrastructure and resultant changes in the operating thresholds required by the LTE network. In the past, AT&T has presented receive signal thresholds of -74 dBm for their in-building coverage threshold and -82 dBm for their in-vehicle coverage threshold. Those thresholds were based on network requirements to support 2G/3G data speeds and past

usage demand. Today, customers expect low latency and faster data speeds as evidenced by increasing data usage trends and customer demand.

AT&T's 4G LTE technology is designed to thresholds of -83 dBm and -93 dBm for their 700 MHz LTE and -86 dBm and -96 dBm for their 1900 MHz LTE.[1] The stronger thresholds (-83 dBm and -86 dBm) yield greater throughputs and improved customer experience. The -93 dBm and -96 dBm thresholds are the minimum acceptable levels required to meet customer expectations for 4G service.

3. Coverage Objective

There is a significant coverage deficiency in the existing AT&T wireless communications network along Middle Turnpike, Old Turnpike Road, Daleville Road, and the neighboring residential and business/retail areas in Willington, referred to herein as the "targeted area". A deficiency in coverage is evidenced by the inability to adequately and reliably transmit/receive quality calls and/or utilize data services offered by the network. Seamless reliable coverage provides users with the ability to successfully originate, receive, and maintain quality calls and data applications throughout a service area. Appropriate overlapping coverage is required for users to be able to move throughout the service area and reliably "hand-off" between cells to maintain uninterrupted connections.

AT&T is expanding and enhancing their 4G LTE high-speed wireless broadband services throughout New England by filling in existing coverage gaps and addressing capacity, interference, and high-speed broadband issues. In addition to improving 4G LTE coverage for AT&T customers, AT&T is also building, managing and operating the National Public Safety Broadband Network using FirstNet's 700 MHz Band 14 spectrum, in order to provide prioritized, preemptive wireless services for first responders across Connecticut, New England and nationwide.

Due to terrain characteristics and the distance between the targeted coverage area and the existing sites, AT&T's options to provide services in this area are quite limited (maps of the terrain in this area and the distance to neighboring AT&T sites from the proposed site are included as Attachments 3 & 4, respectively.). AT&T's network requires deployment of antennas throughout the area to be covered. These antennas are connected to receivers and transmitters that operate in a limited geographic area known as a "cell." AT&T's wireless network, including their wireless handsets and devices, operate by transmitting and receiving low power radio frequency signals to and from these cell sites. The signals are transferred to and from the landline telephone network and routed to their destinations by sophisticated electronic equipment. The size of the area served by each cell site is dependent on several factors, including the number of antennas used, the height at which the antennas are deployed, the topography of the land, vegetative cover and natural or man-made obstructions in the area. As customers move throughout the service area, the transmission from the portable devices is automatically transferred to the AT&T facility with the best connection to the device, without interruption in service provided that there is overlapping coverage from the cells.

In order to define the extent of the coverage gap to be filled, both propagation modeling and real-world drive testing has been conducted in the area of Willington. Propagation modeling uses PC software to determine the network coverage based on the specific technical parameters of each site including, but not limited to, location, ground elevation, antenna models, antenna heights, and also databases of terrain and ground cover in the area. Drive testing consists of traveling along area roadways in a vehicle equipped with a sophisticated setup of test devices and receivers that collect a variety of network performance metrics. The data are then processed and mapped in conjunction with the propagation modeling to determine the coverage gaps.

[1] The threshold range differences between the 700 MHz and 1900 MHz frequency bands directly correlates to the type branch diversity receivers deployed in AT&T's receiver design.

Analysis of the propagation modeling and drive testing in Willington reveal that AT&T's network is unreliable throughout much of the area due to gaps in coverage, and that there is a service deficiency as a result. In order to fill in these coverage gaps and improve the network reliability to Willington, a new facility is needed in the area.

Included in this report are Attachments 1 through 7, which are explained below to help describe AT&T's 4G network deployment in and around Willington, and the need for the proposed facility.

- Attachment 1: *"CT1377 - Existing 700 MHz LTE Coverage" for the Current AT&T Network* depicts 700 MHz LTE coverage from existing sites and demonstrates that there are currently significant gaps in 700 MHz LTE coverage effecting service within the targeted area. The coverage shown is where the signal strengths are: > -83 dBm (minimum level required reliable, high quality service and performance at700 MHz) and, > -93 dBm (minimum required for adequate level of service at 700 MHz). In an effort to provide the required levels of coverage to these areas, AT&T is proposing to install a wireless facility at the 343 Daleville Road location.

- Attachment 2: *"CT1377 - Existing 700 MHz LTE Coverage with Proposed Site"* shows how this proposed site would fill in the existing coverage gaps and improve AT&T's 700 MHz LTE network within the targeted area, as detailed in Table 1.

- Attachment 3: *"CT1377 - Existing 1900 MHz LTE Coverage" for the Current AT&T Network* depicts 1900 MHz LTE coverage from existing sites and demonstrates that there are currently significant gaps in 1900 MHz LTE coverage effecting service within the targeted area. The coverage shown is where the signal strengths are: > -86 dBm (minimum level required reliable, high quality service and performance at 1900 MHz) and, > -96 dBm (minimum required for adequate level of service at 1900 MHz). In an effort to provide the required levels of coverage to these areas, AT&T is proposing to install a wireless facility at the 343 Daleville Road location.

- Attachment 4: *"CT1377 - Existing 1900 MHz LTE Coverage with Proposed Site"* shows how this proposed site would fill in the existing coverage gaps and improve AT&T's 700 MHz LTE network within the targeted area, as detailed in Table 1.

- Attachment 5: "*CT1377 - Area Terrain Map"* details the terrain features around the area of deficient service being targeted by the proposed site in Willington. These terrain features play a key role in determining site designs and dictating the unique coverage achieved from a given location. This map is included to provide a visual representation of the ridges and valleys that must be considered when siting a wireless facility. The darker green, blue and purple shades correspond to lower elevations, whereas the orange, red and white shades indicate higher elevations.

- Attachment 6: "*Neighbor Site Data"* provides site specific information of existing neighboring sites used to perform the coverage analysis provided in Attachments 1 and 2.

- Attachment 7: *Connecticut DOT Average Annual Daily Traffic Data – Willington* shows the available vehicular traffic volume data for the subject area from the Connecticut Department of Transportation. This data shows as many as x vehicles per day passing through State Hwy 41 (Sharon Road/Main Street) north of the intersection with Interlaken Road and the intersection with Wells Hill Road and as many as x vehicles per day passing through State Hwy 112 (Interlaken Road) west of the intersection with Sharon Road.

Table 1 below lists the coverage statistics compiled for the AT&T's 1900 MHz 4G LTE network with the deployment of the Proposed Site.

	Incremental Coverage from Proposed Site (1900 MHz)	
Population:[2]	(≥ -86 dBm)	31
	(≥ -96 dBm)	137
Business Pops: [3]	(≥ -86 dBm)	0
	(≥ -96 dBm)	3
Area (mi²):	(≥ -86 dBm)	0.21
	(≥ -96 dBm)	0.84
Roadway (mi)	(≥ -96 dBm)	3.08

Table 1: PCS Coverage Statistics

[2] Population figures are based upon 2010 US Census Block Data
[3] Employee population counts are based upon the 2011 U.S. Census Bureau LEHD database.

Table 2 below lists the coverage statistics compiled for the AT&T's 700 MHz 4G LTE network with the deployment of the Proposed Site.

	Incremental Coverage from Proposed Site (700 MHz)	
Population:[4]	(≥ -83 dBm)	121
	(≥ -93 dBm)	202
Business Pops: [5]	(≥ -83 dBm)	1
	(≥ -93 dBm)	4
Area (mi²):	(≥ -83 dBm)	0.7
	(≥ -93 dBm)	1.16
Roadway (mi)	(≥ -93 dBm)	3.89

Table 2: 700 MHz Coverage Statistics

[4] Population figures are based upon 2010 US Census Block Data
[5] Employee population counts are based upon the 2011 U.S. Census Bureau LEHD database.

4. Conclusion

AT&T has identified an area of deficient coverage affecting a significant portion of Willington, CT, including key traffic corridors through the residential and business/retail areas of the Town. The proposed Willington facility will bring the needed fill-in coverage to significant portions of Middle Turnpike, Old Turnpike Road, Daleville Road, and the residential neighborhoods and business/retail areas in the vicinity of the proposed location.

No existing structures of sufficient height were identified and available that would be able to satisfy the coverage requirements needed for this area.

In addition to providing improved LTE service to AT&T's customers throughout the targeted areas of Willington, AT&T is providing enhanced services for first responders through the implementation of FirstNet's National Public Safety Broadband Network ("NPSBN").

5. Statement of Certification

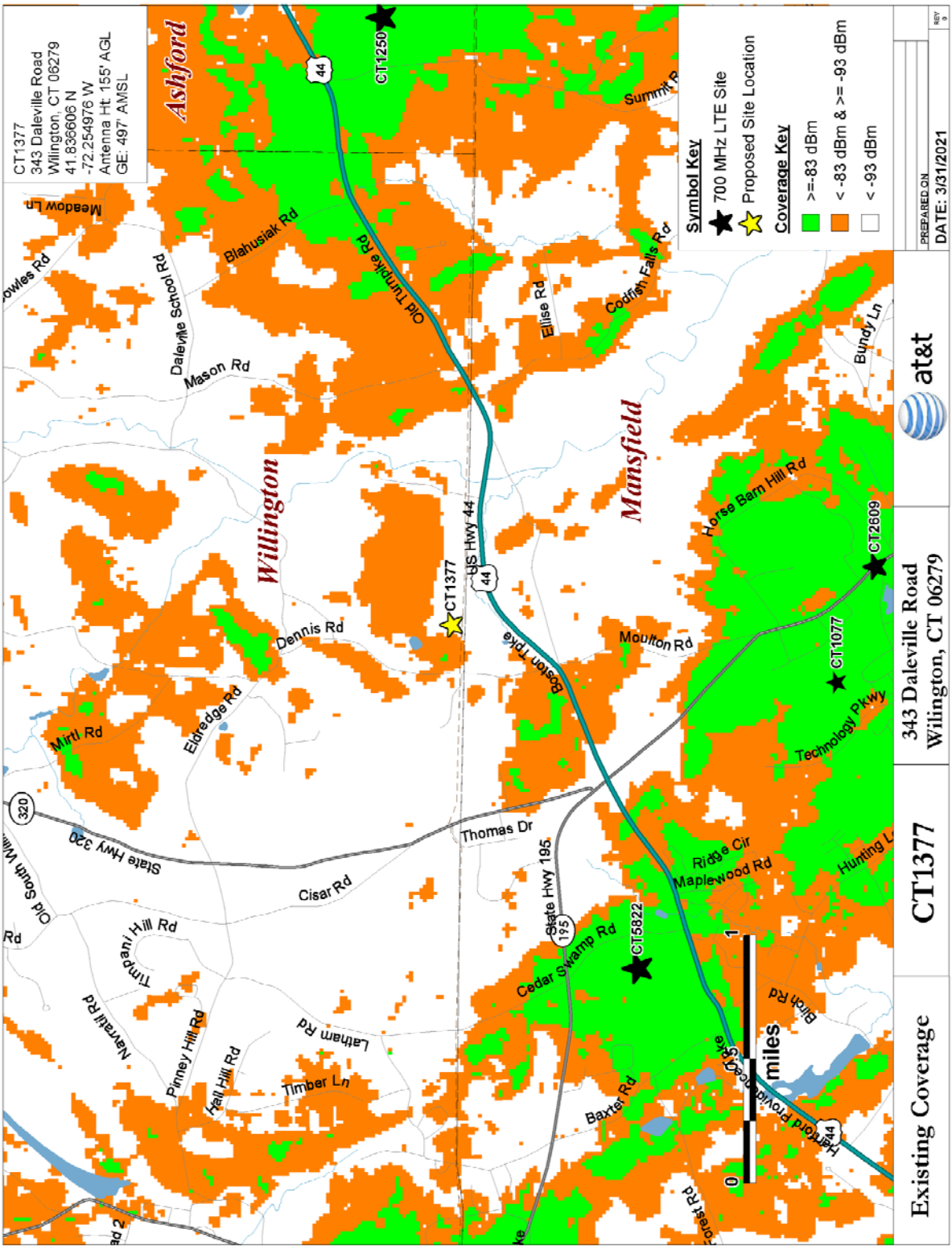
I certify to the best of my knowledge that the statements in this report are true and accurate.

June 21, 2021

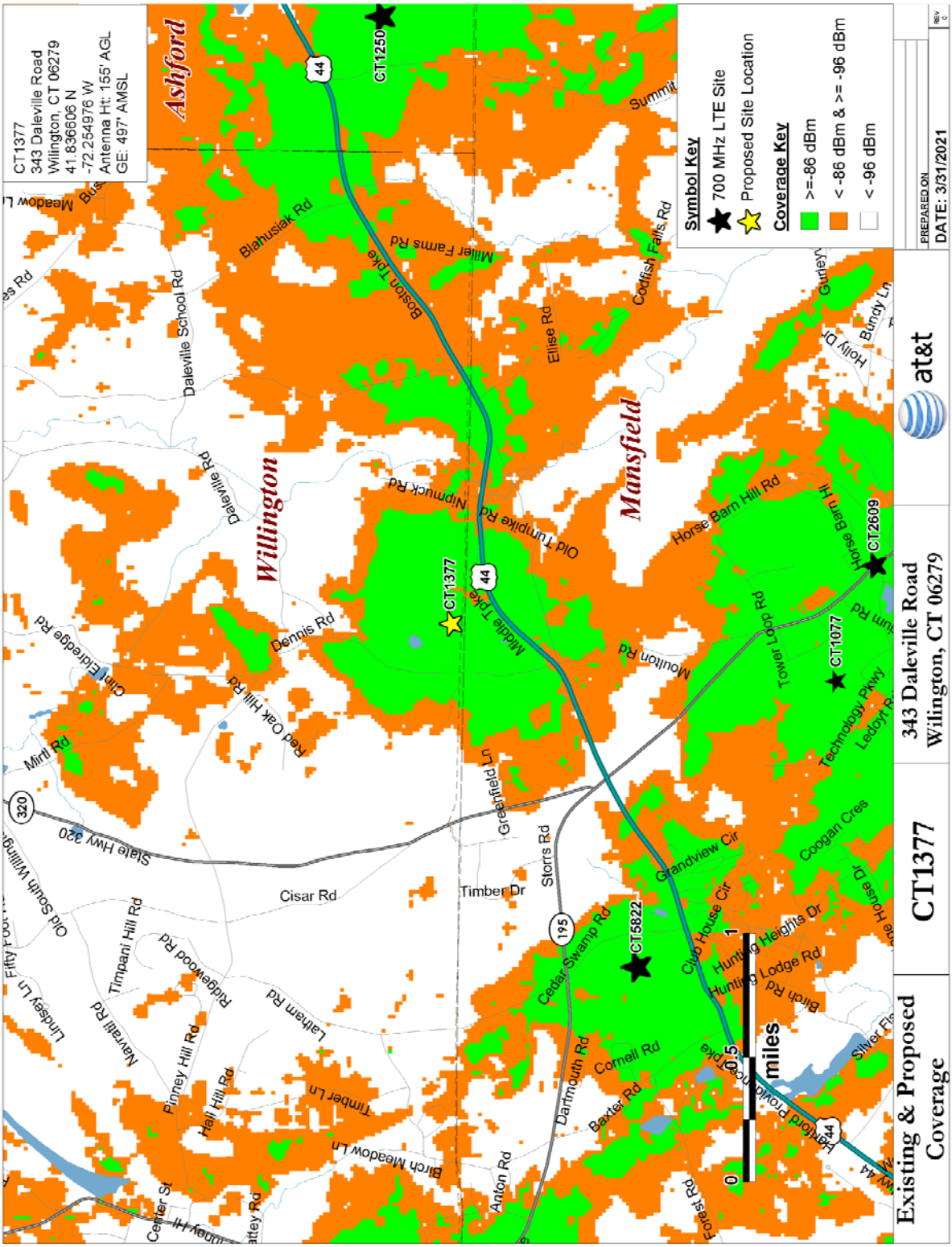
Martin J. Lavin
C Squared Systems, LLC

Date

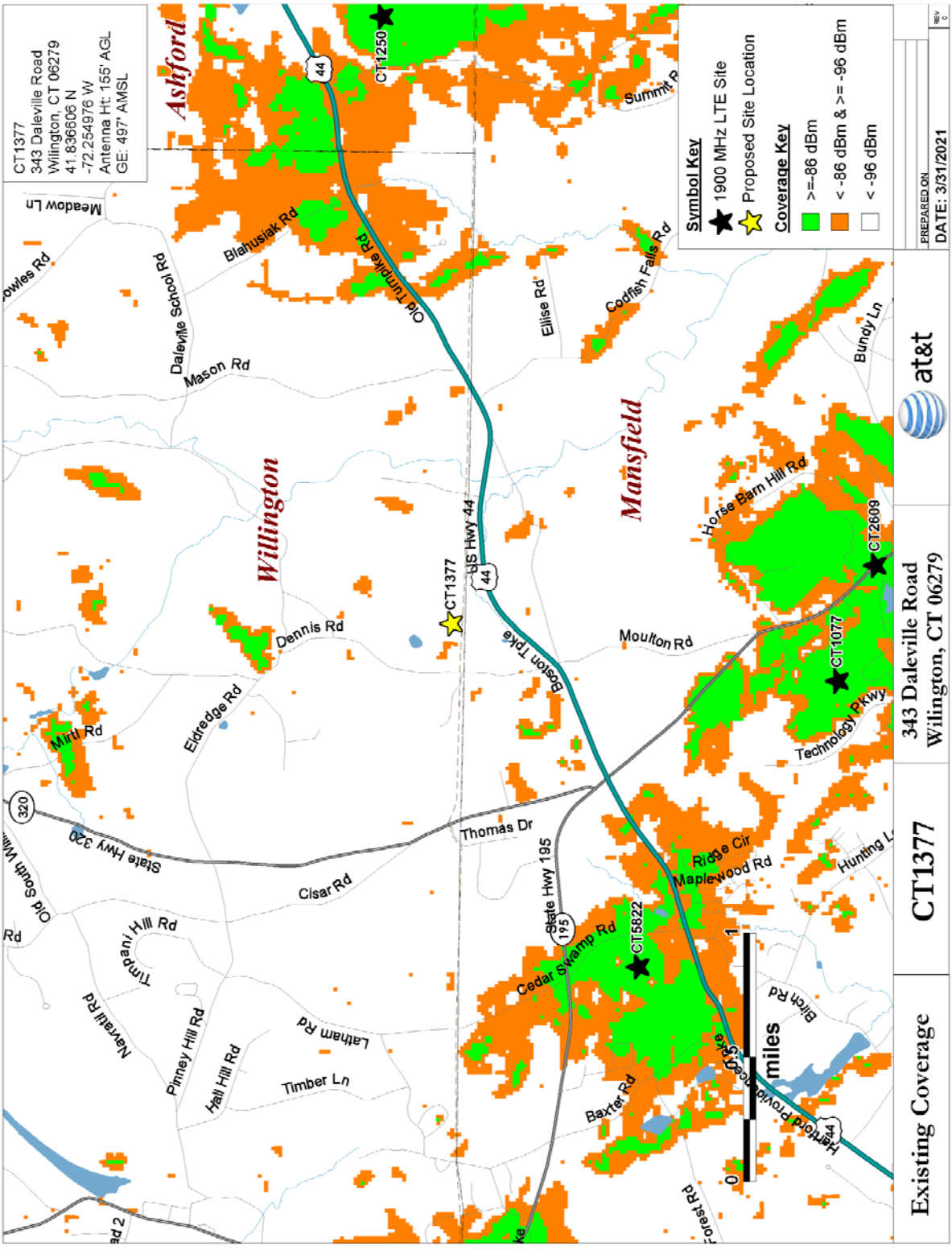
6. Attachments



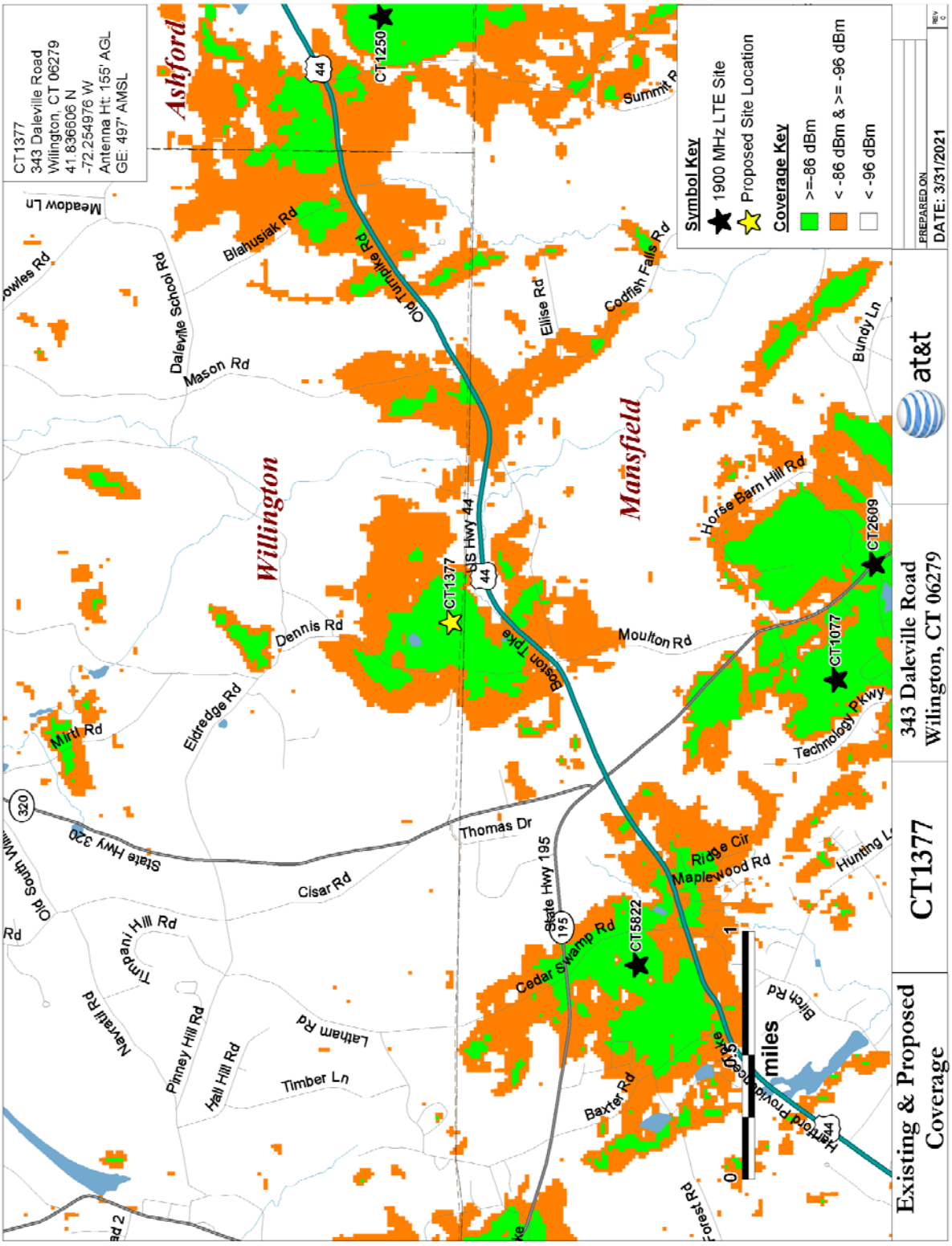
Attachment 1: "CT2246 Existing 700 MHz LTE Coverage" for the Current AT&T Network



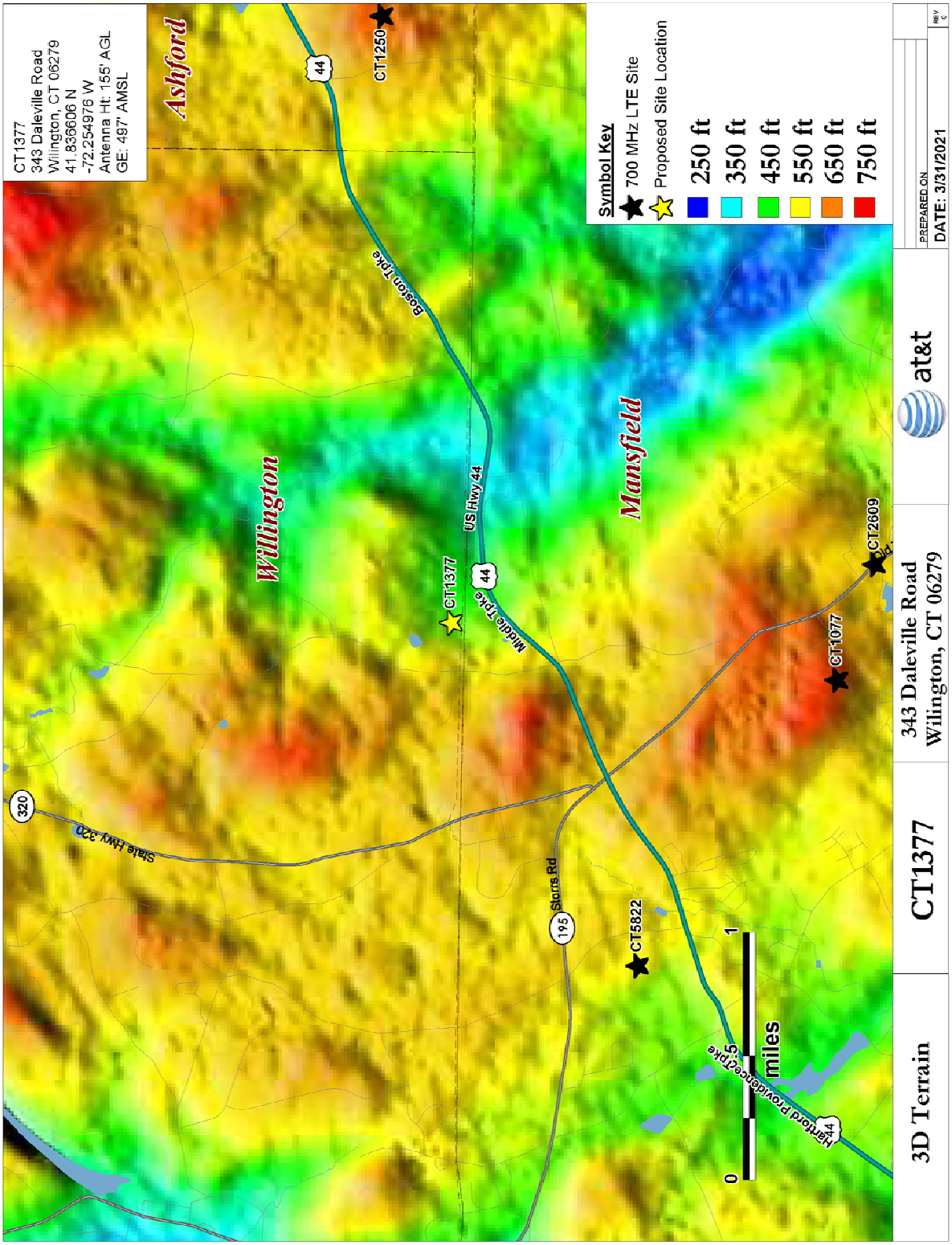
Attachment 2: "CT2246 Existing 700 MHz LTE Coverage with Proposed Site" for the AT&T Network



Attachment 3: "CT2246 Existing 1900 MHz LTE Coverage" for the Current AT&T Network



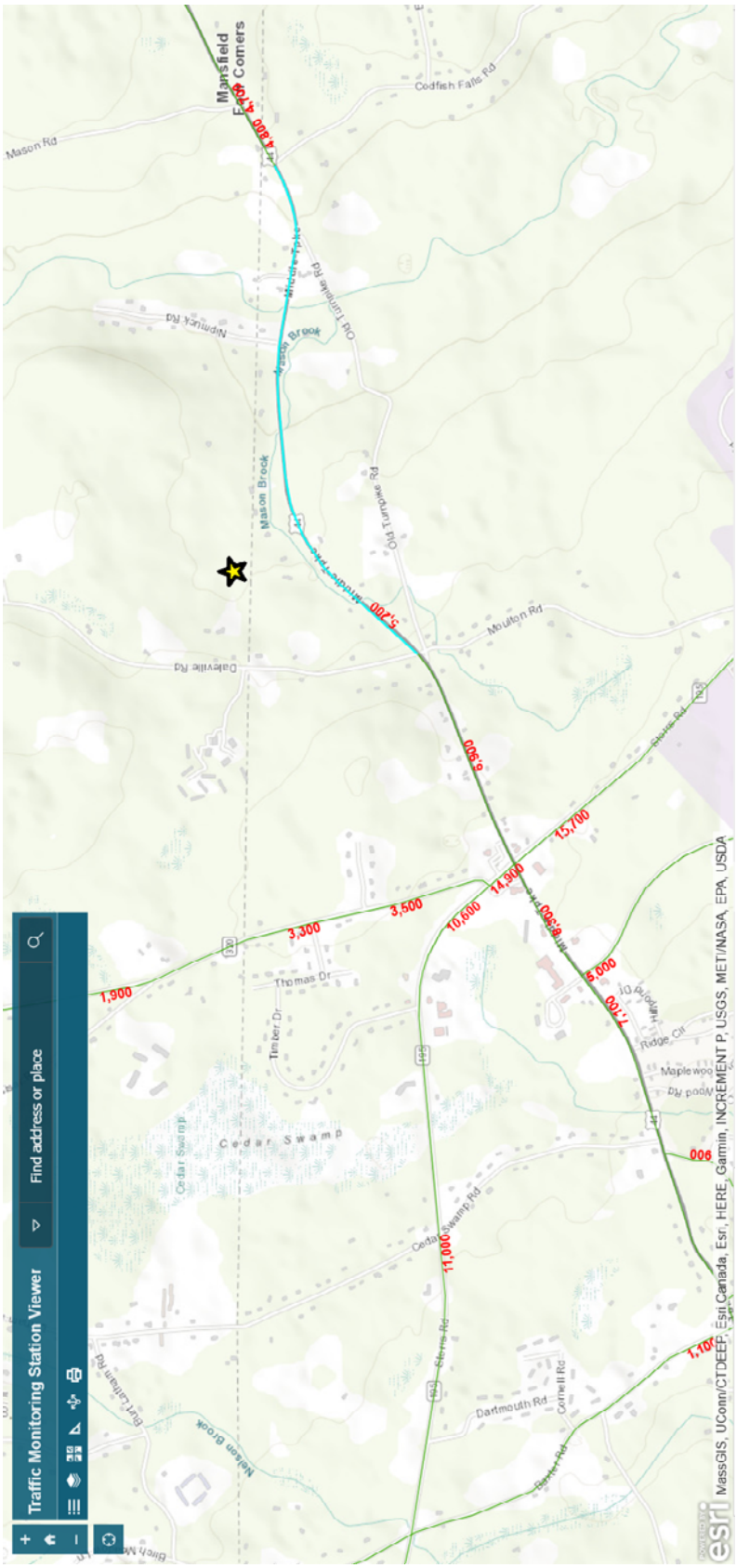
Attachment 4: "CT2246 Existing 1900 MHz LTE Coverage with Proposed Site" for the AT&T Network



Attachment 5: Area Terrain Map

Site Name	Address	City/State	Location		Antenna Height (ft AGL)	Ground Elevation (feet)
			Latitude	Longitude		
CT1046	855 Bolton Road	Storrs	41.8029	-72.2489	68	643
CT1077	1298 Storrs Road	Storrs	41.8141	-72.2594	185	722
CT1106	400 Riley Mountain Road	Coventry	41.7989	-72.3322	120	705
CT1200	1725 Stafford Road	Storrs Mansfield	41.8359	-72.3078	150	351
CT1250	99 Knowlton Hill Road	Ashford	41.8407	-72.2075	150	659
CT2609	2 North Eagleville Road_Dup1	Storrs Mansfield	41.8119	-72.2504	65,66,67	607
CT5701	20 Seles Road	Ashford	41.8634	-72.1828	138	535
CT5821	111 Middle Turnpike	Storrs Mansfield	41.8039	-72.3050	51	420
CT5822	497 Middle Turnpike	Storrs Mansfield	41.8257	-72.2818	118/123	558

Attachment 6: Neighbor Site Data



Attachment 7: Connecticut DOT Average Annual Daily Traffic Data – Willington

ATTACHMENT 11

Certificate of Service – Federal, State & Town Officials
Certificate of Service – Abutters
Sample Notice Letter
List of Abutting Property Owners
Willington Abutters Map
Mansfield Abutters Map

CERTIFICATE OF SERVICE

I hereby certify that on the 12th day of November, 2021, a copy of the following letter and notice of the intended filing of a Petition with the Connecticut Siting Council for a declaratory ruling was sent by certified mail, return receipt requested, to the attached list of Federal, State and Town Officials:

Dated: November 12, 2021

Brown Rudnick LLP
Joseph A. Giammarco

Federal

FEDERAL COMMUNICATIONS COMMISSION 445 12TH STREET SW WASHINGTON, DC 29445	FEDERAL AVIATION ADMINISTRATION 800 INDEPENDENCE AVENUE SW WASHINGTON, DC 20591
U.S. SENATOR CHRISTOPHER MURPHY COLT GATEWAY 120 HUYSHOPE AVENUE, SUITE 401 HARTFORD, CT 06106	U.S. SENATOR RICHARD BLUMENTHAL 90 STATE HOUSE SQUARE, 10TH FLOOR HARTFORD, CT 06103
U.S. CONGRESSMAN – 2ND DISTRICT JOE COURTNEY 55 MAIN STREET, SUITE 250 NORWICH, CT 06360	

State

THE HONORABLE WILLIAM TONG ATTORNEY GENERAL OFFICE OF THE ATTORNEY GENERAL 165 CAPITOL AVENUE HARTFORD, CT 06106	DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT, CULTURE AND TOURISM DAVID LEHMAN, COMMISSIONER 450 COLUMBUS BOULEVARD HARTFORD, CT 06103
DEPARTMENT OF PUBLIC HEALTH MANISHA JUTHANI, MD, COMMISSIONER 410 CAPITOL AVENUE HARTFORD, CT 06134	DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION PUBLIC UTILITIES REGULATORY AUTHORITY MARISSA PASLICK GILLETT, CHAIRMAN TEN FRANKLIN SQUARE NEW BRITAIN, CT 06051
COUNCIL ON ENVIRONMENTAL QUALITY PETER B. HEARN, EXECUTIVE DIRECTOR 79 ELM STREET, 6TH FLOOR HARTFORD, CT 06106	DEPARTMENT OF TRANSPORTATION JOSEPH GIULIETTI, COMMISSIONER 2800 BERLIN TURNPIKE P.O. BOX 317546 NEWINGTON, CT 06131
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION KATIE DYKES, COMMISSIONER 79 ELM STREET HARTFORD, CT 06106	DEPARTMENT OF AGRICULTURE BRYAN P. HURLBURT, COMMISSIONER 450 COLUMBUS BOULEVARD, SUITE 701 HARTFORD, CT 06103
OFFICE OF POLICY AND MANAGEMENT MELISSA MCCAW, SECRETARY 450 CAPITOL AVENUE HARTFORD, CT 06106	DEPARTMENT OF EMERGENCY SERVICES & PUBLIC PROTECTION DIVISION OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY JAMES C. ROVELLA, COMMISSIONER 1111 COUNTRY CLUB ROAD MIDDLETOWN, CT 06457
STATE HISTORIC PRESERVATION OFFICER DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT 450 COLUMBUS BOULEVARD, 5TH FLOOR HARTFORD, CT 06103	OFFICE OF THE SECRETARY OF STATE DENISE W. MERRILL 165 CAPITOL AVENUE, SUITE 1000 HARTFORD, CT 06106
STATE HOUSE REPRESENTATIVE – DISTRICT 53 TAMMY NUCCIO LEGISLATIVE OFFICE BUILDING, ROOM 4200	STATE SENATOR – DISTRICT 35 DAN CHAMPAGNE LEGISLATIVE OFFICE BUILDING, ROOM 3400 300 CAPITOL AVENUE

300 CAPITOL AVENUE HARTFORD, CT 06106	HARTFORD, CT 06106
CAPITOL REGION COUNCIL OF GOVERNMENTS LYLE WRAY, EXECUTIVE DIRECTOR 241 MAIN STREET, 4TH FLOOR HARTFORD, CT 06106	

Town

ERIKA WIECENSKI, FIRST SELECTMEN TOWN OF WILLINGTON TOWN OFFICE BUILDING 40 OLD FARM ROAD WILLINGTON, CT 06279	LAND USE DEPARTMENT PEGGY DUPILKA, LAND USE CLERK TOWN OF WILLINGTON TOWN OFFICE BUILDING 40 OLD FARM ROAD WILLINGTON, CT 06279
MIKE D'AMATO, ZONING AGENT TOWN OF WILLINGTON TOWN OFFICE BUILDING 40 OLD FARM ROAD WILLINGTON, CT 06279	TOWN CLERK ROBIN H. CAMPBELL TOWN OFFICE BUILDING 40 OLD FARM ROAD WILLINGTON, CT 06279
TOWN OF WILLINGTON CONSERVATION COMMISSION PETER ANDERSEN, CHAIR TOWN OFFICE BUILDING 40 OLD FARM ROAD WILLINGTON, CT 06279	TOWN OF WILLINGTON HISTORIC DISTRICT COMMISSION ROSA CHINCHILLA, CHAIR TOWN OFFICE BUILDING 40 OLD FARM ROAD WILLINGATON, CT 06279
ANTONIA MORAN, MAYOR TOWN OF MANSFIELD AUDREY P. BECK MUNICIPAL BUILDING 4 S. EAGLEVILLE ROAD STORRS MANSFIELD, CT 06268	LINDA PAINTER, DIRECTOR OF PLANNING AND DEVELOPMENT TOWN OF MANSFIELD AUDREY P. BECK MUNICIPAL BUILDING 4 S. EAGLEVILLE ROAD STORRS MANSFIELD, CT 06268
SARA-ANN CHAINE, CCTC TOWN CLERK TOWN OF MANSFIELD AUDREY P. BECK MUNICIPAL BUILDING 4 S. EAGLEVILLE ROAD STORRS MANSFIELD, CT 06268	HISTORIC DISTRICT COMMISSION TOWN OF MANSFIELD GAIL BRUHN, CHAIR TOWN OF MANSFIELD AUDREY P. BECK MUNICIPAL BUILDING 4 S. EAGLEVILLE ROAD STORRS MANSFIELD, CT 06268

CERTIFICATE OF SERVICE

I hereby certify that on the 12th day of November, 2021, a copy of the following letter and notice of the intended filing of a Petition with the Connecticut Siting Council for a declaratory ruling was sent by certified mail, return receipt requested, to the attached list of abutting property owners:

Dated: November 12, 2021

Brown Rudnick LLP
Joseph A. Giammarco

KREUSCHER, MURIEL & RICHARD 343 DALEVILLE ROAD WILLINGTON, CT 06279 **Subject Property: 343 Daleville Road** Parcel ID: 02/005-00 *Identified as parcel **A** on Abutters Map*	ALON EQUITIES LLC 1650 EASTERN PARKWAY, SUITE 210 Brooklyn, NY 11233 Property Address: 380 Daleville Road Parcel ID: 02/001-00 *Identified as parcel **B** on Abutters Map*
COOPER, THOMAS R. & LINDA J. 325 DALEVILLE ROAD WILLINGTON, CT 06279 Property Address: 325 Daleville Road Parcel ID: 02/002-00 *Identified as parcel **C** on Abutters Map*	LEBLOND, RICHARD P. & JOAN P. 275 DALEVILLE ROAD WILLINGTON, CT 06279 Property Address: Daleville Road Parcel ID: 07/010-0A *Identified as parcel **D** on Abutters Map* Property Address: Daleville Road Parcel ID: 07/013-00 *Identified as parcel **E** on Abutters Map* Property Address: Daleville Road Parcel ID: 07/014-00 *Identified as parcel F on Abutters Map*
BRUCE, HAROLD W., III & BRUCE, RENE 315 DALEVILLE ROAD WILLINGTON, CT 06279 Property Address: 315 Daleville Road Parcel ID: 07/010-0B *Identified as parcel K on Abutters Map*	CAWLEY FAMILY LIVING TRUST JOHN F. & LOUISE J. CAWLEY, TRUSTEES 861 MIDDLE TURNPIKE MANSFIELD, CT 06268 Property Address: Daleville Road Parcel ID: 07/012-00 Identified as parcel L on Abutters Map

KELLY, JAMES L. 811 MIDDLE TURNPIKE STORRS, CT 06268 Property Address: 811 Middle Turnpike Parcel ID: 02/006-00 *Identified as parcel I on Abutters Map* Property Address: 811 Middle Turnpike, Mansfield, CT Parcel ID: 3.9.8 *Identified as parcel S on Abutters Map*	JANKOVIC, JASNA & BOSKO 313 DALEVILLE ROAD WILLINGTON, CT 06279 Property Address: 313 Daleville Road Parcel ID: 07/010-00 *Identified as Parcel J on Abutters Map*
HILL, KENELLY & LINDA 327 DALEVILLE ROAD WILLINGTON, CT 06279 Property Address: 327 Daleville Road Parcel ID: 02/003-00 *Identified as parcel G on Abutters Map*	Cyr, Justin & Joshua 331 Daleville Road Willington, CT 06279 Property Address: 331 Daleville Road Parcel ID: 02/004-00 *Identified as parcel H on Abutters Map*

HELEN M. SADOW REVOCABLE TRUST AGREEMENT SADOW, HELEN & ALFRED M., TRUSTEES 115 ELDREDGE ROAD WILLINGTON, CT 06279 Property Address: 70 Daleville Road, Mansfield, CT Parcel ID: 3.9.1 *Identified as parcel M on Abutters Map* Property Address: 67 Daleville Road, Mansfield, CT Parcel ID: 3.8.9 *Identified as parcel N on Abutters Map*	ST. LAWRENCE, SCOTT 91 CANADA LANE CHAPLIN, CT 06235 Property Address: 769 Middle Turnpike, Mansfield, CT Parcel ID: 3.9.2 *Identified as parcel O on Abutters Map*
BOWEN, JOANNE L. 52 DALEVILLE ROAD MANSFIELD, CT 06268 Property Address: 52 Daleville Road, Mansfield, CT Parcel ID: 3.9.2-1 *Identified as parcel P on Abutters Map*	NICHOLS, LEYLA & CICHOWSKI, FRANCES 799 MIDDLE TURNPIKE MANSFIELD, CT 06268 Property Address : 799 A-B Middle Turnpike, Mansfield, CT Parcel ID: 3.9.7 *Identified as parcel Q on Abutters Map*
WHITE, SIMON J. 805A-B MIDDLE TURNPIKE STORRS, CT 06268 Property Address: 805 A-B Middle Turnpike, Mansfield, CT Parcel ID: 3.9.7-1 *Identified as parcel R on Abutters Map*	RICCI, DUSTIN J. & KRISTEN B. 819 MIDDLE TURNPIKE MANSFIELD, CT 06268 Property Address: 819 Middle Turnpike, Mansfield, CT Parcel ID: 3.9.9 *Identified as parcel T on Abutters Map.*

November 11, 2021
VIA CERTIFIED MAIL/
RETURN RECEIPT REQUESTED

[Insert Abutter/official
Name and Address]

Re: New Cingular Wireless PCS, LLC ("AT&T") Modification and Extension of an Existing Wireless Telecommunications Facility and Installation of a Wireless Telecommunications Facility at 343 Daleville Road, Willington, Connecticut

To Whom it May Concern:

On behalf of our client New Cingular Wireless PCS, LLC ("AT&T"), we are notifying you with respect to the above referenced matter and our client's intent to file a petition for a declaratory ruling with the State of Connecticut Siting Council (the "Siting Council") for approval to collocate a new wireless telecommunications facility (the "Facility") including six (6) panel antennas at the 155' above ground level ("AGL") antenna centerline height on a fifty-six foot (56') tall extension (the "Extension") of the existing monopole (the "Monopole"), owned by American Tower at the above-referenced property. Connecticut law requires that record property owners of property abutting a parcel on which a wireless telecommunications facility is proposed be notified of an applicant's intent to file a petition with the Siting Council. A notice of this application and details of the proposal are included with this letter. The location, height and other details of the proposed Facility are subject to the review and potential alteration by the Siting Council under the provisions of Connecticut General Statutes §16-50g et seq. If you have any questions concerning this petition, please feel free to contact the Connecticut Siting Council or this office after November 15, 2021, at which time we anticipate that the petition will be on file.

Sincerely,

_____
Thomas J. Regan, Esq.

Enclosure.

NOTICE

Notice is hereby given, pursuant to Section 16-50j-40(a) of the Regulations of Connecticut State Agencies of a Petition being filed with the Connecticut Siting Council ("Siting Council") on or after November 15, 2021 by New Cingular Wireless PCS, LLC ("AT&T"). AT&T seeks a declaratory ruling that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") to modify an existing facility and collocate a new wireless telecommunications facility on an extension of the existing monopole.

The proposed telecommunications facility will be located on an existing monopole owned by American Tower at 343 Daleville Road, in the Town of Willington and identified on the Town of Willington's GIS as Parcel ID 02/005-00 (the "Site"). AT&T proposes to collocate a new wireless telecommunications facility consisting of six (6) panel antennas at the 155' above ground level ("AGL") antenna centerline height on a fifty-six foot (56') tall extension (the "Extension") of the existing monopole (the "Monopole"). This Facility will work to allow for increased coverage, data capacity and speed within the coverage area of the proposed facility. By addressing network coverage and capacity, the proposed Facility will aid in reaching AT&T's goal of providing reliable wireless telecommunications services in and around the Town of Willington and to all of Connecticut.

The Petition will provide additional details of the proposal and discuss AT&T's assertion that this Facility presents no significant adverse environmental effects. The location, height and other features of the proposal are subject to review and potential change under the provisions of Connecticut General Statutes Sections 16-50g et. seq.

Copies of the Petition will be available for review during normal business hours on or after November 15, 2021 at the following:

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Town Clerk of Willington
Robin Campbell
40 Old Farms Road
Willington, CT 06279

or this office. A copy of the Petition will also be available on the Connecticut Siting Council website: https://www.ct.gov/cSc/site/default.asp under Pending Matters. All inquiries should be addressed to the Connecticut Siting Council or to the undersigned.

Thomas J. Regan, Esq.
Brown Rudnick LLP
185 Asylum Street
Hartford, CT 06103

ABUTTING PROPERTY OWNERS

Parcel	Owner	Physical Address	Mailing Address
WILLINGTON ABUTTERS			
02/005-00	Kreuscher, Muriel & Richard	343 Daleville Road Willington, CT 06279 Identified as parcel "A" on Abutters Map	343 Daleville Road Willington, CT 06279
02/001-00	Alon Equities LLC	380 Daleville Road Willington, CT 06279 Identified as parcel "B" on Abutters Map	1650 Eastern Parkway Suite 210 Brooklyn, NY 11233
02/002-00	Cooper, Thomas R. & Linda J.	325 Daleville Road Willington, CT 06279 Identified as parcel "C" on Abutters Map	325 Daleville Road Willington, CT 06279
07/010-0A	Leblond, Richard P. & Joan P.	Daleville Road Willington, CT 06279 Identified as parcel "D" on Abutters Map	275 Daleville Road Willington, CT 06279
07/013-00	Leblond, Richard P. & Joan P.	Daleville Road Willington, CT 06279 Identified as parcel "E" on Abutters Map	275 Daleville Road Willington, CT 06279
07/014-00	Leblond, Richard P. & Joan P.	Daleville Road Willington, CT 06279 Identified as parcel "F" on Abutters Map	275 Daleville Road Willington, CT 06279
02/003-00	Hill, Kenelly & Linda	327 Daleville Road Willington, CT 06279 Identified as parcel "G" on Abutters Map	327 Daleville Road Willington, CT 06279
02-004-00	Cyr, Justin & Joshua	331 Daleville Road Willington, CT 06279 Identified as parcel "H" on Abutters Map	331 Daleville Road Willington, CT 06279
02/006-00	Kelly, James L.	811 Middle Turnpike Storrs, CT 06268 Identified as parcel "I" on Abutters Map	811 Middle Turnpike Storrs, CT 06268

Parcel	Owner	Physical Address	Mailing Address
07-010-00	Jankovic, Jasna & Bosko	313 Daleville Road Willington, CT 06279 Identified as parcel "J" on Abutters Map	313 Daleville Road Willington, CT 06279
07/010-0B	Bruce, Harold W., III & Bruce, Rene	315 Daleville Road Willington, CT 06279 Identified as parcel "K" on Abutters Map	315 Daleville Road Willington, CT 06279
07/012-00	Cawley Family Living Trust John F. & Louise J. Cawley, Trustees	Daleville Road Willington, CT 06279 Identified as parcel "L" on Abutters Map	861 Middle Turnpike Mansfield, CT 06268
MANSFIELD ABUTTERS			
3.9.1	Helen M. Sadow Revocable Trust Agreement Sadow, Helen & Alfred M., Trustees	70 Daleville Road Mansfield, CT 06268 Identified as parcel "M" on Abutters Map	115 Eldredge Road Willington, CT 06279
3.8.9	Helen M. Sadow Revocable Trust Agreement Sadow, Helen & Alfred M., Trustees	67 Daleville Road Mansfield, CT 06268 Identified as parcel "N" on Abutters Map	115 Eldredge Road Willington, CT 06279
3.9.2	St. Lawrence, Scott	769 Middle Turnpike Mansfield, CT 06268 Identified as parcel "O" on Abutters Map	91 Canada Lane Chaplin, CT 06235
3.9.2-1	Bowen, Joanne L.	52 Daleville Road Mansfield, CT 06268 Identified as parcel "P" on Abutters Map	52 Daleville Road Mansfield, CT 06268
3.9.7	Nichols, Leyla & Cichowski, Frances	799 A-B Middle Turnpike Mansfield, CT 06268 Identified as parcel "Q" on Abutters Map	799 Middle Turnpike Mansfield, CT 06268
3.9.7-1	White, Simon J.	805 A-B Middle Turnpike Mansfield, CT 06268 Identified as parcel "R" on Abutters Map	805 A-B Middle Turnpike Storrs, CT 06268
3.9.8	Kelly, James L.	811 Middle Turnpike Mansfield, CT 06268 Identified as parcel "S" on Abutters Map	811 Middle Turnpike Mansfield, CT 06268

3.9.9	Ricci, Dustin J. & Kristen B.	819 Middle Turnpike Mansfield, CT 06268 Identified as parcel “T” on Abutters Map	819 Middle Turnpike Mansfield, CT 06268

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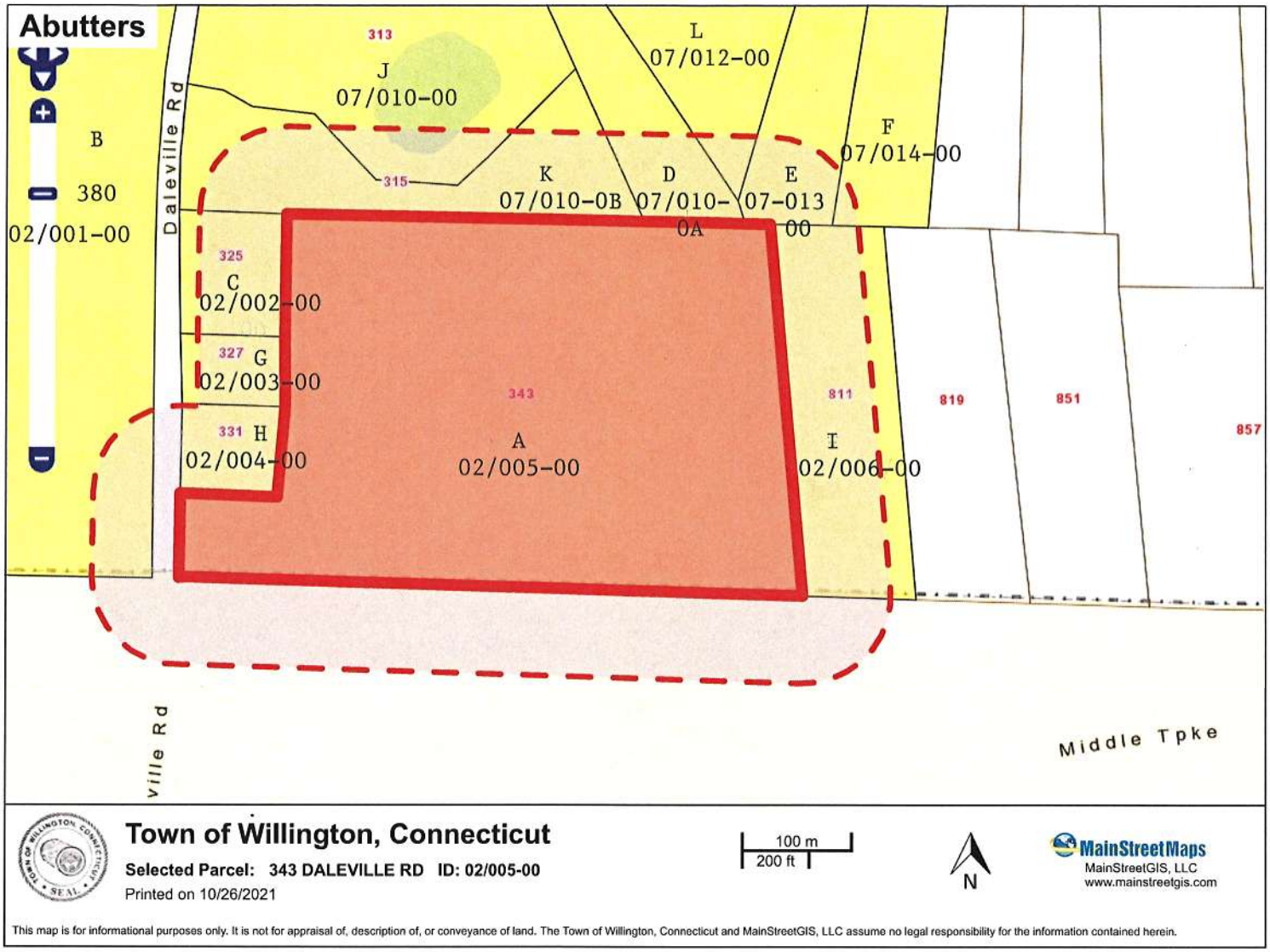
Abutters
313
J
07/010-00
L
07/012-00
F
07/014-00
B
380
02/001-00
Daleville Rd
315
K
07/010-0B
D
07/010-0A
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325
C
02/002-00
327
G
02/003-00
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H
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A
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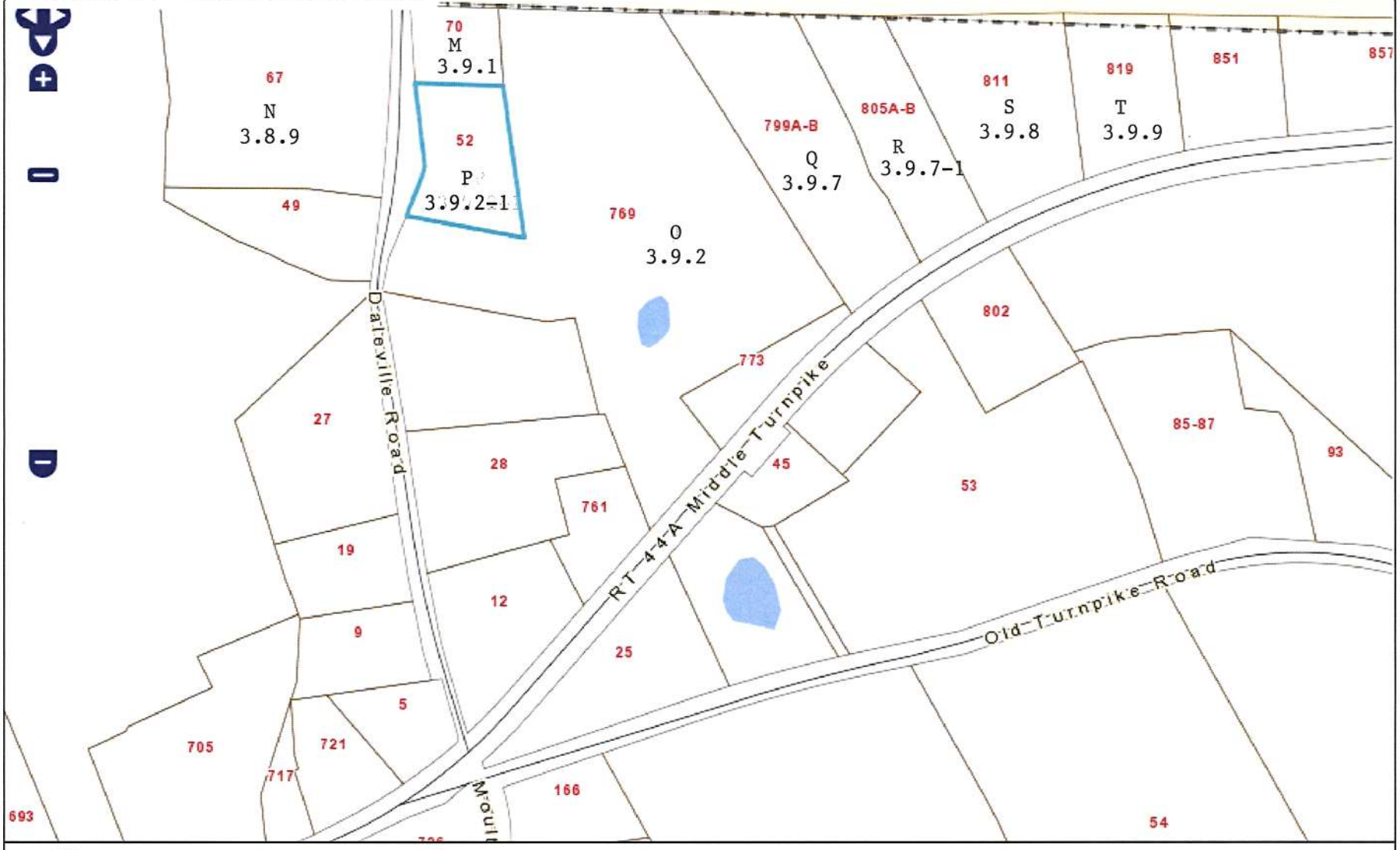
811
I
02/006-00
819
851
857
Middle Tpke
Town of Willington, Connecticut
Selected Parcel: 343 DALEVILLE RD ID: 02/005-00
Printed on 10/26/2021
100 m
200 ft
N
MainStreetMaps
MainStreetGIS, LLC
www.mainstreetgis.com
This map is for informational purposes only. It is not for appraisal of, description of, or conveyance of land. The Town of Willington, Connecticut and MainStreetGIS, LLC assume no legal responsibility for the information contained herein.

Abutters - Mansfield Side



Town of Mansfield, Connecticut

Selected Parcel: 52 DALEVILLE RD ID: 3.9.2-1

Printed on 10/26/2021

100 m
200 ft

N

MainStreetMaps
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