Greg Milano
SAI Group, LLC
12 Industrial Way
Salem, NH 03079
860-707-9001
gmilano@saigrp.com

October 11, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) CT1252
111 Second Hill Road, Bridgewater, CT 06752
N 41.532667
W -73.36744

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 156-foot level of the existing 160-foot monopole at 111 Second Hill Road, Bridgewater, CT. The tower is owned by SBA. The property is owned by Robert Riebe. AT&T now intends to remove six (6) CCI antennas and replace them with six (6) DMP65R-BU8DA CCI antennas. These antennas would be installed at the 156-foot level of the tower. AT&T also intends to remove three (3) Ericsson RRUS-11 remote radio units and install three (3) Ericsson 4449 B5/B12 RRUS and three (3) Ericsson B14 4475 RRUS.

This facility was approved by the Siting Council in docket #437 on September 5, 2013. This approval included the condition that the tower height be limited to 160 ft. Since no change to the existing tower height is proposed, therefore this modification complies with the aforementioned condition.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Curtis Read, First Selectman for the Town of Bridgewater, Bridgewater Land Use Department as well as the property owner and the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Greg Milano

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Salem, NH 03079
860-707-9001
gmilano@saigrp.com

Attachments

cc: Curtis Read - First Selectman
Lois Gilmore – Land Use Department
Robert J Riebe - Property Owner
American Tower - Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T UMTS	2	150	156	0.0048	880	0.5867	0.08%
AT&T LTE	2	1476	156	0.0472	740	0.4933	0.96%
AT&T LTE	2	2421	156	0.0774	1900	1.0000	0.77%
AT&T LTE	2	1285	256	0.0411	2300	1.0000	0.41%
Site Total							2.22%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T UMTS	1	150	156	0.0024	850	0.5667	0.04%
AT&T LTE	1	2951	156	0.0472	700	0.4667	1.01%
AT&T LTE	1	1476	156	0.0236	700	0.4667	0.51%
AT&T LTE	1	1000	156	0.0160	850	0.5667	0.28%
AT&T 5G	1	1000	156	0.0160	850	0.5667	0.28%
AT&T LTE	2	4842	156	0.1548	1900	1.0000	1.55%
Site Total							3.67%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • NEW AT&T ANTENNA (DMP65R-BU8DA) @ POS. 3 & POS. 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6) • NEW AT&T RRUS: B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: 4449 B5/B12 (700/850) (TYP. OF 1 PER SECTOR, TOTAL OF 3). ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • SWAP DUS FOR RBS 6630. • ADD IDLE. • ADD 5G RBS 6630. ITEMS TO REMAIN: • (6) ANTENNAS, (6) RRUS, (8) DC TRUNKS, (4) FIBER CABLES, (4) SURGE ARRESTOR. ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNA (HPA-65R-BUU-H8) @ POS. 3 & POS. 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6). • EXISTING AT&T RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
SITE ADDRESS:	111 SECOND HILL ROAD BRIDGEWATER, CT 06752
LATITUDE:	41.555000° N, 41° 33' 18.00" N
LONGITUDE:	73.370555° W, 73° 22' 14.00" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	160'-0"±
RAD CENTER:	156'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CT1252

SITE NAME: BRIDGEWATER SECOND HILL ROAD

FA CODE: 10107963

PACE ID: MRCTB040669, MRCTB040392

PROJECT: LTE 3C_4C

DRAWING INDEX

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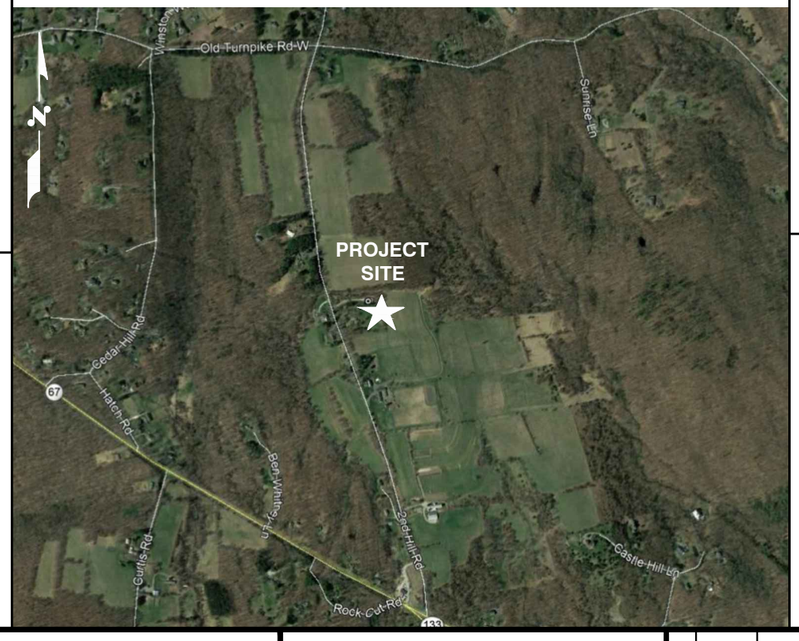
ATC SITE NAME: BRIDGEWATER CT
ATC SITE #: 281862

VICINITY MAP

DIRECTIONS TO SITE:

FROM HARTFORD TAKE I-84W, TAKE EXIT 15 FOR US-6E/CT-67N, TAKE A RIGHT ONTO MAIN ST NORTH (US-6E/CT-67N), TAKE A LEFT ONTO ROXBURY RD (CT-67N) AND CONTINUE ONTO SOUTHBURY RD (CT-67N), TAKE A LEFT ONTO CHURCH STREET/WELLERS BRIDGE R, .TAKE A LEFT ONTO BAKERS RD (CT-67N) AND CONTINUE ONTO NEW MILFORD RD E (CT-67N), TAKE A RIGHT ONTO SECOND HILL RD. ACCESS DRIVE WILL BE ON RIGHT JUST PAST 111 SECOND HILL ROAD.



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.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

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: CT1252
SITE NAME: BRIDGEWATER SECOND HILL ROAD
ATC SITE #: 281862

111 SECOND HILL ROAD
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LITCHFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

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

AT&T

TITLE SHEET
(LTE 3C_4C)

SITE NUMBER	DRAWING NUMBER	REV
CT1252	T-1	1

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-G, 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		

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: CT1252
SITE NAME: BRIDGEWATER SECOND HILL ROAD
ATC SITE #: 281862

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500 ENTERPRISE DRIVE, SUITE 3A
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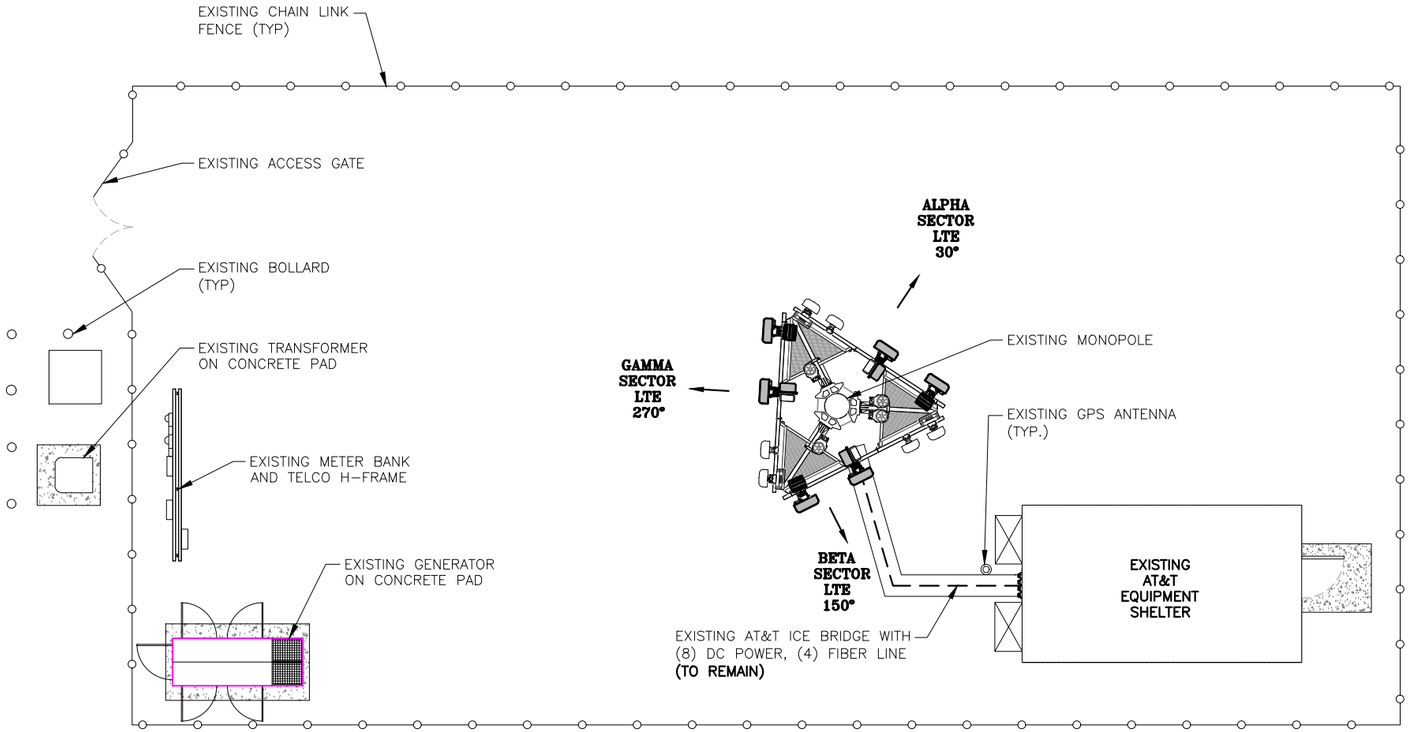
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

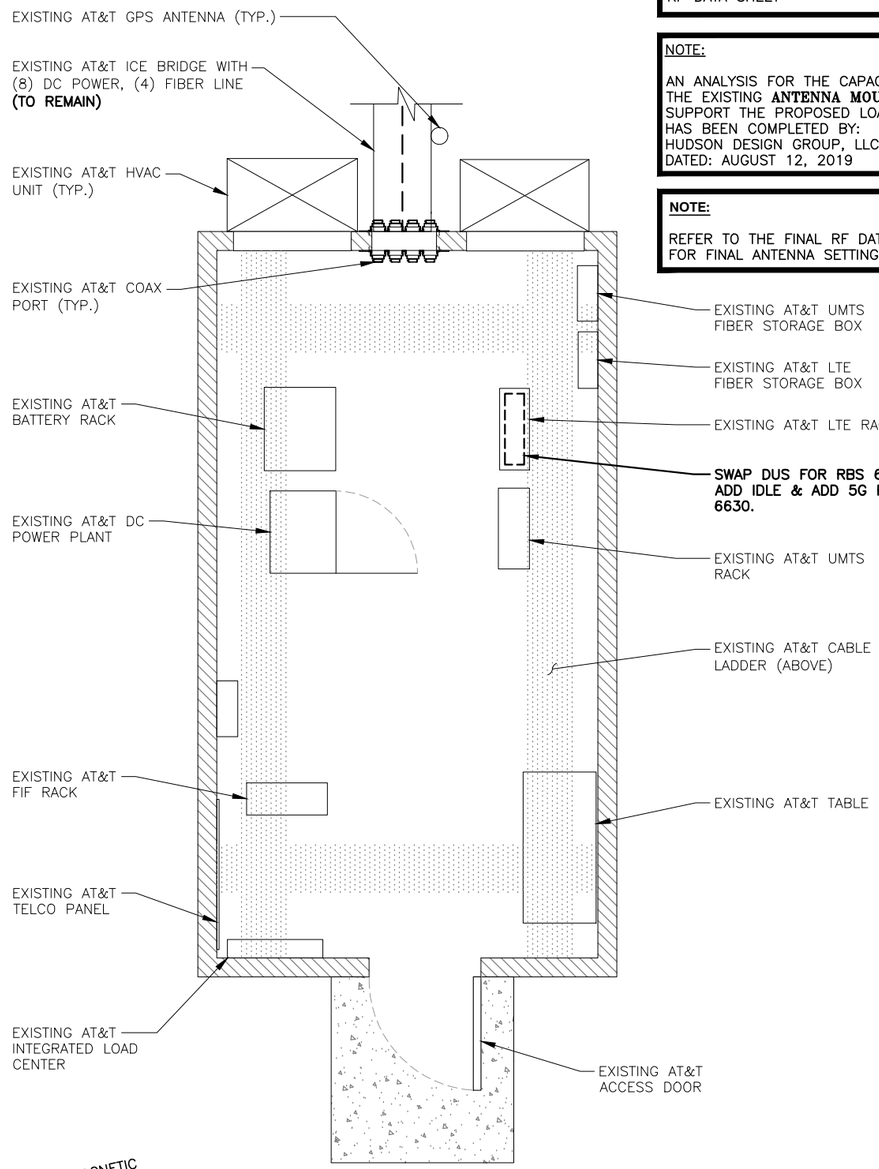
STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 3C_4C)

SITE NUMBER	DRAWING NUMBER	REV
CT1252	GN-1	1





NOTE:

ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL RF DATA SHEET

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: AUGUST 12, 2019

NOTE:

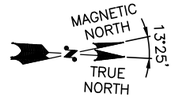
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

COMPOUND PLAN

1 / A-1

22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"



EQUIPMENT PLAN

2 / A-1

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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

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

AT&T

COMPOUND & EQUIPMENT PLANS
(LTE 3C_4C)

SITE NUMBER	DRAWING NUMBER	REV
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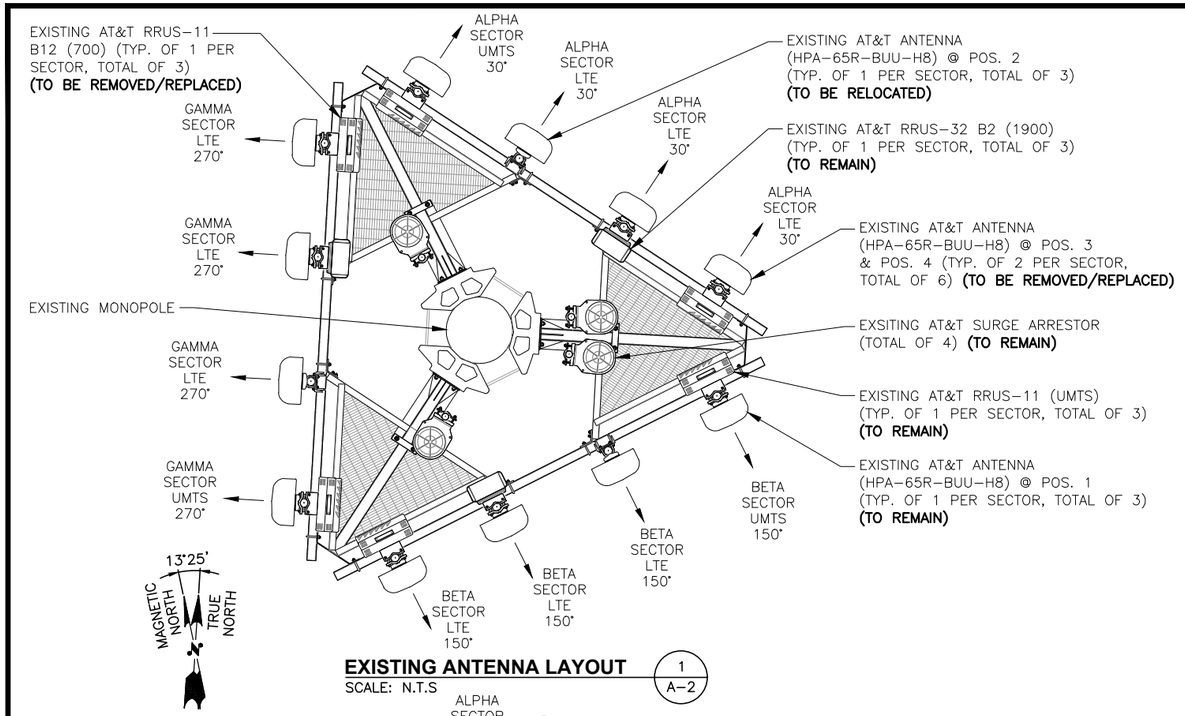
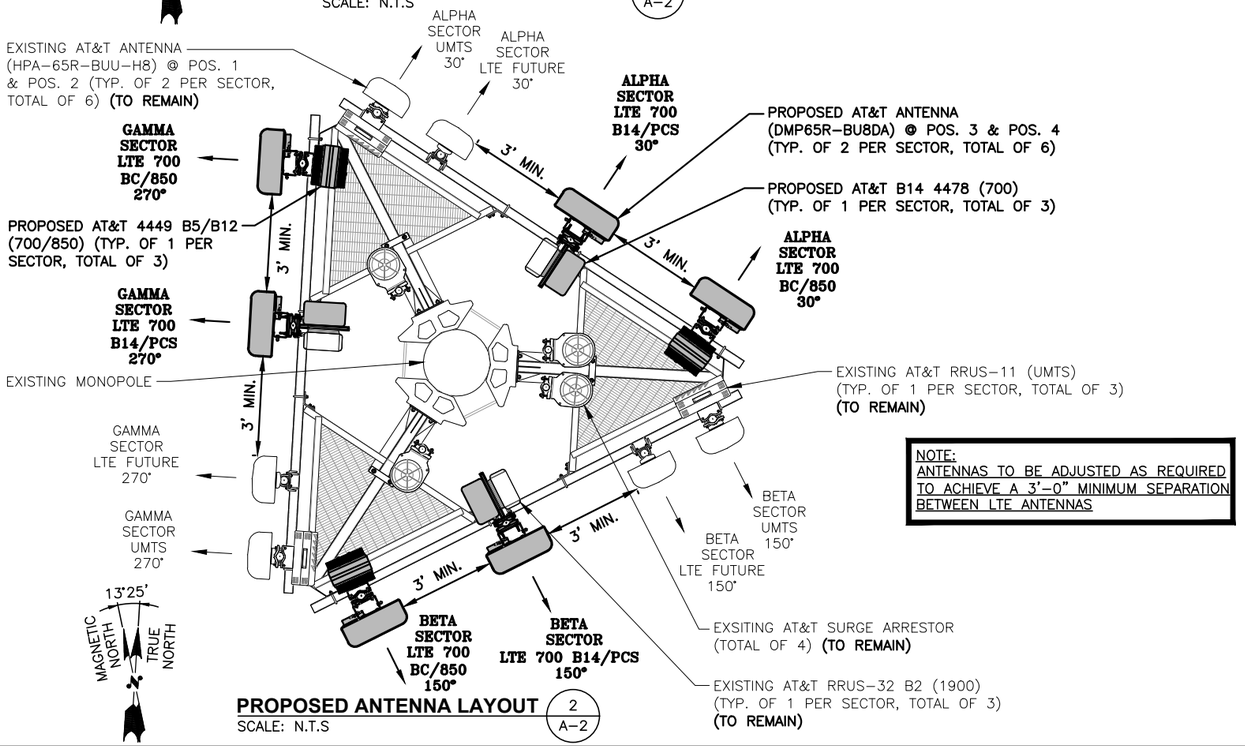


EXISTING ANTENNA LAYOUT

SCALE: N.T.S

1 / A-2

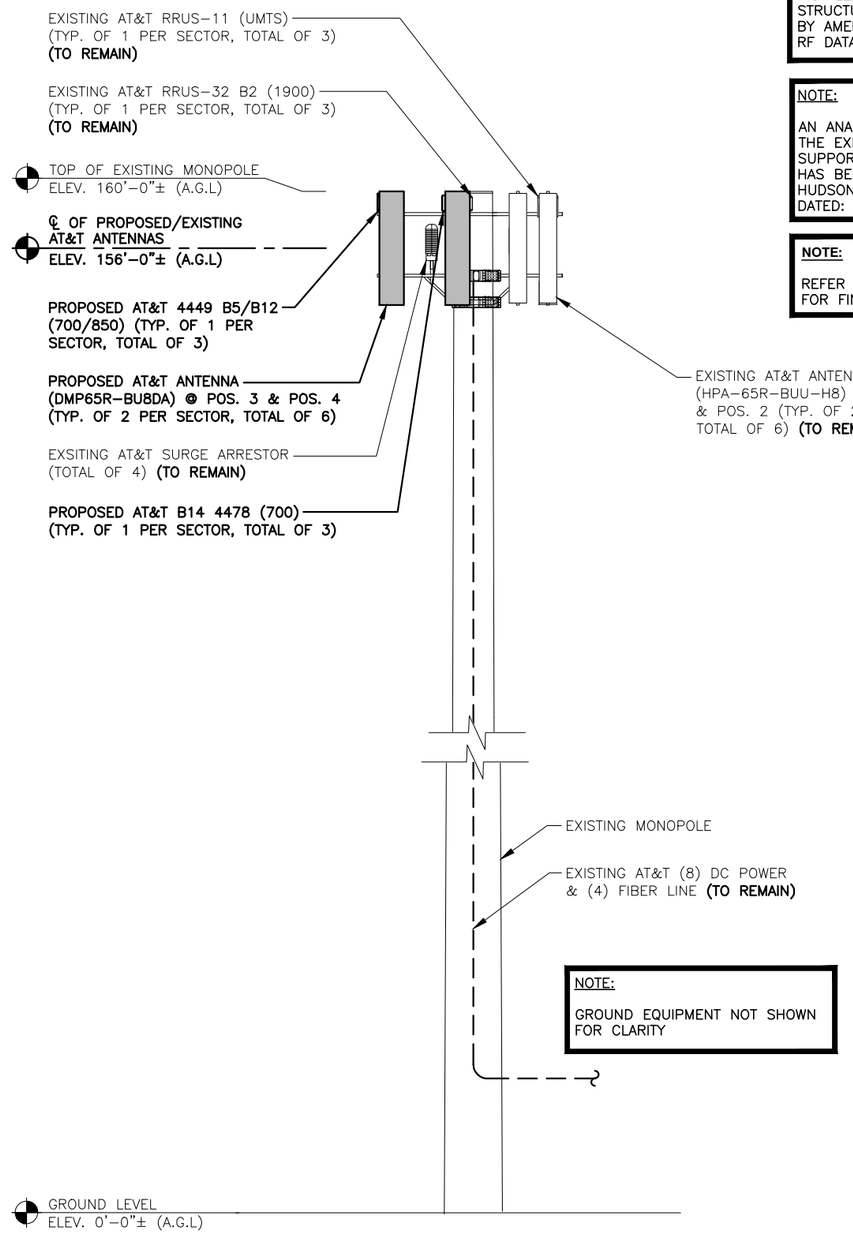


NOTE:
ANTENNAS TO BE ADJUSTED AS REQUIRED TO ACHIEVE A 3'-0" MINIMUM SEPARATION BETWEEN LTE ANTENNAS

PROPOSED ANTENNA LAYOUT

SCALE: N.T.S

2 / A-2



NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

3 / A-2

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

NOTE:
ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL RF DATA SHEET

NOTE:
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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: CT1252
SITE NAME: BRIDGEWATER SECOND HILL ROAD
ATC SITE #: 281862

111 SECOND HILL ROAD
BRIDGEWATER, CT 06752
LITCHFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	10/01/19	ISSUED FOR CONSTRUCTION	AM	AT	DPH
A	08/27/19	ISSUED FOR REVIEW	AM	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

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

AT&T

ANTENNA LAYOUTS & ELEVATION
(LTE 3C_4C)

SITE NUMBER	DRAWING NUMBER	REV
CT1252	A-2	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS	HPA-65R-BUU-H8	92.4X14.8X7.4	156'-0"±	30°	–	(E)(1) RRUS 11 (UMTS)	–	–	(E) (2) RAYCAP DC6-48-60-18-8C
A2	EXISTING	LTE FUTURE	HPA-65R-BUU-H8	92.4X14.8X7.4	156'-0"±	30°	–	–	–	–	
A3	**PROPOSED**	**LTE 700 B14/PCS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**156'-0"±**	**30°**	–	(E)(1) RRUS 32 B2 (1900) **(P)(1) 4478 B14 (700)**	– **18.1x13.4x8.3**	–	
A4	**PROPOSED**	**LTE 700 BC/850**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**156'-0"±**	**30°**	–	**(P)(1) 4449 B5/B12 (700/850)**	**14.9X13.2X10.4**	–	
B1	EXISTING	UMTS	HPA-65R-BUU-H8	92.4X14.8X7.4	156'-0"±	150°	–	(E)(1) RRUS 11 (UMTS)	–	–	(E) (1) RAYCAP DC6-48-60-18-8C
B2	EXISTING	LTE FUTURE	HPA-65R-BUU-H8	92.4X14.8X7.4	156'-0"±	150°	–	–	–	–	
B3	**PROPOSED**	**LTE 700 B14/PCS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**156'-0"±**	**150°**	–	(E)(1) RRUS 32 B2 (1900) **(P)(1) 4478 B14 (700)**	– **18.1x13.4x8.3**	–	
B4	**PROPOSED**	**LTE 700 BC/850**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**156'-0"±**	**150°**	–	**(P)(1) 4449 B5/B12 (700/850)**	**14.9X13.2X10.4**	–	
C1	EXISTING	UMTS	HPA-65R-BUU-H8	92.4X14.8X7.4	156'-0"±	270°	–	(E)(1) RRUS 11 (UMTS)	–	–	(E) (1) RAYCAP DC6-48-60-18-8C
C2	EXISTING	LTE FUTURE	HPA-65R-BUU-H8	92.4X14.8X7.4	156'-0"±	270°	–	–	–	–	
C3	**PROPOSED**	**LTE 700 B14/PCS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**156'-0"±**	**270°**	–	(E)(1) RRUS 32 B2 (1900) **(P)(1) 4478 B14 (700)**	– **18.1x13.4x8.3**	–	
C4	**PROPOSED**	**LTE 700 BC/850**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**156'-0"±**	**270°**	–	**(P)(1) 4449 B5/B12 (700/850)**	**14.9X13.2X10.4**	–	

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

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

NOTE:
ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL RF DATA SHEET

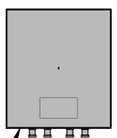
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: AUGUST 12, 2019

RRU CHART

QUANTITY	MODEL	L	W	D
3(E)	RRUS 11 (UMTS)	19.7"	17.0"	7.2"
3(E)	RRUS-32 B2 (1900)	27.2"	12.1"	7.0"
3(P)	**B14 4478 (700)**	**18.1"**	**13.4"**	**8.3"**
3(P)	**4449 B5/B12 (700/850)**	**14.9"**	**13.2"**	**10.4"**

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

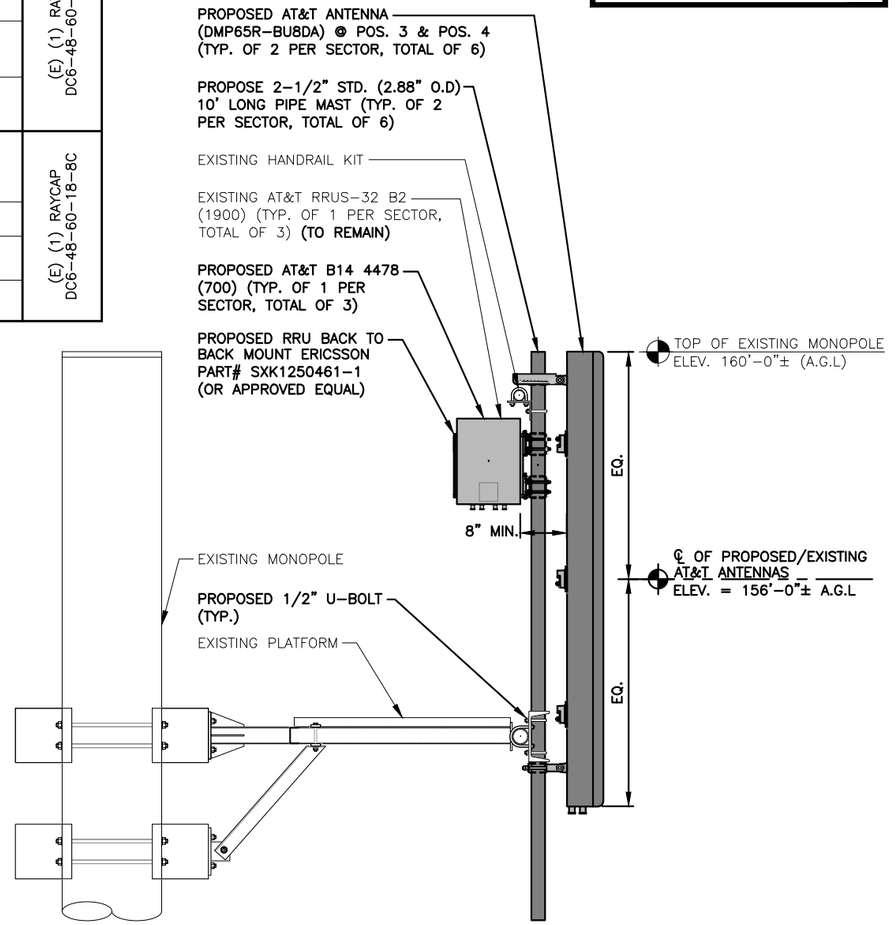
NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



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

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (2 / A-3)
SCALE: N.T.S



LTE ANTENNA & RRH MOUNTING DETAIL (3 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

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

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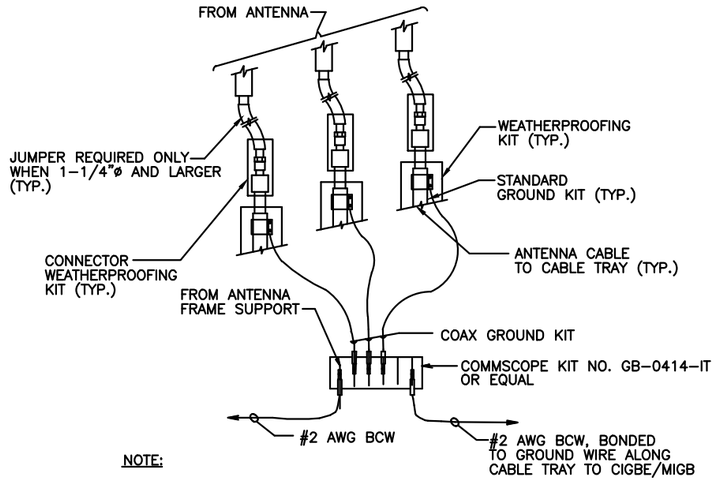
STATE OF CONNECTICUT — DANIEL P. HAMM — No.24178 — LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE 3C_4C)

SITE NUMBER	DRAWING NUMBER	REV
CT1252	A-3	1

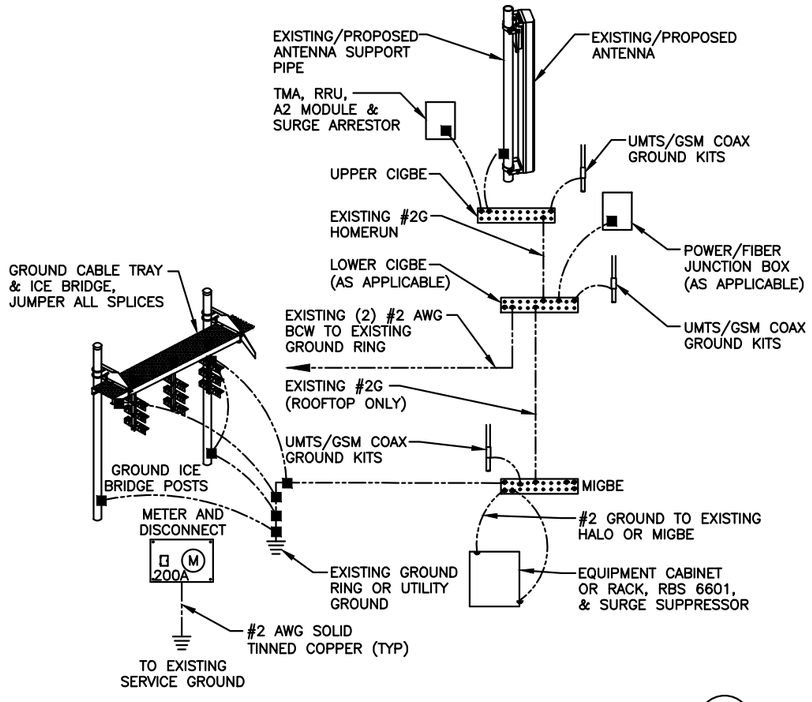


NOTE:

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

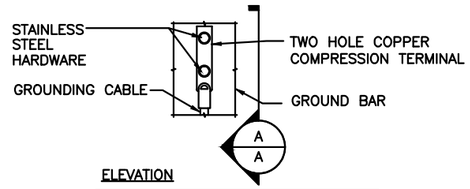
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S

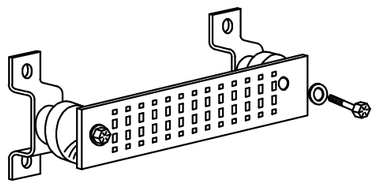
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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

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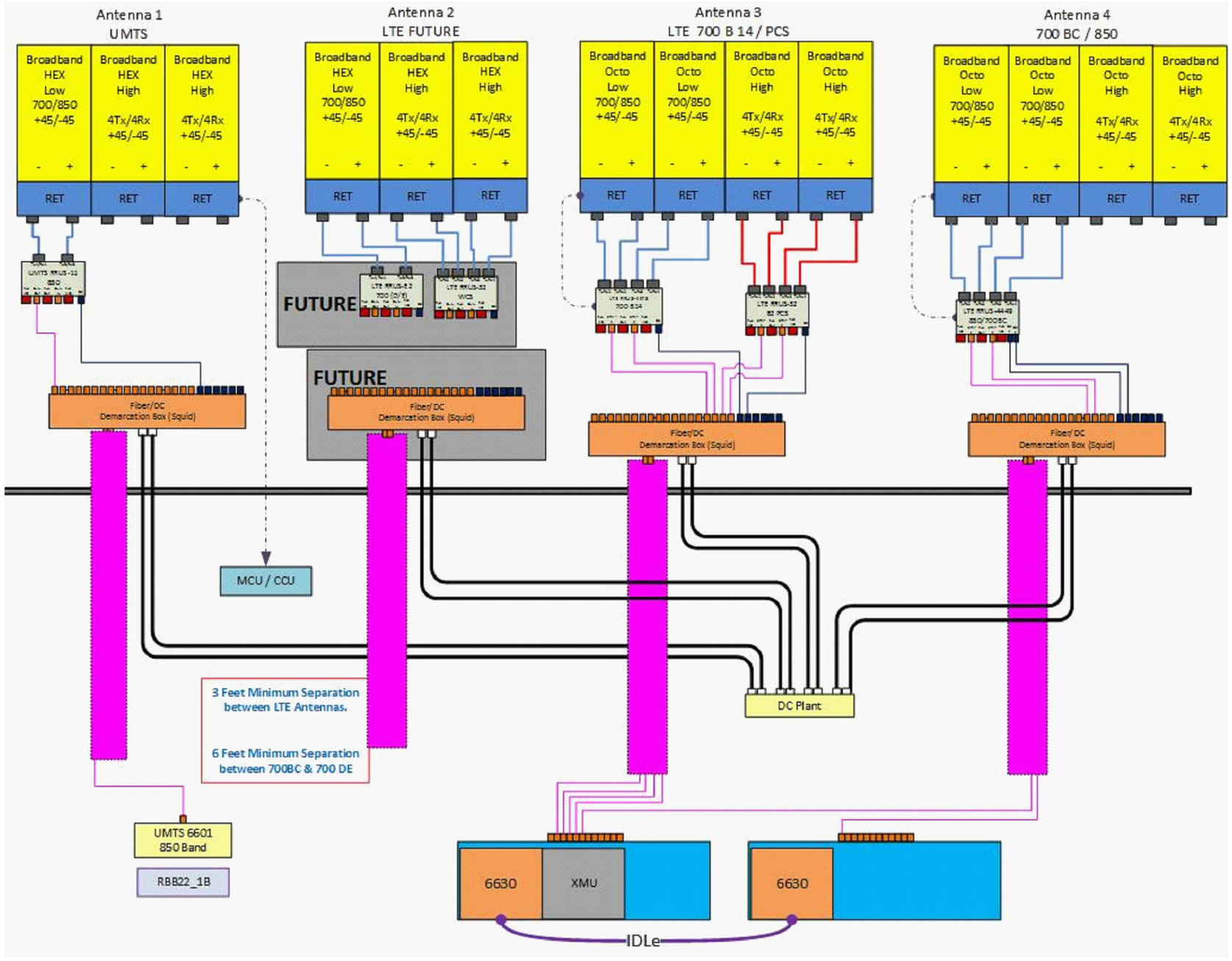
STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
(LTE 3C_4C)

SITE NUMBER	DRAWING NUMBER	REV
CT1252	G-1	1



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.

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

RF PLUMBING DIAGRAM
(LTE 3C_4C)

SITE NUMBER	DRAWING NUMBER	REV
CT1252	RF–1	1

August 12, 2019

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT1252 (LTE 3C/4C)
	FA Number:	10107963
	PACE Number:	MRCTB040669
	PT Number:	2101A0PQSA
	Site Name:	BRIDGEWATER SECOND HILL ROAD
	Site Address:	111 Second Hill Road Bridgewater, CT 06752

To Whom It May Concern:

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

- (6) HPA-65R-BUU-H8 Antennas (92.4"x14.8"x7.4" – Wt. = 68 lbs. /each)
- (3) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (4) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(6) DMP65R-BU8DA 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) B5/B12 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mount. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mount on May 29, 2019.

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 117 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.17 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- 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.
- The existing mount is secured to the existing monopole with a ring mount. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mount **IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 3C/4C) Mount Rating	7	LC1	95%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

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 existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts 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.

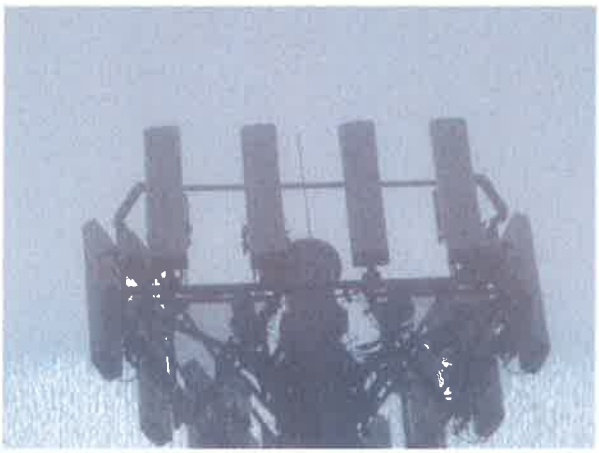
Please feel free to contact our office should you have any questions.

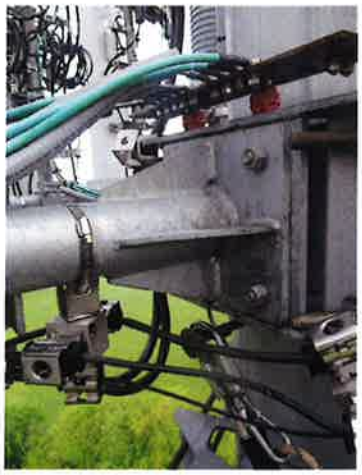
Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:





p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 8/12/2019
Project Name: BRIDGEWATER SECOND HILL ROAD
Project No.: CT1252
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=	157 (ft)
	z_g=	900 (ft)
K_z= 1.392	α=	9.5

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}= #DIV/0!

	K_h=	#DIV/0!
	K_c=	1 (from Table 2-4)
	K_t=	0 (from Table 2-5)
	f=	0 (from Table 2-5)
	z=	157
	z_s=	920 (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=	0.97 (from 2.6.8)

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

Category= 1

2.6.10 Design Ice Thickness

Max Ice Thickness =	**t_i =**	**1.00 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} = 1.17 in

Date: 8/12/2019
Project Name: BRIDGEWATER SECOND HILL ROAD
Project No.: CT1252
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=	1.392	(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=	44.81	K_e=	0.97	(from 2.6.8)
$q_{z\ (Ice)}$=	8.18	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	2.95	V_{max}=	117	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: 8/12/2019
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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 = 1.17 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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	6.24	1.37	582	126	38
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	801	167	53
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	125	29	8
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	8.95	1.47	20	8	1
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	123	29	8
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	0.00	1.20	0	5	0
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	91	22	6
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	0.00	1.20	0	3	0
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	73	18	5
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	0.00	1.20	0	3	0
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	51	13	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	11	5	1
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	13	5	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	16	6	1
2x2Angle	2.0	12.0		0.17	0.17	2.00	15	7	1
3x3 Angle	3.0	12.0		0.25	0.25	2.00	22	9	1
6x3/8 Plate	6.0	12.0		0.50	0.50	2.00	45	14	3
3-1/2x3/16 Channel	3.5	12.0		0.29	0.29	2.00	26	10	2

Date: 8/12/2019
Project Name: BRIDGEWATER SECOND HILL ROAD
Project No.: CT1252
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.17	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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	582	337	520
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	801	364	692
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	125	53	107
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	63	53	60
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	111
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	66	75	68
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	91	56	82
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	46	56	48
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	73	58	70
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	37	58	42

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.7	17.1	9.7	11.27	6.41	5.53	9.73	1.33	1.49	123	78	112
DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.73	6.85	4.27	9.80	1.28	1.49	165	84	144
RRUS-11 RRH	22.0	19.3	9.5	2.96	1.46	1.14	2.31	1.20	1.20	29	14	25
RRUS-11 RRH (Shielded)	22.0	9.7	9.5	1.48	1.46	2.28	2.31	1.20	1.20	15	14	14
RRUS-32 B2 RRH	29.5	14.4	9.3	2.96	1.92	2.05	3.16	1.20	1.23	29	19	27
RRUS-32 B2 RRH (Shielded)	29.5	7.2	9.3	1.48	1.92	4.09	3.16	1.27	1.23	15	19	16
B14 4478 RRH	20.4	15.7	10.6	2.23	1.51	1.30	1.92	1.20	1.20	22	15	20
B14 4478 RRH (Shielded)	20.4	7.9	10.6	1.12	1.51	2.60	1.92	1.20	1.20	11	15	12
B5/B12 4449 RRH	17.2	15.5	12.7	1.86	1.52	1.11	1.35	1.20	1.20	18	15	17
B5/B12 4449 RRH (Shielded)	17.2	7.8	12.7	0.93	1.52	2.22	1.35	1.20	1.20	9	15	11

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	38	22	34
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	53	24	45
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	8	4	7
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	4	4	4
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	4
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	5
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	3	4	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	5
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	2	4	3

Date: 8/12/2019
Project Name: BRIDGEWATER SECOND HILL ROAD
Project No.: CT1252
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.17	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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	582	337	398
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	801	364	473
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	125	53	71
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	94	53	64
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	87
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	94	75	80
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	91	56	65
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	68	56	59
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	73	58	62
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	55	58	57

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.7	17.1	9.7	11.27	6.41	5.53	9.73	1.33	1.49	123	78	89
DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.73	6.85	4.27	9.80	1.28	1.49	165	84	104
RRUS-11 RRH	22.0	19.3	9.5	2.96	1.46	1.14	2.31	1.20	1.20	29	14	18
RRUS-11 RRH (Shielded)	22.0	14.5	9.5	2.22	1.46	1.52	2.31	1.20	1.20	22	14	16
RRUS-32 B2 RRH	29.5	14.4	9.3	2.96	1.92	2.05	3.16	1.20	1.23	29	19	22
RRUS-32 B2 RRH (Shielded)	29.5	10.8	9.3	2.22	1.92	2.73	3.16	1.21	1.23	22	19	20
B14 4478 RRH	20.4	15.7	10.6	2.23	1.51	1.30	1.92	1.20	1.20	22	15	17
B14 4478 RRH (Shielded)	20.4	11.8	10.6	1.68	1.51	1.73	1.92	1.20	1.20	16	15	15
B5/B12 4449 RRH	17.2	15.5	12.7	1.86	1.52	1.11	1.35	1.20	1.20	18	15	16
B5/B12 4449 RRH (Shielded)	17.2	11.7	12.7	1.39	1.52	1.48	1.35	1.20	1.20	14	15	15

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	38	22	26
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	53	24	31
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	8	4	5
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	6	4	4
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	4	4	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	4	4	4

Date: 8/12/2019
Project Name: BRIDGEWATER SECOND HILL ROAD
Project No.: CT1252
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.17	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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	582	337	337
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	801	364	364
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	125	53	53
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	0.99	8.95	2.74	1.47	1.21	20	53	53
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	75
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	75	75
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	91	56	56
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	56	56
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	73	58	58
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	1.08	0.00	1.43	1.20	1.20	0	58	58

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.7	17.1	9.7	11.27	6.41	5.53	9.73	1.33	1.49	123	78	78
DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.73	6.85	4.27	9.80	1.28	1.49	165	84	84
RRUS-11 RRH	22.0	19.3	9.5	2.96	1.46	1.14	2.31	1.20	1.20	29	14	14
RRUS-11 RRH (Shielded)	22.0	4.5	9.5	0.69	1.46	4.86	2.31	1.30	1.20	7	14	14
RRUS-32 B2 RRH	29.5	14.4	9.3	2.96	1.92	2.05	3.16	1.20	1.23	29	19	19
RRUS-32 B2 RRH (Shielded)	29.5	2.3	9.3	0.48	1.92	12.64	3.16	1.59	1.23	6	19	19
B14 4478 RRH	20.4	15.7	10.6	2.23	1.51	1.30	1.92	1.20	1.20	22	15	15
B14 4478 RRH (Shielded)	20.4	2.3	10.6	0.33	1.51	8.74	1.92	1.46	1.20	4	15	15
B5/B12 4449 RRH	17.2	15.5	12.7	1.86	1.52	1.11	1.35	1.20	1.20	18	15	15
B5/B12 4449 RRH (Shielded)	17.2	2.3	12.7	0.28	1.52	7.37	1.35	1.41	1.20	3	15	15

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	38	22	22
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	53	24	24
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	8	4	4
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	0.99	8.95	2.74	1.47	1.21	1	4	4
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	5
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	5	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	4	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	1.08	0.00	1.43	1.20	1.20	0	4	4

Date: 8/12/2019
Project Name: BRIDGEWATER SECOND HILL ROAD
Project No.: CT1252
Designed By: LBW **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.17 in.
Density of ice: 56 pcf

HPA-65R-BUU-H8 Antenna

Weight of ice based on total radial SF area:

Height (in):	92.4	
Width (in):	14.8	
Depth (in):	7.4	
Total weight of ice on object:		195 lbs
Weight of object:	68.0 lbs	
Combined weight of ice and object:		263 lbs

DMP65R-BU8DA 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:		266 lbs
Weight of object:	96.0 lbs	
Combined weight of ice and object:		362 lbs

RRUS-11 RRH

Weight of ice based on total radial SF area:

Height (in):	19.7	
Width (in):	17.0	
Depth (in):	7.2	
Total weight of ice on object:		46 lbs
Weight of object:	51.0 lbs	
Combined weight of ice and object:		97 lbs

RRUS-32 B2 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		49 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		109 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:		37 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		97 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.4	
Total weight of ice on object:		32 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		105 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:		31 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		64 lbs

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		6 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		7 plf

L 2x2 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		6 plf

L 3x3 Angles

Weight of ice based on total radial SF area:

Height (in):	3	
Width (in):	3	
Per foot weight of ice on object:		8 plf

PL 6x3/8

Weight of ice based on total radial SF area:

Height (in):	6	
Width (in):	0.375	
Per foot weight of ice on object:		10 plf

C 2-1/2x2

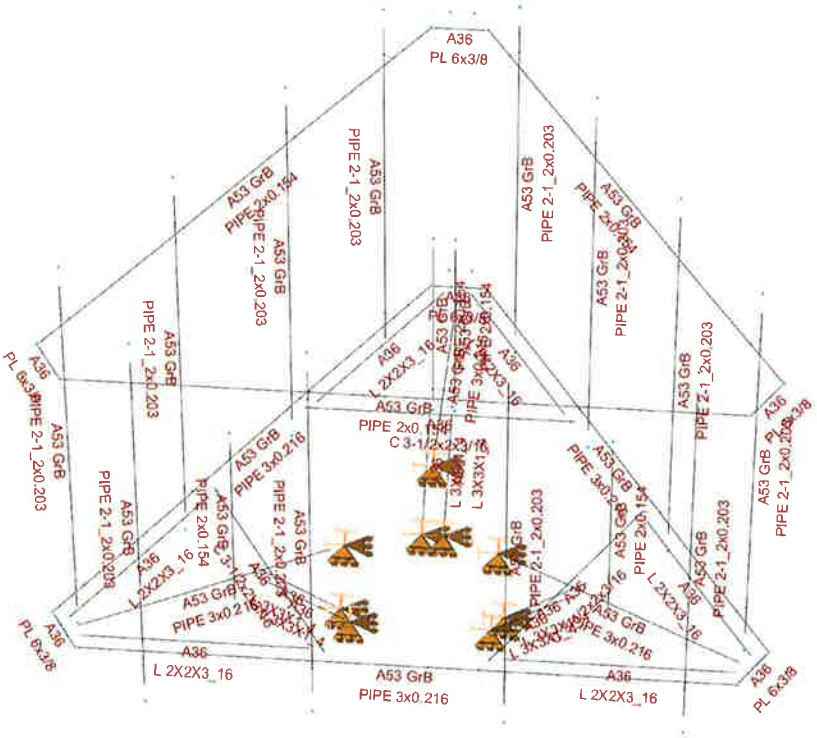
Weight of ice based on total radial SF area:

Height (in):	2.5	
Width (in):	2	
Per foot weight of ice on object:		6 plf

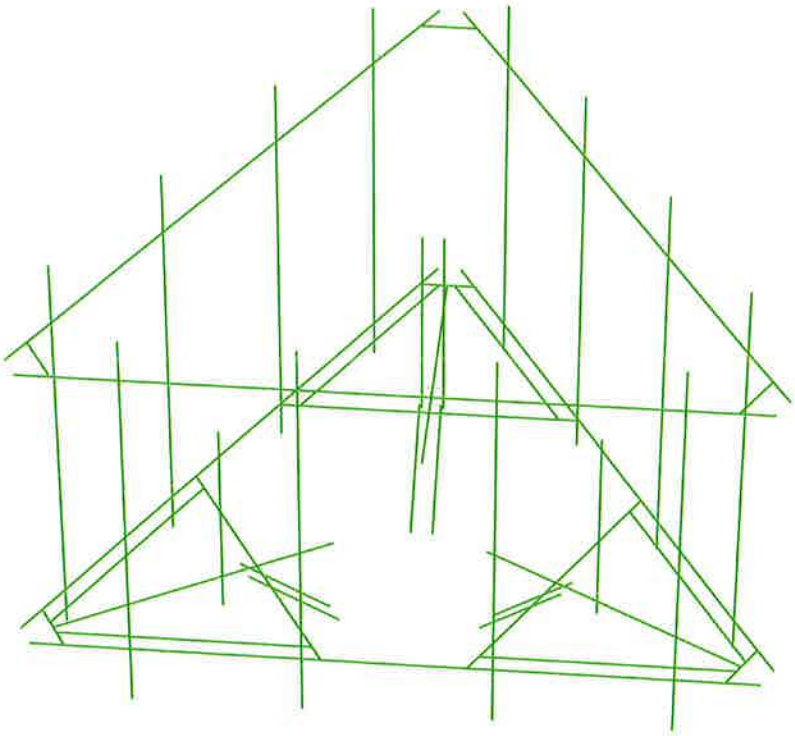
HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)


Y
X
Z


A36
PL 6x3/8
A53 GrB
PIPE 2-1_2x0.203
PIPE 2x0.154
PIPE 3x0.216
L 2X2X3_16
L 3X3X1
C 3-1/2x2x3/16
Y
X
Z

Not designed
Error on design
Design O.K.
With warnings



Bentley **Hewlett-Packard Company**

Current Date: 8/12/2019 7:52 PM
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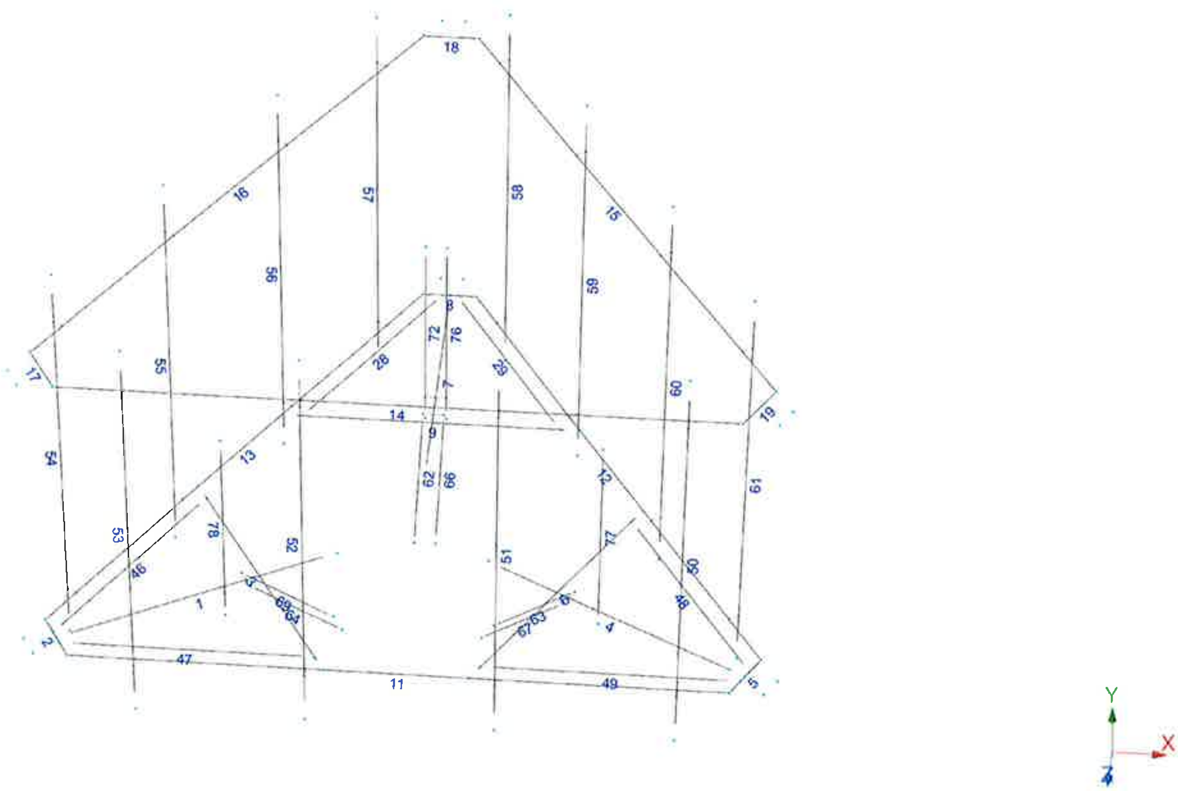

Bentley Hewlett-Packard Company

Current Date: 8/12/2019 7:54 PM
Units system: English
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Load data

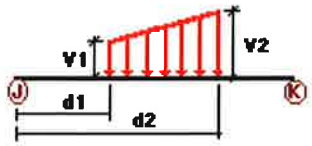
GLOSSARY

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

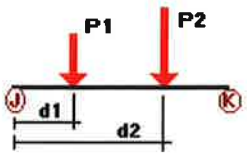


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	1	z	-0.016	0.00	0.00	No	0.00	No
	2	z	-0.045	0.00	0.00	No	0.00	No
	3	z	-0.026	0.00	0.00	No	0.00	No
	4	z	-0.016	0.00	0.00	No	0.00	No
	5	z	-0.045	0.00	0.00	No	0.00	No
	6	z	-0.026	0.00	0.00	No	0.00	No
	7	z	-0.016	0.00	0.00	No	0.00	No
	8	z	-0.045	0.00	0.00	No	0.00	No
	9	z	-0.026	0.00	0.00	No	0.00	No
	11	z	-0.016	0.00	0.00	No	0.00	No
	12	z	-0.016	0.00	0.00	No	0.00	No
	13	z	-0.016	0.00	0.00	No	0.00	No
	14	z	-0.011	0.00	0.00	No	0.00	No
	15	z	-0.011	0.00	0.00	No	0.00	No

	16	z	-0.011	0.00	0.00	No	0.00	No
	17	z	-0.045	0.00	0.00	No	0.00	No
	18	z	-0.045	0.00	0.00	No	0.00	No
	19	z	-0.045	0.00	0.00	No	0.00	No
	28	z	-0.015	0.00	0.00	No	0.00	No
	29	z	-0.015	0.00	0.00	No	0.00	No
	46	z	-0.015	0.00	0.00	No	0.00	No
	47	z	-0.015	0.00	0.00	No	0.00	No
	48	z	-0.015	0.00	0.00	No	0.00	No
	49	z	-0.015	0.00	0.00	No	0.00	No
	54	z	-0.013	0.00	0.00	No	0.00	No
	55	z	-0.013	0.00	0.00	No	0.00	No
	56	z	-0.013	0.00	0.00	No	0.00	No
	57	z	-0.013	0.00	0.00	No	0.00	No
	58	z	-0.013	0.00	0.00	No	0.00	No
	59	z	-0.013	0.00	0.00	No	0.00	No
	60	z	-0.013	0.00	0.00	No	0.00	No
	61	z	-0.013	0.00	0.00	No	0.00	No
	62	z	-0.022	0.00	0.00	No	0.00	No
	63	z	-0.022	0.00	0.00	No	0.00	No
	64	z	-0.022	0.00	0.00	No	0.00	No
	66	z	-0.022	0.00	0.00	No	0.00	No
	67	z	-0.022	0.00	0.00	No	0.00	No
	69	z	-0.022	0.00	0.00	No	0.00	No
	72	z	-0.011	0.00	0.00	No	0.00	No
	76	z	-0.011	0.00	0.00	No	0.00	No
	77	z	-0.011	0.00	0.00	No	0.00	No
	78	z	-0.011	0.00	0.00	No	0.00	No
W30	1	x	-0.016	0.00	0.00	No	0.00	No
	2	x	-0.045	0.00	0.00	No	0.00	No
	3	x	-0.026	0.00	0.00	No	0.00	No
	4	x	-0.016	0.00	0.00	No	0.00	No
	5	x	-0.045	0.00	0.00	No	0.00	No
	6	x	-0.026	0.00	0.00	No	0.00	No
	7	x	-0.016	0.00	0.00	No	0.00	No
	8	x	-0.045	0.00	0.00	No	0.00	No
	9	x	-0.026	0.00	0.00	No	0.00	No
	11	x	-0.016	0.00	0.00	No	0.00	No
	12	x	-0.016	0.00	0.00	No	0.00	No
	13	x	-0.016	0.00	0.00	No	0.00	No
	14	x	-0.011	0.00	0.00	No	0.00	No
	15	x	-0.011	0.00	0.00	No	0.00	No
	16	x	-0.011	0.00	0.00	No	0.00	No
	17	x	-0.045	0.00	0.00	No	0.00	No
	18	x	-0.045	0.00	0.00	No	0.00	No
	19	x	-0.045	0.00	0.00	No	0.00	No
	28	x	-0.015	0.00	0.00	No	0.00	No
	29	x	-0.015	0.00	0.00	No	0.00	No
	46	x	-0.015	0.00	0.00	No	0.00	No
	47	x	-0.015	0.00	0.00	No	0.00	No
	48	x	-0.015	0.00	0.00	No	0.00	No
	49	x	-0.015	0.00	0.00	No	0.00	No
	50	x	-0.013	0.00	0.00	No	0.00	No
	51	x	-0.013	0.00	0.00	No	0.00	No
	52	x	-0.013	0.00	0.00	No	0.00	No
	53	x	-0.013	0.00	0.00	No	0.00	No
	54	x	-0.013	0.00	0.00	No	0.00	No
	55	x	-0.013	0.00	0.00	No	0.00	No
	56	x	-0.013	0.00	0.00	No	0.00	No
	57	x	-0.013	0.00	0.00	No	0.00	No

	62	x	-0.022	0.00	0.00	No	0.00	No
	63	x	-0.022	0.00	0.00	No	0.00	No
	64	x	-0.022	0.00	0.00	No	0.00	No
	66	x	-0.022	0.00	0.00	No	0.00	No
	67	x	-0.022	0.00	0.00	No	0.00	No
	69	x	-0.022	0.00	0.00	No	0.00	No
	72	x	-0.011	0.00	0.00	No	0.00	No
	76	x	-0.011	0.00	0.00	No	0.00	No
	77	x	-0.011	0.00	0.00	No	0.00	No
	78	x	-0.011	0.00	0.00	No	0.00	No
Di	1	y	-0.007	0.00	0.00	No	0.00	No
	2	y	-0.01	0.00	0.00	No	0.00	No
	3	y	-0.006	0.00	0.00	No	0.00	No
	4	y	-0.007	0.00	0.00	No	0.00	No
	5	y	-0.01	0.00	0.00	No	0.00	No
	6	y	-0.006	0.00	0.00	No	0.00	No
	7	y	-0.007	0.00	0.00	No	0.00	No
	8	y	-0.01	0.00	0.00	No	0.00	No
	9	y	-0.006	0.00	0.00	No	0.00	No
	11	y	-0.007	0.00	0.00	No	0.00	No
	12	y	-0.007	0.00	0.00	No	0.00	No
	13	y	-0.007	0.00	0.00	No	0.00	No
	14	y	-0.005	0.00	0.00	No	0.00	No
	15	y	-0.005	0.00	0.00	No	0.00	No
	16	y	-0.005	0.00	0.00	No	0.00	No
	17	y	-0.01	0.00	0.00	No	0.00	No
	18	y	-0.01	0.00	0.00	No	0.00	No
	19	y	-0.01	0.00	0.00	No	0.00	No
	28	y	-0.006	0.00	0.00	No	0.00	No
	29	y	-0.006	0.00	0.00	No	0.00	No
	46	y	-0.006	0.00	0.00	No	0.00	No
	47	y	-0.006	0.00	0.00	No	0.00	No
	48	y	-0.006	0.00	0.00	No	0.00	No
	49	y	-0.006	0.00	0.00	No	0.00	No
	50	y	-0.006	0.00	0.00	No	0.00	No
	51	y	-0.006	0.00	0.00	No	0.00	No
	52	y	-0.006	0.00	0.00	No	0.00	No
	53	y	-0.006	0.00	0.00	No	0.00	No
	54	y	-0.006	0.00	0.00	No	0.00	No
	55	y	-0.006	0.00	0.00	No	0.00	No
	56	y	-0.006	0.00	0.00	No	0.00	No
	57	y	-0.006	0.00	0.00	No	0.00	No
	58	y	-0.006	0.00	0.00	No	0.00	No
	59	y	-0.006	0.00	0.00	No	0.00	No
	60	y	-0.006	0.00	0.00	No	0.00	No
	61	y	-0.006	0.00	0.00	No	0.00	No
	62	y	-0.008	0.00	0.00	No	0.00	No
	63	y	-0.008	0.00	0.00	No	0.00	No
	64	y	-0.008	0.00	0.00	No	0.00	No
	66	y	-0.008	0.00	0.00	No	0.00	No
	67	y	-0.008	0.00	0.00	No	0.00	No
	69	y	-0.008	0.00	0.00	No	0.00	No
	72	y	-0.005	0.00	0.00	No	0.00	No
	76	y	-0.005	0.00	0.00	No	0.00	No
	77	y	-0.005	0.00	0.00	No	0.00	No
	78	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	50	y	-0.034	0.75	No
		y	-0.034	7.25	No
		y	-0.051	3.50	No
	51	y	-0.034	0.75	No
		y	-0.034	7.25	No
		y	-0.06	3.50	No
	52	y	-0.048	0.50	No
		y	-0.048	7.50	No
		y	-0.06	3.50	No
	53	y	-0.048	0.50	No
		y	-0.048	7.50	No
		y	-0.073	3.50	No
	54	y	-0.034	0.75	No
		y	-0.034	7.25	No
		y	-0.051	3.50	No
	55	y	-0.034	0.75	No
		y	-0.034	7.25	No
		y	-0.06	3.50	No
	56	y	-0.048	0.50	No
		y	-0.048	7.50	No
		y	-0.06	3.50	No
	57	y	-0.048	0.50	No
		y	-0.048	7.50	No
		y	-0.073	3.50	No
	58	y	-0.034	0.75	No
		y	-0.034	7.25	No
		y	-0.051	3.50	No
	59	y	-0.034	0.75	No
		y	-0.034	7.25	No
		y	-0.06	3.50	No
	60	y	-0.048	0.50	No
		y	-0.048	7.50	No
		y	-0.06	3.50	No
	61	y	-0.048	0.50	No
		y	-0.048	7.50	No
		y	-0.073	3.50	No
	72	y	-0.033	1.50	No
	76	y	-0.033	1.50	No
	77	y	-0.033	1.50	No
	78	y	-0.033	1.50	No
W0	50	z	-0.291	0.25	No
		z	-0.291	7.25	No
		z	-0.02	3.50	No
	51	z	-0.291	0.25	No
		z	-0.291	7.25	No
	52	z	-0.401	0.50	No
		z	-0.401	7.50	No
	53	z	-0.401	0.50	No
		z	-0.401	7.50	No
	54	z	-0.199	0.25	No
		z	-0.199	7.25	No
		z	-0.064	3.50	No
	55	z	-0.199	0.25	No
		z	-0.199	7.25	No

		z	-0.059	3.50	No
	56	z	-0.237	0.50	No
		z	-0.237	7.50	No
		z	-0.08	3.50	No
	57	z	-0.237	0.50	No
		z	-0.237	7.50	No
		z	-0.057	3.50	No
	58	z	-0.199	0.25	No
		z	-0.199	7.25	No
		z	-0.064	3.50	No
	59	z	-0.199	0.25	No
		z	-0.199	7.25	No
		z	-0.059	3.50	No
	60	z	-0.237	0.50	No
		z	-0.237	7.50	No
		z	-0.08	3.50	No
	61	z	-0.237	0.50	No
		z	-0.237	7.50	No
		z	-0.057	3.50	No
	72	z	-0.051	1.50	No
	76	z	-0.051	1.50	No
	77	z	-0.051	1.50	No
	78	z	-0.051	1.50	No
W30	50	x	-0.169	0.25	No
		x	-0.169	7.25	No
		x	-0.053	3.50	No
	51	x	-0.169	0.25	No
		x	-0.169	7.25	No
		x	-0.056	3.50	No
	52	x	-0.182	0.50	No
		x	-0.182	7.50	No
		x	-0.075	3.50	No
	53	x	-0.182	0.50	No
		x	-0.182	7.50	No
		x	-0.058	3.50	No
	54	x	-0.261	0.25	No
		x	-0.261	7.25	No
		x	-0.06	3.50	No
	55	x	-0.261	0.25	No
		x	-0.261	7.25	No
		x	-0.048	3.50	No
	56	x	-0.346	0.50	No
		x	-0.346	7.50	No
		x	-0.068	3.50	No
	57	x	-0.346	0.50	No
		x	-0.346	7.50	No
		x	-0.042	3.50	No
	58	x	-0.261	0.25	No
		x	-0.261	7.25	No
		x	-0.06	3.50	No
	59	x	-0.261	0.25	No
		x	-0.261	7.25	No
		x	-0.048	3.50	No
	60	x	-0.346	0.50	No
		x	-0.346	7.50	No
		x	-0.068	3.50	No
	61	x	-0.346	0.50	No
		x	-0.346	7.50	No
		x	-0.042	3.50	No
	72	x	-0.051	1.50	No

	76	x	-0.051	1.50	No
	77	x	-0.051	1.50	No
	78	x	-0.051	1.50	No
Di	50	y	-0.098	0.75	No
		y	-0.098	7.25	No
		y	-0.046	3.50	No
	51	y	-0.098	0.75	No
		y	-0.098	7.25	No
		y	-0.037	3.50	No
	52	y	-0.133	0.50	No
		y	-0.133	7.50	No
		y	-0.049	3.50	No
	53	y	-0.133	0.50	No
		y	-0.133	7.50	No
		y	-0.032	3.50	No
	54	y	-0.098	0.75	No
		y	-0.098	7.25	No
		y	-0.046	3.50	No
	55	y	-0.098	0.75	No
		y	-0.098	7.25	No
		y	-0.037	3.50	No
	56	y	-0.133	0.50	No
		y	-0.133	7.50	No
		y	-0.049	3.50	No
	57	y	-0.133	0.50	No
		y	-0.133	7.50	No
		y	-0.032	3.50	No
	58	y	-0.098	0.75	No
		y	-0.098	7.25	No
		y	-0.046	3.50	No
	59	y	-0.098	0.75	No
		y	-0.098	7.25	No
		y	-0.037	3.50	No
	60	y	-0.133	0.50	No
		y	-0.133	7.50	No
		y	-0.049	3.50	No
	61	y	-0.133	0.50	No
		y	-0.133	7.50	No
		y	-0.032	3.50	No
	72	y	-0.031	1.50	No
	76	y	-0.031	1.50	No
	77	y	-0.031	1.50	No
	78	y	-0.031	1.50	No
Wi0	50	z	-0.064	0.25	No
		z	-0.064	7.25	No
		z	-0.008	3.50	No
	51	z	-0.064	0.25	No
		z	-0.064	7.25	No
		z	-0.003	3.50	No
	52	z	-0.084	0.50	No
		z	-0.084	7.50	No
		z	-0.005	3.50	No
	53	z	-0.084	0.50	No
		z	-0.084	7.50	No
		z	-0.003	3.50	No
	54	z	**-0.045**	**0.25**	**No**
		z	**-0.045**	**7.25**	**No**
		z	**-0.016**	**3.50**	**No**
	55	z	**-0.045**	**0.25**	**No**
		z	**-0.045**	**7.25**	**No**

		z	-0.015	3.50	No
	56	z	-0.052	0.50	No
		z	-0.052	7.50	No
		z	-0.02	3.50	No
	57	z	-0.052	0.50	No
		z	-0.052	7.50	No
		z	-0.015	3.50	No
	58	z	-0.045	0.25	No
		z	-0.045	7.25	No
		z	-0.016	3.50	No
	59	z	-0.045	0.25	No
		z	-0.045	7.25	No
		z	-0.015	3.50	No
	60	z	-0.052	0.50	No
		z	-0.052	7.50	No
		z	-0.02	3.50	No
	61	z	-0.052	0.50	No
		z	-0.052	7.50	No
		z	-0.015	3.50	No
	72	z	-0.013	1.50	No
	76	z	-0.013	1.50	No
	77	z	-0.013	1.50	No
	78	z	-0.013	1.50	No
Wi30	50	x	-0.04	0.25	No
		x	-0.04	7.25	No
		x	-0.014	3.50	No
	51	x	-0.04	0.25	No
		x	-0.04	7.25	No
		x	-0.015	3.50	No
	52	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.019	3.50	No
	53	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.015	3.50	No
	54	x	-0.056	0.25	No
		x	-0.056	7.25	No
		x	-0.014	3.50	No
	55	x	-0.056	0.25	No
		x	-0.056	7.25	No
		x	-0.012	3.50	No
	56	x	-0.073	0.50	No
		x	-0.073	7.50	No
		x	-0.016	3.50	No
	57	x	-0.073	0.50	No
		x	-0.073	7.50	No
		x	-0.011	3.50	No
	58	x	-0.056	0.25	No
		x	-0.056	7.25	No
		x	-0.014	3.50	No
	59	x	-0.056	0.25	No
		x	-0.056	7.25	No
		x	-0.012	3.50	No
	60	x	-0.073	0.50	No
		x	**-0.073**	**7.50**	**No**
		x	**-0.016**	**3.50**	**No**
	61	x	**-0.073**	**0.50**	**No**
		x	**-0.073**	**7.50**	**No**
		x	**-0.011**	**3.50**	**No**
	72	x	**-0.013**	**1.50**	**No**

	76	x	-0.013	1.50	No
	77	x	-0.013	1.50	No
	78	x	-0.013	1.50	No
WL0	50	z	-0.02	0.25	No
		z	-0.02	7.25	No
		z	-0.001	3.50	No
	51	z	-0.02	0.25	No
		z	-0.02	7.25	No
	52	z	-0.027	0.50	No
		z	-0.027	7.50	No
	53	z	-0.027	0.50	No
		z	-0.027	7.50	No
	54	z	-0.014	0.25	No
		z	-0.014	7.25	No
		z	-0.004	3.50	No
	55	z	-0.014	0.25	No
		z	-0.014	7.25	No
		z	-0.004	3.50	No
	56	z	-0.016	0.50	No
		z	-0.016	7.50	No
		z	-0.005	3.50	No
	57	z	-0.016	0.50	No
		z	-0.016	7.50	No
		z	-0.004	3.50	No
	58	z	-0.014	0.25	No
		z	-0.014	7.25	No
		z	-0.004	3.50	No
	59	z	-0.014	0.25	No
		z	-0.014	7.25	No
		z	-0.004	3.50	No
	60	z	-0.016	0.50	No
		z	-0.016	7.50	No
		z	-0.005	3.50	No
	61	z	-0.016	0.50	No
		z	-0.016	7.50	No
		z	-0.004	3.50	No
	72	z	-0.003	1.50	No
	76	z	-0.003	1.50	No
	77	z	-0.003	1.50	No
	78	z	-0.003	1.50	No
WL30	50	x	-0.012	0.25	No
		x	-0.012	7.25	No
		x	-0.004	3.50	No
	51	x	-0.012	0.25	No
		x	-0.012	7.25	No
		x	-0.004	3.50	No
	52	x	-0.012	0.50	No
		x	-0.012	7.50	No
		x	-0.005	3.50	No
	53	x	-0.012	0.50	No
		x	-0.012	7.50	No
		x	-0.004	3.50	No
	54	x	-0.018	0.25	No
		x	-0.018	7.25	No
		x	-0.004	3.50	No
	55	x	-0.018	0.25	No
		x	-0.018	7.25	No
		x	-0.003	3.50	No
	56	x	-0.023	0.50	No
		x	-0.023	7.50	No

		x	-0.004	3.50	No
	57	x	-0.023	0.50	No
		x	-0.023	7.50	No
		x	-0.003	3.50	No
	58	x	-0.018	0.25	No
		x	-0.018	7.25	No
		x	-0.004	3.50	No
	59	x	-0.018	0.25	No
		x	-0.018	7.25	No
		x	-0.003	3.50	No
	60	x	-0.023	0.50	No
		x	-0.023	7.50	No
		x	-0.004	3.50	No
	61	x	-0.023	0.50	No
		x	-0.023	7.50	No
		x	-0.003	3.50	No
	72	x	-0.003	1.50	No
	76	x	-0.003	1.50	No
	77	x	-0.003	1.50	No
	78	x	-0.003	1.50	No
LL1	11	y	-0.25	6.33	No
LL2	11	y	-0.25	0.00	No
LLa1	50	y	-0.25	4.00	No
LLa2	51	y	-0.25	4.00	No
LLa3	52	y	-0.25	4.00	No
LLa4	53	y	-0.25	4.00	No

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

Bentley Hewlett-Packard Company

Current Date: 8/12/2019 7:54 PM
Units system: English
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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
LC15=1.2DL+1.5LL1
LC16=1.2DL+1.5LL2
LC17=1.2DL+WL0+1.5LLa1
LC18=1.2DL+WL30+1.5LLa1
LC19=1.2DL-WL0+1.5LLa1
LC20=1.2DL-WL30+1.5LLa1
LC21=1.2DL+WL0+1.5LLa2
LC22=1.2DL+WL30+1.5LLa2
LC23=1.2DL-WL0+1.5LLa2
LC24=1.2DL-WL30+1.5LLa2
LC25=1.2DL+WL0+1.5LLa3
LC26=1.2DL+WL30+1.5LLa3
LC27=1.2DL-WL0+1.5LLa3
LC28=1.2DL-WL30+1.5LLa3
LC29=1.2DL+WL0+1.5LLa4
LC30=1.2DL+WL30+1.5LLa4
LC31=1.2DL-WL0+1.5LLa4
LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	C 3-1/2x2x3/16	**3**	LC2 at 50.00%	0.86	OK	
		6	LC4 at 50.00%	**0.86**	**OK**	
		9	LC1 at 50.00%	0.84	OK	
	L 2X2X3_16	**28**	LC1 at 100.00%	0.43	OK	
		29	LC1 at 100.00%	**0.43**	**OK**	
		46	LC6 at 0.00%	0.38	OK	
		47	LC2 at 100.00%	0.37	OK	
		48	LC4 at 100.00%	0.39	OK	
		49	LC4 at 100.00%	0.39	OK	
	L 3X3X1_4	**62**	LC1 at 0.00%	**0.47**	**OK**	
		63	LC4 at 0.00%	0.43	OK	
		64	LC2 at 0.00%	0.40	OK	
		66	LC1 at 0.00%	0.41	OK	
		67	LC4 at 0.00%	0.39	OK	
		69	LC2 at 0.00%	0.31	OK	

PIPE 2-1_2x0.203	**50**	LC2 at 85.42%	0.34	OK
	51	LC4 at 85.42%	0.67	OK
	52	LC2 at 85.42%	0.69	OK
	53	LC4 at 85.42%	0.36	OK
	54	LC1 at 85.42%	0.41	OK
	55	LC1 at 85.42%	0.71	OK
	56	LC2 at 85.42%	0.72	OK
	57	LC2 at 85.42%	0.42	OK
	58	LC4 at 85.42%	0.39	OK
	59	LC4 at 85.42%	0.67	OK
	60	LC1 at 85.42%	**0.73**	**OK**
	61	LC1 at 85.42%	0.42	OK
PIPE 2x0.154	**14**	LC3 at 13.39%	0.65	OK
	15	LC1 at 63.39%	0.57	OK
	16	LC2 at 13.39%	**0.68**	**OK**
	72	LC2 at 84.38%	0.09	OK
	76	LC2 at 84.38%	0.09	OK
	77	LC3 at 84.38%	0.09	OK
	78	LC4 at 84.38%	0.09	OK
PIPE 3x0.216	**1**	LC2 at 32.81%	0.84	OK
	4	LC4 at 32.81%	0.81	OK
	7	LC1 at 32.81%	**0.95**	**OK**
	11	LC2 at 39.58%	0.52	OK
	12	LC3 at 39.58%	0.49	OK
	13	LC3 at 60.42%	0.48	OK
PL 6x3/8	**2**	LC2 at 50.00%	**0.59**	**OK**
	5	LC4 at 48.44%	0.47	OK
	8	LC1 at 48.44%	0.55	OK
	17	LC3 at 100.00%	0.53	OK
	18	LC2 at 0.00%	0.54	OK
	19	LC3 at 0.00%	0.47	OK

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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
2	-1.3709	0.00	0.7915	0
3	-6.0648	0.00	3.5015	0
4	-5.8044	0.00	3.9526	0
5	-6.3252	0.00	3.0504	0
6	-2.67	0.00	1.5415	0
7	-1.278	0.00	3.9525	0
8	-4.062	0.00	-0.8695	0
9	0.00	0.00	-1.583	0
10	0.00	0.00	-7.003	0
11	-0.5208	0.00	-7.003	0
12	0.5208	0.00	-7.003	0
13	0.00	0.00	-3.083	0
14	-2.784	0.00	-3.083	0
15	2.784	0.00	-3.083	0
16	1.3709	0.00	0.7915	0
17	6.0648	0.00	3.5015	0
18	6.3252	0.00	3.0504	0
19	5.8044	0.00	3.9526	0
20	2.67	0.00	1.5415	0
21	4.062	0.00	-0.8695	0
22	1.278	0.00	3.9525	0

25	6.6293	0.00	3.5773	0
26	0.2167	0.00	-7.5298	0
29	-6.4127	0.00	3.9525	0
30	6.4127	0.00	3.9525	0
31	-0.2167	0.00	-7.5298	0
32	-6.6293	0.00	3.5773	0
33	-6.4127	6.00	3.9525	0
34	6.4127	6.00	3.9525	0
35	6.6293	6.00	3.5773	0
36	0.2167	6.00	-7.5298	0
37	-0.2167	6.00	-7.5298	0
38	-6.6293	6.00	3.5773	0
39	-5.8044	6.00	3.9526	0
40	-6.3252	6.00	3.0504	0
41	0.5208	6.00	-7.003	0
42	-0.5208	6.00	-7.003	0
43	6.3252	6.00	3.0504	0
44	5.8044	6.00	3.9526	0
61	-2.409	0.00	-3.083	0
62	2.409	0.00	-3.083	0
63	-0.1458	0.00	-7.003	0
64	0.1458	0.00	-7.003	0
81	3.8745	0.00	-0.5448	0
82	1.4655	0.00	3.6278	0
83	6.1377	0.00	3.3752	0
84	5.9919	0.00	3.6278	0
101	-1.4655	0.00	3.6278	0
102	-3.8745	0.00	-0.5448	0
103	-5.9919	0.00	3.6278	0
104	-6.1377	0.00	3.3752	0
105	-4.5873	-1.00	4.1526	0
106	-1.5873	-1.00	4.1526	0
107	1.7427	-1.00	4.1526	0
108	4.9127	-1.00	4.1526	0
109	-4.5873	7.00	4.1526	0
110	-1.5873	7.00	4.1526	0
111	1.7427	7.00	4.1526	0
112	4.9127	7.00	4.1526	0
113	-6.0525	-1.00	2.1782	0
114	-4.4675	-1.00	-0.5671	0
115	-2.8025	-1.00	-3.451	0
116	-1.3025	-1.00	-6.049	0
117	1.1399	-1.00	-6.3308	0
118	2.7249	-1.00	-3.5855	0
119	4.3899	-1.00	-0.7016	0
120	5.8899	-1.00	1.8965	0
121	-6.0525	7.00	2.1782	0
122	-4.4675	7.00	-0.5671	0
123	-2.8025	7.00	-3.451	0
124	-1.3025	7.00	-6.049	0
125	1.1399	7.00	-6.3308	0
126	2.7249	7.00	-3.5855	0
127	4.3899	7.00	-0.7016	0
128	5.8899	7.00	1.8965	0
137	**-0.20**	**-1.67**	**-1.583**	**0**
138	**0.20**	**-1.67**	**-1.583**	**0**
142	**1.4709**	**-1.67**	**0.6183**	**0**
143	**1.2709**	**-1.67**	**0.9647**	**0**
148	**-1.2709**	**-1.67**	**0.9647**	**0**
149	**-1.4709**	**-1.67**	**0.6183**	**0**

151	-0.20	-0.50	-3.833	0
152	-0.20	3.50	-3.833	0
156	3.4195	3.50	1.7433	0
159	-3.2195	-0.50	2.0897	0
160	-3.2195	3.50	2.0897	0
163	0.20	-0.50	-3.833	0
164	0.20	3.50	-3.833	0
155	3.4195	-0.50	1.7433	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
2	1	1	1	1	1	1
9	1	1	1	1	1	1
16	1	1	1	1	1	1
137	1	1	1	1	1	1
138	1	1	1	1	1	1
142	1	1	1	1	1	1
143	1	1	1	1	1	1
148	1	1	1	1	1	1
149	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	2	3		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
2	4	5		PL 6x3/8	A36	0.00	0.00	0.00
3	7	8		C 3-1/2x2x3/16	A36	0.00	0.00	0.00
4	16	17		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
5	18	19		PL 6x3/8	A36	0.00	0.00	0.00
6	22	21		C 3-1/2x2x3/16	A36	0.00	0.00	0.00
7	9	10		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
8	12	11		PL 6x3/8	A36	0.00	0.00	0.00
9	15	14		C 3-1/2x2x3/16	A36	0.00	0.00	0.00
11	29	30		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
12	25	26		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
13	31	32		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
14	33	34		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
15	35	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
16	37	38		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
17	39	40		PL 6x3/8	A36	0.00	0.00	0.00
18	41	42		PL 6x3/8	A36	0.00	0.00	0.00
19	43	44		PL 6x3/8	A36	0.00	0.00	0.00
28	61	63		L 2X2X3_16	A36	0.00	0.00	0.00
29	62	64		L 2X2X3_16	A36	0.00	0.00	0.00
46	102	104		L 2X2X3_16	A36	0.00	0.00	0.00
47	101	103		L 2X2X3_16	A36	0.00	0.00	0.00
48	81	83		L 2X2X3_16	A36	0.00	0.00	0.00
49	82	84		L 2X2X3_16	A36	0.00	0.00	0.00
50	112	108		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

51	111	107	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
52	110	106	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
53	109	105	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
54	121	113	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
55	122	114	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
56	123	115	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
57	124	116	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
58	125	117	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
59	126	118	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
60	127	119	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
61	128	120	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
62	135	137	L 3X3X1_4	A36	0.00	0.00	0.00
63	140	142	L 3X3X1_4	A36	0.00	0.00	0.00
64	146	148	L 3X3X1_4	A36	0.00	0.00	0.00
66	136	138	L 3X3X1_4	A36	0.00	0.00	0.00
67	141	143	L 3X3X1_4	A36	0.00	0.00	0.00
69	147	149	L 3X3X1_4	A36	0.00	0.00	0.00
72	152	151	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
76	164	163	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
77	156	155	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
78	160	159	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
50	0.00	2	1.00	0.00	0.00
51	0.00	2	1.00	0.00	0.00
52	0.00	2	1.00	0.00	0.00
53	0.00	2	1.00	0.00	0.00
54	0.00	2	1.00	0.00	0.00
55	0.00	2	1.00	0.00	0.00
56	0.00	2	1.00	0.00	0.00
57	0.00	2	1.00	0.00	0.00
58	0.00	2	1.00	0.00	0.00
59	0.00	2	1.00	0.00	0.00
60	0.00	2	1.00	0.00	0.00
61	0.00	2	1.00	0.00	0.00
62	90.00	0	0.00	0.00	0.00
63	90.00	0	0.00	0.00	0.00
64	90.00	0	0.00	0.00	0.00
66	180.00	0	0.00	0.00	0.00
67	180.00	0	0.00	0.00	0.00
69	180.00	0	0.00	0.00	0.00
72	0.00	2	1.00	0.00	0.00
76	0.00	2	1.00	0.00	0.00
77	0.00	2	1.00	0.00	0.00
78	0.00	2	1.00	0.00	0.00

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**160 ft Monopole**
ATC Site Name	:	**BRIDGEWATER CT, CT**
ATC Asset Number	:	**281862**
Engineering Number	:	**OAA751584_C3_01**
Proposed Carrier	:	**AT&T MOBILITY**
Carrier Site Name	:	**BRIDGEWATER SECOND HILL ROAD**
Carrier Site Number	:	**CT1252**
Site Location	:	**111 SECOND HILL RD** **BRIDGEWATER, CT 06752-1017** **41.555000,-73.370900**
County	:	**Litchfield**
Date	:	**September 5, 2019**
Max Usage	:	**64%**
Result	:	**Pass**

Prepared By:
Kiera Dolan
Structural Engineer

Reviewed By:

Authorized by "EOR"
09/05/2019 10:54 AM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 160 ft monopole to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	TransAmerican Job #23513-0649, dated November 12, 2013
Foundation Drawing	TransAmerican Job #23513-0649, dated November 12, 2013
Geotechnical Report	Clarence Welti Associates Project - AT&T Tower Site #1252, dated September 10, 2013

Analysis

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

Basic Wind Speed:	93 mph (3-Second Gust, V_{asd}) / 120 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	3
Crest Height:	159 ft
Spectral Response:	Ss = 0.20, S_1 = 0.07
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.

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
156.0	4	Raycap DC6-48-60-18-8F	Low Profile Platform	(2) 0.39" (10mm) Fiber Trunk (8) 0.78" (19.7mm) 8 AWG 6 (3) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	3	Ericsson RRUS A2 B2			
	3	Ericsson RRUS 11 (Band 12) (55 lb)			
	6	CCI HPA-65R-BUU-H8			
	3	Ericsson RRUS			
	3	Ericsson RRUS-12 B2			
	3	Ericsson RRUS 32 B2			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
156.0	6	CCI HPA-65R-BUU-H8	-	(6) 2" conduit	AT&T MOBILITY

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
156.0	3	Ericsson RRUS 4478 B14 (15")	Low Profile Platform	(6) 3" conduit	AT&T MOBILITY
	3	Ericsson RRUS 4449 B5, B12			
	6	CCI DMP65R-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	62%	Pass
Shaft	64%	Pass
Base Plate	39%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,998.2	39%
Axial (Kips)	47.7	39%
Shear (Kips)	31.0	23%
* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1		

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
156.0	Ericsson RRUS 4478 B14 (15")	AT&T MOBILITY	1.723	1.354
	Ericsson RRUS 4449 B5, B12			
	CCI DMP65R-BU8D			

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

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CORPORATION

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.

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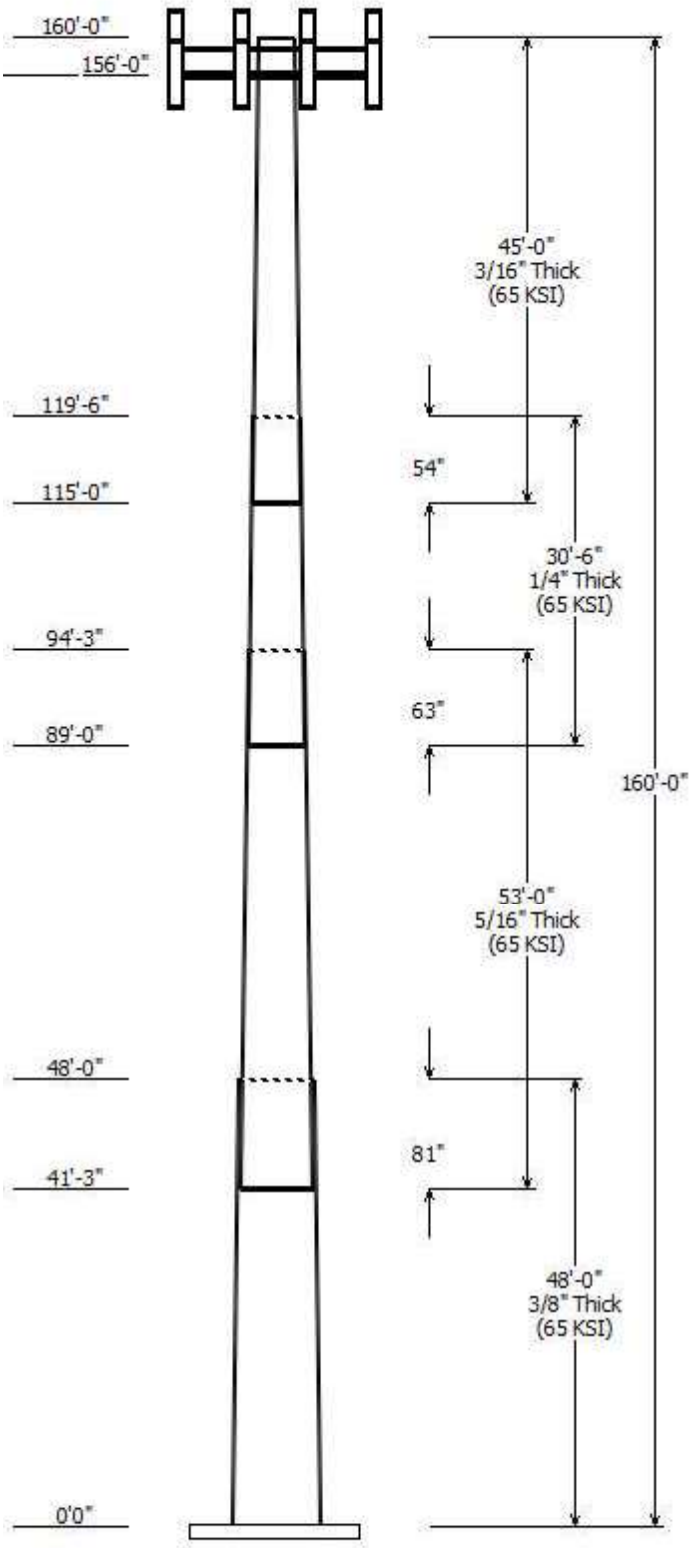
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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 : 281862
Code: ANSI/TIA-222-G
Location : BRIDGEWATER CT, CT
Description : 160 ft monopole
Struct Class : II
Shape : 18 Sides
Exposure : C
Height : 160.00 (ft)
Topo : 3
Base Elev (ft): 0.00
Taper: 0.250000 (in/ft)

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	48.000	46.50	58.50	0.375		0.000	18 Sides	65
2	53.000	35.56	48.81	0.313	Slip Joint	81.000	18 Sides	65
3	30.500	29.75	37.37	0.250	Slip Joint	63.000	18 Sides	65
4	45.000	20.00	31.25	0.188	Slip Joint	54.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
156.000	156.000	3	Ericsson RRUS 4478 B14 (15")
156.000	160.000	4	Raycap DC6-48-60-18-8F
156.000	156.000	1	Round Platform w/ Handrails
156.000	156.000	6	CCI DMP65R-BU8D
156.000	160.000	6	CCI HPA-65R-BUU-H8
156.000	160.000	3	Ericsson RRUS-12 B2
156.000	156.000	3	Ericsson RRUS
156.000	160.000	3	Ericsson RRUS 32 B2
156.000	160.000	3	Ericsson RRUS 11 (Band 12) (55
156.000	160.000	3	Ericsson RRUS A2 B2
156.000	156.000	3	Ericsson RRUS 4449 B5, B12

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	156.0	0.39" (10mm)	No
0.000	156.0	0.78" (19.7mm) 8	No
0.000	156.0	3" conduit	No
0.000	156.0	3/8" (0.38"-	No
0.000	156.0	3/8" (0.38"-	No
0.000	160.0	3" conduit	No

Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

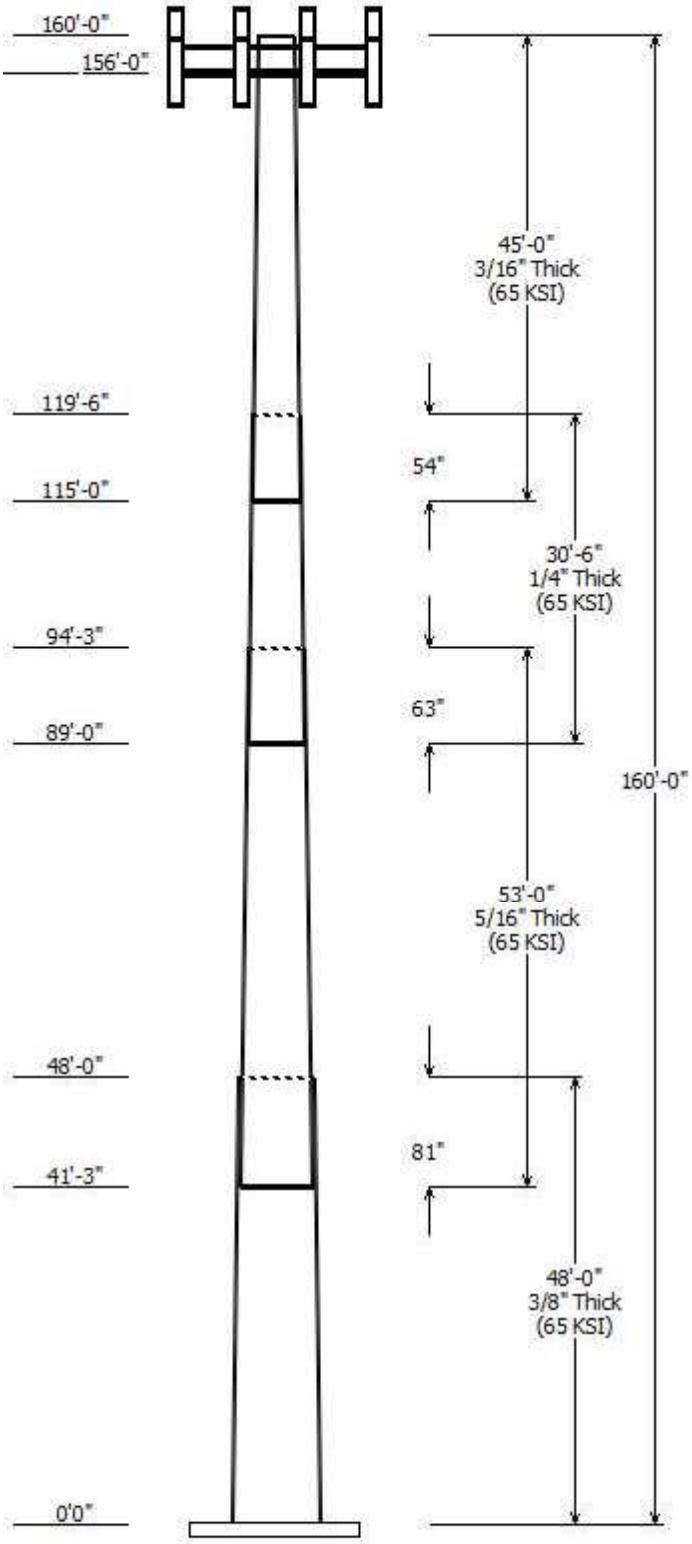
Reactions

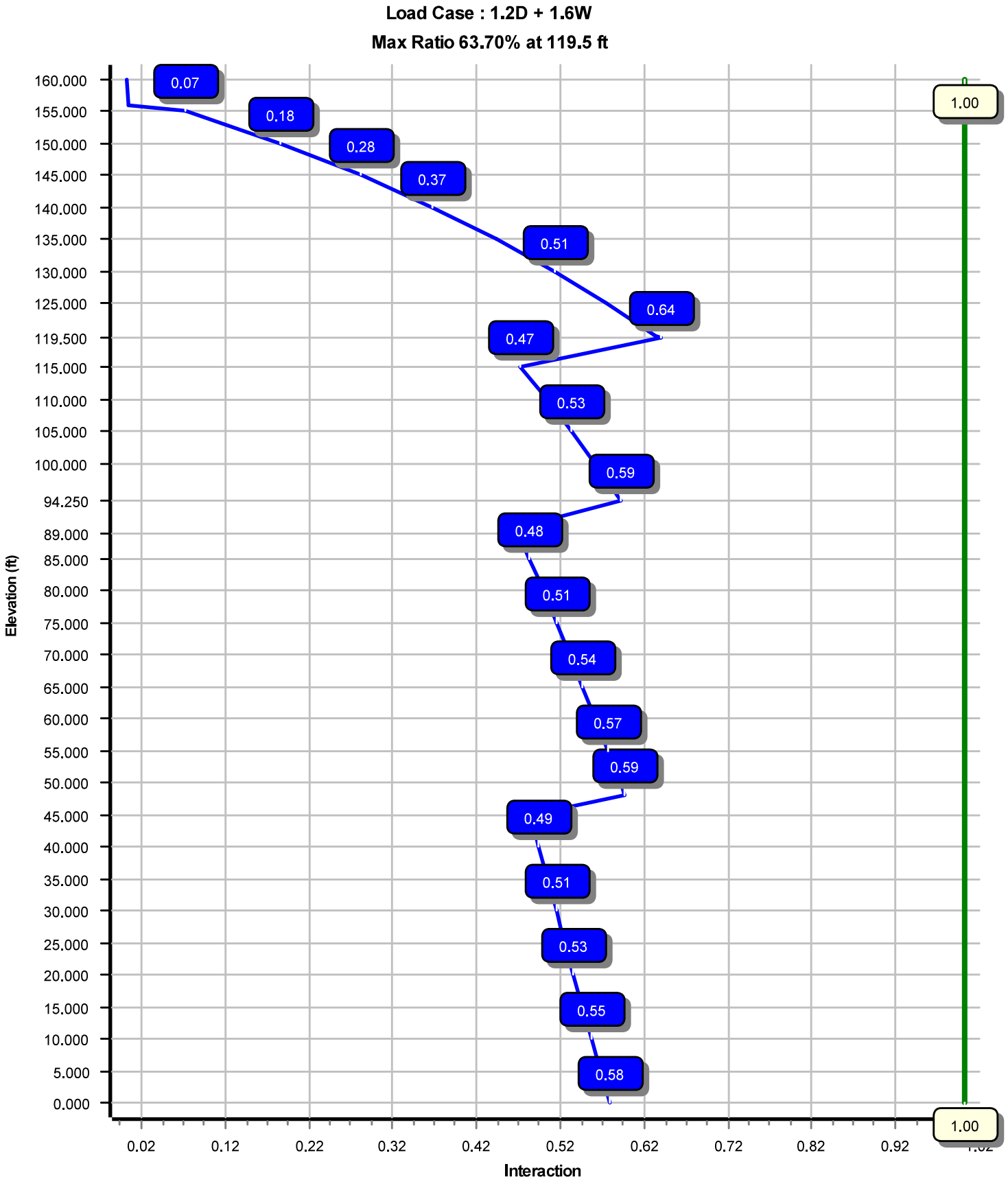
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2998.20	30.96	47.66
0.9D + 1.6W	2967.97	30.94	35.74

1.2D + 1.0Di + 1.0Wi	658.05	6.88	74.98
(1.2 + 0.2Sds) * DL + E ELFM	154.47	1.22	47.43
(1.2 + 0.2Sds) * DL + E EMAM	232.87	1.93	47.43
(0.9 - 0.2Sds) * DL + E ELFM	152.41	1.22	32.74
(0.9 - 0.2Sds) * DL + E EMAM	229.67	1.93	32.74
1.0D + 1.0W	693.85	7.20	39.75

Dish Deflections

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




Load Case : 1.2D + 1.6W
Max Ratio 63.70% at 119.5 ft
Elevation (ft)
160.000
155.000
150.000
145.000
140.000
135.000
130.000
125.000
119.500
115.000
110.000
105.000
100.000
94.250
89.000
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
0.07
0.18
0.28
0.37
0.51
0.64
0.47
0.53
0.59
0.48
0.51
0.54
0.57
0.59
0.49
0.51
0.53
0.55
0.58
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 281862 | Code: ANSI/TIA-222-G |

Site Name: BRIDGEWATER CT, CT | Engineering Number: | 9/5/2019 2:59:53 PM

Customer: AT&T MOBILITY

Analysis Parameters

Location :	Litchfield County, CT	Height (ft) :	160
Code :	ANSI/TIA-222-G	Base Diameter (in) :	58.50
Shape :	18 Sides	Top Diameter (in) :	20.00
Pole Type :	Taper	Taper (in/ft) :	0.250
Pole Manfacturer :		Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	93 mph
Exposure Category:	C	Design Wind Speed With Ice:	40 mph
Topographic Category:	3	Operational Wind Speed:	60 mph
Crest Height:	159 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.30				
T_L (sec):	6	p:	1	C_s:	0.031
S_s:	0.199	S_1:	0.066	C_s Max:	0.031
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.212	S_{d1}:	0.106		

Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	48.000	0.3750	65		0.00	10,133	58.50	0.00	69.18	29530.1	25.74	156.00	46.50	48.00	54.90	14756.5	20.10	124.00	0.250000
2-18	53.000	0.3125	65	Slip	81.00	7,490	48.81	41.25	48.10	14296.2	25.78	156.20	35.56	94.25	34.96	5488.7	18.30	113.80	0.250000
3-18	30.500	0.2500	65	Slip	63.00	2,743	37.37	89.00	29.46	5129.6	24.60	149.50	29.75	119.50	23.41	2573.7	19.22	119.00	0.250000
4-18	45.000	0.1875	65	Slip	54.00	2,318	31.25	115.00	18.49	2253.5	27.62	166.67	20.00	160.00	11.79	584.7	17.04	106.67	0.250000
				Shaft Weight		22,685													

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
156.00	Raycap DC6-48-60-18-8F	4	0.80	4.000	20.00	1.260	1.00	94.28	2.189	1.00
156.00	Ericsson RRUS 4478 B14 (15")	3	0.80	0.000	59.40	1.650	0.50	129.51	2.845	0.50
156.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.970	0.50	161.92	3.287	0.50
156.00	Ericsson RRUS A2 B2	3	0.80	4.000	22.00	2.060	0.67	84.21	3.388	0.67
156.00	Ericsson RRUS 11 (Band 12) (55	3	0.80	4.000	55.00	2.520	0.67	149.92	3.986	0.67
156.00	Ericsson RRUS 32 B2	3	0.80	4.000	53.00	2.740	0.67	156.76	4.388	0.67
156.00	Ericsson RRUS	3	0.80	0.000	44.10	3.120	0.64	154.36	4.788	0.64
156.00	Ericsson RRUS-12 B2	3	0.80	4.000	58.00	3.150	0.62	172.12	4.788	0.62
156.00	CCI HPA-65R-BUU-H8	6	0.80	4.000	68.00	12.980	0.67	430.49	18.032	0.67
156.00	CCI DMP65R-BU8D	6	0.80	0.000	95.70	17.870	0.63	575.19	23.069	0.63
156.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,828.02	61.685	1.00
Totals	Num Loadings:11	38			4,149.70			13,265.63		

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	160.00	4	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	156.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	156.00	8	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	156.00	6	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	156.00	3	3/8" (0.38"- 9.5mm)	0.38	0.23	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	156.00	3	3/8" (0.38"- 9.5mm)	0.38	0.23	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY

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	58.500	69.181	29,530.1	25.74	156.00	71.1	994.2	0.0	0.0
5.00		0.3750	57.250	67.693	27,665.6	25.16	152.67	71.8	951.8	0.0	1,164.4
10.00		0.3750	56.000	66.205	25,881.3	24.57	149.33	72.5	910.3	0.0	1,139.1
15.00		0.3750	54.750	64.718	24,175.4	23.98	146.00	73.2	869.7	0.0	1,113.8
20.00		0.3750	53.500	63.230	22,546.2	23.39	142.67	73.9	830.0	0.0	1,088.4
25.00		0.3750	52.250	61.742	20,991.8	22.80	139.33	74.6	791.3	0.0	1,063.1
30.00		0.3750	51.000	60.254	19,510.6	22.22	136.00	75.3	753.5	0.0	1,037.8
35.00		0.3750	49.750	58.766	18,100.8	21.63	132.67	76.0	716.6	0.0	1,012.5
40.00		0.3750	48.500	57.279	16,760.5	21.04	129.33	76.7	680.7	0.0	987.2
41.25	Bot - Section 2	0.3750	48.188	56.907	16,436.1	20.89	128.50	76.8	671.8	0.0	242.8
45.00		0.3750	47.250	55.791	15,488.1	20.45	126.00	77.3	645.6	0.0	1,326.9
48.00	Top - Section 1	0.3125	47.125	46.430	12,855.2	24.83	150.80	72.2	537.3	0.0	1,042.8
50.00		0.3125	46.625	45.935	12,447.7	24.54	149.20	72.5	525.8	0.0	314.3
55.00		0.3125	45.375	44.695	11,466.7	23.84	145.20	73.4	497.7	0.0	771.0
60.00		0.3125	44.125	43.455	10,538.7	23.13	141.20	74.2	470.4	0.0	749.9
65.00		0.3125	42.875	42.215	9,662.2	22.43	137.20	75.0	443.9	0.0	728.8
70.00		0.3125	41.625	40.975	8,835.7	21.72	133.20	75.8	418.1	0.0	707.7
75.00		0.3125	40.375	39.736	8,057.7	21.02	129.20	76.7	393.1	0.0	686.6
80.00		0.3125	39.125	38.496	7,326.7	20.31	125.20	77.5	368.8	0.0	665.5
85.00		0.3125	37.875	37.256	6,641.4	19.61	121.20	78.3	345.4	0.0	644.4
89.00	Bot - Section 3	0.3125	36.875	36.264	6,124.9	19.04	118.00	79.0	327.2	0.0	500.3
90.00		0.3125	36.625	36.016	6,000.2	18.90	117.20	79.2	322.7	0.0	222.9
94.25	Top - Section 2	0.2500	36.063	28.416	4,604.6	23.67	144.25	73.6	251.5	0.0	930.3
95.00		0.2500	35.875	28.267	4,532.6	23.54	143.50	73.7	248.9	0.0	72.3
100.0		0.2500	34.625	27.276	4,072.0	22.66	138.50	74.8	231.6	0.0	472.5
105.0		0.2500	33.375	26.284	3,643.8	21.78	133.50	75.8	215.0	0.0	455.6
110.0		0.2500	32.125	25.292	3,246.6	20.89	128.50	76.8	199.1	0.0	438.8
115.0	Bot - Section 4	0.2500	30.875	24.300	2,879.5	20.01	123.50	77.9	183.7	0.0	421.9
119.5	Top - Section 3	0.1875	30.125	17.816	2,017.4	26.57	160.67	70.2	131.9	0.0	643.2
120.0		0.1875	30.000	17.742	1,992.2	26.45	160.00	70.3	130.8	0.0	30.2
125.0		0.1875	28.750	16.998	1,752.0	25.27	153.33	71.7	120.0	0.0	295.5
130.0		0.1875	27.500	16.254	1,531.9	24.10	146.67	73.1	109.7	0.0	282.9
135.0		0.1875	26.250	15.510	1,331.0	22.92	140.00	74.4	99.9	0.0	270.2
140.0		0.1875	25.000	14.766	1,148.6	21.75	133.33	75.8	90.5	0.0	257.6
145.0		0.1875	23.750	14.022	983.6	20.57	126.67	77.2	81.6	0.0	244.9
150.0		0.1875	22.500	13.278	835.2	19.40	120.00	78.6	73.1	0.0	232.2
155.0		0.1875	21.250	12.534	702.5	18.22	113.33	80.0	65.1	0.0	219.6
156.0		0.1875	21.000	12.386	677.8	17.99	112.00	80.2	63.6	0.0	42.4
160.0		0.1875	20.000	11.790	584.7	17.04	106.67	81.4	57.6	0.0	164.5
											22,684.8

Site Number: 281862 | Code: ANSI/TIA-222-G |

Site Name: BRIDGEWATER CT, CT | Engineering Number: | 9/5/2019 2:59:53 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W | 93 mph with No Ice | 24 Iterations

Gust Response Factor :1.10 | Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		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		573.7	0.0					0.0	0.0	573.7	0.0	0.0	0.0
5.00		1,112.1	1,397.3					0.0	492.1	1,112.1	1,889.4	0.0	0.0
10.00		1,044.3	1,366.9					0.0	492.1	1,044.3	1,859.0	0.0	0.0
15.00		996.8	1,336.5					0.0	492.1	996.8	1,828.6	0.0	0.0
20.00		978.4	1,306.1					0.0	492.1	978.4	1,798.2	0.0	0.0
25.00		966.8	1,275.8					0.0	492.1	966.8	1,767.9	0.0	0.0
30.00		947.9	1,245.4					0.0	492.1	947.9	1,737.5	0.0	0.0
35.00		924.6	1,215.0					0.0	492.1	924.6	1,707.1	0.0	0.0
40.00		568.0	1,184.6					0.0	492.1	568.0	1,676.7	0.0	0.0
41.25	Bot - Section 2	447.0	291.4					0.0	123.0	447.0	414.4	0.0	0.0
45.00		597.4	1,592.3					0.0	369.1	597.4	1,961.4	0.0	0.0
48.00	Top - Section 1	434.4	1,251.3					0.0	295.3	434.4	1,546.6	0.0	0.0
50.00		592.2	377.2					0.0	196.8	592.2	574.0	0.0	0.0
55.00		825.9	925.2					0.0	492.1	825.9	1,417.3	0.0	0.0
60.00		797.3	899.9					0.0	492.1	797.3	1,392.0	0.0	0.0
65.00		768.8	874.5					0.0	492.1	768.8	1,366.7	0.0	0.0
70.00		740.7	849.2					0.0	492.1	740.7	1,341.4	0.0	0.0
75.00		713.1	823.9					0.0	492.1	713.1	1,316.0	0.0	0.0
80.00		686.0	798.6					0.0	492.1	686.0	1,290.7	0.0	0.0
85.00		595.8	773.3					0.0	492.1	595.8	1,265.4	0.0	0.0
89.00	Bot - Section 3	324.0	600.4					0.0	393.7	324.0	994.1	0.0	0.0
90.00		332.6	267.5					0.0	98.4	332.6	365.9	0.0	0.0
94.25	Top - Section 2	314.5	1,116.3					0.0	418.3	314.5	1,534.6	0.0	0.0
95.00		348.2	86.8					0.0	73.8	348.2	160.6	0.0	0.0
100.00		591.2	567.0					0.0	492.1	591.2	1,059.1	0.0	0.0
105.00		566.6	546.8					0.0	492.1	566.6	1,038.9	0.0	0.0
110.00		542.4	526.5					0.0	492.1	542.4	1,018.6	0.0	0.0
115.00	Bot - Section 4	496.7	506.3					0.0	492.1	496.7	998.4	0.0	0.0
119.50	Top - Section 3	256.6	771.8					0.0	442.9	256.6	1,214.7	0.0	0.0
120.00		270.2	36.3					0.0	49.2	270.2	85.5	0.0	0.0
125.00		478.7	354.6					0.0	492.1	478.7	846.7	0.0	0.0
130.00		456.2	339.4					0.0	492.1	456.2	831.6	0.0	0.0
135.00		433.9	324.3					0.0	492.1	433.9	816.4	0.0	0.0
140.00		411.9	309.1					0.0	492.1	411.9	801.2	0.0	0.0
145.00		390.2	293.9					0.0	492.1	390.2	786.0	0.0	0.0
150.00		368.8	278.7					0.0	492.1	368.8	770.8	0.0	0.0
155.00		213.6	263.5					0.0	492.1	213.6	755.6	0.0	0.0
156.00	Appurtenance(s)	168.5	50.9	9,064.7	0.0	14,773.2	4,979.6	0.0	98.4	9,233.2	5,128.9	0.0	0.0
160.00		133.9	197.4					0.0	145.5	133.9	343.0	0.0	0.0
								Totals:		31,474.3	47,701.1	0.00	0.00

Site Number: 281862 Code: ANSI/TIA-222-G

Site Name: BRIDGEWATER CT, CT Engineering Number: 9/5/2019 2:59:55 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W 93 mph with No Ice 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.66	-30.96	0.00	-2,998.20	0.00	2,998.20	4,428.22	2,214.11	10,591.0	5,303.38	0.00	0.00	0.576
5.00	-45.70	-29.96	0.00	-2,843.40	0.00	2,843.40	4,375.11	2,187.55	10,237.5	5,126.36	0.08	-0.14	0.565
10.00	-43.77	-29.02	0.00	-2,693.61	0.00	2,693.61	4,320.14	2,160.07	9,885.26	4,949.98	0.30	-0.28	0.554
15.00	-41.88	-28.11	0.00	-2,548.52	0.00	2,548.52	4,263.32	2,131.66	9,534.57	4,774.37	0.67	-0.43	0.544
20.00	-40.02	-27.22	0.00	-2,407.95	0.00	2,407.95	4,204.66	2,102.33	9,185.71	4,599.68	1.20	-0.57	0.533
25.00	-38.19	-26.34	0.00	-2,271.84	0.00	2,271.84	4,144.14	2,072.07	8,838.98	4,426.06	1.88	-0.72	0.523
30.00	-36.40	-25.46	0.00	-2,140.16	0.00	2,140.16	4,081.76	2,040.88	8,494.66	4,253.64	2.72	-0.87	0.512
35.00	-34.65	-24.60	0.00	-2,012.87	0.00	2,012.87	4,017.54	2,008.77	8,153.04	4,082.58	3.71	-1.02	0.502
40.00	-32.94	-24.05	0.00	-1,889.87	0.00	1,889.87	3,951.47	1,975.73	7,814.42	3,913.02	4.86	-1.17	0.491
41.25	-32.50	-23.64	0.00	-1,859.81	0.00	1,859.81	3,934.66	1,967.33	7,730.26	3,870.88	5.17	-1.21	0.489
45.00	-30.51	-23.06	0.00	-1,771.15	0.00	1,771.15	3,883.54	1,941.77	7,479.06	3,745.09	6.18	-1.33	0.481
48.00	-28.95	-22.63	0.00	-1,701.97	0.00	1,701.97	3,017.05	1,508.53	5,810.23	2,909.43	7.04	-1.43	0.595
50.00	-28.34	-22.08	0.00	-1,656.71	0.00	1,656.71	2,998.54	1,499.27	5,712.50	2,860.50	7.66	-1.49	0.589
55.00	-26.88	-21.31	0.00	-1,546.30	0.00	1,546.30	2,950.98	1,475.49	5,469.13	2,738.63	9.32	-1.68	0.574
60.00	-25.44	-20.55	0.00	-1,439.78	0.00	1,439.78	2,901.57	1,450.78	5,227.36	2,617.56	11.17	-1.86	0.559
65.00	-24.04	-19.81	0.00	-1,337.04	0.00	1,337.04	2,850.30	1,425.15	4,987.45	2,497.43	13.22	-2.05	0.544
70.00	-22.66	-19.10	0.00	-1,237.98	0.00	1,237.98	2,797.18	1,398.59	4,749.72	2,378.39	15.47	-2.24	0.529
75.00	-21.32	-18.40	0.00	-1,142.49	0.00	1,142.49	2,742.21	1,371.11	4,514.43	2,260.57	17.92	-2.43	0.513
80.00	-20.00	-17.73	0.00	-1,050.48	0.00	1,050.48	2,685.39	1,342.70	4,281.89	2,144.13	20.57	-2.62	0.498
85.00	-18.71	-17.13	0.00	-961.84	0.00	961.84	2,626.72	1,313.36	4,052.37	2,029.20	23.42	-2.82	0.481
89.00	-17.70	-16.79	0.00	-893.32	0.00	893.32	2,578.45	1,289.23	3,871.12	1,938.44	25.85	-2.98	0.468
90.00	-17.32	-16.47	0.00	-876.53	0.00	876.53	2,566.20	1,283.10	3,826.16	1,915.93	26.47	-3.02	0.464
94.25	-15.78	-16.10	0.00	-806.54	0.00	806.54	1,881.22	940.61	2,770.72	1,387.42	29.24	-3.19	0.590
95.00	-15.60	-15.78	0.00	-794.46	0.00	794.46	1,875.33	937.67	2,747.48	1,375.78	29.74	-3.22	0.586
100.00	-14.52	-15.19	0.00	-715.56	0.00	715.56	1,834.98	917.49	2,593.38	1,298.62	33.24	-3.46	0.559
105.00	-13.45	-14.61	0.00	-639.62	0.00	639.62	1,792.79	896.39	2,440.94	1,222.29	36.99	-3.69	0.531
110.00	-12.42	-14.06	0.00	-566.56	0.00	566.56	1,748.74	874.37	2,290.45	1,146.93	40.98	-3.93	0.501
115.00	-11.40	-13.53	0.00	-496.28	0.00	496.28	1,702.84	851.42	2,142.18	1,072.68	45.21	-4.16	0.470
119.50	-10.19	-13.21	0.00	-435.38	0.00	435.38	1,124.87	562.43	1,385.94	694.00	49.23	-4.37	0.637
120.00	-10.09	-12.96	0.00	-428.78	0.00	428.78	1,122.38	561.19	1,377.06	689.55	49.69	-4.39	0.631
125.00	-9.22	-12.46	0.00	-363.99	0.00	363.99	1,096.47	548.23	1,288.51	645.21	54.44	-4.68	0.573
130.00	-8.37	-11.97	0.00	-301.69	0.00	301.69	1,068.71	534.35	1,200.57	601.18	59.48	-4.95	0.510
135.00	-7.55	-11.50	0.00	-241.82	0.00	241.82	1,039.10	519.55	1,113.52	557.59	64.79	-5.20	0.441
140.00	-6.75	-11.04	0.00	-184.32	0.00	184.32	1,007.63	503.82	1,027.64	514.58	70.36	-5.43	0.365
145.00	-5.98	-10.60	0.00	-129.11	0.00	129.11	974.32	487.16	943.23	472.32	76.14	-5.62	0.280
150.00	-5.22	-10.16	0.00	-76.14	0.00	76.14	939.15	469.58	860.58	430.93	82.10	-5.77	0.183
155.00	-4.49	-9.88	0.00	-25.32	0.00	25.32	902.14	451.07	779.96	390.56	88.19	-5.85	0.070
156.00	-0.33	-0.17	0.00	-0.67	0.00	0.67	894.51	447.26	764.11	382.62	89.41	-5.86	0.002
160.00	0.00	-0.13	0.00	0.00	0.00	0.00	863.27	431.63	701.67	351.36	94.32	-5.86	0.000

Site Number: 281862 | Code: ANSI/TIA-222-G |

Site Name: BRIDGEWATER CT, CT | Engineering Number: | 9/5/2019 2:59:56 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W | 93 mph with No Ice (Reduced DL) | 24 Iterations

Gust Response Factor :1.10 | Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

		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		573.7	0.0					0.0	0.0	573.7	0.0	0.0	0.0
5.00		1,112.1	1,047.9					0.0	369.1	1,112.1	1,417.0	0.0	0.0
10.00		1,044.3	1,025.2					0.0	369.1	1,044.3	1,394.2	0.0	0.0
15.00		996.8	1,002.4					0.0	369.1	996.8	1,371.5	0.0	0.0
20.00		978.4	979.6					0.0	369.1	978.4	1,348.7	0.0	0.0
25.00		966.8	956.8					0.0	369.1	966.8	1,325.9	0.0	0.0
30.00		947.9	934.0					0.0	369.1	947.9	1,303.1	0.0	0.0
35.00		924.6	911.3					0.0	369.1	924.6	1,280.3	0.0	0.0
40.00		568.0	888.5					0.0	369.1	568.0	1,257.6	0.0	0.0
41.25	Bot - Section 2	447.0	218.6					0.0	92.3	447.0	310.8	0.0	0.0
45.00		597.4	1,194.2					0.0	276.8	597.4	1,471.1	0.0	0.0
48.00	Top - Section 1	434.4	938.5					0.0	221.5	434.4	1,159.9	0.0	0.0
50.00		592.2	282.9					0.0	147.6	592.2	430.5	0.0	0.0
55.00		825.9	693.9					0.0	369.1	825.9	1,063.0	0.0	0.0
60.00		797.3	674.9					0.0	369.1	797.3	1,044.0	0.0	0.0
65.00		768.8	655.9					0.0	369.1	768.8	1,025.0	0.0	0.0
70.00		740.7	636.9					0.0	369.1	740.7	1,006.0	0.0	0.0
75.00		713.1	617.9					0.0	369.1	713.1	987.0	0.0	0.0
80.00		686.0	599.0					0.0	369.1	686.0	968.0	0.0	0.0
85.00		595.8	580.0					0.0	369.1	595.8	949.1	0.0	0.0
89.00	Bot - Section 3	324.0	450.3					0.0	295.3	324.0	745.6	0.0	0.0
90.00		332.6	200.6					0.0	73.8	332.6	274.4	0.0	0.0
94.25	Top - Section 2	314.5	837.3					0.0	313.7	314.5	1,151.0	0.0	0.0
95.00		348.2	65.1					0.0	55.4	348.2	120.5	0.0	0.0
100.00		591.2	425.3					0.0	369.1	591.2	794.3	0.0	0.0
105.00		566.6	410.1					0.0	369.1	566.6	779.2	0.0	0.0
110.00		542.4	394.9					0.0	369.1	542.4	764.0	0.0	0.0
115.00	Bot - Section 4	496.7	379.7					0.0	369.1	496.7	748.8	0.0	0.0
119.50	Top - Section 3	256.6	578.9					0.0	332.2	256.6	911.1	0.0	0.0
120.00		270.2	27.2					0.0	36.9	270.2	64.1	0.0	0.0
125.00		478.7	266.0					0.0	369.1	478.7	635.1	0.0	0.0
130.00		456.2	254.6					0.0	369.1	456.2	623.7	0.0	0.0
135.00		433.9	243.2					0.0	369.1	433.9	612.3	0.0	0.0
140.00		411.9	231.8					0.0	369.1	411.9	600.9	0.0	0.0
145.00		390.2	220.4					0.0	369.1	390.2	589.5	0.0	0.0
150.00		368.8	209.0					0.0	369.1	368.8	578.1	0.0	0.0
155.00		213.6	197.6					0.0	369.1	213.6	566.7	0.0	0.0
156.00	Appurtenance(s)	168.5	38.2	9,064.7	0.0	14,773.2	3,734.7	0.0	73.8	9,233.2	3,846.7	0.0	0.0
160.00		133.9	148.1					0.0	109.2	133.9	257.2	0.0	0.0
								Totals:		31,474.3	35,775.8	0.00	0.00

Site Number: 281862 Code: ANSI/TIA-222-G

Site Name: BRIDGEWATER CT, CT Engineering Number: 9/5/2019 2:59:58 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W 93 mph with No Ice (Reduced DL) 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.74	-30.94	0.00	-2,967.97	0.00	2,967.97	4,428.22	2,214.11	10,591.0	5,303.38	0.00	0.00	0.568
5.00	-34.25	-29.91	0.00	-2,813.24	0.00	2,813.24	4,375.11	2,187.55	10,237.5	5,126.36	0.08	-0.14	0.557
10.00	-32.79	-28.95	0.00	-2,663.67	0.00	2,663.67	4,320.14	2,160.07	9,885.26	4,949.98	0.30	-0.28	0.546
15.00	-31.35	-28.02	0.00	-2,518.94	0.00	2,518.94	4,263.32	2,131.66	9,534.57	4,774.37	0.67	-0.42	0.535
20.00	-29.94	-27.11	0.00	-2,378.85	0.00	2,378.85	4,204.66	2,102.33	9,185.71	4,599.68	1.19	-0.57	0.524
25.00	-28.56	-26.20	0.00	-2,243.32	0.00	2,243.32	4,144.14	2,072.07	8,838.98	4,426.06	1.86	-0.71	0.514
30.00	-27.21	-25.30	0.00	-2,112.34	0.00	2,112.34	4,081.76	2,040.88	8,494.66	4,253.64	2.69	-0.86	0.503
35.00	-25.88	-24.42	0.00	-1,985.83	0.00	1,985.83	4,017.54	2,008.77	8,153.04	4,082.58	3.67	-1.01	0.493
40.00	-24.59	-23.87	0.00	-1,863.71	0.00	1,863.71	3,951.47	1,975.73	7,814.42	3,913.02	4.81	-1.16	0.483
41.25	-24.26	-23.45	0.00	-1,833.87	0.00	1,833.87	3,934.66	1,967.33	7,730.26	3,870.88	5.12	-1.20	0.480
45.00	-22.76	-22.87	0.00	-1,745.92	0.00	1,745.92	3,883.54	1,941.77	7,479.06	3,745.09	6.10	-1.32	0.472
48.00	-21.58	-22.43	0.00	-1,677.33	0.00	1,677.33	3,017.05	1,508.53	5,810.23	2,909.43	6.96	-1.41	0.584
50.00	-21.11	-21.88	0.00	-1,632.46	0.00	1,632.46	2,998.54	1,499.27	5,712.50	2,860.50	7.57	-1.47	0.578
55.00	-20.01	-21.08	0.00	-1,523.08	0.00	1,523.08	2,950.98	1,475.49	5,469.13	2,738.63	9.21	-1.65	0.563
60.00	-18.92	-20.32	0.00	-1,417.66	0.00	1,417.66	2,901.57	1,450.78	5,227.36	2,617.56	11.04	-1.84	0.548
65.00	-17.86	-19.57	0.00	-1,316.08	0.00	1,316.08	2,850.30	1,425.15	4,987.45	2,497.43	13.06	-2.02	0.533
70.00	-16.82	-18.85	0.00	-1,218.23	0.00	1,218.23	2,797.18	1,398.59	4,749.72	2,378.39	15.28	-2.21	0.518
75.00	-15.81	-18.15	0.00	-1,123.98	0.00	1,123.98	2,742.21	1,371.11	4,514.43	2,260.57	17.69	-2.40	0.503
80.00	-14.81	-17.47	0.00	-1,033.23	0.00	1,033.23	2,685.39	1,342.70	4,281.89	2,144.13	20.30	-2.59	0.488
85.00	-13.84	-16.87	0.00	-945.88	0.00	945.88	2,626.72	1,313.36	4,052.37	2,029.20	23.12	-2.78	0.472
89.00	-13.08	-16.54	0.00	-878.38	0.00	878.38	2,578.45	1,289.23	3,871.12	1,938.44	25.51	-2.94	0.458
90.00	-12.80	-16.21	0.00	-861.85	0.00	861.85	2,566.20	1,283.10	3,826.16	1,915.93	26.13	-2.98	0.455
94.25	-11.64	-15.86	0.00	-792.94	0.00	792.94	1,881.22	940.61	2,770.72	1,387.42	28.85	-3.14	0.578
95.00	-11.50	-15.53	0.00	-781.05	0.00	781.05	1,875.33	937.67	2,747.48	1,375.78	29.35	-3.17	0.574
100.00	-10.68	-14.94	0.00	-703.40	0.00	703.40	1,834.98	917.49	2,593.38	1,298.62	32.80	-3.41	0.548
105.00	-9.88	-14.36	0.00	-628.72	0.00	628.72	1,792.79	896.39	2,440.94	1,222.29	36.49	-3.64	0.520
110.00	-9.10	-13.81	0.00	-556.90	0.00	556.90	1,748.74	874.37	2,290.45	1,146.93	40.42	-3.87	0.491
115.00	-8.33	-13.29	0.00	-487.85	0.00	487.85	1,702.84	851.42	2,142.18	1,072.68	44.60	-4.10	0.460
119.50	-7.42	-12.99	0.00	-428.03	0.00	428.03	1,124.87	562.43	1,385.94	694.00	48.56	-4.30	0.624
120.00	-7.34	-12.73	0.00	-421.54	0.00	421.54	1,122.38	561.19	1,377.06	689.55	49.01	-4.33	0.618
125.00	-6.69	-12.24	0.00	-357.88	0.00	357.88	1,096.47	548.23	1,288.51	645.21	53.69	-4.60	0.561
130.00	-6.05	-11.76	0.00	-296.70	0.00	296.70	1,068.71	534.35	1,200.57	601.18	58.65	-4.87	0.500
135.00	-5.43	-11.29	0.00	-237.92	0.00	237.92	1,039.10	519.55	1,113.52	557.59	63.88	-5.12	0.432
140.00	-4.83	-10.85	0.00	-181.45	0.00	181.45	1,007.63	503.82	1,027.64	514.58	69.36	-5.34	0.358
145.00	-4.25	-10.42	0.00	-127.21	0.00	127.21	974.32	487.16	943.23	472.32	75.05	-5.53	0.274
150.00	-3.69	-10.00	0.00	-75.14	0.00	75.14	939.15	469.58	860.58	430.93	80.92	-5.68	0.179
155.00	-3.14	-9.73	0.00	-25.14	0.00	25.14	902.14	451.07	779.96	390.56	86.92	-5.77	0.068
156.00	-0.24	-0.16	0.00	-0.64	0.00	0.64	894.51	447.26	764.11	382.62	88.12	-5.77	0.002
160.00	0.00	-0.13	0.00	0.00	0.00	0.00	863.27	431.63	701.67	351.36	92.95	-5.77	0.000

Site Number: 281862 | Code: ANSI/TIA-222-G |

Site Name: BRIDGEWATER CT, CT | Engineering Number: | 9/5/2019 2:59:58 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi | 40 mph with 1.00 in Radial Ice | 23 Iterations

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

Dead Load Factor :1.20 | Ice Importance Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		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		131.1	0.0					0.0	0.0	131.1	0.0	0.0	0.0
5.00		255.1	2,164.5					0.0	492.1	255.1	2,656.7	0.0	0.0
10.00		241.0	2,195.9					0.0	492.1	241.0	2,688.1	0.0	0.0
15.00		231.0	2,179.7					0.0	492.1	231.0	2,671.8	0.0	0.0
20.00		227.5	2,148.4					0.0	492.1	227.5	2,640.5	0.0	0.0
25.00		225.4	2,109.8					0.0	492.1	225.4	2,602.0	0.0	0.0
30.00		221.6	2,067.1					0.0	492.1	221.6	2,559.2	0.0	0.0
35.00		216.7	2,021.7					0.0	492.1	216.7	2,513.8	0.0	0.0
40.00		133.3	1,974.5					0.0	492.1	133.3	2,466.7	0.0	0.0
41.25	Bot - Section 2	105.0	487.9					0.0	123.0	105.0	611.0	0.0	0.0
45.00		140.5	2,178.7					0.0	369.1	140.5	2,547.8	0.0	0.0
48.00	Top - Section 1	102.3	1,713.7					0.0	295.3	102.3	2,009.0	0.0	0.0
50.00		139.8	682.4					0.0	196.8	139.8	879.3	0.0	0.0
55.00		195.3	1,669.0					0.0	492.1	195.3	2,161.2	0.0	0.0
60.00		189.0	1,624.2					0.0	492.1	189.0	2,116.3	0.0	0.0
65.00		182.8	1,579.1					0.0	492.1	182.8	2,071.2	0.0	0.0
70.00		176.7	1,533.9					0.0	492.1	176.7	2,026.0	0.0	0.0
75.00		170.6	1,488.6					0.0	492.1	170.6	1,980.7	0.0	0.0
80.00		164.7	1,443.3					0.0	492.1	164.7	1,935.4	0.0	0.0
85.00		143.5	1,398.0					0.0	492.1	143.5	1,890.1	0.0	0.0
89.00	Bot - Section 3	78.2	1,087.4					0.0	393.7	78.2	1,481.1	0.0	0.0
90.00		80.4	389.9					0.0	98.4	80.4	488.3	0.0	0.0
94.25	Top - Section 2	76.1	1,622.6					0.0	418.3	76.1	2,040.9	0.0	0.0
95.00		84.5	175.7					0.0	73.8	84.5	249.5	0.0	0.0
100.00		143.9	1,139.8					0.0	492.1	143.9	1,631.9	0.0	0.0
105.00		138.5	1,099.8					0.0	492.1	138.5	1,591.9	0.0	0.0
110.00		133.3	1,059.8					0.0	492.1	133.3	1,551.9	0.0	0.0
115.00	Bot - Section 4	122.5	1,019.9					0.0	492.1	122.5	1,512.0	0.0	0.0
119.50	Top - Section 3	63.4	1,223.5					0.0	442.9	63.4	1,666.4	0.0	0.0
120.00		67.2	86.3					0.0	49.2	67.2	135.5	0.0	0.0
125.00		119.4	835.0					0.0	492.1	119.4	1,327.1	0.0	0.0
130.00		114.5	800.4					0.0	492.1	114.5	1,292.5	0.0	0.0
135.00		109.7	765.8					0.0	492.1	109.7	1,257.9	0.0	0.0
140.00		104.9	731.3					0.0	492.1	104.9	1,223.4	0.0	0.0
145.00		100.3	696.8					0.0	492.1	100.3	1,188.9	0.0	0.0
150.00		95.6	662.3					0.0	492.1	95.6	1,154.5	0.0	0.0
155.00		55.7	627.9					0.0	492.1	55.7	1,120.0	0.0	0.0
156.00	Appurtenance(s)	44.4	123.0	1,629.0	0.0	2,498.5	12,196.1	0.0	98.4	1,673.4	12,417.5	0.0	0.0
160.00		35.3	473.6					0.0	145.5	35.3	619.2	0.0	0.0
								Totals:		6,989.53	74,977.0	0.00	0.00

Site Number: 281862 Code: ANSI/TIA-222-G

Site Name: BRIDGEWATER CT, CT Engineering Number: 9/5/2019 3:00:00 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 1.00 in Radial Ice 23 Iterations

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

Dead Load Factor :1.20 Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-74.98	-6.88	0.00	-658.05	0.00	658.05	4,428.22	2,214.11	10,591.0	5,303.38	0.00	0.00	0.141
5.00	-72.31	-6.66	0.00	-623.66	0.00	623.66	4,375.11	2,187.55	10,237.5	5,126.36	0.02	-0.03	0.138
10.00	-69.62	-6.46	0.00	-590.35	0.00	590.35	4,320.14	2,160.07	9,885.26	4,949.98	0.07	-0.06	0.135
15.00	-66.95	-6.26	0.00	-558.06	0.00	558.06	4,263.32	2,131.66	9,534.57	4,774.37	0.15	-0.09	0.133
20.00	-64.31	-6.06	0.00	-526.77	0.00	526.77	4,204.66	2,102.33	9,185.71	4,599.68	0.26	-0.13	0.130
25.00	-61.70	-5.87	0.00	-496.45	0.00	496.45	4,144.14	2,072.07	8,838.98	4,426.06	0.41	-0.16	0.127
30.00	-59.14	-5.67	0.00	-467.13	0.00	467.13	4,081.76	2,040.88	8,494.66	4,253.64	0.60	-0.19	0.124
35.00	-56.62	-5.48	0.00	-438.77	0.00	438.77	4,017.54	2,008.77	8,153.04	4,082.58	0.81	-0.22	0.122
40.00	-54.15	-5.35	0.00	-411.39	0.00	411.39	3,951.47	1,975.73	7,814.42	3,913.02	1.06	-0.26	0.119
41.25	-53.54	-5.26	0.00	-404.70	0.00	404.70	3,934.66	1,967.33	7,730.26	3,870.88	1.13	-0.27	0.118
45.00	-50.99	-5.13	0.00	-384.96	0.00	384.96	3,883.54	1,941.77	7,479.06	3,745.09	1.35	-0.29	0.116
48.00	-48.98	-5.03	0.00	-369.58	0.00	369.58	3,017.05	1,508.53	5,810.23	2,909.43	1.54	-0.31	0.143
50.00	-48.10	-4.91	0.00	-359.51	0.00	359.51	2,998.54	1,499.27	5,712.50	2,860.50	1.68	-0.33	0.142
55.00	-45.94	-4.73	0.00	-334.97	0.00	334.97	2,950.98	1,475.49	5,469.13	2,738.63	2.04	-0.37	0.138
60.00	-43.82	-4.56	0.00	-311.30	0.00	311.30	2,901.57	1,450.78	5,227.36	2,617.56	2.44	-0.41	0.134
65.00	-41.75	-4.39	0.00	-288.50	0.00	288.50	2,850.30	1,425.15	4,987.45	2,497.43	2.89	-0.45	0.130
70.00	-39.72	-4.23	0.00	-266.54	0.00	266.54	2,797.18	1,398.59	4,749.72	2,378.39	3.38	-0.49	0.126
75.00	-37.74	-4.07	0.00	-245.40	0.00	245.40	2,742.21	1,371.11	4,514.43	2,260.57	3.91	-0.53	0.122
80.00	-35.80	-3.91	0.00	-225.07	0.00	225.07	2,685.39	1,342.70	4,281.89	2,144.13	4.49	-0.57	0.118
85.00	-33.91	-3.77	0.00	-205.52	0.00	205.52	2,626.72	1,313.36	4,052.37	2,029.20	5.11	-0.61	0.114
89.00	-32.43	-3.69	0.00	-190.44	0.00	190.44	2,578.45	1,289.23	3,871.12	1,938.44	5.63	-0.65	0.111
90.00	-31.94	-3.61	0.00	-186.76	0.00	186.76	2,566.20	1,283.10	3,826.16	1,915.93	5.77	-0.65	0.110
94.25	-29.90	-3.52	0.00	-171.40	0.00	171.40	1,881.22	940.61	2,770.72	1,387.42	6.37	-0.69	0.139
95.00	-29.65	-3.45	0.00	-168.76	0.00	168.76	1,875.33	937.67	2,747.48	1,375.78	6.48	-0.70	0.138
100.00	-28.02	-3.31	0.00	-151.50	0.00	151.50	1,834.98	917.49	2,593.38	1,298.62	7.24	-0.75	0.132
105.00	-26.42	-3.17	0.00	-134.94	0.00	134.94	1,792.79	896.39	2,440.94	1,222.29	8.05	-0.80	0.125
110.00	-24.87	-3.04	0.00	-119.07	0.00	119.07	1,748.74	874.37	2,290.45	1,146.93	8.91	-0.85	0.118
115.00	-23.36	-2.91	0.00	-103.87	0.00	103.87	1,702.84	851.42	2,142.18	1,072.68	9.82	-0.90	0.111
119.50	-21.69	-2.83	0.00	-90.76	0.00	90.76	1,124.87	562.43	1,385.94	694.00	10.69	-0.94	0.150
120.00	-21.56	-2.78	0.00	-89.34	0.00	89.34	1,122.38	561.19	1,377.06	689.55	10.79	-0.94	0.149
125.00	-20.23	-2.65	0.00	-75.46	0.00	75.46	1,096.47	548.23	1,288.51	645.21	11.81	-1.00	0.135
130.00	-18.94	-2.53	0.00	-62.19	0.00	62.19	1,068.71	534.35	1,200.57	601.18	12.89	-1.06	0.121
135.00	-17.68	-2.42	0.00	-49.52	0.00	49.52	1,039.10	519.55	1,113.52	557.59	14.02	-1.11	0.106
140.00	-16.46	-2.30	0.00	-37.44	0.00	37.44	1,007.63	503.82	1,027.64	514.58	15.21	-1.16	0.089
145.00	-15.27	-2.18	0.00	-25.95	0.00	25.95	974.32	487.16	943.23	472.32	16.45	-1.20	0.071
150.00	-14.12	-2.07	0.00	-15.03	0.00	15.03	939.15	469.58	860.58	430.93	17.72	-1.23	0.050
155.00	-13.00	-1.99	0.00	-4.68	0.00	4.68	902.14	451.07	779.96	390.56	19.01	-1.24	0.026
156.00	-0.62	-0.05	0.00	-0.19	0.00	0.19	894.51	447.26	764.11	382.62	19.27	-1.24	0.001
160.00	0.00	-0.04	0.00	0.00	0.00	0.00	863.27	431.63	701.67	351.36	20.32	-1.24	0.000

Site Number: 281862 | Code: ANSI/TIA-222-G |

Site Name: BRIDGEWATER CT, CT | Engineering Number: | 9/5/2019 3:00:00 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W | Serviceability 60 mph | 23 Iterations

Gust Response Factor :1.10 | Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		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		133.5	0.0					0.0	0.0	133.5	0.0	0.0	0.0
5.00		258.9	1,164.4					0.0	410.1	258.9	1,574.5	0.0	0.0
10.00		243.1	1,139.1					0.0	410.1	243.1	1,549.2	0.0	0.0
15.00		232.0	1,113.8					0.0	410.1	232.0	1,523.9	0.0	0.0
20.00		227.7	1,088.4					0.0	410.1	227.7	1,498.5	0.0	0.0
25.00		225.0	1,063.1					0.0	410.1	225.0	1,473.2	0.0	0.0
30.00		220.6	1,037.8					0.0	410.1	220.6	1,447.9	0.0	0.0
35.00		215.2	1,012.5					0.0	410.1	215.2	1,422.6	0.0	0.0
40.00		132.2	987.2					0.0	410.1	132.2	1,397.3	0.0	0.0
41.25	Bot - Section 2	104.0	242.8					0.0	102.5	104.0	345.4	0.0	0.0
45.00		139.0	1,326.9					0.0	307.6	139.0	1,634.5	0.0	0.0
48.00	Top - Section 1	101.1	1,042.8					0.0	246.1	101.1	1,288.8	0.0	0.0
50.00		137.8	314.3					0.0	164.0	137.8	478.3	0.0	0.0
55.00		192.2	771.0					0.0	410.1	192.2	1,181.1	0.0	0.0
60.00		185.6	749.9					0.0	410.1	185.6	1,160.0	0.0	0.0
65.00		179.0	728.8					0.0	410.1	179.0	1,138.9	0.0	0.0
70.00		172.4	707.7					0.0	410.1	172.4	1,117.8	0.0	0.0
75.00		166.0	686.6					0.0	410.1	166.0	1,096.7	0.0	0.0
80.00		159.7	665.5					0.0	410.1	159.7	1,075.6	0.0	0.0
85.00		138.7	644.4					0.0	410.1	138.7	1,054.5	0.0	0.0
89.00	Bot - Section 3	75.4	500.3					0.0	328.1	75.4	828.4	0.0	0.0
90.00		77.4	222.9					0.0	82.0	77.4	304.9	0.0	0.0
94.25	Top - Section 2	73.2	930.3					0.0	348.6	73.2	1,278.9	0.0	0.0
95.00		81.0	72.3					0.0	61.5	81.0	133.8	0.0	0.0
100.00		137.6	472.5					0.0	410.1	137.6	882.6	0.0	0.0
105.00		131.9	455.6					0.0	410.1	131.9	865.7	0.0	0.0
110.00		126.3	438.8					0.0	410.1	126.3	848.9	0.0	0.0
115.00	Bot - Section 4	115.6	421.9					0.0	410.1	115.6	832.0	0.0	0.0
119.50	Top - Section 3	59.7	643.2					0.0	369.1	59.7	1,012.3	0.0	0.0
120.00		62.9	30.2					0.0	41.0	62.9	71.3	0.0	0.0
125.00		111.4	295.5					0.0	410.1	111.4	705.6	0.0	0.0
130.00		106.2	282.9					0.0	410.1	106.2	693.0	0.0	0.0
135.00		101.0	270.2					0.0	410.1	101.0	680.3	0.0	0.0
140.00		95.9	257.6					0.0	410.1	95.9	667.7	0.0	0.0
145.00		90.8	244.9					0.0	410.1	90.8	655.0	0.0	0.0
150.00		85.8	232.2					0.0	410.1	85.8	642.3	0.0	0.0
155.00		49.7	219.6					0.0	410.1	49.7	629.7	0.0	0.0
156.00	Appurtenance(s)	39.2	42.4	2,109.9	0.0	3,438.6	4,149.7	0.0	82.0	2,149.1	4,274.1	0.0	0.0
160.00		31.2	164.5					0.0	121.3	31.2	285.8	0.0	0.0
								Totals:		7,326.02	39,750.9	0.00	0.00

Site Number: 281862 Code: ANSI/TIA-222-G

Site Name: BRIDGEWATER CT, CT Engineering Number: 9/5/2019 3:00:02 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W Serviceability 60 mph 23 Iterations

Gust Response Factor :1.10 Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-39.75	-7.20	0.00	-693.85	0.00	693.85	4,428.22	2,214.11	10,591.0	5,303.38	0.00	0.00	0.140
5.00	-38.17	-6.97	0.00	-657.83	0.00	657.83	4,375.11	2,187.55	10,237.5	5,126.36	0.02	-0.03	0.137
10.00	-36.62	-6.74	0.00	-623.00	0.00	623.00	4,320.14	2,160.07	9,885.26	4,949.98	0.07	-0.07	0.134
15.00	-35.09	-6.53	0.00	-589.29	0.00	589.29	4,263.32	2,131.66	9,534.57	4,774.37	0.16	-0.10	0.132
20.00	-33.59	-6.32	0.00	-556.64	0.00	556.64	4,204.66	2,102.33	9,185.71	4,599.68	0.28	-0.13	0.129
25.00	-32.11	-6.11	0.00	-525.05	0.00	525.05	4,144.14	2,072.07	8,838.98	4,426.06	0.44	-0.17	0.126
30.00	-30.66	-5.90	0.00	-494.51	0.00	494.51	4,081.76	2,040.88	8,494.66	4,253.64	0.63	-0.20	0.124
35.00	-29.24	-5.70	0.00	-465.00	0.00	465.00	4,017.54	2,008.77	8,153.04	4,082.58	0.86	-0.24	0.121
40.00	-27.84	-5.57	0.00	-436.50	0.00	436.50	3,951.47	1,975.73	7,814.42	3,913.02	1.12	-0.27	0.119
41.25	-27.49	-5.47	0.00	-429.54	0.00	429.54	3,934.66	1,967.33	7,730.26	3,870.88	1.20	-0.28	0.118
45.00	-25.85	-5.34	0.00	-409.01	0.00	409.01	3,883.54	1,941.77	7,479.06	3,745.09	1.43	-0.31	0.116
48.00	-24.56	-5.24	0.00	-393.00	0.00	393.00	3,017.05	1,508.53	5,810.23	2,909.43	1.63	-0.33	0.143
50.00	-24.08	-5.11	0.00	-382.52	0.00	382.52	2,998.54	1,499.27	5,712.50	2,860.50	1.77	-0.35	0.142
55.00	-22.90	-4.93	0.00	-356.97	0.00	356.97	2,950.98	1,475.49	5,469.13	2,738.63	2.15	-0.39	0.138
60.00	-21.74	-4.75	0.00	-332.34	0.00	332.34	2,901.57	1,450.78	5,227.36	2,617.56	2.58	-0.43	0.134
65.00	-20.60	-4.58	0.00	-308.60	0.00	308.60	2,850.30	1,425.15	4,987.45	2,497.43	3.06	-0.47	0.131
70.00	-19.48	-4.41	0.00	-285.71	0.00	285.71	2,797.18	1,398.59	4,749.72	2,378.39	3.58	-0.52	0.127
75.00	-18.38	-4.25	0.00	-263.66	0.00	263.66	2,742.21	1,371.11	4,514.43	2,260.57	4.14	-0.56	0.123
80.00	-17.30	-4.09	0.00	-242.43	0.00	242.43	2,685.39	1,342.70	4,281.89	2,144.13	4.75	-0.61	0.120
85.00	-16.25	-3.95	0.00	-221.97	0.00	221.97	2,626.72	1,313.36	4,052.37	2,029.20	5.41	-0.65	0.116
89.00	-15.42	-3.87	0.00	-206.17	0.00	206.17	2,578.45	1,289.23	3,871.12	1,938.44	5.97	-0.69	0.112
90.00	-15.11	-3.80	0.00	-202.29	0.00	202.29	2,566.20	1,283.10	3,826.16	1,915.93	6.12	-0.70	0.111
94.25	-13.83	-3.71	0.00	-186.15	0.00	186.15	1,881.22	940.61	2,770.72	1,387.42	6.76	-0.74	0.142
95.00	-13.70	-3.64	0.00	-183.36	0.00	183.36	1,875.33	937.67	2,747.48	1,375.78	6.87	-0.74	0.141
100.00	-12.81	-3.50	0.00	-165.17	0.00	165.17	1,834.98	917.49	2,593.38	1,298.62	7.68	-0.80	0.134
105.00	-11.95	-3.37	0.00	-147.66	0.00	147.66	1,792.79	896.39	2,440.94	1,222.29	8.55	-0.85	0.127
110.00	-11.10	-3.24	0.00	-130.81	0.00	130.81	1,748.74	874.37	2,290.45	1,146.93	9.47	-0.91	0.120
115.00	-10.26	-3.12	0.00	-114.61	0.00	114.61	1,702.84	851.42	2,142.18	1,072.68	10.45	-0.96	0.113
119.50	-9.25	-3.05	0.00	-100.56	0.00	100.56	1,124.87	562.43	1,385.94	694.00	11.38	-1.01	0.153
120.00	-9.18	-2.99	0.00	-99.04	0.00	99.04	1,122.38	561.19	1,377.06	689.55	11.48	-1.01	0.152
125.00	-8.47	-2.87	0.00	-84.09	0.00	84.09	1,096.47	548.23	1,288.51	645.21	12.58	-1.08	0.138
130.00	-7.78	-2.76	0.00	-69.72	0.00	69.72	1,068.71	534.35	1,200.57	601.18	13.75	-1.14	0.123
135.00	-7.10	-2.66	0.00	-55.91	0.00	55.91	1,039.10	519.55	1,113.52	557.59	14.98	-1.20	0.107
140.00	-6.43	-2.55	0.00	-42.63	0.00	42.63	1,007.63	503.82	1,027.64	514.58	16.26	-1.25	0.089
145.00	-5.78	-2.45	0.00	-29.88	0.00	29.88	974.32	487.16	943.23	472.32	17.60	-1.30	0.069
150.00	-5.14	-2.35	0.00	-17.63	0.00	17.63	939.15	469.58	860.58	430.93	18.98	-1.33	0.046
155.00	-4.51	-2.29	0.00	-5.88	0.00	5.88	902.14	451.07	779.96	390.56	20.39	-1.35	0.020
156.00	-0.28	-0.04	0.00	-0.15	0.00	0.15	894.51	447.26	764.11	382.62	20.67	-1.35	0.001
160.00	0.00	-0.03	0.00	0.00	0.00	0.00	863.27	431.63	701.67	351.36	21.81	-1.35	0.000

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.20	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07	
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}):	0.21	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11	
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):	2.30	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	1.90	
Total Unfactored Dead Load:	39.75	k
Seismic Base Shear (E):	1.22	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	158.00	286	4,270	0.021	26	355
37	155.50	124	1,803	0.009	11	155
36	152.50	630	8,796	0.044	54	782
35	147.50	642	8,422	0.042	52	798
34	142.50	655	8,044	0.040	49	814
33	137.50	668	7,662	0.038	47	830
32	132.50	680	7,277	0.037	45	845
31	127.50	693	6,890	0.035	42	861
30	122.50	706	6,503	0.033	40	877
29	119.75	71	629	0.003	4	89
28	117.25	1,012	8,584	0.043	53	1,258
27	112.50	832	6,522	0.033	40	1,034
26	107.50	849	6,104	0.031	37	1,055
25	102.50	866	5,688	0.029	35	1,076
24	97.50	883	5,273	0.026	32	1,097
23	94.63	134	755	0.004	5	166
22	92.13	1,279	6,861	0.034	42	1,589
21	89.50	305	1,548	0.008	9	379
20	87.00	828	3,987	0.020	24	1,029
19	82.50	1,055	4,588	0.023	28	1,310
18	77.50	1,076	4,156	0.021	25	1,336
17	72.50	1,097	3,733	0.019	23	1,363
16	67.50	1,118	3,322	0.017	20	1,389

15	62.50	1,139	2,925	0.015	18	1,415
14	57.50	1,160	2,543	0.013	16	1,441
13	52.50	1,181	2,179	0.011	13	1,467
12	49.00	478	774	0.004	5	594
11	46.50	1,289	1,888	0.009	12	1,601
10	43.13	1,635	2,075	0.010	13	2,031
9	40.63	345	391	0.002	2	429
8	37.50	1,397	1,361	0.007	8	1,736
7	32.50	1,423	1,056	0.005	6	1,768
6	27.50	1,448	782	0.004	5	1,799
5	22.50	1,473	544	0.003	3	1,830
4	17.50	1,499	343	0.002	2	1,862
3	12.50	1,524	184	0.001	1	1,893
2	7.50	1,549	71	0.000	0	1,925
1	2.50	1,574	9	0.000	0	1,956
Raycap DC6-48-60-18-	156.00	80	1,167	0.006	7	99
Ericsson RRUS 4478 B	156.00	178	2,599	0.013	16	221
Ericsson RRUS 4449 B	156.00	213	3,106	0.016	19	265
Ericsson RRUS A2 B2	156.00	66	962	0.005	6	82
Ericsson RRUS 11 (Ba	156.00	165	2,406	0.012	15	205
Ericsson RRUS 32 B2	156.00	159	2,319	0.012	14	198
Ericsson RRUS	156.00	132	1,929	0.010	12	164
Ericsson RRUS-12 B2	156.00	174	2,537	0.013	16	216
CCI HPA-65R-BUU-H8	156.00	408	5,950	0.030	36	507
CCI DMP65R-BU8D	156.00	574	8,374	0.042	51	713
Round Platform w/ Ha	156.00	2,000	29,166	0.147	178	2,485
		39,751	199,058	1.000	1,218	49,389

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	158.00	286	4,270	0.021	26	245
37	155.50	124	1,803	0.009	11	107
36	152.50	630	8,796	0.044	54	540
35	147.50	642	8,422	0.042	52	551
34	142.50	655	8,044	0.040	49	562
33	137.50	668	7,662	0.038	47	573
32	132.50	680	7,277	0.037	45	583
31	127.50	693	6,890	0.035	42	594
30	122.50	706	6,503	0.033	40	605
29	119.75	71	629	0.003	4	61
28	117.25	1,012	8,584	0.043	53	868
27	112.50	832	6,522	0.033	40	713
26	107.50	849	6,104	0.031	37	728
25	102.50	866	5,688	0.029	35	742
24	97.50	883	5,273	0.026	32	757
23	94.63	134	755	0.004	5	115
22	92.13	1,279	6,861	0.034	42	1,097
21	89.50	305	1,548	0.008	9	261
20	87.00	828	3,987	0.020	24	710
19	82.50	1,055	4,588	0.023	28	904
18	77.50	1,076	4,156	0.021	25	922
17	72.50	1,097	3,733	0.019	23	940
16	67.50	1,118	3,322	0.017	20	959
15	62.50	1,139	2,925	0.015	18	977
14	57.50	1,160	2,543	0.013	16	995
13	52.50	1,181	2,179	0.011	13	1,013
12	49.00	478	774	0.004	5	410
11	46.50	1,289	1,888	0.009	12	1,105

10	43.13	1,635	2,075	0.010	13	1,402
9	40.63	345	391	0.002	2	296
8	37.50	1,397	1,361	0.007	8	1,198
7	32.50	1,423	1,056	0.005	6	1,220
6	27.50	1,448	782	0.004	5	1,242
5	22.50	1,473	544	0.003	3	1,263
4	17.50	1,499	343	0.002	2	1,285
3	12.50	1,524	184	0.001	1	1,307
2	7.50	1,549	71	0.000	0	1,328
1	2.50	1,574	9	0.000	0	1,350
Raycap DC6-48-60-18-	156.00	80	1,167	0.006	7	69
Ericsson RRUS 4478 B	156.00	178	2,599	0.013	16	153
Ericsson RRUS 4449 B	156.00	213	3,106	0.016	19	183
Ericsson RRUS A2 B2	156.00	66	962	0.005	6	57
Ericsson RRUS 11 (Ba	156.00	165	2,406	0.012	15	141
Ericsson RRUS 32 B2	156.00	159	2,319	0.012	14	136
Ericsson RRUS	156.00	132	1,929	0.010	12	113
Ericsson RRUS-12 B2	156.00	174	2,537	0.013	16	149
CCI HPA-65R-BUU-H8	156.00	408	5,950	0.030	36	350
CCI DMP65R-BU8D	156.00	574	8,374	0.042	51	492
Round Platform w/ Ha	156.00	2,000	29,166	0.147	178	1,715
		39,751	199,058	1.000	1,218	34,088

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.43	-1.22	0.00	-154.47	0.00	154.47	4,428.22	2,214.11	10,591.0	5,303.38	0.00	0.00	0.040
5.00	-45.51	-1.23	0.00	-148.37	0.00	148.37	4,375.11	2,187.55	10,237.5	5,126.36	0.00	-0.01	0.039
10.00	-43.61	-1.23	0.00	-142.23	0.00	142.23	4,320.14	2,160.07	9,885.26	4,949.98	0.02	-0.01	0.039
15.00	-41.75	-1.23	0.00	-136.08	0.00	136.08	4,263.32	2,131.66	9,534.57	4,774.37	0.04	-0.02	0.038
20.00	-39.92	-1.23	0.00	-129.92	0.00	129.92	4,204.66	2,102.33	9,185.71	4,599.68	0.06	-0.03	0.038
25.00	-38.12	-1.23	0.00	-123.74	0.00	123.74	4,144.14	2,072.07	8,838.98	4,426.06	0.10	-0.04	0.037
30.00	-36.35	-1.23	0.00	-117.57	0.00	117.57	4,081.76	2,040.88	8,494.66	4,253.64	0.14	-0.05	0.037
35.00	-34.62	-1.23	0.00	-111.41	0.00	111.41	4,017.54	2,008.77	8,153.04	4,082.58	0.20	-0.05	0.036
40.00	-34.19	-1.23	0.00	-105.28	0.00	105.28	3,951.47	1,975.73	7,814.42	3,913.02	0.26	-0.06	0.036
41.25	-32.16	-1.21	0.00	-103.75	0.00	103.75	3,934.66	1,967.33	7,730.26	3,870.88	0.28	-0.07	0.035
45.00	-30.56	-1.20	0.00	-99.19	0.00	99.19	3,883.54	1,941.77	7,479.06	3,745.09	0.33	-0.07	0.034
48.00	-29.96	-1.20	0.00	-95.58	0.00	95.58	3,017.05	1,508.53	5,810.23	2,909.43	0.38	-0.08	0.043
50.00	-28.49	-1.19	0.00	-93.17	0.00	93.17	2,998.54	1,499.27	5,712.50	2,860.50	0.41	-0.08	0.042
55.00	-27.05	-1.18	0.00	-87.23	0.00	87.23	2,950.98	1,475.49	5,469.13	2,738.63	0.50	-0.09	0.041
60.00	-25.64	-1.16	0.00	-81.34	0.00	81.34	2,901.57	1,450.78	5,227.36	2,617.56	0.60	-0.10	0.040
65.00	-24.25	-1.14	0.00	-75.54	0.00	75.54	2,850.30	1,425.15	4,987.45	2,497.43	0.71	-0.11	0.039
70.00	-22.89	-1.12	0.00	-69.83	0.00	69.83	2,797.18	1,398.59	4,749.72	2,378.39	0.84	-0.12	0.038
75.00	-21.55	-1.10	0.00	-64.22	0.00	64.22	2,742.21	1,371.11	4,514.43	2,260.57	0.97	-0.13	0.036
80.00	-20.24	-1.07	0.00	-58.74	0.00	58.74	2,685.39	1,342.70	4,281.89	2,144.13	1.12	-0.14	0.035
85.00	-19.21	-1.05	0.00	-53.39	0.00	53.39	2,626.72	1,313.36	4,052.37	2,029.20	1.28	-0.16	0.034
89.00	-18.83	-1.04	0.00	-49.21	0.00	49.21	2,578.45	1,289.23	3,871.12	1,938.44	1.41	-0.16	0.033
90.00	-17.24	-0.99	0.00	-48.17	0.00	48.17	2,566.20	1,283.10	3,826.16	1,915.93	1.44	-0.17	0.032
94.25	-17.08	-0.99	0.00	-43.95	0.00	43.95	1,881.22	940.61	2,770.72	1,387.42	1.60	-0.18	0.041
95.00	-15.98	-0.96	0.00	-43.21	0.00	43.21	1,875.33	937.67	2,747.48	1,375.78	1.63	-0.18	0.040
100.00	-14.90	-0.92	0.00	-38.44	0.00	38.44	1,834.98	917.49	2,593.38	1,298.62	1.82	-0.19	0.038
105.00	-13.85	-0.88	0.00	-33.84	0.00	33.84	1,792.79	896.39	2,440.94	1,222.29	2.02	-0.20	0.035
110.00	-12.82	-0.84	0.00	-29.42	0.00	29.42	1,748.74	874.37	2,290.45	1,146.93	2.24	-0.22	0.033
115.00	-11.56	-0.79	0.00	-25.22	0.00	25.22	1,702.84	851.42	2,142.18	1,072.68	2.48	-0.23	0.030
119.50	-11.47	-0.78	0.00	-21.68	0.00	21.68	1,124.87	562.43	1,385.94	694.00	2.70	-0.24	0.041
120.00	-10.59	-0.74	0.00	-21.29	0.00	21.29	1,122.38	561.19	1,377.06	689.55	2.72	-0.24	0.040
125.00	-9.73	-0.70	0.00	-17.58	0.00	17.58	1,096.47	548.23	1,288.51	645.21	2.98	-0.25	0.036
130.00	-8.89	-0.65	0.00	-14.10	0.00	14.10	1,068.71	534.35	1,200.57	601.18	3.25	-0.27	0.032
135.00	-8.06	-0.60	0.00	-10.84	0.00	10.84	1,039.10	519.55	1,113.52	557.59	3.54	-0.28	0.027
140.00	-7.24	-0.55	0.00	-7.83	0.00	7.83	1,007.63	503.82	1,027.64	514.58	3.83	-0.29	0.022
145.00	-6.45	-0.49	0.00	-5.09	0.00	5.09	974.32	487.16	943.23	472.32	4.14	-0.30	0.017
150.00	-5.66	-0.44	0.00	-2.61	0.00	2.61	939.15	469.58	860.58	430.93	4.45	-0.30	0.012
155.00	-5.51	-0.43	0.00	-0.43	0.00	0.43	902.14	451.07	779.96	390.56	4.77	-0.30	0.007
156.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	4.83	-0.30	0.000
160.00	0.00	0.00	0.00	0.00	0.00	0.00	863.27	431.63	701.67	351.36	5.09	-0.30	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.74	-1.22	0.00	-152.41	0.00	152.41	4,428.22	2,214.11	10,591.0	5,303.38	0.00	0.00	0.036
5.00	-31.41	-1.22	0.00	-146.31	0.00	146.31	4,375.11	2,187.55	10,237.5	5,126.36	0.00	-0.01	0.036
10.00	-30.10	-1.23	0.00	-140.20	0.00	140.20	4,320.14	2,160.07	9,885.26	4,949.98	0.02	-0.01	0.035
15.00	-28.82	-1.23	0.00	-134.07	0.00	134.07	4,263.32	2,131.66	9,534.57	4,774.37	0.03	-0.02	0.035
20.00	-27.55	-1.23	0.00	-127.94	0.00	127.94	4,204.66	2,102.33	9,185.71	4,599.68	0.06	-0.03	0.034
25.00	-26.31	-1.22	0.00	-121.81	0.00	121.81	4,144.14	2,072.07	8,838.98	4,426.06	0.10	-0.04	0.034
30.00	-25.09	-1.22	0.00	-115.69	0.00	115.69	4,081.76	2,040.88	8,494.66	4,253.64	0.14	-0.05	0.033
35.00	-23.89	-1.21	0.00	-109.59	0.00	109.59	4,017.54	2,008.77	8,153.04	4,082.58	0.19	-0.05	0.033
40.00	-23.60	-1.21	0.00	-103.51	0.00	103.51	3,951.47	1,975.73	7,814.42	3,913.02	0.25	-0.06	0.032
41.25	-22.20	-1.20	0.00	-102.00	0.00	102.00	3,934.66	1,967.33	7,730.26	3,870.88	0.27	-0.06	0.032
45.00	-21.09	-1.19	0.00	-97.49	0.00	97.49	3,883.54	1,941.77	7,479.06	3,745.09	0.32	-0.07	0.031
48.00	-20.68	-1.19	0.00	-93.92	0.00	93.92	3,017.05	1,508.53	5,810.23	2,909.43	0.37	-0.08	0.039
50.00	-19.67	-1.17	0.00	-91.54	0.00	91.54	2,998.54	1,499.27	5,712.50	2,860.50	0.40	-0.08	0.039
55.00	-18.67	-1.16	0.00	-85.67	0.00	85.67	2,950.98	1,475.49	5,469.13	2,738.63	0.49	-0.09	0.038
60.00	-17.69	-1.14	0.00	-79.86	0.00	79.86	2,901.57	1,450.78	5,227.36	2,617.56	0.59	-0.10	0.037
65.00	-16.74	-1.13	0.00	-74.14	0.00	74.14	2,850.30	1,425.15	4,987.45	2,497.43	0.70	-0.11	0.036
70.00	-15.80	-1.10	0.00	-68.51	0.00	68.51	2,797.18	1,398.59	4,749.72	2,378.39	0.82	-0.12	0.034
75.00	-14.87	-1.08	0.00	-62.99	0.00	62.99	2,742.21	1,371.11	4,514.43	2,260.57	0.96	-0.13	0.033
80.00	-13.97	-1.05	0.00	-57.59	0.00	57.59	2,685.39	1,342.70	4,281.89	2,144.13	1.10	-0.14	0.032
85.00	-13.26	-1.03	0.00	-52.33	0.00	52.33	2,626.72	1,313.36	4,052.37	2,029.20	1.26	-0.15	0.031
89.00	-13.00	-1.02	0.00	-48.22	0.00	48.22	2,578.45	1,289.23	3,871.12	1,938.44	1.39	-0.16	0.030
90.00	-11.90	-0.97	0.00	-47.21	0.00	47.21	2,566.20	1,283.10	3,826.16	1,915.93	1.42	-0.16	0.029
94.25	-11.79	-0.97	0.00	-43.06	0.00	43.06	1,881.22	940.61	2,770.72	1,387.42	1.57	-0.17	0.037
95.00	-11.03	-0.94	0.00	-42.33	0.00	42.33	1,875.33	937.67	2,747.48	1,375.78	1.60	-0.17	0.037
100.00	-10.29	-0.90	0.00	-37.64	0.00	37.64	1,834.98	917.49	2,593.38	1,298.62	1.79	-0.19	0.035
105.00	-9.56	-0.87	0.00	-33.13	0.00	33.13	1,792.79	896.39	2,440.94	1,222.29	1.99	-0.20	0.032
110.00	-8.84	-0.82	0.00	-28.80	0.00	28.80	1,748.74	874.37	2,290.45	1,146.93	2.21	-0.21	0.030
115.00	-7.98	-0.77	0.00	-24.68	0.00	24.68	1,702.84	851.42	2,142.18	1,072.68	2.43	-0.22	0.028
119.50	-7.92	-0.77	0.00	-21.21	0.00	21.21	1,124.87	562.43	1,385.94	694.00	2.65	-0.23	0.038
120.00	-7.31	-0.73	0.00	-20.83	0.00	20.83	1,122.38	561.19	1,377.06	689.55	2.67	-0.23	0.037
125.00	-6.72	-0.68	0.00	-17.20	0.00	17.20	1,096.47	548.23	1,288.51	645.21	2.93	-0.25	0.033
130.00	-6.13	-0.64	0.00	-13.79	0.00	13.79	1,068.71	534.35	1,200.57	601.18	3.20	-0.26	0.029
135.00	-5.56	-0.59	0.00	-10.60	0.00	10.60	1,039.10	519.55	1,113.52	557.59	3.47	-0.27	0.024
140.00	-5.00	-0.54	0.00	-7.66	0.00	7.66	1,007.63	503.82	1,027.64	514.58	3.77	-0.28	0.020
145.00	-4.45	-0.48	0.00	-4.97	0.00	4.97	974.32	487.16	943.23	472.32	4.06	-0.29	0.015
150.00	-3.91	-0.43	0.00	-2.55	0.00	2.55	939.15	469.58	860.58	430.93	4.37	-0.30	0.010
155.00	-3.80	-0.42	0.00	-0.42	0.00	0.42	902.14	451.07	779.96	390.56	4.68	-0.30	0.005
156.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	4.74	-0.30	0.000
160.00	0.00	0.00	0.00	0.00	0.00	0.00	863.27	431.63	701.67	351.36	4.99	-0.30	0.000

Equivalent Modal Analysis Method

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

Spectral Response Acceleration for Short Period (S_s):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Period Based on Rayleigh Method (sec):	2.30
Redundancy Factor (p):	1.00

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	158.00	286	1.843	1.741	1.053	0.370	70	355
37	155.50	124	1.785	1.472	0.952	0.330	27	155
36	152.50	630	1.717	1.188	0.841	0.286	120	782
35	147.50	642	1.606	0.798	0.679	0.218	93	798
34	142.50	655	1.499	0.499	0.542	0.158	69	814
33	137.50	668	1.396	0.276	0.427	0.105	47	830
32	132.50	680	1.296	0.115	0.333	0.061	28	845
31	127.50	693	1.200	0.005	0.255	0.024	11	861
30	122.50	706	1.108	-0.065	0.192	-0.006	-3	877
29	119.75	71	1.059	-0.090	0.162	-0.019	-1	89
28	117.25	1,012	1.015	-0.106	0.139	-0.029	-19	1,258
27	112.50	832	0.934	-0.120	0.101	-0.042	-23	1,034
26	107.50	849	0.853	-0.119	0.070	-0.049	-28	1,055
25	102.50	866	0.776	-0.107	0.047	-0.049	-28	1,076
24	97.50	883	0.702	-0.087	0.030	-0.042	-25	1,097
23	94.63	134	0.661	-0.074	0.023	-0.035	-3	166
22	92.13	1,279	0.627	-0.062	0.018	-0.028	-24	1,589
21	89.50	305	0.591	-0.050	0.014	-0.019	-4	379
20	87.00	828	0.559	-0.038	0.011	-0.010	-6	1,029
19	82.50	1,055	0.502	-0.017	0.007	0.006	4	1,310
18	77.50	1,076	0.443	0.004	0.006	0.023	16	1,336
17	72.50	1,097	0.388	0.022	0.007	0.037	27	1,363
16	67.50	1,118	0.336	0.036	0.009	0.047	35	1,389
15	62.50	1,139	0.288	0.048	0.013	0.053	40	1,415
14	57.50	1,160	0.244	0.056	0.018	0.057	44	1,441
13	52.50	1,181	0.203	0.062	0.023	0.058	46	1,467
12	49.00	478	0.177	0.065	0.026	0.058	18	594
11	46.50	1,289	0.160	0.067	0.029	0.058	49	1,601
10	43.13	1,635	0.137	0.069	0.032	0.057	62	2,031
9	40.63	345	0.122	0.070	0.034	0.056	13	429
8	37.50	1,397	0.104	0.071	0.037	0.056	52	1,736
7	32.50	1,423	0.078	0.072	0.040	0.054	51	1,768
6	27.50	1,448	0.056	0.071	0.042	0.053	51	1,799
5	22.50	1,473	0.037	0.070	0.041	0.051	50	1,830

4	17.50	1,499	0.023	0.065	0.039	0.048	48	1,862
3	12.50	1,524	0.012	0.057	0.033	0.043	44	1,893
2	7.50	1,549	0.004	0.042	0.024	0.034	35	1,925
1	2.50	1,574	0.000	0.017	0.009	0.015	16	1,956
Raycap DC6-48-60-18-	156.00	80	1.797	1.523	0.972	0.338	18	99
Ericsson RRUS 4478 B	156.00	178	1.797	1.523	0.972	0.338	40	221
Ericsson RRUS 4449 B	156.00	213	1.797	1.523	0.972	0.338	48	265
Ericsson RRUS A2 B2	156.00	66	1.797	1.523	0.972	0.338	15	82
Ericsson RRUS 11 (Ba	156.00	165	1.797	1.523	0.972	0.338	37	205
Ericsson RRUS 32 B2	156.00	159	1.797	1.523	0.972	0.338	36	198
Ericsson RRUS	156.00	132	1.797	1.523	0.972	0.338	30	164
Ericsson RRUS-12 B2	156.00	174	1.797	1.523	0.972	0.338	39	216
CCI HPA-65R-BUU-H8	156.00	408	1.797	1.523	0.972	0.338	92	507
CCI DMP65R-BU8D	156.00	574	1.797	1.523	0.972	0.338	129	713
Round Platform w/ Ha	156.00	2,000	1.797	1.523	0.972	0.338	451	2,485
		39,751	44.307	22.879	17.044	5.805	1,939	49,389

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	158.00	286	1.843	1.741	1.053	0.370	70	245
37	155.50	124	1.785	1.472	0.952	0.330	27	107
36	152.50	630	1.717	1.188	0.841	0.286	120	540
35	147.50	642	1.606	0.798	0.679	0.218	93	551
34	142.50	655	1.499	0.499	0.542	0.158	69	562
33	137.50	668	1.396	0.276	0.427	0.105	47	573
32	132.50	680	1.296	0.115	0.333	0.061	28	583
31	127.50	693	1.200	0.005	0.255	0.024	11	594
30	122.50	706	1.108	-0.065	0.192	-0.006	-3	605
29	119.75	71	1.059	-0.090	0.162	-0.019	-1	61
28	117.25	1,012	1.015	-0.106	0.139	-0.029	-19	868
27	112.50	832	0.934	-0.120	0.101	-0.042	-23	713
26	107.50	849	0.853	-0.119	0.070	-0.049	-28	728
25	102.50	866	0.776	-0.107	0.047	-0.049	-28	742
24	97.50	883	0.702	-0.087	0.030	-0.042	-25	757
23	94.63	134	0.661	-0.074	0.023	-0.035	-3	115
22	92.13	1,279	0.627	-0.062	0.018	-0.028	-24	1,097
21	89.50	305	0.591	-0.050	0.014	-0.019	-4	261
20	87.00	828	0.559	-0.038	0.011	-0.010	-6	710
19	82.50	1,055	0.502	-0.017	0.007	0.006	4	904
18	77.50	1,076	0.443	0.004	0.006	0.023	16	922
17	72.50	1,097	0.388	0.022	0.007	0.037	27	940
16	67.50	1,118	0.336	0.036	0.009	0.047	35	959
15	62.50	1,139	0.288	0.048	0.013	0.053	40	977
14	57.50	1,160	0.244	0.056	0.018	0.057	44	995
13	52.50	1,181	0.203	0.062	0.023	0.058	46	1,013
12	49.00	478	0.177	0.065	0.026	0.058	18	410
11	46.50	1,289	0.160	0.067	0.029	0.058	49	1,105
10	43.13	1,635	0.137	0.069	0.032	0.057	62	1,402
9	40.63	345	0.122	0.070	0.034	0.056	13	296
8	37.50	1,397	0.104	0.071	0.037	0.056	52	1,198
7	32.50	1,423	0.078	0.072	0.040	0.054	51	1,220
6	27.50	1,448	0.056	0.071	0.042	0.053	51	1,242
5	22.50	1,473	0.037	0.070	0.041	0.051	50	1,263
4	17.50	1,499	0.023	0.065	0.039	0.048	48	1,285
3	12.50	1,524	0.012	0.057	0.033	0.043	44	1,307
2	7.50	1,549	0.004	0.042	0.024	0.034	35	1,328
1	2.50	1,574	0.000	0.017	0.009	0.015	16	1,350

Raycap DC6-48-60-18-	156.00	80	1.797	1.523	0.972	0.338	18	69
Ericsson RRUS 4478 B	156.00	178	1.797	1.523	0.972	0.338	40	153
Ericsson RRUS 4449 B	156.00	213	1.797	1.523	0.972	0.338	48	183
Ericsson RRUS A2 B2	156.00	66	1.797	1.523	0.972	0.338	15	57
Ericsson RRUS 11 (Ba	156.00	165	1.797	1.523	0.972	0.338	37	141
Ericsson RRUS 32 B2	156.00	159	1.797	1.523	0.972	0.338	36	136
Ericsson RRUS	156.00	132	1.797	1.523	0.972	0.338	30	113
Ericsson RRUS-12 B2	156.00	174	1.797	1.523	0.972	0.338	39	149
CCI HPA-65R-BUU-H8	156.00	408	1.797	1.523	0.972	0.338	92	350
CCI DMP65R-BU8D	156.00	574	1.797	1.523	0.972	0.338	129	492
Round Platform w/ Ha	156.00	2,000	1.797	1.523	0.972	0.338	451	1,715
		39,751	44.307	22.879	17.044	5.805	1,939	34,088

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.43	-1.93	0.00	-232.87	0.00	232.87	4,428.22	2,214.11	10,591.02	5,303.38	0.00	0.00	0.055
5.00	-45.51	-1.90	0.00	-223.24	0.00	223.24	4,375.11	2,187.55	10,237.51	5,126.36	0.01	-0.01	0.054
10.00	-43.61	-1.87	0.00	-213.73	0.00	213.73	4,320.14	2,160.07	9,885.26	4,949.98	0.02	-0.02	0.053
15.00	-41.75	-1.82	0.00	-204.41	0.00	204.41	4,263.32	2,131.66	9,534.57	4,774.37	0.05	-0.03	0.053
20.00	-39.92	-1.78	0.00	-195.29	0.00	195.29	4,204.66	2,102.33	9,185.71	4,599.68	0.09	-0.05	0.052
25.00	-38.12	-1.74	0.00	-186.38	0.00	186.38	4,144.14	2,072.07	8,838.98	4,426.06	0.15	-0.06	0.051
30.00	-36.35	-1.69	0.00	-177.70	0.00	177.70	4,081.76	2,040.88	8,494.66	4,253.64	0.22	-0.07	0.051
35.00	-34.62	-1.64	0.00	-169.24	0.00	169.24	4,017.54	2,008.77	8,153.04	4,082.58	0.30	-0.08	0.050
40.00	-34.19	-1.64	0.00	-161.02	0.00	161.02	3,951.47	1,975.73	7,814.42	3,913.02	0.39	-0.10	0.050
41.25	-32.16	-1.57	0.00	-158.97	0.00	158.97	3,934.66	1,967.33	7,730.26	3,870.88	0.41	-0.10	0.049
45.00	-30.56	-1.53	0.00	-153.07	0.00	153.07	3,883.54	1,941.77	7,479.06	3,745.09	0.50	-0.11	0.049
48.00	-29.96	-1.51	0.00	-148.49	0.00	148.49	3,017.05	1,508.53	5,810.23	2,909.43	0.57	-0.12	0.061
50.00	-28.49	-1.47	0.00	-145.46	0.00	145.46	2,998.54	1,499.27	5,712.50	2,860.50	0.62	-0.12	0.060
55.00	-27.05	-1.43	0.00	-138.12	0.00	138.12	2,950.98	1,475.49	5,469.13	2,738.63	0.75	-0.14	0.060
60.00	-25.64	-1.39	0.00	-130.98	0.00	130.98	2,901.57	1,450.78	5,227.36	2,617.56	0.91	-0.16	0.059
65.00	-24.25	-1.36	0.00	-124.02	0.00	124.02	2,850.30	1,425.15	4,987.45	2,497.43	1.08	-0.17	0.058
70.00	-22.88	-1.34	0.00	-117.21	0.00	117.21	2,797.18	1,398.59	4,749.72	2,378.39	1.27	-0.19	0.057
75.00	-21.55	-1.32	0.00	-110.53	0.00	110.53	2,742.21	1,371.11	4,514.43	2,260.57	1.48	-0.21	0.057
80.00	-20.24	-1.32	0.00	-103.91	0.00	103.91	2,685.39	1,342.70	4,281.89	2,144.13	1.71	-0.23	0.056
85.00	-19.21	-1.33	0.00	-97.31	0.00	97.31	2,626.72	1,313.36	4,052.37	2,029.20	1.96	-0.25	0.055
89.00	-18.83	-1.33	0.00	-92.00	0.00	92.00	2,578.45	1,289.23	3,871.12	1,938.44	2.18	-0.26	0.055
90.00	-17.24	-1.35	0.00	-90.66	0.00	90.66	2,566.20	1,283.10	3,826.16	1,915.93	2.23	-0.27	0.054
94.25	-17.07	-1.36	0.00	-84.91	0.00	84.91	1,881.22	940.61	2,770.72	1,387.42	2.48	-0.29	0.070
95.00	-15.98	-1.38	0.00	-83.89	0.00	83.89	1,875.33	937.67	2,747.48	1,375.78	2.52	-0.29	0.069
100.00	-14.90	-1.41	0.00	-76.98	0.00	76.98	1,834.98	917.49	2,593.38	1,298.62	2.84	-0.31	0.067
105.00	-13.84	-1.44	0.00	-69.93	0.00	69.93	1,792.79	896.39	2,440.94	1,222.29	3.18	-0.34	0.065
110.00	-12.81	-1.46	0.00	-62.74	0.00	62.74	1,748.74	874.37	2,290.45	1,146.93	3.55	-0.37	0.062
115.00	-11.55	-1.48	0.00	-55.43	0.00	55.43	1,702.84	851.42	2,142.18	1,072.68	3.95	-0.39	0.058
119.50	-11.46	-1.48	0.00	-48.78	0.00	48.78	1,124.87	562.43	1,385.94	694.00	4.33	-0.41	0.080
120.00	-10.58	-1.48	0.00	-48.04	0.00	48.04	1,122.38	561.19	1,377.06	689.55	4.37	-0.42	0.079
125.00	-9.72	-1.47	0.00	-40.63	0.00	40.63	1,096.47	548.23	1,288.51	645.21	4.83	-0.45	0.072
130.00	-8.88	-1.44	0.00	-33.29	0.00	33.29	1,068.71	534.35	1,200.57	601.18	5.32	-0.48	0.064
135.00	-8.05	-1.39	0.00	-26.10	0.00	26.10	1,039.10	519.55	1,113.52	557.59	5.83	-0.51	0.055
140.00	-7.23	-1.31	0.00	-19.16	0.00	19.16	1,007.63	503.82	1,027.64	514.58	6.38	-0.53	0.044
145.00	-6.44	-1.22	0.00	-12.59	0.00	12.59	974.32	487.16	943.23	472.32	6.94	-0.55	0.033
150.00	-5.65	-1.09	0.00	-6.51	0.00	6.51	939.15	469.58	860.58	430.93	7.53	-0.56	0.021
155.00	-5.50	-1.06	0.00	-1.06	0.00	1.06	902.14	451.07	779.96	390.56	8.13	-0.57	0.009
156.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	8.24	-0.57	0.000
160.00	0.00	0.00	0.00	0.00	0.00	0.00	863.27	431.63	701.67	351.36	8.72	-0.57	0.000

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.74	-1.93	0.00	-229.67	0.00	229.67	4,428.22	2,214.11	10,591.02	5,303.38	0.00	0.00	0.051
5.00	-31.41	-1.90	0.00	-220.04	0.00	220.04	4,375.11	2,187.55	10,237.51	5,126.36	0.01	-0.01	0.050
10.00	-30.10	-1.86	0.00	-210.56	0.00	210.56	4,320.14	2,160.07	9,885.26	4,949.98	0.02	-0.02	0.050
15.00	-28.82	-1.82	0.00	-201.27	0.00	201.27	4,263.32	2,131.66	9,534.57	4,774.37	0.05	-0.03	0.049
20.00	-27.55	-1.77	0.00	-192.19	0.00	192.19	4,204.66	2,102.33	9,185.71	4,599.68	0.09	-0.04	0.048
25.00	-26.31	-1.72	0.00	-183.34	0.00	183.34	4,144.14	2,072.07	8,838.98	4,426.06	0.15	-0.06	0.048
30.00	-25.09	-1.68	0.00	-174.72	0.00	174.72	4,081.76	2,040.88	8,494.66	4,253.64	0.21	-0.07	0.047
35.00	-23.89	-1.63	0.00	-166.35	0.00	166.35	4,017.54	2,008.77	8,153.04	4,082.58	0.29	-0.08	0.047
40.00	-23.60	-1.62	0.00	-158.21	0.00	158.21	3,951.47	1,975.73	7,814.42	3,913.02	0.38	-0.09	0.046
41.25	-22.19	-1.56	0.00	-156.18	0.00	156.18	3,934.66	1,967.33	7,730.26	3,870.88	0.41	-0.10	0.046
45.00	-21.09	-1.51	0.00	-150.35	0.00	150.35	3,883.54	1,941.77	7,479.06	3,745.09	0.49	-0.11	0.046
48.00	-20.68	-1.49	0.00	-145.83	0.00	145.83	3,017.05	1,508.53	5,810.23	2,909.43	0.56	-0.12	0.057
50.00	-19.67	-1.45	0.00	-142.85	0.00	142.85	2,998.54	1,499.27	5,712.50	2,860.50	0.61	-0.12	0.056
55.00	-18.67	-1.41	0.00	-135.61	0.00	135.61	2,950.98	1,475.49	5,469.13	2,738.63	0.74	-0.14	0.056
60.00	-17.69	-1.37	0.00	-128.58	0.00	128.58	2,901.57	1,450.78	5,227.36	2,617.56	0.90	-0.15	0.055
65.00	-16.73	-1.34	0.00	-121.73	0.00	121.73	2,850.30	1,425.15	4,987.45	2,497.43	1.06	-0.17	0.055
70.00	-15.79	-1.31	0.00	-115.05	0.00	115.05	2,797.18	1,398.59	4,749.72	2,378.39	1.25	-0.19	0.054
75.00	-14.87	-1.30	0.00	-108.50	0.00	108.50	2,742.21	1,371.11	4,514.43	2,260.57	1.46	-0.21	0.053
80.00	-13.97	-1.29	0.00	-102.01	0.00	102.01	2,685.39	1,342.70	4,281.89	2,144.13	1.68	-0.22	0.053
85.00	-13.26	-1.30	0.00	-95.54	0.00	95.54	2,626.72	1,313.36	4,052.37	2,029.20	1.93	-0.24	0.052
89.00	-12.99	-1.31	0.00	-90.34	0.00	90.34	2,578.45	1,289.23	3,871.12	1,938.44	2.14	-0.26	0.052
90.00	-11.90	-1.33	0.00	-89.04	0.00	89.04	2,566.20	1,283.10	3,826.16	1,915.93	2.19	-0.26	0.051
94.25	-11.78	-1.33	0.00	-83.40	0.00	83.40	1,881.22	940.61	2,770.72	1,387.42	2.44	-0.28	0.066
95.00	-11.02	-1.35	0.00	-82.40	0.00	82.40	1,875.33	937.67	2,747.48	1,375.78	2.48	-0.28	0.066
100.00	-10.28	-1.38	0.00	-75.63	0.00	75.63	1,834.98	917.49	2,593.38	1,298.62	2.79	-0.31	0.064
105.00	-9.55	-1.41	0.00	-68.71	0.00	68.71	1,792.79	896.39	2,440.94	1,222.29	3.13	-0.33	0.062
110.00	-8.84	-1.43	0.00	-61.65	0.00	61.65	1,748.74	874.37	2,290.45	1,146.93	3.49	-0.36	0.059
115.00	-7.97	-1.45	0.00	-54.48	0.00	54.48	1,702.84	851.42	2,142.18	1,072.68	3.88	-0.38	0.055
119.50	-7.91	-1.45	0.00	-47.95	0.00	47.95	1,124.87	562.43	1,385.94	694.00	4.26	-0.41	0.076
120.00	-7.30	-1.45	0.00	-47.22	0.00	47.22	1,122.38	561.19	1,377.06	689.55	4.30	-0.41	0.075
125.00	-6.71	-1.44	0.00	-39.95	0.00	39.95	1,096.47	548.23	1,288.51	645.21	4.75	-0.44	0.068
130.00	-6.12	-1.41	0.00	-32.73	0.00	32.73	1,068.71	534.35	1,200.57	601.18	5.22	-0.47	0.060
135.00	-5.55	-1.36	0.00	-25.66	0.00	25.66	1,039.10	519.55	1,113.52	557.59	5.73	-0.50	0.051
140.00	-4.99	-1.29	0.00	-18.84	0.00	18.84	1,007.63	503.82	1,027.64	514.58	6.27	-0.52	0.042
145.00	-4.44	-1.20	0.00	-12.38	0.00	12.38	974.32	487.16	943.23	472.32	6.83	-0.54	0.031
150.00	-3.90	-1.07	0.00	-6.40	0.00	6.40	939.15	469.58	860.58	430.93	7.40	-0.55	0.019
155.00	-3.79	-1.04	0.00	-1.04	0.00	1.04	902.14	451.07	779.96	390.56	7.99	-0.56	0.007
156.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	8.10	-0.56	0.000
160.00	0.00	0.00	0.00	0.00	0.00	0.00	863.27	431.63	701.67	351.36	8.57	-0.56	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 + 1.6W	30.96	0.00	47.66	0.00	0.00	2998.20	119.50	0.64
0.9D + 1.6W	30.94	0.00	35.74	0.00	0.00	2967.97	119.50	0.62
1.2D + 1.0Di + 1.0Wi	6.88	0.00	74.98	0.00	0.00	658.05	119.50	0.15
(1.2 + 0.2Sds) * DL + E ELFM	1.22	0.00	47.43	0.00	0.00	154.47	48.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.93	0.00	47.43	0.00	0.00	232.87	119.50	0.08
(0.9 - 0.2Sds) * DL + E ELFM	1.22	0.00	32.74	0.00	0.00	152.41	48.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.93	0.00	32.74	0.00	0.00	229.67	119.50	0.08
1.0D + 1.0W	7.20	0.00	39.75	0.00	0.00	693.85	119.50	0.15

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
3,550.00	40.00	30.00	2,998.20	74.98	30.96	62.56

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	2.250	71.500	Round	0	0.00	13.262	312.42	755.33	0.41

Anchor Bolts

								Start	Compression			Tension		
Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Angle (deg)	Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
65.50	14	2.25" A615-	2.25	75.00	100.00	Radial	0.00	0.0	162.29	260.00	0.64	151.58	260.00	0.60

Site Name: Bridgewater CT, CT
Site Number: 281862
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-G Standards

Monolithic Mat & Pier Foundation Analysis

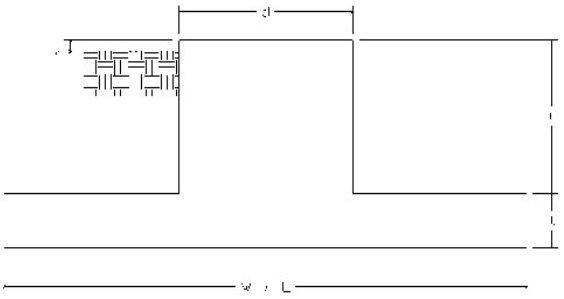
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:	47.7	k
Uplift/Leg:	0.0	k
Total Shear:	31.0	k
Moment:	2,998.2	k-ft
Tower + Appurtenance Weight:	39.8	k
Depth to Base of Foundation (l + t - h):	6	ft
Diameter of Pier (d):	8	ft
Length of Pier (l):	3.5	ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	27	ft
Length of Pad (L):	27	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:	125	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	62.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.28	-
Ultimate Compressive Bearing Pressure:	4,000	psf
Ultimate Passive Pressure on Pad Face:	0	psf
$f_{Soil\ and\ Concrete\ Weight}$:	0.9	-
f_{Soil}:	0.75	-

Foundation Steel Parameters		
Concrete Strength (f'_c):	4,000	psi
Pad Tension Steel Depth:	32.0	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 #:	9	-
# of Bottom Pad Rebar:	27	-
Pad Bottom Steel Area:	27.00	in^2
Pad Steel F_y:	60,000	psi
Top Pad Rebar Size #:	9	-
# of Top Pad Rebar:	27	-
Pad Top Steel Area:	27.00	in^2
Pier Rebar Size #:	9	-
Pier Steel Area (Single Bar):	1.00	in^2
# of Pier Rebar:	48	-
Pier Steel F_y:	60,000	psi
Pier Cage Diameter:	88.0	in
Rebar Strain Limit:	0.008	-
Steel Elastic Modulus:	29,000	ksi
Tie Rebar Size #:	4	-
Tie Steel Area (Single Bar):	0.20	in^2
Tie Spacing:	6	in
Tie Steel F_y:	60,000	psi

Overturning Moment Usage		
Design OTM:	3199.4	k-ft
OTM Resistance:	8204.8	k-ft
Design OTM / OTM Resistance:	39%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	1182	psf
Factored Nominal Bearing Pressure:	3000	psf
Factored Nominal (Net) Bearing Pressure:	39%	Pass
Load Direction Controling Design Bearing Pressure:	*Diagonal to Pad Edge*	

Sliding Factor of Safety		
Ultimate Friction Resistance:	179.8	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	134.8	k
Sliding Design / Sliding Resistance:	23%	Pass



Pad Strength Capacity			
Factored One Way Shear (V_u):	172.6	k	
One Way Shear Capacity (fV_c):	983.6	k	*ACI11.3.1.1*
V_u / fV_c:	18%	Pass	
Load Direction Controling Shear Capacity:	*Parallel to Pad Edge*		
Lower Steel Pad Factored Moment (M_u):	1161.8	k-ft	
Lower Steel Pad Moment Capacity (fM_n):	3812.1	k-ft	*ACI10.3*
M_u / fM_n:	30%	Pass	
Load Direction Controling Flexural Capacity:	*Parallel to Pad Edge*		
Upper Steel Pad Factored Moment (M_u):	798.1	k-ft	
Upper Steel Pad Moment Capacity (fM_n):	3812.1	k-ft	
M_u / fM_n:	21%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0026		*OK - Minimum Reinforcement Ratio Met - ACI10.5.1*
Upper Pad Flexural Reinforcement Ratio:	0.0026		*OK - Minimum Reinforcement Ratio Met - ACI10.5.1*
Pad Shrinkage Reinforcement Ratio:	0.0052		*OK - Shrinkage Reinforcement Ratio Met - ACI7.12.2.1*
Lower Pad Reinforcement Spacing:	12	in	*Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4*
Upper Pad Reinforcement Spacing:	12	in	*Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4*
Factored Punching Shear (V_u):	0.0	k	
Nominal Punching Shear Capacity (f_cV_n):	2441.5	k	*ACI11.12.2.1*
V_u / fV_c:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	3106.6	k-ft	
Pier Moment Capacity (fM_n):	9294.8	k-ft	
M_u / fM_n:	33%	Pass	
Factored Shear in Pier (V_u):	31.0	k	
Pier Shear Capacity (fV_n):	919.3	k	
V_u / fV_c:	3%	Pass	
Pier Shear Reinforcement Ratio:	0.0003		*OK - No Ties Necessary for Shear - ACI11.5.6.1*
Factored Tension in Pier (T_u):	0.0	k	
Pier Tension Capacity (fT_n):	2592.0	k	
T_u / fT_n:	0%	Pass	
Factored Compression in Pier (P_u):	47.7	k	
Pier Compression Capacity (fP_n):	12712.3	k	*ACI10.3.6.2*
P_u / fP_n:	0%	Pass	
Pier Compression Reinforcement Ratio:	0.007		*OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4*
Minimum Depth to Develop Vertical Rebar:	22	in	*ACI12.2.3*
Minimum Hook Development Length:	15	in	*ACI12.5*
Minimum Mat Thickness / Edge Distance from Pier:	18.0	in	
Minimum Foundation Depth:	3.60	ft	
$M_u/f_BM_n + T_u/f_TT_n$:	33%	Pass	

Base Plate & Anchor Rod Analysis

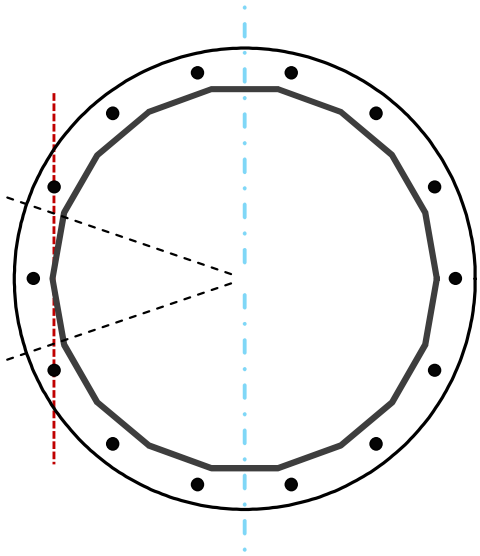
Pole Dimensions		
Number of Sides	18	-
Diameter	58.5	in
Thickness	0.375	in
Orientation Offset		°

Base Reactions		
Moment, Mu	2998.2	k-ft
Axial, Pu	47.7	k
Shear, Vu	31.0	k
Neutral Axis	90	°

Report Capacities		
Component	Capacity	Result
Base Plate	39%	Pass
Anchor Rods	62%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	71.5	in
Thickness	2 1/4	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	540.9	k
Bending Stress, ϕMn	1392.6	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	14	-
Diameter, ø	2 1/4	in
Bolt Circle	65.5	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	14.7	in
Orientation Offset		°
Applied Force, Pu	160.3	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	31.0	2998.2	1.00
Anchor Rod Forces	31.0	2998.2	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	68.1298	3.7850	0.1780		28775.39
Bolt	3.9761	3.2477	0.8393	4.5	24395.20
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	71.5	in
Thickness, t	2.25	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	41.110	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	65.5	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	160.3	k
Applied Shear, Vu	0.8	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.617	OK
Interaction Capacity	0.623	OK

External Base Plate		
Chord Length AA	34.241	in
Additional AA	4.500	in
Section Modulus, Z	49.031	in^3
Applied Moment, Mu	579.0	k-ft
Bending Capacity, ϕMn	2206.4	k-ft
Capacity, Mu/ϕMn	0.262	OK
Chord Length AB	32.636	in
Additional AB	4.500	in
Section Modulus, Z	47.001	in^3
Applied Moment, Mu	468.3	k-ft
Bending Capacity, ϕMn	2115.0	k-ft
Capacity, Mu/ϕMn	0.221	OK
Bend Line Length	24.452	in
Additional Bend Line	0.000	in
Section Modulus, Z	30.947	in^3
Applied Moment, Mu	540.9	k-ft
Bending Capacity, ϕMn	1392.6	k-ft
Capacity, Mu/ϕMn	0.388	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		

111 SECOND HILL RD

Location	111 SECOND HILL RD	**Mblu**	28/ 50/ / /
Acct#	00068800	**Owner**	RIEBE ROBERT J
Assessment	$256,900	**Appraisal**	$366,900
PID	744	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$146,300	$220,600	$366,900
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$102,400	$154,500	$256,900

Owner of Record

Owner	RIEBE ROBERT J	**Sale Price**	$230,000
Co-Owner		**Certificate**	C
		Book & Page	43/ 362
		Sale Date	12/04/1995
		Instrument	00

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
RIEBE ROBERT J	$230,000	C	43/ 362	00	12/04/1995

Building Information

Building 1 : Section 1

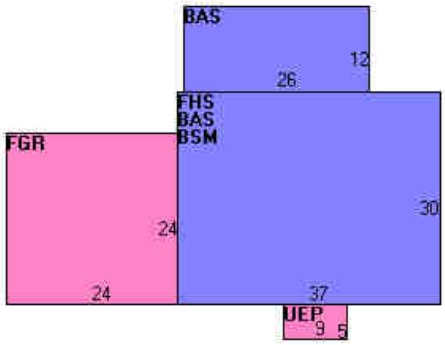
Year Built:	1964
Living Area:	2,088
Replacement Cost:	$211,401
Building Percent Good:	69
Replacement Cost Less Depreciation:	$145,900

Building Attributes	
Field	**Description**
Style	Cape Cod
Model	Residential
Grade:	C+
Stories:	1 1/2 Stories
Occupancy	1
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	Vinyl Siding
Roof Structure:	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall
Interior Wall 2	K Pine/A Wd
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	Central
Total Bedrooms:	3 Bedrooms
Total Full Bathrms	1 Full Bath
Total Half Baths:	1 Half Bath
Total Xtra Fixtrs:	1
Total Rooms:	7 Rooms
Bath Style:	Average
Kitchen Style:	Average
Fireplaces	1
Whirlpool Tubs	
Fin Basement	
Fin Bsmt Qual	
Bsmt. Garages	0

Building Photo

(http://images.vgsi.com/photos/BridgewaterCTPhotos//\00\00\20/17.jpg)

Building Layout



(http://images.vgsi.com/photos/BridgewaterCTPhotos//Sketches/744_744.jpg)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,422	1,422
FHS	Finished Half Story	1,110	666
BSM	Basement Area	1,110	0
FGR	Garage	576	0
UEP	Utility Enclosed Porch	45	0
		4,263	2,088

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	101
Description	Single Family
Zone	RR3
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	4.5
Frontage	0
Depth	0
Assessed Value	$154,500
Appraised Value	$220,600

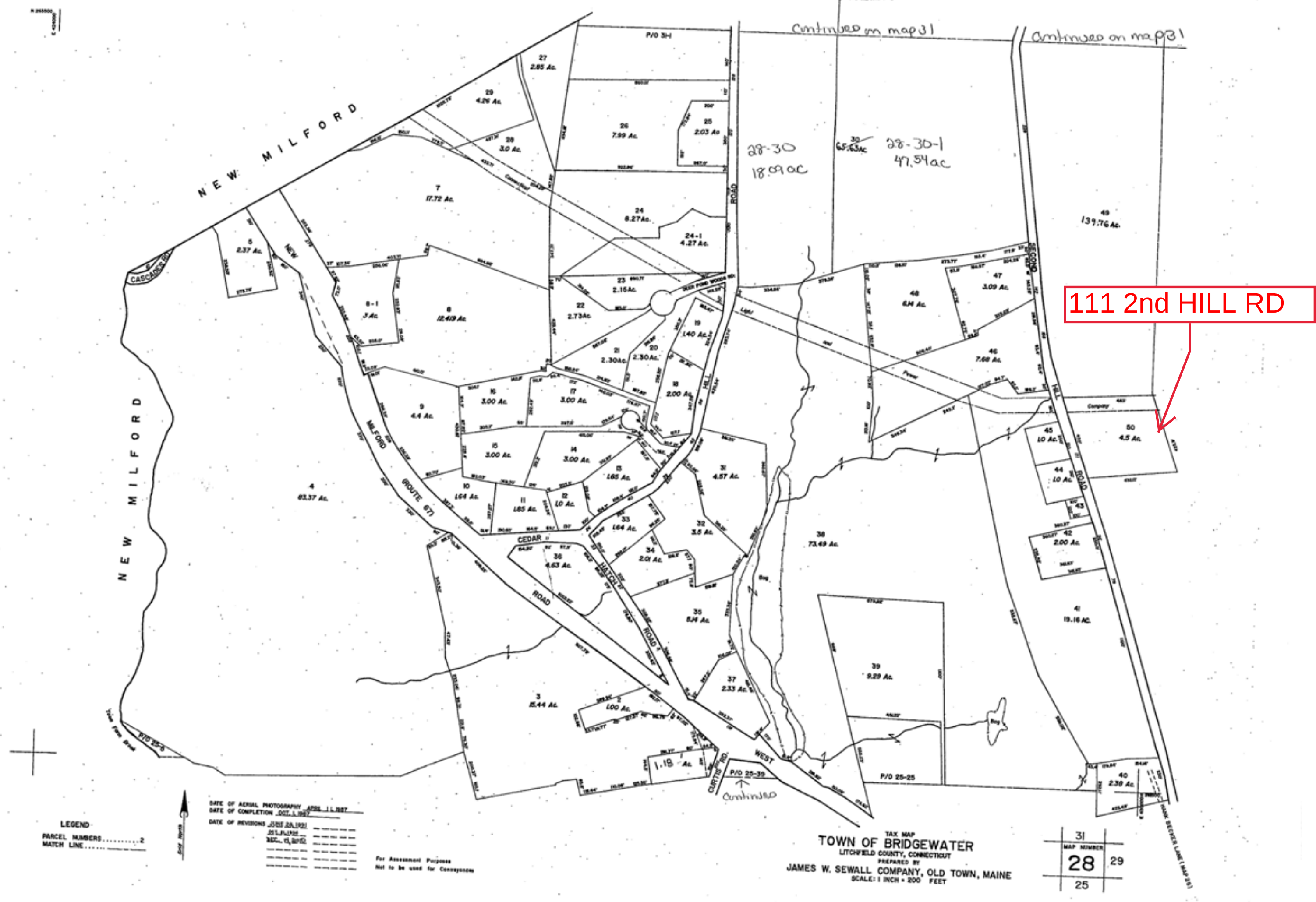
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FSS	Farm Utlty Strg Shed	FR	Frame	216 S.F.	$400	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$146,300	$220,600	$366,900
2017	$146,300	$220,600	$366,900
2015	$213,200	$226,000	$439,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$102,400	$154,500	$256,900
2017	$102,400	$154,500	$256,900
2015	$149,300	$158,300	$307,600



111 2nd HILL RD
continued on map 31
continued on map 31
NEW MILFORD
NEW MILFORD
MILFORD (ROUTE 67) ROAD
CEDAR
HILL ROAD
SECOND HILL ROAD
CURTIS RD.
WEST
28-30
18.09 ac
28-30-1
47.54 ac
P/O 31-1
P/O 25-39
P/O 25-25
P/O 25-8
1.18 Ac.
continued
LEGEND
PARCEL NUMBERS..........2
MATCH LINE
DATE OF AERIAL PHOTOGRAPHY APRIL 11, 1957
DATE OF COMPLETION OCT. 1, 1957
DATE OF REVISIONS
For Assessment Purposes
Not to be used for Conveyances
TAX MAP
TOWN OF BRIDGEWATER
LITCHFIELD COUNTY, CONNECTICUT
PREPARED BY
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE
SCALE: 1 INCH = 200 FEET
MAP NUMBER
28
31
29
25

DOCKET NO. 437 – New Cingular Wireless PCS, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 111 Second Hill Road, Bridgewater, Connecticut.	}	Connecticut Siting Council September 5, 2013

Decision and Order

Pursuant to Connecticut General Statutes §16-50p and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation 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 New Cingular Wireless PCS, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 111 Second Hill Road, Bridgewater, 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 the Certificate Holder and other entities, both public and private, but such tower shall not exceed a height of 160 feet above ground level. The height at the top of the Certificate Holder's antennas shall not exceed 160 feet above ground level.

2. 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 Bridgewater 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;
    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; and
    c) protective measures for the wood turtle and American Kestrel.

3. 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.

4. 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.

5. 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.

6. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service 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. 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.

7. Any request for extension of the time period referred to in Condition 6 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 of Bridgewater. Any proposed modifications to this Decision and Order shall likewise be so served.

8. 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.

9. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

10. 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.

11. 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.

12. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

13. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

14. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

15. This Certificate may be surrendered by the Certificate Holder upon written notification and approval by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated March 6, 2013, and notice of issuance published in the News Times.

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.

JHANA ARSENAULT
6034210470
SAI COMMUNICATIONS
12 INDUSTRIAL WAY
SALEM NH 03079

1 LBS

1 OF 1

SHIP TO:

CURTIS READ
6034210470
TOWN OF BRIDGEWATER
44 MAIN ST. SOUTH
BRIDGEWATER CT 06752

CT 068 0-03

UPS GROUND

TRACKING #: 1Z 9V0 F66 03 9801 8146

BILLING: P/P

Reference No.1: CT1252/CT-103-19002 CSC mailing

XOL 19.10.06 NV45 15.0A 07/2019

™

JHANA ARSENAULT
6034210470
SAI COMMUNICATIONS
12 INDUSTRIAL WAY
SALEM NH 03079

1 LBS

1 OF 1

SHIP TO:

LOIS GILMORE
6034210470
TOWN OF BRIDGEWATER
44 MAIN ST. SOUTH
BRIDGEWATER CT 06752

CT 068 0-03

UPS GROUND

TRACKING #: 1Z 9V0 F66 03 9371 4554

BILLING: P/P

Reference No.1: CT1252/CT-103-19002 CSC mailing

XOL 19.10.06 NV45 15.0A 07/2019

JHANA ARSENAULT
6034210470
SAI COMMUNICATIONS
12 INDUSTRIAL WAY
SALEM NH 03079

1 LBS

1 OF 1

SHIP TO:

ROBERT J. RIEBE
6034700470
ROBERT J. RIEBE
111 SECOND HILL RD.
BRIDGEWATER CT 06752

CT 068 0-03

UPS GROUND

TRACKING #: 1Z 9V0 F66 03 9223 3745

BILLING: P/P

Reference No.1: CT1252/CT-103-19002 CSC mailing

XOL 19.10.06 NV45 15.0A 07/2019

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