Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts
and New York

August 16, 2021

Via Electronic Mail

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

Re: **Notice of Exempt Modification – Facility Modification**
50 Plantation Road, East Windsor, Connecticut

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains an existing wireless telecommunications facility at the above-referenced property address (the "Property"). The facility consists of antennas and remote radio heads attached to a water tower and related equipment on the ground, near the base of the water tower. The existing 132.5-foot tower was constructed in 1947 and, according to information presented in TS-CING-047-060405, was first used for telecommunications purposes by Sprint in 1996. On April 12, 2006, the Council, exercising jurisdiction over the existing tower, approved the tower share application filed by New Cingular Wireless PCS, LLC ("Cingular") (TS-CING-047-060405). A copy of the Council's approval of the Cingular tower share application is included in Attachment 1. AT&T; Sprint; T-Mobile, Metro PCS and Clearwire currently maintain antennas at various heights on the water tower and maintain radio equipment inside a fenced facility compound near the base of the tower. Cellco's shared use of the tower was approved by the Council in September of 2020 (TS-VER-047-200827). Copies of the above-referenced approvals are included in Attachment 1.

Cellco now intends to modify its facility by replacing nine (9) existing antennas with three (3) Samsung MT6407-77A antennas; three (3) NHHSS-65B-R2B antennas; and three (3) NHH-65B-R2B antennas and installing three (3) remote radio heads ("RRHs") all at the same heights on the water tower. A set of project plans showing Cellco's proposed facility modifications and specifications for Cellco's new antennas and RRHs are included in

Attachment 2. Please note that Cellco refers to its facility as its South Windsor North CT facility.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to East Windsor's Chief Elected Official and Land Use Officer.

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 tower. Cellco's replacement antennas will be installed on its existing antenna mounting structure.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, 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 installation of Cellco's new antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative general power density table for Cellco's modified facility is included in Attachment 3. The modified facility will be capable of providing Cellco's 5G wireless service.

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

6. According to the attached Structural Analysis ("SA") and Mount Analysis ("MA"), the existing water tower, its foundation and antenna mounts can support Cellco's proposed modifications. Copies of the SA and MA are included in Attachment 4.

A copy of the parcel map and Property owner information is included in Attachment 5. A Certificate of Mailing verifying that this filing was sent to municipal officials and the property owner is included in Attachment 6.

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Jason E. Bowsza, First Selectman
Mike D'Amato, Acting Town Planner
Plantation Properties, LLC, Property Owner
Alex Tyurin

ATTACHMENT 1

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

April 13, 2006

Steven L. Levine
Real Estate Consultant
New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **TS-CING-047-060405** - New Cingular Wireless PCS, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 50 Plantation Road, East Windsor, Connecticut.

Dear Mr. Levine:

At a public meeting held April 12, 2006, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated April 4, 2006, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: The Honorable Linda L. Roberts, First Selectman, Town of East Windsor
Laurie Whitten, Town Planner, Town of East Windsor
Thomas J Regan, Esq., Brown Rudnick Berlack Israels LLP
Christopher B. Fisher, Esq., Cuddy & Feder LLP

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

September 25, 2020

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **TS-VER-047-200827 -** Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 50 Plantation Road, East Windsor, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on September 24, 2020, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

1. Approval of any changes be delegated to Council staff;

2. Prior to Verizon's antenna installation, the tower modifications shall be installed in accordance with the Structural Analysis prepared by All Points Technology Corporation, dated July 9, 2020 and signed and stamped by Michael S. Trodden;

3. Within 45 days following completion of equipment installation, Verizon shall provide documentation certified by a Professional Engineer that its installation complied with the recommendations of the Structural Analysis;

4. Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;

5. Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65;

6. Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation has been completed;

7. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by Verizon shall be removed within 60 days of the date the antenna ceased to function;

8. The validity of this action shall expire one year from the date of this letter; and

9. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

This decision is under the exclusive jurisdiction of the Council and applies only to this request for tower sharing dated August 27, 2020. This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower. Any deviation from the approved tower sharing request is enforceable under the provisions of Connecticut General Statutes § 16-50u.

The proposed shared use is to be implemented as specified in your letter dated August 27, 2020, including the placement of all necessary equipment and shelters within the tower compound.

Please be advised that the validity of this action shall expire one year from the date of this letter.

Thank you for your attention and cooperation.

Sincerely,

s/ Melanie A. Bachman

Melanie Bachman
Executive Director

MAB/IN/emr

c: The Honorable Jason E. Bowsza, First Selectman, Town of East Windsor (jbowsza@eastwindsorct.com)

ATTACHMENT 2

verizon

WIRELESS SERVICES FACILITY

SOUTH WINDSOR NORTH CT
50 PLANTATION ROAD
EAST WINDSOR, CT 06016

DRAWING INDEX

SITE DIRECTIONS

START: 20 ALEXANDER DRIVE
WALLINGFORD, CONNECTICUT 06492

END: 50 PLANTATION ROAD
EAST WINDSOR, CT 06016

1.	FROM ALEXANDER DRIVE TURN RIGHT ONTO BARNES INDUSTRIAL RD S.	0.3 MI
2.	TURN LEFT AT THE 1ST CROSS STREET ONTO CT-68W	0.4 MI
3.	TURN RIGHT	0.2 MI
4.	TURN RIGHT ONTO N COLONY RD	0.3 MI
5.	TURN RIGHT TO MERGE ONTO CT-15 TOWARD HARTFORD	0.3 MI
6.	MERGE ONTO CT-15N	3.3 MI
7.	TAKE EXIT 68 N-E TO MERGE ONTO I-91N	18.3 MI
8.	CONTINUE STRAIGHT TO STAY ON I-91N	3.8 MI
9.	TAKE EXIST 35A-35B FOR INTERSTATE 291 TOWARD MANCHESTER	0.7 MI
10.	MERGE ONTO I-291 E	2.2 MI
11.	TAKE EXIT 4 FOR US-5 N TOWARD SOUTH WINDSOR	0.4 MI
12.	USE THE LEFT 2 LANES TO TURN LEFT ONTO US-5N	3.9 MI
13.	TURN LEFT ONTO CT-194E	0.3 MI
14.	TURN LEFT ONTO RYE STREET	2.2 MI
15.	TURN RIGHT ONTO PLANTATION RD (DESTINATION ON THE RIGHT)	0.5 MI

LOCATION MAP
SCALE: 1" = 1000'-0"

SITE INFORMATION

VZ SITE NAME: SOUTH WINDSOR NORTH CT
VZ PROJ FUZE I.D.: 16560063
VZ LOCATION CODE: 469756
VZ PROJECT CODE: 20171645681
LOCATION: 50 PLANTATION ROAD
EAST WINDSOR, CT 06016

PROJECT SCOPE: REFER TO NOTES ON DRAWING C-1 FOR SCOPE OF WORK.

MAP/BLOCK/LOT: 016/50/001C

ZONING DISTRICT: "A-1" (AGRICULTURAL/RESIDENTIAL)

LATITUDE: 41° 52' 32.328" N (41.87564664° N)

LONGITUDE: 72° 33' 53.232" W (72.56478672° W)

GROUND ELEVATION: 159.8'± AMSL

COORDINATES & GROUND ELEVATION INDICATED HEREIN WERE ESTABLISHED FROM AN FAA 1-A SURVEY CERTIFICATION, AS PREPARED BY GESICK & ASSOCIATES P.C. DATED JUNE 30, 2020.

PROPERTY OWNER: PLANTATION PROPERTIES, LLC
P.O. BOX 542
BROAD BROOK, CT 06016-0542

APPLICANT: CELLCO PARTNERSHIP
d/b/a VERIZON WIRELESS
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

LEGAL/REGULATORY COUNSEL: ROBINSON & COLE, LLP
KENNETH C. BALDWIN, ESQ.
280 TRUMBULL STREET
HARTFORD, CT 06103

ENGINEER CONTACT: ALL-POINTS TECHNOLOGY CORP., P.C.
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385
(860) 663-1697

VERIZON SMART TOOL PROJECT #: XXXXXXXX

NEW BUILD CONSTRUCTION DRAWING REFERENCE:
THE PROPOSED L-SUB6 CARRIER ADD EQUIP. SHOWN HEREIN SUPERSEDES THE EQUIPMENT INDICATED WITHIN THE NEW BUILD CONSTRUCTION DRAWINGS PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION, P.C. MARKED REV1 DATED 11/06/20. REFER TO NEW BUILD CONSTRUCTION DRAWINGS FOR ADDITIONAL INFORMATION NOT SHOWN HEREIN.

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	07/07/21	FOR REVIEW: JRM
1		
2		
3		
4		
5		
6		

STATE OF CONNECTICUT
MICHAEL TRODDEN
33313
LICENSED
PROFESSIONAL ENGINEER

DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: PLANTATION PROPERTIES, LLC
ADDRESS: P.O. BOX 542 BROAD BROOK, CT 06016-0542

SOUTH WINDSOR NORTH CT

SITE ADDRESS: 50 PLANTATION ROAD EAST WINDSOR, CT 06016

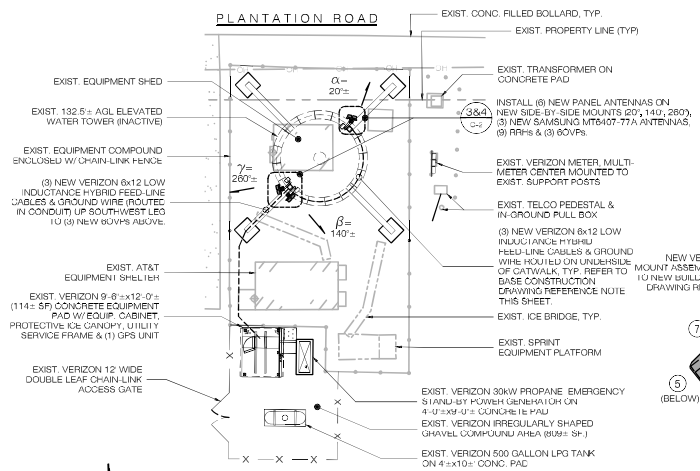
APT FILING NUMBER: CT141_12500

DRAWN BY: DRA
DATE: 07/07/21
CHECKED BY: JRM

VZW PROJECT CODE: 20171645681
VZW LOCATION CODE: 469756
VZW FUZE ID: 16560063

SHEET TITLE:
TITLE SHEET & INDEX

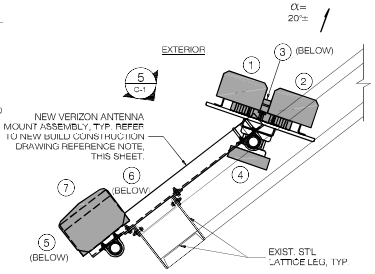
SHEET NUMBER:
T-1



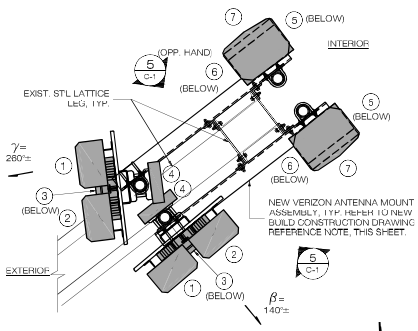
1 COMPOUND PLAN C-1 SCALE : 1" = 15'-0"

(IN FEET) 1 inch = 15ft.

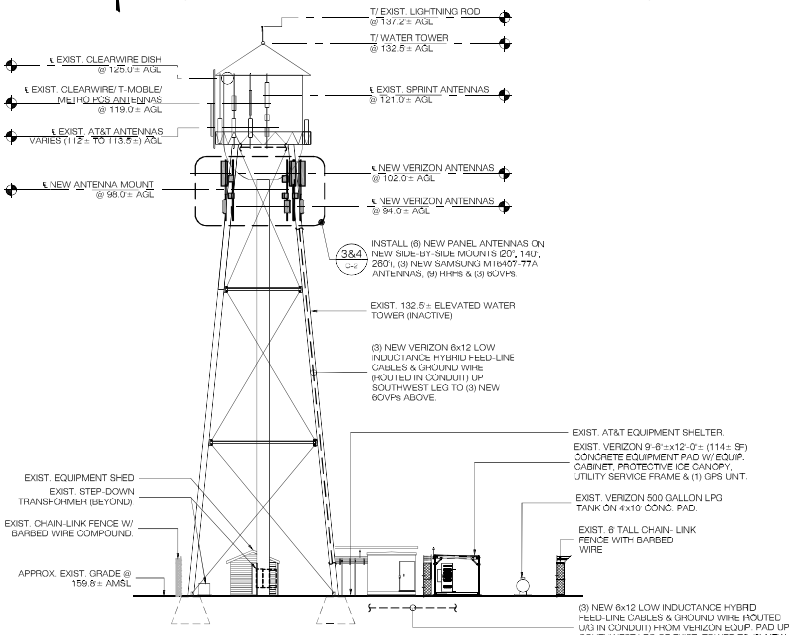
NEW BUILD CONSTRUCTION DRAWING REFERENCE:
THE PROPOSED L-SUB6 CARRIER ADD EQUIP. SHOWN HEREIN SUPERSEDES THE EQUIPMENT INDICATED WITHIN THE NEW BUILD CONSTRUCTION DRAWINGS PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION, P.C. MARKED REV1 DATED 11/06/20. REFER TO NEW BUILD CONSTRUCTION DRAWINGS FOR ADDITIONAL INFORMATION NOT SHOWN HEREIN.



3 EQUIP. CONFIGURATION PLAN ALPHA (NEW) C-1 SCALE : 3/4" = 1'-0"

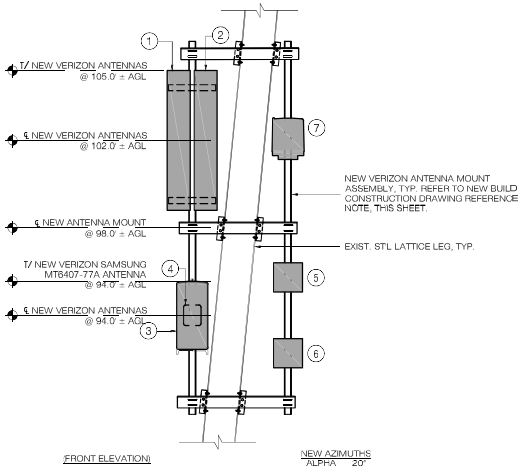


4 EQUIP. CONFIGURATION PLAN BETA/GAMMA (NEW) C-1 SCALE : 3/4" = 1'-0"



2 WEST ELEVATION C-1 SCALE : 1" = 15'-0"

(IN FEET) 1 inch = 15ft.



5 TYPICAL EQUIP. MOUNTING CONFIG. (NEW) - (ALL SECTORS) C-1 SCALE : 3/4" = 1'-0"

NOTES:

1. REFER TO MOUNT & STRUCTURAL STRUCTURAL ANALYSIS REPORT PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION, P.C. DATED JULY 07, 2021 AVAILABLE UNDER SEPARATE COVER.
2. PROJECT SCOPE INCLUDES THE FOLLOWING:
   - INSTALLATION OF (6) NEW PANEL ANTENNAS ON SIDE-BY-SIDE MOUNTS.
   - INSTALLATION OF (3) NEW SAMSUNG MT6407-77A ANTENNAS.
   - INSTALLATION OF (9) NEW RRHs.
   - INSTALLATION OF (3) NEW 6OVPs.
   - INSTALLATION OF (3) NEW 6x12 LOW INDUCTANCE HYBRID FEED-LINE CABLES.
3. ALL EXPOSED STEEL AND HARDWARE TO BE HOT DIP GALV. (HDG). PAINT TO MATCH EXIST. (WHERE APPLICABLE).
4. CAP & WEATHERPROOF ALL UN-USED CABLE ENTRY PORTS (WHERE APPLICABLE).
5. MOUNT & GROUND ALL NEW EQUIPMENT IN ACCORDANCE WITH NEC (NFPA-70), NESC AND MANUFACTURERS SPECIFICATION.
6. SECURE ALL NEW ANTENNA CABLES PER MANUFACTURER RECOMMENDATIONS.
7. BOND NEW ANTENNA MOUNTING PIPES TO ANTENNA SECTOR GROUND BAR W/ # 2 AWG, BCW, (WHERE APPLICABLE).
8. CONTRACTOR SHALL INSTALL NEW SIDE-BY-SIDE & DUAL-MOUNT BRACKETS PER ANTENNA MOUNT MANUFACTURER RECOMMENDATIONS, INCLUDING VERIFICATION OF MINIMUM PIPE MAST DIAMETER REQUIRED TO INSTALL NEW MOUNT BRACKETS. UNLESS NOTED OTHER WISE, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD SHOULD EXIST. PIPE MASTS REQUIRE REPLACEMENT TO SUPPORT THE NEW MOUNT BRACKETS.
9. ANTENNA CONFIGURATIONS SHOWN HEREIN ARE FRONT ELEVATIONS.
10. ANTENNA SPACING DIMENSIONS ARE TO THE CENTER OF THE EXIST. ANTENNA AND PROP. ANTENNA FACE.
11. REFER TO THE FINAL RFDS PROVIDED BY VERIZON FOR THE LATEST INFORMATION REGARDING EQUIPMENT MODELS, REQUIRED CABLING & DOWN-TILT INFORMATION.
12. COORDINATE ALL LSUB6 COLOR MATCHING (WHERE APPLICABLE) W/ LSUB6 MANUFACTURER INSTALLATION REQUIREMENTS, VERIZON CONSTRUCTION MANAGER & OWNER
13. PAINT ALL NEW NON SAMSUNG MT6407-77A ANTENNAS & APPURTENANCES TO MATCH EXIST. STRUCTURE (WHERE APPLICABLE) COORDINATE W/ VERIZON CONSTRUCTION MANAGER & BUILDING OWNER.

SCOPE OF WORK (ALL) SECTORS

1. NEW ANTENNA MOUNTED VIA NEW SIDE BY SIDE MOUNT BRACKETS (COMMSCOPE BSAMNT-SBS-1-2) MODEL: COMMSCOPE NHH-65B-R2B
2. NEW ANTENNA MOUNTED VIA NEW SIDE BY SIDE MOUNT BRACKETS NOTED ABOVE. MODEL: COMMSCOPE NHHSS-65B-R2E
3. NEW ANTENNA MODEL: SAMSUNG MT6407-77A
4. NEW RRH MODEL: CBRS RRH RT4401-48A
5. NEW DUAL BAND RRH MODEL: SAMSUNG B66/B2A RRH-BR04 (RFV01U-D1A)
6. NEW DUAL BAND RRH MODEL: SAMSUNG B13/B5 RRH-BR04C (RFV01U-D2A)
7. NEW 6OVP MODEL: RAYCAP RHSDC-3315-PF-48

GENERAL ABBREVIATION LIST:

ABP	ABOVE BASE PLATE
AGL	ABOVE GROUND LEVEL
AMSL	ABOVE MEAN SEA LEVEL
AWS	ADVANCED WIRELESS SERVICE
HDG	HOT DIP GALVANIZED
OVP	OVER VOLTAGE PROTECTION
RRH	REMOTE RADIO HEAD
V.I.F	VERIFY IN FIELD
W.P.	WORK POINT
A.F.R.	ABOVE FINISH ROOF

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
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6		

STATE OF CONNECTICUT
MICHAEL TRODDEN
33313
LICENSED PROFESSIONAL ENGINEER

DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: PLANTATION PROPERTIES, LLC
ADDRESS: P.O. BOX 542 BROAD BROOK, CT 06016-0542

SOUTH WINDSOR NORTH CT

SITE ADDRESS: 50 PLANTATION ROAD EAST WINDSOR, CT 06016

APT FILING NUMBER: CT141_12500

DRAWN BY: DRA
DATE: 07/07/21
CHECKED BY: JRM

VZW PROJECT CODE: 20171645681
VZW LOCATION CODE: 469756
VZW FUZE ID: 16560063

SHEET TITLE:
COMPOUND PLAN, TANK ELEVATION, EQUIP. CONFIGURATION PLANS & ELEVATION

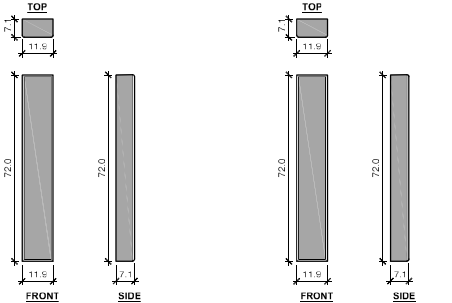
SHEET NUMBER:
C-1

EQUIPMENT DATA

EQUIPMENT SPECIFICATIONS

SECTOR	ANTENNA MAKE/MODEL	QTY	AZIMUTH	EQUIPMENT STATUS	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)
ALPHA	700/850/2100/CBRS,COMMSCOPE NHHSS-65B-R2B	1	20°	NEW	72.0	11.9	7.1	51.0 (2)
	700/850/1900,COMMSCOPE NHH-65B-R2B	1	20°	NEW	72.0	11.9	7.1	43.7 (2)
	SAMSUNG MT8407-77A	1	20°	NEW	35.1 (3)	16.1 (3)	5.51 (3)	87.1 (3)(5)
BETA	700/850/2100/CBRS,COMMSCOPE NHHSS-65B-R2B	1	140°	NEW	72.0	11.9	7.1	51.0 (2)
	700/850/1900,COMMSCOPE NHH-65B-R2B	1	140°	NEW	72.0	11.9	7.1	43.7 (2)
	SAMSUNG MT8407-77A	1	140°	NEW	35.1 (3)	16.1 (3)	5.51 (3)	87.1 (3)(5)
GAMMA	700/850/2100/CBRS,COMMSCOPE NHHSS-65B-R2B	1	260°	NEW	72.0	11.9	7.1	51.0 (2)
	700/850/1900,COMMSCOPE NHH-65B-R2B	1	260°	NEW	72.0	11.9	7.1	43.7 (2)
	SAMSUNG MT8407-77A	1	260°	NEW	35.1 (3)	16.1 (3)	5.51 (3)	87.1 (3)(5)
	APPURTENANCE MAKE/MODEL							
	SAMSUNG B2/B66A RRH-BR049 (RFV01U-D1A)	3	-	NEW	14.9	14.9	10.04	97.5
	SAMSUNG B5/B13 RRH-BR04C (RFV01U-D2A)	3	-	NEW	14.9	14.9	8.14	82.0
	SAMSUNG CBRS RT4401-48 RRH	3	-	NEW	10.6	8.9	3.0	11.0
	RAYCAP RHSDC-3315-PF-48	3	-	NEW	28.9	15.73	10.25	32.0

(1) 'ETR' DENOTES EXIST. TO REMAIN
(2) WEIGHT WITHOUT MOUNTING BRACKET.
(3) ANTENNA DATA BASED ON RFDS DATED 05/06/21
(4) EQUIPMENT CONFIGURATION INDICATED ABOVE VIEWED FROM THE BEHIND.
(5) NOT TO EXCEED

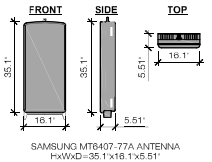


COMMSCOPE NHH-65B-R2B
HxWxD=72.0"x11.9"x7.1" 43.7 Lbs)

COMMSCOPE NHHSS-65B-R2B
HxWxD=72.0"x11.9"x7.1" 51.0 Lbs)

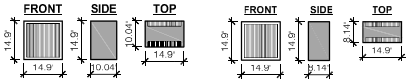
2 NEW ANTENNA DETAIL
B-1 SCALE : ½" = 1'-0"

3 NEW ANTENNA DETAIL
B-1 SCALE : ½" = 1'-0"



SAMSUNG MT8407-77A ANTENNA
HxWxD=35.1"x16.1"x5.51"
WT=87.1 Lbs
(NOT TO EXCEED)

4 NEW ANTENNA DETAIL
B-1 SCALE : ½" = 1'-0"



SAMSUNG DUAL HIGH BAND B2/B66A
RRH-BR049 (RFV01U-D1A)
RRH PCS/AWS
REMOTE RADIO HEAD (RRH)
WxDxH=14.9"x14.9"x10.04" (97.5 Lbs)

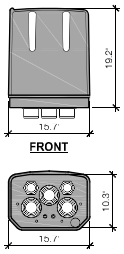
SAMSUNG DUAL HIGH BAND B5/B13
RRH-BR04C (RFV01U-D2A)
RRH 850/700
REMOTE RADIO HEAD (RRH)
WxDxH=14.9"x14.9"x8.14" (82.0 Lbs)

NOTE: WEIGHTS INCLUDE SOLAR SHEILD & MOUNTING BRACKET

5 RRH EQUIPMENT DETAILS
B-1 SCALE : ½" = 1'-0"

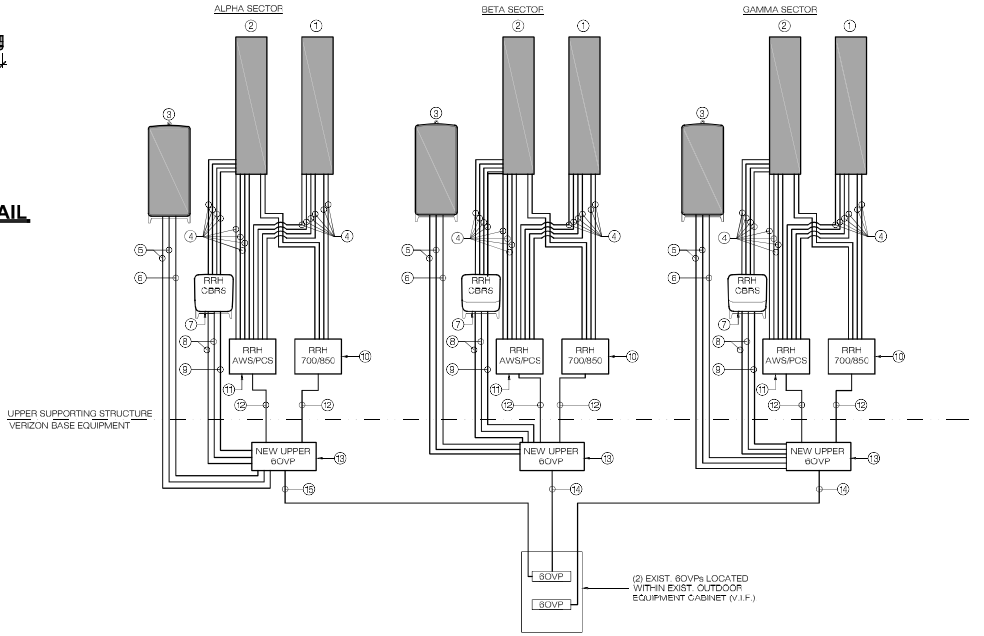
SAMSUNG CBRS RT4401-48A RRH
HxWxD=10.6"x8.9"x3.0" (11.0 lbs)

6 RRH EQUIPMENT
B-1 SCALE: 1" = 1'-0"



RAYCAP RHSDC-3315-PF-48
OVER VOLTAGE PROTECTION BOX (OVP)
WxDxH = 15.73"x10.25"x19.18" (32.0 Lbs)
(OR EQUAL)

7 OVER VOLTAGE PROTECTION BOX (OVP)
B-1 SCALE : 1" = 1'-0"



1 TYPICAL RISER DIAGRAM
B-1 SCALE : N.T.S.

NOTE:
ANTENNA CONFIGURATIONS SHOWN WITHIN PLUMBING DIAGRAM ARE VIEWED FROM BEHIND.

BILL OF MATERIALS

		QUANTITY	LENGTH	COMMENTS
(1)	700/850/1900	3		(COMMSCOPE NNH-65B-R2B)
(2)	700/850/2100/CBRS	3		(COMMSCOPE NNHSS-65B-R2B)
(3)	SAMSUNG MT8407-77A	3		
(4)	1/2" JUMPER CABLE	48	15 FT	ROUTE FROM RRH TO ANTENNAS
(5)	ANTENNA LINK CABLES	6	15 M	ROUTE FROM UPPER OVP TO ANTENNAS
(6)	ANTENNA POWER CABLES	3	15 M	PROPRIETARY POWER CABLE FROM UPPER OVP TO ANTENNAS
(7)	SAMSUNG CBRS RT4401-48 RRH	3		(COORDINATE WIRING w/ VERIZON EQUIP. ENGINEER)
(8)	CPRI CABLE	6	25 FT	ROUTE FROM UPPER OVP TO RRH
(9)	10 AWG x2 DC POWER CABLE	3	25 FT	PROPRIETARY POWER CABLE FROM UPPER OVP TO ANTENNA/RRH
(10)	850/700 DUAL BAND RRH	3		SAMSUNG B2/B66 RRH-BR049 (RFV01U-D1A) MOUNTED TO NEW ANTENNA MOUNT
(11)	PCS/AWS DUAL BAND RRH	3		SAMSUNG B5/B13 RRH-BR04C (RFV01U-D2A) MOUNTED TO NEW ANTENNA MOUNT
(12)	RRH CABLES	6	15M	PROPRIETARY POWER & FIBER CABLES
(13)	UPPER 6OVP	3		(RHSDC-3315-PF-48) MOUNTED TO NEW ANTENNA MOUNT
(14)	6x12 L.I. HYBRID CABLE (BETA/GAMMA)	2	140 FT	ROUTE FROM LOWER OVP(s) TO UPPER OVP(s)
(15)	6x12 L.I. HYBRID CABLE (ALPHA)	1	185 FT	ROUTE FROM LOWER OVP(s) TO UPPER OVP(s)

NOTES:
1. INFORMATION SHOWN HEREON IS FOR USE BY VERIZON EQUIPMENT OPERATIONS.
2. INFORMATION IS BASED ON RFDS, MARKED DATED 05/06/21
3. * DENOTES EQUIPMENT DESIGNATED 'FOR LEASING ONLY' (WHERE APPLICABLE)
4. INSTALL ALARM BOARDS AT ALL OVPs WHERE REQUIRED. COORDINATE w/ VERIZON WIRELESS EQUIPMENT ENGINEERING.
5. INSTALL UP-CONVERTER(S) LOCATED WITHIN NEW OVP RACK COORDINATE WITH VERIZON EQUIPMENT ENGINEERING.

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	07/07/21	FOR REVIEW: JRM
1		
2		
3		
4		
5		
6		

STATE OF CONNECTICUT
MICHAEL TRODDEN
33313
LICENSED
PROFESSIONAL ENGINEER

DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: PLANTATION PROPERTIES, LLC
ADDRESS: P.O. BOX 542 BROAD BROOK, CT 06016-0542

SOUTH WINDSOR NORTH CT

SITE ADDRESS: 50 PLANTATION ROAD EAST WINDSOR, CT 06016

APT FILING NUMBER: CT141_12500

DRAWN BY: DRA
DATE: 07/07/21
CHECKED BY: JRM

VZW PROJECT CODE: 20171645681
VZW LOCATION CODE: 469756
VZW FUZE ID: 16560063

SHEET TITLE:
RF BILL OF MATERIALS, MECHANICAL SPECIFICATIONS & EQUIPMENT DETAILS

SHEET NUMBER:
B-1

DESIGN BASIS:

GOVERNING CODES/DESIGN STANDARDS:

2015 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE 2018 CONNECTICUT STATE BUILDING CODE/ASCE 7-10

DESIGN CRITERIA:

RISK CATEGORY (TOWER):	II	(IBC 2015 TABLE 1604.5)
RISK CATEGORY (MOUNTS)	II	(TIA-222-H TABLE 2-1)

WIND LOADS:

ULTIMATE BASIC WIND SPEED, V_{ULT}: (3-SECOND GUST)	125 MPH	(2018 CSBC APPENDIX N)
EXPOSURE CATEGORY	C	(2015 IBC SEC. 1609.4.3)

ICE LOAD

BASIC WIND SPEED (V_i) = W/ ICE 3-SEC GUST)	50 MPH	(TIA-222-H, ANNEX B)
DESIGN ICE THICKNESS (T_i) = 1.50"		(TIA-222-H, ANNEX B)

SNOW LOAD

GROUND SNOW LOAD (P_G) =	30 PSF	(2018 CSBC APPENDIX N)
ROOF SNOW LOAD (P_F) =	30 PSF	(MIN. PER 2018 CSBC ADD 1608.1.1) (ASCE 7-10 EQ. 7.3-1, SEC 7.3.4)

SEISMIC LOAD:

REFER TO SECTION 1613 OF THE 2015 IBC/2018 CONNECTICUT STATE BUILDING CODE FOR SEISMIC CLASSIFICATION AND LOADING DETERMINATION.

01 GENERAL:

ABBREVIATIONS USED IN THESE SPECIFICATIONS INCLUDE THE FOLLOWING:

ACI	AMERICAN CONCRETE INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AWS	AMERICAN WELDING SOCIETY
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN STANDARDS AND TESTING METHODS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
ICC-ES	INTERNATIONAL CODE COUNCIL EVALUATION SERVICE
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
UL	UNDERWRITERS LABORATORIES
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

EVERY INDIVIDUAL TRADE, DISCIPLINE, AND CONTRACTOR SHALL INCLUDE THESE GENERAL SPECIFICATIONS.

THE ENGINEER IS NOT RESPONSIBLE FOR NOR A GUARANTOR OF THE INSTALLING CONTRACTORS WORK, ADEQUACY OF ANY SITE COMPONENT, SUPERVISION OF ANY WORK, AND SAFETY IN, ON, OF ABOUT THE WORK SITE.

ANY REFERENCE HEREIN TO AN OR EQUAL ITEM, THAT EQUAL ITEM SHALL BE PRE-APPROVED BY THE CONSTRUCTION MANAGER BEFORE INSTALLATION.

ALL TRADES SHALL COORDINATE THEIR WORK WITH ALL OTHER TRADES AND OTHER WORK AND CONDITIONS AS APPROPRIATE OR REQUIRED TO AVOID CONFLICTS. RESOLVE AND COORDINATE ALL CONFLICTS WITH ALL AFFECTED WORK AND SITE OPERATIONS. COORDINATION WITH THE SITE SHALL BE WITH THE OWNER, OR OWNER'S SPECIFIED REPRESENTATIVE, FOR EVERYTHING RELATED TO THE INSTALLATION OF THIS PROJECT.

ALL WORK SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE EDITIONS OF ALL APPLICABLE CODES AND SHALL BE ACCEPTABLE TO ALL AUTHORITIES HAVING JURISDICTION (AHJ). WHERE A CONFLICT EXISTS BETWEEN CODES, PLANS, SPECIFICATIONS, AND/OR AHJ, THE MORE STRINGENT AUTHORITY SHALL APPLY. WHERE CONFLICT EXISTS BETWEEN PLANS AND SPECIFICATIONS, PLAN SHALL APPLY. WHERE CONFLICT EXISTS BETWEEN PLAN SHEETS, CONSTRUCTION MANAGER SHALL BE CONSULTED PRIOR TO COMMENCING ANY WORK.

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE AND USABLE SYSTEM THROUGHOUT AND AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN AND/OR OTHERWISE REQUIRED.

CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, INSTALLATIONS, AND EQUIPMENT IN THE FIELD PRIOR TO BID, FABRICATION, AND INSTALLATION OF ANY WORK.

CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. THE ENGINEER SHALL BE NOTIFIED FOR INSPECTIONS PRIOR TO CLOSING PENETRATIONS AND OF ANY CONDITIONS WHICH PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR SHALL VISIT THE SITE TO MANAGE AND GAIN APPROVAL FOR ALL TENANT DISRUPTIONS, POWER OUTAGES, WORK SCHEDULES, DEFINITION OF WORK AREA AND WORK STORAGE, NEWER BUILDING/SITE ACCESS, NOISE AND CLEANLINESS REQUIREMENTS WITH THE BUILDING/SITE MANAGEMENT PRIOR TO ALL WORK. ANY DISRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE IMPLEMENTED ONLY UPON WRITTEN APPROVAL OF THE OWNER.

THE CONTRACTOR SHALL SAFEGUARD AGAINST CREATING ANY HAZARD AFFECTING TENANT EGRESS OR COMPROMISING SITE SECURITY MEASURES.

PRIOR TO ALL BELOW-GRADE WORK AND ANY SURFACE WORK IN A NEW AREA FOR STRUCTURES OR VEHICLES, CONTRACTOR SHALL ENGAGE A MARKOUT SERVICE TO IDENTIFY ANY UNDERGROUND STRUCTURES, CONDUITS, AND PIPELINES IN THE AREA. ALL EXISTING SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, AND OTHER UNDERGROUND UTILITIES IDENTIFIED OR ENCOUNTERED, SHALL BE PROTECTED AT ALL TIMES. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN DIGGING OR EXCAVATING IN ANY MANNER AROUND OR NEAR SUCH UTILITIES. CONTRACTOR IS RESPONSIBLE FOR REPAIRS, REPLACEMENT, AND ALL DAMAGES DUE TO DAMAGE OF UTILITIES BY HIS OPERATIONS.

ALL EXISTING AND NEW EQUIPMENT AND MATERIAL LOCATIONS, ROUTING, ORIENTATION, MOUNTING, SPECIFICATIONS AND GENERAL INSTALLED CHARACTERISTICS SHALL BE CONSIDERED DIAGRAMMATIC ON THE PLANS. EXACT CONDITIONS SHALL BE DETERMINED IN THE FIELD PRIOR TO ANY INSTALLATION. ANY DIFFERENCES THAT MAY CAUSE SCHEDULE, COST, OR QUALITY SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER OR ENGINEER PRIOR TO ANY WORK.

ALL REFERENCES HEREIN TO VERIFICATION OF ANY CONDITION OF SITE, FIELD, PLANS, OR SPECIFICATIONS PRIOR TO ANY WORK SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR. ANY AND ALL ADDITIONS, MODIFICATIONS, CHANGES, REPAIR, OR DEMOLITION AS A RESULT OF FAILURE TO BRING ANY EXISTING CONDITION PROPERLY TO THE ATTENTION OF THE OWNER OR ENGINEER SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR WITHOUT DELAY, COST, OR CHANGES IN QUALITY.

ALL NOTES THIS SHEET SHALL APPLY UNLESS SPECIFICALLY NOTED OTHERWISE ON THE INCLUDED DRAWINGS OR IN SEPARATE PROJECT SPECIFICATIONS AS APPLICABLE. ALL SPECIFICATIONS SHALL BE CONSIDERED REQUIRED UNLESS APPROVED EQUAL BY THE OWNER, CONSTRUCTION MANAGER, OR ENGINEER AS APPLICABLE.

THE WORDS "PROVIDE" OR "INSTALL" SHALL MEAN FURNISH AND INSTALL.

CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF HIS WORK. ANY PATCHING SHALL MATCH EXISTING SURROUNDING AREA IN ALL RESPECTS. ALL REMOVED MATERIAL SHALL BE REMOVED FROM THE PREMISES DAILY IN AN APPROVED SAFE MANNER.

ALL SURPLUS MATERIAL SHALL BE REMOVED FROM THE SITE PROMPTLY WHEN DEEMED TO BE SURPLUS.

EVERY CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF HIS WORK AND NEWLY INSTALLED OR EXISTING WORK, INCLUDING PROTECTION OF THE SITE, ALL STRUCTURES, AND ALL OCCUPANTS. FURNISH, INSTALL, MAINTAIN, AND REMOVE AS APPROPRIATE, ALL APPROPRIATE BARRIERS, SAFETY GUARDS, SIGNAGE, AND SECURITY AS REQUIRED.

EVERY CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR RESPECTIVE FEES, PERMITS, INSPECTIONS, TESTING, CERTIFICATES, AND ALL MANAGEMENT OF SAME REQUIRED FOR COMPLETION OF AND LEGAL OCCUPANCY OF THE FINISHED PROJECT.

ALL CONTRACTORS SHALL PROVIDE ALL NECESSARY TOOLS, FIXTURES, SERVICES, MATERIALS, JOB AIDS, AND PERSONNEL REQUIRED FOR THE EXECUTION OF THEIR WORK.

EACH CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP BY THEM TO BE FREE OF DEFECTS AND MAINTAINED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE INSTALLATION BY THE OWNER AND ENGINEER.

ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS IN THE TRADE HAVING JURISDICTION.

ANY DEVIATION, MODIFICATION, ADDITION, OR CHANGE IN DESIGN SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE OWNER OF ENGINEER.

ALL CONTRACTORS SHALL SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIALS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION, AND SHALL NOT PROCEED UNTIL ENGINEER APPROVAL IN WRITING IS RETURNED. EACH CONTRACTOR SHALL MAINTAIN ON JOB SITE A COMPLETE SET OF SHOP DRAWINGS WITH ANY DEVIATIONS FROM THE ORIGINAL DESIGN SHALL BE NOTED.

ALL MATERIALS AND EQUIPMENT SHALL BE NEW, WITHOUT BLEMISH OR DEFECT, AND SUITABLE AND LISTED FOR THE INSTALLATON AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS OR SPECIFICATIONS. ALL ITEMS OF EQUIPMENT OR MATERIAL THAT ARE OF ONE GENERIC TYPE SHALL BE ONE MANUFACTURER THROUGHOUT.

ALL MATERIALS, EQUIPMENT, TOOLS, AND ITEMS UNDER THE CONTRACTORS RESPONSIBILITY ON THE JOBSITE SHALL BE ADEQUATELY SECURED, MAINTAINED, AND PROTECTED, SO AS NOT TO BECOME DAMAGED OR CREATE ANY HAZARD TO PERSONNEL OR PROPERTY.

THE CONTRACTORS HOURS OF WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES AND BE APPROVED BY THE OWNER.

CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR ALL OF HIS CREW AND INSURE THAT EVERY CREW MEMBER FOLLOWS SAVE WORK PRACTICES. SAFETY TRAINING SHALL INCLUDE, BUT NOT BE LIMITED TO, FALL PROTECTION, CONFINED SPACE ENTRY, ELECTRICAL SAFETY, AND TRENCHING/EXCAVATION SAFETY WHERE SUCH WORK IS EXECUTED OR ENCOUNTERED.

ALL TEMPORARY WORK REQUIRED OR SPECIFIED AS A PART OF THIS WORK, SHALL MEET ALL OF THE SAME REQUIREMENTS AS PERMANENT INSTALLATIONS, SHALL MEET ALL APPLICABLE CODE REQUIREMENTS, AND SHALL BE COMPLETELY REMOVED AFTER ITS PURPOSES HAVE BEEN SERVED.

ANY EXISTING UTILITY, SERVICE, STRUCTURE, EQUIPMENT, OR FIXTURE OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER.

IF ASBESTOS IS ENCOUNTERED DURING WORK EXECUTION, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER AND CEASE ALL ACTIVITIES IN AFFECTED AREAS UNTIL NOTIFIED BY THE CONSTRUCTION TO RESUME OPERATIONS.

EXIST. ELECTRICAL AND MECHANICAL FIXTURES, PIPING, WIRING AND EQUIPMENT OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER. TEMPORARY SERVICE INTERRUPTIONS MUST BE COORDINATED WITH OWNER.

05 STEEL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

MATERIALS:

WIDE FLANGE	ASTM A992, GR 50
TUBING	ASTM A500, GR B
PIPE	ASTM A53, GR B
BOLTS	ASTM A325
GRATING	TYPE GW-2 (1-1/4"x3/16" BARS)
EXISTING METALS	ASTM A36

PROVIDE CERTIFICATION THAT WELDERS TO BE USED IN WORK ARE LICENSED AND HAVE SATISFACTORILY PASSED AWS QUALIFICATION TEST UNDER THE PROVISIONS OF APPENDIX D, PARTS II AND III OF THE AWS CODE FOR WELDING IN BUILDING CONSTRUCTION.

ALL BUILDING CONNECTION POINTS TO BE CENTERED ON EXISTING STRUCTURAL BEARING POINTS AND THE LOCATIONS ARE TO BE VERIFIED IN FIELD PRIOR TO THE FABRICATION OF STEEL.

DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF AISC SPECIFICATION FOR *"THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS"*.

NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIAMETER GALVANIZED ASTM A 307 BOLTS UNLESS OTHERWISE NOTED.

ALL STEEL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIPPED GALVANIZED) COATINGS" ON IRON AND STEEL PRODUCTS WITH A COATING WEIGHT OF 2 OZ/SF.

ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE."

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY TOUCHING UP ALL DAMAGED GALVANIZED STEEL WITH COLD ZINC, 'GALVANOX", "DRY GALV", OR "ZINC IT", IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCH UP DAMAGED NON-GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW. FIELD CUTTING OF STRUCTURAL STEEL IS NOT PERMITTED EXCEPT WITH THE PRIOR APPROVAL OF THE ENGINEER.

CONTRACTOR TO REMOVE AND RE-INSTALL ALL FIRE PROOFING AS REQUIRED DURING CONSTRUCTION.

THE STEEL STRUCTURE SHALL BE DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER COMPLETION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION.

ALL STEEL ELEMENTS SHALL BE INSTALLED PLUMB AND LEVEL.

TOWER MANUFACTURER'S DESIGNS SHALL PREVAIL FOR TOWER.

CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC *"MANUAL OF STEEL CONSTRUCTION"*. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION.

STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE MINIMUM 3/4" DIAMETER AND EACH CONNECTION SHALL HAVE MINIMUM TWO BOLTS. LOCK WASHERS ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.

DESIGN CONNECTIONS AT BEAM ENDS FOR 10 KIPS (MIN).

ALL U-BOLTED CONNECTIONS SHALL BE COMPLETED WITH DOUBLE NUTS OR A LOCK WASHER.

CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS *"STANDARD QUALIFICATION PROCEDURES"*. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE LARGER OF 1/4" FILLET OR MINIMUM SIZE PER TABLE J2.4 IN THE AISC *"MANUAL OF STEEL CONSTRUCTION"*. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED. SEE NOTE REGARDING DAMAGED GALVANIZED SURFACES.

ALL ARC AND GAS WELDING SHALL BE DONE BY A LICENSED AND CERTIFIED WELDER IN ACCORDANCE WITH AWS.

SEAL ALL PENETRATIONS AND SEAMS BETWEEN MASONRY AND STEEL WITH DOW CORNING 790 SILICONE BUILDING SEALANT OR EQUAL.

26 ELECTRICAL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

ALL ELECTRICAL CONDUCTORS:

- INSULATION SHALL BE MINIMUM 600V TYPE THHN, THWN-2, OR XHHW.
- BRANCH CIRCUIT CONDUCTORS SHALL BE SOFT DRAWN 98% MINIMUM CONDUCTIVITY PROPERLY REFINED COPPER.
- FEEDER CIRCUIT CONDUCTORS SHALL BE EITHER COPPER OR ALUMINUM OF THE APPROPRIATE SIZE FOR THE APPLICATION, OR AS SPECIFICALLY NOTED.
- PERMANENTLY LABEL OR TAG ALL CONDUCTORS WITH THEIR CIRCUIT DESIGNATION AT ALL TERMINATION ENDS, SPLICES, AND VISIBLE AS PASS-THROUGH IN ALL ENCLOSURES.

ALL CONDUIT, RACEWAY, WIREWAYS, DUCTS, ETC. SHALL BE LISTED AND SUITABLE FOR THE APPLICATION. ONLY THE FOLLOWING CONDUITS AS APPROVED AND LISTED FOR THE APPLICATION SHALL BE ACCEPTABLE:

- ELECTRICAL METALLIC TUBING (EMT).
- COMPRESSION COUPLINGS AND CONNECTORS ONLY MADE UP WRENCH TIGHT.
- FLEXIBLE METAL CONDUIT (FMC) AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC).
- FINAL CONNECTIONS TO VIBRATING OR ADJUSTABLE EQUIPMENT INCLUDING, BUT NOT LIMITED TO, LIGHT FIXTURES, HVAC UNITS, TRANSFORMERS, MOTORS, ETC. OR WHERE EQUIPMENT IS PLACED UPON SLAB ON-GRADE.
- RIGID GALVANIZED STEEL (RGS).
- ALL FITTINGS, CONNECTORS, AND COUPLINGS SHALL BE THREADED MADE UP WRENCH TIGHT.
- RIGID POLYVINYL CHLORIDE (PVC) SCHEDULE 40 OR SCHEDULE 80.
- MAY BE USED FOR SERVICES, EXTERIOR, BELOW GRADE, AND WET LOCATIONS.
- SHALL NOT BE USED IN CONCRETE SLABS NOR EXPOSED WITHIN A BUILDING OR STRUCTURE.
- METAL-CLAD CABLE (MC).
- CONCEALED INSTALLATIONS ONLY.
- WITHIN A DUCT WITH SMOOTH OR CORRUGATED METAL JACKET AND NO OUTER COVERING OVER THE METAL JACKET.

IN FINISHED SPACES, ALL CONDUITS SHALL BE CONCEALED EXCEPT TO MAKE A FINAL CONNECTION TO EQUIPMENT NOT MOUNTED IN OR AGAINST FINISH MATERIAL.

ALL FEEDER AND BRANCH CIRCUITS SHALL HAVE A SEPARATE PROPERLY SIZED AND MARKED GROUNDING CONDUCTOR, PER APPLICABLE CODES, THAT BONDS ALL ENCLOSURES, BOXES, ETC. CONDUIT SHALL NOT BE USED AS A GROUNDING OR BONDING CONDUCTOR.

IF EXISTING ELECTRIC SERVICE IS TO REMAIN, CONTRACTOR SHALL BE VERIFY THAT IT MEETS PROJECT REQUIREMENTS WITHOUT MODIFICATION. IF IT IS TO BE ADDED OR REPLACED AS A PART OF THIS WORK, CONTRACTOR SHALL ORDER FROM, COORDINATE WITH, AND GAIN APPROVAL FROM THE ELECTRICAL UTILITY. ALL ELECTRICAL EQUIPMENT SHALL BE AS SPECIFIED AND AS APPROVED BY THE LOCAL UTILITY WHERE APPLICABLE.

ALL EQUIPMENT, ENCLOSURES, ETC. SHALL BE SUITABLE FOR THE INSTALLED ENVIRONMENT, MINIMUM NEMA 3R FOR ALL EXTERIOR INSTALLATIONS.

WIRING DEVICES SHALL BE SPECIFICATION GRADE AND WIRING DEVICE COVER PLATES SHALL BE PLASTIC WITH ENGRAVING AS SPECIFIED. COLOR SHALL BE IVORY. ALL DEVICES AND COVER PLATES SHALL BE OF THE SAME MANUFACTURER.

ALL FIRE-RATED PENETRATIONS SHALL BE SEALED USING A SUITABLE AND LISTED FIRE SEALING DEVICE OR GROUT THAT WILL MAINTAIN THE FIRE RATING OF THE STRUCTURE PENETRATED.

PROVIDE PERMANENTLY AFFIXED ENGRAVED NAMEPLATES FOR ALL CODE REQUIRED LABELING AND ON ALL PANELS, METERING, DISCONNECTS, AND ELECTRICAL EQUIPMENT THAT IDENTIFIES EQUIPMENT SERVED, ELECTRICAL SOURCE WITH CIRCUIT IDENTIFICATION, AND VOLTAGES WITHIN.

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL TERMINATIONS TO ALL EQUIPMENT.

ALL ELECTRICAL APPURTENANCES THAT ARE DISCONNECTED SHALL BE COMPLETELY REMOVED WITH EXISTING STRUCTURES TO REMAIN, REPAIRED, FINISHED, FILLED, PAINTED, ETC. ALL PANEL SCHEDULES, EQUIPMENT LABELING, AND CODE-REQUIRED LABELING, SHALL BE VERIFIED AND PROPERLY COMPLETED TO MATCH THE INSTALLATION.

26 GROUNDING:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

GROUND ALL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH BEST INDUSTRY PRACTICE, THE REQUIREMENTS OF THE NFPA 70 NATIONAL ELECTRICAL CODE (NEC), AND ALL OTHER APPLICABLE CODES AND REGULATIONS.

ALL GROUNDING ELECTRODES PRESENT AT EACH SERVICE LOCATION SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM.

ALL EQUIPMENT ENCLOSURES, DEVICES, AND CONDUITS SHALL BE GROUNDED BY THE INSTALLATION OF A SEPARATE GROUNDING CONDUCTOR FOR ALL FEEDER AND BRANCH CIRCUITS THAT IS SIZED PER CODE OR IS OF THE SIZE INDICATED ON THE DRAWINGS, SHALL BE CONTINUOUS IN LENGTH, AND SHALL BE BONDED TO EACH ENCLOSURE PASSED THROUGH. CONDUIT SHALL NOT BE USED AS A GROUNDING OR BONDING WIRE OR CIRCUIT.

BOND ALL METALLIC CONDUITS TOGETHER THAT ARE CONNECTED TO NON-METALLIC ENCLOSURES, IN-GROUND BOXES, AND TO AN ENCLOSURE WHERE A GROUND BUS IS SPECIFIED OR SUPPLIED. ACCOMPLISH THIS BOND WITH GROUNDING CONDUCTORS MINIMUM SIZED TO THE LARGEST GROUNDING CONDUCTOR PRESENT IN THE ENCLOSURE CONNECTED TO A GROUNDING TYPE BUSHING EQUALLY SIZED OR MAXIMUM GROUND WIRE ACCOMMODATION AVAILABLE IN STANDARD MANUFACTURE FOR THE CONDUIT SIZE, WHICHEVER IS LESS.

EQUIPMENT GROUNDING AND LOAD SIDE BONDING CONDUCTORS SHALL BE SIZED PER THE CIRCUITS OVER-CURRENT PROTECTIVE DEVICE (OCPD) SIZE. WHERE THE UNGROUNDED CONDUCTORS ARE INCREASED IN SIZE ABOVE THE STANDARD FOR THE CIRCUITS OCPD, INCREASE THE GROUNDING CONDUCTOR PROPORTIONATELY TO THE CROSS-SECTIONAL AREA OF THE UNGROUNDED CONDUCTORS.

SERVICE MAIN BONDING JUMPERS AND GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED AND INSTALLED PER THE MINIMUM OF ALL APPLICABLE CODES AND REGULATIONS.

26 LIGHTNING PROTECTION:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS AND THE GROUNDING SPECIFICATIONS HEREIN.

THE LIGHTNING PROTECTION GROUNDING SYSTEM (LPGS) SHALL CONSIST OF BONDING ALL EQUIPMENT AND CONDUCTIVE STRUCTURES TO LOCALIZED SINGLE-POINT GROUNDING CONNECTIONS (TYPICALLY GROUND BARS) WHICH ARE BONDED TOGETHER AND TO AN IN-GROUND SYSTEM. IF THE LPGS IS ON A BUILDING, IT SHALL BE EFFECTIVELY BONDED TO THE ELECTRICAL SERVICE MAIN BONDING JUMPER AND TO ADDITIONAL IN-GROUND ELECTRODES AS MAY BE REQUIRED OR INDICATED. IF THE LPGS IS ON A DEDICATED COMMUNICATION SITE, ALL EQUIPMENT AREAS AND TOWERS SHALL EACH HAVE THEIR OWN IN-GROUND RING WITH EVERY RING BONDED TOGETHER, AND ALL CONDUCTIVE STRUCTURES IN CLOSE PROXIMITY (FENCES, ICE BRIDGES ISOLATED EQUIPMENT, ETC.) ALSO BONDED TO PROVIDE A COMMON ELECTRICAL EQUIPOTENTIAL SYSTEM FOR ALL CONDUCTIVE ELEMENTS AND STRUCTURES.

CONDUCTORS:

- MIN #2 AWG SOLID BARE TINNED COPPER (SBTC) FOR ALL IN-GROUND CONDUCTORS.
- MIN #2 AWG COPPER GREEN STRANDED FOR BONDING STRUCTURES, AND FOR INTER-SYSTEM BONDING OF INDIVIDUAL ELEMENTS SUCH AS GROUND BAR TO GROUND BAR.
- MIN #6 AWG COPPER GREEN STRANDED OR ALL EQUIPMENT BONDING.
- INSTALL ALL IN-GROUND CONDUCTORS IN THE SAME HORIZONTAL PLANE OR IN A DOWNWARD DIRECTION AWAY FROM THE TOWER AND EQUIPMENT AREAS.
- AVOID LONG RUNS. MAKE DIRECT RUNS AS MUCH AS POSSIBLE.
- PLACE THROUGH NON-METALLIC SLEEVES WHEN PASSING THROUGH FLOORS, WALLS, CEILINGS, AND SIMILAR STRUCTURES.
- MAKE ALL CONNECTIONS IN CONTACT WITH EARTH WITH EXOTHERMIC WELDING. MAKE ALL OTHER CONNECTIONS WITH EXOTHERMIC WELDING, IRREVERSIBLE COMPRESSION CONNECTORS, OR LISTED COMPRESSION TWO-HOLE LUGS.
- INSTALL ALL CONDUCTORS WITH A MINIMUM 18 INCH BEND RADIUS AND NO BEND LONGER THAN A 90 DEGREE ARC. ALL BENDS SHALL BE HORIZONTAL, OR DOWNWARD TOWARDS EARTH.
- ALL CONDUCTORS PASSING FROM ABOVE-GROUND TO IN-GROUND CONNECTIONS, WHERE EXPOSED, SHALL BE COVERED AND PROTECTED WITH A NON-METALLIC CONDUIT SEALED AT BOTH ENDS.
- IF 2 OR MORE IN-GROUND CONDUCTORS ARE IN THE SAME PATH (2 RINGS OVERLAPPING, BONDING FOLLOWING ANOTHER RING OR RADIAL, OR SIMILAR), COMBINE WITH A SHARED SINGLE CONDUCTOR.

EQUIPMENT AND TOWER GROUND RINGS SHALL BE:

- BONDED TO ANY CONDUCTIVE OBJECT OR STRUCTURE WITHIN 5 FEET OF EQUIPMENT GROUND RINGS AND WITHIN 20 FEET OF TOWER GROUND RINGS.
- INSTALLED MINIMUM 18 INCHES FROM FOUNDATIONS, FOOTINGS, AND SIMILAR.

INSTALL ALL IN-GROUND RINGS, RADIALS, BONDS CONNECTING THEM, AND ALL SIMILAR GROUNDING:

- MIN 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE, WHICHEVER IS GREATER DEPTH.
- MIN 2 FEET FROM FOUNDATIONS, FOOTINGS, OTHER GROUNDING SYSTEMS, AND SIMILAR STRUCTURES, EXCEPT WHEN MAKING A BOND TO ANY OF THESE STRUCTURES. DO NOT BOND TO FOUNDATION INTERNAL REINFORCEMENT.

ALL EQUIPMENT GROUPED IN A COMMON AREA, COMPOUND, STRUCTURE, OR SIMILAR SHALL BE BONDED TO A SINGLE-POINT GROUND, PREFERABLY AN ISOLATED GROUND BAR. BOND THE GROUND BAR TO THE SYSTEM WITH MINIMUM SINGLE BONDING CONDUCTOR. IF BONDING TO AN IN-GROUND RING, INSTALL 2 BONDING CONDUCTORS MINIMUM WITH EACH CONDUCTOR INSTALLED DIRECTIONALLY AWAY FROM EACH OTHER AND PARALLEL TO THE IN-GROUND CONDUCTOR, WITH NO TEE CONNECTIONS.

TOWER GROUNDING:

- EACH TOWER LEG SHALL BE BONDED TO ITS RING. SINGLE-LEGGED TOWERS, OR MONOPOLES, SHALL HAVE 2 BONDS ON OPPOSITE SIDES.
- BOND TO TOWER BASE, NOT TO VERTICAL TOWER STRUCTURE, AWAY FROM TOWER MOUNTING HARDWARE.
- EACH BOND SHALL HAVE A CORRESPONDING GROUND ROD ON THE RING.
- EACH BOND SHALL CONSIST OF 2 CONDUCTORS FROM THE TOWER TO ITS RING WITH EACH CONDUCTOR DIRECTED IN OPPOSITE DIRECTIONS WITH A PARALLEL CONNECTION ON THE RING ON OPPOSITE SIDES OF THE GROUND ROD.

EQUIPMENT AREA GROUNDING:

- COMMUNICATION AREAS ON EARTH SHALL HAVE A GROUND RING.
- BOND ALL EQUIPMENT TO A SINGLE-POINT GROUND (GROUND BAR).
- BOND THE EQUIPMENT SINGLE-POINT GROUND TO THE EQUIPMENT GROUND RING WITH MINIMUM 2 CONDUCTORS DIRECTED IN OPPOSITE DIRECTIONS WITH PARALLEL CONNECTIONS ON THE RING.
- IF EQUIPMENT IS ENCLOSED IN A SHELTER:
- IF THE SHELTER IS CONSIDERED TO BE EXPOSED TO A DIRECT LIGHTNING STRIKE, INSTALL A BUILDING LIGHTNING PROTECTION SYSTEM PER APPLICABLE VERSION OF NFPA 780.
- BOND ALL FIXED CONDUCTIVE BUILDING COMPONENTS TOGETHER AND TO THE BUILDING RING GROUND AT THE CORNERS. THIS IS TYPICALLY CALLED THE HALO GROUND. DO NOT BOND EQUIPMENT TO THE HALO GROUND.
- BOND ALL EQUIPMENT TOGETHER TO A SINGLE-POINT OR INTERIOR EQUIPMENT RING GROUND (IEGR). BOND THE SINGLE-POINT OR IEGR TO THE EXTERNAL EQUIPMENT RING GROUND.
- PLACE GROUND RODS AT THE EQUIPMENT GROUND RING CORNERS.

GROUND RODS:

- SEPARATION SPACE BETWEEN ANY 2 GROUND RODS SHALL BE NO CLOSER THAN THEIR DEPTH. THIS APPLIES TO ALL RODS IN THE COMPLETE SYSTEM.
- DRIVE VERTICALLY IN UNDISTURBED SOIL WITH THE TOP AT SAME DEPTH AS THE IN-GROUND CONDUCTOR. IF NOT POSSIBLE TO INSTALL VERTICALLY, PLACE AS CLOSE TO VERTICAL AS POSSIBLE AND IN A DIRECTION AWAY FROM THE NEAREST ABOVE-GROUND CONDUCTIVE ELEMENT (TOWER, EQUIPMENT, ETC.).

RADIALS (TYP. NEW DEDICATED COMMUNICATION SITES):

- WHERE FEASIBLE WITH ENOUGH SPACE AVAILABLE, INSTALL A MINIMUM OF 4, MAXIMUM 10 RING RADIALS.
- EACH RADIAL'S LENGTH SHALL BE MIN 20 FT, MAX 80 FT.
- EXTEND RADIALS PERPENDICULAR FROM RINGS IN AS STRAIGHT LINE AS POSSIBLE, AWAY FROM OTHER RING GROUNDS, RADIALS, BONDS, AND SIMILAR.
- A COMMON PRACTICE IS TO PLACE 4 RADIALS FROM THE TOWER RING TO THE 4 CORNERS OF THE AVAILABLE AREA.

AT A MINIMUM, BOND ALL COMPOUND CONDUCTIVE FENCE CORNER POSTS AND GATE POSTS TO THE LPGS. PREFERABLY, INSTALL A GROUND RING THAT FOLLOWS THE FENCE LINE, BONDING ALL POSTS TO THE RING.

27 ANTENNAS & CABLES:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRANSMISSION CABLES, JUMPERS, CONNECTORS, GROUNDING STRAPS, ANTENNAS, MOUNT AND HARDWARE. ALL MATERIALS SHALL BE INSPECTED BY THE CONTRACTOR FOR DAMAGE UPON DELIVERY. JUMPERS SHALL BE SUPPLIED AT ANTENNAS AND EQUIPMENT INSIDE SHELTER. COORDINATE LENGTH OF JUMPER CABLES WITH OWNER. COORDINATE AND VERIFY ALL OF THE MATERIALS TO BE PROVIDED WITH OWNER PRIOR TO SUBMITTING BID AND ORDERING MATERIALS.

AFTER INSTALLATION, THE TRANSMISSION LINE SYSTEM SHALL BE PIM / SWEEP TESTED FOR NEWER INSTALLATION AND DAMAGE WITH ANTENNAS CONNECTED. CONTRACTOR SHALL OBTAIN AND USE LATEST TESTING PROCEDURES FROM OWNER OR MANUFACTURER PRIOR TO BIDDING.

ANTENNA CABLES SHALL BE UNIQUELY COLOR-CODED AT THE ANTENNAS, BOTH SIDES OF EQUIPMENT SHELTER WALL, AND JUMPER CABLES AT THE EQUIPMENT.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONNECTORS, ASSOCIATED CABLE MOUNTING AND GROUNDING HARDWARE, WALL MOUNTS, STANDOFFS, AND ALL ASSOCIATED HARDWARE TO INSTALL ALL CABLES AND ANTENNAS TO THE MANUFACTURER'S AND OWNER'S SPECIFICATIONS.

ANTENNA CABLES SHALL BE FOAM DIELECTRIC COAXIAL CABLES AS FOLLOWS:

- BASE STATION ANTENNAS
  - 7/8" DIAMETER FOR CABLE LENGTHS UP TO 100 FT.
  - 1-5/8" DIAMETER FOR CABLE LENGTHS GREATER THAN 100 FT.
  - GPS ANTENNAS:
  - 7/8" DIAMETER FOR CABLE LENGTHS UP TO 200 FT.
  - 1-5/8" DIAMETER FOR CABLE LENGTHS GREATER THAN 200 FT.

MINIMUM BENDING RADIUS FOR COAXIAL CABLES SHALL BE:

- 15 FT FOR 7/8" COAXIAL CABLES.
- 25 FT FOR 1-5/8" COAXIAL CABLES.

CABLE SHALL BE INSTALLED WITH A MINIMUM NUMBER OF BENDS WHERE POSSIBLE. CABLE SHALL NOT BE LEFT UNTERMINATED AND SHALL BE SEALED IMMEDIATELY AFTER BEING INSTALLED.

ALL EXTERIOR CABLE CONNECTIONS SHALL BE COVERED WITH A WATERPROOF SPLICING KIT.

CONTRACTOR SHALL VERIFY EXACT LENGTH AND DIRECTION OF TRAVEL IN FIELD PRIOR TO CONSTRUCTION.

CABLE SHALL BE FURNISHED AND INSTALLED WITHOUT SPLICES AND WITH CONNECTORS AT EACH END.

27 CABLE TRAY:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

CABLE TRAY SHALL BE MADE OF EITHER CORROSION RESISTANT METAL OR WITH A CORROSION RESISTANT FINISH.

CABLE TRAY SHALL BE OF LADDER TRAY TYPE WITH FLAT COVER CLAMPED TO SIDE RAILS.

CABLE LADDER SHALL BE SIZED TO FIT ALL CABLES IN ACCORDANCE WITH NEC AND NEMA 11-15-84.

CABLE LADDER TRAYS SHALL BE NEMA CLASS 12A BY PW INDUSTRIES, INC. OR EQUAL.

CABLE LADDER TRAY SHALL BE SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

ALL WORKMANSHIP SHALL CONFORM TO THESE REQUIREMENTS AND ALL LOCAL CODES AND STANDARDS TO ENSURE SAFE AND ADEQUATE GROUNDING SYSTEM.

Cellco Partnership d/b/a

verizon

20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS TECHNOLOGY CORPORATION

567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	07/07/21	FOR REVIEW: JRM
1		
2		
3		
4		
5		
6		

STATE OF CONNECTICUT MICHAEL TRODDEN 33313 LICENSED PROFESSIONAL ENGINEER

DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: PLANTATION PROPERTIES, LLC
ADDRESS: P.O. BOX 542 BROAD BROOK, CT 06016-0542

SOUTH WINDSOR NORTH CT

SITE ADDRESS: 50 PLANTATION ROAD EAST WINDSOR, CT 06016

APT FILING NUMBER: CT141_12500

DRAWN BY: DRA

DATE: 07/07/21 CHECKED BY: JRM

VZW PROJECT CODE: 20171645681

VZW LOCATION CODE: 469756

VZW FUZE ID: 16560063

SHEET TITLE:

NOTES & SPECIFICATIONS

SHEET NUMBER:

N-1

SAMSUNG

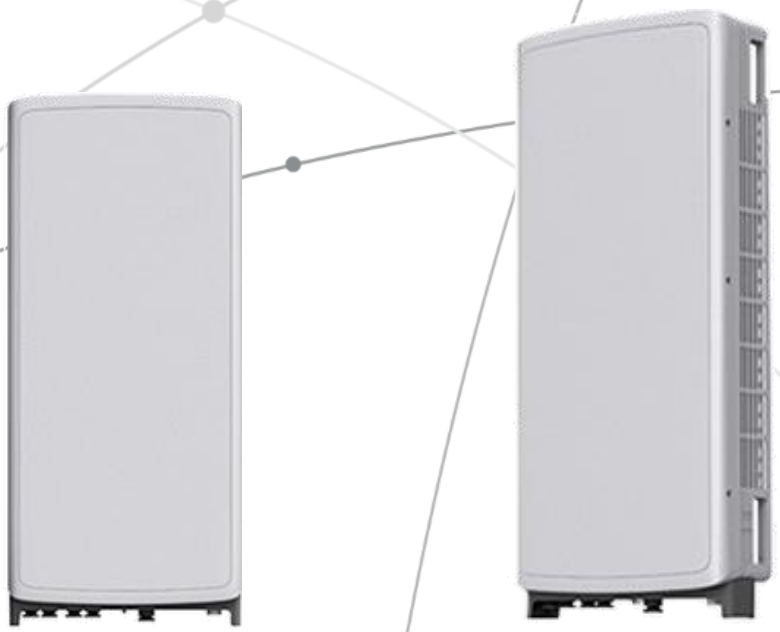
SAMSUNG

C-Band 64T64R Massive MIMO Radio

for High Capacity and Wide Coverage

Samsung C-Band 64T64R Massive MIMO Radio enables mobile operators to increase coverage range, boost data speeds and ultimately offer enriched 5G experiences to users in the U.S..

Model Code : MT6407-77A

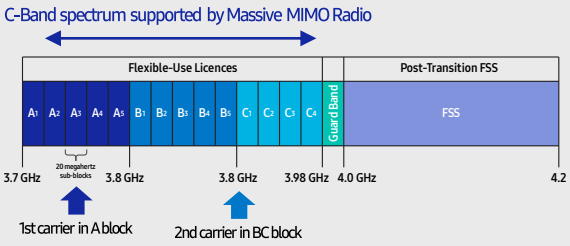


Points of Differentiation

Wide Bandwidth

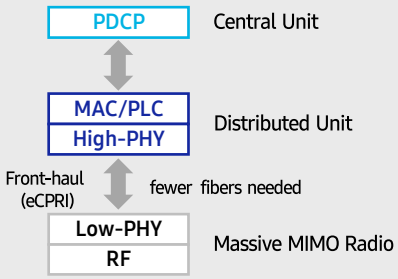
With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

Samsung C-Band massive MIMO Radio covers the entire C-Band 280 MHz spectrum, so it can meet the operator's needs in current A block and future B/C blocks



Future Proof Product

Samsung C-Band 64T64R Massive MIMO radio supports not only CPRI but also eCPRI as front-haul interface.
It enables operators can cut down on OPEX/CAPEX by reducing front-haul bandwidth through low layer split and using ethernet based higher efficient line.



Enhanced Performance

C-Band massive MIMO Radio creates sharp beams and extends networks' coverage on the critical mid-band spectrum using a large number of antenna elements and high output power to boost data speeds.

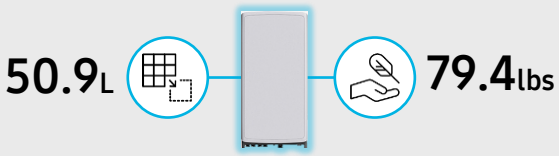
This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

Furthermore, as C-Band massive MIMO Radio supports MU-MIMO(Multi-user MIMO) , it enables to increase user throughput by minimizing interference.

Well Matched Design

Samsung C-Band Massive MIMO radio utilizes 64 antennas, supports up to 280MHz bandwidth, and delivers a 200W output power. despite the above advanced performance, the Radio has a compact size of 50.9L and 79.4lbs. This makes it easy to install the Radio.

It is designed to look solid and compact, with a low profile appearance so that, when installed, harmonizes well with the surrounding environment..



Technical Specifications

Item	Specification
Tech	NR
Band	n77
Frequency Band	3700 - 3980 MHz
EIRP	78.5dBm (53.0 dBm+25.5 dBi)
IBW/OBW	280 MHz / 200 MHz
Installation	Pole/Wall
Size/ Weight	16.06 x 35.06 x 5.51 inch (50.86L)/ 79.4 lbs

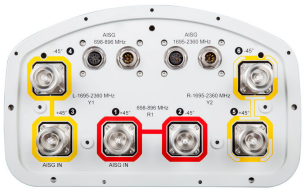
SAMSUNG

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions.

129 Samsung-ro, Yeongtong-gu, Suwon-si Gyeonggi-do, Korea

NHH-65B-R2B



6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One RET for low band and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Effective Projective Area (EPA), frontal	0.26 m^2 | 2.799 ft^2
Effective Projective Area (EPA), lateral	0.22 m^2 | 2.368 ft^2
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage | Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
Radome Material	Fiberglass, UV resistant
Radiator Material	Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	6

Remote Electrical Tilt (RET) Information, General

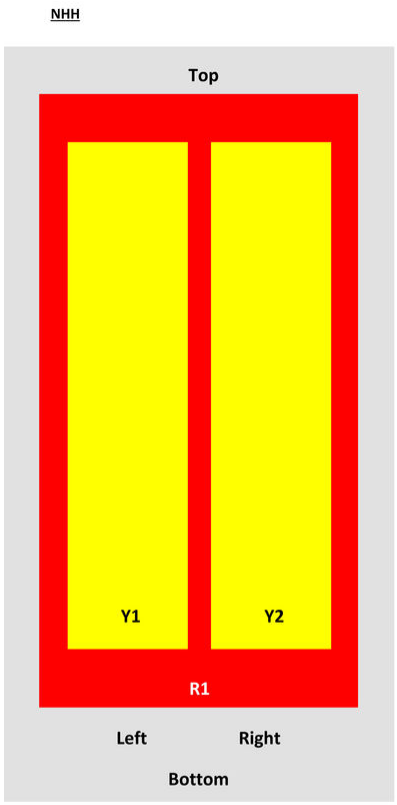
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male

Dimensions

Width	301 mm | 11.85 in
Length	1828 mm | 71.969 in

Depth	180 mm | 7.087 in

Array Layout



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxx1
Y1	1695-2360	3-4	2	ANxxxxxxxxxxxxxxx2
Y2	1695-2360	5-6		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Polarization	±45°
Total Input Power, maximum	900 W @ 50 °C

Remote Electrical Tilt (RET) Information, Electrical

Protocol	3GPP/AISG 2.0 (Single RET)
Power Consumption, idle state, maximum	2 W

NHH-65B-R2B

Power Consumption, normal conditions, maximum	13 W
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 3
Internal RET	High band (1) | Low band (1)

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain, dBi	14.9	15	17.7	17.9	18.4	18.7
Beamwidth, Horizontal, degrees	65	60	71	69	64	57
Beamwidth, Vertical, degrees	12.4	11.2	5.7	5.2	4.9	4.6
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	13	14	18	18	19	18
Front-to-Back Ratio at 180°, dB	30	29	31	30	29	31
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	30	30	30	30
VSWR | Return loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port at 50° C, maximum, watts	300	300	300	300	300	300

Electrical Specifications, BASTA

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain by all Beam Tilts, average, dBi	14.5	14.5	17.3	17.7	18.1	18.5
Gain by all Beam Tilts Tolerance, dB	±0.6	±1.1	±0.4	±0.4	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.4 7 ° | 14.6 14 ° | 14.3	0 ° | 14.7 7 ° | 14.7 14 ° | 14.1	0 ° | 17.2 4 ° | 17.3 7 ° | 17.3	0 ° | 17.6 4 ° | 17.7 7 ° | 17.7	0 ° | 18.0 4 ° | 18.2 7 ° | 18.1	0 ° | 18.3 4 ° | 18.5 7 ° | 18.6
Beamwidth, Horizontal Tolerance, degrees	±2	±2.1	±3	±4.1	±6.5	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.7	±0.7	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	13	14	16	16	17	15
Front-to-Back Total Power at 180° ± 30°, dB	23	22	27	27	25	25
CPR at Boresight, dB	22	21	23	23	22	19

NHH-65B-R2B

CPR at Sector, dB	10	7	16	13	11	4

Mechanical Specifications

Wind Loading at Velocity, frontal	278.0 N @ 150 km/h | 63.6 lbf @ 150 km/h
Wind Loading at Velocity, lateral	230.0 N @ 150 km/h | 51.7 lbf @ 150 km/h
Wind Loading at Velocity, maximum	120.7 lbf @ 150 km/h | 537.0 N @ 150 km/h
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	409 mm | 16.102 in
Depth, packed	299 mm | 11.772 in
Length, packed	1952 mm | 76.85 in
Net Weight, without mounting kit	19.8 kg | 43.651 lb
Weight, gross	32.3 kg | 71.209 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
REACH-SVHC	Compliant as per SVHC revision on www.commscope.com/ProductCompliance
ROHS	Compliant

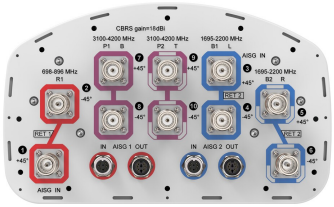
Included Products

BSAMNT-3	—	Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

NHHSS-65B-R2BT2



10-port sector antenna, 2x 698–896, 4x 1695–2200 and 4x 3100-4200 MHz, 65° HPBW, 2x RETs and 2x SBTs. Both high bandsshare the same electrical tilt.

- Perfect antenna to add 3.5GHz CBRS to macro sites
- Low band and mid band performance mirrors the performance of existing NHH hex port antennas
- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One LB RET and one HB RET. Both high bands are controlled by one RET to ensure same tilt level for 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	Fiberglass, UV resistant
Radiator Material	Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, mid band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	10

Remote Electrical Tilt (RET) Information

RET Hardware	CommRET v2
RET Interface	4x 8 pin connector as per IEC 60130-9 Daisy chain in: Male / Daisy chain out: Female Pin3: RS485A(AISG_B), Pin5: RS485B(AISG_A), Pin6: DC 10~30V, Pin7: DC_ Return
RET Interface, quantity	2 female | 2 male

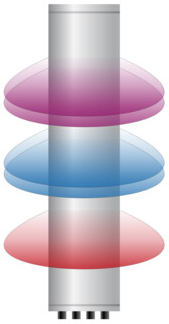
NHHSS-65B-R2BT2

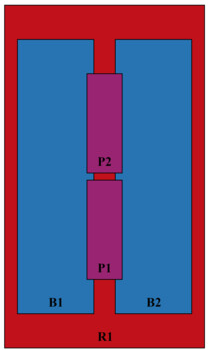
Input Voltage	10–30 Vdc
Internal RET	High band (1) | Low band (1)
Power Consumption, active state, maximum	10 W
Power Consumption, idle state, maximum	2 W
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	301 mm | 11.85 in
Depth	181 mm | 7.126 in
Length	1828 mm | 71.969 in
Net Weight, without mounting kit	23.1 kg | 50.927 lb

Array Layout



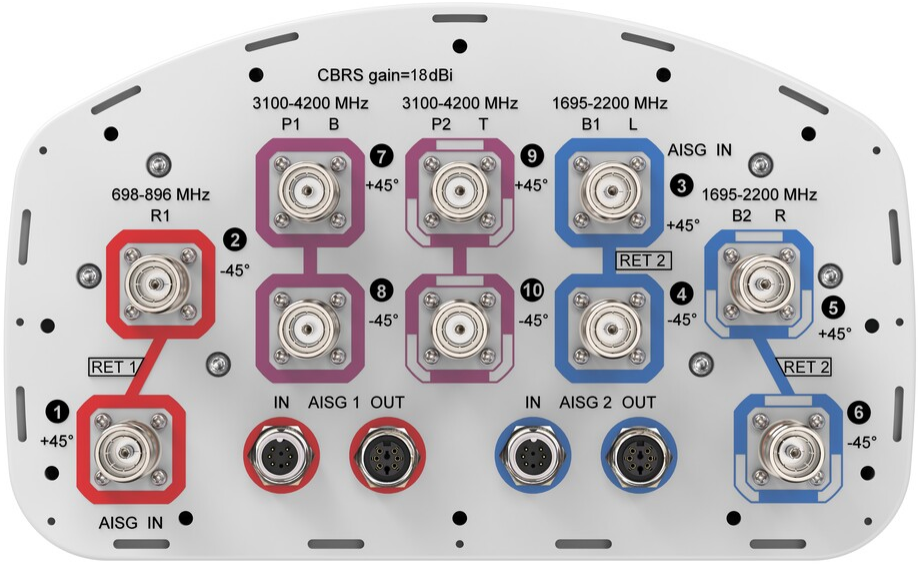


Array ID	Frequency (MHz)	RF Connector	RET (SRET)	AISG No.	AISG RET UID
R1	698-896	1 - 2	1	AISG1	CPxxxxxxxxxxxxxxR1
B1	1695-2200	3 - 4	2	AISG2	CPxxxxxxxxxxxxxxB1
B2	1695-2200	5 - 6			
P1	3100-4200	7 - 8	N/A	NA	N/A
P2	3100-4200	9 - 10			

(Sizes of colored boxes are not true depictions of array sizes)

Port Configuration

NHHSS-65B-R2BT2



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2200 MHz | 3100 – 4200 MHz | 698 – 896 MHz
Polarization	±45°
Total Input Power, maximum	1,000 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**3100–3550**	**3550–3700**	**3700–4200**
Gain, dBi	14.8	15.2	17.4	17.8	18	17.5	17.3	17.6
Beamwidth, Horizontal, degrees	65	62	66	61	64	55	65	61
Beamwidth, Vertical, degrees	13	11.6	5.5	5.2	4.9	5.7	5.4	4.9
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	2	2	2
USLS (First Lobe), dB	15	15	16	18	18	17	17	17
Front-to-Back Ratio at 180°, dB	26	29	31	28	27	30	32	29
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	28	28	28
VSWR | Return loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-140	-140	-140

NHHSS-65B-R2BT2

Input Power per Port at 50°C, maximum, watts	300	300	300	300	300	100	100	100

Electrical Specifications, BASTA

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**3100–3550**	**3550–3700**	**3700–4200**
Gain by all Beam Tilts, average, dBi	14.6	14.8	17	17.5	17.7	17.1	16.9	17.1
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.4	±0.6	±0.3	±0.4	±0.5	±0.7	±0.8
Gain by Beam Tilt, average, dBi	0 ° | 14.6 7 ° | 14.6 14 ° | 14.4	0 ° | 15.0 7 ° | 14.9 14 ° | 14.5	0 ° | 16.9 3 ° | 17.0 7 ° | 16.8	0 ° | 17.4 3 ° | 17.5 7 ° | 17.4	0 ° | 17.5 3 ° | 17.8 7 ° | 17.6			
Beamwidth, Horizontal Tolerance, degrees	±1.7	±1.3	±7.2	±3.1	±6.2	±11.7	±7.4	±10.9
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.8	±0.2	±0.2	±0.4	±0.4	±0.3	±0.4
USLS, beampeak to 20° above beampeak, dB	18	16	14	15	17	14		
Front-to-Back Total Power at 180° ± 30°, dB	22	25	25	25	24	26	25	23
CPR at Boresight, dB	24	17	16	21	19	15	16	14
CPR at Sector, dB	12	6	11	10	8	7	8	7

Mechanical Specifications

Wind Loading at Velocity, frontal	278.0 N @ 150 km/h | 62.5 lbf @ 150 km/h
Wind Loading at Velocity, lateral	230.0 N @ 150 km/h | 51.7 lbf @ 150 km/h
Wind Loading at Velocity, maximum	120.7 lbf @ 150 km/h | 537.0 N @ 150 km/h
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	1973 mm | 77.677 in
Depth, packed	441 mm | 17.362 in
Length, packed	337 mm | 13.268 in
Weight, gross	35.1 kg | 77.382 lb

Regulatory Compliance/Certifications

Agency	**Classification**
CHINA-ROHS	Below maximum concentration value
REACH-SVHC	Compliant as per SVHC revision on www.commscope.com/ProductCompliance

NHHSS-65B-R2BT2

ROHS	Compliant

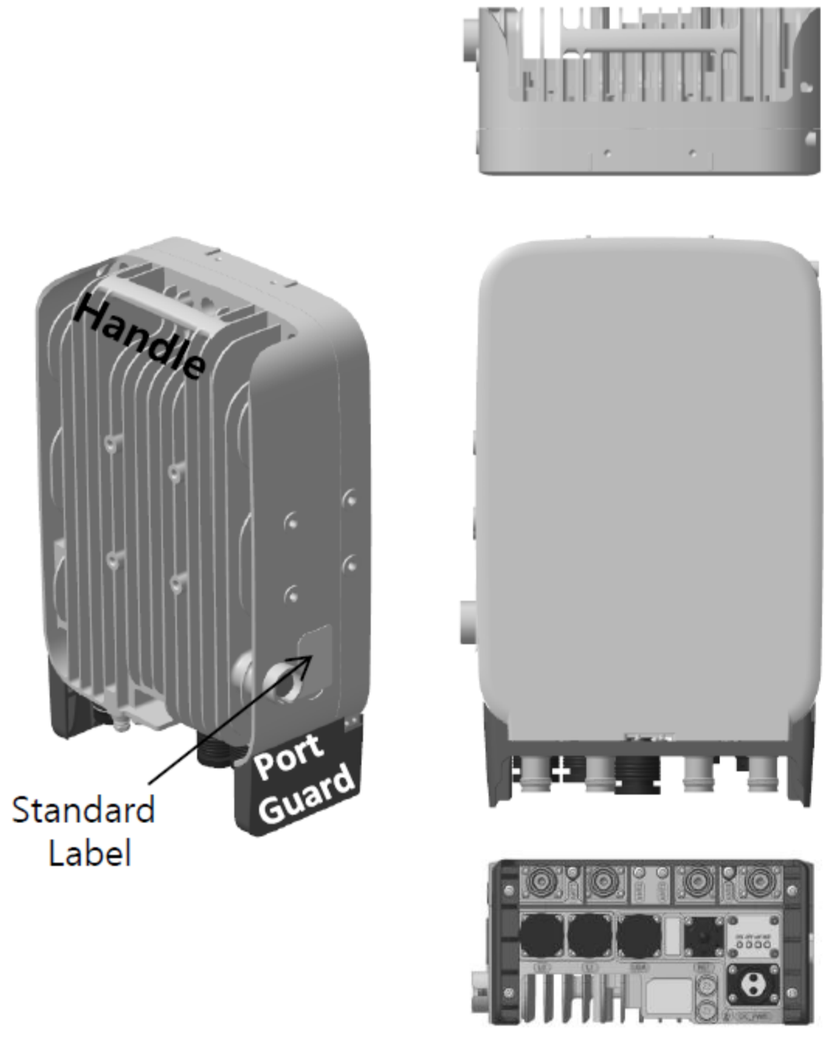
Included Products

BSAMNT-3	–	Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

[CBRS RRH] Spec.



Current Size: 216 x 307 x 105.5 mm (6.99L)
(8.5 x 12.1 x 4.1 inch., excluding Port Guard)
Design is subject to minor change

Item	Specification
Band	Band 48 (3.5 GHz)
Frequency	3550~3700 MHz
IBW	150 MHz
OBW	80 MHz
# of Carriers	5/10/15/20 MHz x 4 carriers
RF Chain	4TX / 4RX
RF Output Power & EIRP	4 path x 5 W (Total: 20 W = 43 dBm) (EIRP: 47 dBm / 10 MHz)
RX Sensitivity	Typical : -101.5 dBm @ 1 Rx (3GPP 36.104, Wide Area)
Modulation	256-QAM support (1024-QAM with 1~2dB power back-off)
Input Power	-48 VDC (-38 to -57 VDC, 1 SKU), with clip-on AC-DC converter (Option)
Power Consumption	About 160 Watt @ 100% RF load, typical conditions
Volume	**Under 7L** (w/o Antenna), Under 9.6L (with antenna)
Weight	**Under 8.0 kg** (**18.64** lb) (w/o Antenna), Under 10.5 Kg (with ant.)
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (W/o solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 36.104 Category A
	[B48] : FCC 47 CFR 96.41 e)
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP, single mode, duplex or Bi-Di
CPRI Cascade	Not supported
# of Antenna Port	4
External Alarm (UDA)	4
RET	AISG 2.2
TMA & built-in Bias-T I//F and PIM cancellation	Not supported
Mounting Options	Pole, wall, tower, back to back, side by side (for external ant), 3 RRH with Clip-on Antenna on the pole
Antenna Type	Integrated (Clip-on) antenna (Option), External antenna (Option)
NB-IoT	Not Supported (HW Resource reserved for 1 Guard Band NB-IoT per LTE carrier)
Spectrum Analyzer	TX/RX Support
External Alarm (UDA)	4
5G NR	Support with S/W upgrade
XRAN	Support with S/W upgrade

ATTACHMENT 3

	General	Power	Density					
Site Name: South Winsdsor N (East Windsor)								
Structure Height: 135 Ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T-UMTS	0			28000	0.0000	1.0000	0.00%	
*AT&T-UMTS	0			3600	0.0000	1.0000	0.00%	
*AT&T-UMTS	1	4920	94	1970	0.2285	1.0000	2.28%	
*AT&T-UMTS	1	2925	102	869	0.1141	0.5793	1.97%	
*AT&T-UMTS	1	4550	102	2145	0.1775	1.0000	1.78%	
*AT&T-UMTS	1	2450	102	746	0.0956	0.4973	1.92%	
*AT&T-UMTS	2	414	114	850	0.0255	0.5667	0.45%	
*AT&T-PCS-UMTS	2	656	114	1900	0.0405	1.0000	0.40%	
*AT&T-LTE	2	1615	114	700	0.0996	0.4667	2.13%	
*AT&T-PCS-LTE	2	1942	114	1900	0.1198	1.0000	1.20%	
*AT&T-GSM	2	414	114	850	0.0255	0.5667	0.45%	
*Sprint-CDMA	1	438	126	850	0.0109	0.5667	0.19%	
*Sprint-LTE	2	438	126	850	0.0219	0.5667	0.39%	
*Sprint-CDMA	5	623	126	1900	0.0778	1.0000	0.78%	
*Sprint-LTE	2	1556	126	1900	0.0777	1.0000	0.78%	
*Sprint-LTE	8	778	126	2500	0.1554	1.0000	1.55%	
*Clearwire	2	153	126	2496	0.0076	1.0000	0.08%	
*Clearwire	1	211	130	11 GHz	0.0049	1.0000	0.05%	
*T-Mobile	2	24	120	2100	0.0013	1.0000	0.01%	
*T-Mobile	2	12	120	1950	0.0007	1.0000	0.01%	
*T-Mobile	2	12	120	2100	0.0007	1.0000	0.01%	
VZW 700	**4**	**662**	**102**	**0.0091**	**751**	**0.5007**	**1.83%**	
VZW Cellular	**4**	**689**	**102**	**0.0095**	**869**	**0.5793**	**1.64%**	
VZW PCS	**4**	**1466**	**102**	**0.0203**	**1980**	**1.0000**	**2.03%**	
VZW AWS	**4**	**1570**	**102**	**0.0217**	**2125**	**1.0000**	**2.17%**	
VZW CBAND	**4**	**6531**	**102**	**0.0903**	**3730**	**1.0000**	**9.03%**	
VZW CBRS	**4**	**12**	**94**	**0.0002**	**3625**	**1.0000**	**0.02%**	
								33.15%
* Source: Siting Council								

ATTACHMENT 4

July 9, 2021

Verizon Wireless
20 Alexander Drive
Wallingford, CT 06492

Attn: Mr. David Vivian

Re: Structural Analysis Report
Verizon Site I.D.: South Windsor North CT – LSub6 – Carrier Add
50 Plantation Road
East Windsor, CT 06016

Project/Location Code:	20171646071/469756
VZW FUZE I.D.:	16560063
APT Filing No.	CT141_12500

Dear Mr. Vivian,

All-Points Technology Corp. (APT), a professional engineering corporation licensed in the State of Connecticut, performed a structural analysis of the above existing 133-ft± high elevated water reservoir to support a proposed antenna and appurtenance modification.

Details of the proposed antenna and appurtenance modification are included within the table on the following page. Reference is made to the Construction Drawings prepared by this office, marked Rev 0, dated 07/07/21.

The following information was utilized in the preparation of this assessment:

- Construction Drawings prepared by APT, marked Rev1, dated 11/06/2020
- Tank Reinforcement Drawings, prepared by APT, marked Rev0, dated 07/09/20.
- Structural Modification Design Report, prepared by APT, dated 07/09/20.
- SK-S1 - Foundation Reinforcement Details, marked Rev1, dated 06/08/21.
- SK-S2 – Reinforcement Details, marked Rev1, dated 06/30/21.

The structural analysis has been prepared in accordance with the following design standards:

- ASCE/SEI 7-10 – Minimum Design Loads for Buildings and Other Structures
- AISC - American Institute of Steel Construction Manual of Steel Construction, 14th Ed.
- IBC 2015 - as amended by the 2018 Connecticut State Building Code.
- ANSI/TIA-222-H – Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures

Design Criteria:

- Load Case 1: 125 mph (3-sec gust), Ultimate Wind Speed
- Load Case 2: 125 mph (3-sec gust), Ultimate Wind Speed 0.9 x Dead Load
- Structure Class II
- Exposure Category C
- Topographic Category 1

Note: Risk Category II used. (Water tank no longer in service).

The analysis consists was conducted utilizing the following equipment inventory (proposed equipment indicated in **bold** text):

Carrier	Antenna and Appurtenance Make/Model	Elevation	Status	Mount Type	Coax/Feed-Line
Clearwire	(2) 3-ft Dia. Microwave Dishes (Dragonwave A-ANT-23-G-2.5 est.)	125'±	E	(3) Pipe Mounts	(3) 1-1/4 RF Hyrbriflex, (2) 1/2", (2) 2-1/4" Innerduct
Clearwire	(3) Fiber Boxes	124'±	E		
Clearwire	(3) Argus LLPX310R-V4 panel antennas	119'±	E		
Clearwire	(3) Remote Radio Units	116'±	E		
Sprint	(2) RFS APVX9ERR18-C-A20, (1) RFS APVXSPP18-C-A20, (3) ALU 800 MHz 2x50W RRHs & (3) ALU 1900MHz 4x40W RRHs	121'±	E	(3) Pipe Mounts	
Clearwire	(1) Fiber Box	109'±	E	Catwalk Rail	n/a
MetroPCS/ T-Mobile	(3) RFS APXV18-206517S-C panel antennas	119'±	E	(3) Pipe Mounts	(6) 1-5/8
AT&T	(6) Powerwave 7770 panel antennas, (2) Powerwave P65-17-XLH-RR panel antennas, (1) KMW AM-X-CD-16-65-00T-RET panel antenna (12) Powerwave LGP 21401 TMAs, (3) Ericsson RRUS-11, (3) Ericsson RRUS-12 and (3) Raycap DC2 Surge Suppressors (est.)	112 - 113'±	E	(3) Pipe Mounts (shared with Clearwire & MetroPCS/T-Mobile)	(12) 1-5/8", (2) 5/8" & (1) 3/8" fiber/DC cables (est.)
Verizon	**(3) Commscope NHHSS-65B-R2B, (3) Commscope NHH-65B-R2B panel antennas, (3) Samsung MT6407-77A antennas (3) Samsung B5/B13 RRH-BR04C Remote Radio Heads (RRHs), (3) Samsung B2/B66A RRH-BR049 RRHs, (3) Samsung CBRS RT4401-48A RRHs (3) Raycap RHSDC-3315-PF-48 Over Voltage Protection Boxes (OVPs)**	**102'/94'**	**P**	**Custom Pipe Mounts Attached to Exist. Tank Legs**	**(3) 6x12 Low Inductance Hybrid Fiber Cables (Routed within Southwest Built-Up Lattice Leg Channels)**
Clearwire	One (1) Fiber Box	10'±	E	Leg	*n/a*

Analysis Results:

The analysis was conducted in accordance with the criteria outlined above, with the aforementioned existing and proposed equipment loading. The following table summarizes the results of the analysis:

Component	Usage (%)
New Sway Rods	94%
Reinforced Wing Plates	97%
Anchor Bolts	58%

Notes:
1. ASTM A36 steel grade used for the basis of the new sway rod design.
2. Existing anchor bolts include 1/8" corrosion allowance.
3. Anchor bolt usage includes (1) new ¾"dia. anchor bolt per leg.
4. Assumes reservoir no longer used for water storage.
5. Reinforced gusset plates (Pin bearing on plate controls).

Base Foundation:

Evaluation of the existing foundation system was limited to a global stability check with the existing and proposed loading. The existing foundation geometry was established through field investigation conducted by APT during May 2017, and during construction of the new build project during June 2021. Subgrade conditions were based on presumptive soil parameters per TIA-222-H Section 9.4, and Table F-1 (Annex F) & IBC 2015.

The calculated leg and base reactions with the above noted loading are as follows:

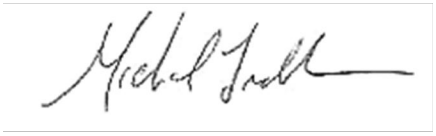
Load Effect	Calculated Base Reactions	Usage
Axial	74 k	n/a
Shear	70 k	n/a
Overturning Moment	5291 ft-k	n/a
Leg Uplift	95 k	0.75<1.0 (PASS)

1 kip = 1,000lbs

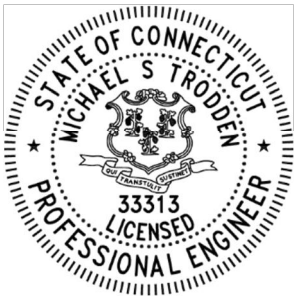
Conclusions:

Successful completion of the reinforcements detailed within the attached drawings, will result in a host structure that meet the requirements of the 2015 International Building Code, as amended by the 2018 Connecticut State Building Code.

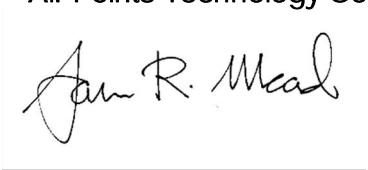
Sincerely,
All-Points Technology Corp., P.C.



Michael S. Trodden, P.E.
Sr. Structural Engineer



Prepared by:
All-Points Technology Corp., P.C.



Jason R. Mead
Department Manager –
Structural Services

Limitations:

This report is based on the following:

1. Tower/structure is properly installed and maintained.
2. All members are in a non-deteriorated condition.
3. All required members are in place.
4. All bolts are in place and are properly tightened.
5. Tower/structure is in plumb condition.
6. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.

All-Points Technology Corporation, P.C. (APT) is not responsible for any modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

1. Replacing or reinforcing bracing members.
2. Reinforcing members in any manner.
3. Installing antenna mounts.
4. Extending tower/structure.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which is contrary to that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication and erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Appendix A

Calculations

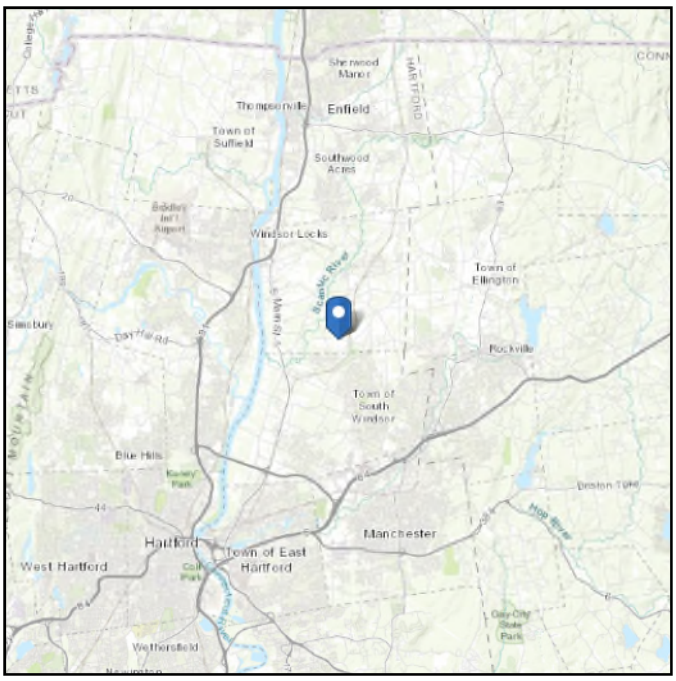
(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
				Wind Design Parameters								
Municipality	**Ground Snow Load** (psf)	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)			**Wind-Borne Debris Regions**[1]		**Hurricane-Prone Regions**
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
East Hampton	30	0.177	0.062	120	130	140	93	101	108			Yes
East Hartford	30	0.180	0.064	115	125	135	89	97	105			Yes
East Haven	30	0.182	0.062	120	130	140	93	101	108		Type B	Yes
East Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Easton	30	0.215	0.066	110	120	130	85	93	101			Yes
East Windsor	35	0.177	0.064	115	125	135	89	97	105			Yes
Ellington	35	0.176	0.064	115	125	135	89	97	105			Yes
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes
Hamden	30	0.185	0.063	115	125	135	89	97	105			Yes
Hampton	35	0.172	0.062	120	130	140	93	101	108			Yes
Hartford	30	0.181	0.064	115	125	135	89	97	105			Yes
Hartland	40	0.175	0.065	110	120	125	85	93	97			Yes
Harwinton	35	0.183	0.065	110	120	130	85	93	101			Yes
Hebron	30	0.177	0.063	120	130	140	93	101	108			Yes
Kent	40	0.188	0.065	105	115	120	81	89	93			
Killingly	40	0.171	0.062	120	130	140	93	101	108			Yes
Killingworth	30	0.173	0.061	120	130	140	93	101	108			Yes
Lebanon	30	0.173	0.062	120	130	140	93	101	108			Yes
Ledyard	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Lisbon	30	0.169	0.061	125	135	145	97	105	112		Type A	Yes
Litchfield	40	0.184	0.065	110	120	125	85	93	97			Yes
Lyme	30	0.164	0.059	125	135	145	97	105	112		Type A	Yes
Madison	30	0.173	0.060	120	130	140	93	101	108		Type B	Yes
Manchester	30	0.178	0.064	115	125	135	89	97	105			Yes
Mansfield	35	0.173	0.062	120	130	140	93	101	108			Yes
Marlborough	30	0.177	0.062	120	130	140	93	101	108			Yes
Meriden	30	0.183	0.063	115	125	135	89	97	105			Yes
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes

ASCE 7 Hazards Report

Address:
50 Plantation Rd
Broad Brook, Connecticut
06016

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

Elevation: 158.08 ft (NAVD 88)
Latitude: 41.87543
Longitude: -72.564799



Wind

Results:

Wind Speed:	122 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph

Data Accessed: Wed Jul 14 2021

Date Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

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

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

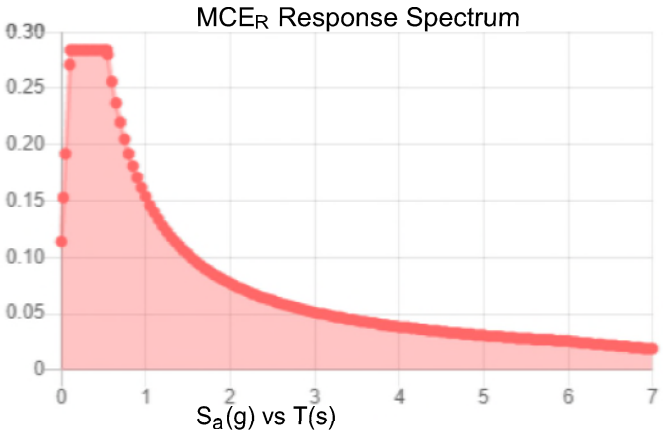
Seismic

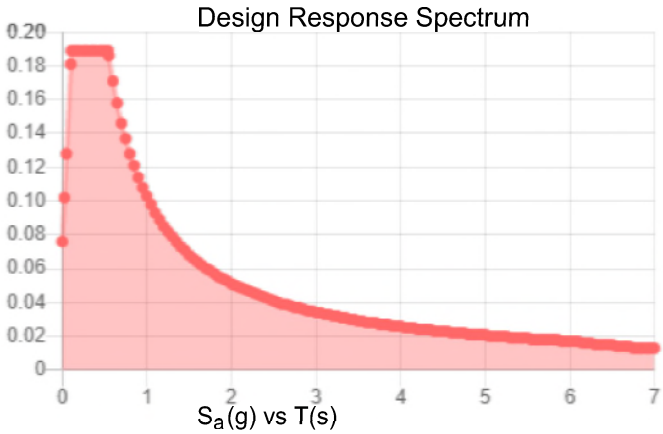
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.177	S_{DS} :	0.189
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.088
S_{MS} :	0.284	PGA_M :	0.141
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Jul 14 2021

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

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Subject: **Antenna & Appurtenance Area Calculations**

Project: **Verizon - South Windsor North CT - LSub6**

Prepared: **07.09.21** Revised: APT Job No. **CT141_12500**

Antenna and Appurtenance Area Calculations

Height	Carrier/Equipment	Item Quantity	Dimensions H (in)	W (in	D (in)	Item Area (ft2) (ea)	Aspect Ratio	Flat or Round	Cf	CfAa	Shielding Factor	Rotational Area Factor	Total CfAa (ft2)	Adjusted Net CfAa (ft2)	Weight (ea) (lbs)	Weight (Total) (lbs)
94.00	Prop. Verizon LSub6 Antennas	2.00	35.1	16.1	5.5	3.92	2.18	FLAT	1.32	5.18	1.00	0.70	10.36	7.25	87.1	174.20
94.00	Prop. Verizon LSub6 Antennas	1.00	35.1	16.1	5.5	3.92	2.18	FLAT	1.32	5.18	1.00	1.00	5.18	5.18	87.1	87.10
102.00	Prop. Verizon Panel Antennas	4.00	72.0	11.9	7.1	5.95	6.05	FLAT	1.38	8.24	1.00	0.70	32.94	23.06	60.0	240.00
102.00	Prop. Verizon Panel Antennas	2.00	72.0	11.9	7.1	5.95	6.05	FLAT	1.38	8.24	1.00	1.00	16.47	16.47	60.0	120.00
94.00	Prop. Verizon B2/B66A RRH BR049	2.00	15.0	15.0	10.0	1.56	1.00	FLAT	1.30	2.03	1.00	0.70	4.06	2.84	97.5	195.00
94.00	Prop. Verizon B2/B66A RRH BR049	1.00	15.0	15.0	10.0	1.56	1.00	FLAT	1.30	2.03	1.00	1.00	2.03	2.03	97.5	97.50
94.00	Prop. Verizon B5/B13 RRH BR04C	2.00	15.0	15.0	8.1	1.56	1.00	FLAT	1.30	2.03	1.00	0.70	4.06	2.84	82.0	164.00
94.00	Prop. Verizon B5/B13 RRH BR04C	1.00	15.0	15.0	8.1	1.56	1.00	FLAT	1.30	2.03	1.00	1.00	2.03	2.03	82.0	82.00
94.00	Prop. Verizon Samsung CBRS RT44001-48A RRH	2.00	10.6	8.9	3.0	0.66	1.19	FLAT	1.30	0.85	1.00	0.70	1.71	1.20	11.0	22.00
94.00	Prop. Verizon Samsung CBRS RT44001-48A RRH	1.00	1.0	1.0	1.0	0.01	1.00	FLAT	1.30	0.01	1.00	1.00	0.01	0.01	11.0	11.00
102.00	Prop. Verizon 6OVP	2.00	29.5	16.5	12.6	3.38	1.79	FLAT	1.31	4.44	1.00	0.70	8.88	6.21	32.0	64.00
102.00	Prop. Verizon 6OVP	1.00	29.5	16.5	12.6	3.38	1.79	FLAT	1.31	4.44	1.00	1.00	4.44	4.44	32.0	32.00
98.00	Prop. Verizon Pipe Mounts (For Ant + RRHs)	6.00	180.0	3.5	3.5	4.38	51.43	ROUND	1.20	5.25	1.00	1.00	31.50	31.50	115.0	690.00
98.00	Prop. Verizon Mounts	3.00				3.00			1.40	4.20	1.00	1.00	12.60	12.60	80.0	240.00
												Subtotal	**136.27**	**117.67**		**2218.80**
112.00	Exist. AT&T Panel Antennas (KMW AM-X-CD-16-65-00T-RET)	1.00	72.0	11.8	5.9	5.90	6.10	FLAT	1.39	8.17	1.00	0.70	8.17	5.72	48.5	48.50
112.00	Exist. AT&T Panel Antennas (Powerwave P65-17-XLH-RR)	1.00	96.0	12.0	6.0	8.00	8.00	FLAT	1.43	11.47	1.00	1.00	11.47	11.47	62.0	62.00
112.00	Exist. AT&T Panel Antennas (Powerwave P65-17-XLH-RR)	1.00	96.0	12.0	6.0	8.00	8.00	FLAT	1.43	11.47	1.00	0.70	11.47	8.03	62.0	62.00
112.50	Exist. AT&T Panel Antennas (Powerwave 7770)	4.00	55.0	11.0	5.0	4.20	5.00	FLAT	1.37	5.74	1.00	0.70	22.97	16.08	39.0	156.00
112.50	Exist. AT&T Panel Antennas (Powerwave 7770)	2.00	55.0	11.0	5.0	4.20	5.00	FLAT	1.37	5.74	1.00	1.00	11.48	11.48	39.0	78.00
113.50	Exist. AT&T TMAs (Powerwave LGP21401)	4.00	14.4	9.2	2.6	0.92	1.57	FLAT	1.31	1.20	1.00	1.00	4.82	4.82	14.1	56.40
113.50	Exist. AT&T TMAs (Powerwave LGP21401)	8.00	14.4	9.2	2.6	0.92	1.57	FLAT	1.31	1.20	1.00	0.70	9.64	6.75	14.1	112.80
113.50	Exist. AT&T RRUs (Ericcson RRUS 11)	2.00	19.7	17.0	7.2	2.33	1.16	FLAT	1.30	3.03	1.00	0.70	6.06	4.24	50.0	100.00
113.50	Exist. AT&T RRUs (Ericcson RRUS 11)	1.00	19.7	17.0	7.2	2.33	1.16	FLAT	1.30	3.03	1.00	1.00	3.03	3.03	50.0	50.00
113.50	Exist. AT&T RRUs (Ericcson RRUS 12)	2.00	20.4	18.5	7.5	2.62	1.10	FLAT	1.30	3.41	1.00	0.70	6.82	4.78	50.0	100.00
113.50	Exist. AT&T RRUs (Ericcson RRUS 12)	1.00	20.4	18.5	7.5	2.62	1.10	FLAT	1.30	3.41	1.00	1.00	3.41	3.41	50.0	50.00
113.50	Exist. AT&T SA (DC2-48-60-09E, est.)	2.00	10.4	6.3	10.8	0.46	1.65	ROUND	1.31	0.60	1.00	0.70	1.19	0.84	16.0	32.00
113.50	Exist. AT&T SA (DC2-48-60-09E, est.)	1.00	10.4	6.3	10.8	0.46	1.65	ROUND	1.31	0.60	1.00	1.00	0.60	0.60	16.0	16.00
												Subtotal	**101.13**	**81.23**		**923.70**
119.00	MetroPCS/T-Mobile Panel Antennas (RFS APXV18-206517S-C)	2.00	72.0	6.8	3.2	3.40	10.59	FLAT	1.52	5.17	1.00	0.70	10.33	7.23	26.4	52.80
119.00	MetroPCS/T-Mobile Panel Antennas (RFS APXV18-206517S-C)	1.00	72.0	6.8	3.2	3.40	10.59	FLAT	1.52	5.17	1.00	1.00	5.17	5.17	26.4	26.40
												Subtotal	**15.50**	**12.40**		**79.20**
121.00	Exist. Sprint Panel Antennas (RFS APXV Series)	2.00	72.0	11.8	7.0	5.90	6.10	FLAT	1.39	8.17	1.00	0.70	16.34	11.44	57.0	114.00
121.00	Exist. Sprint Panel Antennas (RFS APXV Series)	1.00	72.0	11.8	7.0	5.90	6.10	FLAT	1.39	8.17	1.00	1.00	8.17	8.17	57.0	57.00
115.50	Exist. Sprint RRHs (800 MHz RRH)	2.00	15.7	13.0	9.8	1.42	1.21	FLAT	1.30	1.85	1.00	0.70	3.70	2.59	53.0	106.00
115.50	Exist. Sprint RRHs (800 MHz RRH)	1.00	15.7	13.0	9.8	1.42	1.21	FLAT	1.30	1.85	1.00	1.00	1.85	1.85	53.0	53.00
112.50	Exist. Sprint RRHs (1900 MHz RRH)	2.00	25.0	11.1	11.4	1.93	2.25	FLAT	1.32	2.55	1.00	0.70	5.09	3.56	60.0	120.00
112.50	Exist. Sprint RRHs (1900 MHz RRH)	1.00	25.0	11.1	11.4	1.93	2.25	FLAT	1.32	2.55	1.00	1.00	2.55	2.55	60.0	60.00
												Subtotal	**37.70**	**30.16**		**510.00**
10.00	Exist. CW Fiber Box (14"x14"x8")	1.00	14.0	8.0	17.0	0.78	1.75	FLAT	1.31	1.02	1.00	1.00	1.02	1.02	18.0	18.00
109.00	Exist. CW Fiber Box (14"x14"x8")	1.00	14.0	14.0	8.0	1.36	1.00	FLAT	1.30	1.77	1.00	1.00	1.77	1.77	18.0	18.00
119.00	Exist. CW Panel Antennas (ArgusLLPX310R-V4)	2.00	42.1	11.8	4.5	3.46	3.57	FLAT	1.34	4.64	1.00	0.70	9.28	6.50	28.7	57.40
119.00	Exist. CW Panel Antennas (ArgusLLPX310R-V4)	1.00	42.1	11.8	4.5	3.46	3.57	FLAT	1.34	4.64	1.00	1.00	4.64	4.64	28.7	28.70
116.00	Exist. CW RRHs (17"x14" Est)	2.00	17.0	14.0	7.0	1.65	1.21	FLAT	1.30	2.15	1.00	0.70	4.31	3.02	50.0	100.00
116.00	Exist. CW RRHs (17"x14" Est)	1.00	17.0	14.0	7.0	1.65	1.21	FLAT	1.30	2.15	1.00	1.00	2.15	2.15	50.0	50.00
124.00	Exist. CW Fiber Boxes (12"x12"x6" est.)	2.00	12.0	6.0	12.0	0.50	2.00	FLAT	1.32	0.66	1.00	0.70	1.32	0.92	16.0	32.00
124.00	Exist. CW Fiber Boxes (12"x12"x6" est.)	1.00	12.0	6.0	12.0	0.50	2.00	FLAT	1.32	0.66	1.00	1.00	0.66	0.66	16.0	16.00
125.00	Exist. CW MW Dishe (A-ANT-23-G-2.5)	1.00	35.0	35.0	16.8	8.51	1.00	FLAT	1.30	11.06	1.00	1.00	11.06	11.06	47.6	47.60
125.00	Exist. CW MW Dishe (A-ANT-23-G-2.5)	1.00	35.0	35.0	16.8	8.51	1.00	FLAT	1.30	11.06	1.00	0.70	11.06	7.74	47.6	47.60
												Subtotal	**47.27**	**39.48**		**415.30**
117.00	Exist. AT&T/CW Exposed Pipe Mounts (P3x20' est.)	3.00	3.5	108.0	7.0	2.63	0.03	ROUND	0.70	1.84	1.00	1.00	5.51	5.51	151.6	454.80
	Exist. AT&T Exposed Pipe Mounts (P3x20' est.)	3.00	3.5	86.0	9.8	2.09	0.04	ROUND	0.70	1.46	1.00	1.00	4.39	4.39	151.6	454.80
	Exist. AT&T/Metro Exposed Pipe Mounts (P3x20' est.)	3.00	3.5	68.0	11.4	1.65	0.05	ROUND	0.70	1.16	1.00	1.00	3.47	3.47	151.6	454.80
	Exist. AT&T Exposed Pipe Mounts (P2.5x20' est.)	3.00	3.0	46.0	3.0	0.96	15.33	ROUND	0.99	0.94	1.00	1.00	2.83	2.83	115.8	347.40
	Exist. Sprint Exposed Pipe Mounts (P3x20' est.)	3.00	3.5	60.0	3.5	1.46	17.14	ROUND	1.03	1.50	1.00	1.00	4.49	4.49	151.6	454.80
												Subtotal	**20.69**	**20.69**		**2166.60**
															Total Sum Weight	**6313.60**

Designer Comments:

(1) Existing TMA's and RRU's considered not shielded from wind by antenna(s).

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Subject: **Water Reservoir Wind Load Calculations**
Project: **Verizon - South Windsor North CT - LSub6**
Prepared: **07.09.21** Revised: **CT141_12500**

k Wind Load Distribution (ASCE 7-10) Tank Empty

Due to the height of the structure, the analytical method is required.

Ultimate Wind Speed (3 Sec Gust), V =	125	mph	Appendix N 2018 CSBC	
Risk Category =	II		**Note: Structure no longer utilized as a water tank and is empty.**	
Exposure Category =	C		2015 IBC Section 1609.4.3	
Base Tower Cross-Section =	SQ		Enter 'SQ' for Square, 'T' for Triangle)	
Terrain Exposure Constants:				
Topographic Factor, Kzt =	1.00		ASCE 7-10	Sec. 26.8.2
Wind Directionality Factor, Kd =	0.85	Tower	ASCE 7-10	Table 26.6-1
	0.95	Standpipe/Reservoir		
3-Sec Gust Speed Power Law Exponent α =	9.5		ASCE 7-10	Table 26.9-1
Nominal Height of the Atmospheric Boundary Layer (zg) =	900		ASCE 7-10	Table 26.9-1
Gust Response Factor, G (Tank) =	0.85		ASCE 7-10	Sec. 26.9.1
K_{zmin} =	0.85		ASCE 7-10	
Velocity Pressure at height z, qz =	$q_z = 0.00256\ K_z K_{zt} K_d V^2$		ASCE 7-10	[Eq. 29.3-1] Sec. 29.3.2
Design Wind Load, P	$F = qzGCfAf \geq 10psf$		ASCE 7-10	[Eq. 29.5-1] Sec. 29.8

Water Tower Wind Load Calculation - Support Tower

Component	Top of Section Elevation (ft)	Bottom of Section Elevation (ft)	Δh (ft)	Outside Width at Top (ft)	Outside Width at Bottom (ft)	Aleg (ft^2)	Agirts (ft^2)	AF (ft^2)	AR (Sway Rods) (ft^2)	AG (ft^2)
Support Tower	**109**	**74**	35	**14.85**	**21.77**	**100.00**	**0.00**	100.00	**9.13**	640.85
Support Tower	**74**	**37**	37	21.77	**29.09**	**104.65**	**14.02**	118.67	**10.45**	940.91
Support Tower	**37**	**0**	37	29.09	**36.41**	**104.65**	**18.83**	123.48	**11.61**	1211.75
		Sub-total	109							

z bar (ft)	Kz	qz	e	CF	RR	DF	DR	DFAF	DRARRR	AE (ft^2)	F (kips)	OTM (ft-kips)
91.5	1.24	42.23	0.170	3.111	0.585	1.00	1.00	100.00	5.34	105.34	11.77	1076.52
55.5	1.12	38.01	0.137	3.266	0.580	1.00	1.00	118.67	6.06	124.73	13.16	730.46
18.5	0.89	30.16	0.111	3.392	0.576	1.00	1.00	123.48	6.69	130.17	11.32	209.44
											36	2016

Water Tower Wind Load Calculation - Stand Pipe, Reservoir and Appurtenances

Component	Top of Section Elevation (ft)	Bottom of Section (ft)	Δh (ft)	Depth (ft)	Diameter (ft^2)	AF (ft^2)	AR (ft^2)	z bar (ft)	Kz	qz	CF	F (kips)	OTM (ft-kips)
Stand-Pipe	**100**	**74**	26		**3.00**		78.00	87.0	1.23	46.70	**0.70**	2.17	188.58
Stand-Pipe	**74**	**37**	37		**3.00**		111.00	55.5	1.12	42.49	**0.70**	2.81	155.74
Stand-Pipe	**37**	**0**	37		**3.00**		111.00	18.5	0.89	33.71	**0.70**	2.23	41.19
Ladder	**112.5**	**74**	38.5	**0.2**		7.70		93.3	1.25	42.40	**2.00**	0.56	51.76
Ladder	**74**	**37**	37	**0.2**		7.40		55.5	1.12	38.01	**2.00**	0.48	26.54
Ladder	**37**	**0**	37	**0.2**		7.40		18.5	0.89	30.16	**2.00**	0.38	7.02
Dome Bulb	**109**	**100**	9				**133.00**	104.5	1.28	48.54	**0.50**	2.74	286.73
Reservoir Cylinder	**127**	**109**	18		**19.00**		342.00	118.0	1.31	49.80	**0.50**	7.24	854.12
Reservoir Ladder	**129**	**109**	20	**0.2**		4.00		119.0	1.31	44.64	**2.00**	0.30	36.12
Exposed Catwalk	**112**	**109**	3			**4.00**		110.5	1.29	43.95	**2.00**	0.30	33.02
Cone Roof	**132.5**	**125.67**	6.83				**88.20**	129.1	1.34	50.75	**0.50**	1.90	245.56
Finial	**134.3**	**133.3**	1		**0.67**		0.67	133.8	1.35	45.75	**0.50**	0.01	1.74
												21.11	1928.11

Water Tower Wind Load Calculation - Antennas & Appurtenances

Component	Top of Section Elevation (ft)	Bottom of Section Elevation (ft)	z bar (ft)	Kz	qz	CfAa (from Equip. Worksheet) (ft^2)	F (kips)	OTM (ft-kips)
Exposed Coaxial Cables	**112**	**74**	93.0	1.25	47.36	15.05	0.61	56.34
Exposed Coaxial Cables	**74**	**37**	55.5	1.12	42.49	14.65	0.53	29.37
Exposed Coaxial Cables	**37**	**10**	23.5	0.93	35.46	10.69	0.32	7.57
CW MW Dishes	**125**	**125**	125.0	1.33	45.10	18.80	0.72	90.09
CW Fiber Boxes	**124**	**124**	124.0	1.32	45.02	1.58	0.06	7.50
Sprint Panels	**121**	**121**	121.0	1.32	44.79	19.61	0.75	90.35
CW Panels	**119**	**119**	119.0	1.31	44.64	11.14	0.42	50.27
MetroPCS/T-Mobile Panels	**119**	**119**	119.0	1.31	44.64	12.40	0.47	55.99
Exposed Pipe Mounts	**117**	**117**	117.0	1.31	44.71	20.69	0.87	102.29
CW RRHs	**116**	**116**	116.0	1.31	44.40	5.17	0.20	22.64
Sprint 800 MHz RRHs	**115.5**	**115.5**	115.5	1.30	44.36	4.44	0.17	19.34
Sprint 1900 MHz RRHs	**112.5**	**112.5**	112.5	1.30	44.11	6.11	0.23	25.77
AT&T RRUs, TMAs & SA	**113.5**	**113.5**	113.5	1.30	44.19	28.45	1.07	121.32
AT&T Panels	**112.5**	**112.5**	112.5	1.30	44.11	27.56	1.03	116.26
AT&T Panels	**112**	**112**	112.0	1.30	44.07	25.21	0.94	105.78
CW Fiber Boxes	**109**	**109**	109.0	1.29	43.82	1.77	0.07	7.18
Prop. Verizon Pipe Mounts	**98**	**98**	98.0	1.26	47.89	31.50	1.28	125.66
Prop. Verizon Mounts	**98**	**98**	98.0	1.26	42.85	12.60	0.46	44.97
Prop. Verizon Panels & OVPs	**102**	**102**	102.0	1.27	43.21	50.18	1.84	187.99
Prop. Verizon Panels & RRHs	**94**	**94**	94.0	1.25	42.47	23.37	0.84	79.31
CW Fiber Box	**10**	**10**	10.0	0.85	28.90	1.02	0.03	0.25
						342.00	12.91	1346.25

Total Axial Force Above Grade (P) = **74.3** kips (Gross tank material weight minus stand pipe & 1/2 spider rods + equipment weight used for foundation analysis)

Horizontal Force at Level 3 without Antennas **19.7**
Horizontal Force at Level 3 with Antennas **31.5**
Horizontal Force at Level 2 Girts without Antennas **35.2**
Horizontal Force at Level 2 Girts with Antennas **47.5**
Horizontal Force at Level 1 Girts without Antennas **50.4**
Horizontal Force at Level 1 Girts with Antennas **63.1**

Base Shear (Water Tank) = **57.4** kips
Base Shear (Water Tank + Antennas) = **70.3** kips

OTM (Water Tank) = **3944.5** (ft-kips)
OTM (Water Tank + Antennas) = **5290.8** (ft-kips)

Overturning % Increase = **34.1%**
If >10% check anchor bolts

Shear % Increase = **22.5%**
If >10% check bracing

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Subject: **Sway Bracing & Anchor Bolt Analysis**

Project: **Verizon - South Windsor North CT - LSub6**

Prepared: **07.09.21** Revised: APT Job No. **CT141_12500**

Sway Rod X - Bracing Analysis at Level 1 (0 to 37-ft ± AGL)		
X Bracing Rod Dia. (in)	1.5	New
Rod Yield Stress, Fy (psi)	36,000	**ASTM A307 USED**
Rod Tensile Stress, Fu (psi)	60,000	**ASTM A307 USED**
Angle of Sway Rod From Ground Plane (degrees)	50	
Un-threaded Portion Area (in^2)	1.767	(Nominal area, Ag)
Available Tension Strength (Turnbuckle)	52.50	kips (1 1/2" dia. UNC/4UN Class 2B)
Available Tension Strength (Clevis)	52.50	kips (#4, UNC Class 2B)
Available Tension Strength in Un-threaded Rod	57.26	(0.90*Fy*Ag)
Available Tension Strength in Threaded Rod	59.64	(0.75*75*Fu*Ag)
Net Ultimate Shear Force (one side)	63.12	kips
Ultimate Tension Force in Sway Rod	49.10	kips
Usage (Tension)	**0.94**	<1.0 OK

Assumes only one sway rod is engaged per side.

Sway Rod X - Bracing Analysis at Level 2 (37 to 74-ft ± AGL)		
X Bracing Rod Dia. (in)	1.5	New
Rod Yield Stress, Fy (psi)	36,000	**ASTM A307 USED**
Rod Tensile Stress, Fu (psi)	60,000	**ASTM A307 USED**
Angle of Sway Rod From Ground Plane (degrees)	59	
Un-threaded Portion Area (in^2)	1.767	(Nominal area, Ag)
Available Tension Strength (Turnbuckle)	52.50	kips (1 1/2" dia. UNC/4UN Class 2B)
Available Tension Strength (Clevis)	52.50	kips (#4, UNC Class 2B)
Available Tension Strength in Un-threaded Rod	57.26	(0.90*Fy*Ag)
Available Tension Strength in Threaded Rod	59.64	(0.75*75*Fu*Ag)
Net Ultimate Shear Force	47.51	kips
Ultimate Tension Force in Sway Rod	46.12	kips
Usage (Tension)	**0.88**	<1.0 OK

Assumes only one sway rod is engaged per side.

Sway Rod X - Bracing Analysis at Level 3 (74 to 109-ft ± AGL)		
X Bracing Rod Dia. (in)	1.375	New
Rod Yield Stress, Fy (psi)	36,000	**ASTM A307 USED**
Rod Tensile Stress, Fu (psi)	60,000	**ASTM A307 USED**
Angle of Sway Rod From Ground Plane (degrees)	66	
Un-threaded Portion Area (in^2)	1.485	(Nominal area, Ag)
Available Tension Strength (Turnbuckle)	43.50	kips (1 3/8" dia. UNC/4UN Class 2B)
Available Tension Strength (Clevis)	45.00	kips (#3-1/2, UNC Class 2B)
Available Tension Strength in Un-threaded Rod	48.11	(0.90*Fy*Ag)
Available Tension Strength in Threaded Rod	50.12	(0.75*75*Fu*Ag)
Net Ultimate Shear Force	31.47	kips
Ultimate Tension Force in Sway Rod	38.69	kips
Usage (Tension)	**0.89**	<1.0 OK

Assumes only one sway rod is engaged per side.

Anchor Bolt Analysis		
Anchor Rod Dia. (in)	1.375	1.5" dia. Bolts. 1/8" corrosion allowance used
Number of Exist. Anchor Bolts Per Leg	2	
Number of Legs	4	(Assumes central standpipe takes no shell DL)
Leg Circle Diameter (in)	594	Field verified
Bolt Tensile Stress (psi)	60,000	**ASTM A7-39 used (tank built circa 1946)**
Number of Threads per Inch	6	
Bolt Area (in^2)	1.485	(Gross area, Ag)
Net Bolt Area (in^2)	1.155	(Net Area, An)
Net Ultimate Uplift Tension Force Per Bolt	45.08	kips, (0.9DL + 1.0WL)
Total Ultimate Base Wind Shear	70.27	kips, (x1.0WL)
Ultimate Shear Per Leg	17.57	kips, (x1.0 WL)
Shear Per Anchor Bolt	8.78	kips, (x1.0 WL)
Available Bolt Tension Strength	50.19	kips
Available Bolt Shear Strength	30.14	kips
Additional Anchor Tension Strength	10.51	kips
Additional Anchor Shear Strength	19.02	kips
Usage	**0.58**	<1.0 OK

Note: Anchor bolt usage includes installation of (1) new 3/4" dia. anchor bolt per leg.

Sway Rod X - Base Wing Plate Connection Analysis (AISC 14th Ed. Sec D5)		
Gussett Plate Thickness	0.375	Existing
Plate Yield Stress, Fy (psi)	33,000	**ASTM A7-39 used (tank built circa 1946)**
Plate Tensile Stress, Fu (psi)	60,000	**ASTM A7-39 used (tank built circa 1946)**
beff	1.380	in
b	1.950	in
Asf	2.488	in^2
a	2.380	in
d	1.875	in
Apb	0.703	in^2
Ultimate Force in Direction of Rod	49.10	kips
Available Tension Strength at Pin (Net)	46.58	kips
Available Long Shear Strength at Pin	67.18	kips
Available Bearing Strength at Pin	31.32	kips
Available Tension Strength (Gross area)	84.87	kips
Usage	**1.57**	>1.0 BEARING CONTROLS. ADD 1/4" THK. REINF. PLATE
Reinf Usage	**0.97**	<1.0 OK

Sway Rod X - Gusset Plate Connection Analysis (37 ± AGL) (AISC 14th Ed. Sec D5)		
Gussett Plate Thickness	0.375	Existing (Assumed, V.I.F.)
Plate Yield Stress, Fy (psi)	33,000	**ASTM A7-39 used (tank built circa 1946)**
Plate Tensile Stress, Fu (psi)	60,000	**ASTM A7-39 used (tank built circa 1946)**
beff	1.380	in
b	2.960	in
Asf	2.511	in^2
a	2.410	in
d	1.875	in
Apb	0.703	in^2
Ultimate Force in Direction of Rod	49.10	kips
Available Tension Strength at Pin (Net)	46.58	kips
Available Long Shear Strength at Pin	67.79	kips
Available Bearing Strength at Pin	31.32	kips
Available Tension Strength (Gross area)	95.78	kips
Usage	**1.57**	>1.0 BEARING CONTROLS. ADD 1/4" THK. REINF. PLATE
Reinf Usage	**0.97**	<1.0 OK

Sway Rod X - Gusset Plate Connection Analysis (74 ± AGL) (AISC 14th Ed. Sec D5)		
Gussett Plate Thickness	0.375	Existing (Assumed, V.I.F.)
Plate Yield Stress, Fy (psi)	33,000	**ASTM A7-39 used (tank built circa 1946)**
Plate Tensile Stress, Fu (psi)	60,000	**ASTM A7-39 used (tank built circa 1946)**
beff	1.380	in
b	2.380	in
Asf	2.488	in^2
a	2.380	in
d	1.875	in
Apb	0.703	in^2
Ultimate Force in Direction of Rod	46.12	kips
Available Tension Strength at Pin (Net)	46.58	kips
Available Long Shear Strength at Pin	67.18	kips
Available Bearing Strength at Pin	31.32	kips
Available Tension Strength (Gross area)	80.75	kips
Usage	**1.47**	>1.0 BEARING CONTROLS. ADD 1/4" THK. REINF. PLATE
Reinf Usage	**0.92**	<1.0 OK

Sway Rod X - Gusset Plate Connection Analysis (109 ± AGL) (AISC 14th Ed. Sec D5)		
Gussett Plate Thickness	0.375	Existing (Assumed, V.I.F.)
Plate Yield Stress, Fy (psi)	33,000	**ASTM A7-39 used (tank built circa 1946)**
Plate Tensile Stress, Fu (psi)	60,000	**ASTM A7-39 used (tank built circa 1946)**
beff	1.380	in
b	2.060	in
Asf	2.376	in^2
a	2.230	in
d	1.875	in
Apb	0.703	in^2
Ultimate Force in Direction of Rod	38.69	kips
Available Tension Strength at Pin (Net)	46.58	kips
Available Long Shear Strength at Pin	64.14	kips
Available Bearing Strength at Pin	31.32	kips
Available Tension Strength (Gross area)	90.10	kips
Usage	**1.24**	>1.0 BEARING CONTROLS. ADD 1/4" THK. REINF. PLATE
Reinf Usage	**0.79**	<1.0 OK

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Killingworth, CT 06419
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Subject: **Existing Built-Up Column, Lacing Bar and Girt Analysis**

Project: **Verizon - South Windsor North CT - LSub6**

Prepared: **07.09.21** Revised: APT Job No. **CT141_12500**

Lattice Column & Lacing Bar Analysis

Column Steel Yield Strength	33	ksi, ASTM A7-39 (tank built circa 1946)
Column Area	12.095	in^2
Lacing Bar Thickness	0.375	in
Lacing Bar Depth	2.25	in
Column Moment of Inertia, Ixx	257.41	in^4 (Calculated Externally)
Column Moment of Inertia, Iyy	286.94	in^4 (Calculated Externally)
Column Radius of Gyration, rxx	4.613	in (Calculated Externally)
Column Radius of Gyration, ryy	4.871	in (Calculated Externally)
Column Unbraced Length	445.200	in
Column Effective Length Factor, K	1.000	
Channel Flange Slenderness Ratio	5.868	(Calculated Externally)
Channel Web Slenderness Ratio	34.57	(Calculated Externally)
Lacing Plate Slenderness Ratio	6.00	(Calculated Externally)
Slenderness Parameters		
b/t ≤ 0.56(E/Fy)^2	16.60	Channel Flange - Unstiffened Element
h/tw ≤ 1.49(E/Fy)^2	44.17	Channel Web - Stiffened Element
b/t ≤ 0.45(E/Fy)^2	13.34	Lacing Plate - Unstiffened Element
Column Slenderness Ratio, KL/r	96.51	if < 200, OK
Column Elastic Buckling Stress, Fe	30.73	ksi
Fcr	21.05	ksi
Column Design Compressive Strength, ∅Pn	229.17	kips
Ultimate Compressive Force, Pu	129.17	kips, (1.2DL + 1.0WL) Tank Empty No longer used to store water.
Built-Up Column Usage	**0.56**	if <=1.0, OK
Length of Angle Chord Between Lacing Bars, la	16.38	in
Channel, ryy	0.797	in (Calculated Externally)
75% of Column KL/r	72.38	
La/rz	20.55	< 75% Column KL/r, OK
Length of Lacing Between Channel Chords, Lb	11.31	in
Radius of Gyration of Bar, rb	0.108	
lb/rb	104.51	if < 140, OK
Bar Elastic Buckling Stress, Fe	26.20	ksi
Fcr	19.48	ksi
Lacing Bar Design Compressive Strength, ∅Pn bar	16.44	kips
Required Shearing Strength on Each Face of Latticed Column	2.29	kips, (2% Built-Up Column Compression Strength)
Axial Force in Lacing Bar	3.24	kips, if < Lacing Bar
Lacing Bar Usage	**0.20**	if <=1.0, OK

Built-Up Girt Analysis - Level 1 - 37-ft+/- (C7x9.8 Toe Up Over C6x8.2 Vert, est.)

Girt Steel Yield Strength	33	ksi, ASTM A7-39 (tank built circa 1946)
Built-Up Girt Area	5.226	in^2
Moment of Inertia, Ixx	30.86	in^4 (Calculated Externally)
Moment of Inertia, Iyy	22.01	in^4 (Calculated Externally)
Radius of Gyration, rxx	2.430	in (Calculated Externally)
Radius of Gyration, ryy	2.052	in (Calculated Externally)
Unbraced Length	332.180	in
Effective Length Factor, K	1.000	
Lower Channel Flange Slenderness Ratio	5.598	(Calculated Externally)
Lower Channel Web Slenderness Ratio	21.88	(Calculated Externally)
Upper Channel Flange Slenderness Ratio	5.710	(Calculated Externally)
Upper Channel Web Slenderness Ratio	25.00	(Calculated Externally)
Slenderness Parameters		
b/t ≤ 0.56(E/Fy)^2	16.60	Channel Flange - Unstiffened Element
h/tw ≤ 1.49(E/Fy)^2	44.17	Channel Web - Stiffened Element
Slenderness Ratio, KL/r	161.88	if < 200, OK
Elastic Buckling Stress, Fe	10.92	ksi
Fcr	9.58	ksi
Design Compressive Strength, ∅Pn	45.05	kips
Ultimate Compressive Force, Pu	31.56	kips, (1.0WL)/Two Sides - Tank Empty No longer used to store water.
Lower Built-Up Girt Usage	**0.70**	if <=1.0, OK

Built-Up Girt Analysis - Level 2 - 74-ft+/- (C6x8.2 Toe Up Over C6x8.2 Vert, est.)

Girt Steel Yield Strength	33	ksi, ASTM A7-39 (tank built circa 1946)
Built-Up Girt Area	4.76	in^2
Moment of Inertia, Ixx	29.11	in^4 (Calculated Externally)
Moment of Inertia, Iyy	13.90	in^4 (Calculated Externally)
Radius of Gyration, rxx	2.473	in (Calculated Externally)
Radius of Gyration, ryy	1.709	in (Calculated Externally)
Unbraced Length	244.300	in
Effective Length Factor, K	1.000	
Lower Channel Flange Slenderness Ratio	5.710	(Calculated Externally)
Lower Channel Web Slenderness Ratio	25.00	(Calculated Externally)
Upper Channel Flange Slenderness Ratio	5.710	(Calculated Externally)
Upper Channel Web Slenderness Ratio	25.00	(Calculated Externally)
Slenderness Parameters		
b/t ≤ 0.56(E/Fy)^2	16.60	Channel Flange - Unstiffened Element
h/tw ≤ 1.49(E/Fy)^2	44.17	Channel Web - Stiffened Element
Slenderness Ratio, KL/r	142.95	if < 200, OK
Elastic Buckling Stress, Fe	14.01	ksi
Fcr	12.28	ksi
Design Compressive Strength, ∅Pn	52.62	kips
Ultimate Compressive Force, Pu	23.75	kips, (1.0WL)/Two Sides - Tank Empty No longer used to store water.
Lower Built-Up Girt Usage	**0.45**	if <=1.0, OK

ALL-POINTS TECHNOLOGY CORPORATION

Project ID:	CT141_12500
Site Name:	South Windsor North CT
Date:	07.09.21

Use (1) 3/4" DIA. Threaded Rod set in Hilti RE-500 Epoxy w/ 12" min. embedment

T_{allow} =	23070	lbs
V_{allow} =	49690	lbs
Anchor Quantity =	1.0	

f_{AN} =	0.69	*<< Spacing Reduction Factor, 10"*
f_{RN} =	0.66	*<< Edge Distance Reduction Factor, 18"*
f_{Av} =	0.58	*<< Spacing Reduction Factor, 10"*
f_{RV} =	0.66	*<< Edge Distance Reduction Factor, 18" (Parallel)*
f_{RV} =	0.74	*<< Edge Distance Reduction Factor, 18" (Perpendicular)*
f_{HV} =	1.00	*<< Concrete Thickness Reduction Factor*
LRFD Factor =	1	

Capacities:

T_{allow} =	10506.1	lbs	
V_{allow} =	19021.3	lbs	*(Parallel)*
V_{allow} =	21326.9	lbs	*(Perpendicular)*

General Section Property Calculator

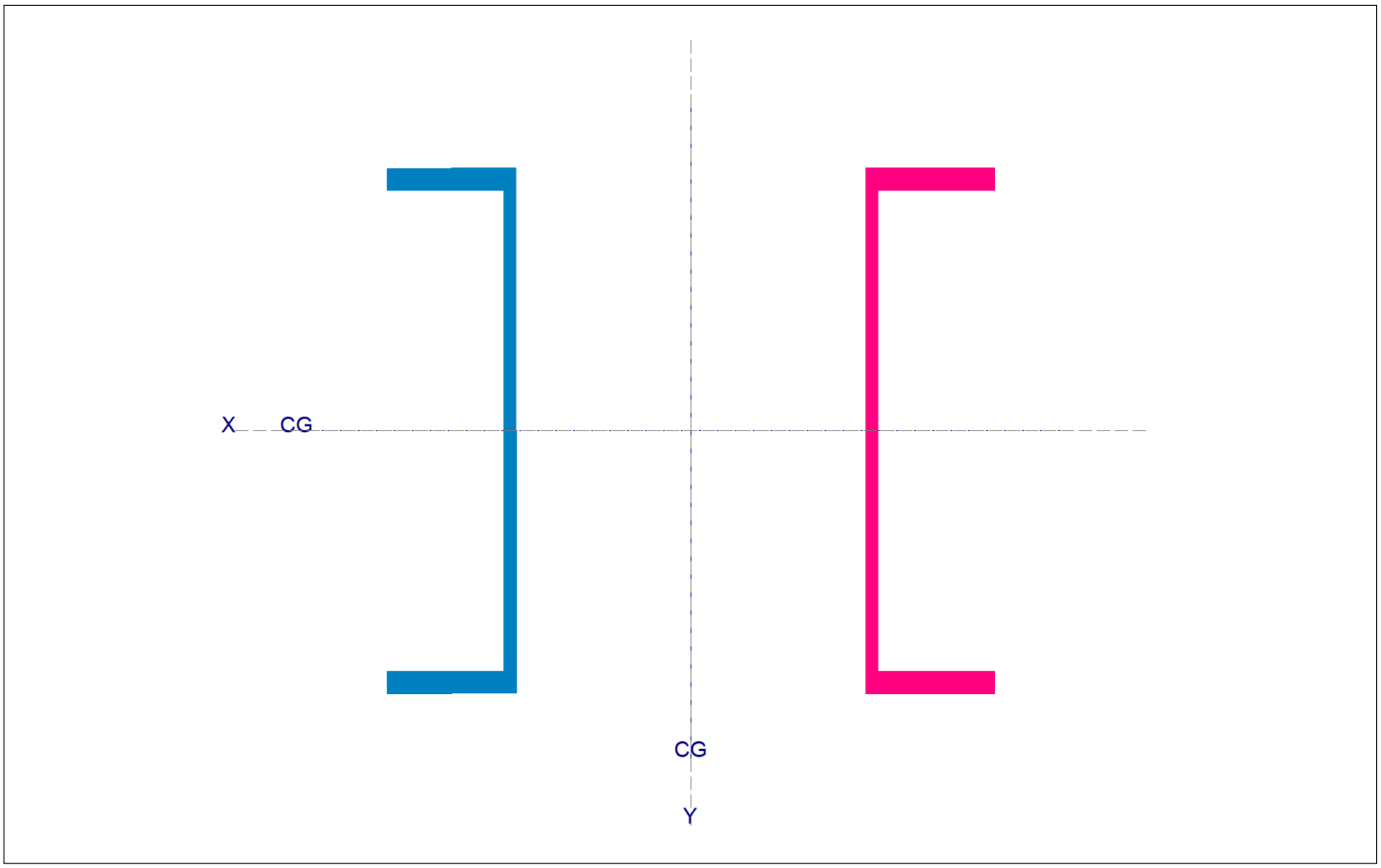
Lic. # : KW-06006315 — ALL-POINTS TECHNOLOGY CORP.

DESCRIPTION: Built -Up Latticed Column Section Properties

Final Section Properties

Total Area	:	12.095 in^2	Ixx	:	257.406 in^4	Sxx : - Y	: 42.901 in^3
			Iyy	:	286.937 in^4	Sxx : +Y	: 42.901 in^3
Calculated final C.G. distance from Datum :						Syy : - X	: 41.345 in^3
X cg Dist.	:	0.0 in	Zxx	:	50.929 in^3	Syy : +X	: 41.345 in^3
Y cg Dist.	:	0.0 in	Zyy	:	57.914 in^3		
Edge Distances from CG. :						r xx	: 4.613 in
+X	:	6.940 in	+Y	:	6.0 in	r yy	: 4.871 in
-X	:	-6.940 in	-Y	:	in		

Rotation of All Components @ Angle : 0.00 deg CCW



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	0.000 in	Width =	0.000 in	Rotation =	0 deg CCW
	Area =	0.000 in^2	Xcg =	0.000 in		
			Ycg =	0.000 in		

General Section Property Calculator

Lic. # : KW-06006315

ALL-POINTS TECHNOLOGY CORP.

DESCRIPTION: Built -Up Latticed Column Section Properties

Rectangular Shape : 2

Height =	0.000 in	Width =	0.000 in	Rotation =	0 deg CCW
Area =	0.000 in^2	Xcg =	0.000 in		
		Ycg =	0.000 in		

Steel Shapes

C12x20.7 : 1

Area =	6.047 in^2	Rotation =	180 deg CCW
		Xcg =	-4.698 in
		Ycg =	0.000 in

C12x20.7 : 2

Area =	6.047 in^2	Rotation =	0 deg CCW
		Xcg =	4.698 in
		Ycg =	0.000 in

General Section Property Calculator

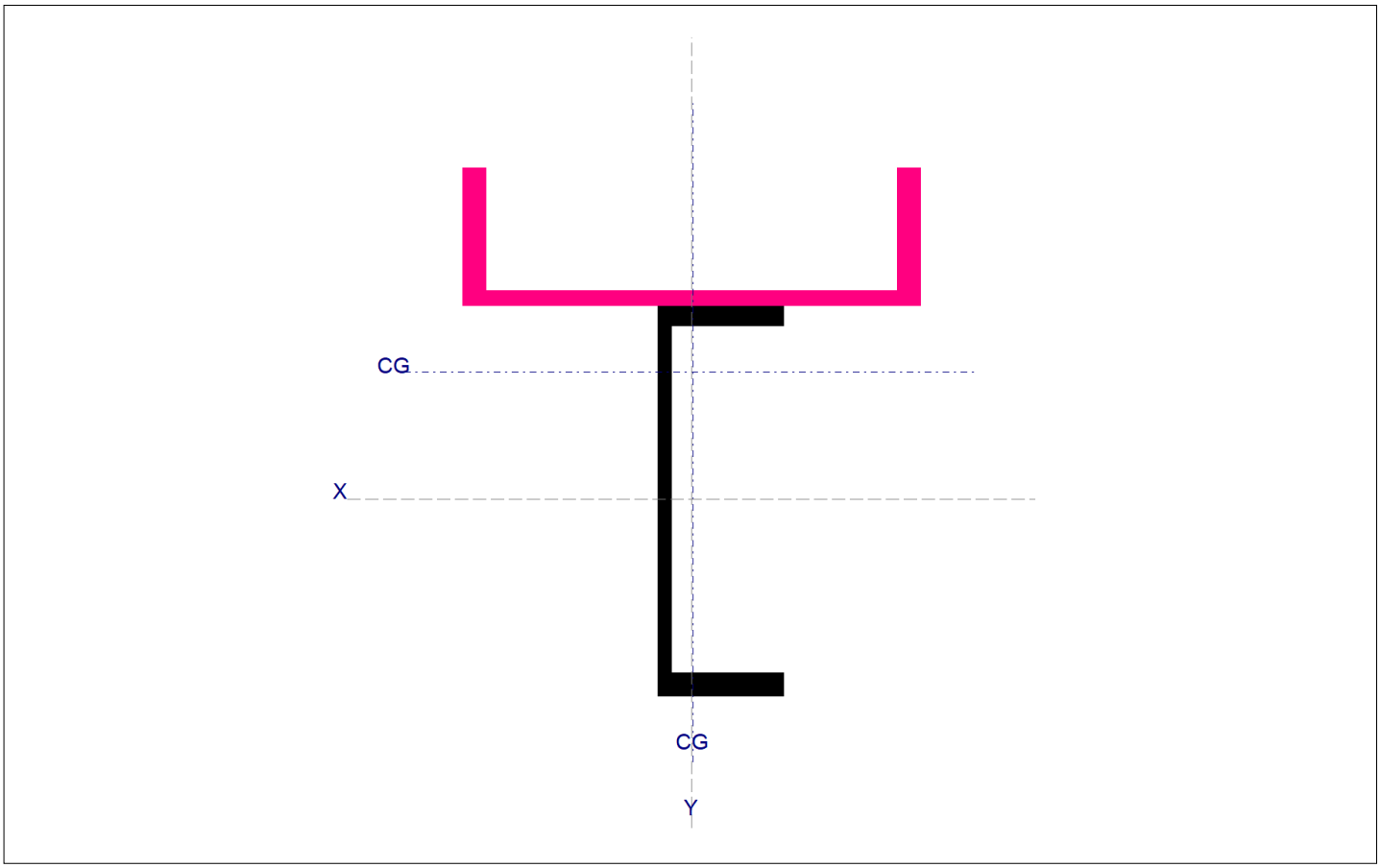
Lic. # : KW-06006315 — ALL-POINTS TECHNOLOGY CORP.

DESCRIPTION: Existing Level 1 Horz Girt Section Properties

Final Section Properties

Total Area	:	5.226 in^2	Ixx	:	30.862 in^4	Sxx : - Y	: 6.234 in^3
			Iyy	:	22.007 in^4	Sxx : +Y	: 9.952 in^3
Calculated final C.G. distance from Datum :						Syy : - X	: 6.219 in^3
X cg Dist.	:	0.02912 in	Zxx	:	8.80 in^3	Syy : +X	: 6.323 in^3
Y cg Dist.	:	1.950 in	Zyy	:	8.289 in^3		
Edge Distances from CG. :						r xx	: 2.430 in
+X	:	3.480 in	+Y	:	3.101 in	r yy	: 2.052 in
-X	:	-3.539 in	-Y	:	in		

Rotation of All Components @ Angle : 0.00 deg CCW



Steel Shapes

C6x8.2 : 1	Area =	2.380 in^2	Rotation =	0 deg CCW	
			Xcg =	0.000 in	
			Ycg =	0.000 in	
C7x9.8 : 2	Area =	2.846 in^2	Rotation =	90 deg CCW	
			Xcg =	0.000 in	
			Ycg =	3.512 in	

Title Block Line 1
You can change this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project ID:
Project Descr:

Printed: 9 JUL 2020, 10:23PM

General Section Property Calculator

File: Lattice Column & Girt Section Properties.ec6

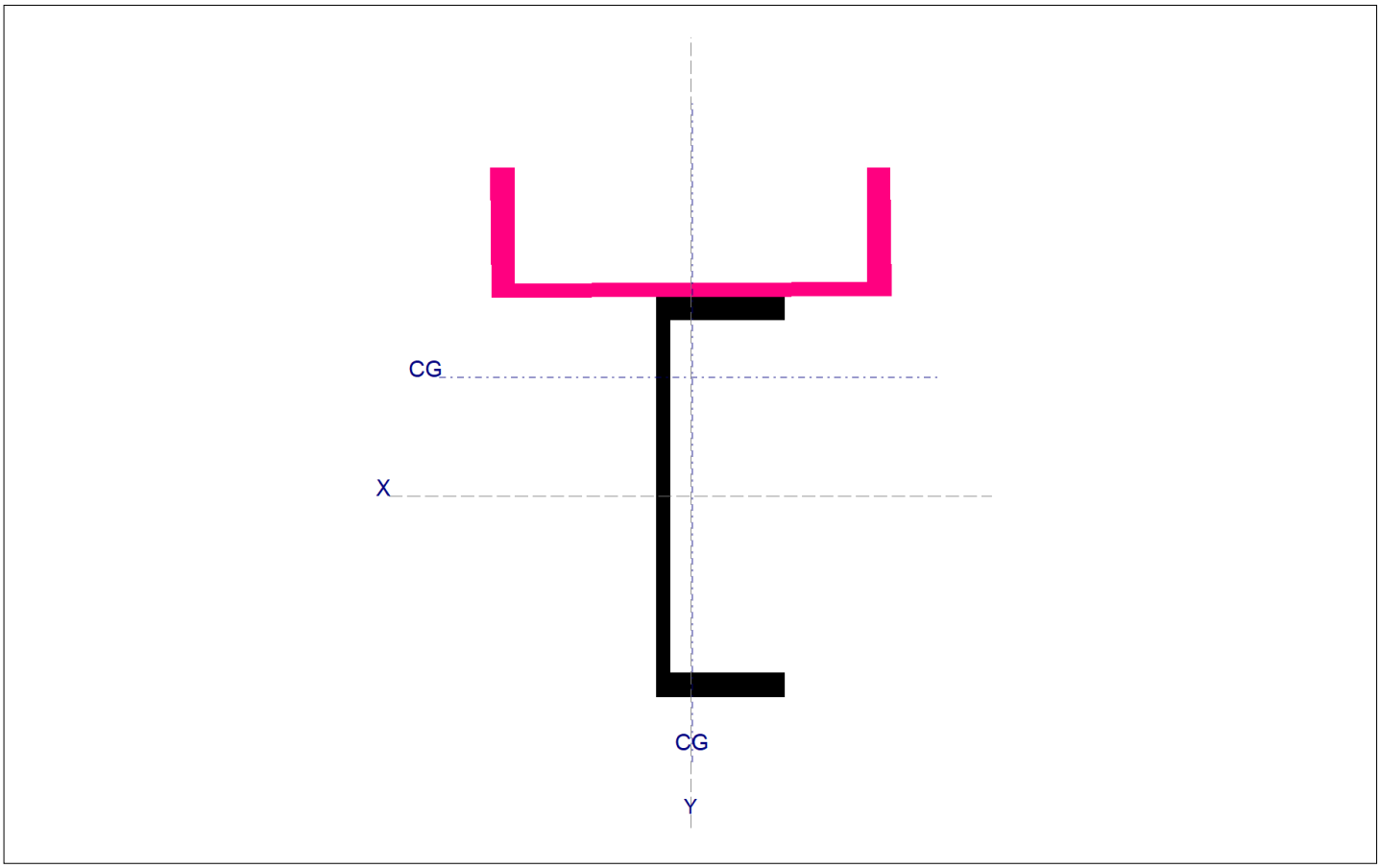
Lic. # : KW-06006315
ALL-POINTS TECHNOLOGY CORP.

DESCRIPTION: Existing Level 2 Horz Girt Section Properties

Final Section Properties

Total Area	:	4.760 in^2	Ixx	:	29.111 in^4	Sxx : - Y	: 6.080 in^3
			Iyy	:	13.899 in^4	Sxx : +Y	: 9.324 in^3
Calculated final C.G. distance from Datum :						Syy : - X	: 4.570 in^3
X cg Dist.	:	0.03198 in	Zxx	:	8.510 in^3	Syy : +X	: 4.668 in^3
Y cg Dist.	:	1.788 in	Zyy	:	6.288 in^3		
Edge Distances from CG. :						r xx	: 2.473 in
+X	:	2.978 in	+Y	:	3.122 in	r yy	: 1.709 in
-X	:	-3.042 in	-Y	:	in		

Rotation of All Components @ Angle : 0.00 deg CCW



Steel Shapes

C6x8.2 : 1	Area =	2.380 in^2	Rotation =	0 deg CCW	
			Xcg =	0.000 in	
			Ycg =	0.000 in	
C6x8.2 : 2	Area =	2.380 in^2	Rotation =	90 deg CCW	
			Xcg =	0.000 in	
			Ycg =	3.512 in	

Project ID:	CT141NB7760
Site Name:	South Windsor North CT
Date:	7/10/2020
Sheet:	of

Use (1) 3/4" DIA. Threaded Rod set in Hilti RE-500 Epoxy w/ 12" min. embedment

T_{allow} =	23070	lbs
V_{allow} =	49690	lbs
Anchor Quantity =	1.0	

f_{AN} =	0.69	*<< Spacing Reduction Factor, 10"*
f_{RN} =	0.66	*<< Edge Distance Reduction Factor, 18"*
f_{Av} =	0.58	*<< Spacing Reduction Factor, 10"*
f_{RV} =	0.66	*<< Edge Distance Reduction Factor, 18" (Parallel)*
f_{RV} =	0.74	*<< Edge Distance Reduction Factor, 18" (Perpendicular)*
f_{HV} =	1.00	*<< Concrete Thickness Reduction Factor*
LRFD Factor	1	

Reductions per Table 36 Hilti Anchor Fastening Technical Guide (19th edition)

Capacities:

T_{allow} =	10506.1	lbs	
V_{allow} =	19021.3	lbs	*(Parallel)*
V_{allow} =	21326.9	lbs	*(Perpendicular)*

ALL-POINTS TECHNOLOGY CORPORATION
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Elevated Reservoir Foundation Analysis:

Note: Structure no longer utilized as a water tank and is empty.

Max Reactions:

Un-factored Base Axial Load =	$P := 74.3 \cdot kip$	(User Input)	(Un-factored Axial Load = Tank Self Weight + Wireless Equip DL - Stand Pipe & 1/2 x Spider Rod DL)
Ultimate Base Shear Load =	$V := 70.3 \cdot kip$	(User Input)	
Ultimate Base Moment =	$M := 5291 \cdot ft \cdot kip$	(User Input)	

Load Factors:

Dead Load Factor =	$DL_{f1} := 0.9$	
Dead Load Factor =	$DL_{f2} := 1.2$	
Wind Load Factor =	$WL_f := 1.0$	

Foundation Data:

Foundation data obtained by field investigation during June 2017 and June 2021.

Top Width of Frustrum Pyramid =	$W_{top} := 67.3 \ in$	(User Input)	
Bot Width of Frustrum Pyramid =	$W_{bot} := 127.43 \ in$	(User Input)	
Top Area of Frustrum Pyramid =	$B_{1top} := 4509.5 \ in^2$	(User Input)	
Bot Area of Frustrum Pyramid =	$B_{2bot} := 16396 \ in^2$	(User Input)	
Overall Depth of Pyramid =	$D_f := 74 \ in$	(User Input)	
Base Thickness =	$T_{base} := 0.00 \cdot in$	(User Input)	
Base Width =	$W_{base} := 0.00 \cdot in$	(User Input)	
Height of Foundation Above Grade =	$T_{ext} := 4.00 \cdot in$	(User Input)	
Depth to Water Table =	$D_{wt} := 99 \cdot ft$	(User Input)	Note: Set Dwt to a value greater than total depth of footing if water table does not affect footing.
Water Tank Leg Circle Diameter =	$D_{circle} := 594.00 \cdot in$	(User Input)	
Number of Legs =	$N_{leg} := 4.00$	(User Input)	
Depth to Base of Foundation from Grade =	$D_{base} := D_f + T_{base} - T_{ext} = 5.833 \ ft$		

Material Data:

Concrete Compressive Strength =	$f_c := 3000 \cdot psi$	(User Input)	
Steel Reinforcment Yield Strength =	$F_y := 40000 \ psi$	(User Input)	
Internal Friction Angle of Soil =	$\Phi_s := 30 \cdot deg$	(User Input)	
Ultimate Soil Bearing Capacity =	$q_s := 8000 \cdot psf$	(User Input)	
Unit Weight of Soil =	$\gamma_{soil} := 110 \cdot pcf$	(User Input)	
Unit Weight of Concrete =	$\gamma_{conc} := 150 \cdot pcf$	(User Input)	
Foundation Bouyancy =	$Bouyancy := 0$	(User Input)	(Yes=1 / No=0)
Depth to Neglect =	$D_n := 6 \ in$	(User Input)	
Cohesion of Clay Type Soil =	$c := 0 \cdot ksf$	(User Input)	(Use 0 for Sandy Soil)
Coefficient of Friction Beween Concrete =	$\mu := 0.45$	(User Input)	
Coefficient of Lateral Soil Pressure =	$K_p := \frac{1 + \sin(\Phi_s)}{1 - \sin(\Phi_s)} = 3$		
Adjusted Concrete Unit Weight =	$\gamma_c = 150 \ pcf$		
Adjusted Soil Unit Weight =	$\gamma_s = 110 \ pcf$		

Determine Maximum Uplift and Compression Forces at Leg:

Factored Shear Force per Leg = $V_{leg} := \left(\frac{V \cdot WL_f}{N_{leg}}\right) = 17.575$ **kip**

Factored Max Leg Uplift Force = $U_{plift} := \left(\frac{WL_f \cdot (4 \cdot M)}{N_{leg} \cdot D_{circle}}\right) - \left(\frac{DL_{f1} \cdot P}{N_{leg}}\right) = 90.17$ **kip**

Factored Max Leg Compression Force = $C_{ompression} := \left(\frac{WL_f \cdot (4 \cdot M)}{N_{leg} \cdot D_{circle}}\right) + \left(\frac{DL_{f2} \cdot P}{N_{leg}}\right) = 129.18$ **kip**

Calculate Foundation Volume:

Volume of Frustum Pyramid Concrete Foundation = $V_{Frutstum} := \frac{1}{3} \cdot D_f \cdot \left(B_{1top} + B_{2bot} + \sqrt{B_{1top} \cdot B_{2bot}}\right) = 421.16$ **ft**^{3}

Gross Volume of Conc = $V_{conc} := V_{Frutstum} = 421.16$ **ft**^{3}

Volume of Frustum Pyramid Below Grade (Minus Depth to Neglect) = $V_{Frutstumnet} := \frac{1}{3} \cdot (D_{base}) \cdot \left(B_{1top} + B_{2bot} + \sqrt{B_{1top} \cdot B_{2bot}}\right) = 398.4$ **ft**^{3}

Net Volume of Conc = $V_{concnet} := V_{Frutstumnet} = 398.4$ **ft**^{3}

Stability of Footing:

Cross-Sectional Area of Resisting Soil at Base of Foundation = $B_1 := B_{2bot} = 113.861$ **ft**^{2}

Cross-Sectional Area of Resisting Soil at Top of Foundation (Minus Depth to Neglect) = $B_2 := 302.98$ **ft**^{2}

Volume of Resisting Soil = $V_{Soil} := \frac{1}{3} \cdot \left((D_{base}) \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2}\right)\right) - V_{concnet} = 773.28$ **ft**^{3}

Weight of Concrete = $Wt_{conc} := V_{conc} \cdot \gamma_c = 63.17$ **kip**

Weight of Resisting Soil = $Wt_{soil} := V_{Soil} \cdot \gamma_s = 85.06$ **kip**

Total Resisting Weight of Soil & Conc = $Wt_{Total} := (DL_{f1} \cdot Wt_{conc} + 0.75\ Wt_{soil}) = 120.65$ **kip**

Uplift Interaction Ratio = $Usage := \left(\frac{U_{plift}}{Wt_{Total}}\right) = 0.75$

$UsageCheck := \text{if}\left(\frac{U_{plift}}{Wt_{Total}} \le 1.05, \text{"Okay"}, \text{"No Good"}\right)$

$UsageCheck =$ "Okay"

Appendix B

Reference Information

verizon fuze | RFDS

EAST > North East > New England > New England West > SOUTH WINDSOR NORTH CT - water tank

Brauer, Mark - mark.brauer2@verizonwireless.com - 5/6/2021 9:28:39

Project Details

Carrier Aggregation:	false
MPT Id:	
eCIP-0:	false
Project Name:	5G L-Sub6 - Carrier Add
FUZE Project ID:	16560063
Designed Sector Carrier 4G:	15
Designed Sector Carrier 5G:	3
Additional Sector Carrier 4G:	N/A
Additional Sector Carrier 5G:	N/A
SiteTraker Project Id:	
FP Solution Type & Tech Type:	MODIFICATION;5G_L-Sub6-Prep
Suffix:	

Location Information

Site ID:	2578557
E-NodeB ID:	0068554,068554
PSLC:	469756
Switch Name:	
Tower Owner:	
Tower Type:	
Site Type:	MACRO
Street Address:	50 Plantation road
City:	East Windsor
State:	CT
Zip Code:	06016
County:	Hartford
Latitude:	41.87565194 / 41° 52' 32.347" N
Longitude:	-72.56482972 / 72° 33' 53.387" W

RFDS Project Scope: Sub 6 add
CBRS add

Antenna Summary

Added

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
LTE	5G	LTE				COMMSCOPE	NHH-65B-R2B	102	105	20(A) 140(B) 260(C)	true	true	PHYSICAL	3
LTE	5G		LTE	5G		COMMSCOPE	NHHSS-65B-R2B	102	105	20(A) 140(B) 260(C)	true	true	PHYSICAL	3
					5G	Samsung	MT6407-77A	94	95.5	20(A) 140(B) 260(C)	false	false	PHYSICAL	3

Removed

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
LTE	5G		LTE			COMMSCOPE	NNHH-65B-R4	102	105	20(A) 140(B) 260(C)	false	false	PHYSICAL	3
		LTE				COMMSCOPE	NNHH-65B-R4	94	97	20(A) 140(B) 260(C)	false	false	PHYSICAL	3

Retained

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity

No data available.

Added: 9 **Removed:** 6 **Retained:** 0

Equipment Summary

Added

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Mount	Tower							Commscope	BASMNT-SBS-1-2			PHYSICAL	3
RRU	Tower					LTE		Samsung	CBRS RRH - RT4401-48A			PHYSICAL	3
RRU	Tower						5G	Samsung	MT6407-77A			PHYSICAL	3

Removed

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity

No data available.

Retained

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
RRU	Tower			LTE	LTE			Samsung	B2/B66A RRH-BR049 (RFV01U-D1A)			PHYSICAL	3
RRU	Tower	LTE	5G					Samsung	B5/B13 RRH-BR04C (RFV01U-D2A)			PHYSICAL	3
Hybrid Cable	Tower											PHYSICAL	3
OVP Box	Tower											PHYSICAL	3

Service Info

700 MHz LTE		0002		5GLS		
Sector	**01**	**02**	**03**	**01**	**02**	**03**
Azimuth	20	140	260	20	140	260
Cell / ENode B ID	068554	068554	068554	068554	068554	068554
Antenna Model	NNHH-65B-R4	NNHH-65B-R4	NNHH-65B-R4	NHH-65B-R2B	NHH-65B-R2B	NHH-65B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	102	102	102	102	102	102
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0
Electrical Down-Tilt	4	2	4	4	2	4
Tip Height	105	105	105	105	105	105
Regulatory Power	68.01	65.85	68.01	73.6	71.26	73.6
Total ERP (W)						
TMA Make						
TMA Model						
RRU Make	Samsung	Samsung	Samsung	Samsung	Samsung	Samsung
RRU Model	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4
Position						
Transmitter Id	1967093	1967283	1967288	10225856	10225859	10225862
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API

850 MHz 5GNR		0002		5GLS		
Sector	**0001**	**0002**	**0003**	**0001**	**0002**	**0003**
Azimuth	20	140	260	20	140	260
Cell / ENode B ID	0068554	0068554	0068554	0068554	0068554	0068554
Antenna Model	NNHH-65B-R4	NNHH-65B-R4	NNHH-65B-R4	NHH-65B-R2B	NHH-65B-R2B	NHH-65B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	102	102	102	102	102	102
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0
Electrical Down-Tilt	4	2	4	4	2	4
Tip Height	105	105	105	105	105	105
Regulatory Power	324.8	316.68	324.8	306.07	290.63	289.96
Total ERP (W)						
TMA Make						
TMA Model						
RRU Make	Samsung	Samsung	Samsung	Samsung	Samsung	Samsung
RRU Model	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4
Position						
Transmitter Id	10225644	10225645	10225646	10225853	10225854	10225855
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API

1900 MHz LTE		0002		5GLS		
Sector	**01**	**02**	**03**	**01**	**02**	**03**
Azimuth	20	140	260	20	140	260
Cell / ENode B ID	068554	068554	068554	068554	068554	068554
Antenna Model	NNHH-65B-R4	NNHH-65B-R4	NNHH-65B-R4	NHH-65B-R2B	NHH-65B-R2B	NHH-65B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	94	94	94	102	102	102
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0
Electrical Down-Tilt	2	2	2	2	2	2
Tip Height	97	97	97	105	105	105
Regulatory Power	224.16	224.16	224.16	267.15	267.15	267.15
Total ERP (W)						
TMA Make						
TMA Model						
RRU Make	Samsung	Samsung	Samsung	Samsung	Samsung	Samsung
RRU Model	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4
Position						
Transmitter Id	1967095	1967285	1967290	10225857	10225860	10225863
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API

2100 MHz LTE

	0002			5GLS		
Sector	**01**	**02**	**03**	**01**	**02**	**03**
Azimuth	20	140	260	20	140	260
Cell / ENode B ID	068554	068554	068554	068554	068554	068554
Antenna Model	NNHH-65B-R4	NNHH-65B-R4	NNHH-65B-R4	NHHSS-65B-R2B	NHHSS-65B-R2B	NHHSS-65B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	102	102	102	102	102	102
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0
Electrical Down-Tilt	2	2	2	0	0	0
Tip Height	105	105	105	105	105	105
Regulatory Power	103.64	103.64	103.64	143.06	143.06	143.06
Total ERP (W)						
TMA Make						
TMA Model						
RRU Make	Samsung	Samsung	Samsung	Samsung	Samsung	Samsung
RRU Model	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4
Position						
Transmitter Id	1967233	1967286	1967291	10225858	10225861	10225864
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API

CBRS 3.5 GHz

				5GLS		
Sector				**19**	**20**	**21**
Azimuth				20	140	260
Cell / ENode B ID				068554	068554	068554
Antenna Model				NHHSS-65B-R2BT4	NHHSS-65B-R2BT4	NHHSS-65B-R2BT4
Antenna Make				CommScope	CommScope	CommScope
Antenna Centerline(Ft)				102	102	102
Mechanical Down-Tilt(Deg.)				0	0	0
Electrical Down-Tilt				4	4	4
Tip Height				105	105	105
Regulatory Power				12.78	12.78	12.78
Total ERP (W)						
TMA Make						
TMA Model						
RRU Make				Samsung	Samsung	Samsung
RRU Model				CBRS RRH - RT4401-48A	CBRS RRH - RT4401-48A	CBRS RRH - RT4401-48A
Number of Tx, Rx Lines				4,4	4,4	4,4
Position						
Transmitter Id				10225935	10225936	10225937
Source				ATOLL_API	ATOLL_API	ATOLL_API

nL-Sub6

				5GLS		
Sector				**0001**	**0002**	**0003**
Azimuth				20	140	260
Cell / ENode B ID				0068554	0068554	0068554
Antenna Model				MT6407-77A	MT6407-77A	MT6407-77A
Antenna Make				Samsung	Samsung	Samsung
Antenna Centerline(Ft)				94	94	94
Mechanical Down-Tilt(Deg.)				0	0	0
Electrical Down-Tilt				6	6	6
Tip Height				95.5	95.5	95.5
Regulatory Power				751.94	751.94	751.94
Total ERP (W)						
TMA Make						
TMA Model						
RRU Make				Samsung	Samsung	Samsung
RRU Model				MT6407-77A	MT6407-77A	MT6407-77A
Number of Tx, Rx Lines				4,4	4,4	4,4
Position						
Transmitter Id				10225971	10225972	10225973
Source				ATOLL_API	ATOLL_API	ATOLL_API

Service Comments

Callsigns Per Antenna

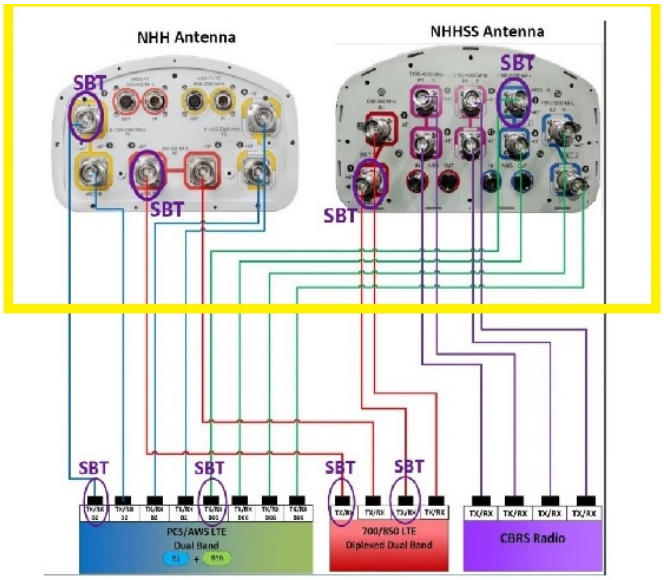
Sector	Antenna Ma	Antenna Mo	Ant CL Height AGL	Tip Height	Azimuth (TI	Electrical Tilt	Mechanical Tilt	Gain	Beamwidth	Regulatory Power	Callsigns						
											700	850	1900	2100	28 GHz	31 GHz	39 GHz
No data available.																	

Callsigns

Callsign	Market	Radio Code	Market Number	Block	State	County	Licensee Name	Wholly Owned	Total MHZ	Freq Range 1	Freq Range 2	Freq Range 3	Freq Range 4	Regulatory Power	Threshold (W)	POPs/Sq Mi	Status	Action	Approved for Insvc
WQJQ689	Northeast	WU	REA001	C	CT	Hartford	Cellco Partnership	Yes	22.000	746.000-757.000	776.000-787.000	.000-.000	.000-.000	73.6	1000	1216.19	Active	added	Yes
KNKA404	Hartford-New Britain-Bristol, CT	CL	CMA032	A	CT	Hartford	Cellco Partnership	Yes	25.000	824.000-835.000	869.000-880.000	845.000-846.500	890.000-891.500	306.07	400	1216.19	Active	added	Yes
WPOJ730	Hartford, CT	CW	BTA184	C	CT	Hartford	Cellco Partnership	Yes	15.000	1895.000-1902.500	1975.000 1982.500	.000-.000	.000-.000	267.15	1640	1216.19	Active	added	Yes
KNLH251	Hartford, CT	CW	BTA184	F	CT	Hartford	Cellco Partnership	Yes	10.000	1890.000-1895.000	1970.000 1975.000	.000-.000	.000-.000	267.15	1640	1216.19	Active	added	Yes
CBRS_CALL	UNLICENSE	3.5 GHz	UNLICENSE	UNLICENSE	CT	Hartford	UNLICENSE	UNLICENSE	UNLICENSE	UNLICENSED-UNLICE	UNLICENSED-UNLICE	UNLICENSED-UNLICE	UNLICENSED-UNLICE	12.78		1216.19	Active	added	No
WRLD515	D09003 - Hartford, CT	PL	D09003	0	CT	Hartford	Verizon Wireless Network Procure LP	Yes	100.000	3550.000-3650.000	.000-.000	.000-.000	.000-.000	12.78		.00	Active	added	Yes
WRLD514	D09003 - Hartford, CT	PL	D09003	0	CT	Hartford	Verizon Wireless Network Procure LP	Yes	100.000	3550.000-3650.000	.000-.000	.000-.000	.000-.000	12.78		.00	Active	added	Yes
WRLD513	D09003 - Hartford, CT	PL	D09003	0	CT	Hartford	Verizon Wireless Network Procure LP	Yes	100.000	3550.000-3650.000	.000-.000	.000-.000	.000-.000	12.78		.00	Active	added	Yes
WQGB276	Hartford-New Britain-Bristol, CT	AW	CMA032	A	CT	Hartford	Cellco Partnership	Yes	20.000	1710.000 1720.000	2110.000 2120.000	.000-.000	.000-.000	143.06	1640	1216.19	Active	added	Yes
WQGA906	New York-No. New Jer.-Long Island, NY-NJ-CT-PA-MA-	AW	BEA010	B	CT	Hartford	Cellco Partnership	Yes	20.000	1720.000 1730.000	2120.000-2130.000	.000-.000	.000-.000	143.06	1640	1216.19	Active	added	Yes
WPOH943	Hartford, CT	LD	BTA184	A	CT	Hartford	Cellco Partnership	Yes	300.000	29100.000-29250.00(	31075.000-31225.000	.000-.000	.000-.000			1216.19	Active		No
WPLM398	Hartford, CT	LD	BTA184	B	CT	Hartford	Cellco Partnership	Yes	150.000	31000.000-31075.00(	31225.000-31300.000	.000-.000	.000-.000			1216.19	Active		No
WRBA708	Hartford, CT	UU	BTA184	L1	CT	Hartford	Cellco Partnership	Yes	325.000	27500.000-27600.00(	27700.000-27925.00(	.000-.000	.000-.000			1216.19	Active		Yes
WRBA709	Hartford, CT	UU	BTA184	L2	CT	Hartford	Cellco Partnership	Yes	325.000	27925.000-28050.00(	28150.000-28350.000	.000-.000	.000-.000			1216.19	Active		Yes

WRHD609	New York, NY	UU	PEA001	M1	CT	Hartford	Straight Path um, LLC	Yes	100.000	37600.000-37700.00(	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD610	New York, NY	UU	PEA001	M10	CT	Hartford	Straight Path um, LLC	Yes	100.000	38500.000-38600.00	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD611	New York, NY	UU	PEA001	M2	CT	Hartford	Straight Path um, LLC	Yes	100.000	37700.000-37800.00(	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD612	New York, NY	UU	PEA001	M3	CT	Hartford	Straight Path um, LLC	Yes	100.000	37800.000-37900.00(	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD613	New York, NY	UU	PEA001	M4	CT	Hartford	Straight Path um, LLC	Yes	100.000	37900.000-38000.00(	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD614	New York, NY	UU	PEA001	M5	CT	Hartford	Straight Path um, LLC	Yes	100.000	38000.000-38100.00	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD615	New York, NY	UU	PEA001	M6	CT	Hartford	Straight Path um, LLC	Yes	100.000	38100.000-38200.00(	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD616	New York, NY	UU	PEA001	M7	CT	Hartford	Straight Path um, LLC	Yes	100.000	38200.000-38300.00	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD617	New York, NY	UU	PEA001	M8	CT	Hartford	Straight Path um, LLC	Yes	100.000	38300.000-38400.00	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD618	New York, NY	UU	PEA001	M9	CT	Hartford	Straight Path um, LLC	Yes	100.000	38400.000-38500.00	.000-.000	.000-.000	.000-.000			1216.19	Active		Yes
WRHD619	New York, NY	UU	PEA001	N1	CT	Hartford	Straight Path um, LLC	Yes	100.000	38600.000-38700.00	.000-.000	.000-.000	.000-.000			1216.19	Active		No
PEND1050	Northeast	CC	REA001	A	CT	Hartford	Cellco Partnership	Yes	100.000	3700.000-3800.000	.000-.000	.000-.000	.000-.000			1216.19	Active		No

Upper level with SBS bracket



Lower level

July 7, 2021

Verizon
20 Alexander Drive
Wallingford, CT 06492

Attn: Mr. David Vivian

Re: Mount Analysis Report – Lsub6
Verizon Wireless Site I.D.: South Windsor North CT
50 Plantation Road
East Windsor, CT 06016

Project/Location Code:	20171645681/469756
VZW FUZE I.D.:	16560063
APT Filing No.	CT141_12500

Dear Mr. Vivian,

All-Points Technology Corp. (APT), a professional engineering corporation licensed in the State of Connecticut, has been retained by Verizon to assess the structural adequacy of the mounting assembly and its connection to the existing host structure to support the proposed equipment modification. An evaluation of the existing host structure is to be provided under separate cover.

Details of the proposed antenna and appurtenance installation are included within the table on the following page. Reference is made to the Construction Drawings prepared by this office, marked Rev 0, dated 07/07/21.

The following information was utilized in the preparation of this assessment:

New Build Construction Drawings, prepared by APT, marked Rev1, dated 11/06/20.
Mount Structural Analysis & Design Report, prepared by APT, dated 10/28/20.

The structural review has been prepared in accordance with the following design standards:

ASCE/SEI 7-10 – Minimum Design Loads for Buildings and Other Structures
AISC - American Institute of Steel Construction Manual of Steel Construction, 14th Ed.
IBC 2015 - as amended by the 2018 Connecticut State Building Code.
ANSI/TIA-222-H – Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures

The structural review has been prepared utilizing the following design criteria:

125 mph (3-second gust), Ultimate Wind Speed (equivalent to 97mph Nominal).
50 mph (3-second gust), Design Wind Speed with 1.50" Design Ice Thickness
Risk Category II
Exposure Category C
Roof Live Load, LLr = 20 psf
Minimum Roof Snow Load = 30 psf

The existing and proposed Verizon antenna/appurtenance and mount assembly loading consists of the following equipment (proposed equipment/equipment to be relocated indicated in **bold** text):

Antenna and Appurtenance Make/Model	Quantity	Status	Mount Type	Centerline
Commscope NHH-65B-R2B² panel antennas	**3**	**P**	**Three (3) custom mount assemblies attached to existing decommissioned water tank leg.**	102.0 ft± AGL
Commscope NHHSS-65B-R2B² panel antennas	**3**	**P**		
Samsung MT6407-77A panel antennas	**3**	**P**		94.0 ft± AGL
Samsung B5/B13 RRH-BR04C (RFV01U-D2A) Remote Radio Heads (RRHs)	**3**	**P**		n/a
Samsung B2/B66a RRH-BR049 (RFV01U-D1A) Remote Radio Heads (RRHs)	**3**	**P**		
Samsung CBRS-RT4401-48A Remote Radio Heads (RRHs)	**3**	**P**		
Raycap RHSDC-3315-PF-48 (6OVP)	**3**	**P**		
6x12 L.I. Hybrid Fiber Cable	**3**	**P**	n/a	n/a

Notes:
1. ETR = Existing to Remain; ERL = Exist to be Relocated; P = Proposed.
2. Mount antennas via Commscope Side-by-Side Mounts (P/N: BSAMNT-SBS-1-2).
3. The above proposed equipment supersedes the equipment indicated within the new build construction drawings prepared by this office, marked Rev1, dated 11/06/20.

The findings of this review are based upon comparative review of the proposed equipment loading, referenced design documentation, a rigorous mount analysis. Under the proposed loading, the maximum usage of the existing mounting assemblies as compared to the mount rating/capacity is 61%. Additionally, the proposed loading is less than the loading utilized in the referenced original new build design documentation. In conclusion, we find that the custom mount assemblies are adequate to support the proposed equipment modification.

Sincerely,
All-Points Technology Corp. P.C.

Michael S. Trodden, P.E.
Sr. Structural Engineer

Appendix A

Design Criteria

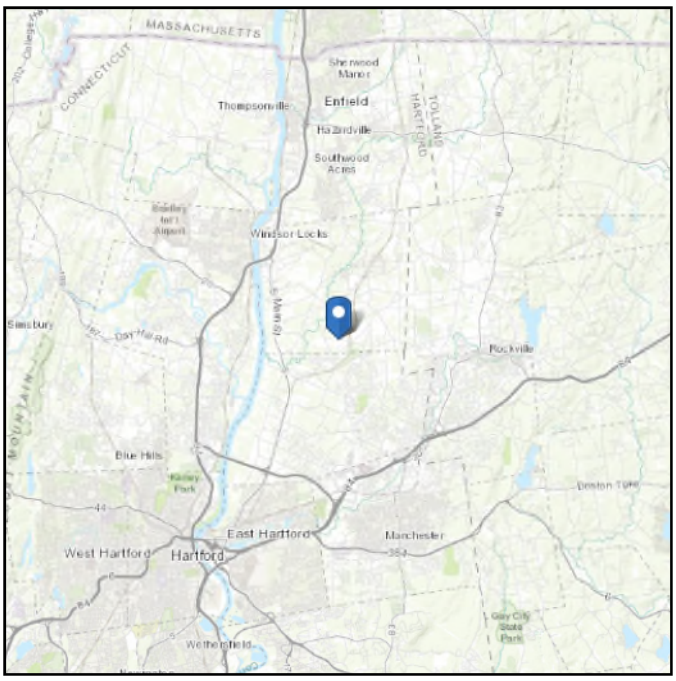
(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
				Wind Design Parameters								
Municipality	**Ground Snow Load** (psf)	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)			**Wind-Borne Debris Regions**[1]		**Hurricane-Prone Regions**
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
East Hampton	30	0.177	0.062	120	130	140	93	101	108			Yes
East Hartford	30	0.180	0.064	115	125	135	89	97	105			Yes
East Haven	30	0.182	0.062	120	130	140	93	101	108		Type B	Yes
East Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
~~Easton~~	~~30~~	~~0.215~~	~~0.066~~	~~110~~	~~120~~	~~130~~	~~85~~	~~93~~	~~101~~			~~Yes~~
East Windsor	35	0.177	0.064	115	125	135	89	97	105			Yes
~~Ellington~~	~~35~~	~~0.176~~	~~0.064~~	~~115~~	~~125~~	~~135~~	~~89~~	~~97~~	~~105~~			~~Yes~~
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes
Hamden	30	0.185	0.063	115	125	135	89	97	105			Yes
Hampton	35	0.172	0.062	120	130	140	93	101	108			Yes
Hartford	30	0.181	0.064	115	125	135	89	97	105			Yes
Hartland	40	0.175	0.065	110	120	125	85	93	97			Yes
Harwinton	35	0.183	0.065	110	120	130	85	93	101			Yes
Hebron	30	0.177	0.063	120	130	140	93	101	108			Yes
Kent	40	0.188	0.065	105	115	120	81	89	93			
Killingly	40	0.171	0.062	120	130	140	93	101	108			Yes
Killingworth	30	0.173	0.061	120	130	140	93	101	108			Yes
Lebanon	30	0.173	0.062	120	130	140	93	101	108			Yes
Ledyard	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Lisbon	30	0.169	0.061	125	135	145	97	105	112		Type A	Yes
Litchfield	40	0.184	0.065	110	120	125	85	93	97			Yes
Lyme	30	0.164	0.059	125	135	145	97	105	112		Type A	Yes
Madison	30	0.173	0.060	120	130	140	93	101	108		Type B	Yes
Manchester	30	0.178	0.064	115	125	135	89	97	105			Yes
Mansfield	35	0.173	0.062	120	130	140	93	101	108			Yes
Marlborough	30	0.177	0.062	120	130	140	93	101	108			Yes
Meriden	30	0.183	0.063	115	125	135	89	97	105			Yes
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes

ASCE 7 Hazards Report

Address:
50 Plantation Rd
Broad Brook, Connecticut
06016

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class:

Elevation: 158.11 ft (NAVD 88)
Latitude: 41.875463
Longitude: -72.564802



Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Tue Jun 08 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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

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Appendix B

Existing Mount Analysis

ALL-POINTS TECHNOLOGY CORPORATION

Project ID: CT141_12500
Site Name: South Windsor North CT
Date: 7/14/2021

(Based on ANSI/TIA-222-H-2018)

Site Name:	South Windsor North CT
Site Address:	50 Plantation Road East Windsor, CT 06016
Site County:	Hartford

Design Criteria:

Risk Category =	II		*Table 1.5-1*
Exposure Category =	C		*Section 26.7.3*
Ultimate Design Wind Speed, V =	125	mph	*2018 CTSBC, Appendix N*
Design Wind Speed with Ice, V_i =	50	mph	*Fig. B-9*
Design Ice Thickness, t_i =	1.50	in	*Fig. B-9*
Importance Factor, I =	1.00		*Table 2-3*
Basic Wind Speed, V_m =	30	mph	*Section 16.3*
Maintenance Load, L_m =	500.0	lbs	*Section 16.3*
Maintenance Load, L_v =	250.0	lbs	*Section 16.3*

Building Information:

Antenna Centerline, z =	102.0	ft., +/-	
Host Structure Height, H =	132.5	ft., +/-	
Bulkhead/Parapet Height, H_{ppt} =	-	ft., +/-	*(max.)*
Largest Windward Face of Structure, W_s =	-	ft., +/-	

Wind Pressure Analysis:

$q_z = 0.00256 K_z K_{zt} K_s K_e K_d V^2$ *Section 2.6.11.6*

K_z : **See Next Sheet**

z_g =	900		*Table 26.9-1*
α =	9.5		*Table 26.9-1*
K_{zmin} =	0.85		*Table 26.9-1*
K_{zt} : **K_{zt} =**	**1.00**		*Section 2.6.6*
K_s : **K_s =**	**1.00**		*Section 2.6.7*
K_e : **K_e =**	**1.00**		*Section 2.6.8*
K_d : **K_d =**	**0.95**		*Section 16.6*
q_z' =	**38.00**	**psf**	

$F = q_z G_h (EPA)_A = q_z G_h K_a [(EPA)_N \cos^2(\Theta) + (EPA)_T \sin^2(\Theta)]$ *Section 2.6.11.2*

G_h =	1.00		*Section 16.6*
K_a =	0.90		*Section 16.6*

ALL-POINTS TECHNOLOGY CORPORATION

Project ID: CT141_12500
Site Name: South Windsor North CT
Date: 7/14/2021

(Based on ANSI/TIA-222-H-2018)

Design Criteria: *(From Previous Sheet)*

$q_z' =$ **38.00** psf
$q_{zi}' =$ **6.08** psf
$q_{zw}' =$ **2.19** psf
$t_i =$ **1.50** in

$G_h =$ 1.00 *Section 16.6*
$K_a =$ 0.90 *Section 16.6*

Description	#/Sector	Elev. z, ft	K_z	q_z, psf	Dimensions Height, in	Width, in	Depth, in	Wght., lbs	Flat Panel Front Coefficient Area, ft²	Aspect Ratio	Ca	C_aA_a	Flat Panel Side Coefficient Area, ft²	Aspect Ratio	Ca	C_aA_a	Front Wind Force, lbs	Side Wind Force, lbs	Weight, lbs
MT6407-77A	1.0	94.0	1.249	47.47	35.1	16.1	5.5	87.1	3.92	2.180	1.20	4.71	1.341	6.382	1.37	1.840	202.0	79.0	87.1
NHH-65B-R2B	1.0	102.0	1.271	48.29	72.0	11.9	7.1	56.3	5.92	6.073	1.36	8.05	3.542	10.155	1.51	5.331	350.0	232.0	56.3
NHHSS-65B-R2B	1.0	102.0	1.271	48.29	72.0	11.9	7.1	63.6	5.92	6.073	1.36	8.05	3.561	10.099	1.50	5.354	350.0	233.0	63.6
B2/B66A RRH-BR049 (RFV01U-D1A)	1.0	94.0	1.249	47.47	14.9	14.9	10.0	97.5	1.54	1.000	1.20	1.85	1.039	1.484	1.20	1.247	80.0	54.0	97.5
B5/B13 RRH-BR04C (RFV01U-D2A)	1.0	94.0	1.249	47.47	14.9	14.9	8.1	82.0	1.54	1.000	1.20	1.85	0.842	1.830	1.20	1.011	80.0	44.0	82.0
CBRS RT4401-48A RRH	1.0	94.0	1.249	47.47	10.6	8.9	3.0	11.0	0.66	1.191	1.20	0.79	0.221	3.533	1.25	0.275	34.0	12.0	11.0
6OVP	1.0	102.0	1.271	48.29	19.2	16.5	12.6	32.0	2.20	1.162	1.20	2.64	1.678	1.522	1.20	2.014	115.0	88.0	32.0

Description	#/Sector	Elev. z, ft	K_z	q_{zi}, psf	Dimensions with Ice Ice Thick., t_{iz}, in	Height, in	Dc, in	Ice Wght., lbs	Flat Panel Front Coefficient Area, ft²	Aspect Ratio	Ca	C_aA_a	Flat Panel Side Coefficient Area, ft²	Aspect Ratio	Ca	C_aA_a	Front Wind Force, lbs	Side Wind Force, lbs	Weight, lbs
MT6407-77A	1.0	94.0	1.249	7.595	1.67	38.43	17.01	121.7	5.19	2.26	0.70	3.630	2.357	2.26	0.70	1.650	25.0	12.0	208.8
NHH-65B-R2B	1.0	102.0	1.271	7.727	1.68	75.33	13.81	199.4	7.96	5.46	0.77	6.091	5.464	5.46	0.77	4.184	43.0	30.0	255.8
NHHSS-65B-R2B	1.0	102.0	1.271	7.727	1.68	75.33	13.83	199.7	7.96	5.45	0.77	6.090	5.484	5.45	0.77	4.198	43.0	30.0	263.3
B2/B66A RRH-BR049 (RFV01U-D1A)	1.0	94.0	1.249	7.595	1.67	18.23	17.97	60.7	2.31	1.01	0.70	1.616	1.693	1.01	0.70	1.185	12.0	9.0	158.2
B5/B13 RRH-BR04C (RFV01U-D2A)	1.0	94.0	1.249	7.595	1.67	18.23	16.98	57.6	2.31	1.07	0.70	1.616	1.452	1.07	0.70	1.017	12.0	7.0	139.6
CBRS RT4401-48A RRH	1.0	94.0	1.249	7.595	1.67	13.93	9.39	26.1	1.18	1.48	0.70	0.828	0.612	1.48	0.70	0.429	6.0	3.0	37.1
6OVP	1.0	102.0	1.271	7.727	1.68	22.54	20.76	86.5	3.11	1.09	0.70	2.176	2.498	1.09	0.70	1.748	16.0	13.0	118.5

Description	#/Sector	Elev. z, ft	K_z	q_{zw}, psf	Dimensions Height, in	Width, in	Depth, in	Wght.[1], lbs	Flat Panel Front Coefficient Area, ft²	Aspect Ratio	Ca	C_aA_a	Flat Panel Side Coefficient Area, ft²	Aspect Ratio	Ca	C_aA_a	Front Wind Force, lbs	Side Wind Force, lbs	Weight, lbs
MT6407-77A	1.0	94	1.249	2.73	35.1	16.1	5.5	87.1	3.92	2.180	1.20	4.71	1.341	6.382	1.37	1.840	12.0	5.0	87.1
NHH-65B-R2B	1.0	102	1.271	2.78	72.0	11.9	7.1	56.3	5.92	6.073	1.36	8.05	3.542	10.155	1.51	5.331	21.0	14.0	56.3
NHHSS-65B-R2B	1.0	102	1.271	2.78	72.0	11.9	7.1	63.6	5.92	6.073	1.36	8.05	3.561	10.099	1.50	5.354	21.0	14.0	63.6
B2/B66A RRH-BR049 (RFV01U-D1A)	1.0	94	1.249	2.73	14.9	14.9	10.0	97.5	1.54	1.000	1.20	1.85	1.039	1.484	1.20	1.247	5.0	4.0	97.5
B5/B13 RRH-BR04C (RFV01U-D2A)	1.0	94	1.249	2.73	14.9	14.9	8.1	82.0	1.54	1.000	1.20	1.85	0.842	1.830	1.20	1.011	5.0	3.0	82.0
CBRS RT4401-48A RRH	1.0	94	1.249	2.73	10.6	8.9	3.0	11.0	0.66	1.191	1.20	0.79	0.221	3.533	1.25	0.275	2.0	1.0	11.0
6OVP	1.0	102	1.271	2.78	19.2	16.5	12.6	32.0	2.20	1.162	1.20	2.64	1.678	1.522	1.20	2.014	7.0	6.0	32.0

Notes:

1- Includes mounting bracket weights.

ALL-POINTS TECHNOLOGY CORPORATION

Project ID: CT141_12500
Site Name: South Windsor North CT
Date: 7/14/2021

(Based on NSTD-445 "Antenna Mounting System Classification Standard")

Mounting Assembly Evaluation:

Mount Classification: **M** **1150** (F) **R** **1100** (Fzi) **- 4[6]**

Loading Condition	Normal Direction		Trans. Direction		Vert. Direction	
		lbs		lbs		lbs
Extreme Wind	1.00(F)	**1150**	1.00(F)	**1150**	0.50(F)	**575**
Extreme Ice	0.25(Fzi)	**275**	0.25(Fzi)	**275**	1.00(Fzi)	**1100**
Maintenance	0.10(F)	**115**	0.10(F)	**115**	0.50(F)	**575**

Loading Condition	Description	Load, lbs
Lm	At each mounting location, individual LCs	**500**
Lv	At ends of each horizontal mounting members	**250**

Max Loading Condition: Commscope NHH-65B-R2B & NHHSS-65B-R2B Dual Mount:

Loading Condition	Normal Direction		Trans. Direction		Vert. Direction	
	lbs	%	lbs	%	lbs	%
Wind Load	700.0	**60.9%**	465.0	**40.4%**	119.9	**20.9%**
Ice Load	86.0	**31.3%**	60.0	**21.8%**	399.1	**36.3%**
Maintenance	42.0	**36.5%**	28.0	**24.3%**	119.9	**20.9%**

Since the proposed modification does not exceed the design loading per the previous design report, the existing mounting assembly is adequate to support the proposed equipment modification.

ATTACHMENT 5


120.51
376.00
Rd
Plantation Rd
Plantation Rd
Plantation Rd
175.00
200.00
001C
50
200.00
175.00
41.876246,-72.565866
Map data ©2021
50 ft
Terms of Use

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2017.

Information on the Property Records for the Municipality of East Windsor was last updated on 7/2/2021.

Property Summary Information

- Parcel Data And Values
- Outbuildings
- Sales

Parcel Information

Location:	50 PLANTATION RD	Property Use:	Vacant Land	Primary Use:	Commercial Vacant Land
Unique ID:	01162500	Map Block Lot:	016 50 001C	Acres:	0.78
490 Acres:	0.00	Zone:	A-1	Volume / Page:	0231/0053
Developers Map / Lot:		Census:	4842000		

Value Information

	Appraised Value	Assessed Value
Land	245,276	171,690
Buildings	0	0
Detached Outbuildings	21,368	14,960
Total	266,644	186,650

Owner's Information

Owner's Data

PLANTATION PROPERTIES LLC
P O BOX 542
BROAD BROOK CT 06016-0542

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Pump House Utility	1960			154

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
PLANTATION PROPERTIES LLC	0231	0053	09/27/2001		$1

Building Permits

Permit Number	Permit Type	Date Opened	Reason

Google Map

Unique Id: 01162500

Location: 50 PLANTATION

MBL: 016 50 001C

Primary Use: Commercial Vaca

Zone: A-1

Acres:

	0.78
Appraised Value:	$266,644
Assessed Value:	$186,650

Back To Search

Print View

Information Published With Permission From The Assessor

ATTACHMENT 6

SOUTH WINDSOR NORTH

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	3	3	neopost 08/16/2021 US POSTAGE $002.89 ZIP 06103 041L12203987
	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Jason E. Bowsza, First Selectman Town of East Windsor 11 Rye Street Broad Brook, CT 06016				
2.	Mike D'Amato, Acting Planner Town of East Windsor 11 Rye Street Broad Brook, CT 06016				
3.	Plantation Properties, LLC P.O. Box 542 Broad Brook, CT 06016				
4.					
5.					
6.					

OLD STATE HOUSE STATION 06103 AUG 16 2021 USPS

See Reverse for Instructions