Robinson+Cole

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Also admitted in Massachusetts
and New York

May 17, 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**
6 & 8 Grand Street, Niantic (East Lyme), Connecticut

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains an existing wireless telecommunications facility at the East Lyme Fire Department at the above-referenced address (the "Property"). The facility consists of antennas and remote radio heads attached to a roof-top tower and related equipment on the ground, adjacent to the building. The tower was approved by the Town of East Lyme ("Town"). Cellco representatives did reach out to municipal officials who indicated that they could not locate any local permits or approvals for the Fire Department tower. Cellco's shared use of the tower was approved by the Council in 2015 (PE1133-VER-20150528). A copy of the Cellco's PE1133-VER-20150528 approval is included in Attachment 1.

Cellco now intends to modify its facility by replacing two (2) existing antennas with two (2) Samsung 64T64RMMU antennas at the same location on the tower. A set of project plans showing Cellco's proposed facility modifications and new antennas specifications are included in Attachment 2.

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 Lyme'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 and RRHs will be installed at the same height as Cellco's existing antennas on the tower.

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 and RRHs will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Far Field Approximation tables for Cellco's operating frequencies for the modified facility are included in Attachment 3.

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"), which includes and analysis of the existing antenna mounts, and Structural Assessment Letter, the existing tower, tower foundation, tower base plate and antenna mounting device, with certain modifications, can support Cellco's proposed modifications. Copies of the SA and Structural Assessment Letter are included in Attachment 4. Also included in Attachment 4 is a separate letter prepared by the consulting engineer responsible for the preparation of the SA and Structural Assessment Letter verifying that the antenna model described in the SA and Structural Assessment Letter, respectively, as a nL-Sub6 Antenna or License-Sub6 Antenna, is the Samsung 64T64R model antenna and RRH that will be installed on the tower.

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 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:
Mark C. Nickerson, East Lyme First Selectman
Gary Goeschel, II, East Lyme Director of Planning
Aleksey 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@ct.gov
www.ct.gov/csc

July 10, 2015

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

RE: **PE1133-VER-20150528** – Cellco Partnership d/b/a Verizon Wireless sub-petition for a declaratory ruling for approval of an eligible facility request for modifications to an existing telecommunications facility located at 8 Grand Street, East Lyme, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) hereby approves your Eligible Facilities Request (EFR) to install antennas and associated equipment at the above-referenced facility pursuant to the Federal Communications Commission Wireless Infrastructure Report and Order, with the following conditions:

- Reinforcements shall be made in accordance with the structural analysis report prepared by CENTEK Engineering, Inc. dated April 29, 2015 and stamped by Timothy J. Lynn;
- Within 45 days following completion of the equipment installation, Cellco shall provide documentation certified by a Professional Engineer that its installation complied with the recommendations of the structural analysis;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by the Petitioner shall be removed within 60 days of the date the antenna ceased to function;
- The validity of this action shall expire one year from the date of this letter; and
- The petitioner 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 is not applicable to any other modification or construction. All work is to be implemented as specified in the EFR received on May 28, 2015.

Thank you for your attention and cooperation.

Very truly yours,

Melanie Bachman
Acting Executive Director

MB/MP

c: Honorable Mark C. Nickerson, First Selectman, Town of East Lyme
Gary Goeschel, Director of Planning, Town of East Lyme

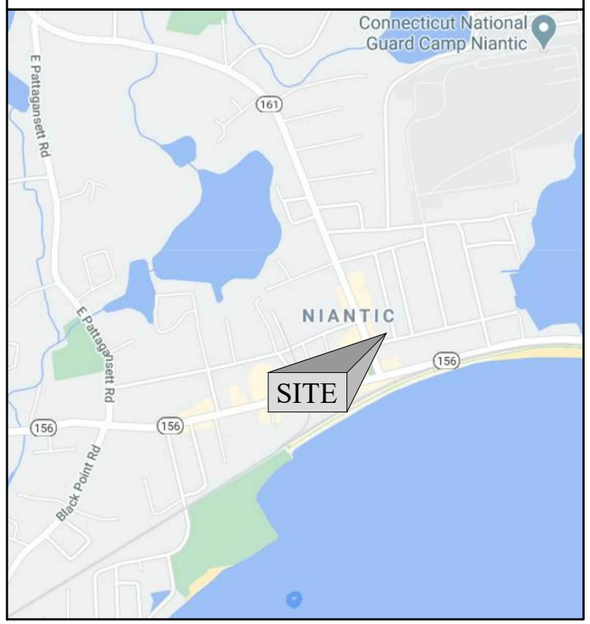
ATTACHMENT 2

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE PROJECT OWNERS REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SHEET INDEX

VICINITY MAP



APPLICANT:
CELLCO PARTNERSHIP d/b/a
VERIZON WIRELESS

SCOPE OF WORK:
PROPOSED EQUIPMENT & ANTENNA MODIFICATIONS
TO AN EXISTING VERIZON WIRELESS INSTALLATION
AT A 89'-0"± GUY TOWER

SITE NAME
NIANTIC_CT-A

LOCATION CODE
469058

ADDRESS
6&8 GRAND STREET
NIANTIC, CT 06357

COORDINATES
41° 19' 30.37" N
72° 11' 30.11" W

NOTES

GENERAL NOTES:

1. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
2. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
3. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
4. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
5. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
8. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
9. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
10. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
11. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
12. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
13. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
14. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
15. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
16. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
17. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
    BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE (IBC 2015)
    ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
    LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

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

    ACI 318-14: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.

    AISC 360-10: SPECIFICATIONS STEEL FOR STRUCTURAL STEEL BUILDINGS.

    ANSI/TIA-222-G WITH ADDENDUMS, STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

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

ELECTRICAL & GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
6. GROUNDING SHALL COMPLY WITH NEC ART. 250.
7. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
8. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
9. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
10. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
11. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
12. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS
13. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
14. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
15. BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
16. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
17. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.

PREPARED BY:

nexius
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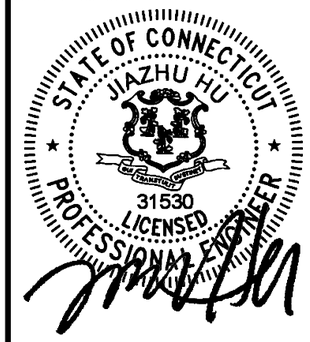
A&E OFFICE:
300 APOLLO DRIVE, SUITE 7
CHELMSFORD, MA 01824
1 (978) 923-7965

APPLICANT:
CELLCO PARTNERSHIP d/b/a
verizon
20 ALEXANDER DRIVE, 2ND FLOOR
WALLINGFORD, CT 06492

PROFESSIONAL STAMP:



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SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	10/30/20	FOR CONSTRUCTION	AA
1	11/11/20	REVISED PER COMMENTS	AA

SITE INFORMATION:
SITE NAME:
NIANTIC_CT-A
LOCATION CODE:
469058
SITE ADDRESS:
6&8 GRAND STREET
NIANTIC, CT 06357

DRAWN BY:	DATE:
AA	11/11/20
CHECKED BY:	DATE:
KB	11/11/20

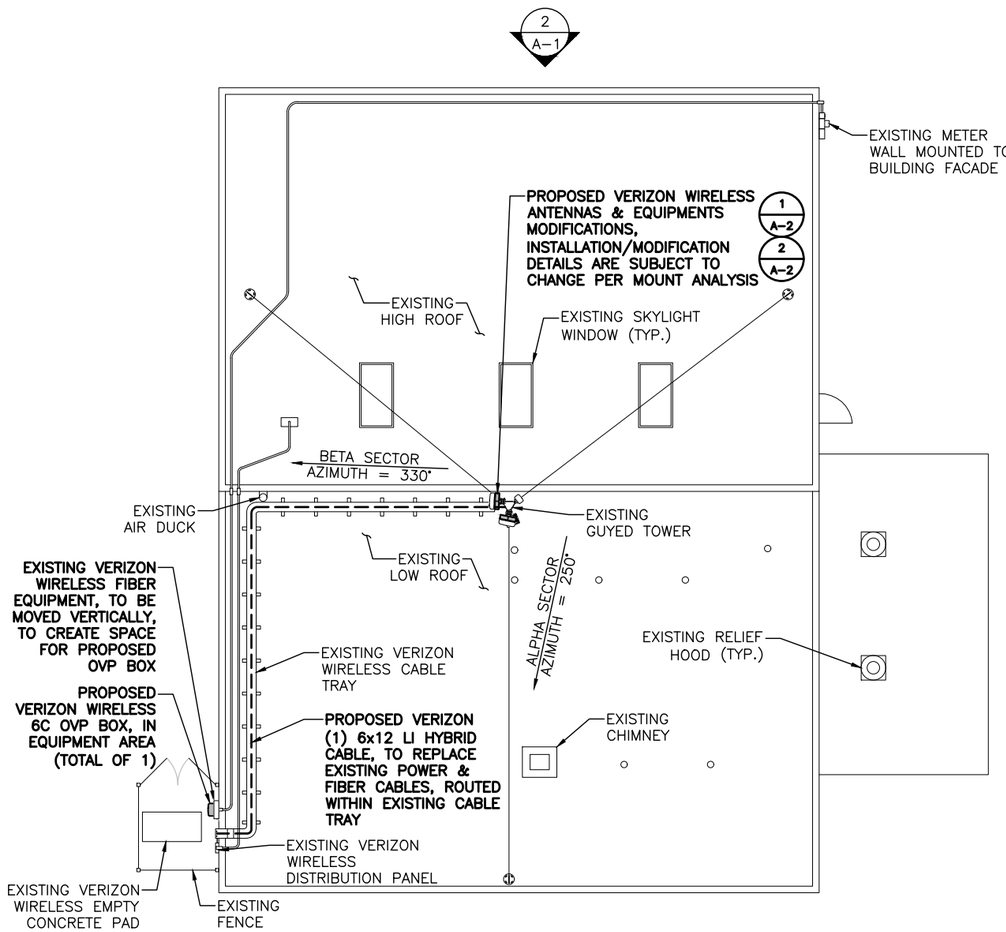
NEXIUS PROJECT NO.:
VZ11509

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

NOTE:
PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A MOUNT ANALYSIS TO DETERMINE CAPACITY AND SUITABILITY OF THE MOUNT STRUCTURE TO SAFELY CARRY ALL NEW LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED MOUNT MODIFICATIONS INTO THEIR SCOPE OF WORK. CONTRACTOR TO CHECK WITH PROJECT OWNER AND VERIFY MOUNT INSTALLATION DETAILS PER MOUNT ANALYSIS.

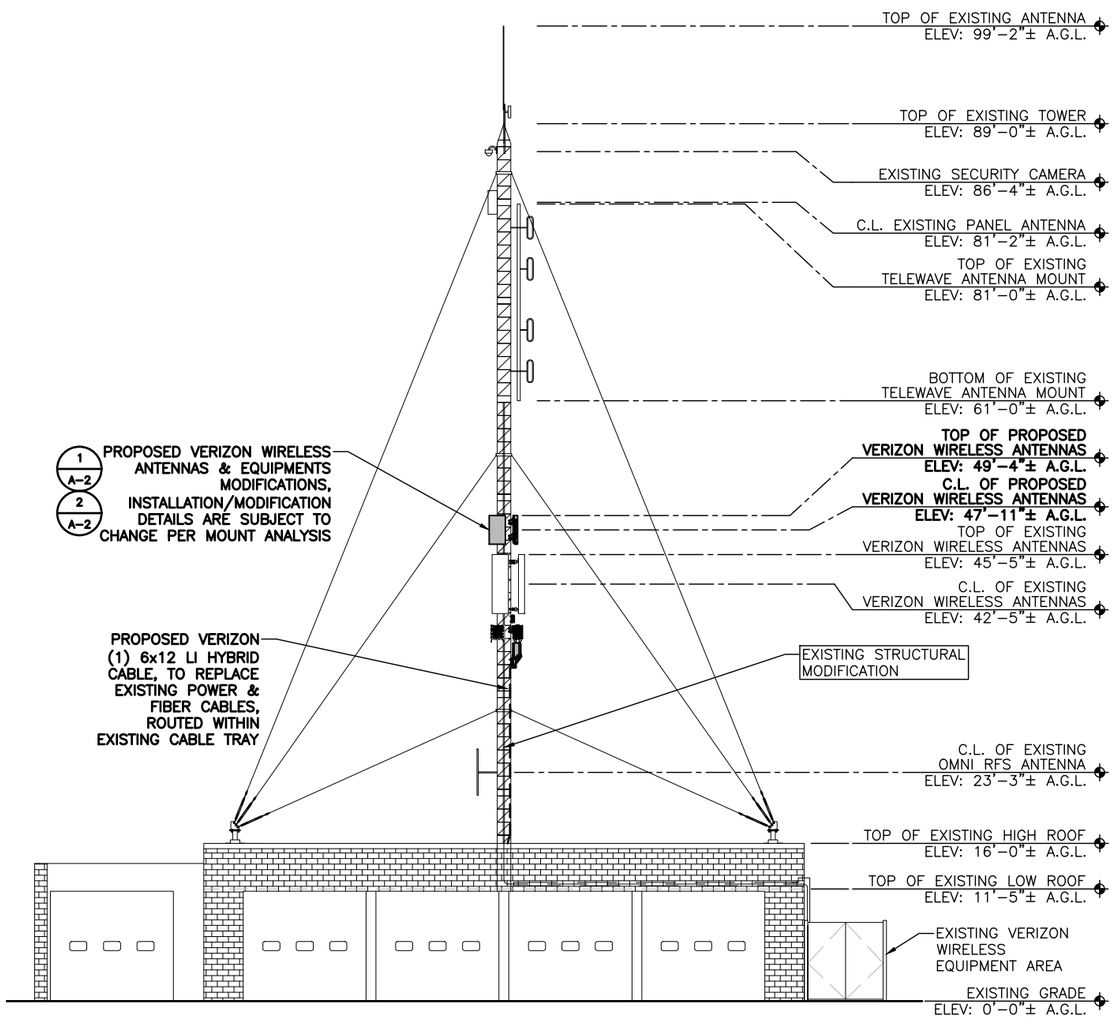
BUILDING STRUCTURAL ANALYSIS REPORT PREPARED BY NEXIUS
BUILDING STRUCTURAL ANALYSIS REPORT, PREPARED BY NEXIUS, ENTITLED STRUCTURAL ANALYSIS REPORT, DATED NOVEMBER 11, 2020, STATES THAT THE EXISTING STRUCTURE IS ADEQUATE FOR THE EXISTING AND PROPOSED LOADING.



APPROX. NORTH

1 ROOFTOP PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"



2 BUILDING ELEVATION
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"

PREPARED BY:

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CHELMSFORD, MA 01824
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APPLICANT:

CELLCO PARTNERSHIP d/b/a
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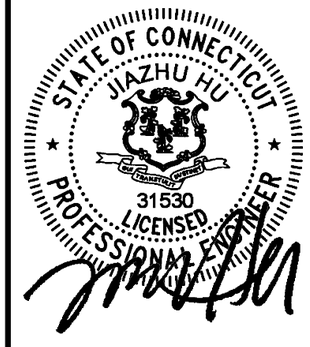

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DRAWN BY:	DATE:
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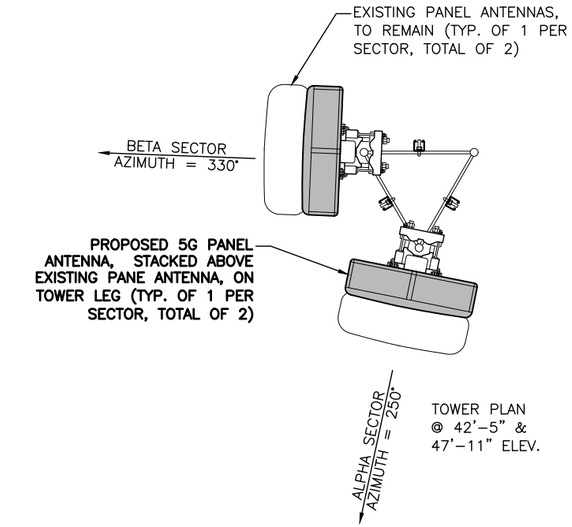
CHECKED BY:	DATE:
KB	11/11/20

NEXIUS PROJECT NO.:
VZ11509

SHEET TITLE:
BUILDING ELEVATION & ROOFTOP PLAN

SHEET NUMBER:
A-1



APPROX. NORTH

1 ANTENNA PLAN
SCALE: 1:1

GRAPHIC SCALE: 1"=1'-0"

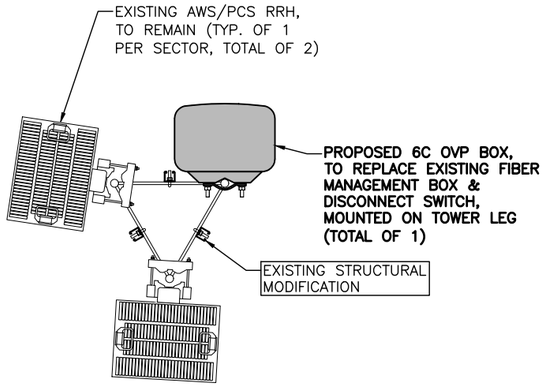
SCOPE OF WORK:

ALPHA SECTOR:
- INSTALL (1) NEW SAMSUNG nL-SUB6 W/ RRH ANTENNA AS SHOWN ON PLANS.
- INSTALL (1) NEW SAMSUNG JUMPER FROM PROPOSED 6C OVP BOX TO AWS/PCS RRH.
- INSTALL (1) NEW POWER CABLE FROM PROPOSED 6C OVP BOX TO AWS/PCS RRH.
- INSTALL (1) 1x2 HYBRID CABLE FROM PROPOSED 6C OVP BOX TO nL-SUB6 W/ RRH PANEL ANTENNA.

BETA SECTOR:
- INSTALL (1) NEW SAMSUNG nL-SUB6 W/ RRH ANTENNA AS SHOWN ON PLANS.
- INSTALL (1) NEW SAMSUNG JUMPER FROM PROPOSED 6C OVP BOX TO AWS/PCS RRH.
- INSTALL (1) NEW POWER CABLE FROM PROPOSED 6C OVP BOX TO AWS/PCS RRH.
- INSTALL (1) 1x2 HYBRID CABLE FROM PROPOSED 6C OVP BOX TO nL-SUB6 W/ RRH PANEL ANTENNA.

REMOVE (1) EXISTING POWER CABLE.
REMOVE (1) EXISTING FIBER CABLE.
INSTALL (1) NEW 6X12 LI HYBRID CABLES AS SHOWN ON THE PLANS.
REMOVE (1) EXISTING FIBER MANAGEMENT BOX.
REMOVE (1) EXISTING DISCONNECT SWITCH.
INSTALL (1) NEW 6C OVP BOX (RCMDC-3315-PF-48) AT ANTENNAS, AS SHOWN ON PLANS.

DESIGN SHOWN HEREIN IS BASED OFF A RFDS PROVIDED BY VERIZON WIRELESS DATED 11/09/20.



APPROX. NORTH

2 EQUIIPMENT PLAN
SCALE: 1:1

GRAPHIC SCALE: 1"=1'-0"

PREPARED BY:

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PROFESSIONAL STAMP:

STATE OF CONNECTICUT
JIAZHU HU
31530
LICENSED PROFESSIONAL ENGINEER

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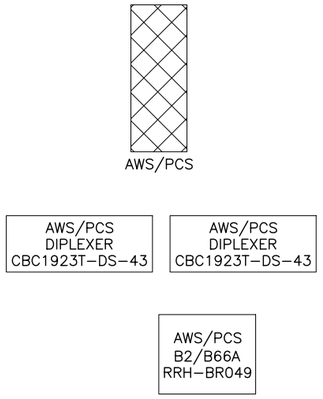
KB	11/11/20

NEXIUS PROJECT NO.:
VZ11509

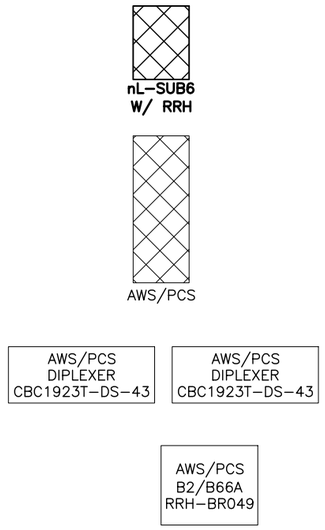
SHEET TITLE:
ANTENNA PLAN, DETAILS & NOTES

SHEET NUMBER:
A-2

NOTE: ALL ANTENNAS ARE VIEWED FROM THE REAR

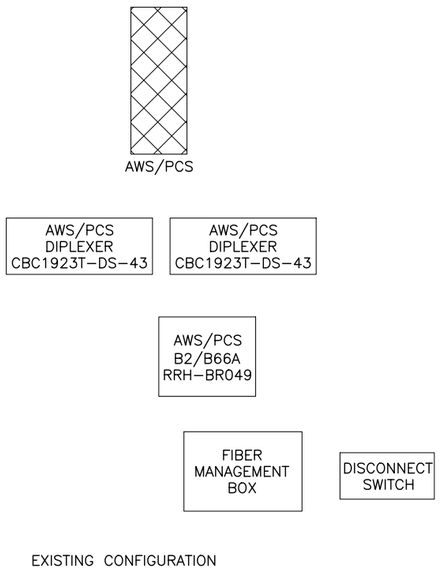


EXISTING CONFIGURATION

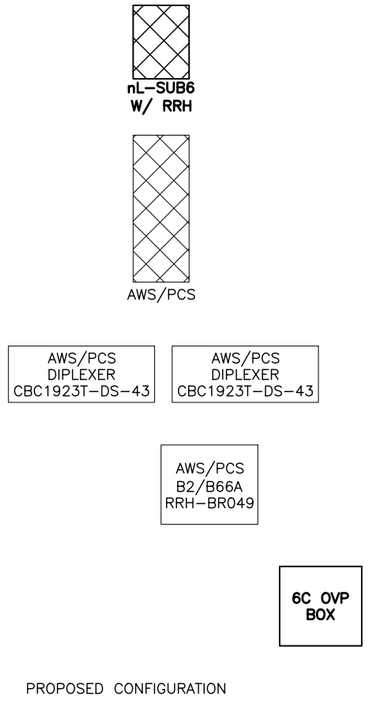


PROPOSED CONFIGURATION

ALPHA SECTOR ANTENNA CONFIGURATION



EXISTING CONFIGURATION



PROPOSED CONFIGURATION

BETA SECTOR ANTENNA CONFIGURATION

GENERAL NOTES:

1. INSTALL ALL EQUIPMENT, MOUNTING BRACKETS, AND HARDWARE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. GROUND DISTRIBUTION BOXES, MOUNTING PIPES, AND RRH'S IN ACCORDANCE WITH THE NEC ARTICLE 250 & THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
3. INSTALLED EQUIPMENT AND MOUNTING BRACKETS SHALL NOT INTERFERE WITH CLIMBING ACCESS NOR ANY INSTALLED SAFETY DEVICES.

PREPARED BY:

nexius

TRANFORM YOUR BUSINESS...THROUGH WIRELESS

A&E OFFICE:
300 APOLLO DRIVE, SUITE 7
CHELMSFORD, MA 01824
1 (978) 923-7965

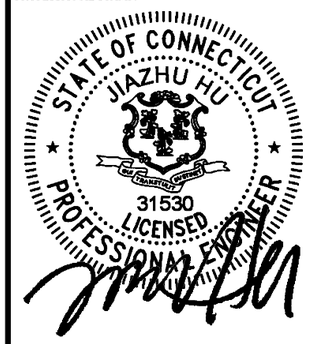
APPLICANT:

CELLCO PARTNERSHIP d/b/a

verizon

20 ALEXANDER DRIVE, 2ND FLOOR
WALLINGFORD, CT 06492

PROFESSIONAL STAMP:



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DRAWING SCALES ARE INTENDED FOR 22"x34" SIZE PRINTED MEDIA ONLY. 11"x17" IS DEEMED HALF SCALE, AND ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	10/30/20	FOR CONSTRUCTION	AA
1	11/11/20	REVISED PER COMMENTS	AA

SITE INFORMATION:

SITE NAME:
NIANTIC_CT-A

LOCATION CODE:
469058

SITE ADDRESS:
6&8 GRAND STREET
NIANTIC, CT 06357

DRAWN BY:	DATE:
AA	11/11/20
CHECKED BY:	DATE:
KB	11/11/20

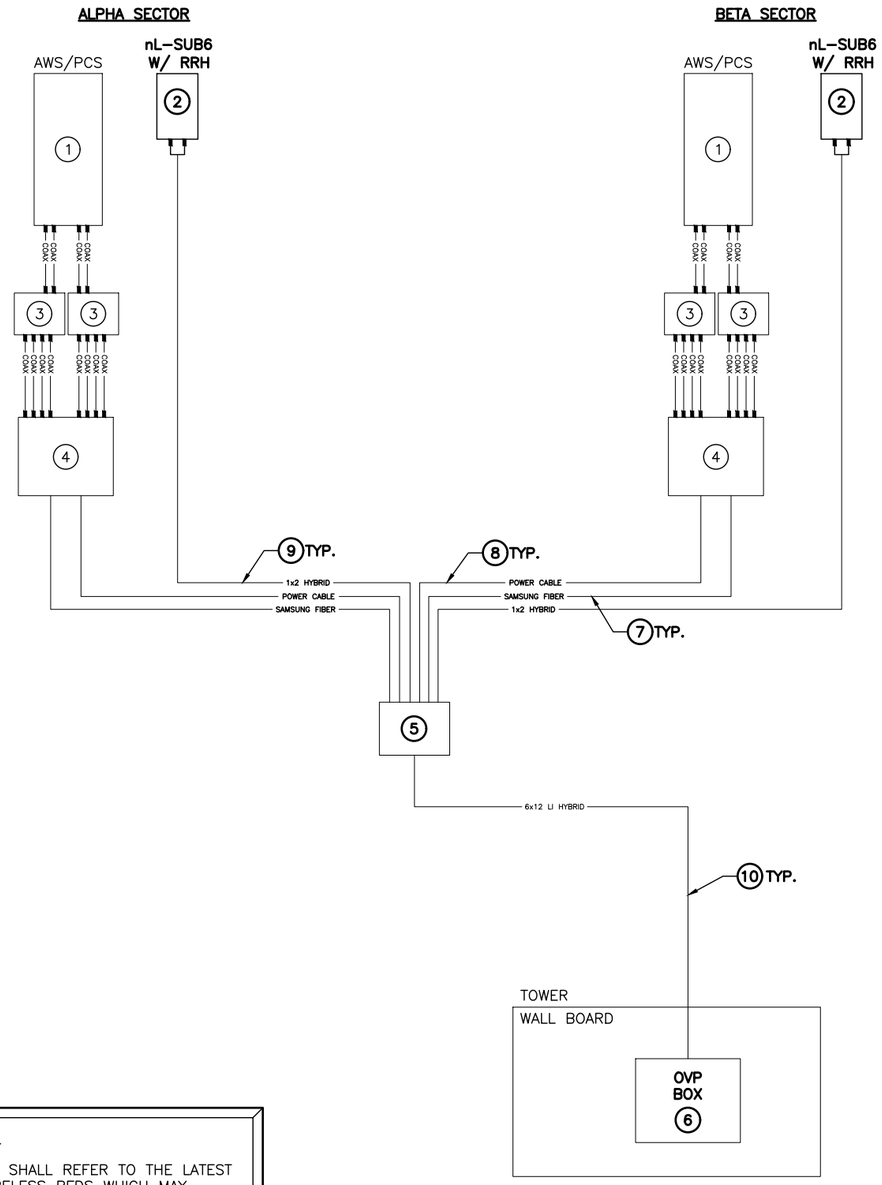
NEXIUS PROJECT NO.:
VZ11509

SHEET TITLE:
ANTENNA SECTOR CONFIGURATIONS, DETAILS & NOTES

SHEET NUMBER:

A-3

NOTE: ALL ANTENNAS ARE VIEWED FROM THE REAR



GENERAL NOTES:

1. CONTRACTOR SHALL REFER TO THE LATEST VERIZON WIRELESS RFDS WHICH MAY INCLUDE ANTENNA SECTOR AZIMUITHS/ANTENNA CHANGES, ETC. THAT ARE REQUIRED AS PART OF THE PROJECT.
2. CONTRACTOR SHALL SECURE ALL CONTROL CABLES IN ACCORDANCE WITH INDUSTRY STANDARDS & MANUFACTURERS INSTRUCTIONS. EXTERIOR CONTROL CABLES MAY BE TAPED OR TIE-WRAPPED TO EXISTING COAXIAL CABLES EVERY 4' MAX. FOR HORIZONTAL RUNS. CONTRACTOR MAY USE HOISTING GRIPS AT TOP OF VERTICAL CABLE RUNS IN CERTAIN APPLICATIONS.
3. RET CABLES SHALL BE ROUTED & SECURED ON STRUCTURAL MEMBERS ONLY. DO NOT LOOP THE CABLES IN MID-AIR BETWEET ANTENNAS.
4. CONTRACTOR SHALL VERIFY ALL CABLE LENGTHS PRIOR TO CONSTRUCTION.

BILL OF MATERIALS

ITEM	DESCRIPTION	EXISTING/PROPOSED	QTY.	LENGTH	COMMENTS
1	AWS/PCS ANTENNA	EXISTING	2	NA	EXISTING AWS/PCS PANEL ANTENNAS TO REMAIN
2	nL-SUB6 ANTENNA	PROPOSED	2	NA	PROPOSED 5G PANEL ANTENNA SAMSUNG nL-SUB6 W/ RRH
3	AWS/PCS DIPLEXER	EXSITING	2	NA	EXISTING AWS/PCS DIPLEXERS TO REMAIN
4	AWS/PCS RRH	EXISTING	2	NA	EXISTING AWS/PCS SAMSUNG B2/B66A RRH BRO49 TO REMAIN
5	UPPER 6C OVP BOX	PROPOSED	1	NA	INSTALL NEW OVP BOX AT ANTENNAS
6	LOWER OVP BOX	PROPOSED	1	NA	INSTALL RAYCAP IN EQUIPMENT AREA
7	SUMSUNG FIBER	PROPOSED	2	15'	INSTALL AT EXISTING AWS/PCS RRH
8	POWER CABLES	PROPOSED	2	15'	INSTALL AT EXISTING AWS/PCS RRH
9	1x2 HYBRID	PROPOSED	2	20'	INSTALL AT NEW 5G ANTENNA
10	6x12 LI HYBRID	PROPOSED	1	120'±	ROUTED FROM EQIPMENT AREA TO TOWER

1. ITEMS SHOWN ARE FOR MAJOR DESIGN ELEMENTS ONLY, REFER TO VERIZON WIRELESS' B.O.M. FOR ALL MANUFACTURERS PART NUMBERS & ACCESSORY ITEMS REQUIRED FOR A COMPLETE INSTALLATION.
2. CONTRACTOR SHALL REFER TO THE LATEST VERIZON WIRELESS RFDS WHICH MAY INCLUDE ANTENNA SECTOR AZIMUTHS/ANTENNA CHANGES, ETC. THAT ARE REQUIRED AS PART OF THE PROJECT.

* SIGNIFIES LEASE ONLY.

PREPARED BY:

nexius

TRANFORM YOUR BUSINESS...THROUGH WIRELESS

A&E OFFICE:
300 APOLLO DRIVE, SUITE 7
CHELMSFORD, MA 01824
1 (978) 923-7965

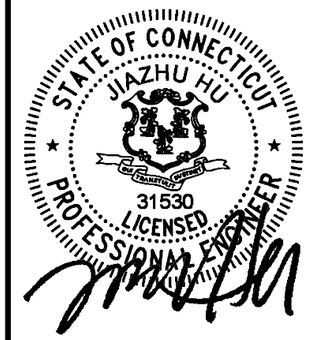
APPLICANT:

CELLCO PARTNERSHIP d/b/a

verizon

20 ALEXANDER DRIVE, 2ND FLOOR
WALLINGFORD, CT 06492

PROFESSIONAL STAMP:



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SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	10/30/20	FOR CONSTRUCTION	AA
1	11/11/20	REVISED PER COMMENTS	AA

SITE INFORMATION:

SITE NAME:
NIANTIC_CT-A

LOCATION CODE:
469058

SITE ADDRESS:
6&8 GRAND STREET
NIANTIC, CT 06357

DRAWN BY:	DATE:
AA	11/11/20
CHECKED BY:	DATE:
KB	11/11/20

NEXIUS PROJECT NO.:
VZ11509

SHEET TITLE:
RET SYSTEM WIRING SCHEMATIC

SHEET NUMBER:

A-4

SAMSUNG

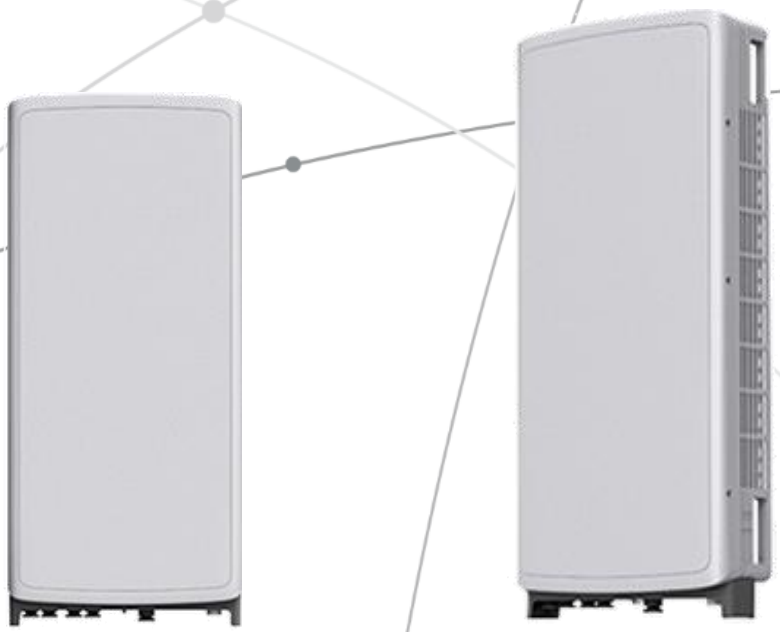
SAMSUNG

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

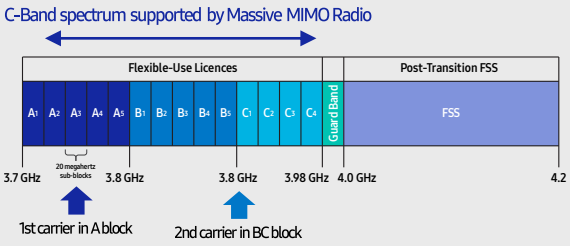


Points of Differentiation

Wide Bandwidth

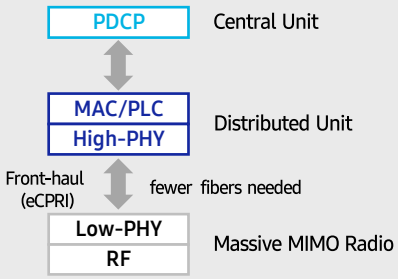
With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

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.

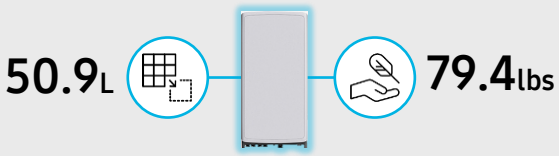
This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

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

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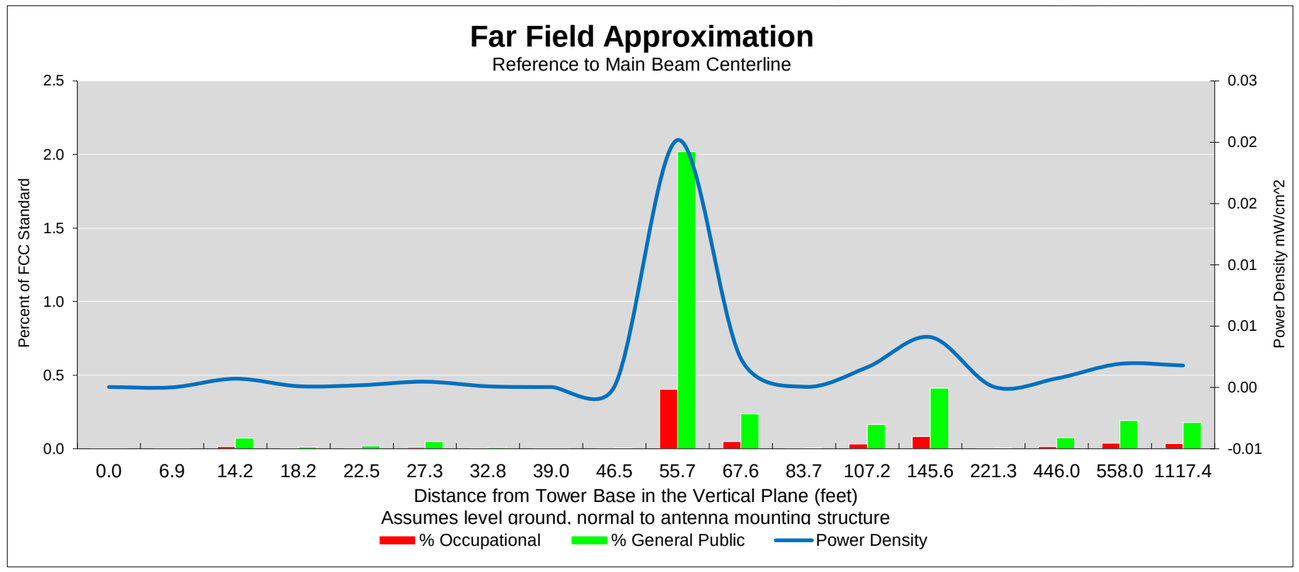
ATTACHMENT 3

Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

Location:	**Niantic CT**
Site #:	2-0759
Date:	04/20/21
Name:	Wesley Stevens
File Name:	Niantic CT - FF POWER

Antenna Type:	**MX06FRO640-02**
Operating Freq. (MHz):	**2120**
Antenna Height (ft):	**42.0**
Antenna Gain (dBi):	**19.2**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
Tx Power (W):	**40.0**
No. of Channels:	**4**



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	39.0	39.6	41.5	43.0	45.0	47.6	50.9	55.2	60.7	68.0	78.0	92.3	114.1	150.8	224.7	447.7	559.4	1118.1
Distance from Antenna Structure Base in Horizontal plane	0.0	6.9	14.2	18.2	22.5	27.3	32.8	39.0	46.5	55.7	67.6	83.7	107.2	145.6	221.3	446.0	558.0	1117.4
Angle from Main Beam (reference to horizontal plane)	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
dB down from centerline (referenced to centerline)	47	52.2	33.7	41.8	38.8	34.3	40.8	44.2	40.3	14.9	23	37.8	21.3	14.9	29.7	12.9	6.8	1.1
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.40	0.05	0.00	0.03	0.08	0.00	0.01	0.04	0.04
Percent of General Population Standard	0.00	0.00	0.07	0.01	0.02	0.05	0.01	0.00	0.01	2.02	0.24	0.01	0.16	0.41	0.01	0.07	0.19	0.18

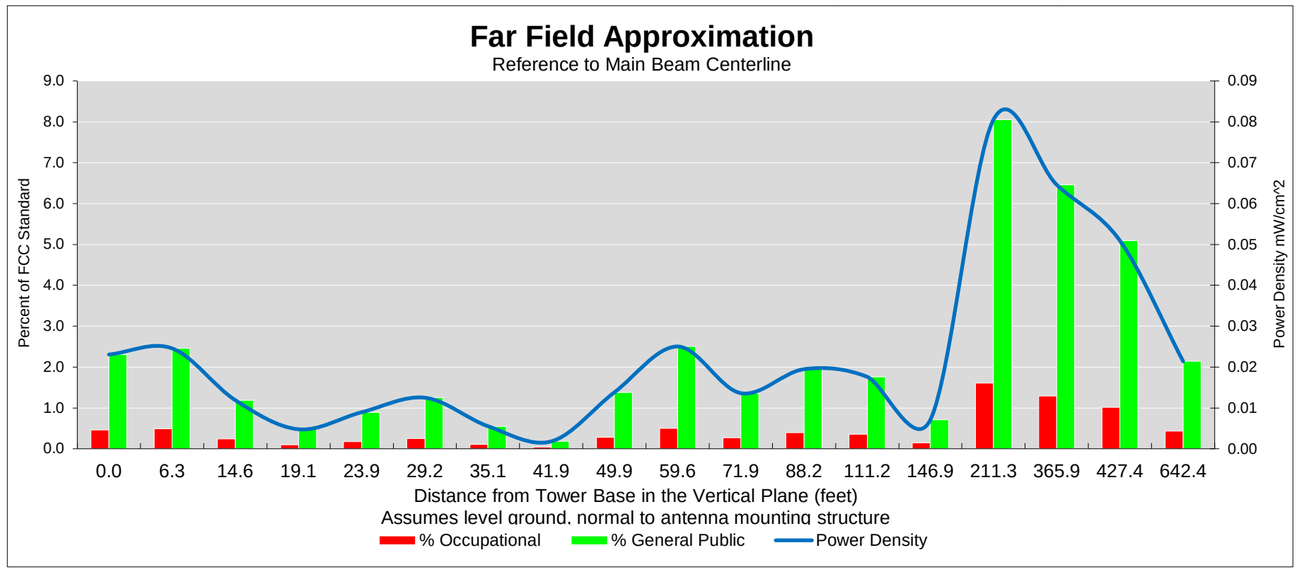
Max%: **2.02%**

Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

Location:	**Niantic CT**
Site #:	2-0759
Date:	04/20/21
Name:	Wesley Stevens
File Name:	Niantic CT - FF POWER

Antenna Type:	**VZ-MT6407-77A**
Operating Freq. (MHz):	**3730**
Antenna Height (ft):	**47.9**
Antenna Gain (dBi):	**25.5**
Downtilt (degrees):	**2.0**
Feedline Loss (dB):	**0.0**
Tx Power (W):	**30.2**
No. of Channels:	**4**



Calc Angle	90.0	82.0	72.0	67.0	62.0	57.0	52.0	47.0	42.0	37.0	32.0	27.0	22.0	17.0	12.0	7.0	6.0	4.0
Solve for r, dx to antenna	44.9	45.3	47.2	48.8	50.9	53.6	57.0	61.4	67.1	74.6	84.8	98.9	119.9	153.6	216.1	368.6	429.8	644.0
Distance from Antenna Structure Base in Horizontal plane	0.0	6.3	14.6	19.1	23.9	29.2	35.1	41.9	49.9	59.6	71.9	88.2	111.2	146.9	211.3	365.9	427.4	642.4
Angle from Main Beam (reference to horizontal plane)	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
dB down from centerline (referenced to centerline)	23.06	22.7	25.5	29.18	26.09	24.19	27.2	31.4	21.79	18.29	19.83	16.93	15.7	17.49	3.98	0.3	0	0.25
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.02	0.02	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.03	0.01	0.02	0.02	0.01	0.08	0.06	0.05	0.02
Percent of Occupational Standard	0.46	0.49	0.24	0.10	0.18	0.25	0.11	0.04	0.28	0.50	0.27	0.39	0.35	0.14	1.61	1.29	1.02	0.43
Percent of General Population Standard	2.31	2.46	1.19	0.48	0.89	1.25	0.55	0.18	1.38	2.50	1.36	1.95	1.76	0.71	8.06	6.46	5.09	2.14

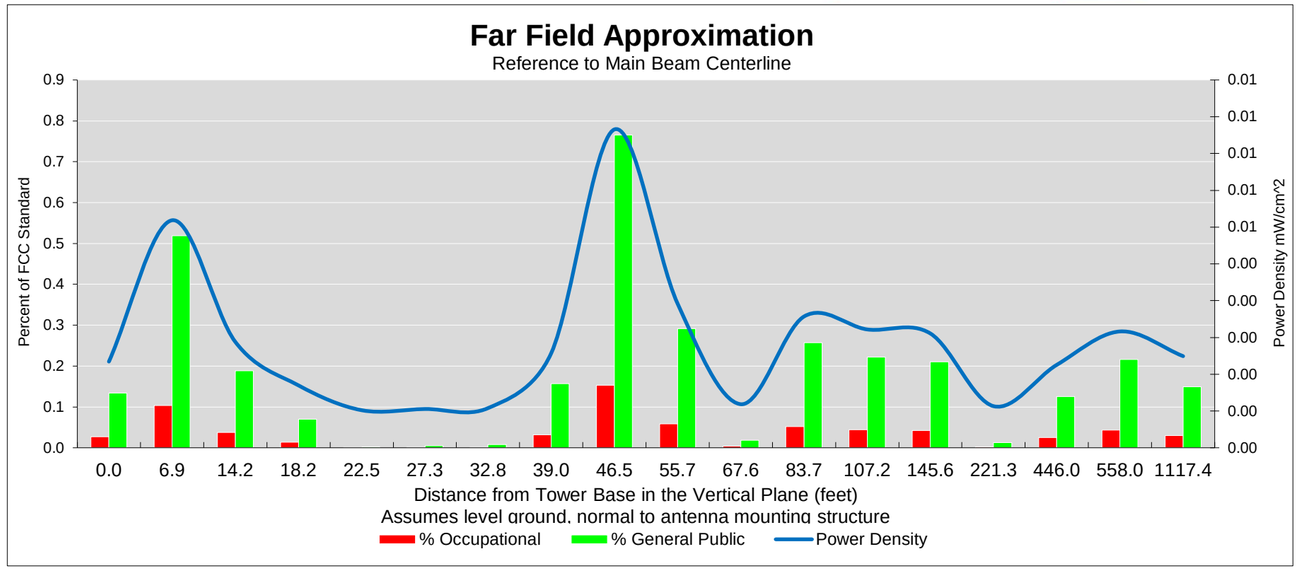
Max%: **8.06%**

Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

Location:	**Niantic CT**
Site #:	2-0759
Date:	04/20/21
Name:	Wesley Stevens
File Name:	Niantic CT - FF POWER

Antenna Type:	**MX06FRO640-02**
Operating Freq. (MHz):	**1978**
Antenna Height (ft):	**42.0**
Antenna Gain (dBi):	**18.2**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
Tx Power (W):	**40.0**
No. of Channels:	**4**



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	39.0	39.6	41.5	43.0	45.0	47.6	50.9	55.2	60.7	68.0	78.0	92.3	114.1	150.8	224.7	447.7	559.4	1118.1
Distance from Antenna Structure Base in Horizontal plane	0.0	6.9	14.2	18.2	22.5	27.3	32.8	39.0	46.5	55.7	67.6	83.7	107.2	145.6	221.3	446.0	558.0	1117.4
Angle from Main Beam (reference to horizontal plane)	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
dB down from centerline (referenced to centerline)	30.5	24.5	28.5	32.5	47.3	42.7	40.5	26.8	19.1	22.3	33.1	20.2	19	16.8	25.4	9.6	5.3	0.9
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.03	0.10	0.04	0.01	0.00	0.00	0.00	0.03	0.15	0.06	0.00	0.05	0.04	0.04	0.00	0.03	0.04	0.03
Percent of General Population Standard	0.13	0.52	0.19	0.07	0.00	0.01	0.01	0.16	0.77	0.29	0.02	0.26	0.22	0.21	0.01	0.13	0.22	0.15

Max%: **0.77%**

ATTACHMENT 4

nexius

Structural Analysis Report

Property Owner	Town of East Lyme
Structural Type	89 ft AGL Guy Tower
Site Address	6&8 Grand Street Niantic, CT 06357
Site ID	N/A
Site Name	N/A
Latitude	41.325103
Longitude	-72.191697

Client	**Verizon Wireless** *20 Alexander Drive, 2nd Floor* *Wallingford, CT 06492*
Site Type	N/A
Site ID	N/A
Site Name	NIANTIC_CT-A
Location Code	469058

Prepared by	Nexius Solutions, Inc. *2595 North Dallas Parkway Suite 300* *Frisco, TX 75034*
Job/Task Number	VZW469058A01-NX062
Rev	3
Email	structurals@nexius.com
Phone	972-581-9888
Date	01/26/2021
Result	**ACCEPTABLE (99.4 %)**

Dear Sir / Madam:

Nexius Solutions is pleased to submit this **Report** to determine the structural integrity of the referred tower.

Referenced documents used for this analysis are listed in the section DOCUMENTS & REFERENCES. This analysis has been performed in compliance with

- *2018 Connecticut State Building Code (IBC 2015 w/ State Amendments)*
- *ANSI/TIA-222-G w/ Addendums, Structural Standard for Antenna Supporting Structures and Antennas.*

Detailed design parameters are listed in Table 1. Analysis loading is detailed in Table 2 and Table 3.

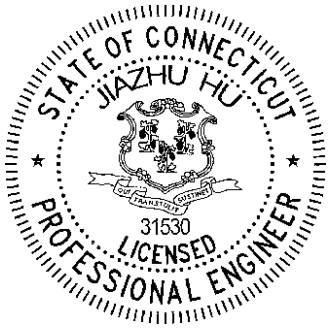
Based on our analysis we have determined the following result:

Tower Stress Level	**ACCEPTABLE (99.4 %)**

Nexius Solutions appreciates the opportunity of providing continued engineering services. Should you have any questions, comments or require additional information, please do not hesitate to contact us.

Sincerely,

Analysis Prepared by:	Approved by:
Akshay Doddamani	Jiazhu Hu, P.E. Engineering Manager License #: 31530



nexius

DOCUMENTS & REFERENCES

- RFDS, Location Code: 469058, Site Name: NIANTIC_CT-A , by Verizon Wireless, dated 11/09/2020.
- Construction Drawings (FOR CONSTRUCTION), Location Code: 469058, Verizon Site Name: NIANTIC_CT-A, by Nexius, dated 12/18/2020.
- Structural Analysis Report, CENTEK Project No. 14298, Verizon Site Ref: Niantic SC1, by CENTEK engineering, Inc., dated 04/29/2015.
- Structural Analysis Report w/ Proposed Modifications, Location Code: 469058, Verizon Site Name: NIANTIC_CT-A, by Nexius, dated 11/01/2019.
- Structural Analysis Report, Rev.2, Location Code: 469058, Verizon Site Name: NIANTIC_CT-A, by Nexius, Dated 12/18/2020.

DESIGN STANDARDS & PARAMETERS

TABLE 1 STANDARDS & DESIGN PARAMETERS

Codes and Standards	
Building Code	2018 Connecticut State Building Code (IBC 2015 w/ State Amendments)
TIA Standard	ANSI/TIA-222-G w/ Addendums
Wind Parameters	
Ultimate Wind Speed	144 mph
Nominal Wind Speed	112 mph
Nominal Wind Speed with Ice	50 mph
Radial Ice Thickness	0.75 in
Exposure Category	C(1)
Structure Class	III
Topographic Category	1
Seismic Design Parameters*	
S_S	0.161
S_1	0.058

Note: (1) Hurricane prone region

RESULTS & RECOMMENDATIONS

No information available on the existing tower base connection to the existing building frame, the tower base foundation was not analyzed. Guy anchor foundation adequacy has been checked by comparing the reactions to the previous reactions according to code recommendations. The tower has been reinforced according to previous structural analysis w/ proposed modifications per inspection. Based on our analysis, it is determined that the existing tower structure will be **ACCEPTABLE** to support the existing and proposed loadings.

The equipment are directly attached to tower structural components (i.e., legs). The **mounts** are analyzed within the tower structural analysis and are determined to be **ADEQUATE**.

All structural components and connections should be checked for tightness and good condition prior to installing any proposed loading. The analysis is performed based on structural information obtained from provided drawings, site visit and previous structural analysis report. The analysis assumes that the provided information is accurate. If the site conditions are different from assumptions or do not meet requirements, the analysis result would not be valid and Nexius should be notified for re-evaluation.

LOADING

TABLE 2 – PROPOSED ANTENNA AND CABLE INFORMATION

Mount Elev. ft	Ant. Ctr. Elev. ft	Qty	Antenna Manufacturer	Antenna Model	No. of Feed Lines	Feed Line Size in	Note
47.92	47.92	**2**	**Samsung**	**Licensed Sub 6 Antenna w/ RRU***	1	**6x12 Hybrid Cable**	-
		1	**Raycap**	**RCMDC-3315-PF-48**			

* Not to exceed 35.12"x16.06"x5.5" for dimensions and 87 lbs for weight.

TABLE 3 – EXISTING AND RESERVED ANTENNA AND CABLE INFORMATION

Mount Elev. ft	Ant. Ctr. Elev. ft	Qty	Antenna Manufacturer	Antenna Model	No. of Feed Lines	Feed Line Size in	Note
93.0	96.0	1	-	6ft x 3in Pipe mount	-	-	1
95.50	95.50	1	CommScope	DB586-Y	1	7/8	1
92.0	92.0	1	Motorola	PTP 49400	1	CAT5e	1
85.0	85.0	1	-	Camera	1	CAT5e	1
82.17	82.17	1	Motorola	5440AP	1	CAT5e	1
78.5	78.5	1	Motorola	PTP 49400	1	CAT5e	1
71.0	71.0	1	Telewave	ANT150D6	1	1/2	1
42.4	42.4	2	JMA	MX06FRO640-02	-	-	1
		2	Samsung	B2/B66A RRH-BR049			
		4	CommScope	CBC1923T-DS-43			
		1	-	*Fiber Management Box*	1	Power	2
		1	-	*Disconnect Switch*	1	Fiber	
33.0	33.0	1	Pulse Larsen	BSA150C	-	-	1
23.0	23.0	1	RFS	BA1012-1	1	1/2	1

Notes:

1) Existing Equipment
2) Existing to be removed

ANALYSIS

tnxTower, a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for required loading cases. Selected output from the analysis is included in APPENDICES.

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RESULTS – MEMBER CAPACITIES

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	øP$_{allow}$ K	% Capacity	Pass Fail
L1	90.5 - 89	Pole	Pipe 2" Sch. 40 (2.375" x 0.154")	1	-0.07	33.85	65.6	Pass
T1	89 - 87	Leg	ROHN TS1.25x14 ga	4	-1.58	10.60	60.7	Pass
T2	87 - 81	Leg	ROHN TS1.25x14 ga	11	-3.09	12.32	25.1 30.9 (b)	Pass
T3	81 - 71	Leg	ROHN TS1.25x14 ga	42	-3.86	12.23	31.5 38.6 (b)	Pass
T4	71 - 61	Leg	ROHN TS1.25x14 ga	90	-4.42	13.64	32.4 43.4 (b)	Pass
T5	61 - 51	Leg	ROHN TS1.25x14 ga	138	-6.55	12.23	53.5 65.0 (b)	Pass
T6	51 - 41	Leg	ROHN TS1.25x14 ga	185	-9.02	12.23	73.7 89.7 (b)	Pass
T7	41 - 31	Leg	ROHN TS1.25x14 ga	235	-9.38	12.23	76.7 98.9 (b)	Pass
T8	31 - 21	Leg	ROHN TS1.25x14 ga	282	-10.22	12.23	83.5 99.4 (b)	Pass
T9	21 - 11	Leg	ROHN TS1.25x14 ga	330	-10.02	12.23	81.9	Pass
T2	87 - 81	Diagonal	7/16	22	-0.68	1.83	37.0	Pass
T3	81 - 71	Diagonal	7/16	88	-0.64	1.78	35.8	Pass
T4	71 - 61	Diagonal	7/16	99	-0.80	1.78	45.3	Pass
T5	61 - 51	Diagonal	7/16	148	-2.03	3.79	53.6	Pass
T6	51 - 41	Diagonal	7/16	232	-2.00	3.79	52.7	Pass
T7	41 - 31	Diagonal	7/16	243	-3.37	3.79	89.1	Pass
T8	31 - 21	Diagonal	7/16	327	-3.32	3.79	87.6	Pass
T9	21 - 11	Diagonal	7/16	376	-2.84	3.79	74.9	Pass
T2	87 - 81	Horizontal	7/16	23	-0.30	2.90	10.5	Pass
T3	81 - 71	Horizontal	7/16	85	0.38	4.87	7.9	Pass
T4	71 - 61	Horizontal	7/16	102	0.48	4.87	9.9	Pass
T5	61 - 51	Horizontal	7/16	149	-0.94	1.69	55.8	Pass
T6	51 - 41	Horizontal	7/16	227	-0.85	1.69	50.2	Pass
T7	41 - 31	Horizontal	7/16	246	-1.30	1.69	76.7	Pass
T8	31 - 21	Horizontal	7/16	295	-1.31	1.69	77.6	Pass
T9	21 - 11	Horizontal	7/16	373	-1.23	1.69	72.7	Pass
T1	89 - 87	Top Girt	7/16	5	-0.00	4.32	19.9	Pass
T2	87 - 81	Top Girt	7/16	14	0.16	4.87	3.4	Pass
T3	81 - 71	Top Girt	7/16	46	0.23	4.87	4.6	Pass
T4	71 - 61	Top Girt	7/16	94	0.18	4.87	3.8	Pass
T5	61 - 51	Top Girt	7/16	141	-0.21	1.69	12.5	Pass
T6	51 - 41	Top Girt	7/16	188	-0.60	1.69	35.7	Pass
T7	41 - 31	Top Girt	7/16	238	-0.33	1.69	19.3	Pass
T8	31 - 21	Top Girt	7/16	285	-1.10	1.69	65.3	Pass
T9	21 - 11	Top Girt	7/16	334	-0.69	1.69	40.8	Pass
T1	89 - 87	Bottom Girt	7/16	8	-0.19	2.93	25.1	Pass
T2	87 - 81	Bottom Girt	7/16	19	0.26	4.87	5.3	Pass
T3	81 - 71	Bottom Girt	7/16	48	0.18	4.87	3.8	Pass
T4	71 - 61	Bottom Girt	7/16	96	-0.20	2.90	6.7	Pass
T5	61 - 51	Bottom Girt	7/16	145	-0.58	1.69	34.5	Pass
T6	51 - 41	Bottom Girt	7/16	192	-0.24	1.69	14.3	Pass
T7	41 - 31	Bottom Girt	7/16	239	-1.08	1.69	63.7	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T8	31 - 21	Bottom Girt	7/16	289	-0.78	1.69	45.9	Pass
T9	21 - 11	Bottom Girt	7/16	336	-0.44	1.69	26.3	Pass
T2	87 - 81	Guy A@84 (18 deg)	5/16	382	3.13	6.72	46.5	Pass
T5	61 - 51	Guy A@55.3229 (18 deg)	5/16	388	3.73	6.72	55.5	Pass
T8	31 - 21	Guy A@29.3854 (18 deg)	5/16	394	3.33	6.72	49.5	Pass
T2	87 - 81	Guy B@84 (18 deg)	5/16	381	3.19	6.72	47.4	Pass
T5	61 - 51	Guy B@55.3229 (18 deg)	5/16	387	3.77	6.72	56.1	Pass
T8	31 - 21	Guy B@29.3854 (18 deg)	5/16	393	3.26	6.72	48.5	Pass
T2	87 - 81	Guy C@84 (-18 deg)	5/16	377	3.59	6.72	53.5	Pass
T5	61 - 51	Guy C@55.3229 (-18 deg)	5/16	383	4.28	6.72	63.6	Pass
T8	31 - 21	Guy C@29.3854 (-18 deg)	5/16	389	3.62	6.72	53.9	Pass
T2	87 - 81	Top Guy Pull-Off@84	2X3/8	380	1.10	17.14	6.4 8.8 (b)	Pass
T5	61 - 51	Top Guy Pull-Off@55.3229	2X3/8	386	1.97	17.14	11.5 15.9 (b)	Pass
T8	31 - 21	Top Guy Pull-Off@29.3854	2X3/8	392	2.59	17.14	15.1 20.9 (b)	Pass
							Summary	
						Pole (L1)	65.6	Pass
						Leg (T8)	99.4	Pass
						Diagonal (T7)	89.1	Pass
						Horizontal (T8)	77.6	Pass
						Top Girt (T8)	65.3	Pass
						Bottom Girt (T7)	63.7	Pass
						Guy A (T5)	55.5	Pass
						Guy B (T5)	56.1	Pass
						Guy C (T5)	63.6	Pass
						Top Guy Pull-Off (T8)	20.9	Pass
						Bolt Checks	99.4	Pass
						RATING =	**99.4**	**Pass**

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Standard Conditions for Providing Structural Consulting Services on Existing Structures

1. The structure is analyzed to the best of our ability using all information that is provided or can be obtained during fieldwork (if authorized by client). If the existing conditions are not as we have represented in this analysis, the analysis would not be valid, and we should be contacted to evaluate the significance of the deviation and revise the assessment accordingly.
2. The structural analysis has been performed assuming that the structural members, parts and component were originally designed properly and are all in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, misaligned parts, or any reduction in strength due to the age or fatigue of the product.
3. The structural analysis provided is an assessment of the primary load carrying capacity of the structural members, components and parts. We provided a limited scope of service. In some cases, we cannot verify the capacity of every weld, plate, connection detail, etc. In some cases, structural fabrication details are unknown at the time of our analysis, and the detailed field measurement of some of the required details may not be possible. In instances where we cannot perform connection capacity calculations, it is assumed that the existing manufactured connections develop the full capacity of the primary members being connected.
4. We cannot be held responsible for structural members, components and parts that are installed improperly, are loose or have a tendency of working loose over the lifetime. Our analysis has been performed assuming fully tightened connections, and proper installation per manufacturer's instructions.
5. The structural analysis has been performed using information currently provided by the client and potentially field verified. We have been provided with a loading arrangement for all telecommunications equipment on the structure. Our analysis has been based upon a particular loading arrangement provided. We are not responsible for deviations in the loading arrangements that may occur over time. If deviations in loading arrangements are proposed, then the analysis would not be valid and we should be contacted to revise the analysis.
6. We cannot be held responsible for temporary and unbalanced loads on structure. Our analysis is based on a particular loading arrangement or as-build field condition. We are not responsible for the methods and means of how the loading arrangement is accomplished by the contractor. These methods and means may include rigging of equipment or hardware to lift and locate, temporary hanging of equipment in locations other than the final arrangement, movement and tie off of tower riggers, personnel, and their equipment, etc.
7. It is assumed that all welded connections are performed in the shop under the latest American Welding Society Code. No field welds are permitted or assumed for the existing pre-manufactured equipment.
8. Steel grade and strength are unknown and cannot be field tested. We cannot be held responsible for equipment manufactured from inferior steel or bolts. Our analysis assumes that standard structural grade steel has been used by the equipment manufacturer for all assembled parts of the mounting apparatus. Acceptable steels and connection components are specified by the American Institute of Steel Construction. In case no accurate info available, following material assumptions were used:

Pipe	ASTM A572-50
Solid Pipe	ASTM A36
Bolt	SAE Gr 5

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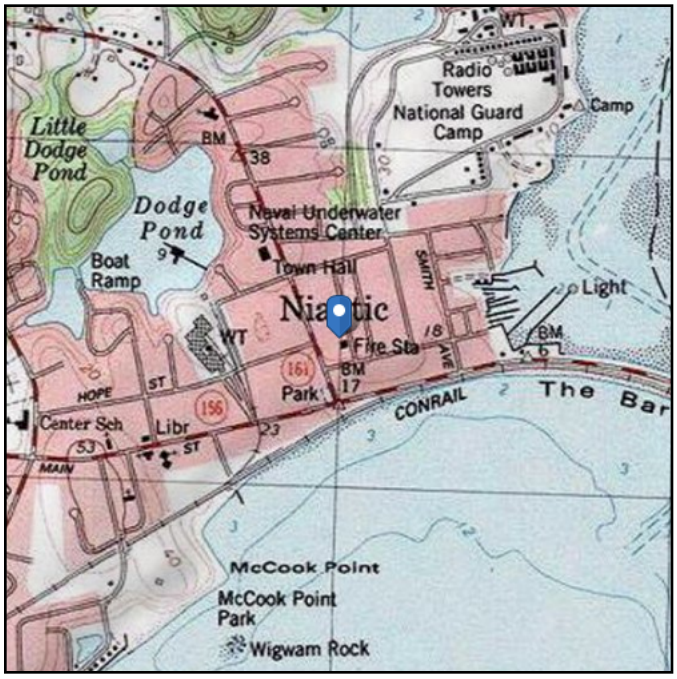
Appendix #1: Loading Parameters and Calculations

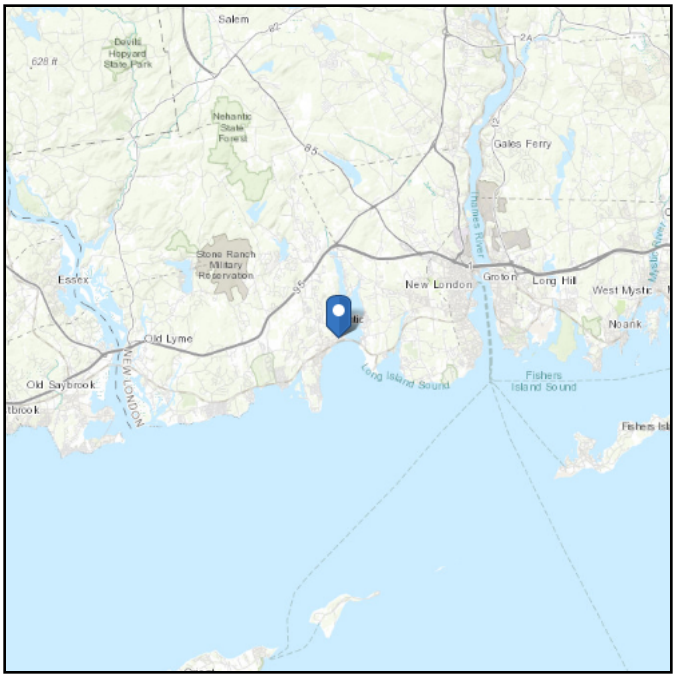
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 21.02 ft (NAVD 88)
Latitude: 41.325103
Longitude: -72.191697





Wind

Results:

Wind Speed:	144 Vmph
10-year MRI	79 Vmph
25-year MRI	89 Vmph
50-year MRI	99 Vmph
100-year MRI	109 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1B and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Fri Oct 30 2020

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 3% probability of exceedance in 50 years (annual exceedance probability = 0.000588, MRI = 1,700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings shall be protected against wind-borne debris as specified in Section 26.10.3.

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

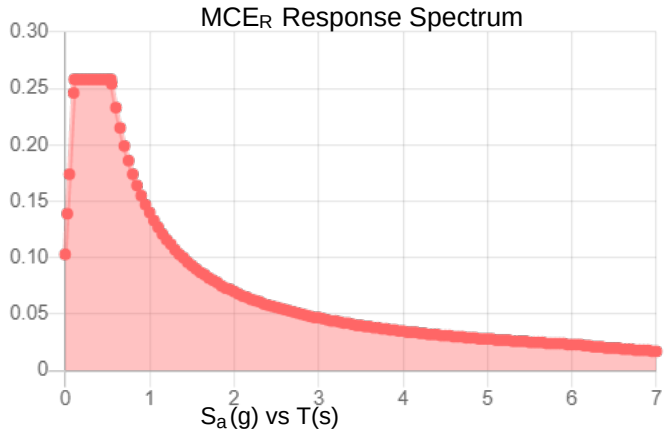
Seismic

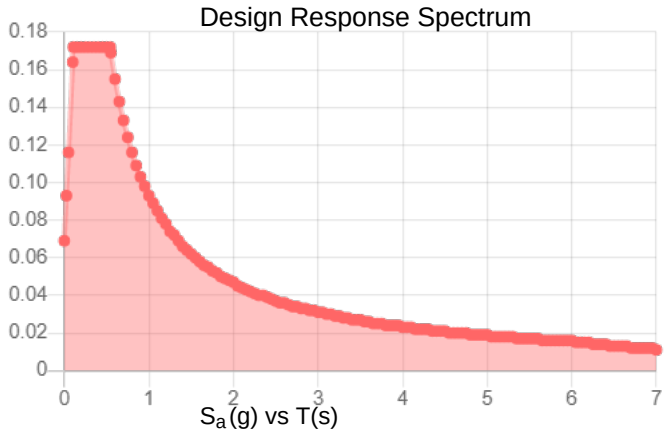
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.161	S_{DS} :	0.172
S_1 :	0.058	S_{D1} :	0.093
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.08
S_{MS} :	0.258	PGA_M :	0.128
S_{M1} :	0.14	F_{PGA} :	1.6
		I_e :	1.25

Seismic Design Category B





Data Accessed: Fri Oct 30 2020

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Oct 30 2020

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

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

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

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Appendix #2: tnxTower Output

Section	L1	T1	T2	T3	T4	T5	T6	T7	T8	T9
Legs	A						ROHN TS1.25x14 ga			
Leg Grade							A572-50			
Diagonals	B						SR 7/16			
Diagonal Grade	N.A.						A36			
Top Girts	N.A.						SR 7/16			
Bottom Girts	N.A.						SR 7/16			
Horizontals	N.A.						SR 7/16			
Top Guy Pull-Offs	N.A.		2X3/8		N.A.	2X3/8		N.A.	2X3/8	N.A.
Face Width (ft)	0.5	0					1.39583			
# Panels @ (ft)	19	7	5 @ 1.3125				49 @ 1.35417			
Weight (K)	N.A.	C								0.6
	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

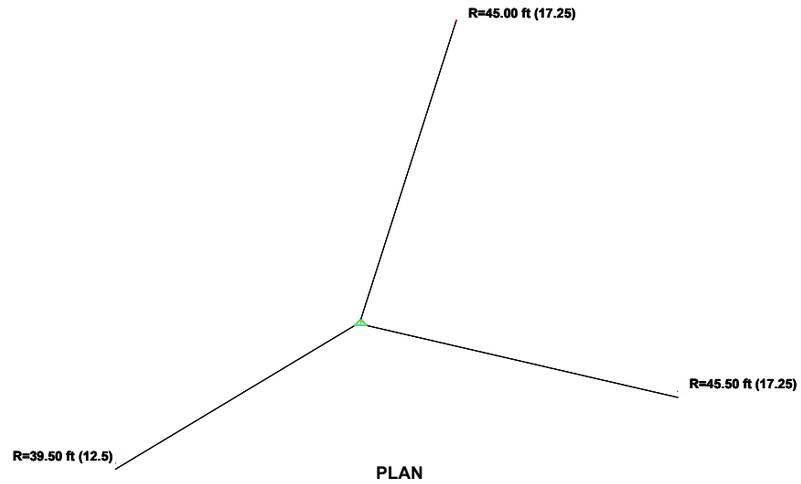
90.5 ft
89.0 ft
87.0 ft
84.0 ft
81.0 ft
71.0 ft
61.0 ft
55.3 ft
51.0 ft
41.0 ft
31.0 ft
29.4 ft
21.0 ft
11.0 ft

5/16 EHS LC=81.30 ft IT=10%

5/16 EHS LC=57.72 ft IT=10%

5/16 EHS LC=42.22 ft IT=10%

0 K
30 K (Axial)
2 kip-ft (Torque)



PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DB586-Y	95.5	MX06FRO640-02 w/ Mtg Pipe (VZW)	42.4
6' Extension Pipe	93.5	MX06FRO640-02 w/ Mtg Pipe (VZW)	42.4
PTP 49400	92	(2) CBC1923T-DS-43 (VZW)	38
Environmental Pendant Camera	85	(2) CBC1923T-DS-43 (VZW)	38
5440AP	82.17	B2/B66A RRHBR049 (VZW)	37.5
PTP 49400	78.5	B2/B66A RRHBR049 (VZW)	37.5
ANT150D6-9	71	RCMDC-3315-PF-48 (VZW)	37
Licensed Sub 6 Antenna w/ RRU (VZW)	47.916	BSA150C	33
		Standoff Mount	33
Licensed Sub 6 Antenna w/ RRU (VZW)	47.916	BA1012	23
		Standoff Mount	21

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pipe 2" Sch. 40 (2.375" x 0.154")	C	1 @ 1.97396
B	A53-B-35		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 112 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. CTBC 2018 / IBC 2015 = 144 Mph (Ult) = 111.5 Mph (3-Sec)
9. TOWER RATING: 99.4%

8 K
11 K
8 K
R=39.50 ft

ALL REACTIONS ARE FACTORED

Nexius
300 Apollo Drive, Suite 7
Chelmsford, MA 01824
Phone: 1 (978) 923-7965
FAX:

Job:	***VZW469058A01 (NX062)***		
Project:	***NIANTIC_CT-A***		
Client: Verizon Wireless	Drawn by: Akshay Doddamani	App'd:	
Code: TIA-222-G	Date: 01/26/21	Scale: NTS	
Path: D:\Structural Analysis\Niantic_CT (Guyed Tower)\Rev 1\Rev 2_12182020\Analysis\VZW469058A01_NIANTIC_CT(NX062).eri		Dwg No. E-1	

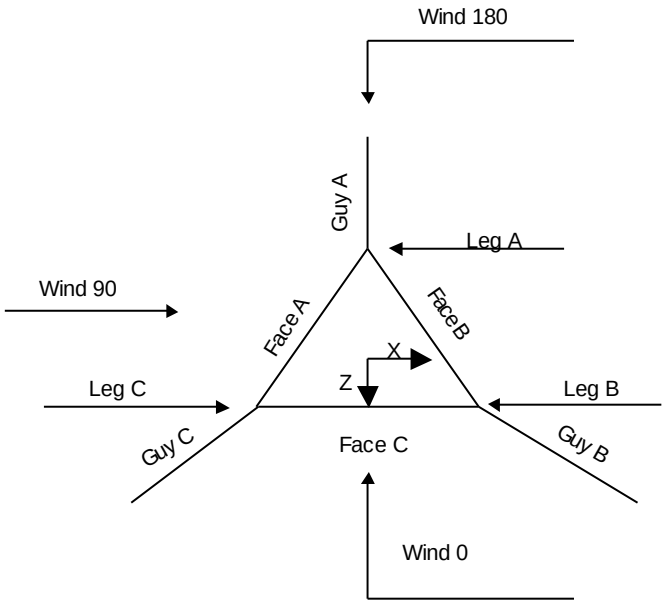
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 90.50 ft above the ground line.
The base of the tower is set at an elevation of 11.00 ft above the ground line.
The face width of the tower is 0.50 ft at the top and 1.40 ft at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 112 mph.
Structure Class III.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
CTBC 2018 / IBC 2015 = 144 Mph (Ult) = 111.5 Mph (3-Sec).
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification		Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.	√	Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Corner & Starmount Guyed Tower

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	90.50-89.00	1.50	Pipe 2" Sch. 40 (2.375" x 0.154")	A53-B-35 (35 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 90.50-89.00				1	1	1			

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	89.00-87.00			0.50	1	2.00

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T2	87.00-81.00			1.40	1	6.00
T3	81.00-71.00			1.40	1	10.00
T4	71.00-61.00			1.40	1	10.00
T5	61.00-51.00			1.40	1	10.00
T6	51.00-41.00			1.40	1	10.00
T7	41.00-31.00			1.40	1	10.00
T8	31.00-21.00			1.40	1	10.00
T9	21.00-11.00			1.40	1	10.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	89.00-87.00	1.97	X Brace	No	Yes	0.0000	0.3125
T2	87.00-81.00	1.31	Z Brace	No	Yes	4.5000	4.5000
T3	81.00-71.00	1.35	Z Brace	No	Yes	3.1250	3.1250
T4	71.00-61.00	1.35	Z Brace	No	Yes	3.1250	3.1250
T5	61.00-51.00	1.35	Z Brace	No	Yes	3.1250	3.1250
T6	51.00-41.00	1.35	Z Brace	No	Yes	3.1250	3.1250
T7	41.00-31.00	1.35	Z Brace	No	Yes	3.1250	3.1250
T8	31.00-21.00	1.35	Z Brace	No	Yes	3.1250	3.1250
T9	21.00-11.00	1.35	Z Brace	No	Yes	3.1250	3.1250

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 89.00-87.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round		A36 (36 ksi)
T2 87.00-81.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T3 81.00-71.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T4 71.00-61.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T5 61.00-51.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T6 51.00-41.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T7 41.00-31.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T8 31.00-21.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T9 21.00-11.00	Pipe	ROHN TS1.25x14 ga	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 89.00-87.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T2 87.00-81.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T3 81.00-71.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T4 71.00-61.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T5 61.00-51.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T6 51.00-41.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T7 41.00-31.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T8 31.00-21.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T9 21.00-11.00	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 89.00-87.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T2 87.00-81.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T3 81.00-71.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T4 71.00-61.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T5 61.00-51.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T6 51.00-41.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T7 41.00-31.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T8 31.00-21.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T9 21.00-11.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 89.00-87.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T2 87.00-81.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T3 81.00-71.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T4 71.00-61.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T5 61.00-51.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T6 51.00-41.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T7 41.00-31.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T8 31.00-21.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T9 21.00-11.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 89.00-87.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 87.00-81.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 81.00-71.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 71.00-61.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 61.00-51.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 51.00-41.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 41.00-31.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 31.00-21.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 21.00-11.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

	K Factors[1]

Tower Elevation *ft*	*Calc K Single Angles*	*Calc K Solid Rounds*	*Legs*	*X Brace Diags* *X* *Y*	*K Brace Diags* *X* *Y*	*Single Diags* *X* *Y*	*Girts* *X* *Y*	*Horiz.* *X* *Y*	*Sec. Horiz.* *X* *Y*	*Inner Brace* *X* *Y*
T1	No	Yes	1	1	1	1	1	1	1	1
89.00-87.00				1	1	1	1	1	1	1
T2	No	Yes	1	1	1	1	1	1	1	1
87.00-81.00				1	1	1	1	1	1	1
T3	No	Yes	1	1	1	1	1	1	1	1
81.00-71.00				1	1	1	1	1	1	1
T4	No	Yes	1	1	1	1	1	1	1	1
71.00-61.00				1	1	1	1	1	1	1
T5	No	No	1	1	1	0.35	1	1	1	1
61.00-51.00				1	1	0.35	1	1	1	1
T6	No	No	1	1	1	0.35	1	1	1	1
51.00-41.00				1	1	0.35	1	1	1	1
T7	No	No	1	1	1	0.35	1	1	1	1
41.00-31.00				1	1	0.35	1	1	1	1
T8	No	No	1	1	1	0.35	1	1	1	1
31.00-21.00				1	1	0.35	1	1	1	1
T9	No	No	1	1	1	0.35	1	1	1	1
21.00-11.00				1	1	0.35	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Leg*		*Diagonal*		*Top Girt*		*Bottom Girt*		*Mid Girt*		*Long Horizontal*		*Short Horizontal*	
	Net Width Deduct in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*	*Net Width Deduct* in	*U*
T1 89.00-87.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 87.00-81.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 81.00-71.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 71.00-61.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 61.00-51.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 51.00-41.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 41.00-31.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 31.00-21.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 21.00-11.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Leg Connection Type*	*Leg*		*Diagonal*		*Top Girt*		*Bottom Girt*		*Mid Girt*		*Long Horizontal*		*Short Horizontal*	
		Bolt Size in	*No.*	*Bolt Size* in	*No.*	*Bolt Size* in	*No.*	*Bolt Size* in	*No.*	*Bolt Size* in	*No.*	*Bolt Size* in	*No.*	*Bolt Size* in	*No.*
T1 89.00-87.00	Sleeve DS	0.3125 SAEGR-5	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0
T2 87.00-81.00	Sleeve DS	0.3125 SAEGR-5	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T3 81.00-71.00	Sleeve DS	0.3125 SAEGR-5	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0
T4 71.00-61.00	Sleeve DS	0.3125 SAEGR-5	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0
T5 61.00-51.00	Sleeve DS	0.3125 SAEGR-5	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0
T6 51.00-41.00	Sleeve DS	0.3125 SAEGR-5	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0
T7 41.00-31.00	Sleeve DS	0.3125 SAEGR-5	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0
T8 31.00-21.00	Sleeve DS	0.3125 SAEGR-5	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0
T9 21.00-11.00	Sleeve DS	0.0000 SAEGR-5	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
84	EHS	A	5/16	1.12	10%	21000	0.205	80.00	45.00	18.0000	17.25	100%
		B	5/16	1.12	10%	21000	0.205	80.28	45.50	-18.0000	17.25	100%
		C	5/16	1.12	10%	21000	0.205	81.23	39.50	0.0000	12.50	100%
55.3229	EHS	A	5/16	1.12	10%	21000	0.205	58.31	45.00	18.0000	17.25	100%
		B	5/16	1.12	10%	21000	0.205	58.69	45.50	-18.0000	17.25	100%
		C	5/16	1.12	10%	21000	0.205	57.66	39.50	0.0000	12.50	100%
29.3854	EHS	A	5/16	1.12	10%	21000	0.205	45.83	45.00	18.0000	17.25	100%
		B	5/16	1.12	10%	21000	0.205	46.31	45.50	-18.0000	17.25	100%
		C	5/16	1.12	10%	21000	0.205	42.18	39.50	0.0000	12.50	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
84	Corner						
55.3229	Corner						
29.3854	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
84.00	A572-50 (50 ksi)	Solid Round			Yes	A572-50 (50 ksi)	Flat Bar	2X3/8
55.32	A572-50 (50 ksi)	Solid Round			Yes	A572-50 (50 ksi)	Flat Bar	2X3/8
29.39	A572-50 (50 ksi)	Solid Round			Yes	A572-50 (50 ksi)	Flat Bar	2X3/8

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
84	0.02	0.02	0.02		0.58 1.3 sec/pulse	0.59 1.3 sec/pulse	0.60 1.3 sec/pulse	
55.3229	0.01	0.01	0.01		0.31 1.0 sec/pulse	0.31 1.0 sec/pulse	0.30 1.0 sec/pulse	
29.3854	0.01	0.01	0.01		0.19 0.8 sec/pulse	0.20 0.8 sec/pulse	0.16 0.7 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
84	No	No			1	1	1	1
55.3229	No	No			1	1	1	1
29.3854	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
84	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	1	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
55.3229	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	1	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
29.3854	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	1	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
84	A	50.63	0	0	1.9570
	B	50.63	0	0	1.9570
	C	48.25	0	0	1.9476
55.3229	A	36.29	0	0	1.8929
	B	36.29	0	0	1.8929
	C	33.91	0	0	1.8801
29.3854	A	23.32	0	0	1.8110
	B	23.32	0	0	1.8110
	C	20.94	0	0	1.7916

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF5-50A (7/8 FOAM)	B	No	No	Ar (CaAa)	87.00 - 11.00	0.0000	0.45	1	1	0.0000	1.0900		0.00
Cat5e	B	No	No	Ar (CaAa)	87.00 - 11.00	0.0000	0.46	1	1	0.0000	0.3600		0.00
Cat5e	B	No	No	Ar (CaAa)	87.00 - 11.00	0.0000	0.47	1	1	0.0000	0.3600		0.00
Cat5e	B	No	No	Ar (CaAa)	81.00 - 11.00	0.0000	0.42	1	1	0.0000	0.3600		0.00
Cat5e	B	No	No	Ar (CaAa)	81.00 - 11.00	0.0000	0.42	1	1	0.0000	0.3600		0.00
LDF4P-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	71.00 - 11.00	0.0000	-0.45	1	1	0.0000	0.6300		0.00
LDF4P-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	71.00 - 11.00	0.0000	-0.46	1	1	0.0000	0.6300		0.00
Mods (Mods)	A	No	No	Af (CaAa)	61.00 - 11.00	0.0000	0	1	1	0.0000	1.6250		0.00
Mods (Mods)	B	No	No	Af (CaAa)	61.00 - 11.00	0.0000	0	1	1	0.0000	1.6250		0.00
Mods (Mods)	C	No	No	Af (CaAa)	61.00 - 11.00	0.0000	0	1	1	0.0000	1.6250		0.00
Hybrid Cable 6x12 (VZW)	A	No	No	Ar (CaAa)	37.00 - 11.00	0.0000	0.38	1	1	0.0000	1.5400		0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	90.50-89.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T1	89.00-87.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	87.00-81.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.086	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.000	0.000	0.00
T3	81.00-71.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
T4	71.00-61.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.01
		C	0.000	0.000	1.260	0.000	0.01
T5	61.00-51.00	A	0.000	0.000	2.708	0.000	0.02
		B	0.000	0.000	5.238	0.000	0.03
		C	0.000	0.000	3.968	0.000	0.03
T6	51.00-41.00	A	0.000	0.000	2.708	0.000	0.02
		B	0.000	0.000	5.238	0.000	0.03
		C	0.000	0.000	3.968	0.000	0.03
T7	41.00-31.00	A	0.000	0.000	3.632	0.000	0.03
		B	0.000	0.000	5.238	0.000	0.03
		C	0.000	0.000	3.968	0.000	0.03
T8	31.00-21.00	A	0.000	0.000	4.248	0.000	0.04
		B	0.000	0.000	5.238	0.000	0.03
		C	0.000	0.000	3.968	0.000	0.03
T9	21.00-11.00	A	0.000	0.000	4.248	0.000	0.04
		B	0.000	0.000	5.238	0.000	0.03
		C	0.000	0.000	3.968	0.000	0.03

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	90.50-89.00	A	2.072	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T1	89.00-87.00	A	2.068	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	87.00-81.00	A	2.059	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.497	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
T3	81.00-71.00	A	2.038	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	22.911	0.000	0.32
		C		0.000	0.000	0.000	0.000	0.00
T4	71.00-61.00	A	2.010	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	22.626	0.000	0.31
		C		0.000	0.000	9.298	0.000	0.13
T5	61.00-51.00	A	1.977	0.000	0.000	6.662	0.000	0.12
		B		0.000	0.000	28.960	0.000	0.43
		C		0.000	0.000	15.829	0.000	0.25
T6	51.00-41.00	A	1.938	0.000	0.000	6.585	0.000	0.12
		B		0.000	0.000	28.498	0.000	0.42
		C		0.000	0.000	15.598	0.000	0.25
T7	41.00-31.00	A	1.891	0.000	0.000	9.685	0.000	0.17
		B		0.000	0.000	27.935	0.000	0.40
		C		0.000	0.000	15.317	0.000	0.24
T8	31.00-21.00	A	1.831	0.000	0.000	11.572	0.000	0.20
		B		0.000	0.000	27.208	0.000	0.38
		C		0.000	0.000	14.953	0.000	0.23
T9	21.00-11.00	A	1.744	0.000	0.000	11.225	0.000	0.19
		B		0.000	0.000	26.167	0.000	0.35
		C		0.000	0.000	14.433	0.000	0.21

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	90.50-89.00	0.0000	0.0000	0.0000	0.0000
T1	89.00-87.00	0.0000	0.0000	0.0000	0.0000
T2	87.00-81.00	1.4180	0.6944	0.0000	0.0000
T3	81.00-71.00	2.0861	0.9854	0.0529	0.0253
T4	71.00-61.00	2.7076	1.4531	0.1344	0.0717
T5	61.00-51.00	1.7141	0.8540	0.0000	0.0000
T6	51.00-41.00	1.8035	0.8911	0.2819	0.1503
T7	41.00-31.00	1.6228	0.4123	0.3684	0.1593
T8	31.00-21.00	1.4434	0.1154	0.2502	0.0905
T9	21.00-11.00	1.5124	0.1199	0.6598	0.2365

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T2	1	LDF5-50A (7/8 FOAM)	81.00 - 87.00	0.6000	0.0000
T2	2	Cat5e	81.00 - 87.00	0.6000	0.0000
T2	3	Cat5e	81.00 - 87.00	0.6000	0.0000
T3	1	LDF5-50A (7/8 FOAM)	71.00 - 81.00	0.6000	0.0108
T3	2	Cat5e	71.00 - 81.00	0.6000	0.0108
T3	3	Cat5e	71.00 - 81.00	0.6000	0.0108
T3	4	Cat5e	71.00 - 81.00	0.6000	0.0108
T3	5	Cat5e	71.00 - 81.00	0.6000	0.0108
T4	1	LDF5-50A (7/8 FOAM)	61.00 - 71.00	0.6000	0.0199
T4	2	Cat5e	61.00 - 71.00	0.6000	0.0199
T4	3	Cat5e	61.00 - 71.00	0.6000	0.0199
T4	4	Cat5e	61.00 - 71.00	0.6000	0.0199
T4	5	Cat5e	61.00 - 71.00	0.6000	0.0199
T4	6	LDF4P-50A (1/2 FOAM)	61.00 - 71.00	0.6000	0.0199
T4	7	LDF4P-50A (1/2 FOAM)	61.00 - 71.00	0.6000	0.0199
T5	1	LDF5-50A (7/8 FOAM)	51.00 - 61.00	0.6000	0.0000
T5	2	Cat5e	51.00 - 61.00	0.6000	0.0000
T5	3	Cat5e	51.00 - 61.00	0.6000	0.0000
T5	4	Cat5e	51.00 - 61.00	0.6000	0.0000
T5	5	Cat5e	51.00 - 61.00	0.6000	0.0000
T5	6	LDF4P-50A (1/2 FOAM)	51.00 - 61.00	0.6000	0.0000
T5	7	LDF4P-50A (1/2 FOAM)	51.00 - 61.00	0.6000	0.0000
T5	8	Mods	51.00 - 61.00	0.6000	0.0000
T5	9	Mods	51.00 - 61.00	0.6000	0.0000
T5	10	Mods	51.00 - 61.00	0.6000	0.0000
T6	1	LDF5-50A (7/8 FOAM)	41.00 - 51.00	0.6000	0.0426
T6	2	Cat5e	41.00 - 51.00	0.6000	0.0426
T6	3	Cat5e	41.00 - 51.00	0.6000	0.0426
T6	4	Cat5e	41.00 - 51.00	0.6000	0.0426
T6	5	Cat5e	41.00 - 51.00	0.6000	0.0426

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	6	LDF4P-50A (1/2 FOAM)	41.00 - 51.00	0.6000	0.0426
T6	7	LDF4P-50A (1/2 FOAM)	41.00 - 51.00	0.6000	0.0426
T6	8	Mods	41.00 - 51.00	0.6000	0.0426
T6	9	Mods	41.00 - 51.00	0.6000	0.0426
T6	10	Mods	41.00 - 51.00	0.6000	0.0426
T7	1	LDF5-50A (7/8 FOAM)	31.00 - 41.00	0.6000	0.0578
T7	2	Cat5e	31.00 - 41.00	0.6000	0.0578
T7	3	Cat5e	31.00 - 41.00	0.6000	0.0578
T7	4	Cat5e	31.00 - 41.00	0.6000	0.0578
T7	5	Cat5e	31.00 - 41.00	0.6000	0.0578
T7	6	LDF4P-50A (1/2 FOAM)	31.00 - 41.00	0.6000	0.0578
T7	7	LDF4P-50A (1/2 FOAM)	31.00 - 41.00	0.6000	0.0578
T7	8	Mods	31.00 - 41.00	0.6000	0.0578
T7	9	Mods	31.00 - 41.00	0.6000	0.0578
T7	10	Mods	31.00 - 41.00	0.6000	0.0578
T7	11	Hybrid Cable 6x12	31.00 - 37.00	0.6000	0.0578
T8	1	LDF5-50A (7/8 FOAM)	21.00 - 31.00	0.6000	0.0411
T8	2	Cat5e	21.00 - 31.00	0.6000	0.0411
T8	3	Cat5e	21.00 - 31.00	0.6000	0.0411
T8	4	Cat5e	21.00 - 31.00	0.6000	0.0411
T8	5	Cat5e	21.00 - 31.00	0.6000	0.0411
T8	6	LDF4P-50A (1/2 FOAM)	21.00 - 31.00	0.6000	0.0411
T8	7	LDF4P-50A (1/2 FOAM)	21.00 - 31.00	0.6000	0.0411
T8	8	Mods	21.00 - 31.00	0.6000	0.0411
T8	9	Mods	21.00 - 31.00	0.6000	0.0411
T8	10	Mods	21.00 - 31.00	0.6000	0.0411
T8	11	Hybrid Cable 6x12	21.00 - 31.00	0.6000	0.0411
T9	1	LDF5-50A (7/8 FOAM)	11.00 - 21.00	0.6000	0.1063
T9	2	Cat5e	11.00 - 21.00	0.6000	0.1063
T9	3	Cat5e	11.00 - 21.00	0.6000	0.1063
T9	4	Cat5e	11.00 - 21.00	0.6000	0.1063
T9	5	Cat5e	11.00 - 21.00	0.6000	0.1063
T9	6	LDF4P-50A (1/2 FOAM)	11.00 - 21.00	0.6000	0.1063
T9	7	LDF4P-50A (1/2 FOAM)	11.00 - 21.00	0.6000	0.1063
T9	8	Mods	11.00 - 21.00	0.6000	0.1063
T9	9	Mods	11.00 - 21.00	0.6000	0.1063
T9	10	Mods	11.00 - 21.00	0.6000	0.1063
T9	11	Hybrid Cable 6x12	11.00 - 21.00	0.6000	0.1063

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Offsets: ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DB586-Y	A	From Leg	0.00			8.5000	95.50	No Ice	0.74	0.74	0.01
			0.00					1/2" Ice	1.23	1.23	0.01
			0.00					1" Ice	1.53	1.53	0.02
6' Extension Pipe	A	None				0.0000	93.50	No Ice	1.64	1.64	0.04
								1/2" Ice	2.29	2.29	0.06
								1" Ice	2.67	2.67	0.07
PTP 49400	B	From Leg	0.00			0.0000	92.00	No Ice	1.75	0.48	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00				1/2" Ice	1.92	0.58	0.02
			0.00				1" Ice	2.09	0.69	0.04
Environmental Pendant Camera	B	From Leg	1.00		0.0000	85.00	No Ice	0.75	0.75	0.01
			0.00				1/2" Ice	1.25	1.25	0.02
			0.00				1" Ice	1.75	1.75	0.03
5440AP	C	From Leg	0.50		0.0000	82.17	No Ice	2.05	2.65	0.01
			0.00				1/2" Ice	2.25	2.86	0.04
			0.00				1" Ice	2.46	3.09	0.06
PTP 49400	C	From Leg	0.50		0.0000	78.50	No Ice	1.75	0.48	0.01
			0.00				1/2" Ice	1.92	0.58	0.02
			0.00				1" Ice	2.09	0.69	0.04
ANT150D6-9	A	From Leg	1.00		0.0000	71.00	No Ice	3.84	3.84	0.00
			0.00				1/2" Ice	6.42	6.42	0.00
			8.13				1" Ice	9.00	9.00	0.00
BSA150C	B	From Leg	3.00		0.0000	33.00	No Ice	7.36	7.36	0.00
			0.00				1/2" Ice	10.76	10.76	0.15
			0.00				1" Ice	11.23	11.23	0.31
Standoff Mount	B	From Leg	1.00		0.0000	33.00	No Ice	1.82	1.82	0.04
			0.00				1/2" Ice	2.29	2.29	0.06
			0.00				1" Ice	2.67	2.67	0.07
BA1012	A	From Leg	3.00		0.0000	23.00	No Ice	0.41	0.41	0.00
			0.00				1/2" Ice	1.10	1.10	0.00
			0.00				1" Ice	1.79	1.79	0.01
Standoff Mount	A	From Leg	1.00		0.0000	21.00	No Ice	1.87	1.87	0.04
			0.00				1/2" Ice	2.29	2.29	0.06
			0.00				1" Ice	2.67	2.67	0.07
MX06FRO640-02 w/ Mtg Pipe	A	From Leg	0.75		0.0000	42.40	No Ice	13.86	8.91	0.09
			0.00				1/2" Ice	14.46	9.96	0.19
(VZW)			0.00				1" Ice	15.07	10.87	0.29
MX06FRO640-02 w/ Mtg Pipe	C	From Leg	0.75		0.0000	42.40	No Ice	13.86	8.91	0.09
			0.00				1/2" Ice	14.46	9.96	0.19
(VZW)			0.00				1" Ice	15.07	10.87	0.29
(2) CBC1923T-DS-43	C	From Leg	0.50		0.0000	38.00	No Ice	1.74	1.41	0.01
(VZW)			0.00				1/2" Ice	1.92	1.57	0.03
			0.00				1" Ice	2.10	1.74	0.05
(2) CBC1923T-DS-43	A	From Leg	0.50		0.0000	38.00	No Ice	1.74	1.41	0.01
(VZW)			0.00				1/2" Ice	1.92	1.57	0.03
			0.00				1" Ice	2.10	1.74	0.05
B2/B66A RRHBR049	A	From Leg	0.50		0.0000	37.50	No Ice	2.06	1.32	0.06
(VZW)			0.00				1/2" Ice	2.24	1.48	0.07
			0.00				1" Ice	2.43	1.64	0.09
B2/B66A RRHBR049	C	From Leg	0.50		0.0000	37.50	No Ice	2.06	1.32	0.06
(VZW)			0.00				1/2" Ice	2.24	1.48	0.07
			0.00				1" Ice	2.43	1.64	0.09
RCMDC-3315-PF-48	A	From Leg	0.50		0.0000	37.00	No Ice	3.79	2.51	0.03
(VZW)			0.00				1/2" Ice	4.04	2.72	0.06
			0.00				1" Ice	4.30	2.94	0.10
Licensed Sub 6 Antenna w/ RRU	A	From Leg	0.50		0.0000	47.92	No Ice	5.74	1.92	0.97
			0.00				1/2" Ice	6.05	2.14	1.00
(VZW)			0.00				1" Ice	6.36	2.37	1.04
Licensed Sub 6 Antenna w/ RRU	C	From Leg	0.50		0.0000	47.92	No Ice	5.74	1.92	0.97
			0.00				1/2" Ice	6.05	2.14	1.00
(VZW)			0.00				1" Ice	6.36	2.37	1.04

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	90.5 - 89	Pole	Pipe 2" Sch. 40 (2.375" x 0.154")	1	-0.07	33.85	65.6	Pass
T1	89 - 87	Leg	ROHN TS1.25x14 ga	4	-1.58	10.60	60.7	Pass
T2	87 - 81	Leg	ROHN TS1.25x14 ga	11	-3.09	12.32	25.1 30.9 (b)	Pass
T3	81 - 71	Leg	ROHN TS1.25x14 ga	42	-3.86	12.23	31.5 38.6 (b)	Pass
T4	71 - 61	Leg	ROHN TS1.25x14 ga	90	-4.42	13.64	32.4 43.4 (b)	Pass
T5	61 - 51	Leg	ROHN TS1.25x14 ga	138	-6.55	12.23	53.5 65.0 (b)	Pass
T6	51 - 41	Leg	ROHN TS1.25x14 ga	185	-9.02	12.23	73.7 89.7 (b)	Pass
T7	41 - 31	Leg	ROHN TS1.25x14 ga	235	-9.38	12.23	76.7 98.9 (b)	Pass
T8	31 - 21	Leg	ROHN TS1.25x14 ga	282	-10.22	12.23	83.5 99.4 (b)	Pass
T9	21 - 11	Leg	ROHN TS1.25x14 ga	330	-10.02	12.23	81.9	Pass
T2	87 - 81	Diagonal	7/16	22	-0.68	1.83	37.0	Pass
T3	81 - 71	Diagonal	7/16	88	-0.64	1.78	35.8	Pass
T4	71 - 61	Diagonal	7/16	99	-0.80	1.78	45.3	Pass
T5	61 - 51	Diagonal	7/16	148	-2.03	3.79	53.6	Pass
T6	51 - 41	Diagonal	7/16	232	-2.00	3.79	52.7	Pass
T7	41 - 31	Diagonal	7/16	243	-3.37	3.79	89.1	Pass
T8	31 - 21	Diagonal	7/16	327	-3.32	3.79	87.6	Pass
T9	21 - 11	Diagonal	7/16	376	-2.84	3.79	74.9	Pass
T2	87 - 81	Horizontal	7/16	23	-0.30	2.90	10.5	Pass
T3	81 - 71	Horizontal	7/16	85	0.38	4.87	7.9	Pass
T4	71 - 61	Horizontal	7/16	102	0.48	4.87	9.9	Pass
T5	61 - 51	Horizontal	7/16	149	-0.94	1.69	55.8	Pass
T6	51 - 41	Horizontal	7/16	227	-0.85	1.69	50.2	Pass
T7	41 - 31	Horizontal	7/16	246	-1.30	1.69	76.7	Pass
T8	31 - 21	Horizontal	7/16	295	-1.31	1.69	77.6	Pass
T9	21 - 11	Horizontal	7/16	373	-1.23	1.69	72.7	Pass
T1	89 - 87	Top Girt	7/16	5	-0.00	4.32	19.9	Pass
T2	87 - 81	Top Girt	7/16	14	0.16	4.87	3.4	Pass
T3	81 - 71	Top Girt	7/16	46	0.23	4.87	4.6	Pass
T4	71 - 61	Top Girt	7/16	94	0.18	4.87	3.8	Pass
T5	61 - 51	Top Girt	7/16	141	-0.21	1.69	12.5	Pass
T6	51 - 41	Top Girt	7/16	188	-0.60	1.69	35.7	Pass
T7	41 - 31	Top Girt	7/16	238	-0.33	1.69	19.3	Pass
T8	31 - 21	Top Girt	7/16	285	-1.10	1.69	65.3	Pass
T9	21 - 11	Top Girt	7/16	334	-0.69	1.69	40.8	Pass
T1	89 - 87	Bottom Girt	7/16	8	-0.19	2.93	25.1	Pass
T2	87 - 81	Bottom Girt	7/16	19	0.26	4.87	5.3	Pass
T3	81 - 71	Bottom Girt	7/16	48	0.18	4.87	3.8	Pass
T4	71 - 61	Bottom Girt	7/16	96	-0.20	2.90	6.7	Pass
T5	61 - 51	Bottom Girt	7/16	145	-0.58	1.69	34.5	Pass
T6	51 - 41	Bottom Girt	7/16	192	-0.24	1.69	14.3	Pass
T7	41 - 31	Bottom Girt	7/16	239	-1.08	1.69	63.7	Pass
T8	31 - 21	Bottom Girt	7/16	289	-0.78	1.69	45.9	Pass
T9	21 - 11	Bottom Girt	7/16	336	-0.44	1.69	26.3	Pass
T2	87 - 81	Guy A@84 (18 deg)	5/16	382	3.13	6.72	46.5	Pass
T5	61 - 51	Guy A@55.3229 (18 deg)	5/16	388	3.73	6.72	55.5	Pass
T8	31 - 21	Guy A@29.3854 (18 deg)	5/16	394	3.33	6.72	49.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
T2	87 - 81	Guy B@84 (18 deg)	5/16	381	3.19	6.72	47.4	Pass
T5	61 - 51	Guy B@55.3229 (18 deg)	5/16	387	3.77	6.72	56.1	Pass
T8	31 - 21	Guy B@29.3854 (18 deg)	5/16	393	3.26	6.72	48.5	Pass
T2	87 - 81	Guy C@84 (-18 deg)	5/16	377	3.59	6.72	53.5	Pass
T5	61 - 51	Guy C@55.3229 (-18 deg)	5/16	383	4.28	6.72	63.6	Pass
T8	31 - 21	Guy C@29.3854 (-18 deg)	5/16	389	3.62	6.72	53.9	Pass
T2	87 - 81	Top Guy Pull-Off@84	2X3/8	380	1.10	17.14	6.4 8.8 (b)	Pass
T5	61 - 51	Top Guy Pull-Off@55.3229	2X3/8	386	1.97	17.14	11.5 15.9 (b)	Pass
T8	31 - 21	Top Guy Pull-Off@29.3854	2X3/8	392	2.59	17.14	15.1 20.9 (b)	Pass
							Summary	
							Pole (L1) 65.6	Pass
							Leg (T8) 99.4	Pass
							Diagonal (T7) 89.1	Pass
							Horizontal (T8) 77.6	Pass
							Top Girt (T8) 65.3	Pass
							Bottom Girt (T7) 63.7	Pass
							Guy A (T5) 55.5	Pass
							Guy B (T5) 56.1	Pass
							Guy C (T5) 63.6	Pass
							Top Guy Pull-Off (T8) 20.9	Pass
							Bolt Checks 99.4	Pass
							RATING = 99.4	**Pass**

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Appendix #3: Guy Anchor Check

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GUY ANCHOR REACTIONS

TABLE 4 – GUY ANCHOR REACTIONS

Max. Corner Reactions @ Base	**Previous SA[1]**	**Present**	**Result**
	Kips	**Kips**	
Horizontal	10.8	8	Adequate [2]
Vertical	10.8	8	
Resultant	14.85	11	

Note:

1. The design reactions have been converted according to design code recommendations.
2. Since the tower reactions from this analysis are less than the previous analysis, it can be determined that the existing anchor foundation is adequate for the proposed and existing installations.

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Appendix #4: Guy Anchor Post Connection Check

Weld Strength - Guy Anchor Plate

Loading

Vertical, $Vs := 8 \cdot kip$
Horizontal, $Hs := 8 \cdot kip$
Resultant, $Rs := 11 \cdot kip$

$Method := \text{“LRFD”}$

Weld Property:

Weld thickness: $t := \frac{1}{4}\ in$

Weld length: $l := 10 \cdot in$

Weld Strength Properties: $E_{xx} := 70 \cdot ksi$

Design Weld Strength, $F_w := 0.75 \cdot (0.6 \cdot E_{xx}) \cdot \left(\frac{1}{\sqrt{2}} \cdot l \cdot t \cdot 2 \right) = 111.369\ kip$

Weld Strength: $\frac{Rs}{F_w} = 0.099$ Adequate

Created with PTC Mathcad Express. See www.mathcad.com for more information.

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Client: ____Verizon_____ **Prepared by:** Akshay Doddamani_____
Project: ___NIANTIC_CT **Date:** _____01/26/2021
Calc. ID: _____ **Checked by:** _Jaizhu Hu_____
Calc. Title: _Post Weldment Check___ **Date:** _____01/26/2021

Loading

$Method := \text{“LRFD”}$

$P_x := 8\ kip$ $P_y := 0\ kip$ Major/minor (x/y) axis shear load

$P_z := 8\ kip$ Axial (z) axis load (+/tension -/ compression)

$M_x := 10.5\ kip \cdot ft$ $M_y := 0\ kip \cdot ft$ Moment about x/y axis

$T_z := 0\ kip \cdot in$ Torque about z axis

Section Geometry Properties

$d := 5.563\ in$ Diameter of circular weld

$r := \frac{d}{2} = 2.782\ in$ Radius of circular weld

Weld Strength Properties

$E_{xx} := 70\ ksi$

$F_w := 0.75 \cdot (0.6 \cdot E_{xx}) \cdot \left(\frac{1}{\sqrt{2}}\right) = 1.392\ \frac{kip}{in \cdot \frac{in}{16}}$ Weld strength (kip/(1/16"))

$ASIF := 1.0$ Allowable stress increase factor

$ASIF_{use} := \text{“N”}$

$SR_{allow} := 0.95$ Allowable stress ratio

$c_x := r = 2.782\ in$ $c_y := r = 2.782\ in$ Distance from y/x-axis to Edge of Weld.

$L_x := \pi \cdot r = 8.738\ in$ $L_y := \pi \cdot r = 8.738\ in$ Total length of weld in x/y-direction.

$L_w := L_x + L_y = 17.477\ in$ Total length of weld

$S_x := \pi \cdot r^2 = 24.306\ in^2$ $S_y := \pi \cdot r^2 = 24.306\ in^2$ Section modulus of weld about x/y-axis

$I_z := 2\ \pi \cdot r^3 = 135.213\ in^3$ Polar Moment of Intertia (PMI) about z-axis

Created with PTC Mathcad Express. See www.mathcad.com for more information.

Calculated stresses

$f_x := f_{vx} + f_{tx} = 0.916 \ \frac{kip}{in}$ $f_y := f_{vy} + f_{ty} = 0 \ \frac{kip}{in}$ Total (shear) stress along x/ y-axis of weld

$f_z := f_a + f_{bx} + f_{by} = 5.642 \ \frac{kip}{in}$ Total (normal) stress along z-axis of weld.

$f_r := \sqrt{f_x^{\,2} + f_y^{\,2} + f_z^{\,2}} = 5.716 \ \frac{kip}{in}$ Resultant stress in weld.

$F_{weld} := F_w = 1.392 \ \frac{kip}{in \cdot \frac{in}{16}}$ (Since, $ASIF_{use} =$ "N")

$t_{min} := \frac{3}{8} \ in$ - Minimum Weld Size Required

$SR := \frac{f_r}{F_{weld} \cdot t_{min}} = 0.684$

Created with PTC Mathcad Express. See www.mathcad.com for more information.

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

Location Code *469058*
Site Name: *Niantic_CT*
Calc. Name: *Guy Ach Pt_Bt Conntc.*

Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	4	
Diam:	0.75	in
Rod Material:	Other	
Yield, Fy:	92	ksi
Strength, Fu:	120	ksi
Bolt Circle:	10	in

Plate Data		
W=Side:	12	in
Thick:	1	in
Grade:	36	ksi
Clip Distance:	0	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:	Fillet	**
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi
Clear Space between Stiffeners at B.C.		in

Pole Data		
Diam:	5.563	in
Thick:	0.349	in
Grade:	53	ksi
# of Sides:	0	"0" IF Round

Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	10.5	ft-kips
Factored Axial, Pu:	8	kips
Factored Shear, Vu:	8	kips

Anchor Rod Results

TIA G --> Max Rod (Cu+ Vu/η):	18.6	Kips
Axial Design Strength, Φ*Fu*Anet:	32.1	Kips
Anchor Rod Stress Ratio:	58.0%	**Pass**

Base Plate Results Flexural Check

Base Plate Stress:	15.6	ksi
PL Design Bending Strength, Φ*Fy:	32.4	ksi
Base Plate Stress Ratio:	48.1%	**Pass**

PL Ref. Data
Yield Line (in): 8.31
Max PL Length: 11.41

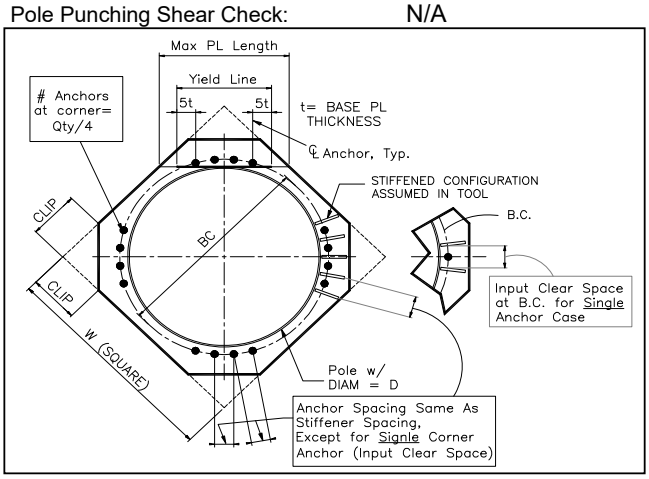
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

Location Code *469058*
Site Name: *Niantic_CT*
Calc. Name: *Guy Ach Pt_Top Conntc.*

Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	4	
Diam:	0.75	in
Rod Material:	Other	
Yield, Fy:	92	ksi
Strength, Fu:	120	ksi
Bolt Circle:	10	in

Plate Data		
W=Side:	13	in
Thick:	0.75	in
Grade:	36	ksi
Clip Distance:	0	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:	Fillet	**
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi
Clear Space between Stiffeners at B.C.		in

Pole Data		
Diam:	5.563	in
Thick:	0.349	in
Grade:	53	ksi
# of Sides:	0	"0" IF Round

Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	0	ft-kips
Factored Axial, Pu:	8	kips
Factored Shear, Vu:	8	kips

Anchor Rod Results

TIA G --> Max Rod (Cu+ Vu/η):	6.0	Kips
Axial Design Strength, Φ*Fu*Anet:	32.1	Kips
Anchor Rod Stress Ratio:	18.7%	**Pass**

Base Plate Results Flexural Check

Base Plate Stress:	3.8	ksi
PL Design Bending Strength, Φ*Fy:	32.4	ksi
Base Plate Stress Ratio:	11.7%	**Pass**

PL Ref. Data	
Yield Line (in):	8.31
Max PL Length:	12.82

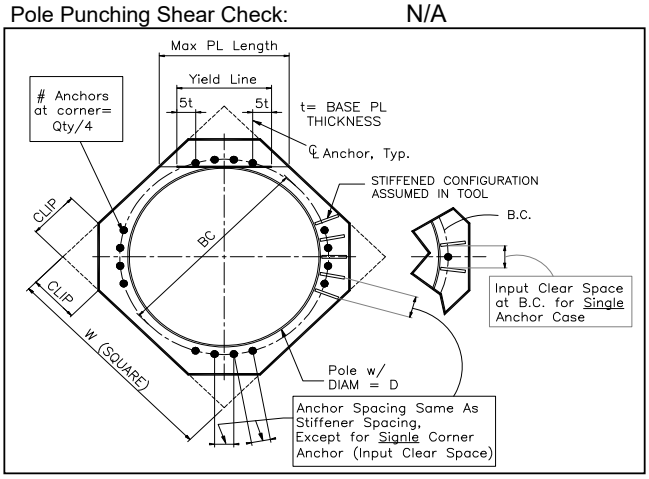
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

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Accelerating Network and Business Transformation

STRUCTURAL ASSESSMENT LETTER

January 26, 2021

VERIZON WIRELESS
118 FLANDERS ROAD, 3RD FLOOR
WESTBOROUGH, MA 01581

Location Code:	469058
RFDS Project ID:	1371367
Site Name:	NIANTIC_CT
Site Address:	6&8 GRAND ST, NIANTIC, CT 06357
Structural Type:	**15.5 ft ONE-STORY BUILDING SUPPORTING 89 FT GUYED TOWER**

To Whom It May Concern:

Nexius is pleased to submit this "Letter" to determine the structural integrity of the above-mentioned structure for supporting the proposed and existing loading changes. The existing and proposed loading is detailed in the following loading **Table 1 & 2** (next page).

The tower structural analysis completed by Nexius, date January 26, 2021, states that **the existing tower structure is sufficient for the proposed installation.** Changes in the tower support reactions onto the building are minimal compared to existing installations and the structure's overall capacity. Assuming the structure is sufficient for the existing installation and has been maintained as required according to original design, **the above-mentioned existing building structure is determined to be sufficient for the proposed installation** according to 2018 Connecticut State Building Code (IBC 2015 w/ State Amendments) and ANSI/TIA-222-G w/ Addendums, Structural Standard for Antenna Supporting Structures and Antennas.

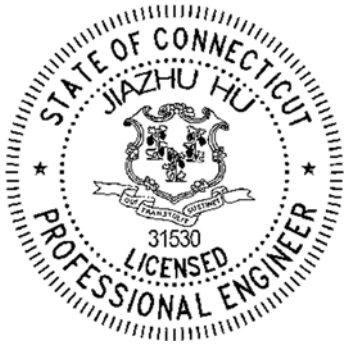
All structural components and connections should be checked for tightness and good condition prior to installing the proposed loading. All proposed equipment must be installed and supported in accordance with manufacturer's recommendations and specifications. Should you have any questions, comments or require additional information, please do not hesitate to contact us.
Sincerely Yours,

Analysis prepared by:

Akshay Doddamani, E.I.T

Approved by:

Jiazhu Hu, P.E.
Engineering Manager
License #: 31530



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Accelerating Network and Business Transformation

TABLE 1 – PROPOSED ANTENNA AND CABLE INFORMATION

Mount Elev. ft	Ant. Ctr. Elev. ft	Qty	Antenna Manufacturer	Antenna Model	No. of Feed Lines	Feed Line Size in	Note
47.92	47.92	**2**	**Samsung**	**Licensed Sub 6 Antenna w/ RRU***	1	**6x12 Hybrid Cable**	**-**
		1	**Raycap**	**RCMDC-3315-PF-48**			

* Not to exceed 35.12"x16.06"x5.5" for dimensions and 87 lbs for weight.

TABLE 2 – EXISTING AND RESERVED ANTENNA AND CABLE INFORMATION

Mount Elev. ft	Ant. Ctr. Elev. ft	Qty	Antenna Manufacturer	Antenna Model	No. of Feed Lines	Feed Line Size in	Note
93.0	96.0	1	-	6ft x 3in Pipe mount	-	-	1
95.50	95.50	1	CommScope	DB586-Y	1	7/8	1
92.0	92.0	1	Motorola	PTP 49400	1	CAT5e	1
85.0	85.0	1	-	Camera	1	CAT5e	1
82.17	82.17	1	Motorola	5440AP	1	CAT5e	1
78.5	78.5	1	Motorola	PTP 49400	1	CAT5e	1
71.0	71.0	1	Telewave	ANT150D6	1	1/2	1
42.4	42.4	2	JMA	MX06FRO640-02	-	-	1
		2	Samsung	B2/B66A RRH-BR049			
		4	CommScope	CBC1923T-DS-43			
		1	-	*Fiber Management Box*	1	Power	2
		1	-	*Disconnect Switch*	1	Fiber	
33.0	33.0	1	Pulse Larsen	BSA150C	-	-	1
23.0	23.0	1	RFS	BA1012-1	1	1/2	1

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EQUIPMENT CONFIRMATION LETTER

March 18, 2021

VERIZON WIRELESS
20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

Location Code:	469058
Site Name:	NIANTIC_CT
Site Address:	6&8 GRAND STREET NIANTIC, CT 06357
Structural Type:	89 ft GUYED TOWER SITTING ON BUILDING ROOFTOP TOWER LEG MOUNT

To Whom It May Concern:

Nexius has reviewed following engineering documents for the LS6 project for above mentioned cell site:

- *Structural Analysis Report, Site Name: Niantic_CT, Location Code: 469058, Prepared for Verizon Wireless, by Nexius Solutions, Inc., dated 01/26/2021 (Rev. 3).*
- *Structural Assessment Letter, Site Name: Niantic_CT, Location Code: 469058, Prepared for Verizon Wireless, by Nexius Solutions, Inc., dated 01/26/2021 (Rev. 0).*
- *Construction Drawings, Site Name: Niantic_CT, Location Code: 469058, Prepared for Verizon Wireless, by Nexius Solutions, Inc., dated 12/28/2020 (Rev. 2).*

Upon review, we confirmed that the "Licensed Sub6 antenna w/ RRU" in the listed documents has dimensions and weight confirming to the values given in provided specifications for "C-band 64T64R MMU".

The review is solely based on the provided documents and information. Please do not hesitate to let us know if any questions or need any additional information.

Sincerely Yours,

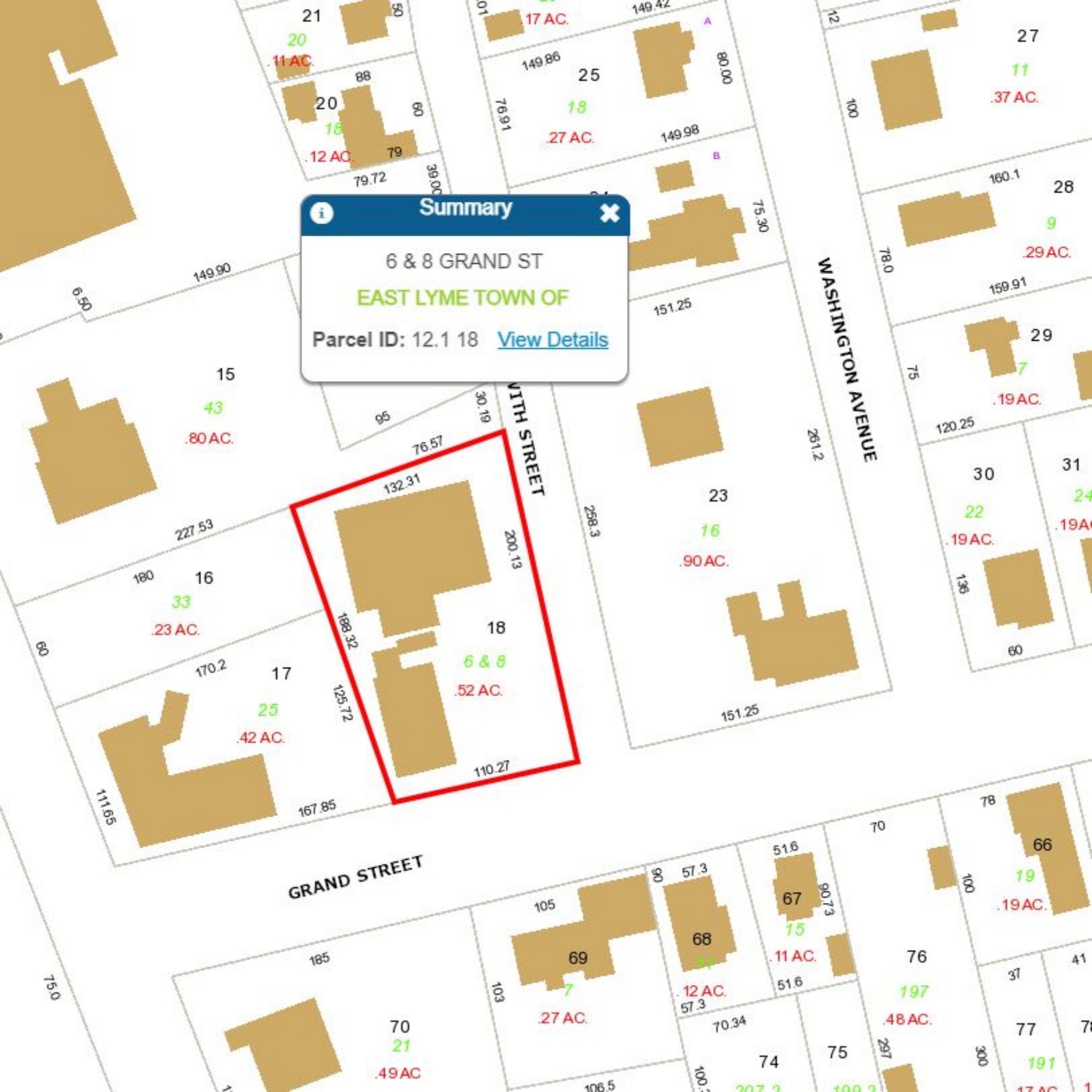
Analysis prepared by:

Akshay Doddamani

Reviewed by:

Jiazhu Hu, P.E.
Engineering Manager
License #: 31530

ATTACHMENT 5


Summary
6 & 8 GRAND ST
EAST LYME TOWN OF
Parcel ID: 12.1 18 View Details
GRAND STREET
WASHINGTON AVENUE
18
6 & 8
.52 AC.
17
25
.42 AC.
16
33
.23 AC.
15
43
.80 AC.
23
16
.90 AC.
30
22
.19 AC.
29
7
.19 AC.
28
9
.29 AC.
27
11
.37 AC.
25
18
.27 AC.
20
18
.12 AC.
21
20
.11 AC.
69
7
.27 AC.
68
.12 AC.
67
15
.11 AC.
66
19
.19 AC.
76
197
.48 AC.
70
21
.49 AC
74
75
77
191

EAST LYME,CT

6 & 8 GRAND ST

Location
6 & 8 GRAND ST
Mblu
12.1/ 18/ / /
Acct#
007607
Owner
EAST LYME TOWN OF
Assessment
$456,610
Appraisal
$652,300
PID
3079
Building Count
2

Current Value

Appraisal

Valuation Year	Improvements	Land	Total
2016	$528,200	$124,100	$652,300

Assessment

Valuation Year	Improvements	Land	Total

2016	$369,740	$86,870	$456,610

Owner of Record

Owner EAST LYME TOWN OF
Co-Owner NIANTIC FIRE/GARAGE
Address PO BOX 519
NIANTIC, CT 06357-0519
Sale Price $0
Certificate
Book & Page 0072/0596
Sale Date 11/28/1956
Instrument 15

Ownership History

Ownership History

Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
EAST LYME TOWN OF	$0		0056/0347	15	02/02/1950
EAST LYME TOWN OF	$0		0022/0530	15	05/23/1925

Building Information
Building 1 : Section 1

Year Built: 1923
Living Area: 1,482
Replacement Cost: $249,047
Building Percent Good: 57
Replacement Cost Less Depreciation: $142,000

Building Attributes

Field	Description
STYLE	Commercial
MODEL	Commercial
Grade	Average

Stories:	2
Occupancy	3.00
Exterior Wall 1	Stucco/Masonry
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Hardwood
Interior Floor 2	Carpet
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	None
Struct Class	
Bldg Use	MUN FIRE
Total Rooms	
Total Bedrms	04
Total Baths	2
Usrfld 218	
Usrfld 219	
1st Floor Use:	
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	12.00

% Comn Wall	

Building Photo

Building Layout

Building Sub-Areas (sq ft) Legend

Code	Description	Gross Area	Living Area
FUS	Upper Story, Finished	1,560	1,482
FGR	Garage	1,560	0
FST	Utility, Finished	210	0
UBM	Basement, Unfinished	1,560	0
		4,890	1,482

Building 2 : Section 1

Year Built: 1957

Living Area:	5,183
Replacement Cost:	$647,201
Building Percent Good:	57
Replacement Cost Less Depreciation:	$368,900

Building Attributes : Bldg 2 of 2

Field	Description
STYLE	Fire Station
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall/Sheet
Interior Floor 1	Concr-Finished
Interior Floor 2	Vinyl/Asphalt
Heating Fuel	Oil
Heating Type	Hot Water
AC Type	None
Struct Class	
Bldg Use	MUN FIRE
Total Rooms	
Total Bedrms	00
Total Baths	0
Usrfld 218	

Usrfld 219	
1st Floor Use:	9032
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	16.00
% Comn Wall	0.00

Building Photo

Building Layout

Building Sub-Areas (sq ft) Legend

Code	Description	Gross Area	Living Area
BAS	First Floor	4,800	4,800
FGR	Garage	510	383
		5,310	5,183

Extra Features

Extra Features Legend

No Data for Extra Features

Land

Land Use

Use Code	9032
Description	MUN FIRE
Zone	CB
Neighborhood	0050
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.51
Frontage	0
Depth	0
Assessed Value	$86,870
Appraised Value	$124,100

Outbuildings

Outbuildings Legend

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			8000.00 S.F.	$12,000	1
SHD1	SHED FRAME			162.00 S.F.	$600	2
PAV2	PAVING-CONC			2100.00 S.F.	$4,700	1

Valuation History

Appraisal

Valuation Year	Improvements	Land	Total
2020	$528,200	$124,100	$652,300
2019	$528,200	$124,100	$652,300
2018	$528,200	$124,100	$652,300

Assessment

Valuation Year	Improvements	Land	Total
2020	$369,740	$86,870	$456,610
2019	$369,740	$86,870	$456,610
2018	$369,740	$86,870	$456,610

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closecloseclose

ATTACHMENT 6

NIANTIC

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			neopost 05/17/2021 US POSTAGE $002.89⁰ ZIP 06103 041L12203937
	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.	Mark C. Nickerson, First Selectman Town of East Lyme 108 Pennsylvania Avenue Niantic, CT 06357		OLD STATE HOUSE STATION 06103 MAY 17 2021 USPS		
2.	Gary Goeschel, II, Director of Planning Town of East Lyme 108 Pennsylvania Avenue Niantic, CT 06357				
3.					
4.					
5.					
6.					