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August 27, 2020

Via Electronic Mail

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

Re: **Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower at 1325 Cheshire Street, Cheshire, Connecticut**

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby requests an order from the Siting Council ("Council") to approve the shared use of an existing telecommunications tower on a 59-acre parcel at 1325 Cheshire Street in Cheshire, Connecticut (the "Property"). The Property is owned by the Town of Cheshire. The tower is owned by InSite Towers Development, LLC ("InSite"). Cellco identifies this site as its "Cheshire NE 2 Facility".

The existing 170-foot monopole tower was approved by the Siting Council on January 8, 2015 in Docket No. 451. A copy of the Council's Decision and Order in Docket No. 451 is included in Attachment 1.[1] The Town of Cheshire maintains antennas at the top of the tower.

Cellco requests that the Council find that the proposed shared use of the InSite tower satisfies the criteria of C.G.S § 16-50aa and issue an order approving this request. A copy of this filing is being sent to Cheshire Town Manager, Sean Kimball; William Voelker, Cheshire's Town Planner; and InSite.

[1] The Docket No. 451 Certificate was transferred from Homeland Towers to InSite on September 29, 2016.

Background

Cellco is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Cellco and InSite have agreed to the proposed shared use of the Cheshire Street tower pursuant to mutually acceptable terms and conditions. Likewise, InSite and Cellco have agreed to the proposed installation of equipment on the ground within an existing fenced compound. InSite has authorized Cellco to apply for all necessary permits and approvals that may be required to share the existing tower. (*See* Owner's authorization letter included in Attachment 2).

Cellco proposes to install six (6) antennas and nine (9) remote radio heads ("RRHs") on the tower at a height of 145 feet above ground level ("AGL"). Cellco will also install one (1) equipment cabinet and a 30-kW diesel-fueled backup generator in the northeast corner of the facility compound. Included in Attachment 3 are Cellco's project plans showing the location and details related to Cellco's proposed site improvements. Attachment 4 contains specifications for Cellco's proposed generator, antennas and RRHs.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." Cellco respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing InSite tower is structurally capable of supporting Cellco's antennas, RRHs, antenna mounting system and related equipment. The proposed shared use of this tower is, therefore, technically feasible. A Structural Analysis Report dated July 17, 2020 prepared for this project confirms that the tower can support Cellco's proposed tower loading. A copy of the Structural Analysis Report is included in Attachment 5. A Mount Analysis Report, dated July 10, 2020, was also prepared and confirms that the antenna mounts will have sufficient capacity to support Cellco's proposed equipment. A copy of the Mount Analysis Report is included in Attachment 6.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the shared use of an existing tower such as the InSite tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the

Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the InSite tower would have minimal environmental effects, for the following reasons:

1. The proposed installation of six (6) antennas and nine (9) RRHs at a height of 145 feet AGL on the existing 170-foot tower would have an insignificant incremental visual impact on the area around the existing tower. Cellco's equipment will be located within the existing fenced compound area. The shared use of this tower facility was contemplated at the time of the Council's review of the Docket No. 451application and would not cause any significant change or alteration in the physical or environmental characteristics of the existing site.

2. Noise associated with Cellco's proposed facility will comply with State and local noise standards. Noise associated with the backup generator is exempt from these same standards.

3. Operation of Cellco's antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 7 of this filing is a worst-case cumulative General Power Density table that demonstrates that the facility will operate well within the FCC's safety standards.

4. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the facility other than periodic maintenance visits to the cell site.

The proposed shared use of the InSite tower would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, Cellco has entered into an agreement with InSite for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. Public Safety Concerns. The tower is structurally capable of supporting Cellco's antennas, antenna mounting frame, RRHs and all related equipment. Cellco is not aware of any public safety concerns relative to the proposed sharing of the existing InSite tower. In fact, the provision of new and improved wireless service through shared use of the existing tower is expected to enhance the safety and welfare of area residents and members of the general public traveling through the Town of Cheshire.

Conclusion

A Certificate of Mailing verifying that this filing was sent to the municipal officials, the Property owner and the tower owner is included in Attachment 8.

For the reasons discussed above, the proposed shared use of the existing InSite tower at the Property satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Very truly yours,

Kenneth C. Baldwin

Enclosures
Copy to:
Sean Kimball, Town Manager
William Voelker, Town Planner
InSite Towers Development, LLC

ATTACHMENT 1

DOCKET NO. 451 – Homeland Towers, LLC and New Cingular Wireless PCS, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at the Cheshire Wastewater Treatment Plant, Cheshire Tax Assessor Map 38, Lot 180, 1325 Cheshire Street, Cheshire, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		January 8, 2015

Decision and Order

Pursuant to Connecticut General Statutes §16-50p and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Homeland Towers, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at at the Cheshire Wastewater Treatment Plant, Cheshire Tax Assessor Map 38, Lot 180 located at 1325 Cheshire Street, Cheshire, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC and other entities, both public and private, but such tower shall not exceed a height of 170 feet above ground level. The height at the top of any antennas shall not exceed 190 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Cheshire for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) final site plan(s) for development of the facility to include specifications for the tower, tower foundation, antennas, equipment compound including, but not limited to, fence with less than two inch mesh, radio equipment, access road, utility line, emergency backup generator and landscaping that employ the governing standard in the State of Connecticut for tower design in accordance with the currently adopted International Building Code; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; and
    c) a protection plan for box and wood turtles.

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

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

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

6. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

7. Any request for extension of the time period referred to in Condition 6 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Cheshire. Any proposed modifications to this Decision and Order shall likewise be so served.

8. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council within 90 days from the one year period of cessation of service. The Certificate Holder may submit a written request to the Council for an extension of the 90 day period not later than 60 days prior to the expiration of the 90 day period.

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

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

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

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

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

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

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

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated October 2, 2014, and notice of issuance published in the Cheshire Herald.

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

ATTACHMENT 2

DATE: 8/20/20

VERIZON ID: Cheshire Northeast_2_CT

INSITE ID: CT005 Cheshire

SITE ADDRESS: 1325 Cheshire St., Cheshire, CT 06410

RE: APPLICATION BY CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS FOR ZONING AND BUILDING PERMIT IN THE TOWN OF CHESHIRE, COUNTY OF NEW HAVEN, CONNECTICUT

To Whom It May Concern:

On behalf of InSite Towers Development, LLC, owner of the tower at the above-referenced site, the undersigned hereby authorizes Verizon Wireless and its authorized agents to file for all necessary administrative approvals, zoning approvals and building permits (local, state and federal) for the purposes of upgrading, installing, operating and maintaining a telecommunications facility at the site/property referenced above on behalf of Verizon Wireless.

By: Robert L Johnson

Name: Robert Johnson

Title: COO

Date: 8/20/20

ATTACHMENT 3

SUPPORTING DOCUMENTS

RADIO FREQUENCY (RF) DESIGN DATE: 7/1/20

ANTENNA MOUNT STRUCTURAL ANALYSIS DATE: 7/10/20

ANTENNA SUPPORT STRUCTURE (170'± MONOPOLE) STRUCTURAL ANALYSIS DATE: 7/17/20 (BY OTHERS)

verizon

20 ALEXANDER DRIVE, WALLINGFORD, CT 06492

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

PROJECT TYPE: WIRELESS TELECOMMUNICATIONS COLLOCATION ON EXISTING 170'± MONOPOLE

SITE INFORMATION:

LAND OWNER:	TOWN OF CHESHIRE (C/O SEWER FILTRATION PLAN) 1325 CHESHIRE STREET CHESHIRE, CT 06410
TOWER OWNER:	INSITE TOWERS, LLC 1199 NORTH FAIRFAX STREET, SUITE 700 ALEXANDRIA, VA 22314
APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
SITE ADDRESS:	1325 CHESHIRE STREET CHESHIRE, CT 06410
COUNTY:	NEW HAVEN COUNTY, CT
SITE CONTROL POINT:	CENTER OF EXISTING MONOPOLE N 41°-31'-57.33" (41.532592°) (NAD '83) W 72°-52'-13.73" (72.870481°) (NAD '83)
ZONING CLASSIFICATION:	R-40 (RESIDENTIAL)
ZONING JURISDICTION:	TOWN OF CHESHIRE, CT
TAX ID PARCEL NUMBER:	MAP 38 LOT 180
ARCHITECT / ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
POWER COMPANY:	EVERSOURCE ENERGY 247 STATION DRIVE, SE 210 WESTWOOD, MA 02090 (781) 441-3610
TELEPHONE COMPANY:	VERIZON 185 FRANKLIN STREET BOSTON, MA 02107 (800) 941-9900

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
2. NEW CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL BEFORE YOU DIG AT 811

VICINITY MAP

SCALE: 1"=1000'

DRIVING DIRECTIONS

FROM WALLINGFORD, TURN RIGHT ONTO BARNES INDUSTRIAL ROAD SOUTH. TURN LEFT AT THE 1ST CROSS STREET ONTO CT-68 WEST. TURN RIGHT ONTO CT-70 EAST. TURN SLIGHT LEFT ONTO CHESHIRE STREET. THE SITE WILL BE ON THE LEFT SIDE.

SHEET INDEX

DO NOT SCALE DRAWINGS

ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS AT THE PROPOSED PROJECT SITE SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION PHASE. THE PROJECT OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING WITH THE PROPOSED WORK AFFECTED BY SUCH DISCREPANCIES. IN THE EVENT OF LACK OF SUCH NOTIFICATION, SUCH DISCREPANCIES SHALL BECOME THE RESPONSIBILITY OF THE PREVAILING CONTRACTOR RESPONSIBLE FOR CONSTRUCTION.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS INSTALLATION AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS TELECOMMUNICATIONS SERVICE.
2. THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

verizon

" Because Better Matters "

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
CLEMENT J. SAFFER
No. 25876
LICENSED
PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT
1325 CHESHIRE STREET
CHESHIRE, CT 06410

DRAWING TITLE:

TITLE SHEET

DRAWING NO:

T01

SCALE: AS SHOWN	DESIGNED BY: GRS DRAWN BY: NWC CHECKED BY: GRS	VZW LOCATION CODE: 470040
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – VERIZON WIRELESS
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – VERIZON WIRELESS
OEM – ORIGINAL EQUIPMENT MANUFACTURER

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

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

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

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

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

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

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

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

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

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

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC. 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACK FILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH VERIZON WIRELESS NETWORK STANDARD #NSTD123 TO THE MAXIMUM EXTENT FEASIBLE UNLESS PRECLUDED OR LIMITED BY DESIGN SHOWN ON THESE DRAWINGS.

16. 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.

17. 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.

18. 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 TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE VERIZON WIRELESS SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE, WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST EARTH.....3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 AND LARGER .....2 IN.
#5 AND SMALLER & WWF .....1½ IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
SLAB AND WALL .....¾ IN.
BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.

7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
(A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND VERIZON WIRELESS SPECIFICATION 25252-000-3PS-GET-00001 UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.

4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.

5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.

6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL

7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, VERIZON WIRELESS ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

2. SUBCONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANEL BOARD AND CIRCUIT ID'S).

8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #3 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

24. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS

27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON- CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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STATE OF CONNECTICUT
CLEMENT J. SAAB
No. 25876
LICENSED
PROFESSIONAL ENGINEER
ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE
NORTHEAST 2 CT
1325 CHESHIRE STREET
CHESHIRE, CT 06410

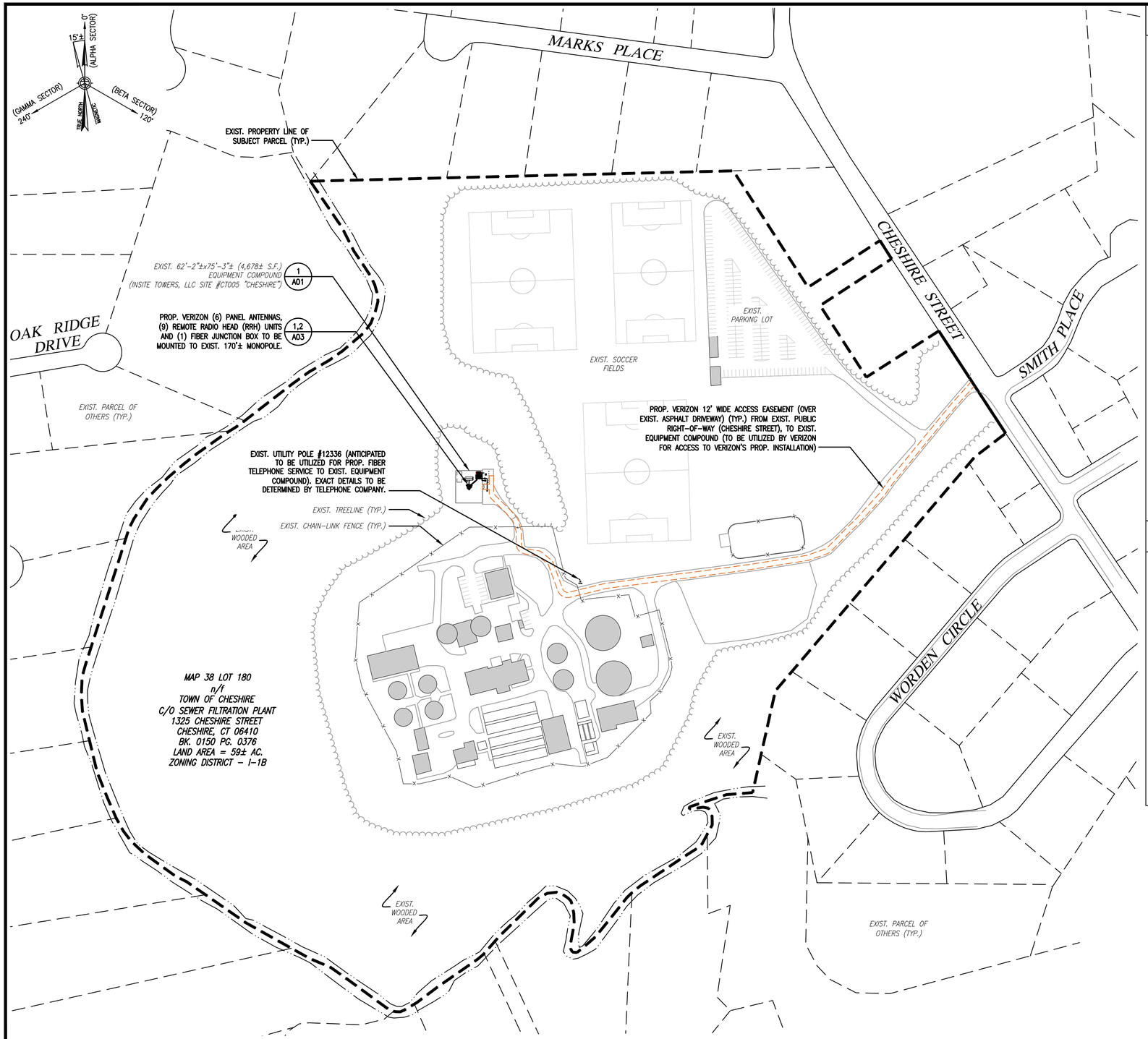
DRAWING TITLE:

GENERAL NOTES

DRAWING NO:

GN01

SCALE: N/A	DESIGNED BY: GRS DRAWN BY: NWC CHECKED BY: GRS	VZW LOCATION CODE: 470040
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	



PROPERTY PLAN
SCALE: 1" = 120'
1 C01
0 60' 120' 240' 360'

GENERAL NOTES:

1A. LIMITED DESIGN VISIT DATE: 6/12/20

1B. LIMITED FIELD SURVEY DATE: 6/16/20

2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)

3. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD '83)

4. SITE CONTROL POINT: CENTER OF EXISTING MONOPOLE
LATITUDE: N. 41°-31'-57.33" (41.532592°) (NAD '83)
LONGITUDE: W. 72°-52'-13.73" (72.870481°) (NAD '83)

5. LAND OWNER: TOWN OF CHESHIRE (C/O SEWER FILTRATION PLAN)
1325 CHESHIRE STREET
CHESHIRE, CT 06410

6. TOWER OWNER: INSITE TOWERS, LLC
1199 NORTH FAIRFAX STREET, SUITE 700
ALEXANDRIA, VA 22314

7. TOWER OWNER SITE ID: "CHESHIRE" SITE

8. SITE ADDRESS: 1325 CHESHIRE STREET
CHESHIRE, CT 06410

9. APPLICANT: CELLCO PARTNERSHIP
(dba VERIZON WIRELESS)
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

10. JURISDICTION: TOWN OF CHESHIRE, CT

11. TAX ID: MAP 38 LOT 180

12. DEED REFERENCE: BK. 0150 PG. 0376

13. PLAN REFERENCES: TOWN OF CHESHIRE ASSESSOR/GIS MAPS

14. ZONING DISTRICT: R-40 (RESIDENTIAL)

15. ALL UNDERGROUND UTILITY INFORMATION PRESENTED HEREON WAS DETERMINED FROM SURFACE EVIDENCE AND PLANS OF RECORD. ALL UNDERGROUND UTILITIES SHOULD BE LOCATED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. CALL DIGSAFE 1-888-344-7233 A MINIMUM OF 72 HOURS PRIOR TO PLANNED ACTIVITY.

16. THE PROPERTY LINES SHOWN WERE COMPILED UTILIZING TOWN OF CHESHIRE ASSESSOR'S PLANS, GIS, RECORDED DEEDS, PLANS OF REFERENCE AND A LIMITED GROUND SURVEYS OF THE PROPERTY PERFORMED BY CHAPPELL ENGINEERING ASSOCIATES ON 6/12/2020 & 6/16/2020.

17. THE SITE IS LOCATED IN FLOOD HAZARD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF CHESHIRE, (MAP NUMBER 09009C0161J) EFFECTIVE 05/16/2017.

18. BEARING SYSTEM OF THIS PLAN IS BASED ON TRUE NORTH. TRUE NORTH WAS ESTABLISHED FROM EXIST. PLAN REFERENCE. IT IS NOT INTENDED TO BE AN EXACT REPRESENTATION OF TRUE NORTH.

LEGEND

- PROPERTY LINE (OR STREET)
- ABUTTING PROPERTY LINE
- PROPERTY OFFSET/RADIUS
- EXIST. EASEMENT
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. EDGE OF PAVEMENT
- EXIST. OVERHEAD UTILITIES (OHW)
- EXIST. TREELINE
- PROP. TREELINE
- PROP. OVERHEAD UTILITIES (OHW)
- PROP. UTILITIES (T/E)
- EXIST. UTILITY POLE
- EXIST. STONE WALL
- ZONING BOUNDARY

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REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

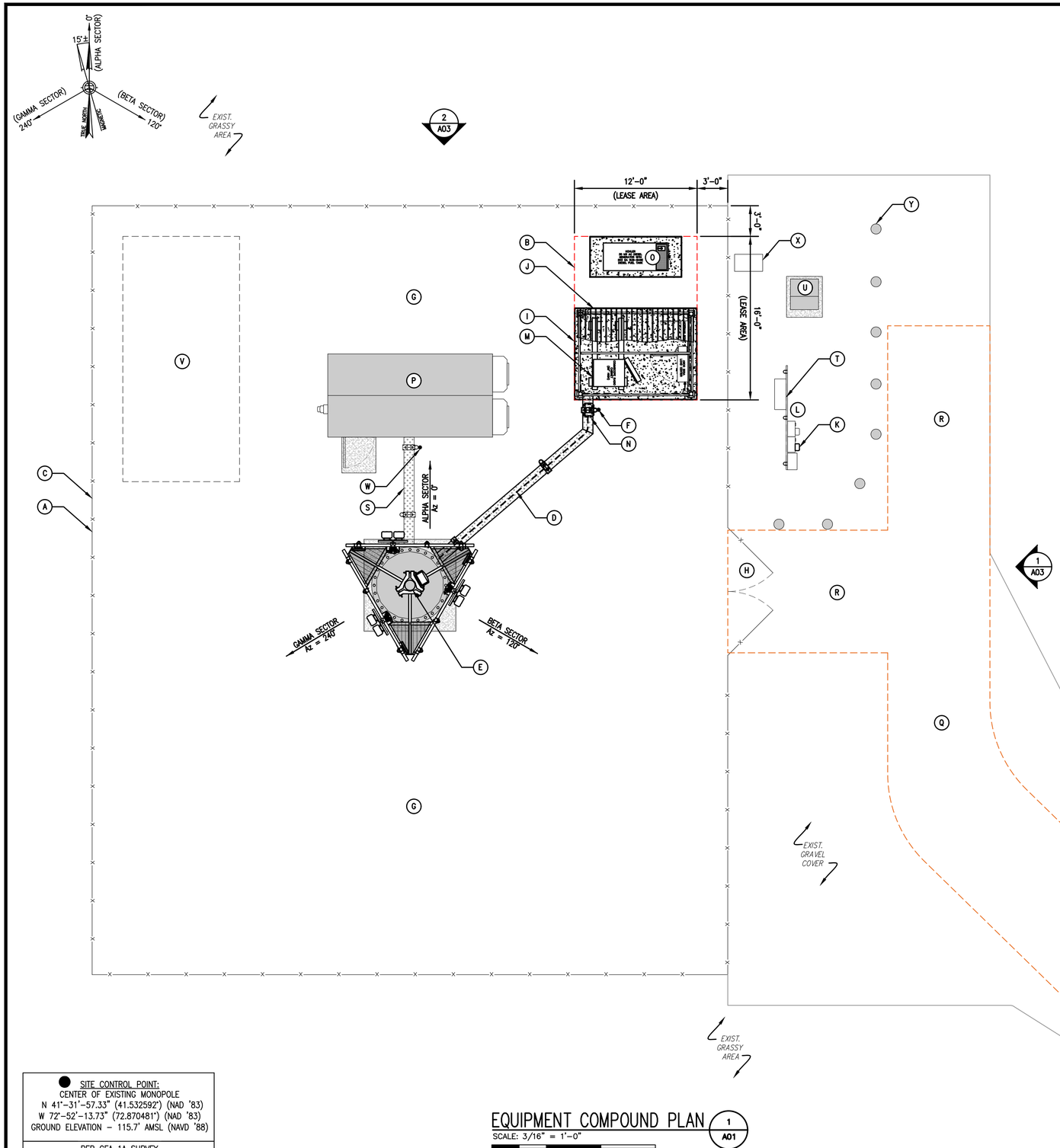
DRAWING TITLE:

PROPERTY PLAN

DRAWING NO:

C01

SCALE: 1" = 120'	DESIGNED BY: GRS	VZW LOCATION CODE: 470040
	DRAWN BY: NWC	
	CHECKED BY: GRS	
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	



LEGEND

	ITEM	DESCRIPTION
	A	*EXIST. 62'-2"±x75'-3"± (4,678± S.F.) EQUIPMENT COMPOUND (INSITE TOWERS, LLC SITE #CT005 "CHESHIRE") (TYP.)*
	B	LIMITS OF VERIZON'S PROP. 12'-0"x16'-0" (192 S.F.) LEASE AREA (TYP.)
	C	*EXIST. 8'± CHAIN-LINK FENCE SURROUNDING EXIST. 62'-2"±x75'-3"± (4,678± S.F.) EQUIPMENT COMPOUND (TYP.)*
4 / A02	D	PROP. VERIZON (2)-LOW INDUCTANCE 6x12 HYBRID SIGNAL CABLES ROUTED ALONG PROP. OVERHEAD CABLE ICE BRIDGE (TYP.) FROM VERIZON'S PROP. EQUIPMENT TO EXIST. MONOPOLE AS SHOWN.
	E	*EXIST. 170'± MONOPOLE*
3 / RF01	F	PROP. VERIZON GPS ANTENNA MOUNTED TO PROP. ICE BRIDGE POST. TOP OF GPS ANTENNA SHALL BE MOUNTED 2'-0" ABOVE TOP OF BRIDGE.
	G	*EXIST. GRAVEL COVER WITHIN EXIST. COMPOUND*
	H	*EXIST. 12'-6"± DOUBLE SWING GATE*
6 / S01	I	PROP. VERIZON 12'-0"x9'-0" (108 S.F.) REINFORCED CONCRETE PAD
1-4 / S01	J	PROP. VERIZON 11'-4"x8'-10" (100± S.F.) METAL DECK ICE SHIELD (SHOWN TRANSPARENT FOR CLARITY) ABOVE PROP. EQUIPMENT
	K	EXIST. VACANT METER SOCKET AND DISCONNECT BREAKER KNOCKOUT TO BE UTILIZED FOR VERIZON'S PROP. 200A ELECTRIC SERVICE TO PROP. EQUIPMENT INSTALLATION.
	L	*EXIST. ELECTRIC METER BANK*
1,2 / A02	M	PROP. VERIZON EQUIPMENT CABINET MOUNTED TO PROP. STEEL SLEEPER BEAMS ON PROP. 12'-0"x9'-0" (108 S.F.) REINFORCED CONCRETE PAD
4 / RF02	N	PROP. VERIZON FIBER JUNCTION BOX (TOTAL OF 1) MOUNTED TO PROP. ICE BRIDGE POST (IF REQUIRED)
1 / E01	O	PROP. VERIZON 30 kW BACK-UP DIESEL GENERATOR MOUNTED TO PROP. 9'-0"x4'-0" (36 S.F.) CONCRETE PAD
	P	*EXIST. TOWN OF CHESHIRE 16'±x8'± EQUIPMENT SHELTER*
	Q	PROP. VERIZON 12' WIDE ACCESS EASEMENT (OVER EXIST. DRIVEWAY) (TYP.) FROM EXIST. PUBLIC RIGHT-OF-WAY (CHESHIRE STREET), TO EXIST. EQUIPMENT COMPOUND (TO BE UTILIZED BY VERIZON FOR ACCESS TO VERIZON'S PROP. INSTALLATION). SEE SHEET C01 FOR CONTINUATION TO CHESHIRE STREET.
	R	PROP. VERIZON 12'x20' PARKING SPACE OR TURN-AROUND AREA
	S	*EXIST. TOWN OF CHESHIRE OVERHEAD CABLE ICE BRIDGE (TYP.)*
	T	*EXIST. TELCO CABINET*
	U	*EXIST. ELECTRIC TRANSFORMER ON EXIST. CONCRETE PAD*
	V	*APPROXIMATE LOCATION OF FUTURE AT&T LEASE AREA*
	W	*EXIST. TOWN OF CHESHIRE GPS ANTENNA*
	X	*EXIST. ELECTRIC PULLBOX*
	Y	*EXIST. BOLLARD (TYP.)*
	Z	*EXIST. GRAVEL ACCESS DRIVE*

SITE CONTROL POINT:
CENTER OF EXISTING MONOPOLE
N 41°-31'-57.33" (41.532592') (NAD '83)
W 72°-52'-13.73" (72.870481°) (NAD '83)
GROUND ELEVATION = 115.7' AMSL (NAVD '88)

PER CEA 1A SURVEY

EQUIPMENT COMPOUND PLAN (1 / A01)
SCALE: 3/16" = 1'-0"
0 5'-4" 10'-8" 16'-0"

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ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

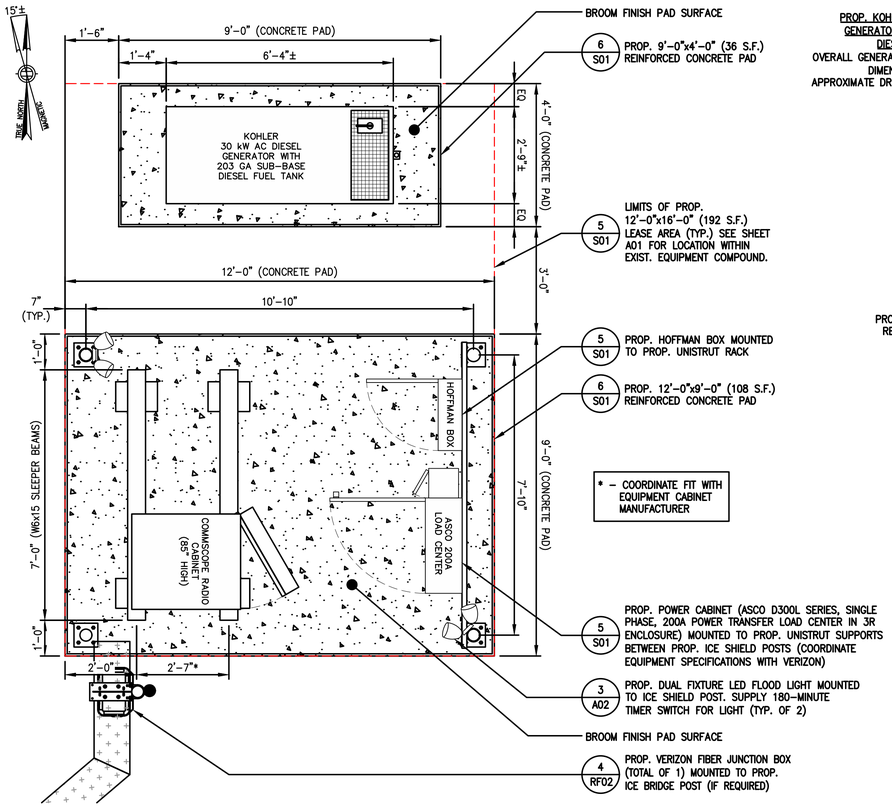
DRAWING TITLE:

EQUIPMENT COMPOUND PLAN

DRAWING NO:

A01

SCALE: 3/16" = 1'-0"	DESIGNED BY: GRS	VZW LOCATION CODE: 470040
	DRAWN BY: NWC	
	CHECKED BY: GRS	
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	

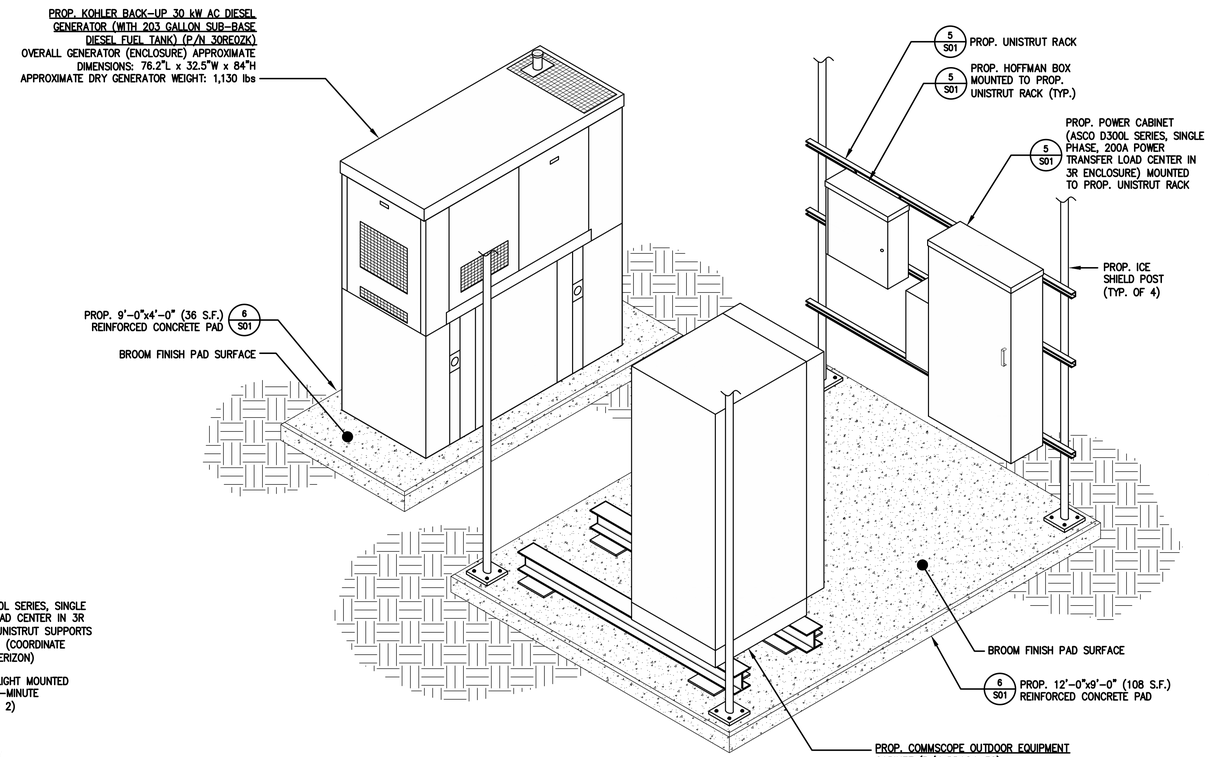


EQUIPMENT PAD PLAN

1 A02

SCALE: ½" = 1'-0"

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



EQUIPMENT PAD ISOMETRIC VIEW

2 A02

SCALE: NOT APPLICABLE

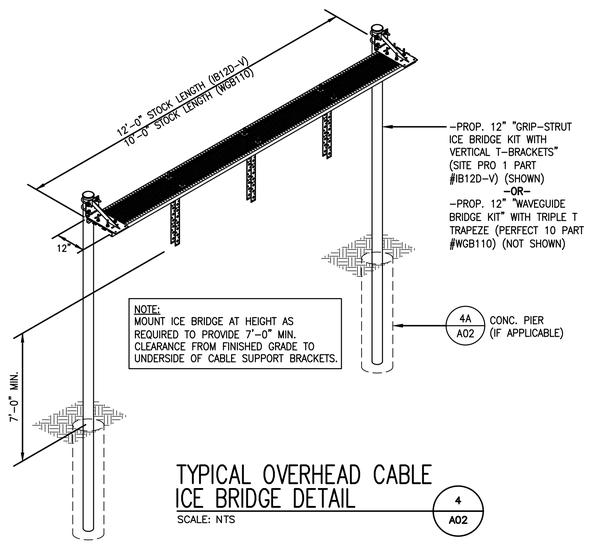
RAB LIGHTING - BULLET2X12B
24W
BLACK

MOUNT PER MANUFACTURER'S SPECIFICATIONS

TYPICAL LED FLOOD LIGHT DETAIL

3 A02

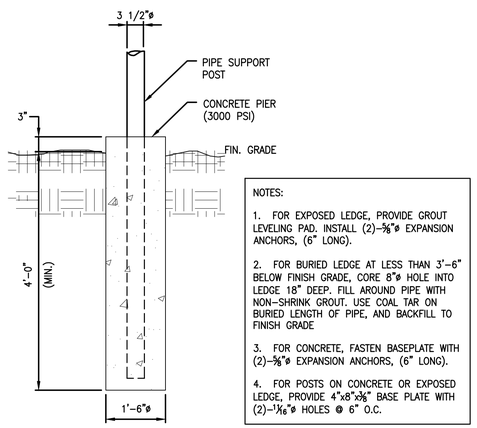
SCALE: N.T.S.



TYPICAL OVERHEAD CABLE ICE BRIDGE DETAIL

4 A02

SCALE: NTS



CABLE BRIDGE PIER

4A A02

SCALE: NTS

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STATE OF CONNECTICUT
CLEMENT J. SAIA
No. 25876
LICENSED
PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

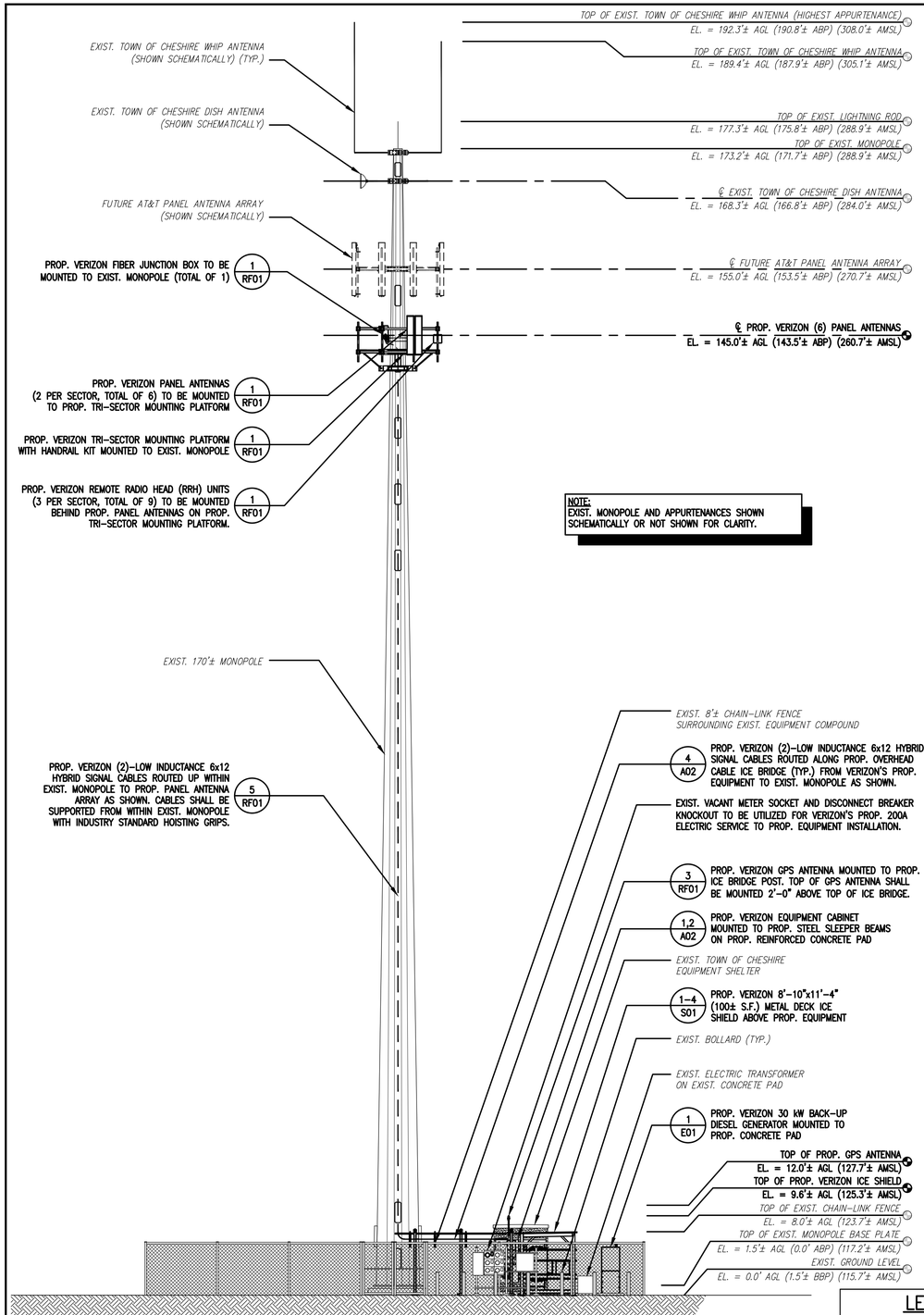
DRAWING TITLE:

EQUIPMENT PAD PLAN & DETAILS

DRAWING NO:

A02

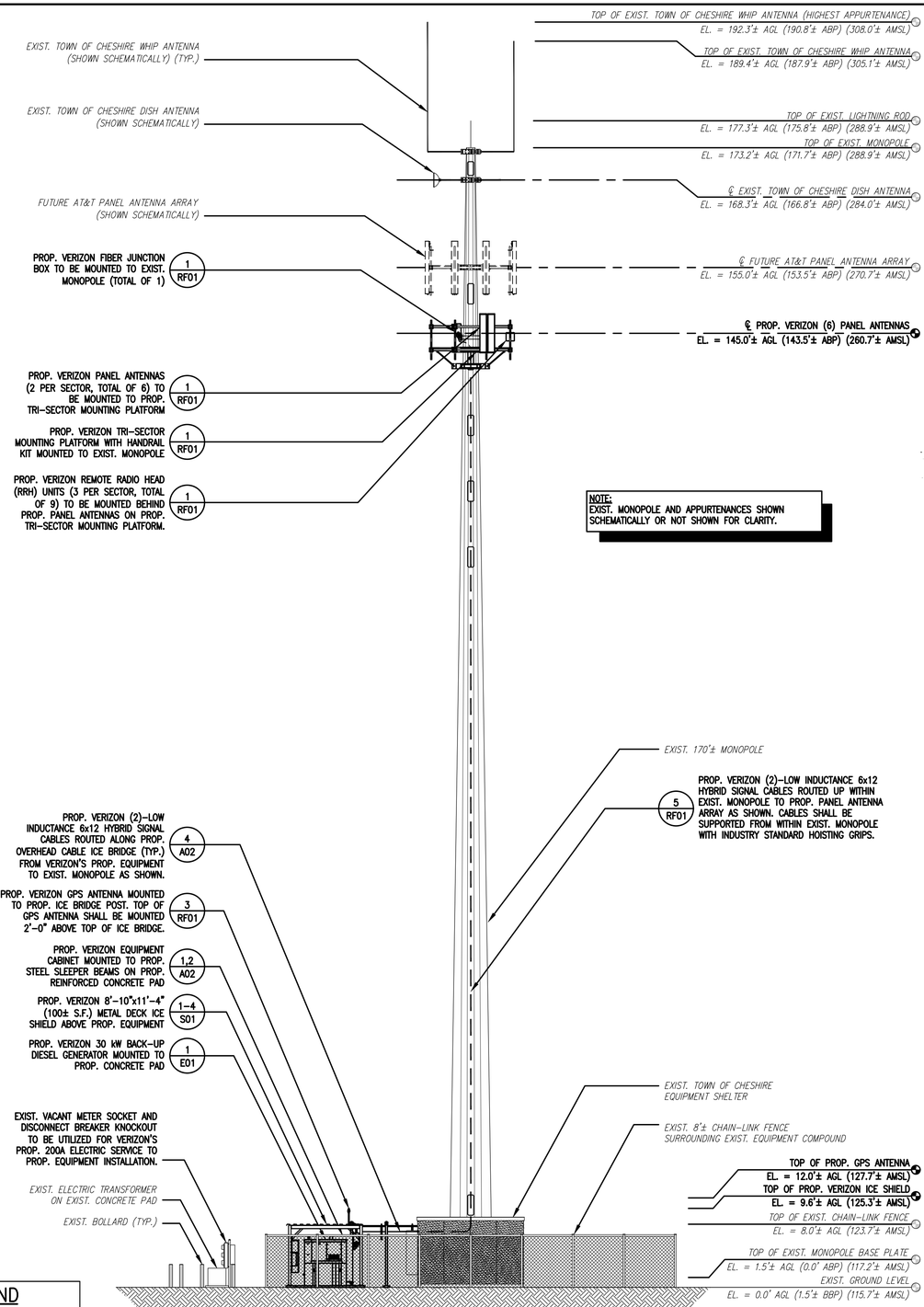
SCALE:	DESIGNED BY: CRS	VZW LOCATION CODE:
AS SHOWN	DRAWN BY: NWC	470040
	CHECKED BY: CRS	
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	
96210.397	8/17/20	



EAST EQUIPMENT COMPOUND ELEVATION 1 A03

SCALE: 1" = 10'

0 10'-0" 20'-0" 30'-0"



NORTH EQUIPMENT COMPOUND ELEVATION 2 A03

SCALE: 1" = 10'

0 10'-0" 20'-0" 30'-0"

LEGEND	
AGL	ABOVE GROUND LEVEL
ABP	ABOVE MONOPOLE BASE PLATE
BBP	BELOW MONOPOLE BASE PLATE
AMSL	ABOVE MEAN SEA LEVEL

verizon

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PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

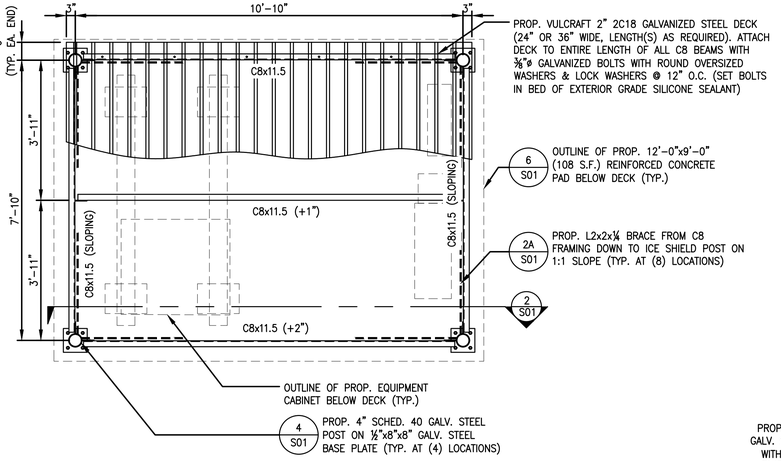
DRAWING TITLE:

EAST AND NORTH EQUIPMENT COMPOUND ELEVATIONS

DRAWING NO:

A03

SCALE: 1" = 10'	DESIGNED BY: GRS DRAWN BY: NWC CHECKED BY: GRS	VZW LOCATION CODE: 470040
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	



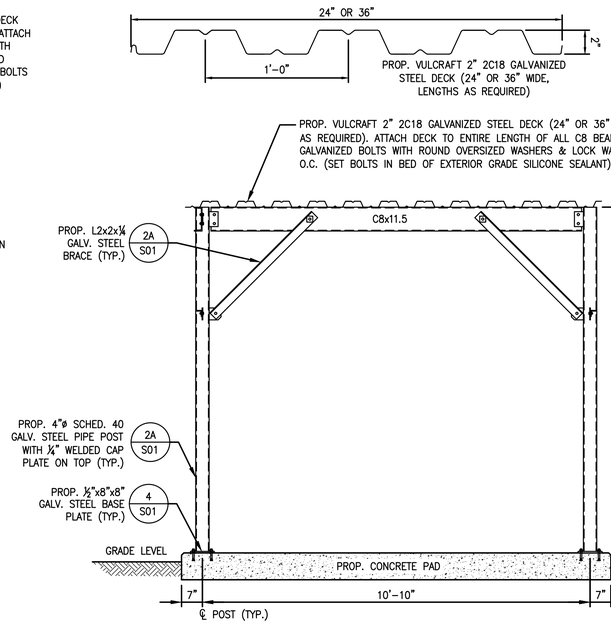
FRAMING PLAN NOTES:
1.) **ALL STEEL SHALL BE INSTALLED LEVEL UNLESS OTHERWISE NOTED.**
2.) **TOP OF NEW STEEL ELEVATION SHALL BE HELD 9'-6" ABOVE EQUIPMENT** PAD SURFACE **UNLESS OTHERWISE NOTED THUS (±X") INDICATING DISTANCE ABOVE OR BELOW TOP OF STEEL REFERENCE ELEVATION.**

ICE SHIELD FRAMING PLAN 1 S01

SCALE: 1/2" = 1'-0"

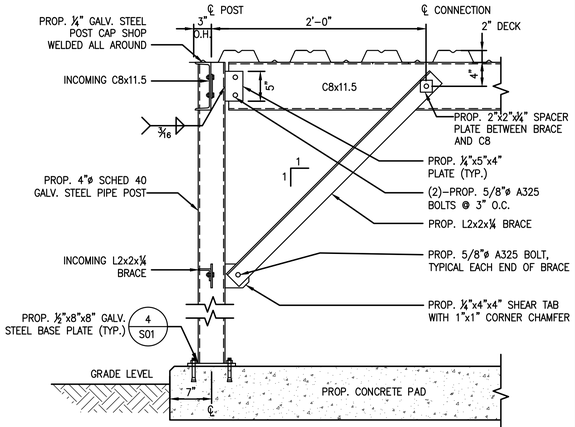
0 2'-0" 4'-0" 6'-0"

NORTH



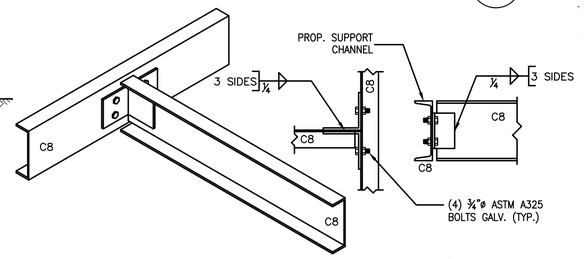
ICE SHIELD SECTION 2 S01

SCALE: 1/2" = 1'-0"



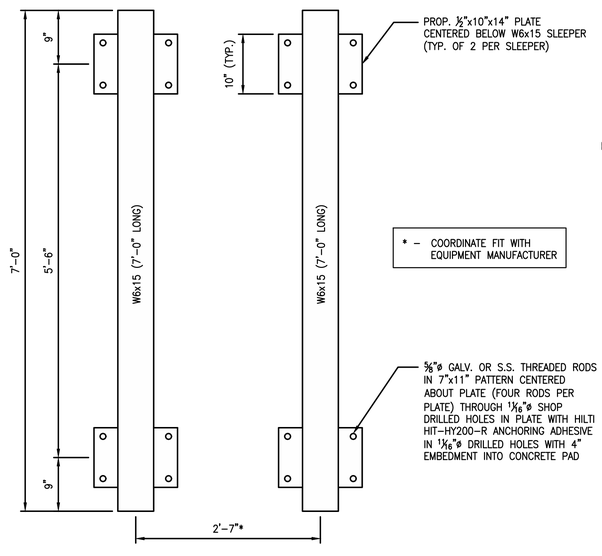
TYPICAL ICE SHIELD POST DETAIL 2A S01

SCALE: 1" = 1'-0"

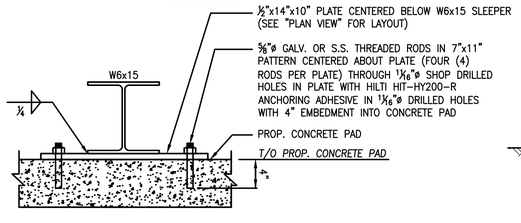


TYPICAL BEAM TO BEAM CONN. 3 S01

SCALE: NOT TO SCALE

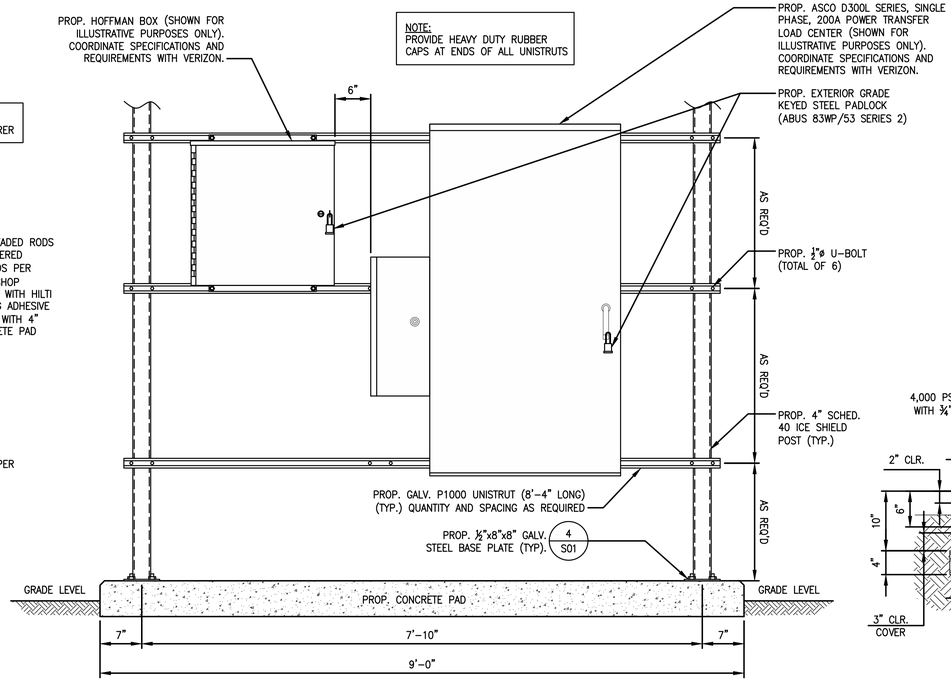


PLAN VIEW



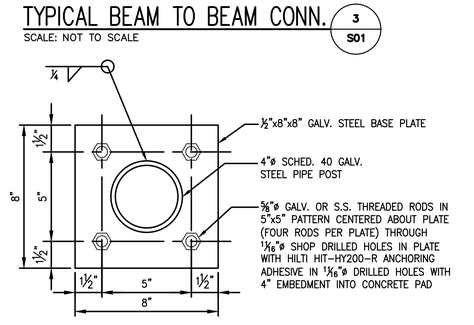
TYPICAL W6 SLEEPER BEAM ANCHORING DETAIL 7 S01

SCALE: N.T.S.



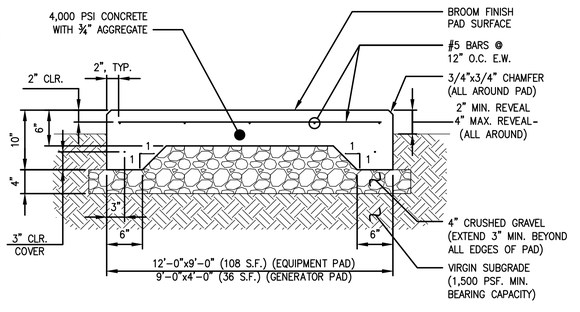
UNISTRUT RACK DETAIL 5 S01

SCALE: N.T.S.



TYPICAL ICE SHIELD POST BASE PLATE 4 S01

SCALE: NONE



REINFORCED CONCRETE EQUIPMENT PAD DETAIL 6 S01

SCALE: NONE

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ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
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1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

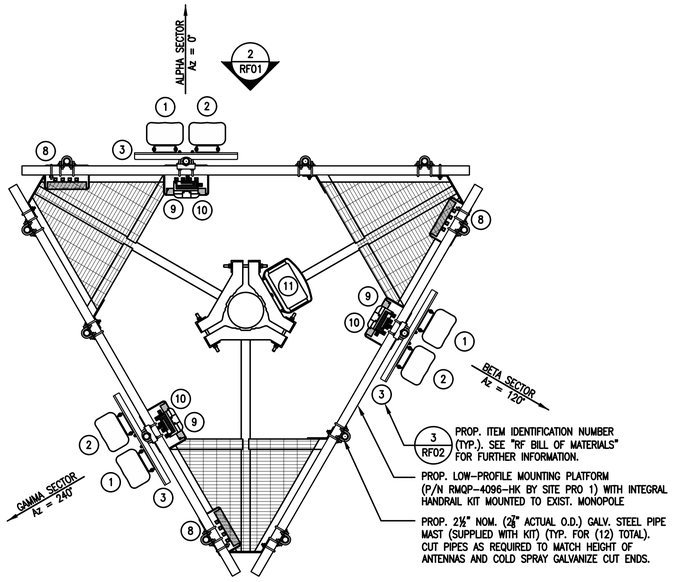
DRAWING TITLE:

ICE SHIELD FRAMING PLAN & STRUCTURAL DETAILS

DRAWING NO:

S01

SCALE: AS SHOWN	DESIGNED BY: GRS DRAWN BY: NWC CHECKED BY: GRS	VZW LOCATION CODE: 470040
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	



(MONOPOLE PLAN VIEW AT ELEVATION 145.0'± AGL)

ANTENNA MOUNTING PLAN

SCALE: 1/2" = 1'-0"

1 RF01

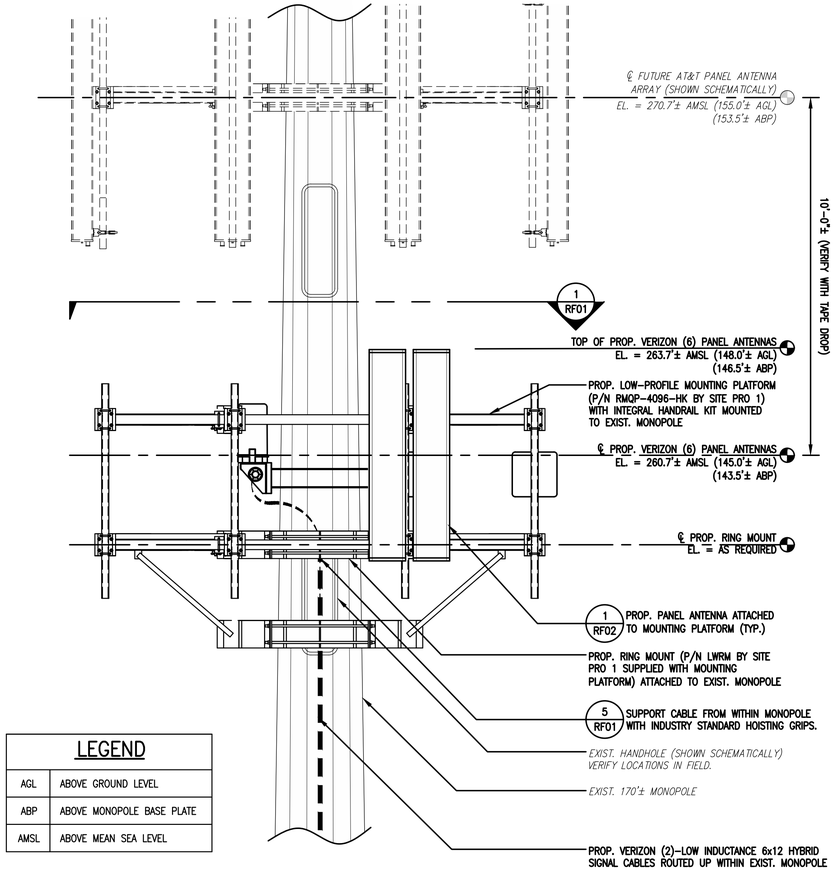
NORTH

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

RADIO FREQUENCY (RF) DESIGN NOTES:
1) ALL RADIO FREQUENCY (RF) DESIGN INFORMATION CONTAINED ON THIS SHEET IS SHOWN SCHEMATICALLY.

2) THE GENERAL CONTRACTOR SHALL CONFIRM ALL RF DESIGN ELEMENTS SHOWN (INCLUDING BUT NOT LIMITED TO PANEL ANTENNA MODELS & ARRANGEMENT, AZIMUTHS, REMOTE RADIO HEAD (RRH) UNIT MODELS & ARRANGEMENT AND CABLING DIAGRAMS/SCHEMATICS) WITH THE VERIZON WIRELESS RF ENGINEER AT THE TIME OF CONSTRUCTION.

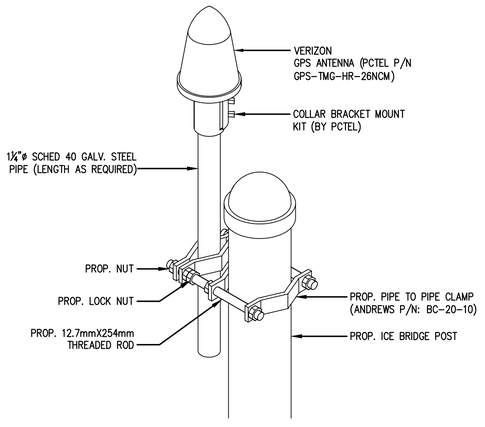
LEGEND	
AGL	ABOVE GROUND LEVEL
ABP	ABOVE MONOPOLE BASE PLATE
AMSL	ABOVE MEAN SEA LEVEL



ANTENNA MOUNTING PLATFORM MOUNTING DETAIL

SCALE: 1/2" = 1'-0"

2 RF01

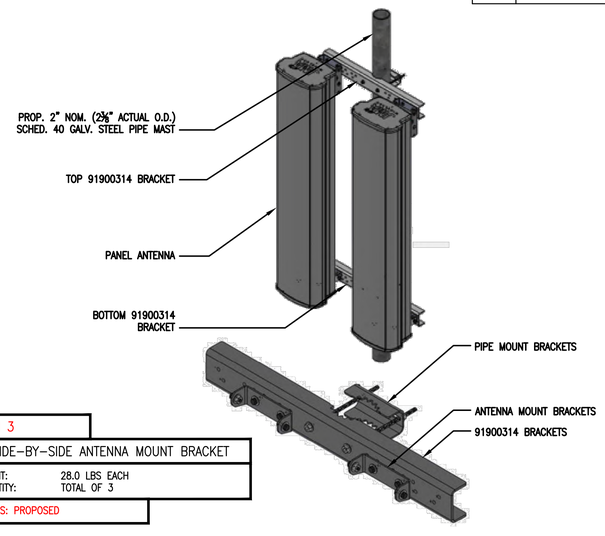


NOTE:
THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1"-1½" DIAMETER GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.

GPS ANTENNA MOUNTING DETAIL

SCALE: N.T.S.

3 RF01

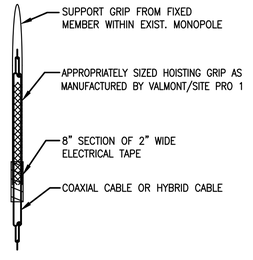


ITEM 3	
SIDE-BY-SIDE ANTENNA MOUNT BRACKET	
WEIGHT:	28.0 LBS EACH
QUANTITY:	TOTAL OF 3
STATUS: PROPOSED	

TYPICAL SIDE-BY-SIDE ANTENNA MOUNT KIT (JMA PART #91900314)

SCALE: NOT TO SCALE

4 RF01



TYPICAL HOISTING GRIP DETAIL

SCALE: NONE

5 RF01

verizon

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STATE OF CONNECTICUT
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ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

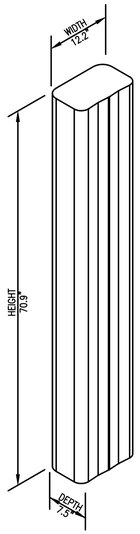
DRAWING TITLE:

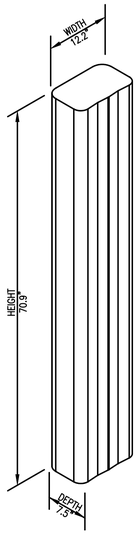
ANTENNA MOUNTING PLAN AND DETAILS

DRAWING NO:

RF01

SCALE:	DESIGNED BY: GRS	VZW LOCATION CODE:
AS SHOWN	DRAWN BY: NWC	470040
	CHECKED BY: GRS	
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	
96210.397	8/17/20	





ITEM 1	
LTE (700/850/1900/2100 MHz) PANEL ANTENNA	
DIMENSIONS:	70.9"H x 12.2"W x 7.5"D
WEIGHT:	53.4 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 2	
LTE (700/850/1900/2100 MHz) PANEL ANTENNA	
DIMENSIONS:	70.9"H x 12.2"W x 7.5"D
WEIGHT:	53.4 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL PROP. PANEL ANTENNA SPECIFICATIONS

SCALE: N.T.S.

1 RF02

RF BILL OF MATERIALS (PROP. (FINAL) CONFIGURATION)

SITE NAME: CHESHIRE NORTHEAST 2 CT — **A = ALPHA SECTOR B = BETA SECTOR G = GAMMA SECTOR**

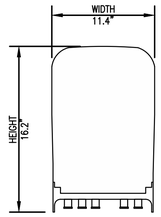
	ITEM (SEE PLAN)	DESCRIPTION	BAND	QTY	STATUS	CABLE LENGTH/UNIT SIZE	COMMENTS
1 RF02	1	PANEL ANTENNA	700/850/1900/2100	3 TOTAL (A,B,G)	PROP.	70.9"H x 12.2"W x7.5"D (53.4 lbs, each)	MOUNTED TO PROP. SIDE-BY-SIDE MOUNT
	2	PANEL ANTENNA	700/850/1900/2100	3 TOTAL (A,B,G)	PROP.	70.9"H x 12.2"W x7.5"D (53.4 lbs, each)	MOUNTED TO PROP. SIDE-BY-SIDE MOUNT
4 RF01	3	SIDE-BY-SIDE ANTENNA MOUNT KIT	–	3 TOTAL (A,B,G)	PROP.	28.0 lbs, each	MOUNTED TO PROP. PIPE MAST
	4	6x12 LOW-INDUCTANCE HYBRID SIGNAL CABLE (MAIN LINE)	–	2 TOTAL	PROP.	175 FT.±	ROUTED UP WITHIN EXIST. MONOPOLE TO PROP. ANTENNA ARRAY
	5	1x1 HYBRID SIGNAL CABLE (JUMPER)	–	9 TOTAL (3 PER SECTOR)	PROP.	5 FT. EACH	ROUTED FROM PROP. UPPER OVP BOX TO PROP. REMOTE RADIO HEAD (RRH) UNITS
	6	½"ø COAXIAL CABLE (JUMPER)	–	48 TOTAL (16 PER SECTOR)	PROP.	5 FT. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. ANTENNAS
	7	RET CONTROL CABLE(S) (JUMPER)	–	PER RF REQ.	PROP.	5 FT. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. ANTENNAS
2 RF02	8	REMOTE RADIO HEAD (RRH) UNIT	700/850	3 TOTAL (A,B,G)	PROP.	15.0"H x 15.0"W x 8.1"D (70.3 lbs, each)	MOUNTED TO PROP. PIPE MAST
	9	REMOTE RADIO HEAD (RRH) UNIT	1900/2100	3 TOTAL (A,B,G)	PROP.	15.0"H x 15.0"W x 10.0"D (84.4 lbs, each)	MOUNTED TO PROP. PIPE MAST
	10	REMOTE RADIO HEAD (RRH) UNIT	BAND 48	3 TOTAL (A,B,G)	PROP.	13.9"H x 8.6"W x 4.2"D (18.6 lbs, each)	MOUNTED TO PROP. PIPE MAST
4 RF02	11	UPPER OVP BOX WITH SURGE	–	1 TOTAL	PROP.	29.58"H x 16.5"W x 12.6"D (32.0 lbs, each)	MOUNTED TO EXIST. MONOPOLE
	12	LOWER OVP RACK	–	1 TOTAL	PROP.	–	INTEGRAL WITHIN EQUIPMENT CABINET

THIS RF BILL OF MATERIALS (BOM) HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 7/1/2020. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF BILL OF MATERIALS (FINAL CONFIGURATION)

SCALE: NONE

3 RF02



ITEM 8	
LTE/CDMA (700/850 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.0"H x 15.0"W x 8.1"D
WEIGHT:	70.3 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 9	
PCS-AWS (1900/2100 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.0"H x 15.0"W x 10.0"D
WEIGHT:	84.4 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 10	
(BAND 48 (3.5 GHz)) NR AU RRH	
DIMENSIONS:	13.9"H x 8.6"W x 4.2"D
WEIGHT:	18.6 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL REMOTE RADIO HEAD (RRH) UNIT DIMENSIONS

SCALE: N.T.S.

2 RF02

Procedure

Mounting Procedures

4.1 A mounting base is delivered with the unit. The base allows either wall/ladder or pole mounted installation. See picture to identify the holes for each installation method.

4.2 ***Option 1: Pole Mount***
Using supplied hardware, mount Bracket to 2" to 4" diameter pole.

4.3 ***Option 2: Unistrut***

4.4 ***Option 3: Monopole***
Use 1" stainless steel bands (not supplied) through slots on bracket to mount to Monopole.

Gland/Insert Definitions

5.1 See picture to identify Base Gland Assembly Definitions.

Assembled in unit as shipped:

Qty	Connector Size	Pos	Insert P/N	Insert Hole	Cable Type
2	M75	A	190-0760	42mm	6x12 RL
4	M75	B	190-0738	3x 16.5mm	1x2

Included in kit shipped with unit:

Qty	Connector Size	Insert P/N	Insert Hole	Cable Type	Purpose	Pos
2	M75	190-0760	42mm	6x12 RL	2 glands fit 1 each 6/12 Hyb	B
2	M75	190-0747	2x 24.5mm	2x12 DC	2 glands fit 2 each #6 12 cond DC	B
1	M75	190-0905	2x 10.5mm	2x12 Fiber	1 gland fit 2 x 12 fiber trunk	B
1	M75	190-0912	2x 9.5mm	2 ETH	1 gland fits 2 ethernet cable	B

ITEM 11	
FIBER JUNCTION BOX	
DIMENSIONS:	29.5"H x 16.5"W x 12.6"D
WEIGHT:	32.0 LBS
QUANTITY:	TOTAL OF 1
STATUS: PROPOSED	

TYPICAL FIBER JUNCTION BOX DIMENSIONS, SCHEMATIC AND MOUNTING PROCEDURE

SCALE: N.T.S.

4 RF02

verizon

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PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

DRAWING TITLE:

ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS

DRAWING NO:

RF02

SCALE:	DESIGNED BY: GRS	VZW LOCATION CODE:
AS SHOWN	DRAWN BY: NWC	470040
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96210.397	8/17/20	

Line Color Code	Band	Tx/Rx	Color Pairs	Sector	Cable Length (FT)
BR	850	Tx0/Rx0	Blue + Red	ALPHA	CABLE LENGTH PROVIDED BELOW IS APPROXIMATE IN NATURE AND REFLECTED AS AN ADJUSTED VALUE TO PROVIDE ADEQUATE LENGTH. ANY FIELD MEASUREMENTS OF ANTICIPATED CABLE LENGTH IS ENCOURAGED IN AN EFFORT TO REDUCE SLACK AND TO OPTIMIZE DESIGN. SUCH FIELD MEASUREMENTS MAY SUPERCEDE THE LENGTH PROVIDED BELOW AT THE DISCRETION OF THE GENERAL CONTRACTOR 175'±
BY	850	Tx1/Rx1	Blue + Yellow		
BG	1900 CDMA	Tx0/Rx0	Blue + Green		
BBG	1900 CDMA	Tx1/Rx1			
BP	700	Tx0/Rx0	Blue + Purple		
BBP	700	Tx1/Rx1			
BBBP	700	Tx2/Rx2			
BBBBP	700	Tx3/Rx3			
BBr	AWS	Tx0/Rx0	Blue + Brown		
BBBr	AWS	Tx1/Rx1			
BBBBr	AWS	Tx2/Rx2			
BBBBBr	AWS	Tx3/Rx3			
BGG	1900 LTE	Tx0/Rx0	Blue + Green		
BBGG	1900 LTE	Tx1/Rx1			
BBBGG	1900 LTE	Tx2/Rx2			
BBBBGG	1900 LTE	Tx3/Rx3			
WR	850	Tx0/Rx0	White + Red	BETA	
WY	850	Tx1/Rx1	White + Yellow		
WG	1900 CDMA	Tx0/Rx0	White + Green		
WWG	1900 CDMA	Tx1/Rx1			
WP	700	Tx0/Rx0	White + Purple		
WWP	700	Tx1/Rx1			
WWWP	700	Tx2/Rx2			
WWWWP	700	Tx3/Rx3			
WBr	AWS	Tx0/Rx0	White + Brown		
WWBr	AWS	Tx1/Rx1			
WWWBr	AWS	Tx2/Rx2			
WWWWBr	AWS	Tx3/Rx3			
WGG	1900 LTE	Tx0/Rx0	White + Green		
WWGG	1900 LTE	Tx1/Rx1			
WWWGG	1900 LTE	Tx2/Rx2			
WWWWGG	1900 LTE	Tx3/Rx3			
OR	850	Tx0/Rx0	Orange + Red	GAMMA	CABLE LENGTH PROVIDED BELOW IS APPROXIMATE IN NATURE AND REFLECTED AS AN ADJUSTED VALUE TO PROVIDE ADEQUATE LENGTH. ANY FIELD MEASUREMENTS OF ANTICIPATED CABLE LENGTH IS ENCOURAGED IN AN EFFORT TO REDUCE SLACK AND TO OPTIMIZE DESIGN. SUCH FIELD MEASUREMENTS MAY SUPERCEDE THE LENGTH PROVIDED BELOW AT THE DISCRETION OF THE GENERAL CONTRACTOR 175'±
OY	850	Tx1/Rx1	Orange + Yellow		
OG	1900 CDMA	Tx0/Rx0	Orange + Green		
OOG	1900 CDMA	Tx1/Rx1			
OP	700	Tx0/Rx0	Orange + Purple		
OOP	700	Tx1/Rx1			
OOOP	700	Tx2/Rx2			
OOOOP	700	Tx3/Rx3			
OBr	AWS	Tx0/Rx0	Orange + Brown		
OOBr	AWS	Tx1/Rx1			
OOOBr	AWS	Tx2/Rx2			
OOOOBr	AWS	Tx3/Rx3			
OGG	1900 LTE	Tx0/Rx0	Orange + Green		
OOGG	1900 LTE	Tx1/Rx1			
OOOGG	1900 LTE	Tx2/Rx2			
OOOOGG	1900 LTE	Tx3/Rx3			

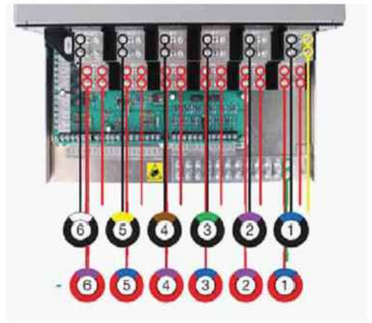
LINE COLOR CODE SPECIFICATIONS (1 / RF03)

LEGEND

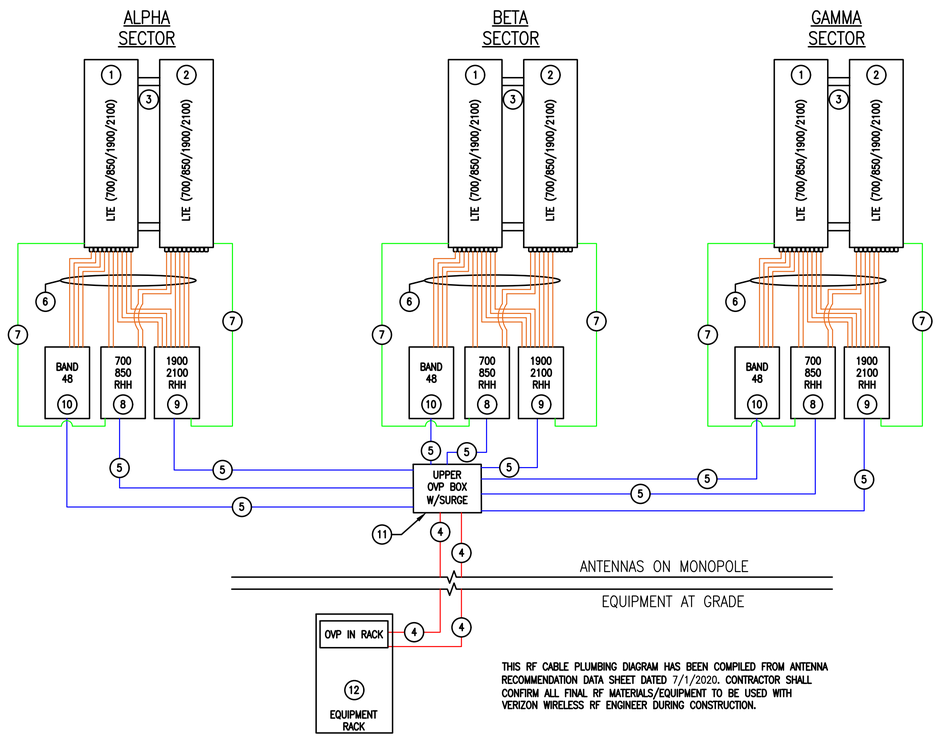
RED	##	= HYBRID CABLE (MAIN LINE)
PURPLE	##	= COAXIAL CABLE (MAIN LINE)
BLUE	##	= 1x1 HYBRID CABLE (JUMPER)
ORANGE	##	= 1/2"ø COAXIAL CABLE (JUMPER)
GREEN	##	= RET CONTROL CABLE(S) (JUMPER)

Hybrid Cable on Towers

Hybrid Cable			
Sector	Identification Color	-48V	RTN
700 Alpha	Blue		
AWS Alpha	Violet		
PCS Alpha	Green		
850 Alpha	Brown		
Spare	Yellow		
Spare	White		



HYBRID CABLE COLOR CODE SPECIFICATIONS (2 / RF03)



THIS RF CABLE PLUMBING DIAGRAM HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 7/1/2020. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF CABLE PLUMBING DIAGRAM (FINAL CONFIGURATION) (3 / RF03)

verizon

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STATE OF CONNECTICUT
CLEMENT J. SAFFER
No. 25876
LICENSED PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

DRAWING TITLE:

RF COLOR CODE SPECIFICATIONS AND PLUMBING DIAGRAM

DRAWING NO:

RF03

SCALE:	DESIGNED BY: GRS	VZW LOCATION CODE:
N/A	DRAWN BY: NWC	470040
	CHECKED BY: GRS	
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	
96210.397	8/17/20	

ELECTRICAL SPECIFICATIONS

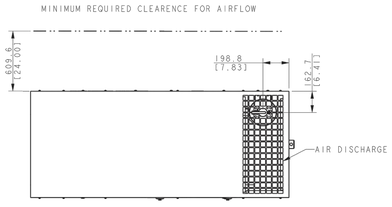
1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS REQUIRED TO MAKE READY FOR USE THE COMPLETE ELECTRICAL SYSTEMS AS SHOWN ON THE DRAWINGS. MAKE ALL NECESSARY CONNECTIONS AT "PACKAGED" EQUIPMENT.
2. THE ELECTRICAL SYSTEMS SHALL BE SUITABLE IN EVERY WAY FOR THE SERVICE REQUIRED. ALL MATERIAL AND ALL WORK WHICH MAY BE REASONABLY IMPLIED AS BEING INCIDENTAL TO THE WORK SHALL BE FURNISHED AT NO EXTRA COST.
3. FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL, STATE AND NATIONAL CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO:
   THE 2018 CONNECTICUT STATE BUILDING CODE
   THE NATIONAL ELECTRICAL CODE (NFPA-70)
   THE CONNECTICUT ELECTRIC CODE
   THE NATIONAL ELECTRICAL SAFETY CODE (ANSI C-2)
   THE LIFE SAFETY CODE (NFPA 101)
   THE STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURE AND ANTENNAS (TIA/EIA-222-G)
4. MATERIALS AND EQUIPMENT SHALL BE NEW, UNUSED AND UNDERWRITERS' LABORATORIES, INC. LISTED. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS IN A TIMELY FASHION, INCLUDING RESPONSIBILITY FOR DETERMINING AVAILABILITY/LEAD TIME FOR ALL NECESSARY EQUIPMENT.
5. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND PAY ALL FEES FOR PERMITS AND INSPECTIONS. WHERE NEW COMMERCIAL POWER SERVICE IS PROVIDED TO THE SITE, OR EXISTING SERVICE MUST BE MODIFIED, CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH THE ELECTRIC UTILITY, SHALL PERFORM ALL OF HIS WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY, AND SHALL PAY ALL UTILITY SERVICE BACK CHARGES.
6. ALL WIRING OUTSIDE SHALL BE INSTALLED IN HEAVY-GAUGE, (SCHEDULE 40) RIGID STEEL CONDUIT, HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE WITH AN ADDITIONAL FACTORY-APPLIED FINISH INSIDE AND OUTSIDE. CUT ENDS SHALL BE REAMED, THREADED AND COLD GALVANIZED. NO COMPRESSION FITTING WILL BE ACCEPTED.
7. UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 AND INSTALLED NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.
8. WIRING INSTALLED IN THE BUILDING THAT IS SHOWN TO BE IN CONDUIT SHALL BE INSTALLED IN EMT. EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE.
9. LIQUID TIGHT, FLEXIBLE METAL CONDUIT SHALL BE USED FOR ALL MOTOR TERMINATIONS AND FOR CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION. FLEXIBLE METAL CONDUIT SHALL CONSIST OF A FLEXIBLE, CORROSION RESISTANT METAL CORE WITH AN EXTRUDED, WATERTIGHT, SYNTHETIC JACKET. CONDUITS SMALLER THAN 1-1/2" SHALL HAVE A CONTINUOUS GROUND CONDUCTOR UNDER THE JACKET.
10. NO CONDUIT SMALLER THAN 3/4" ELECTRICAL TRADE SIZE SHALL BE USED, EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS. BOX SIZES SHALL BE 4" SQUARE MINIMUM, BUT NOT LESS THAN THAT REQUIRED BY THE CONNECTICUT ELECTRICAL CODE.
11. FITTINGS AND EXPOSED SWITCH, OUTLET AND CONTROL STATION BOXES AND OTHER EXPOSED BOXES 4" SQUARE SHALL BE CAST OR MALLEABLE IRON WITH CADMIUM-ZINC FINISH AND CAST COVERS WITH STAINLESS STEEL SCREWS.
12. FLUSH SWITCH AND OUTLET BOXES SHALL BE HOT-DIPPED GALVANIZED, PRESSED STEEL WITH NYLON COVER PLATES, COLOR AS DETERMINED BY THE ENGINEER.
13. EXCEPT AS OTHERWISE SHOWN, TERMINAL, JUNCTION AND PULL BOXES LARGER THAT 4" SQUARE SHALL BE SHEET STEEL. STEEL BOXES SHALL BE HOT-DIPPED GALVANIZED. BOXES AND COVERS SHALL BE NOT LESS THAN 14 GAUGE METAL. COVERS SHALL BE GASKETED AND FASTENED WITH STAINLESS STEEL HARDWARE.
14. FITTINGS USED WITH LIQUID TIGHT, FLEXIBLE CONDUIT SHALL BE OF THE SCREW-IN, COMPRESSION TYPE WITH SEALING RING. FITTINGS LARGER THAN 1-1/4" SHALL BE FURNISHED WITH INTEGRAL GROUND LUGS.
15. HANGERS, RODS, BACK PLATES, BEAM CLAMPS, ETC. SHALL BE GALVANIZED IRON OR STEEL. CONDUITS SHALL BE SUPPORTED AT LEAST EVERY 5 FEET.
16. EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO WALLS. CONDUIT RUNS SHALL BE STRAIGHT AND TRUE. CONDUIT SHALL BE SUPPORTED BY MEANS OF TWO-HOLE PIPE CLAMPS. BACK PLATES SHALL BE INSTALLED WHERE REQUIRED TO RAISE CONDUITS FROM THE SURFACE. MULTIPLE, HORIZONTAL RUNS SHALL BE SUPPORTED ON TRAPEZE HANGERS WITH STEEL HORIZONTAL MEMBERS AND THREADED RODS NOT LESS THAN 3/8 INCHES IN DIAMETER. HANGERS SHALL BE ATTACHED TO STRUCTURAL STEEL BY MEANS OF BEAM CLAMPS. SPOT TYPE INSERTS SHALL BE USED IN CONCRETE.
17. CONDUIT BENDS SHALL BE CAREFULLY MADE TO PREVENT DISTORTION OF THE CIRCULAR CROSS-SECTION. NO CONDUIT RUN SHALL HAVE MORE THAN THE EQUIVALENT OF THREE 90 DEGREE BENDS BETWEEN PULLING POINTS. CHANGES IN DIRECTION SHALL BE MADE WITH BENDS, STANDARD ELBOWS AND PULLBOXES. BENDS IN PARALLEL RUNS SHALL BE CONCENTRIC.
18. CONDUIT SHALL NOT BE SUPPORTED FROM PIPING, PIPING SUPPORTS, DUCTWORK, SUSPENDED CEILING SUPPORTS OR MECHANICAL EQUIPMENT SUBJECT TO VIBRATION OR REMOVAL.
19. THE ENDS OF ALL CONDUITS SHALL BE TIGHTLY PLUGGED DURING BUILDING CONSTRUCTION UNTIL WIRES ARE TO BE PULLED. SPARE CONDUITS SHALL BE FURNISHED WITH THREADED CAPS.
20. CONDUITS SHALL BE TERMINATED AT UNGASKETED SHEET STEEL BOXES AND ENCLOSURES WITH DOUBLE LOCK NUTS AND SUITABLE BUSHINGS. BUSHINGS INSTALLED ON CONDUITS CONTAINING GROUND WIRES SHALL BE GROUNDING TYPE. CONDUITS SHALL BE TERMINATED AT GASKETED SHEET METAL BOXES AND ENCLOSURES WITH CONDUIT HUBS.
21. CONDUCTORS SHALL BE ANNEALED, 98 PERCENT CONDUCTIVITY, SOFT-DRAWN COPPER. NO CONDUCTOR SMALLER THAT NO. 12 AWG SHALL BE USED, EXCEPT AS OTHERWISE NOTED.
22. WIRE FOR POWER AND LIGHTING BRANCH CIRCUITS SHALL BE 600 VOLT, TYPE THWN. WIRE FOR CONTROL CIRCUITS SHALL BE 600 VOLT, TYPE THWN, NO. 14 AWG, STRANDED. SERVICE CONDUCTORS AND FEEDERS SHALL BE TYPE XHHW. CONDUCTORS NO. 10 AWG AND SMALLER SHALL BE SOLID. NO. 8 AWG AND LARGER SHALL BE STRANDED..
23. ALL CONDUCTORS SHALL BE CAREFULLY HANDLED TO AVOID KINKS OR DAMAGE TO INSULATION. LUBRICATIONS SHALL BE USED TO FACILITATE WIRE PULLING. LUBRICANTS SHALL BE UL LISTED FOR USE WITH THE INSULATION SPECIFIED.
24. ALL EQUIPMENT AND MATERIALS SHALL BE GROUNDED IN STRICT ACCORDANCE WITH THE CONNECTICUT ELECTRICAL CODE, AND THE STANDARD REQUIREMENTS OF VERIZON WIRELESS AND LUCENT.
25. DISCONNECT SWITCHES SHALL BE 480 OR 240 VOLT, HEAVY-DUTY, QUICK-MAKE, QUICK BREAK, VISIBLE BLADE, 2 POLE WITH EXTERNAL OPERATING HANDLE AND FULL COVER INTERLOCK. SWITCHES INSTALLED OUTSIDE SHALL BE NEMA TYPE 3R ENCLOSED.
26. WALL SWITCHES SHALL BE SINGLE POLE 3-WAY OR 4-WAY, INDICATING, TOGGLE-ACTION, FLUSH, QUIET TYPE, SPECIFICATION GRADE, RATED 20 AMPERE, 120-277 VOLT. COLOR AS DETERMINED BY ENGINEER.
27. GENERAL PURPOSE RECEPTACLES SHALL BE DUPLEX, 2 POLE, 3 WIRE, STRAIGHT BLADE, NYLON FACE, GROUNDING TYPE, 20 AMPERE, 125 VOLT, SPECIFICATION GRADE. COLOR AS DETERMINED BY ENGINEER.
28. PANELS SHALL BE PER DIRECTED BY THESE DRAWINGS WITH TYPED DIRECTORIES.
29. CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL-MAGNETIC TYPE WITH RMS SYMMETRICAL INTERRUPTING RATING OF NOT LESS THAN 22,000 AMPERE FOR 240 VOLT BREAKERS. ENCLOSED BREAKERS SHALL HAVE PADLOCKING PROVISIONS AND EXTERNAL OPERATING HANDLE WITH FULL COVER INTERLOCK. BREAKERS SHALL BE 1" MODULES MINIMUM.
30. NAMEPLATES SHALL BE PROVIDED FOR ALL EQUIPMENT INDICATING VOLTAGE, PHASE, USE AND SOURCE OF ORIGIN. DEVICES SHALL BE LABELED INDICATING VOLTAGE AND BRANCH CIRCUIT. BRANCH CONDUCTORS SHALL BE LABELED INDICATING BRANCH CIRCUIT. FEEDER CONDUCTORS SHALL INDICATE PHASE.
31. ALL EXTERIOR CONDUCTOR/LUG TERMINALS SHALL HAVE AN ANTIOXIDANT APPLIED.
32. ALL SPRING TYPE WIRE CONDUCTORS USED IN EXTERIOR BOXES SHALL BE SILICON FILLED.
33. ELECTRICAL CONTRACTOR SHALL AS PART OF HIS WORK INCLUDE ALL FITTINGS, SLEEVES AND MINOR CUTTING REQUIRED FOR HIS WORK, INCLUDING FIRES-STOPPING.
34. THE ELECTRICAL CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE HIS OWN, WHERE DIRECTED, STORAGE AND OFFICE SPACE.
35. FIVE COPIES OF SHOP DRAWINGS OF ALL EQUIPMENT SHALL BE PROVIDED TO THE ENGINEER.
36. ELECTRICAL CONTRACTOR'S WORK SHALL INCLUDE ALL LABOR AND MATERIALS, SCAFFOLDING TOOL AND TRANSPORTATION NECESSARY FOR COMPLETE INSTALLATION.
37. ELECTRICAL CONTRACTOR TO FURNISH ENGINEER ONE SET OF MYLARS OF "AS BUILT" DRAWINGS.
38. ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY POWER & LIGHTING AS REQ'D.

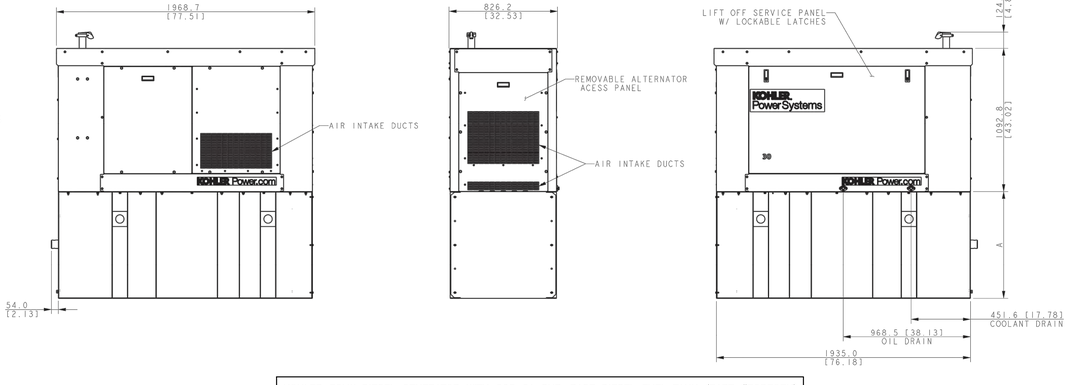
GENERAL NOTES

1. CONTRACTOR SHALL VISIT THE SITE TO MAKE HIMSELF AWARE OF THE EXISTING CONDITIONS.
2. BRANCH CIRCUIT RUNS 100 FT AND OVER SHALL BE #10 AWG CONDUCTORS.
3. THESE DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT LOCATION, MOUNTING HEIGHT, SIZE OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED AND DETERMINED IN THE FIELD.
4. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE HVAC AND PLUMBING CONTRACTORS AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT, THE POWER WIRING, THE CONTROL WIRING AND ALL ELECTRICAL CONNECTIONS REQUIRED BY THIS CONTRACTOR FOR COMPLETELY OPERATIVE HVAC AND PLUMBING SYSTEMS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
5. INTERRUPTIONS TO THE EXISTING ELECTRICAL SERVICE FOR SPLICING CONNECTIONS, RENOVATION OF EXISTING DISTRIBUTION, BRANCH CIRCUITS, INSTALLATION OF NEW ELECTRIC SERVICE, AND SHALL BE AS SHORT AS POSSIBLE, AND TO THE CONVENIENCE OF THE OWNER.
6. ALL CONDUIT SHALL BE SURFACE MOUNTED UNLESS OTHERWISE NOTED. NO INTERIOR HORIZONTAL CONDUIT BELOW 7'-8" AFF IN FINISHED SPACES.
7. ALL WIRING TO BE 3/4"C, 2#12 & 1#12 GROUND, UNLESS OTHERWISE NOTED.
8. NO BX OR ROMEX CABLE IS PERMITTED.
9. ALL WIRING DEVICES AND EQUIPMENT SHALL BE 20A SPECIFICATION GRADE AND UL LISTED.
10. ALL OUTLET AND JUNCTION BOXES SHALL BE SECURELY SURFACE MOUNTED.
11. ALL RECEPTACLE AND EQUIPMENT CIRCUITS SHALL BE GROUNDED USING A FULL SIZE EQUIPMENT GROUNDING CONDUCTOR RUN WITH THE CURRENT CONDUCTORS.
12. ALL WALL PENETRATIONS FOR TELCO, POWER. AND GROUNDING SHALL REQUIRE PVC SLEEVES.
13. ALL SWITCHES SHALL BE FORTY-EIGHT (48) INCHES AFF, UNLESS OTHERWISE NOTED.
14. ALL RECEPTACLES SHALL BE EIGHTEEN (18) INCHES AFF, UNLESS OTEHRWISE NOTED.
15. ALL WIRING SHALL BE IN METAL RACEWAY & NO. 12 AWG COPPER MIN. UNLESS OTHERWISE NOTED.
16. WIRE COLOR SHALL BE PER STANDARD CODING BY PHASE.
17. FOR UTILITY BILLING, PLEASE SEND TO:
    VERIZON WIRELESS
    20 ALEXANDER DRIVE
    WALLINGFORD, CT 06492

GROUNDING GENERAL NOTES

1. ALL EXTERIOR CONDUCTORS SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNLESS OTHERWISE NOTED. MINIMUM BEND RADIUS SHALL BE EIGHT (8) INCHES.
2. ALL CONNECTIONS TO HALO GROUND RING AND ALL CABLE TRAY JUMPERS SHALL BE #6 AWG, INSULATED, STRANDED, COPPER WIRE.
3. ALL WIRE-TO-WIRE CONNECTIONS SHALL BE THREE-CLAMP, C TAP COMPRESSION (T&B #54740 ORANGE OR EQUIVALENT). ALL GROUND BAR CONNECTIONS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS (T&B OR EQUIVALENT). ALL OTHER CONNECTIONS TO STEEL SURFACES SHALL USE LUG-TYPE CONNECTORS.
4. MECHANICALLY BOND ANTENNA MOUNTS WITH #2 AWG, BARE, STRANDED CONDUCTORS.
5. ALL GROUNDING WORK SHALL COMPLY WITH VERIZON WIRELESS STANDARDS.
6. CONNECT GROUND CONDUCTOR TO EXISTING GROUNDING SYSTEM. ATTACH TO WALLS, PARAPET, CABLE TRAY, ETC. WITH A CLAMPS AS NECESSARY. REMOVE PAINT, FIREPROOFING, MILL SCALE, ETC. TO ACHIEVE GOOD CAD WELD GROUND CONNECTION.
7. CONNECT TO HALO GROUND USING C-TAP (#54730).
8. CONNECT TO ENCLOSURES USING BLUE GROUND LUGS.





KOHLER 30kW DIESEL GENERATOR WITH 203 GA SUB-BASE DIESEL FUEL TANK (PART #30REOZK)
OVERALL GENERATOR (ENCLOSURE) APPROXIMATE
DIMENSIONS: 76.5"L x 32.0"W x 84"H (INCLUDES SUB-BASE DIESEL TANK)
APPROXIMATE MAX. IN-SERVICE WEIGHT: 2,114 lbs

GENERATOR DETAIL — 1 / E01
SCALE: NONE

LEGEND

ELECTRICAL SYMBOLS

(M)	METER
⊠	GROUND ROD/TEST (OBSERVATION) WELL
⊗	GROUND ROD
▲	CADWELD TYPE CONNECTION
●	COMPRESSION TYPE CONNECTION
----	GROUNDING WIRE
1 / E02	REPRESENTS DETAIL NUMBER
▭	1'X4' SURFACE MTD. FLOURESCENT LIGHTING FIXTURE
⇐	SELF CONTAINED EMERG. LIGHTING UNIT
S	20A-120V-1P TOGGLE SWITCH
⊠	MAGNETIC DOOR SWITCH (DOOR JAMB TYPE)
⇐	20A-120V QUADRAPLEX RECEPTACLE, GROUNDING TYPE, 2-CKT. NO.
⇐ WP/GFI	20A-120V DUPLEX RECEPTACLE, GROUNDING TYPE. WP = WEATHERPROOF GFI = GROUND FAULT
⇐ TL	SIMPLEX RECEPTACLE, GROUNDING TYPE. TL = TWIST LOCK
J	JUNCTION BOX
P1	PANELBOARD 'P1'
* (2)	MOTOR - NUMERAL DENOTES HORSEPOWER
WP	WEATHER PROOF DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH - '3R' & '1' - NEMA ENCLOSURE
* (T)-	THERMOSTAT *(T)HI - HI TEMPERATURE ALARM THERMOSTAT
* (H)-	HUMIDISTAT *(H)HI/LO - HI/LO HUMIDITY ALARM HUMIDISTAT
	COMBINATION SMOKE/HEAT DETECTOR WITH MINI HORN SIMPLEX CAT.#2098-9696 WITH FORM A & C CONTACTS
P1-2	HOMERUN TO PANEL (FURNISH & INSTALLED BY MECHANICAL)
	SURGE ARRESTOR - JOSLYN CAT. NO. 1455-85
AFF	ABOVE FINISHED FLOOR
* M	MOTORIZED DAMPER
2#12-3/4"C	EXPOSED CONDUIT 2#12-3/4"C.
TC	ALARM TERMINAL CABINET

* EQUIPMENT FURNISHED AND INSTALLED BY OTHERS AND WIRED BY THIS CONTRACTOR

ABBREVIATIONS

AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
GPS	GLOBAL POSITIONING SYSTEM
PCS	PERSONAL COMMUNICATION SYSTEM
RWY	RACEWAY
TYP.	TYPICAL
RGS	RIGID GALVANIZED STEEL
EMT	ELECTRICAL METALLIC TUBING
DWG	DRAWING
EMT	INTERIOR GROUND RING (HALO)
GEN	GENERATOR
GR	GROWTH
CGBE	COAX GROUND BAR EXTERNAL
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MGB	MASTER GROUND BAR
PVC	RIGID (SCH. 40) POLYVINYL CHLORIDE CONDUIT
EBH	ETHERNET BACK HAUL

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STATE OF CONNECTICUT — CLEMENT J. SAIA — No. 26876 — LICENSED PROFESSIONAL ENGINEER
ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE
NORTHEAST 2 CT
1325 CHESHIRE STREET
CHESHIRE, CT 06410

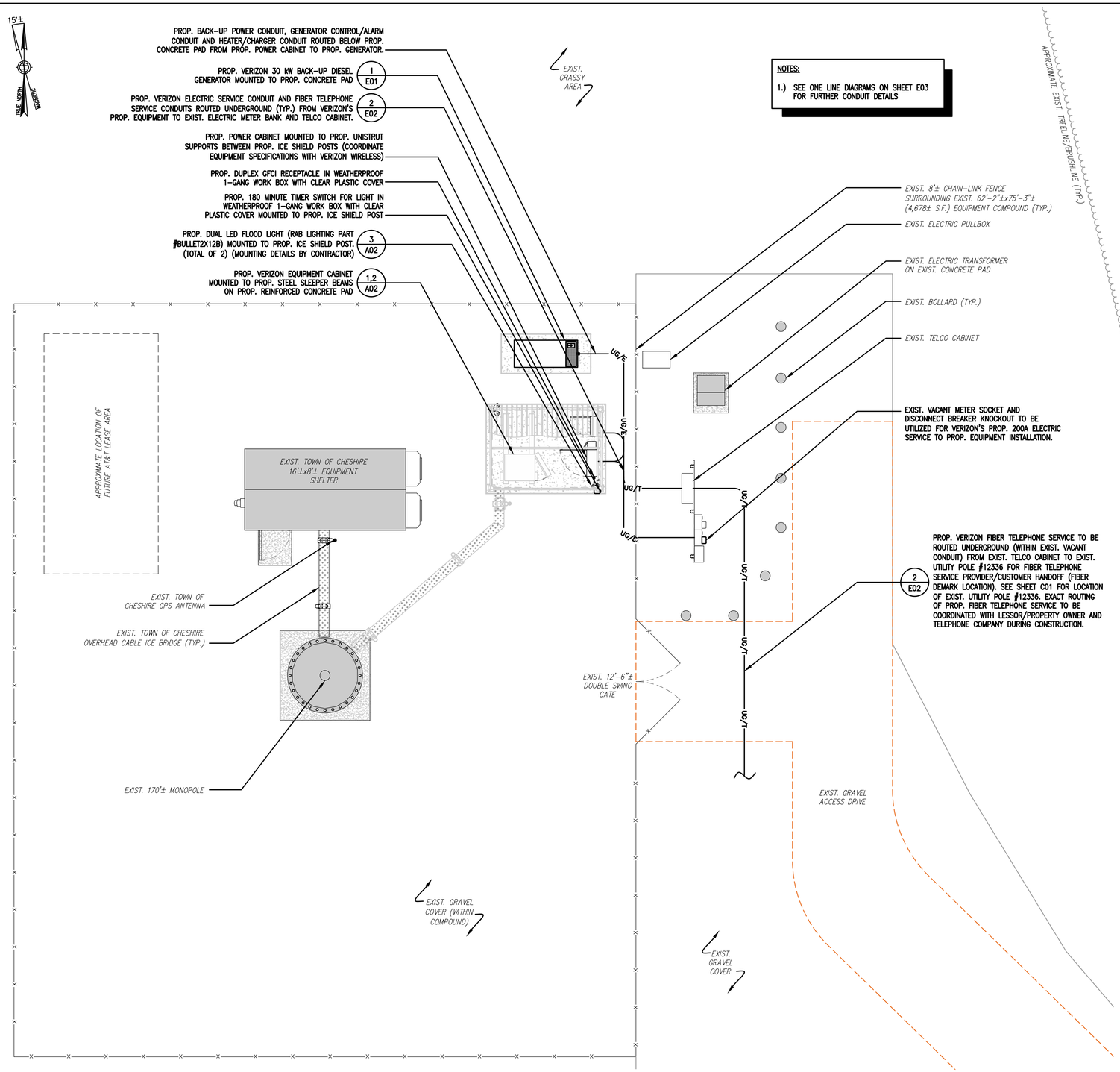
DRAWING TITLE:

ELECTRICAL SPECIFICATIONS AND NOTES

DRAWING NO:

E01

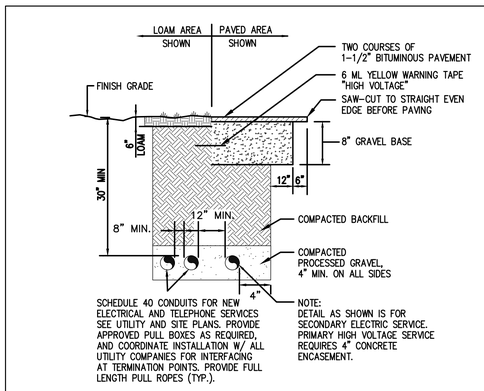
SCALE: AS SHOWN	DESIGNED BY: GRS	VZW LOCATION CODE: 470040
	DRAWN BY: NWC	
	CHECKED BY: GRS	
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	



EQUIPMENT COMPOUND UTILITY PLAN (1 E02)

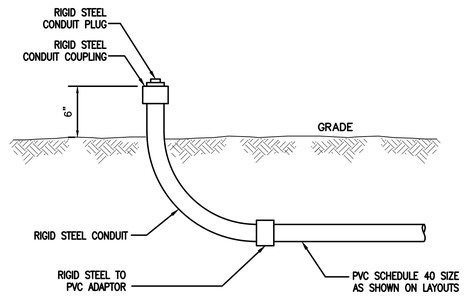
SCALE: 3/16" = 1'-0"

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



TYPICAL BURIED CONDUIT DETAIL (2 E02)

SCALE: NONE



TYPICAL CONDUIT STUB-UP DETAIL (3 E02)

SCALE: NONE

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STATE OF CONNECTICUT · CLEMENT J. SAGE · No. 26376 · LICENSED PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

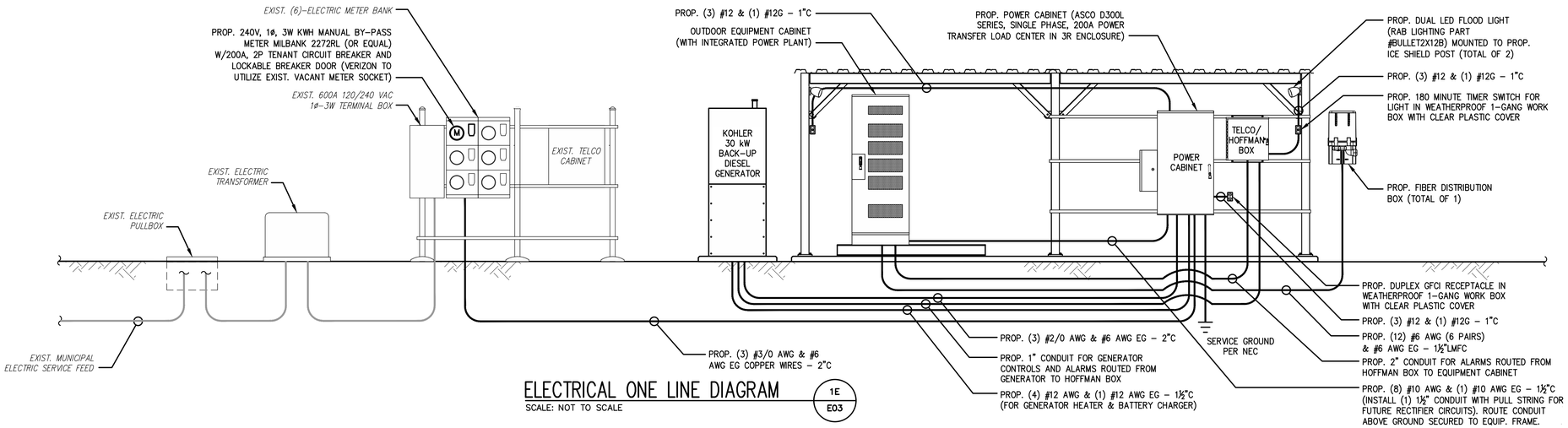
DRAWING TITLE:

EQUIPMENT COMPOUND UTILITY PLAN & DETAILS

DRAWING NO:

E02

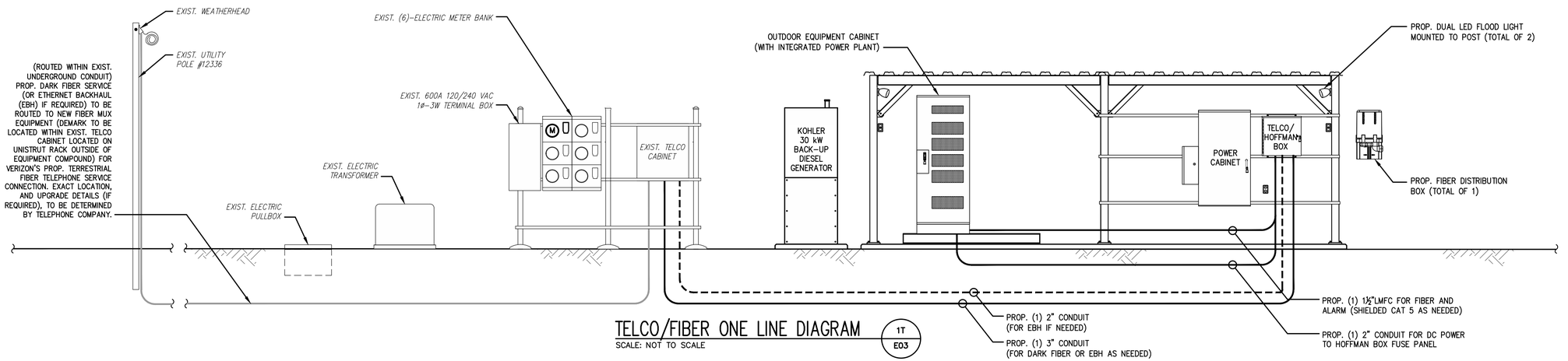
SCALE: AS SHOWN	DESIGNED BY: GRS DRAWN BY: NWC CHECKED BY: GRS	VZW LOCATION CODE: 470040
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	



ELECTRICAL ONE LINE DIAGRAM

SCALE: NOT TO SCALE

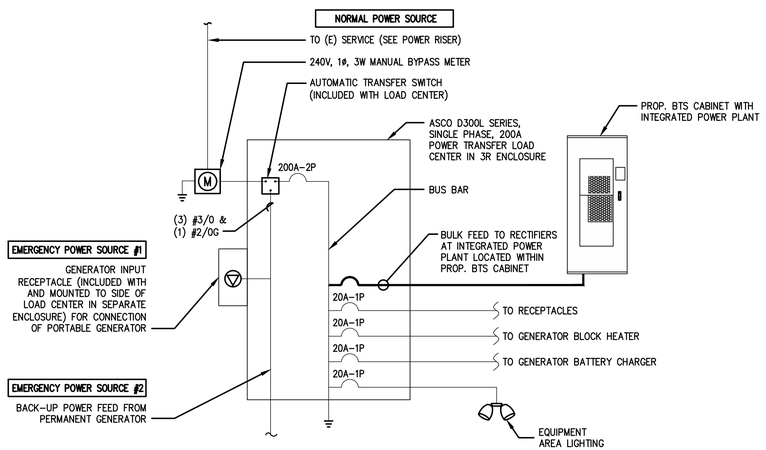
1E / E03



TELCO/FIBER ONE LINE DIAGRAM

SCALE: NOT TO SCALE

1T / E03



POWER SOURCE ONE LINE DIAGRAM

SCALE: NOT TO SCALE

2 / E03

ASCO D300L SERIES, SINGLE PHASE, 200A POWER TRANSFER LOAD CENTER IN 3R ENCLOSURE

ELECTRICAL PANEL SCHEDULE

65,000 A.I.C. NEMA 3R

CKT #	DESCRIPTION	AMP	AMP	DESCRIPTION	CKT #
1	RECTIFIER #1	30	30	FUTURE RECTIFIER	2
3					4
5	RECTIFIER #2	30	30	FUTURE RECTIFIER	6
7					8
9	RECTIFIER #3	30	20	PAD LIGHTING	10
11			–	BLANK	12
13	RECTIFIER #4	30	–	BLANK	14
15			–	BLANK	16
17	GFCI RECEPTACLE/LIGHT	20	–	BLANK	18
19	GENERATOR BLOCK HEATER	20	–	BLANK	20
21	GENERATOR BATTERY CHARGER	20	–	BLANK	22
23	BLANK	–	–	BLANK	24
25	BLANK	–	–	BLANK	26
27	BLANK	–	–	BLANK	28
29	BLANK	–	–	BLANK	30

ELECTRICAL PANEL SCHEDULE

SCALE: NTS

3 / E03

ONE-LINE DIAGRAM NOTES:

1) PROVIDE WEATHER TIGHT SEAL CONNECTORS ON ALL CONNECTIONS INSIDE AND OUT.

2) COORDINATE ANY FURTHER MISCELLANEOUS WIRING AND CONDUIT REQUIREMENTS WITH VERIZON WIRELESS AND ELECTRIC COMPANY.

3) ALL CONDUIT ROUTING SHOWN ON THESE DIAGRAMS IS SCHEMATIC IN NATURE AND INTENDED TO CONVEY GENERAL INTENT ONLY.

4) ALL PROPOSED UTILITY DESIGN ELEMENTS SHOWN ARE SUBJECT TO CHANGE BASED ON FINAL DESIGN TO BE PROVIDED BY UTILITY PROVIDERS AND VERIZON WIRELESS. CONTRACTOR SHALL OBTAIN A COPY OF THE FINAL UTILITY DESIGN BY UTILITY COMPANY PRIOR TO COMMENCEMENT OF WORK.

UTILITY CONTACTS

ELECTRICAL: EVERSOURCE ENERGY
247 STATION DRIVE, SE 210
WESTWOOD, MA 02090
(781) 441-3610

TELEPHONE: VERIZON
185 FRANKLIN STREET
BOSTON, MA 02107
(800) 941-9900

MAKE ALL CONNECTIONS AS PER UTILITY COMPANY'S REQUIREMENTS.

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201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
CLEMENT J. SAINE
No. 26876
LICENSED PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

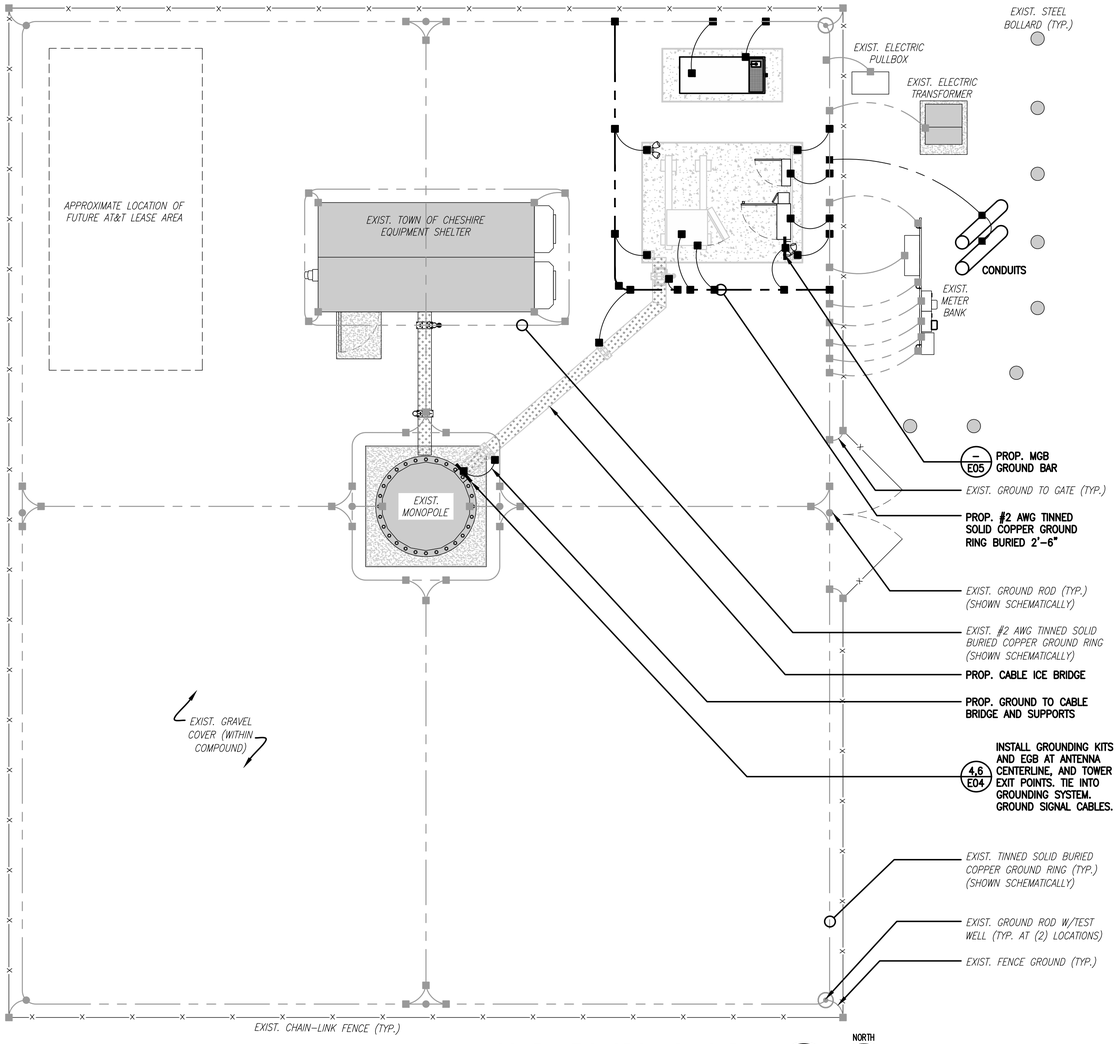
DRAWING TITLE:

ELECTRICAL DIAGRAMS & DETAILS

DRAWING NO:

E03

SCALE:	DESIGNED BY: GRS	VZW LOCATION CODE:
AS SHOWN	DRAWN BY: NWC	470040
	CHECKED BY: GRS	
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	
96210.397	8/17/20	



SCHEMATIC GROUNDING PLAN (1 / E04)

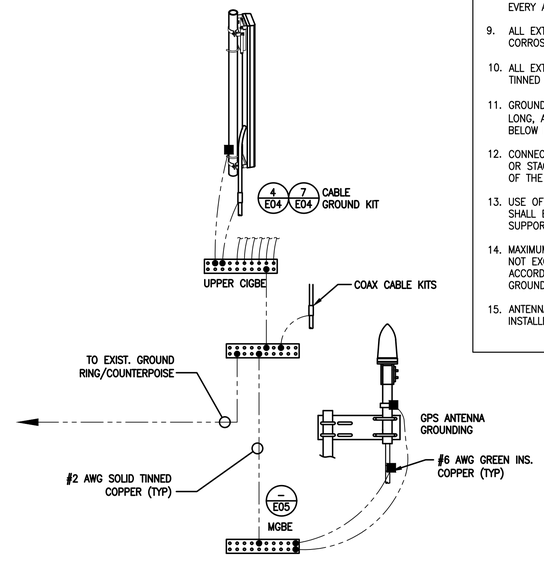
SCALE: 3/16" = 1'-0"

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

NORTH

GROUNDING LEGEND

- EXOTHERMIC GROUND
- GROUND ROD
- TEST WELL
- PROP. #2 AWG EQUIPMENT GROUNDING
- PROP. GROUND HALO
- EXIST. SITE GROUNDING (SHOWN SCHEMATICALLY)



ANTENNA GROUNDING RISER DIAGRAM (2 / E04)

SCALE: NOT TO SCALE

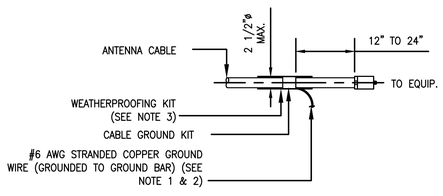
ELECTRICAL AND GROUNDING NOTES:

ELECTRICAL

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
3. SERVICE TO EQUIP. SHALL BE 120/240 VAC, 200 AMP, 1ø, 60 Hz.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.

GROUNDING

5. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS.
6. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
7. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
8. ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP & HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
9. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
10. ALL EXTERIOR GROUND CONDUCTORS SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
11. GROUND RODS SHALL BE COPPER CLAD STEEL, 5/8"ø 10-FT. LONG, AND SHALL BE DRIVEN VERTICALLY WITH THEIR TOPS 48" BELOW FINAL GRADE.
12. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
13. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
14. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATION FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.
15. ANTENNA GROUND KITS SHALL BE FURNISHED BY VERIZON AND INSTALLED BY CONTRACTOR.



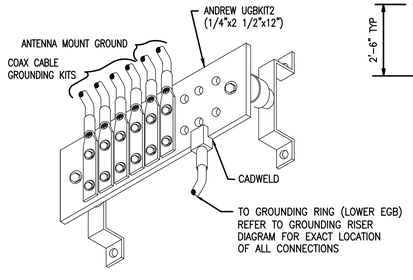
CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

NOTES:

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

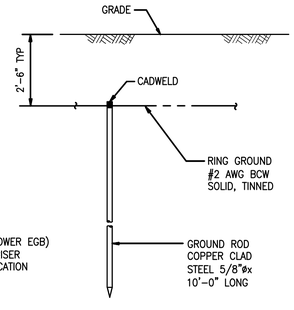
DETAIL (3 / E04)

SCALE: NOT TO SCALE



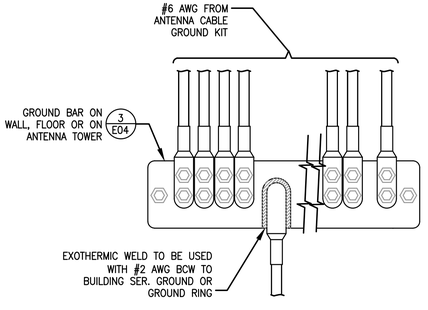
GROUND BAR (EGB) (4 / E04)

SCALE: NOT TO SCALE



GROUND ROD (5 / E04)

SCALE: NOT TO SCALE

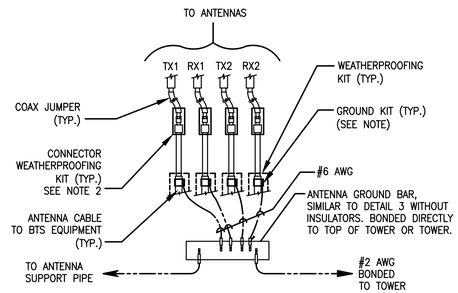


*- GROUND BARS AT THE BOTTOM OF TOWERS/TOWERS SHALL ONLY USE EXOTHERMIC WELDS.

INSTALLATION OF GROUND WIRE TO GROUND BAR

DETAIL (6 / E04)

SCALE: NOT TO SCALE



CONNECTION OF GROUND WIRE TO GROUNDING BAR, TOWER

DETAIL (7 / E04)

SCALE: NOT TO SCALE

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ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

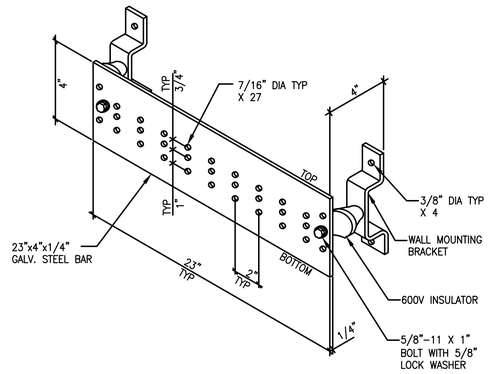
DRAWING TITLE:

SCHEMATIC GROUNDING PLAN & DETAILS

DRAWING NO:

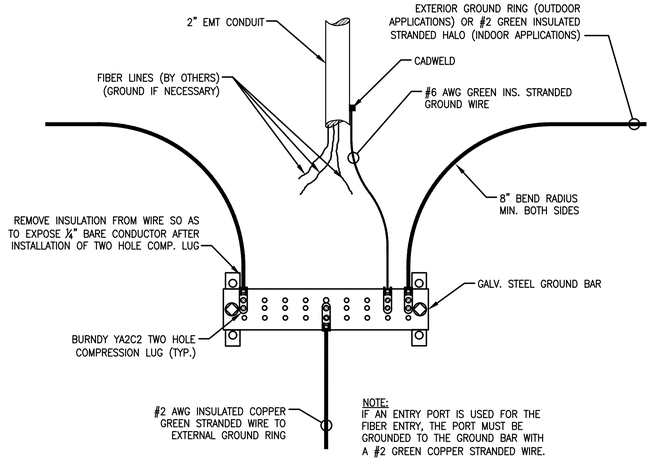
E04

SCALE: AS SHOWN	DESIGNED BY: GRS	VZW LOCATION CODE: 470040
	DRAWN BY: NWC	
	CHECKED BY: GRS	
CEA PROJECT NO.: 96210.397	ORIGINAL ISSUE DATE: 8/17/20	

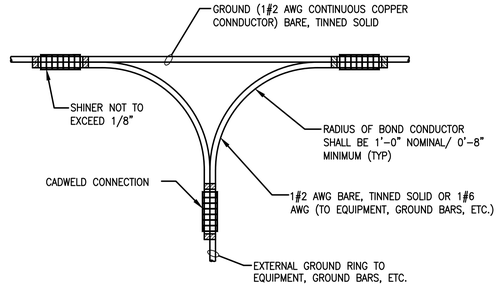


1. SURFACE PREPERATION: ALL CONNECTIONS MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE MADE BARE TO ENSURE PROPER CONTACT. NO WASHERS SHALL BE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS SHALL HAVE AN ANTI-OXIDANT AGENT APPLIED PRIOR TO INSTALLATION.
2. BUSS PREPERATION: ALL GALV. STEEL BUSSES SHALL BE CLEANED, POLISHED AND AN ANTI-OXIDANT APPLIED. NO FINGERPRINTS OR DISCOLORED STEEL WILL BE PERMITTED.
3. TERMINATIONS: ALL EQUIPMENT TERMINATIONS SHALL BE MADE WITH A BURNDY TWO HOLE COMPRESSION LUG WITH 10-24x3/4" LONG S.S. SCREWS, NUTS AND LOCK WASHERS. ALL BUSS TERMINATIONS SHALL BE MADE WITH A CAD-WELD OR BURNDY YC2C2 2 HOLE COMPRESSION LUG OR EQUAL. ALL INTERIOR HALO ATTACHMENTS SHALL BE MADE USING A BURNDY YC2C2 COMPRESSION LUG.

TYP. INTERIOR & EXTERIOR GROUND BAR
SCALE: N.T.S.

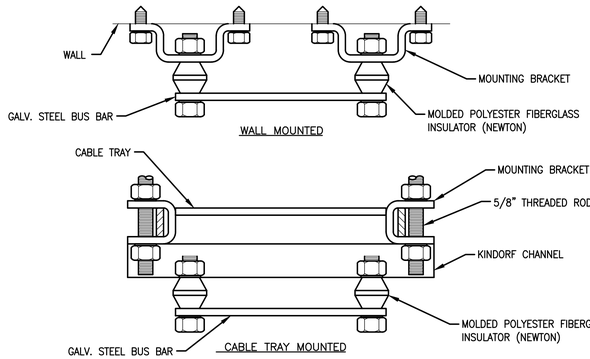


INTERIOR GROUNDING AT TELCO ENTRY
SCALE: N.T.S.

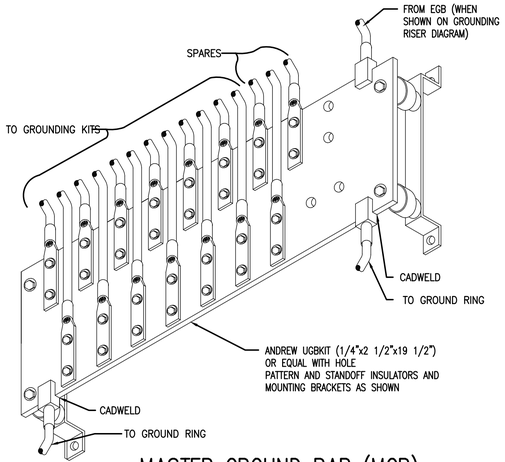


NOTE: ALL CONNECTION TO GROUND SHALL BE NON-DIRECTIONAL

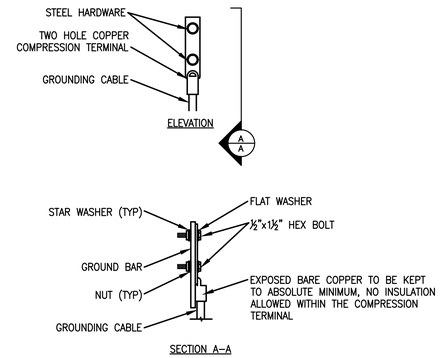
NON-DIRECTIONAL SPLICE
SCALE: N.T.S.



BUS BAR MOUNTING
SCALE: N.T.S.

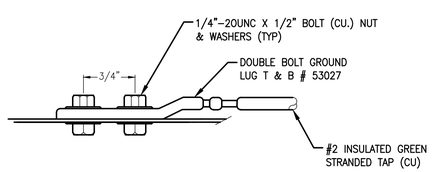


MASTER GROUND BAR (MGB)
SCALE: NOT TO SCALE

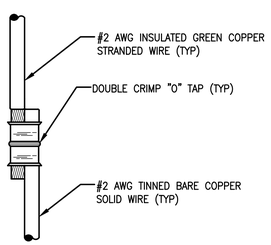


NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

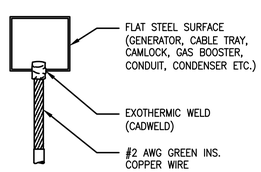
TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



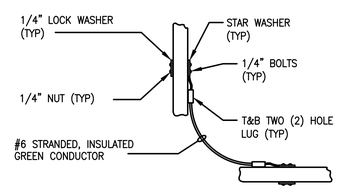
TYPICAL EQUIPMENT GROUND CONNECTION
SCALE: N.T.S.



TYPICAL GROUND CONNECTION SPLICE DETAIL
SCALE: N.T.S.



TYP. CADWELD #2 GREEN TO FLAT STEEL SURFACE
SCALE: NOT TO SCALE



CABLE TRAY GROUNDING
SCALE: N.T.S.

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STATE OF CONNECTICUT
CLEMENT J. SAFE
No. 26376
LICENSED PROFESSIONAL ENGINEER
ENGINEER/LAND SURVEYOR DATE

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	8/17/20
1	ISSUED FOR CONSTRUCTION (FINAL)	8/21/20

PROJECT NAME:
CHESHIRE
NORTHEAST 2 CT
1325 CHESHIRE STREET
CHESHIRE, CT 06410

DRAWING TITLE:
GROUNDING DETAILS

DRAWING NO:
E05

SCALE:	DESIGNED BY: GRS	VZW LOCATION CODE:
AS SHOWN	DRAWN BY: NWC	470040
	CHECKED BY: GRS	
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	
96210.397	8/17/20	

ATTACHMENT 4

30REOZK

30 kW Generator

LEGENDARY KOHLER QUALITY
FOR SMALL SPACES

COMPACT FOOTPRINT

Our 76.5" x 32" rectangular footprint is specially designed for cell tower site applications.

QUIET PERFORMANCE

Our sound enclosure delivers a sound performance of 65 dBA— which is among the quietest available.

RELIABLE POWER

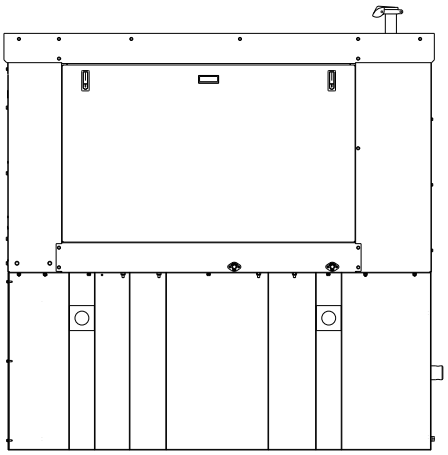
Our direct engine/alternator design eliminates the possibility of generator failure due to improper adjustment or belt breakdowns.

SINGLE-SIDE SERVICE

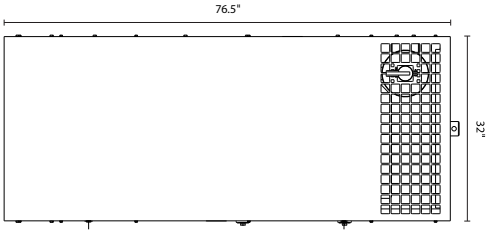
Maintenance is easy. All frequently serviced touch points are located on a single side and accessible by an easy-to-remove lift off door.

30REOZK

Front View



Top View



MODEL		30REOZK
FUEL TYPE		Diesel
ENGINE MAKER		Kohler KDI
OPERATING SPEED	(rpm)	1800
CONTROLLER		Kohler Decision-Maker 3000
VOLTAGE		120/240 1 Phase
TANK GALLON/48 HRS @ FULL LOAD		203
TANK*		Standard, Double Wall
OVERALL DIMENSIONS	L x W x H in	76.5 x 32.0 x 47.0
WEIGHT	lbs	1130
PEOPLESOFT NUMBER		21099077

*Alternative tank sizes, state tanks and 3 phase models available.

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PRINTED IN U.S.A G12-505 3/18

PRELIMINARY

MX10FIT665-xx

NWAV™ X-Pol Ten-Port Antenna

X-Pol Ten-Port 6 ft, 65° Form in Tighter with Smart Bias Ts, 698-4200 MHz:

2 ports 698-894 MHz, 4 ports 1695-2180 MHz, and 4 ports 3400-4200 MHz

- Excellent passive intermodulation (PIM) performance reduces harmful interference.
- Fully integrated (iRETs) with independent RET control for low band and mid band
- FET configured with internal RET for high band & ease of future network optimization.
- SON-Ready array spacing supports beamforming capabilities
- Suitable for 3G, 4G, and 5G interface technologies
- Integrated Smart Bias-Ts reduce leasing costs
- Optimized form factor for reduced wind loading

Electrical specification (minimum/maximum)	Ports 1, 2		Ports 3, 4, 5, 6		
Frequency bands, MHz	698-798	824-894	1695-1880	1850-1990	1920-2180
Polarization	± 45°		± 45°		
Average gain over all tilts, dBi	14.4	14.8	17.8	18.1	18.2
Horizontal beamwidth (HBW), degrees[1]	66.0	57.0	63.0	63.0	58.0
Front-to-back ratio, co-polar power @180°± 30°, dB	>22	>22.0	>25.0	>25.0	>25.0
X-Pol discrimination (CPR) at boresight, dB	>17.0	>15.6	>23	>18	>18
Vertical beamwidth (VBW), degrees[1]	13.5	12.0	6.0	5.5	5.4
Electrical downtilt (EDT) range, degrees	2-14		0-9		
First upper side lobe (USLS) suppression, dB[1]	≤-17.0	≤-16.0	≤-17.0	≤-16.0	≤-16.0
Cross-polar isolation, port-to-port, dB[1]	25	25	25	25	25
Max VSWR / return loss, dB	1.5:1 / -14.0		1.5:1 / -14.0		
Max passive intermodulation (PIM), 2x20W carrier, dBc	-153		-153		
Max input power per any port, watts	300		250		
Total composite power all ports (1-10), watts	1500				

[1] Typical value over frequency and tilt

Electrical specification (minimum/maximum)	Ports 7, 8, 9, 10			
Frequency bands, MHz	3400-3550	3550-3700	3700-3950	3950-4200
Polarization	± 45°			
Average gain over all tilts, dBi	13.6	13.8	14.0	14.2
Horizontal beamwidth (HBW), degrees	65	62	60	58
Front-to-back ratio, co-polar power @180°± 30°, dB	>23	>23	>23	>22
Vertical beamwidth (VBW), degrees[1]	20	19.6	19.3	18.5
Electrical downtilt (EDT) range, degrees	2-12 orderable in 1 deg increments			
First upper side lobe (USLS) suppression, dB[1]	≤-15	≤-15	≤-15	≤-15
Cross-polar isolation, port-to-port, dB[1]	25	25	25	25
Max VSWR / return loss, dB	1.5:1 / -14.0			
Max input power per any port, watts	150			
Total composite power all ports (1-10), watts	1500			

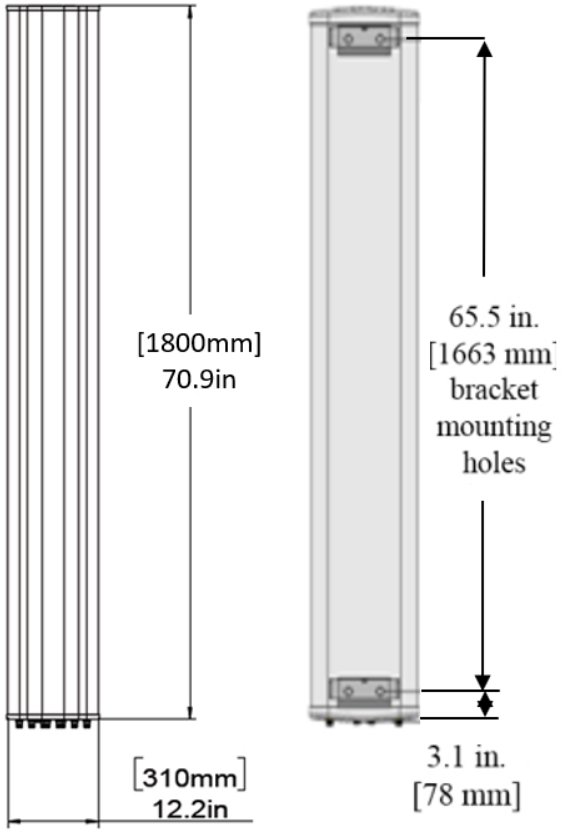
[1] Typical value over frequency and tilt

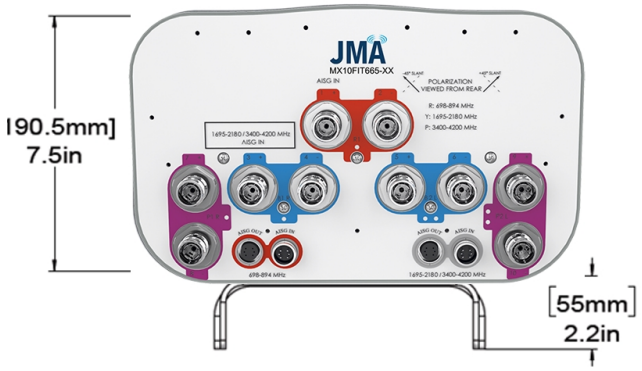
* For ports 7-10, the electrical downtilt is FET configured with internal RET, where the required electrical downtilt is defined at the time of order per the ordering information below.

Ordering information	
Antenna model	**Description**
MX10FIT665-xx (xx represents the FET in one degree increments for 3.4-4.2 GHz)	6F X- Pol 10 Port FIT 65º 2-14º/ 0-9º/ 2-12º, 4.3-10 & SBTs
	xx=02 thru 12 for each 1 degree tilt 3.4-4.2 GHz Examples MX10FIT665-02 – 2deg, MX10FIT665-09 – 9deg, MX10FIT665-12-12deg
Optional accessories	
AISG cables	M/F cables for AISG connections
PCU-1000 RET controller	Stand-alone controller for RET control and configurations
91900314-02	Dual Mount Bracket (see 91900314 bracket document for details)

Mechanical specifications	
Dimensions height/width/depth, inches (mm)	70.9/ 12.2/ 7.5 (1800/ 309.9/ 190.5)
Shipping dimensions length/width/height, inches (mm)	76/ 20/ 14.5 (1930/ 508/ 368)
No. of RF input ports, connector type, and location	10 x 4.3-10 female, bottom
RF connector torque	96 lbf·in (10.85 N·m or 8 lbf·ft)
Net antenna weight, lb (kg)	53.4 (24.3)
Shipping weight, lb (kg)	97.5 (44.3)
Antenna mounting and downtilt kit included with antenna	91900318
Net weight of the mounting and downtilt kit, lb (kg)	20.3 (9.2)
Range of mechanical up/down tilt	-2° to 12°
Rated wind survival speed, mph (km/h)	150 (241)
Frontal, lateral, and rear wind loading @ 150 km/h, lbf (N)	74.1 (330), 26.1 (116), 69.8 (311)
Equivalent flat plate @ 100 mph and Cd=2, sq ft	1.49

Front view | **Back view** | **Bottom view**





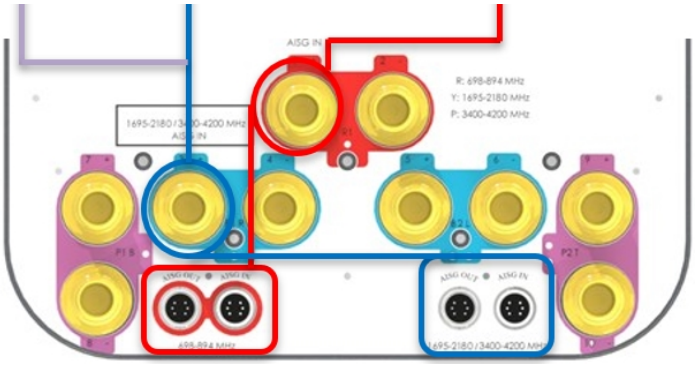
Remote electrical tilt (RET 1000) information	
RET location	Integrated into antenna
RET interface connector type	8-pin AISG connector per IEC 60130-9 or RF port bias-t
RET connector torque	Min 0.5 N·m to max 1.0 N·m (hand pressure & finger tight)
RET interface connector quantity	2 pairs of AISG male/female connectors and 2 RF port bias-ts
RET interface connector location	Bottom of the antenna
Total no. of internal RETs 698-894 MHz	1
Total no. of internal RETs 1695-2180 MHz	1
Total no. of internal RETs 3400-4200 MHz	1
RET input operating voltage, vdc	10-30
RET max power consumption, idle state, W	≤ 2.0
RET max power consumption, normal operating conditions, W	≤ 13.0
RET communication protocol	AISG 2.0 / 3GPP

RET and RF connector topology

Each RET device can be controlled either via the designated external AISG connector or RF smart bias-t port as shown below:

Band	RF port	Band	RF port
3400-4200	7-10	1695-2180	3-6

Band	RF port
698-894	1-2



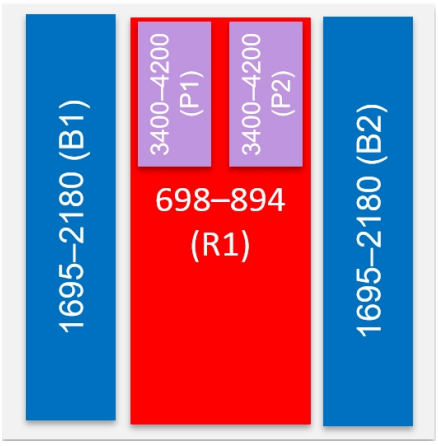
Note: The RET Device for 3400-4200 MHz is connected via the 1695-2180 Port 3 Bias T port or 1695-2180/3400-4200 MHz AISG ports.

Array topology

5 sets of radiating arrays

R1: 698-894 MHz
B1: 1695-2180 MHz
B2: 1695-2180 MHz
P1: 3400-4200 MHz
P2: 3400-4200 MHz

Band	RF port
698-894	1-2
1695-2180	3-4
1695-2180	5-6
3400-4200	7-8
3400-4200	9-10



SAMSUNG

Dual-Band Radio Unit
700/850MHz (B13/B5)
RFV01U-D2A

Samsung's RFV01U-D2A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.

The RFV01U-D2A RU targets dual-band support across Band 13 (700MHz) and Band 5 (850MHz), making it an ideal product for broad coverage footprints across multiple common low-end, long-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
B13: DL(746-756MHz)/UL(777-787MHz)
B5: DL(869-894MHz)/UL(824-849MHz)
Instantaneous Bandwidth: 10MHz(B13) + 25MHz(B5)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 207mm (29.9L)
Weight: 31.9kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

SAMSUNG

Dual-Band Radio Unit
AWS/PCS (B66/B2)
RFV01U-D1A

Samsung's RFV01U-D1A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.

The RFV01U-D1A RU targets dual-band support across Band 66 (AWS) and Band 2 (PCS), making it an ideal product for broad coverage footprints across multiple common mid-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

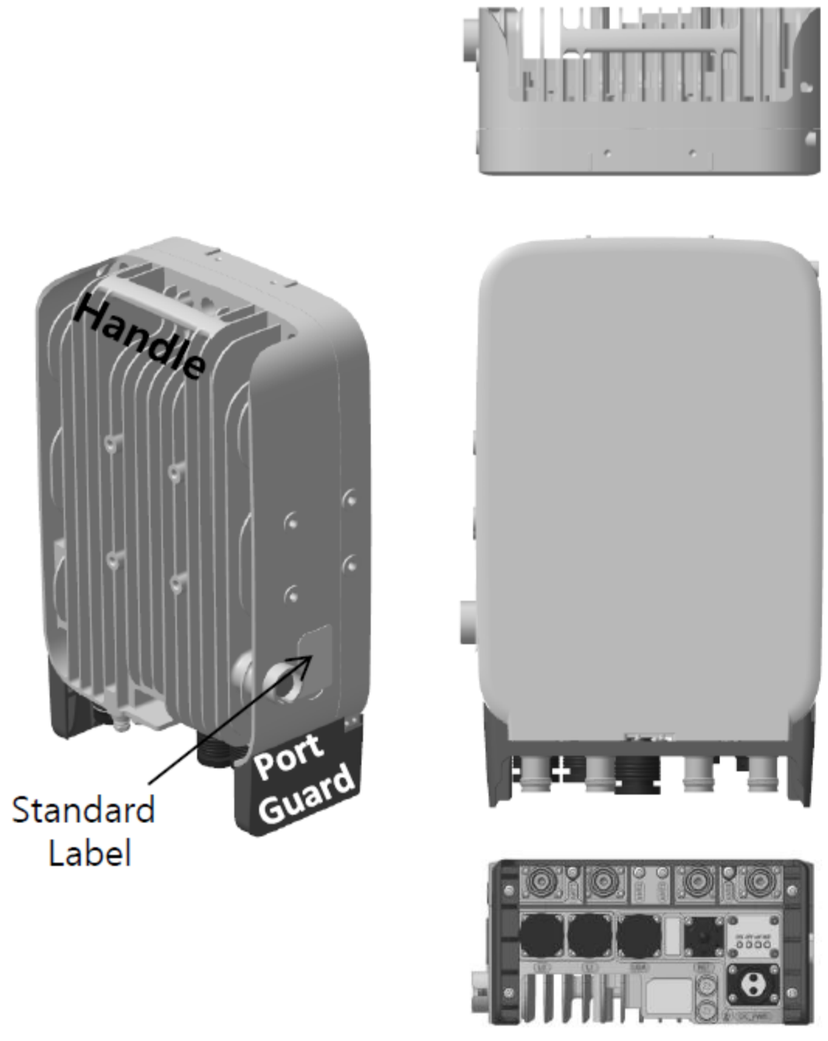
Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation
- Built-in Broadcast Auxiliary Services (BAS) filter ensures compliant AWS operation without impacting footprint

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
    B66: DL(2,110-2,180MHz)/UL(1,710-1,780MHz)
    B2: DL(1,930-1,990MHz)/UL(1,850-1,910MHz)
Instantaneous Bandwidth:
    70MHz(B66) + 60MHz(B2)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 255mm (36.8L)
Weight: 38.3kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

[CBRS RRH] Spec.



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

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

ATTACHMENT 5

Structural Analysis Report

Structure	**:** 170 foot Monopole
Insite Site Name	**:** Cheshire
Insite Site Number	**:** CT005
Proposed Carrier	**:** Verizon Wireless
Carrier Site Name	**:** Cheshire Northeast 2 CT
Carrier Site Number	**:** NA
Site Location	**:** 1325 Cheshire St Cheshire, CT 06410 41.5326, -72.8705
Date	**:** July 17, 2020
Max Member Stress Level	**:** 33.5% (Pole) 35.0% (Anchor Bolt) 43.5% (Foundation)
Result	**: PASS**

07/17/20

Prepared by:
Bennett & Pless, Inc.
B&P Job No.: 20.03.013.020

bennett&pless
Experience Structural Expertise

Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by Verizon Wireless. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Ambor tower drawings dated 9/21/2015
Foundation Information	Ambor tower drawings dated 9/21/2015
Geotechnical Information	Terracon geotechnical report Project No J2145102 dated 3/18/2014
Existing Equipment Information	Verizon Wireless Colocation Application dated 07/13/2020 Bennett & Pless Structural Analysis Project No. 19313.009 dated 06/26/19. Sprint Colocation Application dated 6/25/2018 AT&T Wireless Colocation Application dated 1/27/2014
Tower Reinforcement Information	Tower has not been previously reinforced.

Final Proposed Equipment Loading for Verizon Wireless

The following proposed loading was obtained from the Insite Collocation Application:

Antenna/Equipment					Coax	
Mount	RAD	Qty.	Antenna	Type	Qty.	Size/Type
145.0	-	1	Sitepro 1 RMQP-4096-HK	Mount	2	1 1/4" Hybrid
		3	JMA 91900314	Mount		
	145.0	6	JMA MX10FIT665	Panel		
		3	Samsung B5/B13-BRO4C	RRH		
		3	Samsung B2/B66A	RRH		
		3	CBRS RT-4401-48A	RRH		
		1	RFS DB-C1-12C-24-AB-0Z	Surge Suppr.		

Note: All Equipment shown above is proposed.
Note: Proposed feed lines to be placed inside the pole.
Note: Other existing loading can be found on the tower profile attached.

Design Criteria

The tower was analyzed using tnxTower (Version 8.0.7.4) tower analysis software using the following design criteria.

State/County	Connecticut / New Haven
State Building Code	2018 Connecticut State Building Code
TIA/EIA Standard Code	TIA-222-G
Basic Wind Speed	123 MPH (V_{ult})/96 MPH (V_{asd})
Basic Wind Speed w/ Ice	50 MPH/ 0.75" Ice
Steel Grade	50ksi pole, A615-75 anchor bolts, 50 ksi base plate
Exposure Category	C
Topographic Category (height)	1 (0.0 ft)
Importance Factor	1.0

Analysis Results

Based on the foregoing information, the **existing tower is structurally capable of supporting the proposed equipment loads.** The base plates and anchor rods have also been evaluated and are **structurally capable of supporting the proposed equipment loads.** The tower foundation is also found to be structurally capable of supporting the proposed equipment loads.

Assumptions

The below assumptions are true, complete and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%.
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower described above **does have sufficient capacity** to support the proposed loading based on the governing Building Code. The existing tower foundations is also acceptable.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance, please call us anytime at 561-288-1187.

Sincerely,

Analysis by:

Michael Hlinka, E.I.
Design Engineer

Reviewed by:

07/17/20

Thomas F. Ireland, P.E.
Principal

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Bennett & Pless Inc., or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Bennett & Pless Inc. and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222 requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Bennett & Pless Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

Bennett & Pless Inc. makes no warranties, expressed or implied, in connection with this report, and disclaims any liability arising from the ability of the existing structure to support the design loads for which it was originally designed. Bennett & Pless Inc. will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Bennett & Pless Inc. pursuant to this report will be limited to the total fee received for preparation of this report.

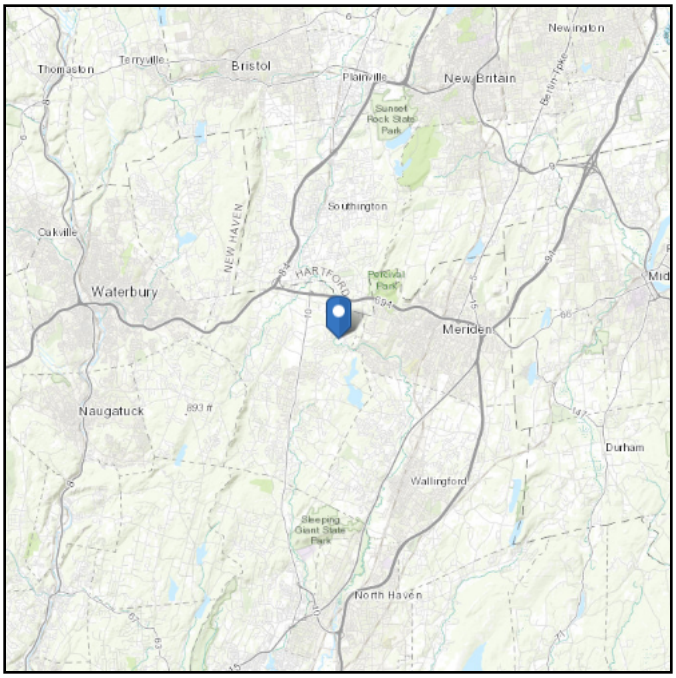
Attachment 1:
Calculations

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 113.74 ft (NAVD 88)
Latitude: 41.5326
Longitude: -72.8705



Wind

Results:

Wind Speed:	123 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Thu Jul 16 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 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

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

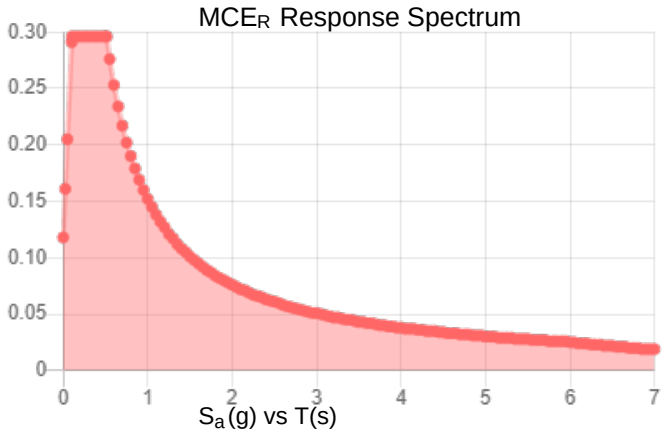
Seismic

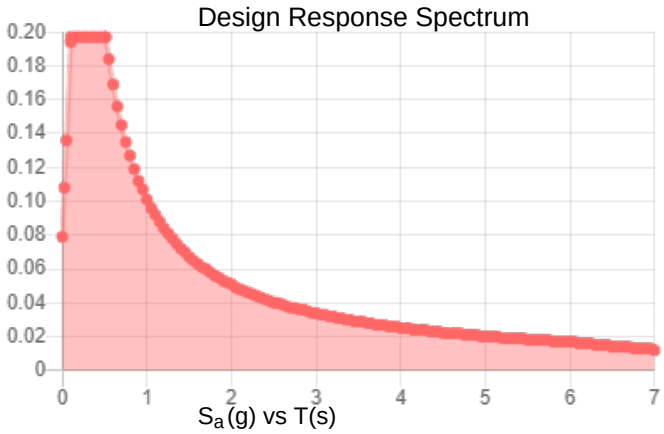
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.185	S_{DS} :	0.197
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.095
S_{MS} :	0.296	PGA_M :	0.152
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Jul 16 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

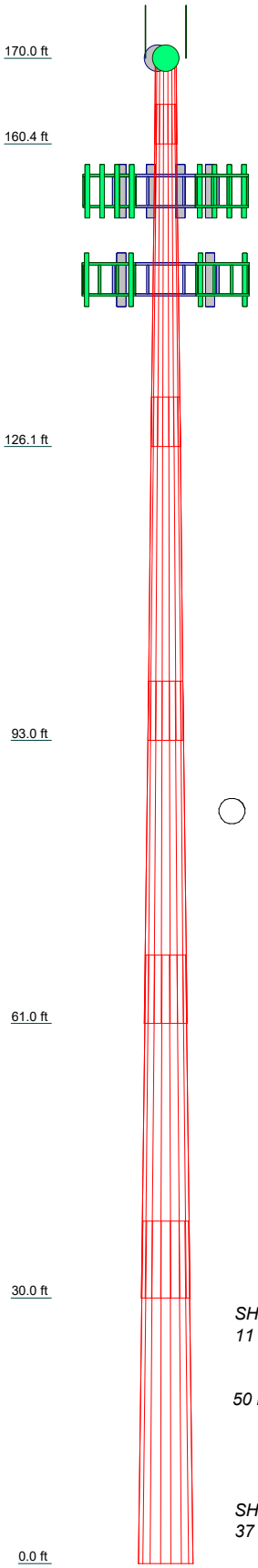
Results:

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:	Thu Jul 16 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.

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	37-13/16"	18	0.28	4'5-7/8"	27.17	30.04		0.8
2	38'8-17/32"	18	0.35	5'6-27/32"	28.15	39.68		5.0
3	38'8-17/32"	18	0.39	6'8-9/32"	37.31	48.83		7.0
4	38'8-17/32"	18	0.47	7'9-1/8"	46.05	57.58		10.1
5	38'8-17/32"	18	0.55	8'8-1/32"	54.33	65.85		13.7
6	38'8-9/32"	18	0.55		62.17	73.69		15.5
							A572-65	52.1



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DS1F03F36D-Ns (Town of Cheshire)	170	FC 12-PC6-10E (ATT)	155
DS1F03F36D-Ns (Town of Cheshire)	170	FC 12-PC6-10E (ATT)	155
(2) 4' Stand off (Town of Cheshire)	170	12' LP Platform (ATT)	155
(2) 6' x 3" Pipe Mount (Town of Cheshire)	170	(4) HPA-65R-BUU-H8 w/ Mount Pipe (ATT)	155
3' Dish w/ Radome (Town of Cheshire)	170	(4) HPA-65R-BUU-H8 w/ Mount Pipe (ATT)	155
3' Dish w/ Radome (Town of Cheshire)	170		
(4) HPA-65R-BUU-H8 w/ Mount Pipe (ATT)	155	(2) JMA MX10FIT665 (VZW)	145
		Samsung B5/B13 RRH-BR04C (VZW)	145
(3) RRUS 11 (ATT)	155	Samsung B5/B13 RRH-BR04C (VZW)	145
(3) RRUS 11 (ATT)	155	Samsung B5/B13 RRH-BR04C (VZW)	145
(3) RRUS 11 (ATT)	155	Samsung B2/B66A RRH-BR049 (VZW)	145
(2) RRUS 12 (ATT)	155	Samsung B2/B66A RRH-BR049 (VZW)	145
(2) RRUS 12 (ATT)	155	Samsung B2/B66A RRH-BR049 (VZW)	145
(2) RRUS 12 (ATT)	155	CBRS RT-4401-48A RRH (VZW)	145
(2) RRUS 22 xx20 (ATT)	155	CBRS RT-4401-48A RRH (VZW)	145
(2) RRUS 22 xx20 (ATT)	155	CBRS RT-4401-48A RRH (VZW)	145
(2) RRUS 22 xx20 (ATT)	155	RFS DB-C1-12C-24-AB-0Z (VZW)	145
(2) RRUS A2 MODULE (ATT)	155	Site Pro 1 RMQP-XXX-HK12 w/ JMA 91900314 (VZW)	145
(2) RRUS A2 MODULE (ATT)	155		
(2) RRUS A2 MODULE (ATT)	155	(2) JMA MX10FIT665 (VZW)	145
DC12-48-60-RM (ATT)	155	(2) JMA MX10FIT665 (VZW)	145
DC12-48-60-RM (ATT)	155		
Raycap DC12-48-60-0-25E (ATT)	155		
Raycap DC12-48-60-0-25E (ATT)	155		
FC 12-PC6-10E (ATT)	155		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 96 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 II.
7. Topographic Category 1 with Crest Height of 0'
8. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
9. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
10. Full height step bolts
11. Antenna feedlines are considered to run inside the pole shaft.
12. TOWER RATING: 33.5%

ALL REACTIONS ARE FACTORED

AXIAL 106 K

SHEAR 11 K *MOMENT 1186 kip-ft*

TORQUE 1 kip-ft
50 mph WIND - 0.75 in ICE

AXIAL 72 K

SHEAR 37 K *MOMENT 4171 kip-ft*

TORQUE 9 kip-ft
REACTIONS - 96 mph WIND

Bennett & Pless
750 Park Commerce Dr #200
Boca Raton, FL 33487
Phone: 561-282-2676
FAX:
Experience Structural Expertise

Job: ***170 ft Tapered Monopole***			
Project: ***Cheshire, CT (CT005)***			
Client: AMBOR / InSite Towers	Drawn by: mhlinka	App'd:	
Code: TIA-222-G	Date: 07/16/20	Scale: NTS	
Path:		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 96 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0'.
Nominal ice thickness of 0.75 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.
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Full height step bolts.
Antenna feedlines are considered to run inside the pole shaft..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole 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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	170'-160'4-3/16"	9'7-13/16"	4'5-7/8"	18	27.17	30.04	0.28	1.10	A572-65 (65 ksi)
L2	160'4-3/16"-126' 1-11/16"	38'8-17/32"	5'6-27/32"	18	28.15	39.68	0.35	1.42	A572-65 (65 ksi)
L3	126'1-11/16"-93'	38'8-17/32"	6'8-9/32"	18	37.31	48.83	0.39	1.57	A572-65 (65 ksi)
L4	93'-60'11-5/8"	38'8-17/32"	7'9-1/8"	18	46.05	57.58	0.47	1.89	A572-65 (65 ksi)
L5	60'11-5/8"-30'1/4"	38'8-17/32"	8'8-1/32"	18	54.33	65.85	0.55	2.20	A572-65 (65 ksi)
L6	30'1/4"-0'	38'8-9/32"		18	62.17	73.69	0.55	2.20	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	27.55	23.53	2149.79	9.55	13.80	155.76	4302.42	11.76	4.30	15.591
	30.46	26.04	2914.09	10.57	15.26	190.96	5832.01	13.02	4.80	17.424
L2	29.89	31.26	3052.07	9.87	14.30	213.41	6108.16	15.63	4.33	12.223
	40.24	44.23	8641.47	13.96	20.16	428.70	17294.32	22.12	6.36	17.949
L3	39.51	46.13	7943.69	13.11	18.95	419.10	15897.83	23.07	5.87	14.92
	49.52	60.53	17939.83	17.19	24.81	723.22	35903.27	30.27	7.90	20.069
L4	48.71	68.29	17923.86	16.18	23.39	766.15	35871.31	34.15	7.27	15.412
	58.40	85.56	35251.47	20.27	29.25	1205.15	70549.32	42.79	9.30	19.711
L5	57.42	93.88	34299.59	19.09	27.60	1242.83	68644.32	46.95	8.59	15.625
	66.78	113.99	61411.06	23.18	33.45	1835.81	122902.93	57.01	10.62	19.312
L6	65.67	107.57	51599.12	21.87	31.58	1633.83	103266.14	53.79	9.97	18.134
	74.75	127.69	86307.99	25.97	37.44	2305.43	172729.54	63.86	12.00	21.822

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 170'-160'4-3/16"				1	1	1			
L2 160'4-3/16"-126'1-11/16"				1	1	1			
L3 126'1-11/16"-93'				1	1	1			
L4 93'-60'11-5/8"				1	1	1			
L5 60'11-5/8"-30'1/4"				1	1	1			
L6 30'1/4"-0'				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
***									
3/4" DC Power Cable (ATT)	C	No	Yes	Inside Pole	155' - 5'	8	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
1/2" FIBER CABLE (ATT)	A	No	Yes	Inside Pole	155' - 5'	2	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
3/8" RET (ATT)	B	No	Yes	Inside Pole	155' - 5'	3	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
***									
7/8" Coax (Town of Chechire)	C	No	Yes	Inside Pole	170' - 5'	2	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
7/8" Coax (Town of Chechire)	C	No	Yes	Inside Pole	170' - 5'	2	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
E105J (1.3") (Town of Chechire)	C	No	Yes	Inside Pole	170' - 5'	2	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
***									
1 1/4" Hybriflex (VZW)	C	No	Yes	Inside Pole	145' - 5'	2	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	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	170'-160'4-3/16"	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	0.01
L2	160'4-3/16"-126'1-11/16"	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.20
L3	126'1-11/16"-93'	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.24
L4	93'-60'11-5/8"	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.23
L5	60'11-5/8"-30'1/4"	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.22
L6	30'1/4"-0'	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.18

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	170'-160'4-3/16"	A	1.762	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	0.01
L2	160'4-3/16"-126'1-11/16"	A	1.736	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.20
L3	126'1-11/16"-93'	A	1.690	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.24
L4	93'-60'11-5/8"	A	1.632	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.23
L5	60'11-5/8"-30'1/4"	A	1.549	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.22
L6	30'1/4"-0'	A	1.386	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.18

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DS1F03F36D-Ns	C	From Leg	1.50	0.00	170'	No Ice	1.50	1.50	0.01
(Town of Cheshire)			0'			1/2" Ice	2.25	2.25	0.02
			3'			1" Ice	3.00	3.00	0.03
DS1F03F36D-Ns	B	From Leg	1.50	0.00	170'	No Ice	1.50	1.50	0.01
(Town of Cheshire)			0'			1/2" Ice	2.25	2.25	0.02
			3'			1" Ice	3.00	3.00	0.03
(2) 4' Stand off	C	None		0.00	170'	No Ice	0.70	0.70	0.01
(Town of Cheshire)						1/2" Ice	0.90	0.90	0.01
						1" Ice	1.10	1.10	0.02
(2) 6' x 3" Pipe Mount	C	None		0.00	170'	No Ice	1.77	1.77	0.03
(Town of Cheshire)						1/2" Ice	2.13	2.13	0.05
						1" Ice	2.50	2.50	0.07
***									
***									
(4) HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	3.00	0.00	155'	No Ice	13.21	9.58	0.10
(ATT)			0'			1/2" Ice	13.90	11.05	0.20
			0'			1" Ice	14.59	12.50	0.30
(4) HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	3.00	0.00	155'	No Ice	13.21	9.58	0.10
(ATT)			0'			1/2" Ice	13.90	11.05	0.20
			0'			1" Ice	14.59	12.50	0.30
(4) HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	3.00	0.00	155'	No Ice	13.21	9.58	0.10
(ATT)			0'			1/2" Ice	13.90	11.05	0.20
			0'			1" Ice	14.59	12.50	0.30
(3) RRUS 11	A	From Leg	3.00	0.00	155'	No Ice	2.78	1.19	0.05

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft ft ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
(ATT)			0'			1/2" Ice	2.99	1.33	0.07
			0'			1" Ice	3.21	1.49	0.10
(3) RRUS 11	B	From Leg	3.00	0.00	155'	No Ice	2.78	1.19	0.05
(ATT)			0'			1/2" Ice	2.99	1.33	0.07
			0'			1" Ice	3.21	1.49	0.10
(3) RRUS 11	C	From Leg	3.00	0.00	155'	No Ice	2.78	1.19	0.05
(ATT)			0'			1/2" Ice	2.99	1.33	0.07
			0'			1" Ice	3.21	1.49	0.10
(2) RRUS 12	A	From Leg	3.00	0.00	155'	No Ice	3.15	1.29	0.06
(ATT)			0'			1/2" Ice	3.36	1.44	0.08
			0'			1" Ice	3.59	1.60	0.11
(2) RRUS 12	B	From Leg	3.00	0.00	155'	No Ice	3.15	1.29	0.06
(ATT)			0'			1/2" Ice	3.36	1.44	0.08
			0'			1" Ice	3.59	1.60	0.11
(2) RRUS 12	C	From Leg	3.00	0.00	155'	No Ice	3.15	1.29	0.06
(ATT)			0'			1/2" Ice	3.36	1.44	0.08
			0'			1" Ice	3.59	1.60	0.11
(2) RRUS 22 xx20	A	From Leg	3.00	0.00	155'	No Ice	3.87	2.76	0.08
(ATT)			0'			1/2" Ice	4.15	3.02	0.10
			0'			1" Ice	4.44	3.29	0.14
(2) RRUS 22 xx20	B	From Leg	3.00	0.00	155'	No Ice	3.87	2.76	0.08
(ATT)			0'			1/2" Ice	4.15	3.02	0.10
			0'			1" Ice	4.44	3.29	0.14
(2) RRUS 22 xx20	C	From Leg	3.00	0.00	155'	No Ice	3.87	2.76	0.08
(ATT)			0'			1/2" Ice	4.15	3.02	0.10
			0'			1" Ice	4.44	3.29	0.14
(2) RRUS A2 MODULE	A	From Leg	3.00	0.00	155'	No Ice	1.60	0.38	0.02
(ATT)			0'			1/2" Ice	1.76	0.47	0.03
			0'			1" Ice	1.92	0.57	0.04
(2) RRUS A2 MODULE	B	From Leg	3.00	0.00	155'	No Ice	1.60	0.38	0.02
(ATT)			0'			1/2" Ice	1.76	0.47	0.03
			0'			1" Ice	1.92	0.57	0.04
(2) RRUS A2 MODULE	C	From Leg	3.00	0.00	155'	No Ice	1.60	0.38	0.02
(ATT)			0'			1/2" Ice	1.76	0.47	0.03
			0'			1" Ice	1.92	0.57	0.04
DC12-48-60-RM	A	From Leg	3.00	0.00	155'	No Ice	2.25	2.25	0.02
(ATT)			0'			1/2" Ice	2.50	2.50	0.04
			0'			1" Ice	2.75	2.75	0.05
DC12-48-60-RM	C	From Leg	3.00	0.00	155'	No Ice	2.25	2.25	0.02
(ATT)			0'			1/2" Ice	2.50	2.50	0.04
			0'			1" Ice	2.75	2.75	0.05
Raycap DC12-48-60-0-25E	A	From Leg	3.00	0.00	155'	No Ice	4.80	1.63	0.05
(ATT)			0'			1/2" Ice	5.07	1.80	0.09
			0'			1" Ice	5.35	1.99	0.12
Raycap DC12-48-60-0-25E	C	From Leg	3.00	0.00	155'	No Ice	4.80	1.63	0.05
(ATT)			0'			1/2" Ice	5.07	1.80	0.09
			0'			1" Ice	5.35	1.99	0.12
FC 12-PC6-10E	A	From Leg	3.00	0.00	155'	No Ice	1.00	1.00	0.01
(ATT)			0'			1/2" Ice	1.25	1.25	0.01
			0'			1" Ice	1.50	1.50	0.02
FC 12-PC6-10E	A	From Leg	3.00	0.00	155'	No Ice	1.00	1.00	0.01
(ATT)			0'			1/2" Ice	1.25	1.25	0.01
			0'			1" Ice	1.50	1.50	0.02
FC 12-PC6-10E	A	From Leg	3.00	0.00	155'	No Ice	1.00	1.00	0.01
(ATT)			0'			1/2" Ice	1.25	1.25	0.01
			0'			1" Ice	1.50	1.50	0.02
12' LP Platform	C	None		0.00	155'	No Ice	28.47	28.47	1.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(ATT)						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
***									
(2) JMA MX10FIT665	A	From Leg	3.00	0.00	145'	No Ice	8.09	5.47	0.05
(VZW)			0'			1/2" Ice	8.54	5.92	0.10
			0'			1" Ice	9.00	6.38	0.16
(2) JMA MX10FIT665	B	From Leg	3.00	0.00	145'	No Ice	8.09	5.47	0.05
(VZW)			0'			1/2" Ice	8.54	5.92	0.10
			0'			1" Ice	9.00	6.38	0.16
(2) JMA MX10FIT665	C	From Leg	3.00	0.00	145'	No Ice	8.09	5.47	0.05
(VZW)			0'			1/2" Ice	8.54	5.92	0.10
			0'			1" Ice	9.00	6.38	0.16
Samsung B5/B13	A	From Leg	3.00	0.00	145'	No Ice	1.85	1.01	0.07
RRH-BR04C			0'			1/2" Ice	2.02	1.14	0.09
(VZW)			0'			1" Ice	2.20	1.28	0.11
Samsung B5/B13	B	From Leg	3.00	0.00	145'	No Ice	1.85	1.01	0.07
RRH-BR04C			0'			1/2" Ice	2.02	1.14	0.09
(VZW)			0'			1" Ice	2.20	1.28	0.11
Samsung B5/B13	C	From Leg	3.00	0.00	145'	No Ice	1.85	1.01	0.07
RRH-BR04C			0'			1/2" Ice	2.02	1.14	0.09
(VZW)			0'			1" Ice	2.20	1.28	0.11
Samsung B2/B66A	A	From Leg	3.00	0.00	145'	No Ice	1.85	1.24	0.08
RRH-BR049			0'			1/2" Ice	2.02	1.38	0.10
(VZW)			0'			1" Ice	2.20	1.53	0.12
Samsung B2/B66A	B	From Leg	3.00	0.00	145'	No Ice	1.85	1.24	0.08
RRH-BR049			0'			1/2" Ice	2.02	1.38	0.10
(VZW)			0'			1" Ice	2.20	1.53	0.12
Samsung B2/B66A	C	From Leg	3.00	0.00	145'	No Ice	1.85	1.24	0.08
RRH-BR049			0'			1/2" Ice	2.02	1.38	0.10
(VZW)			0'			1" Ice	2.20	1.53	0.12
CBRS RT-4401-48A RRH	A	From Leg	3.00	0.00	145'	No Ice	0.86	0.29	0.02
(VZW)			0'			1/2" Ice	0.98	0.36	0.03
			0'			1" Ice	1.10	0.45	0.03
CBRS RT-4401-48A RRH	B	From Leg	3.00	0.00	145'	No Ice	0.86	0.29	0.02
(VZW)			0'			1/2" Ice	0.98	0.36	0.03
			0'			1" Ice	1.10	0.45	0.03
CBRS RT-4401-48A RRH	C	From Leg	3.00	0.00	145'	No Ice	0.86	0.29	0.02
(VZW)			0'			1/2" Ice	0.98	0.36	0.03
			0'			1" Ice	1.10	0.45	0.03
RFS DB-C1-12C-24-AB-0Z	C	From Leg	3.00	0.00	145'	No Ice	4.06	3.10	0.03
(VZW)			0'			1/2" Ice	4.32	3.34	0.07
			0'			1" Ice	4.58	3.58	0.11
Site Pro 1	C	From Leg	3.00	0.00	145'	No Ice	34.54	31.94	1.95
RMQP-XXX-HK12 w/ JMA			0'			1/2" Ice	39.46	31.94	2.35
91900314			0'			1" Ice	44.38	31.94	2.75
(VZW)									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
3' Dish w/ Radome (Town of Cheshire)	A	Paraboloid w/Radome	From Face	0.00 0' 0'	0.00		170'	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86	0.04 0.07 0.11
3' Dish w/ Radome (Town of Cheshire)	C	Paraboloid w/Radome	From Face	0.00 0' 0'	0.00		170'	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86	0.04 0.07 0.11

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	170 - 160.354	Pole	Max Tension	26	0.00	-0.00	0.00
			Max. Compression	26	-1.54	0.17	-0.21
			Max. Mx	8	-0.69	-6.54	0.17
			Max. My	14	-0.69	-0.19	-6.78
			Max. Vy	8	1.41	-6.54	0.17
			Max. Vx	14	1.44	-0.19	-6.78
			Max. Torque	10			-0.54
L2	160.354 - 126.135	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.27	16.53	-8.06
			Max. Mx	20	-13.76	422.60	-5.05
			Max. My	14	-13.75	10.12	-423.73
			Max. Vy	8	19.96	-407.86	-0.78
			Max. Vx	14	19.97	10.12	-423.73
			Max. Torque	25			8.53
L3	126.135 - 92.9974	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.83	16.87	-8.23
			Max. Mx	20	-21.93	1119.77	-7.66
			Max. My	14	-21.92	13.40	-1124.60
			Max. Vy	8	23.84	-1108.47	5.06
			Max. Vx	14	23.85	13.40	-1124.60
			Max. Torque	25			8.53
L4	92.9974 - 60.974	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.26	17.09	-8.34
			Max. Mx	20	-33.47	1918.55	-10.16
			Max. My	14	-33.47	16.51	-1926.94
			Max. Vy	8	27.98	-1910.60	10.75
			Max. Vx	14	27.99	16.51	-1926.94
			Max. Torque	25			8.53
L5	60.974 - 30.0182	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.12	17.09	-8.34
			Max. Mx	20	-49.03	2819.05	-12.56
			Max. My	14	-49.03	19.47	-2830.90
			Max. Vy	8	32.13	-2814.38	16.27
			Max. Vx	14	32.13	19.47	-2830.90
			Max. Torque	25			8.53
L6	30.0182 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.68	17.09	-8.33
			Max. Mx	20	-72.15	4154.24	-15.59
			Max. My	14	-72.15	23.20	-4170.50
			Max. Vy	8	36.94	-4153.80	23.34
			Max. Vx	14	36.94	23.20	-4170.50
			Max. Torque	25			8.52

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	105.68	0.00	-0.00
	Max. H_x	21	54.12	36.82	-0.08
	Max. H_z	2	72.16	-0.15	36.90
	Max. M_x	2	4154.27	-0.15	36.90
	Max. M_z	8	4153.80	-36.93	0.18
	Max. Torsion	25	8.52	18.38	31.95
	Min. Vert	11	54.12	-31.91	-18.32
	Min. H_x	8	72.16	-36.93	0.18
	Min. H_z	14	72.16	0.09	-36.93
	Min. M_x	14	-4170.50	0.09	-36.93
	Min. M_z	20	-4154.24	36.82	-0.08
	Min. Torsion	13	-8.52	-18.38	-31.95

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	60.13	0.00	0.00	4.21	7.98	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	72.16	0.15	-36.90	-4154.27	-13.57	-7.95
0.9 Dead+1.6 Wind 0 deg - No Ice	54.12	0.15	-36.90	-4137.35	-15.95	-7.98
1.2 Dead+1.6 Wind 30 deg - No Ice	72.16	18.62	-32.01	-3605.37	-2096.69	-5.23
0.9 Dead+1.6 Wind 30 deg - No Ice	54.12	18.62	-32.01	-3590.85	-2089.94	-5.25
1.2 Dead+1.6 Wind 60 deg - No Ice	72.16	32.05	-18.58	-2094.15	-3607.33	-0.92
0.9 Dead+1.6 Wind 60 deg - No Ice	54.12	32.05	-18.58	-2086.26	-3593.96	-0.92
1.2 Dead+1.6 Wind 90 deg - No Ice	72.16	36.93	-0.18	-23.34	-4153.80	3.64
0.9 Dead+1.6 Wind 90 deg - No Ice	54.12	36.93	-0.18	-24.51	-4138.05	3.65
1.2 Dead+1.6 Wind 120 deg - No Ice	72.16	31.91	18.32	2064.66	-3585.07	7.03
0.9 Dead+1.6 Wind 120 deg - No Ice	54.12	31.91	18.32	2054.32	-3571.81	7.06
1.2 Dead+1.6 Wind 150 deg - No Ice	72.16	18.38	31.95	3608.79	-2060.08	8.49
0.9 Dead+1.6 Wind 150 deg - No Ice	54.12	18.38	31.95	3591.67	-2053.50	8.52
1.2 Dead+1.6 Wind 180 deg - No Ice	72.16	-0.09	36.93	4170.50	23.20	7.83
0.9 Dead+1.6 Wind 180 deg - No Ice	54.12	-0.09	36.93	4150.91	20.64	7.86
1.2 Dead+1.6 Wind 210 deg - No Ice	72.16	-18.48	31.97	3608.15	2091.04	5.10
0.9 Dead+1.6 Wind 210 deg - No Ice	54.12	-18.48	31.97	3591.04	2079.43	5.12

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.6 Wind 240 deg - No Ice	72.16	-31.88	18.47	2086.69	3596.10	0.92
0.9 Dead+1.6 Wind 240 deg - No Ice	54.12	-31.88	18.47	2076.26	3577.90	0.92
1.2 Dead+1.6 Wind 270 deg - No Ice	72.16	-36.82	0.08	15.59	4154.24	-3.51
0.9 Dead+1.6 Wind 270 deg - No Ice	54.12	-36.82	0.08	14.23	4133.59	-3.52
1.2 Dead+1.6 Wind 300 deg - No Ice	72.16	-31.91	-18.38	-2065.90	3604.78	-6.91
0.9 Dead+1.6 Wind 300 deg - No Ice	54.12	-31.91	-18.38	-2058.13	3586.52	-6.94
1.2 Dead+1.6 Wind 330 deg - No Ice	72.16	-18.38	-31.95	-3598.71	2079.23	-8.49
0.9 Dead+1.6 Wind 330 deg - No Ice	54.12	-18.38	-31.95	-3584.22	2067.66	-8.52
1.2 Dead+1.0 Ice+1.0 Temp	105.68	-0.00	0.00	8.33	17.09	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	105.68	0.10	-10.64	-1143.83	2.82	-1.39
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	105.68	5.45	-9.26	-996.01	-578.48	-0.95
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	105.68	9.34	-5.40	-580.11	-998.48	-0.21
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	105.68	10.73	-0.10	-7.11	-1147.33	0.59
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	105.68	9.24	5.24	572.04	-984.21	1.18
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	105.68	5.29	9.19	1001.82	-554.18	1.45
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	105.68	-0.08	10.65	1161.94	29.74	1.37
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	105.68	-5.42	9.25	1011.34	607.88	0.92
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	105.68	-9.30	5.38	593.32	1026.72	0.21
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	105.68	-10.71	0.08	20.26	1177.99	-0.56
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	105.68	-9.24	-5.25	-557.54	1018.86	-1.16
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	105.68	-5.29	-9.19	-984.98	588.71	-1.45
Dead+Wind 0 deg - Service	60.13	0.03	-8.06	-901.84	3.01	-1.74
Dead+Wind 30 deg - Service	60.13	4.07	-6.99	-782.26	-450.79	-1.15
Dead+Wind 60 deg - Service	60.13	7.00	-4.06	-453.05	-779.87	-0.20
Dead+Wind 90 deg - Service	60.13	8.07	-0.04	-1.94	-898.92	0.80
Dead+Wind 120 deg - Service	60.13	6.97	4.00	452.91	-775.02	1.54
Dead+Wind 150 deg - Service	60.13	4.01	6.98	789.29	-442.81	1.86
Dead+Wind 180 deg - Service	60.13	-0.02	8.07	911.66	11.01	1.72
Dead+Wind 210 deg - Service	60.13	-4.04	6.98	789.15	461.48	1.12
Dead+Wind 240 deg - Service	60.13	-6.96	4.04	457.71	789.35	0.20
Dead+Wind 270 deg - Service	60.13	-8.04	0.02	6.54	910.93	-0.77
Dead+Wind 300 deg - Service	60.13	-6.97	-4.02	-446.90	791.24	-1.52
Dead+Wind 330 deg - Service	60.13	-4.01	-6.98	-780.81	458.91	-1.86

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-60.13	0.00	0.00	60.13	0.00	0.000%
2	0.15	-72.16	-36.90	-0.15	72.16	36.90	0.000%
3	0.15	-54.12	-36.90	-0.15	54.12	36.90	0.000%
4	18.62	-72.16	-32.01	-18.62	72.16	32.01	0.000%
5	18.62	-54.12	-32.01	-18.62	54.12	32.01	0.000%
6	32.05	-72.16	-18.58	-32.05	72.16	18.58	0.000%
7	32.05	-54.12	-18.58	-32.05	54.12	18.58	0.000%
8	36.93	-72.16	-0.18	-36.93	72.16	0.18	0.000%
9	36.93	-54.12	-0.18	-36.93	54.12	0.18	0.000%
10	31.91	-72.16	18.32	-31.91	72.16	-18.32	0.000%
11	31.91	-54.12	18.32	-31.91	54.12	-18.32	0.000%
12	18.38	-72.16	31.95	-18.38	72.16	-31.95	0.000%
13	18.38	-54.12	31.95	-18.38	54.12	-31.95	0.000%
14	-0.09	-72.16	36.93	0.09	72.16	-36.93	0.000%
15	-0.09	-54.12	36.93	0.09	54.12	-36.93	0.000%
16	-18.48	-72.16	31.97	18.48	72.16	-31.97	0.000%
17	-18.48	-54.12	31.97	18.48	54.12	-31.97	0.000%
18	-31.88	-72.16	18.47	31.88	72.16	-18.47	0.000%
19	-31.88	-54.12	18.47	31.88	54.12	-18.47	0.000%
20	-36.82	-72.16	0.08	36.82	72.16	-0.08	0.000%
21	-36.82	-54.12	0.08	36.82	54.12	-0.08	0.000%
22	-31.91	-72.16	-18.38	31.91	72.16	18.38	0.000%
23	-31.91	-54.12	-18.38	31.91	54.12	18.38	0.000%
24	-18.38	-72.16	-31.95	18.38	72.16	31.95	0.000%
25	-18.38	-54.12	-31.95	18.38	54.12	31.95	0.000%
26	0.00	-105.68	0.00	0.00	105.68	-0.00	0.000%
27	0.10	-105.68	-10.64	-0.10	105.68	10.64	0.000%
28	5.45	-105.68	-9.26	-5.45	105.68	9.26	0.000%
29	9.34	-105.68	-5.40	-9.34	105.68	5.40	0.000%
30	10.73	-105.68	-0.10	-10.73	105.68	0.10	0.000%
31	9.24	-105.68	5.24	-9.24	105.68	-5.24	0.000%
32	5.29	-105.68	9.19	-5.29	105.68	-9.19	0.000%
33	-0.08	-105.68	10.65	0.08	105.68	-10.65	0.000%
34	-5.42	-105.68	9.25	5.42	105.68	-9.25	0.000%
35	-9.30	-105.68	5.38	9.30	105.68	-5.38	0.000%
36	-10.71	-105.68	0.08	10.71	105.68	-0.08	0.000%
37	-9.24	-105.68	-5.25	9.24	105.68	5.25	0.000%
38	-5.29	-105.68	-9.19	5.29	105.68	9.19	0.000%
39	0.03	-60.13	-8.06	-0.03	60.13	8.06	0.000%
40	4.07	-60.13	-6.99	-4.07	60.13	6.99	0.000%
41	7.00	-60.13	-4.06	-7.00	60.13	4.06	0.000%
42	8.07	-60.13	-0.04	-8.07	60.13	0.04	0.000%
43	6.97	-60.13	4.00	-6.97	60.13	-4.00	0.000%
44	4.01	-60.13	6.98	-4.01	60.13	-6.98	0.000%
45	-0.02	-60.13	8.07	0.02	60.13	-8.07	0.000%
46	-4.04	-60.13	6.98	4.04	60.13	-6.98	0.000%
47	-6.96	-60.13	4.04	6.96	60.13	-4.04	0.000%
48	-8.04	-60.13	0.02	8.04	60.13	-0.02	0.000%
49	-6.97	-60.13	-4.02	6.97	60.13	4.02	0.000%
50	-4.01	-60.13	-6.98	4.01	60.13	6.98	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001

2	Yes	5	0.00000001	0.00001035
3	Yes	5	0.00000001	0.00000511
4	Yes	5	0.00000001	0.00001822
5	Yes	5	0.00000001	0.00000875
6	Yes	5	0.00000001	0.00002109
7	Yes	5	0.00000001	0.00001017
8	Yes	5	0.00000001	0.00000463
9	Yes	5	0.00000001	0.00000225
10	Yes	5	0.00000001	0.00002583
11	Yes	5	0.00000001	0.00001261
12	Yes	5	0.00000001	0.00001766
13	Yes	5	0.00000001	0.00000851
14	Yes	5	0.00000001	0.00001067
15	Yes	5	0.00000001	0.00000526
16	Yes	5	0.00000001	0.00002480
17	Yes	5	0.00000001	0.00001198
18	Yes	5	0.00000001	0.00001998
19	Yes	5	0.00000001	0.00000954
20	Yes	5	0.00000001	0.00000492
21	Yes	5	0.00000001	0.00000240
22	Yes	5	0.00000001	0.00001779
23	Yes	5	0.00000001	0.00000852
24	Yes	5	0.00000001	0.00002774
25	Yes	5	0.00000001	0.00001353
26	Yes	4	0.00000001	0.00003765
27	Yes	5	0.00000001	0.00004767
28	Yes	5	0.00000001	0.00004884
29	Yes	5	0.00000001	0.00004884
30	Yes	5	0.00000001	0.00004723
31	Yes	5	0.00000001	0.00004864
32	Yes	5	0.00000001	0.00004934
33	Yes	5	0.00000001	0.00004954
34	Yes	5	0.00000001	0.00005241
35	Yes	5	0.00000001	0.00005267
36	Yes	5	0.00000001	0.00005063
37	Yes	5	0.00000001	0.00005087
38	Yes	5	0.00000001	0.00005000
39	Yes	4	0.00000001	0.00002649
40	Yes	4	0.00000001	0.00002073
41	Yes	4	0.00000001	0.00001934
42	Yes	4	0.00000001	0.00001548
43	Yes	4	0.00000001	0.00003100
44	Yes	4	0.00000001	0.00002683
45	Yes	4	0.00000001	0.00002698
46	Yes	4	0.00000001	0.00002838
47	Yes	4	0.00000001	0.00001913
48	Yes	4	0.00000001	0.00001591
49	Yes	4	0.00000001	0.00002389
50	Yes	4	0.00000001	0.00003551

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	170 - 160.354	0.79	46	0.49	0.00
L2	164.846 - 126.135	0.75	46	0.49	0.00
L3	131.708 - 92.9974	0.47	46	0.43	0.00
L4	99.6849 - 60.974	0.26	46	0.31	0.00
L5	68.7292 - 30.0182	0.12	46	0.20	0.00

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L6	38.6901 - 0	0.04	46	0.11	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
170'	3' Dish w/ Radome	46	0.79	0.49	0.00	383562
155'	(4) HPA-65R-BUU-H8 w/ Mount Pipe	46	0.66	0.48	0.00	69190
145'	(2) JMA MX10FIT665	46	0.58	0.47	0.00	29706

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	170 - 160.354	3.57	14	2.19	0.02
L2	164.846 - 126.135	3.37	16	2.18	0.02
L3	131.708 - 92.9974	2.15	16	1.95	0.01
L4	99.6849 - 60.974	1.19	14	1.40	0.01
L5	68.7292 - 30.0182	0.56	14	0.90	0.00
L6	38.6901 - 0	0.18	14	0.50	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
170'	3' Dish w/ Radome	14	3.57	2.19	0.02	98220
155'	(4) HPA-65R-BUU-H8 w/ Mount Pipe	16	3.00	2.16	0.02	15637
145'	(2) JMA MX10FIT665	16	2.62	2.09	0.02	6868

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	170 - 160.354	TP30.04x27.17x0.28	9'7-13/1	170'	202.1	24.87	-1.54	137.48	0.011

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	(1)		6"						
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	38'8-17/32"	170'	152.6	42.36	-13.75	411.16	0.033
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	38'8-17/32"	170'	123.7	58.04	-21.92	856.57	0.026
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	38'8-17/32"	170'	104.9	82.10	-33.47	1686.54	0.020
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	38'8-17/32"	170'	91.6	109.49	-49.03	2946.42	0.017
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	38'8-9/32"	170'	78.6	127.69	-72.15	4393.54	0.016

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	170 - 160.354 (1)	TP30.04x27.17x0.28	2.29	1069.66	0.002	0.00	1069.66	0.000
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	424.68	2395.86	0.177	0.00	2395.86	0.000
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	1125.25	3930.97	0.286	0.00	3930.97	0.000
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	1927.33	6591.60	0.292	0.00	6591.60	0.000
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	2831.02	10114.25	0.280	0.00	10114.25	0.000
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	4171.13	13094.92	0.319	0.00	13094.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	170 - 160.354 (1)	TP30.04x27.17x0.28	0.44	909.24	0.000	0.05	2145.06	0.000
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	19.96	1549.01	0.013	5.10	4804.38	0.001
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	23.84	2059.16	0.012	5.10	7881.62	0.001
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	27.98	2927.00	0.010	5.10	13216.50	0.000
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	32.12	3924.70	0.008	5.10	20280.00	0.000
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	37.06	4351.65	0.009	0.92	26251.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	170 - 160.354 (1)	0.011	0.002	0.000	0.000	0.000	0.013 ✔	1.000	4.8.2 ✔
L2	160.354 - 126.135 (2)	0.033	0.177	0.000	0.013	0.001	0.211 ✔	1.000	4.8.2 ✔
L3	126.135 - 92.9974 (3)	0.026	0.286	0.000	0.012	0.001	0.312 ✔	1.000	4.8.2 ✔
L4	92.9974 - 60.974 (4)	0.020	0.292	0.000	0.010	0.000	0.312 ✔	1.000	4.8.2 ✔
L5	60.974 - 30.0182 (5)	0.017	0.280	0.000	0.008	0.000	0.297 ✔	1.000	4.8.2 ✔
L6	30.0182 - 0 (6)	0.016	0.319	0.000	0.009	0.000	0.335 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	170 - 160.354	Pole	TP30.04x27.17x0.28	1	-1.54	137.48	1.3	Pass
L2	160.354 - 126.135	Pole	TP39.68x28.15x0.35	2	-13.75	411.16	21.1	Pass
L3	126.135 - 92.9974	Pole	TP48.83x37.31x0.39	3	-21.92	856.57	31.2	Pass
L4	92.9974 - 60.974	Pole	TP57.58x46.05x0.47	4	-33.47	1686.54	31.2	Pass
L5	60.974 - 30.0182	Pole	TP65.85x54.33x0.55	5	-49.03	2946.42	29.7	Pass
L6	30.0182 - 0	Pole	TP73.69x62.17x0.55	6	-72.15	4393.54	33.5	Pass
							Summary	
						Pole (L6)	33.5	Pass
						RATING =	**33.5**	**Pass**

Base/Flange Plate	Plate Type	***Baseplate***	
	Pole Diameter	73.69	in
	Pole Thickness	0.55	in
	Plate Diameter	87.4	in
	Plate Thickness	2.76	in
	Plate Fy	50	ksi
	Weld Length	0.3125	in
	ϕ_s Resistance	708.55	k-in
	Applied	207.72	k-in
Stiffeners	#	***0***	

Bolts	#	***28***	
	Bolt Circle	81.56	in
	(R)adial / (S)quare	R	
●	Diameter	2.25	in
	Hole Diameter	2.64	in
	Type	A615-75	
	Fy	75	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	90.21	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev.	***G***
Moment	4171.0 k-ft
Axial	72.0 k
Shear	37.0 k

Date	7/16/2020
Engineer	MH
Site #	CT005
Carrier	Town of Cheshire

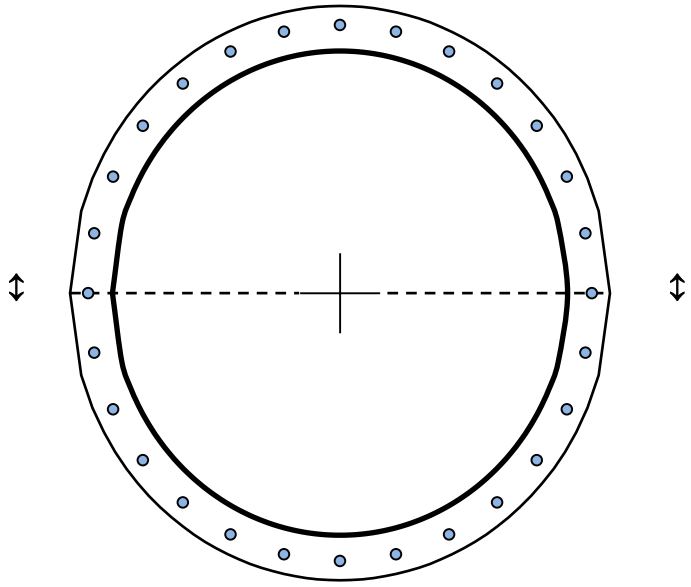


Plate Stress Ratio:
0.29 (Pass)

Bolt Stress Ratio:
0.35 (Pass)

PROJECT No:	20.03.013.020	**ENG:**	MH
PROJECT NAME:	CT005	**CHK:**	TI
	Insite		
DATE:	July 16, 2020	**PAGE:**	of

TIA-222-G

SINGLE GLOBAL FOUNDATION WITH PIER(s) CHECKS

Global Tower Reactions		*Factored Loads*		*Calculated Reactions*		**Factored Resistance**				
(●) TIA-G	Maximum Moment	4,171.00	k-ft	Disturbing Moment	4,393.0	10,857.8	k-ft	pass	40.5%	
( ) EIA-F	Axial Load	72.00	kips	Maximum Bearing	1.54	7.50	kips	pass	20.5%	
	Shear Load	37.00	kips	Punching Shear	798.0	1,834.7	kips	pass	43.5%	[GOVERNS]
	Pier Rebar Required	(minimum only, use PCACOL for total quantity)			(37) #10 @ 8.66 in **MINIMUM**					
	Rebar Required	(checked rebar for 6" min to 24" max spacing)			(24) #9 @ 16.96 in				SF=4.60	

Soil Parameters	**Soils Report**		**Pier Geometry**			**Pad Geometry**		
ϕ	0.0	°	Qty of Piers	1		Width (Bm)	33.00	ft
Water Level	11.00	ft (3.35 m)	Width (Bp)	9.00	ft	Width (Wm)	33.00	ft
Soil Dry Density (γ_{dry})	0.100	kcf (15.7 kN/m^3)	Width (Wp)	9.00	ft	Height (Hm)	2.50	ft
Soil Sub Density (γ_{sub})	0.050	kcf (7.85 kN/m^3)	Height (Hp)	3.50	ft	Depth (D)	6.00	ft
All. Bearing Pressure	5.000	ksf (239.4 kPa)	Pier Type	R	(Rnd or Sq)			
Bearing Safety Factor	2		Conc γ_{dry}	0.150	kcf (23.6)			

Volume of Concrete/Soil

		Concrete (110.2cuyd) 1 Pier	Mat	Soil	
Depth	(above)	0.50	--	--	ft
Depth	(dry)	3.50	2.50	3.50	ft
Depth	(submerged)	0.00	0.00	0.00	ft
Volume	(above)	31.75	--	--	ft^3
Volume	(dry)	222.26	2,722.50	3589.24	ft^3
Volume	(submerged)	0.00	0	0.00	ft^3
	Total	254	2723	3589	ft^3

Concrete Reinforcing Design

f'c	3.000	ksi	(20.7 MPa)
fy	60.00	ksi	(413.7 MPa)

	MAT		PIER	
Steel (Metric/ASTM)	ASTM		ASTM	
Bar size	9	#	10	#
	1.000	in²	1.270	in²

Slab Reinforcing

½ Disturbing Moment	2196.50	kip-ft		
Ku	91.30		Wgt of Rebar	
ρ	0.00172		10,617	lbs
$4/3 \cdot \rho$ if $\rho < \rho$ min	0.00230			
ρ min ≥ 0.0018	0.00180			
As	23.66	in²		
Number of bars	24	bars on	16.96	in c/c

Note: The 1/2 moment is derived from a bending moment diagram that considered the uplift and download components at the exact face width of the tower.

Calculations

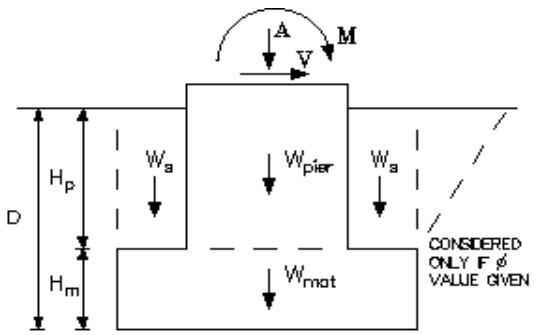
	Factored	*Allowable*	
Axial Download	72.0	--	kips
Weight of Concrete (not factored)	446.5	--	kips(110.2yds)
Weight of Soil (not factored)	358.9	--	kips
Total Download (P)	877.4	--	kips
Resisting Moment Arm	16.5	--	ft
Moment Resistance	10857.8	--	k-ft
	(x 0.75, cl 9.4.1)		

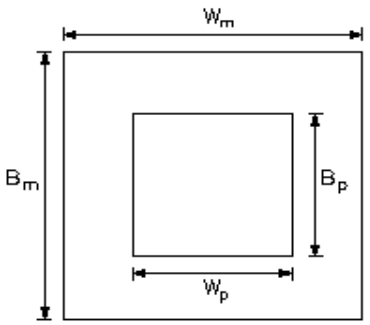
Bearing Capacity Check

Contact Area	1089.00	--	ft²
Calculate eccentricity e	5.01	--	ft [>L/6]
Calculate (c = L/2 - e)	11.49	--	ft
1) q_{max} = P/A • (1+6e/L)	1.54	--	
2) q_{max} = 2P / b•3c	--	--	ksf [GOV]
$q_{allowable}$	7.50	--	ksf
	(2 • 0.75)		

Check for 2-Way Shear (Punching)

Shear Area (b_o x d)	77.54	--	ft²
Factored Bearing Stress	0.806	--	ksf
Factored Shear Force	797.98	--	kips
Factored Shear Resistance	1834.7	--	kips
Check for 2-way Shear	0.43	--	
	(ACI-318)		





M =	4171.0	k-ft
A =	72.0	kips
V =	37.0	kips
Bp =	9.00	ft
Wp =	9.00	ft
Hp =	3.50	ft
Bm =	33.00	ft
Wm =	33.00	ft
Hm =	2.50	ft
D =	6.00	ft
V_{mat} =	2976.5	cuft
Rebar =	(24) #9 @ 16.96 in	

Attachment 2:
Collocation Application

WORKSHEET 1 OF 2 (COMPLETE BOTH WORKSHEET TABS)

InSite Towers, LLC

CUSTOMER APPLICATION

DATE SUBMITTED: 07/08/20

A Site Application Fee to be paid upon submission of this Customer Application.

CUSTOMER INFORMATION

COMPANY NAME:	Verizon Wireless	PHONE:	508-821-0159
ENTITY Type: i.e. Inc., LLP	d/b/a Cellco Partnership	FAX:	508-819-3017
STATE of Inc.	New Jedey	SERVICE (PCS, SMR):	

CUSTOMER ADDRESSES

COMPANY Address:	c/o Centerline Communications, LLC	CITY/STATE:		ZIP :	
BILLING Address:	750 W. Center St, Suite 301	CITY/STATE:	W.Bridgewater MA	ZIP :	2379
NOTICE Address 1:	One Verizon Way, Mail Stop 4AW100	CITY/STATE:	Basking Ridge NJ	ZIP :	7920
NOTICE Address 2:		CITY/STATE:		ZIP :	

CUSTOMER CONTACTS

PRIMARY CONTACT:	Mark Appleby	PHONE:	860-209-4694
TITLE:	Site Acquisition Consultant	E-MAIL Address:	mappleby@clinellc.com
SIGNATORY NAME:	Keith Murray	PHONE:	
TITLE:	Director New England Network	E-MAIL Address:	
EMERGENCY CONTACT:		PHONE:	
TITLE:		E-MAIL Address:	
TECHNICAL/OPS:		PHONE:	
TITLE:		E-MAIL Address:	
RF ENGINEER:	Ziad Cheiban	PHONE:	
TITLE:	RF Design Engineer	E-MAIL Address:	
BILLING CONTACT:		PHONE:	
TITLE:		E-MAIL Address:	
LEGAL CONTACT:		PHONE:	
TITLE:		E-MAIL Address:	

SITE INFORMATION

CUSTOMER Site # / Name:	Cheshire Northeast 2 CT	INSITE Site # and Name:	CT005 Cheshire
SITE LATITUDE:	41° 31' 57.32" N	SITE LONGITUDE:	72° 52' 13.70" W
SITE ADDRESS:	1325 Cheshire Street	CITY:	Cheshire
STATE:	CT ZIP: 6410	STRUCTURE TYPE:	Monopole

USE THIS SECTION TO PROVIDE A DESCRIPTION OF COLOCATION OR MODIFICATION REQUEST

Install JMA Wireless 6 MX10FIT665 Antennas-2 Per Sector- 3 Samsung B5/B13-RRH BRO4C Radio Heads 1-Per Sector- 3 Samsung B2/B66A Radio Heads 1-Per Sector - 3 CBRS RT-4401-48A Radio Heads-1-Per Sector for a total of 9- Radio Heads. Install 1 Surge Suppresor RFS db-c1-12c-24-ab-0z- Install -2 RFS Hybrid lines WE WILL INSTALL 3 JMA 91900314 Dual mount Antenna Brackets on Platform please include in structural supplied Specs with Application

USE THIS SECTION TO LIST EQUIPMENT TO BE REMOVED

N/A

APPLICATION PREPARED BY

NAME:	Mark Appleby	PHONE:	860-209-4694
COMPANY:	Centerline Communications LLC	ADDRESS:	750 W Center St W. Bridgewater MA
TITLE:		E-MAIL Address:	mappleby@cline llc.com

WORKSHEET 2 OF 2 (COMPLETE BOTH WORKSHEET TABS)

Please be sure to fill in all applicable fields such that it represents your FINAL equipment loading once installation is complete.

EXHIBIT
Equipment

Site Name and #: **CT005 Cheshire** **Licensee Name:** **Verizon Wireless**

The mounting method and exact location of the space and equipment listed herein shall be subject to InSite's approval.

SYSTEM REQUIREMENTS										
POWER provided by:	Utility Company direct					TELCO provided by:	TBD			
Power Requirements:	Amps:	200	Volts:	120/240		No. of Outlets:	N/A			
Generator Provided by:	Licensee	Make:	Kohler	Model:	30 REOZK		Fuel Type:	Diesel	Capacity:	30 Kw
Batteries:	Quantity:	N/A	Make:	N/A		Model:	N/A			
SPACE REQUIREMENTS & RADIO INVENTORY										
Type of Space Required:	Ground:	Yes	Floor:	No		Total Square Feet:	192 sq. ft.			
Dimensions of Equipment Floor/Ground Space:			12' x 16'			Equipment Height:	96"			
Dimensions of Generator Ground Space:			Included in above			Dimensions of Fuel Tank Ground Space:			N/A	
No. of Transmitters (Tx):	Six (6)	Transmitter Make/Model:	JMA-Wireless			Transmitter Power Output			TBD	
No. of Receivers (Rx):	Six (6)	Receiver Make/Model:	JMA-Wireless			Transmitter ERP:			TBD	
Total Square Feet includes:	9' x 4' generator pad									

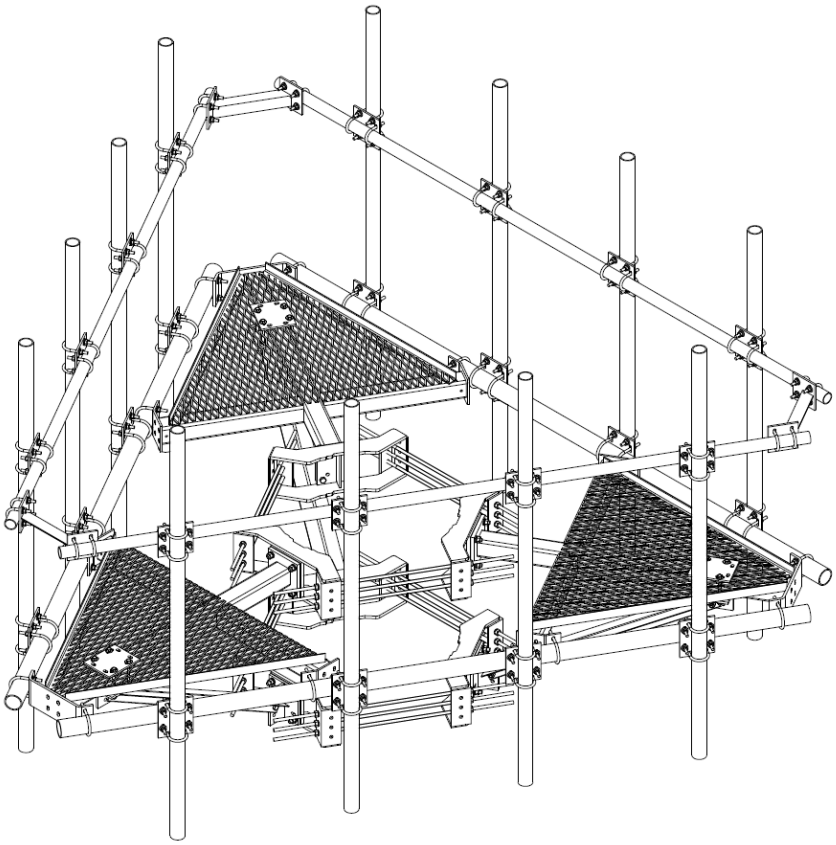
EQUIPMENT LOADING DESCRIPTION (FINAL CONFIGURATION)					
	Sector 1	**Sector 2**	**Sector 3**	**DISH(ES)**	**OTHER**
Antenna Type (1):	Panel	Panel	Panel	N/A	N/A
# of Antennas (1)/ Sector:	Two (2)	Two (2)	Two (2)	None	None
Tx, Rx or Both:	Both	Both	Both	N/A	N/A
Antenna Manufacturer (1):	JMA Wireless	JMA Wireless	JMA Wireless	N/A	N/A
Antenna Model (1):	MX10FIT665	MX10FIT665	MX10FIT665	N/A	N/A
Antenna Dimensions (1):	70.9" x 12.2" x 7.5"	70.9" x 12.2" x 7.5"	70.9" x 12.2" x 7.5"	N/A	N/A
Antenna Weight (1):	53.4 lbs	53.4 lbs	53.4 lbs	N/A	N/A
Antenna RAD Ctr (1):	145'	145'	145'	N/A	N/A
# of RRU/RRHs/ Sector (1):	One (1)	One (1)	One (1)		
RRU/RRH Manufacturer (1):	Samsung	Samsung	Samsung		
RRU/RRH Model (1):	B5/B13-RRH BRO4C	B5/B13-RRH BRO4C	B5/B13-RRH BRO4C		
RRU/RRH Dimensions (1):	15" x 15" x 8.1"	15" x 15" x 8.1"	15" x 15" x 8.1"		
RRU/RRH Weight (1):	70.3 lbs	70.3 lbs	70.3 lbs		
RRU/RRH RAD Ctr (1):	145'	145'	145'		
# of RRU/RRHs/ Sector (2):	One (1)	One (1)	One (1)		
RRU/RRH Manufacturer (2):	Samsung	Samsung	Samsung		
RRU/RRH Model (2):	B2/B66A RRH	B2/B66A RRH	B2/B66A RRH		
RRU/RRH Dimension (2):	15" x 15" x 10"	15" x 15" x 10"	15" x 15" x 10"		
RRU/RRH Weight (2):	84.4 lbs	84.4 lbs	84.4 lbs		
RRU/RRH RAD Ctr (2):	145'	145'	145'		
# of RRU/RRHs/ Sector (3):	One (1)	One (1)	One (1)		
RRU/RRH Manufacturer (3):	CBRS	CBRS	CBRS		
RRU/RRH Model (3):	RT-4401-48A RRH	RT-4401-48A RRH	RT-4401-48A RRH		
RRU/RRH Dimension (3):	8.5" x 12.1" x 4.1"	8.5" x 12.1" x 4.1"	8.5" x 12.1" x 4.1"		
RRU/RRH Weight (3):	18.6 lbs	18.6 lbs	18.6 lbs		
RRU/RRH RAD Ctr (3):	145'	145'	145'		
# of TMAs/ Sector (1):	None	None	None		
# of Diplexers/ Sector:	None	None	None		
# of Surge Suppressors/Sctr:	One (1)	None	None		
Surge Suppressor Make:	RFS	N/A	N/A		
Surge Suppressor Model:	DB-C1-12C-24-AB-0Z	N/A	N/A		
Surge Supressor Dimensions:	29.5" x 16.5" x 12.6	N/A	N/A		
Surge Supressor Weight:	32 lbs	N/A	N/A		
Surge Supressors RAD Ctr:	145'	N/A	N/A		
OTHER:	None	None	None		
Transmit Frequencies:	869-880, 890-891.5, 1970-1982.5, 2120-2130, 776-787, 3550-3700 (CBRS) MHz			N/A	N/A
Receive Frequencies:	824-835, 845-846.5, 1890-1902.5, 1720-1730, 746-757, 3550-3700 (CBRS) MHz			N/A	N/A
# of Lines:	Two (2)	None	None	None	None
Line Size:	1-1/4" Hybrid	N/A	N/A	N/A	N/A
Mount Type:	LP Platform w/handrail	LP Platform w/handrail	LP Platform w/handrail	N/A	N/A
Mount Size:	Twelve & Half Feet (12.5')	Twelve & Half Feet (12.5')	Twelve & Half Feet (12.5')	N/A	N/A
Mount Make:	Site Pro 1	Site Pro 1	Site Pro 1	N/A	N/A
Mount Model:	RMQP-4096-HK	RMQP-4096-HK	RMQP-4096-HK	N/A	N/A
Antenna Brackets:	One (1) JMA 91900314	One (1) JMA 91900314	One (1) JMA 91900314	N/A	N/A

ATTACHMENT 6

verizon

20 Alexander Drive
Wallingford, CT 06492

MOUNT ANALYSIS
CHESHIRE NORTHEAST 2 CT



Address:
1325 CHESHIRE STREET
CHESHIRE, CT 06410
LOCATION CODE: 470040

Date:
JULY 10, 2020 (REVISION 0)

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

R.K. Executive Centre ■ 201 Boston Post Road West ■ Suite 101 ■ Marlborough, MA 01752
t. 508.481.7400 ■ www.chappellengineering.com ■ f. 508.481.7406

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

July 10, 2020

verizon

20 Alexander Drive
Wallingford, CT 06492

RE:

Applicant Site Name:	Cheshire Northeast 2 CT
Applicant Location Code:	470040
Site Address:	1325 Cheshire Street, Cheshire, CT 06410

To whom it may concern:

Chappell Engineering Associates, LLC has performed a structural analysis of the proposed Verizon braced low-profile antenna mounting platform being proposed at the existing 170'+/- monopole located at the above-referenced address at approximately 145ft AGL to analyze the effect of the proposed Verizon antenna installation on the subject platform.

The proposed antenna support structure will consist of one (1) low-profile antenna frame supporting twelve (12) individual antenna pipe mounts. Our analysis has considered the following total major equipment loads indicated on the antenna design summary (included in this report) to be installed on the proposed low-profile antenna frame:

Appurtenance	Size (in)	Weight	Location	Status
(6) JMA MX10FIT665 Panel	71Hx12.2Wx7.5D	53.4lbs	Face of Mount	Proposed
(3) LTE/CDMA 700/850 RRH	15Hx15Wx8.1D	70lbs	Face of Mount	Proposed
(3) PCS/AWS 1900/2100 RRH	15Hx15Wx10.1D	85lbs	Face of Mount	Proposed
(3) CBRS Band 48 RRH	12.1Hx8.5Wx4.1D	19lbs	Face of Mount	Proposed
(1) RFS Fiber Junction Box	19.2Hx15.7Wx10.3D	30lbs	Face of Mount	Proposed

The proposed antennas and ancillary hardware are shown on the enclosed drawings

We have modeled the entire low-profile antenna frame under both wind and wind/ice loads. Our analysis and results are included in this report.

Based upon our analysis of the antenna mounts being proposed, **we consider the proposed RMQP-4096-HK low-profile mounting frame assembly has adequate capacity** to support the proposed antenna configuration as shown on the construction drawings. Our analysis assumes the mount will be installed and maintained according to the manufacturers' recommendations.

If you have any questions regarding this matter, please do not hesitate to call.

Very truly yours,
CHAPPELL ENGINEERING ASSOCIATES, LLC

STATE OF CONNECTICUT
CLEMENT J. SALEK
No. 26376
LICENSED
PROFESSIONAL ENGINEER

Clement J Salek, P.E.
CJS/cjs

Appendix A – RF Antenna Data Sheets

verizon fuze | RFDS

NORTH EAST > North East > New England > New England West > CHESHIRE_NE_2_CT - B

Cheiban, Ziad - ziad.cheiban@verizonwireless.com - 7/1/2020 12:51:15

Project Details

Carrier Aggregation:	false
MPT Id:	
eCIP-0:	false
Project Name:	New Build - CHESHIRE_NE_2_CT - A
FUZE Project ID:	16205305
Designed Sector Carrier 4G:	15
Designed Sector Carrier 5G:	N/A
Additional Sector Carrier 4G:	N/A
Additional Sector Carrier 5G:	N/A
SiteTraker Project Id:	a2R0H000001EgmPUAS
RFDS Project Scope:	New Build Rev0_2020-06-10: Preliminary Rev1_2020-07-01: Removed MMU antennas
Suffix:	Rev1_2020-07-01

Location Information

Site ID:	616512863
E-NodeB ID:	064361
PSLC:	470040
Switch Name:	Wallingford 1
Tower Owner:	
Tower Type:	Monopole
Site Type:	MACRO
Street Address:	1325 Cheshire Street
City:	Cheshire
State:	CT
Zip Code:	06410
County:	New Haven
Latitude:	41.532589 / 41° 31' 57.3204" N
Longitude:	-72.870472 / 72° 52' 13.6992" W

Antenna Summary

Added

700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
LTE	LTE	LTE	LTE					LTE			JMA	MX10FIT665	145	148	0(D1) 0(D19) 120(D2) 120(D20) 240(D21) 240(D3)	true	true	PHYSICAL	6

Removed

700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity

No data available.

Retained

700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity

No data available.

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

Equipment Summary

Added

Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Hybrid Cable	Tower													LI 6x12			PHYSICAL	2
Mount	Tower												JMA	91900314-02			PHYSICAL	3
OVP Box	Tower													12-OVP			PHYSICAL	1
RRU	Tower	LTE	LTE										Samsung	B5/B13 RRH-BR04C (RFV01U-D2A)			PHYSICAL	3
RRU	Tower									LTE			Samsung	CBRS RRH - RT4401-48A			PHYSICAL	3
RRU	Tower			LTE	LTE								Samsung	B2/B66A RRH-BR049 (RFV01U-D1A)			PHYSICAL	3

Removed

Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Cable Length	Cable Size	Install Type	Quantity

No data available.

Retained

Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Cable Length	Cable Size	Install Type	Quantity

No data available.

Service Info

1900 MHZ LTE

	0002		
Sector	**D1**	**D2**	**D3**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	2	2
Tip Height	148	148	148
Regulatory Power	234.83	234.83	234.83
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112942	7112943	7112944
Source	ATOLL_API	ATOLL_API	ATOLL_API

2100 MHZ LTE

	0002		
Sector	**D1**	**D2**	**D3**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	2	2
Tip Height	148	148	148
Regulatory Power	128.74	128.74	128.74
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112945	7112946	7112947
Source	ATOLL_API	ATOLL_API	ATOLL_API

850 MHZ LTE

	0002		
Sector	**D1**	**D2**	**D3**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	8	8	8
Tip Height	148	148	148
Regulatory Power	246.64	246.64	246.64
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112948	7112949	7112950
Source	ATOLL_API	ATOLL_API	ATOLL_API

700 MHZ LTE

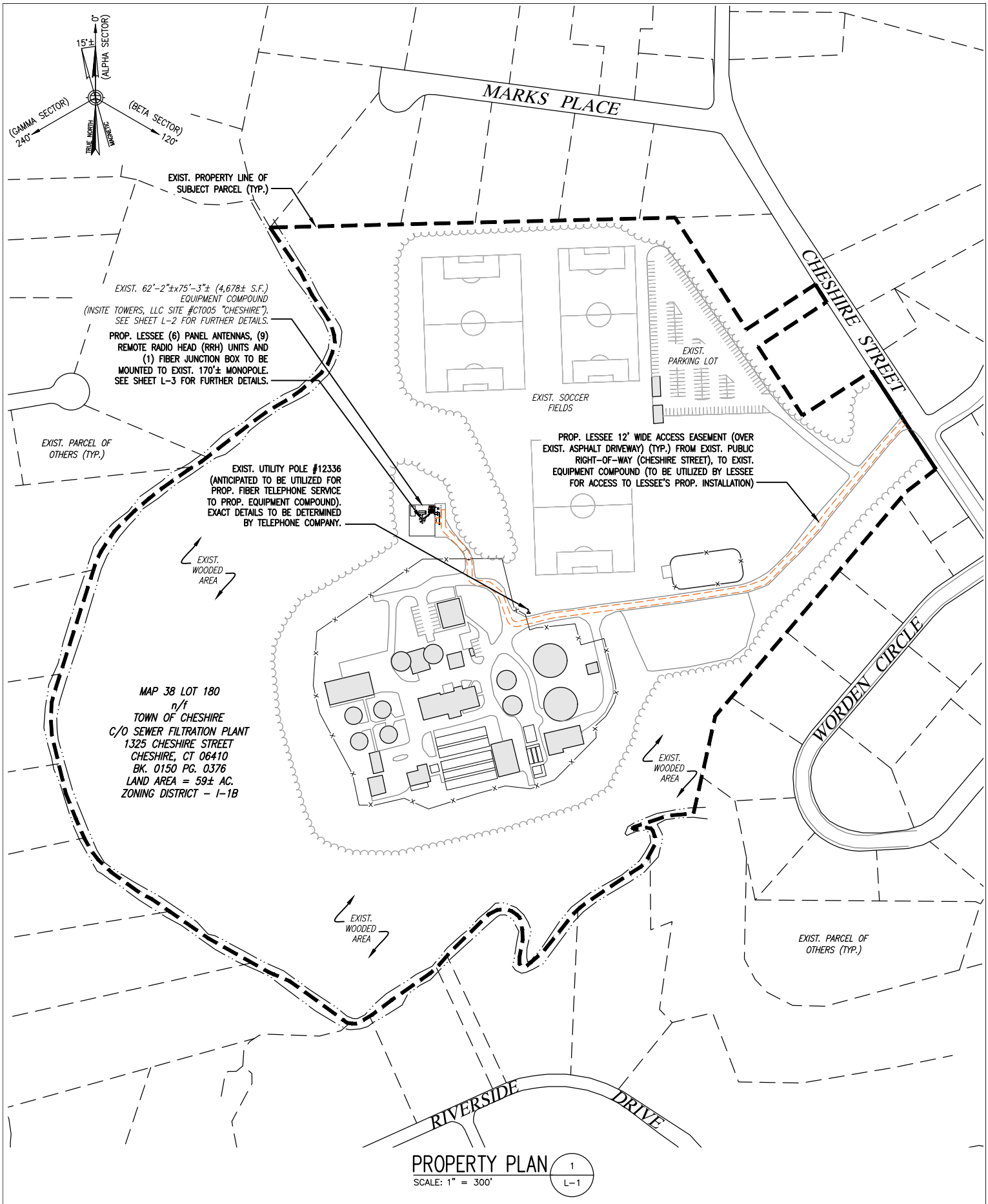
	0002		
Sector	**D1**	**D2**	**D3**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	8	8	8
Tip Height	148	148	148
Regulatory Power	59.67	59.67	59.67
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112939	7112940	7112941
Source	ATOLL_API	ATOLL_API	ATOLL_API

3_5 GHz

	0002		
Sector	**D19**	**D20**	**D21**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	2	2
Tip Height	148	148	148
Regulatory Power	9.89	9.89	9.89
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	CBRS RRH - RT4401-48A	CBRS RRH - RT4401-48A	CBRS RRH - RT4401-48A
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112951	7112952	7112953
Source	ATOLL_API	ATOLL_API	ATOLL_API

Service Comments

Appendix B –Drawings



PROPERTY PLAN (1 / L-1)
SCALE: 1" = 300'

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	7/6/20	REVISED PER (7/1/20) RFDS	NWC	GRS	GRS
1	6/29/20	REVISED GROUND EQUIPMENT	NWC	GRS	GRS
0	6/19/20	DRAFT LEASE EXHIBIT	NWC	GRS	GRS

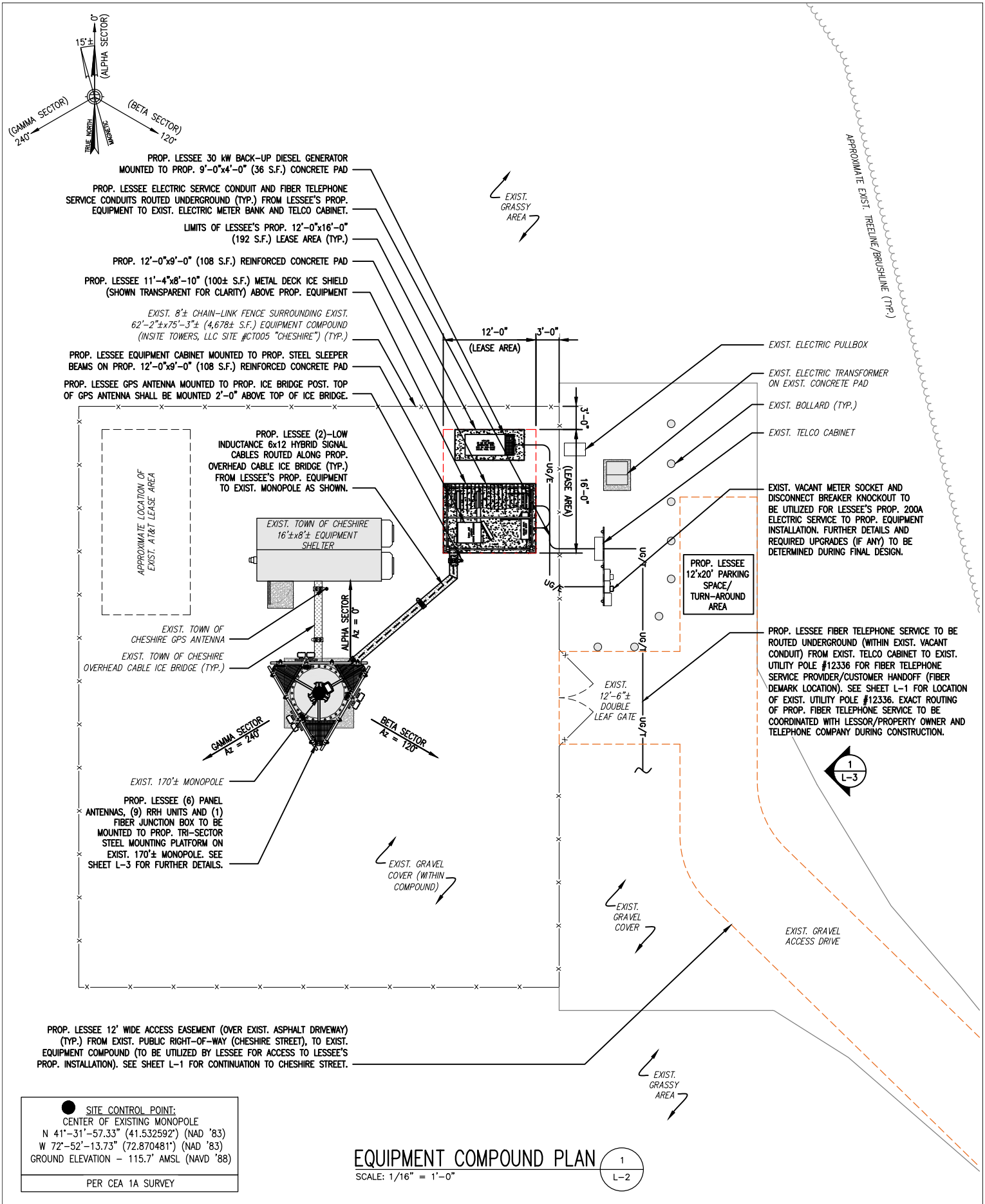
SCALE: AS NOTED | DESIGNED BY: GRS | DRAWN BY: NWC

CHESHIRE NORTHEAST 2 CT
1325 CHESHIRE STREET
CHESHIRE, CT 06410

LEASE EXHIBIT
NOT FOR CONSTRUCTION

LEASE AREA
EQUIPMENT LEASE AREA: 12'-0"x16'-0" (192 S.F.)
TOTAL = 192 S.F.

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
96210.397	L-1	7/6/20	470040	2



SITE CONTROL POINT:
CENTER OF EXISTING MONOPOLE
N 41°-31'-57.33" (41.532592') (NAD '83)
W 72°-52'-13.73" (72.870481') (NAD '83)
GROUND ELEVATION = 115.7' AMSL (NAVD '88)

PER CEA 1A SURVEY

EQUIPMENT COMPOUND PLAN

1 L-2

SCALE: 1/16" = 1'-0"

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	7/6/20	REVISED PER (7/1/20) RFDS	NWC	GRS	GRS
1	6/29/20	REVISED GROUND EQUIPMENT	NWC	GRS	GRS
0	6/19/20	DRAFT LEASE EXHIBIT	NWC	GRS	GRS

SCALE: AS NOTED | DESIGNED BY: GRS | DRAWN BY: NWC

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

LEASE EXHIBIT
NOT FOR CONSTRUCTION

LEASE AREA

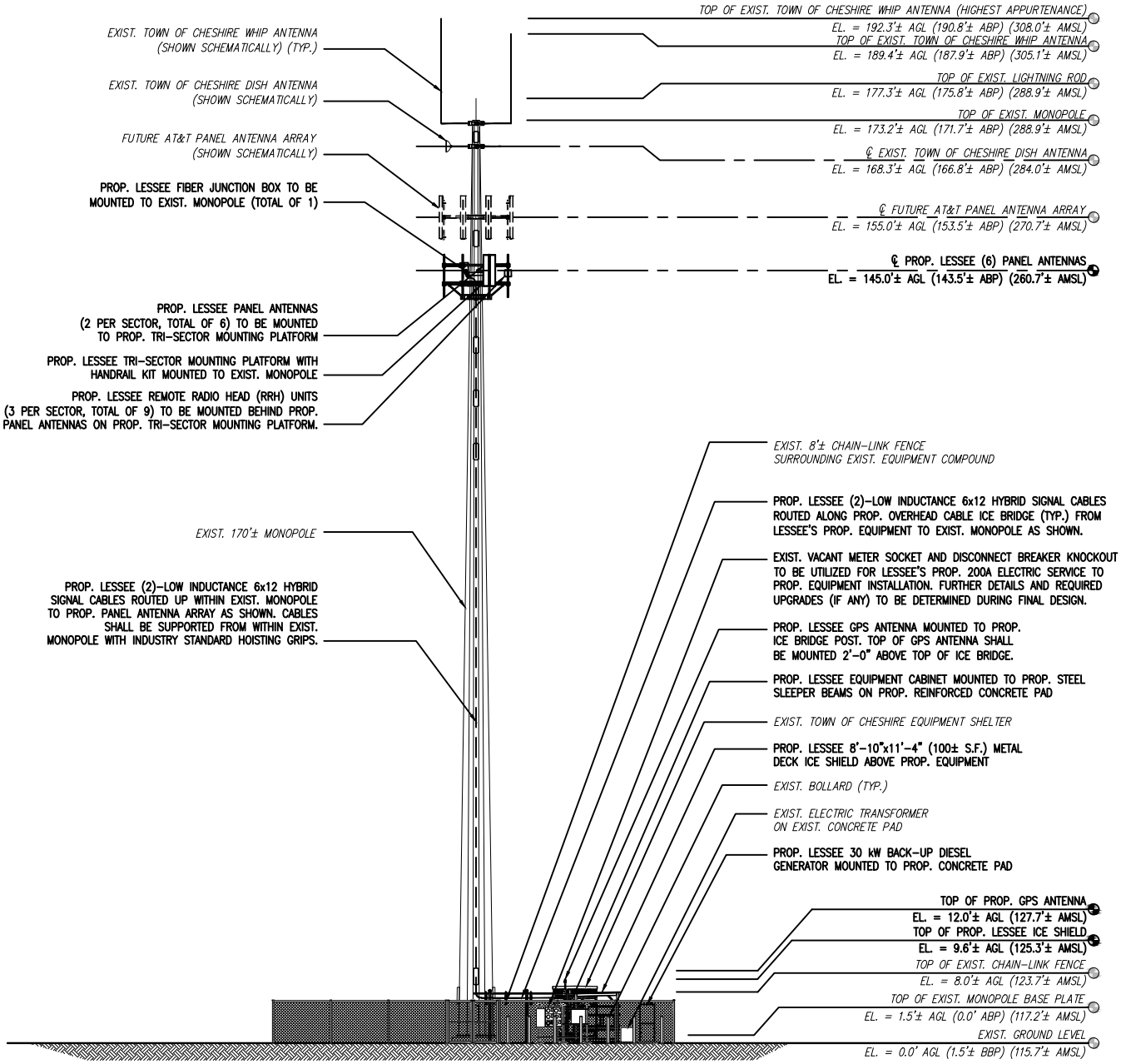
EQUIPMENT LEASE AREA: 12'-0"x16'-0" (192 S.F.)

TOTAL = 192 S.F.

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
96210.397	L-2	7/6/20	470040	2

LEGEND	
AGL	ABOVE GROUND LEVEL
ABP	ABOVE MONOPOLE BASE PLATE
BBP	BELOW MONOPOLE BASE PLATE
AMSL	ABOVE MEAN SEA LEVEL

NOTE:
EXIST. MONOPOLE AND APPURTENANCES SHOWN SCHEMATICALLY OR NOT SHOWN FOR CLARITY.



EAST SITE ELEVATION

SCALE: 1" = 30'

1 / L-3

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	7/6/20	REVISED PER (7/1/20) RFDS	NWC	GRS	GRS
1	6/29/20	REVISED GROUND EQUIPMENT	NWC	GRS	GRS
0	6/19/20	DRAFT LEASE EXHIBIT	NWC	GRS	GRS

SCALE: AS NOTED | DESIGNED BY: GRS | DRAWN BY: NWC

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

LEASE EXHIBIT
NOT FOR CONSTRUCTION

LEASE AREA

EQUIPMENT LEASE AREA: 12'-0"x16'-0" (192 S.F.)

TOTAL = 192 S.F.

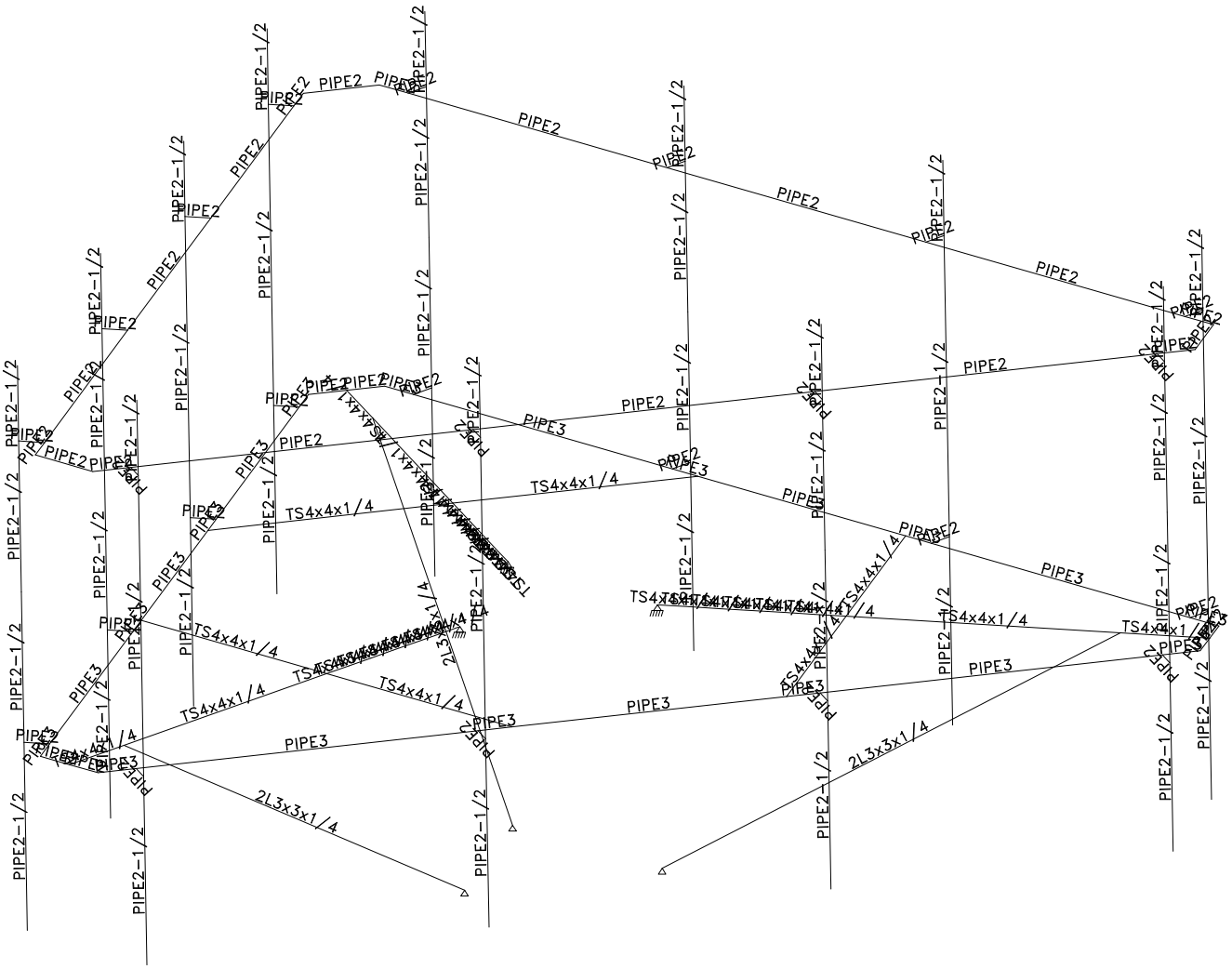
PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
96210.397	L-3	7/6/20	470040	2

Appendix C– Mount Analysis

Cheshire Northeast 2 CT Mount Analysis

SCALE = 1:27

DATE: 7/ 9/20



Cheshire Northeast 2 CT Mount Analysis

Prepared by:

Load no. 1: Front No Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS

/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
FX2 -0.464 FX3 -0.06 N 28 30

FX2 -0.4 FX3 -0.06 N 64 66 48 50
FX2 -0.12 FX3 -0.07 N 126 130 125 129 127 128
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-3.248 kip
FX3=-0.78 kip

Load no. 2: Side No Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS

/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS

FX1 -0.402 FX3 -0.06 N 64 66 28 30 48 50
FX1 -0.12 FX3 -0.07 N 126 130 125 129 127 128
/ END

F O R C E S U M M A T I O N

FX1=-3.132 kip
FX2=0. kip
FX3=-0.78 kip

Load no. 3: Front Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
FX2 -0.09 FX3 -0.2 N 28 30

FX2 -0.08 FX3 -0.2 N 64 66 48 50

Load no. 3: Front Ice (units - kips ft.)

FX2 -0.03 FX3 -0.12 N 126 130 125 129 127 128
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-0.68 kip
FX3=-1.92 kip

Load no. 4: Side Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
FX1 -0.08 FX3 -0.2 N 64 66 28 30 48 50
FX1 -0.03 FX3 -0.12 N 126 130 125 129 127 128
/ END

F O R C E S U M M A T I O N

FX1=-0.66 kip
FX2=0. kip
FX3=-1.92 kip

Load no. 5: Selfweight (units - kips ft.)

/ BEAM LOADS
SELF X3 -1. B 1 TO 138 142 TO 144
/ GLOBAL LOADS
/ GLOBAL LOADS
/ GLOBAL LOADS
DIST FX3 -0.003 PLANE -7.25 4.763 0. -1.805 4.763 0. -5.028 -0.818
0. PT -0.5 0.866 BEAMS
DIST FX3 -0.003 PLANE 1.805 4.763 0. 7.25 4.763 0. 7.75 3.897 0. PT
3.223 5.581 BEAMS
DIST FX3 -0.003 PLANE -3.222 -3.945 0. 3.222 -3.945 0. 0.5 -8.66
0. PT 2.722 4.715 BEAMS
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-1.7182 kip

Load no. 6: Front Frame Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX2 -0.003 B 1 4 5 13 15 TO 35 BY 2 49 TO 51 55 56 63 64 66 71
  72 TO 74 76 TO 81 83 TO 88 90 TO 115 117 133 134 135 142 TO 144
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-0.523 kip
FX3=0. kip

Load no. 7: Side Frame Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX1 -0.003 B 4 5 13 TO 35 BY 2 50 51 63 64 66 71 72 TO 78 BY 2
  79 TO 81 83 TO 88 90 91 93 94 96 TO 100 BY 2 101 TO 115 117 133 134 135
  142 TO 144
/ END
```

F O R C E S U M M A T I O N

FX1=-0.4387 kip
FX2=0. kip
FX3=0. kip

Load no. 8: Front Frame No Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX2 -0.006 B 1 4 5 13 15 TO 35 BY 2 49 TO 51 55 56 63 64 66 71
  72 TO 74 76 TO 81 83 TO 88 90 TO 115 117 133 134 135 142 TO 144
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-1.046 kip
FX3=0. kip

Load no. 9: Side Frame No Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX1 -0.006 B 4 5 13 TO 35 BY 2 50 51 63 64 66 71 72 TO 78 BY 2
 79 TO 81 83 TO 88 90 91 93 94 96 TO 100 BY 2 101 TO 115 117 133 134 135
 142 TO 144
/ END STATIC
```

F O R C E S U M M A T I O N

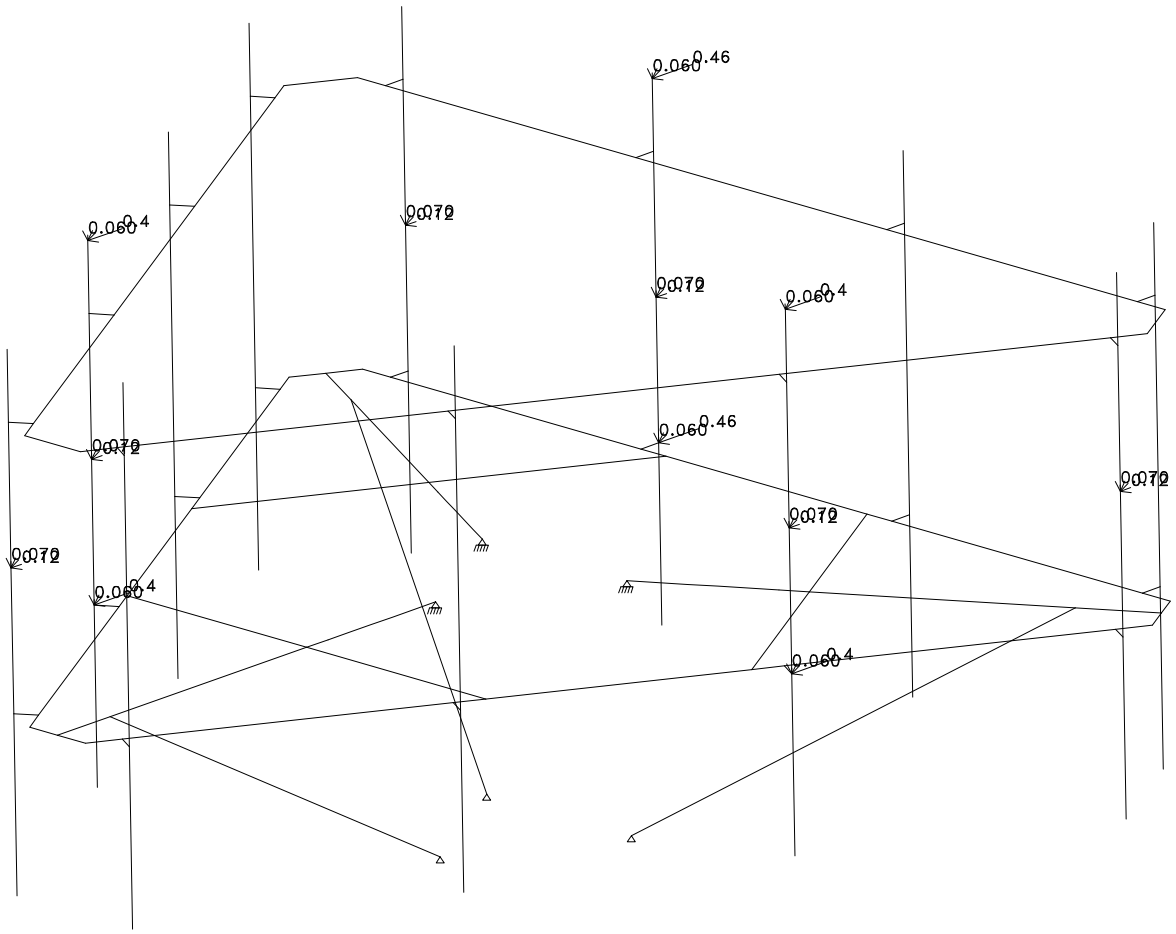
FX1=-0.8773 kip
FX2=0. kip
FX3=0. kip

Cheshire Northeast 2 CT Mount Analysis

Load 1: Front No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

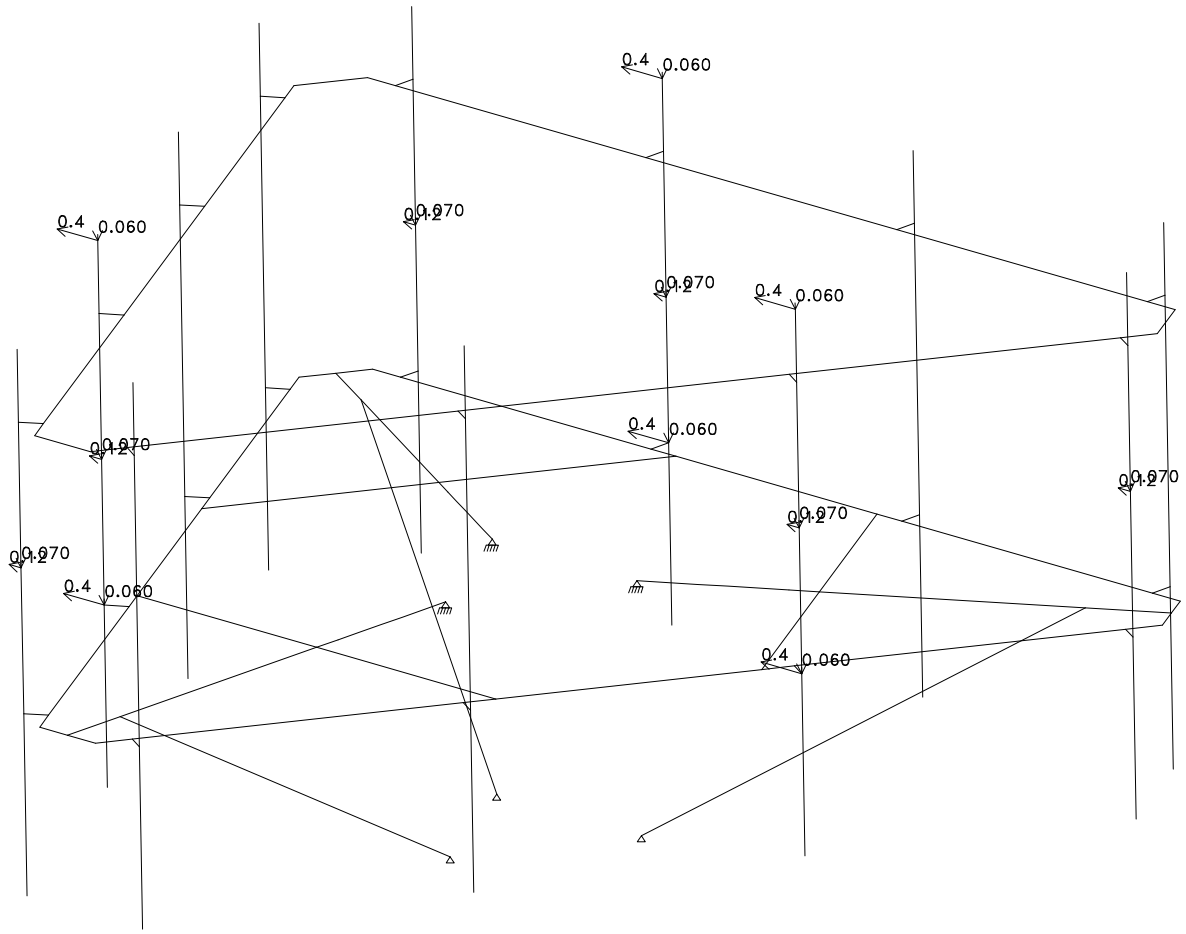


Cheshire Northeast 2 CT Mount Analysis

Load 2: Side No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

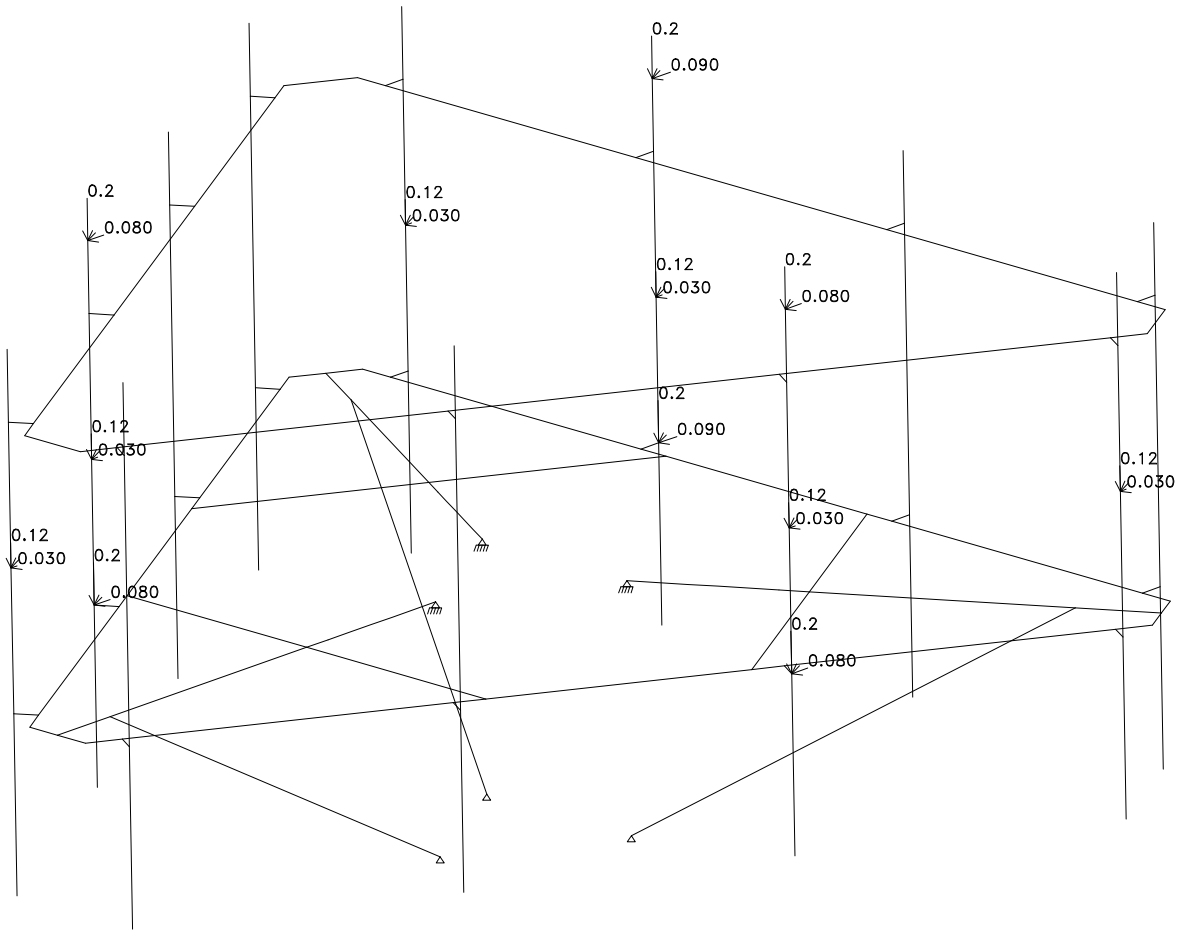


Cheshire Northeast 2 CT Mount Analysis

Load 3: Front Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

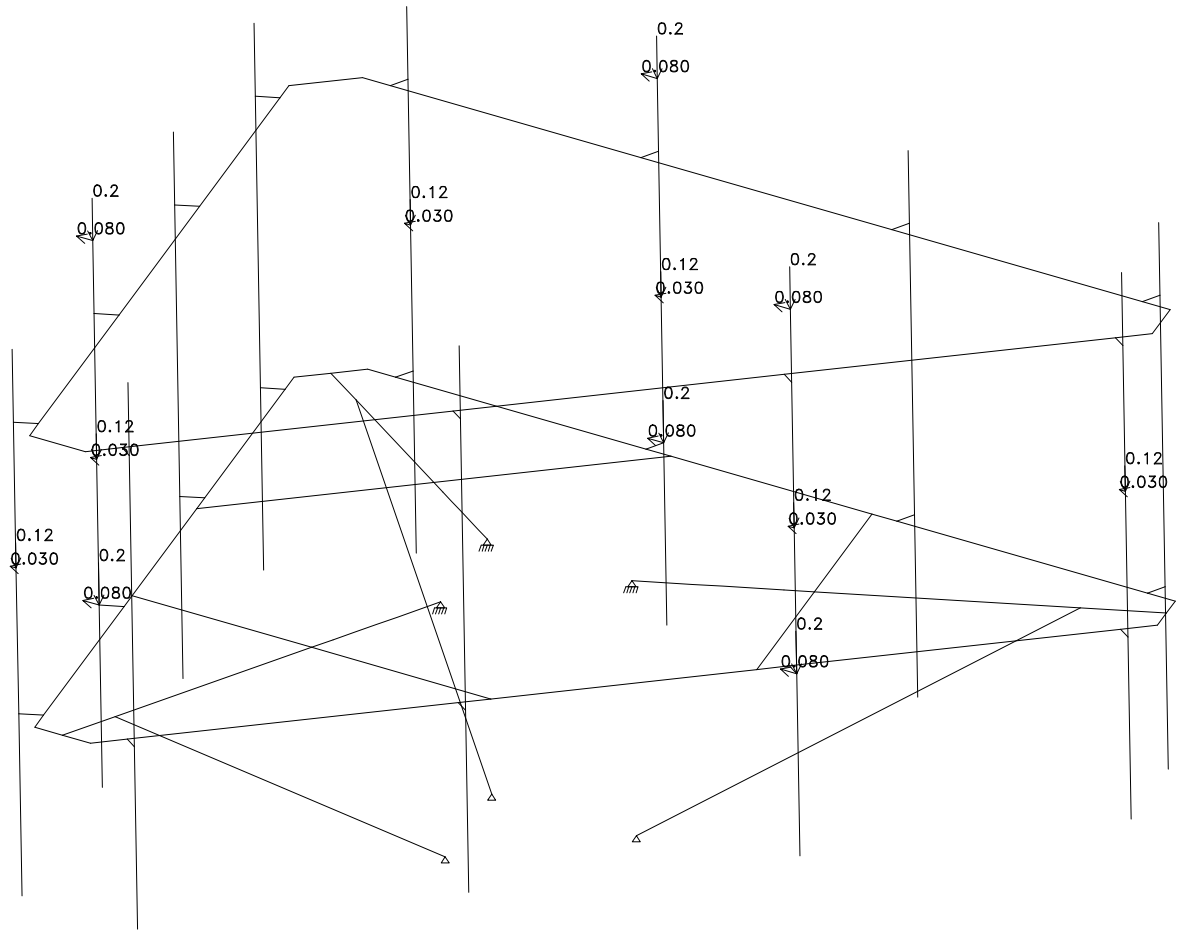


Cheshire Northeast 2 CT Mount Analysis

Load 4: Side Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

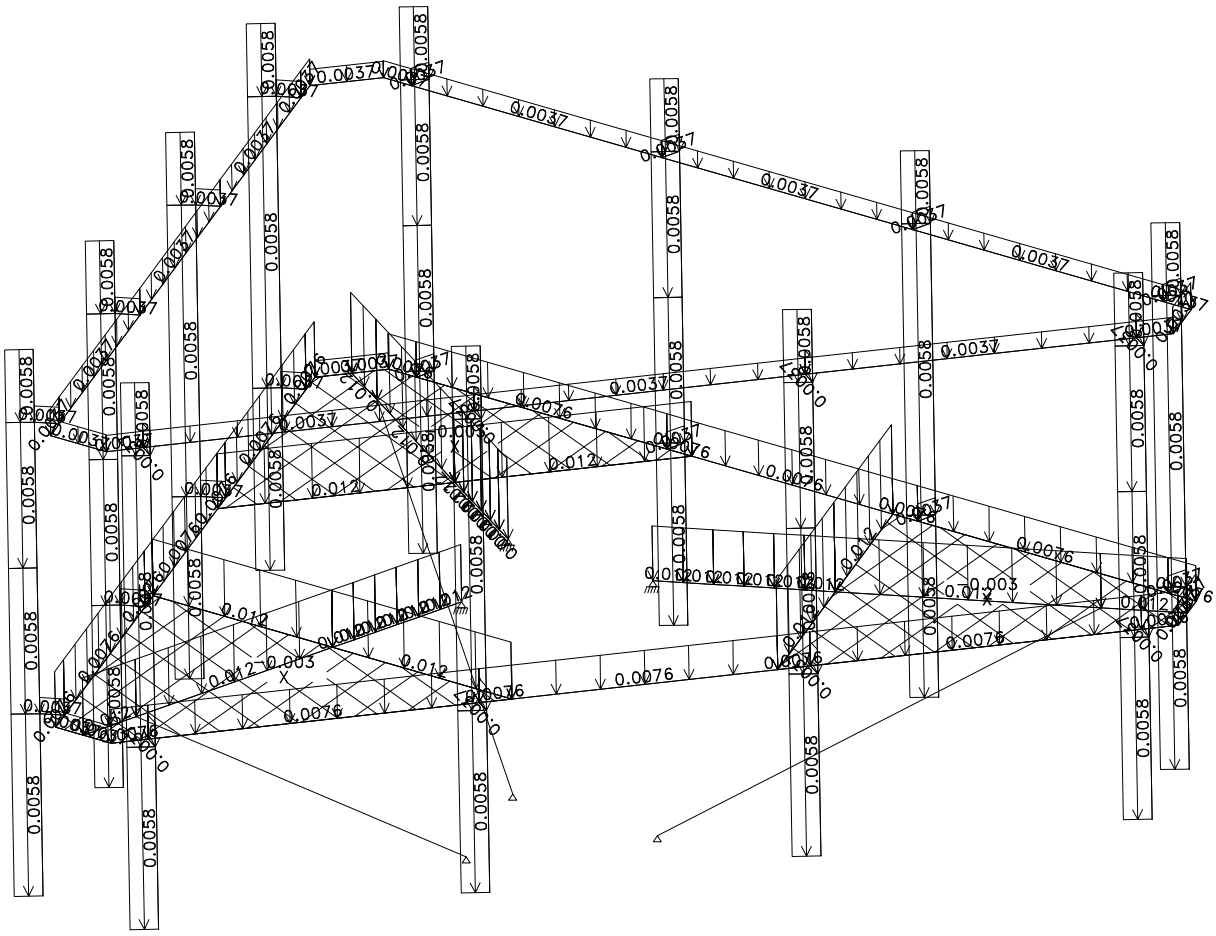


Cheshire Northeast 2 CT Mount Analysis

Load 5: Selfweight

X3
X2
X1

SCALE = 1:30 | UNITS: kip ft | DATE: 7/ 9/20

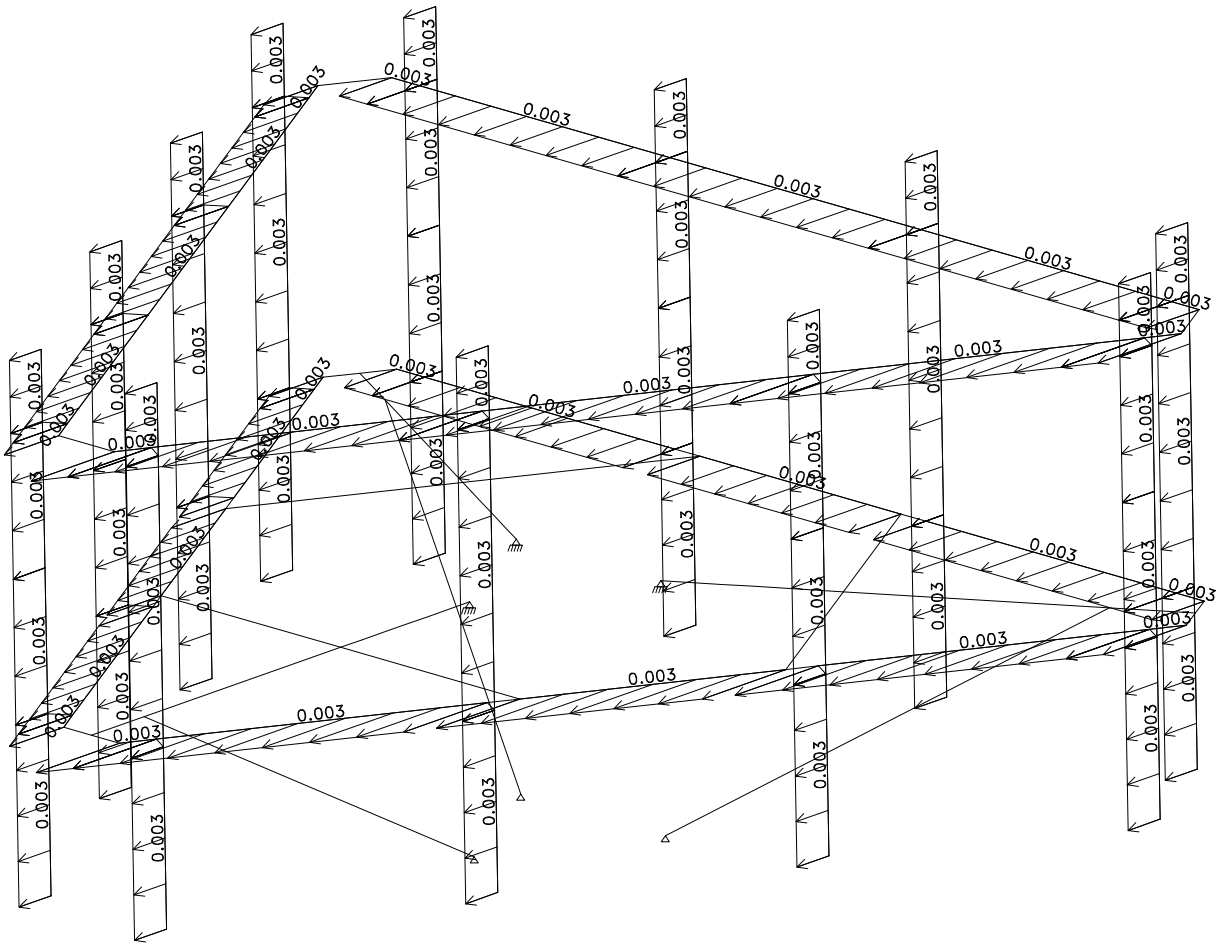


Cheshire Northeast 2 CT Mount Analysis

Load 6: Front Frame Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

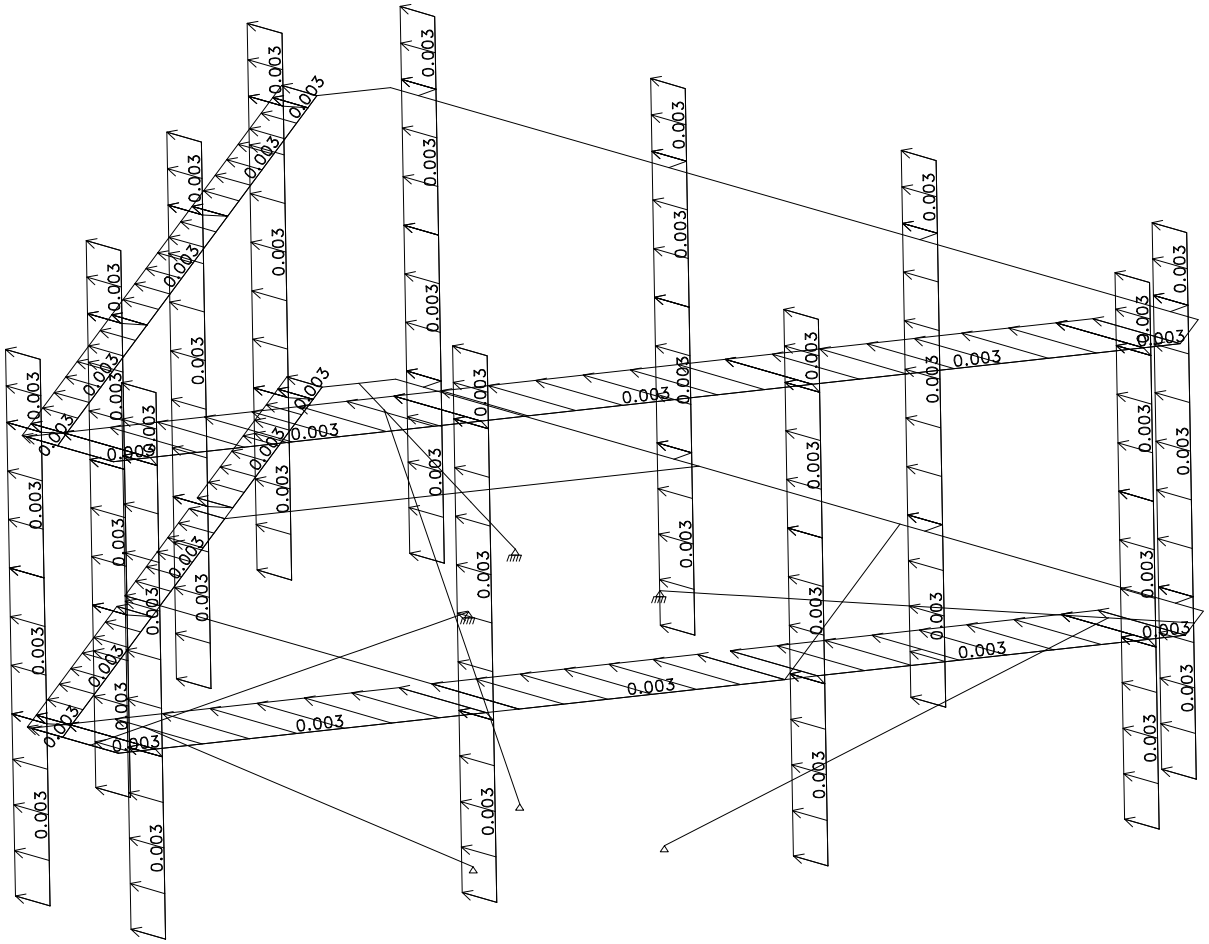


Cheshire Northeast 2 CT Mount Analysis

Load 7: Side Frame Ice

X3
X2
X1

SCALE = 1:30 | UNITS: kip ft | DATE: 7/ 9/20

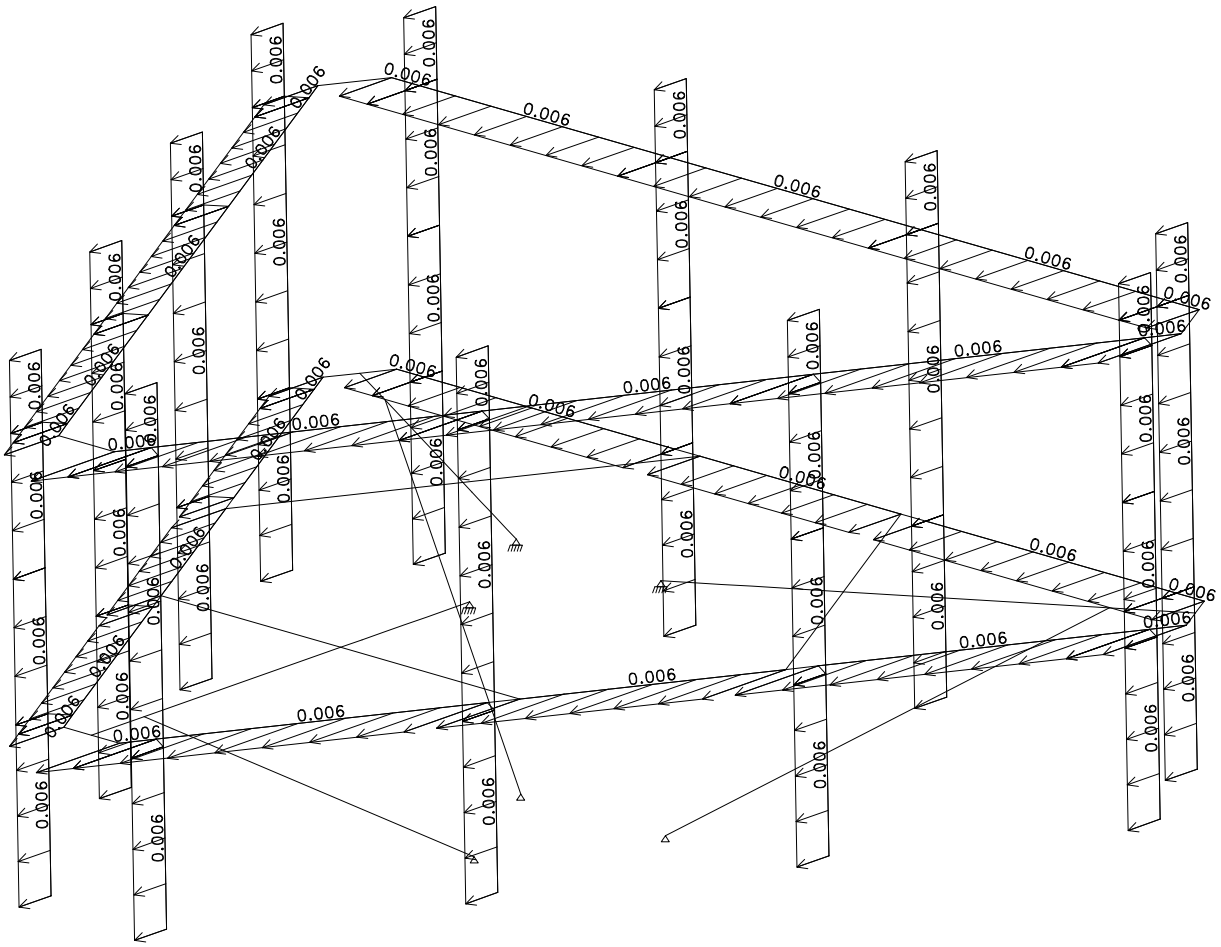


Cheshire Northeast 2 CT Mount Analysis

Load 8: Front Frame No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

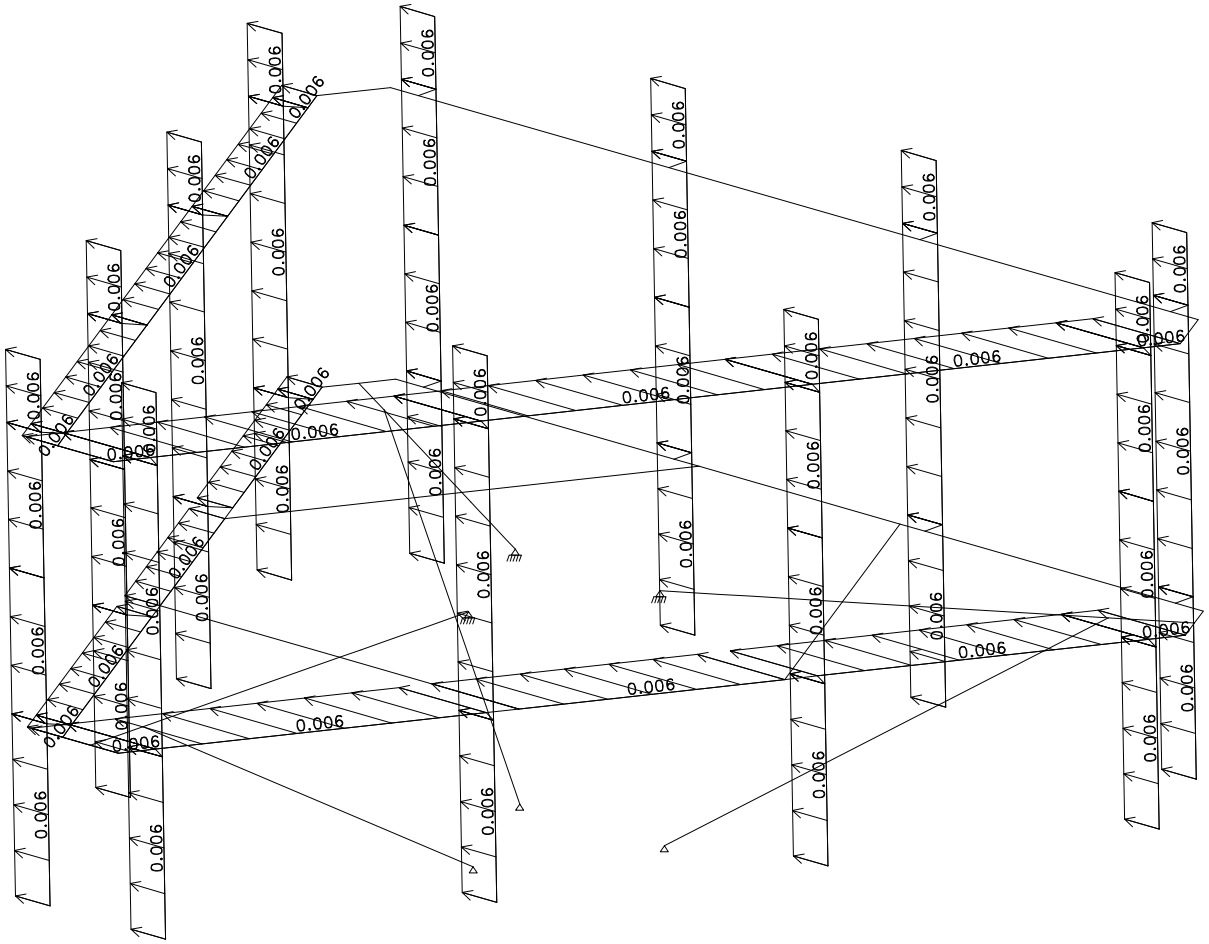


Cheshire Northeast 2 CT Mount Analysis

Load 9: Side Frame No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20



Cheshire Northeast 2 CT Mount Analysis

Prepared by: ***Date:*** 7/ 9/20

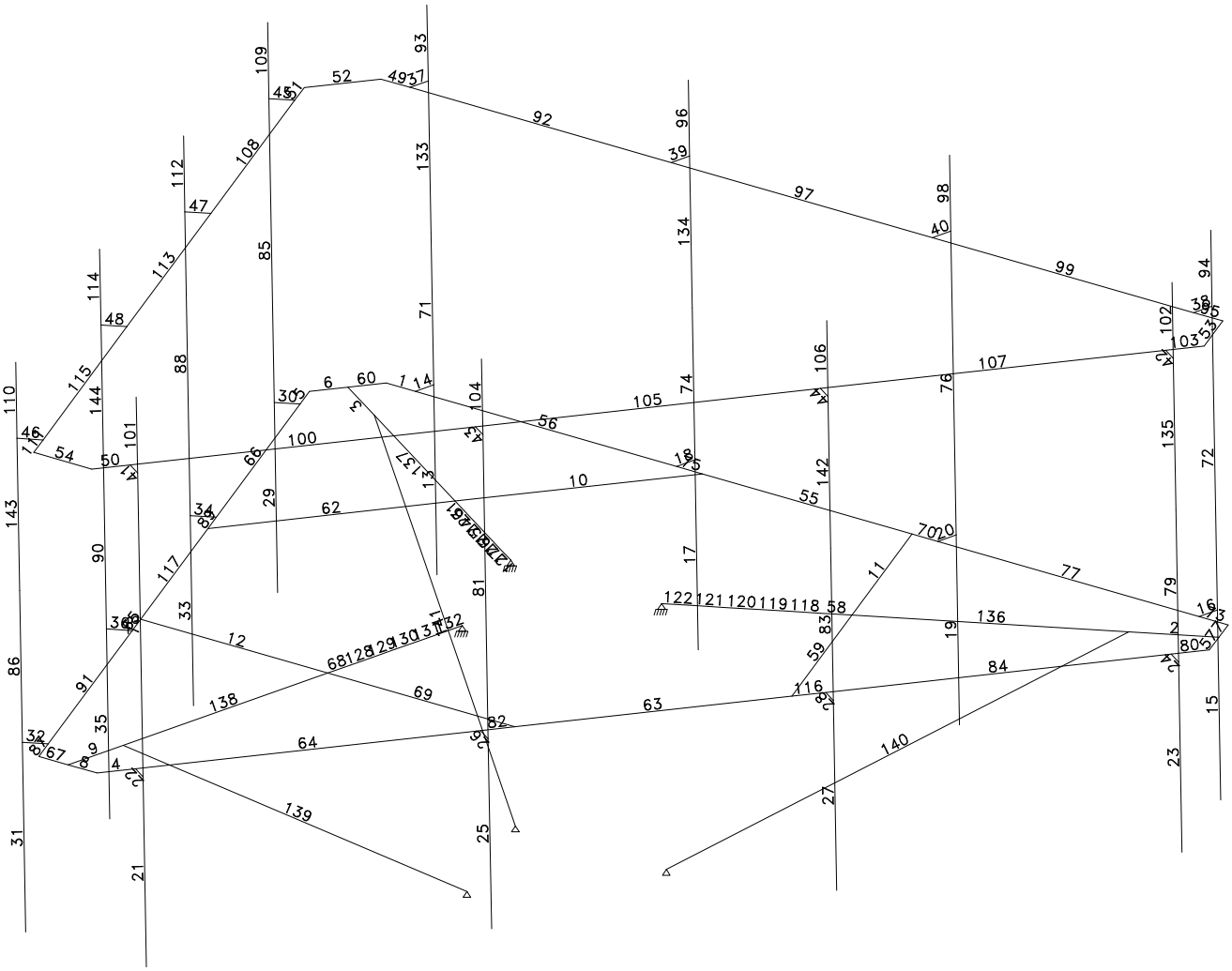
COMBINATIONS TABLE

Comb.	
1	Front No Ice 1 * 1.00 + 5 * 1.05 + 8 * 1.00
2	Side No Ice 2 * 1.00 + 5 * 1.05 + 9 * 1.00
3	Front Iced 3 * 1.00 + 5 * 1.25 + 6 * 1.00
4	Side Iced 4 * 1.00 + 5 * 1.25 + 7 * 1.00

Cheshire Northeast 2 CT Mount Analysis

SCALE = 1:27

DATE: 7/ 9/20



Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Results Summary Table

Beam	Section	Com	Defl L/	Slen	CAPACITY Axial	Dir	Shear	Mom	LTB	Combined Axial+Mom
1	PIPE 3	1	666	150	-0.01	MJ	0.04	0.20	0.20	0.34
						MI	0.05	0.15	0.00	
2	TS 4x4x1/4	2	2890	46	-0.02	MJ	0.04	0.11	0.11	0.33
						MI	0.04	0.28	0.00	
3	TS 4x4x1/4	1	2214	57	0.03	MJ	0.05	0.13	0.13	0.46
						MI	0.06	0.41	0.00	
6	PIPE 2	1	3785	8	0.02	MJ	0.06	0.37	0.37	0.57
						MI	0.08	0.19	0.00	
7	PIPE 2	2	9999	8	0.02	MJ	0.06	0.15	0.15	0.31
						MI	0.08	0.21	0.00	
8	PIPE 2	2	5492	8	-0.02	MJ	0.06	0.23	0.23	0.28
						MI	0.06	0.15	0.00	
9	TS 4x4x1/4	2	2694	57	0.04	MJ	0.05	0.11	0.11	0.45
						MI	0.06	0.38	0.00	
10	TS 4x4x1/4	1	9999	26	-0.01	MI	0.00	0.00	0.00	0.01
11	TS 4x4x1/4	1	9999	26	0.00	MI	0.00	0.00	0.00	0.00
12	TS 4x4x1/4	2	9999	26	0.01	MI	0.00	0.00	0.00	0.01
14	PIPE 2	1	7520	5	-0.01	MJ	0.04	0.19	0.19	0.38
						MI	0.05	0.19	0.00	
16	PIPE 2	2	9999	5	0.00	MJ	0.04	0.16	0.16	0.21
						MI	0.02	0.11	0.00	
18	PIPE 2	1	2997	5	-0.03	MJ	0.04	0.63	0.63	0.70
						MI	0.08	0.19	0.00	
20	PIPE 2	1	4639	5	-0.01	MJ	0.01	0.38	0.38	0.52
						MI	0.02	0.14	0.00	
22	PIPE 2	1	8258	5	-0.01	MJ	0.03	0.22	0.22	0.36
						MI	0.04	0.15	0.00	
24	PIPE 2	1	6880	5	-0.01	MJ	0.05	0.31	0.31	0.35
						MI	0.02	0.16	0.00	
26	PIPE 2	2	5044	5	-0.01	MJ	0.01	0.36	0.36	0.45
						MI	0.04	0.16	0.00	
28	PIPE 2	2	3728	5	-0.02	MJ	0.04	0.50	0.50	0.64
						MI	0.05	0.13	0.00	
30	PIPE 2	1	7741	5	0.01	MJ	0.05	0.28	0.28	0.30
						MI	0.03	0.15	0.00	
32	PIPE 2	2	8582	5	0.01	MJ	0.06	0.23	0.23	0.36
						MI	0.05	0.19	0.00	
34	PIPE 2	2	6836	5	0.00	MJ	0.01	0.22	0.22	0.40
						MI	0.03	0.18	0.00	
36	PIPE 2	2	3926	5	0.02	MJ	0.04	0.48	0.48	0.52
						MI	0.08	0.19	0.00	
37	PIPE 2	1	9999	5	0.00	MJ	0.04	0.08	0.08	0.26
						MI	0.03	0.19	0.00	
38	PIPE 2	2	9999	5	0.00	MJ	0.03	0.14	0.14	0.19
						MI	0.02	0.11	0.00	
39	PIPE 2	1	9000	5	-0.01	MJ	0.02	0.20	0.20	0.26
						MI	0.03	0.05	0.00	
40	PIPE 2	1	9999	5	0.01	MJ	0.01	0.04	0.04	0.18
						MI	0.02	0.14	0.00	
41	PIPE 2	1	9999	5	0.00	MJ	0.03	0.11	0.11	0.23
						MI	0.03	0.14	0.00	
42	PIPE 2	1	9999	5	0.00	MJ	0.04	0.14	0.14	0.19
						MI	0.03	0.15	0.00	
43	PIPE 2	1	9999	5	0.01	MJ	0.01	0.03	0.03	0.16
						MI	0.04	0.15	0.00	
44	PIPE 2	2	9999	5	-0.01	MJ	0.02	0.15	0.15	0.21
						MI	0.04	0.06	0.00	
45	PIPE 2	2	9999	5	-0.01	MJ	0.05	0.18	0.18	0.20
						MI	0.03	0.15	0.00	
46	PIPE 2	2	9999	5	0.00	MJ	0.05	0.11	0.11	0.26
						MI	0.03	0.16	0.00	
47	PIPE 2	2	9999	5	0.00	MJ	0.01	0.03	0.03	0.20
						MI	0.03	0.18	0.00	

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Results Summary Table

Beam	Section	Com	Defl L/	Slen	CAPACITY Axial	Dir	Shear	Mom	LTB	Combined Axial+Mom	
48	PIPE 2	2	9999	5	0.01	MJ	0.02	0.17	0.17	0.23	
						MI	0.04	0.06	0.00		
49	PIPE 2	1	662	206	-0.09	MJ	0.04	0.27	0.27	0.43	***
						MI	0.02	0.28	0.00		
52	PIPE 2	1	9999	15	-0.01	MJ	0.04	0.11	0.11	0.12	
53	PIPE 2	1	9999	15	0.00	MJ	0.04	0.09	0.09	0.10	
54	PIPE 2	2	9999	15	0.01	MJ	0.04	0.10	0.10	0.10	
57	PIPE 2	2	3535	8	0.01	MJ	0.08	0.42	0.42	0.48	
						MI	0.08	0.21	0.00		
59	TS 4x4x1/4	2	9999	26	-0.01	MI	0.00	0.00	0.00	0.01	
60	PIPE 2	1	4540	8	-0.01	MJ	0.08	0.25	0.25	0.45	
						MI	0.08	0.19	0.00		
62	TS 4x4x1/4	3	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
67	PIPE 2	2	3803	8	-0.02	MJ	0.09	0.41	0.41	0.46	
						MI	0.06	0.15	0.00		
69	TS 4x4x1/4	2	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
80	PIPE 3	2	668	150	-0.01	MJ	0.04	0.19	0.19	0.32	
						MI	0.04	0.14	0.00		
87	PIPE 3	2	664	150	-0.01	MJ	0.04	0.20	0.20	0.34	
						MI	0.04	0.15	0.00		
93	PIPE 2-1/2	1	229	95	-0.01	MJ	0.03	0.26	0.26	0.36	***
						MI	0.01	0.10	0.00		
94	PIPE 2-1/2	3	2547	95	-0.01	MJ	0.01	0.15	0.15	0.19	
						MI	0.01	0.08	0.00		
96	PIPE 2-1/2	1	140	67	-0.01	MJ	0.03	0.20	0.20	0.39	***
						MI	0.03	0.34	0.00		
98	PIPE 2-1/2	1	1200	95	0.00	MJ	0.01	0.09	0.09	0.23	
						MI	0.01	0.21	0.00		
101	PIPE 2-1/2	1	1539	95	-0.01	MJ	0.02	0.21	0.21	0.36	
						MI	0.02	0.15	0.00		
102	PIPE 2-1/2	2	320	95	-0.02	MJ	0.01	0.10	0.10	0.24	
						MI	0.02	0.16	0.00		
103	PIPE 2	1	804	200	-0.10	MJ	0.04	0.27	0.27	0.50	
						MI	0.02	0.20	0.00		
104	PIPE 2-1/2	1	1247	95	0.00	MJ	0.02	0.21	0.21	0.31	
						MI	0.02	0.22	0.00		
106	PIPE 2-1/2	2	182	66	-0.01	MJ	0.03	0.29	0.29	0.33	***
						MI	0.03	0.13	0.00		
109	PIPE 2-1/2	4	1848	85	-0.02	MJ	0.01	0.08	0.08	0.26	
						MI	0.02	0.19	0.00		
110	PIPE 2-1/2	2	258	82	-0.02	MJ	0.02	0.19	0.19	0.41	
						MI	0.03	0.21	0.00		
111	PIPE 2	2	679	203	-0.10	MJ	0.04	0.31	0.31	0.55	***
						MI	0.02	0.24	0.00		
112	PIPE 2-1/2	2	1556	95	0.00	MJ	0.02	0.20	0.20	0.31	
						MI	0.01	0.12	0.00		
114	PIPE 2-1/2	2	175	56	-0.01	MJ	0.03	0.19	0.19	0.35	***
						MI	0.03	0.27	0.00		
139	2L 3x3x1/4	3	9999	91	-0.08	MI	0.00	0.00	0.00	0.08	
140	2L 3x3x1/4	3	9999	90	-0.07	MI	0.00	0.00	0.00	0.07	
141	2L 3x3x1/4	4	9999	90	-0.08	MI	0.00	0.00	0.00	0.08	

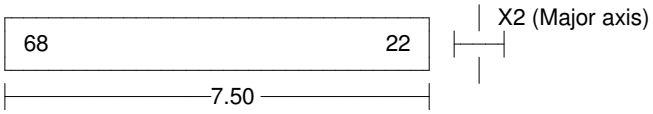
Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 93 - 13

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 93, 71, 133, 13



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

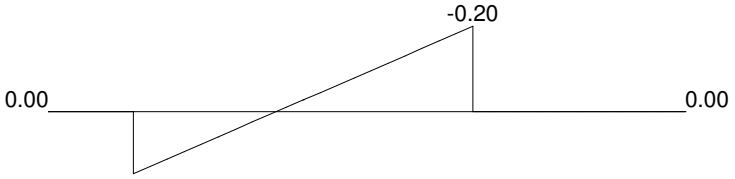
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 2-1/2

Ix = 1.53 Iy = 1.53in4 Zx = 1.45 Zy = 1.45in3 Area = 1.70
D = 2.87 t = 0.20in
J = 3.06 Cw = 0.00in6

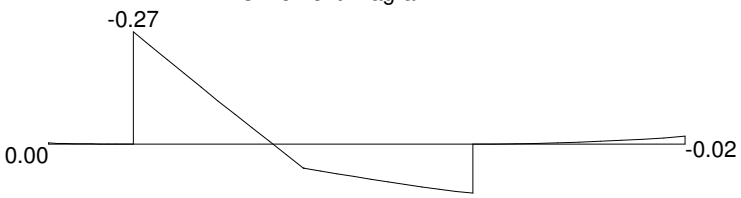
DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.36 (tens.), -0.01 (compr.) Max. SHEAR Force = 0.08

M3 Moment Diagram



Max. AXIAL Force = 0.36 (tens.), -0.01 (compr.) Max. SHEAR Force = 0.17

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	Slender	-axial
d/t= 14.04	<	44.1	195.4	69.3	(Fy= 46.0 R = -0.005)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 0.85	Vu = 0.17 Vn = 23.58	0.01
M3 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 1.45	M = 0.27 Mn = 5.57	0.08
V3 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 0.85	Vu = 0.08 Vn = 23.58	0.01

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 93 - 13

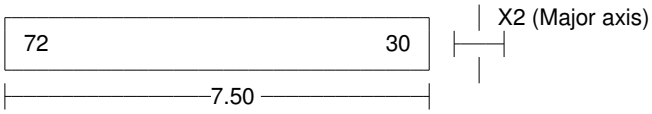
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M2 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 1.45	M = 0.20 Mn = 5.57	0.06
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.39237	1.05
Axial Force (D2-1)	$\frac{Pu}{0.6AgFy} < 1.00$	(kL/r)x =95 (kL/r)y =95	Pu = 0.36 Ag = 1.70 Fy = 46.00	0.01
Combined Forces (compress.) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 54.27 Pey = 54.27	Mrx = 0.20 Mry = 0.27 B1x = 1.00 B1y = 1.00	0.14

Detailed Results Table for Beam 96 - 17

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 96, 74, 134, 17



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

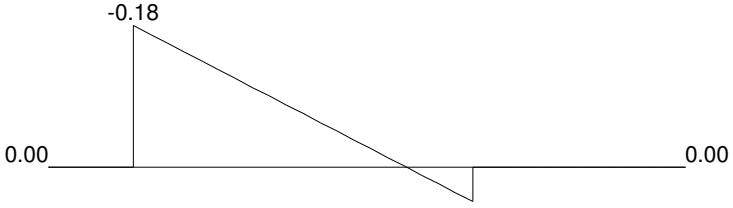
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 2-1/2

Ix = 1.53 Iy = 1.53in4 Zx = 1.45 Zy = 1.45in3 Area = 1.70
D = 2.87 t = 0.20in
J = 3.06 Cw = 0.00in6

DESIGN COMBINATION = 1

M2 Moment Diagram



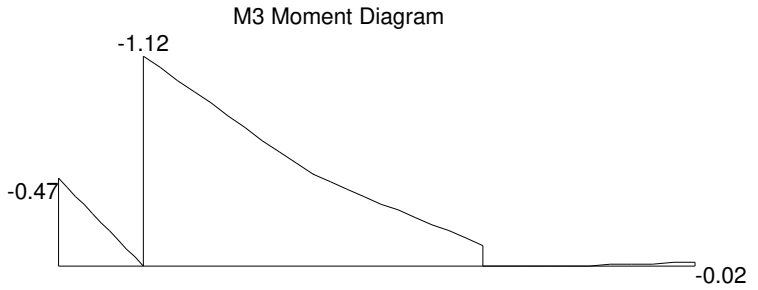
Max. AXIAL Force = 0.02 (tens.), -0.12 (compr.) Max. SHEAR Force = 0.06

Cheshire Northeast 2 CT Mount Analysis | ***Code:*** AISC-ASD

Prepared by: | ***Date:*** 7/ 9/20

Detailed Results Table for Beam 96 - 17

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*



Max. AXIAL Force = 0.02 (tens.), -0.12 (compr.) Max. SHEAR Force = 0.47

SECTION CLASSIFICATION: *** COMPACT ***

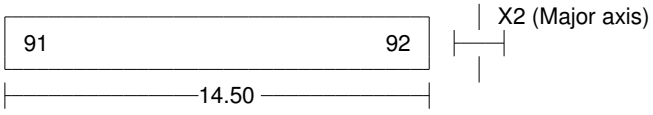
Limiting Ratios:		Compact	Non-Compact	Slender	-axial
d/t= 14.04	<	44.1	195.4	69.3	(Fy= 46.0 R = 0.002)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 0.85	Vu = 0.47 Vn = 23.58	0.03
M3 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 1.45	M = 1.12 Mn = 5.57	0.34
M2 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 1.45	M = 0.18 Mn = 5.57	0.06
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.64077	1.71
Axial Force (E3-1)	$\frac{Pu}{0.6AgFcr} < 1.00$ Slender. reduct.	(kL/r)x =67 (kL/r)y =67 x = 0.70	Pu = 0.12 Ag = 1.70 Fcr = 34.04 y = 0.70	0.00
Combined Forces (compress.) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 109.10 Pey = 109.10	Mrx = 0.18 Mry = 1.13 B1x = 1.00 B1y = 1.00	0.39

Detailed Results Table for Beam 49 - 95

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam:
49, 92, 97,
99, 95



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 49 - 95

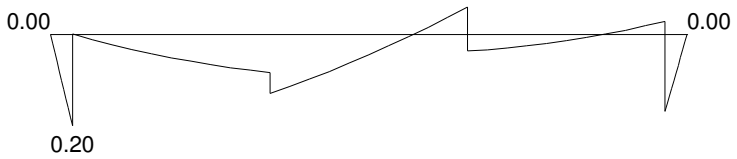
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Section: PIPE 2

Ix = 0.67 Iy = 0.67in4 Zx = 0.76 Zy = 0.76in3 Area = 1.07
D = 2.37 t = 0.15in
J = 1.33 Cw = 0.00in6

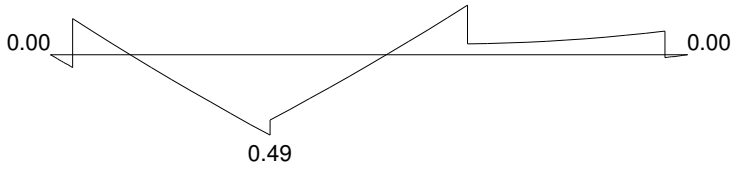
DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = -0.18 (compr.) Max. SHEAR Force = 0.39

M3 Moment Diagram



Max. AXIAL Force = -0.18 (compr.) Max. SHEAR Force = 0.17

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios: Compact Non-Compact Slender -axial
d/t= 15.46 < 44.1 195.4 69.3 (Fy= 46.0 R = 0.004)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 0.54	Vu = 0.17 Vn = 14.87	0.02
M3 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 0.76	M = 0.49 Mn = 2.92	0.28
V3 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 0.54	Vu = 0.39 Vn = 14.87	0.04
M2 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 0.76	M = 0.20 Mn = 2.92	0.11
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.26265	0.36
Axial Force (E3-1)	$\frac{Pu}{0.6AgFcr} < 1.00$ Slender. reduct.	(kL/r)x =189 (kL/r)y =189 x = 0.85	Pu = 0.18 Ag = 1.07 Fcr = 7.05 y = 0.85	0.04

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 49 - 95

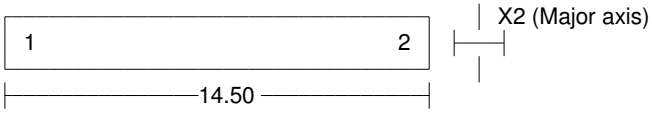
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Combined Forces (compress.) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 8.65 Pey = 8.65	Mrx = 0.20 Mry = 0.51 B1x = 1.03 B1y = 1.03	0.43

Detailed Results Table for Beam 1 - 73

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 1, 56, 75, 55, 70, 77, 73



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

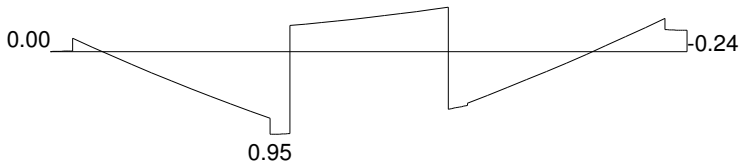
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 3

Ix = 3.02 Iy = 3.02in4 Zx = 2.33 Zy = 2.33in3 Area = 2.23
D = 3.50 t = 0.22in
J = 6.03 Cw = 0.00in6

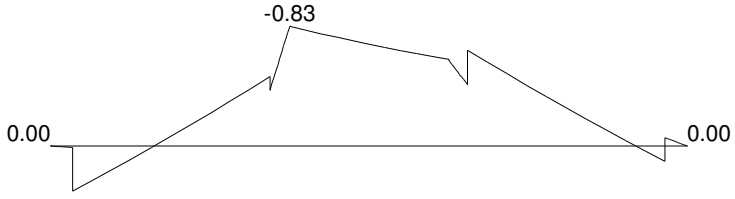
DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.85 (tens.) Max. SHEAR Force = 0.24

M3 Moment Diagram



Max. AXIAL Force = 0.85 (tens.) Max. SHEAR Force = 0.99

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 1 - 73

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

SECTION CLASSIFICATION: *** COMPACT ***

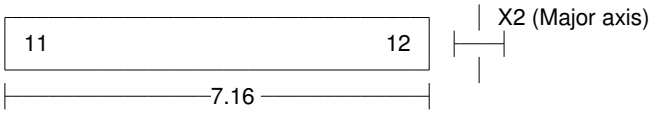
Limiting Ratios: Compact Non-Compact Slender -axial
d/t= 16.16 < 44.1 195.4 69.3 (Fy= 46.0 R = -0.008)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.11	Vu = 0.99 Vn = 30.86	0.05
M3 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 2.33	M = 0.83 Mn = 8.95	0.15
V3 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.11	Vu = 0.24 Vn = 30.86	0.01
M2 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 2.33	M = 0.95 Mn = 8.95	0.18
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.26123	0.36
Axial Force (D2-1)	$\frac{Pu}{0.6AgFy} < 1.00$	(kL/r)x =150 (kL/r)y =150	Pu = 0.85 Ag = 2.23 Fy = 46.00	0.01
Combined Forces (tension) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$		Mrx = 0.95 Mry = 0.83	0.34

Detailed Results Table for Beam 9 - 132

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam:
9, 138, 68,
128, 129, 130,
131, 132



CONSTRAINTS

- Sections : Check
- Steel Grade: A500B

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

L =	1.00	4.71	5.08	5.46	5.88	6.25	6.67
Lat.-Tors.							
Compress.	X	X	X	X	X	X	X

Cheshire Northeast 2 CT Mount Analysis | ***Code:*** AISC-ASD

Prepared by: | ***Date:*** 7/ 9/20

Detailed Results Table for Beam 9 - 132

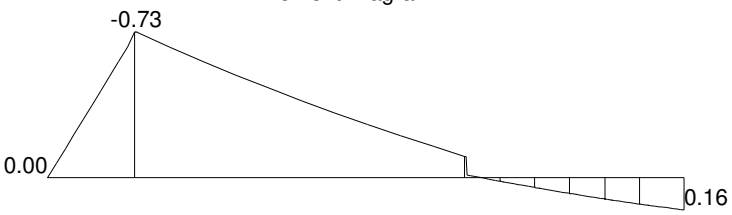
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Section: TS 4x4x1/4

Ix = 8.22 Iy = 8.22in4 Zx = 4.97 Zy = 4.97in3 Area = 3.59
h = 4.00 b = 4.00in t = 0.25in
J = 13.50 Cw = 0.00in6

DESIGN COMBINATION = 2

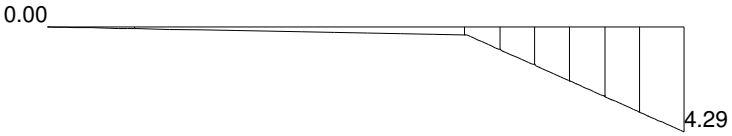
M2 Moment Diagram



Moments at Intermediate Supports:
-0.73 -0.11 0.05 0.11
0.02 0.08 0.13

Max. AXIAL Force = 1.95 (tens.) Max. SHEAR Force = 0.74

M3 Moment Diagram



Moments at Intermediate Supports:
0.07 0.33 1.53 2.82
0.92 2.21 3.49

Max. AXIAL Force = 1.95 (tens.) Max. SHEAR Force = 1.62

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	Slender -axial	
d/t= 13.13	<	60.8	143.1	35.2	(Fy= 46.0 R = -0.012)
b/t= 13.13	<	28.1	35.2	35.2	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.62	Vu = 1.62 Vn = 44.72	0.06
M3 Moment (F7-1) without LTB	M / 0.6Mn < 1.00	Z = 4.97	M = 4.29 Mn = 19.07	0.38
V3 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.62	Vu = 0.74 Vn = 44.72	0.03
M2 Moment (F7-1) without LTB	M / 0.6Mn < 1.00	Z = 4.97	M = 0.73 Mn = 19.07	0.06
Deflection	defl. / L / 240 < 1.00		defl = 0.03189	0.09

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 9 - 132

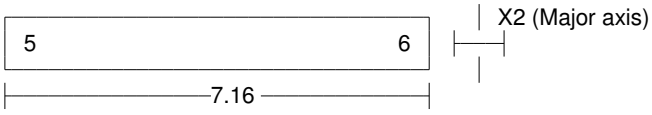
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Axial Force (D2-1)	$\frac{Pu}{0.6AgFy} < 1.00$	(kL/r)x =29 (kL/r)y =57	Pu = 1.95 Ag = 3.59 Fy = 46.00	0.02
Lateral Torsional Buckling	$\frac{M}{0.6Mn} < 1.00$ Critical Segment from 0.00 to 7.16 on -z flange Segment End Moments: 0.00 and 0.16	Lb = 7.16 Lp = 14.40	M = 0.73 Mn = 19.07	0.06
Combined Forces (tension) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$		Mrx = 0.73 Mry = 4.29	0.45

Detailed Results Table for Beam 3 - 127

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam:
3, 137, 61,
123, 124, 125,
126, 127



CONSTRAINTS

- Sections : Check
- Steel Grade: A500B

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

L =	1.17	4.71	5.12	5.50	5.92	6.29	6.71
Lat.-Tors.							
Compress.	X	X	X	X	X	X	X

Section: TS 4x4x1/4

Ix = 8.22 Iy = 8.22in4 Zx = 4.97 Zy = 4.97in3 Area = 3.59
h = 4.00 b = 4.00in t = 0.25in
J = 13.50 Cw = 0.00in6

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

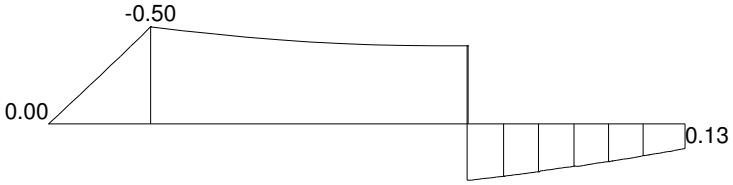
Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 3 - 127

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN COMBINATION = 1

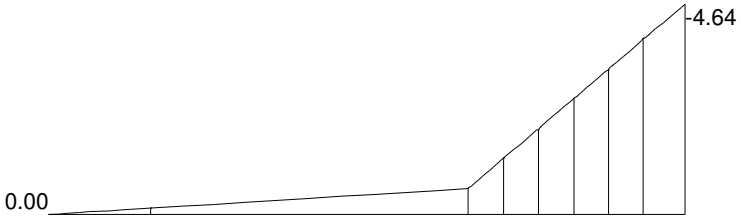
M2 Moment Diagram



Moments at Intermediate Supports:
-0.50 -0.40 0.25 0.20
0.27 0.22 0.16

Max. AXIAL Force = -1.34 (compr.) Max. SHEAR Force = 0.44

M3 Moment Diagram



Moments at Intermediate Supports:
-0.14 -0.57 -1.87 -3.19
-1.25 -2.57 -3.89

Max. AXIAL Force = -1.34 (compr.) Max. SHEAR Force = 1.67

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	Slender -axial	
d/t= 13.13	<	60.8	143.1	35.2	(Fy= 46.0 R = 0.008)
b/t= 13.13	<	28.1	35.2	35.2	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.62	Vu = 1.67 Vn = 44.72	0.06
M3 Moment (F7-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 4.97	M = 4.64 Mn = 19.07	0.41
V3 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.62	Vu = 0.44 Vn = 44.72	0.02
M2 Moment (F7-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 4.97	M = 0.50 Mn = 19.07	0.04
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.03881	0.11
Axial Force (E3-1)	$\frac{Pu}{0.6AgFcr} < 1.00$ Slender. reduct.	(kL/r)x =17 (kL/r)y =35 x = 0.60	Pu = 1.34 Ag = 3.59 Fcr = 42.37 y = 0.62	0.01

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 3 - 127

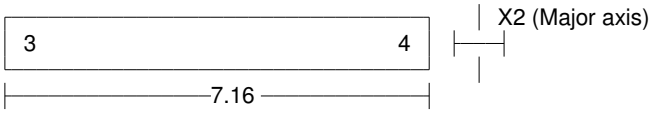
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Lateral Torsional Buckling	$\frac{M}{0.6Mn} < 1.00$ Critical Segment from 0.00 to 7.16 on -z flange Segment End Moments: 0.00 and 0.13	Lb = 7.16 Lp = 14.40	M = 0.50 Mn = 19.07	0.04
Combined Forces (compress.) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 3571.32 Pey = 842.54	Mrx = 0.50 Mry = 4.65 B1x = 1.00 B1y = 1.00	0.46

Detailed Results Table for Beam 2 - 122

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 2, 136, 58, 118, 119, 120, 121, 122



CONSTRAINTS

- Sections : Check
- Steel Grade: A500B

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

L =	1.17	4.71	5.12	5.50	5.92	6.29	6.71
Lat.-Tors.							
Compress.	X	X	X	X	X	X	X

Section: TS 4x4x1/4

Ix = 8.22 Iy = 8.22in4 Zx = 4.97 Zy = 4.97in3 Area = 3.59
h = 4.00 b = 4.00in t = 0.25in
J = 13.50 Cw = 0.00in6

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

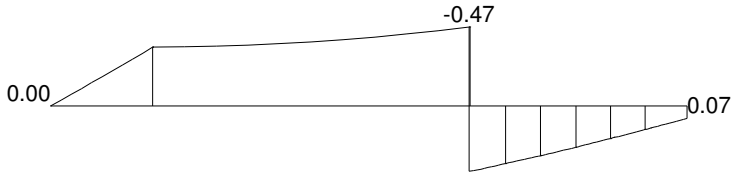
Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 2 - 122

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN COMBINATION = 2

M2 Moment Diagram

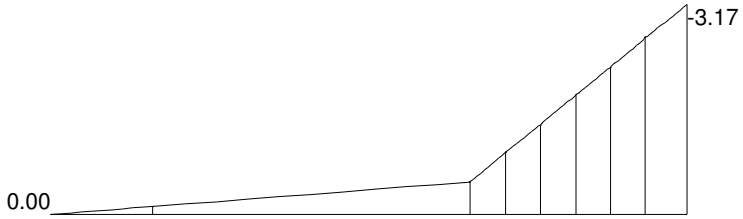


Moments at Intermediate Supports:

-0.35 -0.47 0.29 0.19
0.34 0.24 0.14

Max. AXIAL Force = -1.50 (compr.) Max. SHEAR Force = 0.31

M3 Moment Diagram



Moments at Intermediate Supports:

-0.12 -0.49 -1.35 -2.22
-0.94 -1.81 -2.68

Max. AXIAL Force = -1.50 (compr.) Max. SHEAR Force = 1.10

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	Slender -axial	
d/t= 13.13	<	60.8	143.1	35.2	(Fy= 46.0 R = 0.009)
b/t= 13.13	<	28.1	35.2	35.2	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.62	Vu = 1.10 Vn = 44.72	0.04
M3 Moment (F7-1) without LTB	M / 0.6Mn < 1.00	Z = 4.97	M = 3.17 Mn = 19.07	0.28
V3 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.62	Vu = 0.31 Vn = 44.72	0.01
M2 Moment (F7-1) without LTB	M / 0.6Mn < 1.00	Z = 4.97	M = 0.47 Mn = 19.07	0.04
Deflection	defl. / L / 240 < 1.00		defl = 0.02973	0.08
Axial Force (E3-1)	Pu / 0.6AgFcr < 1.00 Slender. reduct.	(kL/r)x =23 (kL/r)y =46 x = 0.80	Pu = 1.50 Ag = 3.59 Fcr = 39.92 y = 0.81	0.02

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 7/ 9/20

Detailed Results Table for Beam 2 - 122

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Lateral Torsional Buckling	$\frac{M}{0.6Mn} < 1.00$ Critical Segment from 0.00 to 7.16 on -z flange Segment End Moments: 0.00 and 0.07	Lb = 7.16 Lp = 14.40	M = 0.47 Mn = 19.07	0.04
Combined Forces (compress.) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 1951.06 Pey = 487.77	Mrx = 0.47 Mry = 3.19 B1x = 1.00 B1y = 1.00	0.33

ATTACHMENT 7

	General	Power	Density					
Site Name: Cheshire NE 2								
Structure Height: 170 Ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T	1	1028	155	880	0.0167	0.5867	0.28%	
*AT&T	1	1265	155	1900	0.0205	1.0000	0.20%	
*AT&T	2	1254	155	710	0.0406	0.4733	0.86%	
*AT&T	1	1543	155	880	0.0250	0.5867	0.43%	
*AT&T	2	1897	155	1900	0.0615	1.0000	0.61%	
*AT&T	1	2179	155	2300	0.0353	1.0000	0.35%	
VZW CBRS	**4**	**54**	**145**	**0.0037**	**54**	**1.0000**	**0.37%**	
VZW PCS	**4**	**1288**	**145**	**0.0881**	**1970**	**1.0**	**8.81%**	
VZW Cellular LTE	**4**	**617**	**145**	**0.0422**	**880**	**0.579333**	**7.19%**	
VZW AWS	**4**	**1413**	**145**	**0.0966**	**2145**	**1.0**	**9.66%**	
VZW 700	**4**	**537**	**145**	**0.0367**	**746**	**0.497333**	**7.39%**	
								36.17%
* Source: Siting Council								

ATTACHMENT 8

UNITED STATES POSTAL SERVICE®

CHESHIRE NE 2 CT

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, Esquire Robinson & Cole 280 Trumbull Street Hartford, CT 06103	3	3	neopost 08/27/2020 US POSTAGE $002.84⁰ 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.	Sean Kimball, Town Manager Town of Cheshire 84 South Main Street Cheshire, CT 06410				
2.	William Voelker, Town Planner Town of Cheshire 84 South Main Street Cheshire, CT 06410				
3.	InSite Towers Development, LLC 1199 North Fairfax Street, Suite 700 Alexandria, VA 22314				
4.					
5.					
6.					

OLD STATE HOUSE STATION 06103 AUG 27 2020 USPS