



NSS

NORTHEAST
SITE SOLUTIONS

Turnkey Wireless Development

Northeast Site Solutions
Victoria Masse
420 Main Street #2, Sturbridge, MA 01566
860-306-2326
victoria@northeastsitesolutions.com

October 9, 2023

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
32 Peaceable Street, Redding CT 06896
Latitude: 41.268696
Longitude: -73.430428
T-Mobile Site#: CT11104A_L600

Dear Ms. Bachman:

T-Mobile currently maintains two (2) antennas at the 85-foot level of the existing 87-foot transmission tower located at 32 Peaceable Street, Redding CT 06896. The tower and property are owned by CL&P d/b/a Eversource. T-Mobile now intends to remove two (2) existing antenna and replace with two (2) new 600/700/1900/2100 MHz antenna. The new antennas would be installed at the 85-foot level of the transmission tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable.

T-Mobile Planned Modifications:

Remove:

TMA

Diplexers

Remove and Replace:

(2) APX16DWV Antenna (Remove) – (2) RFS APXVAALL24 600/700/1900/2100 MHz Antenna (Replace)

(1) Antenna Mast (Remove) – (1) New Antenna Mast (Replace)

Install New:

(2) Smart Bias-T

(8) Coax Lines

Existing to Remain: NONE



This facility was approved by the Connecticut Siting Council Petition No. 456 on May 10, 2000. Please see attached.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Victoria Masse

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 2, Sturbridge MA 01566
Email: victoria@northeastsitesolutions.com



Attachments:

cc:

Julia Pemberton, First Selectman
100 Hill Road
P.O. Box 1028
Redding, CT 06875

Aimee Pardee, Land Use Director
100 Hill Road
P.O. Box 1028
Redding, CT 06875

CL&P d/b/a Eversource Energy, as tower owner and property owner
PO BOX 270
Redding, CT 06141

Exhibit A

Original Facility Approval

Petition No. 456
Voicestream Wireless
Redding, Connecticut
Staff Report
May 10, 2000

On May 4, 2000, Connecticut Siting Council (Council) member Gerald J. Heffernan, and Fred Cunliffe of Council staff met Voicestream Wireless (Voicestream) representatives J. Brendan Sharkey, Esq., Chetan Dharduk, and Brian Raggozine for inspection of a Connecticut Light & Power Company (CL&P) electric transmission line structure (no. 3261) located off Peaceable Street in Redding. Voicestream, with the agreement of CL&P, proposes to modify the transmission structure for telecommunications use and is petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the modification.

Voicestream proposes to attach an 4.5-inch diameter pipe extending the existing monopole height of 70 feet by 19 feet for a total height of 89 feet. A structural analysis concludes no additional reinforcement is necessary. Voicestream proposes to install two low profile antenna cluster mounts with centers of radiation at 85 feet and 78 feet 4 inches on the pipe and placing associated equipment cabinets on a concrete foundation within a 10-foot by 10-foot compound secured by a six-foot chain link fence. Utilities would be placed overhead 40 feet from a distribution pole on Peaceable Street to a new pole on the edge of the right-of-way and placed 70 feet underground to the site.

The proposed site is within a CL&P easement within a rural setting with a CL&P substation south across the street from the proposed structure. The nearest home is approximately 250 feet southwest of the site. Buffers of vegetation exist on both sides of the right-of-way.

The worst case power density for the telecommunications operations at the site has been calculated to be less than 5.6% of the applicable standard for uncontrolled environments.

Voicestream states that the proposed installation will not cause a substantial adverse environmental effect, and for this reason would not require a Certificate.

Exhibit B

Property Card

52 PEACEABLE ST

Location 52 PEACEABLE ST

Mblu 41 / / 23 / /

Acct# 00287000

Owner EVERSOURCE

Assessment \$211,760

Appraisal \$393,800

PID 2798

Building Count 1

Current Value

| Appraisal | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2023 | \$44,800 | \$349,000 | \$393,800 |
| Assessment | | | |
| Valuation Year | Improvements | Land | Total |
| 2023 | \$31,400 | \$180,360 | \$211,760 |

Owner of Record

| | | | |
|----------|------------------------|-------------|------------|
| Owner | EVERSOURCE | Sale Price | \$0 |
| Co-Owner | | Certificate | |
| Address | PO BOX 270 | Book & Page | 0000/0000 |
| | REDDING, CT 06141-0270 | Sale Date | 10/01/2015 |
| | | Instrument | |

Ownership History

| Ownership History | | | | | |
|--------------------|------------|-------------|-------------|------------|------------|
| Owner | Sale Price | Certificate | Book & Page | Instrument | Sale Date |
| EVERSOURCE | \$0 | | 0000/0000 | | 10/01/2015 |
| EVERSOURCE | \$0 | | 0000/0000 | | 10/01/2015 |
| CONN LIGHT & POWER | \$0 | 1 | 0048/0167 | XX | 10/26/1951 |

Building Information

Building 1 : Section 1

| | |
|------------------------|----------|
| Year Built: | 1960 |
| Living Area: | 450 |
| Replacement Cost: | \$52,402 |
| Building Percent Good: | 64 |

Replacement Cost
Less Depreciation: \$33,500

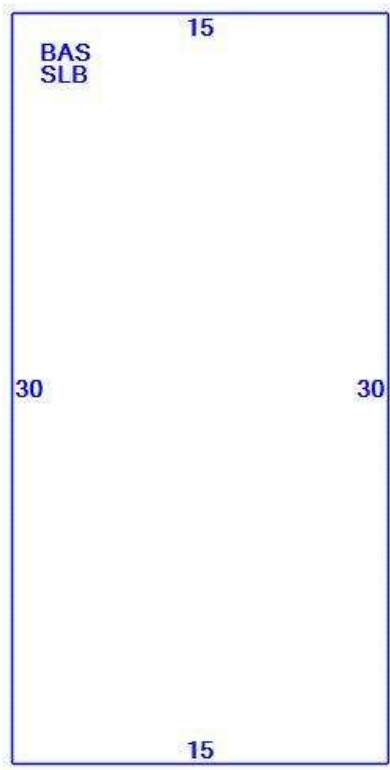
| Building Attributes | |
|---------------------|-----------------|
| Field | Description |
| Style | Service Shop |
| Model | Ind/Comm |
| Grade | A |
| Stories | 1 |
| Occupancy | 1.00 |
| Exterior Wall 1 | Brick/Masonry |
| Exterior Wall 2 | |
| Roof Structure | Hip |
| Roof Cover | Asphalt Shingl |
| Interior Wall 1 | Minimum |
| Interior Wall 2 | |
| Interior Floor 1 | Concrete |
| Interior Floor 2 | |
| Heating Fuel | None |
| Heating Type | None |
| AC Type | None |
| Struct Class | |
| Bldg Use | Elec Substation |
| Bedrooms | |
| Full Bths | |
| Half Bths | |
| 1st Floor Use: | |
| Heat/AC | None |
| Frame Type | Masonry |
| Baths/Plumbing | None |
| Ceiling/Walls | Susp Ceil Only |
| Rooms/Prtns | Average |
| Wall Height | 10.00 |
| % Comn Wall | |

Building Photo



(<https://images.vgsi.com/photos/ReddingCTPhotos/A00\01\16\39.jpg>)

Building Layout



([ParcelSketch.ashx?pid=2798&bid=2798](#))

| Building Sub-Areas (sq ft) | | | Legend |
|----------------------------|-------------|------------|-------------|
| Code | Description | Gross Area | Living Area |
| BAS | First Floor | 450 | 450 |
| SLB | Slab | 450 | 0 |
| | | 900 | 450 |

Extra Features

| Extra Features | Legend |
|----------------------------|--------|
| No Data for Extra Features | |

Land

Outbuildings

| Outbuildings | | | | | | Legend |
|--------------|--------------|----------|-----------------|--------------|---------|--------|
| Code | Description | Sub Code | Sub Description | Size | Value | Bldg # |
| FN3 | Fence 6' | | | 870.00 L.F. | \$8,700 | 1 |
| PAV1 | Paving Asph. | | | 1620.00 S.F. | \$2,600 | 1 |

Valuation History

| Appraisal | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2022 | \$44,800 | \$349,000 | \$393,800 |
| 2021 | \$42,100 | \$377,600 | \$419,700 |
| 2020 | \$42,100 | \$377,600 | \$419,700 |

| Assessment | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2022 | \$31,400 | \$180,360 | \$211,760 |
| 2021 | \$29,500 | \$200,360 | \$229,860 |
| 2020 | \$29,500 | \$200,360 | \$229,860 |

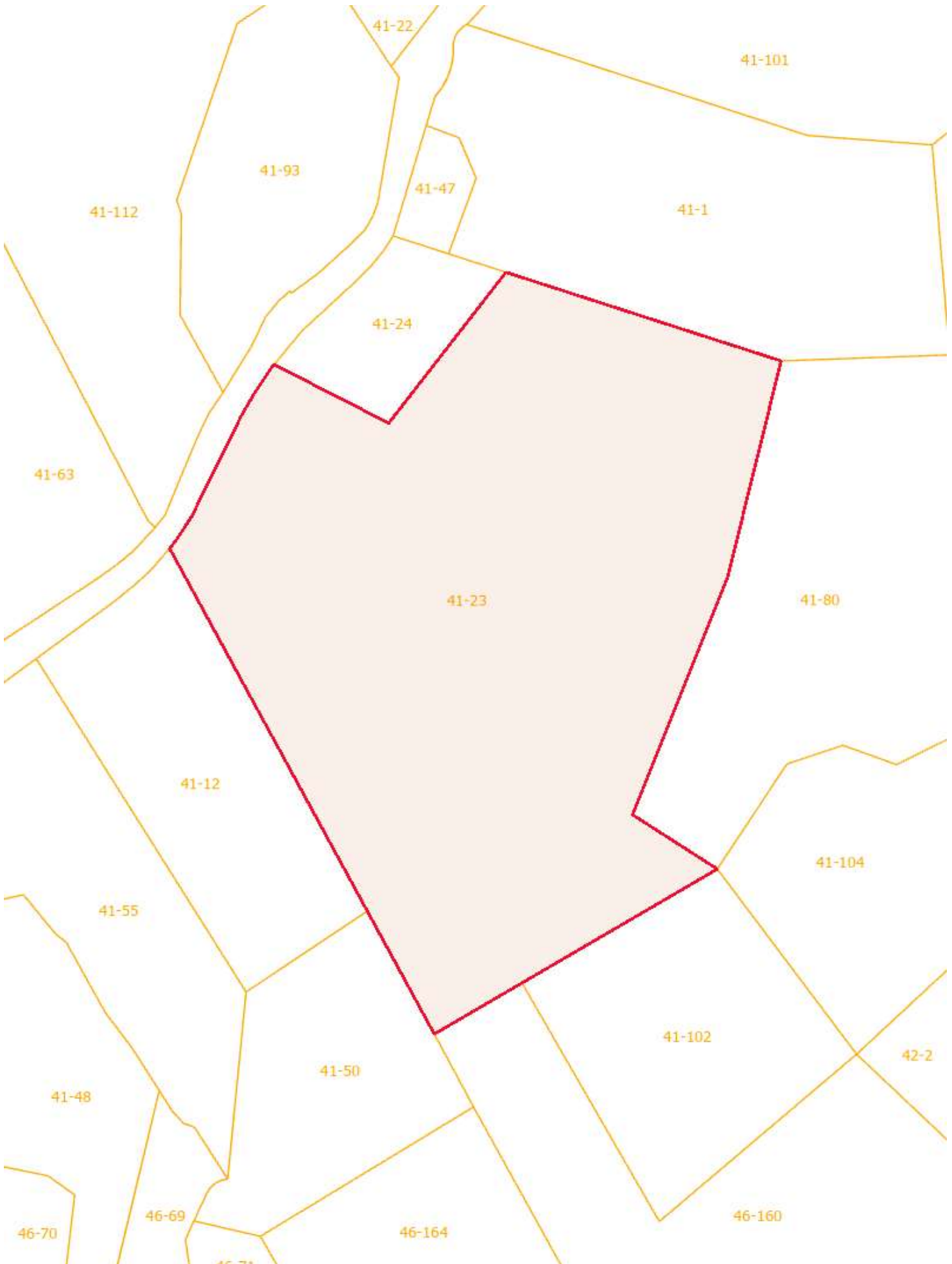


Exhibit C

Construction Drawings

T-Mobile

SITE NAME: REDDING / RT 107

SITE ID: CT11104A

32 PEACEABLE ST POLE#3261 - LINE#1470

REDDING, CT 06896

REVIEWED

By Masie Hartt at 3:51 pm, Sep 15, 2023

T-MOBILE RAN TEMPLATE (PROVIDED BY RFDS)

67E04B OUTDOOR

GENERAL NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
- SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
- CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
- BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
- ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
- AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
- CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
- CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
- CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
- CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
- LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
- ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
- DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
- ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
- ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
- ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
- CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
- COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
- ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
- CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
- THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
- THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
- PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE 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 ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

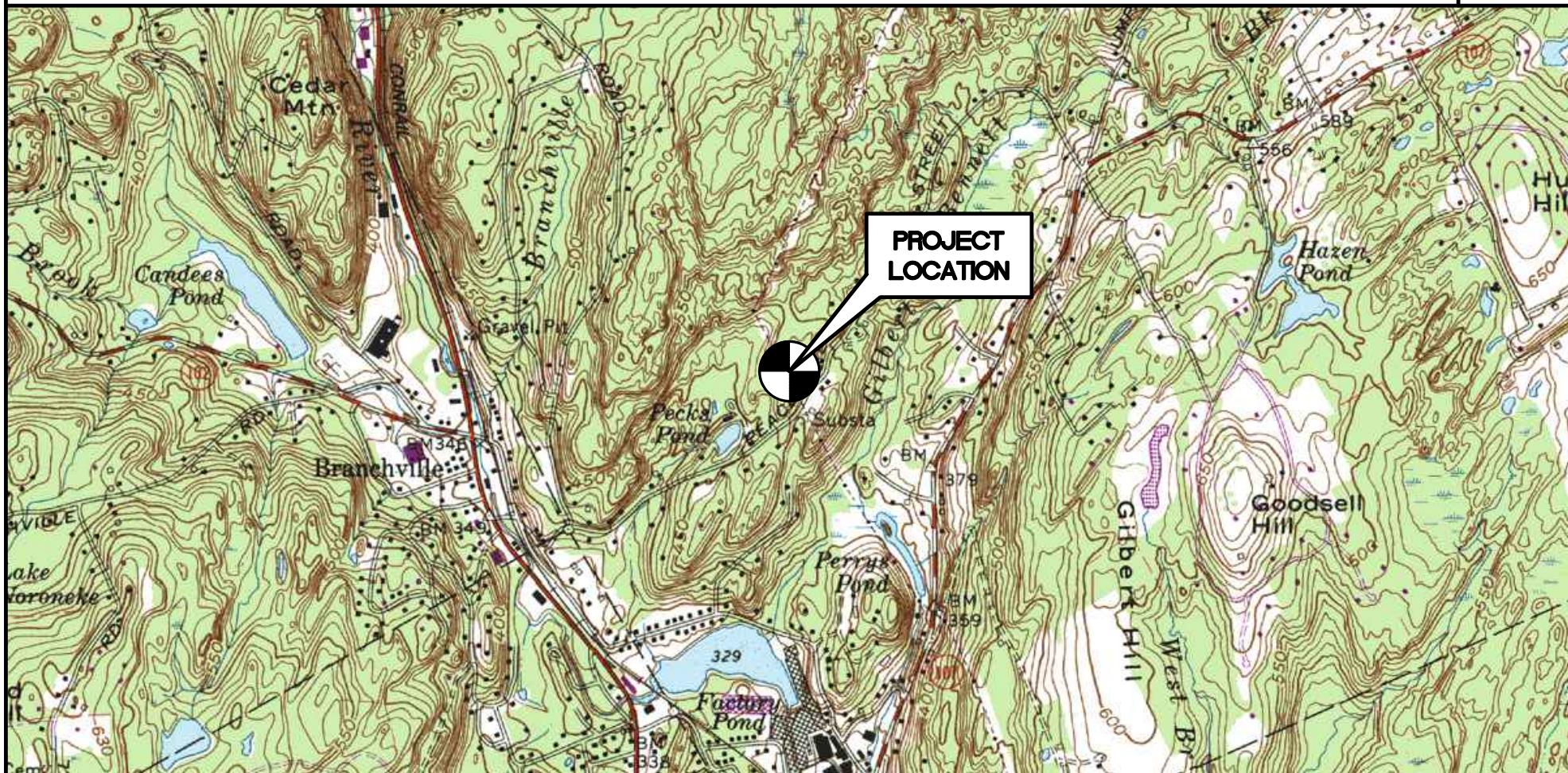
SITE LOCATION MAP

N.T.S.



VICINITY MAP

N.T.S.



COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH.

SITE COORDINATES: LATITUDE: 41°-16'-07" N
LONGITUDE: 73°-25'-49" W
GROUND ELEVATION: ±498' AMSL



PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

- REMOVE EXISTING RFS: APX16DWV-16DWVS ANTENNA, TYP. (1) PER SECTOR, TOTAL OF (2)
- REMOVE EXISTING S8000 CABINET
- REMOVE EXISTING TMAs AND DIPLEXERS
- INSTALL (8) 7/8" COAX CABLES
- INSTALL RFS: APXVAALL24_43-U-NA20 ANTENNA, TYP. (1) PER SECTOR, TOTAL OF (2) MOUNTED TO NEW PIPE MAST
- INSTALL ERICSSON: RADIO 4480 B71+B85, TYP. (1) PER SECTOR, TOTAL OF (2) AT GRADE
- INSTALL COMMScope: SMART BIAS_ATSBT-TOP-MF-4G, TYP. (1) PER SECTOR, TOTAL OF (2) AT TOWER

STRUCTURAL + SPECIAL INSPECTIONS

FOR REQUIRED STRUCTURAL MODIFICATIONS, SEE SHEET(S) S-1 FOR ADDITIONAL DETAILS. FOR REQUIRED SPECIAL INSPECTIONS, NOTES, AND REQUIREMENTS, SEE SHEET(S) N-2 FOR ADDITIONAL DETAILS.

- INSTALL NEW ANTENNA MAST AND ANTENNA MOUNTS TO EXISTING STRUCTURE.

PROJECT INFORMATION

| | |
|---------------------|--|
| SITE NAME: | REDDING / RT 107 |
| SITE ID: | CT11104A |
| SITE ADDRESS: | 32 PEACEABLE ST - POLE#3261 - LINE#1470 REDDING, CT 06896 |
| APPLICANT: | T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT. 06002 |
| CONTACT PERSON: | MATT BANDLE (PROJECT MANAGER) NORTHEAST SITE SOLUTIONS (508) 642-8801 |
| ENGINEER OF RECORD: | CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD BRANFORD, CT. 06405 |
| SITE COORDINATES: | CARLO F. CENTORE, PE (203) 488-0580 EXT. 122 LATITUDE: 41°-16'-07" N LONGITUDE: 73°-25'-49" W GROUND ELEVATION: ±498' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH. |

SHEET INDEX

| SHEET NO. | DESCRIPTION | REV. |
|-----------|---|------|
| T-1 | TITLE SHEET | 0 |
| N-1 | NOTES AND SPECIFICATIONS, ANT. SCHEDULE | 0 |
| N-2 | SPECIAL INSPECTIONS AND SPECIFICATIONS | 0 |
| C-1 | COMPOUND PLAN, EQUIPMENT PLANS, AND ELEVATION | 0 |
| C-2 | ANTENNA PLANS AND ELEVATIONS | 0 |
| C-3 | TYPICAL EQUIPMENT DETAILS | 0 |
| S-1 | STRUCTURAL DETAILS | 0 |
| E-1 | TYPICAL ELECTRICAL DETAILS | 0 |
| E-2 | ELECTRICAL SPECIFICATIONS | 0 |

| | |
|---|---|
| PROFESSIONAL ENGINEER SEAL | CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION |
| T-MOBILE NORTHEAST LLC | TUR |
| SITE NAME: REDDING / RT 107 | ASC |
| SITE ID: CT11104A | DRAWN BY |
| 32 PEACEABLE ST - POLE#3261 - LINE#1470 | CHECKED BY |
| REDDING, CT 06896 | DATE |
| DATE: 08/02/23 | REV. |
| SCALE: AS NOTED | 0 |
| JOB NO. 22006.02 | 09/12/23 |
| TITLE SHEET | |
| T-1 | |
| SHEET NO. 1 OF 9 | |

DESIGN BASIS:

1. DESIGN CRITERIA:

- ## SITE NOTES

- ## GENERAL NOTES

1. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
16. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
17. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
19. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CO-ORDINATED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
22. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
23. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455, ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR AID EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF THE CONSTRUCTION DRAWINGS. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE 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 ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

STRUCTURAL STEEL

- ## ANTENNA/APPURTENANCE SCHEDULE

NOTE:
ALL HYBRID/COAX LENGTHS TO BE MEASURED
AND VERIFIED IN FIELD BEFORE ORDERING

MODIFICATION INSPECTION REPORT REQUIREMENTS

| PRE-CONSTRUCTION | | DURING CONSTRUCTION | | POST-CONSTRUCTION | |
|------------------|---|---------------------|---|-------------------|---|
| SCHEDULED ITEM | REPORT ITEM | SCHEDULED ITEM | REPORT ITEM | SCHEDULED ITEM | REPORT ITEM |
| X | EOR MODIFICATION INSPECTION DRAWING | — | FOUNDATIONS | X | MODIFICATION INSPECTOR RECORD REDLINE DRAWING |
| X | EOR APPROVED STEEL SHOP DRAWINGS | — | EARTHWORK BACKFILL MATERIAL AND COMPACTION | — | POST-INSTALLED ANCHOR ROD PULL-OUT TEST |
| — | EOR APPROVED POST-INSTALLED ANCHOR MPII | — | REBAR AND FORMWORK GEOMETRY VERIFICATION | X | PHOTOGRAPHS |
| — | FABRICATION INSPECTION | — | CONCRETE TESTING | X | STEEL INSPECTION |
| — | FABRICATOR CERTIFIED WELDER INSPECTION | X | STEEL INSPECTION | | |
| X | MATERIAL CERTIFICATIONS | — | POST INSTALLED ANCHOR ROD VERIFICATION | | |
| | | — | BASE PLATE GROUT VERIFICATION | | |
| | | — | CONTRACTOR'S CERTIFIED WELD INSPECTION | | |
| | | X | ON-SITE COLD GALVANIZED VERIFICATION | | |
| | | X | CONTRACTOR AS-BUILT REDLINE DRAWINGS | | |
| | | — | HOST BUILDING (BEARING WALL/PARAPET ETC..) | | |
| | | | INTEGRITY VERIFICATION PRIOR TO ANY INSTALLATIONS | | |
| | | — | HOST BUILDING (ROOF OPENING) | | |
| | | | FRAMING VERIFICATION PRIOR TO ANY INSTALLATIONS | | |

| | |
|-------|--|
| NOTES | 1. REFER TO MODIFICATION INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS |
| | 2. (X) DENOTES DOCUMENT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT |
| | 3. (–) DENOTES DOCUMENT NOT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT |
| | 4. EOR – ENGINEER OF RECORD |
| | 5. MP11 – MANUFACTURER’S PRINTED INSTALLATION GUIDELINES |

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF STRUCTURAL MODIFICATIONS, TO INCLUDE A REVIEW AND COMPILEMENT OF SPECIFIED SUBMITTALS AND CONSTRUCTION INSPECTIONS, AS AN ASSURANCE OF COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS PREPARED UNDER THE DIRECTION OF THE ENGINEER OF RECORD (EOR).
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND GENERAL WORKMANSHIP AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD.
3. TO ENSURE COMPLIANCE WITH THE MODIFICATION INSPECTION REQUIREMENTS THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR (MI) COMMENCE COMMUNICATION UPON AUTHORIZATION TO PROCEED BY THE CLIENT. EACH PARTY SHALL BE PROACTIVE IN CONTACTING THE OTHER. THE EOR SHALL BE CONTACTED IF SPECIFIC GC/MI CONTACT INFORMATION IS NOT MADE AVAILABLE.
4. THE GC SHALL PROVIDE THE MI WITH A MINIMUM OF 5 BUSINESS DAYS NOTICE OF IMPENDING INSPECTIONS.
5. WHEN POSSIBLE, THE GC AND MI SHALL BE ON SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY NOTED DEFICIENCIES ADDRESSED DURING THE INITIAL MODIFICATION INSPECTION.

MODIFICATION INSPECTOR (MI)

1. THE MI SHALL CONTACT THE GC UPON AUTHORIZATION BY THE CLIENT TO:
 - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS
 - WORK WITH THE GC IN DEVELOPMENT OF A SCHEDULE FOR ON-SITE INSPECTIONS
 - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE MI IS RESPONSIBLE FOR COLLECTION OF ALL INSPECTION AND TEST REPORTS, REVIEWING REPORTS FOR ADEQUACY, PREPARE CONTRACT DOCUMENTS, COORDINATING ON-SITE INSPECTIONS AND COMPIATION & SUBMISSION OF THE MODIFICATION INSPECTION REPORT TO THE CLIENT AND THE EOR.

GENERAL CONTRACTOR (GC)

1. THE GC IS REQUIRED TO CONTACT THE GC UPON AUTHORIZATION TO PROCEED WITH CONSTRUCTION BY THE CLIENT TO:
 - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS
 - WORK WITH THE MI IN DEVELOPMENT OF A SCHEDULE FOR ON-SITE INSPECTIONS.
 - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE GC IS RESPONSIBLE FOR COORDINATING AND SCHEDULING IN ADVANCE ALL REQUIRED INSPECTIONS AND TESTS WITH THE MI.

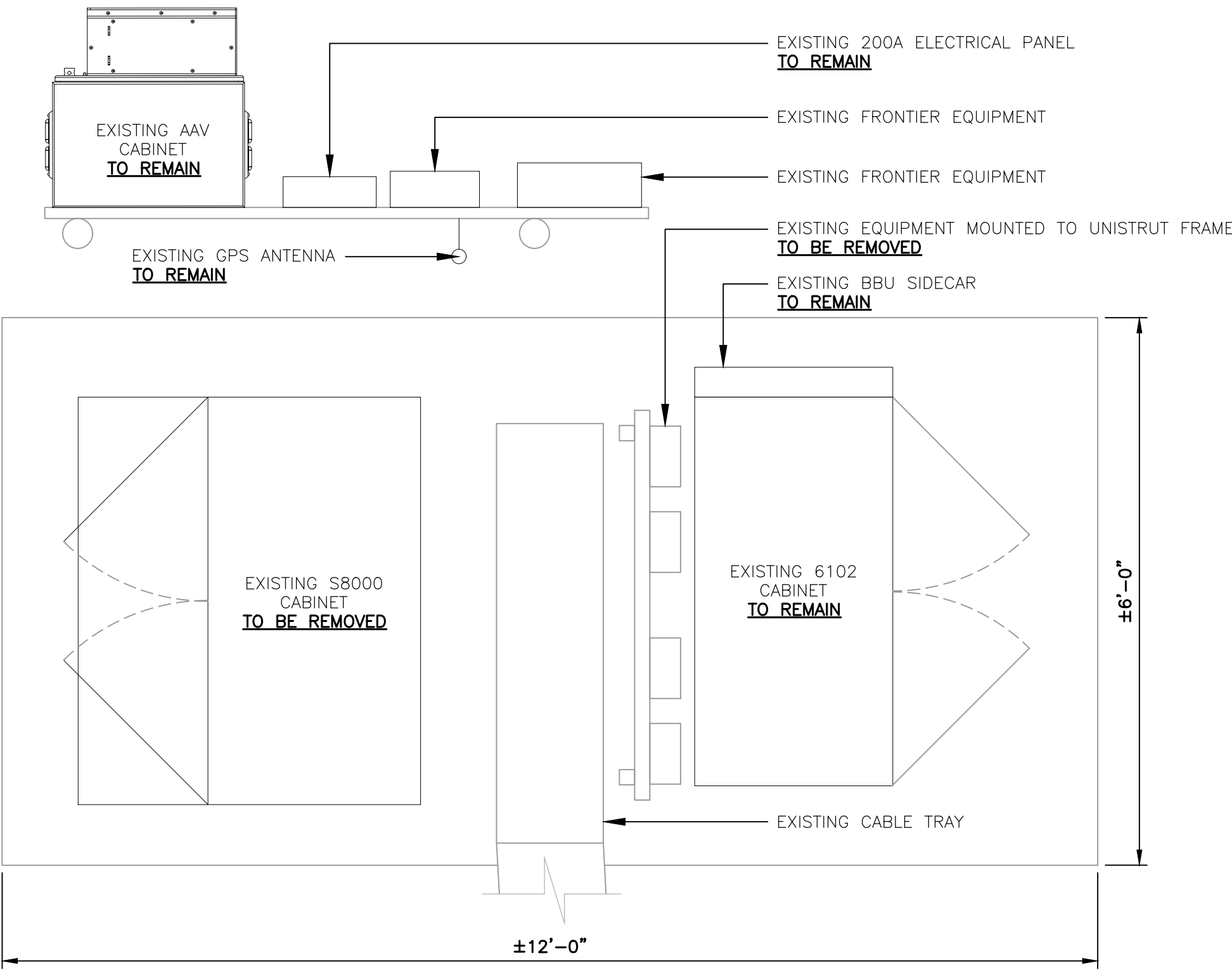
CORRECTION OF FAILING MODIFICATION INSPECTION

1. SHOULD THE STRUCTURAL MODIFICATION NOT COMPLY WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, THE GC SHALL WORK WITH THE MODIFICATION INSPECTOR IN A VIABLE REMEDIATION PLAN AS FOLLOWS:
 - CORRECT ALL DEFICIENCIES TO COMPLY WITH THE CONTRACT DOCUMENTS AND COORDINATE WITH THE MI FOR A FOLLOW UP INSPECTION.
 - WITH CLIENT AUTHORIZATION, THE GC MAY WORK WITH THE EOR TO REANALYZE THE MODIFICATION USING THE AS-BUILT CONDITION.

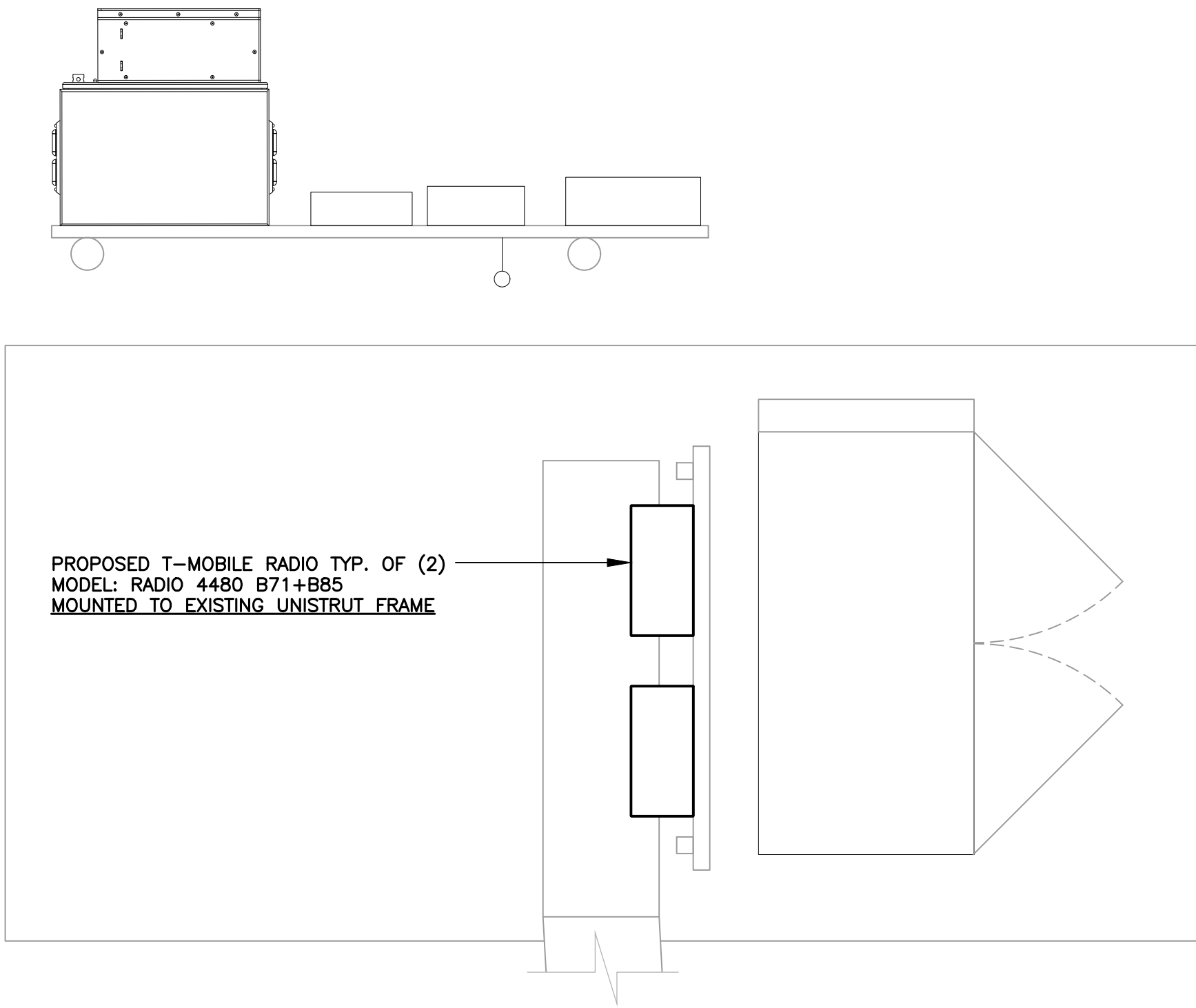
REQUIRED PHOTOGRAPHS

1. THE GC AND MI SHALL AT MINIMUM PHOTO DOCUMENT THE FOLLOWING FOR INCLUSION IN THE MODIFICATION INSPECTION REPORT:
 - PRE-CONSTRUCTION: GENERAL CONDITION OF THE SITE.
 - DURING CONSTRUCTION: RAW MATERIALS, CRITICAL DETAILS, WELD PREPARATION, BOLT INSTALLATION & TORQUE, FINAL INSTALLED CONDITION & SURFACE COATING REPAIRS.
 - POST-CONSTRUCTION: FINAL CONDITION OF THE SITE

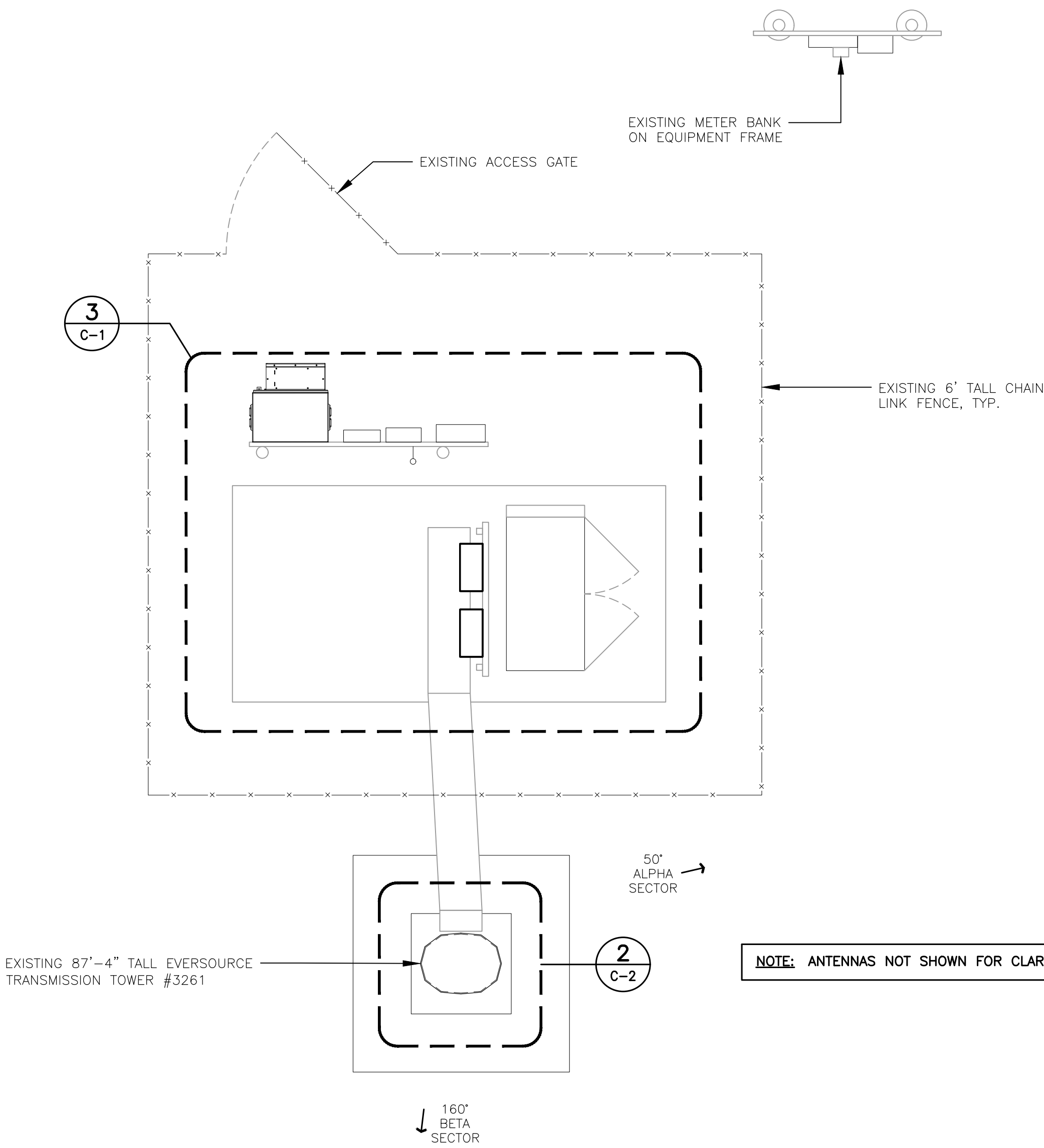
[illegible]



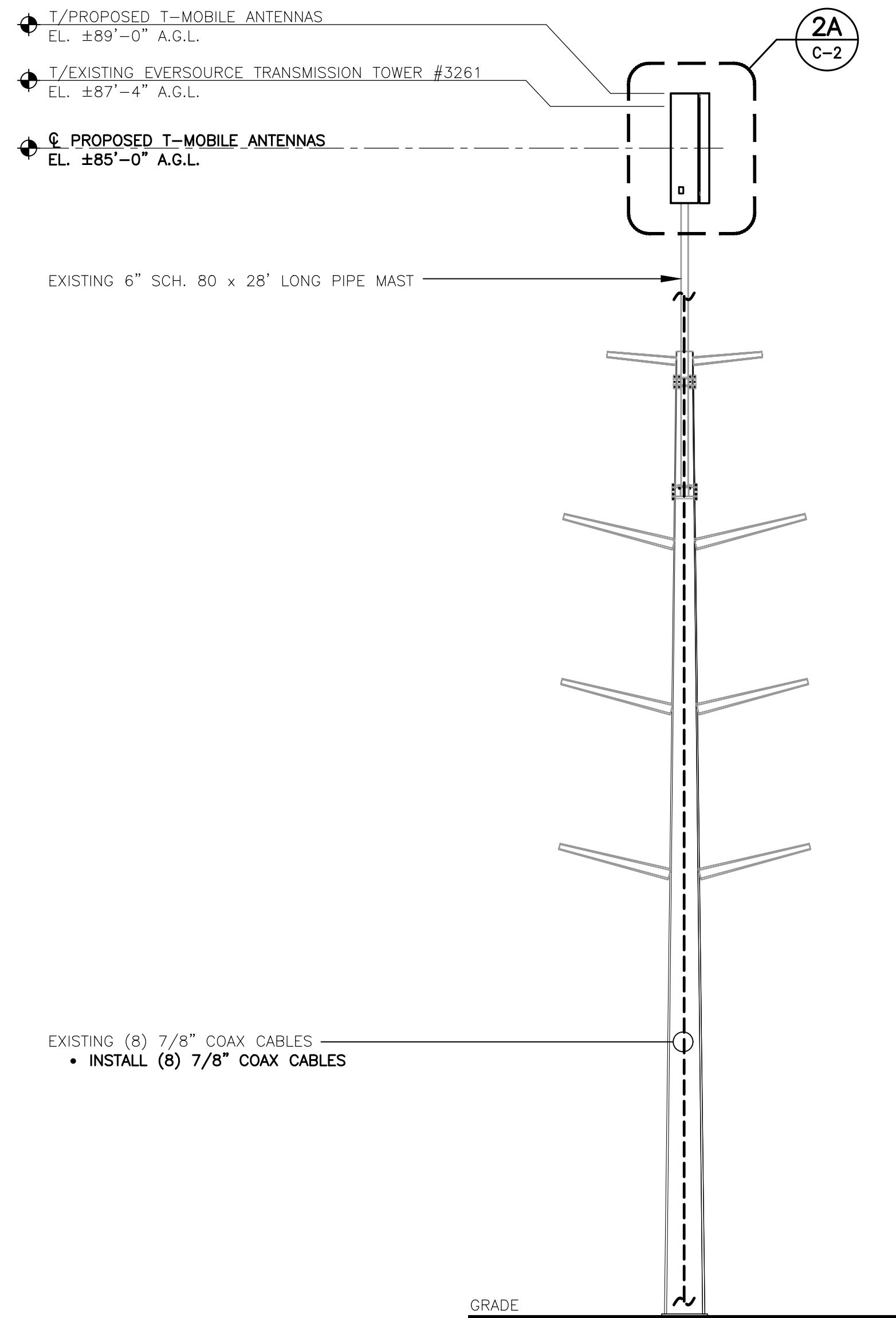
2
C-1
EQUIPMENT PLAN - EXISTING
SCALE: 3/4" = 1'
TRUE NORTH



3
C-1
EQUIPMENT PLAN - PROPOSED
SCALE: 3/4" = 1'
TRUE NORTH



1
C-1
COMPOUND PLAN - PROPOSED
SCALE: 3/8" = 1'
TRUE NORTH



4
C-1
TOWER ELEVATION - PROPOSED
SCALE: 1" = 8'

STRUCTURAL COMPLIANCE

TOWER AND TOWER FOUNDATION

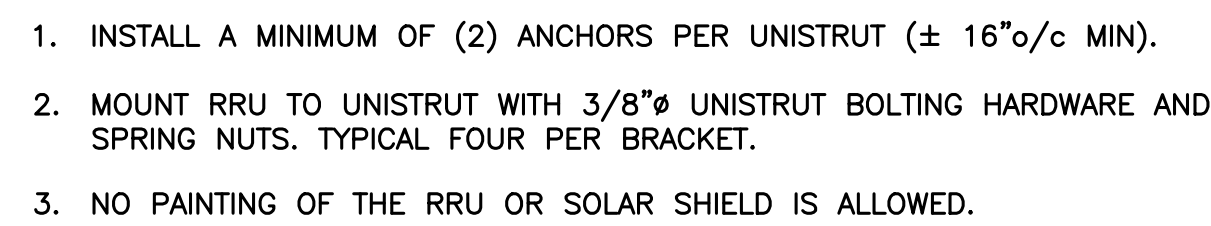
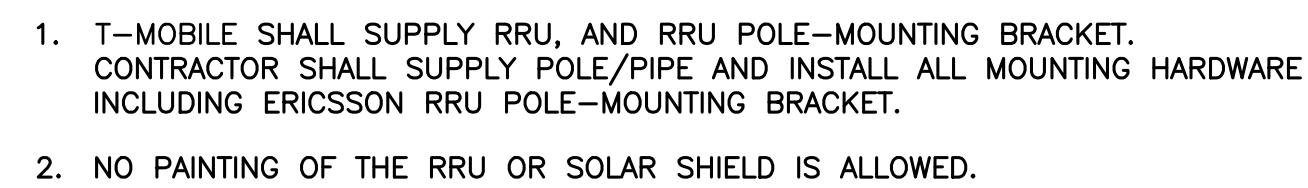
A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

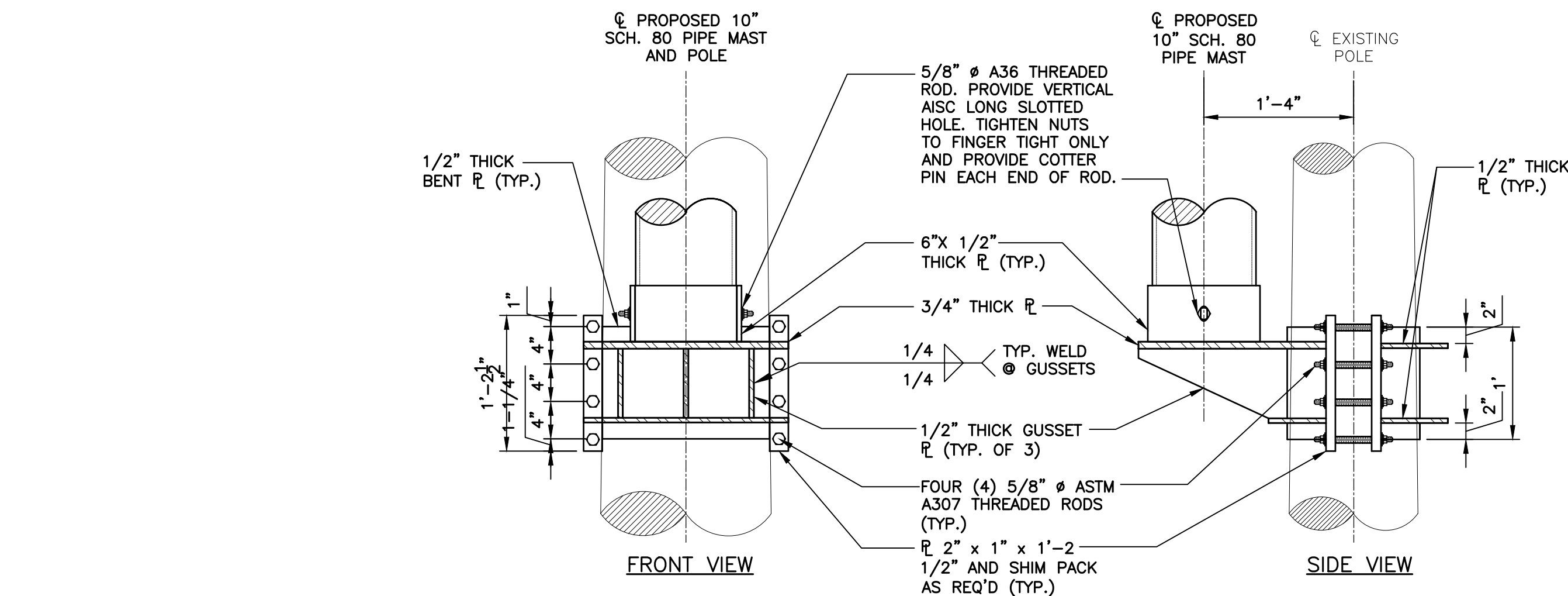
REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 22006.02) DATED 08/07/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

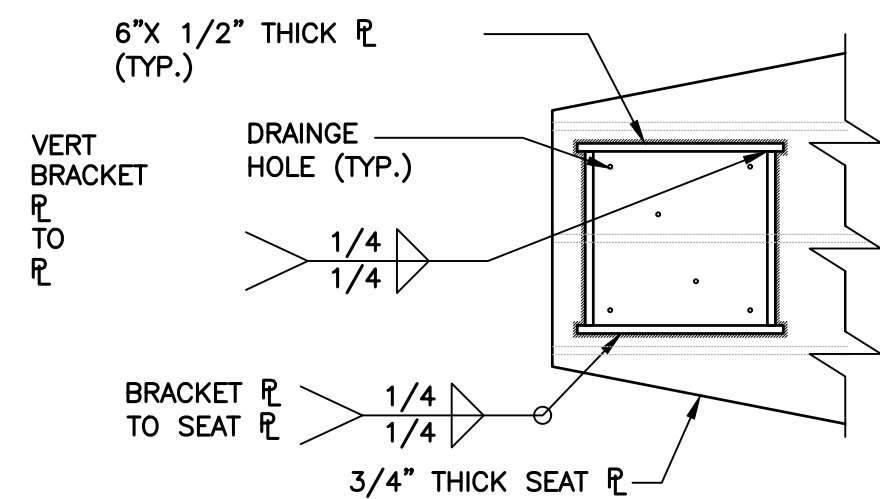
| | | | |
|---|--|---|--|
| T-MOBILE NORTHEAST LLC | | DATE: 08/02/23 | |
| SITE NAME: REDDING / RT 107 | | SCALE: AS NOTED | |
| SITE ID: CT1104A | | JOB NO. 22006.02 | |
| 32 PEACEABLE ST - POLE#3261 - LINE#1470 | | COMPOUND PLAN, EQUIPMENT PLANS, AND ELEVATION | |
| REDDING, CT 06896 | | C-1 | |
| SHEET NO. 4 OF 9 | | CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION | |
| T-MOBILE | | TJR | |
| NSS NORTH EAST | | ASC | |
| CENTEK engineering | | DRAWN BY | |
| Centered on Solutions™ | | CHECKED BY | |
| (203) 488-0580 | | DATE | |
| (203) 488-8387 Fax | | REV. | |
| 632 North Branford Road | | 09/12/23 | |
| Branford, CT 06405 | | 0 | |
| www.CentekEng.com | | | |

[illegible]

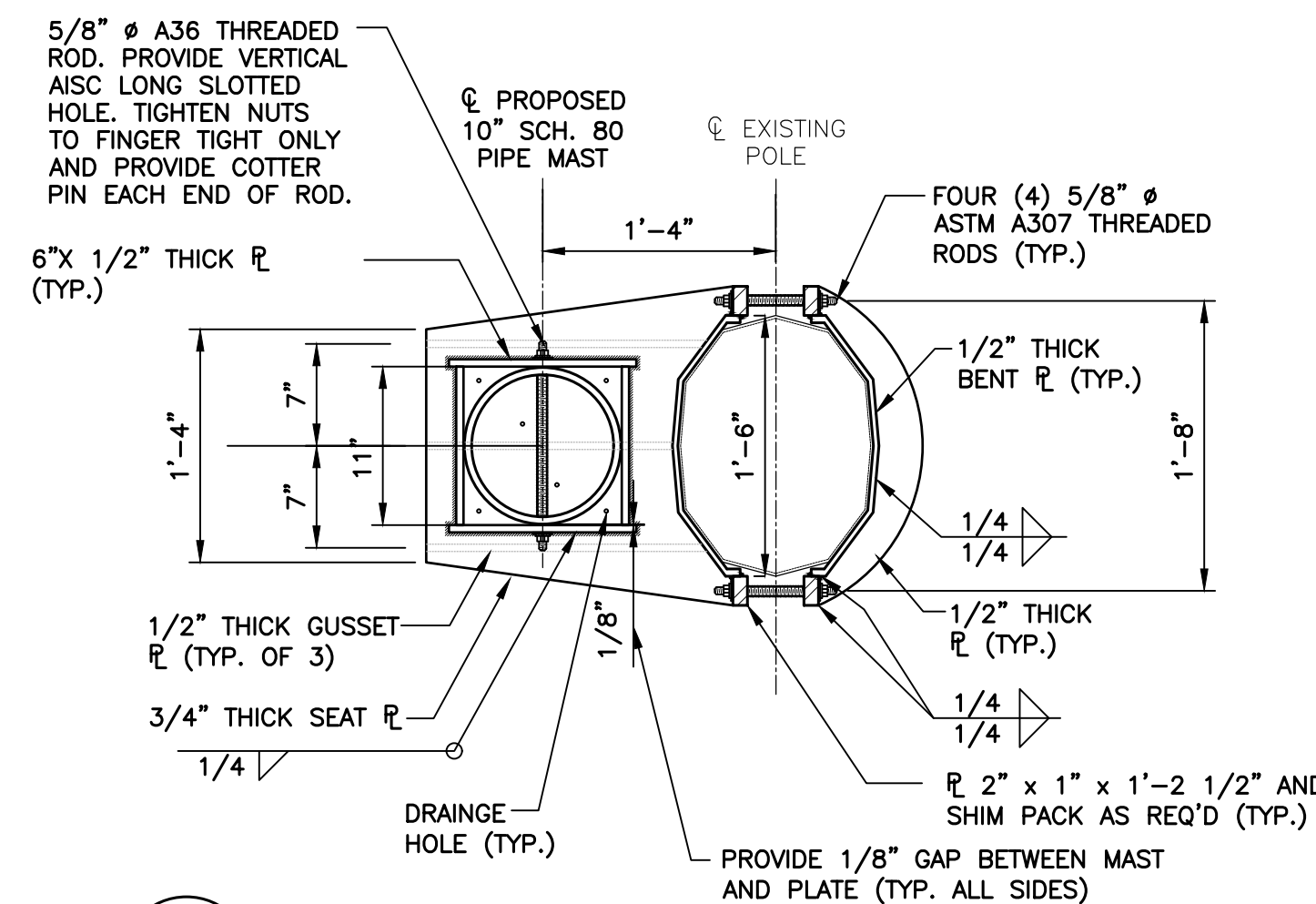




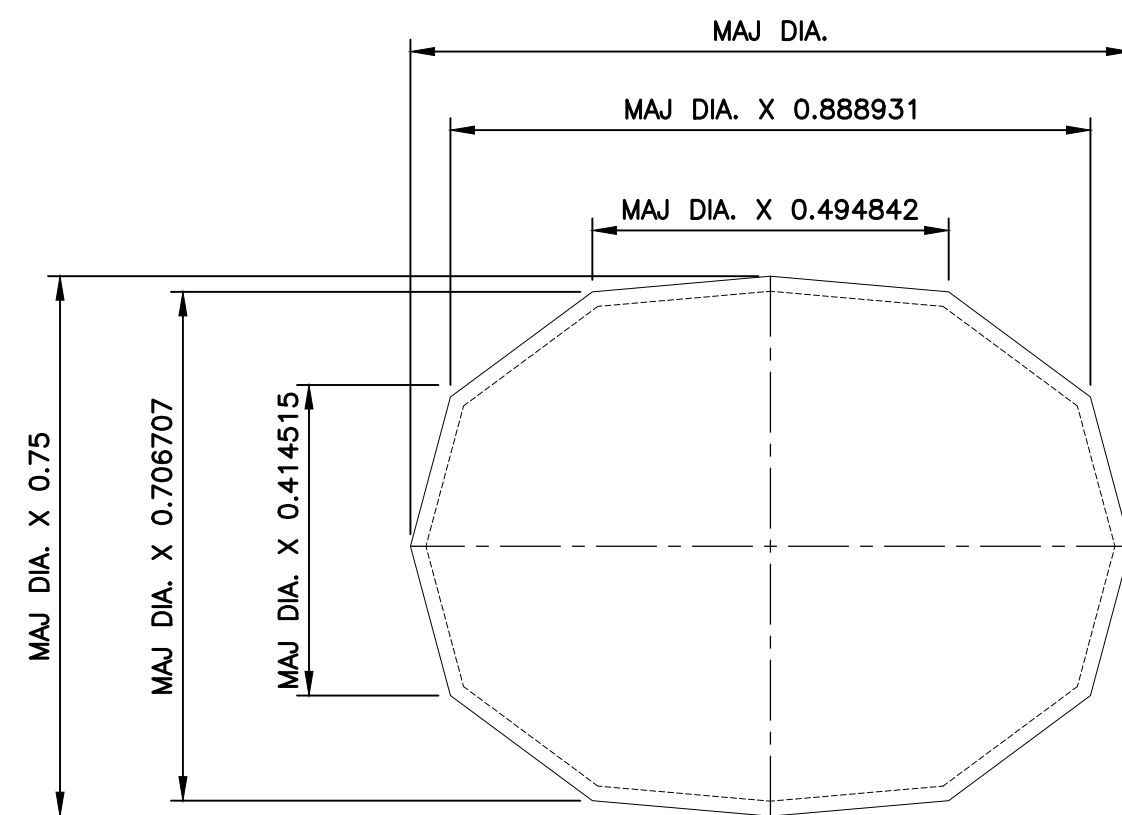
6 BOTTOM PCS BRACKET DETAIL
S-1 SCALE: 1" = 1'-0"



8 BRACKET ASSEMBLY DETAIL
S-1 SCALE: 1" = 1'-0"

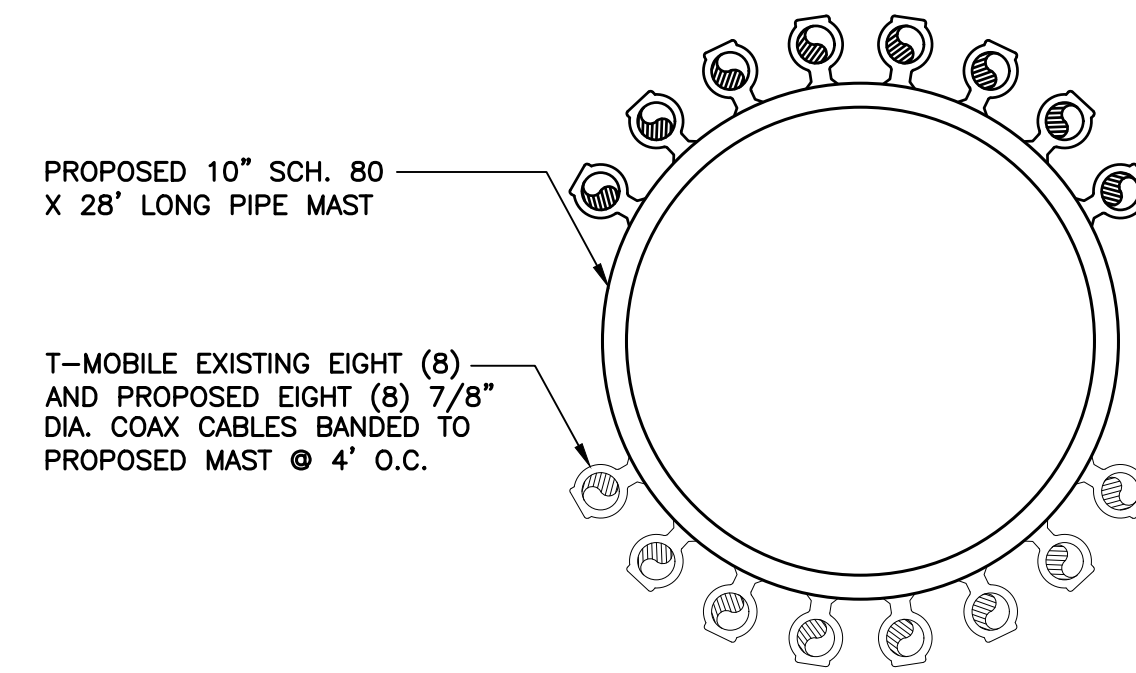


7 BOTTOM PCS BRACKET PLAN VIEW
S-1 SCALE: 1" = 1'-0"

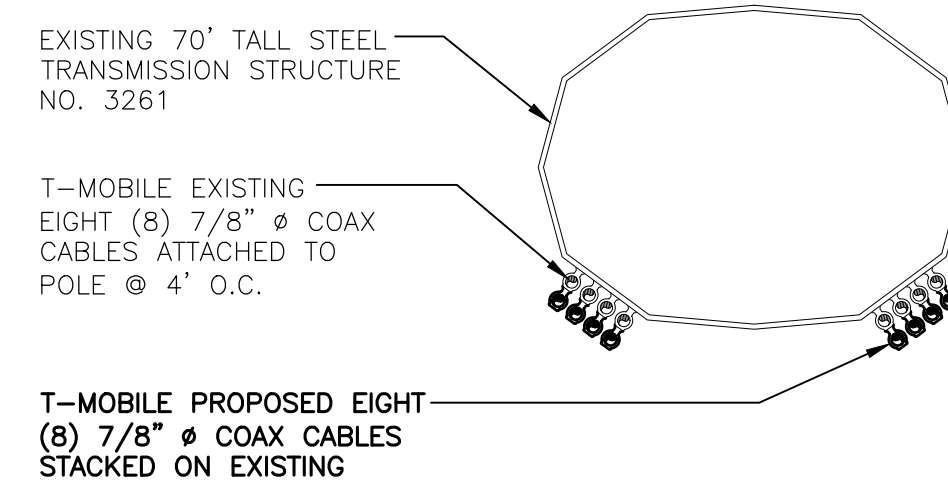


NOTE CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION

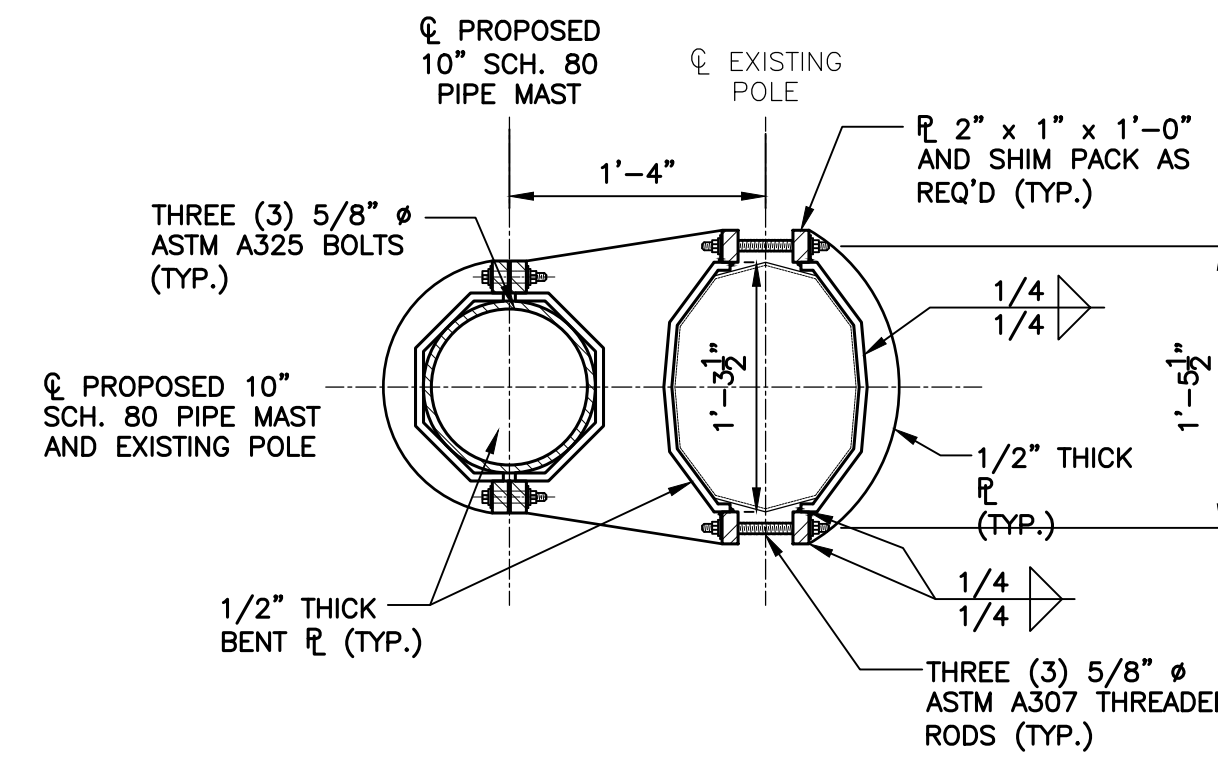
9 POLE DIMENSIONS
S-1 SCALE: 3" = 1'-0"



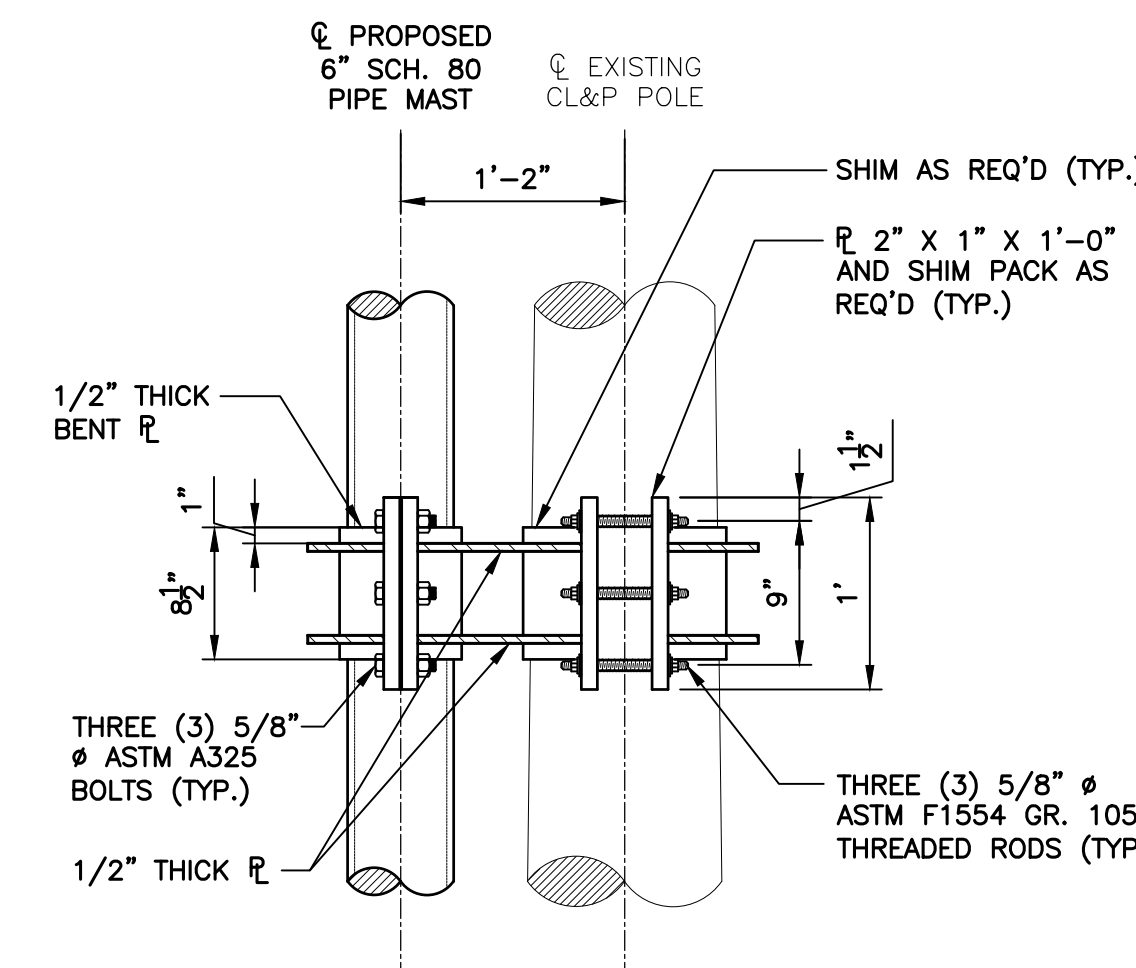
2 COAX CABLE PLAN (MAST)
S-1 SCALE: 3" = 1'-0"



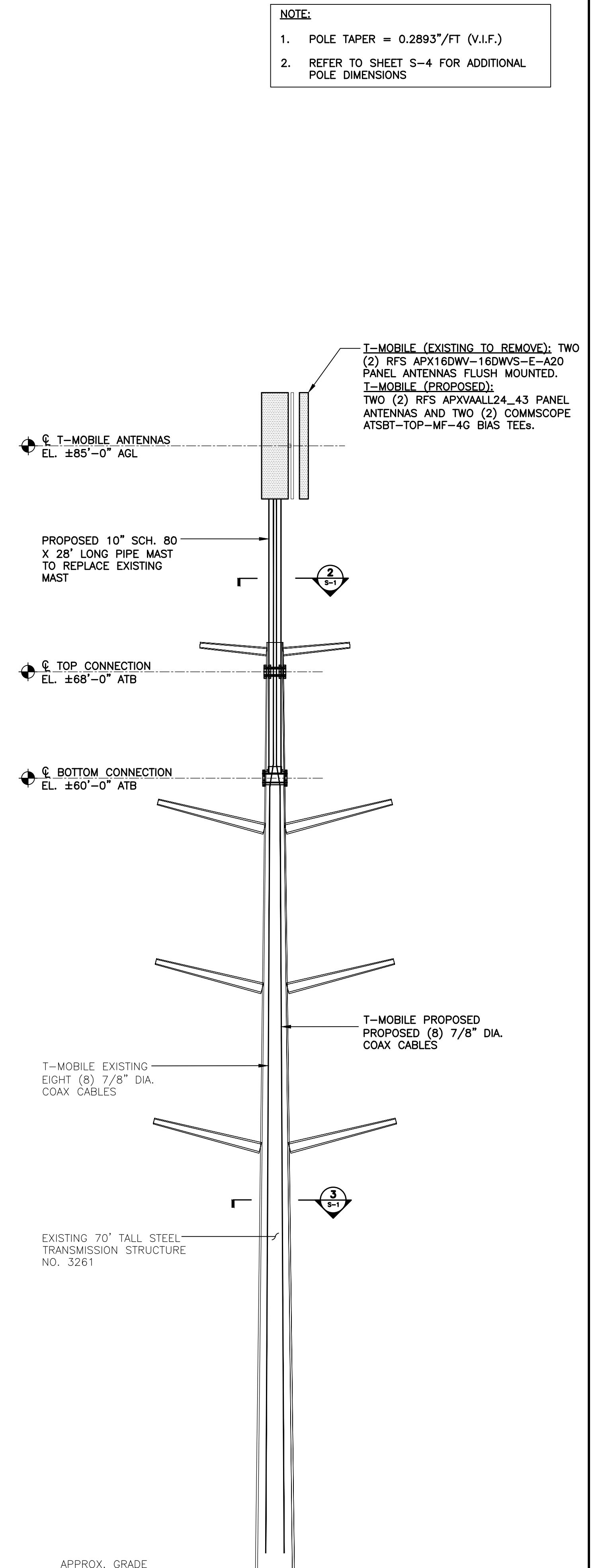
3 COAX CABLE PLAN (0'-60' ATB)
S-1 SCALE: 1" = 1'-0"



4 TOP PCS BRACKET PLAN VIEW
S-1 SCALE: 1" = 1'-0"



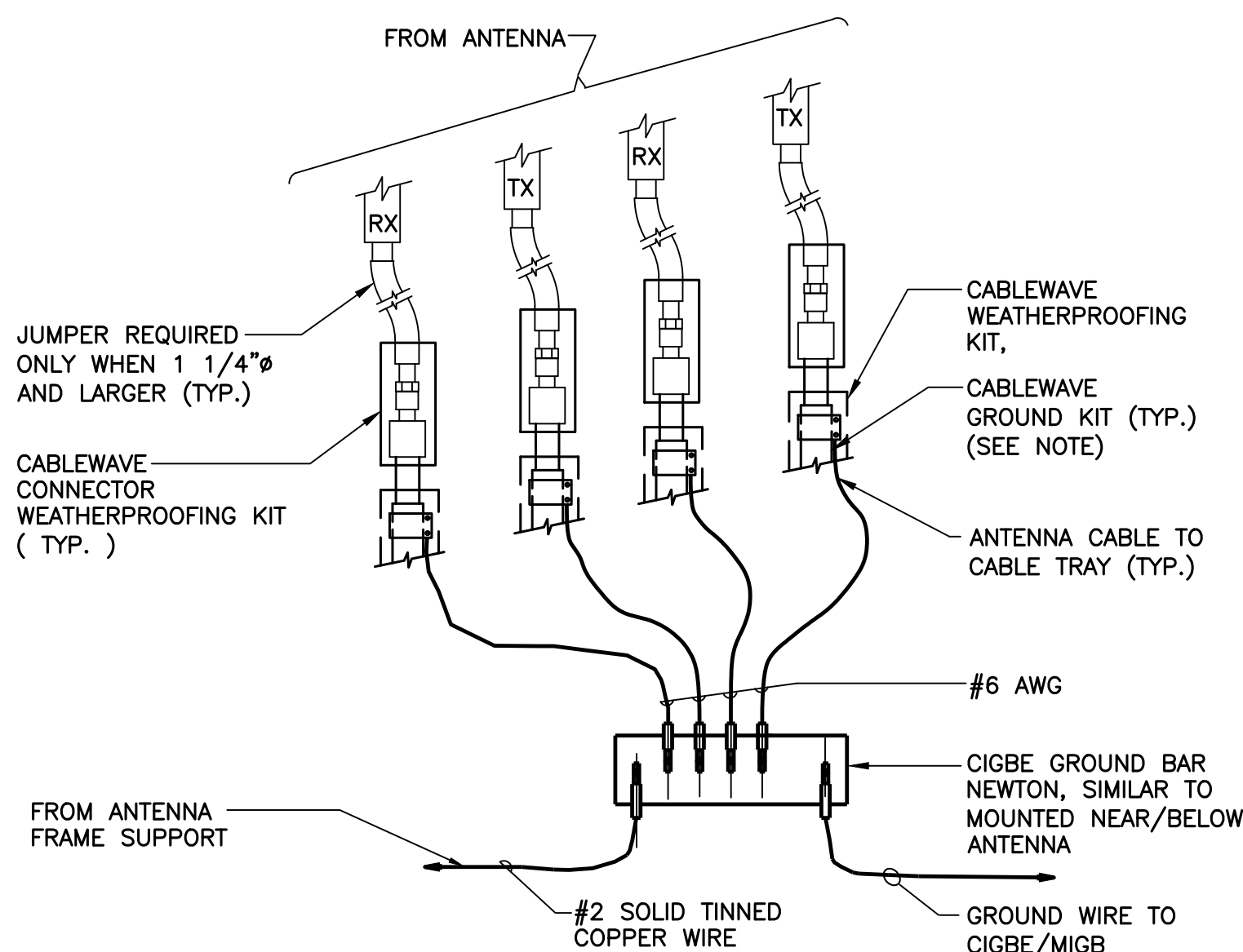
5 TOP PCS BRACKET DETAIL
S-1 SCALE: 1" = 1'-0"



1 TOWER AND MAST ELEVATION
S-1 SCALE: NTS

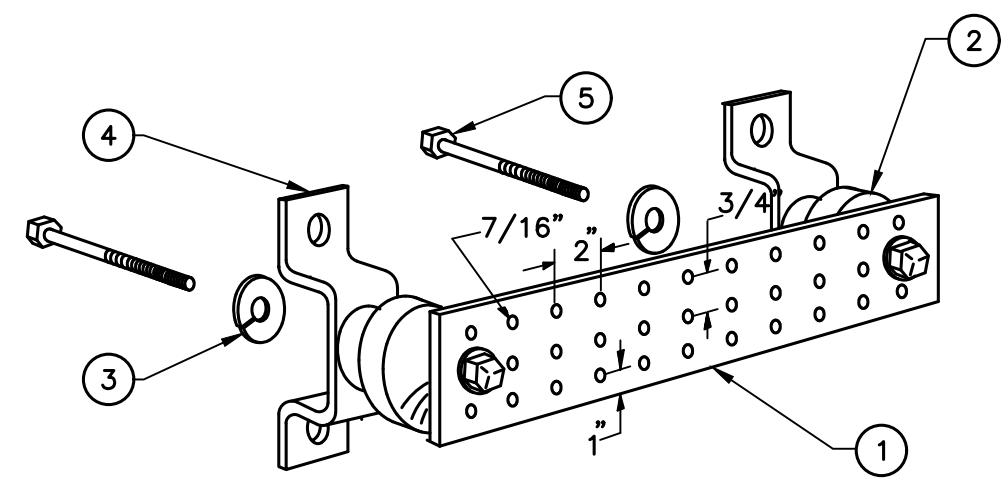
- NOTE:**
- POLE TAPER = 0.2893"/FT (V.I.F.)
 - REFER TO SHEET S-4 FOR ADDITIONAL POLE DIMENSIONS

| | | | |
|---|--|---|--|
| T-MOBILE NORTHEAST LLC | | DATE: 08/02/23 | |
| SITE NAME: REDDING / RT 107 | | SCALE: AS NOTED | |
| SITE ID: CT1104A | | JOB NO. 22006.02 | |
| 32 PEACEABLE ST - POLE#3261 - LINE#1470 | | TYPICAL ELECTRICAL DETAILS | |
| REDDING, CT 06896 | | S-1 | |
| SHEET NO. 7 OF 9 | | CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION | |
| T-MOBILE | | TJR | |
| NORTH EAST | | ASC | |
| CERK engineering | | DATE | |
| Centered on Solutions | | REV. | |
| 203 488 0580 | | 0 | |
| 203 488 8587 Fax | | 09/12/23 | |
| 632 North Bedford Road | | 0 | |
| Bedford, CT 06405 | | 0 | |
| www.CenterEng.com | | 0 | |



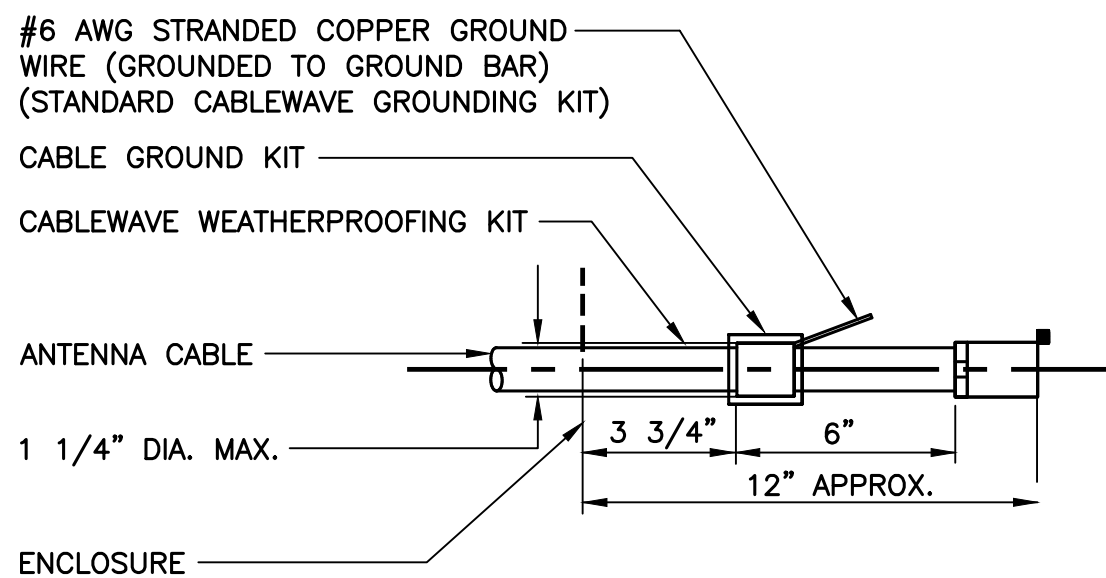
- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

1 CONNECTION OF GROUND WIRES TO GROUND BAR
E-1 SCALE: NOT TO SCALE



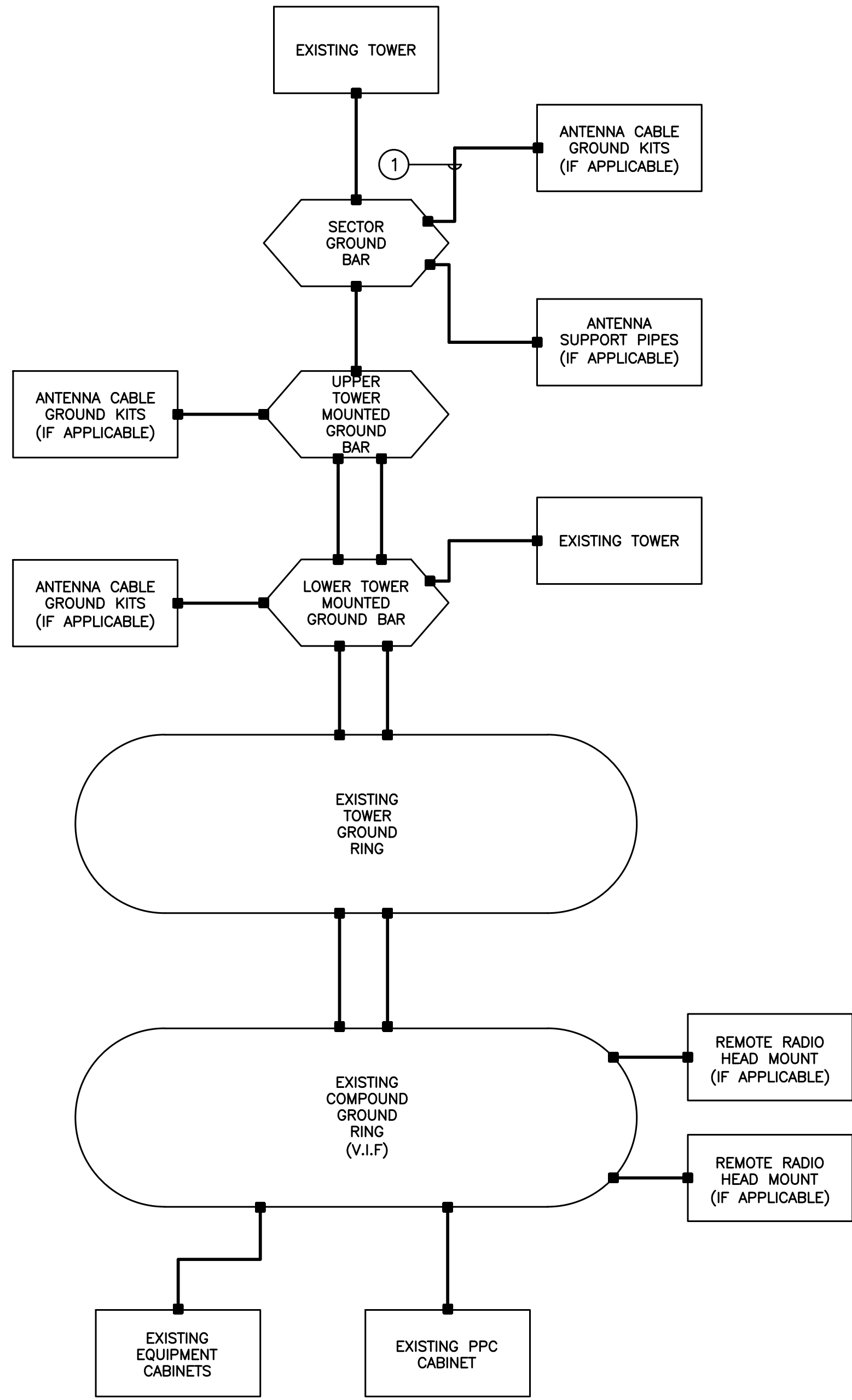
- NOTES**
- TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
 - INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
 - 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
 - WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
 - 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

2 GROUND BAR DETAIL
E-1 SCALE: NOT TO SCALE



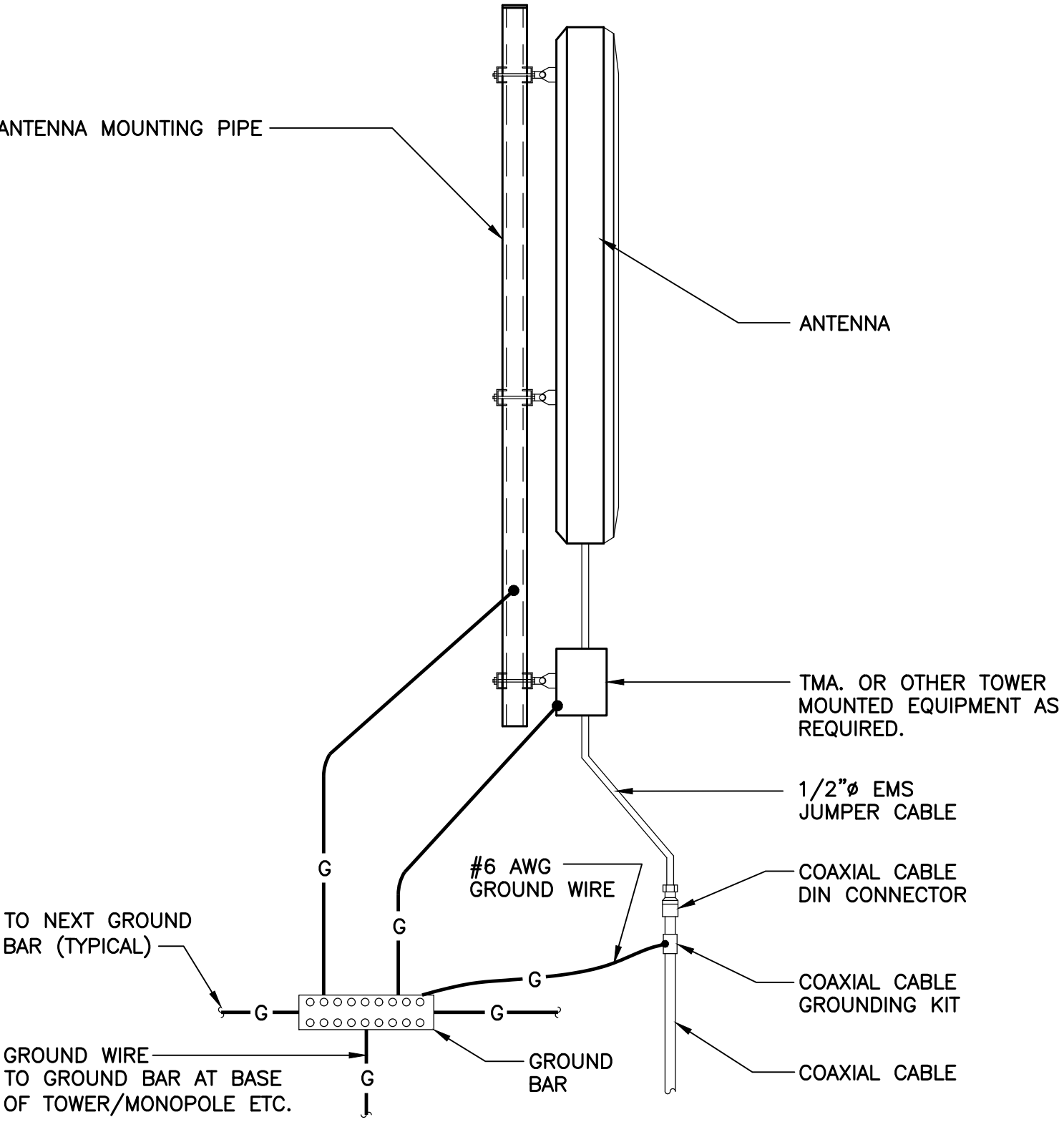
- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 ANTENNA CABLE GROUNDING DETAIL
E-1 SCALE: NOT TO SCALE

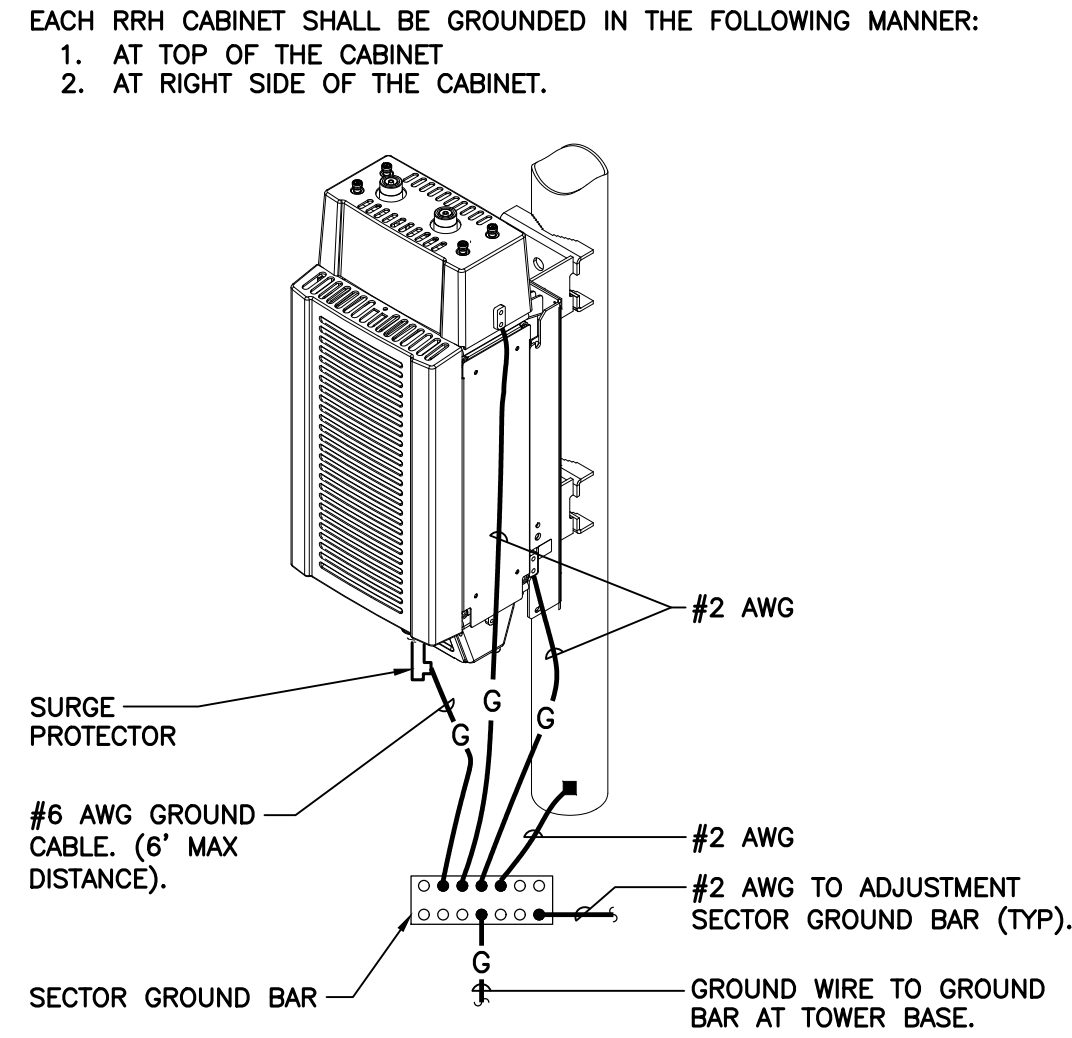


- GROUNDING SCHEMATIC NOTES**
- #6 AWG**
GENERAL NOTES:
1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW - EXTERIOR; STRANDED GREEN INSULATED - INTERIOR).
3. BOND CABLE TRAY SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
7. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
8. ALL ROOF MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
9. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

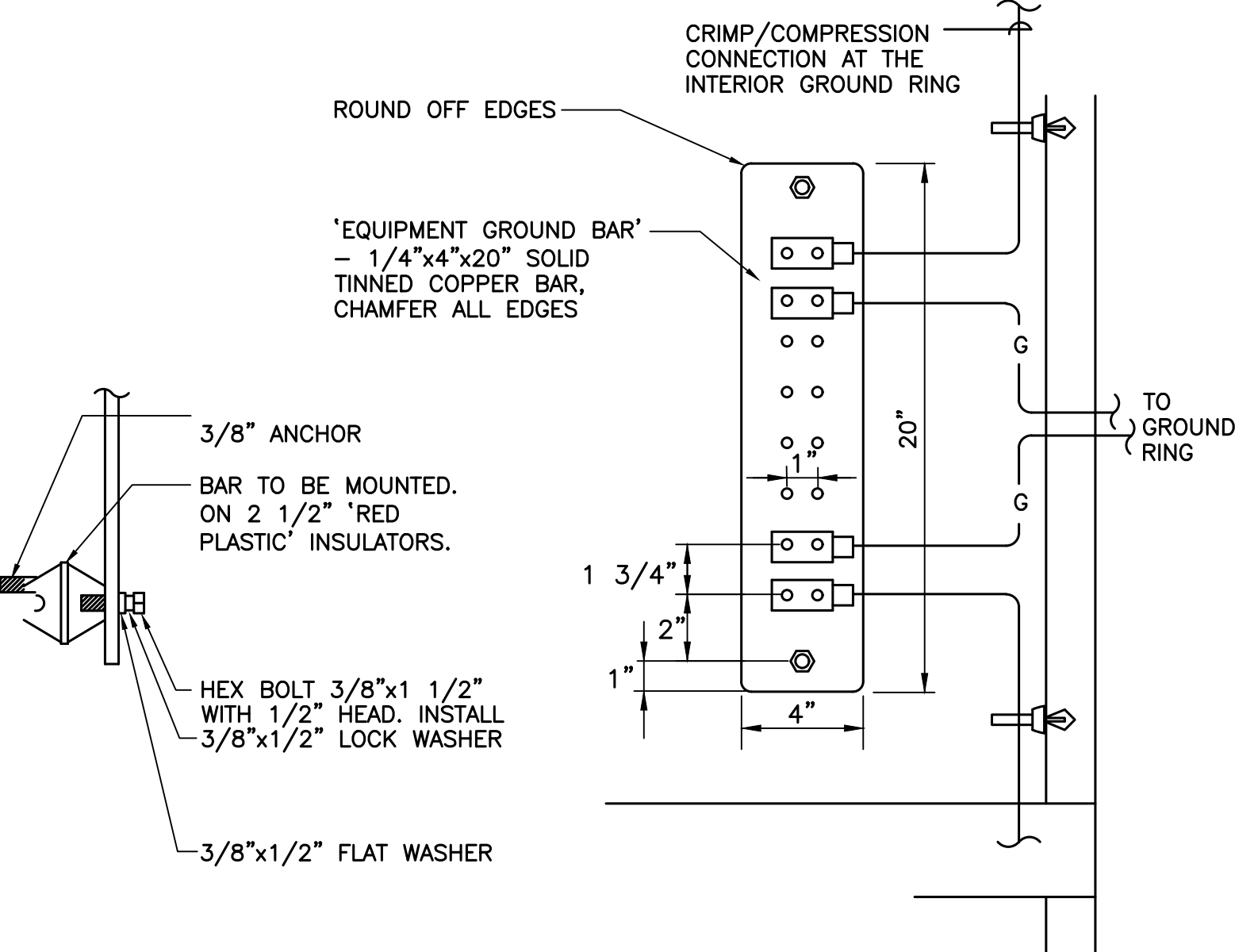
7 ELECTRICAL SCHEMATIC DIAGRAM
E-1 SCALE: NOT TO SCALE



4 TYPICAL ANTENNA GROUNDING DETAIL
E-1 SCALE: NOT TO SCALE



5 RRH POLE MOUNT GROUNDING
E-1 SCALE: NOT TO SCALE



6 EQUIPMENT GROUND BAR DETAIL
E-1 SCALE: NOT TO SCALE

| | | | |
|---|--|---|--|
| T-MOBILE NORTHEAST LLC | | SITE NAME: REDDING / RT 107 SITE ID: CT1104A 32 PEACEABLE ST - POLE#3261 - LINE#1470 REDDING, CT 06896 | |
| DATE: 08/02/23 | | JOB NO. 22006.02 | |
| SCALE: AS NOTED | | TYPICAL ELECTRICAL DETAILS | |
| SHEET NO. 8 OF 9 | | E-1 | |
| PROFESSIONAL ENGINEER SEAL | | CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION | |
| T-MOBILE | | NORTH EAST | |
| CERK engineering | | www.CerKEng.com | |
| (203) 488-0580 (203) 488-5357 fax 432 North Brantford Road Brantford, CT 06405 | | TJR ASC DATE 09/12/23 REV. | |

SECTION 16010

1.02. GENERAL REQUIREMENTS

- A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
- B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR THE SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
- E. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.
- F. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
- G. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
- H. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.
- I. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.
- J. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.
- K. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.
- L. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.
- M. SHOP DRAWINGS:
 1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.
 2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.
- N. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 1611

1.01. CONDUITS

- A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.
- B. THE INTERIOR OF RACEWAYS/ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.
- C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.
- D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS
- E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

| CONDUIT TYPE | NEC REFERENCE | APPLICATION | MIN. BURIAL DEPTH (PER NEC TABLE 300.5) ^{1,2} |
|-----------------------------|-------------------------------|---|---|
| EMT | ARTICLE 358 | INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS | N/A |
| RMC, RIGID GALV. STEEL | ARTICLE 344, 300.5, 300.50 | ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS. | 6 INCHES |
| PVC, SCHEDULE 40 | ARTICLE 352, 300.5, 300.50 | INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. ¹ | 18 INCHES |
| PVC, SCHEDULE 80 | ARTICLE 352, 300.5, 300.50 | INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. ¹ | 18 INCHES |
| LIQUID TIGHT FLEX. METAL | ARTICLE 350 | SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS. | N/A |
| FLEX. METAL | ARTICLE 348 | SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS. | N/A |

¹ PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

² UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

³ WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

- A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
- | | | |
|------|------------------|--------------------------|
| LINE | 120/208/240V | 277/480V |
| A | COLOR | COLOR |
| B | BLACK | BROWN |
| C | RED | ORANGE |
| N | BLUE | YELLOW |
| | CONTINUOUS WHITE | GREY |
| G | CONTINUOUS GREEN | GREEN WITH YELLOW STRIPE |
- B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16450

1.01. GROUNDING

- A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
- B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
- C. GROUNDING OF PANELBOARDS:
1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.
 2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).
- D. EQUIPMENT GROUNDING CONDUCTOR:
1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.
 2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.
 3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).
- E. CELLULAR GROUNDING SYSTEM:
- CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).
- PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:
1. GROUND BARS
 2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
 3. ANTENNA GROUND CONNECTIONS AND PLATES.
- F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.
- G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO

1. GROUND BARS
2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
3. ANTENNA GROUND CONNECTIONS AND PLATES.

CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

- ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

- A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:
- TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.
- TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.
- THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:
1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
 2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
 3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.
- B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.
- C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.
- D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

- A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.
- B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE CONNECTED TO THE PANELBOARD SO THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS. FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.
- C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED, ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.




| | | | | | | | | | | |
|---------------------------|----------|---|--|---|------------|---|-------------|-----|-----|---|
| T-MOBILE NORTHEAST LLC | |  <p>CEKEK engineering Centred on Solutions</p> <p>(203) 488-0380 (203) 488-5587 fax 63-2 North Branford Road Branford, CT 06405</p> <p>www.CentekEng.com</p> |  <p>NSS NORTIE LIST SIT SOLUTIONS</p> |  | REV. | 0 | 09/12/23 | ASC | TJR | CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION |
| DATE: | 08/02/23 | | | | CHECKED BY | | DESCRIPTION | | | |
| SCALE: | AS NOTED | | | | DRAWN BY | | | | | |
| JOB NO. | 22006.02 | | | | | | | | | |
| ELECTRICAL SPECIFICATIONS | | | | | | | | | | |
| E-2 | | | | | | | | | | |
| SHEET NO. 9 OF 9 | | | | | | | | | | |

Exhibit D

Structural Analysis Report

**Structural Analysis of
Antenna Mast and Pole**

T-Mobile Site Ref: CT11104A

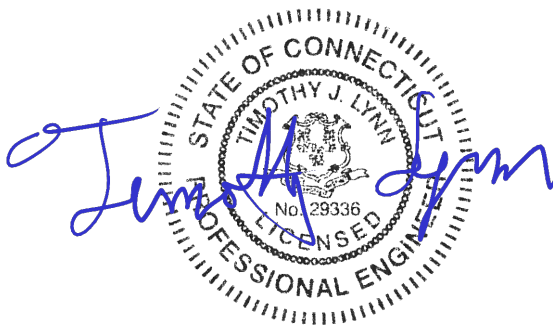
*Eversource Structure No. 3261
70' Electric Transmission Pole*

*32 Peaceable Street
Redding, CT*

CENTEK Project No. 22006.02

~~Date: May 18, 2022~~

Rev 6: August 7, 2023



Prepared for:
T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

SECTION 1 - REPORT

- INTRODUCTION
- PRIMARY ASSUMPTIONS USED IN THE ANALYSIS
- ANALYSIS
- DESIGN BASIS
- RESULTS
- CONCLUSION

SECTION 2 - CONDITIONS & SOFTWARE

- STANDARD ENGINEERING CONDITIONS
- GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAMS
 - RISA 3-D
 - PLS POLE

SECTION 3 - DESIGN CRITERIA

- CRITERIA FOR DESIGN OF PCS FACILITIES ON OR EXTENDING ABOVE METAL ELECTRIC TRANSMISSION TOWERS
- EVERSOURCE DESIGN CRITERIA TABLE
- PCS SHAPE FACTOR CRITERIA
- WIRE LOADS SHEET

SECTION 4 - DRAWINGS

- TOWER AND MAST DRAWINGS

SECTION 5 - TIA-222-H LOAD CALCULATIONS FOR MAST ANALYSIS

- MAST WIND & ICE LOAD

SECTION 6 - MAST ANALYSIS PER TIA-222H

- RISA 3-D ANALYSIS REPORT
- MAST CONNECTION TO TOWER ANALYSIS

SECTION 7 - NECS/EVERSOURCE LOAD CALCULATIONS

- MAST WIND LOAD

SECTION 8 - MAST ANALYSIS PER NESC/EVERSOURCE

- RISA 3-D ANALYSIS REPORT

SECTION 9 - PLS POLE ANALYSIS

- COAX CABLE LOAD ON UTILITY POLE CALCULATION
- PLS REPORT
- ANCHOR BOLT ANALYSIS
- FOUNDATION ANALYSIS

SECTION 10 - REFERENCE MATERIAL

- RFDS SHEET
- EQUIPMENT CUT SHEETS

I n t r o d u c t i o n

The purpose of this report is to analyze the antenna mast and 70' utility pole located at 32 Peaceable Street in Redding, CT for the proposed antenna and equipment upgrade by T-Mobile.

The existing/proposed loads consist of the following:

- **T-MOBILE (Existing to Remain):**
Coax Cables: Eight (8) 7/8" Ø coax cables mounted to the exterior of the pole/mast.
- **T-MOBILE (Existing to be Removed):**
Antennas: Two (2) RFS APX16DWV-16DWVS panel antennas flush mounted with a RAD center elevation of 85-ft above grade.
Mast: 6" Sch. 80 Pipe.
- **T-MOBILE (Proposed):**
Antennas: Two (2) RFS APXVAALL24_43 panel antennas and two (2) Andrew ATSBT-TOP-MF-4G Smart Bias Tees flush mounted with a RAD center elevation of 85-ft above grade.
Coax Cables: Eight (8) 7/8" Ø coax cables mounted to the exterior of the pole/mast.
Mast: 10" Sch. 80 Pipe.

P r i m a r y a s s u m p t i o n s u s e d i n t h e a n a l y s i s

- ASCE Manual No. 48-19, "Design of Steel Transmission Pole Structures", defines steel stresses for evaluation of the utility pole.
- All utility tower members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- All coaxial cable will be installed within the antenna mast unless specified otherwise.
- Antenna mast will be properly installed and maintained.
- No residual stresses exist due to incorrect pole erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Antenna mast and utility pole will be in plumb condition.
- Utility pole was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.

A n a l y s i s

The proposed replacement mast consisting of a 10-in x 28.0-ft long SCH. 80 pipe (O.D. = 10.75") connected at two points to the existing tower was analyzed for its ability to resist loads prescribed by the TIA-222H standard. Section 5 of this report details these gravity and lateral wind loads. NESC prescribed loads were also applied to the mast in order to obtain reactions needed for analyzing the utility pole structure. These loads are developed in Section 7 of this report. Load cases and combinations used in RISA-3D for TIA-222-H loading and for NESC/NU loading are listed in report Sections 6 and 8, respectively.

D e s i g n B a s i s

Our analysis was performed in accordance with the 2021 International Building Code as modified by the 2022 CT State Building Code; ASCE 48-19, "Design of Steel Transmission Pole Structures", NESC C2-2023 and Eversource Design Criteria.

▪ UTILITY POLE ANALYSIS

The purpose of this analysis is to determine the adequacy of the existing utility structure to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the EVERSOURCE Design Criteria Table, NESC C2-2023 ~ Construction Grade B, and ASCE Manual No. 48-19, "Design Of Steel Transmission Pole Structures".

Load cases considered:

Load Case 1: NESC Heavy

| | |
|--|---------|
| Wind Pressure..... | 4.0 psf |
| Radial Ice Thickness..... | 0.5" |
| Vertical Overload Capacity Factor..... | 1.50 |
| Wind Overload Capacity Factor..... | 2.50 |
| Wire Tension Overload Capacity Factor..... | 1.65 |

Load Case 2: NESC Extreme

| | |
|---------------------------|------------------------|
| Wind Speed..... | 110 mph ⁽¹⁾ |
| Radial Ice Thickness..... | 0" |

Note 1: NESC C2-2023, Section 25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

▪ MAST ASSEMBLY ANALYSIS

Mast, appurtenances and connections to the utility tower were analyzed and designed in accordance with TIA-222-H and AISC standards.

Load cases considered:

Load Case 1:

| | |
|---------------------------|---|
| Wind Speed..... | 125 mph ^(2022 CSBC Appendix-P) |
| Radial Ice Thickness..... | 0" |

Load Case 2:

| | |
|---------------------------|----------------------|
| Wind Pressure..... | 50 mph wind pressure |
| Radial Ice Thickness..... | 1.0" |

R e s u l t s

▪ MAST ASSEMBLY

The proposed pipe mast was determined to be structurally **adequate**.

| Component | Stress Ratio (percentage of capacity) | Result |
|---------------------|--|-------------|
| 10" Sch. 80 | 44.8% | PASS |
| Connection to Tower | 55.2% | PASS |

▪ UTILITY POLE

This analysis finds that the subject utility pole is adequate to support the antenna mast and related appurtenances. The pole stresses meet the requirements set forth by the ASCE 48-19, "Design of Steel Transmission Pole Structures" for the applied NESC Heavy and Extreme load cases. The detailed analysis results are provided in Section 9 of this report. The analysis results are summarized as follows:

A maximum usage of **92.76%** occurs in the utility pole base plate under the **NESC Extreme** loading condition.

POLE SECTION:

The utility pole was found to be structurally **adequate**.

| Tower Section | Elevation | Stress Ratio (% of capacity) | Result |
|---------------|----------------------|---------------------------------|-------------|
| Tube Number 1 | 50.00' -70.00' (AGL) | 57.56% | PASS |

BASE PLATE:

The base plate was found to be structurally **adequate**.

| Tower Component | Design Limit | Stress Ratio (percentage of capacity) | Result |
|-----------------|--------------|--|-------------|
| Base Plate | Bending | 92.76% | PASS |

▪ FOUNDATION AND ANCHORS

The existing foundation consists of a 6-ft square x 8.75-ft long reinforced concrete pier with twelve (12) rock anchors embedded 16.5-ft into rock. The base of the tower is connected to the foundation by means of eight (8) 2.25"Ø, ASTM A615-75 anchor bolts embedded into the concrete foundation structure. Foundation information was obtained from Northeast Utilities drawing 01106-60000.

BASE REACTIONS:

From PLS-Pole analysis based on NESC/EVERSOURCE prescribed loads.

| Load Case | Shear | Axial | Moment |
|-------------------|------------|------------|----------------|
| NESC Heavy Wind | 10.00 kips | 32.07 kips | 493.94 ft-kips |
| NESC Extreme Wind | 15.54 kips | 17.23 kips | 807.88 ft-kips |

Note 1 – 10% increase will be applied to tower base reactions for foundation verification per OTRM 051

ANCHOR BOLTS:

The anchor bolts were found to be structurally **adequate**.

| Tower Component | Design Limit | Stress Ratio (% of capacity) | Result |
|-----------------|--------------|---------------------------------|-------------|
| Anchor Bolts | Tension | 44.8% | PASS |

FOUNDATION:

The existing foundation was found to be structurally **adequate**.

| Foundation | Design Limit | Allowable Limit | Proposed Loading ⁽⁴⁾ | Result |
|---|--------------------|-----------------------|---------------------------------|-------------|
| Reinf. Conc. Pier w/ Rock Anchors | OTM ⁽¹⁾ | 1.0 FS ⁽²⁾ | 4.06 FS ⁽²⁾ | PASS |
| | Rock Anchor | 107.9 kips | 64.6 kips | PASS |
| | Bearing Pressure | 50 ksf ⁽³⁾ | 18.1 ksf | PASS |

Note 1: OTM denotes overturning moment.

Note 2: FS denotes Factor of Safety

Note 3: Bearing Capacity based on Weak Rock.

Note 4: 10% increase to PLS base reactions used in foundation analysis per OTRM 051.

C o n c l u s i o n

This analysis shows that the subject utility pole **and proposed replacement antenna mast are adequate** to support the proposed equipment upgrade.

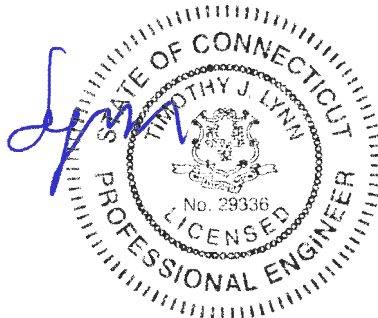
The analysis is based, in part on the information provided to this office by Eversource and T-Mobile. If the existing conditions are different than the information in this report, CENTEK engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
 Structural Engineer



**STANDARD CONDITIONS FOR FURNISHING OF
PROFESSIONAL ENGINEERING SERVICES ON
EXISTING STRUCTURES**

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

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of CENTEK engineering, 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 CENTEK engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222.
- All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. CENTEK engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ RISA - 3 D

RISA-3D Structural Analysis Program is an integrated structural analysis and design software package for buildings, bridges, tower structures, etc.

Modeling Features:

- Comprehensive CAD-like graphic drawing/editing capabilities that let you draw, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, etc.
- Versatile drawing grids (orthogonal, radial, skewed)
- Universal snaps and object snaps allow drawing without grids
- Versatile general truss generator
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet selection, with locking
- Saved selections to quickly recall desired selections
- Modification tools that modify single items or entire selections
- Real spreadsheets with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and views so you can edit or view any data in the plotted views or in the spreadsheets
- Simultaneous view of multiple spreadsheets
- Constant in-stream error checking and data validation
- Unlimited undo/redo capability
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection libraries
- Import DXF, RISA-2D, STAAD and ProSteel 3D files
- Export DXF, SDNF and ProSteel 3D files

Analysis Features:

- Static analysis and P-Delta effects
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS mode combinations
- Automatic inclusion of mass offset (5% or user defined) for dynamic analysis
- Physical member modeling that does not require members to be broken up at intermediate joints
- State of the art 3 or 4 node plate/shell elements
- High-end automatic mesh generation — draw a polygon with any number of sides to create a mesh of well-formed quadrilateral (NOT triangular) elements.
- Accurate analysis of tapered wide flanges - web, top and bottom flanges may all taper independently
- Automatic rigid diaphragm modeling
- Area loads with one-way or two-way distributions
- Multiple simultaneous moving loads with standard AASHTO loads and custom moving loads for bridges, cranes, etc.
- Torsional warping calculations for stiffness, stress and design
- Automatic Top of Member offset modeling
- Member end releases & rigid end offsets
- Joint master-slave assignments
- Joints detachable from diaphragms
- Enforced joint displacements
- 1-Way members, for tension only bracing, slipping, etc.

- 1-Way springs, for modeling soils and other effects
- Euler members that take compression up to their buckling load, then turn off.
- Stress calculations on any arbitrary shape
- Inactive members, plates, and diaphragms allows you to quickly remove parts of structures from consideration
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members and plates
- Automatic subgrade soil spring generator

Graphics Features:

- Unlimited simultaneous model view windows
- Extraordinary “true to scale” rendering, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamic scrolling stops right where you want
- Plot & print virtually everything with color coding & labeling
- Rotate, zoom, pan, scroll and snap views
- Saved views to quickly restore frequent or desired views
- Full render or wire-frame animations of deflected model and dynamic mode shapes with frame and speed control
- Animation of moving loads with speed control
- High quality customizable graphics printing

Design Features:

- Designs concrete, hot rolled steel, cold formed steel and wood
- ACI 1999/2002, BS 8110-97, CSA A23.3-94, IS456:2000, EC 2-1992 with consistent bar sizes through adjacent spans
- Exact integration of concrete stress distributions using parabolic or rectangular stress blocks
- Concrete beam detailing (Rectangular, T and L)
- Concrete column interaction diagrams
- Steel Design Codes: AISC ASD 9th, LRFD 2nd & 3rd, HSS Specification, CAN/CSA-S16.1-1994 & 2004, BS 5950-1-2000, IS 800-1984, Euro 3-1993 including local shape databases
- AISI 1999 cold formed steel design
- NDS 1991/1997/2001 wood design, including Structural Composite Lumber, multi-ply, full sawn
- Automatic spectra generation for UBC 1997, IBC 2000/2003
- Generation of load combinations: ASCE, UBC, IBC, BOCA, SBC, ACI
- Unbraced lengths for physical members that recognize connecting elements and full lengths of members
- Automatic approximation of K factors
- Tapered wide flange design with either ASD or LRFD codes
- Optimization of member sizes for all materials and all design codes, controlled by standard or user-defined lists of available sizes and criteria such as maximum depths
- Automatic calculation of custom shape properties
- Steel Shapes: AISC, HSS, CAN, ARBED, British, Euro, Indian, Chilean
- Light Gage Shapes: AISI, SSMA, Dale / Incor, Dietrich, Marino\WARE
- Wood Shapes: Complete NDS species/grade database
- Full seamless integration with RISAFoot (Ver 2 or better) for advanced footing design and detailing
- Plate force summation tool

Results Features:

- Graphic presentation of color-coded results and plotted designs
- Color contours of plate stresses and forces with quadratic smoothing, the contours may also be animated
- Spreadsheet results with sorting and filtering of: reactions, member & joint deflections, beam & plate forces/stresses, optimized sizes, code designs, concrete reinforcing, material takeoffs, frequencies and mode shapes
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams that display magnitudes at any dialed location
- Saved solutions quickly restore analysis and design results.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ PLS - POLE

PLS-POLE provides all of the capabilities a structural engineer requires to design transmission, substation or communications structures. It does so using a simple easy to use graphical interface that rests upon our time tested finite element engine. Regardless of whether you want to model a simple wood pole or a guyed steel X-Frame; PLS-POLE can handle the job simply, reliably and efficiently.

Modeling Features:

- Structures are made of standard reusable components that are available in libraries. You can easily create your own libraries or get them from a manufacturer
- Structure models are built interactively using interactive menus and graphical commands
- Automatic generation of underlying finite element model of structure
- Steel poles can have circular, 4, 6, 8, 12, 16, or 18-sided, regular, elliptical or user input cross sections (flat-to-flat or tip-to-tip orientations)
- Steel and concrete poles can be selected from standard sizes available from manufacturers
- Automatic pole class selection
- Cross brace position optimizer
- Capability to specify pole ground line rotations
- Capability to model foundation displacements
- Can optionally model foundation stiffness
- Guys are easily handled (modeled as exact cable elements in nonlinear analysis)
- Powerful graphics module (members color-coded by stress usage)
- Graphical selection of joints and components allows graphical editing and checking
- Poles can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces

Analysis Features:

- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Design checks for ASCE, ANSI/TIA/EIA 222 (Revisions F and G) or other requirements
- Automatic calculation of dead and wind loads
- Automated loading on structure (wind, ice and drag coefficients) according to:
 - ASCE 74-1991
 - NESC 2002
 - NESC 2007
 - IEC 60826:2003
 - EN50341-1:2001 (CENELEC)
 - EN50341-3-9:2001 (UK NNA)
 - EN50341-3-17:2001 (Portugal NNA)
 - ESAA C(b)1-2003 (Australia)
 - TPNZ (New Zealand)
 - REE (Spain)
 - EIA/TIA 222-F
 - ANSI/TIA 222-G
 - CSA S37-01
- Automated microwave antenna loading as per EIA/TIA 222-F and ANSI/TIA 222-G
- Detects buckling by nonlinear analysis

Results Features:

- Detects buckling by nonlinear analysis
- Easy to interpret text, spreadsheet and graphics design summaries
- Automatic determination of allowable wind and weight spans
- Automatic determination of interaction diagrams between allowable wind and weight spans
- Automatic tracking of part numbers and costs

*Criteria for Design of PCS Facilities On or
Extending Above Metal Electric Transmission
Towers & Analysis of Transmission Towers
Supporting PCS Masts* ⁽¹⁾

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as “masts”), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA-222-H covering the design of telecommunications structures specifies LRFD design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that it does not exceed code defined percentage of failure strength.

ANSI Standard C2-2023 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions, and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the Eversource effort in “unifying” both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 1700-year recurrence for TIA-22-H risk category III and a 100-year recurrence for NESC Grade B. The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

| Note 1: Prepared from documentation provide from Northeast Utilities.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA 222-H:

E L E C T R I C T R A N S M I S S I O N T O W E R

The electric transmission tower shall be analyzed using yield stress theory in accordance with the attached table titled “Eversource Design Criteria”. This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

- PCS mast for its total height above ground level, including the initial and planned future support platforms, antennas, etc. above the top of an electric transmission structure.
- Conductors are related devices and hardware.
- Electric transmission structure. The loads from the PCS facility and from the electric conductors shall be applied to the structure at conductor and PCS mast attachment points, where those load transfer to the tower.

The uniform loadings and factors specified for the above components in the table are based upon the National Electrical Safety Code 2023 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

In the event that the electric transmission tower is not sufficient to support the additional loadings of the PCS mast, reinforcement will be necessary to upgrade the strength of the overstressed members.

Overhead Transmission Standards

**Attachment A
Eversource Design Criteria**

| | | Attachment A ES Design Criteria | Basic Wind Speed | Pressure | Height Factor | Gust Factor | Load or Stress Factor | Force Coef. - Shape Factor |
|---------------------------------------|---|---|---|--------------------------------|---------------|-------------|---|---|
| | | | V (MPH) | Q (PSF) | Kz | Gh | | |
| Ice Condition | TIA/EIA | Antenna Mount | TIA | TIA (0.75Wi) | TIA | TIA | TIA, Section 3.1.1.1 disallowed for connection design | TIA |
| | NESC Heavy | Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress) | ----- | 4 | 1 | 1 | 2.5 | 1.6 Flat Surfaces 1.3 Round Surfaces |
| | | Tower/Pole Analysis with antennas below top of Tower/Pole (on two faces) | ----- | 4 | 1 | 1 | 2.5 | 1.6 Flat Surfaces 1.3 Round Surfaces |
| | | Conductors: | | Conductor Loads Provided by ES | | | | |
| High Wind Condition | TIA/EIA | Antenna Mount | 85 | TIA | TIA | TIA | TIA, Section 3.1.1.1 disallowed for connection design | TIA |
| | NESC Extreme Wind | Tower/Pole Analysis with antennas extending above top of Tower/Pole | For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure | | | | | 1.6 Flat Surfaces 1.3 Round Surfaces |
| | | Tower/Pole Analysis with antennas below top of Tower/Pole | For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Height above ground is based on overall height to top of tower/pole | | | | | 1.6 Flat Surfaces 1.3 Round Surfaces |
| | | Conductors: | | Conductor Loads Provided by ES | | | | |
| NESC Extreme Ice with Wind Condition* | | Tower/Pole Analysis with antennas extending above top of Tower/Pole | For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load 1.25 x Gust Response Factor Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure | | | | | 1.6 Flat Surfaces 1.3 Round Surfaces |
| | | Tower/Pole Analysis with antennas below top of Tower/Pole | For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load Height above ground is based on overall height to top of tower/pole | | | | | 1.6 Flat Surfaces 1.3 Round Surfaces |
| | | Conductors: | | Conductor Loads Provided by ES | | | | |
| | *Only for structures installed after 2007 | | | | | | | |

Communication Antennas on Transmission Structures

Eversource

Approved by: CPS (CT/WMA) JCC
(NH/EMA)

Design

OTRM 059

Page 8 of 10

Rev. 1

11/19/2018

Overhead Transmission Standards

determined from NESC applied loading conditions (not TIA Loads) on the structure and mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The strength reduction factor obtained from the field investigation shall be applied to the members or connections that are showing signs of deterioration from their original condition. With the written approval of Eversource Transmission Line Engineering on a case by case basis, the existing structures may be analyzed initially using the current NESC code, then it is permitted to use the original design code with the original conductor load should the existing tower fail the current NESC code.

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "Eversource Design Criteria." This specifies uniform loadings (different from the TIA loadings) on each of the following components of the installed facility:

- a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.
- b) Conductors and related devices and hardware (wire loads will be provided by Eversource).
- c) Electric Transmission Structure

- i) The loads from the wireless communication equipment components based on NESC and Eversource Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower. ii)
- ii) Shape Factor Multiplier:

| NESC Structure Shape | Cd |
|---------------------------------------|-----------------|
| Polyround (for polygonal steel poles) | 1.3 |
| Flat | 1.6 |
| Open Lattice | 3.2 |
| Pole with Coaxial Cable | See Below Table |

- iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

| Mount Type | Cable Cd | Pole Cd |
|---|----------|---------|
| Coaxial Cables on outside periphery (One layer) | 1.45 | 1.45 |
| Coaxial Cables mounted on stand offs | 1.6 | 1.6 |

- d) The uniform loadings and factors specified for the above components in Attachment A, "Eversource Design Criteria" are based upon the National Electric Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to the TIA and its loads and factors with the exceptions noted above.

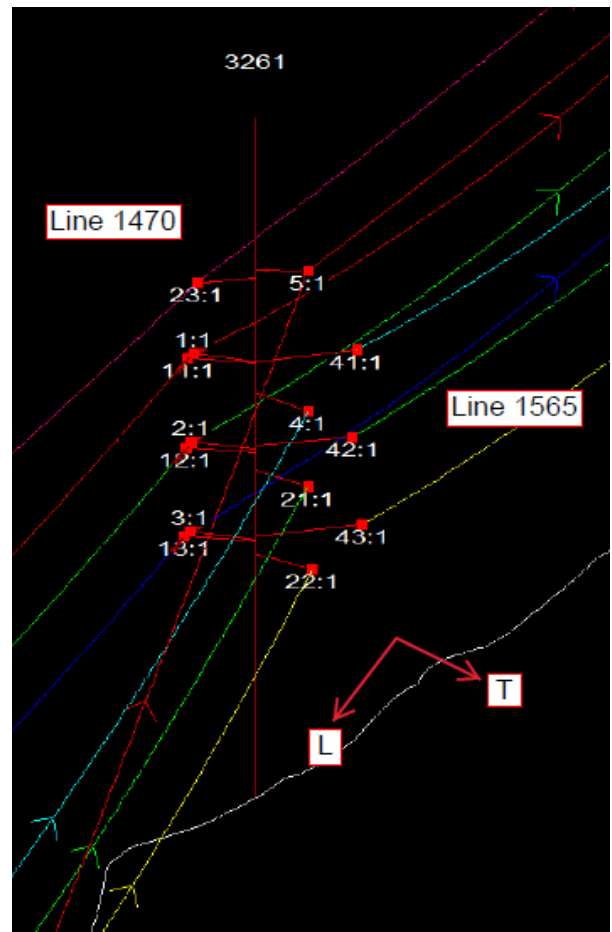
| Communication Antennas on Transmission Structures | | | |
|--|---------------|--------------|------------------------------------|
| Eversource Approved by: CPS (CT/WMA) JCC (NH/EMA) | Design | OTRM 059 | Rev. 1 11/19/2018 |
| | | Page 3 of 10 | |

Project: Lines 1470/1565, Structure 3261
 Date: 4/28/2022
 Engineer: RB/TJ
 Purpose: Calculate wire loads for existing T-Mobile site.

Shield Wires:
 7#8 ALWLD, sagged in PLS-CADD

Conductors:
 1272 kcmil 45/7 "Bittern" ACSR, sagged in PLS-CADD

| NESC 250B | | Wind: NA + | |
|--------------|--------|------------|-----------|
| 1470 Line | | → | 1565 Line |
| Shield Wire: | V 572 | | 1085 V |
| | T 304 | | 1045 T |
| | L 229 | | -1678 L |
| Top Phase: | V 2112 | | 2107 V |
| | T 669 | | 474 T |
| | L 2895 | | -879 L |
| Mid Phase: | V 1982 | | 2007 V |
| | T 638 | | 939 T |
| | L 399 | | -2516 L |
| Bot Phase: | V 1995 | | 1537 V |
| | T 632 | | 1340 T |
| | L 484 | | -1178 L |

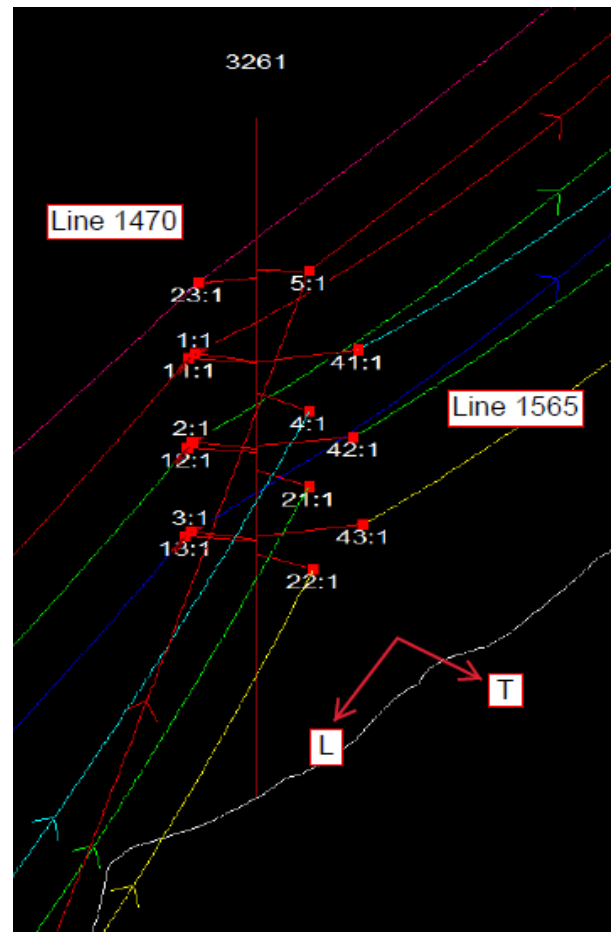


Project: Lines 1470/1565, Structure 3261
 Date: 4/28/2022
 Engineer: RB/TJ
 Purpose: Calculate wire loads for existing T-Mobile site.

Shield Wires:
 7#8 ALWLD, sagged in PLS-CADD

Conductors:
 1272 kcmil 45/7 "Bittern" ACSR, sagged in PLS-CADD

| NESC 250C | | Wind: NA + | |
|--------------|--------|------------|-----------|
| 1470 Line | | → | 1565 Line |
| Shield Wire: | V 186 | | 497 V |
| | T 265 | | 540 T |
| | L 70 | | -999 L |
| Top Phase: | V 1016 | | 975 V |
| | T 1163 | | 731 T |
| | L 1391 | | -1016 L |
| Mid Phase: | V 958 | | 857 V |
| | T 1107 | | 906 T |
| | L 380 | | -1640 L |
| Bot Phase: | V 962 | | 632 V |
| | T 1058 | | 1061 T |
| | L 458 | | -1002 L |



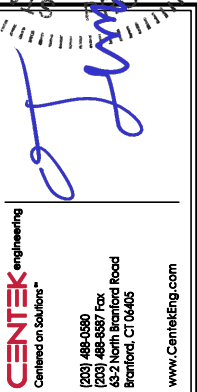
An aerial photograph of a wooded area. A white callout box with a black border points to a small, dark, rectangular structure nestled among trees. The text 'PROJECT LOCATION' is written in black capital letters inside the callout box. In the bottom right corner, a road is visible, labeled 'Peaceable St' in a curved orientation. The terrain is covered with brown, dry-looking vegetation and some green trees.



NORTH

| SHT. NO. | DESCRIPTION | REV. |
|----------|--------------------------------------|------|
| T-1 | TITLE SHEET | 6 |
| | | |
| N-1 | DESIGN BASIS & GENERAL NOTES | 6 |
| N-2 | STRUCTURAL STEEL NOTES | 6 |
| | | |
| MI-1 | MODIFICATION INSPECTION REQUIREMENTS | 6 |
| | | |
| S-1 | TOWER ELEVATION & FEEDLINE PLAN | 6 |
| S-2 | TOP CONNECTION DETAILS | 6 |
| S-3 | BOTTOM CONNECTION DETAILS | 6 |
| S-4 | POLE DIMENSIONS | 6 |
| | | |
| | | |

| REV. | DATE | DRAWN BY | CHKD BY | DESCRIPTION |
|------|---------|----------|---------|-------------------------|
| 0 | 5/18/22 | TUL | CFC | ISSUED FOR REVIEW |
| 1 | 6/29/22 | TUL | CFC | ISSUED FOR REVIEW |
| 2 | 8/15/22 | TUL | CFC | ISSUED FOR CONSTRUCTION |
| 3 | 9/12/22 | TUL | CFC | ISSUED FOR CONSTRUCTION |
| 4 | 7/5/23 | TUL | CFC | ISSUED FOR CONSTRUCTION |
| 5 | 8/23/23 | TUL | CFC | ISSUED FOR CONSTRUCTION |
| 6 | 8/23/23 | TUL | CFC | ISSUED FOR CONSTRUCTION |



I-MOBILE
PROPOSED ANTENNA UPGRADE
CT111104A
STRUCTURE 3261
32 PEACEABLE STREET
REDDING, CT 06886

| | |
|---------|----------|
| DATE: | 5/18/22 |
| SCALE: | AS SHOWN |
| JOB NO. | 22006.02 |

TITLE SHEET

SHEET NO.

T-1

Sheet No. 1 of 8

DESIGN BASIS

1. GOVERNING CODE: 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CT STATE BUILDING CODE.
2. TIA-222-H, ASCE MANUAL NO. 48-19 – "DESIGN OF STEEL TRANSMISSION POLE STRUCTURES SECOND EDITION", NESC C2-2023 AND EVERSOURCE DESIGN CRITERIA.
3. DESIGN CRITERIA

WIND LOAD: (ANTENNA MAST)

ULTIMATE DESIGN WIND SPEED (V) = 125 MPH (2022 CSBC: APPENDIX 'P')

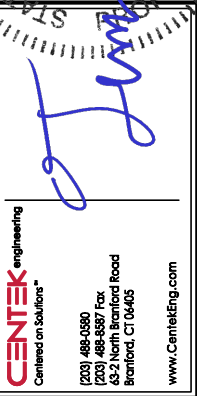
WIND LOAD: (UTILITY POLE & FOUNDATION)

BASIC WIND SPEED (V) = 110 MPH (3-SECOND GUST)
BASED ON NESC C2-2023, SECTION 25 RULE 250C.

GENERAL NOTES

1. REFER TO STRUCTURAL ANALYSIS AND MAST DESIGN PREPARED BY CENTEK ENGINEERING, INC., FOR T-MOBILE, DATED 8/7/23.
2. TOWER GEOMETRY AND STRUCTURE MEMBER SIZES WERE OBTAINED FROM THE TOWER DESIGN DRAWINGS PREPARED BY MEYER INDUSTRIES INC.; JOB NO. T-4011-RR DATED FEBRUARY 26, 1973.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GOVERNING BUILDING CODE.
4. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS SCOPE OF WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
5. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK. THIS INCLUDES VERIFYING ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF ALL FINISHED WORK.
6. PCS MAST INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF TRANSMISSION STRUCTURES. ALL SAFETY PROCEDURES, RIGGING AND ERECTION METHODS SHALL BE STANDARD TO THE INDUSTRY AND IN COMPLIANCE WITH OSHA.
7. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
8. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
9. NO DRILLING WELDING OR TAPING IS PERMITTED ON EVERSOURCE OWNED EQUIPMENT.

| | | | | |
|-----|---------|-------------------------------|-----|-------------------------|
| 6 | 8/7/23 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 7 | 8/28/23 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 8 | 9/6/23 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 9 | 9/12/22 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 9 | 8/15/22 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 0 | 6/29/22 | T/L | CFC | ISSUED FOR REVIEW |
| 0 | 5/18/22 | T/L | CFC | ISSUED FOR REVIEW |
| REV | DATE | DRAWN BY/CHK'D BY/DESCRIPTION | | |



| | | |
|---|----------|--|
| T-MOBILE PROPOSED ANTENNA UPGRADE CT11104A STRUCTURE 3261 | | 32 PEACOCKS STREET REDNOX, CT 06896 |
| DATE: | 5/18/22 | |
| SCALE: | AS SHOWN | |
| JOB NO. | 22006.02 | |

DESIGN BASIS AND GENERAL NOTES

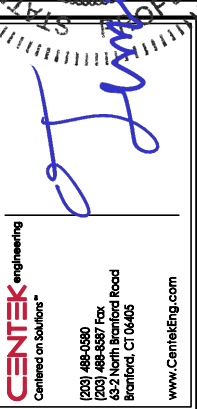
EXHIBIT NO. **N-1**
Page No. 2 of 8

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY LOAD RESISTANCE FACTOR DESIGN (LRFD).
 2. MATERIAL SPECIFICATIONS
 - A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
 - B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI).
 - C. STRUCTURAL STEEL (SOLID ROUND BAR)---ASTM A572_GR50 (50 KSI)
 - D. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
 - E. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
 - F. PIPE---ASTM A53 GRADE B (FY = 35 KSI)
 3. FASTENER SPECIFICATIONS
 - A. CONNECTION BOLTS---ASTM A325--N, UNLESS OTHERWISE SCHEDULED.
 - B. U-BOLTS---ASTM A307
 - C. ANCHOR RODS---ASTM F1554
 - D. WELDING ELECTRODES---ASTM E70XX FOR A36 & A572_GR50 STEEL, ASTM E80XX FOR A572_65.
 - E. BLIND BOLTS---AS1252 PROPERTY CLASS 8.8 (FU=120 KSI).
 4. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
 5. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
 6. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
 7. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
 8. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
 9. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
 - ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
 11. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
 12. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING THE SCHEDULED ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 14TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
 13. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
 14. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
 15. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
 16. ALL BOLTS SHALL BE INSTALLED PER THE REQUIREMENTS OF AISC 14TH EDITION & RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS".
 17. ALL BOLTS SHALL BE INSTALLED AS SNUG-TIGHT CONNECTIONS UNLESS OTHERWISE INDICATED. CONNECTIONS SPECIFIED AS PRETENSIONED OR SLIP-CRITICAL SHALL BE TIGHTENED TO A BOLT TENSION NOT LESS THAN THAT GIVEN IN TABLE J3.1 OF AISC 14TH EDITION.
 18. LOCK WASHER ARE NOT PERMITTED FOR A325 BOLTED STEEL ASSEMBLIES.
 19. LOAD INDICATOR WASHERS SHALL BE UTILIZED ON ALL PRETENSIONED OR SLIP-CRITICAL CONNECTIONS.
 20. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
 21. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.

22. FABRICATE BEAMS WITH MILL CAMBER UP.
23. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
24. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

| REV | DATE | DRAWN BY | CHK'D BY | DESCRIPTION |
|-----|---------|----------|----------|-------------------------|
| 0 | 5/18/22 | TJL | CFC | ISSUED FOR REVIEW |
| 1 | 6/29/22 | TJL | CFC | ISSUED FOR REVIEW |
| 2 | 8/15/22 | TJL | CFC | ISSUED FOR CONSTRUCTION |
| 3 | 9/12/22 | TJL | CFC | ISSUED FOR CONSTRUCTION |
| 4 | 7/28/22 | TJL | CFC | ISSUED FOR CONSTRUCTION |
| 5 | 7/28/22 | TJL | CFC | ISSUED FOR CONSTRUCTION |
| 6 | 8/7/23 | TJL | CFC | ISSUED FOR CONSTRUCTION |



| | |
|--|----------|
| T-MOBILE PROPOSED ANTENNA UPGRADE CT11104A STRUCTURE 3261 32 PEACEABLE STREET REDDING, CT 06896 | |
| DATE: | 5/18/22 |
| SCALE: | AS SHOWN |
| JOB NO. | 22006.02 |

STRUCTURAL
STEEL NOTES

NO.
N-2
No. 3 of 8

| MODIFICATION INSPECTION REPORT REQUIREMENTS | | | | | |
|--|---|---------------------|---|-------------------|---|
| PRE-CONSTRUCTION | | DURING CONSTRUCTION | | POST-CONSTRUCTION | |
| SCHEDULED ITEM | REPORT ITEM | SCHEDULED ITEM | REPORT ITEM | SCHEDULED ITEM | REPORT ITEM |
| X | EOR MODIFICATION INSPECTION DRAWING | — | FOUNDATIONS | X | MODIFICATION INSPECTOR RECORD REDLINE DRAWING |
| X | EOR APPROVED SHOP DRAWINGS | — | EARTHWORK: BACKFILL MATERIAL & COMPACTION | — | POST-INSTALLED ANCHOR ROD PULL-OUT TEST |
| — | EOR APPROVED POST-INSTALLED ANCHOR MPII | — | REBAR & FORMWORK GEOMETRY VERIFICATION | X | PHOTOGRAPHS |
| — | FABRICATION INSPECTION | — | CONCRETE TESTING | | |
| — | FABRICATOR CERTIFIED WELDER INSPECTION | X | STEEL INSPECTION | | |
| X | MATERIAL CERTIFICATIONS | — | POST INSTALLED ANCHOR ROD VERIFICATION | | |
| | | — | BASE PLATE GROUT VERIFICATION | | |
| | | — | CONTRACTOR’S CERTIFIED WELD INSPECTION | | |
| | | X | ON-SITE COLD GALVANIZING VERIFICATION | | |
| | | X | CONTRACTOR AS-BUILT REDLINE DRAWINGS | | |
| <div>NOTES:</div> <div><div>1. REFER TO MODIFICATION INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS</div><div>2. "X" DENOTES DOCUMENT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT.</div><div>3. "—" DENOTES DOCUMENT NOT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT.</div><div>4. EOR — ENGINEER OF RECORD</div><div>4. MPII — "MANUFACTURER’S PRINTED INSTALLATION GUIDELINES"</div></div> | | | | | |

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF STRUCTURAL MODIFICATIONS, TO INCLUDE A REVIEW AND COMPILATION OF SPECIFIED SUBMITTALS AND CONSTRUCTION INSPECTIONS, AS AN ASSURANCE OF COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS PREPARED UNDER THE DIRECTION OF THE ENGINEER OF RECORD (EOR).
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND GENERAL WORKMANSHIP AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD.
3. TO ENSURE COMPLIANCE WITH THE MODIFICATION INSPECTION REQUIREMENTS THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR (MI) COMMENCE COMMUNICATION UPON AUTHORIZATION TO PROCEED BY THE CLIENT. EACH PARTY SHALL BE PROACTIVE IN CONTACTING THE OTHER. THE EOR SHALL BE CONTACTED IF SPECIFIC GC/MI CONTACT INFORMATION IS NOT MADE AVAILABLE.
4. THE GC SHALL PROVIDE THE MI WITH A MINIMUM OF 5 BUSINESS DAYS NOTICE OF IMPENDING INSPECTIONS.
5. WHEN POSSIBLE, THE GC AND MI SHALL BE ON SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY NOTED DEFICIENCIES ADDRESSED DURING THE INITIAL MODIFICATION INSPECTION.

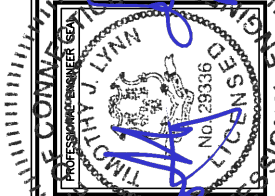
1. THE MI SHALL CONTACT THE GC UPON AUTHORIZATION BY THE CLIENT TO:
 - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
 - WORK WITH THE GC IN DEVELOPMENT OF A SCHEDULE FOR ON-SITE INSPECTIONS.
 - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE MI IS RESPONSIBLE FOR COLLECTION OF ALL INSPECTION AND TEST REPORTS, REVIEWING REPORTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING ON-SITE INSPECTIONS AND COMPILATION & SUBMISSION OF THE MODIFICATION INSPECTION REPORT TO THE CLIENT AND THE EOR.

1. THE GC IS REQUIRED TO CONTACT THE GC UPON AUTHORIZATION TO PROCEED WITH CONSTRUCTION BY THE CLIENT TO:
 - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
 - WORK WITH THE MI IN DEVELOPMENT OF A SCHEDULE FOR ON-SITE INSPECTIONS.
 - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE GC IS RESPONSIBLE FOR COORDINATING AND SCHEDULING IN ADVANCE ALL REQUIRED INSPECTIONS AND TESTS WITH THE MI.

1. SHOULD THE STRUCTURAL MODIFICATION NOT COMPLY WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, THE GC SHALL WORK WITH THE MODIFICATION INSPECTOR IN A VIABLE REMEDIATION PLAN AS FOLLOWS:
 - CORRECT ALL DEFICIENCIES TO COMPLY WITH THE CONTRACT DOCUMENTS AND COORDINATE WITH THE MI FOR A FOLLOW UP INSPECTION.
 - WITH CLIENT AUTHORIZATION, THE GC MAY WORK WITH THE EOR TO REANALYZE THE MODIFICATION USING THE AS-BUILT CONDITION.

1. THE GC AND MI SHALL AT MINIMUM PHOTO DOCUMENT THE FOLLOWING FOR INCLUSION IN THE MODIFICATION INSPECTION REPORT:
 - PRE-CONSTRUCTION: GENERAL CONDITION OF THE SITE.
 - DURING CONSTRUCTION: RAW MATERIALS, CRITICAL DETAILS, WELD PREPARATION, BOLT INSTALLATION & TORQUE, FINAL INSTALLED CONDITION & SURFACE COATING REPAIRS.
 - POST-CONSTRUCTION: FINAL CONDITION OF THE SITE

| | | | | |
|-----|---------|----------|----------|-------------------------|
| 6 | 8/7/23 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 5 | 7/28/23 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 4 | 7/18/23 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 3 | 9/12/22 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 2 | 8/15/22 | T/L | CFC | ISSUED FOR CONSTRUCTION |
| 1 | 6/29/22 | T/L | CFC | ISSUED FOR REVIEW |
| 0 | 5/18/22 | T/L | CFC | ISSUED FOR REVIEW |
| REV | DATE | DRAWN BY | CHK'D BY | DESCRIPTION |



CENTEK engineering
Certified in Solutions™

(203) 486-0360
(203) 486-5357 Fax
63-2 North Branford Road
Branford, CT 06405

www.CentekEng.com

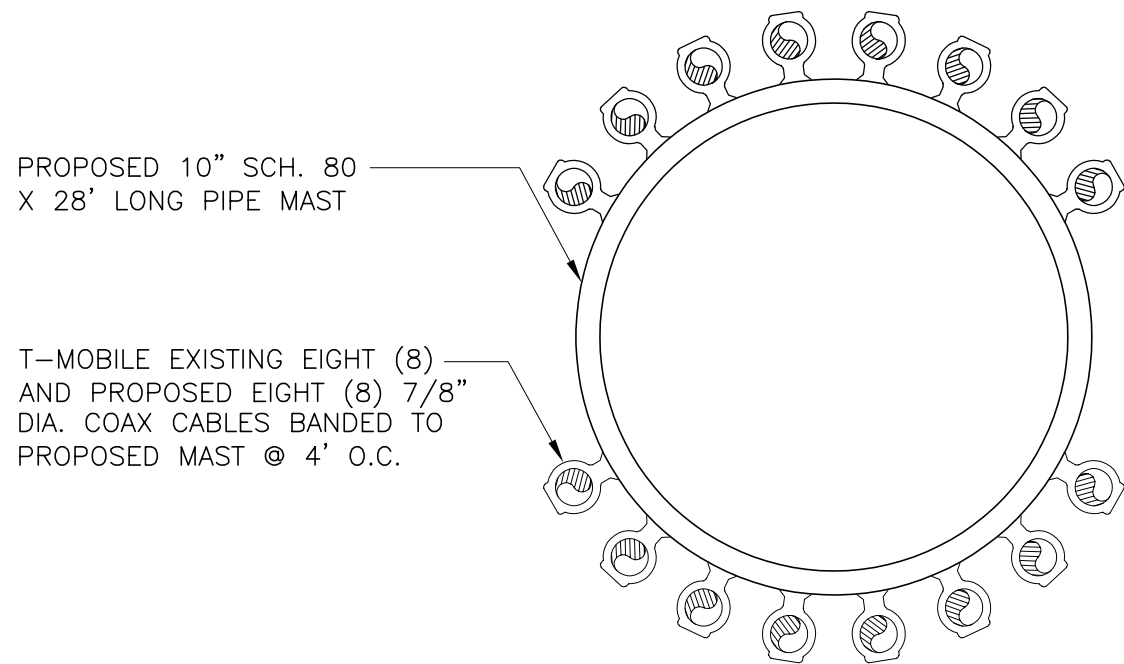
| | |
|--|----------|
| T-MOBILE PROPOSED ANTENNA UPGRADE CT11104A STRUCTURE 3261 30 PEACOCKS LANE STREET HELDONIA, CT 06038 | |
| DATE: | 5/18/22 |
| SCALE: | AS SHOWN |
| JOB NO. | 22006.02 |

MODIFICATION INSPECTION REQUIREMENTS

SHEET NO.

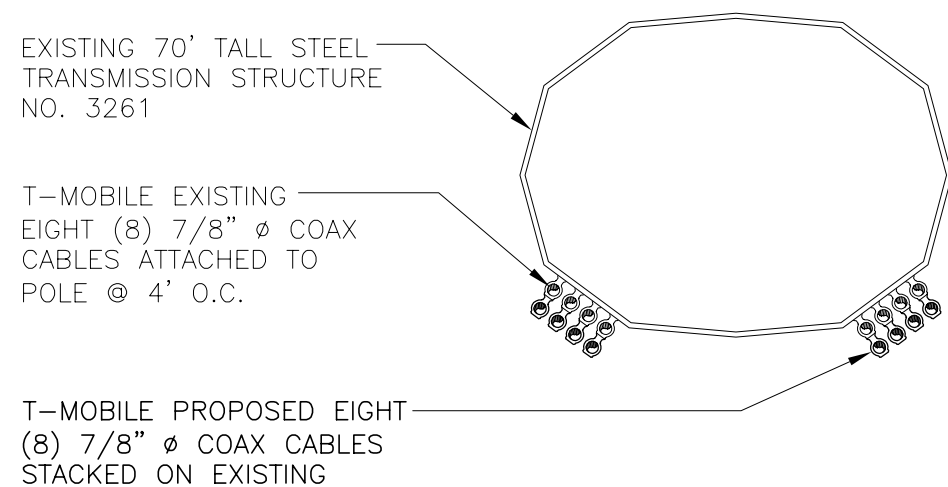
MI-1

Sheet No. 4 of 8



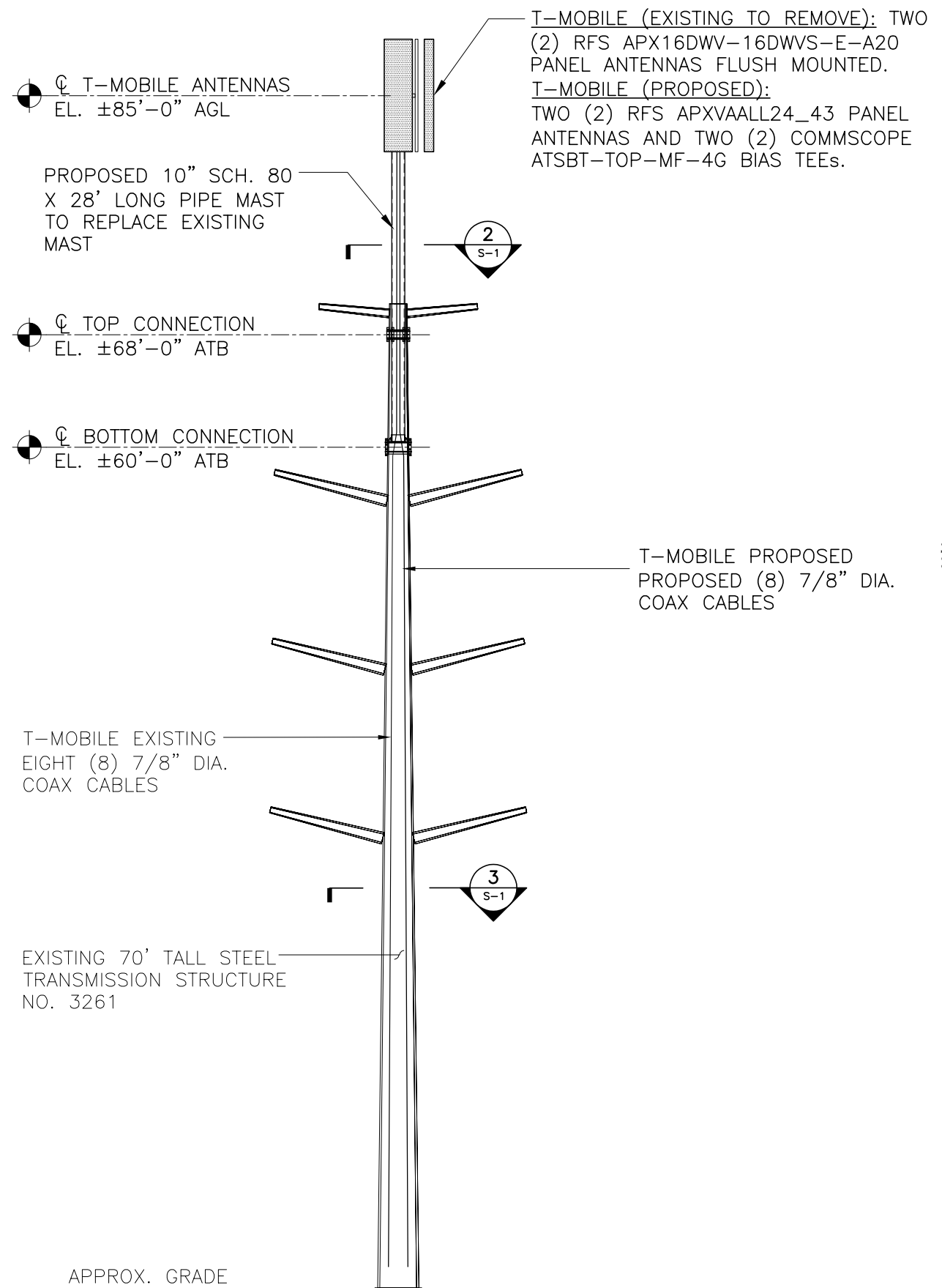
2
S-1

COAX CABLE PLAN (MAST)
SCALE: 3" = 1'-0"



3
S-1

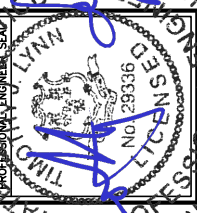
COAX CABLE PLAN (0'-60' ATB)
SCALE: 1/2" = 1'-0"



1
S-1

TOWER AND MAST ELEVATION
SCALE: NTS

| REV. | DATE | DRAWN BY | CHK'D BY | DESCRIPTION |
|------|---------|----------|----------|-------------------------|
| 6 | 8/7/23 | TJL | | ISSUED FOR CONSTRUCTION |
| 5 | 5/18/23 | TJL | | ISSUED FOR CONSTRUCTION |
| 4 | 5/18/23 | TJL | | ISSUED FOR CONSTRUCTION |
| 3 | 5/18/23 | TJL | | ISSUED FOR CONSTRUCTION |
| 2 | 5/18/23 | TJL | | ISSUED FOR CONSTRUCTION |
| 1 | 5/18/23 | TJL | | ISSUED FOR CONSTRUCTION |



Handwritten signature of Timothy J. Lynn

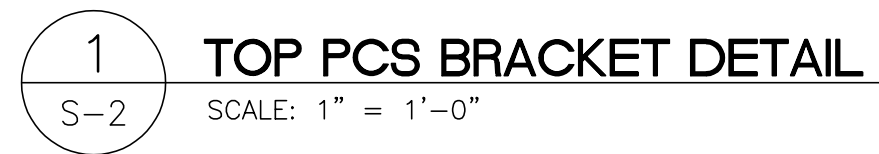
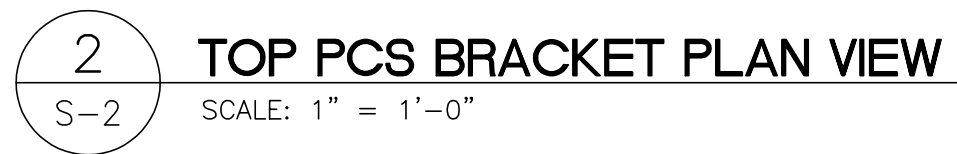
CENEX engineering
Certified on Solutions™
2031 498-080
400 Westford Road
Westford, CT 06096
www.CentelEng.com

T-MOBILE
PROPOSED ANTENNA UPGRADE
CT11104A
STRUCTURE 3261
32 PEACEABLE STREET
WESTFORD, CT 06096

DATE: 5/18/22
SCALE: AS SHOWN
JOB NO. 22006.02

TOWER
ELEVATION AND
FEEDLINE PLAN

SHEET NO.
S-1
Sheet No. 5 of 8



1. POLE TAPER = 0.2893"/FT (V.I.F.)
2. REFER TO SHEET S-4 FOR ADDITIONAL POLE DIMENSIONS

| REV. | DATE | DRAWN BY | CHK'D BY | DESCRIPTION |
|------|---------|----------|----------|-------------------------|
| 0 | 5/18/22 | TUL | CFC | ISSUED FOR REVIEW |
| 1 | 6/29/22 | TUL | CFC | ISSUED FOR REVIEW |
| 2 | 8/15/22 | TUL | CFC | ISSUED FOR CONSTRUCTION |
| 3 | 9/12/22 | TUL | CFC | ISSUED FOR CONSTRUCTION |
| 4 | 7/5/23 | TUL | CFC | ISSUED FOR CONSTRUCTION |
| 5 | 6/29/23 | TUL | CFC | ISSUED FOR CONSTRUCTION |



CT11104A
STRUCTURE 3261

| | |
|--------|----------|
| DATE: | 5/18/22 |
| SCALE: | AS SHOWN |
| 3 NO. | 22006.02 |

TOP
CONNECTION
DETAILS

HEET NO.

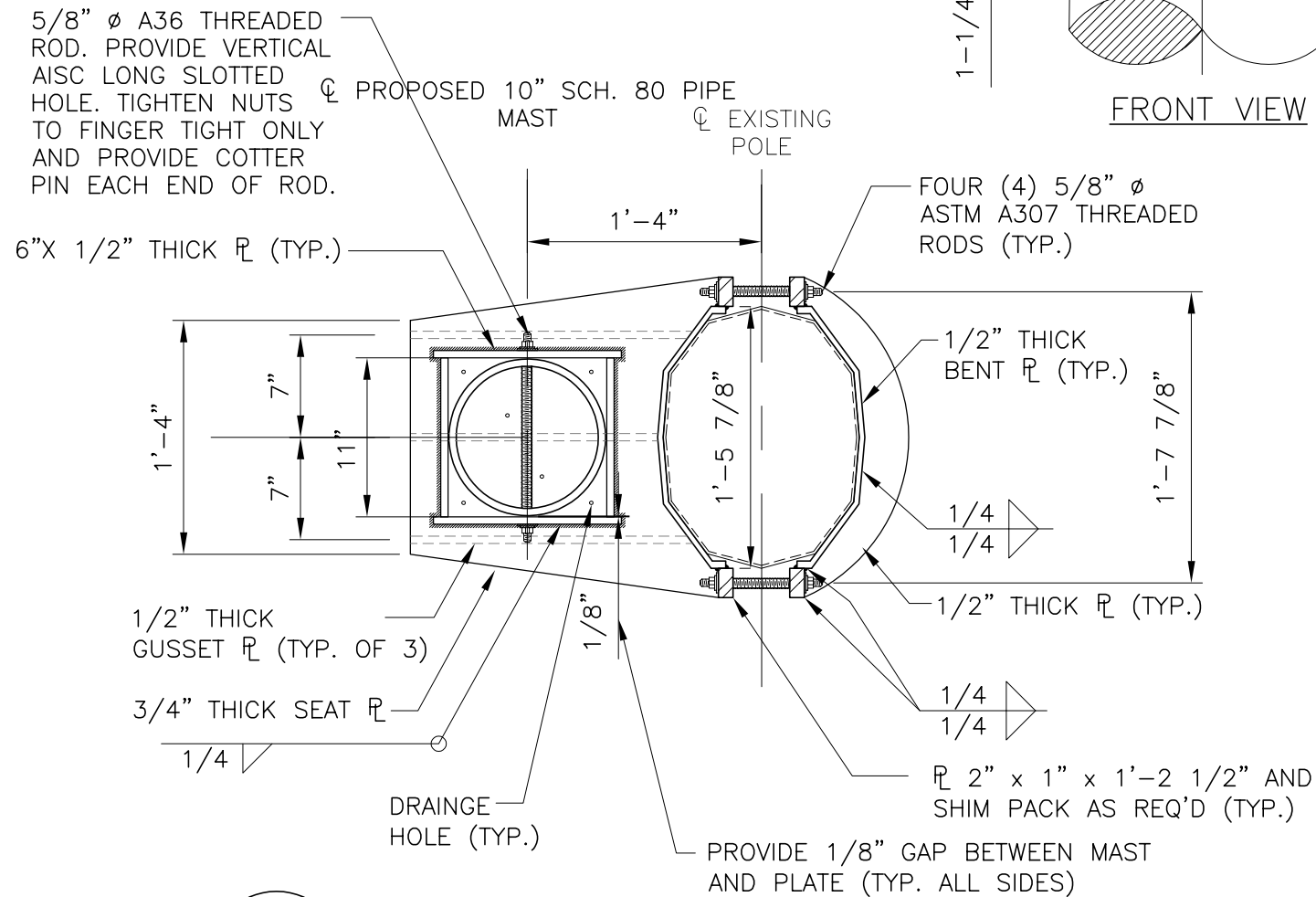
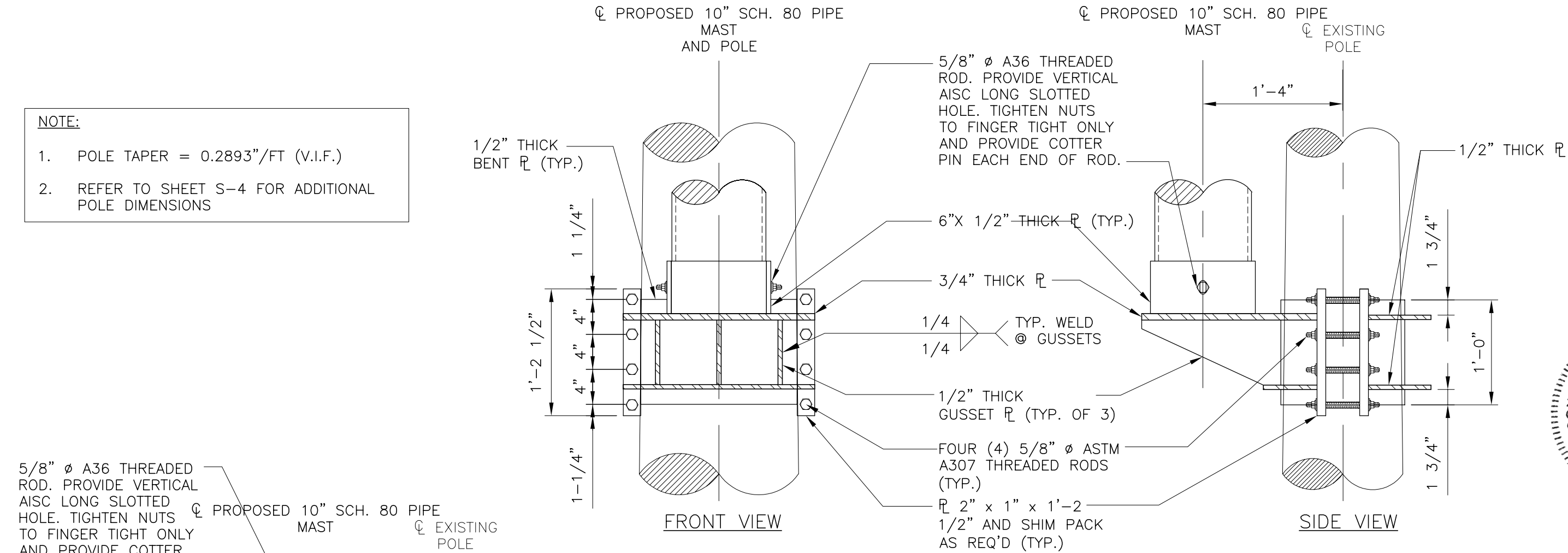
S-2

heet No. 6 of 8

NOTE:

1. POLE TAPER = 0.2893"/FT (V.I.F.)

2. REFER TO SHEET S-4 FOR ADDITIONAL POLE DIMENSIONS



2
S-3

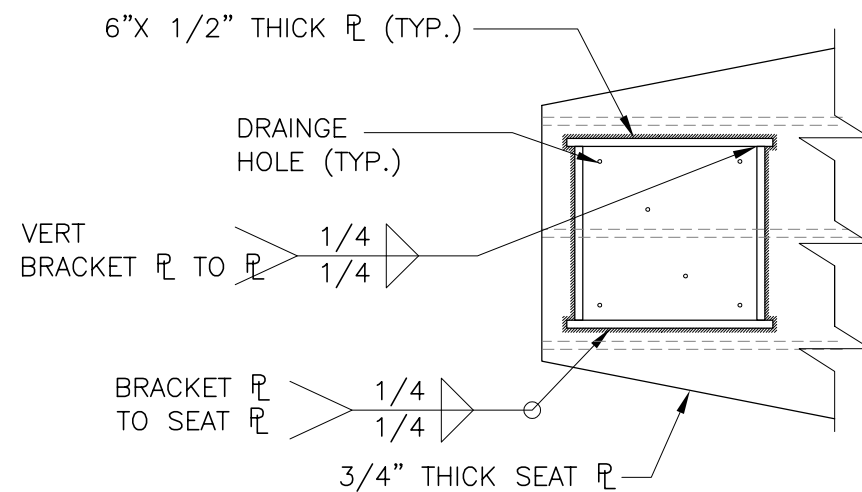
BOTTOM PCS BRACKET PLAN VIEW

SCALE: 1" = 1'-0"

1
S-3

BOTTOM PCS BRACKET DETAIL

SCALE: 1" = 1'-0"

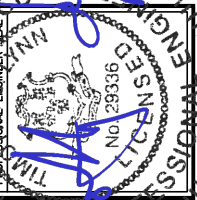


3
S-3

BRACKET ASSEMBLY DETAIL

SCALE: 1" = 1'-0"

| | | | |
|-------------------------|---------|---------|-------------|
| ISSUED FOR CONSTRUCTION | CFC | 8/7/22 | TJL |
| ISSUED FOR CONSTRUCTION | CFC | 7/15/22 | TJL |
| ISSUED FOR CONSTRUCTION | CFC | 7/15/22 | TJL |
| ISSUED FOR CONSTRUCTION | CFC | 9/12/22 | TJL |
| ISSUED FOR CONSTRUCTION | CFC | 8/15/22 | TJL |
| ISSUED FOR CONSTRUCTION | CFC | 6/29/22 | TJL |
| ISSUED FOR REVIEW | CFC | 5/18/22 | TJL |
| DRAWN BY | CHKD BY | DATE | DESCRIPTION |



[Signature]

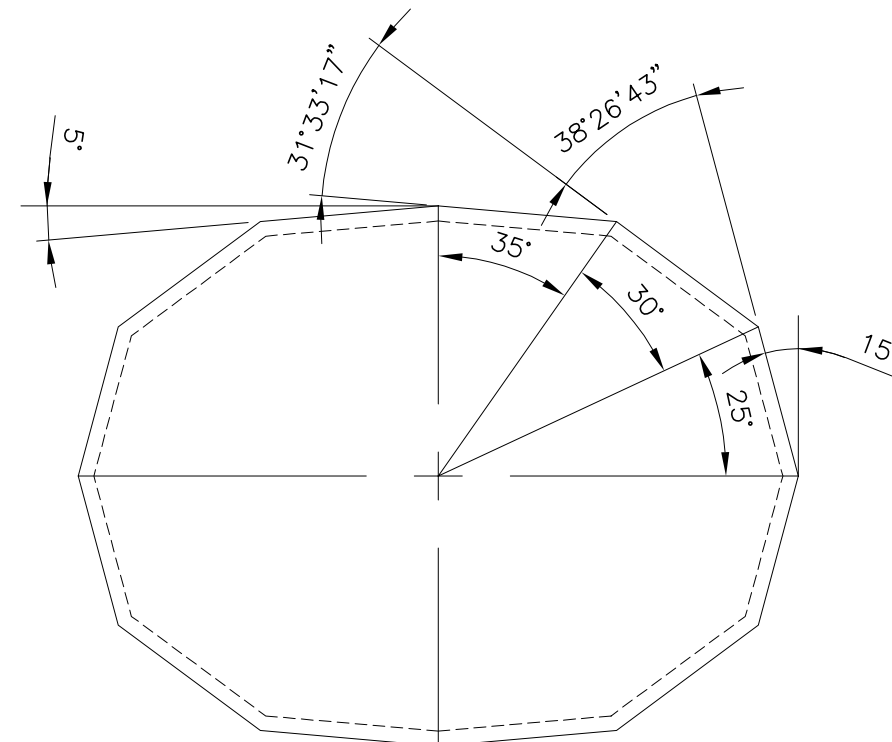
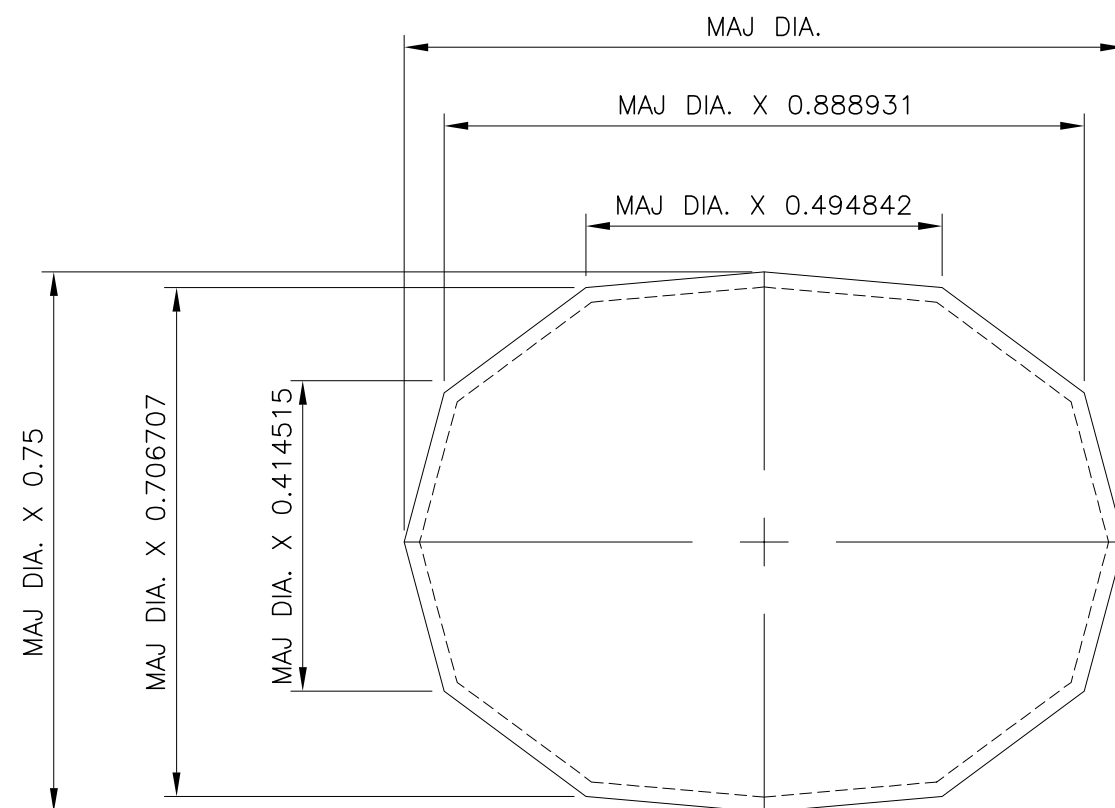
CENTEX
engineering
Certified Solutions™
2031 486-0590
2031 486-8977 Fax
662 North Branford Road
Branford, CT 06405
www.CentexEng.com

T-MOBILE
PROPOSED ANTENNA UPGRADE
CT11104A
STRUCTURE 3261
32 PEACEABLE STREET
FREDONIA, CT 06030

DATE: 5/18/22
SCALE: AS SHOWN
JOB NO. 22006.02

**BOTTOM
CONNECTION
DETAILS**

SHEET NO.
S-3
Sheet No. 7 of 8



NOTE CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION

1 POLE DIMENSIONS
S-4 SCALE: 3" = 1'-0"

T-MOBILE
PROPOSED ANTENNA UPGRADE
CT111104A
STRUCTURE 3261
**32 PEACEABLE STREET
REDONIA, CT 06896**

| | |
|---------|----------|
| DATE: | 5/18/22 |
| SCALE: | AS SHOWN |
| JOB NO. | 22006.02 |

CL&P POLE DIMENSIONS

SHEET NO.
S-4
Sheet No. 8 of 8

Section 1 - Site Information

Site ID: CT11104A

Status: Final

Version: 3

Project Type: L600

Approved: 05/16/2023 12:23:41 PM

Approved By: Farhan.Badar@T-Mobile.com

Last Modified: 05/16/2023 12:23:41 PM

Last Modified By: Farhan.Badar@T-Mobile.com

Site Name: Redding / Rt 107

Site Class: Utility Lattice Tower

Site Type: Structure Non Building

Plan Year: 2021

Market: CONNECTICUT CT

Vendor: Ericsson

Landlord: Northeast Utilities

Latitude: 41.2686958

Longitude: -73.4304276

Address: 32 Peaceable Street - pole#3261 - line#1470

City, State: Redding, CT

Region: NORTHEAST

RAN Template: 67E04B Outdoor

AL Template:

Sector Count: 2

Antenna Count: 2

Coax Line Count: 16

TMA Count: 2

RRU Count: 2

Section 2 - Existing Template Images

----- This section is intentionally blank. -----

Section 3 - Proposed Template Images

----- This section is intentionally blank. -----

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 4B Outdoor

| | | | |
|----------------|---|--|--|
| Enclosure | 1 | | |
| Enclosure Type | RBS 6102 | | |
| Radio | <div><div>RUS01 B2 (x3) G1900</div><div>RUS01 B2 (x3) U1900 (DECOMMISSIONED)</div><div>RUS01 B4 (x6) L2100 U2100 (DECOMMISSIONED)</div></div> | | |
| Baseband | <div><div>BB 5216 L2100</div><div>DUG20 G1900</div><div>DUW30 U1900 (DECOMMISSIONED)</div><div>DUW30 U2100 (DECOMMISSIONED)</div></div> | | |

Proposed RAN Equipment

Template: 67E04B Outdoor

| | | |
|---------------------|--|--------------------------------|
| Enclosure | 1 | 2 |
| Enclosure Type | RBS 6102 | Ancillary Equipment (Ericsson) |
| Radio | <div><div>RUS01 B2 (x3) L1900 G1900</div><div>RUS01 B4 (x6) L2100</div></div> | |
| Baseband | <div><div>DUG20 G1900</div><div>RP 6651 N600 L600 L700 L1900 L2100</div></div> | |
| Transport System | CSR 7210 SAS-Mxp | |
| Hybrid Cable System | | Hybrid Trunk 6/24 4AWG 10m |

RAN Scope of Work:

Section 6 - A&L Equipment

Existing Template: 4B_2DP
Proposed Template:

| Sector 1 (Existing) view from behind | | |
|--------------------------------------|-------------------------------------|--------------------|
| Coverage Type | A - Outdoor Macro | |
| Antenna | 1 | |
| Antenna Model | RFS - APX16DWV-16DWV-S-E-A20 (Quad) | |
| Azimuth | 50 | |
| M. Tilt | 0 | |
| Height (ft) | 85 | |
| Ports | P1 | P2 |
| Active Tech | G1900 | L2100 |
| Dark Tech | | |
| Restricted Tech | | |
| Decomm. Tech | U1900 | U2100 |
| E. Tilt | 2 | 2 |
| Cables | 7/8" Coax - 90 ft. | 7/8" Coax - 90 ft. |
| TMA's | | |
| Diplexer / Combiners | | |
| Radio | | |
| Sector Equipment | | |
| Unconnected Equipment: | | |
| Scope of Work: | | |
| <div></div> | | |

Sector 1 (Proposed) view from behind

| | | | | |
|---|-----------------------------------|---------------------------------|--|--|
| Coverage Type | A - Outdoor Macro | | | |
| Antenna | 1 | | | |
| Antenna Model | RFS - APXVAALL24_43-U-NA20 (Octo) | | | |
| Azimuth | 50 | | | |
| M. Tilt | 0 | | | |
| Height (ft) | 85 | | | |
| Ports | P1 | P2 | P3 | P4 |
| Active Tech | L700 L600 N600 | L700 L600 N600 | G1900 L1900 | L2100 |
| Dark Tech | | | | |
| Restricted Tech | | | | |
| Decomm. Tech | | | | |
| E. Tilt | | | | |
| Cables | 7/8" Coax - 85 ft. (x8) | 7/8" Coax - 85 ft. (x8) | 7/8" Coax - 85 ft. (x8) | 7/8" Coax - 85 ft. (x8) |
| TMA | | | Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna) | Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna) |
| Diplexer / Combiners | | | | |
| Radio | Radio 4480 B71+B85 (At Cabinet) | Radio 4480 B71+B85 (At Cabinet) | | |
| Sector Equipment | | | | |
| Unconnected Equipment: | | | | |
| Scope of Work: | | | | |
| Add 2 BiasTs. No TMAs on site. Replace all hard lines. | | | | |
| *A dashed border indicates shared connected equipment. Any shared equipment, besides the first, is denoted with the SHARED keyword. | | | | |

| Sector 2 (Existing) view from behind | | |
|--------------------------------------|-------------------------------------|--------------------|
| Coverage Type | A - Outdoor Macro | |
| Antenna | 1 | |
| Antenna Model | RFS - APX16DWV-16DWV-S-E-A20 (Quad) | |
| Azimuth | 160 | |
| M. Tilt | 0 | |
| Height (ft) | 85 | |
| Ports | P1 | P2 |
| Active Tech | G1900 | L2100 |
| Dark Tech | | |
| Restricted Tech | | |
| Decomm. Tech | U1900 | U2100 |
| E. Tilt | 2 | 2 |
| Cables | 7/8" Coax - 90 ft. | 7/8" Coax - 90 ft. |
| TMA's | | |
| Diplexer / Combiners | | |
| Radio | | |
| Sector Equipment | | |
| Unconnected Equipment: | | |
| Scope of Work: | | |
| <div></div> | | |

| Sector 2 (Proposed) view from behind | | | | |
|---|-----------------------------------|---------------------------------|--|--|
| Coverage Type | A - Outdoor Macro | | | |
| Antenna | 1 | | | |
| Antenna Model | RFS - APXVAALL24_43-U-NA20 (Octo) | | | |
| Azimuth | 160 | | | |
| M. Tilt | | | | |
| Height (ft) | 85 | | | |
| Ports | P1 | P2 | P3 | P4 |
| Active Tech | L700 L600 N600 | L700 L600 N600 | L1900 G1900 | L2100 |
| Dark Tech | | | | |
| Restricted Tech | | | | |
| Decomm. Tech | | | | |
| E. Tilt | | | | |
| Cables | 7/8" Coax - 85 ft. (x8) | 7/8" Coax - 85 ft. (x8) | 7/8" Coax - 85 ft. (x8) | 7/8" Coax - 85 ft. (x8) |
| TMA | | | Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna) | Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna) |
| Diplexer / Combiners | | | | |
| Radio | Radio 4480 B71+B85 (At Cabinet) | Radio 4480 B71+B85 (At Cabinet) | | |
| Sector Equipment | | | | |
| Unconnected Equipment: | | | | |
| Scope of Work: | | | | |
| | | | | |
| *A dashed border indicates shared connected equipment. Any shared equipment, besides the first, is denoted with the SHARED keyword. | | | | |



Dual Slant Polarized Quad Band (8 Port) Antenna, 617-894/617-894/1695-2690/1695-2690MHz, 65deg, 16.2/16.1/18.9/18.7dBi, 2.4m (8ft), VET, RET, 2-12°/2-12°/2-12°/2-12°

FEATURES / BENEFITS

This antenna provides a 8 Port multi-band flexible platform for advanced use for flexible use in deployment scenarios for encompassing 600, 700, 800, AWS, PCS & BRS applications.

- ➔ 24 Inch Width For Easier Zoning
- ➔ Field Replaceable (Integrated) AISG RET platform for reduced environmental exposure and long lasting quality
- ➔ Superior elevation pattern performance across the entire electrical down tilt range
- ➔ Includes three AISG RET motors - Includes 0.5m AISG jumper for optional daisy chain of two high band RET motors for one single AISG point of high band tilt control.
- ➔ Low band arrays driven by a single RET motor



Technical Features

LOW BAND LEFT ARRAY (617-894 MHZ) [R1]

| Frequency Band | MHz | 617-698 | 698-806 | 806-894 |
|--|------|-------------|-------------|-------------|
| Gain Typical | dBi | 15.5 | 16.1 | 16.2 |
| Gain Over All Tilts | dBi | 15.2 +/- .3 | 15.6 +/- .5 | 15.8 +/- .4 |
| Horizontal Beamwidth @3dB | Deg | 65 +/- 3 | 64 +/- 2 | 62 +/- 3 |
| Vertical Beamwidth @3dB | Deg | 9.9 +/- .7 | 8.6 +/- .7 | 7.6 +/- .4 |
| Electrical Downtilt Range | Deg | 2 to 12 | | |
| Upper Side Lobe Suppression Peak to +20 | dB | 15 | 14 | 14 |
| Front-to-Back, at +/-30°, Copolar | dB | 25 | 25 | 29 |
| Cross Polar Discrimination (XPD) @ Boresight | dB | 18 | 18 | 17 |
| Cross Polar Discrimination (XPD) @ +/-60 | dB | 5 | 5 | 6 |
| 3rd Order PIM 2 x 43dBm | dBc | -153 | | |
| VSWR | - | 1.5:1 | | |
| Cross Polar Isolation | dB | 25 | | |
| Maximum Effective Power per Port | Watt | 400 | | |



Dual Slant Polarized Quad Band (8 Port) Antenna, 617-894/617-894/1695-2690/1695-2690MHz, 65deg, 16.2/16.1/18.9/18.7dBi, 2.4m (8ft), VET, RET, 2-12°/2-12°/2-12°/2-12°

HIGH BAND RIGHT ARRAY (1695-2690 MHZ) [Y2]

| | | | | | | |
|---|------|-------------|-------------|------------|-------------|-------------|
| Frequency Band | MHz | 1695-1880 | 1850-1990 | 1920-2200 | 2200-2490 | 2490-2690 |
| Gain Typical | dBi | 17.7 | 18.1 | 18.7 | 18.5 | 18.0 |
| Gain Over All Tilts | dBi | 17.1 +/- .6 | 17.6 +/- .5 | 18 +/- .7 | 17.9 +/- .6 | 17.4 +/- .6 |
| Horizontal Beamwidth @3dB | Deg | 67 +/- 5 | 64 +/- 5 | 65 +/- 5 | 62 +/- 7 | 60 +/- 9 |
| Vertical Beamwidth @3dB | Deg | 5.7 +/- .5 | 5.2 +/- .3 | 4.7 +/- .6 | 4.2 +/- .3 | 4.2 +/- .3 |
| Electrical Downtilt Range | Deg | 2 to 12 | | | | |
| Upper Side Lobe Suppression Peak to +20 | dB | 15 | 15 | 14 | 14 | 13 |
| Front-to-Back, at +/-30°, Copolar | dB | 27 | 28 | 26 | 23 | 21 |
| Cross Polar Discrimination (XPD) @ Boresight | dB | 21 | 17 | 14 | 16 | 18 |
| Cross Polar Discrimination (XPD) @ +/-60 | dB | 10 | 8 | 7 | 4 | 1 |
| 3rd Order PIM 2 x 43dBm | dBc | -153 | | | | |
| VSWR | - | 1.5:1 | | | | |
| Cross Polar Isolation | dB | 25 | | | | |
| Maximum Effective Power per Port | Watt | 300 | | | | |

ELECTRICAL SPECIFICATIONS

| | | |
|---------------------|-----|------|
| Impedance | Ohm | 50.0 |
| Polarization | Deg | ±45° |

MECHANICAL SPECIFICATIONS

| | | |
|--|---------|--|
| Dimensions - H x W x D | mm (in) | 2436 x 609 x 215 (95.9 x 24 x 8.5) |
| Weight (Antenna Only) | kg (lb) | 55.7 (122.8) |
| Weight (Mounting Hardware only) | kg (lb) | 12.3 (27.1) |
| Packing size- HxWxD | mm (in) | 2565 x 735 x 390 (101 x 28.9 x 15.4) |
| Shipping Weight | kg (lb) | 77.9 (171.7) |
| Connector type | | 8 x 4.3-10 female at bottom + 6 AISG connectors (3 male, 3 female) |
| Adjustment mechanism | | Integrated RET solution AISG compliant (Field Replaceable) + Manual Override + External Tilt Indicator |
| Radome Material / Color | | Fiber Glass / Light Grey RAL7035 |

TESTING AND ENVIRONMENTAL

| | | |
|-------------------------------------|---------|-----------------------------|
| Temperature Range | °C (°F) | -40 to 60 (-40 to 140) |
| Grounding type | | DC Grounded |
| Lightning protection | | IEC 61000-4-5 |
| Survival/Rated Wind Velocity | km/h | 240 (150) |
| Wind Load @Rated Wind Front | N | 1428.0 |
| Wind Load @Rated Wind Side | N | 434.0 |
| Wind Load @Rated Wind Rear | N | 1544.0 |
| Environmental | | ETSI 300-019-2-4 Class 4.1E |

ATSBT-TOP-MF-4G



Top Smart Bias Tee

- Reduces cable and site lease costs by eliminating the need for AISG home run cables
- AISG 1.1 and 2.0 compliant
- Operates at 10-30 Vdc
- Weatherproof AISG connectors
- Intuitive schematics simplify and ensure proper installation
- Enhanced lightning protection plus grounding stud for additional surge protection
- 7-16 DIN female connector (ANT)
- 7-16 DIN male connector (BTS)

Product Classification

Product Type RET bias tee

General Specifications

| | |
|----------------------------------|---------------------|
| AISG Input Connector | 8-pin DIN Female |
| Antenna Interface | 7-16 DIN Female |
| Antenna Interface Signal | RF dc Blocked |
| BTS Interface | 7-16 DIN Male |
| BTS Interface Signal | AISG data RF dc |
| Color | Silver |
| EU Certification | CE |
| Grounding Lug Thread Size | M8 |
| Smart Bias Tee Type | 10~30 V Top |

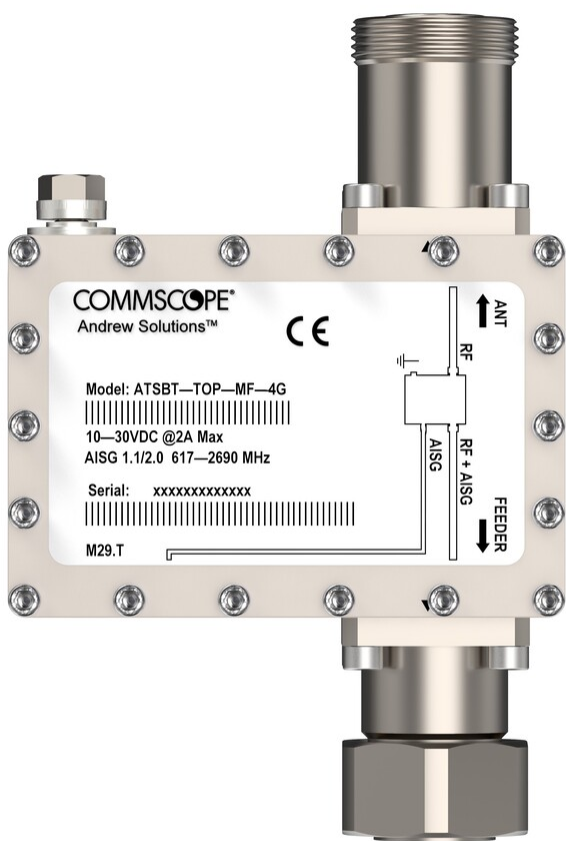
Dimensions

| | |
|---------------|------------------|
| Height | 143 mm 5.63 in |
| Width | 94 mm 3.701 in |
| Depth | 50 mm 1.969 in |

Electrical Specifications

| | |
|--|---|
| 3rd Order IMD | -158 dBc |
| 3rd Order IMD Test Method | Two +43 dBm carriers |
| Insertion Loss, typical | 0.1 dB |
| Electromagnetic Compatibility (EMC) | CFR 47 Part 15, Subpart B, Class B EN 55022, Class B ICES-003 Issue 4 CAN |

ATSBT-TOP-MF-4G



Material Specifications

Material Type Aluminum

Environmental Specifications

Operating Temperature -40 °C to +70 °C (-40 °F to +158 °F)

Ingress Protection Test Method IEC 60529:2001, IP66

Packaging and Weights

Weight, net 0.8 kg | 1.764 lb

Regulatory Compliance/Certifications

| Agency | Classification |
|--------|----------------|
|--------|----------------|

Exhibit E

Mount Analysis

A n a l y s i s R e p o r t

A n t e n n a M o u n t A n a l y s i s

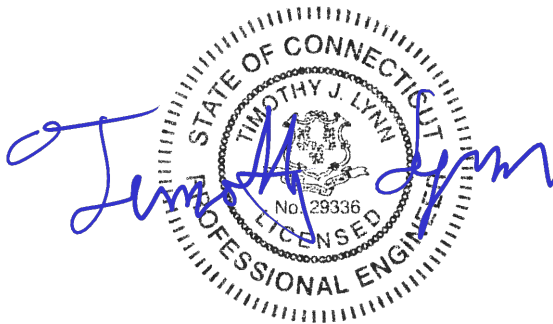
T - M o b i l e S i t e # : C T 1 1 1 0 4 A

*3 2 P e a c e a b l e S t r e e t
R e d d i n g , C T*

C e n t e k P r o j e c t N o . 2 2 0 0 6 . 0 2

D a t e : S e p t e m b e r 2 0 , 2 0 2 3

M a x S t r e s s R a t i o = 6 8 %



Prepared for:

**T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002**

Table of Contents

SECTION 1 – REPORT

- ANTENNA AND APPURTENANCE SUMMARY
- STRUCTURE LOADING
- CONCLUSION

SECTION 2 – CALCULATIONS

- WIND LOAD ON APPURTENANCES
- RISA3D OUTPUT REPORT

SECTION 3 – REFERENCE MATERIALS

- RF DATA SHEET, DATED 5/17/2023

September 20, 2023

Mr. Matthew Bandle
Northeast Site Solutions
1053 Farmington Ave, Unit G
Farmington, CT 06032

Re: *Structural Letter ~ Antenna Mount*
T-Mobile – Site Ref: CT11104A
32 Peaceable Street
Redding, CT 06896

Centek Project No. 22006.02

Dear Mr. Bandle,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the mount, consisting of three (3) pipe masts on a chain bracket to support the proposed/existing equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2021 International Building Code as modified by the 2022 Connecticut State Building Code (CTBC) including ASCE 7-16 and ANSI/TIA-222-H *Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures*.

The loads considered in this analysis consist of the following:

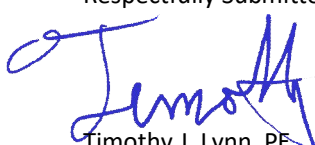
- **T-Mobile:**
Pipe Masts: Two (2) RFS APXVAALL24-43 panel antennas and two (2) ATSBT-TOP-FM-4G Bias Tees mounted on three (3) pipes with a RAD center elevation of 85 ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2021 International Building Code as modified by the 2022 Connecticut State Building Code considering a Ultimate design wind speed of 125 mph for Redding as required in Appendix P of the 2022 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the **subject antenna mount has sufficient capacity** to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:


Timothy J. Lynn, PE
Structural Engineer

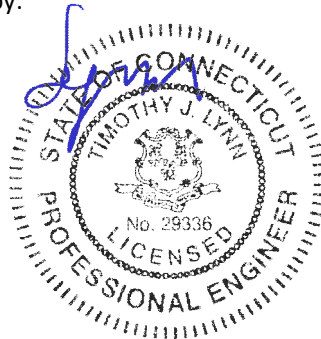


Exhibit F

Power Density/RF Emissions Report



FOX HILL TELECOM

Radio Frequency Emissions Analysis Report



Site ID: CT11104A

Redding / Rt 107
32 Peaceable Street - pole#3261 - line#1470
Redding, CT 06896

September 29, 2023

Fox Hill Telecom Project Number: 231000

| Site Compliance Summary | |
|--|-----------|
| Compliance Status: | COMPLIANT |
| Site total MPE% of FCC general population allowable limit: | 3.57 % |



September 29, 2023

T-MOBILE
Attn: RF Manager
35 Griffin Road South
Bloomfield, CT 06009

Emissions Analysis for Site: **CT11104A – Redding / Rt 107**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed upgrades to the T-MOBILE facility located at **32 Peaceable Street - pole#3261 - line#1470, Redding, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report the percentage of MPE rather than power density.



FOX HILL TELECOM

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **32 Peaceable Street - pole#3261 - line#1470, Redding, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4 \text{ ERP}}{R^2}$$

S = Power Density (in $\mu\text{W}/\text{cm}^2$)

ERP = Effective Radiated Power from antenna (watts)

R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.



For each T-Mobile sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

| Technology | Frequency Band | Channel Count | Transmit Power per Channel (W) |
|-------------|----------------|---------------|--------------------------------|
| LTE / 5G NR | 600 MHz | 2 | 60 |
| LTE | 700 MHz | 2 | 20 |
| LTE | 1900 MHz (PCS) | 4 | 40 |
| GSM | 1900 MHz (PCS) | 1 | 15 |
| LTE | 2100 MHz (AWS) | 4 | 40 |

Table 1: Channel Data Table



The following T-Mobile antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

| Sector | Antenna Number | Antenna Make / Model | Antenna Centerline (ft) |
|--------|----------------|--------------------------|-------------------------|
| A | 1 | RFS APXVAALL24 43-U-NA20 | 85 |
| B | 1 | RFS APXVAALL24 43-U-NA20 | 85 |
| C | 1 | RFS APXVAALL24 43-U-NA20 | 85 |

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.



RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

| Antenna ID | Antenna Make / Model | Frequency Bands | Antenna Gain (dBd) | Channel Count | Total TX Power (W) | ERP (W) | MPE % |
|-------------------------|-----------------------------|---|----------------------------------|---------------|--------------------|-----------|-------------|
| Antenna A1 | RFS APXVAALL24 43-U-NA20 | 600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS) | 13.65 / 13.85 / 16.65 / 16.95 | 10 | 375 | 13,824.99 | 3.57 |
| Sector A Composite MPE% | | | | | | | 3.57 |
| Antenna B1 | RFS APXVAALL24 43-U-NA20 | 600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS) | 13.65 / 13.85 / 16.65 / 16.95 | 10 | 375 | 13,824.99 | 3.57 |
| Sector B Composite MPE% | | | | | | | 3.57 |
| Antenna C1 | RFS APXVAALL24 43-U-NA20 | 600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS) | 13.65 / 13.85 / 16.65 / 16.95 | 10 | 375 | 13,824.99 | 3.57 |
| Sector C Composite MPE% | | | | | | | 3.57 |

Table 3: T-MOBILE Emissions Levels



The Following table (*table 4*) shows all additional identified carriers on site and their emissions contribution estimates, along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three T-Mobile sectors have the same configuration yielding the same results for all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite estimated MPE value for the site.

| Site Composite MPE% | |
|---------------------------------|---------------|
| Carrier | MPE% |
| T-MOBILE – Max Per Sector Value | 3.57 % |
| No Additional Carriers on Site | NA |
| Site Total MPE %: | 3.57 % |

Table 4: All Carrier MPE Contributions

| | |
|--------------------------|--------|
| T-MOBILE Sector A Total: | 3.57 % |
| T-MOBILE Sector B Total: | 3.57 % |
| T-MOBILE Sector C Total: | 3.57 % |
| | |
| Site Total: | 3.57 % |

Table 5: Site MPE Summary



Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three T-Mobile sectors have the same configuration yielding the same results for all three sectors.

| T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector) | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density ($\mu\text{W}/\text{cm}^2$) | Frequency (MHz) | Allowable MPE ($\mu\text{W}/\text{cm}^2$) | Calculated % MPE |
|---|---------------|----------------------------|------------------|---|--------------------|---|---------------------|
| T-Mobile 600 MHz LTE / 5G NR | 2 | 1,390.44 | 85 | 4.60 | 600 MHz | 400 | 1.15% |
| T-Mobile 700 MHz LTE | 2 | 485.32 | 85 | 2.29 | 700 MHz | 467 | 0.49% |
| T-Mobile 1900 MHz (PCS) LTE | 4 | 1,849.52 | 85 | 9.20 | 1900 MHz (PCS) | 1000 | 0.92% |
| T-Mobile 1900 MHz (PCS) GSM | 1 | 693.57 | 85 | 0.90 | 1900 MHz (PCS) | 1000 | 0.09% |
| T-Mobile 2100 MHz (AWS) UMTS | 1 | 1,981.80 | 85 | 9.20 | 2100 MHz (AWS) | 1000 | 0.92% |
| | | | | | | Total: | 3.57 % |

Table 6: T-MOBILE Maximum Sector MPE Power Values



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-MOBILE facility as well as the site composite emissions estimates value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

| T-MOBILE Sector | Power Density Value (%) |
|---|-------------------------|
| Sector A: | 3.57 % |
| Sector B: | 3.57 % |
| Sector C: | 3.57 % |
| T-MOBILE Maximum Total (per sector): | 3.57 % |
| | |
| Site Total: | 3.57 % |
| | |
| Site Compliance Status: | COMPLIANT |

The estimated composite MPE value for this site assuming all carriers present is **3.57 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite estimated values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
(978)660-3998

Exhibit G

Letter of Authorization



56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

September 21, 2023

Ms. Amanda Olsen
Northeast Site Solutions
420 Main St,
Sturbridge, MA 01566

RE: T-Mobile Antenna Site CT11104A, Peaceable Street, Redding CT, Eversource Structure 3261

Ms. Olsen:

Based on our reviews of the site drawings, the structural analysis and foundation review provided by Centek Engineering, along with a third-party review performed by Paul J. Ford and Company, we accept the proposed modification.

Please work with Christopher Gelinas of Eversource Real Estate to process the site lease amendment. Please do not hesitate to contact us with questions or concerns. Christopher can be contacted at 860-665-2008, and I can be contacted at (203) 623-0409.

Sincerely,




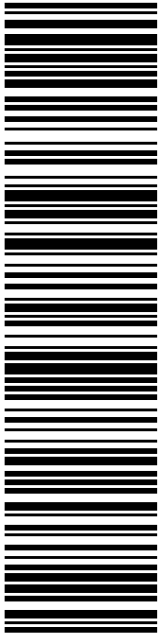
Masie Hartt

Masie Hartt
Transmission Line Engineering

Ref: 2023-0807 - CT11104A - Structural Analysis Rev6 (22006.02)
2023-0920 - CT11104A - Mount Analysis Rev0 (22006.02)
2023-0913_22006.02 CT11104A – Rev0 CDs (S&S)

Exhibit H

Recipient Mailings

| | | | |
|--|--|--|--|
|  UNITED STATES POSTAL SERVICE® | | Click-N-Ship® | |
|  | | <small>usps.com</small> US POSTAGE <small>Flat Rate Env</small> U.S. POSTAGE PAID <small>Click-N-Ship®</small> | |
| PRIORITY MAIL® | | <small>10/10/2023</small> Mailed from 01566 986746374171639 | |
| DEBORAH CHASE NORTHEAST SITE SOLUTIONS STE 1 420 MAIN ST STURBRIDGE MA 01566-1359 | | Expected Delivery Date: 10/12/23 Ref#: CT11104A 0003 | |
|  JULIA PEMBERTON REDDING - FIRST SELECTMAN PO BOX 1028 REDDING CTR CT 06875-1028 | | <div style="border: 1px solid black; padding: 5px; display: inline-block;">B001</div> | |
| USPS TRACKING # | | | |
|  | | | |
| 9405 5036 9930 0613 3055 08 | | | |
| Electronic Rate Approved #038555749 | | | |



Cut on dotted line.

Instructions

- Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
- Place your label so it does not wrap around the edge of the package.
- Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
- To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
- Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0613 3055 08

Trans. #: 595721301
 Print Date: 10/10/2023
 Ship Date: 10/10/2023
 Expected Delivery Date: 10/12/2023

Priority Mail® Postage: **\$9.65**
 Total: **\$9.65**

From: DEBORAH CHASE
 NORTHEAST SITE SOLUTIONS
 STE 1
 420 MAIN ST
 STURBRIDGE MA 01566-1359





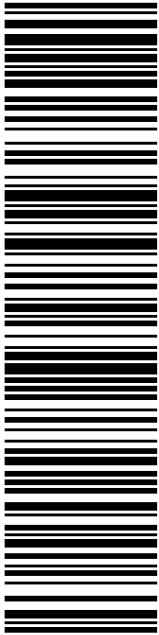
Ref#: CT11104A

To: JULIA PEMBERTON
 REDDING - FIRST SELECTMAN
 PO BOX 1028
 REDDING CTR CT 06875-1028

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!
 Check the status of your shipment on the USPS Tracking® page at usps.com

| | | | |
|--|--|---|--|
|  UNITED STATES POSTAL SERVICE® | | Click-N-Ship® | |
|  | | <small>usps.com</small> 9405 5036 9930 0613 3055 15 0096 5000 0020 6875 \$9.65 US POSTAGE Flat Rate Env  | |
| 10/10/2023 | | Mailed from 01566 986746374169918 | |
| PRIORITY MAIL® | | | |
| DEBORAH CHASE NORTHEAST SITE SOLUTIONS STE 1 420 MAIN ST STURBRIDGE MA 01566-1359 | | Expected Delivery Date: 10/12/23 Ref#: CT11104A 0003 | |
|  | | AIMEE PARDEE LAND USE DIRECTOR PO BOX 1028 REDDING CTR CT 06875-1028 | |
| USPS TRACKING # | | | |
|  | | | |
| 9405 5036 9930 0613 3055 15 | | | |
| Electronic Rate Approved #038555749 | | | |



Cut on dotted line.

Instructions

- Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
- Place your label so it does not wrap around the edge of the package.
- Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
- To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
- Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0613 3055 15

Trans. #: 595721301
 Print Date: 10/10/2023
 Ship Date: 10/10/2023
 Expected Delivery Date: 10/12/2023

Priority Mail® Postage: **\$9.65**
 Total: **\$9.65**

From: DEBORAH CHASE
 NORTHEAST SITE SOLUTIONS
 STE 1
 420 MAIN ST
 STURBRIDGE MA 01566-1359

Ref#: CT11104A




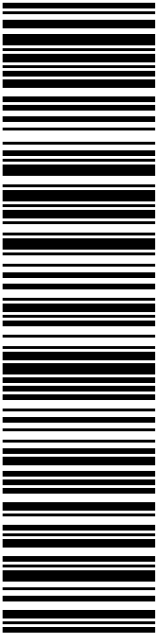

To: AIMEE PARDEE
 LAND USE DIRECTOR
 PO BOX 1028
 REDDING CTR CT 06875-1028

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



UNITED STATES POSTAL SERVICE®

Thank you for shipping with the United States Postal Service!
 Check the status of your shipment on the USPS Tracking® page at usps.com

| | | | |
|--|--|--|--|
|  UNITED STATES POSTAL SERVICE® | | Click-N-Ship® | |
|  | | <small>usps.com</small> US POSTAGE <small>Flat Rate Env</small> U.S. POSTAGE PAID <small>Click-N-Ship®</small> | |
| 9405 5036 9930 0613 3055 46 | | <small>10/10/2023</small> <small>Mailed from 01566</small> <small>986746374166952</small> | |
| PRIORITY MAIL® | | | |
| DEBORAH CHASE NORTHEAST SITE SOLUTIONS STE 1 420 MAIN ST STURBRIDGE MA 01566-1359 | | Expected Delivery Date: 10/12/23 Ref#: CT11104A 0003 | |
|  | | B003 | |
| CL&P D/B/A/ EVERSOURCE ENERGY PO BOX 270 REDDING CT 06896-0270 | | | |
| USPS TRACKING # | | | |
|  | | | |
| 9405 5036 9930 0613 3055 46 | | | |
| Electronic Rate Approved #038555749 | | | |
|  | | | |



Cut on dotted line.

Instructions

- Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
- Place your label so it does not wrap around the edge of the package.
- Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
- To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
- Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0613 3055 46

Trans. #: 595721301
Print Date: 10/10/2023
Ship Date: 10/10/2023
Expected Delivery Date: 10/12/2023

Priority Mail® Postage: **\$9.65**
Total: **\$9.65**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: CT11104A

To: CL&P D/B/A/ EVERSOURCE ENERGY
PO BOX 270
REDDING CT 06896-0270

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



LINCOLN MALL
560 LINCOLN ST STE 8
WORCESTER, MA 01605-1925
(800)275-8777

10/10/2023

12:08 PM

| Product | Qty | Unit Price | Price |
|---------|-----|------------|-------|
|---------|-----|------------|-------|

| | | | |
|--------------|---|--|--------|
| Prepaid Mail | 1 | | \$0.00 |
|--------------|---|--|--------|

Redding Center, CT 06875

Weight: 0 lb 14.40 oz

Acceptance Date:

Tue 10/10/2023

Tracking #:

9405 5036 9930 0613 3055 08

| | | | |
|--------------|---|--|--------|
| Prepaid Mail | 1 | | \$0.00 |
|--------------|---|--|--------|

Redding Center, CT 06875

Weight: 0 lb 14.50 oz

Acceptance Date:

Tue 10/10/2023

Tracking #:

9405 5036 9930 0613 3055 15

| | | | |
|--------------|---|--|--------|
| Prepaid Mail | 1 | | \$0.00 |
|--------------|---|--|--------|

Redding, CT 06896

Weight: 0 lb 14.40 oz

Acceptance Date:

Tue 10/10/2023

Tracking #:

9405 5036 9930 0613 3055 46

| | | | |
|--------------|--|--|--------|
| Grand Total: | | | \$0.00 |
|--------------|--|--|--------|