



Turnkey Wireless Development

December 17, 2024

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 (2) antennas at the 85-foot level of the existing 87-foot transmission tower Pole # 3261 – Line # 1470, 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 (2) existing antenna and replace with two (6) 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. This facility was approved by the Connecticut Siting Council Petition No. 456 on May 10, 2000. Please see attached.

T-Mobile Planned Tower Modifications:

Remove:

TMA

Diplexers

(2) APX16DWV Antenna

Remove and Replace:

(1) Antenna Mast 6" SCH. 80x28 (Remove) – (1) New 10" SCH. 80x28 Antenna Mast (Replace)

Tri-Sector Mount (Remove) – Site-Pro Standoff Mount (Replace)

Install New:

(6) Smart Bias-T

(16) Coax Lines

(3) RFS APXVAALL24 600/700/1900/2100 MHz Antenna

(3) RFS APXVLL19P 600/700/1900/2100 MHz Antenna



Existing to Remain:

(8) Coax Lines

Planned Ground Modifications:

Replace:

(1) S8000 Cabinet (Remove) – B160 Battery Cabinet (Replacement)

(1) 6102 Cabinet (Remove) - 6160 Cabinet (Replacement)

RRU on Unistrut (Remove) – (6) New RRU on exiting Unistrut

New:

Coax Ice Bridge

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, M.A., Zoning/Wetlands Enforcement Officer, 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).



Turnkey Wireless Development

Sincerely,

Denise Sabo

Denise Sabo

Mobile: 860-306-2326

Fax: 413-521-0558

Office: 4 Angelas Way, Burlington CT 06013

Email: denise@northeastsitesolutions.com

Attachments:

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

Aimee Pardee, M.A., Zoning/Wetlands Enforcement Officer
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 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 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

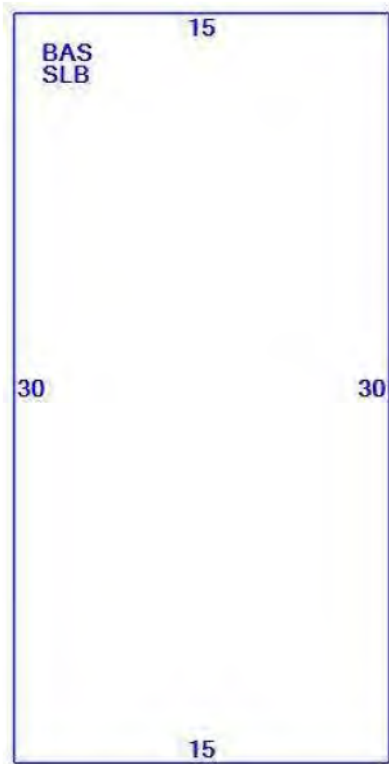
Building Attributes	
Field	Description
Style	Service Shop
Model	Ind/Comm
Grade	A
Stories	1
Occupancy	1,00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Hip
Roof Cover	Asphalt Shingl
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
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
% Conn 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

Land Use				Land Line Valuation	
Use Code	424			Size (Acres)	9,82
Description	Elec Substation			Frontage	
Zone	R-2			Depth	
Neighborhood	130			Assessed Value	\$180,360
Alt Land Appr	No			Appraised Value	\$349,000
Category					
Special Land					
Land Use Code	Land Use Description		Units	Unit Type	
800	Open Space		5	AC	

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

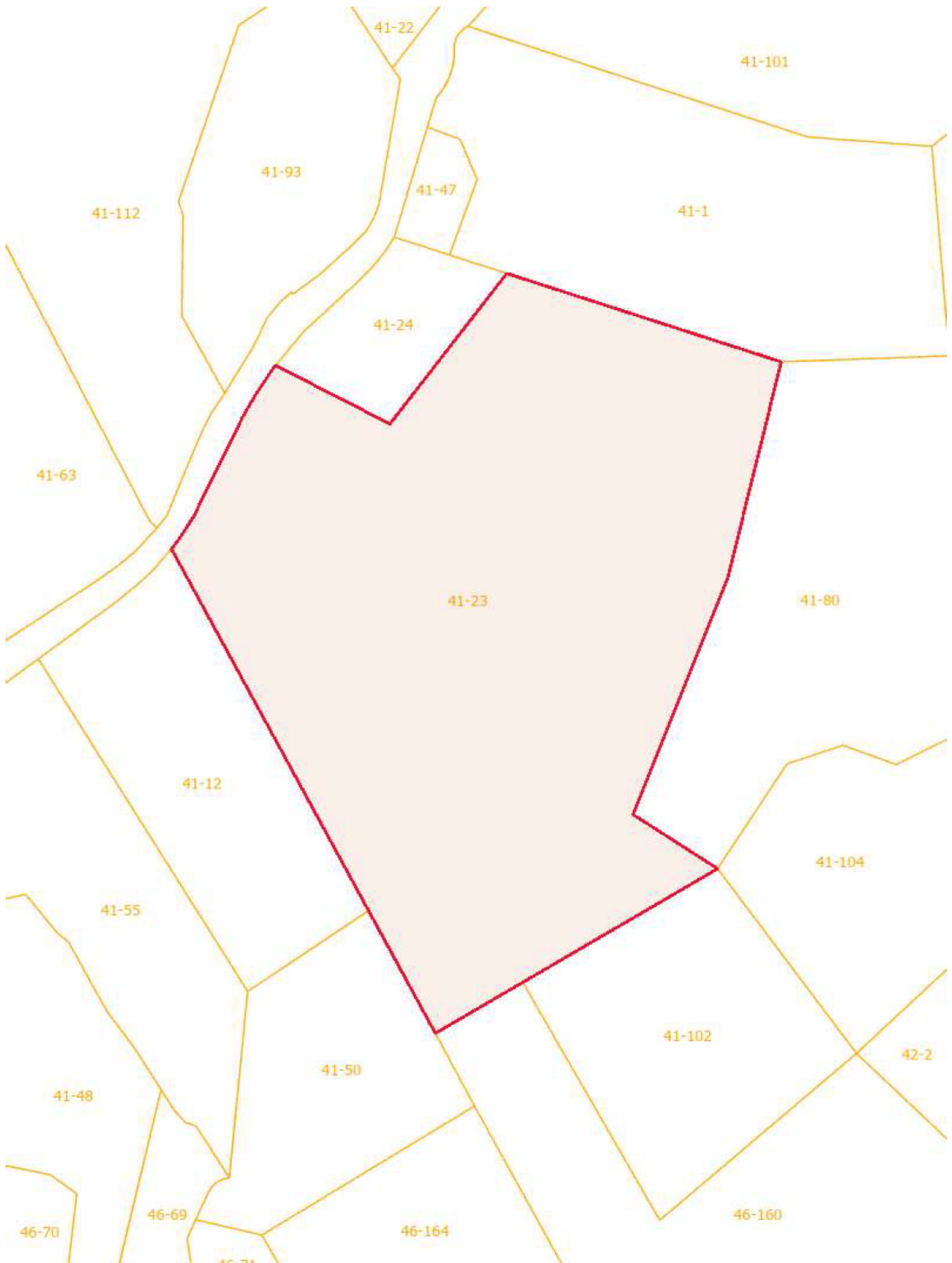


Exhibit C

Construction Drawings

REDDING, CT 06896

67E998E 6160

1. 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.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN ON 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.
4. 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.
5. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURE, 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS UNLAWFULLY 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.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE THE 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.
13. 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.
14. 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 CONDUTS 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
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 ALL 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 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.
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.

An aerial photograph of a residential area in San Diego. A white star is placed on a street labeled "PEACEABLE ST". The surrounding area includes houses, trees, and open fields. The street runs diagonally from the bottom left towards the top right. The star is located in the middle of the street, near a cluster of houses.

A detailed topographic map of the Branchville, South Carolina area. The map shows contour lines indicating elevation, with peaks reaching up to 500 feet. Several ponds are labeled: Candace Pond, Branchville Pond, Fox Pond, Green Pond, Hazen Pond, and Goodsell Hill. A callout box labeled 'PROJECT LOCATION' points to a specific spot on the map, near the intersection of a road and a stream. The map also shows the town of Branchville and the Branchville River.

NORTH

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

1. REMOVE EXISTING RFS: APX16DWV-16DWVS ANTENNA, TYP. (1) PER SECTOR, TOTAL OF (2)
2. REMOVE EXISTING DIPLEXERS
3. REMOVE EXISTING EQUIPMENT CABINETS, (TOTAL OF 2)
4. INSTALL B160 BATTERY CABINET
5. INSTALL 6160 EQUIPMENT CABINET
6. INSTALL (16) 7/8" COAX CABLES
7. REMOVE EXISTING CABLE TRAY AND INSTALL COAX ICE-BRIDGE AS SHOWN HEREIN
8. INSTALL AMPHENOL: APXVAALL24M-U-J20 ANTENNA, TYP. (1) PER SECTOR, TOTAL OF (3) MOUNTED TO NEW 8" PIPE MAST
9. INSTALL RFS: APXVLL19P-43-C-A20 ANTENNA, TYP. (1) PER SECTOR, TOTAL OF (3) MOUNTED TO NEW 8" PIPE MAST
10. INSTALL ERICSSON: RADIO 4480 B71+BB5, TYP. (1) PER SECTOR, TOTAL OF (3) AT GRADE
11. INSTALL ERICSSON: RADIO 4460 B25+B86, TYP. (1) PER SECTOR, TOTAL OF (3) AT GRADE
12. INSTALL COMMSCOPE: SMART BIAST_ATSBT-TOP-MF-4G, TYP. (2) PER SECTOR, TOTAL OF (6) AT TOWER
13. INSTALL (2) COLLAR MOUNT ANTENNA FRAMES W/ STANDOFFS (SITE PRO P/N: UDS-NP)
14. REMOVE EXISTING ANTENNA MAST AND CONNECTIONS AND INSTALL NEW ANTENNA MAST EXTENSION AS SHOW HEREIN

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.

1. REMOVE EXISTING ANTENNA MAST AND INSTALL NEW ANTENNA MAST AND NEW ANTENNA MOUNTS TO EXISTING STRUCTURE.

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

CARLO F. CENTORE, PE
(203) 488-0580 EXT. 122

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

SITE COORDINATES AND GROUND ELEVATION
REFERENCED FROM GOOGLE EARTH.

SHEET. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	4
N-1	NOTES AND SPECIFICATIONS, ANT. SCHEDULE	4
N-2	SPECIAL INSPECTIONS AND SPECIFICATIONS	4
C-1	COMPOUND PLAN, EQUIPMENT PLANS, AND ELEVATION	4
C-2	ANTENNA PLANS AND ELEVATIONS	4
C-3	TYPICAL EQUIPMENT DETAILS	4
S-1	STRUCTURAL DETAILS	4
E-1	TYPICAL ELECTRICAL DETAILS	4
E-2	ELECTRICAL SPECIFICATIONS	4

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
4	12/10/24	SFG	TJR	CONSTRUCTION DRAWINGS – REVISED PER EVERSOURCE COMMENTS
3	10/22/24	SFG	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
2	10/17/24	SFG	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	05/31/24	ASC	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEWLY ISSUED RFDS
0	09/12/23	ASC	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL



Mobile.



centered on Solutions™

03] 488-0580
03] 488-8587 Fax
3-2 North Branford Road
anford, CT 06405
www.CentexEng.com

SITE NAME: REDDING / RT 107
SITE ID: CTH104A
ACCESSIBLE ST - POLE#3261 - LINE#1470
REDDING, CT 06896

TE: 08/02/23

SALE: AS NOTED

3 NO. 24066.02

TITLE SHEET

T-1

SHEET NO. 1 OF 10

DESIGN BASIS:

1. **DESIGN CRITERIA:**

- ## SITE NOTES

- ### GENERAL NOTES

- ## STRUCTURAL STEEL

- ## ANTENNA/APPURTENANCE SCHEDULE

ANTENNA/APPURTENANCE SCHEDULE								
SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Ɔ HEIGHT	AZIMUTH	(E/P) RRU (QTY) – AT GRADE	(E/P) TMA (QTY) – AT TOWER	(QTY) HYBRID/COAX
A1	PROPOSED	AMPHENOL (APXVAALL24M–U–J20)	95.7 x 19.7 x 8.5	85'	50°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE – SMART BIAST–ATSBT–TOP–MF–4G (1)	(8) EXISTING 7/8" COAX CABLE
A2	PROPOSED	RFS (APXVLL19P_43–U_A20)	75.8 x 11.3 x 4.6	85'	50°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE – SMART BIAST–ATSBT–TOP–MF–4G (1)	
B1	PROPOSED	AMPHENOL (APXVAALL24M–U–J20)	95.7 x 19.7 x 8.5	85'	160°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE – SMART BIAST–ATSBT–TOP–MF–4G (1)	(16) PROPOSED 7/8" COAX CABLE
B2	PROPOSED	RFS (APXVLL19P_43–U_A20)	75.8 x 11.3 x 4.6	85'	160°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE – SMART BIAST–ATSBT–TOP–MF–4G (1)	
C1	PROPOSED	AMPHENOL (APXVAALL24M–U–J20)	95.7 x 19.7 x 8.5	85'	260°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE – SMART BIAST–ATSBT–TOP–MF–4G (1)	
C2	PROPOSED	RFS (APXVLL19P_43–U_A20)	75.8 x 11.3 x 4.6	85'	260°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE – SMART BIAST–ATSBT–TOP–MF–4G (1)	

[illegible]

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT
 PROFESSIONAL ENGINEER
 NO. 16894
 J. F. CORDRE

...T-Mobile-
NSS
NORTHEAST
STUDENTS
Twenty Weekly Deviations

CENTEK engineering
Centered on Solutions™

203/ 488-0580
203/ 488-5587 Fax
53-2 North Branford Road
Branford, CT 06405

www.CentekEng.com

T-MOBILE NORTHEAST LLC
SITE NAME: REDDING / RT 107 SITE ID: CTH104A 332 PEACEABLE ST - POLE#3261 - LINE#1470 REDDING, CT 06896

DATE:	08/02/23
SCALE:	AS NOTED
JOB NO.	24066.02

NOTES AND SPECIFICATIONS, ANT. SCHEDULE

N-1

SHEET NO. 2 OF 10

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. MPII – MANUFACTURER'S PRINTED INSTALLATION GUIDELINES				

GENERAL

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.

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 ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING 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

PROFESSIONAL ENGINEER SEAL

T-MOBILE NORTHEAST LLC

SITE NAME: REDDING / RT 107
SITE ID: CTH104A
32 PEACEABLE ST - POLE#3261 - LINE#1470
REDDING, CT 06896

DATE: 08/02/23

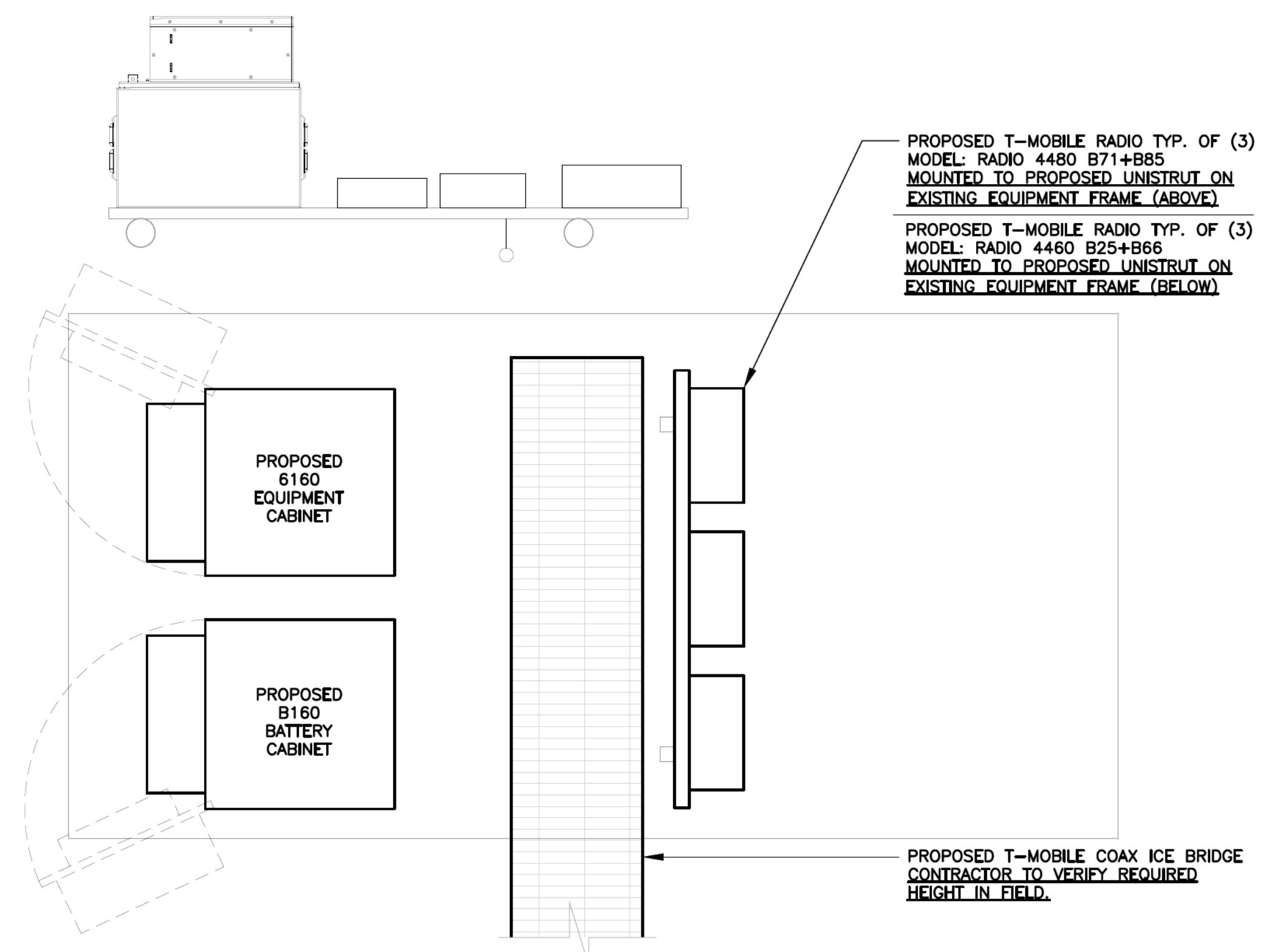
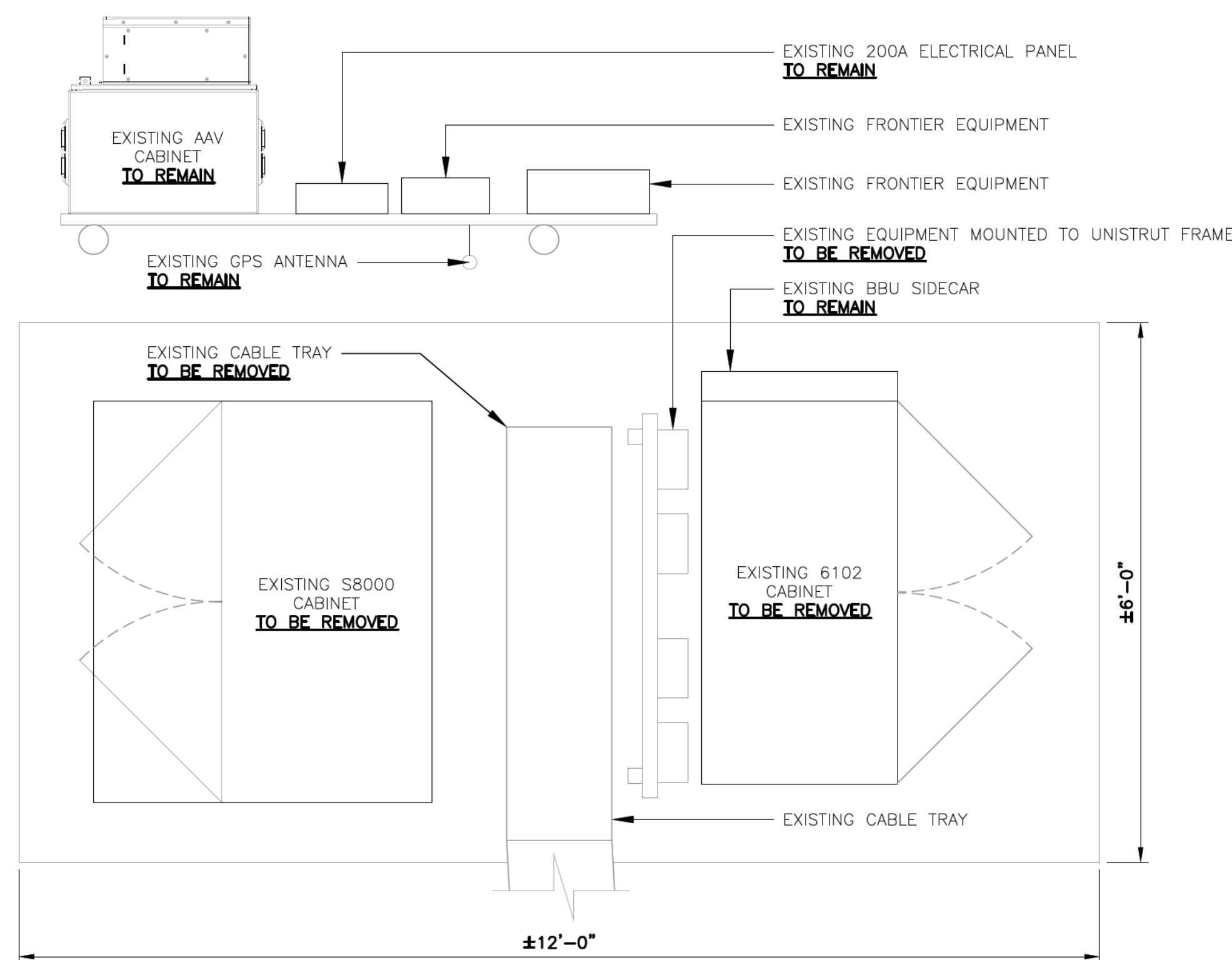
SCALE: AS NOTED

JOB NO. 24066.02

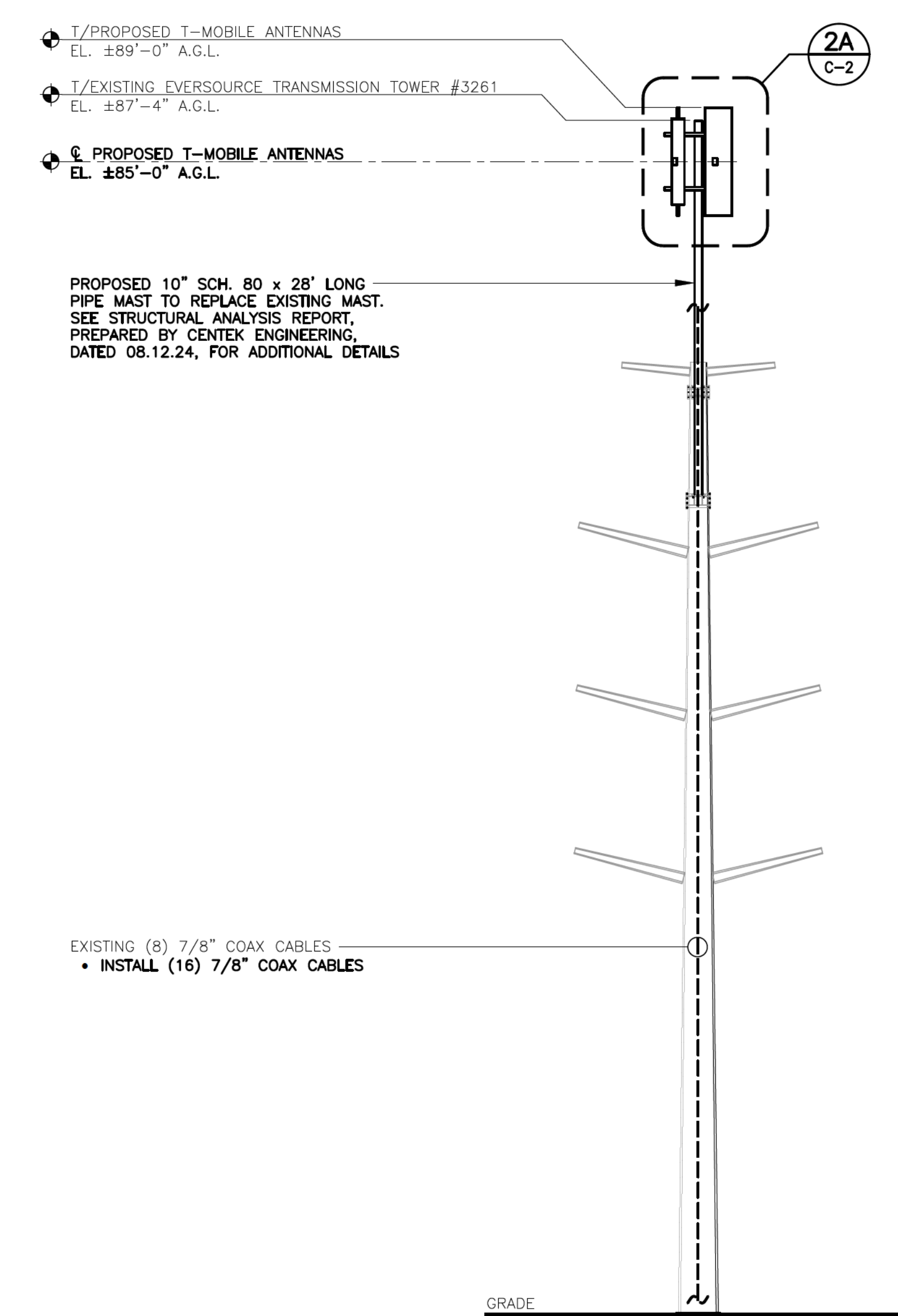
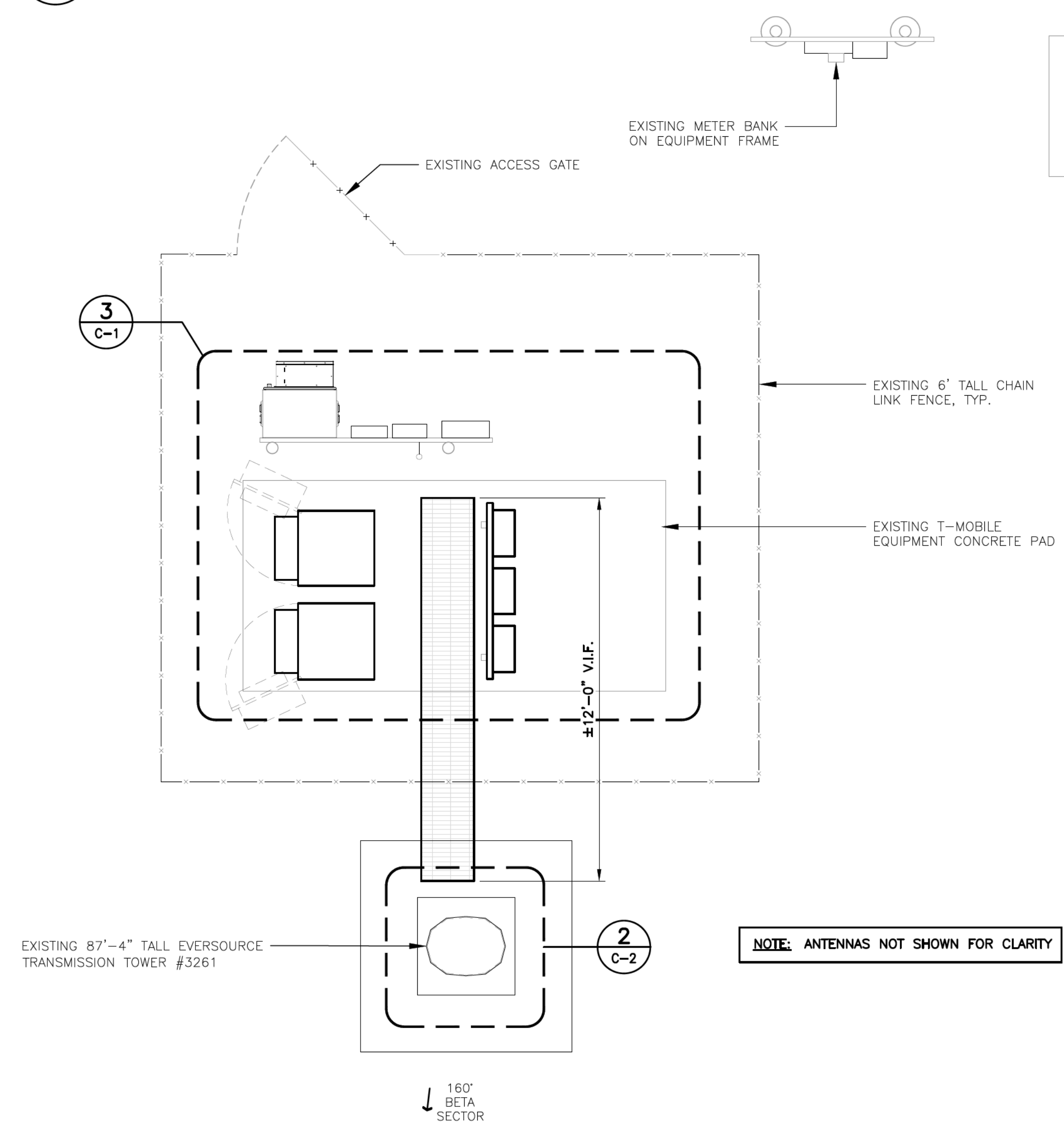
SPECIAL INSPECTIONS AND SPECIFICATIONS

N-2

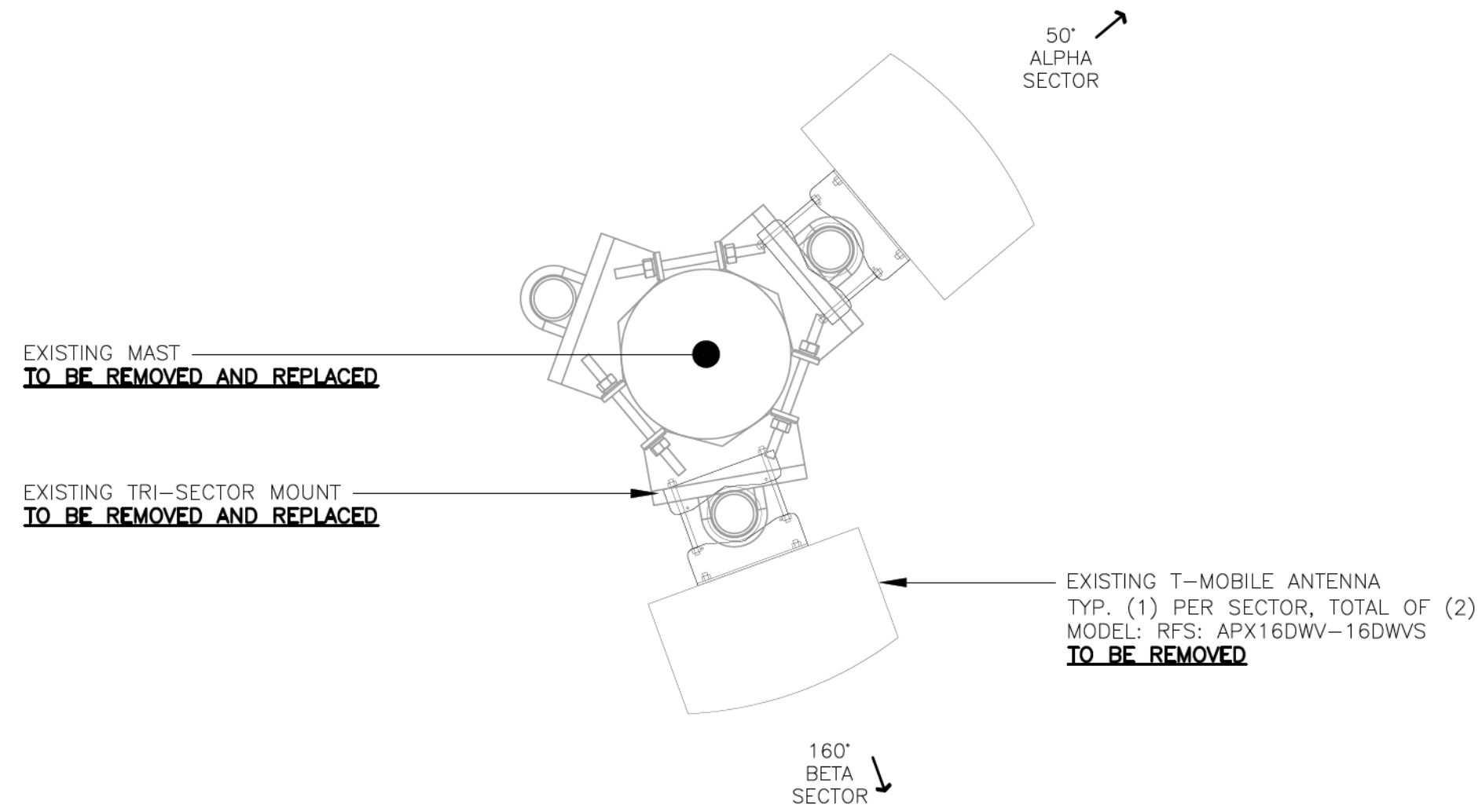
SHEET NO. 3 OF 10



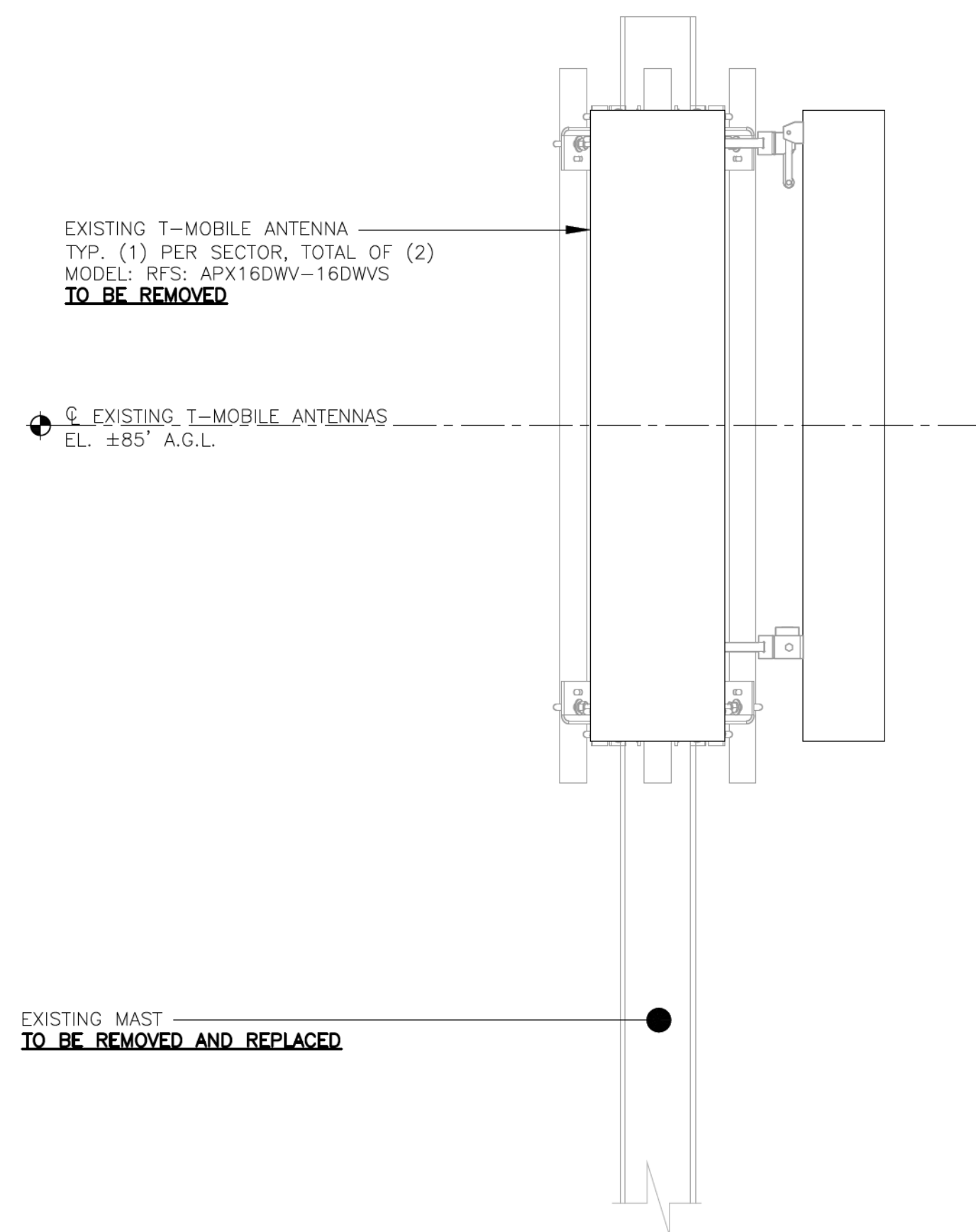
<p align="center">STRUCTURAL COMPLIANCE</p>
<p><u>TOWER AND TOWER FOUNDATION</u></p> <p>A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.</p> <p>REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 24066.02) DATED 08/12/24 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.</p>
<p>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.</p>



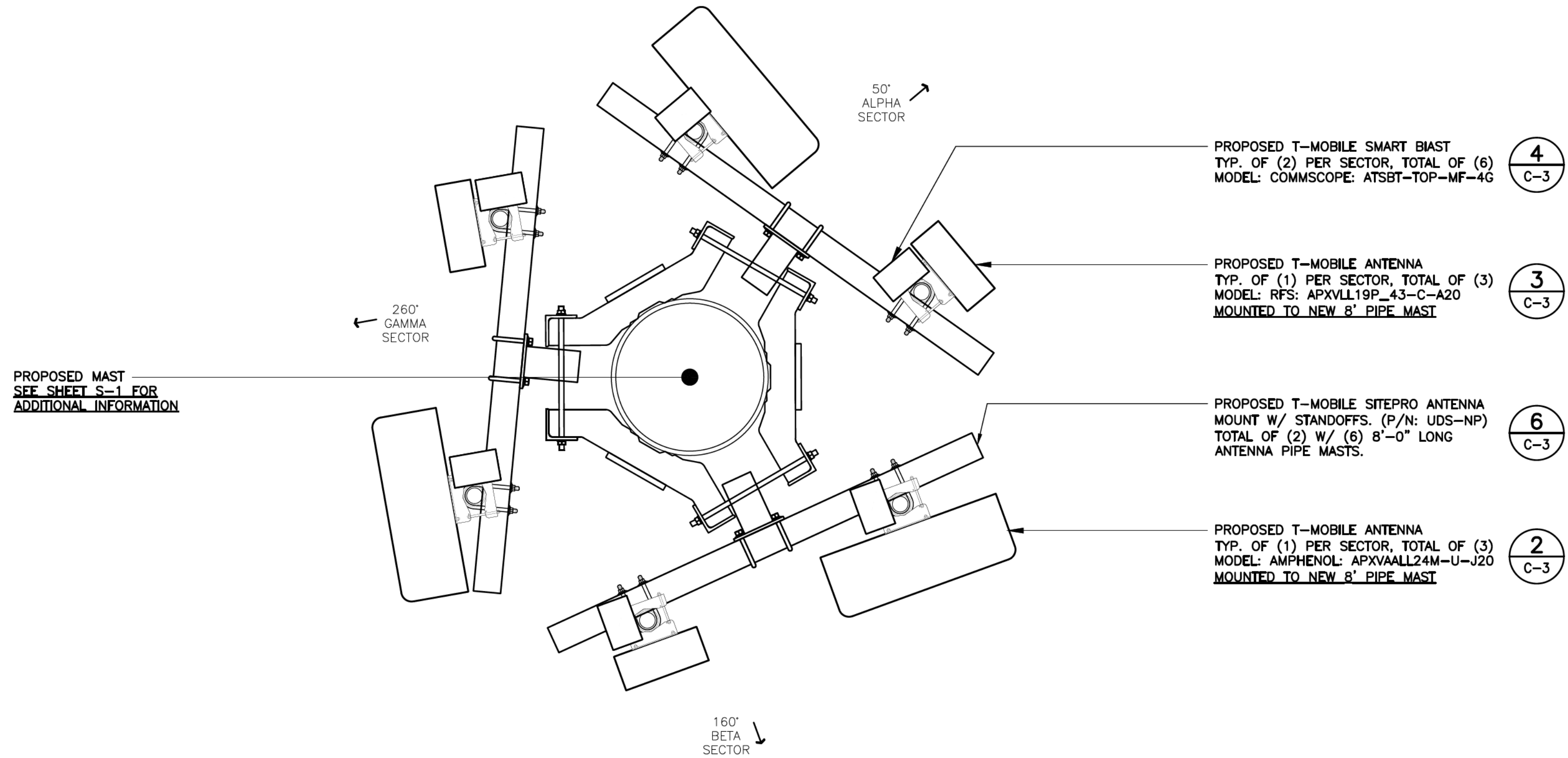
T-MOBILE NORTHEAST LLC					
SITE NAME: REDDING / RT 107 SITE ID: CTTH04A 32 PEACEABLE ST - POLE#3261 - LINE#470 REDDING, CT 06896					
DATE:		08/02/23			
SCALE:		AS NOTED			
JOB NO.		24066.02			
COMPOUND PLAN, EQUIPMENT PLANS, AND ELEVATION					
C-1					
SHEET NO. 4 OF 16					



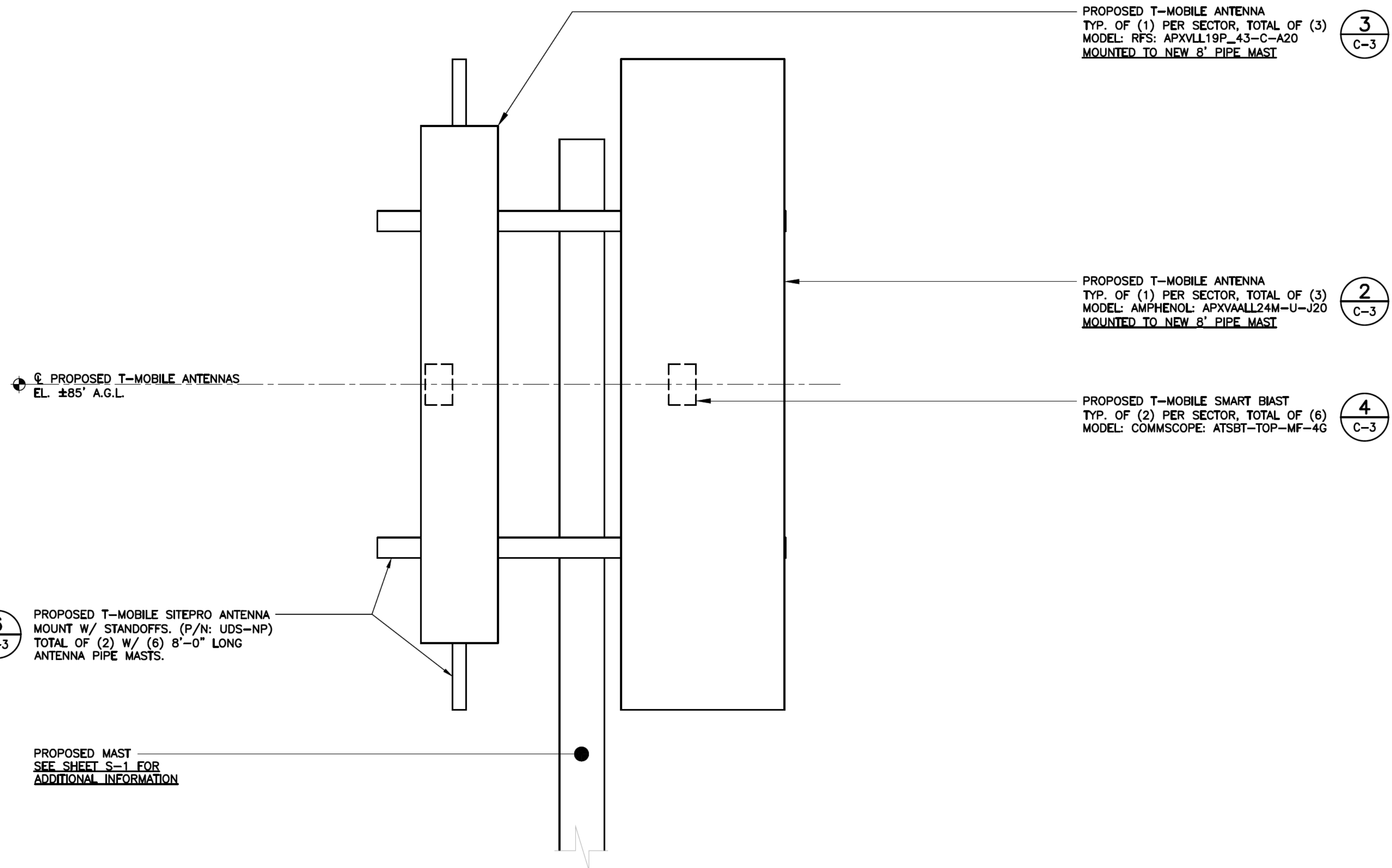
1 ANTENNA PLAN - EXISTING
C-2 SCALE: 1 1/2" = 1' TRUE NORTH



1A ANTENNA ELEVATION - EXISTING
C-2 SCALE: 1" = 1'

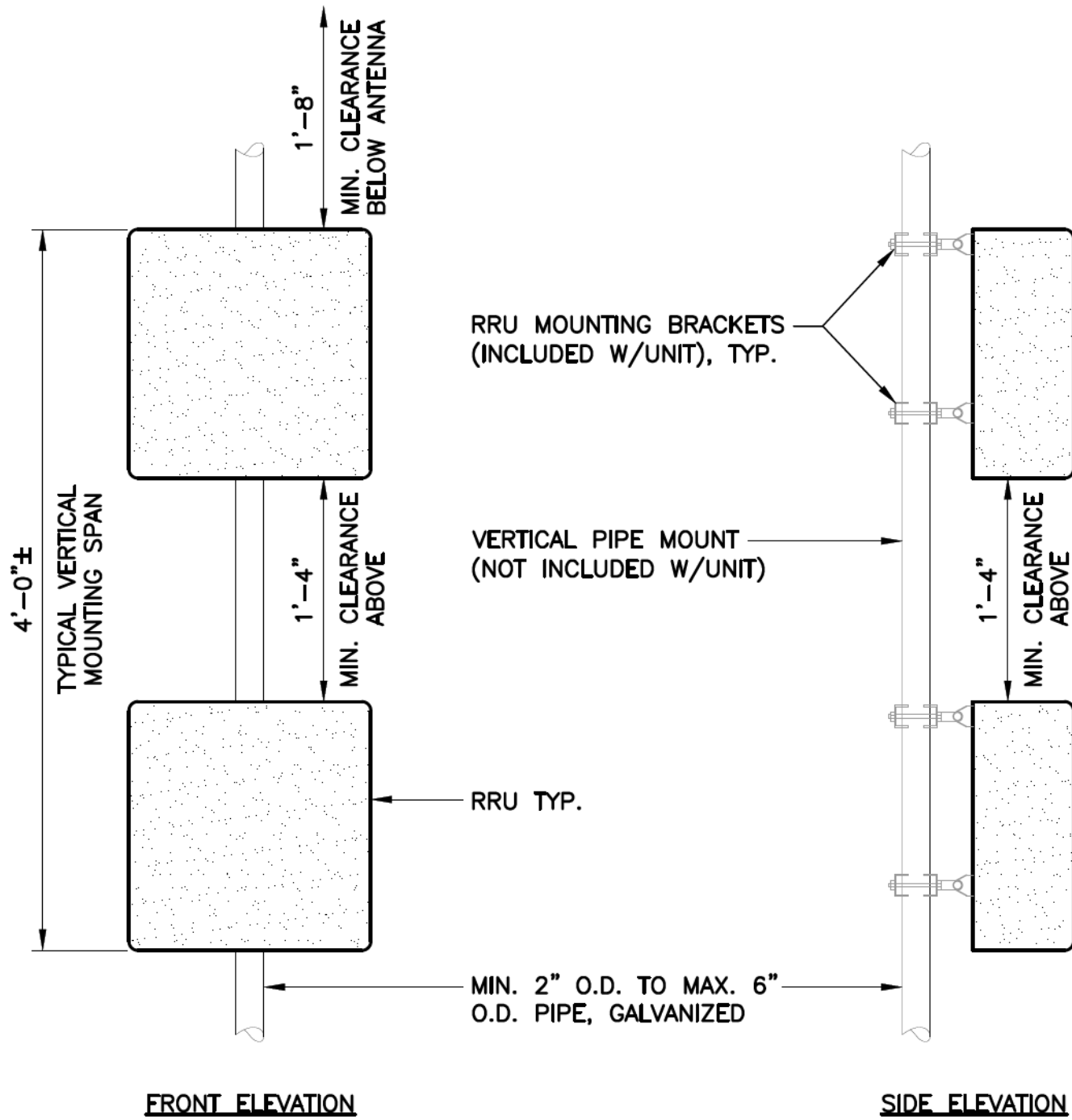


2 ANTENNA PLAN - PROPOSED
C-2 SCALE: 1" = 1' TRUE NORTH



2A ANTENNA ELEVATION - PROPOSED
C-2 SCALE: 1" = 1'

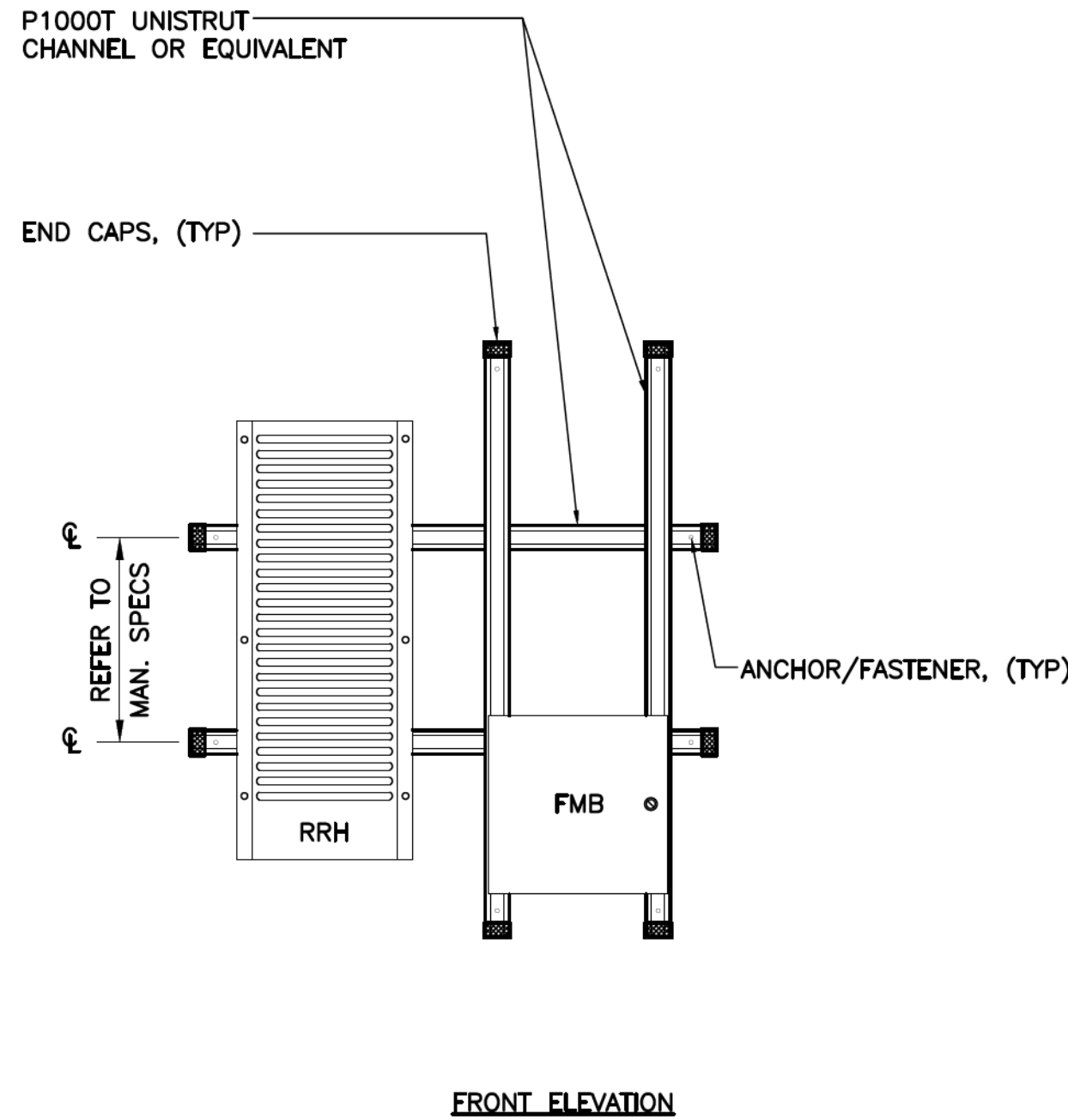
T-MOBILE NORTHEAST LLC		SITE NAME: REDDING / RT 107 SITE ID: CTH104A 32 PEACEABLE ST - POLE#3261 - LINE#1470 REDDING, CT 06896	
DATE: 08/02/23		SHEET NO. 5 OF 10	
SCALE: AS NOTED		ANTENNA PLANS AND ELEVATIONS	
JOB NO. 24066.02		C-2	
PROFESSIONAL ENGINEER SEAL		CONSTRUCTION DRAWINGS - REVISED PER EVERSOURCE COMMENTS CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS CONSTRUCTION DRAWINGS - REVISED PER NEWLY ISSUED RFDS CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION	
CERK engineering CentelTel Solutions™ [203] 488-0580 [203] 488-8587 Fax 432 North Branford Road Branford, CT 06465 www.CentelEng.com		T-MOBILE NORTH EAST T-Mobile NORTH EAST T-Mobile NORTH EAST	
REV. DATE DRAWN BY CHECKED BY DESCRIPTION		TJR TJR TJR TJR TJR	
4 12/10/24 SFG		CONSTRUCTION DRAWINGS - REVISED PER EVERSOURCE COMMENTS	
3 10/29/24 SFG		CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS	
2 10/17/24 SFG		CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS	
1 05/31/24 ASC		CONSTRUCTION DRAWINGS - REVISED PER NEWLY ISSUED RFDS	
0 09/12/23		CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION	



NOTES: (PIPE MOUNTING)

1. T-MOBILE SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1
C-3
TYPICAL RRU MOUNTING DETAILS
SCALE: NOT TO SCALE



NOTES: (UNISTRUT MOUNTING)

1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT ($\pm 16^{\circ}$ o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"Ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.



APXVAALL24M-U-J20

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: AMPHENOL MODEL: APXVAALL24M-U-J20	95.7"L x 19.7"W x 8.5"D	±92.4 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.		

2
C-3
PROPOSED ANTENNA DETAIL
SCALE: NOT TO SCALE



APXVLL19 43-C-A20

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: APXVLL19P_43-C-A20	75.8"L x 11.3"W x 4.6"D	±50.4 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.		

3
C-3
PROPOSED ANTENNA DETAIL
SCALE: NOT TO SCALE



ANDREW SMART BIAST		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: COMMScope MODEL: ATSBT-TOP-MF-4G	5.63"L x 3.7"W x 2"D	±1.7 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.		

4
C-3
PROPOSED BIAST DETAIL
SCALE: NOT TO SCALE



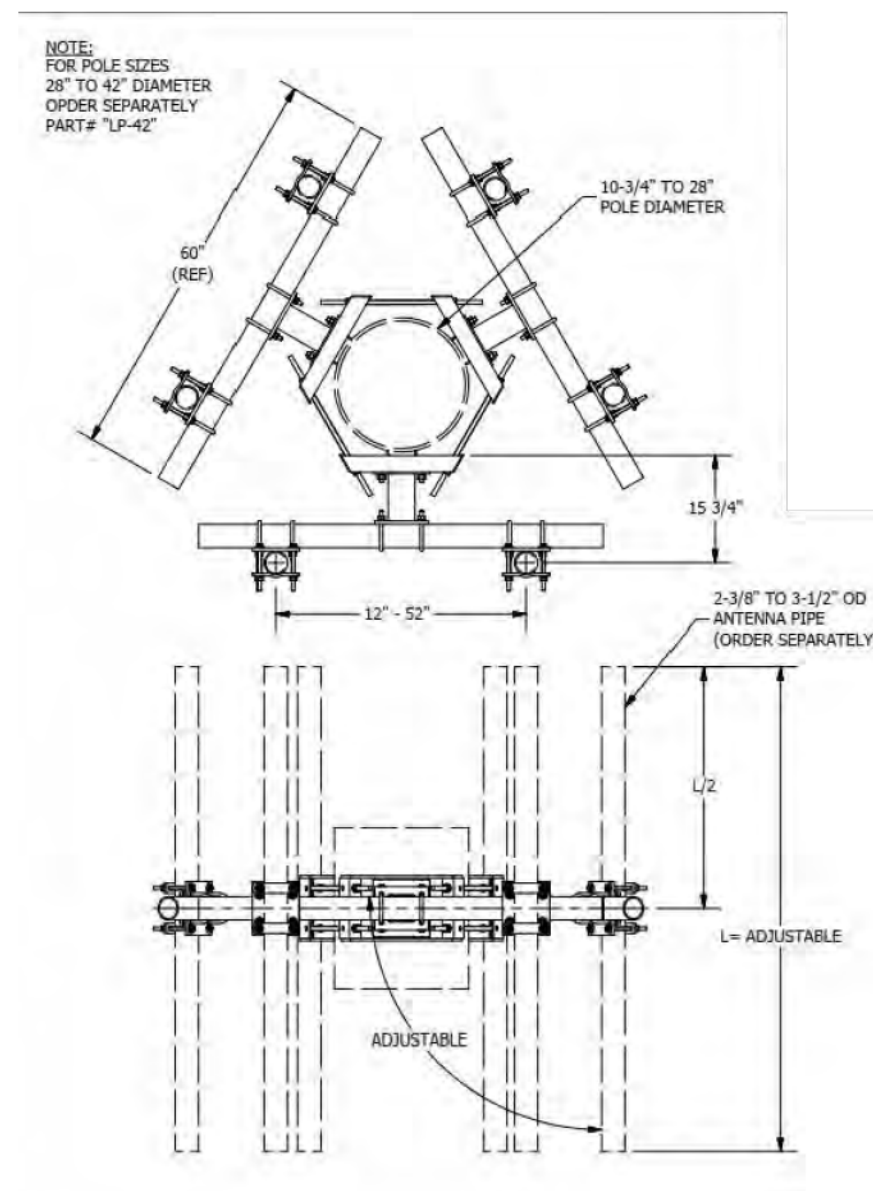
RADIO 4460 B25+B66



RADIO 4480 B71+B85

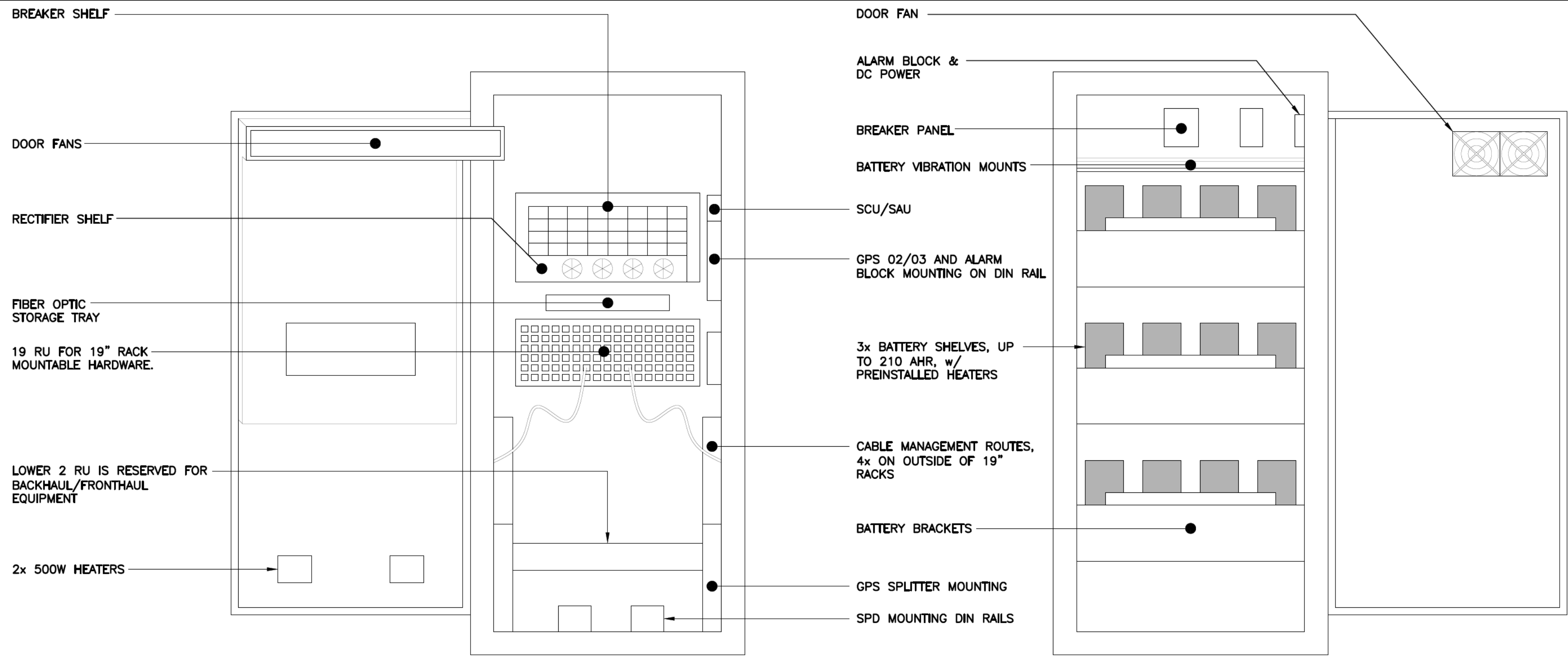
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4460 B25+B66	19.6"L x 15.7"W x 12.1"D	±109 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
MAKE: ERICSSON MODEL: RADIO 4480 B71+B85	21.8"L x 15.7"W x 7.5"D	±84 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.			

5
C-3
PROPOSED RRU DETAIL
SCALE: NOT TO SCALE



SITEPRO P/N: UDS-NP
(TOTAL OF 2)

6
C-3
PROPOSED ANTENNA MOUNT DETAIL
SCALE: NOT TO SCALE

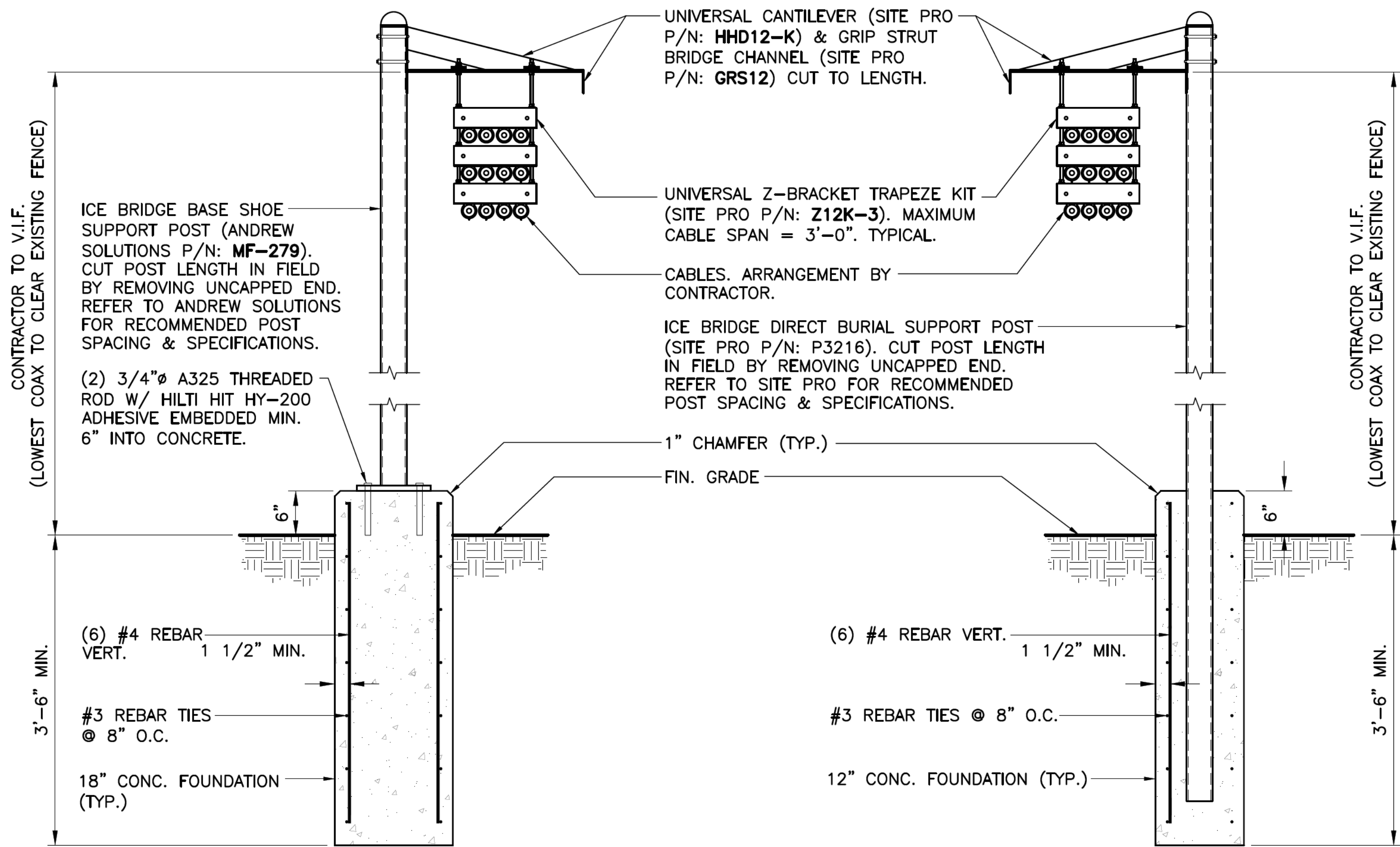


EQUIPMENT CABINET			
EQUIPMENT		DIMENSIONS	WEIGHT
MAKE:	ERICSSON	62.0"H x 26.0"W x 26.0"D	±1200 LBS
MODEL:	ENCLOSURE 6160 CABINET		

1 ENCLOSURE 6160 CABINET DETAIL
C-4 SCALE: NOT TO SCALE

EQUIPMENT CABINET		
EQUIPMENT		WEIGHT
MAKE:	ERICSSON	62.0"H x 26.0"W x 26.0"D
MODEL:	BATTERY B160 CABINET	

2 BATTERY B160 CABINET DETAIL
C-4 SCALE: NOT TO SCALE



BASE SHOE OPTION

DIRECT BURIAL OPTION

3 TYPICAL ICE-BRIDGE DETAIL
C-4 SCALE: NOT TO SCALE

T-MOBILE NORTHEAST LLC		DATE: 08/02/23				
SITE NAME: REDDING / RT 107		SCALE: AS NOTED				
SITE ID: CT1104A		JOB NO. 24066.02				
32 PEACEABLE ST - POLE#3261 - LINE#470		TYPICAL EQUIPMENT DETAILS				
REDDING, CT 06896		C-4				
SHEET NO. 7 OF 10		REV. DATE DRAWN BY CHECKED BY DESCRIPTION				
		4	12/10/24	SFG	TJR	CONSTRUCTION DRAWINGS - REVISED PER EVERSOURCE COMMENTS
		3	10/25/24	SFG	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
		2	10/17/24	SFG	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
		1	05/31/24	ASC	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEWLY ISSUED RFDS
		0	09/12/23	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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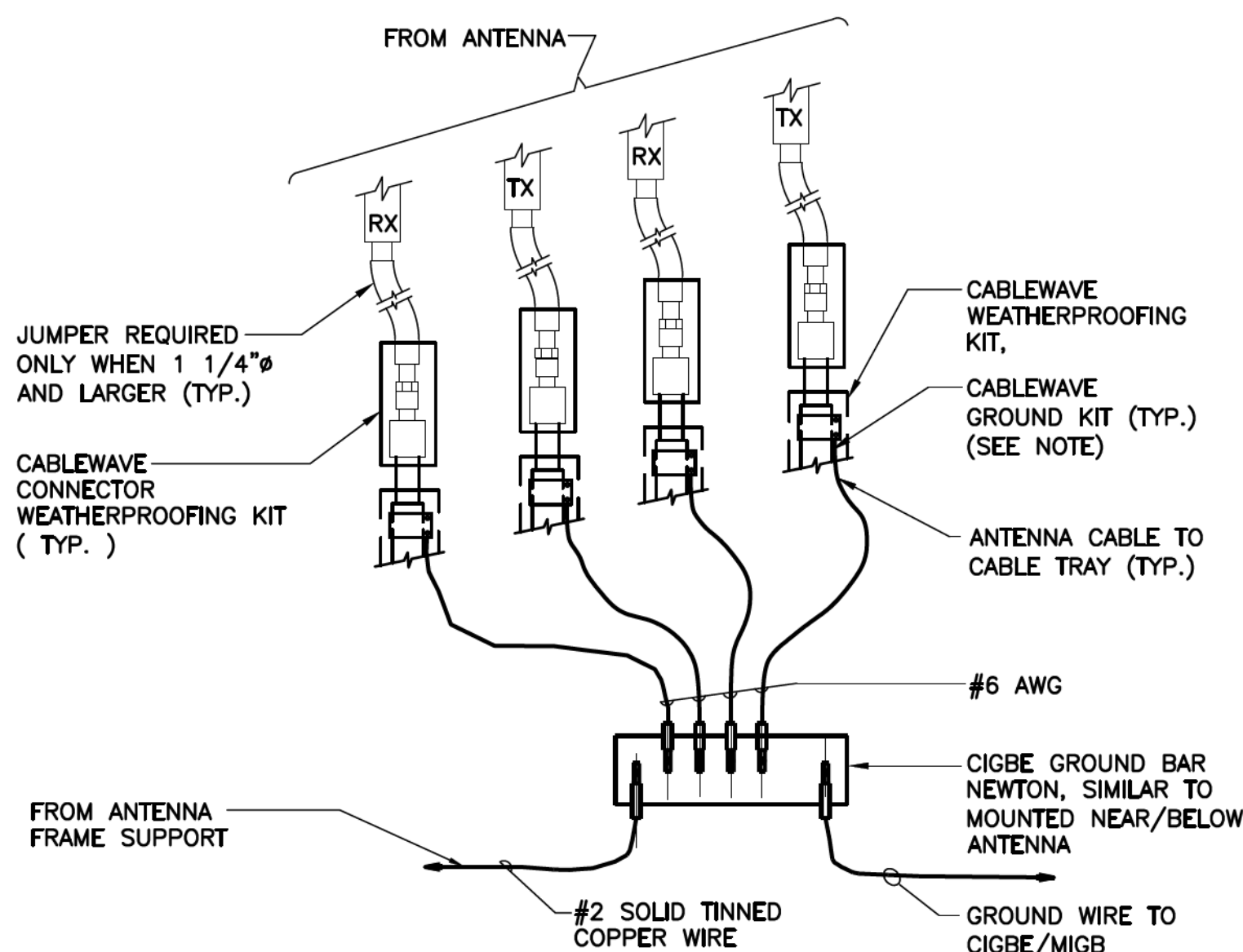
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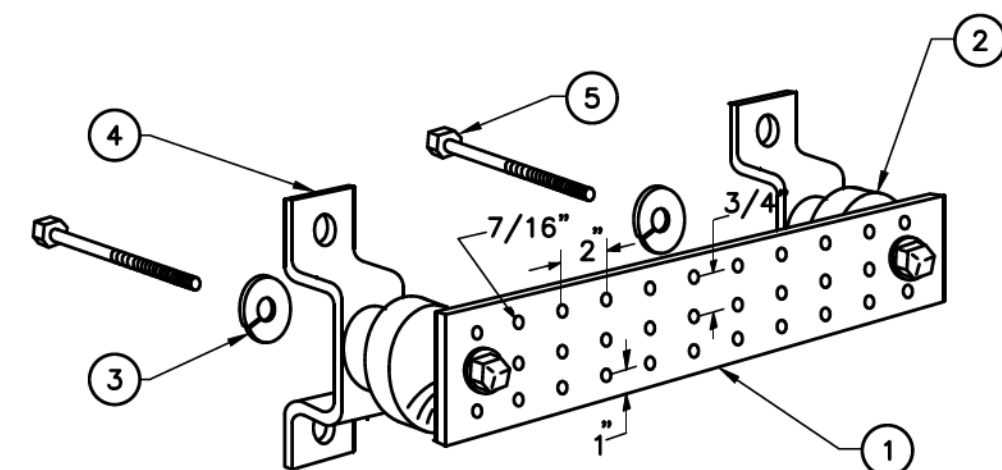
NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

T-MOBILE NORTHEAST LLC SITE NAME: REDDING / RT 107 SITE ID: CTH104A 32 PEACEABLE ST - POLE#3261 - LINE#1470 REDDING, CT 06896		 <p>Centred on solutions™</p> <p>(203) 688-0580 (203) 688-5897 Fax 10000 Fox Road Branford, CT 06405</p> <p>www.CenterEng.com</p>									
DATE:	08/02/23										
SCALE:	AS NOTED										
JOB NO.	24066.02										
TYPICAL ELECTRICAL DETAILS											
S-1											
SHEET NO. 8 OF 10											



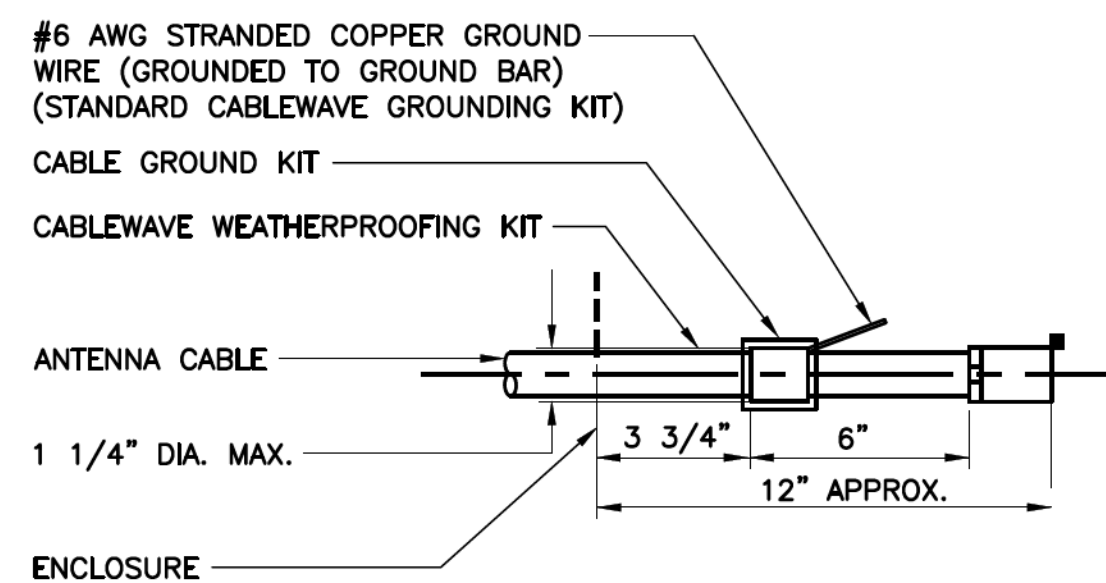
NOTES:

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



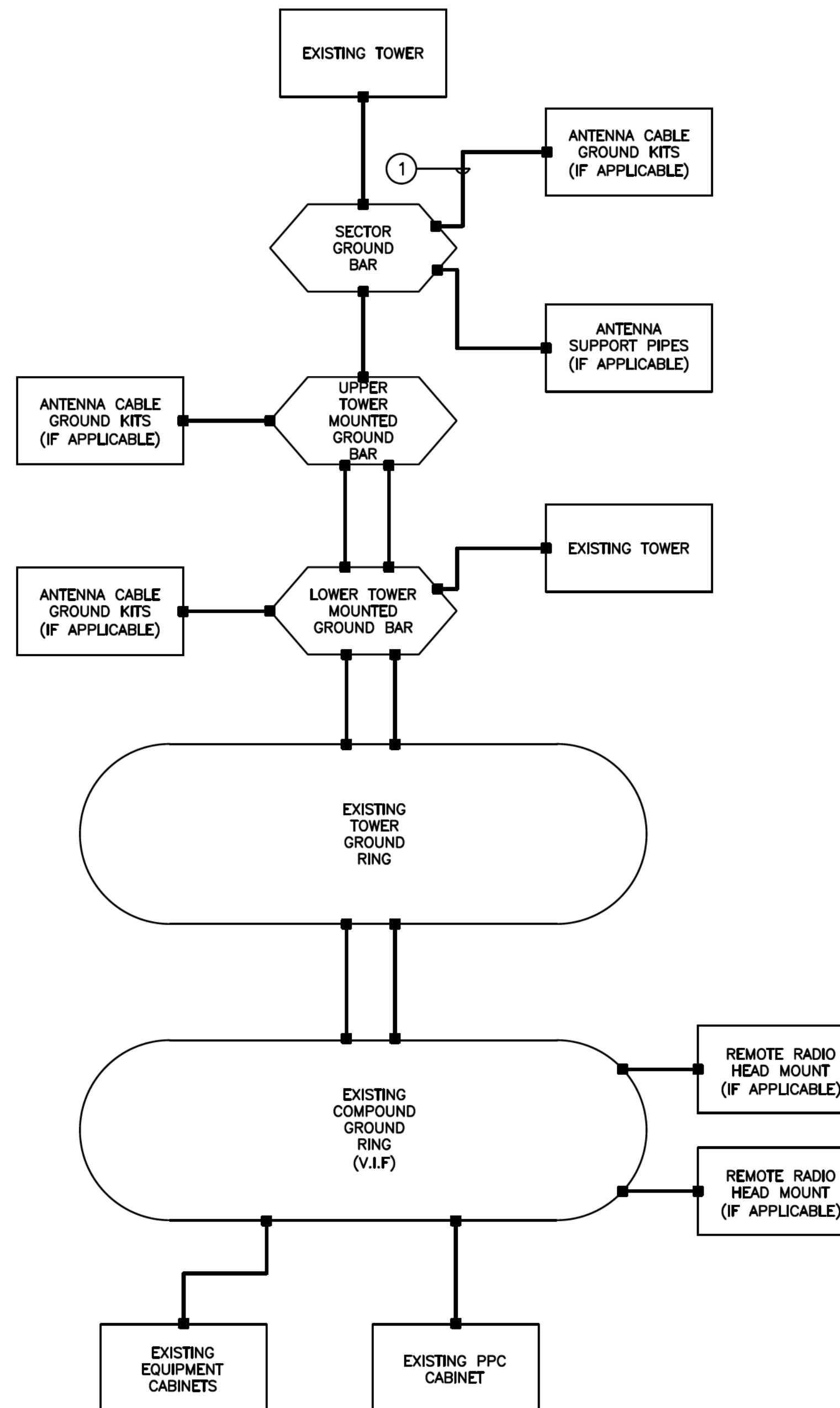
NOTES

- 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.



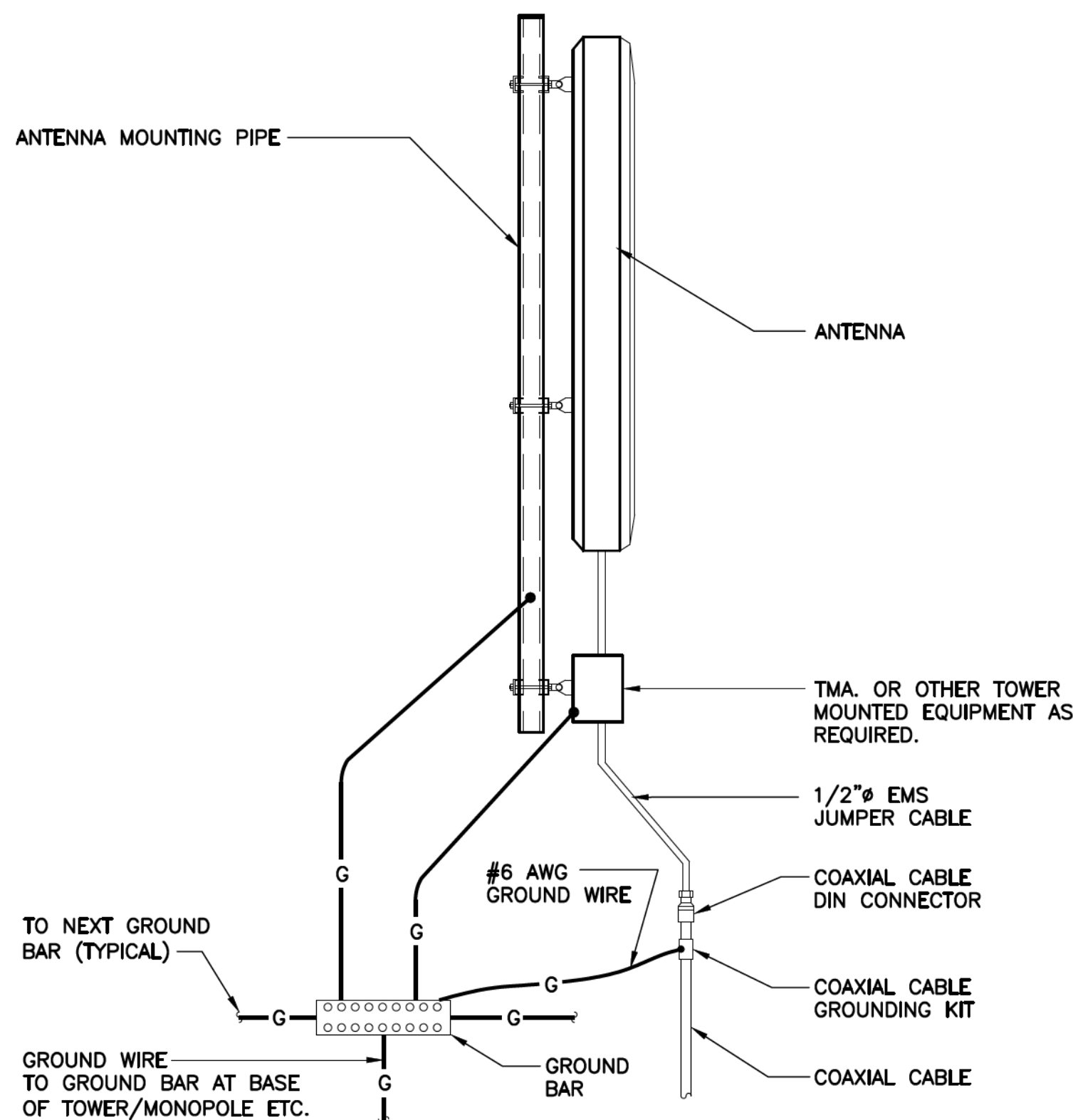
NOTES:

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

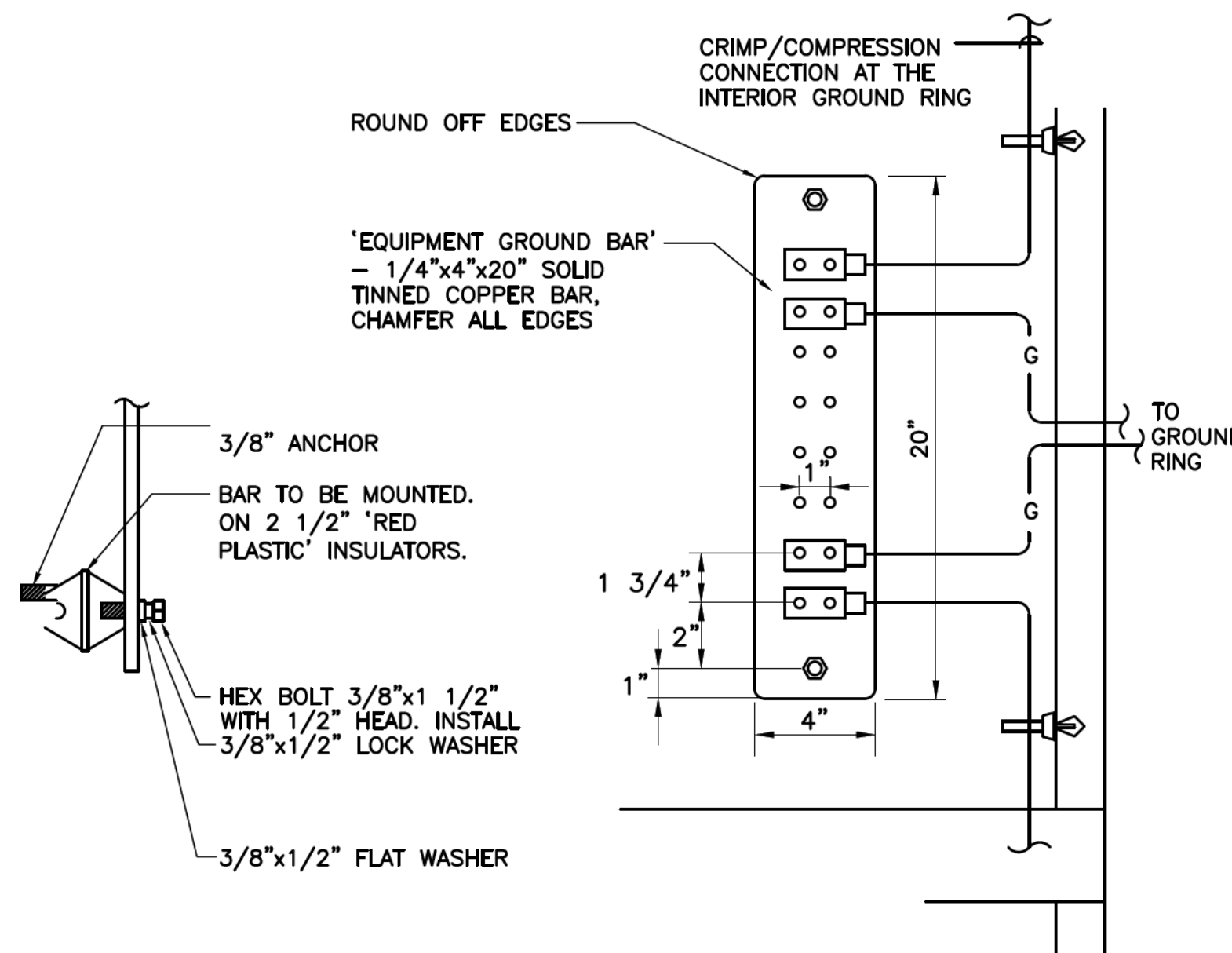
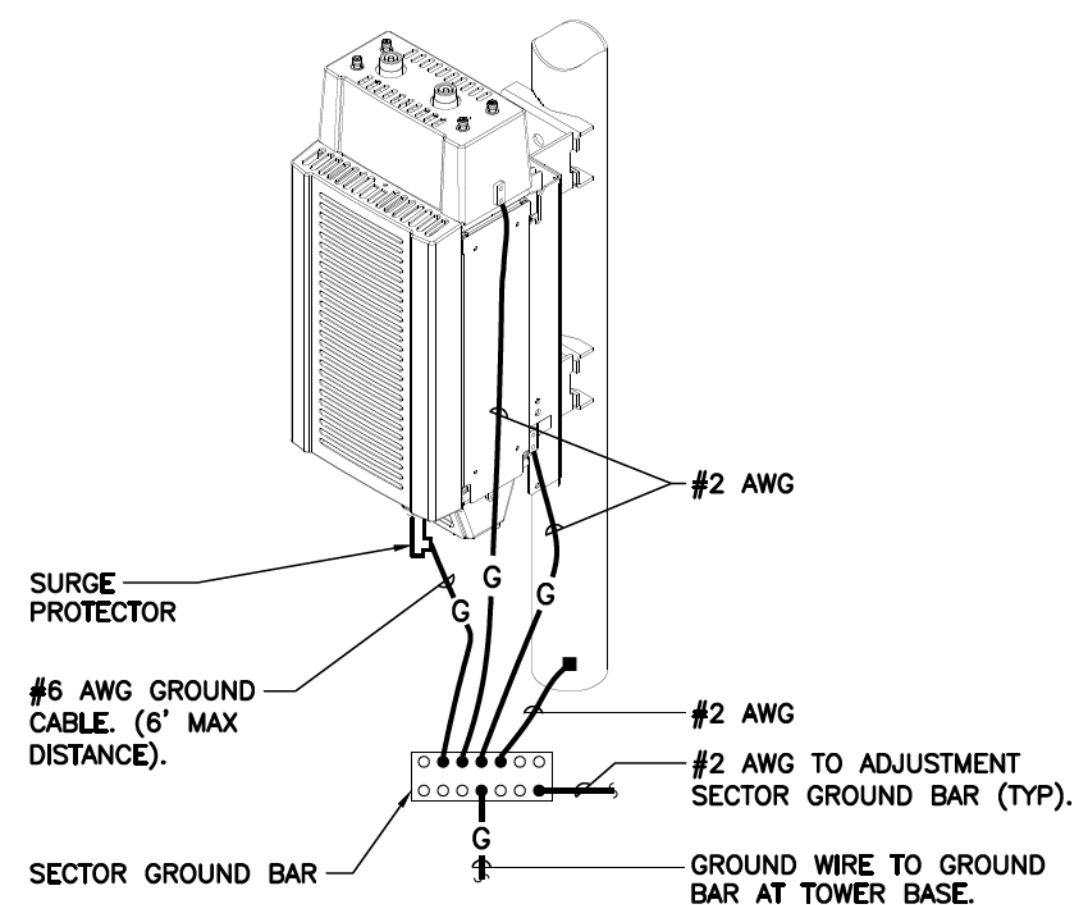


GROUNDING SCHEMATIC NOTES

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



EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



<p>T-MOBILE NORTHEAST LLC</p> <p>SITE NAME: REDDING / RT 107</p> <p>SITE ID: CT1104A</p> <p>32 PEACEABLE ST - POLE#3261 - LINE#1470</p> <p>REDDING, CT 06896</p>		<p>DATE: 08/02/23</p> <p>SCALE: AS NOTED</p> <p>JOB NO. 24066.02</p>
<p>TYPICAL ELECTRICAL DETAILS</p> <p>E-1</p>		<p>SHEET NO. 9 OF 10</p>

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REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
4	12/10/24	SFG	TJR	CONSTRUCTION DRAWINGS - REVISED PER EVERSOURCE COMMENTS
3	10/29/24	SFG	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
2	10/17/24	SFG	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
1	05/31/24	ASC	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEWLY ISSUED RFDS
0	09/12/23	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

SECTION 16010

1.02. GENERAL REQUIREMENTS

- 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
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:
- | <u>LINE</u> | <u>120/208/240V</u> | <u>277/480V</u> |
|-------------|---------------------|--------------------------|
| A | BLACK | COLOR |
| B | RED | BROWN |
| C | BLUE | ORANGE |
| N | CONTINUOUS WHITE | YELLOW |
| G | CONTINUOUS GREEN | GREY |
| | | 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 OHM BETWEEN A 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.

- G. 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

- 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 PANELBOARDS SO THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED 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.

[illegible]

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

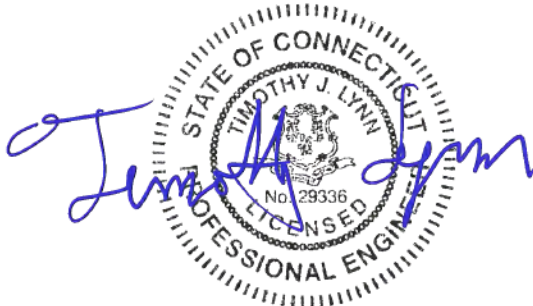
32 Peaceable Street
Redding, CT

CEN TEK Project No. 24066.02

~~Date: June 4, 2024~~

Rev 2: August 12, 2024

Max Stress Ratio = 96%



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

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Introduction

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):**
Mast: Eight (8) 7/8" Ø coax cables mounted to the exterior of the pole/mast
- **T-MOBILE (Existing to be Removed):**
Antennas: Two (2) 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: Three (3) RFS APXVAALL24_43 panel antennas, three (3) RFS APXVLL19P_43 panel antennas and six (6) Andrew ATSBT-TOP-MF-4G Smart Bias Tees mounted one two (2) dual mount assemblies (SitePro p/n UDS-NP) with a RAD center elevation of 85-ft above grade.
Mast: 10" Sch. 80 Pipe

Coax Cables: Sixteen (16) 7/8" Ø coax cables mounted to the exterior of the pole/mast.

Primary assumptions used in the analysis

- 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/EVERSOURCE 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"

Results

▪ MAST ASSEMBLY

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

Component	Stress Ratio (percentage of capacity)	Result
10" Sch. 80	96.0%	PASS
Connection to Tower	84.9%	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 **78.29%** 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)	77.89%	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	78.29%	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	10.51 kips	35.55 kips	541.16 ft-kips
NESC Extreme Wind	17.13 kips	18.55 kips	948.85 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	52.2%	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⁾	3.49 FS ⁽²⁾	PASS
	Rock Anchor	107.9 kips	76.0 kips	PASS
	Bearing Pressure	50 ksf ⁽³⁾	20.4 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.

Conclusion

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

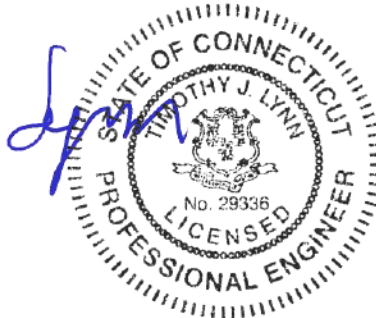
The analysis is based, in part on the information provided to this office by Eversource and T-Mobile. If the existing conditions are different than the information in this report, CENTEK engineering, Inc. must be contacted for resolution of any potential issues.

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 drawing/editing environment: draw, generate, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, trim, extend, etc.
- Versatile drawing grids (orthogonal, radial, skewed, DXF underlay)
- Universal snaps and object snaps allow drawing without grids
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet based, save/recall selections with locking
- True spreadsheet editing with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and graphics
- Open multiple spreadsheets simultaneously
- Constant in-stream error checking and data validation
- Unlimited undo/redraw capability, automatic timed backup
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, geodesic domes, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection custom shape libraries
- Steel Shapes: AISC, Historic, Australian, British, Canadian, Chilean, Chinese, European, Indian, Mexican
- Light Gage Shapes: AISI, SSMA, Dale/Incor, Dietrich, Marino\WARE
- Import DXF, RISA-2D, STAAD and CIS/2 files
- Export DXF, SDNF and CIS/2 files
- Robust two-way link with Revit Structure 2019
- Link with Tekla Structures 2018

Analysis Features

- Analysis of 1D members (beams, columns, braces, etc.) using Finite Element Method
- Analysis of 2D elements (plates, walls) using Finite Element Method
- Analysis of 3D elements (solids) using Finite Element Method
- Partial fixity member end releases using rotational spring constants
- Time History Analysis
- Accelerated true sparse solver for static analysis
- Flexible modeling of P-Delta effects
- Accelerated Sparse Lanczos dynamics solver, very fast and robust
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS with automatic calc of scaling factors
- Automatic inclusion of mass offset (5% or user defined) for dynamics when integrated with RISAFloor
- Ritz vector dynamic solver
- True physical member modeling (members are aware of interior joints)
- Plate/shell elements with plane stress only option
- 8 node solid elements
- High end mesh generation — draw a polygon with any number of sides to create a mesh of well formed quadrilateral (NO triangular) elements
- Automatic rigid diaphragm modeling with detachable joints

- Area loads with one-way or two-way distributions with optional “blow through” distribution for loading open structures
- Plate thermal loads
- Simultaneous moving loads, AASHTO/custom for bridges, cranes...
- Torsional warping calculations for stiffness, stress and design of hot rolled steel
- Member end releases, rigid end offsets, analysis offsets
- Enforced joint displacements
- One Way members, for tension only bracing, slipping, etc.
- One Way springs, for modeling soils and other effects
- Euler members: Compression up to buckling load, then disable
- Stress calculations on any arbitrary shape
- Inactivate members, plates, solids and diaphragms without deleting them
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members, plates and solids

Graphics Features

- Unlimited simultaneous model view windows
- “True to scale” rendering with translucency, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamically zoom, pan, rotate, scroll, snap views
- Font and color control
- Saved views to quickly restore frequent or desired views
- Rendered or wire-frame animations of deflected model and mode shapes
- Animation of moving loads with speed control
- Distance tool for measuring between points
- Force/moment summation about any arbitrary cut line
- High quality customizable graphics printing

Design Codes

- Steel Design Codes: AISC 360-16/10/05: ASD & LRFD, AISC 2nd & 3rd: LRFD, AISC 9th: ASD, CSA S16-14/09/05/01/CSA-S16.1-94, BS 5950-1: 2000, EN 1993-1-1:2014/2005, ENV 1993-1-1:1992, IS 800: 2007/1998, AS 4100-1998, NZS 3404: 1997
- Seismic design per AISC 341-10/05, including 358 prequalified connections
- Concrete Design Codes: ACI 318-14/11/08/05/02/99, CSA A23.3-14/04/94, NTC-DF 2004, BS 8110-1: 1997, BS EN 1992-1-1: 2004+A1: 2014/2004, EN 1992-1-1:1992, IS 456: 2000, AS 3600-2001, NZS 3101: 1995, SBC 304-2007
- Cold Formed Steel Design Codes: AISI S100-16/12/10/07: ASD & LRFD, AISI NAS-04/01: ASD & LRFD, AISI 1999: ASD & LRFD, CSA S136-16/12/10/07/04/01: LSD, CANACERO 16: ASD, CANACERO 12/10/07/04/01: ASD & LRFD
- Aluminum Design Codes: AA ADM1-15/10: ASD & LRFD, AA ADM1-05: ASD
- Wood Design Codes: AWC NDS-18/15/12: ASD, AF&PA NDS-08/05/01/97/91: ASD, CSA 086-14/09 Ultimate, Structural Composite Lumber, multi-ply, full sawn, Glulam, shear walls
- Masonry Design Codes: TMS 402-16: ASD & Strength, ACI 530-13/11/08/05/02: ASD & Strength, ACI 530-99: ASD, UBC 1997: ASD & Strength
- Stainless Steel Design Code: AISC 360-10: ASD & LRFD
- Wind loads are generated automatically (ASCE 7-16/10/05/02/98/95, NBC 15/10/05, NTC 2004, & IS 875: 1987) for building-type structures, including partial wind cases
- Seismic loads are generated automatically (ASCE 7-16/10/05/02, CBC 2001, IBC 2000, UBC 1997, NBC 15/10/05, NTC 2004, & IS 1893: 2002) for building-type structures, including accidental torsion

Design Features

- Designs/optimizes concrete, hot rolled & cold formed steel, masonry, wood and aluminum
- Program selected or user-defined rebar layouts for flexure and shear
- Concrete beam detailing (Rectangular, T and L).
- Concrete column interaction diagrams
- Concrete wall design including in-plane, out-of-plane & bearing loads
- Automatic spectra generation for ASCE 7, NBC, IS 1893, NTC
- Extensive user controlled generation of load combinations
- Intelligent unbraced length calculations for physical members
- Tapered wide flange design per AISC Design Guide 25
- Masonry wall design for in-plane and out-of-plane
- Wood Shapes: Complete NDS species/grade and Glulam database
- Complete wood wall design for bearing & shear walls: Segmented, Perforated & Force Transfer Around Openings design methods
- Strap and Hold Down design for Wood Shear Walls
- Seismic design of concrete walls using ACI 318-14 Chapter 18
- Concrete seismic coupling beams for multi-story walls with diaphragms

Results Features

- Graphic presentation of color-coded results and plotted designs
- Color contours on plates, solid stresses/forces with smoothing and animation
- Spreadsheet results with sorting and filtering of: deflections, forces, stresses, optimized sizes for strength or deflection, code designs, concrete reinforcing, material takeoffs, etc.
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams

Integrated Building Design

RISA-3D, RISAFloor, RISAFoundation and RISACONNECTION are so tightly integrated that they operate as one program on the same building model. Optimize the gravity system in RISAFloor, the lateral system in RISA-3D, the connection design in RISACONNECTION and the foundation system in RISAFoundation, with a complete flow of information both ways.

General Features

- Compatible with Windows 7/8.1/10 (64-bit Windows)
- Program technical support provided by Professional Engineers

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, AS/NZS 7000 or other requirements
- Automatic calculation of dead and wind loads
- Automated loading on structure (wind, ice and drag coefficients) according to:
 - ASCE 74-1991, 2009
 - NESC 2002, 2007, 2012, 2017
 - IEC 60826:2003
 - IS 802 : 1995, 2015
 - EN50341-1:2001 and 2012 (CENELEC)
 - EN50341-3-2:2001 (Belgium NNA)
 - EN50341-3-9:2001, EN50341-2-9:2015, 2017 (UK NNA)
 - EN50341-3-17:2001 (Portugal NNA)
 - AS/NZS 7000:2010
 - ESAA C(b)1-2003 (Australia)
 - TPNZ (New Zealand)
 - REE (Spain)
 - Russian 7th
 - ISEC-NCR-83
- Automated microwave antenna loading as per ANSI/TIA 222-H
- 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 condition 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-222-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 Eversource.

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), Combined Ice and Wind (Rule 250B-Heavy) and Combined Extreme Ice and Wind (Rule 250D – as appropriate) 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 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.

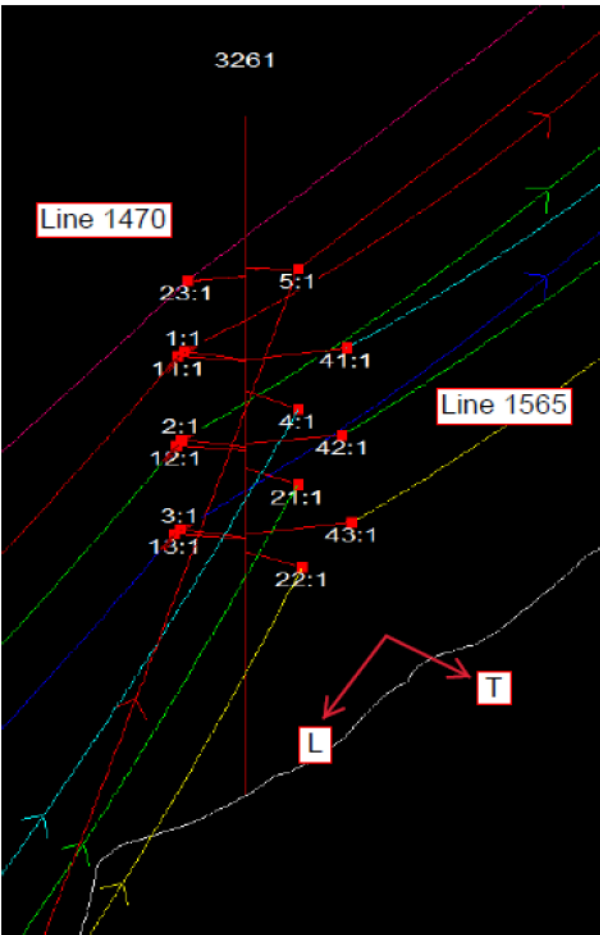
Communication Antennas on Transmission Structures			
Eversource Approved by: CPS (CT/WMA) JCC (NH/EMA)	Design	OTRM 059	Rev. 1 11/19/2018
		Page 3 of 10	

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

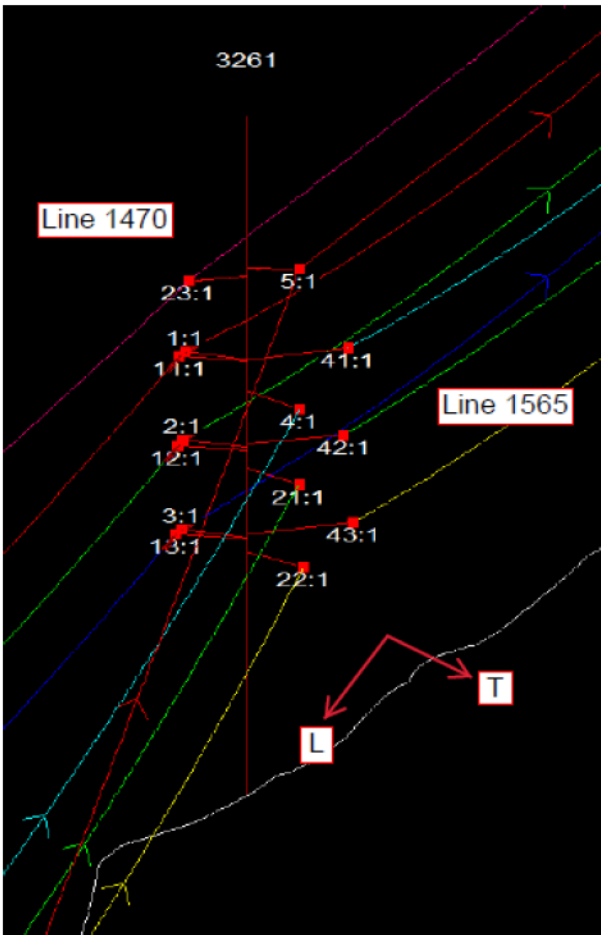


Project: Lines 1470/1565, Structure 3261
 Date: 4/28/2022
 Engineer: RB/TJ
 Purpose: Calculate wire loads for existing T-Mobile site.

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 structure nestled among trees. The text inside the box reads "PROJECT LOCATION". In the bottom right corner, a road is visible, labeled "Peaceable St" in a curved orientation. The surrounding area is densely wooded with bare trees, suggesting a late autumn or winter setting.

NORTH

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

[illegible]

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PROPOSED ANTENNA UPGRADE
CT111104A
STRUCTURE 3261
32 PEACEABLE STREET
REDDING, CT 06066

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

TITLE SHEET

SHEET NO.
T-1
Sheet No. 1 of 8

MODIFICATION INSPECTION REPORT REQUIREMENTS					
PRE-CONSTUCTION		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 MP11	–	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. MP11 – "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

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90 DECEMBER 5 0005ET

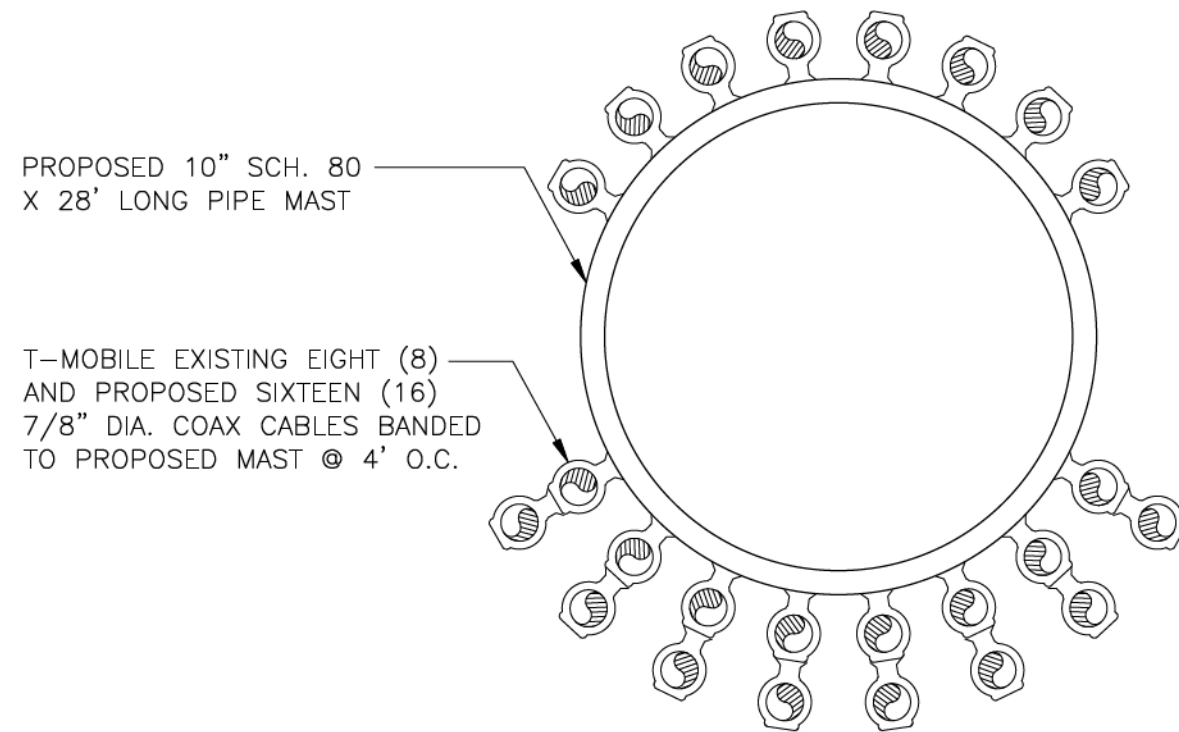
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JOB NO.	22006.02

MODIFICATION INSPECTION REQUIREMENTS

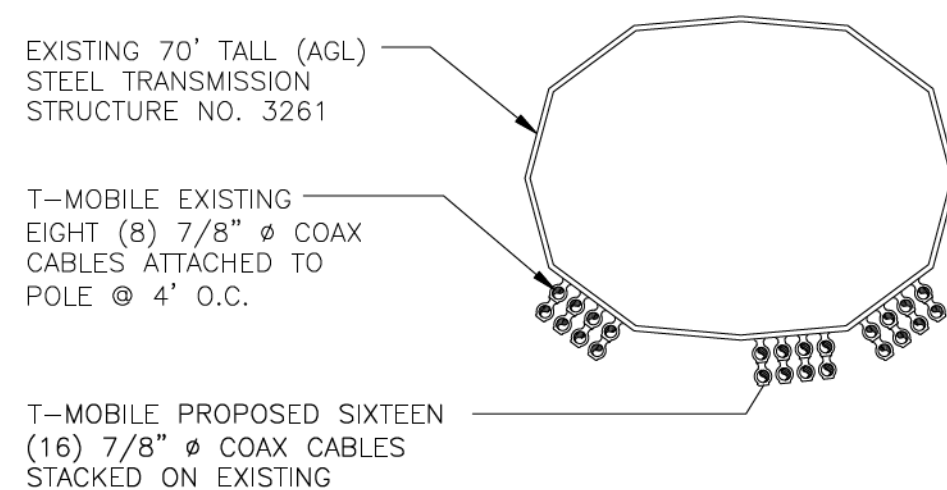
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MI-1

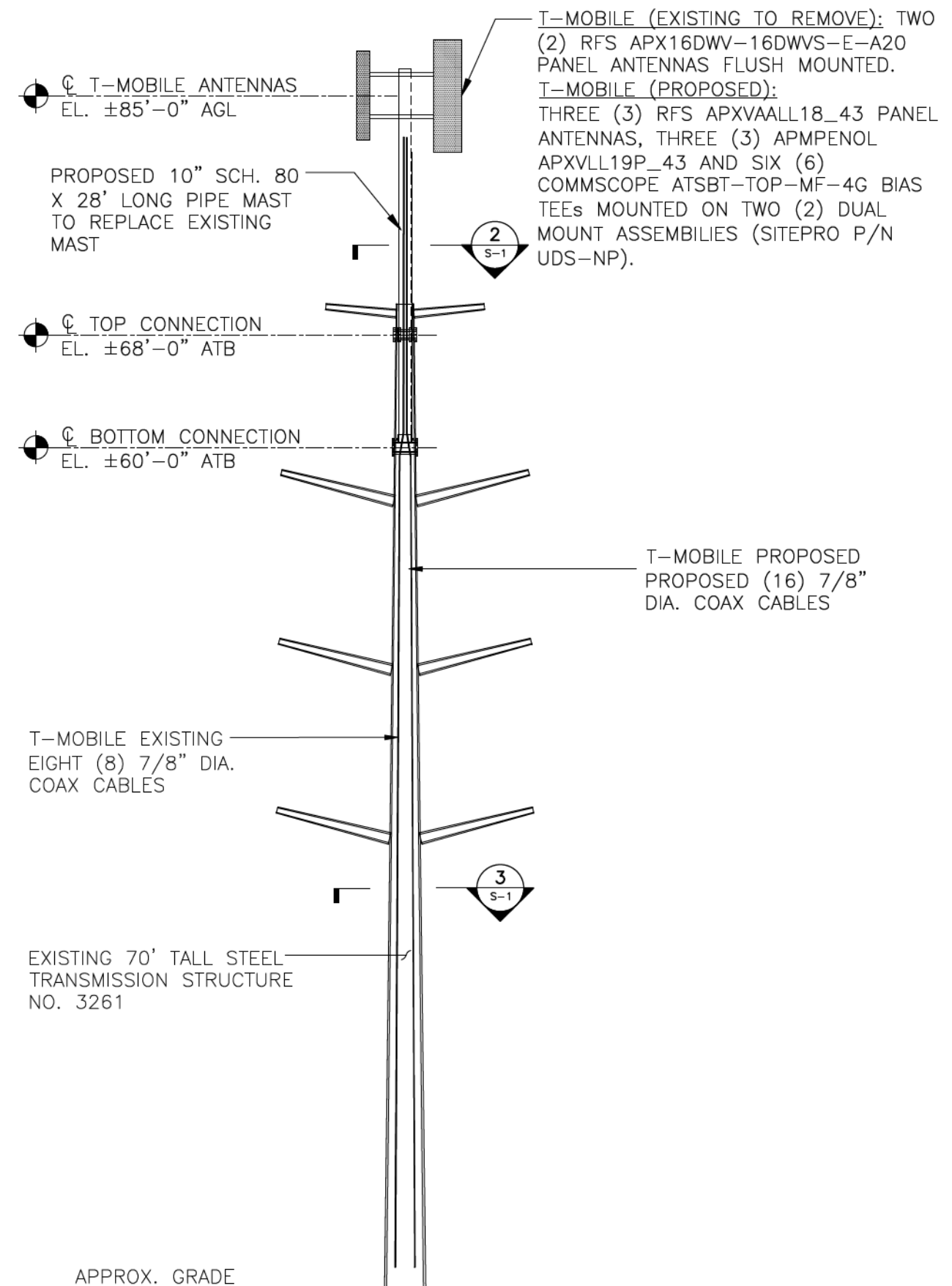
Sheet No. 4 of 8



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	BY	CHKD	DESCRIPTION
2	8/12/24	TUL	CFC	ISSUED FOR CONSTRUCTION
1	7/19/24	TUL	CFC	ISSUED FOR CONSTRUCTION
0	6/4/24	TUL	CFC	ISSUED FOR REVIEW

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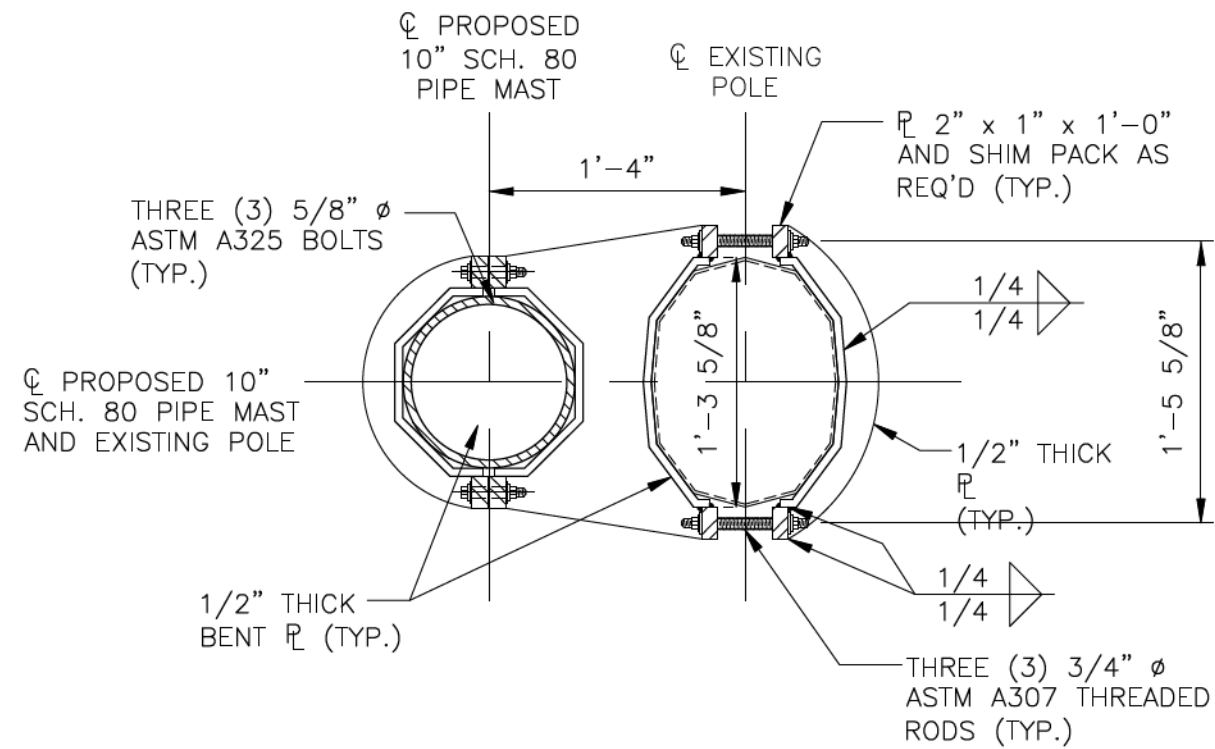
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STRUCTURE 3261
30 PAGES AND 8 SHEETS
REVISED, CT 0608

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

TOWER
ELEVATION AND
FEEDLINE PLAN

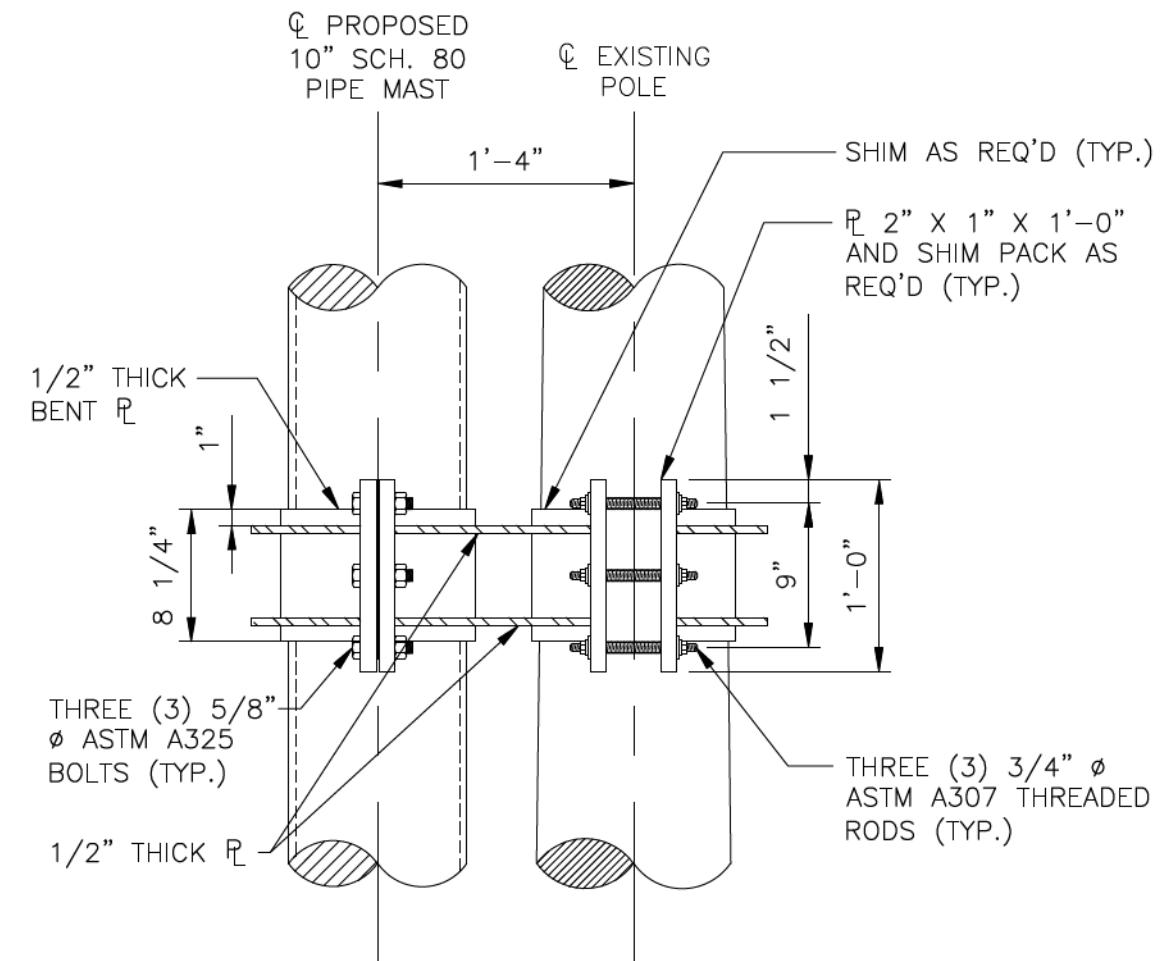
SHEET NO.
S-1
Sheet No. 5 of 8



2
S-2

TOP PCS BRACKET PLAN VIEW

SCALE: 1" = 1'-0"



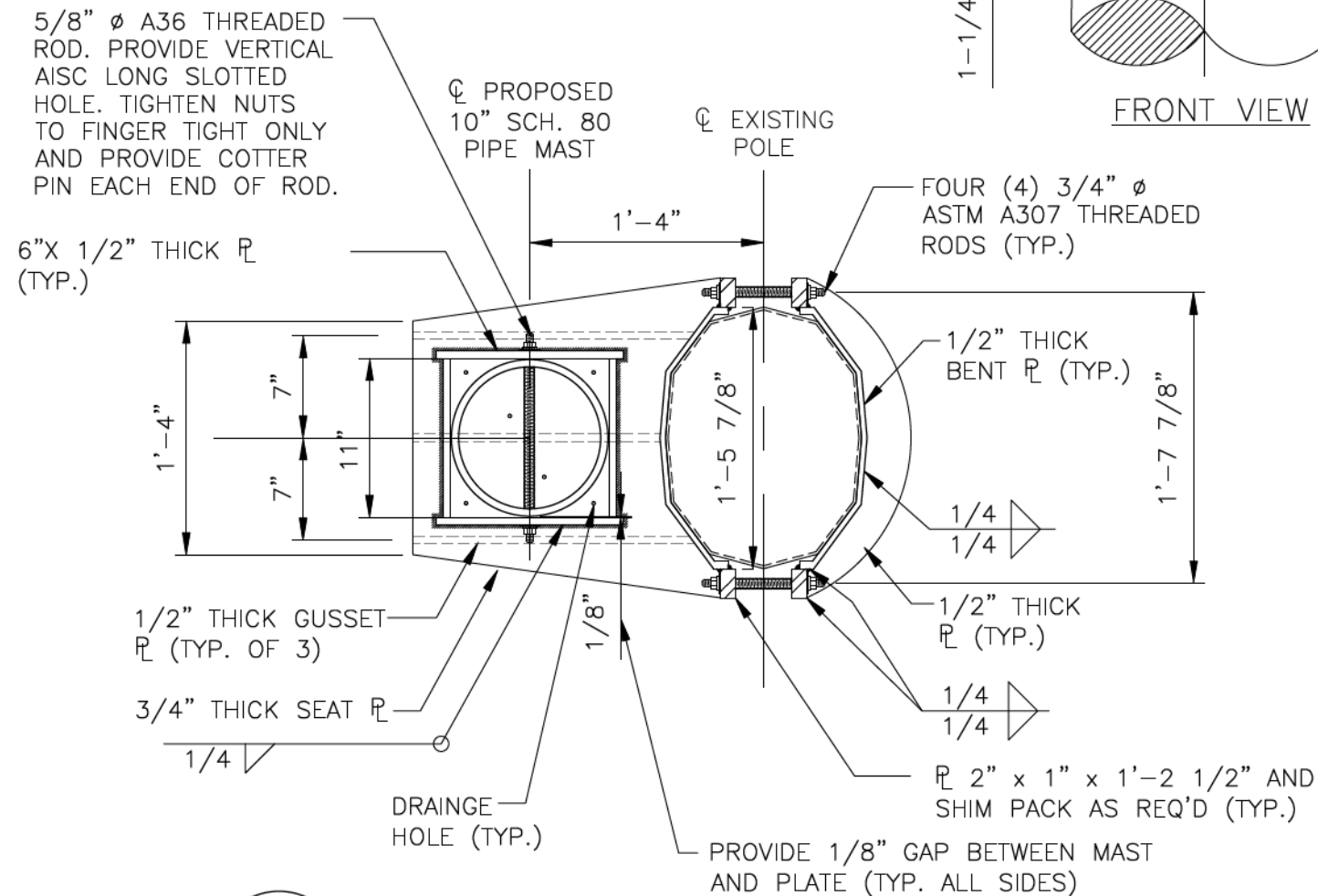
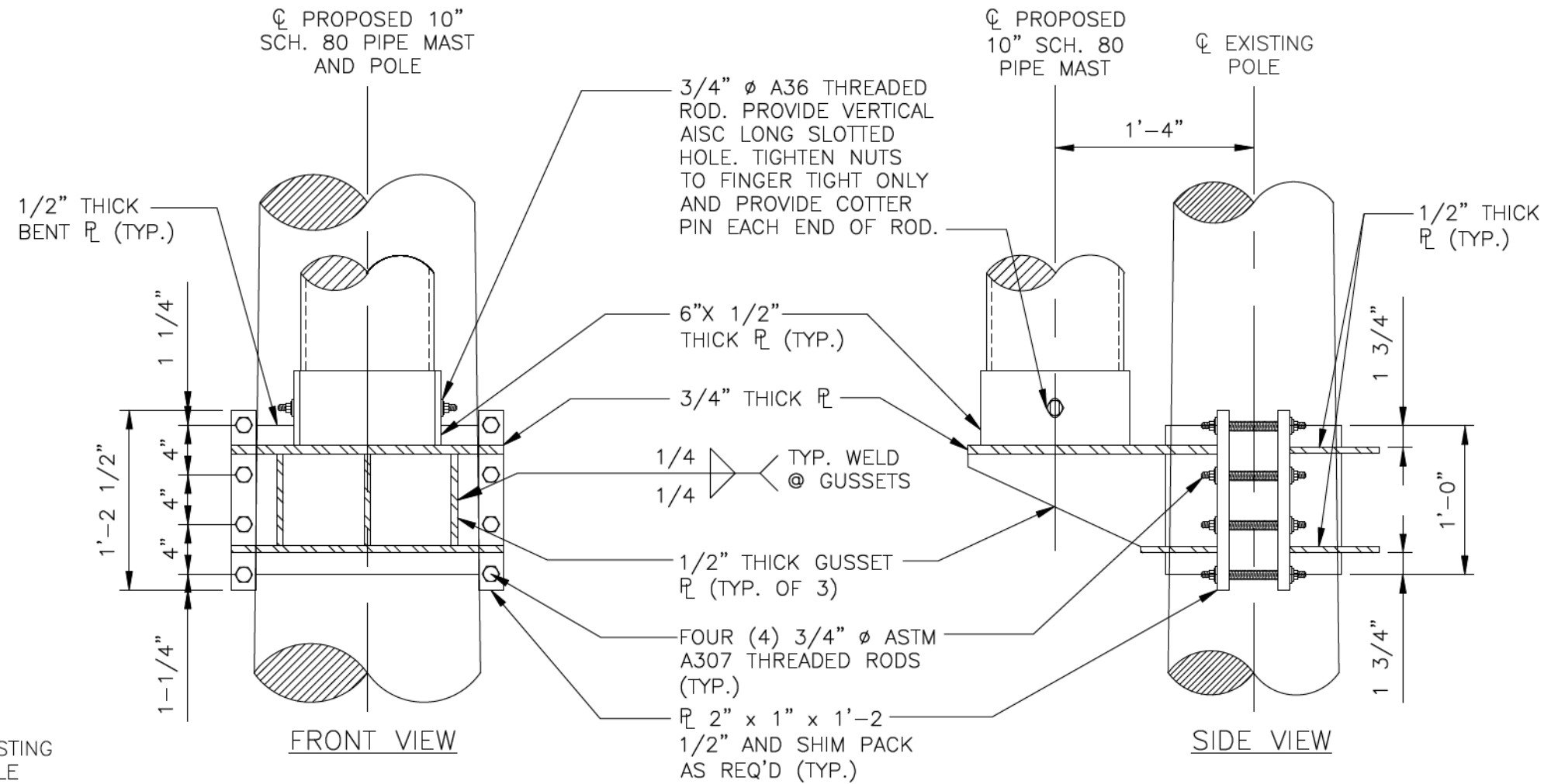
1 TOP PCS BRACKET DETAIL
S-2 SCALE: 1" = 1'-0"

NOTE:

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

NOTE:

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



2

BOTTOM PCS BRACKET PLAN VIEW

SCALE: 1" = 1'-0"

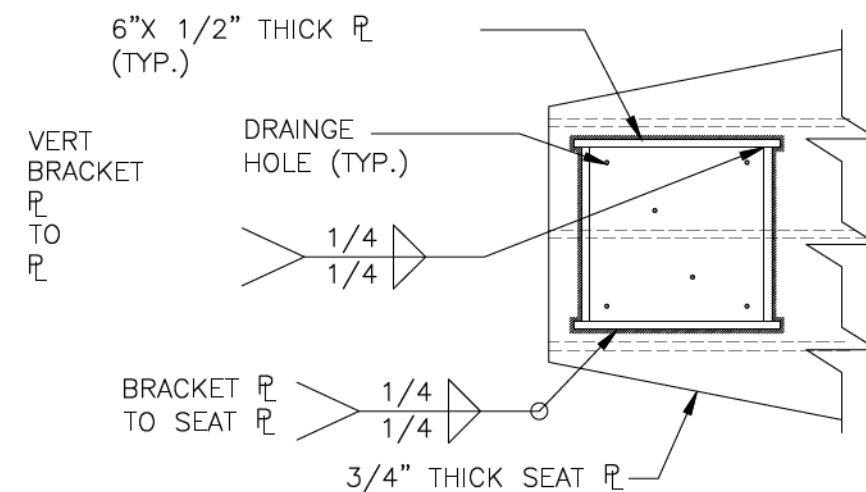
S-3

1

BOTTOM PCS BRACKET DETAIL

SCALE: 1" = 1'-0"

S-3



3

BRACKET ASSEMBLY DETAIL

SCALE: 1" = 1'-0"

S-3

REV.	DATE	BY	CHK'D	DESCRIPTION
2	8/12/24	T.J.L.	C.F.C.	ISSUED FOR CONSTRUCTION
1	7/19/24	T.J.L.	C.F.C.	ISSUED FOR CONSTRUCTION
0	6/14/24	T.J.L.	C.F.C.	ISSUED FOR REVIEW

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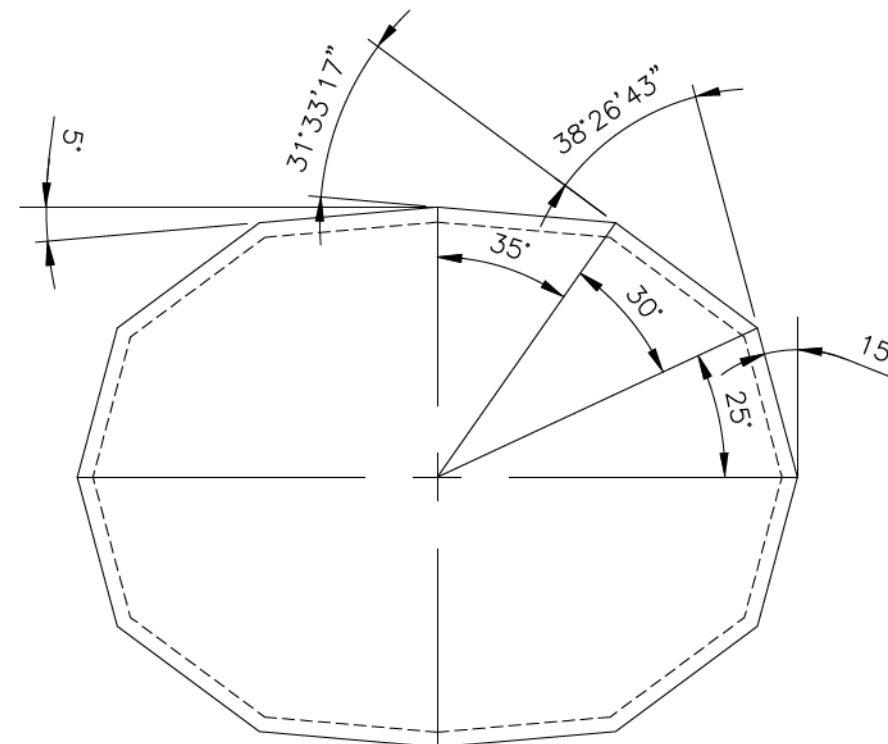
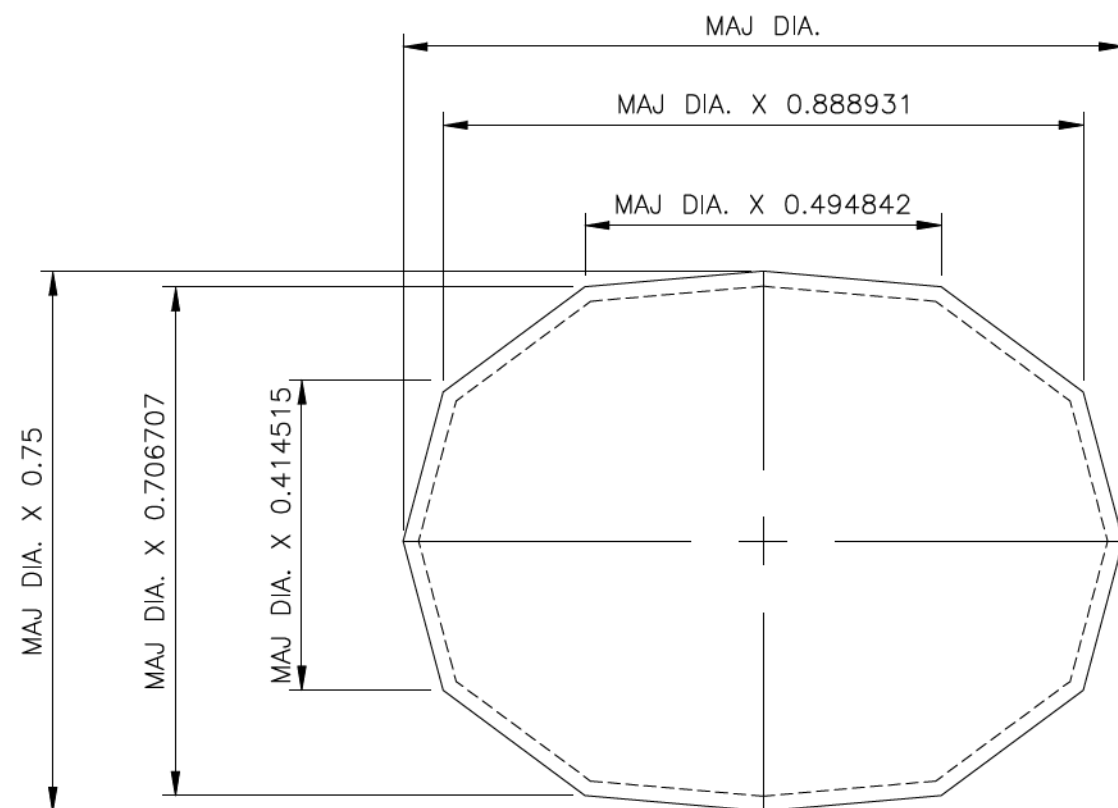
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BOTTOM CONNECTION DETAILS

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"

[illegible]

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

CL&P POLE DIMENSIONS

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

RAN Template: 67E998E 6160	A&L Template: 67E998E_1OP+1QP
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CT11104A_L600_3_draft

Print Name:
Standard

Project IDs with associated PORs:
CT11104A-0002054024
L600_L600 Coverage

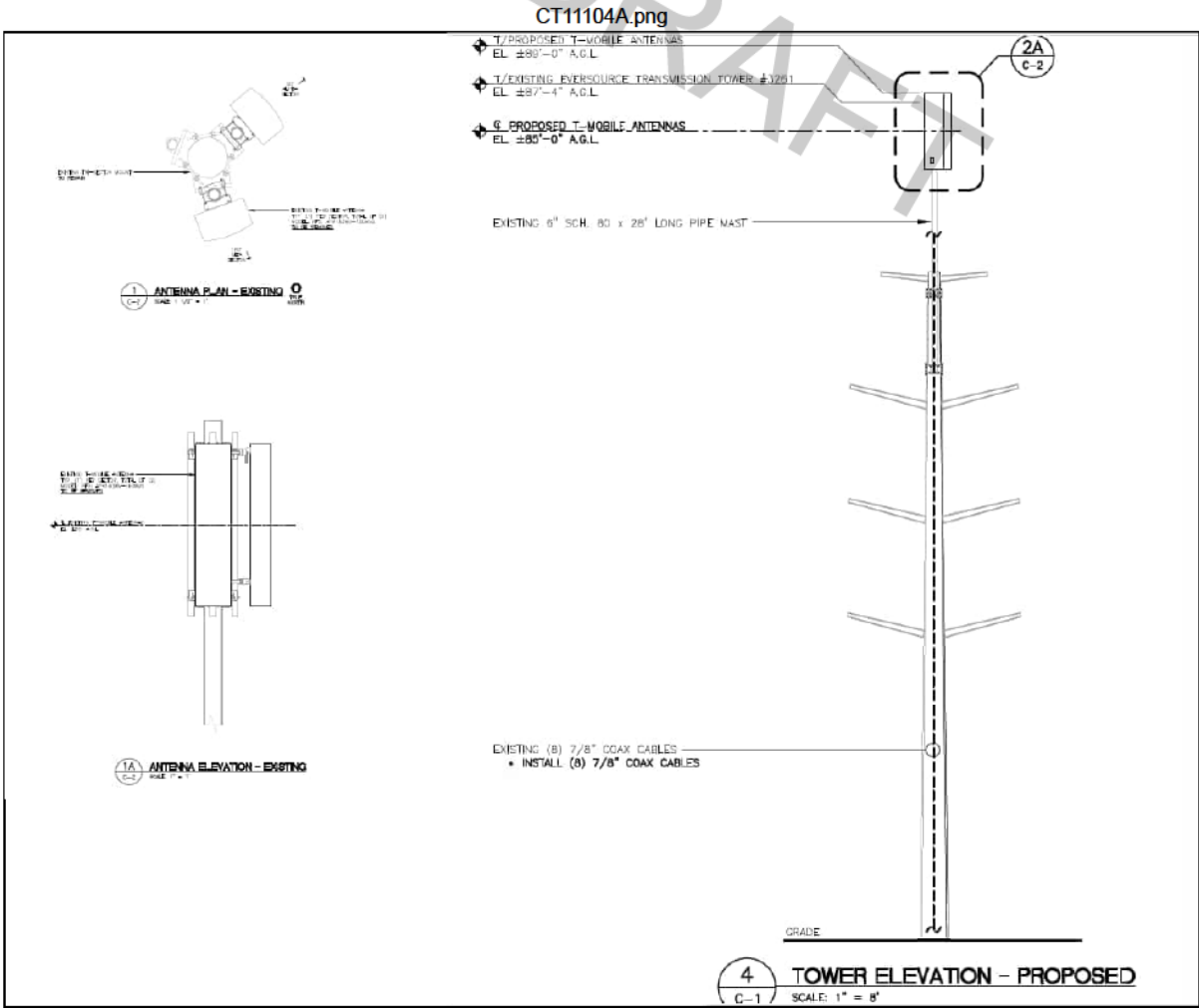
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Project Type: L600	Plan Year: 2021	City, State: Redding, CT
Approved: Not approved	Market: CONNECTICUT CT	Region: NORTHEAST
Approved By: Not approved	Vendor: Ericsson	
Last Modified: 05/15/2024 6:17:07 AM	Landlord: Northeast Utilities	
Last Modified By: Ryan.MonteDeRamos@T-Mobile.com		
RAN Template: 67E998E 6160		AL Template: 67E998E_1OP+1QP
Sector Count: 3	Antenna Count: 6	Coax Line Count: 24
		TMA Count: 6
		RRU Count: 6

Section 2 - Existing Template Images

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

Section 3 - Proposed Template Images



Notes:

Section 4 - Siteplan Images

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

RAN Template: 67E998E 6160	A&L Template: 67E998E_10P+1QP
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CT11104A_L600_3_draft

Print Name:
Standard

Project IDs with associated PORs:
CT11104A-0002054024
L600_L600 Coverage

Section 5 - RAN Equipment

Existing RAN Equipment	
Template: 4B Outdoor	
Enclosure	1
Enclosure Type	RBS 6102
Radio	<div>RUS01 B2 (x3) G1900</div> <div>RUS01 B2 (x3) U1900 (DECOMMISSIONED)</div> <div>RUS01 B4 (x6) L2100 U2100 (DECOMMISSIONED)</div>
Baseband	<div>BB 5216 L2100</div> <div>DUG20 G1900</div> <div>DUW30 U1900 (DECOMMISSIONED)</div> <div>DUW30 U2100 (DECOMMISSIONED)</div>

Proposed RAN Equipment			
Template: 67E998E 6160			
Enclosure	1	2	3
Enclosure Type	Enclosure 6160_v2 AC	RBS 6601	B160
Baseband	<div>RP 6651</div> <div>N600</div> <div>N1900</div> <div>L600</div> <div>L700</div> <div>L1900</div> <div>L2100</div>	<div>DUG20</div> <div>G1900</div>	
Transport System	CSR IXRe V2 (Gen2)		
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 10m		
RAN Scope of Work:			
RF NOTES: 5/14/2024 - As per discussion with TMO,3rd Sector will need to be added in this Transmission tower, we are resubmitting the design with (2) antenna per sector and let A&E run the structural feasibility of this propose design.			

RAN Template: 67E998E 6160	A&L Template: 67E998E_10P+1QP
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CT11104A_L600_3_draft

Print Name:
Standard

Project IDs with associated PORs:
CT11104A-0002054024
L600_L600 Coverage

Section 6 - A&L Equipment

Existing Template: 4B_2DP
Proposed Template: 67E998E_10P+1QP

Sector 1 (Existing) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	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>		

RAN Template: 67E998E 6160	A&L Template: 67E998E_10P+1QP
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CT11104A_L600_3_draft

Print Name:
Standard

Project IDs with associated PORs:
CT11104A-0002054024
L600_L600 Coverage

Sector 1 (Proposed) view from behind							
Coverage Type	A - Outdoor Macro						
Antenna	1				2		
Antenna Model	APXVAALL24_43-U-NA20 (Octo)				APXVLL19P_43-C-A20 (Quad)		
Azimuth	50				50		
M. Tilt	0				0		
Height (ft)	141				141		
Ports	P1	P2	P3	P4	P5	P6	
Active Tech	N600 L600 L700	N600 L600 L700			G1900 L1900 L2100 N1900	G1900 L1900 L2100 N1900	
Dark Tech							
Restricted Tech							
Decomm. Tech							
E. Tilt							
Cables	7/8" Coax - 90 ft. (x2) Coax Jumper (x2)	7/8" Coax - 90 ft. (x2) Coax Jumper (x2)			7/8" Coax - 90 ft. (x2) Coax Jumper (x2)	7/8" Coax - 90 ft. (x2) Coax Jumper (x2)	
TMA's		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)			Radio 4460 B25+B66 (At Cabinet)	Radio 4460 B25+B66 (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.							

RAN Template: 67E998E 6160	A&L Template: 67E998E_10P+1QP
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CT11104A_L600_3_draft

Print Name:
Standard

Project IDs with associated PORs:
CT11104A-0002054024
L600_L600 Coverage

Sector 2 (Existing) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	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				2	
Antenna Model	APXVAALL24_43-U-NA20 (Octo)				APXVLL19P_43-C-A20 (Quad)	
Azimuth	160				160	
M. Tilt					0	
Height (ft)	85				85	
Ports	P1	P2	P3	P4	P5	P6
Active Tech	L700 N600 L600	L700 N600 L600			N1900 L1900 L2100 G1900	N1900 G1900 L1900 L2100
Dark Tech						
Restricted Tech						
Decomm. Tech						
E. Tilt						
Cables	7/8" Coax - 85 ft. (x2) Coax Jumper (x2)	7/8" Coax - 85 ft. (x2) Coax Jumper (x2)			7/8" Coax - 85 ft. (x2) Coax Jumper (x2)	7/8" Coax - 85 ft. (x2) Coax Jumper (x2)
TMA's		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)			Radio 4460 B25+B66 (At Cabinet)	Radio 4460 B25+B66 (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.						

RAN Template: 67E998E 6160	A&L Template: 67E998E_10P+1QP
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CT11104A_L600_3_draft

Print Name:
Standard

Project IDs with associated PORs:
CT11104A-0002054024
L600_L600 Coverage

Sector 3 (Proposed) view from behind							
Coverage Type	A - Outdoor Macro						
Antenna	1				2		
Antenna Model	APXVAALL24_43-U-NA20 (Octo)				APXVLL19P_43-C-A20 (Quad)		
Azimuth	260				260		
M. Tilt	0				0		
Height (ft)	85				85		
Ports	P1	P2	P3	P4	P5	P6	
Active Tech	N600 L700 L600	N600 L700 L600			L2100 G1900 L1900 N1900	L2100 G1900 L1900 N1900	
Dark Tech							
Restricted Tech							
Decomm. Tech							
E. Tilt							
Cables	7/8" Coax - 85 ft. (x2) Coax Jumper (x2)	7/8" Coax - 85 ft. (x2) Coax Jumper (x2)			7/8" Coax - 85 ft. (x2) Coax Jumper (x2)	7/8" Coax - 85 ft. (x2) Coax Jumper (x2)	
TMA's		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)			Radio 4460 B25+B66 (At Cabinet)	Radio 4460 B25+B66 (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

APXVLL19P_43-C-A20

Features

A combination of two x-polarized antennas in a single radome, the Amphenol Quad-Pol antennas are designed for applications requiring a minimum number of antennas at a cell site and reduced tower loading. They offer the rugged construction of our new series of high band antennas that feature both high RF performance and energy efficiency. They are ideal for 1800, 2100 and 2600 networks where high gain is required. These antennas are especially well-suited for MIMO applications.

- Ultra-broadband design
- Best-in-the-industry gain values
- Two x-polarized broadband panels in a single narrow radome - reduced tower loading and lower profile
- Variable electrical downtilt - provides enhanced precision in controlling intercell interference
- Single ACU-A20-S RET drives both arrays
- High suppression of all upper sidelobes
- High front-to-back ratio



PRODUCT OVERVIEW	Frequency Range (MHz)	(2x) 1695-2690	
	Array	Y1	Y2
	Connector	1-2	3-4
		4 PORTS	
	Polarization	XPOL	
	Azimuth Beamwidth (avg)	65°	
	Electrical Downtilt	0-12°	
	Dimensions	1925 x 288 x 118 mm (75.8 x 11.3 x 4.6 in)	

ORDERING OPTIONS

Select from the following ordering options

ANTENNA MODEL NUMBER	CONFIGURATION	MOUNTING HARDWARE	MOUNTING PIPE DIAMETER	SHIPPING WEIGHT
APXVLL19P_43-C-A20	One ACU-A20-S External RET Included	APM40-2 Beam Tilt Kit and APM40-E10 Included	50-120 mm (2.0-4.7 in)	30 kg (66 lbs)



Quoted performance parameters are provided to offer typical, peak or range values only and may vary as a result of normal testing, manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to products may be made without notice.

APXVLL19P_43-C-A20

MECHANICAL SPECIFICATIONS

Length		mm (in)	1925 (75.8)
Width		mm (in)	288 (11.3)
Depth		mm (in)	118 (4.6)
Net Weight - Antenna Only		kg (lbs)	19 (42)
Net Weight - Mounting Hardware Only		kg (lbs)	3.8 (8.4)
Wind Load Rated at 150 km/h (93 mph)	Front	N (lbf)	1000 (225)
	Side	N (lbf)	420 (94)
	Rear	N (lbf)	1100 (247)
Survival Wind Speed / Rated Wind Speed		km/h (mph)	241 (160)
Connector Type		--	(4x) 4.3-10 Female, (2x) AISG Connectors (1 Male, 1 Female) at Bottom
Radome Color		---	Light Grey RAL7035
Radome Material		---	ASA
Lightning Protection		---	Direct Ground
Shipping	Packing Size (Length x Width x Depth)	mm (in)	2275 x 370 x 225 (89.6 x 14.6 x 8.9)
	Shipping Weight	kg (lbs)	30 (66)

ENVIRONMENTAL SPECIFICATIONS

Environmental Standard	---	ETS 300 019
Operating Temperature	degrees	-40° to +60° C (-40° to +140° F)
Product Environmental Compliance	---	Product is RoHS Compliant

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

Project

Structural Analysis Report Antenna Mounts Proposed T-Mobile Equipment Upgrade Site Ref: CT11104A 32 Peaceable Street Redding, CT 06896

Centek Project No.: 24066.02

Date Issued: July 23, 2024 - Rev. 0

Prepared For

T-Mobile
35 Griffin Road
Bloomfield, CT 06002

Prepared By

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1.00 REPORT

1.01 INTRODUCTION

This Mount Analysis Report was prepared to address the structural viability of installing T-Mobile's proposed antenna configurations on the Transmission Pole located on 32 Peaceable Street in Redding, Connecticut.

The proposed antenna configurations are to be supported by the proposed tower mounts (SitePro P/N: UDS-NP). The antennas are to be connected to the mounts via pipe masts. For further details on the configuration of the proposed antenna mounts and equipment, refer to the Construction Drawings prepared by Centek Engineering, job no. 24066.02.

The host's structure geometry and member size information were obtained through a site visit to investigate the current conditions, performed by Centek Engineering personnel on 03/21/2022 and previous structural analysis prepared by Centek Engineering, job number 24066.02.

1.02 PRIMARY ASSUMPTIONS USED IN THE ANALYSIS

- The host structure's theoretical capacity does not include any assessment of the condition of the host structure.
- The proposed antenna frames carry horizontal and vertical loads due to the weight of equipment, and wind and transfers into the host structure.
- The structure is in a plumb condition.
- Loading for equipment is as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All members are assumed to be as observed during mapping.
- All members are "hot dipped" galvanized in accordance with ASTM A123 ASTM A153 Standards.
- All members' protective coatings are in good condition.

1.03 ANTENNA AND EQUIPMENT SUMMARY

Appurtenance / Equipment	Rad Center Elevation (AGL)	Mount Type
(3) RFS APXVAALL24_43 Panel Antenna (3) Amphenol APXVLL19P_43 Panel Antenna (6) Commscope ATSBT-TOP-MF-4G Bias Tee Antennas	±85-ft	Tower Mount

Equipment – Indicates equipment to be installed.

1.04 ANALYSIS

The tower mounts and pipe masts were analyzed using a comprehensive computer program titled Risa3D. The program analyzes the mounts and masts using the worst-case code prescribed loading condition. The structures were considered to be loaded by concentric forces, and the model assumes that the members are subjected to bending, axial, and shear forces.

1.05 DESIGN LOADING

Loading was determined per the requirements of the 2021 International Building Code amended by the 2022 Connecticut State Building Code and ASCE 7 – 16 “Minimum Design Loads for Buildings and Other Structures”.

Wind Speed:	$V_{ult} = 125$ mph	<i>Appendix P of the 2022 CSBC.</i>
Wind Speed w/Ice:	$V_{ice} = 50$ mph	<i>TIA-222-H Annex B.</i>
Wind Speed w/Maintenance:	$V_m = 30$ mph	<i>TIA-222-H Section 16.3.</i>
Risk Category:	III	<i>2021 IBC; Table 1604.05</i>
Exposure Category:	Surface Roughness C	<i>ASCE 7-16; Section 26.7.2</i>
Dead Load:	Equipment and framing self-weight	<i>Identified within SAR design calculations</i>

1.06 REFERENCE STANDARDS

2021 International Building Code

- AISC 360 – 16: Specification for Structural Steel Buildings
- ASCE/SEI 7 – 16: Minimum Design Loads and Associated Criteria for Building and Other Structures

1.07 RESULTS

Member stresses and design reactions were calculated utilizing the structural analysis software RISA 3D. The mounts and masts were found to be structurally acceptable as presented in the following table:

Sector	Component	Stress Ratio (percentage of capacity)	Result
All Sectors	Pipe 2.0 STD. (Pipe Mast)	47%	PASS
	Pipe 3.0 STD. (Horizontal Support Member)	15%	PASS

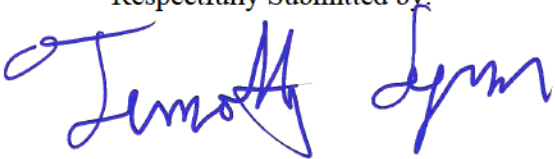
1.08 CONCLUSION

This analysis finds the existing mounts and masts to **HAVE SUFFICIENT CAPACITY** to accommodate the structural loading of the proposed antenna and equipment configuration.

The analysis is based, in part, on the information provided to this office by 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

2.00 CONDITIONS AND SOFTWARE

2.01 STANDARD ENGINEERING CONDITIONS

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, and 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 performed, results obtained, and recommendations made are 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.

2.02 GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

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 graphics 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 allow 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.

Exhibit F

Power Density/RF Emissions Report



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Radio Frequency Emissions Analysis Report



Site ID: CT11104A

Redding / Rt 107
32 Peaceable Street - pole#3261 - line#1470
006896, CT ZIP

November 21, 2024

Fox Hill Telecom Project Number: 240267

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	5.90 %



November 21, 2024

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, 006896, 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) and 2100 MHz (AWS) 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.



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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, 06896, 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.



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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	4	40
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	35
5G	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	4	60

Table 1: Channel Data Table



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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 / Amphenol APXVAALL24M-U-J20	85
A	2	RFS / Amphenol APXVLL19P 43-C-A20	85
B	1	RFS / Amphenol APXVAALL24M-U-J20	85
B	2	RFS / Amphenol APXVLL19P 43-C-A20	85
C	1	RFS / Amphenol APXVAALL24M-U-J20	85
C	2	RFS / Amphenol APXVLL19P 43-C-A20	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 / Amphenol APXVAALL24M-U-J20	600 MHz / 700 MHz	13.65 / 14.25	6	200	4,772.12	2.79
Antenna A2	RFS / Amphenol APXVLL19P 43-C-A20	1900 MHz (PCS) / 2100 MHz (AWS)	16.05 / 16.75	12	540	23,437.14	3.11
Sector A Composite MPE%							5.90
Antenna B1	RFS / Amphenol APXVAALL24M-U-J20	600 MHz / 700 MHz	13.65 / 14.25	6	200	4,772.12	2.79
Antenna B2	RFS / Amphenol APXVLL19P 43-C-A20	1900 MHz (PCS) / 2100 MHz (AWS)	16.05 / 16.75	12	540	23,437.14	3.11
Sector B Composite MPE%							5.90
Antenna C1	RFS / Amphenol APXVAALL24M-U-J20	600 MHz / 700 MHz	13.65 / 14.25	6	200	4,772.12	2.79
Antenna C2	RFS / Amphenol APXVLL19P 43-C-A20	1900 MHz (PCS) / 2100 MHz (AWS)	16.05 / 16.75	12	540	23,437.14	3.11
Sector C Composite MPE%							5.90

Table 3: T-MOBILE Emissions Levels



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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	5.90 %
No Additional Carriers Located on Site	NA
Site Total MPE %:	5.90 %

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	5.90 %
T-MOBILE Sector B Total:	5.90 %
T-MOBILE Sector C Total:	5.90 %
Site Total:	5.90 %

Table 5: Site MPE Summary



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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 on 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	4	926.96	85	9.20	600 MHz	400	2.30%
T-Mobile 700 MHz LTE	2	532.15	85	2.29	700 MHz	467	0.49%
T-Mobile 1900 MHz (PCS) LTE	4	1,409.51	85	8.10	1900 MHz (PCS)	1000	0.81%
T-Mobile 1900 MHz (PCS) 5G	4	1,610.87	85	9.20	1900 MHz (PCS)	1000	0.92%
T-Mobile 2100 MHz (AWS) LTE	4	2,838.91	85	13.80	2100 MHz (AWS)	1000	1.38%
						Total:	5.90 %

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:	5.90 %
Sector B:	5.90 %
Sector C:	5.90 %
T-MOBILE Maximum Total (per sector):	5.90 %
Site Total:	5.90 %
Site Compliance Status:	COMPLIANT

The estimated composite MPE value for this site assuming all carriers present is **5.90 %** 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

December 11, 2024

Mr. Dan Reid
Northeast Site Solutions
420 Main St,
Sturbridge, MA 01566

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

Dear Mr. Reid:

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 Haleluya Haile of Eversource Real Estate to process the site lease amendment. Please do not hesitate to contact us with questions or concerns. Haleluya can be contacted at (860) 665-6176, and I can be contacted at (860) 728-4862.

Sincerely,




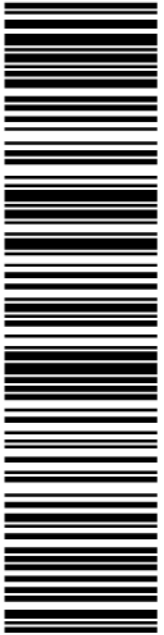

Masie Hartt

Masie Hartt
Transmission Line Engineering

Ref: 2024-0812 - CT11104A - Structural Analysis Rev2 (24066.02)
2024-1210_24066.02 CT11104A - Rev4 CDs (S&S)
2024_0723 CT11104A Mount Analysis (24066.02)

Exhibit H

Recipient Mailings

 UNITED STATES POSTAL SERVICE® Click-N-Ship®		P USPS.com 9405 5036 9930 0733 7022 32 0104 5000 0020 6875 US POSTAGE Flat Rate Env 12/18/2024 Mailed from 01606 986729409640262
PRIORITY MAIL® DEBORAH A CHASE NORTHEAST SITE SOLUTIONS 46 HUNTINGTON AVE WORCESTER MA 01606-3543 Expected Delivery Date: 12/21/24 Ref#: CT11104A 0003		
 JULIA PEMBERTON FIRST SELECTMAN- REDDING PO BOX 1028 REDDING CTR CT 06875-1028		B001
USPS TRACKING #  9405 5036 9930 0733 7022 32		
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 0733 7022 32

Trans. #: 607001658
 Print Date: 12/18/2024
 Ship Date: 12/18/2024
 Expected Delivery Date: 12/21/2024

Priority Mail® Postage: **\$10.45**
 Total: **\$10.45**

From: DEBORAH A CHASE
 NORTHEAST SITE SOLUTIONS
 46 HUNTINGTON AVE
 WORCESTER MA 01606-3543

Ref#: CT11104A

To: JULIA PEMBERTON
 FIRST SELECTMAN- REDDING
 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

CT 11104A - L600



GREENDALE
290 W BOYLSTON ST
WORCESTER, MA 01606-2378
(800)275-8777

12/18/2024

10:44 AM

Product	Qty	Unit Price	Price
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Prepaid Mail	1		\$0.00
Redding Center, CT 06875			
Weight: 0 lb 15.10 oz			
Acceptance Date:			
Wed 12/18/2024			
Tracking #:			
9405 5036 9930 0733 7022 32			

Prepaid Mail	1		\$0.00
Redding Center, CT 06875			
Weight: 0 lb 15.10 oz			
Acceptance Date:			
Wed 12/18/2024			
Tracking #:			
9405 5036 9930 0733 7022 49			

Prepaid Mail	1		\$0.00
Redding, CT 06896			
Weight: 0 lb 15.10 oz			
Acceptance Date:			
Wed 12/18/2024			
Tracking #:			
9405 5036 9930 0733 7022 56			

Grand Total:			\$0.00
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