

November 9, 2022

City of Newburyport Historical Commission
Attn: Katelyn Sullivan, Planner
60 Pleasant Street
Newburyport, MA 01950
(978) 465-4400 ext 2
kesullivan@cityofnewburyport.com
planning@cityofnewburyport.com

Subject: Invitation to Comment – UPDATE
4BNI531C / Forrester Prof Bldg (L600)
37 ½ Forrester Street, Newburyport, Essex County, Massachusetts
EBI Project # 6122006263

Dear Katelyn Sullivan:

Pursuant to Section 106 of the National Historic Preservation Act, the regulations promulgated thereunder and interagency agreements developed thereto, EBI Consulting, Inc., on behalf of T-Mobile, provides this notice of a proposed telecommunications facility installation at the address listed above.

EBI sent project information to your office on July 15, 2022. Since that time EBI has received revised project drawings. Please refer to the attached plans for details.

Please note that we are requesting your review of the attached information as part of the Section 106 process only and not as part of the local zoning process. We are only seeking comments related to the proposed project's potential effect to historic properties.

Please submit your comments regarding the proposed project's potential effect on historic properties to EBI Consulting, to my attention at 21 B Street, Burlington, MA 01803, or contact me via telephone at the number listed below. Please reference the EBI project number. We would appreciate your comments as soon as possible within the next 30 days.

Note that this project will be entered into the Federal Communication Commission's e106 System, which will send notifications of the project throughout the Section 106 process.

Respectfully Submitted,



Emily Giacomarra
Architectural Historian
egiacomarra@ebiconsulting.com
T (774) 258-0042

Attachments – Revised Drawings



**T-MOBILE NORTHEAST LLC
L600**

**SITE #: 4BN1531C
SITE NAME: BN531 / FORRESTER PROF BLDG
37 1/2 FORRESTER STREET
NEWBURYPORT, MA 01950
ESSEX COUNTY**

CONSTRUCTION DRAWINGS
ALL SCALES RELATIVE TO 24"X36" PAGE SIZE

T-Mobile
T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700
FAX: (508) 286-2893

**ELEVATED
ENGINEERING**
976 TABOR ROAD, UNIT 6
MORRIS PLAINS, NJ 07950
862-242-8050

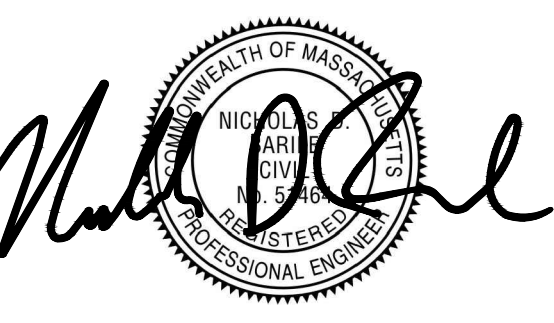
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SCALE: AS NOTED
JOB NO: 21046-TRN

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, MA LIC. No. 51464

**4BN1531C
BN531/FORRESTER PROF BLDG
37 1/2 FORRESTER ST
NEWBURYPORT, MA 01950
ESSEX COUNTY**

DRAWING TITLE:
TITLE SHEET

DRAWING SHEET:
T-1

GENERAL NOTES

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

THE FACILITY IS AN UNMANNED, PRIVATE, AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND, THEREFORE, DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

**RAN CONFIGURATION: 67E998E OUTDOOR
A&L CONFIGURATION: 67E998E_10P+1QP**



KEY MAP
SCALE = N.T.S.

UNDERGROUND SERVICE ALERT



**Know what's below.
Call before you dig.**

CALL TOLL FREE: 888-DIG-SAFE
(888-344-7233)

SITE LOCATION INFORMATION

SITE NUMBER: 4BN1531C
SITE ADDRESS: 37 1/2 FORRESTER STREET
NEWBURYPORT, MA 01950
COUNTY: ESSEX COUNTY
PARCEL ID: MAP 2B, BLOCK 62, LOT 35
PROPERTY OWNER: ZACHARY LONGLEY – ZARR LIMITED PARTNERSHIP
37 1/2 FORRESTER STREET
NEWBURYPORT, MA 01950
APPLICANT: T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766

SITE CHARACTERISTICS

LATITUDE: N42°49'12.67" (42.8201868°)
LONGITUDE: W70°53'23.72" (-70.8899228°)
STRUCTURE TYPE: ROOFTOP
LOCATION OF PROPOSED EQUIPMENT: ROOFTOP PLATFORM
STRUCTURE HEIGHT: ±37'-0" AGL (TOP OF PARAPET)
ANTENNA (RAD CENTER) ALPHA - ±45'-0" AGL
BETA - ±45'-0" AGL
GAMMA - ±45'-0" AGL

SHEET INDEX

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A-4	FINAL EQUIPMENT PLAN & ANTENNA SCHEDULE
A-5	DETAILS
S-1	ANTENNA MOUNT DETAILS
E-1	GROUNDING DETAILS & ONE-LINE DIAGRAM

SPECIAL STRUCTURAL NOTES

STRUCTURE OWNER SHALL BE RESPONSIBLE FOR GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.

STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS COMPLETED BY ELEVATED ENGINEERING, PLLC ON BEHALF OF T-MOBILE ARE INCLUSIVE OF THE ENTIRE ANTENNA SUPPORT STRUCTURE (GLOBAL STRUCTURAL STABILITY ANALYSIS BY OTHERS), EXISTING PLATFORM, EXISTING ANTENNA MOUNTS, AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE T-MOBILE EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.

ELEVATED ENGINEERING, PLLC ASSUMES THAT THE STRUCTURE IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTIONS ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NOT DETERIORATION TO IT'S MEMBER CAPACITIES.

APPROVALS

	DATE
PROJECT MANAGER	
CONSTRUCTION	
RF ENGINEERING	
ZONING / SITE ACQUISITION	
OPERATIONS	
OWNER	

GENERAL NOTES

- FOR THE PURPOSE OF THE CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTORS – TO BE DETERMINED
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – T-MOBILE
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE PROVIDED BY THE SUBCONTRACTOR.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSED AND ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY CONTRACTOR.

- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
- THE SUBCONTRACTOR SHALL PROTECT THE EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTORS EXPENSE TO THE SATISFACTION OF OWNER.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIAL SUCH AS COAXIAL CABLE AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNERS DESIGNATED LOCATION.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
- ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
- ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHED AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
- CONSTRUCTION SHALL COMPLY WITH UMS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
- SUBCONTRACTORS SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

- THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. APPLICABLE BUILDING CODES:

SUBCONTRACTORS WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

- BUILDING CODE: MA STATE BUILDING CODE 780 CMR 8TH EDITION
- ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
- LIGHTNING CODE: REFER TO ELECTRICAL DRAWINGS

SUBCONTRACTORS WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

- AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE
- AMERICAN INSTITUTE FOR STEEL CONSTRUCTION (AISC)
- MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
- TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL
- ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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

ELECTRICAL & GROUNDING NOTES

- THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO LIGHTNING PROTECTION AND AS POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO THE BTS EQUIPMENT.
- EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- APPROVED ANTIOXIDANT COATING (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

- METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- ALL NEW STRUCTURE WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN OR THIN INSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

- GROUNDING SHALL COMPLY WITH NEW ART. 250.

- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON DRAWING.
- ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
- CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT)
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- BOND ANTENNA MOUNTING BRACKETS. COAXIAL CABLE GROUND KITS AND ALNA TO EGB PLACES NEAR THE ANTENNA LOCATION.
- BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
- TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
- BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
- VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE		
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED	TYP	TYPICAL

T-Mobile

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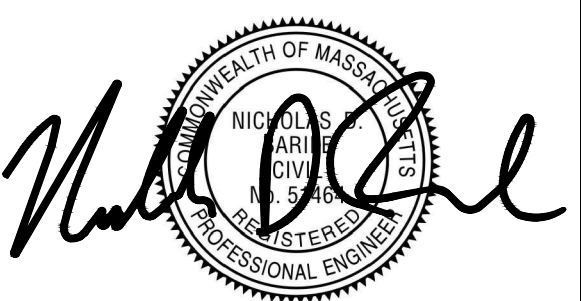
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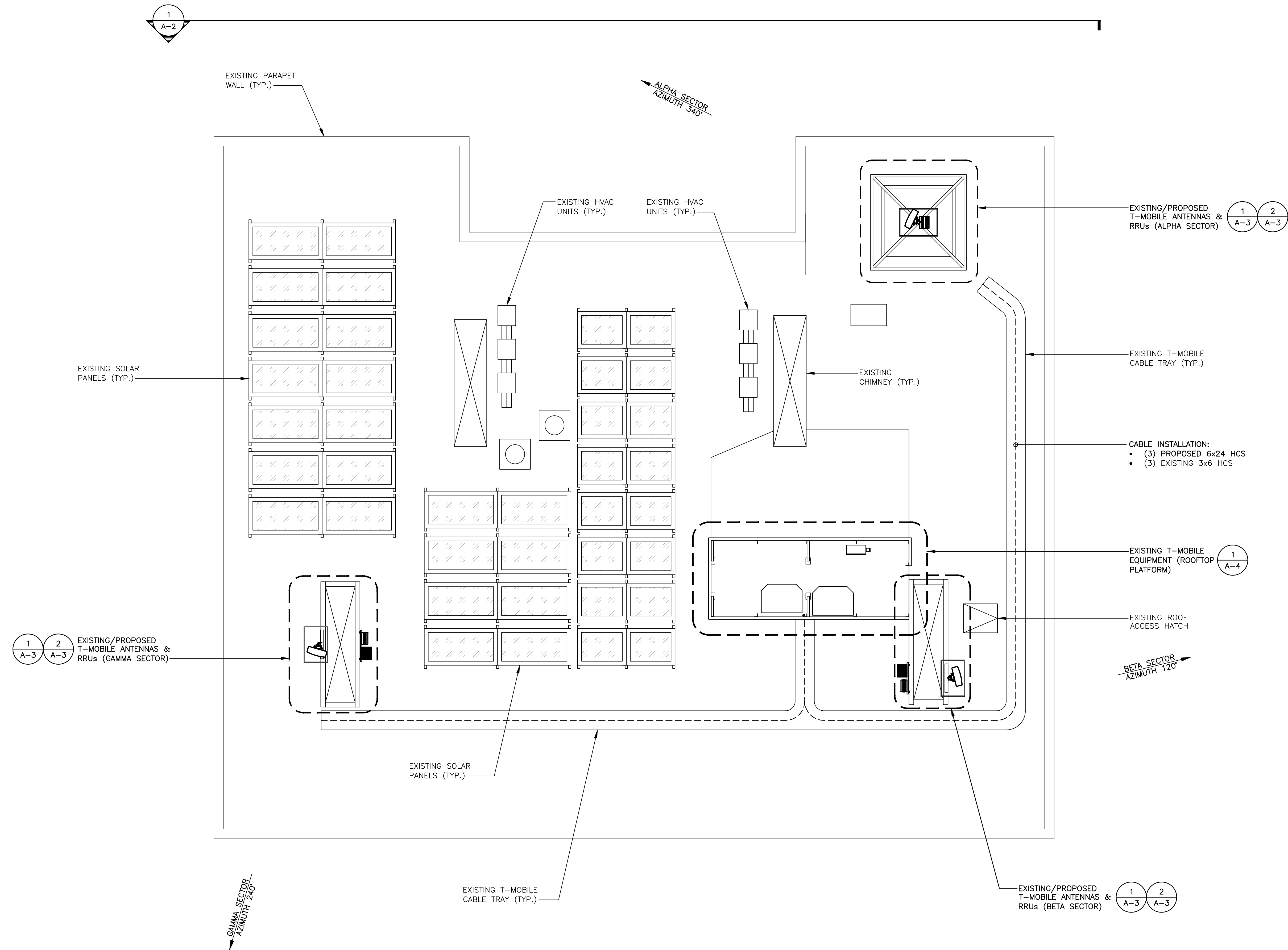
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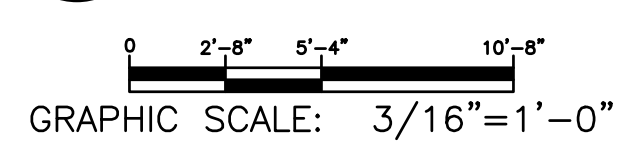
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GN-1

FORRESTER STREET



1 ROOF PLAN
A-1 SCALE: 3/16"=1'-0"



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PROFESSIONAL ENGINEER, MA LIC. No. 51464

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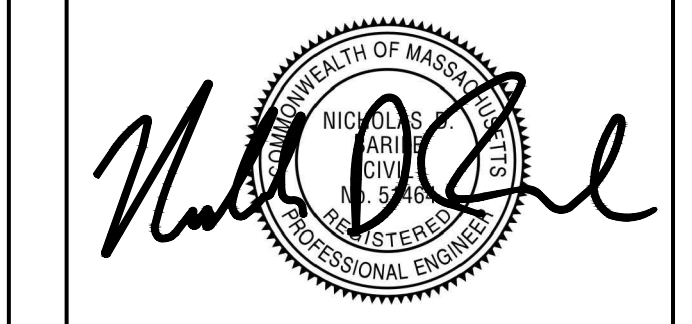
SCHEDULE OF REVISIONS

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2	02/18/22	ISSUED AS FINAL
1	02/03/22	PER RF ENCLASURE DESIGN
0	01/05/22	INITIAL SUBMISSION

REV NO. DATE DESCRIPTION OF CHANGES

DRAWN BY: CJT
CHECKED BY: NDB
SCALE: AS NOTED
JOB NO: 21046-TRN

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NICHOLAS D. BARILE
 PROFESSIONAL ENGINEER, MA LIC. No. 51464

4BN1531C
BN531/FORRESTER PROF BLDG
37 1/2 FORRESTER ST
NEWBURYPORT, MA 01950
ESSEX COUNTY

DRAWING TITLE:

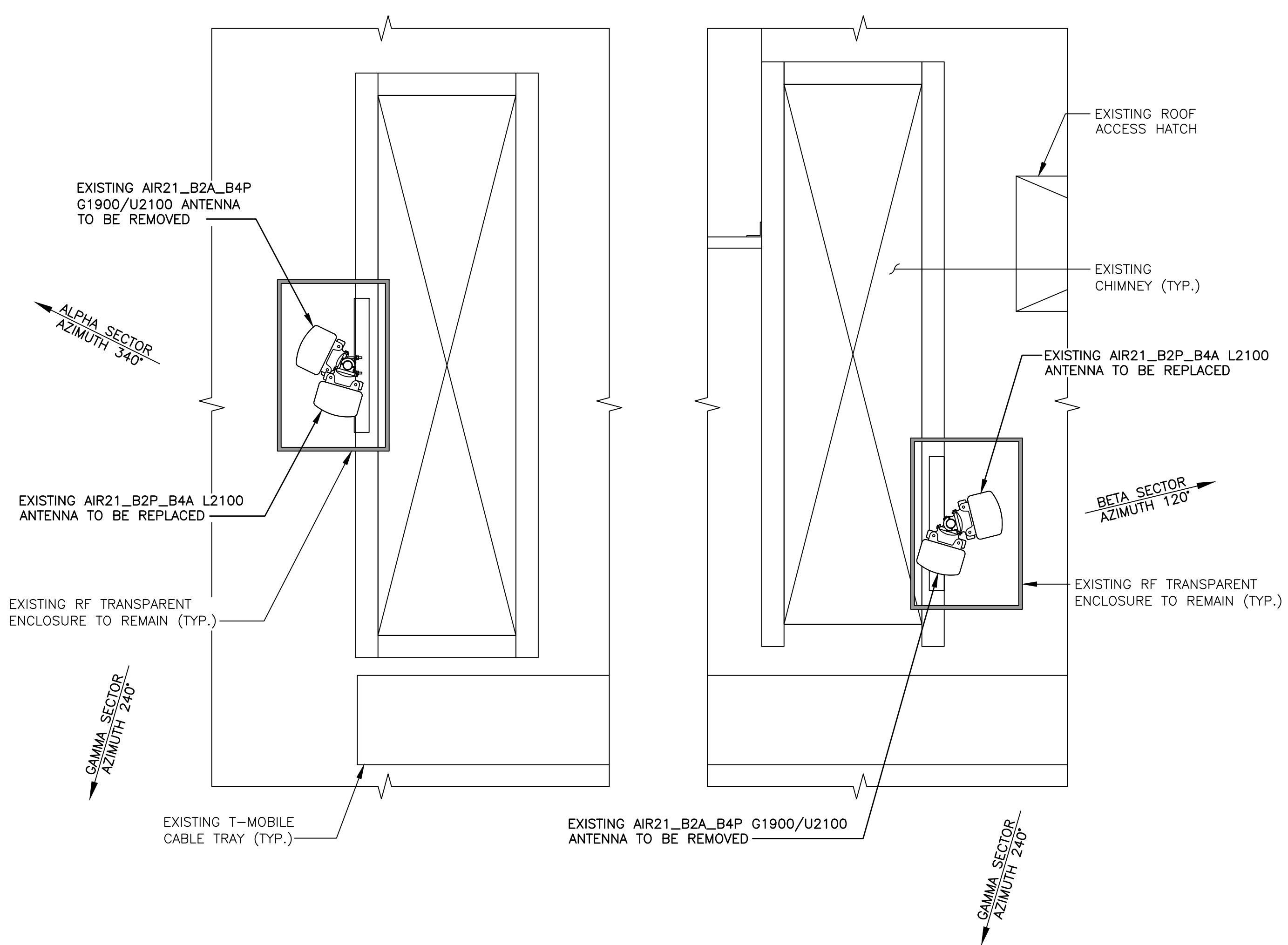
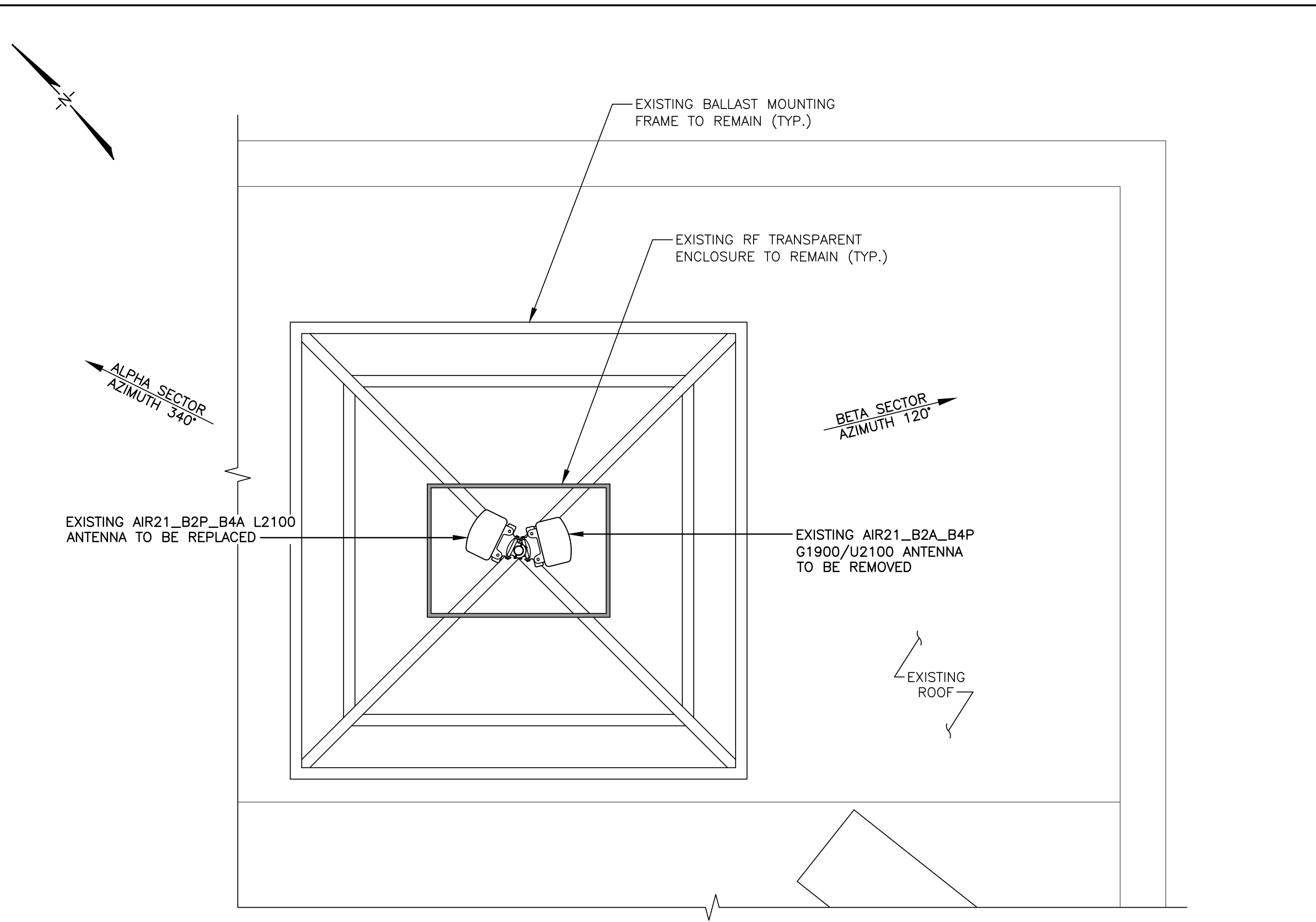
ELEVATION

DRAWING SHEET:

A-2



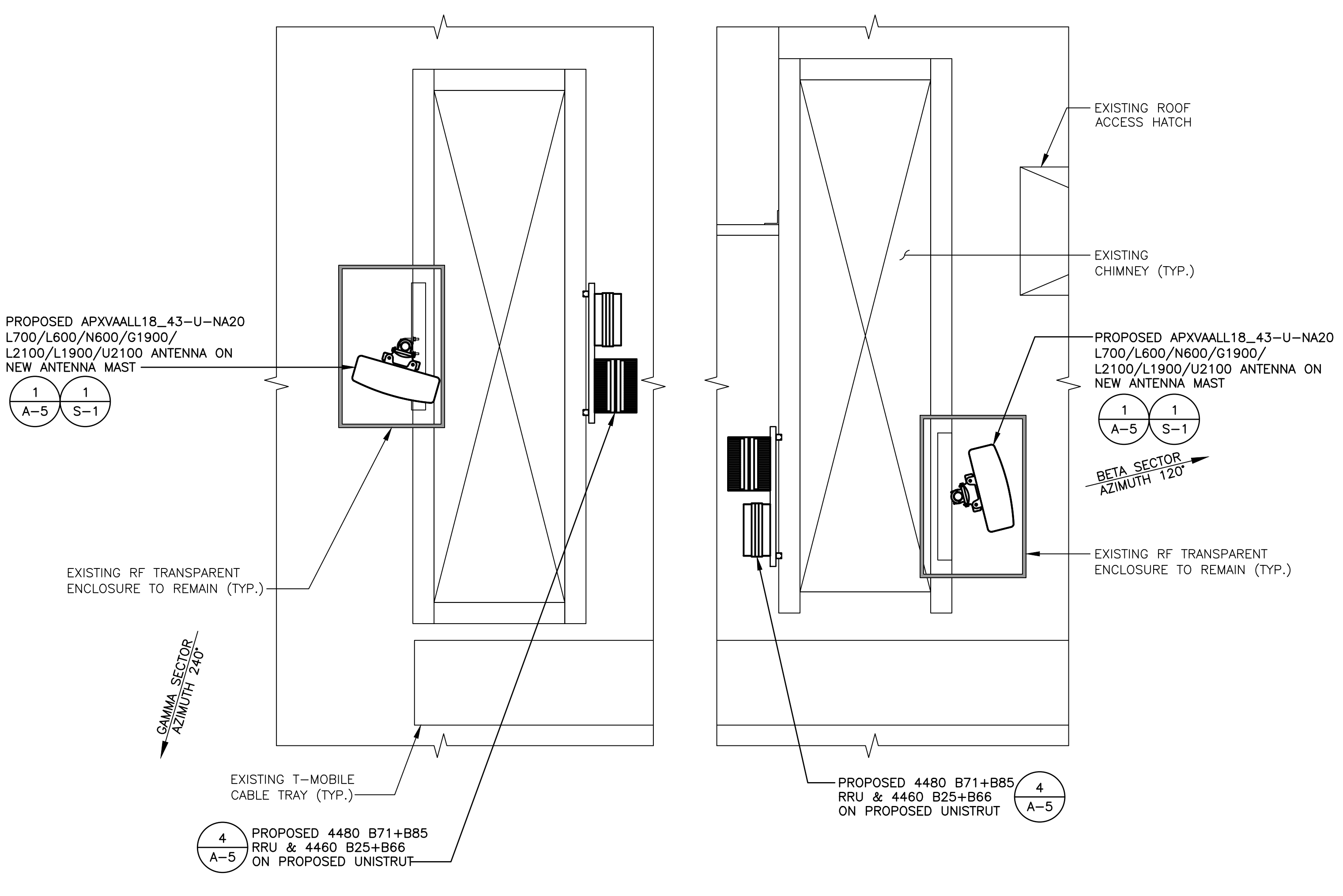
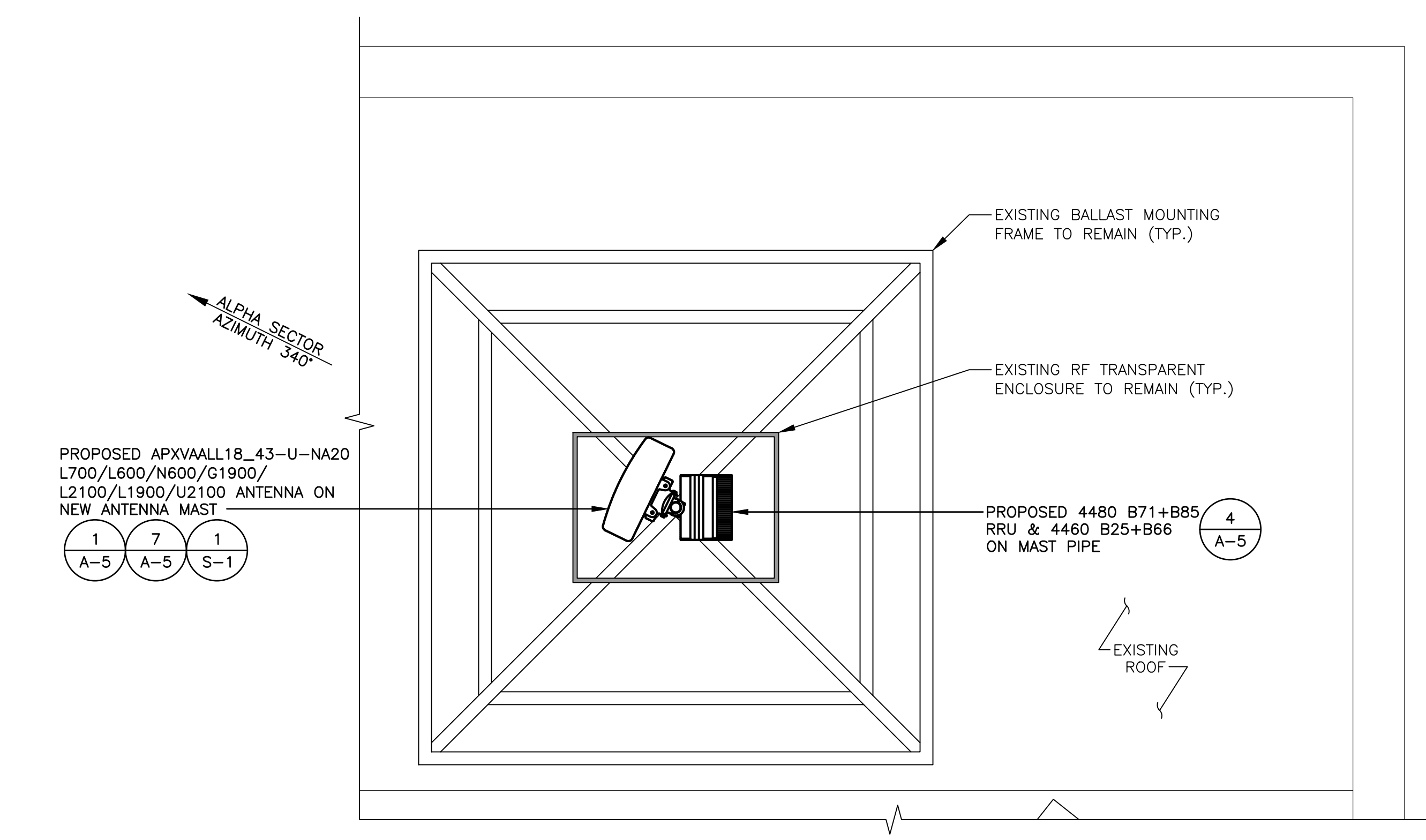
1
A-2 ELEVATION
 SCALE: 1/4"=1'-0"
 GRAPHIC SCALE: 1/4"=1'-0"



1 EXISTING ANTENNA PLANS
A-3 SCALE: 1/2"=1'-0"

BLOCK TYPE	HOLLOW FULL BLOCK (8x8x16 HOLLOW CMU)	SOLID FULL BLOCK (8x8x16 SOLID CMU)	SOLID HALF BLOCK (4x8x16 SOLID CMU)
BLOCK WEIGHT	37LBS	68LBS	34LBS
BLOCK COUNT FRONT TRAY	23	13	25
BLOCK COUNT TOTAL	92	52	100

*CONTRACTOR TO PROVIDE 848LBS OF BALLAST IN EACH TRAY. 3,390LBS TOTAL.



LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE STRUCTURAL ANALYSIS PERFORMED BY ELEVATED ENGINEERING, DATED OCTOBER 27, 2022. CONTRACTOR TO NOTIFY ENGINEER AND CARRIER IN THE EVENT SITE CONDITIONS DIFFER FROM WHAT IS REPRESENTED IN THE STRUCTURAL ANALYSIS. NO SUBSTITUTIONS ARE PERMITTED WITHOUT ADDITIONAL ANALYSIS.

2 FINAL ANTENNA PLANS
A-3 SCALE: 1/2"=1'-0"

T-Mobile
T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700
FAX: (508) 286-2893

ELEVATED ENGINEERING
976 TABOR ROAD, UNIT 6
MORRIS PLAINS, NJ 07950
862-242-8050

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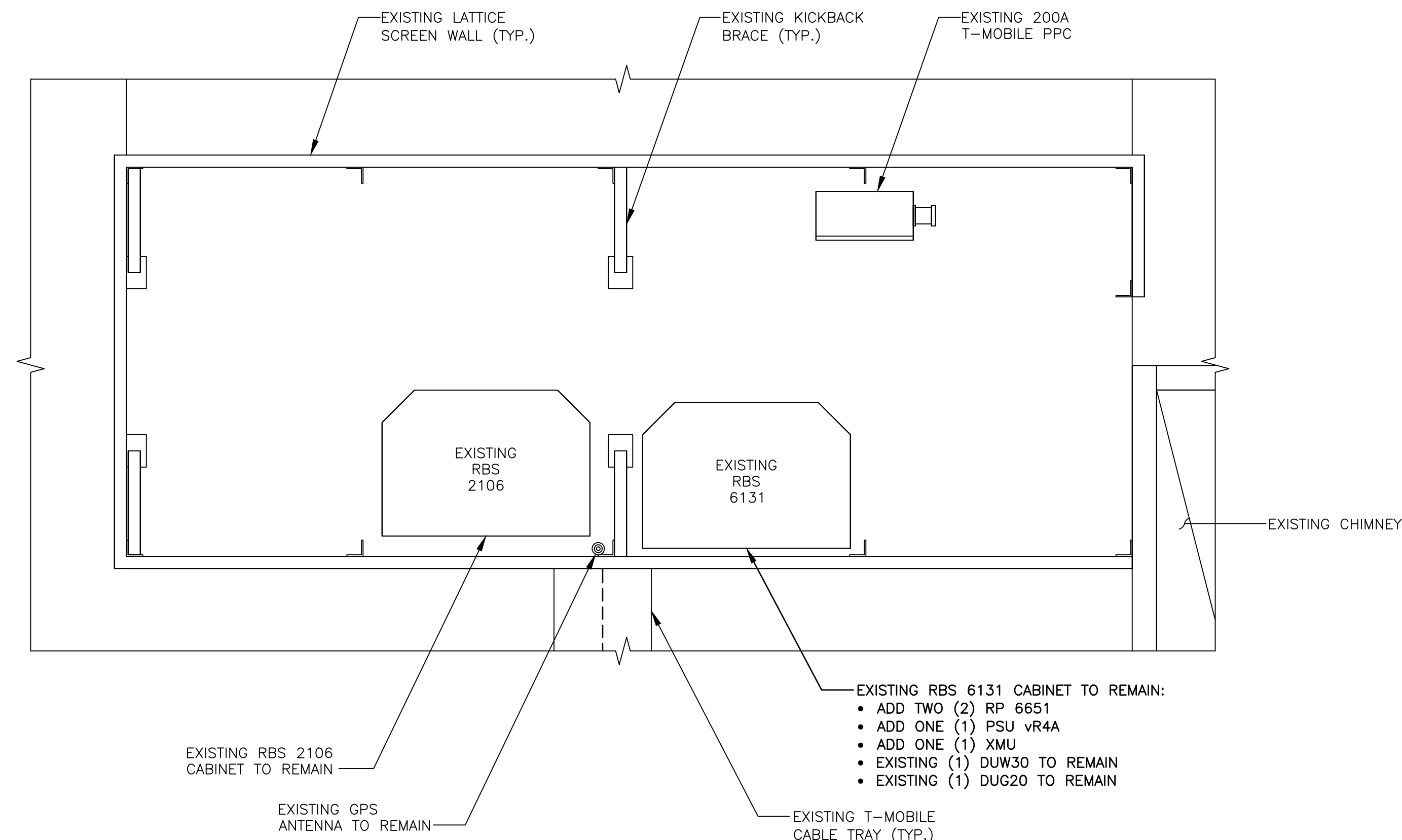
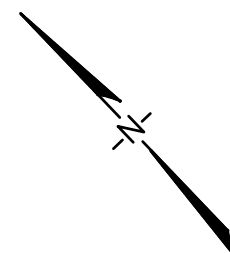
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NEWBURYPORT, MA 01950
ESSEX COUNTY

DRAWING TITLE:
ANTENNA PLANS

DRAWING SHEET:
A-3



1 FINAL EQUIPMENT PLAN
A-4 SCALE: 1/2"=1'-0"
 GRAPHIC SCALE: 1/2"=1'-0"

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 T-MOBILE NORTHEAST LLC
 15 COMMERCE WAY, SUITE B
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 FAX: (508) 286-2893

ELEVATED ENGINEERING
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 862-242-8050

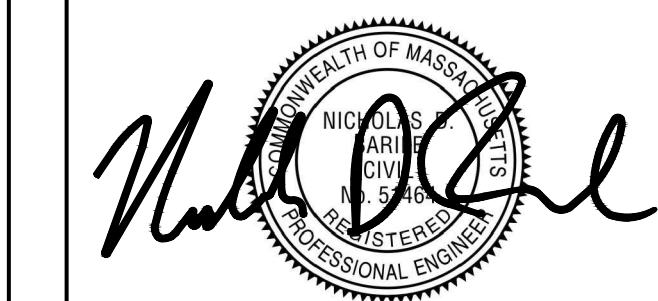
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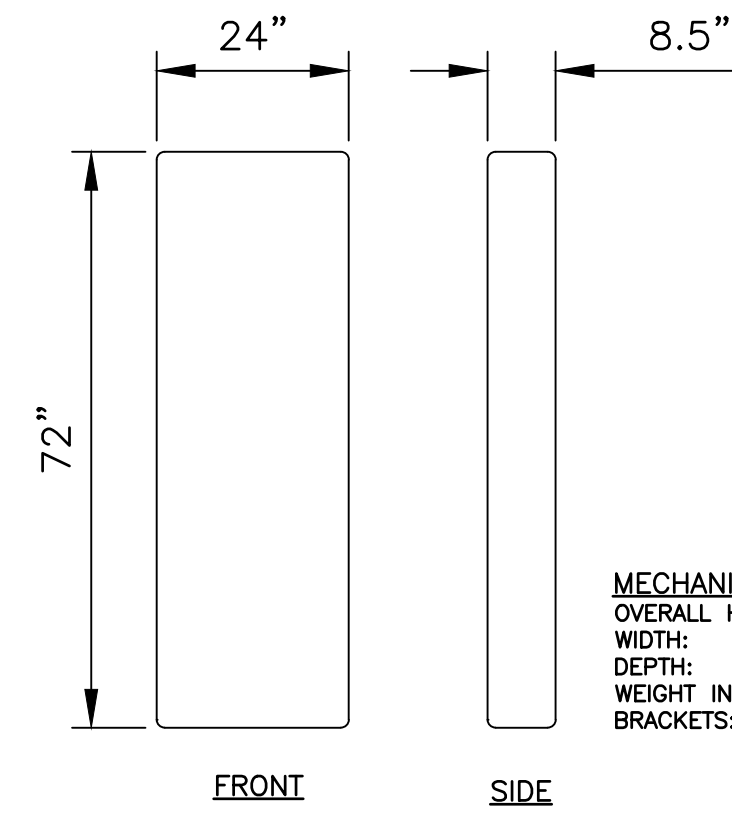
DRAWING TITLE:
FINAL EQUIPMENT PLAN & ANTENNA SCHEDULE

DRAWING SHEET:
A-4

ANTENNA INFORMATION																	
SECTOR	POSITION (FROM REAR LEFT TO RIGHT)	EXISTING			PROPOSED												
		MODEL	QTY		MODEL	ANT. C.L.	SECTOR MARK	QTY	E-TILT	M-TILT	RRU MODEL/QUANTITY	DIPLEXER/COMBINERS	TMA	COAX/FIBER QUANTITY	COAX/FIBER SIZE	COAX/FIBER LENGTH	HCS QTY./TYPE/LENGTH
ALPHA 340°	R1	AIR21 KRC118023-1_B2A_B4P	1		APXVAALL18_43-U-NA20	45°-0"	N600/L700/L600/G1900/L2100/L1900/U2100	1	4/4/0/0	0	(1) 4480 B71+B85 (1) 4460 B25+B66	-	-	8 4	COAX JUMPER FIBER JUMPER	10' 10'	(1) 3x6 HCS 85° (1) 6x24 HCS 85°
	R2	AIR21 KRC118023-1_B2P_B4A	1		-	-	-	-	-	-	-	-	-	-	-	-	-
BETA 120°	W1	AIR21 KRC118023-1_B2A_B4P	1		APXVAALL18_43-U-NA20	45°-0"	N600/L700/L600/G1900/L2100/L1900/U2100	1	4/4/0/0	0	(1) 4480 B71+B85 (1) 4460 B25+B66	-	-	8 4	COAX JUMPER FIBER JUMPER	10' 10'	(1) 3x6 HCS 110° (1) 6x24 HCS 110°
	W2	AIR21 KRC118023-1_B2P_B4A	1		-	-	-	-	-	-	-	-	-	-	-	-	-
GAMMA 240°	B1	AIR21 KRC118023-1_B2A_B4P	1		APXVAALL18_43-U-NA20	45°-0"	N600/L700/L600/G1900/L2100/L1900/U2100	1	4/4/0/0	0	(1) 4480 B71+B85 (1) 4460 B25+B66	-	-	8 4	COAX JUMPER FIBER JUMPER	10' 10'	(1) 3x6 HCS 45° (1) 6x24 HCS 45°
	B2	AIR21 KRC118023-1_B2P_B4A	1		-	-	-	-	-	-	-	-	-	-	-	-	-

AT TIME OF CONSTRUCTION, CONTRACTOR TO VERIFY AZIMUTHS OF EXISTING ANTENNAS. IF DIFFERENT FROM RFDS, PLEASE NOTIFY THE RF ENGINEER AND CONSTRUCTION MANAGER WITH ACTUAL AZIMUTH TO ENSURE T-MOBILE'S DATABASE IS ACCURATE AND UP-TO-DATE.

INFORMATION SHOWN PROVIDED ON T-MOBILE RFDS DATE 08/09/22.

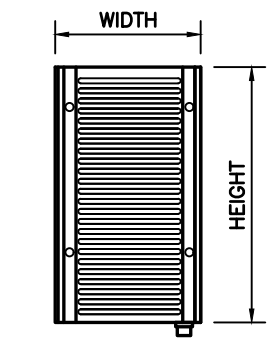


MECHANICAL SPECIFICATIONS
 OVERALL HEIGHT: 72 IN.
 WIDTH: 24 IN.
 DEPTH: 8.5 IN.
 WEIGHT INCLUDING BRACKETS: 118.3 LBS

1
 A-5 PROPOSED ANTENNA
 RFS APXVAALL18_43-U-NA20
 N.T.S.

2
 A-5 DETAIL NOT USED
 N.T.S.

3
 A-5 DETAIL NOT USED
 N.T.S.



RRH	HEIGHT	WIDTH	DEPTH	WEIGHT
RADIO 4460 B25+B66	17.0"	15.1"	11.9"	104 LBS.
RADIO 4480 B71+B85	19.2"	15.1"	7.5"	93 LBS.

4
 A-5 RRU DETAILS
 SCALE: NTS

T-Mobile
 T-MOBILE NORTHEAST LLC
 15 COMMERCE WAY, SUITE B
 NORTON, MA 02766
 OFFICE: (508) 286-2700
 FAX: (508) 286-2893

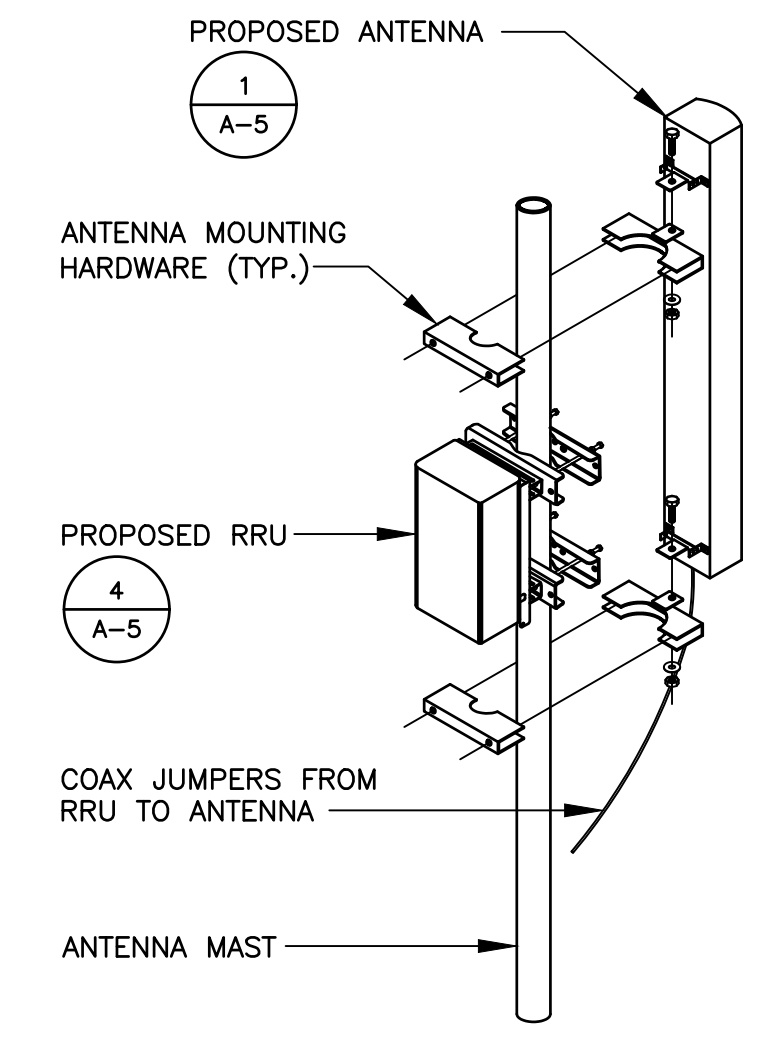
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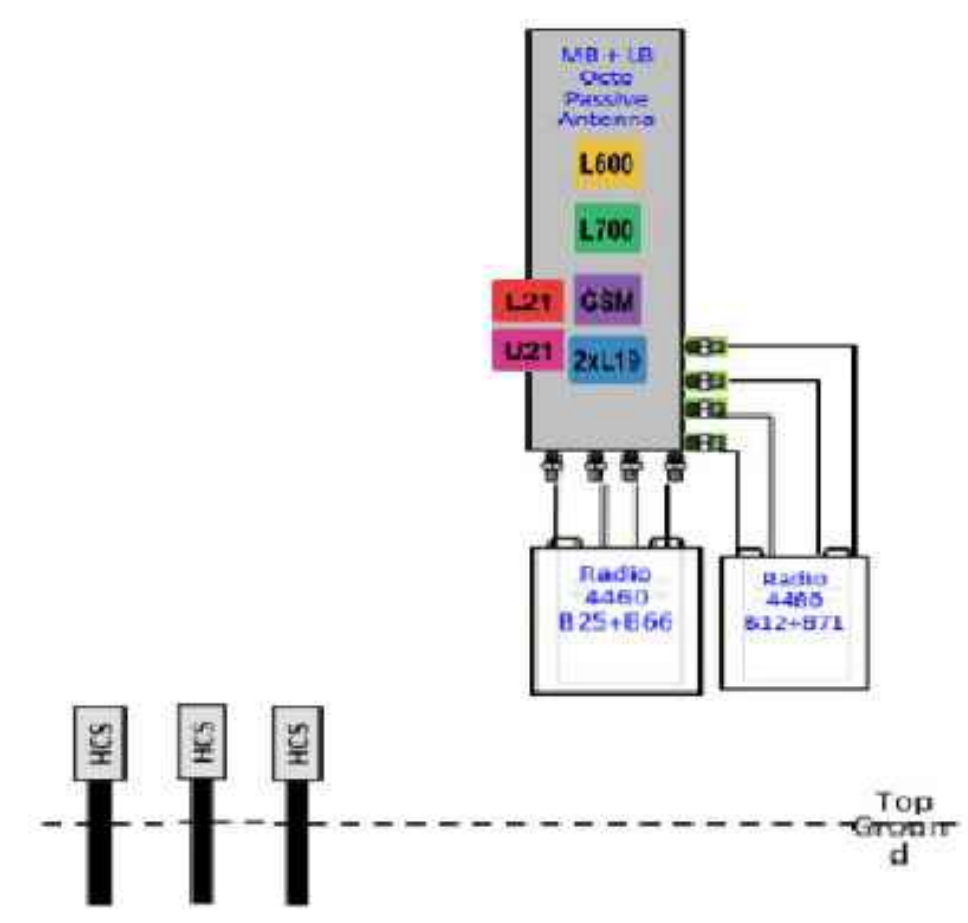
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CHECKED BY: NDB
SCALE: AS NOTED
JOB NO: 21046-TRN



7
 A-5 TYPICAL ANTENNA INSTALLATION DETAIL
 SCALE: N.T.S.



8
 A-5 ANTENNA & COAX CABLE SCHEMATIC
 SCALE: N.T.S.

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NEWBURYPORT, MA 01950
ESSEX COUNTY

DRAWING TITLE:

DETAILS

DRAWING SHEET:

A-5

5
 A-5 DETAIL NOT USED
 SCALE: N.T.S.

6
 A-5 DETAIL NOT USED
 N.T.S.

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Nicholas D. Barile
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 PROFESSIONAL ENGINEER
 MA LIC. NO. 51464

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 PROFESSIONAL ENGINEER, MA LIC. No. 51464

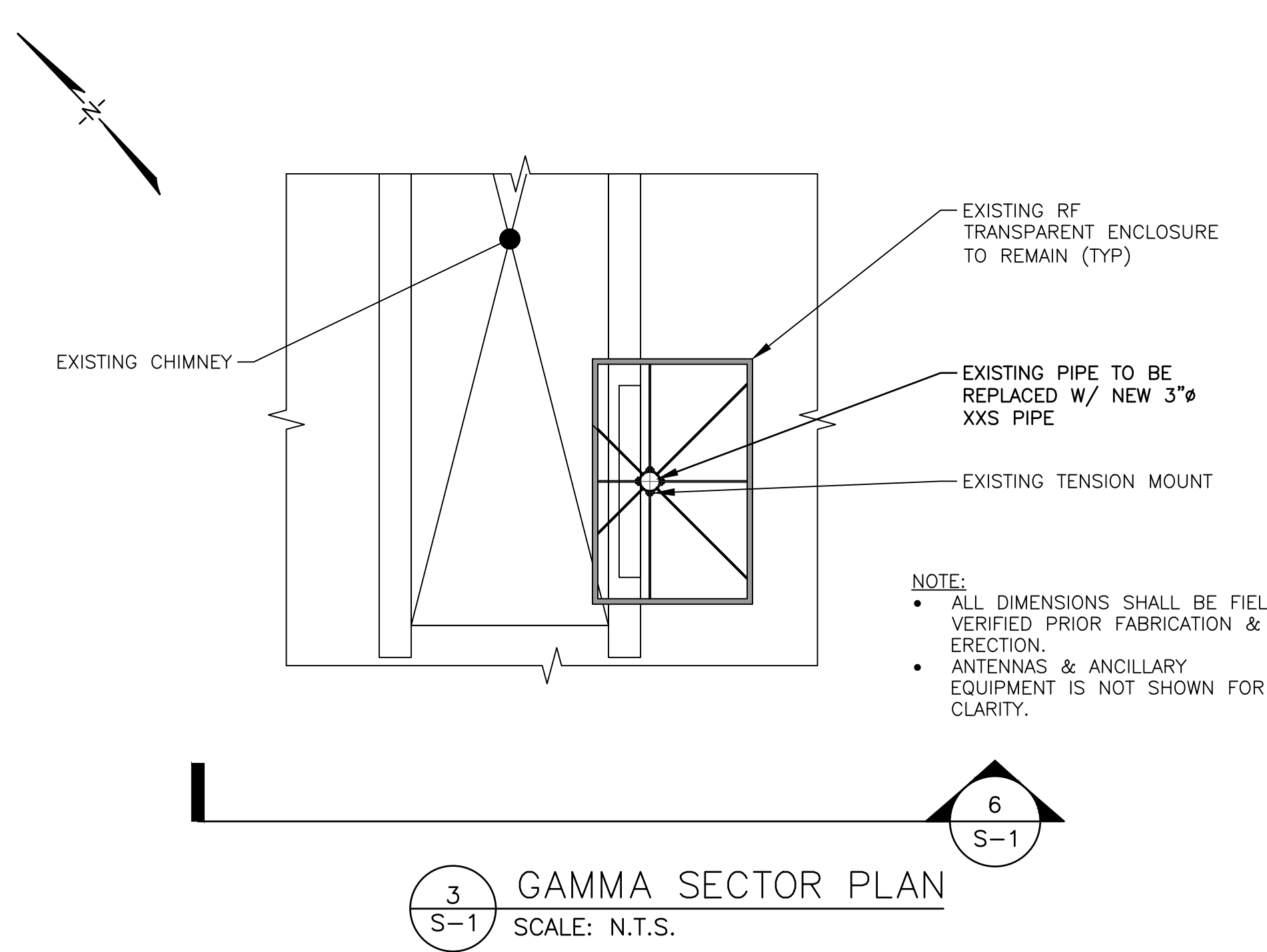
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ESSEX COUNTY

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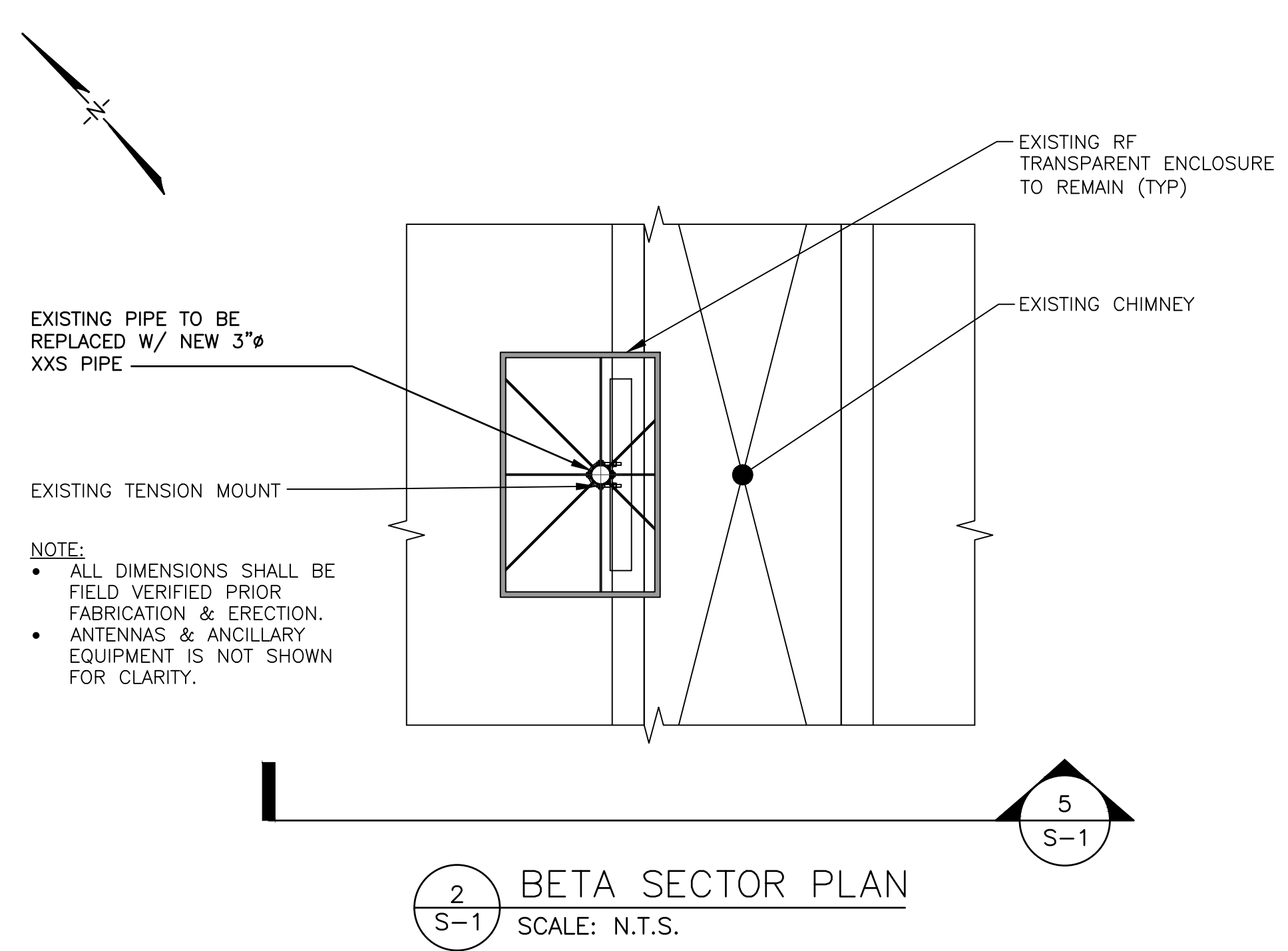
ANTENNA MOUNT DETAILS

DRAWING SHEET:

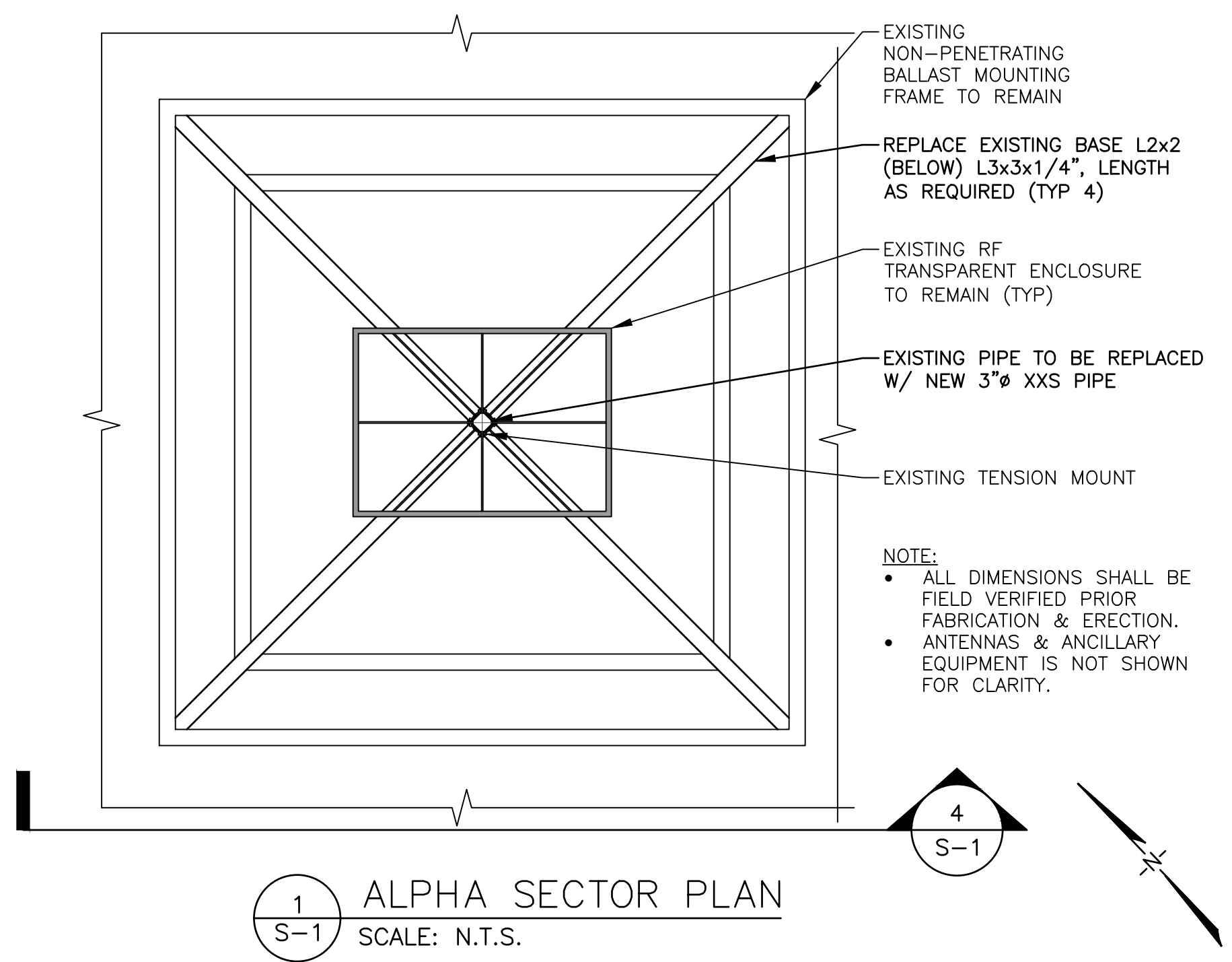
S-1



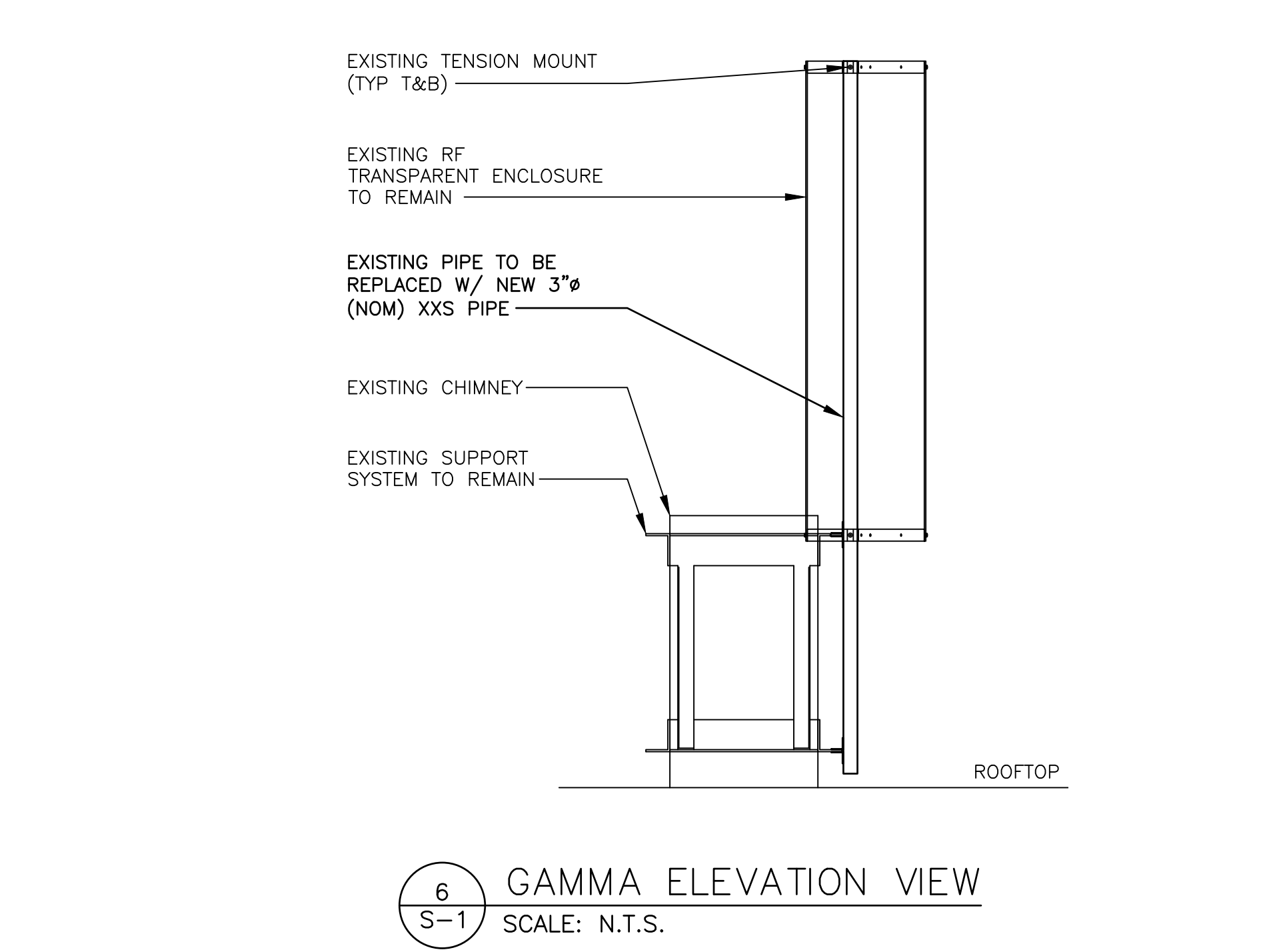
3
 S-1
GAMMA SECTOR PLAN
 SCALE: N.T.S.



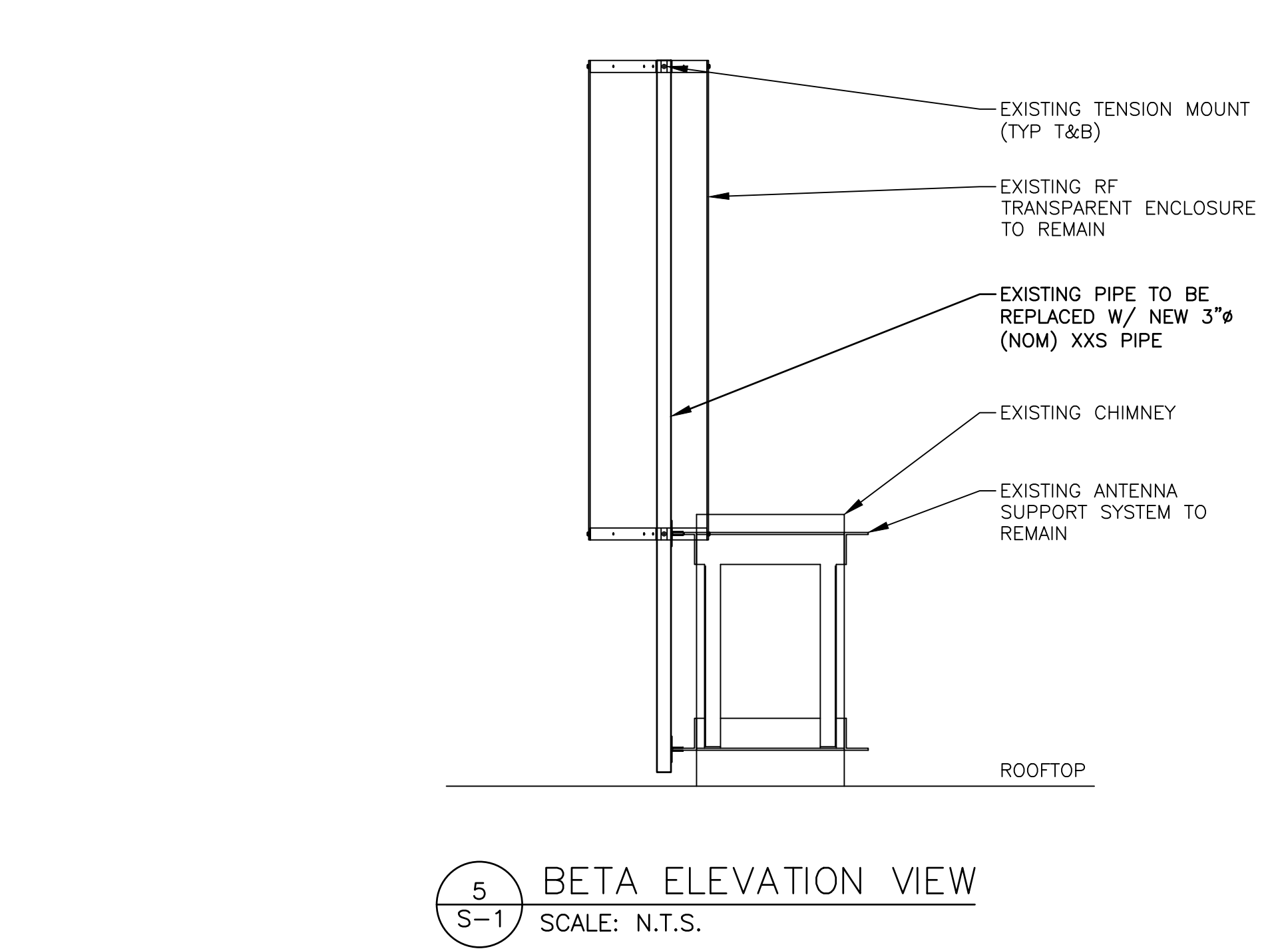
2
 S-1
BETA SECTOR PLAN
 SCALE: N.T.S.



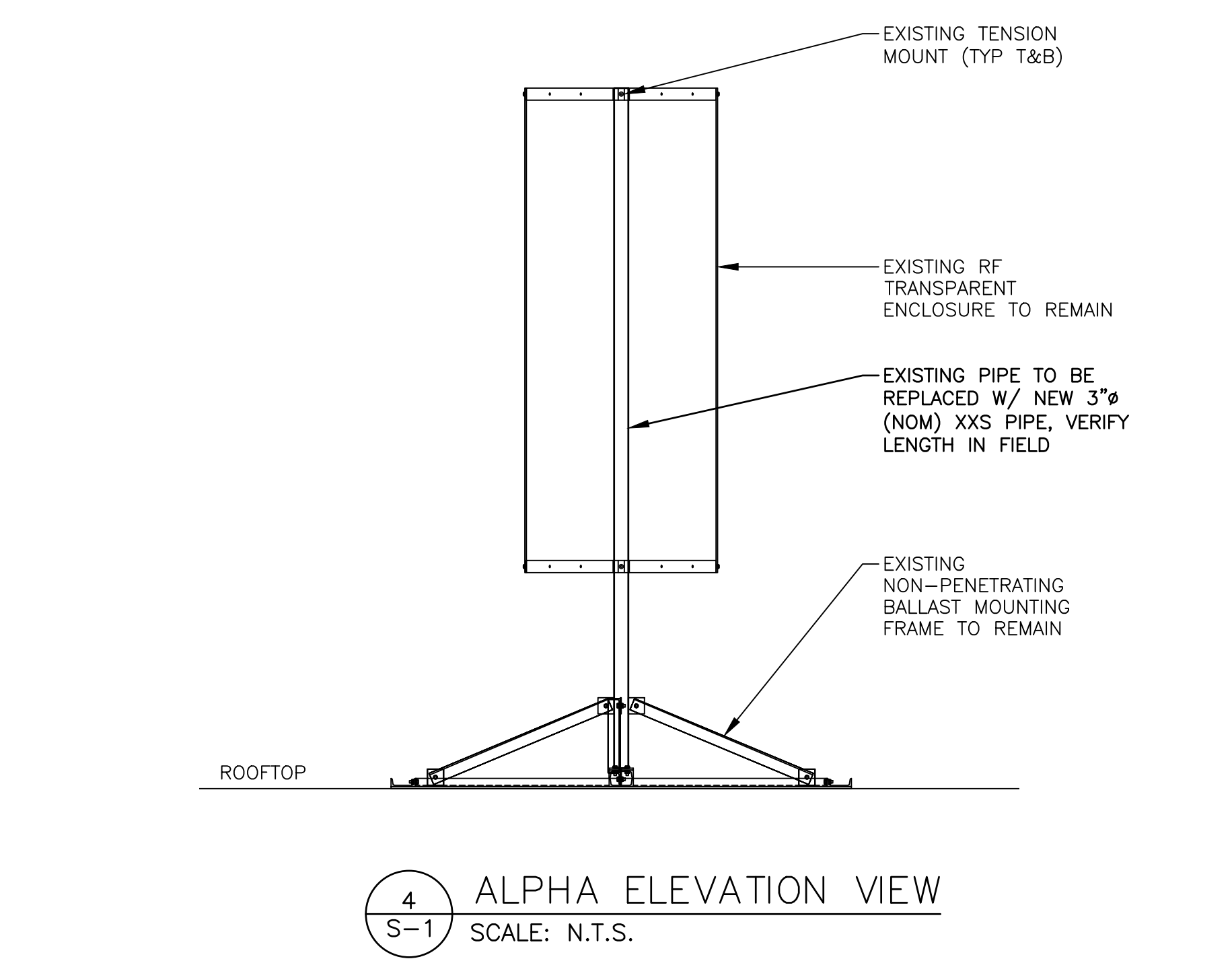
1
 S-1
ALPHA SECTOR PLAN
 SCALE: N.T.S.



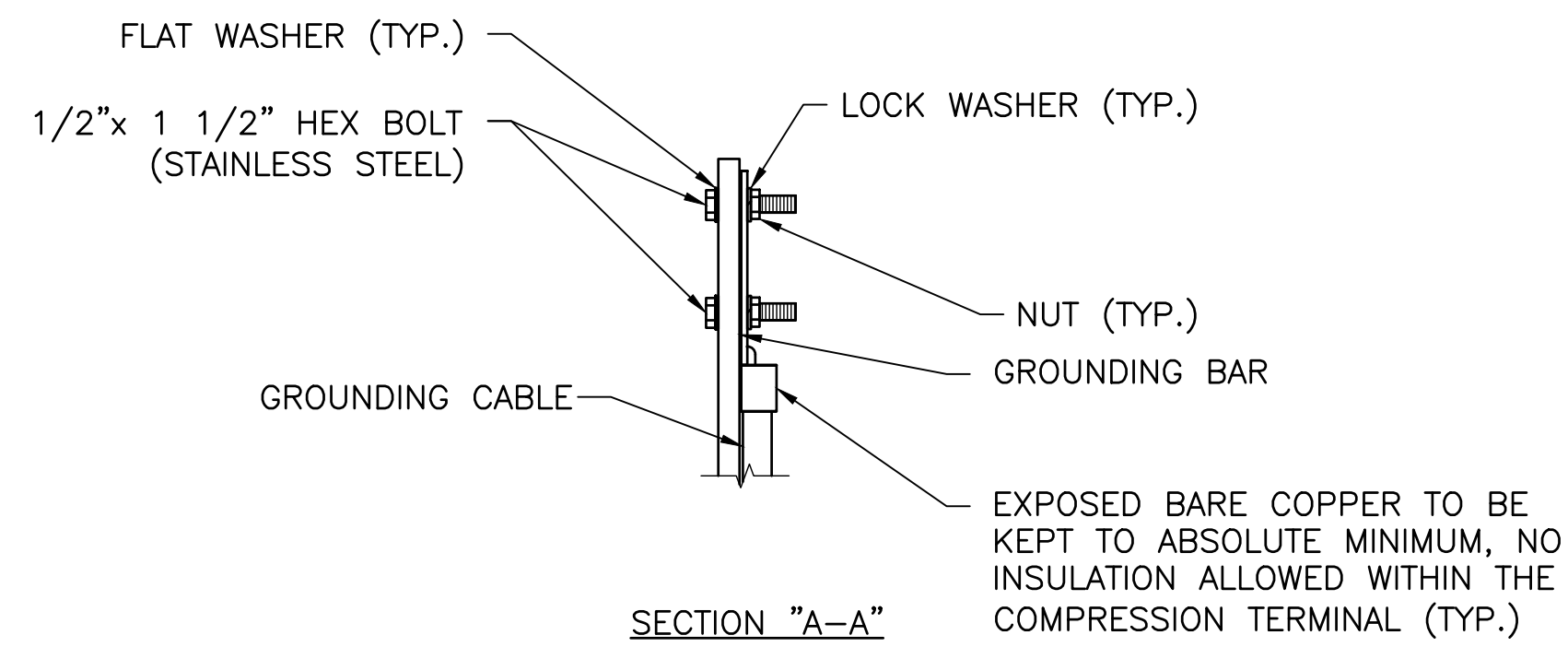
6
 S-1
GAMMA ELEVATION VIEW
 SCALE: N.T.S.



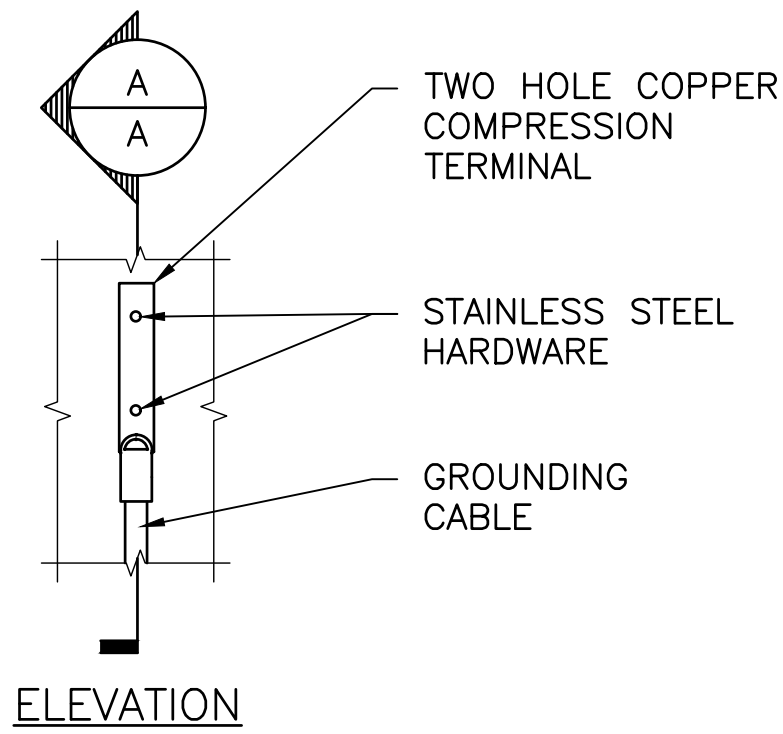
5
 S-1
BETA ELEVATION VIEW
 SCALE: N.T.S.



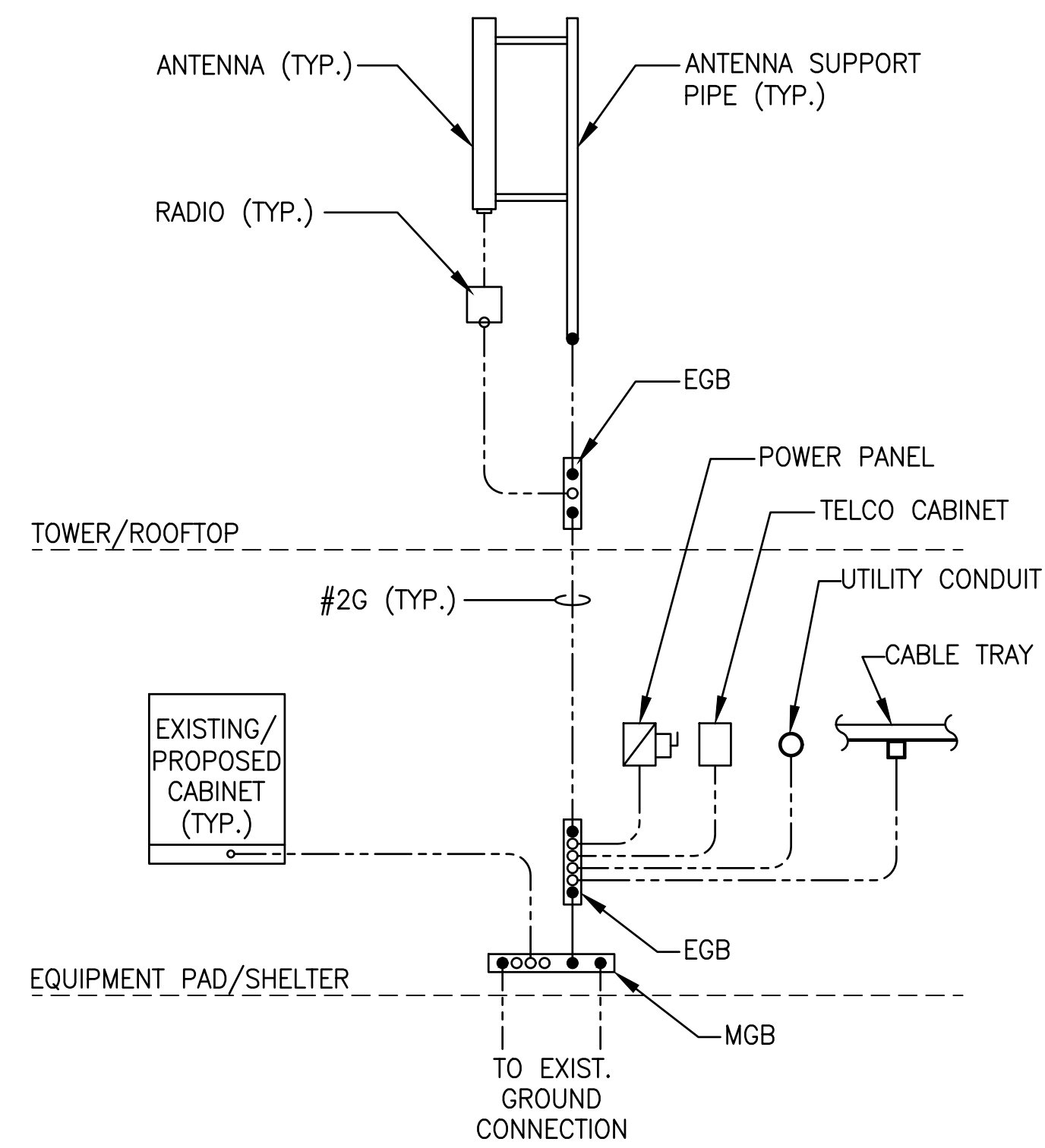
4
 S-1
ALPHA ELEVATION VIEW
 SCALE: N.T.S.



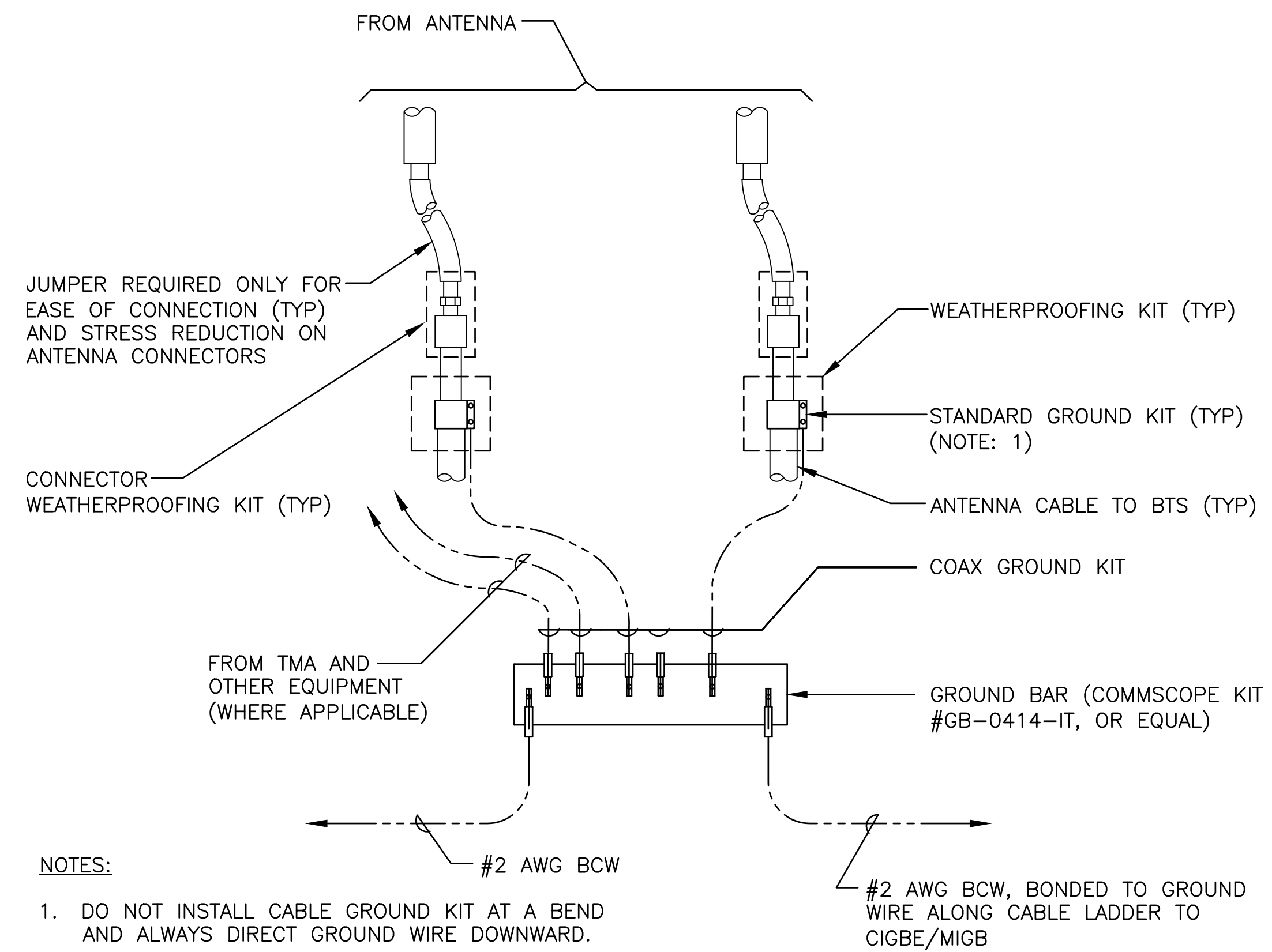
- NOTE:**
- "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



1 TYPICAL GROUND BAR CONNECTION DETAIL
E-1 SCALE: N.T.S.

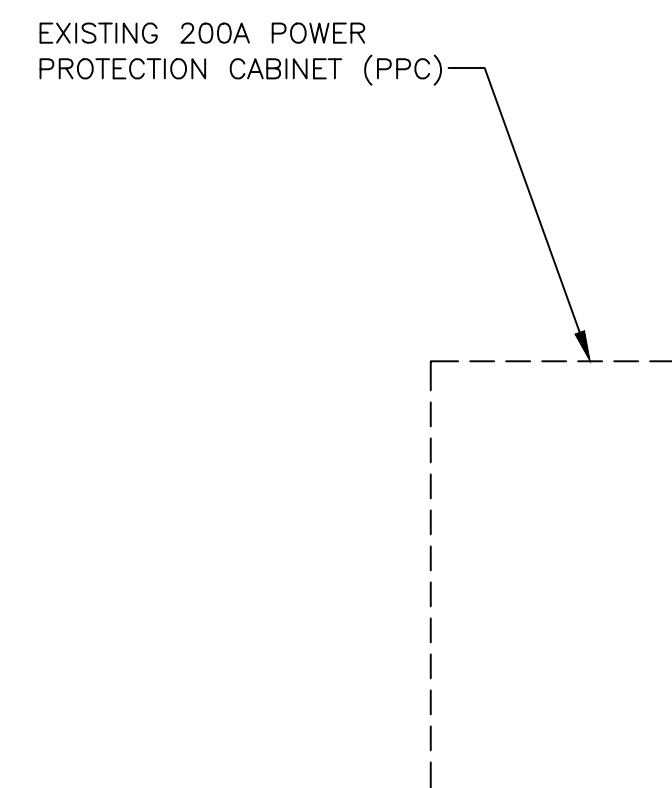


2 GROUNDING RISER DIAGRAM
E-1 SCALE: N.T.S.



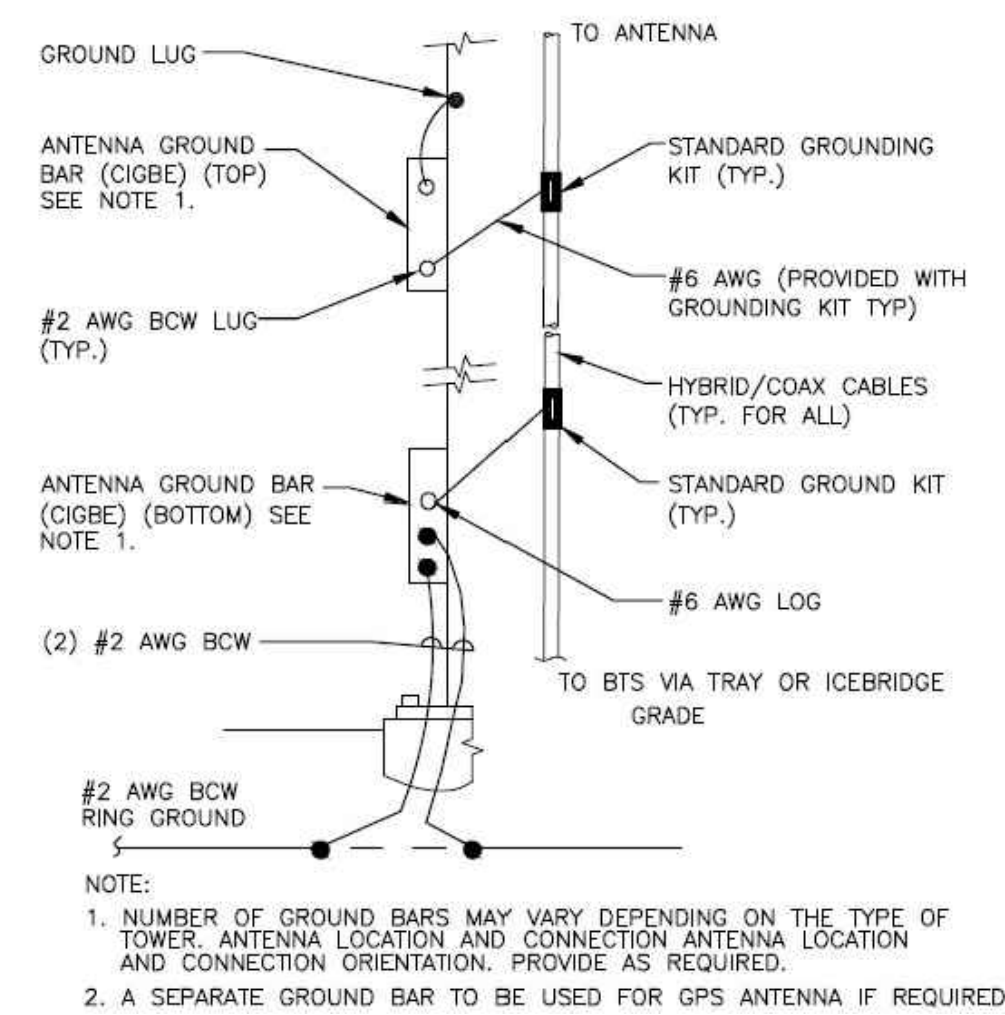
- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWNWARD.

3 GROUND WIRE TO GROUND BAR CONNECTION DETAIL
E-1 SCALE: N.T.S.



EXISTING ELECTRIC FEEDERS AND CONDUIT TO BE UPGRADED AS REQUIRED, CONDUIT AND WIRE LENGTH/SIZE TO BE VERIFIED BY LICENSED ELECTRICIAN

4 ONE LINE DIAGRAM
E-1 SCALE: 1/4"=1'-0"



- NOTE:**
- NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
 - A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

5 ANTENNA CABLE GROUNDING
E-1 SCALE: N.T.S.

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T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
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NEWBURYPORT, MA 01950
ESSEX COUNTY

DRAWING TITLE:
GROUNDING DETAILS & ONE-LINE DIAGRAM

DRAWING SHEET:
E-1