



Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
203-435-3640
denise@northeastsitesolutions.com

August 25, 2022

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

RE: Exempt Modification Application
411 West Putnam Avenue, Greenwich, CT 06830
Latitude: 41.021944
Longitude: -73.640555
Site #: CT95623-M_CT11090A_SBA/T-Mobile

Dear Ms. Bachman:

T-Mobile respectfully requests to cancel its prior Exempt Modification notice (EM-T-MOBILE-057-200812) and now requests to file a new exempt modification for the existing rooftop facility located at 411 West Putnam Avenue, Greenwich, CT 06830. T-Mobile currently maintains nine (9) antennas at the 53-foot level of the existing 56-foot building. The property is owned by West Putnam Owner LLC. T-Mobile now intends to replace nine (9) antennas. The new antennas would be installed at the 53-foot level of the building. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable. Antenna Mount modifications will be completed per the attached Chappell Engineering Structural Analysis dated June 2, 2022.

T-Mobile Planned Modifications:

Remove:

- (18) Coax 1-5/8"
- (6) TMAs
- (3) ERICSSON RRUS-11 B12

Remove and Replace:

- (3) RFS Antennas (REMOVE) – (3) COMMSCOPE VV-65A-R1 Antennas (REPLACE)
- (3) RFS Antennas (REMOVE) - (3) RFS APXVAALL24_43-U-NA20 Antennas (REPLACE)
- (3) ANDREW Antennas (REMOVE) - (3) ERICSSON AIR6419 B41 Antennas (REPLACE)

Install New:

- (3) ERICSSON 4460 B25+B66 RRU
- (3) ERICSSON 4480 B71+B85 RRU
- (1) ERICSSON B160 Battery Cabinet
- (1) ERICSSON 6160 Equipment Cabinet
- (6) Hybrid Line – 1.9"

Existing to Remain:

- (1) Coax ½ "
- (1) GPS Antenna



- (1) ERICSSON RBS6102 Equipment Cabinet
- (1) PPC Cabinet
- (1) Transformer

The facility was originally approved by the Town of Greenwich on October 15, 2001. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-72(b)(2), 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 Fred Camillo, First Selectman and Katie DeLuca, Director of Planning & Zoning for the Town of Greenwich, as well as the property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

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

Sincerely,

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastsitesolutions.com



NSS

NORTHEAST
SITE SOLUTIONS

Turnkey Wireless Development

Attachments

Cc: Fred Camillo, First Selectman
Town Hall
101 Field Point Road
Greenwich, CT 06830

Katie DeLuca, Director of Planning & Zoning
Town Hall
101 Field Point Road
Greenwich, CT 06830

West Putnam Owner LLC - Property Owner
216 E. 45th Street, Ste 1200
New York, NY 10017

Exhibit A

Original Facility Approval

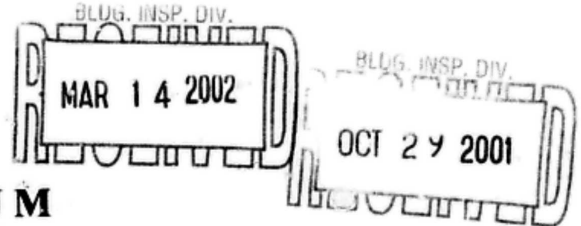


TOWN OF GREENWICH

Planning and Zoning Commission

Diane W. Fox
Town Planner/Zoning Enforcement Coordinator

Laurence I. Bradley
Joseph R. Potenza
Katie Blankley
Matthew N. Steinberg
Mary K. Young



MEMORANDUM

TO: Bill Marr, Building Official
Jim Maloney, Zoning Enforcement Officer
Bruce Dixon, Zoning Inspector

FROM: Diane Fox, Town Planner/Zoning Enforcement Coordinator
Katie Blankley, Planner II

DATE: October 15, 2001

RE: Voicestream Wireless Services
Roof top antenna installation at the Wexford Plaza
411 West Putnam Avenue
Zone: GB

The attached plans of Tectonic Engineering Consultants, Inc dated July 26, 2001 as listed below, have been approved by the Planning and Zoning Department for the installation of (12) panel antennas to be erected on three Ballast Mounting Frames (4 antennas per mount) that will be affixed to the existing penthouse on the roof of Wexford Plaza. The accompanying electrical equipment will be moved from its existing location towards the edge of the roof and after the new equipment is installed all previous equipment will be removed as specified on the plans. The new equipment includes two new cabinets and space for a third in the future and is housed on the south side of the building.

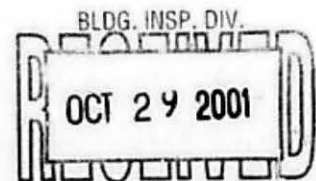
Voicestream has certified that the FCC has licensed them to receive within the 1885-1890 MHz band and transmit within the 1965-1970 MHz band of the frequency spectrum and that this will not cause any interference with the Town of Greenwich emergency communication system.

P&Z APPROVES THE FOLLOWING PLANS SUBJECT TO THE FOLLOWING CONDITIONS:

- 1) **Prior to Building Permit issuance approval must be obtained in writing from the Town of Greenwich Police Department.**
- 2) An application must be filed with the Planning and Zoning Office if there is any change to the location or materials of any equipment either on the roof or inside the building.
- 3) The applicant must remove all primary and secondary equipment upon termination of the approvals set forth in this memorandum.

APPROVED P&Z PLANS PREPARED BY TECTONIC ENGINEERING CONSULTANTS ARE AS FOLLOWS:

Roof Plan, dated 7/26/01, Sheet A-2
Equipment Location Plan & Detail, dated 7/26/01, Sheet A-3
Elevations, dated 7/26/01, Sheet A-4



SUPPORT DOCUMENTATION:

July 17, 2001 memorandum from Zoning Enforcement to Planning and Zoning

Cc: Haden Gerrish

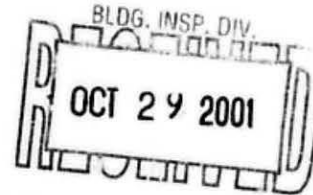
DIVISION OF BUILDING INSPECTION



JUL 17 2001

TOWN OF GREENWICH
CONNECTICUT

ZONING ENFORCEMENT



Project No. SES/Adm. #01-3
Final

Preliminary

Reviewed for Planning and Zoning Commission.

TITLE OF PLAN REVIEWED: Voicestream Wireless at ^{Wexford} Greenwich Plaza

LOCATION: ~~Greenwich Plaza~~ 11 West Putnam Ave

PLAN DATE:

ZONE:

Reviewed by Katie
Blanchley per discussion
with [unclear]
[Signature]

The subject site plan/subdivision meets the requirements of the Building Zone Regulations excluding Section 6-15 and 6-17, except for the following:

Reviewed by: [Signature]

Date: July 17, 2001

4. Neighboring Sites (Existing and Proposed):

I have been in charge for the design for Voicestream since the beginning of their Network and have personally been involved in the selection of various locations in Greenwich besides the three proposed sites. Other Voicestream locations in Greenwich are as follows:

Operational Sites

- Roof top at 411 West Putnam Ave (will be proposing to upgrade our current installation)
- SNET Mobility monopole at 363 Riversville Rd (Boys Scouts of America)
- CT State Police tower at 150 Butternut Hollow Rd
- Bell Atlantic / Verizon monopole at 1081 North Street

MAR 30 2001

Sites under construction / Zoning process

- CL&P pole at Station drive (under construction)
- CL&P pole at Old Greenwich Station
- Roof top at 1111 East Putnam Ave
- Proposed flagpole at 239 Glenville Rd

Sites in leasing / Open search areas

- 247 Stanwich Rd (St Agnes Church)
- 35 Parsonage Rd (Greenwich Country Club)
- Open search area off of Byfield Lane and Route 15
- Round Hill Rd and Route 15
- Open search area on Lake Ave and Rockwood Lane

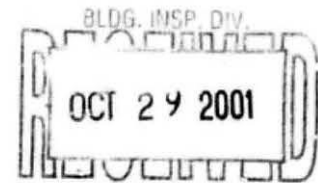


Exhibit B

Property Card

03-1664/S

WEST PUTNAM OWNER LLC

WEST PUTNAM AVENUE 0411

212

ADMINISTRATIVE INFORMATION

OWNERSHIP

Tax ID 214/252

Printed 12/18/2019 Card No. 1 of 1

PARCEL NUMBER 03-1664/S Parent Parcel Number

WEST PUTNAM OWNER LLC 216 E 45TH ST STE 1200 NEW YORK, NY 10017 LOT NO 32 & 33 WEST PUTNAM AVE N-43

TRANSFER OF OWNERSHIP

Table with columns: Date, Description, Value. Rows include transfers from 06/24/2016 to 07/16/1991.

Property Address WEST PUTNAM AVENUE 0411 Neighborhood 2200 WEST PUTNAM Property Class 212 General Office

TAXING DISTRICT INFORMATION Jurisdiction 57 Greenwich, CT Area 001 Corporation 057 District 03 Section & Plat 103 Routing Number 9073N0043

COMMERCIAL

VALUATION RECORD

Table with columns: Assessment Year, Reason for Change, VALUATION, Market, 2015 Prelim, 2015 Final, 2016 List, 2016 BAA, 2017 List, 2018 List, 2019 List.

Site Description

Topography: Public Utilities: Sewer, Electric Street or Road:

LAND DATA AND CALCULATIONS

Table with columns: Land Type, Rating, Measured Soil ID, Acreage, Table, Prod. Factor, Depth Factor, Base Rate, Adjusted Rate, Extended Value, Influence Factor, Value.

APS: 03-1654/S BA16: Sustain BP15: 15-0978; Tenant: Contrian Capital, \$188,000 elec & int alt BP18: BP16-3911, Tenant Fitout \$719,000 CTST: 2016 GL, 2017 GL & 2018 GL DBA: Wexford Plaza GEN: Supported by parking deck and garage on 03-1654/s. P: 110 spaces SALE: 3/15/02 vol 3810 pg 325 sale includes 03-1654/s. Recorded sp of \$23,494,750 reflects reduction for specific liability. Effective sp = \$23,607,000. Verified arm's length. 4/05 sale w/ 03-1654/s cmfrmd arm's length w/ tot sp = \$32,257,000. Indicated sp is allocated value (88%).

Supplemental Cards

TRUE TAX VALUE 3347000

Table with columns: Permit Number Type, FilingDate, Est. Cost, Field Visit, Est. SqFt

Supplemental Cards

TOTAL LAND VALUE 3347000

03-1664/S

Property Class: 212
WEST PUTNAM AVENUE 0411

IMPROVEMENT DATA

PHYSICAL CHARACTERISTICS

ROOFING

Built-up

WALLS

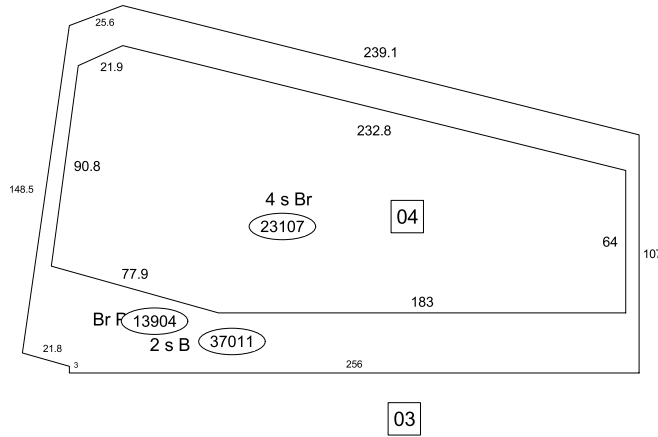
	B	1	2	U
Frame		Yes	Yes	Yes
Brick	Yes			
Metal				
Guard				

FRAMING

	B	1	2	U
R Conc	3701	0	0	0
F Prf	70321	23107	23107	46214

HEATING AND AIR CONDITIONING

	B	1	2	U
Heat	74022	4621	4621	9242
Sprink	74022	4621	4621	9242



Item Description	Units	Cost	Total	Pct
M & S Cost Database Date: 01/2015				
Base Cost	92428	216.05	19969069	
Exterior Walls	92428	57.64	5327552	
Heating & Cooling	18484	34.04	629196	
Sprinklers	18484	7.60	140480	
Basic Structure Cost	92428	282.02	26066297	
Unfinished Basement	74022	59.44	4399868	
Heating & Cooling	74022	20.17	1493285	
Sprinklers	74022	4.67	345534	
Building Cost New	92428	349.52	32304984	
Physical	0	0.00	777656	2.41
Depreciated Cost	92428	341.10	31527328	
Rounded Total	0	0.00	31527300	
Total Exterior Features Value				
Depreciated Ext Features				
Total Before Adjustments				31527300
Neighborhood Adjustment				15763700 50.00
TOTAL VALUE				47291000

(LCM: 150.00)

SPECIAL FEATURES

SUMMARY OF IMPROVEMENTS

Description	Value	ID	Use	Stry Hgt	Const Type	Grade	Year Const	Eff Year	Cond	Base Rate	Feat-ures	Adj Rate	Size or Area	Computed Value	Phys Depr	Obsol Depr	Market Adj	% Comp	Value
C : Remod 2009		C	GENOFF	0.00			1973	2005	VG	0.00	N	0.00	23107	0	0	0	150	100	47291000
		03	PENTMECH	0.00	1		1971	1995	GD	70.00	N	105.00	2940	308700	0	0	100	100	308700
		04	ELEVCOM	6.00	2E		1973	2000	VG	169000	N	304200	2@ 0	608400	0	0	100	100	608400
		05	BRP	0.00			2009	2009	AV	0.00	N	0.00	0	806360	3	0	100	100	782200

Data Collector/Date

Appraiser/Date

Neighborhood

Supplemental Cards

TD 06/13/2017

TOG 10/01/2015

Neigh 2200 AV

TOTAL IMPROVEMENT VALUE

48990300



1:1200
1"=100'



11/10/2016 10:57:28 AM

This map was produced from the Town of Greenwich GIS. The Town expressly disclaims any liability that may result from the use of this map. Basemap: 4/2/08. Parcels: 10/1/12. Copyright 2005 Town of Greenwich

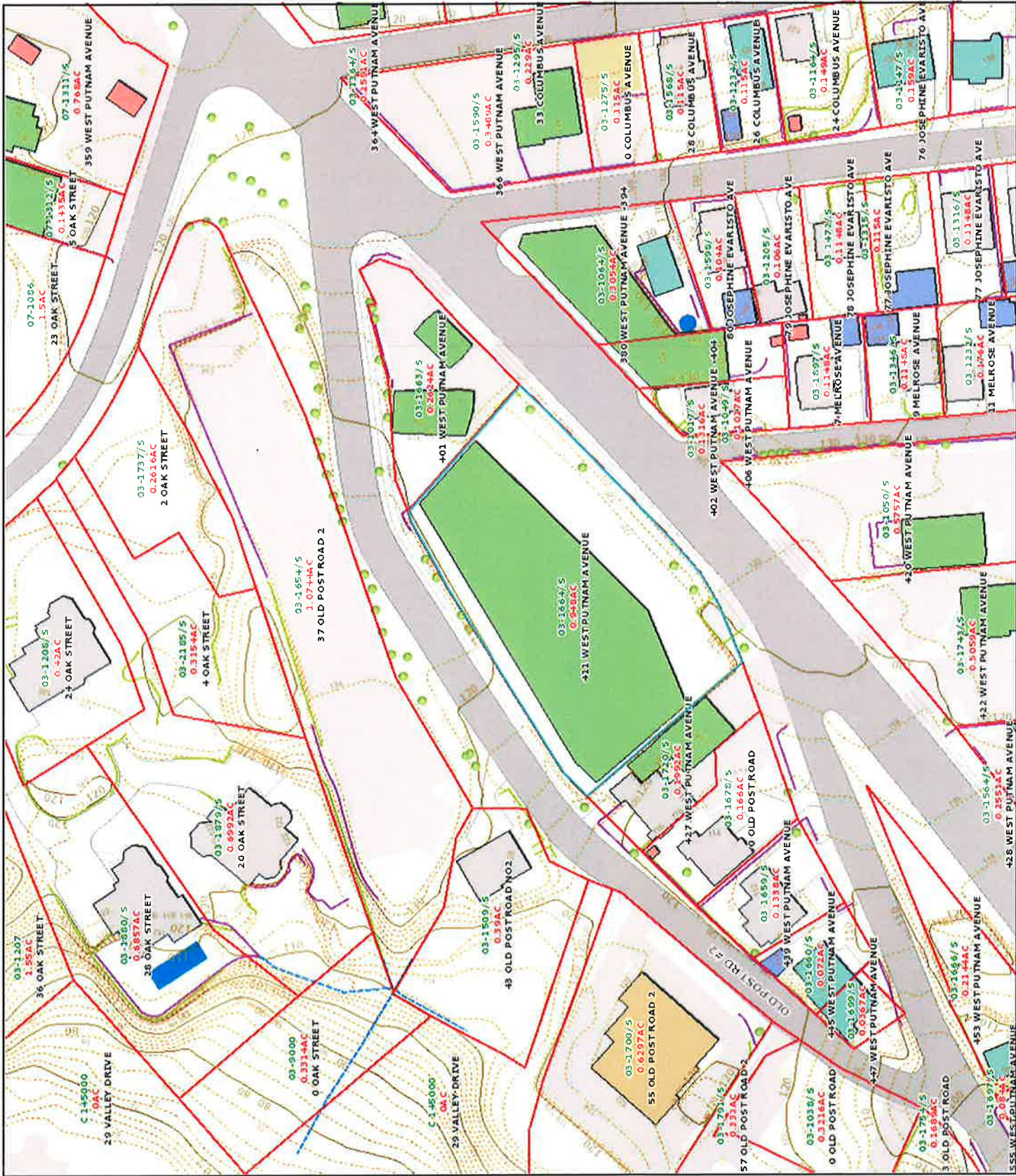


Exhibit C

Construction Drawings

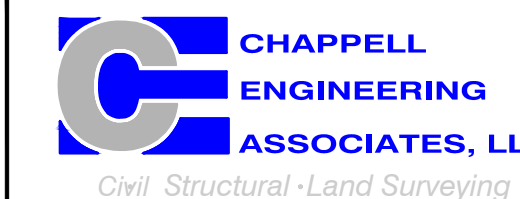
GREENWICH/PUTNAM AVE 2

T-MOBILE NORTHEAST LLC

15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720



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



CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
3	05/27/22	CONSTRUCTION REVISED	CMC
2	05/19/22	CONSTRUCTION REVISED	CMC
1	07/28/20	ISSUED FOR CONSTRUCTION	CMC
0	06/17/20	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CT11090A

SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

APPROVALS			
PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

411 WEST PUTNAM AVENUE
GREENWICH, CT 06830
FAIRFIELD COUNTY

SITE NO.: CT11090A

SITE TYPE: ROOFTOP

RF DESIGN GUIDELINE: 67E5A998E HYBRID

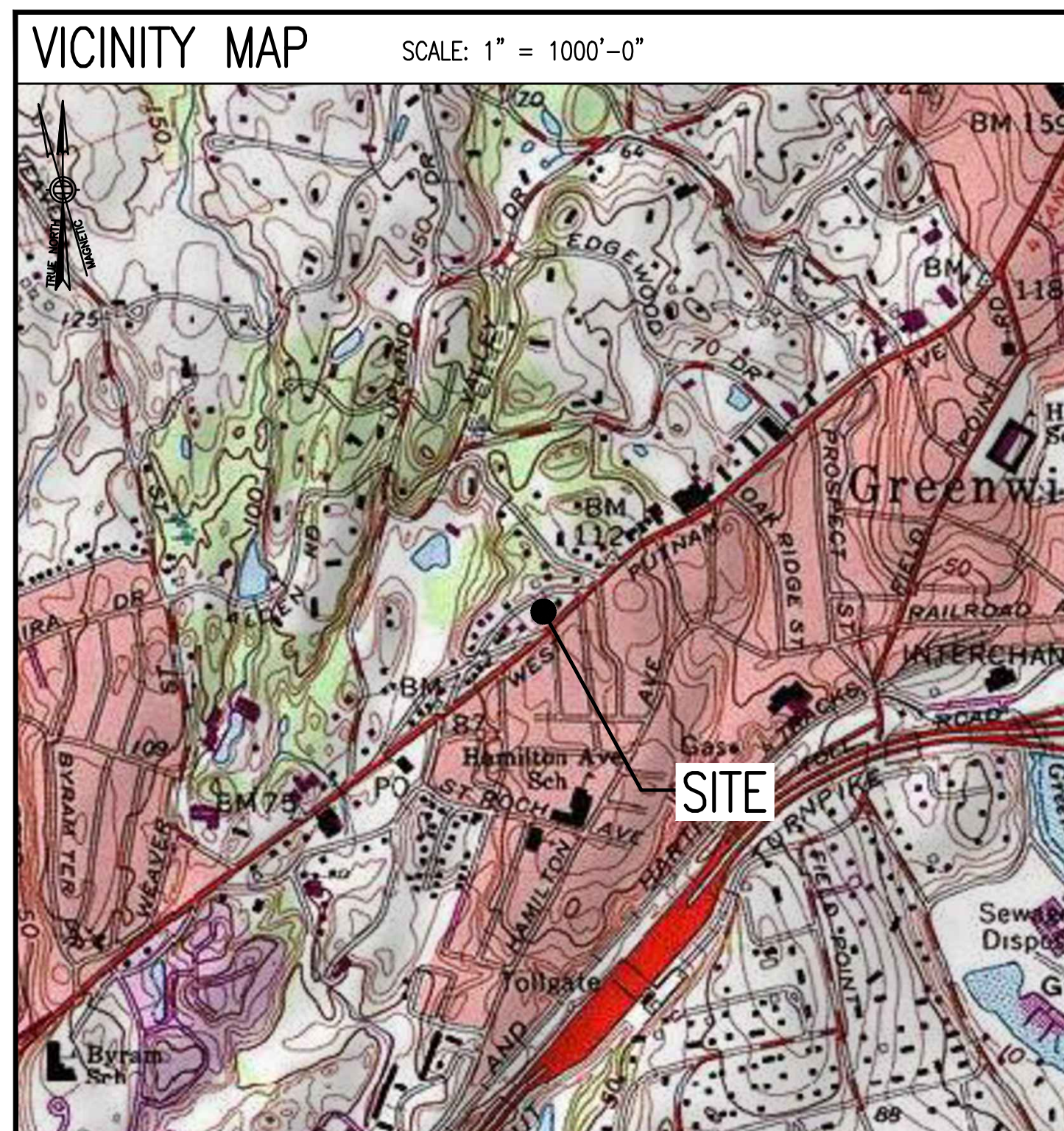
SCOPE OF WORK	
REMOVE:	INSTALL:
<ul style="list-style-type: none"> 9 ANTENNAS 6 TMAS 18 COAX CABLES 1 100A-2P BREAKER 	<ul style="list-style-type: none"> 9 ANTENNAS 6 RADIOS 3 HYBRID CABLES 1 6160 CABINET 1 B160 CABINET 1 SLACKBOX 2 125A-2P BREAKERS 1 25A-1P BREAKER

SITE NOTES	
1.	THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE. <ul style="list-style-type: none"> ADA COMPLIANCE NOT REQUIRED. POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED. NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2.	CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3.	NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES. <ul style="list-style-type: none"> BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

T-MOBILE TECHNICIAN SITE SAFETY NOTES	
LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
SECTOR D:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

GENERAL NOTES	
1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.	SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.	13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMBUSPONT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.	14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.	15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.	16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.	17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.	
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.	
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.	
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.	
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.	
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR	

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



DIRECTIONS

MERGE ONTO I-495 NORTH TOWER MANSFIELD/MARLBORO. TAKE EXIT 33B TO MERGE ONTO I-95 SOUTH TOWARD PROVIDENCE RI. ENTER RHODE ISLAND. KEEP LEFT TO CONTINUE TOWARD I-95 SOUTH. CONTINUE ONTO I-95 SOUTH. KEEP RIGHT AT FORK TO STAY ON I-95 SOUTH. ENTER CONNECTICUT. KEEP LEFT TO STAY ON I-95 SOUTH. KEEP RIGHT TO STAY ON I-95 SOUTH. KEEP LEFT TO STAY ON I-95 SOUTH (7x). TAKE EXIT 3 FOR ARCH STREET TOWARD GREENWICH. USE MIDDLE LANE TO TURN RIGHT ONTO ARCH STREET. TURN LEFT ONTO RAILROAD AVENUE. CONTINUE ONTO OLD FIELD POINT ROAD. TURN RIGHT ONTO LIVINGSTON PLACE. LIVINGSTON PLACE TURNS LEFT & BECOMES US-1 SOUTH. SITE IS LOCATED ON THE RIGHT HAND SIDE.

SHEET INDEX		
SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	3
GN-1	GENERAL NOTES	3
A-1	ROOF PLAN	3
A-2	EQUIPMENT PLANS	3
A-3	BUILDING ELEVATION	3
A-4	ANTENNA PLANS	3
A-5	SITE DETAILS	3
A-6	ANTENNA & FEEDLINE CHARTS	3
S-1	BALLAST MOUNT REINFORCING DETAILS	3
E-1	ELECTRIC & GROUNDING DETAILS	3

DO NOT SCALE DRAWINGS

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

PROJECT SUMMARY	
SITE NUMBER:	CT11090A
SITE NAME:	GREENWICH/PUTNAM AVE 2
SBA SITE NUMBER:	CT95623-M
SBA SITE NAME:	GREENWICH (PUTNAM)
SITE ADDRESS:	411 WEST PUTNAM AVENUE GREENWICH, CT 06830
PROPERTY OWNER:	411 PUTNAM AVE, LLC 411 WEST PUTNAM AVENUE GREENWICH, CT 06830
TOWER OWNER:	MCM ACQUISITION 2017, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	FAIRFIELD
ZONING DISTRICT:	GB (GENERAL BUSINESS)
STRUCTURE TYPE:	ROOFTOP
STRUCTURE HEIGHT:	56'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: 41.021397° N41°01'17.03" LONGITUDE: -73.641289° W73°38'28.64"

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – T-MOBILE
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – T-MOBILE
OEM – ORIGINAL EQUIPMENT MANUFACTURER
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
- 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, STATE AND FEDERAL 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.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND 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 AND/OR LANDLORD PRIOR TO CONSTRUCTION.
- THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
- THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.
- CONSTRUCTION SHALL COMPLY WITH ALL T-MOBILE STANDARDS AND SPECIFICATIONS.
- SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
- IF 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 TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

- THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T-MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (400PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNDO.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST EARTH.....3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 AND LARGER2 IN.
#5 AND SMALLER & WWF1½ IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
SLAB AND WALL¾ IN.
BEAMS AND COLUMNS½ IN.
- A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.
- CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
(A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
- AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
- EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

- ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T-MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
- ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.
- BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾") AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ¾" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

- EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
- AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
- COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.
- AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

- FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T-MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
- COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
- CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

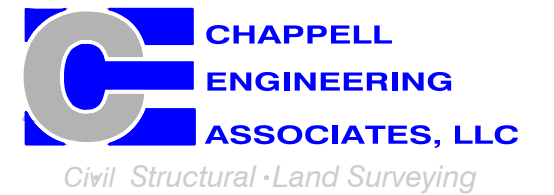
- WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLE TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.
- POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND, DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
3	05/27/22	CONSTRUCTION REVISED	CMC
2	05/19/22	CONSTRUCTION REVISED	CMC
1	07/28/20	ISSUED FOR CONSTRUCTION	CMC
0	06/17/20	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CT11090A

SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

SHEET TITLE

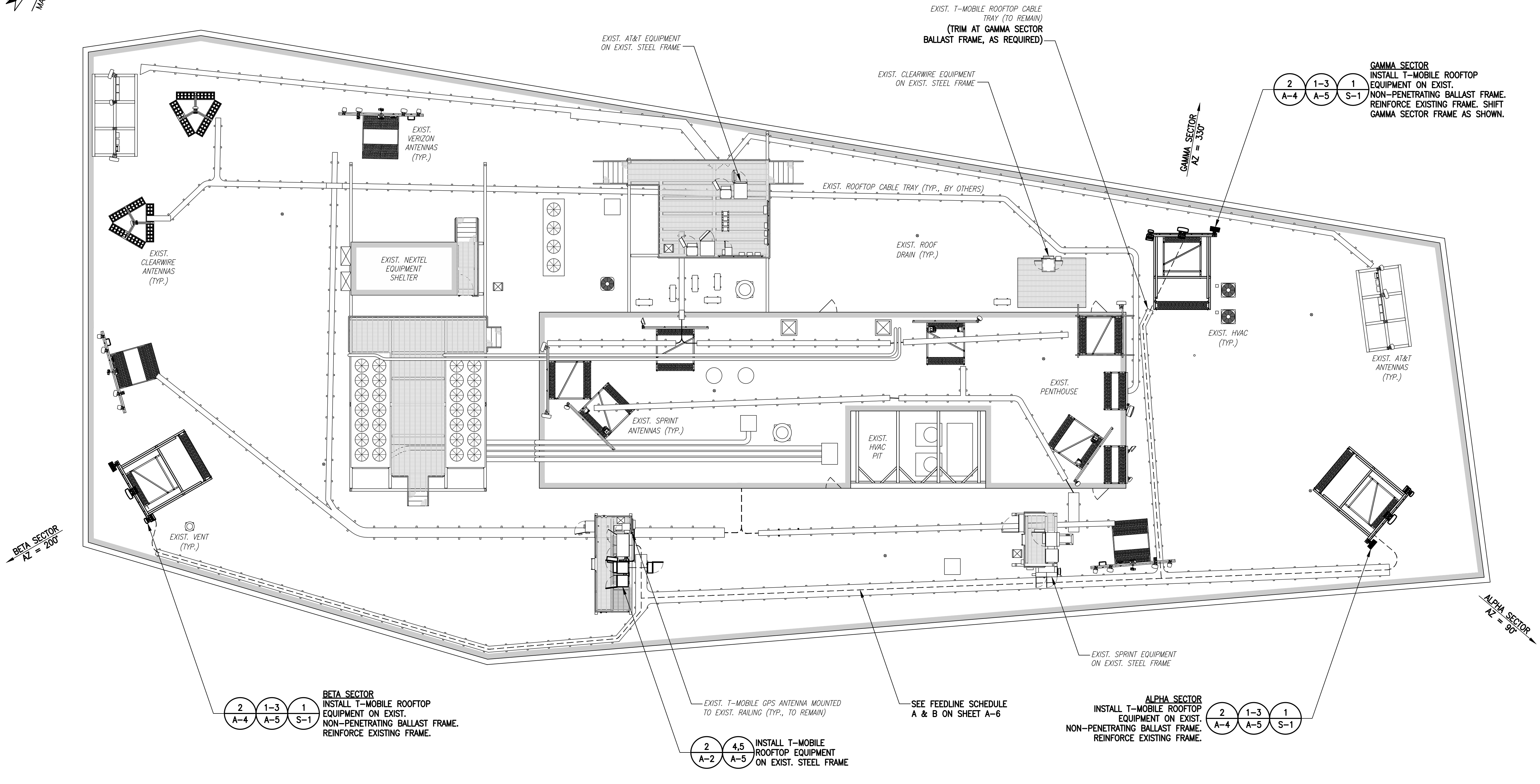
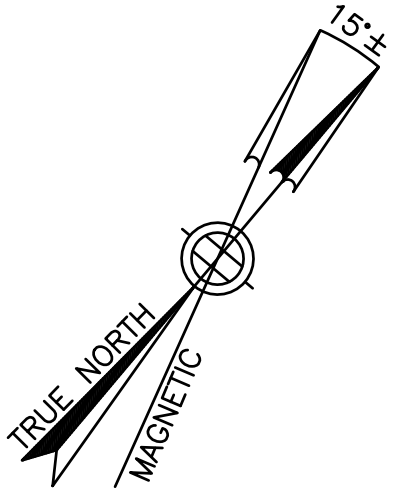
GENERAL NOTES

SHEET NUMBER

GN-1

SUPPLEMENTAL GENERAL CONDITIONS WORK NOTE (BUILDING PROTECTION AND RF EME SAFETY SIGNAGE):

- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE AND PARAPET WALL DURING CONSTRUCTION. PROPER ROOF PROTECTING MATERIALS SHALL BE PLACED AROUND ALL WORKING AREAS AND NO TOOLS, LADDERS, MATERIALS, OR EQUIPMENT SHALL BE PLACED DIRECTLY ON THE ROOF SURFACE. ANY DAMAGES TO ROOF SURFACE AND/OR PARAPET WALL DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.
- GENERAL CONTRACTOR SHALL USE BUILDING OWNER'S ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS.
- GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE THE INSTALLATION OF T-MOBILE RF SAFETY SIGNAGE AND OTHER RF SAFETY IMPROVEMENTS AS SHOWN ON SUPPLEMENTAL PLANS (BY OTHERS) WHICH SHALL BE SLIP-SHEETED BY SBA COMMUNICATIONS INTO THE FINAL CONSTRUCTION DRAWINGS. CHAPPELL ENGINEERING ASSOCIATES, LLC, IS NOT RESPONSIBLE FOR THE DESIGN OF ANY RF SAFETY IMPROVEMENTS.

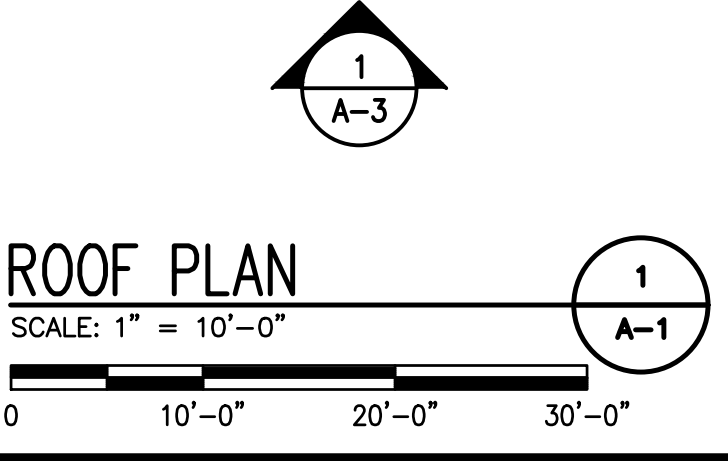


BETA SECTOR
 2 1-3 1
 A-4 A-5 S-1
 INSTALL T-MOBILE ROOFTOP EQUIPMENT ON EXIST. NON-PENETRATING BALLAST FRAME. REINFORCE EXISTING FRAME.

2 4,5 1
 A-2 A-5 A-3
 INSTALL T-MOBILE ROOFTOP EQUIPMENT ON EXIST. STEEL FRAME

ALPHA SECTOR
 2 1-3 1
 A-4 A-5 S-1
 INSTALL T-MOBILE ROOFTOP EQUIPMENT ON EXIST. NON-PENETRATING BALLAST FRAME. REINFORCE EXISTING FRAME.

GAMMA SECTOR
 2 1-3 1
 A-4 A-5 S-1
 INSTALL T-MOBILE ROOFTOP EQUIPMENT ON EXIST. NON-PENETRATING BALLAST FRAME. REINFORCE EXISTING FRAME. SHIFT GAMMA SECTOR FRAME AS SHOWN.



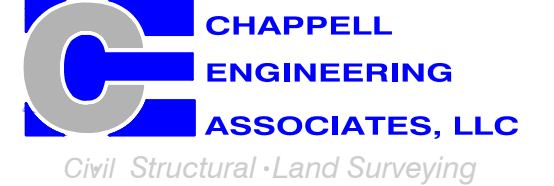
ROOF PLAN
 SCALE: 1" = 10'-0"
 1
 A-1

**T-MOBILE
 NORTHEAST LLC**

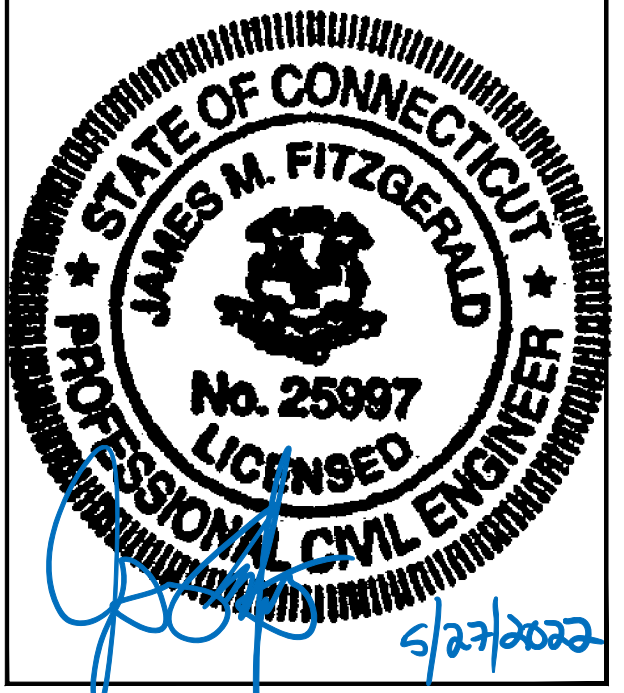
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ROOF PLAN

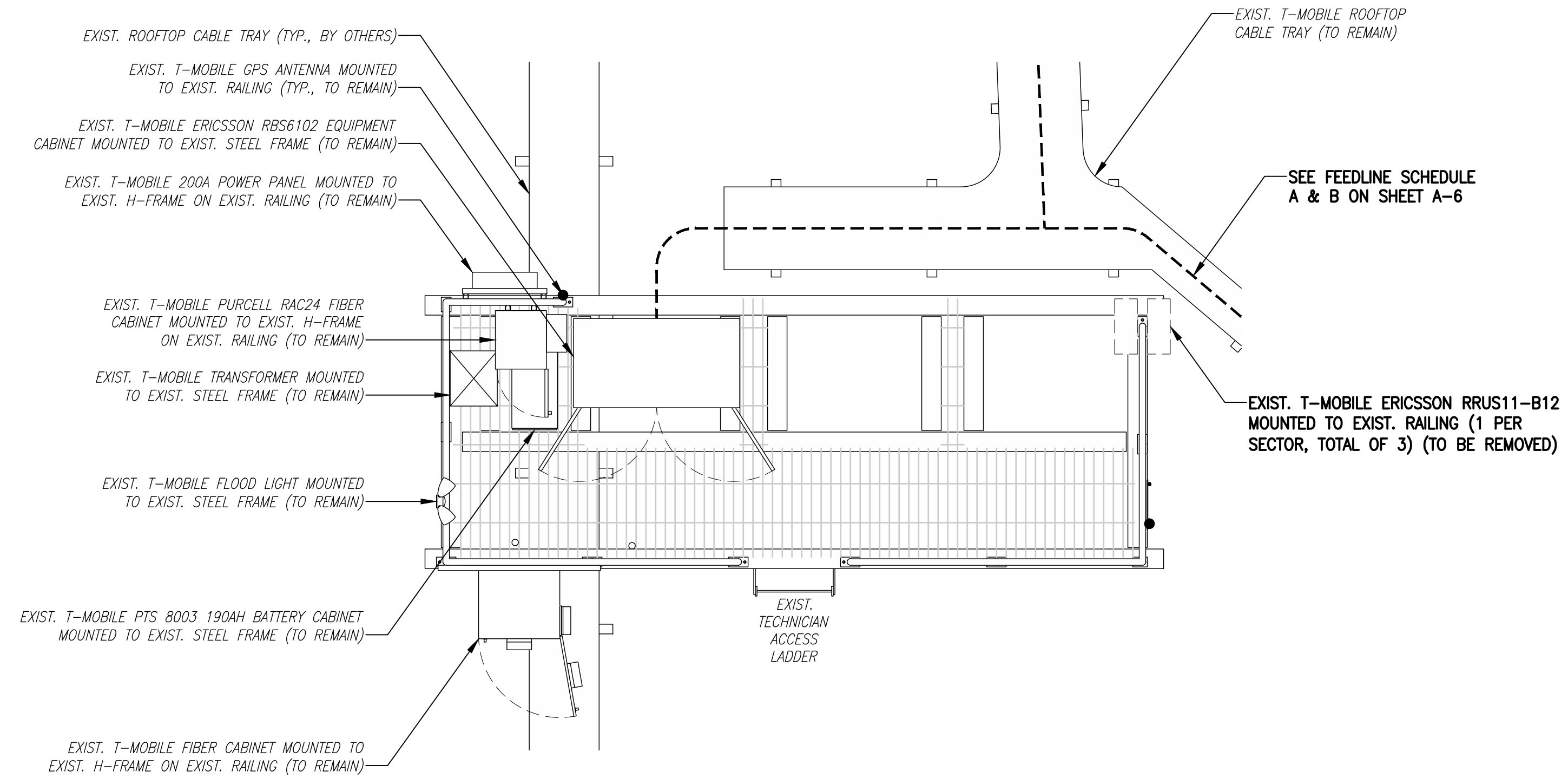
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SUPPLEMENTAL GENERAL CONDITIONS WORK NOTE (BUILDING PROTECTION AND RF EME SAFETY SIGNAGE):

1. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE AND PARAPET WALL DURING CONSTRUCTION. PROPER ROOF PROTECTING MATERIALS SHALL BE PLACED AROUND ALL WORKING AREAS AND NO TOOLS, LADDERS, MATERIALS, OR EQUIPMENT SHALL BE PLACED DIRECTLY ON THE ROOF SURFACE. ANY DAMAGES TO ROOF SURFACE AND/OR PARAPET WALL DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.
2. GENERAL CONTRACTOR SHALL USE BUILDING OWNER'S ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS.
3. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE THE INSTALLATION OF T-MOBILE RF SAFETY SIGNAGE AND OTHER RF SAFETY IMPROVEMENTS AS SHOWN ON SUPPLEMENTAL PLANS (BY OTHERS) WHICH SHALL BE SLIP-SHEETED BY SBA COMMUNICATIONS INTO THE FINAL CONSTRUCTION DRAWINGS. CHAPPELL ENGINEERING ASSOCIATES, LLC, IS NOT RESPONSIBLE FOR THE DESIGN OF ANY RF SAFETY IMPROVEMENTS.

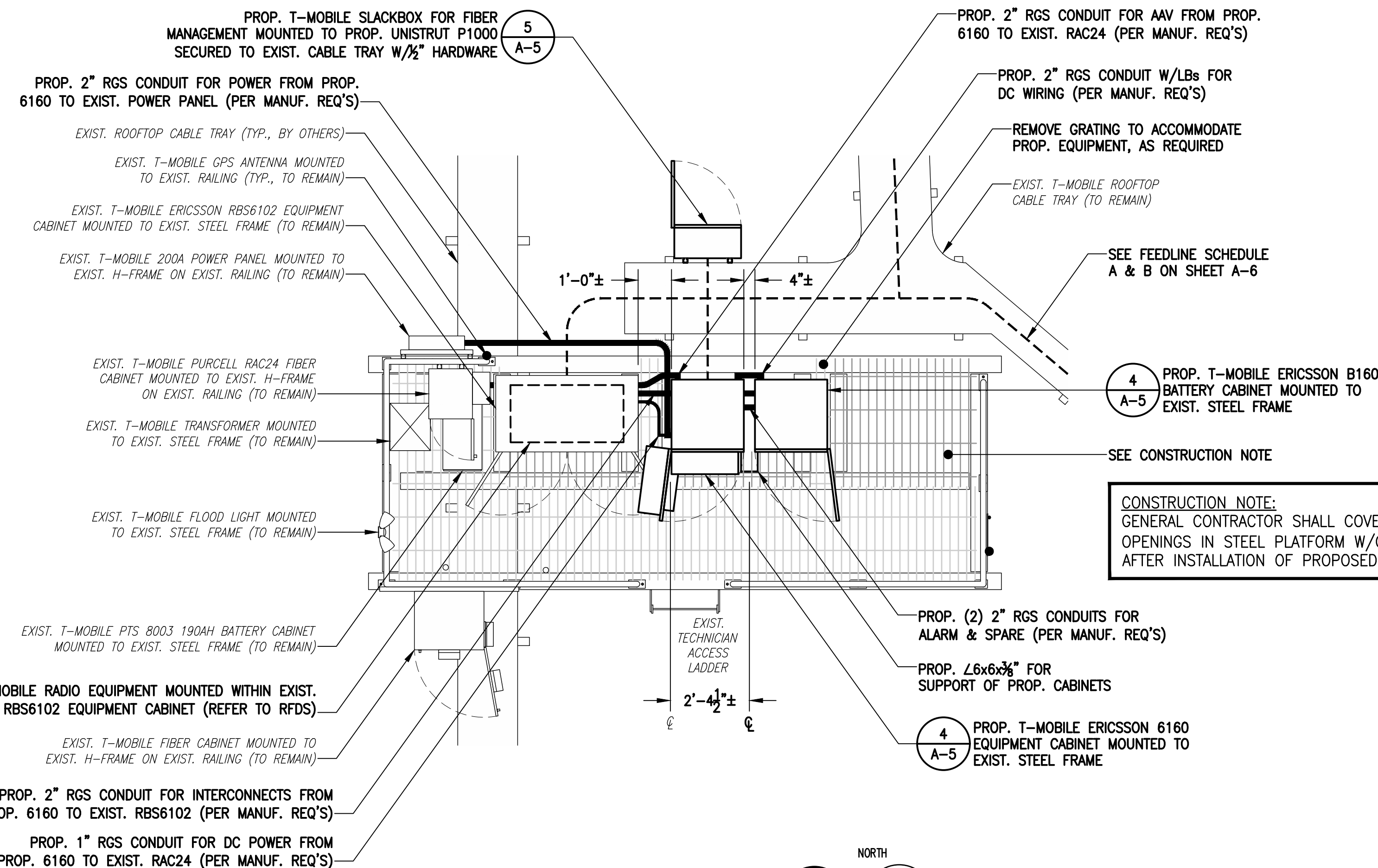
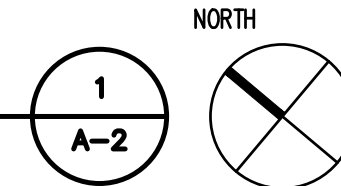


EXISTING EQUIPMENT PHOTO



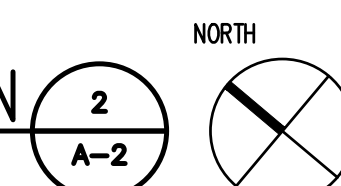
EXISTING EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"



PROPOSED EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"

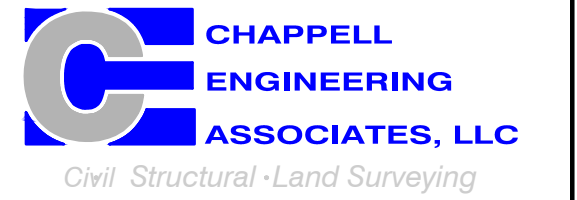


**T-MOBILE
NORTHEAST LLC**

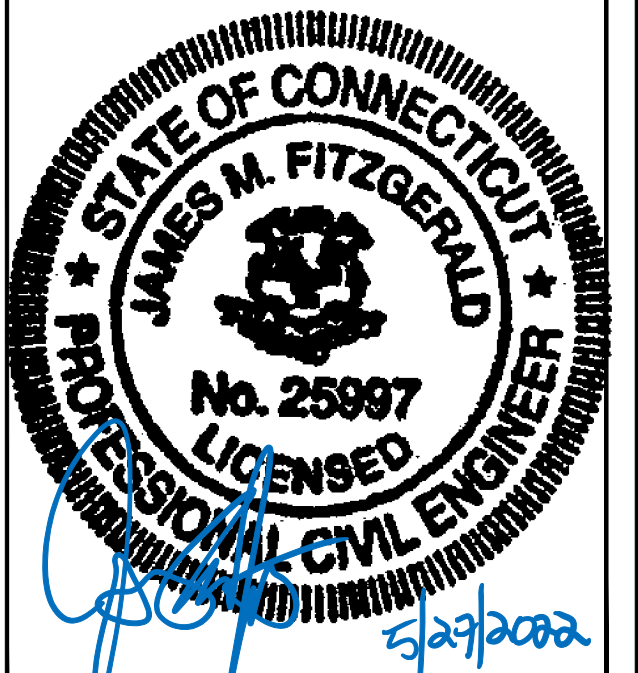
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



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134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720



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MARLBOROUGH, MA 01752
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SITE NUMBER:
CT11090A

SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

SHEET TITLE
EQUIPMENT PLANS

SHEET NUMBER
A-2

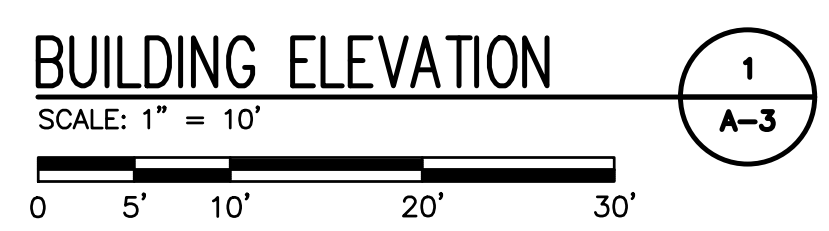
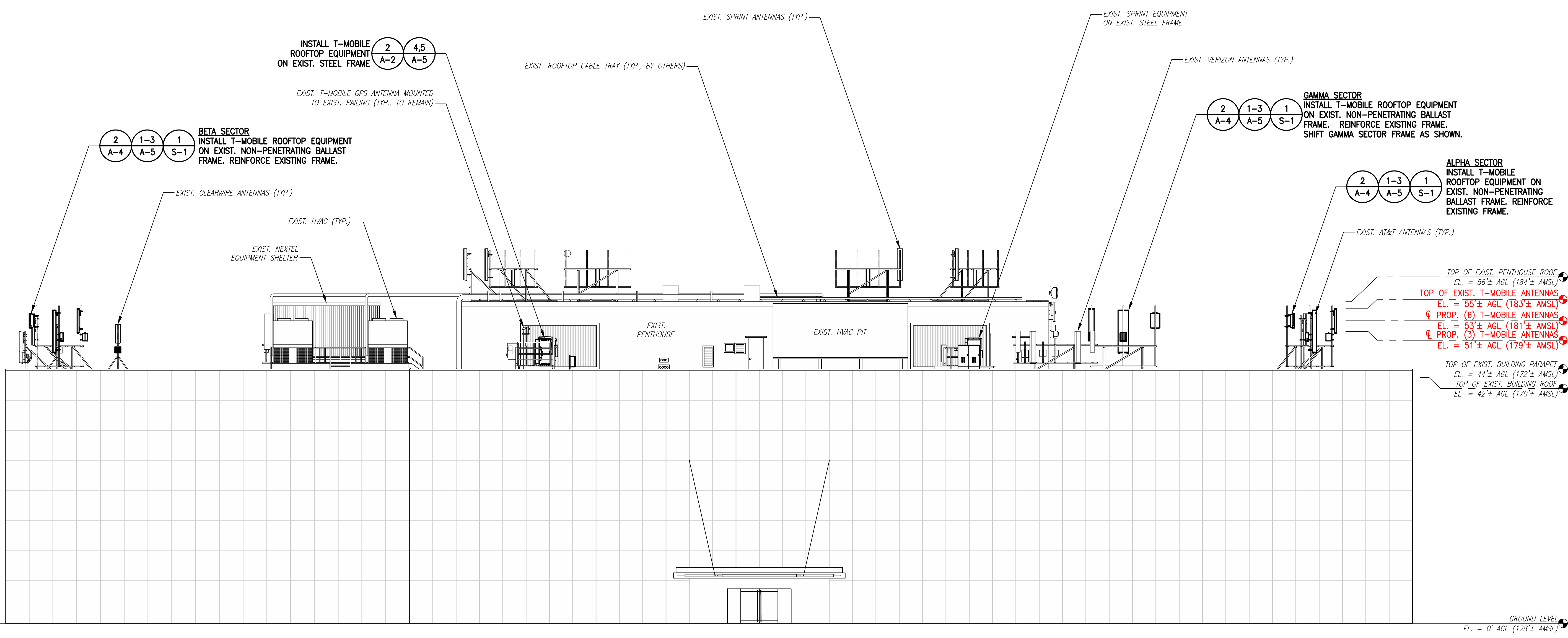
SUPPLEMENTAL GENERAL CONDITIONS WORK NOTE (BUILDING PROTECTION AND RF EME SAFETY SIGNAGE):

- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE AND PARAPET WALL DURING CONSTRUCTION. PROPER ROOF PROTECTING MATERIALS SHALL BE PLACED AROUND ALL WORKING AREAS AND NO TOOLS, LADDERS, MATERIALS, OR EQUIPMENT SHALL BE PLACED DIRECTLY ON THE ROOF SURFACE. ANY DAMAGES TO ROOF SURFACE AND/OR PARAPET WALL DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.
- GENERAL CONTRACTOR SHALL USE BUILDING OWNER'S ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS.
- GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE THE INSTALLATION OF T-MOBILE RF SAFETY SIGNAGE AND OTHER RF SAFETY IMPROVEMENTS AS SHOWN ON SUPPLEMENTAL PLANS (BY OTHERS) WHICH SHALL BE SLIP-SHEETED BY SBA COMMUNICATIONS INTO THE FINAL CONSTRUCTION DRAWINGS. CHAPPELL ENGINEERING ASSOCIATES, LLC, IS NOT RESPONSIBLE FOR THE DESIGN OF ANY RF SAFETY IMPROVEMENTS.

RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

GENERAL CONTRACTOR NOTE:
GENERAL CONTRACTOR SHALL REFER TO MOUNT STRUCTURAL ANALYSIS AND ANY MOUNT MODIFICATION DESIGN PROVIDED BY SBA

T-MOBILE MUST REPLACE THEIR EXISTING SUBMETER WITH A REMOTE READABLE SUBMETER AND PROVIDE MONTHLY READING TO SBA MANAGEMENT SITES.

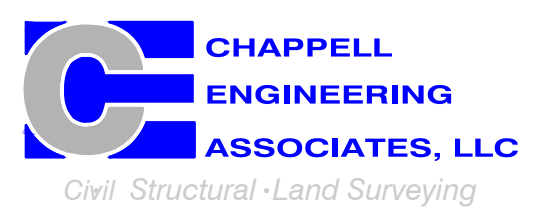


**T-MOBILE
NORTHEAST LLC**

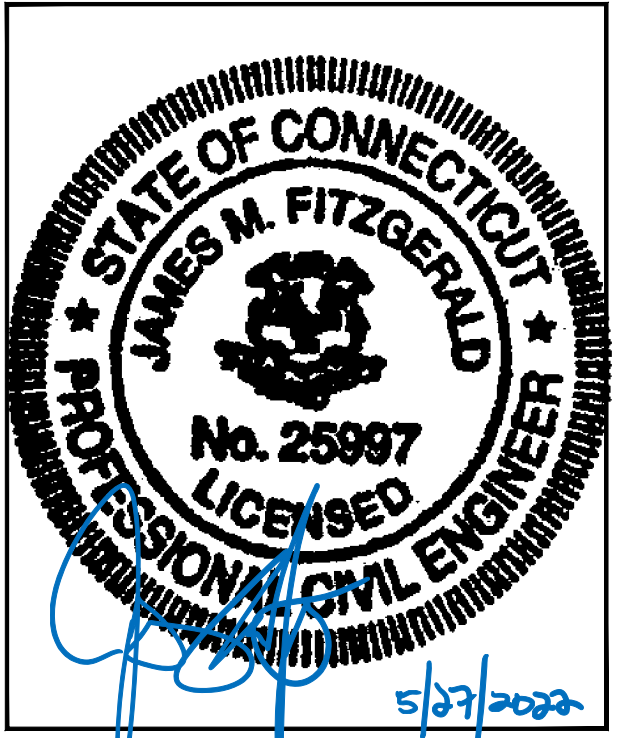
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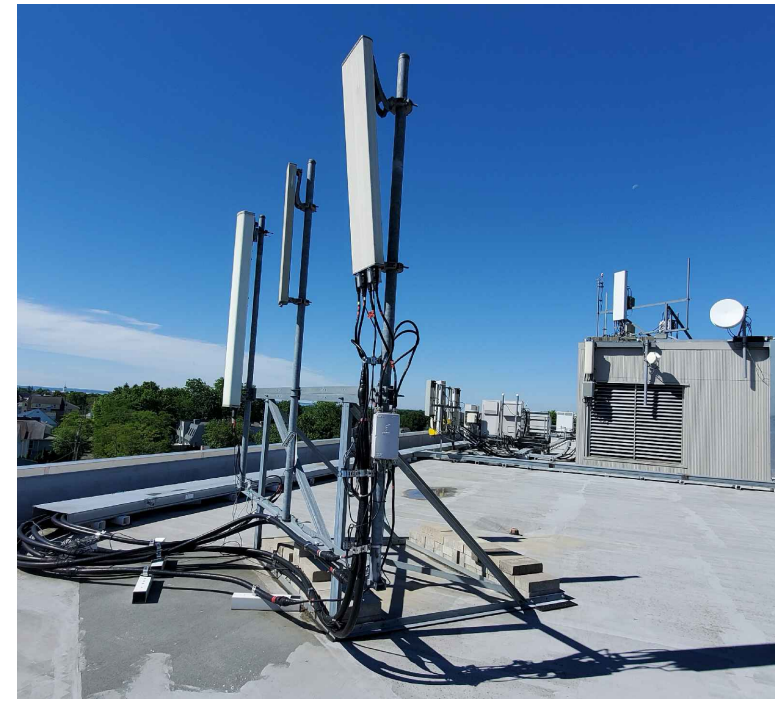
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SHEET TITLE
BUILDING ELEVATION

SHEET NUMBER
A-3



EXISTING ALPHA SECTOR ANTENNA PHOTO



EXISTING BETA SECTOR ANTENNA PHOTO



EXISTING GAMMA SECTOR ANTENNA PHOTO

ANTENNA STATUS LEGEND:

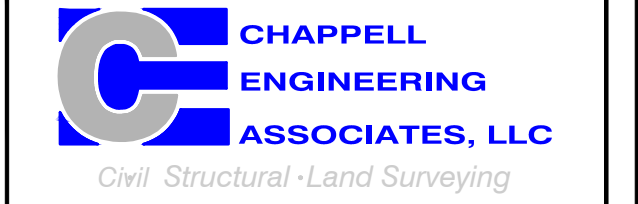
- EMPTY - EMPTY PIPE
- (E) - EXISTING
- (P) - INSTALL
- (F) - FUTURE

T-MOBILE NORTHEAST LLC

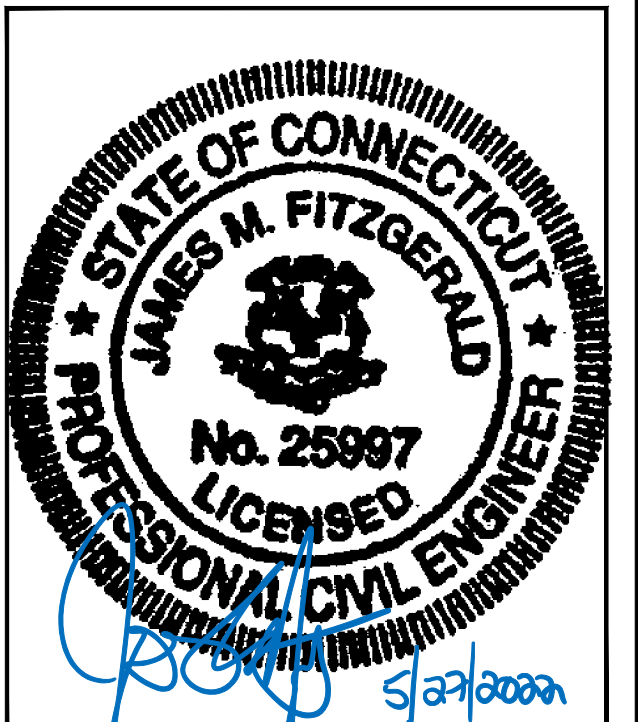
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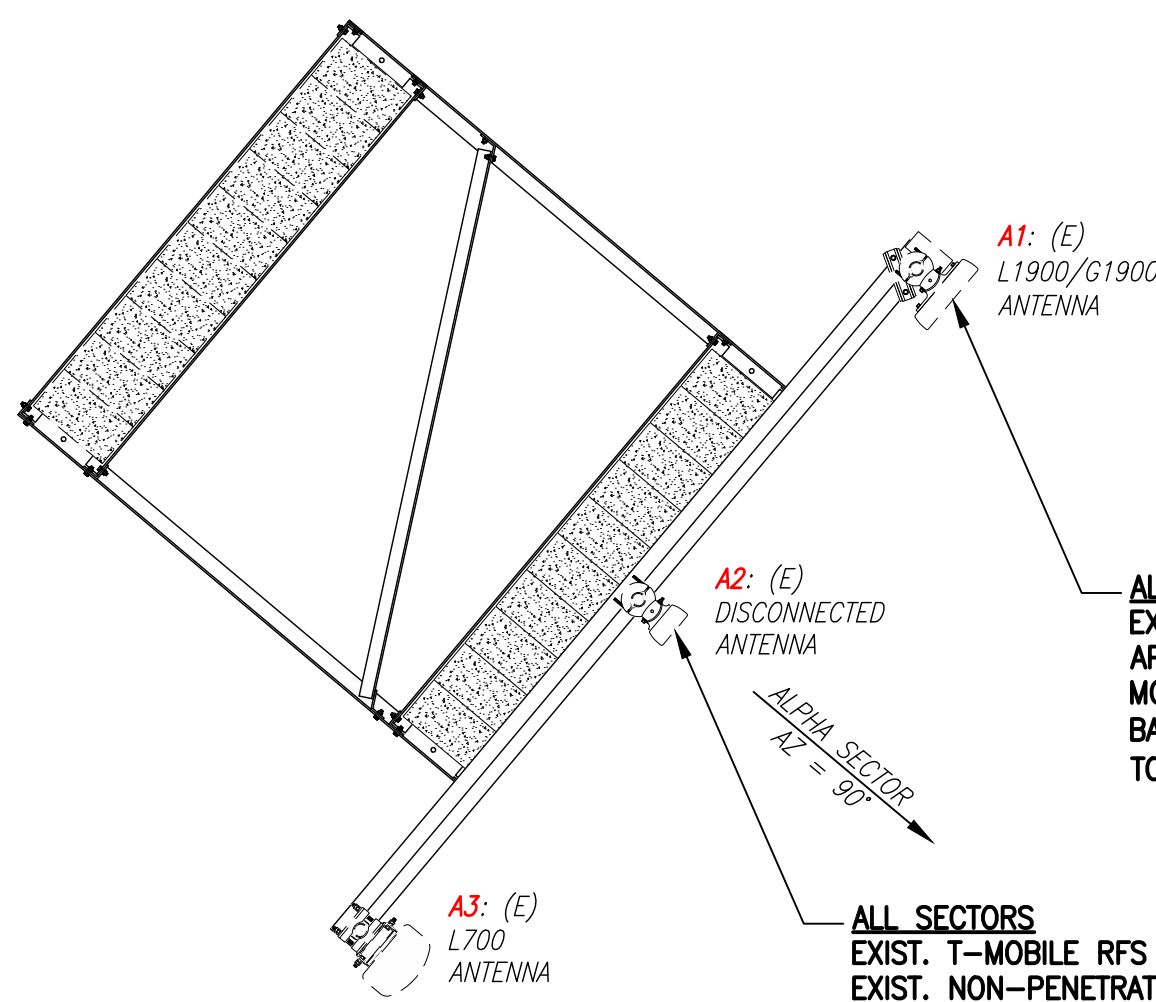
SUBMITTALS			
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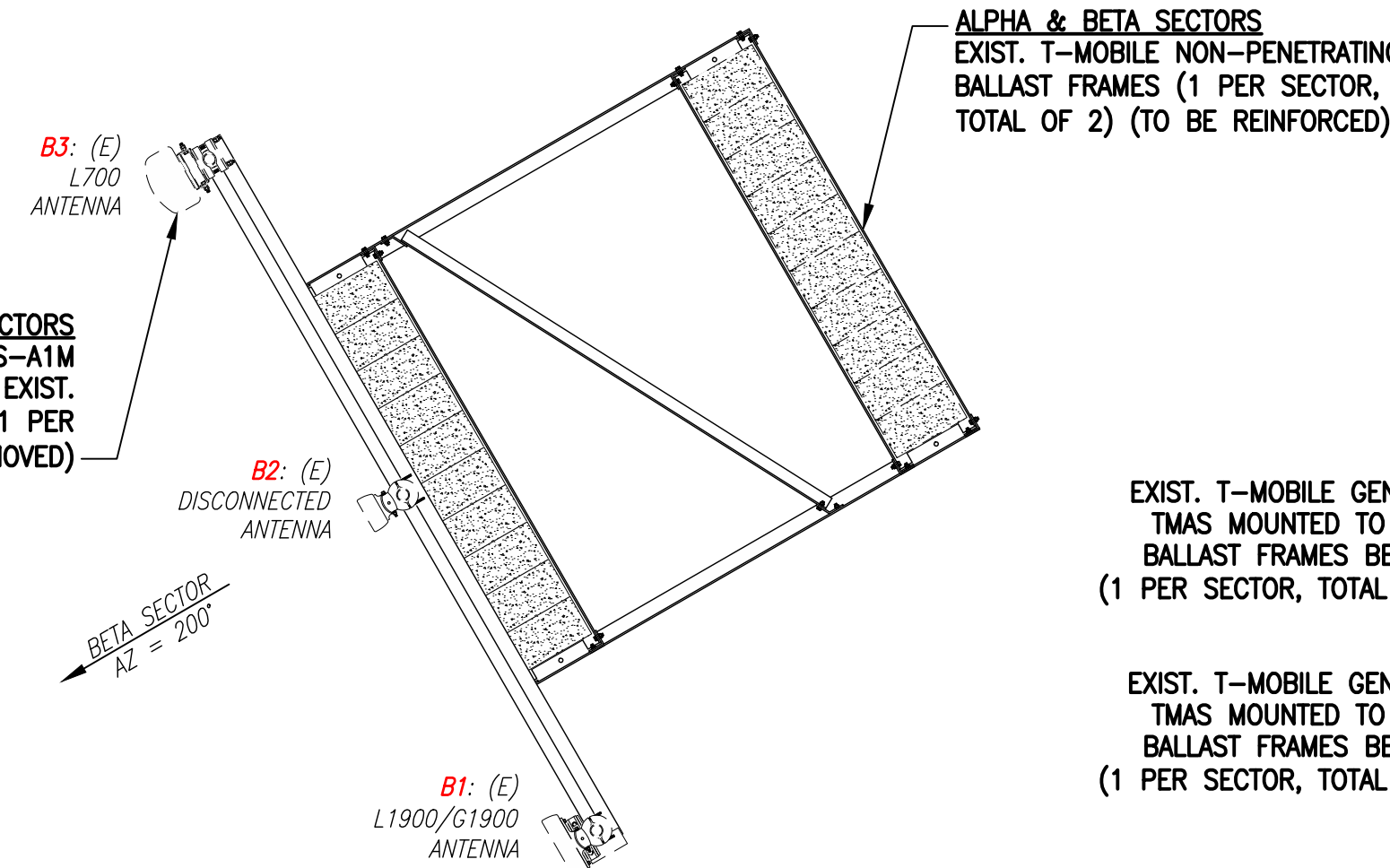
SITE ADDRESS:
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SHEET TITLE
ANTENNA PLANS

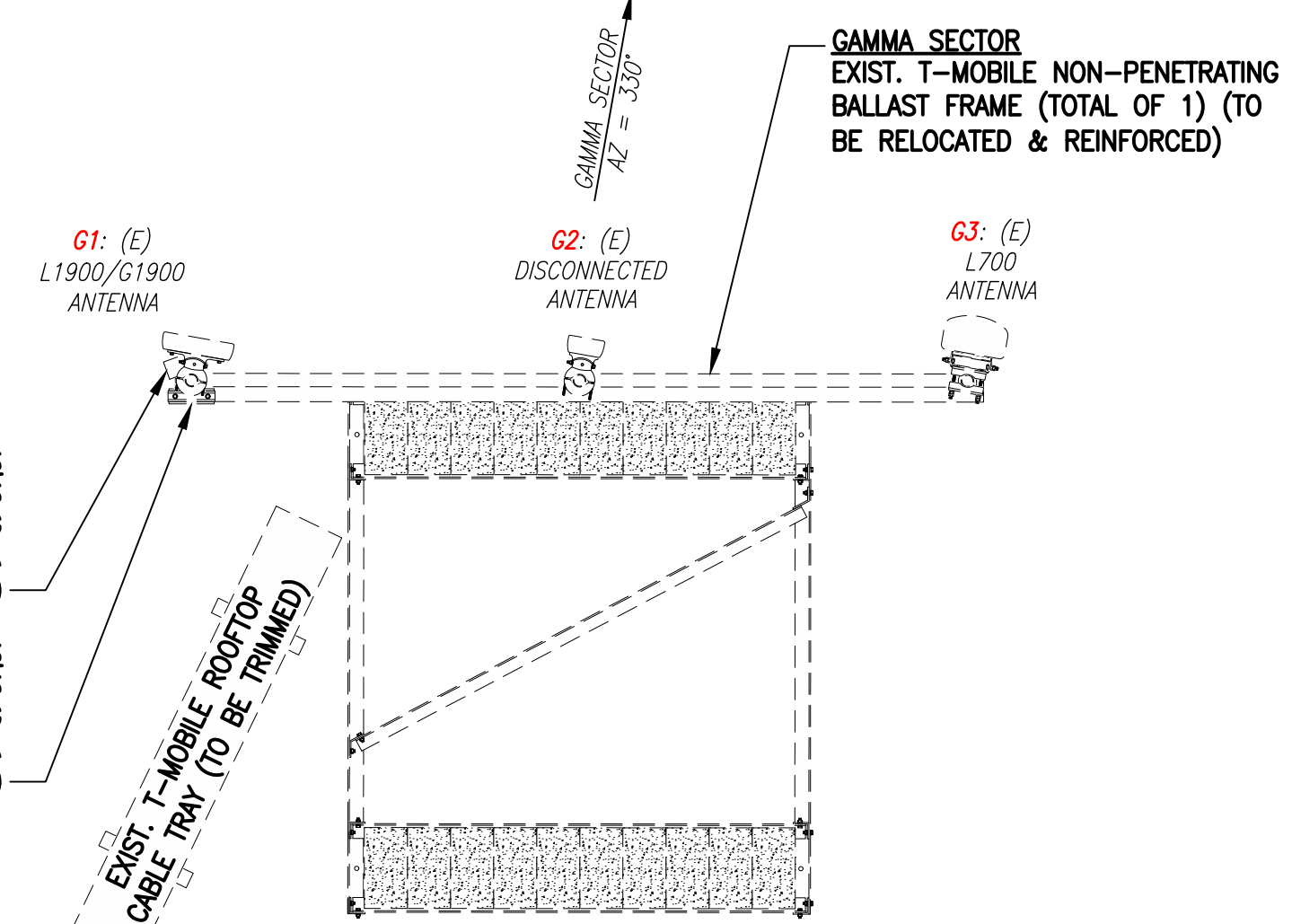
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A-4



ALPHA SECTOR



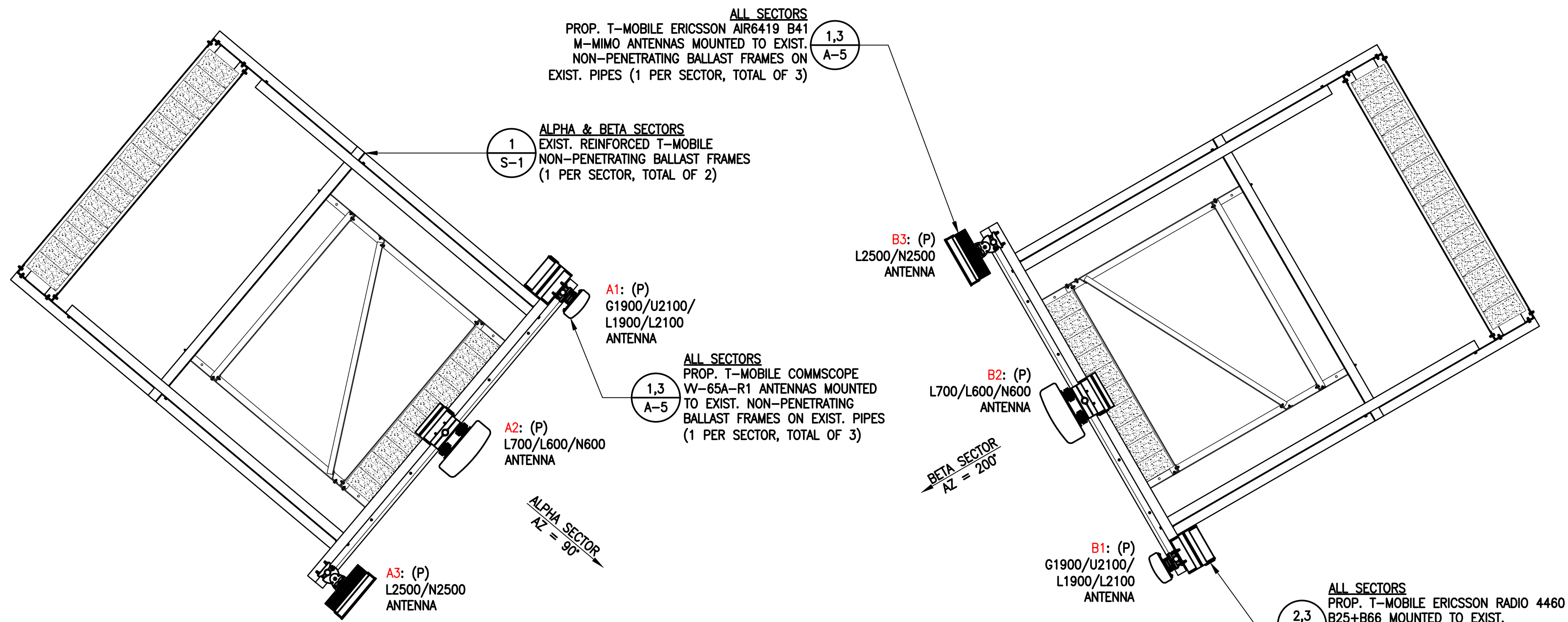
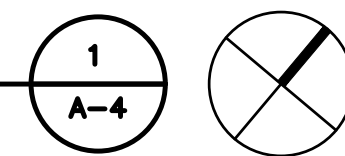
BETA SECTOR



GAMMA SECTOR

EXIST. ANTENNA PLAN

SCALE: 3/8" = 1'-0"



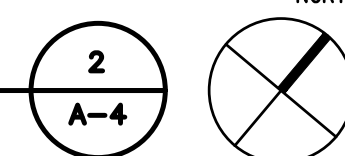
ALPHA SECTOR

BETA SECTOR

GAMMA SECTOR

PROP. ANTENNA PLAN

SCALE: 3/8" = 1'-0"



STRUCTURAL ANALYSIS NOTE:
REFER TO STRUCTURAL ANALYSIS
FOR REQUIRED RECONFIGURATION OF
THE EXISTING CONCRETE BALLAST.

NOTE:
VERIFY PROPOSED AZIMUTHS
WITH RF ENGINEER PRIOR
TO INSTALLATION.

**T-MOBILE
NORTHEAST LLC**

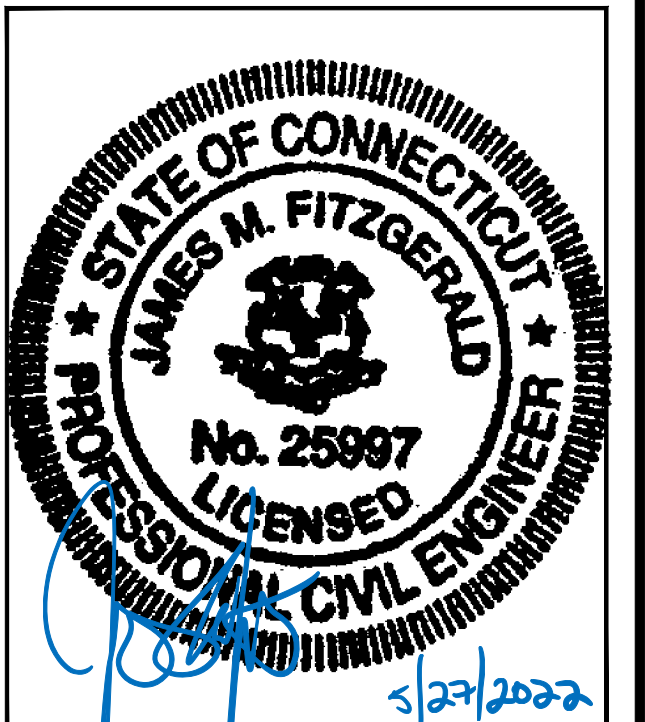
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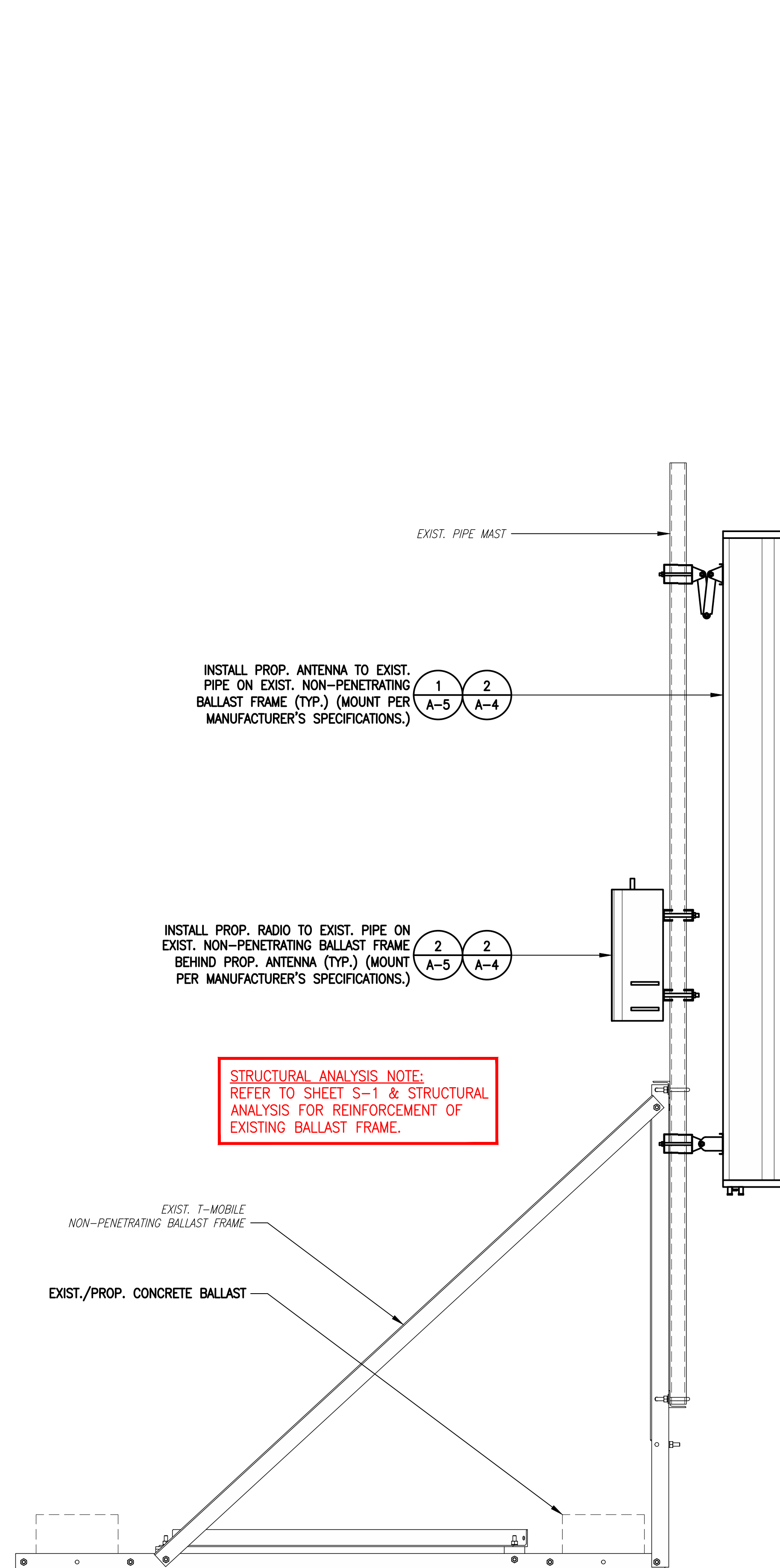
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GREENWICH, CT 06830

SHEET TITLE

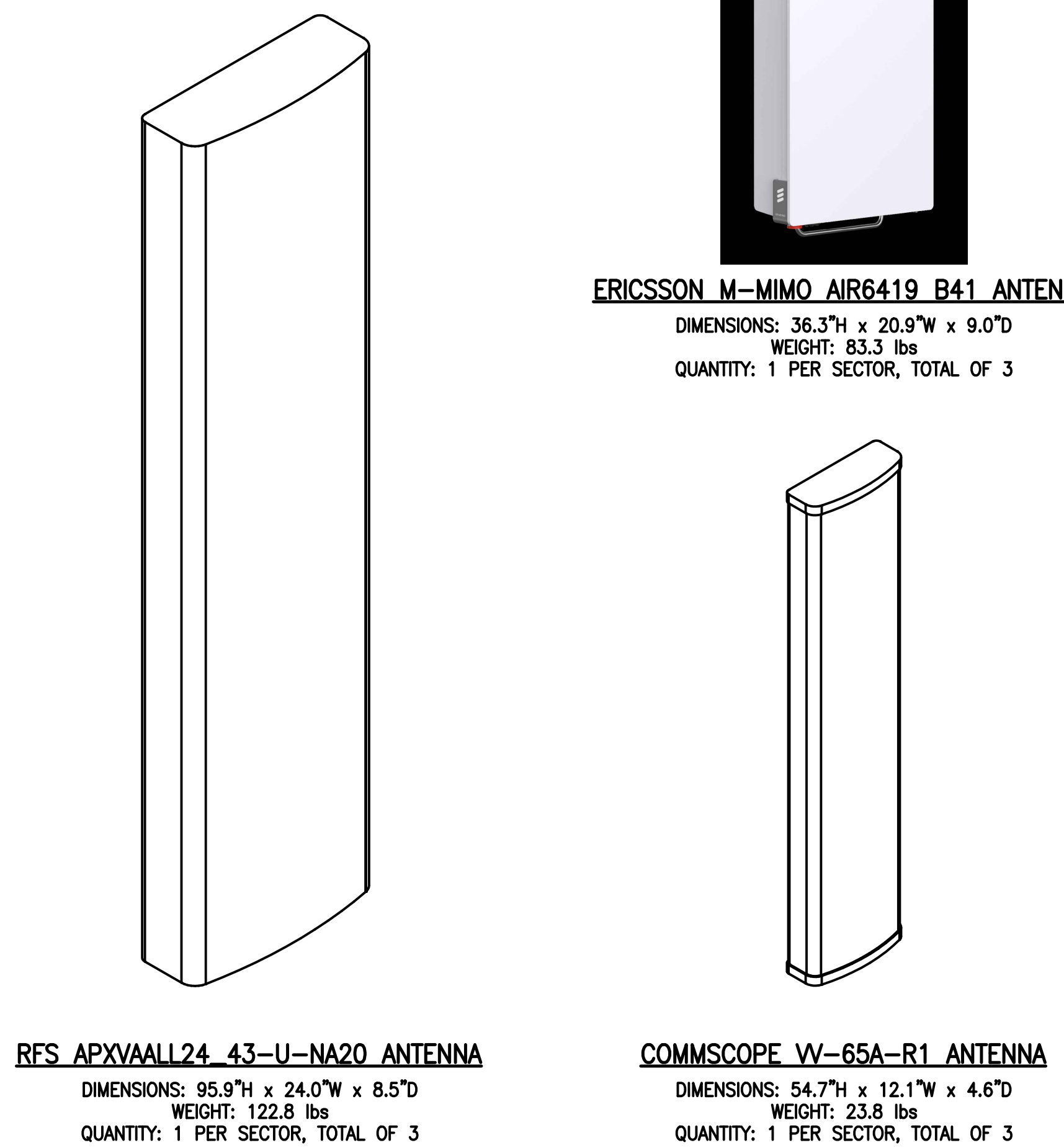
SITE DETAILS

SHEET NUMBER

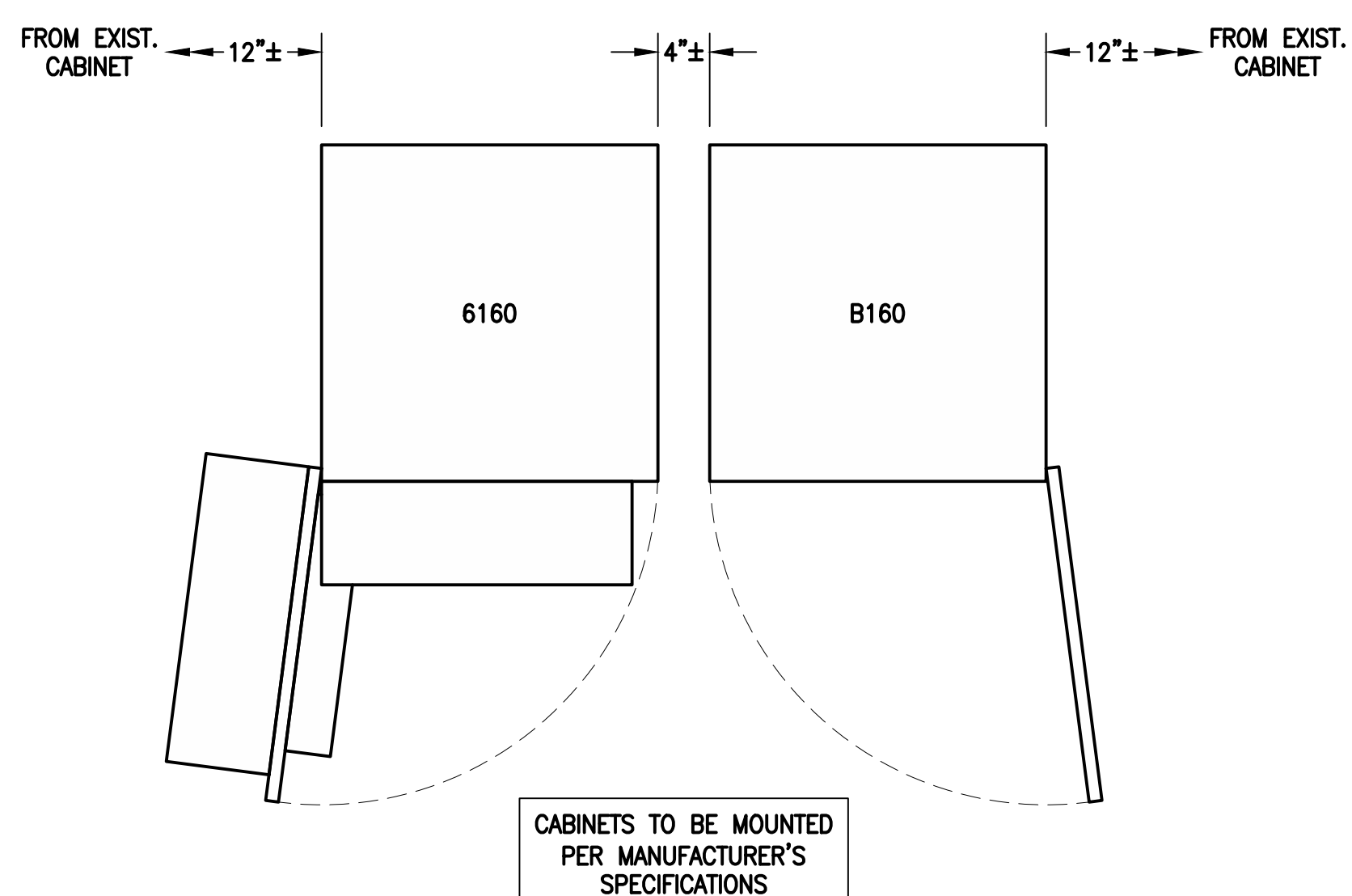
A-5



ANTENNA MOUNTING DETAIL 3
SCALE: N.T.S. A-5



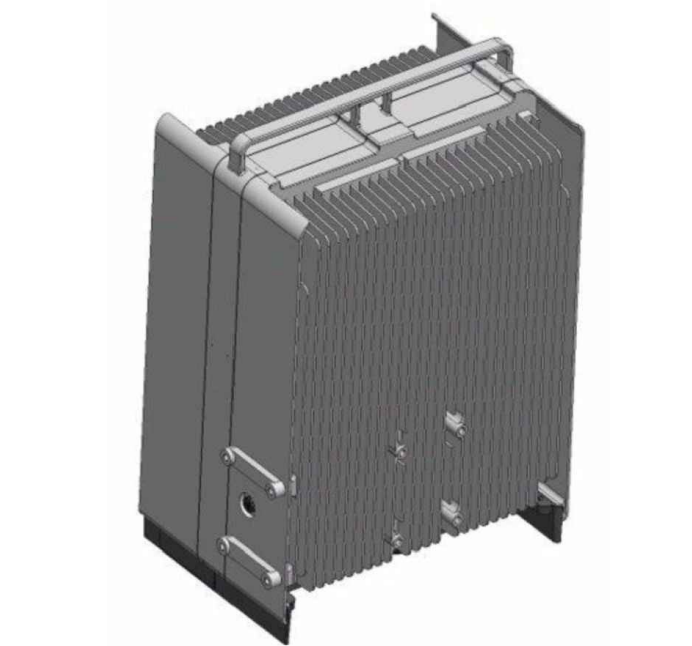
ANTENNA DETAILS 1
SCALE: N.T.S. A-5



ERICSSON 6160 SITE SUPPORT CABINET DIMENSIONS: 63.25"H x 26.0"W x 34.0"D QUANTITY: TOTAL OF 1

ERICSSON B160 BATTERY CABINET DIMENSIONS: 63.25"H x 26.0"W x 26.0"D QUANTITY: TOTAL OF 1

EQUIPMENT DETAIL 4
SCALE: N.T.S. A-5



ERICSSON RADIO 4460 B25+B66
DIMENSIONS: 17.0"H x 15.1"W x 11.9"D
WEIGHT: 104.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



ERICSSON RADIO 4480 B71+B85
DIMENSIONS: 19.2"H x 15.1"W x 7.5"D
WEIGHT: 92.6 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO DETAIL 2
SCALE: N.T.S. A-5



SLACKBOX - HOFFMAN 32FH91 NEMA 3R ENCLOSURE
DIMENSIONS: 24.0"H x 24.0"W x 12.0"D
QUANTITY: TOTAL OF 1

SSC DETAILS 5
SCALE: N.T.S. A-5

FINAL ANTENNA CONFIGURATION								
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	A1 COMMSCOPE WV-65A-R1	53'± AGL	90°	0°	4'	G1900/U2100/L1900/L2100	ERICSSON RADIO 4460 B25+B66	PROP. (6)1.9''(6x24) HCS FIBER CABLES
	A2 RFS APXVAALL24_43-U-NA20	51'± AGL	90°	0°	2'	L700/L600/N600	ERICSSON RADIO 4480 B71+BB5	
	A3 ERICSSON M-MIMO AIR6419 B41	53'± AGL	90°	0°	2'	L2500/N2500	-	
BETA	B1 COMMSCOPE WV-65A-R1	53'± AGL	200°	0°	4'	G1900/U2100/L1900/L2100	ERICSSON RADIO 4460 B25+B66	
	B2 RFS APXVAALL24_43-U-NA20	51'± AGL	200°	0°	2'	L700/L600/N600	ERICSSON RADIO 4480 B71+BB5	
	B3 ERICSSON M-MIMO AIR6419 B41	53'± AGL	200°	0°	2'	L2500/N2500	-	
GAMMA	G1 COMMSCOPE WV-65A-R1	53'± AGL	330°	0°	4'	G1900/U2100/L1900/L2100	ERICSSON RADIO 4460 B25+B66	
	G2 RFS APXVAALL24_43-U-NA20	51'± AGL	330°	0°	2'	L700/L600/N600	ERICSSON RADIO 4480 B71+BB5	
	G3 ERICSSON M-MIMO AIR6419 B41	53'± AGL	330°	0°	2'	L2500/N2500	-	

CABLE NOTE: EXISTING (18) 1-5/8" COAX CABLES TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV6 - 01/28/22

FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) 1/2" COAX FOR GPS ANTENNA EXISTING TO BE REMOVED: (18) 1-5/8" COAX CABLES	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (6)1.9''(6x24) HCS FIBER CABLES	

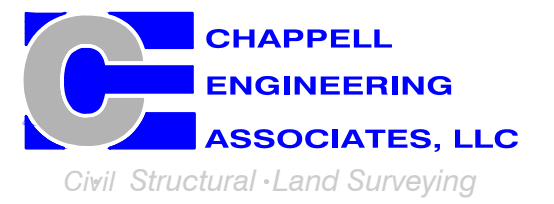
NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

**T-MOBILE
NORTHEAST LLC**

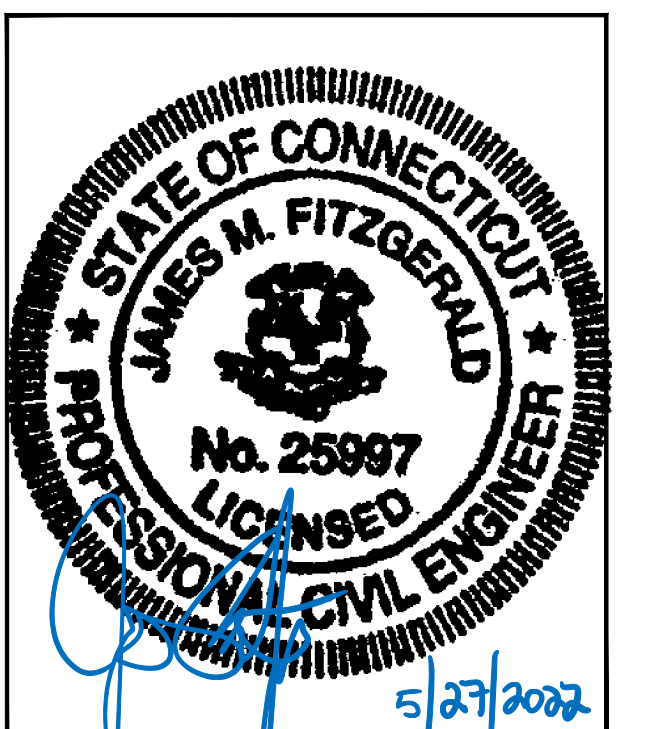
15 COMMERCE WAY, SUITE B
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SHEET TITLE
**ANTENNA &
FEEDLINE CHARTS**

SHEET NUMBER
A-6

T-MOBILE
NORTHEAST LLC

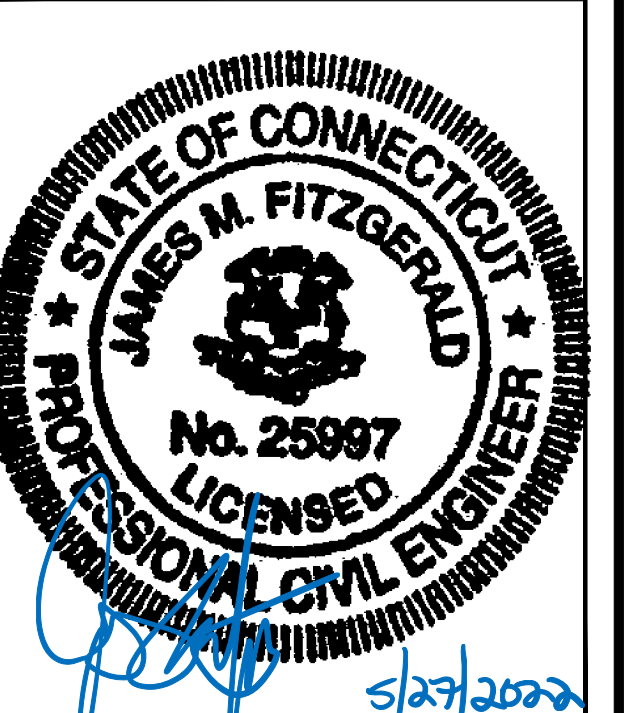
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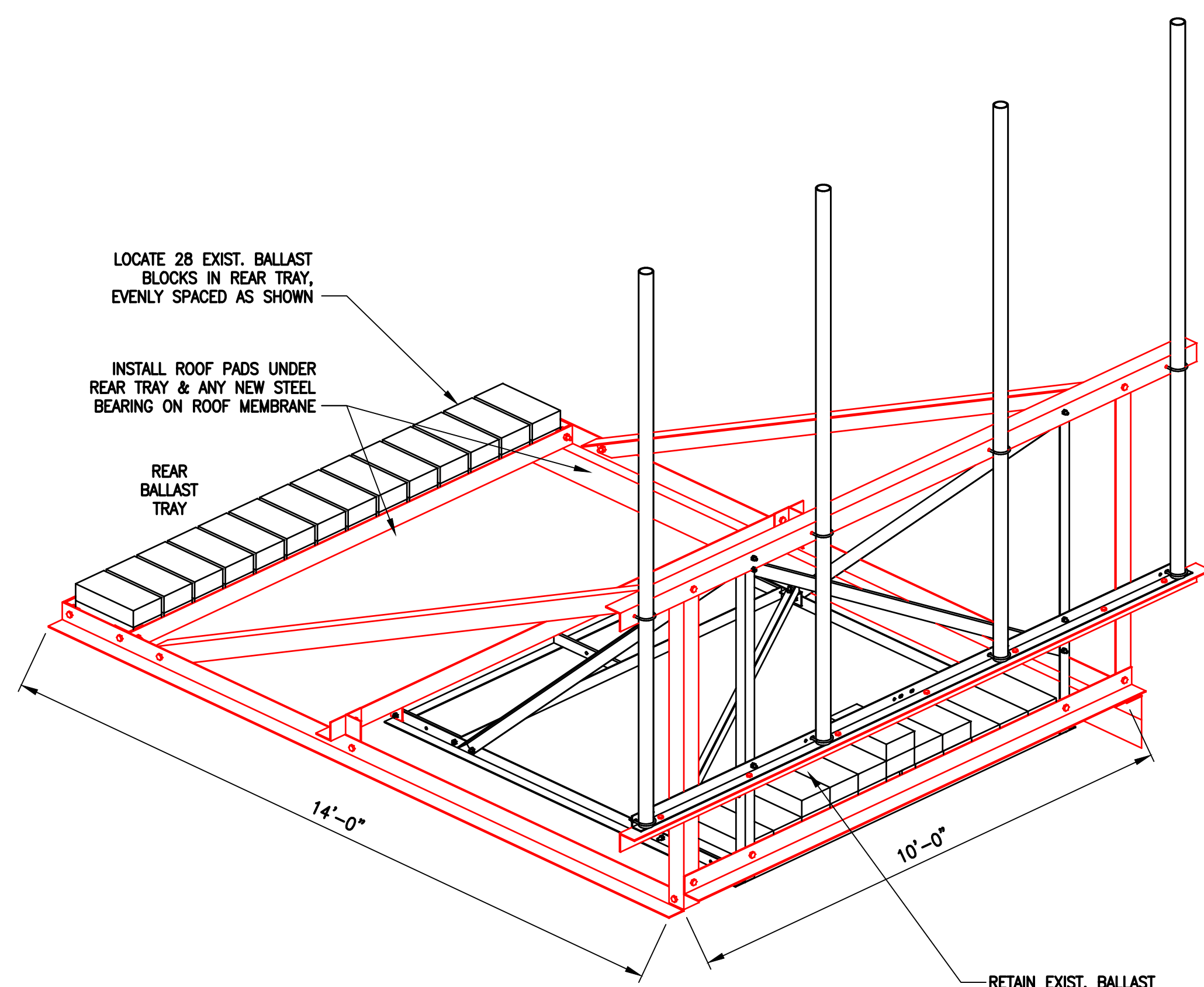
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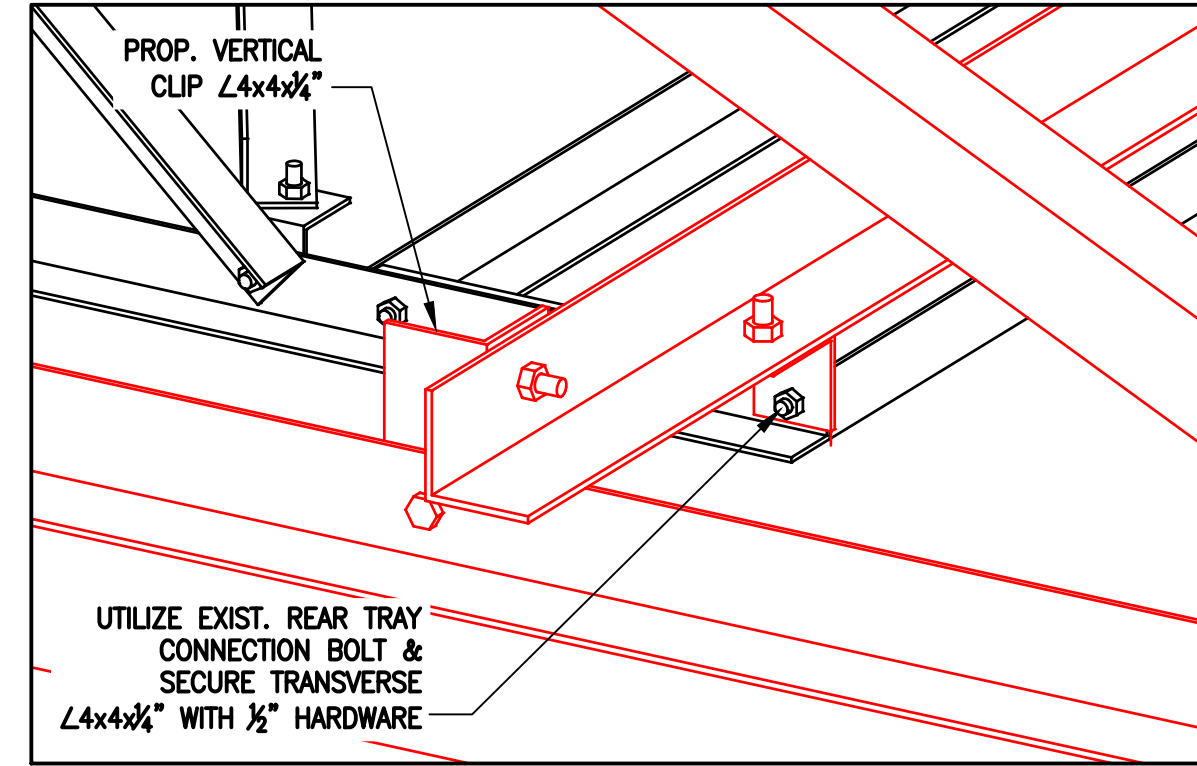
SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

SHEET TITLE
**BALLAST MOUNT
REINFORCING DETAILS
(TYP 3 SECTORS)**

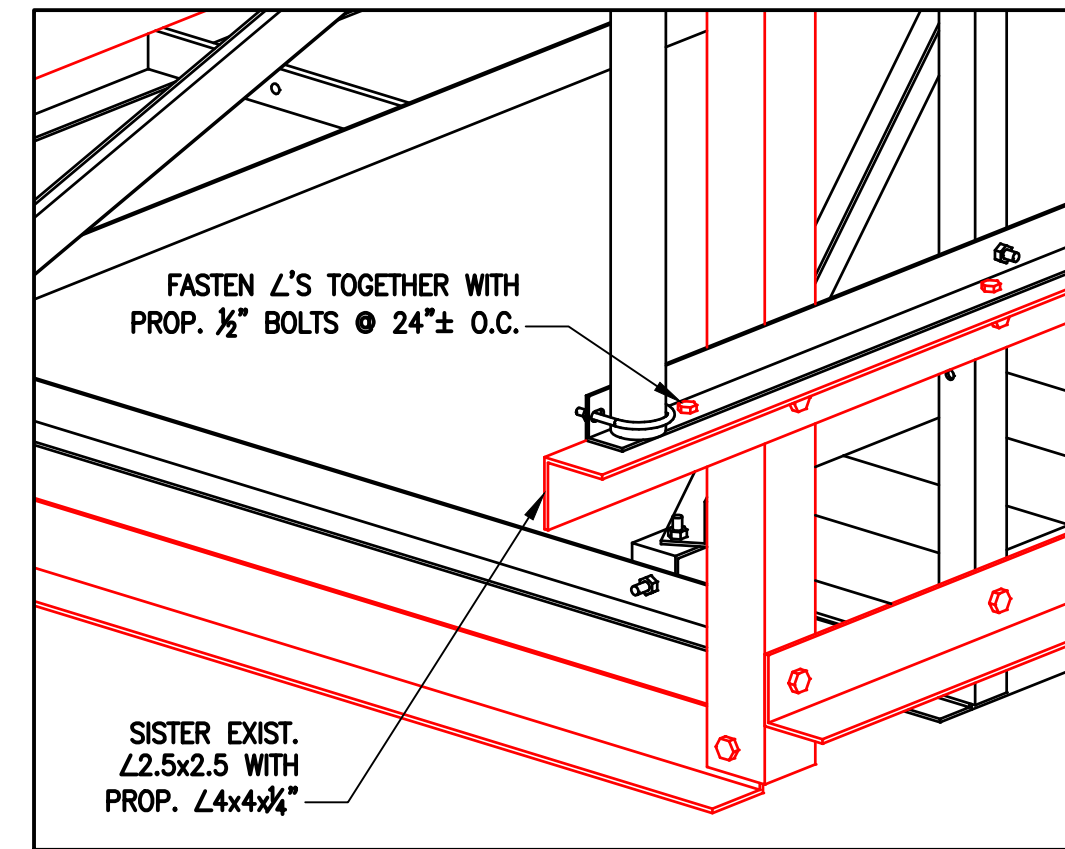
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S-1



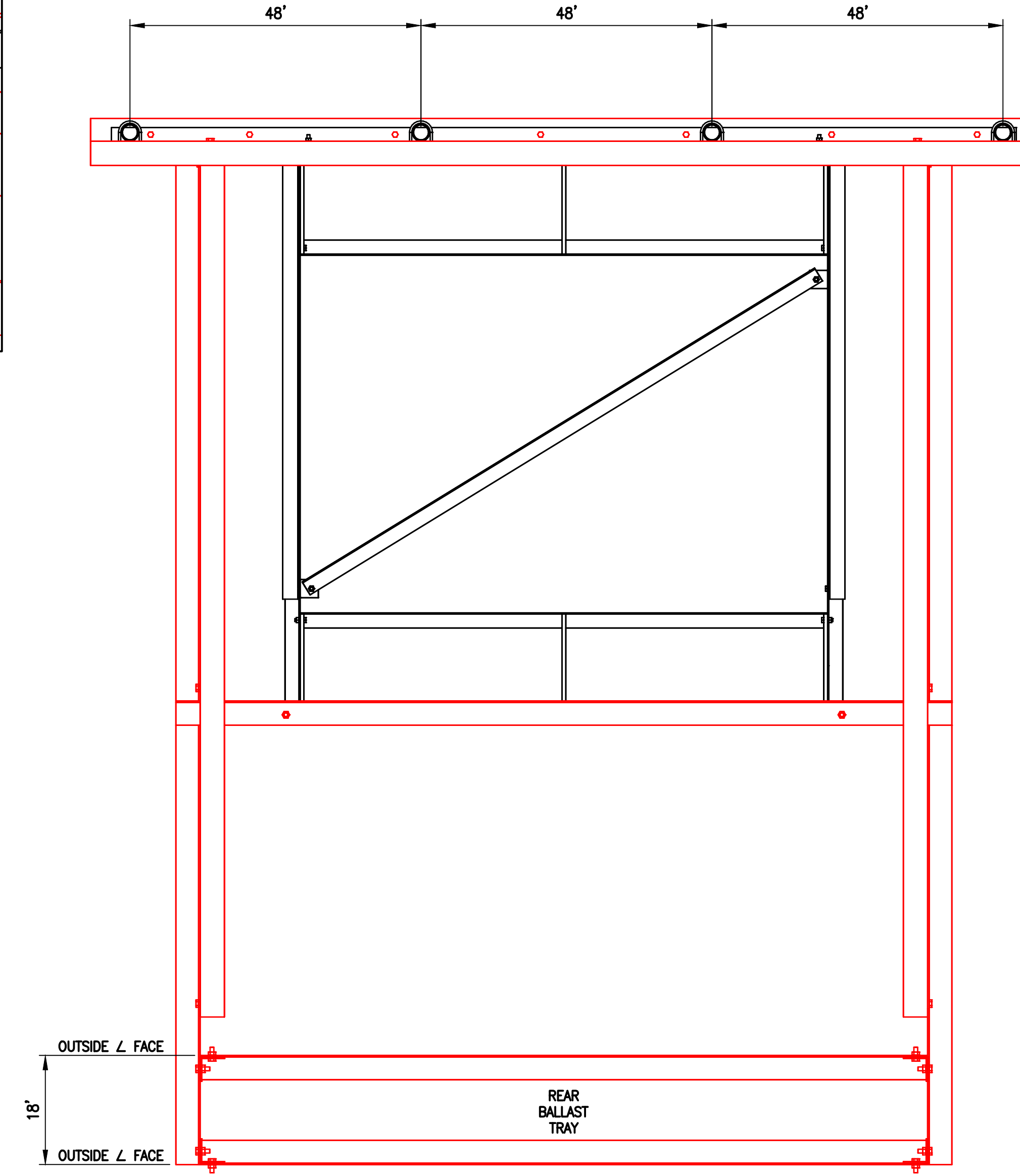
REINFORCED BALLAST FRAME - ISOMETRIC VIEW



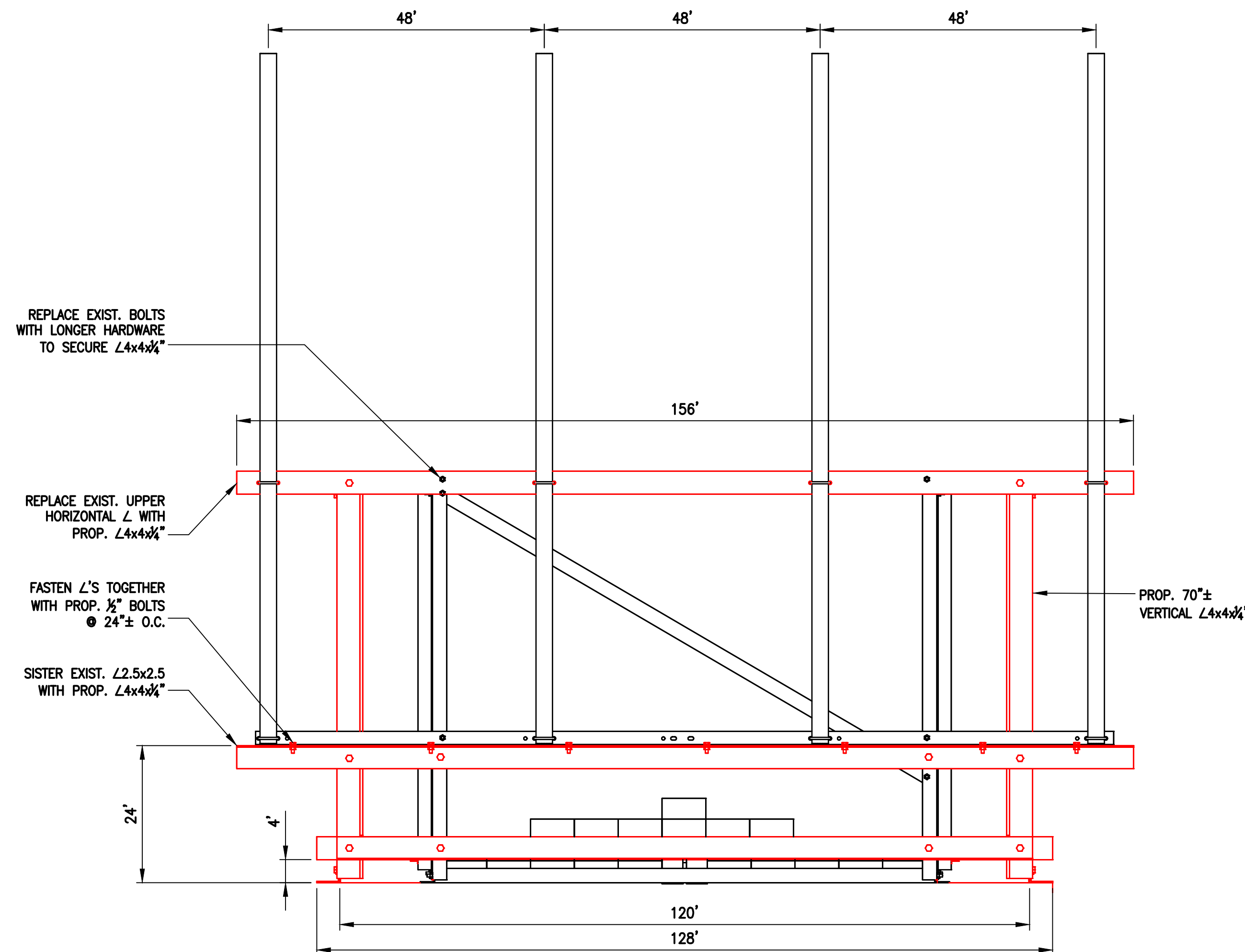
EXISTING REAR TRAY CONNECTION



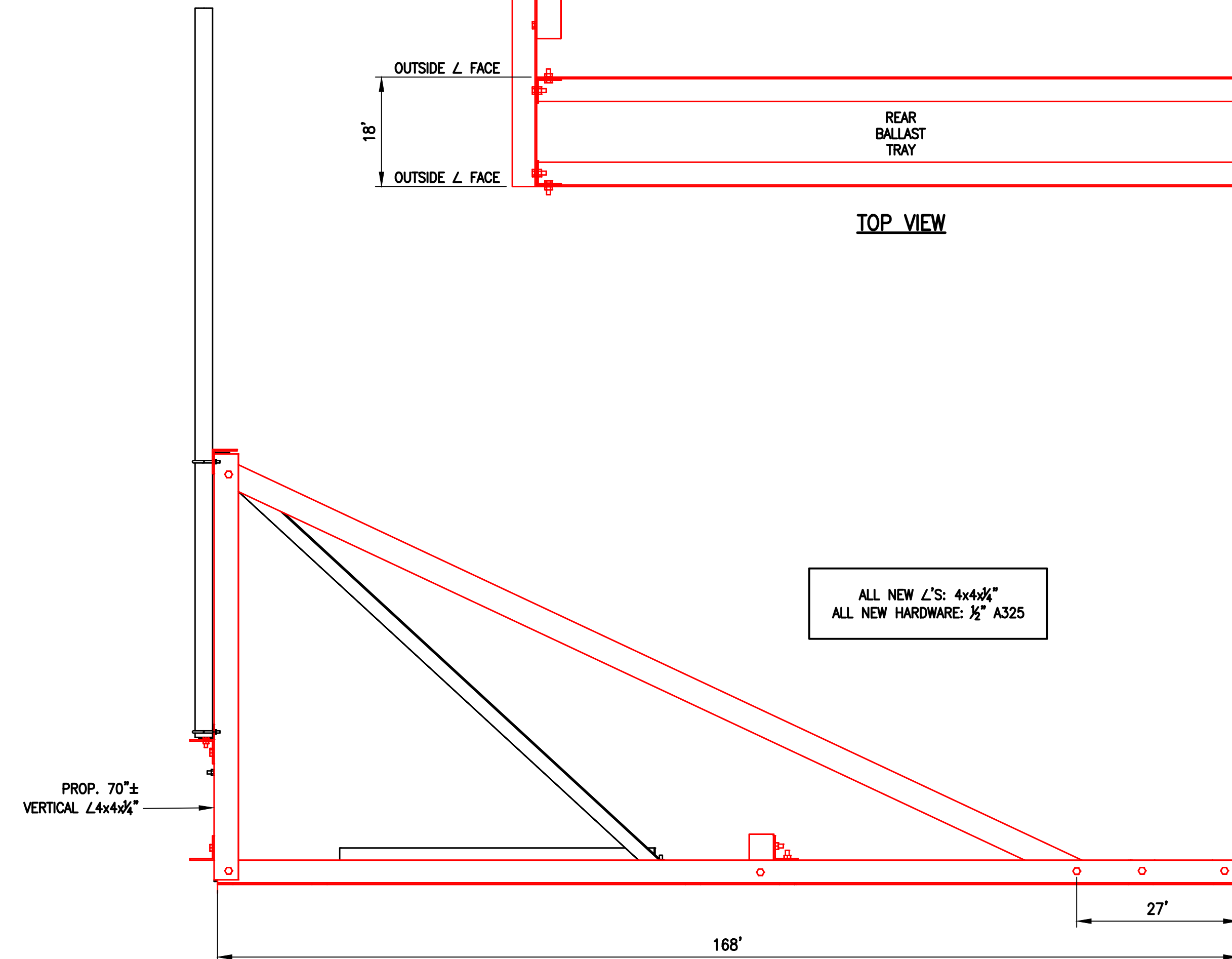
FRONT CORNER DETAIL



TOP VIEW



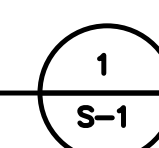
FRONT VIEW

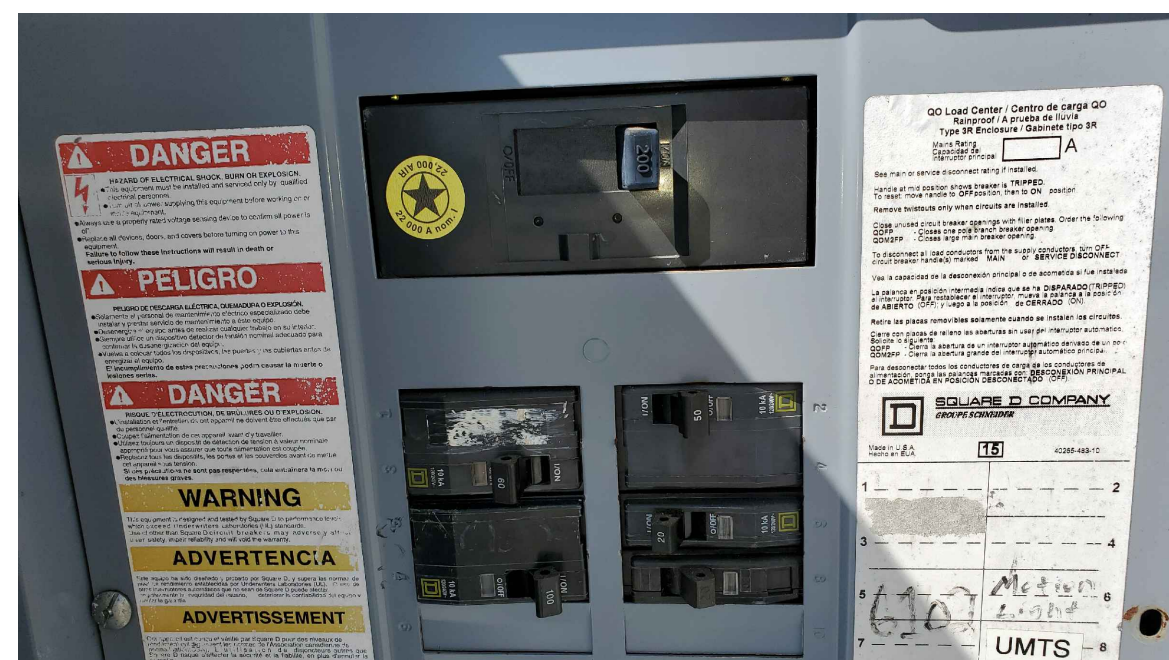


SIDE VIEW

PROP. BALLAST ANTENNA FRAMES

SCALE: 3/8" = 1'-0"



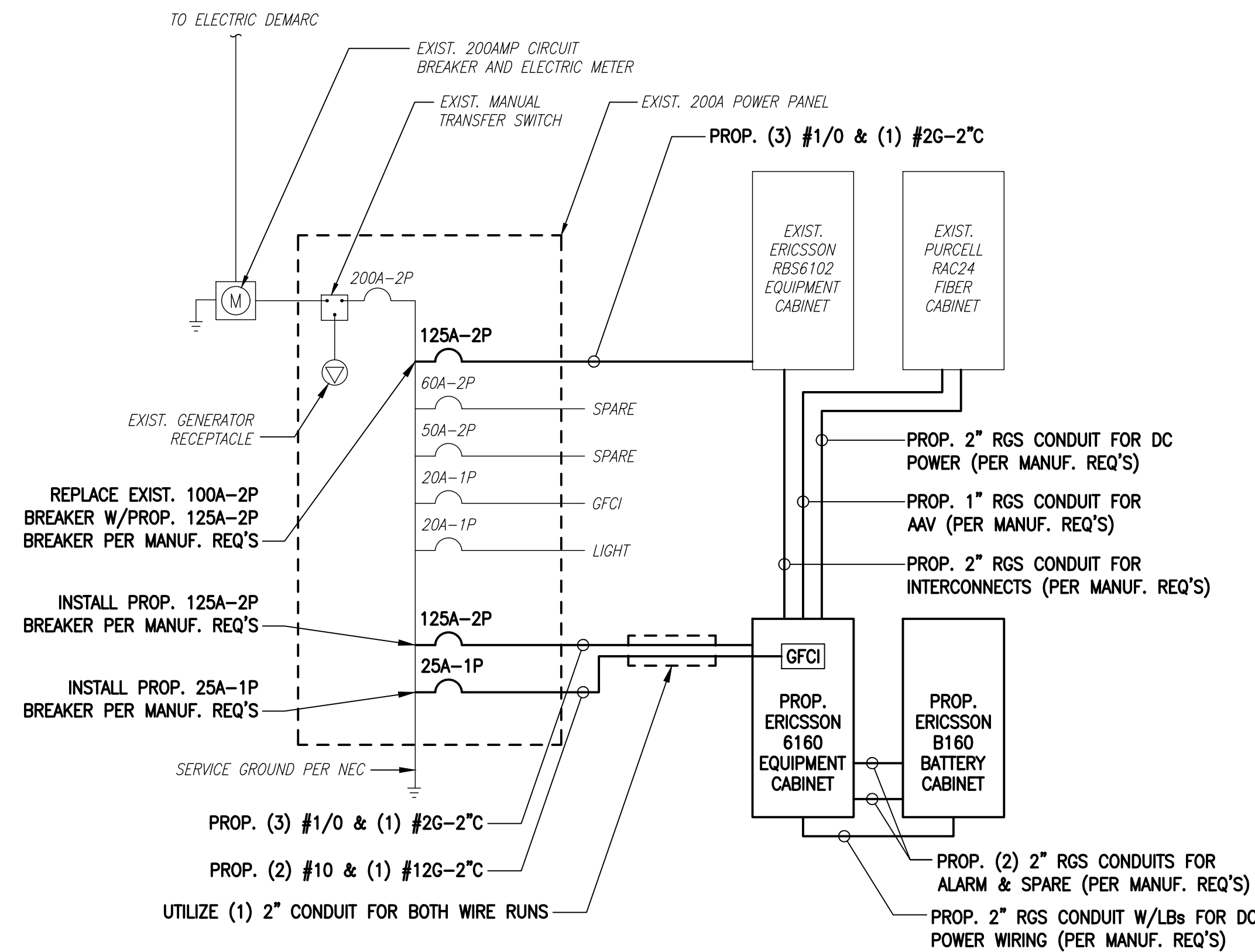


EXISTING POWER PANEL PHOTOS

SCALE: NOT TO SCALE

1
E-1

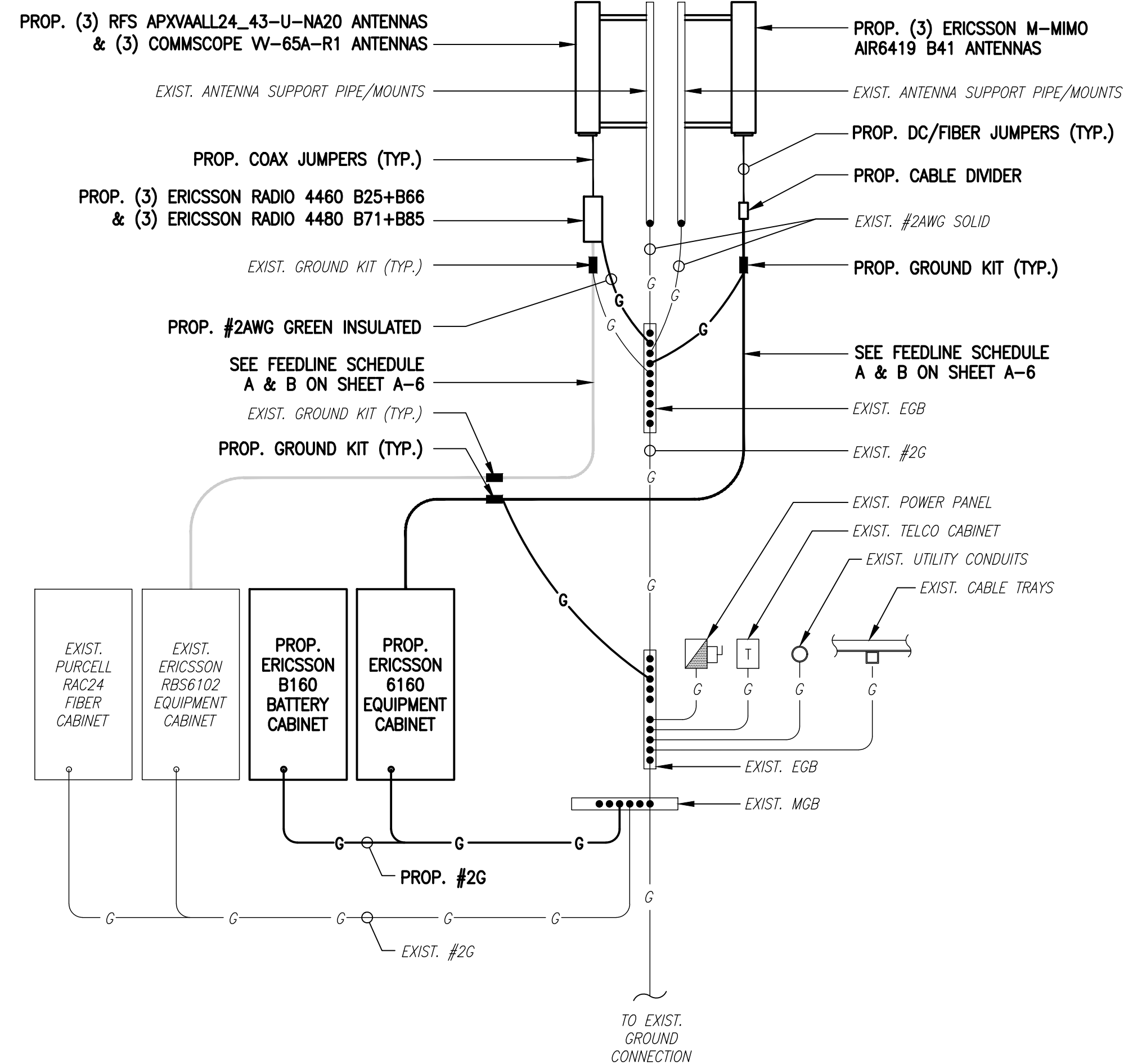
T-MOBILE MUST REPLACE THEIR EXISTING SUBMETER WITH A REMOTE READABLE SUBMETER AND PROVIDE MONTHLY READING TO SBA MANAGEMENT SITES.



ONE LINE DIAGRAM

SCALE: NOT TO SCALE

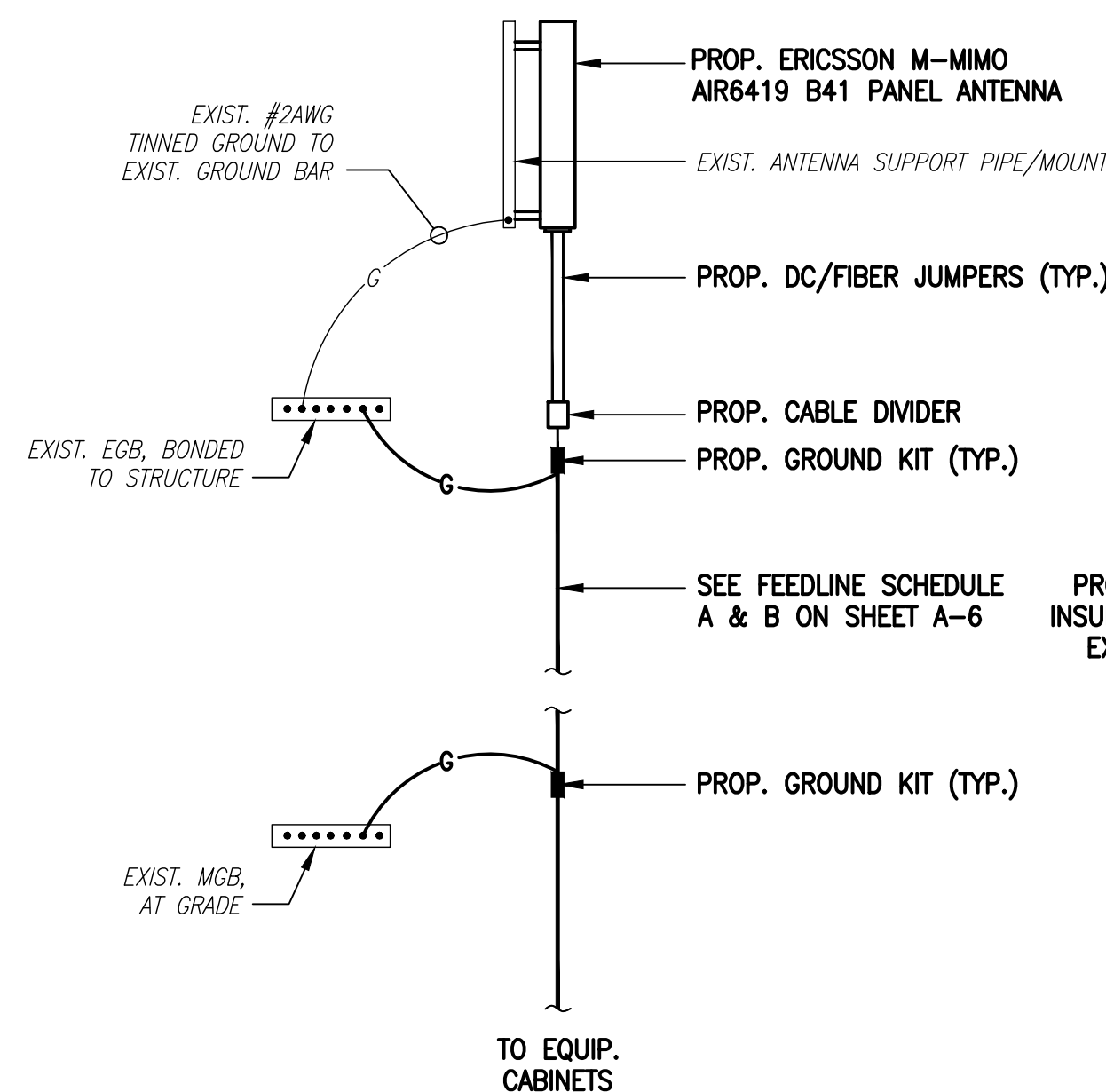
2
E-1



GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE

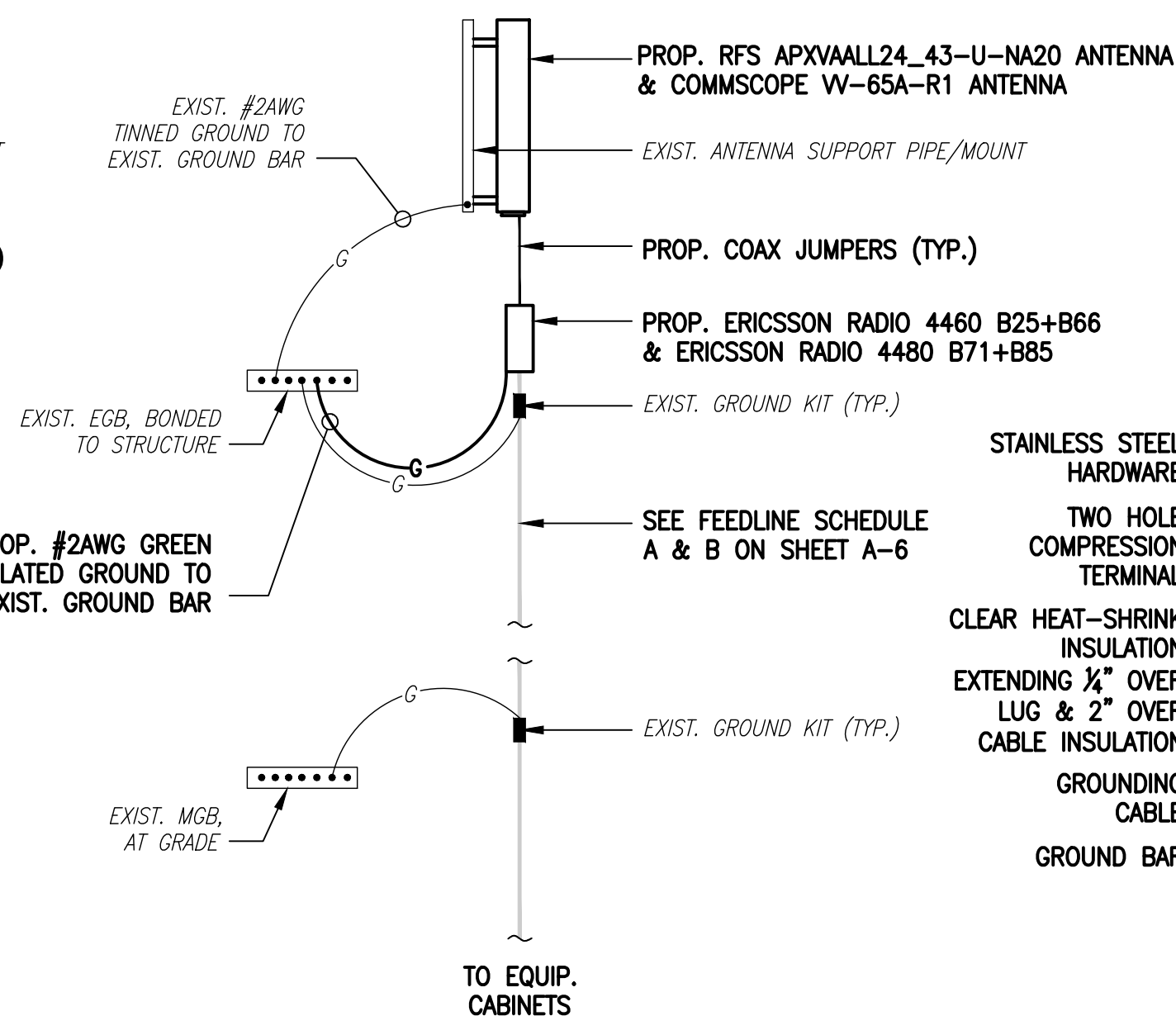
3
E-1



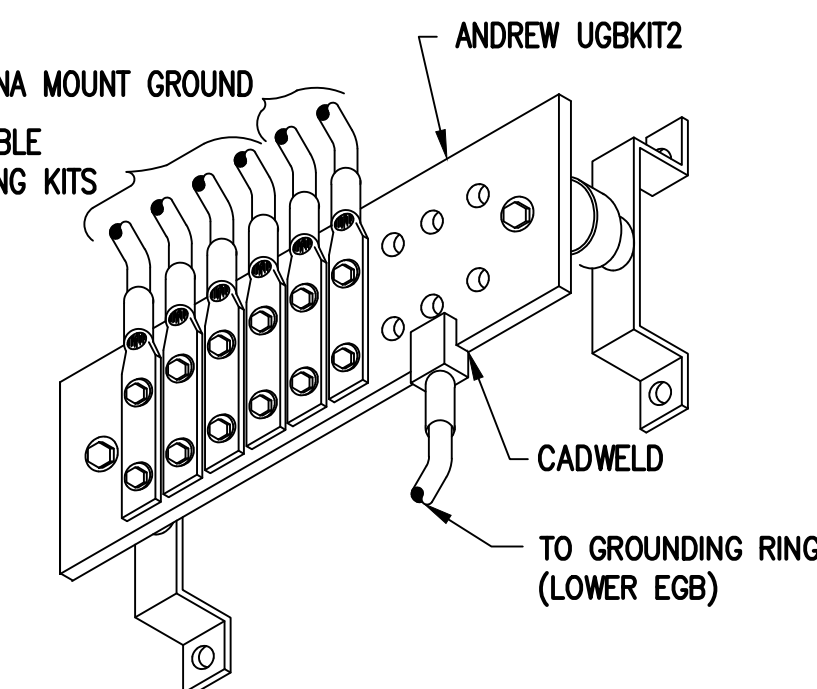
COAX CABLE CONNECTION AND GROUNDING DETAIL

SCALE: NOT TO SCALE

4
E-1



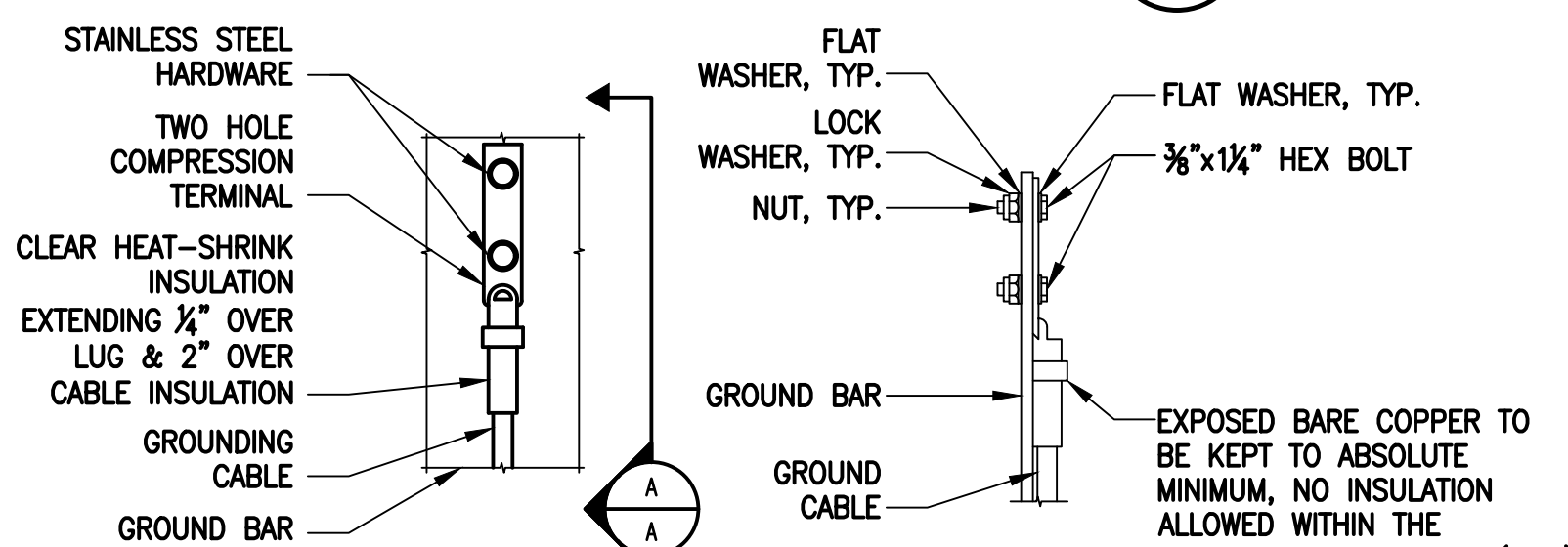
L700/L600/N600 ANTENNA & G1900/U2100/L1900/L2100 ANTENNA



GROUND BAR (EGB)

SCALE: NOT TO SCALE

5
E-1



ELEVATION

NOTES:

- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
- OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
- CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL

SCALE: NOT TO SCALE

6
E-1

ELECTRICAL AND GROUNDING NOTES

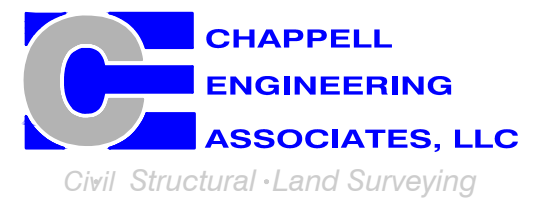
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION 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.
- BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC 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 PROJECT OWNER CELL SITE TELCO CABINET AND BITS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- WHERE CONDUIT BETWEEN BITS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BITS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BITS SITE GROUNDING STANDARDS".
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- 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 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

T-MOBILE NORTHEAST LLC

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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
3	05/27/22	CONSTRUCTION REVISED	CMC
2	05/19/22	CONSTRUCTION REVISED	CMC
1	07/28/20	ISSUED FOR CONSTRUCTION	CMC
0	06/17/20	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CT11090A

SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

SHEET TITLE

ELECTRIC & GROUNDING DETAILS

SHEET NUMBER

E-1

Exhibit D

Structural Analysis Report

· · **T** · · Mobile ·

15 Commerce Way
Suite B
Norton, MA 02766

STRUCTURAL ANALYSIS **CT11090A – GREENWICH / PUTNAM AVE 2**



Address:

411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

Date:

JUNE 02, 2022



June 02, 2022

•T-Mobile•

15 Commerce Way
Suite B
Norton, MA 02766

Structural Analysis of Antenna and Equipment Loads

RE:

Site Number CT11090A
Site Name Greenwich / Putnam Ave 2
Site Address 411 West Putnam Avenue, Greenwich, CT 06830

To whom it may concern:

Chappell Engineering Associates, LLC has performed a structural analysis of the existing roof mounted ballast antenna frames at the above-referenced location. Based upon the site walk completed on 06-12-2020, the existing 3-sector site consists of a single elevated steel frame with equipment cabinets and three (3) roof mounted ballast antenna frames.

T-Mobile currently proposes to install one (1) Ericsson B160 Battery Cabinet and one (1) Ericsson 6160 Equipment Cabinet on the existing elevated steel equipment frame. The proposed cabinets will be located in the space reserved for future equipment as indicated in the table below. The total weight of the equipment cabinets being installed is 2,451lbs. The net change (-549lbs.) is a net decrease in the overall load to the frame as compared to the original (existing) design condition. A sketch of the proposed changes is included in our construction drawings, and the table below summarizes the existing and proposed configurations:

Existing Equipment Configuration		Proposed Equipment Configuration	
Cabinet Type	Weight	Cabinet Type	Weight
PPC	150 lbs	PPC	150 lbs
Transformer	410 lbs.	Transformer	410 lbs.
Ericsson RBS 6102	1219 lbs.	Ericsson RBS 6102	1219 lbs.
Ericsson RS8000 (future)	1500 lbs.	Ericsson 6160	680 lbs.
Ericsson RS8000 (future)	1500 lbs.	Ericsson B160	1771 lbs.
Total	4779 lbs.		4230 lbs.

Additionally, T-Mobile proposes to install three (3) total 2500 MHz antennas, three (3) total 600/700MHz antennas, three (3) total 1900MHz antennas. Ancillary equipment serving to supplement the proposed antennas will include three (3) total Ericsson 4460 B25+B66 remote radios and three (3) total Ericsson 4480 B71+ B85 remote radios at the *alpha*, *beta* and *gamma* sectors to replace the existing three (3) in-service antennas and related transmitting equipment at these locations. Additionally, three (3) total DC/Hybrid cables will be run to service the proposed antenna (1 per sector, total of 3 sectors receiving the new antenna).

The existing *alpha*, *beta* and *gamma* sector antenna frames do not have the required capacity to support the proposed antennas, and will be reinforced to provide sufficient capacity to support the proposed antenna loads. The existing rear ballast will be re-located to the new larger footprint frames. Our calculations are enclosed.

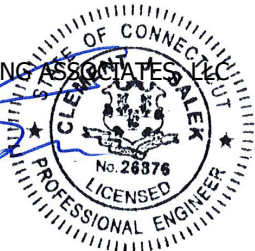
Photos of the existing ballast frames and the existing antenna mounting locations are included in this report. The appropriate antenna mounting plans and details have been included in our drawings which are also enclosed for your convenience.

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

Very truly yours,

CHAPPELL ENGINEERING ASSOCIATES, LLC


Clement J Salek, P.E.
CJS/cjs





Existing T-Mobile Equipment Frame



Existing T-Mobile Equipment Frame



Existing T-Mobile Alpha Sector Antennas



Existing T-Mobile Alpha Sector Ballast



Existing T-Mobile Beta Sector Antennas



Existing T-Mobile Beta Sector Ballast



Existing T-Mobile Gamma Sector Antennas



Existing T-Mobile Gamma Sector Ballast

Site Name/Number:	CT11090A Greenwich / Putnam Ave 2	 CHAPPELL ENGINEERING ASSOCIATES, LLC <i>Civil • Structural • Land Surveying</i>
Site Address:	411 West Putnam Avenue, Greenwich, CT 06830	
CEA Job Number:	1815.141	
Date:	June 2, 2022	

Appurtenances Attached to Ballast Frame:

	Commscope W/ 65A-R1 Antenna		RFS APXVAALL24_43-U-NA20	Ericsson 4460 B25+B66	Ericsson 4480 B71+B85	Ericsson M-MIMO AIR6419				
Depth, d =	4.6 in	in	8.5 in	11.9 in	7.5 in	9.0 in	in			
Width, w =	12.1 in	in	24.0 in	15.1 in	15.1 in	20.9 in	in			
Height, h =	54.7 in	in	96.0 in	17.0 in	19.2 in	36.3 in	in			
Height ARL =	10.6 ft	ft	8.6 ft	5 ft	5 ft	10.6 ft	ft			
Weight =	24 lbs	lbs	128 lbs	104 lbs	93 lbs	84 lbs	lbs			

Design Code: ASCE 7

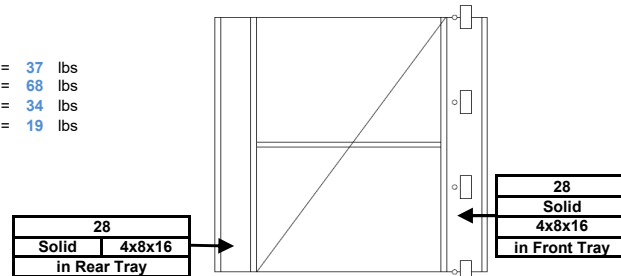
	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	
Z (Above Ground Level) =	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	
Height of Projection Area =	4.6 ft	0.0 ft	8.0 ft	1.4 ft	1.6 ft	3.0 ft	0.0 ft	0.0 ft	0.0 ft	0.0 ft	
Width of Projection Area =	1.0 ft	0.0 ft	2.0 ft	1.3 ft	1.3 ft	1.7 ft	0.0 ft	0.0 ft	0.0 ft	0.0 ft	
Af (Projected Area of Gross) =	4.6 s.f.	0.0 s.f.	16.0 s.f.	1.8 s.f.	2.0 s.f.	5.3 s.f.	0.0 s.f.	0.0 s.f.	0.0 s.f.	0.0 s.f.	
Reference Wind Velocity, V =	106 mph	106 mph	106 mph	106 mph	106 mph	106 mph	106 mph	106 mph	106 mph	106 mph	
Exposure =	B	B	B	B	B	B	B	B	B	B	Section 6.5.6.3
G (Gust effect factor) =	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	Section 6.5.8
Cf (Force Coefficient) =	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	Fig 6-20 to 6-23
Kz (Exposure Coefficients) =	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	6.5.6.6, Table 6-3
K1 (Multiplier) =	0	0	0	0	0	0	0	0	0	0	Figure 6-2
K2 (Multiplier) =	0	0	0	0	0	0	0	0	0	0	Figure 6-2
K3 (Multiplier) =	0	0	0	0	0	0	0	0	0	0	Figure 6-2
Kzt (Topographic Factor) : (1+K1*K2*K3)^2 =	1	1	1	1	1	1	1	1	1	1	Section 6.5.7.2
Kd =	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	Table 6-4
I (Importance Factor) =	1	1	1	1	1	1	1	1	1	1	Table 6-2
Qz = .00256*Kz*Kzt*Kd*V^2*I (psf) =	20.8 psf	20.8 psf	20.8 psf	20.8 psf	20.8 psf	20.8 psf	20.8 psf	20.8 psf	20.8 psf	20.8 psf	psf, Section 6.5.10
Reference Wind Pressure, p =	24.7 psf	24.7 psf	24.7 psf	24.7 psf	24.7 psf	24.7 psf	24.7 psf	24.7 psf	24.7 psf	24.7 psf	
F, lbs =	114	0	396	44	50	130	0	0	0	0	

Required Minimum Ballast:

Ballast Frame Geometry

Frame width =	10 ft
Frame depth =	14.00 ft
Centroid of front ballast to toe, dr =	0.67 ft
Centroid of rear ballast to toe, dr =	13.33 ft
Frame Footprint Area =	140.00 ft ²
Weight of steel frame =	1550 lbs

Common 8x8x16 Block Wgt = 37 lbs
Solid 8x8x16 Block Wgt = 68 lbs
Solid 4x8x16 Block Wgt = 34 lbs
Common 8x4x16 Block Wgt = 19 lbs



28
Solid 4x8x16
in Front Tray

28
Solid 4x8x16
in Rear Tray

Safety Factor for Overturning = 2.2 Total Appurtenance Wgt = 433 lbs

Let Wt = total ballast required, lbs
Let Wr = 0.5 Wt
Let Wf = 0.5 Wt

For Stability:

Mcausing <= Mresisting	
Mcausing <= Mframe wgt + Mrear ballast + Mfront ballast	
Mcausing <= Mframe wgt + 0.5 (Wt)(dr) + 0.5 (Wt)(df)	

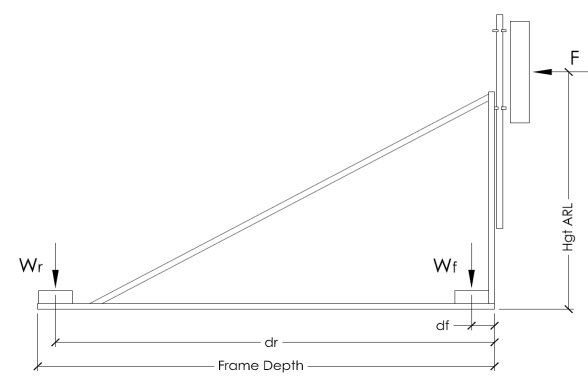
Solving for Wt:

$\frac{Mcausing - Mframe wgt}{0.50 dr + 0.50 df} <= Wt$ (min total ballast req'd)	
$\frac{13175.06}{7.00} <= Wt$	Mcausing = 14208.4 ft-lbs Mframe wgt = 1033.3 ft-lbs 0.5 dr = 6.67 ft 0.5 df = 0.33 ft

Min. Total Ballast Req'd (Wt) = 1882 lbs <= Wt

Min. Front Ballast Req'd (Wf) = 941 lbs = 28 Solid 4x8x16 Blocks in Front Tray
Min. Rear Ballast Req'd (Wr) = 941 lbs = 28 Solid 4x8x16 Blocks in Rear Tray
Total Loaded Frame Weight = 3865 lbs = 56 Total per Ballast Mount

Frame Surcharge = 27.6 psf



Frame Geometry

GREENWICH/PUTNAM AVE 2

411 WEST PUTNAM AVENUE
GREENWICH, CT 06830
FAIRFIELD COUNTY


SITE NO.: CT11090A

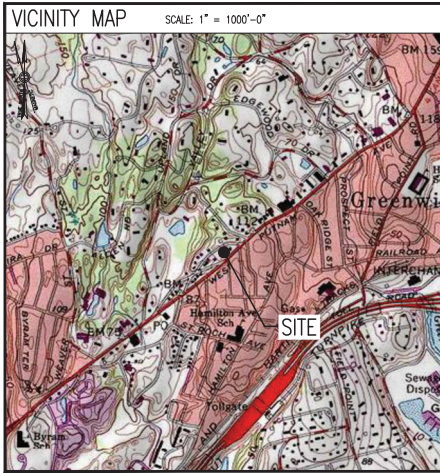
SITE TYPE: ROOFTOP

RF DESIGN GUIDELINE: 67E5A998E HYBRID

APPROVALS			
PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

T-MOBILE TECHNICIAN SITE SAFETY NOTES	
LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
SECTOR D:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

GENERAL NOTES	
1. THE CONTRACTOR SHALL OBEY ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES REGARDING THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.	SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
2. THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BEING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND/OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.	13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSAL OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PROMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SLAGGAGES OF ANY NATURE.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING IN WRITING THE OWNER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PROCEED AT HIS/HER OWN RISK UNLESS DIRECTED IN WRITING OTHERWISE.	14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.	15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.	16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DENIED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.	17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.	AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE OPERATED WITH THE BEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.	
9. THE CONTRACTOR SHALL SUPERSEDE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.	
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND MARKS REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.	
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE CONTRACTOR/OWNER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.	
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PLUMBING, CURBS, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR	



DIRECTIONS

MERGE ONTO I-495 NORTH TOWER MANSFIELD/MARLBORO. TAKE EXIT 33B TO MERGE ONTO I-95 SOUTH TOWARD PROVIDENCE RI. ENTER RHODE ISLAND. KEEP LEFT TO CONTINUE TOWARD I-95 SOUTH. CONTINUE ONTO I-95 SOUTH. KEEP RIGHT AT FORK TO STAY ON I-95 SOUTH. ENTER CONNECTICUT. KEEP LEFT TO STAY ON I-95 SOUTH. KEEP RIGHT TO STAY ON I-95 SOUTH. KEEP LEFT TO STAY ON I-95 SOUTH (7A). TAKE EXIT 3 FOR ARCH STREET TOWARD GREENWICH. USE MIDDLE LANE TO TURN RIGHT ONTO ARCH STREET. TURN LEFT ONTO RAILROAD AVENUE. CONTINUE ONTO OLD FIELD POINT ROAD. TURN RIGHT ONTO LIVINGSTON PLACE. LIVINGSTON PLACE TURNS LEFT & BECOMES US-1 SOUTH. SITE IS LOCATED ON THE RIGHT HAND SIDE.

SHEET INDEX		
SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	3
GN-1	GENERAL NOTES	3
A-1	ROOF PLAN	3
A-2	EQUIPMENT PLANS	3
A-3	BUILDING ELEVATION	3
A-4	ANTENNA PLANS	3
A-5	SITE DETAILS	3
A-6	ANTENNA & FEEDLINE CHARTS	3
S-1	BALLAST MOUNT REINFORCING DETAILS	3
E-1	ELECTRIC & GROUNDING DETAILS	3

DO NOT SCALE DRAWINGS

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

PROJECT SUMMARY	
SITE NUMBER:	CT11090A
SITE NAME:	GREENWICH/PUTNAM AVE 2
SBA SITE NUMBER:	CT95623-M
SBA SITE NAME:	GREENWICH (PUTNAM)
SITE ADDRESS:	411 WEST PUTNAM AVENUE GREENWICH, CT 06830
PROPERTY OWNER:	411 PUTNAM AVE, LLC 411 WEST PUTNAM AVENUE GREENWICH, CT 06830
TOWER OWNER:	MCM ACQUISITION 2017, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	FAIRFIELD
ZONING DISTRICT:	GB (GENERAL BUSINESS)
STRUCTURE TYPE:	ROOFTOP
STRUCTURE HEIGHT:	56±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: 41.021397° N41°01'17.03" LONGITUDE: -73.641289° W73°38'28.64"
SPECIAL ZONING NOTE:	BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

T-MOBILE NORTHEAST LLC

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SBA COMMUNICATIONS CORP.
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CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil Structural & Land Surveying

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



CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
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SITE NUMBER:
CT11090A

SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – T-MOBILE
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – T-MOBILE
ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TOLCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, FIDEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.
15. CONSTRUCTION SHALL COMPLY WITH ALL T-MOBILE STANDARDS AND SPECIFICATIONS.
16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
18. IF 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 TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND, FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.
9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T-MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST EARTH.....3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 AND LARGER2 IN.
#5 AND SMALLER & WAF1 1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND
SLAB AND WALL3/4 IN.
BEAMS AND COLUMNS1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.
7. CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (BC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER:
(A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIER'S PLANT.
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED, FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
8. AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY ENGINEER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T-MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1, WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (5/8") AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 3/8" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVELS SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.
5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E), AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T-MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TOLCOBORA.
2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLES TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TOLCOBORA.
4. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND), 1/2" INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.
6. POWER PHASE CONDUCTORS (I.E., HOT) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND), 1/2" INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOD PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOD PLASTIC LABELS.
9. ALL THE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THIN OR THIN-W, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#8 AWG OR LARGER), 600 V, OIL RESISTANT THIN OR THIN-W GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID THINED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TO CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THIN OR THIN-W, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WRENUTS BY HARGER (OR EQUAL). LUGS AND WRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND, DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
21. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
25. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 514 AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

**T-MOBILE
NORTHEAST LLC**

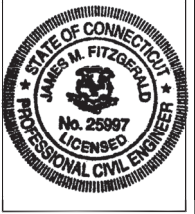
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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
3	05/27/22	CONSTRUCTION REVISED	CMC
2	05/19/22	CONSTRUCTION REVISED	CMC
1	07/28/20	ISSUED FOR CONSTRUCTION	CMC
0	06/17/20	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CT11090A

SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

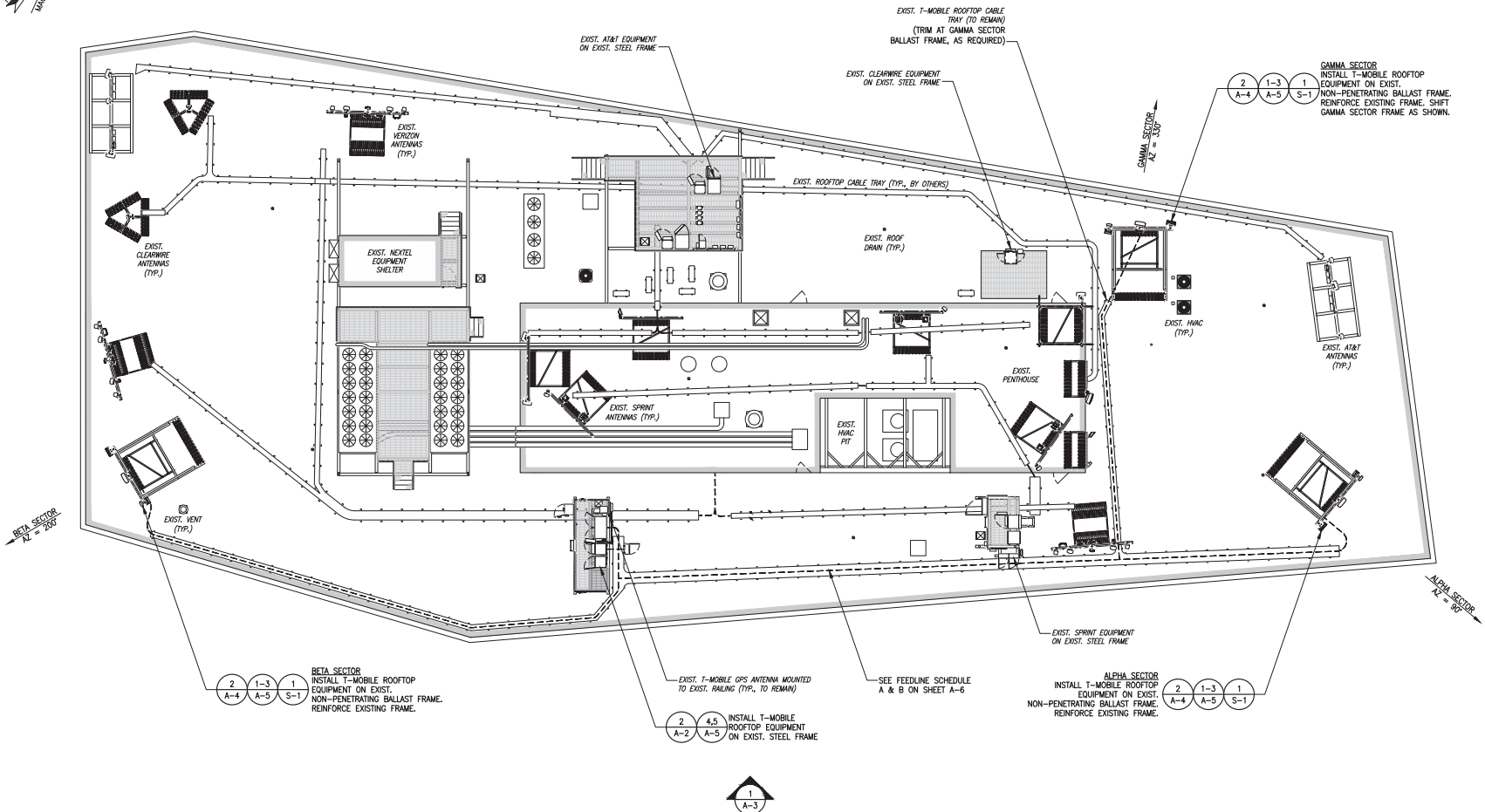
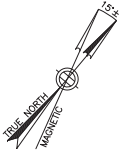
SHEET TITLE

GENERAL NOTES

SHEET NUMBER
GN-1

SUPPLEMENTAL GENERAL CONDITIONS WORK NOTE (BUILDING PROTECTION AND RF EME SAFETY SIGNAGE):

- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE AND PARAPET WALL DURING CONSTRUCTION. PROPER ROOF PROTECTING MATERIALS SHALL BE PLACED AROUND ALL WORKING AREAS AND NO TOOLS, LADDERS, MATERIALS, OR EQUIPMENT SHALL BE PLACED DIRECTLY ON THE ROOF SURFACE. ANY DAMAGES TO ROOF SURFACE AND/OR PARAPET WALL DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.
- GENERAL CONTRACTOR SHALL USE BUILDING OWNER'S ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS.
- GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE THE INSTALLATION OF T-MOBILE RF SAFETY SIGNAGE AND OTHER RF SAFETY IMPROVEMENTS AS SHOWN ON SUPPLEMENTAL PLANS (BY OTHERS) WHICH SHALL BE SLIP-SHEETED BY SBA COMMUNICATIONS INTO THE FINAL CONSTRUCTION DRAWINGS. CHAPPELL ENGINEERING ASSOCIATES, LLC, IS NOT RESPONSIBLE FOR THE DESIGN OF ANY RF SAFETY IMPROVEMENTS.



BETA SECTOR
AZ = 200

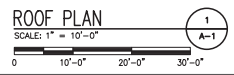
GAMMA SECTOR
AZ = 300

ALPHA SECTOR
AZ = 30

BETA SECTOR
INSTALL T-MOBILE ROOFTOP EQUIPMENT ON EXIST. NON-PENETRATING BALLAST FRAME. REINFORCE EXISTING FRAME.

INSTALL T-MOBILE ROOFTOP EQUIPMENT ON EXIST. STEEL FRAME

ALPHA SECTOR
INSTALL T-MOBILE ROOFTOP EQUIPMENT ON EXIST. NON-PENETRATING BALLAST FRAME. REINFORCE EXISTING FRAME.



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SITE NUMBER:
CT11090A

SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

SHEET TITLE
ROOF PLAN

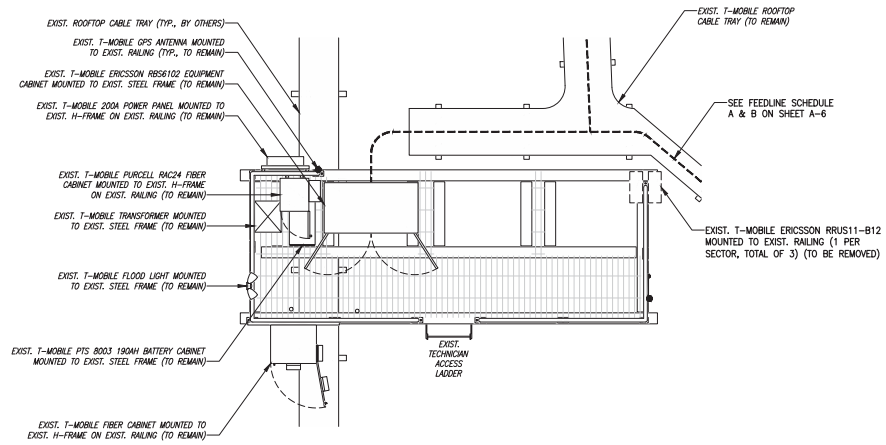
SHEET NUMBER
A-1

SUPPLEMENTAL GENERAL CONDITIONS WORK NOTE (BUILDING PROTECTION AND RF EME SAFETY SIGNAGE):

- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE AND PARAPET WALL DURING CONSTRUCTION. PROPER ROOF PROTECTING MATERIALS SHALL BE PLACED AROUND ALL WORKING AREAS AND NO TOOLS, LADDERS, MATERIALS, OR EQUIPMENT SHALL BE PLACED DIRECTLY ON THE ROOF SURFACE. ANY DAMAGES TO ROOF SURFACE AND/OR PARAPET WALL DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.
- GENERAL CONTRACTOR SHALL USE BUILDING OWNER'S ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS.
- GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE THE INSTALLATION OF T-MOBILE RF SAFETY SIGNAGE AND OTHER RF SAFETY IMPROVEMENTS AS SHOWN ON SUPPLEMENTAL PLANS (BY OTHERS) WHICH SHALL BE SLIP-SHEETED BY SBA COMMUNICATIONS INTO THE FINAL CONSTRUCTION DRAWINGS. CHAPPELL ENGINEERING ASSOCIATES, LLC, IS NOT RESPONSIBLE FOR THE DESIGN OF ANY RF SAFETY IMPROVEMENTS.

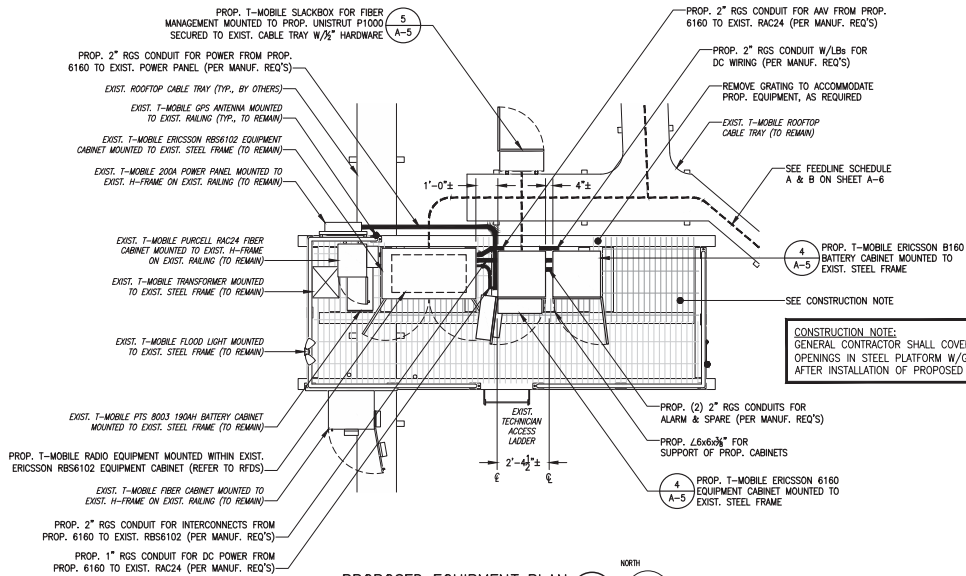
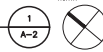


EXISTING EQUIPMENT PHOTO



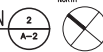
EXISTING EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"



PROPOSED EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"



**T-MOBILE
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SITE NUMBER:
CT11090A

SITE ADDRESS:
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GREENWICH, CT 06830

SHEET TITLE
EQUIPMENT PLANS

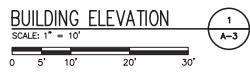
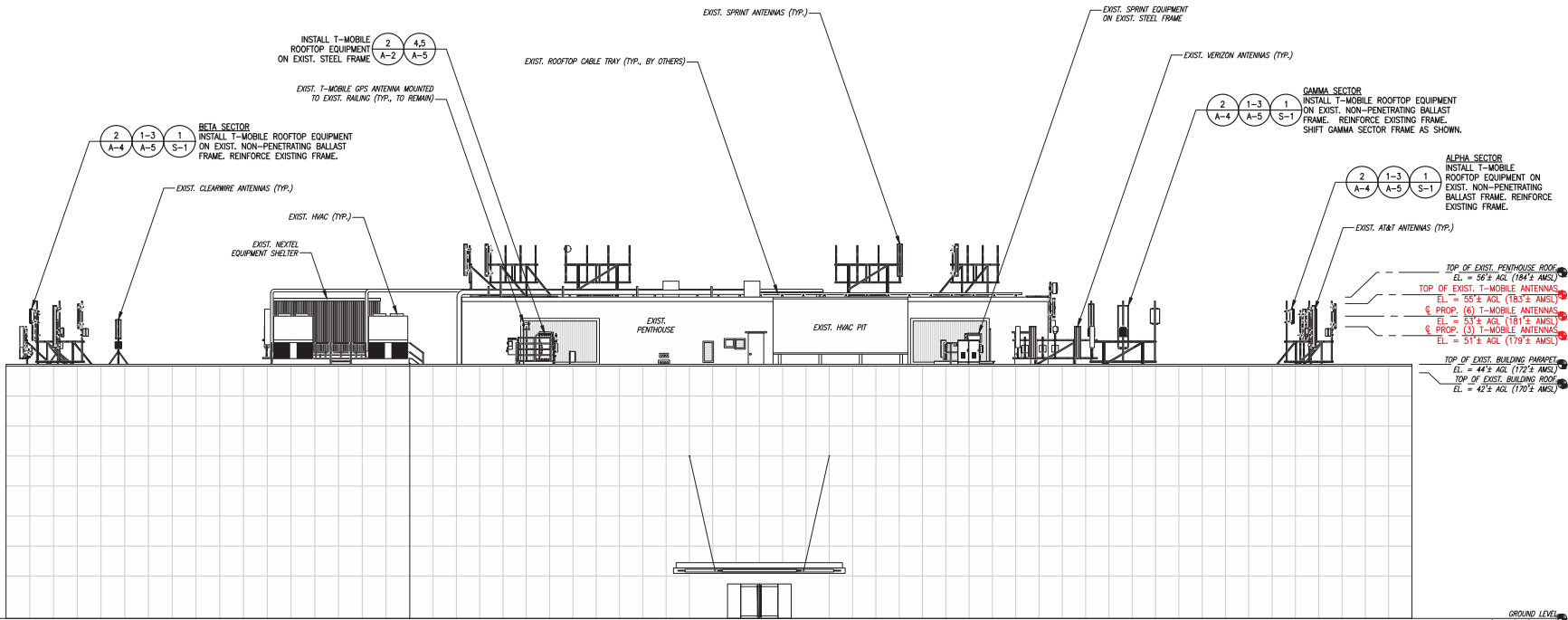
SHEET NUMBER
A-2

SUPPLEMENTAL GENERAL CONDITIONS WORK NOTE (BUILDING PROTECTION AND RF EME SAFETY SIGNAGE):

- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE AND PARAPET WALL DURING CONSTRUCTION. PROPER ROOF PROTECTING MATERIALS SHALL BE PLACED AROUND ALL WORKING AREAS AND NO TOOLS, LADDERS, MATERIALS, OR EQUIPMENT SHALL BE PLACED DIRECTLY ON THE ROOF SURFACE. ANY DAMAGES TO ROOF SURFACE AND/OR PARAPET WALL DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.
- GENERAL CONTRACTOR SHALL USE BUILDING OWNER'S ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS.
- GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE THE INSTALLATION OF T-MOBILE RF SAFETY SIGNAGE AND OTHER RF SAFETY IMPROVEMENTS AS SHOWN ON SUPPLEMENTAL PLANS (BY OTHERS) WHICH SHALL BE SLIP-SHEETED BY SBA COMMUNICATIONS INTO THE FINAL CONSTRUCTION DRAWINGS. CHAPPELL ENGINEERING ASSOCIATES, LLC, IS NOT RESPONSIBLE FOR THE DESIGN OF ANY RF SAFETY IMPROVEMENTS.

RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

GENERAL CONTRACTOR NOTE:
GENERAL CONTRACTOR SHALL REFER TO MOUNT STRUCTURAL ANALYSIS AND ANY MOUNT MODIFICATION DESIGN PROVIDED BY SBA



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SHEET TITLE
BUILDING ELEVATION

SHEET NUMBER
A-3



EXISTING ALPHA SECTOR ANTENNA PHOTO



EXISTING BETA SECTOR ANTENNA PHOTO



EXISTING GAMMA SECTOR ANTENNA PHOTO

ANTENNA STATUS LEGEND:
 EMPTY - EMPTY PIPE
 (E) - EXISTING
 (P) - INSTALL
 (F) - FUTURE

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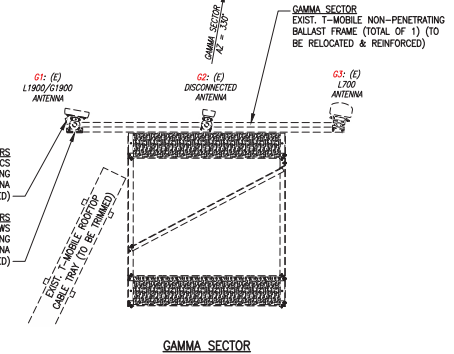
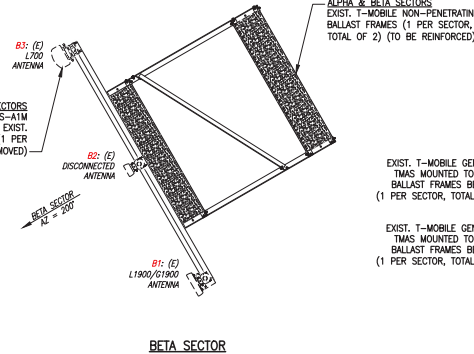
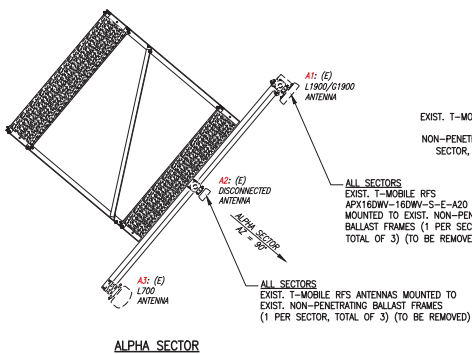
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SHEET TITLE

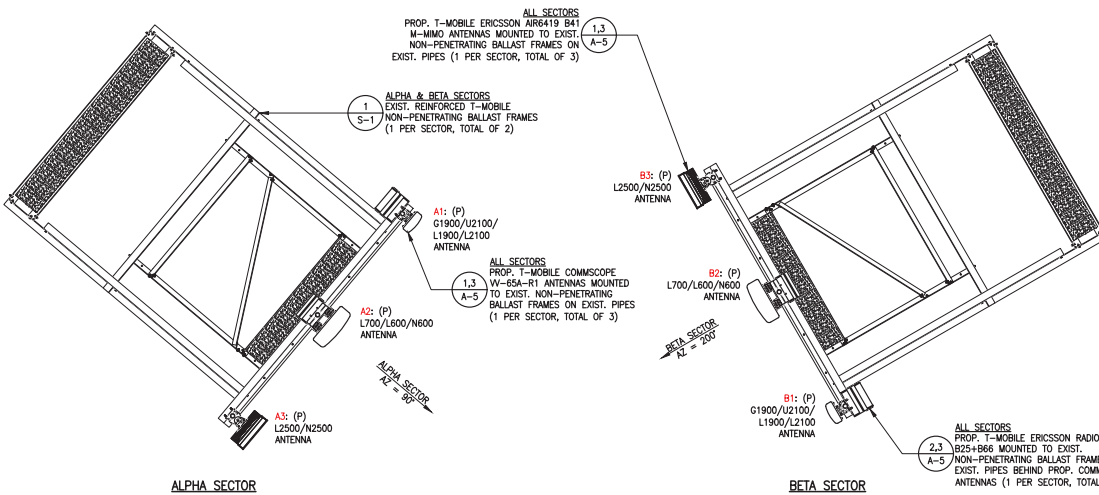
ANTENNA PLANS

SHEET NUMBER

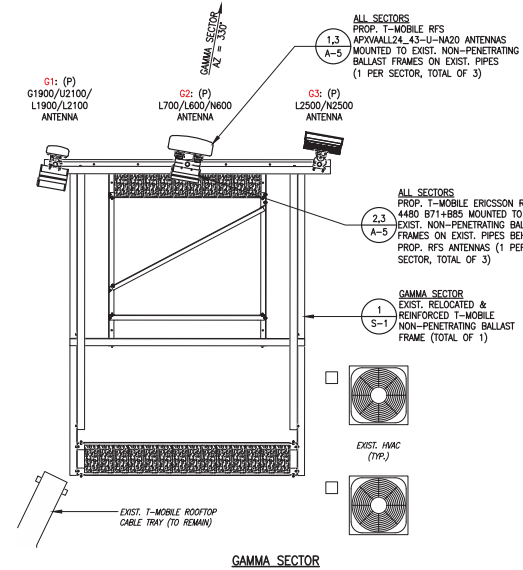
A-4



EXIST. ANTENNA PLAN
 SCALE: 3/8" = 1'-0"



PROP. ANTENNA PLAN
 SCALE: 3/8" = 1'-0"



NOTE:
 VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

STRUCTURAL ANALYSIS NOTE:
 REFER TO STRUCTURAL ANALYSIS FOR REQUIRED RECONFIGURATION OF THE EXISTING CONCRETE BALLAST.

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SHEET TITLE

SITE DETAILS

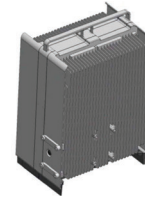
SHEET NUMBER

A-5



ERICSSON M-MIMO AIR6419_B41 ANTENNA

DIMENSIONS: 36.3"H x 20.9"W x 9.0"D
WEIGHT: 83.3 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



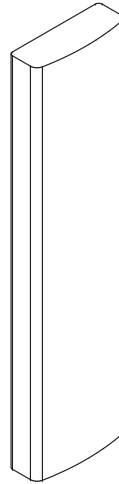
ERICSSON RADIO 4460_B25+B66

DIMENSIONS: 17.0"H x 15.1"W x 11.9"D
WEIGHT: 104.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



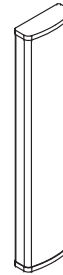
ERICSSON RADIO 4480_B71+B85

DIMENSIONS: 19.2"H x 15.1"W x 7.5"D
WEIGHT: 92.6 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



RFS APXVAAL124_43-U-NA20 ANTENNA

DIMENSIONS: 95.9"H x 24.0"W x 8.5"D
WEIGHT: 122.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

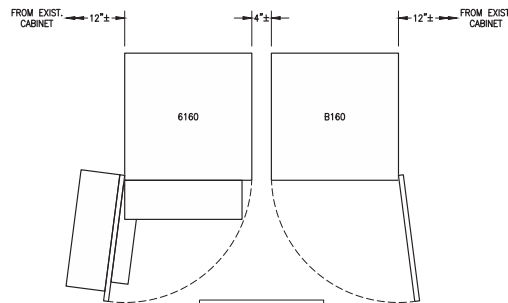


COMMSCOPE VV-65A-R1 ANTENNA

DIMENSIONS: 54.7"H x 12.1"W x 4.6"D
WEIGHT: 23.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ANTENNA DETAILS

SCALE: N.T.S.



ERICSSON 6160 SITE SUPPORT CABINET

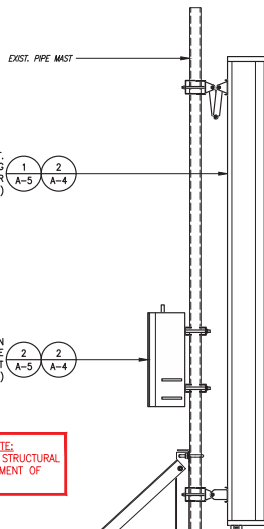
DIMENSIONS: 63.25"H x 26.0"W x 34.0"D
QUANTITY: TOTAL OF 1

ERICSSON B160 BATTERY CABINET

DIMENSIONS: 63.25"H x 26.0"W x 26.0"D
QUANTITY: TOTAL OF 1

EQUIPMENT DETAIL

SCALE: N.T.S.



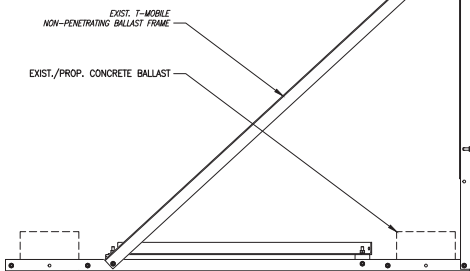
INSTALL PROP. ANTENNA TO EXIST. PIPE ON EXIST. NON-PENETRATING BALLAST FRAME (TYP.) (MOUNT PER MANUFACTURER'S SPECIFICATIONS.)



INSTALL PROP. RADIO TO EXIST. PIPE ON EXIST. NON-PENETRATING BALLAST FRAME BEHIND PROP. ANTENNA (TYP.) (MOUNT PER MANUFACTURER'S SPECIFICATIONS.)



STRUCTURAL ANALYSIS NOTE:
REFER TO SHEET S-1 & STRUCTURAL ANALYSIS FOR REINFORCEMENT OF EXISTING BALLAST FRAME.



ANTENNA MOUNTING DETAIL

SCALE: N.T.S.



SLACKBOX -- HOFFMAN 32FH91 NEMA 3R ENCLOSURE

DIMENSIONS: 24.0"H x 24.0"W x 12.0"D
QUANTITY: TOTAL OF 1

SSC DETAILS

SCALE: N.T.S.



FINAL ANTENNA CONFIGURATION								
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	A1 COMMSCOPE W-65A-R1	53'± AGL	90°	0°	4°	G1900/U2100/L1900/L2100	ERICSSON RADIO 4460 B25+B66	(3) 1-3/8" (6x12) HCS FIBER CABLES PROP. (3) 2" (6x24) HCS FIBER CABLES
	A2 RFS APXVAALL24_43-U-NA20	51'± AGL	90°	0°	2°	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	A3 ERICSSON M-MIMO AIR6419 B41	53'± AGL	90°	0°	2°	L2500/N2500	-	
BETA	B1 COMMSCOPE W-65A-R1	53'± AGL	200°	0°	4°	G1900/U2100/L1900/L2100	ERICSSON RADIO 4460 B25+B66	
	B2 RFS APXVAALL24_43-U-NA20	51'± AGL	200°	0°	2°	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	B3 ERICSSON M-MIMO AIR6419 B41	53'± AGL	200°	0°	2°	L2500/N2500	-	
GAMMA	G1 COMMSCOPE W-65A-R1	53'± AGL	330°	0°	4°	G1900/U2100/L1900/L2100	ERICSSON RADIO 4460 B25+B66	
	G2 RFS APXVAALL24_43-U-NA20	51'± AGL	330°	0°	2°	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	G3 ERICSSON M-MIMO AIR6419 B41	53'± AGL	330°	0°	2°	L2500/N2500	-	

CABLE NOTE: EXISTING (18) 1-3/8" COAX CABLES TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV6 - 01/28/22

FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) 1/2" COAX FOR GPS ANTENNA (3) 1-3/8" (6x12) HCS FIBER CABLES	ROUTED PER STRUCTURAL ANALYSIS
	EXISTING TO BE REMOVED: (18) 1-3/8" COAX CABLES	
B	PROPOSED: (3) 2" (6x24) HCS FIBER CABLES	

NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

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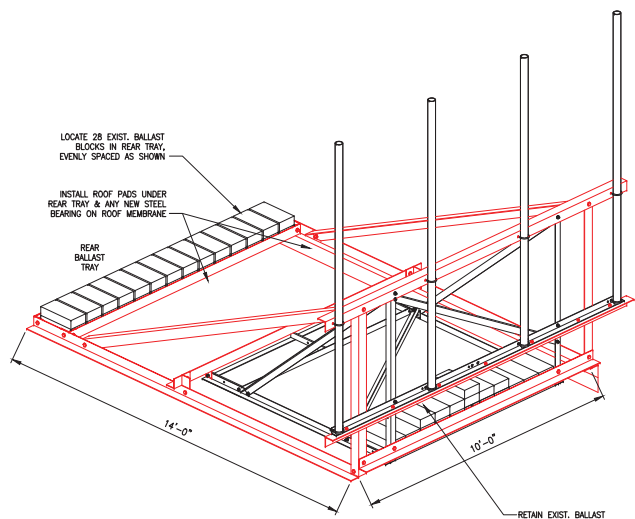
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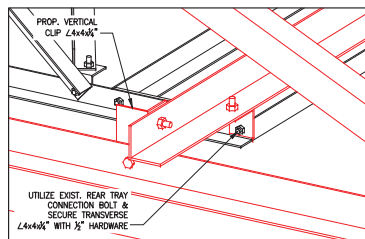
SITE ADDRESS:
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GREENWICH, CT 06830

SHEET TITLE
ANTENNA &
FEEDLINE CHARTS

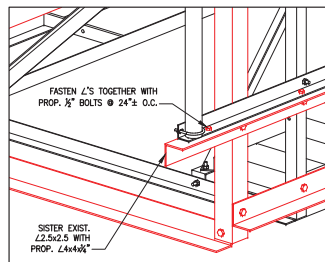
SHEET NUMBER
A-6



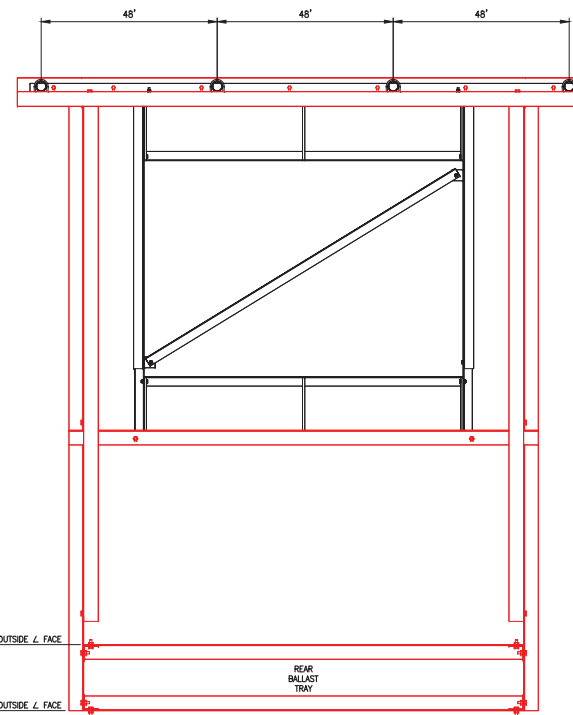
REINFORCED BALLAST FRAME -- ISOMETRIC VIEW



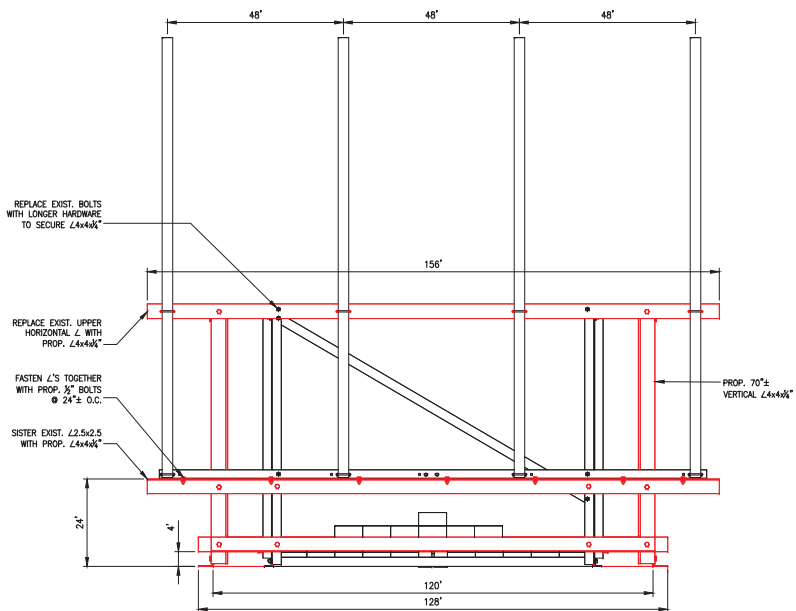
EXISTING REAR TRAY CONNECTION



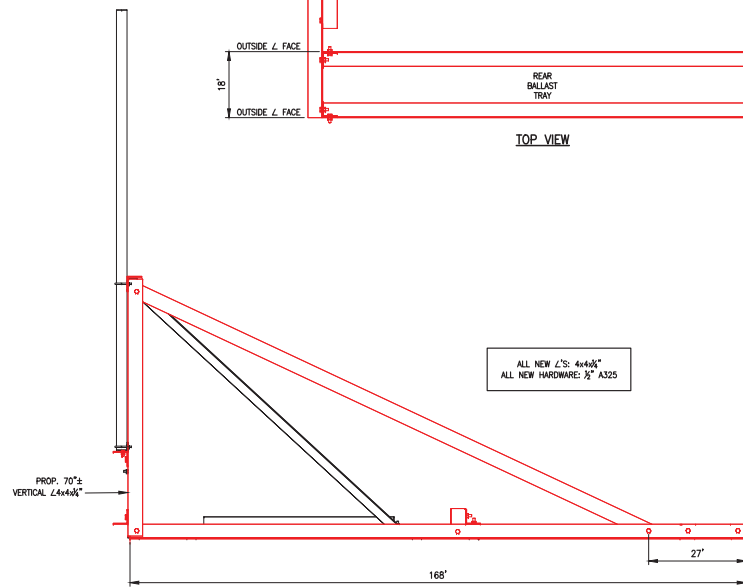
FRONT CORNER DETAIL



TOP VIEW



FRONT VIEW



SIDE VIEW

PROP. BALLAST ANTENNA FRAMES

SCALE: 3/8" = 1'-0"

1
S-1

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SHEET TITLE

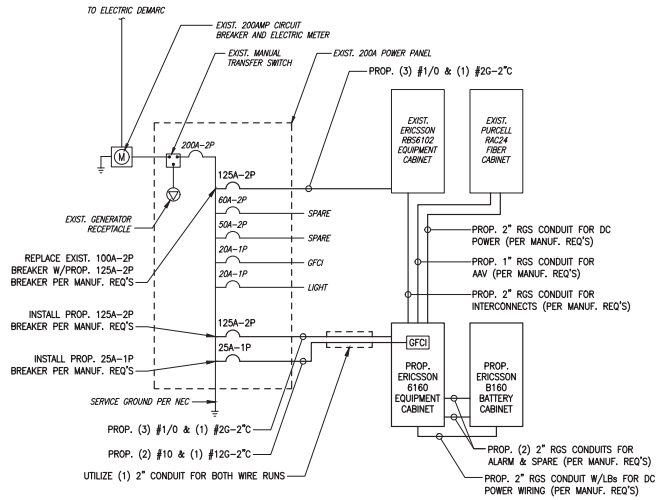
BALLAST MOUNT
REINFORCING DETAILS
(TYP 3 SECTORS)

SHEET NUMBER

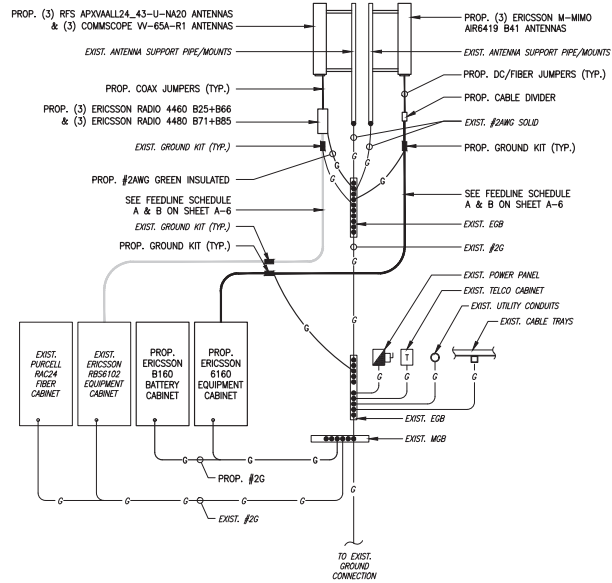
S-1



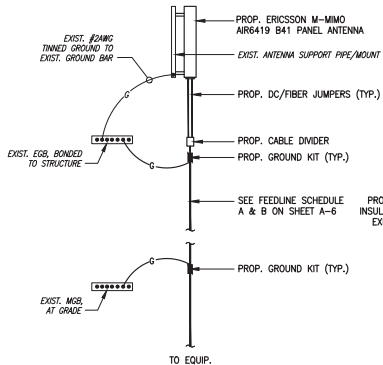
EXISTING POWER PANEL PHOTOS
SCALE: NOT TO SCALE



ONE LINE DIAGRAM
SCALE: NOT TO SCALE

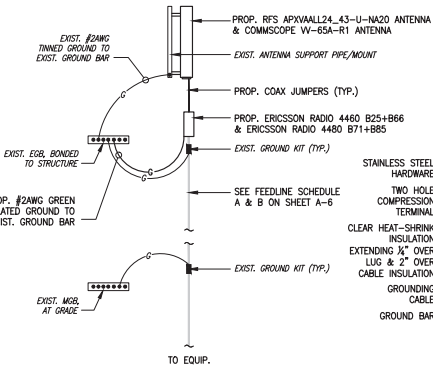


GROUNDING RISER DIAGRAM
SCALE: NOT TO SCALE

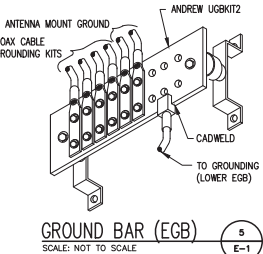


12500/N2500 ANTENNA

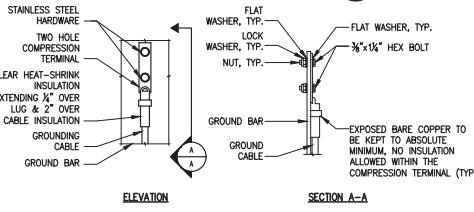
COAX CABLE CONNECTION AND GROUNDING DETAIL
SCALE: NOT TO SCALE



1700/1600/N600 ANTENNA & G1900/U2100/L1900/L2100 ANTENNA



GROUND BAR (EGB)
SCALE: NOT TO SCALE



TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: NOT TO SCALE

ELECTRICAL AND GROUNDING NOTES

- 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 SPECIFICATION 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 INSPECTORS.
- 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.
- BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE 30XHX, THIN, OR THININSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC 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 PROJECT OWNER CELL SITE TELCO CABINET AND BITS CABINET AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLENE CONDUIT MEASURING TAPE AT EACH END.
- WHERE CONDUIT BETWEEN BITS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BITS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT, ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BITS SITE GROUNDING STANDARDS".
- 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 THE DRAWING.
- ALL GROUND CONNECTIONS TO BE BURIED HYDRONLID 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 60° ANGLES WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- CONTRACTOR SHALL PROVIDE AND INSTALL OMM DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE--TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE-OUT.

T-MOBILE
NORTHEAST LLC

15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720



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



CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
3	05/27/22	CONSTRUCTION REVISED	CAC
2	05/19/22	CONSTRUCTION REVISED	CAC
1	07/28/20	ISSUED FOR CONSTRUCTION	CAC
0	06/17/20	ISSUED FOR REVIEW	CAC

SITE NUMBER:
CT11090A

SITE ADDRESS:
411 WEST PUTNAM AVENUE
GREENWICH, CT 06830

SHEET TITLE
ELECTRIC & GROUNDING
DETAILS

SHEET NUMBER

E-1

Exhibit E

Power Density/RF Emissions Report

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL
TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11090A

Greenwich/ Putnam Ave_2
411 West Putnam Avenue
Greenwich, Connecticut 06830

August 17, 2022

EBI Project Number: 6222005199

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	40.21%

August 17, 2022

T-Mobile

Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11090A - Greenwich/ Putnam Ave_2

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **411 West Putnam Avenue** in **Greenwich, Connecticut** 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.

Public 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 and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency 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 percent of MPE rather than power density.

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 done for the proposed T-Mobile Wireless antenna facility located at 411 West Putnam Avenue in Greenwich, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts per Channel.
- 4) 1 GSM channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 10 Watts per Channel.
- 5) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 160 Watts per Channel.
- 6) 1 UMTS channel (AWS Band - 2100 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 10 Watts per Channel.

- 7) 1 LTE channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 160 Watts per Channel.
- 8) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 45 Watts.
- 9) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 15 Watts.
- 10) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 90 Watts.
- 11) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 30 Watts.
- 12) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 13) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 14) **A conservative roof attenuation factor of 10 dB, in which a radiofrequency signal is reduced by a factor of 10 due to intervening roof building materials, was also included. For purposes of this analysis, it is assumed that the roof building material is comprised of a poured concrete and steel underlayment with a rubber fabric roof membrane.**
- 15) The antennas used in this modeling are the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for

the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-UNA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 16) The antenna mounting height centerline of the proposed antennas is 53 feet above ground level (AGL).
- 17) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 18) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz
Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd / 16.05 dBd
Height (AGL):	53 feet	Height (AGL):	53 feet	Height (AGL):	53 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	340.00 Watts	Total TX Power (W):	340.00 Watts	Total TX Power (W):	340.00 Watts
ERP (W):	2,097.29	ERP (W):	2,097.29	ERP (W):	2,097.29
Antenna A1 MPE %:	3.41%	Antenna B1 MPE %:	3.41%	Antenna C1 MPE %:	3.41%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	51 feet	Height (AGL):	51 feet	Height (AGL):	51 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts
ERP (W):	725.50	ERP (W):	725.50	ERP (W):	725.50
Antenna A2 MPE %:	3.10%	Antenna B2 MPE %:	3.10%	Antenna C2 MPE %:	3.10%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd
Height (AGL):	53 feet	Height (AGL):	53 feet	Height (AGL):	53 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	180.00 Watts	Total TX Power (W):	180.00 Watts	Total TX Power (W):	180.00 Watts
ERP (W):	1,978.96	ERP (W):	1,978.96	ERP (W):	1,978.96
Antenna A3 MPE %:	3.22%	Antenna B3 MPE %:	3.22%	Antenna C3 MPE %:	3.22%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	9.73%
Dish	26.46%
SNET/Cingular	2.26%
Verizon	1.76%
Site Total MPE % :	40.21%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	9.73%
T-Mobile Sector B Total:	9.73%
T-Mobile Sector C Total:	9.73%
Site Total MPE % :	40.21%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# 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 1900 MHz GSM	1	59.91	53.0	0.98	1900 MHz GSM	1000	0.10%
T-Mobile 1900 MHz LTE	1	958.56	53.0	15.60	1900 MHz LTE	1000	1.56%
T-Mobile 2100 MHz UMTS	1	63.46	53.0	1.03	2100 MHz UMTS	1000	0.10%
T-Mobile 2100 MHz LTE	1	1015.36	53.0	16.52	2100 MHz LTE	1000	1.65%
T-Mobile 600 MHz LTE	1	177.65	51.0	3.15	600 MHz LTE	400	0.79%
T-Mobile 600 MHz NR	1	355.30	51.0	6.31	600 MHz NR	400	1.58%
T-Mobile 700 MHz LTE	1	192.56	51.0	3.42	700 MHz LTE	467	0.73%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	569.79	53.0	9.27	2500 MHz LTE IC & 2C Traffic	1000	0.93%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	89.87	53.0	1.46	2500 MHz LTE IC & 2C Broadcast	1000	0.15%
T-Mobile 2500 MHz NR Traffic	1	1139.57	53.0	18.55	2500 MHz NR Traffic	1000	1.85%
T-Mobile 2500 MHz NR Broadcast	1	179.73	53.0	2.93	2500 MHz NR Broadcast	1000	0.29%
						Total:	9.73%

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

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 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:	9.73%
Sector B:	9.73%
Sector C:	9.73%
T-Mobile Maximum MPE % (Sector A):	9.73%
Site Total:	40.21%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **40.21%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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 values calculated were well within the allowable 100% threshold standard per the federal government.

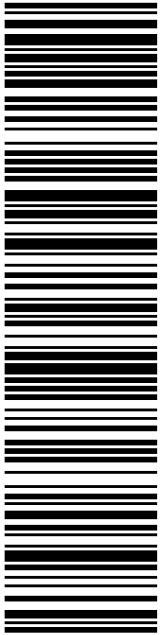
Exhibit F

Recipient Mailings



FRED CAMILLO
FIRST SELECTMAN-GREENWICH
101 FIELD POINT RD
GREENWICH CT 06830-6463

USPS TRACKING #



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US POSTAGE
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NORTHEAST SITE SOLUTIONS
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Expected Delivery Date: 08/27/22
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Priority Mail® Postage:	\$8.95
Total:	\$8.95
From:	DEBORAH CHASE NORTHEAST SITE SOLUTIONS STE 1 420 MAIN ST STURBRIDGE MA 01566-1359
To:	FRED CAMILLO FIRST SELECTMAN-GREENWICH 101 FIELD POINT RD GREENWICH CT 06830-6463
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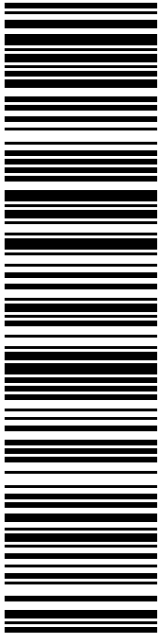


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9405 5036 9930 0330 6818 24

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Print Date:	08/25/2022	Total:	\$8.95
Ship Date:	08/25/2022		
Expected			
Delivery Date:	08/27/2022		

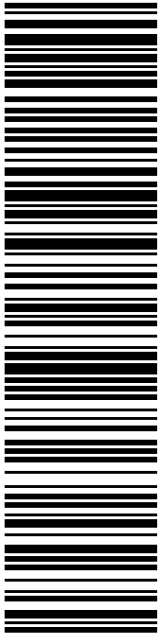
From: DEBORAH CHASE Ref#: SBCT-11090
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

To: KATIE DELUCA
PLANNING & ZONING-ZEO-TOWN PLANNER
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WEST PUTNAM OWNER LLC
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Trans. #: 570479389	Priority Mail® Postage: \$8.95
Print Date: 08/25/2022	Total: \$8.95
Ship Date: 08/25/2022	
Expected Delivery Date: 08/27/2022	

From: DEBORAH CHASE Ref#: SBCT-11090
 NORTHEAST SITE SOLUTIONS
 STE 1
 420 MAIN ST
 STURBRIDGE MA 01566-1359

To: WEST PUTNAM OWNER LLC
 RM 1200
 216 E 45TH ST
 NEW YORK NY 10017-3341

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CT11090A SBA Trmb



FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

08/26/2022 01:23 PM

Product	Qty	Unit Price	Price
Prepaid Mail	1		\$0.00
Greenwich, CT 06830			
Weight: 0 lb 5.90 oz			
Acceptance Date:			
Fri 08/26/2022			
Tracking #:			
9405 5036 9930 0330 6818 24			
Prepaid Mail	1		\$0.00
Greenwich, CT 06830			
Weight: 0 lb 5.90 oz			
Acceptance Date:			
Fri 08/26/2022			
Tracking #:			
9405 5036 9930 0330 6817 94			
Prepaid Mail	1		\$0.00
New York, NY 10017			
Weight: 0 lb 5.90 oz			
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Fri 08/26/2022			
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Grand Total:			\$0.00

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UFN: 082618-0132
 Receipt #: 840-50600020-1-4891149-1
 Clerk: 9