


1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING ALL LAWS, REGULATIONS, AND RULES SET FORTH BY FEDERAL, STATE, AND LOCAL AUTHORITIES WITH JURISDICTION OVER THE PROJECT. THIS RESPONSIBILITY IS IN EFFECT REGARDLESS OF WHETHER THE LAW, ORDINANCE, REGULATION, OR RULE IS MENTIONED IN THESE SPECIFICATIONS.
2. ALL WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS, PROJECT SPECIFICATIONS, AND THE CONSTRUCTION CONTRACT DOCUMENTS.
3. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND STATE LAW AS DEFINED IN THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
5. THE CONTRACTOR SHALL HAVE AND MAINTAIN A VALID CONTRACTOR'S LICENSE FOR THE LOCATION IN WHICH THE WORK IS TO BE PERFORMED. FOR JURISDICTIONS THAT LICENSE INDIVIDUAL TRADES, THE TRADESMAN OR SUBCONTRACTOR PERFORMING THOSE TRADES SHALL BE LICENSED.
6. THE CONTRACTOR SHALL PROVIDE THE NECESSARY CERTIFICATIONS OF ALL WORKERS ON THE TOWER TO THE OWNER OR THE PROJECT MANAGER UPON REQUEST.
7. THE CONTRACTOR SHALL BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY AND THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED.
8. PRIOR TO THE SUBMISSION OF THE BID, THE CONTRACTOR SHALL VISIT THE JOB SITE, VERIFY ALL DIMENSIONS, POTENTIAL SAFETY HAZARDS, AND BECOME FAMILIAR WITH THE FIELD CONDITIONS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER AND STRUCTURAL ENGINEERING.
9. DO NOT SCALE DRAWINGS. USE DIMENSIONS.
10. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE NOTED.
11. ALL MATERIALS SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE DRAWINGS. ANY AND ALL SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE PROJECT MANAGER AND THE ENGINEER OF RECORD PRIOR TO PROCUREMENT.
12. ALL MEANS AND METHODS OF CONSTRUCTION DEALING WITH TOWER CONSTRUCTION AND SAFETY, STEEL ERECTION, EXCAVATIONS, SCAFFOLDING, FORMWORK, AND WORK IN CONFINED SPACES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
13. THE CONTRACTOR SHALL PROVIDE SUFFICIENT TEMPORARY BRACING AND/OR SHORING OF ALL STRUCTURAL AND NON-STRUCTURAL ELEMENTS DURING CONSTRUCTION UNTIL ALL STRUCTURAL ELEMENTS HAVE BEEN PROPERLY INSTALLED.
14. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT MANAGER IF ANY WIRELESS CARRIER DOWNTIME WILL BE REQUIRED FOR THE PROJECT. DO NOT PERFORM ANY WORK ON THE TOWER UNTIL ALL NECESSARY DOWNTIME HAS BEEN APPROVED.
15. WORK IS TO BE CONTAINED TO THE SITE COMPOUND AREA ONLY. ANY OUTSIDE OR ADJACENT PROPERTY NEEDED FOR ACCESS OR TO COMPLETE THE WORK SHALL BE COORDINATED WITH THE PROJECT MANAGER PRIOR TO CONSTRUCTION.
16. THE CONTRACTOR SHALL COORDINATE SITE ACCESS AND SECURITY WITH THE PROPERTY OWNER AND THE PROJECT MANAGER PRIOR TO CONSTRUCTION.
17. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SITE CONDITIONS AND UPON COMPLETION OF WORK REPAIR BACK TO ORIGINAL CONDITIONS ANY DAMAGE THAT OCCURRED DURING CONSTRUCTION.
18. THE CONTRACTOR SHALL KEEP THE CONSTRUCTION SITE CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. LEAVE PREMISES IN CLEAN CONDITION, SUBJECT TO APPROVAL BY THE PROPERTY OWNER AND THE PROJECT MANAGER.
19. THE CONTRACTOR SHALL PROVIDE ON-SITE TRASH RECEPTACLES FOR COLLECTION OF NON-TOXIC DEBRIS. ALL TRASH SHALL BE COLLECTED ON A DAILY BASIS.
20. ALL TOXIC AND ENVIRONMENTALLY HAZARDOUS SUBSTANCES SHALL BE USED AND DISPOSED OF IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. UNDER NO CIRCUMSTANCES SHALL RINSING OR DUMPING OF THESE SUBSTANCES OCCUR ON-SITE.
21. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS NECESSARY FOR CONSTRUCTION.
22. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS SHALL BE REPORTED TO THE PROJECT MANAGER AND ENGINEER, AND SHALL REQUIRE APPROVAL PRIOR TO PERFORMING ANY REMEDIAL OR CORRECTIVE ACTION.
23. THE PROJECT MANAGER MAY RETAIN THE SERVICES OF A TESTING LABORATORY TO PERFORM QUALITY ASSURANCE TESTING ON VARIOUS PORTIONS OF THE CONTRACTOR'S WORK. WHEN REQUESTED, THE CONTRACTOR SHALL INFORM THE TESTING LABORATORY AND ASSIST THEM IN COMPLETING THE TESTS.
24. THE CONTRACTOR SHALL MAINTAIN AND SUPPLY THE PROJECT MANAGER WITH AS-BUILT PLANS UPON COMPLETION OF THE PROJECT.



ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BBU	BASE BAND UNIT
CL	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
CRAN	CENTRALIZED RAN
C-RAN	CLOUD RAN
DWG	DRAWING
FT	FOOT(FEET)
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATION
EQUIP	EQUIPMENT
(E)	EXISTING
EXT	EXTERIOR
FND	FOUNDATION
F	FIBER
GA	GAUGE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE COMMUNICATION
LTE	LONG TERM EVOLUTION
MAX	MAXIMUM
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MIMO	MULTIPLE IN MULTIPLE OUT
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
PPC	POWER PROTECTION CABINET
PL	PROPERTY LINE
RAN	RADIO ACCESS NETWORK
RBS	RADIO BASED STATION
RRH	REMOTE RADIO HEAD
RGS	RIGID GALVANIZED STEEL
IN	INCH(ES)
INT	INTERIOR
LB(S), #	POUND(S)
SF	SQUARE FOOT
STL	STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELE-COMMUNICATION SYSTEM
VIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

SYMBOLS	
	REVISION
	WORK POINT
	UTILITY POLE
	BRICK
	COMPRESSED STONE
	CONCRETE
	EARTH
	GRAVEL
	MASONRY
	STEEL
	CENTERLINE
	PROPERTY LINE
	LEASE LINE
	EASEMENT LINE
	FENCE CHAINLINK WOOD WROUGHT IRON
	ELECTRIC OVERHEAD UNDERGROUND
	FIBER OVERHEAD UNDERGROUND
	TELEPHONE OVERHEAD UNDERGROUND
	DCPOWER
	SECTION REFERENCE



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(425) 378-4000

REV	DATE	DESCRIPTION	BY
A	12/07/21	90% REVIEW	SA

SITE NAME

**NTM WA05SH145
(PENN LAIRD)**

SITE NUMBER:

7HCH530A

SITE ADDRESS

536 WILD ROSE DRIVE
PENN LAIRD, VA 22846

SHEET NAME

GENERAL NOTES

SHEET NUMBER

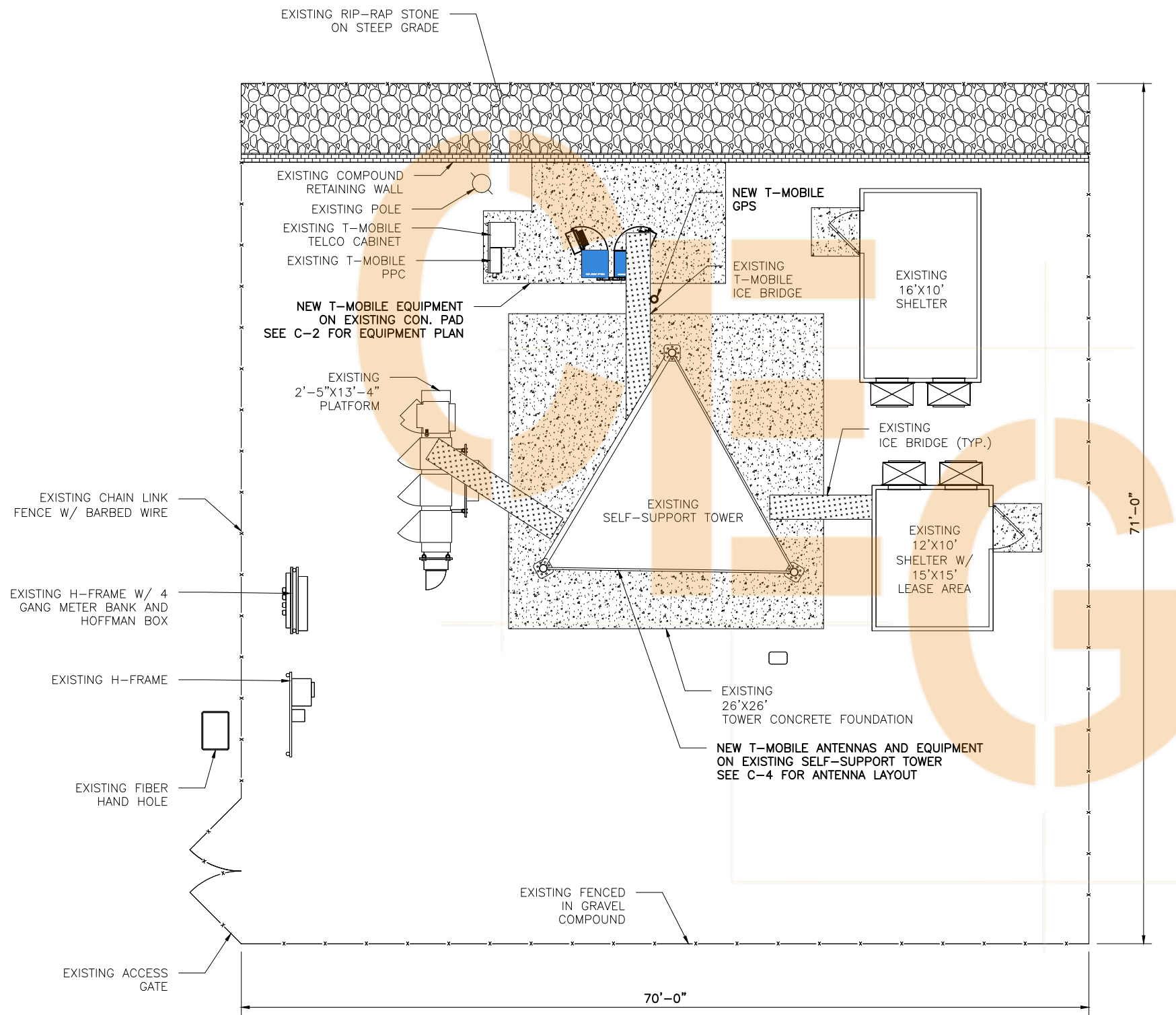
N-1

GENERAL NOTES

1 NOT USED

2 LEGEND

3



REV	DATE	DESCRIPTION	BY
A	12/07/21	90% REVIEW	SA

SITE NAME
**NTM WA05SH145
 (PENN LAIRD)**

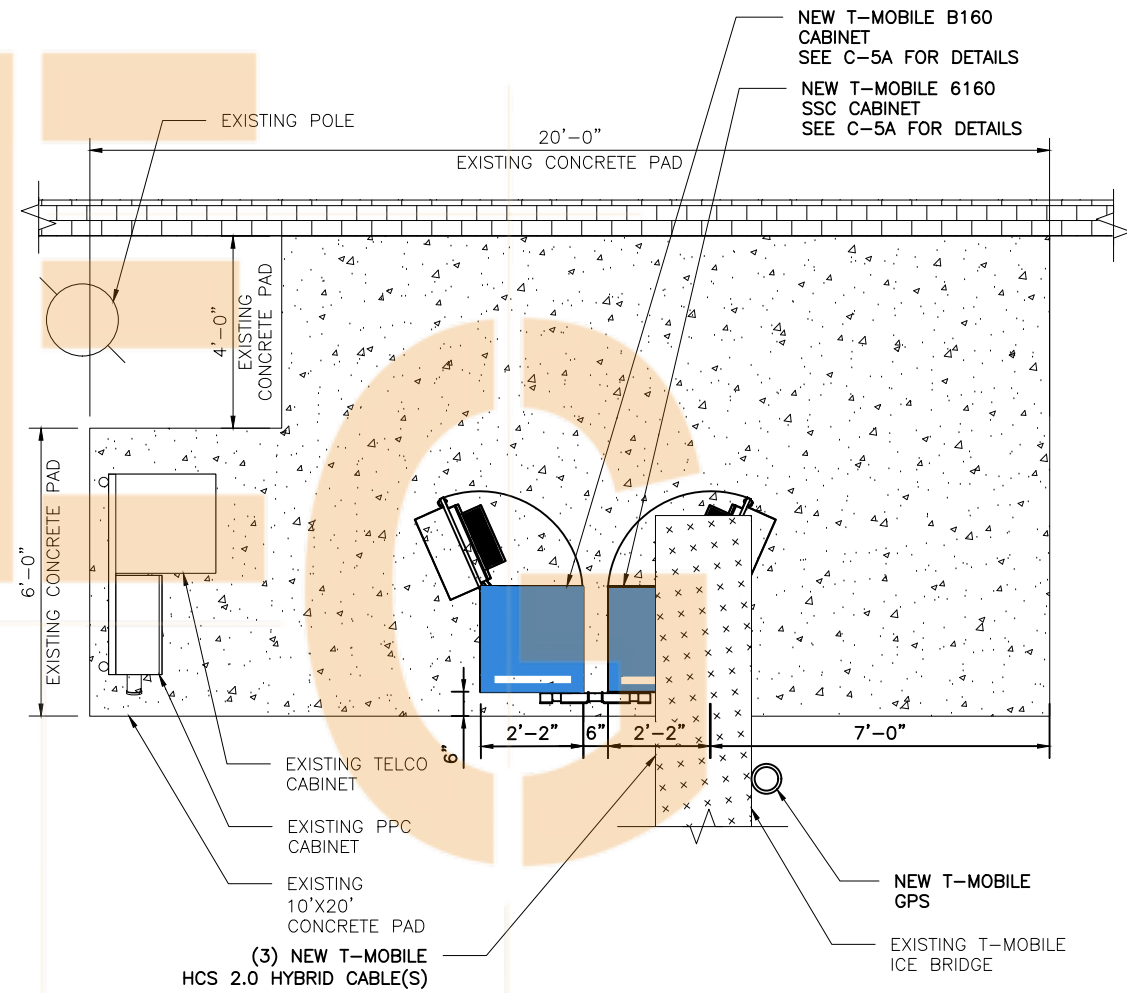
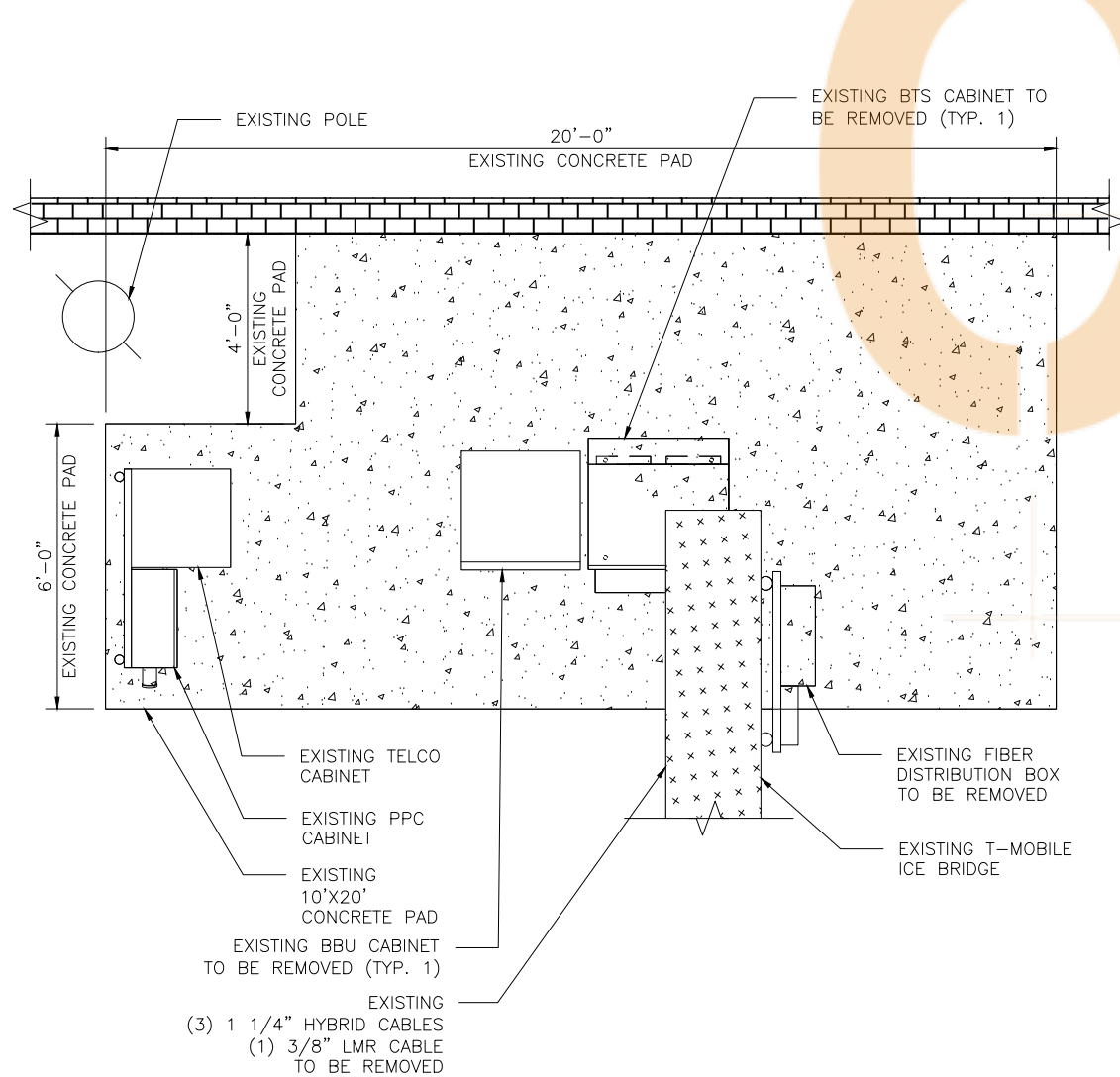
SITE NUMBER:
7HCH530A

SITE ADDRESS
 536 WILD ROSE DRIVE
 PENN LAIRD, VA 22846

SHEET NAME
SITE PLAN

SHEET NUMBER
C-1





REV	DATE	DESCRIPTION	BY
A	12/07/21	90% REVIEW	SA

SITE NAME
**NTM WA05SH145
 (PENN LAIRD)**

SITE NUMBER:
7HCH530A

SITE ADDRESS
 536 WILD ROSE DRIVE
 PENN LAIRD, VA 22846

SHEET NAME
EQUIPMENT PLAN

SHEET NUMBER
C-2

NOTES:

1. CALCULATIONS FOR THE STRUCTURE WERE PREPARED BY OTHERS AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
2. CALCULATIONS FOR THE ANTENNA MOUNTS WERE PREPARED BY FULLERTON AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
3. CABLES NOT SHOWN FOR CLARITY



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REV	DATE	DESCRIPTION	BY
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SITE NAME

**NTM WA05SH145
 (PENN LAIRD)**

SITE NUMBER:

7HCH530A

SITE ADDRESS

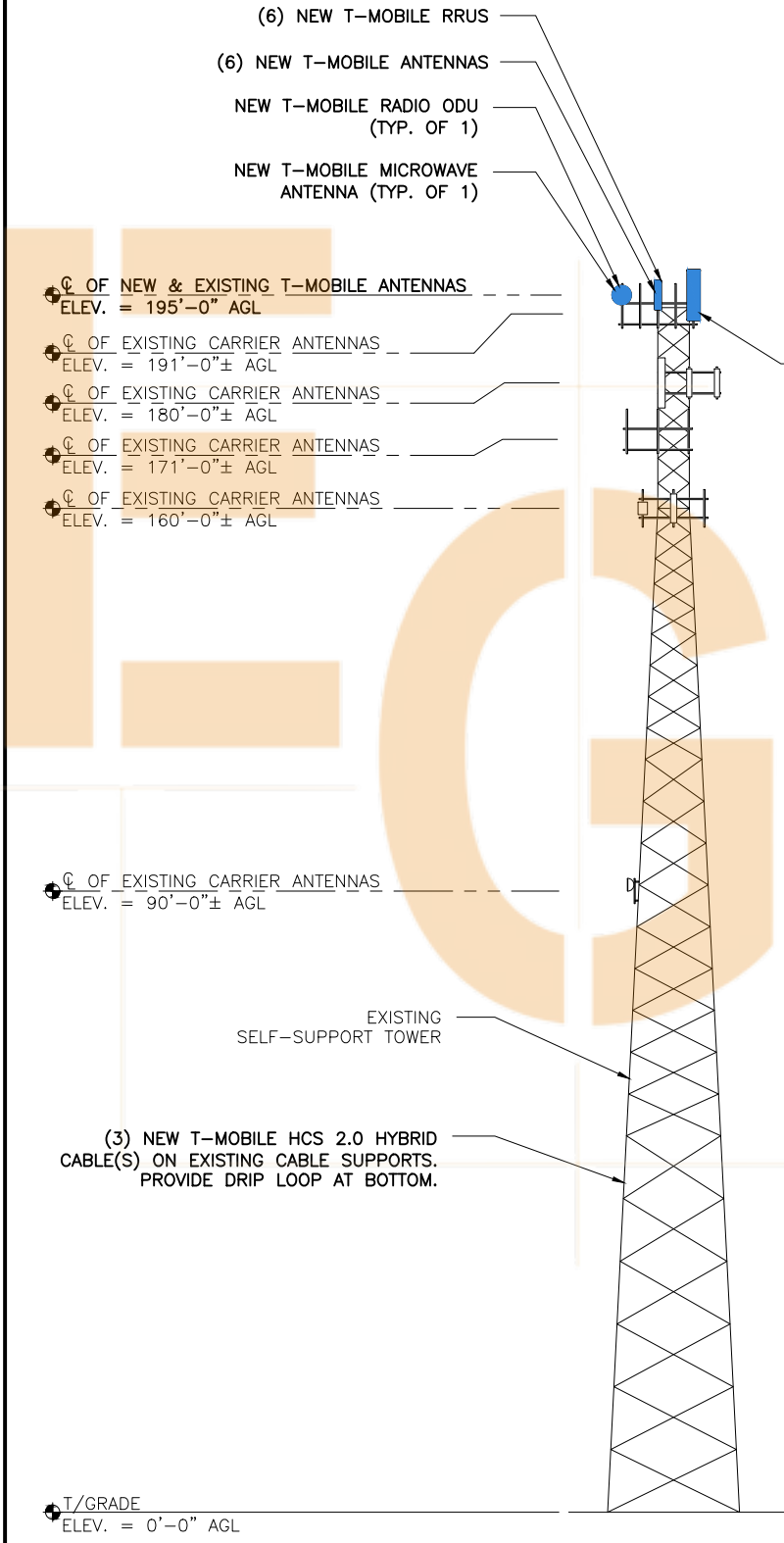
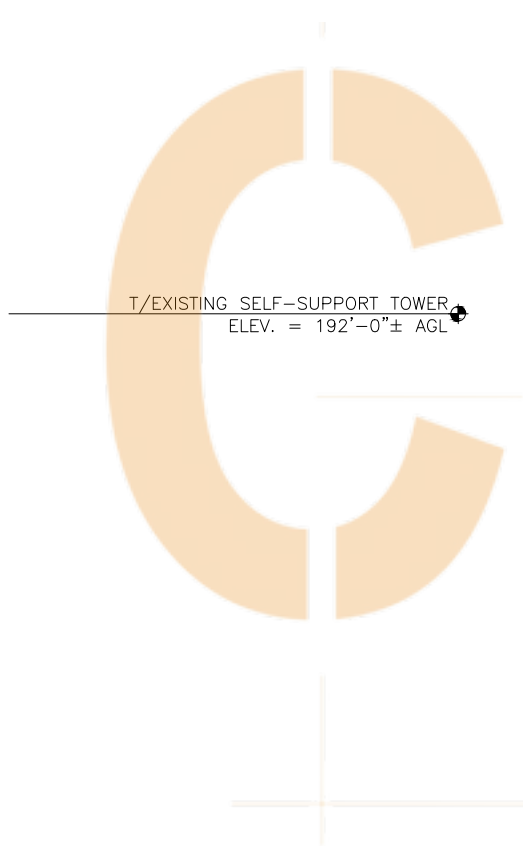
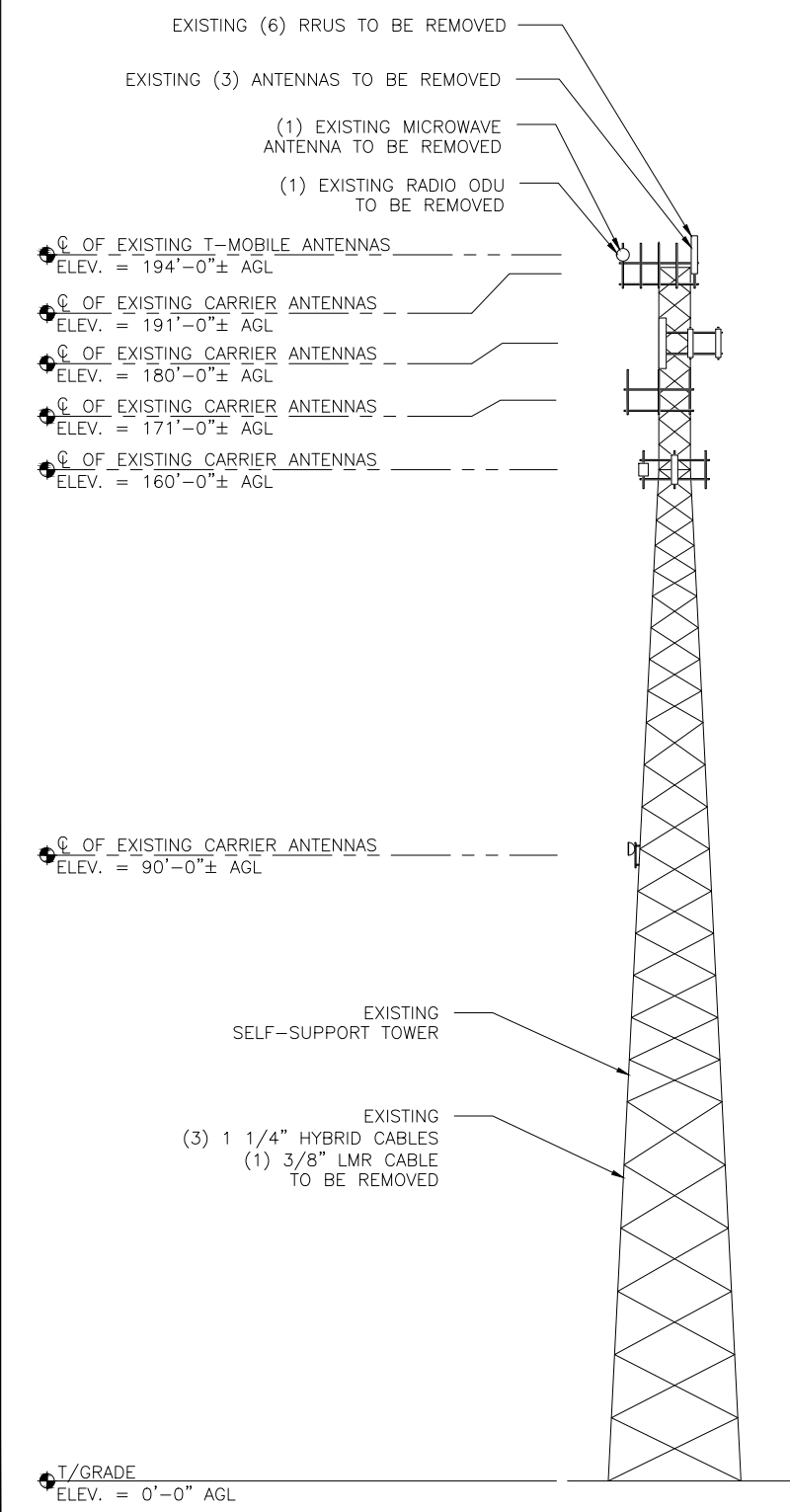
536 WILD ROSE DRIVE
 PENN LAIRD, VA 22846

SHEET NAME

SITE ELEVATION

SHEET NUMBER

C-3



NEW T-MOBILE ANTENNAS & EQUIPMENT ON MOUNTING PIPE

EXISTING ELEVATION

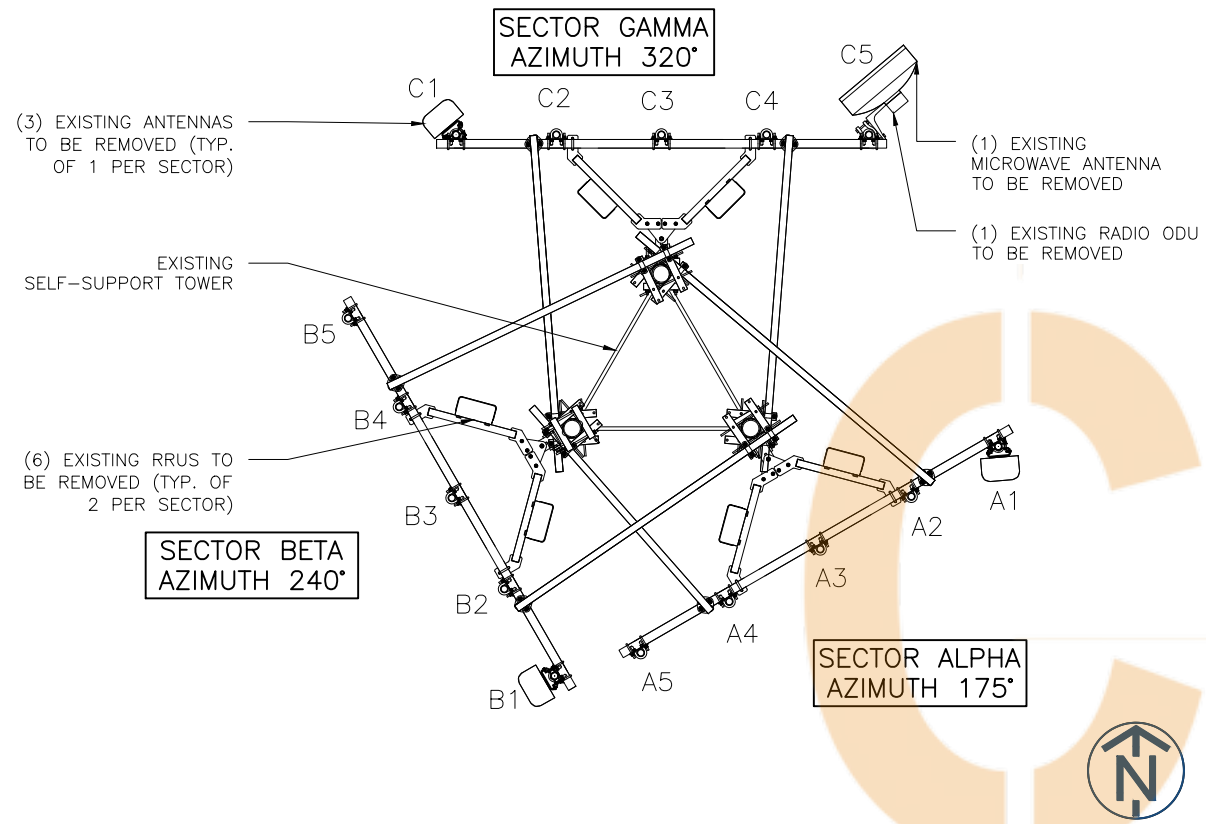
SCALE: 1" = 30'-0"

1

NEW ELEVATION

SCALE: 1" = 30'-0"

2



ANTENNA SCHEDULE

SECTOR	ALPHA		BETA		GAMMA		
ANTENNA POSITION	A-1	A-3	B-1	B-3	G-1	G-3	G-5
ANTENNA TYPE	L600+L700+N600	L1900+L2100 G1900	L600+L700+N600	L1900+L2100 G1900	L600+L700+N600	L1900+L2100 G1900	-
AZIMUTH	175°	175°	240°	240°	320°	320°	320°
RAD CENTER (AGL)	194'	194'	194'	194'	194'	194'	194'
MODEL	RFS APXVAALL24_43- U-NA20	COMMSCOPE WV-65A-R1	RFS APXVAALL24_43- U-NA20	COMMSCOPE WV-65A-R1	RFS APXVAALL24_43- U-NA20	COMMSCOPE WV-65A-R1	VHLP3-11W/A
MODEL	RADIO 4480 B71+B85	RADIO 4460 B25+B66	RADIO 4480 B71+B85	RADIO 4460 B25+B66	RADIO 4480 B71+B85	RADIO 4460 B25+B66	FIBEAIR IP-20A
SHARED LENGTH	(3) 230' SHARED HYBRID CABLES						
FEEDER LENGTH	±10'-0"	±10'-0"	±10'-0"	±10'-0"	±10'-0"	±10'-0"	-



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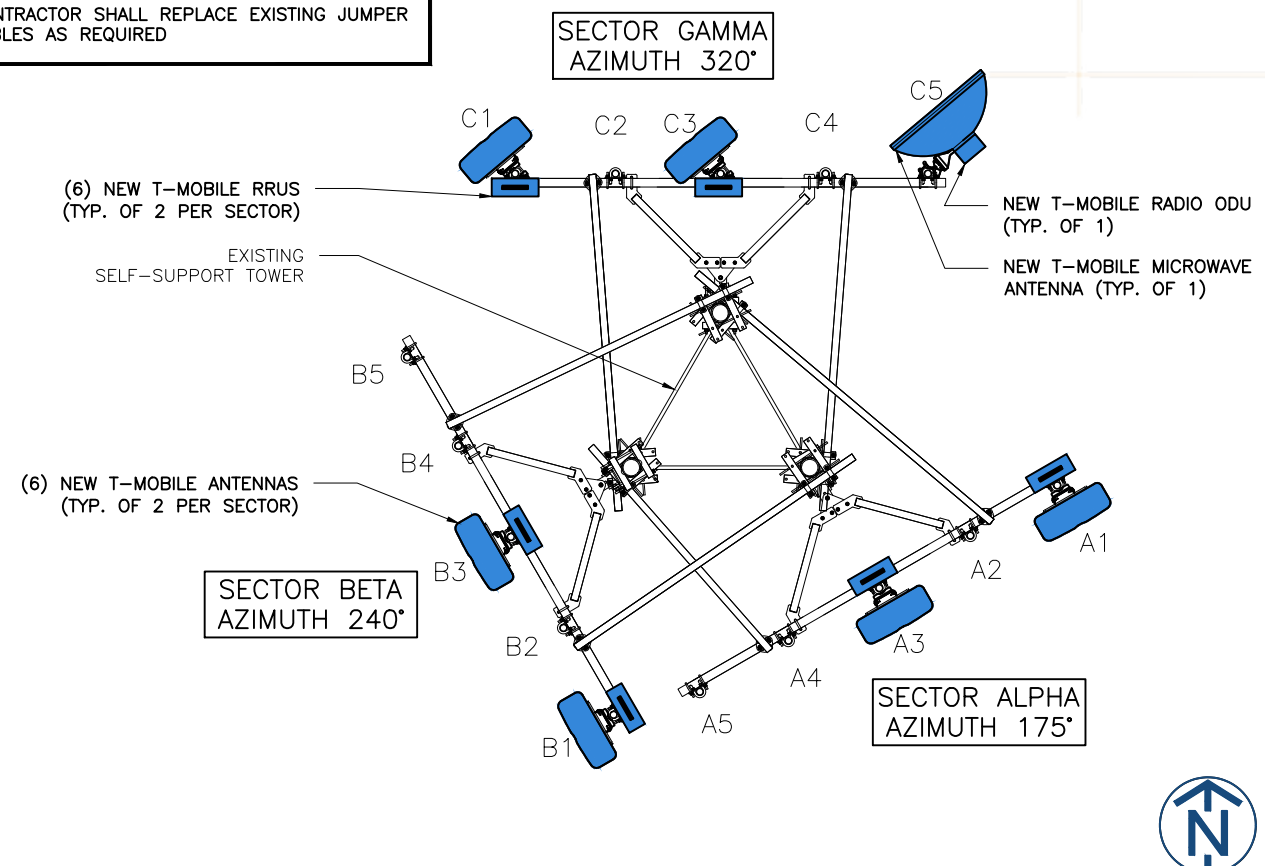
EXISTING ANTENNA LAYOUT

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

ANTENNA TABLE

2

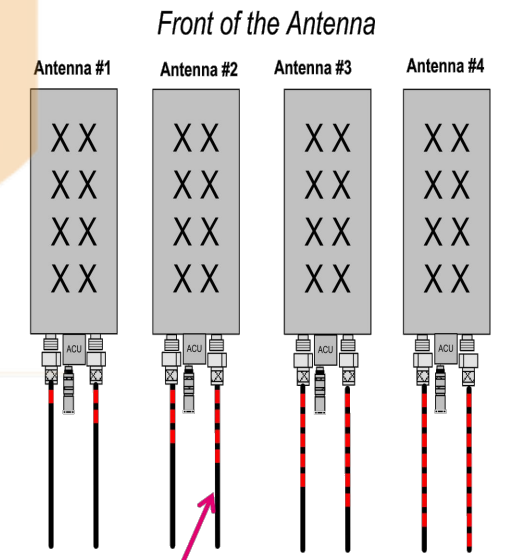
NOTE:
CONTRACTOR SHALL REPLACE EXISTING JUMPER CABLES AS REQUIRED



Coax Color Coding

- Antennas will be labeled (back of antenna view) Right to left 1 - X ports
- Coax/Jumper lines will be identified by sector color and by number of bands around the coax/jumper

Sector A	Red
Sector B	Green
Sector C	Blue
Sector D	Yellow
Sector E	White
Sector F	Purple
LMU	Brown + Sector Color Bands (1,2)
Fiber ID	Gray
Unused Coax	Pink
Microwave	Orange
PWE T-1's + GPS Downlink cable	ID w/Label Maker



Example - Coax with four bands of RED tape will represent Alpha sector and the 4th port of antenna.

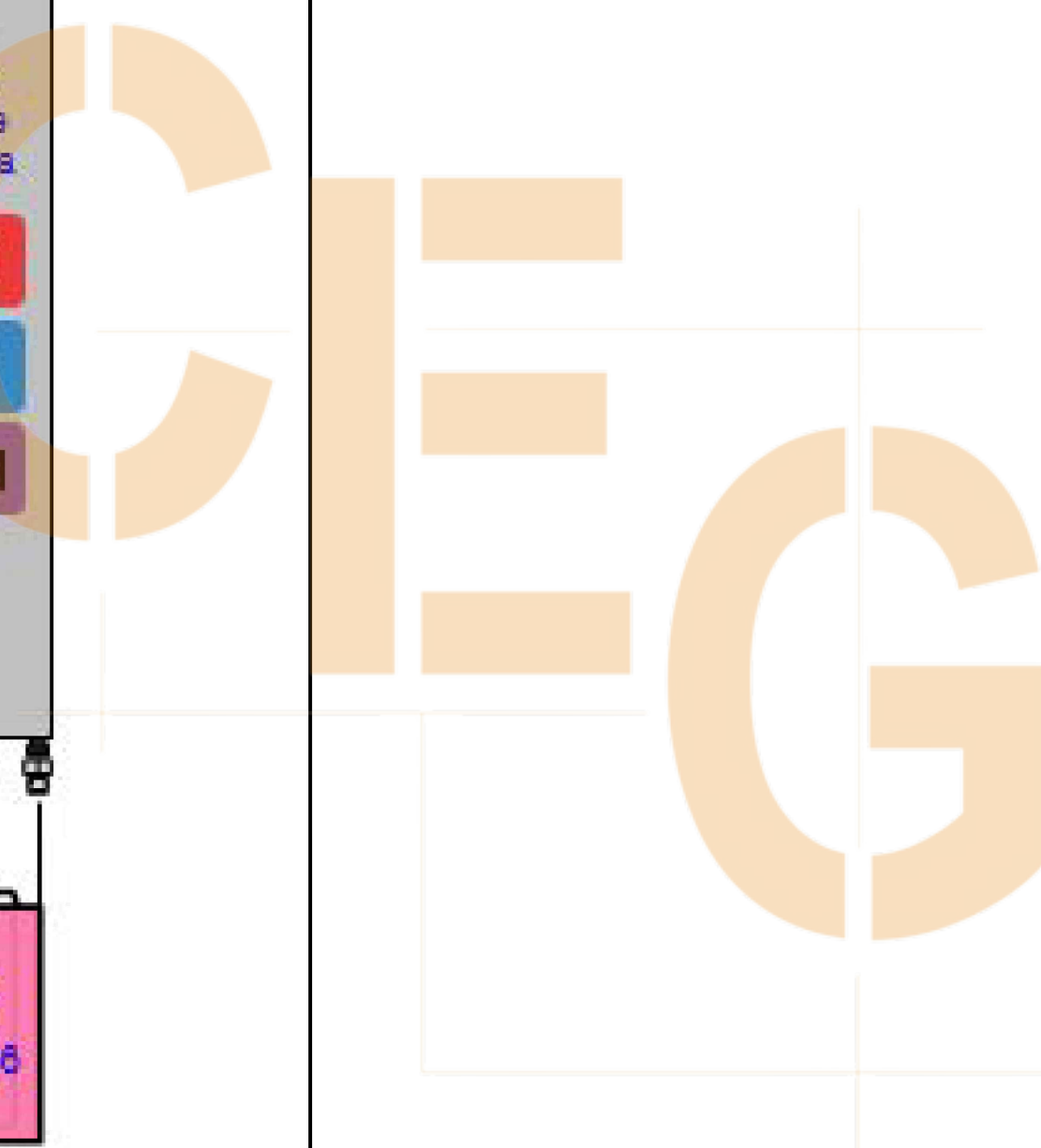
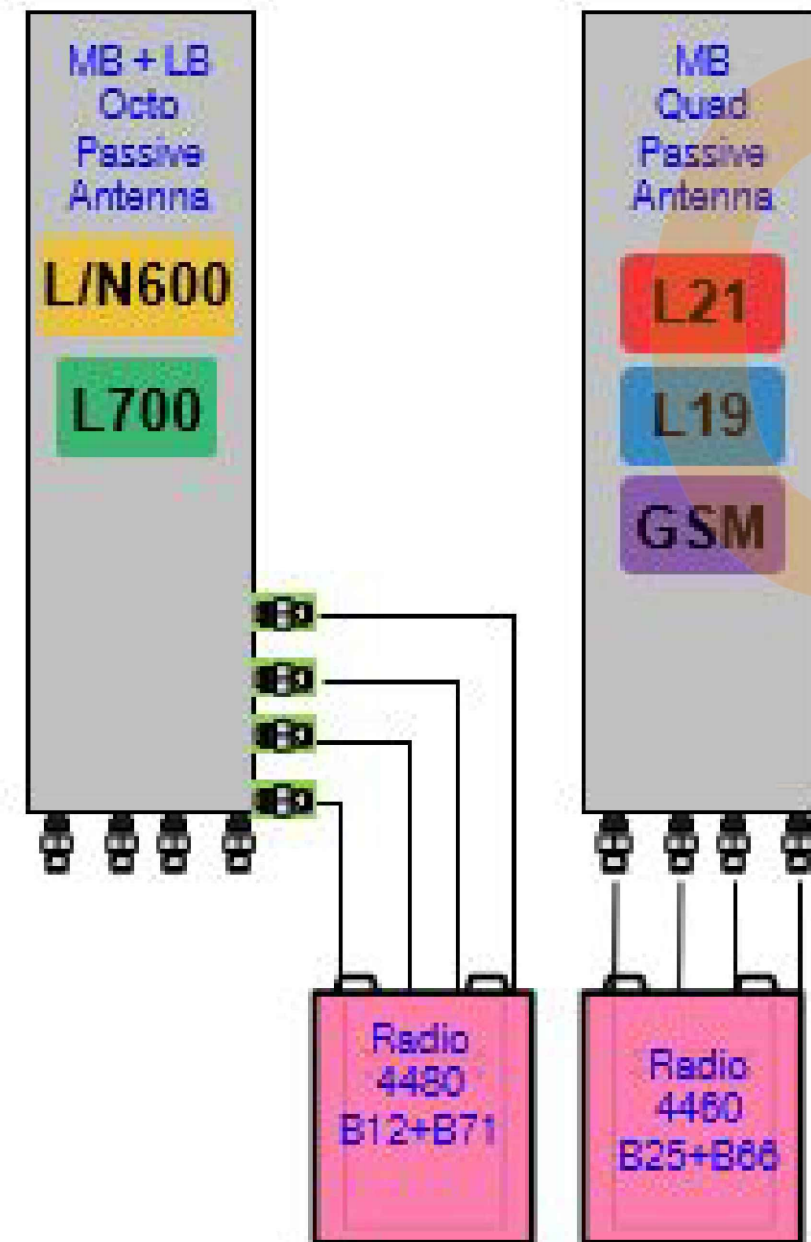
NEW ANTENNA LAYOUT

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

NEW COLOR CODING

4

SITE NAME	NTM WA05SH145 (PENN LAIRD)
SITE NUMBER:	7HCH530A
SITE ADDRESS	536 WILD ROSE DRIVE PENN LAIRD, VA 22846
SHEET NAME	ANTENNA LAYOUT AND COLOR CODING
SHEET NUMBER	C-4



REV	DATE	DESCRIPTION	BY
A	12/07/21	90% REVIEW	SA

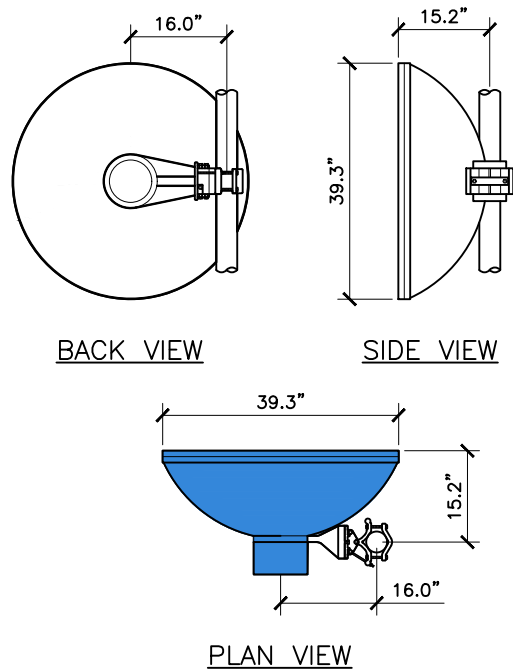
SITE NAME
**NTM WA05SH145
 (PENN LAIRD)**

SITE NUMBER:
7HCH530A

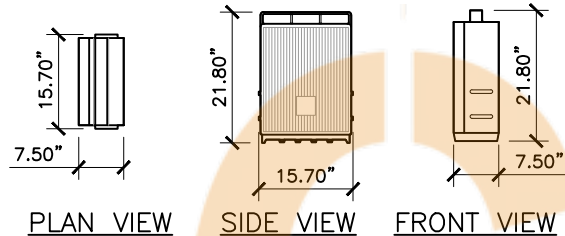
SITE ADDRESS
 536 WILD ROSE DRIVE
 PENN LAIRD, VA 22846

SHEET NAME
RDFS SHEET

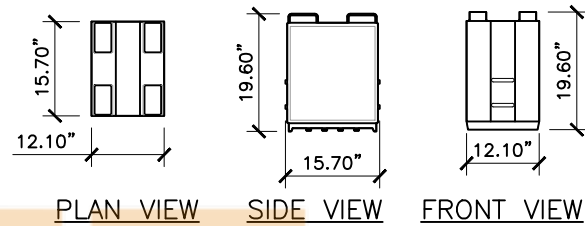
SHEET NUMBER
C-4A



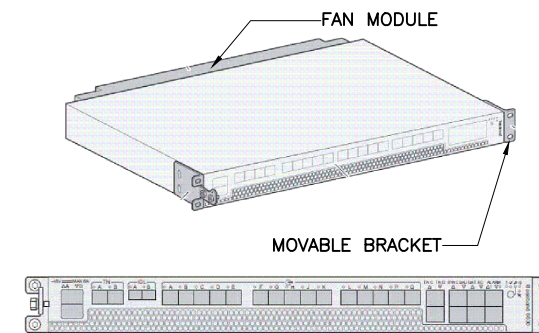
COMMSCOPE – VHLPX3-11W-6WH/A
 VHLPX – VALULINE HIGH PERFORMANCE LOW PROFILE, DUAL-POLARIZED
 FREQUENCY RANGE 10.125-11.700 GHz
 WEIGHT 37 Lbs



ERICSSON – RADIO 4480 B71 & B85A
 DUAL BAND REMOTE RADIO
 TOTAL WEIGHT 84 Lbs



ERICSSON – RADIO 4460 B25 & B66
 DUAL BAND REMOTE RADIO
 TOTAL WEIGHT 109 Lbs



ERICSSON – BB 6648
 BASEBAND UNIT



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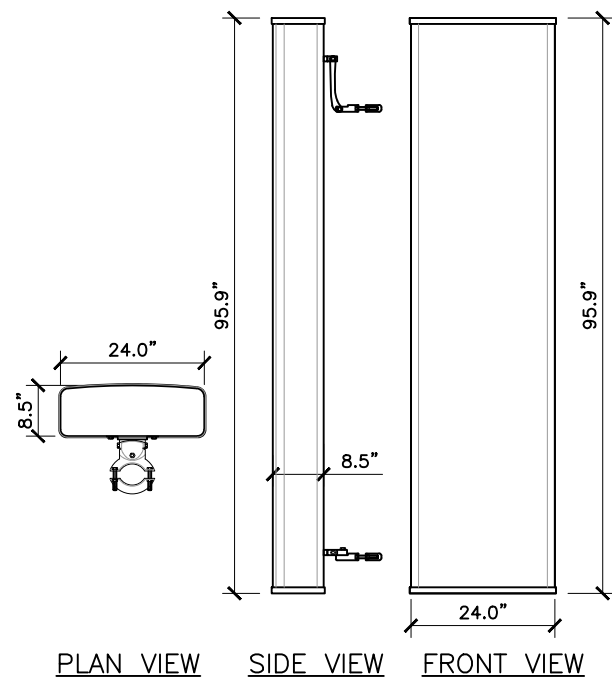
REV	DATE	DESCRIPTION	BY
A	12/07/21	90% REVIEW	SA

DISH AND ODU SPEC SCALE: 3/8" = 1'-0" 1

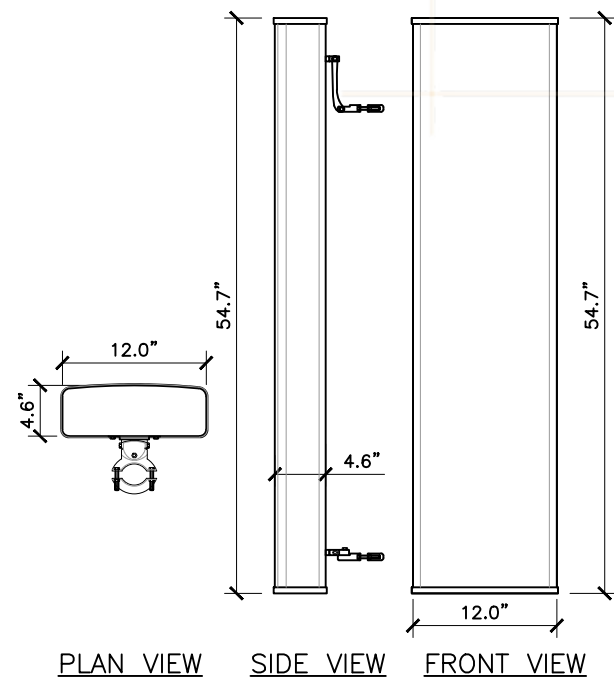
RRU SPEC SCALE: N.T.S. 2

RRU SPEC SCALE: N.T.S. 3

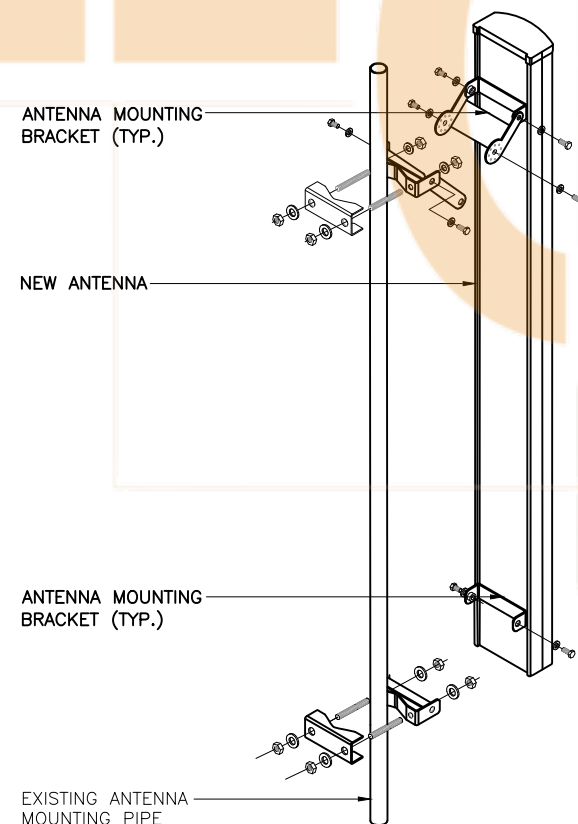
BB6648 SPEC SCALE: N.T.S. 4



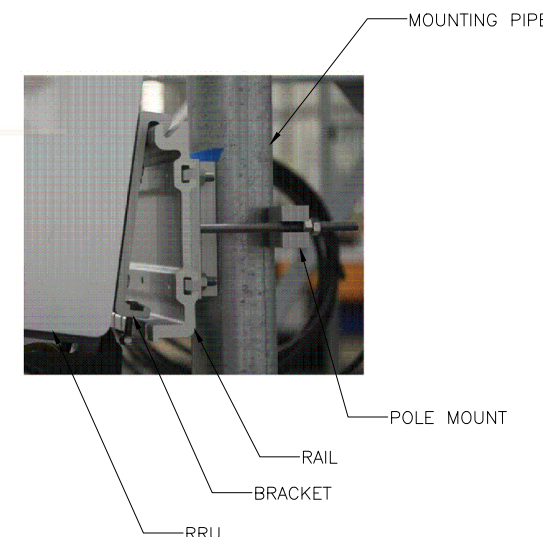
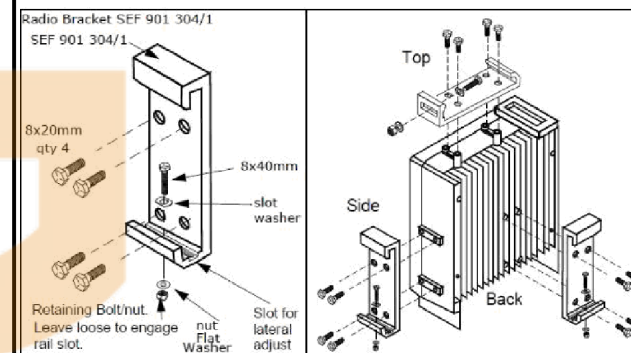
RFS – APXVAALL24_43-U-NA20
 DUAL SLANT POLARIZED QUAD BAND (8 PORT) ANTENNA
 FREQUENCY RANGE LOW BEAM 617-894 MHz
 HIGH BEAM 1695-2690 MHz
 ANTENNA 122.8 Lbs
 BRACKET 27.4 Lbs
 TOTAL WEIGHT 150.2 Lbs



COMMSCOPE – VV-65A-R1
 DUAL SLANT POLARIZED QUAD BAND (4 PORT) ANTENNA
 FREQUENCY RANGE 1695-2690 MHz
 TOTAL WEIGHT 23.81 Lbs



TYP. ANTENNA-PIPE CONNECTION SCALE: N.T.S. 7



RRU PIPE MOUNT SCALE: N.T.S. 8

ANTENNA SPEC SCALE: N.T.S. 5

ANTENNA SPEC SCALE: N.T.S. 6

SITE NAME
NTM WA05SH145 (PENN LAIRD)

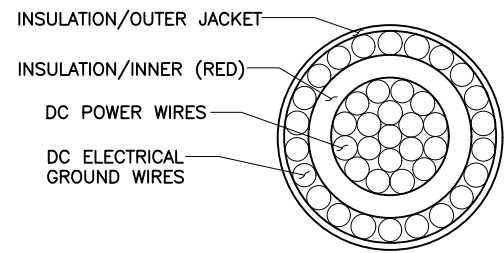
SITE NUMBER:
7HCH530A

SITE ADDRESS
 536 WILD ROSE DRIVE
 PENN LAIRD, VA 22846

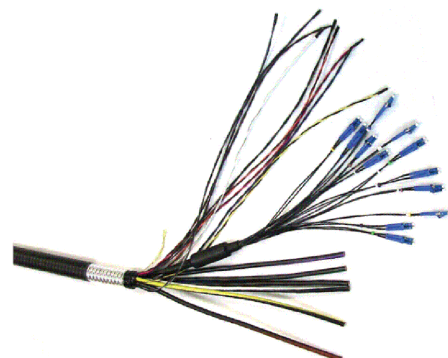
SHEET NAME
EQUIPMENT DETAILS

SHEET NUMBER
C-5

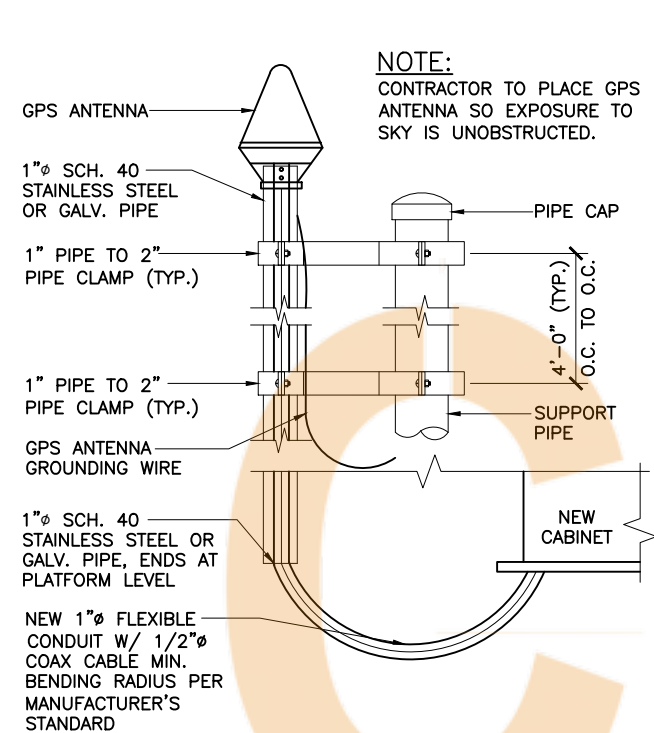
MECHANICAL PROPERTIES	
WEIGHT, APPROXIMATE (LB/FT)	2.52
MINIMUM BENDING RADIUS, SINGLE BENDING (IN)	6
MINIMUM BENDING RADIUS, REPEATED BENDING (IN)	10
RECOMMENDED/MAXIMUM CLAMP SPACING	3.25/4.0
ELECTRICAL PROPERTIES	
DC-RESISTANCE OUTER CONDUCTOR ARMOR (Ω /1000 FT)	.27
FIBER OPTIC PROPERTIES	
VERSION	SINGLE-MODE
QUANTITY, FIBER COUNT	24 (12 PAIRS)
DC POWER CABLE PROPERTIES	
SIZE (POWER) AWG	6
QUANTITY, WIRE COUNT (POWER)	12 (6 CONCENTRIC WIRES)
SIZE (ALARM)	18
QUANTITY, WIRE COUNT (ALARM)	18 (9 STRANDED PAIRS)



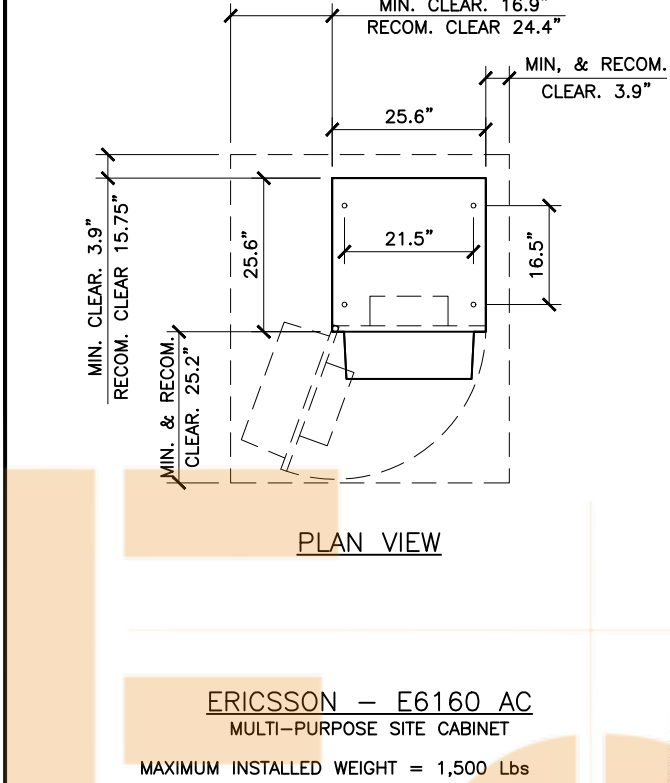
POWER WIRE CROSS SECTION



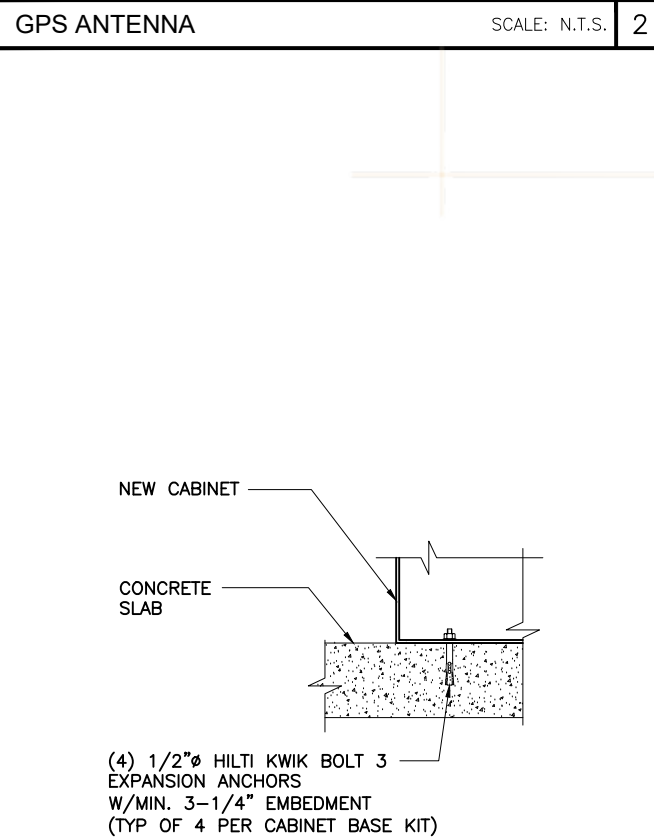
RFS - HB114-U6S12-xxx-LI SERIES



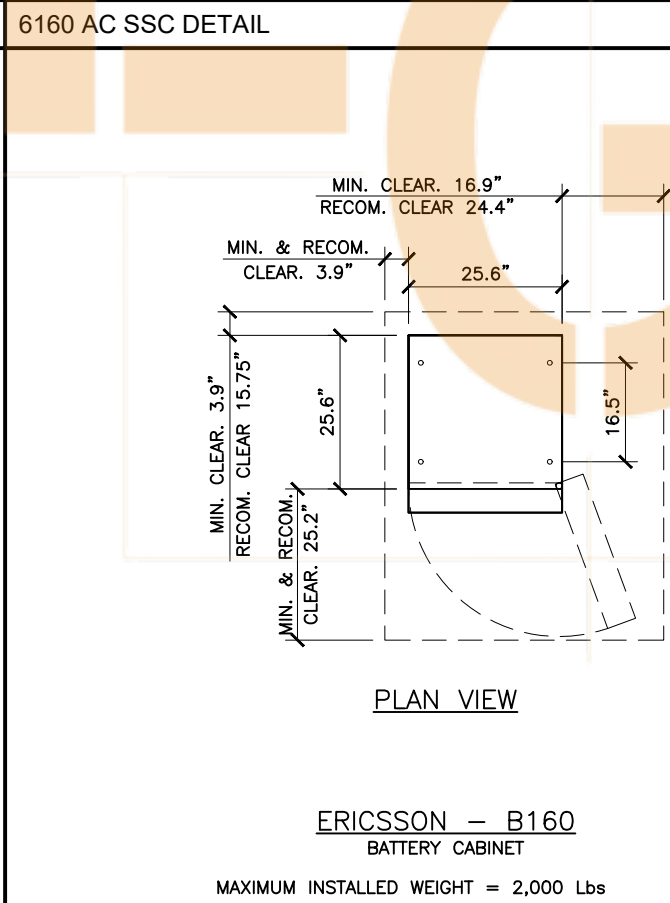
GPS ANTENNA SCALE: N.T.S. 2



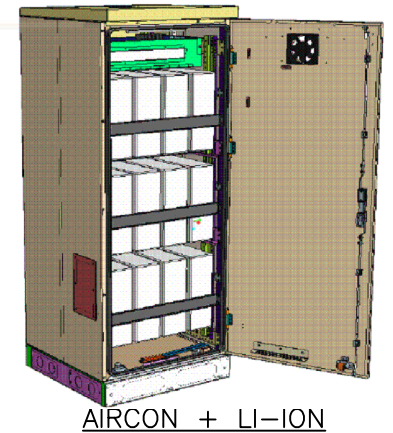
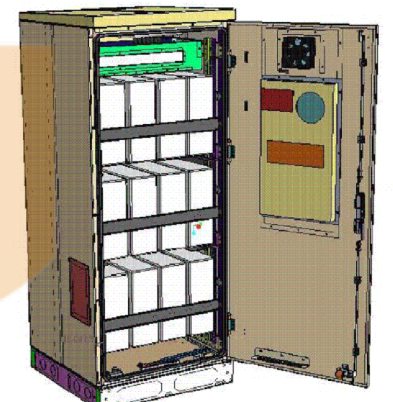
6160 AC SSC DETAIL SCALE: N.T.S. 3



CABINET CONNECTION DETAIL SCALE: N.T.S. 4



B160 BATTERY CABINET DETAIL SCALE: N.T.S. 5



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(PENN LAIRD)

SITE NUMBER:

7HCH530A

SITE ADDRESS

536 WILD ROSE DRIVE
PENN LAIRD, VA 22846

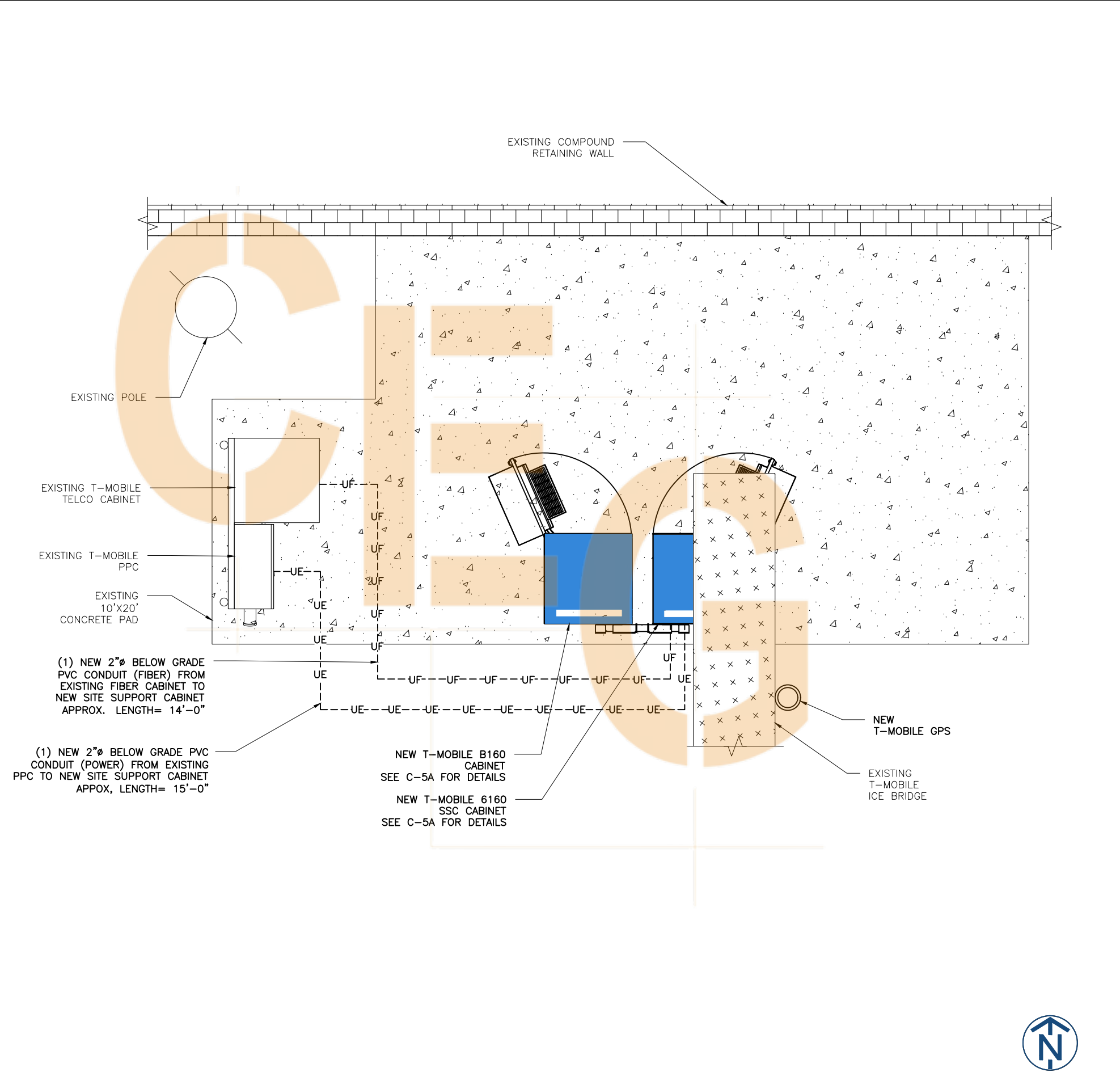
SHEET NAME

EQUIPMENT
DETAILS

SHEET NUMBER

C-5A

1. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES AND OSHA REQUIREMENTS.
2. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
3. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS AND TRANSPORTATION FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS.
4. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY PERMIT AND INSPECTION FEES, AND BE RESPONSIBLE FOR SCHEDULING INSPECTIONS WITH THE AUTHORITY HAVING JURISDICTION.
5. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, IEEE, NEMA AND NFPA.
6. ALL MATERIALS SHALL BE U.L. LISTED.
7. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT.
8. MATERIALS SHALL MEET WITH APPROVAL OF THE AUTHORITY HAVING JURISDICTION.
9. THE CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATIONS TEST, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND STARTING CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
10. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF THE TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR.
11. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUND TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.
12. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE PROJECT MANAGER AT JOB COMPLETION.
13. POST-INSTALLATION, ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
14. PROVIDE THE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS-INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS AND CIRCUITS.
15. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS NOTING USE FUNCTION.
16. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULL BOX, J-BOX, SWITCH BOX, ETC.
17. ALL CONDUIT INSTALLED SHALL BE SURFACE MOUNTED OR DIRECT BURIAL UNLESS OTHERWISE NOTED.
18. ALL CONDUIT SHALL HAVE A PULL WIRE OR ROPE.
19. ALL CONDUCTORS SHALL BE COPPER.
20. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
21. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
22. PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED TO MATCH ORIGINAL RATING.
23. BX OR ROMEX CABLE IS NOT PERMITTED.
24. ALL ELECTRICAL/FIBER ENCLOSURES, JUNCTION BOXES, CONDUIT KNOCKOUTS, RACEWAYS, ETC. SHALL BE RODENT-PROOF.
25. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.



12920 SE 38 TH ST
 BELLEVUE, WA 98006
 (425) 378-4000

REV	DATE	DESCRIPTION	BY
A	12/07/21	90% REVIEW	SA

SITE NAME
**NTM WA05SH145
 (PENN LAIRD)**

SITE NUMBER:
7HCH530A

SITE ADDRESS
 536 WILD ROSE DRIVE
 PENN LAIRD, VA 22846

SHEET NAME
**UTILITY PLAN
 AND DETAILS**

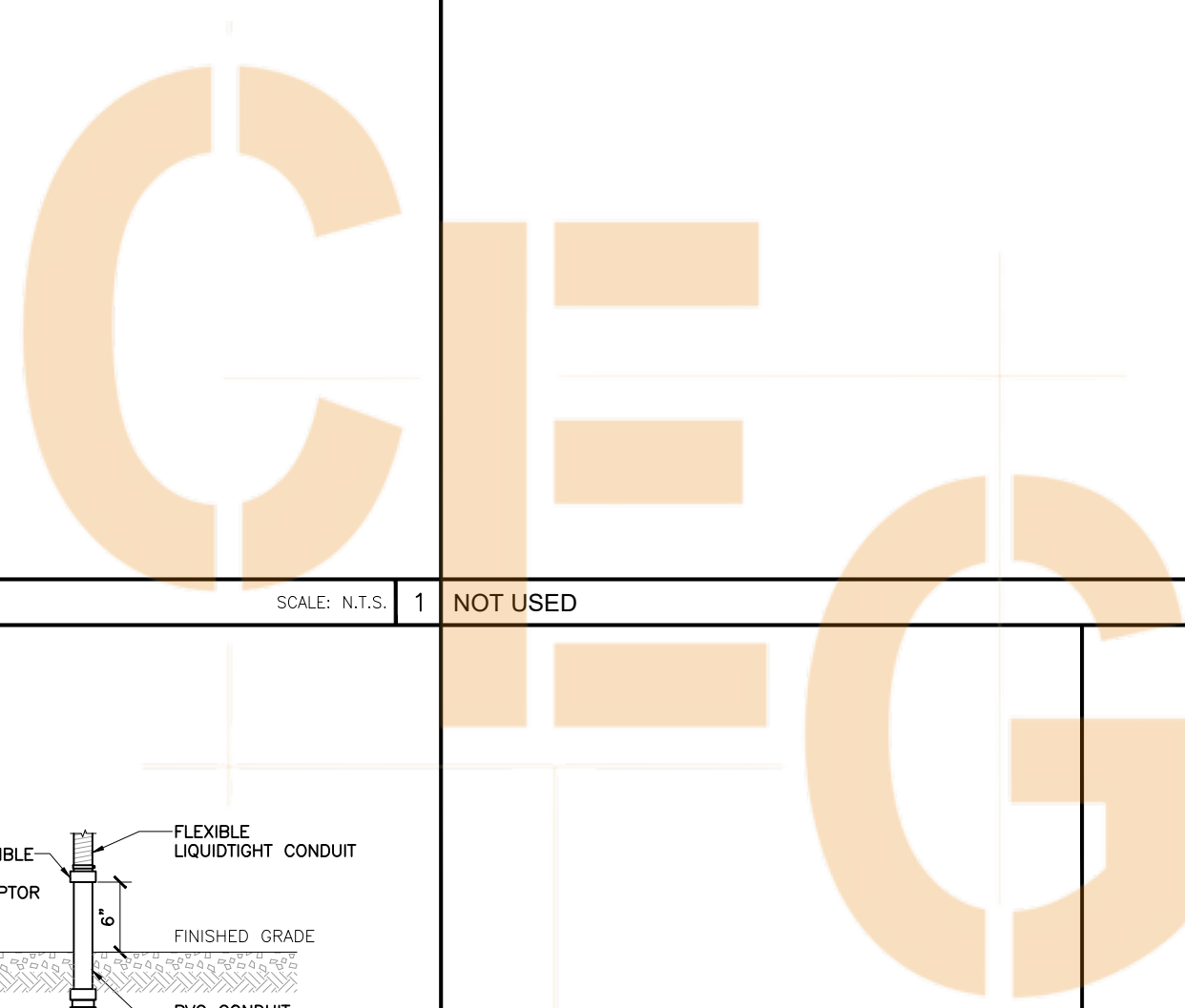
SHEET NUMBER
E-1



NOTES 1 UTILITY PLAN

SCALE: 3/8" = 1'-0" 2

REV	DATE	DESCRIPTION	BY
A	12/07/21	90% REVIEW	SA



NOT USED

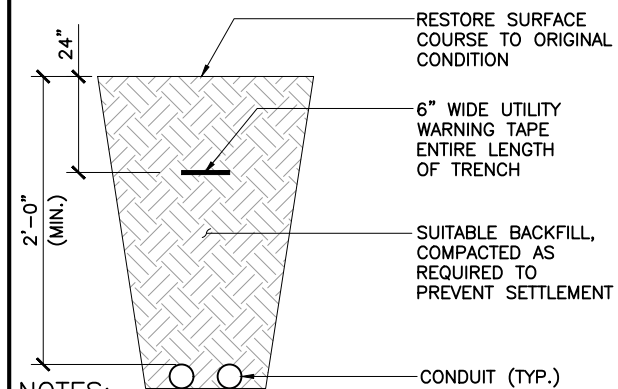
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1

NOT USED

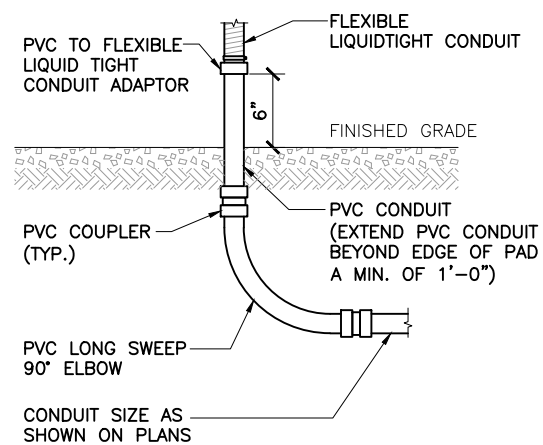
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2



NOTES:

1. CONTRACTOR TO VERIFY LOCAL UTILITY REQUIREMENTS FOR DEPTH, SIZE & SEPARATION OF CONDUITS PRIOR TO INSTALLATION. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES.
2. CONTRACTOR TO CALL 811, 48 HRS PRIOR TO EXCAVATING FOR UNDERGROUND UTILITY LOCATIONS. LOCATION SURROUNDING EXCAVATED AREA MUST BE PRIVATELY LOCATED FOR NON-PUBLIC UTILITIES.



TRENCH DETAIL

SCALE: N.T.S.

3

CONDUIT STUB-UP DETAIL

SCALE: N.T.S.

4

NOT USED

SCALE: N.T.S.

5

NOT USED

SCALE: N.T.S.

6

SITE NAME

**NTM WA05SH145
 (PENN LAIRD)**

SITE NUMBER:

7HCH530A

SITE ADDRESS

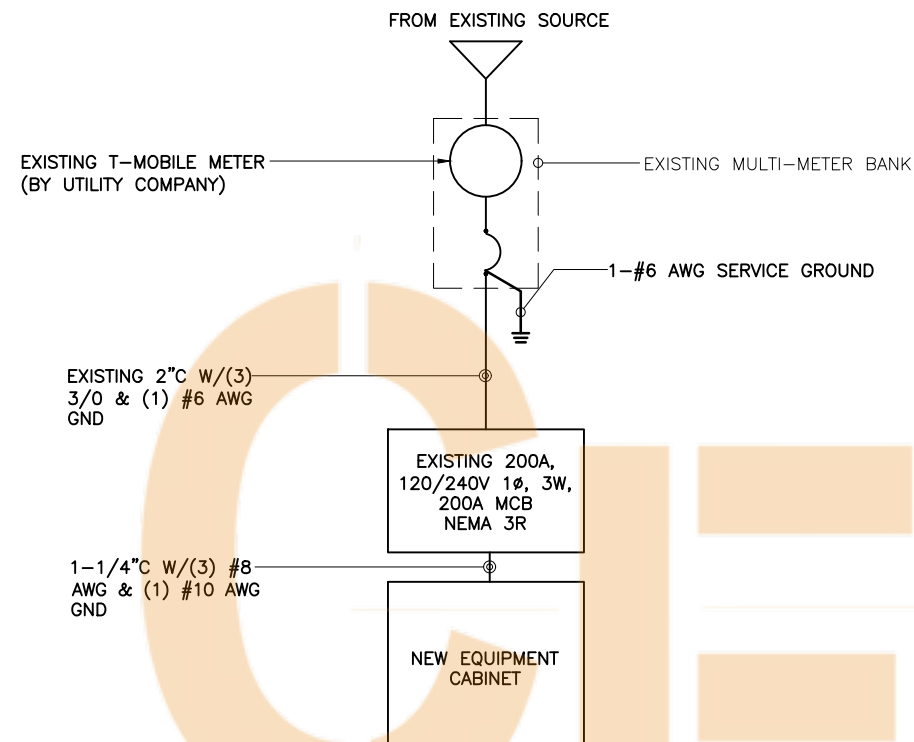
536 WILD ROSE DRIVE
 PENN LAIRD, VA 22846

SHEET NAME

**ELECTRICAL
 DETAILS**

SHEET NUMBER

E-2



REV	DATE	DESCRIPTION	BY
A	12/07/21	90% REVIEW	SA

ONE LINE DIAGRAM

SCALE: N.T.S. 1

SITE: 7HCH530A
VOLTAGE: 120/240 Vac
PHASE: 1
WIRE: 3W
BUSS RATING : 200
MAIN BREAKER: 200

PANEL NAME: PPC
PANEL STATUS: EXISTING
ENCLOSURE TYPE: NEMA 3R
MOUNT: SURFACE
AIC: 42kA
PANEL POSITIONS: 12

Total kVA	18.64
Total AMPS	77.65

SITE NAME
**NTM WA05SH145
(PENN LAIRD)**

SITE NUMBER:
7HCH530A

SITE ADDRESS
536 WILD ROSE DRIVE
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SHEET NAME
**ONE-LINE DIAGRAM
AND PANEL
SCHEDULE**

SHEET NUMBER
E-3

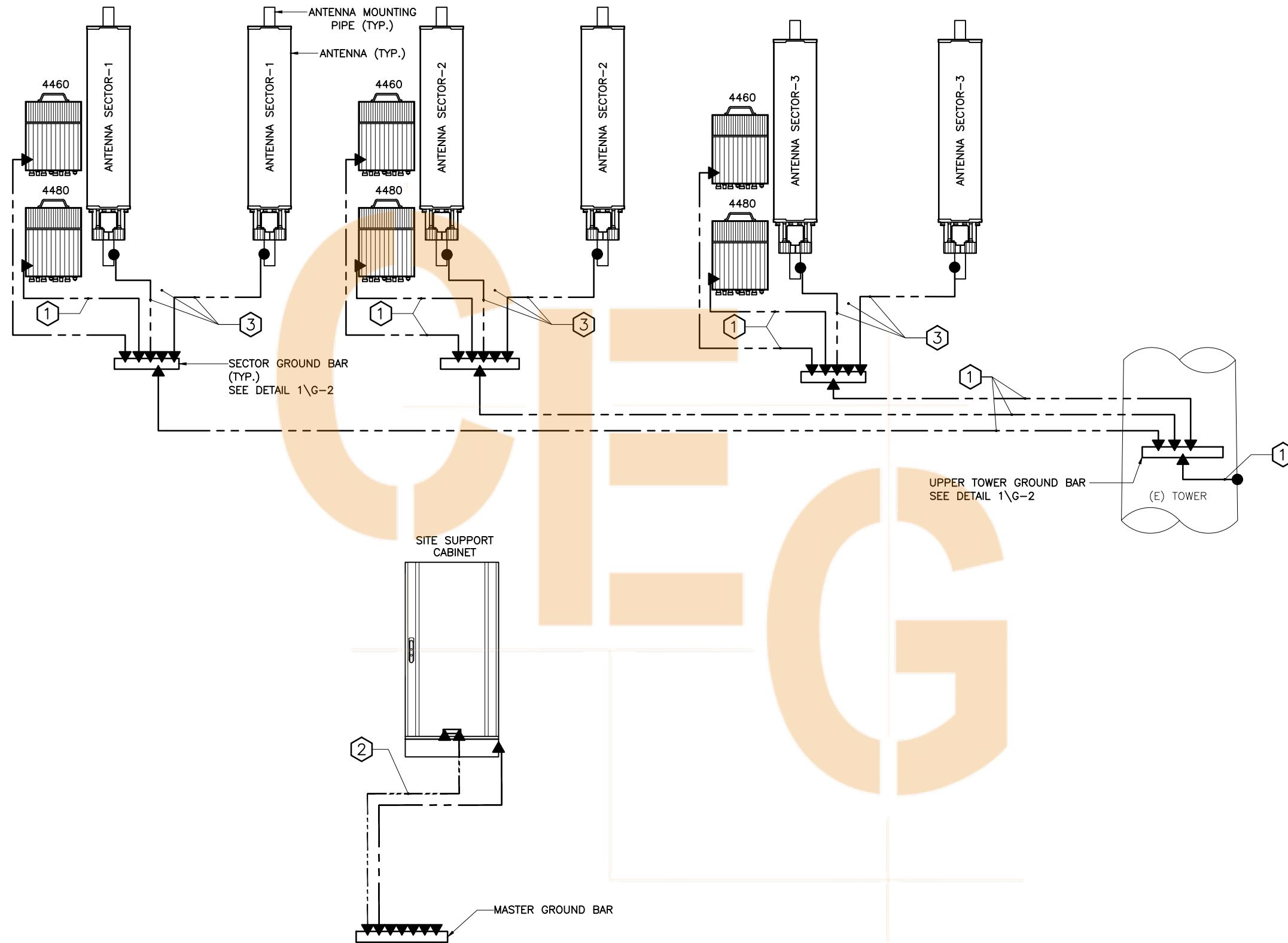
CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD	USAGE FACTOR	Phase A (VA) 143.75A	Phase B (VA) 11.58A	USAGE FACTOR	SERVICE LOAD	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	6160 SSC (NEW)	150	2	ON	9600	1	9600	0							2
3	FIBER CABINET	30	2	ON	1000	1	0	1000							4
5	BTS (100A)	100	2	ON	7000	1	7000	0		500	OFF	1	10	FAN	6
7	SURGE ARESSTOR (1PH)	60	2	ON	25	1	0	25							8
9					25	1	25	0							10
11	GFCI RECEPTACLE	10	1	ON	360	1	625	360	1.25	500	ON	1	20	POLE LIGHT	12

PANEL SCHEDULE

SCALE: N.T.S. 2

SYMBOL LEGEND:

- EXOTHERMIC CONNECTION
- ▲ MECHANICAL CONNECTION
- INTERNAL EQUIPMENT GROUND BAR
- ▬ EXTERNAL GROUND BAR
- ① #2 AWG STRANDED INSULATED COPPER GROUND WIRE
- ② #6 AWG STRANDED INSULATED COPPER GROUND WIRE
- ③ #2 SOLID TINNED, BARE COPPER GROUND WIRE
- ④
- ⑤ 1/2" FLEXIBLE SEALTIGHT CONDUIT W/SILICON SEALANT AT EACH END



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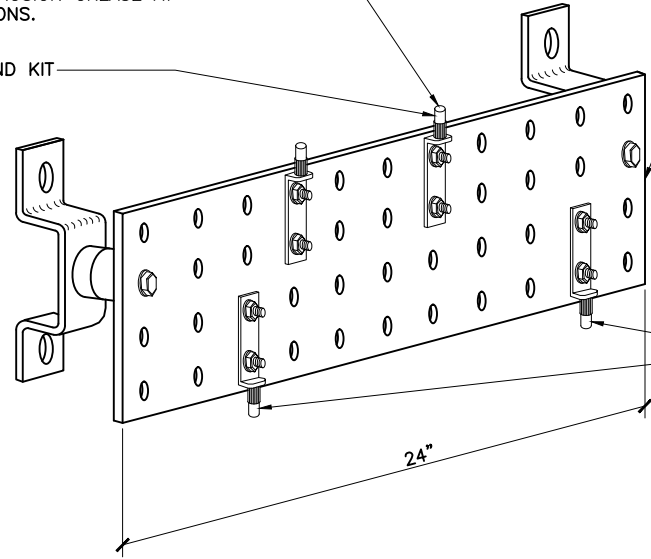
SITE ADDRESS
 536 WILD ROSE DRIVE
 PENN LAIRD, VA 22846

SHEET NAME
**GROUNDING
 DIAGRAM**

SHEET NUMBER
G-1

#2 AWG STRANDED W/LONG BARREL COMPRESSION LUGS
NOTE: CONTRACTOR TO USE ANTI-CORROSION GREASE AT CONNECTIONS.

TO GROUND KIT



NEW 4"x24"x1/4" THICK COPPER GROUND BAR, T-MOBILE CONSTRUCTION MANAGER TO VERIFY EXACT LOCATION AND INSTALLATION IN FIELD

REFER TO GROUND RISER SCHEMATIC FOR CONNECTIONS.

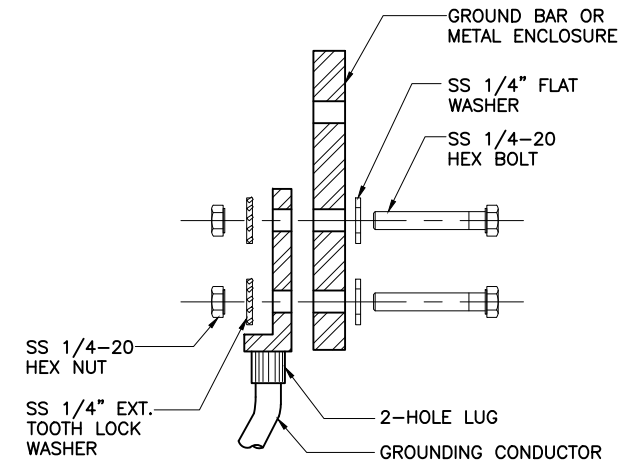
24"

NOTES:

1. CONTRACTOR SHALL UTILIZE LUGGED HOLES PROVIDED. NO DRILLING OF THE BAR WILL BE PERMITTED.
2. ALL HARDWARE SHALL BE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

TYPICAL GROUNDING BAR DETAIL

SCALE: N.T.S. 1



SS 1/4-20 HEX NUT

SS 1/4" EXT. TOOTH LOCK WASHER

GROUND BAR OR METAL ENCLOSURE

SS 1/4" FLAT WASHER

SS 1/4-20 HEX BOLT

2-HOLE LUG

GROUNDING CONDUCTOR

NOT USED

SCALE: N.T.S.

3

LUG BOLT CONNECTION

SCALE: N.T.S.

4

NOT USED

SCALE: N.T.S.

5

NOT USED

SCALE: N.T.S.

6

NOT USED

SCALE: N.T.S.

2

NOT USED

SCALE: N.T.S.

7

NOT USED

SCALE: N.T.S.

8



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SITE NUMBER:

7HCH530A

SITE ADDRESS

536 WILD ROSE DRIVE
PENN LAIRD, VA 22846

SHEET NAME

GROUNDING
DETAILS

SHEET NUMBER

G-2