February 11, 2026

RE: PEPCO / Bells Mills Utility Tower Project – 10611 Westlake Drive, Bethesda, MD 20817

Montgomery County Board of Appeals

100 Maryland Avenue, Suite 217, Rockville MD 20850

Dear Sir or Madam,

To expand service in the surrounding areas, Pepco proposes to install a new 270' self-support tower, a 13' x 25' un-manned pre-fabricated shelter, diesel generator, and additional ancillary equipment at the existing substation located at 10611 Westlake Drive, Bethesda, MD. This new structure is intended solely for Pepco's internal utility communications and will not host any commercial telecommunications equipment or carriers. The tower will enhance the reliability and coverage of Pepco's operational communications within the area. As a standalone permanent installation, the tower will be constructed within the substation's property lines and integrated into the existing utility infrastructure to support long-term utility demands.

The Bells Mill tower site location utilizes a range of advanced technologies and networks that enable Pepco to deliver several critical infrastructure services. These services encompass power and grid management, smart meter systems, specialized equipment monitoring and management solutions specific to the Bells Mill substation, and an internal emergency management network.

Section 59-G-1.3(c) (Montgomery County Code, 2004, as amended) sets forth the standard that will be used in evaluating a request for an administrative modification, unless an applicant elects to proceed under the new Zoning Ordinance (2014), and provides, with respect to modification of existing special exceptions, that:

If the proposed modification is such that the terms or conditions could be modified without substantially changing the nature, character or intensity of the use and without substantially changing the effect on traffic or on the immediate neighborhood, the Board, without convening a public hearing to consider the proposed change, may modify the term or condition.

Modification of a special exception without a public hearing is called administrative or minor modification.

This project meets the standard for the grant of an administrative modification:

(1) If the proposed modification is such that the terms or conditions could be modified without substantially changing the nature, character or intensity of the use and without substantially changing the effect on traffic or on the immediate neighborhood, the board, without convening

a public hearing to consider the proposed change, may modify the term or condition. However, if the matter involves an accessory apartment, the Board must not act until 10 days after the posting of the property with a special exception for accessory apartment sign under Section 59-A-4.43. The sign must remain posted until at least 15 days after the mailing of the Board's resolution. The affirmative vote of at least 4 members of the Board is required to modify the terms or conditions.

PEPCO Response: The proposed project is not changing the nature, character or intensity of the use and is not substantially changing the effect on traffic or on the immediate neighborhood.

(2) If the proposed modification substantially alters the nature, character, intensity of use or the conditions of the original grant, the Board must convene a public hearing to consider the proposed modification. The Board must notify the special exception holder that, except as otherwise provided in this section, such request for modification is subject to the requirements set forth in Sections 59-A-4.2 and 59-A-4.4. The Board must receive and process petitions for modification of a special exception in accordance with the provisions of those sections.

PEPCO Response: The proposed project is not changing the nature, character or intensity of the conditions of the original grant.

(3) Petitions for modification of the terms or conditions of a special exception must be scheduled for hearing as promptly as possible, provided that hearings on petitions for modifications of a special exception must be held not less than 30 days following the date of public notice. Nothing herein prohibits the Board from convening a hearing within a shorter period of time if the Board determines by the vote of at least 3 members that an emergency exists which poses an immediate threat to the public health, safety, convenience, welfare or necessity, or that delay would impose unusual individual or community hardship.

PEPCO Response: Any petitions made will be scheduled for hearing as promptly as possible.

(4) The public hearing must be limited to consideration of the proposed modifications noted in the Board's notice of public hearing and to (1) discussion of those aspects of the special exception use that are directly related to those proposals, and (2) as limited by paragraph (a) below, the underlying special exception, if the modification proposes an expansion of the total floor area of all structures or buildings by more than 25%, or 7,500 square feet, whichever is less.

PEPCO Response: If hearing is deemed necessary, consideration of the proposed modifications noted in the Board's notice will be discussed.

Should you require any further information, please do not hesitate to contact me.

Best Regards,

Regina Chang
Network Building + Consulting
Land Use Associate
(301) 832-0193 rchang@nbcllc.com

pepco℠
AN EXELON COMPANY

SITE NAME:
BELLS MILL

10611 WESTLAKE DRIVE
BETHESDA, MD 20817
MONTGOMERY COUNTY

NOTE TO GENERAL CONTRACTOR

NO WORK IS TO BE PERFORMED ON THIS SITE WITHOUT REVIEW OF THE APPROVED STRUCTURAL ANALYSIS. IF ANY DISCREPANCIES ARE FOUND THE GENERAL CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING. AT NO TIME WILL ANY ADDITIONAL ANTENNAS BE INSTALLED WITHOUT WRITTEN CONSENT FROM TOWER ENGINEER.

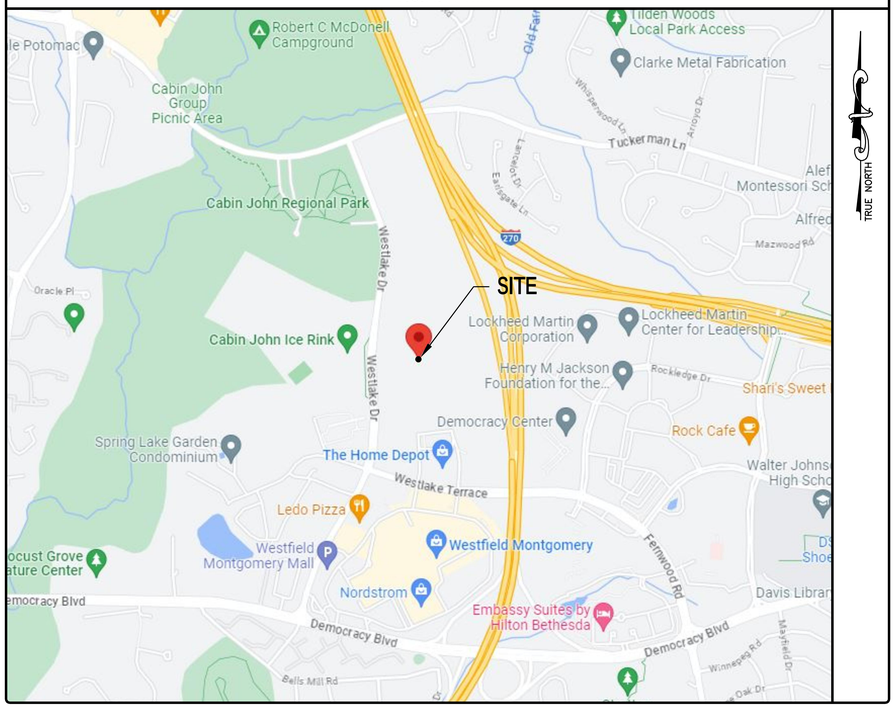
GENERATOR USE

THE PEPCO GENERATOR IS AN OPTIONAL STANDBY UNIT AND DOES NOT SUPPLY LIFE SAFETY EQUIPMENT. THE GENERATOR IS USED TO BACKUP THE TELEPHONE EQUIPMENT IN ORDER TO KEEP THE SITE IN FULL OPERATION IN THE EVENT OF NORMAL UTILITY POWER FAIL. THEREFORE, NFPA 110 DOES NOT APPLY.

SITE INFORMATION

SCOPE OF WORK:	INSTALL: • 270'-0" SELF-SUPPORT TOWER • 13'-1"X25'-1" UN-MANNED PRE-FABRICATED SHELTER • 35kW DIESEL GENERATOR ON 4'x11' CONCRETE PAD • ICE BRIDGE FROM SHELTER TO TOWER
PROJECT:	PEPCO TOWER CO-LOCATION
SITE NAME:	BELLS MILL
911 SITE ADDRESS:	10611 WESTLAKE DRIVE BETHESDA, MD 20817
JURISDICTION: ZONING:	MONTGOMERY COUNTY R-90
TAX ACCOUNT NUMBER: PARCEL AREA: PARCEL OWNER: ADDRESS:	10-00860302 48.67± ACRES POTOMAC ELECTRIC POWER COMPANY C/O CORP. TAX DEPARTMENT SUITE 5617 701 9TH ST NW WASHINGTON, DC 20001
GROUND ELEVATION:	293'-0"± (AMSL)
STRUCTURE TYPE:	SELF-SUPPORT TOWER
STRUCTURE LAT/LONG:	39.030036°, -77.145099°
STRUCTURE HEIGHT:	271'-0" (AGL) (TOP OF TOWER) 292'-1" (AGL) (TOP OF HIGHEST APPURTENANCES)
LIMITS-OF-DISTURBANCE:	4,641 SQ. FT. (TOTAL)

VICINITY MAP



DRAWING INDEX

PROJECT TEAM

APPLICANT:	PEPCO - EDISON PLACE 701 9TH STREET NORTHWEST WASHINGTON, DC 20068 PHONE: (703) 850-7333
PROJECT MANAGEMENT FIRM:	NETWORK BUILDING + CONSULTING, LLC. 6095 MARSHALEE DRIVE, SUITE 300 ELKRIDGE, MD 21075 (410) 712-7092
ENGINEERING FIRM:	NETWORK BUILDING + CONSULTING, LLC. 6095 MARSHALEE DRIVE, SUITE 300 ELKRIDGE, MD 21075 (410) 712-7092

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2021 INTERNATIONAL BUILDING CODE (IBC)
- 2021 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2021 IBC & IEBC AMENDMENTS ER 13-24
- 2021 NFPA 1 FIRE CODE
- 2021 NFPA 101 LIFE SAFETY CODE
- 2021 NFPA 1 AND 101 AMENDMENTS - FIRE SAFETY CODE ER 14-24
- CHAPTER 8 COUNTY BUILDING CODE
- MASTER LIST OF BUILDING CODES & STANDARDS
- 2021 INTERNATIONAL MECHANICAL CODE (IMC)
- 2021 INTERNATIONAL FUEL GAS CODE (IFGC)
- 2021 IMC & IFGC AMENDMENTS ER 13-24
- MONTGOMERY COUNTY CODE CHAPTER 8 (MECHANICAL)
- MONTGOMERY COUNTY CODE CHAPTER 17 (ELECTRICAL)
- NFPA 70 (NATIONAL ELECTRIC CODE)
- 2021 ENERGY CODE & IGCC AMENDMENTS ER 13-24
- 2021 ENERGY AND GREEN CODE COMMENTARY
- ASHRAE STANDARD 90.1-2022, ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS (I-P)
- 2021 INTERNATIONAL GREEN CONSTRUTION CODE (IGCC)
- CHAPTER 35 OF IBC-2021 REFERENCED STANDARDS

DO NOT SCALE DRAWINGS

THESE DRAWINGS ARE FORMATTED TO BE FULL-SIZE AT 22"X34". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE TO PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

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

STATE OF MARYLAND · PROFESSIONAL ENGINEER · 55491

11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

NB+C™ TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

THE REGISTRANT OF THE NEWLY APPLIED SEAL, DATED 11/07/25, ONLY ASSUMES RESPONSIBILITY FOR THE CHANGES AS INDICATED BY THE FOLLOWING REVISION(S) UNLESS INDICATED BY OTHERS, REV- NEW.

pepco™ AN EXELON COMPANY

BELLS MILL

TITLE SHEET

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	001 SH. 001	NEW

CONCRETE GENERAL NOTES

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND TO THE PROJECT SPECIFICATIONS.
2. ALL CONCRETE IS TO BE NORMAL DENSITY CONCRETE WITH A SLUMP OF 5" (±1".) MAXIMUM AGGREGATE SIZE 3/4 INCH. NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE AT THE JOB SITE. CONTRACTOR TO SUBMIT THE CONCRETE DESIGN MIX TO ASSIGNED FIELD ENGINEER FOR APPROVAL PRIOR TO POURING CONCRETE.
3. PROVIDE AIR ENTRAINMENT OF 4 TO 6 PERCENT IN ALL EXPOSED CONCRETE WORK WITH AIR-ENTRAINING ADMIXTURE COMPLYING WITH ASTM C 260. AT TROWEL-FINISHED FLOORS, DO NOT EXCEED AIR-ENTRAINMENT CONTENT OF 3 PERCENT.
4. NO HOLES OR SLEEVES SHALL BE MADE THROUGH CONCRETE WORK OTHER THAN THOSE INDICATED ON THE STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
5. ALL FORMWORK OFFSET TOLERANCES (PER ACI 117) TO BE CLASS A.
6. FLOOR SLAB TOLERANCES TO ASTM E1155; SPECIFIED OVERALL MINIMUM VALUE OF FLATNESS F F=25 WITH LOCAL MINIMUM F F=17, AND MINIMUM VALUE OF LEVELNESS F F=20 WITH LOCAL MINIMUM F I AND F F WITHIN 72 HOURS OF SLAB CONSTRUCTION.
7. MINIMUM CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS MIN. 4500 PSI. UNLESS OTHERWISE NOTED.

FOUNDATION NOTES:

1. DESIGN INFORMATION AND GENERAL REQUIREMENTS

   1.1 CODES

A. DESIGN CONFORMS TO INTERNATIONAL BUILDING CODE 2018.

B. AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE," ACI 318, LATEST EDITION.

2. EARTHWORK

   2.1 FOUNDATIONS

A. REFER TO TOWER MANUFACTURER'S DESIGN DRAWINGS FOR TOWER FOUNDATION REQUIREMENTS.

B. FOUNDATIONS HAVE BEEN DESIGNED TO BEAR ON (UNDISTURBED RESIDUAL SOILS/COMPACTED STRUCTURAL FILL), CAPABLE OF SAFELY SUPPORTING A NET ALLOWABLE BEARING PRESSURE OF 3000 PSF. IF FOUNDATION CONDITIONS PROVE UNACCEPTABLE AT ELEVATIONS SHOWN, EXCAVATION SHALL BE CARRIED DEEPER AND SHALL BE BACKFILLED WITH LEAN CONCRETE TO PLAN FOOTING BOTTOM, OR REDESIGN OF FOUNDATIONS WILL BE REQUIRED AT THE DIRECTION OF THE ENGINEER.

C. DESIGN, FURNISH AND INSTALL ALL TEMPORARY SHEETING, SHORING AND DRAINAGE NECESSARY TO MAINTAIN THE EXCAVATION AND PROTECT SURROUNDING STRUCTURES AND UTILITIES.

D. THOROUGHLY COMPACT ALL BOTTOM OF FOOTINGS PRIOR TO PLACING ANY CONCRETE.

3. CONCRETE

   3.1 FORMWORK

A. CONCRETE CONSTRUCTION SHALL CONFORM TO "SPECIFICATIONS FOR STRUCTURAL, CONCRETE," (ACI 301, LATEST EDITION).

B. FORMWORK SHALL CONFORM TO ACI 117, LATEST EDITION "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS."

   3.2 REINFORCEMENT

A. REINFORCING STEEL ASTM A615, GRADE 60. WELDED WIRE ASTM A185 (FLAT SHEET). LAPS 40 BAR DIAMETERS UNLESS NOTED. BARS SHALL BE SECURELY HELD IN ACCURATE POSITION BY SUITABLE ACCESSORIES, TIE BARS, SUPPORT BARS, ETC. HOOK LENGTHS SHALL BE 12 BAR DIAMETERS UNLESS OTHERWISE NOTED.

B. CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED.

FOOTINGS & SLABS CAST AGAINST GROUND . . . . . 3"
CONCRETE TO BE IN CONTACT WITH GROUND OR WEATHER AT
BARS GREATER THAN #5 . . . . . 2"
AT BARS #5 OR LESS . . . . . .1-1/2"
CONCRETE NOT TO BE EXPOSED TO GROUND OR WEATHER
BEAMS, GIRDERS & COLUMNS . . . . . 1-1/2"
SLABS & WALLS . . . . . .3/4"

   3.3 CAST-IN-PLACE-CONCRETE

A. THE CONCRETE COMPRESSIVE STRENGTH OF THE CONCRETE EXPOSED TO FREEZING AND THAWING SHALL CONFORM TO CHAPTER 19 OF THE IBC 2018 AND TABLES 19.3.1.1 AND 19.3.2.1 OF ACI 318 CONCRETE STRENGTH SHALL BE MINIMUM 4500 PSI WITH A WATER-CEMENT RATIO OF 0.45 AND SHALL BE AIR-ENTRAINED FOR ALL EXPOSED CONCRETE AND RETAINING WALLS.

B. MIX DESIGN TO BE IN ACCORDANCE WITH ACI 318, CHAPTER 5. NO CALCIUM CHLORIDE OR ADMIXTURE CONTAINING CHLORIDES SHALL BE USED IN ANY CONCRETE.

C. COARSE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 SIZE #57. COARSE AGGREGATE FOR LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C330 GRADED 3/4" TO 1/4".

D. COLD WEATHER PLACEMENT SHALL COMPLY WITH ACI 306.1

E. HOT WEATHER PLACEMENT SHALL COMPLY WITH ACI 305 R.

F. CHAMFER ALL EXPOSED EDGES 3/4".

G. THE MAXIMUM TEMPERATURE OF ALL CONCRETE AT DELIVERY TO THE SITE SHALL BE 85°F, TOTAL DELIVERY TIME SHALL BE LESS THEN 75 MINUTES.

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STRUCTURAL NOTES

1. THE STRUCTURAL STEEL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ANCHOR BOLT LOCATIONS, ELEVATION OF TOP OF CONCRETE AND BEARING PLATES, ALIGNMENT ETC. PRIOR TO START OF STEEL ERECTION.
2. THE LATEST EDITION OF THE FOLLOWING SPECIFICATIONS SHALL GOVERN:
   A. AISC 360 - "ALLOWABLE STRESS DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".
   B. AISC 303 - "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
   C. AWS - "D1.1 STRUCTURAL WELDING CODE - STEEL".
3. MATERIAL, UNLESS OTHERWISE NOTED, SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS

STRUCTURAL WIDE FLANGE & M SHAPES	A992 OR A572 FY = 50KSI
OTHER STRUCTURAL SHAPES AND PLATES	A36, FY = 36 KSI
STRUCTURAL TUBING	A500, GRADE B FY = 46 KSI
HIGH STRENGTH BOLTS	A325
THREADED RODS	A354, GRADE BC
ANCHOR BOLTS	A325 OR A354 BC
PIPE (HANDRAIL)	SCH 40 PIPE
WASHERS	ASTM F436
NUTS	ASTM A563

4. ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 USING E70XX ELECTRODES. UNLESS OTHERWISE NOTED PROVIDE CONTINUOUS MINIMUM SIZED FILLET WELDS PER AISC REQUIREMENTS.
5. HOLES IN STEEL SHALL BE DRILLED OR PUNCHED. ALL SLOTTED HOLES SHALL BE PROVIDED WITH SMOOTH EDGES. BURNING OF HOLES AND TORCH CUTTING AT THE SITE IS NOT PERMITTED. ALL HOLES IN BEARING PLATES SHALL BE DRILLED. IF DRILLING OCCURS IN THE FIELD, SPRAY ZINC COLD GALVANIZED PAINT TO COVER UN-GALVANIZED STEEL SURFACES.
6. ALL STEEL HARDWARE TO BE HOT-DIPPED GALVANIZED PER ASTM A153.
7. ALL STEEL MEMBERS TO BE HOT DIPPED GALVANIZED PER ASTM A123.
8. GALVANIZED ASTM A36, UNLESS OTHERWISE NOTED FOR EPOXY ANCHORS
9. ALL BOLTS, WASHERS AND NUTS SHALL BE TIGHTENED USING TURN-OF-THE-NUT METHOD PER AISC SPECIFICATIONS USING STANDARD HOLES.
10. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND FIT PRIOR TO FABRICATION.

ELECTRICAL NOTES

1. SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
2. CONTRACTOR SHALL PERFORM ALL VERIFICATIONS, OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO ORDERING OF ANY EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
3. VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
4. THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
5. CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
6. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
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. ELECTRICAL MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION OVER THE CONSTRUCTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL CURRENT APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU. ALL MATERIALS AND EQUIPMENT SHALL BE APPROVED FOR THEIR INTENDED USE AND LOCATION.
8. ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
9. ENTIRE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE. ALL WORK, MATERIAL AND EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
10. PROPERLY SEAL ALL PENETRATIONS. PROVIDE UL LISTED FIRE-STOPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USING SILICONE SEALANT.
11. LOCATE ALL PENETRATIONS SUCH THAT ALL REINFORCEMENT CONTAINED WITHIN THE EXISTING BUILDING CONSTRUCTION REMAINS INTACT AND UNDISTURBED. SUBMIT LOCATING METHOD TO THE PROJECT MANAGER FOR APPROVAL PRIOR TO EXECUTION.
12. DELIVER ALL BROCHURES, OPERATING MANUALS, CATALOGS AND SHOP DRAWINGS TO THE PROJECT MANAGER AT JOB COMPLETION. PROVIDE MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT. AFFIX MAINTENANCE LABELS TO MECHANICAL EQUIPMENT.
13. ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG., UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE TYPE THHW, RATED IN ACCORDANCE WITH NEC 110-14(C).
14. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
15. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE; ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
16. CONDUIT: ALL ABOVE GRADE CONDUITS SHALL BE RIGID & LFMC TO 6' AS STATED BELOW
    A. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
    B. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
    C. LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECTIFIERS AND WHERE PERMITTED BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZE GROUND CONDUCTOR.
    D. CONDUIT RUNS SHALL BE SURFACE MOUNTED ON CEILINGS OR WALLS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, CEILING, OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLING.
    E. PVC CONDUIT MAY BE PROVIDED ONLY WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS. PROVIDE UV-RESISTANT CONDUIT WHERE EXPOSED TO THE ATMOSPHERE. PROVIDE GROUND CONDUCTOR IN ALL PVC RUNS; EXCEPT WHERE PERMITTED BY CODE TO OMIT.
17. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PHENOLIC PLASTIC NAMEPLATES. PPC, METER, DISCONNECT, RAC35, PBC05, AND HF JUNCTION BOX. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS; EXCEPT AS REQUIRED BY CODE TO FOLLOW A DIFFERENT SCHEME.
18. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
19. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION. LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
20. COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY THE CONTRACTOR.
21. VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.
22. RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER.

NOTES:
SHOWN BELOW ARE GENERAL TOWER/COMPOUND NOTES. CONTRACTOR SHALL ADHERE TO ALL APPLICABLE PEPCO REQUIREMENTS AND STANDARDS AS LISTED AND SHOWN IN THE PEPCO HOLDINGS DESIGN MANUAL FOR SUBSTATION STANDARDS.

GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
8. TRANSMITTER EQUIPMENT AND ANTENNAS ARE DESIGNED TO MEET ANSI/EIA/TIA 222-H REQUIREMENTS.
9. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
10. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
11. IF ANY UNDERGROUND UTILITIES OR STRUCTURES EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
12. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION BY TECHNICIANS APPROXIMATELY 2 TIMES PER MONTH.
13. PROPERTY LINE INFORMATION WAS PREPARED USING DEEDS, TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
14. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
15. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
16. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
17. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
18. POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

NB+C™ TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

THE REGISTRANT OF THE NEWLY APPLIED SEAL, DATED 11/07/25, ONLY ASSUMES RESPONSIBILITY FOR THE CHANGES AS INDICATED BY THE FOLLOWING REVISION(S) UNLESS INDICATED BY OTHERS, REV- NEW.

pepco™
AN EXELON COMPANY

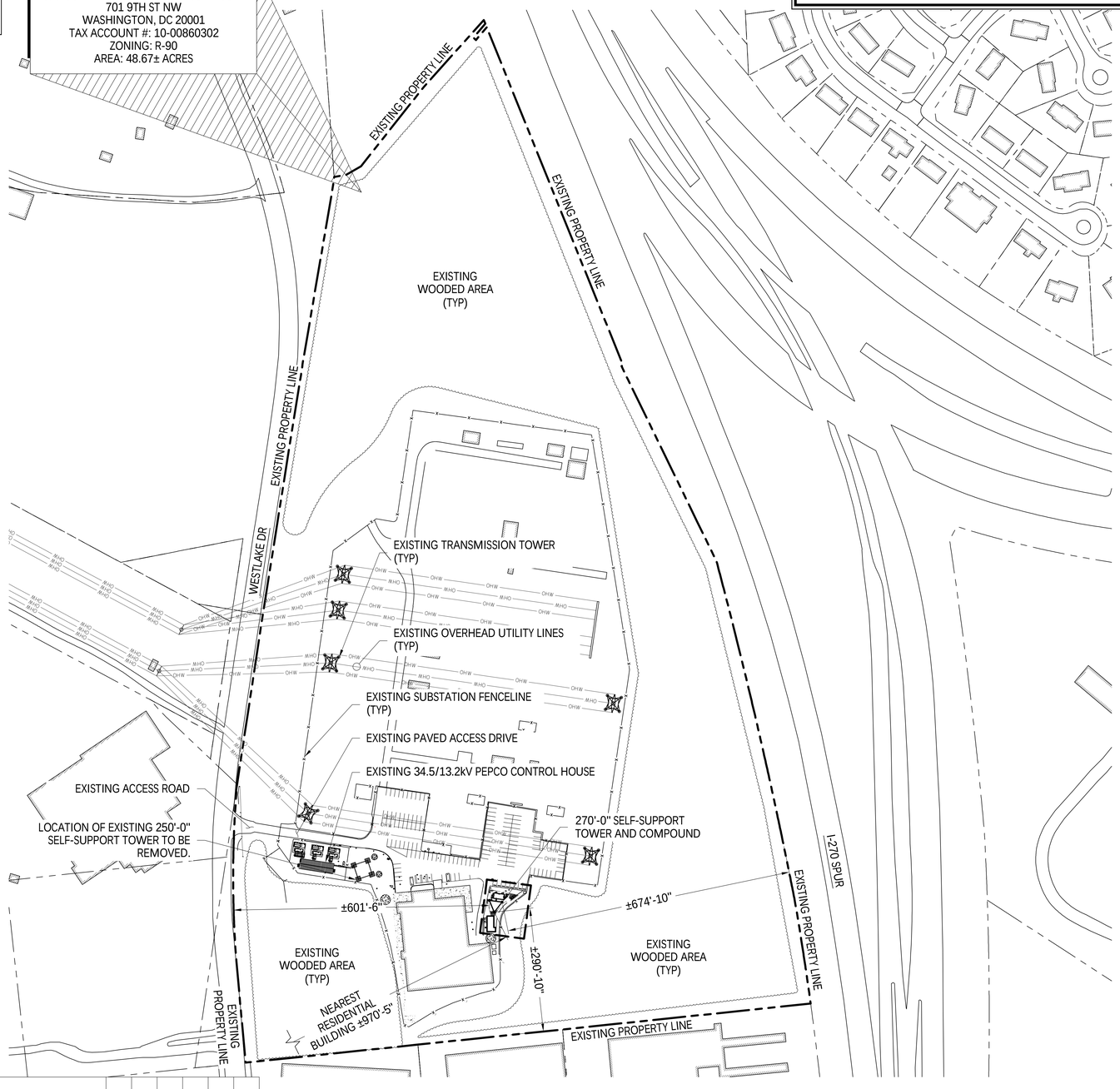
BELLS MILL

GENERAL NOTES

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	_KV	002 SH. 001	NEW

TRUE NORTH

POTOMAC ELECTRIC POWER COMPANY
C/O CORP. TAX DEPARTMENT SUITE 5617
701 9TH ST NW
WASHINGTON, DC 20001
TAX ACCOUNT #: 10-00860302
ZONING: R-90
AREA: 48.67± ACRES



LEGEND

- PROPERTY LINE - SUBJECT PARCEL
- PROPERTY LINE - ABUTTERS
- EXISTING FENCE LINE
- EXISTING ROAD
- EXISTING OVERHEAD UTILITY LINES
- EXISTING OVERHEAD ELECTRIC
- EXISTING GAS
- EXISTING MINOR CONTOUR LINES
- EXISTING MAJOR CONTOUR LINES
- EXISTING BUILDING
- CONCRETE BOLLARD
- REMOVABLE BOLLARD

ZONING INFORMATION

JURISDICTION: MONTGOMERY COUNTY
ZONING: R-90

DIMENSION	EXISTING ±	PROPOSED ±
FRONT YARD SETBACK:	283'-4"±	601'-6"±
SIDE YARD SETBACK:	401'-2"±	290'-10"±
REAR YARD SETBACK:	960'-4"±	674'-10"±

LOT AREA: 48.67± ACRES
(ALL MEASUREMENTS ARE IN FEET ± UNLESS OTHERWISE NOTED)

NOTES:
1) SITE PLAN IS NOT THE RESULT OF A BOUNDARY SURVEY. IT IS BASED ON FIELD MEASUREMENTS AND SCALED ASSESSORS MAPS AVAILABLE. ALL INFORMATION SHOWN IS APPROXIMATE ONLY AND SUBJECT TO ANY CONDITION THAT A SURVEY MAY REVEAL.
2) ALL SETBACKS SHOWN ARE FROM SELF-SUPPORT TOWER TO EXISTING PROPERTY LINES.

GENERAL NOTES

1. THIS PLAN IS NOT A BOUNDARY SURVEY. PROPERTY BOUNDARY INFORMATION SHOWN IS FOR REFERENCE ONLY. NB+C DID NOT VERIFY BOUNDARY AS PART OF THIS SURVEY.
2. VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATIONS REFERENCED TO THE NGS CORS NETWORK.
3. HORIZONTAL DATUM IS NAD 83, STATE PLANE COORDINATES OF MARYLAND AND ESTABLISHED GPS OBSERVATIONS REFERENCED TO THE NGS CORS NETWORK.
4. NO WETLANDS INVESTIGATION WAS PERFORMED AS PART OF THIS SURVEY.
5. NO INVESTIGATION OF THE PRESENCE OF HAZARDOUS MATERIALS WAS PERFORMED AS A PART OF THIS SURVEY.
6. UTILITIES SHOWN PER FIELD LOCATIONS FROM ABOVE GROUND INSPECTION OF THE SITE AND UTILITY MARK-OUTS IN THE FIELD. UTILITIES THAT EXIST MAY NOT BE SHOWN.
7. THE CONTRACTOR SHALL GIVE ALL NOTICE 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.
8. THE ARCHITECT/ENGINEER HAS 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 SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
9. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CONSTRUCTION MANAGER 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.
10. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
11. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWING/CONTRACT DOCUMENTS.
12. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTUIRE'S/VENDOR'S SPECIFICATION UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
13. 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.
14. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTIONS MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING, AND KEEPING A COPY ON SITE, ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
16. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY TO ORIGINAL OR BETTER CONDITION.
17. 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.
18. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
19. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER 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 IS RESOLVED BY THE CONSTRUCTION MANAGER.
20. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE PROJECT.
21. PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL USE A PEPCO APPROVED PRIVATE UTILITY LOCATE SERVICE TO LOCATE AND VERIFY ANY KNOWN AND UNKNOWN UTILITIES PRIOR TO THE START OF WORK.
22. SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
23. THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
24. CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
25. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
26. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION. LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT AT AN EXELON APPROVED CONTRACTOR. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
27. AFTER COMPLETION OF CONSTRUCTION, RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO CONSTRUCTION MANAGER.

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

Know what's below. Call before you dig.

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

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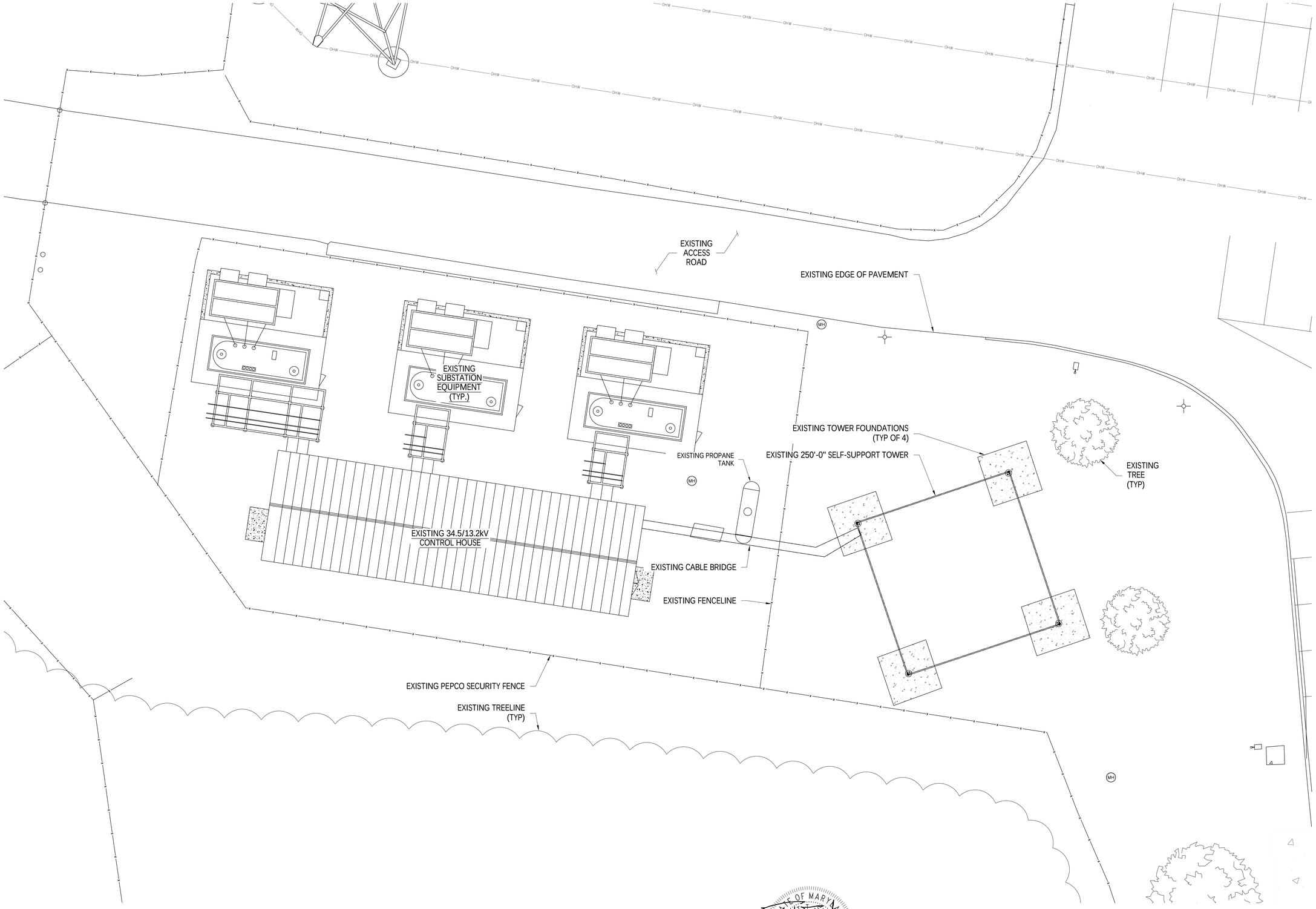
SITE PLAN

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	1" = 120'	_KV	100 SH. 001	NEW

SH. 001

200

TRUE NORTH



REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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STATE OF MARYLAND — 55491 — PROFESSIONAL ENGINEER

11/07/25

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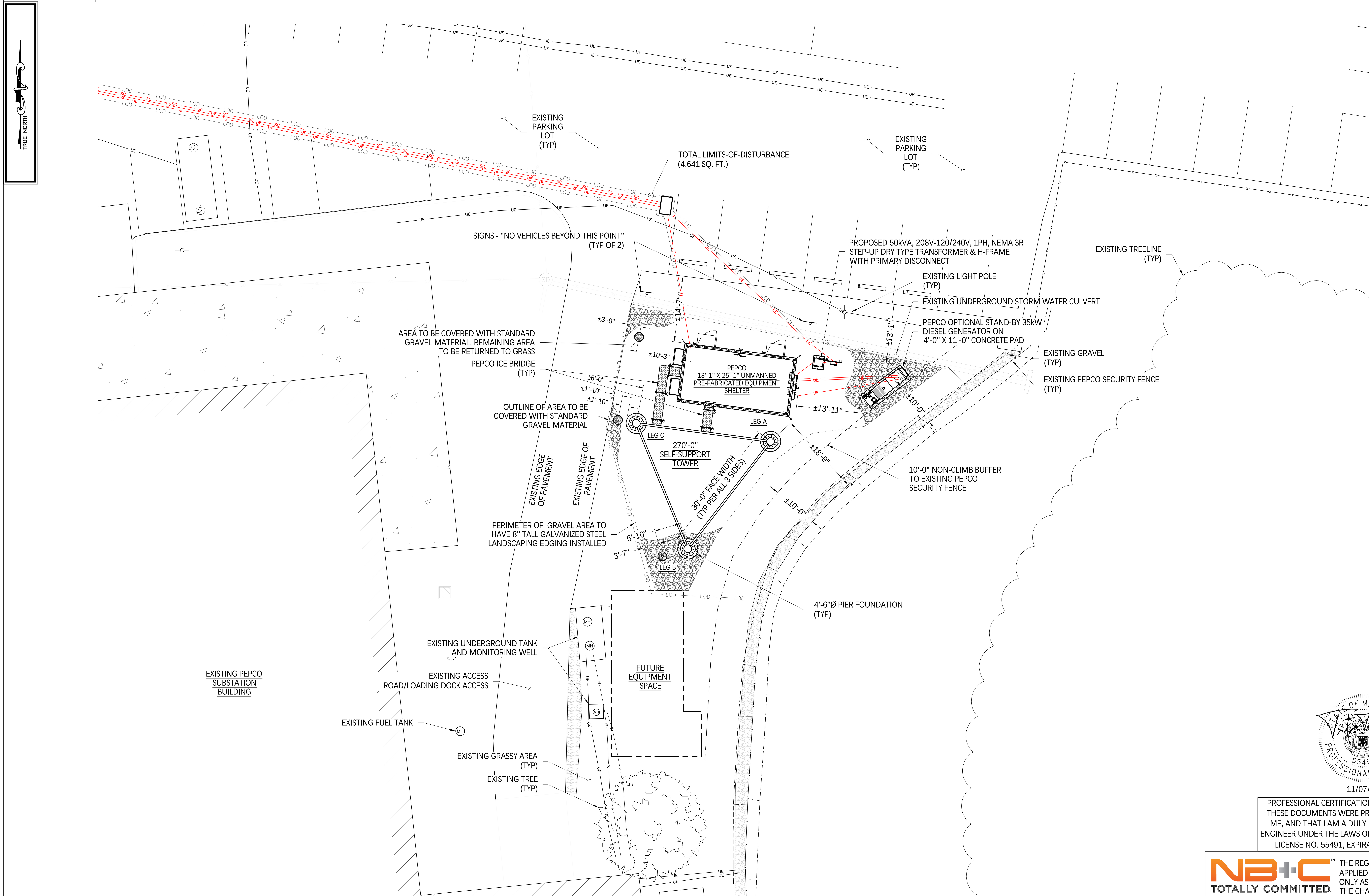
BELLS MILL

EXISTING COMPOUND PLAN

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	1/8" = 1'	__KV	200 SH. 001	NEW



REV	DESCRIPTION		DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION	WR#	NB+C 11/07/25	NB+C 11/07/25				

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STATE OF MARYLAND PROFESSIONAL ENGINEER 55491

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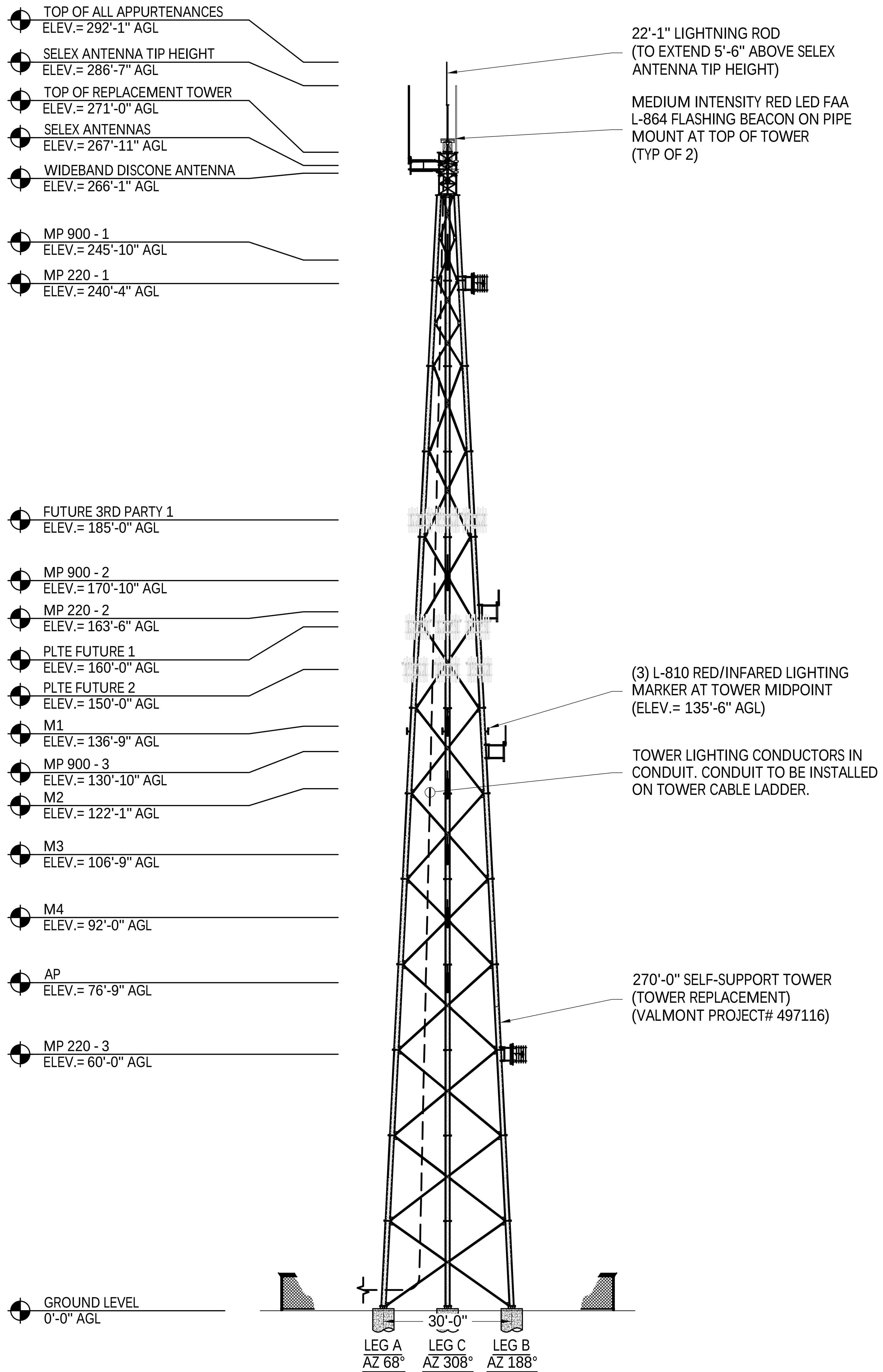
COMMUNICATION TOWER
COMPOUND SITE PLAN (TTR)

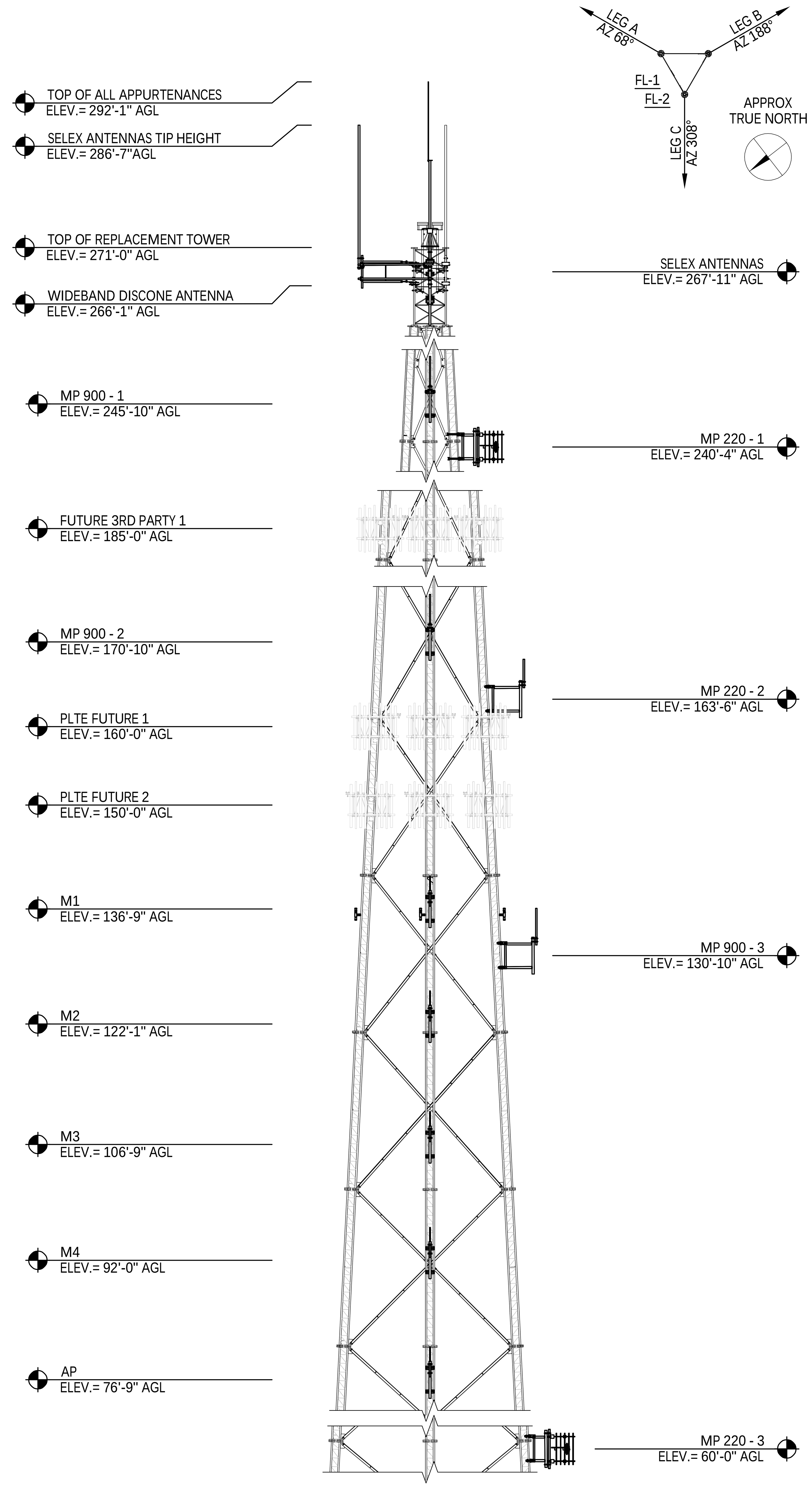
DISCIPLINE	SCALE	CLASS			REV.
E/S/W	1/8" = 1'	__KV	201	SH. 001	NEW

SH. 001 300

NOTES:
- PROPOSED TOWER WILL BE NON-SHINY / DULL GALVANIZED FINISH. TOWER STEEL WILL NOT BE PAINTED.
- PROPOSED TOWER & FOUNDATION FINAL DESIGN PERFORMED INDEPENDENTLY FROM THESE CONSTRUCTION DRAWINGS.
- ONLY PEPCO TOWER APPURTENANCES TO BE INSTALLED ON NEW TOWER AS PART OF THIS PLAN SET.
- ELEVATIONS SHOWN ARE MOUNT CENTERLINES. REFER TO TOWER ANTENNA SCHEDULE FOR ANTENNA RAD CENTERS



1 TOWER ELEVATION
SCALE: 1/16" = 1'



2 TOWER EQUIPMENT DETAIL
SCALE: 1/8" = 1'

STATE OF MARYLAND PROFESSIONAL ENGINEER 55491

11/07/25

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BELLS MILL

COMMUNICATION TOWER ELEVATIONS (TTR)

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	300	SH. 001	NEW

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

EQUIPMENT DETAILS									MOUNTING DETAILS			FEED LINE					LABELING	BRASS TAG LABEL	
SYSTEM DESIGNATION	USE	TYPE	MOUNT CENTERLINE (FT., AGL)	ANTENNA RAD CENTER	AIMING AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL NUMBER	RADIO MODEL	BRACKET TYPE	STANDOFF (FT.)	LEG	# OF LINES	SIZE	LEG/LADDER POSITION	CABLE PORT	LENGTH	COLOR TAPE STRIPING	USE	HEIGHT/POSITION
SELEX	SELEX	OMNI	267'-11"	278'-4"	-	ANDREW	ASP705K	-	STANDOFF	6'-0"	A	1	1-5/8"	FL-1	2-1	313'-0"	(1) GREEN	SELEX	267'-11" LEG A
SELEX	SELEX	OMNI	267'-11"	278'-4"	-	ANDREW	ASP705K	-	STANDOFF	6'-0"	B	1	1-5/8"	FL-1	2-2	313'-0"	(2) GREEN	SELEX	267'-11" LEG B
WIDEBAND	WIDEBAND	DISCONE	266'-1"	272'-3"	-	TELEWAVE	ANT260K	-	STANDOFF	4'-0"	C	1	1-5/8"	FL-1	2-3	313'-0"	(1) PURPLE	WB	267'-8" LEG C
MP 900 - 1	CALAMP 900MHz	OMNI	245'-10"	250'-0"	-	TELEWAVE	ANT940F6	140-5398-504	STANDOFF	4'-0"	C	1	1-5/8"	FL-1	2-4	288'-0"	(1) WHITE	MP 900 - 1	266'-1" LEG C
MP 220 - 1	CALAMP 220MHz	CR	240'-4"	240'-4"	150°	COMPROD	470-70-2HD	-	STANDOFF	2'-0"	B	1	1/2"	FL-1	2-5	282'-0"	(1) RED	MP 220 - 1	240'-4" LEG B
TBD	FUTURE 3RD PARTY 1	TBD	185'-0"	TBD	-	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
MP 900 - 2	CALAMP 900MHz	OMNI	170'-10"	175'-0"	-	TELEWAVE	ANT940F6	140-5398-504	STANDOFF	4'-0"	C	1	7/8"	FL-1	2-6	206'-0"	(2) WHITE	MP 900 - 2	170'-10" LEG C
MP 220 - 2	CALAMP 220MHz	OMNI	163'-6"	166'-9"	-	TELEWAVE	ANT220F2	140-5328-504	STANDOFF	4'-0"	B	1	1/2"	FL-1	2-7	198'-0"	(2) RED	MP 220 - 2	163'-6" LEG B
PLTE 1	PLTE FUTURE 1	TBD	160'-0"	TBD	-	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	PLTE 1	TBD
PLTE 2	PLTE FUTURE 2	TBD	150'-0"	TBD	-	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	PLTE 2	TBD
M1	ITRON 900MHz	OMNI	136'-9"	140'-0"	-	VENTEV/TERRAWAVE	T09060O10006	ITRON EBRIDGE MASTER #1	STANDOFF	4'-0"	C	1	7/8"	FL-1	2-8	168'-0"	(1) BLUE	M1	136'-9" LEG C
MP 900 - 3	CALAMP 900MHz	OMNI	130'-10"	135'-0"	-	TELEWAVE	ANT940F6	140-5398-504	STANDOFF	4'-0"	B	1	7/8"	FL-1	2-9	162'-0"	(3) WHITE	MP 900 - 3	130'-10" LEG B
M2	ITRON 900MHz	OMNI	122'-1"	125'-5"	-	VENTEV/TERRAWAVE	T09060O10006	ITRON EBRIDGE MASTER #2	STANDOFF	4'-0"	C	1	7/8"	FL-1	2-10	152'-0"	(2) BLUE	M2	122'-1" LEG C
M3	ITRON 900MHz	OMNI	106'-9"	110'-0"	-	VENTEV/TERRAWAVE	T09060O10006	ITRON EBRIDGE MASTER #3	STANDOFF	4'-0"	C	1	7/8"	FL-1	2-11	135'-0"	(3) BLUE	M3	106'-9" LEG C
M4	ITRON 900MHz	OMNI	92'-0"	95'-3"	-	VENTEV/TERRAWAVE	T09060O10006	ITRON EBRIDGE MASTER #4	STANDOFF	4'-0"	C	1	7/8"	FL-1	2-12	119'-0"	(4) BLUE	M4	92'-0" LEG C
AP	ITRON 900MHz	OMNI	76'-9"	80'-0"	-	VENTEV/TERRAWAVE	T09060O10006	Access Point	STANDOFF	4'-0"	C	1	7/8"	FL-1	2-13	102'-0"	(5) BLUE	AP	76'-9" LEG C
MP 220-3	CALAMP 220MHz	CR	60'-0"	60'-0"	150°	COMPROD	470-70-2HD	-	STANDOFF	2'-0"	B	1	1/2"	FL-1	2-14	84'-0"	(1) RED	MP 220-3	60'-0" LEG B

NOTES:
- ALL OMNI ANTENNAS ARE TO BE INSTALLED WITH THEIR SIGNAL FEED AND MOUNTING HARDWARE AT THE BOTTOM OR "NORMAL" ORIENTATION. NO INVERTED OMNIS AT THIS TIME.

REV	DESCRIPTION	WR#	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION		NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

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BELLS MILL

COMMUNICATION TOWER ANTENNA SCHEDULE (TTR)

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	301 SH. 001	NEW

ASP705K

1-port omni antenna, 450–470 MHz, 360° HPBW, fixed electrical tilt

- Invert mountable

General Specifications

Antenna Type	Omni
Band	Single band
Color	Off-white
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	Fiberglass, UV resistant
Radiator Material	Brass
RF Connector Interface	N Female
RF Connector Location	Bottom
RF Connector Quantity, high band	0
RF Connector Quantity, mid band	0
RF Connector Quantity, low band	1
RF Connector Quantity, total	1

Dimensions

Length	5588 mm | 220 in
Net Weight, without mounting kit	10 kg | 22.046 lb
Outer Diameter	76.2 mm | 3 in

Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	450 – 470 MHz
Polarization	Vertical

Electrical Specifications

Frequency Band, MHz	**450–470**

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Revised: March 12, 2025

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1 SELEX OMNI ANTENNA DETAIL
NTS

ASP705K

Gain, dBi	12.1
Beamwidth, Horizontal, degrees	360
Beamwidth, Vertical, degrees	7
Beam Tilt, degrees	0
VSWR | Return loss, dB	1.5 | 14.0
Input Power per Port, maximum, watts	500

Mechanical Specifications

Wind Loading @ Velocity, maximum	364.8 N @ 100 mph (82.0 lbf @ 100 mph)
Wind Speed, maximum	201 km/h (125 mph)

Regulatory Compliance/Certifications

Agency	**Classification**
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system

Included Products

ASPR616 SEE NOTE BELOW	–	Pipe Mounting Kit for 1.25 - 3.5 in (35 - 89.0 mm) OD round members

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

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Revised: March 12, 2025

ANDREW an Amphenol company

2 SELEX OMNI ANTENNA DETAIL
NTS

NOTE:
- PART #:ASPR616 SUPERSEDES TO PART #: DB365-OS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND PROFESSIONAL ENGINEER 55491

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pepco AN EXELON COMPANY

BELLS MILL

ANTENNA DETAILS I

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	302	SH. 001	NEW

Telewave.io

75 MHz - 3 GHz

ANT260K

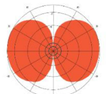
WIDEBAND DISCONE ANTENNA

The Telewave.io ANT260K is an extremely rugged, wideband Discone antenna for all frequencies between 75 MHz and 3 GHz. Default color is Black, contact Telewave.io for TAN or other optional color.

Each Discone is constructed from Mil. Spec. 6061-T6 solid aluminum, fully welded at all joints for maximum strength. All internal junctions are enclosed within a ruggedized radome to ensure survivability in the worst environments.

All exposed surfaces are coated with Txylan™ to ensure protection from corrosive gases, ultraviolet radiation, salt spray, acid rain and blowing sand. Applicable harsh environment uses include onshore/offshore petroleum fields, petrochemical production/transport facilities, underground/pit mines, ships, and command vehicles.

The wide vertical beamwidth and wide frequency bandwidth of the Discone antennas make them perfect for Air Traffic Control (ATC) applications. These antennas also excel in applications where two or more radios are connected to the antenna via cross-band couplers. The Discone antennas support TX only, RX only, and Transceiver applications.



E-plane: 400 MHz

The Discone antennas can be clamped to any 1.5" to 3.5" diameter support structure (schedule 40 or stronger is recommended when using pipe.) A dual clamp kit is included.

SPECIFICATIONS			
Tail Connector Standard	N-Male	Tail Connector Optional	DIN 7-16 Male
Frequency Range	75 – 3000 MHz	Input VSWR / Return Loss	<= 1.5:1 / 14 dB 95 - 3000 MHz <= 2.0:1 / 9.5 dB 75 – 95 MHz
Power RMS	500 W / 57 dBm	Gain (Typical)	0 dBd / 2.1 dBi
Impedance RF	50 Ohms	Impedance DC	Short
Polarization	Vertical	Pattern Horizontal	Omnidirectional
Beamwidth Vertical	110 degrees	Vertical Beam Tilt (from horizon)	0 degrees
Tail Cable Type	RG-393	Tail Cable Length In (CM)	36" (91.5)
Installed Active Antenna Dimensions Inch (CM)	53" H x 26" W (135 H x 66 W)	Wind rating / w/ 0.5" ice MPH (KPH)	200 / 150 MPH (322 / 241 KPH)
Installed Boom Length below the Antenna	16" (40.75)	Maximum exposed area	1.67 Ft Sq
Total Length Inch (CM)	69" (175.75)	Lateral thrust at 100 MPH	66 lb (30.0 KG)
Boom Diameter Inch (CM)	2.75" (7)	Bending moment xfer to top clamp at 100 MPH	133 ft lb (181 nm)
Installed Weight lb (KG)	52 lb (23.6)	Clamp Kit (ship w/ Ant)	ANTC482
Shipping Dimensions Inch (CM)	55" x 32" x 32" (140 x 82 x 82)	Coastal / Salt Air Suitable	Yes
Shipping Weight Lb (KG)	76 lb (34.5)	Passive Intermodulation (PIM) Rating	NA
Shipping Mode (Freight/UPS/FedEx/etc.)	Freight Only	Peak Instantaneous Power (PIP) Rating	NA
Temperature Range (Operating & Storage)	-58 to +140 °F / -50 to +60 °C	Temperature Range (Installation)	-4 to +140 °F / -20 to +60 °C

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sales@telewave.com
1-408-929-4400
TWDS-7090
support@telewave.com
250508

1 DISCONE ANTENNA DETAIL
NTS

Telewave.io

870 - 965 MHz

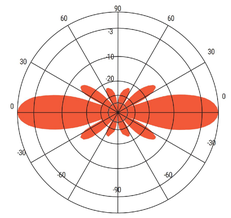
ANT940F6

FIBERGLASS COLLINEAR ANTENNA 6 dBd

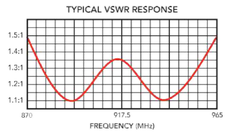
The Telewave.io ANT940F6 is an extremely rugged, medium- gain, fiberglass coll inear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

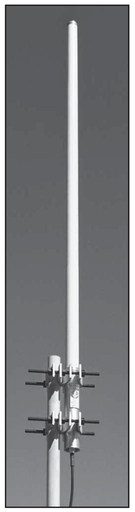
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high- tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT940 F 6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe. Stand-off and top mounts are also available.



ANT940F6 - 930 MHz
Vertical Plane
Gain = 6.1 dBd





SPECIFICATIONS			
Frequency (continuous)	870-965 MHz	Dimensions (L x base diam.) in.	56 x 2.375
Gain	6 dBd	Tower weight (antenna + clamps)	18 lb.
Power rating (typ.)	500 watts	Shipping weight	22 lb.
Impedance	50 ohms	Wind rating / with 0.5" ice	200 / 150 MPH
VSWR	1.5:1 or less	Maximum exposed area	1.0 ft.²
Pattern	Omnidirectional	Lateral thrust at 100 MPH	39 lb.
Vertical beamwidth	19°	Bending moment at top clamp	46 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	(100 MPH, 40 PSF flat plate equiv.)	

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240801
support@telewave.com

2 CALAMP 900MHz OMNI ANTENNA DETAIL
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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11/07/25

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ANTENNA DETAILS II

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	303 SH. 001	NEW

SH. 001 304

BASE STATION ANTENNAS

220 MHz CORNER REFLECTOR — HEAVY DUTY available · BLACK ANODIZED available · LOW PIM available — **215-225 MHz**

220MHz Corner Reflector Antenna Series

The Corner Reflector Antennas are available in 220 MHz configurations. These antennas have a very high front-to-back ratio. They are broadband and are ideal for point-to-point applications. Performance is constant throughout the band.

- Each antenna has a rugged design to withstand harsh environmental conditions.
- Single or Dual Dipole mounted in the front of a 90º reflector, providing good directivity.
- These antennas have ultra-low VSWR ratings and will not exceed 2.0:1 VSWR ratio with 0.5" of radial ice.
- The supplied mounting hardware allows either vertical or horizontal polarization. DC ground for lightning protection. Heavy-duty versions are available.
- This antenna is available in Low-PIM (-150 dBc; two 20W carriers).
- Please contact our Technical Support team for consultation.

Electrical Specifications	470-70-2	470-70-2HD	471-70-2
Frequency Range, MHz	215-225	215-225	215-225
Nominal Gain, dBd	7.0	7.0	10.0
Bandwidth: 1.5:1 VSWR, MHz	10	10	10
Polarization	Vertical or Horizontal		
Horizontal Beamwidth (Vert. Pol.)	67º	67º	50º
Vertical Beamwidth (Vert. Pol.)	75º	75º	66º
Front to Back, dB	30	30	30
Pattern	Directional		
Power Rating, Watts	250	250	250
Nominal Impedance, Ohms	50	50	50
Lightning Protection	DC Ground		
Standard Termination	Type N Male for standard version – DIN 7/16 or 4.3/10 for Low-PIM version		

Mechanical Specifications	470-70-2	470-70-2HD	471-70-2
Length, in (mm)	48 (1219)	48 (1219)	72 (1829)
Width, in (mm)	75 (1905)	75 (1905)	120 (3048)
Weight, lbs. (kg)	39 (17.7)	57 (25.8)	55 (30)
Rated Wind Velocity, No Ice, mph (km/h)	100 (161)	140 (225)	100 (161)
Rated Wind Velocity, 0.5" (13mm) ice, mph (km/h)	85 (137)	100 (161)	85 (137)
Lateral Thrust @ 100 mph, wind, lbs. (kg)	144 (65)	236 (107)	320 (145)
Projected Area, ft² (m²)	5.3 (0.5)	8.8 (0.82)	11.9 (1.10)
Mounting Hardware Included	172-85 Clamp	172-85 Clamp	172-85 Clamp

470-70-2HD

1 CR ANTENNA DETAIL
NTS

Telewave.io — **215 - 225 MHz**

ANT220F2

FIBERGLASS RADOME ANTENNA

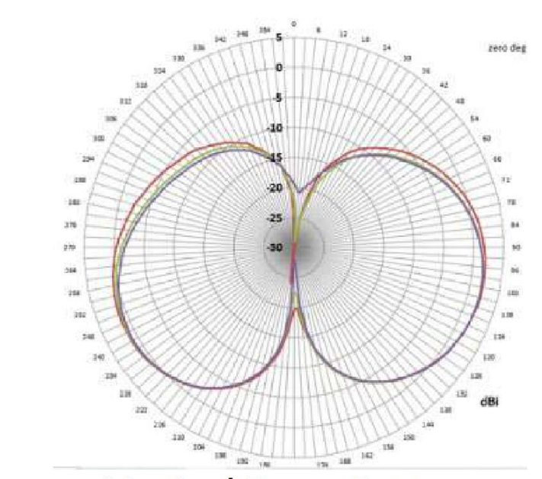
The Telewave.io fiberglass radome antennas are rugged omnidirectional antennas suited for most environments. The radome provides protection from corrosive gases, ultraviolet radiation, icing, acid rain, and wind-blown abrasives. Intrusion and moisture protection is equivalent to an IP24 rating. The default radome color is Cool Blue™.

These antennas are constructed with brass and copper elements that are soldered together, producing a DC path to ground, and preventing internally produced intermodulation products.

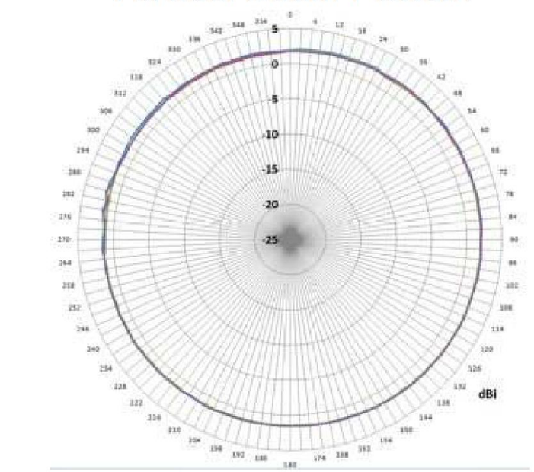
When ordering, specify all system TX and RX frequencies.

The antenna kit includes a dual clamp set for mounting the antenna to a 1.5" to 3.5" O.D. support mast (Not Included.) Please contact your tower vendor or local structural engineering firm for assistance with mounting hardware requirements and configuration.

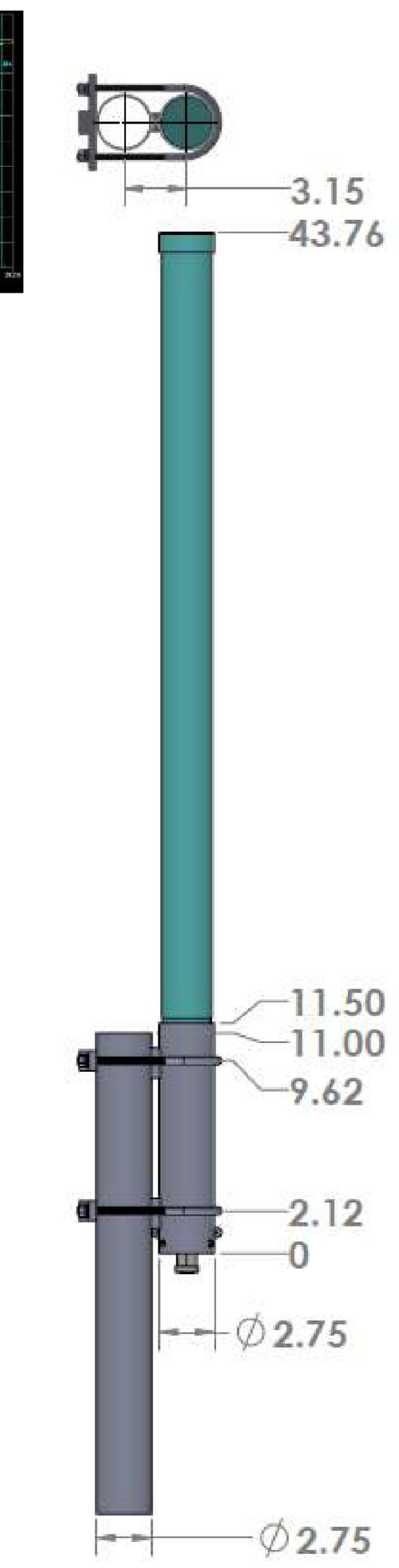
Rtn Loss > 14.0 dB



Vertical Beam Pattern



Horizontal Beam Pattern



Variations

Part Number	Connector	Jumper	Default Clamp	Mounting
ANT220F2	N-F	None	ANTC485	Clamps Bottom (Normal)
ANT220F2-I	N-F	None	ANTC485	Clamps Top (Inverted)
ANT220F2-DIN	7/16 DIN-F	None	ANTC485	Clamps Bottom (Normal)
ANT220F2-IDIN	7/16 DIN-F	None	ANTC485	Clamps Top (Inverted)

Gain by Frequency

Frequency	Peak Gain	Peak Gain
215 MHz	0.0 dBd	2.15 dBi
220 MHz	0.0 dBd	2.15 dBi
225 MHz	0.0 dBd	2.15 dBi

SPECIFICATIONS			
Frequency (continuous)	195-260 MHz	**Dimensions (L x base diam.) in.**	51 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	11 lb.
Power rating (typ.)	500 watts	**Shipping weight**	14 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.1 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	44 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	47 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

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1-408-929-4400

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221215
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2 200MHz OMNI ANTENNA DETAIL
NTS

NOTE:
- NEED SITE PRO 1 PART #: ACP10K PIPE TO PIPE CLAMP SET FOR ANTENNA INSTALLATION ONTO 4'-0" STANDOFF MOUNT

11/07/25

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REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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ANTENNA DETAILS III

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	304	SH. 001	NEW

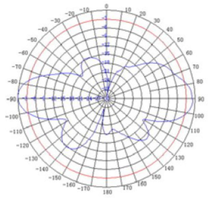
824-960 MHz 6 dBi Fiberglass Omnidirectional Antenna with N-style Jack Connector, Horizontal Mount

Ventev's Terrawave 6 dBi Fiberglass Omni Antenna is designed for applications operating in 824 - 960 MHz frequency, including radio frequency identification (RFID), cellular systems, global system for mobile (GSM) communications, code-division multiple access (CDMA) systems, point-to-multipoint communications and wireless video links. It features high gain and is vertically polarized. Includes a heavy duty mounting bracket and an N-style jack connector. *Every TerraWave antenna is covered by the Company's two year TerraNet warranty program. Visit www.terrawave.com for additional information.*

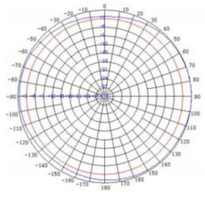
Specifications	
Model	T09060O10006HM
Frequency Range	824 ~ 960 MHz
Bandwidth	136 MHz
Gain	6 dBi
Horizontal Beamwidth	360°
Vertical Beamwidth	30°
VSWR	≤ 1.5
Nominal Impedance	50 Ohms
Maximum Power Rating	100 Watts
Polarization	Vertical
Connector	N-Style Jack (F)
Dimensions	22.05"x 1.42"
Rated Wind Velocity	60 m/s
Radome	Fiberglass
Pole Diameter	1.38" ~ 1.97"
Operating Temperature Range	-22°F ~ 158°F

NOTE:
- OMNI WILL MOUNT VERTICAL ON PIPE

E Plane Pattern



H Plane Pattern

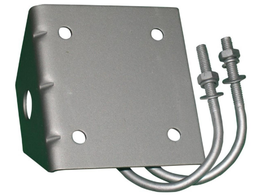


www.ventev.com/infra sales@ventev.com 800-851-4965

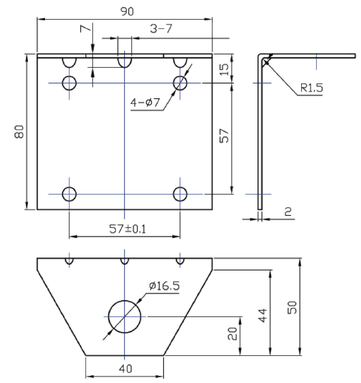
1 ITRON 900MHz OMNI ANTENNA DETAIL
NTS

824-960 MHz 6 dBi Fiberglass Omnidirectional Antenna with N-style Jack Connector, Horizontal Mount

Mounting Bracket Information



Antenna Horizontal Mounting Bracket Drawing



Measurements are in Millimeters.

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2 ITRON 900MHz OMNI ANTENNA DETAIL
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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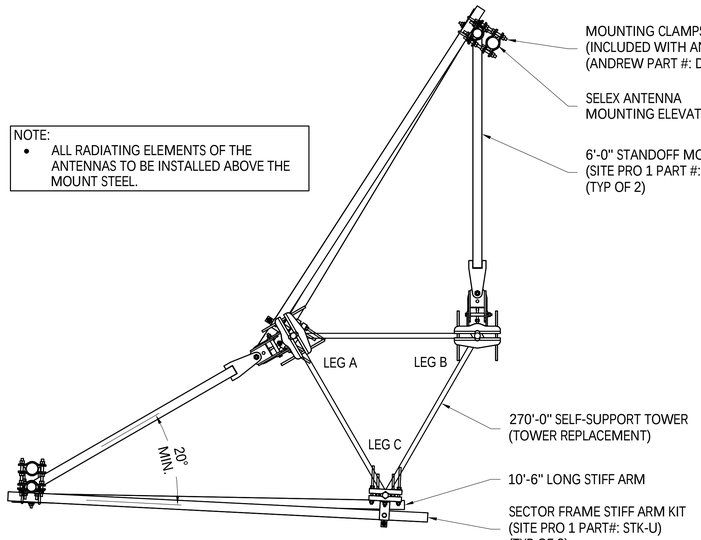
ANTENNA DETAILS IV

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	305 SH. 001	NEW

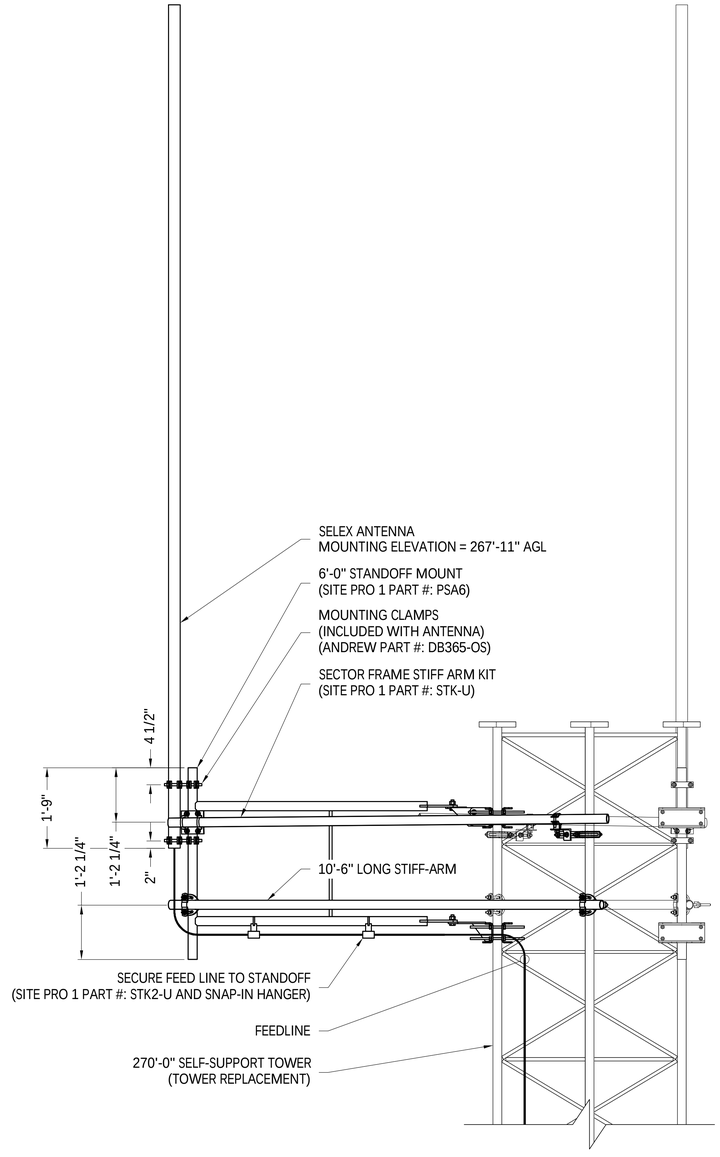
SNAP-IN HANGER NOTES:
- FOR 1-5/8" CABLES, USE SIC4 SNAP-IN HANGERS
- FOR 7/8" CABLES, USE SIC2 SNAP-IN HANGERS
- FOR 1/2" CABLES, USE SIC1 SNAP-IN HANGERS

(NOTE: PART NUMBERS SHOWN ABOVE ARE FROM SITE PRO 1)

NOTE:
- ALL RADIATING ELEMENTS OF THE ANTENNAS TO BE INSTALLED ABOVE THE MOUNT STEEL.



1 SELEX OMNI ANTENNA MOUNTING PLAN
NTS



2 SELEX OMNI ANTENNA MOUNTING ELEVATION
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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ANTENNA MOUNTING DETAILS I

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	306 SH. 001	NEW

SNAP-IN HANGER NOTES:
- FOR 1-5/8" CABLES, USE SIC4 SNAP-IN HANGERS
- FOR 7/8" CABLES, USE SIC2 SNAP-IN HANGERS
- FOR 1/2" CABLES, USE SIC1 SNAP-IN HANGERS

(NOTE: PART NUMBERS SHOWN ABOVE ARE FROM SITE PRO 1)

NOTE:
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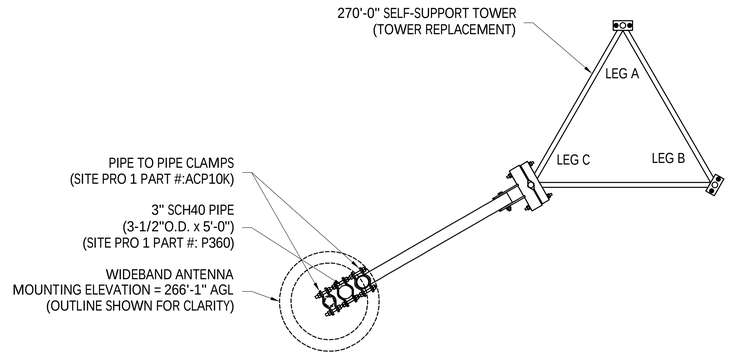
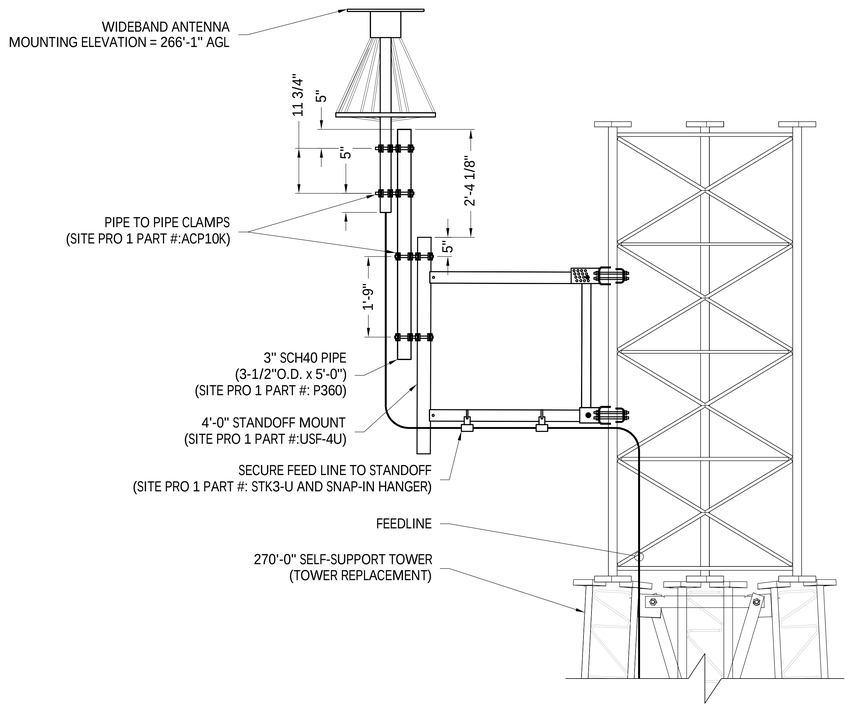


1 WIDEBAND ANTENNA MOUNTING PLAN
NTS



2 WIDEBAND ANTENNA MOUNTING ELEVATION
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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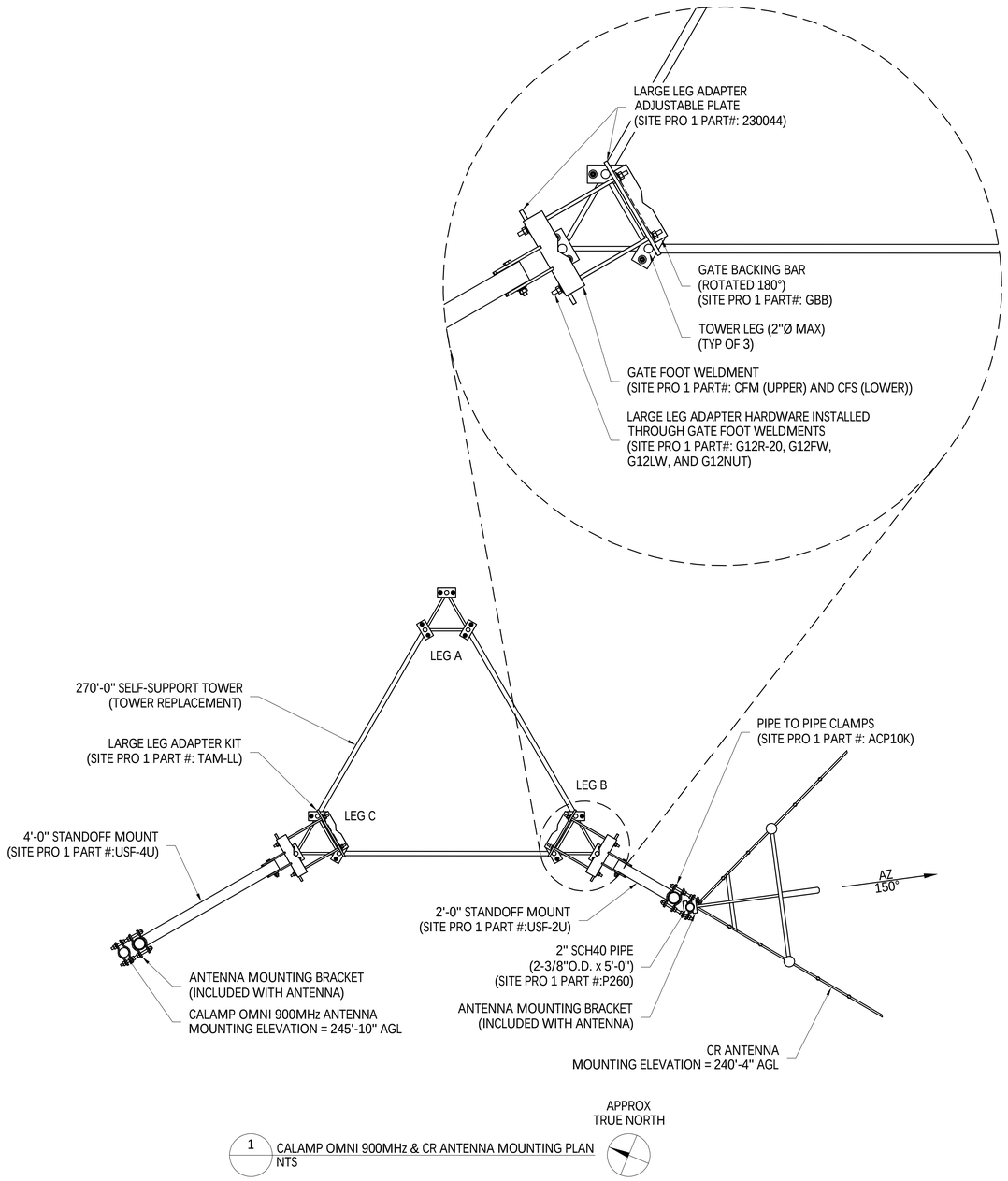
ANTENNA MOUNTING DETAILS II

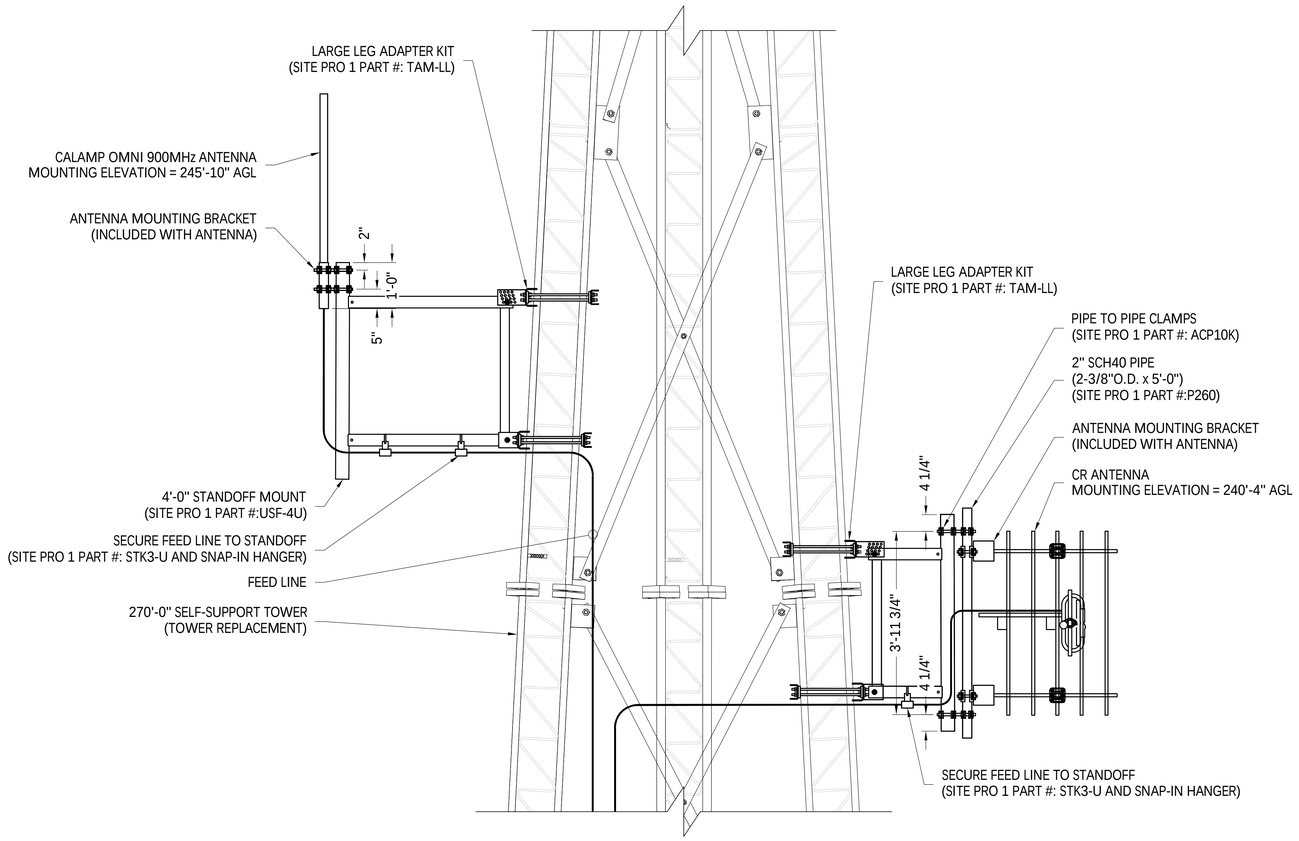
DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	307 SH. 001	NEW

SNAP-IN HANGER NOTES:
- FOR 1-5/8" CABLES, USE SIC4 SNAP-IN HANGERS
- FOR 7/8" CABLES, USE SIC2 SNAP-IN HANGERS
- FOR 1/2" CABLES, USE SIC1 SNAP-IN HANGERS

(NOTE: PART NUMBERS SHOWN ABOVE ARE FROM SITE PRO 1)



1 CALAMP OMNI 900MHz & CR ANTENNA MOUNTING PLAN
NTS



2 CALAMP OMNI 900MHz & CR ANTENNA MOUNTING ELEVATION
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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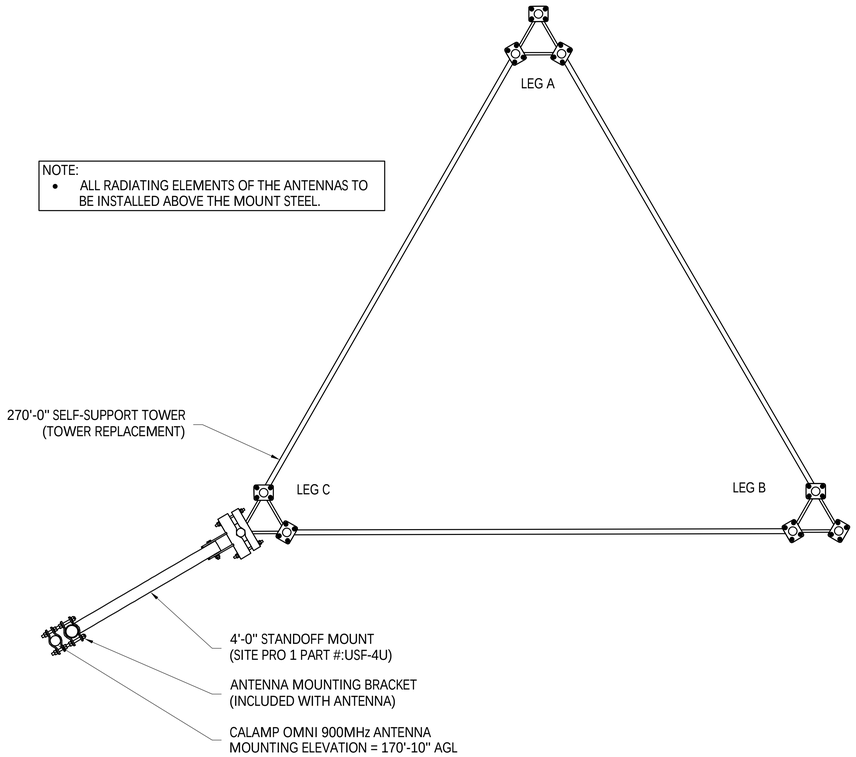
ANTENNA MOUNTING DETAILS III

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	308 SH. 001	NEW

SNAP-IN HANGER NOTES:
- FOR 1-5/8" CABLES, USE SIC4 SNAP-IN HANGERS
- FOR 7/8" CABLES, USE SIC2 SNAP-IN HANGERS
- FOR 1/2" CABLES, USE SIC1 SNAP-IN HANGERS

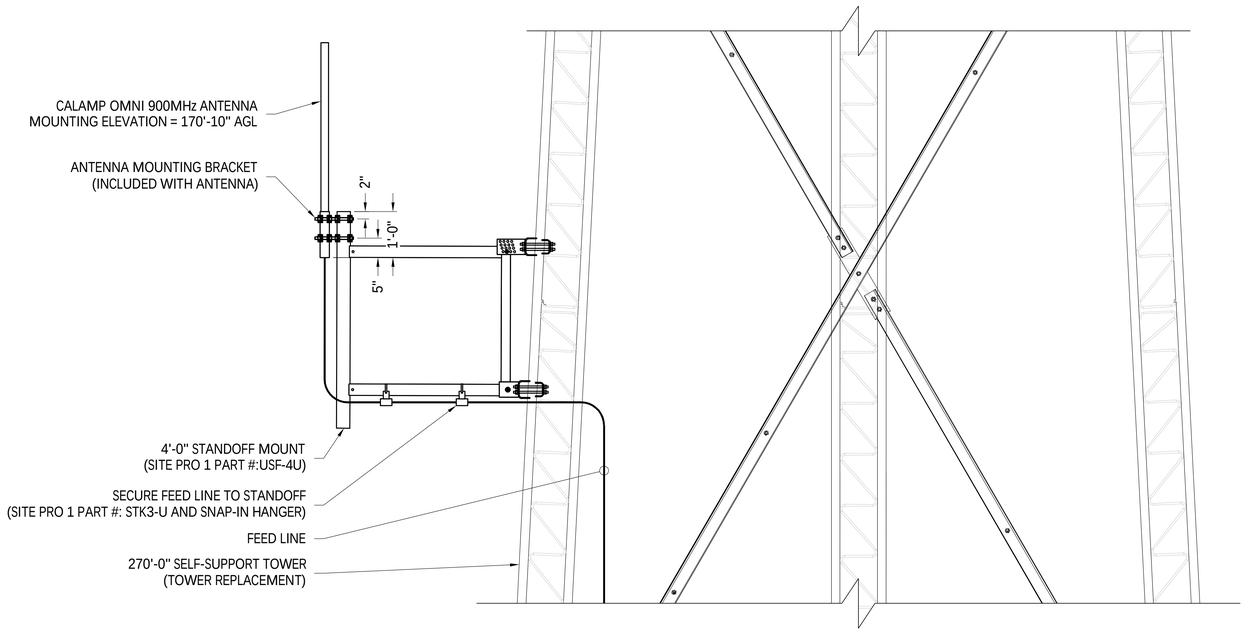
(NOTE: PART NUMBERS SHOWN ABOVE ARE FROM SITE PRO 1)

NOTE:
- ALL RADIATING ELEMENTS OF THE ANTENNAS TO BE INSTALLED ABOVE THE MOUNT STEEL.



APPROX
TRUE NORTH

1 CALAMP OMNI 900MHz ANTENNA MOUNTING PLAN
NTS



2 CALAMP OMNI 900MHz ANTENNA MOUNTING ELEVATION
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

NB+C™ TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

THE REGISTRANT OF THE NEWLY APPLIED SEAL, DATED 11/07/25, ONLY ASSUMES RESPONSIBILITY FOR THE CHANGES AS INDICATED BY THE FOLLOWING REVISION(S) UNLESS INDICATED BY OTHERS, REV- NEW.

pepco™
AN EXELON COMPANY

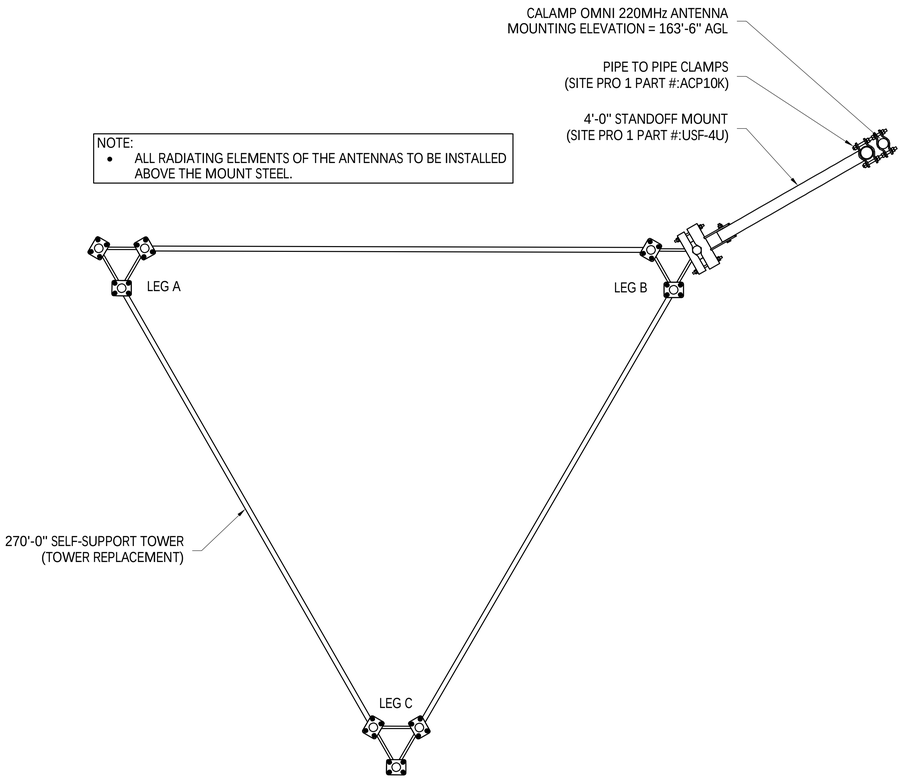
BELLS MILL

ANTENNA MOUNTING DETAILS IV

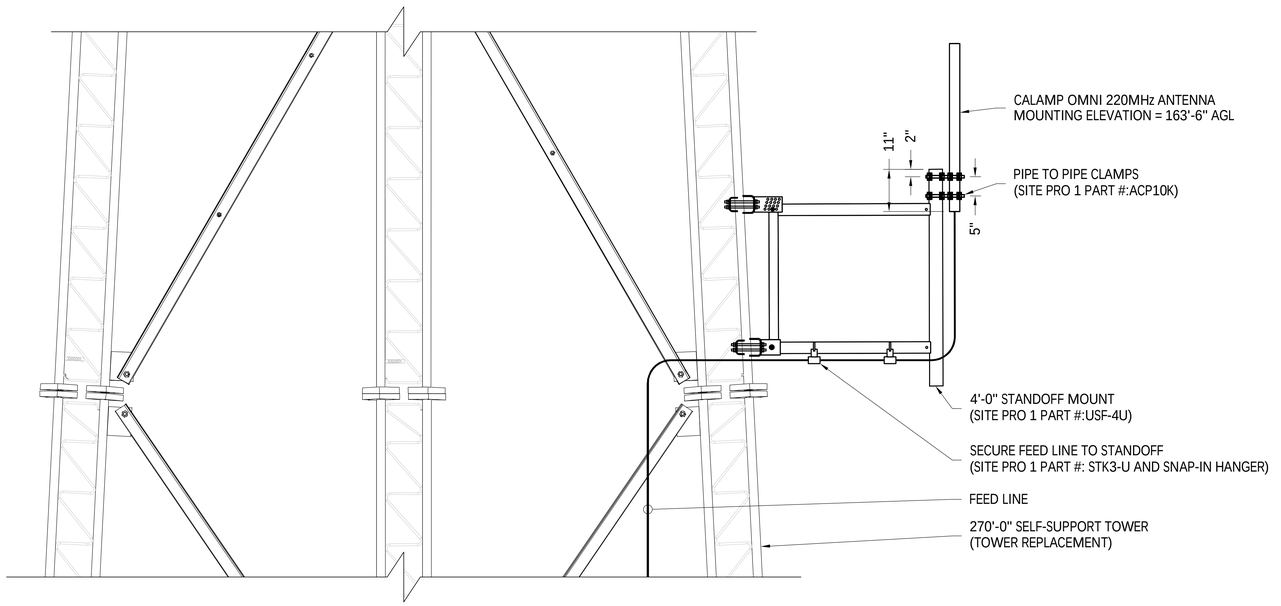
DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	309 SH. 001	NEW

SNAP-IN HANGER NOTES:
- FOR 1-5/8" CABLES, USE SIC4 SNAP-IN HANGERS
- FOR 7/8" CABLES, USE SIC2 SNAP-IN HANGERS
- FOR 1/2" CABLES, USE SIC1 SNAP-IN HANGERS

(NOTE: PART NUMBERS SHOWN ABOVE ARE FROM SITE PRO 1)



1 CALAMP OMNI 220MHz ANTENNA MOUNTING PLAN
NTS



2 CALAMP OMNI 220MHz ANTENNA MOUNTING ELEVATION
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

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STATE OF MARYLAND · 55491 · PROFESSIONAL ENGINEER

11/07/25

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AN EXELON COMPANY

BELLS MILL

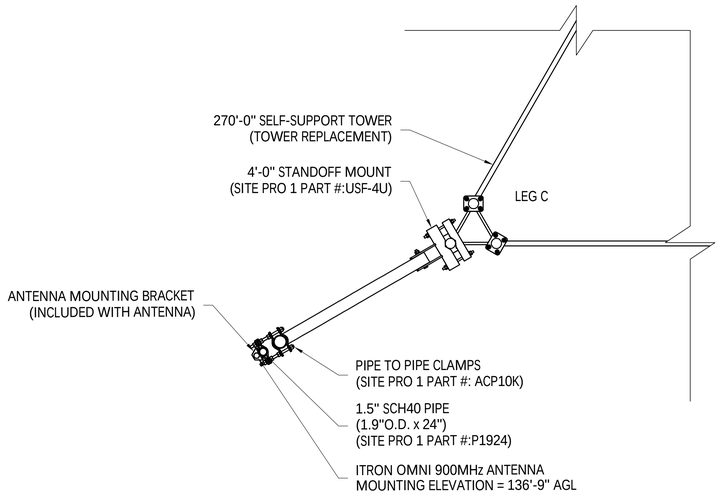
ANTENNA MOUNTING DETAILS V

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	310 SH. 001	NEW

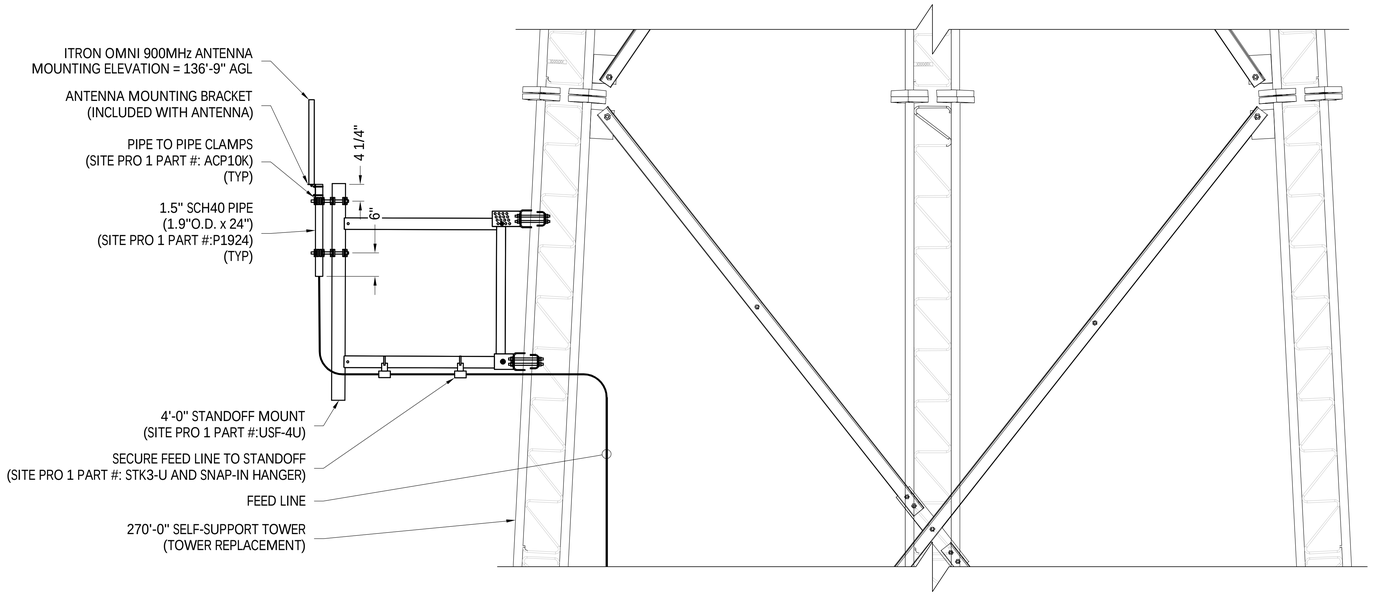
SNAP-IN HANGER NOTES:
- FOR 1-5/8" CABLES, USE SIC4 SNAP-IN HANGERS
- FOR 7/8" CABLES, USE SIC2 SNAP-IN HANGERS
- FOR 1/2" CABLES, USE SIC1 SNAP-IN HANGERS

(NOTE: PART NUMBERS SHOWN ABOVE ARE FROM SITE PRO 1)

NOTE:
- ALL RADIATING ELEMENTS OF THE ANTENNAS TO BE INSTALLED ABOVE THE MOUNT STEEL.



1 ITRON OMNI 900MHz ANTENNA MOUNTING PLAN
NTS



2 ITRON OMNI 900MHz ANTENNA MOUNTING ELEVATION
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

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BELLS MILL

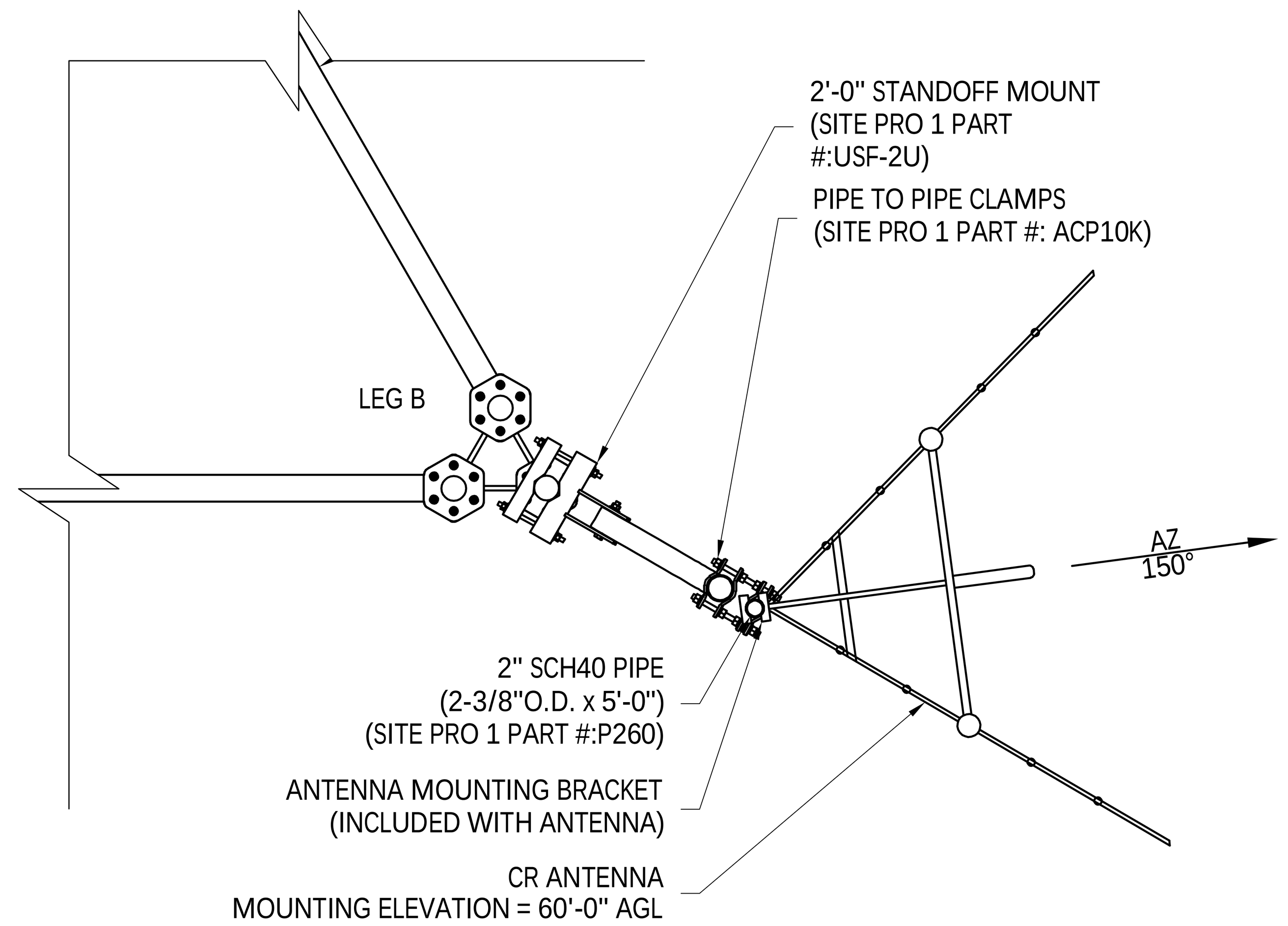
ANTENNA MOUNTING DETAILS VI

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	311 SH. 001	NEW

312 SH. 001

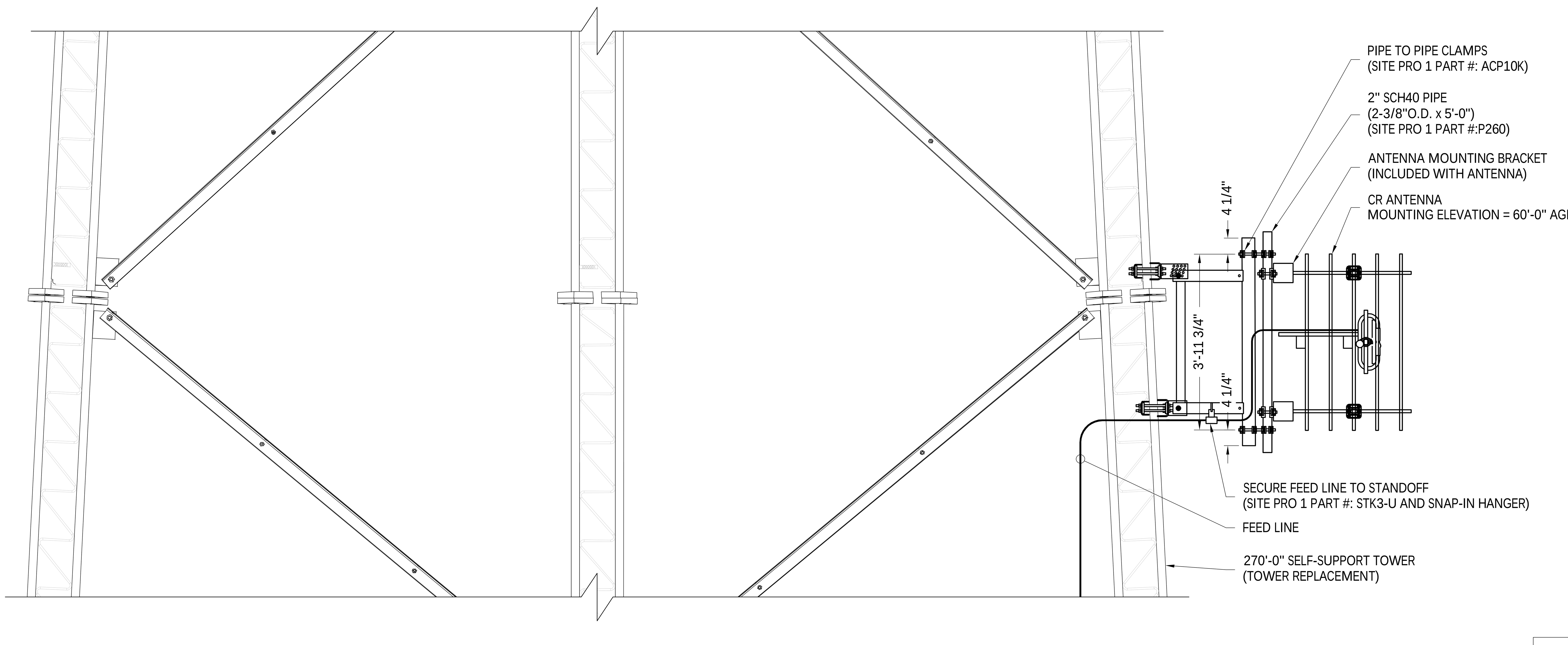
SNAP-IN HANGER NOTES:
- FOR 1-5/8" CABLES, USE SIC4 SNAP-IN HANGERS
- FOR 7/8" CABLES, USE SIC2 SNAP-IN HANGERS
- FOR 1/2" CABLES, USE SIC1 SNAP-IN HANGERS

(NOTE: PART NUMBERS SHOWN ABOVE ARE FROM SITE PRO 1)



APPROX TRUE NORTH

1 CR ANTENNA MOUNTING PLAN
NTS



2 CR ANTENNA MOUNTING ELEVATION
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

11/07/25

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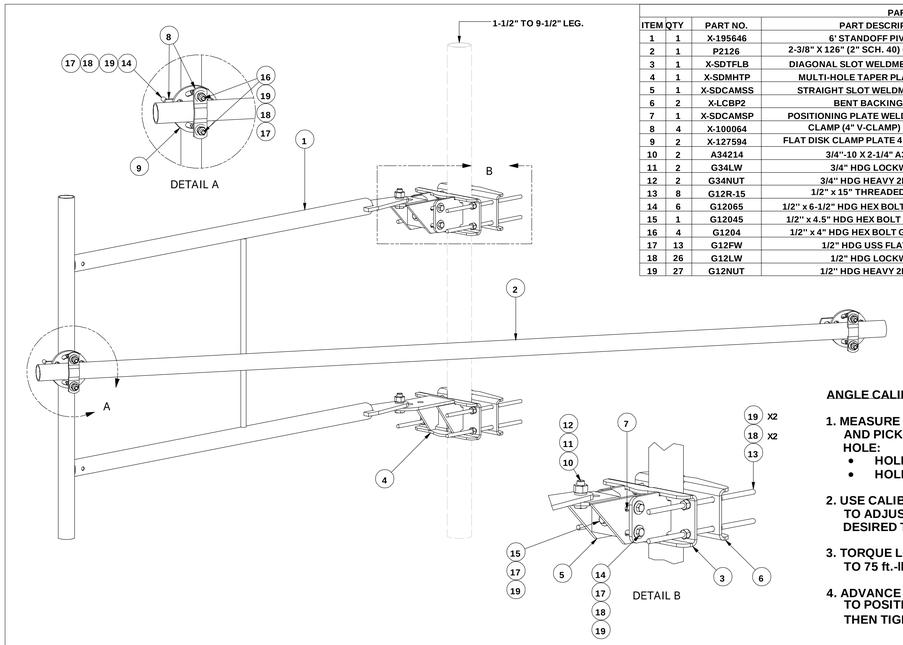
ANTENNA MOUNTING DETAILS VII

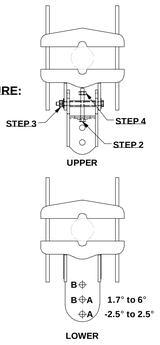
DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	312	SH. 001	NEW



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-195646	6' STANDOFF PIVOT ARM		67.36	67.36
2	1	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	40.75
3	1	X-SDTFLB	DIAGONAL SLOT WELDMENT FOR BCAM SD		15.08	15.08
4	1	X-SDMHTP	MULTI-HOLE TAPER PLATE WELDMENT		16.63	16.63
5	1	X-SDCAMSS	STRAIGHT SLOT WELDMENT FOR BCAM		8.48	8.48
6	2	X-LCBP2	BENT BACKING PLATE	12 in	8.86	17.73
7	1	X-SDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM		1.43	1.43
8	4	X-100064	CLAMP (4" V-CLAMP) GALVANIZED		0.92	3.69
9	2	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)		2.51	5.01
10	2	A34214	3/4"-10 X 2-1/4" A325 BOLT	2 1/4 in	0.47	0.95
11	2	G34LW	3/4" HDG LOCKWASHER		0.04	0.09
12	2	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.42
13	8	G12R-15	1/2" x 15" THREADED ROD (HDG.)		0.84	6.69
14	6	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	2.46
15	1	G12045	1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD	4 1/2 in	0.30	0.30
16	4	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	1.08
17	13	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.44
18	26	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.36
19	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
					TOTAL WT. #	182.62

ANGLE CALIBRATING PROCEDURE:

1. **MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:**
   - **HOLE A = -2.5° TO 2.5°**
   - **HOLE B = 1.7° TO 6°**
2. **USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER**
3. **TORQUE LOCKING BOLTS TO 75 ft.-lbs.**
4. **ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.**



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (±0.010") - NO CONING OF HOLES

BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

PROPRIETARY NOTE:
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REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
C	UPDATE LEG CONNECTION		CSL	2/26/2020
B	CHNAGED SIDEARM LEG CONNECTION		CEK	6/8/2017
A	P1126 CHANGED TO P2126	4749	CEK	11/13/2015

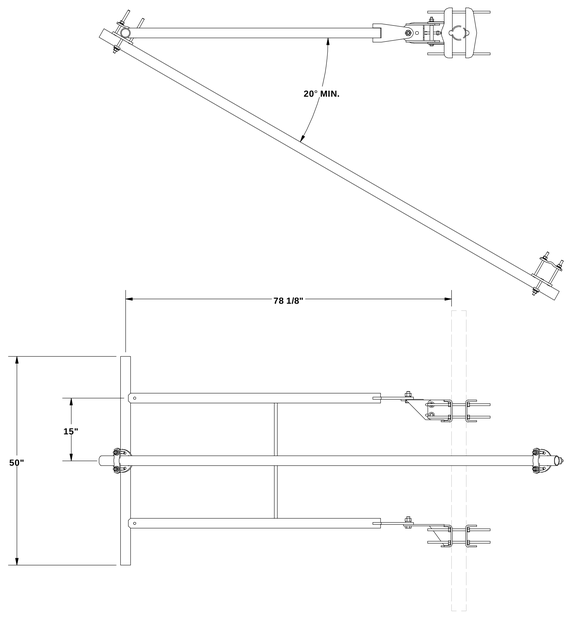
REVISION HISTORY

DESCRIPTION: 6' SIDE ARM (PSA6)

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4749	CEK 9/1/2010	2/27/2020	PSA6
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
	CUSTOMER	BMC 2/27/2020	PSA6

1 OF 2 PAGE

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX



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REVISION HISTORY

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4749	CEK 9/1/2010	2/27/2020	PSA6
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
	CUSTOMER	BMC 2/27/2020	PSA6

2 OF 2 PAGE

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

11/07/25

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NB+C ENGINEERING SERVICES, LLC.
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ELKRIDGE, MD 21075
(410) 712-7092

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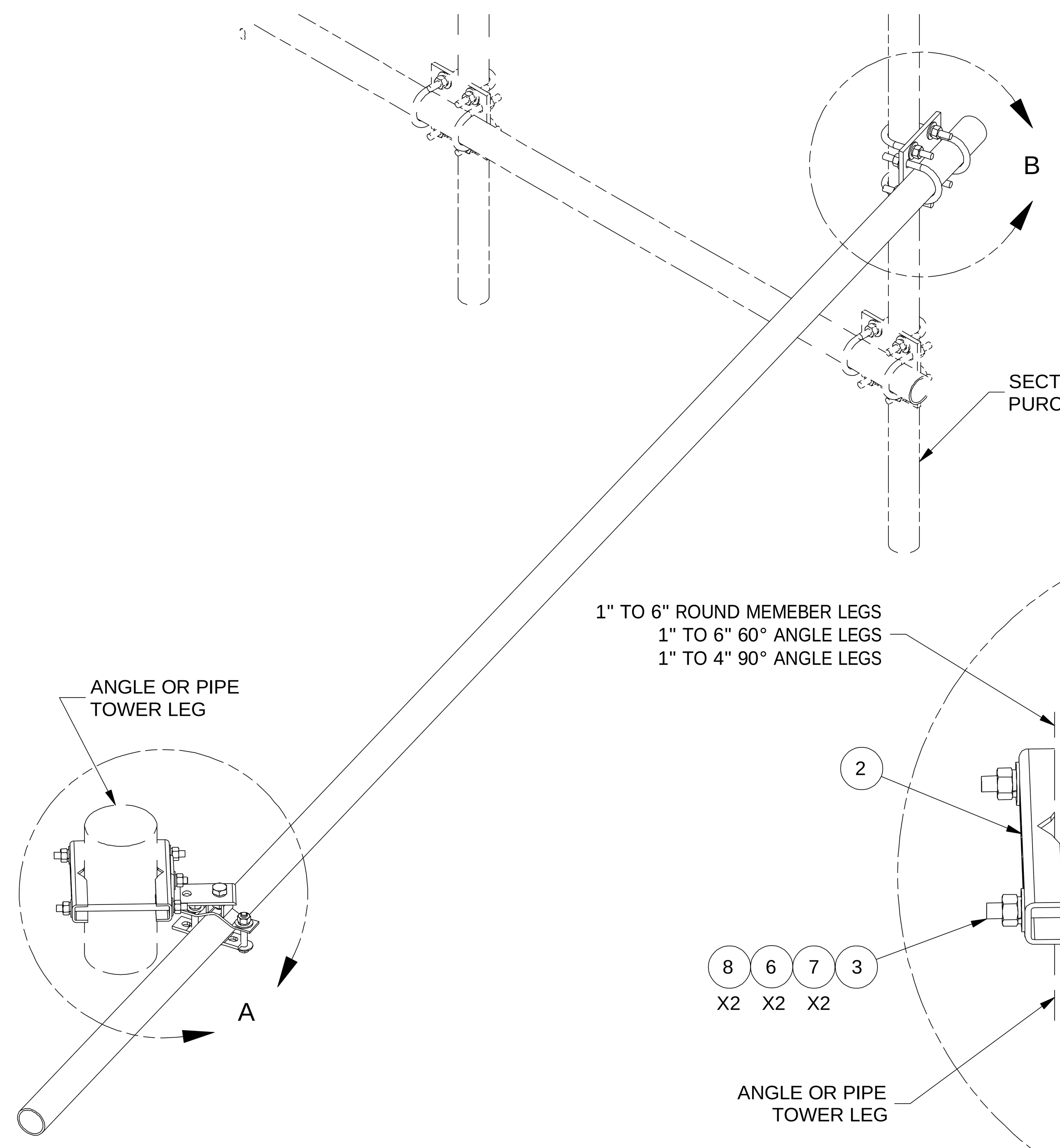
BELLS MILL

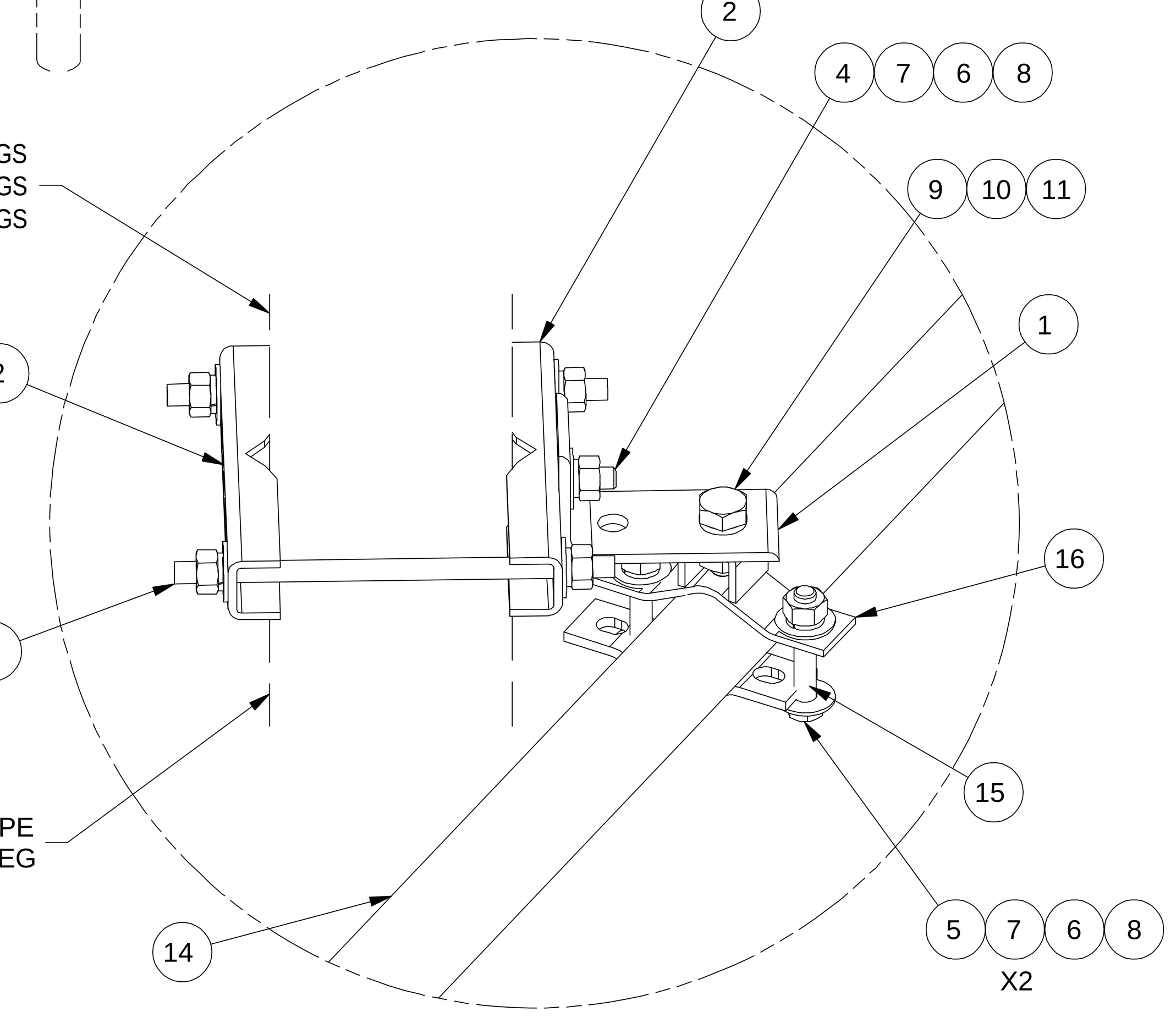
ANTENNA MOUNT DETAILS I

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	313 SH. 001	NEW

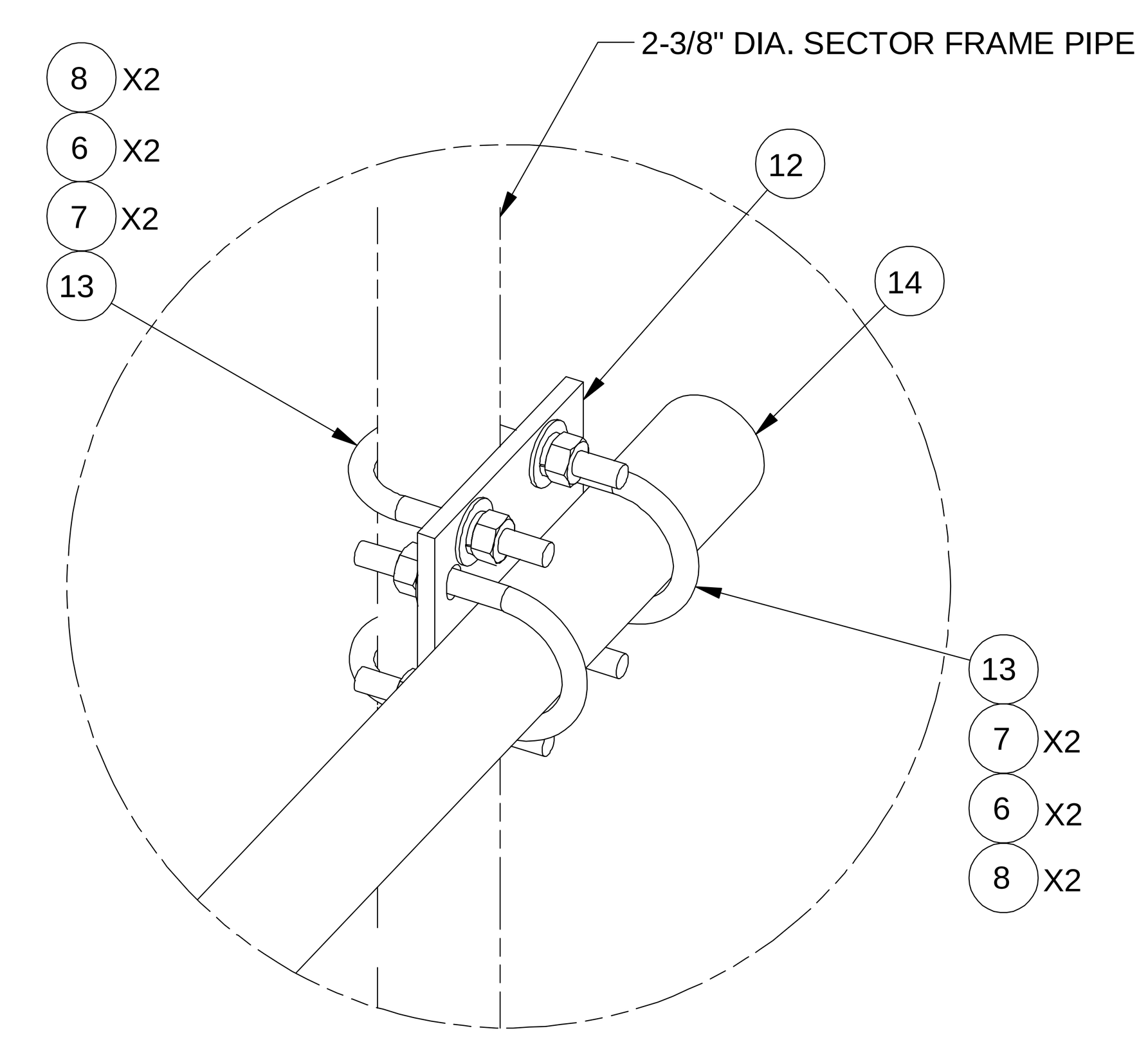
314
SH. 001

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-STA3	STIFF ARM ANGLE BRACKET	2 1/2 in	1.39	1.39
2	2	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	2.74
3	2	G12R-10	1/2" x 10" THREADED ROD (HDG.)		0.40	0.80
4	1	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	0.15
5	2	G1203	1/2" x 3" HDG HEX BOLT GR5 FULL THREAD	3 in	0.22	0.43
6	15	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.21
7	17	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.58
8	15	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.07
9	1	G58112	5/8" x 1-1/2" HDG BOLT	1 1/2 in	0.25	0.25
10	1	G58LW	5/8" HDG LOCKWASHER		0.03	0.03
11	1	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.13
12	1	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	3.71
13	4	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	2.50
14	1	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	45.77
15	1	ACP	4-1/16" CLAMP HALF, 1/4" THK.	5 3/4 in	0.65	0.65
16	1	SAM	STIFF ARM MOUNT CLAMP		0.77	0.77
					TOTAL WT. #	63.79





DETAIL A



DETAIL B

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

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DESCRIPTION
SECTOR FRAME
STIFF ARM KIT

SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.		DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4647		KC8 8/16/2012		STK-U	1 OF 1
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
81	02	CUSTOMER	CEK 2/18/2013	STK-U	

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
PROFESSIONAL ENGINEER
55491

11/07/25

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NB+C™ TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

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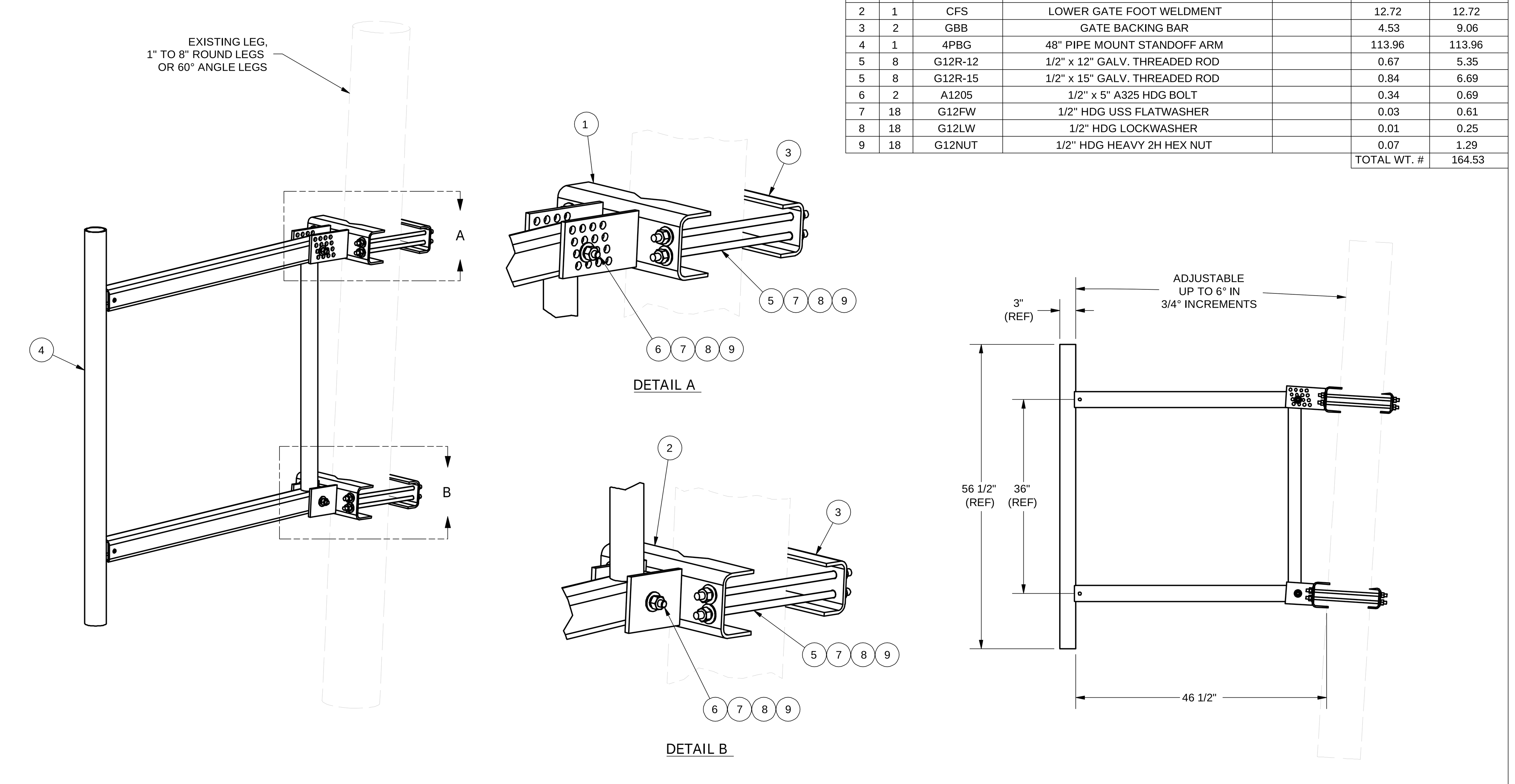
AN EXELON COMPANY

BELLS MILL

ANTENNA MOUNT DETAILS II

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	314	SH. 001	NEW



PARTS LIST						
ITE QTYM		PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	CFM	UPPER GATE FOOT WELDMENT		13.90	13.90
2	1	CFS	LOWER GATE FOOT WELDMENT		12.72	12.72
3	2	GBB	GATE BACKING BAR		4.53	9.06
4	1	4PBG	48" PIPE MOUNT STANDOFF ARM		113.96	113.96
5	8	G12R-12	1/2" x 12" GALV. THREADED ROD		0.67	5.35
5	8	G12R-15	1/2" x 15" GALV. THREADED ROD		0.84	6.69
6	2	A1205	1/2" x 5" A325 HDG BOLT		0.34	0.69
7	18	G12FW	1/2" HDG USS FLATWASHER		0.03	0.61
8	18	G12LW	1/2" HDG LOCKWASHER		0.01	0.25
9	18	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.29
					TOTAL WT. #	164.53

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

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DESCRIPTION: 48" ULTIMATE UNIVERSAL STANDOFF FRAME

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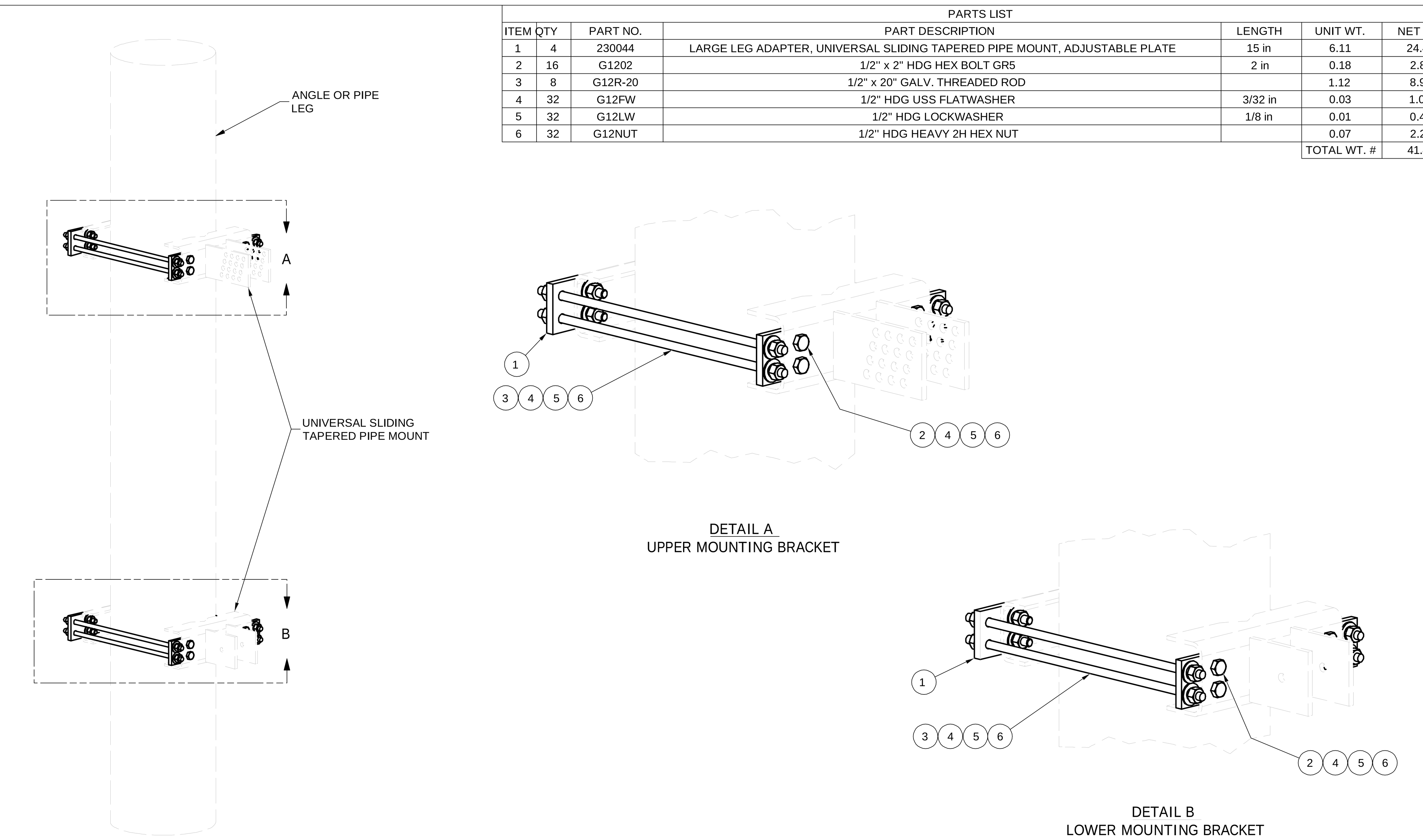
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.		DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
		RCH 2/4/2011		USF-4U	1 OF 1
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
81	01	CUSTOMER	BMC 2/16/2011	USF-4U	



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	4	230044	LARGE LEG ADAPTER, UNIVERSAL SLIDING TAPERED PIPE MOUNT, ADJUSTABLE PLATE	15 in	6.11	24.43
2	16	G1202	1/2" x 2" HDG HEX BOLT GR5	2 in	0.18	2.81
3	8	G12R-20	1/2" x 20" GALV. THREADED ROD		1.12	8.92
4	32	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	1.09
5	32	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.44
6	32	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	2.29
					TOTAL WT. #	41.44

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

PROPRIETARY NOTE:
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DESCRIPTION: LARGE LEG ADAPTER KIT, UNIVERSAL SLIDING TAPERED PIPE MOUNT, 8" TO 12-3/4" OD ROUND LEGS

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.		DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4711		RCH 4/21/2010		TAM-LL	1 OF 1
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
81	01	CUSTOMER	BMC 4/22/2010	TAM-LL	

11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

NB+C TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

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pepco AN EXELON COMPANY

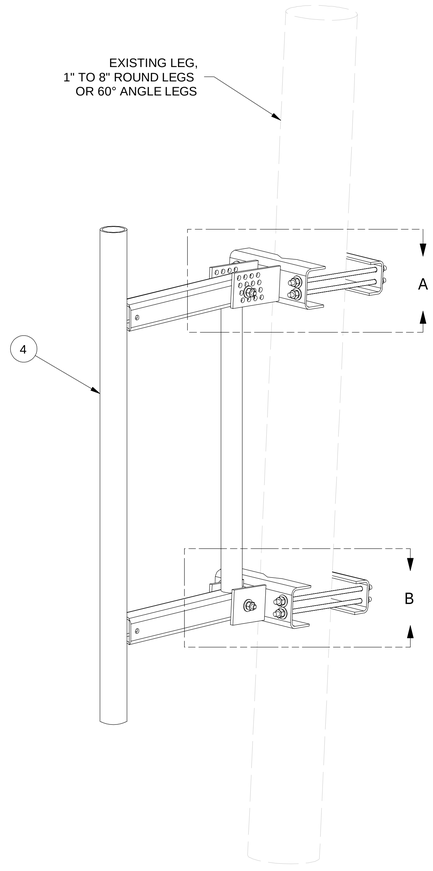
BELLS MILL

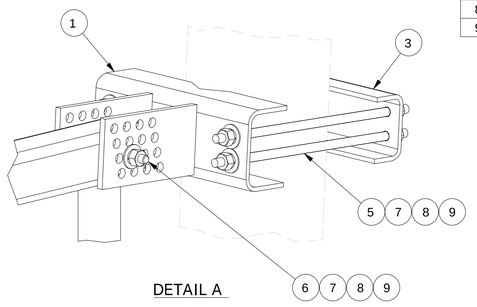
ANTENNA MOUNT DETAILS III

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	315	SH. 001	NEW

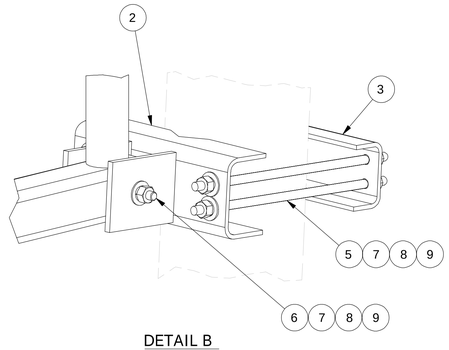
REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS



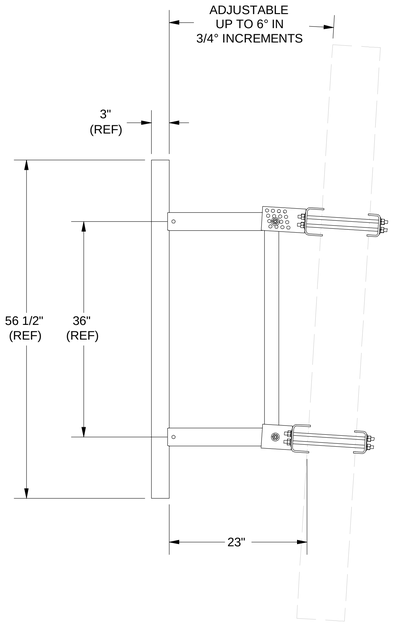


DETAIL A



DETAIL B

PARTS LIST						
ITE	QTY	M PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	CFM	UPPER GATE FOOT WELDMENT		13.90	13.90
2	1	CFS	LOWER GATE FOOT WELDMENT		12.72	12.72
3	2	GBB	GATE BACKING BAR		4.53	9.06
4	1	2PBG	24" PIPE MOUNT STANDOFF ARM		71.96	71.96
5	8	G12R-12	1/2" x 12" GALV. THREADED ROD		0.67	5.35
5	8	G12R-15	1/2" x 15" GALV. THREADED ROD		0.84	6.69
6	2	A1205	1/2" x 5" A325 HDG BOLT		0.34	0.69
7	18	G12FW	1/2" HDG USS FLATWASHER		0.03	0.61
8	18	G12LW	1/2" HDG LOCKWASHER		0.01	0.25
9	18	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.29
					TOTAL WT. #	128.25



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

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DESCRIPTION
24" ULTIMATE UNIVERSAL
STANDOFF FRAME

SITE PRO 1
A valmont COMPANY

Engineering
Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	RCH 2/1/2011		USF-2U	1 OF 1
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
81 / 01	CUSTOMER	BMC 2/16/2026	USF-2U	

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

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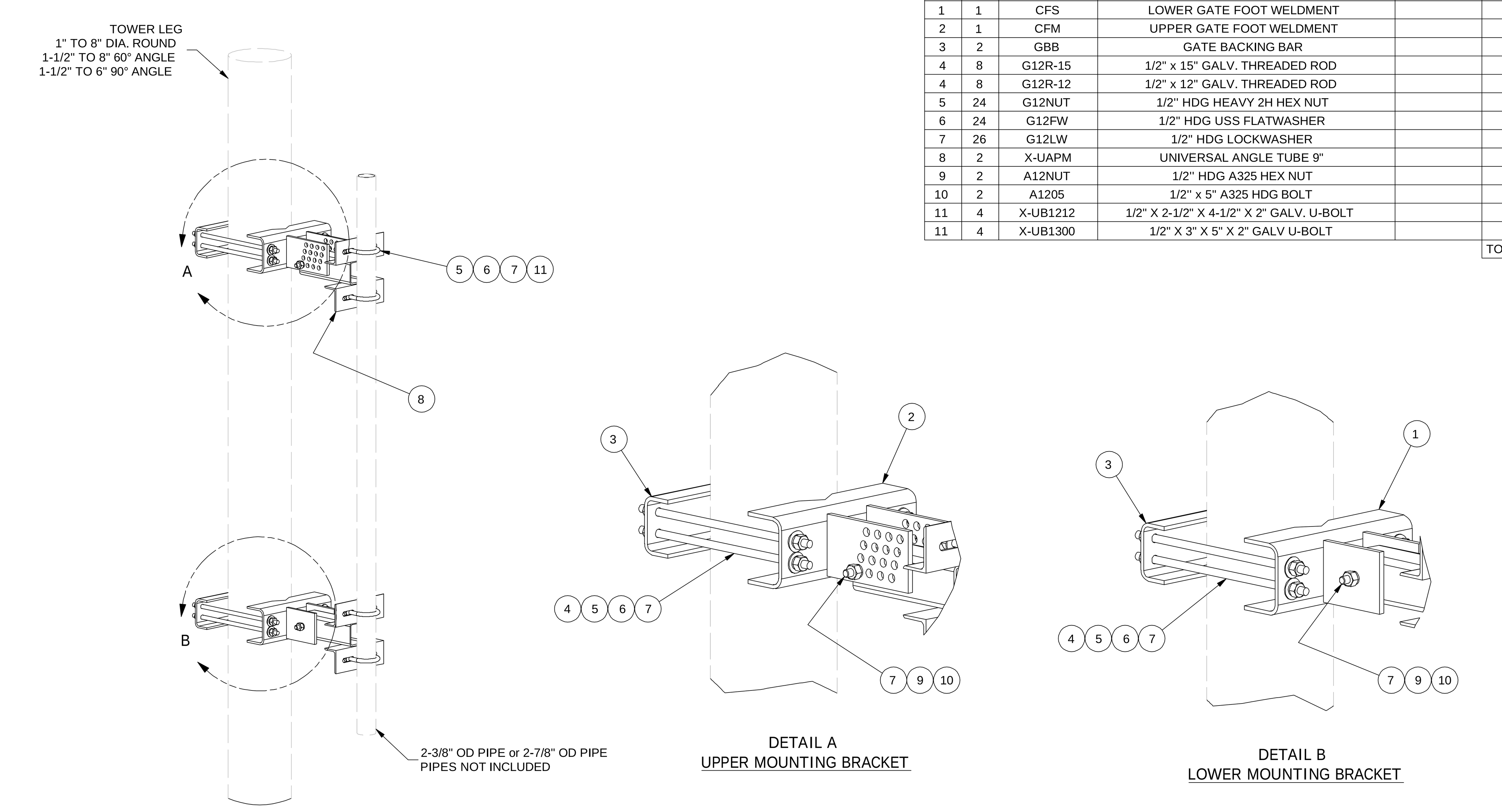
BELLS MILL

ANTENNA MOUNT DETAILS IV

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	316 SH. 001	NEW



DETAIL A
UPPER MOUNTING BRACKET

DETAIL B
LOWER MOUNTING BRACKET

PARTS LIST						
ITE QTYM		PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	CFS	LOWER GATE FOOT WELDMENT		12.72	12.72
2	1	CFM	UPPER GATE FOOT WELDMENT		13.90	13.90
3	2	GBB	GATE BACKING BAR		4.53	9.06
4	8	G12R-15	1/2" x 15" GALV. THREADED ROD		0.84	6.69
4	8	G12R-12	1/2" x 12" GALV. THREADED ROD		0.67	5.35
5	24	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.72
6	24	G12FW	1/2" HDG USS FLATWASHER		0.03	0.82
7	26	G12LW	1/2" HDG LOCKWASHER		0.01	0.36
8	2	X-UAPM	UNIVERSAL ANGLE TUBE 9"		9.31	18.62
9	2	A12NUT	1/2" HDG A325 HEX NUT		0.07	0.14
10	2	A1205	1/2" x 5" A325 HDG BOLT		0.34	0.69
11	4	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	2.63
11	4	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.70	2.79
					TOTAL WT.	# 76.94

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
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BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

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DESCRIPTION
1' STAND-OFF, 2-3/8" AND 2-7/8" OD PIPE
UNIVERSAL SLIDING TAPERED PIPE MOUNT

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.		DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4711		RH18 3/22/2010		TAM-2U	1 OF 2
CLASS 81	SUB 01	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 4/22/2010	DWG. NO.: TAM-2U	

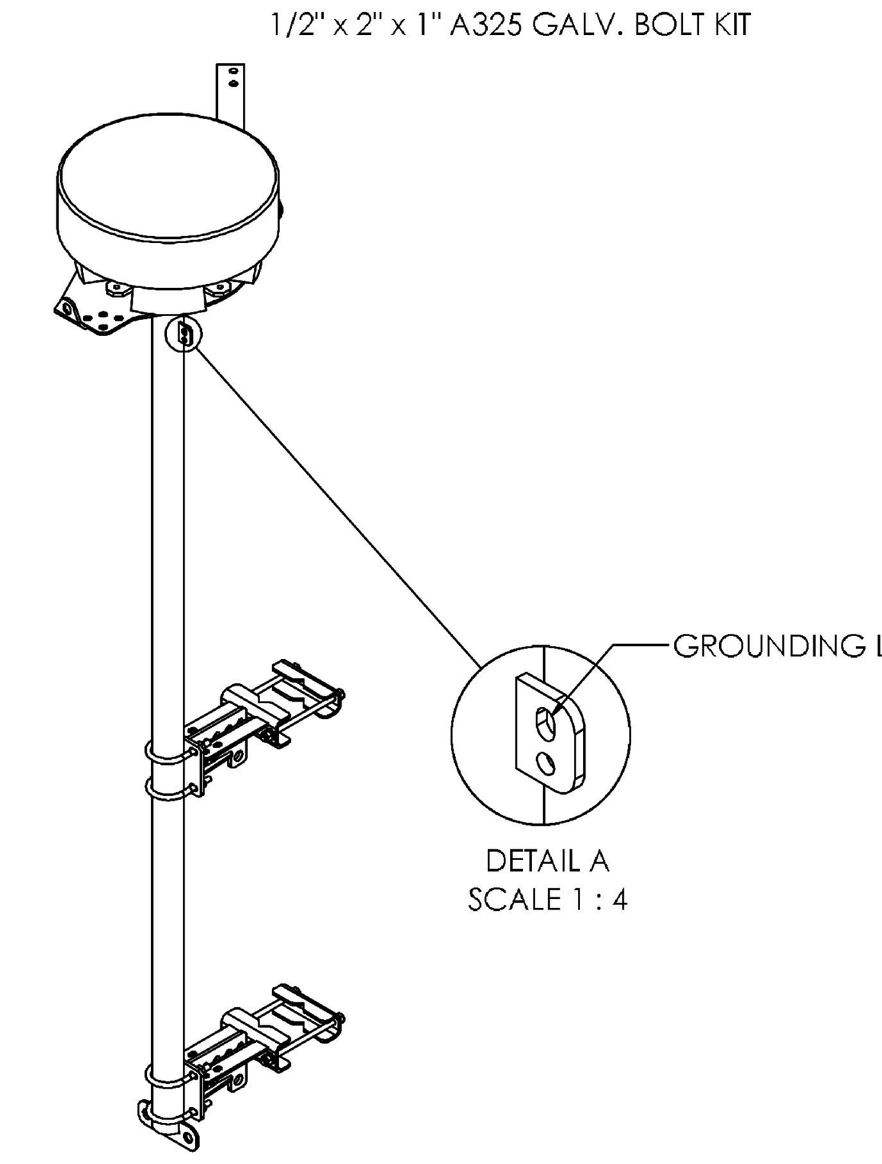
PV-BEACON-EXT-LT-412LEG
EXTENDABLE BEACON MOUNT

NOTES:
- DESIGNED TO MEET TIA-222-G-A2 AND TIA-222-H STANDARDS
- **UNDERLYING STRUCTURE HAS NOT BEEN ANALYZED FOR ADEQUACY**
- INSTALL BEACON MOUNT PER INSTALLATION GUIDELINES
  - DOC# BEACON-INS-03-R0

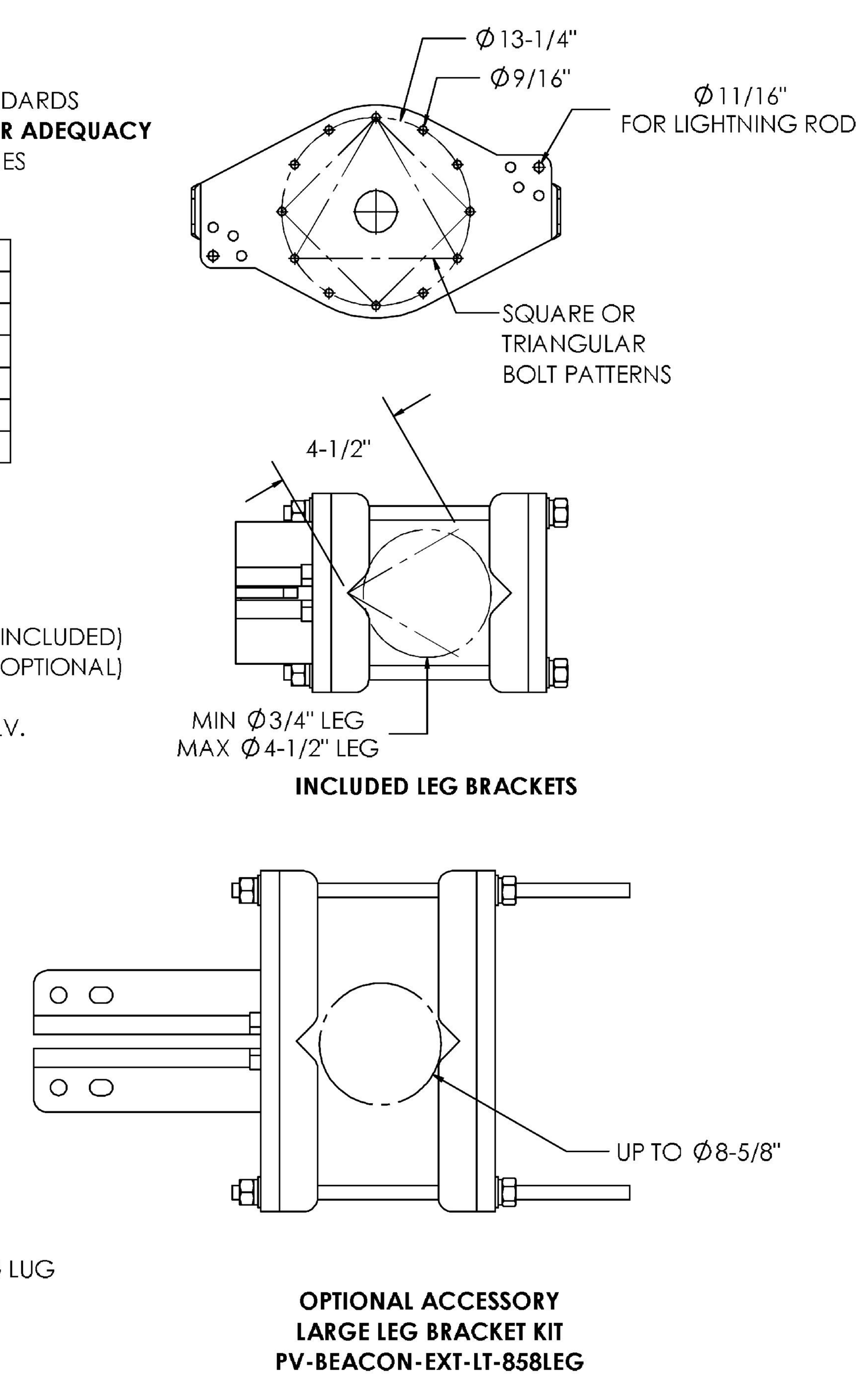
TABLE 1: LEG BRACKET C-C		
EXTENSION	LEG BRACKET C-C	TRIM EXTENSION PIPE
12"	21" ± 3"	Y
24"	21" ± 3"	Y
36"	21" ± 3"	Y
48"	27" ± 3"	N
60"	33" ± 3"	N

PIPE:
- Ø2-7/8" OD (NPS 2-1/2 SCH 40)
- A500 GR. B

HARDWARE:
- ALL THREAD:
  1/2" x 10" GR. 36 ALL THREAD KIT, GALV. (INCLUDED)
  1/2" x 14" GR. 36 ALL THREAD KIT, GALV. (OPTIONAL)
- U-BOLT:
  1/2" x 3-1/16" x 5" x 2-1/2" U-BOLT KIT, GALV.
- BOLT:
  1/2" x 2" x 1" A325 GALV. BOLT KIT

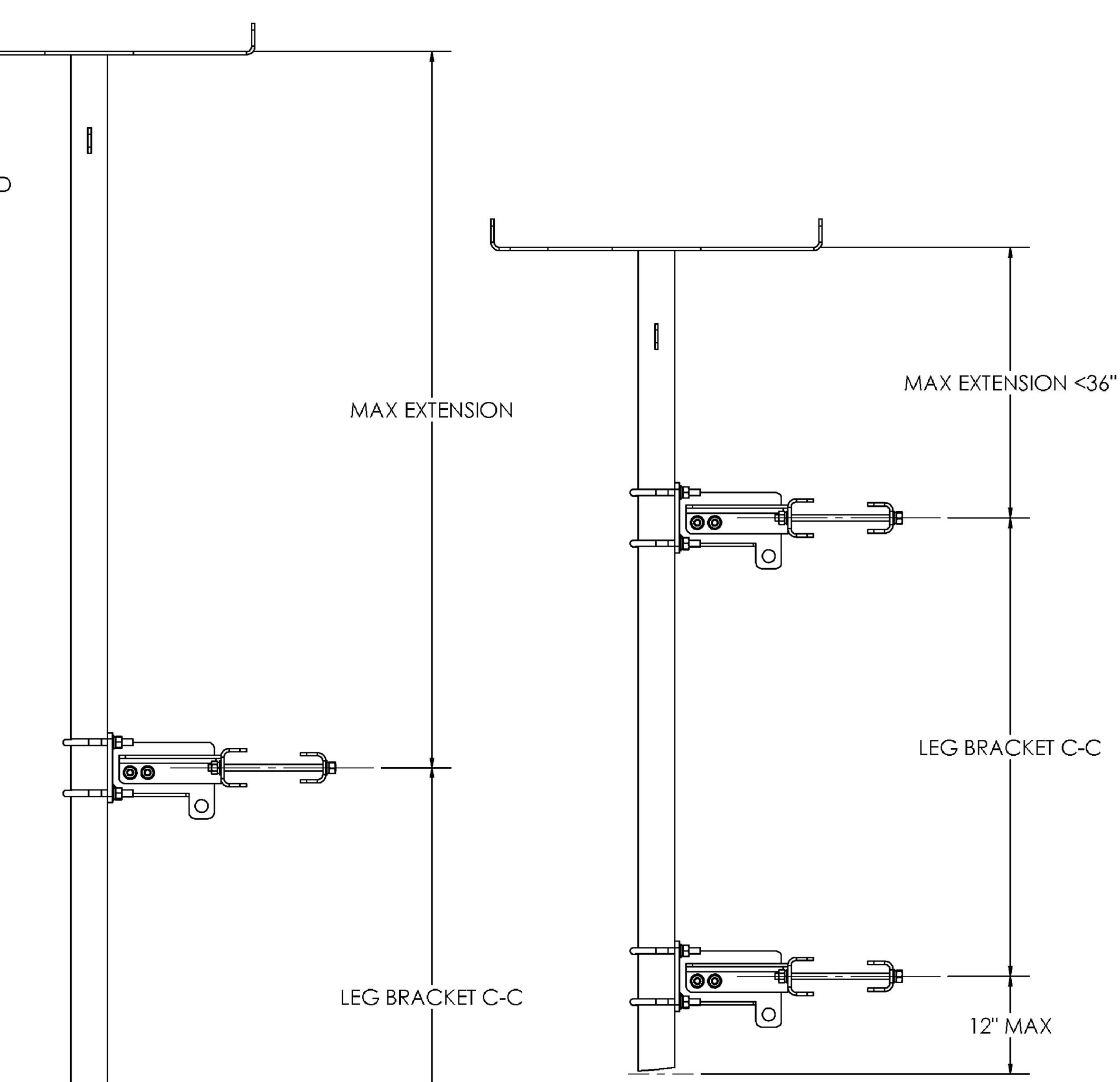


DETAIL A
SCALE 1 : 4



INCLUDED LEG BRACKETS

OPTIONAL ACCESSORY
LARGE LEG BRACKET KIT
PV-BEACON-EXT-LT-858LEG



- WHEN MAX REQUIRED EXTENSION IS ≤36", TRIM LOWER EXTENSION PIPE TO WITHIN 12" OF BOTTOM BRACKET.
- APPLY 2 COATS CARRIER AND TOWER OWNER APPROVED ZINC RICH PAINT TO ALL FIELD CUT SURFACES.

SHEET	THIRD ANGLE PROJECTION	CATEGORY				
1 OF 3		01_Lattice Tower	4			
		SERIES: 16_Beacon Mount	3			
7/18/2023	SCALE 1:12	TYPE: BEACON-EXT-LT_Extendable Beacon Mount	2			
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE±1/4°, BEND±2° ALL OTHERS: ±1/16"		BY: DJN	1			
		CHECKED: SJS	0	INITIAL RELEASE	4/5/18	
		STATUS: APPROVED	REV	DESCRIPTION	DATE	

PERFECTVISION®
EXTENDABLE BEACON MOUNT - LATTICE TOWER
DOCUMENT NUMBER: BEACON-ENG-03-R0 REV 0

PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF PERFECTVISION MFG. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF PERFECTVISION MFG IS PROHIBITED.

NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				
REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV

REVISIONS

PROFESSIONAL ENGINEER 55491 — STATE OF MARYLAND
11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

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(410) 712-7092

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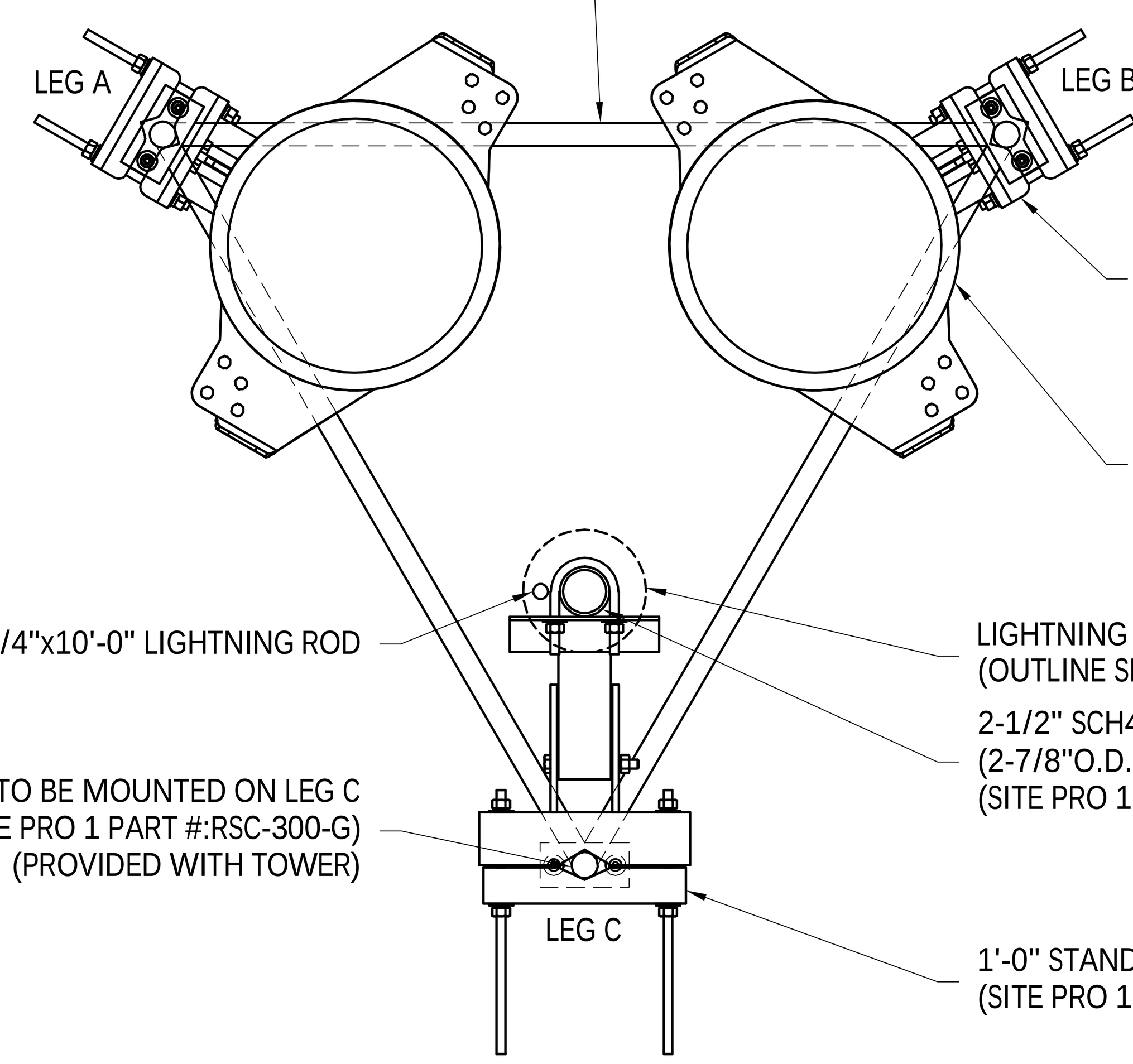
BELLS MILL

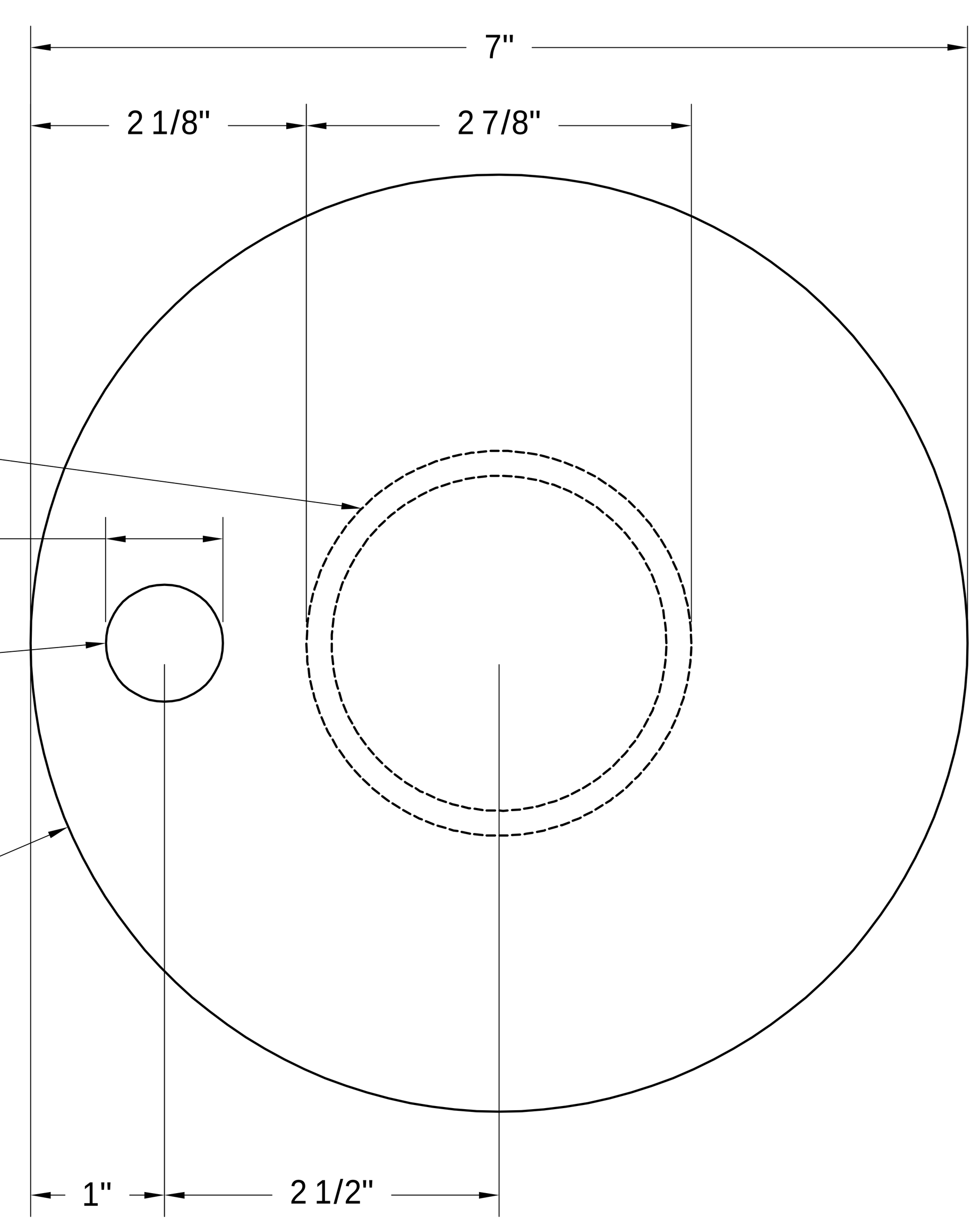
LIGHTING AND LIGHTNING ROD
MOUNT DETAILS

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	317 SH. 001	NEW

NOTE:
- LIGHTNING ROD AND FLASH BEACONS MUST BE INSTALLED ON INSIDE OF TOWER FACE AS SHOWN

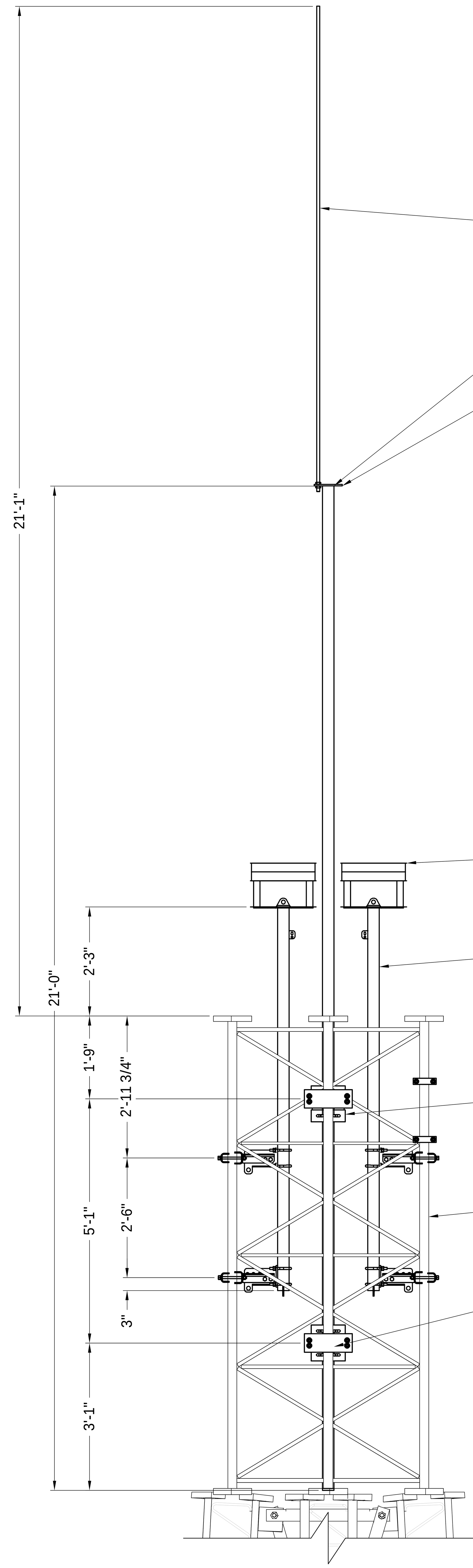


1 LIGHTING AND LIGHTNING ROD MOUNTING PLAN
NTS



PLAN VIEW

2 LIGHTNING ROD CAP PLATE DETAIL
NTS



3 LIGHTING AND LIGHTNING ROD MOUNTING ELEVATION
NTS

11/07/25

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BELLS MILL

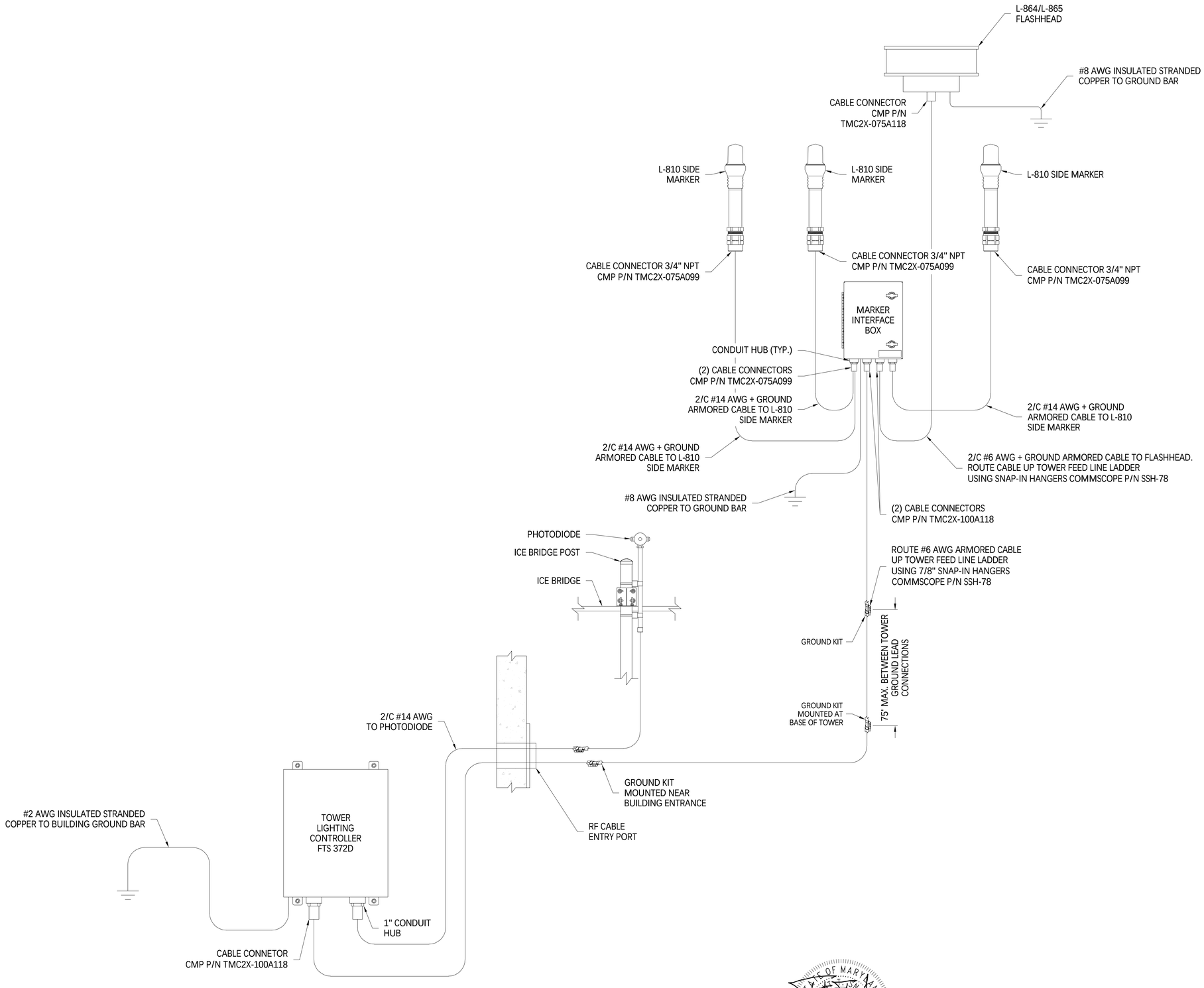
LIGHTING AND LIGHTNING ROD MOUNTING DETAILS

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	318	SH. 001	NEW

REVISIONS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

GENERAL NOTES:
1. THIS DRAWING NOT TO BE SCALED.
2. GROUND CONNECTION CAN BE MADE TO TOWER STEEL IF GROUND BAR IS NOT WITHIN 10 FEET.



REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

11/07/25

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BELLS MILL

TOWER LIGHTING CABLE ONE-LINE DIAGRAM

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	319 SH. 001	NEW

GENERAL NOTES:
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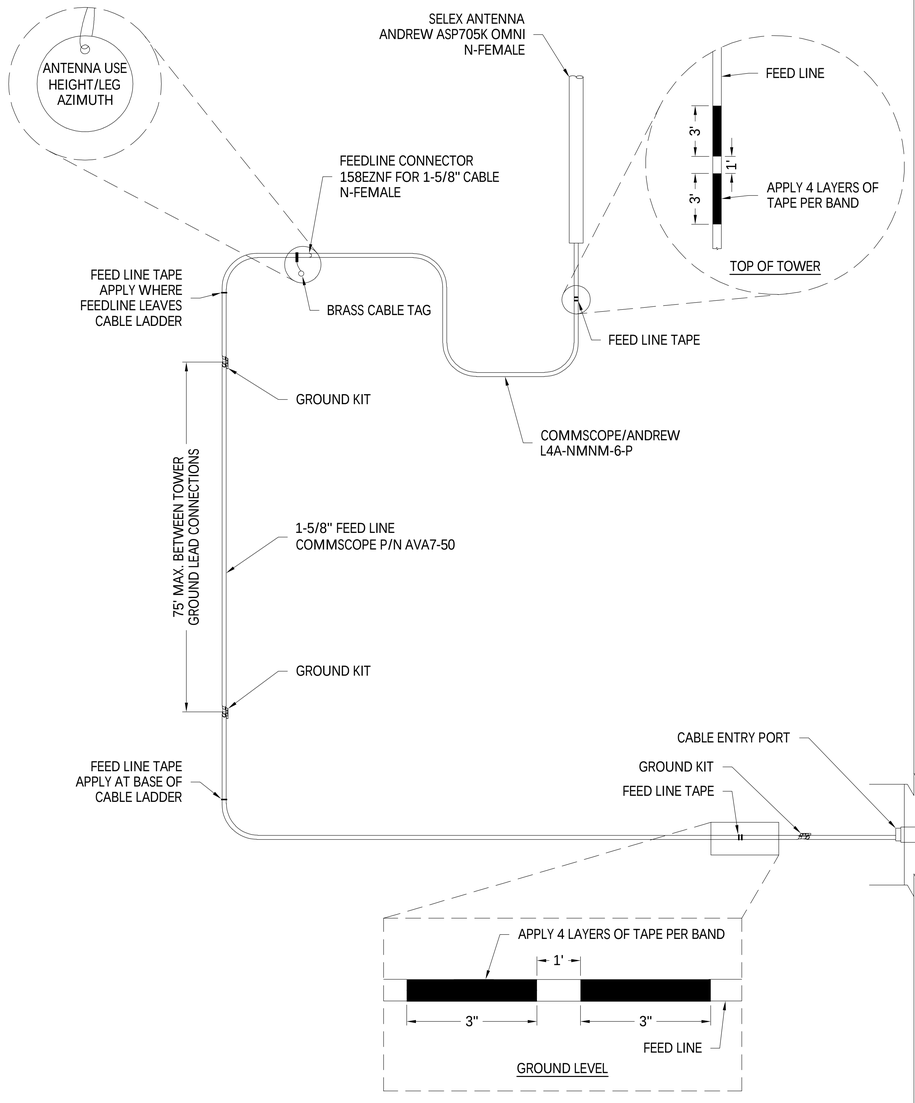
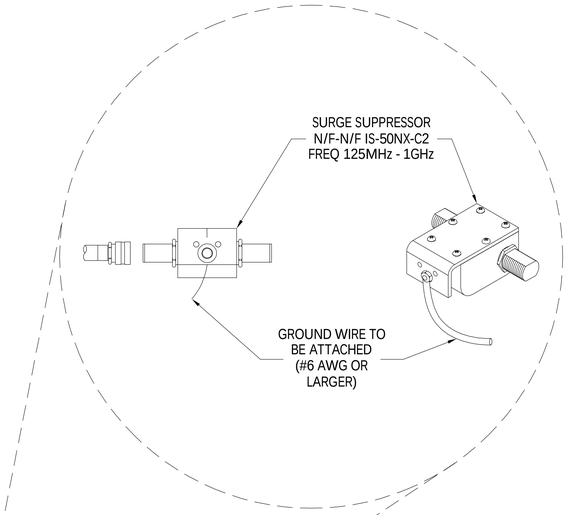
2. GROUND CONNECTION CAN BE MADE TO TOWER STEEL IF GROUND BAR IS NOT WITHIN 10 FEET.

TOWER/ICE BRIDGE (EXTERIOR)



INTERIOR RADIO SHELTER BUILDING (TYP.)



REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

11/07/25

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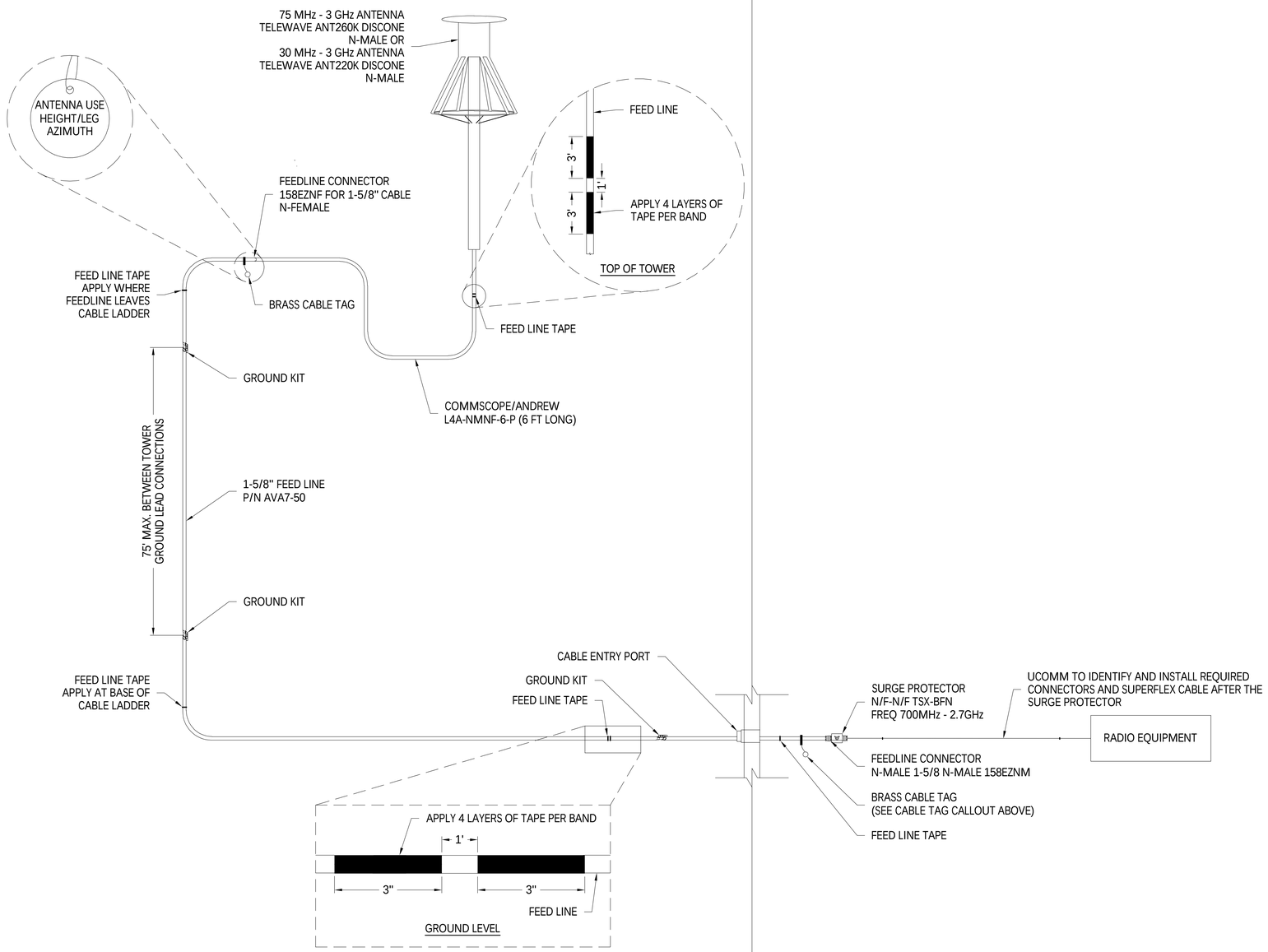
SELEX OMNI FEED LINE ONE-LINE DIAGRAM

DISCIPLINE	SCALE	CLASS		
E/S/W	NONE	__KV	320 SH. 001	REV. NEW

GENERAL NOTES:
1. THIS DRAWING NOT TO BE SCALED.
2. GROUND CONNECTION CAN BE MADE TO TOWER STEEL IF GROUND BAR IS NOT WITHIN 10 FEET.

TOWER/ICE BRIDGE (EXTERIOR)

INTERIOR RADIO SHELTER BUILDING (TYP.)



REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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BELLS MILL

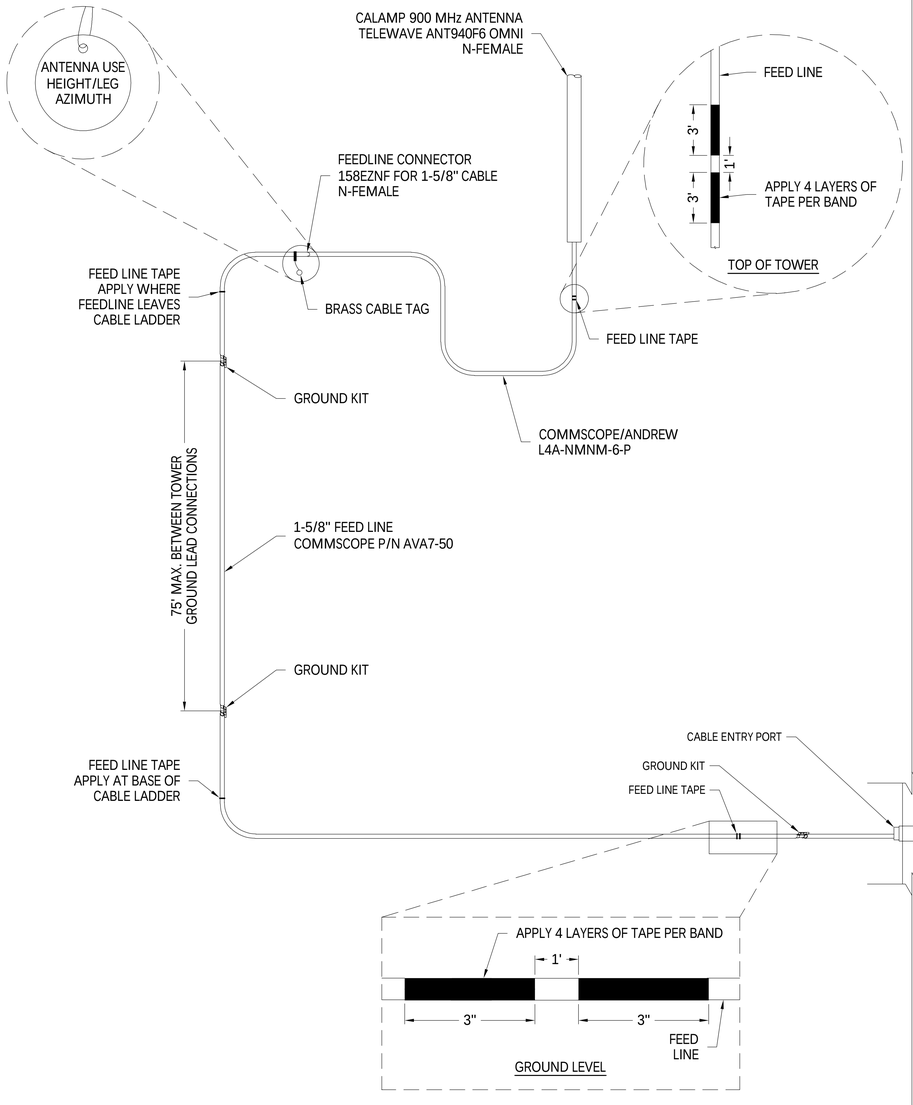
WIDEBAND FEED LINE ONE-LINE DIAGRAM

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	321 SH. 001	NEW

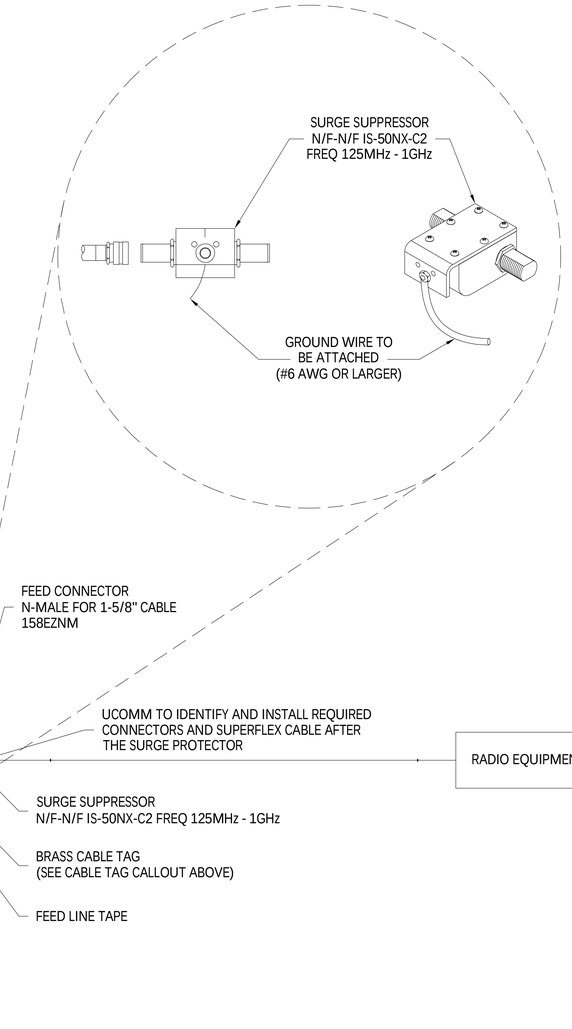
322
SH. 001

GENERAL NOTES:
1. THIS DRAWING NOT TO BE SCALED.
2. GROUND CONNECTION CAN BE MADE TO TOWER STEEL IF GROUND BAR IS NOT WITHIN 10 FEET.

TOWER/ICE BRIDGE (EXTERIOR)



INTERIOR RADIO SHELTER BUILDING (TYP.)



REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

NB+C™ TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

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pepco™
AN EXELON COMPANY

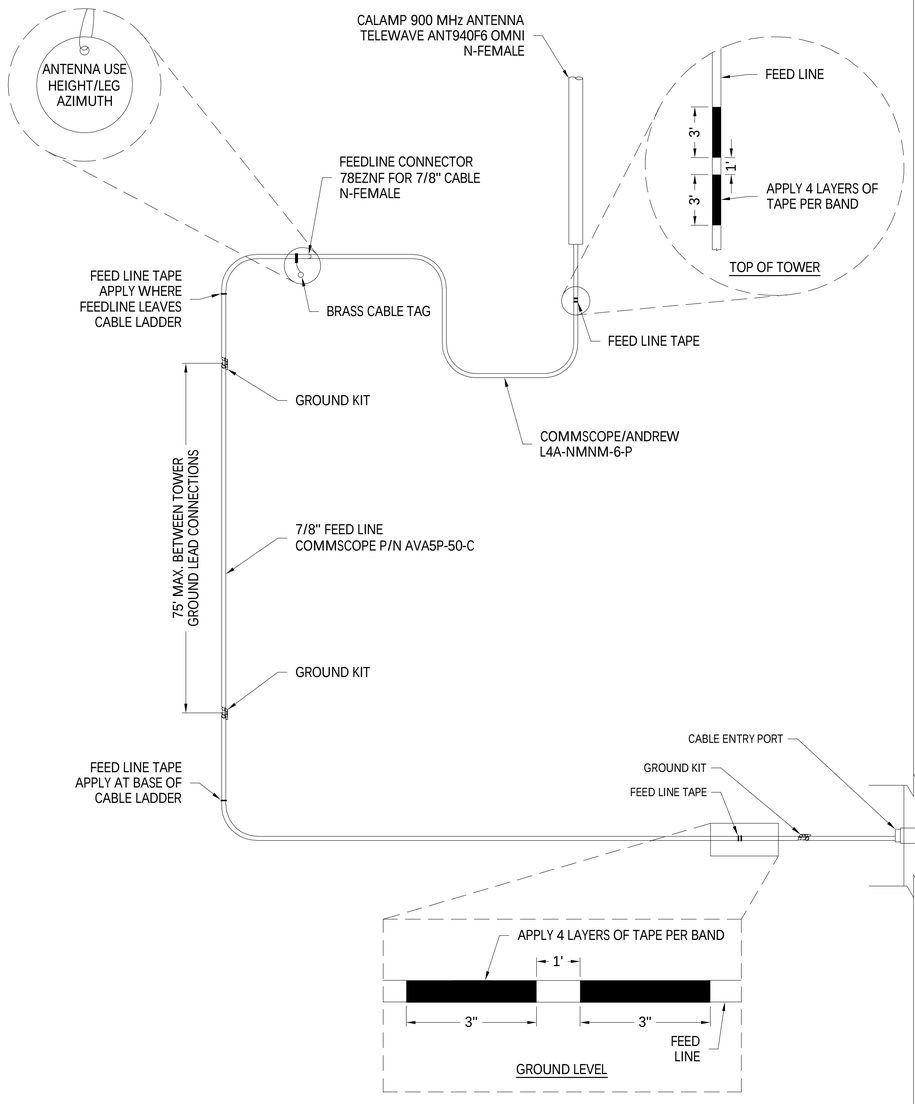
BELLS MILL

CALAMP 900MHZ FEED LINE
ONE-LINE DIAGRAM I

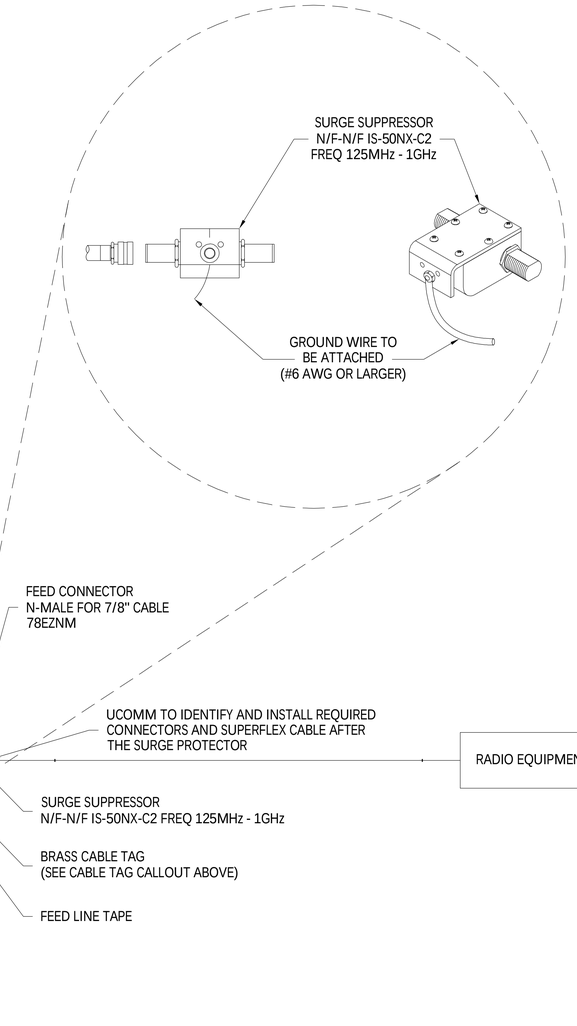
DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	322 SH. 001	NEW

GENERAL NOTES:
1. THIS DRAWING NOT TO BE SCALED.
2. GROUND CONNECTION CAN BE MADE TO TOWER STEEL IF GROUND BAR IS NOT WITHIN 10 FEET.

TOWER/ICE BRIDGE (EXTERIOR)



INTERIOR RADIO SHELTER BUILDING (TYP.)



REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

11/07/25

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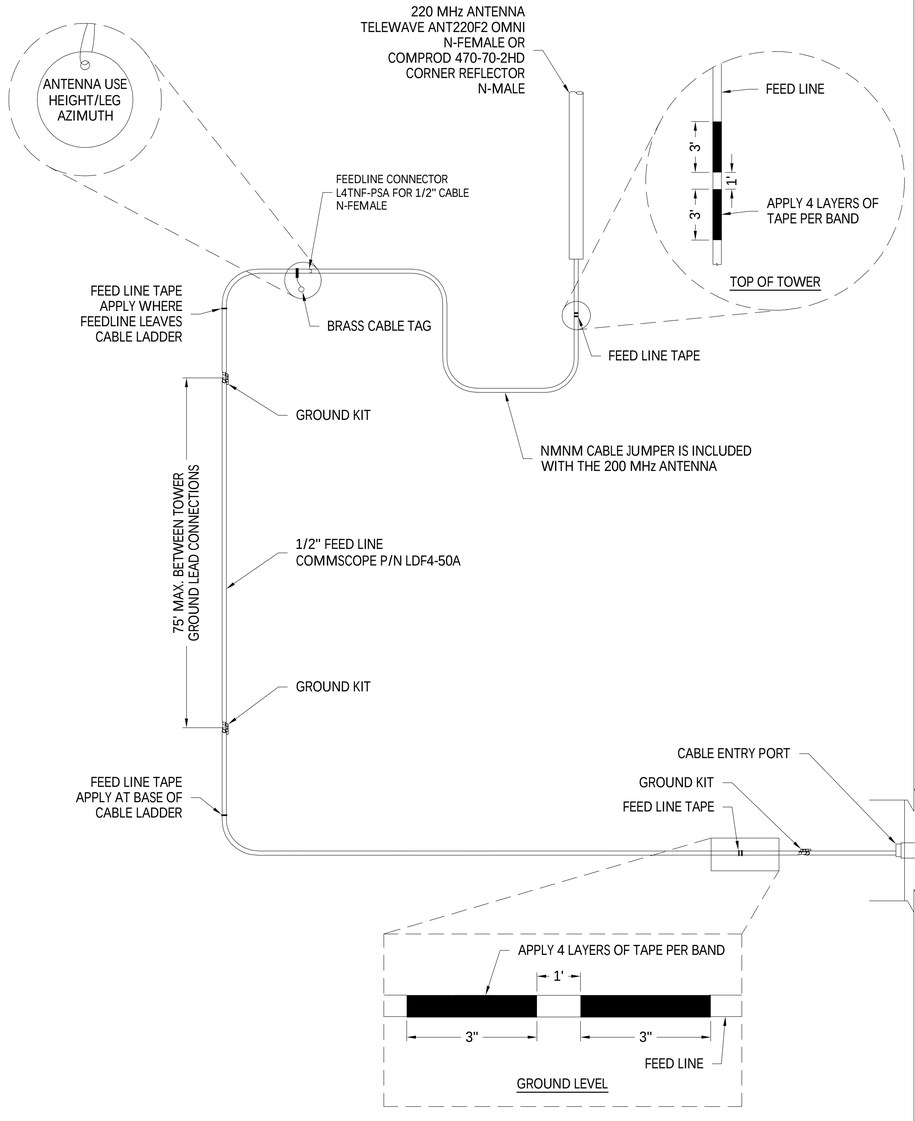
BELLS MILL

CALAMP 900MHZ FEED LINE
ONE-LINE DIAGRAM II

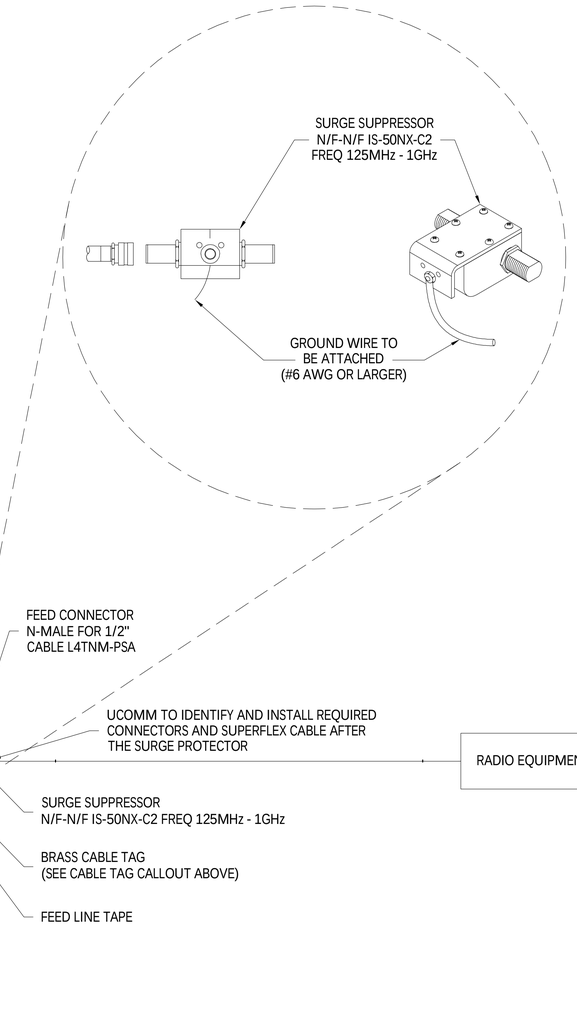
DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	323 SH. 001	NEW

GENERAL NOTES:
1. THIS DRAWING NOT TO BE SCALED.
2. GROUND CONNECTION CAN BE MADE TO TOWER STEEL IF GROUND BAR IS NOT WITHIN 10 FEET.

TOWER/ICE BRIDGE (EXTERIOR)



INTERIOR RADIO SHELTER BUILDING (TYP.)



REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

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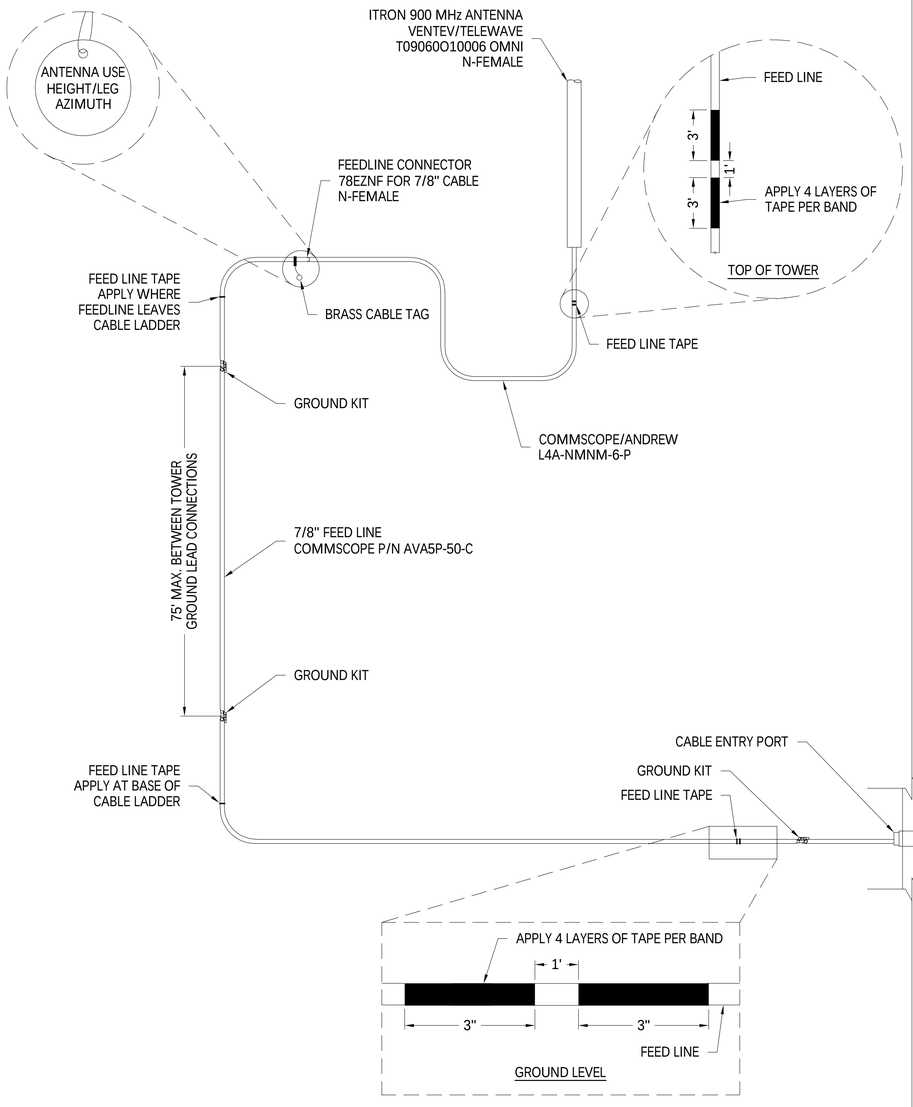
BELLS MILL

CALAMP 220MHZ FEED LINE
ONE-LINE DIAGRAM

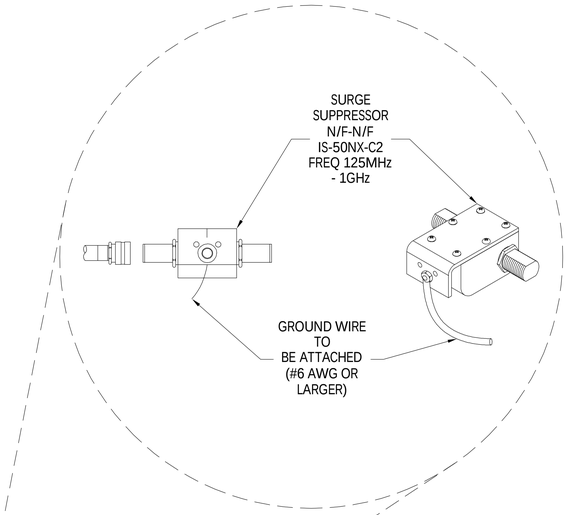
DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	324 SH. 001	NEW

GENERAL NOTES:
1. THIS DRAWING NOT TO BE SCALED.
2. GROUND CONNECTION CAN BE MADE TO TOWER STEEL IF GROUND BAR IS NOT WITHIN 10 FEET.

TOWER/ICE BRIDGE (EXTERIOR)



INTERIOR RADIO SHELTER BUILDING (TYP.)



NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				
REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

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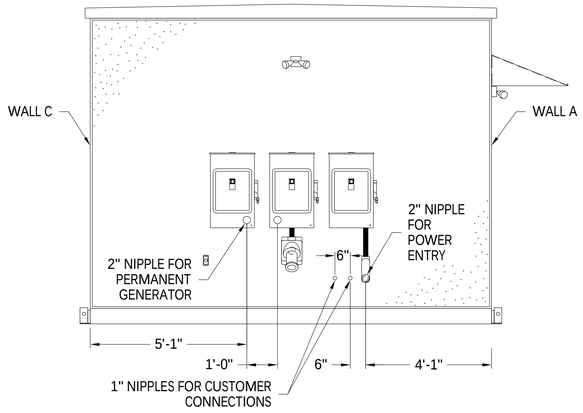
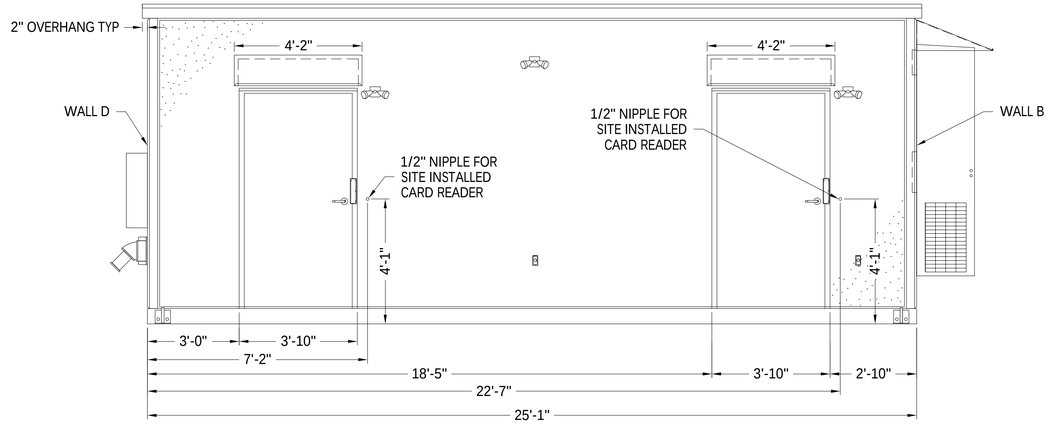
BELLS MILL

ITRON 900MHZ FEED LINE ONE-LINE DIAGRAM

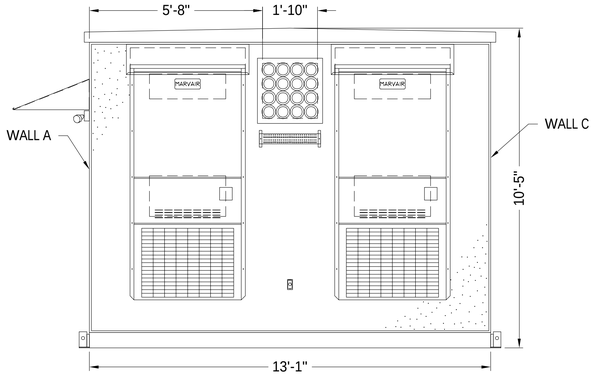
DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	325 SH. 001	NEW



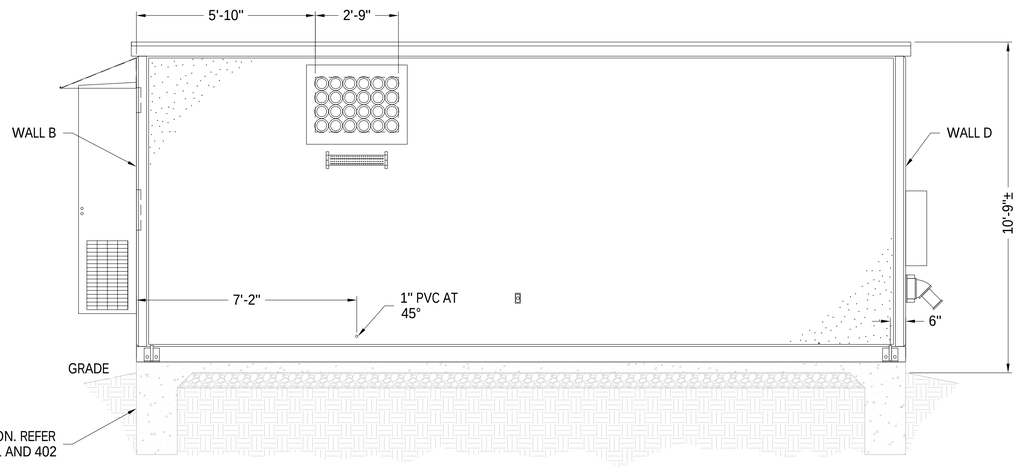
LEFT ELEVATION (WALL D)
SCALE: NONE



FRONT ELEVATION (WALL A)
SCALE: NONE



RIGHT ELEVATION (WALL B)
SCALE: NONE



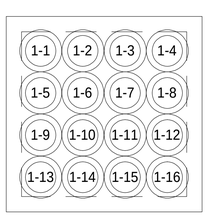
REAR ELEVATION (WALL C)
SCALE: NONE

1 THERMOBOND UN-MANNED EQUIPMENT SHELTER DETAILS
NTS

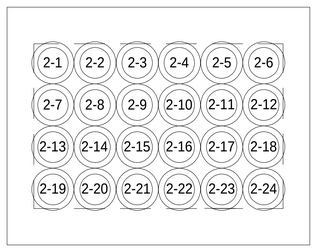
CABLE BOOT NOTES:
1. FOR (1) 1-5/8" COAX, PROVIDE THE FOLLOWING:
   - (1) 4" BOOT ASSEMBLY (SITEPRO1 PART# B400)
   - (1) CUSHION INSERT (SITEPRO1 PART# SR158)

2. FOR (1) 7/8" COAX, PROVIDE THE FOLLOWING:
   - (1) 4" BOOT ASSEMBLY (SITEPRO1 PART# B400)
   - (1) CUSHION INSERT (SITEPRO1 PART# SR78)

3. FOR (1) 1/2" COAX, PROVIDE THE FOLLOWING:
   - (1) 4" BOOT ASSEMBLY (SITEPRO1 PART# B400)
   - (1) CUSHION INSERT (SITEPRO1 PART# SR12FLX)



CABLE PORT 1



CABLE PORT 2

2 CABLE PORT DETAILS
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

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ELKRIDGE, MD 21075
(410) 712-7092

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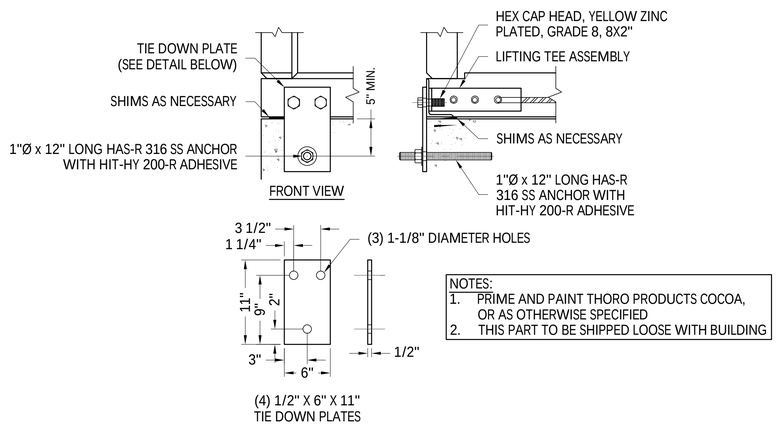
BELLS MILL

COMMUNICATION TOWER
EQUIPMENT SHELTER DETAILS (TTR)

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	400 SH. 001	NEW

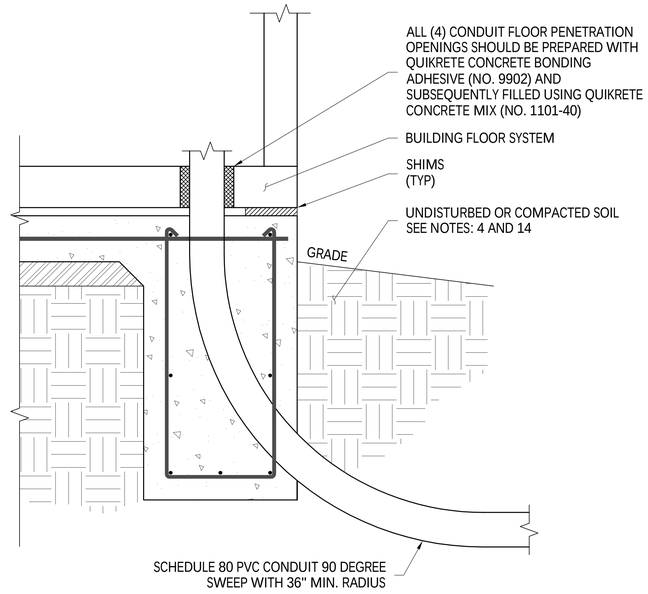
FOUNDATION NOTES:

1. ALL FOUNDATION WORK IS SUBJECT TO LOCAL INSPECTION AND APPROVAL
2. FOUNDATION SURFACE SHALL BE LEVEL TO WITHIN ±1/8" PER 10 LINEAL FEET IN ANY DIRECTION
3. FOUNDATION SHALL BE SQUARE TO WITHIN ±1/4".
4. SOIL BEARING CAPACITY SHALL NOT BE LESS THAN 2000 PSF.
5. CONCRETE COMPRESSIVE STRENGTH SHALL NOT BE LESS THAN 4500 PSI, @ 28 DAYS.
6. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.
7. CONCRETE MIX DESIGN, BATCHING AND CONSTRUCTION PRACTICES SHALL CONFORM TO ALL APPLICABLE ACI REQUIREMENTS
8. DETAILING, FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL COMPLY WITH ACI 315, ACI 318, LATEST REVISIONS
9. TIE DOWN PLATES MUST BE ENTIRELY ABOVE GRADE
10. SHELTER MUST BE SHIMMED AT LOW SPOTS OF FOUNDATION, BUILDING TO HAVE FULL BEARING ON FOUNDATION, SPECIFICATION OF SHIMS IS RESPONSIBILITY OF SHELTER MANUFACTURER AND ARE SHOW FOR REFERENCE ONLY.
11. PROVIDE PROPER DRAINAGE AWAY FROM FOUNDATION AT GRADE
12. SLAB REINFORCEMENT TO BE LOCATED IN UPPER THIRD OF SLAB
13. VAPOR BARRIER 20 MIL
14. UNLESS OTHERWISE NOTED, NATIVE SOILS MAY BE USED AS BACKFILL, PROVIDED THEY DO NOT CONTAIN ORGANIC MATERIALS. IF OFF-SITE SOILS ARE USED FOR BACKFILL, THEY SHALL BE WELL-GRADED GRANULAR SOIL. ACCEPTABLE BORROW MATERIAL SHOULD INCLUDE GW, SW, SP, AND SM WITH A PLASTICITY INDEX LESS THAN 20. MODIFIED PROCTOR MOISTURE DENSITY RELATIONSHIP AND GRADATION (SIEVE) ANALYSIS FOR OFF-SITE MATERIALS SHALL BE RETAINED BY THE CONTRACTOR. BACKFILL SOILS TO BE PLACED IN MAXIMUM 8" LOOSE LIFTS AND COMPACTED TO 95% MODIFIED PROCTOR DENSITY. REFER TO "THIRD SUPPLEMENT TO THE REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL CONSULTING SERVICES" BY JOHN D. HYNES & ASSOCIATES, INC. DATED MAY 23RD, 2022 FOR COMPACTION REQUIREMENTS.

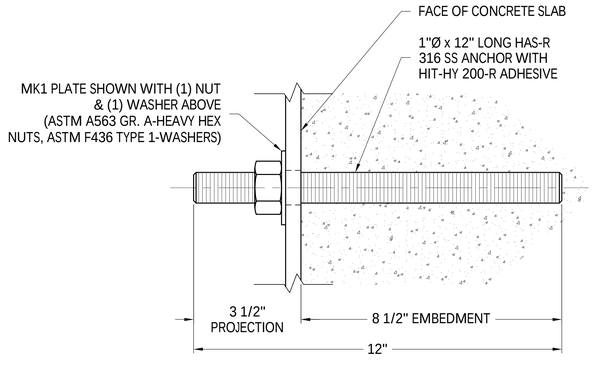


NOTES:
1. PRIME AND PAINT THORO PRODUCTS COCOA, OR AS OTHERWISE SPECIFIED
2. THIS PART TO BE SHIPPED LOOSE WITH BUILDING

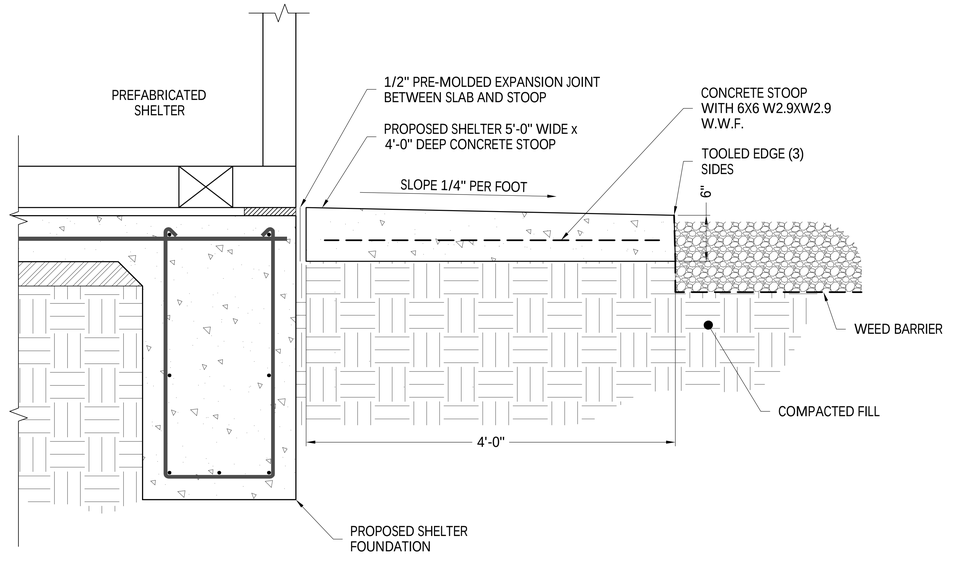
1 TIE DOWN DETAIL
SCALE: 1-1/2" = 1'



2 CONDUIT SHELTER PENETRATION DETAIL
SCALE: 1-1/2" = 1'



3 ANCHOR ROD DETAIL
(FURNISHED BY CONTRACTOR)
SCALE: 6" = 1'



4 SHELTER CONCRETE STOOP
SCALE: 1-1/2"=1'

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
JOHN D. HYNES
55491
PROFESSIONAL ENGINEER
11/07/25

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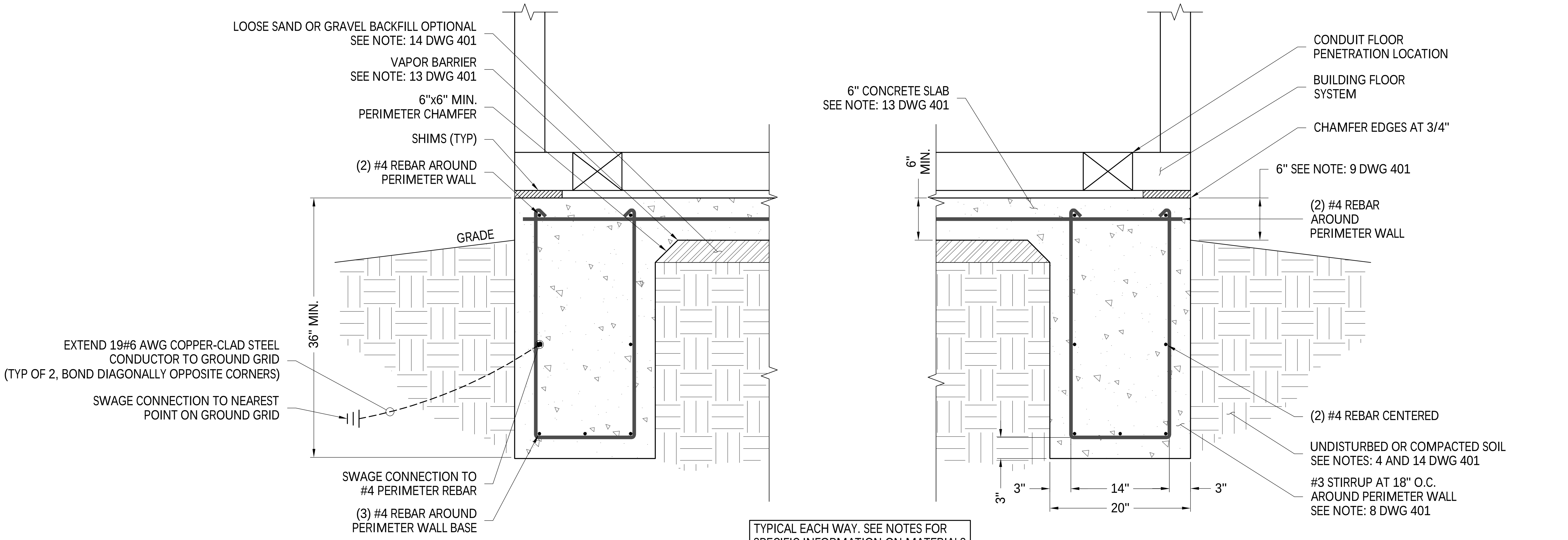
BELLS MILL

SHELTER FOUNDATION DETAILS I

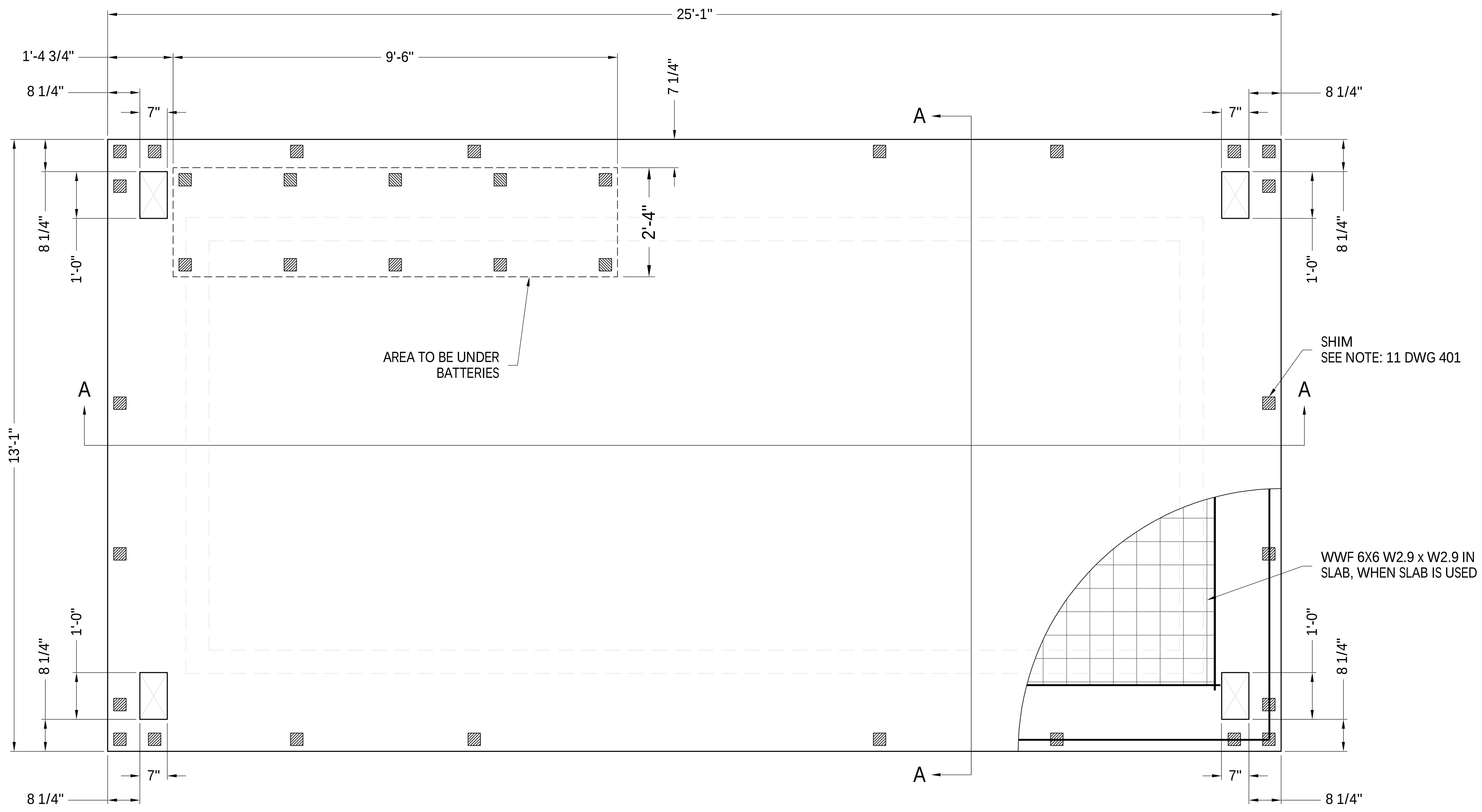
DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	401 SH. 001	NEW

402
SH. 001



TYPICAL EACH WAY. SEE NOTES FOR SPECIFIC INFORMATION ON MATERIALS AND OTHER REQUIREMENTS

1 SECTION A-A
SCALE: 1-1/2"=1'



2 PROPOSED SHELTER FOUNDATION PLAN
SCALE: 3/4"=1'

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

11/07/25

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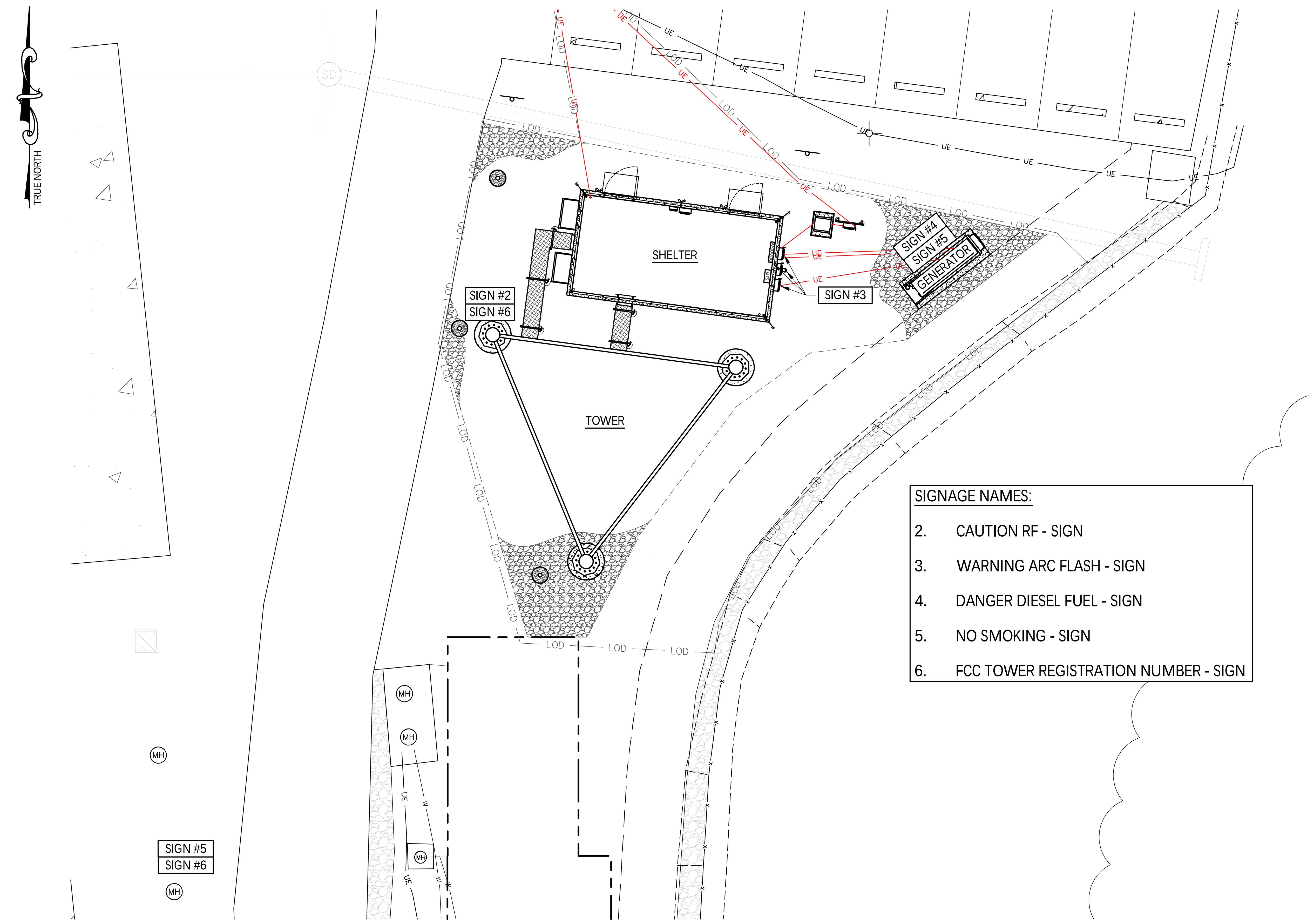
BELLS MILL

COMMUNICATION TOWER SHELTER
FOUNDATION DETAILS (TTR)

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	402	SH. 001	NEW

NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				
REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV

REVISIONS



1 SIGNAGE PLAN
NTS

SIGNAGE NAMES:

2. CAUTION RF - SIGN
3. WARNING ARC FLASH - SIGN
4. DANGER DIESEL FUEL - SIGN
5. NO SMOKING - SIGN
6. FCC TOWER REGISTRATION NUMBER - SIGN

SIGNAGE NOTES:

1. SIGNS SHALL MEASURE 8"X12" (UNLESS OTHERWISE NOTED, BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL, AND PAINTED WITH LONG LASTING UV RESISTANT COATING.
2. ALL SIGNS ARE TO BE MOUNTED USING 17 GAUGE ALUMINUM FENCE WIRE UNLESS OTHERWISE NOTED. DO NOT USE PLASTIC TIE WRAPS TO MOUNT EXTERIOR SIGNS.

CAUTION

CAUTION

RADIO FREQUENCY ENVIRONMENT AREA

AUTHORIZED PERSONNEL ONLY BEYOND THIS POINT! RADIO FREQUENCY EMISSIONS AT THIS MAY SITE MAY EXCEED THE FEDERAL OCCUPATIONAL CONTROLLED EXPOSURE LIMITS

Personnel proceeding beyond this point must obey all posted signs, site guidelines and federal regulations for working in radio frequency environments.

IN ACCORDANCE WITH FEDERAL REGULATIONS ON RADIO FREQUENCY EMISSIONS

12"WIDE X 18" HIGH

WHITE / YELLOW BACKGROUND W/ BLACK LETTERING

NOTES:
- TO BE MOUNTED AT EYE LEVEL ON TOWER NEAR SAFETY CLIMB.
- TO BE MOUNTED WITH STAINLESS STEEL STRAIGHT LEG BRACKETS (PN: Y3531-SSSL) OR APPROVED EQUAL.

2 RF CAUTION - SIGN DETAIL
NTS

WARNING

ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

7"WIDE X 5" HIGH

WHITE/ ORANGE BACKGROUND W/ BLACK LETTERING
(TO BE MOUNTED AT EVERY PANEL AND DISCONNECT)

3 WARNING ARC FLASH - SIGN DETAIL
NTS

2
1 0

DANGER
DIESEL FUEL
KEEP FIRE OR FLAME AWAY
NO SMOKING

132 GAL. CAPACITY

7"WIDE X 10" HIGH

WHITE BACKGROUND W/ BLACK LETTERING
(TO BE MOUNTED ON TANK WITH ADHESIVE BACKING)

4 DANGER DIESEL FUEL - SIGN DETAIL
NTS

NO SMOKING

2" HIGH LETTERING

WHITE BACKGROUND W/ RED LETTERING
(TO BE MOUNTED ON TANK WITH ADHESIVE BACKING)

5 NO SMOKING - SIGN DETAIL
NTS

INFORMATION

Federal Communications Commission
Tower Registration Number

0 0 0 0 0 0 0

Posted in accordance with Federal Communications Commission rules on antenna tower registration 47CFR 17.4(g).

12"WIDE X 8" HIGH

WHITE BACKGROUND W/ BLACK LETTERING

NOTES:
- TO BE MOUNTED AT EYE LEVEL ON TOWER NEAR SAFETY CLIMB.
- TO BE MOUNTED WITH STAINLESS STEEL STRAIGHT LEG BRACKETS (PN:Y3531-SSSL) OR APPROVED EQUAL.
- GC TO OBTAIN FINAL FCC REGISTRATION NUMBER FROM UCOMM TEAM

6 FCC TOWER REGISTRATION NUMBER - SIGN
NTS

11/07/25

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AN EXELON COMPANY

BELLS MILL

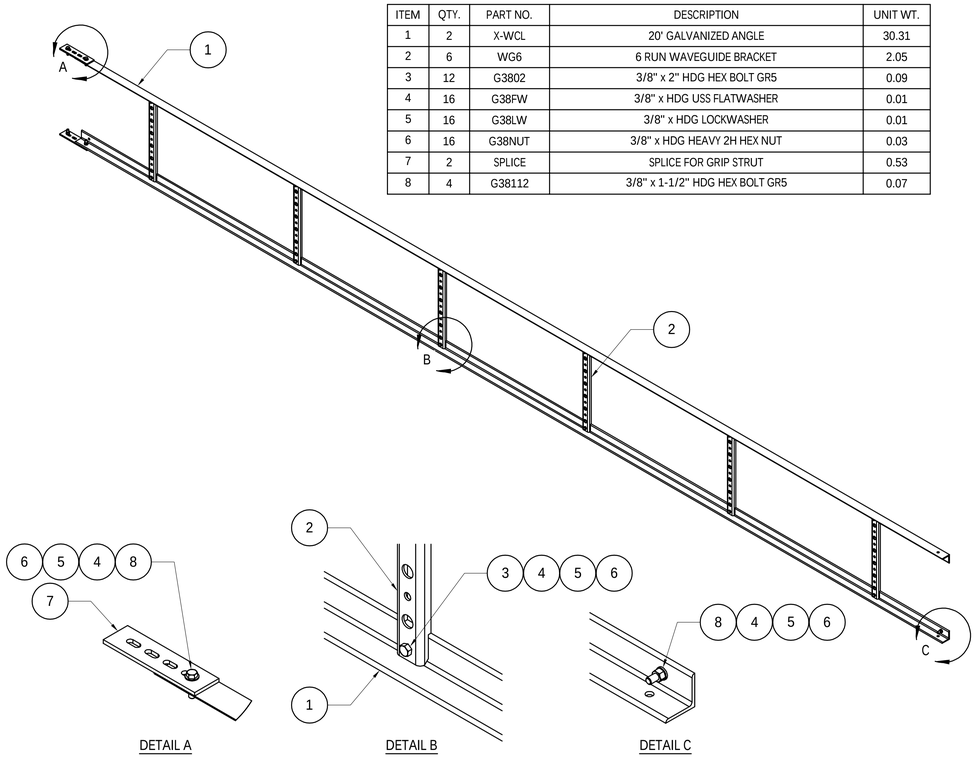
SIGNAGE PLAN AND DETAILS

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	403	SH. 001	NEW

REV	DESCRIPTION		DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION	WR#	NB+C 11/07/25	NB+C 11/07/25				

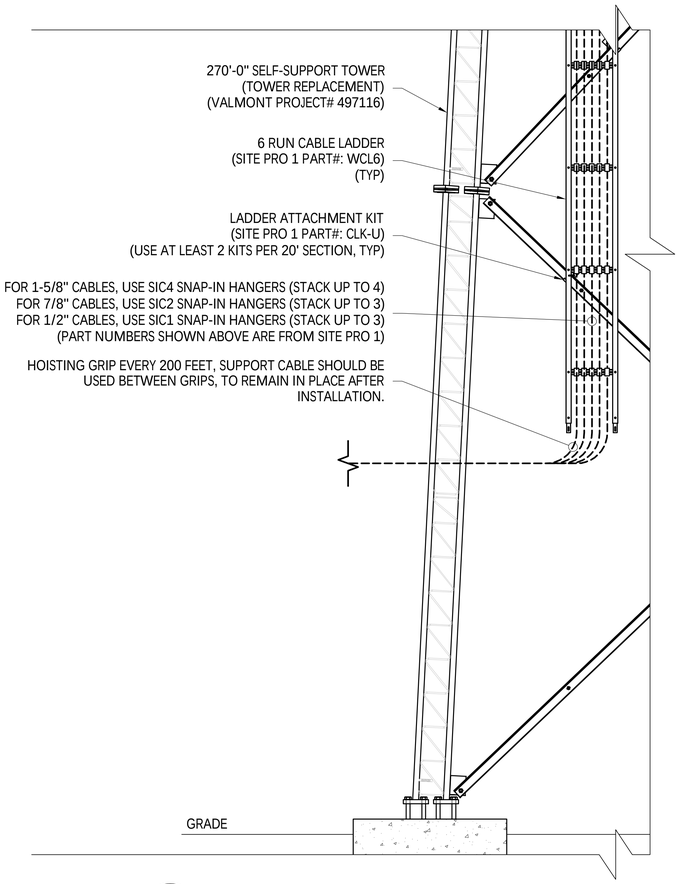
REVISIONS

ITEM	QTY.	PART NO.	DESCRIPTION	UNIT WT.
1	2	X-WCL	20' GALVANIZED ANGLE	30.31
2	6	WG6	6 RUN WAVEGUIDE BRACKET	2.05
3	12	G3802	3/8" x 2" HDG HEX BOLT GR5	0.09
4	16	G38FW	3/8" x HDG USS FLATWASHER	0.01
5	16	G38LW	3/8" x HDG LOCKWASHER	0.01
6	16	G38NUT	3/8" x HDG HEAVY 2H HEX NUT	0.03
7	2	SPLICE	SPLICE FOR GRIP STRUT	0.53
8	4	G38112	3/8" x 1-1/2" HDG HEX BOLT GR5	0.07

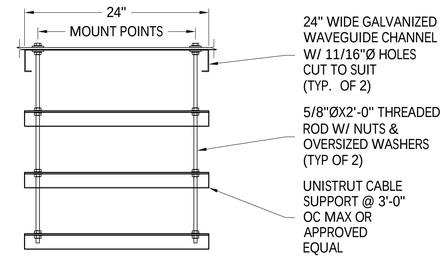


NOTE:
CONTRACTOR SHALL ORDER UNIVERSAL LADDER ATTACHMENT KIT, SITE PRO 1 - PART#: CLK-U OR APPROVED EQUAL, AND USE AT LEAST 2 KITS PER 20' SECTION. ATTACHMENT KIT FITS ANGLES 2"-5" AND ROUND MEMBERS 1"-4-1/2".

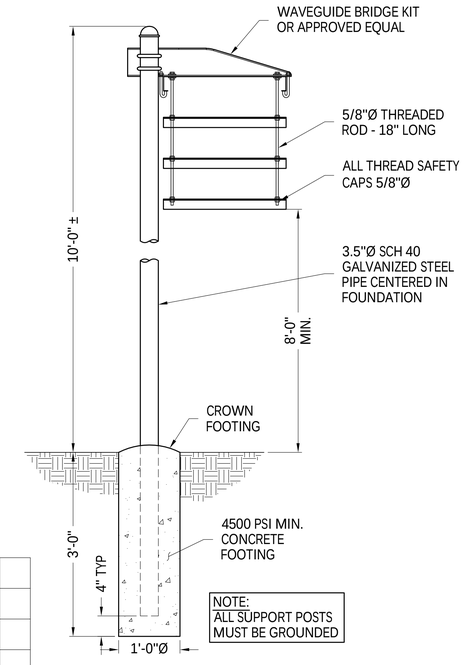
1 CABLE LADDER DETAIL (SITE PRO 1 WCL6)
NTS



2 CABLE LADDER FEEDLINE DETAIL
NTS

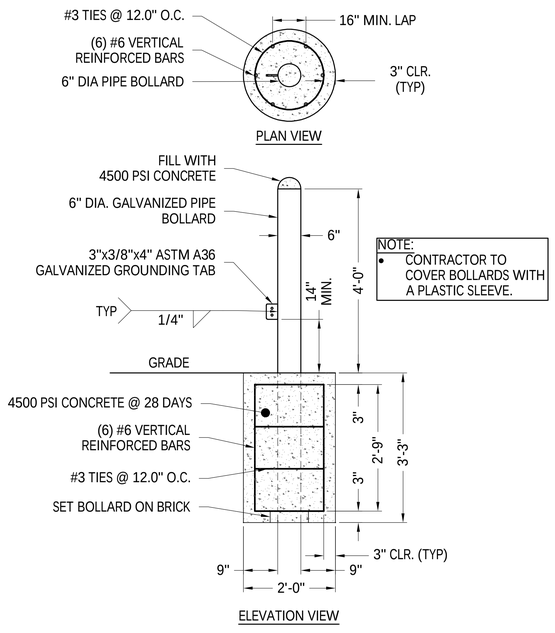


3 CABLE SUPPORT SECTION
NTS



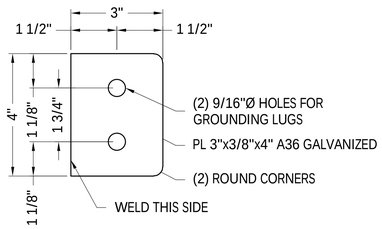
NOTE:
ALL SUPPORT POSTS MUST BE GROUNDED

4 CABLE BRIDGE DETAIL
NTS

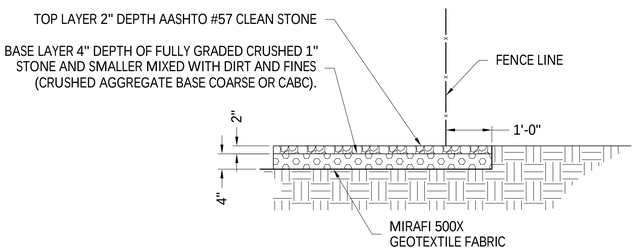


NOTE:
- CONTRACTOR TO COVER BOLLARDS WITH A PLASTIC SLEEVE.

5 BOLLARD DETAIL
SCALE: 1/2"=1'



6 GROUNDING TAB DETAIL
NTS



7 GRAVEL COMPOUND DETAIL
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
KEVIN VANG
55491
PROFESSIONAL ENGINEER
11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

NB+C TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

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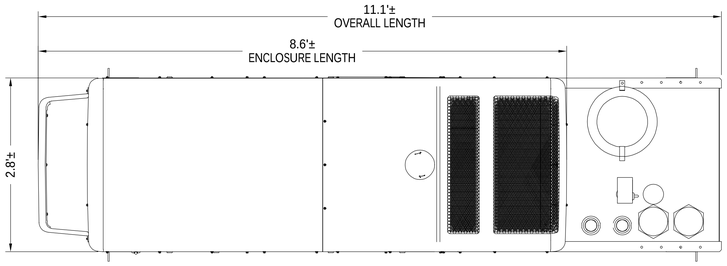
pepco
AN EXELON COMPANY

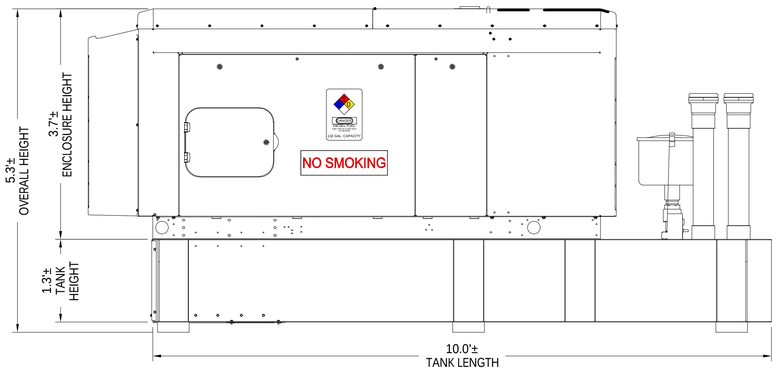
BELLS MILL

MISCELLANEOUS DETAILS

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	404 SH. 001	NEW



TOP VIEW



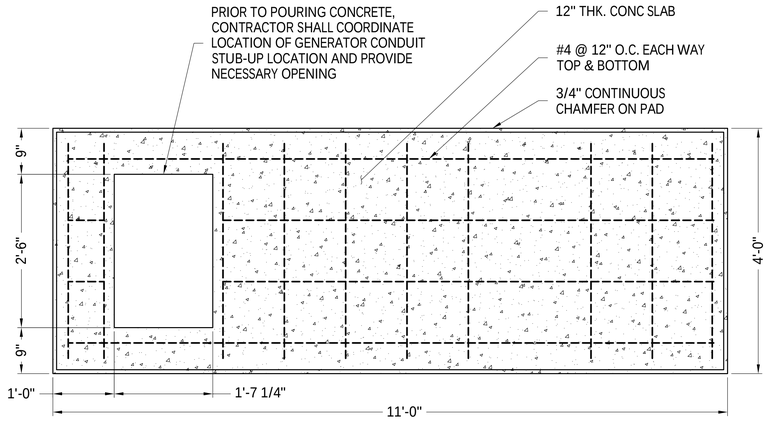
SIDE VIEW

CUMMINS 35kW, C35 D6 (X-SERIES) DIESEL GENERATOR SPECIFICATIONS:

1. WEIGHT: 2,243 LBS
2. DIESEL TANK UL LISTING: UL 142 AND ULC-S601
3. TANK VOLUME: 132 GAL

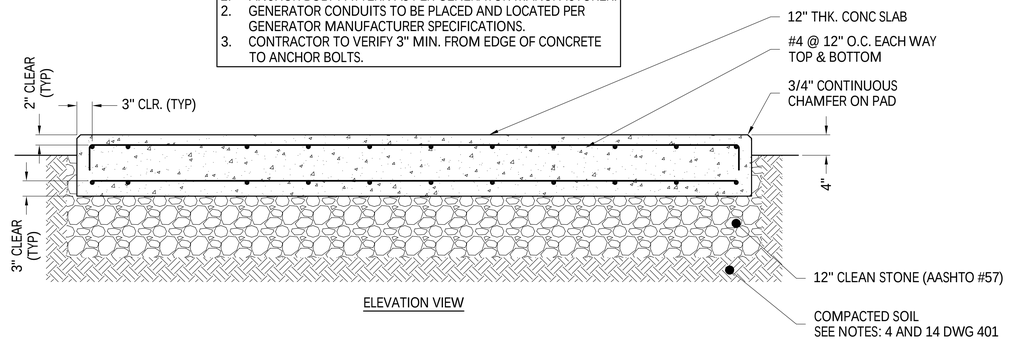
NOTES:
1. GENERATOR IS EQUIPPED WITH EMERGENCY SHUTDOWN SWITCH OUTSIDE GENERATOR ENCLOSURE PER 2017 NEC 445.18(B).
2. THE SPECIFIED OPTIONAL STAND-BY GENERATOR IS NOT A SEPARATELY DERIVED SYSTEM. THE CONTRACTOR SHALL VERIFY THAT THE AUTOMATIC TRANSFER SWITCH DOES NOT SWITCH THE NEUTRAL CONDUCTOR. IF THE MANUFACTURER INSTALLED A MAIN BONDING JUMPER IN THE GENERATOR, THE CONTRACTOR SHALL DISCONNECT AND REMOVED THE JUMPER TO PREVENT VIOLATING NEW ARTICLE 250.96, OBJECTIONABLE CURRENT OVER GROUNDING CONDUCTORS.

1 CUMMINS 35kW DIESEL GENERATOR DETAIL
NTS



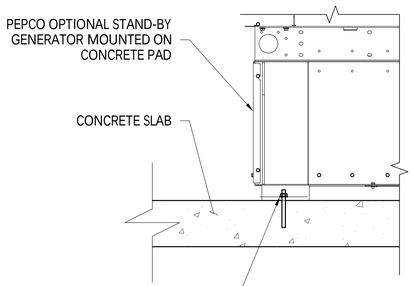
PLAN VIEW

NOTES:
1. ANCHOR BOLT PATTERN AS PER GENERATOR MANUFACTURER.
2. GENERATOR CONDUITS TO BE PLACED AND LOCATED PER GENERATOR MANUFACTURER SPECIFICATIONS.
3. CONTRACTOR TO VERIFY 3" MIN. FROM EDGE OF CONCRETE TO ANCHOR BOLTS.



ELEVATION VIEW

2 GENERATOR CONCRETE PAD DETAIL
NTS



3 GENERATOR MOUNTING DETAIL
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

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ELKRIDGE, MD 21075
(410) 712-7092

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BELLS MILL

COMMUNICATION TOWER
GENERATOR DETAILS (TTR)

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	_KV	405 SH. 001	NEW

500
SH. 001

TRUE NORTH

EXISTING ACCESS DRIVE

EXISTING UNDERGROUND UTILITIES (TYP)

EXTEND (1) 4" SCHEDULE 80 PVC FIBER CONDUIT FROM THE EXISTING SUBSTATION CONTROL BUILDING TO THE INSIDE CORNER OF THE NEW EQUIPMENT SHELTER. (APPROX. 437'-5" LENGTH)

(1) 30"X48" HANDHOLE (HEAVY TRAFFIC RATED ONLY) (TYP)

EXISTING PEPCO SUBSTATION

EXISTING PARKING LOT (TYP)

TOTAL LIMITS-OF-DISTURBANCE (4,641 SQ. FT.)

(1) 30"X48" HANDHOLE (HEAVY TRAFFIC RATED ONLY) (TYP)

EXISTING TRANSMISSION TOWER (TYP)

PROPOSED ELECTRICAL JUNCTION BOX & 208V, 250A, 2-POLE FUSED DISCONNECT (TO BE COMPLETED BY OTHERS)

EXISTING PEPCO 34.5/13.2kV CONTROL HOUSE

18'-0"

EXTEND (2) 500 KCMIL CU (208V-LL) ALONG EXISTING CABLE TRAY (TO BE COMPLETED BY OTHERS)

COORDINATE (1) WALL PENETRATION AND ELECTRICAL CONDUIT ROUTING WITHIN AND OUTSIDE OF THE CONTROL HOUSE

NEW JUNCTION BOX ON BUILDING EXTERIOR. PROVIDE NAMEPLATE READING "COMMUNICATIONS TOWER TRANSFORMER - 250A, 208V, 1PH". (TO BE COMPLETED BY OTHERS)

EXTEND (1) 4" SCHEDULE 80 PVC SPARE CONDUIT FROM THE EXISTING SUBSTATION CONTROL BUILDING TO THE NEW EQUIPMENT SHELTER. THE SPARE CONDUIT TO END BEFORE THE CONTROL HOUSE AND THE HANDHOLE BEFORE NEW EQUIPMENT SHELTER (APPROX. 404'-4" LENGTH)

EXTEND (1) 4" SCHEDULE 80 PVC POWER CONDUIT FROM THE EXISTING SUBSTATION CONTROL BUILDING TO THE PROPOSED TRANSFORMER DISCONNECT ATTACHED TO THE H FRAME (APPROX. 460'-3" LENGTH)

ALL CONDUITS AFTER HANDHOLES TO BE BURIED AT 2'-0" MAX DEPTH TO CLEAR STORM WATER CULVERT AT 2'-11" DEPTH

PROPOSED 50kVA, 208V-120/240V, 1PH, NEMA 3R STEP-UP DRY TYPE TRANSFORMER & H-FRAME WITH PRIMARY DISCONNECT

DISCONNECT ON EXTERIOR OF PEPCO PREFABRICATED EQUIPMENT SHELTER

PEPCO OPTIONAL STAND-BY 35kW DIESEL GENERATOR ON 4'-0" X 11'-0" CONCRETE PAD

THERMOBOND 13'-1" X 25'-1" UNMANNED PRE-FABRICATED EQUIPMENT SHELTER

PEPCO ICE BRIDGE (TYP)

270'-0" SELF-SUPPORT TOWER

EXISTING PEPCO SUBSTATION BUILDING

EXISTING TREELINE (TYP)

EXISTING PEPCO SECURITY FENCE (TYP)

NOTE:
1. CONTRACTOR TO PERFORM PRIVATE UTILITY LOCATE PRIOR TO INSTALLING ANY UNDERGROUND CONDUIT.
2. CONTRACTOR TO CONFIRM FINAL POWER AND FIBER DEMARCATION POINTS WITH SUBSTATION ENGINEER AND/OR UTILITY COMPANY PRIOR TO CONSTRUCTION OF ANY CONDUITS. THIS SHOULD BE DONE AT ONSET OF CONSTRUCTION.
3. COORDINATE FINAL CONDUIT ROUTING WITH ALL EXISTING UNDERGROUND UTILITIES PRIOR TO START OF WORK.
4. COORDINATE FINAL CONDUIT INSTALLATION METHODS (HAND DIG, SAW CUT, DIRECTIONAL BORE, ETC.) WITH SUBSTATION REPRESENTATIVE PRIOR TO START OF WORK.
5. CONTRACTOR TO USE SOFT DIG METHODS FOR ALL CONDUIT INSTALLATIONS WITHIN SUBSTATION FENCED AREA.
6. COORDINATE REMOVAL AND/OR RELOCATION OF EXISTING UNDERGROUND UTILITIES AFFECTED BY TOWER MAT FOUNDATION WITH PEPCO SUBSTATION ENGINEERING PRIOR TO START OF WORK.

REV	DESCRIPTION	WR#	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION		NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

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STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

11/07/25

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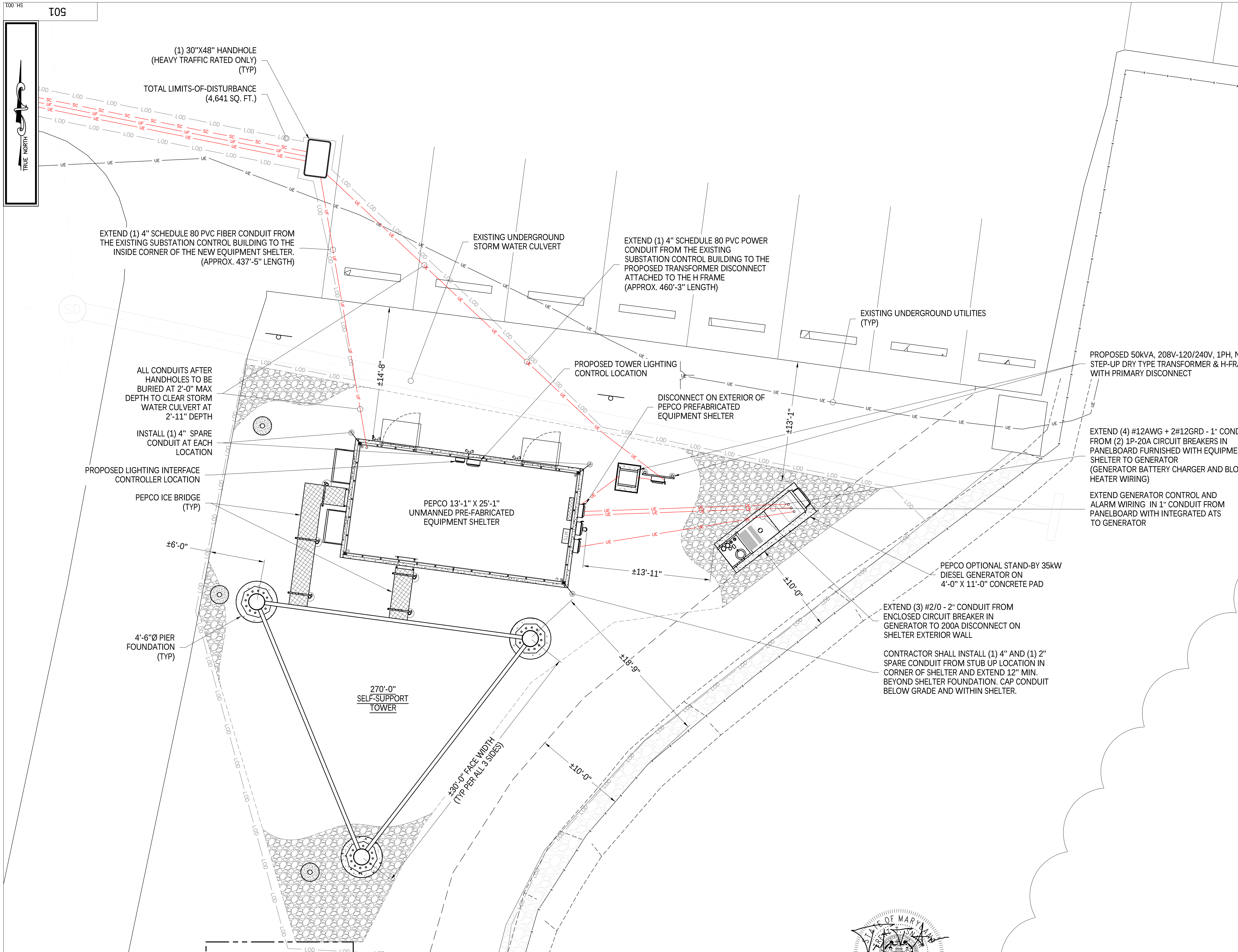
BELLS MILL

COMMUNICATION TOWER OVERALL ELECTRICAL PLAN (TTR)

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	1" = 20'	__KV	500 SH. 001	NEW


TRUE NORTH
(1) 30"X48" HANDHOLE (HEAVY TRAFFIC RATED ONLY) (TYP)
TOTAL LIMITS-OF-DISTURBANCE (4,641 SQ. FT.)
EXTEND (1) 4" SCHEDULE 80 PVC FIBER CONDUIT FROM THE EXISTING SUBSTATION CONTROL BUILDING TO THE INSIDE CORNER OF THE NEW EQUIPMENT SHELTER. (APPROX. 437'-5" LENGTH)
EXISTING UNDERGROUND STORM WATER CULVERT
EXTEND (1) 4" SCHEDULE 80 PVC POWER CONDUIT FROM THE EXISTING SUBSTATION CONTROL BUILDING TO THE PROPOSED TRANSFORMER DISCONNECT ATTACHED TO THE H FRAME (APPROX. 460'-3" LENGTH)
EXISTING UNDERGROUND UTILITIES (TYP)
PROPOSED 50kVA, 208V-120/240V, 1PH, NEMA 3R STEP-UP DRY TYPE TRANSFORMER & H-FRAME WITH PRIMARY DISCONNECT
ALL CONDUITS AFTER HANDHOLES TO BE BURIED AT 2'-0" MAX DEPTH TO CLEAR STORM WATER CULVERT AT 2'-11" DEPTH
INSTALL (1) 4" SPARE CONDUIT AT EACH LOCATION
PROPOSED LIGHTING INTERFACE CONTROLLER LOCATION
PEPCO ICE BRIDGE (TYP)
PROPOSED TOWER LIGHTING CONTROL LOCATION
DISCONNECT ON EXTERIOR OF PEPCO PREFABRICATED EQUIPMENT SHELTER
EXTEND (4) #12AWG + 2#12GRD - 1" CONDUIT FROM (2) 1P-20A CIRCUIT BREAKERS IN PANELBOARD FURNISHED WITH EQUIPMENT SHELTER TO GENERATOR (GENERATOR BATTERY CHARGER AND BLOCK HEATER WIRING)
EXTEND GENERATOR CONTROL AND ALARM WIRING IN 1" CONDUIT FROM PANELBOARD WITH INTEGRATED ATS TO GENERATOR
±14'-8"
±13'-1"
PEPCO 13'-1" X 25'-1" UNMANNED PRE-FABRICATED EQUIPMENT SHELTER
±6'-0"
±13'-11"
±10'-0"
PEPCO OPTIONAL STAND-BY 35kW DIESEL GENERATOR ON 4'-0" X 11'-0" CONCRETE PAD
EXTEND (3) #2/0 - 2" CONDUIT FROM ENCLOSED CIRCUIT BREAKER IN GENERATOR TO 200A DISCONNECT ON SHELTER EXTERIOR WALL
CONTRACTOR SHALL INSTALL (1) 4" AND (1) 2" SPARE CONDUIT FROM STUB UP LOCATION IN CORNER OF SHELTER AND EXTEND 12" MIN. BEYOND SHELTER FOUNDATION. CAP CONDUIT BELOW GRADE AND WITHIN SHELTER.
4'-6"Ø PIER FOUNDATION (TYP)
±18'-9"
270'-0" SELF-SUPPORT TOWER
±30'-0" FACE WIDTH (TYP PER ALL 3 SIDES)
±10'-0"

NOTE:

1. CONTRACTOR TO PERFORM PRIVATE UTILITY LOCATE PRIOR TO INSTALLING ANY UNDERGROUND CONDUIT.
2. CONTRACTOR TO CONFIRM FINAL POWER AND FIBER DEMARCATION POINTS WITH SUBSTATION ENGINEER AND/OR UTILITY COMPANY PRIOR TO CONSTRUCTION OF ANY CONDUITS. THIS SHOULD BE DONE AT ONSET OF CONSTRUCTION.
3. COORDINATE FINAL CONDUIT ROUTING WITH ALL EXISTING UNDERGROUND UTILITIES PRIOR TO START OF WORK.
4. COORDINATE FINAL CONDUIT INSTALLATION METHODS (HAND DIG, SAW CUT, DIRECTIONAL BORE, ETC.) WITH SUBSTATION REPRESENTATIVE PRIOR TO START OF WORK.
5. CONTRACTOR TO USE SOFT DIG METHODS FOR ALL CONDUIT INSTALLATIONS WITHIN SUBSTATION FENCED AREA.
6. COORDINATE REMOVAL AND/OR RELOCATION OF EXISTING UNDERGROUND UTILITIES AFFECTED BY TOWER MAT FOUNDATION WITH PEPCO SUBSTATION ENGINEERING PRIOR TO START OF WORK.

REV	DESCRIPTION		DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION	WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

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STATE OF MARYLAND PROFESSIONAL ENGINEER 55491

11/07/25

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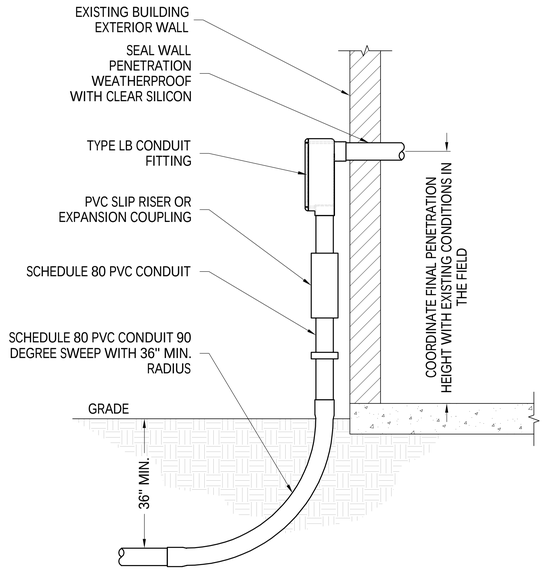
BELLS MILL

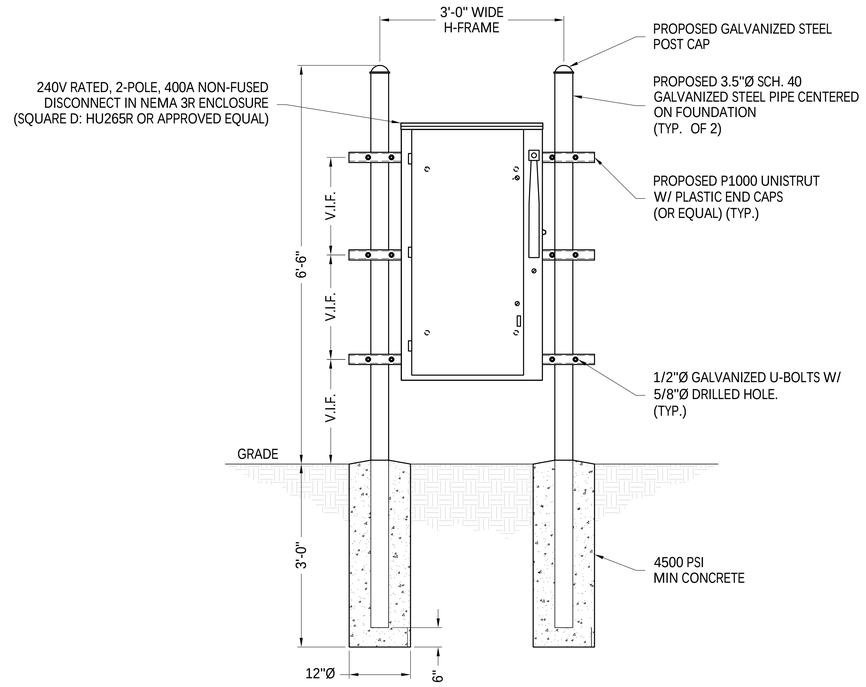
COMPOUND ELECTRICAL PLAN (PEPCO)

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	1/4" = 1'	__KV	501	SH. 001	NEW

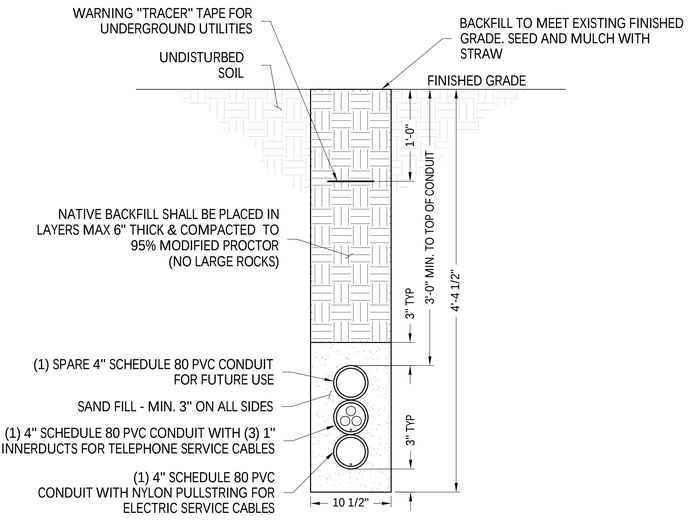


NOTE:
PVC CONDUIT SHALL BE INSTALLED AT A DEPTH OF 36" BELOW GRADE TO THE EXTERIOR WALL OF THE CONTROL HOUSE. THE CONDUIT SHALL UTILIZE A 36" SWEEP AT THE CONTROL HOUSE AND CONTINUE TO THE POINT WHERE THE PENETRATION INTO THE STRUCTURE CAN BE MADE. THE CONDUIT SHALL TRANSITION TO A TYPE LB CONDUIT FITTING TO THE STRUCTURE. CORE DRILL THROUGH THE EXTERIOR WALL UTILIZING A BIT TO ALLOW FOR THE OUTSIDE DIAMETER OF THE ELBOW. ONCE THE PENETRATION INSERT THE ELBOW AND SEAL AROUND THE PVC WITH CLEAR SILICON TO ENSURE THE ELBOW IS SECURE.

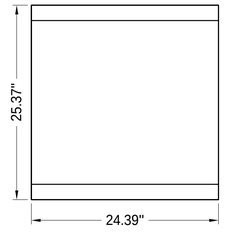
1 CONDUIT WALL PENETRATION DETAIL
NTS



2 TRANSFORMER DISCONNECT H-FRAME DETAIL
NTS

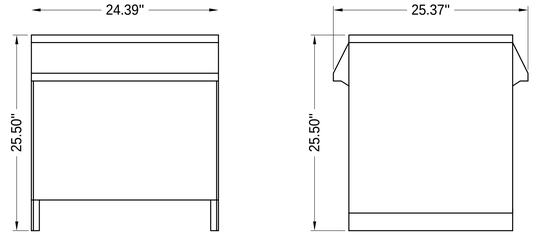


3 UTILITY TRENCH DETAIL
NTS



PLAN

- MANUFACTURER: LARSON ELECTRONICS
- PART #: MT-DOE16-1P-208V-50KVA-120.240V-N3R
- PHASE: 1
- kVA: 50
- PRIMARY VOLTAGE: 208
- SECONDARY VOLTAGE: 120/240V
- FREQUENCY: 60 Hz
- ENCLOSURE: NEMA 3R HEAVY DUTY VENTILATED
- DIMENSIONS: 25.50"H x 24.39"W x 25.37"D
- WEIGHT: 350 LBS.



FRONT SIDE VIEW

4 TRANSFORMER DETAIL
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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BELLS MILL

COMMUNICATION TOWER
ELECTRICAL DETAILS (TTR)

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	502 SH. 001	NEW

503
SH. 001

NOTE:
ALL ELECTRICAL CONDUCTORS TO BE XHHW-2 COPPER UNLESS NOTED OTHERWISE.

POWER RISER NOTES

1. EXISTING PRIMARY FEED FROM 30MVA TRANSFORMER NO. 9.
2. EXISTING STATION SERVICE TRANSFORMER NO. 2 - (3) 50kVA 1PH TRANSFORMERS BANKED FOR 208Y/120V, 3PH, 4W.
3. NEW (4) 500 KCMIL CU (208Y/120V-LLLN) - 4" CONDUIT (TO BE COMPLETED BY OTHERS)
4. NEW JUNCTION BOX. (TO BE COMPLETED BY OTHERS)
5. FEED TO 208Y/120V, 3PH, 4W STATION SERVICE PANEL.
6. NEW (2) 500 KCMIL CU (208V-LL) - 3" CONDUIT (TO BE COMPLETED BY OTHERS)
7. NEW 208/120V, 250A, 2-POLE FUSED DISCONNECT W/ MERSEN #TR250R FUSES. PROVIDE NAMEPLATE READING "COMMUNICATIONS TOWER TRANSFORMER - 250A, 208V, 1PH". (TO BE COMPLETED BY OTHERS)
8. NEW (2) 500 KCMIL CU (208V-LL) RAN ALONG EXISTING CABLE TRAY (TO BE COMPLETED BY OTHERS)
9. NEW JUNCTION BOX. PROVIDE NAMEPLATE READING "COMMUNICATIONS TOWER TRANSFORMER - 250A, 208V, 1PH". (TO BE COMPLETED BY OTHERS)
10. EXTEND (1) 19#6 AWG COPPER-CLAD STEEL CONDUCTOR TO GROUND GRID.
11. EXTEND (3) #3/0 + #6GRD - 2" CONDUIT.
12. WEATHERPROOF, 120/240V, 1-PHASE, 3-WIRE, 35KW OPTIONAL STAND-BY DIESEL GENERATOR MOUNTED ON CONCRETE PAD.
13. EXTEND (3) #2/0 - 2" CONDUIT.
14. GENERATOR CONTROL AND ALARM WIRING BETWEEN MAIN CONTROL PANEL, ATS, AND GENERATOR. EXTEND 75' OF BELDEN 9944 - RS-232, #22-8C CABLING AND 100' OF BELDEN RS-232, #22-37C PER THE SUPPLEMENTAL GENERATOR WIRING JOB AID. PROVIDE 1" SCH40 PVC CONDUIT FROM ATS/ILC TO GENERATOR.
15. EXTEND (4) #12AWG + #12GRD - 1" CONDUIT FROM (2) 1P20A CIRCUIT BREAKERS IN PANEL FURNISHED WITH EQUIPMENT SHELTER TO GENERATOR (GENERATOR BATTERY CHARGER AND BLOCK HEATER WIRING).
16. 240V RATED, 2P-200A FUSED DISCONNECT SWITCH WITH (2) 200A FUSES MOUNTED ON EXTERIOR WALL PROVIDED AND INSTALLED BY SHELTER MANUFACTURER. INSTALL WARNING SIGN #2 PER DETAIL 1 THIS SHEET.
17. EXTEND (2) 4" SCHEDULE 40 PVC CONDUITS WITH NYLON PULLROPE FROM EXISTING PEPCO CONTROL HOUSE TO NEW PEPCO SHELTER FOR EXTENSION OF FIBER. COORDINATE FINAL FIBER DESIGN WITH SUBSTATION ENGINEER PRIOR TO START OF WORK.
18. TOWER LIGHTING CONTROLLER PROVIDED BY TOWER MANUFACTURER.
19. EXTEND (2) #12AWG+#12GRD IN 1" CONDUIT FROM NEW 120/240V RATED, 1-POLE, 20AMP CIRCUIT BREAKER IN PANELBOARD TO TOWER LIGHTING CONTROLLER.
20. GENERATOR PLUG PROVIDED AND INSTALLED BY SHELTER MANUFACTURER (SHOWN FOR REFERENCE)
21. 120/240V, 1-PHASE, 3W, 200A M.C.B. PANELBOARD WITH INTEGRATED ATS (TWO-POLE W/ SOLID NEUTRAL) MOUNTED ON INTERIOR WALL PROVIDED AND INSTALLED BY SHELTER MANUFACTURER. INSTALL WARNING SIGN #2 PER DETAIL 1 THIS SHEET.
22. 240V RATED, 200A MANUAL TRANSFER SWITCH (DOUBLE-THROW SWITCH) MOUNTED ON INTERIOR WALL PROVIDED AND INSTALLED MY SHELTER MANUFACTURER.
23. EXTEND ALARM CABLING IN 1" CONDUIT FROM 66 BLOCK IN EQUIPMENT SHELTER TO TOWER LIGHTING CONTROLLER.
24. EXTEND ALARM CABLING IN 1" CONDUIT FROM TOWER LIGHTNING CONTROLLER TO TOWER VIA PEPCO ICE BRIDGE.
25. EXTEND (2) 600 KCMIL (208V-LL) IN NEW 4" SCH80 PVC CONDUIT.
26. PROVIDE & INSTALL 208V, 400A, NEMA 3R NON-FUSED DISCONNECT SWITCH ON H-FRAME. PROVIDE NAMEPLATE READING "XFMR PRIMARY DISCO - FED 250A FROM CONTROL HOUSE".
27. EXTEND (2) 250 KCMIL (208V-LL) IN NEW 4" SCH80 PVC CONDUIT.
28. PROVIDE & INSTALL WEATHERPROOF 50kVA, 208V-120/240V, 1PH, 3W STEP-UP TRANSFORMER. BOND SECONDARY NEUTRAL TO GROUND BUS. PROVIDE NAMEPLATE READING "TELCO TOWER SHELTER STEP-UP TRANSFORMER". INSTALL WARNING SIGNS #1 & #2 PER DETAIL 1 THIS SHEET.
29. EXTEND (3) 250 KCMIL (120/240V-LLN) IN NEW 4" SCH80 PVC CONDUIT TO FUSED DISCONNECT ON SHELTER EXTERIOR.

NOTE:
SEE SHELTER DRAWINGS FOR SHELTER PANEL SCHEDULE.

NOTE:
PROVIDE WARNING SIGN AT TRANSFORMER PER 2017 NEC 702.7(B).
YELLOW BACKGROUND AND BLACK BLOCK STYLE LETTERING.

WARNING
SHOCK HAZARD EXIST IF GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE IS ENERGIZED

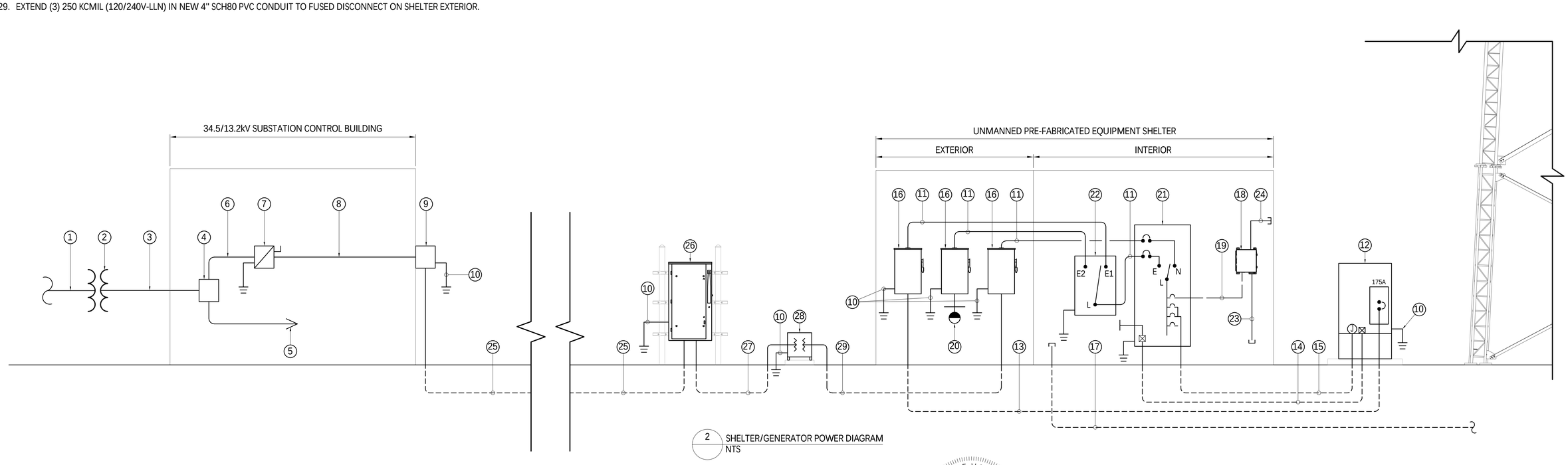
SIGN #1

NOTE:
PROVIDE WARNING SIGN AT SERVICE-ENTRANCE EQUIPMENT PER 2017 NEC 702.7(A).
YELLOW BACKGROUND AND BLACK BLOCK STYLE LETTERING.

CAUTION:
TWO SOURCES OF POWER SUPPLY.
35kW 120/240V DIESEL GENERATOR FOR NON-SEPARATELY DERIVED STANDBY SYSTEM LOCATED ON PAD ADJACENT TO SHELTER

SIGN #2

1 NEC 702.7 WARNING SIGNS
NTS



2 SHELTER/GENERATOR POWER DIAGRAM
NTS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

NB+C™ TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
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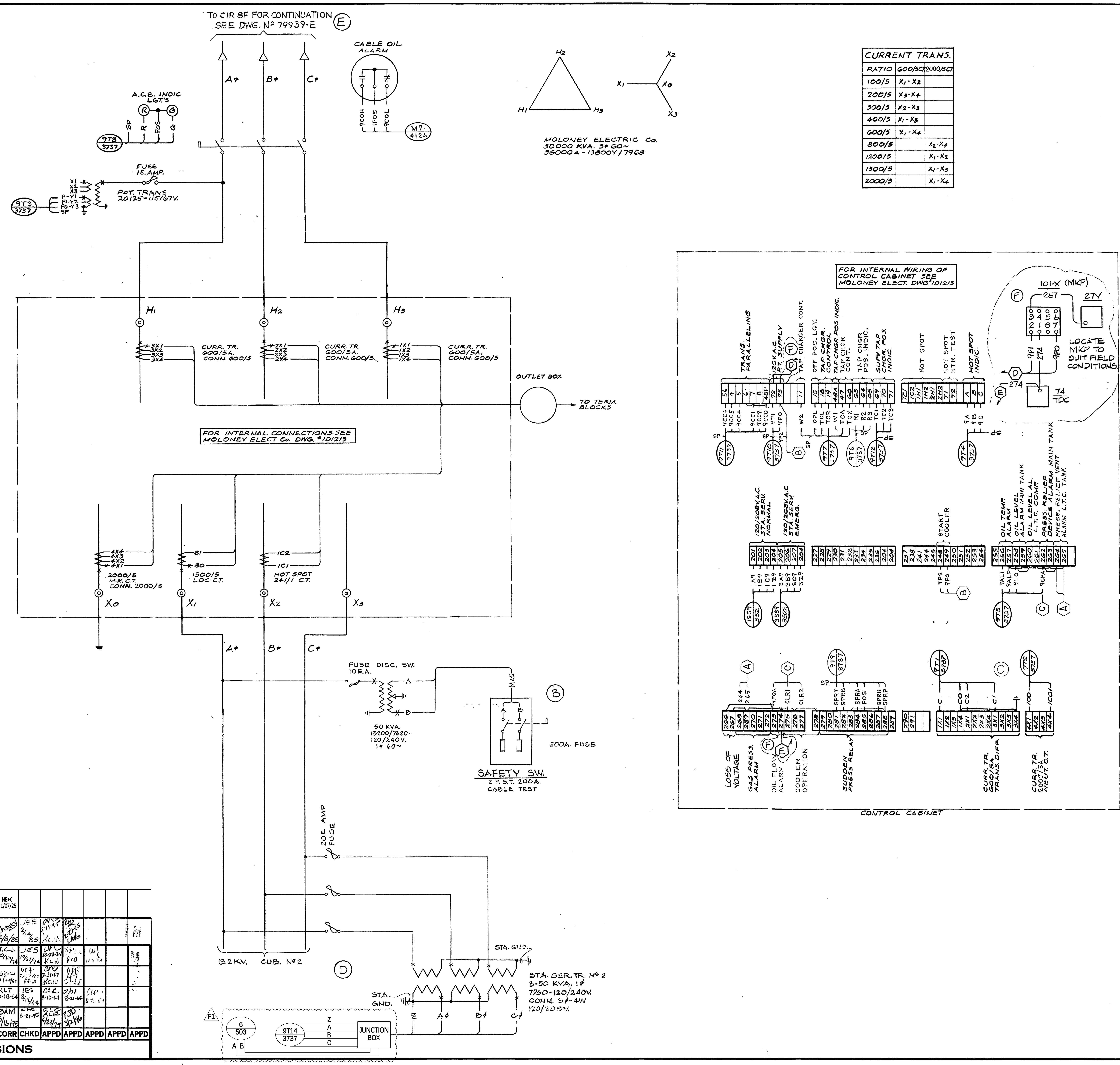
BELLS MILL

COMMUNICATION TOWER
ELECTRICAL RISER DIAGRAM (TTR)

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	503 SH. 001	NEW



CURRENT TRANS.		
RATIO	600/5CT.	2000/5CT.
100/5	X_1-X_2	
200/5	X_3-X_4	
300/5	X_2-X_3	
400/5	X_1-X_3	
600/5	X_1-X_4	
800/5		X_2-X_4
1200/5		X_1-X_2
1500/5		X_1-X_3
2000/5		X_1-X_4

REFERENCE DRAWINGS

7E3737 - 13.5/13.2KV. SUBSTA.-CONT. DIAG. 13.2KV. M.C. SWGR. BUS SECT. Nº 1

7E3522 - 34.5/13.2KV. SUBSTA-CONT. DIAG 120/208V. 3φ4W. STA. SERV.

7E3740 - 13.5/13.2KV SUBSTA.-CONT. DIAG. SUPV.

4E4126 - CONT. DIAG. MISC. ALARM RELAY PANEL.

(E) 79939E - 33KV SW C D CIR 8F

MOLONEY ELECTRIC Co.

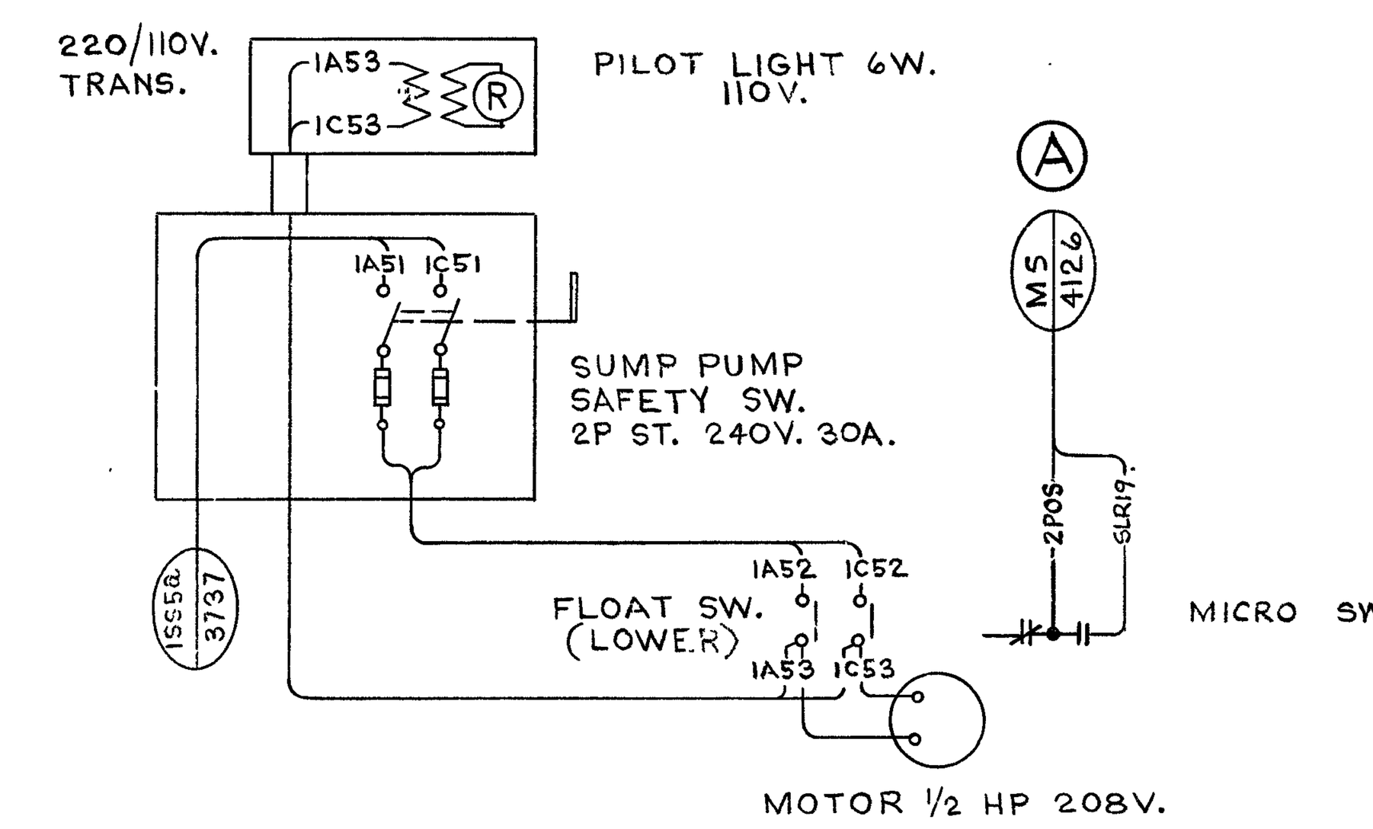
1A1142 - NAMEPLATE

1D1213 - LTC & AUXILIARY CONNECTION DIAGRAM

1D1212 - LTC & AUXILIARY SCHEMATIC DIAGRAM

NOTE

(C) 1. CHANGED WIRE DESIGNATIONS.



SUMP PUMP No. 1

	DESCRIPTION	CORR	CHKD	APPD	APPD	APPD	APPD	APPD
F1	ADDED TELCO TOWER POWER DESIGN EPS# PM20RT062	NB+C 11/07/25						
E	CHANGED FEED TO TR. Nº 9 FROM CIR 12F TO CIR 8F (JOB Nº 22142)	Chaney 2/8/85	JES 2/14/85		2-22-85			
D	ADDED A.C. STA. SER. FOR INSTALL. OF C.C.C. JOB*22171	T.C.J. 10/10/74	JES 10/21/74	10-22-74				
C	CHANGED TO AGPFF WITH FIELD INSTALLATION FOR RECORD ONLY. SEE NOTE 1	SBG 7/20/67	7/27/67	7-31-67				
B	ADDED EQUIP. FOR INSTALL. OF CABLE TEST	KLT 8-18-64	JES 8/18/64	C.C.C. 8-19-64	8-21-64			
F	ADDED MKP FOR FLOW FAILURE ALARM. JOB 22106	BAM 5/16/95	WAO. 6-21-95	GLC ALR 6/23/95	RSD 3/2/96			

REVISIONS

SCAN VERIF REV	APPD
F	

BELLS MILL ROAD SUBSTA. Nº 121
13.2KV. SUBSTATION
CONTROL DIAGRAM
30MVA. TRANSFORMER Nº 9

POTOMAC ELECTRIC POWER CO.
ENGINEERING DEPARTMENT

REV. F

	APPD.	APPD.	APPD.	APPD.	APPD.
SCALE ~					
DATE 6-16-64	6-24-64	6-24-64			
DR. BY E.A.P.	C.C.C.				
CHKD. JES 6-17-64					
PROJ. ENGR. L.J.H.					

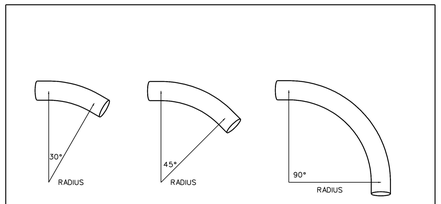
7E3736

MICROFILM TITLE C D 30 MVA TRANSFORMER Nº 9

ITEM	MATERIAL DESCRIPTION	STOCK NO.	QUANTITY
1	POST MARKER FOR UG CABLE	9503-6360	AS REQ'D
2	CABLE WARNING SIGN	9500-6673	AS REQ'D

NOTE:
1. WARNING POSTS TO BE PLACED APPROXIMATELY EVERY 1,000' ALONG ROUTE, AT HANDHOLES, AND AT RISER POLES.

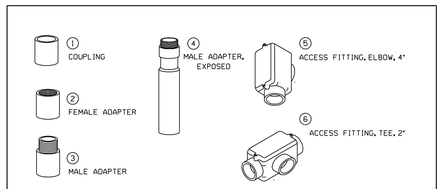
DELMARVA POWER ATLANTIC CITY ELECTRIC TELECOMMUNICATION STANDARDS	DRAWN: CJB CHECKED: JSG APPROVED: REVISION: 03/12 DATE: 02/06	MISCELLANEOUS	SPEC. NO. UG-001 DP



MATERIAL	MATERIAL DESCRIPTION	RADIUS	STOCK NO.
PVC	4" 30° BEND SCH40 STANDARD RADIUS	16"	4202-0065
PVC	5" 30° BEND SCH40 STANDARD RADIUS	24"	4202-0024
PVC	6" 30° BEND SCH40 STANDARD RADIUS	30"	4202-0099
PVC	2" 45° BEND SCH40 STANDARD RADIUS	9-1/2"	4202-0008
PVC	3" 45° BEND SCH40 STANDARD RADIUS	13"	4202-0016
PVC	4" 45° BEND SCH40 STANDARD RADIUS	16"	4202-0073
PVC	5" 45° BEND SCH40 STANDARD RADIUS	24"	4202-0032
PVC	6" 45° BEND SCH40 STANDARD RADIUS	30"	4202-0107
PVC	2" 90° BEND SCH40 STANDARD RADIUS	9-1/2"	4202-0933
PVC	3" 90° BEND SCH30 STANDARD RADIUS	13"	4202-0958
PVC	4" 90° BEND SCH40 STANDARD RADIUS	16"	4202-0974
PVC	5" 90° BEND SCH40 STANDARD RADIUS	24"	4202-0040
PVC	6" 90° BEND SCH40 STANDARD RADIUS	30"	4202-0115
PVC	2" 90° BEND SCH40	36"	4202-1733
PVC	3" 90° BEND SCH40	36"	4202-1758
PVC	4" 90° BEND SCH40	36"	4202-1766
PVC	6" 90° BEND SCH40	60"	0112-5673
STEEL	2" 90° BEND STEEL	18"	0105-3487
STEEL	2" 90° BEND STEEL	36"	4202-0529
STEEL	3" 90° BEND STEEL	36"	4202-0586
STEEL	4" 90° BEND STEEL	36"	4202-0552
STEEL	5" 90° BEND STEEL	24"	4202-0560
POLYETHYLENE	8" 22.5° BEND SCH40 HDPE STANDARD RADIUS (PETROFLEX)	24"	0133-3657
POLYETHYLENE	8" 45° BEND SCH40 HDPE STANDARD RADIUS (PETROFLEX)	30"	0133-3640
POLYETHYLENE	8" 90° BEND SCH40 HDPE (PETROFLEX)	36"	0132-2163
POLYETHYLENE	8" 90° BEND SCH40 HDPE (PETROFLEX)	60"	0133-3632

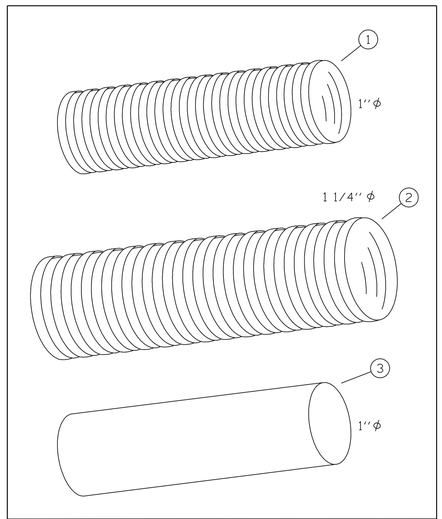
NOTE:
The standard radius is the minimum radius for a bend as determined by the bend diameter. As the radius increases, the overall length of the bend also increases. (THIS IS AN INDUSTRY STANDARD)

DELMARVA POWER ATLANTIC CITY ELECTRIC TELECOMMUNICATION STANDARDS	DRAWN: CJB CHECKED: JSG APPROVED: REVISION: 0 DATE: 02/06	CONDUIT BENDS	SPEC. NO. UG-053



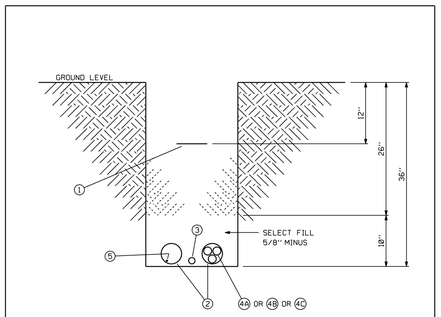
ITEM NO.	MATERIAL DESCRIPTION	STOCK NO.	QUANTITY
1	COUPLING STEEL 1"	0112-7331	AS REQ'D
	COUPLING STEEL 2"	4203-2557	AS REQ'D
	COUPLING STEEL 3"	4203-2573	AS REQ'D
	COUPLING STEEL 4"	4203-2524	AS REQ'D
	COUPLING STEEL 5"	4203-2532	AS REQ'D
	COUPLING ALUMINUM 2"	0123-3139	AS REQ'D
	COUPLING ALUMINUM 3"	4203-2765	AS REQ'D
	COUPLING SCH40 2"	4203-3431	AS REQ'D
	COUPLING SCH40 2-1/2"	9800-0745	AS REQ'D
	COUPLING SCH40 3"	4203-3456	AS REQ'D
	COUPLING SCH40 4"	4203-3472	AS REQ'D
	COUPLING SCH40 5"	4203-3498	AS REQ'D
	COUPLING SCH40 6"	4203-3480	AS REQ'D
	COUPLING PETROFLEX/PVC SCH40 1"	0133-7302	AS REQ'D
	COUPLING PETROFLEX/PVC SCH40 2"	0133-7310	AS REQ'D
	COUPLING PETROFLEX SCH60 4"	0123-9946	AS REQ'D
	COUPLING PETROFLEX SCH40 8"	0133-3624	AS REQ'D
2	FEMALE ADAPTER SCH40 2"	4201-2336	AS REQ'D
	FEMALE ADAPTER SCH40 3"	4201-2559	AS REQ'D
	FEMALE ADAPTER SCH40 4"	4201-2484	AS REQ'D
	FEMALE ADAPTER SCH40 5"	4201-2500	AS REQ'D
	FEMALE ADAPTER SCH40 6"	4201-2518	AS REQ'D
3	TERMINAL ADAPTER SCH40 2"	4201-2633	AS REQ'D
	TERMINAL ADAPTER SCH40 3"	4201-2658	AS REQ'D
	TERMINAL ADAPTER SCH40 4"	4201-2674	AS REQ'D
	TERMINAL ADAPTER SCH40 6"	0122-7420	AS REQ'D
4	TERM. ADAPTER EXP. SCH40 2"	0132-2486	AS REQ'D
	TERM. ADAPTER EXP. SCH40 3"	0132-2494	AS REQ'D
	TERM. ADAPTER EXP. SCH40 4"	0132-2502	AS REQ'D
5	ACCESS FITTING, ELBOW, 2"	0123-3063	AS REQ'D
	ACCESS FITTING, ELBOW, 3"	0113-2174	AS REQ'D
	ACCESS FITTING, ELBOW, 4"	0107-1828	AS REQ'D
6	ACCESS FITTING, TEE, 2"	0104-0880	AS REQ'D
7	ACCESS FITTING, RIGHT ELBOW, 2"	0104-0864	AS REQ'D
8	ACCESS FITTING, LEFT ELBOW, 2"	0104-0872	AS REQ'D

DELMARVA POWER ATLANTIC CITY ELECTRIC TELECOMMUNICATION STANDARDS	DRAWN: CJB CHECKED: JSG APPROVED: REVISION: 0 DATE: 02/06	CONDUIT FITTINGS	SPEC. NO. UG-052



ITEM	MATERIAL DESCRIPTION	STOCK NO.	QUANTITY
1	INNERDUCT, 1" CORRUGATED 1 X 1" (500' HAND COIL) WITH ROPE	0113-9088	AS REQ'D
2	INNERDUCT, 1 1/4" CORRUGATED 3 X 1 1/4" (1000' REEL) WITH ROPE	0132-9465	AS REQ'D
3	INNERDUCT, 1" SMOOTH 3 X 1" (1000' REEL) WITH ROPE	9503-5798	AS REQ'D

DELMARVA POWER ATLANTIC CITY ELECTRIC TELECOMMUNICATION STANDARDS	DRAWN: CJB CHECKED: JSG APPROVED: REVISION: 06/12 DATE: 02/06	INNERDUCT	SPEC. NO. UG-055



ITEM	MATERIAL DESCRIPTION	STOCK NO.	QUANTITY
1	WARNING MARKER TAPE (1000' X 6")	0119-8092	AS REQ'D
2	CONDUIT, PVC, TYPE 40, 4"	4203-1773	AS REQ'D
3	TRACER WIRE, 12 AWG YELLOW	0106-4839	AS REQ'D
4A	INNERDUCT, 1" CORRUGATED 1 X 1" (500' HAND COIL) WITH ROPE	0113-9088	AS REQ'D
4B	INNERDUCT, 1 1/4" CORRUGATED 3 X 1 1/4" (1000' REEL) WITH ROPE	0132-9465	AS REQ'D
4C	INNERDUCT, 1" SMOOTH 3 X 1" (1000' REEL) WITH ROPE	9503-5798	AS REQ'D
5	LINE, MEASURE & PULL, POLY, 3000' OR MULETAPE	0106-4839	AS REQ'D
-	BEND, 45°, SCH 40, PVC	4202-0073	AS REQ'D
-	BEND, 90°, SCH 40, PVC	4202-1766	AS REQ'D

NOTE:
1. TRENCH COMPACTION, MECHANICAL ONLY. IN LIFTS NOT TO EXCEED 6", WITH MACHINE TAMPER, NO HAND TAMPING WILL BE PERMITTED.

DELMARVA POWER ATLANTIC CITY ELECTRIC TELECOMMUNICATION STANDARDS	DRAWN: CJB CHECKED: JSG APPROVED: REVISION: 06/12 DATE: 02/06	BURIED CABLE TRENCH DETAIL	SPEC. NO. UG-150

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER

11/07/25

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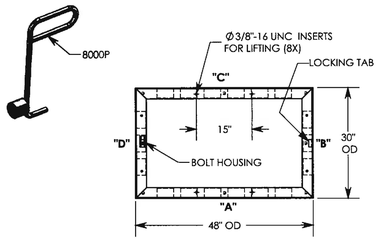
BELLS MILL

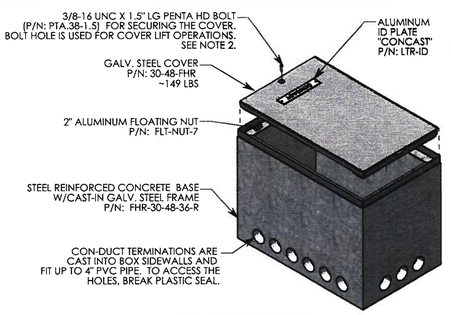
PEPCO STANDARD DETAILS I

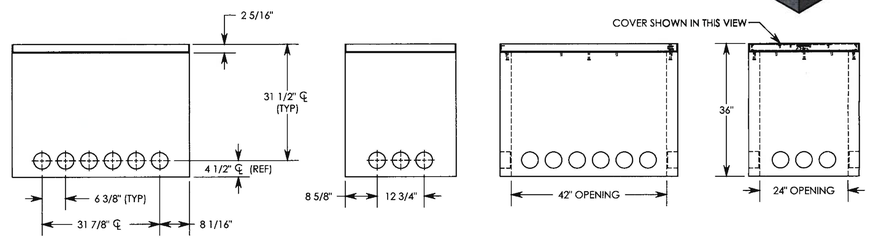
DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	_KV	504 SH. 001	NEW

505
SH. 001

OPTIONAL PENTAHEAD SOCKET-EQUIPPED LIFTING TOOL







NOTE 1: FOR PVC SIZES SMALLER THAN 4", USE CONCAST RC41 (REDUCING COUPLER).
NOTE 2: FOR ADDED SECURITY, REPLACE PENTAHEAD BOLTS WITH SURELOCK BOLTS AND ORDER UNDER P/N: FHRSL-30-48-36

H20 RATED - 32,000 LB. PER AXLE LOAD.

DRAWN BY: ROBIN FLINT	
DATE: 4/23/2016	**REVISION LEVEL:** A
WEIGHT: 1317 LBS. W/COVER	**MATERIAL:** NOTED

CONCAST
1010 NORTH STAR DRIVE
P.O. BOX 69
ZUMBROTA, MN 55992-0069

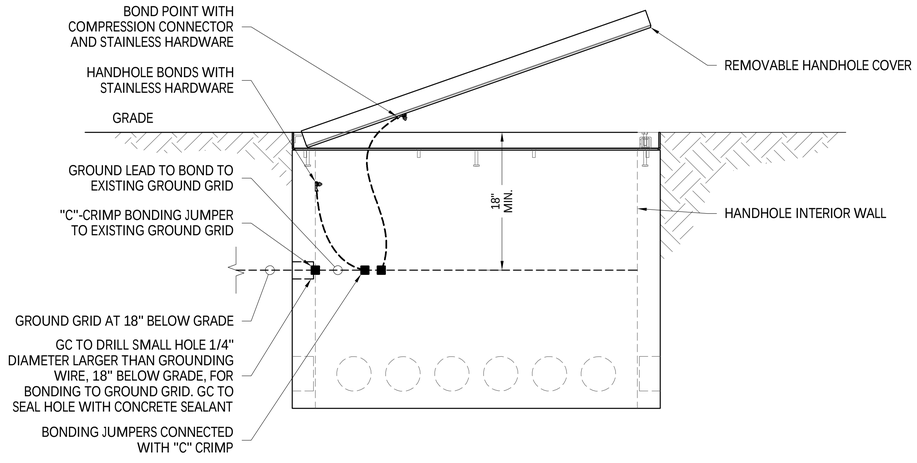
DESCRIPTION: HEAVY TRAFFIC HANDHOLE

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ± 1/8"
ANGULAR: ± 2°

CONTACT INFORMATION:
EMAIL: INFO@CONCASTINC.COM
PHONE: (507) 732-4095
FAX: (507) 732-4094

SHEET 1 OF 1

PART NUMBER: FHR-30-48-36



HANDHOLE GROUNDING NOTES:
- USE PRECAST HANDHOLE WITH LID THAT HAS FACTORY INSTALLED GROUND STRAP. CONNECT FACTORY GROUND STRAP FROM LID TO FRAME AS FOLLOWS, INSTALL 19#6 AWG THWN GROUND WIRE FROM FRAME USING FACTORY BOLT AND CRIMP-ON LUG TO EXISTING GROUND GRID

1 HANDHOLE GROUNDING DETAIL
NTS

REV	DESCRIPTION	WR#	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION		NB+C 11/07/25	NB+C 11/07/25				

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BELLS MILL

PEPCO STANDARD DETAILS II

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	505 SH. 001	NEW

PEPCO SUBSTATION GROUNDING - GENERAL NOTES

WHEN A SUBSTATION MODIFICATION PROJECT WILL CAUSE AN INCREASE IN THE AVAILABLE FAULT DUTY, OR EXTEND THE GROUND GRID, THE GROUND GRID MUST BE EVALUATED TO ASSURE THAT IT MEETS THE SAFETY REQUIREMENTS OF IEEE STD 80.

FENCES

1. SOMETIMES SUBSTATION FENCES ARE EXTENDED TO OTHER AREAS OF A SITE OR ANOTHER FENCE IS EXTENDED TO MEET THE SUBSTATION FENCE. WHEN THIS HAPPENS, IT PRESENTS A POSSIBLE TRANSFERRED POTENTIAL HAZARD IF THE FENCE IS CONNECTED TO THE SUBSTATION GROUND GRID.
2. IN ORDER TO LESSEN THIS HAZARD, THE SUBSTATION FENCE SHOULD BE INSULATED FROM THE FENCE LEAVING THE SUBSTATION AREA. TWO INSULATING JOINTS, SEPARATED SEVERAL FEET APART (TO PREVENT SOMEONE FROM BRIDGING A SINGLE JOINT BY TOUCHING THE GROUNDED SUBSTATION FENCE AND THE INSULATED FENCE) SHOULD BE INSTALLED.

PIPING

1. PIPELINES AND METALLIC CONDUIT SHOULD ALWAYS BE CONNECTED TO THE SUBSTATION GROUNDING SYSTEM, TO AVOID HAZARDS WITHIN THE SUBSTATION AREA. TRANSFERRED POTENTIALS MAY BE REDUCED OR STOPPED AT THE SUBSTATION BOUNDARY BY INSERTING INSULATING SECTIONS OF SUFFICIENT LENGTH TO AVOID SHUNTING BY THE ADJACENT SOIL. THE INSULATING SECTIONS MUST BE CAPABLE OF WITHSTANDING THE POTENTIAL DIFFERENCE BETWEEN REMOTE EARTH AND THE SUBSTATION.
2. IF THE SUBSTATION IS NEAR (I.E., WITHIN APPROXIMATELY 250 FEET) OF A BURIED WATER MAIN OR A GAS PIPELINE MADE OF BARE IRON PIPE, MEASURES SHALL BE TAKEN TO LIMIT THE IMPACT OF TRANSFERRED POTENTIAL AND CORROSION. SEE SUBSTATION DESIGN MANUAL SECTION 19 - CORROSION FOR MORE DETAIL.

GROUND GRID

1. GROUND GRID CONDUCTORS ARE TYPICALLY BURIED MINIMUM 18 INCHES BELOW GRADE, SHALL BE BARE, SOFT-DRAWN COPPER WIRES OR COPPER-CLAD STEEL (I.E. COPPERWELD OR CCS). COPPER AND COPPER-CLAD STEEL CONDUCTORS HAVE A HIGH CONDUCTIVITY AND HAVE THE CHARACTERISTIC OF BEING RESISTANT TO MOST UNDERGROUND CORROSION. IF UTILIZING COPPER-CLAD STEEL FOR GROUNDING, THE ENGINEER SHOULD SIZE THE CONDUCTOR APPROPRIATE TO ITS COPPER EQUIVALENT. PHI USES 40% CONDUCTIVITY COPPER-CLAD STEEL FOR GROUNDING APPLICATIONS.
2. COPPER-CLAD STEEL HAS NO SALVAGE VALUE AND IS MORE DIFFICULT TO CUT, WHICH REDUCES THE LIKELIHOOD OF THEFT. THEREFORE, ALL ABOVE GRADE GROUND CONDUCTORS SHOULD BE COPPER-CLAD STEEL OR CAMOUFLAGED COPPER-CLAD STEEL.
3. GALVANIZED STEEL SHALL NOT BE USED AS GRID CONDUCTORS. GALVANIZED STEEL WILL DETERIORATE IN CORROSIVE ENVIRONMENTS AND EVENTUALLY JEOPARDIZE THE INTEGRITY OF GRID CONNECTIONS. INSULATED CABLES ALSO SHALL NOT BE USED FOR MAIN GROUND GRID CONDUCTORS SINCE THE CONDUCTORS NEED TO BE IN CONTACT WITH THE SOIL IN ORDER TO DISSIPATE FAULT CURRENTS. INSULATED CABLES MAY BE USED TO ISOLATE REMOTE SECTIONS OF THE GRID OR WHERE TRANSFERRED POTENTIALS ARE A CONCERN.
4. GROUND CONDUCTOR SIZING IS BASED ON THE MAXIMUM FAULT CURRENT AND DUTY CYCLE. SINCE FAULT CURRENTS TRAVEL ON THE OUTSIDE OF THE WIRE AND NOT THROUGH THE WIRE, THUS ONLY NEED SAME DIAMETER FOR COPPER AND COPPER-CLAD STEEL INTERCHANGEABILITY.
5. AS A MINIMUM, GROUND CONDUCTORS SHALL BE:
   - a.a. ACE/DPL) 4/0 COPPER OR COPPER-CLAD STEEL EQUIVALENT (19#9)
   - a.b. (PEPCO, 4KV) 19#9 COPPER-CLAD STEEL
   - a.c. (PEPCO, 13.8KV AND ABOVE) 19#6 COPPER-CLAD STEEL
6. DUE TO HIGHER FAULT CURRENT REQUIREMENTS, PEPCO OFTEN UTILIZES 19#6 COPPER-CLAD STEEL FOR GROUNDING APPLICATIONS.

GROUND BUS CONDUCTORS

1. INDOOR SUBSTATIONS TYPICALLY UTILIZE ALUMINUM OR COPPER BARS OF VARIOUS WIDTHS TO CREATE A GROUND BUS. TYPICALLY, PHI INDOOR GROUND BUSES ARE MADE WITH ¼" ALUMINUM BARS. WHEN AN OUTDOOR GROUND BUS IS REQUIRED, ¼" COPPER BARS OF VARIOUS WIDTHS ARE USED.
2. ADDITIONALLY, RELAY PANELS ARE CONNECTED TO A CONTINUOUS GROUND BAR THAT EXTENDS ACROSS EACH PANEL. ACE/DPL UTILIZE A ¼" X 1" COPPER BAR FOR THIS APPLICATION, WHILE PEPCO TYPICALLY USES A ¼" X 2" COPPER BAR.

GROUND RODS

1. THE PURPOSE OF PLACING GROUND RODS IN THE GROUND GRID SYSTEM IS TO LOWER THE EFFECTIVE RESISTANCE. GROUND RODS ARE DRIVEN DEEP INTO THE SOIL, ALLOWING CURRENTS TO BE DISSIPATED INTO SOIL THAT HAS A LOWER RESISTIVITY. TYPICALLY, SOIL RESISTIVITY DECREASES AS DEPTH BELOW GRADE INCREASES.
2. FOR ACE/DPL, SECTIONAL GROUND RODS SHALL BE 3/4" DIAMETER AND 10 FEET IN LENGTH COPPER-CLAD STEEL. TYPICALLY, THREE SECTIONAL GROUND RODS SHALL BE INSTALLED PER LOCATION FOR A MINIMUM LENGTH OF 30 FEET. SOME EXISTING GRIDS UTILIZE 1/2" OR 5/8" DIAMETER GROUNDS RODS.
3. FOR PEPCO, SECTIONAL GROUND RODS ARE TYPICALLY 5/8" DIAMETER AND 8 FEET IN LENGTH COPPER-CLAD STEEL. TYPICALLY, THREE SECTIONAL GROUND RODS SHALL BE INSTALLED PER LOCATION FOR A MINIMUM LENGTH OF 24 FEET.

CONNECTORS

1. CONNECTORS ARE USED TO ATTACH THE GROUND GRID SYSTEM AT CROSSING POINTS, CORNERS, BUS SUPPORT STRUCTURES, STATION EQUIPMENT, GAS AND WATER PIPES, GROUND WELLS, AND ELECTRODES. SPECIFYING THE APPROPRIATE CONNECTOR IS CRITICAL TO THE RELIABILITY OF THE GROUNDING SYSTEM. CONNECTORS ARE REQUIRED TO WITHSTAND HIGH FAULT CURRENT, AND CAN BE THE LIMITING ELEMENT IN TERMS OF SHORT CIRCUIT CAPABILITY OF THE ENTIRE GROUND SYSTEM.
2. THE TYPE OF CONNECTIONS USED WILL VARY BASED ON THE ARRANGEMENT OR THE LAYOUT OF TRANSFORMERS, CIRCUIT BREAKERS, SWITCHES, STEEL STRUCTURES, ETC.
3. SWAGE CONNECTORS SHOULD BE USED FOR ALL BELOW GRADE GROUNDING CONNECTIONS DUE TO THE SUPERIOR MECHANICAL AND ELECTRIC PROPERTIES OF THE CONNECTION, AS WELL AS THE INCREASED ABILITY TO INSPECT CONNECTION QUALITY. ALL CONNECTORS USED SHOULD PASS THE TESTING IN IEEE 837-2014. EXOTHERMIC WELDING, CRIMP/COMPRESSION, OR BOLTED CONNECTIONS SHOULD NOT BE USED IN BELOW GRADE GROUNDING.
4. FOR ABOVE GRADE GROUNDING CONNECTIONS, SWAGE CONNECTORS SHALL BE USED FOR THEIR SUPERIOR CONNECTION QUALITY, DURABILITY, AND RESISTANCE TO CORROSION. IT IS ACCEPTABLE TO USE BOLTED, CRIMPED, OR EXOTHERMIC CONNECTORS IF THE CONNECTION IS USED TO JUST SUPPORT THE GROUND WIRE OR FOR APPLICATIONS WHERE A SWAGE CONNECTION DOES NOT EXIST. STAINLESS STEEL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) SHALL BE USED TO SECURE ALL GROUNDING LUGS.

GROUND GRID LAYOUT

1. THE GENERAL GUIDELINES FOR GROUND GRID LAYOUT CONSIST OF THE FOLLOWING:
   - a.a. PLACE A CONTINUOUS CONDUCTOR LOOP AROUND THE PERIMETER OF THE SITE, THREE FEET BEYOND THE FENCE AND GATE SWING.
   - a.b. INTERNAL TO THE LOOP, CONDUCTORS ARE USUALLY PLACED IN A RECTANGULAR GRID PATTERN FOR LOW RESISTIVITY SOILS. FOR HIGH RESISTIVITY SOILS, AN EXPONENTIAL GRID PATTERN IS GENERALLY USED.
   - a.c. THE GROUND GRID SHOULD COVER THE ENTIRE SUBSTATION SWITCHYARD.
   - a.d. CONDUCTORS SHALL BE CONNECTED AT INTERSECTION POINTS (SWAGE).
   - a.e. GROUND CONDUCTORS SHALL BE BURIED AT LEAST 18 INCHES BELOW ROUGH GRADE.
   - a.f. A GROUND CONDUCTOR LOOP SHALL BE INSTALLED THREE FEET AROUND CONTROL BUILDINGS AND OUTDOOR SWITCHGEAR.
   - a.g. A GROUND CONDUCTOR LOOP SHALL BE RUN BELOW WHERE THE OPERATOR WOULD STAND WHEN OPERATING THE SWITCH.
   - a.h. TRANSFORMERS AND BREAKERS SHALL BE CONNECTED TO THE GROUND GRID WITH TWO SEPARATE LEADS FOR REDUNDANCY.
   - a.i. STRUCTURES SHALL BE TIED TO THE GROUND GRID AT EACH LEG.
2. THE BASE DESIGN SHALL ALSO INCLUDE A NUMBER OF GROUND RODS PLACED ALONG THE PERIMETER OF THE GRID AS WELL AS THOSE WITHIN THE GRID. GROUND RODS GENERALLY ARE NOT PLACED CLOSER THAN THE LENGTH OF THE ROD. PLACING GROUND RODS ALONG THE PERIMETER OF THE GROUND MAT IS VERY EFFECTIVE IN LOWERING THE GROUND GRID RESISTANCE.
3. DESIGN REQUIREMENTS FOR GROUND LEADS AND CONNECTIONS FOR GROUNDING OF EQUIPMENT, STRUCTURES, BUILDINGS, FENCES, AND OTHER EQUIPMENT WILL BE DISCUSSED IN DETAIL IN SUBSEQUENT SECTIONS.
4. BUS AND EQUIPMENT SUPPORT STRUCTURES
5. BUS AND EQUIPMENT SUPPORT STRUCTURES ARE GROUNDED IN ORDER TO PROVIDE A LOW IMPEDANCE PATH FOR FAULT CURRENT. BY GROUNDING THESE STRUCTURES, HAZARDOUS TOUCH VOLTAGES WILL BE MINIMIZED. THESE STRUCTURES ARE GROUNDED BY PROVIDING CONNECTIONS FROM A COLUMN LEG TO THE GROUND GRID. MULTIPLE LEGGED STRUCTURES AND BOX STRUCTURES SHALL HAVE ALL LEGS GROUNDED.

POWER TRANSFORMERS

1. POWER TRANSFORMERS BOTH THREE PHASE AND SINGLE PHASE ARE TO BE SUPPLIED WITH GROUND PADS ON THE CASE ON DIAGONALLY OPPOSITE CORNERS WITH COPPER GROUND BARS RUN VERTICALLY TO THE TOP OF THE CASE.
2. THE TRANSFORMER NEUTRAL AND VERTICAL GROUND BARS FOR THREE-PHASE TRANSFORMERS SHALL BE SIZED FOR A 20 PERCENT UNBALANCE OF THE TOP RATING OF THE TRANSFORMER. THE TRANSFORMER NEUTRAL BAR SHALL BE CONNECTED VIA A REMOVABLE BAR TO THE NEAREST TRANSFORMER VERTICAL GROUND BAR.
3. FOR SINGLE-PHASE TRANSFORMERS THE NEUTRAL AND VERTICAL GROUND BAR SHALL HAVE THE SAME CURRENT CARRYING CAPACITY AS THE WINDING TO WHICH IT IS CONNECTED. THE SURGE ARRESTERS SHALL BE CONNECTED TO A SEPARATE VERTICAL GROUND BAR THAN THE NEUTRAL.
4. A GROUNDING CONDUCTOR, MINIMUM 19#9 COPPER-CLAD STEEL (ACE/DPL) OR 19#6 COPPER-CLAD STEEL (PEPCO) SHALL CONNECT EACH OF THE TRANSFORMER GROUND PADS TO THE GROUND GRID. A GROUND ROD IS TO BE INSTALLED AND CONNECTED TO THE GROUND GRID AT THESE TWO GRID CONNECTIONS.

CABLE TRAY, METALLIC CONDUIT, AND RACEWAYS

1. CONDUCTING RACEWAYS AND CABLE TRAYS SHOULD BE ELECTRICALLY CONTINUOUS AND GROUNDED. FOR INDOOR SUBSTATION, CONDUCTING RACEWAY SHALL BE CONNECTED TO THE STATION GROUND BUS WITH GROUND CONDUCTORS AT REGULAR INTERVALS OR AT TWO PLACES AS A MINIMUM FOR SHORTER RUNS.
2. METALLIC CONDUITS AND CABLE ARMOR SHALL BE SECURELY GROUNDED TO THE STATION GROUND GRID. FOR INDOOR SUBSTATIONS, METALLIC CONDUIT AND CABLE ARMOR SHALL BE CONNECTED TO THE STATION GROUND BUS WITH GROUND CONDUCTORS AT REGULAR INTERVALS OR AT TWO PLACES AS A MINIMUM FOR SHORTER RUNS. MOST OF THE FAULT CURRENT WILL FLOW IN CONDUITS AND CABLE ARMOR EVEN WHEN GROUND CONDUCTORS ARE PROVIDED BETWEEN EQUIPMENT AND THE NEAREST GROUND BUS. THEREFORE, ALL JOINTS AND CONNECTIONS IN THE CONDUIT SYSTEM SHALL BE CLEAN AND TIGHT TO PROVIDE AN ADEQUATE, ELECTRICALLY CONTINUOUS PATH. A BONDING JUMPER SHALL BE USED WHEN A CONDUIT IS TERMINATED AT A CABLE TRAY BUT IS NOT DIRECTLY CONNECTED TO THE TRAY BY A WELDED OR AN APPROVED GROUNDING CABLE TRAY CLAMP. ALL FLEXIBLE CONDUITS, LIQUID TIGHT FLEXIBLE METAL CONDUITS, PULL BOXES, JUNCTION BOXES AND OTHER DISCONTINUITIES IN THE CONDUIT SYSTEM USED FOR POWER CABLE SHALL BE PROVIDED WITH BONDING JUMPERS.

CONTROL BUILDING

1. PREFABRICATED/PRE-ENGINEERED METAL CONTROL BUILDINGS ARE ATTACHED TO THE GROUND GRID AT A MINIMUM OF TWO POINTS ON OPPOSITE CORNERS. DESIGN REQUIREMENTS FOR GROUNDING INSIDE CONTROL ENCLOSURES SHALL BE ADDRESSED IN SECTION 32. GROUNDING REQUIREMENTS FOR PANELS WILL BE DISCUSSED IN SECTION 23.

FENCE GROUNDING

1. SUBSTATION METAL FENCES SHALL BE CONNECTED TO THE SUBSTATION GROUND SYSTEM. THE FOLLOWING ARE GUIDELINES FOR FENCE GROUNDING:
   - A.A. A GROUND CONDUCTOR SHALL BE BURIED IN A LOOP PARALLEL TO THE FENCE, THREE FEET OUTSIDE THE FENCE, AND 18 INCHES BELOW ROUGH GRADE. IF THE FENCE IS ON THE PROPERTY LINE, THIS CONDUCTOR SHOULD BE 1 FOOT INSIDE THE FENCE. THIS LOOP SHALL BE TIED TO THE SUBSTATION GROUND GRID.
     - a.a. (ACE/DPL) MINIMUM 19#9 COPPER-CLAD STEEL
     - a.b. (PEPCO, 4KV) MINIMUM 19#9 COPPER-CLAD STEEL
     - a.c. (PEPCO, 13.8KV AND ABOVE) MINIMUM 19#6 COPPER-CLAD STEEL
2. A GROUND CONDUCTOR SHALL BE BURIED 18 INCHES DEEP THREE FEET OUTSIDE THE SWING PATTERN OF THE GATES FOR GATES THAT SWING OUT FROM THE SUBSTATION AND FOR REMOVABLE OR INSULATED FENCE SECTIONS. THE ENDS OF THIS GROUND CONDUCTOR SHALL BE CONNECTED ABOVE GRADE TO THE GROUND RODS GROUNDING THE FIRST GROUNDED LINE POST ON EACH SIDE OF THE OPENING.
3. THE SUBSTATION FENCE SHALL BE CONNECTED TO THE GROUND GRID AT FENCE POSTS AT 50-FOOT INTERVALS AROUND THE PERIMETER.
4. SLIDING GATES SHALL BE GROUNDED USING A 4/0 COPPER WELDING CABLE, (FOR PEPCO USE 500MCM EQUIVALENT). THE CABLE SHALL BE CONNECTED AT THE TOP OF THE OF THE GATE FRAME IN THE MIDDLE OF THE TOP RAIL. THE OTHER END OF THE CABLE SHALL BE CONNECTED TO THE BOTTOM OF THE GATE POST AT THE GATE POST GROUND. THE CABLE SHALL RUN VERTICALLY UP THE GATEPOST AND BE SUPPORTED NEAR THE TOP. CARE SHOULD BE TAKEN TO ASSURE THAT THE CABLE DOES NOT FOUL IN THE GATE ROLLER SYSTEM.
5. ALL SWING GATE FRAMES SHALL BE ELECTRICALLY CONNECTED TO THE GATEPOST USING THE LOWER HINGE HARDWARE AND A FLEXIBLE COPPER BRAID. THE COPPER BRAID SHALL BE EQUIVALENT TO 4/0 CU (ACE/DPL) OR 500MCM CU (PEPCO)
6. METAL FENCES THAT ENCLOSE EQUIPMENT WITHIN THE SUBSTATION SHALL BE CONNECTED DIRECTLY TO THE SUBSTATION GROUNDING SYSTEM AT A MINIMUM OF ONE CONNECTION PER FACE BUT NOT AT MORE THAN A 50-FOOT INTERVAL.
7. COATED METAL FENCE MATERIAL SHALL BE CLEANED TO BARE METAL AT THE POINT OF CONNECTION WITH THE FENCE POST OR RAIL AND PROTECTED WITH NO-OX-ID.
8. FENCE GROUNDING CONNECTIONS SHOULD BE MADE WITH TINNED COPPER CLAMPS TIED TO THE GROUND GRID LEAD BY A SWAGE CONNECTION.
9. BARBED WIRE SHALL BE BONDED TO THE GROUND TAILS USED FOR FENCE POST GROUNDING BY A MINIMUM #4 ALUMINUM WIRE.
10. FOR ALL TRANSMISSION LINE CROSSINGS, A DRIVEN GROUND ROD SHALL BE ATTACHED TO EACH FENCE POST WITHIN 25 FEET OF THE POINT WHERE THE TRANSMISSION LINE CROSSES THE FENCE; THIS WILL PROVIDE A DIRECT PATH TO GROUND IN THE EVENT OF A FALLEN LINE.

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

STATE OF MARYLAND
55491
PROFESSIONAL ENGINEER
11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

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NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

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SUBSTATION GROUNDING GENERAL NOTES

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	NONE	__KV	600 SH. 001	NEW

TRUE NORTH
(3) DRIVEN 5/8"ØX8'-0" LONG COPPER-CLAD STEEL GROUND RODS FOR A 24'-0" LONG ROD
EXTEND 19#6 AWG COPPER-CLAD STEEL GROUND CONDUCTOR FROM SHELTER TIE-DOWN PLATE TO GROUND GRID (TYP OF 4)
EXTEND 19#6 AWG COPPER-CLAD STEEL GROUND CONDUCTOR FROM SHELTER GROUND BAR TO GROUND GRID (TYP)
EXTEND 19#6 AWG COPPER-CLAD STEEL GROUND CONDUCTOR FROM NEAREST GROUND GRID/RING AND BOND TO ICE BRIDGE SUPPORT POST USING PIPE CLAMP (TYP)
PEPCO ICE BRIDGE (TYP)
GROUND ROD INSPECTION WELL
EXTEND (1) 19#6 COPPER-CLAD STEEL GROUND CONDUCTOR FROM TOWER GROUND RING AND BOND TO FOUNDATION STEEL REINFORCEMENT. PIG-TAIL SHALL BE LEFT IN PLACE PRIOR TO FOUNDATION BEING POURED (TYP OF 3 LOCATIONS)
±6'-0"
EXTEND 19#6 COPPER-CLAD STEEL GROUND RING/GRID 18" BELOW GRADE. INSTALL MIN. 24" FROM TOWER FOUNDATIONS & 36" MIN FROM SHELTER FOUNDATION.
EXTEND (1) 19#6 COPPER-CLAD STEEL GROUND CONDUCTOR FROM EACH TOWER LEG AND BOND TO TOWER GROUND RING
EXTEND 19#6 AWG COPPER-CLAD STEEL GROUND CONDUCTOR FROM SHELTER REBAR TO GROUND GRID (TYP. OF 2, BOND DIAGONALLY OPPOSITE CORNERS)
EXTEND 19#6 AWG COPPER-CLAD STEEL GROUND CONDUCTOR FROM TRANSFORMER TO GROUND GRID
PEPCO 13'-1" X 25'-1" UNMANNED PRE-FABRICATED EQUIPMENT SHELTER
MTS
EXTEND 19#9 AWG COPPER-CLAD STEEL BONDING CONDUCTORS FROM TOWER GROUND RING TO TOWER GROUND BAR (TYP OF 2 PER GROUND BAR)
±30'-0" FACE WIDTH (TYP PER ALL 3 SIDES)
±18'-6"
±10'-0"
EXTEND 19#6 AWG COPPER-CLAD STEEL GROUND CONDUCTOR FROM H-FRAME TO GROUND GRID (TYP)
EXTEND 19#6 AWG COPPER-CLAD STEEL GROUND CONDUCTOR FROM DISCONNECT TO GROUND GRID (TYP)
PEPCO OPTIONAL STAND-BY 35kW DIESEL GENERATOR ON 4'-0" X 11'-0" CONCRETE PAD
EXISTING GRAVEL (TYP)
EXISTING PEPCO SECURITY FENCE (TYP)
BOND GENERATOR TO GROUND GRID PER MANUFACTURER'S RECOMMENDATIONS AND PEPCO SUBSTATION STANDARDS
EXTEND 19#6 COPPER-CLAD STEEL GROUND CONDUCTOR FROM NEAREST GROUND GRID/RING AND BOND ELECTRICAL EQUIPMENT ON SHELTER EXTERIOR (TYP)
CONNECT NEW GROUND GRID TO EXISTING SUBSTATION GROUND GRID PER PEPCO SUBSTATION GROUNDING REQUIREMENTS (MIN. 2 PLACES PER TOWER & SHELTER GROUND RING)
EXISTING GROUND GRID (TYP)
LOD
UE

GROUNDING LEGEND

▪	COAXIAL CABLE SHIELD GROUND KIT CONNECTION
■	COMPRESSION FITTING CONNECTION
•	SWAGE CONNECTION
⊙	(3) DRIVEN 5/8"ØX8'-0" LONG COPPER-CLAD STEEL GROUND RODS FOR A 24'-0" LONG ROD
◎	(3) DRIVEN 5/8"ØX8'-0" LONG COPPER-CLAD STEEL GROUND RODS FOR A 24'-0" LONG ROD WITH INSPECTION WELL
- - -	PROPOSED GROUND WIRING
— — —	EXISTING GROUND WIRING
▬	TINNED COPPER GROUND BAR 1/4"X4"X12" OR 1/4"X4"X20"
CGB	COLLECTOR GROUND BAR
MGB	MAIN GROUND BAR

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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

NOTES:
1. GROUND CONDUCTORS FROM GROUND RING TO EQUIPMENT ON SHELTER EXTERIOR WILL BE RUN IN 3/4" PVC CONDUIT AND SEALED WITH SILICONE.
2. CONNECTIONS TO GROUND BAR WILL BE HIGH PRESSURE CRIMPED LONG BARREL 2-HOLE LUG.

STATE OF MARYLAND PROFESSIONAL ENGINEER 55491

11/07/25

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BELLS MILL

COMMUNICATION TOWER COMPOUND GROUNDING PLAN (TTR)

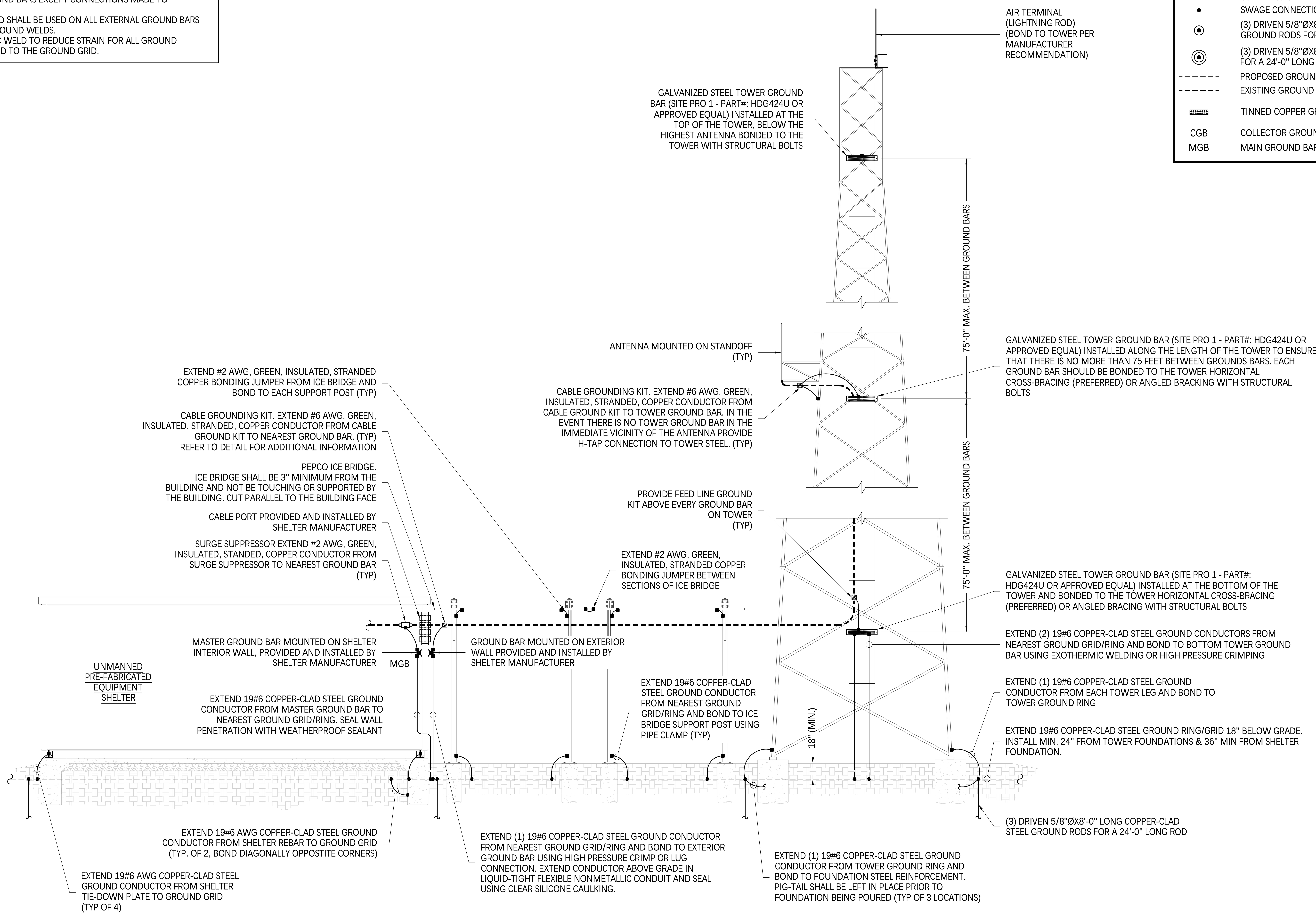
DISCIPLINE	SCALE	CLASS			REV.
E/S/W	3/8" = 1'	__KV	601	SH. 001	NEW

GENERAL GROUNDING NOTES:

1. ANTI-OXIDATION COMPOUND SHALL BE USED ON ALL INTERNAL CONNECTIONS AND ON ALL INTERNAL GROUND BARS EXCEPT CONNECTIONS MADE TO EQUIPMENT SHELVES.
2. ANTI-OXIDATION COMPOUND SHALL BE USED ON ALL EXTERNAL GROUND BARS EXCLUDING EXOTHERMIC GROUND WELDS.
3. USE 45 DEGREE EXOTHERMIC WELD TO REDUCE STRAIN FOR ALL GROUND CONNECTIONS BEING ROUTED TO THE GROUND GRID.

GROUNDING LEGEND

■	COAXIAL CABLE SHIELD GROUND KIT CONNECTION
▪	COMPRESSION FITTING CONNECTION
•	SWAGE CONNECTION
⊙	(3) DRIVEN 5/8"ØX8'-0" LONG COPPER-CLAD STEEL GROUND RODS FOR A 24'-0" LONG ROD
◎	(3) DRIVEN 5/8"ØX8'-0" LONG COPPER-CLAD STEEL GROUND RODS FOR A 24'-0" LONG ROD WITH INSPECTION WELL
------	PROPOSED GROUND WIRING
- - - -	EXISTING GROUND WIRING
▭	TINNED COPPER GROUND BAR 1/4"X4"X12" OR 1/4"X4"X20"
CGB	COLLECTOR GROUND BAR
MGB	MAIN GROUND BAR



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REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

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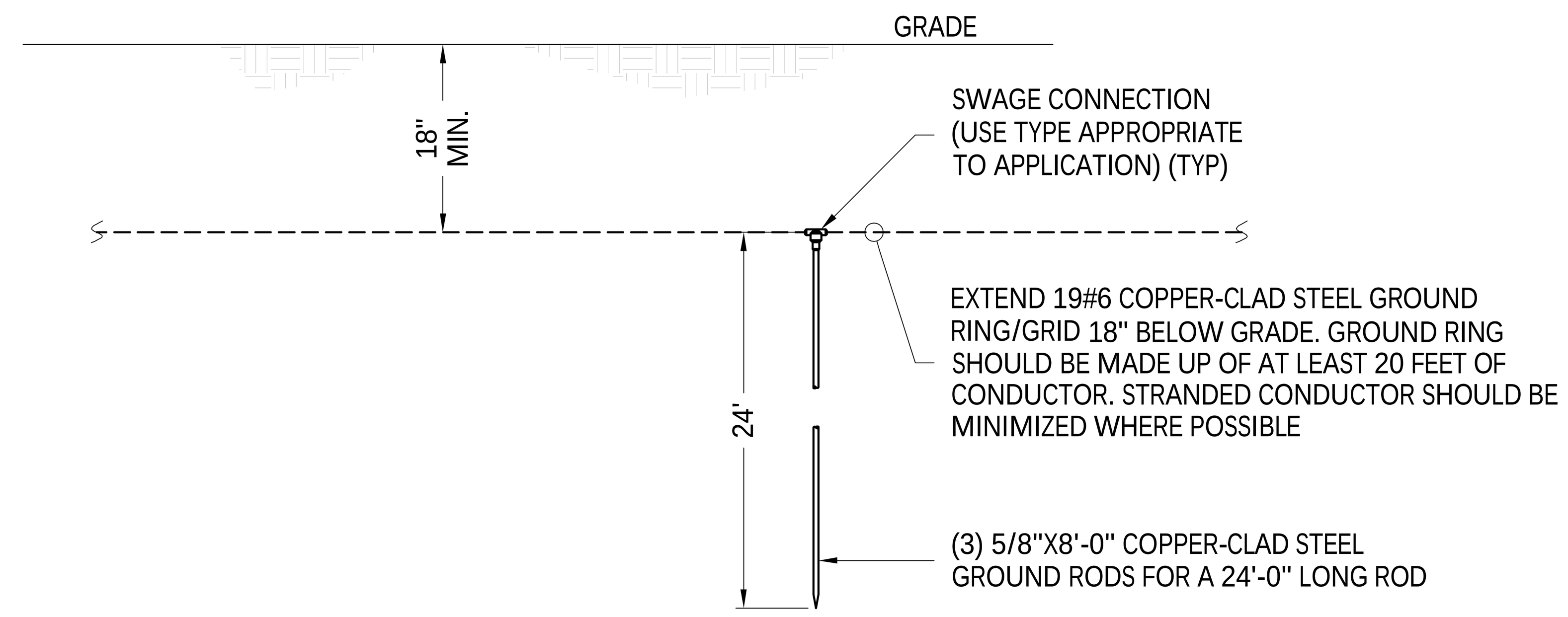
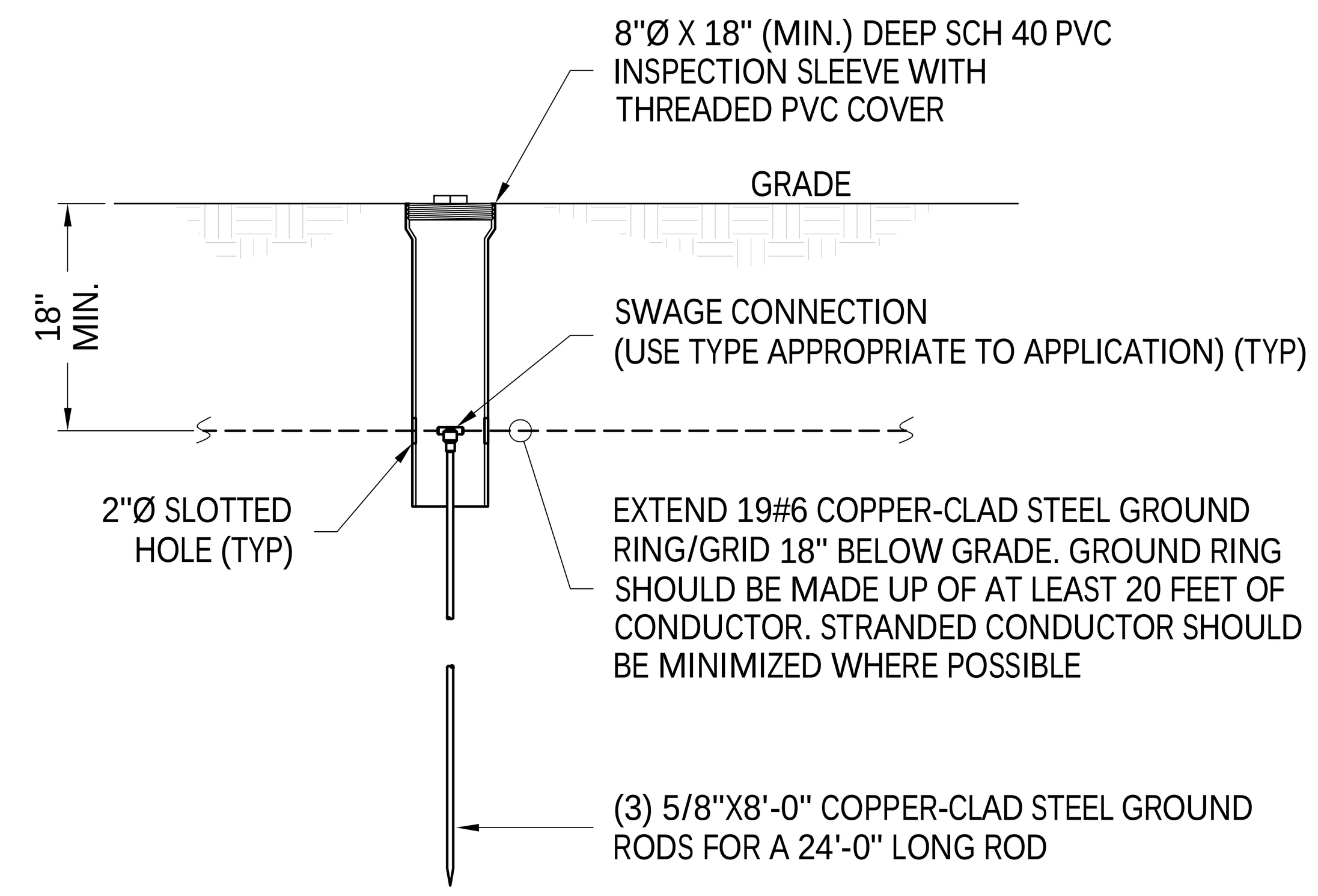
GROUNDING RISER DIAGRAM

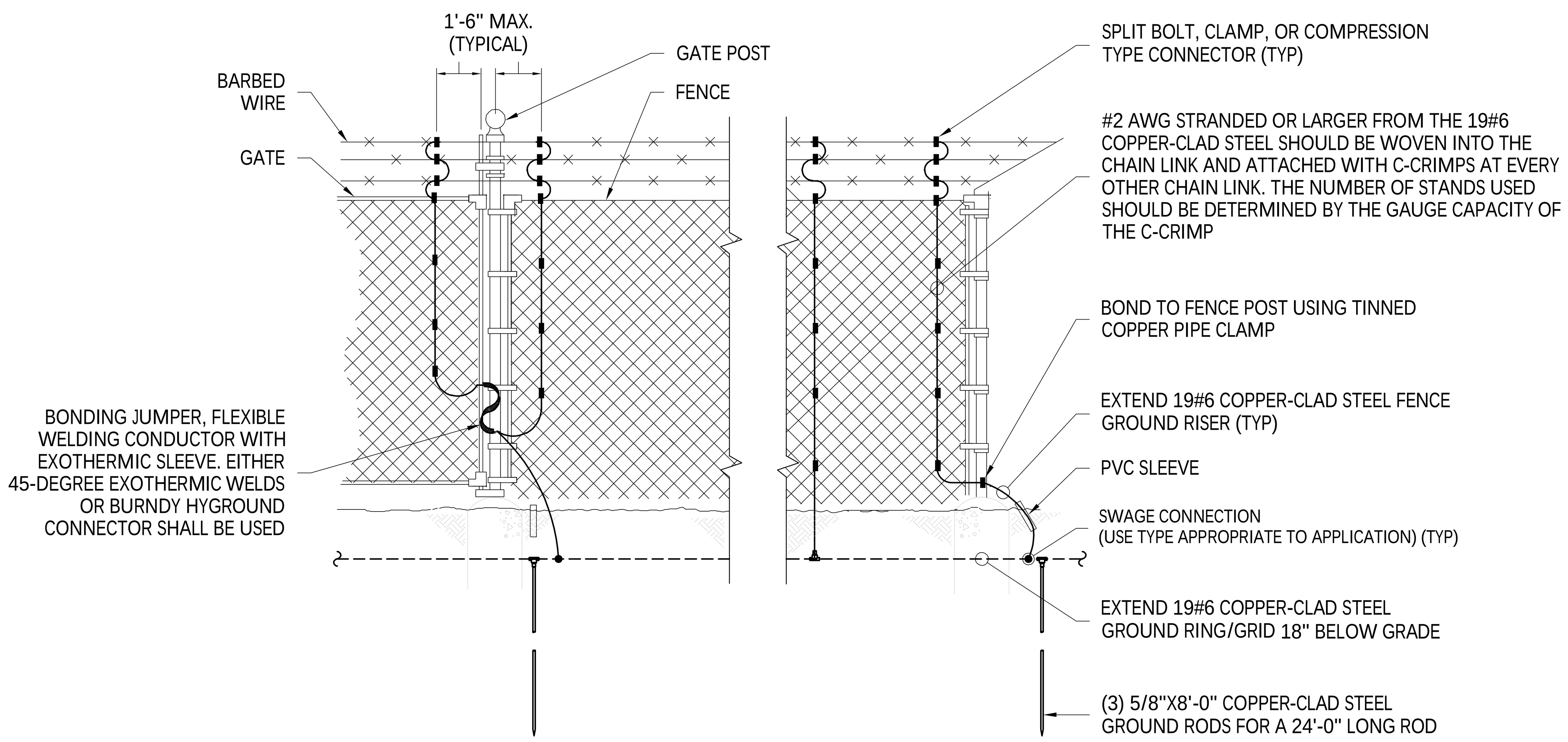
DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	602	SH. 001	NEW



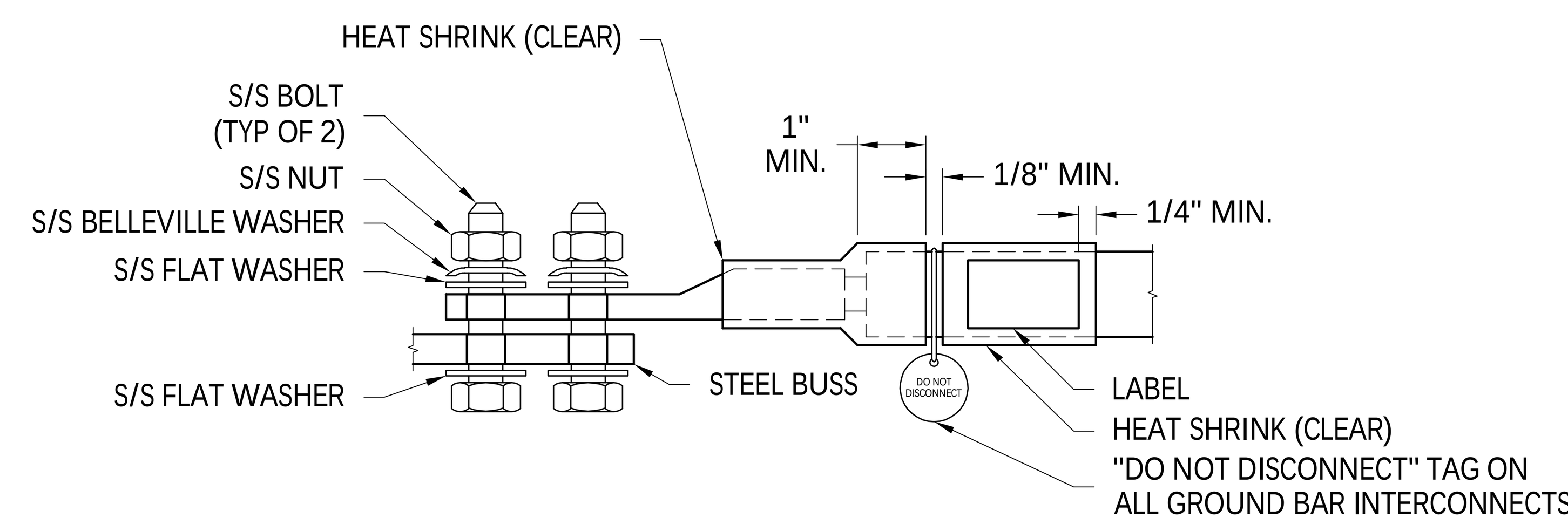
1 GROUNDING ROD DETAIL
NTS



2 GROUND TEST WELL DETAIL
NTS

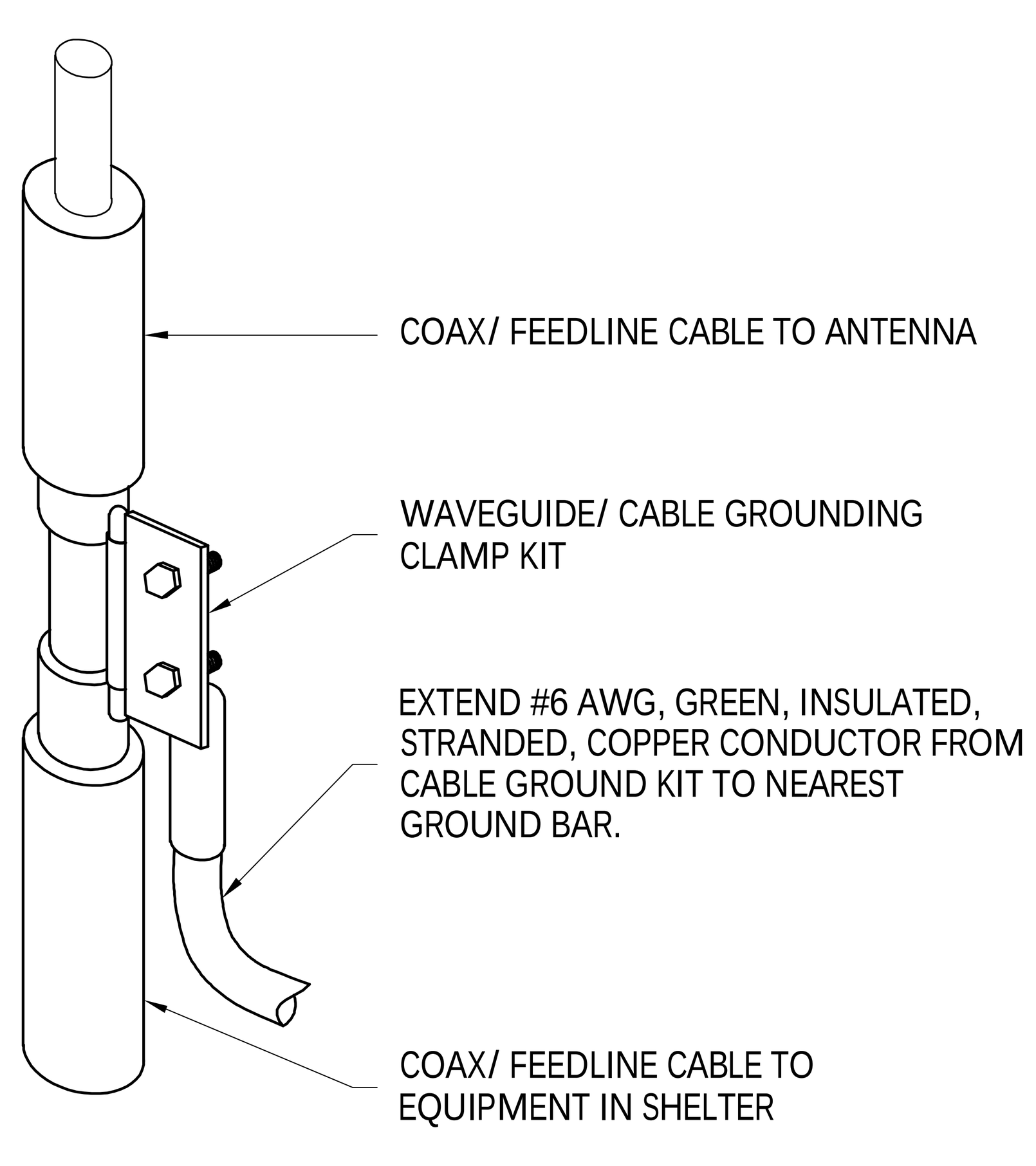


3 FENCE GROUNDING DETAIL
NTS



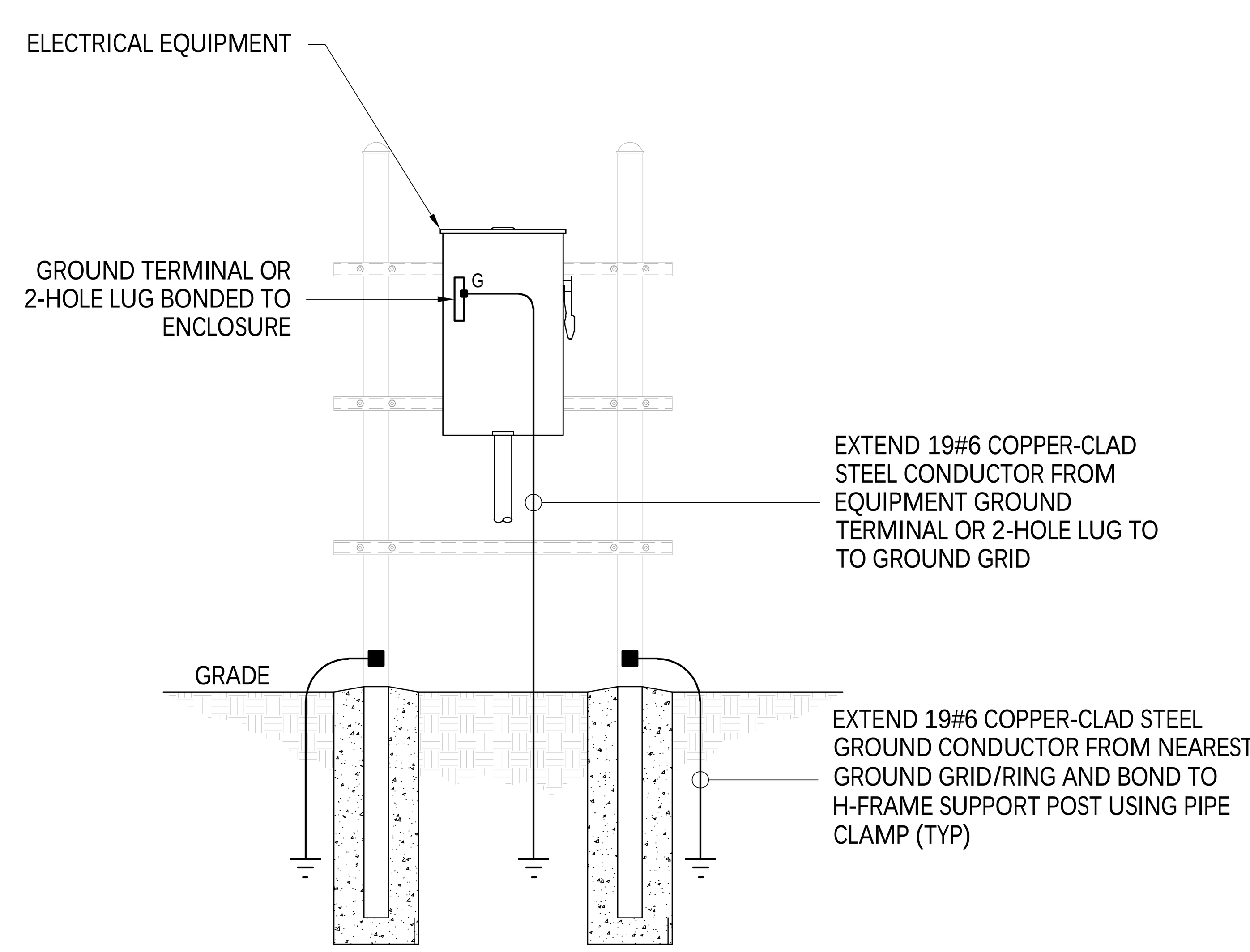
NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND.
3. COAT ALL BARRELS WITH ANTI-OXIDATION COMPOUND BEFORE CRIMPING.

4 GROUNDING LUG DETAIL
NTS



NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT BEND IN CABLE.
2. ALWAY DIRECT GROUND WIRE DOWN TO GROUND BAR OR H-TAP.
3. PROVIDE AND INSTALL WEATHERPROOFING KIT OVER GROUNDING CLAMP KIT

5 FEEDLINE CABLE GROUNDING DETAIL
NTS



6 ELECTRICAL EQUIPMENT GROUNDING DETAIL
NTS

11/07/25

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GROUNDING DETAILS I

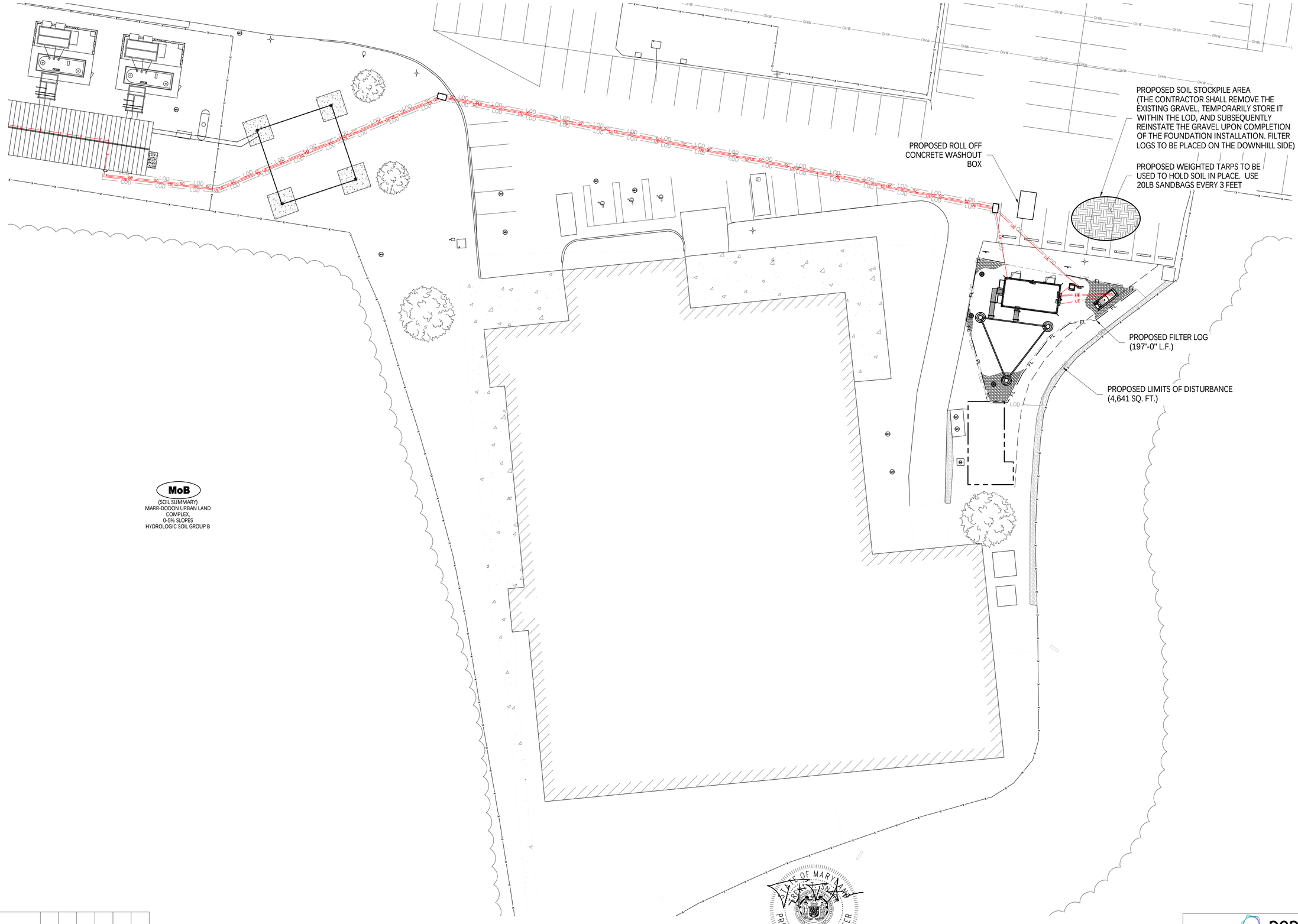
DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	603	SH. 001	NEW

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

700 SH. 001

TRUE NORTH



MoB
(SOIL SUMMARY)
MARR-DODON URBAN LAND COMPLEX,
0-5% SLOPES
HYDROLOGIC SOIL GROUP B

LEGEND

LOD LOD LOD LOD LOD LOD	PROPOSED LIMITS OF DISTURBANCE
FL FL FL FL	PROPOSED FILTER LOGS

REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV
NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				

REVISIONS

Know what's below. Call before you dig.

STATE OF MARYLAND — PROFESSIONAL ENGINEER — 55491

11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

NB+C™ TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
6095 MARSHALEE DRIVE, SUITE 300
ELKRIDGE, MD 21075
(410) 712-7092

THE REGISTRANT OF THE NEWLY APPLIED SEAL, DATED 11/07/25, ONLY ASSUMES RESPONSIBILITY FOR THE CHANGES AS INDICATED BY THE FOLLOWING REVISION(S) UNLESS INDICATED BY OTHERS, REV- NEW.

pepco™
AN EXELON COMPANY

BELLS MILL

EROSION & SEDIMENT CONTROL PLAN

DISCIPLINE	SCALE	CLASS		REV.
E/S/W	1/16" = 1'	__KV	700 SH. 001	NEW

NOTES:
SHOWN BELOW ARE GENERAL TOWER/COMPOUND NOTES. CONTRACTOR SHALL ADHERE TO ALL APPLICABLE PEPCO REQUIREMENTS AND STANDARDS AS LISTED AND SHOWN IN THE PEPCO HOLDINGS DESIGN MANUAL FOR SUBSTATION STANDARDS.

GENERAL EROSION & SEDIMENT CONTROL PROCEDURES

1. THE OPERATOR/RESPONSIBLE PERSON (O/RP) SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
2. THE EROSION AND SEDIMENT CONTROL PLAN IS TO BE USED FOR EROSION AND SEDIMENT CONTROL PURPOSES ONLY. IT SHALL NOT BE USED FOR ANY OTHER CONSTRUCTION RELATED ITEMS.
3. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
4. UNTIL A SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEANOUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING AND RE-NETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED, WILL BE REQUIRED.
5. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
6. BEFORE INITIATING ANY REVISION TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE CONSERVATION DISTRICT.
7. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.
8. DURING ANY STAGE OF THE REGULATED EARTH DISTURBANCE ACTIVITIES, IF THE MUNICIPALITY OR ITS DESIGNEE DETERMINES THAT ANY BMPS ARE NOT BEING IMPLEMENTED IN ACCORDANCE WITH THIS ORDINANCE, THE MUNICIPALITY MAY SUSPEND OR REVOKE ANY EXISTING PERMITS OR OTHER APPROVALS UNTIL THE DEFICIENCIES ARE CORRECTED.
9. WHEN REQUIRED, ADEQUATE PROVISIONS SHALL BE MADE FOR DUST CONTROL MEASURES AS ARE DEEMED ACCEPTABLE BY THE MUNICIPAL ENGINEER.
10. ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER UNDISTURBED AREAS.NO SEDIMENT OR SEDIMENT LADEN WATER IS ALLOWED TO LEAVE THE SITE WITHOUT FIRST BEING PROPERLY FILTERED.
11. DISTURBED AREAS ON WHICH EARTH MOVING ACTIVITIES HAVE CEASED AND WHICH WILL REMAIN EXPOSED SHALL BE STABILIZED IMMEDIATELY, EITHER TEMPORARILY OR PERMANENTLY, INCLUDING THE RESTORATION OF DRIVEWAYS, STOCKPILES, OFF-SITE UNDERGROUND UTILITY LINES AND GRADED PERIMETER AREAS. DISTURBED AREAS THAT ARE AT FINISHED GRADE OR WHICH WILL NOT BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.DURING NON-GERMINATION PERIODS, MULCH MUST BE APPLIED AT RECOMMENDED RATES. CRUSHED STONE ON PAVEMENT SUBGRADES IS CONSIDERED ADEQUATE PROTECTION.
12. WHERE DISTURBED AREAS ARE DIFFICULT TO STABILIZE, NETTING SHOULD BE USED TO HOLD SEED AND MULCH IN PLACE; THIS IS ESPECIALLY IMPORTANT AROUND WATERCOURSES, IN SWALES AND AREAS OF CONCENTRATED FLOWS AND STEEP SLOPES.
13. ALL BUILDING MATERIAL AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED IN ACCORDANCE WITH DEP'S SOLID WASTE REGULATIONS, AND/OR ANY ADDITIONAL LOCAL, STATE OR FEDERAL REGULATIONS. NO BUILDING MATERIALS (USED OR UNUSED) OR WASTE MATERIALS SHALL BE BURNED, BURIED, DUMPED OR DISCHARGED AT THE SITE.
14. ALL SPOILS ARE TO BE REMOVED FROM THE SITE ON THE SAME DAY. IN THE EVENT SPOILS CANNOT BE REMOVED THE SAME DAY THE SEDIMENT REMOVED SHALL BE LOCATED ON SITE IN AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY PLACED IN SOIL STOCKPILES AND STABILIZED.

E&S NARRATIVE:

EXISTING CONDITIONS:

THE SUBJECT PROPERTY CURRENTLY EXISTS AS 48.67 ACRES OF LAND PURPOSED FOR A UTILITY SUBSTATION. THE EXISTING SUBSTATION IS SURROUNDED BY 4,000 LF OF CHAIN-LINK FENCE AND TAKES UP 18.16 ACRES OF THE PROPERTY. THE REMAINING 30.51 ACRES ARE MADE UP OF GRASS AND TREES. EXISTING SITE RUNOFF SHEET FLOWS DOWN THE NATURAL DRAINAGE PATTERNS OF THE LANDSCAPE TOWARDS VARIOUS FORESTED AREAS THROUGHOUT THE PARCEL.

PROPOSED DEVELOPMENT:

THE PROPOSED DEVELOPMENT INCLUDES THE INSTALLATION OF A NEW 270' SELF-SUPPORT TOWER, GENERATOR, AND CARRIER EQUIPMENT SHELTER, PROPOSED CARRIER EQUIPMENT, AND FUTURE CARRIER EQUIPMENT SPACE WITH A LIMIT OF DISTURBANCE OF 4,641 SQ. FT.

SEQUENCE OF CONSTRUCTION

1. MOBILIZATION
2. INSTALL SILT FENCE AROUND COMPOUND AREA
3. EXCAVATE AND POUR TOWER FOUNDATION. BACKFILL AND COMPACT FOUNDATION AREA.
4. CONSTRUCT AND MAINTAIN TEMPORARY COVER TO STABILIZE DISTURBED AREAS.
5. INSTALL UTILITIES.
6. COLLECT SILT AND SEDIMENT AND PLACE BACK ON SITE.
7. OBTAIN WRITTEN APPROVAL FROM MCDPS INSPECTOR TO REMOVE SEDIMENT CONTROL DEVICES.
8. REMOVE EROSION AND CONTROL MEASURES

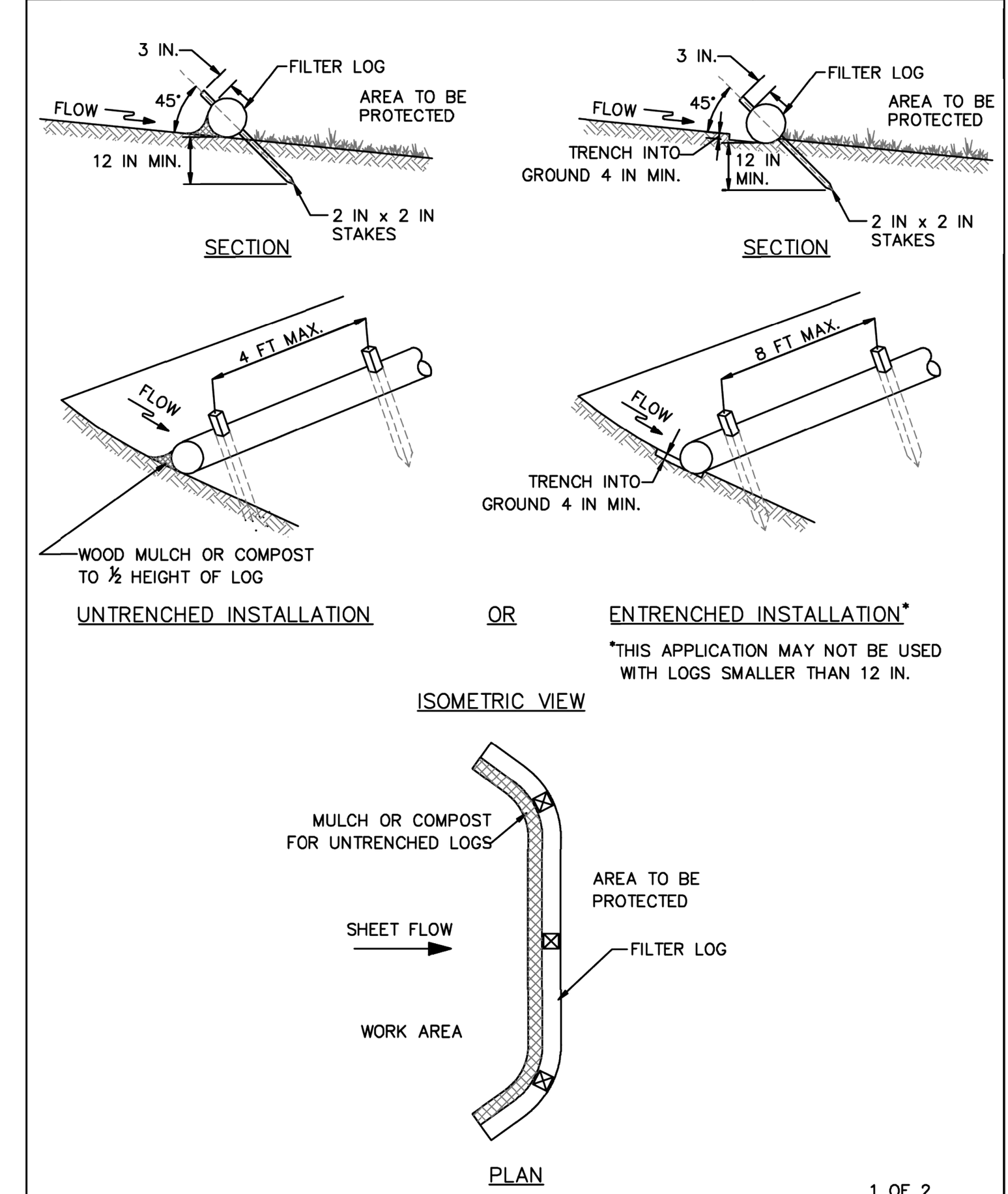
IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE O/RP SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.

AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.

DETAIL E-6 FILTER LOG

STANDARD SYMBOL
FL-18
DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG.



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.15

DETAIL E-6 FILTER LOG

STANDARD SYMBOL
FL-18
DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG.

CONSTRUCTION SPECIFICATIONS

1. PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FILTER LOG.
2. FILL LOG NETTING UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH SECTION H-1 MATERIALS), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
3. INSTALL FILTER LOGS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.
4. FOR UNTRENCHED INSTALLATION BLOW OR HAND PLACE MULCH OR COMPOST ON UPHILL SIDE OF THE SLOPE ALONG LOG.
5. STAKE FILTER LOG EVERY 4 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG OR TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE LOG EVERY 8 FEET OR CLOSER.
6. USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 12 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE LOG.
7. WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.
8. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF ½ THE EXPOSED HEIGHT OF LOG AND REPLACE MULCH. REPLACE FILTER LOG IF TORN. REINSTALL FILTER LOG IF UNDERMINING OR DISLODGING OCCURS. REPLACE CLOGGED FILTER LOGS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.16

1 FILTER LOG
NTS

H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

Definition

Controlling the suspension of dust particles from construction activities.

Purpose

To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards.

Conditions Where Practice Applies

Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

Specifications

1. Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing.
2. Vegetative Cover: See Section B-4-4 Temporary Stabilization.
3. Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.
4. Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.
5. Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing.
6. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan review authority.

H.22

H-6 STANDARDS AND SPECIFICATIONS FOR ONSITE CONCRETE WASHOUT STRUCTURE

Definition

A prefabricated or fabricated container used for containing wash water from rinsing out concrete trucks, drums, pumps, chutes, other equipment, and concrete truck exteriors.

Purpose

To promote proper disposal of waste concrete and wash water by containing it onsite thereby preventing contamination of waterways, groundwater, and storm drains.

Conditions Where Practice Applies

Concrete washout structures are used when concrete equipment is cleaned onsite.

Design Criteria

1. Concrete washout structures must be located a minimum of 50 feet away from open channels, storm drain inlets, sensitive areas, wetlands, buffers, and waterways.
2. The location of the washout structure must be away from construction traffic.
3. Excavated washout structures must be located so that they do not intercept surface runoff. If runoff drains toward an excavated structure, a diversion must be provided around the structure.
4. Prefabricated containers are an acceptable alternative to fabricated washout structures provided the volume is adequate to contain all wash water and solids while maintaining at least 4 inches of freeboard.

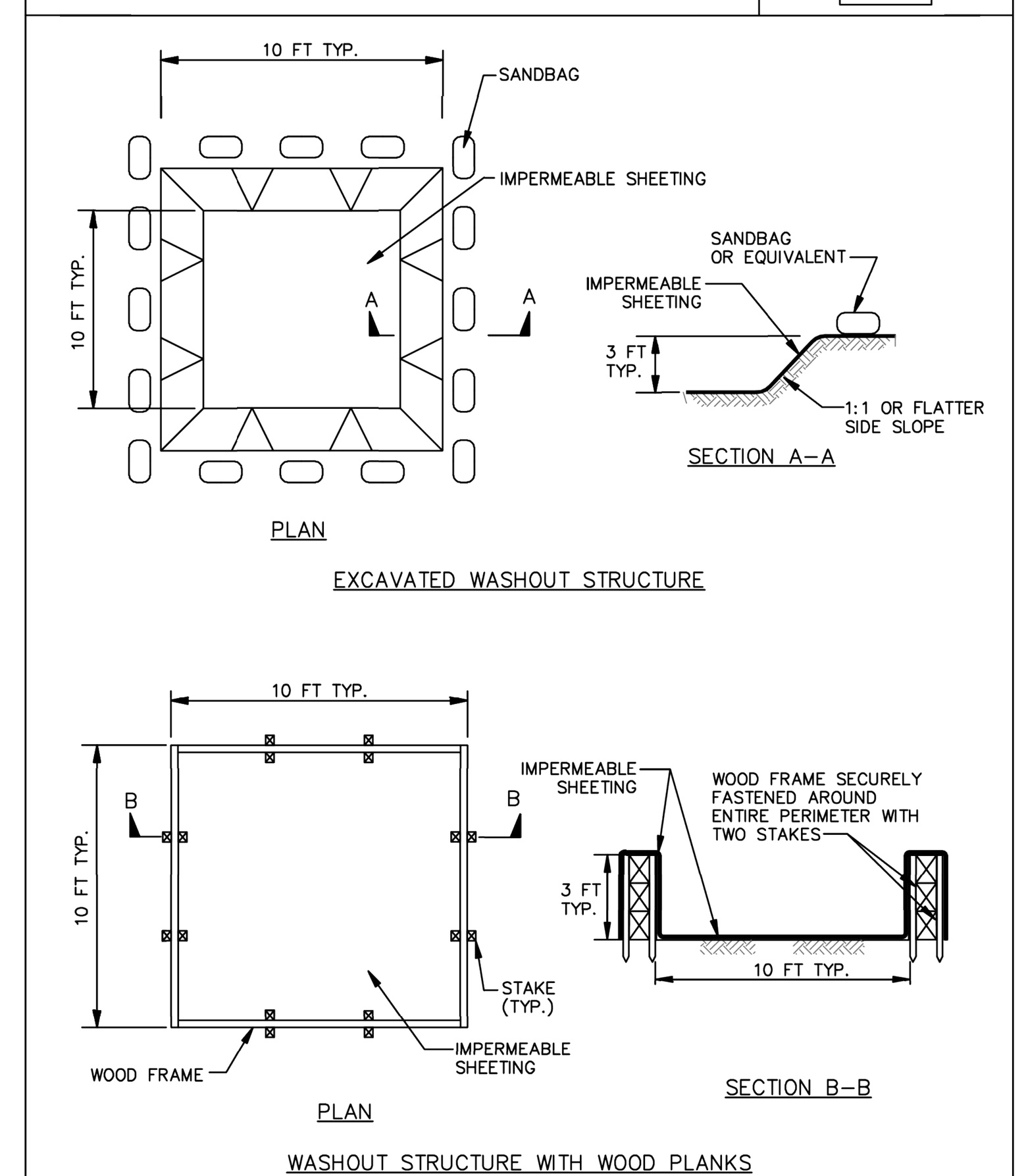
Maintenance

It is critical that the concrete washout structure be watertight. The impermeable liner needs to be replaced if damaged (e.g., ripped or punctured). A washout structure that is 75 percent full must be emptied or replaced, and the accumulated material must be disposed of properly. The liner may not be reused. Prefabricated containers require less maintenance. Stored liquids that have not evaporated can be wet vacuumed and disposed of in an approved manner. Prior to forecasted rainstorms, remove liquids or cover the structure to prevent overflows. Hardened solids can be removed whole or broken up for disposal or recycling. Runoff diversion(s) around an excavated washout structure must be maintained until the structure is removed.

H.23

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL
CWS



1 OF 2

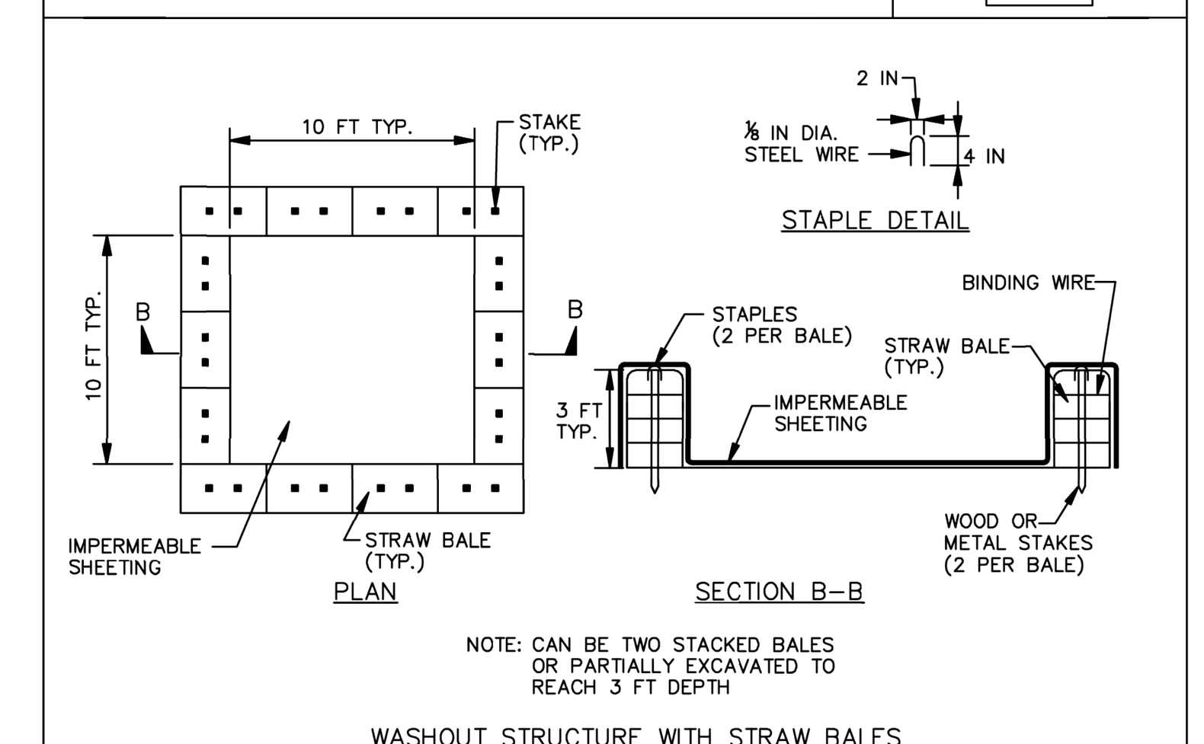
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

H.24

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL
CWS



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

H.25

2 WASHOUT STRUCTURE
NTS

NEW	ISSUED FOR CONSTRUCTION WR#	NB+C 11/07/25	NB+C 11/07/25				
REV	DESCRIPTION	DFT	ENG	APV	APV	APV	APV

REVISIONS

STATE OF MARYLAND PROFESSIONAL ENGINEER 55491

11/07/25

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 55491, EXPIRATION DATE 01/08/2026

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pepco AN EXELON COMPANY

BELLS MILL

EROSION & SEDIMENT CONTROL NOTES

DISCIPLINE	SCALE	CLASS			REV.
E/S/W	NONE	__KV	701	SH. 001	NEW

BOARD OF APPEALS
for
MONTGOMERY COUNTY

Stella B. Werner Council Office Building
100 Maryland Avenue, Suite 217
Rockville, Maryland 20850
www.montgomerycountymd.gov/boa/

(240) 777-6600

Case Nos. CBA-764. CBA-1000, CBA-1097, CBA-2125. CBA-2481, S-246, S-246-A, and S-347

PETITION OF POTOMAC ELECTRIC POWER COMPANY

RESOLUTION TO MODIFY SPECIAL EXCEPTION
(Resolution Adopted October 28, 2020)
(Effective Date of Resolution: November 4, 2020)

The Board of Appeals granted special exception Case No. CBA-764, effective June 17, 1959, to the Potomac Electric Power Company ("PEPCO") to permit public utility facilities with high frequency microwave towers and auxiliary equipment and buildings at two different locations, pursuant to Section 107-29u of the Zoning Ordinance (Chap. 107, Mont. Co. Code 1955, as amended). One of the two locations is the PEPCO property that is the subject of this modification, which now has an address of 10611 Westlake Drive in Bethesda. Effective November 2, 1960, the Board of Appeals granted special exception Case No. CBA-1000 to PEPCO to erect and use a public utility building and structures on this property, pursuant to Section 107-29u of the Zoning Ordinance (Chap. 107, Mont. Co. Code 1955, as amended). Effective July 24, 1961, the Board of Appeals granted special exception Case No. CBA-1097 to PEPCO to permit the continued use and operation of public utility structures, and the expansion of a substation, pursuant to Section 107-29u of the Zoning Ordinance (Chap. 107, Mont. Co. Code 1955, as amended). Effective January 17, 1967, the Board granted special exception Case No. CBA-2125 to PEPCO to permit the continued use and expansion of an electric substation, pursuant to Section 104-29.u.(1), (4), and (5) of the Zoning Ordinance (Chap. 104, Mont. Co. Code 1960, as amended). Effective December 10, 1968, the Board granted special exception Case No. CBA-2481 to PEPCO, pursuant to Section 111-37.u.(1), (4), and (5) of the Zoning Ordinance (Chap. 111, Mont. Co. Code 1965, as amended), to permit the continued operation and expansion of an existing electric substation. Effective July 6, 1973, in Case No. S-246, the Board approved a special exception pursuant to Section 111-37.u.(1) of the Zoning Ordinance (Chap. 111, Mont. Co Code 1965, as amended) for the construction and operation of a public utility building. Effective November 17, 1976,

the Board granted special exception Case No. S-347 to PEPCO, pursuant to Section 59-164 of the Zoning Ordinance (Chap. 59, Mont. Co. Code 1972, as amended), to permit expansion of the existing facilities within the fenced area. Effective December 10, 1980, the Board modified special exception Case No. CBA-764 to permit the installation of emergency stand-by generators and associated enclosures. Effective March 25, 1987, the Board modified special exception Case Nos. CBA-764, CBA-1000, CBA-1097, CBA-2125, CBA-2481, and S-347 to permit the installation of a new transformer. On October 7, 1987, in Case No. S-246-A, the Board approved an expansion of the public utility building. Effective September 26, 1988, the Board modified Case No. CBA-1000 to permit the installation of an additional capacitor bank. Finally, effective July 16, 1990, the Board modified Case No. CBA-1000 to permit the installation of an additional 69kV circuit breaker, as well as six switching surge arrestors and 13 potential transformers, within the existing fencing.

The subject property is 48.67 acres in size, located at 10611 Westlake Drive, Bethesda, Maryland, in the R-90 Zone.

The Board of Appeals has received a letter with attachments dated October 12, 2020, from John Sekerak, Jr., ASLA, AICP, on behalf of PEPCO, requesting an administrative modification. Specifically, Mr. Sekerak requests a new twenty-foot wide access driveway to serve the northern portion of the substation facility. He includes a site plan showing the location of the requested driveway with his submission. Mr. Sekerak states that the new paved driveway will realign and replace an existing gravel driveway, and is needed to accommodate large trucks and the delivery of equipment like transformers to the substation. Mr. Sekerak notes in his letter that the requested change will not substantially change the nature, character, or intensity of the use, and will not have an effect on traffic or the immediate neighborhood.

Due to COVID-19, the Board of Appeals considered the modification request at a remote Worksession held on October 28, 2020, using Microsoft Teams. Mr. Sekerak participated in the Worksession. He explained that PEPCO is seeking to re-establish a second entrance on the northern side of their property, stating that there had previously been such an entrance, but that it was cut off when a portion of the original special exception property was deeded to the Board of Education. He stated that a gravel driveway was installed as a replacement, but that the gravel driveway is insufficient to allow for large equipment. Thus Mr. Sekerak described the proposed entrance as a replacement for the original second entrance and an improvement and relocation of the existing gravel driveway.

Because the affected special exceptions were approved prior to October 30, 2014, under Section 59-7.7.1.B of the current Zoning Ordinance, this modification request must be reviewed under the standards and procedures in effect on October 29, 2014, unless the applicant requests otherwise. Section 59-G-1.3(c)(1) of the Zoning Ordinance (2004) provides:

> If the proposed modification is such that the terms or conditions could be modified without substantially changing the nature, character or intensity of the use and without substantially changing the effect on traffic or on the immediate neighborhood, the board, without convening a public hearing to consider the proposed change, may modify the term or condition.

The Board finds that the proposed new entrance, which will re-establish a former and replace an existing entrance to this special exception property, will not substantially change the nature, character, or intensity of the use, or its effect on traffic or the immediate neighborhood. Thus the Board finds that the proposed modification meets the standard set forth in Section 59-G-1.3(c)(1) of the Zoning Ordinance (2004), and can be granted. Therefore, on a motion by Bruce Goldensohn, Vice Chair, seconded by Katherine Freeman, with John H. Pentecost, Chair, Mary Gonzales, and Richard Melnick in agreement:

BE IT RESOLVED by the Board of Appeals for Montgomery County, Maryland, that the record in Case Nos. CBA-764. CBA-1000, CBA-1097, CBA-2125, CBA-2481, S-246, S-246-A, and S-347 is re-opened to receive Mr. Sekerak's letter of October 12, 2020, with attachments; and

BE IT FURTHER RESOLVED by the Board of Appeals for Montgomery County, Maryland, that the request to permit the proposed second entrance, as described above and in Mr. Sekerak's letter, and as shown on the attachments to that letter, is granted; and

BE IT FURTHER RESOLVED by the Board of Appeals for Montgomery County, Maryland that all terms and conditions of the original special exceptions, together with any modifications granted by the Board of Appeals, remain in effect.

John H. Pentecost, Chair
Montgomery County Board of Appeals

Entered in the Opinion Book
of the Board of Appeals for
Montgomery County, Maryland
this 4th day of November, 2020.

Barbara Jay
Executive Director

NOTE:

Any party may, within fifteen (15) days of the date of the Board's Resolution, request a public hearing on the particular action taken by the Board. Such request shall be in writing, and shall specify the reasons for the request and the nature of the objections and/or relief desired. In the event that such request is received, the Board shall suspend its decision and conduct a public hearing to consider the action taken.

Any request for rehearing or reconsideration must be filed within fifteen (15) days after the date the Opinion is mailed and entered in the Opinion Book. Please see the Board's Rules of Procedure for specific instructions for requesting reconsideration.

Any decision by the County Board of Appeals may, within thirty (30) days after the decision is rendered, be appealed by any person aggrieved by the decision of the Board and a party to the proceeding before it, to the Circuit Court for Montgomery County, in accordance with the Maryland Rules of Procedure. It is each party's responsibility to participate in the Circuit Court action to protect their respective interests. In short, as a party you have a right to protect your interests in this matter by participating in the Circuit Court proceedings, and this right is unaffected by any participation by the County.