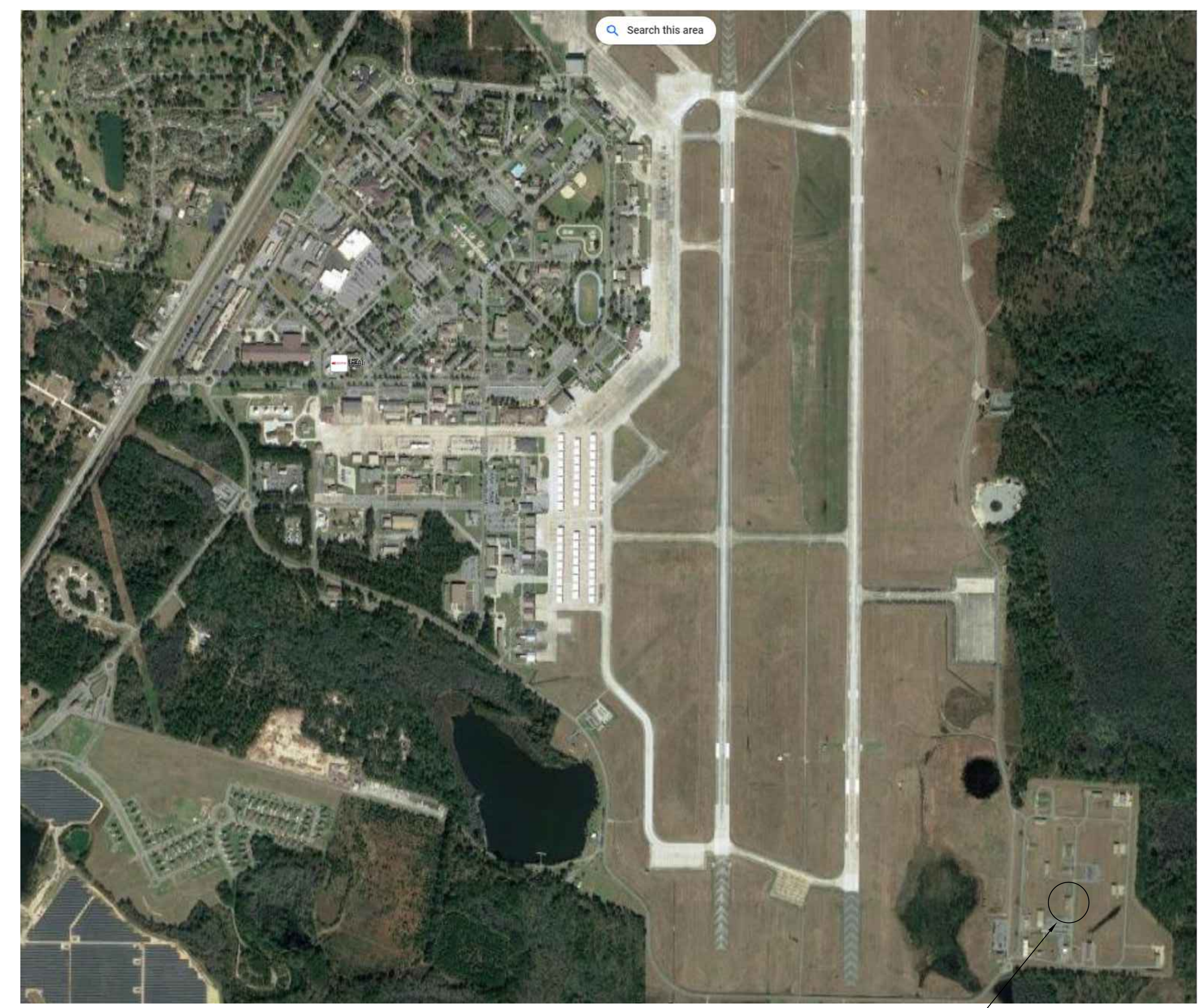
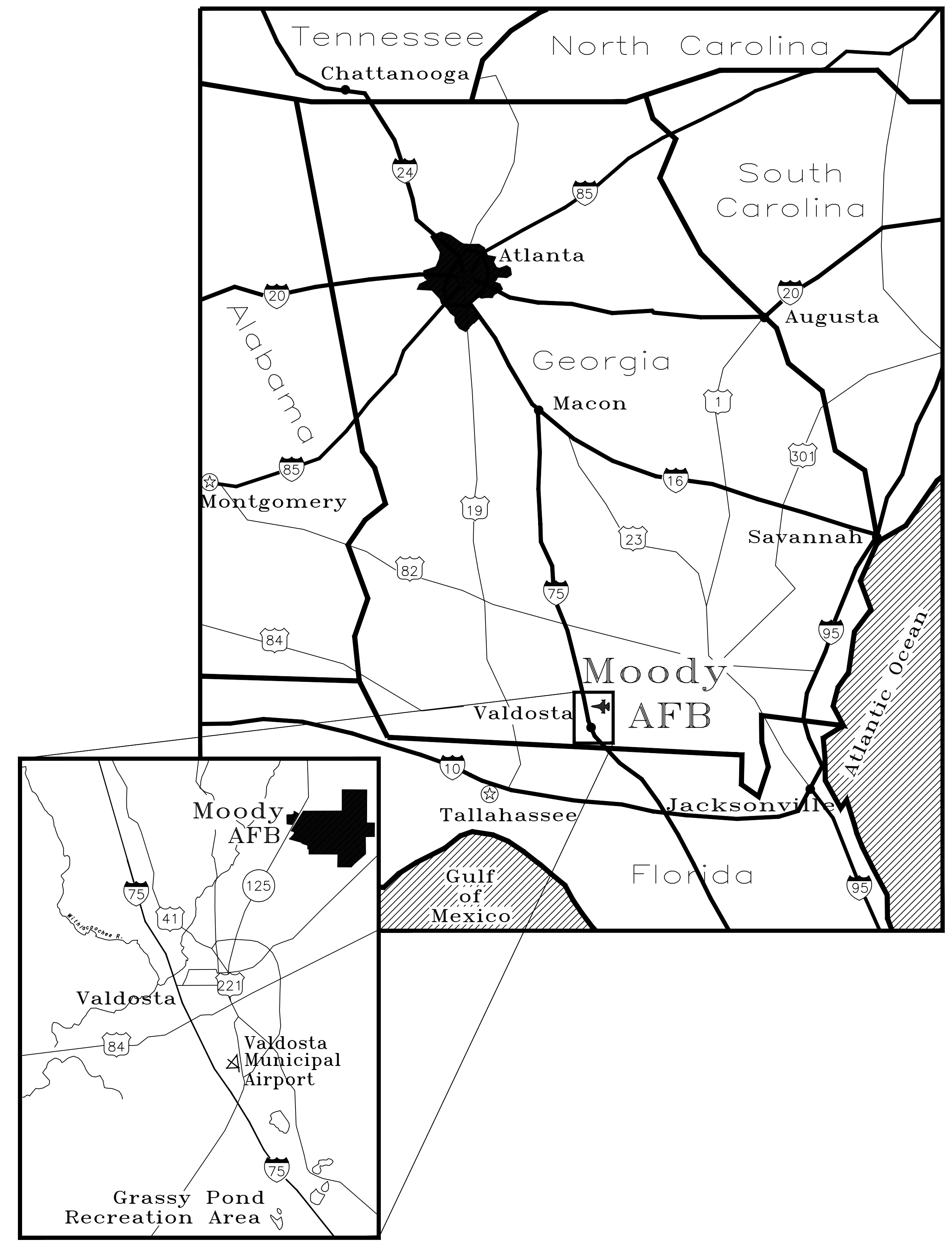


MAFB PROJECT DSN RPR LIGHTNING PROTECTION SYSTEM, MULTI FAC QSEU 23-0118, BLDG 1109



BUILDING 1109

DRAWING INDEX

- C-1 BUILDING 1109 COVER SHEET
- E-1 BUILDING 1109 LPS DEMOLITION DRAWING
- E-2 BUILDING 1109 LPS ABOVE GRADE PLAN
- E-3 BUILDING 1109 LPS BELOW GRADE GROUNDING PLAN
- E-4 BUILDING 1109 DETAILS



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	95 % SUBMITTAL	3/26/2024				
	100 % REVISED SUBMITTAL	5/02/2024				
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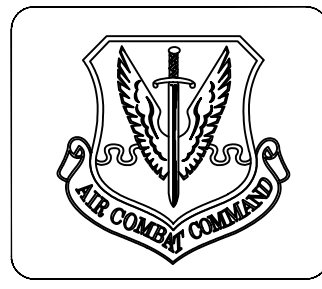
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BUILDING 1109 COVER SHEET



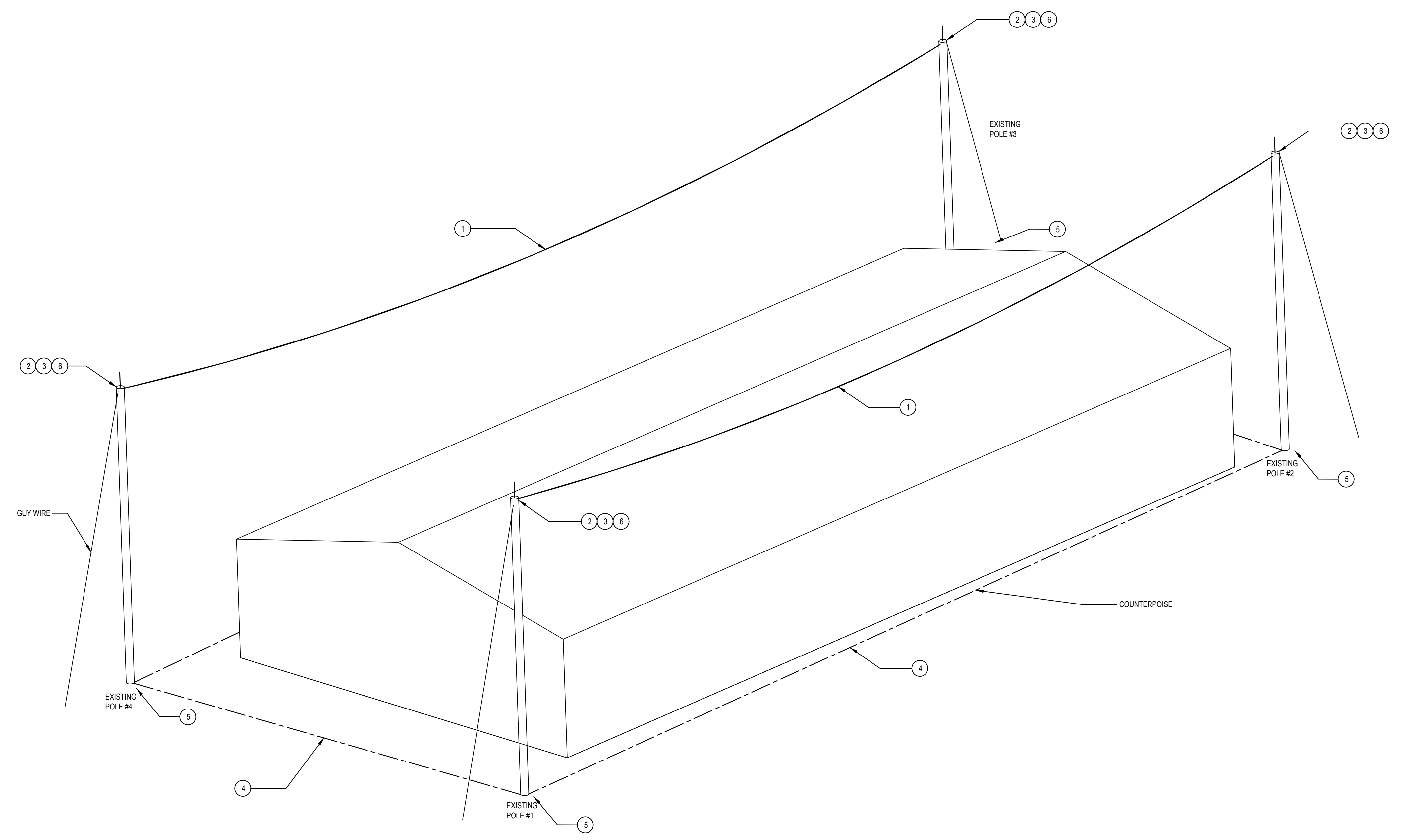
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Sheet reference number:
C-1



NOTES: (THIS SHEET ONLY)

- 1 CONTRACTOR SHALL REMOVE ALL EXISTING OVERHEAD GROUND WIRES.
- 2 CONTRACTOR SHALL REMOVE ALL AIR TERMINALS AND AIR TERMINALS BASES.
- 3 CONTRACTOR SHALL DEMO EXISTING DOWN-CONDUCTORS FROM TOP OF EACH POLE DOWN TO COUNTERPOISE CONDUCTOR.
- 4 CONTRACTOR SHALL EXCAVATE, CUT, AND REMOVE THE EXISTING COUNTERPOISE CONDUCTOR.
- 5 CONTRACTOR SHALL DEMO THE EXISTING GROUND RODS AND GROUNDING TEST WELLS.
- 6 CONTRACTOR SHALL LEAVE THE EXISTING POLES AND GUY WIRES IN PLACE.



BUILDING 1109 LPS DEMOLITION DRAWING
SCALE: _____ NONE _____

LEGEND	
	GROUND TEST WELL AND GROUNDING ROD
	NEW POLE
	EXISTING POLE
	EXISTING LIGHT POLE
	CATENARY WIRE AERIAL
	GUY WIRE ANCHOR
	UNDERGROUND COUNTERPOISE

Symbol	Description	Date	Approved	Symbol	Date	Approved
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BUILDING 1109 LPS DEMOLITION DRAWING



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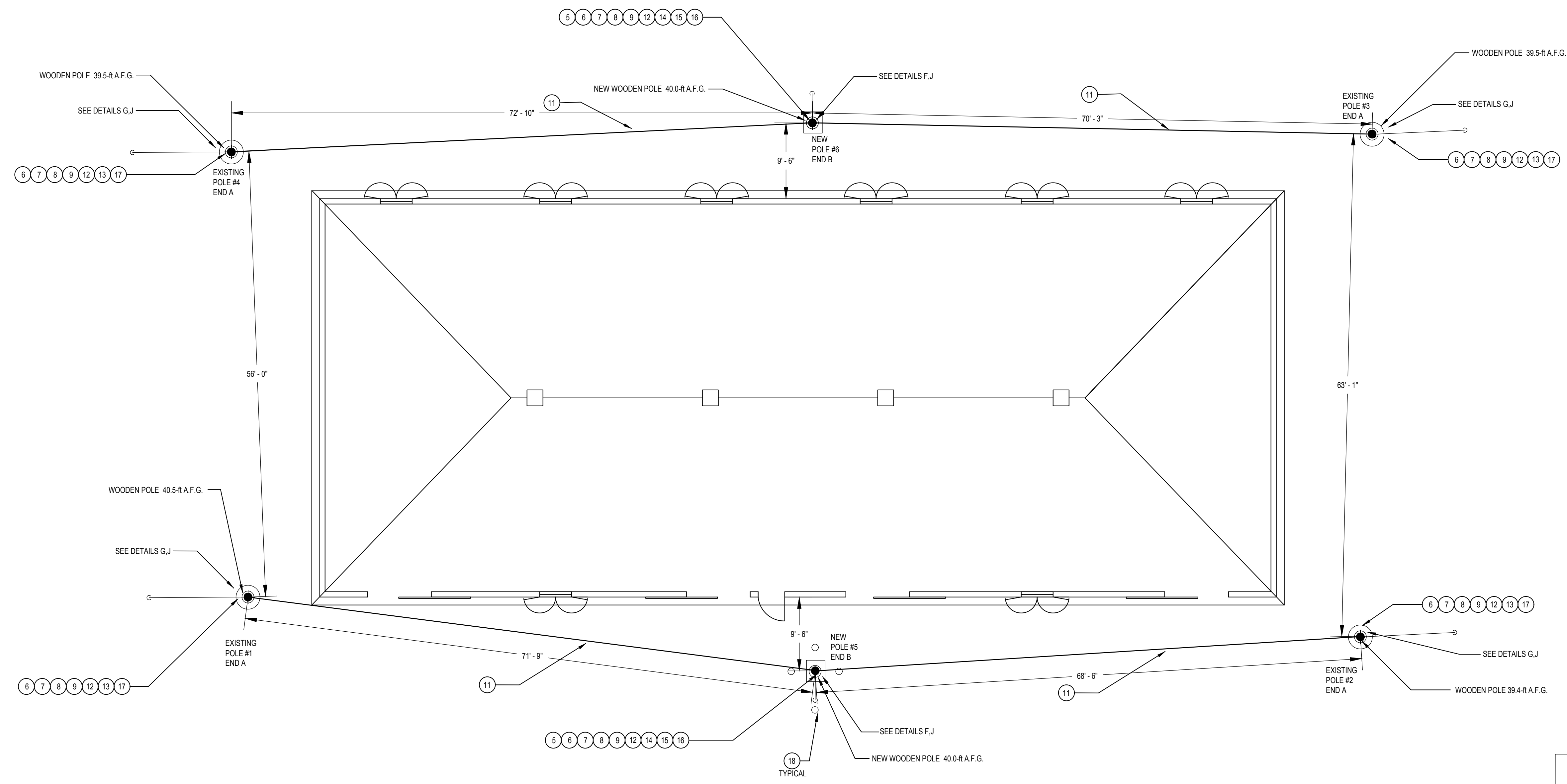
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E-1

NOTES: (THIS SHEET ONLY)

- 1 THE COMPLETED CATENARY WIRE LIGHTNING PROTECTION SYSTEM INSTALLATION SHALL MEET THE REQUIREMENTS OF THE LATEST ADOPTED VERSION OF THE NFPA'S "STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS" (NFPA 780) INCLUDING CHAPTER 8 (PROTECTION OF STRUCTURES HOUSING EXPLOSIVE MATERIALS). THE "INSTALLATION REQUIREMENTS FOR LIGHTNING PROTECTION SYSTEMS, UL 96A" OF UNDERWRITERS LABORATORIES INC. AND AIR FORCE INSTRUCTION 32-1095 "GROUNDING SYSTEMS" THIRD PARTY CERTIFICATION SHALL BE FURNISHED TO OWNER UPON COMPLETION IF REQUIRED.
- 2 DESIGN SHOWN IS SCHEMATIC AND INTENDED TO SHOW BASIC SYSTEM DESIGN. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND SITE CONDITIONS AND PROVIDE A SYSTEM THAT COMPLES WITH CODE REQUIREMENTS.
- 3 DESIGN SHOWN AND NOTES HEREIN APPLY ONLY TO CATENARY WIRE SYSTEM AND DO NOT INCLUDE THE FIXED STRUCTURE BEING PROTECTED.
- 4 NEW LIGHTNING PROTECTION POLES (2) SHALL BE TRANSMISSION DISTRIBUTION RATED PER UFC 3-575-01. NEW LIGHTNING PROTECTION POLE INSTALLATION LOCATIONS ARE ANNOTATED IN DRAWINGS.
- 5 THE TOPS OF THE NEW LIGHTNING PROTECTION POLES SHALL BE POSITIONED 40-FT ABOVE GROUND LEVEL.

- 6 INSTALL 2-FT, 1/2-IN DIAMETER COPPER AIR TERMINALS (HARGER 1224UAT OR SIMILAR) WITH BRONZE SCREW-IN BASES (HARGER CUBU21 OR SIMILAR) ON TOP OF THE NEW LIGHTNING PROTECTION POLES (2) AND ON ANY EXISTING POLES WITH DETERIORATED AIR TERMINALS OR AIR TERMINAL BASES. AIR TERMINAL BASES SHALL BE SECURED TO THE POLES USING CORROSION RESISTANT STAINLESS STEEL FASTENERS. SEE DETAIL SHEET E-4.
- 7 INSTALL TWO CLASS I STRANDED COPPER DOWN-CONDUCTORS EXTENDING FROM TOP OF EACH NEW LIGHTNING PROTECTION POLES TO GROUND LEVEL. DOWN-CONDUCTORS SHALL BE POSITIONED ON OPPOSING SIDES OF THE NEW POLES AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING 3-FT USING MATERIAL-COMPATIBLE CONDUCTOR CLIPS AND CORROSION RESISTANT FASTENERS.
- 8 ALL LIGHTNING CONDUCTORS ARE TO MAINTAIN A HORIZONTAL OR DOWNWARD PATH. ALL BENDS IN THE CONDUCTOR SHALL HAVE A RADIUS OF 8" OR GREATER AND SHALL HAVE AN ANGLE BEND OF 90 DEGREES OR GREATER.
- 9 ENCLOSE DOWN CONDUCTORS (2 PER POLE) WITHIN SCHEDULE 80 PVC CONDUIT EXTENDING, AT MINIMUM, 6-8 ABOVE GROUND LEVEL. SECURE PVC CONDUIT TO SUPPORT POLES.
- 10 BI-METALLIC LIGHTNING PROTECTION SYSTEM COMPONENTS SHALL BE USED TO AVOID GALVANIC CORROSION WHERE APPLICABLE. REFER TO NFPA 780, ARTICLE 4.3.
- 11 ALL OVERHEAD GROUND WIRES (CATENARY WIRE SYSTEM) SHALL BE 1/2-IN OUTER DIAMETER COPPER-CLAD STEEL CONDUCTORS PER NFPA 780, ARTICLE 4.6.

- 12 BOND COPPER OVERHEAD GROUND WIRES TO GALVANIZED STEEL GUY WIRES USING APPROPRIATE BI-METALLIC BONDING CONNECTORS (HARGER TBCTC OR SIMILAR) PER ARTICLE 4.6.4.5. SEE DETAIL SHEET E-4.
- 13 FOR EACH OVERHEAD GROUND WIRE, TERMINATE END 'A' IN STAINLESS STEEL OPEN SOCKET SWAGE FITTING (ESCO HOLERITE 417932 OR SIMILAR). FASTEN END 'A' TO EXISTING MECHANICAL EYE BOLT AT WOODEN LIGHTNING PROTECTION POLE TOP USING CLEVIS PIN. SEE DETAIL SHEET E-4.
- 14 FOR EACH OVERHEAD GROUND WIRE, TERMINATE END 'B' IN STAINLESS STEEL CLOSED SOCKET SWAGE FITTING (ESCO HOLERITE 5111839 OR SIMILAR). CONNECT TO STAINLESS STEEL TURNBUCKLE VIA CLEVIS PIN. CONNECT OPPOSITE SIDE OF TURNBUCKLE TO EXISTING MECHANICAL EYE BOLT AT WOODEN LIGHTNING PROTECTION POLE TOP USING CLEVIS PIN. TIGHTEN TURNBUCKLE UNTIL REQUIRED 3-FT SAG IS ACHIEVED. SEE DETAIL SHEET E-4.
- 15 AT MID-SPAN LIGHTNING PROTECTION POLES, BOND OVERHEAD GROUND WIRES WITH A CLASS II COPPER-CLAD STEEL CONDUCTOR JUMPER. SECURE TO OVERHEAD GROUND WIRES WITH HIGH-COMPRESSION BRONZE CONNECTORS (HARGER B18C OR SIMILAR) AND SECURE TO AIR TERMINAL CABLE CLAMP BASE. SEE DETAIL SHEET E-4.
- 16 AT MID-SPAN LIGHTNING PROTECTION POLES, BOND EACH OVERHEAD GROUND WIRE TO EXISTING DOWN-CONDUCTORS (TWO PER POLE ON OPPOSING SIDES) USING CLASS II OUTER DIAMETER COPPER-CLAD STEEL CONDUCTOR JUMPER. BOND EACH JUMPER TO OVERHEAD GROUND WIRE AND DOWN-CONDUCTOR WITH HIGH-COMPRESSION BRONZE CONNECTORS (HARGER B18C OR SIMILAR). SEE DETAIL SHEET E-4.
- 17 AT LIGHTNING PROTECTION POLES WHERE OVERHEAD GROUND WIRE TERMINATES, BOND OVERHEAD GROUND WIRE TO DOWN-CONDUCTOR WITH A CLASS II COPPER-CLAD STEEL CONDUCTOR JUMPER WITH A HIGH-COMPRESSION BRONZE CONNECTOR (HARGER B18C OR SIMILAR). SECURE JUMPER TO AIR TERMINAL CABLE CLAMP BASE. SEE DETAIL SHEET E-4.
- 18 CONTRACTOR SHALL INSTALL BOLLARDS AROUND NEW LIGHTNING PROTECTION POLES. SEE DETAIL.



BUILDING 1109 LPS ABOVE GRADE PLAN
SCALE: 1/8" = 1'-0"

LEGEND	
	GROUND TEST WELL AND GROUNDING ROD
	NEW POLE
	EXISTING POLE
	EXISTING LIGHT POLE
	CATENARY WIRE AERIAL
	GUY WIRE ANCHOR
	UNDERGROUND COUNTERPOISE



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	100 % REVISED SUBMITTAL	5/22/2024					
	FINAL SUBMITTAL						
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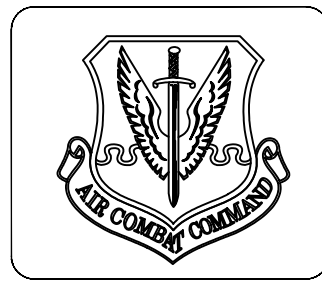
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 BUILDING 1109 LPS ABOVE GRADE PLAN



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E-2



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	95 X SUBMITTAL	5/02/2024					
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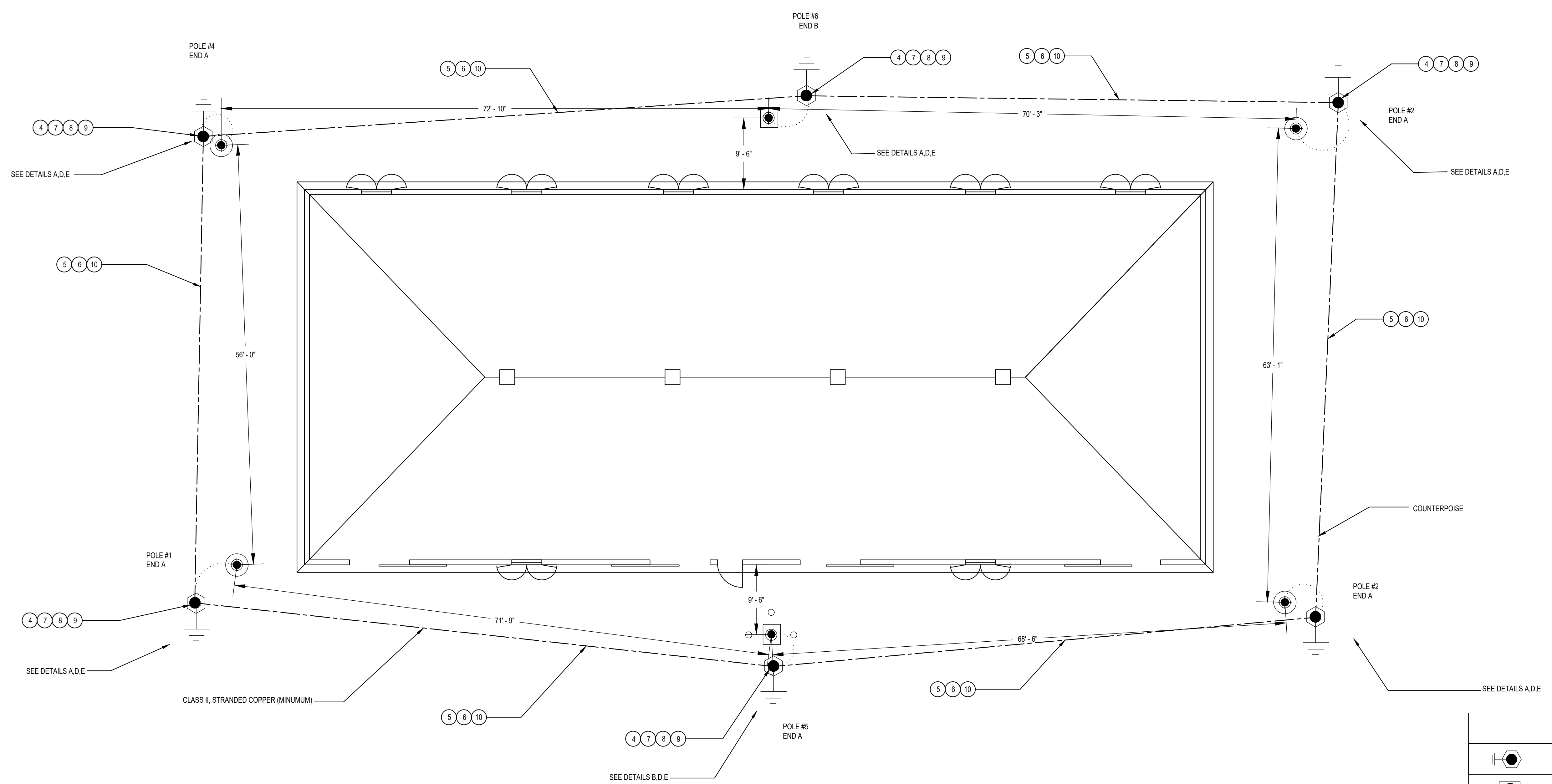
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BUILDING 1109 LPS BELOW GRADE GROUNDING PLAN

Sheet reference number:
E-3

NOTES: (THIS SHEET ONLY)

- THE COMPLETED LIGHTNING PROTECTION SYSTEM INSTALLATION SHALL MEET THE REQUIREMENTS OF THE LATEST ADOPTED VERSION OF THE NFPA'S "STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS" (NFPA 780) INCLUDING CHAPTER 8 (PROTECTION OF STRUCTURES HOUSING EXPLOSIVE MATERIALS), THE "INSTALLATION REQUIREMENTS FOR LIGHTNING PROTECTION SYSTEMS, 11.984" OF UNDERWRITERS LABORATORIES INC. AND AIR FORCE INSTRUCTION 32-1065 "GROUNDING SYSTEMS". THIRD PARTY CERTIFICATION SHALL BE FURNISHED TO OWNER UPON COMPLETION.
- DESIGN SHOWN IS SCHEMATIC AND INTENDED TO SHOW BASIC SYSTEM DESIGN. CONTRACTOR SHALL VERIFY DIMENSIONS AND SITE CONDITIONS AND PROVIDE SYSTEM THAT COMPLIES WITH CODE REQUIREMENTS.
- NOT USED.
- FOR ALL LIGHTNING PROTECTION SYSTEM POLES INSTALL NEW 3/4-IN X 10-FT COPPER GROUNDING ELECTRODES AND GROUNDING TEST WELLS. TEST WELLS SHALL BE INSTALLED WITHIN 3-FT OF THE BASE OF EACH LIGHTNING PROTECTION POLE. NON VEHICLE-RATED TEST WELLS (ARGER GAW1910 OR SIMILAR) MAY BE USED IN NON-TRAFFIC AREAS. WHERE LIGHTING PROTECTION POLES ARE PLACED IN VEHICLE TRAFFIC AREAS, VEHICLE-RATED GROUNDING TEST WELLS (ARGER GAW121212H OR SIMILAR) SHALL BE UTILIZED. SEE DETAIL SHEET E-4.
- INSTALL NEW CLASS II COPPER COUNTERPOISE CONDUCTOR ACCORDING TO PATH DEFINED IN DRAWING. THE COUNTERPOISE CONDUCTOR SHALL BE BURIED A MINIMUM OF 18-IN BELOW GRADE PER ARTICLE 4.13.4.1.
- ALL BENDS IN THE COUNTERPOISE CONDUCTOR SHALL HAVE A RADIUS OF 6" OR GREATER AND SHALL HAVE AN ANGLE BEND OF 90 DEGREES OR GREATER.
- BOND COUNTERPOISE CONDUCTOR TO GROUNDING ELECTRODE VIA EXOTHERMIC WELDING. SEE DETAIL SHEET E-4.
- AT EACH LIGHTNING PROTECTION SYSTEM POLE (6), BOND DOWN-CONDUCTORS (2) TO GROUNDING ELECTRODE VIA EXOTHERMIC WELDING. SEE DETAIL SHEET E-4.
- AT EACH LIGHTNING PROTECTION SYSTEM POLE (6), BOND EACH GUY WIRE ANCHOR CABLE TO THE COUNTERPOISE USING CLASS II COPPER JUMPER VIA EXOTHERMIC WELDING. SEE DETAIL SHEET E-4.
- CONTRACTOR SHALL CUT AND TRENCH NEW COUNTERPOISE CONDUCTOR. UPON COMPLETION OF WORK, CONTRACTORS SHALL BACKFILL AND COMPACT SOIL, WHERE REQUIRED, CONTRACTOR SHALL REPAIR / PATCH ASPHALT / CONCRETE SURFACES TO PRE-EXCAVATION CONDITION.



LEGEND	
	GROUND TEST WELL AND GROUNDING ROD
	NEW POLE
	EXISTING POLE
	EXISTING LIGHT POLE
	CATENARY WIRE AERIAL
	GUY WIRE ANCHOR
	UNDERGROUND COUNTERPOISE

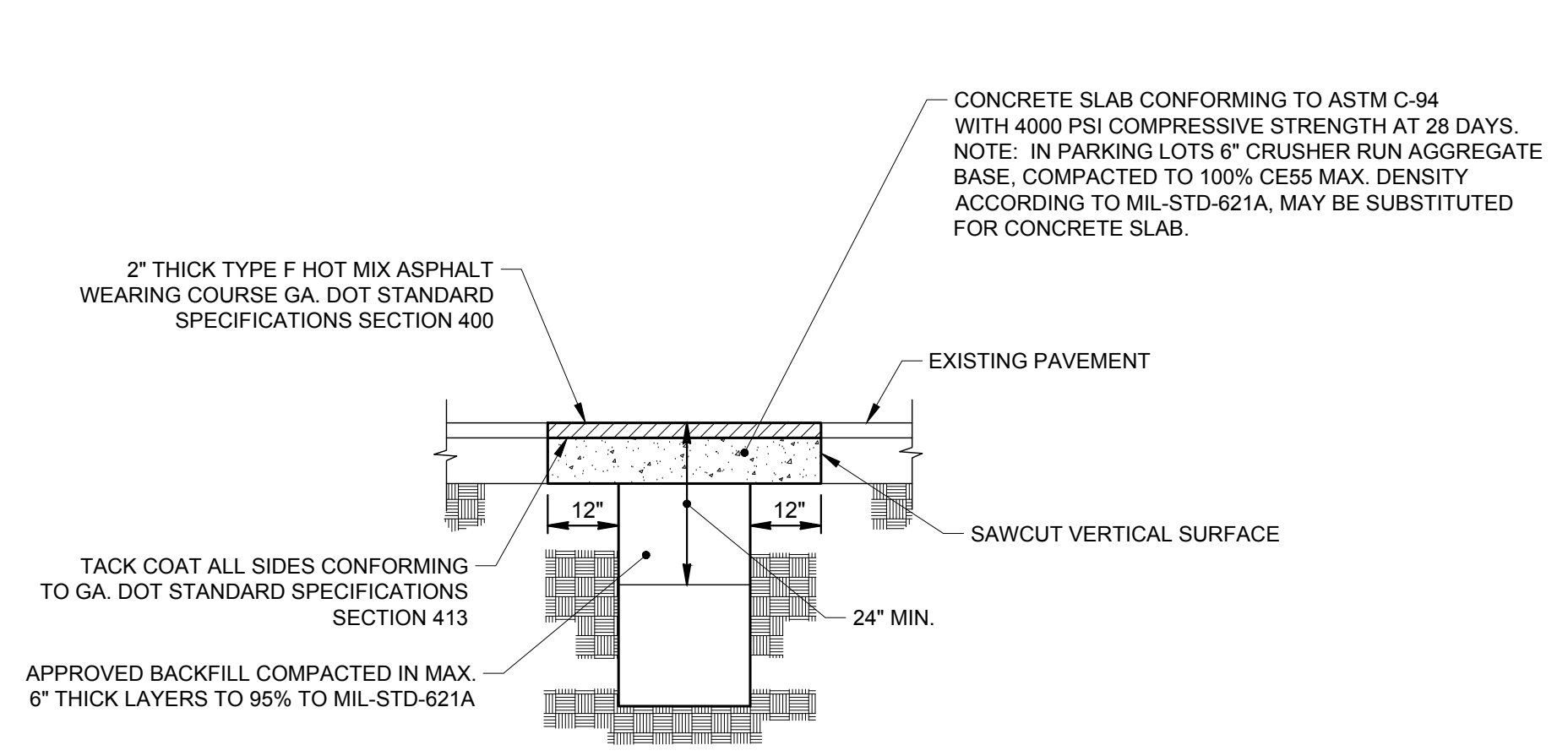
BUILDING 1109 LPS BELOW GRADE GROUNDING PLAN
SCALE: 1/8" = 1'-0"

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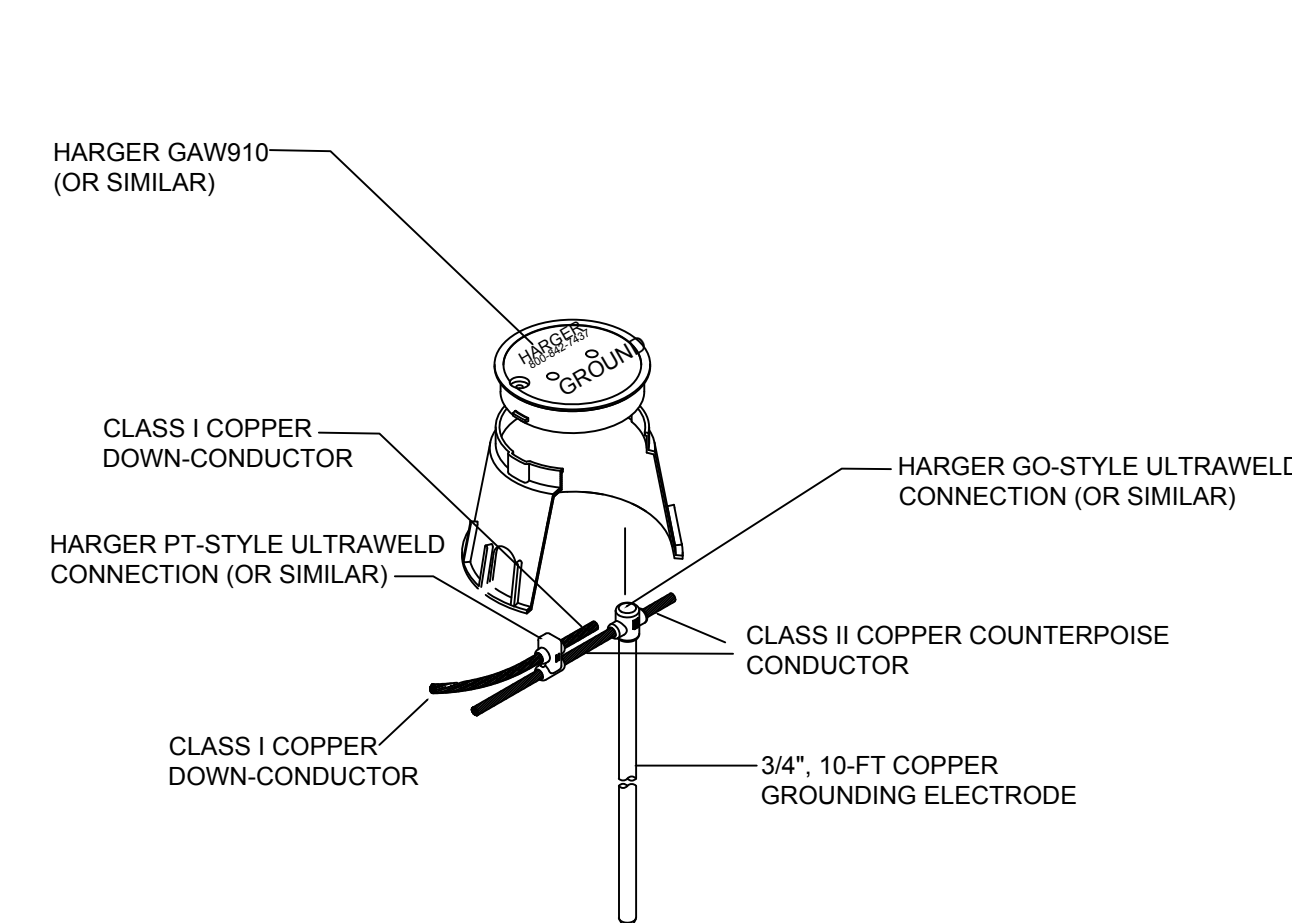
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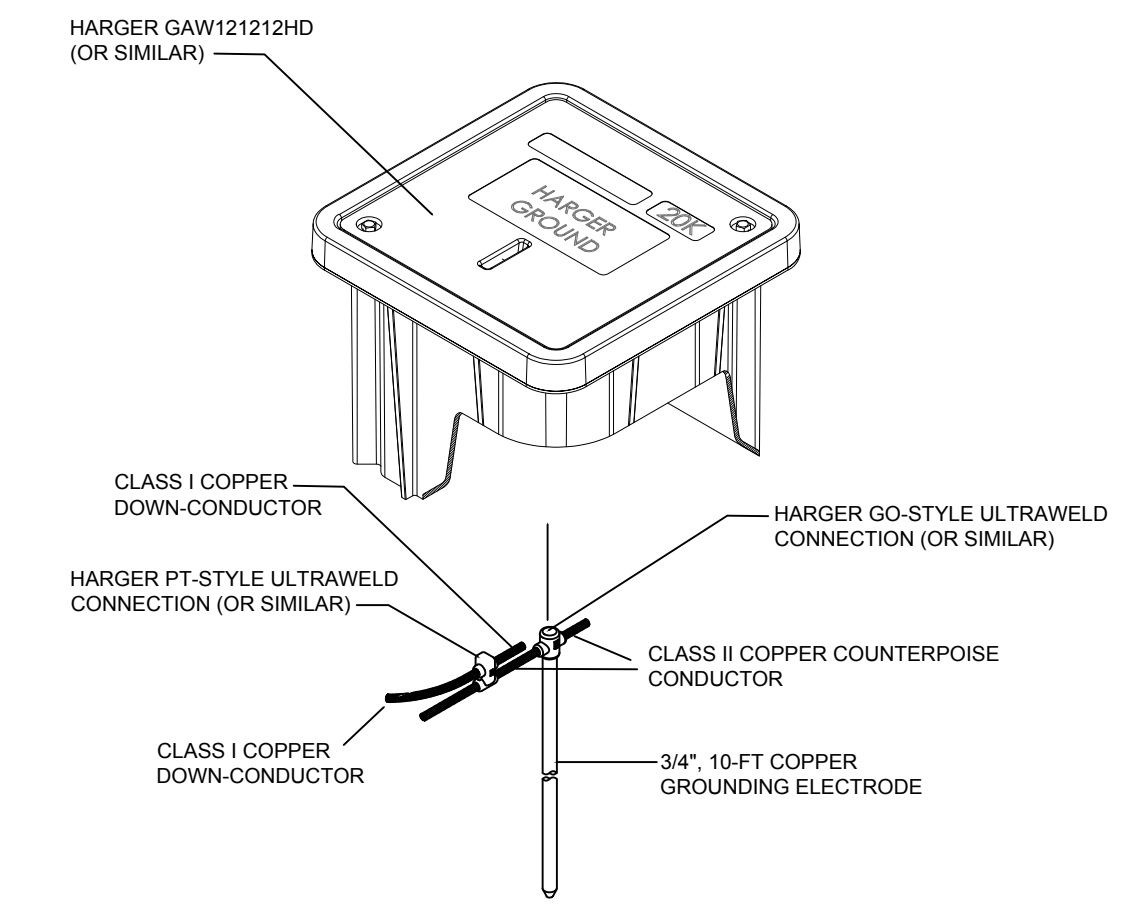
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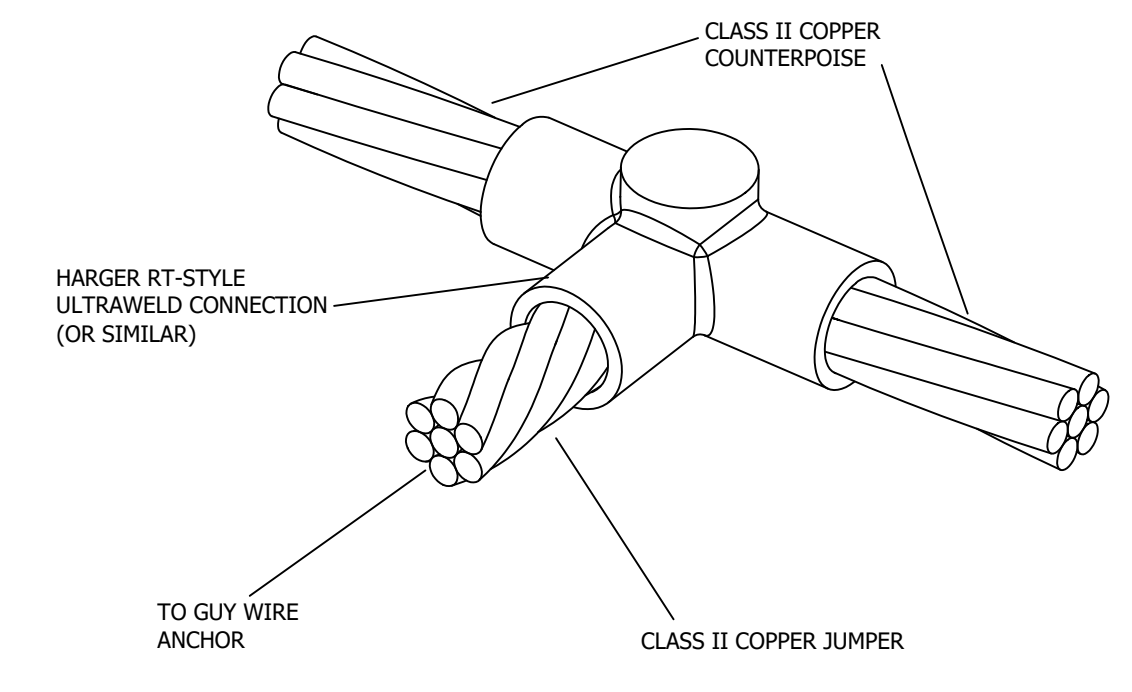
TYPICAL ASPHALT PAVEMENT REPAIR SCALE: NONE



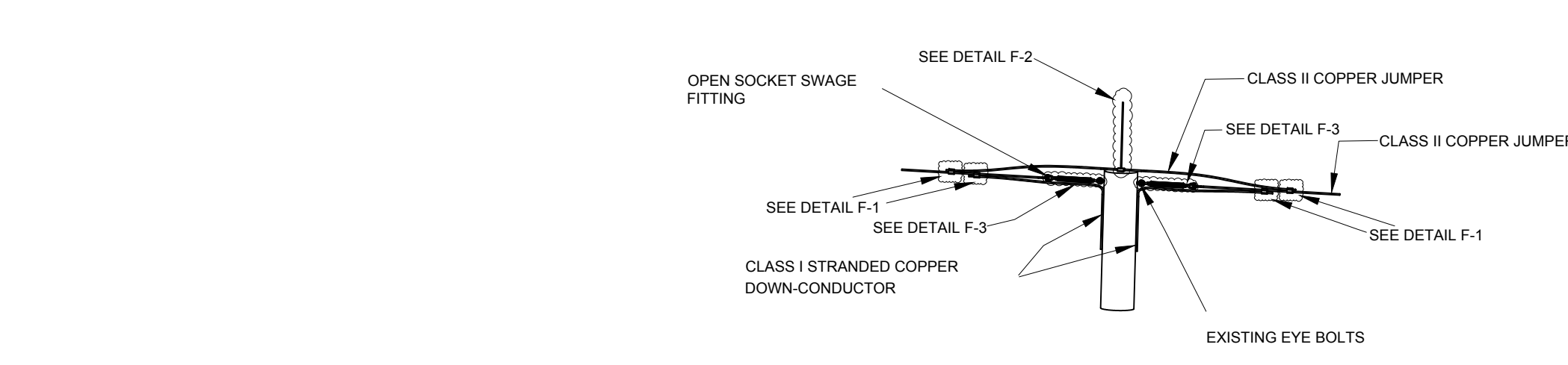
GROUND ROD (NON-VEHICLE) DETAIL A SCALE: NONE



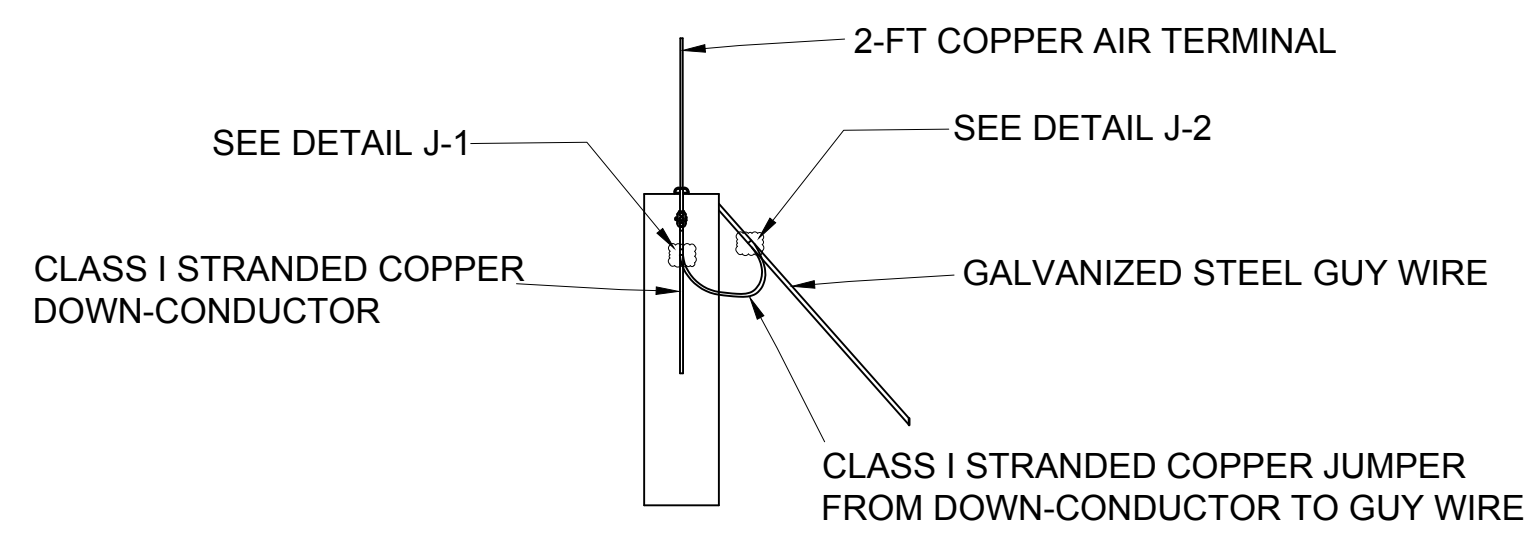
GROUND ROD (VEHICLE) DETAIL B SCALE: NONE



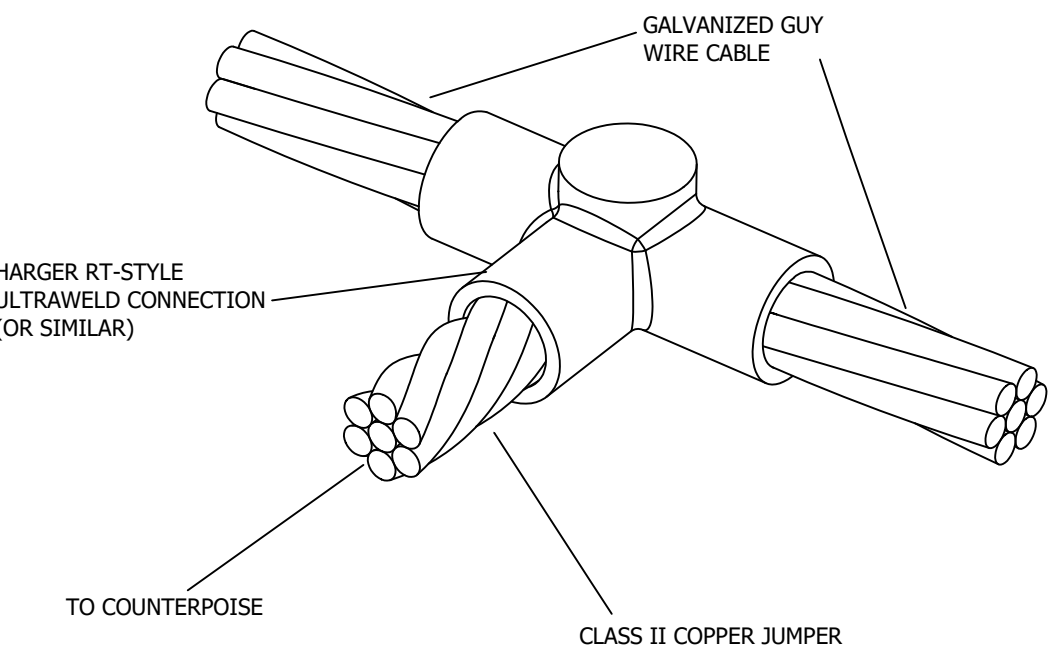
GUY WIRE GROUNDING JUMPER BONDING TO COUNTERPOISE DETAIL D SCALE: NONE



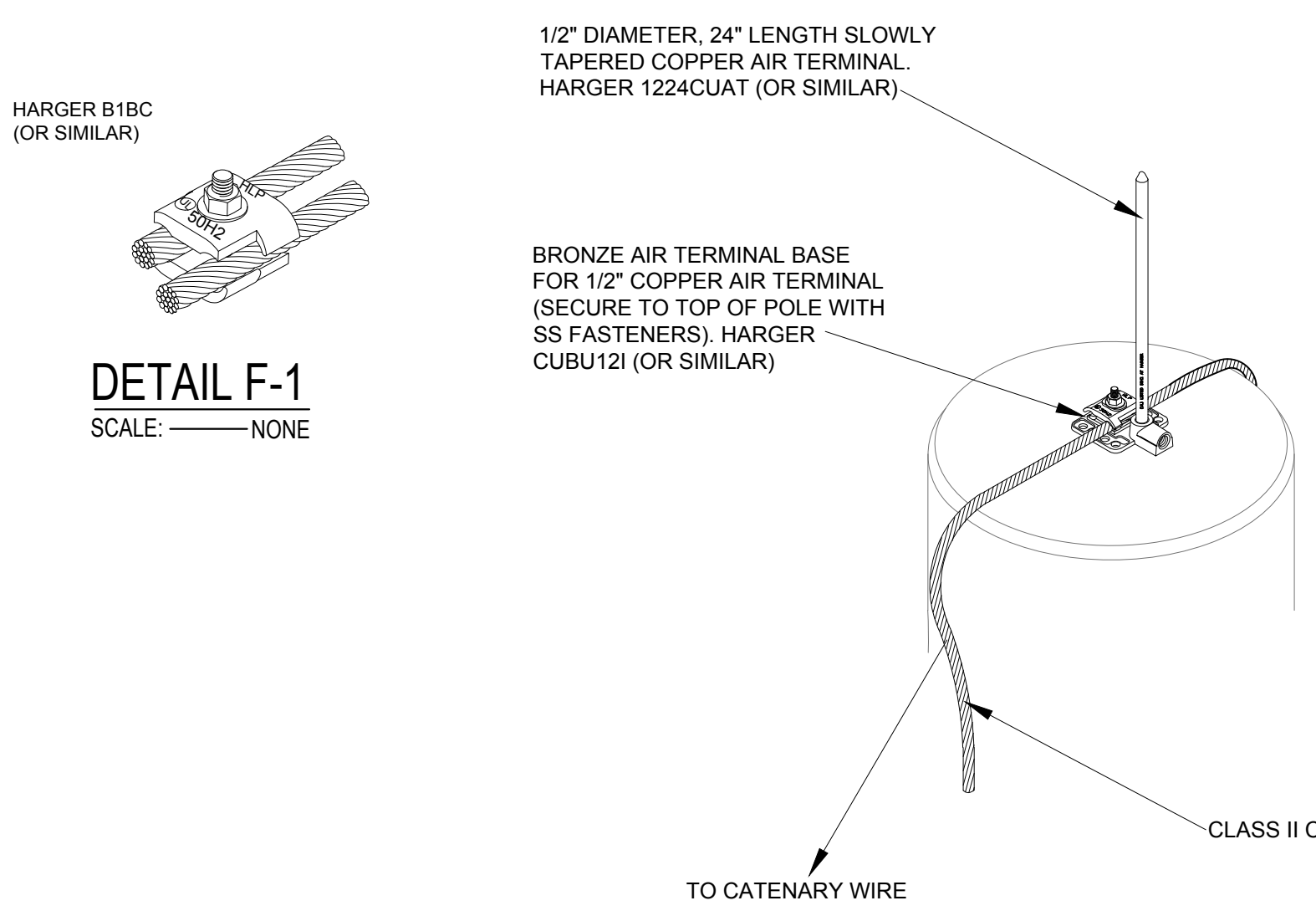
AIR TERMINAL (TOP OF POLE, MID-SPAN END 'B') DETAIL F SCALE: NONE



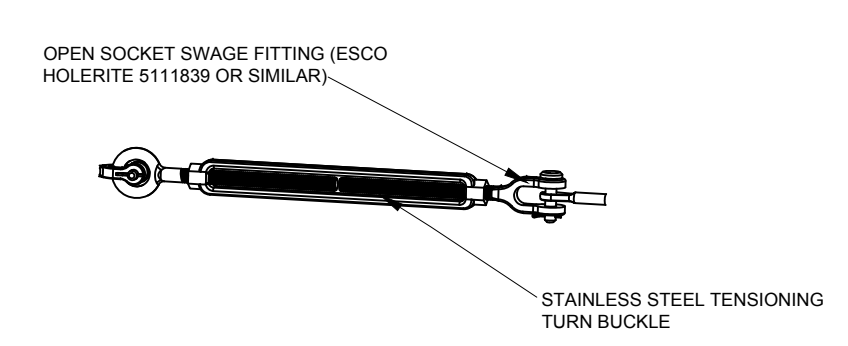
GUY WIRE BONDING TO POLE TOP DETAIL J SCALE: NONE



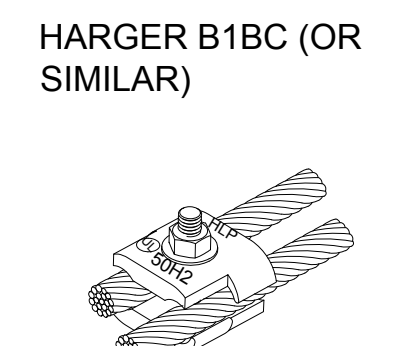
GUY WIRE GROUNDING JUMPER BONDING TO GUY WIRE DETAIL E SCALE: NONE



DETAIL F-1 SCALE: NONE



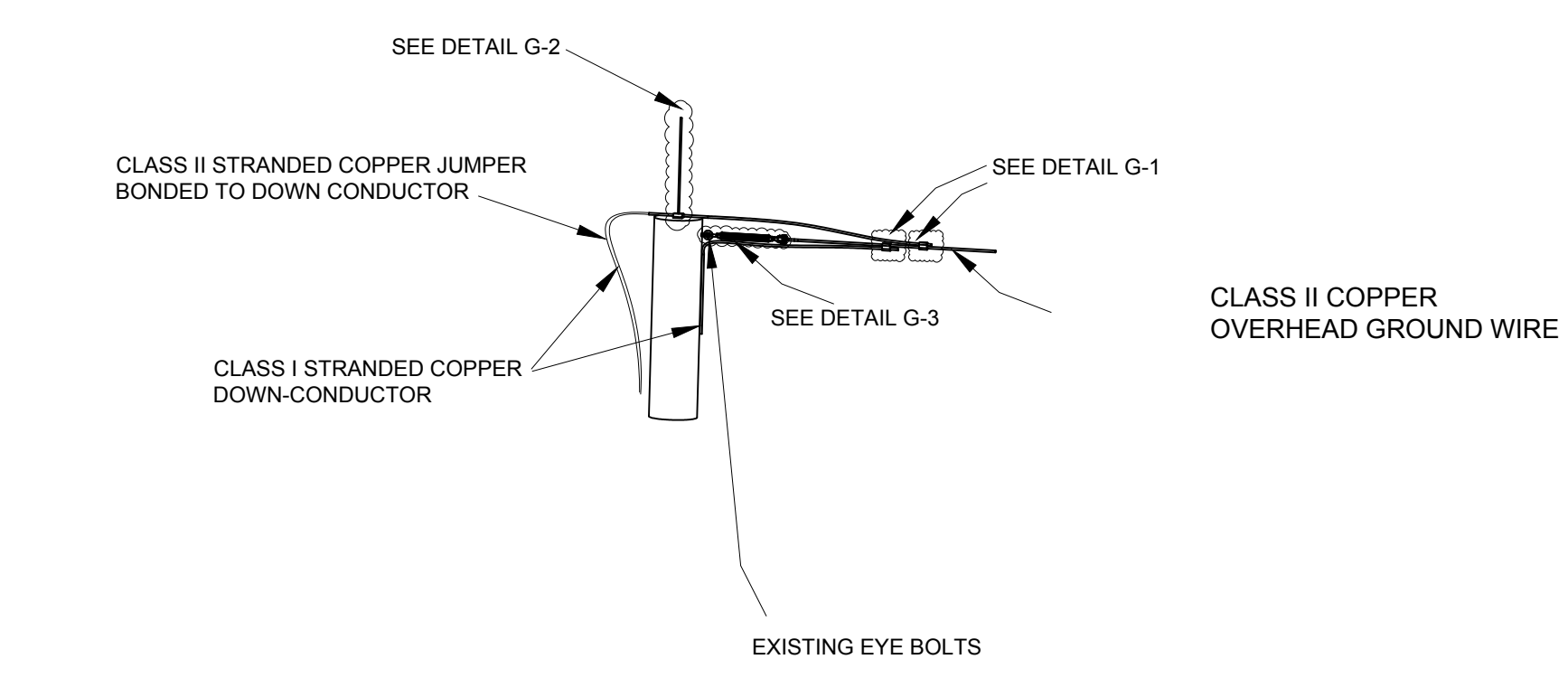
DETAIL F-3 SCALE: NONE



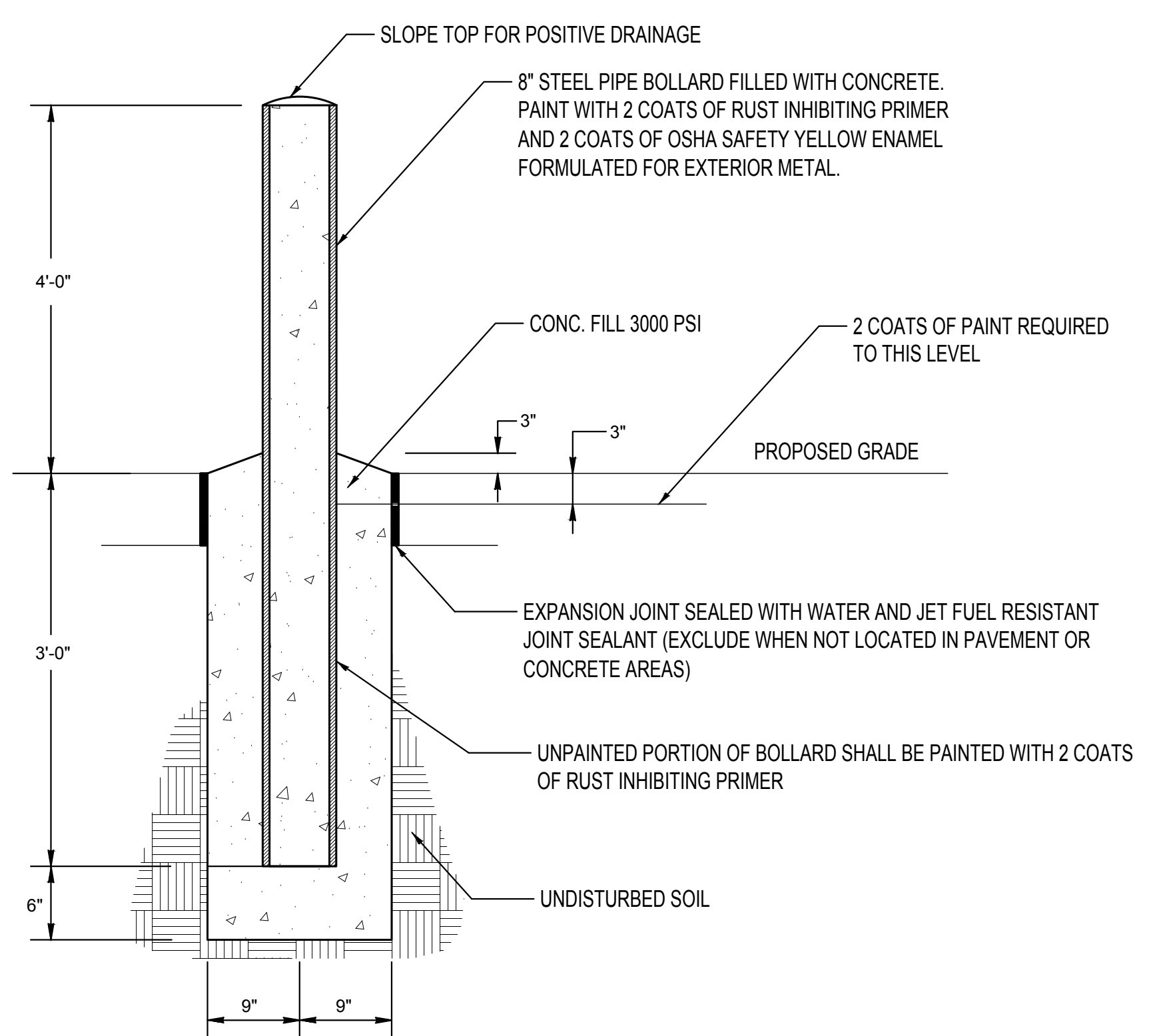
DETAIL J-1 SCALE: NONE



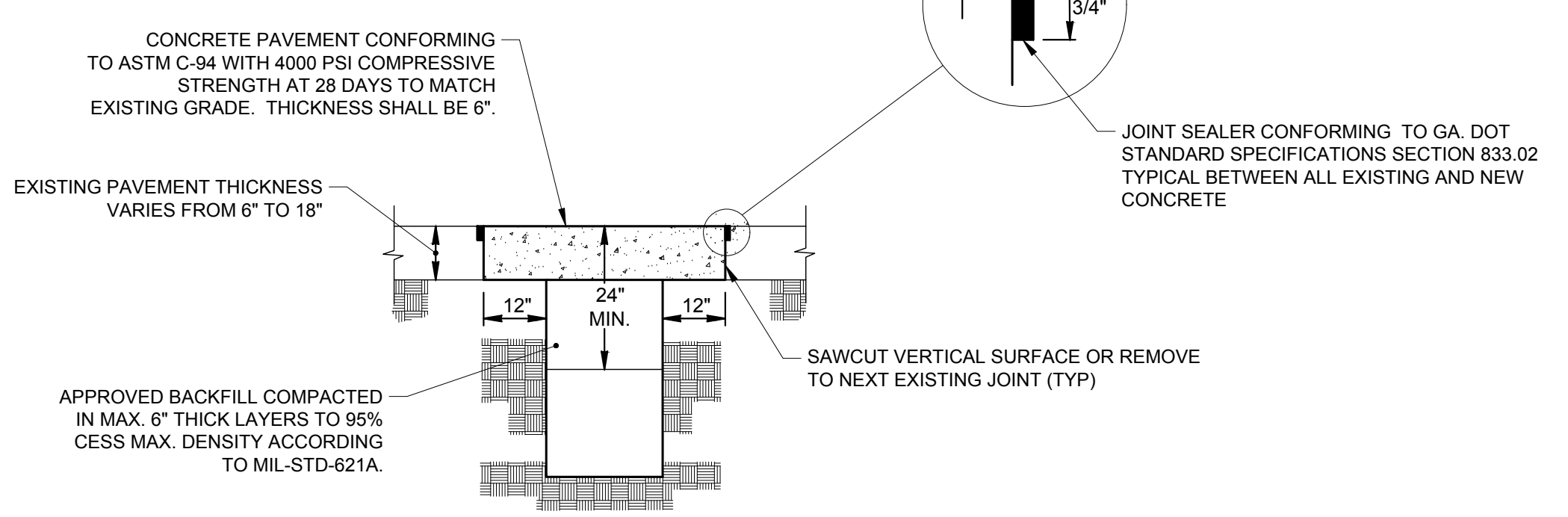
DETAIL J-2 SCALE: NONE



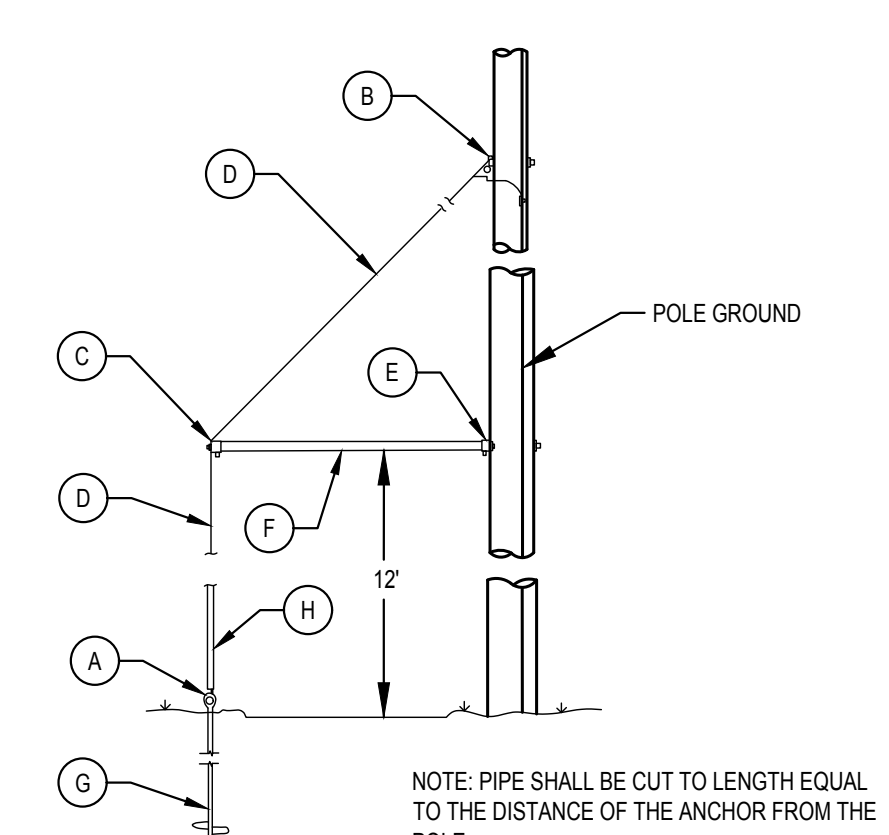
AIR TERMINAL (TOP OF POLE, END 'A') DETAIL G SCALE: NONE



BOLLARD MOUNTING DETAIL T SCALE: NONE



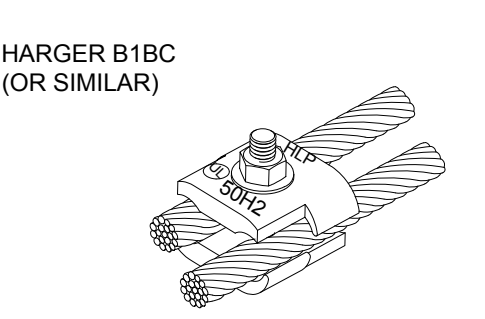
TYPICAL CONCRETE REPAIR SCALE: NONE



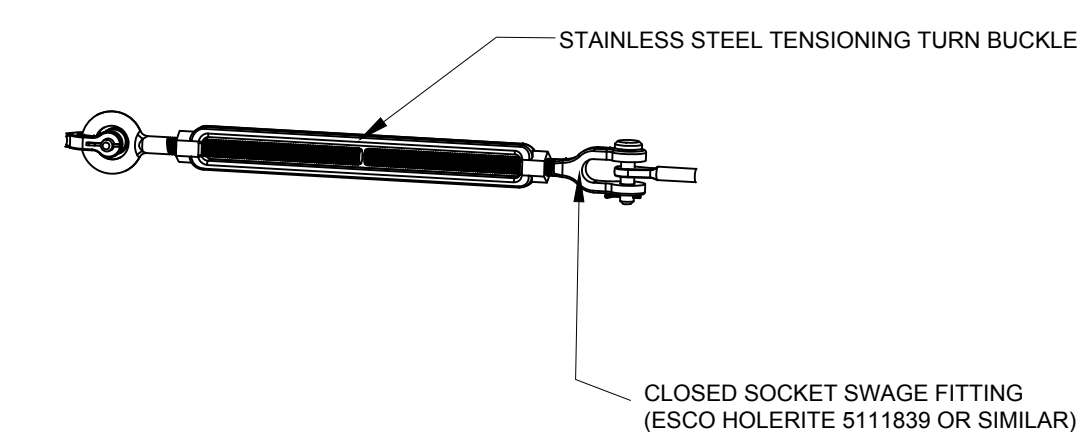
GUY WIRE "SIDEWALK" DETAIL SCALE: NONE

NOTES: (GUY WIRE "SIDEWALK" DETAIL ONLY)

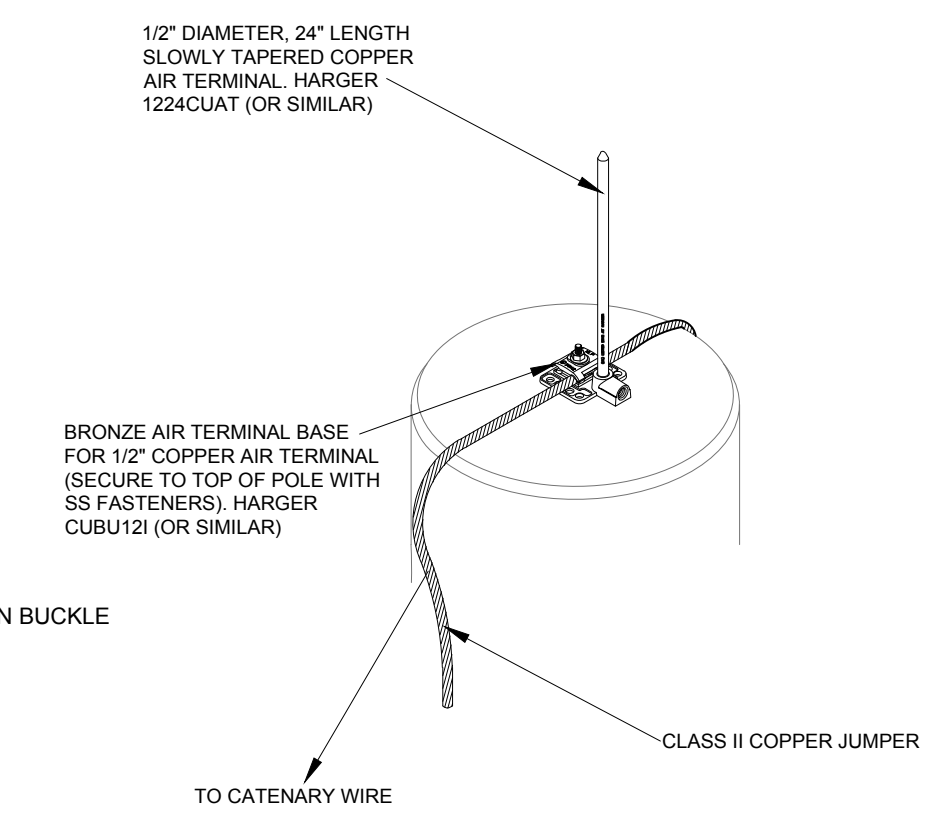
- A PREFORMED GUY GRIP.
- B GUY HOOK.
- C GUY FITTING, SIDEWALK, SINGLE GUY CLAMP.
- D GUY WIRE.
- E GUY FITTING, SIDEWALK POLE PLATE.
- F GALVANIZED PIPE 2" DIAMETER 8 FOOT LONG.
- G PROVIDE 8' HELIX ANCHOR.
- H PROVIDE GUY WIRE GUARD (YELLOW).



DETAIL G-1 SCALE: NONE



DETAIL G-3 SCALE: NONE



DETAIL G-2 SCALE: NONE



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3/29/2024	65 X SUBMITTAL						
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5/22/2024	100 X REVISED SUBMITTAL						
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		FILE NAME
		POST CODE

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MAFB PROJECT LIGHTNING PROTECTION SYSTEM - MULTI FAC QSEU 23-0118, BLDG 1109

BUILDING 1109 DETAILS



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E-4