

IDOT LETTING: JANUARY 16, 2026

CONSTRUCTION PLANS - 100% SUBMITTAL, ISSUED NOVEMBER 14, 2025

INSTALL PAPI ON RUNWAY 13 END, REILS ON RUNWAY 31 END, AND LIGHTED WIND CONE

**MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
LACON, MARSHALL COUNTY, ILLINOIS**

IDA PROJECT NO.: C75-5224
SBG PROJECT NO.: 3-17-SBGP-TBD

A map of Illinois divided into its 102 counties. The county of Putnam is highlighted with a cross-hatch pattern. The map includes labels for all counties and their names. A compass rose is located in the bottom left corner.

Counties shown (from north to south, west to east):

- JO DAVIES, STEPHENSON, WINNEBAGO, BOONE, McHENRY, LAKE
- CARROLL, OGLE, DE KALB, KANE, DU PAGE, COOK
- WHITESIDE, LEE, KENDALL, WEL
- ROCK ISLAND, HENRY, BUREAU, LA SALLE, GRUNDY, KANKAKEE
- MERCER, PUTNAM, STARK, MARSHALL, IROQUOIS
- WARREN, KNOX, PEORIA, WOODFORD, LIVINGSTON
- HANCOCK, McDONOUGH, FULTON, TAZEWELL, McLEAN, FORD
- SCHUYLER, MASON, De WITT, CHAMPAIGN, VERMILION
- ADAMS, BROWN, CASS, MENARD, LOGAN, PIATT, DOUGLAS, EDGAR
- PIKE, SCOTT, MORGAN, SANGAMON, MACON, MOULTRE, COLES, CLARK
- GREENE, MACOUPIN, MONTGOMERY, SHELBY, CLUMBERLAND
- JERSEY, MADISON, BOND, FAYETTE, EFFINGHAM, JASPER, CHAWFORD
- SANIT CLAIR, CLINTON, MARION, CLAY, RICHARD, LAWRENCE
- MONROE, WASHINGTON, JEFFERSON, WAYNE, EDWARDS, VERMILION
- RANDOLPH, PERRY, FRANKLIN, HAMILTON, WHITE, GALLATIN
- JACKSON, WILLIAMSON, SALINE, UNION, JOHNSON, POPE, HARDON
- PULASKI, MASSAC, ILLINOIS

VICINITY MAP



NOTICE TO CONTRACTORS AND BIDDERS

THESE CONSTRUCTION PLANS RELY UPON THE SPECIAL PROVISIONS AND THE SPECIFICATIONS TO PROVIDE FOR A COMPLETE DESCRIPTION OF THE WORK AND CONSTRUCTION REQUIREMENTS. THE PLANS SHALL ONLY BE USED IN COMBINATION WITH ALL CONTRACT DOCUMENTS.

No.	Issue/Description	Sheets Changed	Date	By

COVERING ELECTRICAL DESIGN

EXP.
11/30/2027



NOVEMBER 14, 2025
Date

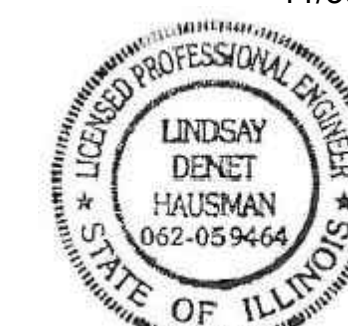
Kevin N. Lightfoot, P.E.
Electrical Engineer



EXP.
11/30/2027

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1525 South Sixth Street
Springfield, Illinois 62703-2886
Telephone: 217.788.2450
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Lindsay D. Hausman
Project Manager



NOVEMBER 14, 2025
Date


MARSHALL COUNTY AIRPORT BOARD
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Lacon, Illinois 61340

Joe Troglio
Airport Manager

NOVEMBER 14, 2025
Date

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Illinois Licensed
Professional Service Corporation
#184-001084



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
 315 ILLINOIS 17
 LACON, ILLINOIS 61540



Lindsay Hausman

DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

DA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

L Contract No.: MA036

[illegible]

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: G-002-FLP.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/5/25

SHEET TITLE

SUMMARY OF QUANTITIES AND INDEX TO SHEETS

SUMMARY OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AR107508	L-806 W C 8' INTERNALLY LIT	EACH	1	
AR108088	1/C #8 XLP-USE	FOOT	4,000	
AR108108	1/C #8 5 KV UG CABLE	FOOT	1,000	
AR109200	INSTALL ELECTRICAL EQUIPMENT	L SUM	1	
AR110012	2" DIRECTIONAL BORE	FOOT	385	
AR110202	2" PVC DUCT, DIRECT BURY	FOOT	1,200	
AR125565	SPLICE CAN	EACH	5	
AR125610	REILS	PAIR	1	
AR125615	PAPI (L-880 SYSTEM)	EACH	1	
AR150510	ENGINEER'S FIELD OFFICE	L SUM	1	
AR150520	MOBILIZATION	L SUM	1	
AR150530	TRAFFIC MAINTENANCE	L SUM	1	
AR152410	UNCLASSIFIED EXCAVATION	C.Y.	90	
AR156543	RIPRAP-GRADATION NO. 3	SQ YD	107	
AR701512	12" RCP, CLASS IV	FOOT	32	
AR752412	PRECAST REINFORCED CONC. FES 12"	EACH	2	
AR800564	CABLE AND CCR TESTING AND CALIBRATION	L SUM	1	
AR901510	SEEDING	ACRE	0.20	
AR905520	TOPSOILING (FROM OFF SITE)	CU YD	173	
AR908510	MULCHING	ACRE	0.20	

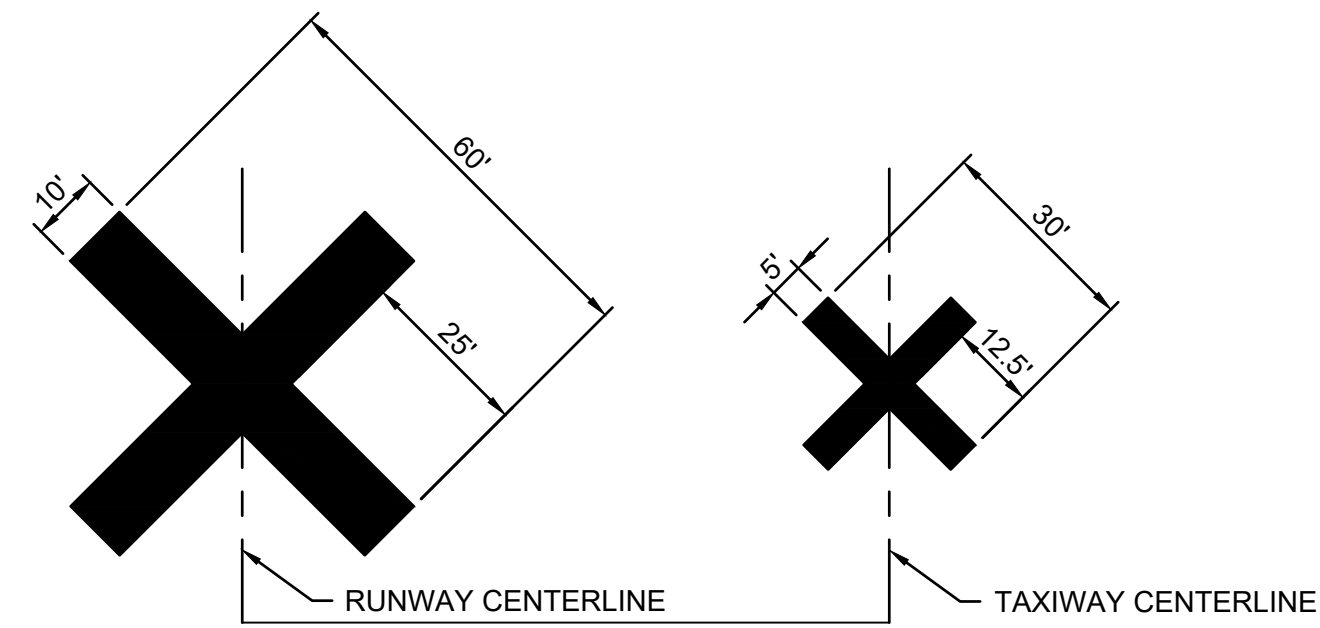
INDEX TO SHEETS	
SHEET NO.	SHEET TITLE
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2	SUMMARY OF QUANTITIES AND INDEX TO SHEETS
3	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 1
4	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2
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6	GRADING PLAN
7	TYPICAL SECTIONS
8	AIRFIELD LIGHTING NOTES
9	PROPOSED ELECTRICAL PLAN STA 0+00 TO 9+00
10	PROPOSED ELECTRICAL PLAN STA 27+00 TO 40+02
11	PAPI SITING DETAILS AND NOTES RUNWAY 13
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22	CABLE AND DUCT MARKER DETAILS
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24	ELECTRICAL NOTES SHEET 2
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1. ALL PROVISIONS OF THE LATEST EDITION OF FAA ADVISORY CIRCULAR AC 150/5370-2 (CURRENT EDITION), "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION". APPLY TO THIS CONTRACT, EXCEPT AS MODIFIED BY THIS SAFETY PLAN. **ANY MODIFICATION TO THIS PLAN MUST BE APPROVED BY THE FAA, THE OWNER, AND THE RESIDENT ENGINEER/TECHNICIAN.**
2. THE CONTRACTORS SHALL MINIMIZE DISRUPTION OF STANDARD OPERATING PROCEDURES FOR AERONAUTICAL ACTIVITY BY REMAINING WITHIN THE PRESCRIBED STAGING, CONSTRUCTION, AND PHASING AREAS PRESENTED ON THE CONSTRUCTION SAFETY AND PHASING PLAN SHEETS.
3. NO UNAUTHORIZED PERSONNEL SHALL ENTER ANY AREA OF THE AIRPORT THAT COULD POTENTIALLY BE HAZARDOUS. THE AIRPORT MANAGER RESERVES THE RIGHT TO SUSPEND OPERATIONS IN ORDER TO MAINTAIN SAFETY AT THE AIRPORT.
4. PRIOR TO ACCESSING THE AIRFIELD, ANY DESIGNATED CONTRACTOR OR SUBCONTRACTOR EMPLOYEES WHO WILL BE OPERATING OR ESCORTING A VEHICLE ON AN ACTIVE AREA OF THE AIRFIELD MUST BE FAMILIAR WITH THE "FAA GUIDE TO GROUND VEHICLE OPERATIONS", AND KEEP A HARD COPY IN THE VEHICLE FOR REFERENCE. THE GUIDE CAN BE FOUND AT: https://www.faa.gov/airports/runway_safety/media/Ground_Vehicle_Guide_Proof_Final.pdf
5. NO CONSTRUCTION VEHICLES SHALL BE DRIVEN ACROSS ANY ACTIVE (OPEN) AIRFIELD PAVEMENT AREA WITHOUT AN APPROPRIATE ESCORT. CONSTRUCTION EQUIPMENT OR CONSTRUCTION ACTIVITY WILL NOT BE PERMITTED WITHIN **250'** OF RWY 13/31 AND **125'** RWY 18/36 (DISTANCES MEASURED FROM ACTIVE CENTERLINES) UNLESS CLOSED OR OTHERWISE NOTED. CONSTRUCTION EQUIPMENT OR CONSTRUCTION ACTIVITY WILL ALSO NOT BE PERMITTED WITHIN WITHIN **66.5'** OF ANY ACTIVE AIRPORT TAXIWAY CENTERLINE OR APRON UNLESS OTHERWISE NOTED.
6. CONTRACTOR EQUIPMENT, VEHICLES, AND PROJECT MATERIALS SHALL BE STORED AT THE STAGING AREA SHOWN ON THE PLAN VIEW, EXCEPT AS OTHERWISE PROVIDED FOR AT THE PRE-CONSTRUCTION CONFERENCE.
7. ALL CONSTRUCTION EQUIPMENT OPERATING IN THE PRESCRIBED CONSTRUCTION AREA IS REQUIRED TO DISPLAY A CHECKERBOARD FLAG PROPERLY LOCATED OR A ROTATING BEACON (STROBE) AS SPECIFIED IN AC 150/5210-5, "PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT" LATEST EDITION.
8. NO CONSTRUCTION MATERIAL STOCKPILES SHALL BE LOCATED WITHIN **250'** OF ANY ACTIVE RUNWAY, WITHIN **66.5'** OF ANY OTHER ACTIVE AIRPORT OPERATIONS AREA, OR PENETRATE A PART 77 IMAGINARY SURFACE (PROVIDED BY THE RESIDENT ENGINEER/TECHNICIAN) EXTENDING OUT AND UPWARDS FROM ALL SIDES OF AN ACTIVE RUNWAY.
9. CLOSED AIRFIELD PHASING AREAS, OPEN TRENCHES, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED WITH LIGHTED BARRICADES WITH STEADY BURNING OR FLASHING RED LIGHTS AS SPECIFIED IN 150/5370-2, "OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION", LATEST EDITION. LIGHTED BARRICADES MUST BE NO TALLER THAN 18" (EXCLUSIVE OF SUPPLEMENTARY LIGHTS AND FLAGS) ON THE TAXIWAYS AND COMPLY WITH ADVISORY CIRCULAR 150/5370-2, LATEST EDITION. CONTRACTOR SHALL NIGHT CHECK BARRICADES DAILY FOR PROPER OPERATION.
10. OPEN TRENCHES, EXCAVATIONS, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHOULD BE PROMINENTLY MARKED WITH ORANGE FLAGS AND LIGHTED WITH FLASHING RED LIGHTS DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS.
11. NO CONSTRUCTION EQUIPMENT GREATER THAN **25'** TALL WILL BE PERMITTED ON THE AIRPORT WITHOUT THE APPROVAL OF THE AIRPORT MANAGER AND ADDITIONAL AIRSPACE APPROVAL BY THE FAA. AIRSPACE APPROVALS REQUIRE CONSIDERABLE LEAD TIME AND SHOULD BE REQUESTED WELL IN ADVANCE.
12. NO OPEN FLAME WELDING OR TORCH CUTTING OPERATION IS PERMITTED UNLESS ADEQUATE FIRE AND SAFETY PRECAUTIONS ARE PROVIDED AND HAVE BEEN APPROVED BY THE AIRPORT MANAGER NO FLARE POTS ARE ALLOWED ON THE PROJECT.
13. SOIL, DEBRIS, AND LOOSE MATERIAL DROPPED OR TRUCKED ONTO AIRPORT ROADS, TAXIWAYS, AND SOD SURFACES, OR WHICH CAN BE BLOWN ONTO SUCH SURFACES, SHALL BE IMMEDIATELY SWEEP, PICKED UP AND REMOVED, OR PLACED INTO CLOSED CONTAINERS. ANY DAMAGE TO AIRPORT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT NO COST TO THE OWNER.
14. CONTRACTOR SHALL TAKE MEASURES TO AVOID TRACKING BITUMINOUS TACK COAT ASSOCIATED WITH PAVING PROJECTS ONTO ADJACENT PAVEMENT AREAS, ESPECIALLY GROOVED RUNWAY PAVEMENTS, UNLESS SUFFICIENT PROTECTION HAS BEEN APPLIED. HEAVY TRACKING OR DAMAGE TO ADJACENT PAVEMENTS AND GROOVED SURFACES MAY BE CAUSE FOR STOPPING THE WORK UNTIL ACCEPTABLE PROTECTION OR CHANGE IN WORK METHODS HAS BEEN PROVIDED.
15. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING AIRPORT LIGHTING AND NAVIGATIONAL ELECTRICAL SYSTEMS DURING CONSTRUCTION. A CONTACT PERSON AND TELEPHONE NUMBER FOR 24 HOUR EMERGENCY IMMEDIATE REPAIR SHALL BE SUBMITTED TO THE AIRPORT MANAGER AND RESIDENT ENGINEER/TECHNICIAN. HAUL ROUTES CROSSING PAVEMENT, DRAINAGE, MISCELLANEOUS. STRUCTURES AND/OR AIRFIELD CABLES SHALL BE PROTECTED FROM DAMAGE.
16. ALL AIRCRAFT AND AIRPORT OPERATIONS HAVE THE RIGHT-OF-WAY. CONTRACTOR TO YIELD TO VEHICLES AND REMAIN CLEAR AT ALL TIMES.
17. CONTRACTOR SHALL PLACE, SECURE, AND MAINTAIN LIGHTED BARRICADES AND CLOSURE CROSSES WHEN A RUNWAY/TAXIWAY/APRON IS CLOSED OR AS REQUIRED BY THE PLANS AND DESIGNATED BY THE RESIDENT ENGINEER/TECHNICIAN.
18. CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED LIGHTS DURING PERIODS OF LOW VISIBILITY AS REQUIRED.
19. THE CONTRACTOR SHALL PERIODICALLY PERFORM ONSITE INSPECTIONS THROUGHOUT THE

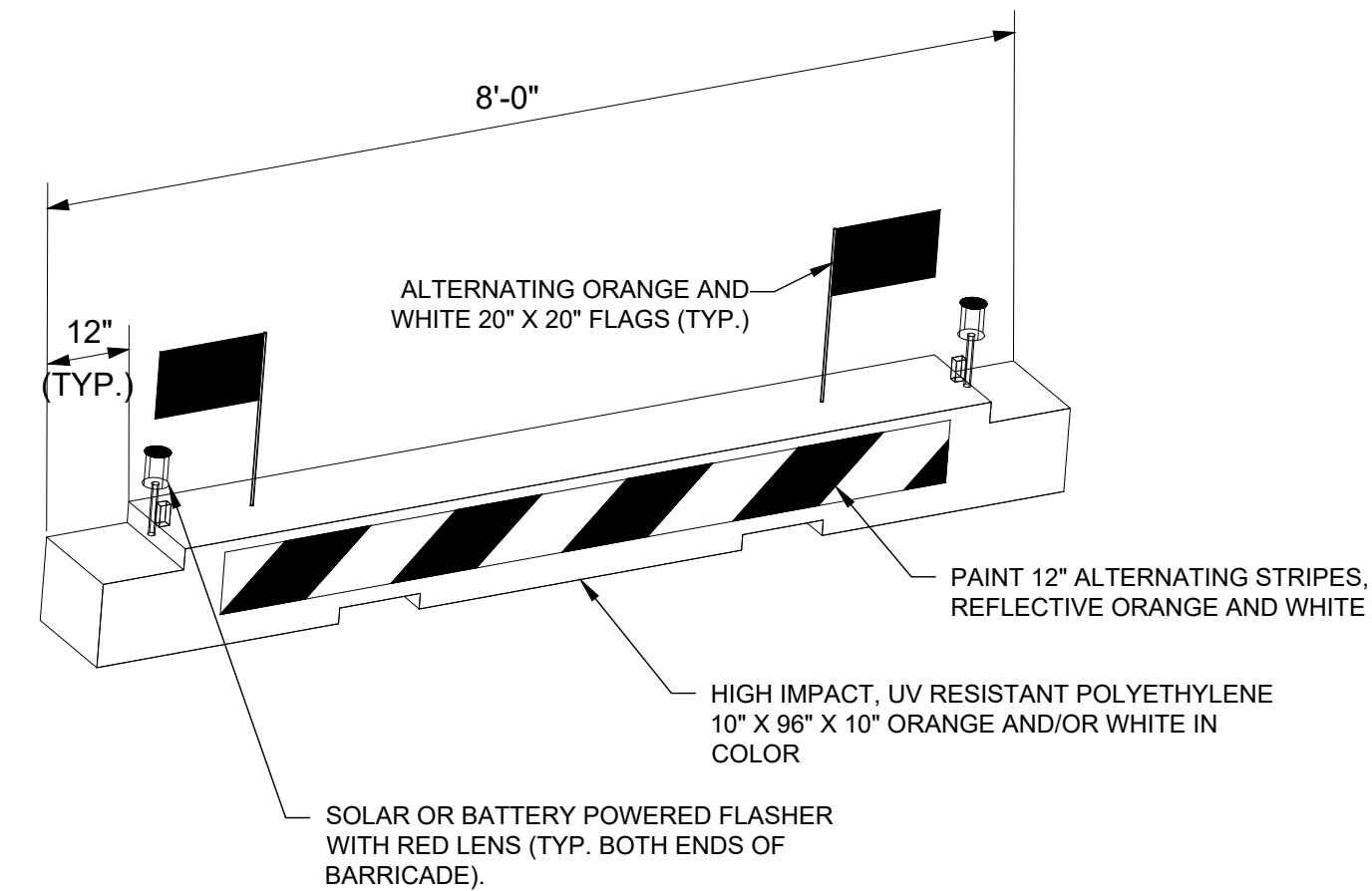
20. CONTRACTOR SHALL MOVE MAINTENANCE OF TRAFFIC COMPONENTS AT THE WRITTEN DIRECTION OF THE RESIDENT ENGINEER/TECHNICIAN AT NO ADDITIONAL COST.
21. CONTRACTOR SHALL NOT REMOVE THE BARRICADES WITHOUT THE APPROVAL BY THE RESIDENT ENGINEER/TECHNICIAN.
22. CONTRACTOR SHALL MAINTAIN FLASHERS, SIGNS AND/OR BARRICADES AS REQUIRED BY THE PLANS, CITY OR COUNTY REGULATIONS OR CONTRACTOR ACTIVITIES. CONTRACTOR SHALL OBTAIN ANY AND ALL REQUIRED LOCAL PERMITS UNLESS SPECIFIED OTHERWISE.
23. THE CONTRACTOR SHALL UTILIZE WATER AND/OR CHEMICALS APPROVED BY THE RESIDENT ENGINEER/TECHNICIAN AS NECESSARY TO CONTROL DUST.
24. THE CONTRACTOR WILL BE RESPONSIBLE FOR IMPLEMENTING MEASURES TO CONTROL OR AVOID CREATING ATTRACTANTS TO WILDLIFE. MEASURES MAY INCLUDE CONTINUOUSLY REMOVING ANY WASTE OR LOOSE MATERIALS, PLACEMENT OF MATERIALS IN APPROPRIATE STORAGE CONTAINERS, PROPERLY MAINTAINING FENCES AND GATES TO PREVENT ACCESS, AND PREVENTING PONDING OF WATER THROUGHOUT THE SITE.
25. UNLESS SPECIFIED OTHERWISE, COST FOR SAFETY, STAGING, AND TRAFFIC MAINTENANCE ITEMS IS TO BE CONSIDERED INCIDENTAL TO THE PROJECT. SEPARATE PAYMENT SHALL NOT BE MADE.
26. THE CONTRACTOR SHALL HAVE THE SAFETY PLAN COMPLIANCE DOCUMENT (SPCD), AS DETAILED IN THE SPECIAL PROVISIONS, SUBMITTED AND APPROVED PRIOR TO BEING ISSUED "NOTICE TO PROCEED".
27. ALL RUNWAY/TAXIWAY CLOSURES SHALL BE COORDINATED WITH AIRPORT MANAGEMENT A MINIMUM OF 7 DAYS BEFORE THE DESIRED CLOSING TIME TO ALLOW FOR THE PROPER COORDINATION. AIRPORT MANAGEMENT HAS COMPLETE AUTHORITY IN DETERMINING WHEN THE RUNWAY/TAXIWAY MAY BE CLOSED.
28. RUNWAY/TAXIWAY CLOSURE PROCEDURES:

- UNICOM / CTAF: 122.8

1. ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE ILLINOIS SUPPLEMENT (LATEST EDITION) AND THE FAA ADVISORY CIRCULARS (LATEST EDITION) UNLESS NOTED OTHERWISE. THE FAA OR MORE STRINGENT SPECIFICATIONS SHALL GOVERN.
2. BARRICADES SHALL BE INTERLOCKED END TO END OVER THE LENGTH OF THE PAVEMENT WHERE PROTECTING OPEN RUNWAYS, AND SPACED END TO END A MAXIMUM OF 4 FEET IN OTHER ALL OTHER AREAS. BARRICADES ARE TO BE SET BACK FROM THE ACTIVE RUNWAY OR TAXIWAY CENTERLINE THE DISTANCE AS SHOWN ON THE PLANS.
3. CONSTRUCTION RED WARNING LIGHT: THESE ARE PORTABLE, LENS DIRECTED, ENCLOSED LIGHTS. THE COLOR OF THE LIGHT EMITTED SHALL BE RED. THEY MAY BE USED IN EITHER A STEADY BURN (TYPE C) OR LOW INTENSITY FLASHING MODE (TYPE A) UNLESS NOTED OTHERWISE.
4. THE LIGHTING SHALL BE MAINTAINED IN OPERATION DURING THE HOURS OF DARKNESS BETWEEN 1/2 HOUR AFTER SUNSET AND 1/2 HOUR BEFORE SUNRISE AND WHEN CONDITIONS EXIST WHICH TEND TO OBSCURE VISION.
5. BARRICADES SHALL BE SECURED TO THE GROUND BY APPROVED METHODS TO PREVENT MOVEMENT BY PROP WASH, JET BLAST OR OTHER WIND CURRENTS.
6. THE ONLY COLOR COMBINATION ON BARRICADES IS ORANGE AND WHITE. THE ORANGE STRIPES SHALL BE ENCAPSULATED LENS REFLECTIVE SHEETING. THE WHITE STRIPES SHALL BE EITHER ENCAPSULATED OR ENCLOSED LENS REFLECTIVE SHEETING AND MUST BE IN ACCEPTABLE CONDITION.
7. COST FOR PROVIDING, PLACING, MAINTAINING, RELOCATING AND REMOVING BARRICADES SHALL BE PAID FOR UNDER ITEM AR150530.



1. TEMPORARY "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL BE "AVIATION YELLOW"
2. TEMPORARY "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL BE CONSTRUCTED OF PLYWOOD, DOUBLE-LAYERED SNOW FENCE OR APPROVED FABRIC AND SHALL BE SECURED TO PAVEMENT BY SANDBAGS OR OTHER APPROVED METHOD.
3. TEMPORARY "CLOSED RUNWAY" MARKINGS SHALL BE PLACED OVER THE RUNWAY DESIGNATION NUMBERS UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER/TECHNICIAN.
7. COST FOR PROVIDING, PLACING, MAINTAINING, RELOCATING AND REMOVING "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL BE PAID FOR UNDER ITEM AR150530.



<p>E MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE (T EDITION) UNLESS NOTED OTHERWISE. THE FAA OR MORE STRINGENT</p> <p>MENT WHERE PROTECTING OPEN RUNWAYS, AND SPACED END TO END A FROM THE ACTIVE RUNWAY OR TAXIWAY CENTERLINE THE DISTANCE AS</p> <p>POSED LIGHTS. THE COLOR OF THE LIGHT EMITTED SHALL BE RED. THEY IE (TYPE A) UNLESS NOTED OTHERWISE.</p> <p>SS BETWEEN 1/2 HOUR AFTER SUNSET AND 1/2 HOUR BEFORE SUNRISE</p> <p>VENT MOVEMENT BY PROP WASH, JET BLAST OR OTHER WIND CURRENTS.</p> <p>GE STRIPES SHALL BE ENCAPSULATED LENS REFLECTIVE SHEETING. THE SHEETING AND MUST BE IN ACCEPTABLE CONDITION.</p> <p>ADES SHALL BE PAID FOR UNDER ITEM AR150530.</p>	<p>ISSUE: NOVEMBER 14, 2025</p> <p>PROJECT NO: 24A0119_00</p> <p>CAD FILE: C-102-CSP.P.DWG</p> <p>DESIGN BY: JKD 9/16/25</p> <p>DRAWN BY: JKD 9/16/25</p> <p>REVIEWED BY: LDH 10/6/25</p>
	<p>SHEET TITLE</p> <p>CONSTRUCTION SAFETY AND PHASING PLAN NOTES</p>





MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
315 ILLINOIS 17
LACON, ILLINOIS 61540



Lindsay Hausman

DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
33 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

DA No.: C75-5224

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CAD FILE: C-131-DRN.DWG

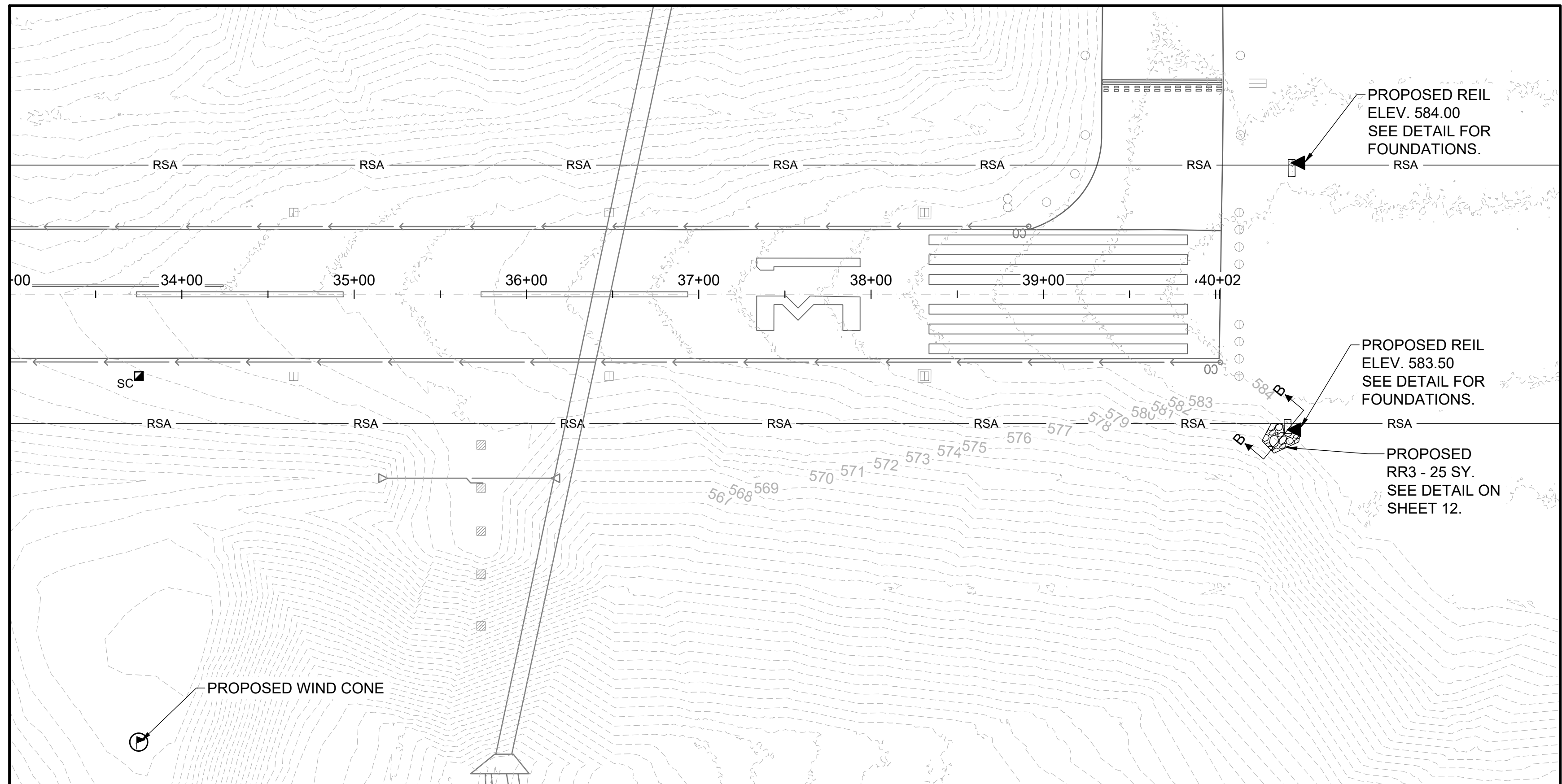
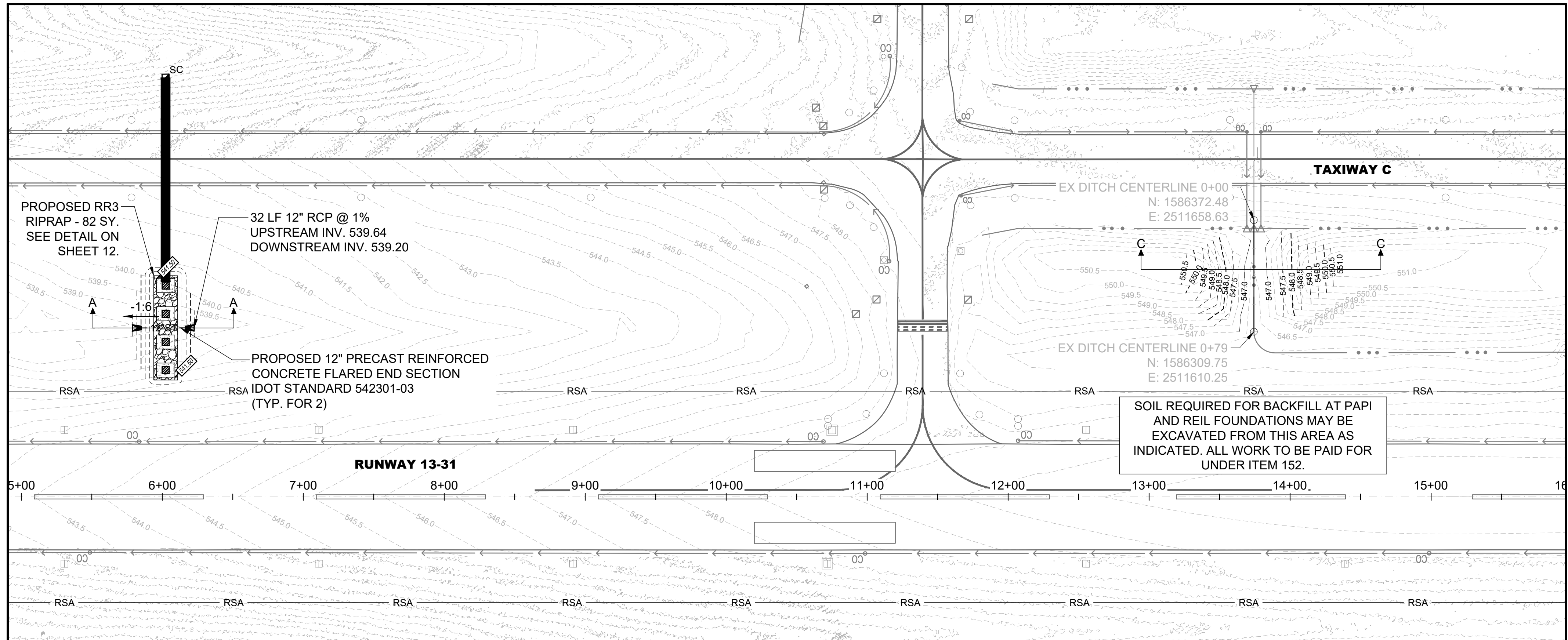
DESIGN BY: LDH 10/4/25

DRAWN BY: JKD 10/14/25



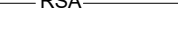
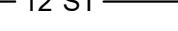















REVIEWED BY: LDH 11/12/2025

SHEET TITLE

GRADING PLAN



LEGEND

- | | | |
|--|---|---|
|  | EXISTING PAVEMENT | |
|  | EXISTING STORM UNDERDRAIN | |
|  | RUNWAY SAFETY AREA | |
|  | PROPOSED STORM DRAIN | |
|  | PROPOSED FLARED END SECTION | |
|  | EXISTING DITCH | |
|  | EXISTING CONTOURS | |
|  | PROPOSED CONTOURS | |
|  | EXISTING TAXIWAY LIGHT | |
|  | EXISTING RUNWAY LIGHT | |
|  | EXISTING RUNWAY TAXI SIGN | |
|  |  | EXISTING ELECTRICAL STRUCTURE
(HANDHOLE, SPLICE CAN) |
|  |  | EXISTING ELECTRICAL MARKER
(DUCT MARKER, CABLE MARKER) |
|  | PROPOSED REIL | |
|  | PROPOSED SPLICE CAN | |
|  | PROPOSED WIND CONE | |
|  | PROPOSED PAPI | |

NOTES

1. PER THE SPECIFICATIONS, UNCLASSIFIED EXCAVATION WILL BE PAID FOR BY THE CUBIC YARD AND INCLUDES CUT AT THE ON-SITE LOCATION AS SHOWN, PLACEMENT AND COMPACTION AT PROPOSED LOCATION AROUND PAPI FOUNDATION, PIPE, AND REIL FOUNDATIONS.
2. ALL AREAS OF UNCLASSIFIED EXCAVATION AND BACKFILL AROUND FOUNDATION AND PIPE SHALL BE FINISHED WITH 6 INCHES OF TOPSOIL FROM OFF-SITE PER ITEM 905 PRIOR TO LANDSCAPING AND EROSION CONTROL. REMOVAL OF EXISTING TOPSOIL AND ORGANIC MATERIAL IS INCLUDED WITHIN ITEM 152.
3. THE GRADED AREA AROUND THE PROPOSED PAPI AND IN THE EXCAVATION AREA SHALL BE SEEDED AND MULCHED. THE AREA AROUND THE REIL FOUNDATION SHALL BE TIED TO EXISTING USING RIPRAP. IN ALL OTHER DISTURBED AREAS, LANDSCAPE ESTABLISHMENT IS INCIDENTAL TO THE CORRESPONDING ITEM.



DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

DA No.: C75-5224

L Contract No.: MA036

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: C-301-TYP.DWG

DESIGN BY: LDH 11/7/2025

DRAWN BY: JKD 11/7/2025

REVIEWED BY: LDH 11/12/2025

SHEET TITLE



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- THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER/TECHNICIAN SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.

HANSONTM
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1525 S. 6th Street
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COVERING ELECTRICAL DESIGN



Kevin W. Highfoot

DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

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PROJECT NO: 24A0119 00

CAD FILE: E-001-NOTES.DWG

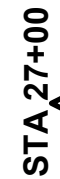
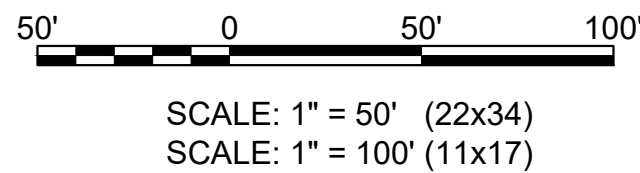
DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/5/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

FOR BID DOCUMENTS



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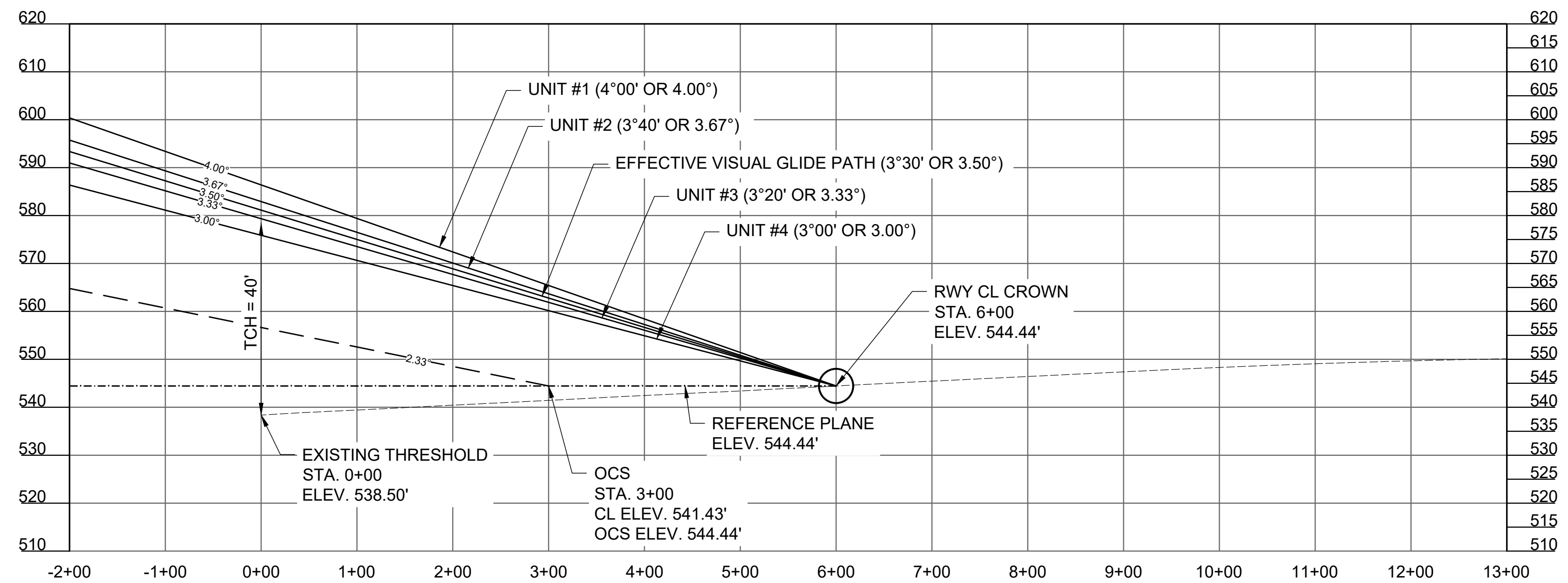
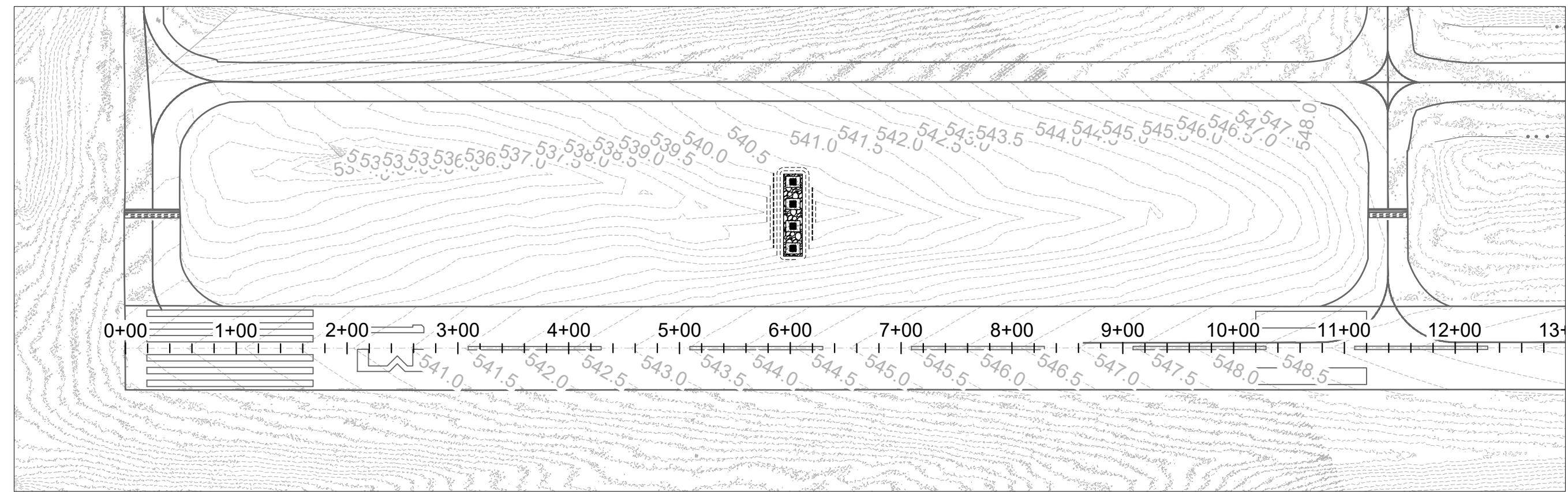
EXISTING AWOS COMMUNICATION CABLE

PROPOSED PAPI

SCALE: 1" = 50' (22x34)
SCALE: 1" = 100' (11x17)

EXISTING PAPI POWER AND CONTROL UNIT

1. EACH PROPOSED PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEM WILL BE PLACED AT THE LOCATION SHOWN ON RESPECTIVE PROPOSED ELECTRICAL SITE PLAN SHEETS AND/OR AS DETAILED HEREIN ON THIS SHEET. LOCATE THE PAPI WITH THE POWER AND CONTROL UNIT FURTHEST FROM THE RUNWAY PAVEMENT EDGE TO COMPLY WITH FAA REQUIREMENTS.
2. ANY REQUIRED ELECTRICAL EQUIPMENT BESIDES THE FOUR PAPI LIGHT UNITS THAT IS NOT CONSIDERED BY THE FAA TO BE FIXED-BY-FUNCTION SHALL BE INSTALLED OUTSIDE OF THE RUNWAY OBJECT FREE AREA, WHICH IS 250' FROM THE RUNWAY CENTERLINE.
3. THE PROPOSED CONCRETE FOUNDATION PIERS SHALL BE AS DETAILED ON THE "PAPI FOUNDATION DETAILS" SHEET.
4. EACH PAPI UNIT SHALL BE CONSTRUCTED SUCH THAT THE BEAM CENTERS WILL BE WITHIN $\pm 1"$ OF THE RESPECTIVE SPECIFIED ELEVATION.
5. THE INBOARD LIGHT UNIT MUST NOT BE LESS THAN 50 FT. FROM THE RUNWAY EDGE (MEASURED TO THE EDGE OF THE LIGHT UNIT) OR TO OTHER RUNWAYS OR TAXIWAYS, AND THE PAPI LIGHT UNITS SHALL HAVE A LATERAL SEPARATION OF 20 FT (MEASURED CENTER TO CENTER), IN ACCORDANCE WITH AC 150/5340-30J PART 7.5.4 PAPI, 7.5.4.7.2 SEPARATION BETWEEN LIGHT UNITS, AND FIGURE A-81. FOR THE L-880 AND L-881, THE DISTANCE BETWEEN LIGHT UNITS MAY NOT VARY BY MORE THAN PLUS OR MINUS 1 FOOT. SEE "RWY 13 PAPI LAYOUT DETAIL" FOR DIMENSIONS BETWEEN UNITS.
6. THE PROPOSED PAPI SIGNAL SHALL BE VISIBLE FOR A 10 DEGREE ZONE ON EITHER SIDE OF THE RUNWAY CENTERLINE IN ACCORDANCE WITH FAA ADVISORY CIRCULAR 150/5340-30J, FIGURE A-81 PAPI OBSTACLE CLEARANCE SURFACE, AND FAA ORDER JO 6850.2C FIGURE 5-4 PAPI OBSTACLE CLEARANCE SURFACE. PER FAA AC 150/5345-28H, 3.2.4 LIGHT UNIT ADJUSTMENTS, PART 3.2.4.1.3 HORIZONTAL LIGHT BEAM COVERAGE, THE PAPI SHALL BE DESIGNED TO BE CAPABLE OF MODIFYING THE HORIZONTAL LIGHT BEAM COVERAGE OF THE PAPI FOR OBSTACLE AVOIDANCE IN THE APPROACH AREA AND LIGHT SIGNAL CLEARANCE SURFACE. THIS MAY BE ACCOMPLISHED USING BAFFLES (ALSO REFERRED TO AS BLANKING DEVICES).
7. PER FAA 150/5340-30J, 7.5.4 PAPI, 7.5.4.11.2 LOCATION OF THE PCU, IT NOTES TO LOCATE THE PCU AS FAR FROM THE RUNWAY AS POSSIBLE FOR A MINIMUM OBSTRUCTION TO AIRCRAFT. IF THE PCU IS ESSENTIAL (INTERNAL) WITH A LIGHT UNIT, PLACE IT FARTHEST FROM THE RUNWAY. PER FAA ORDER 6850.2C, 507 PAPI ASSEMBLIES, 507.A POWER AND CONTROL ASSEMBLY, AN EXTERNAL PCA/PCU SERVING A LED PAPI MUST BE LOCATED OUTSIDE OF THE RUNWAY OBJECT FREE AREA (ROFA).



PAPI DATA-RUNWAY END 13

	P.A.P.I. UNIT #1	P.A.P.I. UNIT #2	P.A.P.I. UNIT #3	P.A.P.I. UNIT #4
AIMING ANGLE	4° 00' (4.00°)	3° 40' (3.67°)	3° 20' (3.33°)	3° 00' (3.00°)
APPROXIMATE PROPOSED GROUND ELEVATION	541.50'	541.50'	541.50'	541.50'
LIGHT BEAM CENTERLINE ELEVATION	544.44'	544.44'	544.44'	544.44'

NOTES:

TCH = 40'

TCH = 40'
GLIDE PATH ANGLE = 3° 30' OR 3.50°
LOWEST ON-COURSE ANGLE = 3° 20' OR 3.33°
OCS SLOPE = 2° 20' OR 2.33°
DISTANCE FROM THRESHOLD = 600.00'

"NOT TO SCALE"

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NO.	DATE	DESCRIPTION		
		DES	DRN	REV



GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in inches (millimeters) unless otherwise shown.

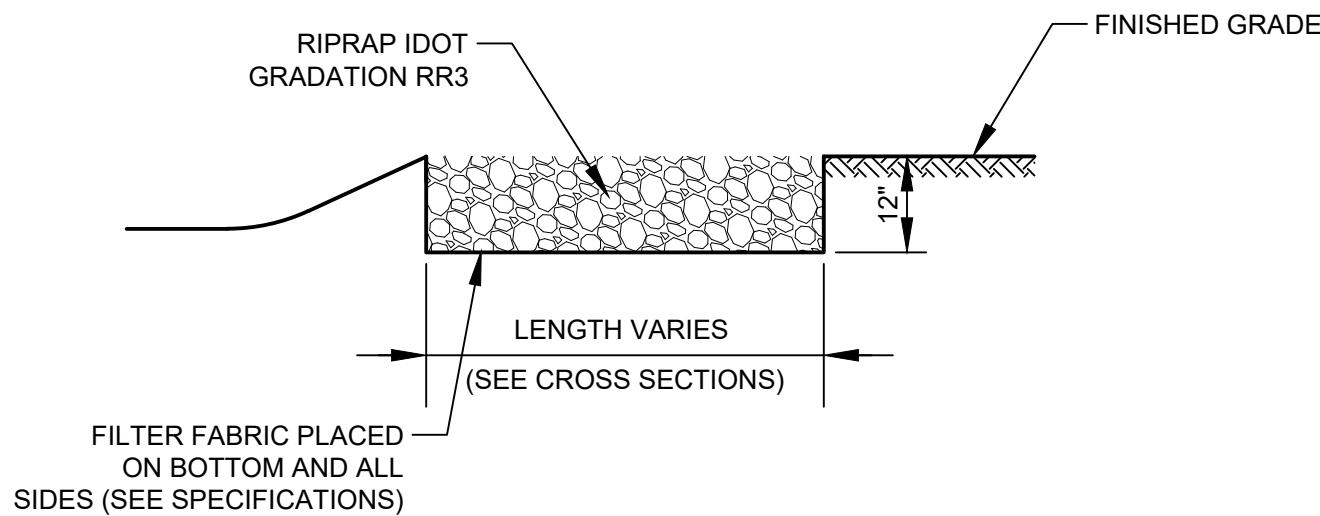
PRECAST REINFORCED CONCRETE FLARED END SECTION

STANDARD 542301-03

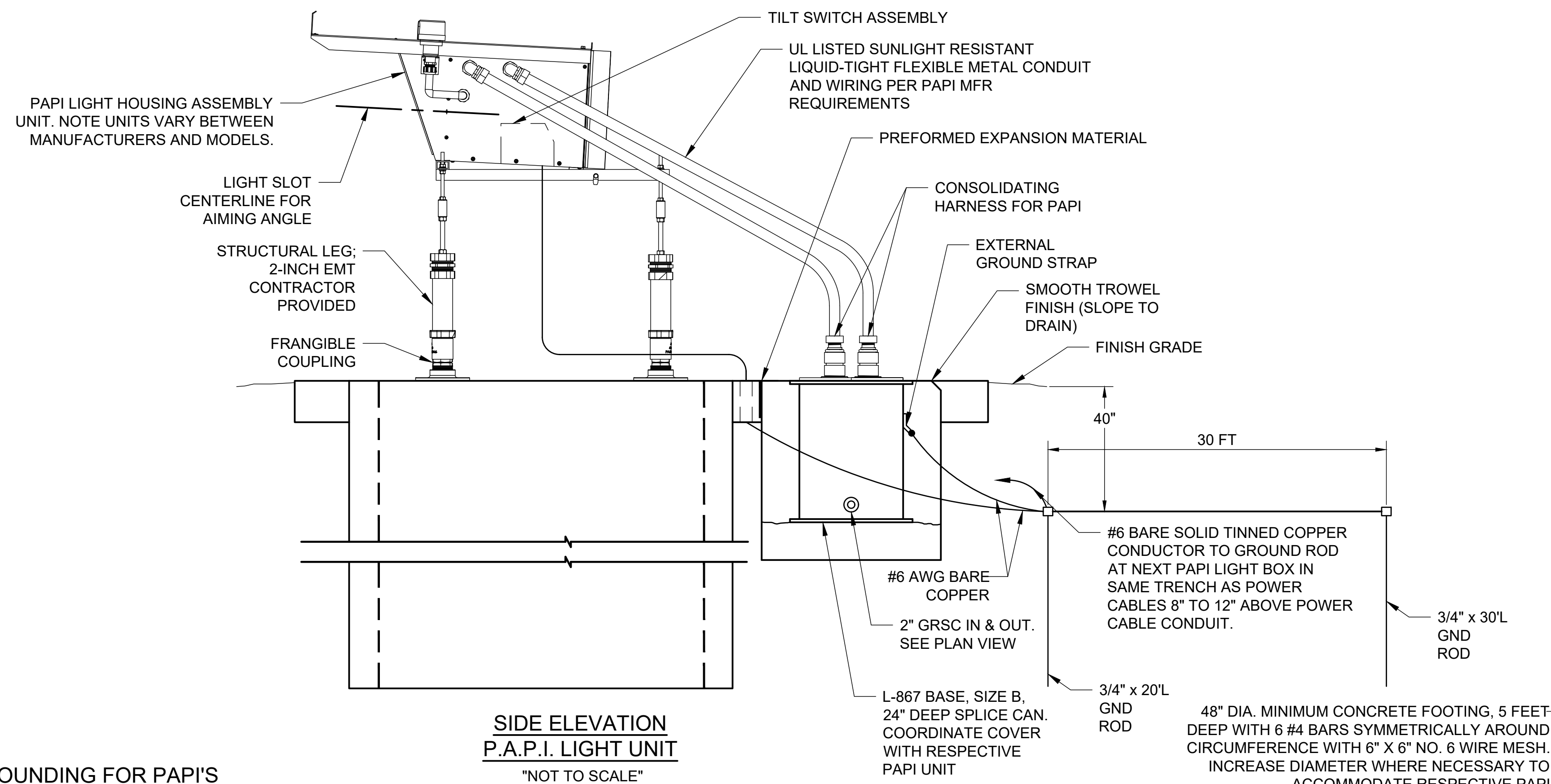
DATE	REVISIONS
1-1-11	Clarified ref. to pipe dia. on Section A-A. Changed 'inner' to 'outer' cage. ref.
1-1-09	Switched units to English (metric).

FLARED END SECTION DETAIL

PIPE TRENCH

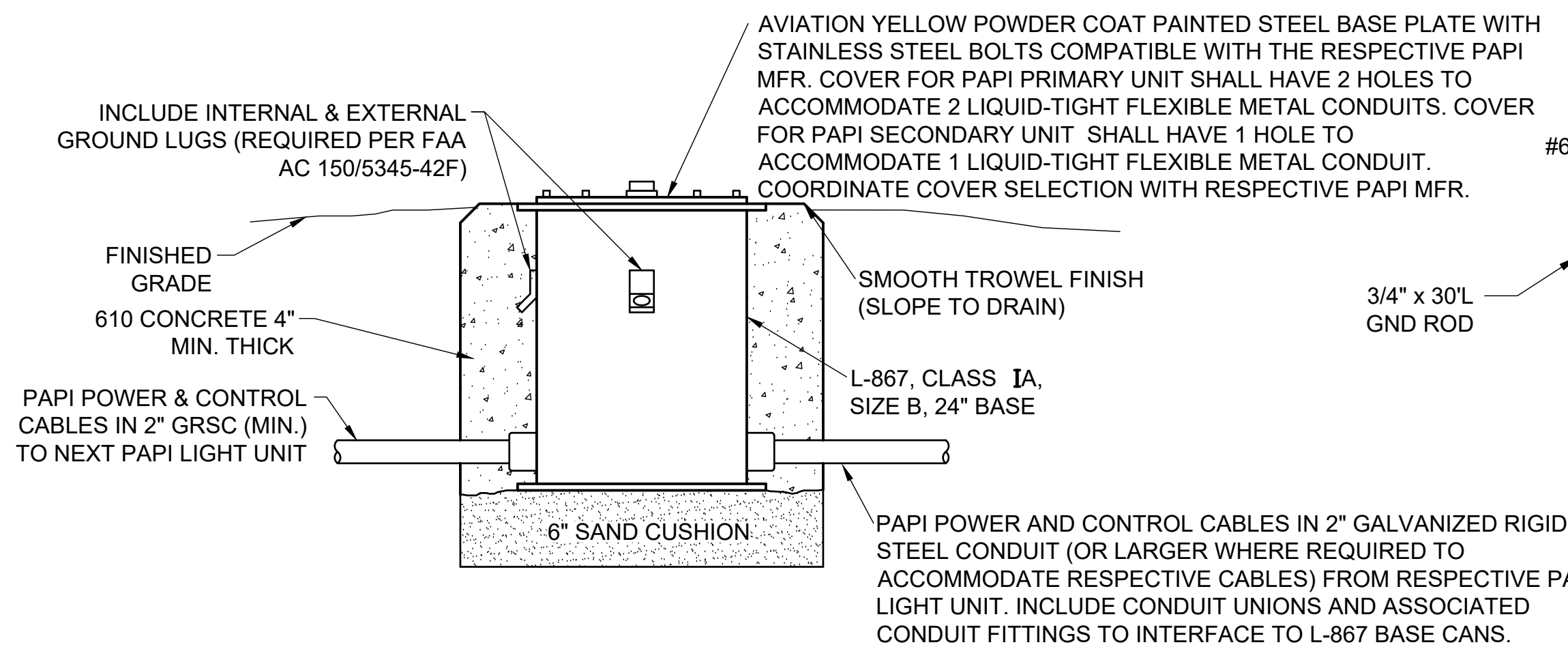


RIPRAP SECTION



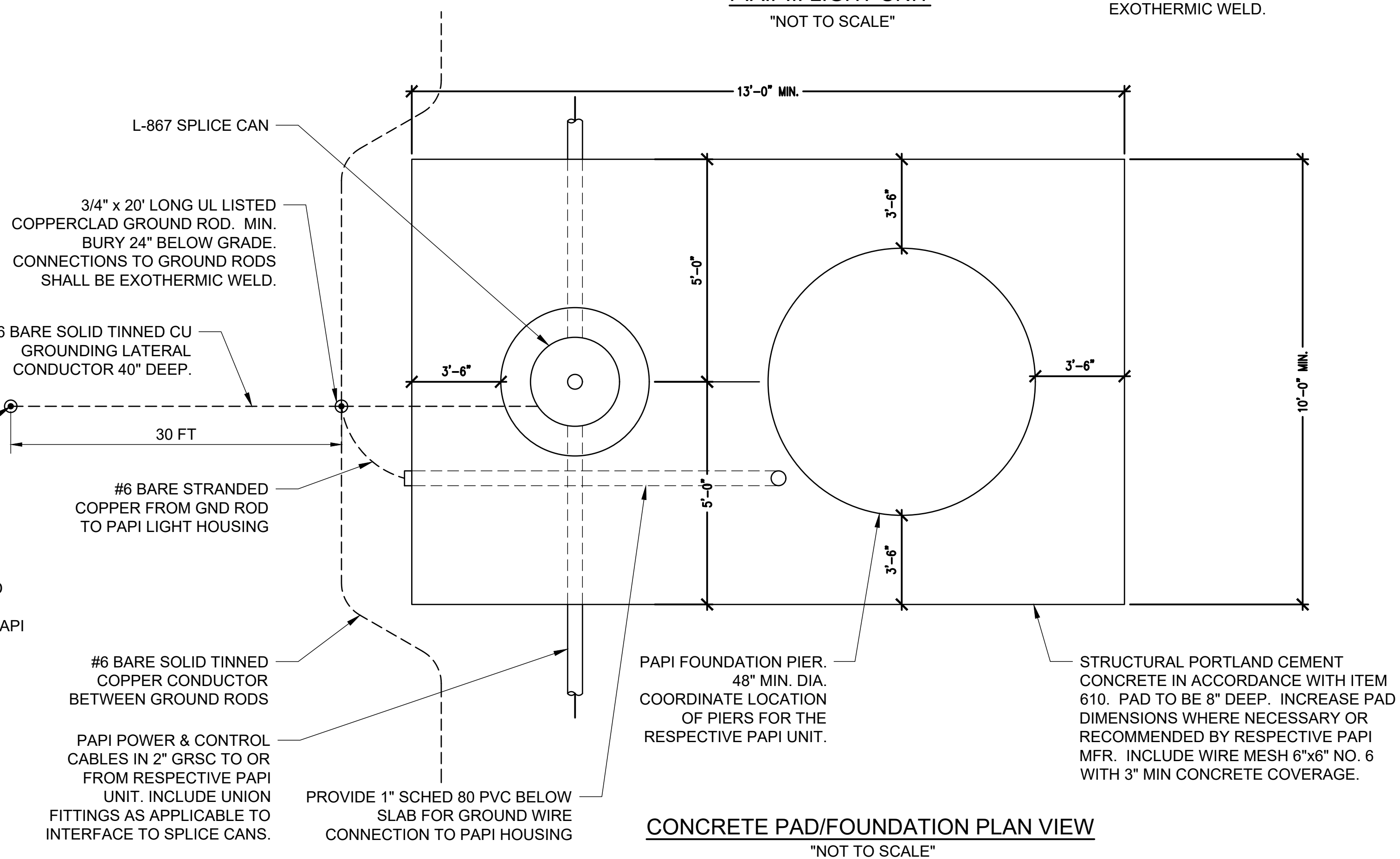
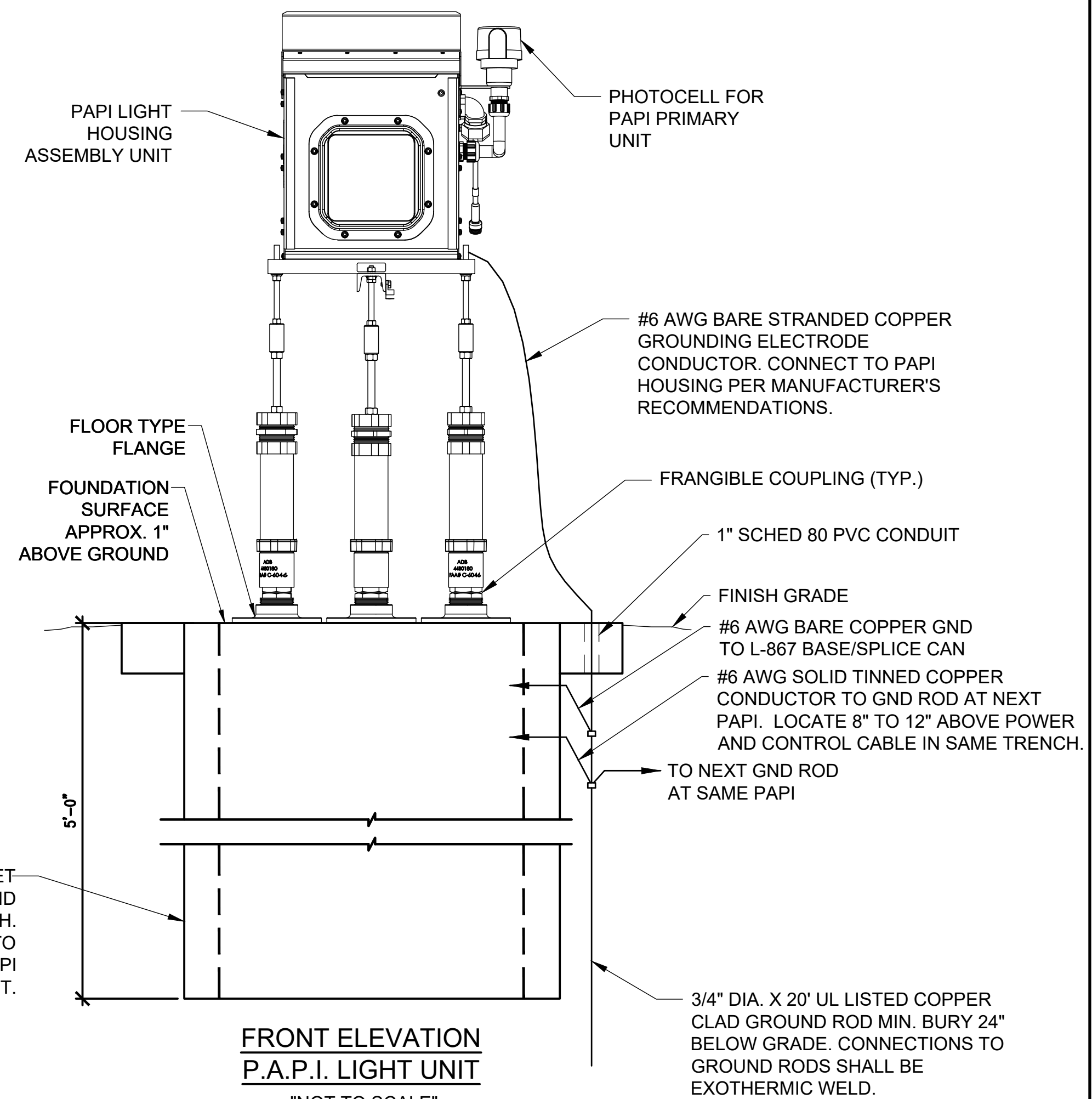
GROUNDING FOR PAPI'S

1. GROUNDING FOR PAPI'S SHALL CONFORM TO THE RESPECTIVE PAPI MANUFACTURER'S INSTALLATION INSTRUCTIONS. AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. THE POWER CIRCUIT TO EACH PAPI UNIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE OF THE SAME SIZE AND TYPE AS THE PHASE CONDUCTORS. FURNISH AND INSTALL A 3/4-INCH DIAMETER BY 20-FEET LONG COPPERCLAD STEEL GROUND ROD AT EACH PAPI LIGHTING PLUS AN ADDITIONAL 3/4-INCH DIAMETER BY 30-FEET LONG COPPERCLAD STEEL GROUND ROD LOCATED 30 FT AWAY AT TERMINATION OF GROUNDING LATERAL CONDUCTOR. BOND EACH PAPI UNIT AND THE RESPECTIVE L-867 SPLICE CAN TO THE RESPECTIVE GROUND ROD WITH A #6 AWG STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR. TOP OF GROUND RODS SHALL BE BURIED APPROXIMATELY 24 INCHES BELOW GRADE. ALL CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS; CADWELD BY ERICO PRODUCTS, THERMOWELD BY CONTINENTAL INDUSTRIES, INC., OR ULTRAWELD BY HARGER LIGHTNING PROTECTION GROUNDING EQUIPMENT, OR APPROVED EQUAL. CONNECTIONS TO L-867 SPLICE CANS SHALL BE WITH UL LISTED GROUNDING CONNECTORS SUITABLE FOR USE IN DIRECT BURIAL OR CONCRETE ENCASEMENT APPLICATIONS. CONNECTIONS TO PAPI UNIT FRAME SHALL BE AS RECOMMENDED BY THE MANUFACTURER OR WITH A UL LISTED GROUNDING CONNECTOR. ALL GROUND RODS ASSOCIATED WITH THE COMPLETE PAPI INSTALLATION SHALL BE BONDED TOGETHER WITH A #6 AWG SOLID TINNED COPPER CONDUCTOR. THIS CONDUCTOR RUNNING BETWEEN PAPI UNITS SHALL BE INSTALLED IN THE SAME TRENCH LOCATED 10 INCHES ABOVE THE POWER AND CONTROL CONDUCTORS, BETWEEN EACH RESPECTIVE PAPI UNIT.



NOTE:
FOR THE PURPOSE OF ENHANCING SAFETY, EACH BASE MUST HAVE INSTALLED, BY THE MANUFACTURER, AND INTERNAL AND EXTERNAL GROUND STRAP THAT IS AVAILABLE FOR THE PURPOSE OF ATTACHING A GROUND LUG THAT IS CONNECTED TO AN EARTH GROUND OR A SAFETY GROUND CONDUCTOR INSTALLED WITH THE RESPECTIVE CIRCUIT. FOR AIRPORT PROJECTS RECEIVING FEDERAL FUNDS THIS REQUIREMENT IS MANDATORY PER FAA AC 150/5345-42H (AND/OR OTHER CURRENT ISSUES IN EFFECT).

PAPI L-867 SPLICE CAN DETAIL
(NOT TO SCALE)



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Illinois Licensed
Professional Service Corporation
#184-001084



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
 1315 ILLINOIS 17
 LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-501-DETL.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/5/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

PAPI FOUNDATION DETAILS

FOR BID DOCUMENTS



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin N. Lightfoot

DATE: 11/14/2025 LICENSE: 11/30/2027
SIGNED: 11/14/2025 EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGp-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION			
		DES	DRN	REV	

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-518-DETL.DWG

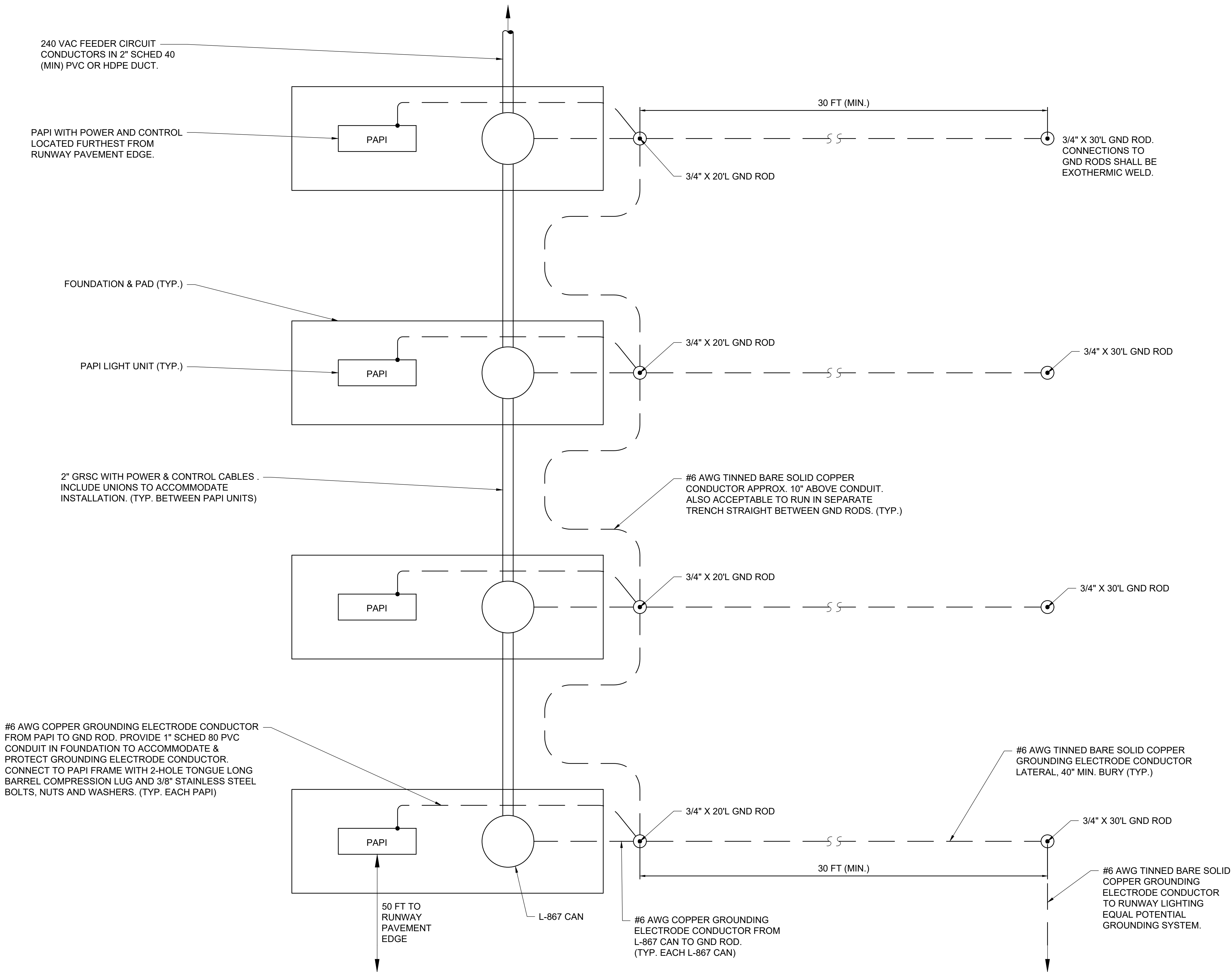
DESIGN BY: KNL 10/22/2025

DRAWN BY: JKD 10/23/2025

REVIEWED BY: KNL 10/24/2025

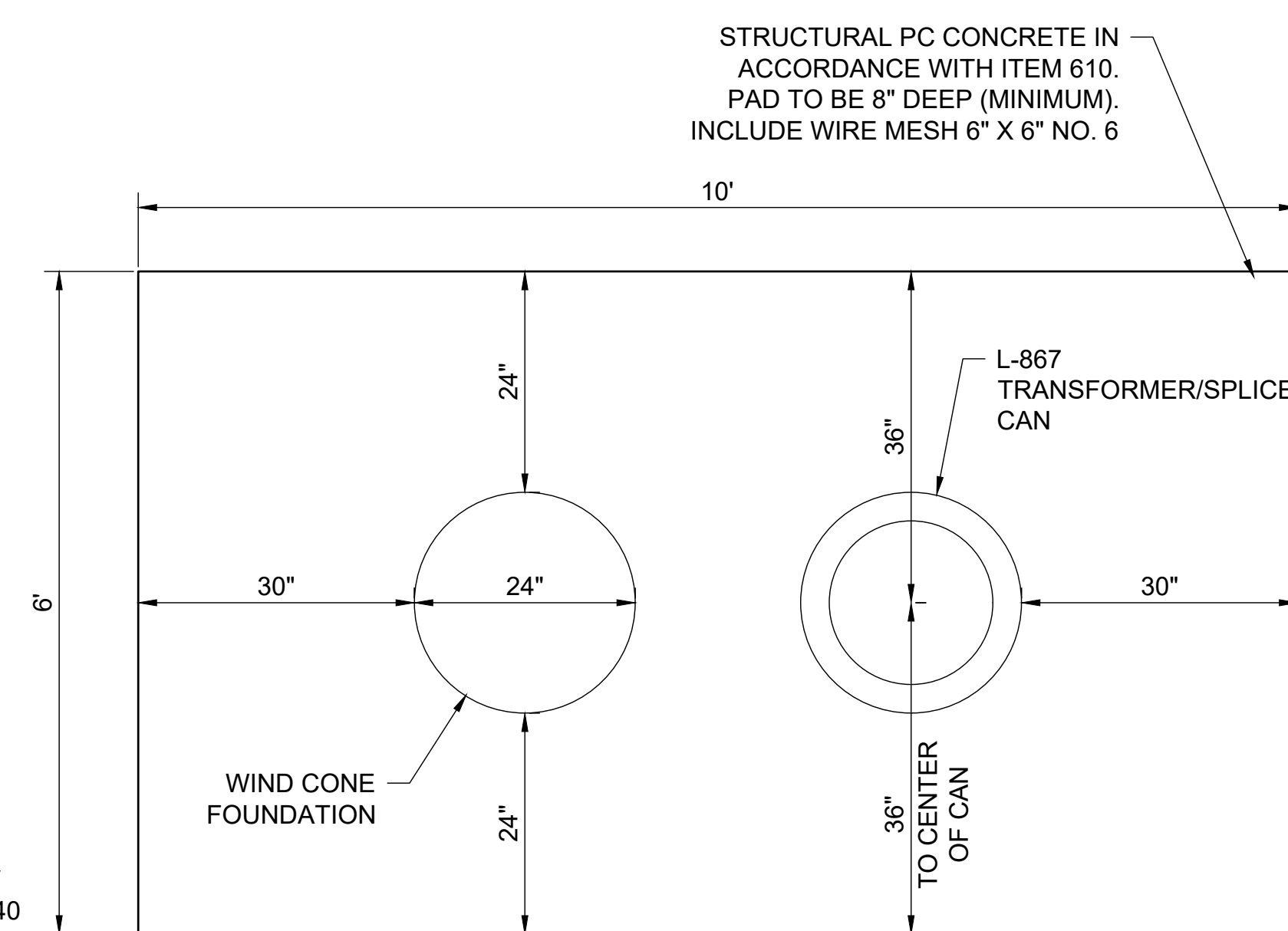
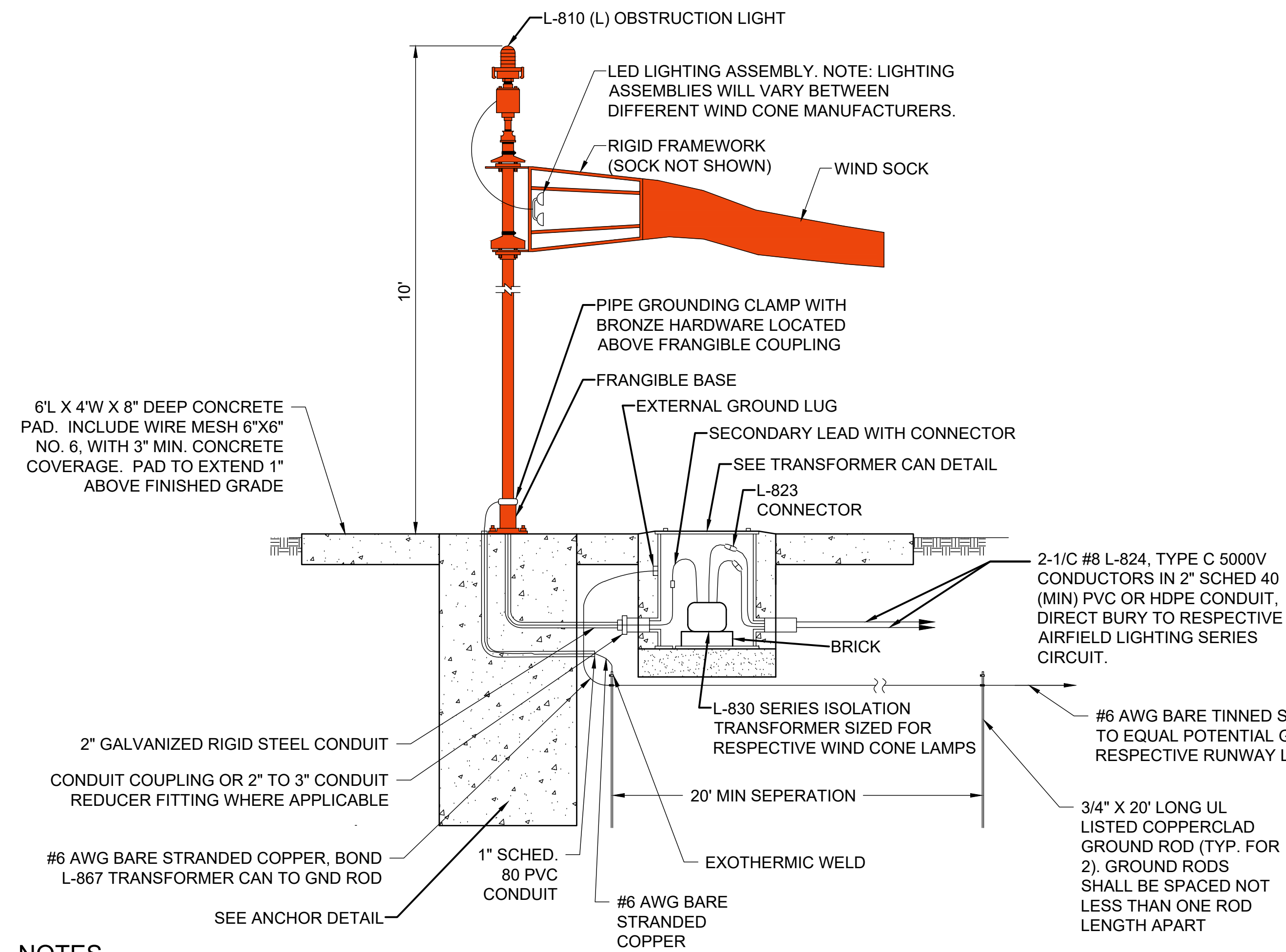
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**PAPI GROUNDING
PLAN**



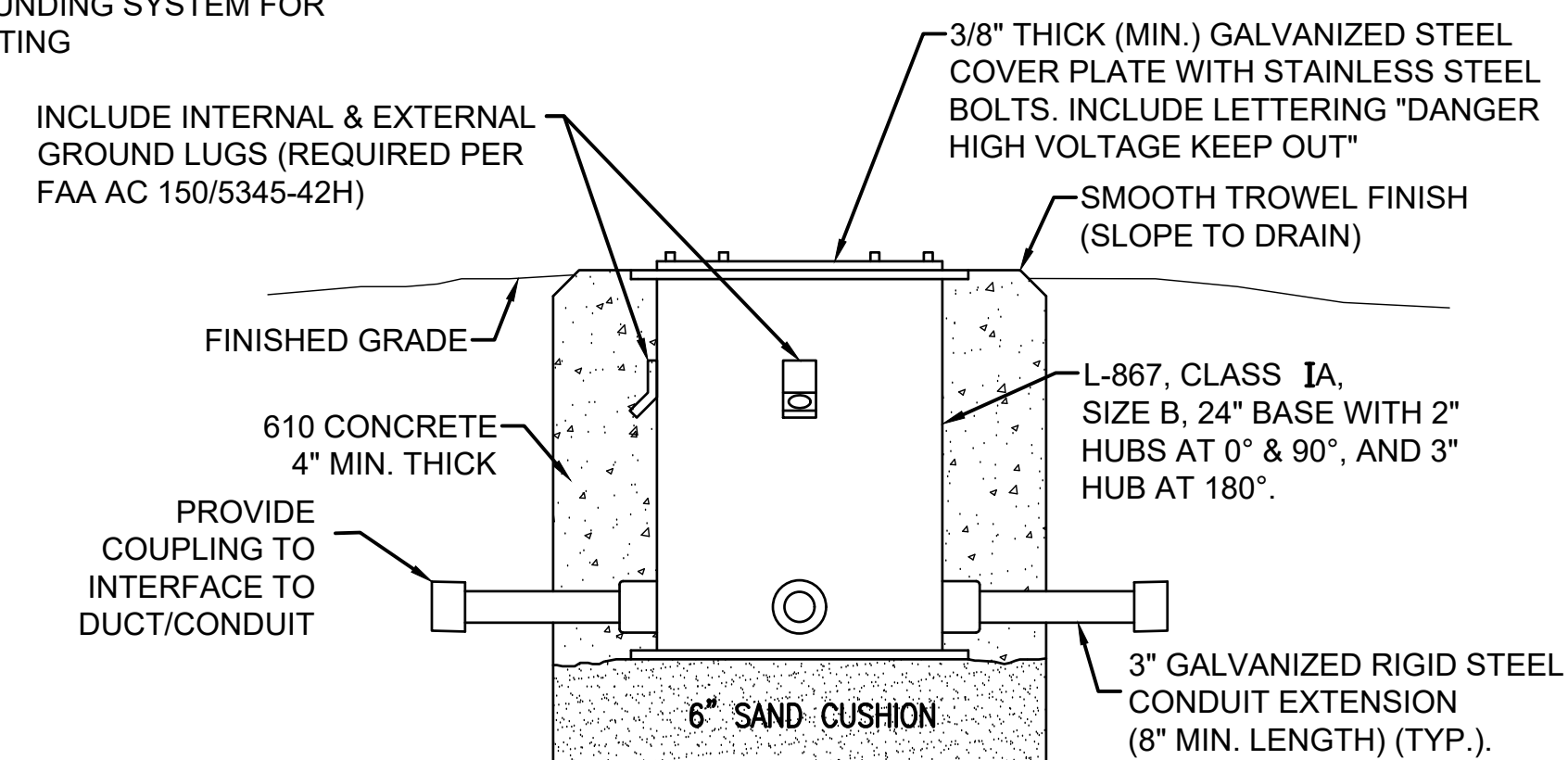
PAPI GROUNDING PLAN
NOT TO SCALE

FOR BID DOCUMENTS



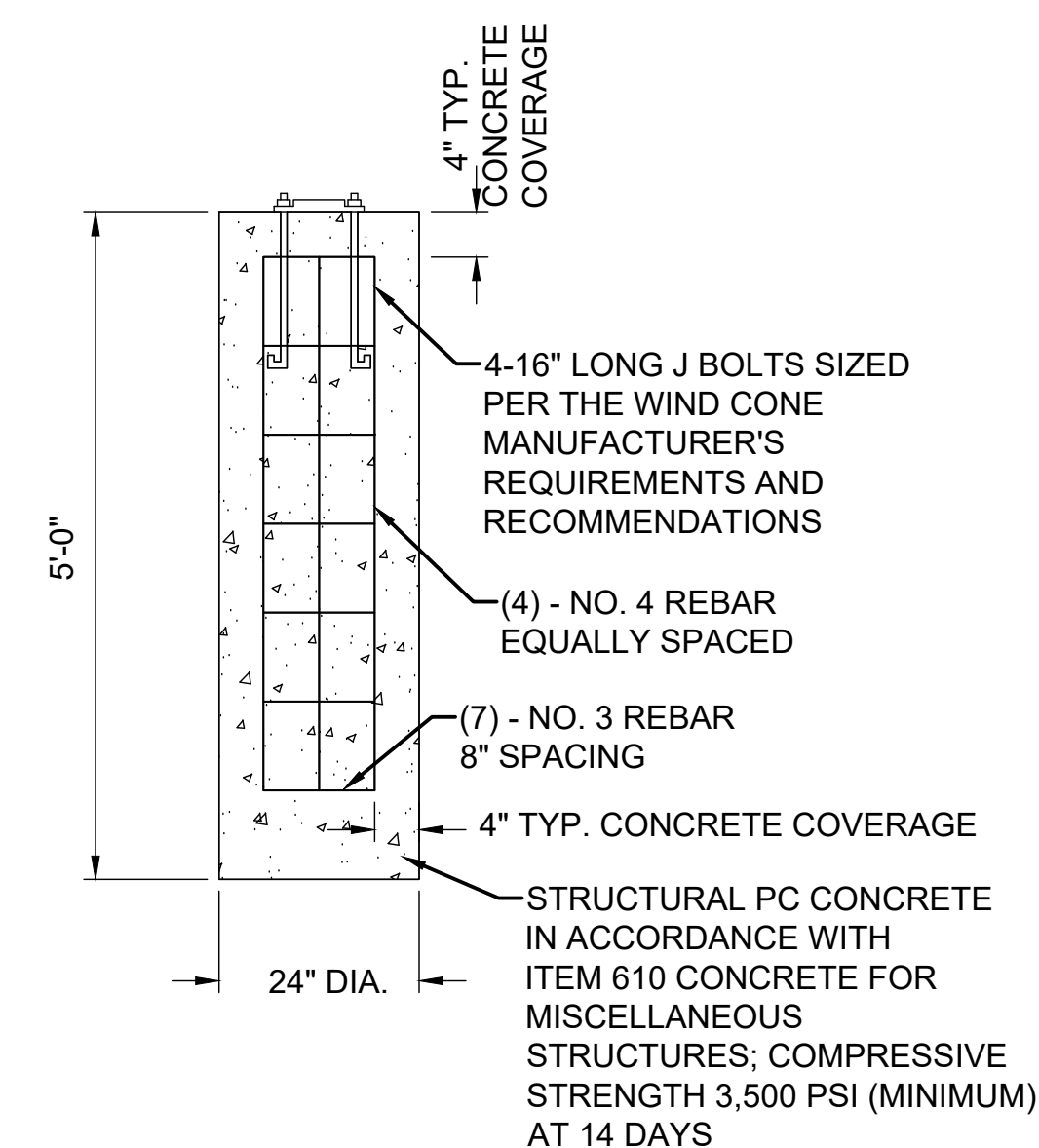
CONCRETE PAD PLAN VIEW

'NOT TO SCALE"



WIND CONE TRANSFORMER CAN DETAIL

"NOT TO SCALE"



NOTES

1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE OWNER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
2. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, INSTALLING, OR RECONNECTING THE RESPECTIVE AIRFIELD LIGHTING, NAVAID, OR OTHER DEVICE.
3. THE L-806(L) SUPPLEMENTAL WIND CONE(S) WILL BE FURNISHED BY THE AIRPORT AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CONCRETE FOUNDATION, CONCRETE PAD, REINFORCING STEEL, L-867 TRANSFORMER CAN, SERIES ISOLATION TRANSFORMER, CONDUITS, WIRING, CONNECTIONS, GROUNDING, AND ASSOCIATED INCIDENTALS TO INSTALL THE WIND CONE(S).
4. THE RESPECTIVE RUNWAY LIGHTING CIRCUIT IS POWERED BY AN L-828, CLASS 1 - 6.6 AMP OUTPUT CURRENT, STYLE 1; 3 BRIGHTNESS STEPS CONSTANT CURRENT REGULATOR. COORDINATE WITH THE RESPECTIVE WIND CONE MANUFACTURER TO PROVIDE A COMPATIBLE AND PROPERLY SIZED SERIES ISOLATION TRANSFORMER FOR EACH WIND CONE.
5. SPLICE/TRANSFORMER CANS FOR WIND CONE SERIES CIRCUIT TRANSFORMERS WILL BE INCIDENTAL TO THE RESPECTIVE WIND CONE PAY ITEM.
6. REBAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60 OR ASTM A615 GRADE 6 AND SHALL BE MANUFACTURED FROM 100% DOMESTIC STEEL. WELDED WIRE FABRIC SHALL CONFORM TO AASHTO M55, ASTM A82, OR ASTM A185 AND SHALL BE MANUFACTURED FROM 100% DOMESTIC STEEL.
7. FOR EACH GROUNDING ELECTRODE SYSTEM (GROUND ROD) THE CONTRACTOR SHALL TEST THE MADE GROUNDING ELECTRODE SYSTEM WITH A INSTRUMENT THAT IS SPECIFICALLY DESIGNED FOR TESTING GROUNDING SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH GROUNDING ELECTRODE SYSTEM. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER OF RECORD FOR FURTHER DIRECTIONS. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE PROJECT ENGINEER OF RECORD.
8. RESTORE TURF AREAS AFFECTED BY WIND CONE INSTALLATION.

INTERNALLY LIGHTED L-806 WIND CONE (SERIES CIRCUIT TYPE)

"NOT TO SCALE"

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Illinois Licensed
Professional Service Corporation
#184-001084



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
 1315 ILLINOIS 17
 LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin T. Higley

DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-502-DETL.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/8/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

L-806 WIND CONE DETAILS



1. REIL FOUNDATION DETAILS HAVE BEEN DESIGNED TO ACCOMMODATE THE RESPECTIVE REIL MFR AND MODEL, SITE CONDITIONS, TURF SLOPE, AND EROSION CONTROL. VERIFY DEVIATIONS WITH PROJECT ENGINEER OF RECORD PRIOR TO INSTALLATION.
2. REILS SHALL BE FAA APPROVED CONFORMING TO FAA AC 150/5345-51B "SPECIFICATION FOR DISCHARGE-TYPE FLASHING LIGHT EQUIPMENT", L-849(L) (LIGHT EMITTING DIODE) TYPE I REIL POWERED BY CONSTANT CURRENT 6.6 AMP POWER SUPPLY, STYLE A - UNIDIRECTIONAL, HIGH INTENSITY, ONE BRIGHTNESS STEP. SEE SPECIFICATION ITEM L-125 FOR ADDITIONAL REQUIREMENTS ON REILS.
3. REILS SHALL BE AIMED AT ANGLE 10 DEGREES VERTICALLY AND TOED OUT 15 DEGREES FROM THE LINE PARALLEL TO THE RUNWAY CENTERLINE. CONTRACTOR SHALL STENCIL HORIZONTAL AND VERTICAL AIMING ANGLES ON EACH REIL UNIT, BLACK LETTERING 1" HIGH OR SIZED TO FIT ON REIL HOUSING BACK SIDE.
4. GROUNDING FOR REILS. GROUNDING FOR REILS SHALL CONFORM TO THE RESPECTIVE REIL MANUFACTURER'S INSTALLATION INSTRUCTIONS, AS DETAILED ON THE PLANS, AND AS SPECIFIED HEREIN. FURNISH AND INSTALL TWO 3/4-INCH DIAMETER BY 20-FEET LONG COPPER CLAD GROUND RODS AT EACH REIL UNIT. GROUND RODS SHALL BE BURIED 30" MINIMUM BELOW GRADE. BOND EACH REIL UNIT HOUSING AND THE REIL BASE CAN TO THE RESPECTIVE GROUND ROD(S) IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS WITH A #2 AWG BARE SOLID OR STRANDED (PER REIL MANUFACTURER REQUIREMENTS) COPPER GROUNDING ELECTRODE CONDUCTOR. ALL CONNECTIONS TO GROUND RODS SHALL BE EXOTHERMIC WELD AS MANUFACTURED BY CADWELD, THERMOWELD, ULTRAWELD, OR APPROVED EQUAL. CONNECTIONS TO REIL UNIT FRAMES SHALL BE AS RECOMMENDED BY THE MANUFACTURER OR WITH UL LISTED GROUNDING CONNECTORS. CONNECTIONS TO THE BASE / TRANSFORMER CAN SHALL BE WITH UL LISTED BOLTED CONNECTOR OR ONE-HOLE COMPRESSION LUG & 3/8" STAINLESS STEEL BOLTS, NUTS, & WASHERS. TEST GROUND RODS AND RECORD EARTH GROUND RESISTANCE AT EACH REIL UNIT. WHERE EARTH GROUND RESISTANCE EXCEEDS 25 OHMS CONTACT THE PROJECT ENGINEER OF RECORD FOR FURTHER DIRECTIONS.
5. PRIOR TO FINAL ACCEPTANCE AND ACTIVATION, THE COMPLETED REIL INSTALLATION WILL REQUIRE A FLIGHT CHECK TO BE SCHEDULED AND CONDUCTED BY THE FAA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE A REPRESENTATIVE PRESENT TO MAKE ANY NECESSARY ADJUSTMENTS IN THE INSTALLATION AND/OR AIMING OF THE REIL UNITS FOR THE FLIGHT SYSTEM CHECKS.

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MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



DATE: 11/14/2025 LICENSE: 11/30/2027
SIGNED: 11/14/2025 EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION			
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ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-517-DETL.DWG

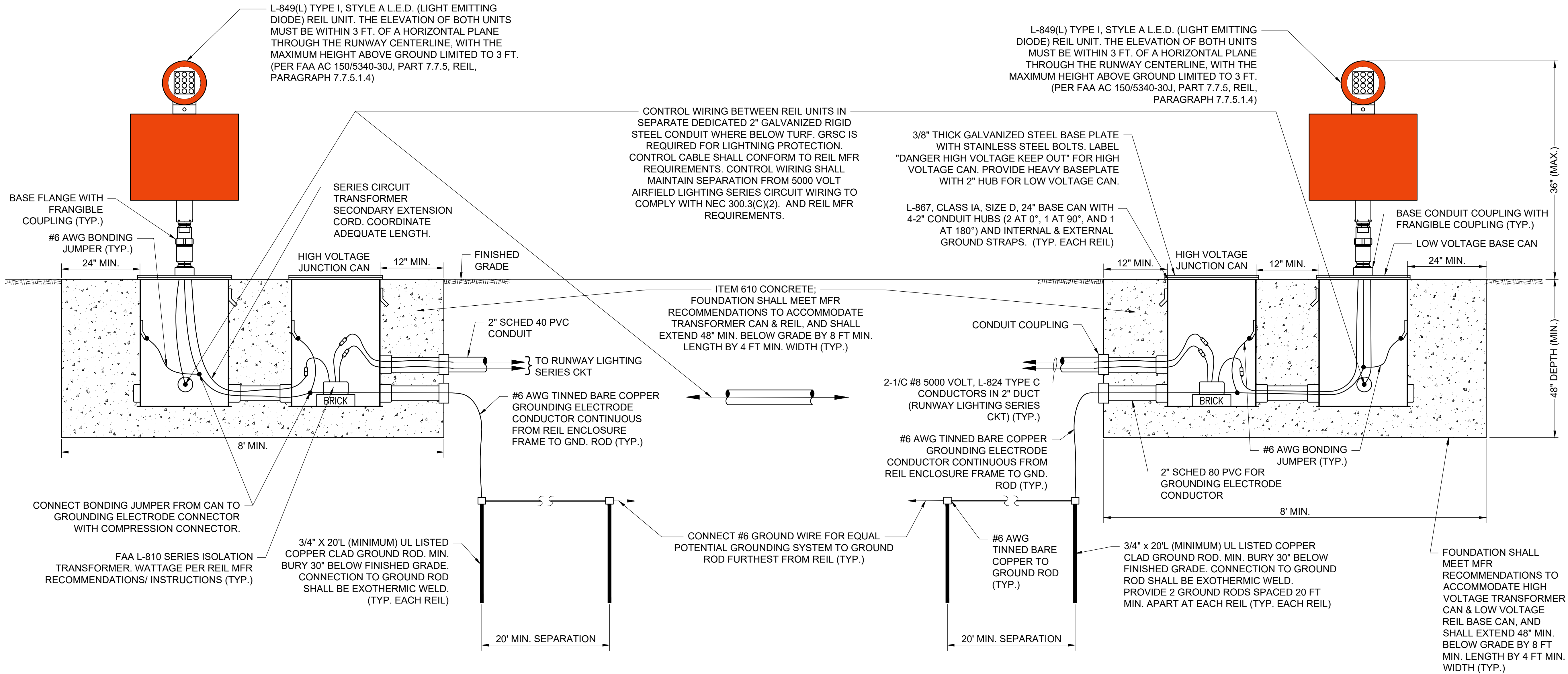
DESIGN BY: KNL 10/22/2025

DRAWN BY: JKD 10/23/2025

REVIEWED BY: KNL 10/24/2025

SHEET TITLE

REIL DETAILS AND
NOTES OPTION F

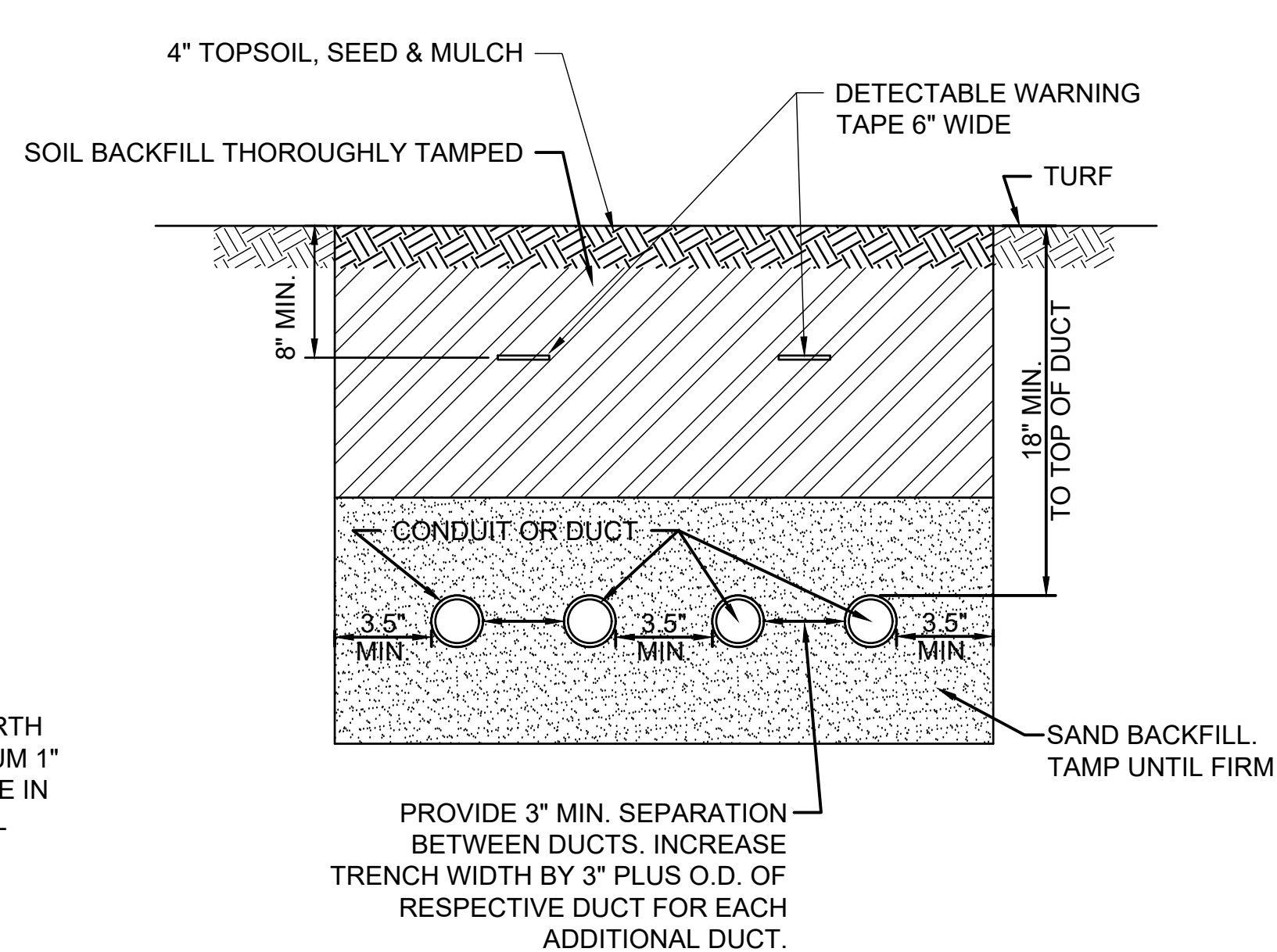
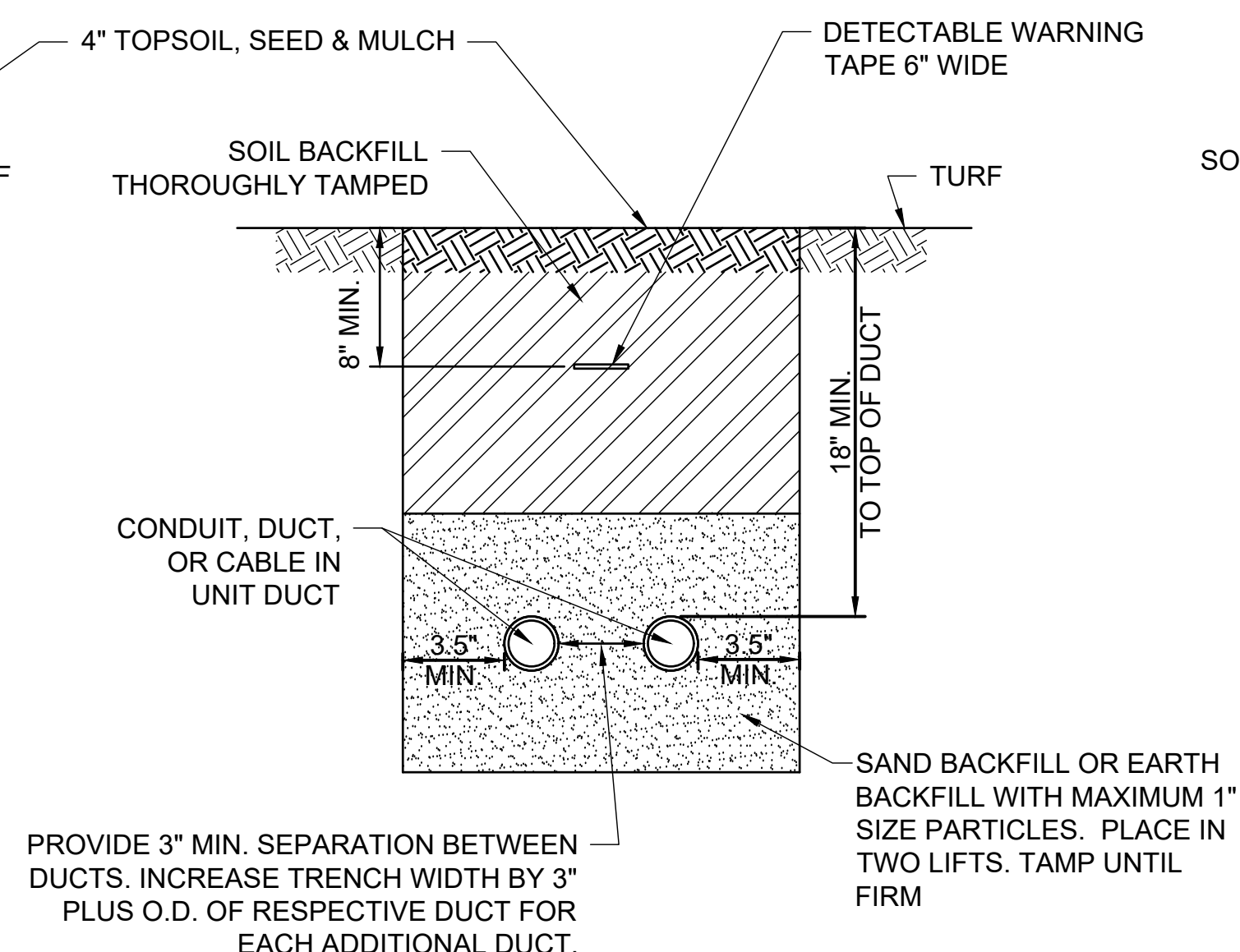
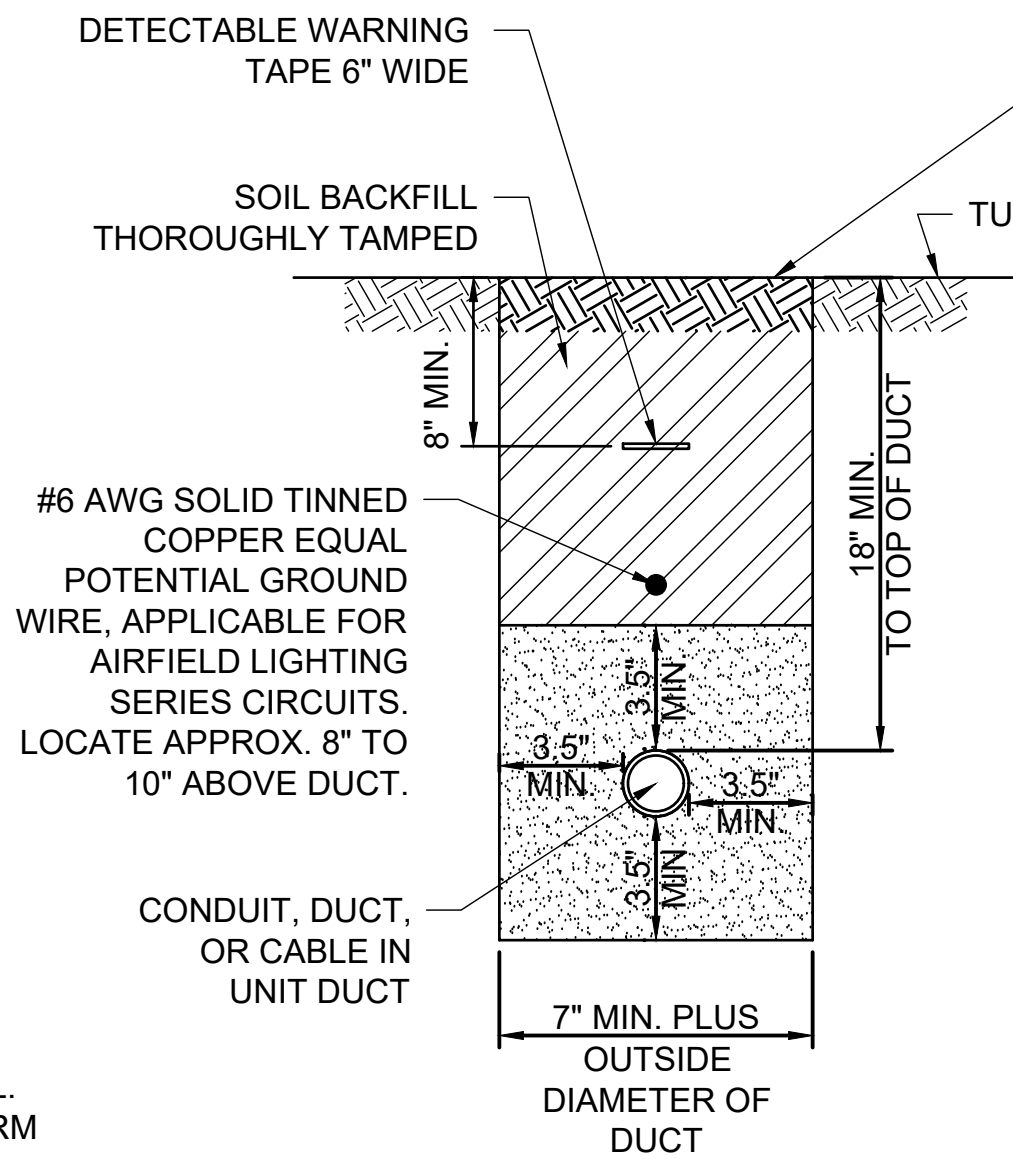
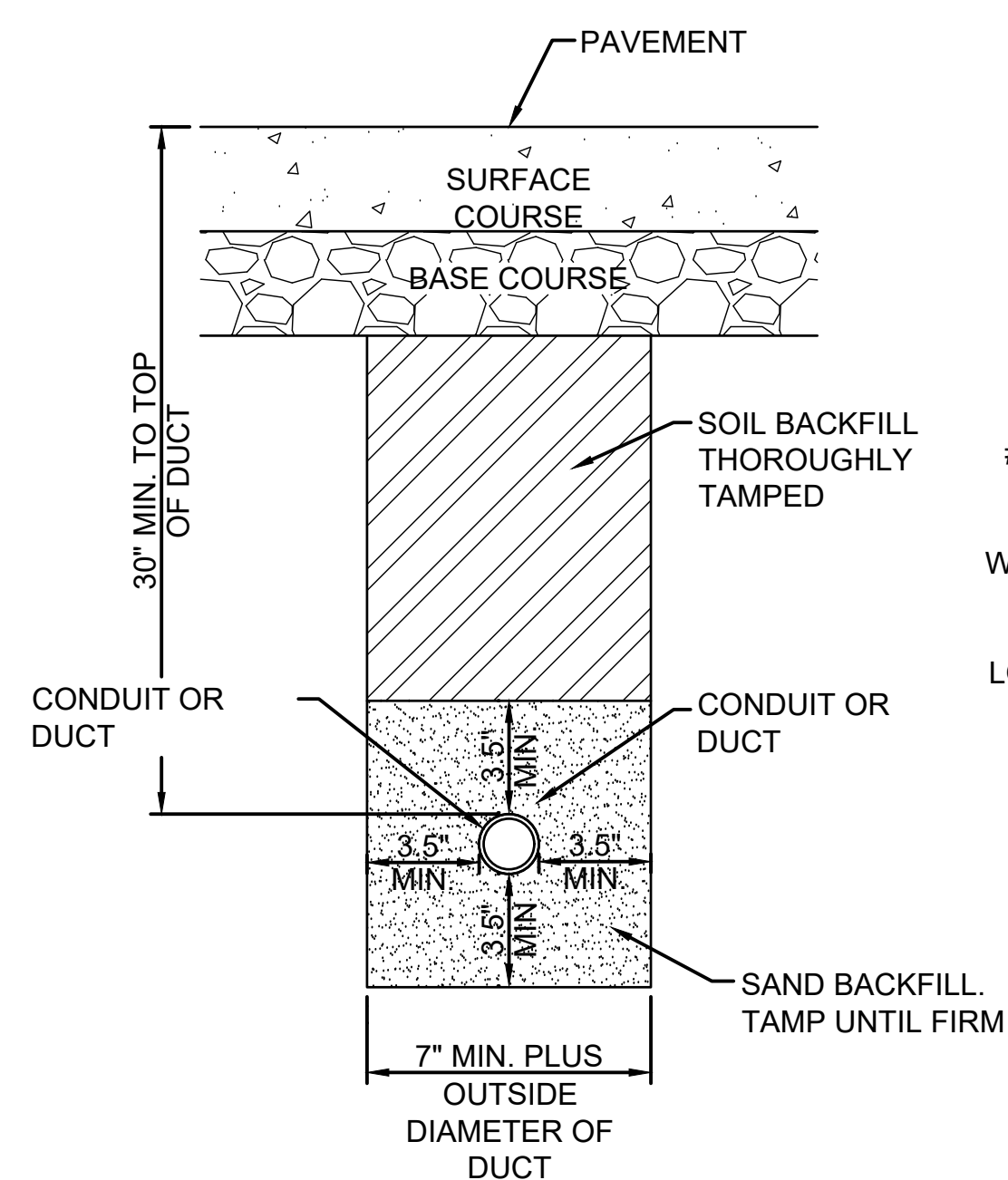


REIL INSTALLATION DETAIL
NOT TO SCALE

REIL NOTES

- REIL FOUNDATION DETAILS HAVE BEEN DESIGNED TO ACCOMMODATE THE RESPECTIVE REIL MFR AND MODEL, SITE CONDITIONS, TURF SLOPE, AND EROSION CONTROL. VERIFY DEVIATIONS WITH PROJECT ENGINEER OF RECORD PRIOR TO INSTALLATION.
- REILS SHALL BE FAA APPROVED CONFORMING TO FAA AC 150/5345-51B "SPECIFICATION FOR DISCHARGE-TYPE FLASHING LIGHT EQUIPMENT", L-849(L) (LIGHT EMITTING DIODE) TYPE I REIL POWERED BY CONSTANT CURRENT 6.6 AMP POWER SUPPLY, STYLE A - UNIDIRECTIONAL, HIGH INTENSITY, ONE BRIGHTNESS STEP. SEE SPECIFICATION ITEM L-125 FOR ADDITIONAL REQUIREMENTS ON REILS.
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FOR BID DOCUMENTS



NOTES:

1. DIMENSIONS FOR COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
2. TRENCHES WITH MORE THAN TWO DUCTS OR CABLE IN UNIT DUCTS SHALL BE INCREASED 3" IN WIDTH PLUS DIAMETER OF RESPECTIVE DUCT FOR EACH ADDITIONAL CONDUIT, DUCT, OR CABLE IN UNIT DUCT; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
3. DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS. MINIMUM COVER REQUIREMENTS FOR CABLES AND DUCTS AT AIRPORT RUNWAYS AND ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED IS 18 INCHES PER NEC 300.5 AND 300.50. MINIMUM COVER REQUIREMENTS FOR DUCTS CONTAINING NAVAID FEEDER CIRCUITS SHALL BE 24". MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED BELOW PAVEMENT OR ROADWAYS IS 30". MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED IN AREAS SUBJECT TO FARMING IS 42". MINIMUM COVER FOR DUCTS CONTAINING SECONDARY ELECTRIC SERVICE CONDUCTORS SHALL BE 36" OR AS REQUIRED BY THE SERVING ELECTRIC UTILITY COMPANY. ADJUST/INCREASE BURIAL DEPTHS TO ACCOMMODATE SITE CONDITIONS, DRAINAGE AND/OR OBSTRUCTIONS. COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT-BURIED CONDUCTOR, CABLE, CONDUIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE OR SIMILAR COVER.
4. HIGH-VOLTAGE CIRCUIT WIRING (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND/OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW-VOLTAGE CIRCUIT WIRING (RATED 600 VOLTS AND BELOW) SHALL MAINTAIN SEPARATION FROM EACH OTHER, TO COMPLY WITH 2023 NEC 300.3 "CONDUCTORS", (C) "CONDUCTORS OF DIFFERENT SYSTEMS", (2) "OVER 1000 VOLTS AC, 1500 VOLTS DC NOMINAL", AND 2023 NEC 305.4 "CONDUCTORS OF DIFFERENT SYSTEMS". HIGH-VOLTAGE WIRING AND LOW-VOLTAGE WIRING SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, HANDHOLE, OR JUNCTION BOX. CORRECTIVE WORK WILL BE REQUIRED TO SEPARATE HIGH VOLTAGE SERIES CIRCUIT CONDUCTORS FROM LOW VOLTAGE CONDUCTORS WHERE THEY ARE INSTALLED IN THE SAME RACEWAY.
5. SERVICE CONDUCTORS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, OR HANDHOLE WITH FEEDER CIRCUITS, BRANCH CIRCUITS OR CONTROL CIRCUITS.
6. COMMUNICATION CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, OR HANDHOLE WITH POWER CIRCUITS.
7. HOME RUN CABLES FOR A RESPECTIVE CIRCUIT SHALL BE INSTALLED IN THE SAME RACEWAY OR DUCT.
8. COORDINATE DUCT INTERFACE TO MANHOLES AND HANDHOLES. FIELD CUT OPENINGS FOR CONDUITS AND DUCTS TO INTERFACE TO MANHOLES AND/OR HANDHOLES. CUT WALL OF RESPECTIVE HANDHOLE OR MANHOLE WITH A TOOL DESIGNED FOR MATERIAL TO BE CUT. SIZE HOLES FOR RESPECTIVE DUCTS, CONDUITS, AND TERMINATION FITTINGS AND SEAL AROUND PENETRATIONS. ALL CORING, INTERFACE, CUTTING, AND SEALING WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION AND/OR RESPECTIVE HANDHOLE/MANHOLE INSTALLATION. PROVIDE BUSHINGS OR BELLS AT CONDUIT TERMINATIONS IN ELECTRICAL HANDHOLES OR MANHOLES.
9. ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.

10. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
11. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
12. THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION PHONE; 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.
13. ADJUSTMENTS TO DUCT BANK ROUTES MIGHT BE REQUIRED TO ACCOMMODATE EXISTING SITE CONDITIONS AND UNDERGROUND LINES AND UTILITIES. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL COORDINATE DUCT ROUTE ADJUSTMENTS WITH THE RESIDENT PROJECT REPRESENTATIVE AND THE AIRPORT MANAGER.

14. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING CABLES, LINES, OR UTILITIES WITHIN 10 FT OF PROPOSED EXCAVATING/TRENCHING AREA. ANY CABLES, LINES, AND UTILITIES FOUND INTERFERING WITH PROPOSED EXCAVATION OR CABLE/TRENCHING SHALL BE HAND DUG AND EXPOSED. ANY DAMAGED CABLES OR OTHER UTILITIES SHALL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE RESPECTIVE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE. THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND OWNER SHALL BE NOTIFIED IMMEDIATELY IF ANY CABLES OR OTHER UTILITIES ARE DAMAGED.
15. PAYMENT FOR LOCATING AND MARKING UNDERGROUND UTILITIES AND CABLES WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION.
16. THE CONTRACTOR WILL DETERMINE IF THERE IS A CONFLICT BETWEEN THE INSTALLATION OF THE PROPOSED ELECTRICAL DUCTS AND ANY EXISTING UTILITIES. THE CONTRACTOR WILL MAKE ALL NECESSARY ADJUSTMENTS IN DEPTH OF INSTALLATION TO AVOID ANY AND ALL PROPOSED UNDERGROUND IMPROVEMENTS
17. CONDUITS FOR DIRECT BURIAL OR CONCRETE ENCASED DUCT BANK SHALL BE SCHEDULE 40 (MINIMUM) PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651, LISTED SUITABLE FOR UNDERGROUND USE EITHER DIRECT-BURIED OR ENCASED IN CONCRETE, OR SCHEDULE 40 (MINIMUM) HDPE CONDUIT, UL LISTED, CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND LISTED SUITABLE FOR UNDERGROUND USE; EITHER DIRECT BURY OR ENCASED IN CONCRETE. HEAVIER WALL CONDUITS SHALL BE FURNISHED FOR RESPECTIVE APPLICATIONS WHERE DETAILED HEREIN.
18. CONDUITS FOR DIRECTIONAL BORING SHALL BE SCHEDULE 40 PVC CONDUIT OR SCHEDULE 80 PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651 AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, SCHEDULE 80 HDPE CONDUIT, UL-LISTED, CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, OR WALL TYPE MINIMUM SDR 11 HDPE CONDUIT MANUFACTURED IN ACCORDANCE WITH ASTM D-3350 (SPECIFICATION OF POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS) AND ASTM F2160 (STANDARD SPECIFICATION FOR SOLID WALL, HIGH-DENSITY POLYETHYLENE CONDUIT BASED ON CONTROLLED OUTSIDE DIAMETER), AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION. PER NEC 300.5 (K), RACEWAYS INSTALLED USING DIRECTIONAL BORING EQUIPMENT SHALL BE APPROVED FOR THE PURPOSE.
19. UNDERGROUND DUCTS INSTALLED BY DIRECTIONAL-BORING METHOD SHALL BE INSTALLED IN A MANNER THAT WILL NOT DAMAGE ANY EXISTING UNDERGROUND UTILITIES, AND SHALL NOT DISTURB OR DAMAGE THE RESPECTIVE PAVEMENT OR ROADWAY SURFACE. DUCTS SHALL BE DIRECTIONAL-BORED AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. THE DUCTS WILL BE BORED AT A MINIMUM DEPTH OF 42 IN. BELOW THE RESPECTIVE PAVEMENT IT IS BEING BORED UNDER.
20. A PULL WIRE SHALL BE INSTALLED IN EACH CONDUIT OR DUCT TO BE LEFT VACANT. INCLUDE CONDUIT CAPS/PLUGS FOR SPARE DUCTS.
21. CONTRACTOR SHALL COORDINATE DUCT MARKING WITH AIRPORT.
22. ALL POWER AND CONTROL CABLES IN HANDHOLES, MANHOLES, AND JUNCTION BOXES SHALL BE TAGGED TO IDENTIFY THE RESPECTIVE CABLE. A MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MANHOLE; ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT. CABLE TAGS SHALL BE STAMPED BRASS TAGS OR OTHER WEATHERPROOF/WATERPROOF CORROSION RESISTANT MATERIAL.



LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
 STATE OF ILLINOIS

DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-507-DETL.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/8/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

AIRFIELD LIGHTING CABLE SPLICE DETAILS



FOR SPLICES IN LOW VOLTAGE CABLE
(600V) HOMERUNS FOR EXTENSIONS TO
EXISTING LOW VOLTAGE CABLES ONLY.
TYPE A SPLICES SHALL BE MADE IN SPLICE
CANS, HANDHOLES, MANHOLES, OR
JUNCTIONS BOXES



FOR SPLICES AT JUNCTION OF HOMERUN
WITH LOOP CIRCUIT AND FOR SPLICES IN
HOMERUNS TO EXISTING CABLES

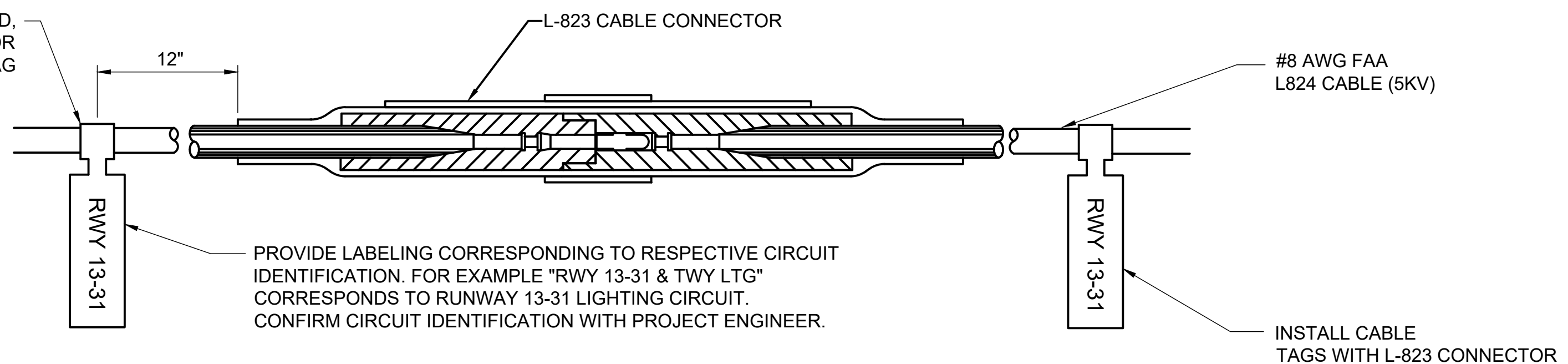


NOTES:
INSIDE DIAMETER OF CONNECTOR SHALL PROPERLY
MATCH THE OUTSIDE DIAMETER OF CABLE.

"NOT TO SCALE"



FOR TAP SPLICES IN LOW VOLTAGE (600V) CABLE. SPLICES SHALL BE RATED AND LISTED SUITABLE FOR DIRECT BURIAL LOCATIONS. FOR SPLICES UP TO #2 AWG CONDUCTOR, SPLICES SHALL BE WYE RESIN TYPE POWER CABLE TAP SPlice KIT SUITABLE FOR THE RESPECTIVE CABLES AND RESPECTIVE APPLICATION.



1. CONTRACTOR SHALL PROVIDE CABLE CIRCUIT IDENTIFICATION MARKERS ATTACHED TO BOTH SIDES OF EACH CABLE CONNECTION.
2. CABLE IDENTIFICATION TAGS SHALL BE FIELD PRINTABLE, DOUBLE SIDE, CORROSION RESISTANT, COLOR CODED, REFLECTIVE CABLE TAGS SUITABLE FOR THE RESPECTIVE ENVIRONMENT.
3. THE CABLE SHALL THOROUGHLY BE CLEANED PRIOR TO THE INSTALLATION OF THE L-823 CONNECTOR KIT.
4. ATTACH EACH CABLE TIE ENOUGH TO HOLD IN PLACE WITHOUT COMPRESSING EDGE OF CABLE TAG INTO CONDUCTOR. TRIM OFF EXCESS CABLE TIE.
5. CABLE TAGS SHALL BE PROVIDED AT ALL POINTS OF ACCESS INCLUDING L-867 JUNCTION/SPLICE CANS, L-868 JUNCTION/SPLICE CANS, HANDHOLES, MANHOLES, JUNCTION BOXES, AND WIREWAYS.

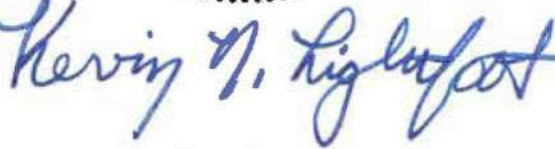
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FOR BID DOCUMENTS



MARSHALL COUNTY AIRPORT (C75)
315 ILLINOIS 17
LACON, ILLINOIS 61540

.....



SIGNED: 11/14/2025 EXPIRES: 11/30/2027

INSTALL TAFT ON RUNWAY
13 END, REELS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

DA NO.. C73-3224

SDC NO.. J-17-SDC1-1DD

L Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

PROTEST NO. 24A2412, 22

AD FILE # 100-336184-2

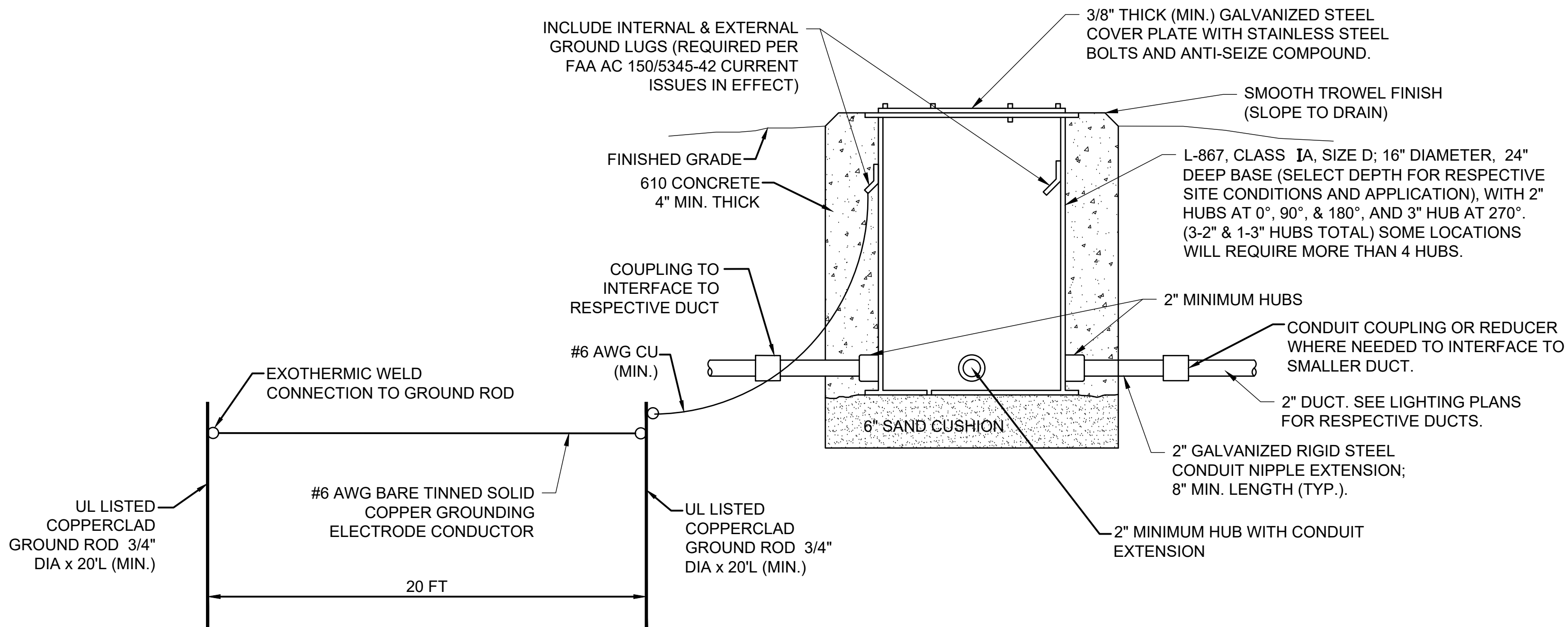
DESIGN BY: LNU 2/

DRAWN BY: JKD 0/0/05

REVIEWED BY: KNI 0/22

SHEET TITLE

SPLICE CAN DETAILS



NOTES ON CONTRIBUTORS

NOT TO SCALE

1. SPLICE CANS SHALL CONFORM TO THE REQUIREMENTS OF FAA AC 150/5345-42 (CURRENT ISSUES IN EFFECT), FOR TYPE L-867, CLASS IA, SIZE D, (16 IN. NOMINAL DIAMETER), AND 24 IN. DEEP AND/OR AS DETAILED ON THE PLANS. EACH SPLICE CAN SHALL INCLUDE INTERNAL AND EXTERNAL GROUND LUGS TO ACCOMMODATE THE RESPECTIVE APPLICATIONS. SPLICE CANS AND/OR JUNCTION CANS SHALL HAVE GALVANIZED STEEL COVERS, 3/8-INCH THICK (MINIMUM), WITH STAINLESS STEEL BOLTS.
2. FOR THE PURPOSE OF ENHANCING SAFETY, EACH BASE MUST HAVE INSTALLED, BY THE MANUFACTURER, AN INTERNAL AND EXTERNAL GROUND STRAP THAT IS AVAILABLE FOR THE PURPOSE OF ATTACHING A GROUND LUG THAT IS CONNECTED TO AN EARTH GROUND OR A SAFETY GROUND CONDUCTOR INSTALLED WITH THE RESPECTIVE CIRCUIT. FOR AIRPORT PROJECTS RECEIVING FEDERAL FUNDS THIS REQUIREMENT IS MANDATORY PER FAA AC 150/5345-42 (CURRENT ISSUES IN EFFECT).
3. APPLY AN OXIDE-INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS, AND ALL PLACES WHERE METAL COMES INTO CONTACT WITH METAL.
4. THE CONCRETE USED IN THE CONSTRUCTION OF THE BASES FOR THE AIRFIELD LIGHTING CANS SHALL BE IN ACCORDANCE WITH ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE.
5. LIDS FOR THE SPLICE CANS CONTAINING HIGH VOLTAGE AIRFIELD LIGHTING CABLES SHALL INCLUDE MINIMUM 1/2-INCH HIGH LETTERING LABELED "DANGER HIGH VOLTAGE KEEP OUT" TO COMPLY WITH 2023 NEC ARTICLE 305.12 "DANGER SIGNS" AND 2023 NEC ARTICLE 314.71(E) "SUITABLE COVERS". THIS WILL NEED TO BE COORDINATED WITH THE SPLICE CAN MANUFACTURER.
6. LIDS FOR THE SPLICE CANS CONTAINING LOW VOLTAGE CABLES (RATED 600 VOLTS AND BELOW) WILL BE ACCEPTABLE TO USE BLANK COVERS.
7. PROVIDE ADEQUATE SLACK CABLE AT SPLICE CANS/JUNCTION CANS TO PERFORM SPLICES OUTSIDE OF THE SPLICE CAN.



LICENSED PROFESSIONAL ENGINEER
 KEVIN N. LIGHTFOOT
 062-047643
 STATE OF ILLINOIS

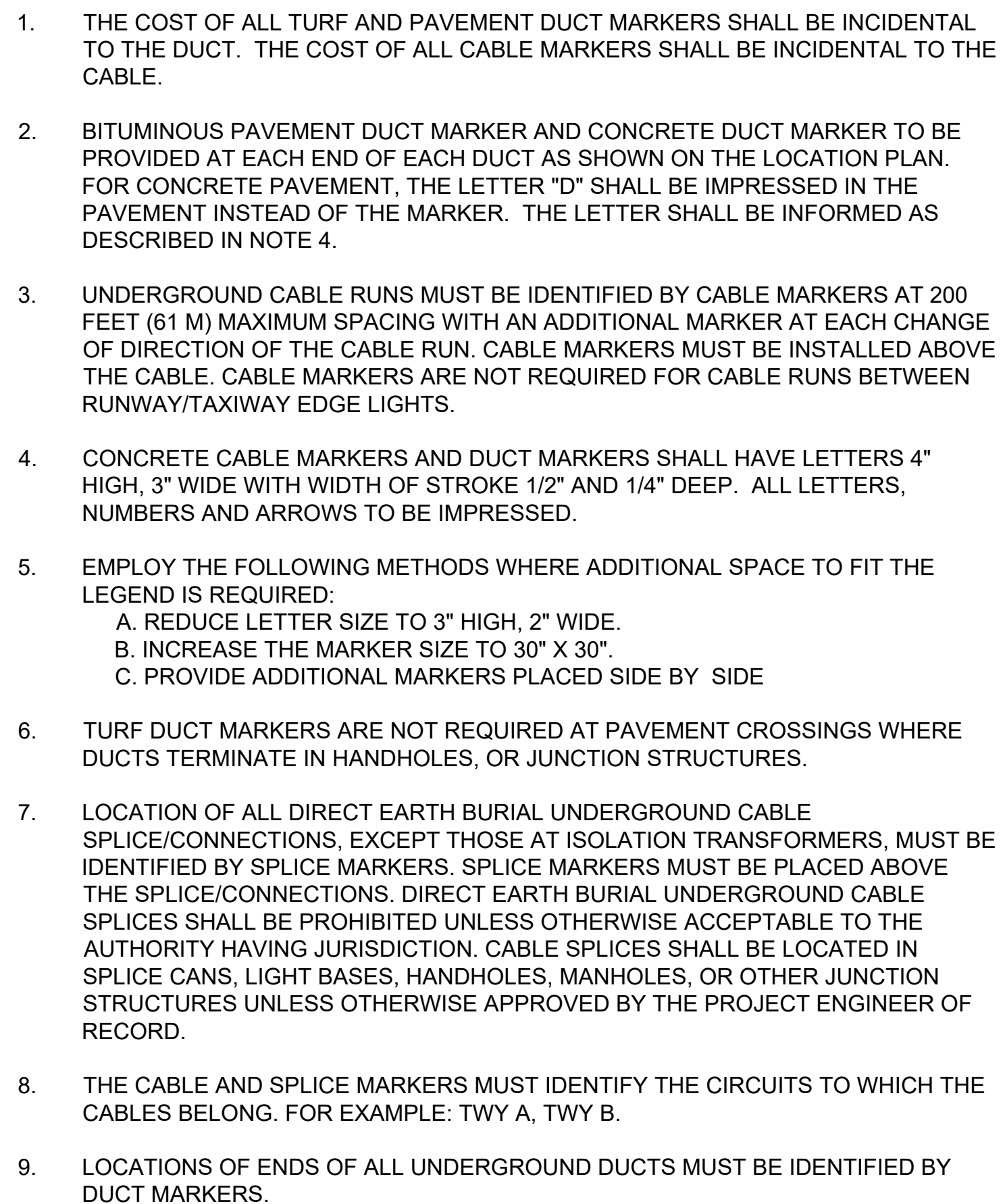
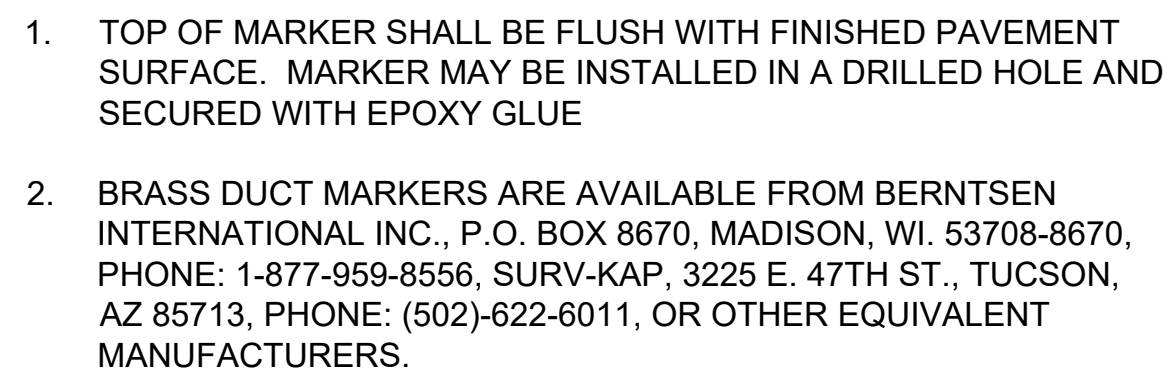
DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

REVIEWED BY: RNL 9/22/23

CABLE AND DUCT MARKER DETAILS



ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.

CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.

CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).

THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS FURNISHED BY HIM, INCLUDING FAA APPROVED EQUIPMENT, ARE COMPATIBLE IN ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NONCOMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR SHALL BE REPLACED BY HIM AT NO ADDITIONAL COST TO THE AIRPORT SPONSOR WITH A SIMILAR UNIT, APPROVED BY THE ENGINEER (DIFFERENT MODEL OR DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.

IN CASE THE CONTRACTOR ELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING EQUIPMENT REQUIRING ADDITIONAL WIRING, TRANSFORMERS, ADAPTORS, MOUNTINGS, ETC., TO THOSE SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATIONS, ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE EQUIPMENT COST.

THE CONTRACTOR INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) SHALL NOT GENERATE ANY ELECTROMAGNETIC INTERFERENCE IN THE EXISTING AND/OR NEW COMMUNICATIONS, WEATHER, AIR NAVIGATION, AND AIR TRAFFIC CONTROL EQUIPMENT. ANY EQUIPMENT GENERATING SUCH INTERFERENCE SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST WITH THE EQUIPMENT MEETING THE APPLICABLE SPECIFICATIONS AND NOT GENERATING ANY INTERFERENCE.

WHEN A SPECIFIC TYPE, STYLE, CLASS, ETC. OF FAA APPROVED EQUIPMENT IS SPECIFIED ONLY THAT TYPE, STYLE, CLASS, WILL BE ACCEPTABLE, EVEN THOUGH EQUIPMENT OF OTHER TYPES STYLES, CLASSES, ETC. MAY BE APPROVED.

ANY AND ALL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN TO THE CONTRACTOR REGARDING CHANGES IN OR DEVIATIONS FROM THE PLANS AND SPECIFICATIONS SHALL BE IN WRITING WITH COPIES SENT TO THE AIRPORT SPONSOR AND THE ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF AERONAUTICS. THE CONTRACTOR SHALL NOT ACCEPT ANY VERBAL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN REGARDING ANY CHANGES FROM THE PLANS AND SPECIFICATIONS.

A MINIMUM OF THREE COPIES OF THE INSTRUCTION BOOK SHALL BE SUPPLIED WITH EACH DIFFERENT TYPE OF EQUIPMENT. THE BOOKS DESCRIBING A MORE SOPHISTICATED TYPE OF EQUIPMENT, SUCH AS REGULATORS, PAPI, REIL, ETC. AS A MINIMUM SHALL CONTAIN THE FOLLOWING:

- A. A DETAILED DESCRIPTION OF THE OVERALL EQUIPMENT AND ITS INDIVIDUAL COMPONENTS.
- B. THEORY OF OPERATION INCLUDING THE FUNCTION OF EACH COMPONENT.
- C. INSTALLATION INSTRUCTION.
- D. START-UP INSTRUCTIONS.
- E. PREVENTATIVE MAINTENANCE REQUIREMENTS.
- F. CHART FOR TROUBLE-SHOOTING.
- G. COMPLETE POWER AND CONTROL DETAILED WIRING DIAGRAM(S), SHOWING EACH CONDUCTOR/CONNECTION/COMPONENT - "BLACK" BOXES ARE NOT ACCEPTABLE. THE DIAGRAM OF THE NARRATIVE SHALL SHOW VOLTAGE/CURRENTS/WAVE SHAPES AT STRATEGIC LOCATIONS TO BE USED WHEN CHECKING AND/OR TROUBLE-SHOOTING THE EQUIPMENT. WHEN THE EQUIPMENT HAS SEVERAL MODES OF OPERATION, SUCH AS SEVERAL BRIGHTNESS STEPS, THESE PARAMETERS SHALL BE INDICATED FOR ALL DIFFERENT MODES.
- H. PARTS LIST WHICH WILL INCLUDE ALL MAJOR AND MINOR COMPONENTS SUCH AS RESISTORS, DIODES, ETC. IT SHALL INCLUDE A COMPLETE NOMENCLATURE OF EACH COMPONENT AND, IF APPLICABLE, THE NAME OF ITS MANUFACTURER AND THE CATALOG NUMBER.
- I. SAFETY INSTRUCTIONS.

1. PROVIDE LEGEND PLATES FOR ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, CIRCUIT VOLTAGE AND PHASE. WHERE THE EQUIPMENT CONTAINS FUSES, ALSO IDENTIFY THE FUSE OR FUSE LINK AMPERE RATING. WHERE THE EQUIPMENT DOES NOT HAVE SUFFICIENT AREA TO INSTALL LEGEND PLATES, THE LEGEND PLATES SHALL BE INSTALLED ON THE WALL NEXT TO THE UNIT. LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.
2. COLOR CODE ALL PHASE WIRING BY THE USE OF COLORED WIRE INSULATION AND/OR COLORED TAPE. WHERE TAPE IS USED, THE WIRE INSULATION SHALL BE BLACK. BLACK AND RED SHALL BE USED FOR PHASE CONDUCTORS ON 120/240VAC SINGLE-PHASE, THREE WIRE SYSTEMS AND BLACK, RED AND BLUE SHALL BE USED FOR PHASE CONDUCTORS ON 208/120VAC THREE-PHASE, FOUR WIRE SYSTEMS. NEUTRAL CONDUCTORS, SIZE NO. 6 AWG OR SMALLER, SHALL BE IDENTIFIED BY A CONTINUOUS WHITE OR NATURAL GRAY OUTER FINISH ALONG ITS ENTIRE LENGTH. NEUTRAL CONDUCTORS LARGER THAN NO. 6 AWG SHALL BE IDENTIFIED EITHER BY A CONTINUOUS WHITE OR NATURAL GRAY OUTER FINISH ALONG ITS ENTIRE LENGTH OR BY THE USE OF WHITE TAPE AT ITS TERMINATIONS AND INSIDE ACCESSIBLE WIREWAYS. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR SIZES (AWG OR KCMIL).
3. ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE SHALL BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING SHALL BE EXTENDED TO THE POINT OF UTILIZATION.
4. IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL, ETC.
5. LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE INSTALLED IN SEPARATE WIREWAYS.
6. NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND JUNCTION/PULL BOXES.
7. THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:
 - A. IN STRAIGHT PULLS THE LENGTH OF THE BOX SHALL NOT BE LESS THAN EIGHT TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT. THE TOTAL AREA (INCLUDING THE CONDUIT CROSS-SECTIONAL AREA) OF A BOX END SHALL BE AT LEAST 3 TIMES GREATER THAN THE TOTAL TRADE CROSS-SECTIONAL AREA OF THE CONDUITS TERMINATING AT THE END.
 - B. IN ANGLE PULLS OR 'U' PULLS THE DISTANCE BETWEEN EACH CONDUIT ENTRY INSIDE THE BOX AND THE OPPOSITE WALL OF THE BOX SHALL NOT BE LESS THAN SIX (6) TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT. THIS DISTANCE SHALL BE INCREASED FOR ADDITIONAL ENTRIES BY THE AMOUNT OF THE SUM OF THE DIAMETERS OF ALL OTHER CONDUIT ENTRIES ON THE SAME WALL AS THE BOX. THE DISTANCE BETWEEN CONDUIT ENTRIES ENCLOSING THE SAME CONDUCTOR SHALL NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT.
8. A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, SQUARE DUCTS AND PULL/JUNCTION BOXES, SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL), INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE TERMINATIONS, CAST, CONDUIT TYPE OUTLETS SHALL NOT BE TREATED AS PULL/JUNCTION BOXES.
9. EQUIPMENT CABINETS SHALL NOT BE USED AS PULL/JUNCTION BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT SHALL BE BROUGHT INTO THESE ENCLOSURES.
10. SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS, AND AT EASILY ACCESSIBLE LOCATIONS.
11. CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL(S) SHALL BE THERMAL-MAGNETIC MOLDED CASE, PERMANENT TRIP WITH 100 AMPERE, MINIMUM FRAME.
12. DUAL LUGS SHALL BE USED WHERE TWO (2) WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMINAL.
13. ALL INTERIOR WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED ON HOT DIPPED GALVANIZED STEEL STRUT SUPPORT, OR STAINLESS STEEL STRUT SUPPORT, WITH CORROSION RESISTANT HARDWARE. PROVIDE ZINC RICH PAINT APPLIED TO FIELD CUTS OF GALVANIZED STEEL SUPPORT TO MINIMIZE THE POTENTIAL FOR CORROSION PER THE RESPECTIVE STRUT SUPPORT MANUFACTURER'S RECOMENTATIONS.
14. SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE STAINLESS STEEL STRUT SUPPORT WITH STAINLESS STEEL HARDWARE.

- ## FOR BID DOCUMENTS



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Springfield, IL 62703
phone: 217-788-2450
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COVERING ELECTRICAL DESIGN



Kevin M. Highfoot

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

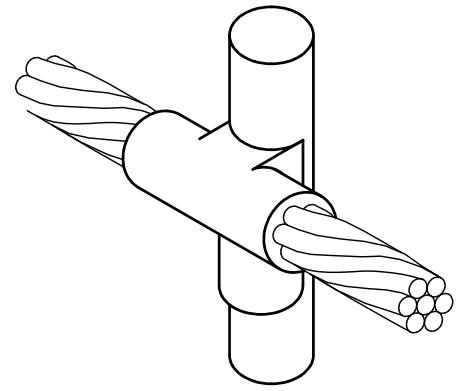
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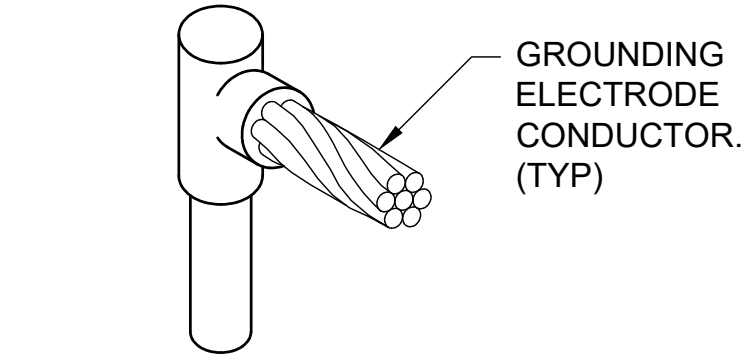
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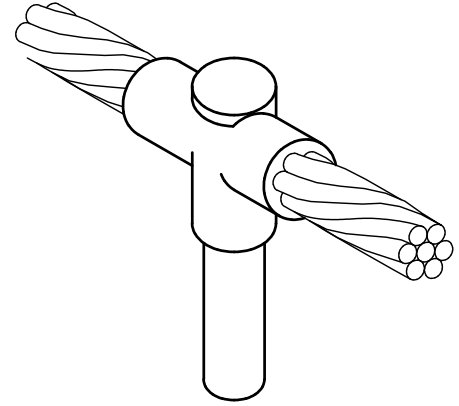
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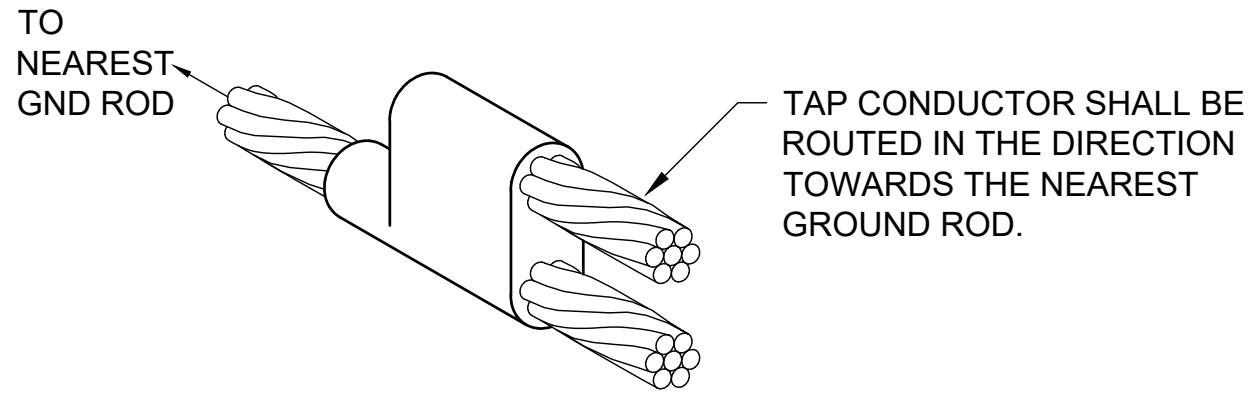
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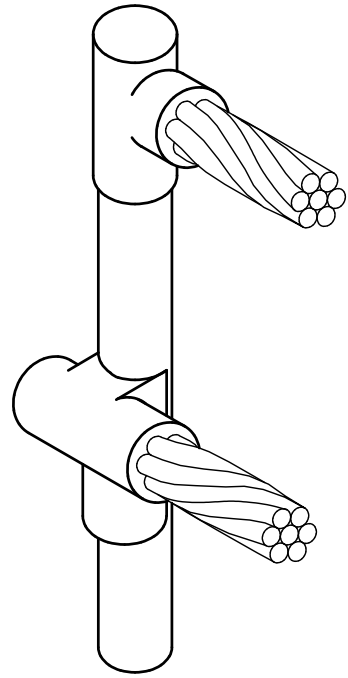
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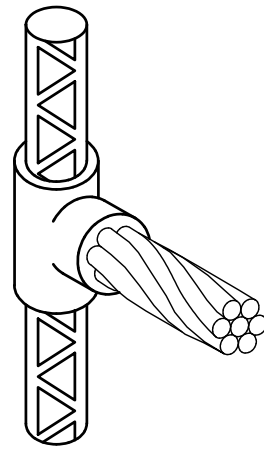
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CABLE TO CABLE
HORIZONTAL PARALLEL TAP



CABLES TO GROUND ROD

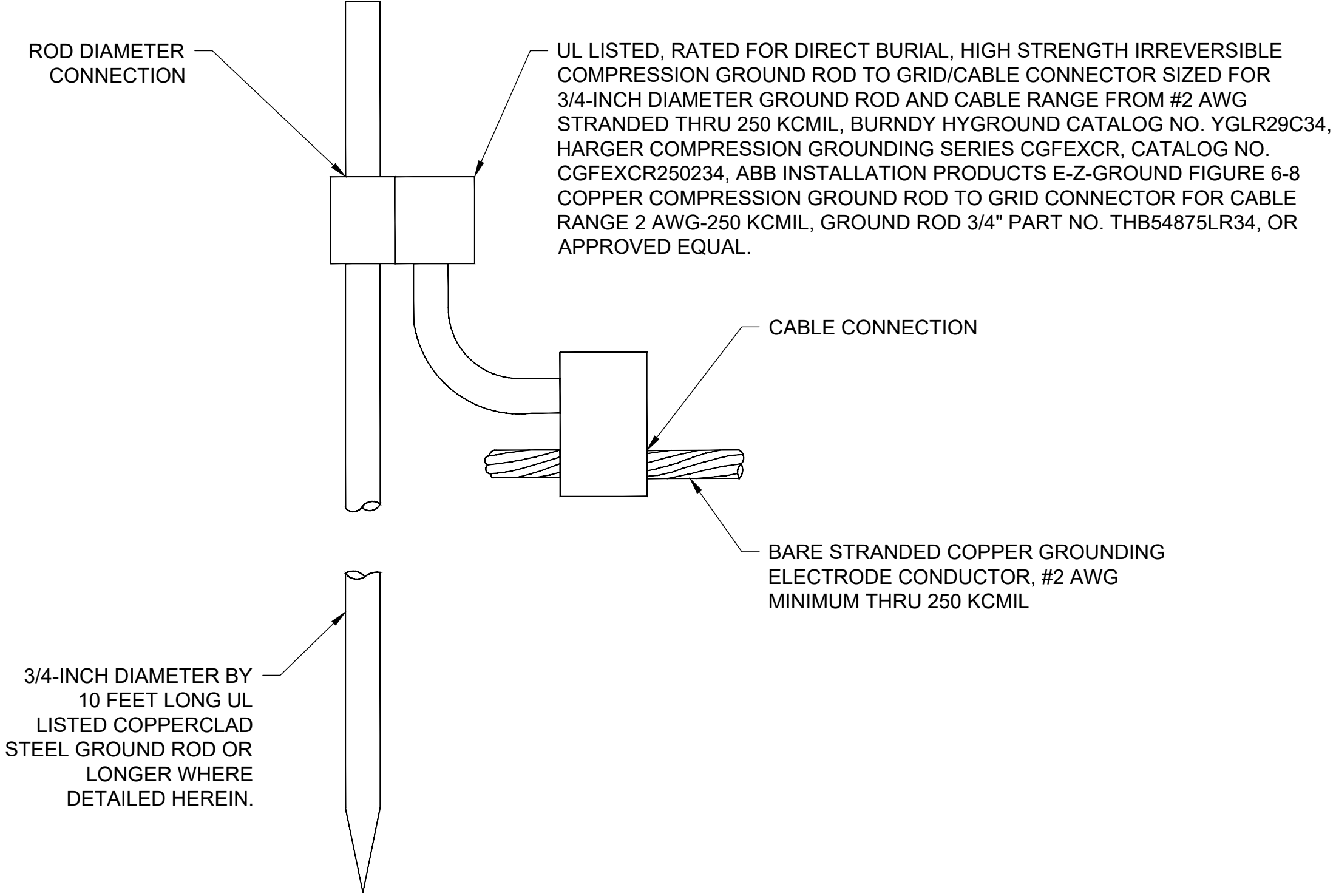


CABLE TO REBAR

DETAIL NOTES

1. KNOWLEDGEABLE AND QUALIFIED PERSONNEL SHALL PERFORM EXOTHERMIC WELD CONNECTIONS TO ENSURE GOOD, SAFE, & RELIABLE CONNECTIONS. ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONDUCTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER OF RECORD: KEVIN LIGHTFOOT. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY PENTAIR ERICO PRODUCTS, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, OR THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES OR APPROVED EQUAL. VERIFY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.
2. INTERIOR APPLICATIONS MIGHT NEED SMOKELESS EXOTHERMIC WELD WHERE ELECTRONIC EQUIPMENT IS LOCATED WITHIN THE RESPECTIVE WORK AREA.
3. ALL APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, SHALL REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.
4. THE EXOTHERMIC WELD DETAILS SHOWN ARE FOR A FEW COMMON APPLICATIONS. CONTACT THE RESPECTIVE EXOTHERMIC WELD MANUFACTURER FOR DETAILS AND INFORMATION ON OTHER APPLICATIONS.
5. FOR APPLICATIONS USING STAINLESS STEEL GROUND RODS CONTACT THE EXOTHERMIC WELD MANUFACTURER TO DETERMINE AND CONFIRM APPROPRIATE SIZE MOLDS AND MATERIALS FOR THE RESPECTIVE APPLICATION. PLEASE BE AWARE THAT AN EXOTHERMIC WELD KIT SUITABLE FOR A 3/4-INCH DIA x 10-FEET LONG COPPERCLAD-STEEL GROUND ROD WILL NOT BE SUITABLE FOR A 3/4-INCH DIA x 10-FEET LONG STAINLESS STEEL GROUND ROD. 3/4-INCH NOMINAL DIAMETER COPPERCLAD-STEEL GROUND RODS TYPICALLY HAVE A SMALLER ACTUAL DIAMETER THAN 3/4-INCH NOMINAL DIAMETER STAINLESS STEEL GROUND RODS AND THIS WILL AFFECT EXOTHERMIC WELD TYPE CONNECTIONS.

EXOTHERMIC WELD DETAILS



NOTES:

1. THE GROUND ROD COMPRESSION CONNECTOR DETAIL ABOVE APPLIES TO #2 AWG MINIMUM COPPER GROUNDING ELECTRODE CONDUCTORS.
2. THE EARTH GROUND RESISTANCE FOR EQUIPMENT SHALL BE ACCORDING TO THE APPLICABLE CODE REQUIREMENTS AND IN NO CASE MORE THAN 25 OHMS FOR AIRFIELD LIGHTING AND NO MORE THAN 10 OHMS FOR THE AIRPORT ELECTRICAL VAULT. TESTS SHALL BE MADE TO ESTABLISH THAT THE PROPER VALUE HAS BEEN OBTAINED. WHERE REQUIRED MAXIMUM GROUND RESISTANCE LEVELS CANNOT BE ACHIEVED AFTER TESTING NOTIFY THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT FOR FURTHER DIRECTIONS.
3. BEFORE CRIMPING, BOTH CONNECTOR ELEMENTS CAN BE TURNED ON ROD DIAMETER 'D' TO ANY DESIRED POSITION.
4. CONFIRM CRIMPING TOOLS WITH RESPECTIVE CONNECTOR MANUFACTURER AND FOLLOW THEIR DIRECTIONS.

GROUND ROD COMPRESSION
CONNECTOR DETAIL



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ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

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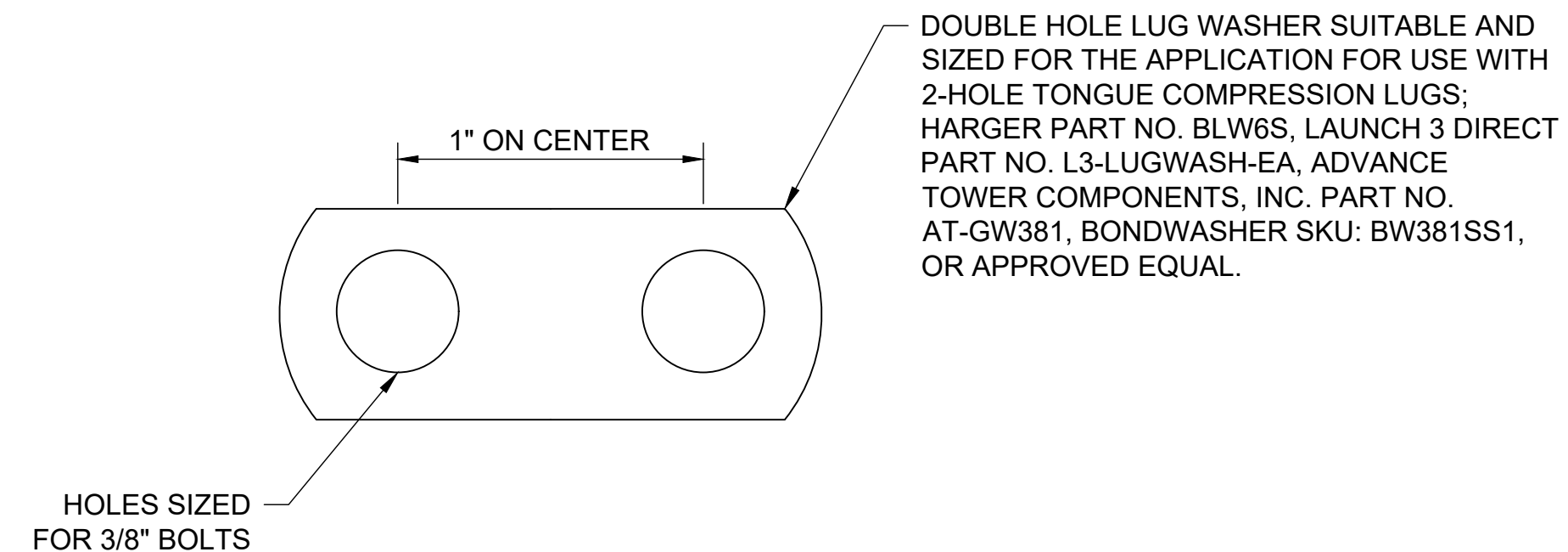
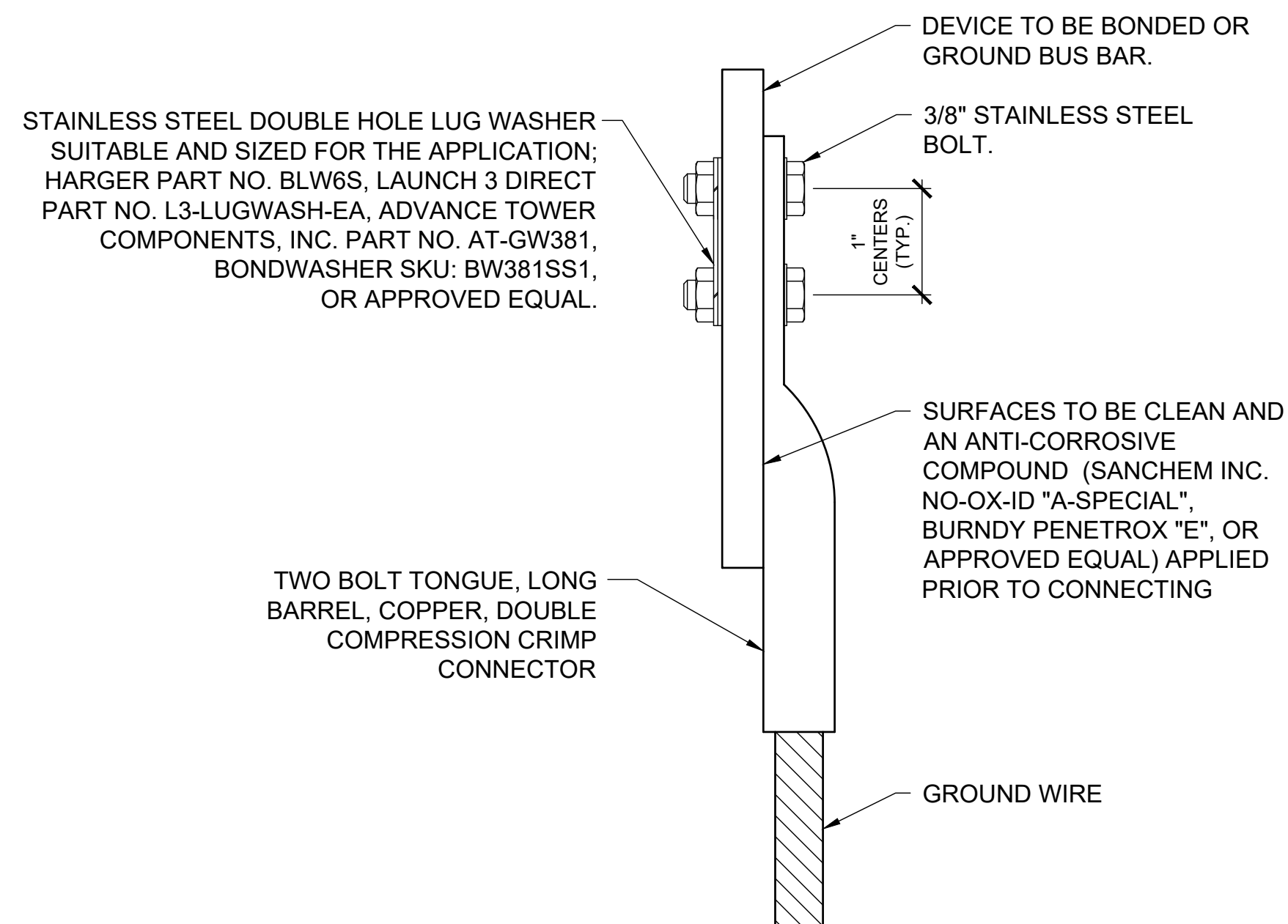
DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/8/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

GROUNDING DETAILS
SHEET 1



GROUNDING TWO HOLE LUG FLAT WASHER DETAIL

2 HOLE LONG BARREL COMPRESSION LUG TABLE (OR APPROVED EQUAL)				
WIRE SIZE	BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PENN-UNION CAT. NO.	HARGER CAT. NO.
#8 AWG STRANDED	YA8C-2TC38	256-30695-1157	BBLU-8D-2TC38	(CONTACT MFR)
#6 AWG SOLID	YA8C-2TC38 OR YGA6C-2TC38E2G1	(CONTACT MFR)	(CONTACT MFR)	(CONTACT MFR)
#6 AWG STRANDED	YA6C-2TC38	256-30695-1158	BBLU-6D-2TC38	GECLB62C
#4 AWG STRANDED	YA4C-2TC38	256-30695-1159	BBLU-4D-2TC38	GECLB42C
#2 AWG STRANDED	YA2C-2TC38	256-30695-1160	BBLU-2D-2TC38	GECLB22C
#2 AWG SOLID	YA3C-2TC38	256-30695-1160	BBLU-3D-2TC38	GECLB22CS
#1/0 AWG STRANDED	YA25-2TC38	256-30695-1162	BBLU-1/0D-2TC38	GECLB1/02C
#2/0 AWG STRANDED	YA26-2TC38	256-30695-1116	BBLU-2/0D-2TC38	GECLB2/02C
#3/0 AWG STRANDED	YA27-2TC38	54816BE	BBLU-3/0D-2TC38	(CONTACT MFR)
#4/0 AWG STRANDED	YA28-2TC38	256-30695-1117	BBLU-4/0D-2TC38	GECLB4/02C
250 KCMIL	YA29-2TC38	256-30695-1245	BBLU-025D-2TC38	GECLB2502C
350 KCMIL	YA31-2TC38	256-30695-1118	BBLU-035D-2TC38	(CONTACT MFR)
500 KCMIL	YA34-2TC38	256-30695-1119	BBLU-050D-2TC38	GECLB5002C
750 KCMIL	YA39-2TC38	256-30695-1222	BBLU-075D-2TC38	GECLB7502C

TIGHTENING TORQUE TABLE		
BOLT DIAMETER	SILICONE BRONZE GALVANIZED OR STAINLESS STEEL	
	Ft-Lbs.	Inch-Lbs
5/16-18	15	180
3/18-16	20	240
1/2-13	40	480
5/8-11	55	660
3/4-10	80	960

TABLE ABOVE SHOWS THE RECOMMENDED TIGHTENING TORQUES FOR SILICON BRONZE, STAINLESS STEEL AND GALVANIZED STEEL HARDWARE. THIS TABLE REPRESENTS TORQUES PRESENTLY RECOMMENDED BY NEMA-CC1-1984 SPECIFICATION. FOR SPECIFIC EQUIPMENT CONFIRM TIGHTENING TORQUES WITH RESPECTIVE MANUFACTURERS.

TIGHTENING TORQUE TABLE

NOTES

1. IT IS IMPORTANT TO HAVE GOOD SECURE GROUND CONNECTIONS THAT WILL WITHSTAND WEATHER CONDITIONS AND MAINTAIN CONTINUITY TO GROUND. OFTEN WEATHER CONDITIONS CAN AFFECT GROUNDING CONNECTIONS THAT RESULT IN LOOSE CONNECTIONS AND UNSAFE CONDITIONS. A TWO-HOLE BOLTED CONNECTOR WILL TYPICALLY MAINTAIN A BETTER AND MORE SECURE CONNECTION THAN A ONE-HOLE BOLTED CONNECTOR. ONE HOLE BOLTED CONNECTORS HAVE BEEN OBSERVED ON PAST PROJECTS TO HAVE LOOSENED AND LOST CONTINUITY OVER A SHORT PERIOD OF A FEW MONTHS OR LESS WHERE SUBJECTED TO WEATHER AND TEMPERATURE FLUCTUATIONS AND THEREFORE WILL NOT BE PERMITTED ON THIS PROJECT.
2. SAFETY OF PERSONNEL IS THE PRIORITY. PROTECTION OF EQUIPMENT IS SECONDARY. PLEASE BE AWARE THAT GROUNDING DOES NOT GUARANTEE YOU WILL NOT RECEIVE A SHOCK, BE INJURED, OR KILLED FROM DEFECTIVE OR DAMAGED EQUIPMENT OR MATERIALS. PROPER GROUNDING WILL HOWEVER SIGNIFICANTLY REDUCE THE POSSIBILITY OF SHOCK, INJURY, OR DEATH. PLEASE FOCUS ON SAFETY OF PERSONNEL AT ALL TIMES
3. THE GROUND WIRE CONNECTIONS TO EQUIPMENT LOCATED ABOVE GRADE, SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE WITH 3/8-INCH STAINLESS STEEL BOLTS, NUTS, AND WASHERS OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE. THIS ALSO APPLIES TO CONNECTIONS TO GROUND BUS BARS.
4. HIGH VOLTAGE CIRCUITS OVER 1000 VOLTS CODE UPDATE. PER 2023 NEC ARTICLE 250, PART X. "GROUNDING OF SYSTEMS AND CIRCUITS OF OVER 1000 VOLTS," 250.190 "GROUNDING OF EQUIPMENT", PART (C) (1) "GENERAL" IT NOTES "EQUIPMENT GROUNDING CONDUCTORS THAT ARE NOT AN INTEGRAL PART OF A CABLE ASSEMBLY SHALL NOT BE SMALLER THAN 6 AWG COPPER OR 4 AWG ALUMINUM OR COPPER-CLAD ALUMINUM". GROUND WIRE TO BE USED WITH 6.6 AMP OR 20 AMP SERIES CIRCUITS SHALL BE #6 AWG COPPER CONDUCTOR. THIS APPLIES TO EQUIPMENT GROUND WIRES RUN WITH OUTPUT WIRING FROM CONSTANT CURRENT REGULATORS, THE ASSOCIATED SERIES CIRCUIT CUTOFF DISCONNECTS AND THEIR ENCLOSURES, AND ASSOCIATED HIGH VOLTAGE RACEWAYS AND JUNCTION BOXES CONTAINING AIRFIELD LIGHTING SERIES CIRCUITS.
5. EACH CONNECTION SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL



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MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
 1315 ILLINOIS 17
 LACON, ILLINOIS 61540

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CAD FILE: E-511-DETLDWG
DESIGN BY: KNL 8/25/25
DRAWN BY: JKD 9/8/25
REVIEWED BY: KNL 9/22/25

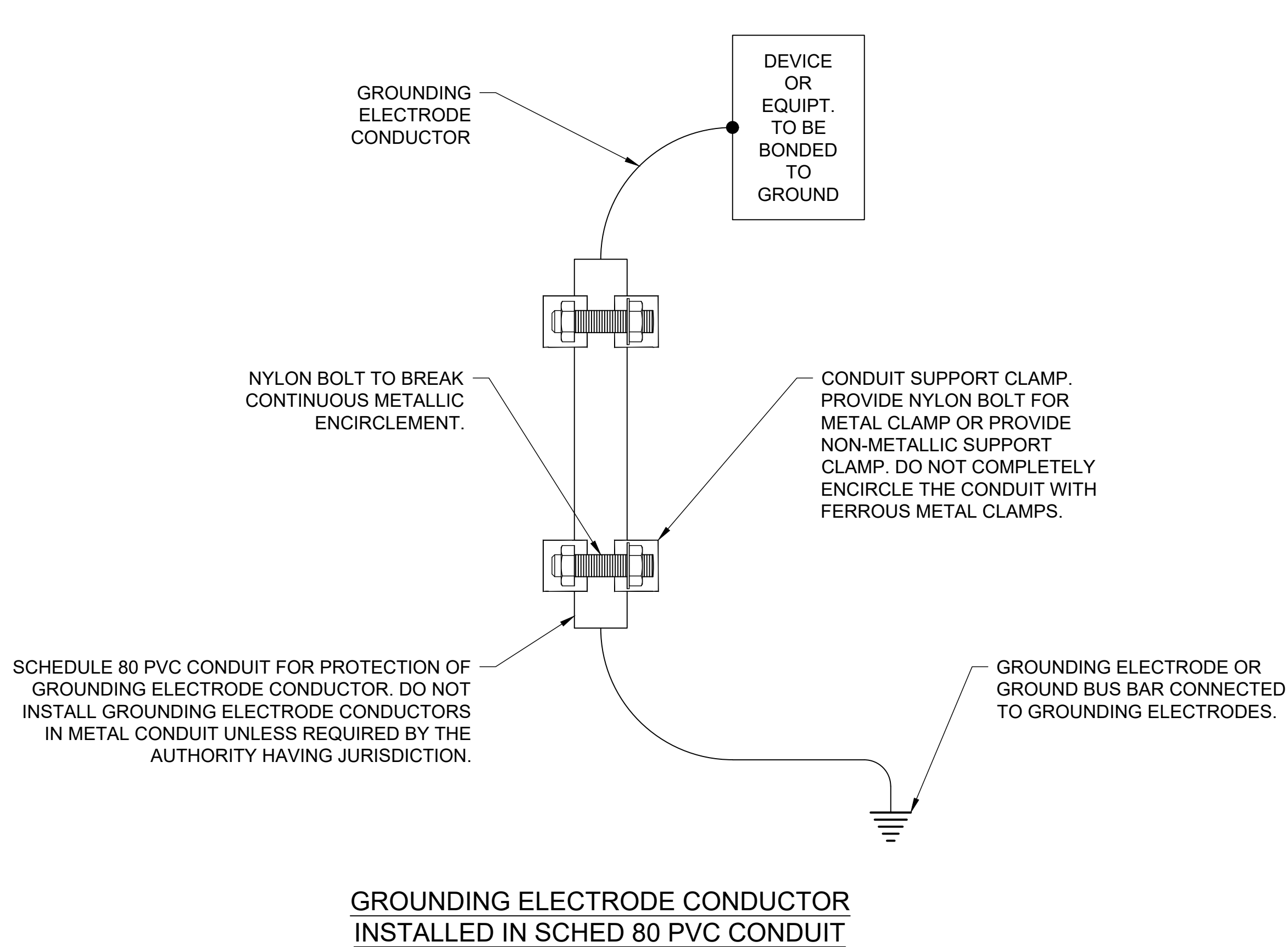
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GROUNDING DETAILS

SHEET 2

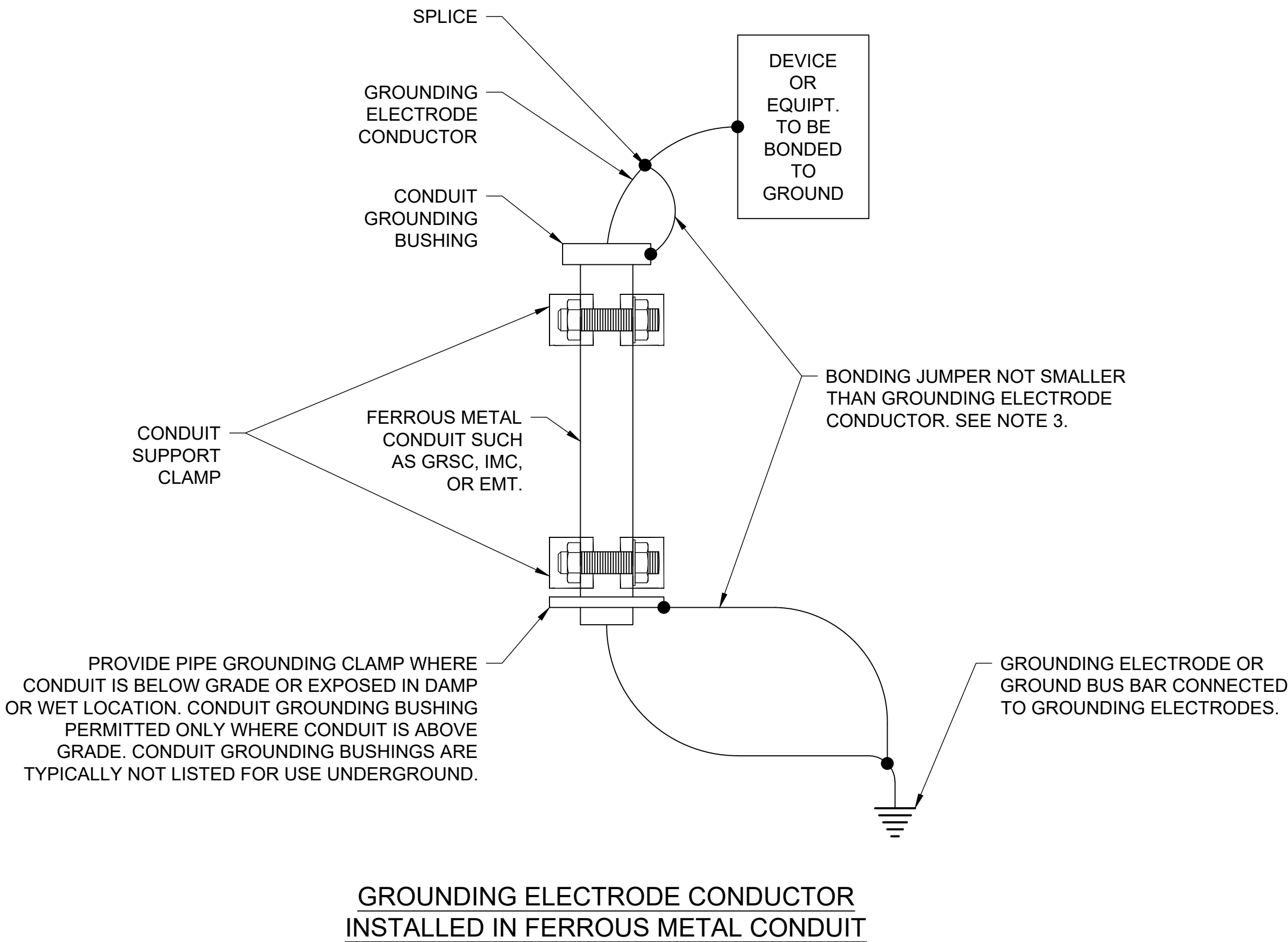
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NOTES

- EFFECTIVE WITH 2020 NEC ARTICLE 250.64 "GROUNDING ELECTRODE CONDUCTOR INSTALLATION", WHERE A GROUNDING ELECTRODE CONDUCTOR #6 AWG OR LARGER IS EXPOSED TO PHYSICAL DAMAGE IT SHALL BE PROTECTED IN RIGID METAL CONDUIT (RMC), INTERMEDIATE METAL CONDUIT (IMC), SCHEDULE 80 RIGID POLYVINYL CHLORIDE CONDUIT (PVC), REINFORCED THERMOSETTING RESIN CONDUIT TYPE XW (RTRC-XW), ELECTRICAL METALLIC TUBING (EMT), OR CABLE ARMOR. SCHED 40 PVC CONDUIT IS NO LONGER ADEQUATE. AVOID METAL CONDUIT UNLESS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. SEE DETAILS FOR ADDITIONAL BONDING REQUIREMENTS WHERE A GROUNDING ELECTRODE CONDUCTOR IS INSTALLED IN METAL CONDUIT.
- NOTE THAT INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT UNLESS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 80 PVC CONDUIT AS REQUIRED IN FOUNDATIONS, FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. GIRDLING OF A GROUND CONDUCTOR IS THE RESULT OF PLACING THE CONDUCTOR IN A RING OF MAGNETIC MATERIAL. THIS RING COULD BE A METALLIC CONDUIT, U-BOLT OR STRUT SUPPORT PIPE CLAMP, OR OTHER SUPPORT HARDWARE. THE RESULT OF GIRDLING GROUND CONDUCTORS SIGNIFICANTLY INCREASES THE INDUCTIVE IMPEDANCE OF THE GROUND CONDUCTOR. INDUCTIVE AND CAPACITIVE IMPEDANCE IS A TYPE OF RESISTANCE THAT OPPOSES THE FLOW OF ALTERNATING CURRENT. ANY INCREASE IN THE IMPEDANCE OF A GROUND CONDUCTOR REDUCES ITS ABILITY TO EFFECTIVELY MITIGATE RADIO FREQUENCY NOISE IN THE GROUND SYSTEM. THE CONDITION WHERE A GROUND CONDUCTOR IS GIRDLED DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLTS AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN A LOW DC RESISTANCE PATH.
- DIRECT CONNECTIONS BETWEEN DEVICE OR EQUIPMENT TO BE BONDED AND THE GROUNDING ELECTRODE SYSTEM SHALL BE PROVIDED. AVOID SPLICING OF GROUNDING ELECTRODE CONDUCTORS.



NOTES

- 2020/2023 NEC ARTICLE 250.64 "GROUNDING ELECTRODE CONDUCTOR INSTALLATION", PART (E) "RACEWAYS AND ENCLOSURES FOR GROUNDING ELECTRODE CONDUCTORS", PARAGRAPH 1 "GENERAL" NOTES THE FOLLOW: "FERROUS METAL RACEWAYS, ENCLOSURES, AND CABLE ARMOR FOR GROUNDING ELECTRODE CONDUCTORS SHALL BE ELECTRICALLY CONTINUOUS FROM THE POINT OF ATTACHMENT TO CABINETS OR EQUIPMENT TO THE GROUNDING ELECTRODE AND SHALL BE SECURELY FASTENED TO THE GROUND CLAMP OR FITTING. FERROUS METAL RACEWAYS, ENCLOSURES, AND CABLE ARMOR SHALL BE BONDED AT EACH END OF THE RACEWAY OR ENCLOSURE TO THE GROUNDING ELECTRODE OR GROUNDING ELECTRODE CONDUCTOR TO CREATE AN ELECTRICALLY PARALLEL PATH. NONFERROUS METAL RACEWAYS, ENCLOSURES, AND CABLE ARMOR SHALL NOT BE REQUIRED TO BE ELECTRICALLY CONTINUOUS."
- AVOID INSTALLING GROUNDING ELECTRODE CONDUCTORS IN FERROUS METAL CONDUIT UNLESS REQUIRED BY THE AUTHORITY HAVING JURISDICTION OR RESPECTIVE CODES IN FORCE. FOR EXAMPLE: THE CITY OF CHICAGO ELECTRICAL CODE HAS HISTORICALLY PROHIBITED THE USE OF PVC CONDUIT INSIDE BUILDINGS AND THEREFORE GROUNDING ELECTRODE CONDUCTORS ARE OFTEN REQUIRED TO BE IN METAL CONDUIT.
- IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2023 NEC 250-102 AND/OR 2023 NEC 250.64(E). NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS. CONFIRM REQUIREMENTS WITH AUTHORITY HAVING JURISDICTION.

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1315 ILLINOIS 17
LACON, ILLINOIS 61540

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Kevin N. Lightfoot

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PROJECT NO: 24A0119_00

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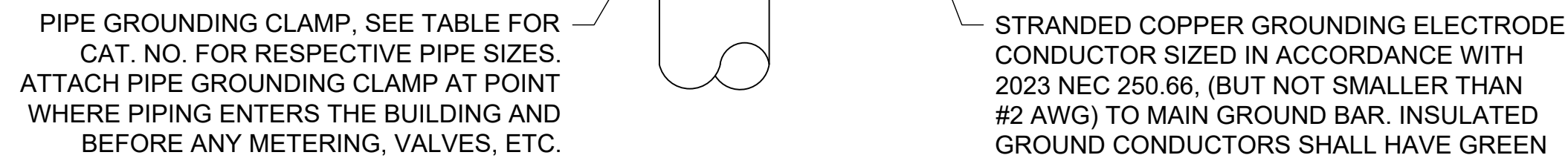
DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/8/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

**GROUNDING DETAILS
SHEET 3**

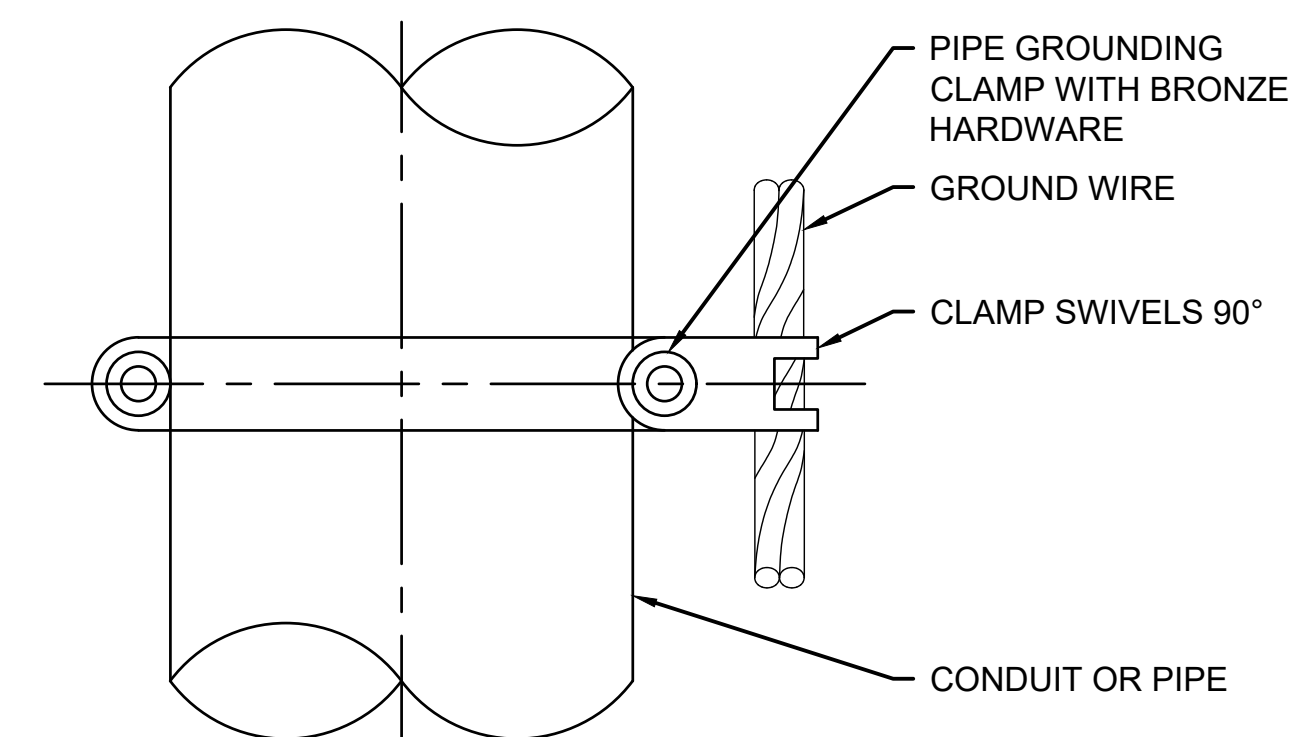
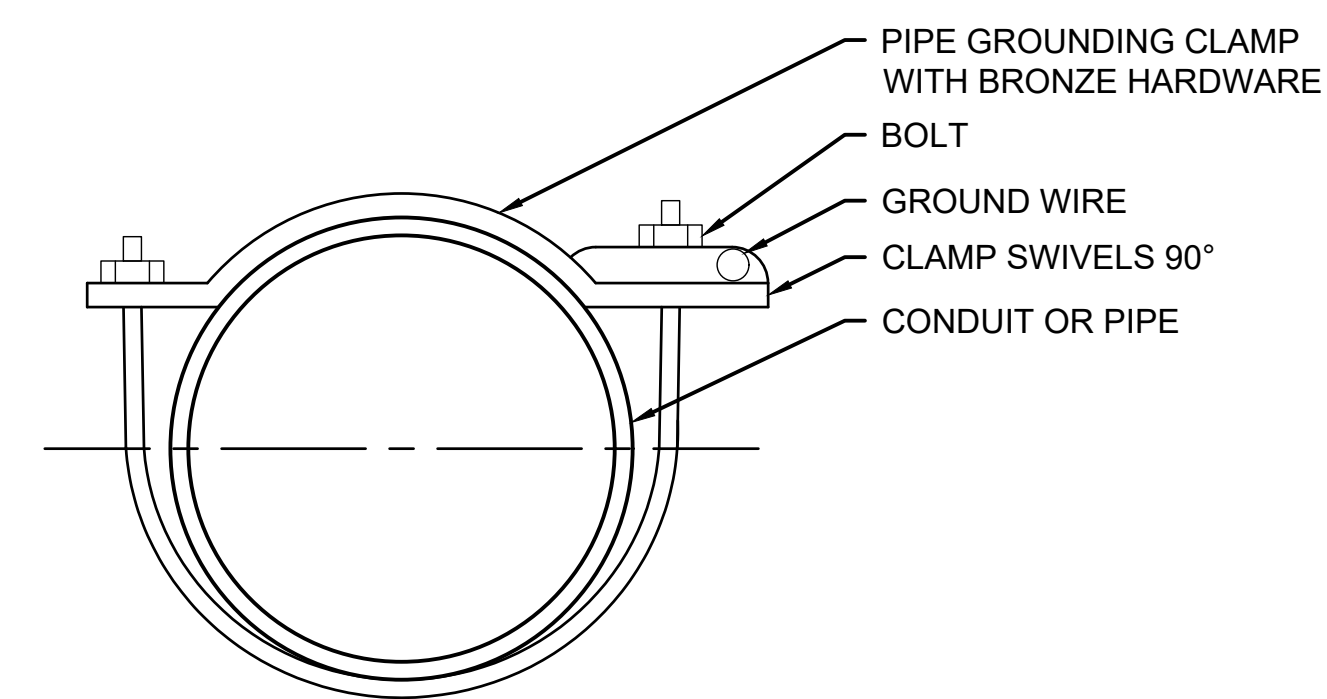


PIPE GROUNDING CLAMP TABLE (OR APPROVED EQUAL)		
HUBBELL CAT. NO.	BURNDY CAT. NO.	PIPE SIZE
GAR3902TC	GAR3902TC	1/2" - 1"
GAR3903TC	GAR3903TC	1 1/4" - 2"
GAR3904TC	GAR3904TC	2 1/2" - 3 1/2"
GAR3905TC	GAR3905TC	4" - 5"
GAR3906TC	GAR3906TC	6"
GAR3907TC	GAR3907TC	8"
GAR3908TC	GAR3908TC	10"
GAR3909TC	GAR3909TC	12"

NOTES

1. METAL WATER PIPE TO BE USED AS A GROUNDING ELECTRODE SHALL MEET THE REQUIREMENTS OF 2023 NEC 250.52 "GROUNDING ELECTRODES", (A)(1) "METAL UNDERGROUND WATER PIPE" WHICH NOTES THE FOLLOWING:
A METAL UNDERGROUND WATER PIPE IN DIRECT CONTACT WITH THE EARTH FOR 3.0 m (10 ft) OR MORE (INCLUDING ANY METAL WELL CASING BONDED TO THE PIPE) AND ELECTRICALLY CONTINUOUS (OR MADE ELECTRICALLY CONTINUOUS BY BONDING AROUND INSULATING JOINTS OR INSULATING PIPE) TO THE POINTS OF CONNECTION OF THE GROUNDING ELECTRODE CONDUCTOR AND THE BONDING CONDUCTOR(S) OR JUMPER(S), IF INSTALLED.
2. PROVIDE PIPE GROUNDING CLAMPS AT BOTH SIDES OF WATER METER WITH #2 AWG (MINIMUM) COPPER BONDING JUMPER ACROSS THE METER.
3. FOR DAMP OR WET LOCATIONS USE PIPE CLAMPS WITH ALL BRONZE HARDWARE.

WATER SERVICE PIPE GROUNDING DETAIL



PIPE GROUNDING CLAMP TABLE (OR APPROVED EQUAL)		
BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PIPE SIZE
GAR3902-BU	3902BU	1/2" - 1"
GAR3903-BU	3903BU	1 1/4" - 2"
GAR3904-BU	3904BU	2 1/2" - 3 1/2"
GAR3905-BU	3905BU	4" - 5"
GAR3906-BU	3906BU	6"

NOTES

1. EACH PIPE GROUNDING CLAMP SHALL HAVE BRONZE HARDWARE, BE CORROSION RESISTANT, SUITABLE FOR DIRECT BURIAL IN EARTH OR CONCRETE, & UL 467 LISTED.
2. FOR APPLICATIONS SUBJECT TO ADDITIONAL CORROSION, PROVIDE PIPE GROUNDING CLAMPS WITH TINNED COATED BRONZE HARDWARE
3. HARGER CPC AND APC SERIES PIPE GROUNDING CLAMPS PROPERLY SIZED FOR THE RESPECTIVE PIPE AND GROUND WIRE ARE ALSO ACCEPTABLE.
4. PENN-UNION TYPE "GPL" SERIES PIPE GROUNDING CLAMPS PROPERLY SIZED FOR THE RESPECTIVE PIPE AND GROUND WIRE ARE ALSO ACCEPTABLE.

PIPE/CONDUIT GROUNDING CLAMP DETAIL



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MARSHALL COUNTY AIRPORT BOARD

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CAD FILE: E-513-DETL.DWG

DESIGN BY: KNL 8/25/25

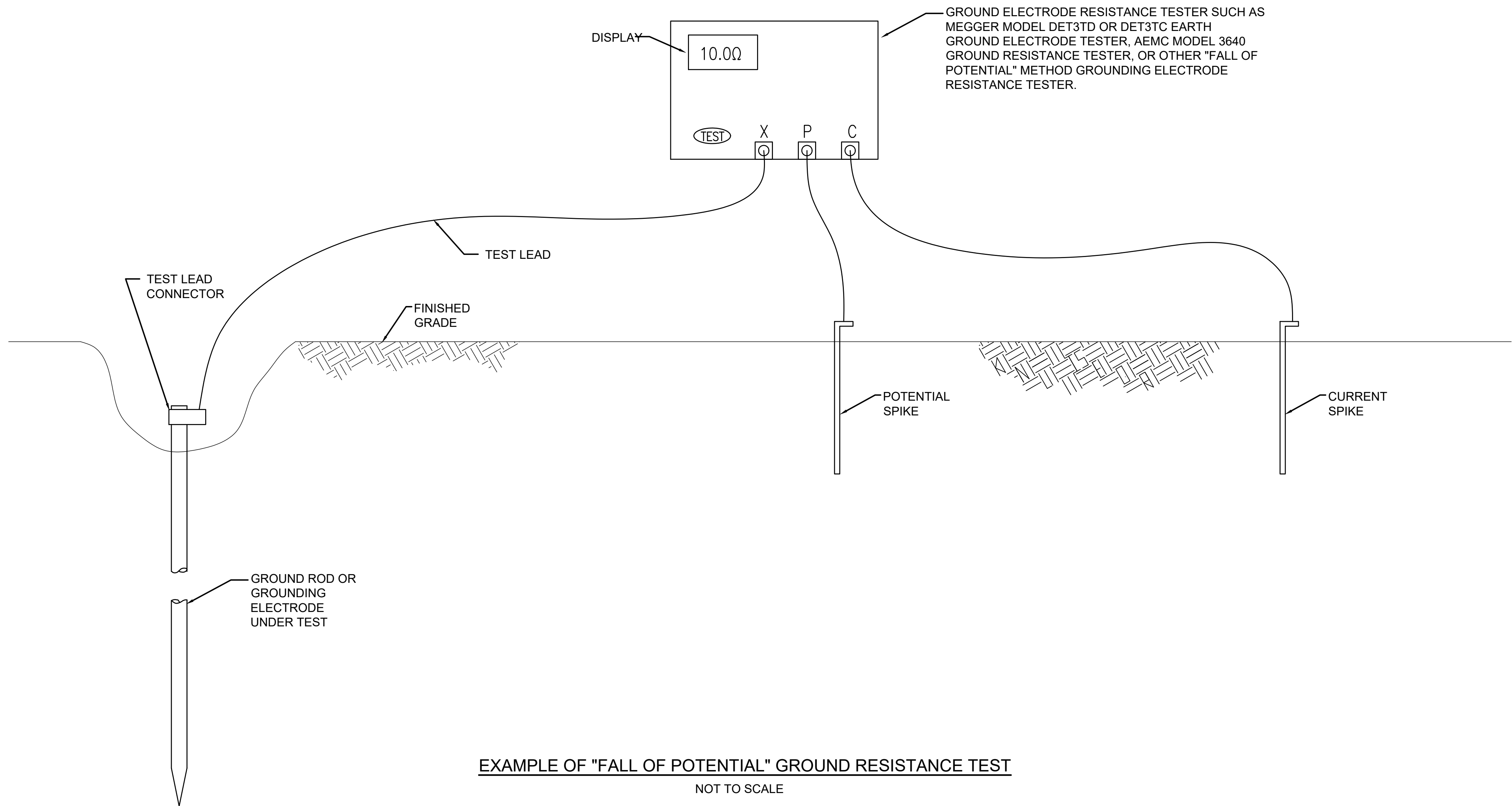
DRAWN BY: JKD 9/8/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

GROUNDING DETAILS
SHEET 4

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NOTES

- CONTRACTOR SHALL TEST AND RECORD THE RESISTANCE FOR EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING ELECTRODE SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT FOR FURTHER DIRECTIONS. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN, AND THE PROJECT ENGINEER OF RECORD.
- FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, SPLICE CAN AND NAVAID THE CONTRACTOR SHALL TEST THE MADE GROUNDING ELECTRODE SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAIDS INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER OF RECORD FOR FURTHER DIRECTIONS. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER / RESIDENT TECHNICIAN, AND THE PROJECT ENGINEER OF RECORD.
- GROUND RESISTANCE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH THE RESPECTIVE GROUND ELECTRODE RESISTANCE TESTING EQUIPMENT MANUFACTURER'S INSTRUCTIONS.
- RECORD SITE CONDITIONS DURING TESTS. RECORD RAIN FALL TOTALS FOR 3 DAYS PRIOR & DAY OF TEST.
- "FALL OF POTENTIAL" TYPE GROUND ELECTRODE RESISTANCE TESTER IS RECOMMENDED FOR TESTING INDIVIDUAL STAND ALONE GROUND RODS.
- SAFETY OF PERSONNEL IS THE PRIORITY. PROTECTION OF EQUIPMENT IS SECONDARY. PLEASE BE AWARE THAT GROUNDING DOES NOT GUARANTEE YOU WILL NOT RECEIVE A SHOCK, BE INJURED, OR KILLED FROM DEFECTIVE OR DAMAGED EQUIPMENT OR MATERIALS. PROPER GROUNDING WILL HOWEVER SIGNIFICANTLY REDUCE THE POSSIBILITY OF SHOCK, INJURY, OR DEATH. PLEASE FOCUS ON SAFETY OF PERSONNEL AT ALL TIMES.



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin N. Lightfoot

DATE: 11/14/2025 LICENSE: 11/30/2027
SIGNED: 11/14/2025 EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-514-DETL.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/8/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

GROUND
RESISTANCE
TESTING DETAILS

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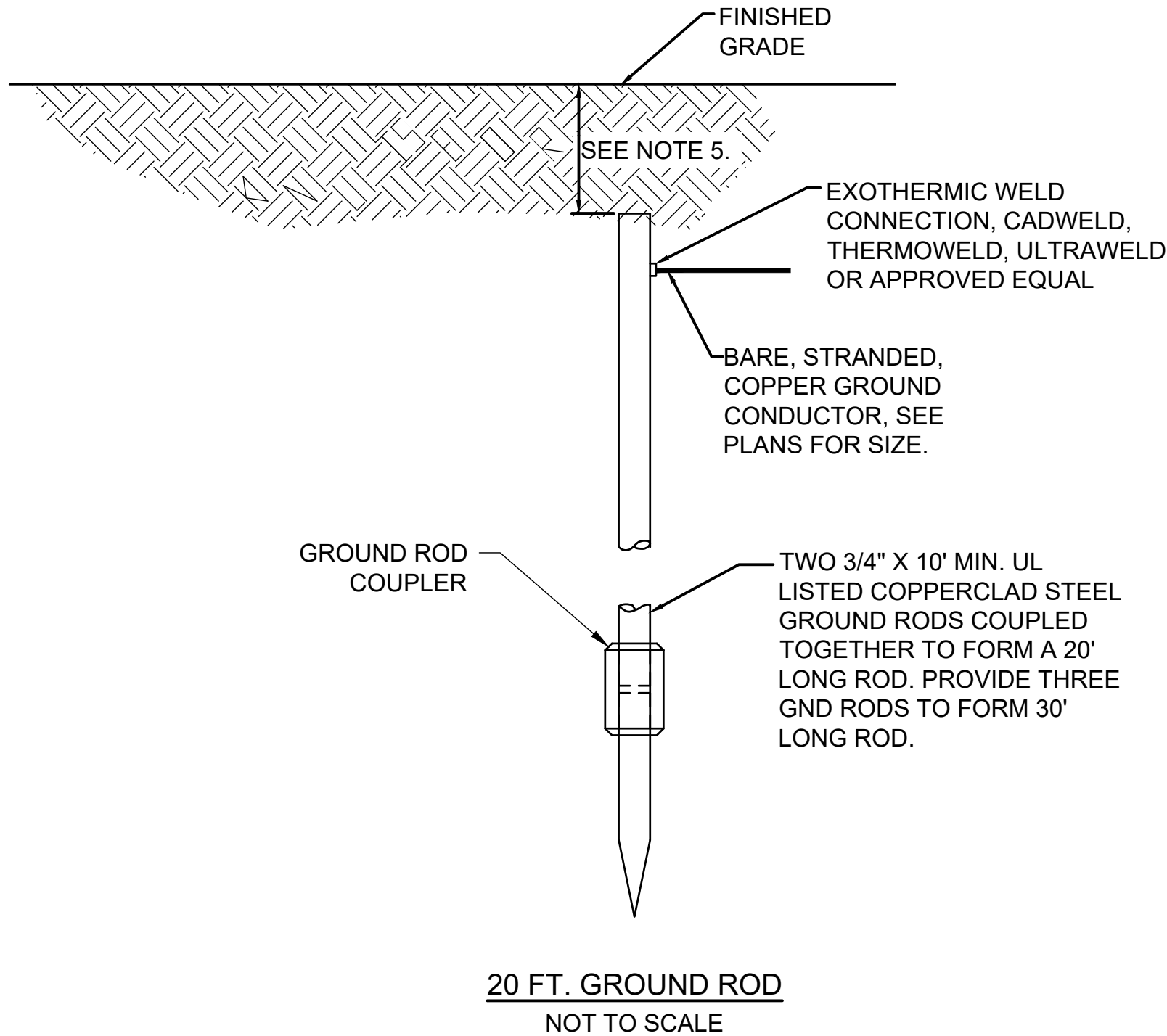
GROUNDING NOTES

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING SHOWN ON THE RESPECTIVE CONTRACT DOCUMENTS AND AS REQUIRED BY THE LATEST NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) IN FORCE, OTHER APPLICABLE CODES, AND IN ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS, AND REQUIREMENTS FOR THE PRIORITY OF PROTECTION OF PERSONNEL AND ADDITIONALLY FOR THE PROTECTION OF EQUIPMENT. ALL PERSONNEL ARE RECOMMENDED TO ALSO COMPLY WITH NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE. THE RELIABILITY OF THE GROUNDING SYSTEM IS DEPENDENT ON CAREFUL, PROPER INSTALLATION, AND CHOICE OF MATERIALS. IMPROPER PREPARATION OF SURFACES TO BE JOINED TO MAKE AN ELECTRICAL PATH, LOOSE JOINTS, OR CORROSION CAN INTRODUCE IMPEDANCE THAT WILL SERIOUSLY IMPAIR THE ABILITY OF THE GROUND PATH TO PROTECT PERSONNEL AND EQUIPMENT AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELIABLE GROUND SYSTEM:

- FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS FOR AIRFIELD LIGHTING (AIRFIELD LIGHT BASES, WIND CONES, REILS, PAPIS, & JUNCTION CANS) SHALL BE MINIMUM 3/4-IN. DIAMETER BY 20-FT LONG, UL-LISTED COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR TERMINATION OF LATERAL GROUNDING CONDUCTORS AT PAPIS SHALL BE 3/4-IN. DIAMETER BY 30-FT LONG UL LISTED COPPERCLAD STEEL. GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS AND THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, THERMOWELD BY CONTINENTAL INDUSTRIES, ULTRAWELD BY HARGER, OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
- CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING ELECTRODE SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER OF RECORD FOR FURTHER DIRECTIONS. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT PROJECT REPRESENTATIVE, AND THE PROJECT ENGINEER OF RECORD.
- ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
- ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND, BURNDY PENETROX E, OR APPROVED EQUAL.
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2023 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2023 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

- ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2023 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2023 NEC 250-102.
- IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS WILL NOT BE CONSIDERED AS ADEQUATE GROUNDING.
- PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUND NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
- EACH AND ALL GROUND NEUTRAL CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
- ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, OR EQUAL.
- BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY ENIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS.
- IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2023 NEC 250-102 AND/OR 2023 NEC 250.64(E). NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS. CONFIRM REQUIREMENTS WITH AUTHORITY HAVING JURISDICTION.
- GROUNDING WORK AFFECTING OPERATIONS AT A FACILITY SHALL BE COORDINATED WITH THE OWNER'S DESIGNATED REPRESENTATIVE(S) AND TO MINIMIZE DOWNTIME TO EXISTING SYSTEMS. THE RESPECTIVE PERSONNEL SHALL COORDINATE WORK AND ANY POWER OUTAGES WITH THE OWNER'S DESIGNATED REPRESENTATIVE(S). ANY SHUTDOWN OF EXISTING SYSTEMS SHALL BE SCHEDULED WITH AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO SHUT DOWN. ALL POWER SYSTEMS (AC OR DC) SHALL HAVE PROVISIONS TO LOCKOUT AND TAGOUT ANY CIRCUIT TO HELP ENSURE THE CIRCUIT IS SAFE TO WORK ON FOR PROTECTION OF PERSONNEL. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT). WHERE A FACILITY DOES NOT HAVE LOCKOUT/TAGOUT KITS THE RESPECTIVE PERSONNEL SHALL PROVIDE ADEQUATE QUANTITIES OF LOCKOUT/TAGOUT KITS SUITABLE FOR USE WITH THE RESPECTIVE EQUIPMENT. WHERE EXISTING ELECTRICAL EQUIPMENT DOES NOT HAVE FEATURES FOR LOCKOUT/TAGOUT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT AND MEASURES TO COMPLY WITH OSHA LOCKOUT/TAGOUT REQUIREMENTS. ALL PADLOCKS FOR USE WITH LOCKOUT/TAGOUT PROCEDURES SHALL HAVE A DIFFERENT KEY. PROVIDE LOCKOUT HASPS TO ACCOMMODATE MULTIPLE PADLOCKS WHERE MULTIPLE PEOPLE ARE WORKING ON THE SAME SYSTEM. INCLUDE LOCKOUT TAGS FOR EACH PIECE OF EQUIPMENT REQUIRING SERVICING AND SHUTDOWN. COMPLIANCE WITH LOCKOUT/TAGOUT PROCEDURES AND ALL OTHER SAFETY PROCEDURES AND REQUIREMENTS ARE THE RESPONSIBILITY OF THE RESPECTIVE PERSONNEL WORKING AT THE FACILITY.
- NEVER REMOVE, ALTER, OR ATTEMPT TO REPAIR CONDUCTORS OR CONDUIT SYSTEMS PROVIDING GROUNDING OR ELECTRICAL BONDING FOR ANY ELECTRICAL EQUIPMENT UNTIL ALL POWER IS REMOVED FROM EQUIPMENT. WARN ALL PERSONNEL OF THE UNGROUNDED CONDITION OF THE EQUIPMENT. DISPLAY APPROPRIATE WARNING SIGNS, SUCH AS DANGER TAGS, TO WARN PERSONNEL OF THE POSSIBLE HAZARDS.

- GROUNDING WORK AND MODIFICATIONS SHALL NOT BE PERFORMED DURING A THUNDERSTORM OR WHEN A THUNDERSTORM IS PREDICTED IN THE AREA.
- PER NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE IT DEFINES ELECTRICALLY SAFE WORK CONDITION AS "A STATE IN WHICH AN ELECTRICAL CONDUCTOR OR CIRCUIT PART HAS BEEN DISCONNECTED FROM ENERGIZED PARTS, LOCKED/TAGGED IN ACCORDANCE WITH ESTABLISHED STANDARDS, TESTED TO VERIFY THE ABSENCE OF VOLTAGE, AND, IF NECESSARY, TEMPORARILY GROUNDED FOR PERSONNEL PROTECTION." PRIOR TO CONDUCTING TESTS OR WORKING ON EQUIPMENT, VERIFY EQUIPMENT ENCLOSURES AND FRAMES HAVE A GOOD AND SECURE GROUND CONNECTION. FAILURE TO PROPERLY GROUND THIS EQUIPMENT PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THIS SYSTEM.
- WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT FOR FURTHER DIRECTIONS.
- GROUND RODS SHALL BE PRODUCED FROM 100 PERCENT DOMESTIC STEEL TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN PREFERENCES REQUIREMENT. THE BUY AMERICAN PREFERENCE REQUIREMENTS ESTABLISHED WITHIN 49 USC 50101 REQUIRE THAT ALL STEEL AND MANUFACTURED GOODS USED ON AIP PROJECTS MUST BE PRODUCED IN THE UNITED STATES.



NOTES

- THE GROUNDING SYSTEM HAS BEEN DESIGNED BASED ON EXISTING CONDITIONS AT THE AIRPORT. GROUND RODS SHALL BE AS SPECIFIED ON THE PLANS AND DETAILED HEREIN.
- THE RESISTANCE TO GROUND OF THE AIRFIELD LIGHTING OR RESPECTIVE NAVAID GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS. WHERE TESTING RESULTS INDICATE 25 OHMS CANNOT BE ACHIEVED, CONTACT THE ENGINEER OF RECORD, KEVIN LIGHTFOOT, FOR FURTHER DIRECTIONS.
- COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
- GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
- TOP OF GROUND RODS SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN.

GROUND RODS
NOT TO SCALE



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Illinois Licensed
Professional Service Corporation
#184-001084



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin N. Lightfoot

DATE: 11/14/2025 LICENSE: 11/30/2027
SIGNED: 11/14/2025 EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

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IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
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ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-004-NOTES.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/8/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

GROUNDING NOTES

FOR BID DOCUMENTS

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ELECTRICAL LEGEND - ONE-LINE DIAGRAM	
	CABLE TERMINATOR/LUG
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	FUSE
	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE
	GROUND - GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL
	INDICATING LIGHT
	MOTOR
	LOAD, MOTOR, # = HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE
	EQUIPMENT, XXX = DEVICE DESCRIPTION
	GROUND BUS OR TERMINAL
	NEUTRAL BUS
	PANELBOARD WITH MAIN LUGS
	PANELBOARD WITH MAIN BREAKER
	FUSE PANEL WITH MAIN FUSE PULLOUT
	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE
	CONTROL STATION
	TRANSFER SWITCH
	ENGINE GENERATOR SET

ELECTRICAL LEGEND - SCHEMATIC	
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	STARTER COIL, * = STARTER NUMBER
	OVERLOAD RELAY CONTACT
	CONTROL RELAY, * = CONTROL RELAY NUMBER
	RELAY, * = RELAY NUMBER
	TOGGLE SWITCH / 2 POSITION SWITCH
	2-POSITION SELECTOR SWITCH
	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)
	N.O. THERMAL SWITCH
	N.C. THERMAL SWITCH
	2 POLE DISCONNECT SWITCH
	3 POLE DISCONNECT SWITCH
	PHOTOCELL
	TERMINAL BLOCK, * = TERMINAL NUMBER
	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER
	INTERNAL PANEL WIRING
	FIELD WIRING
	FUSE
	GROUND BUS OR TERMINAL
	NEUTRAL BUS
	GROUND, GROUND ROD, GROUND BUS
	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
	TYPE S1 CUTOUT HANDLE REMOVED (MFRD BY CROUSE-HINDS, MANAIRCO, AND OTHERS)
	TYPE S1 CUTOUT HANDLE INSERTED (MFRD BY CROUSE-HINDS, MANAIRCO, AND OTHERS)
	TYPE SCO CUTOUT (MFRD BY ADB)
	TYPE ALS AIRFIELD LIGHTING SAFETY CUTOUT (MFRD BY ADB)
	L-830 SERIES ISOLATION TRANSFORMER

ELECTRICAL ABBREVIATIONS	
A.F.F.	ABOVE FINISHED FLOOR
A, AMP	AMPERES
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CR	CONTROL RELAY
CU	COPPER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EOR	ENGINEER OF RECORD
EP	EXPLOSION PROOF
ES	EMERGENCY STOP
ETL	INTERTEK - ELECTRICAL TESTING LABS
ETM	ELAPSE TIME METER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRSC	GALVANIZED RIGID STEEL CONDUIT
HOA	HAND OFF AUTOMATIC
HP	HORSEPOWER
J	JUNCTION BOX
KVA	KILOVOLT AMPERE(S)
KNL	KEVIN NEIL LIGHTFOOT
KW	KILOWATTS
LC	LIGHTING CONTACTOR
LED	LIGHT EMITTING DIODE
LTFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT (UL LISTED)
LTG	LIGHTING
LHTNG	LIGHTING
LP	LIGHTING PANEL
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MIL
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE (NFPA 70)
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OHE	OVERHEAD ELECTRIC
OL	OVERLOAD

ELECTRICAL ABBREVIATIONS (CONTINUED)	
PB	PULL BOX
PC	PHOTO CELL
PDB	POWER DISTRIBUTION BLOCK
PNL	PANEL
RCPT	RECEPTACLE
R	RELAY
S	STARTER
SD	SHUT DOWN; TURNOFF, DISCONNECT POWER, LOCKOUT/TAGOUT
SPD	SURGE PROTECTION DEVICE
SPST	SINGLE POLE SINGLE THROW
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UL	UNDERWRITER'S LABORATORIES
V	VOLTS
W/	WITH
W/O	WITHOUT
WP	WEATHER PROOF
XFER	TRANSFER
XFMR	TRANSFORMER
-	DASH, HYPHEN, OR MINUS SIGN
XXX	LETTERS AND / OR NUMBERS (TO BE DETERMINED)

AIRPORT EQUIPMENT/FACILITY ABBREVIATIONS	
ASOS	AUTOMATED SURFACE OBSERVING SYSTEM
ATCT	AIR TRAFFIC CONTROL TOWER
AWOS	AUTOMATED WEATHER OBSERVING SYSTEM
CCR	CONSTANT CURRENT REGULATOR
DME	DISTANCE MEASURING EQUIPMENT
FAR	FEDERAL AVIATION REGULATION
GS	GLIDE SLOPE FACILITY
HIRL	HIGH INTENSITY RUNWAY LIGHT
ILS	INSTRUMENT LANDING SYSTEM
IM	INNER MARKER
LIR	LOW IMPACT-RESISTANT
LOC	LOCALIZER FACILITY
MALS	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM
MALSR	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATING LIGHTS
MIRL	MEDIUM INTENSITY RUNWAY LIGHT
MITL	MEDIUM INTENSITY TAXIWAY LIGHT
NDB	NON-DIRECTIONAL BEACON
PAPI	PRECISION APPROACH PATH INDICATOR
PLASI	PULSE LIGHT APPROACH SLOPE INDICATOR
RAIL	RUNWAY ALIGNMENT INDICATING LIGHTS
REIL	RUNWAY END IDENTIFIER LIGHT
RVR	RUNWAY VISUAL RANGE
VADI	VISUAL APPROACH DESCENT INDICATOR
VASI	VISUAL APPROACH SLOPE INDICATOR
VOR	VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE FACILITY
WC	WIND CONE

NOTES:

1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
2. KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING/CONSTRUCTION FOR USE AS A REFERENCE.
3. NEW WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
4. LTFMC DENOTES LIQUID TIGHT FLEXIBLE METAL CONDUIT UL LISTED, SUNLIGHT RESISTANT, & SUITABLE FOR GROUNDING. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS USED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER (MINIMUM). DO NOT INSTALL LTFMC THAT IS NOT UL LISTED. CONFIRM LTFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
5. INSULATED CONDUCTORS SHALL COLOR CODE PHASE AND NEUTRAL CONDUCTOR INSULATION FOR NO. 6 AWG OR SMALLER. PROVIDE COLORED INSULATION OR COLORED MARKING TAPE FOR PHASE AND NEUTRAL CONDUCTORS FOR NO. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR AWG AND/OR KCMIL TO COMPLY WITH NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE COLORED INSULATION FOR NO. 6 AWG AND SMALLER TO MEET THE REQUIREMENTS OF NEC 200.6. STANDARD COLORS FOR POWER WIRING AND BRANCH CIRCUITS SHALL BE AS FOLLOWS:

120/240 VAC, 1 PHASE, 3 WIRE
PHASE A BLACK
PHASE B RED
NEUTRAL WHITE
GROUND GREEN
6. SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
7. ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES UL LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.
8. ONLY QUALIFIED ELECTRICAL CONTRACTORS SHALL PERFORM ELECTRICAL WORK ON THIS PROJECT. NEC DEFINES A QUALIFIED PERSON AS "ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED."
9. RESPECTIVE POWER SOURCES FOR EACH PANEL, EQUIPMENT, AIRFIELD LIGHT, SIGN, NAVAID, OR OTHER DEVICE SHALL BE VERIFIED PRIOR TO WORKING ON, RELOCATING, REMOVING, DISCONNECTING, AND/OR INSTALLING THE RESPECTIVE DEVICES. SHUT OFF, LOCKOUT, AND TAGOUT FOR PROTECTION OF PERSONNEL.
10. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE OR HANDHOLE.



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



DATE: 11/14/2025 LICENSE: 11/30/2027
SIGNED: 11/14/2025 EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

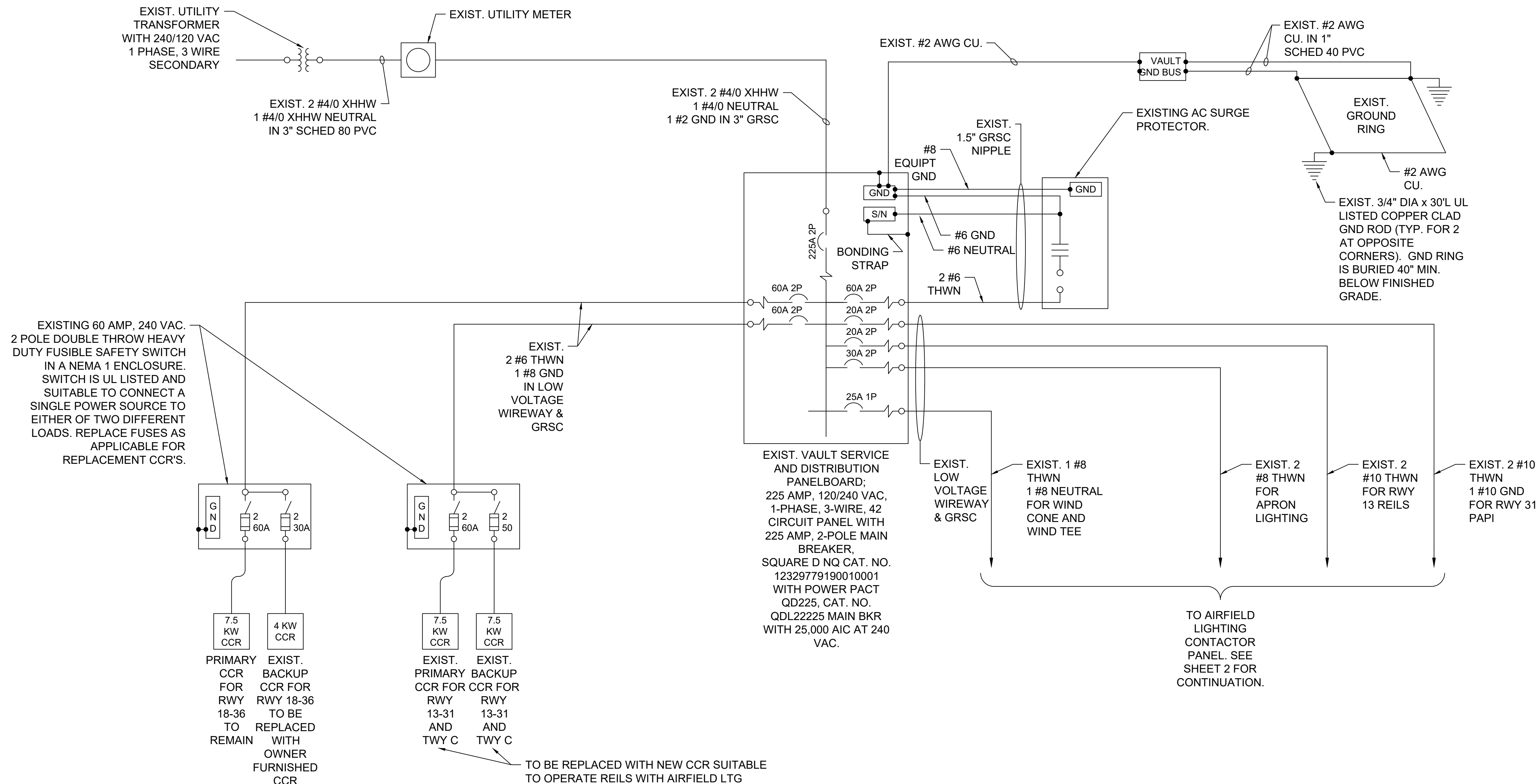
IL Contract No.: MA036

NO.	DATE	DESCRIPTION			
		DES	DRN	REV	

ISSUE: NOVEMBER 14, 2025
PROJECT NO: 24A0119_00
CAD FILE: E-005-LGND.DWG
DESIGN BY: KNL 8/25/25
DRAWN BY: JKD 9/9/25
REVIEWED BY: KNL 9/22/25

SHEET TITLE

ELECTRICAL LEGEND
AND ABBREVIATIONS

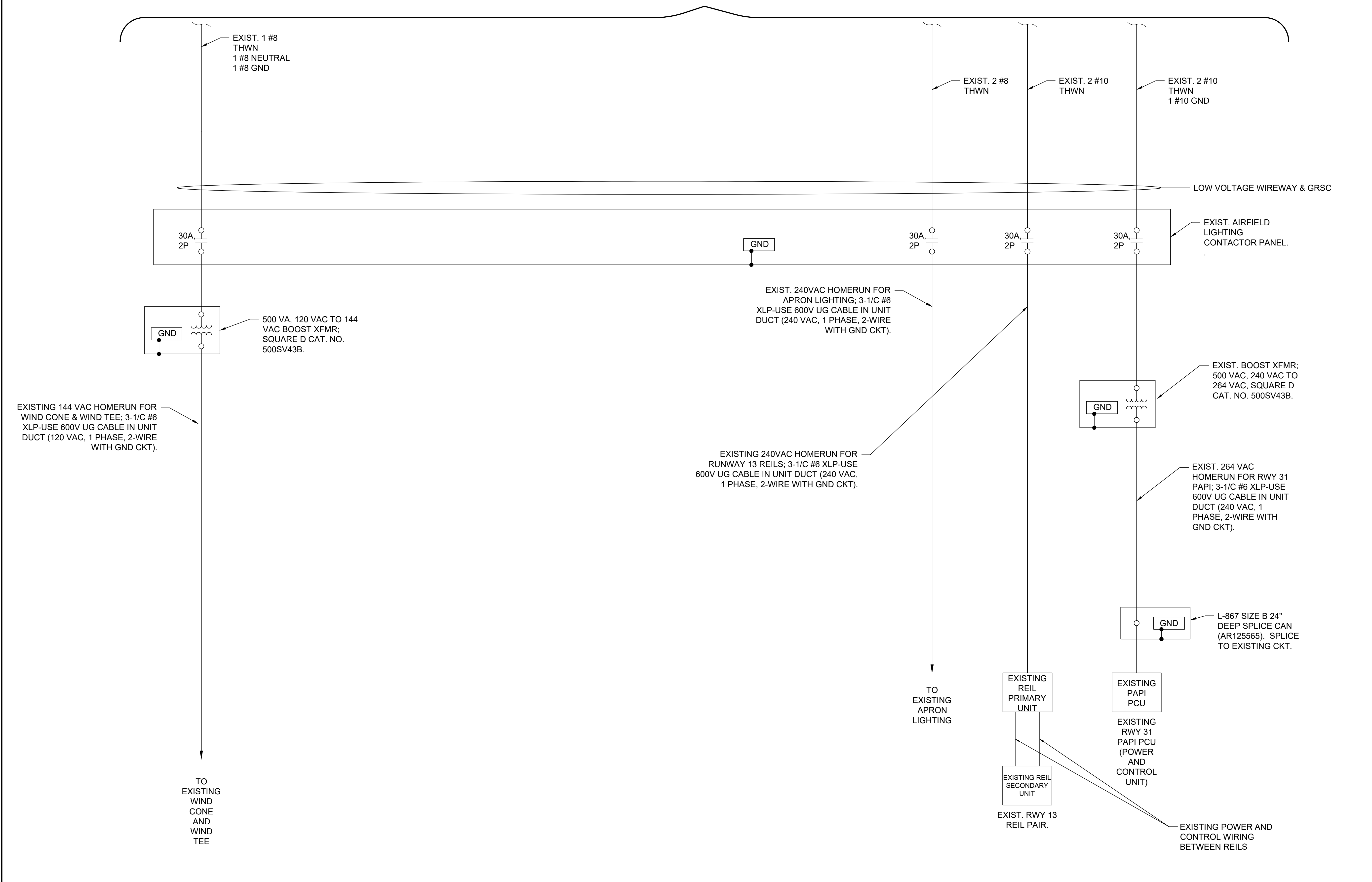


EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT AND AIRFIELD

1. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE EXISTING CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, RELOCATING, CONNECTING, OR WORKING ON THE RESPECTIVE AIRFIELD LIGHTING, NAVAID, VAULT EQUIPMENT OR OTHER DEVICE.
2. ALL POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING AIRFIELD LIGHTING OR OTHER SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER AND/OR AIRPORT REPRESENTATIVE. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
3. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2G (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
4. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
5. THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.
6. MEGGER TEST AND RECORD EXISTING SERIES CIRCUITS PRIOR TO ANY WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING AND AGAIN AFTER NAVAID WORK, AIRFIELD WORK, ADDITIONS, AND/OR UPGRADES HAVE BEEN COMPLETED. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE.
7. EACH CCR SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, DEMOLITION WORK, ELECTRICAL WORK, EXCAVATIONS, DIGGING, TRENCHING, OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING AND AGAIN AFTER AIRFIELD WORK AND PAPI WORK IS COMPLETED.
8. ALL EXISTING AIRFIELD LIGHTING SYSTEMS, NAVAIDS, APRON LIGHTING, AND/OR OTHER AIRPORT FACILITIES (THAT ARE NOT SCHEDULED FOR REMOVAL OR REPLACEMENT) SHALL BE OPERABLE DURING NIGHTFALL WHEN THE RESPECTIVE RUNWAY IS OPEN FOR OPERATION UNLESS OTHERWISE APPROVED BY THE AIRPORT MANAGER AND/OR OTHERWISE DETAILED HEREIN. CONTRACTOR SHALL PROVIDE ALL TEMPORARY WORK AS NECESSARY TO MAINTAIN OPERATION OF THE AIRFIELD LIGHTING SYSTEMS AT NIGHTFALL. CONTRACTOR SHALL COORDINATE TRANSFER OF EXISTING AIRFIELD CIRCUITS TO MINIMIZE DOWNTIME.
9. WHEN A RUNWAY IS CLOSED THE RUNWAY LIGHTING AND ASSOCIATED AIRFIELD NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF.
10. WHEN A TAXIWAY IS CLOSED THE RESPECTIVE TAXIWAY LIGHTING SHALL BE SHUT OFF
11. OTHER PROJECTS MIGHT BE UNDER CONSTRUCTION PRIOR TO OR DURING THIS PROJECT. COORDINATE WORK WITH OTHER CONTRACTORS.

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SEE EXISTING ELECTRICAL ONE-LINE FOR VAULT AND AIRFIELD - SHEET 1 FOR CONTINUATION



EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT AND AIRFIELD (CONTINUED)

FOR BID DOCUMENTS



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Illinois Licensed
Professional Service Corporation
#184-001084



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin N. Lightfoot

DATE: 11/14/2025 LICENSE: 11/30/2027
SIGNED: 11/14/2025 EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION			
		DES	DRN	REV	

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-601.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/9/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

EXISTING
ELECTRICAL
ONE-LINE FOR VAULT
AND AIRFIELD -
SHEET 2



1. ALL VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
2. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
3. ALL CONDUCTORS/WIRING SHALL BE COPPER.
4. CONTRACTOR SHALL CONFIRM POWER REQUIREMENTS WITH THE ACTUAL NAMEPLATE ON EACH PAPI (OR OTHER RESPECTIVE EQUIPMENT) AND ADJUST CIRCUIT BREAKER, FUSES, WIRE SIZES & CONDUIT SIZES TO CONFORM WITH NEC & MANUFACTURER'S RECOMMENDATIONS WHERE APPLICABLE. WIRE SIZES SHOWN ON THE PLANS ARE MINIMUM.
5. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, HANDHOLE, JUNCTION BOX, OR RACEWAY.
6. LTFMC DENOTES LIQUID TIGHT FLEXIBLE METAL CONDUIT UL LISTED, SUNLIGHT RESISTANT, & SUITABLE FOR GROUNDING. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. DO NOT INSTALL LTFMC THAT IS NOT UL LISTED. CONFIRM LTFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
7. EQUIPMENT AND MATERIALS NOT LABELED AS "EXISTING" ARE NEW.
8. ALL NEW VAULT WORK WILL BE PAID FOR UNDER ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT PER LUMP SUM.

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Illinois Licensed
Professional Service Corporation
#184-001084



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
 1315 ILLINOIS 17
 LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin T. Highford

DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION			
		DES	DRN	REV	

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-602.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/9/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

PROPOSED
ELECTRICAL
ONE-LINE FOR VAULT
AND RWY 13 PAPI



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin N. Lightfoot

DATE: 11/14/2025
SIGNED: 11/14/2025
LICENSE: 062-047643
EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION			
		DES	DRN	REV	

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-603.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/10/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

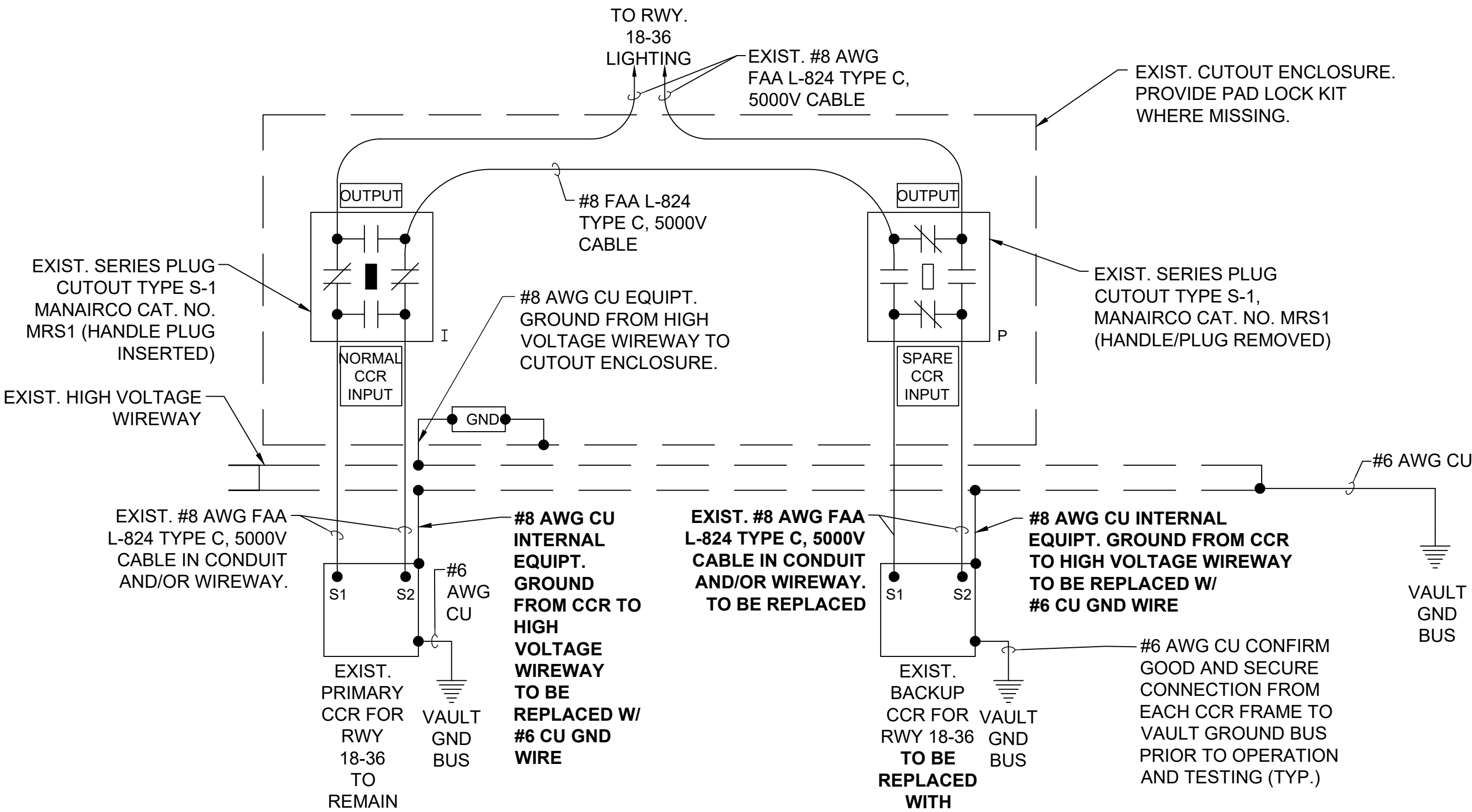
EXISTING HIGH
VOLTAGE WIRING
SCHEMATICS

EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAY 13-31 & TAXIWAY

NOT TO SCALE

NOTES

- KEEP ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT PROJECT REPRESENTATIVE. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT). WHERE THE FACILITY IS NOT EQUIPPED WITH LOCKOUT/TAGOUT EQUIPMENT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT. WHERE EXISTING ELECTRICAL EQUIPMENT DOES NOT HAVE FEATURES FOR LOCKOUT/TAGOUT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT AND MEASURES TO ENSURE THE COMPLIANCE WITH OSHA LOCKOUT/TAGOUT PROCEDURES. FAILURE TO SHUT DOWN AND LOCKOUT THE CIRCUIT PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THE SYSTEM. COMPLIANCE WITH LOCKOUT/TAGOUT PROCEDURES AND ALL OTHER SAFETY PROCEDURES AND REQUIREMENTS ARE THE RESPONSIBILITY OF EACH INDIVIDUAL, THE CONTRACTOR, THE RESPECTIVE MAINTENANCE PERSONNEL, AND ANY OTHER PERSONNEL WORKING ON THE EQUIPMENT OR ELECTRICAL SYSTEM.
- EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS.
- VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES FOR RESPECTIVE SYSTEMS PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, RECONNECTING, AND/OR INSTALLING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT, OR OTHER DEVICES. THE CONTRACTOR WILL NEED TO EXERCISE CAUTION WHEN WORKING IN THE VAULT AND ON THE AIRFIELD, CONTRACTOR SHALL REPORT ANY VARIATIONS, DEFICIENCIES, AND/OR APPARENT SAFETY CONCERNS TO THE PROJECT ENGINEER OF RECORD AND THE RESIDENT PROJECT REPRESENTATIVE. CONTRACTOR SHALL FOLLOW LOCKOUT/TAGOUT PROCEDURES TO COMPLY WITH OSHA REQUIREMENTS.
- IDENTIFY EACH RESPECTIVE CIRCUIT PRIOR TO PERFORMING WORK ON THAT CIRCUIT. CONTRACTOR SHALL ARRANGE TO SHUTOFF, DISCONNECT, AND LOCKOUT/TAGOUT CIRCUITS WHEN WORKING ON THE RESPECTIVE AIRFIELD LIGHTING SYSTEMS FOR SAFETY OF PERSONNEL.
- NEVER REMOVE OR INSERT A CUTOUT WITH THE CIRCUIT ENERGIZED. SHUTOFF CIRCUITS PRIOR TO PULLING OR INSERTING A SERIES PLUG CUTOUT.
- THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT. NEC DEFINES A QUALIFIED PERSON AS "ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED."
- EXERCISE CAUTION, PRACTICE SAFETY, AND DISCONNECT THE SERIES CIRCUITS FROM THE RESPECTIVE CONSTANT CURRENT REGULATORS, AS APPLICABLE WHEN PERFORMING WORK ON THE AIRFIELD LIGHTING OR WORK THAT MIGHT AFFECT THE AIRFIELD LIGHTING. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL.
- OVERSEE AND CONDUCT TESTS FOR AREAS OF WORK WHERE THE RESPECTIVE CIRCUITS MIGHT BE AFFECTED. MEGGER TEST AND RECORD EXISTING SERIES CIRCUITS (WITH A CABLE INSULATION TESTER) PRIOR TO CABLE WORK OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING SYSTEMS, AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES AND/OR OTHER WORK HAS BEEN COMPLETED. PROVIDE 5KV INSULATION TESTER FOR 5,000 VOLT SERIES CIRCUIT CABLES. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE WITH AN OHMMETER. PROVIDE COPY OF TEST RESULTS TO THE ENGINEER OF RECORD (EOR) WITHIN 5 DAYS OF CONDUCTING TESTS.
- RESPECTIVE CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS AND/OR ANY AIRFIELD WORK THAT MIGHT AFFECT LIGHTING CIRCUITS AND AGAIN AFTER THE AIRFIELD WORK AND ADDITIONS HAVE BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES OF OPERATION. PROVIDE A TRUE RMS AMMETER FOR CURRENT MEASUREMENTS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TOT HE RESIDENT PROJECT REPRESENTATIVE AND THE ENGINEER OF RECORD (EOR). WRITTEN TEST RESULTS SHALL BE PROVIDED TO THE RESIDENT PROJECT REPRESENTATIVE AND THE ENGINEER OF RECORD (EOR).



EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAY 18-36

NOT TO SCALE

LEGEND

- "I" DENOTES PLUG CUTOUT WITH PLUG INSERTED
- "P" DENOTES PLUG CUTOUT WITH PLUG PULLED
- "CCR" DENOTES CONSTANT CURRENT REGULATOR

FOR BID DOCUMENTS



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin N. Lightfoot

DATE: 11/14/2025 LICENSE: 11/30/2027
SIGNED: 11/14/2025 EXPIRES: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-604.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/10/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

**PROPOSED HIGH
VOLTAGE WIRING
SCHEMATICS**

PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAY 13-31 & TAXIWAY

NOT TO SCALE

PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAY 18-36

NOT TO SCALE

LEGEND

- "I" DENOTES PLUG CUTOUT WITH PLUG INSERTED
- "P" DENOTES PLUG CUTOUT WITH PLUG PULLED
- "CCR" DENOTES CONSTANT CURRENT REGULATOR

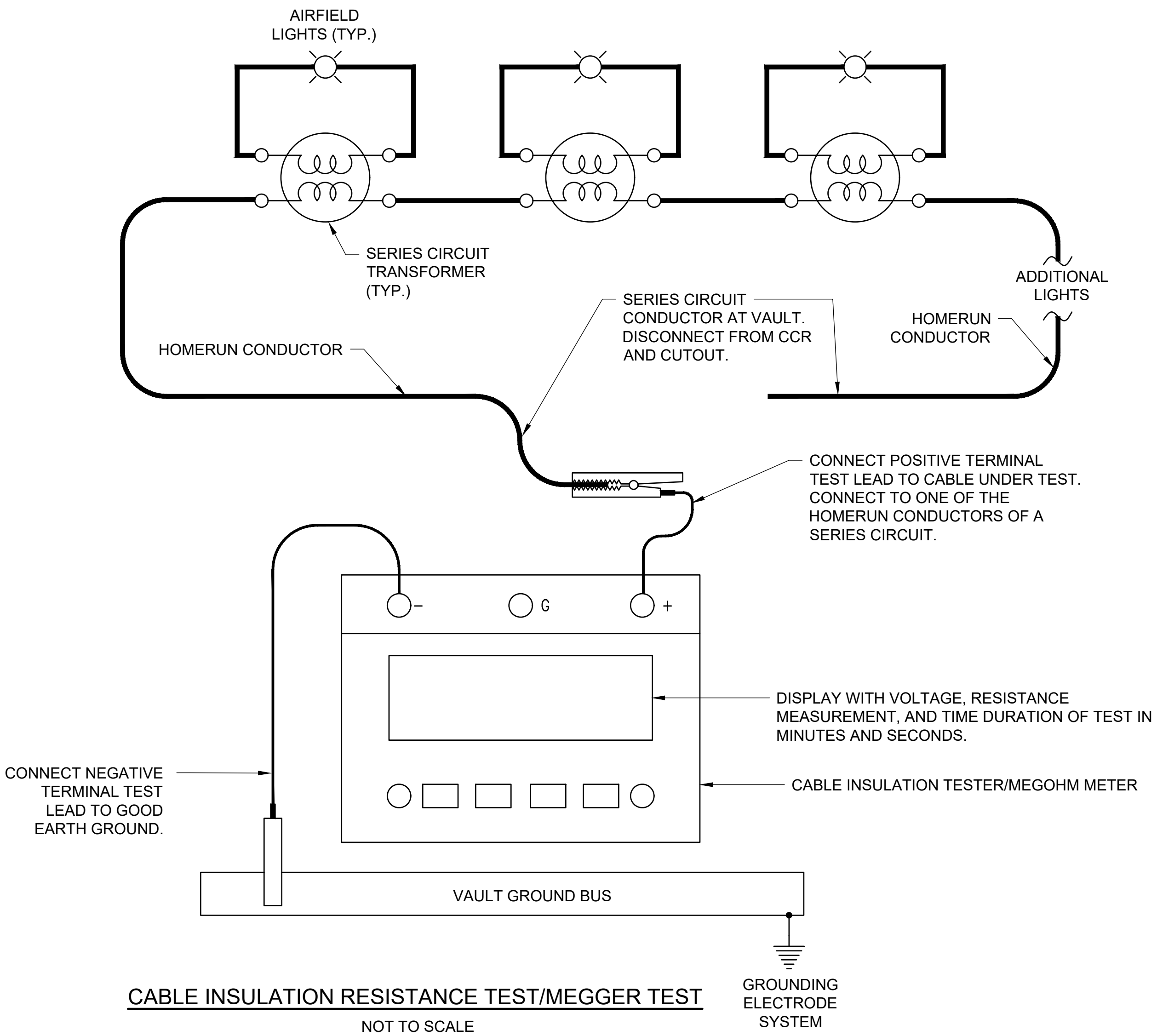
NOTES

- EQUIPMENT AND MATERIALS NOT LABELED AS EXISTING ARE NEW.
- PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CONSTANT CURRENT REGULATOR NOTING THE REGULATOR DESIGNATION AND THE RUNWAY AND/OR TAXIWAY SERVED.
- EACH PLUG CUTOUT CABINET SHALL BE FURNISHED WITH A PHENOLIC ENGRAVED LEGEND PLATE THAT IDENTIFIES THE RESPECTIVE CIRCUIT OR REGULATOR. INCLUDE AN ADDITIONAL LEGEND PLATE LABELED "CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF". FURNISH & INSTALL A WARNING LABEL FOR CUTOUT ENCLOSURE TO WARN PERSONS OF POTENTIAL ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "ARC-FLASH HAZARD WARNING".
- PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CUTOUT TO IDENTIFY THE RESPECTIVE CUTOUT INPUT CONNECTION AND THE RESPECTIVE CUTOUT OUTPUT CONNECTION.
- BOND REGULATOR FRAME TO VAULT GROUND BUS WITH A DEDICATED #6 AWG COPPER BONDING JUMPER. PRIOR TO OPERATING EACH CCR, CONFIRM EACH CCR FRAME IS GROUNDED TO THE VAULT GROUNDING ELECTRODE SYSTEM WITH A MINIMUM #6 AWG COPPER CONDUCTOR AND UL LISTED GROUNDING CONNECTORS WITH SECURE AND TIGHT CONNECTIONS. CORRECT WHERE MISSING FOR SAFETY OF PERSONNEL. CONNECTIONS TO GROUND BAR SHALL BE WITH 2-HOLE TONGUE LONG BARREL DOUBLE COMPRESSION LUG WITH 3/8" STAINLESS STEEL BOLTS, NUTS, AND WASHERS. CONNECTION TO CCR FRAME SHALL BE THE SAME (TYP. EACH CCR).
- PROVIDE #6 AWG (MIN.) CU INTERNAL EQUIPMENT GROUND WIRE FROM CCR FRAME TO CUTOUT ENCLOSURE FRAME. CUTOUT ENCLOSURES ARE REQUIRED TO BE GROUNDED AND BONDED PER 2023 NEC ARTICLE 250.4 "GENERAL REQUIREMENTS FOR GROUNDING AND BONDING" AND 2023 NEC 250.190(A) "EQUIPMENT GROUNDING" (TYP.).
- PROVIDE ADEQUATE WORKING SPACE IN FRONT OF EACH CUTOUT ENCLOSURE TO MEET NEC CLEARANCE REQUIREMENTS.

PROPOSED HIGH VOLTAGE WIRING SCHEMATIC

- LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING AND SUNLIGHT RESISTANT. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED WHERE FLEXIBILITY IS NECESSARY TO MINIMIZE THE TRANSMISSION OF VIBRATION FROM EQUIPMENT OR TO PROVIDE FLEXIBILITY FOR EQUIPMENT THAT REQUIRES MOVEMENT AFTER INSTALLATION. THIS APPLIES TO CONSTANT CURRENT REGULATORS AND TRANSFORMERS. DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL LISTED. CONFIRM LIQUID TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
- MAINTAIN SEPARATION OF HIGH VOLTAGE WIRING (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND/OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) FROM LOW VOLTAGE WIRING (RATED 600 VOLTS AND BELOW) TO COMPLY WITH 2023 NEC 300.3(C)(2). HIGH VOLTAGE AND LOW VOLTAGE WIRING SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, WIREWAY, PULL BOX, SPLICE CAN, HANDHOLE, OR MANHOLE.
- LOW VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE LOW VOLTAGE SECTION. HIGH VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE HIGH VOLTAGE SECTION.
- WHERE AN AIRFIELD LIGHTING SERIES CIRCUIT HAS A PRIMARY CCR AND A BACKUP CCR IT IS REQUIRED TO HAVE A DOUBLE THROW SAFETY SWITCH (MANUAL TRANSFER SWITCH) CONNECTED FOR ONE INPUT POWER SOURCE AND TWO LOADS TO PREVENT SIMULTANEOUS ENERGIZING OF BOTH CCR'S. PROCEDURES MUST BE IN PLACE TO ONLY ALLOW ONE OF THE TWO CCR'S TO BE ENERGIZED AT A TIME.
- ADD LEGEND PLATE TO EACH CCR LABELED "NOTICE CCR HAS SEPARATE 120V CONTROL POWER SOURCE".

FOR BID DOCUMENTS

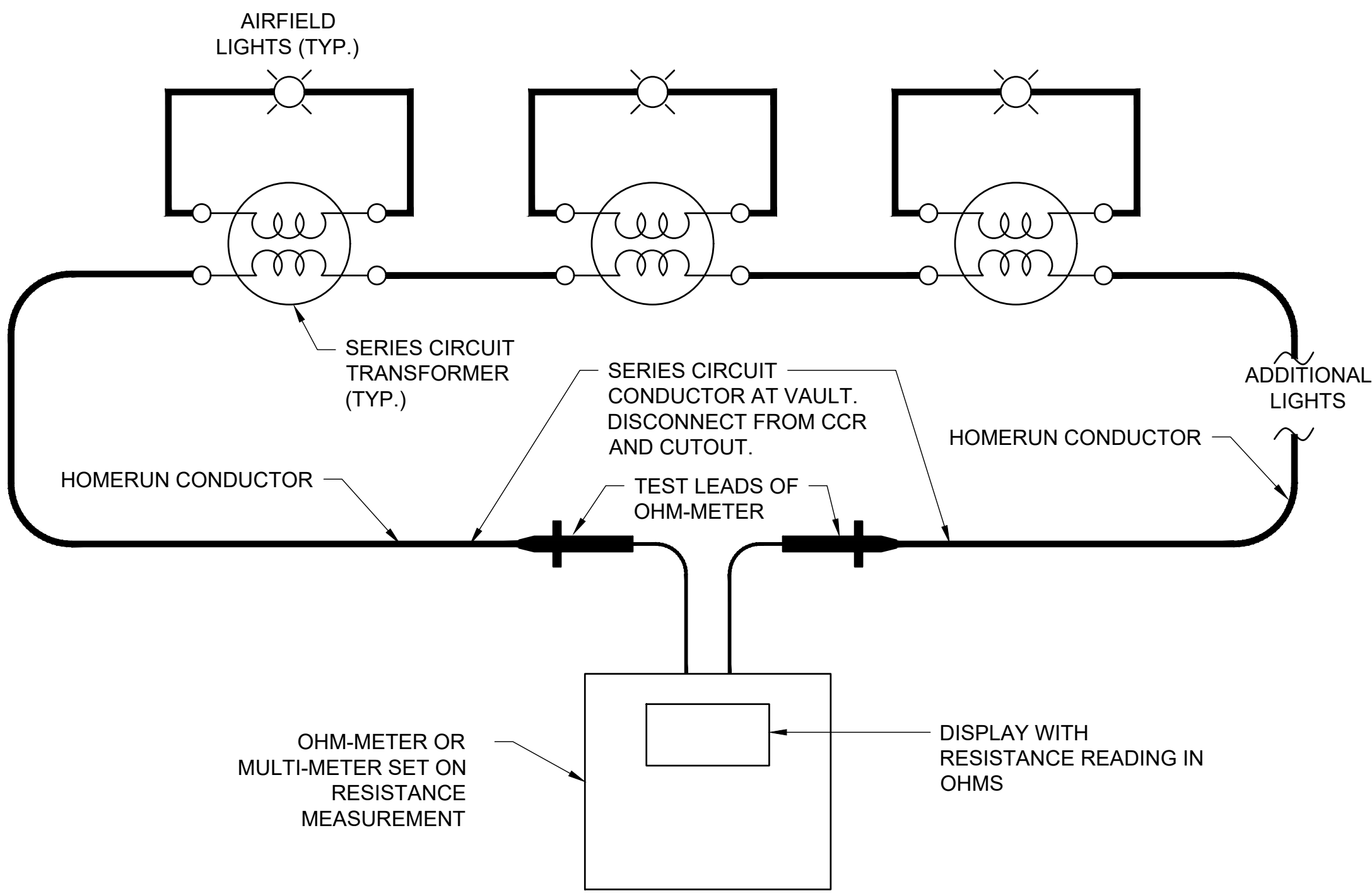


CABLE INSULATION RESISTANCE TEST/MEGGER TEST

NOT TO SCALE

CABLE INSULATION RESISTANCE TEST (MEGGER TEST) NOTES

1. PRIOR TO BEGINNING EXCAVATIONS, AIRFIELD LIGHTING MODIFICATIONS, CABLE INSTALLATION, AND/OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING CIRCUITS, ALL EXISTING SERIES CIRCUIT LIGHTING CABLES SHALL BE MEGGER TESTED WITH AN INSULATION RESISTANCE TESTER AND RECORDED AT THE RESPECTIVE AIRPORT ELECTRICAL VAULT. COORDINATE TESTING WITH THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT. PROJECT ENGINEER OF RECORD SHALL BE ON SITE TO OBSERVE TEST.
2. AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES, AND/OR OTHER WORK AND ADDITIONS HAVE BEEN COMPLETED ALL EXISTING SERIES CIRCUIT LIGHTING CABLES SHALL BE MEGGER TESTED WITH AN INSULATION RESISTANCE TESTER AND RECORDED AT THE RESPECTIVE AIRPORT ELECTRICAL VAULT. COORDINATE TESTING WITH THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT. PROJECT ENGINEER OF RECORD SHALL BE ON SITE TO OBSERVE TEST.
3. THE CONTRACTOR IS RESPONSIBLE TO EMPLOY THE SERVICES OF PERSONNEL QUALIFIED, FAMILIAR WITH, AND TRAINED TO PERFORM THE RESPECTIVE TESTS, AND QUALIFIED TO WORK ON 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.
4. INSULATION RESISTANCE TESTING EQUIPMENT FOR USE WITH 5,000 VOLT SERIES CIRCUIT CABLES SHALL USE AN INSULATION RESISTANCE TESTER CAPABLE OF TESTING THE CABLES AT 5,000 VOLTS. OLDER SERIES CIRCUIT CABLES AND/OR CABLES IN POOR CONDITION MAY REQUIRE THE TEST VOLTAGE TO BE PERFORMED AT A VOLTAGE LOWER THAN 5,000 VOLTS (EXAMPLE 1,000 VOLTS, 500 VOLTS, OR LESS THAN 500 VOLTS). THE RESPECTIVE TEST VOLTAGE SHALL BE RECORDED FOR EACH CABLE INSULATION RESISTANCE TEST RESULT.
5. INSULATION RESISTANCE TESTING EQUIPMENT FOR USE WITH 600 VOLT RATED CABLES SHALL USE A 500 VOLT INSULATION RESISTANCE TESTER. THE RESPECTIVE TEST VOLTAGE SHALL BE RECORDED FOR EACH CABLE INSULATION RESISTANCE TEST RESULT.
6. IT IS RECOMMENDED TO USE THE SAME INSULATION RESISTANCE TEST EQUIPMENT THROUGHOUT THE PROJECT TO ENSURE RELIABLE COMPARATIVE READINGS AT THE BEGINNING OF THE PROJECT AND AT THE COMPLETION OF THE PROJECT.
7. DISCONNECT THE AIRFIELD LIGHTING SERIES CIRCUIT CABLES FROM THE CONSTANT CURRENT REGULATOR WHEN PERFORMING CABLE INSULATION RESISTANCE TESTS (MEGGER TESTS). TEST THE CABLES THAT GO TO THE AIRFIELD FOR THE RESPECTIVE AIRFIELD LIGHTING SERIES CIRCUIT. CONNECT THE CABLE INSULATION RESISTANCE TESTER TO ONE OF THE AIRFIELD LIGHTING SERIES CIRCUIT CABLES AND TO A GOOD GROUND IN THE AIRPORT ELECTRICAL VAULT SUCH AS THE AIRPORT VAULT GROUND BUS. CONDUCT THE CABLE INSULATION RESISTANCE TEST ON EACH RESPECTIVE CABLE FOR NOT LESS THAN 90 SECONDS. RECORD THE TEST RESULTS AT THE END OF THE TIME DURATION FOR THE TEST.
8. FAA ADVISORY CIRCULAR 150/5340-26C MAINTENANCE OF AIRPORT VISUAL AID FACILITIES PROVIDES GUIDANCE ON INSULATION RESISTANCE TESTS. ALSO REFER TO THE USER MANUAL FOR THE RESPECTIVE CABLE INSULATION RESISTANCE TESTER. REASONABLY NEW SERIES CIRCUIT CABLES AND TRANSFORMERS WITH GOOD CONNECTIONS SHOULD READ 500 MEGA-OHMS TO 1,000 MEGA-OHMS OR HIGHER. THE READINGS SHOULD DECREASE WITH AGE. THE RESISTANCE VALUE DECLINES OVER THE SERVICE LIFE OF THE CIRCUIT; A 10-20 PERCENT DECLINE PER YEAR MAY BE CONSIDERED NORMAL. A YEARLY DECLINE OF 50 PERCENT (4 PERCENT MONTHLY) OR GREATER INDICATES THE EXISTENCE OF A PROBLEM, SUCH AS A HIGH RESISTANCE GROUND, SERIOUS DETEIORATION OF THE CIRCUIT INSULATION, LIGHTNING DAMAGE, BAD CONNECTIONS, BAD SPLICES, CABLE INSULATION DAMAGE, OR OTHER FAILURE. FAA ADVISORY CIRCULAR 150/5340-26C NOTES "GENERALLY SPEAKING, ANY CIRCUIT THAT MEASURES LESS THAN 1 MEGOHM IS CERTAINLY DESTINED FOR RAPID FAILURE." AIRFIELD LIGHTING SERIES CIRCUITS WITH CABLE INSULATION READINGS OF LESS THAN 1 MEGOHM ARE NOT UNCOMMON FOR OLDER CIRCUITS THAT ARE 20 YEARS OR MORE OF AGE.
9. BASED ON INFORMATION IN FAA AC NO. 150/5340-26C MAINTENANCE OF AIRPORT VISUAL AID FACILITIES, THE CABLE INSULATION RESISTANCE VALUE INEVITABLY DECLINES OVER THE SERVICE LIFE OF THE CIRCUIT; A 10-20 PERCENT DECLINE PER YEAR MAY BE CONSIDERED NORMAL. IN THE EVENT THAT THE CABLE INSULATION RESISTANCE READINGS HAVE DECLINED MORE THAN 2 PERCENT PER MONTH IT MIGHT INDICATE CABLE DAMAGE DUE TO LIGHTNING OR DAMAGE AS A RESULT OF CONTRACTOR OPERATIONS. WHERE THE CABLE INSULATION RESISTANCE READINGS HAVE DECLINED MORE THAN 2 PERCENT PER MONTH OVER THE PROJECT CONSTRUCTION DURATION AS A RESULT OF CONTRACTOR OPERATIONS, CONTRACTOR WILL NEED TO INVESTIGATE, ADDRESS, AND REPAIR THE RESPECTIVE CABLE CIRCUITS.



MEASURE RESISTANCE OF SERIES CIRCUIT LOOP.

NOT TO SCALE

SERIES CIRCUIT LOOP RESISTANCE MEASUREMENT NOTES

1. PRIOR TO BEGINNING EXCAVATIONS, AIRFIELD LIGHTING MODIFICATIONS, CABLE INSTALLATION, AND/OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING CIRCUITS, THE RESPECTIVE SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE RESISTANCE MEASURED WITH AN OHMMETER AND RECORDED FOR EACH CIRCUIT AT THE VAULT. COORDINATE TESTING WITH THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT. PROJECT ENGINEER OF RECORD SHALL BE ON SITE TO OBSERVE TEST.
2. AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES, AND/OR OTHER WORK AND ADDITIONS HAVE BEEN COMPLETED THE RESPECTIVE SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE RESISTANCE MEASURED WITH AN OHMMETER AND RECORDED FOR EACH CIRCUIT AT THE VAULT. COORDINATE TESTING WITH THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT. PROJECT ENGINEER OF RECORD SHALL BE ON SITE TO OBSERVE TEST.
3. ALL EXISTING SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE RESISTANCE MEASURED WITH AN OHMMETER AND RECORDED FOR EACH CIRCUIT AT THE VAULT. THE RESISTANCE OF THE SERIES CIRCUIT LOOP WITH CONNECTIONS USING #8 AWG COPPER CONDUCTOR SHOULD BE APPROXIMATELY 0.8 TO 1 OHM PER THOUSAND FEET OF CABLE LENGTH. THE RESISTANCE OF THE SERIES CIRCUIT LOOP WITH CONNECTIONS USING #6 AWG COPPER CONDUCTOR SHOULD BE APPROXIMATELY 0.5 TO 0.7 OHM PER THOUSAND FEET OF CABLE LENGTH. THE NUMBER OF SERIES CIRCUIT TRANSFORMERS AND CONNECTIONS WILL AFFECT THE OVERALL RESISTANCE OF THE SERIES CIRCUIT LOOP AND THEREFORE THE MEASUREMENTS MIGHT BE SLIGHTLY HIGHER THAN THE CALCULATED RESISTANCE FOR THE RESPECTIVE LENGTH OF CABLE.



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
1315 ILLINOIS 17
LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



Kevin N. Lightfoot

DATE: 11/14/2025 LICENSE: 11/30/2027

INSTALL PAPI ON RUNWAY
13 END, REILS ON
RUNWAY 31 END, AND
LIGHTED WIND CONE

IDA No.: C75-5224

SBG No.: 3-17-SBGP-TBD

IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-605.DWG

DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/10/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

SERIES CIRCUIT
CABLE TESTING
DETAILS

Hanson Professional Services Inc.
1525 S. 6th Street
Springfield, IL 62703
phone: 217-788-2450
fax: 217-788-2503



LICENSED PROFESSIONAL ENGINEER
 KEVIN N. LIGHTFOOT
 062-047643
 STATE OF ILLINOIS

DATE	LICENSE
SIGNED: 11/14/2025	EXPIRES: 11/30/2027

IL Contract No.: MA036

NO.	DATE	DESCRIPTION		
		DES	DRN	REV

ISSUE: NOVEMBER 14, 2025

PROJECT NO: 24A0119_00

CAD FILE: E-606.DWG

DESIGN BY: KNL 8/25/25

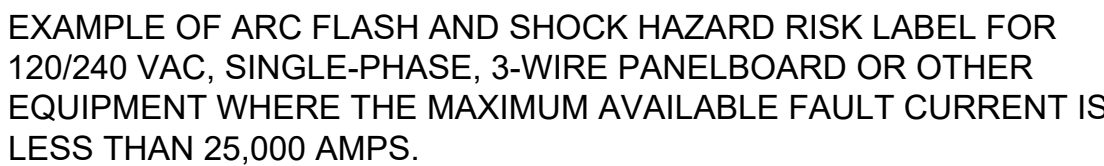
DRAWN BY: JKD 9/10/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

LEGEND PLATE
SCHEDULES - SHEET
1

DEVICE	LABEL
VAULT SERVICE & MAIN DIST. PANEL	MAX AVAILABLE FAULT CURRENT AT 50KVA UTILITY XFMR SECONDARY WAS CALCULATED TO BE 9,470 AMPS LINE TO LINE 14,206 AMPS LINE TO NEUTRAL ON 9/22/2025. MAX AVAILABLE FAULT CURRENT AT VAULT SERVICE & DISTRIBUTION PANEL WAS CALCULATED TO BE 6,428 AMPS LINE TO LINE 5,871 AMPS LINE TO NEUTRAL ON 9/22/2025.
VAULT SERVICE & MAIN DIST. PANEL	120/240VAC, 1-PH, 3-WIRE CONDUCTOR COLOR CODING SHALL BE AS FOLLOWS: PHASE A -- BLACK PHASE B -- RED NEUTRAL -- WHITE GROUND -- GREEN
PRIMARY CCR FOR RUNWAY 18-36 & TAXIWAYS A & B LIGHTING	PRIMARY CCR FOR RWY 18-36 & TWYS A & B LIGHTING
PRIMARY CCR FOR RUNWAY 18-36 & TAXIWAYS A & B LIGHTING	NOTICE: THIS CCR HAS AN ADDITIONAL 120VAC CONTROL POWER CIRCUIT FEEDING IT. DISCONNECT ALL POWER SOURCES TO CCR BEFORE SERVICING.
TOP OF PRIMARY CCR FOR RUNWAY 18-36 & TAXIWAYS A & B LIGHTING	KEEP CLEAR DO NOT STORE MATERIALS ON TOP OF CCR
BACKUP/SPARE CCR FOR RUNWAY 18-36 & TAXIWAYS A & B LIGHTING	BACKUP CCR FOR RWY 18-36 & TWYS A & B LIGHTING
BACKUP CCR FOR RUNWAY 18-36 & TAXIWAYS A & B LIGHTING	NOTICE: THIS CCR HAS AN ADDITIONAL 120VAC CONTROL POWER CIRCUIT FEEDING IT. DISCONNECT ALL POWER SOURCES TO CCR BEFORE SERVICING.
TOP OF BACKUP CCR FOR RUNWAY 18-36 & TAXIWAYS A & B LIGHTING	KEEP CLEAR DO NOT STORE MATERIALS ON TOP OF CCR
PRIMARY CCR FOR RUNWAY 13-31 & TAXIWAY C LIGHTING	PRIMARY CCR FOR RUNWAY 13-31 & TWY C LIGHTING
PRIMARY CCR FOR RUNWAY 13-31 & TAXIWAY C LIGHTING	NOTICE: THIS CCR HAS AN ADDITIONAL 120VAC CONTROL POWER CIRCUIT FEEDING IT. DISCONNECT ALL POWER SOURCES TO CCR BEFORE SERVICING.
TOP OF PRIMARY CCR FOR RUNWAY 13-31 & TAXIWAY C LIGHTING	KEEP CLEAR DO NOT STORE MATERIALS ON TOP OF CCR
BACKUP/SPARE CCR FOR RUNWAY 13-31 & TAXIWAY C LIGHTING	BACKUP CCR FOR RWY 13-31 & TWY C LIGHTING
BACKUP CCR FOR RUNWAY 13-31 & TAXIWAY C LIGHTING	NOTICE: THIS CCR HAS AN ADDITIONAL 120VAC CONTROL POWER CIRCUIT FEEDING IT. DISCONNECT ALL POWER SOURCES TO CCR BEFORE SERVICING.
TOP OF BACKUP CCR FOR RUNWAY 13-31 & TAXIWAY C LIGHTING	KEEP CLEAR DO NOT STORE MATERIALS ON TOP OF CCR

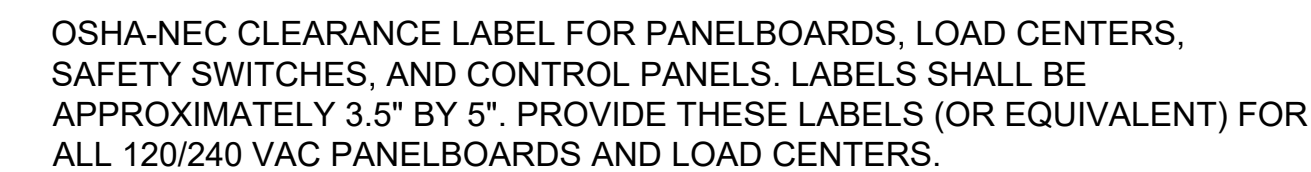


PROVIDE THESE LABELS FOR THE FOLLOWING EQUIPMENT:

1. UTILITY METER BASE
2. VAULT MAIN SERVICE & DIST. PANEL
3. LIGHTING CONTACTOR PANEL
4. DTFSS FOR RWY 18-36 CCRS
5. DTFSS FOR RWY 13-31 & TWY C CCRS
6. VAULT RELAY INTERFACE CONTROL PANEL

ARC FLASH RISK LABEL DETAIL

1. LEGEND PLATES SHALL BE WEATHERPROOF PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.
2. PER NEC 110.22 "IDENTIFICATION OF DISCONNECTING MEANS". EACH DISCONNECTING MEANS SHALL BE LEGIBLY MARKED TO INDICATE ITS PURPOSE AND IDENTIFY THE POWER SOURCE THAT SUPPLIES THE DISCONNECTING MEANS.
3. PER NEC 408.4 "FIELD MARKING REQUIRED" PART (B) "SOURCE OF SUPPLY", ALL SWITCHBOARDS, SWITCHGEAR, AND PANELBOARDS SUPPLIED BY A FEEDER(S) SHALL BE PERMANENTLY MARKED TO INDICATED EACH DEVICE OR EQUIPMENT WHERE THE POWER ORIGINATES.
4. PER NEC 110.24 "AVAILABLE FAULT CURRENT" PART (A) "FIELD MARKING", SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE AVAILABLE FAULT CURRENT. FAULT CURRENT INFORMATION TO BE PROVIDED BY SERVING ELECTRIC UTILITY COMPANY OR FROM DATA OBTAINED FROM UTILITY TRANSFORMER NAMEPLATE. CONTACT PROJECT ENGINEER OF RECORD TO CONFIRM FAULT CURRENT CALCULATIONS.
5. PER NEC 408.6 "SHORT-CIRCUIT CURRENT RATING" THE AVAILABLE FAULT CURRENT AND THE DATE, THE CALCULATION WAS PERFORMED SHALL BE FIELD MARKED ON THE ENCLOSURE AT THE POINT OF SUPPLY. FAULT CURRENT INFORMATION TO BE PROVIDED BY SERVING ELECTRIC UTILITY COMPANY OR FROM DATA OBTAINED FROM UTILITY TRANSFORMER NAMEPLATE. CONTACT PROJECT ENGINEER OF RECORD TO CONFIRM FAULT CURRENT CALCULATIONS.
6. VERIFY ALL POWER SOURCES TO EQUIPMENT, REPORT ANY VARIATIONS FROM THE SCHEDULE TO AIRPORT MANAGER AND ENGINEER OF RECORD. PROVIDE CORRECTIVE LABELING FOR RESPECTIVE POWER SOURCE WHERE APPLICABLE. SAFETY OF PERSONNEL IS THE PRIORITY.
7. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH SAFETY SWITCH PANELBOARD, LOAD CENTER, CUTOUT, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "ARC-FLASH HAZARD WARNING".
8. CONTRACTOR SHALL PROVIDE APPROPRIATE LABELS ON ELECTRICAL EQUIPMENT, IN ACCORDANCE WITH NFPA 70E ARTICLE 130 WORK INVOLVING ELECTRICAL HAZARDS, PART 130.5 ARC FLASH RISK ASSESSMENT, (H) EQUIPMENT LABELING. WHERE MAXIMUM CALCULATED FAULT CURRENT EXCEEDS 25,000 AMPS CONTACT PROJECT ENGINEER OF RECORD. FAULT CURRENT CALCULATIONS FOR C75 MARSHALL COUNTY AIRPORT ELECTRICAL VAULT HAVE BEEN CALCULATED AND DETERMINED TO BE LESS THAN 25,000 AMPS. THEREFORE ARC FLASH RISK LABELS SHALL BE AS DETAILED ON THIS SHEET AND COMPLY WITH 2024 NFPA 70E, ARTICLE 130, PART 130.5(H). AN ADDITIONAL ARC FLASH STUDY IS NOT REQUIRED.
9. ALL LABELING WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE WORK.
10. LEGEND PLATES MUST BE PLACED WHERE THEY ARE CLEARLY VISIBLE FOR THE RESPECTIVE EQUIPMENT OR DEVICE. WHERE THE EQUIPMENT/DEVICE DOES NOT HAVE ADEQUATE SPACE TO ACCOMMODATE THE LABEL OR LEGEND PLATE INSTALL THE LABEL/LEGEND PLATE IMMEDIATELY ADJACENT TO OR ABOVE THE RESPECTIVE DEVICE INCLUDE MOUNTING PLAQUE SUITABLE FOR THE RESPECTIVE ENVIRONMENT.



CAUTION

**AREA IN FRONT OF THIS
ELECTRICAL PANEL MUST BE
KEPT CLEAR FOR 60 INCHES
OSHA-NEC REGULATIONS**

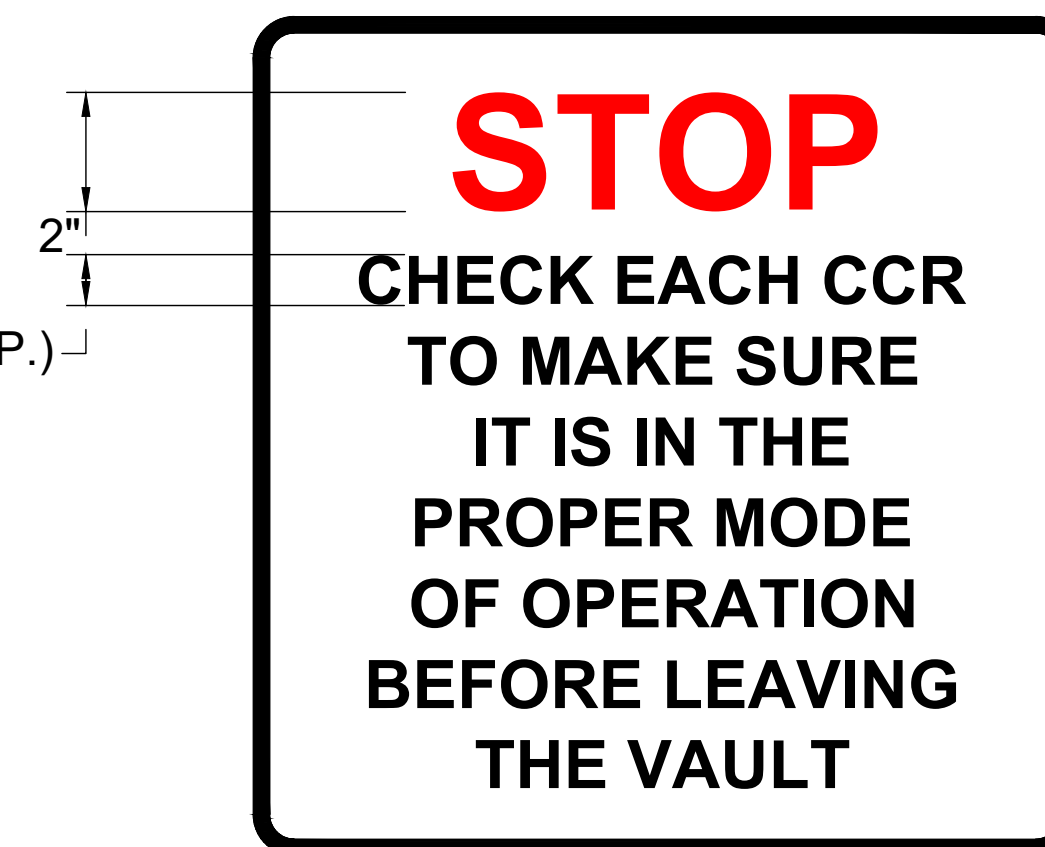
OSHA-NEC CLEARANCE LABEL FOR SERIES CIRCUIT DISCONNECT/CUTOUT ENCLOSURES. LABELS SHALL BE APPROXIMATELY 3.5" BY 5". PROVIDE THESE LABELS (OR EQUIVALENT) FOR ALL CUTOUT ENCLOSURES.

DANGER

**LOCKOUT/TAGOUT
BEFORE
SET-UP, MAINTENANCE,
SERVICE, OR REPAIR**

NOT TO SCALE

PROVIDE ONE SIGN FOR EACH
INTERIOR DOOR AT THE VAULT.
SIGN SHALL BE APPROXIMATELY
10" H X 14" W.



NOT TO SCALE

PROVIDE ONE SIGN FOR EACH INTERIOR DOOR AT THE VAULT.

"DANGER HIGH VOLTAGE KEEP OUT" LABELS, MARKINGS, AND/OR SIGNS ARE REQUIRED FOR EQUIPMENT RATED OVER 1000 VOLTS AC IN ACCORDANCE WITH THE FOLLOWING:

- 2020/2023 NEC 110.34(C) "LOCKED ROOMS OR ENCLOSURES".
- 2020 NEC 300.45 "DANGER SIGNS".
- 2023 NEC 305.12 "DANGER SIGNS".
- 2020/2023 NEC 314.72(E) "SUITABLE COVERS".
- 2020 NEC 490.35 (A) "HIGH-VOLTAGE EQUIPMENT".
- 2023 NEC 495.35 (A) "HIGH-VOLTAGE EQUIPMENT".
- AC 150/5340-26C "MAINTENANCE OF AIRPORT VISUAL AID FACILITIES".



NOT TO SCALE

PROVIDE WEATHERPROOF WARNING SIGN FOR EACH DOOR TO AIRPORT ELECTRICAL VAULT
 LABELED "DANGER - HIGH VOLTAGE UNAUTHORIZED PERSONNEL KEEP OUT" PER THE REQUIREMENTS OF NEC 110.34 (C). SIGN SHALL BE APPROXIMATELY 10"H X 14"W OR 14" H X 20" W. NEW SIGNS SHALL REPLACE EXISTING SIGNS ON VAULT DOORS



NOT TO SCALE

FURNISH AND INSTALL "DANGER - HIGH VOLTAGE KEEP OUT" LABELS/SIGNS FOR HIGH VOLTAGE SECTION OF CONSTANT CURRENT REGULATORS, SERIES CIRCUIT DISCONNECT/CUTOUT ENCLOSURES, HIGH VOLTAGE WIREWAYS, AND HIGH VOLTAGE PULL BOXES. LABELS SHALL BE MINIMUM 3.5"H X 5" W.

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Illinois Licensed
Professional Service Corporation
#184-001084



MARSHALL COUNTY AIRPORT BOARD
MARSHALL COUNTY AIRPORT (C75)
 1315 ILLINOIS 17
 LACON, ILLINOIS 61540

COVERING ELECTRICAL DESIGN



DATE	LICENSE
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INSTALL PAPI ON RUNWAY
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DESIGN BY: KNL 8/25/25

DRAWN BY: JKD 9/10/25

REVIEWED BY: KNL 9/22/25

SHEET TITLE

LEGEND PLATE AND
SIGNAGE
SCHEDULES - SHEET
2