ITEM NO. 11A LETTING DATE: APRIL 25, 2025

FL036
TOTAL SHEETS = 39

CONSTRUCTION PLANS

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

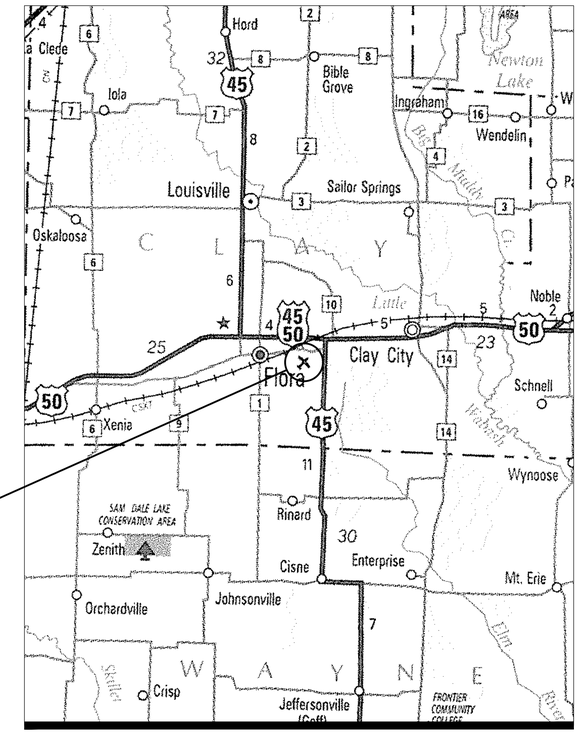
AIRPORT AUTHORITY OF FLORA
FLORA MUNICIPAL AIRPORT (FOA)
FLORA, CLAY COUNTY, ILLINOIS

IDA PROJECT NO. FOA-5191
SBG PROJECT NO. 3-17-SBGP-TBD

100% SUBMITTAL
FEBRUARY 28, 2025

NOTICE TO CONTRACTORS AND BIDDERS

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



VICINITY MAP

LOCATION MAP

No.	Issue/Description	Sheets Changed	Date	By

HANSON

HANSON PROFESSIONAL SERVICES INC.
1525 S. Sixth St.
Springfield, Illinois 62703
Telephone: 217.788.2450
Fax: 217.788.2503

LICENSED PROFESSIONAL ENGINEER
LINDSAY DENET HAUSMAN
062-059464
STATE OF ILLINOIS

Lindsay D Hausman, P.E. Lic. Exp. 11/30/2025 FEBRUARY 28, 2025
Project Manager Date

COVERING ELECTRICAL DESIGN

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

Kevin N. Lightfoot, P.E. Lic. Exp. 11/30/2025 FEBRUARY 28, 2025
Electrical Engineer Date

FLORA MUNICIPAL AIRPORT
1 Airport Road
Flora, Illinois 62839
Telephone: 618.662.2823

Karen Pickel FEBRUARY 28, 2025
Karen Pickel Date
Airport Manager

I:\24\OBS\24A0104_00\CAD\AIRPORT\SHEET\C-001-CVR.DWG

INDEX TO SHEETS

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AR101515	HIGH INTENSITY AIRPORT BEACON	EACH	1	
AR101900	BEACON REMOVAL	EACH	1	
AR108108	1/C #8 5 KV UG CABLE	FOOT	9,324	
AR109200	INSTALL ELECTRICAL EQUIPMENT	LSUM	1	
AR110012	2" DIRECTIONAL BORE	FOOT	280	
AR110202	2 PVC DUCT, DIRECT BURY	FOOT	5,313	
AR115610	ELECTRICAL HANDHOLE	EACH	2	
AR119511	AIRPORT OBSTRUCTION LIGHT-SINGLE	EACH	2	
AR125416	MITL-BASE MOUNTED-LED	EACH	93	
AR125445	TAXI GUIDANCE SIGN, 5 CHARACTER	EACH	5	
AR125446	TAXI GUIDANCE SIGN, 6 CHARACTER	EACH	1	
AR125546	MI THRESHOLD LIGHT BASE MTD-LED	EACH	16	
AR125565	SPLICE CAN	EACH	2	
AR150510	ENGINEER'S FIELD OFFICE	LSUM	1	
AR150520	MOBILIZATION	LSUM	1	
AR150530	TRAFFIC MAINTENANCE	LSUM	1	
AR800564	CABLE AND CCR TESTING AND CALIBRATION	LSUM	1	
AR800584	REPAINT BEACON TOWER	LSUM	1	

GENERAL NOTES

1. THE PROJECT PAY ITEMS ARE INTENDED TO BE INCLUSIVE OF ALL WORK TO BE PERFORMED AS SHOWN IN THESE PLANS. ALL INCIDENTAL WORK REQUIRED TO COMPLETE THE PROJECT TO THE SATISFACTION OF THE RESIDENT ENGINEER IS TO BE INCLUDED IN THE COSTS OF PERFORMING THESE ITEMS. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL,EQUIPMENT, AND TRANSPORTATION NECESSARY TO CONSTRUCT ALL ELEMENTS OF THE PROJECT AS DESCRIBED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS.

2. THE RULES, REGULATIONS, AND SPECIFICATIONS ENUMERATED HEREIN SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS. THEY SHALL NOT PROHIBIT THE CONTRACTOR FROM FURNISHING AND INSTALLING HIGHER GRADES OF MATERIAL THAN ARE SPECIFIED HEREIN, IF APPROVED BY THE ENGINEER.

3. ACCESS TO THE SITE SHALL BE RESTRICTED EXCLUSIVELY TO THE DESIGNATED CONSTRUCTION ENTRANCE, STAGING AREA, AND HAUL ROUTE. NO EQUIPMENT OR PERSONNEL SHALL BE PERMITTED OUTSIDE THE GENERAL PROJECT AREA.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AND KEEP CLEAN OF DEBRIS ALL EXISTING AIRFIELD AND ROADWAY PAVEMENTS AT ALL TIMES. ANY DAMAGE TO EXISTING ELECTRICAL, DRAINAGE, AND PAVEMENT STRUCTURES SHALL BE IMMEDIATELY REPAIRED AT NO ADDITIONAL COST TO THE CONTRACT.

5. CONTRACTOR IS REQUIRED TO PROVIDE THEIR OWN RESTROOM FACILITIES.

6. THE OWNER SHALL HAVE THE RIGHT OF FIRST REFUSAL FOR ALL SALVAGEABLE MATERIAL REMOVED ON THE PROJECT.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS FOR HAULING ON PUBLIC ROADS, AS APPLICABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY DAMAGES TO ANY PAVEMENTS (PUBLIC OR PRIVATE) CAUSED BY HIS/HER CONSTRUCTION EQUIPMENT OR PERSONNEL.

8. THE CONTRACTOR SHALL PROVIDE ONE SET OF PRELIMINARY REDLINED RECORD DRAWINGS TO THE RESIDENT ENGINEER AT THE COMPLETION OF THE PROJECT FOR INCORPORATION INTO THE OFFICIAL RECORD DRAWINGS HE WILL PREPARE.

9. APPROXIMATE LOCATIONS OF UNDERGROUND UTILITIES ARE SHOWN THROUGHOUT THESE PLANS. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS AND PROTECT THESE UTILITIES DURING CONSTRUCTION. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL COORDINATE WITH THE PROPER AUTHORITIES FOR THE PURPOSE OF LOCATING AND PROTECTING EXISTING UNDERGROUND UTILITIES.

10. THE CONTRACTOR SHALL PROVIDE ALL LAYOUT NEEDS, BOTH VERTICALLY AND HORIZONTALLY.

11. ALL REQUESTS FOR INFORMATION SHALL BE PROVIDED IN WRITING AND ALL DIRECTIVES SHALL BE RECEIVED IN WRITING.

12. CHANGES TO THE PROJECT SHALL NOT BE INCORPORATED INTO THE PROJECT UNTIL EXPRESSLY APPROVED BY THE ENGINEER.

13. NPDES PERMIT - THIS PROJECT WILL NOT DISTURB MORE THAN 1 ACRE, THEREFORE A NPDES PERMIT IS NOT REQUIRED.

14. MATERIAL CERTIFICATIONS - MATERIALS CANNOT BE INSTALLED UNTIL ALL THE MATERIAL CERTIFICATIONS FOR THAT ITEM HAVE BEEN RECEIVED, REVIEWED AND ACCEPTED BY THE RESIDENT ENGINEER. MATERIALS INSTALLED WITHOUT APPROVAL ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

15. CERTIFIED PAYROLLS - PAY APPLICATIONS CANNOT BE PROCESSED FOR PAYMENT UNTIL ALL CERTIFIED PAYROLLS FOR THAT PERIOD HAVE BEEN RECEIVED.

UTILITY NOTE

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 WHATEVER 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 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. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. 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.

J.U.L.I.E. INFORMATION

COUNTY_____CLAY
CITY_____FLORA
TOWNSHIP_____STANFORD
SECTION NO.____29
ADDRESS_____FLORA MUNICIPAL AIRPORT
1 AIRPORT ROAD
FLORA, ILLINOIS 62839

BID DOCUMENTS

HANSON
Engineering | Planning | Allied Services

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Hanson Professional Services Inc.
1525 S. 6th Street
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#184-001084

FLORA MUNICIPAL AIRPORT

1 AIRPORT ROAD
FLORA, ILLINOIS 62839

LICENSED PROFESSIONAL ENGINEER
LINDSAY DENET HAUSMAN
062-059464
STATE OF ILLINOIS

DATE SIGNED: 2/26/2025
LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: FEBRUARY 28, 2025
PROJECT NO: **24A0104**.00
CAD FILE: G-002-SQ.DWG
DESIGN BY: KNL 01/08/2025
DRAWN BY: AJC 01/10/2025
REVIEWED BY: LDH 01/29/2025

SHEET TITLE

SUMMARY OF QUANTITIES AND INDEX OF SHEETS

CONSTRUCTION SAFETY PLAN

1. SCOPE OF WORK - THE PROJECT CONSISTS OF REMOVAL AND REPLACEMENT OF THE TAXIWAY LIGHTING SYSTEMS, REMOVAL OF REILS, REPLACING RUNWAY THRESHOLD LIGHTS, THE ASSOCIATED CABLING, CONDUITS AND DUCT WORK, JUNCTION STRUCTURES, HANDHOLES, AND VAULT WORK. THIS PROJECT ALSO INCLUDES THE REMOVAL AND REPLACEMENT OF THE AIRPORT ROTATING BEACON, OBSTRUCTION LIGHTS, AND PAINTING THE BEACON TOWER.

2. GENERAL - THE FLORA AIRPORT IS COMPRISED OF TWO RUNWAYS: A SOD RUNWAY 15-33 AND A PAVED RUNWAY 3-21. THIS PROJECT REQUIRES THE CONTRACTOR TO LIMIT THE EQUIPMENT HEIGHT TO 25' WHILE WORKING UNDER THE RUNWAY APPROACHES.

3. IDENTIFICATION - WHEN THE CONTRACTORS VEHICLES AND EQUIPMENT ARE ON THE AIRPORT PROPERTY THEY SHALL BE PROPERLY MARKED WITH THREE (3') FOOT SQUARE CHECKERED FLAGS (INTERNATIONAL ORANGE AND WHITE). THE CONTRACTOR WILL ALSO PROVIDE WORKERS WITH SOME TYPE OF TAG OR GARMENT TO IDENTIFY THE PERSON AS BEING PART OF THE CONSTRUCTION CREW.

4. RADIO CONTROL - THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO-WAY RADIO CONTACT (122.70 MHz.) WITH THE AIRPORT UNICOM. THIS WILL KEEP THE CONTRACTOR IN CONSTANT CONTACT WITH THE FLORA AIRPORT AND ENABLE THE AIRPORT TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTIC EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

5. AIRPORT SECURITY WILL BE MAINTAINED AT ALL TIMES. ONLY CONTRACTOR EMPLOYEES SHALL BE ALLOWED WITHIN THE PROJECT LIMITS. GATES SHALL BE CLOSED AT ALL TIMES UNLESS THE CONTRACTOR IS IN A CONTINUOUS HAULING OPERATIONS, DURING WHICH TIME HE WILL PROVIDE A PERSON TO MONITOR THE GATE AREA.

6. THE CONTRACTOR WILL USE THE AIRPORT ENTRANCE ROAD FOR ACCESS TO THE PROPERTY AS THE DESIGNATED HAUL ROUTE. THE CONTRACTOR SHALL PARK EQUIPMENT AND PLACE MATERIALS WITHIN THE LIMITS OF THE SUBJECT PROPERTY. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THE PROPOSED HAUL ROUTE AND SUBJECT PROPERTY THROUGHOUT THE COURSE OF THE PROJECT. ANY AREAS DAMAGED OUTSIDE OF THESE AREAS WILL BE REPAIRED BY THE CONTRACTOR AND AT THE CONTRACTOR'S OWN EXPENSE. AT THE CONCLUSION OF THE PROJECT THE CONTRACTOR WILL RESTORE THE HAUL ROUTE AND PARKING AREA TO ITS ORIGINAL STATE. RESTORATION OF THE HAUL ROUTE AND ANY AREAS USED FOR PARKING WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

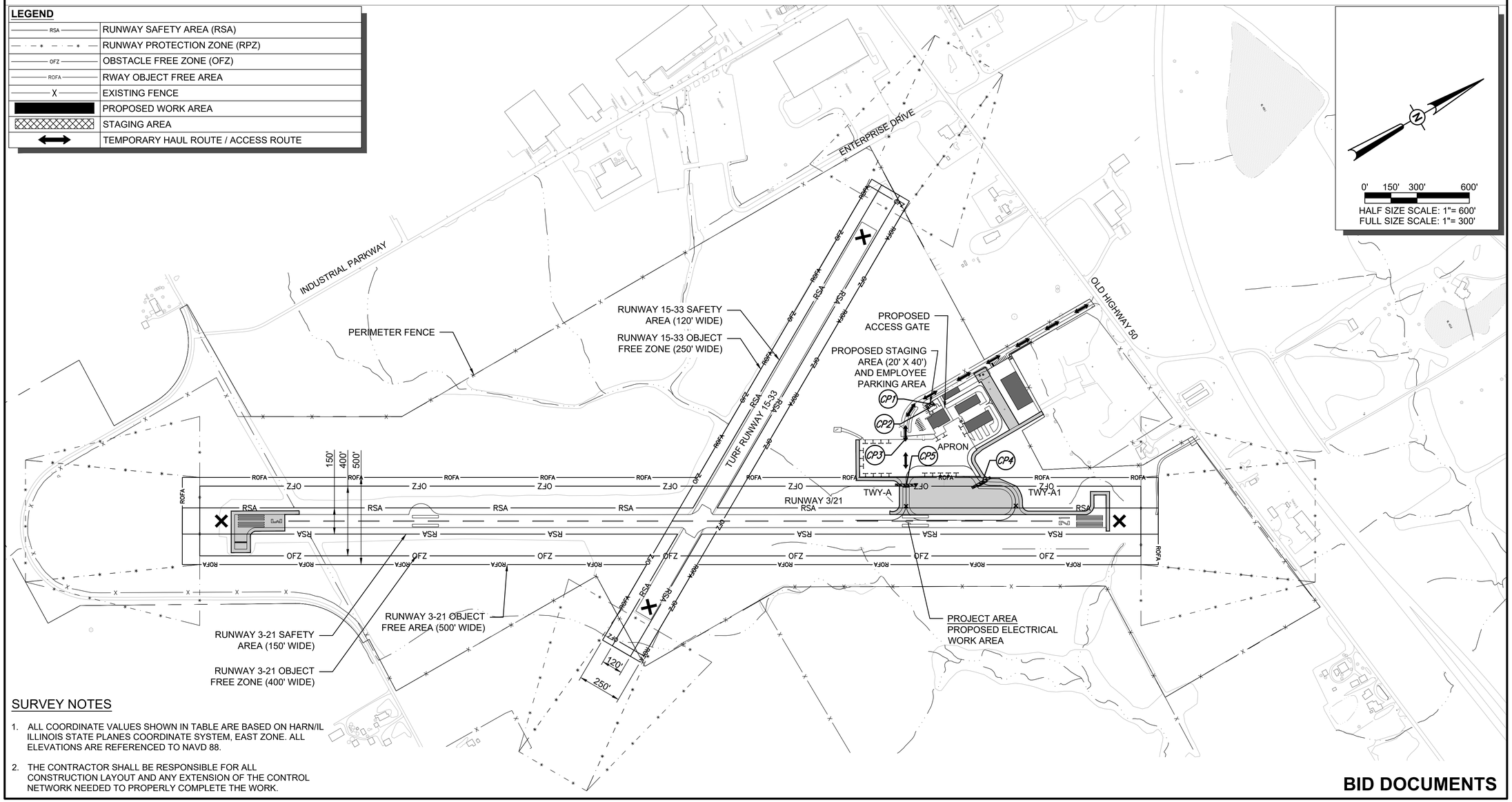
7. ALL CONSTRUCTION EQUIPMENT ON THE AIRPORT SHALL BE MARKED, LIGHTED AND/OR FLAGGED IN ACCORDANCE WITH AC 150/5210-5 (CURRENTEDITION) AND 70/7460-1 (CURRENT EDITION).

CONTROL POINTS

POINT #	DESCRIPTION	LATITUDE	LONGITUDE	GROUND (MSL)	HEIGHT (AGL)
1	CONST. EQUIP	038° 40' 07.59"	-088° 27' 07.77"	472.00	25'
2	CONST. EQUIP	038° 40' 07.19"	-088° 27' 07.77"	472.00	25'
3	HAUL ROUTE	038° 40' 05.16"	-088° 27' 06.64"	469.00	25'
4	BARRICADE	038° 40' 07.70"	-088° 27' 01.12"	468.00	2'
5	BARRICADE	038° 40' 03.90"	-088° 27' 03.66"	465.00	2'

LEGEND

RSA	RUNWAY SAFETY AREA (RSA)
RPZ	RUNWAY PROTECTION ZONE (RPZ)
OFZ	OBSTACLE FREE ZONE (OFZ)
ROFA	RWAY OBJECT FREE AREA
X	EXISTING FENCE
	PROPOSED WORK AREA
	STAGING AREA
	TEMPORARY HAUL ROUTE / ACCESS ROUTE



SURVEY NOTES

1. ALL COORDINATE VALUES SHOWN IN TABLE ARE BASED ON HARN/IL ILLINOIS STATE PLANES COORDINATE SYSTEM, EAST ZONE. ALL ELEVATIONS ARE REFERENCED TO NAVD 88.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND ANY EXTENSION OF THE CONTROL NETWORK NEEDED TO PROPERLY COMPLETE THE WORK.

BID DOCUMENTS

FEB 26, 2025 1:24 PM HAUSM00682
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HANSON
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FLORA MUNICIPAL AIRPORT

1 AIRPORT ROAD
FLORA, ILLINOIS 62839

LICENSED PROFESSIONAL ENGINEER
LINDSAY DENET HAUSMAN
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DATE SIGNED: 2/26/2025
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REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

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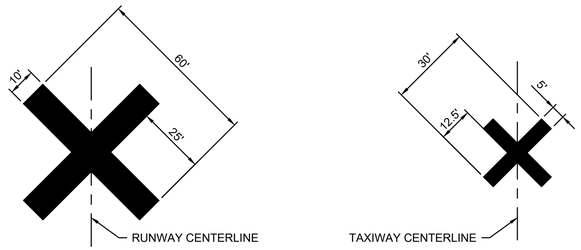
NO.	DATE	DESCRIPTION	DES	DWN	REV

ISSUE: FEBRUARY 28, 2025
PROJECT NO: **24A0104**.00
CAD FILE: G-003-SFY.DWG
DESIGN BY: LDH 01/23/2025
DRAWN BY: AJC 01/27/2025
REVIEWED BY: LDH 01/29/2025

SHEET TITLE

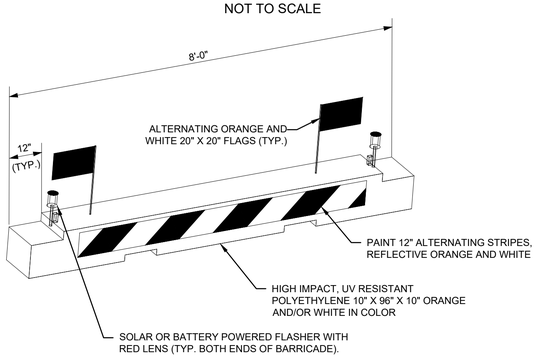
SCOPE OF WORK PLAN



1. TEMPORARY "CLOSED RUNWAY" MARKINGS SHALL BE "AVIATION YELLOW"
2. TEMPORARY "CLOSED RUNWAY" 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" MARKINGS SHALL BE PAID UNDER TRAFFIC MAINTENANCE, ITEM AR150530, UNLESS OTHERWISE NOTED.

TEMPORARY CLOSURE CROSS DETAIL

NOT TO SCALE



LOW PROFILE AIRCRAFT BARRICADE DETAIL

BARRICADE NOTES

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 UNDER TRAFFIC MAINTENANCE, ITEM AR150530, UNLESS OTHERWISE NOTED.

SAFETY NOTES

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 FURTHER MODIFICATIONS REQUESTED MUST BE APPROVED BY THE AIRPORT, RESIDENT ENGINEER/TECHNICIAN AND THE FAA.
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. NO CONSTRUCTION VEHICLES SHALL BE DRIVEN ACROSS ANY ACTIVE AIRFIELD PAVEMENT AREA WITHOUT AN APPROPRIATE ESCORT. CONSTRUCTION EQUIPMENT OR CONSTRUCTION ACTIVITY WILL NOT BE PERMITTED WITHIN 250' OF ANY ACTIVE RUNWAY CENTERLINE OR WITHIN 131' OF ANY OTHER ACTIVE AIRPORT TAXIWAY OR APRON.
5. 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 PRECONSTRUCTION CONFERENCE.
6. 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.
7. NO CONSTRUCTION MATERIAL STOCKPILES SHALL BE LOCATED WITHIN 500' OF ANY ACTIVE RUNWAY, WITHIN 131' 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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 SWEPT, PICKED UP AND REMOVED, OR PLACED INTO CLOSED CONTAINERS. ANY DAMAGE TO AIRPORT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT NO COST TO THE OWNER.
13. CONTRACTOR SHALL TAKE MEASURES TO AVOID TRACKING ASPHALT MATERIALS ONTO ADJACENT PAVEMENT AREAS, UNLESS SUFFICIENT PROTECTION HAS BEEN APPLIED. HEAVY TRACKING OR DAMAGE TO ADJACENT PAVEMENTS MAY BE CAUSE FOR STOPPING THE WORK UNTIL ACCEPTABLE PROTECTION OR CHANGE IN WORK METHODS HAS BEEN PROVIDED.
14. 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.
15. ALL AIRCRAFT AND AIRPORT OPERATIONS HAVE THE RIGHT-OF-WAY. CONTRACTOR TO YIELD TO VEHICLES AND REMAIN CLEAR AT ALL TIMES.
16. 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.
17. CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED LIGHTS DURING PERIODS OF LOW VISIBILITY AS REQUIRED.
18. THE CONTRACTOR SHALL PERIODICALLY PERFORM ONSITE INSPECTIONS THROUGHOUT THE DURATION OF THE PROJECT WITH THE IMMEDIATE REMEDY OF ANY DIFFERENCES, WHETHER CAUSED BY NEGLIGENCE, OVERSIGHT, OR PROJECT SCOPE CHANGE.
19. CONTRACTOR SHALL MOVE MAINTENANCE OF TRAFFIC COMPONENTS AT THE WRITTEN DIRECTION OF THE RESIDENT ENGINEER/TECHNICIAN AT NO ADDITIONAL COST.
20. CONTRACTOR SHALL NOT REMOVE THE BARRICADES WITHOUT THE APPROVAL BY THE RESIDENT ENGINEER/TECHNICIAN.
21. 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.
22. THE CONTRACTOR SHALL UTILIZE WATER AND/OR CHEMICALS APPROVED BY THE RESIDENT ENGINEER/TECHNICIAN AS NECESSARY TO CONTROL DUST.
23. 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.
24. UNLESS SPECIFIED OTHERWISE, COST FOR SAFETY, STAGING, AND TRAFFIC MAINTENANCE ITEMS IS TO BE PAID UNDER ITEM 150530 TRAFFIC MAINTENANCE.
25. 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".
26. ALL RUNWAY/TAXIWAY CLOSURES SHALL BE COORDINATED WITH AIRPORT MANAGEMENT A MINIMUM OF 3 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.
27. RUNWAY/TAXIWAY CLOSURE PROCEDURES:
    - CONTACT THE AIRPORT MANAGEMENT OR ASSIGNED REPRESENTATIVE A MINIMUM OF 7 DAYS BEFORE THE DESIRED CLOSING TIME..
    - ISSUANCE OF NOTAM AND DEACTIVATION OF THE APPLICABLE AIRFIELD LIGHTING AND NAVAIDS BY THE AIRPORT MANAGEMENT AND/OR FAA.
    - PLACEMENT OF CROSSES AND BARRICADES.
    - ONLY AT THE TIME THAT ALL OF THE ABOVE ARE COMPLETED MAY ANY CONSTRUCTION OPERATIONS BEGIN WITHIN THE RUNWAY/TAXIWAY AIR OPERATIONS AREA.

    RUNWAY/TAXIWAY RE-OPENING PROCEDURES:
    - ENSURE ALL PERSONNEL, EQUIPMENT AND MATERIALS ARE CLEAR OF THE AIR OPERATIONS AREA.
    - INSPECT THE AREA FOR LOOSE OR TRACKED DEBRIS, PAVEMENT DROP-OFFS, AND OPEN TRENCHES.
    - CONTACT AIRPORT MANAGEMENT OR REPRESENTATIVE FOR FINAL INSPECTION OF THE AREA.
    - REMOVE BARRICADES AND CROSSES.
    - ACTIVATION OF THE AIRFIELD LIGHTING AND NAVAIDS AND CANCELLATION OF THE NOTAM BY THE AIRPORT MANAGEMENT AND/OR FAA.

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FLORA MUNICIPAL AIRPORT

1 AIRPORT ROAD
FLORA, ILLINOIS 62839

LICENSED PROFESSIONAL ENGINEER
LINDSAY DENET HAUSMAN
062-059464
STATE OF ILLINOIS

DATE SIGNED: 2/26/2025
LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

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SHEET TITLE

SAFETY NOTES AND DETAILS

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PHASE 1 NOTES

1. WORK TO BE COMPLETED DURING PHASE 1:
   - REMOVAL OF EXISTING LIGHTING WITHIN RUNWAY 3-21 OBSTACLE FREE ZONE (OFZ).
   - INSTALLATION OF LIGHTING, SIGNS, AND ASSOCIATED CONDUIT WITHIN RUNWAY 3-21 OFZ.
   - REMOVAL OF EXISTING REILS.
2. TURF RUNWAY 15-33 AND RUNWAY 3-21 WILL BE CLOSED DURING THIS PHASE.

LEGEND

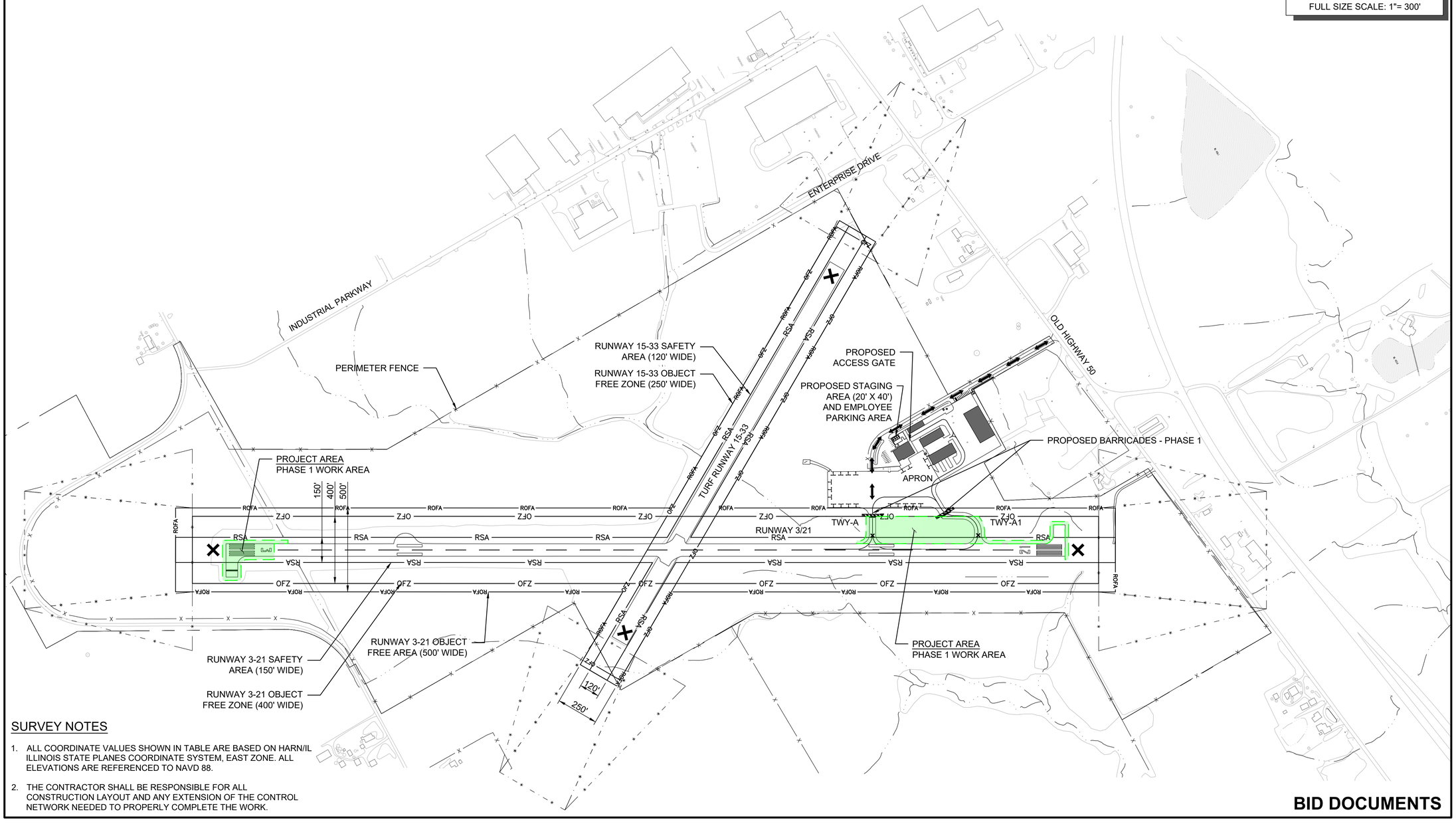
RSA	RUNWAY SAFETY AREA (RSA)
RPZ	RUNWAY PROTECTION ZONE (RPZ)
OFZ	OBSTACLE FREE ZONE (OFZ)
ROFA	RWAY OBJECT FREE AREA
X	EXISTING FENCE
	PROPOSED WORK AREA
	STAGING AREA
	TEMPORARY HAUL ROUTE / ACCESS ROUTE

PHASING NOTES

1. ALL CONTRACTOR ACTIVITIES AND PROPOSED WORK SHALL TAKE PLACE WITHIN THE CONSTRUCTION LIMIT LINES AS SHOWN.
2. MAXIMUM HEIGHT OF CONTRACTOR'S EQUIPMENT IS 25 FEET FOR ALL WORK. ANY ADJUSTMENTS TO THESE HEIGHT RESTRICTIONS MUST BE APPROVED BY THE ENGINEER.
3. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.

0' 150' 300' 600'

HALF SIZE SCALE: 1"= 600'
FULL SIZE SCALE: 1"= 300'



SURVEY NOTES

1. ALL COORDINATE VALUES SHOWN IN TABLE ARE BASED ON HARN/IL ILLINOIS STATE PLANES COORDINATE SYSTEM, EAST ZONE. ALL ELEVATIONS ARE REFERENCED TO NAVD 88.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND ANY EXTENSION OF THE CONTROL NETWORK NEEDED TO PROPERLY COMPLETE THE WORK.

BID DOCUMENTS

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SHEET TITLE

CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 1

PHASE 2 NOTES

1. WORK TO BE COMPLETED DURING PHASE 2A:
   - REMOVAL OF EXISTING LIGHTING WITHIN PHASE 2A LIMITS.
   - INSTALLATION OF TAXIWAY LIGHTING, SIGNS, AND ASSOCIATED ITEMS WITHIN PHASE 2A LIMITS.
2. WORK TO BE COMPLETED DURING PHASE 2B:
   - REMOVAL OF EXISTING LIGHTING WITHIN PHASE 2B LIMITS.
   - ELECTRICAL VAULT WORK
   - INSTALLATION OF TAXIWAY LIGHTING, SIGNS, AND ASSOCIATED ITEMS WITHIN PHASE 2B LIMITS.
   - REPLACE BEACON LIGHT.
   - PAINT BEACON TOWER.
3. PHASE 2A MUST BE COMPLETED INDEPENDENTLY TO MAINTAIN ACCESS TO RUNWAY 3/21.
4. RUNWAY 3/21 AND 15/33 WILL REMAIN OPEN DURING PHASE 2A AND 2B.
5. TAXIWAY A WILL BE CLOSED DURING PHASE 2A.
6. TAXIWAY A1 WILL BE CLOSED DURING PHASE 2B.

LEGEND

RSA	RUNWAY SAFETY AREA (RSA)
*	RUNWAY PROTECTION ZONE (RPZ)
OFZ	OBSTACLE FREE ZONE (OFZ)
ROFA	RWAY OBJECT FREE AREA
X	EXISTING FENCE
	PROPOSED WORK AREA 2A
	PROPOSED WORK AREA 2B
	STAGING AREA
	TEMPORARY HAUL ROUTE / ACCESS ROUTE

PHASING NOTES

1. ALL CONTRACTOR ACTIVITIES AND PROPOSED WORK SHALL TAKE PLACE WITHIN THE CONSTRUCTION LIMIT LINES AS SHOWN.
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3. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.

0' 150' 300' 600'

HALF SIZE SCALE: 1"= 600'
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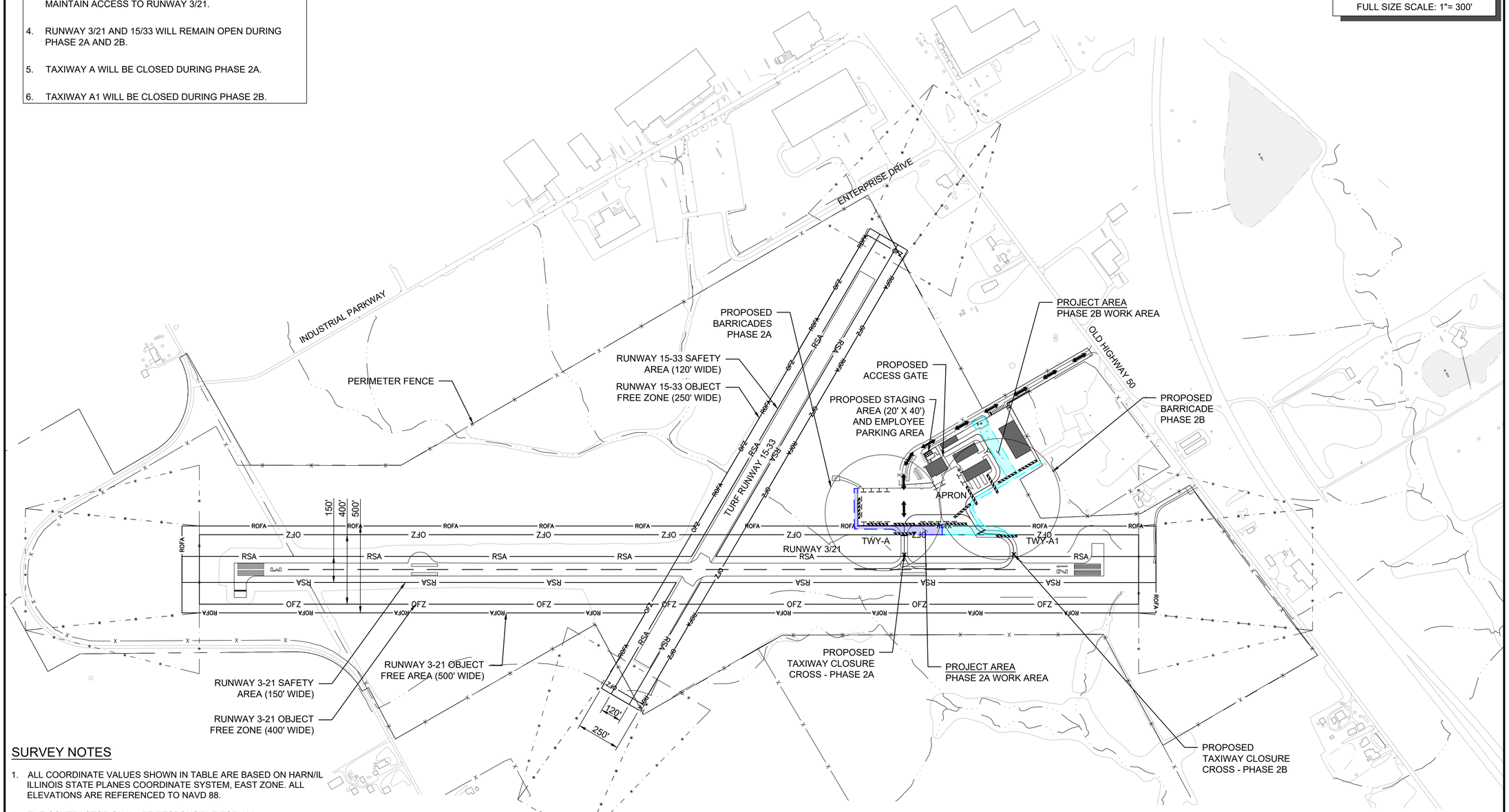

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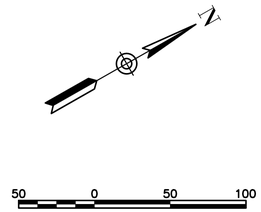
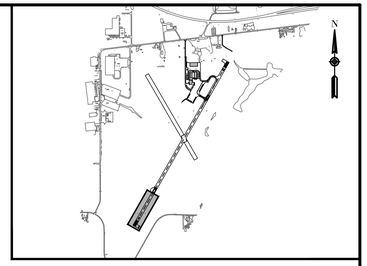
CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2

LEGEND

- EXISTING PAVEMENT
- EXISTING BUILDING
- EXISTING MARKING
- EXISTING ELECTRICAL DUCT
- EXISTING ELECTRICAL CABLES
- E — EXISTING ELECTRICAL CABLES
- EXISTING ELECTRICAL CABLES
- UD — EXISTING UNDERDRAIN
- CO — EXISTING UNDERDRAIN CLEANOUT
- EXISTING STORM SEWER/UNDERDRAIN
- OHE — EXISTING ELECTRIC UTILITY OH PRIMARY
- T — EXISTING TELEPHONE
- G — EXISTING GAS
- X — EXISTING FENCE
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING TAXI/RUNWAY SIGN TO BE REMOVED
- EXISTING RUNWAY THRESHOLD LIGHT TO BE REMOVED
- EXISTING STAKE MOUNTED TAXIWAY EDGE LIGHT TO BE REMOVED
- EXISTING BASE MOUNTED TAXIWAY EDGE LIGHT TO BE REMOVED.
- HH — EXISTING ELECTRICAL HANDHOLE
- SC — EXISTING SPLICE CAN
- EXISTING WIND CONE
- T — EXISTING WIND TEE
- EXISTING PLASI
- EXISTING REIL TO BE REMOVED





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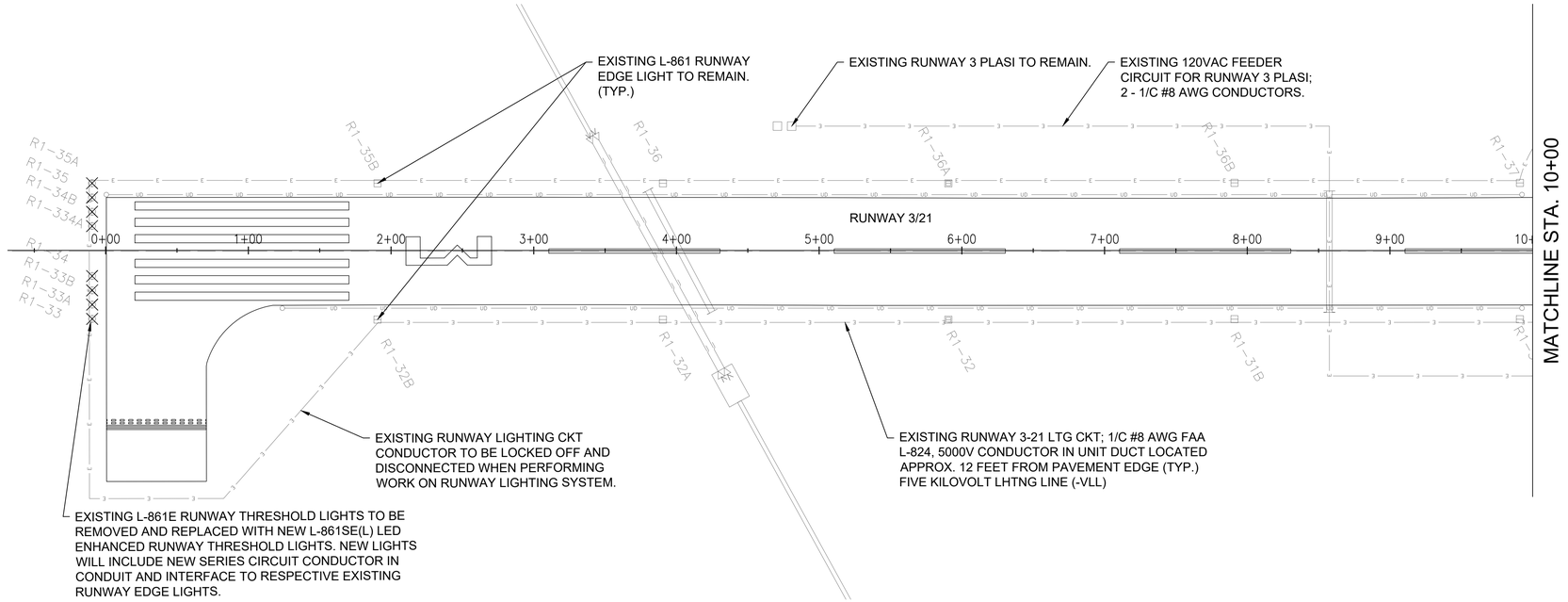

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SHEET TITLE

EXISTING AIRFIELD LIGHTING DEMOLITION PLAN - SHEET 1

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LEGEND

- EXISTING PAVEMENT
- EXISTING BUILDING
- EXISTING MARKING
- EXISTING ELECTRICAL DUCT
- EXISTING ELECTRICAL CABLES
- E — EXISTING ELECTRICAL CABLES
- EXISTING ELECTRICAL CABLES
- UD — EXISTING UNDERDRAIN
- CO — EXISTING UNDERDRAIN CLEANOUT
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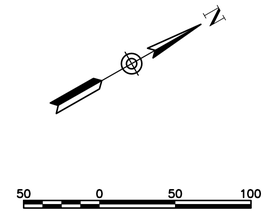
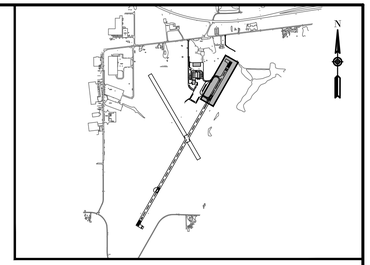
- T — EXISTING TELEPHONE
- G — EXISTING GAS
- X — EXISTING FENCE
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING TAXI/RUNWAY SIGN TO BE REMOVED
- EXISTING RUNWAY THRESHOLD LIGHT TO BE REMOVED
- EXISTING STAKE MOUNTED TAXIWAY EDGE LIGHT TO BE REMOVED
- EXISTING BASE MOUNTED TAXIWAY EDGE LIGHT TO BE REMOVED.
- HH — EXISTING ELECTRICAL HANDHOLE
- SC — EXISTING SPLICE CAN
- EXISTING WIND CONE
- T — EXISTING WIND TEE
- EXISTING PLASI
- EXISTING REIL TO BE REMOVED





KEYMAP

MATCHLINE (SEE NEXT SHEET)

MATCHLINE STA. 37+50

EXISTING TAXIWAY/RUNWAY EDGE SIGN TO BE REMOVED (TYP.)

EXISTING TAXIWAY LIGHTING CKT CONDUCTORS TO BE LOCKED OFF, DISCONNECTED, AND REMOVED WHERE ACCESSIBLE OR IN CONFLICT WITH NEW WORK AND ABANDONED IN PLACE ELSEWHERE (TYP.)

EXISTING TAXIWAY EDGE LIGHT TO BE REMOVED (TYP.)

EXISTING L-861 RUNWAY EDGE LIGHT TO REMAIN (TYP.)

EXISTING RWY 3-21 LTG CKT HOMERUN; 2 - 1/C #8 AWG FAA L-824, 5000V CONDUCTORS IN UNIT DUCT. FIVE KILOVOLT LHTNG LINE (-VLL)

EXISTING RWY 21 REIL 240VAC FEEDER CIRCUIT; 3 - 1/C #6 AWG, 600V CONDUCTORS TO BE LOCKED OFF, DISCONNECTED, REMOVED WHERE ACCESSIBLE AND ABANDONED IN PLACE ELSEWHERE.

EXISTING L-861E RUNWAY THRESHOLD LIGHT TO BE REMOVED AND REPLACED WITH NEW L-861SE(L) LED ENHANCED THRESHOLD LIGHTS. NEW LIGHTS WILL INCLUDE NEW SERIES CIRCUIT CONDUCTOR IN CONDUIT AND INTERFACE TO RESPECTIVE EXISTING RUNWAY EDGE LIGHTS.

EXISTING REIL TO BE REMOVED.

TWY-A

TWY-A1

RUNWAY 3/21

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00

R1–52 R1–53 R1–54 R1–55 R1–56 R1–1 R1–2 R1–3 R1–4 R1–5 R1–6 R1–7 R1–8 R1–9 R1–10 R1–11 R1–12 R1–13 R1–14 R1–15 R1–16 R1–17

EXISTING RUNWAY 3 PLASI HOME RUN 120VAC FEEDER CIRCUIT; 2 - 1/C #8 AWG CONDUCTORS.

EXISTING RUNWAY LIGHTING CKT CONDUCTOR TO BE LOCKED OFF AND DISCONNECTED WHEN PERFORMING WORK ON RUNWAY LIGHTING SYSTEM.

EXISTING RUNWAY 21 PLASI HOME RUN 120VAC FEEDER CIRCUIT; 2 - 1/C #8 AWG CONDUCTORS.

EXISTING RUNWAY 21 PLASI TO REMAIN.

EXISTING REIL TO BE REMOVED.

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EXISTING AIRFIELD LIGHTING DEMOLITION PLAN - SHEET 2

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LEGEND

- EXISTING PAVEMENT
- EXISTING BUILDING
- EXISTING MARKING
- EXISTING ELECTRICAL DUCT
- EXISTING ELECTRICAL CABLES
- E — EXISTING ELECTRICAL CABLES
- EXISTING ELECTRICAL CABLES
- UD — EXISTING UNDERDRAIN
- CO — EXISTING UNDERDRAIN CLEANOUT
- EXISTING STORM SEWER/UNDERDRAIN
- OHE — EXISTING ELECTRIC UTILITY OH PRIMARY
- T — EXISTING TELEPHONE
- G — EXISTING GAS
- X — EXISTING FENCE

- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
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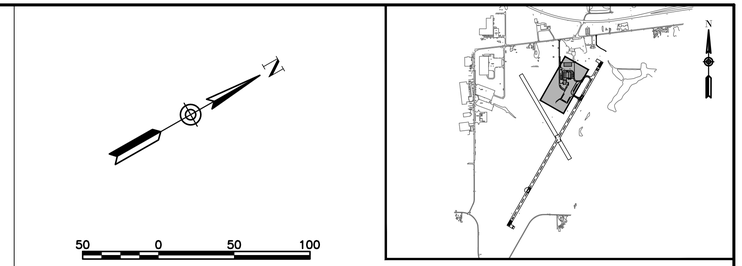

KEYMAP

AIRPORT ELECTRICAL VAULT

AIRPORT ROTATING BEACON TO BE REPLACED AND TOWER TO BE RE-PAINTED.

EXIST. TWY LTG CKT HOMERUN

EXISTING 2-WAY 3" DUCTS (LOW VOLTAGE)

SRE BLDG

EXIST. T-HANGAR

EXIST. HANGAR

TERMINAL BLDG

EXIST. HANGAR

EXISTING AWOS COMMUNICATION CKT

EXISTING AWOS 480VAC FEEDER CKT

EXISTING APRON LIGHT

EXISTING 120VAC FEEDER CKT FOR WIND CONE AND WIND TEE

EXISTING WIND CONE

EXISTING TWY EDGE LT TO BE REMOVED (TYP.)

APRON AREA

EXISTING WIND TEE

EXISTING TAXIWAY LTG CKT CONDUCTORS TO BE LOCKED OFF, DISCONNECTED AND REMOVED WHERE ACCESSIBLE OR IN CONFLICT WITH NEW WORK AND ABANDONED IN PLACE ELSEWHERE (TYP.)

EXISTING TAXIWAY LTG CKT HOME RUN

EXISTING LOW VOLTAGE ELECTRICAL HANDHOLE

EXISTING HIGH VOLTAGE ELECTRICAL HANDHOLE

EXISTING RWY 3-21 LTG CKT HOME RUN AND RWY 21 REIL CKT HOME RUN

EXISTING RWY 3 PLASI HOMERUN AND RWY 21 PLASI HOMERUN

MATCHLINE (SEE PREVIOUS SHEET)

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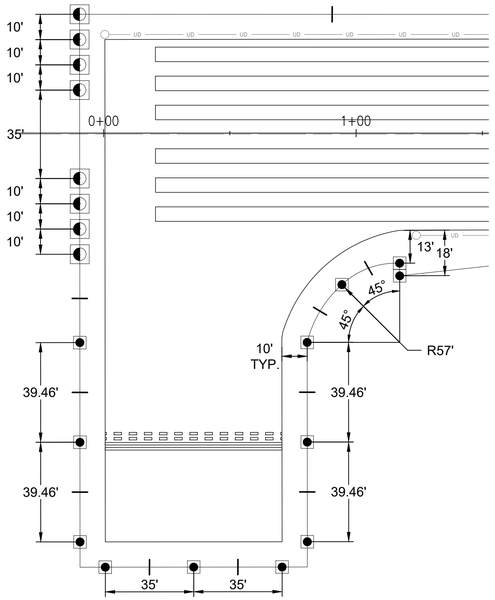
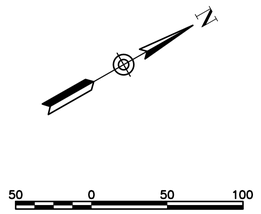
EXISTING AIRFIELD LIGHTING DEMOLITION PLAN - SHEET 3

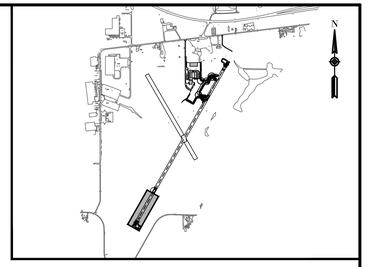
LEGEND

- EXISTING PAVEMENT
- EXISTING BUILDING
- EXISTING MARKING
- EXISTING ELECTRICAL DUCT
- PROPOSED ELECTRICAL DUCT
- EXISTING ELECTRICAL CIRCUIT
- E — EXISTING ELECTRICAL CABLES
- UD — EXISTING UNDERDRAIN
- CO — EXISTING UNDERDRAIN CLEANOUT
- EXISTING STORM SEWER
- T — EXISTING TELEPHONE
- C — EXISTING GAS
- X — EXISTING FENCE
- PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CONDUCTOR IN 2" SCHED 40 (MIN.) PVC OR HDPE DUCT. SLASHES INDICATE NUMBER OF CONDUCTORS.
- PROPOSED 2-1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CONDUCTOR IN 2" SCHED 40 (MIN.) PVC OR HDPE DUCT. SLASHES INDICATE NUMBER OF CONDUCTORS.
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- PROPOSED L-861T(L) BASE MOUNTED TAXIWAY LIGHT
- PROPOSED RUNWAY/TAXI GUIDANCE SIGN
- HH — EXISTING ELECTRICAL HANDHOLE
- SC — EXISTING SPLICE CAN
- HH — PROPOSED ELECTRICAL HANDHOLE
- SC — PROPOSED SPLICE CAN
- EXISTING WIND CONE
- T — EXISTING WIND TEE

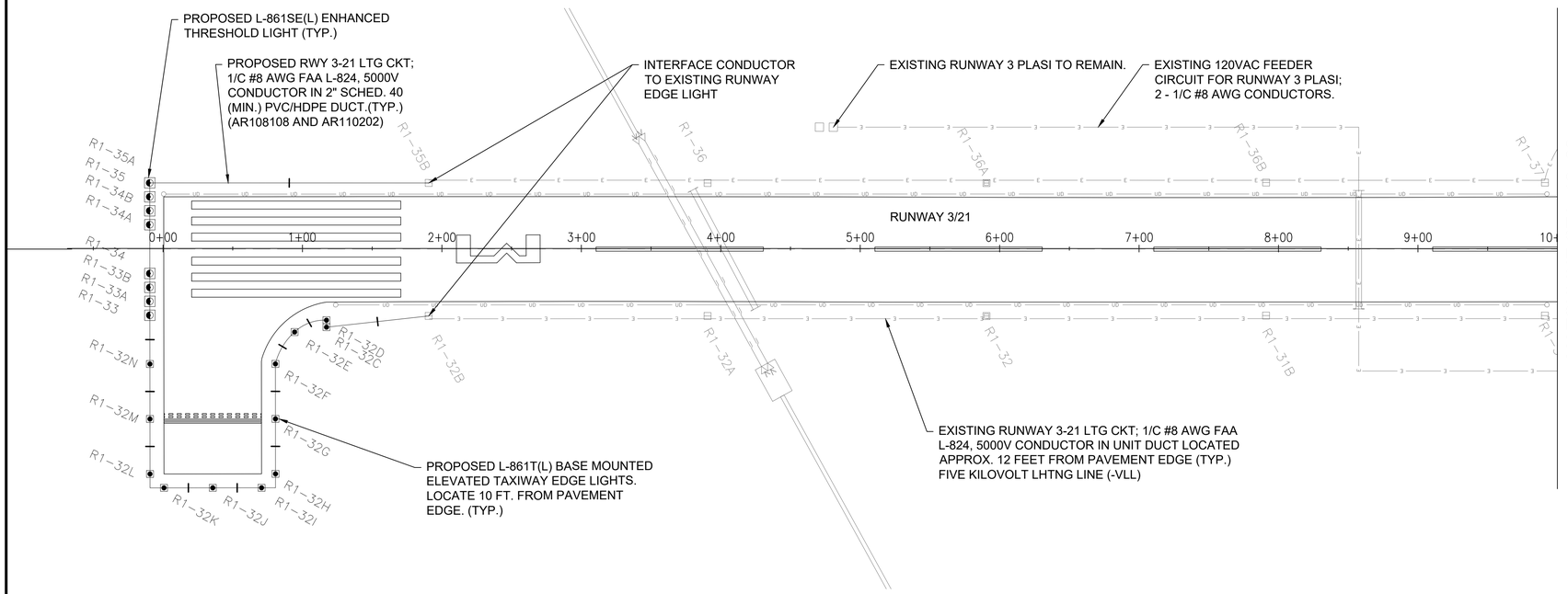


RUNWAY 3 END THRESHOLD/TURNAROUND DETAIL





KEYMAP



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FLORA MUNICIPAL AIRPORT

1 AIRPORT ROAD
FLORA, ILLINOIS 62839

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

DATE SIGNED: 2/26/2025
LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION	DES	DWN	REV

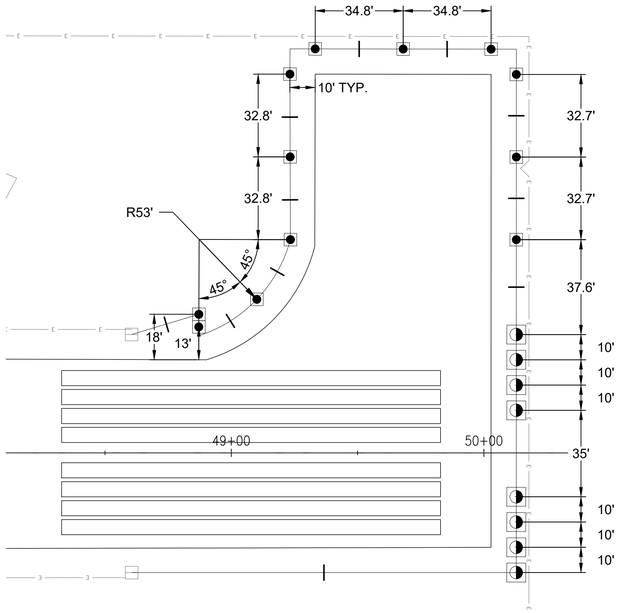
ISSUE: FEBRUARY 28, 2025
PROJECT NO: **24A0104**.00
CAD FILE: E-102-PLN.DWG
DESIGN BY: KNL 01/08/2025
DRAWN BY: AJC 01/21/2025
REVIEWED BY: KNL 01/28/2025

SHEET TITLE

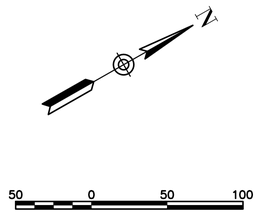
PROPOSED AIRFIELD LIGHTING PLAN - SHEET 1

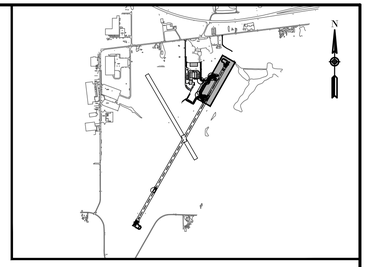
LEGEND

- EXISTING PAVEMENT
- EXISTING BUILDING
- EXISTING MARKING
- EXISTING ELECTRICAL DUCT
- PROPOSED ELECTRICAL DUCT
- EXISTING ELECTRICAL CIRCUIT
- E — EXISTING ELECTRICAL CABLES
- UD — EXISTING UNDERDRAIN
- CO — EXISTING UNDERDRAIN CLEANOUT
- EXISTING STORM SEWER
- T — EXISTING TELEPHONE
- C — EXISTING GAS
- X — EXISTING FENCE
- PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CONDUCTOR IN 2" SCHED 40 (MIN.) PVC OR HDPE DUCT. SLASHES INDICATE NUMBER OF CONDUCTORS.
- PROPOSED 2-1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CONDUCTOR IN 2" SCHED 40 (MIN.) PVC OR HDPE DUCT. SLASHES INDICATE NUMBER OF CONDUCTORS.
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- PROPOSED L-861T(L) BASE MOUNTED TAXIWAY LIGHT
- PROPOSED RUNWAY/TAXI GUIDANCE SIGN
- HH — EXISTING ELECTRICAL HANDHOLE
- SC — EXISTING SPLICE CAN
- HH — PROPOSED ELECTRICAL HANDHOLE
- SC — PROPOSED SPLICE CAN W/ 6 - 2" HUBS
- EXISTING WIND CONE
- T — EXISTING WIND TEE



PROPOSED RUNWAY END 21 THRESHOLD AND TURNAROUND LIGHT DETAIL
NOT TO SCALE





KEYMAP

PROPOSED 2 - 2" DIRECTIONAL BORES 70 L.F. EACH, 140 L.F. TOTAL. TERMINATE IN SPLICE CANS. (AR110012) INSTALL RWY LTG CKT CONDUCTOR IN ONE DUCT. INSTALL TWY LTG CKT CONDUCTOR AND TWY LTG CKT HOMERUN CONDUCTOR IN SECOND DUCT.

MATCHLINE (SEE NEXT SHEET)

PROPOSED 2 - 2" DIRECTIONAL BORES 70 L.F. EACH, 140 L.F. TOTAL. TERMINATE IN HANDHOLES. (AR110012) INSTALL RWY LTG CKT CONDUCTOR IN ONE DUCT. INSTALL TWY LTG CKT CONDUCTOR AND TWY LTG CKT HOMERUN CONDUCTOR IN SECOND DUCT.

PROPOSED RUNWAY HOLD SIGN. LOCATE 15 FT FROM PAVEMENT EDGE. (TYP.)

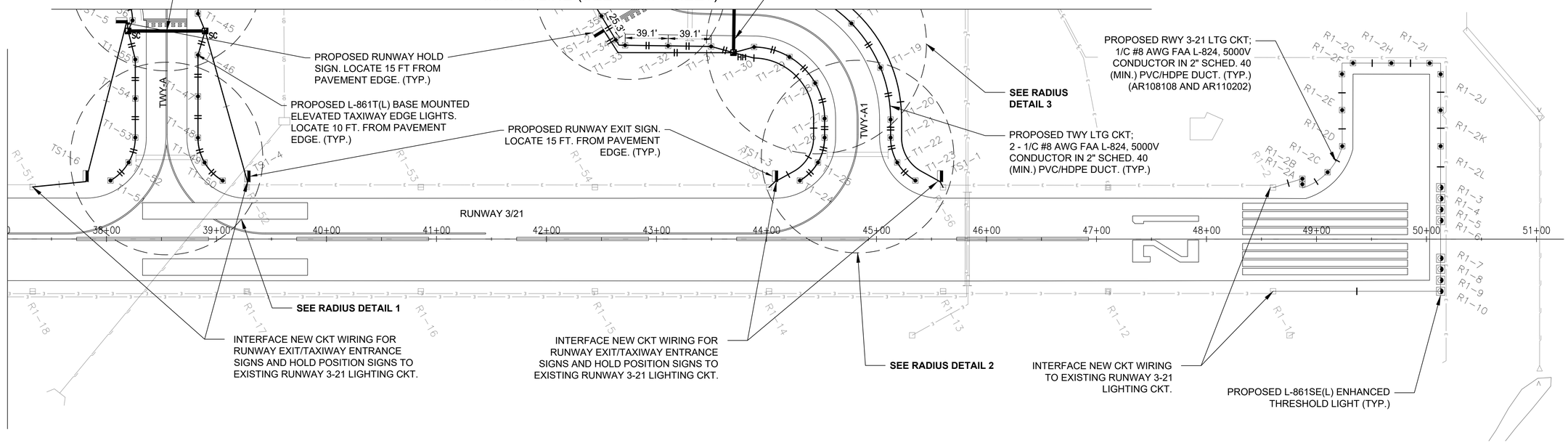
PROPOSED L-861T(L) BASE MOUNTED ELEVATED TAXIWAY EDGE LIGHTS. LOCATE 10 FT. FROM PAVEMENT EDGE. (TYP.)

PROPOSED RUNWAY EXIT SIGN. LOCATE 15 FT. FROM PAVEMENT EDGE. (TYP.)

SEE RADIUS DETAIL 3

PROPOSED TWY LTG CKT; 2 - 1/C #8 AWG FAA L-824, 5000V CONDUCTOR IN 2" SCHED. 40 (MIN.) PVC/HDPE DUCT. (TYP.)

PROPOSED RWY 3-21 LTG CKT; 1/C #8 AWG FAA L-824, 5000V CONDUCTOR IN 2" SCHED. 40 (MIN.) PVC/HDPE DUCT. (TYP.) (AR108108 AND AR110202)



SEE RADIUS DETAIL 1

INTERFACE NEW CKT WIRING FOR RUNWAY EXIT/TAXIWAY ENTRANCE SIGNS AND HOLD POSITION SIGNS TO EXISTING RUNWAY 3-21 LIGHTING CKT.

INTERFACE NEW CKT WIRING FOR RUNWAY EXIT/TAXIWAY ENTRANCE SIGNS AND HOLD POSITION SIGNS TO EXISTING RUNWAY 3-21 LIGHTING CKT.

SEE RADIUS DETAIL 2

INTERFACE NEW CKT WIRING TO EXISTING RUNWAY 3-21 LIGHTING CKT.

PROPOSED L-861SE(L) ENHANCED THRESHOLD LIGHT (TYP.)

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REVIEWED BY: KNL 01/28/2025

SHEET TITLE

PROPOSED AIRFIELD LIGHTING PLAN - SHEET 2

LEGEND

- EXISTING PAVEMENT
- EXISTING BUILDING
- EXISTING MARKING
- EXISTING ELECTRICAL DUCT
- PROPOSED ELECTRICAL DUCT
- EXISTING ELECTRICAL CIRCUIT
- EXISTING ELECTRICAL CABLES (E)
- EXISTING UNDERDRAIN (UD)
- EXISTING UNDERDRAIN CLEANOUT (CO)
- EXISTING STORM SEWER
- EXISTING TELEPHONE (T)
- EXISTING GAS (G)
- EXISTING FENCE (X)
- PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CONDUCTOR IN 2" SCHED 40 (MIN.) PVC OR HDPE DUCT. SLASHES INDICATE NUMBER OF CONDUCTORS.
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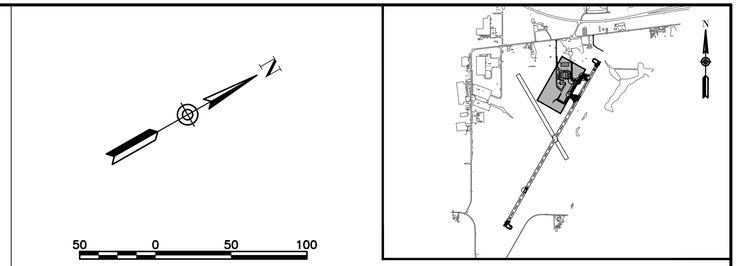
- PROPOSED L-861T(L) BASE MOUNTED TAXIWAY LIGHT
- PROPOSED RUNWAY/TAXI GUIDANCE SIGN
- EXISTING ELECTRICAL HANDHOLE (HH)
- EXISTING SPLICE CAN (SC)
- PROPOSED ELECTRICAL HANDHOLE (HH)
- PROPOSED SPLICE CAN (SC)
- EXISTING WIND CONE
- EXISTING WIND TEE (T)



KEYMAP

EXISTING AIRPORT ELECTRICAL VAULT

FURNISH & INSTALL TAXIWAY LIGHTING HOMERUN CONDUCTORS IN EXISTING DUCT TO VAULT; 2 - 1/C #8 AWG FAA L-824 5000V CONDUCTORS

PROPOSED TWY LTG CKT; 2 - 1/C #8 AWG FAA L-824, 5000V CONDUCTORS IN 2" SCHED. 40 (MIN.) PVC/HDPE DUCT. (TYP.)

FEED PROPOSED TAXIWAY LTG CONDUCTOR THROUGH EXISTING HANDHOLE. RUN TO AIRPORT ELECTRICAL VAULT.

PROPOSED L-861T(L) BASE MOUNTED ELEVATED TAXIWAY EDGE LIGHTS (TYP.)

SRE BLDG

EXIST. T-HANGAR

TERMINAL BLDG

EXIST. HANGAR

EXIST. HANGAR

APRON AREA

SEE RADIUS DETAIL 6

SEE RADIUS DETAIL 5

SEE RADIUS DETAIL 4

SEE RADIUS DETAIL 3

84.05' 84.05' 84.05' 84.05' 84.05' 50'

71.17' 71.17' 71.17' 50'

48.17' 48.17' 48.17' 48.17'

91.78' 50' 50' 91.78' 91.78'

40.64' 40.64'

MATCHLINE (SEE PREVIOUS SHEET)

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REVIEWED BY: KNL 01/28/2025

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PROPOSED AIRFIELD LIGHTING PLAN - SHEET 3

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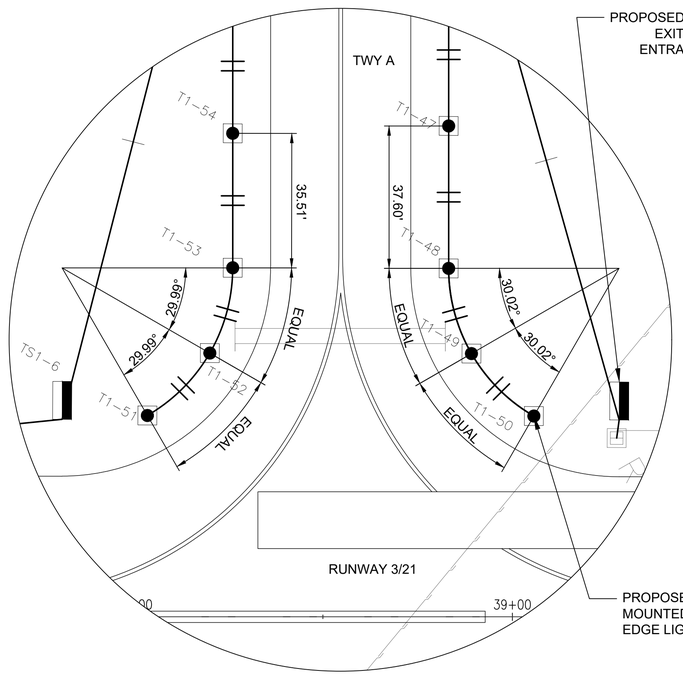
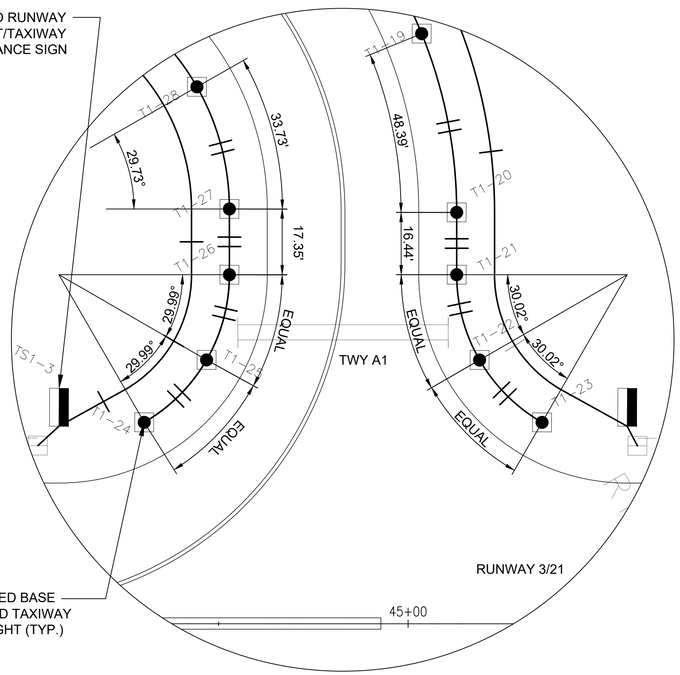


RADIUS DETAIL 1
NOT TO SCALE

PROPOSED RUNWAY EXIT/TAXIWAY ENTRANCE SIGN

PROPOSED BASE MOUNTED TAXIWAY EDGE LIGHT (TYP.)



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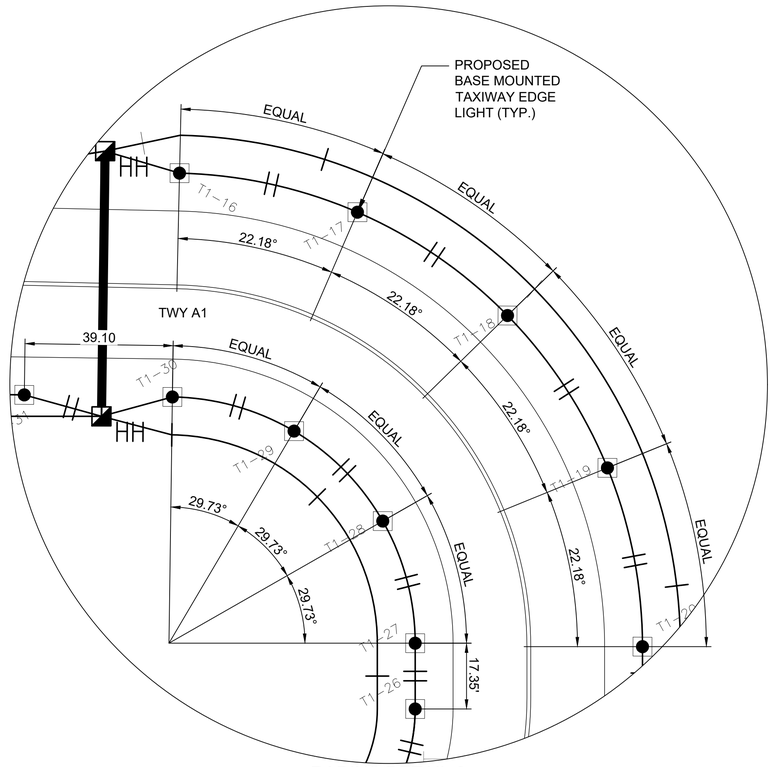

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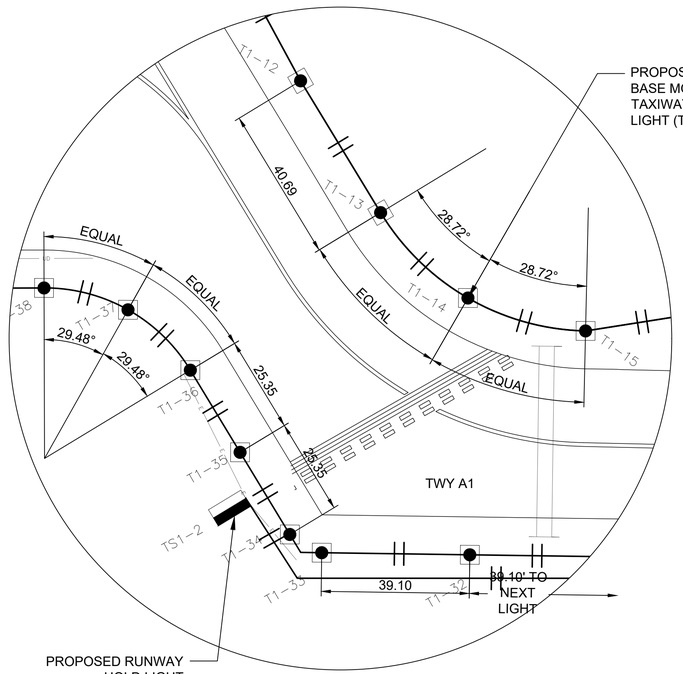

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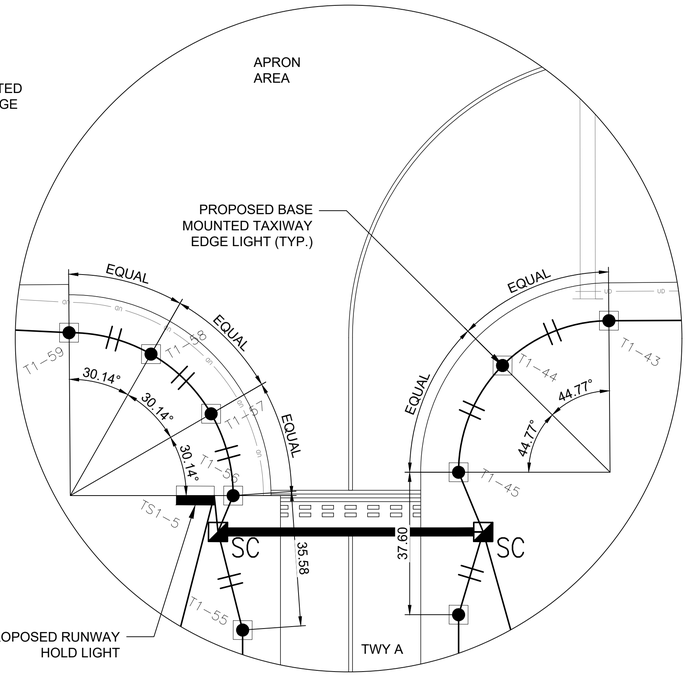

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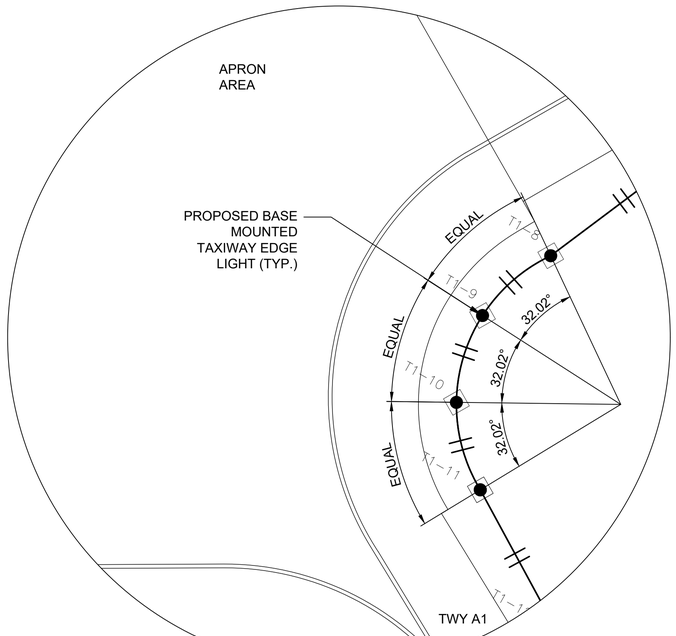

RADIUS DETAIL 6
NOT TO SCALE

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SHEET TITLE

PROPOSED TAXIWAY RADIUS PLAN DETAILS

AIRFIELD LIGHTING REMOVAL, RELOCATION, AND INSTALLATION NOTES

1. KEEP ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS COORDINATED WITH THE AIRPORT DIRECTOR/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). WHERE THE FACILITY IS NOT EQUIPPED WITH LOCK/TAGOUT EQUIPMENT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT. FAILURE TO SHUT DOWN AND LOCKOUT THE CIRCUIT(S) PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THIS SYSTEM.

2. EACH RESPECTIVE PERSON 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. ONLY QUALIFIED ELECTRICAL CONTRACTORS SHALL PERFORM ELECTRICAL WORK ON THIS PROJECT. NEC DEFINES A QUALIFIED PERSON AS FOLLOWS; "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".

3. VERIFY RESPECTIVE CIRCUITS, POWER SOURCES AND SITE CONDITIONS PRIOR TO REMOVING, DISCONNECTING, RELOCATING, INSTALLING, CONNECTING OR WORKING ON THE RESPECTIVE AIRFIELD LIGHTING, DISTANCE REMAINING SIGN, RUNWAY SIGN, TAXI SIGN, NAVAID, VAULT EQUIPMENT OR OTHER DEVICE.

4. INSTALL AIRFIELD LIGHTING, SIGNS, SPLICE CANS, ELECTRICAL DUCTS, HANDHOLES, MANHOLES, AND CABLE AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS, SPECIAL PROVISIONS, RESPECTIVE DETAILS, AND MANUFACTURER'S RECOMMENDATIONS.

5. NEW AIRFIELD LIGHTING SYSTEM INSTALLATIONS, ADJUSTMENTS, RELOCATIONS, REINSTALLATIONS, AND/OR UPGRADES SHALL USE BASE (L-867 OR L-868) MOUNTED AND STAKE MOUNTED FIXTURES AND 1/C #8, FAA L-824 5000V TYPE C CABLE IN UNIT DUCT.

6. LIGHTING CABLE FOR AIRFIELD LIGHTING SERIES CIRCUITS SHALL BE 1/C, #8 AWG, FAA L-824, 5000 VOLT, TYPE C UNDERGROUND CABLE IN 3/4" (MIN.) UNIT DUCT. CABLE SHALL BE FAA APPROVED.

7. IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE, THE CONTRACTOR IS REQUIRED TO HAND DIG THE TRENCH NECESSARY FOR THE PROPOSED CABLE. AT OTHER LOCATIONS, THE PROPOSED CABLE MAY BE TRENCHED OR PLOWED INTO PLACE. HAND DIGGING, TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED CABLES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

8. GROUND ROD MUST BE INSTALLED AT EACH LIGHT FIXTURE, RUNWAY/TAXI SIGN AND SPLICE CAN. THE PURPOSE OF THE LIGHT BASE GROUND IS PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. PER NATIONAL ELECTRICAL CODE ARTICLE 250.53 "GROUNDING ELECTRODE SYSTEM INSTALLATION" RESISTANCE FROM THE GROUND ROD/ELECTRODE TO EARTH GROUND MUST BE 25 OHMS OR LESS VIA MEASUREMENT WITH A GROUND TESTER. GROUNDS RODS FOR LIGHT BASE GROUNDS SHALL BE 3/4-INCH BY 10-FEET MINIMUM LENGTH UL LISTED COPPER-CLAD STEEL SECTIONAL RODS. GROUND RODS SHALL BE PRODUCED FROM 100% DOMESTIC STEEL. EACH GROUND ROD SHALL BE TESTED AND THE RESULTS RECORDED FOR EACH AIRFIELD LIGHT FIXTURE AND RUNWAY/TAXI SIGN INSTALLATION. COPIES OF GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT, AND/OR THE RESIDENT ENGINEER/TECHNICIAN.

9. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR DUCT SHALL BE RUN TOGETHER IN THE SAME RACEWAY OR DUCT.

10. THE CONTRACTOR SHALL TEST THE RESPECTIVE AIRFIELD LIGHTING CIRCUITS IN AREAS OF WORK WHERE RESPECTIVE CIRCUITS MIGHT BE AFFECTED. THE RESPECTIVE RUNWAY AND TAXIWAY LIGHTING CCR'S (FOR THE AREAS OF WORK ON THIS PROJECT) SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, AND/OR ADDITIONS AND AFTER THE NEW CABLES AND LIGHTING SYSTEM MODIFICATIONS 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 OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT ENGINEER/TECHNICIAN. TEST RESULTS SHALL BE COORDINATED WITH AND PROVIDED TO THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT, AND RESIDENT ENGINEER/ TECHNICIAN.

11. FAA AC 150/5370-10G "STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS", ITEM L-108 "UNDERGROUND POWER CABLE FOR AIRPORTS", REQUIRES THAT EVERY AIRFIELD LIGHTING CABLE SPLICER SHALL BE QUALIFIED IN MAKING CABLE SPLICES AND TERMINATIONS ON CABLES RATED ABOVE 5,000 VOLTS AC. CABLE SPLICING/TERMINATING PERSONNEL SHALL HAVE A MINIMUM OF THREE (3) YEARS CONTINUOUS EXPERIENCE IN TERMINATING/SPLICING MEDIUM VOLTAGE CABLE.

12. OTHER CONSTRUCTION PROJECTS MIGHT BE IN PROGRESS AT THE AIRPORT AT THE SAME TIME AS THIS PROJECT. THE CONTRACTOR WILL BE REQUIRED TO COOPERATE WITH ALL OTHER CONTRACTORS AND THE AIRPORT MANAGER IN THE COORDINATION OF THE WORK.

13. OBTAIN APPROVAL FROM THE AIRPORT MANAGER PRIOR TO SHUTTING DOWN A RUNWAY OR TAXIWAY. WHEN A RESPECTIVE RUNWAY IS CLOSED THE RESPECTIVE RUNWAY LIGHTING AND NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF. WHEN A RESPECTIVE TAXIWAY IS CLOSED THE RESPECTIVE TAXIWAY LIGHTING FOR THAT TAXIWAY SHALL BE SHUT OFF.

14. THE CONTRACTOR IS REQUIRED TO FILL IN ALL HOLES AND DEPRESSIONS RESULTING FROM THE NEW WORK, WITH EARTH MATERIAL. THE AREAS SHALL BE COMPACTED TO PREVENT FUTURE SETTLEMENT AND FERTILIZED, SEEDED, AND MULCHED IN ACCORDANCE WITH ITEMS 901 AND 908 RESPECTIVELY.

15. IN THE EVENT A CONFLICT IS DETERMINED WITH RESPECT TO MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION.

16. SEE SAFETY PLAN AND NOTES FOR SAFETY AND CONSTRUCTION COORDINATION REQUIREMENTS.

17. EXISTING AIRFIELD LIGHTS AND/OR SIGNS DESIGNATED FOR REMOVAL SHALL BE CAREFULLY REMOVED IN THERE ENTIRETY. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING LIGHTS AND SIGNS, AS NOT TO DAMAGE THEM, INCLUDING MOUNTING STAKES, BASES, FOUNDATIONS AND TRANSFORMERS. THE EXISTING AIRFIELD LIGHTS, TRANSFORMERS, LIGHT BASES, COVERS AND MOUNTING STAKES SHALL BE TURNED OVER TO THE AIRPORT. SIGNS SHALL BE TURNED OVER TO THE AIRPORT FOR THEIR RIGHT OF FIRST REFUSAL. LIGHT BASES AND SIGN FOUNDATIONS SHALL BE REMOVED AND DISPOSED OF OFF SITE. ANY MATERIAL NOT SALVAGED BY THE AIRPORT SHALL BE DISPOSED OF OFF THE AIRPORT SITE, IN A LEGAL MANNER, AT THE CONTRACTOR'S OWN EXPENSE. EXISTING DUCTS AND CABLES ASSOCIATED WITH AIRFIELD LIGHTING REMOVALS, RELOCATIONS, REPLACEMENTS AND/OR CABLE OR DUCT REPLACEMENTS SHALL BE REMOVED AND DISPOSED OF OFF SITE AT NO ADDITIONAL COST TO THE CONTRACT WHERE ACCESSIBLE AND ABANDONED IN PLACE ELSEWHERE. PROVIDE TEMPORARY CABLES AND DUCTS TO ACCOMMODATE AIRFIELD LIGHTING CIRCUITS THAT ARE TO REMAIN ACTIVE DURING CONSTRUCTION. CONTRACTOR MAY REMOVE ABANDONED CABLES AT NO ADDITIONAL COST TO THE CONTRACT AND SHALL HAVE THE SALVAGE RIGHTS TO ABANDONED CABLES. REMOVAL OF EXISTING AIRFIELD LIGHTING WILL BE PAID FOR UNDER ITEM AR800476 REMOVE AIRFIELD LIGHTING PER LUMP SUM.

18. OWNER SHALL BE KEPT INFORMED OF WORK AND SCHEDULES.

19. ROUTE NEW CABLES AND DUCTS TO AVOID INTERFERENCES WITH OTHER UTILITIES, LINES, CABLES AND STRUCTURES.

20. ALL ELECTRICAL EQUIPMENT (INCLUDING AIRFIELD LIGHTING AND NAVADS) AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRIC 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, INTERNEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.

21. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2G (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".

22. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.

23. RUNWAY AND TAXIWAY LIGHTING CIRCUITS SHALL BE ACTIVE AT THE END OF EACH CONSTRUCTION DAY FOR AN OPEN RUNWAY OR AN OPEN TAXIWAY. THE CONTRACTOR SHALL PROVIDE TEMPORARY CABLE & CONNECTIONS WHERE NECESSARY TO MAINTAIN A RUNWAY OR TAXIWAY LIGHTING SYSTEM. TEMPORARY CABLE FOR AIRFIELD LIGHTING SERIES CIRCUITS SHALL BE 1/C #8 FAA L-824 5KV UG CABLE IN DUCT OR UNIT DUCT.

24. ALL ABOVEGROUND JUMPERS SHALL BE IN A DUCT WITH ALL CONNECTIONS SEALED. THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT, OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA 150/5370-2G, OPERATION SAFETY ON AIRPORTS DURING CONSTRUCTION, SECTION 2.18.3 "LIGHTING AND VISUAL NAVAIDS". ALL LABOR, MATERIALS, AND TIME NECESSARY TO COMPLY WITH THIS REQUIREMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

25. CONTRACTOR SHALL INTERFACE EXISTING AIRFIELD LIGHTING AND/OR SIGNS TO THE NEW, REMOVED, REINSTALLED, ADJUSTED, REPLACED, AND/OR RELOCATED AIRFIELD LIGHTING AND ASSOCIATED CIRCUITS.

26. ALL AIRFIELD LIGHT FIXTURES SHALL BE TAGGED BY THE CONTRACTOR IN ACCORDANCE WITH THE RESPECTIVE LIGHT FIXTURE NUMBERS. CONFIRM LIGHT FIXTURE NUMBERING WITH THE AIRPORT MANAGER/MAINTENANCE SUPERVISOR.

27. 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.

28. THE CONTRACTOR IS REQUIRED TO RESTORE ALL DISTURBED PAVEMENT ASSOCIATED WITH REMOVAL WORK AND/OR NEW AIRFIELD LIGHTING INSTALLATIONS.

29. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

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.

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. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. 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.

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IDA No: FOA-5191

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AIRFIELD LIGHTING NOTES

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TAXI GUIDANCE SIGN SCHEDULE

SIGN NUMBER	LOCATION	EXISTING		REMARKS
		SIDE A	SIDE B	
TGS-R1-1	RUNWAY 3 INTERSECTION WITH TAXIWAY "A"	← RAMP		DISCONNECT AND REMOVE EXISTING SIGN IN RESPECTIVE LOCATION. FURNISH AND INSTALL NEW SIGN. CONNECT TO RUNWAY 3-21 LIGHTING CIRCUIT.
TGS-R1-2	TAXIWAY "A" INTERSECTION WITH RUNWAY 21-3 AT HOLD LINE	A 21-3	RAMP ↑	DISCONNECT AND REMOVE EXISTING SIGN IN RESPECTIVE LOCATION. FURNISH AND INSTALL NEW SIGN. CONNECT TO RUNWAY 3-21 LIGHTING CIRCUIT.
TGS-R1-3	RUNWAY 21 INTERSECTION WITH TAXIWAY "A"	RAMP →		DISCONNECT AND REMOVE EXISTING SIGN IN RESPECTIVE LOCATION. FURNISH AND INSTALL NEW SIGN. CONNECT TO RUNWAY 3-21 LIGHTING CIRCUIT.
TGS-R1-4	RUNWAY 3 INTERSECTION WITH TAXIWAY "A1"	← RAMP		DISCONNECT AND REMOVE EXISTING SIGN IN RESPECTIVE LOCATION. FURNISH AND INSTALL NEW SIGN. CONNECT TO RUNWAY 3-21 LIGHTING CIRCUIT.
TGS-R1-5	TAXIWAY "A1" INTERSECTION WITH RUNWAY 21-3 AT HOLD LINE	A1 21-3	RAMP ↑	DISCONNECT AND REMOVE EXISTING SIGN IN RESPECTIVE LOCATION. FURNISH AND INSTALL NEW SIGN. CONNECT TO RUNWAY 3-21 LIGHTING CIRCUIT.
TGS-R1-6	RUNWAY 21 INTERSECTION WITH TAXIWAY "A1"	RAMP →		DISCONNECT AND REMOVE EXISTING SIGN IN RESPECTIVE LOCATION. FURNISH AND INSTALL NEW SIGN. CONNECT TO RUNWAY 3-21 LIGHTING CIRCUIT.

NOTES:

1. THE TAXI GUIDANCE SIGNS IN THE SCHEDULE ARE EXISTING SIGNS SIZE 1, 18-IN. SIGN FACE WITH A 12-IN. LEGEND; STYLE 2, POWERED FROM A 4.8 TO 6.6 AMP SERIES LIGHTING CIRCUIT WITH QUARTZ OR INCANDESCENT LAMPS AND ARE/MANUFACTURED BY LUMACURVE.
2. PROVIDE TETHERS FOR EACH TAXI SIGN IN ACCORDANCE WITH FAA AC 150/5345-44L (OR LATEST ISSUE IN FORCE). SIGN TETHER ANCHOR HARD POINTS MUST BE PROVIDED ON ONE SIGN MOUNTING LEG ABOVE THE FRANGIBLE BREAKING POINT. TETHER ANCHOR HARD POINTS MUST BE PROVIDED SO THAT ONE END OF THE TETHER ATTACHES TO THE SIGN STRUCTURE, AND THE OTHER END ATTACHES BELOW THE FRANGIBLE POINT ON THE COUPLING TO EITHER ONE OF THE LEG MOUNTING BOLTS OR AN INDEPENDENT BOLT IN THE SIGN CONCRETE MOUNTING PAD. SIGNS THAT CONSIST OF MULTIPLE SEPARATE HOUSINGS (NOT CONNECTED TOGETHER IN A CONTINUOUS FRAME) MUST HAVE A MINIMUM OF ONE TETHER PER HOUSING. SIGNS THAT USE MULTIPLE MODULES CONNECTED TOGETHER IN A CONTINUOUS FRAME MUST USE A TETHER AT BOTH ENDS.
3. PROVIDE A LEGEND PLATE/LABEL FOR EACH SIGN THAT NOTES THE RESPECTIVE POWER SOURCE. EXAMPLE: **"THIS SIGN IS CONNECTED TO _____ LIGHTING CIRCUIT. CONFIRM AND DISCONNECT POWER SOURCE PRIOR TO WORKING ON THIS SIGN."** IDENTIFY THE RESPECTIVE AIRFIELD LIGHTING CIRCUIT FOR EACH SIGN. LOCATE ON SIGN ABOVE OR BELOW SIGN NUMBER LABEL.
4. RUNWAY EXIT/TAXIWAY ENTRANCE SIGNS (TAXIWAY GUIDANCE SIGNS TO DEFINE THE THROAT OR ENTRANCE INTO THE INTERSECTING TAXIING ROUTE) OR RUNWAY EXIT/TAXIWAY ENTRANCE LIGHTS SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY CIRCUIT TO BE ILLUMINATED WHEN THE RUNWAY EDGE LIGHTS ARE ON TO COMPLY WITH FAA AC 150/5340-18G, CHAPTER 1, PART 1.15 "SIGN OPERATION", AND/OR FAA AC 150/5340-30J PART 2.5.3.4.
5. HOLDING POSITION SIGNS FOR RUNWAYS SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY SERIES CIRCUIT TO BE ILLUMINATED WHEN THE ASSOCIATED RUNWAY LIGHTS ARE ILLUMINATED TO COMPLY WITH FAA AC150/5340-18G, CHAPTER 1, PART 1.15 "SIGN OPERATION".
6. CONCRETE STEEL REINFORCEMENT SHALL BE TYPE ASTM A615 OR A706 GRADE 60 WELDED STEEL WIRE FABRIC SHALL CONFORM TO AASHTO M55 OR AASHTO M221. ALL REINFORCEMENT SHALL HAVE A 3" MINIMUM CONCRETE COVER. REINFORCEMENT MAY BE ADJUSTED TO MISS INTERFERENCES. CONCRETE SHALL CONFORM TO ITEM P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES.
7. SEE SPECIFICATION ITEM L-125 FOR ADDITIONAL REQUIREMENTS ON TAXI GUIDANCE SIGNS.
8. SEE "AIRFIELD LIGHTING NOTES" SHEET FOR ADDITIONAL REQUIREMENT ON TAXI GUIDANCE SIGNS.
9. CONTRACTOR SHALL TEST AND RECORD THE EARTH GROUND RESISTANCE FOR THE GROUND ROD AT EACH AIRFIELD LIGHT FIXTURE AND EACH TAXI GUIDANCE SIGN.
10. FAA AC 150/5340-26C, PART 3.6.6 USE OF ORIGINAL EQUIPMENT MANUFACTURER (OEM) PART, NOTES THE FOLLOWING: "THE USE OF NON-OEM PARTS OR LAMPS IN FAA APPROVED EQUIPMENT IS STRONGLY DISCOURAGED. THE FAA HAS STRICT SPECIFICATIONS FOR APPROVAL OF ALL AIRPORT LIGHTING EQUIPMENT AND USE OF NON-OEM PARTS OR LAMPS IN SUCH EQUIPMENT OR SYSTEMS CAN RENDER THE EQUIPMENT TO BE FUNCTIONALLY NON-FAA APPROVED. THIS COULD POSSIBLY LEAD TO SERIOUS LIABILITY CONSEQUENCES IN CASE OF AN AIRCRAFT INCIDENT AT AN AIRPORT FOLLOWING THESE PRACTICES."

TAXI GUIDANCE SIGN LEGEND

- A — TYPE L-858L(L) LOCATION SIGN - YELLOW LEGEND AND BORDER ON A BLACK BACKGROUND
- 5 — TYPE L-858R(L) MANDATORY INSTRUCTION SIGN - BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON A RED BACKGROUND
- A→ — TYPE L-858Y(L) DIRECTION, DESTINATION, AND BOUNDARY SIGN - BLACK LEGEND ON A YELLOW BACKGROUND
- BLANK - BLACK BACKGROUND

* COORDINATE SIGN NUMBERING WITH AIRPORT DIRECTOR/MANAGER. EACH TAXI SIGN SHALL HAVE A TAG WITH ID NUMBER; 3" HIGH PERMANENT WHITE REFLECTIVE LETTERING/NUMBERING LOCATED ON THE EDGE OF THE SIGN.

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IDA No: FOA-5191

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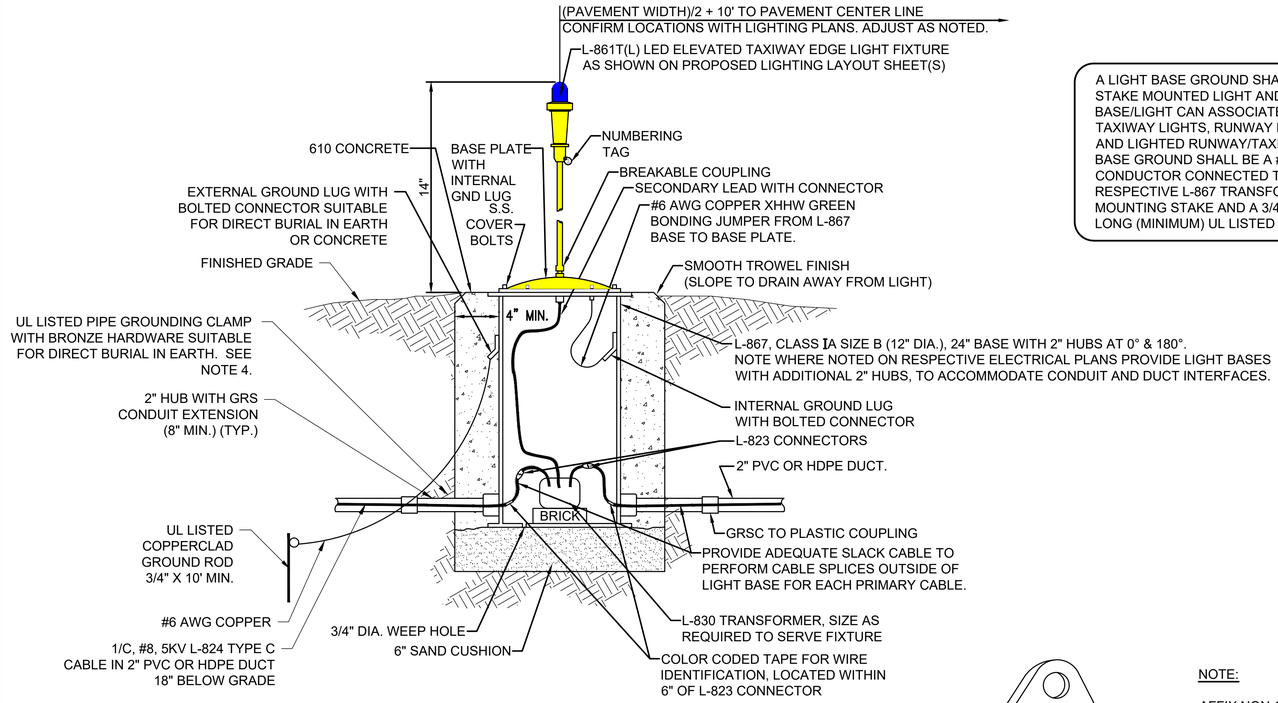
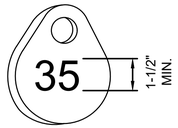
TAXI GUIDANCE SIGN SCHEDULE



MEDIUM INTENSITY ELEVATED TAXIWAY EDGE LIGHT - BASE MOUNTED

(NOT TO SCALE)

A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, RUNWAY DISTANCE REMAINING SIGNS, AND LIGHTED RUNWAY/TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FEET LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.

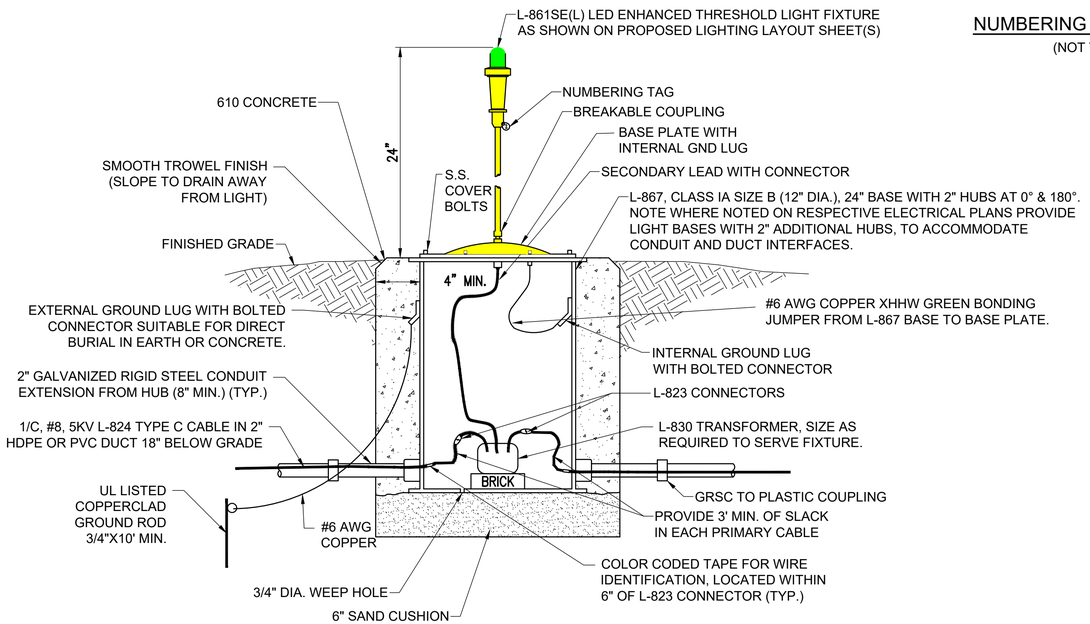


NOTE:

AFFIX NON-CORROSIVE, NON-BREAKABLE, TAG TO FIXTURE FACING RUNWAY/TAXIWAY WITH SET SCREW, WIRE TIE, OR METAL BAND. NUMERALS SHALL BE ENGRAVED FOR PERMANENT READABILITY. STAINLESS STEEL OR BRASS TAGS WITH 1/2" HIGH STAMPED LETTERING WILL ALSO BE ACCEPTABLE.

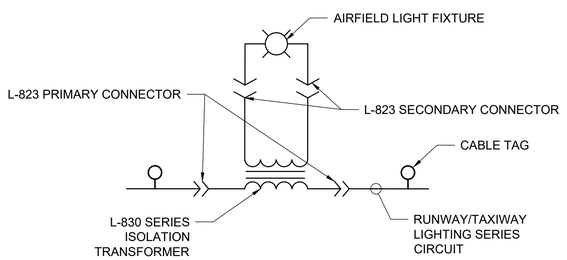
NUMBERING TAG DETAIL

(NOT TO SCALE)



MEDIUM INTENSITY THRESHOLD LIGHT - BASE MOUNTED

"NOT TO SCALE"



LIGHTING CONNECTION SCHEMATIC

NOT TO SCALE

NOTES:

1. SEE ELECTRICAL NOTES SHEETS.
2. SEE "ELECTRICAL NOTES SHEET 2" AND "GROUNDING NOTES" SHEET FOR GROUNDING NOTES FOR AIRFIELD LIGHTING.
3. SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR LIGHT LOCATIONS
4. WHERE GROUND LUGS ARE NOT ACCESSIBLE ON BASE CANS, PROVIDE A UL LISTED PIPE GROUND CLAMP RATED FOR DIRECT BURIAL IN EARTH AND BOND TO THE METAL CONDUIT EXTENSION TO PROVIDE GROUND PATH TO LIGHT BASE.
5. THE PROPOSED AIRFIELD LIGHT FIXTURES SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-46 (CURRENT ISSUE(S) IN EFFECT) AND BE FAA APPROVED FOR TYPE L-861T(L) FOR TAXIWAY EDGE LIGHTS. AIRFIELD LIGHT FIXTURES SHALL HAVE LED (LIGHT EMITTING DIODE) ILLUMINATION AND SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF FAA ENGINEERING BRIEF NO. 67D LIGHT SOURCES OTHER THAN INCANDESCENT AND XENON FOR AIRPORT AND OBSTRUCTION LIGHTING FIXTURES.
6. LIGHT BASE CANS FOR THE AIRFIELD LIGHT FIXTURES SHALL CONFORM TO THE REQUIREMENTS OF FAA AC 150/5345-42 (CURRENT ISSUE IN EFFECT), FOR TYPE L-867, CLASS IA, SIZE B (12 IN. NOMINAL DIAMETER) OR SIZE D (16 IN. NOMINAL DIAMETER), AND 24 IN. DEEP AND/OR AS DETAILED ON THE PLANS. EACH LIGHT BASE CAN SHALL INCLUDE INTERNAL AND EXTERNAL GROUND LUGS TO ACCOMMODATE THE RESPECTIVE APPLICATIONS. LIGHT BASE PLATES SHALL BE SIZED AND COMPATIBLE WITH THE RESPECTIVE LIGHT BASES AND LIGHT FIXTURES WITH STAINLESS STEEL BOLTS.
7. PRIOR TO INSTALLING THE AIRFIELD LIGHT FIXTURES, APPLY AN OXIDE-INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS, BREAKABLE COUPLING, AND ALL PLACES WHERE METAL COMES INTO CONTACT WITH METAL.
8. SERIES CIRCUIT ISOLATION TRANSFORMERS FOR THE AIRFIELD LIGHTING SHALL BE MANUFACTURED TO FAA SPECIFICATION AC 150/5345-47, (CURRENT EDITION IN EFFECT), AND SHALL BE FAA-APPROVED (ETL/INTERTEK TESTING SERVICES-CERTIFIED). SERIES CIRCUIT TRANSFORMER SHALL BE PROPERLY SIZED FOR THE RESPECTIVE AIRFIELD LIGHTING DEVICE, AND SHALL BE AS RECOMMENDED BY THE RESPECTIVE EQUIPMENT MANUFACTURER. CONFIRM PROPER TRANSFORMER SELECTION AND SIZING WITH THE RESPECTIVE EQUIPMENT MANUFACTURER.
9. THE CONCRETE USED IN THE CONSTRUCTION OF THE BASES FOR THE AIRFIELD LIGHTING AND SPLICE CANS SHALL BE IN ACCORDANCE WITH ITEM 610 CONCRETE FOR MISCELLANEOUS STRUCTURES.
10. IDENTIFICATION TAGS SHALL BE ATTACHED TO EACH AIRFIELD LIGHT FIXTURE.
11. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125, AND FAA AC 150/5370-10H ITEM L-108 AND L-125, RUBBER AND PLASTIC ELECTRICAL TAPES SHALL BE SCOTCH ELECTRICAL TAPE NUMBERS 130C LINERLESS RUBBER SPLICING TAPE (2" WIDE) AND 88 (1.5" WIDE) RESPECTIVELY, AS MANUFACTURED THE MINNESOTA MINING AND MANUFACTURING COMPANY, OR EQUIVALENT.

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FLORA, ILLINOIS 62839

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

DATE SIGNED: 2/26/2025
LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

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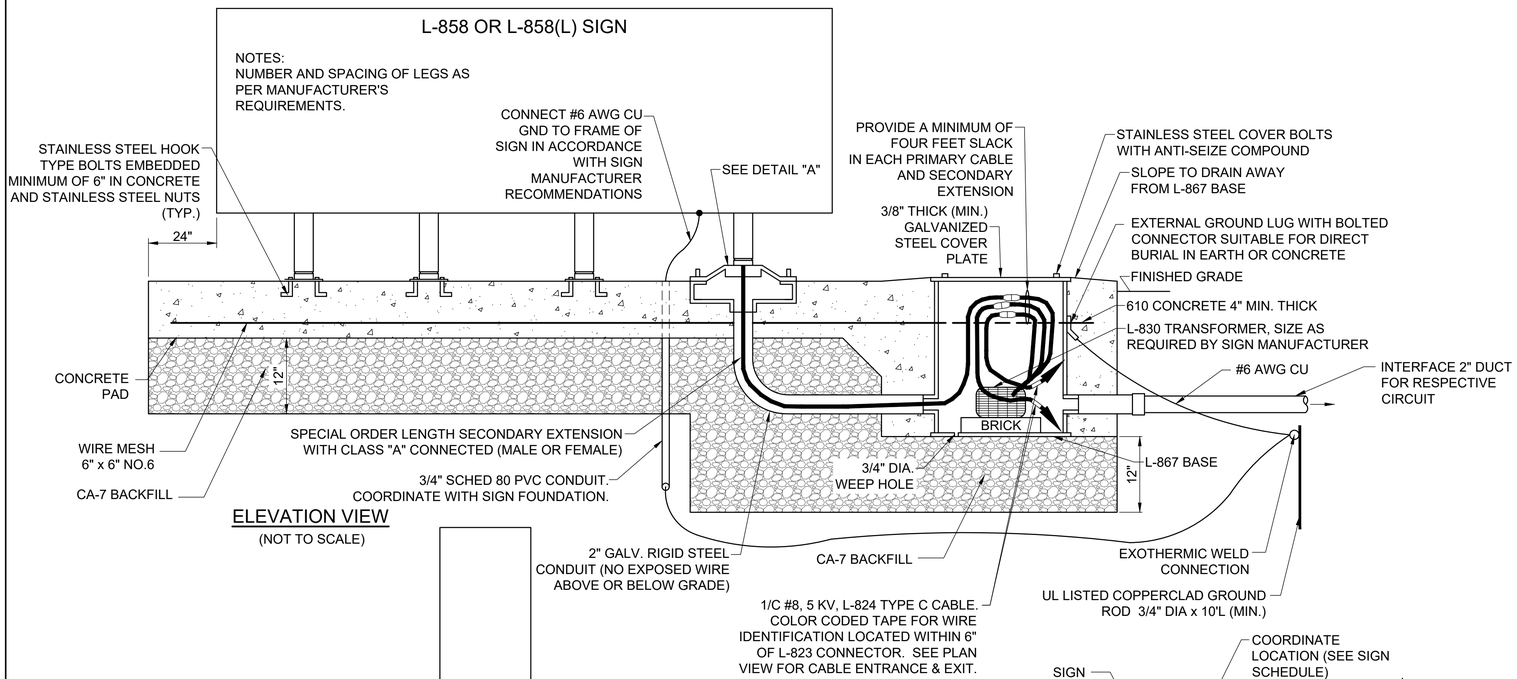
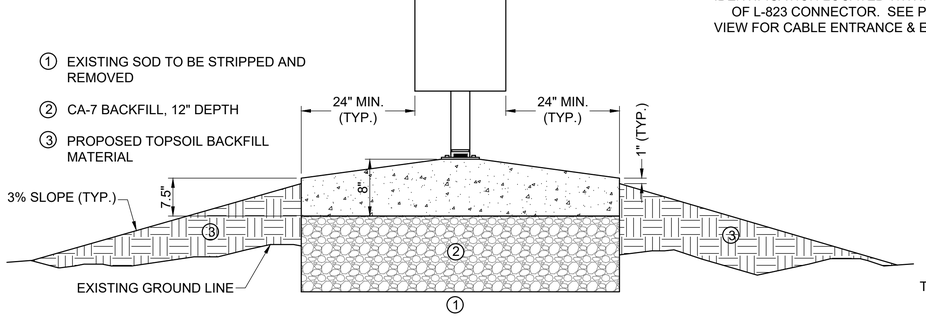
AIRFIELD LIGHT DETAILS





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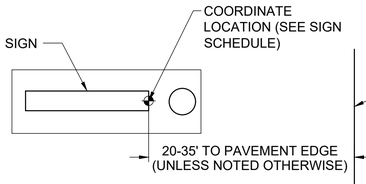

SIGN COORDINATE LOCATION
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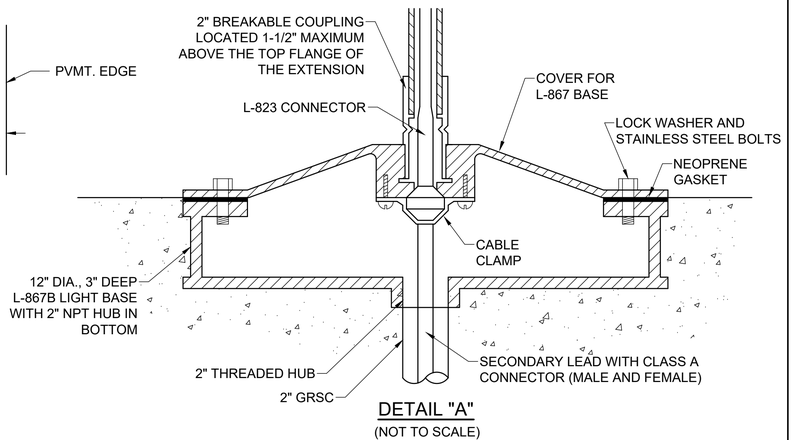

DETAIL "A"
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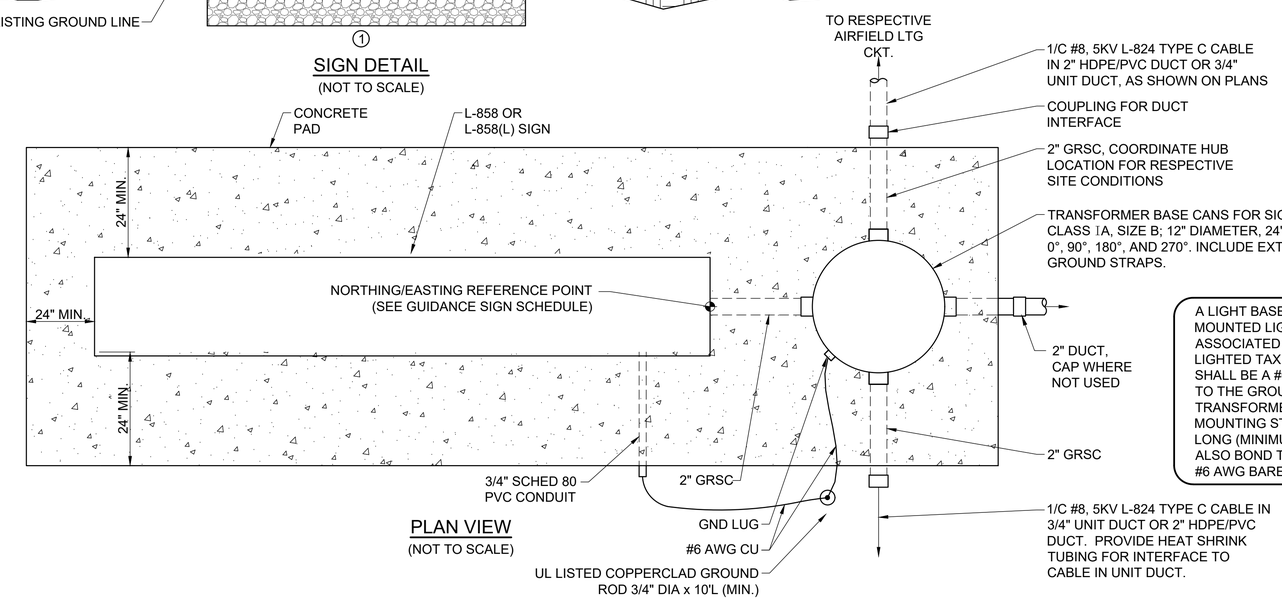

PLAN VIEW
(NOT TO SCALE)

A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN, TAXI SIGN FRAME, OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. ALSO BOND THE SIGN FRAME TO THE GROUND ROD WITH A #6 AWG BARE COPPER CONDUCTOR.

GENERAL NOTES

1. SEE PROPOSED ELECTRICAL SHEETS, AIRFIELD LIGHTING NOTES AND TAXI GUIDANCE SIGN SCHEDULES FOR SIGN LEGEND, LOCATION, TYPE, SIZE, STYLE, AND CLASS.
2. SEE ELECTRICAL NOTES SHEETS.

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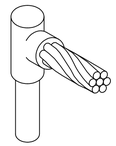
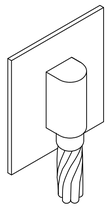
SHEET TITLE

TAXI GUIDANCE SIGN DETAILS



CABLE TO GROUND ROD



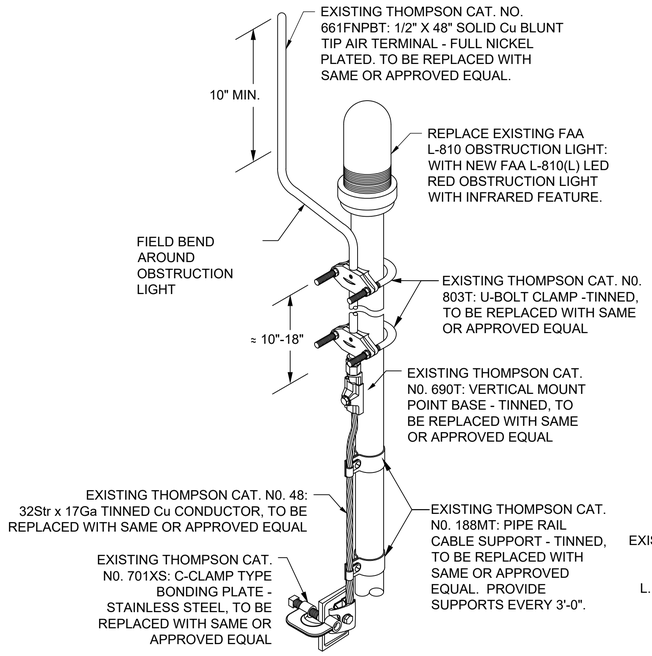
CABLE TO SURFACE

DETAIL NOTES

1. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY ERICO PRODUCTS, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, 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. FOR APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.
3. VERIFY EXOTHERMIC MOLDS ARE SUITABLE FOR USE WITH THE RESPECTIVE TYPE (SOLID OR STRANDED) & SIZE CONDUCTOR.

EXOTHERMIC WELD DETAILS

NOT TO SCALE

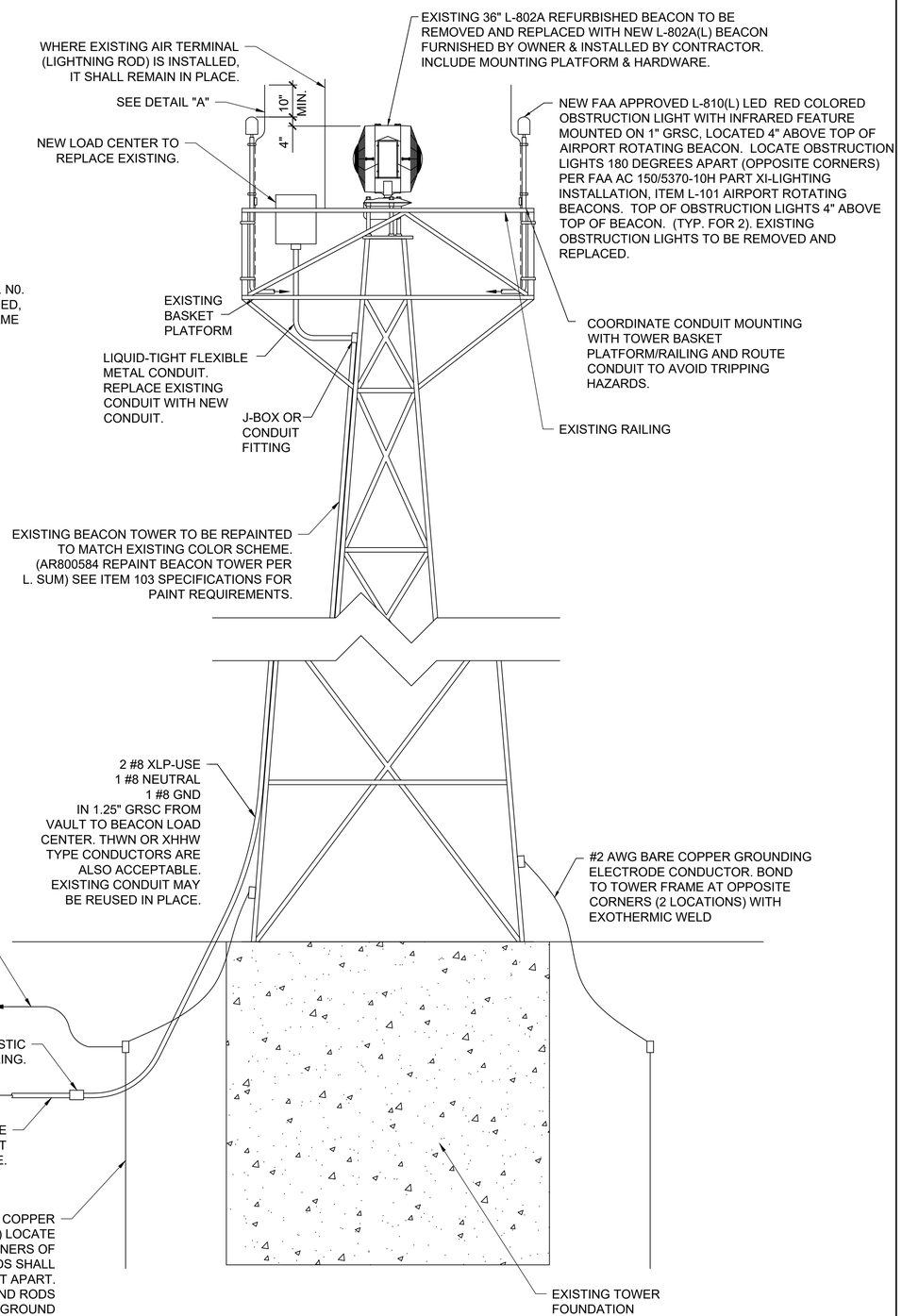


DETAIL A

NOT TO SCALE

NOTES

1. REFERENCES TO THOMPSON ARE THOMPSON LIGHTNING PROTECTION INC. EXISTING LIGHTNING PROTECTION SYSTEM COMPONENTS TO BE REMOVED AND REPLACED TO ACCOMMODATE TOWER PAINTING.
2. VERIFY LIGHTNING PROTECTION COMPONENTS AND CATALOG NUMBERS WITH THE RESPECTIVE LIGHTNING PROTECTION EQUIPMENT MANUFACTURER.
3. CLEAN ALL CONNECTIONS TO EXPOSE BARE METAL.



DETAIL FOR AIRPORT ROTATING BEACON

NOT TO SCALE

AIRPORT ROTATING BEACON LOAD CENTER/PANEL SCHEDULE

CKT #	DUTY	SIZE
1	BLANK	
3	BLANK	
5	AIRPORT ROTATING BEACON	15A 1P
7	OBSTRUCTION LIGHTS	15A 1P
9	BLANK	
11	BLANK	

SIZE	DUTY	CKT #
30A 1P	SURGE PROTECTOR (PHASE A)	2
30A 1P	SURGE PROTECTOR (PHASE B)	4
	BLANK	6
	BLANK	8
	BLANK	10
	BLANK	12

GND S/N

100 AMP, 120/240 VAC, 1 PHASE, 3 WIRE, 12 CIRCUIT LOAD CENTER WITH MAIN LUGS IN A NEMA 3R RAIN PROOF ENCLOSURE, SQUARE D CAT. NO. QO112L125GRB WITH EQUIPMENT GROUND BAR KIT OR APPROVED EQUAL. CONFIRM LOAD CENTER OR PANELBOARD IS MADE IN THE USA TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENT.

NOTES

1. INCLUDE EQUIPT GROUND BAR KIT.
2. ALL BREAKERS SHALL HAVE 10,000 AIC RATING AT 120/240 VAC.
3. PHASE "A" SHALL BE SWITCHED THROUGH A LIGHTING CONTACTOR AT THE VAULT. PHASE "B" SHALL BE UNSWITCHED.
4. INCLUDE ENGRAVED PHENOLIC LEGEND PLATE LABELED ARB PANEL, 120/240 VAC, 1PH, 3W, FED FROM VAULT.
5. SURGE PROTECTORS SHALL BE SUITABLE FOR 120VAC, 1PH, 2W PLUS GROUND, 30KA (MINIMUM) SURGE CURRENT RATING, JOSLYN MODEL 1260-21. FURNISH & INSTALL TWO SURGE PROTECTORS (ONE FOR EACH PHASE).
6. LOAD CENTER OR PANELBOARD SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS.

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

DATE SIGNED: 2/26/2025 LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: FEBRUARY 28, 2025
PROJECT NO: 24A0104.00
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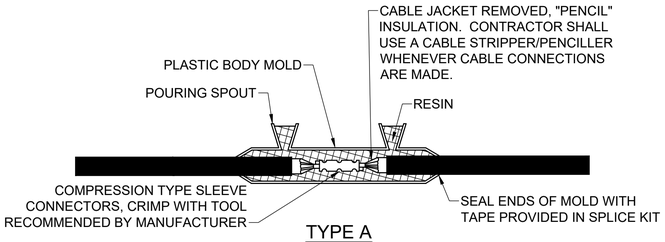
REVIEWED BY: KNL 01/28/2025

SHEET TITLE

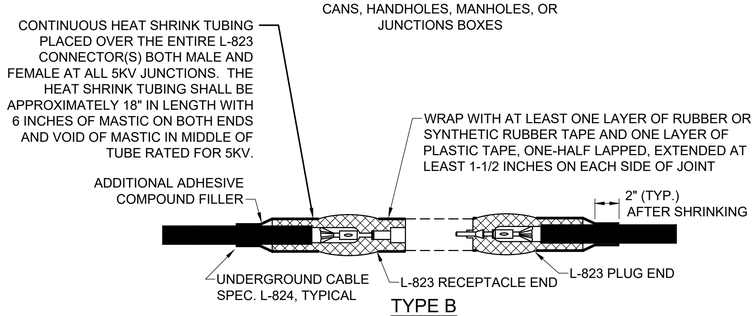
AIRPORT ROTATING BEACON UPGRADE DETAILS AND NOTES

BID DOCUMENTS



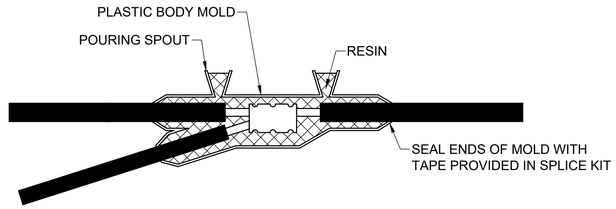
TYPE A

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



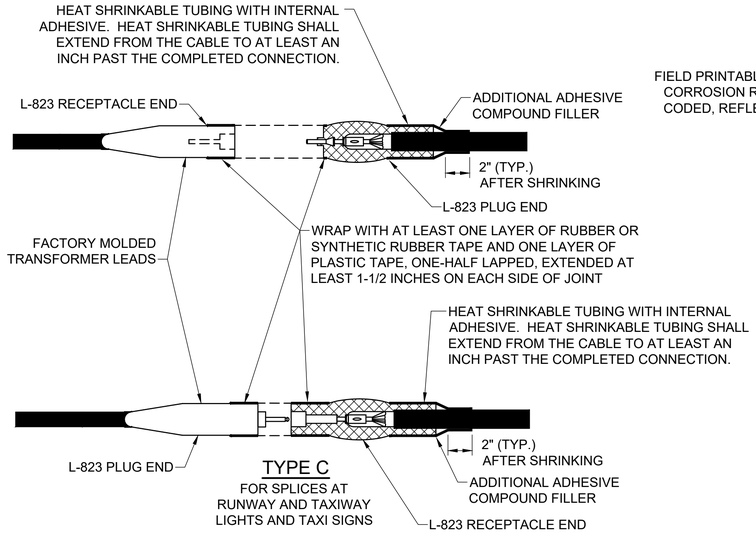
TYPE B

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



LOW VOLTAGE UNDERGROUND TAP SPLICE

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.

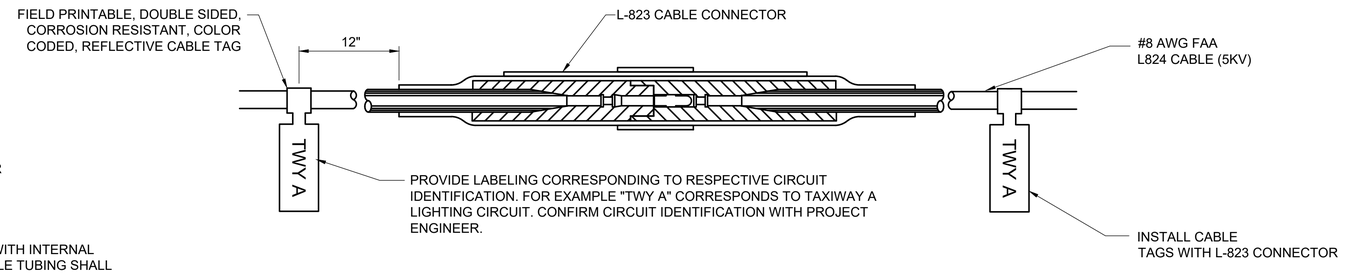


TYPE C

FOR SPLICES AT RUNWAY AND TAXIWAY LIGHTS AND TAXI SIGNS

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

CABLE SPLICES
"NOT TO SCALE"



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.
6. CABLE TAGS SHALL BE LABELED AS FOLLOWS FOR RESPECTIVE AIRFIELD LIGHTING CIRCUITS,
   RUNWAY 3-21 LIGHTING: RWY 3-21
   TAXIWAY A, A1 LIGHTING: TWY A

CABLE TAG DETAIL
"NOT TO SCALE"

NOTES:

1. SPLICE DETAILS ARE PROVIDED FOR NEW WORK AND TO ASSIST IN REPAIRS OF ACCIDENTAL OR UNEXPECTED INTERRUPTIONS AND/OR CUTS TO AIRFIELD LIGHTING CABLES.
2. KEEP ON HAND A MINIMUM OF 10 SETS OF SPLICE KITS FOR L-823 CONNECTORS AND A MINIMUM OF 10 SETS OF TYPE A LOW VOLTAGE SPLICE KITS TO ACCOMMODATE REPAIRS.
3. EVERY AIRFIELD LIGHTING CABLE SPLICER SHALL BE QUALIFIED IN MAKING CABLE SPLICES AND TERMINATIONS ON CABLES RATED AT AND/OR ABOVE 5,000 VOLTS AC TO COMPLY WITH THE REQUIREMENTS OF FAA AC 150/5370-10H ITEM L-108.
4. INSIDE DIAMETER OF RESPECTIVE CABLE CONNECTOR SHALL PROPERLY MATCH OUTSIDE DIAMETER OF CABLE.
5. WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.
6. WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT LAYERS OF HIGH VOLTAGE ELECTRICAL INSULATING TAPE (RUBBER SPLICING TAPE SUITABLE FOR PRIMARY ELECTRICAL INSULATION FOR SPLICING CABLE FROM 600 VOLTS TO 69,000 VOLTS) AND COVER WITH VINYL ELECTRICAL TAPE (ALL-WEATHER VINYL INSULATING TAPE SUITABLE FOR PROTECTIVE JACKETING FOR HIGH-VOLTAGE CABLE SPLICES AND REPAIRS) FOR FULL VALUE OF CABLE INSULATION VOLTAGE. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125, AND FAA AC 150/5370-10H ITEM L-108 AND L-125, HIGH VOLTAGE ELECTRICAL INSULATING TAPE SHALL BE 3M SCOTCH 130C LINERLESS RUBBER SPLICING TAPE (2 INCHES WIDE) OR APPROVED EQUIVALENT, AND VINYL ELECTRICAL TAPE SHALL BE 3M SCOTCH 88 (1.5 INCHES WIDE) OR APPROVED EQUIVALENT. TAPES MUST BE RATED SUITABLE FOR THE APPLICATION.
7. PROVIDE CABLE TAGS TO IDENTIFY THE RESPECTIVE CIRCUITS ALL POINTS OF ACCESS INCLUDING L-867 BASES, L-868 BASES, HANDHOLES, MANHOLES, JUNCTION BOXES, AND WIREWAYS.
8. CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. FOR THE L-823 CONNECTORS, THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER THE KIT MANUFACTURER'S INSTRUCTIONS.

BID DOCUMENTS

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IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

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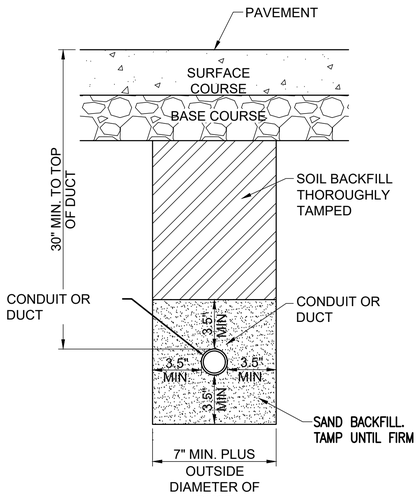
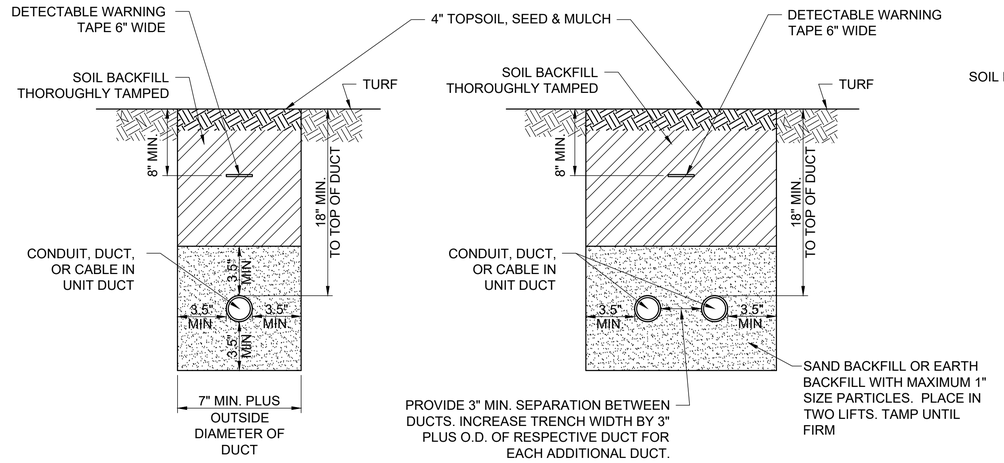
AIRFIELD LIGHTING CABLE SPLICE DETAILS



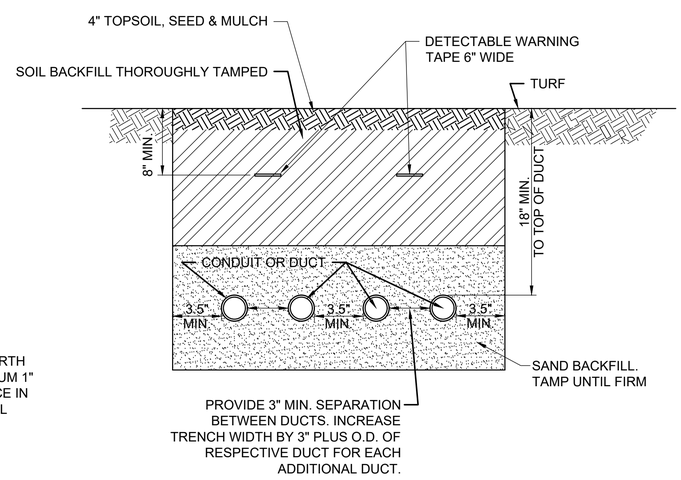
CONDUIT IN TRENCH - PAVED AREAS

"NOT TO SCALE"



CONDUIT IN TRENCH - NON-PAVEMENT AREAS

"NOT TO SCALE"



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. 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). WHERE THE FACILITY IS NOT EQUIPPED WITH LOCKOUT/TAGOUT EQUIPMENT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT. FAILURE TO SHUT DOWN AND LOCKOUT THE CIRCUIT(S) PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THIS SYSTEM.

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. 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.

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.

BID DOCUMENTS

FEB 26, 2025 1:26 PM HAUSM00682
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LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

DATE SIGNED: 2/26/2025 LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

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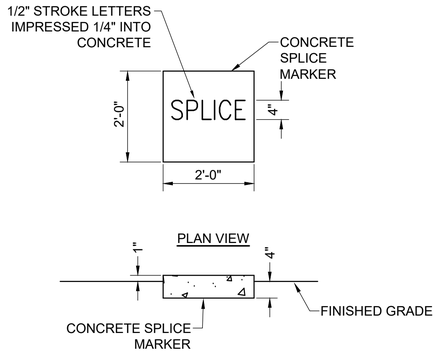
DESIGN BY: KNL 01/06/2025
DRAWN BY: AJC 01/15/2025
REVIEWED BY: KNL 01/28/2025

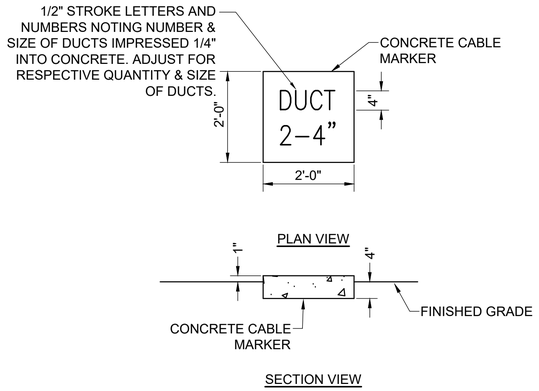
SHEET TITLE

CONDUIT TRENCH DETAIL



TURF SPLICE MARKERS

"NOT TO SCALE"



TURF DUCT MARKERS

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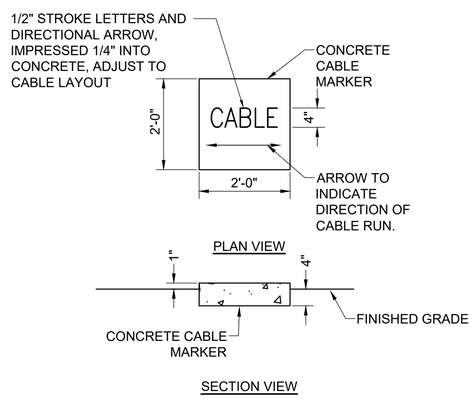

TURF CABLE MARKERS

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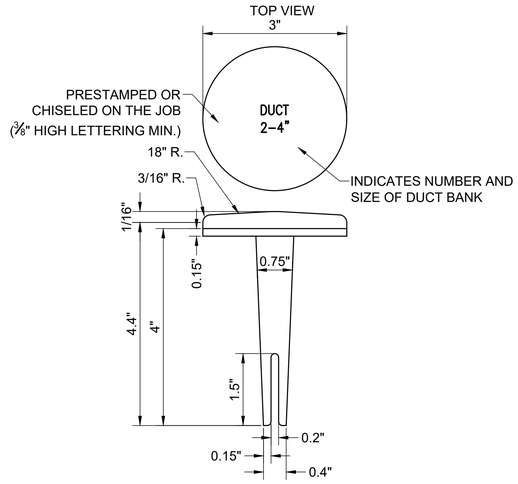


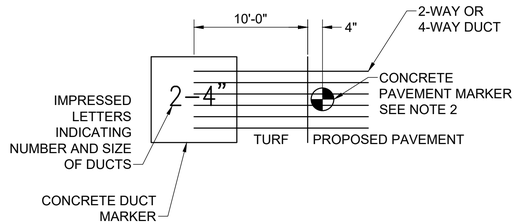
BITUMINOUS PAVEMENT DUCT MARKERS

"NOT TO SCALE"

NOTE:

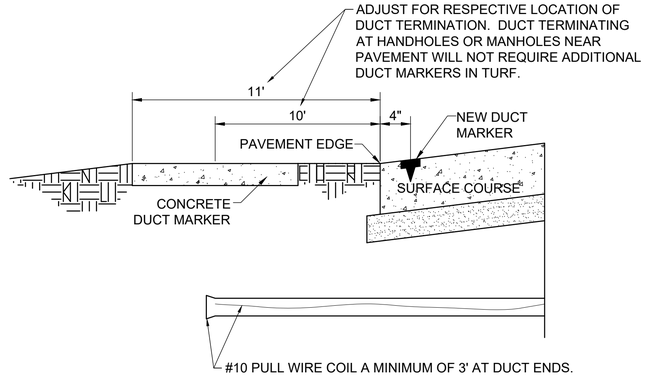
1. TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE

2. BRASS DUCT MARKERS ARE AVAILABLE FROM BERNTSEN INTERNATIONAL INC., P.O. BOX 8670, MADISON, WI. 53708-8670, PHONE: 1-877-959-8556, SURV-KAP, 3225 E. 47TH ST., TUCSON, AZ 85713, PHONE: (502)-622-6011, OR OTHER EQUIVALENT MANUFACTURERS.



DUCT MARKER DETAIL-PLAN

"NOT TO SCALE"



UNDERGROUND ELECTRICAL DUCT

(NOT TO SCALE)

CABLE & DUCT MARKER NOTES:

1. THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.

2. BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE INFORMED AS DESCRIBED IN NOTE 4.

3. UNDERGROUND CABLE RUNS MUST BE IDENTIFIED BY CABLE MARKERS AT 200 FEET (61 M) MAXIMUM SPACING WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS MUST BE INSTALLED ABOVE THE CABLE. CABLE MARKERS ARE NOT REQUIRED FOR CABLE RUNS BETWEEN RUNWAY/TAXIWAY EDGE LIGHTS.

4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.

5. EMPLOY THE FOLLOWING METHODS WHERE ADDITIONAL SPACE TO FIT THE LEGEND IS REQUIRED:
   A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
   B. INCREASE THE MARKER SIZE TO 30" X 30".
   C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE

6. TURF DUCT MARKERS ARE NOT REQUIRED AT PAVEMENT CROSSINGS WHERE DUCTS TERMINATE IN HANDHOLES, OR JUNCTION STRUCTURES.

7. LOCATION OF ALL DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICE/CONNECTIONS, EXCEPT THOSE AT ISOLATION TRANSFORMERS, MUST BE IDENTIFIED BY SPLICE MARKERS. SPLICE MARKERS MUST BE PLACED ABOVE THE SPLICE/CONNECTIONS. DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICES SHALL BE AVOIDED WHERE POSSIBLE. CABLE SPLICES SHALL BE LOCATED IN SPLICE CANS, LIGHT BASES, HANDHOLES, MANHOLES, OR OTHER JUNCTION STRUCTURES UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER OF RECORD.

8. THE CABLE AND SPLICE MARKERS MUST IDENTIFY THE CIRCUITS TO WHICH THE CABLES BELONG. FOR EXAMPLE: TWY A, TWY B.

9. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS MUST BE IDENTIFIED BY DUCT MARKERS.

BID DOCUMENTS

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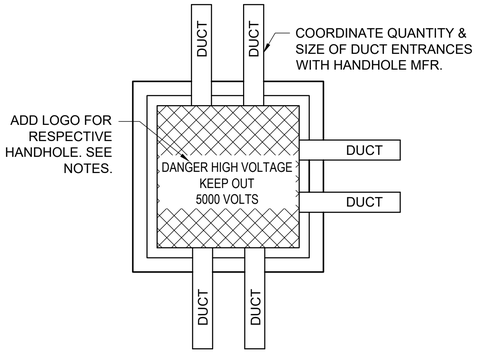
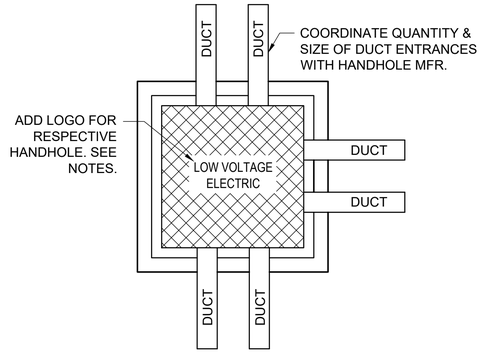
CABLE AND DUCT MARKER DETAILS



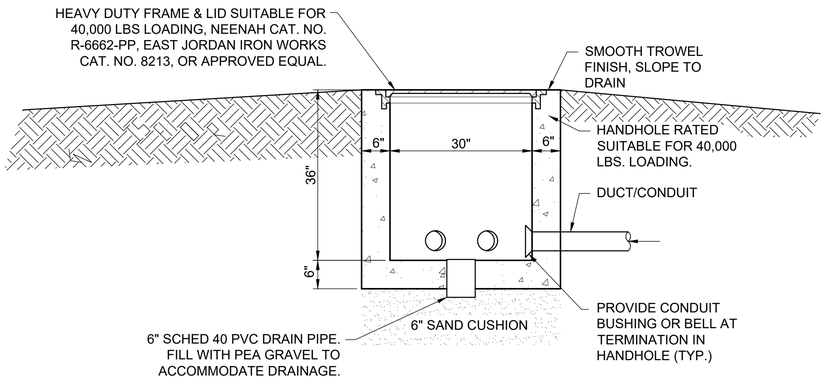
HIGH VOLTAGE HANDHOLE PLAN

"NOT TO SCALE"



LOW VOLTAGE HANDHOLE PLAN

"NOT TO SCALE"



ELEVATION

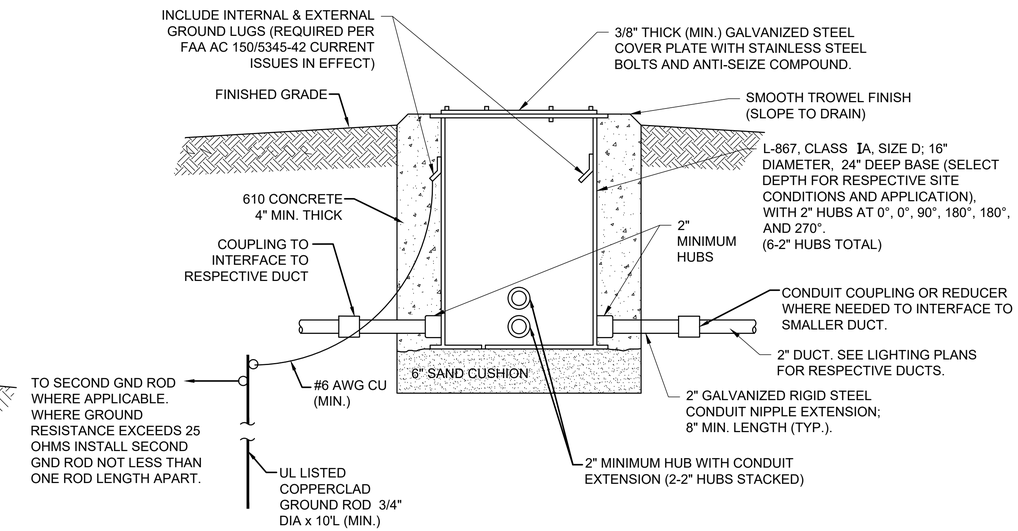
"NOT TO SCALE"

HANDHOLE NOTES:

1. LIDS FOR LOW VOLTAGE HANDHOLES (CONTAINING CIRCUITS RATED 600 VOLTS AND BELOW) SHALL BE LABELED "LOW VOLTAGE" OR "0V - 600V ELECTRIC". LIDS FOR HIGH VOLTAGE HANDHOLES CONTAINING AIRFIELD LIGHTING SERIES CIRCUIT WIRING SHALL BE LABELED "DANGER HIGH VOLTAGE KEEP OUT 5000 VOLTS" TO COMPLY WITH 2023 NEC ARTICLE 305.12 "WARNING SIGNS", NEC ARTICLE 314.30 "HANDHOLE ENCLOSURES" (D) "COVERS" AND NEC ARTICLE 314.72 (E) "SUITABLE COVERS". COORDINATE LETTERING WITH MFR. HANDHOLES PROVIDED WITH THE WRONG LIDS SHALL HAVE THE LIDS REPLACED WITH THE CORRECT LIDS AT NO ADDITIONAL COST TO THE CONTRACT.
2. ELECTRICAL HANDHOLE, FRAME & LID SHALL BE CAPABLE OF WITHSTANDING MINIMUM 40,000 POUND LOADS.
3. REINFORCEMENT SHALL BE #6 BARS AT 6" CENTERS BASE & WALLS EACH WAY.
4. CONCRETE SHALL BE 5000 PSI AT 28 DAYS.
5. HANDHOLES SHALL BE PRECAST. PRECAST MANUFACTURER MUST BE ON THE IDOT (ILLINOIS DEPARTMENT OF TRANSPORTATION) APPROVED LIST OF CERTIFIED PRECAST CONCRETE PRODUCERS.
6. FRAMES AND LIDS (CASTINGS) SHALL BE MADE IN THE USA TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN PREFERENCES REQUIREMENTS.
7. COORDINATE INSTALLATION OF HANDHOLES WITH RESPECTIVE FINISHED GRADE ELEVATION.
8. ALL CORING, INTERFACE, AND LABOR ASSOCIATED WITH CONDUIT, DUCT, CABLE IN UNIT DUCT, AND/OR CABLE ENTRIES WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE HANDHOLE AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
9. HANDHOLES WITH SIMILAR DIMENSIONS MEETING STRENGTH AND LOADING REQUIREMENTS WILL BE CONSIDERED.

ELECTRICAL HANDHOLE

"NOT TO SCALE"



SPLICE CAN/JUNCTION CAN DETAIL

"NOT TO SCALE"

NOTES FOR SPLICE CAN/JUNCTION CAN DETAIL:

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 NEC ARTICLE 300.45 "WARNING SIGNS" AND 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.

BID DOCUMENTS

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HANDHOLE AND SPLICE CAN DETAILS

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

3. 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).

4. 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.

5. 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 SPECIFICATION, ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE EQUIPMENT COST.

6. 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.

7. 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.

8. 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.

9. 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.

POWER AND CONTROL NOTES

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 LARGER 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.

15. CONDUITS FOR ELECTRIC SERVICE ENTRANCE AND FEEDERS SHALL BE AS DETAILED HEREIN ON THE PLANS. WHERE GALVANIZED RIGID STEEL CONDUIT IS SPECIFIED IT SHALL HAVE THREADED FITTINGS. SET SCREW TYPE FITTINGS WILL NOT BE ACCEPTABLE. CONDUITS FOR UNDERGROUND APPLICATIONS SHALL BE AS DETAILED HEREIN. CONDUITS FOR GROUNDING ELECTRODE CONDUCTORS OR INDIVIDUAL GROUNDING CONDUCTORS SHALL BE SCHEDULE 40 OR SCHEDULE 80 PVC.

16. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AT CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION OR WHERE FLEXIBILITY IS REQUIRED. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING, SUNLIGHT RESISTANT, AND RESISTANT TO OIL, GASOLINE, AND GREASE. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO MOTORS, TRANSFORMERS, & CONSTANT CURRENT REGULATORS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. 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.

17. UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.

18. ALL STEEL CONDUITS, FITTINGS, NUTS, BOLTS, ETC. SHALL BE GALVANIZED.

19. USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG OR LARGER UNDERGROUND WIRE IS INSTALLED, USE INSULATED BUSHINGS.

20. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.

21. WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT LAYERS OF HIGH VOLTAGE ELECTRICAL INSULATING TAPE (RUBBER SPLICING TAPE SUITABLE FOR PRIMARY ELECTRICAL INSULATION FOR SPLICING CABLE FROM 600 VOLTS TO 69,000 VOLTS) AND COVER WITH VINYL ELECTRICAL TAPE (ALL-WEATHER VINYL INSULATING TAPE SUITABLE FOR PROTECTIVE JACKETING FOR HIGH-VOLTAGE CABLE SPLICES AND REPAIRS) FOR FULL VALUE OF CABLE INSULATION VOLTAGE. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125 AND FAA AC 150/5370-10H ITEM L-108, HIGH VOLTAGE ELECTRICAL INSULATING TAPE SHALL BE 3M SCOTCH 130C (2 INCHES WIDE) OR APPROVED EQUIVALENT, AND VINYL ELECTRICAL TAPE SHALL BE 3M SCOTCH 88 (1.5 INCHES WIDE) OR APPROVED EQUIVALENT. TAPES MUST BE RATED SUITABLE FOR THE APPLICATION.

22. UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG. COPPER MINIMUM.

23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:

   A. FOR INTERIOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 12 (DUST TIGHT) ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. FOR EXTERIOR/OUTDOOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 4X STAINLESS STEEL ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. ALL CONDUIT ENTRIES INTO NEMA 4, 4X ENCLOSURES SHALL HAVE NEMA 4 HUBS LISTED SUITABLE FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE.

   B. THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS, TERMINAL BLOCKS AND INCOMING AND INTERNAL WIRING.

   C. ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED-EYE TERMINATIONS, OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.

   D. WHEN THE ENCLOSURE COVER IS OPENED, ALL CIRCUIT COMPONENTS, WIRING AND TERMINALS SHALL BE EXPOSED AND ACCESSIBLE WITHOUT REMOVAL OF ANY PANELS, COVERS, ETC., EXCEPT THOSE COVERING HIGH VOLTAGE COMPONENTS.

   E. ACCESS TO, OR REMOVAL OF A CIRCUIT COMPONENT OR TERMINAL BLOCK WILL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR TERMINAL BLOCK.

   F. EACH CIRCUIT COMPONENT SHALL BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWINGS AND ITS FUNCTION.

   G. A COMPLETE WIRING DIAGRAM SHALL BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE.

   H. THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL.

   I. ALL WIRING SHALL BE NEATLY TRAINED AND LACED.

   J. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG.

24. THE ABOVE GENERAL NOTES & POWER AND CONTROL NOTES ARE BASED ON DEPT. OF TRANSPORTATION FAA GREAT LAKES REGION ELECTRICAL NOTES SUBMITTED BY AL GRIGAITIS, DATE: 2/11/1987 AND HAVE BEEN UPDATED BY KEVIN LIGHTFOOT TO ACCOMMODATE CODE CHANGES, FAA ADVISORY CIRCULAR CHANGES, AND OTHER RESPECTIVE APPLICATIONS.

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STATE OF ILLINOIS

DATE SIGNED: 2/26/2025
LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

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PROJECT NO: **24A0104**.00
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REVIEWED BY: KNL 01/28/2025

SHEET TITLE

ELECTRICAL NOTES
SHEET 1

AIRFIELD LIGHTING NOTES

1. UNLESS OTHERWISE NOTED, ALL UNDERGROUND AIRFIELD LIGHTING SERIES CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE FAA APPROVED 5000 VOLT L-824 TYPE. ALL UNDERGROUND FIELD POWER LOW VOLTAGE (600 VOLT & BELOW) CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE UL LISTED 600 VOLT, TYPE XLP-USE-2 COPPER CONDUCTORS. CONDUCTOR SIZES SHALL BE AS SPECIFIED, HEREIN.

2. NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND TRANSFORMERS SHALL BE BROUGHT ABOVE GROUND AT EDGE LIGHTS, SIGNS, REIL, PAPI, ETC.

3. THERE SHALL BE NO EXPOSED POWER/CONTROL CABLES BETWEEN THE POINT WHERE THEY LEAVE THE UNDERGROUND (DEB OR L-867 BASES) AND WHERE THEY ENTER THE EQUIPMENT (SUCH AS TAXIWAY SIGNS, PAPI, REIL, ETC.) ENCLOSURES. THESE CABLES SHALL BE ENCLOSED IN RIGID CONDUIT OR IN FLEXIBLE, WATERTIGHT CONDUIT WITH BREAKABLE COUPLING(S) AT THE GRADE OR THE HOUSING COVER, AS SHOWN IN APPLICABLE DETAILS.

4. THE JOINTS OF THE L-823 PRIMARY CONNECTORS SHALL BE WRAPPED WITH AT LEAST ONE LAYER OF RUBBER OR SYNTHETIC RUBBER TAPE AND ONE LAYER OF PLASTIC TAPE, ONE-HALF LAPPED, EXTENDING AT LEAST 1-1/2 INCHES ON EACH SIDE OF THE JOINT, AS SHOWN ON AIRFIELD LIGHTING CABLE SPLICE DETAILS.

5. THE CABLE ENTRANCE INTO THE FIELD-ATTACHED L-823 CONNECTORS SHALL BE ENCLOSED BY A HEAT-SHRINKABLE TUBING WITH CONTINUOUS INTERNAL ADHESIVE, AS SHOWN ON AIRFIELD LIGHTING CABLE SPLICE DETAILS.

6. L-823 TYPE II, TWO-CONDUCTOR SECONDARY CONNECTORS SHALL BE CLASS 'A' (FACTORY MOLDED).

7. THERE SHALL BE NO SPLICES IN THE SECONDARY CABLE(S) WITHIN THE STEMS OF A RUNWAY/TAXIWAY EDGE/THRESHOLD LIGHTING FIXTURE AND THE WIREWAYS LEADING TO TAXIWAY SIGNS AND PAPI/REIL EQUIPMENT.

8. ELECTRICAL INSULATING GREASE SHALL BE APPLIED WITHIN THE L-823, SECONDARY, TWO CONDUCTOR CONNECTORS TO PREVENT WATER ENTRANCE. THESE CONNECTORS SHALL NOT BE TAPED.

9. DEB ISOLATION TRANSFORMERS SHALL BE BURIED AT A DEPTH OF TEN (10") INCHES ON A LINE CROSSING THE LIGHT AND PERPENDICULAR TO THE RUNWAY/TAXIWAY CENTERLINE AT A LOCATION TWELVE (12") INCHES FROM THE LIGHT OPPOSITE FROM THE RUNWAY/TAXIWAY.

10. A SLACK OF THREE (3') FEET, MINIMUM, PLUS DEPTH OF BASE CAN (IF APPLICABLE), SHALL BE PROVIDED IN THE PRIMARY CABLE AT EACH TRANSFORMER/CONNECTOR TERMINATION. AT STAKE-MOUNTED LIGHTS, THE SLACK SHALL BE LOOSELY COILED IMMEDIATELY BELOW THE ISOLATION TRANSFORMER. THERE SHALL BE NO ADDITIONAL PAYMENT FOR CABLE SLACK AND THEREFORE THE QUANTITY OF PROPOSED CABLE SLACK HAS NOT BEEN INCLUDED IN THE RESPECTIVE CABLE PAY ITEMS.

11. DIRECTION OF PRIMARY CABLES SHALL BE IDENTIFIED BY COLOR CODING AS FOLLOWS: WHEN FACING LIGHT WITH BACK TO PAVEMENT, CABLE TO THE LEFT IS CODED RED AND CABLE TO RIGHT IS CODED BLUE. THIS APPLIES TO STAKE MOUNTED LIGHTS AND BASE MOUNTED LIGHTS WHERE THE BASE HAS ONLY ONE ENTRANCE.

12. L-867 BASES SHALL BE SIZE B, 24" DEEP, CLASS I, UNLESS OTHERWISE NOTED.

13. BASE MOUNTED BREAKABLE COUPLINGS SHALL NOT HAVE WEEP HOLES TO THE OUTSIDE. PLUGGED UP HOLES SHALL NOT BE ACCEPTABLE. IT SHALL BE A 1/4" DIAMETER, MINIMUM, OR EQUIVALENT OPENING FOR DRAINAGE FROM THE SPACE AROUND THE SECONDARY CONNECTOR INTO THE L-867 BASE.

14. THE ELEVATION OF THE BREAKABLE COUPLING GROOVE SHALL NOT EXCEED 1-1/2" ABOVE THE EDGE OF THE COVER IN CASE OF BASE MOUNTED COUPLINGS, OR THE TOP OF THE STAKE IN CASE OF STAKE MOUNTED COUPLINGS.

15. WHERE THE BREAKABLE COUPLING IS NOT AN INTEGRAL PART OF THE LIGHT FIXTURE STEM OR MOUNTING LEG, A BEAD OF SILICON SEAL SHALL BE APPLIED COMPLETELY AROUND LIGHT STEM OR WIREWAY AT BREAKABLE COUPLING TO PROVIDE A WATERTIGHT SEAL.

16. TOPS OF THE STAKES SUPPORTING LIGHT FIXTURES SHALL BE FLUSH WITH THE SURROUNDING GRADE.

17. PLASTIC LIGHTING FIXTURE COMPONENTS, SUCH AS LAMP HEADS, STEMS, BREAKABLE COUPLINGS, BASE COVERS, BRACKETS, STAKES, SHALL NOT BE ACCEPTABLE.

18. THE TOLERANCE FOR THE HEIGHT OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE: ONE (1) INCH. IN CASE OF STAKE MOUNTED LIGHTS, THE SPECIFIED LIGHTING FIXTURE HEIGHT SHALL BE MEASURED BETWEEN THE TOP OF THE STAKE AND THE TOP OF THE LENS. IN CASE OF BASE MOUNTED LIGHTS, THE SPECIFIED LIGHTING FIXTURE HEIGHT SHALL BE MEASURED BETWEEN THE TOP OF THE BASE FLANGE AND THE TOP OF THE LENS, THUS INCLUDING THE BASE COVER, THE FRANGIBLE COUPLING, THE STEM, THE LAMP HOUSING AND THE LENS.

19. THE TOLERANCE FOR THE LATERAL SPACING (LIGHT LANE TO RUNWAY/TAXIWAY CENTERLINE) OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE ONE (1) INCH. THIS ALSO APPLIES AT INTERSECTIONS TO LATERAL SPACING BETWEEN LIGHTS OF A RUNWAY/TAXIWAY AND THE INTERSECTING RUNWAY/TAXIWAY.

20. ENTRANCES INTO L-867 BASES SHALL HAVE CONDUIT COUPLINGS OR REDUCERS TO INTERFACE UNIT DUCT/CONDUIT TO L-867 BASE HUBS, OR SHALL BE SEALED WITH HEAT SHRINK.

21. GALVANIZED/PAINTED EQUIPMENT/COMPONENT SURFACES SHALL NOT BE DAMAGED BY DRILLING, FILING, ETC. DRAIN HOLES IN METAL TRANSFORMER HOUSINGS SHALL BE MADE BEFORE GALVANIZING.

22. EDGE LIGHT NUMBERING TAGS SHALL BE FACING THE PAVEMENT.

23. CABLE/SPLICE/DUCT MARKERS SHALL BE PRECAST CONCRETE OF THE SIZE SHOWN. LETTERS/NUMBERS/ARROWS FOR THE LEGEND TO BE IMPRESSED INTO THE TOPS OF THE MARKERS SHALL BE PRE-ASSEMBLED AND SECURED IN THE MOLD BEFORE THE CONCRETE IS POURED. LEGEND INSCRIBED BY HAND IN WET CONCRETE SHALL NOT BE ACCEPTABLE.

24. ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 FEET MAXIMUM SPACING, WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS SHALL BE INSTALLED IMMEDIATELY ABOVE THE CABLES.

25. THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823 CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE SHOWN.

26. APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS.

27. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT MARKERS.

28. WHERE A PARALLEL, CONSTANT VOLTAGE PAPI SYSTEM IS PROVIDED, THE "T" SPLICES SHALL BE OF THE CAST TYPE.

29. CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND TRANSFORMER HOUSINGS, MARKINGS, ETC. SHALL BE 3500 PSI (MINIMUM) AT 14 DAYS, IN ACCORDANCE WITH ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE.

30. ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES SHALL BE TAGGED. USE EMBOSSED COPPER STRIPS TO BE ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MAN/HAND HOLE-ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT.

31. 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. LOCATION OF FAA POWER, CONTROL AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVE GROUND UTILITIES.

32. WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.

33. THE ABOVE AIRFIELD LIGHTING NOTES
ARE BASED ON DEPT. OF TRANSPORTATION FAA GREAT LAKES REGION ELECTRICAL NOTES SUBMITTED BY AL GRIGAITIS, DATE: 2/11/1987 AND HAVE BEEN UPDATED BY KEVIN LIGHTFOOT TO ACCOMMODATE CODE CHANGES, FAA ADVISORY CIRCULAR CHANGES, AND OTHER RESPECTIVE APPLICATIONS.

GROUNDING NOTES FOR AIRFIELD LIGHTING

1. GROUNDING FOR RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS SHALL BE AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. A GROUND ROD MUST BE INSTALLED AT EACH LIGHT FIXTURE, TAXI GUIDANCE SIGN AND L-867/L-868 BASE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONNECTIONS TO LIGHT BASES MAY ALSO BE MADE WITH A UL 467 LISTED PIPE CLAMP CONNECTED TO THE GRSC NIPPLE EXTENDING FROM A THREADED LIGHT BASE HUB. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, INC., 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. TOP OF GROUND RODS SHALL BE BURIED 12 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS.

2. PER THE REQUIREMENTS OF FAA AC 150/5340-30J DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6 "LIGHT FIXTURE BONDING" IT NOTES THE FOLLOWING: BOND THE LIGHT FIXTURE TO THE LIGHT BASE INTERNAL GROUND LUG VIA A NO. 6 AWG STRANDED COPPER WIRE RATED 600 VOLTS WITH GREEN XHHW, THWN-2, OR OTHER SUITABLE INSULATION, BARE STRANDED CONDUCTOR OR A BRAIDED GROUND STRAP OF EQUIVALENT CURRENT RATING. THE BONDING CONDUCTOR LENGTH MUST BE SUFFICIENT TO ALLOW THE REMOVAL OF THE LIGHT FIXTURE FROM THE LIGHT BASE FOR ROUTINE MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S INSTRUCTIONS FOR PROPER METHODS OF ATTACHING A BONDING WIRE TO THE FIXTURE.

3. STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100 PERCENT DOMESTIC STEEL.

4. CLEAN ALL METAL SURFACES BEFORE MAKING GROUND CONNECTIONS. METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL PER 2020 NATIONAL ELECTRICAL CODE ARTICLE 250-12.

5. THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.

6. FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, DISTANCE REMAINING SIGN, JUNCTION STRUCTURE/L-867 BASE/L-868 BASE, OR OTHER AIRFIELD LIGHT FIXTURE, THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE AND EACH TAXI GUIDANCE SIGN INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, LONGER GROUND RODS OR ADDITIONAL GROUND RODS MIGHT BE REQUIRED. IF GROUND RESISTANCE EXCEEDS 25 OHMS CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. ALSO REFER TO EOR-062-047643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS WHERE APPLICABLE. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND THE PROJECT ENGINEER OF RECORD: KEVIN LIGHTFOOT.

7. 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

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DATE SIGNED: 2/26/2025 LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
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ISSUE: FEBRUARY 28, 2025
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ELECTRICAL NOTES SHEET 2

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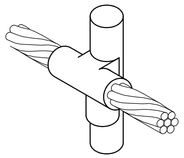
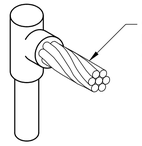


CABLE TO GROUND ROD



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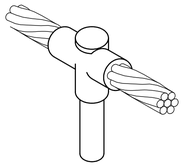

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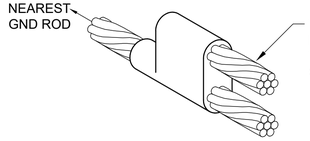

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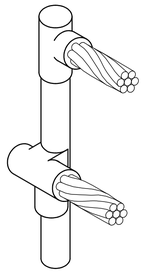

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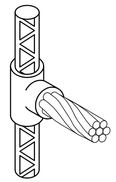


CABLE TO REBAR

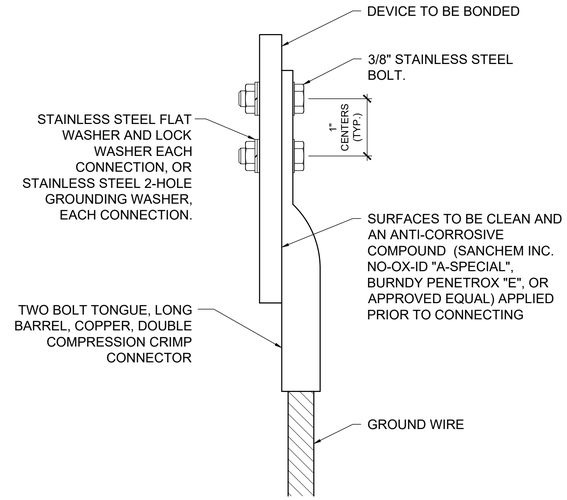
DETAIL NOTES

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. 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. INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. 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.

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.

EXOTHERMIC WELD DETAILS



2 HOLE LONG BARREL COMPRESSION LUG TABLE (OR APPROVED EQUAL)			
WIRE SIZE	BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PENN-UNION CAT. NO.
#8 AWG STRANDED	YA8C-2TC38	256-30695-1157	BBLU-8D-2TC38
#6 AWG SOLID	YA8C-2TC38 OR YGA6C-2TC38E2G1	(CONTACT MFR)	(CONTACT MFR)
#6 AWG STRANDED	YA6C-2TC38	256-30695-1158	BBLU-6D-2TC38
#4 AWG STRANDED	YA4C-2TC38	256-30695-1159	BBLU-4D-2TC38
#2 AWG STRANDED	YA2C-2TC38	256-30695-1160	BBLU-2D-2TC38
#2 AWG SOLID	YA3C-2TC38	256-30695-1160	BBLU-3D-2TC38
#1/0 AWG STRANDED	YA25-2TC38	256-30695-1162	BBLU-1/0D-2TC38
#2/0 AWG STRANDED	YA26-2TC38	256-30695-1116	BBLU-2/0D-2TC38
#3/0 AWG STRANDED	YA27-2TC38	54816BE	BBLU-3/0D-2TC38
#4/0 AWG STRANDED	YA28-2TC38	256-30695-1117	BBLU-4/0D-2TC38

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.

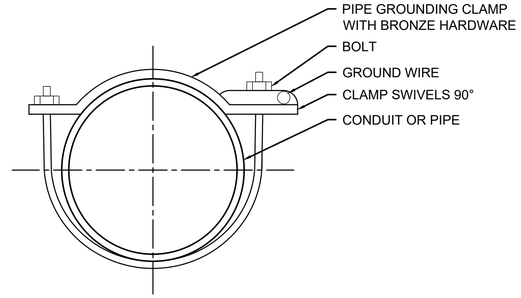
2. SAFETY OF PERSONNEL IS THE PRIORITY. PROTECTION OF EQUIPMENT IS SECONDARY. PLEASE BE AWARE THAT GROUNDING DOES NOT GUARANTEE YOU WILL NOT RECEIVE A SHOCK, BE INJURED, OR KILLED FROM DEFECTIVE OR DAMAGED EQUIPMENT OR MATERIALS. PROPER GROUNDING WILL HOWEVER SIGNIFICANTLY REDUCE THE POSSIBILITY OF SHOCK, INJURY, OR DEATH. PLEASE FOCUS ON SAFETY OF PERSONNEL AT ALL TIMES

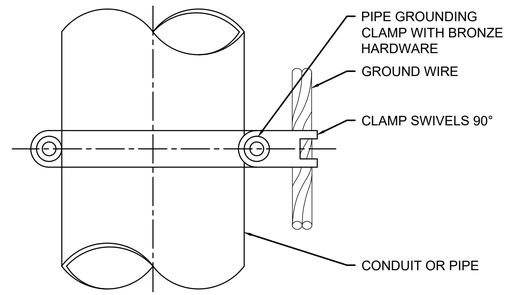
3. THE GROUND WIRE CONNECTIONS TO EQUIPMENT LOCATED ABOVE GRADE, SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE WITH 3/8-INCH STAINLESS STEEL BOLTS, NUTS, AND WASHERS OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE. THIS ALSO APPLIES TO CONNECTIONS TO GROUND BUS BARS.

4. HARGER LIGHTING PROTECTION AND GROUNDING EQUIPMENT ALSO MANUFACTURERS TWO HOLE LONG BARREL COMPRESSION LUGS.

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





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

BID DOCUMENTS

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062-047643
STATE OF ILLINOIS

DATE SIGNED: 2/26/2025
LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

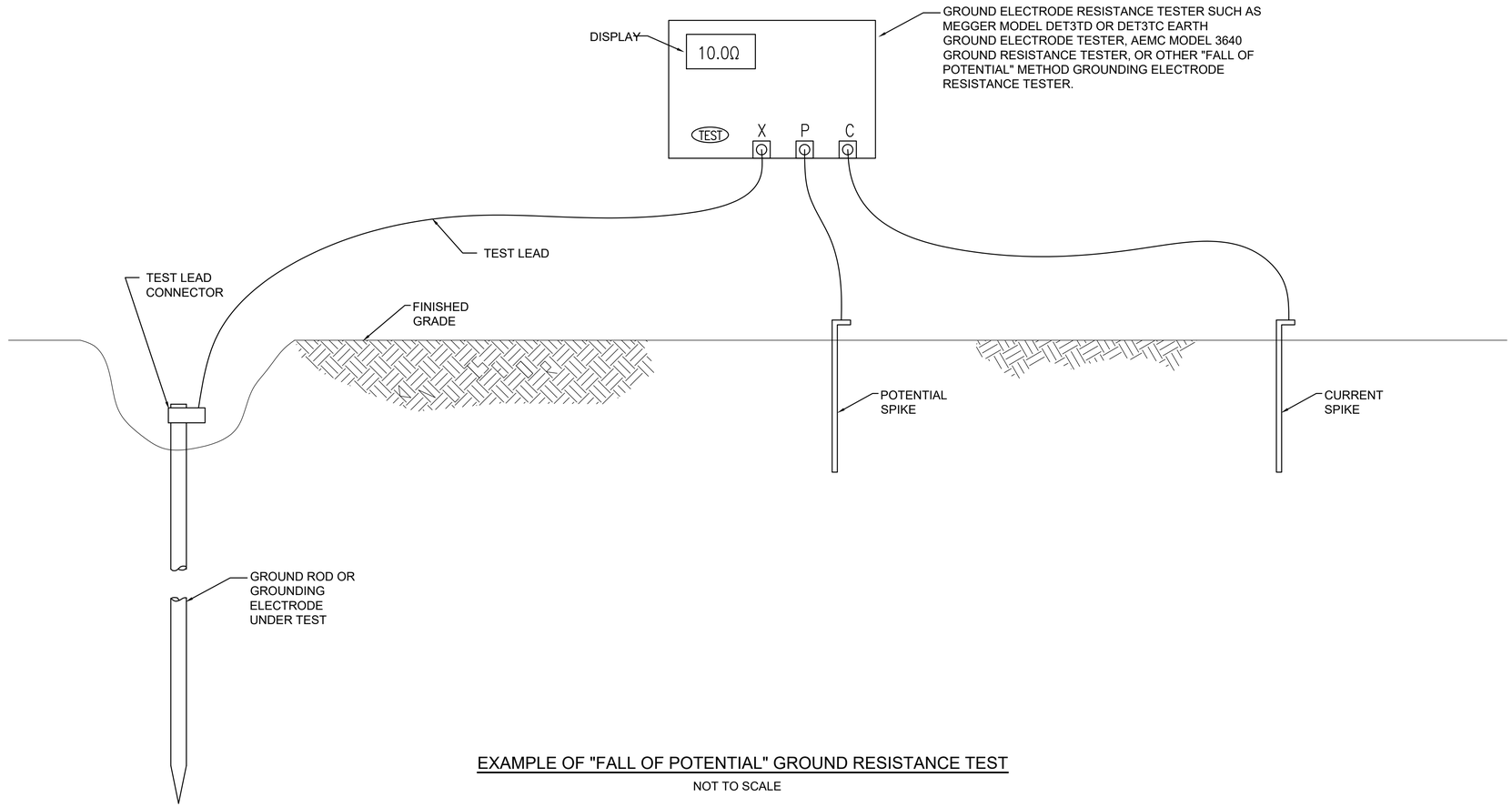
SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: FEBRUARY 28, 2025
PROJECT NO: 24A0104.00
CAD FILE: E-508-DETL.DWG
DESIGN BY: KNL 01/06/2025
DRAWN BY: AJC 01/15/2025
REVIEWED BY: KNL 01/28/2025

SHEET TITLE

GROUNDING DETAILS



EXAMPLE OF "FALL OF POTENTIAL" GROUND RESISTANCE TEST

NOT TO SCALE

NOTES

1. 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.

2. FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, SPLICE CAN AND NAVAID THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND 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. ALSO REFER TO EOR-062-047643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS WHERE APPLICABLE. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER / RESIDENT TECHNICIAN, AND THE PROJECT ENGINEER OF RECORD.

3. GROUND RESISTANCE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH THE RESPECTIVE GROUND ELECTRODE RESISTANCE TESTING EQUIPMENT MANUFACTURER'S INSTRUCTIONS.

4. RECORD SITE CONDITIONS DURING TESTS.

5. "FALL OF POTENTIAL" TYPE GROUND ELECTRODE RESISTANCE TESTER IS RECOMMENDED FOR TESTING INDIVIDUAL STAND ALONE GROUND RODS.

BID DOCUMENTS

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REVIEWED BY: KNL 01/28/2025

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GROUND RESISTANCE TESTING DETAILS

GROUNDING NOTES

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING SHOWN ON THE RESPECTIVE CONTRACT DOCUMENTS AND/OR AS MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM, 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:

1. FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS FOR AIRFIELD LIGHTING LIGHT BASE GROUNDS FOR (RUNWAY LIGHTING, TAXIWAY LIGHTING, TAXI GUIDANCE SIGNS, & DISTANCE REMAINING SIGNS) SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR COUNTERPOISE/LIGHTNING PROTECTION SYSTEM ON THE AIRFIELD SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT. LONG UL-LISTED COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. 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.

2. CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER OF RECORD FOR FURTHER DIRECTIONS. ALSO REFER TO EOR-47643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS, WHERE APPLICABLE. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT PROJECT REPRESENTATIVE, AND THE PROJECT ENGINEER OF RECORD.

3. ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.

4. 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.

5. 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.

6. 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

7. 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.

8. ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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 GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.

14. EACH AND ALL GROUNDED 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.

15. 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.

16. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.

17. BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.

18. 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 ENCIRCLE 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.

19. 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.

20. 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.

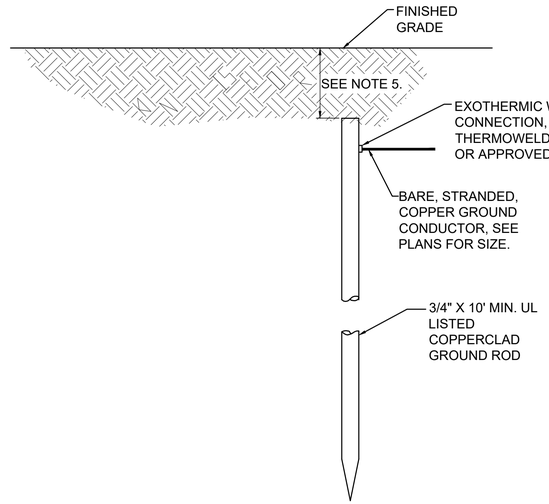
21. NEVER REMOVE, ALTER, OR ATTEMPT TO REPAIR CONDUCTORS OR CONDUIT SYSTEMS PROVIDING GROUNDING OR ELECTRICAL BONDING FOR ANY ELECTRICAL EQUIPMENT UNTIL ALL POWER IS REMOVED FROM EQUIPMENT. WARN ALL PERSONNEL OF THE UNGROUNDED CONDITION OF THE EQUIPMENT. DISPLAY APPROPRIATE WARNING SIGNS, SUCH AS DANGER TAGS, TO WARN PERSONNEL OF THE POSSIBLE HAZARDS.

22. GROUNDING WORK AND MODIFICATIONS SHALL NOT BE PERFORMED DURING A THUNDERSTORM OR WHEN A THUNDERSTORM IS PREDICTED IN THE AREA.

23. 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.

24. 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.

25. 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.



10 FT. GROUND ROD
NOT TO SCALE

NOTES

1. TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
2. THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
3. COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
4. GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
5. TOP OF GROUND RODS SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN.
6. GROUND RODS FOR SPLICE CANS AND AIRFIELD LIGHTING SHALL BE A MINIMUM 3/4-INCH DIAMETER BY 10-FT LONG UL LISTED COPPER CLAD.
7. FOR OTHER GROUNDING APPLICATIONS NOT DETAILED HEREIN, CONTACT ENGINEER OF RECORD; KEVIN LIGHTFOOT FOR DIRECTIONS.

GROUND RODS
NOT TO SCALE

BID DOCUMENTS

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DATE SIGNED: 2/26/2025
LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
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SHEET TITLE

GROUNDING NOTES

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
M	MOTOR
#	LOAD, MOTOR, # = HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE
XXX	EQUIPMENT, XXX = DEVICE DESCRIPTION
GND	GROUND BUS OR TERMINAL
S/N	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
N EM L	TRANSFER SWITCH
G	ENGINE GENERATOR SET

ELECTRICAL LEGEND - SCHEMATIC

	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
S*	STARTER COIL, * = STARTER NUMBER
OL	OVERLOAD RELAY CONTACT
CR*	CONTROL RELAY, * = CONTROL RELAY NUMBER
R*	RELAY, * = RELAY NUMBER
	TOGGLE SWITCH / 2 POSITION SWITCH
OFF AUTO OX	2-POSITION SELECTOR SWITCH
HAND OFF AUTO XOO OOX	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)
	N.O. THERMAL SWITCH
	N.C. THERMAL SWITCH
	2 POLE DISCONNECT SWITCH
	3 POLE DISCONNECT SWITCH
PH	PHOTOCELL
	TERMINAL BLOCK, * = TERMINAL NUMBER
	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER
	INTERNAL PANEL WIRING
	FIELD WIRING
	FUSE
GND	GROUND BUS OR TERMINAL
S/N	NEUTRAL BUS
	GROUND, GROUND ROD, GROUND BUS
	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
P	TYPE S1 CUTOUT HANDLE REMOVED (MFRD BY CROUSE-HINDS, MANAIRCO, AND OTHERS)
I	TYPE S1 CUTOUT HANDLE INSERTED (MFRD BY CROUSE-HINDS, MANAIRCO, AND OTHERS)
	TYPE SCO CUTOUT (MFRD BY ADB)
	TYPE ALSC 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
MH	METAL HALIDE
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
SPD	SURGE PROTECTION DEVICE
SPST	SINGLE POLE SINGLE THROW
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
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
   (ORIGINATING FROM 240/120V 3 PH, 4W DELTA)

PHASE A	BLACK
PHASE C	BLUE
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.

BID DOCUMENTS

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STATE OF ILLINOIS

DATE SIGNED: 2/26/2025 LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

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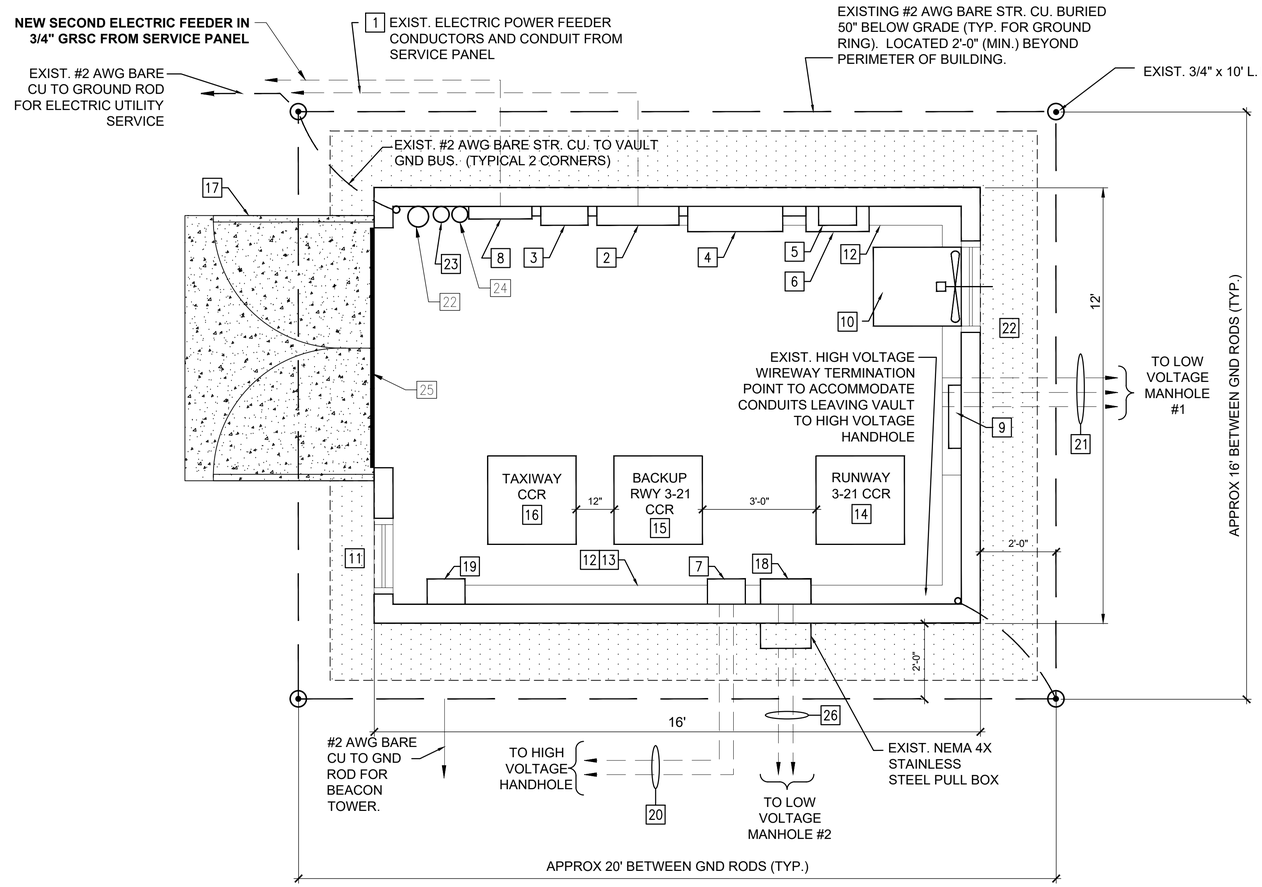
ELECTRICAL LEGEND AND ABBREVATIONS



VAULT ELECTRICAL EQUIPMENT PLAN

SCALE 1/2"=1'-0" [FULL-SIZE (22x34)]

1 0 2 4 FEET

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS WITH THE AIRPORT DIRECTOR/MANAGER AND THE RESIDENT PROJECT REPRESENTATIVE, AND SHUT DOWN OF EXISTING SYSTEMS SHALL BE SCHEDULED WITH AND APPROVED BY THE AIRPORT MANAGER PRIOR TO SHUTDOWN. 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 SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT). FAILURE TO SHUT DOWN AND LOCKOUT THE RESPECTIVE CIRCUIT(S) PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THE SYSTEM.
2. 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. ONLY QUALIFIED ELECTRICAL CONTRACTORS SHALL PERFORM ELECTRICAL WORK ON THIS PROJECT. NEC DEFINES A QUALIFIED PERSON AS FOLLOWS; "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".
3. CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS.
4. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
5. EACH ACTIVE CCR SERVING THE RESPECTIVE WORK AREAS OF THE PROJECT, SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS AND/OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING CIRCUITS AND AGAIN AFTER THE AIRFIELD LIGHTING REPLACEMENTS AND VAULT 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. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE PROJECT ENGINEER OF RECORD.
6. SEE "PROPOSED ELECTRICAL ONE-LINE FOR VAULT AND AIRFIELD" FOR LOW VOLTAGE INPUT POWER WIRING REQUIREMENTS TO CCR'S (CONSTANT CURRENT REGULATORS). SEE "HIGH VOLTAGE WIRING SCHEMATIC" FOR CCR OUTPUT WIRING REQUIREMENTS. SEE "AIRFIELD LIGHTING WIRING SCHEMATIC" FOR CCR CONTROL WIRING REQUIREMENTS. PROVIDE 5 FEET MINIMUM CLEAR WORKING SPACE IN FRONT OF EACH CCR AND EACH SERIES PLUG CUTOUT.
7. CONSTANT CURRENT REGULATORS AND THEIR RESPECTIVE SERIES PLUG CUTOUTS SHALL BE CLEARLY LABELED TO IDENTIFY THE RESPECTIVE REGULATOR DESIGNATION, RUNWAY OR TAXIWAY SERVED, POWER SOURCE OR CIRCUIT, AND VOLTAGE SYSTEM.

KEYED NOTES

1. **EXISTING ELECTRIC POWER FEEDER CONDUCTORS IN GRSC FROM SERVICE PANELBOARD. FURNISH AND INSTALL A SECOND 120/240VAC 1 PHASE, 3-WIRE FEEDER CKT (30AMP) IN 3/4" GRSC FROM SERVICE PANELBOARD TO VAULT FOR LIGHTS & RECEPT. BRANCH CKTS. SEE "PROPOSED ELECTRICAL ONE-LINE DIAGRAM FOR VAULT AND AIRFIELD."**
2. EXIST. VAULT MAIN DISTRIBUTION PANELBOARD
3. EXIST. AC SURGE PROTECTIVE DEVICE.
4. EXIST. LIGHTING CONTACTOR PANEL. **DISCONNECT RWY 21 REIL CKT**.
5. **EXIST. L-854 RADIO CONTROL UNIT TO BE REPLACED WITH A NEW L-854 RADIO CONTROLLER. EXTEND GRSC & RADIO ANTENNA CABLE AND MOUNT ANTENNA ABOVE THE ADJACENT HANGAR BUILDING ROOF AS REQUIRED FOR PROPER OPERATION. BOND GRSC AT BLDG EXTERIOR TO GND RING WITH #2 AWG BARE CU. PROVIDE 1" SCHEDULE 40 PVC TO PROTECT GND WIRE. GRSC WITH ANTENNA CABLE SHALL TRANSITION TO SCHED 40 PVC AT ENTRY TO VAULT.**
6. EXIST. RADIO RELAY INTERFACE PANEL WITH PHOTOCELL BYPASS SWITCH FOR AIRFIELD LIGHTING SYSTEM.
7. **EXIST. 60 AMP, 240 VAC, 2P DOUBLE THROW NOT FUSIBLE SAFETY SWITCH FOR RUNWAY CCR'S TO BE REWIRED.**
8. EXIST. ELECTRIC WALL HEATER EH-1, 2000 WATT, 240 VAC, 1 PHASE, MARLEY ENGINEERED PRODUCTS MODEL CWH3404B.
9. EXIST. ELECTRIC WALL HEATER EH-2 3000 WATT, 240 VAC, 1 PHASE, MARLEY ENGINEERED PRODUCTS MODEL CWH3407B.
10. EXISTING EXHAUST FAN EF-1, 2000 CFM (MINIMUM) AT .25" STATIC PRESSURE WITH 1/3 HP (MINIMUM), 115 VAC MOTOR, ; CARNES MODEL LWBK20M1A1CP20F
11. EXIST. INTAKE LOUVER L-1, 24" WIDE BY 48" HIGH INTAKE LOUVER WITH STAINLESS INSECT SCREEN. **PROVIDE REPLACEMENT 120 VAC MOTORIZED DAMPER FOR PROPER OPERATION WITH LIMIT SWITCH, EXISTING RUSKIN MODEL ELF375DX. DOES NOT OPEN PROPERLY AND NEEDS REPLACEMENT WITH NEW UNIT.**
12. EXIST. 6" BY 6" LOW VOLTAGE WIREWAY.
13. EXIST. 6" BY 6" HIGH VOLTAGE WIREWAY. **LABEL "DANGER HIGH VOLTAGE KEEP OUT" EVERY 4 FEET.**
14. **NEW RUNWAY 3-21 CONSTANT CURRENT REGULATOR. TO REPLACE EXISTING CCR. SEE GENERAL NOTE 1.**
15. **NEW BACKUP CONSTANT CURRENT REGULATOR FOR RUNWAY 3-21 TO REPLACE EXISTING. SEE GENERAL NOTE 1.**
16. **NEW TAXIWAY CONSTANT CURRENT REGULATOR TO REPLACE EXISTING. SEE GENERAL NOTE 1.**
17. EXIST. ENTRANCE PAD/STEP.
18. **NEW TRANSFER PAIR SERIES PLUG CUTOUTS (TYPE S-1) FOR RUNWAY LIGHTING WITH EXIST. ENCLOSURE. SEE GENERAL NOTES 1 & 2.**
19. **NEW SERIES PLUG CUTOUT (TYPE S-1) FOR TAXIWAY LIGHTING WITH EXISTING ENCLOSURE. SEE GENERAL NOTES 1 & 2.**
20. EXISTING 2-3" PVC COATED GRSC WITH PVC COATED GRSC ELBOWS FROM HIGH VOLTAGE WIREWAY TO HIGH VOLTAGE HANDHOLE.
21. EXISTING 3-3" PVC COATED GRSC WITH PVC COATED GRSC ELBOWS AT VAULT FROM LOW VOLTAGE WIREWAY TO LOW VOLTAGE MANHOLE #1.
22. **NEW DRY CHEMICAL ABC FIRE EXTINGUISHER UL CLASS 4A:80B:C SUITABLE FOR USE ON CLASS A, B, C FIRES, IN THE FAULT SHELTER (TO REPLACE EXISTING). PROVIDE SIGNAGE OR PLACARD ABOVE FIRE EXTINGUISHER "FOR BUILDING FIRES", TO MEET REQUIREMENTS OF 2022 EDITION OF NFPA 10; STANDARD FOR PORTABLE FIRE EXTINGUISHERS, PARAGRAPH 6.1.1.4.**
23. **NEW UL RATED, 10 POUND CARBON DIOXIDE FIRE EXTINGUISHER UL CLASS 10B:C SUITABLE FOR USE ON CLASS C FIRES IN THE VAULT SHELTER (TO REPLACE EXISTING). PROVIDE SIGNAGE OR PLACARD ABOVE FIRE EXTINGUISHER "FOR ELECTRICAL FIRES", TO MEET REQUIREMENTS OF 2022 EDITION OF NFPA 10; STANDARD FOR PORTABLE FIRE EXTINGUISHERS, PARAGRAPH 6.1.1.4.**
24. **PROVIDE A NEW FIRE EXTINGUISHER 10LB UL RATING 1A:10B:C HALOTRON FIRE EXTINGUISHER. PROVIDE SIGNAGE OR PLACARD ABOVE FIRE EXTINGUISHER "FOR ELECTRICAL FIRES", TO MEET REQUIREMENTS OF 2022 EDITION OF NFPA 10; STANDARD FOR PORTABLE FIRE EXTINGUISHERS, PARAGRAPH 6.1.1.4.**
25. **PROVIDE PLACARD ON EACH VAULT DOOR INTERIOR LABELED "STOP - CHECK EACH CCR TO MAKE SURE THEY ARE IN THE PROPER OPERATING MODE BEFORE LEAVING"**.
26. EXIST. 2-3" PVC COATED GRSC WITH PVC COATED GRSC ELBOWS FROM NEMA 4X SS PULL BOX TO LOW VOLTAGE MANHOLE #2.

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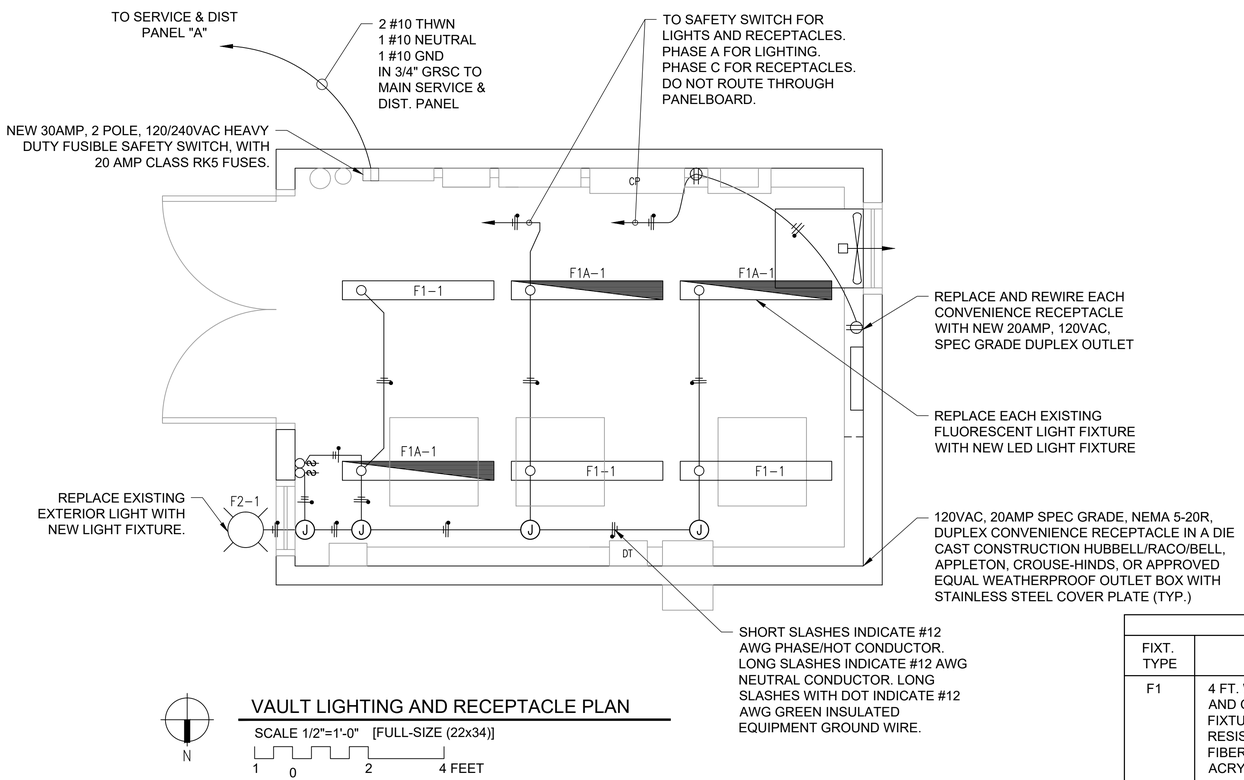

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VAULT LIGHTING AND RECEPTACLE PLAN

SCALE 1/2"=1'-0" [FULL-SIZE (22x34)]

1 0 2 4 FEET

NOTES:

1. A NEW SEPARATE 30AMP, 120/240VAC, 1 PHASE, 3-WIRE CIRCUIT SHALL BE FURNISHED AND INSTALLED FROM THE SERVICE AND MAIN DIST. PANEL TO THE VAULT FOR LIGHTING AND RECEPTACLE CIRCUITS. DISCONNECT LIGHTING AND RECEPTACLES FROM VAULT MAIN DIST. PANEL "B" AND REWIRE TO NEW SAFETY SWITCH. DO NOT ROUTE WIRING THROUGH VAULT MAIN DIST. PANEL. THIS IS TO ALLOW WORK IN VAULT MAIN DIST. PANEL WITH POWER SHUT OFF BUT KEEP LIGHTING AND RECEPTACLES ACTIVE.
2. 15 AMP & 20 AMP BRANCH CIRCUITS FOR LIGHTING AND RECEPTACLES SHALL USE #12 THWN (MIN.). EMT MAY BE USED FOR LIGHTING AND RECEPTACLE BRANCH CIRCUITS.
3. LIGHT FIXTURES SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS. PROVIDE CERTIFICATION OF MANUFACTURE IN THE UNITED STATES WITH SHOP DRAWINGS SUBMITTAL.
4. ADJUST RECEPTACLE LOCATIONS WHERE NECESSARY TO ACCOMMODATE EQUIPMENT LAYOUT.
5. TEST EMERGENCY LIGHTING AND CONFIRM PROPER OPERATION.

LIGHTING FIXTURE SCHEDULE

FIXT. TYPE	DESCRIPTION	MANUFACTURER & CATALOG NO.	LAMPS/ WATTS	VOLTS	MOUNTING	REMARKS
F1	4 FT. WET LOCATION LISTED ENCLOSED AND GASKETED INDUSTRIAL LED LIGHT FIXTURE, IMPACT RESISTANT, UV RESISTANT REINFORCED POLYESTER FIBERGLASS HOUSING, HIGH IMPACT ACRYLIC DIFFUSER.	LITHONIA: DMW2-L24-4000LM-AFL-WD-MVOLT-GZ1Ø-40K-80CRI-BAA, LSI: EG3-4-LED-4L-DA-S-UNV-40-80 H.E. WILLIAMS 96-4-L40-840-HIAFR-DRV-UNV, OR APPROVED EQUAL	LED. APPROX. 40 INPUT WATTS	120	SURFACE TO HARD CEILING	PHILIPS FIXTURE DOES NOT APPEAR TO BE BAA
F1A	SAME AS F1 EXCEPT PROVIDE AN EMERGENCY BATTERY PACK CAPABLE OF OPERATING THE LIGHT FIXTURE FOR 90 MINUTES.	LITHONIA: DMW2-L24-4000LM-AFL-WD-MVOLT-GZ1Ø-40K-80CRI-BAA WITH PS1050 BATTERY PACK, LSI: EG3-4-LED-4L-DA-S-UNV-40-80 FOR FIA: WITH EM OPTION 1400 LUMEN EMERGENCY BATTERY, H.E. WILLIAMS 96-4-L40-840-HIAFR-DRV-UNV WITH EMERGENCY DRIVER/BATTERY PACK. EM/6WC, OR APPROVED EQUAL.	LED. APPROX. 40 INPUT WATTS	120	SURFACE TO HARD CEILING	II
F2	LED WALL LUMINAIRE SUITABLE FOR WET LOCATIONS, DIE CAST ALUMINUM HOUSING WITH POWDER COAT FINISH, HIGH-IMPACT POLYCARBONATE OR ACRYLIC LENS OR GLASS, SEALED AGAINST MOISTURE AND ENVIRONMENTAL CONTAMINANTS (IP65 RATED, UL1598 RATED OR EQUIVALENT)	LITHONIA: WCNG-P2-40K-T3M-MVOLT-BZSDP-BAA, ATLAS LIGHTING: WLM-43-4K, LSI: TLWP-LED-5L-UNV-40-BZA, OR APPROVED EQUAL.	LED. APPROX. 30 TO 40 INPUT WATTS	120	SURFACE TO WALL ABOVE TOP OF DOOR FRAME. ADJUST FOR BUILDING CONDITIONS	CONNECT TO WALL SWITCH LOCATED ON THE INSIDE OF THE BUILDING.

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062-047643
STATE OF ILLINOIS

DATE SIGNED: 2/26/2025 LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

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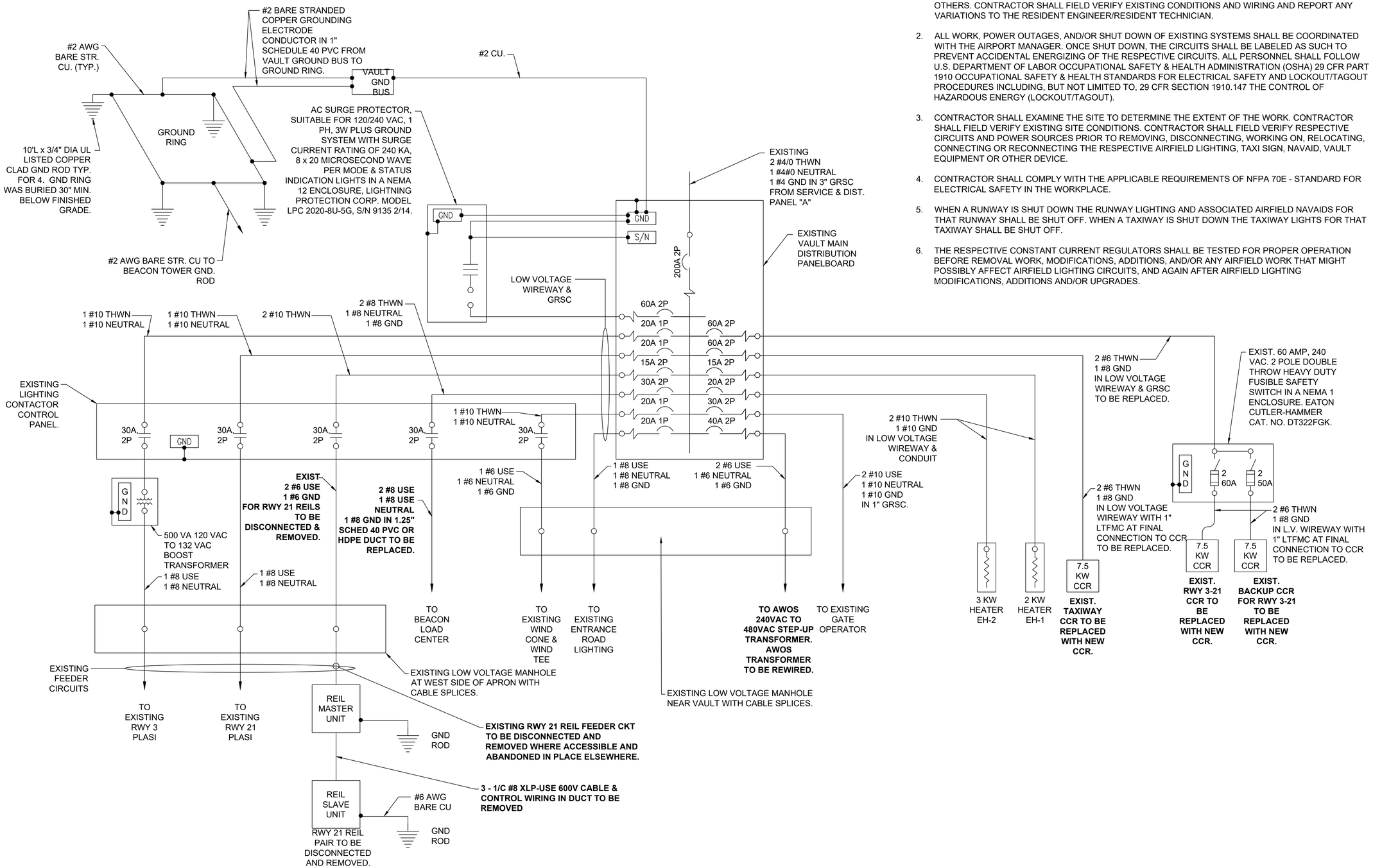
PROPOSED AIRPORT VAULT LIGHTING AND RECEPTACLE PLAN



EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT AND AIRFIELD

NOTES:

1. EXISTING ONE-LINE DIAGRAM WIRING IS BASED ON FIELD DATA AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND WIRING AND REPORT ANY VARIATIONS TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN.
2. ALL 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).
3. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, CONNECTING OR RECONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT OR OTHER DEVICE.
4. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
5. WHEN A RUNWAY IS SHUT DOWN THE RUNWAY LIGHTING AND ASSOCIATED AIRFIELD NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF. WHEN A TAXIWAY IS SHUT DOWN THE TAXIWAY LIGHTS FOR THAT TAXIWAY SHALL BE SHUT OFF.
6. THE RESPECTIVE CONSTANT CURRENT REGULATORS SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS, AND/OR ANY AIRFIELD WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING CIRCUITS, AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS AND/OR UPGRADES.

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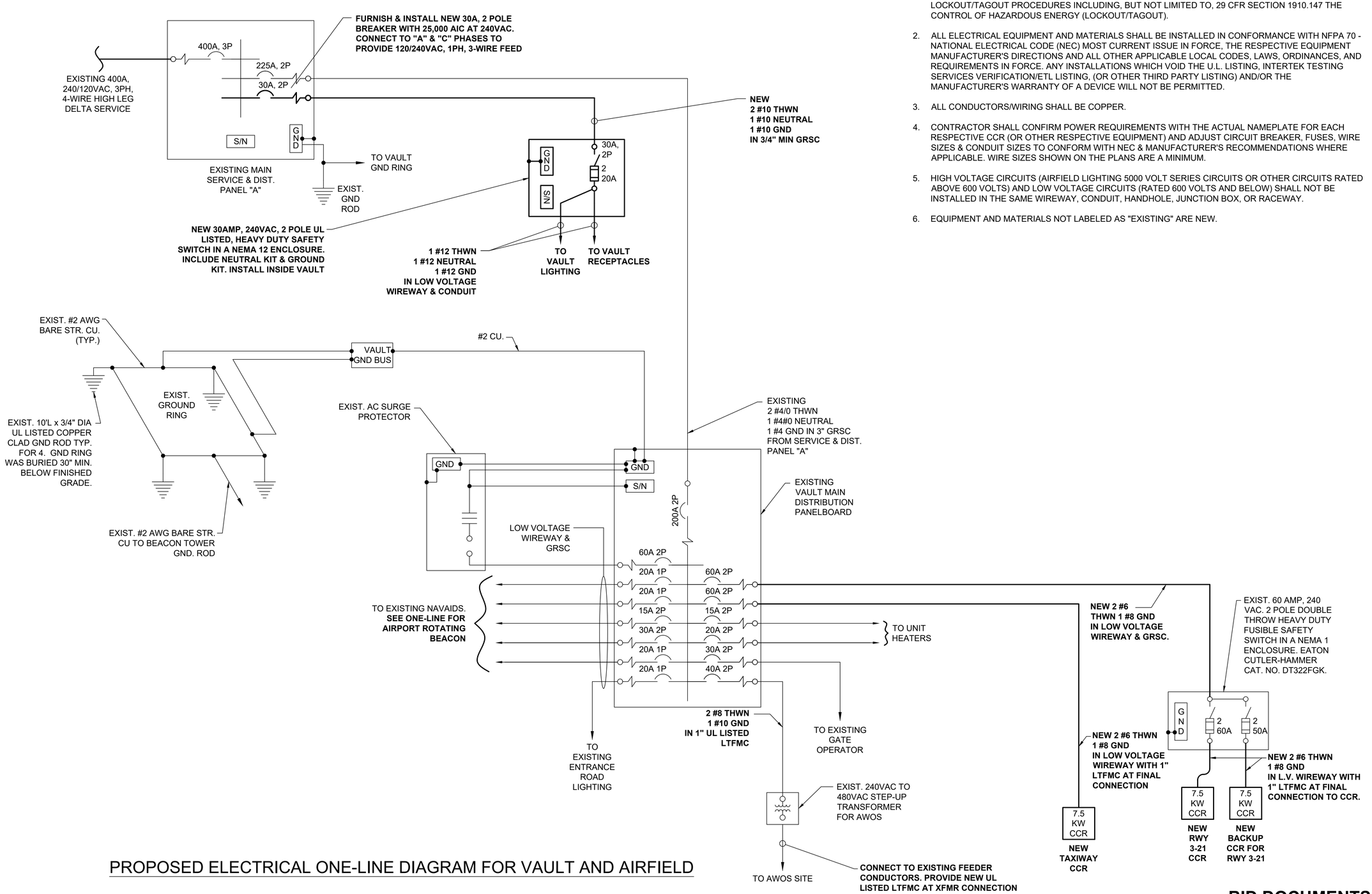
EXISTING ELECTRICAL ONE LINE FOR VAULT AND AIRFIELD



PROPOSED ELECTRICAL ONE-LINE DIAGRAM FOR VAULT AND AIRFIELD

NOTES:

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 FOR EACH RESPECTIVE CCR (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 A 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. EQUIPMENT AND MATERIALS NOT LABELED AS "EXISTING" ARE NEW.

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PROPOSED ELECTRICAL ONE LINE FOR VAULT AND AIRFIELD

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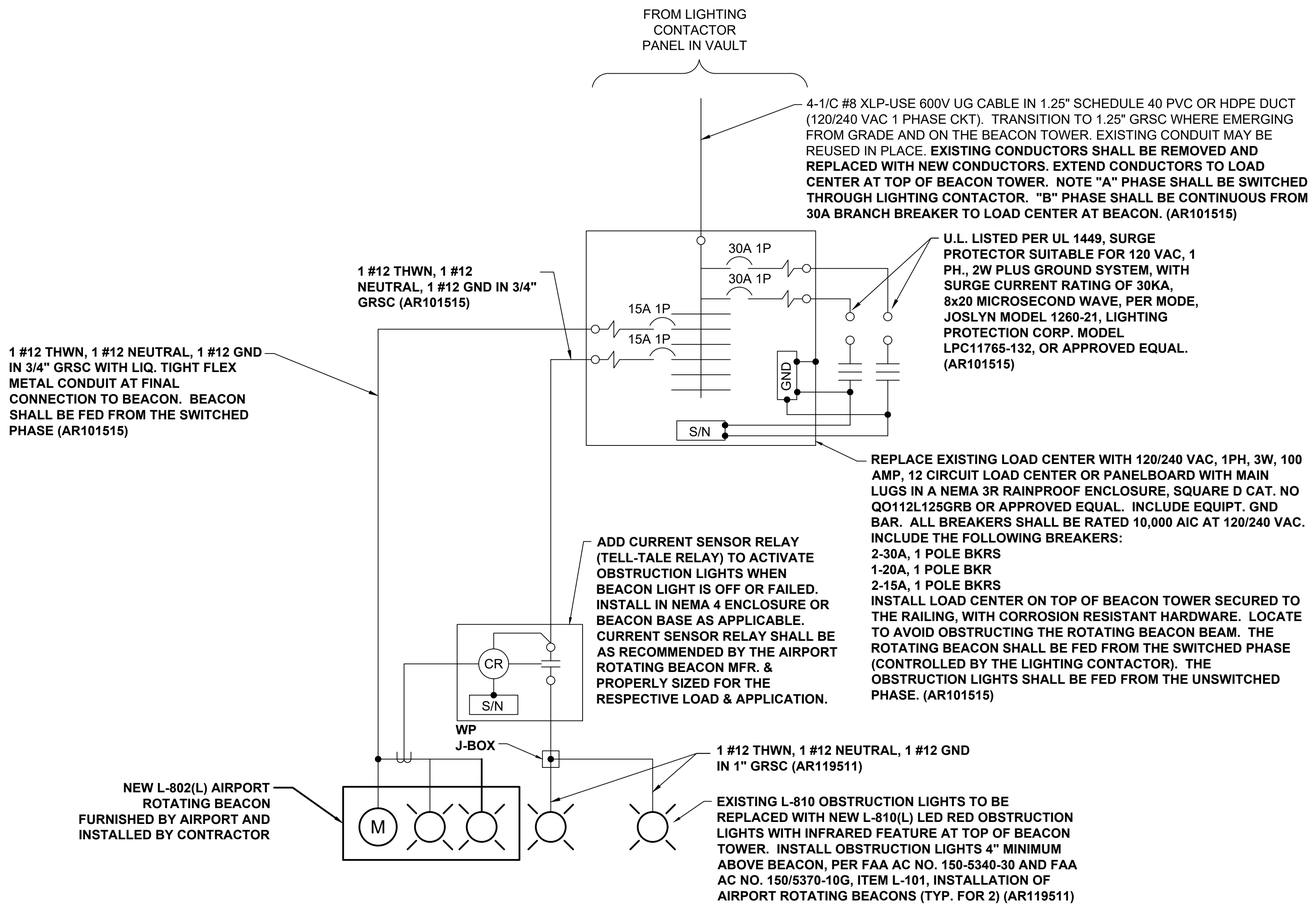

PROPOSED ELECTRICAL ONE-LINE DIAGRAM FOR AIRPORT ROTATING BEACON

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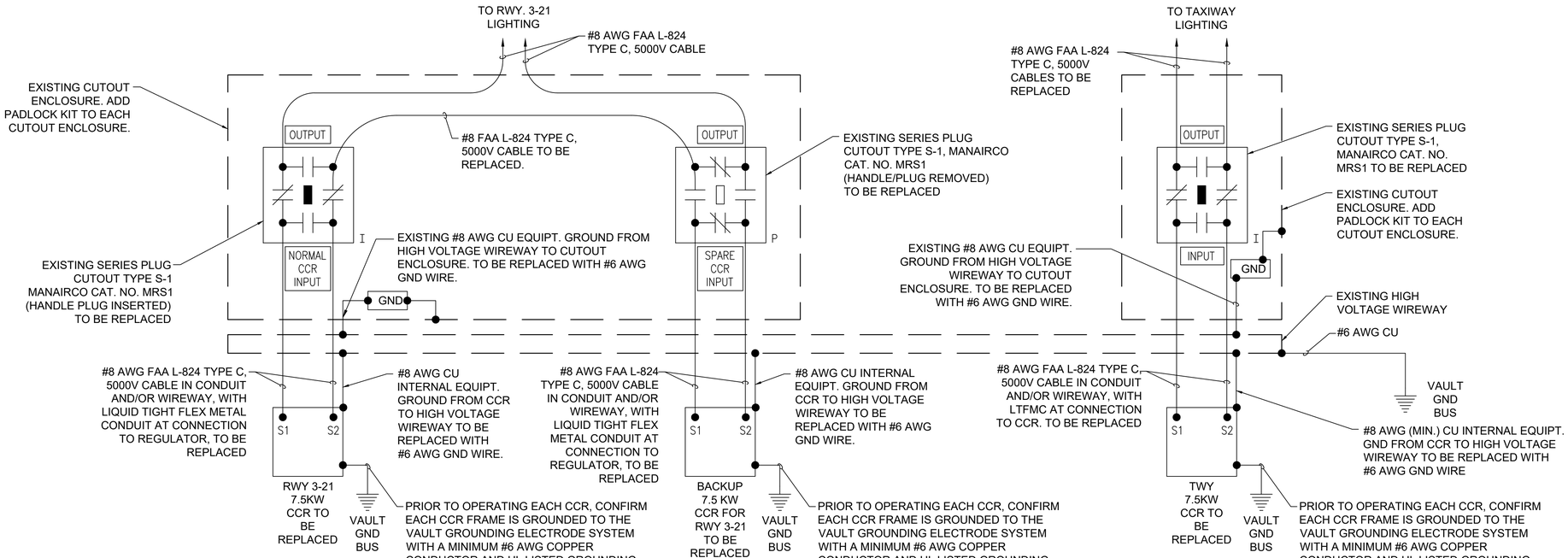

LEGEND

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

EXISTING HIGH VOLTAGE WIRING SCHEMATICS

NOTES

1. 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.
2. EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS.
3. 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.
4. 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.
5. NEVER REMOVE OR INSERT A CUTOUT WITH THE CIRCUIT ENERGIZED. SHUTOFF CIRCUITS PRIOR TO PULLING OR INSERTING A SERIES PLUG CUTOUT.
6. 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."
7. 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.
8. 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.
9. 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). CABLE AND CCR TESTING WILL BE CONSIDERED INCIDENTAL TO ITEM AR800931 ELECTRICAL MODIFICATIONS PER LUMP SUM.

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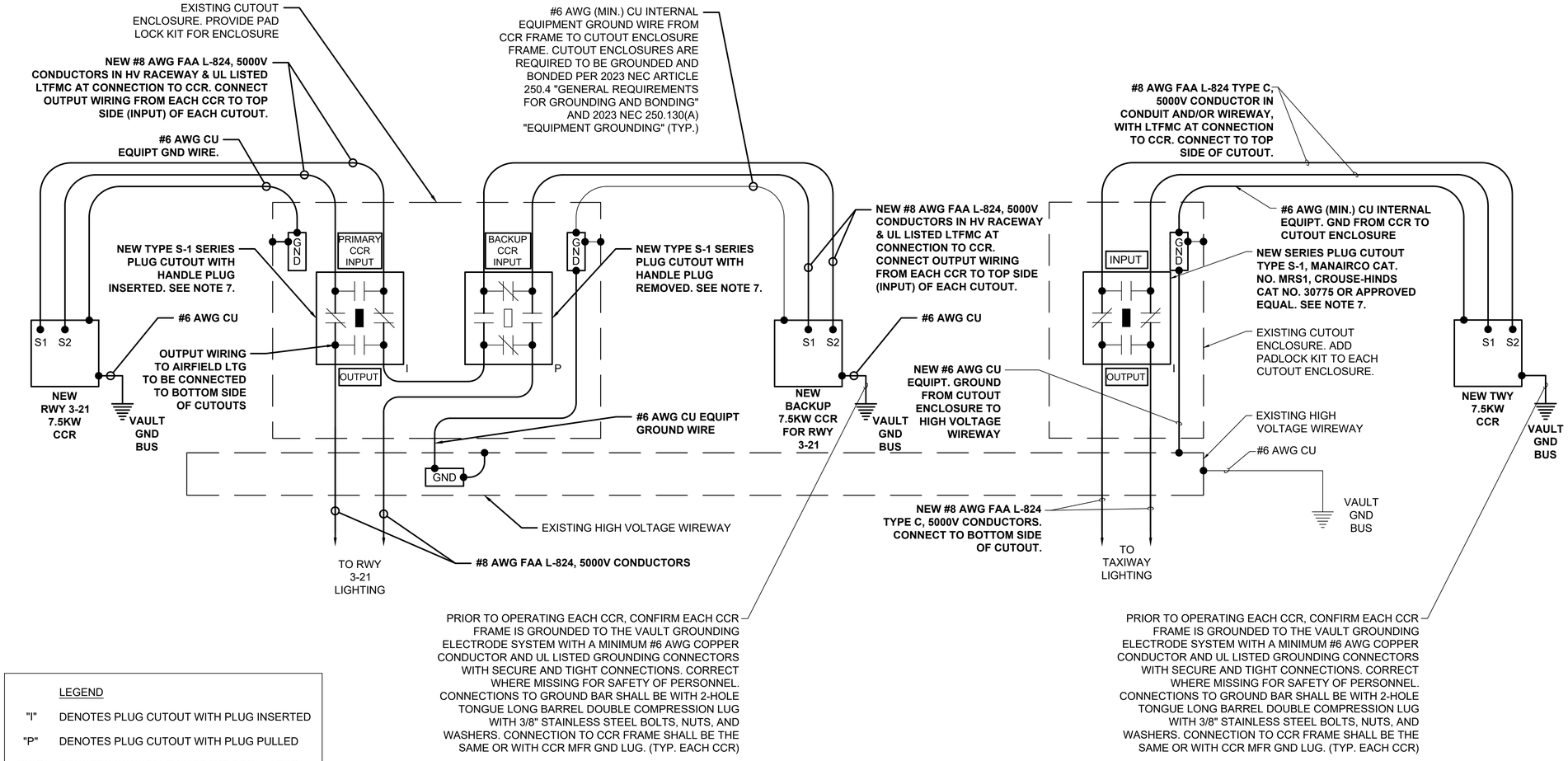
EXISTING HIGH VOLTAGE WIRING SCHEMATICS



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 OR WITH CCR MFR GND LUG. (TYP. EACH CCR)

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 OR WITH CCR MFR GND LUG. (TYP. EACH CCR)

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

PROPOSED HIGH VOLTAGE WIRING SCHEMATICS

NOTES

1. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CONSTANT CURRENT REGULATOR NOTING THE REGULATOR DESIGNATION AND THE RUNWAY AND/OR TAXIWAY SERVED.
2. 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".
3. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CUTOUT TO IDENTIFY THE RESPECTIVE CUTOUT INPUT CONNECTION AND THE RESPECTIVE CUTOUT OUTPUT CONNECTION.
4. BOND REGULATOR FRAME TO VAULT GROUND BUS WITH A DEDICATED #6 AWG COPPER BONDING JUMPER.
5. PROVIDE ADEQUATE WORKING SPACE IN FRONT OF EACH CUTOUT ENCLOSURE TO MEET NEC CLEARANCE REQUIREMENTS.
6. 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. 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 LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL LISTED. CONFIRM LIQUID TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
7. SERIES PLUG CUTOUTS SHALL BE TYPE S-1, RATED 5000 VOLTS, 20-AMP. SERIES PLUG CUTOUTS SHALL BE RATED SUITABLE FOR NORMAL OPERATION WITH HANDLE REMOVED OR HANDLE INSERTED. CUTOUTS SHALL DISCONNECT THE INPUT FROM THE OUTPUT, SHORT THE INPUT TERMINALS, AND SHORT THE OUTPUT TERMINALS WHEN THE HANDLE/PLUG IS REMOVED. SERIES PLUG CUTOUTS FOR RUNWAY 3-21 LIGHTING CIRCUIT SHALL BE WIRED TO POWER ONE SERIES LIGHTING CIRCUIT FROM EITHER OF TWO CCR'S. SERIES CIRCUIT PLUG CUTOUTS SHALL BE SUITABLE FOR NORMAL OPERATION WITH HANDLE PLUG REMOVED TO ACCOMMODATE OPERATING A MANUAL TRANSFER PAIR OF CCRS. SERIES PLUG CUTOUTS SHALL BE CROUSE-HINDS CAT. NO. 30775, MANAIRCO CAT. NO. MRS1, HUGHEY & PHILLIPS CAT. NO. MRS1 OR APPROVED EQUAL. THE RESPECTIVE MANUFACTURER SHALL CERTIFY IN WRITING THAT THEIR CUTOUT IS SUITABLE AND RATED FOR THE RESPECTIVE APPLICATION.
8. 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 NEC 300.0(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.
9. 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.

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#184-001084

FLORA MUNICIPAL AIRPORT

1 AIRPORT ROAD
FLORA, ILLINOIS 62839

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

DATE SIGNED: 2/26/2025
LICENSE EXPIRES: 11/30/2025

REPLACE TAXIWAY LIGHTING AND AIRPORT ROTATING BEACON

IDA No: FOA-5191

SBG No: 3-17-SBGP-TBD

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: FEBRUARY 28, 2025
PROJECT NO: **24A0104**.00
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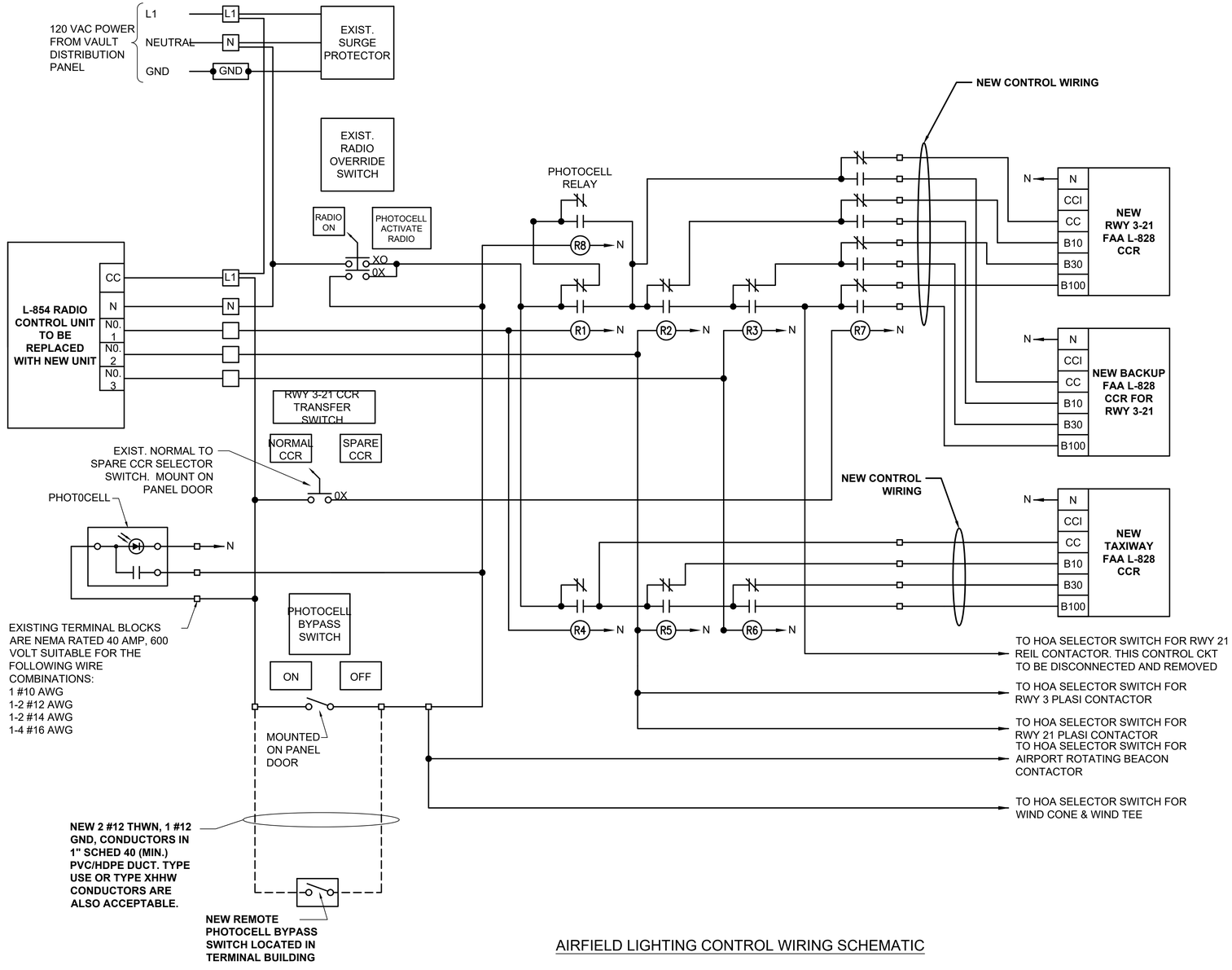
REVIEWED BY: KNL 01/28/2025

SHEET TITLE

PROPOSED HIGH VOLTAGE WIRING SCHEMATICS



AIRFIELD LIGHTING CONTROL WIRING SCHEMATIC

NOTES:

1. RELAY INTERFACE CONTROL PANEL IS EXISTING AND WAS MANUFACTURED BY UL 508 INDUSTRIAL CONTROL PANEL BUILDER.
   NAMEPLATE DATA IS AS FOLLOWS:
   MODEL: P13058, TAG: RICP
   120 VOLTS, 60 HZ, 1 PHASE
   FULL LOAD: 5 AMPS, SCCR: 5K AMPS
   PECISION CONTROL SYSTEMS OF INDIANAPOLIS
   7225 GIRL SCHOOL AV.
   INDIANAPOLIS, IN 46241
   TEL: (317) 241-3000
   FAX: (317) 247-6837
2. EXTERNAL CONTROL CABLE SHALL BE NO. 12 AWG COPPER, 600 VOLT CABLE.
3. IN THE AUTOMATIC MODE OF OPERATION THE RUNWAY 3-21 CONSTANT CURRENT REGULATORS (PRIMARY UNIT & SPARE UNIT) SHALL BE CONTROLLED BY THE PHOTOCELL & THE L-854 RADIO CONTROL UNIT IN THE FOLLOWING MANNER:
   PHOTOCELL - 10% BRIGHTNESS & ACTIVATE RADIO CONTROL
   5 CLICKS - 30% BRIGHTNESS
   7 CLICKS - 100% BRIGHTNESS
4. IN THE AUTOMATIC MODE OF OPERATION THE TAXIWAY CIRCUIT WILL BE CONTROLLED BY THE PHOTOCELL & THE L-854 RADIO CONTROL UNIT IN THE FOLLOWING MANNER:
   PHOTOCELL -ACTIVATE RADIO CONTROL
   3 CLICKS -10% BRIGHTNESS
   5 CLICKS -30% BRIGHTNESS
   7 CLICKS -100% BRIGHTNESS
5. THE RUNWAY 3-21 PLASI CIRCUITS WILL BE CONTROLLED IN THE AUTOMATIC MODE BY THE L-854 RADIO CONTROL UNIT IN THE FOLLOWING MANNER. CONFIRM CONTROL WITH AIRPORT MANAGER.
   3 CLICKS - ON
   5 CLICKS - REMAIN ON
   7 CLICKS - REMAIN ON
6. THE RADIO OVERRIDE SWITCH WILL ACTIVATE L-854 RADIO CONTROL 24 HOURS PER DAY IN THE "RADIO ON" POSITION. THE PHOTOCELL WILL ACTIVATE RADIO CONTROL IN THE "PHOTOCELL ACTIVATE RADIO" POSITION.
7. IN THE AUTOMATIC MODE OF OPERATION THE AIRPORT ROTATING BEACON SHALL BE ACTIVATED BY THE PHOTOCELL OR PHOTOCELL BYPASS SWITCH.
8. EQUIPMENT GROUND WIRES SHALL BE INCLUDED WITH EACH BRANCH CIRCUIT & EACH CONTROL CIRCUIT.
9. INCLUDE REMOTE PHOTOCELL BYPASS SWITCH AT TERMINAL BUILDING WITH ASSOCIATED WIRE AND CONDUIT.
10. COLOR CODING FOR THE CONTROL WIRING TO EACH CONSTANT CURRENT REGULATOR SHALL BE CONSISTENT FOR ALL REGULATORS. COLOR CODING SHALL BE AS FOLLOWS:
    CC -RED
    10% -ORANGE
    30% -YELLOW
    100% -BLUE
    NEUTRAL -WHITE
    EQUIPT. GND -GREEN
    ALSO TAG THE CONTROL WIRES WITH THE RESPECTIVE DESIGNATION (CC, 10%, 30%, 100%)
11. "N" DESIGNATES NEUTRAL CONNECTION OR NEUTRAL CONDUTOR.

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SHEET TITLE

AIRFIELD LIGHTING CONTROL WIRING SCHEMATIC

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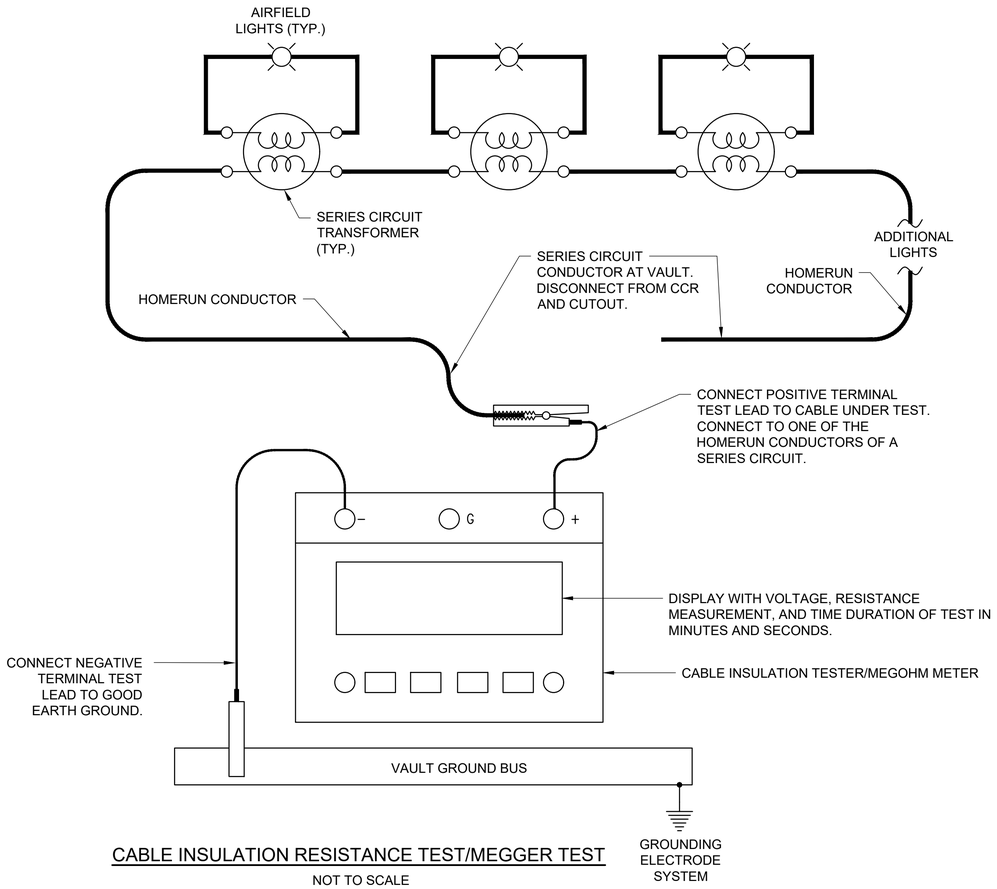
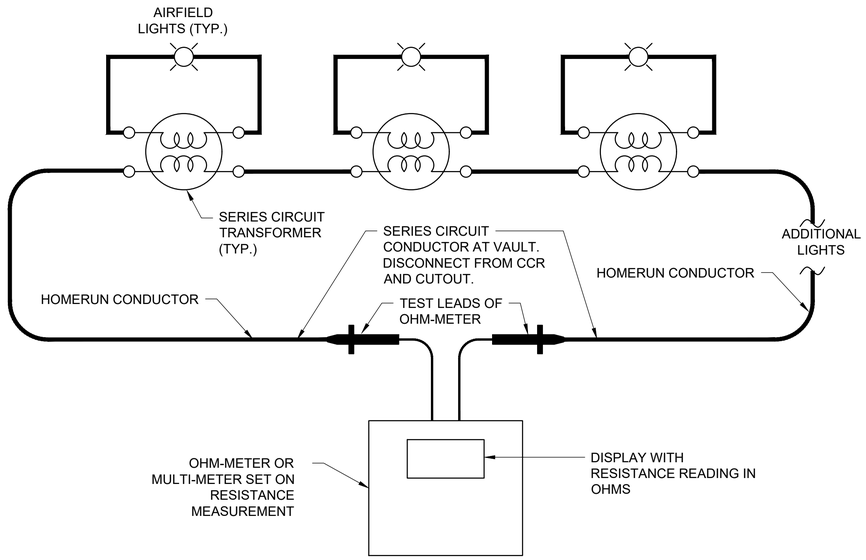


CABLE INSULATION RESISTANCE TEST/MEGGER TEST

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.
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.
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 DETERIORATION 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.
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.
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.

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SHEET TITLE

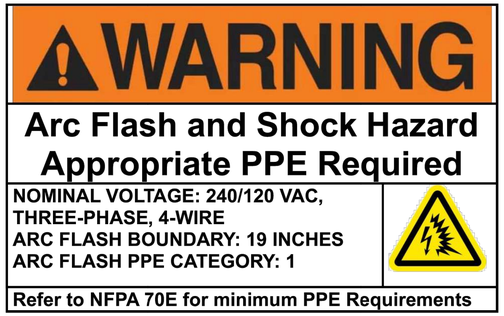
SERIES CIRCUIT CABLE TESTING DETAILS

FAULT CURRENT CALCULATION LEGEND PLATE SCHEDULE

DEVICE	LABEL
MAIN SERVICE DISTRIBUTION PANELBOARD"A"	MAX AVAILABLE FAULT CURRENT AT 30 KVA UTILITY TRANSFORMER SECONDARY WAS CALCULATED TO BE: 3609 AMPS LINE TO LINE ON (01/21/2025)
VAULT MAIN DISTRIBUTION PANELBOARD	MAX AVAILABLE FAULT CURRENT AT 30 KVA UTILITY TRANSFORMER SECONDARY WAS CALCULATED TO BE: 3609 AMPS LINE TO LINE ON (01/21/2025)
BEACON LOAD CENTER	MAX AVAILABLE FAULT CURRENT AT 30 KVA UTILITY TRANSFORMER SECONDARY WAS CALCULATED TO BE: 3609 AMPS LINE TO LINE ON (01/21/2025)

LEGEND PLATE SCHEDULE

DEVICE	LABEL
MAIN SERVICE AND DISTRIBUTION PANELBOARD	240/120VAC, 3-PH, 4-WIRE CONDUCTOR COLOR CODING SHALL BE AS FOLLOWS: PHASE A - BLACK PHASE B - ORANGE (HIGH LEG) PHASE C - BLUE NEUTRAL - WHITE GROUND - GREEN
VAULT MAIN DIST. PANEL	120/240VAC, 1-PH, 3-WIRE CONDUCTOR COLOR CODING SHALL BE AS FOLLOWS: PHASE A - BLACK PHASE C - BLUE NEUTRAL - WHITE GROUND - GREEN
VAULT MAIN DIST. PANEL	NOTICE: THERE IS A SECOND 120/240VAC, 1-PH, 3-WIRE FEEDER CIRCUIT TO THE VAULT FOR RECEPTACLES AND LIGHTING.
SAFETY SWITCH FOR LIGHTS AND RECEPTACLES	NOTICE: THIS IS A SECOND 120/240VAC, 1-PH, 3-WIRE FEEDER CIRCUIT TO THE VAULT FOR RECEPTACLES AND LIGHTING.



EXAMPLE OF ARC FLASH AND SHOCK HAZARD RISK LABEL FOR 240/120 VAC, THREE-PHASE, 4-WIRE PANELBOARD OR OTHER EQUIPMENT WHERE THE MAXIMUM AVAILABLE FAULT CURRENT IS LESS THAN 25,000 AMPS.

PROVIDE THESE LABELS FOR THE FOLLOWING EQUIPMENT:

1. SERVICE AND MAIN DIST. PANEL "A"

ARC FLASH RISK LABEL DETAIL 1

EXAMPLE OF ARC FLASH AND SHOCK HAZARD RISK LABEL FOR 120/240 VAC, SINGLE-PHASE, 3-WIRE PANELBOARD OR OTHER EQUIPMENT WHERE THE MAXIMUM AVAILABLE FAULT CURRENT IS LESS THAN 25,000 AMPS.

PROVIDE THESE LABELS FOR THE FOLLOWING EQUIPMENT:

1. VAULT MAIN DIST. PANEL
2. VAULT SAFETY SWITCH FOR LIGHTS & RECEPTACLES
3. VAULT LIGHTING CONTACTOR CONTROL PANEL
4. VAULT RELAY INTERFACE CONTROL PANEL

ARC FLASH RISK LABEL DETAIL 2

NOTES:

1. 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. 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.
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.

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SHEET TITLE

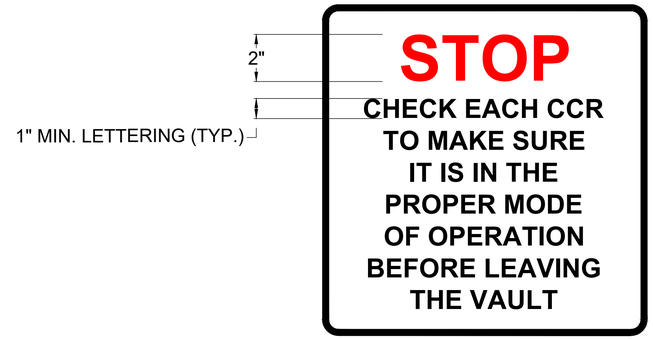
LEGEND PLATE SCHEDULES - SHEET 1

OSHA-NEC CLEARANCE LABEL FOR PANELBOARDS, LOAD CENTERS, SAFETY SWITCHES, AND CONTROL PANELS. LABELS SHALL BE APPROXIMATELY 3.5" BY 5". PROVIDE THESE LABELS (OR EQUIVALENT) FOR ALL 120/240 VAC PANELBOARDS AND LOAD CENTERS.

OSHA WARNING LABEL DETAIL FOR PANELS

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.

OSHA WARNING LABEL DETAIL FOR CUTOUT ENCLOSURES



CCR CHECK SIGN

NOT TO SCALE

PROVIDE ONE SIGN FOR EACH INTERIOR DOOR AT THE VAULT.

NOTES:

1. 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. 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".
3. PROVIDE PLACARD/SIGN FOR HALOTRON FIRE EXTINGUISHER "FOR ELECTRICAL FIRES" WITH ARROW POINTING TO EXTINGUISHER.
4. PROVIDE PLACARD/SIGN FOR CARBON DIOXIDE FIRE EXTINGUISHER "FOR ELECTRICAL FIRES" WITH ARROW POINTING TO EXTINGUISHER.
5. PROVIDE PLACARD/SIGN FOR ABC DRY CHEMICAL FIRE EXTINGUISHER "FOR BUILDING FIRES" WITH ARROW POINTING TO FIRE EXTINGUISHER.

"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".

"DANGER - LOCKOUT/TAGOUT" SIGN

NOT TO SCALE

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

"DANGER - HIGH VOLTAGE UNAUTHORIZED PERSONNEL KEEP OUT" SIGN

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

"DANGER - HIGH VOLTAGE KEEP OUT" SIGN

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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LEGEND PLATE AND SIGNAGE SCHEDULES - SHEET 2