CONSTRUCTION PLANS - FOR BID, ISSUED JANUARY 10, 2025

EXPAND SOUTHEAST AIRCRAFT PARKING APRON

PROJECT LOCATION

SOUTHERN ILLINOIS AIRPORT AUTHORITY SOUTHERN ILLINOIS AIRPORT (MDH) MURPHYSBORO/CARBONDALE, **JACKSON COUNTY, ILLINOIS**

IDA PROJECT NO. MDH-5036 SBG PROJECT NO. N/A

SCOPE OF WORK:

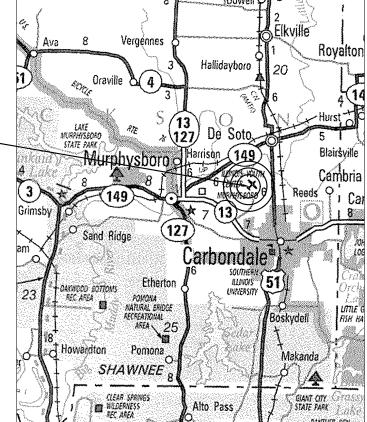
THIS PROJECT SHALL CONSIST OF CONSTRUCTION OF NEW BITUMINOUS APRON PAVEMENT AND ASSOCIATED DRAINAGE IMPROVEMENTS TO ACCOMMODATE THE NEW APRON PAVEMENT, ALONG WITH INCIDENTALS.

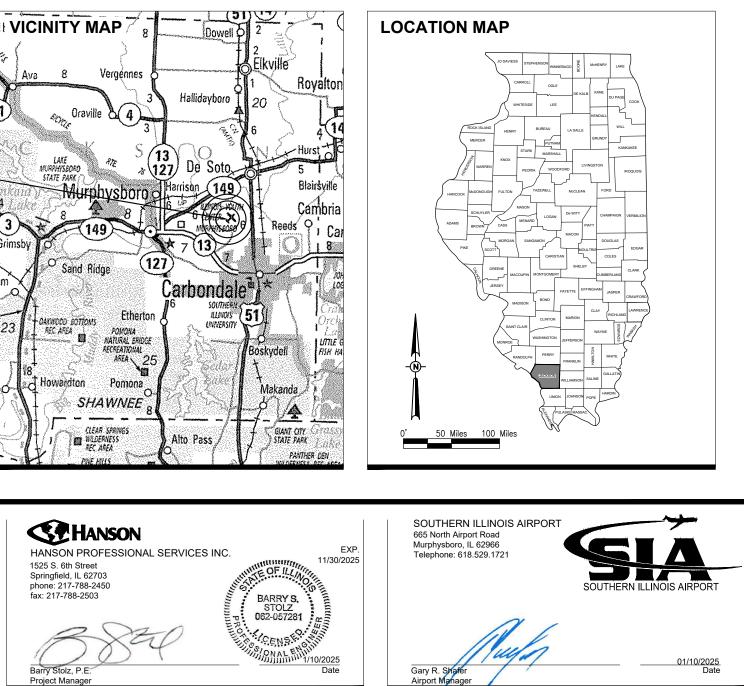
NOTICE TO CONTRACTORS AND BIDDERS

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

No.	Issue/Description	Sheets Changed	Date	Ву

COVERING ELECTRICAL DESIGN	EXP.
Il , A filtheat	KEVIN N. LIGHTFOOT 062-047643
plenn 1. highycord	0F ILL 1/10/2025
Kevin N. Lightfoot P.E.	Date
Electrical Engineer	





SO085 TOTAL SHEETS = 31

ITEM NO.	DESCRIPTION	UNIT	TOTAL	AS-BUILT
			QUANTITY	QUANTITY
AR108108	1/C #8 5 KV UG CABLE	FOOT	1,114	
AR110012	2" DIRECTIONAL BORE	FOOT	70	
AR110202	2" PVC DUCT, DIRECT BURY	FOOT	732	
AR125565	SPLICE CAN	EACH	1	
AR125961	RELOCATE STAKE MOUNTED LIGHT	EACH	5	
AR125962	RELOCATE BASE MOUNTED LIGHT	EACH	2	
AR125964	RELOCATE TAXI GUIDANCE SIGN	EACH	1	
AR150520	MOBILIZATION	L SUM	1	
AR150540	HAUL ROUTE	L SUM	1	
AR152410	UNCLASSIFIED EXCAVATION	CU YD	1,295	
AR155540	BY-PRODUCT LIME	TON	140	
AR155616	SOIL PROCESSING-16"	SQ YD	3,988	
AR156500	TEMPORARY EROSION CONTROL	L SUM	1	
AR156530	TEMPORARY SEEDING	ACRE	0.80	
AR209510	CRUSHED AGGREGATE BASE COURSE	TON	2,085	
AR401613	BIT. SURF. CSEMETHOD I, SUPERPAVE	TON	470	
AR401900	REMOVE BITUMINOUS PAVEMENT	SQ YD	654	
AR403613	BIT. BASE CSEMETHOD I, SUPERPAVE	TON	950	
AR602510	BITUMINOUS PRIME COAT	GALLON	1,975	
AR603510	BITUMINOUS TACK COAT	GALLON	595	
AR620520	PAVEMENT MARKING-WATERBORNE	SQ FT	350	
AR620525	PAVEMENT MARKING-BLACK BORDER	SQ FT	350	
AR701530	30" RCP, CLASS IV	FOOT	234	
AR705506	6" PERFORATED UNDERDRAIN	FOOT	468	
AR705630	UNDERDRAIN INSPECTION HOLE	EACH	1	
AR705640	UNDERDRAIN CLEANOUT	EACH	2	
AR705900	REMOVE UNDERDRAIN	FOOT	461	
AR751411	INLET-TYPE A	EACH	1	
AR751530	MANHOLE	EACH	1	
AR751903	REMOVE MANHOLE	EACH	2	
AR752900	REMOVE END SECTION	EACH	2	
AR760947	ADJUST WATER VALVE	EACH	1	
AR800476	REMOVE AIRFIELD LIGHTING	L SUM	1	
AR800529	RCP TEE STRUCTURE	EACH	2	
AR800918	REMOVE RIPRAP	SQ YD	45	
AR800925	HDPE PIPE CULVERT	FOOT	90	
AR901510	SEEDING	ACRE	0.80	
AR908514	LIGHT-DUTY HYDRAULIC MULCH	ACRE	0.80	

QUANTITY NOTES:

- PAYMENT WILL BE MADE UNDER THE ITEM NUMBERS, DESCRIPTIONS AND UNITS NOTED IN THE ABOVE TABLE IN ACCORDANCE WITH THE BASIS OF PAYMENT FOR EACH RESPECTIVE WORK ITEM COMPLETED AND ACCEPTED BY THE ENGINEER.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AN ON-SITE INSPECTION PRIOR TO SUBMITTING A BID ON THIS PROJECT. UPON RECEIPT OF A BID, IT SHALL BE ASSUMED THAT THE CONTRACTOR IS FULLY FAMILIAR WITH THE CONSTRUCTION SITE.
- 3. POTENTIAL BORROW AREA LOCATED ON AIRPORT PROPERTY IMMEDIATELY SOUTH AND WEST OF THE PROPOSED CONSTRUCTION SITE. EXACT LOCATION AND LIMITS TO BE COORDINATED WITH THE AIRPORT PRIOR TO CONSTRUCTION. A NOMINAL QUANTITY OF SEEDING AND MULCHING OF 0.20 ACRES EACH HAS BEEN INCLUDED IN THE QUANTITIES FOR RESTORATION OF THE BORROW AREA FOLLOWING GRADING WORK

EARTHWORK QUANTITY SUMMARY					
CALCULATION	CUT (CY)	FILL (CY)	FILL + 20% (CY)	NET (CY)	
PAVEMENT INSTALLATION & GRADING	-971	1,079	1,295	324 (BORROW)	
DRAINAGE INSTALLATION EARTHWORK	-217	0	0	-217 (EXCESS)	
TOTAL	-1,188	1,079	1,295**	107 (BORROW)	

** USED TO CALCULATE P-152 PAY ITEM QUANTITY

	INDEX OF SHEETS				
SHEET NO.	SHEET TITLE				
1	COVER SHEET				
2	SUMMARY OF QUANTITIES AND INDEX TO SHEETS				
3	SCOPE OF WORK				
4	PROPOSED CONSTRUCTION SAFETY PLAN - WORK AREA 1				
5	PROPOSED CONSTRUCTION SAFETY PLAN - WORK AREA 2				
6	CONSTRUCTION SAFETY DETAILS AND NOTES - SHEET 1				
7	CONSTRUCTION SAFETY DETAILS AND NOTES - SHEET 2				
8	EXISTING SITE AND DEMOLITION PLAN				
9	PROPOSED CONSTRUCTION PLAN				
10	PROPOSED STAKING PLAN				
11	PROPOSED STORM SEWER PLAN & PROFILE - SHEET 1				
12	PROPOSED STORM SEWER PLAN & PROFILE - SHEET 2				
13	PROPOSED UNDERDRAIN PLAN & PROFILE				
14	TYPICAL SECTIONS AND DRAINAGE DETAILS				
15	PROPOSED MARKING PLAN				
16	PROPOSED STORMWATER POLLUTION PREVENTION PLAN				
17	PROPOSED STORMWATER POLLUTION DETAILS				
18	PROPOSED ELECTRICAL PLAN				
19	AIRFIELD LIGHTING NOTES				
20	TAXIWAY LIGHT DETAILS				
21	TAXI GUIDANCE SIGN DETAILS				
22	AIRPORT LIGHTING CABLE SPLICE DETAILS				
23	CONDUIT TRENCH DETAILS				
24	CABLE AND DUCT MARKER DETAILS				
25	ELECTRICAL NOTES SHEET 1				
26	ELECTRICAL NOTES SHEET 2				
27	GROUNDING DETAILS				
28	GROUNDING RESISTANCE TESTING DETAILS				
29	GROUNDING NOTES				
30	ELECTRICAL LEGEND AND ABBREVATIONS				
31	SERIES CIRCUIT CABLE TESTING DETAILS				

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. 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 LOCATION OF THE ENGINEER'S FIELD OFFICE WILL BE DETERMINED AT THE PRE-CONSTRUCTION MEETING
- 7. THE OWNER SHALL HAVE THE RIGHT OF FIRST REFUSAL FOR ALL SALVAGEABLE MATERIAL REMOVED ON THE PROJECT
- 8. APPLICABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY DAMAGES TO ANY PAVEMENTS (PUBLIC OR PRIVATE) CAUSED BY HIS/HER CONSTRUCTION EQUIPMENT OR PERSONNEL
- 9. 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.
- 10. APPROXIMATE LOCATIONS OF UNDERGROUND UTILITIES ARE SHOWN THROUGHOUT THESE PLANS. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS AND PROTECT THESE UTILITIES DURING CONSTRUCTION ANY LITH ITIES 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.
- 12. 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
- TO THE IDOT-DIVISION OF AERONAUTICS FOR PROCESSING UNTIL ALL CERTIFIED PAYROLLS FOR THAT PERIOD HAVE BEEN RECEIVED.
- 14. 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 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.

ACCESS TO THE SITE SHALL BE RESTRICTED EXCLUSIVELY TO THE DESIGNATED CONSTRUCTION ENTRANCE,

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS FOR HAULING ON PUBLIC ROADS, AS

11. NPDES PERMIT - THIS PROJECT WILL DISTURB MORE THAN 1 ACRE, THEREFORE A NPDES PERMIT IS REQUIRED.

13. CERTIFIED PAYROLLS - THE RESIDENT ENGINEER CANNOT FORWARD A CONSTRUCTION REPORT FOR PAYMENT





GENERAL NOTES

- THE SCOPE OF WORK SHEET IS INTENDED ONLY AS A GENERAL DESCRIPTION OF WORK ITEMS AND THEIR APPROXIMATE LOCATIONS AND LIMITS. FOR THE PURPOSE OF UNDERSTANDING THE SCOPE OF THE PROJECT. THIS SHEET SHALL NOT BE USED AS A CONSTRUCTION PLAN. REFER TO THE FOLLOWING PLAN SHEETS FOR DETAILED CONSTRUCTION REQUIREMENTS, LOCATIONS, AND ITEMS OF WORK
- 2. WORK FOR THIS PROJECT CONSISTS OF CONSTRUCTION OF BITUMINOUS APRON PAVEMENT AND ASSOCIATED DRAINAGE IMPROVEMENTS TO ACCOMMODATE THE NEW APRON PAVEMENT, ALONG WITH INCIDENTALS
- 3. 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.
- 4. 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.
- THE CONSTRUCTION ENTRANCE SHALL BE AS SHOWN ON THE SCOPE OF WORK, OR AS DIRECTED BY THE AIRPORT'S DESIGNATED REPRESENTATIVE. ACCESS TO THE PROJECT FOR ALL HAULING OF MATERIALS AND EQUIPMENT SHALL BE RESTRICTED TO THE DESIGNATED CONSTRUCTION ENTRANCE AND HAUL ROUTE. ACCESS TO THE WORK AREAS FROM THE STAGING AREA SHALL BE COORDINATED WITH THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE AND/OR AIRPORT MANAGEMENT.
- 6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT, PRESERVE AND REPAIR THE EXISTING AIRFIELD AND ROADWAY PAVEMENTS AT ALL TIMES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING ELECTRICAL, DRAINAGE, AND PAVEMENT AT NO ADDITIONAL COST TO THE CONTRACT. PAVEMENTS ARE TO BE KEPT FREE OF DEBRIS AT ALL TIMES
- NO EQUIPMENT SHALL BE PERMITTED TO CROSS OR USE ANY EXISTING PAVEMENT OUTSIDE THE CONSTRUCTION LIMITS, GENERAL PROJECT AREA OR HAUL ROUTE.
- 8. CONTRACTOR IS REQUIRED TO PROVIDE THEIR OWN RESTROOM FACILITIES.
- 9. THE OWNER SHALL HAVE THE RIGHT OF FIRST REFUSAL FOR ALL SALVAGEABLE MATERIAL REMOVED ON THE PROJECT.
- 10. ALL WASTE MATERIALS AND DEMOLISHED STRUCTURES SHALL BE HAULED FROM THE AIRPORT AND PROPERLY DISPOSED OF UNLESS OTHERWISE SPECIFIED HEREIN.
- 11. 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
- 12. CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION ALL GRASS, STONE, OR PAVEMENT DISTURBED BY CONTRACTOR'S CONSTRUCTION OPERATIONS, STAGING, AND CONSTRUCTION ACCESS ROUTES. DISTURBED AREAS TO BE REPAIRED, GRADED, AND MULCHED SEEDED UNLESS OTHERWISE NOTED. STAGING AREA AND SITE ACCESS RESTORATION SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT PAY ITEMS.
- 13. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER/TECHNICIAN SO THEY MAY DEVELOP ONE SET OF REDLINED AS-BUILT RECORD DRAWINGS AT THE COMPLETION OF THE PROJECT.
- 14. THIS PROJECT RUNS CONCURRENTLY WITH OTHER AIRPORT PROJECTS. CONTRACTOR SHALL COOPERATE WITH ANY OTHER CONTRACTORS WORKING ON SITE.
- 15. THE PROJECT PAY ITEMS ARE INTENDED TO BE INCLUSIVE OF ALL WORK TO BE PERFORMED AS SHOWN IN THE PLANS AND SPECIFICATIONS. ALL INCIDENTAL WORK REQUIRED TO COMPLETE THE PROJECT TO THE SATISFACTION OF THE OWNER IS TO BE INCLUDED IN THE COSTS OF PERFORMING THESE ITEMS.
- 16 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 PERSONS FOR THE PURPOSE OF LOCATING AND PROTECTING EXISTING UNDERGROUND UTILITIES.
- 17. THE CONTRACTOR MUST AT ALL TIMES MAINTAIN PROPER DRAINAGE FOR ALL AREAS AFFECTED BY
- 18. NO CONSTRUCTION EQUIPMENT GREATER THAN 25' TALL WILL BE PERMITTED ON THE PROJECT. HOWEVER OTHER EQUIPMENT TALLER THAN 25' MAY BE PERMITTED WITH THE APPROVAL OF THE AIRPORT MANAGER AND AIRSPACE APPROVAL BY THE FAA.

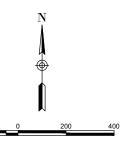
J.U.L.I.E. INFORMATION

_JACKSON	
MURPHYSBORO	
T9S, R1W	
_6	
_SOUTHERN ILLINOIS AIRPORT AUTHORITY	
665 NORTH AIRPORT ROAD	ONE-
MURPHYSBORO, ILLINOIS 62966	illinoi



ALL ABOVEGROUND UTILITIES.

UTILITY NOTE



EXISTING PAVEMENT EXISTING BUILDINGS

LEGEND:

5

-X EXISTING FENCE

HAUL ROUTE

STAGING AND MATERIAL STORAGE

-----RSA------ RUNWAY 36R SAFETY AREA

-OFA RUNWAY 36R OBJECT FREE AREA

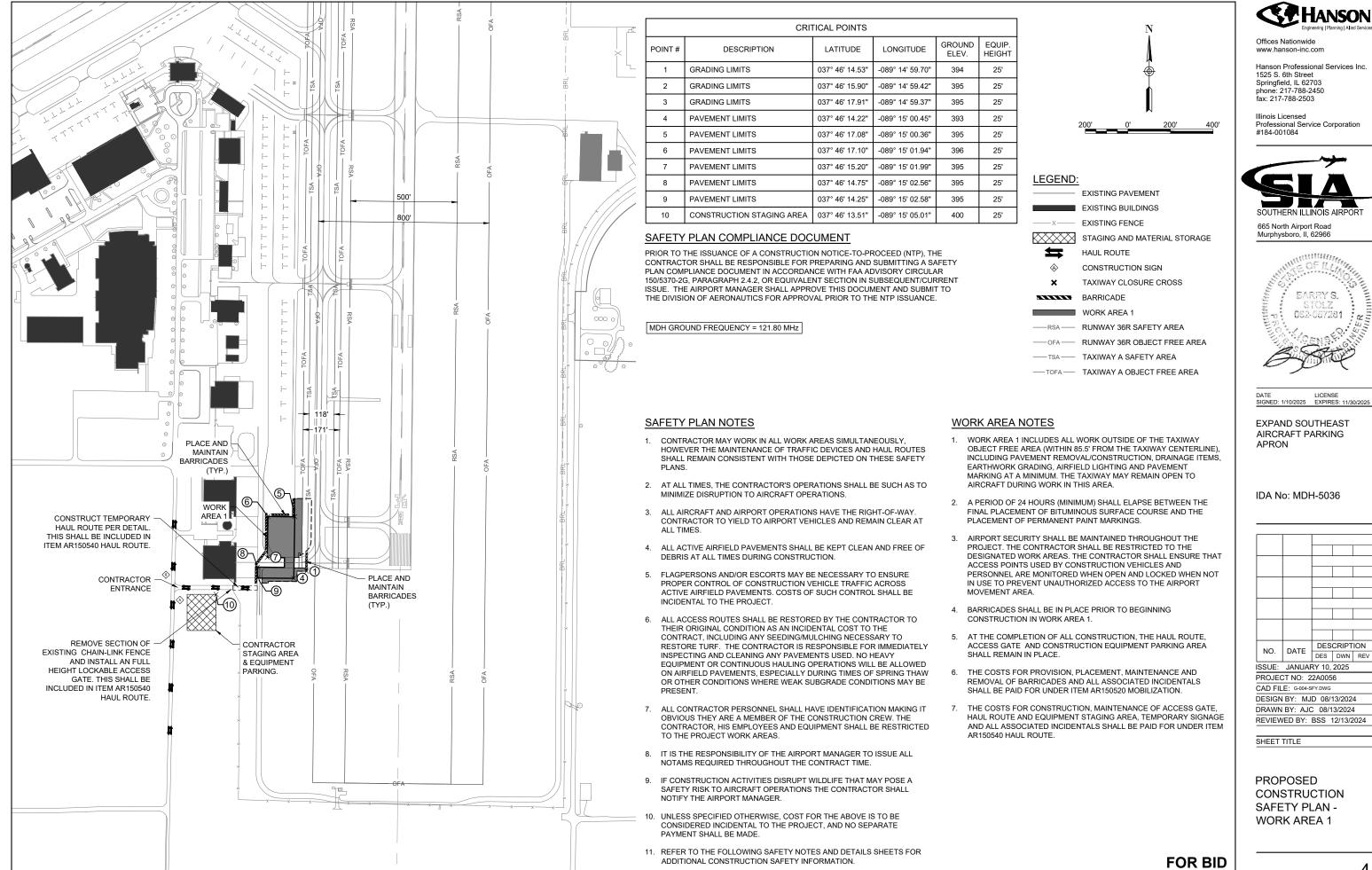
----- RUNWAY 36R RUNWAY PROTECTION ZONE

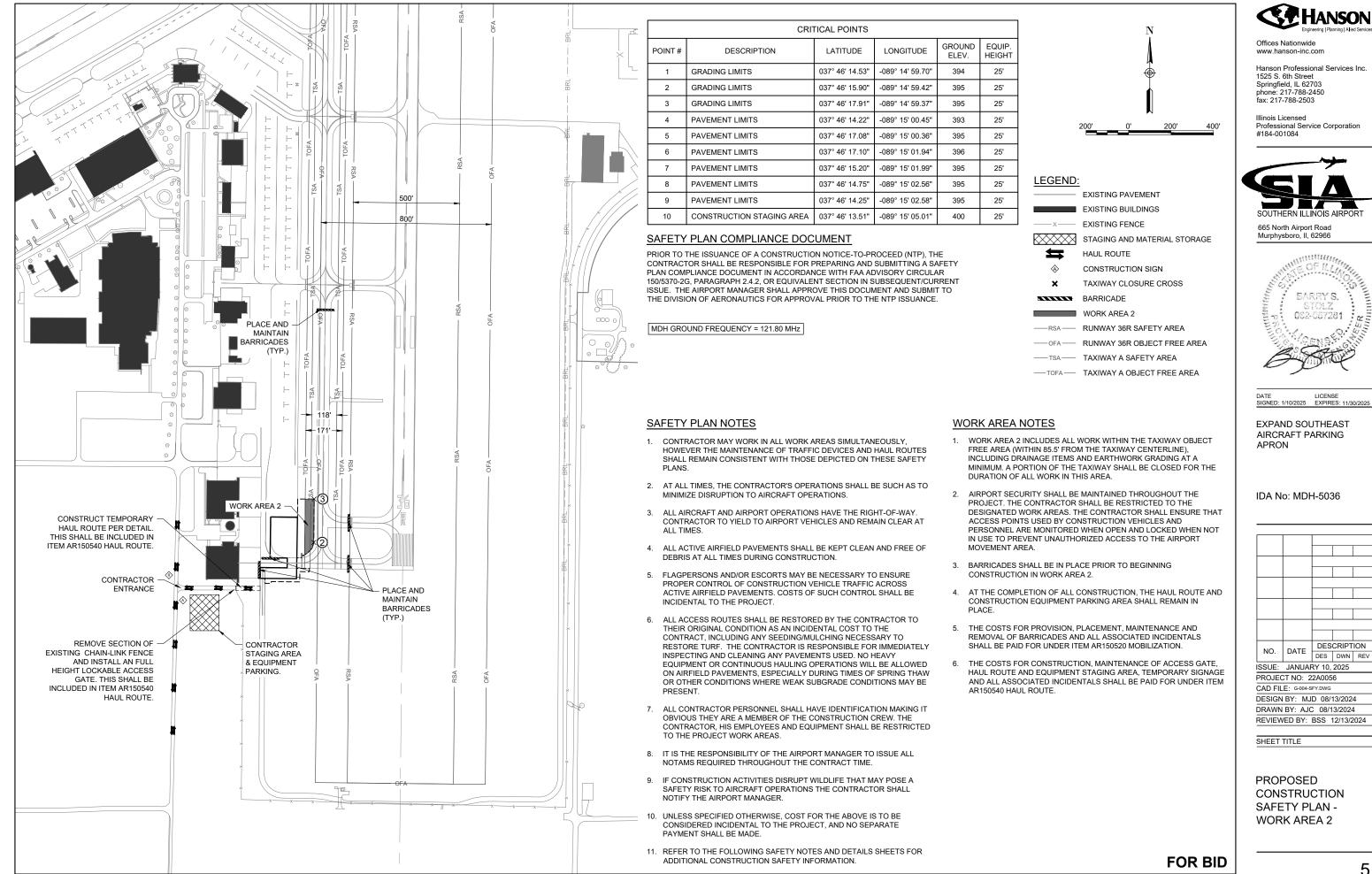
— — PROPOSED SEEDING/MULCHING

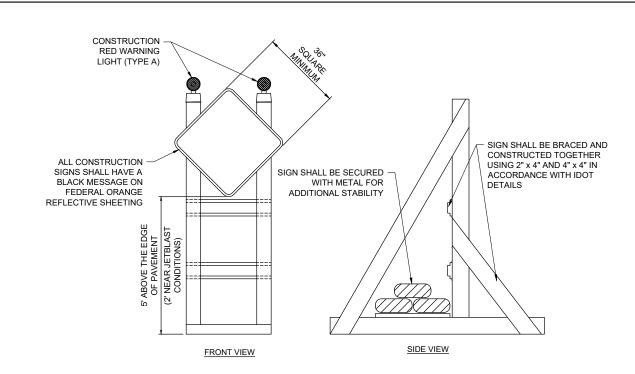
PROPOSED PAVEMENT

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 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

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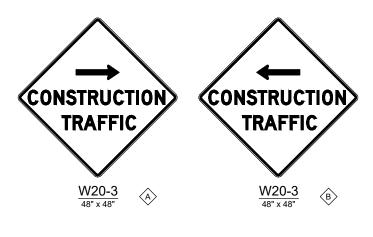






SIGNAGE NOTES

- 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. UNLESS OTHERWISE SPECIFIED, CONSTRUCTION SIGNS SHALL BE MOUNTED ON PORTABLE OR NON-PORTABLE SUPPORTS. A PORTABLE SUPPORT IS DEFINED AS A TYPICAL SIGN STANDARD AS SHOWN ON THIS SHEET, OR A SMALL LIGHT WEIGHT TRAILER. A NON-PORTABLE SUPPORT IS DEFINED AS DRIVEN METAL OR WOOD POST ALL SIGNS REGARDLESS OF THE TYPE OF SUPPORTS USED. SHALL BE MOUNTED SUCH THAT THE MESSAGE ON THE SIGN IS LEVEL IN THE HORIZONTAL PLANE AFTER PLACEMENT. THE COST OF CONSTRUCTION WARNING LIGHTS SHALL BE INCLUDED IN THE COST OF THE CONSTRUCTION SIGNS.
- 3. CONSTRUCTION RED WARNING LIGHT: THESE ARE PORTABLE, LENS DIRECTED, ENCLOSED LIGHTS. THE COLOR OF THE LIGHT EMITTED SHALL BE RED. THEY ARE TO BE USED IN A LOW INTENSITY FLASHING MODE (TYPE A).
- 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. COST FOR PROVIDING, PLACING, MAINTAINING, AND REMOVING SIGNS SHALL BE INCLUDED IN ITEM AR150540 HAUL ROUTE



CONSTRUCTION SIGNS

SAFETY NOTES

- FOLLOWING ARE THE CONSTRUCTION SAFETY PROCEDURES THAT THE CONTRACTOR SHALL FOLLOW THROUGHOUT THIS PROJECT.
- 2. BARRICADES SHALL BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION
- FOLLOWING THE FINAL CONCRETE POUR, IF NO WORK ITEMS ARE IN PROGRESS DURING THE CONCRETE CURING PERIOD, THE CONTRACT TIME WILL BE 3. TEMPORARILY STOPPED UNTIL THE CONCRETE REACHES SPECIFIED STRENGTH AND WORK RESUMES.
- THE ABOVE GROUND FUEL FACILITY SHALL REMAIN ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION
- 5. FLAGPERSONS AND/OR ESCORTS MAY BE NECESSARY TO ENSURE PROPER CONTROL OF CONSTRUCTION VEHICLE TRAFFIC ACROSS ACTIVE AIRFIELD PAVEMENTS, PAVEMENTS ARE TO BE KEPT FREE OF DEBRIS AT ALL TIMES. COSTS TO MAINTAIN ACTIVE/CLEAN PAVEMENTS SHALL BE INCLUDED IN ITEM AR150540 HAUL ROUTE
- 6. AT ALL TIMES, THE CONTRACTOR'S OPERATIONS SHALL BE SUCH AS TO MINIMIZE DISRUPTION TO AIRCRAFT OPERATIONS
- PRIOR TO CONSTRUCTION, THE RESIDENT ENGINEER/TECHNICIAN AND CONTRACTOR SHALL ASSESS THE EXISTING CONDITIONS OF THE CONSTRUCTION EQUIPMENT PARKING AREA AND AIRPORT ROAD BY MEANS OF VISUAL INSPECTION AND DOCUMENT THE CONDITIONS WITH VIDEO/PHOTOGRAPHS. AT THE COMPLETION OF ALL WORK AREA CONSTRUCTION, THE HAUL ROUTE AND CONSTRUCTION EQUIPMENT PARKING AREA SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS PER THE SPECIFICATIONS.
- THE COSTS FOR CONSTRUCTION/MAINTENANCE/RESTORATION OF HAUL ROUTE AND EQUIPMENT STAGING AREA, TEMPORARY SIGNAGE AND ALL ASSOCIATED 8. INCIDENTALS SHALL BE PAID FOR UNDER ITEM AR150540 HAUL ROUTE.
- ALL PROVISIONS OF THE LATEST EDITION OF FAA ADVISORY CIRCULAR AC 150/5370-2 (CURRENT EDITION), "OPERATIONAL SAFETY ON AIRPORTS DURING 9. CONSTRUCTION", APPLY TO THIS CONTRACT, EXCEPT AS MODIFIED BY THIS SAFETY PLAN, OR AS MODIFIED BY THE OWNER THROUGH THE RESIDENT ENGINEER AT THE PRECONSTRUCTION CONFERENCE, OR DURING THE COURSE OF THE CONTRACT
- 10. 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 PROJECT SAFETY AND PHASING PLANS.
- 11. 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
- 12. 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
- 13. 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
- 14. NO CONSTRUCTION MATERIAL STOCKPILES SHALL BE LOCATED WITHIN 250' OF ANY ACTIVE RUNWAY, WITHIN 66' OF ANY OTHER ACTIVE AIRPORT OPERATIONS AREA, OR PENETRATE A PART 77 IMAGINARY SURFACE (PROVIDED BY THE RESIDENT ENGINEER) EXTENDING OUT AND UPWARDS FROM ALL SIDES OF AN ACTIVE RUNWAY
- 15. NO OPEN TRENCHES WITHIN 250' OF AN ACTIVE RUNWAY CENTERLINE OR WITHIN 66' OF ANY AIRPORT OPERATIONS AREA WILL BE PERMITTED UNLESS PROPERLY MARKED. OTHER TRENCHES SHALL BE MAINTAINED SAFE, I.E., BARRICADED OR COVERED WITH STEEL PLATES IN ALL OTHER AREAS.
- 16. OPEN TRENCHES, EXCAVATIONS, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHOULD BE PROMINENTLY MARKED WITH ORANGE FLAGS AND LIGHTED WITH FLASHING YELLOW LIGHTS DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS
- 17. THE MAXIMUM ANTICIPATED HEIGHT OF THE CONSTRUCTION EQUIPMENT WILL BE 25 FEET, WHICH IS EXPECTED TO BE A CONCRETE TRUCK, DUMP TRUCK, OR BACKHOE.
- 18. 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
- 19. 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.
- 20. 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, HAUL ROUTES CROSSING PAVEMENT, DRAINAGE, MISCELLANEOUS, STRUCTURES AND/OR AIRFIELD CABLES SHALL BE PROTECTED FROM DAMAGE
- 21. ALL AIRCRAFT AND AIRPORT OPERATIONS HAVE THE RIGHT-OF-WAY. CONTRACTOR TO YIELD TO VEHICLES AND REMAIN CLEAR AT ALL TIMES.
- 22. 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
- 23. CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED LIGHTS DURING PERIODS OF LOW VISIBILITY AS REQUIRED.
- 24. 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
- 25. CONTRACTOR SHALL MOVE MAINTENANCE OF TRAFFIC COMPONENTS AT THE WRITTEN DIRECTION OF THE RESIDENT ENGINEER/TECHNICIAN AT NO ADDITIONAL COST
- 26. CONTRACTOR SHALL NOT REMOVE THE BARRICADES WITHOUT THE APPROVAL BY THE RESIDENT ENGINEER/TECHNICIAN.
- 27. 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.
- 28. THE CONTRACTOR SHALL UTILIZE WATER AND/OR CHEMICALS APPROVED BY THE RESIDENT ENGINEER AS NECESSARY TO CONTROL DUST.
- 29. NO CONSTRUCTION VEHICLES SHALL BE DRIVEN ACROSS ANY ACTIVE RUNWAY, INCLUDING TURF RUNWAYS. CONSTRUCTION EQUIPMENT OR CONSTRUCTION ACTIVITY WILL NOT BE PERMITTED WITHIN 250' OF ANY ACTIVE RUNWAY CENTERLINE OR WITHIN 66' OF ANY OTHER ACTIVE AIRPORT TAXIWAY OR APRON. HOWEVER, CONSTRUCTION MAY BE PERMITTED IN THESE AREAS IF THE CONTRACTOR HAS GAINED APPROVAL FROM THE AIRPORT MANAGER AT LEAST 7 DAYS IN ADVANCE OF THE SCHEDULED CONSTRUCTION PERIOD AND THE OPERATIONAL AREA IS CLOSED TO TRAFFIC AND PROPER NOTAMS ARE ISSUED BY THE AIRPORT MANAGER TO THE APPROPRIATE FLIGHT SERVICE STATION.
- 30. UNLESS SPECIFIED OTHERWISE, COST FOR THE ABOVE IS TO BE CONSIDERED INCIDENTAL TO THE PROJECT, SEPARATE PAYMENT SHALL NOT BE MADE.





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

Illinois Licensed Professional Service Corporation #184-001084



665 North Airport Road Murphysboro, II, 62966



LICENSE SIGNED: 1/10/2025 EXPIRES: 11/30/2025

EXPAND SOUTHEAST AIRCRAFT PARKING APRON

IDA No: MDH-5036

NO.	DATE	DES	CRIPT	ION		
NO.	DATE	DES	DWN	REV		
ISSUE:	ISSUE: JANUARY 10, 2025					
PROJEC	PROJECT NO: 22A0056					
CAD FIL	.E: C-501-S	FY.DWG				
DESIGN	BY: MJ	D 08/	13/202	4		
DRAWN	BY: AJC	08/1	3/2024	1		

REVIEWED BY: BSS 12/13/2024

SHEET TITLE

CONSTRUCTION SAFETY DETAILS AND NOTES - SHEET 1

BARRICADE NOTES

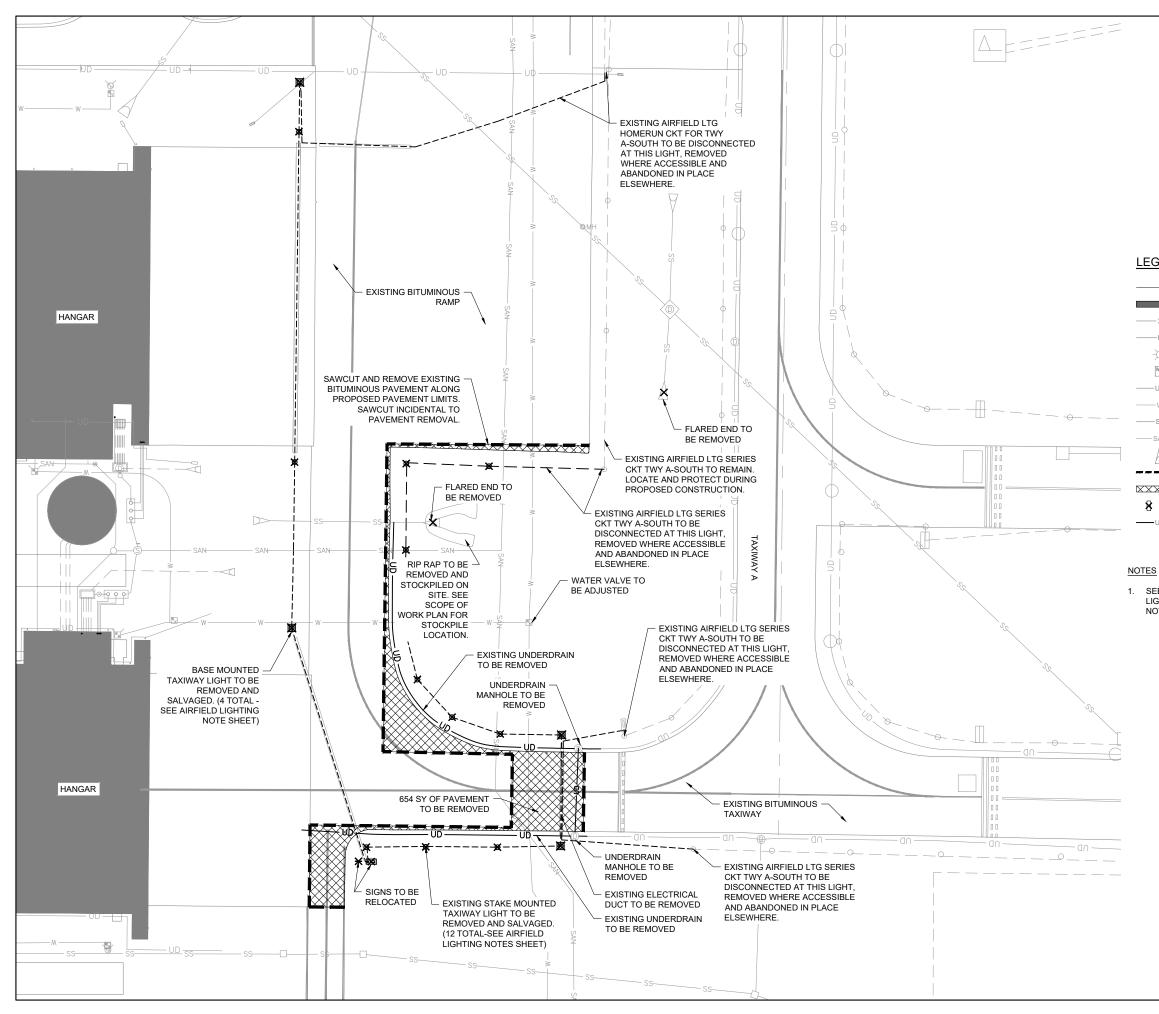
12" ALT. STRIPES REFLECTIVE ORANGE AND WHITE 8'-0" HIGH IMPACT, UV RESISTANT POLYETHYLENE 10" X 96" X 10" ORANGE AND/OR WHITE IN COLOR

LOW-PROFILE BARRICADE DETAIL

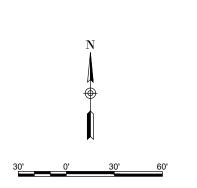
DETAIL ABOVE REPRESENTS ONE OPTION FOR LOW-PROFILE BARRICADES. OTHER OPTIONS MAY BE UTILIZED AS LONG AS THEY MEET THE REQUIREMENTS OF THE PROJECT, INCLUDING BARRICADE NOTE 1.

- 1. 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.
- 2. BARRICADES SHALL BE SPACED END TO END THE WIDTH OF THE PAVEMENT IN 4' INCREMENTS. BARRICADES ARE TO BE SET BACK 66' FROM THE ACTIVE TAXIWAY CENTERLINE OR AS SHOWN ON THE PLANS.
- 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 BEFORE SUNSET AND 1/2 HOUR AFTER 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.
- 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, AND REMOVING BARRICADES SHALL BE INCLUDED IN THE COST OF THE TRAFFIC MAINTENANCE.





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LEGEND

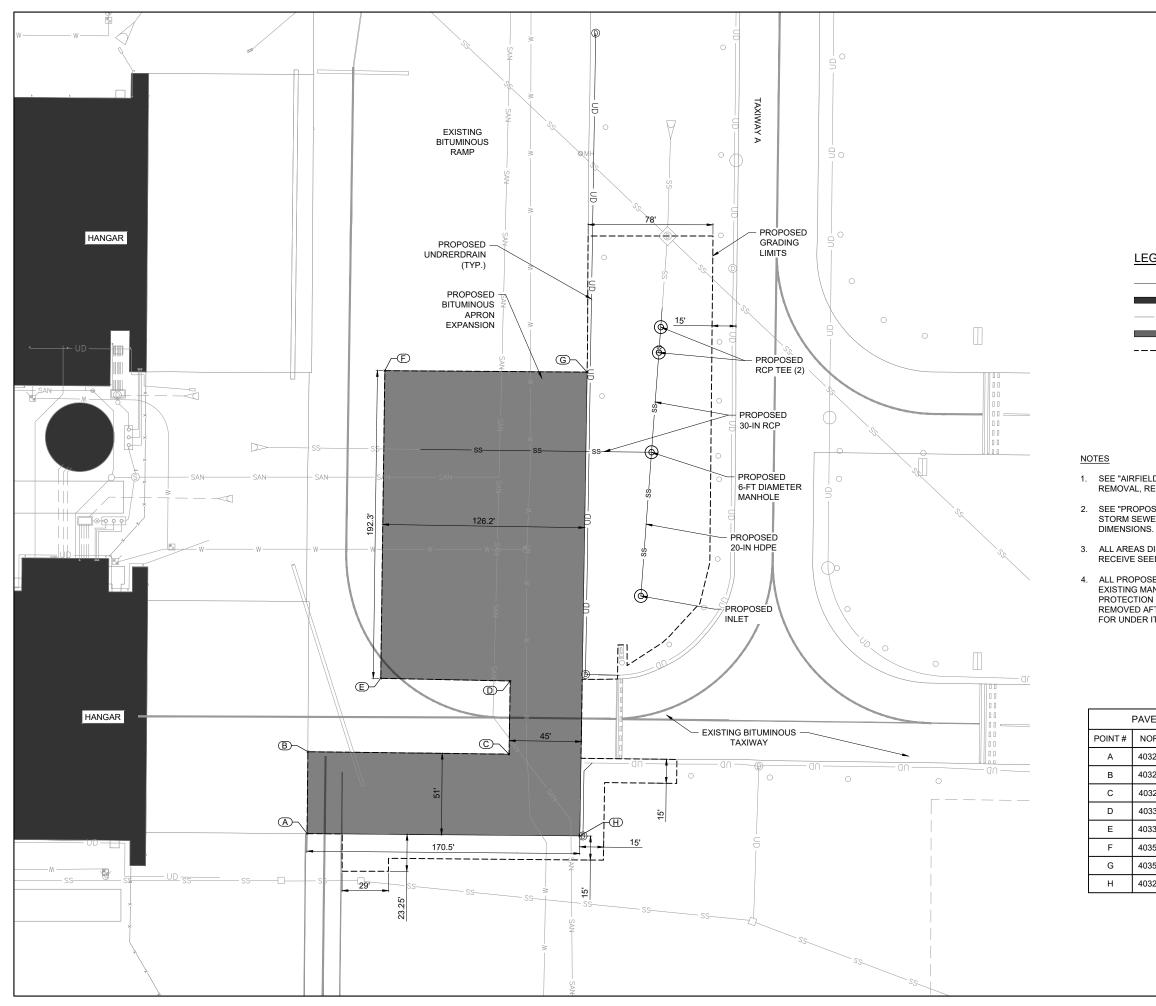
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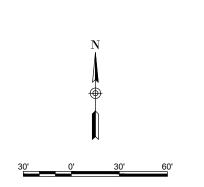
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_	EXISTING PAVEMENT
	EXISTING BUILDINGS
	EXISTING FENCE
	EXISTING ELECTRIC
	EXISTING LIGHT
	EXISTING WATER VALVE
	EXISTING UNDERDRAIN
	EXISTING WATER LINE
	EXISTING STORM SEWER
	EXISTING SANITARY SEWER
	EXISTING MITERED END
	PAVEMENT SAW CUT
R	PAVEMENT REMOVAL
1	EXISTING AIRFIELD LIGHT/SIGN TO BE REMOVED
_	EXISTING UNDERDRAIN TO BE REMOVED

1. SEE "AIRFIELD LIGHTING NOTES" SHEET FOR AIRFIELD LIGHTING REMOVAL, RELOCATION, AND INSTALLATION NOTES.

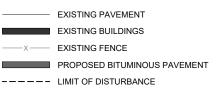


EXISTING SITE AND DEMOLITION PLAN





LEGEND:



1. SEE "AIRFIELD LIGHTING NOTES" SHEET FOR AIRFIELD LIGHTING REMOVAL, RELOCATION, AND INSTALLATION NOTES.

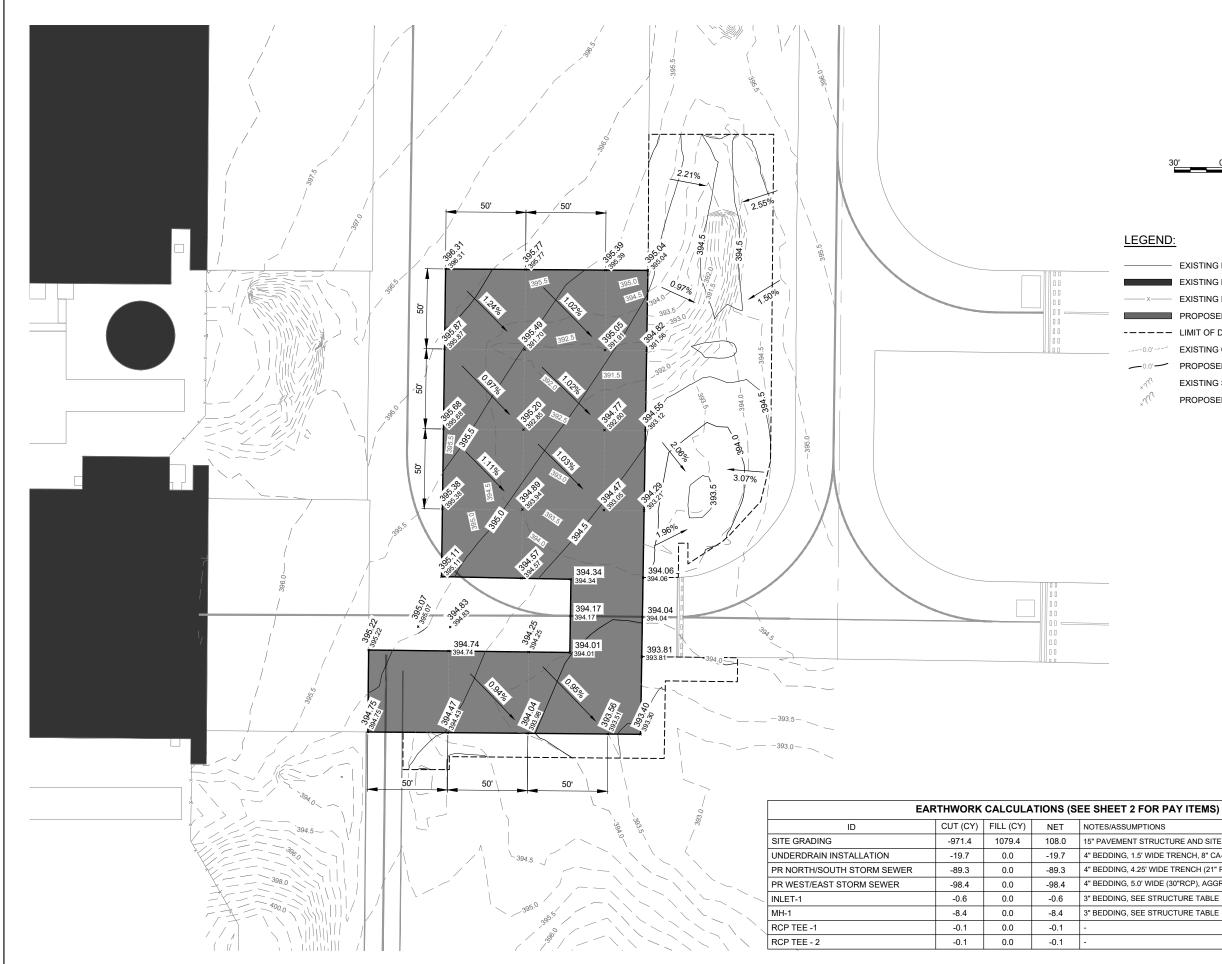
 SEE "PROPOSED STORM SEWER PLAN & PROFILE" SHEETS FOR STORM SEWER INSTALLATION NOTES, ELEVATIONS AND DIMENSIONS.

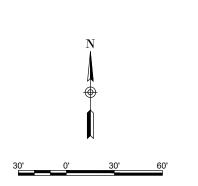
3. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL RECEIVE SEEDING AND MULCHING.

ALL PROPOSED DRAINAGE STRUCTURES AND THE ADJACENT EXISTING MANHOLE TO BE TIED INTO SHALL RECEIVE INLET PROTECTION DURING CONSTRUCTION. INLET PROTECTION TO REMOVED AFTER GRASS HAS BEEN ESTABLISHED. TO BE PAID FOR UNDER ITEM AR156500 - TEMPORARY EROSION CONTROL.

AVEMENT GEOMETRY TABLE						
NORTHING	EASTING	ELEVATION				
403237.3990	2561334.3570	394.75				
403288.6022	2561334.8244	395.22				
403287.0621	2561460.6053	394.01				
403332.7981	2561461.3294	394.34				
403334.4556	2561380.4089	395.11				
403526.7537	2561382.9658	396.31				
403525.8334	2561509.3909	395.04				
403235.9515	2561504.8018	393.40				







LEGEND:



- EXISTING PAVEMENT EXISTING BUILDINGS EXISTING FENCE PROPOSED ASPHALT PAVEMENT ----- LIMIT OF DISTURBANCE EXISTING CONTOUR -0.0' PROPOSED CONTOUR EXISTING SURFACE ELEVATION
 - PROPOSED SURFACE ELEVATION

15" PAVEMENT STRUCTURE AND SITE GRADING

4" BEDDING, 1.5' WIDE TRENCH, 8" CA-16 FILL

4" BEDDING, 4.25' WIDE TRENCH (21" RCP), 5.0' WIDE TRENCH (30"RCP)

4" BEDDING, 5.0' WIDE (30"RCP), AGGREGATE FILL UNDER PAVEMENT

3" BEDDING, SEE STRUCTURE TABLE

3" BEDDING, SEE STRUCTURE TABLE



PROPOSED STAKING

ISSUE: JANUARY 10, 2025

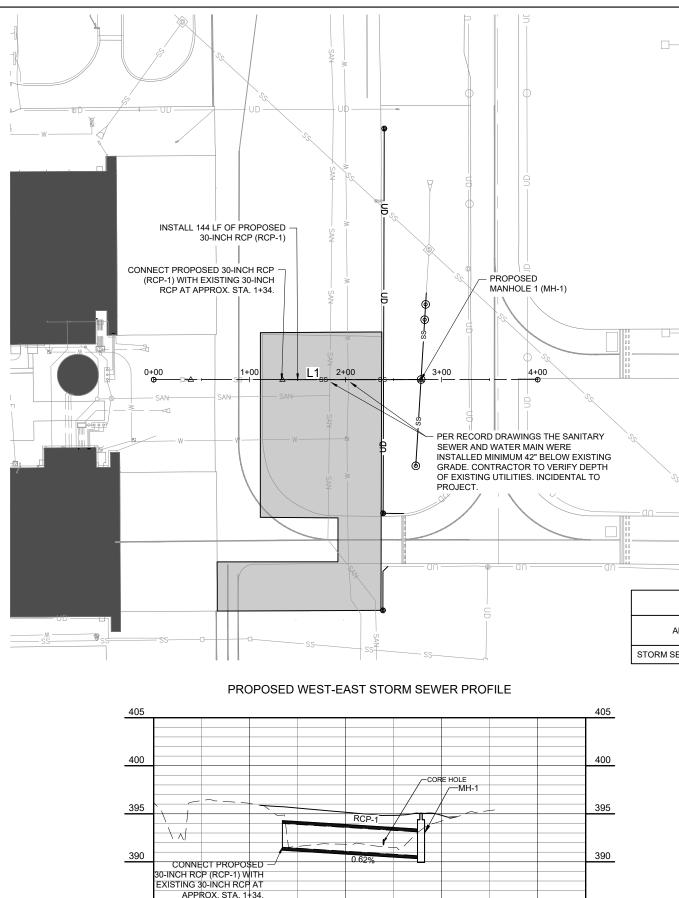
DRAWN BY: AJC 08/14/2024 REVIEWED BY: BSS 12/13/2024

PROJECT NO: 22A0056

CAD FILE: C-151-STAKE.DWG DESIGN BY: MJD 08/13/2024

SHEET TITLE

PLAN



		PIPE DATA TABLE					
ALIGNMENT	NAME	START STATION	END STATION	SIZE	LENGTH	START INVERT	I
TORM SEWER - WEST-EAST	RCP-1	STA. 1+34.09	STA. 2+78.44	30-IN	144'	391.50'	

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2+00

ALIGNMENT DATA PROPOSED WEST-EAST STORM SEWER							
LABEL	START STATION	END STATION	LENGTH	AZIMUTH	START (N,E)	END (N,E)	
L1	1+34.09	2+78.44	144.36	90° 43' 31"	403477.560, 2561405.286	403475.732, 2561549.631	

STRUCTURE DATA						
NAME	STATION	RIM ELEV.	DESCRIPTION			
MH-1	2+90.43	RIM = 395.048'	PRECAST MANHOLE TYPE A 6' DIAMETER (602406-11) NEENAH FOUNDRY - R-3492-A1 FRAME & GRATE, EJ (EAST JORDAN) - 1895 FRAME & GRATE, OR APPROVED EQUAL			

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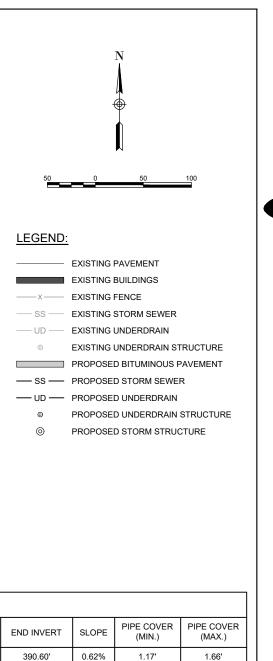
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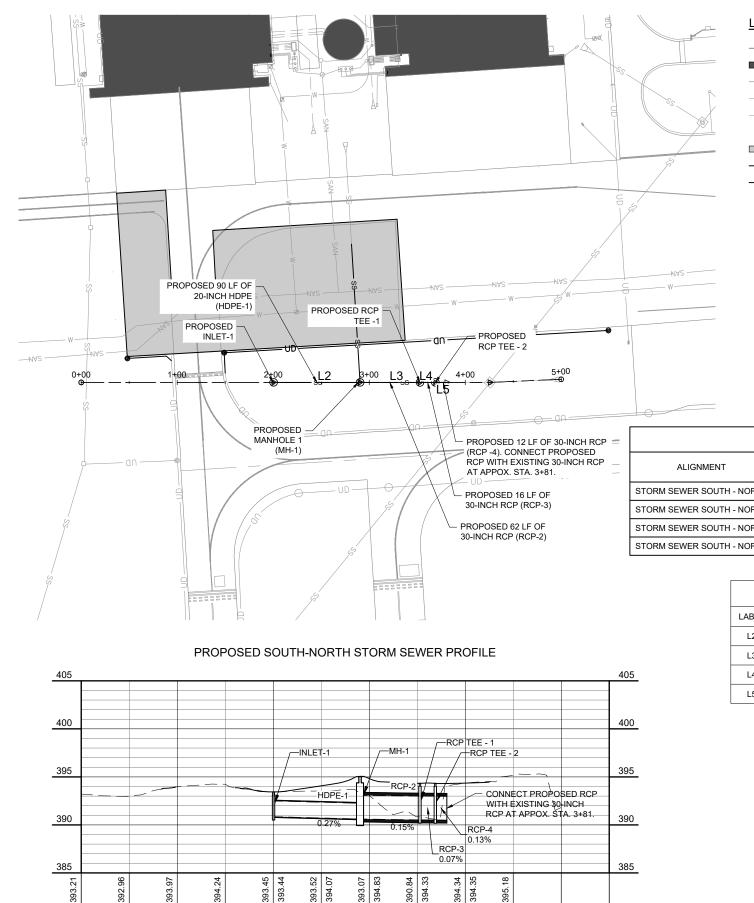
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SHEET TITLE

PROPOSED STORM SEWER PLAN & PROFILE - SHEET 1



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4+00

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5+00

X K

5+50

LEGEND:

- EXISTING PAVEMENT EXISTING BUILDINGS
- UD ----EXISTING UNDERDRAIN
- EXISTING UNDERDRAIN STRUCTURE 0
- PROPOSED BITUMINOUS PAVEMENT
- UD PROPOSED UNDERDRAIN
- PROPOSED UNDERDRAIN STRUCTURE 0
- \odot PROPOSED STORM STRUCTURE

			PIP	E DATA	TABLE					
ALIGNMENT	NAME	START STATION	END STATION	SIZE	LENGTH	START INVERT	END INVERT	SLOPE	PIPE COVER (MIN.)	PIPE COVER (MAX.)
STORM SEWER SOUTH - NORTH	HDPE-1	STA. 2+00.35	STA. 2+90.43	20-IN	90'	390.84'	390.60'	0.27%	0.87'	2.71'
STORM SEWER SOUTH - NORTH	RCP-2	STA. 2+90.43	STA. 3+52.86	30-IN	62'	390.60'	390.51'	0.15%	1.03'	1.67'
STORM SEWER SOUTH - NORTH	RCP-3	STA. 3+52.86	STA. 3+68.86	30-IN	16'	390.51'	390.50'	0.07%	1.03'	1.07'
STORM SEWER SOUTH - NORTH	RCP-4	STA. 3+68.86	STA. 3+80.86	30-IN	12'	390.50'	390.48'	0.13%	1.02'	1.04'

ALIGNMENT DATA PROPOSED SOUTH-NORTH STORM

LABEL	START STATION	END STATION	LENGTH	AZIMUTH	START (N,E)	END (N,E)
L2	2+00.35	2+90.43	90.07	4° 14' 08"	403385.907, 2561542.978	403475.732, 2561549.631
L3	2+90.43	3+52.86	62.44	4° 14' 00"	403475.732, 2561549.631	403537.999, 2561554.240
L4	3+52.86	3+68.86	16.00	4° 14' 39"	403537.999, 2561554.240	403553.955, 2561555.424
L5	3+68.86	3+80.86	12.00	4° 14' 08"	403553.955, 2561555.424	403565.922, 2561556.310

			STRUCTURE DATA
NAME	STATION	RIM ELEV.	DESCRIPTION
INLET-1	2+00.35	RIM = 393.440'	INLET - TYPE A, STANDARD 602301 NEENAH FOUNDRY - R-1711-A FRAME & R-2461-A GRATE, EJ (EAST JORDAN) - 1130 FRAME & M3 GRATE, OR APPROVED
MH-1	2+90.43	RIM = 395.048'	PRECAST MANHOLE TYPE A 6' DIAMETER (602406-11) NEENAH FOUNDRY - R-3492-A1 FRAME & GRATE, EJ (EAST JORDAN) - 1895 FRAME & GRATE, OR APPROVED EC
RCP TEE - 1	3+52.86	RIM = 394.332'	RCP TEE WITH 24 RISER (STANDARD 542606) NEENAH FOUNDRY, R-4370-25 GRATE EJ (EAST JORDAN) - 6024M1 SEWER PIPE GRATE, OR APPROVED EQUAL
RCP TEE - 2	3+68.86	RIM = 394.328'	RCP TEE WITH 24 RISER (STANDARD 542606) NEENAH FOUNDRY, R-4370-25 GRATE EJ (EAST JORDAN) - 6024M1 SEWER PIPE GRATE, OR APPROVED EQUAL

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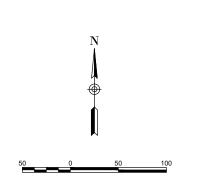
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Illinois Licensed Professional Service Corporation #184-001084
SOUTHERN ILLINOIS AIRPORT 665 North Airport Road Murphysboro, II, 62966
BARRY S. STOLZ 062-067281
DATE LICENSE SIGNED: 1/10/2025 EXPIRES: 11/30/2025
EXPAND SOUTHEAST AIRCRAFT PARKING APRON IDA No: MDH-5036

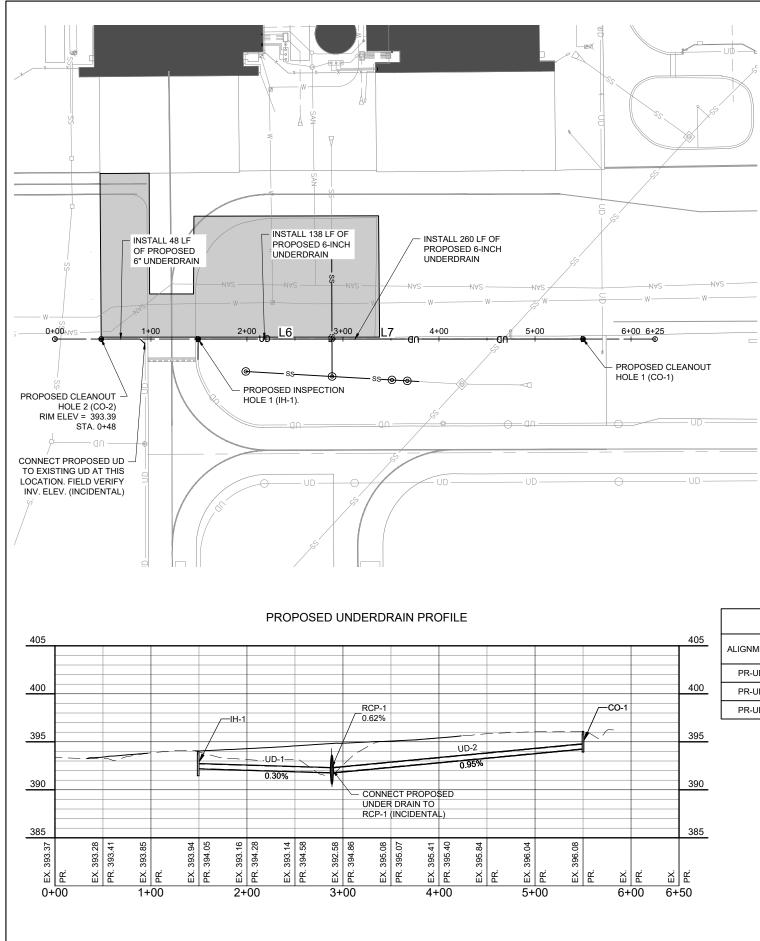
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PROPOSED STORM SEWER PLAN & PROFILE - SHEET 2

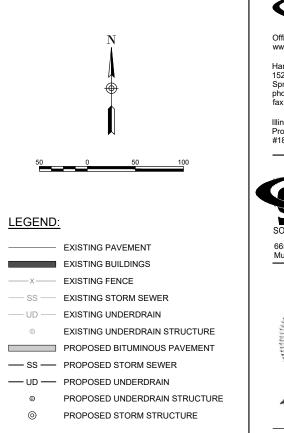
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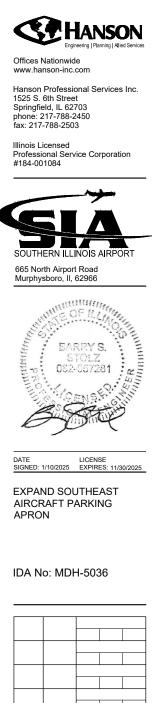
	PIPE DATA TABLE									
ALIGNMENT	NAME	START STATION	END STATION	SIZE	LENGTH	START INVERT	END INVERT	SLOPE	PIPE COVER (MIN.)	PIPE COVER (MAX.)
PR-UD	CH-1	STA. 2+86.91	STA. 2+90.01	6-IN	3'	391.79'	391.79'	0.00%	2.48'	2.50'
PR-UD	UD-1	STA. 1+49.21	STA. 2+86.82	6-IN	138'	392.20'	391.79'	0.30%	1.30'	2.48'
PR-UD	UD-2	STA. 5+50.00	STA. 2+90.10	6-IN	260'	394.26'	391.79'	0.95%	1.28'	2.51'

	ALIGNMENT DATA PROPOSED UNDERDRAIN							
LABEL	START STATION	END STATION	LENGTH	AZIMUTH	START (N,E)	END (N,E)		
L6	1+49.21	2+87.26	138.06	0° 54' 25"	403336.928, 2561508.401	403474.968, 2561510.586		
L7	2+89.76	5+50.00	260.24	0° 54' 25"	403477.468, 2561510.625	403737.676, 2561514.745		

		STRUC	TURE DATA
NAME	STATION	RIM ELEV.	DESCRIPTI
CO-1	5+50.00	RIM = 396.081'	UNDERDRAIN CLEAN OU
IH-1	1+49.21	RIM = 394.045'	UNDERDRAIN INSPECTIC



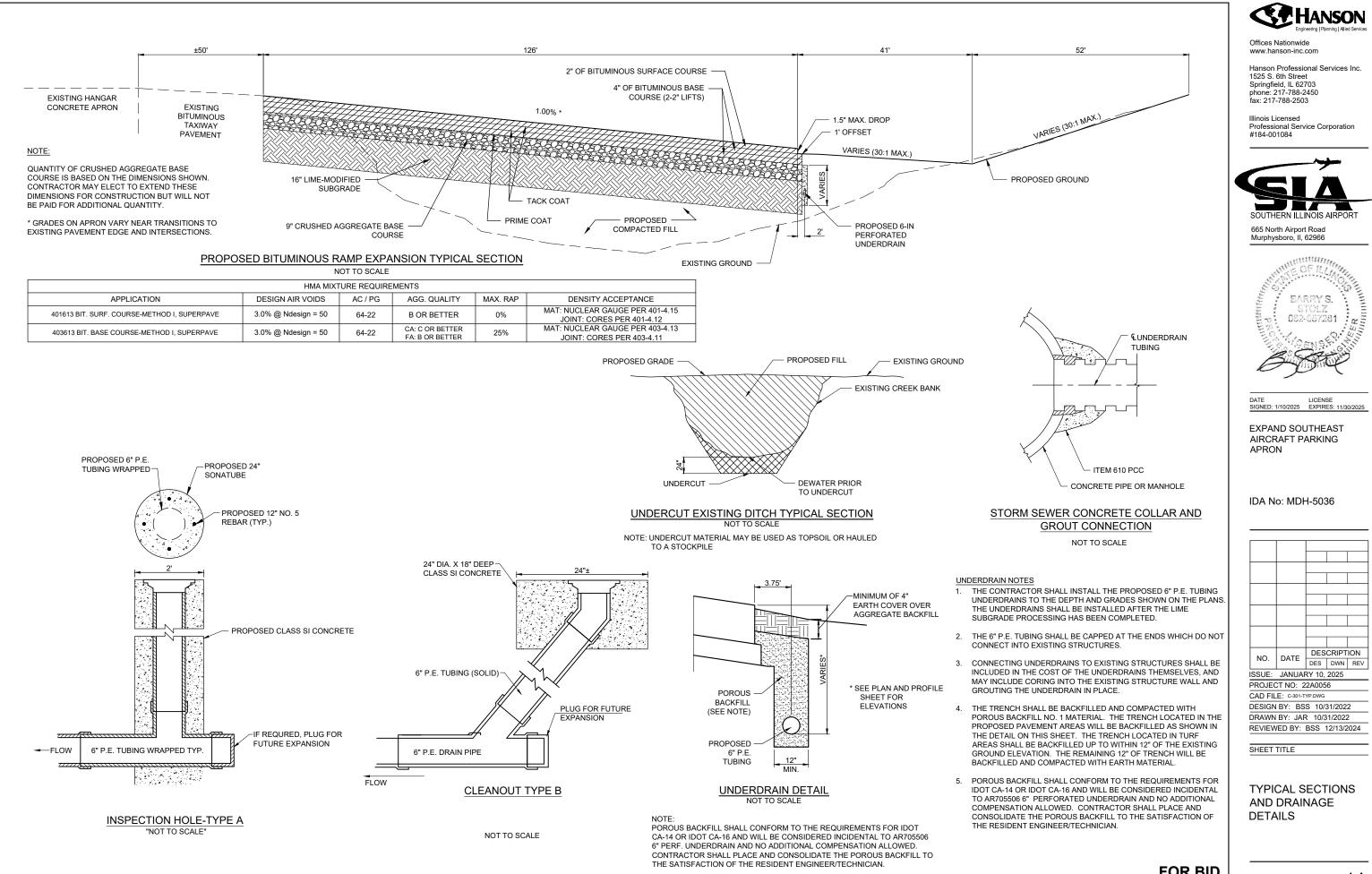
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JT - TYPE B
ON HOLE - TYPE A

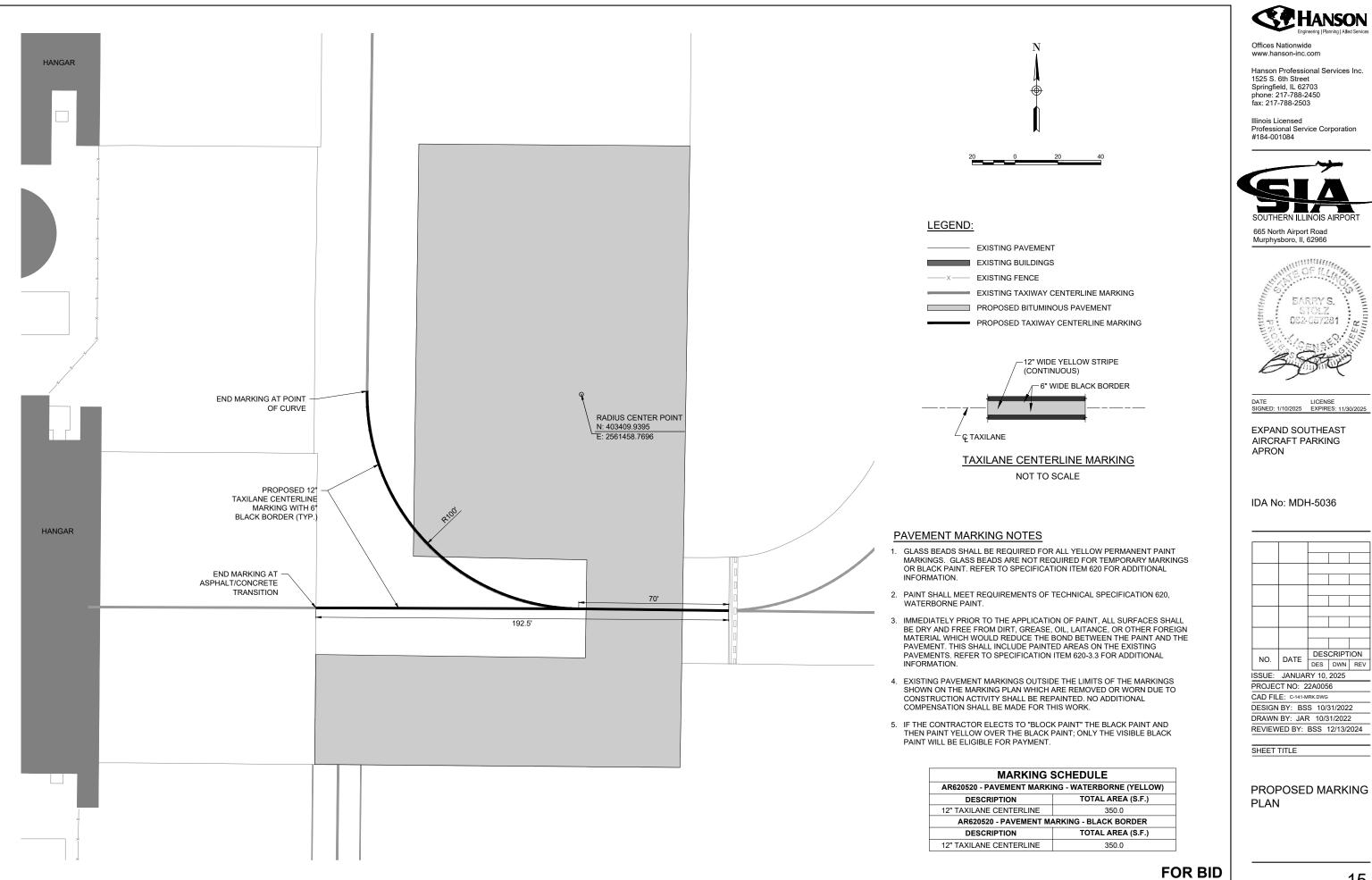


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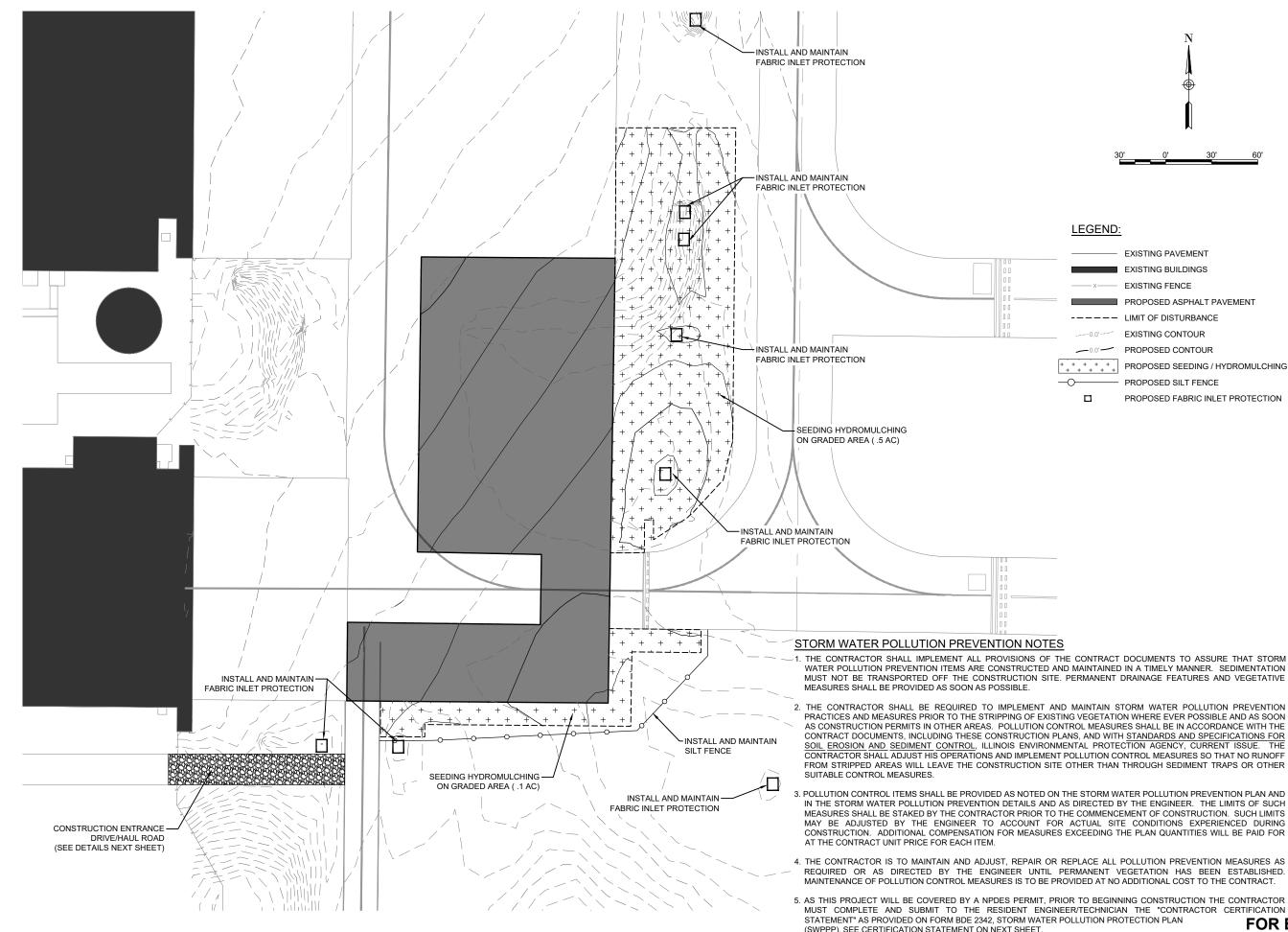
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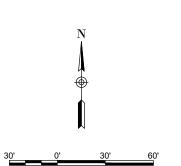
PROPOSED UNDERDRAIN PLAN & PROFILE



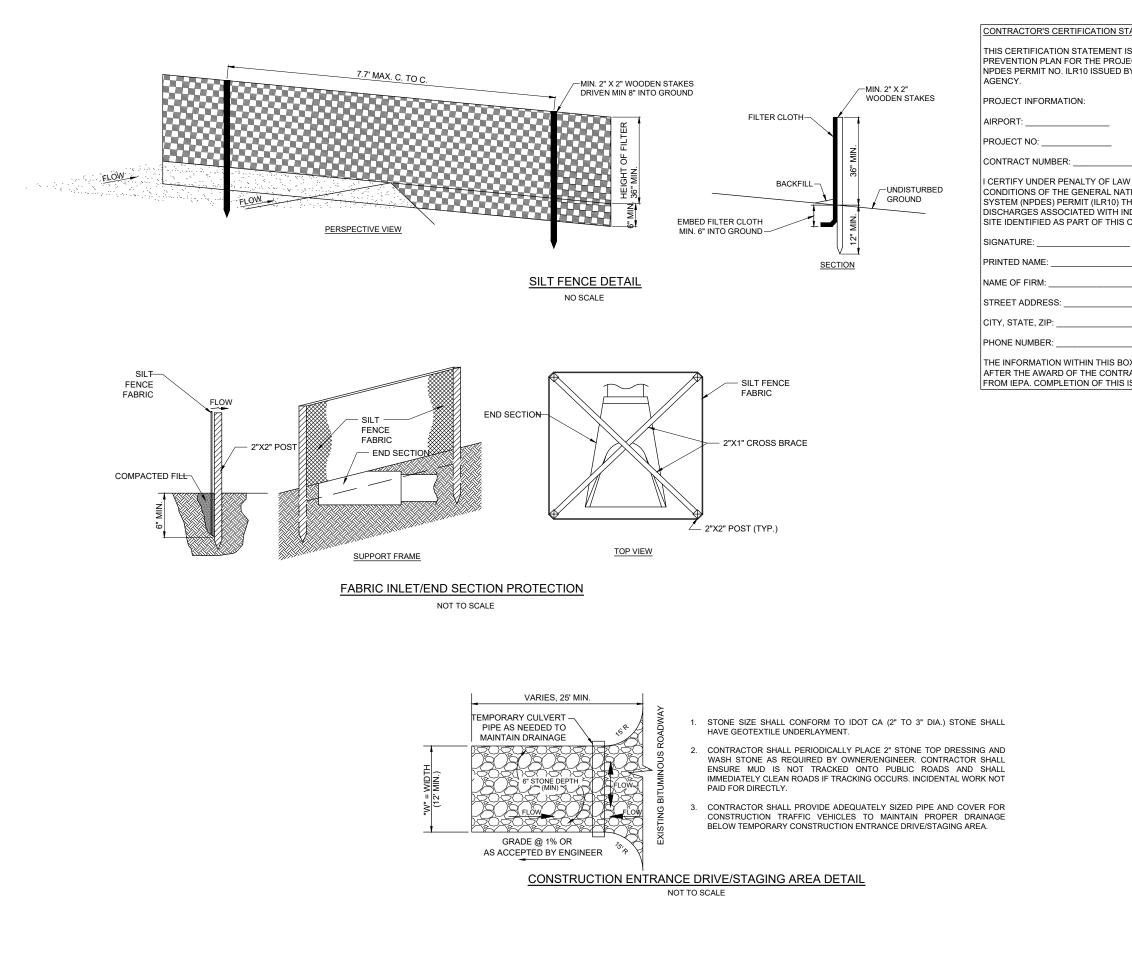


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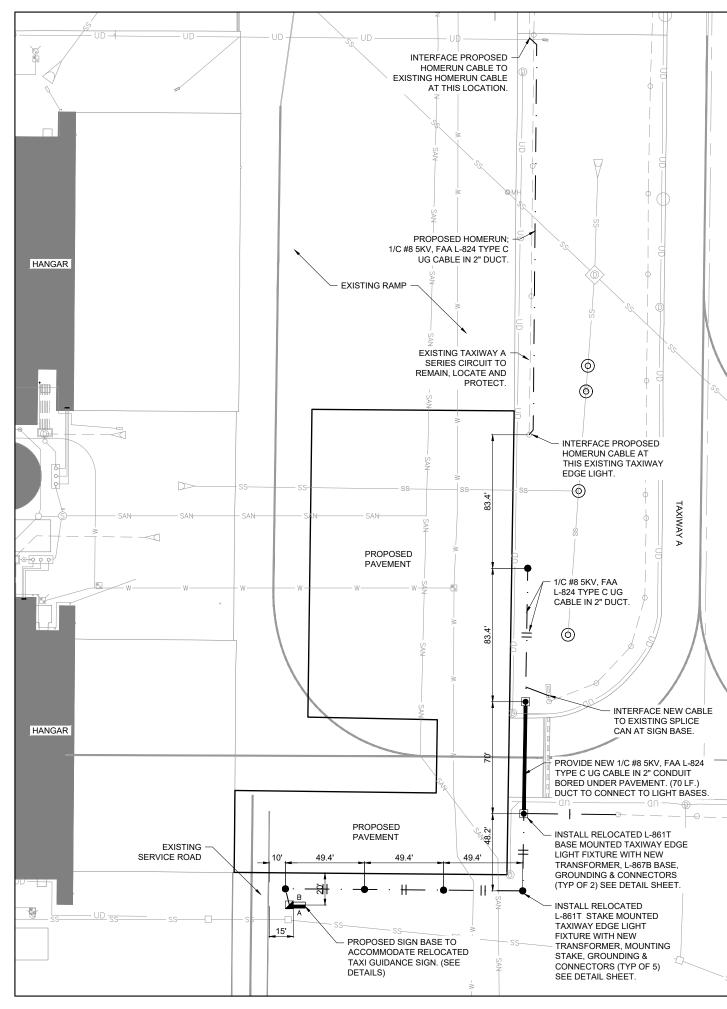


STATEMENT	
IS A PART OF THE STORM WATER POLLUTION JECT DESCRIBED BELOW IN ACCORDANCE WITH BY THE ILLINOIS ENVIRONMENTAL PROTECTION	
PROJECT:	
COUNTY:	
W THAT I UNDERSTAND THE TERMS AND ATIONAL POLLUTION DISCHARGE ELIMINATION THAT AUTHORIZES THE STORM WATER INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION S CERTIFICATION.	
DATE:	
TITLE:	
BOX SHALL BE COMPLETED BY THE CONTRACTOR RACT TO OBTAIN THE REQUIRED NPDES PERMIT S IS A CONTRACT REQUIREMENT.	

	Eng	ineering Planning Allied Service					
	Nationwie anson-inc	de					
1525 S. Springfi phone: 2	Professi 6th Stree eld, IL 62 217-788- 7-788-250	2450					
		vice Corporation					
SOUTH	IERN ILL	INOIS AIRPORT					
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EXPAND SOUTHEAST AIRCRAFT PARKING							
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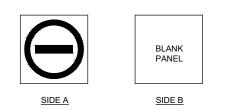
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PROPOSED STORMWATER POLLUTION DETAILS



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. RELOCATED GUIDANCE SIGN BASE SHALL BE CONSTRUCTED AT THE LOCATION SHOWN ON THE PROPOSED AIRFIELD ELECTRICAL & SIGNAGE PLANS AND IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS.
- 5. WHERE TEMPORARY WIRING IS REQUIRED, ALL ABOVE GROUND 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, OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION, PART 2.18.3 "LIGHTING AND VISUAL NAVAIDS"
- 6. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

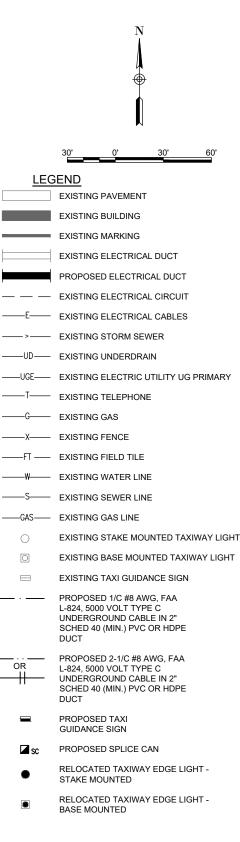


DETAIL - EXISTING NO ENTRY TAXI GUIDANCE SIGN

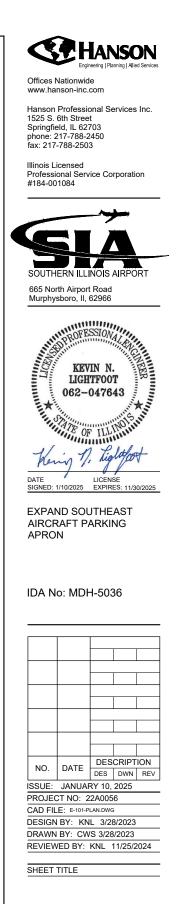
SCALE: NONE

TAXI GUIDANCE SIGN NOTES:

THE EXISTING "NO ENTRY" GUIDANCE SIGN SHALL BE INSTALLED ON THE NEW BASE LOCATED ON THE ELECTRICAL PLANS AND AS SHOWN ON THE ELECTRICAL DETAIL SHEETS



FOR BID



PROPOSED ELECTRICAL PLAN

AIRFIELD LIGHTING REMOVAL, RELOCATION, AND INSTALLATION NOTES

- 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 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.
- 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 EQUALIFIED ELECTRICAL CONTRACTORS FOR 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 FOURPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED".
- VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, 3. DISCONNECTING, RELOCATING, INSTALLING, CONNECTING OR WORKING ON THE RESPECTIVE AIRFIELD LIGHTING, DISTANCE REMAINING SIGN, RUNWAY SIGN, TAXI SIGN NAVAID. VAULT EQUIPMENT OR OTHER DEVICE.
- INSTALL AIRFIELD LIGHTING, SIGNS, SPLICE CANS, ELECTRICAL DUCTS, HANDHOLES, 4 MANHOLES, AND CABLE AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS, SPECIAL PROVISIONS, RESPECTIVE DETAILS, AND MANUFACTURER'S RECOMMENDATIONS
- NEW AIRFIELD LIGHTING SYSTEM INSTALLATIONS, ADJUSTMENTS, RELOCATIONS, 5 REINSTALLATIONS, AND/OR UPGRADES SHALL USE BASE (L-867 OR L-868) MOUNTED FIXTURES AND A CLOSED CONDUIT SYSTEM.
- 6. LIGHTING CABLE FOR AIRFIELD LIGHTING SERIES CIRCUITS SHALL BE 1/C, #8 AWG, FAA L-824, 5000 VOLT, TYPE C UNDERGROUND CABLE IN 2" SCHEDULE 40 PVC OR SCHEDULE 40 HDPE 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.
- GROUND ROD MUST BE INSTALLED AT EACH LIGHT FIXTURE AND RUNWAY/TAXI SIGN. 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 AND/OR THE RESIDENT ENGINEER/TECHNICIAN.
- HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR 9. 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 PROVIDED TO THE PROJECT ENGINEER 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

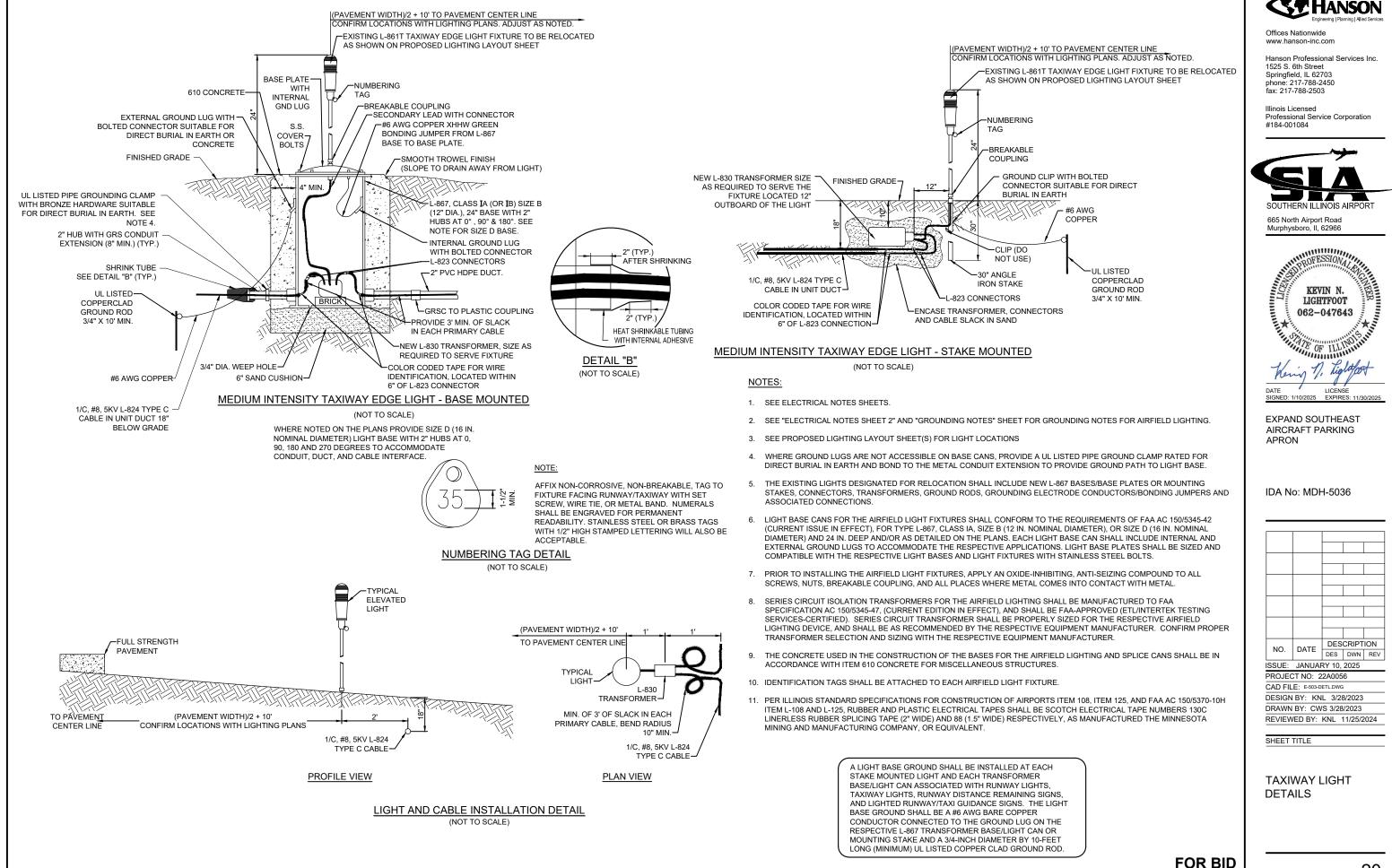
- 13. OBTAIN APPROVAL FROM THE AIRPORT MANAGER PRIOR TO SHUTTING DOWN A RUNWAY OR TAXIWAY, WHEN A RESPECTIVE RUNWAY IS CLOSED THE RESPECTIVE RUNWAY LIGHTING AND NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF. WHEN A RESPECTIVE TAXIWAY IS CLOSED THE RESPECTIVE TAXIWAY LIGHTING FOR THAT TAXIWAY SHALL BE SHUT 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 SIGNS DESIGNATED FOR RELOCATION WILL REQUIRE THE CONTRACTOR TO REMOVE THE DESIGNATED LIGHTS IN A MANNER AS NOT TO DAMAGE THEM. THE CONTRACTOR IS ENCOURAGED TO INSPECT EACH EXISTING LIGHT, SIGN PRIOR TO REMOVAL, AND IDENTIFY TO THE RESIDENT ENGINEER/TECHNICIAN ANY DAMAGE OR NON-OPERATION PARTS, ONCE THE EXISTING LIGHT AND/OR SIGN IS REMOVED, THE CONTRACTOR IS RESPONSIBLE FOR THE RESPECTIVE LIGHT FIXTURES AND/OR SIGNS DAMAGED DURING REINSTALLATION OR RELOCATION. ALL LIGHTS AND SIGNS DESIGNATED FOR RELOCATION SHALL BE INSTALLED IN PROPER WORKING ORDER OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. THE LIGHT FIXTURE ASSEMBLIES, BASES AND ISOLATION TRANSFORMERS SHALL BE STORED BY THE CONTRACTOR IN A SECURE LOCATION UNTIL READY FOR RELOCATION. PROVISIONS SHALL BE MADE FOR THE TEMPORARY WIRING OF THE AFFECTED CIRCUIT TO INSURE THAT THE AIRPORT WILL MAINTAIN THE RESPECTIVE RUNWAY AND/OR TAXIWAY LIGHTING CAPABILITIES FOR ACTIVE RUNWAYS AND TAXIWAYS A NEW L-867 BASE, BASE PLATE, MOUNTING STAKE, TRANSFORMER, GROUND ROD, GROUND WIRE, AND ASSOCIATED CONNECTORS SHALL BE FURNISHED AND INSTALLED FOR EACH LIGHT AND/OR SIGN TO BE RELOCATED. THE CONTRACTOR SHALL INTERFACE THE EXISTING AND/OR NEW CONDUIT AND CABLE SYSTEM TO EACH RESPECTIVE LIGHT FIXTURE AND/OR SIGN TO BE RELOCATED. ANY DAMAGE DUE TO CONTRACTOR OPERATIONS BEYOND WHAT IS DOCUMENTED AND CONFIRMED BY THE RESIDENT ENGINEER/TECHNICIAN. TO THE EXISTING LIGHTING SYSTEM WILL BE REPAIRED/REPLACED AT THE CONTRACTOR'S EXPENSE NOTE THE EXISTING TAXIWAY EDGE LIGHTING SYSTEM AT THE AIRPORT IS IN POOR CONDITION AND SUBJECT TO PERIODIC FAILURES SUCH AS GROUND FAULTS, TRANSFORMER FAILURES, BURNT OUT LAMPS, LIGHTNING DAMAGE, AND FAILED CONNECTIONS. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR EXISTING SITE CONDITIONS AND FAILURES OF EXISTING LIGHTING UNLESS HIS OPERATIONS ARE THE CAUSE OF THE RESPECTIVE FAILURES. DOCUMENTING EXISTING CONDITIONS PRIOR TO STARTING WORK IS RECOMMENDED
- 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

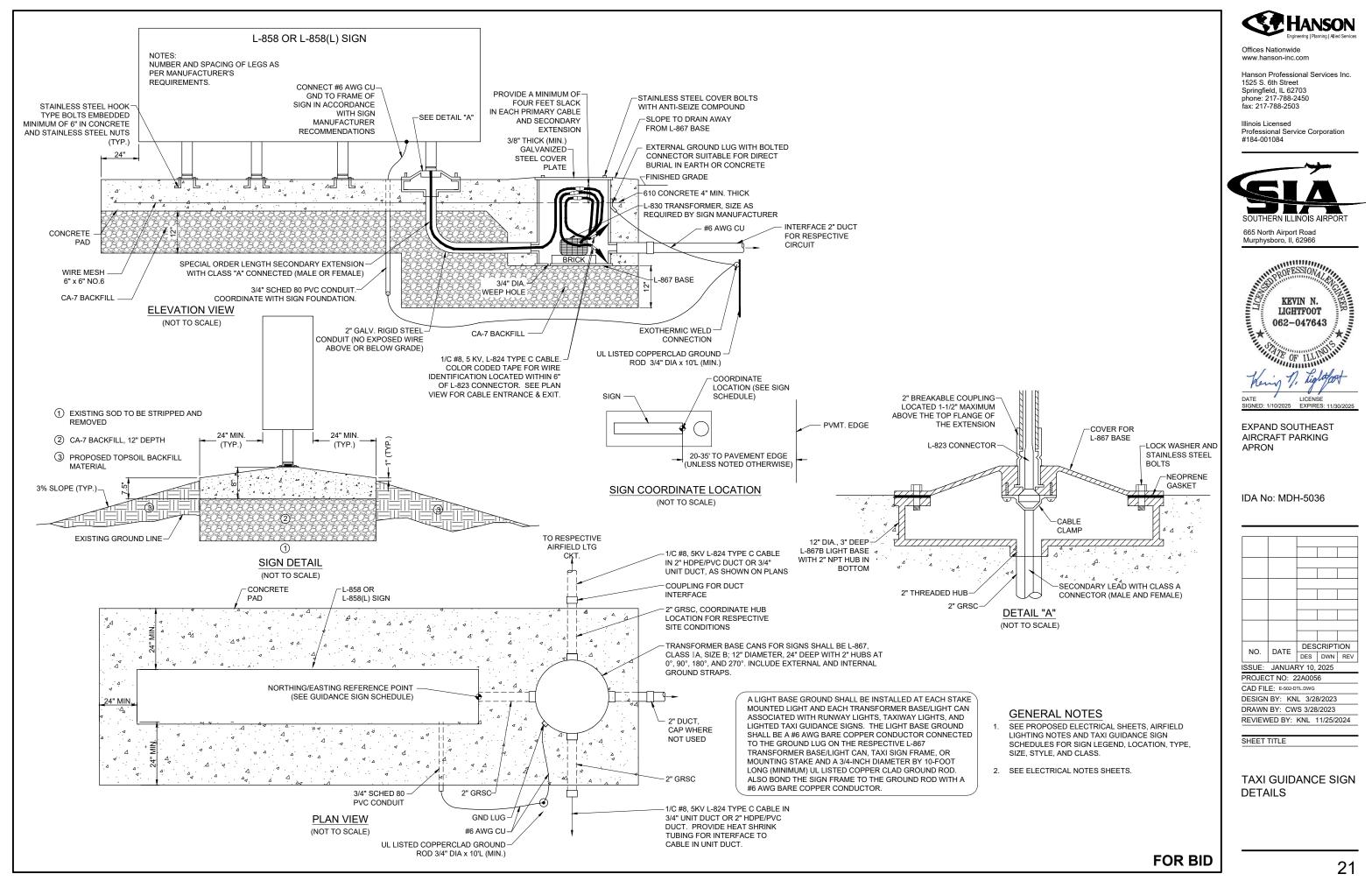
- 27. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE. OR HANDHOLE.
- 28. THE CONTRACTOR IS REQUIRED 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

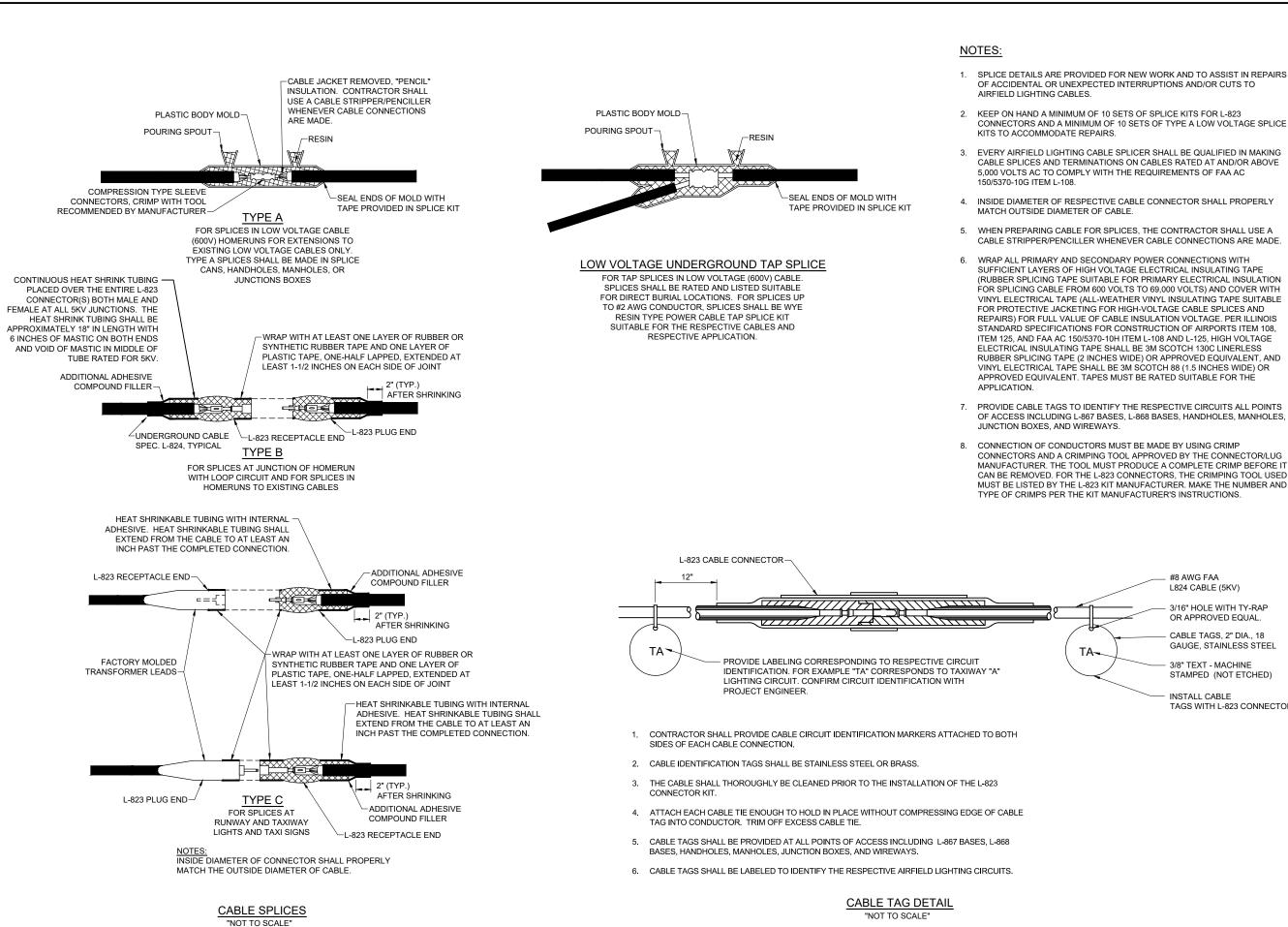
THE LOCATION SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND. AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY 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.









CABLE SPLICES AND TERMINATIONS ON CABLES RATED AT AND/OR ABOVE

CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.

(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 REPAIRS) FOR FULL VALUE OF CABLE INSULATION VOLTAGE. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, RUBBER SPLICING TAPE (2 INCHES WIDE) OR APPROVED EQUIVALENT, AND

OF ACCESS INCLUDING L-867 BASES, L-868 BASES, HANDHOLES, MANHOLES,

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

> #8 AWG FAA L824 CABLE (5KV)

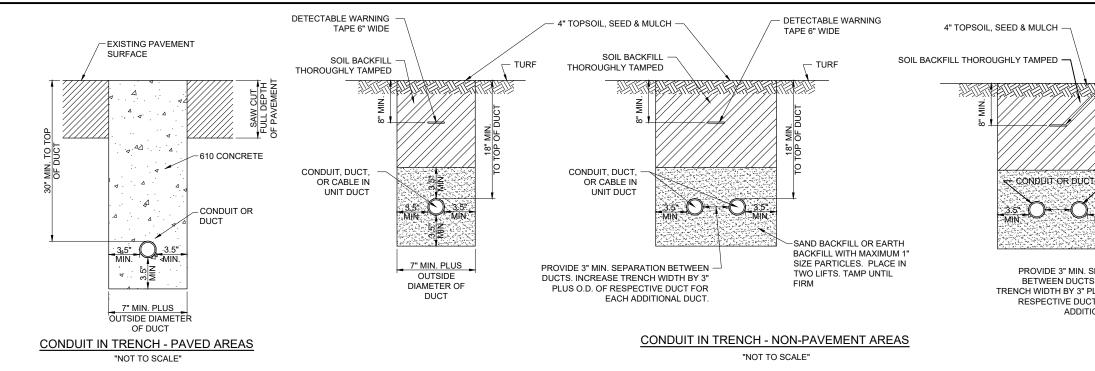
3/16" HOLE WITH TY-RAP OR APPROVED EQUAL.

CABLE TAGS, 2" DIA., 18 GAUGE, STAINLESS STEEL

3/8" TEXT - MACHINE STAMPED (NOT ETCHED)

INSTALL CABLE TAGS WITH L-823 CONNECTOR





NOTES:

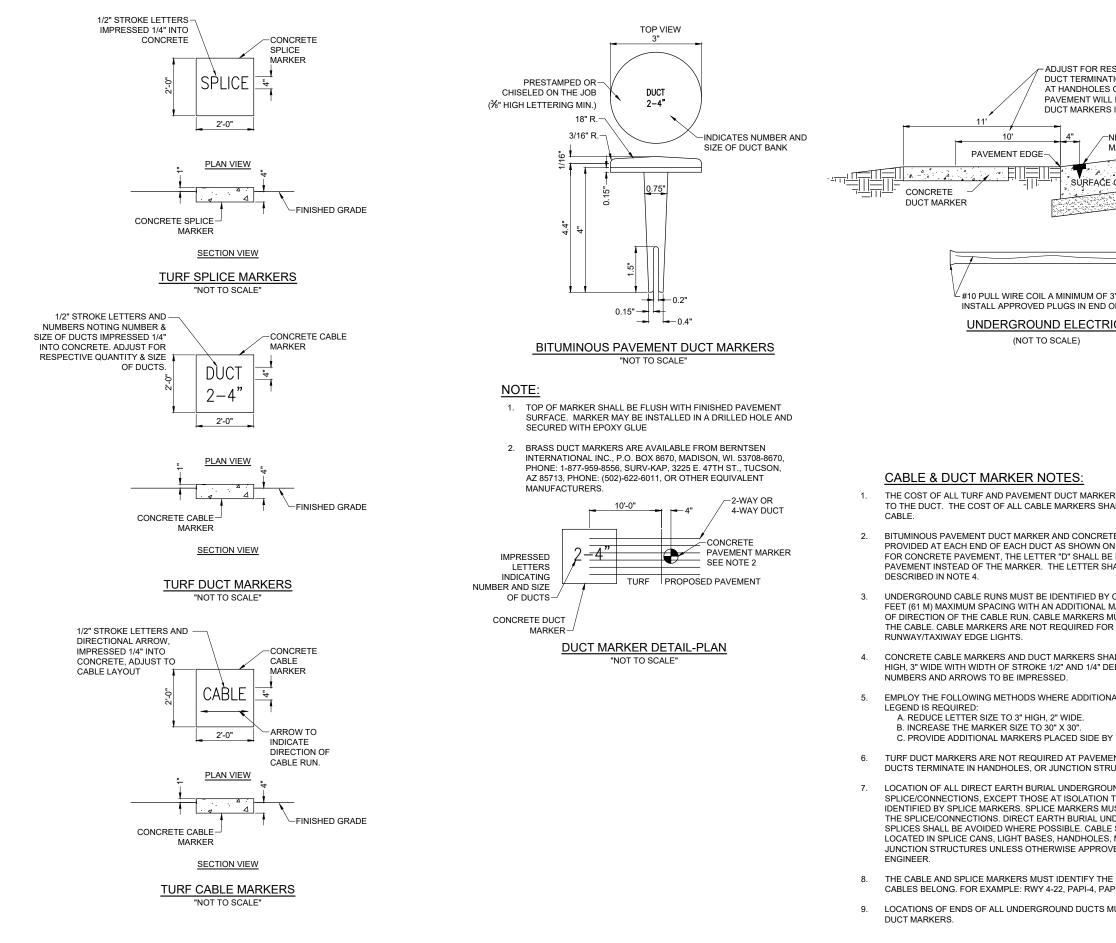
- 1. DIMENSIONS FOR COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
- 2. TRENCHES WITH MORE THAN TWO DUCTS OR CABLE IN UNIT DUCTS SHALL BE INCREASED 3" IN WIDTH PLUS DIAMETER OF RESPECTIVE DUCT FOR EACH ADDITIONAL CONDUIT, DUCT, OR CABLE IN UNIT DUCT; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY 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 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.
- ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. <u>COST IS</u> <u>INCIDENTAL TO TRENCH</u>.
- 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 <u>NOT</u> BE PERMITTED.

- 11. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- 12. THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE SUFFICIENT OR COMPLETE INFITHER 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 LITH ITY 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.

- PAYMENT FOR LOCATING AND MARKING U BE PAID FOR SEPARATELY, BUT SHALL BE DUCT INSTALLATION.
- 16. THE CONTRACTOR WILL DETERMINE IF TH OF THE PROPOSED ELECTRICAL DUCTS A WILL MAKE ALL NECESSARY ADJUSTMENT ALL PROPOSED UNDERGROUND IMPROVE
- 17. CONDUITS FOR DIRECT BURIAL OR CONCI 40 (MINIMUM) PVC CONDUIT, UL-LISTED, R STANDARD TC-2 AND UL 651, LISTED SUIT, DIRECT-BURIED OR ENCASED IN CONCRE UL LISTED, CONFORMING TO NEMA STANE FOR UNDERGROUND USE; EITHER DIRECT WALL CONDUITS SHALL BE FURNISHED FO HEREIN.
- 18. CONDUITS FOR DIRECTIONAL BORING SH. 80 PVC CONDUIT, UL-LISTED, RATED FOR TC-2 AND UL 651 AND SUITABLE FOR DIRE HOPE CONDUIT, UL-LISTED, CONFORMING SUITABLE FOR DIRECTIONAL BORING INS' CONDUIT MANUFACTURED IN ACCORDAN POLYETHYLENE PLASTICS PIPE AND FITTI SPECIFICATION FOR SOLID WALL, HIGH-DI CONTROLLED OUTSIDE DIAMETER), AND S INSTALLATION. PER NEC 300.5 (K), RACEW EQUIPMENT SHALL BE APPROVED FOR THE
- 19. UNDERGROUND DUCTS INSTALLED BY DIF IN A MANNER THAT WILL NOT DAMAGE AN NOT DISTURB OR DAMAGE THE RESPECTI SHALL BE DIRECTIONAL-BORED AT THE LC PLANS. THE DUCTS WILL BE BORED AT A RESPECTIVE PAVEMENT IT IS BEING BORE
- 20. A PULL WIRE SHALL BE INSTALLED IN EAC
- 21. CONTRACTOR SHALL COORDINATE DUCT
- 22. ALL POWER AND CONTROL CABLES IN HAI SHALL BE TAGGED TO IDENTIFY THE RESS BE PROVIDED ON EACH CABLE IN A MANH THE CABLE EXIT. CABLE TAGS SHALL BE S WEATHERPROOF/WATERPROOF CORROS

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JNDERGROUND UTILITIES AND CABLES WILL NOT CONSIDERED INCIDENTAL TO THE RESPECTIVE
HERE IS A CONFLICT BETWEEN THE INSTALLATION IND ANY EXISTING UTILITIES. THE CONTRACTOR TS IN DEPTH OF INSTALLATION TO AVOID ANY AND
EMENTS
RETE ENCASED DUCT BANK SHALL BE SCHEDULE KATED FOR 90°C CABLE-CONFORMING TO NEMA ABLE FOR UNDERGROUND USE EITHER TE, OR SCHEDULE 40 (MINIMUM) HDPE CONDUIT, DARD TC-7 AND UL 651B AND LISTED SUITABLE T BURY OR ENCASED IN CONCRETE. HEAVIER OR RESPECTIVE APPLICATIONS WHERE DETAILED
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SUITABLE FOR DIRECTIONAL BORING VAYS INSTALLED USING DIRECTIONAL BORING IE PURPOSE.
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IY EXISTING UNDERGROUND UTILITIES, AND SHALL IVE PAVEMENT OR ROADWAY SURFACE. DUCTS
OCATIONS SHOWN ON THE CONSTRUCTION MINIMUM DEPTH OF 42 IN. BELOW THE ED UNDER.
CH CONDUIT OR DUCT TO BE LEFT VACANT.
MARKING WITH AIRPORT.
NDHOLES, MANHOLES, AND JUNCTION BOXES PECTIVE CABLE. A MINIMUM OF TWO TAGS SHALL IOLE; ONE AT THE CABLE ENTRANCE AND ONE AT STAMPED BRASS TAGS OR OTHER SION RESISTANT MATERIAL.





	Engineering Planning Allied Services
	Offices Nationwide www.hanson-inc.com
ESPECTIVE LOCATION OF ITION. DUCT TERMINATING S OR MANHOLES NEAR L NOT REQUIRE ADDITIONAL S IN TURF.	Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62703 phone: 217-788-2450 fax: 217-788-2503
NEW DUCT	Illinois Licensed Professional Service Corporation #184-001084
MARKER	SOUTHERN ILLINOIS AIRPORT 665 North Airport Road Murphysboro, II, 62966
3' AT DUCT ENDS. OF DUCTS NOT USED. RICAL DUCT	KEVIN N. LIGHTFOOT 062-047643 Wain M. Lightfoot Main M. Lightfoot Date Signed: 1/10/2025
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MUST BE IDENTIFIED BY	

GENERAL NOTES

- 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.
- CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL 3. AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN. THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS 4 FURNISHED BY HIM, INCLUDING FAA APPROVED EQUIPMENT, ARE COMPATIBLE IN ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NONCOMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR SHALL BE REPLACED BY HIM AT NO ADDITIONAL COST TO THE AIRPORT SPONSOR WITH A SIMILAR UNIT, APPROVED BY THE ENGINEER (DIFFERENT MODEL OR DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.
- IN CASE THE CONTRACTOR ELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING 5. 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
- THE CONTRACTOR INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) SHALL 6. NOT GENERATE ANY ELECTROMAGNETIC INTERFERENCE IN THE EXISTING AND/OR NEW COMMUNICATIONS, WEATHER, AIR NAVIGATION, AND AIR TRAFFIC CONTROL EQUIPMENT. ANY EQUIPMENT GENERATING SUCH INTERFERENCE SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST WITH THE EQUIPMENT MEETING THE APPLICABLE SPECIFICATIONS AND NOT GENERATING ANY INTERFERENCE
- WHEN A SPECIFIC TYPE, STYLE, CLASS, ETC. OF FAA APPROVED EQUIPMENT IS 7. SPECIFIED ONLY THAT TYPE, STYLE, CLASS, WILL BE ACCEPTABLE, EVEN THOUGH EQUIPMENT OF OTHER TYPES STYLES, CLASSES, ETC. MAY BE APPROVED.
- ANY AND ALL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT 8. TECHNICIAN TO THE CONTRACTOR REGARDING CHANGES IN OR DEVIATIONS FROM THE PLANS AND SPECIFICATIONS SHALL BE IN WRITING WITH COPIES SENT TO THE AIRPORT SPONSOR AND THE ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF AERONAUTICS. THE CONTRACTOR SHALL NOT ACCEPT ANY VERBAL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN REGARDING ANY CHANGES FROM THE PLANS AND SPECIFICATIONS.
- A MINIMUM OF THREE COPIES OF THE INSTRUCTION BOOK SHALL BE SUPPLIED WITH EACH DIFFERENT TYPE OF EQUIPMENT, THE BOOKS DESCRIBING A MORE 9 SOPHISTICATED TYPE OF EQUIPMENT, SUCH AS REGULATORS, PAPI, REIL, ETC. AS A MINIMUM SHALL CONTAIN THE FOLLOWING:
 - A DETAILED DESCRIPTION OF THE OVERALL EQUIPMENT AND ITS INDIVIDUAL COMPONENTS.
 - THEORY OF OPERATION INCLUDING THE FUNCTION OF EACH COMPONENT Β.
 - INSTALLATION INSTRUCTION. C.
 - START-UP INSTRUCTIONS. D.
 - PREVENTATIVE MAINTENANCE REQUIREMENTS. E.
 - CHART FOR TROUBLE-SHOOTING F
 - 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.
 - 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
 - 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.
- COLOR CODE ALL PHASE WIRING BY THE USE OF COLORED WIRE INSULATION 2. 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)
- ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE 3. SHALL BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING SHALL BE EXTENDED TO THE POINT OF UTILIZATION.
- IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE 4 SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL. ETC
- LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE 5. INSTALLED IN SEPARATE WIREWAYS
- NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND 6 JUNCTION/PULL BOXES.
- THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY 7. AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:
 - IN STRAIGHT PULLS THE LENGTH OF THE BOX SHALL NOT BE LESS THAN Α. 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.
 - IN ANGLE PULLS OR 'U' PULLS THE DISTANCE BETWEEN EACH CONDUIT в 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.
- A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, 8. 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.
- CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL (S) SHALL BE 11. THERMAL-MAGNETIC MOLDED CASE, PERMANENT TRIP WITH 100 AMPERE, MINIMUM FRAME
- DUAL LUGS SHALL BE USED WHERE TWO (2) WIRES, SIZE NO. 6 OR LARGER, ARE 12. TO BE CONNECTED TO THE SAME TERMINAL.
- ALL INTERIOR WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED 13. 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.
- SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE STAINLESS STEEL 14. STRUT SUPPORT WITH STAINLESS STEEL HARDWARE

- 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.
- PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AT CONNECTIONS TO 16. 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.
- UNLESS OTHERWISE SHOWN. ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL 17 TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.
- ALL STEEL CONDUITS, FITTINGS, NUTS, BOLTS, ETC. SHALL BE GALVANIZED. 18.
- 19. OR LARGER UNDERGROUND WIRE IS INSTALLED, USE INSULATED BUSHINGS.
- 20. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
- 21 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:

- Α. TO MAINTAIN THE NEMA 4. 4X RATING OF THE ENCLOSURE
- THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT
- TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE
- D. VOLTAGE COMPONENTS.
- TERMINAL BLOCK.
- G. COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE
- н AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL
- ALL WIRING SHALL BE NEATLY TRAINED AND LACED.
- MINIMUM WIRE SIZE SHALL BE NO. 12 AWG.
- THE ABOVE GENERAL NOTES & POWER AND CONTROL NOTES ARE BASED ON 24. DEPT. OF TRANSPORTATION FAA GREAT LAKES REGION ELECTRICAL NOTES LIGHTFOOT TO ACCOMMODATE CODE CHANGES, FAA ADVISORY CIRCULAR CHANGES, AND OTHER RESPECTIVE APPLICATIONS.

15. CONDUITS FOR ELECTRIC SERVICE ENTRANCE AND FEEDERS SHALL BE AS DETAILED HEREIN ON THE PLANS. WHERE GALVANIZED RIGID STEEL CONDUIT IS

USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG

WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT

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

COMPONENTS, TERMINAL BLOCKS AND INCOMING AND INTERNAL WIRING.

ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED-EYE TERMINATIONS, OR

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

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

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

A COMPLETE WIRING DIAGRAM SHALL BE MOUNTED ON THE INSIDE OF THE

THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING

SUBMITTED BY AL GRIGAITIS, DATE 2/11/1987 AND HAVE BEEN UPDATED BY KEVIN

www.hanson-inc.com Hanson Professional Services Inc. 1525 S 6th Street Springfield, IL 62703 phone: 217-788-2450 fax: 217-788-2503 Illinois Licensed Professional Service Corporation #184-001084 665 North Airport Road Murphysboro, II, 62966 11111111111 OFESSION KEVIN N. LIGHTFOOT 062-047643 E OF ILLI DATE LICENSI SIGNED: 1/10/2025 EXPIRES: 11/30/202 EXPAND SOUTHEAST AIRCRAFT PARKING APRON IDA No: MDH-5036 NO. DATE DESUM REV ISSUE: JANUARY 10, 2025 PROJECT NO: 22A0056 CAD FILE: E-002-NOTES.DWG DESIGN BY: KNI 3/28/2023 DRAWN BY: CWS 3/28/2023 REVIEWED BY: KNL 11/24/2024 SHEET TITLE

ELECTRICAL NOTES SHEET 1

AIRFIELD LIGHTING NOTES

- UNLESS OTHERWISE NOTED, ALL UNDERGROUND AIRFIELD LIGHTING SERIES CIRCUIT 1. 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
- NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND 2. TRANSFORMERS SHALL BE BROUGHT ABOVE GROUND AT EDGE LIGHTS, SIGNS, REIL, PAPI, FTC
- THERE SHALL BE NO EXPOSED POWER/CONTROL CABLES BETWEEN THE POINT WHERE 3. 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
- 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.
- 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.
- L-823 TYPE II, TWO-CONDUCTOR SECONDARY CONNECTORS SHALL BE CLASS 'A' (FACTORY MOLDED).
- 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
- ELECTRICAL INSULATING GREASE SHALL BE APPLIED WITHIN THE L-823, SECONDARY, TWO CONDUCTOR CONNECTORS TO PREVENT WATER ENTRANCE. THESE CONNECTORS SHALL NOT BE TAPED.
- 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
- A SLACK OF THREE (3') FEET, MINIMUM, PLUS DEPTH OF BASE CAN (IF APPLICABLE), SHALL 10. BE PROVIDED IN THE PRIMARY CABLE AT EACH TRANSFORMER/CONNECTOR TERMINATION AT STAKE-MOUNTED LIGHTS THE SLACK SHALL BE LOOSELY COLLED. 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.
- DIRECTION OF PRIMARY CABLES SHALL BE IDENTIFIED BY COLOR CODING AS FOLLOWS: 11. 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
- 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
- WHERE THE BREAKABLE COUPLING IS NOT AN INTEGRAL PART OF THE LIGHT FIXTURE 15 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
- TOPS OF THE STAKES SUPPORTING LIGHT FIXTURES SHALL BE FLUSH WITH THE 16. SURROUNDING GRADE
- 17. PLASTIC LIGHTING FIXTURE COMPONENTS, SUCH AS LAMP HEADS, STEMS, BREAKABLE COUPLINGS, BASE COVERS, BRACKETS, STAKES, SHALL NOT BE ACCEPTABLE
- THE TOLERANCE FOR THE HEIGHT OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE: ONE (1) 18 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.
- THE TOLERANCE FOR THE LATERAL SPACING (LIGHT LANE TO RUNWAY/TAXIWAY 19. 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
- 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.
- EDGE LIGHT NUMBERING TAGS SHALL BE FACING THE PAVEMENT. 22
- CABLE/SPLICE/DUCT MARKERS SHALL BE PRECAST CONCRETE OF THE SIZE SHOWN. 23 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
- ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 FEET 24. 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
- APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS.
- LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT 27. MARKERS
- 28. WHERE A PARALLEL, CONSTANT VOLTAGE PAPI SYSTEM IS PROVIDED, THE "T" SPLICES SHALL BE OF THE CAST TYPE
- CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND TRANSFORMER HOUSINGS, 29. MARKINGS, ETC. SHALL BE 3500 PSI (MINIMUM) AT 14 DAYS, IN ACCORDANCE WITH ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE
- ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES SHALL BE TAGGED. USE 30. 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.
- THE LOCATION SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR 31. 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.
- WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE 32. STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.
- THE ABOVE AIRFIELD LIGHTING NOTES ARE BASED ON DEPT. OF TRANSPORTATION FAA 33. 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

- WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER BY 10-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED OTHERWISE HEREIN. FOR RESPECTIVE APPLICATIONS.
- 2. ROUTINE MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S FIXTURE
- 3. DOMESTIC STEEL
- 4 250-12.
- 5 BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS

6

PROJECT ENGINEER OF RECORD

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 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 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

CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS. TOP OF GROUND RODS SHALL BE BURIED 12 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED

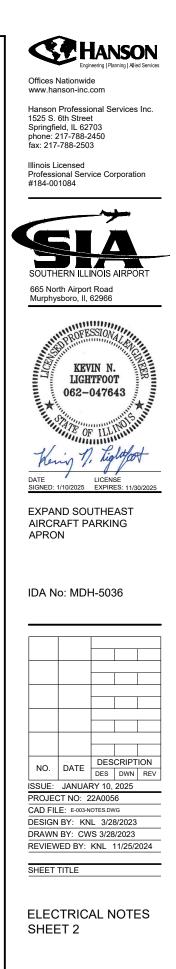
PER THE REQUIREMENTS OF FAA AC 150/5340-30J DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6 "LIGHT FIXTURE BONDING" IT NOTES THE FOLLOWING: BOND THE LIGHT FIXTURE TO THE LIGHT BASE INTERNAL GROUND LUG VIA A NO. 6 AWG STRANDED COPPER WIRE RATED 600 VOLTS WITH GREEN XHHW, 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 INSTRUCTIONS FOR PROPER METHODS OF ATTACHING A BONDING WIRE TO THE

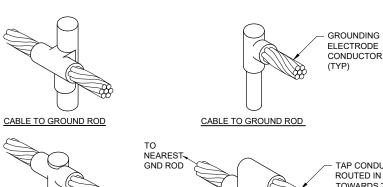
STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100 PERCENT

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 2023 NATIONAL ELECTRICAL CODE ARTICLE

THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT

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 JE GROUND RESISTANCE EXCEEDS 25 OHMS CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. ALSO REFER TO EOR-47643 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

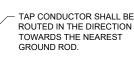


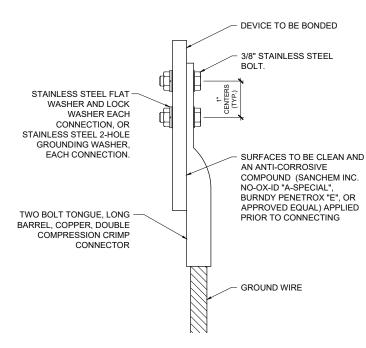


CABLE TO CABLE

HORIZONTAL PARALLEL TAP

CABLE TO REBAR





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PIPE GROUNDING	G CLAMP TA
BURNDY CAT. NO.	THOMAS CAT.
GAR3902-BU	3902
GAR3903-BU	3903
GAR3904-BU	3904
GAR3905-BU	3905
GAR3906-BU	3906

NOTES

- 1
- 2. CLAMPS WITH TINNED COATED BRONZE HARDWARE
- 3. RESPECTIVE PIPE AND GROUND WIRE ARE ALSO ACCEPTABLE
- 4. THE RESPECTIVE PIPE AND GROUND WIRE ARE ALSO ACCEPTABLE.

CABLES TO GROUND ROD

CABLE TO GROUND ROD

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

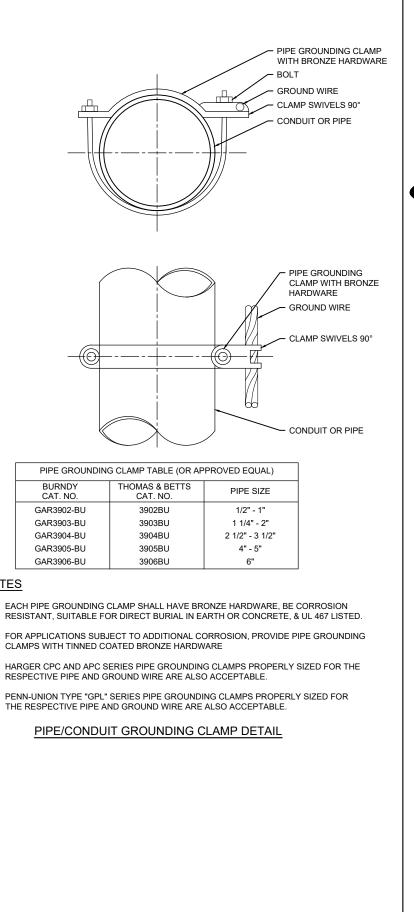
EXOTHERMIC WELD DETAILS

2 HOLE LONG F	BARREL COMPRESSION	LUG TABLE (OR APPROV	ED 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

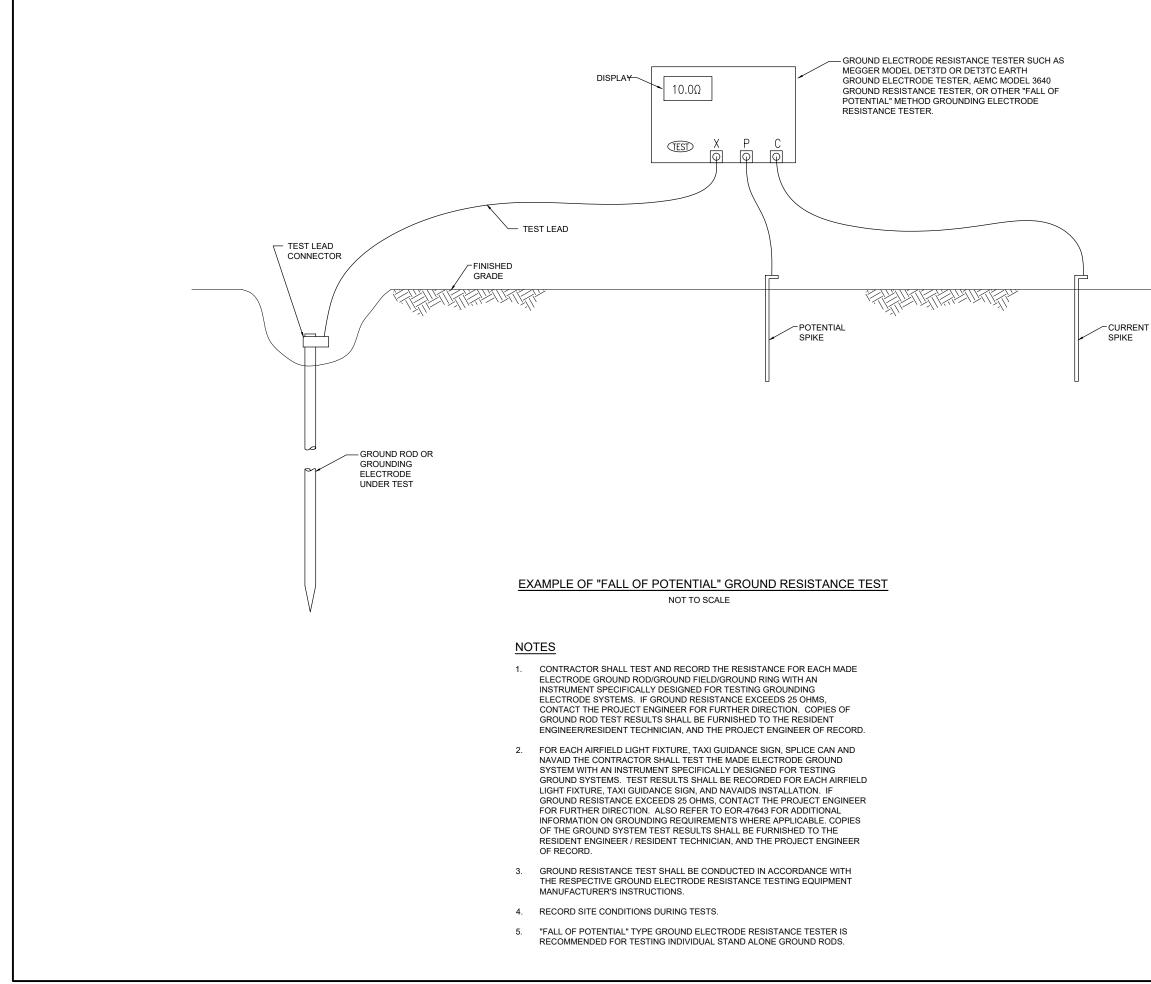
NOTES

- 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
- 4. HARGER LIGHTING PROTECTION AND GROUNDING EQUIPMENT ALSO MANUFACTURERS TWO HOLE LONG BARREL COMPRESSION LUGS.
- EACH CONNECTION SHALL BE COATED WITH A CORROSION PREVENTATIVE 5. COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL







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DRAWN BY: CWS 3/28/2023 REVIEWED BY: KNL 11/25/2024
SHEET TITLE
GROUNDING 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:

- 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.
- CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND 2. 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.
- ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND 3. LABELED.
- ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION 4. PREVENTIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND, BURNDY PENETROX E, OR APPROVED EQUAL
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL 5. NON-CONDUCTIVE MATERIAL, PER 2020 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT 6 LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, 8. MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. 9. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC. ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES
- EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT 10. GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2020 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS

- ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF 11. 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 2020 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 2020 NEC 250-102.
- IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES 12. 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.
- EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL 14. 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
- 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, <u>DO NOT</u> 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.
- IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN 19 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 2020 NEC 250-102 AND/OR 2020 NEC 250.64(E). NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS. CONFIRM REQUIREMENTS WITH AUTHORITY HAVING JURISDICTION
- GROUNDING WORK AFFECTING OPERATIONS AT A FACILITY SHALL BE COORDINATED 20. 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.
- 22.
- 23.
- FURTHER DIRECTIONS.
- 25. AIP PROJECTS MUST BE PRODUCED IN THE UNITED STATES.

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Offices Nationwid www.hanson-inc.com Hanson Professional Services Inc. FINISHED GRADE NOTE 5. EXOTHERMIC WELD CONNECTION CADWELD THERMOWELD, ULTRAWELD OR APPROVED EQUAL DATE -BARE, STRANDED, COPPER GROUND CONDUCTOR SEE PLANS FOR SIZE. APRON - 3/4" X 10' MIN. UL LISTED COPPERCLAD GROUND ROD 10 FT. GROUND ROD NOT TO SCALE GROUND RODS NOT TO SCALE FOR BID

NOTES

- 1 PLAN
- 2. OHMS.
- 3 GROUNDING UNLESS OTHERWISE SPECIFIED.
- SPACED LESS THAN ONE ROD LENGTH APART.
- OTHERWISE HEREIN
- FIRST GND ROD

NEVER REMOVE, ALTER, OR ATTEMPT TO REPAIR CONDUCTORS OR CONDUIT SYSTEMS PROVIDING GROUNDING OR ELECTRICAL BONDING FOR ANY ELECTRICAL EQUIPMENT LINTIL ALL POWER IS REMOVED FROM FOUIPMENT. WARN ALL PERSONNEL OF THE UNGROUNDED CONDITION OF THE EQUIPMENT. DISPLAY APPROPRIATE WARNING SIGNS, SUCH AS DANGER TAGS, TO WARN PERSONNEL OF THE POSSIBLE HAZARDS. GROUNDING WORK AND MODIFICATIONS SHALL NOT BE PERFORMED DURING A THUNDERSTORM OR WHEN A THUNDERSTORM IS PREDICTED IN THE AREA. PER NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE IT DEFINES ELECTRICALLY SAFE WORK CONDITION AS "A STATE IN WHICH AN ELECTRICAL CONDUCTOR OR CIRCUIT PART HAS BEEN DISCONNECTED FROM ENERGIZED PARTS, LOCKED/TAGGED IN ACCORDANCE WITH ESTABLISHED STANDARDS, TESTED TO VERIFY THE ABSENCE OF VOLTAGE, AND, IF NECESSARY, TEMPORARILY GROUNDED FOR PERSONNEL PROTECTION." PRIOR TO CONDUCTING TESTS OR WORKING ON EQUIPMENT, VERIFY EQUIPMENT ENCLOSURES AND FRAMES HAVE A GOOD AND SECURE GROUND CONNECTION, FAILURE TO PROPERLY GROUND THIS EQUIPMENT PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THIS SYSTEM. 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 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 TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE TOP OF GROUND RODS SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED GROUND RODS FOR SPLICE CANS AND AIRFIELD LIGHTING SHALL BE A MINIMUM 3/4-INCH DIAMETER BY 10-FT LONG UL LISTED COPPER CLAD. WHERE GROUND RESISTANCE EXCEEDS 25 OHMS FURNISH AND INSTALL A SECOND GROUND ROD SPACED MINIMUM OF 10 FEET APART (ONE ROD LENGTH APART), AND CONNECT TO FOR OTHER GROUNDING APPLICATIONS NOT DETAILED HEREIN. CONTACT ENGINEER OF RECORD; KEVIN LIGHTFOOT FOR DIRECTIONS.



GROUNDING NOTES

ELEC	TRICAL LEGEND - ONE-LINE DIAGRAM	EL	ECTRICAL LEGEND - SCHEMATIC		ELECTRICAL ABBREVIATIONS	ELEC	TRICAL ABBREVIATIONS (CONTINUED)	ן ן
	CABLE TERMINATOR/LUG		NORMALLY OPEN (N.O.) CONTACT	A.F.F.	ABOVE FINISHED FLOOR	PB	PULL BOX	
***	TRANSFORMER	_#_	NORMALLY CLOSED (N.C.) CONTACT	A, AMP	AMPERES	PC	PHOTO CELL	1
	DISCONNECT SWITCH	S*	STARTER COIL, * = STARTER NUMBER	ATS	AUTOMATIC TRANSFER SWITCH	PDB	POWER DISTRIBUTION BLOCK	1
	FUSIBLE DISCONNECT SWITCH	oL J	OVERLOAD RELAY CONTACT	AWG	AMERICAN WIRE GAUGE	PNL	PANEL	1
	CIRCUIT BREAKER	©R*)	CONTROL RELAY, * = CONTROL RELAY NUMBER	BKR	BREAKER	RCPT	RECEPTACLE	1
<u>~_</u> /~	THERMAL MAGNETIC CIRCUIT BREAKER	R*	RELAY, * = RELAY NUMBER	С	CONDUIT	R	RELAY	
	FUSE	~	TOGGLE SWITCH / 2 POSITION SWITCH	СВ	CIRCUIT BREAKER	s	STARTER	
1	TRANSIENT VOLTAGE SURGE SUPPRESSOR	OFF AUTO		СКТ	CIRCUIT	SPD	SURGE PROTECTION DEVICE	
ŧ	OR SURGE PROTECTOR DEVICE	ΙΥ	2-POSITION SELECTOR SWITCH	CR	CONTROL RELAY	SPST	SINGLE POLE SINGLE THROW	1 :
÷	GROUND - GROUND ROD, GROUNDING	<u> </u>		CU	COPPER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR	
	ELECTRODE, OR AT EARTH POTENTIAL INDICATING LIGHT	HAND T AUTO		DPDT	DOUBLE POLE DOUBLE THROW	TYP	TYPICAL	1
<u>¤</u>	MOTOR	o X00	3-POSITION SELECTOR SWITCH	DPST	DOUBLE POLE SINGLE THROW	UG	UNDERGROUND	1
$\underline{\mathbb{M}}$			(H-O-A SHOWN)	EM	EMERGENCY	UGE	UNDERGROUND ELECTRIC	-
#	LOAD, MOTOR, # = HORSEPOWER	00x		EMT	ELECTRICAL METALLIC TUBING	UL	UNDERWRITER'S LABORATORIES	1
\bigcirc	ELECTRIC UTILITY METER	<u>م</u>	N.O. THERMAL SWITCH					-
-	BASE	<u>ک</u>		ENCL		V	VOLTS	
•	JUNCTION BOX WITH SPLICE	۰Ţ۰	N.C. THERMAL SWITCH	EOR		W/	WITH	-
				EP		W/O	WITHOUT	-
xx	EQUIPMENT. XXX = DEVICE	-1-	2 POLE DISCONNECT SWITCH	ES	EMERGENCY STOP	WP	WEATHER PROOF	-
<u>```</u>	DESCRIPTION			ETL	INTERTEK - ELECTRICAL TESTING LABS	XFER	TRANSFER	
ND	GROUND BUS OR TERMINAL	1=+-	3 POLE DISCONNECT SWITCH	ETM	ELAPSE TIME METER	XFMR	TRANSFORMER	
/N	NEUTRAL BUS			GFCI	GROUND FAULT CIRCUIT INTERRUPTER	-	DASH, HYPHEN, OR MINUS SIGN	
ŧ]		>	PHOTOCELL	GFI	GROUND FAULT INTERRUPTER	XXX	LETTERS AND / OR NUMBERS (TO BE DETERMINED))
ŧ	PANELBOARD WITH MAIN LUGS		TERMINAL BLOCK, * = TERMINAL NUMBER	GND	GROUND			- 1
•		*	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER	GRSC	GALVANIZED RIGID STEEL CONDUIT			4
			INTERNAL PANEL WIRING	HOA	HAND OFF AUTOMATIC	ASOS	AUTOMATED SURFACE OBSERVING SYSTEM	-
¥	PANELBOARD WITH MAIN BREAKER		FIELD WIRING	HP	HORSEPOWER	ATCT	AIR TRAFFIC CONTROL TOWER	-
ŧ			FUSE	J	JUNCTION BOX	AWOS	AUTOMATED WEATHER OBSERVING SYSTEM	-
1		GND	GROUND BUS OR TERMINAL	KVA	KILOVOLT AMPERE(S)	CCR	CONSTANT CURRENT REGULATOR	4
<u> </u>		S/N	NEUTRAL BUS	KNL	KEVIN NEIL LIGHTFOOT	DME	DISTANCE MEASURING EQUIPMENT	1
¥ ≢	FUSE PANEL WITH MAIN FUSE PULLOUT	÷	GROUND, GROUND ROD, GROUND BUS	кw	KILOWATTS	FAR	FEDERAL AVIATION REGULATION	
ŧ				LC		GS	GLIDE SLOPE FACILITY	
⊖	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE		INDUSTRIAL CONTROL RELAY	LED	LIGHT EMITTING DIODE	HIRL	HIGH INTENSITY RUNWAY LIGHT	
		°+°	OR LIGHTING CONTACTOR		LIQUID TIGHT FLEXIBLE METAL CONDUIT (UL LISTED)	ILS	INSTRUMENT LANDING SYSTEM	
	CONTROL STATION			LTFMC	· · · · · · · · · · · · · · · · · · ·	IM	INNER MARKER	1
EN				LTG		LIR	LOW IMPACT-RESISTANT	1
б	TRANSFER SWITCH		TYPE S1 CUTOUT HANDLE REMOVED	LHTNG	LIGHTING	LOC	LOCALIZER FACILITY	1
\square		││ <u></u> ┿╖ <u></u> ╡	(MFRD BY CROUSE-HINDS, MANAIRCO, AND OTHERS)	LP	LIGHTING PANEL	MALS	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM	1
\sim	ENGINE GENERATOR SET			MAX	MAXIMUM	MALSR	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM	1
_				MCB	MAIN CIRCUIT BREAKER		WITH RUNWAY ALIGNMENT INDICATING LIGHTS	-
			TYPE S1 CUTOUT HANDLE INSERTED	MCM	THOUSAND CIRCULAR MIL	MIRL	MEDIUM INTENSITY RUNWAY LIGHT	4
		≭∎ ≭ +⊣⊢•	(MFRD BY CROUSE-HINDS, MANAIRCO, AND OTHERS)	MDP	MAIN DISTRIBUTION PANEL	MITL	MEDIUM INTENSITY TAXIWAY LIGHT	-
				MFR	MANUFACTURER	NDB	NON-DIRECTIONAL BEACON	
				МН	METAL HALIDE	PAPI	PRECISION APPROACH PATH INDICATOR	
				MIN	МІЛІМИМ	PLASI	PULSE LIGHT APPROACH SLOPE INDICATOR	
			TYPE SCO CUTOUT (MFRD BY ADB)	MLO	MAIN LUGS ONLY	RAIL	RUNWAY ALIGNMENT INDICATING LIGHTS	
	' '				NATIONAL ELECTRICAL CODE (NFPA 70)	REIL	RUNWAY END IDENTIFIER LIGHT	
				NEC NC	NORMALLY CLOSED	RVR	RUNWAY VISUAL RANGE	
		Å Å	TYPE ALSC AIRFIELD LIGHTING SAFETY CUTOUT	NO	NORMALLY OPEN	VADI	VISUAL APPROACH DESCENT INDICATOR	1
		🗍 👬	(MFRD BY ADB)	NTS	NOT TO SCALE	VASI	VISUAL APPROACH SLOPE INDICATOR	1
				OHE	OVERHEAD ELECTRIC	VOR	VERY HIGH FREQUENCY	1
		Time 1	L-830 SERIES ISOLATION TRANSFORMER		OVERLOAD		OMNIDIRECTIONAL RANGE FACILITY	-
				OL	OVENLOAD	WC	WIND CONE	1

TES:

LL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN ONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE IEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE QUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER PPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND EQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID HE U.L. LISTING, INTERTEK TESTING SERVICES ERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) ND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL DT BE PERMITTED.

EEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL IMES DURING/CONSTRUCTION FOR USE AS A REFERENCE.

EW WORK, POWER OUTAGES, AND/OR SHUT DOWN OF XISTING SYSTEMS SHALL BE COORDINATED WITH THE IRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL E LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING F THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL OLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL AFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 ICCUPATIONAL SAFETY & HEALTH STANDARDS FOR LECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES ICLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 HE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).

TFMC DENOTES LIQUID TIGHT FLEXIBLE METAL CONDUIT UL ISTED, SUNLIGHT RESISTANT, & SUITABLE FOR GROUNDING. IQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED ITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT SUSED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL ONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING ONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS SED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER MINIMUM). DO NOT INSTALL LTFMC THAT IS NOT UL LISTED. ONFIRM LTFMC BEARS THE UL LABEL PRIOR TO USTALLATION.

ISULATED CONDUCTORS SHALL COLOR CODE PHASE AND EUTRAL CONDUCTOR INSULATION FOR NO. 6 AWG OR MALLER. PROVIDE COLORED INSULATION OR COLORED ARKING TAPE FOR PHASE AND NEUTRAL CONDUCTORS FOR 0. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS HALL HAVE GREEN COLORED INSULATION FOR ALL ONDUCTOR AWG AND/OR KCMIL TO COMPLY WITH NEC 50.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE OLORED INSULATION FOR NO. 6 AWG AND SMALLER TO EET THE REQUIREMENTS OF NEC 200.6. STANDARD COLORS OR POWER WIRING AND BRANCH CIRCUITS SHALL BE AS OLLOWS:

10/120 VAC, 3 PHASE, 4 WIRE

ASE A	BLACK
ASE B	ORANGE (FOR HIGH LEG)
ASE C	BLUE
JTRAL	WHITE
DUND	GREEN

EE RESPECTIVE SITE PLANS FOR SITE LEGEND IFORMATION.

NCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT UBS AT CONDUIT ENTRANCES UL LISTED NEMA 4, 4X FOR HE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X ATING.

NLY QUALIFIED ELECTRICAL CONTRACTORS SHALL ERFORM ELECTRICAL WORK ON THIS PROJECT. NEC EFINES A QUALIFIED PERSON AS "ONE WHO HAS SKILLS AND NOWLEDGE RELATED TO THE CONSTRUCTION AND PERATION OF THE ELECTRICAL EQUIPMENT AND ISTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO ECOGNIZE AND AVOID THE HAZARDS INVOLVED."

ESPECTIVE POWER SOURCES FOR EACH PANEL, QUIPMENT, AIRFIELD LIGHT, SIGN, NAVAID, OR OTHER EVICE SHALL BE VERIFIED PRIOR TO WORKING ON, ELOCATING, REMOVING, DISCONNECTING, AND/OR ISTALLING THE RESPECTIVE DEVICES. SHUT OFF, LOCKOUT, ND TAGOUT FOR PROTECTION OF PERSONNEL.

IGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT ERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 OLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND ELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, ONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE OR ANDHOLE.





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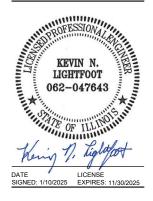
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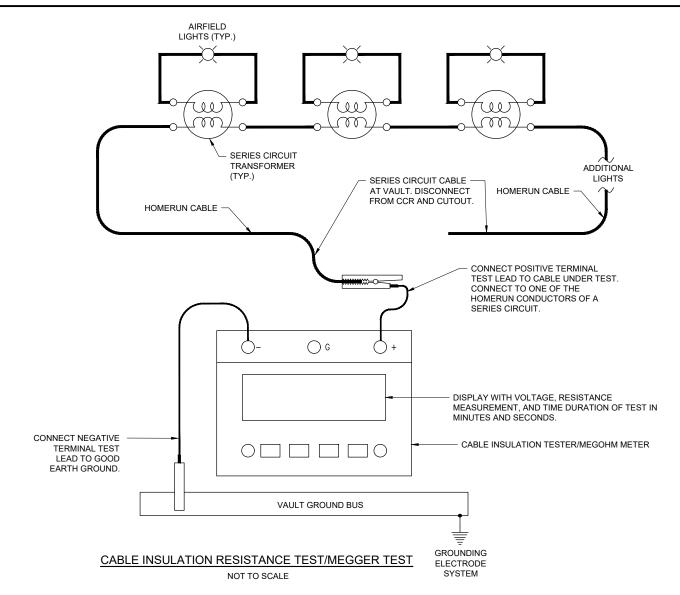
EXPAND SOUTHEAST AIRCRAFT PARKING APRON

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NO.	DATE	DESCRIPTION			
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ISSUE: JANUARY 10, 2025					
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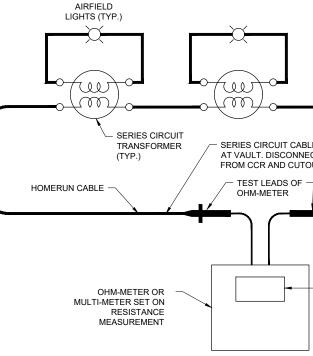
ELECTRICAL LEGEND AND ABBREVATIONS



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.
- 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 AIRFORT 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.
- 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 CIR

NOT TO SCALE

SERIES CIRCUIT LOOP RESISTANCE MEASUREMENT NO

- PRIOR TO BEGINNING EXCAVATIONS, AIRFIELD LIC CABLE INSTALLATION, AND/OR ANY OTHER WORK AFFECT AIRFIELD LIGHTING CIRCUITS, THE RESPE CABLE LOOPS SHALL HAVE THE RESISTANCE MEA AND RECORDED FOR EACH CIRCUIT AT THE VAUL
- 2. AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDIT OTHER WORK AND ADDITIONS HAVE BEEN COMPL SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE F WITH AN OHMMETER AND RECORDED FOR EACH
- ALL EXISTING SERIES CIRCUIT CABLE LOOPS SHA MEASURED WITH AN OHMMETER AND RECORDED VAULT. THE RESISTANCE OF THE SERIES CIRCUIT USING #8 AWG COPPER CONDUCTOR SHOULD BE OHM PER THOUSAND FEET OF CABLE LENGTH. T SERIES CIRCUIT LOOP WITH CONNECTIONS USING CONDUCTOR SHOULD BE APPROXIMATELY 0.5 TO FEET OF CABLE LENGTH. THE NUMBER OF SERIES AND CONNECTIONS WILL AFFECT THE OVERALL F CIRCUIT LOOP AND THEREFORE THE MEASUREMI HIGHER THAN THE CALCULATED RESISTANCE FO OF CABLE.

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ADDITIONAL LIGHTS UTOUT. HOMERUN CABLE	SOUTHERN ILLINOIS AIRPORT
	665 North Airport Road Murphysboro, II, 62966
DISPLAY WITH RESISTANCE READING IN OHMS	KEVIN N. LIGHTFOOT 062-047643
RCUIT LOOP.	Kening M. Lightfort
NOTES	DATE LICENSE SIGNED: 1/10/2025 EXPIRES: 11/30/2025
LIGHTING MODIFICATIONS, ORK THAT MIGHT POSSIBLY SPECTIVE SERIES CIRCUIT MEASURED WITH AN OHMMETER AULT.	EXPAND SOUTHEAST AIRCRAFT PARKING APRON
DDITIONS, UPGRADES, AND/OR MPLETED THE RESPECTIVE HE RESISTANCE MEASURED CH CIRCUIT AT THE VAULT.	IDA No: MDH-5036
SHALL HAVE THE RESISTANCE IED FOR EACH CIRCUIT AT THE UIT LOOP WITH CONNECTIONS BE APPROXIMATELY 0.8 TO 1 . THE RESISTANCE OF THE SING #6 AWG COPPER TO 0.7 OHM PER THOUSAND RIES CIRCUIT TRANSFORMERS L RESISTANCE OF THE SERIES EMENTS MIGHT BE SLIGHTLY FOR THE RESPECTIVE LENGTH	
	NO. DATE DESCRIPTION DES DWN REV ISSUE: JANUARY 10, 2025 PROJECT NO: 22A0056 CAD FILE: F004 DWG DESIGN BY: KNL 3/28/2023 DRAWN BY: CWS 3/28/2023 REVIEWED BY: KNL 11/25/2024
	SHEET TITLE
	SERIES CIRCUIT CABLE TESTING DETAILS
FOR	BID 24