LI036 TOTAL SHEETS = 24

CONSTRUCTION PLANS

REPLACE MEDIUM INTENSITY TAXIWAY LIGHTING (MITL) ON PARTIAL PARALLEL TAXIWAY TO RUNWAY 9-27

LITCHFIELD AIRPORT AUTHORITY LITCHFIELD MUNICIPAL AIRPORT (3LF) LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS

IDA PROJECT NO. 3LF - 4439

SCOPE OF WORK:

THE PROJECT SCOPE CONSISTS OF REMOVING AND REPLACING THE MEDIUM INTENSITY TAXIWAY LIGHTS ON TAXIWAY "B" AND THE ASSOCIATED CABLING AND DUCT WORK.

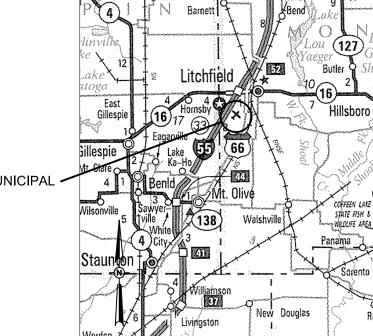
LITCHFIELD MUNICIPAL AIRPORT

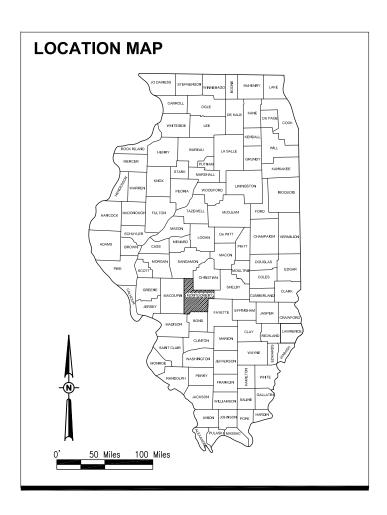


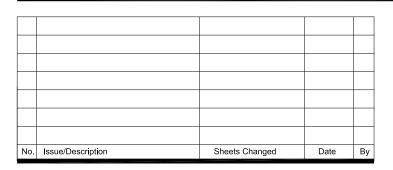
HANSON PROFESSIONAL SERVICES INC. 1525 South Sixth Street Springfield, Illinois 62703-2886 Telephone: 217-788-2450 Fax: 217-788-2503

NOTICE TO CONTRACTORS AND BIDDERS

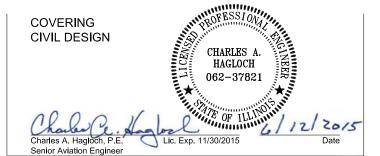
THESE CONSTRUCTION PLANS RELY UPON THE SPECIAL PROVISIONS AND THE SPECIFICATIONS TO PROVIDE FOR A COMPLETE DESCRIPTION OF THE WORK AND CONSTRUCTION REQUIREMENTS. THE PLANS SHALL ONLY BE USED IN COMBINATION WITH ALL CONTRACT DOCUMENTS.











0

LITCHFIELD AIRPORT AUTHORITY	
1201 US Route 66 South	
P.O. Box 381	
Litchfield, Illinois 62056	
/	
Stomes A. Wolf	8/15/201
Jim Wright, Secretary/Treasurer	Date

SUMMARY OF □UANTITIES					
ITEM NO.	DESCRIPTION	UNIT	TOTAL UANTITY	AS-BUILT □UANTITY	
AR108158	1/C #8 5 KV UG CABLE IN UD	L.F.	5,407		
AR110013	3" DIRECTIONAL BORE	L.F.	120		
AR110610	ELECTRICAL HANDHOLE	EA.	2		
AR125410	MITL-STAKE MOUNTED	EA.	37		
AR125415	MITL-BASE MOUNTED	EA.	6		
AR125443	TAXI GUIDANCE SIGN, 3 CHARACTER	EA.	2		
AR125446	TAXI GUIDANCE SIGN, 6 CHARACTER	EA.	1		
AR150520	MOBILIZATION	L.S.	1		
AR800476	REMOVE AIRFIELD LIGHTING	L.S.	1		

INDEX TO SHEETS			
Sheet Number	Sheet Title		
01	COVER SHEET		
02	SUMMARY OF QUANTITIES AND INDEX TO SHEETS		
03	PROPOSED SAFETY PLAN		
04	SAFETY PLAN NOTES DETAILS		
05	EXISTING ELECTRICAL PLAN STA. 136 50 TO STA. 125 50		
06	EXISTING ELECTRICAL PLAN STA. 125 50 TO STA. 116 00		
07	EXISTING ELECTRICAL PLAN STA. 116 00 TO VAULT		
08	PROPOSED ELECTRICAL PLAN STA. 136 50 TO STA. 125 50		
09	PROPOSED ELECTRICAL PLAN STA. 125 50 TO STA. 116 00		
10	PROPOSED ELECTRICAL PLAN STA. 116 00 TO VAULT		
11	AIRFIELD LIGHTING NOTES AND SCHEDULES		
12	LIGHT LOCATION TABLE		
13	ELECTRICAL DETAILS SHEET 1		
14	ELECTRICAL DETAILS SHEET 2		
15	ELECTRICAL DETAILS SHEET 3		
16	ELECTRICAL DETAILS SHEET 4		
17	ELECTRICAL NOTES SHEET 1		
18	ELECTRICAL NOTES SHEET 2		
19	GROUND RESISTANCE TESTING DETAILS		
20	GROUNDING DETAILS		
21	GROUNDING NOTES		
22	ELECTRICAL LEGEND AND ABBREVIATIONS		
23	EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT		
24	HIGH VOLTAGE WIRING SCHEMATIC		
22 23	ELECTRICAL LEGEND AND ABBREVIATIONS EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT		



Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO.	DATE	DES	CRIPT	ION	
INO.	DATE	DES	DWN	REV	
ISSUE:	JUNE 1	2, 2015	5		
PROJECT NO: 14A0075D					

CAD FILE: G-002-SO□.DWG

DESIGNED BY: KNL 2/9/2015 DRAWN BY: CWS 2/10/2015 REVIEWED BY: CAH 2/11/2015

SHEET TITLE

SUMMARY OF □UANTITIES AND INDEX TO SHEETS THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.

CONTRACTOR RESPONSIBILITIES

LEGEND

J.U.L.I.E. INFORMATION

COUNTY

ADDRESS

_MONTGOMERY

SOUTH LITCHFIELD _5 & 8

P.O. BOX 381 US ROUTE 66 LITCHFIELD, IL 62056

LITCHFIELD MUNICIPAL AIRPORT

LITCHFIELD

EXISTING IMPROVEMENTS EXISTING BUILDINGS

PROPOSED IMPROVEMENTS

PROPOSED HAUL ROUTE AND EQUIPMENT PARKING AREA

PROPOSED BARRICADES WHEN TAXIWAY "B" ONLY IS CLOSED

PROPOSED BARRICADES WHEN RUNWAY 9-27 & TAXIWAY "B" IS CLOSED

THE CONTRACTOR'S EQUIPMENT PARKING AND STORAGE AREA WILL BE AS SHOWN ON THIS SHEET. THE CONTRACTOR'S EMPLOYEES WILL PARK THEIR VEHICLES IN THIS AREA. ONLY CONTRACTOR VEHICLES WILL BE ALLOWED OUTSIDE THIS AREA.

THE CONTRACTOR AND HIS EMPLOYEES WILL BE RESTRICTED TO THE WORK AREA AND ALL OTHER AREAS OF THE AIRPORT ARE "OFF LIMITS" TO THEM.

THE CONTRACTOR SHALL KEEP RUNWAY 18-36 OPEN FOR THE DURATION OF THIS PROJECT AND MAINTAIN CONTINUOUS TAXIWAY ACCESS FROM THE ACTIVE RUNWAY TO THE AIRCRAFT PARKING APRON.

RUNWAY 9-27 WILL BE CLOSED FOR THE CONSTRUCTION WEEK AND WILL BE RE-OPENED AT THE END OF THE CONSTRUCTION WEEK. ALL ASSOCIATED LIGHTING CIRCUITS WILL BE ACTIVE AS WELL.

ALL WORK PERFORMED SHALL BE DONE IN A ORDERLY AND EFFECTIVE MANNER TO MINIMIZE RUNWAY CLOSURE

SCOPE OF WORK

THIS PROJECT CONSISTS OF REMOVING AND REPLACING THE MEDIUM INTENSITY TAXIWAY LIGHTS ON TAXIWAYS "B" AND "B1" WITH ALL ASSOCIATED CABLING AND DUCT WORK.

AIRPORT SECURITY NOTE

AIRPORT SECURITY WILL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR WILL CLOSE AND LOCK THE EXISTING GATE IN THE HAUL ROUTE AT THE END OF FACH WORKING DAY.

HEIGHT OF CONSTRUCTION EQUIPMENT

THE MAXIMUM ANTICIPATED HEIGHT OF THE CONSTRUCTION EQUIPMENT WILL BE 20 FEET. THE TALLEST EQUIPMENT IS EXPECTED TO BE A SERVICE

CRITICAL POINT DATA					
POINT NO.	DESCRIPTION	LATITUDE	LONGITUDE	GROUND ELEV. (MSL)	HEIGHT (AGL)
1	CONST. EQUIP.	39° 10' 01.25"	89* 40' 41.72"	683.9'	20'
2	CONST. EQUIP.	39° 09' 58.36"	89* 40' 20.56"	688.6'	20'
3	CONST. EQUIP.	39° 09' 57.70"	89° 40′ 08.26″	686.0'	20'
3	CONST. EQUIF.	39 09 57.70	89 40 08.26	086.0	20

CP-1-

CERTIFIED PAYROLLS

THE RESIDENT ENGINEER/RESIDENT TECHNICIAN CANNOT FORWARD CONSTRUCTION REPORTS TO THE ILLINOIS DIVISION OF AERONAUTICS FOR PROCESSING UNTIL ALL CERTIFIED PAYROLLS FOR THE PERIOD HAVE BEEN

MATERIAL CERTIFICATION

TAXIWAY "B"

RUNWAY 9-27

MATERIAL TO BE INCORPORATED INTO THE PROJECT CANNOT BE USED WITHOUT PRIOR APPROVAL. ALL MATERIAL TO BE USED IN THE PROJECT MUST BE SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL. USE OF MATERIAL WITHOUT PRIOR APPROVAL AND ULTIMATELY DETERMINED TO BE UNACCEPTABLE BY THE ILLINOIS DIVISION OF AERONAUTICAL ARE SUBJECT TO REMOVAL AND/OR NON-PAYMENT.

BARRICADES AND TRAFFIC CONES

IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PLACE AND MAINTAIN BARRICADES AND TRAFFIC CONES AS SHOWN OR AS DIRECTED BY THE AIRPORT MANAGER. THE BARRICADES WILL BE EQUIPPED WITH RED FLASHING OR RED STEADY-BURN LIGHTS AND 20" SQUARE ORANGE FLAGS. THE BARRICADES, THEIR MAINTENANCE, PLACEMENT AND REMOVAL WILL BE CONSIDERED AS AN INCIDENTAL ITEM TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

PROPOSED FQUIPMENT

PROPOSED

HAUL ROUTE

TXY "C1"

AND EMPLOYEE PARKING

CP-3

HAUL ROUTE AND VEHICLE PARKING

THE CONTRACTOR WILL USE THE DESIGNATED HAUL ROUTE AND PARKING AREA AS SHOWN ON THIS SHEET. THE PROPOSED PARKING AREA WILL BE 100' X 100'. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THE PROPOSED HAUL ROUTE AND PARKING AREA THROUGHOUT THE COURSE OF THE PROJECT. ANY AREAS DAMAGED OUTSIDE OF THESE AREAS WILL BE REPAIRED BY THE CONTRACTOR AND AT THE CONTRACTOR'S OWN EXPENSE. AT THE CONCLUSION OF THE PROJECT THE CONTRACTOR WILL RESTORE THE HAUL ROUTE AND PARKING AREA TO THEIR ORIGINAL STATE. RESTORATION OF THE HAUL ROUTE AND PARKING AREA WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

NOTE

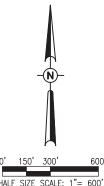
ALL CONSTRUCTION/OPERATIONS ARE TO BE PERFORMED IN ACCORDANCE WITH FAA ADVISORY CIRCULAR (AC) 150/5370-2F "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION" AND AC 150/5300-13A "AIRPORT

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

PROPOSED SAFETY PLAN

- 1. GENERAL THE LITCHFIELD MUNICIPAL AIRPORT IS COMPRISED OF A 3,900 FT BY 75 FT RUNWAY 9-27 AND A 4,000 FT BY 75 FT RUNWAY 18-36 THE PROPOSED CONSTRUCTION WILL NECESSITATE CLOSING RUNWAY 9-27. ANY TIME THE CONTRACTOR IS WORKING WITHIN 125' OF RUNWAY 9-27 CENTERLINE THE RUNWAY WILL BE CLOSED. THE RUNWAY WILL BE CLOSED ONLY DURING THE CONSTRUCTION WEEK. AT THE END OF EACH CONSTRUCTION WEEK THE CONTRACTOR WILL SMOOTH GRADE ALL AREAS WITHIN THE SAFETY AREA TO THE SATISFACTION OF THE RESIDENT ENGINEER AND RE-OPEN THE RUNWAY. ALL WORK INCLUDED IN OPENING AND CLOSING THE RUNWAY WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 2. RUNWAY 18-36 WILL REMAIN OPEN THROUGHOUT THE DURATION OF THIS PROJECT.
- 4. RADIO CONTROL THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO-WAY RADIO CONTACT (122.8 MHz.) WITH THE AIRPORT UNICOM. THIS WILL KEEP THE CONTRACTOR IN CONSTANT CONTACT WITH THE LITCHFIELD MUNICIPAL AIRPORT AND ENABLE THE AIRPORT TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AFRONAUTIC EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

EROSION CONTROL



FULL SIZE SCALE:

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

THIS PROJECT WILL DISTURB LESS THAN 1 ACRE OF LAND, THEREFORE NO N.P.D.E.S. PERMIT WILL BE REQUIRED.

PLAN

PROPOSED SAFETY

DESCRIPTION

DES DWN REV

Offices Nationwide

1525 S. 6th Street Springfield, IL 62568

phone: 217-788-2450

fax: 217-788-2503

Illinois Licensed

P. O. BOX 381

Hanson Professional Services Inc.

Professional Service Corporation #184-001084

1201 US ROUTE 66 SOUTH

REPLACE MITL ON

IDA No: 3LF-4439

Contract No. LI036

TAXIWAY "B"

NO. DATE

SHEET TITLE

ISSUE: JUNE 12, 2015

PROJECT NO: 14A0075D CAD FILE: G-003-SFY.DWG

DESIGNED BYCAH 1/22/2015 DRAWN BY: CAH 1/22/2015

REVIEWED BY: KBS 2/11/2015

LITCHFIELD, IL. 62056

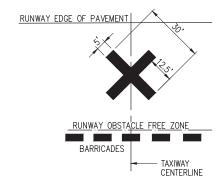
LITCHFIELD MUNICIPAL AIRPORT

DETAIL OF CROSS FOR CLOSED RUNWAY

"NOT TO SCALE"

NOTE:

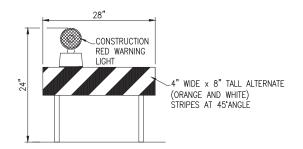
- COST OF CONSTRUCTING, PLACING, MAINTAINING AND REMOVING
 CROSSES WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO
 ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 2. THE CROSSES WILL BE YELLOW IN COLOR AND SHALL BE MADE OF A SUITABLE MATERIAL AS APPROVED BY THE AIRPORT MANAGER.
- 3. THE CROSSES WILL BE PLACED OVER THE NUMERALS AND SECURED IN A MANNER APPROVED BY THE MANAGER. IF PLACEMENT OVER THE NUMERALS ISN'T POSSIBLE, THEN THE ALTERNATE LOCATION SHOWN IN THE DETAIL WILL BE USED.
- 4. THE PROPOSED CROSSES WILL BE PLACED EACH DAY THE RUNWAY IS CLOSED AND REMOVED WHEN THE RUNWAY IS RE-OPENED.
- 5. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PLACEMENT AND REMOVAL OF THE CROSSES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.



- 1. TEMPORARY "CLOSED TAXIWAY" MARKINGS SHALL BE "AVIATION YELLOW"
- TEMPORARY "CLOSED TAXIWAY" MARKINGS SHALL BE CONSTRUCTED USING TEMPORARY PAINT SUCH AS SEYMOUR TEMPORARY MARKER, PART NO. 20-636, OR AN EQUIVALENT PAINT EASILY REMOVED WITH WATER WITHOUT DEFACING THE PAYEMENT
- 3. TEMPORARY "CLOSED TAXIWAY" MARKINGS SHALL BE PLACED WHEN THE RUNWAY IS OPEN AND THE TAXIWAY IS CLOSED MORE THAN 72 HOURS. THE "CLOSED TAXIWAY" MARKINGS SHALL BE PLACED AS SHOWN ON THIS SHEET. IT IS ANTICIPATED THAT ONLY TAXIWAY "B1" WILL REQUIRE A TEMPORARY "CLOSED TAXIWAY" MARKING
- 4. THE PROPOSED CROSS WILL BE REMAIN IN PLACE EACH DAY THE TAXIWAY IS CLOSED AND REMOVED WHEN THE TAXIWAY IS RE-OPENED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PLACEMENT AND REMOVAL OF THE CROSSES. "CLOSED TAXIWAY" MARKINGS SHALL NOT BE A PAY ITEM AND SHALL BE CONSIDERED AS AN INCIDENTAL ITEM TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLLOWED.

TEMPORARY TAXIWAY CLOSURE CROSS DETAIL

"NOT TO SCALE"



MODIFIED TYPE II BARRICADE

BARRICADE NOTES

- 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.
- MODIFIED TYPE II 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 AFTER SUNSET AND 1/2 HOUR BEFORE SUNRISE AND WHEN CONDITIONS EXIST WHICH TEND TO OBSCURE VISION.
- BARRICADES SHALL BE SECURED TO THE GROUND BY APPROVED METHODS TO PREVENT MOVEMENT BY PROP WASH, JET BLAST OR OTHER WIND CURRENTS.
- 6. THE ONLY COLOR COMBINATION ON TYPE II 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.

SAFETY NOTES

- 1. FOLLOWING ARE THE CONSTRUCTION SAFETY PROCEDURES THAT THE CONTRACTOR SHALL FOLLOW THROUGHOUT THIS PROJECT. ADDITIONAL REQUIREMENTS ARE SHOWN ON THE PROPOSED SAFETY PLAN SHEET.
- ALL PROVISIONS OF THE LATEST EDITION OF FAA ADVISORY CIRCULAR AC 150/5370-2 (CURRENT EDITION), "OPERATIONAL SAFETY ON
 AIRPORTS DURING CONSTRUCTION", APPLY TO THIS CONTRACT, EXCEPT AS MODIFIED BY THE PROPOSED SAFETY PLAN, THIS SHEET OR AS
 MODIFIED BY THE OWNER THROUGH THE RESIDENT ENGINEER AT THE PRE-CONSTRUCTION MEETING, OR DURING THE COURSE OF THE
 CONTRACT.
- 3. THE CONTRACTORS SHALL MINIMIZE DISRUPTION OF STANDARD OPERATING PROCEDURES FOR AERONAUTICAL ACTIVITY BY REMAINING WITHIN THE PRESCRIBED CONSTRUCTION AREA PRESENTED ON THE PROPOSED SAFETY PLAN.
- . 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.
- 5. CONTRACTOR EQUIPMENT, VEHICLES, AND PROJECT MATERIALS SHALL BE STORED AT THE EQUIPMENT PARKING AND MATERIAL STORAGE AREA SHOWN ON THE PROPOSED SAFETY PLAN. EXCEPT AS OTHERWISE PROVIDED FOR AT THE PRE-CONSTRUCTION MEETING.
- 6. ALL CONSTRUCTION EQUIPMENT OPERATING IN THE PRESCRIBED CONSTRUCTION AREA IS REQUIRED TO DISPLAY A CHECKERBOARD FLAG PROPERLY LOCATED OR A ROTATING BEACON (STROBE) AS SPECIFIED IN AC 150/5210-5, "PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT" LATEST EDITION.
- 7. NO CONSTRUCTION MATERIAL STOCKPILES SHALL BE LOCATED WITHIN 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.
- 8. CLOSED AIRFIELD AREAS, OPEN TRENCHES, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED WITH LIGHTED BARRICADES WITH STEADY BURNING OR FLASHING RED LIGHTS AS SPECIFIED IN 150/5370-2, "OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION, LATEST EDITION. LIGHTED BARRICADES MUST BE NO TALLER THAN 18" (EXCLUSIVE OF SUPPLEMENTARY LIGHTS AND FLAGS) ON THE TAXIWAYS AND COMPLY WITH ADVISORY CIRCULAR 150/5370-2, LATEST EDITION. CONTRACTOR SHALL NIGHT CHECK BARRICADES DAILY FOR PROPER OPERATION.
- 9. 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.
- 10. 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.
- 11. NO CONSTRUCTION EQUIPMENT GREATER THAN 20' TALL WILL BE PERMITTED ON THE AIRPORT. HOWEVER OTHER EQUIPMENT TALLER THAN 20' MAY BE PERMITTED WITH THE APPROVAL OF THE AIRPORT MANAGER AND AIRSPACE APPROVAL BY THE FAA.
- 12. NO OPEN FLAME WELDING OR TORCH CUTTING OPERATION IS PERMITTED UNLESS ADEQUATE FIRE AND SAFETY PRECAUTIONS ARE PROVIDED AND HAVE BEEN APPROVED BY THE AIRPORT MANAGER NO FLARE POTS ARE ALLOWED ON THE PROJECT.
- 13. SOIL, DEBRIS, AND LOOSE MATERIAL DROPPED OR TRUCKED ONTO AIRPORT ROADS, TAXIWAYS, AND SOD SURFACES, OR WHICH CAN BE BLOWN ONTO SUCH SURFACES, SHALL BE IMMEDIATELY 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.
- 14. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING AIRPORT LIGHTING AND NAVIGATIONAL ELECTRICAL SYSTEMS DURING CONSTRUCTION. A CONTACT PERSON AND TELEPHONE NUMBER FOR 24 HOUR EMERGENCY IMMEDIATE REPAIR SHALL BE SUBMITTED TO THE AIRPORT MANAGER AND RESIDENT ENGINEER. HAUL ROUTES CROSSING PAVEMENT, DRAINAGE, MISCELLANEOUS. STRUCTURES AND/OR AIRFIELD CABLES SHALL BE PROTECTED FROM DAMAGE.
- 15. ALL AIRCRAFT AND AIRPORT OPERATIONS HAVE THE RIGHT-OF-WAY. CONTRACTOR TO YIELD TO VEHICLES AND REMAIN CLEAR AT ALL TIMES.
- 16. CONTRACTOR SHALL PLACE, SECURE, AND MAINTAIN LIGHTED BARRICADES AND CLOSURE CROSSES WHEN A RUNWAY/TAXIWAY/APRON IS CLOSED OR AS REQUIRED BY THE PLANS AND DESIGNATED BY THE RESIDENT ENGINEER.
- 17. CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED AND YELLOW LIGHTS DURING PERIODS OF LOW VISIBILITY AS REQUIRED.
- 18. THE CONTRACTOR SHALL PERIODICALLY PERFORM ONSITE INSPECTIONS THROUGHOUT THE DURATION OF THE PROJECT WITH THE IMMEDIATE REMEDY OF ANY DIFFERENCES, WHETHER CAUSED BY NEGLIGENCE, OVERSIGHT, OR PROJECT SCOPE CHANGE.
- 19. CONTRACTOR SHALL MOVE MAINTENANCE OF TRAFFIC COMPONENTS AT THE WRITTEN DIRECTION OF THE RESIDENT ENGINEER AT NO ADDITIONAL COST.
- 20. CONTRACTOR SHALL NOT REMOVE THE BARRICADES WITHOUT THE APPROVAL BY THE RESIDENT ENGINEER.
- 21. CONTRACTOR SHALL MAINTAIN FLASHERS, SIGNS AND/OR BARRICADES AS REQUIRED BY THE PLANS, CITY OR COUNTY REGULATIONS OR CONTRACTOR ACTIVITIES. CONTRACTOR SHALL OBTAIN ANY AND ALL REQUIRED LOCAL PERMITS UNLESS SPECIFIED OTHERWISE.
- 22. THE CONTRACTOR SHALL UTILIZE WATER AND/OR CHEMICALS APPROVED BY THE RESIDENT ENGINEER AS NECESSARY TO CONTROL DUST.
- 23. NO CONSTRUCTION VEHICLES SHALL BE DRIVEN ACROSS ANY ACTIVE RUNWAY, INCLUDING TURF RUNWAYS. CONSTRUCTION EQUIPMENT OR CONSTRUCTION ACTIVITY WILL NOT BE PERMITTED WITHIN 125' OF ACTIVE RUNWAY 9-27 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 AND THE OPERATIONAL AREA IS CLOSED TO TRAFFIC AND PROPER NOTAMS ARE ISSUED BY THE AIRPORT MANAGER TO THE APPROPRIATE FLIGHT SERVICE STATION.
- 24. UNLESS SPECIFIED OTHERWISE, COST FOR THE ABOVE IS TO BE CONSIDERED INCIDENTAL TO THE PROJECT. SEPARATE PAYMENT SHALL NOT BE MADE.

HANSON Engineering | Planning | Allied Services

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

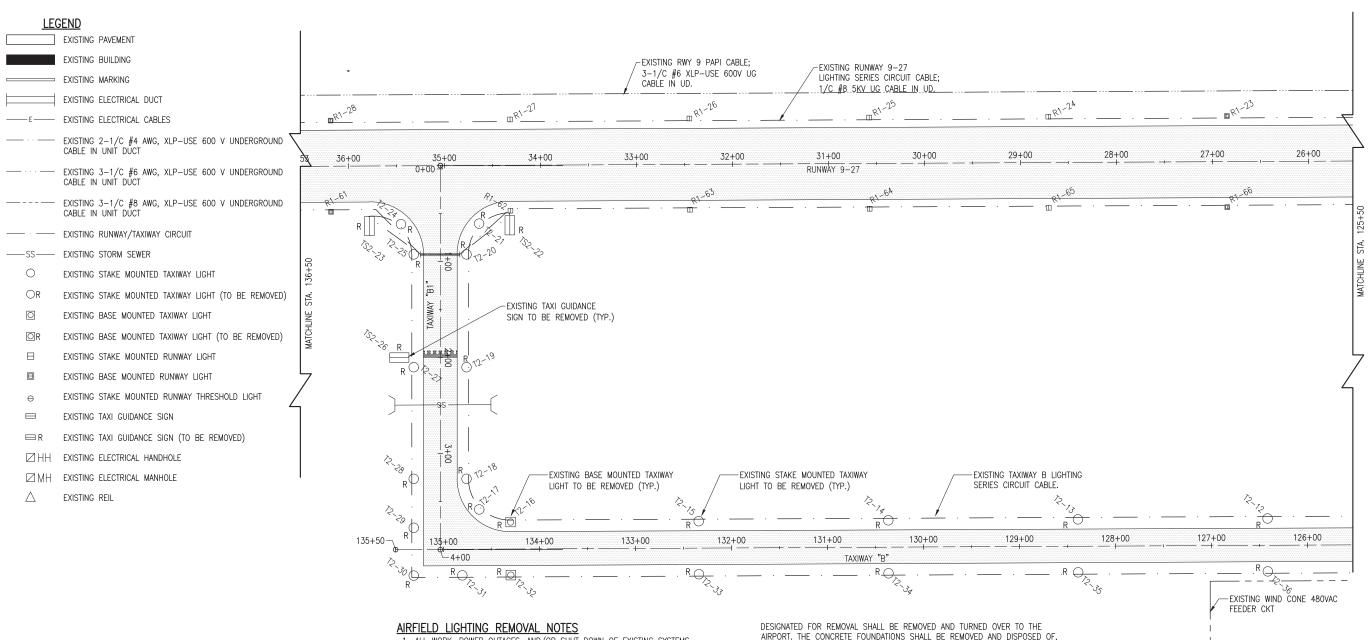
NO.	DATE	DESCRIPTION		
INO.	DATE	DES	DWN	REV
ISSUE:	JUNE 1	2, 2015	5	
PROJECT NO: 14A0075D				
CAD FILE: G-503-SFY.DWG				
DESIGN	IED BY: C	CAH 1/	22/201	15

SHEET TITLE

SAFETY PLAN NOTES & DETAILS

DRAWN BY: CAH 1/22/2015

REVIEWED BY: KBS 2/11/2015



THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER IN RESPECT TO THE ACCURACY. COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE LITHITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL ORTAIN FROM THE RESPECTIVE LITHITY 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.

1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE 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

(LOCKOUT/TAGOUT).

2. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES

PRIOR TO REMOVING OR DISCONNECTING THE RESPECTIVE AIRFIELD LIGHTING,

TAXI SIGN, NAVAID, OR OTHER DEVICE.

LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY

- 3. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2F (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
- 4. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
- 5. THE EXISTING AIRFIELD (TAXIWAY) LIGHTS AND THEIR ISOLATED TRANSFORMERS DESIGNATED FOR REMOVAL SHALL BE REMOVED AND TURNED OVER TO THE AIRPORT. THE CONCRETE LIGHT BASES SHALL BE REMOVED AND DISPOSED OF, OFF THE AIRPORT SITE IN A LEGAL MANNER. REMOVAL OF THE EXISTING AIRFIELD LIGHTS WILL BE PAID FOR UNDER ITEM AR800476 REMOVE AIRFIELD LIGHTING PER LUMP SUM.
- 6. THE EXISTING TAXI GUIDANCE SIGNS, AND THEIR ISOLATED TRANSFORMERS

DESIGNATED FOR REMOVAL SHALL BE REMOVED AND TURNED OVER TO THE AIRPORT. THE CONCRETE FOUNDATIONS SHALL BE REMOVED AND DISPOSED OF, OFF THE AIRPORT SITE IN A LEGAL MANNER. REMOVAL OF THE EXISTING TAXI GUIDANCE SIGNS WILL BE PAID FOR UNDER ITEM AR800476 REMOVE AIRFIELD LIGHTING PFR LUMP SUM.

- 7. THE EXISTING AIRFIELD LIGHTING CABLES ASSOCIATED WITH AIRFIELD LIGHTING REMOVALS SHALL BE ABANDONED IN PLACE UNLESS IT CONFLICTS WITH THE INSTALLATION OF A PROPOSED LIGHT OR CABLE, PAVEMENT, OR OTHER WORK, THEN IT SHALL BE REMOVED AND DISPOSED OF OFF SITE AT NO ADDITIONAL COST TO THE CONTRACT. CONTRACTOR MAY REMOVE ABANDONED CABLES AT NO ADDITIONAL COST TO THE CONTRACT AND SHALL HAVE THE SALVAGE RIGHTS TO ABANDONED CABLES.
- 8. 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 150/5370-2F, OPERATION SAFETY ON AIRPORTS DURING CONSTRUCTION, SECTION 218. c.
- 9. THE CONTRACTOR IS REQUIRED TO FILL IN ALL HOLES AND DEPRESSIONS RESULTING FROM THE LIGHT, AND/OR BASE REMOVAL 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.
- 10. WHEN A RESPECTIVE RUNWAY IS CLOSED THE NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF.
- 11. CONTRACTOR SHALL CONFIRM RESPECTIVE LIGHTS TO BE REMOVED WITH RESIDENT ENGINEER/RESIDENT TECHNICIAN PRIOR TO REMOVAL.
- 12.NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT SHALL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH THE ABOVE NOTE 1.



Offices Nationwide www.hanson-inc.co

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

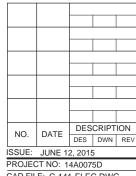
LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036



CAD FILE: C-141-ELEC.DWG

DESIGNED BY: KNL 1/14/2015

DRAWN BY: CWS1/14/2015

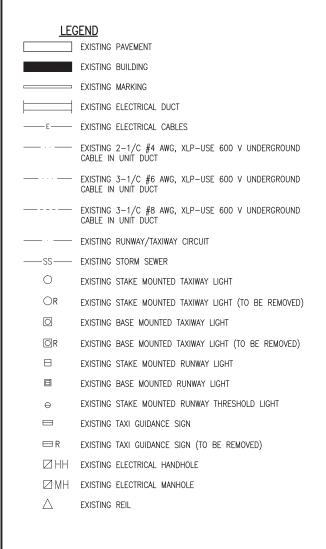
REVIEWED BY: CAH 2/11/2015

SHEET TITLE

SCALE:

FULL SIZE SCALE: 1"= 50'

EXISTING ELECTRICAL PLAN STA. 136+50 TO STA. 125+50



THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED LITHITY 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

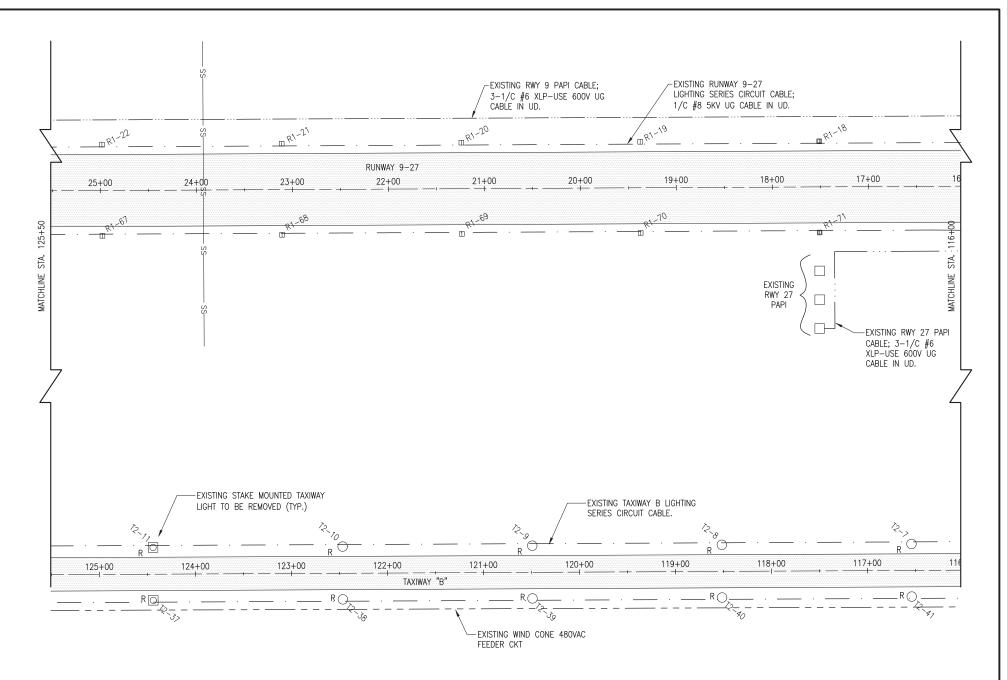
OF FAA POWER, CONTROL, AND COMMUNICATION CABLES AND UTILITIES. LOCATION

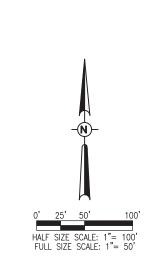
OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH

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.





HANSON Engineering | Planning | Allied Service

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO. DATE DESCRIPTION
DES DWN REV

ISSUE: JUNE 12, 2015
PROJECT NO: 14A0075D

CAD FILE: C-141-ELEC.DWG

DESIGNED BY: KNI. 1/14/2015

SHEET TITLE

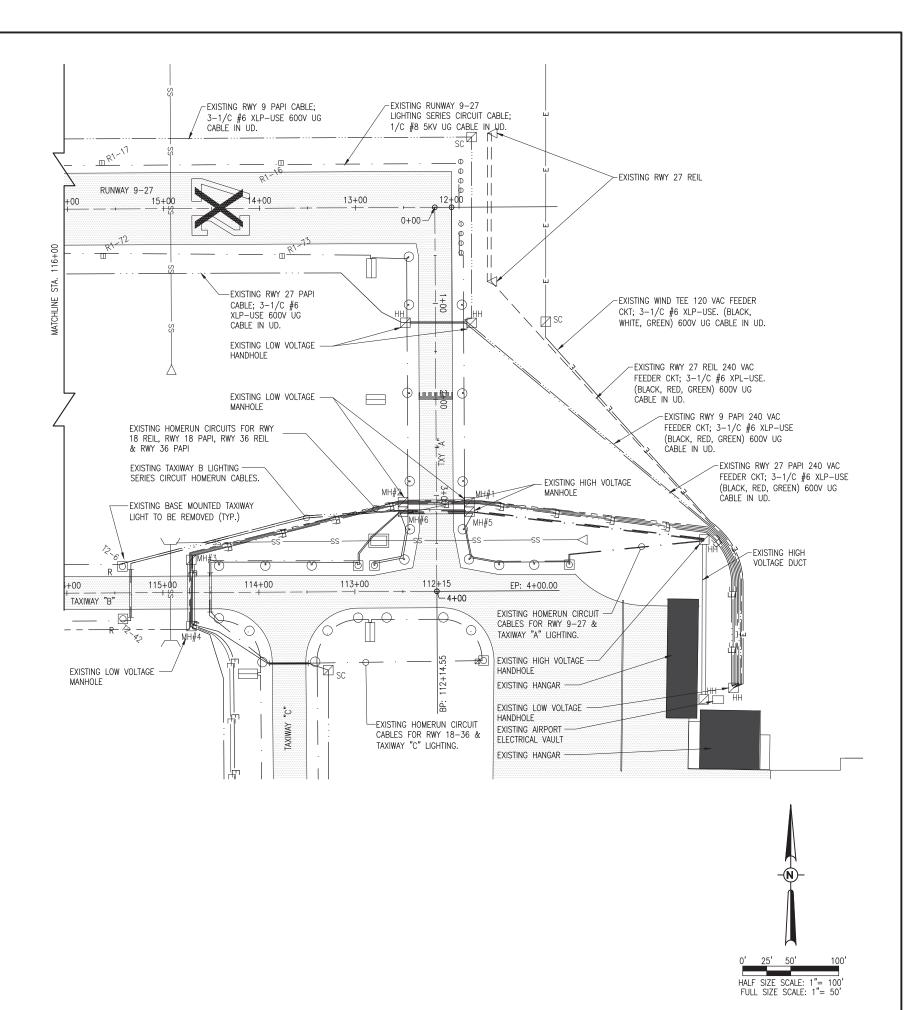
EXISTING ELECTRICAL PLAN STA. 125+50 TO STA. 116+00

DRAWN BY: CWS 1/14/2015

REVIEWED BY: CAH 2/11/2015

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

ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.





Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO. DATE DESCRIPTION
DES DWN REV
SSUE: JUNE 12 2015

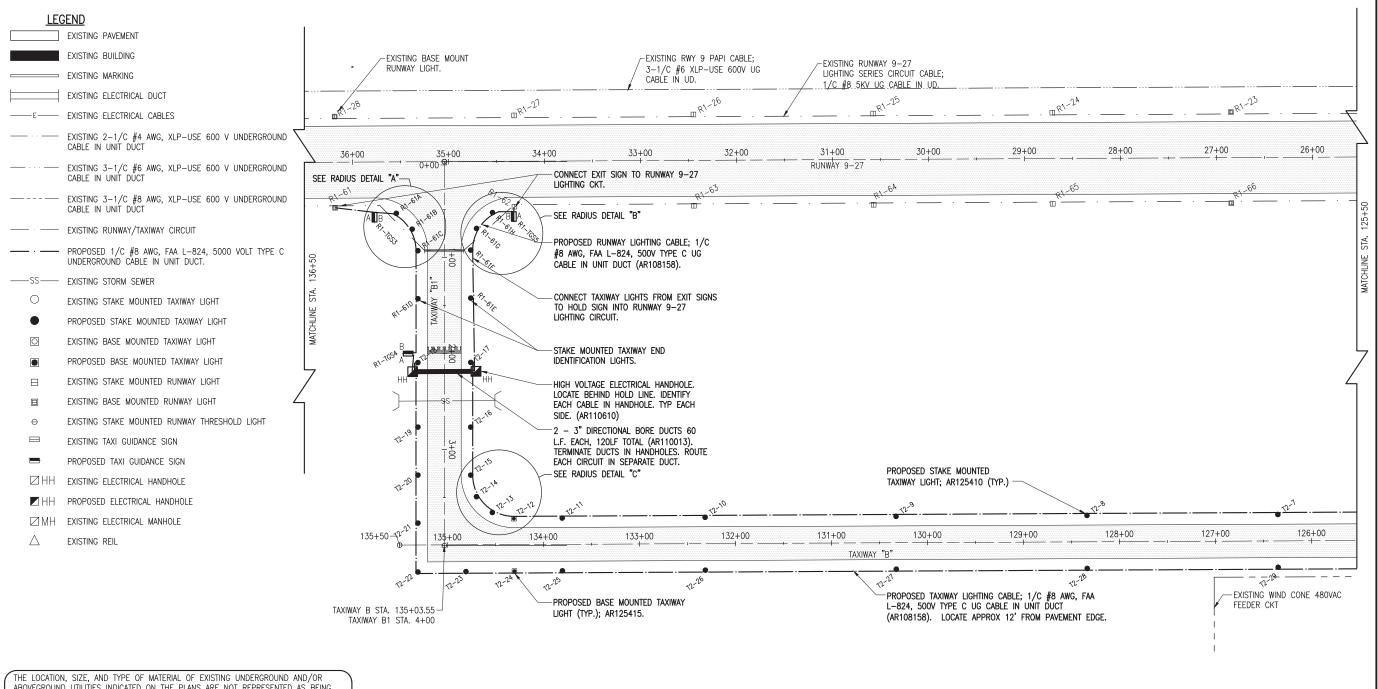
ISSUE: JUNE 12, 2015 PROJECT NO: 14A0075D

CAD FILE: C-141-ELEC.DWG
DESIGNED BY: KNL 1/14/2015
DRAWN BY: CWS 1/14/2015

REVIEWED BY: CAH 2/11/2015

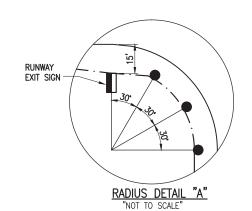
SHEET TITLE

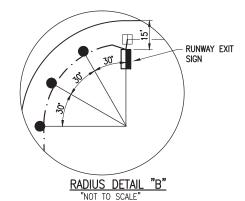
EXISTING ELECTRICAL PLAN STA. 116+00 TO VAULT

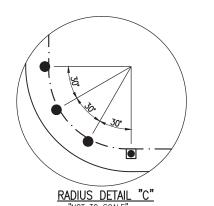


ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER IN RESPECT TO THE ACCURACY. COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE LITHITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL ORTAIN 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.









Engineering | Planning |

Offices Nationwide www.hanson-inc.co

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO. DATE DESCRIPTION
DES DWN REV

ISSUE: JUNE 12, 2015

PROJECT NO: 14A0075D

CAD FILE: C-142-ELEC.DWG

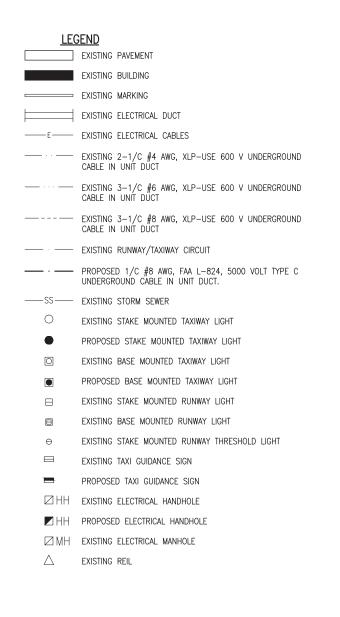
DESIGNED BY: KNL 1/21/2015

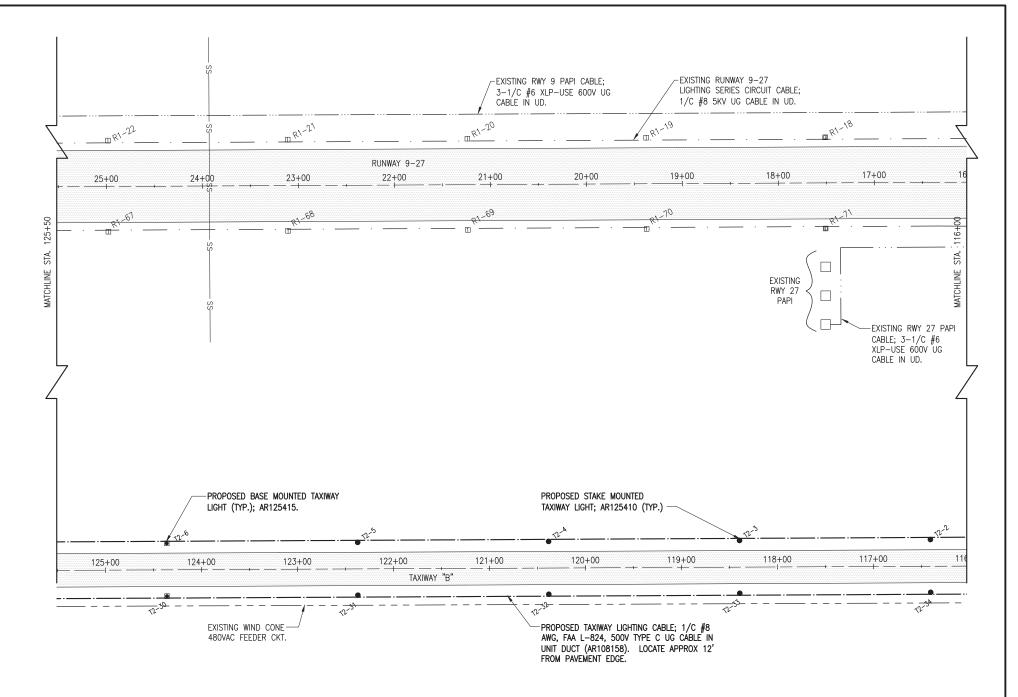
SHEET TITLE

DRAWN BY: CWS1/22/2015

REVIEWED BY: CAH 2/11/2015

PROPOSED ELECTRICAL PLAN STA. 136+50 TO STA. 125+50





THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED LITHITY 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)

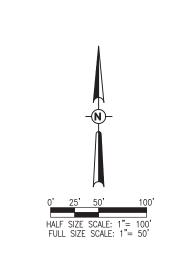
OF FAA POWER, CONTROL, AND COMMUNICATION CABLES AND UTILITIES. LOCATION

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.



HANSON Engineering I Planning I Allied Services

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO. DATE DESCRIPTION
DES DWN REV

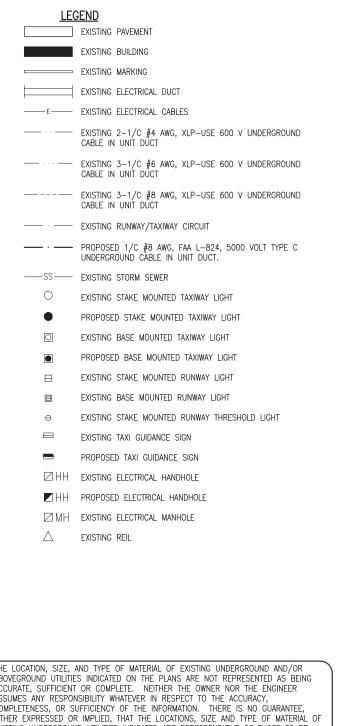
ISSUE: JUNE 12, 2015

PROJECT NO: 14A0075D
CAD FILE: C-142-ELEC.DWG
DESIGNED BY: KNI. 1/21/2015
DRAWN BY: CWS 1/22/2015

SHEET TITLE

PROPOSED ELECTRICAL PLAN STA. 125+50 TO STA. 116+00

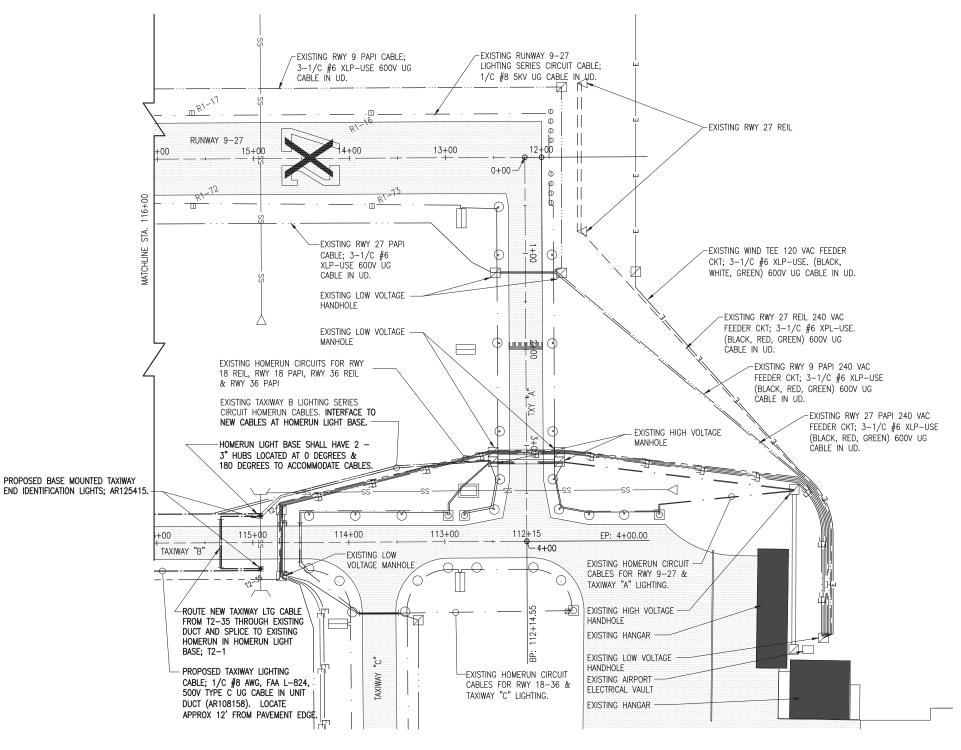
REVIEWED BY: CAH 2/11/2015



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

CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY

INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.





HALF SIZE SCALE: 1"= 100

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

DESCRIPTION NO. DATE DES DWN REV ISSUE: JUNE 12, 2015

PROJECT NO: 14A0075D CAD FILE: C-142-ELEC.DWG

DESIGNED BY: KNL 1/21/2015 DRAWN BY: CWS 1/22/2015 REVIEWED BY: CAH 2/11/2015

SHEET TITLE

PROPOSED ELECTRICAL PLAN STA. 116+00 TO VAULT

AIRFIELD LIGHTING NOTES

- 1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE 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).
- CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING OR DISCONNECTING THE RESPECTIVE AIRFIELD LIGHTING, NAVAID, OR OTHER DEVICE.
- 3. PROPOSED AIRFIELD LIGHTS, TAXIWAY LIGHTS, GUIDANCE SIGNS, OTHER AIRFIELD LIGHTING, SPLICE CANS, HANDHOLES, MANHOLES, ELECTRICAL DUCTS, AND CABLE SHALL BE INSTALLED AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS, SPECIAL PROVISIONS, RESPECTIVE DETAILS, AND MANUFACTURER'S RECOMMENDATIONS.
- PROPOSED TAXI GUIDANCE SIGNS SHALL BE LOCATED SUCH THAT THE CLOSEST SIDE OF THE SIGN IS 15' FROM THE PAVEMENT EDGE. UNLESS SHOWN OTHERWISE.
- 5. PROPOSED CABLE FOR RUNWAY AND TAXIWAY LIGHTING SHALL BE INSTALLED APPROXIMATELY 12' FROM THE PAVEMENT EDGE. CABLES SHALL BE PLACED A MINIMUM OF 18" BELOW FINISHED GRADE.
- THE PROPOSED RUNWAY AND TAXIWAY LIGHTING CABLE SHALL BE 1/C, #8 AWG, FAA L-824, 5000 VOLT, TYPE C UNDERGROUND CABLE IN UNIT DUCT.
- IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE, THE CONTRACTOR IS REQUIRED TO HAND DIG THE TRENCH NECESSARY FOR THE PROPOSED CABLE. AT OTHER LOCATIONS, THE PROPOSED CABLE MAY BE TRENCHED OR PLOWED INTO PLACE. HAND DIGGING. TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED CABLES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 8. ALL PROPOSED TAXIWAY LIGHTS WILL BE FITTED WITH 360° BLUE LENSES.
- 9. ALL PROPOSED AIRFIELD LIGHTS, AND TAXI GUIDANCE SIGNS SHALL BE TAGGED BY THE CONTRACTOR IN ACCORDANCE WITH THE LIGHT NUMBERS SHOWN ON THESE CONSTRUCTION DRAWINGS.
- 10. SEE "TAXI GUIDANCE SIGN SCHEDULE" FOR INFO ON SIGN LEGENDS.
- 11. RUNWAY EXIT/TAXIWAY ENTRANCE SIGNS (TAXIWAY GUIDANCE SIGNS TO DEFINE THE THROAT OR ENTRANCE INTO THE INTERSECTING TAXING ROUTE) SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY SERIES CIRCUIT TO BE ILLUMINATED WHEN THE RUNWAY EDGE LIGHTS ARE ON TO COMPLY WITH FAA AC 150/5340-18F, CHAPTER 1, PART 15 "SIGN OPERATION".
- 12. HOLDING POSITION SIGNS FOR RUNWAYS SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY SERIES CIRCUIT TO BE ILLUMINATED WHEN THE ASSOCIATED RUNWAY LIGHTS ARE ILLUMINATED TO COMPLY WITH FAA AC 150/5340-18F, CHAPTER 1, PART 15 "SIGN OPERATION".
- 13. 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 AC 150/5370-2F, PART 218, PARAGRAPH C. 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.
- 14. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR DUCT SHALL BE RUN TOGETHER IN THE SAME RACEWAY OR DUCT.
- 15. EXISTING AIRFIELD LIGHTING CABLES (SCHEDULED FOR REPLACEMENT) IN AREAS OF NEW WORK SHALL BE DISCONNECTED & REMOVED WHERE IN CONFLICT WITH NEW CONSTRUCTION. IN OTHER AREAS CABLES MAY BE ABANDONED IN PLACE.
- 16. 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.
- 17. IN THE EVENT THAT OTHER CONSTRUCTION PROJECTS ARE 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.
- 18. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

TAXI GUIDANCE SIGN SCHEDULE					
SIGN NUMBERS	LOCATION	SIDE A	SIDE B		
R1-TGS3	RUNWAY 9 INTERSECTION WITH TAXIWAY B1	B1 →	BLANK		
R1-TGS4	TAXIWAY B1 INTERSECTION WITH RUNWAY 9-27 AT HOLD LINE	B1 9-27	BLANK		
R1-TGS5	RUNWAY 27 INTERSECTION WITH TAXIWAY B1	← B1	BLANK		

TAXI GUIDANCE SIGN SCHEDULE

TYPE L-858L(L) LOCATION SIGN - YELLOW LEGEND AND BORDER ON A BLACK BACKGROUND

TYPE L-858R(L) MANDATORY INSTRUCTION SIGN - BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON A RED BACKGROUND

D

18-36

RAMP **↑**

TYPE L-858Y(L) DIRECTION, DESTINATION, AND BOUNDARY SIGN - BLACK LEGEND ON A YELLOW BACKGROUND

BLANK BLANK - BLACK BACKGROUND

TAXI GUIDANCE SIGN NOTES

- 1. THE PROPOSED TAXI GUIDANCE SIGNS SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-44J (OR LATEST ISSUE IN FORCE) AND BE FAA-APPROVED FOR TYPE L-858Y(L) DIRECTION, DESTINATION, AND BOUNDARY SIGNS (BLACK LEGEND ON YELLOW BACKGROUND); TYPE L-858R(L) MANDATORY INSTRUCTION SIGN (BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON RED BACKGROUND); AND/OR TYPE L-858L(L) LOCATION SIGN (YELLOW LEGEND AND BORDER ON BLACK
- 2. THE SIGNS SHALL BE SIZE 1, 18-IN. SIGN FACE WITH A 12-IN. LEGEND; STYLE 2, POWERED FROM A 4.8 TO 6.6 AMP SERIES LIGHTING CIRCUIT; CLASS 2, FOR OPERATION FROM -40 DEGREES F TO 131 DEGREES F; MODE 2, TO WITHSTAND WIND LOADS OF 200 M.P.H., BASE-MOUNTED, DOUBLE-SIDED, AS SPECIFIED ON THE PLANS.
- 3. WHERE TAXI GUIDANCE SIGNS HAVE LED (LIGHT EMITTING DIODE) TYPE ILLUMINATION THEY SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF FAA ENGINEERING BRIEF NO. 67D LIGHT SOURCES OTHER THAN INCANDESCENT AND XENON FOR AIRPORT AND OBSTRUCTION LIGHTING FIXTURES.
- 4. THE PROPOSED TAXI GUIDANCE SIGNS SHALL BE LOCATED SUCH THAT THE CLOSEST SIDE OF THE SIGN IS 15' FROM THE PAVEMENT EDGE OR RESPECTIVE RUNWAY SURFACE EDGE.
- 5. ALL PROPOSED TAXI GUIDANCE SIGNS SHALL BE TAGGED BY THE CONTRACTOR IN ACCORDANCE WITH THE SIGN NUMBERS SHOWN ON THESE CONSTRUCTION DRAWINGS.
- 6. THE PROPOSED LIGHTED TAXI GUIDANCE SIGNS WILL BE PAID FOR UNDER THE FOLLOWING ITEMS: AR125443 TAXI GUIDANCE SIGN, 3 CHARACTER ____ PER EACH. AR125446 TAXI GUIDANCE SIGN, 6 CHARACTER __

LIGHT LENS SCHEDULE				
LIGHT NUMBERS	LENS	ORIENTATION	FIXTURE TYPE	
T2-1 T0 T2-35	BLUE		L-861T	
R1-61A TO R1-61H	BLUE		L-861T	

TAXIWAY LIGHT FIXTURE NOTES

1. THE PROPOSED TAXIWAY LIGHT FIXTURES SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-46D (OR LATEST ISSUE IN FORCE) AND BE FAA APPROVED FOR TYPE L-861T WITH QUARTZ LAMPS.

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

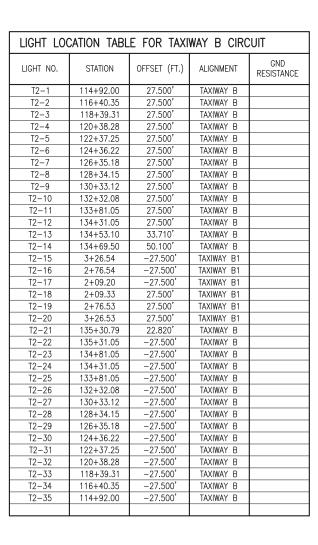
Contract No. LI036

	NO.	DATE	DES	CRIPT	ION
	INO.	DATE	DES	DWN	REV
	ISSUE:	JUNE 1	2, 2015	5	
i	PROJECT NO: 14A0075D				
	CAD FIL	CAD FILE: E-642-SCHED.DWG			

DESIGNED BY: KNL 1/12/2015 DRAWN BY: CWS 1/13/2015 REVIEWED BY: CAH 2/11/2015

SHEET TITLE

AIRFIELD LIGHTING **NOTES AND SCHEDULES**



N	0	TES.

CONTRACTOR SHALL TEST AND RECORD THE EARTH GROUND RESISTANCE FOR THE GROUND ROD AT EACH AIRFIELD LIGHT FIXTURE AND EACH TAXI GUIDANCE SIGN.

LIGHT LOCATION TABLE FOR RUNWAY 9-27 CIRCUIT					
LIGHT NO.	STATION	OFFSET (FT.)	ALIGNMENT	GND RESISTANCE	
R1-TGS3	0+52.88	72.700'	TAXIWAY B1		
R1-61A	0+53.89	50.000'	TAXIWAY B1		
R1-61B	0+70.36	33.500'	TAXIWAY B1		
R1-61C	0+92.86	27.500'	TAXIWAY B1		
R1-61D	1+42.17	27.500'	TAXIWAY B1		
R1-TGS4	2+00.17	32.750'	TAXIWAY B1		
R1-61E	1+42.13	-27.500'	TAXIWAY B1		
R1-61F	0+92.13	-27.500'	TAXIWAY B1		
R1-61G	0+69.63	-33.540'	TAXIWAY B1		
R1-61H	0+53.08	-50.140'	TAXIWAY B1		
R1-TGS5	0+52.88	-72.300'	TAXIWAY B1		



Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

	NO.	DATE	DES	CRIPT	ION
	INO.	DATE	DES	DWN	REV
	ISSUE:	JUNE 12	2, 2015	5	
ı	PROJECT NO: 14A0075D				

PROJECT NO: 14A0075D

CAD FILE: C-641-SCHD.DWG

DESIGNED BY: CWS 02/04/14

DRAWN BY: CWS 01/22/15

REVIEWED BY: CAH 2/11/2015

SHEET TITLE

LIGHT LOCATION TABLE

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

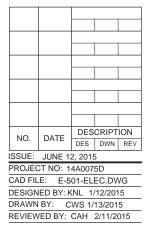
LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036



ELECTRICAL DETAILS SHEET 1

SHEET TITLE

- NOTES:

 1. SEE ELECTRICAL NOTES SHEETS.
- 2. SEE "ELECTRICAL NOTES SHEET 2" AND "GROUNDING NOTES" SHEET FOR GROUNDING NOTES FOR AIRFIELD LIGHTING.
- 3. SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR LIGHT LOCATIONS

PER FAA AC 150/5340-30H DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, A LIGHT BASE GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FEET LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

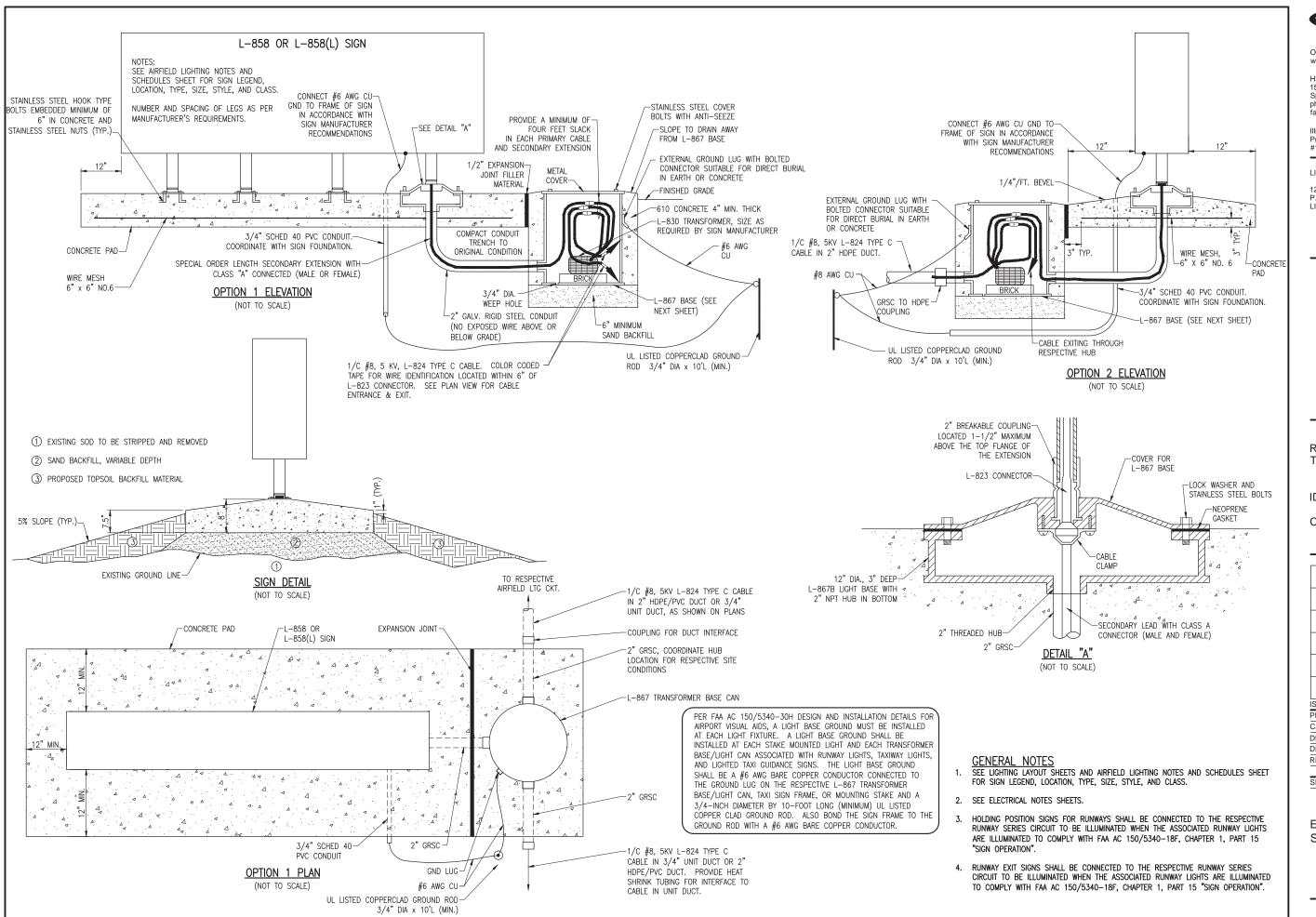
Contract No. LI036

	NO.	DATE	DES	CRIPT	ION
	NO.	DAIL	DES	DWN	REV
	ISSUE:	UE: JUNE 12, 2015 OJECT NO: 14A0075D			
Ì	PROJEC	CT NO: 1	4A007	5D	
CAD FILE: E-502-ELEC.DWG		}			
	DESIGN	L 3/16	3/2015		

SHEET TITLE

ELECTRICAL DETAILS SHEET 2

DRAWN BY: JRH 3/12/2015 REVIEWED BY: CAH 2/11/2015





Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

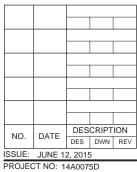
LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036



PROJECT NO: 14A0075D

CAD FILE: E-503-ELEC.DWG DESIGNED BY: KNL 1/12/2015 DRAWN BY: CWS 1/13/2015 REVIEWED BY: CAH 2/11/2015

SHEET TITLE

ELECTRICAL DETAILS SHEET 3

CABLE & DUCT MARKER NOTES:

- 1. THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
- 2. BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE FORMED AS DESCRIBED IN NOTE 4.
- 3. CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE
- 4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE ½" AND ¼" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.
- 5. EMPLOY THE FOLLOWING METHODS WERE ADDITIONAL SPACE TO FIT LEGEND IS REQUIRED:

A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.

SIZE OF DUCT BANK

2-WAY OR

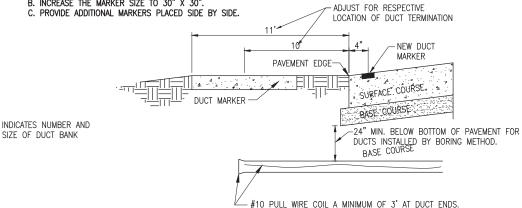
PROPOSED PAVEMENT

4-WAY DUCT

CONCRETE PAVEMENT MARKER SEE NOTE 2

B. INCREASE THE MARKER SIZE TO 30" X 30".

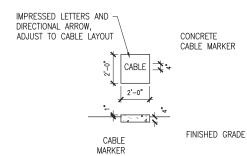
C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE.



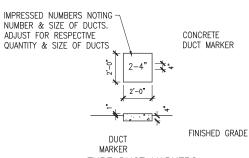
INSTALL APPROVED PLUGS IN END OF DUCTS NOT USED. UNDERGROUND ELECTRICAL DUCT

(NOT TO SCALE)

NOTE: DUCTS INSTALLED BY BORING METHOD SHALL NOT DISTURB THE RESPECTIVE PAVEMENT



TURF CABLE MARKERS "NOT TO SCALE"



TURF DUCT MARKERS "NOT TO SCALE"

TOP VIEW PRESTAMPED OR CHISELED ON THE JOB DUCT 2-4" (%" HIGH LETTERING MIN.) 18" R. 3/16" R. 15 0.15"

> BITUMINOUS PAVEMENT DUCT MARKERS "NOT TO SCALE

NOTES:

IMPRESSED LETTERS

INDICATING NUMBER

CONCRETE DUCT

AND SIZE OF DUCTS

- TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE.
- 2. BRASS DUCT MARKERS ARE AVAILABLE FROM G&S FOUNDRY & MANUFACTURING CO., INC., 210 KASKASKIA DRIVE, RED BUD, IL 62278, PHONE: (618)-282-4114

10'-0"

NOTES:

LIDS FOR LOW VOLTAGE HANDHOLES (CONTAINING CIRCUITS RATED 600 VOLTS AND BELOW) SHALL BE LABELED "LOW VOLTAGE". LIDS FOR HIGH VOLTAGE HANDHOLES CONTAINING AIRFIELD LIGHTING SERIES CÍRCUIT WIRING SHALL BE LABELED "DANGER HIGH VOLTAGE KEEP OUT 5000 VOLTS" TO COMPLY WITH NEC ARTICLE 300.45 "WARNING SIGNS" AND NEC ARTICLE 314.30(D) "COVERS". COORDINATE LETTERING WITH MFR. HANDHOLES PROVIDED WITH THE WRONG LIDS SHALL HAVE THE LIDS REPLACED WITH THE CORRECT LIDS AT NO ADDITIONAL COST TO THE CONTRACT.

6" SAND CUSHION

COORDINATE QUANTITY &

WITH HANDHOLE MFR.

DUCT

DUCT

HEAVY DUTY FRAME & LID SUITABLE FOR

R-6662-PP (NEENAH DRAWING NF-6662

40,000 LBS LOADING NEENAH CAT. NO.

PT59) OR APPROVED EQUAL.

DUCT/CONDUIT

HANDHOLE RATED SUITABLE FOR 40,000 LBS, LOADING.

PROVIDE CONDUIT BUSHING OR BELL AT TERMINATION IN

HANDHOLE (TYP.)

DANGER HIGH VOLTAGES

KFFP OUT

5000 VOLTS

SIZE OF DUCT ENTRANCES

- HANDHOLES MAY BE CAST IN PLACE OR PRECAST. PRECAST MANUFACTURERS MUST BE ON THE IDOT (ILLINOIS DEPT. OF TRANSPORTATION) APPROVED LIST OF CERTIFIED PRECAST CONCRETE PRODUCERS.
- ALL CORING, INTERFACE, AND LABOR ASSOCIATED WITH CONDUIT, DUCT, CABLE IN UNIT DUCT, AND / OR CABLE ENTRIES WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE HANDHOLE AND NO ADDITIONAL COMPENSATION WILL BE
- INCLUDE CERTIFICATION OF MANUFACTURE IN THE UNITED STATES OF AMERICA WITH HANDHOLE SHOP DRAWING SUBMITTAL.

ELECTRICAL HANDHOLE "NOT TO SCALE"

ADD LOGO FOR

RESPECTIVE

HANDHOLE.

SEE NOTES.

SMOOTH TROWEL

FINISH, SLOPE

TO DRAIN

6" SCHED 40 PVC DRAIN

GRAVEL TO ACCOMMODATE

PIPE. FILL WITH PFA

DRAINAGE.



TURF

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036



ELECTRICAL DETAILS SHEET 4

SHEET TITLE

GENERAL NOTES

- 1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL/INTERTEK TESTING SERVICES VERIFICATION/LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- 2. CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.
- 3. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- 4. THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS FURNISHED BY HIM, INCLUDING FAA APPROVED EQUIPMENT, ARE COMPATIBLE IN ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NONCOMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR SHALL BE REPLACED BY HIM AT NO ADDITIONAL COST TO THE AIRPORT SPONSOR WITH A SIMILAR UNIT, APPROVED BY THE ENGINEER (DIFFERENT MODEL OR DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.
- IN CASE THE CONTRACTOR ELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING EQUIPMENT REQUIRING ADDITIONAL WIRING, TRANSFORMERS, ADAPTORS, MOUNTINGS, ETC., TO THOSE SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATION, ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE EQUIPMENT COST.
- 6. THE CONTRACTOR INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) SHALL NOT GENERATE ANY ELECTROMAGNETIC INTERFERENCE IN THE EXISTING AND/OR NEW COMMUNICATIONS, WEATHER, AIR NAVIGATION, AND AIR TRAFFIC CONTROL EQUIPMENT. ANY EQUIPMENT GENERATING SUCH INTERFERENCE SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST WITH THE EQUIPMENT MEETING THE APPLICABLE SPECIFICATIONS AND NOT GENERATING ANY INTERFERENCE.
- WHEN A SPECIFIC TYPE, STYLE, CLASS, ETC. OF FAA APPROVED EQUIPMENT IS SPECIFIED ONLY THAT TYPE, STYLE, CLASS, WILL BE ACCEPTABLE, EVEN THOUGH EQUIPMENT OF OTHER TYPES STYLES, CLASSES, ETC. MAY BE APPROVED.
- 8. ANY AND ALL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN TO THE CONTRACTOR REGARDING CHANGES IN OR DEVIATIONS FROM THE PLANS AND SPECIFICATIONS SHALL BE IN WRITING WITH COPIES SENT TO THE AIRPORT SPONSOR AND THE ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF AERONAUTICS. THE CONTRACTOR SHALL NOT ACCEPT ANY VERBAL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN REGARDING ANY CHANGES FROM THE PLANS AND SPECIFICATIONS.
- A MINIMUM OF THREE COPIES OF THE INSTRUCTION BOOK SHALL BE SUPPLIED WITH EACH DIFFERENT TYPE OF EQUIPMENT. THE BOOKS DESCRIBING A MORE SOPHISTICATED TYPE OF EQUIPMENT, SUCH AS REGULATORS, PAPI, REIL, ETC. AS A MINIMUM SHALL CONTAIN THE FOLLOWING:
 - A. A DETAILED DESCRIPTION OF THE OVERALL EQUIPMENT AND ITS INDIVIDUAL COMPONENTS.
 - B. THEORY OF OPERATION INCLUDING THE FUNCTION OF EACH COMPONENT.
 - C. INSTALLATION INSTRUCTION.
- D. START-UP INSTRUCTIONS.
- E. PREVENTATIVE MAINTENANCE REQUIREMENTS.
- F. CHART FOR TROUBLE-SHOOTING.
- G. COMPLETE POWER AND CONTROL DETAILED WIRING DIAGRAM(S), SHOWING EACH CONDUCTOR/CONNECTION/COMPONENT "BLACK" BOXES ARE NOT ACCEPTABLE. THE DIAGRAM OF THE NARRATIVE SHALL SHOW VOLTAGE/CURRENTS/WAVE SHAPES AT STRATEGIC LOCATIONS TO BE USED WHEN CHECKING AND/OR TROUBLE—SHOOTING THE EQUIPMENT. WHEN THE EQUIPMENT HAS SEVERAL MODES OF OPERATION, SUCH AS SEVERAL BRIGHTNESS STEPS, THESE PARAMETERS SHALL BE INDICATED FOR ALL DIFFERENT MODES.
- H. PARTS LIST WHICH WILL INCLUDE ALL MAJOR AND MINOR COMPONENTS SUCH AS RESISTORS, DIODES, ETC. IT SHALL INCLUDE A COMPLETE NOMENCLATURE OF EACH COMPONENT AND, IF APPLICABLE, THE NAME OF ITS MANUFACTURER AND THE CATALOG NUMBER.
- 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 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, ORANGE (FOR HIGH LEG) AND BLUE SHALL BE USED FOR PHASE CONDUCTORS ON 240/120VAC 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 KCMII)
- 3. ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE SHALL BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING SHALL BE EXTENDED TO THE POINT OF UTILIZATION.
- 4. IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL, FTC
- LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE INSTALLED IN SEPARATE WIREWAYS.
- 6. NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND JUNCTION/PULL BOXES.
- THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:
 - IN STRAIGHT PULLS THE LENGTH OF THE BOX SHALL NOT BE LESS THAN EIGHT TIMES THE TRADE DIAMETER OF THE LARGER CONDUIT. THE TOTAL AREA (INCLUDING THE CONDUIT CROSS—SECTIONAL AREA) OF A BOX END SHALL BE AT LEAST 3 TIMES GREATER THAN THE TOTAL TRADE CROSS—SECTIONAL AREA OF THE CONDUITS TERMINATING AT THE END.
 - B. IN ANGLE PULLS OR 'U' PULLS THE DISTANCE BETWEEN EACH CONDUIT ENTRY INSIDE THE BOX AND THE OPPOSITE WALL OF THE BOX SHALL NOT BE LESS THAN SIX (6) TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT. THIS DISTANCE SHALL BE INCREASED FOR ADDITIONAL ENTRIES BY THE AMOUNT OF THE SUM OF THE DIAMETERS OF ALL OTHER CONDUIT ENTRIES ON THE SAME WALL AS THE BOX. THE DISTANCE BETWEEN CONDUIT ENTRIES ENCLOSING THE SAME CONDUCTOR SHALL NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT.
- A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, SQUARE DUCTS AND PULL/JUNCTION BOXES, SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL), INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE TERMINATIONS, CAST, CONDUIT TYPE OUTLETS SHALL NOT BE TREATED AS PULL/JUNCTION BOXES.
- EQUIPMENT CABINETS SHALL NOT BE USED AS PULL/JUNCTION BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT SHALL BE BROUGHT INTO THESE FNCI OSURES.
- SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS, AND AT EASILY ACCESSIBLE LOCATIONS.
- 11. CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL(S) SHALL BE THERMAL-MAGNETIC MOLDED CASE, PERMANENT TRIP WITH 100 AMPERE, MINIMUM FRAME.
- 12. DUAL LUGS SHALL BE USED WHERE TWO (2) WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMINAL.
- ALL INTERIOR WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED ON HOT DIPPED GALVANIZED STEEL STRUT SUPPORT, OR STAINLESS STEEL STRUT SUPPORT, WITH CORROSION RESISTANT HARDWARE.
- 14. SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE HOT DIPPED GALVANIZED STEEL STRUT SUPPORT OR STAINLESS STEEL STRUT SUPPORT WITH STAINLESS STEEL 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 RECOMMENDATIONS.

- 15. CONDUITS FOR ELECTRIC SERVICE ENTRANCE AND FEEDERS SHALL BE AS DETAILED HEREIN ON THE PLANS. WHERE GALVANIZED RIGID STEEL CONDUIT IS SPECIFIED IT SHALL HAVE THREADED FITTINGS. SET SCREW TYPE FITTINGS WILL NOT BE ACCEPTABLE. CONDUITS FOR UNDERGROUND APPLICATIONS SHALL BE AS DETAILED HEREIN. CONDUITS FOR GROUNDING ELECTRODE CONDUCTORS OR INDIVIDUAL GROUNDING CONDUCTORS SHALL BE SCHEDULE 40 OR SCHEDULE 80 PVC.
- 16. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AT CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION OR WHERE FLEXIBILITY IS REQUIRED. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING, SUNLIGHT RESISTANT, AND RESISTANT TO OIL, GASOLINE, AND GREASE. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO MOTORS, TRANSFORMERS, & CONSTANT CURRENT REGULATORS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL. LISTED. CONFIRM LIQUID—TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
- UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.
- 18. ALL STEEL CONDUITS, FITTINGS, NUTS, BOLTS, ETC. SHALL BE GALVANIZED.
- USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG OR LARGER UNDERGROUND WIRE IS INSTALLED, USE INSULATED BUSHINGS.
- 20. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
- 21. WRAP ALL PRIMARY AND SECONDARY POWER TRANSFORMER CONNECTIONS WITH SUFFICIENT LAYERS OF INSULATING TAPE (3M SCOTCH 23 ALL-VOLTAGE SPLICING TAPE, 3M SCOTCH 13OC LINERLESS RUBBER SPLICING TAPE, OR APPROVED EQUAL) AND COVER WITH VINYL ELECTRICAL TAPE (3M SCOTCH 88 VINYL ELECTRICAL TAPE OR APPROVED EQUAL) FOR FULL VALUE OF CABLE INSULATION VOLTAGE.
- UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG. COPPER MINIMUM.
- 23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:
 - A. FOR INTERIOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 12 (DUST TIGHT) ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. FOR EXTERIOR/OUTDOOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 4X STAINLESS STEEL ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. ALL CONDUIT ENTRIES INTO NEMA 4, 4X ENCLOSURES SHALL HAVE NEMA 4 HUBS LISTED SUITABLE FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE.
 - THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS, TERMINAL BLOCKS AND INCOMING AND INTERNAL WIRING.
 - C. ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED-EYE TERMINATIONS, OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.
 - WHEN THE ENCLOSURE COVER IS OPENED, ALL CIRCUIT COMPONENTS, WIRING AND TERMINALS SHALL BE EXPOSED AND ACCESSIBLE WITHOUT REMOVAL OF ANY PANELS, COVERS, ETC., EXCEPT THOSE COVERING HIGH VOLTAGE COMPONENTS.
 - E. ACCESS TO, OR REMOVAL OF A CIRCUIT COMPONENT OR TERMINAL BLOCK WILL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR TERMINAL BLOCK.
 - F. EACH CIRCUIT COMPONENT SHALL BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWINGS AND ITS FUNCTION.
 - G. A COMPLETE WIRING DIAGRAM SHALL BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE.
 - THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL.
 - I. ALL WIRING SHALL BE NEATLY TRAINED AND LACED.
 - J. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG.
- 24. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH METER SOCKET, SERVICE DISCONNECT, SAFETY SWITCH, CUTOUT, PANELBOARD, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "ARC FLASH HAZARD WARNING".

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

Contract No. LI036

DESIGNED BY: KNL 1/12/2015
DRAWN BY: CWS 1/13/2015

REVIEWED BY: CAH 2/11/2015

SHEET TITLE

ELECTRICAL NOTES SHEET 1

AIRFIELD LIGHTING NOTES

- I. UNLESS OTHERWISE NOTED, ALL UNDERGROUND AIRFIELD LIGHTING SERIES CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE FAA APPROVED 5000 VOLT L-824 TYPE. ALL UNDERGROUND FIELD POWER LOW VOLTAGE (600 VOLT & BELOW) CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE UL LISTED 600 VOLT, TYPE XLP-USE-2 COPPER CONDUCTORS. CONDUCTOR SIZES SHALL BE AS SPECIFIED HERPIN.
- NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND 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 THEY LEAVE THE UNDERGROUND (DEB OR L-867 BASES) AND WHERE THEY ENTER THE EQUIPMENT (SUCH AS TAXIWAY SIGNS, PAPI, REIL, ETC.) ENCLOSURES. THESE CABLES SHALL BE ENCLOSED IN RIGID CONDUIT OR IN FLEXIBLE, WATERTIGHT CONDUIT WITH BREAKABLE COUPLING(S) AT THE GRADE OR THE HOUSING COVER, AS SHOWN IN APPLICABLE DETAILS.
- 4. THE JOINTS OF THE L-823 PRIMARY CONNECTORS SHALL BE WRAPPED WITH AT LEAST ONE LAYER OF RUBBER OR SYNTHETIC RUBBER TAPE AND ONE LAYER OF PLASTIC TAPE, ONE-HALF LAPPED, EXTENDING AT LEAST 1-1/2 INCHES ON EACH SIDE OF THE JOINT, AS SHOWN ON ELECTRICAL DETAILS SHEET 1.
- 5. THE CABLE ENTRANCE INTO THE FIELD-ATTACHED L-823 CONNECTORS SHALL BE ENCLOSED BY A HEAT-SHRINKABLE TUBING WITH CONTINUOUS INTERNAL ADHESIVE, AS SHOWN ON FLECTRICAL DETAILS SHEFT 1.
- 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.
- 10. A SLACK OF THREE (3') FEET, MINIMUM, PLUS DEPTH OF BASE CAN (IF APPLICABLE), SHALL BE PROVIDED IN THE PRIMARY CABLE AT EACH TRANSFORMER/CONNECTOR TERMINATION. AT STAKE—MOUNTED LIGHTS, THE SLACK SHALL BE LOOSELY COILED IMMEDIATELY BELOW THE ISOLATION TRANSFORMER. THERE SHALL BE NO ADDITIONAL PAYMENT FOR CABLE SLACK AND THEREFORE THE QUANTITY OF PROPOSED CABLE SLACK HAS NOT BEEN INCLUDED IN THE RESPECTIVE CABLE PAY ITEMS.
- 11. DIRECTION OF PRIMARY CABLES SHALL BE IDENTIFIED BY COLOR CODING AS FOLLOWS: WHEN FACING LIGHT WITH BACK TO PAVEMENT, CABLE TO THE LEFT IS CODED RED AND CABLE TO RIGHT IS CODED BLUE. THIS APPLIES TO STAKE MOUNTED LIGHTS AND BASE MOUNTED LIGHTS WHERE THE BASE HAS ONLY ONE ENTRANCE.
- 12. L-867 BASES SHALL BE SIZE B, 24" DEEP, CLASS I, UNLESS OTHERWISE NOTED.
- 13. BASE MOUNTED BREAKABLE COUPLINGS SHALL NOT HAVE WEEP HOLES TO THE OUTSIDE. PLUGGED UP HOLES SHALL NOT BE ACCEPTABLE. IT SHALL BE A 1/4" DIAMETER, MINIMUM, OR EQUIVALENT OPENING FOR DRAINAGE FROM THE SPACE AROUND THE SECONDARY CONNECTOR INTO THE L-867 BASE.
- 14. THE ELEVATION OF THE BREAKABLE COUPLING GROOVE SHALL NOT EXCEED 1-1/2" ABOVE THE EDGE OF THE COVER IN CASE OF BASE MOUNTED COUPLINGS, OR THE TOP OF THE STAKE IN CASE OF STAKE MOUNTED COUPLINGS.
- 15. WHERE THE BREAKABLE COUPLING IS NOT AN INTEGRAL PART OF THE LIGHT FIXTURE STEM OR MOUNTING LEG, A BEAD OF SILICON SEAL SHALL BE APPLIED COMPLETELY AROUND LIGHT STEM OR WIREWAY AT BREAKABLE COUPLING TO PROVIDE A WATERTIGHT SEAL
- TOPS OF THE STAKES SUPPORTING LIGHT FIXTURES SHALL BE FLUSH WITH THE SURROUNDING GRADE.
- 17. PLASTIC LIGHTING FIXTURE COMPONENTS, SUCH AS LAMP HEADS, STEMS, BREAKABLE COUPLINGS, BASE COVERS, BRACKETS, STAKES, SHALL NOT BE ACCEPTABLE.
- 18. THE TOLERANCE FOR THE HEIGHT OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE: ONE
 (1) INCH. IN CASE OF STAKE MOUNTED LIGHTS, THE SPECIFIED LIGHTING FIXTURE
 HEIGHT SHALL BE MEASURED BETWEEN THE TOP OF THE STAKE AND THE TOP OF THE
 LENS. IN CASE OF BASE MOUNTED LIGHTS, THE SPECIFIED LIGHTING FIXTURE HEIGHT
 SHALL BE MEASURED BETWEEN THE TOP OF THE BASE FLANGE AND THE TOP OF THE
 LENS, THUS INCLUDING THE BASE COVER, THE FRANGIBLE COUPLING, THE STEM, THE
 LAMP HOUSING AND THE LENS.
- 19. THE TOLERANCE FOR THE LATERAL SPACING (LIGHT LANE TO RUNWAY/TAXIWAY CENTERLINE) OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE ONE (1) INCH. THIS ALSO APPLIES AT INTERSECTIONS TO LATERAL SPACING BETWEEN LIGHTS OF A RUNWAY/TAXIWAY AND THE INTERSECTING RUNWAY/TAXIWAY.

- 20. ENTRANCES INTO L-867 BASES SHALL HAVE CONDUIT COUPLINGS OR REDUCERS TO INTERFACE UNIT DUCT/CONDUIT TO L-867 BASE HUBS, OR SHALL BE SEALED WITH HEAT SHRINK AS SHOWN IN DETAIL "B" ON ELECTRICAL DETAILS SHEET 1.
- GALVANIZED/PAINTED EQUIPMENT/COMPONENT SURFACES SHALL NOT BE DAMAGED BY DRILLING, FILING, ETC. DRAIN HOLES IN METAL TRANSFORMER HOUSINGS SHALL BE MADE BEFORE GALVANIZING.
- 22. EDGE LIGHT NUMBERING TAGS SHALL BE FACING THE PAVEMENT.
- 23. CABLE/SPLICE/DUCT MARKERS SHALL BE PRECAST CONCRETE OF THE SIZE SHOWN. LETTERS/NUMBERS/ARROWS FOR THE LEGEND TO BE IMPRESSED INTO THE TOPS OF THE MARKERS SHALL BE PRE—ASSEMBLED AND SECURED IN THE MOLD BEFORE THE CONCRETE IS POURED. LEGEND INSCRIBED BY HAND IN WET CONCRETE SHALL NOT BE ACCEPTABLE.
- 24. ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 FEET MAXIMUM SPACING, WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS SHALL BE INSTALLED IMMEDIATELY ABOVE THE CARL FS.
- 25. THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823 CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE SHOWN.
- 26. APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS.
- 27. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT
- 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, MARKINGS, FTC. SHALL BE 3500 PSL AIR—FNTRAINFD.
- 30. ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES SHALL BE TAGGED. USE EMBOSSED COPPER STRIPS TO BE ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MAN/HAND HOLE—ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT.
- THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER 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 STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.

GROUNDING NOTES FOR AIRFIELD LIGHTING

- GROUNDING FOR RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS SHALL BE AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. PER FAA AC 150/5340-30H DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FEET LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR SUITABLE FOR DIRECT BURY IN EARTH OR CONCRETE. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE: 800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE: 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437), OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS. TOP OF GROUND RODS SHALL BE BURIED 12 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS.
- 2. FOR BASE MOUNTED LIGHT FIXTURES THE LIGHT FIXTURE MUST BE BONDED TO THE LIGHT BASE INTERNAL GROUND LUG VIA A #6 AWG STRANDED COPPER WIRE RATED FOR 600 VOLTS WITH GREEN XHHW OR USE INSULATION. THE GROUND WIRE LENGTH MUST BE SUFFICIENT TO ALLOW THE REMOVAL OF THE LIGHT FIXTURE FROM THE LIGHT BASE FOR ROUTING MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S INSTRUCTIONS FOR PROPER METHODS OF ATTACHING BONDING WIRE.
- 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 2014 NATIONAL ELECTRICAL CODE ARTICLE 250-12.
- PER FAA 150/5340-30H THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.
- FOR TAXIWAY LIGHTS THAT ARE SPACED WITH LESS THAN 10 FEET OF SEPARATION BETWEEN THEM, PROVIDE ONE 3/4-INCH DIAMETER BY 10 FEET LONG GROUND ROD PER TWO ADJACENT TAXIWAY LIGHTS. LOCATE GROUND ROD MIDWAY BETWEEN THE TWO TAXIWAY LIGHTS
- 6. STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100% DOMESTIC STEEL.
- 7. FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAID THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAIDS INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN.



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO.	DATE	DES	CRIPT	ION			
NO.	DATE	DES	DWN	REV			
SSUE: JUNE 12, 2015							
PROJECT NO: 14A0075D							
CAD FILE: E-002-NOTES.DWG							
DESIGNED BY: KNL 1/12/2015							

SHEET TITLE

ELECTRICAL NOTES SHEET 2

DRAWN BY: CWS 1/13/2015

REVIEWED BY: CAH 2/11/2015

Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

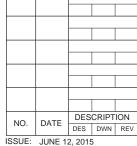
LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

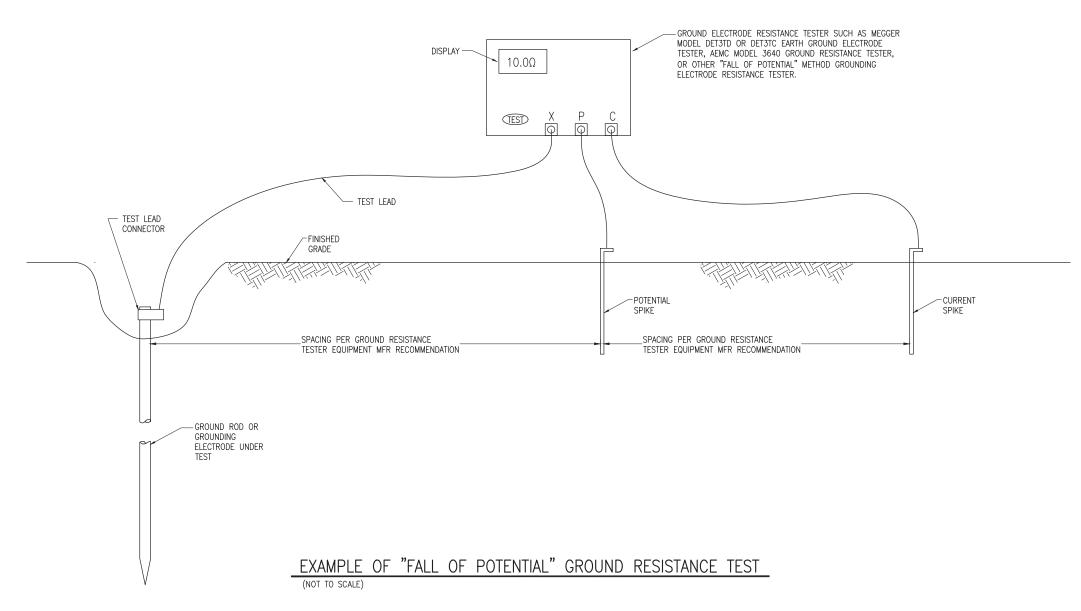


ISSUE: JUNE 12, 2015
PROJECT NO: 14A0075D
CAD FILE: E-506-DETL.DWG

DESIGNED BY: KNL 1/15/2015
DRAWN BY: CWS 1/15/2015
REVIEWED BY: CAH 2/11/2015

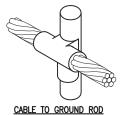
SHEET TITLE

GROUND RESISTANCE TESTING DETAILS



NOTES

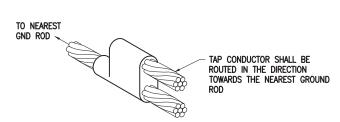
- CONTRACTOR SHALL TEST AND RECORD THE RESISTANCE FOR EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING ELECTRODE SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN.
- 2. FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAID THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAIDS INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER / RESIDENT TECHNICIAN.
- 3. GROUND RESISTANCE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH THE RESPECTIVE GROUND ELECTRODE RESISTANCE TESTING EQUIPMENT MANUFACTURER'S INSTRUMENTAL PROPERTY OF THE PROPE
- . RECORD SITE CONDITIONS DURING TESTS.
- . "FALL OF POTENTIAL" TYPE GROUND ELECTRODE RESISTANCE TESTER IS RECOMMENDED FOR TESTING INDIVIDUAL STAND ALONE GROUND RODS.



CABLE TO GROUND ROD

CABLE TO CABLE



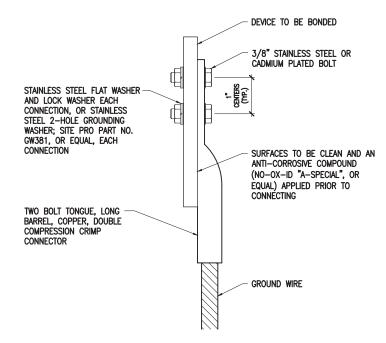


CABLES TO GROUND ROD

DETAIL NOTES

- . ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONDUCTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY ERICO PRODUCTS, SOLON, OHIO, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, GRAYSLAKE, IL, THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES, TULSA, OKLAHOMA, OR APPROVED EQUAL. VERIEY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.
- 2. FOR APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.
- 3. INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 40 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.

EXOTHERMIC WELD DETAILS

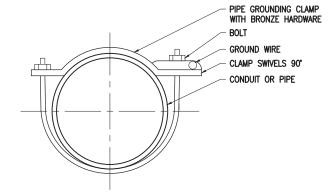


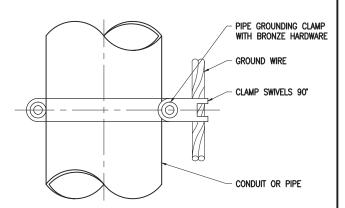
2 HOLE LONG BARREL COMPRESSION LUG TABLE						
WIRE SIZE BURNDY CAT. NO. THOMAS & BETTS PENN-UNION CAT. NO. CAT. NO.						
#8 AWG STRANDED	YA8C-2TC38	256-30695-1157	BBLU-8D-2TC38			
#6 AWG SOLID	YA8C-2TC38 OR YGA6C-2TC38E2G1					
#6 AWG STRANDED	#6 AWG STRANDED YA6C-2TC38 256-30695-1158 BBLU-6D-2TC38					
#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	#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

- . ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
- GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE
- 3. GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS, & INDIVIDUAL GROUND WIRES SHALL NOT BE INSTALLED IN METAL CONDUIT. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIAS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC APTH FROM ENCIRCLING THE CONDUIT.
- 4. ALL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL





PIPE GROUNDING	PIPE GROUNDING CLAMP TABLE			
BURNDY CAT. NO.	PIPE SIZE			
GAR3902-BU	1/2" - 1"			
GAR3903-BU	1 1/4" - 2"			
GAR3904-BU	2 1/2" - 3 1/2"			
GAR3905-BU	4" - 5"			
GAR3906-BU	6"			

NOTES

 PIPE GROUNDING CLAMPS SHALL HAVE BRONZE HARDWARE, BE CORROSION RESISTANT, SUITABLE FOR DIRECT BURIAL IN EARTH OR CONCRETE, & UL467 LISTED.

PIPE/CONDUIT GROUNDING CLAMP DETAIL

HANSON Engineering | Planning | Allied Services

Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO.	DATE	DES	CRIPT	ION	
INO.	DATE	DES	DWN	REV	
ISSUE: JUNE 12, 2015					
PROJEC	CT NO: 1	4A007	5D		
CAD FILE: E-505-DETL DWG					

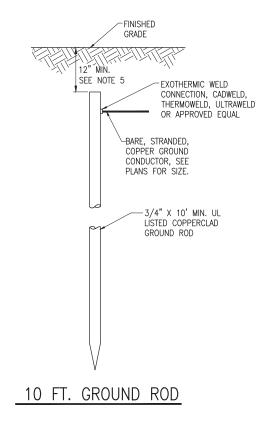
CAD FILE: E-505-DETL.DWG
DESIGNED BY: KNL 1/12/2015
DRAWN BY: CWS 1/13/2015
REVIEWED BY: CAH 2/11/2015

SHEET TITLE

GROUNDING DETAILS

- 1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING AS MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THE LATEST NATIONAL ELECTRICAL CODE (NFPA 70) IN FORCE AND FAA-STD-019e (LIGHTNING AND SURGE PROTECTION, GROUNDING, BONDING, AND SHIELDING REQUIREMENTS FOR FACILITIES AND ELECTRONIC EQUIPMENT). 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 (RUNWAY LIGHTING, TAXIWAY LIGHTING, TAXI GUIDANCE SIGNS, AND SPLICE CANS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR OTHER APPLICATIONS 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 ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE 1-800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE 918-663-1440) OR ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE 1-800-842-7437) 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.
- 3. CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN REPRESENTATIVE.
- 4. ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
- ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO—OX—ID "A—SPECIAL" COMPOUND, BURNDY PENETROX E, OR APPROVED EQUAL.
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2014 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION
- 7. METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL—LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- 8. ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- 10. PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- 11. EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2014 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, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

- 12. ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2014 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 2014 NEC 250-102.
- 13. IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS <u>WILL NOT</u> BE CONSIDERED AS ADEQUATE GROUNDING.
- 14. 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.
- 15. EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
- 16. 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 APPROVED EQUAL.
- 17. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- 19. INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY ENCIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. 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.
- 20. IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2014 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.
- 21. WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE RESIDENT ENGINEER OR PROJECT ENGINEER FOR FURTHER DIRECTIONS.
- 22. GROUND RODS SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA FROM 100 PERCENT DOMESTIC STEEL TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS AND THE STEEL PRODUCTS PROCUREMENT ACT.



NOTES

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





Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO.	DATE	DESCRIPTION				
NO.	DATE	DES	DWN	REV		
ISSUE:	SSUE: JUNE 12, 2015					
PROJEC	PROJECT NO: 14A0075D					
CAD FIL	CAD FILE: E-003-GND.DWG					

SHEET TITLE

GROUNDING NOTES

DESIGNED BY: KNL 1/12/2015

DRAWN BY: CWS 1/13/2015

REVIEWED BY: CAH 2/11/2015

l	ELECTRICAL LEGEND — SCHEMATIC
⊣⊢	NORMALLY OPEN (N.O.) CONTACT
-1/-	NORMALLY CLOSED (N.C.) CONTACT
(S*)	STARTER COIL, * = STARTER NUMBER
OL —H	OVERLOAD RELAY CONTACT
(CR*)	CONTROL RELAY, * = CONTROL RELAY NUMBER
(R*)	RELAY, * = RELAY NUMBER
~	TOGGLE SWITCH / 2 POSITION SWITCH
OFF_AUTO	2-POSITION SELECTOR SWITCH
• • ox	Z-FOSHION SELECTOR SMITCH
HAND T AUTO	
• X00	7 DOOTTON OF FOTOD CHITCH (1) O. A. CHOMIN)
	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)
00x	
	2 POLE DISCONNECT SWITCH
-1	3 POLE DISCONNECT SWITCH
	PHOTOCELL
-190- -13-	TERMINAL BLOCK, * = TERMINAL NUMBER
	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER
	INTERNAL PANEL WIRING
	FIELD WIRING
	FUSE
GND	GROUND BUS OR TERMINAL
S/N _	NEUTRAL BUS
₹	GROUND, GROUND ROD, GROUND BUS
0 0	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
	S1 CUTOUT HANDLE REMOVED
######################################	S1 CUTOUT HANDLE INSERTED
2	N.O. THERMAL SWITCH
्रु	N.C. THERMAL SWITCH

	ELECTRICAL ABBREVIATIONS			
A.F.F. ABOVE FINISHED FLOOR				
A, AMP AMPERES				
ATS	AUTOMATIC TRANSFER SWITCH			
AWG	AMERICAN WIRE GAUGE			
BKR	BREAKER			
С	CONDUIT			
СВ	CIRCUIT BREAKER			
CKT	CIRCUIT			
CR	CONTROL RELAY			
CU	COPPER			
DPDT	DOUBLE POLE DOUBLE THROW			
DPST	DOUBLE POLE SINGLE THROW			
EM	EMERGENCY			
EMT	ELECTRICAL METALLIC TUBING			
ENCL	ENCLOSURE			
EP	EXPLOSION PROOF			
ES	EMERGENCY STOP			
ETL	INTERTEK - ELECTRICAL TESTING LABS			
ETM	ELAPSE TIME METER			
GFCI	GROUND FAULT CIRCUIT INTERRUPTER			
GFI	GROUND FAULT INTERRUPTER			
GND	GROUND			
GRSC	GALVANIZED RIGID STEEL CONDUIT			
HID	HIGH INTENSITY DISCHARGE			
НОА	HAND OFF AUTOMATIC			
HP	HORSEPOWER			
HPS	HIGH PRESSURE SODIUM			
J	JUNCTION BOX			
KVA	KILOVOLT AMPERE(S)			
KW	KILOWATTS			
LC	LIGHTING CONTACTOR			
LTFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT (UL LISTED)			
LTG	LIGHTING			
LP	LIGHTING PANEL			
MAX	MAXIMUM			
мсв	MAIN CIRCUIT BREAKER			
мсм	THOUSAND CIRCULAR MIL			
MDP	MAIN DISTRIBUTION PANEL			
MFR	MANUFACTURER			
MH	METAL HALIDE			
MIN	MINIMUM			
MLO	MAIN LUGS ONLY			
NEC	NATIONAL ELECTRICAL CODE (NFPA 70)			
NC NO	NORMALLY CLOSED			
NO NTC	NORMALLY OPEN			
NTS	NOT TO SCALE			
OHE	OVERHEAD ELECTRIC			
OL	OVERLOAD			

ELI	ECTRICAL ABBREVIATIONS (CONTINUED)
PB	PULL BOX
PC	PHOTO CELL
PDB	POWER DISTRIBUTION BLOCK
PNL	PANEL
RCPT	RECEPTACLE
R	RELAY
S	STARTER
SPD	SURGE PROTECTION DEVICE
SPST	SINGLE POLE SINGLE THROW
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UL	UNDERWRITER'S LABORATORIES
٧	VOLTS
W/	WITH
W /0	WITHOUT
WP	WEATHER PROOF
XFER	TRANSFER
XFMR	TRANSFORMER

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

- 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, ETL/INTERTEK TESTING SERVICES VERIFICATION/LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- ALL VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- COLOR CODE PHASE AND NEUTRAL CONDUCTOR INSULATION FOR NO. 6 AWG OR SMALLER. PROVIDE COLORED INSULATION OR COLORED MARKING TAPE FOR PHASE AND NEUTRAL CONDUCTORS FOR NO. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR AWG AND/OR KCMIL TO COMPLY WITH NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE COLORED INSULATION FOR NO. 6 AWG AND SMALLER TO MEET THE REQUIREMENTS OF NEC 200.6. STANDARD COLORS FOR POWER WIRING AND BRANCH CIRCUITS SHALL BE AS FOLLOWS:

120/240 VAC. 1 PHASE. 3 WIRE PHASE A BLACK PHASE B red NFUTRAL WHITE GROUND GRFFN

480 VAC. 1 PHASE. 2 WIRE PHASE B ORANGE GROUND

- SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
- LTFMC DENOTES LIQUID TIGHT FLEXIBLE METAL CONDUIT UL LISTED, SUNLIGHT RESISTANT, & SUITABLE FOR GROUNDING. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS USED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER (MINIMUM).
 DO NOT INSTALL LITEMC THAT IS NOT UL LISTED. CONFIRM LTFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
- ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES UL LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE
- 7. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND/OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR HANDHOLE.
- CONTRACTOR SHALL EXAMINE THE SITE AND VAULT TO DETERMINE EXISTING SITE CONDITIONS.

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

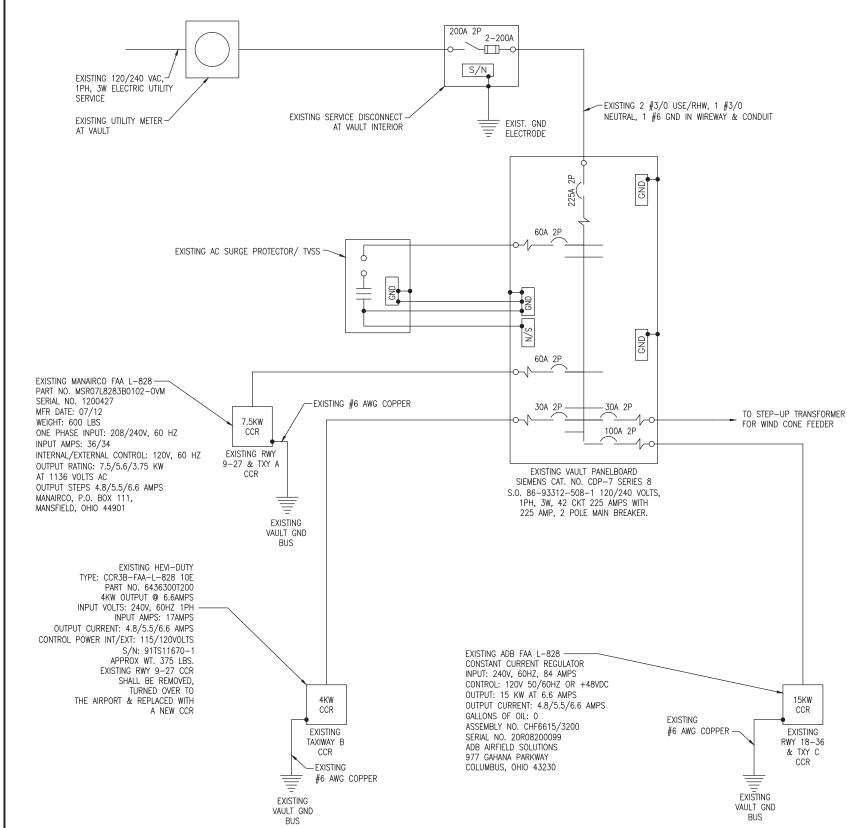
DESCRIPTION NO. DATE DES DWN REV ISSUE: JUNE 12, 2015 PROJECT NO: 14A0075D

CAD FILE: E-004-LGND.DWG

DESIGNED BY: KNL 1/12/2015 DRAWN BY: CWS 1/13/2015 REVIEWED BY: CAH 2/11/2015

SHEET TITLE

ELECTRICAL LEGEND AND ABBREVIATIONS



NOTES:

- EXISTING ONE-LINE DIAGRAM WIRING IS BASED ON FIELD DATA AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND WIRING AND REPORT ANY VARIATIONS TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN.
- 2. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK.
 CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL
 FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING,
 DISCONNECTING OR CONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN,
 NAVAID, OR OTHER DEVICE.
- CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2F (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION"
- CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
- 6. WHEN A RUNWAY IS SHUT DOWN THE RUNWAY LIGHTING AND ASSOCIATED AIRFIELD NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF.
- EXISTING TAXIWAY B CCR IS SCHEDULED TO REMAIN AND BE CONNECTED TO THE NEW LIGHTING SYSTEM FOR TAXIWAY B.
- B. EXISTING RUNWAY 9-27 AND TAXIWAY A CCR IS SCHEDULED TO REMAIN. ADDITIONAL RUNWAY EXIT SIGNS, MANDATORY HOLD SIGN, AND TAXIWAY LIGHTING FROM RUNWAY 9-27 TO HOLD LINE ON TAXIWAY B1 SHALL BE ADDED TO THE RWY 9-27 LIGHTING CIRCUIT
- EXISTING RUNWAY 18-36 AND TAXIWAY C CCR IS SCHEDULED TO REMAIN. NO CHANGES ARE PLANNED FOR RUNWAY 18-36 AND TAXIWAY C LIGHTING ON THIS PROJECT.



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

LITCHFIELD MUNICIPAL AIRPORT

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

NO.	DATE	DESCRIPTION		
INO.	DAIL	DES	DWN	REV
ISSUE: JUNE 12, 2015				
PROJECT NO: 14A0075D				
CAD FILE: E-601.DWG				

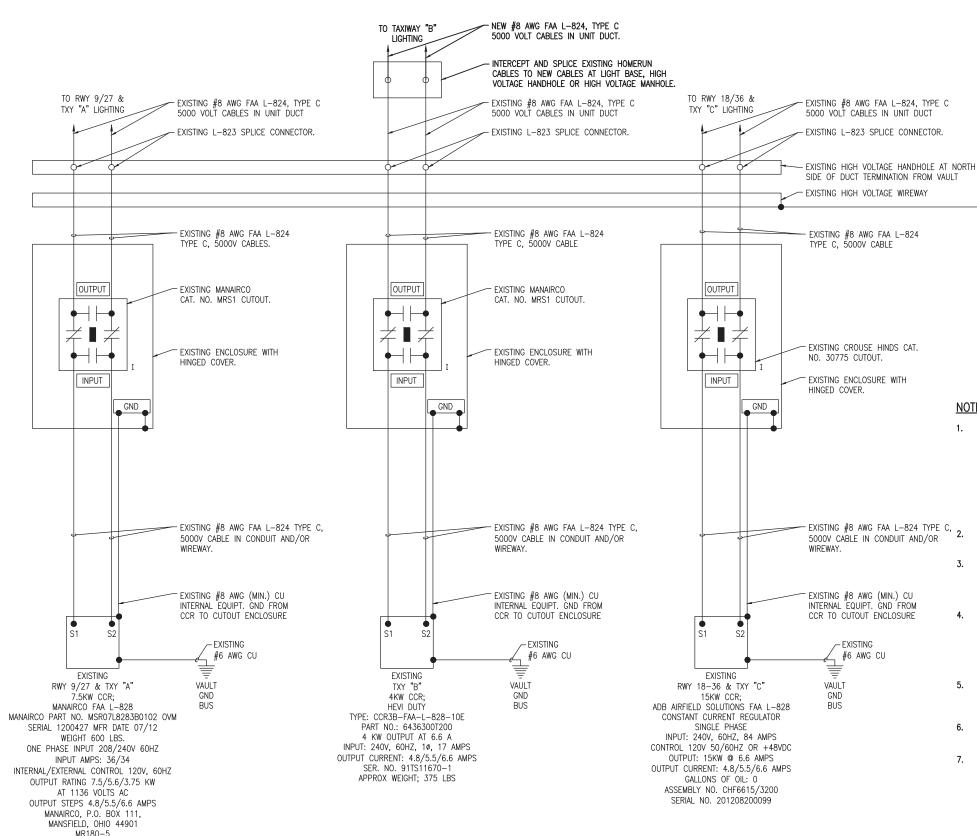
DESIGNED BY: KNL 1/13/2015

DRAWN BY: CWS 1/14/2015

REVIEWED BY: CAH 2/11/2015

SHEET TITLE

EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT



LEGEND

"I" DENOTES PLUG CUTOUT WITH PLUG INSERTED

DENOTES PLUG CUTOUT WITH PLUG PULLED

"CCR" DENOTES CONSTANT CURRENT REGULATOR

fax: 217-788-2503

Professional Service Corporation #184-001084 LITCHFIELD MUNICIPAL AIRPORT

Hanson Professional Services Inc.

1201 US ROUTE 66 SOUTH P. O. BOX 381 LITCHFIELD, IL. 62056

Offices Nationwide

1525 S. 6th Street Springfield, IL 62568

Illinois Licensed

REPLACE MITL ON TAXIWAY "B"

IDA No: 3LF-4439

Contract No. LI036

DESCRIPTION NO. DATE DES DWN REV ISSUE: JUNE 12, 2015

PROJECT NO: 14A0075D

CAD FILE: E-602-SCM.DWG DESIGNED BY: KNL 1/13/2015 DRAWN BY: CWS 1/14/2015

REVIEWED BY: CAH 2/11/2015

SHEET TITLE

HIGH VOLTAGE WIRING SCHEMATIC

NOTES: ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/RESIDENT TECHNICIAN. 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).

-EXISTING #6 AWG CU

VAULT GND BUS

CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE

THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.

CONTRACTOR SHALL EXERCISE CAUTION, PRACTICE SAFETY, AND DISCONNECT THE SERIES CIRCUITS FROM THE RESPECTIVE CONSTANT CURRENT REGULATORS, AS APPLICABLE WHEN PERFORMING WORK ON THE AIRFIELD LIGHTING OR WORK THAT MIGHT AFFECT THE AIRFIELD LIGHTING. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL

- MEGGER TEST AND RECORD EXISTING SERIES CIRCUITS PRIOR TO CABLE WORK AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, AND/OR UPGRADES HAVE BEEN COMPLETED, ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE.
- RUNWAY 9-27 AND TAXIWAY "A" CCR, TAXIWAY "B" CCR, RUNWAY 18-36 AND TAXIWAY "C" CCR AND THE ASSOCIATED CUTOUTS ARE EXISTING.
- ALL CCR'S 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/RESIDENT TECHNICIAN. TEST RESULTS SHALL BE PROVIDED TO THE PROJECT ENGINEER AND RESIDENT ENGINEER/RESIDENT TECHNICIAN.
- HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, WIREWAY, HANDHOLE, OR MANHOLE,
- SPLICES FOR RUNWAY AND TAXIWAY SERIES CIRCUITS SHALL BE FAA APPROVED TYPE L-823 CONNECTORS AND SHALL BE INSTALLED IN HIGH VOLTAGE HANDHOLES, HIGH VOLTAGE MANHOLES, SPLICE CANS OR HIGH VOLTAGE ENCLOSURES.