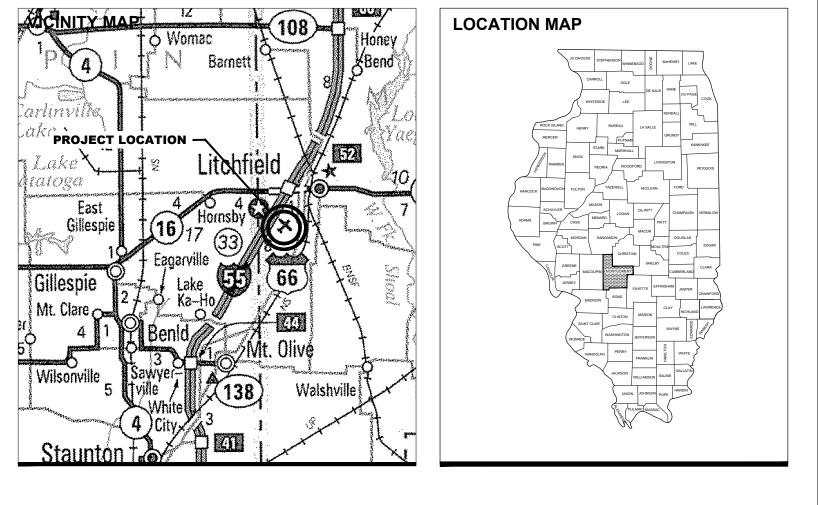
CONSTRUCTION PLANS

EXTEND PARTIAL PARALLEL TAXIWAY B AND RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RUNWAY 9 TURNAROUND

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

IDA PROJECT NO.: 3LF-4819 FAA AIP PROJECT : 3-17-SBGP-144/156/162

NOVEMBER 20, 2020



NOTICE TO CONTRACTORS AND BIDDERS

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

| No. | Issue/Description | Sheets Changed | Date | By |
|-----|-------------------|----------------|------|----|

COVERING ELECTRICAL DESIGN

Lic. Exp. 11/30/202



CHANSON HANSON PROFESSIONAL SERVICES INC. KYLE B. 1525 South Sixth Street SCHWEIZER Springfield, Illinois 62703-2886 062-06438 Telephone: 217,788,2450 Fax: 217.788.2503 NOVEMBER 20, 2020 Lic. Exp. 11/30/2021

Kyle B. Schweizer, P.F

Kevin N. Lightfoot, P.

L1039 **TOTAL SHEETS = 61**



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| | SUMMARY OF QUAN | ITITIES | | |
|----------|---------------------------------------|--------------|-------------------|----------------------|
| ITEM NO. | DESCRIPTION | UNIT | TOTAL QUANTITY | AS-BUILT QUANTITY |
| AR108158 | 1/C #8 5 KV UG CABLE IN UD | L.F. | 4,753 | |
| AR110503 | 3-WAY CONCRETE ENCASED DUCT | L.F. | 60 | |
| AR115610 | ELECTRICAL HANDHOLE | EACH | 2 | |
| AR125410 | MITL-STAKE MOUNTED | EACH | 33 | |
| AR125415 | MITL-BASE MOUNTED | EACH | 10 | |
| AR125443 | TAXI GUIDANCE SIGN, 3 CHARACTER | EACH | 2 | |
| AR125921 | REPLACE STAKE MOUNTED LIGHT | EACH | 33 | |
| AR125922 | REPLACE BASE MOUNTED LIGHT | EACH | 5 | |
| AR125932 | REPLACE SIGN PANEL | EACH | 4 | |
| AR150510 | ENGINEER'S FIELD OFFICE | L.S. | 1 | |
| AR150520 | MOBILIZATION | L.S. | 1 | |
| AR150540 | HAUL ROUTE | L.S. | 1 | |
| AR152410 | UNCLASSIFIED EXCAVATION | C.Y. | 4,069 | |
| AR154604 | GRANULAR DRAINAGE SUBBASE-4" | S.Y. | 7,730 | |
| AR155540 | BY-PRODUCT LIME | TON | 200 | |
| AR155612 | SOIL PROCESSING-12" | S.Y. | 8,130 | |
| AR156510 | SILT FENCE | L.F. | 200 | |
| AR156513 | SEPARATION FABRIC | S.Y. | 7,730 | |
| AR156520 | INLET PROTECTION | EACH | 6 | |
| AR156530 | TEMPORARY SEEDING | ACRE | 12 | |
| AR156531 | EROSION CONTROL BLANKET | S.Y. | 650 | |
| AR156543 | RIPRAP-GRADATION NO. 3 | S.Y. | 105 | |
| AR209606 | CRUSHED AGG. BASE COURSE-6" | S.Y. | 7,730 | |
| AR401613 | BIT. SURF. CSEMETHOD I, SUPERPAVE | TON | 950 | |
| AR401650 | BITUMINOUS PAVEMENT MILLING | S.Y. | 465 | |
| AR401663 | LONGITUDINAL JOINT SEALANT | L.F. | 2,000 | |
| AR401900 | REMOVE BITUMINOUS PAVEMENT | S.Y. | 470 | |
| AR401910 | REMOVE & REPLACE BIT. PAVEMENT | S.Y. | 66 | |
| AR403613 | BIT. BASE CSEMETHOD I, SUPERPAVE | TON | 950 | |
| AR602510 | BITUMINOUS PRIME COAT | GAL. | 2,200 | |
| AR603510 | BITUMINOUS TACK COAT | GAL. | 1,250 | |
| AR620520 | PAVEMENT MARKING-WATERBORNE | S.F. | 2,308 | |
| AR620525 | PAVEMENT MARKING-BLACK BORDER | S.F. | 2,380 | |
| AR620900 | PAVEMENT MARKING REMOVAL | S.F. | 220 | |
| AR701230 | 30" CMP | L.F. | 25 | |
| AR701713 | RCEP SPAN 30 RISE 19 | L.F. | 88 | |
| AR705506 | 6" PERFORATED UNDERDRAIN | L.F. | 3,800 | |
| AR705546 | 6" NON PERFORATED UNDERDRAIN | L.F. | 225 | |
| AR705610 | CONCRETE HEADWALL FOR UNDERDRAIN | EACH | 223 | |
| AR705635 | UNDERDRAIN COLLECTION STRUCTURE | EACH | 4 | |
| AR705640 | | EACH | 10 | |
| AR752418 | PRECAST REINFORCED CONC. FES 18" | EACH | 4 | |
| AR752724 | PR CONC. FES EQ. ROUND SIZE 24" | EACH | 2 | |
| AR800476 | REMOVE AIRFIELD LIGHTING | L.S. | 1 | |
| AR800564 | CABLE AND CCR TESTING AND CALIBRATION | L.S. | 1 | |
| AR800567 | FILL PIPE WITH CLSM | L.S. L.F. | 210 | |
| AR800568 | 16" HDPE PIPE | L.F. | 305 | |
| AR800569 | 18" HDPE PIPE | L.F. | 250 | |
| | | | | |
| AR901510 | SEEDING | ACRE | 12 | |

GENERAL NOTES

- PROJECT AS DESCRIBED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS.
- THE ENGINEER
- 3. SHALL BE PERMITTED OUTSIDE THE GENERAL PROJECT AREA.
- REPAIRED AT NO ADDITIONAL COST TO THE CONTRACT
- 5. CONTRACTOR IS REQUIRED TO PROVIDE THEIR OWN RESTROOM FACILITIES.
- 6 REMOVED ON THE PROJECT
- EQUIPMENT OR PERSONNEL
- THE OFFICIAL RECORD DRAWINGS HE WILL PREPARE.
- UNDERGROUND UTILITIES.
- OTHERWISE SPECIFIED HEREIN. MAXIMUM STOCKPILE HEIGHT IS 5 FEET A.G.L
- PERMITTED BY THE AIRPORT MANAGER) AT THE CONTRACTOR'S EXPENSE
- FOR ALL AREAS AFFECTED BY HIS WORK.
- PERMIT IS REQUIRED.
- AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE
- CERTIFIED PAYROLLS FOR THAT PERIOD HAVE BEEN RECEIVED.

UTILITY NOTE

AR908510 MULCHING

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

12

ACRE

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.

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

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

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

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AND KEEP CLEAN OF DEBRIS ALL EXISTING AIRFIELD AND ROADWAY PAVEMENTS AT ALL TIMES, ANY DAMAGE TO EXISTING ELECTRICAL, DRAINAGE, AND PAVEMENT STRUCTURES SHALL BE IMMEDIATELY

THE OWNER SHALL HAVE THE RIGHT OF FIRST REFUSAL FOR ALL SALVAGEABLE MATERIAL

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

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

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

10. SUITABLE EXCESS EARTH MATERIAL SHALL BE PERMANENTLY STOCKPILED ON SITE IN AREAS DELINEATED ON THE PLANS AND AS DIRECTED BY RESIDENT ENGINEER. ALL OTHER WASTE MATERIAL SHALL BE HAULED FROM THE AIRPORT AND PROPERLY DISPOSED OF UNLESS

11. CONTRACTOR SHALL NOTE THAT ALL AREAS WITHIN THE AIRPORT PROPERTY LINE AND OUTSIDE THE CONSTRUCTION LIMITS MAY BE USED FOR AGRICULTURAL PURPOSES. THE CONSTRUCTION LIMITS SHALL BE RESTRICTED TO AREAS THAT ARE ABSOLUTELY NECESSARY TO DISTURB TO COMPLETE THE REQUIRED WORK ITEMS. LIMITS SHALL BE COORDINATED WITH THE RESIDENT ENGINEER PRIOR TO BEGINNING ANY WORK. ALL AREAS WHICH HAVE BEEN FARMED AND OR DESIGNATED TO BE FARMED AFTER THE PROJECT COMPLETION, AND HAVE BEEN DISTURBED BY CONSTRUCTION ACTIVITY, SHALL BE CHISEL PLOWED (36" MAX.) OR OTHERWISE SCARIFIED TO RETURN THE AREA TO A REASONABLE TILLABLE CONDITION (IF SO

12. THE CONTRACTOR MUST AT ALL TIMES MAINTAIN PROPER DRAINAGE AND EROSION CONTROL

13. NPDES PERMIT - THIS PROJECT WILL DISTURB MORE THAN 1 ACRE, THEREFORE A NPDES

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

15. <u>CERTIFIED PAYROLLS</u> - THE RESIDENT ENGINEER <u>CANNOT</u> FORWARD A CONSTRUCTION REPORT FOR PAYMENT TO THE IDOT-DIVISION OF AERONAUTICS FOR PROCESSING UNTIL ALL

J.U.L.I.E. INFORMATION



COUNTY MONTGOMERY LITCHFIELD TOWNSHIP SOUTH LITCHFIELD SECTION NO. 5 & 8 ADDRESS LITCHFIELD MUNICIPAL AIRPORT 1201 US ROUTE 66 LITCHFIELD, IL 62056



Hanson Professional Services Inc. 1525 S. Sixth St. Springfield, IL 62703 Phone: (217) 788-2450

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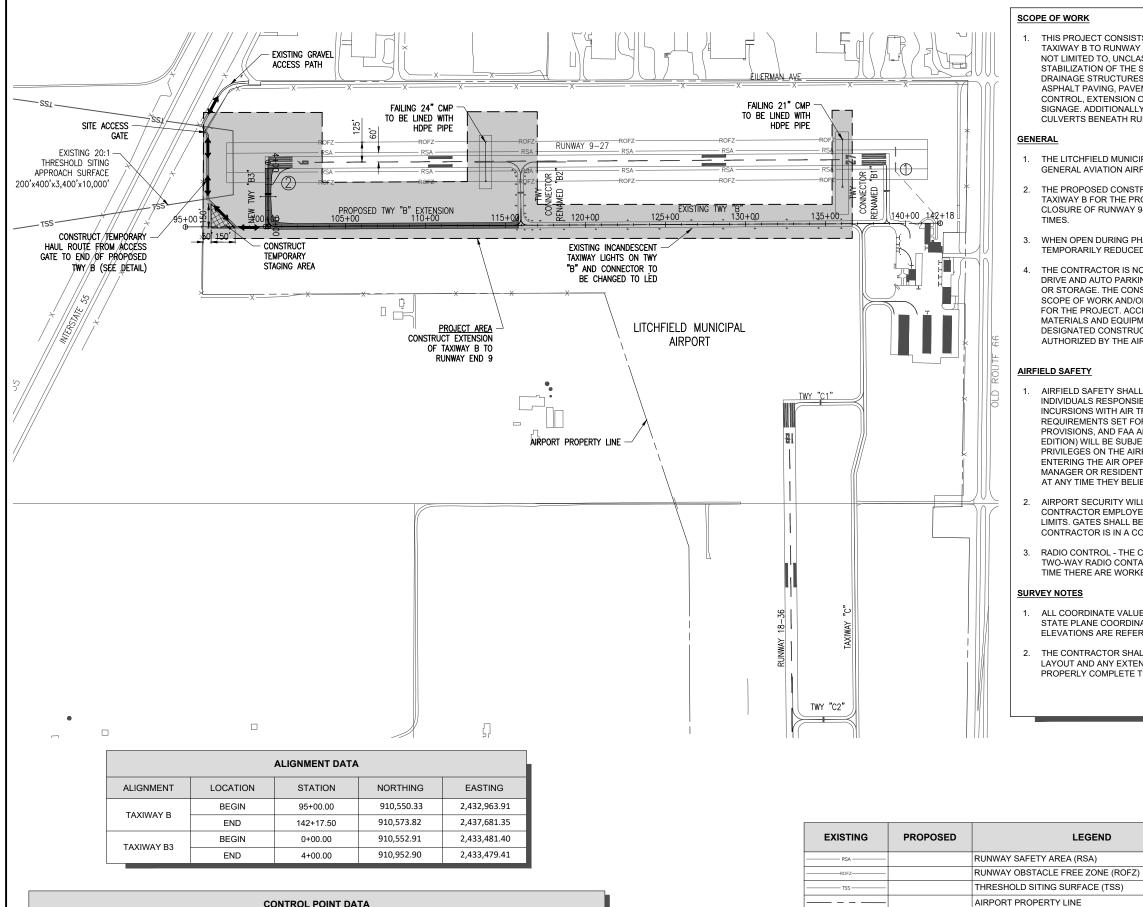
EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

| NO. | DATE | DES | CRIPT | ION |
|---------------------|----------|--------|--------|-----|
| NO. | DATE | DES | DWN | REV |
| ISSUE: | 11/20/20 | 20 (Fo | r Bid) | |
| PROJECT NO: 20A0040 | | | | |

CAD FILE: G-002-SOQ.DWG DESIGN BY: KBS 09/15/2020 DRAWN BY: HLE 09/15/2020 REVIEWED BY: KBS 11/20/2020

SUMMARY OF QUANTITIES



| CONTROL POINT DATA | | | | | |
|--------------------|---|------------|--------------|-----------|--|
| POINT NO. | DESCRIPTION | NORTHING | EASTING | ELEVATION | |
| 1 | "LIPORT" NGS PT, STEEL ROD IN 5" LOGO CAP | 910,853.98 | 2,433,591.55 | 679.81' | |
| 2 | "LITPORT AZ MK NGS PT, STEEL ROD IN 5" LOGO CAP | 910,877.69 | 2,437,462.58 | 688.51' | |
| | | | | | |

AIRPORT IMPROVEMENTS ____ PROJECT AREA STAGING AREA \leftrightarrow

THIS PROJECT CONSISTS OF EXTENDING EXISTING PARTIAL PARALLEL TAXIWAY B TO RUNWAY END 9. WORK ITEMS SHALL INCLUDE, BUT ARE NOT LIMITED TO, UNCLASSIFIED EXCAVATION AND GRADING, LIME STABILIZATION OF THE SUBGRADE, INSTALLATION OF UNDERDRAINS AND DRAINAGE STRUCTURES, CRUSHED AGGREGATE BASE COURSE, ASPHALT PAVING, PAVEMENT MARKING, TURFING AND EROSION CONTROL, EXTENSION OF THE TAXIWAY EDGE LIGHTING SYSTEM AND SIGNAGE. ADDITIONALLY TWO FAILING CORRUGATED METALLIC PIPE CULVERTS BENEATH RUNWAY 9-27 WILL BE RE-LINED WITH HDPE PIPE.

THE LITCHFIELD MUNICIPAL AIRPORT IS A NON-TOWER CONTROLLED GENERAL AVIATION AIRPORT COMPRISED OF TWO PAVED RUNWAYS.

2. THE PROPOSED CONSTRUCTION WILL REQUIRE THE CLOSURE OF TAXIWAY B FOR THE PROJECT DURATION, AND THE TEMPORARY CLOSURE OF RUNWAY 9-27. RUNWAY 18-36 SHALL REMAIN OPEN AT ALL

WHEN OPEN DURING PHASE 1, THE RUNWAY 9 APPROACH WILL BE TEMPORARILY REDUCED VIA NOTAM TO VISUAL-ONLY.

THE CONTRACTOR IS NOT PERMITTED TO USE THE AIRPORT ENTRANCE DRIVE AND AUTO PARKING LOT FOR MATERIAL AND EQUIPMENT HAULING OR STORAGE. THE CONSTRUCTION ENTRANCE AS SHOWN ON THE SCOPE OF WORK AND/OR SAFETY PHASING PLAN ARE ONLY TO BE USED FOR THE PROJECT. ACCESS TO THE PROJECT FOR ALL HAULING OF MATERIALS AND EQUIPMENT SHALL BE RESTRICTED TO THE DESIGNATED CONSTRUCTION ENTRANCE UNLESS OTHERWISE AUTHORIZED BY THE AIRPORT MANAGER ...

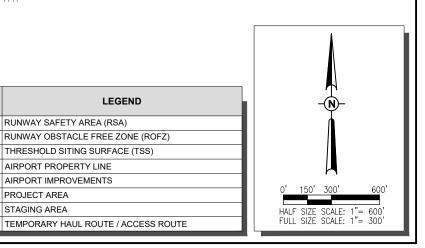
AIRFIELD SAFETY SHALL BE HELD PARAMOUNT AT ALL TIMES. ANY INDIVIDUALS RESPONSIBLE FOR INCURSIONS OR POTENTIAL INCURSIONS WITH AIR TRAFFIC DUE TO NON-COMPLIANCE WITH REQUIREMENTS SET FORTH IN THESE PLANS. SPECIFICATIONS. SPECIAL PROVISIONS, AND FAA ADVISORY CIRCULAR 150/5370-2 (CURRENT EDITION) WILL BE SUBJECT TO AN IMMEDIATE SUSPENSION OF DRIVING PRIVILEGES ON THE AIRPORT OR A COMPLETE RESTRICTION FROM ENTERING THE AIR OPERATIONS AREA ALTOGETHER. THE AIRPORT MANAGER OR RESIDENT ENGINEER/TECHNICIAN MAY STOP THE WORK AT ANY TIME THEY BELIEVE AIRFIELD SAFETY IS BEING COMPROMISED

AIRPORT SECURITY WILL BE MAINTAINED AT ALL TIMES. ONLY CONTRACTOR EMPLOYEES SHALL BE ALLOWED WITHIN THE PROJECT LIMITS. GATES SHALL BE CLOSED AT ALL TIMES UNLESS THE CONTRACTOR IS IN A CONTINUOUS HAULING OPERATION.

RADIO CONTROL - THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO-WAY RADIO CONTACT WITH THE AIRPORT UNICOM (122.80 MHz) ANY TIME THERE ARE WORKERS OR EQUIPMENT ON THE AIRFIELD.

ALL COORDINATE VALUES SHOWN IN TABLE ARE BASED ON ILLINOIS STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD-83 (2011). ALL ELEVATIONS ARE REFERENCED TO NAVD 88.

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





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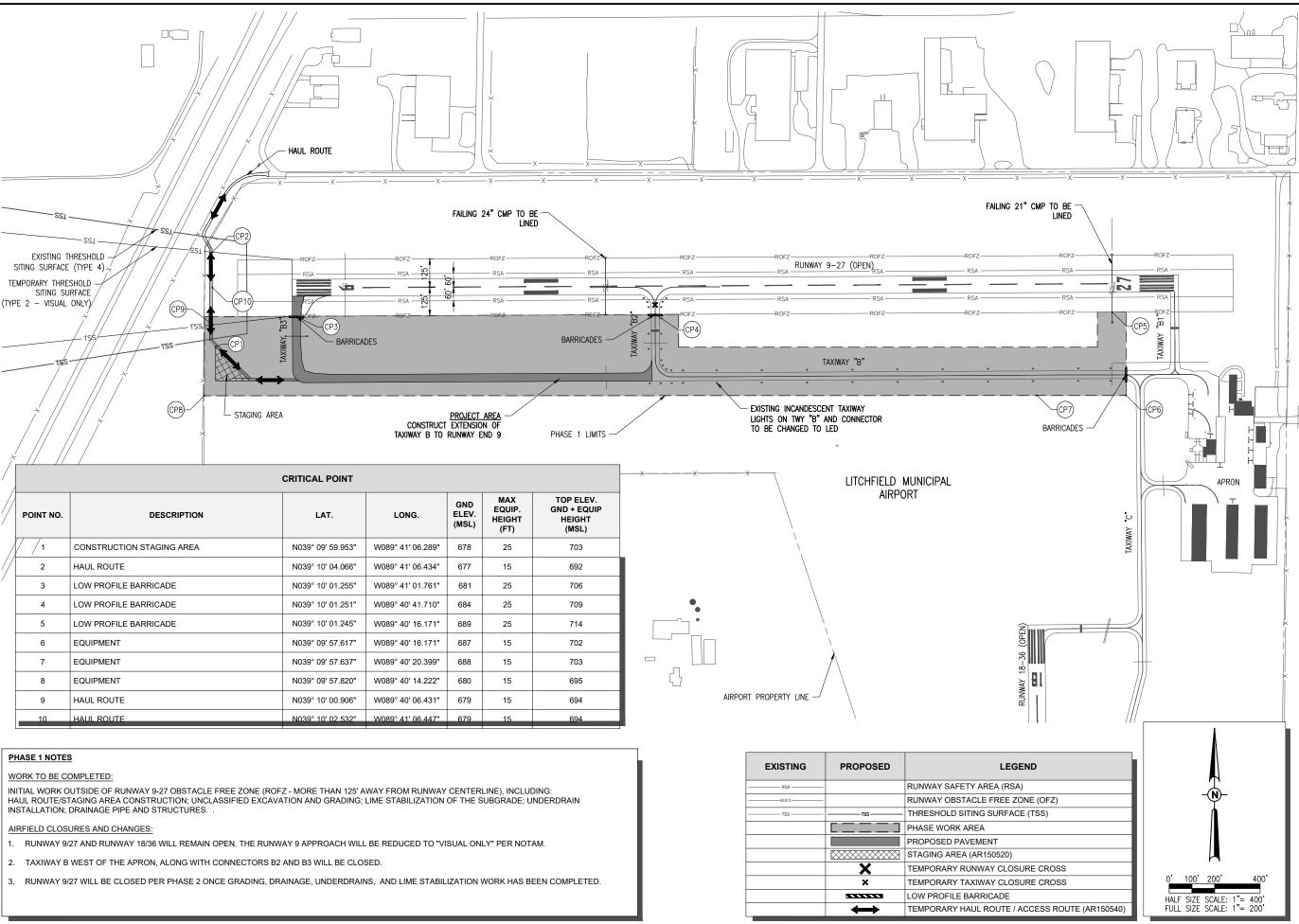
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| NO. | DATE | DESCRIPTION | | ION |
| NO. | DATE | DES | DWN | REV |
| ISSUE: 11/20/2020 (For Bid) | | | | |
| PROJECT NO: 20A0040 | | | | |

CAD FILE: C-101-SOW.DWG DESIGN BY: KBS 09/15/2020 DRAWN BY: HLE 09/15/2020 REVIEWED BY: KBS 11/20/2020

SCOPE OF WORK AND SAFETY PLAN



| EXISTING | PROPOSED | LEGEND |
|----------|-------------------|------------------------------------|
| RSA | | RUNWAY SAFETY AREA (RSA) |
| ROFZ | | RUNWAY OBSTACLE FREE ZONE (OFZ) |
| TSS | TSS | THRESHOLD SITING SURFACE (TSS) |
| | | PHASE WORK AREA |
| | | PROPOSED PAVEMENT |
| | | STAGING AREA (AR150520) |
| | × | TEMPORARY RUNWAY CLOSURE CROSS |
| | × | TEMPORARY TAXIWAY CLOSURE CROSS |
| | | LOW PROFILE BARRICADE |
| | \leftrightarrow | TEMPORARY HAUL ROUTE / ACCESS ROUT |
| | | |



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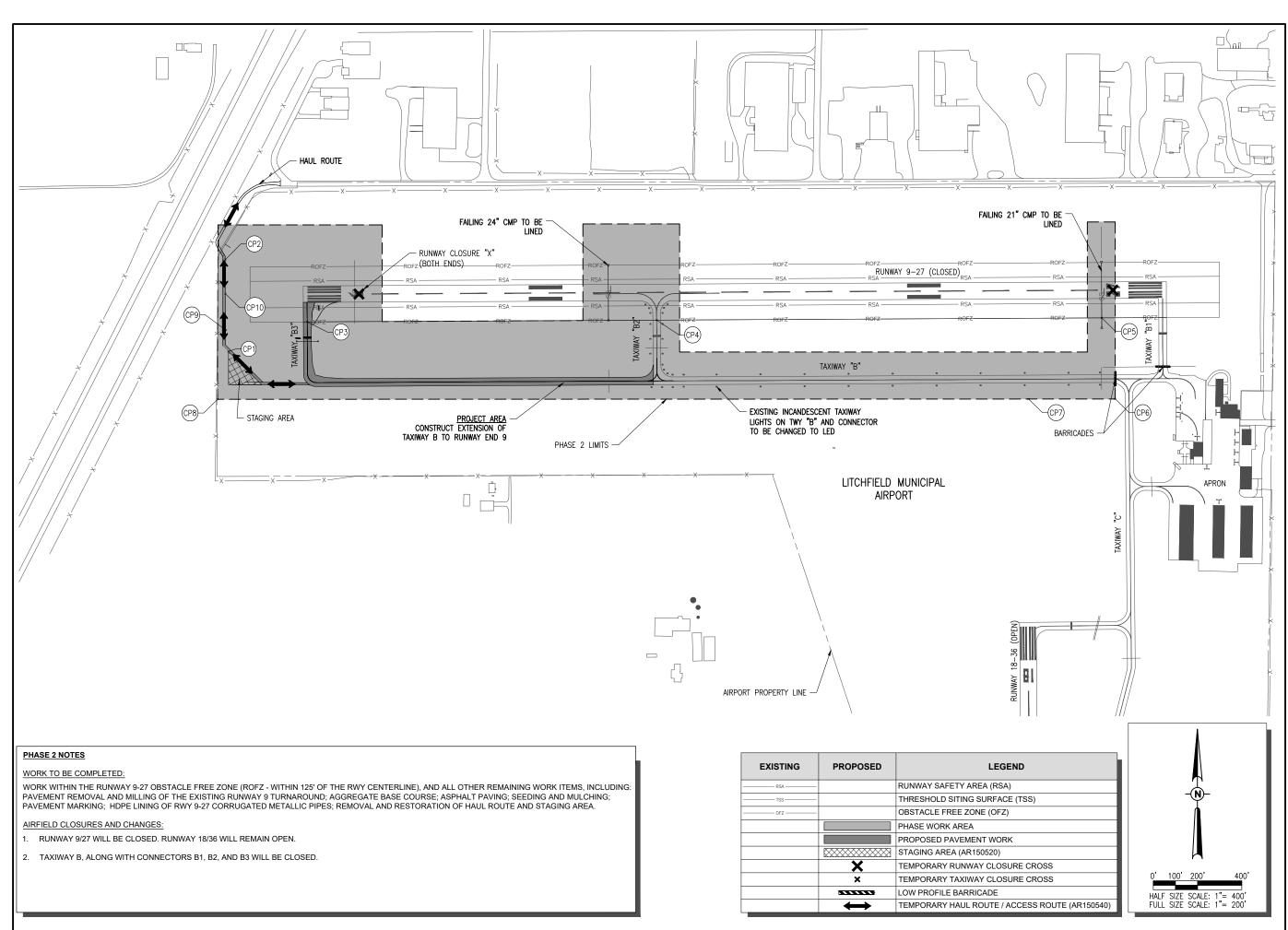
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CONSTRUCTION PHASING PLAN -PHASE 1



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CONSTRUCTION PHASING PLAN -PHASE 2

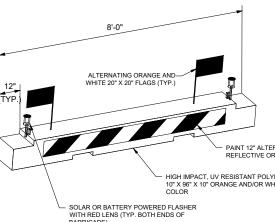
SAFETY NOTES

- ALL PROVISIONS OF THE LATEST EDITION OF FAA ADVISORY CIRCULAR AC 150/5370-2 (CURRENT EDITION), "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION", APPLY TO THIS CONTRACT. EXCEPT AS MODIFIED BY THIS SAFETY PLAN. OR AS MODIFIED BY THE OWNER THROUGH THE RESIDENT ENGINEER/TECHNICIAN AT THE PRECONSTRUCTION CONFERENCE, OR DURING THE COURSE OF THE CONTRACT.
- 2. THE CONTRACTORS SHALL MINIMIZE DISRUPTION OF STANDARD OPERATING PROCEDURES FOR AERONAUTICAL ACTIVITY BY REMAINING WITHIN THE PRESCRIBED STAGING, CONSTRUCTION, AND PHASING AREAS PRESENTED ON THE CONSTRUCTION SAFETY AND PHASING PLAN SHEETS.
- NO UNAUTHORIZED PERSONNEL SHALL ENTER ANY AREA OF THE AIRPORT THAT COULD POTENTIALLY BE HAZARDOUS. THE AIRPORT MANAGER RESERVES THE RIGHT TO SUSPEND OPERATIONS IN ORDER TO MAINTAIN SAFETY AT THE AIRPORT.
- 4. PRIOR TO ACCESSING THE AIRFIELD, ANY DESIGNATED CONTRACTOR OR SUBCONTRACTOR EMPLOYEES WHO WILL BE OPERATING OR ESCORTING A VEHICLE ON AN ACTIVE AREA OF THE AIRFIELD MUST ATTEND A 1 HOUR AIRFIELD SAFETY TRAINING AND ORIENTATION PROVIDED BY THE AIRPORT. PRIOR TO THE TRAINING, THE EMPLOYEES MUST BE FAMILIAR WITH THE "FAA GUIDE TO GROUND VEHICLE OPERATIONS", AND KEEP A HARD COPY IN THE VEHICLE FOR REFERENCE. THE GUIDE CAN BE FOUND AT: https://www.faa.gov/airports/runway_safety/media/Ground_Vehicle_Guide_Proof_Final.pdf
- 5. NO CONSTRUCTION VEHICLES SHALL BE DRIVEN ACROSS ANY ACTIVE AIRFIELD PAVEMENT AREA WITHOUT AN APPROPRIATE ESCORT. CONSTRUCTION EQUIPMENT OR CONSTRUCTION ACTIVITY WILL NOT BE PERMITTED WITHIN 125' OF ANY ACTIVE RUNWAY CENTERLINE OR WITHIN 66' OF ANY OTHER ACTIVE AIRPORT TAXIWAY OR APRON UNLESS OTHERWISE NOTED.
- CONTRACTOR EQUIPMENT, VEHICLES, AND PROJECT MATERIALS SHALL BE STORED AT THE STAGING AREA SHOWN ON THE PLAN VIEW, EXCEPT AS OTHERWISE PROVIDED FOR AT THE PRECONSTRUCTION CONFERENCE
- 7. ALL CONSTRUCTION EQUIPMENT OPERATING IN THE PRESCRIBED CONSTRUCTION AREA IS REQUIRED TO DISPLAY A CHECKERBOARD FLAG PROPERLY LOCATED OR A ROTATING BEACON (STROBE) AS SPECIFIED IN AC 150/5210-5, "PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT" LATEST EDITION.
- 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/TECHNICIAN) EXTENDING OUT AND UPWARDS FROM ALL SIDES OF AN ACTIVE RUNWAY.
- CLOSED AIRFIELD PHASING AREAS, OPEN TRENCHES, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED WITH LIGHTED BARRICADES WITH STEADY BURNING OR FLASHING RED LIGHTS AS SPECIFIED IN 150/5370-2, "OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION", LATEST EDITION. LIGHTED BARRICADES MUST BE NO TALLER THAN 18" (EXCLUSIVE OF SUPPLEMENTARY LIGHTS AND FLAGS) ON THE TAXIWAYS AND COMPLY WITH ADVISORY CIRCULAR 150/5370-2, LATEST EDITION. CONTRACTOR SHALL NIGHT CHECK BARRICADES DAILY FOR PROPER OPERATION.
- 10. OPEN TRENCHES, EXCAVATIONS, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHOULD BE PROMINENTLY MARKED WITH ORANGE FLAGS AND LIGHTED WITH FLASHING RED LIGHTS DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS
- 11. NO CONSTRUCTION EQUIPMENT GREATER THAN 25' TALL WILL BE PERMITTED ON THE AIRPORT WITHOUT THE APPROVAL OF THE AIRPORT MANAGER AND ADDITIONAL AIRSPACE APPROVAL BY THE FAA. AIRSPACE APPROVALS REQUIRE CONSIDERABLE LEAD TIME AND SHOULD BE REQUESTED WELL IN ADVANCE
- 12. NO OPEN FLAME WELDING OR TORCH CUTTING OPERATION IS PERMITTED UNLESS ADEQUATE FIRE AND SAFETY PRECAUTIONS ARE PROVIDED AND HAVE BEEN APPROVED BY THE AIRPORT MANAGER NO FLARE POTS ARE ALLOWED ON THE PROJECT.
- 13. SOIL DEBRIS, AND LOOSE MATERIAL DROPPED OR TRUCKED ONTO AIRPORT ROADS. TAXIWAYS. AND SOD SURFACES, OR WHICH CAN BE BLOWN ONTO SUCH SURFACES, SHALL BE IMMEDIATELY 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. CONTRACTOR SHALL TAKE MEASURES TO AVOID TRACKING BITUMINOUS TACK COAT ASSOCIATED WITH PAVING PROJECTS ONTO ADJACENT PAVEMENT AREAS, ESPECIALLY GROOVED RUNWAY PAVEMENTS, UNLESS SUFFICIENT PROTECTION HAS BEEN APPLIED, HEAVY TRACKING OR DAMAGE TO ADJACENT PAVEMENTS AND GROOVED SURFACES MAY BE CAUSE FOR STOPPING THE WORK UNTIL ACCEPTABLE PROTECTION OR CHANGE IN WORK METHODS HAS BEEN PROVIDED
- 15. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING AIRPORT LIGHTING AND NAVIGATIONAL ELECTRICAL SYSTEMS DURING CONSTRUCTION. A CONTACT PERSON AND TELEPHONE NUMBER FOR 24 HOUR EMERGENCY IMMEDIATE REPAIR SHALL BE SUBMITTED TO THE AIRPORT MANAGER AND RESIDENT ENGINEER/TECHNICIAN HAUL ROUTES CROSSING PAVEMENT, DRAINAGE, MISCELLANEOUS. STRUCTURES AND/OR AIRFIELD CABLES SHALL BE PROTECTED FROM DAMAGE
- 16. ALL AIRCRAFT AND AIRPORT OPERATIONS HAVE THE RIGHT-OF-WAY. CONTRACTOR TO YIELD TO VEHICLES AND REMAIN CLEAR AT ALL TIMES.
- 17. CONTRACTOR SHALL PLACE, SECURE, AND MAINTAIN LIGHTED BARRICADES AND CLOSURE CROSSES WHEN A RUNWAY/TAXIWAY/APRON IS CLOSED OR AS REQUIRED BY THE PLANS AND DESIGNATED BY THE RESIDENT ENGINEER/TECHNICIAN
- 18. CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED LIGHTS DURING PERIODS OF LOW VISIBILITY AS REQUIRED.

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

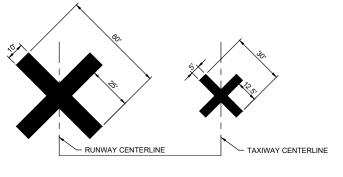
OPERATIONS BEGIN WITHIN THE RUNWAY/TAXIWAY AIR OPERATIONS AREA.

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



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



TEMPORARY CLOSURE CROSS DETAIL

NOT TO SCALE

1. TEMPORARY "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL BE "AVIATION YELLOW"

2. TEMPORARY "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL BE CONSTRUCTED OF PLYWOOD, DOUBLE-LAYERED SNOW FENCE OR APPROVED FABRIC AND SHALL BE SECURED TO PAVEMENT BY SANDBAGS OR OTHER APPROVED METHOD.

3. TEMPORARY "CLOSED RUNWAY" MARKINGS SHALL BE PLACED OVER THE RUNWAY DESIGNATION NUMBERS UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER/TECHNICIAN

7. COST FOR PROVIDING, PLACING, MAINTAINING, RELOCATING AND REMOVING "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL BE INCLUDED AS AN INCIDENTAL COST TO THE CONTRACT, UNLESS OTHERWISE NOTED.

> PAINT 12" AI TERNATING STRIPES REFLECTIVE ORANGE AND WHIT

HIGH IMPACT, UV RESISTANT POLYETHYLENE 10" X 96" X 10" ORANGE AND/OR WHITE IN

LOW PROFILE AIRCRAFT BARRICADE DETAIL



Hanson Professional Services Inc 1525 S. Sixth St. Springfield, IL 62703 Phone: (217) 788-2450

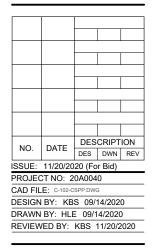
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LITCHFIELD MUNICIPAL AIRPORT

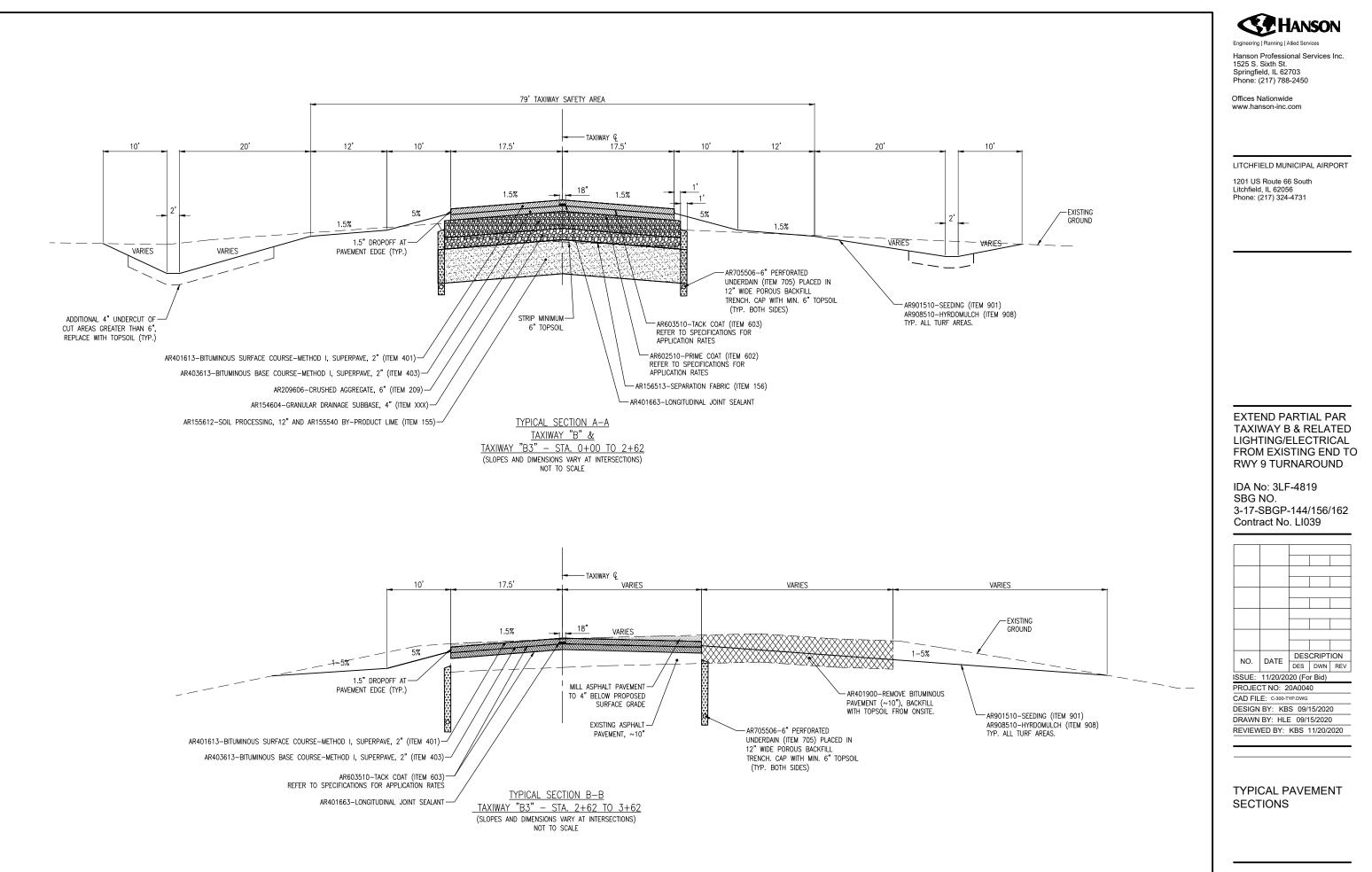
1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

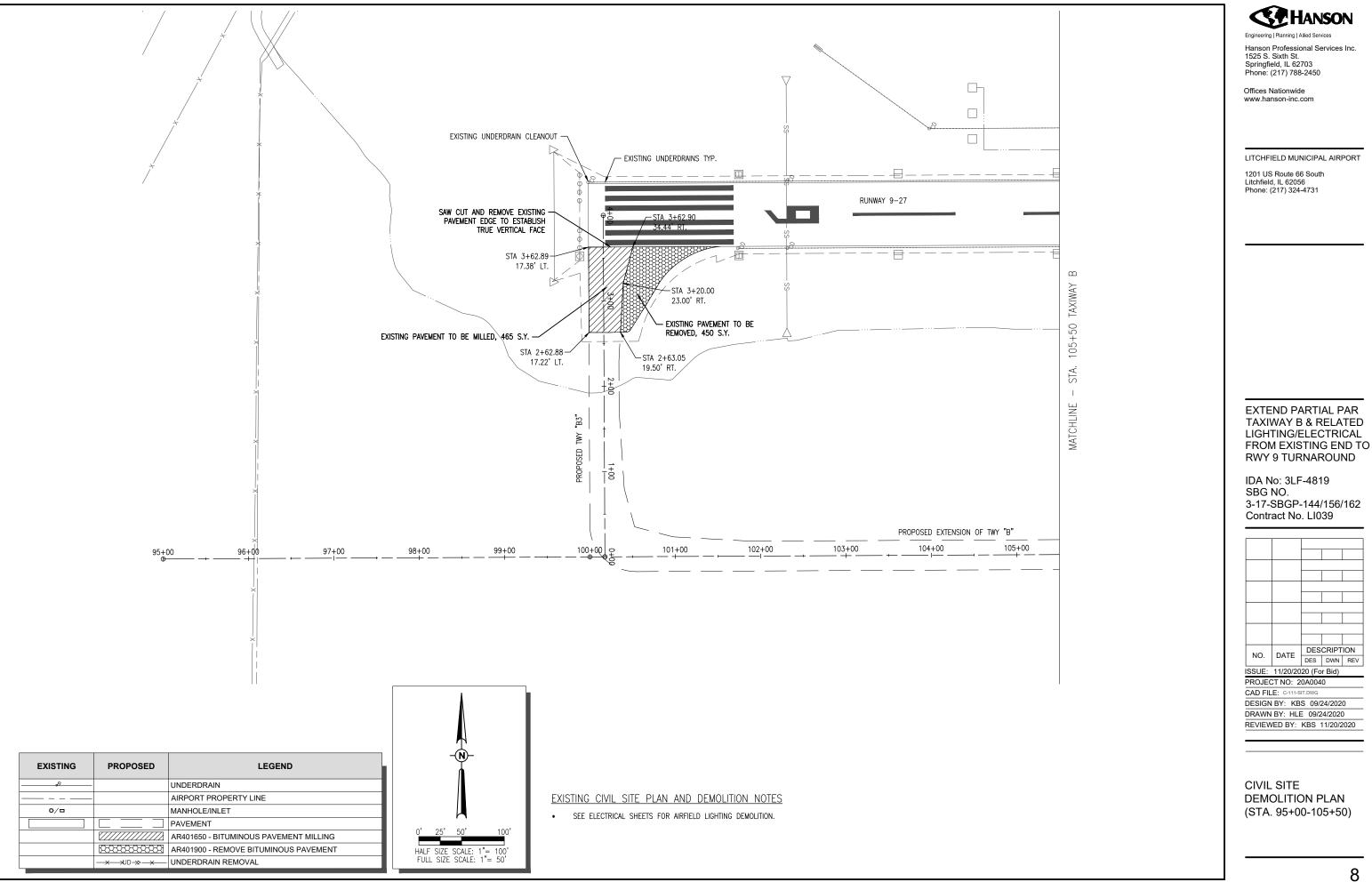
EXTEND PARTIAL PAR **TAXIWAY B & RELATED** LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

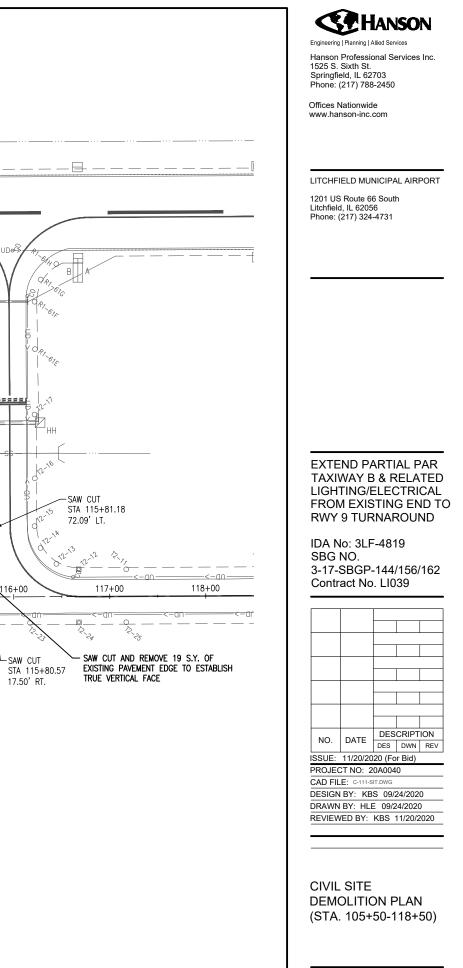


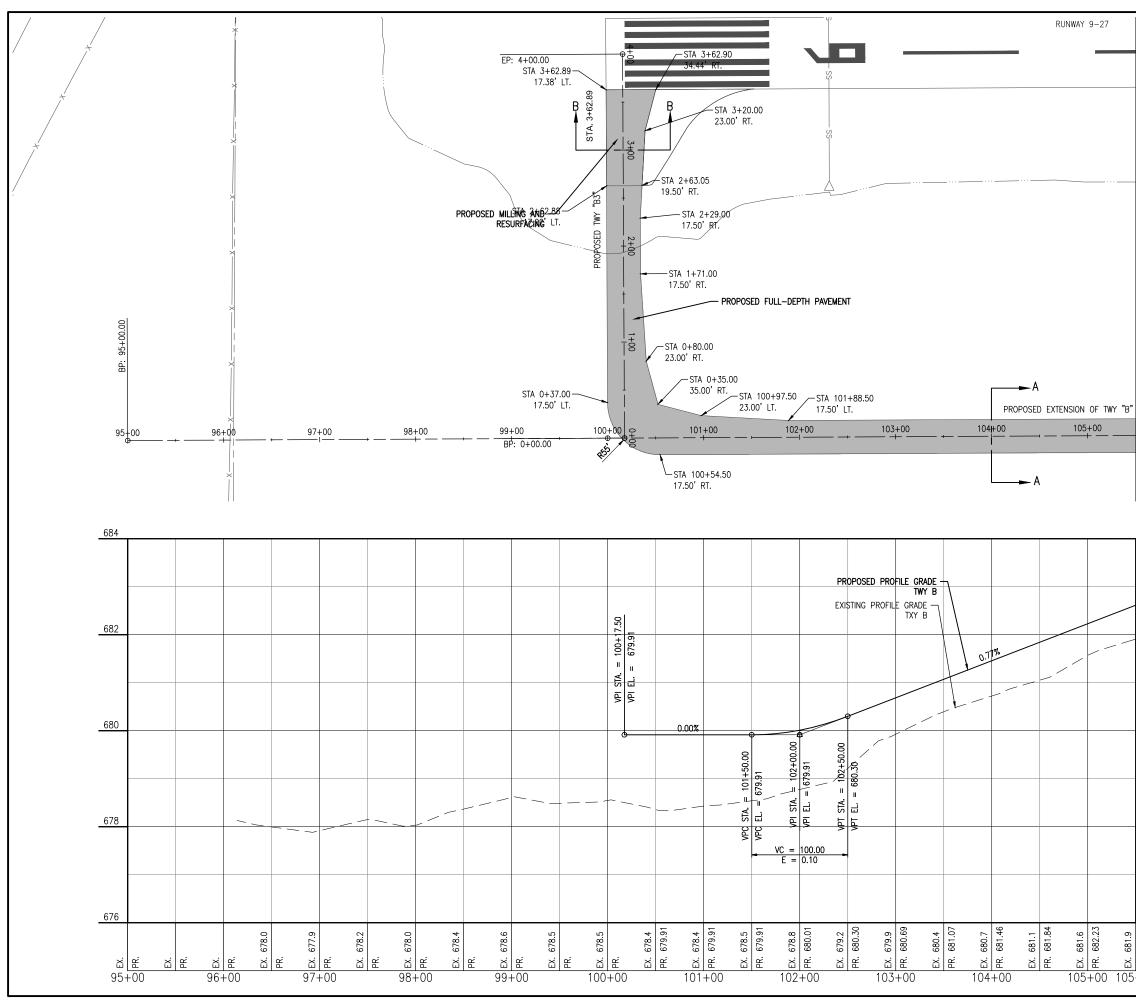
CONSTRUCTION PHASING PLAN NOTES AND DETAILS





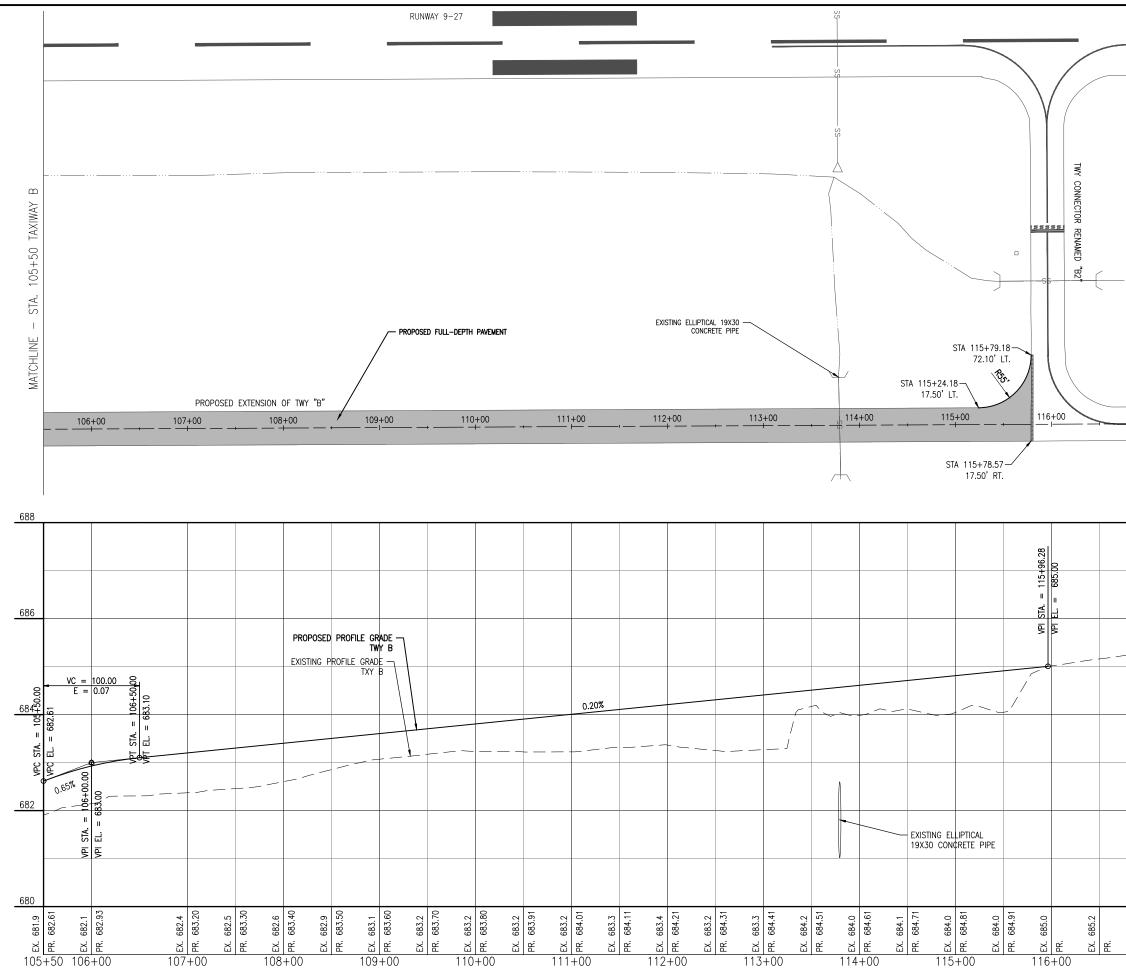
_ ⊟ \square Π RUNWAY 9-27 ____ **-**-____ F A ш B2 TAXIWAY G REN 105+50 CONNECTOR \$5555 STA. ₹ 1 12, 10 p UNDERDRAIN REMOVAL -MATCHLINE STA 115+75.40 73.18'LT. UNDERDRAIN REMOVAL IS INCIDENTAL TO EXCAVATION/PROPOSED UNDERDRAIN INSTALLATION PROPOSED EXTENSION OF TWY "B" 114+00 115+00 116+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 106+00 UNDERDRAIN REMOVAL -STA 115+82.92 18.82' RT. EXISTING PROPOSED LEGEND UNDERDRAIN ß EXISTING CIVIL SITE PLAN AND DEMOLITION NOTES _ _ AIRPORT PROPERTY LINE 0/□ MANHOLE/INLET • SEE ELECTRICAL SHEETS FOR AIRFIELD LIGHTING DEMOLITION. PAVEMENT 50 100 AR401650 - BITUMINOUS PAVEMENT MILLING AR401900 - REMOVE BITUMINOUS PAVEMENT HALF SIZE SCALE: 1"= 100' FULL SIZE SCALE: 1"= 50'





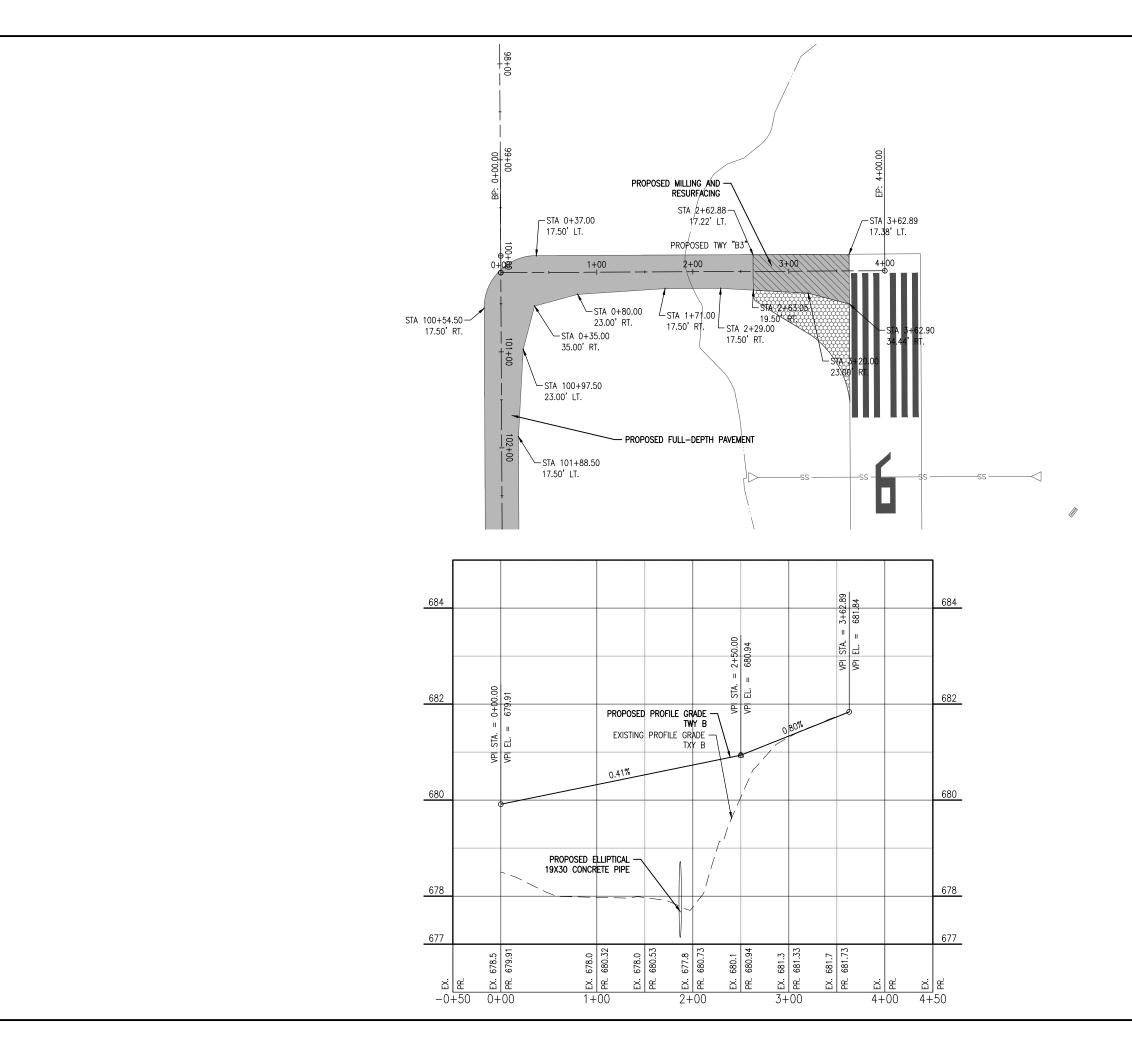
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| | MATCHLINE – STA. 105+50 TAXIWAY B | 0' 25' 50' 100' HALF SIZE SCALE: 1"= 100' FULL SIZE SCALE: 1"= 50' | <image/> <text><text><text><text><text><text></text></text></text></text></text></text> |
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| | 684 | | EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039 |
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| | <u>680</u> 678 | | NO. DATE DESCRIPTION DES DWN REV ISSUE: 11/20/2020 (For Bid) PROJECT NO: 20A0040 CAD FILE: C701-PNP.DWG DESIGN BY: KBS 09/24/2020 DRAWN BY: HLE 09/24/2020 DRAWN BY: HLE 09/24/2020 REVIEWED BY: KBS 11/20/2020 |
| 5 | 676 ¹⁹ 788 H 50 | | PLAN AND PROFILE TAXIWAY B (STA. 95+00-105+50) |

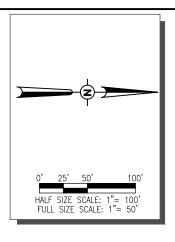


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| EXISTING TWY "B" | 118+00 | |
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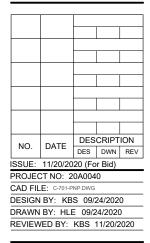
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LITCHFIELD MUNICIPAL AIRPORT

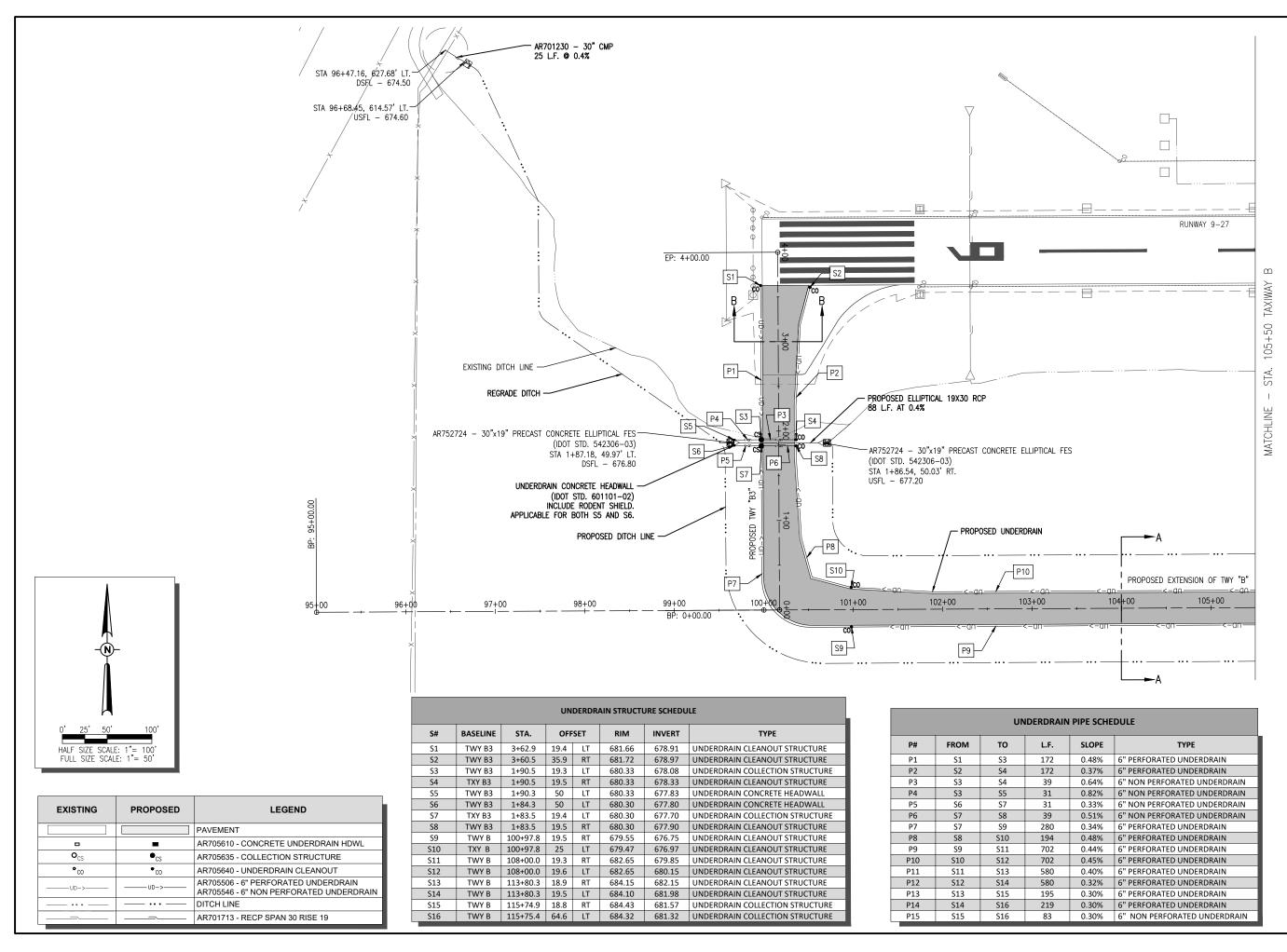
1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

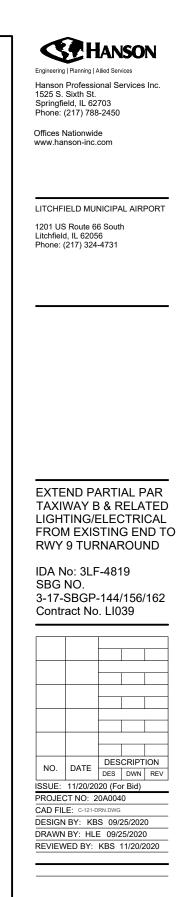
EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

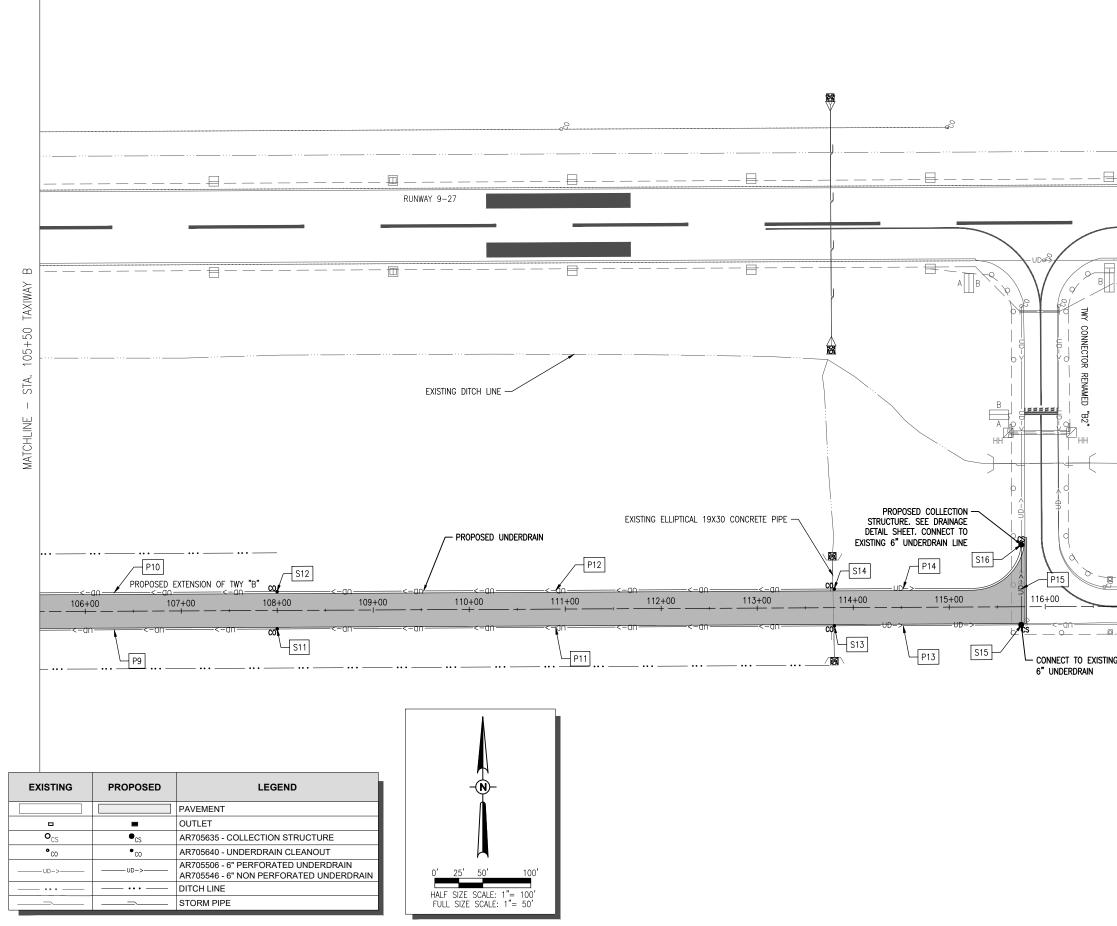


PLAN AND PROFILE TAXIWAY B3





DRAINAGE PLAN (STA. 95+00-105+50)

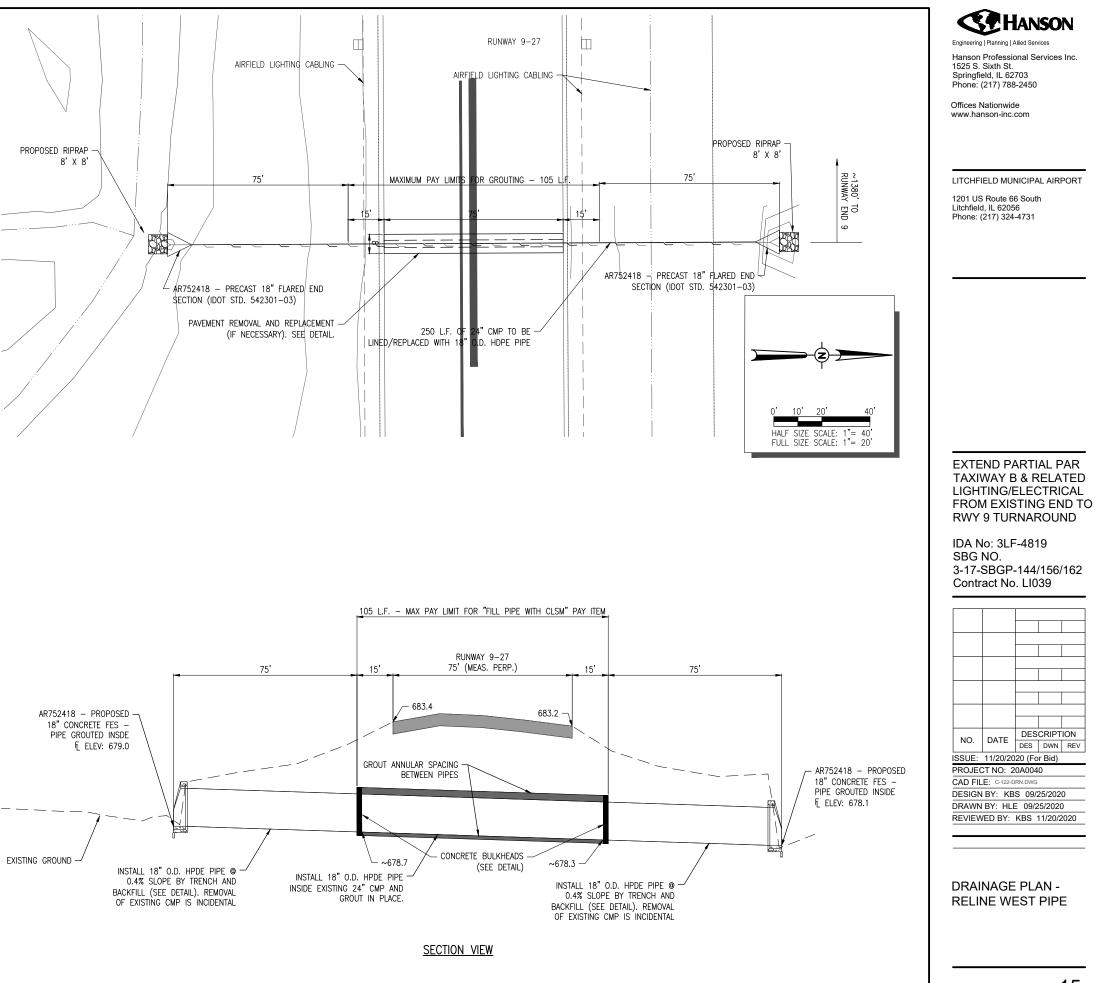


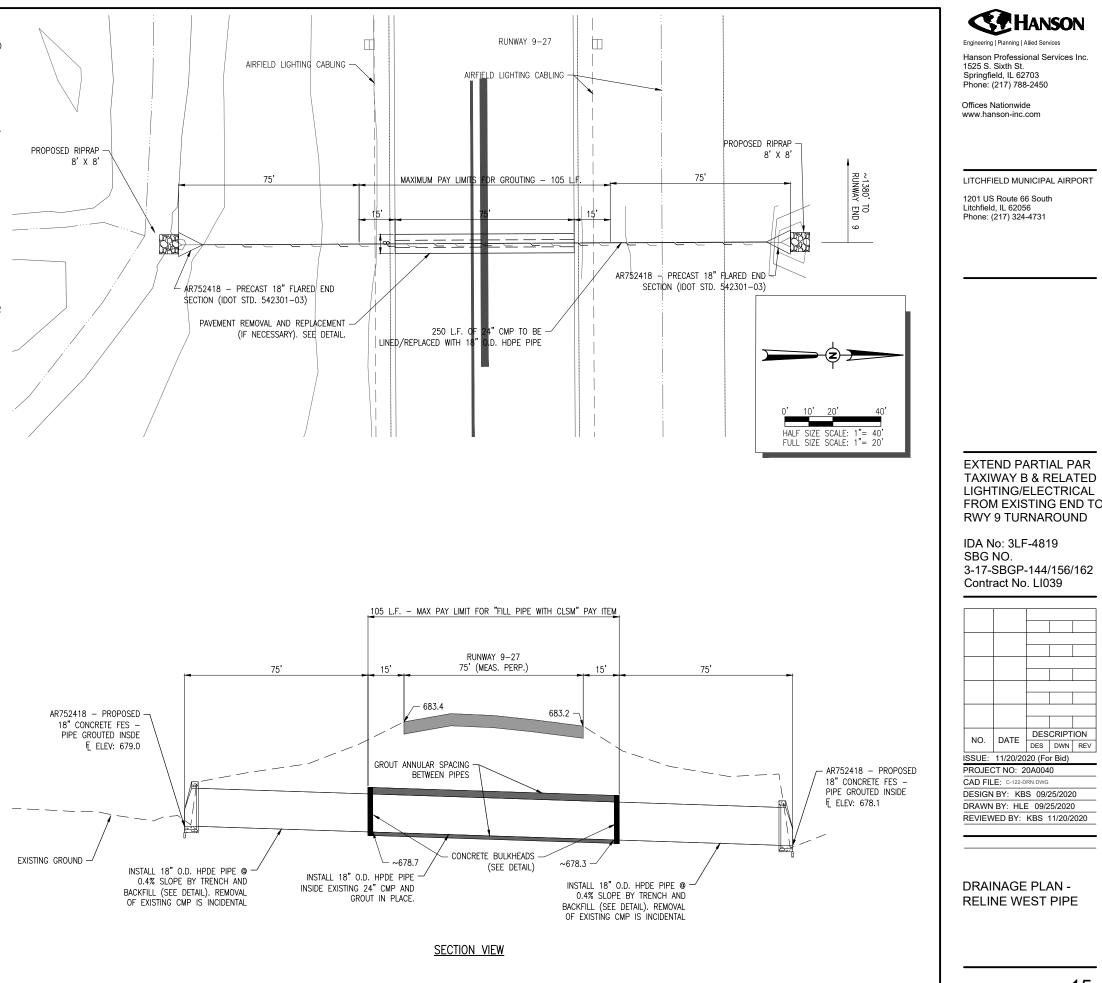
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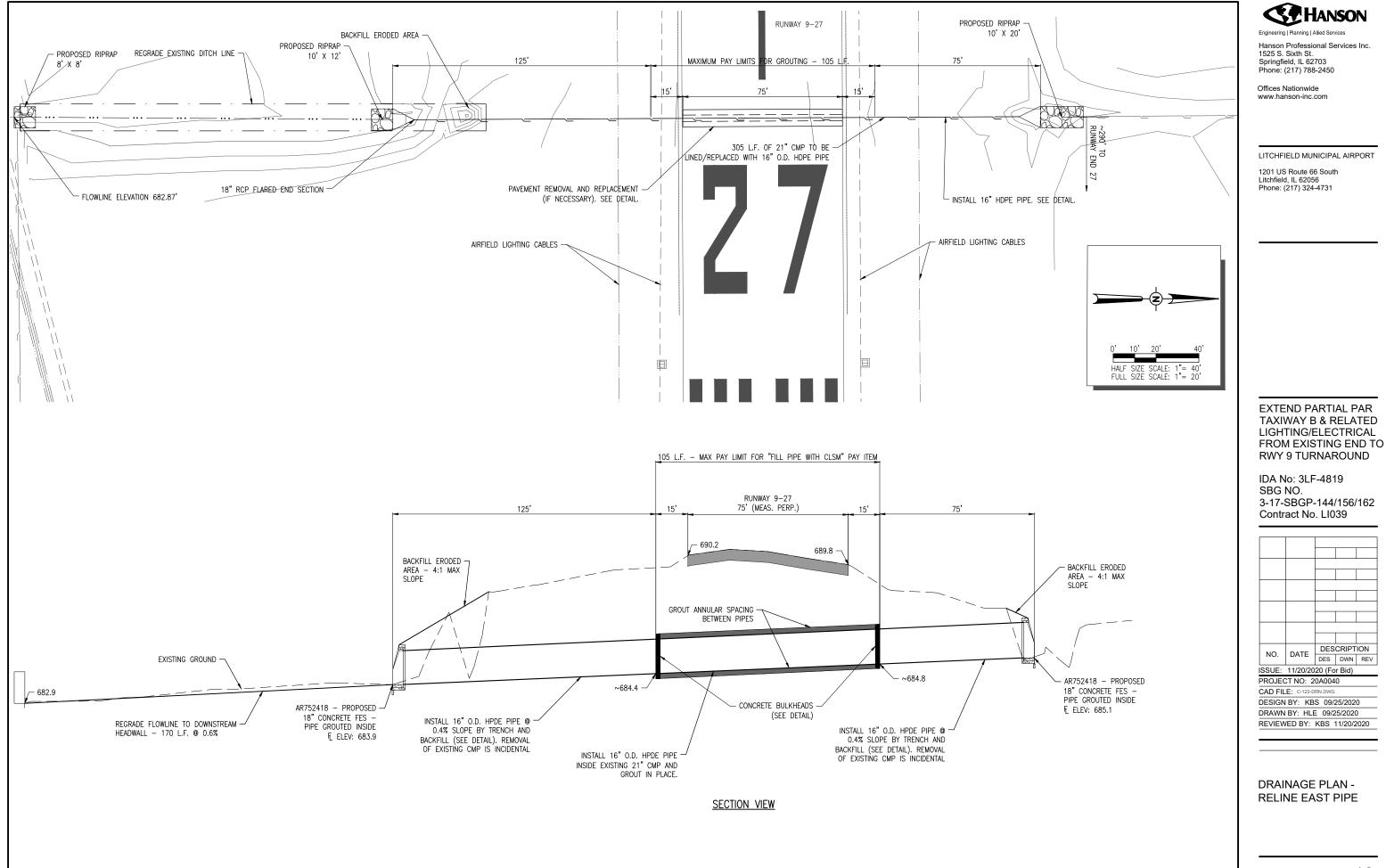
| | Engineering Planning Alled Services Hanson Professional Services Inc. 1525 S. Sixth St. Springfield, IL 62703 Phone: (217) 788-2450 Offices Nationwide www.hanson-inc.com |
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| <u> </u> | LITCHFIELD MUNICIPAL AIRPORT 1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731 |
| | |
| | EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039 |
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| | DRAINAGE PLAN (STA. 105+50-118+50) |

PIPE LINING NOTES:

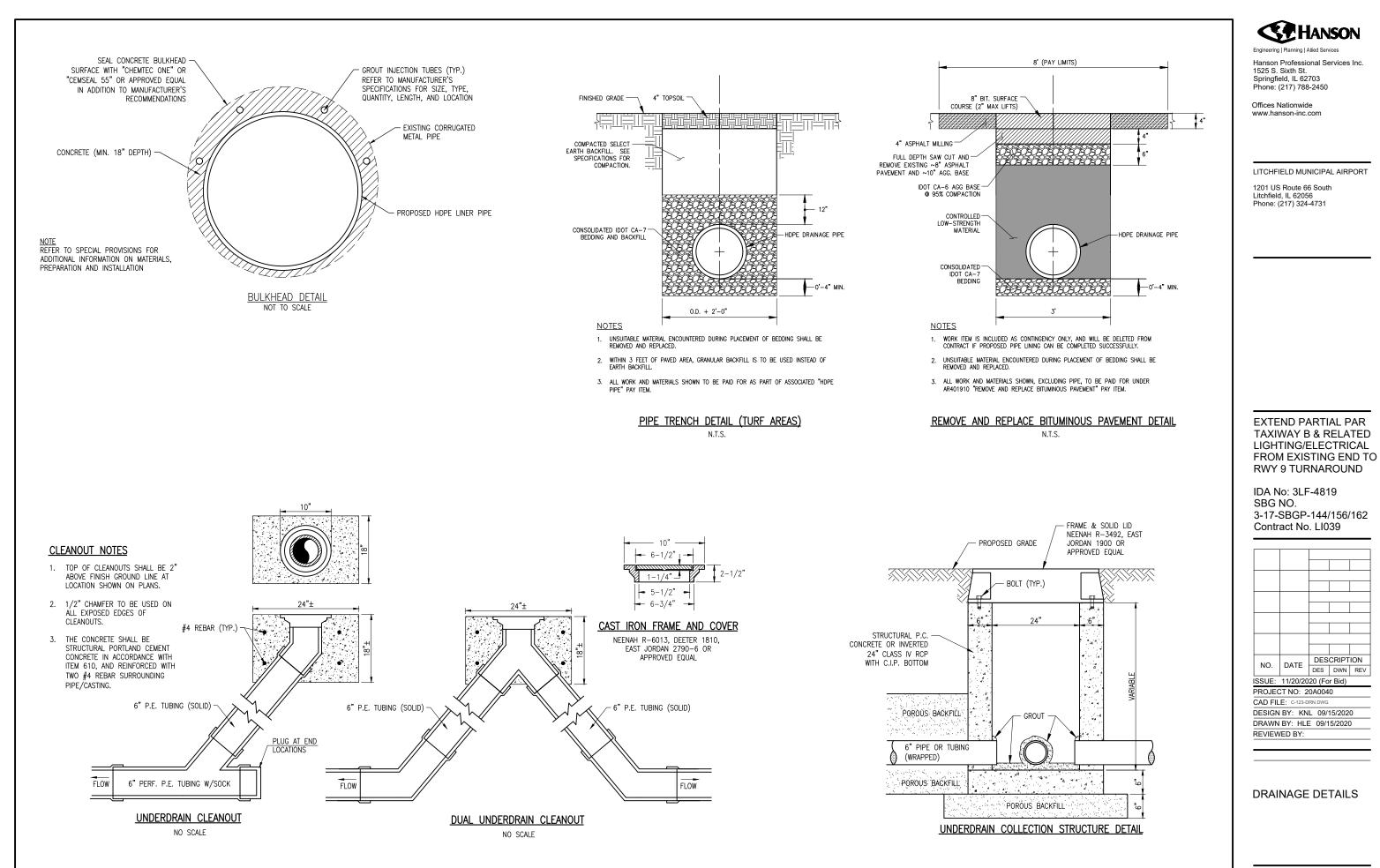
- 1. TWO EXISTING CORRUGATED METALLIC PIPES (21" AND 24" DIA.) BENEATH RUNWAY 9-27 ARE DESIGNATED FOR LINING WITH SMALLER DIAMETER HDPE PIPES. EXISTING PIPES WERE INSPECTED WITH REMOTE EQUIPMENT IN SUMMER 2020 AND PORTIONS BENEATH THE RUNWAY ARE BELIEVED TO BE IN SUITABLE CONDITION TO BE LINED. PORTIONS OUTSIDE THE RUNWAY LIMITS WILL BE INSTALLED BY REMOVAL AND REPLACEMENT OF THE EXISTING PIPE.
- 2. PRIOR TO ATTEMPTING LINING, CONTRACTOR SHALL REMOVE EXISTING PIPE UP TO THE LINING LIMITS (15' ON ETHER SIDE OF RUNWAY EDGE OF PAVEMENT), AND REINSPECT PORTIONS OF PIPES TO BE LINED TO CONFIRM SUITABILITY. IF IT IS DETERMINED THE PIPES ARE NO LONGER SUITABLE FOR LINING, PIPE SHALL INSTEAD BE INSTALLED BY THE REMOVE AND REPLACE METHOD, AS PER DETAIL.
- 3. CONTRACTOR MAY ELECT TO LINE ADDITIONAL LENGTHS OF CMP BEYOND LIMITS OF WHAT IS SHOWN FOR GROUTING IN LIEU OF REMOVAL AND REPLACEMENT AFTER VERIFYING SUITABILITY OF ADDITIONAL LENGTHS HOWEVER MAX PAY LIMITS FOR GROUTING WILL NOT BE ADJUSTED.
- 4. CONTRACTOR SHALL SURVEY PIPE INVERTS AT BULKHEAD LOCATIONS AND CONFIRM ALL PROPOSED ELEVATIONS WITH PROJECT ENGINEER PRIOR TO INSTALLATION.
- 5. CONTRACTOR SHALL IDENTIFY AND LOCATE AIRFIELD LIGHTING CABLING AND UNDERDRAINS IN VICINITY PRIOR TO ANY EXCAVATION.
- 6. ALL DISTURBED AREAS SHALL BE GRADED, SEEDED AND MULCHED PER ITEMS 901 AND 908.
- 7. COST OF HDPE PIPE AND INSTALLATION, INCLUDING TRENCHING AND BACKFILL IN TURF AREAS AND SLIP-LINING WILL BE PAID UNDER THE APPLICABLE SIZE "## HDPE PIPE" PAY ITEM.
- 8. COST OF CONCRETE BULKHEADS AND GROUTING OF ANNULAR SPACING BETWEEN PIPES WILL BE PAID FOR UNDER AR800567 "FILL PIPE WITH CLSM".
- 9. COST OF PAVEMENT REMOVAL AND REPLACEMENT IF UTILIZED AS A CONTINGENCY ITEM IN LIEU OF LINING/GROUTING - INCLUDING FLOWABLE FILL BACKFILL AROUND PIPE, WILL BE PAID FOR UNDER AR401900 "REMOVE AND REPLACE BITUMINOUS PAVEMENT".

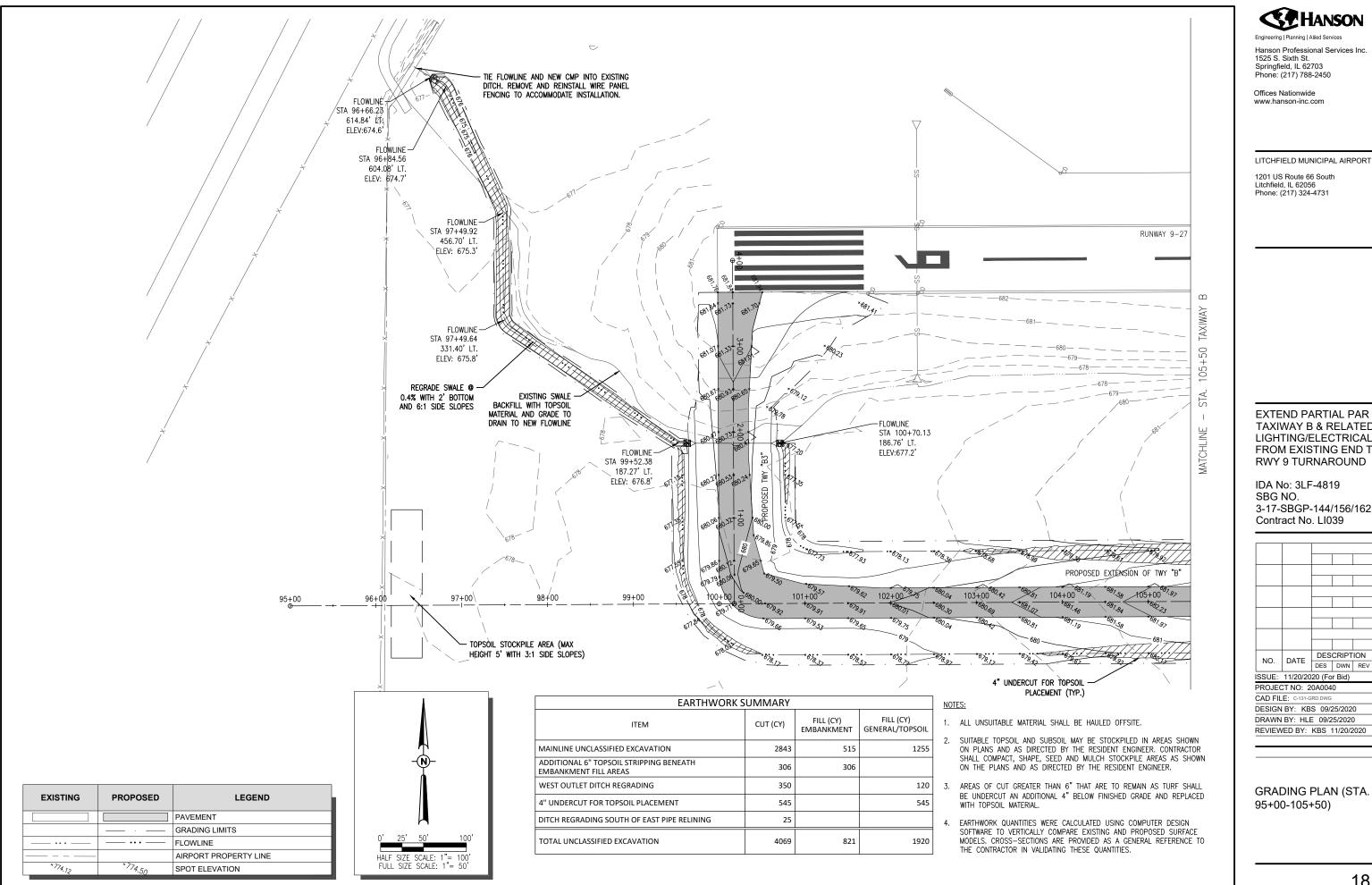






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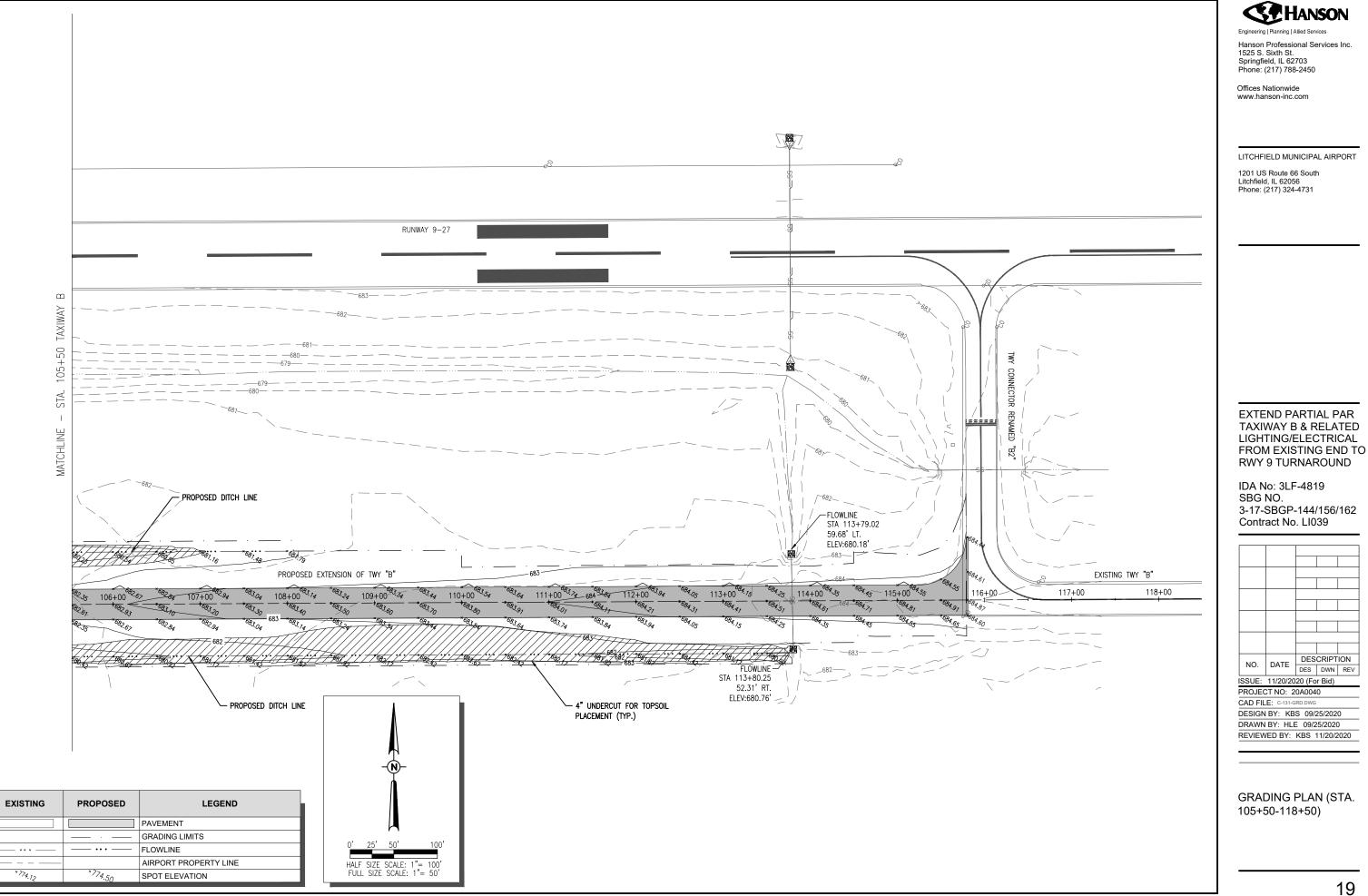


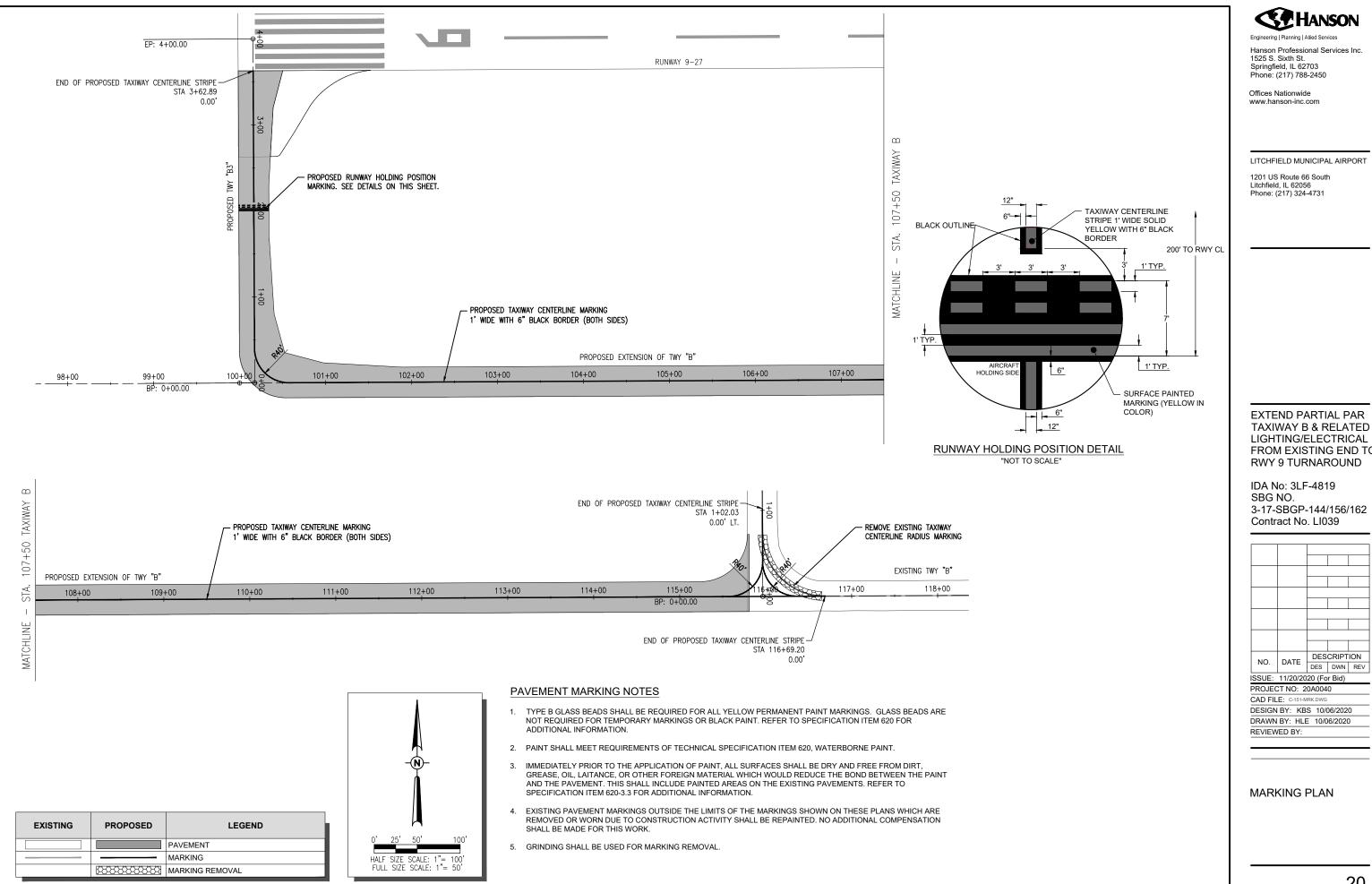
EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO

3-17-SBGP-144/156/162

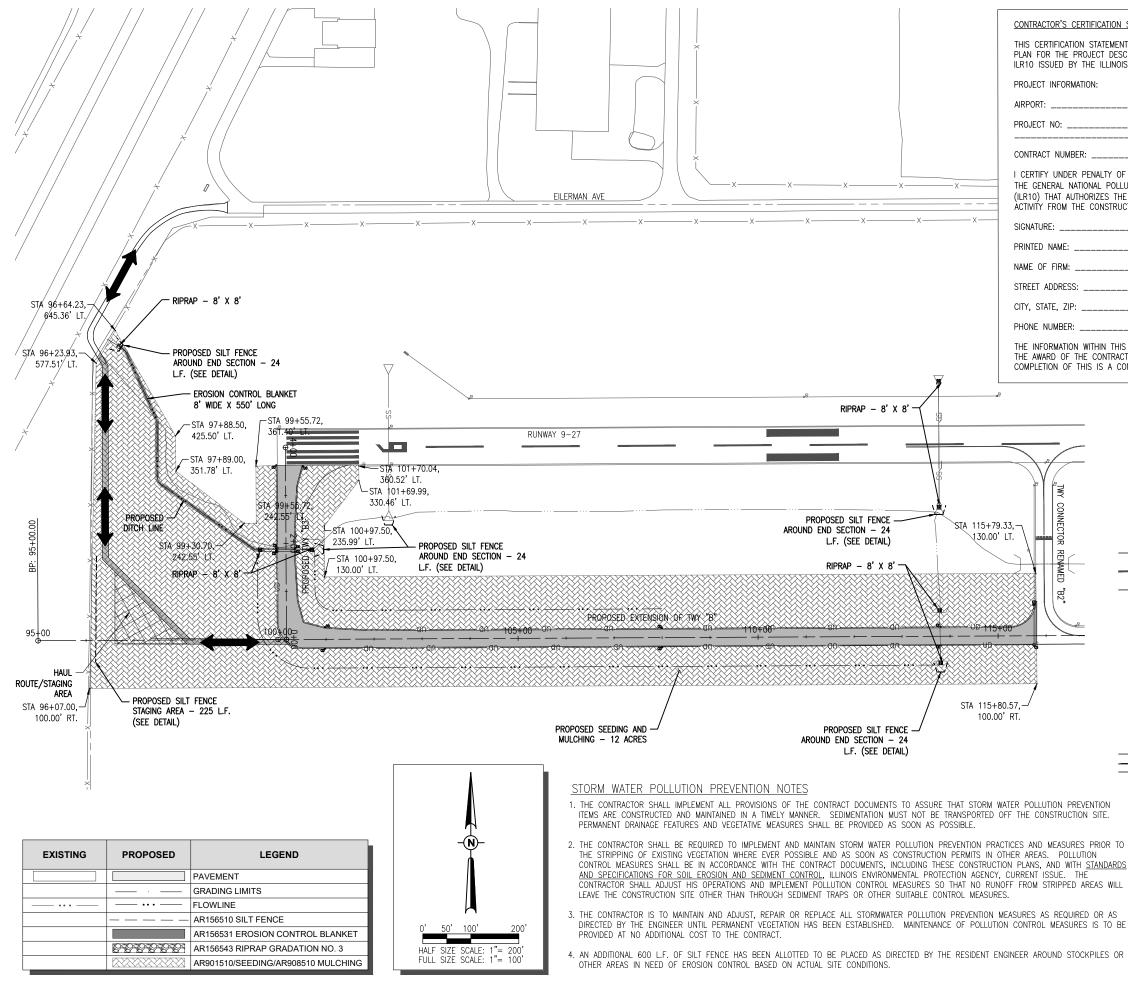
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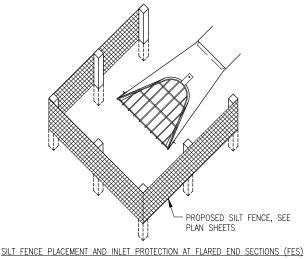
| | HANSON |
|---|--|
| STATEMENT | |
| T IS A PART OF THE STORM WATER POLLUTION PREVENTION | Hanson Professional Services Inc. |
| CRIBED BELOW IN ACCORDANCE WITH NPDES PERMIT NO. S ENVIRONMENTAL PROTECTION AGENCY. | 1525 S. Sixth St. Springfield, IL 62703 |
| | Phone: (217) 788-2450 |
| | Offices Nationwide |
| PROJECT: | www.hanson-inc.com |
| COUNTY: | |
| | |
| | LITCHFIELD MUNICIPAL AIRPORT |
| UTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT | 1201 US Route 66 South |
| E STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL CTION SITE IDENTIFIED AS PART OF THIS CERTIFICATION. | Litchfield, IL 62056 Phone: (217) 324-4731 |
| DATE: | |
| TITLE: | |
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| | |
| S BOX SHALL BE COMPLETED BY THE CONTRACTOR AFTER | |
| T TO OBTAIN THE REQUIRED NPDES PERMIT FROM IEPA. | |
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| | EXTEND PARTIAL PAR |
| 1 43 | TAXIWAY B & RELATED |
| RIPRAP - 10' X 20' $-\sqrt{1}$ | LIGHTING/ELECTRICAL FROM EXISTING END TO |
| —————————————————————————————————————— | RWY 9 TURNAROUND |
| | IDA No: 3LF-4819 |
| | SBG NO. |
| | 3-17-SBGP-144/156/162 |
| | Contract No. LI039 |
| | |
| | |
| - EROSION CONTROL BLANKET | |
| 8' WIDE X 160' LONG | |
| RIPRAP - 8' X 8' | |
| | |
| | |
| | NO. DATE DESCRIPTION |
| SS | ISSUE: 11/20/2020 (For Bid) |
| 135+00 | PROJECT NO: 20A0040 |
| | CAD FILE: C-181-SWP.DWG DESIGN BY: KBS 09/25/2020 |
| | DRAWN BY: HLE 09/25/2020 |
| EAST PIPE RELINING AREA | REVIEWED BY: KBS 11/20/2020 |
| | |
| | |
| 5 | 07001 |
| | STORMWATER POLLUTION |
| | POLLOTION PREVENTION PLAN |
| - | |
| - | |



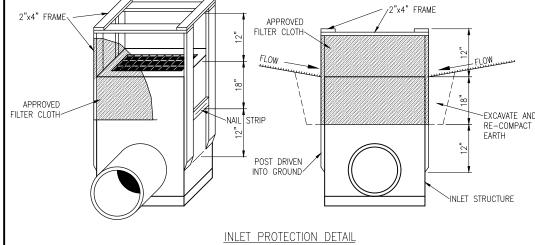
- 1. FENCE POST SHALL BE EITHER STEEL "T" LINE POST OR HARDWOOD POST WITH A MINIMUM SECTIONAL AREA OF 2.0 SQUARE INCHES. A CARPENTER'S (NOMINAL) 2"x2" POST WILL MEET SPECIFICATIONS.
- TOP AND BOTTOM WIRE OF WIRE FABRIC SHALL BE MINIMUM GAGE NO. 9 2. INTERMEDIATE WIRES OF THE WIRE FABRIC SHALL BE MINIMUM GAGE NO. 11.
- WIRE FABRIC SHALL BE SECURELY FASTENED TO FENCE POSTS WITH NO. 9 3. GAGE WIRE MINIMUM. FOUR (4) FASTENERS PER POST REQUIRED.
- 4. FILTER FABRIC SHALL BE SECURELY FASTENED TO WIRE FABRIC AND POSTS WITH TIES OR STAPLES SPACED AT 12" APART AT THE TOP, MIDDLE AND
- WHEN TWO SECTIONS OF FILTER FABRIC MEET, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED AND ATTACHED TO THE WIRE FABRIC AT A POST.
- 6. FILTER FABRIC SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS WITH APPARENT OPENING SIZE (AOS) OF AT LEAST 40 FOR NONWOVEN AND WOVEN. THE FABRIC MUST MEET THE APPLICABLE STANDARDS OF AASHTO 288-00 (Article IV, Section B.1.j.1.f.i, AS AMENDED), OR EQUIVALENT.



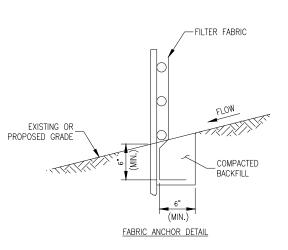
- 1. A MAXIMUM OF 5 FEET IS USED FOR POST-TO-POST SPACING.
- SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES.
- 3. ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
- 4. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. PERIODIC INSPECTION SHALL BE PERFORMED AND REQUIRED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN BULGES DEVELOP IN THE SILT FENCE.
- 6. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION. DISCHARGES SHALL BE ROUTED THROUGH AN EFFECTIVE SEDIMENT CONTROL MEASURE (E.G. SEDIMENT TRAP, SEDIMENT BASIN, OR OTHER APPROPRIATE MEASURE).
- 7. FENCE POSTS SHALL BE REMOVED WHEN DIRECTED AT PROJECT END.
- THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM 8. REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.

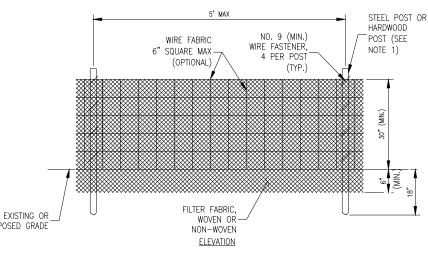






NOT TO SCALE





STORM WATER POLLUTION PREVENTION NOTES

GENERAL

THE CONTRACTOR SHALL IMPLEMENT ALL PROVISIONS OF THE CONTRACT DOCUMENTS TO ASSURE THAT STORM WATER POLLUTION PREVENTION ITEMS ARE CONSTRUCTED AND MAINTAINED IN A TIMELY MANNER. SEDIMENTATION MUST NOT BE TRANSPORTED OFF THE CONSTRUCTION SITE. PERMANENT DRAINAGE FEATURES AND VEGETATIVE MEASURES SHALL BE PROVIDED AS SOON AS POSSIBLE

THE MAINTENANCE OF ALL STORM WATER POLLUTION PREVENTION MEASURES IS INCIDENTAL TO THE ASSOCIATED ITEM.

POLITION PREVENTION MEASURES

THE CONTRACTOR SHALL BE REQUIRED TO IMPLEMENT AND MAINTAIN STORM WATER POLLUTION PREVENTION PRACTICES AND MEASURES PRIOR TO THE STRIPPING OF EXISTING VEGETATION WHEREVER POSSIBLE AND AS SOON AS CONSTRUCTION PERMITS IN OTHER AREAS. POLLUTION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, INCLUDING THESE CONSTRUCTION PLANS, AND WITH STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, CURRENT ISSUE. THE CONTRACTOR SHALL ADJUST HIS OPERATIONS AND IMPLEMENT POLLUTION CONTROL MEASURES SO THAT NO RUNOFF FROM STRIPPED AREAS WILL LEAVE THE CONSTRUCTION SITE OTHER THAN THROUGH SEDIMENT TRAPS OR OTHER SUITABLE CONTROL MEASURES.

POLLUTION CONTROL ITEMS SHALL BE PROVIDED AS NOTED ON THE STORM WATER POLLUTION PREVENTION PLAN AND IN THE STORM WATER POLLUTION PREVENTION DETAILS AND AS DIRECTED BY THE ENGINEER. THE LIMITS OF SUCH MEASURES SHALL BE STAKED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION SUCH LIMITS MAY BE ADJUSTED BY THE ENGINEER TO ACCOUNT FOR ACTUAL SITE CONDITIONS EXPERIENCED DURING CONSTRUCTION. ADDITIONAL COMPENSATION FOR MEASURES EXCEEDING THE PLAN QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR EACH ITEM.

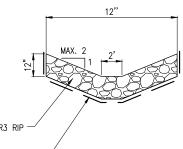
THE CONTRACTOR IS TO MAINTAIN AND ADJUST, REPAIR OR REPLACE ALL POLLUTION PREVENTION MEASURES AS REQUIRED OR AS DIRECTED BY THE ENGINEER UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. MAINTENANCE OF POLLUTION CONTROL MEASURES IS TO BE PROVIDED AT NO ADDITIONAL COST TO THE CONTRACT

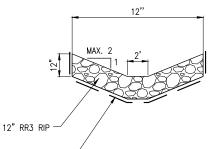
ADDITIONAL STORMWATER POLLUTION PREVENTION MEASURES ARE EXISTING ON SITE LOCATED AT DRAINAGE FACILITIES AND ALONG THE PROPERTY LINE.

SEDIMENTATION AND EROSION CONTROL NOTES:

- HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
- - FARTH DISTURBANCE OR GRADING
- INCH OF RAINFALL OR LIQUID EQUIVALENT PRECIPITATION.
- MEASURES.
- Ε.
- REDISTURBANCE.
- APPROVED BY THE ENFORCEMENT OFFICER.

- L.
- MAINTENANCE AND REPAIR.
- Ν. LONGER NEEDED
- 0.





PROPOSED GRADE

A. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF

FOR THOSE DEVELOPMENTS THAT REQUIRE A DESIGNATED EROSION CONTROL INSPECTOR (DECI), INSPECTIONS AND DOCUMENTATION SHALL BE PERFORMED, AT A MINIMUM: · UPON COMPLETION OF SEDIMENT AND RUNOFF CONTROL MEASURES (INCLUDING PERIMETER CONTROLS AND DIVERSIONS), PRIOR TO PROCEEDING WITH ANY OTHER • AFTER EVERY SEVEN (7) CALENDAR DAYS OR STORM EVENT WITH GREATER THAN 0.5

C. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. IF STRIPPING, CLEARING, GRADING, OR LANDSCAPING ARE TO BE DONE IN PHASES, THE PERMITTEE SHALL PLAN FOR APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL

D. A STABILIZED MAT OF CRUSHED STONE MEETING IDOT GRADATION CA-01 AND/OR RR-01 UNDERLAIN WITH FILTER FABRIC AND IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL, OR OTHER APPROPRIATE MEASURE(S) AS APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE INSTALLED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE, SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT OF WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED AS NECESSARY TO DIRECT ALL RUNOFF FROM HYDROLOGICALLY DISTURBED AREAS TO AN APPROPRIATE SEDIMENT TRAP OR BASIN.

DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE END OF ACTIVE HYDROLOGIC DISTURBANCE OR

G. ALL STOCKPILES SHALL HAVE APPROPRIATE MEASURES TO PREVENT EROSION. STOCKPILES SHALL NOT BE PLACED IN FLOOD PRONE AREAS OR WETLANDS AND DESIGNATED BUFFERS.

SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH APPROPRIATE MEASURES AS

APPROPRIATE EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN THE NORMAL WATER LEVEL AND HIGH WATER LEVEL

STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE

K. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION, DISCHARGES SHALL BE ROUTED THROUGH AN APPROVED ANIONIC POLYMER DEWATERING SYSTEM OR A SIMILAR MEASURE AS APPROVED BY THE ENFORCEMENT OFFICER. DEWATERING SYSTEMS SHOULD BE INSPECTED DAILY DURING OPERATIONAL PERIODS. THE ENFORCEMENT OFFICER, OR APPROVED REPRESENTATIVE, MUST BE PRESENT AT THE COMMENCEMENT OF DEWATERING ACTIVITIES.

IF INSTALLED SOIL EROSION AND SEDIMENT CONTROL MEASURES DO NOT MINIMIZE SEDIMENT LEAVING THE DEVELOPMENT SITE, ADDITIONAL MEASURES SUCH AS ANIONIC POLYMERS OR FILTRATION SYSTEMS MAY BE REQUIRED BY THE ENFORCEMENT OFFICER.

ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR

ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO

THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER. OR OTHER GOVERNING AGENCY,

> RIPRAP DETAIL NOT TO SCALE



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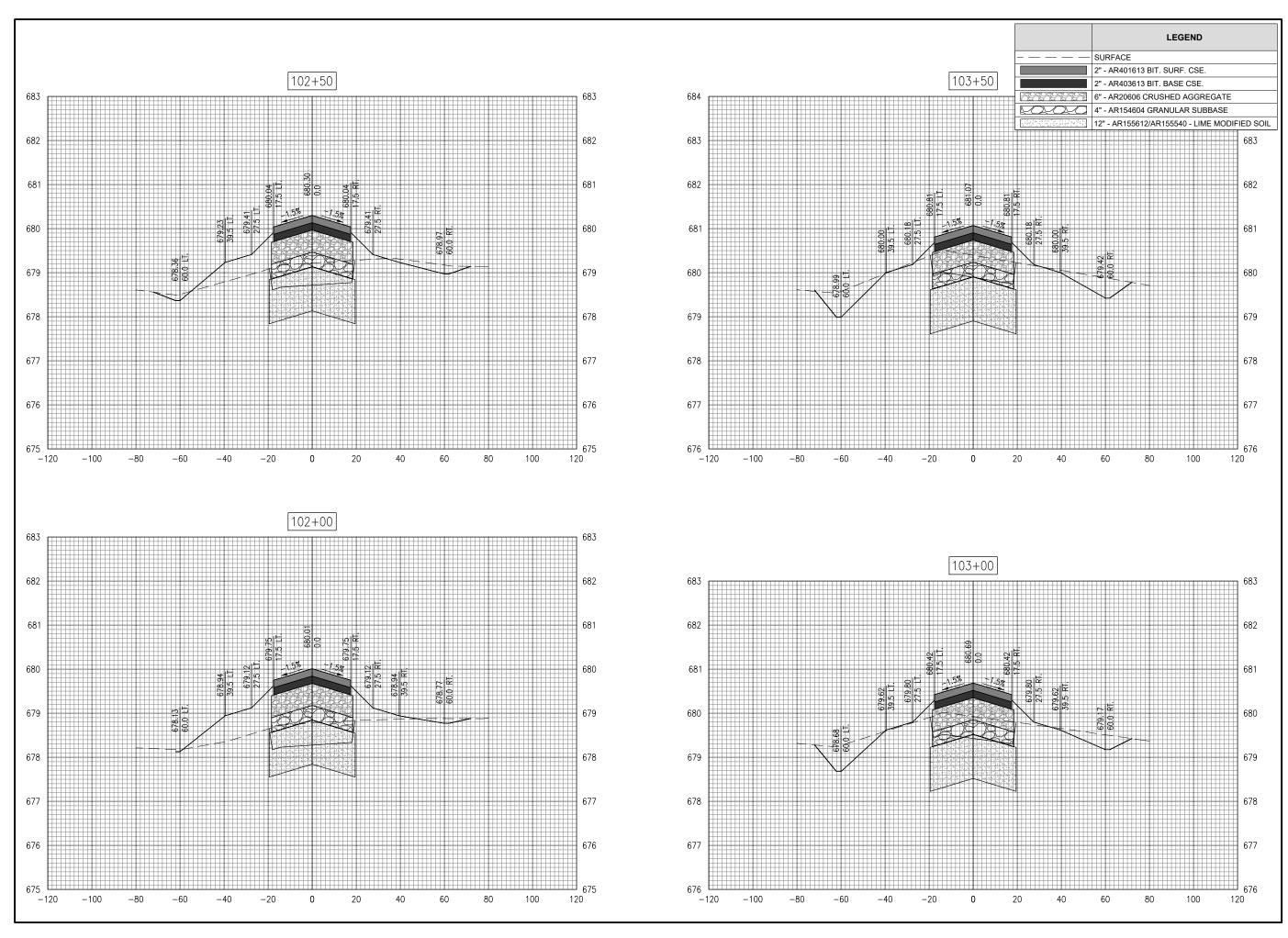
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EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039



STORMWATER POLLUTION PREVENTION PLAN DETAILS



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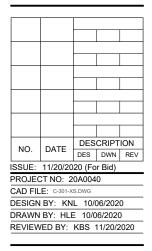
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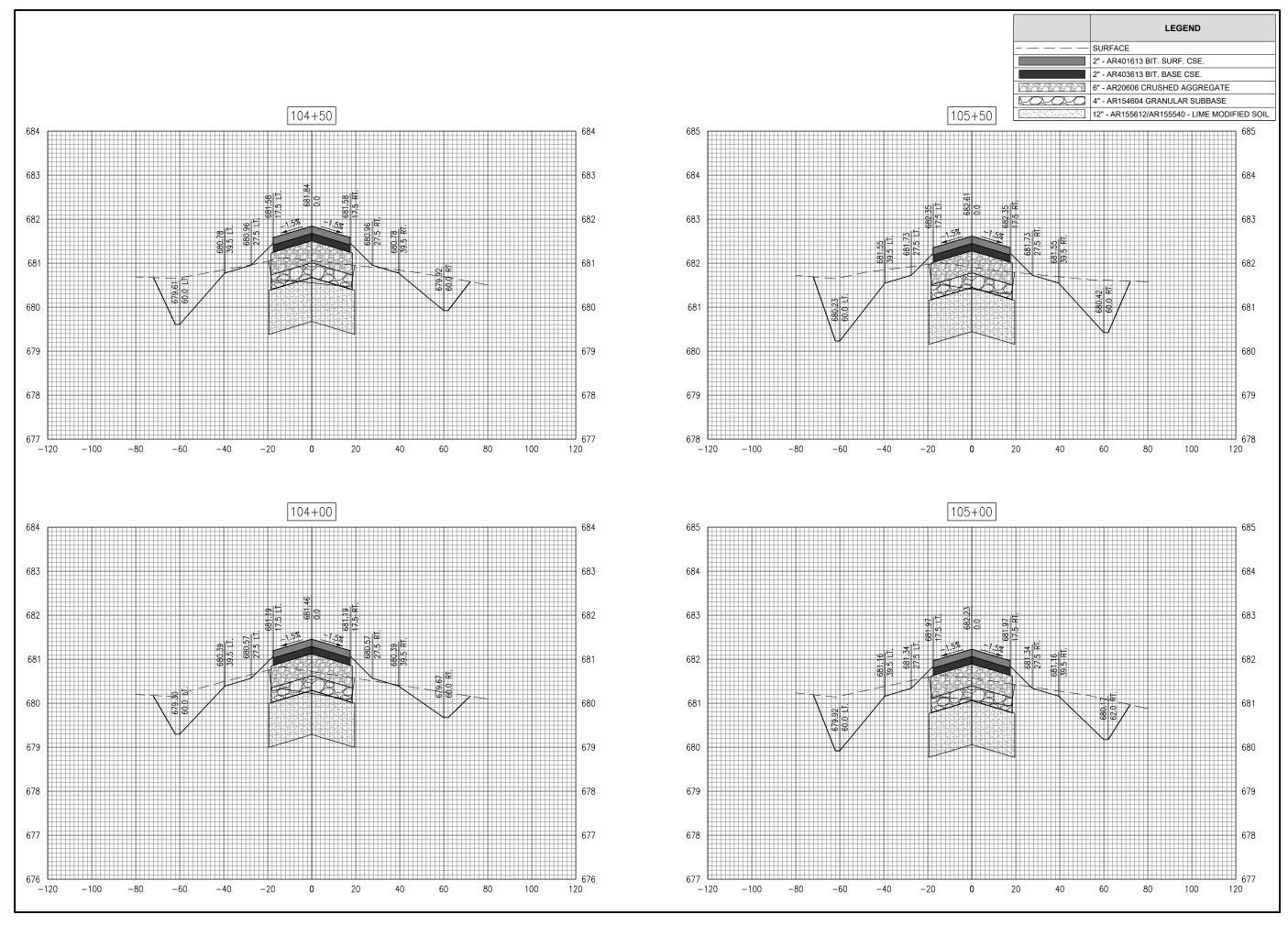
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TWY B CROSS-SECTIONS 102+00 - 103+50





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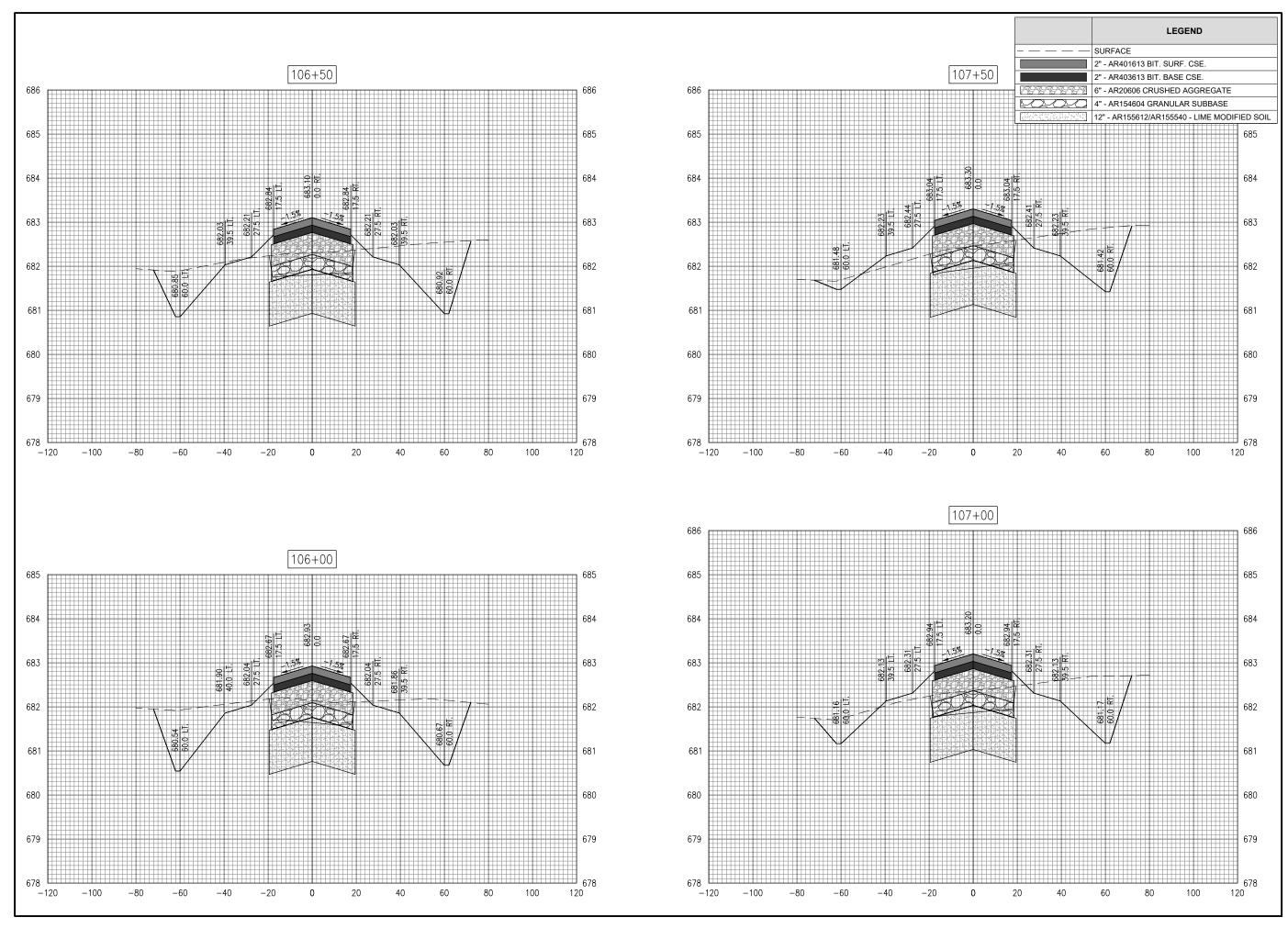
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TWY B CROSS-SECTIONS 104+00 - 105+50



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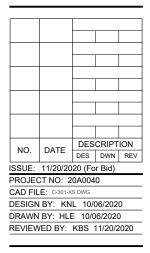
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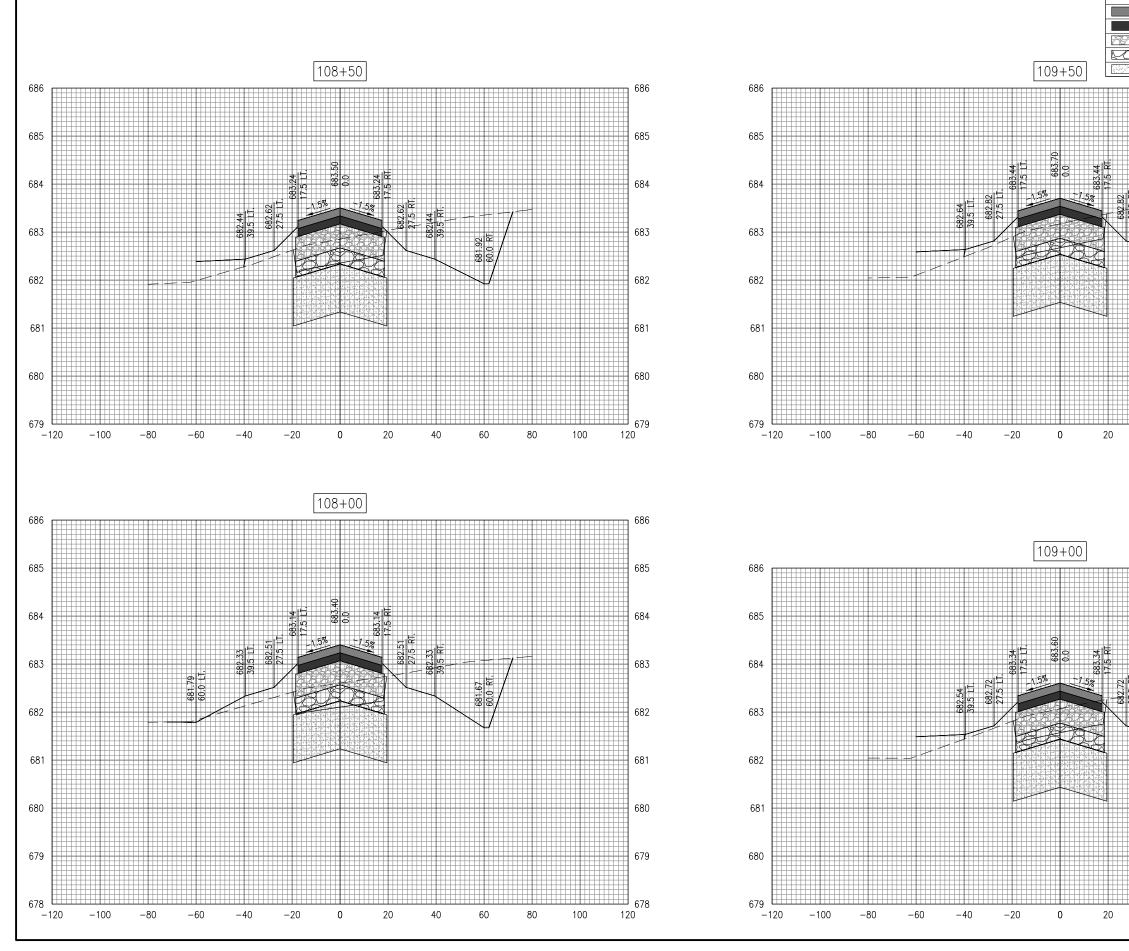
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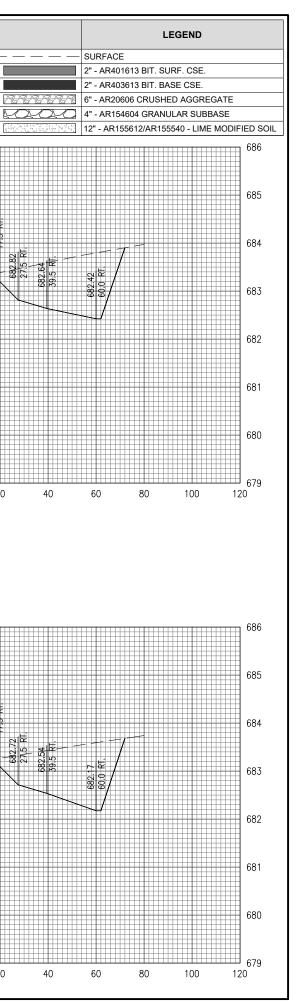
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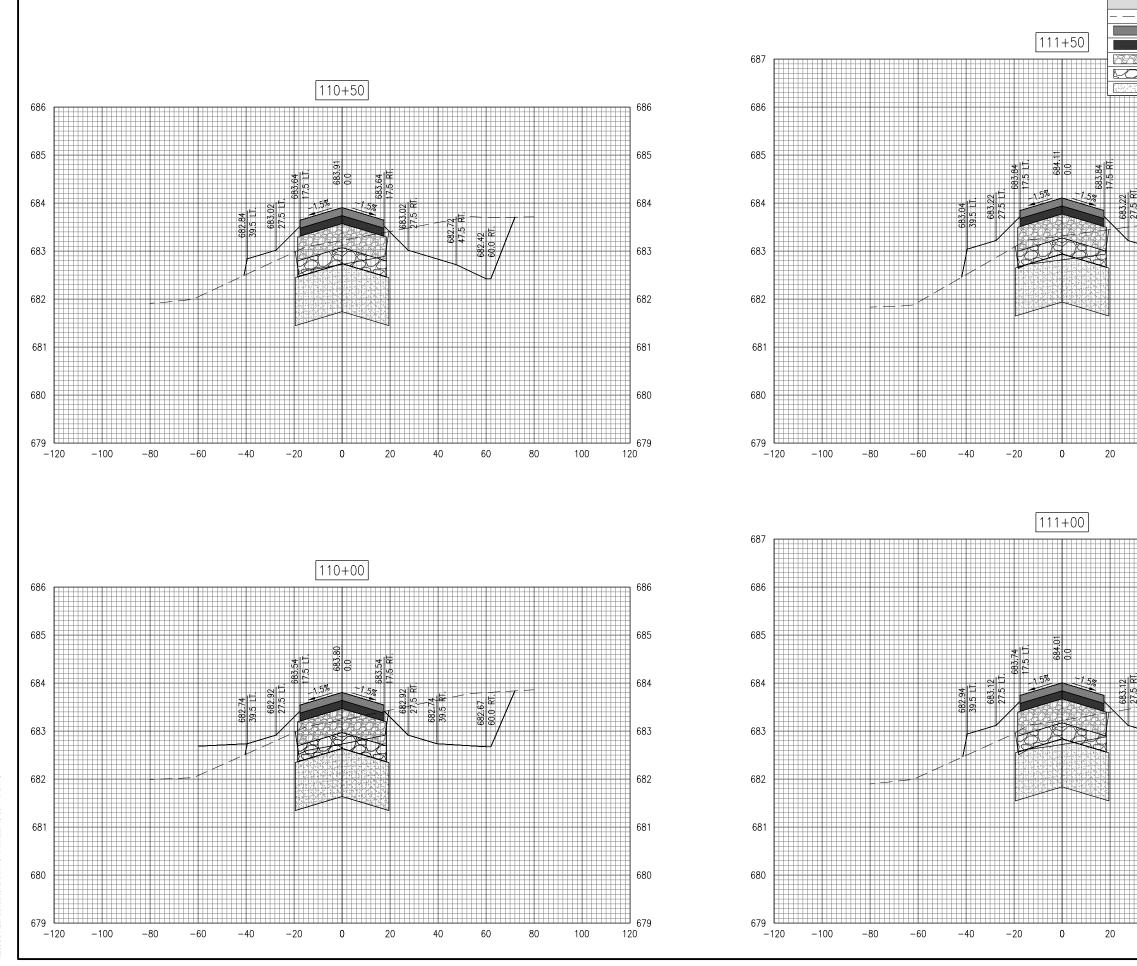
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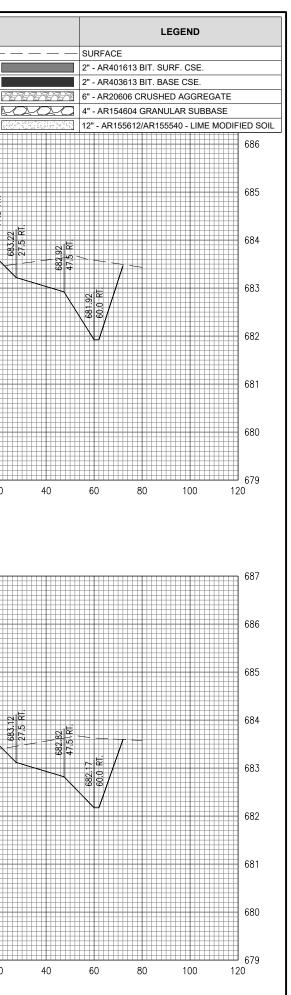
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TWY B CROSS-SECTIONS 108+00 - 109+50



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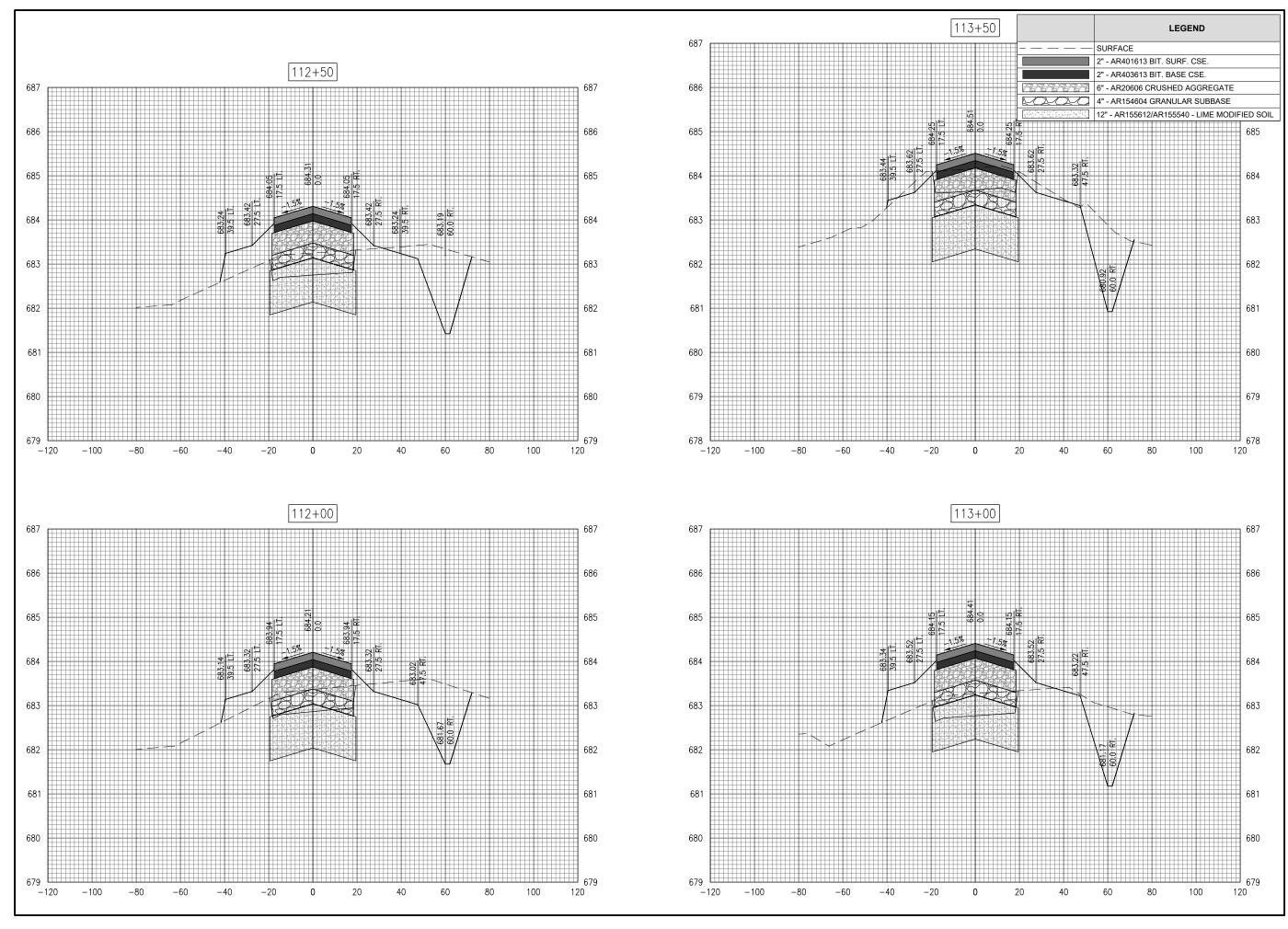
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TWY B CROSS-SECTIONS 110+00 - 111+50





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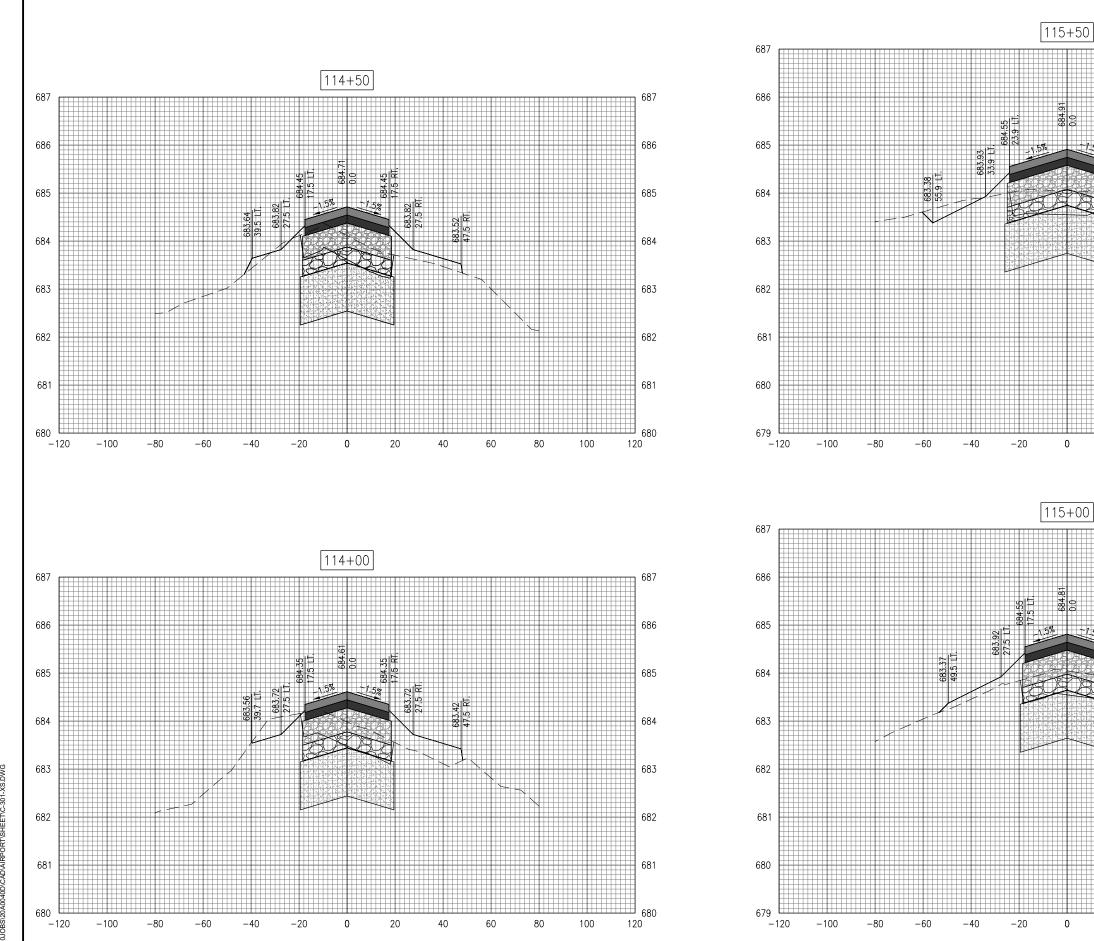
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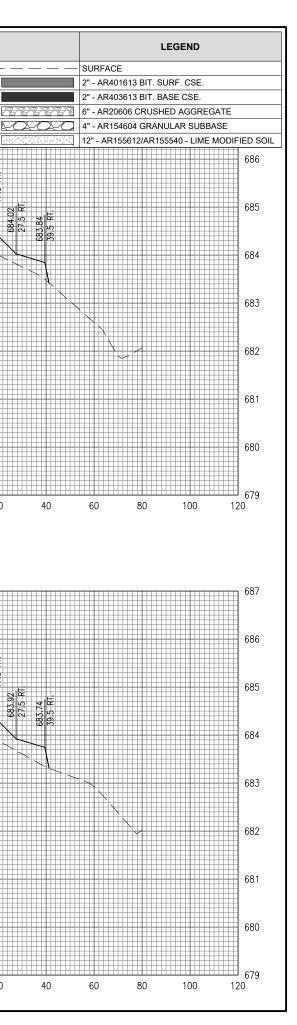
TWY B CROSS-SECTIONS 112+00 - 113+50



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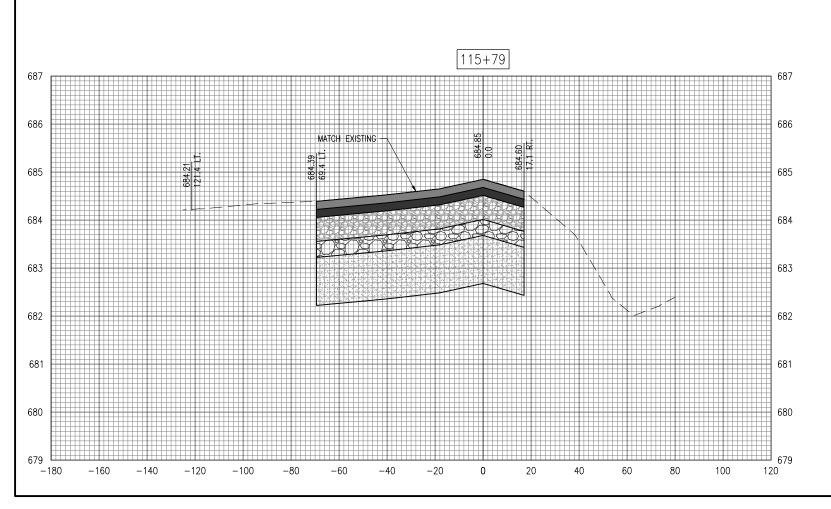
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TWY B CROSS-SECTIONS 114+00 - 115+50







| | LEGEND | | | | |
|---------|--|--|--|--|--|
| | EXISTING SURFACE | | | | |
| | 2" - AR401613 BIT. SURF. CSE. | | | | |
| | 2" - AR403613 BIT. BASE CSE. | | | | |
| 2020202 | 6" - AR20606 CRUSHED AGGREGATE | | | | |
| | 4" - AR154604 GRANULAR SUBBASE | | | | |
| | 12" - AR155612/AR155540 - LIME MODIFIED SOIL | | | | |



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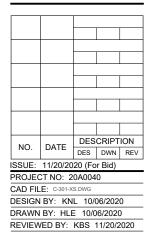
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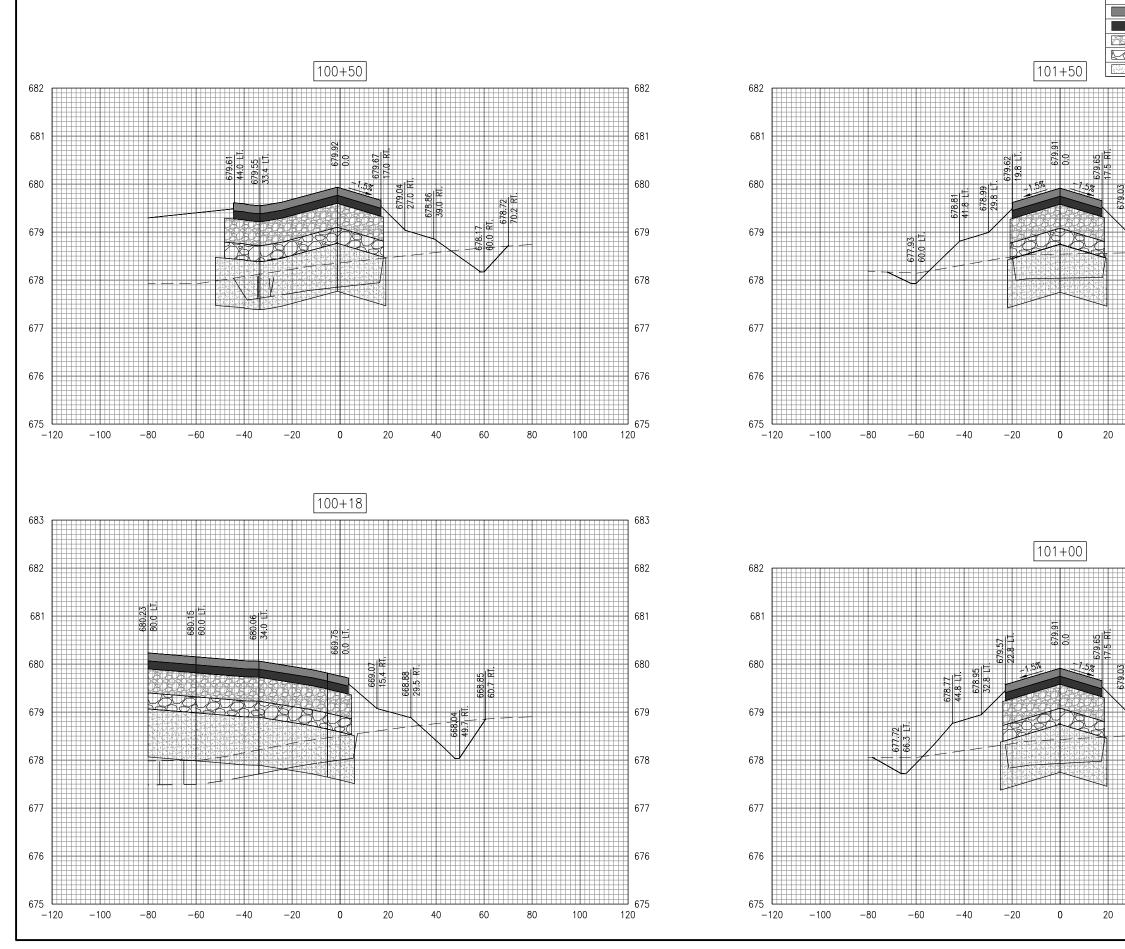
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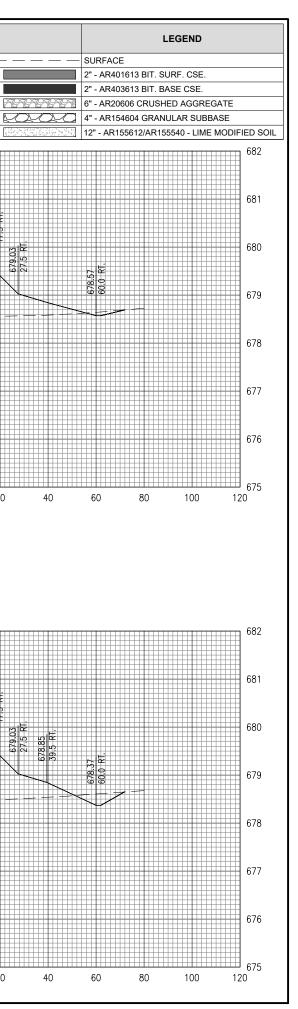
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TWY B CROSS-SECTIONS 114+00 - 115+79



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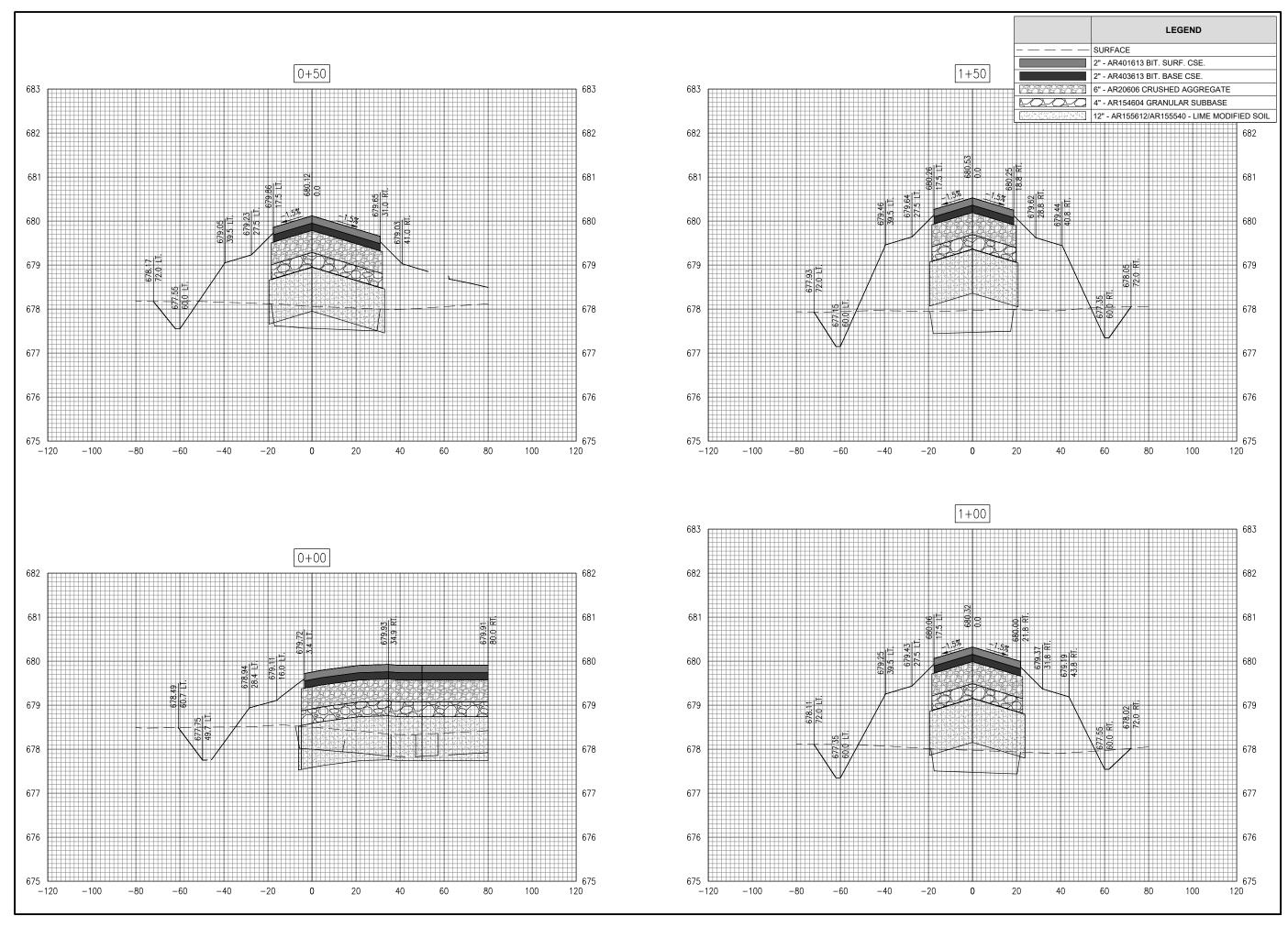
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TWY B CROSS-SECTIONS 100+18 - 101+50



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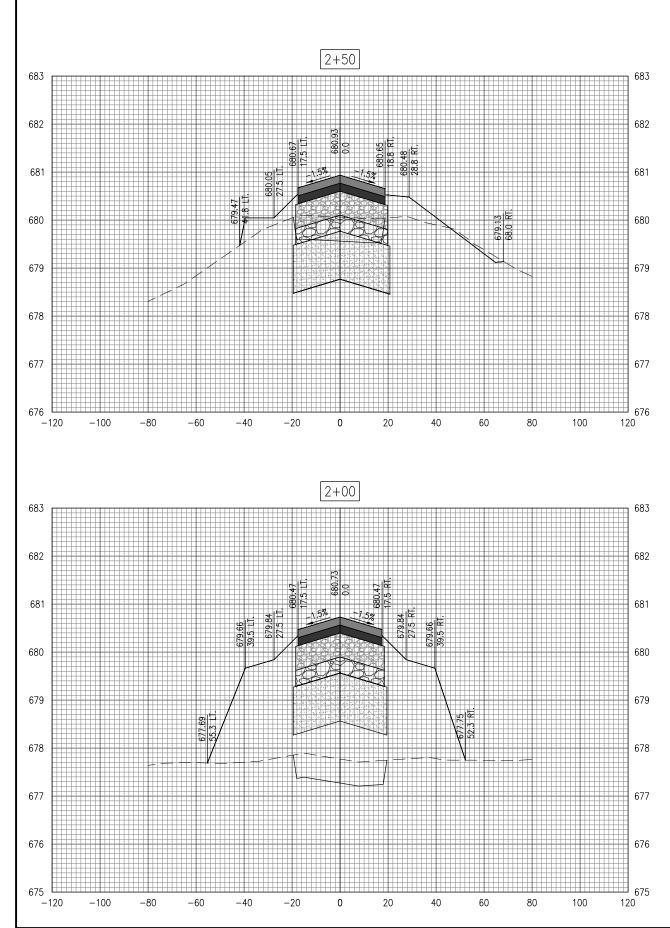
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TWY B3 CROSS-SECTIONS 0+00 - 1+50



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| | LEGEND | | | | |
|---------|--|--|--|--|--|
| | SURFACE | | | | |
| | 2" - AR401613 BIT. SURF. CSE. | | | | |
| | 2" - AR403613 BIT. BASE CSE. | | | | |
| 2020202 | 6" - AR20606 CRUSHED AGGREGATE | | | | |
| 200 | 4" - AR154604 GRANULAR SUBBASE | | | | |
| | 12" - AR155612/AR155540 - LIME MODIFIED SOIL | | | | |



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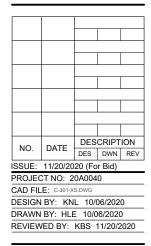
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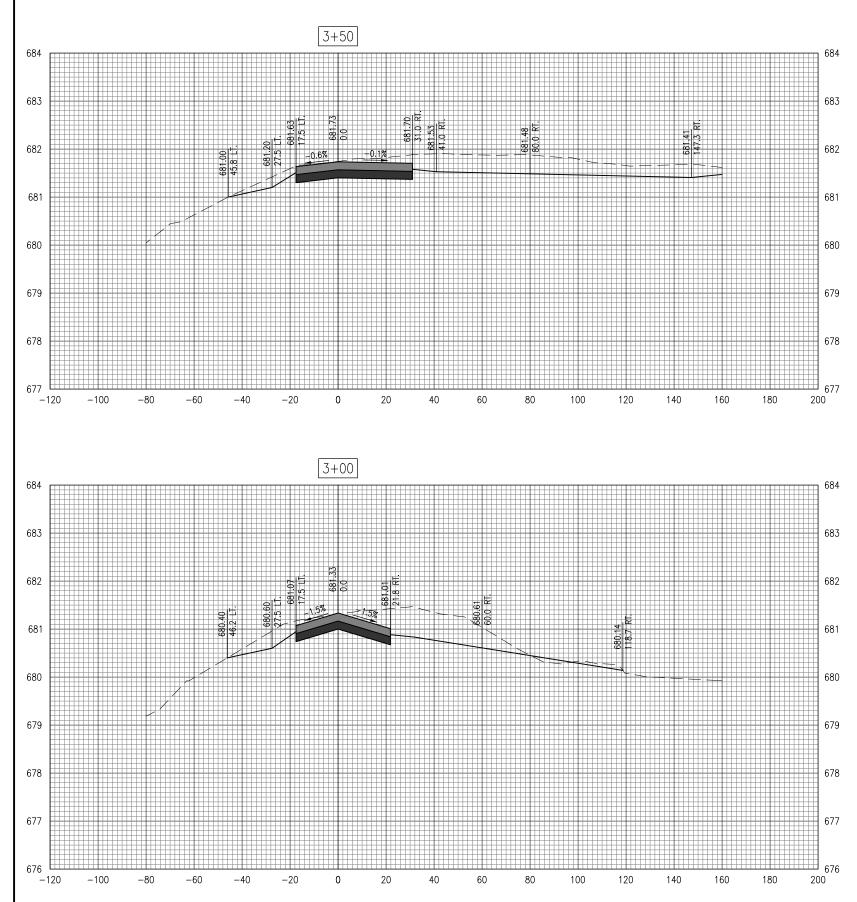
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TWY B3 CROSS-SECTIONS 2+00 - 2+50





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| | LEGEND | | | | |
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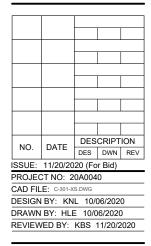
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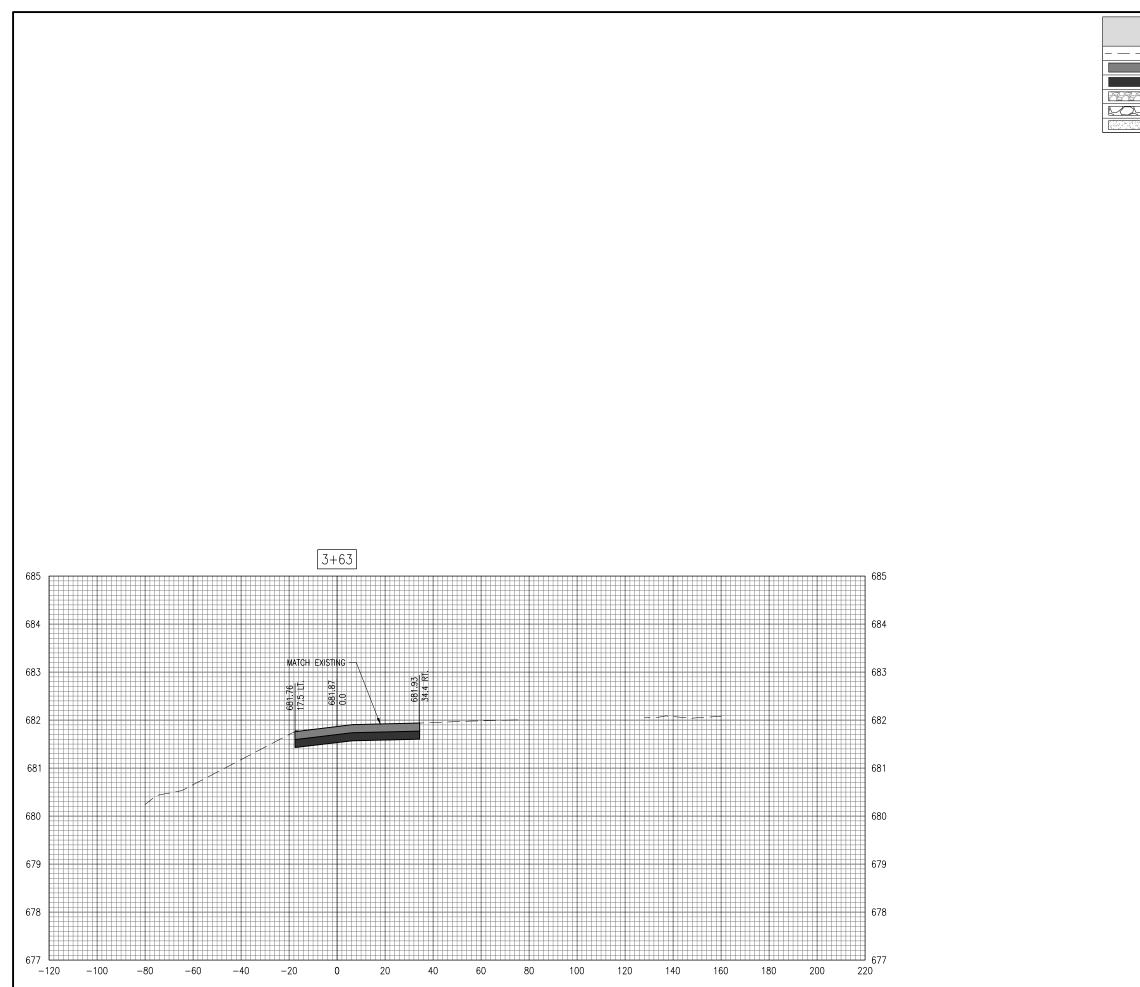
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TWY B3 CROSS-SECTIONS 3+00 - 3+50



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| | LEGEND | | | | |
|---------|--|--|--|--|--|
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| | 2" - AR403613 BIT. BASE CSE. | | | | |
| 2020202 | 6" - AR20606 CRUSHED AGGREGATE | | | | |
| 200 | 4" - AR154604 GRANULAR SUBBASE | | | | |
| | 12" - AR155612/AR155540 - LIME MODIFIED SOIL | | | | |



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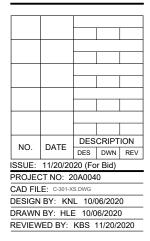
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LITCHFIELD MUNICIPAL AIRPORT

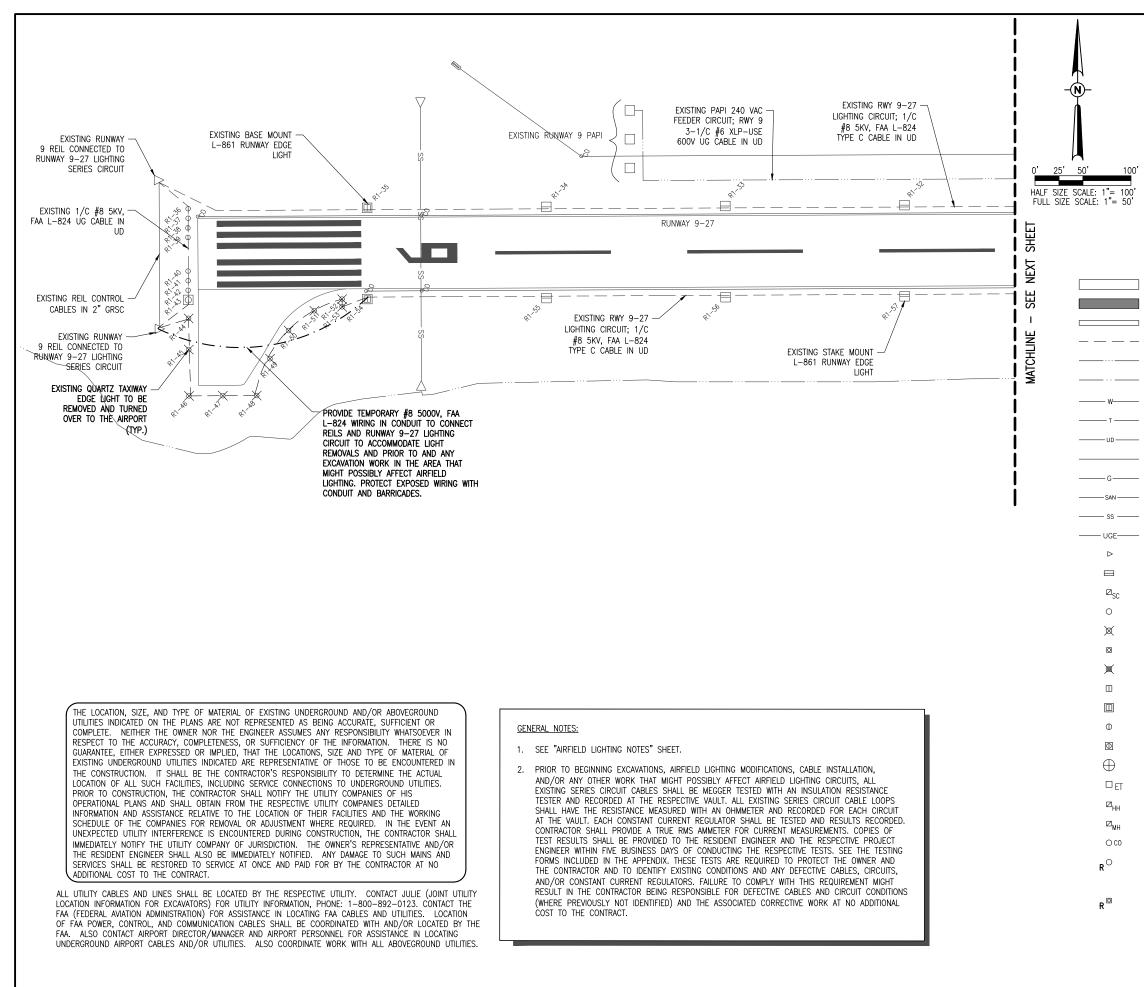
1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND

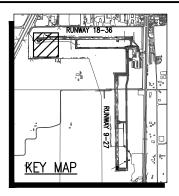
IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039



TWY B3 CROSS-SECTIONS 3+63



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LEGEND

EXISTING PAVEMENT

EXISTING BUILDING

EXISTING ELECTRICAL DUCT

EXISTING ELECTRICAL CABLE

EXISTING 3-1/C 240V OR 120/240V ELECTRIC FEEDER

EXISTING 2-1/C 120 V ELECTRIC FEEDER

EXISTING WATER

EXISTING TELEPHONE

EXISTING UNDERDRAIN

EXISTING STORM SEWER

EXISTING GAS LINE

EXISTING SANITARY

EXISTING STORM SEWER

EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY

EXISTING REIL

EXISTING TAXI GUIDANCE SIGN

EXISTING SPLICE CAN

EXISTING STAKE MOUNTED TAXIWAY LIGHT

EXISTING STAKE MOUNTED TAXIWAY LIGHT TO BE REMOVED

EXISTING BASE MOUNTED TAXIWAY LIGHT

EXISTING BASE MOUNTED TAXIWAY LIGHT TO BE REMOVED

EXISTING STAKE MOUNTED RUNWAY LIGHT

EXISTING BASE MOUNTED RUNWAY LIGHT

EXISTING STAKE MOUNTED THRESHOLD LIGHT

EXISTING BASE MOUNTED THRESHOLD LIGHT

EXISTING AIRPORT ROTATING BEACON

EXISTING UTILITY TRANSFORMER

EXISTING ELECTRICAL HANDHOLE

EXISTING ELECTRICAL MANHOLE

EXISTING CLEAN-OUT

EXISTING QUARTZ STAKE MOUNTED TAXIWAY LIGHT TO BE REPLACED WITH L-861T(L) LED FIXTURE. EXISTING MOUNTING STAKE AND TRANSFORMER TO REMAIN AND BE REUSED.

Existing quartz base mounted taxiway light to be replaced with L-861T(L) led fixture. Existing base and transformer to remain and be reused.



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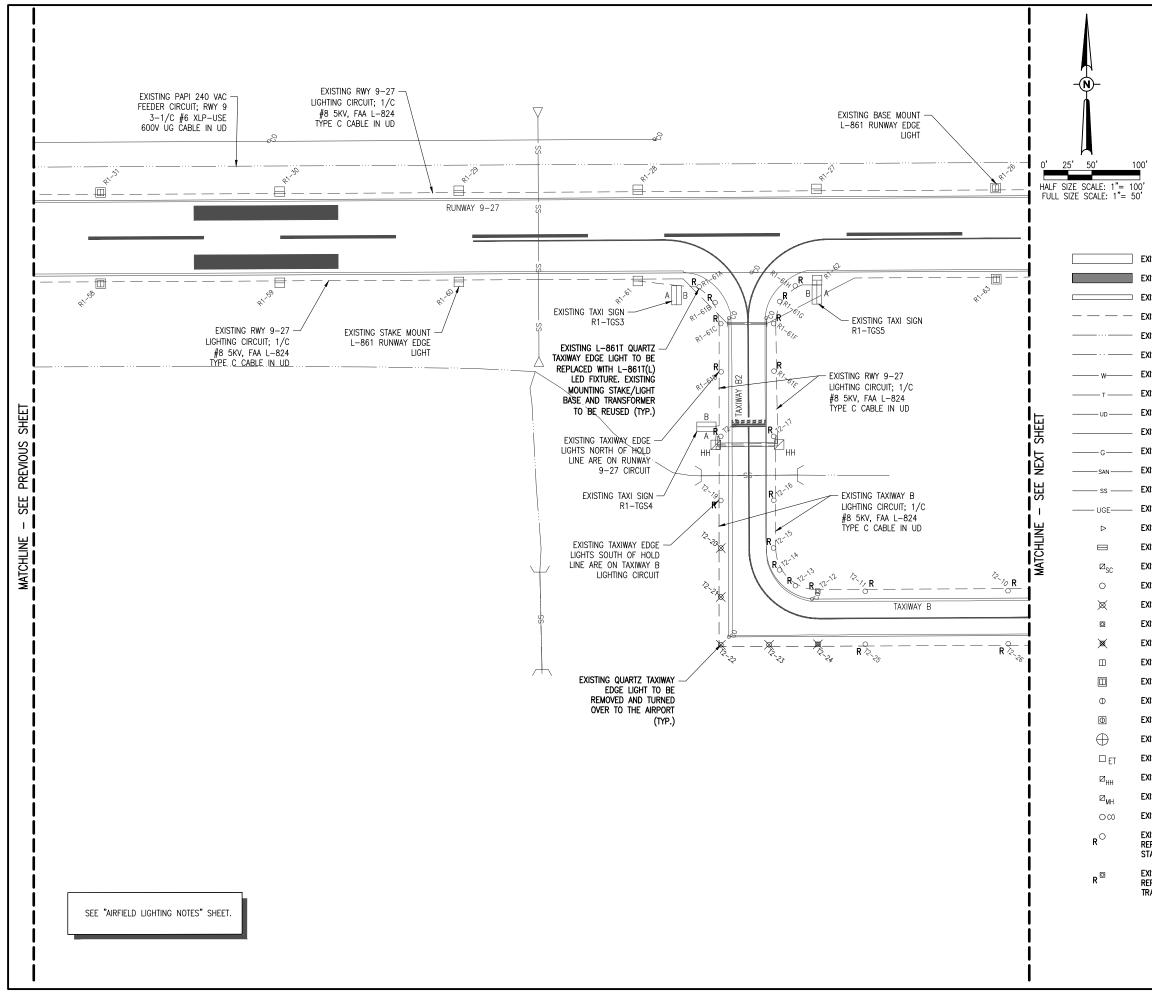
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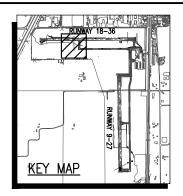
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| PROJECT NO: 20A0040 | | | | | | |
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| DESIGN BY: KNL 09/11/2020 | | | | | | |
| DRAWN BY: HLE 09/11/2020 | | | | | | |

REVIEWED BY: KNL 09/23/2020

EXISTING AIRFIELD LIGHTING LAYOUT -SHEET 1





LEGEND

- EXISTING PAVEMENT
- EXISTING BUILDING
- □ EXISTING ELECTRICAL DUCT
- EXISTING ELECTRICAL CABLE
- EXISTING 3-1/C 240V OR 120/240V ELECTRIC FEEDER
- EXISTING 2-1/C 120 V ELECTRIC FEEDER
- EXISTING WATER
- EXISTING TELEPHONE
- ____ Existing Underdrain
- EXISTING STORM SEWER
- EXISTING GAS LINE
- ____ EXISTING SANITARY
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY
- EXISTING REIL
- EXISTING TAXI GUIDANCE SIGN
- EXISTING SPLICE CAN
- EXISTING STAKE MOUNTED TAXIWAY LIGHT
- EXISTING STAKE MOUNTED TAXIWAY LIGHT TO BE REMOVED
- EXISTING BASE MOUNTED TAXIWAY LIGHT
- EXISTING BASE MOUNTED TAXIWAY LIGHT TO BE REMOVED
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED THRESHOLD LIGHT
- EXISTING BASE MOUNTED THRESHOLD LIGHT
- EXISTING AIRPORT ROTATING BEACON
- EXISTING UTILITY TRANSFORMER
- EXISTING ELECTRICAL HANDHOLE
- EXISTING ELECTRICAL MANHOLE
- EXISTING CLEAN-OUT
- EXISTING QUARTZ STAKE MOUNTED TAXIWAY LIGHT TO BE REPLACED WITH L-861T(L) LED FIXTURE. EXISTING MOUNTING STAKE AND TRANSFORMER TO REMAIN AND BE REUSED.
- Existing quartz base mounted taxiway light to be replaced with L-b61t(L) led fixture. Existing base and transformer to remain and be reused.



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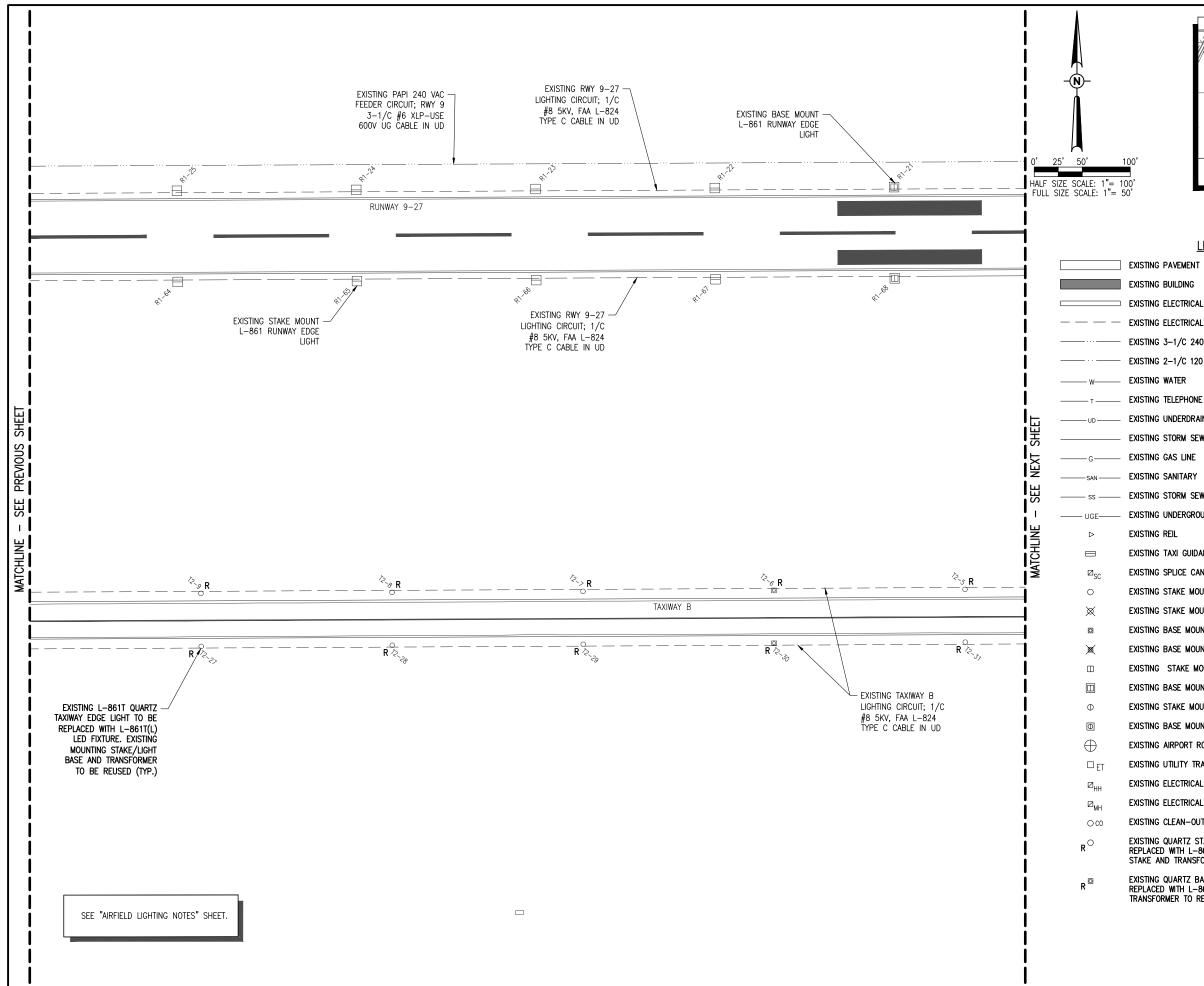
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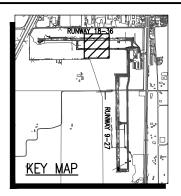
IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

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| DESIGN | BY: KN | L 09/ | 11/202 | 0 |
| DRAWN | BY: HLE | E 09/1 | 1/2020 |) |

REVIEWED BY: KNL 09/23/2020

EXISTING AIRFIELD LIGHTING LAYOUT -SHEET 2





LEGEND

- EXISTING PAVEMENT
- □ EXISTING ELECTRICAL DUCT
- EXISTING ELECTRICAL CABLE
- EXISTING 3-1/C 240V OR 120/240V ELECTRIC FEEDER
- EXISTING 2-1/C 120 V ELECTRIC FEEDER
- EXISTING WATER
- EXISTING UNDERDRAIN
- EXISTING STORM SEWER
- EXISTING GAS LINE
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY
- EXISTING REIL
- EXISTING TAXI GUIDANCE SIGN
- EXISTING SPLICE CAN
- EXISTING STAKE MOUNTED TAXIWAY LIGHT
- EXISTING STAKE MOUNTED TAXIWAY LIGHT TO BE REMOVED
- EXISTING BASE MOUNTED TAXIWAY LIGHT
- EXISTING BASE MOUNTED TAXIWAY LIGHT TO BE REMOVED
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED THRESHOLD LIGHT
- EXISTING BASE MOUNTED THRESHOLD LIGHT
- EXISTING AIRPORT ROTATING BEACON
- EXISTING UTILITY TRANSFORMER
- EXISTING ELECTRICAL HANDHOLE
- EXISTING ELECTRICAL MANHOLE
- EXISTING CLEAN-OUT
- EXISTING QUARTZ STAKE MOUNTED TAXIWAY LIGHT TO BE REPLACED WITH L-861T(L) LED FIXTURE. EXISTING MOUNTING STAKE AND TRANSFORMER TO REMAIN AND BE REUSED.
- EXISTING QUARTZ BASE MOUNTED TAXIWAY LIGHT TO BE REPLACED WITH L-861T(L) LED FIXTURE. EXISTING BASE AND TRANSFORMER TO REMAIN AND BE REUSED.



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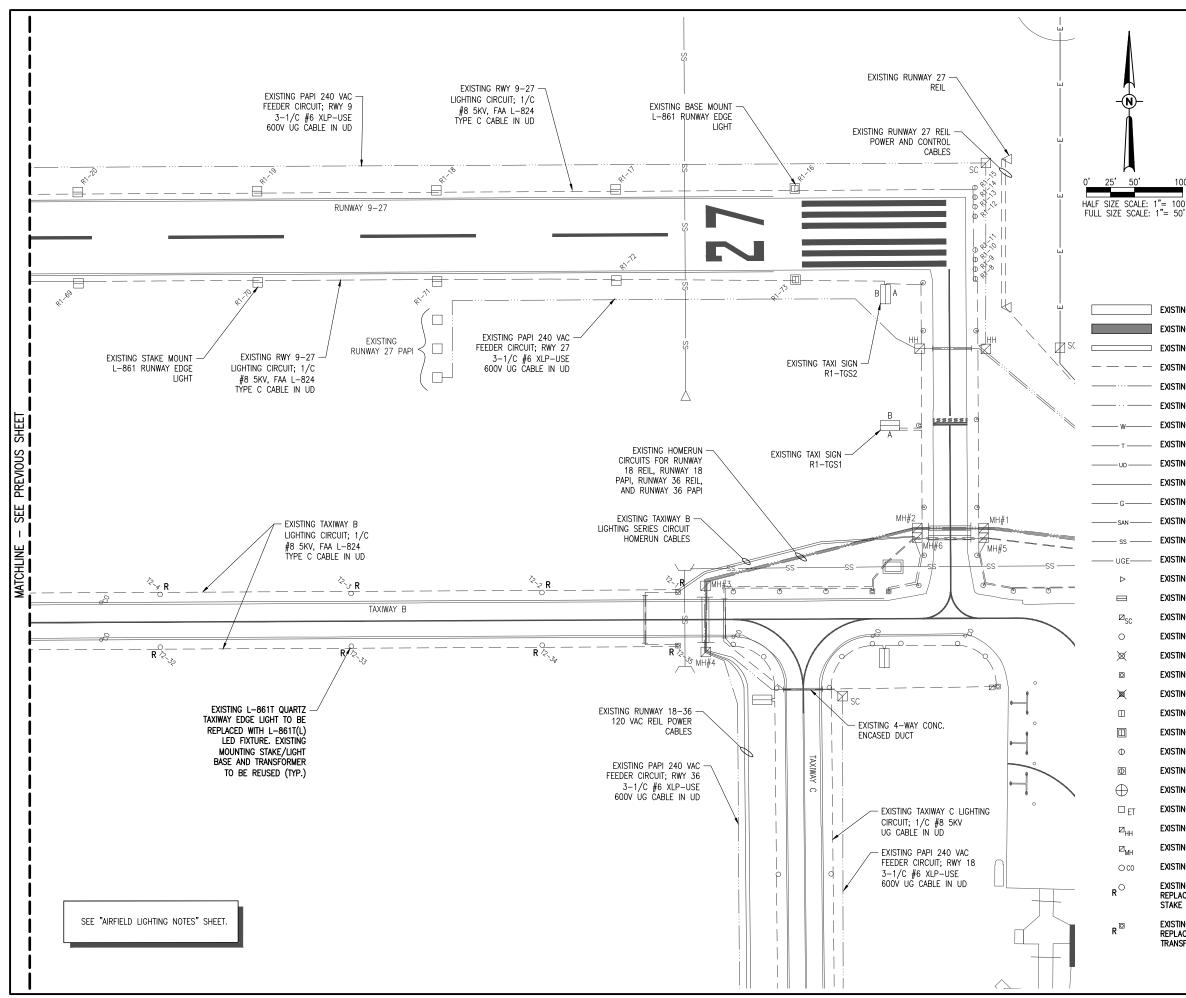
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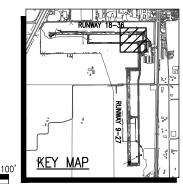
IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

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REVIEWED BY: KNL 09/23/2020

EXISTING AIRFIELD LIGHTING LAYOUT -SHEET 3





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LEGEND

- EXISTING PAVEMENT EXISTING BUILDING
- EXISTING ELECTRICAL DUCT
- — EXISTING ELECTRICAL CABLE
- EXISTING 3-1/C 240V OR 120/240V ELECTRIC FEEDER
- ------ EXISTING 2-1/C 120 V ELECTRIC FEEDER
- ____ EXISTING WATER
- _____ EXISTING TELEPHONE
- UD _____ EXISTING UNDERDRAIN
 - EXISTING STORM SEWER
- ______ EXISTING GAS LINE
 - ____ EXISTING SANITARY
 - EXISTING STORM SEWER
 - EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY
 - EXISTING REIL
 - EXISTING TAXI GUIDANCE SIGN
 - EXISTING SPLICE CAN
 - EXISTING STAKE MOUNTED TAXIWAY LIGHT
 - EXISTING STAKE MOUNTED TAXIWAY LIGHT TO BE REMOVED
 - EXISTING BASE MOUNTED TAXIWAY LIGHT
 - EXISTING BASE MOUNTED TAXIWAY LIGHT TO BE REMOVED
 - EXISTING STAKE MOUNTED RUNWAY LIGHT
 - EXISTING BASE MOUNTED RUNWAY LIGHT
 - EXISTING STAKE MOUNTED THRESHOLD LIGHT
 - EXISTING BASE MOUNTED THRESHOLD LIGHT
 - EXISTING AIRPORT ROTATING BEACON
 - EXISTING UTILITY TRANSFORMER
 - EXISTING ELECTRICAL HANDHOLE
 - EXISTING ELECTRICAL MANHOLE
 - EXISTING CLEAN-OUT

EXISTING QUARTZ STAKE MOUNTED TAXIWAY LIGHT TO BE REPLACED WITH L-861T(L) LED FIXTURE. EXISTING MOUNTING STAKE AND TRANSFORMER TO REMAIN AND BE REUSED.

EXISTING QUARTZ BASE MOUNTED TAXIWAY LIGHT TO BE REPLACED WITH L-861T(L) LED FIXTURE. EXISTING BASE AND TRANSFORMER TO REMAIN AND BE REUSED.



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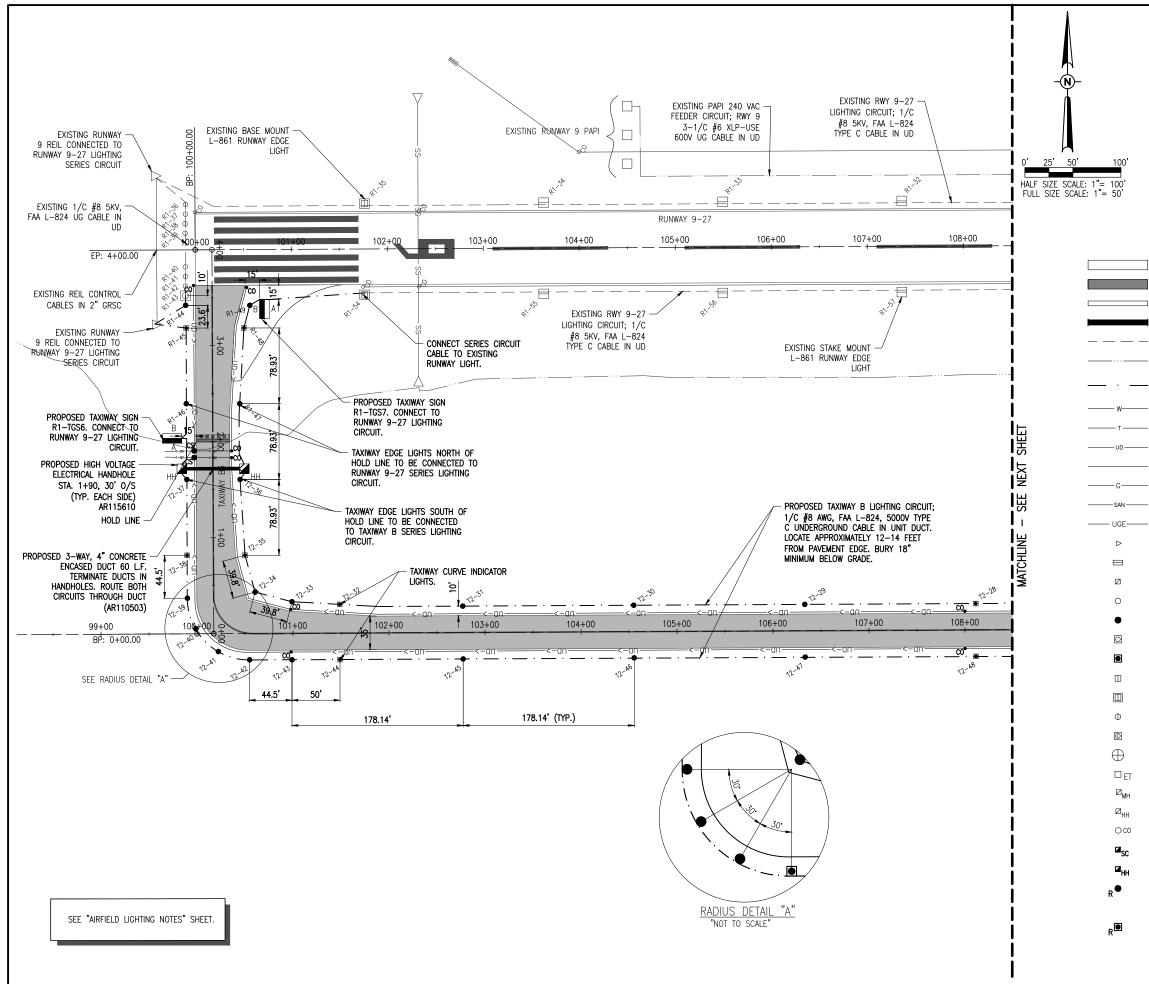
1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

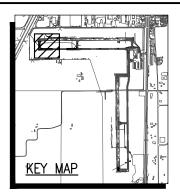
EXTEND PARTIAL PAR **TAXIWAY B & RELATED** LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

| NO. | DATE | DES | CRIPT | ION |
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EXISTING AIRFIELD LIGHTING LAYOUT -SHEET 4





LEGEND

- EXISTING PAVEMENT
- PROPOSED PAVEMENT
 - EXISTING ELECTRICAL DUCT
 - PROPOSED ELECTRICAL DUCT
- — EXISTING ELECTRICAL CABLE
 - EXISTING 3-1/C 240V OR 120/240V ELECTRIC FEEDER
 - PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT
 - EXISTING WATER
- EXISTING TELEPHONE

 - EXISTING STORM SEWER
 - -G------ EXISTING GAS LINE
 - EXISTING SANITARY
 - EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY
 - EXISTING REIL
 - EXISTING TAXI GUIDANCE SIGN
 - EXISTING SPLICE CAN
 - EXISTING STAKE MOUNTED TAXIWAY LIGHT
 - PROPOSED STAKE MOUNTED L-861T(L) LED TAXIWAY LIGHT
 - EXISTING BASE MOUNTED TAXIWAY LIGHT
 - PROPOSED BASE MOUNTED L-861T(L) LED TAXIWAY LIGHT
 - EXISTING STAKE MOUNTED RUNWAY LIGHT
 - EXISTING BASE MOUNTED RUNWAY LIGHT
 - EXISTING STAKE MOUNTED THRESHOLD LIGHT
 - EXISTING BASE MOUNTED THRESHOLD LIGHT
 - EXISTING AIRPORT ROTATING BEACON
 - EXISTING UTILITY TRANSFORMER
 - EXISTING ELECTRICAL MANHOLE
 - EXISTING ELECTRICAL HANDHOLE
 - EXISTING CLEAN-OUT
 - PROPOSED L-867, SIZE D, 24" DEEP SPLICE CAN
 - PROPOSED ELECTRICAL HANDHOLE
 - PROPOSED L-861T(L) LED REPLACEMENT TAXIWAY LIGHT MOUNTED ON EXISTING (REUSED) STAKE WITH EXISTING (REUSED) TRANSFORMER.
 - PROPOSED L-861T(L) LED REPLACEMENT TAXIWAY LIGHT MOUNTED ON EXISTING (REUSED) BASE WITH EXISTING (REUSED) TRANSFORMER.



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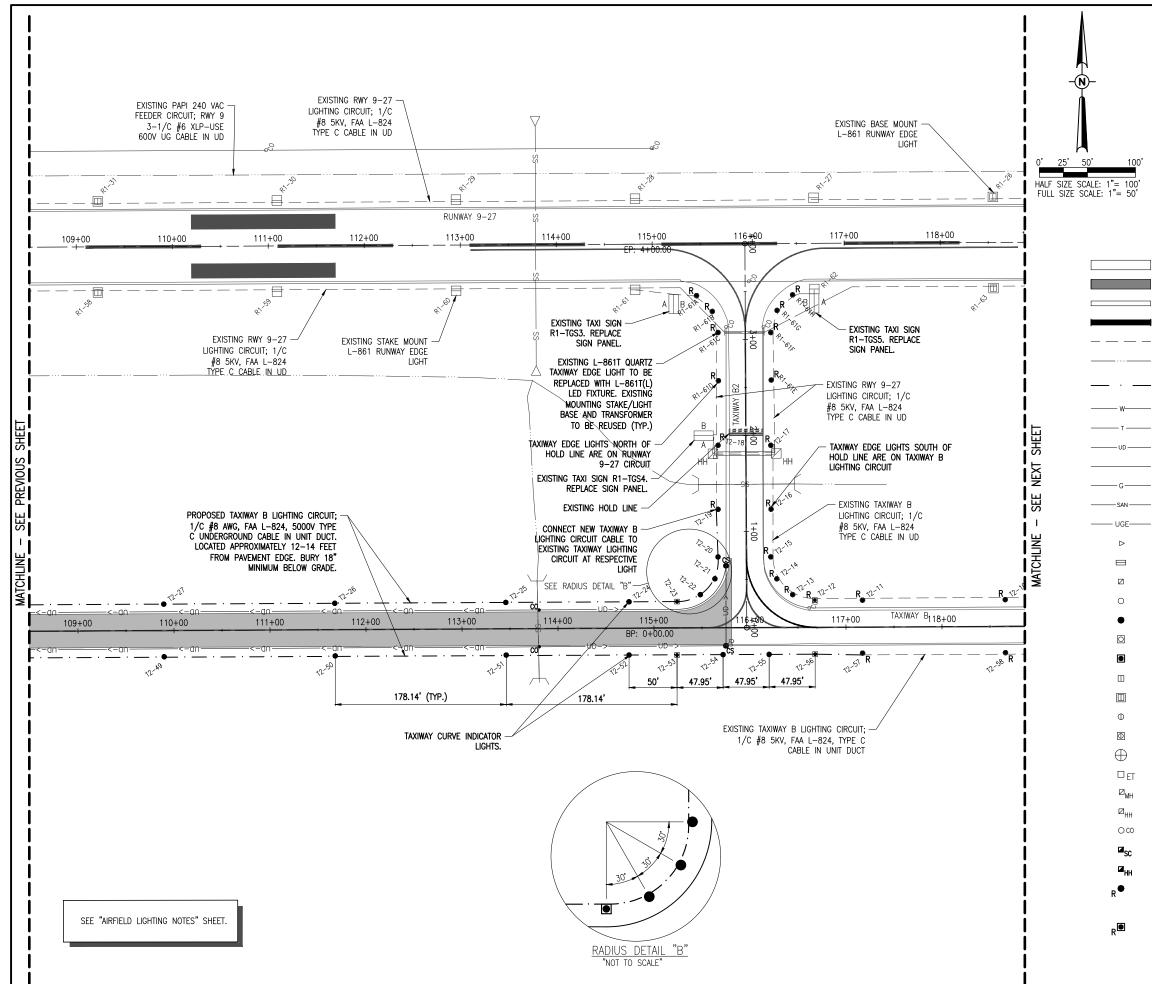
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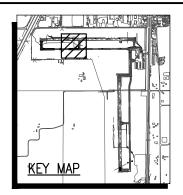
EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

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LEGEND

- EXISTING PAVEMENT
- EXISTING ELECTRICAL DUCT
- PROPOSED ELECTRICAL DUCT
- — EXISTING ELECTRICAL CABLE
 - EXISTING 3-1/C 240V OR 120/240V ELECTRIC FEEDER
 - PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT
 - EXISTING WATER
- T ----- EXISTING TELEPHONE
 - Existing Underdrain
 - EXISTING STORM SEWER
 - ------ EXISTING GAS LINE
 - EXISTING SANITARY
 - EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY
 - EXISTING REIL
 - EXISTING TAXI GUIDANCE SIGN
 - EXISTING SPLICE CAN
 - EXISTING STAKE MOUNTED TAXIWAY LIGHT
 - PROPOSED STAKE MOUNTED L-861T(L) LED TAXIWAY LIGHT
 - EXISTING BASE MOUNTED TAXIWAY LIGHT
 - PROPOSED BASE MOUNTED L-861T(L) LED TAXIWAY LIGHT
 - EXISTING STAKE MOUNTED RUNWAY LIGHT
 - EXISTING BASE MOUNTED RUNWAY LIGHT
 - EXISTING STAKE MOUNTED THRESHOLD LIGHT
 - EXISTING BASE MOUNTED THRESHOLD LIGHT
 - EXISTING AIRPORT ROTATING BEACON
 - EXISTING UTILITY TRANSFORMER
 - EXISTING ELECTRICAL MANHOLE
 - EXISTING ELECTRICAL HANDHOLE
 - EXISTING CLEAN-OUT
 - PROPOSED L-867, SIZE D, 24" DEEP SPLICE CAN
 - PROPOSED ELECTRICAL HANDHOLE
 - PROPOSED L-861T(L) LED REPLACEMENT TAXIWAY LIGHT MOUNTED ON EXISTING (REUSED) STAKE WITH EXISTING (REUSED) TRANSFORMER.
 - PROPOSED L-861T(L) LED REPLACEMENT TAXIWAY LIGHT MOUNTED ON EXISTING (REUSED) BASE WITH EXISTING (REUSED) TRANSFORMER.



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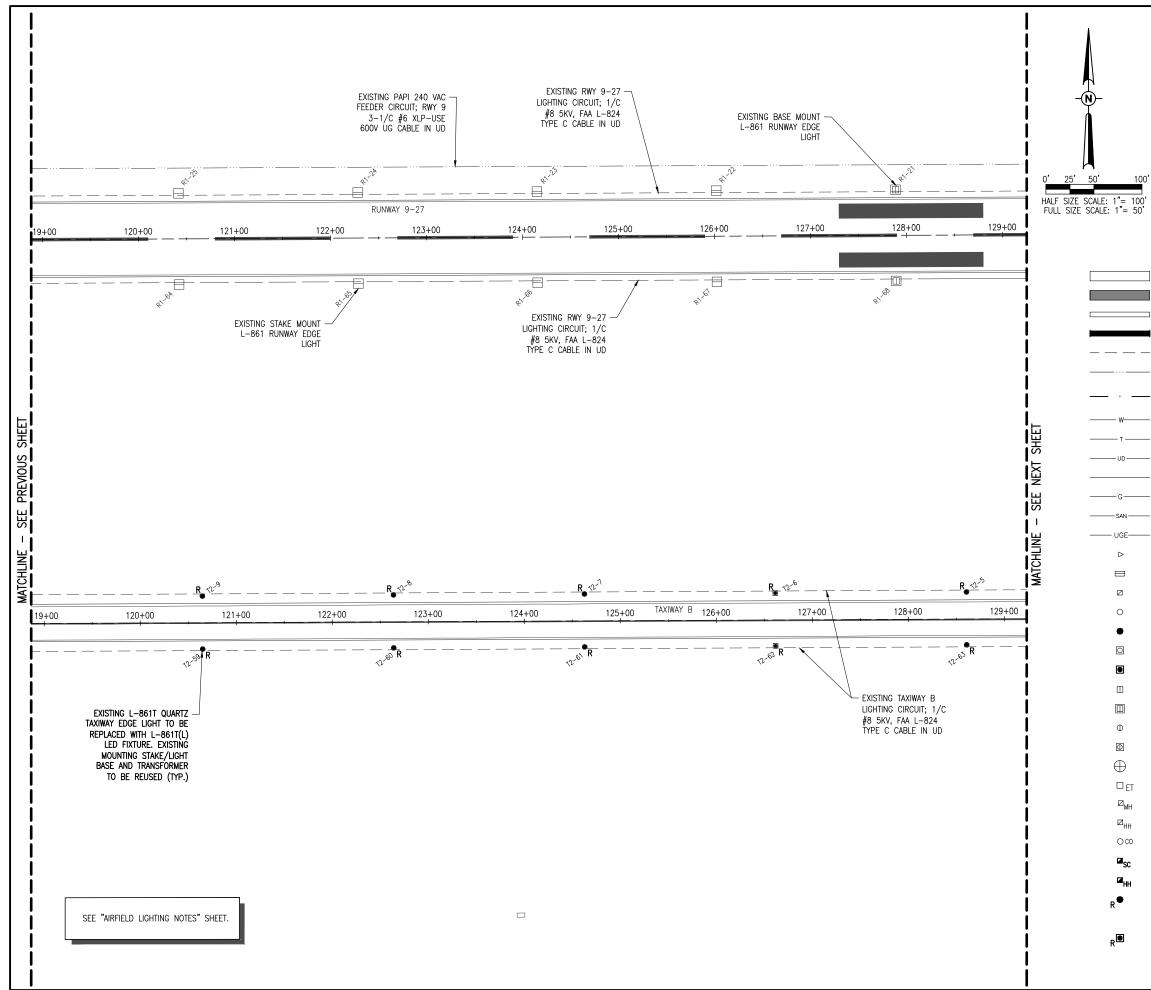
LITCHFIELD MUNICIPAL AIRPORT

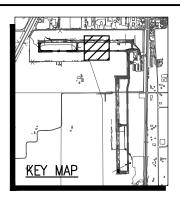
1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

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<u>LEGEND</u>

EXISTING PAVEMENT

PROPOSED PAVEMENT

EXISTING ELECTRICAL DUCT

PROPOSED ELECTRICAL DUCT

— — EXISTING ELECTRICAL CABLE

EXISTING 3-1/C 240V OR 120/240V ELECTRIC FEEDER

PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT

EXISTING WATER

------ Existing telephone

UD EXISTING UNDERDRAIN

EXISTING STORM SEWER

------ EXISTING GAS LINE

EXISTING SANITARY

EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY

EXISTING REIL

EXISTING TAXI GUIDANCE SIGN

EXISTING SPLICE CAN

EXISTING STAKE MOUNTED TAXIWAY LIGHT

PROPOSED STAKE MOUNTED L-861T(L) LED TAXIWAY LIGHT

EXISTING BASE MOUNTED TAXIWAY LIGHT

PROPOSED BASE MOUNTED L-861T(L) LED TAXIWAY LIGHT

EXISTING STAKE MOUNTED RUNWAY LIGHT

EXISTING BASE MOUNTED RUNWAY LIGHT

EXISTING STAKE MOUNTED THRESHOLD LIGHT

EXISTING BASE MOUNTED THRESHOLD LIGHT

EXISTING AIRPORT ROTATING BEACON

EXISTING UTILITY TRANSFORMER

EXISTING ELECTRICAL MANHOLE

EXISTING ELECTRICAL HANDHOLE

EXISTING CLEAN-OUT

PROPOSED L-867, SIZE D, 24" DEEP SPLICE CAN

PROPOSED ELECTRICAL HANDHOLE

PROPOSED L-861T(L) LED REPLACEMENT TAXIWAY LIGHT MOUNTED ON EXISTING (REUSED) STAKE WITH EXISTING (REUSED) TRANSFORMER.

PROPOSED L-861T(L) LED REPLACEMENT TAXIWAY LIGHT MOUNTED ON EXISTING (REUSED) BASE WITH EXISTING (REUSED) TRANSFORMER.



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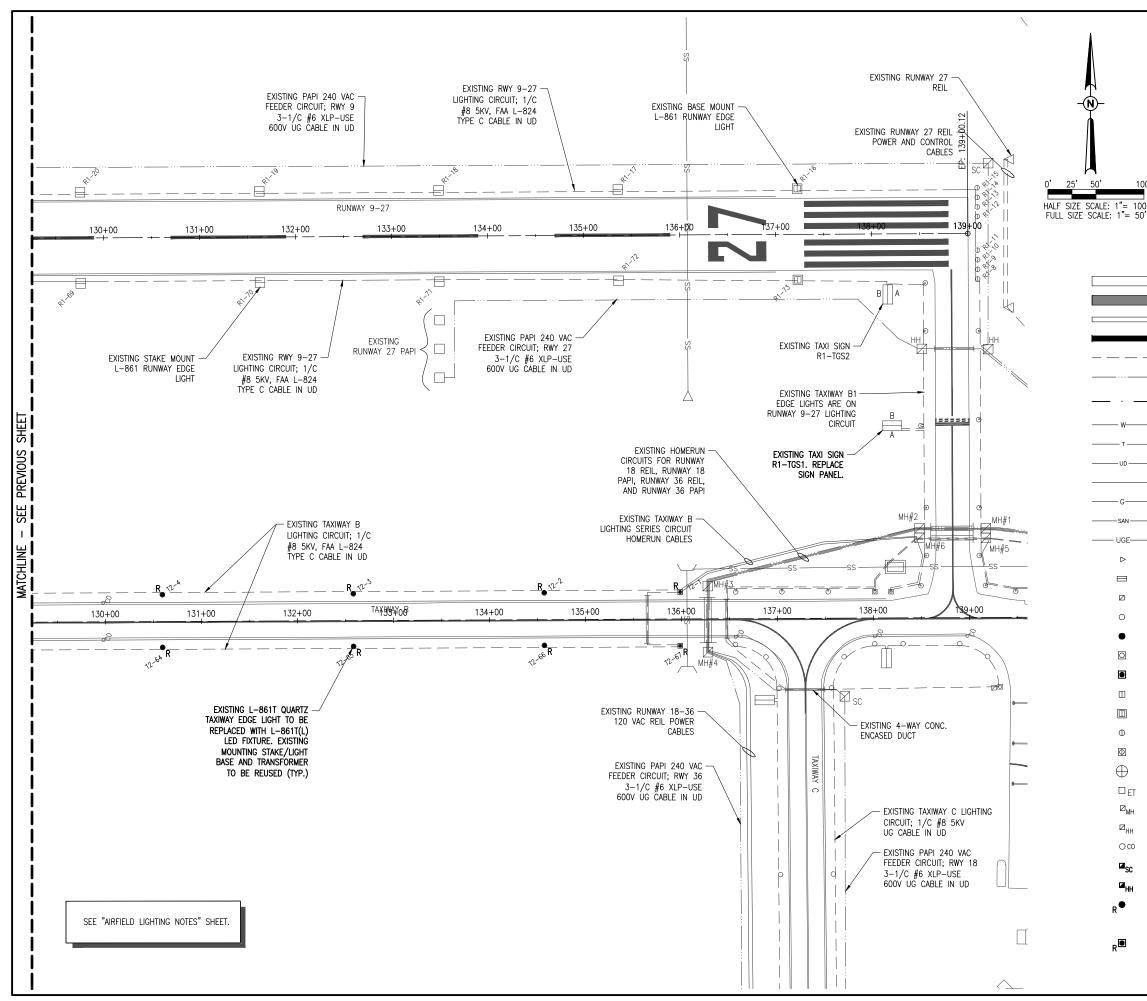
LITCHFIELD MUNICIPAL AIRPORT

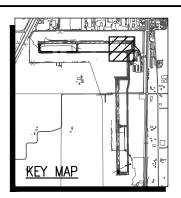
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EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

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<u>LEGEND</u>

EXISTING PAVEMENT

PROPOSED PAVEMENT

EXISTING ELECTRICAL DUCT

PROPOSED ELECTRICAL DUCT

----- EXISTING ELECTRICAL CABLE

EXISTING 3-1/C 240V OR 120/240V ELECTRIC FEEDER

PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT

EXISTING WATER

EXISTING TELEPHONE

UD EXISTING UNDERDRAIN

EXISTING STORM SEWER

— EXISTING GAS LINE

EXISTING SANITARY

EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY

EXISTING REIL

EXISTING TAXI GUIDANCE SIGN

EXISTING SPLICE CAN

EXISTING STAKE MOUNTED TAXIWAY LIGHT

PROPOSED STAKE MOUNTED L-861T(L) LED TAXIWAY LIGHT

EXISTING BASE MOUNTED TAXIWAY LIGHT

PROPOSED BASE MOUNTED L-861T(L) LED TAXIWAY LIGHT

EXISTING STAKE MOUNTED RUNWAY LIGHT

EXISTING BASE MOUNTED RUNWAY LIGHT

EXISTING STAKE MOUNTED THRESHOLD LIGHT

EXISTING BASE MOUNTED THRESHOLD LIGHT

EXISTING AIRPORT ROTATING BEACON

EXISTING UTILITY TRANSFORMER

EXISTING ELECTRICAL MANHOLE

EXISTING ELECTRICAL HANDHOLE

EXISTING CLEAN-OUT

PROPOSED L-867, SIZE D, 24" DEEP SPLICE CAN

PROPOSED ELECTRICAL HANDHOLE

PROPOSED L-861T(L) LED REPLACEMENT TAXIWAY LIGHT MOUNTED ON EXISTING (REUSED) STAKE WITH EXISTING (REUSED) TRANSFORMER.

PROPOSED L-861T(L) LED REPLACEMENT TAXIWAY LIGHT MOUNTED ON EXISTING (REUSED) BASE WITH EXISTING (REUSED) TRANSFORMER.



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LITCHFIELD MUNICIPAL AIRPORT

1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

EXTEND PARTIAL PAR **TAXIWAY B & RELATED** LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

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AIRFIELD LIGHTING REMOVAL, RELOCATION, AND INSTALLATION NOTES

- 1. KEEP ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS COORDINATED WITH THE AIRPORT DIRECTOR/MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- 2. EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS.
- VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, 3. RELOCATING, INSTALLING, CONNECTING OR WORKING ON THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN NAVAID VAULT FOUIPMENT OR OTHER DEVICE.
- 4. INSTALL AIRFIELD LIGHTS, TAXIWAY LIGHTS, GUIDANCE SIGNS, OTHER AIRFIELD LIGHTING, SPLICE CANS, HANDHOLES, MANHOLES, ELECTRICAL DUCTS, AND CABLE AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS, SPECIAL PROVISIONS, RESPECTIVE DETAILS, AND MANUFACTURER'S RECOMMENDATIONS.
- NEW CABLE FOR RUNWAY AND TAXIWAY LIGHTING CABLE IN AREAS ALONG THE RESPECTIVE 5. PAVEMENT SHALL BE INSTALLED APPROXIMATELY 10' TO 14' FROM THE PAVEMENT EDGE. CABLES SHALL BE PLACED A MINIMUM OF 18" BELOW FINISHED GRADE.
- LIGHTING CABLE FOR RUNWAY AND TAXIWAY LIGHTING SHALL BE 1/C, #8 AWG, FAA L-824, 5000 6. VOLT, TYPE C UNDERGROUND CABLE IN UNIT DUCT, DUCT OR RACEWAY.
- 7. IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE. THE CONTRACTOR IS REQUIRED TO HAND DIG THE TRENCH NECESSARY FOR THE PROPOSED CABLE. AT OTHER LOCATIONS, THE PROPOSED CABLE MAY BE TRENCHED OR PLOWED INTO PLACE. HAND DIGGING, TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED CABLES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- GROUND ROD MUST BE INSTALLED AT EACH LIGHT FIXTURE AND TAXI SIGN. THE PURPOSE OF THE LIGHT BASE GROUND IS PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. PER NATIONAL ELECTRICAL CODE ARTICLE 250.53 "GROUNDING ELECTRODE SYSTEM INSTALLATION" RESISTANCE FROM THE GROUND ROD/ELECTRODE TO EARTH GROUND MUST BE 25 OHMS OR LESS VIA MEASUREMENT WITH A GROUND TESTER, GROUNDS RODS FOR LIGHT BASE GROUNDS SHALL BE 3/4-INCH BY 10-FEET MINIMUM LENGTH UL LISTED COPPER-CLAD STEEL SECTIONAL RODS. GROUND RODS SHALL BE PRODUCED FROM 100% DOMESTIC STEEL. EACH GROUND ROD SHALL BE TESTED AND THE RESULTS RECORDED FOR EACH AIRFIELD LIGHT FIXTURE AND TAXI SIGN INSTALLATION. COPIES OF GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE PROJECT ENGINEER AND/OR THE RESIDENT ENGINEER/TECHNICIAN.
- 9. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR DUCT SHALL BE RUN TOGETHER IN THE SAME RACEWAY OR DUCT.
- 10. THE CONTRACTOR SHALL TEST THE RESPECTIVE AIRFIELD LIGHTING CIRCUITS IN AREAS OF WORK WHERE RESPECTIVE CIRCUITS MIGHT BE AFFECTED. THE RESPECTIVE RUNWAY AND TAXIWAY LIGHTING CCR'S (FOR THE AREAS OF WORK ON THIS PROJECT) SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, AND/OR ADDITIONS AND AFTER THE NEW CABLES AND LIGHTING SYSTEM MODIFICATIONS AND ADDITIONS HAVE BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES OF OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT ENGINEER/TECHNICIAN. TEST RESULTS SHALL BE PROVIDED TO THE PROJECT ENGINEER AND RESIDENT ENGINEER/ TECHNICIAN.
- 11. FAA AC 150/5370-10G "STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS", ITEM L-108 "UNDERGROUND POWER CABLE FOR AIRPORTS", REQUIRES THAT EVERY AIRFIELD LIGHTING CABLE SPLICER SHALL BE QUALIFIED IN MAKING CABLE SPLICES AND TERMINATIONS ON CABLES RATED ABOVE 5,000 VOLTS AC. CABLE SPLICING/TERMINATING PERSONNEL SHALL HAVE A MINIMUM OF THREE (3) YEARS CONTINUOUS EXPERIENCE IN TERMINATING/SPLICING MEDIUM VOLTAGE CABLE.
- 12. OTHER CONSTRUCTION PROJECTS MIGHT BE IN PROGRESS AT THE AIRPORT AT THE SAME TIME AS THIS PROJECT. THE CONTRACTOR WILL BE REQUIRED TO COOPERATE WITH ALL OTHER CONTRACTORS AND THE AIRPORT MANAGER IN THE COORDINATION OF THE WORK.
- 13. OBTAIN APPROVAL FROM THE AIRPORT MANAGER PRIOR TO SHUTTING DOWN A RUNWAY OR TAXIWAY. WHEN A RESPECTIVE RUNWAY IS CLOSED THE RESPECTIVE RUNWAY LIGHTING AND NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF. WHEN A RESPECTIVE TAXIWAY IS CLOSED THE RESPECTIVE TAXIWAY LIGHTING FOR THAT TAXIWAY SHALL BE SHUT OFF.
- 14. THE CONTRACTOR IS REQUIRED TO FILL IN ALL HOLES AND DEPRESSIONS RESULTING FROM THE NEW WORK, WITH EARTH MATERIAL. THE AREAS SHALL BE COMPACTED TO PREVENT FUTURE SETTLEMENT AND FERTILIZED, SEEDED, AND MULCHED IN ACCORDANCE WITH ITEMS 901 AND 908 RESPECTIVELY.
- 15. IN THE EVENT A CONFLICT IS DETERMINED WITH RESPECT TO MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION.

- 16. SEE SAFETY PLAN AND NOTES FOR SAFETY AND CONSTRUCTION COORDINATION REQUIREMENTS.
- 17. EXISTING AIRFIELD LIGHTS DESIGNATED FOR REMOVAL SHALL BE CAREFULLY REMOVED IN THERE ENTIRETY. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING LIGHTS, AS NOT TO DAMAGE THEM, INCLUDING MOUNTING STAKES, BASES, FOUNDATIONS AND TRANSFORMERS. THE EXISTING AIRFIELD LIGHTS, TRANSFORMERS, LIGHT BASES, COVERS AND MOUNTING STAKES SHALL BE TURNED OVER TO THE AIRPORT. LIGHT BASES SHALL BE REMOVED AND DISPOSED OF OFF SITE. ANY MATERIAL NOT SALVAGED BY THE AIRPORT SHALL BE DISPOSED OF OFF THE AIRPORT SITE, IN A LEGAL MANNER, AT THE CONTRACTOR'S OWN EXPENSE. EXISTING DUCTS AND CABLES ASSOCIATED WITH AIRFIELD LIGHTING REMOVALS, RELOCATIONS, REPLACEMENTS AND/OR CABLE OR DUCT REPLACEMENTS SHALL BE REMOVED AND DISPOSED OF OFF SITE AT NO ADDITIONAL COST TO THE CONTRACT. PROVIDE TEMPORARY CABLES AND DUCTS TO ACCOMMODATE AIRFIELD LIGHTING CIRCUITS THAT ARE TO REMAIN ACTIVE DURING CONSTRUCTION. CONTRACTOR MAY REMOVE ABANDONED CABLES AT NO ADDITIONAL COST TO THE CONTRACT AND SHALL HAVE THE SALVAGE RIGHTS TO ABANDONED CABLES. REMOVAL OF EXISTING AIRFIELD LIGHTING WILL BE PAID FOR UNDER ITEM AR800476 REMOVE AIRFIELD LIGHTING PER LUMP SUM.
- 18. OWNER SHALL BE KEPT INFORMED OF WORK AND SCHEDULES.
- 19. ROUTE NEW CABLES AND DUCTS TO AVOID INTERFERENCES WITH OTHER UTILITIES, LINES, CABLES AND STRUCTURES.
- 20. ALL ELECTRICAL EQUIPMENT (INCLUDING AIRFIELD LIGHTING AND NAVADS) AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRIC CODE (NEC) MOST CURRENT ISSUE IN FORCE. THE RESPECTIVE FOULPMENT MANUFACTURER'S DIRECTIONS, AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE, ANY INSTALLATIONS WHICH VOID THE U.L. LISTING. INTERNEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- 21. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2G (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
- 22. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
- 23. 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 150/5370-26, OPERATION SAFETY ON AIRPORTS DURING CONSTRUCTION, SECTION 2,18.3 "LIGHTING AND VISUAL NAVAIDS" ALL LABOR MATERIALS, AND TIME NECESSARY TO COMPLY WITH THIS REQUIREMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 24. CONTRACTOR SHALL INTERFACE EXISTING AIRFIELD LIGHTING AND/OR TAXI SIGNS TO THE NEW, REMOVED, REINSTALLED, ADJUSTED, REPLACED, AND/OR RELOCATED AIRFIELD LIGHTING AND ASSOCIATED CIRCUITS.
- 25. PROVIDE AND/OR RELOCATE TAXIWAY LIGHT FIXTURE TAGS TO ACCOMMODATE NEW LIGHT FIXTURES. TAXIWAY LIGHT FIXTURE REMOVALS, RELOCATIONS, SERIES CIRCUIT CHANGES AND RENUMBERING
- 26. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE, OR HANDHOLE,
- 27. THE PROPOSED TAXI GUIDANCE SIGNS AND/OR REPLACEMENT PANELS SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-44 (CURRENT ISSUE IN EFFECT) AND BE FAA-APPROVED FOR TYPE L-858Y(L) DIRECTION, DESTINATION, AND BOUNDARY SIGNS (BLACK LEGEND ON YELLOW BACKGROUND); TYPE 1-858R(1) 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 BACKGROUND). THE REPLACEMENT SIGN PANELS SHALL BE MANUFACTURED BY THE ORIGINAL EQUIPMENT MANUFACTURER TO MAINTAIN THE ETL LISTING AND FAA APPROVAL OF EACH RESPECTIVE SIGN
- 28. ALL SIGNS SHALL BE FURNISHED WITH TETHERS. TETHERS SHALL BE 3/16" STAINLESS STEEL AIRCRAFT CABLE WITH A FORMED EYE ON BOTH ENDS. THE TETHER EYE SHALL BE ATTACHED TO THE SIGN AND BASE BY BEING SANDWICHED BETWEEN TWO STAINLESS STEEL FENDER WASHERS, WITH A 1/2" MINIMUM STAINLESS STEEL BOLT. THE TETHER SHALL BE OF SUFFICIENT LENGTH TO HAVE A MINIMUM OF 6" OF SLACK WHEN ATTACHED BETWEEN THE SIGN AND THE SIGN BASE. THE TETHERS AND BONDING CONDUCTORS SHALL BE OF SUFFICIENT LENGTH TO ALLOW THE FRANGIBLE COUPLINGS TO OPERATE WITHOUT RESTRICTIONS AND TO ALLOW THE POWER CABLE TO DISCONNECT IF THE SIGN FALLS OVER. PROVIDE 3" ± 1/2" SLACK IN TETHER AND ALL TETHERS SHALL BE THE SAME LENGTH.
- 29. ALL SIGNS SHALL BE ORIENTATED SUCH THAT THE LONGITUDINAL CENTERLINE OF THE SIGN IS PERPENDICULAR TO THE RESPECTIVE TAXIWAY/RUNWAY CENTERLINE, UNLESS NOTED OTHERWISE.
- 30. ALL MANDATORY SIGNS (SIZE 1) SHALL BE LOCATED 15' OFF THE EDGE OF FULL STRENGTH PAVEMENT. (UNLESS DETAILED OTHERWISE) AND ALIGNED WITH THE FRONT EDGE OF THE FIRST YFLLOW STRIPF (FURTHEST FROM THE RUNWAY) OF THE HOLD POSITION MARKING UNLESS SHOWN OTHERWISE FOR A RESPECTIVE SIGN. CONFIRM LOCATIONS WITH THE PROJECT ENGINEER.

- 31. RUNWAY EXIT/TAXIWAY ENTRANCE SIGNS (TAXIWAY GUIDANCE SIGNS TO DEFINE THE THROAT OR ENTRANCE INTO THE INTERSECTING TAXIING ROUTE) OR RUNWAY EXIT/TAXIWAY ENTRANCE LIGHTS SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY CIRCUIT TO BE ILLUMINATED WHEN THE RUNWAY EDGE LIGHTS ARE ON TO COMPLY WITH FAA AC 150/5340-18F, CHAPTER 1, PART 15 "SIGN OPERATION", AND/OR FAA AC 150/5340-30J PART 2.5.3.4.
- 32. HOLDING POSITION SIGNS FOR RUNWAYS SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY SERIES CIRCUIT TO BE ILLUMINATED WHEN THE ASSOCIATED RUNWAY LIGHTS ARE ILLUMINATED TO COMPLY WITH FAA AC150/5340-18F, CHAPTER 1, PART 15 "SIGN OPERATION".
- 33. CONCRETE STEEL REINFORCEMENT SHALL BE TYPE ASTM A615 OR A706 GRADE 60. ALL REINFORCEMENT SHALL HAVE A 3" MINIMUM CONCRETE COVER. REINFORCEMENT MAY BE ADJUSTED TO MISS INTERFERENCES. CONCRETE SHALL CONFORM TO ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE
- 34. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

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

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



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AIRFIELD LIGHTING NOTES

TXY B CIRCUIT

| TXY B CIRCUIT | | | | | |
|---------------|-----------|------------|-------------------|--|--|
| LIGHT # | NORTHING | EASTING | GROUND RESISTANCE | | |
| T2-20 | 910634.44 | 2435030.60 | | | |
| T2-28 | 910584.36 | 2434275.11 | | | |
| T2-21 | 910611.63 | 2435027.35 | | | |
| T2-22 | 910595.16 | 2435012.20 | | | |
| T2-23 | 910587.91 | 2434987.92 | | | |
| T2-24 | 910587.66 | 2434937.92 | | | |
| T2-25 | 910587.02 | 2434809.51 | | | |
| T2-26 | 910586.13 | 2434631.38 | | | |
| T2-27 | 910585.25 | 2434453.24 | | | |
| T2-29 | 910583.47 | 2434096.97 | | | |
| T2-30 | 910582.58 | 2433918.84 | | | |
| T2-31 | 910581.70 | 2433740.70 | | | |
| T2-32 | 910583.47 | 2433612.58 | | | |
| T2-33 | 910586.23 | 2433562.84 | | | |
| T2-34 | 910596.29 | 2433524.36 | | | |
| T2-35 | 910634.67 | 2433513.92 | | | |
| T2-36 | 910713.60 | 2433508.75 | | | |
| T2-37 | 910713.60 | 2433453.02 | | | |
| T2-38 | 910634.50 | 2433453.59 | | | |
| T2-39 | 910589.93 | 2433453.91 | | | |
| T2-40 | 910558.00 | 2433462.55 | | | |
| T2-41 | 910534.39 | 2433486.16 | | | |
| T2-42 | 910525.75 | 2433518.73 | | | |
| T2-43 | 910525.80 | 2433562.84 | | | |
| T2-44 | 910526.03 | 2433612.84 | | | |
| T2-45 | 910526.63 | 2433741.17 | | | |
| T2-46 | 910527.75 | 2433919.30 | | | |
| T2-47 | 910528.63 | 2434097.44 | | | |
| T2-48 | 910529.36 | 2434275.38 | | | |
| T2-49 | 910530.41 | 2434453.71 | | | |
| T2-50 | 910531.30 | 2434631.84 | | | |
| T2-51 | 910532.18 | 2434809.98 | | | |
| T2-52 | 910532.23 | 2434937.92 | | | |
| T2-53 | 910532.23 | 2434987.92 | | | |
| T2-54 | 910532.66 | 2435035.87 | | | |
| T2-55 | 910532.89 | 2435083.81 | | | |
| T2-56 | 910533.11 | 2435131.77 | | | |

| RWY 9-27 CIRC | JUIL |
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| | LIGHT LOCATION TABLE | | | | | | |
|---------|----------------------|------------|-------------------|--|--|--|--|
| LIGHT # | NORTHING | EASTING | GROUND RESISTANCE | | | | |
| R1-44 | 910895.02 | 2433452.08 | | | | | |
| R1-45 | 910871.34 | 2433452.61 | | | | | |
| R1-46 | 910792.53 | 2433452.73 | | | | | |
| R1-47 | 910792.53 | 2433508.38 | | | | | |
| R1-48 | 910871.46 | 2433512.74 | | | | | |
| R1-49 | 910895.02 | 2433518.89 | | | | | |
| R1-TGS6 | 910756.32 | 2433437.89 | | | | | |
| R1-TGS7 | 910891.10 | 2433534.11 | | | | | |
| | | | | | | | |



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EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND

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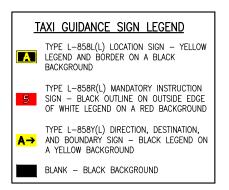


LIGHT LOCATION TABLE

| | TAXI GUIDANCE SIGN SCHEDULE | | | | | | |
|---------|--|-------------------|--------|-----------------------|-----------|---|--|
| SIGN | LOCATION | EXIS | TING | PROF | POSED | REMARKS | |
| NUMBER | LOCATION | SIDE A | SIDE B | SIDE A | SIDE B | REMARKS | |
| R1-TGS1 | TAXIWAY B1 INTERSECTION WITH RUNWAY 27 AT HOLD LINE | A 27 | | B1 27 | NO CHANGE | EXISTING LOCATION/MANDATORY HOLD SIGN TO REMAIN IN PLACE. REPLACE EXISTING SIDE A PANELS WITH NEW PANEL (1-1 MODULE PANEL). | |
| R1-TGS2 | RUNWAY 9 INTERSECTION WITH TAXIWAY B1 | RAMP → | | NO CHANGE | NO CHANGE | EXISTING DIRECTION SIGN TO REMAIN IN PLACE. NO CHANGES. | |
| R1-TGS3 | RUNWAY 9 INTERSECTION WITH TAXIWAY B2 | <mark>B1 →</mark> | | <mark>B2 →</mark> | NO CHANGE | EXISTING DIRECTION SIGN TO REMAIN IN PLACE. REPLACE EXISTING SIDE A PANEL WITH NEW PANELS (1-1 MODULE PANEL). | |
| R1-TGS4 | TAXIWAY B2 INTERSECTION WITH RUNWAY 9-27 AT HOLDLINE | B1 9 - 27 | | <mark>:2</mark> 9- 27 | NO CHANGE | EXISTING LOCATION/MANDATORY HOLD SIGN TO REMAIN IN PLACE. REPLACE EXISTING SIDE A PANEL WITH NEW PANEL $(1-1 MODULE PANEL)$. | |
| R1-TGS5 | RUNWAY 27 INTERSECTION WITH TAXIWAY B2 | <mark>← B1</mark> | | <mark>← B2</mark> | NO CHANGE | EXISTING DIRECTION SIGN TO REMAIN IN PLACE. REPLACE EXISTING SIDE A PANEL WITH NEW PANEL (1-1 MODULE PANEL). | |
| R1-TGS6 | TAXIWAY B3 INTERSECTION WITH RUNWAY 9 AT HOLD LINE | | | B3 9 | B3 | NEW LOCATION/MANDATORY HOLD SIGN TO BE CONNECTED TO RUNWAY 9-27 LIGHTING CIRCUIT | |
| R1-TGS7 | RUNWAY 27 INTERSECTION WITH TAXIWAY B3 | | | ← B3 | | NEW DIRECTION SIGN TO BE CONNECTED TO RUNWAY 9-27 LIGHTING CIRCUIT | |

NOTES:

- EXISTING TAXI GUIDANCE SIGNS REQUIRING PANEL REPLACEMENTS ARE L-858(L), SIZE 1, STYLE 2, CLASS 2 MANUFACTURED BY LUMACURVE, STANDARD SIGNS, INC. CONTRACTOR SHALL FIELD VERIFY EXISTING SIGNS TO CONFIRM REPLACEMENT PANEL SIZES AND REQUIREMENTS.
- 2. THE PROPOSED TAXI GUIDANCE SIGN REPLACEMENT PANELS SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-44 (CURRENT ISSUE IN EFFECT) 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 ON WHITE LEGEND ON RED BACKGROUND): AND/OR TYPE L-858L(L) LOCATION SIGN (YELLOW LEGEND AND BORDER ON BLACK BACKGROUND). THE SIGN PANELS SHALL BE MANUFACTURED BY THE ORIGINAL EQUIPMENT MANUFACTURER TO MAINTAIN THE ETL LISTING AND FAA APPROVAL OF EACH SIGN.
- 3. SEE SPECIFICATION ITEM L-125 FOR ADDITIONAL REQUIREMENTS ON TAXI GUIDANCE SIGNS.
- 4. SEE "AIRFIELD LIGHTING NOTES" SHEET FOR ADDITIONAL REQUIREMENTS ON TAXI GUIDANCE SIGNS.
- 5. CONTRACTOR SHALL TEST AND RECORD THE EARTH GROUND RESISTANCE FOR THE GROUND ROD AT EACH NEW TAXI GUIDANCE SIGN.
- 6. ALL EXISTING SIGN PANELS TO BE REPLACED SHALL BE TURNED OVER TO THE AIRPORT.
- 7. PER THE REQUIREMENTS OF FAA AC 150/5340-26C, CHAPTER 3, SECTION 3.6.6 USE OF ORIGINAL EQUIPMENT MANUFACTURER (OEM) PART, IT NOTES THE FOLLOWING: "THE USE OF NON-OEM PARTS OR LAMPS IN FAA APPROVED EQUIPMENT IS STRONGLY DISCOURAGED. THE FAA HAS STRICT SPECIFICATIONS FOR APPROVAL OF ALL AIRPORT LIGHTING EQUIPMENT AND USE OF NON-OEM PARTS OR LAMPS IN SUCH EQUIPMENT OR SYSTEMS CAN RENDER THE EQUIPMENT TO BE FUNCTIONALLY NON-FAA APPROVED. THIS COULD POSSIBLY LEAD TO SERIOUS LIABILITY CONSEQUENCES IN CASE OF AN AIRCRAFT INCIDENT AT AN AIRPORT FOLLOWING THESE PRACTICES. IN THE CASE OF RUNWAY AND TAXIWAY LIGHTING FIXTURES, THE USE OF A GENERIC, NON-APPROVED LAMP CAN RENDER THE PHOTOMETRIC OUTPUT OF THE FIXTURE OUT OF SPECIFICATION AND ADVERSELY AFFECT THE SAFETY OF LOW VISIBILITY OPERATIONS."





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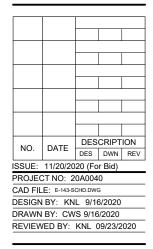
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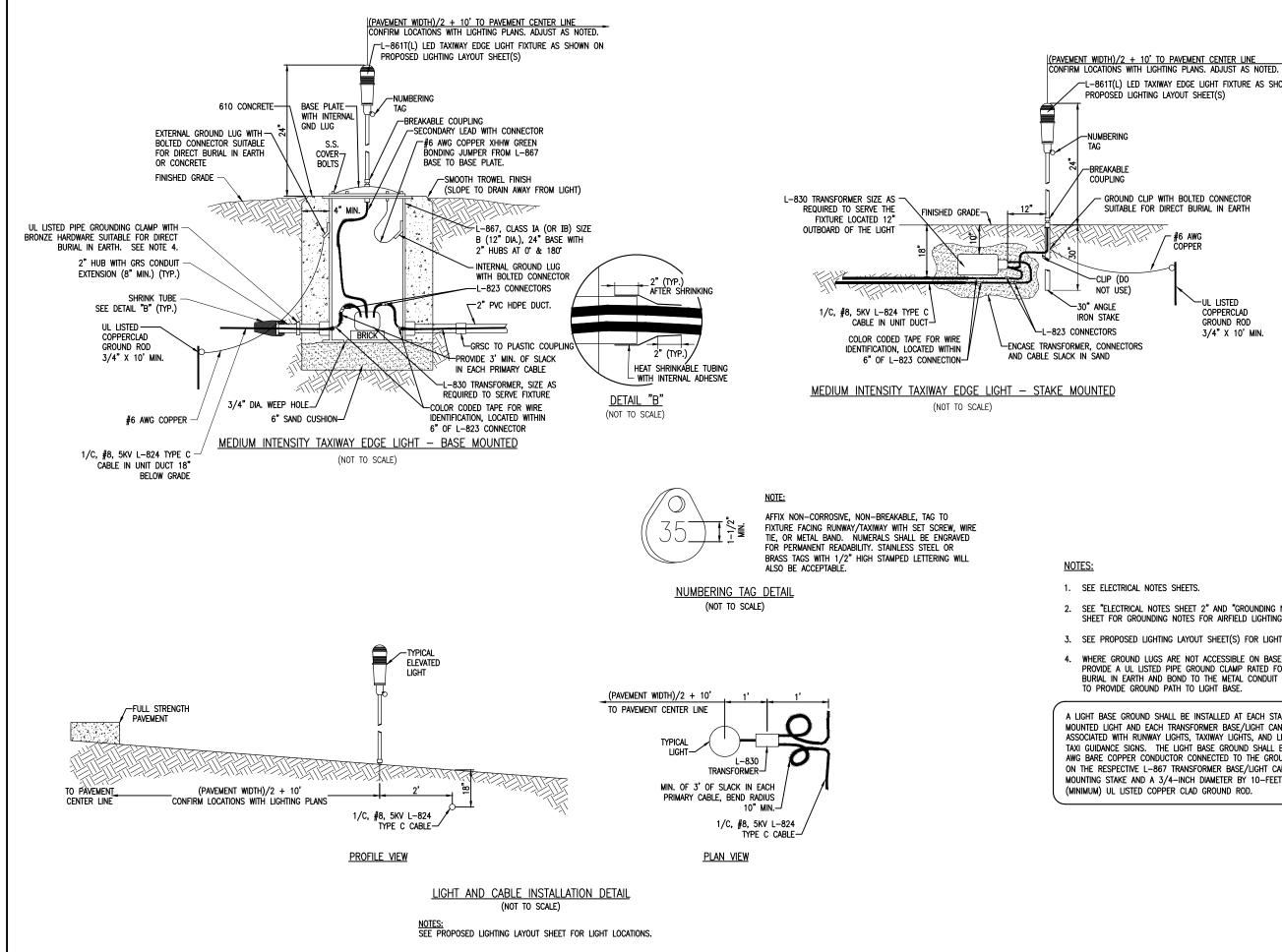
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EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039



TAXI GUIDANCE SIGN SCHEDULE



-L-861T(L) LED TAXIWAY EDGE LIGHT FIXTURE AS SHOWN ON

GROUND CLIP WITH BOLTED CONNECTOR SUITABLE FOR DIRECT BURIAL IN EARTH

> COPPERCLAD GROUND ROD 3/4" X 10' MIN.

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

WHERE GROUND LUGS ARE NOT ACCESSIBLE ON BASE CANS , PROVIDE A UL LISTED PIPE GROUND CLAMP RATED FOR DIRECT BURIAL IN EARTH AND BOND TO THE METAL CONDUIT EXTENSION

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



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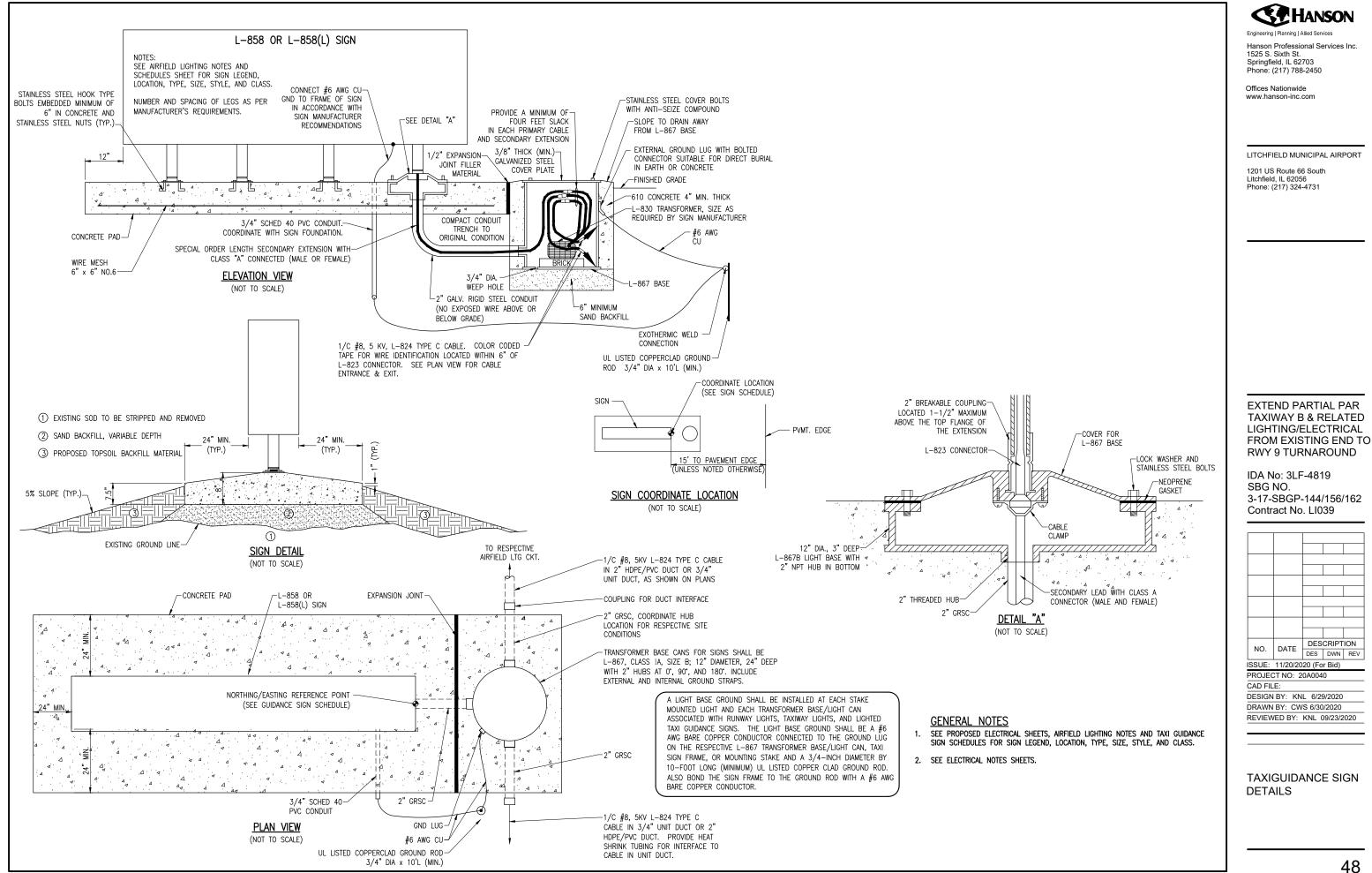
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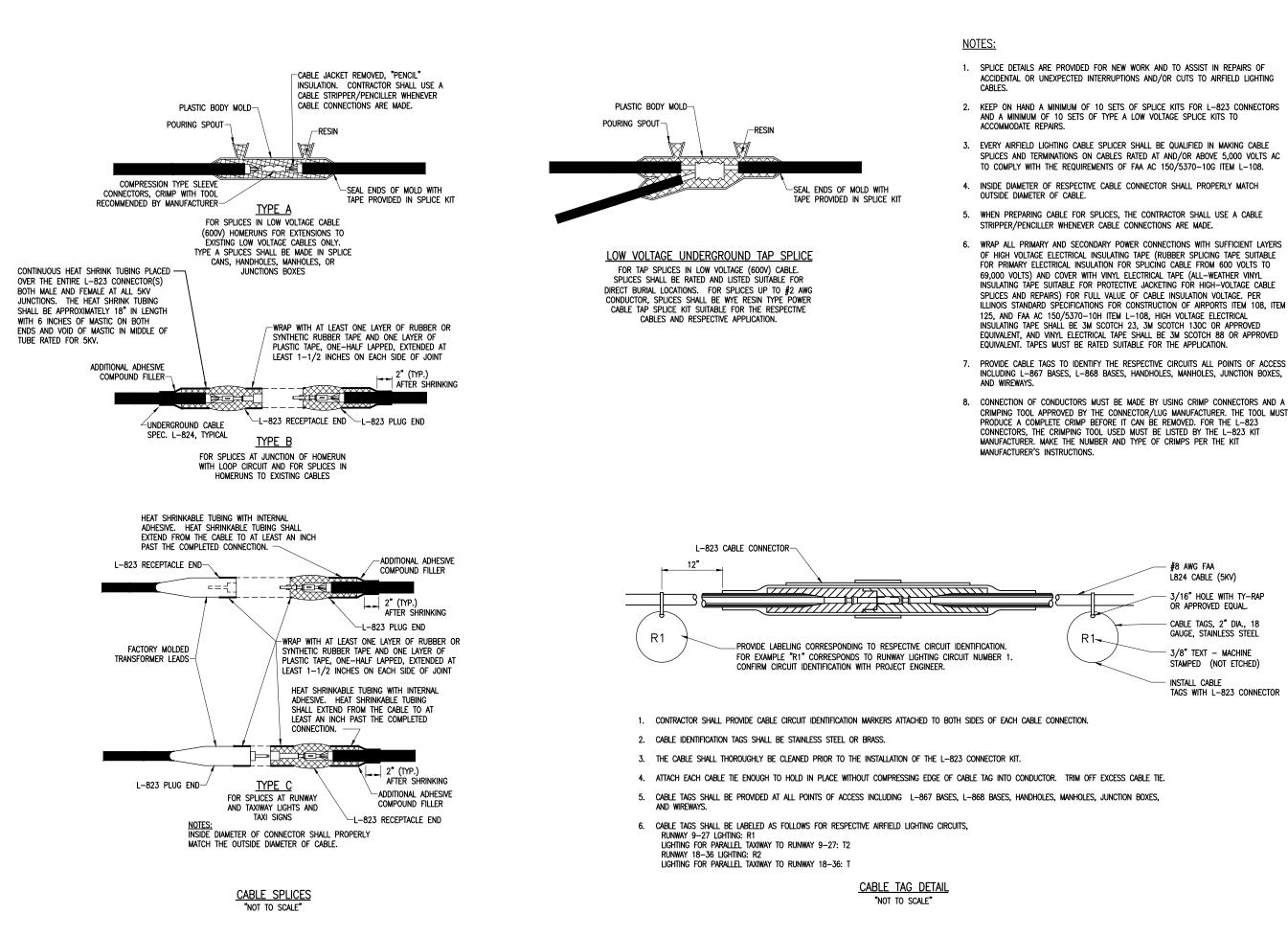
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TAXIWAY LIGHT DETAILS





ACCIDENTAL OR UNEXPECTED INTERRUPTIONS AND/OR CUTS TO AIRFIELD LIGHTING

SPLICES AND TERMINATIONS ON CABLES RATED AT AND/OR ABOVE 5,000 VOLTS AC TO COMPLY WITH THE REQUIREMENTS OF FAA AC 150/5370-10G ITEM L-108.

6. WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT LAYERS OF HIGH VOLTAGE ELECTRICAL INSULATING TAPE (RUBBER SPLICING TAPE SUITABLE FOR PRIMARY ELECTRICAL INSULATION FOR SPLICING CABLE FROM 600 VOLTS TO 69,000 VOLTS) AND COVER WITH VINYL ELECTRICAL TAPE (ALL-WEATHER VINYL INSULATING TAPE SUITABLE FOR PROTECTIVE JACKETING FOR HIGH-VOLTAGE CABLE SPLICES AND REPAIRS) FOR FULL VALUE OF CABLE INSULATION VOLTAGE, PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM EQUIVALENT, AND VINYL ELECTRICAL TAPE SHALL BE 3M SCOTCH 88 OR APPROVED

8. CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST

> #8 AWG FAA L824 CABLE (5KV)

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

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

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

INSTALL CABLE TAGS WITH L-823 CONNECTOR



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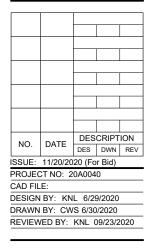
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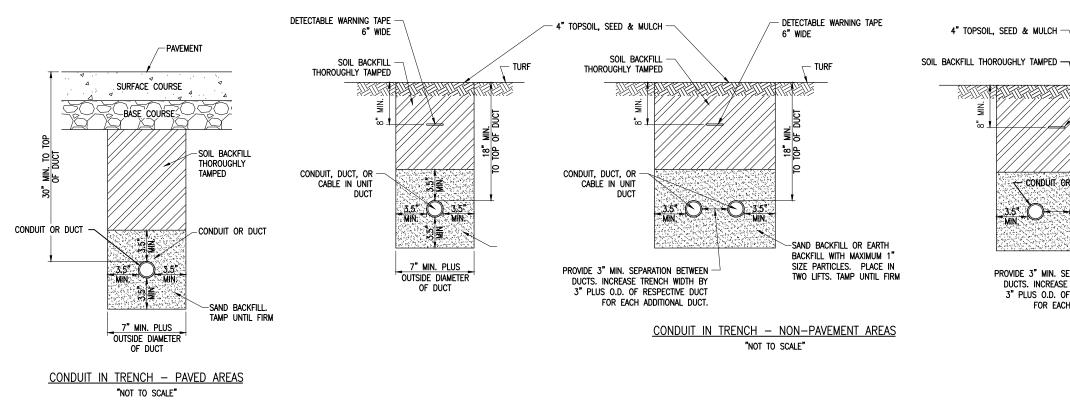
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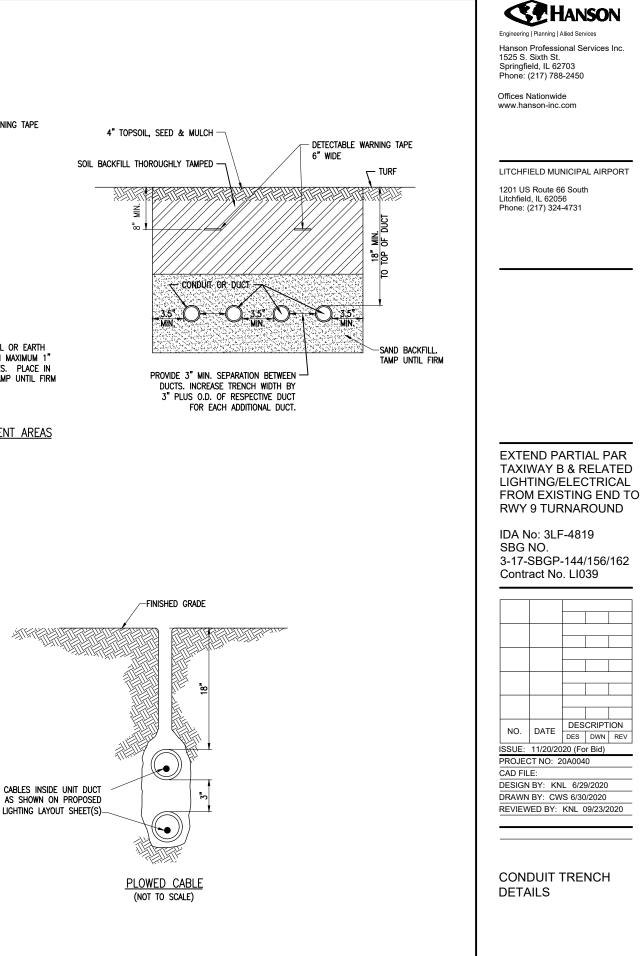


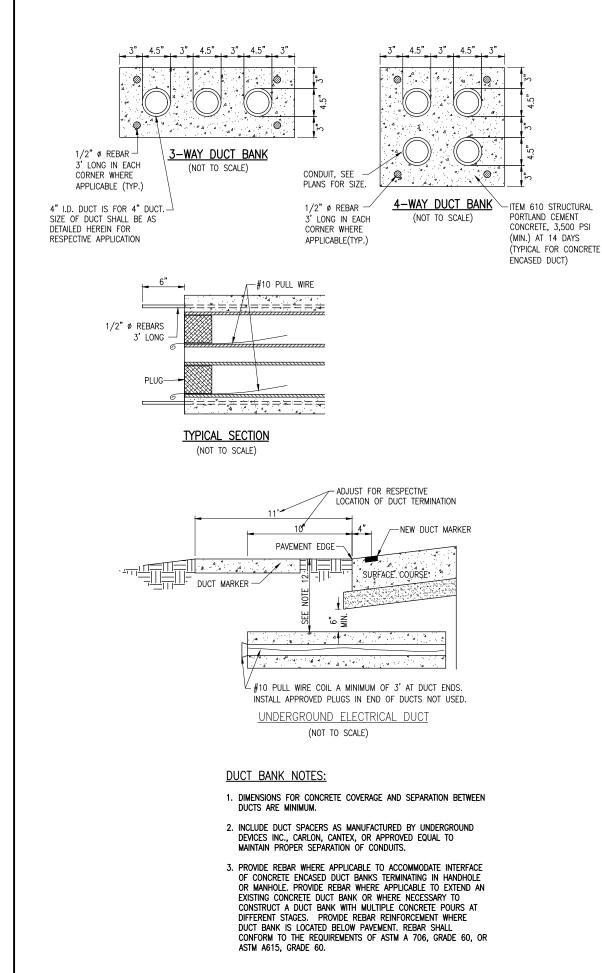
AIRFIELD LIGHTING CABLE SPLICE DETAILS



NOTES:

- 1. DIMENSIONS FOR COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
- TRENCHES WITH MORE THAN TWO DUCTS OR CABLE IN UNIT DUCTS SHALL BE INCREASED 3" IN WIDTH PLUS DIAMETER OF RESPECTIVE DUCT FOR EACH ADDITIONAL CONDUIT, DUCT, OR CABLE IN UNIT DUCT; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
- 3. DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS. MINIMUM COVER REQUIREMENTS FOR CABLES AND DUCTS AT AIRPORT RUNWAYS AND ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED IS 18 INCHES PER NEC 300.5 AND 300.50. MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED BELOW PAVEMENT OR ROADWAYS IS 30". MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED IN AREAS SUBJECT TO FARMING IS 42". ADJUST/INCREASE BURIAL DEPTHS TO ACCOMMODATE SITE CONDITIONS, DRAINAGE AND/OR OBSTRUCTIONS. COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT-BURIED CONDUCTOR, CABLE, CONDIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE OR SIMILAR COVER.
- 4. 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 RACEWAY, CONDUIT, DUCT, HANDHOLE, OR MANHOLE.
- CONDUIT, DUCT, CABLE, AND/OR CABLE IN UNIT DUCT INTERFACE TO HANDHOLES, MANHOLES, SPLICE CANS, OR OTHER JUNCTION STRUCTURES WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE CABLE PAY ITEM OR RESPECTIVE DUCT PAY ITEM.
- ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. <u>COST IS</u> INCIDENTAL TO TRENCH.





DUCT INSTALLATION NOTES

- ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN 1. CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED
- CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE. 2.
- CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT 3. DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN. THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)
- THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR 4. 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. 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.
- ADJUSTMENTS TO DUCT BANK ROUTES MIGHT BE REQUIRED TO ACCOMMODATE 5. EXISTING SITE CONDITIONS AND UNDERGROUND LINES AND UTILITIES. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL COORDINATE DUCT ROUTE ADJUSTMENTS WITH THE RESIDENT ENGINEER/ RESIDENT TECHNICIAN AND THE AIRPORT MANAGER.
- CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING CABLES, LINES, OR 6. UTILITIES WITHIN 10 FT OF PROPOSED EXCAVATING/TRENCHING AREA. ANY CABLES, LINES, AND UTILITIES FOUND INTERFERING WITH PROPOSED EXCAVATION OR CABLE/TRENCHING SHALL BE HAND DUG AND EXPOSED. ANY DAMAGED CABLES OR OTHER UTILITIES SHALL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE RESPECTIVE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE. THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND OWNER SHALL BE NOTIFIED IMMEDIATELY IF ANY CABLES OR OTHER UTILITIES ARE DAMACED
- PAYMENT FOR LOCATING AND MARKING UNDERGROUND UTILITIES AND CABLES WILL 7. NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION.
- 8. THE CONTRACTOR WILL DETERMINE IF THERE IS A CONFLICT BETWEEN THE INSTALLATION OF THE PROPOSED ELECTRICAL DUCTS AND ANY EXISTING UTILITIES. HE WILL MAKE ALL NECESSARY ADJUSTMENTS IN DEPTH OF INSTALLATION TO AVOID ANY AND ALL PROPOSED UNDERGROUND IMPROVEMENTS
- CONDUITS FOR DIRECT BURIAL OR CONCRETE ENCASED DUCT BANK SHALL BE 9. SCHEDULE 40 PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651. LISTED SUITABLE FOR UNDERGROUND USE EITHER DIRECT-BURIED OR ENCASED IN CONCRETE, OR SCHEDULE 40 (MINIMUM) HDPE CONDUIT, UL LISTED, CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND LISTED SUITABLE FOR UNDERGROUND USE; EITHER DIRECT BURY OR ENCASED IN CONCRETE.

- SHALL BE AS FOLLOWS:
- BORED UNDER.
- VACANT

- RACEWAY OR DUCT.
- INSTALLATION.
- - RESISTANT MATERIAL.



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| ISSUE: 11/20/2020 (For Bid) | | | | |
| PROJECT NO: 20A0040 | | | | |
| CAD FIL | E: | | | |

REVIEWED BY: KNL 09/23/2020

DESIGN BY: KNI 6/29/2020

DRAWN BY: CWS 6/30/2020

DUCT BANK DETAILS AND NOTES

10. CONDUITS FOR DIRECTIONAL BORING SHALL BE SCHEDULE 40 PVC CONDUIT OR SCHEDULE 80 PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651 AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION. SCHEDULE 80 HDPE CONDUIT. UL-LISTED. CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, OR WALL TYPE SDR 13.5 OR SDR 11 HDPE CONDUIT MANUFACTURED IN ACCORDANCE WITH ASTM D-3350 (SPECIFICATION OF POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS) AND ASTM F2160 (STANDARD SPECIFICATION FOR SOLID WALL, HIGH-DENSITY POLYETHYLENE CONDUIT BASED ON CONTROLLED OUTSIDE DIAMETER), AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION. PER NEC 300.5 (K), RACEWAYS INSTALLED USING DIRECTIONAL BORING EQUIPMENT SHALL BE APPROVED FOR THE PURPOSE.

11. INSTALLATION OF CONDUIT AND DUCTS SHALL CONFORM TO ITEM 110 AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS.

12. MINIMUM COVER REQUIREMENTS TO TOP OF ELECTRICAL DUCT ENCASEMENT

-18 IN. MIN. IN TURF AREAS AT AIRPORTS OR ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED, AND NOT SUBJECT TO FARMING. -42 IN. MIN. IN AREAS SUBJECT TO FARMING. -30 IN. MIN. WHERE LOCATED BELOW PAVEMENT OR ROADWAY

WHERE DETAILED ON THE PLANS OR WHERE REQUIRED TO AVOID OBSTRUCTIONS, DUCTS SHALL BE BURIED DEEPER. COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT-BURIED CONDUCTOR, CABLE, CONDUIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE OR SIMILAR COVER

13. WHERE CONCRETE-ENCASED DUCT INTERFACES TO AN ELECTRICAL HANDHOLE OR MANHOLE, THE CONCRETE ENCASEMENT SHALL BE INSTALLED UP TO THE RESPECTIVE HANDHOLE OR MANHOLE. PROVIDE BUSHINGS OR BELLS AT CONDUIT TERMINATIONS IN ELECTRICAL HANDHOLES OR MANHOLES.

14. UNDERGROUND DUCTS INSTALLED BY DIRECTIONAL-BORING METHOD SHALL BE INSTALLED IN A MANNER THAT WILL NOT DAMAGE ANY EXISTING UNDERGROUND UTILITIES, AND SHALL NOT DISTURB OR DAMAGE THE RESPECTIVE PAVEMENT OR ROADWAY SURFACE. DUCTS SHALL BE DIRECTIONAL-BORED AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. THE DUCTS WILL BE BORED AT A MINIMUM DEPTH OF 42 IN. BELOW THE RESPECTIVE PAVEMENT IT IS BEING

15. A PULL WIRE SHALL BE INSTALLED IN EACH CONDUIT OR DUCT TO BE LEFT

16. 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 RACEWAY, CONDUIT, DUCT, HANDHOLE, OR MANHOLE.

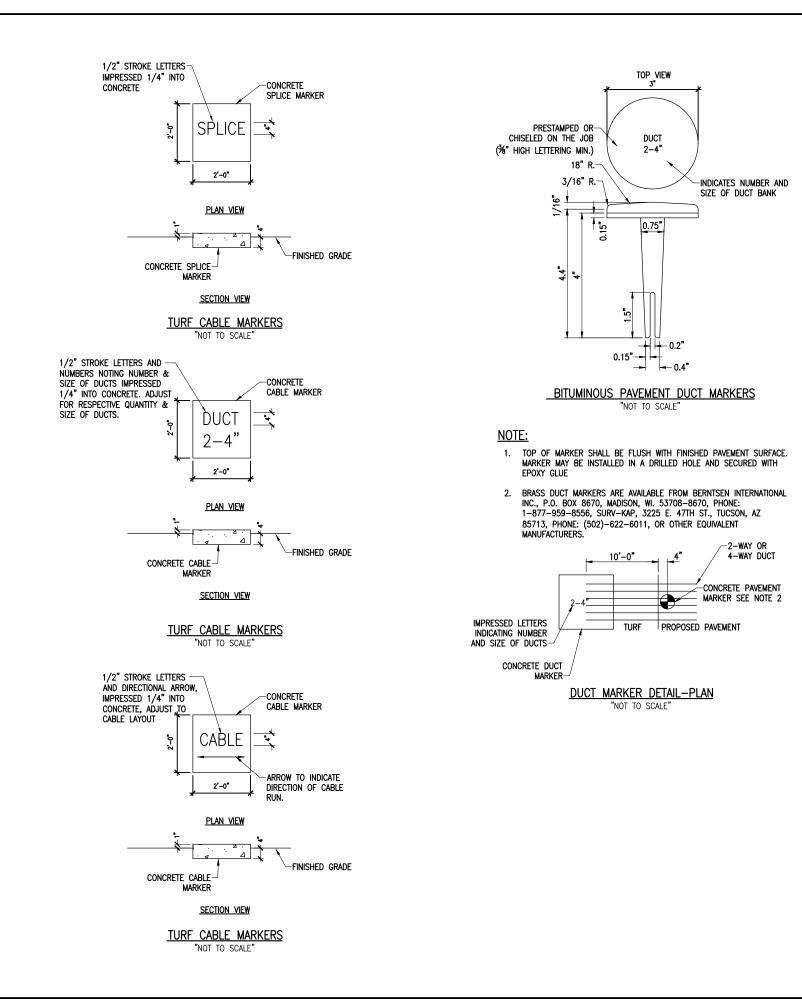
17. CONTROL CABLES SHALL BE RUN IN SEPARATE DUCTS FROM POWER CABLES. COMMUNICATION CABLES SHALL BE RUN IN SEPARATE DUCTS FROM POWER

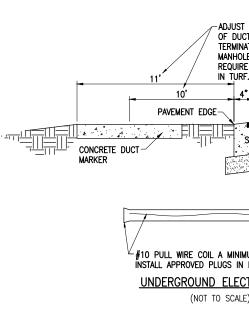
18. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT SHALL BE INSTALLED IN THE SAME

19. COORDINATE DUCT INTERFACE TO MANHOLES AND HANDHOLES. FIELD CUT OPENINGS FOR CONDUITS AND DUCTS TO INTERFACE TO MANHOLES AND/OR HANDHOLES. CUT WALL OF RESPECTIVE HANDHOLE OR MANHOLE WITH A TOOL DESIGNED FOR MATERIAL TO BE CUT. SIZE HOLES FOR RESPECTIVE DUCTS, CONDUITS, AND TERMINATION FITTINGS AND SEAL AROUND PENETRATIONS. ALL CORING, INTERFACE, CUTTING, AND SEALING WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION AND/OR RESPECTIVE HANDHOLE/MANHOLE

20. CONTRACTOR SHALL COORDINATE DUCT MARKING WITH AIRPORT.

21. ALL POWER AND CONTROL CABLES IN HANDHOLES, MANHOLES, AND JUNCTION BOXES SHALL BE TAGGED TO IDENTIFY THE RESPECTIVE CABLE. A MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MANHOLE; ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT. CABLE TAGS SHALL BE STAMPED BRASS TAGS OR OTHER WEATHERPROOF/WATERPROOF CORROSION





CABLE & DUCT MARKER NOTES:

- 1. THE COST OF ALL TURF AND PAVEMENT DUCT MA DUCT. THE COST OF ALL CABLE MARKERS SHALL
- BITUMINOUS PAVEMENT DUCT MARKER AND CONCE EACH END OF EACH DUCT AS SHOWN ON THE LO PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED MARKER. THE LETTER SHALL BE INFORMED AS D
- UNDERGROUND CABLE RUNS MUST BE IDENTIFIED
 M) MAXIMUM SPACING WITH AN ADDITIONAL MARKE THE CABLE RUN. CABLE MARKERS MUST BE INSTA MARKERS ARE NOT REQUIRED FOR CABLE RUNS E
- CONCRETE CABLE MARKERS AND DUCT MARKERS S WITH WIDTH OF STROKE ½" AND ¼" DEEP. ALL L IMPRESSED.
- EMPLOY THE FOLLOWING METHODS WHERE ADDITION REQUIRED: A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
 - REDUCE LETTER SIZE TO 3 FIGH, 2 WIDE.
 B. INCREASE THE MARKER SIZE TO 30" X 30".
 C. PROVIDE ADDITIONAL MARKERS PLACED SIDE B
- 6. TURF DUCT MARKERS ARE NOT REQUIRED AT PAV TERMINATE IN HANDHOLES, OR JUNCTION STRUCTU
- LOCATION OF ALL DIRECT EARTH BURIAL UNDERGE EXCEPT THOSE AT ISOLATION TRANSFORMERS, MUS SPLICE MARKERS MUST BE PLACED ABOVE THE S BURIAL UNDERGROUND CABLE SPLICES SHALL BE SPLICES SHALL BE LOCATED IN SPLICE CANS, LIG OTHER JUNCTION STRUCTURES UNLESS OTHERWISI
- 8. THE CABLE AND SPLICE MARKERS MUST IDENTIFY BELONG. FOR EXAMPLE: RWY 4-22, PAPI-4, PAI
- 9. LOCATIONS OF ENDS OF ALL UNDERGROUND DUC MARKERS.

| ST FOR RESPECTIVE LOCATION UCT TERMINATION. DUCT INATING AT HANDHOLES OR OLES NEAR PAVEMENT WILL NOT IRE ADDITIONAL DUCT MARKERS IRF. |
|--|
| |
| NIMUM OF 3' AT DUCT ENDS. IN END OF DUCTS NOT USED. ECTRICAL DUCT NLE) |
| |
| |
| MARKERS SHALL BE INCIDENTAL TO THE LL BE INCIDENTAL TO THE CABLE. |
| CRETE DUCT MARKER TO BE PROVIDED AT LOCATION PLAN. FOR CONCRETE ED IN THE PAVEMENT INSTEAD OF THE DESCRIBED IN NOTE 4. |
| D BY CABLE MARKERS AT 200 FEET (61 KER AT EACH CHANGE OF DIRECTION OF TALLED ABOVE THE CABLE. CABLE BETWEEN RUNWAY/TAXIWAY EDGE LIGHTS. |
| S SHALL HAVE LETTERS 4" HIGH, 3" WIDE LETTERS, NUMBERS AND ARROWS TO BE |
| IONAL SPACE TO FIT THE LEGEND IS |
| BY SIDE |
| AVEMENT CROSSINGS WHERE DUCTS TURES. |
| CROUND CABLE SPLICE/CONNECTIONS, UST BE IDENTIFIED BY SPLICE MARKERS. SPLICE/CONNECTIONS. DIRECT EARTH E AVOIDED WHERE POSSIBLE. CABLE IGHT BASES, HANDHOLES, MANHOLES, OR SE APPROVED BY THE PROJECT ENGINEER. |
| Y THE CIRCUITS TO WHICH THE CABLES UPI-22. |
| CTS MUST BE IDENTIFIED BY DUCT |
| |
| |



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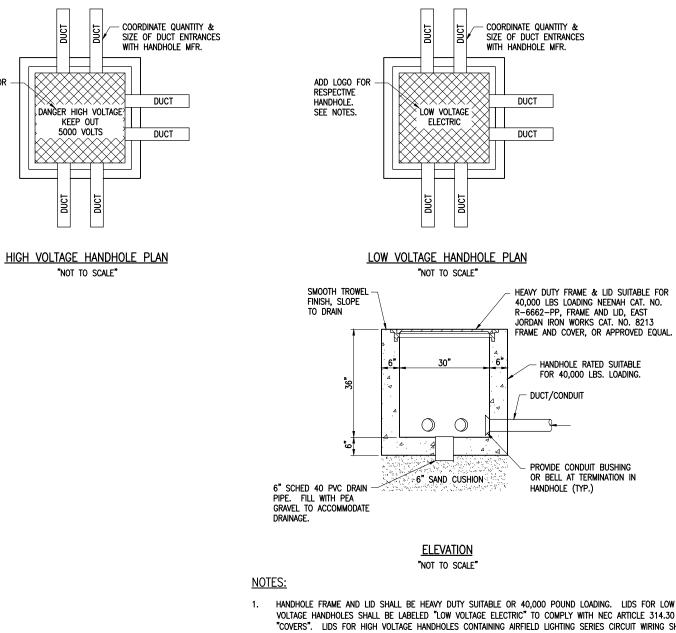
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CABLE AND DUCT MARKER DETAILS



DUCT

DUCT

ADD LOGO FOR

RESPECTIVE

HANDHOLE.

SEE NOTES.

- VOLTAGE HANDHOLES SHALL BE LABELED "LOW VOLTAGE ELECTRIC" TO COMPLY WITH NEC ARTICLE 314.30 (D) "COVERS". LIDS FOR HIGH VOLTAGE HANDHOLES CONTAINING AIRFIELD LIGHTING SERIES CIRCUIT 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 SHALL BE PRECAST. PRECAST MANUFACTURERS MUST BE ON THE IDOT (ILLINOIS DEPT. OF 2. TRANSPORTATION) APPROVED LIST OF CERTIFIED PRECAST CONCRETE PRODUCERS.
- 3. FRAMES AND LIDS (CASTINGS) SHALL BE MADE IN THE USA TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN PRÉFERENCES REQUIREMENTS.
- MINIMUM CONCRETE STRENGTH SHALL BE 5,000 PSI (MINIMUM) AFTER 28 DAYS. 4.
- COORDINATE INSTALLATION OF HANDHOLES WITH RESPECTIVE FINISHED GRADE ELEVATIONS. 5.
- 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 6. COMPENSATION WILL BE ALLOWED.

ELECTRICAL HANDHOLE "NOT TO SCALE"



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ELECTRICAL HANDHOLE DETAILS

GENERAL NOTES

- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 1. 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE. THE RESPECTIVE FOUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT 2. ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.
- CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT 3. DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS FURNISHED BY HIM, INCLUDING FAA APPROVED EQUIPMENT, ARE COMPATIBLE IN 4. ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NONCOMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR SHALL BE REPLACED BY HIM AT NO ADDITIONAL COST TO THE AIRPORT SPONSOR WITH A SIMILAR UNIT, APPROVED BY THE ENGINEER (DIFFERENT MODEL OR DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.
- 5. IN CASE THE CONTRACTOR ELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING EQUIPMENT REQUIRING ADDITIONAL WIRING, TRANSFORMERS, ADAPTORS, MOUNTINGS, ETC., TO THOSE SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATION, ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE EQUIPMENT COST.
- THE CONTRACTOR INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) SHALL NOT 6. 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 7. EQUIPMENT OF OTHER TYPES STYLES, CLASSES, ETC. MAY BE APPROVED.
- ANY AND ALL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN 8. TO THE CONTRACTOR REGARDING CHANGES IN OR DEVIATION'S FROM THE PLANS AND SPECIFICATIONS SHALL BE IN WRITING WITH COPIES SENT TO THE AIRPORT SPONSOR AND THE ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF AERONAUTICS. THE CONTRACTOR SHALL NOT ACCEPT ANY VERBAL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN REGARDING ANY CHANGES FROM THE PLANS AND SPECIFICATIONS.
- A MINIMUM OF THREE COPIES OF THE INSTRUCTION BOOK SHALL BE SUPPLIED WITH EACH DIFFERENT TYPE OF EQUIPMENT. THE BOOKS DESCRIBING A MORE 9. SOPHISTICATED TYPE OF EQUIPMENT, SUCH AS REGULATORS, PAPI, REIL, ETC. AS A MINIMUM SHALL CONTAIN THE FOLLOWING:
 - A DETAILED DESCRIPTION OF THE OVERALL EQUIPMENT AND ITS INDIVIDUAL COMPONENTS.
 - THEORY OF OPERATION INCLUDING THE FUNCTION OF EACH COMPONENT.
 - INSTALLATION INSTRUCTION.
 - START-UP INSTRUCTIONS.
 - PREVENTATIVE MAINTENANCE REQUIREMENTS.
 - CHART FOR TROUBLE-SHOOTING.
 - COMPLETE POWER AND CONTROL DETAILED WIRING DIAGRAM(S), SHOWING EACH CONDUCTOR/CONNECTION/COMPONENT - "BLACK" BOXES ARE NOT ACCEPTABLE. THE DIAGRAM OF THE NARRATIVE SHALL SHOW VOLTAGE/CURRENTS/WAVE SHAPES AT STRATEGIC LOCATIONS TO BE USED WHEN CHECKING AND/OR TROUBLE-SHOOTING THE EQUIPMENT. WHEN THE EQUIPMENT HAS SEVERAL MODES OF OPERATION. SUCH AS SEVERAL BRIGHTNESS STEPS, THESE PARAMETERS SHALL BE INDICATED FOR ALL DIFFERENT MODES.
 - PARTS LIST WHICH WILL INCLUDE ALL MAJOR AND MINOR COMPONENTS H. 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

- PROVIDE LEGEND PLATES FOR ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, 1. CIRCUIT VOLTAGE AND PHASE. WHERE THE EQUIPMENT CONTAINS FUSES, ALSO IDENTIFY THE FUSE OR FUSE LINK AMPERE RATING. WHERE THE EQUIPMENT DOES NOT HAVE SUFFICIENT AREA TO INSTALL LEGEND PLATES. THE LEGEND PLATES SHALL BE INSTALLED ON THE WALL NEXT TO THE UNIT. LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS
- 2. COLOR CODE ALL PHASE WIRING BY THE USE OF COLORED WIRE INSULATION AND/OR COLORED TAPE. WHERE TAPE IS USED, THE WIRE INSULATION SHALL BE BLACK. BLACK AND RED SHALL BE USED FOR PHASE CONDUCTORS ON 120/240VAC SINGLE-PHASE, THREE WIRE SYSTEMS AND BLACK, 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 KCMIL).
- ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE SHALL 3. BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING SHALL BE EXTENDED TO THE POINT OF UTILIZATION.
- IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE 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. 5.
- NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND 6. JUNCTION/PULL BOXES.
- 7 THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:
 - 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.
 - IN ANGLE PULLS OR 'U' PULLS THE DISTANCE BETWEEN EACH CONDUIT ENTRY INSIDE THE BOX AND THE OPPOSITE WALL OF THE BOX SHALL NOT B. 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 8 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 9. FNCLOSURES.
- SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, 10. 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
- 12. DUAL LUGS SHALL BE USED WHERE TWO (2) WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMÍNAL.
- ALL INTERIOR WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED ON 13. HOT DIPPED GALVANIZED STEEL STRUT SUPPORT, OR STAINLESS STEEL STRUT SUPPORT, WITH CORROSION RESISTANT HARDWARE, PROVIDE ZINC RICH PAINT APPLIED TO FIELD CUTS OF GALVANIZED STEEL SUPPORT TO MINIMIZE THE POTENTIAL FOR CORROSION PER THE RESPECTIVE STRUT SUPPORT MANUFACTURER'S RECOMENTATIONS.
- SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE STAINLESS STEEL 14. STRUT SUPPORT WITH STAINLESS STEEL HARDWARE.

- 16. FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
- 17. TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.
- 18.
- 19. LARGER UNDERGROUND WIRE IS INSTALLED. USE INSULATED BUSHINGS.
 - USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
 - WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT VOLTS TO 69,000 VOLTS) AND COVER WITH VINYL ELECTRICAL TAPE HIGH-VOLTAGE CABLE SPLICES AND REPAIRS) FOR FULL VALUE OF CABLE THE APPLICATION.
 - 22. NO. 12 AWG. COPPER MINIMUM.
 - 23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:
 - TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE.
 - B.
 - C. TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.
 - VOLTAGE COMPONENTS.
 - E. TERMINAL BLOCK.
 - F.
 - G.
 - AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL.
 - ALL WIRING SHALL BE NEATLY TRAINED AND LACED.
 - MINIMUM WIRE SIZE SHALL BE NO. 12 AWG. J.
 - 24. REQUIREMENTS OF NEC 110.16 "ARC FLASH HAZARD WARNING".

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

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 CONNECTIONS TO MOTORS, TRANSFORMERS, & CONSTANT CURRENT REGULATORS) GROUNDING CONDUCTOR PER NEC 350.60. DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL. LISTED. CONFIRM LIQUID-TIGHT

UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL

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

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

LAYERS OF HIGH VOLTAGE ELECTRICAL INSULATING TAPE (RUBBER SPLICING TAPE SUITABLE FOR PRIMARY ELECTRICAL INSULATION FOR SPLICING CABLE FROM 600 (ALL-WEATHER VINYL INSULATING TAPE SUITABLE FOR PROTECTIVE JACKETING FOR INSULATION VOLTAGE. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125 AND FAA AC 150/5370-10H ITEM L-108. HIGH VOLTAGE ELECTRICAL INSULATING TAPE SHALL BE 3M SCOTCH 23, 3M SCOTCH 130C OR APPROVED EQUIVALENT, AND VINYL ELECTRICAL TAPE SHALL BE 3M SCOTCH 88 OR APPROVED EQUIVALENT. TAPES MUST BE RATED SUITABLE FOR

UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE

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

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

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

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

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

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

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

THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING

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



Hanson Professional Services Inc. 1525 S. Sixth St. Springfield, IL 62703 Phone: (217) 788-2450

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LITCHFIELD MUNICIPAL AIRPORT

1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

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ELECTRICAL NOTES SHEET 1

AIRFIELD LIGHTING NOTES

- UNLESS OTHERWISE NOTED, ALL UNDERGROUND AIRFIELD LIGHTING SERIES CIRCUIT 1. CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE FAA APPROVED 5000 VOLT L-824 TYPE. ALL UNDERGROUND FIELD POWER LOW VOLTAGE (600 VOLT & BELOW) CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE UL LISTED 600 VOLT, TYPE XLP-USE-2 COPPER CONDUCTORS. CONDUCTOR SIZES SHALL BE AS SPECIFIED, HEREIN.
- 2. NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND TRANSFORMERS SHALL BE BROUGHT ABOVE GROUND AT EDGE LIGHTS, SIGNS, REIL, PAPL FTC
- THERE SHALL BE NO EXPOSED POWER/CONTROL CABLES BETWEEN THE POINT WHERE 3. THEY LEAVE THE UNDERGROUND (DEB OR L-867 BASES) AND WHERE THEY ENTER THE EQUIPMENT (SUCH AS TAXIWAY SIGNS, PAPI, REIL, ETC.) ENCLOSURES. THESE CABLES SHALL BE ENCLOSED IN RIGID CONDUIT OR IN FLEXIBLE, WATERTIGHT CONDUIT WITH BREAKABLE COUPLING(S) AT THE GRADE OR THE HOUSING COVER, AS SHOWN IN APPLICABLE DETAILS.
- THE JOINTS OF THE L-823 PRIMARY CONNECTORS SHALL BE WRAPPED WITH AT LEAST 4. ONE LAYER OF RUBBER OR SYNTHETIC RUBBER TAPE AND ONE LAYER OF PLASTIC TAPE. ONE-HALF LAPPED. EXTENDING AT LEAST 1-1/2 INCHES ON EACH SIDE OF THE JOINT, AS SHOWN ON AIRFIELD LIGHTING CABLE SPLICE DETAILS.
- THE CABLE ENTRANCE INTO THE FIELD-ATTACHED L-823 CONNECTORS SHALL BE ENCLOSED BY A HEAT-SHRINKABLE TUBING WITH CONTINUOUS INTERNAL ADHESIVE, AS SHOWN ON AIRFIELD LIGHTING CABLE SPLICE DETAILS.
- L-823 TYPE II, TWO-CONDUCTOR SECONDARY CONNECTORS SHALL BE CLASS 'A' 6. (FACTORY MOLDED).
- 7. THERE SHALL BE NO SPLICES IN THE SECONDARY CABLE(S) WITHIN THE STEMS OF A RUNWAY/TAXIWAY EDGE/THRESHOLD LIGHTING FIXTURE AND THE WIREWAYS LEADING TO TAXIWAY SIGNS AND PAPI/REIL EQUIPMENT.
- ELECTRICAL INSULATING GREASE SHALL BE APPLIED WITHIN THE L-823, SECONDARY, 8. 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 9. ON A LINE CROSSING THE LIGHT AND PERPENDICULAR TO THE RUNWAY/TAXIWAY CENTERLINE AT A LOCATION TWELVE (12") INCHES FROM THE LIGHT OPPOSITE FROM THE RUNWAY/TAXIWAY.
- A SLACK OF THREE (3') FEET, MINIMUM, PLUS DEPTH OF BASE CAN (IF APPLICABLE), SHALL 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.
- DIRECTION OF PRIMARY CABLES SHALL BE IDENTIFIED BY COLOR CODING AS FOLLOWS: 11. WHEN FACING LIGHT WITH BACK TO PAVEMENT, CABLE TO THE LEFT IS CODED RED AND CABLE TO RIGHT IS CODED BLUE. THIS APPLIES TO STAKE MOUNTED LIGHTS AND BASE MOUNTED LIGHTS WHERE THE BASE HAS ONLY ONE ENTRANCE.
- 12. L-867 BASES SHALL BE SIZE B, 24" DEEP, CLASS I, UNLESS OTHERWISE NOTED.
- 13 BASE MOUNTED BREAKABLE COUPLINGS SHALL NOT HAVE WEEP HOLES TO THE OUTSIDE. PLUGGED UP HOLES SHALL NOT BE ACCEPTABLE. IT SHALL BE A 1/4" DIAMETER, MINIMUM, OR EQUIVALENT OPENING FOR DRAINAGE FROM THE SPACE AROUND THE SECONDARY CONNECTOR INTO THE L-867 BASE.
- 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.
- WHERE THE BREAKABLE COUPLING IS NOT AN INTEGRAL PART OF THE LIGHT FIXTURE 15. STEM OR MOUNTING LEG. A BEAD OF SILICON SEAL SHALL BE APPLIED COMPLETELY AROUND LIGHT STEM OR WIREWAY AT BREAKABLE COUPLING TO PROVIDE A WATERTIGHT SEAL.
- TOPS OF THE STAKES SUPPORTING LIGHT FIXTURES SHALL BE FLUSH WITH THE 16. SURROUNDING GRADE.
- PLASTIC LIGHTING FIXTURE COMPONENTS, SUCH AS LAMP HEADS, STEMS, BREAKABLE 17. 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.
- THE TOLERANCE FOR THE LATERAL SPACING (LIGHT LANE TO RUNWAY/TAXIWAY 19. CENTERLINE) OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE ONE (1) INCH. THIS ALSO APPLIES AT INTERSECTIONS TO LATERAL SPACING BETWEEN LIGHTS OF A RUNWAY/TAXIWAY AND THE INTERSECTING RUNWAY/TAXIWAY.

- 20. ENTRANCES INTO L-867 BASES SHALL HAVE CONDUIT COUPLINGS OR REDUCERS TO INTERFACE UNIT DUCT/CONDUIT TO L-867 BASE HUBS, OR SHALL BE SEALED WITH
- GALVANIZED/PAINTED EQUIPMENT/COMPONENT SURFACES SHALL NOT BE DAMAGED BY 21. 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.
- ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 24. FEET MAXIMUM SPACING, WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS SHALL BE INSTALLED IMMEDIATELY ABOVE THE CABLES.
- THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823 25. CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE SHOWN
- APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND 26. BREAKAGE COUPLING THREADS.
- 27. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT MARKERS.
- WHERE A PARALLEL, CONSTANT VOLTAGE PAPI SYSTEM IS PROVIDED, THE "T" SPLICES 28. SHALL BE OF THE CAST TYPE.
- 29. CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND TRANSFORMER HOUSINGS, MARKINGS, ETC. SHALL BE 3500 PSI (MINIMUM) AT 14 DAYS, IN ACCORDANCE WITH ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE.
- 30. ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES SHALL BE TAGGED. USE EMBOSSED COPPER STRIPS TO BE ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MAN/HAND HOLE-ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE
- THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR 31. ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVE GROUND UTILITIES.
- WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.

GROUNDING NOTES FOR AIRFIELD LIGHTING

- OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONTINENTAL INDUSTRIES, INC., ULTRAWELD BY HARGER, OR APPROVED EQUAL UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS.
- 2. BASE FOR ROUTINE MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S
- 3.
- 4.
- (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.
- 6 ENGINEER/RESIDENT TECHNICIAN AND THE PROJECT ENGINEER.

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

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

STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100 PERCENT DOMESTIC

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 2017 NATIONAL ELECTRICAL CODE ARTICLE 250-12.

THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE

FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, JUNCTION STRUCTURE/L-867 BASE/L-868 BASE, OR OTHER AIRFIELD LIGHT FIXTURE, THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE AND EACH TAXI GUIDANCE SIGN INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, LONGER GROUND RODS OR ADDITIONAL GROUND RODS MIGHT BE REQUIRED. IF GROUND RESISTANCE EXCEEDS 25 OHMS CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. ALSO REFER TO EOR-47643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS WHERE APPLICABLE. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT



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LITCHFIELD MUNICIPAL AIRPORT

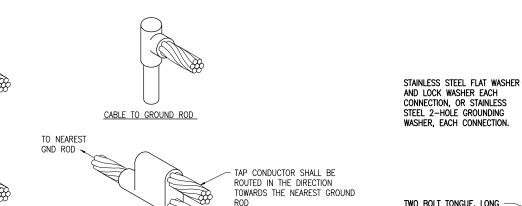
1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

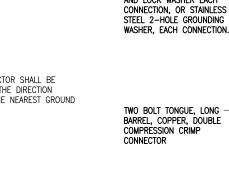
EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

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| CAD FIL | .E: | | | |
| DESIGN BY: KNL 6/29/2020 | | | | |
| DRAWN BY: CWS 6/30/2020 | | | | |
| REVIEWED BY: KNL 09/23/2020 | | | | |
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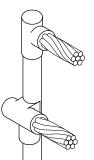
ELECTRICAL NOTES SHEET 2

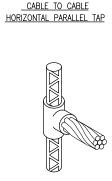




CABLE TO GROUND ROD

CABLE TO GROUND ROD





CABLE TO REBAR

CABLES TO GROUND ROD

DETAIL NOTES

- 1. ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONDUCTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY PENTAIR ERICO PRODUCTS, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, OR THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES OR APPROVED EQUAL. VERIFY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.
- 2. 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.

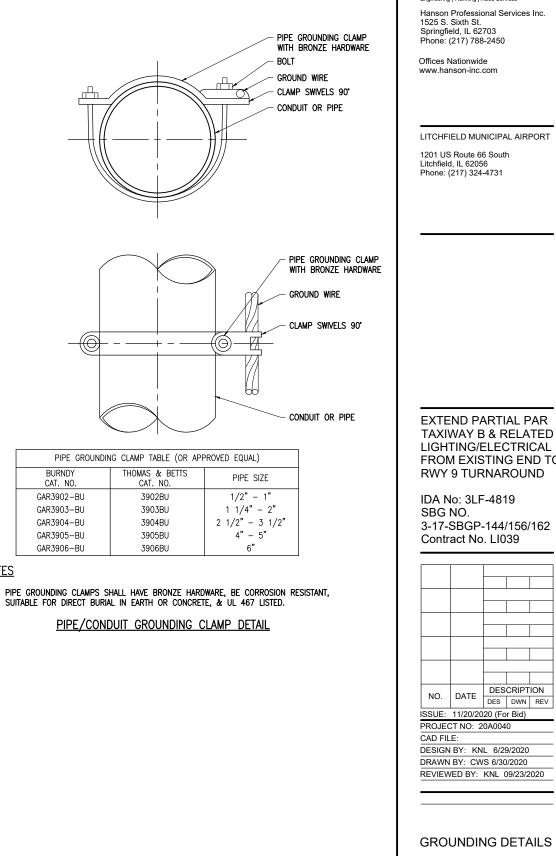
EXOTHERMIC WELD DETAILS

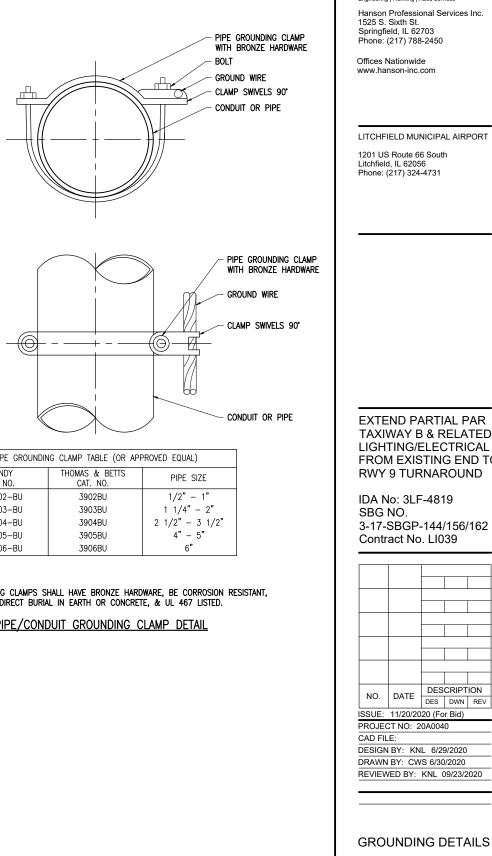
| 2 HOLE LONG BARREL COMPRESSION LUG TABLE (OR APPROVED EQUAL) | | | | | |
|--|----------------------------------|----------------------------|------------------------|--|--|
| WIRE SIZE | BURNDY CAT. NO. | THOMAS & BETTS CAT. NO. | PENN-UNION CAT. NO. | | |
| #8 AWG STRANDED | YA8C-2TC38 | 256-30695-1157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

NOTES

- 1. ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
- 2. 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 WATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE INTON 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 APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE MFTAL. PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL





| PIPE GROUNDIN | IG CLAMP |
|---------------|----------|
| BURNDY | THOMAS |
| CAT. NO. | CAT |
| GAR3902-BU | 39 |
| GAR3903-BU | 39 |
| GAR3904-BU | 39 |
| GAR3905-BU | 39 |
| GAR3906-BU | 39 |

NOTES

DEVICE TO BE BONDED

3/8" STAINLESS STEEL BOLT.

SURFACES TO BE CLEAN AND AN

"A-SPECIAL", BURNDY PENETROX

APPLIED PRIOR TO CONNECTING

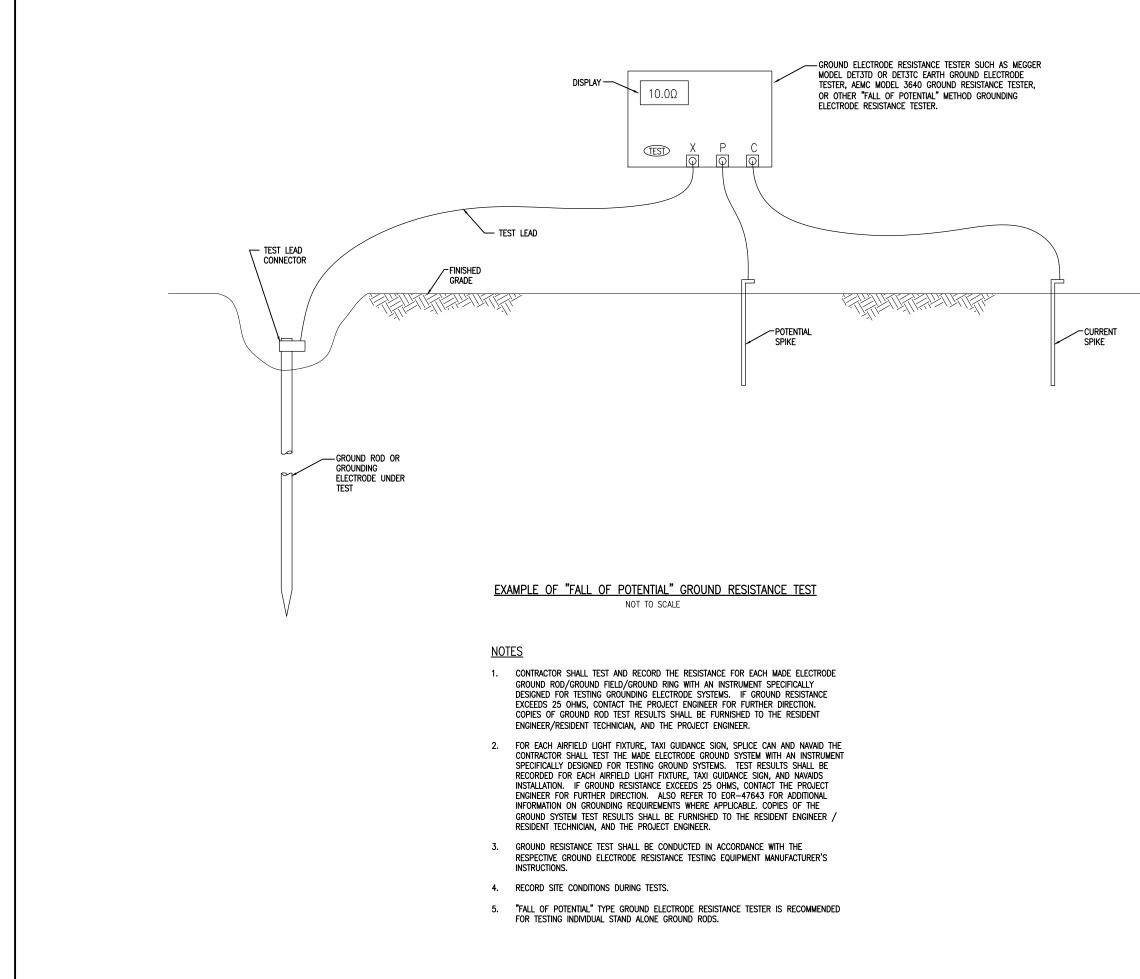
ANTI-CORROSIVE COMPOUND (SANCHEM INC. NO-OX-ID

"E". OR APPROVED EQUAL)

GROUND WIRE



FROM EXISTING END TO





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EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039



GROUND RESISTANCE TESTING DETAILS

GROUNDING NOTES

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 (LIGHTINIG 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 PREPANE AND EQUIPMENT AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELABLE GROUND SYSTEM:

- 1. FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING (UNLESS DETAILED OTHERWISE HEREIN). GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS AND THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, INC., ULTRAWELD BY HARGER, OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
- 2. CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. ALSO REFER TO EOR-47643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS WHERE APPLICABLE. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND THE PROJECT ENGINEER.
- 3. 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 2017 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- 6. METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- 7. ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, DOSSERT CORPORATION, ILSCO CORPORATION, PENN-UNION CORPORATION, THOMAS & BETTS, OR APPROVED EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- 8. ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- 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, LLGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- 10. EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2017 NEC TABLE 250–122 'MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT.' WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

- 11. ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2017 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 2017 NEC 250-102.
- 12. IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS <u>WILL NOT</u> BE CONSIDERED AS ADEQUATE GROUNDING.
- 13. PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
- 14. EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
- 15. ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, DOSSERT CORPORATION, ILSCO CORPORATION, PENN-UNION CORPORATION, THOMAS & BETTS, OR APPROVED EQUAL.
- 16. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- 17. BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN 18. 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.
- 19. IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2017 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.
- 20. NEVER REMOVE, ALTER, OR ATTEMPT TO REPAIR CONDUCTORS OR CONDUIT SYSTEMS PROVIDING GROUNDING OR ELECTRICAL BONDING FOR ANY ELECTRICAL EQUIPMENT UNTIL ALL POWER IS REMOVED FROM EQUIPMENT. WARN ALL PERSONNEL OF THE UNGROUNDED CONDITION OF THE EQUIPMENT. DISPLAY APPROPRIATE WARNING SIGNS, SUCH AS DANGER TAGS, TO WARN PERSONNEL OF THE POSSIBLE HAZARDS.
- 21. GROUNDING WORK AND MODIFICATIONS SHALL NOT BE PERFORMED DURING A THUNDERSTORM OR WHEN A THUNDERSTORM IS PREDICTED IN THE AREA
- 22. WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTIONS.
- 23. 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.





<u>10 FT. GR</u>

<u>NOTES</u>

- 1. TYPE AND MINIMUM NUMBER OF GROUND RO
- THE RESISTANCE TO GROUND OF THE GROUND OF THE GROUND OHMS.
- 3. <u>COST OF GROUND RODS IS INCIDENTAL TO</u> <u>GROUNDING UNLESS OTHERWISE SPECIFIED.</u>
- 4. GROUND RODS SHALL BE SPACED AS DETAIL SPACED LESS THAN ONE ROD LENGTH APART
- 5. TOP OF GROUND RODS FOR AIRFIELD LIGHT SHALL BE 12" MINIMUM BELOW GRADE UNLE
- GROUND RODS FOR INDIVIDUAL SPLICE CAN LONG. WHERE GROUND RESISTANCE EXCEED SECOND GROUND ROD SPACED MINIMUM OF APART), AND CONNECT TO FIRST GND ROD.

GROUND ROL

NOT TO SCAL

| | Engineering Planning Allied Services |
|--|---|
| FINISHED GRADE | Hanson Professional Services Inc. 1525 S. Sixth St. Springfield, IL 62703 Phone: (217) 788-2450 |
| | Offices Nationwide www.hanson-inc.com |
| MIN. NOTE 5 | |
| EXOTHERMIC WELD CONNECTION, CADWELD, THERMOWELD, ULTRAWELD OR APPROVED EQUAL BARE, STRANDED, COPPER GROUND CONDUCTOR, SEE PLANS FOR SIZE. | LITCHFIELD MUNICIPAL AIRPORT 1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731 |
| 3/4" X 10' MIN. UL LISTED COPPERCLAD GROUND ROD | |
| ROUND ROD | EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND |
|) RODS SHALL BE AS SPECIFIED ON THE PLAN. ROUNDING SYSTEM SHALL NOT EXCEED 25 | IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039 |
| TO THE ASSOCIATED ITEMS REQUIRING ED. | |
| TAILED ON THE PLANS AND SHALL NOT BE PART. | |
| GHT FIXTURES AND TAXI GUIDANCE SIGNS, INLESS DETAILED OTHERWISE HEREIN. | |
| XANS SHALL BE 3/4—IN DIAMETER BY 10 FOOT EEDS 25 OHMS FURNISH AND INSTALL A OF 10 FEET APART (ONE ROD LENGTH DD. | NO. DATE DESCRIPTION |
| <u>RODS</u> CALE | INC. DES DWN REV ISSUE: 11/20/2020 (For Bid) PROJECT NO: 20A0040 CAD FILE: DESIGN BY: KNL 6/29/2020 DRAWN BY: CWS 6/30/2020 REVIEWED BY: KNL 09/23/2020 |
| | |

| ELEC | CTRICAL LEGEND - ONE-LINE DIAGRAM |
|-------------|--|
| — — | CABLE TERMINATOR/LUG |
| *** | TRANSFORMER |
| _\ | DISCONNECT SWITCH |
| ļ | FUSIBLE DISCONNECT SWITCH |
| | CIRCUIT BREAKER |
| - | THERMAL MAGNETIC CIRCUIT BREAKER |
| | FUSE |
| ↓ ↓ ↓ | TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE |
| ŧ | GROUND – GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL |
| Ø | INDICATING LIGHT |
| 8 | MOTOR |
| | LOAD, MOTOR, # = HORSEPOWER |
| 0 | ELECTRIC UTILITY METER BASE |
| • | JUNCTION BOX WITH SPLICE |
| XXX | Equipment, XXX = device description |
| GND | GROUND BUS OR TERMINAL |
| S/N | NEUTRAL BUS |
| | PANELBOARD WITH MAIN LUGS |
| | PANELBOARD WITH MAIN BREAKER |
| | FUSE PANEL WITH MAIN FUSE PULLOUT |
| Ð | DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE |
| | CONTROL STATION |
| N EM | TRANSFER SWITCH |
| G | ENGINE GENERATOR SET |
| | |

| | ELECTRICAL LEGEND - SCHEMATIC |
|---------------------|---|
| Ŧ | NORMALLY OPEN (N.O.) CONTACT |
| _# _ | NORMALLY CLOSED (N.C.) CONTACT |
| \$* | STARTER COIL, * = STARTER NUMBER |
| or T | OVERLOAD RELAY CONTACT |
| (CR® | CONTROL RELAY, * = CONTROL RELAY NUMBER |
| R* | RELAY, * = RELAY NUMBER |
| °/ | TOGGLE SWITCH / 2 POSITION SWITCH |
| | 2-POSITION SELECTOR SWITCH |
| | 3-position selector switch (H–O–A shown) |
| 1 | 2 POLE DISCONNECT SWITCH |
| 111 | 3 POLE DISCONNECT SWITCH |
| \mathbf{A} | PHOTOCELL |
| -•- | TERMINAL BLOCK, $*$ = TERMINAL NUMBER |
| _* | DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER |
| | INTERNAL PANEL WIRING |
| | FIELD WIRING |
| | FUSE |
| GND | GROUND BUS OR TERMINAL |
| S/N | NEUTRAL BUS |
| Ť | GROUND, GROUND ROD, GROUND BUS |
| 0 0 0 | INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR |
| | S1 CUTOUT HANDLE REMOVED |
| ┝╌╌┿ ╄╌┾ ╃╶╧┿ | S1 CUTOUT HANDLE INSERTED |
| ᢥ | N.O. THERMAL SWITCH |
| ŗ | N.C. THERMAL SWITCH |
| | L-830 SERIES ISOLATION TRANSFORMER |
| | |

| | ELECTRICAL ABBREVIATIONS |
|--------|---|
| A.F.F. | ABOVE FINISHED FLOOR |
| A, AMP | AMPERES |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AWG | AMERICAN WIRE GAUGE |
| BKR | BREAKER |
| C | CONDUIT |
| СВ | CIRCUIT BREAKER |
| СКТ | CIRCUIT |
| CR | CONTROL RELAY |
| CU | COPPER |
| DPDT | DOUBLE POLE DOUBLE THROW |
| DPST | DOUBLE POLE SINGLE THROW |
| EM | EMERGENCY |
| EMT | ELECTRICAL METALLIC TUBING |
| ENCL | ENCLOSURE |
| EOR | ENGINEER OF RECORD |
| EP | EXPLOSION PROOF |
| ES | EMERGENCY STOP |
| ETL | Intertek – electrical testing labs |
| ETM | ELAPSE TIME METER |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTER |
| GFI | GROUND FAULT INTERRUPTER |
| GND | GROUND |
| GRSC | GALVANIZED RIGID STEEL CONDUIT |
| HID | HIGH INTENSITY DISCHARGE |
| HID | HAND OFF AUTOMATIC |
| HP | HAND OFF AUTOMATIC |
| HPS | HIGH PRESSURE SODIUM |
| | JUNCTION BOX |
| J | |
| KVA | KILOVOLT AMPERE(S) KEVIN NEIL LIGHTFOOT |
| KNL | |
| KW | KILOWATTS |
| LC | |
| LTFMC | LIQUID TIGHT FLEXIBLE METAL CONDUIT (UL LISTED) |
| LTG | |
| LP | LIGHTING PANEL |
| MAX | MAXIMUM |
| MCB | 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 | NORMALLY CLOSED |
| NO | NORMALLY OPEN |
| NTS | NOT TO SCALE |
| OHE | OVERHEAD ELECTRIC |
| OL | OVERLOAD |
| | |

| | | N |
|-------------|--|-----|
| | ECTRICAL ABBREVIATIONS (CONTINUED) | 11 |
| PB | PULL BOX | 1. |
| PC | PHOTO CELL | |
| PDB | POWER DISTRIBUTION BLOCK | |
| PNL | PANEL | |
| RCPT | RECEPTACLE | |
| R | RELAY | |
| S | STARTER | 2. |
| SPD | SURGE PROTECTION DEVICE | |
| SPST | SINGLE POLE SINGLE THROW | 3. |
| TVSS | TRANSIENT VOLTAGE SURGE SUPPRESSOR | |
| TYP | TYPICAL | |
| UG | UNDERGROUND | |
| UGE | UNDERGROUND ELECTRIC | |
| UL | UNDERWRITER'S LABORATORIES | |
| v | VOLTS | |
| W/ | WITH | 4. |
| w /o | WITHOUT | |
| WP | WEATHER PROOF | F |
| XFER | TRANSFER | 5. |
| XFMR | TRANSFORMER | |
| AIRPO | 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 | 6. |
| HIRL | HIGH INTENSITY RUNWAY LIGHT | 7. |
| 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 | 8. |
| MITL | MEDIUM INTENSITY TAXIWAY LIGHT | |
| NDB | NON-DIRECTIONAL BEACON | 9. |
| PAPI | PRECISION APPROACH PATH INDICATOR | |
| PLASI | PULSE LIGHT APPROACH SLOPE INDICATOR | |
| RAIL | RUNWAY ALIGNMENT INDICATING LIGHTS | |
| REIL | RUNWAY END IDENTIFIER LIGHT | 10. |
| RVR | RUNWAY VISUAL RANGE | |
| VADI | VISUAL APPROACH DESCENT INDICATOR | |
| VASI | VISUAL APPROACH SLOPE INDICATOR | |
| VOR | VERY HIGH FREQUENCY OMNIDIRECTIONAL | |
| WC | RANGE FACILITY WIND CONE | |
| WC. | | |

<u>IOTES:</u>

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

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

VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER AND MAINTENANCE SUPERVISOR. 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).

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

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
 NUTRAL
 WHITE
 GROUND
 GREEN

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 LTFMC 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 NEMA 4, 4X RATING.

CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, ADJUSTING, CONNECTING, OR WORKING ON THE RESPECTIVE ARFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT, OR OTHER DEVICE.

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



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LITCHFIELD MUNICIPAL AIRPORT

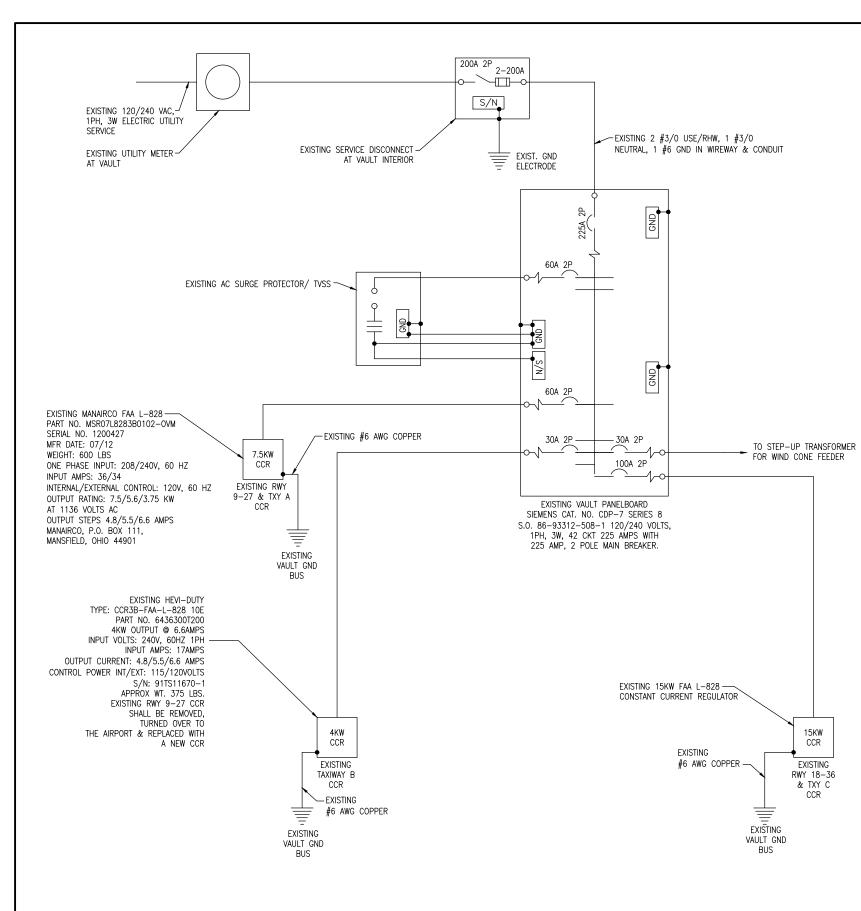
1201 US Route 66 South Litchfield, IL 62056 Phone: (217) 324-4731

EXTEND PARTIAL PAR TAXIWAY B & RELATED LIGHTING/ELECTRICAL FROM EXISTING END TO RWY 9 TURNAROUND

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

| NO. | DATE | DES | CRIPT | ION | | | |
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| NO. | | DES | DWN | REV | | | |
| ISSUE: | ISSUE: 11/20/2020 (For Bid) | | | | | | |
| PROJECT NO: 20A0040 | | | | | | | |
| CAD FILE: | | | | | | | |
| DESIGN BY: KNL 6/29/2020 | | | | | | | |
| DRAWN BY: CWS 6/30/2020 | | | | | | | |
| | REVIEWED BY: KNL 09/23/2020 | | | | | | |

ELECTRICAL LEGEND



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. 3 CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, CONNECTING OR RECONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT OR OTHER DEVICE
- 4. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2G (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
- 5. 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. WHEN A TAXIWAY IS SHUT DOWN THE TAXIWAY LIGHTS FOR THAT TAXIWAY WILL BE SHUT OFF.
- 7. THIS PROJECT WILL AFFECT RUNWAY 9-27 LIGHTING CIRCUIT AND TAXIWAY B LIGHTING CIRCUIT AND THE ASSOCIATED CCR'S.
- 8. 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
- 9. EACH CONSTANT CURRENT REGULATOR SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS, AND/OR ANY AIRFIELD WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING CIRCUITS, AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS AND/OR UPGRADES.

EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT



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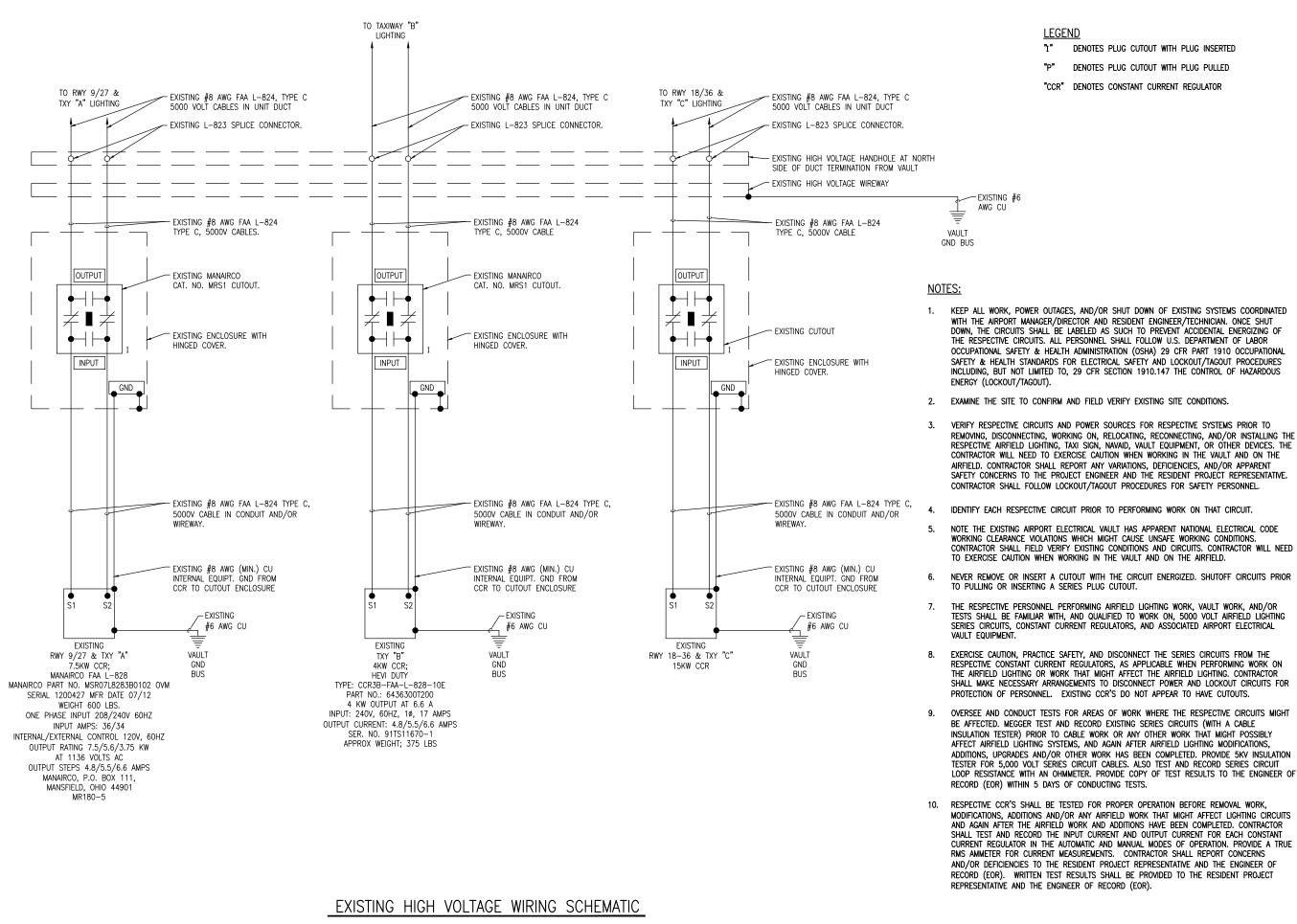
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EXTEND PARTIAL PAR **TAXIWAY B & RELATED** LIGHTING/ELECTRICAL FROM EXISTING END TO **RWY 9 TURNAROUND**

IDA No: 3LF-4819 SBG NO. 3-17-SBGP-144/156/162 Contract No. LI039

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| Ĥ | REVIEWED BY: KNL 09/23/2020 | | | | | | |
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EXISTING ELECTRICAL **ONE-LINE DIAGRAM** FOR VAULT





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CAD FILE: DESIGN BY: KNI 6/29/2020 DRAWN BY: CWS 6/30/2020 REVIEWED BY: KNL 09/23/2020

EXISTING HIGH VOLTAGE WIRING SCHEMATIC