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THE CITY OF PERU, ILLINOIS ILLINOIS VALLEY REGIONAL AIRPORT WALTER DUNCAN FIELD CONSTRUCTION PLANS FOR SEPARATE RUNWAY CIRCUITS AND CONSTRUCT VAULT

ILLINOIS PROJECT NO. VYS-4177
STATE BLOCK GRANT NO. 3-17-0060-B21
LATITUDE: N 41°21'01", LONGITUDE: W 89°09'11"
ELEVATION 653.28
DATE: NOVEMBER, 2012
RUNWAY 18/36 CATEGORY B, GROUP II
RUNWAY 7/25 CATEGORY B, GROUP II

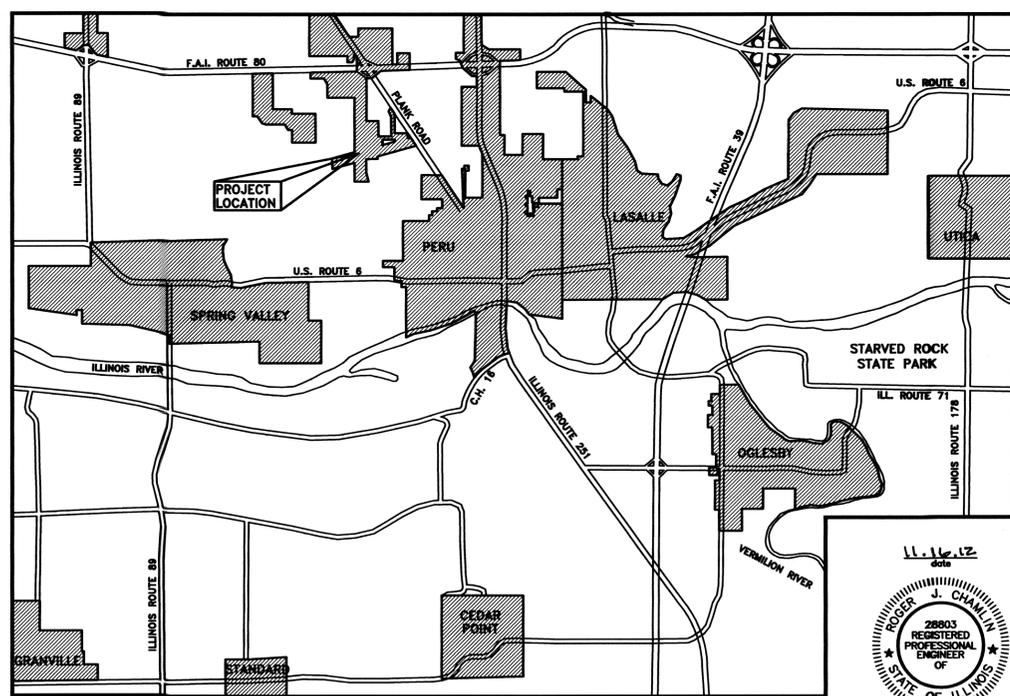
BENCHMARKS:

- BM #184 WORD MUE ON TOP OF FIRE HYDRANT ● SOUTH EAST CORNER OF AIRPORT OFFICE. ELEV. = 652.64
- BM "AA" TOP OF 1" CAPPED PIPE 4' IN GROUND. STA. 246+02, 260' LT. ELEV. = 647.72
- BM "BB" TOP OF 1" CAPPED PIPE 4' IN GROUND. STA. 237+85, 229' LT. ELEV. = 646.57
- BM "C" SPIKE NAIL SET IN 6" WOOD FENCE POST SOUTH OF RUNWAY. STA. 220+13, 339' RT. ELEV. = 644.27



VICINITY MAP

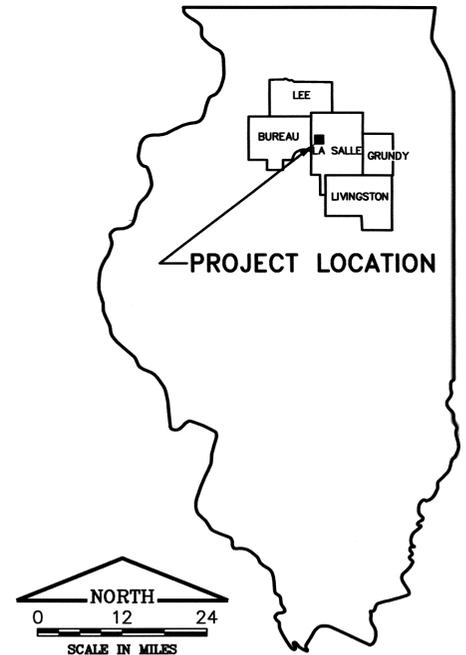
UTILITY SERVICE	CONTACT	TELEPHONE #
WATER	CITY OF PERU WATER DEPARTMENT JIM SITTLER	(815) 223-8615
ELECTRICAL POWER	CITY OF PERU ELECTRIC DEPARTMENT JIM POTTHOFF	(815) 223-0044
NATURAL GAS	J.U.L.I.E.	(800) 892-0123
PIPELINE	J.U.L.I.E.	(800) 892-0123
TELEPHONE	J.U.L.I.E.	(800) 892-0123
CABLE	J.U.L.I.E.	(800) 892-0123
SANITARY SEWER	CITY OF PERU SEWER DEPARTMENT GARY BLECK	(815) 223-2962



LOCATION MAP



11.16.12
dca
ROGER J. CHAMLIN
28803 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS
signature
exp. 11-30-2013
PROFESSIONAL DESIGN FIRM LICENSE NO. 184-001717



SUMMARY OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
AR108158	1/C #8 5KV UG CABLE IN UD	L.F.	13,500
AR108510	2/C #10 600V UG CABLE	L.F.	100
AR109110	ERECT PREFABRICATED VAULT	L.S.	1
AR109983	RECONSTRUCT REGULATOR	L.S.	1
AR109341	20KW REGULATOR, STYLE 1	EACH	2
AR109962	RELOCATE ELECTRICAL EQUIPMENT	L.S.	1
AR110610	ELECTRICAL HANDHOLE	EACH	12
AR125410	MITL - STAKE MOUNTED	EACH	10
AR125415	MITL - BASE MOUNTED	EACH	4
AR125505	MIRL - STAKE MOUNTED	EACH	15
AR125510	MIRL - BASE MOUNTED	EACH	6
AR152610	BUILDING DEMOLITION	L.S.	1
AR162900	REMOVE CLASS E FENCE	L.F.	71
AR110101	CABLE MARKER	EACH	16
AR801309	FIELD LIGHTNING ARRESTOR	EACH	6

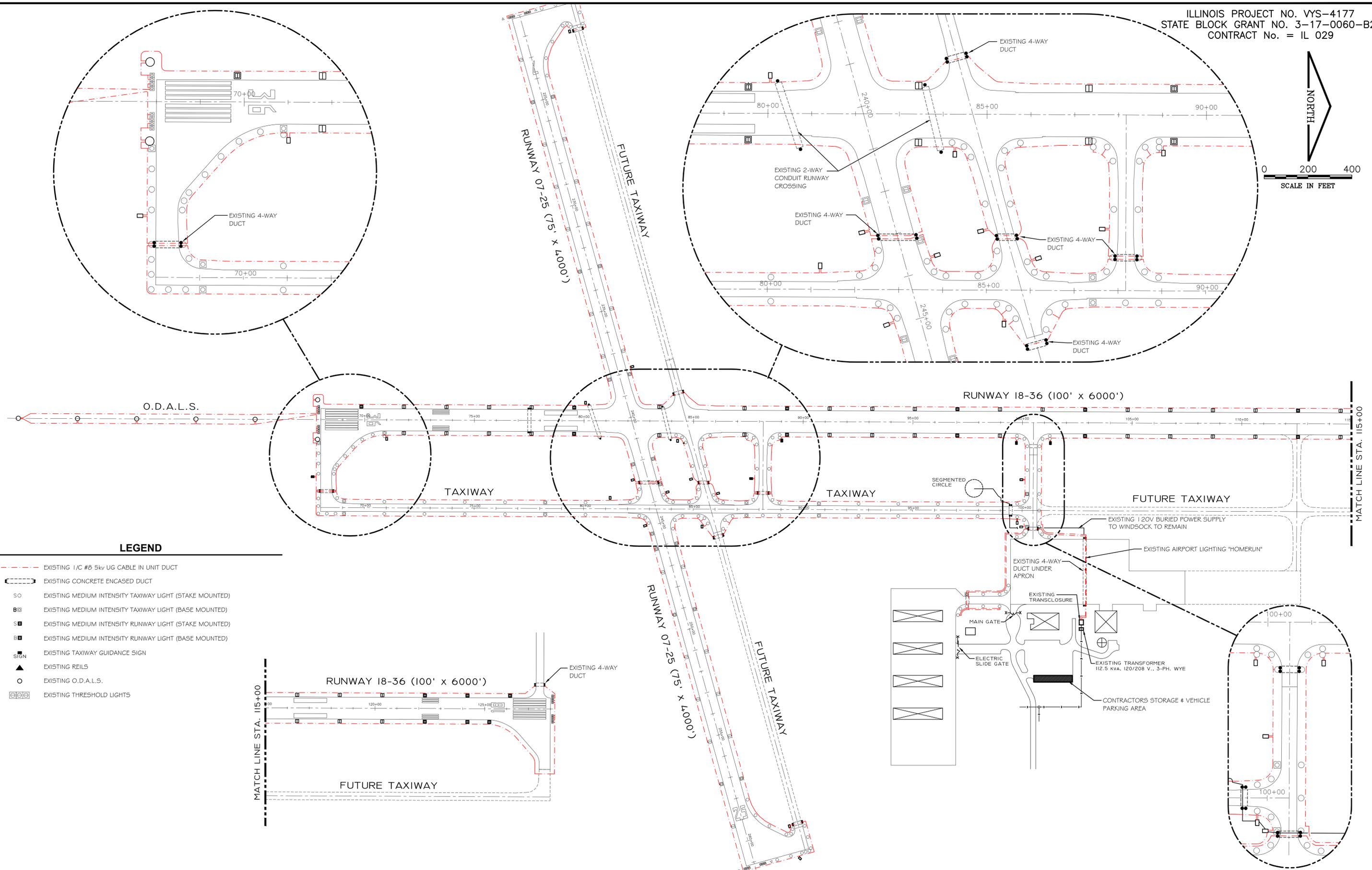
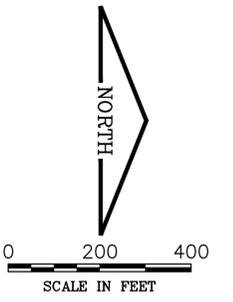
QUANTITIES NOTE:

THE QUANTITIES LISTED ABOVE ARE ONLY PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR IS ENCOURAGED TO PERFORM HIS/HER OWN INDEPENDENT ESTIMATE OF QUANTITIES FOR BIDDING PURPOSES. SHOULD DISCREPANCIES BE NOTED BETWEEN THE ENGINEER'S ESTIMATE AND THE CONTRACTOR'S, THE CONTRACTOR IS ENCOURAGED TO CONTACT THE ENGINEER.

DESCRIPTION

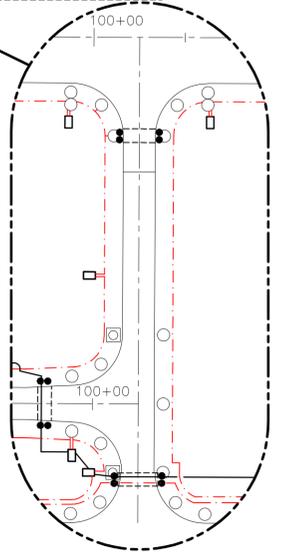
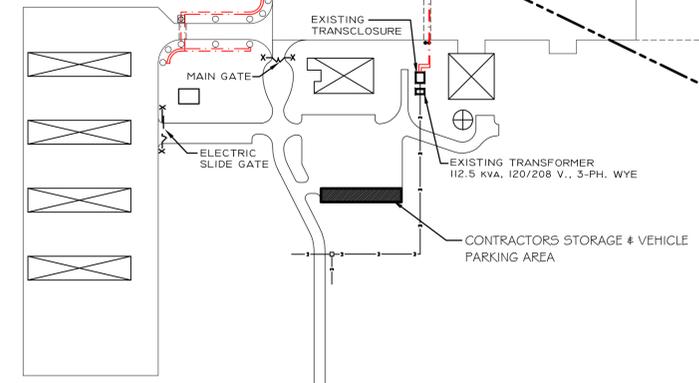
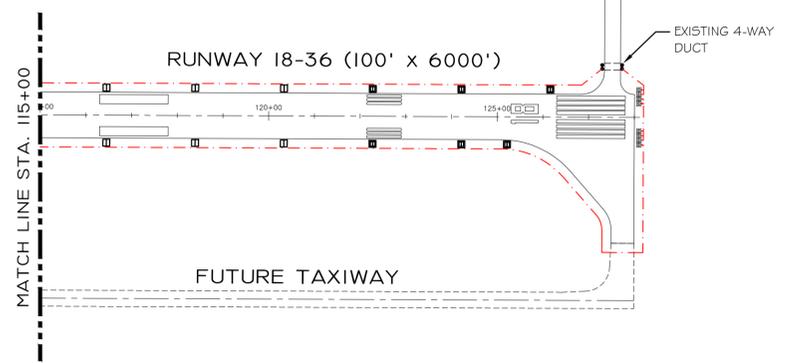
ILLINOIS VALLEY REGIONAL AIRPORT
TOWNSHIP 33 N., SECTION 7, RANGE 1 E.
LA SALLE COUNTY, PERU TOWNSHIP

PLANS PREPARED BY: CHAMLIN ASSOCIATES PERU ILLINOIS MORRIS	CITY OF PERU, ILLINOIS APPROVED BY: <i>[Signature]</i> MAYOR DATE: 11-16-2012 APPROVED BY: <i>[Signature]</i> CITY CLERK DATE: 11-16-12
SUBMITTED BY: <i>[Signature]</i> ENG'R DATE: November 16, 2012	



LEGEND

- EXISTING 1/C #8 5kv UG CABLE IN UNIT DUCT
- EXISTING CONCRETE ENCASED DUCT
- SO EXISTING MEDIUM INTENSITY TAXIWAY LIGHT (STAKE MOUNTED)
- B EXISTING MEDIUM INTENSITY TAXIWAY LIGHT (BASE MOUNTED)
- S EXISTING MEDIUM INTENSITY RUNWAY LIGHT (STAKE MOUNTED)
- B EXISTING MEDIUM INTENSITY RUNWAY LIGHT (BASE MOUNTED)
- EXISTING TAXIWAY GUIDANCE SIGN
- ▲ EXISTING REILS
- EXISTING O.D.A.L.S.
- ⊗ EXISTING THRESHOLD LIGHTS



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 Drawing Name: G:\Users\T.H.10000-96\MyRA-Electrical-Lighting-Equipment\CAD_FINAL_PLANS\Final Plans-E-Runway Lighting Layout.dwg Last Modified: Nov 15, 2012 - 4:46pm Plotted on: Nov 15, 2012 - 8:05am by timh

DRAWN BY: Tim H	REVISIONS			
CHECKED BY: RJC	LEVEL	BY	DATE	DESCRIPTION
DATE: NOVEMBER 2012				

CHAMLIN ASSOCIATES
 PERU MORRIS ILLINOIS

**ILLINOIS VALLEY REGIONAL AIRPORT (VYS)
 SEPARATE RUNWAY CIRCUITS
 AND CONSTRUCT VAULT**
 PERU, ILLINOIS

EXISTING AIRPORT LIGHTING LAYOUT PLAN

CONSTRUCTION PLANS

CURRENT AS OF: 11/16/2012	
SCALE: As Noted	SHEET 4
FILE NO.: 1000.96	OF 11



CONTRACTOR SHALL RE-CONNECT EXISTING O.D.A.L.S. AND VERIFY THAT THEY ARE WORKING PROPERLY.

NEW LIGHTING CABLE FOR CIRCUIT SEPARATION (SEE NOTE No. 1 - THIS SHT.)

PROPOSED 2-WAY CONDUIT RUNWAY CROSSING (SEE DETAIL)

PROPOSED 2-WAY CONDUIT RUNWAY CROSSING (SEE DETAIL)

EXISTING 2-WAY CONDUIT RUNWAY CROSSING PROVIDE NEW PAVEMENT MARKERS AT THESE LOCATIONS.

PROPOSED 2-WAY CONDUIT RUNWAY CROSSING (SEE DETAIL)

PROPOSED 2-WAY CONDUIT RUNWAY CROSSING (SEE DETAIL)

NEW LIGHTING CABLE FOR CIRCUIT SEPARATION (SEE NOTE No. 1 - THIS SHT.)

NEW LIGHTING CABLE FOR CIRCUIT SEPARATION (SEE NOTE No. 1 - THIS SHT.)

O.D.A.L.S.

NEW LIGHTING CABLE FOR CIRCUIT SEPARATION (SEE NOTE No. 1 - THIS SHT.)

NEW LIGHTING CABLE FOR CIRCUIT SEPARATION (SEE NOTE No. 1 - THIS SHT.)

RUNWAY 18-36 (100' x 6000')

NEW LIGHTING CABLE FOR CIRCUIT SEPARATION (SEE NOTE No. 1 - THIS SHT.)

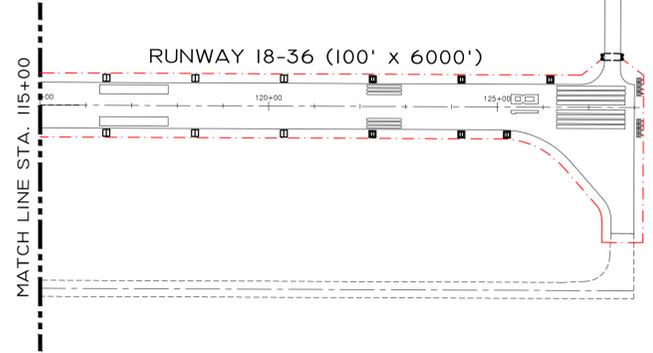
"HOMERUN" TIE INTO EXISTING
 NEW "HOMERUN" TO RUNWAY (18-36) LIGHTING CABLE FROM NEW EQUIPMENT SHELTER (850 ± FT. PER EACH)
 EXISTING 120V BURIED POWER SUPPLY TO WINDSOCK TO REMAIN

LEGEND

- RUNWAY (18-36) LIGHTING CIRCUIT 1/2 #8 5kv UG CABLE IN UNIT DUCT
- RUNWAY (07-25) LIGHTING CIRCUIT 1/2 #8 5kv UG CABLE IN UNIT DUCT
- TAXIWAY LIGHTING CIRCUIT 1/2 #8, 5kv, UG CABLE IN UNIT DUCT
- EXISTING CONCRETE ENCASED DUCT
- PROPOSED 2-WAY CONDUIT RUNWAY CROSSING
- EXISTING MEDIUM INTENSITY TAXIWAY LIGHT (STAKE MOUNTED)
- EXISTING MEDIUM INTENSITY TAXIWAY LIGHT (BASE MOUNTED)
- EXISTING MEDIUM INTENSITY RUNWAY LIGHT (STAKE MOUNTED)
- EXISTING MEDIUM INTENSITY RUNWAY LIGHT (BASE MOUNTED)
- EXISTING TAXIWAY GUIDANCE SIGN
- ▲ EXISTING REILS
- EXISTING O.D.A.L.S.
- EXISTING THRESHOLD LIGHTS
- LA INDICATES LOCATION OF FIELD LIGHTNING ARRESTOR INSIDE BASE FIXTURE (TYP. 6 PLACES)

NOTE:

1. PROVIDE NEW LIGHTING CIRCUIT CABLE AS REQUIRED TO ESTABLISHED INDIVIDUAL CIRCUIT SEPARATION. ALL NEW CABLE REQUIRED FOR THIS SEPARATION AS WELL AS REQUIRED CONNECTORS SHALL BE INCLUDED IN THE CONTRACTORS BID PRICE. ESTIMATED CABLE REQUIRED, EXCLUDING HOMERUNS, (6500 ± LF). CABLE SHALL BE 1/2 #8, 5kv., UG WITH L-823 PRIMARY CONNECTOR KITS (STYLE 3 + 10) SEE SPECIAL PROVISIONS.
2. CONTRACTOR SHALL PROVIDE NEW RWY/TWY LIGHT FIXTURES TO BE INSTALLED AS REQUIRED IN FIELD (INCIDENTAL). FIXTURES NOT USED SHALL BE TURNED OVER TO THE AIRPORT.



MATCH LINE STA. 115+00

MATCH LINE STA. 115+00

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DRAWN BY: Tim H	REVISIONS			
CHECKED BY: RJC	LEVEL	BY	DATE	DESCRIPTION
DATE: NOVEMBER 2012				

CHAMLIN ASSOCIATES
 PERU MORRIS ILLINOIS

ILLINOIS VALLEY REGIONAL AIRPORT (VYS) SEPARATE RUNWAY CIRCUITS AND CONSTRUCT VAULT
 PERU, ILLINOIS

PROPOSED AIRPORT LIGHTING LAYOUT PLAN

CONSTRUCTION PLANS

CURRENT AS OF: 11/16/2012	
SCALE: As Noted	SHEET 5
FILE NO.: 1000.96	OF 10

PROJECT ELECTRICAL NOTES

- 1) INSTALL FIELD LIGHTNING ARRESTORS AS INDICATED AND WHERE SHOWN ON PLANS (SEE PROPOSED AIRPORT LIGHTING LAYOUT PLANS) PROVIDE NEW FIELD LIGHTNING ARRESTOR AR801309 WITHIN EXISTING MITL OR MRL BASE FIXTURES. PROVIDE REQUIRED CONNECTORS AND HEAT SHRINK AS REQUIRED. THEY SHALL BE RATED FOR 25,000 A PEAK, INSUL RESISTANCE 2 G₁.
- 2) CONTRACTOR SHALL SCHEDULE AN ON SITE VISIT FROM THE REGULATOR/EQUIP. MANUFACTURER PRIOR TO ENERGIZING SYSTEM. MANUFACTURER SHALL EVALUATE, CALIBRATE, MONITOR AND TEST ALL SYSTEM EQUIPMENT TO VERIFY PROPER OPERATION. IN ADDITION, HE SHALL EVALUATE AND CALIBRATE AND PROVIDE ALL NECESSARY REPAIRS TO THE EXISTING (SPARE) REGULATOR TO ASSURE THAT IT IS IN PROPER WORKING CONDITION FOR FUTURE USE.

ELECTRICAL NOTES (AC 150/5340-30; APPENDIX 5)

GENERAL

- (1) THE ELECTRICAL INSTALLATION, AS A MINIMUM, MUST MEET THE NEC AND LOCAL REGULATIONS.
- (2) THE CONTRACTOR MUST ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS FURNISHED BY HIM (INCLUDING FAA APPROVED EQUIPMENT) ARE COMPATIBLE IN ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NON-COMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR MUST BE REPLACED BY THE CONTRACTOR 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.
- (3) IN CASE THE CONTRACTOR SELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING EQUIPMENT REQUIRING ADDITIONAL WIRING, TRANSFORMERS, ADAPTERS, MOUNTINGS, ETC., TO THOSE SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATIONS, ANY COST FOR THESE ITEMS MUST BE INCIDENTAL TO THE EQUIPMENT COST.
- (4) THE CONTRACTOR-INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) MUST NOT GENERATE ANY ELECTROMAGNETIC INTERFERENCE IN THE EXISTING AND/OR NEW COMMUNICATIONS, WEATHER, AIR NAVIGATION, AND AIR TRAFFIC CONTROL EQUIPMENT. ANY EQUIPMENT GENERATING SUCH INTERFERENCE MUST BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST WITH EQUIPMENT MEETING THE APPLICABLE SPECIFICATIONS AND NOT GENERATING ANY INTERFERENCE.
- (5) WHEN A SPECIFIC TYPE, STYLE, CLASS, ETC., OF FAA APPROVED EQUIPMENT IS SPECIFIED ONLY THAT TYPE, STYLE, CLASS, ETC., WILL BE ACCEPTABLE, EVEN THOUGH EQUIPMENT OF OTHER TYPES, STYLE, CLASS, ETC., MAY BE FAA APPROVED.
- (6) ANY AND ALL INSTRUCTIONS FROM THE ENGINEER TO THE CONTRACTOR REGARDING CHANGES IN, OR DEVIATIONS FROM, THE PLANS AND SPECIFICATIONS MUST BE IN WRITING WITH COPIES SENT TO THE AIRPORT SPONSOR AND THE FAA FIELD OFFICE (ADO/AFO). THE CONTRACTOR MUST NOT ACCEPT ANY VERBAL INSTRUCTIONS FROM THE ENGINEER REGARDING ANY CHANGES FROM THE PLANS AND SPECIFICATIONS.
- (7) A MINIMUM OF THREE COPIES OF INSTRUCTION BOOKS MUST BE SUPPLIED WITH EACH DIFFERENT TYPE OF EQUIPMENT. THE BOOKS DESCRIBING A MORE SOPHISTICATED TYPE OF EQUIPMENT, SUCH AS REGULATORS, PAPI, REIL, ETC., AT A MINIMUM MUST CONTAIN THE FOLLOWING:
 - (A) A DETAILED DESCRIPTION OF THE OVERALL EQUIPMENT AND ITS INDIVIDUAL COMPONENTS.
 - (B) THEORY OF OPERATION INCLUDING THE FUNCTION OF EACH COMPONENT.
 - (C) INSTALLATION INSTRUCTIONS.
 - (D) START-UP INSTRUCTIONS.
 - (E) PREVENTATIVE MAINTENANCE REQUIREMENTS.
 - (F) CHART FOR TROUBLESHOOTING.
- (G) COMPLETE POWER AND CONTROL DETAILED WIRING DIAGRAM(S), SHOWING EACH CONDUCTOR/CONNECTION/COMPONENT. "BLACK" BOXES ARE NOT ACCEPTABLE. THE DIAGRAM OR THE NARRATIVE MUST SHOW VOLTAGES/CURRENTS/WAVE SHAPES AT STRATEGIC LOCATIONS TO BE USED WHEN CHECKING AND/OR TROUBLESHOOTING THE EQUIPMENT. WHEN THE EQUIPMENT HAS SEVERAL BRIGHTNESS STEPS, THESE PARAMETERS MUST BE INDICATED FOR ALL THE DIFFERENT MODES.
- (H) PARTS LIST WILL INCLUDE ALL MAJOR AND MINOR COMPONENTS, SUCH AS RESISTORS, DIODES, ETC. IT MUST INCLUDE A COMPLETE NOMENCLATURE OF EACH COMPONENT AND, IF APPLICABLE, THE NAME OF ITS MANUFACTURER AND THE CATALOG NUMBER.
- (I) SAFETY INSTRUCTIONS.

POWER AND CONTROL

- (1) STENCIL ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, CIRCUIT VOLTAGE AND PHASE. WHERE THE EQUIPMENT CONTAINS FUSES, ALSO STENCIL THE FUSE OR FUSE LINK AMPERE RATING. WHERE THE EQUIPMENT DOES NOT HAVE SUFFICIENT STENCILING AREA, THE STENCILING MUST BE DONE ON THE WALL NEXT TO THE UNIT. THE LETTERS MUST BE ONE INCH HIGH AND PAINTED IN WHITE OR BLACK PAINT TO PROVIDE THE HIGHEST CONTRAST WITH THE BACKGROUND.
- (2) COLOR CODE ALL PHASE WIRING BY THE USE OF COLORED WIRE INSULATION AND/OR COLORED TAPE. WHERE TAPE IS USED, THE WIRE INSULATION MUST BE BLACK, BLACK AND RED MUST BE USED FOR SINGLE-PHASE, THREE WIRE SYSTEMS AND BLACK, RED AND BLUE MUST BE USED FOR THREE-PHASE SYSTEMS. NEUTRAL CONDUCTORS, SIZE NO. 6 AWG OR SMALLER, MUST BE IDENTIFIED BY A CONTINUOUS WHITE OR NATURAL CONDUCTORS LARGER THAN NO. 6 AWG MUST 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.
- (3) ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE MUST BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING MUST EXTEND TO THE POINT OF UTILIZATION.
- (4) IN CONTROL WIRING THE SAME COLOR MUST BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100 % BRIGHTNESS CONTROL, ETC.

- (5) ALL POWER AND CONTROL CIRCUIT CONDUCTORS MUST BE COPPER; ALUMINUM WILL NOT BE ACCEPTED. THIS INCLUDES WIRE, CABLE, BUSES, TERMINALS, SWITCH/PANEL COMPONENTS, ETC.
- (6) LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS MUST BE INSTALLED IN SEPARATE WIREWAYS.
- (7) NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND PULL/JUNCTION BOXES.
- (8) THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND THE SIZE OF THE CONDUCTORS SHOWN, MUST BE AS FOLLOWS:
 - (A) IN STRAIGHT PULLS THE LENGTH OF THE BOX MUST NOT BE LESS THAN EIGHT TIMES AND THE OPPOSITE WALL OF THE BOX MUST NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER THE TRADE DIAMETER OF THE LARGER CONDUIT. THE TOTAL AREA (INCLUDING THE CONDUIT CROSS-SECTIONAL AREA) OF A BOX END MUST BE AT LEAST 3 TIMES GREATER THAN THE TOTAL TRADE CROSS-SECTIONAL AREA OF THE CONDUITS TERMINATING AT THE END OF THE BOX. THE DISTANCE BETWEEN CONDUIT ENTRIES ENCLOSING THE SAME CONDUCTOR MUST
 - (B) IN ANGLE OR U-PULLS THE DISTANCE BETWEEN EACH CONDUIT ENTRY INSIDE THE BOX OF THE LARGEST CONDUIT. THIS DISTANCE MUST BE INCREASED FOR ADDITIONAL ENTRIES BY THE AMOUNT OF THE SUM OF THE DIAMETERS OF ALL OTHER CONDUIT ENTRIES ON THE SAME WALL NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT.
- (9) A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, SQUARE DUCTS AND PULL/JUNCTION BOXES, MUST 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 MUST NOT BE TREATED AS PULL/JUNCTION BOXES.
- (10) EQUIPMENT CABINETS MUST NOT BE USED AS PULL/JUNCTION BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT MUST BE BROUGHT INTO THESE ENCLOSURES.
- (11) SPLICES AND JUNCTION POINTS WILL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS, AND AT EASILY ACCESSIBLE LOCATIONS.
- (12) CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL(S) MUST BE THERMAL-MAGNETIC, MOLDED CASE, PERMANENT TRIP WITH 100-AMPERE, MINIMUM, FRAME.
- (13) DUAL LUGS MUST BE USED WHERE TWO WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMINAL.
- (14) ALL WALL MOUNTED EQUIPMENT ENCLOSURES MUST BE MOUNTED ON WOODEN MOUNTING BOARDS.
- (15) WOODEN EQUIPMENT MOUNTING BOARDS MUST BE PLYWOOD, EXTERIOR TYPE, 3/4 INCH MINIMUM THICKNESS, BOTH SIDES PAINTED WITH ONE COAT OF PRIMER AND TWO COATS OF GRAY, OIL-BASED PAINT.
- (16) RIGID STEEL CONDUIT MUST BE USED THROUGHOUT THE INSTALLATION UNLESS OTHERWISE SPECIFIED. THE MINIMUM TRADE SIZE SHALL BE 3/4 INCH.
- (17) ALL RIGID CONDUIT MUST BE TERMINATED AT CONSTANT CURRENT REGULATORS WITH A SECTION (10" MINIMUM) OF FLEXIBLE CONDUIT.
- (18) UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL TO, OR AT RIGHT ANGLES WITH, THE LINES OF THE STRUCTURE.
- (19) ALL STEEL CONDUITS, FITTINGS, NUTS, BOLTS, ETC., SHALL BE GALVANIZED.
- (20) USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG OR LARGER UNGROUNDED WIRE IS INSTALLED, USE INSULATED BUSHINGS.
- (21) USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
- (22) WRAP ALL PRIMARY AND SECONDARY POWER TRANSFORMER CONNECTIONS WITH SUFFICIENT LAYERS OF INSULATING TAPE AND COVER WITH INSULATING VARNISH FOR FULL VALUE OF CABLE INSULATION VOLTAGE.
- (23) UNLESS OTHERWISE NOTED, ALL INDOOR SINGLE CONDUCTOR CONTROL WIRING MUST BE NO. 12 AWG.
- (24) BOTH ENDS OF EACH CONTROL CONDUCTOR SHALL BE TERMINATED AT A TERMINAL BLOCK. THE TERMINAL BLOCK MUST BE OF PROPER RATING AND SIZE FOR THE FUNCTION INTENDED AND BE LOCATED IN EQUIPMENT ENCLOSURES OR SPECIAL TERMINAL CABINETS.
- (25) ALL CONTROL CONDUCTOR TERMINATORS MUST BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED, CLOSED-EYED TERMINATORS, OR TERMINATORS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.
- (26) IN TERMINAL BLOCK CABINETS THE MINIMUM SPACING BETWEEN PARALLEL TERMINAL BLOCKS SHALL BE 6 INCHES. THE MINIMUM SPACING BETWEEN TERMINAL BLOCK SIDES/ENDS AND CABINET SIDES/BOTTOM/TOP SHALL BE 5 INCHES. THE MINIMUM SPACING WILL BE INCREASED AS REQUIRED BY THE NUMBER OF CONDUCTORS. ADDITIONAL SPACING MUST BE PROVIDED AT CONDUCTOR ENTRANCES.
- (27) BOTH ENDS OF ALL CONTROL CONDUCTORS MUST BE IDENTIFIED AS TO THE CIRCUIT, TERMINAL, BLOCK, AND TERMINAL NUMBER. ONLY STICK-ON LABELS SHALL BE USED.
- (28) A SEPARATE AND CONTINUOUS NEUTRAL CONDUCTOR SHALL BE INSTALLED AND CONNECTED FOR EACH BREAKER CIRCUIT IN THE POWER PANEL(S) FROM THE NEUTRAL BAR TO EACH POWER/CONTROL CIRCUIT.
- (29) THE FOLLOWING WILL APPLY TO RELAY/CONTACTOR PANEL/ENCLOSURES:
 - (A) ALL COMPONENTS SHALL BE MOUNTED IN DUST PROOF ENCLOSURES WITH VERTICALLY HINGED COVERS.
 - (B) THE ENCLOSURES MUST HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS, TERMINAL BLOCKS, AND INCOMING INTERNAL WIRING.
 - (C) ALL INCOMING/OUTGOING WIRING SHALL BE TERMINATED AT TERMINAL BLOCKS.
 - (D) EACH TERMINAL ON TERMINAL BLOCKS AND ON CIRCUIT COMPONENTS MUST BE CLEARLY IDENTIFIED.
 - (E) ALL CONTROL CONDUCTOR TERMINATIONS MUST BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED, CLOSED-EYE CONNECTORS, OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.

- (F) WHEN THE ENCLOSURE COVER IS OPENED, ALL CIRCUIT COMPONENTS, WIRING, AND TERMINALS MUST BE EXPOSED AND ACCESSIBLE WITHOUT ANY REMOVAL OF ANY PANELS, COVERS, ETC., EXCEPT THOSE COVERING HIGH VOLTAGE COMPONENTS.
- (G) ACCESS TO, OR REMOVAL OF, A CIRCUIT COMPONENT OR TERMINAL BLOCK SHALL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR TERMINAL BLOCK.
- (H) EACH CIRCUIT COMPONENT MUST BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWING AND ITS FUNCTION.
- (I) A COMPLETE WIRING DIAGRAM (NOT A SCHEMATIC DIAGRAM) MUST BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM MUST REPRESENT EACH CONDUCTOR BY A SEPARATE LINE.
- (J) THE DIAGRAM MUST IDENTIFY EACH CIRCUIT COMPONENT AND NUMBERING AND COLOR OF EACH INTERNAL CONDUCTOR AND TERMINAL.
- (K) ALL WIRING MUST BE NEATLY TRAINED AND LACED.
- (L) MINIMUM WIRE SIZE SHALL BE NO. 12 AWG.

FIELD LIGHTING

- (1) UNLESS OTHERWISE NOTIFIED, ALL UNDERGROUND FIELD POWER MULTIPLE AND SERIES CIRCUIT CONDUCTORS WHETHER DIRECT EARTH BURIAL (DEB) OR IN DUCT/CONDUIT MUST BE FAA APPROVED L-824 TYPE. INSULATION VOLTAGE AND SIZE AS SPECIFIED.
- (2) NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND TRANSFORMERS WILL BE BROUGHT ABOVE GROUND AT EDGE LIGHTS, SIGNS, REILS, ETC.
- (3) THERE MUST BE NO EXPOSED POWER/CONTROL CABLES BETWEEN THE POINT WHERE THEY LEAVE THE UNDERGROUND (DEB OR L-867 BASES) AND WHERE THEY ENTER THE EQUIPMENT (SUCH AS TAXIWAY SIGNS, PAPI, REILS, ETC.) ENCLOSURES. THESE CABLES SHALL BE ENCLOSED IN RIGID CONDUIT OR IN FLEXIBLE WATERTIGHT CONDUIT WITH FRANGIBLE COUPLING(S) AT GRADE OR THE HOUSING COVER, AS SHOWN IN APPLICABLE DETAILS.
- (4) THE JOINTS OF THE L-823 PRIMARY CONNECTORS SHALL BE WRAPPED WITH 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 IN FIGURE 122 OF AC 150/5340-30.
- (5) THE CABLE ENTRANCE INTO THE FIELD ATTACHED L-823 CONNECTORS MUST BE ENCLOSED BY A HEAT-SHRINKABLE TUBING WITH CONTINUOUS INTERNAL ADHESIVE AS SHOWN IN FIGURE 122 OF AC 150/5340-30.
- (6) THE ID OF THE PRIMARY L-823 FIELD ATTACHED CONNECTORS MUST MATCH THE CABLE ID TO PROVIDE A WATERTIGHT CABLE ENTRANCE. THIS ENTRANCE SHALL BE ENCAPSULATED IN A HEAT SHRINKABLE TUBING WITH CONTINUOUS FACTORY APPLIED INTERNAL ADHESIVE, AS SHOWN IN FIGURE 122 OF AC 150/5340-30.
- (7) L-823 TYPE 11, TWO-CONDUCTOR SECONDARY CONNECTOR SHALL BE CLASS "A" (FACTORY MOLDED).
- (8) THERE SHALL BE NO SPLICES IN THE SECONDARY CABLE(S) WITHIN THE STEMS OF A RUNWAY/TAXIWAY EDGE/THRESHOLD LIGHTING FIXTURES AND THE WIREWAYS LEADING TO TAXIWAY SIGNS AND PAPI/REIL EQUIPMENT.
- (9) ELECTRICAL INSULATING GREASE SHALL BE APPLIED WITHIN THE L-823, SECONDARY, TWO CONDUCTOR CONNECTORS TO PREVENT WATER ENTRANCE. THESE CONNECTORS SHALL NOT BE TAPED.
- (10) DEB ISOLATION TRANSFORMERS SHALL BE BURIED AT A DEPTH OF 10 INCHES ON A LINE CROSSING THE LIGHT AND PERPENDICULAR TO THE RUNWAY/TAXIWAY CENTERLINE AT A LOCATION 12 INCHES FROM THE LIGHT OPPOSITE FROM THE RUNWAY/TAXIWAY.
- (11) DEB PRIMARY CONNECTORS SHALL BE BURIED AT A DEPTH OF 10 INCHES NEAR THE ISOLATION TRANSFORMER. THEY MUST BE ORIENTATED PARALLEL WITH THE RUNWAY/TAXIWAY CENTERLINE. THERE SHALL BE NO BENDS IN THE PRIMARY CABLE 6 INCHES, MINIMUM, FROM THE ENTRANCE INTO THE FIELD-ATTACHED PRIMARY CONNECTION.
- (12) A SLACK OF 3 FEET, MINIMUM, 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.
- (13) DIRECTION OF PRIMARY CABLES SHALL BE IDENTIFIED BY COLOR CODING AS FOLLOWS: WHEN FACING LIGHT WITH BACK FACING PAVEMENT, CABLE TO THE LEFT IS CODED RED AND CABLE TO THE RIGHT IS CODED BLUE, THIS APPLIES TO THE STAKE-MOUNTED LIGHTS AND BASE-MOUNTED LIGHTS WHERE THE BASE HAS ONLY ONE ENTRANCE.
- (14) L-867 BASES SHALL BE SIZE B, 24" DEEP CLASS 1 UNLESS OTHERWISE NOTED.
- (15) BASE-MOUNTED FRANGIBLE COUPLINGS SHALL NOT HAVE WEEP HOLES TO THE OUTSIDE. PLUGGED UP HOLES WILL NOT BE ACCEPTABLE. IT MUST HAVE A 1/4" DIAMETER MINIMUM OR EQUIVALENT OPENING FOR DRAINAGE FROM THE SPACE AROUND THE SECONDARY CONNECTOR INTO THE L-867 BASE.
- (16) THE ELEVATION OF THE FRANGIBLE 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.
- (17) WHERE THE FRANGIBLE COUPLING IS NOT AN INTEGRAL PART OF THE LIGHT FIXTURE STEM OR MOUNTING LEG, A BEAD OF SILICON SEAL MUST BE APPLIED COMPLETELY AROUND THE LIGHT STEM OR WIREWAY AT FRANGIBLE COUPLING TO PROVIDE A WATERTIGHT SEAL.
- (18) TOPS OF THE STAKES SUPPORTING LIGHT FIXTURES SHALL BE FLUSH WITH THE SURROUNDING GRADE.
- (19) PLASTIC LIGHTING FIXTURE COMPONENTS, SUCH AS LAMP HEADS, STEMS, FRANGIBLE COUPLINGS, BASE COVERS, BRACKETS, STAKES, WILL NOT BE ACCEPTABLE. L-867 PLASTIC TRANSFORMER HOUSINGS ARE ACCEPTABLE. THE METAL THREADED FITTING SHALL BE SET IN THE FLANGE DURING THE CASTING PROCESS. BASE COVER BOLTS SHALL BE FABRICATED FROM 18-8 STAINLESS STEEL.
- (20) THE TOLERANCE FOR THE HEIGHT OF RUNWAY/TAXIWAY EDGE LIGHTS IS ± 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.

- (21) THE TOLERANCE FOR THE LATERAL SPACING (LIGHT LANE TO RUNWAY/TAXIWAY CENTERLINE) OF RUNWAY/TAXIWAY EDGE LIGHTS IS ± ONE (1) INCH. THIS ALSO APPLIES AT INTERSECTIONS TO LATERAL SPACING BETWEEN LIGHTS OF A RUNWAY/TAXIWAY AND THE INTERSECTING RUNWAY/TAXIWAY.
- (22) SOIL PERMITTING, THE L-867 BASES SHALL NOT BE PRE-CAST IN CONCRETE. CONCRETE AROUND THE BASES MUST BE USED AS A BACKFILL.
- (23) ENTRANCES INTO L-867 BASES SHALL BE PLUGGED FROM THE INSIDE WITH DUCT SEAL.
- (24) GALVANIZED/PAINTED EQUIPMENT/COMPONENT SURFACES SHALL NOT BE DAMAGED BY DRILLING, FILING, ETC. DRAIN HOLES IN METAL TRANSFORMER HOUSINGS SHALL BE MADE BEFORE GALVANIZED.
- (25) EDGE LIGHT NUMBERING TAGS SHALL BE FACING THE PAVEMENT.
- (26) CABLE/SPLICE/DUCT MARKERS MUST BE PRE-CAST CONCRETE OF THE SIZE SHOWN. LETTERS/NUMBERS/ARROWS FOR THE LEGEND TO BE IMPRESSED INTO THE TOPS OF THE MARKERS MUST BE PRE-ASSEMBLED AND SECURED IN THE MOLD BEFORE THE CONCRETE IS POURED. LEGEND INSCRIBED BY HAND IN WET CONCRETE WILL NOT BE ACCEPTABLE.
- (27) ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 FEET MAXIMUM SPACING, WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS SHALL BE INSTALLED IMMEDIATELY ABOVE THE CABLE.
- (28) LOCATIONS OF ALL DEB UNDERGROUND CABLE SPLICE/CONNECTIONS, EXCEPT THOSE AT ISOLATION TRANSFORMERS, SHALL BE IDENTIFIED BY SPLICE MARKERS. SPLICE MARKERS SHALL BE PLACED IMMEDIATELY ABOVE THE SPLICE/CONNECTIONS.
- (29) THE CABLE AND SPLICE MARKERS MUST IDENTIFY THE CIRCUITS WHICH THE CABLES BELONG TO, SUCH AS RWY 4-22, PAPI-4, PAPI-22, ETC.
- (30) LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS MUST BE IDENTIFIED BY DUCT MARKERS.
- (31) THE PREFERRED MOUNTING METHOD OF RUNWAY AND TAXIWAY SIGNS IS BY THE USE OF A SINGLE ROW OF LEGS. HOWEVER, TWO ROWS WILL BE ACCEPTABLE.
- (32) THE PREFERRED METHOD TO BRING THE POWER CABLE INTO AN L-858 SIGN IS METHOD A, AS SHOWN IN FIGURE 126 OF AC 150/5340-30, HOWEVER, METHOD B WILL ALSO BE ACCEPTABLE.
- (33) STENCIL HORIZONTAL AND VERTICAL AIMING ANGLES ON EACH REIL FLASH HEAD OR EQUIPMENT ENCLOSURE. THE NUMERALS MUST BE BLACK AND ONE INCH MINIMUM HEIGHT.
- (34) ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES MUST BE TAGGED. USE EMBOSSED COPPER STRIPS ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS MUST BE PROVIDED ON EACH CABLE IN A MAN/HAND HOLE - ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT.
- (35) APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND FRANGIBLE COUPLING THREADS.
- (36) THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823 CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE SHOWN.
- (37) DEB SPLICES IN HOME RUNS SHALL BE OF THE CAST TYPE A, UNLESS OTHERWISE SHOWN. SEE FIG. 120 OF AC 150/5340-30 FOR DETAILS.
- (38) CONCRETE USED FOR SLABS, FOOTING, OR BACKFILL AROUND TRANSFORMER HOUSINGS, MARKERS, ETC., SHALL BE 3000 PSI, MIN., AIR-ENTRAINED.
- (39) HIGH AND LOW VOLTAGE CABLE SHALL BE RUN IN SEPARATE UNDERGROUND DUCTS.
- (40) WHEN HIGH AND LOW VOLTAGE CABLES ARE IN A HANDHOLE OR MANHOLE, PROTECTION SHALL BE MADE AROUND THE HIGH VOLTAGE CABLE. THE METHOD OF PROTECTION SHALL BE BY SPLIT DUCT ANCHOR CLIPPED TO THE WALL.

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**ILLINOIS VALLEY REGIONAL AIRPORT (VYS)
 SEPARATE RUNWAY CIRCUITS
 AND CONSTRUCT VAULT**
 PERU, ILLINOIS

ELECTRICAL NOTES

CONSTRUCTION PLANS

CURRENT AS OF: 11/16/12	
SCALE: As Noted	SHEET 6
FILE NO.: 1000.96 Y-	OF 10

GROUNDING NOTES:

1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUND AS MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THE LATEST NATIONAL ELECTRIC CODE (NFPA 70) IN FORCE AND AS DETAILED HEREIN. THE RELIABILITY OF THE GROUNDING SYSTEM IS DEPENDING ON CAREFUL, PROPER INSTALLATION AND CHOICE OF MATERIALS. IMPROPER PREPARATION OF SURFACES TO BE JOINED TO MAKE AN ELECTRICAL PATH, LOOSE JOINTS OR CORROSION CAN INTRODUCE IMPEDANCE THAT WILL SERIOUSLY IMPAIR THE ABILITY OF THE GROUND PATH TO PROTECT PERSONNEL AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELIABLE GROUND SYSTEM:
2. FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS FOR AIRFIELD LIGHTING (RUNWAY LIGHTING, TAXIWAY LIGHTING, TAXI GUIDANCE SIGNS, & DISTANCE REMAINING SIGNS) SHALL BE MINIMUM 5/8-IN. DIAMETER BY 8-FT LONG, UL-LISTED COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR OTHER APPLICATIONS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS AND THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE 18-800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE 1-800-842-7437), OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
3. CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 10 OHMS, CONTACT THE ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND FIELD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER, UPON REQUEST, FOR REVIEW AND RECORD PURPOSES.
4. ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
5. 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 EQUAL.
6. METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2011 NATIONAL ELECTRIC CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
7. METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT.
8. ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
9. ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
10. PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC. ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC. FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
11. EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2011 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.
12. ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC. SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2011 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 2011 NEC 250-102.
13. IT IS THE INTENT OF THIS SPECIFICATION THAT ALL ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS WILL NOT BE CONSIDERED AS ADEQUATE GROUNDING.
14. PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
15. EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
16. ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS, THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, OR EQUAL.
17. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
18. BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
19. INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY ENIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCLICLING 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 GIRDLING DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLTS AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS, ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS, A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN A LOW DC RESISTANCE PATH.
20. IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2011 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.
21. WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE RESIDENT ENGINEER OR PROJECT ENGINEER FOR FURTHER DIRECTIONS.
22. GROUND ALL NON-CURRENT-CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT BY USING NO. 6 AWG BARE COPPER WIRE TO BE RUN INSIDE CABINETS AND IN CONDUITS TOGETHER WITH OTHER WIRES. WHERE THIS IS NOT FEASIBLE, RUN THE EXPOSED GROUNDING WIRE PARALLEL OR AT RIGHT ANGLES TO THE BUILDING LINE AND SECURE IT AT LEAST EVERY 24 INCHES AND WITHIN 6 INCHES FROM BEND OR JUNCTION. THE EXPOSED WIRE MAY BE NO. 6 AWG IF IT IS NOT SUBJECTED TO PHYSICAL ABUSE, OTHERWISE NO. 4 AWG SHALL BE USED.
23. ALL GROUND CONNECTIONS TO GROUND RODS, BUSES, PANELS, ETC., MUST BE MADE WITH PRESSURE TYPE SOLDERLESS LUGS AND GROUND CLAMPS. SOLDERED OR BOLT AND WATER TYPE CONNECTIONS ARE NOT ACCEPTABLE. CLEAN ALL METAL SURFACES BEFORE MAKING GROUND CONNECTIONS.
24. TOPS OF GROUND RODS SHALL BE A MIN. 12" INCHES BELOW GRADE.
25. THE RESISTANCE TO GROUND OF THE COUNTERPOISE SYSTEM, OR AT ISOLATION LOCATIONS, SUCH AS AIRPORT BEACON MUST NOT EXCEED 25 OHMS.

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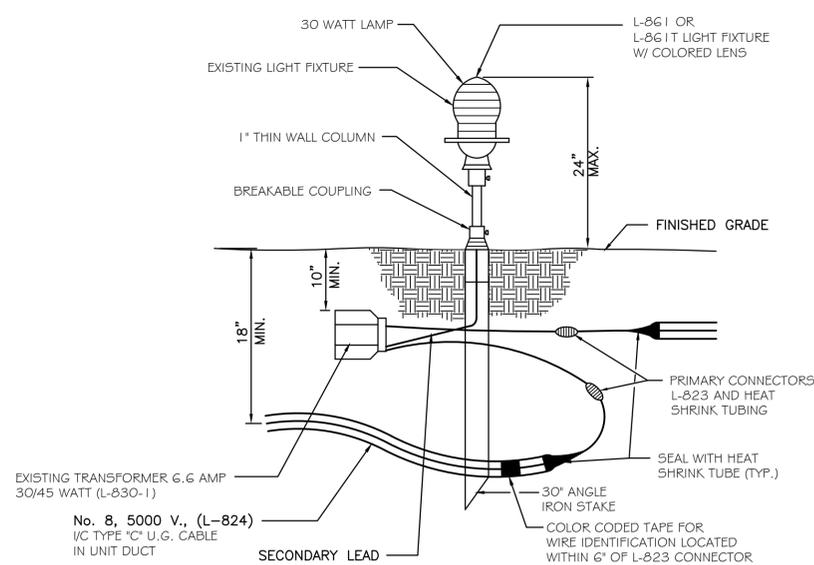
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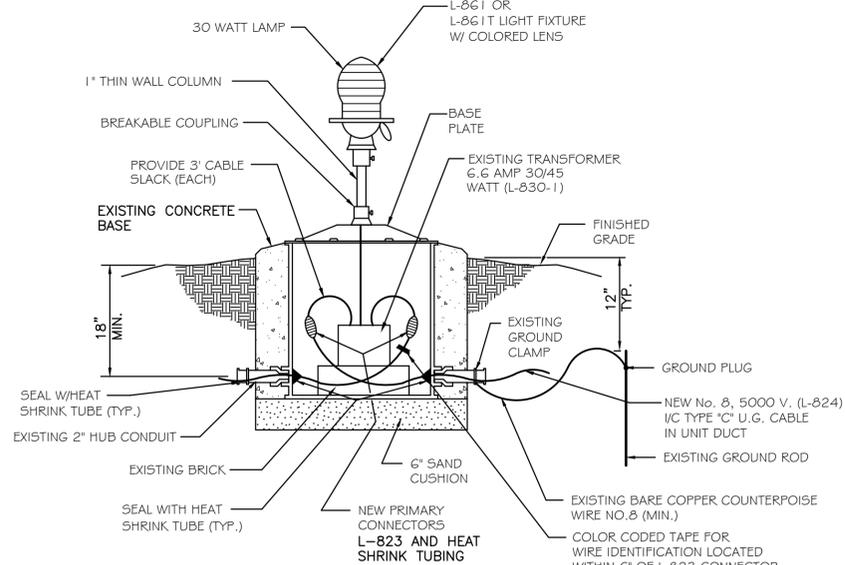
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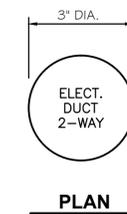
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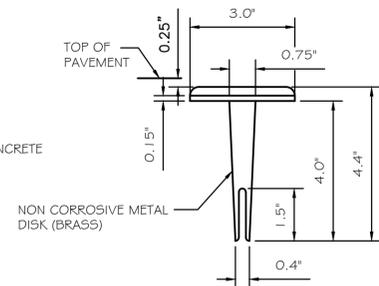


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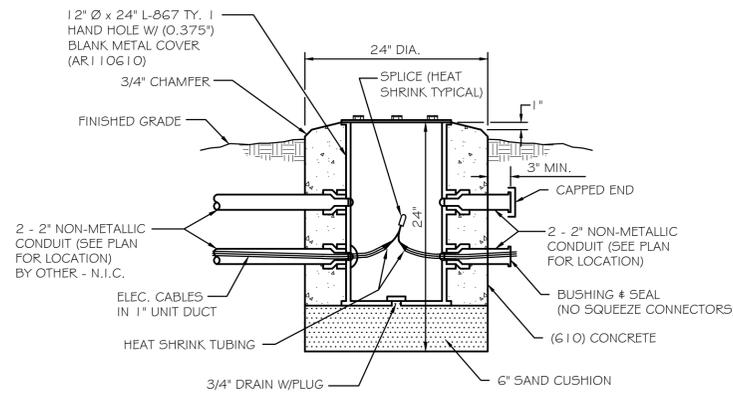
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SECTION

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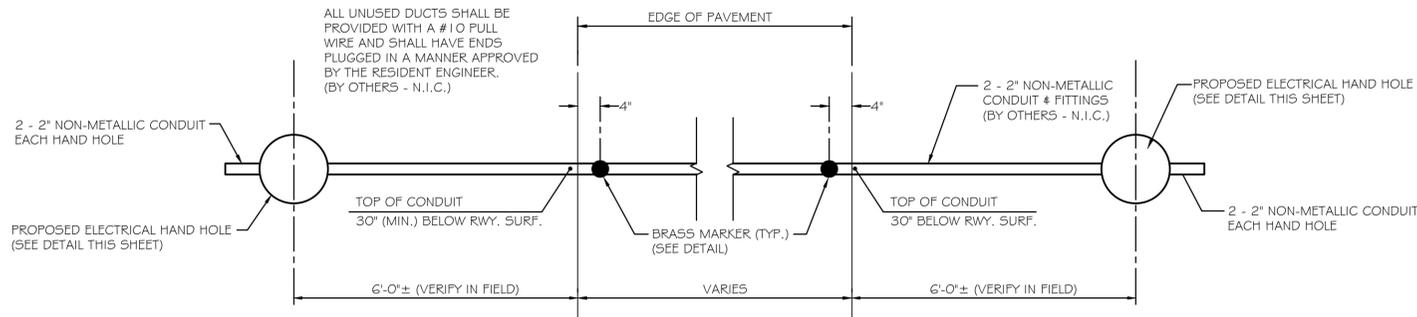


ELECTRICAL HAND HOLE DETAIL

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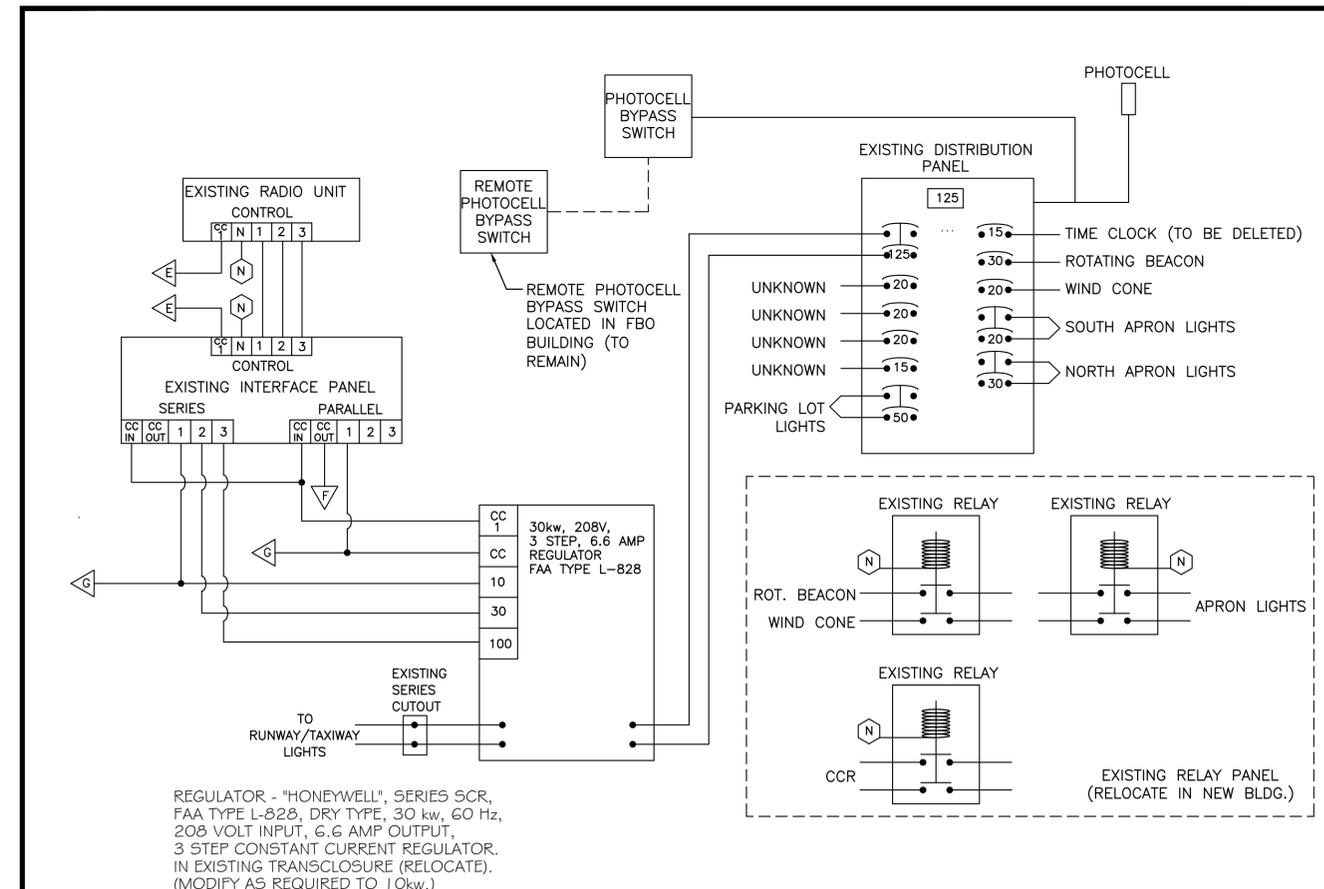
NOTES: (CONDUIT)

TOP OF CONDUIT TO BE NOT LESS THAN 30" BELOW FINISHED RWY. SURFACE (BY OTHERS - N.I.C.).
 ALL UNUSED DUCTS SHALL BE PROVIDED WITH A #10 PULL WIRE AND SHALL HAVE ENDS PLUGGED IN A MANNER APPROVED BY THE RESIDENT ENGINEER. (BY OTHERS - N.I.C.)



2-WAY DUCT

NOT TO SCALE



EXISTING VAULT EQUIPMENT SCHEMATIC WIRING DIAGRAM

NOT TO SCALE

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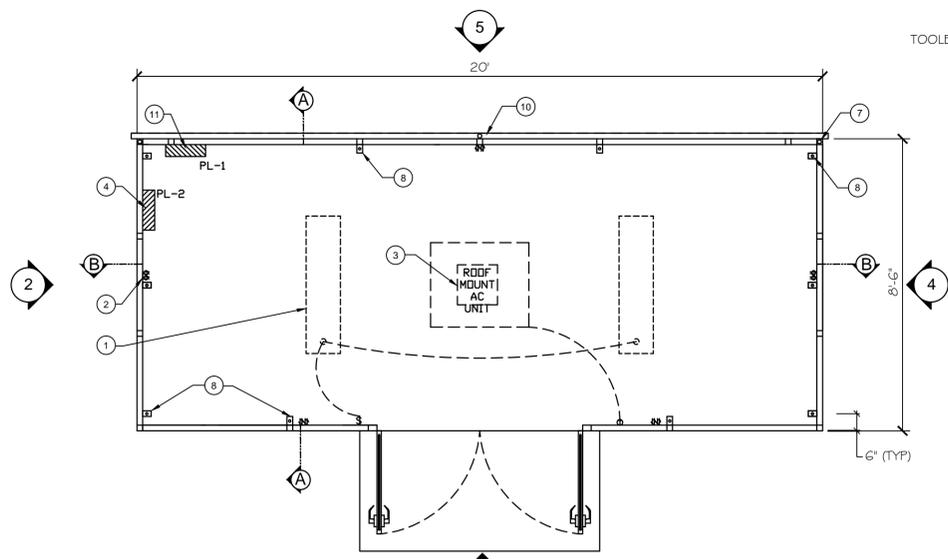
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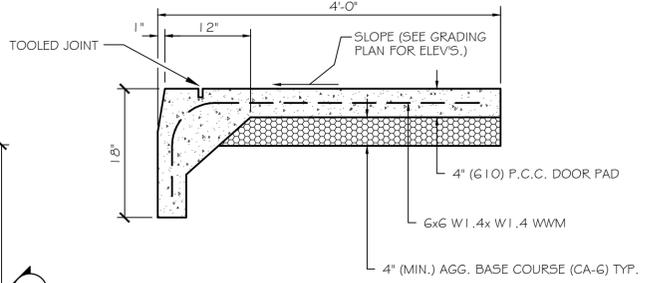
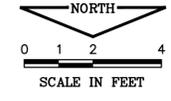
ELECTRICAL DETAILS AND EXISTING ELECTRICAL SCHEMATIC

CONSTRUCTION PLANS

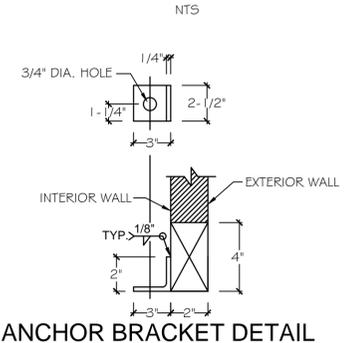
CURRENT AS OF: 11/16/2012	
SCALE: As Noted	SHEET 8
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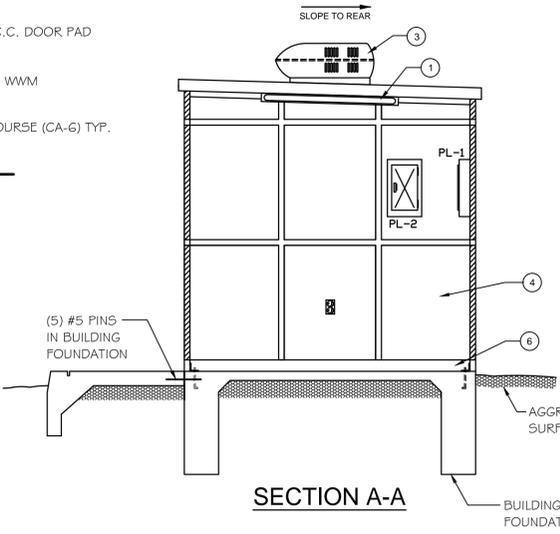
1 FLOOR PLAN



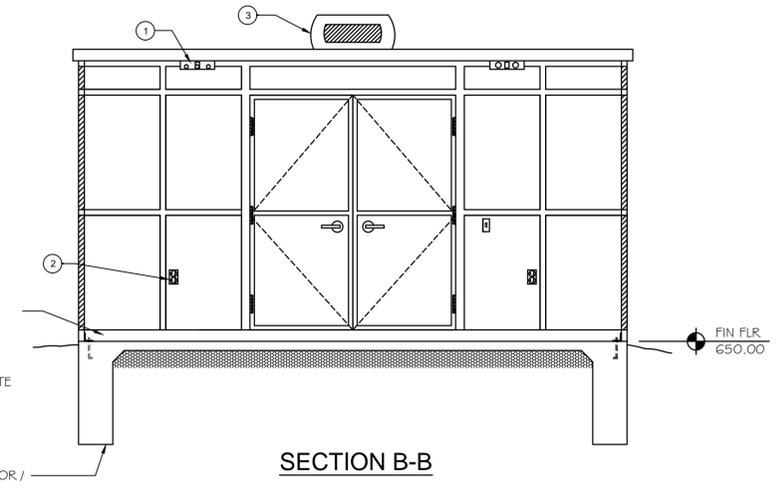
CONCRETE DOOR PAD DETAIL



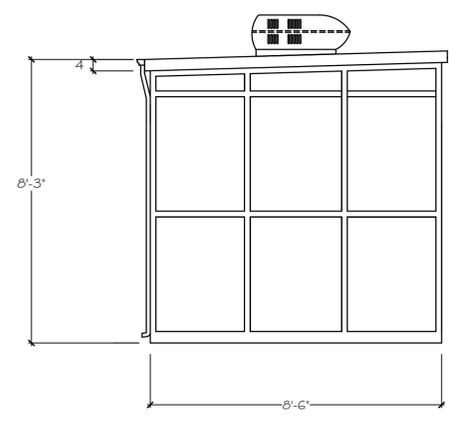
ANCHOR BRACKET DETAIL



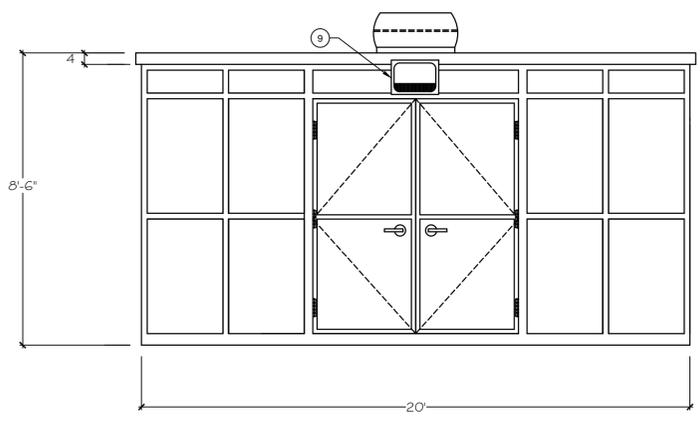
SECTION A-A



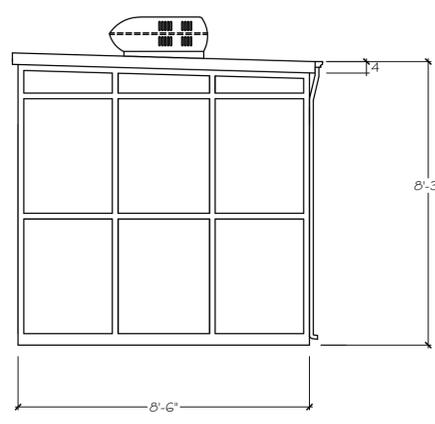
SECTION B-B



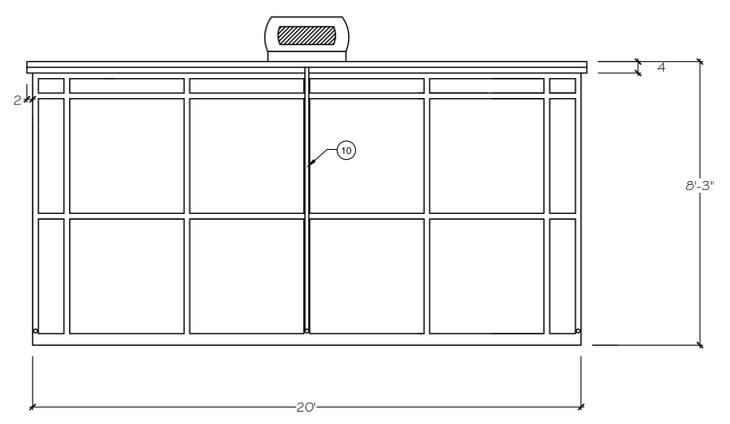
2 LEFT ELEVATION



3 FRONT ELEVATION



4 RIGHT ELEVATION



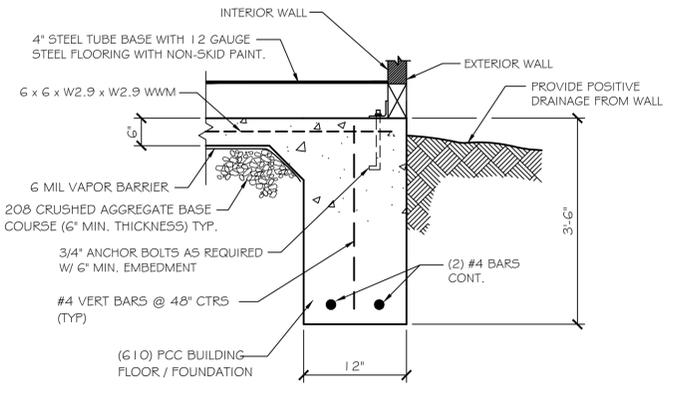
5 REAR ELEVATION

SHEET NOTES:

- 1 TWO (3) THREE-TUBE, 32 WATT, 120 VOLT, FLUORESCENT LIGHT FIXTURE TO BE SURFACE MOUNTED AND OPERATED BY A SINGLE POLE WALL SWITCH.
- 2 FIVE (5) 20 AMP, 120 VOLT, QUAD WALL OUTLETS, TO BE LOCATED AS SHOWN ON THE PLAN.
- 3 ONE (1) 13,500 BTU, 120 VOLT, ROOF MOUNTED AIR CONDITIONING UNIT TO BE OPERATED BY A WALL MOUNTED THERMOSTAT CONTROL.
- 4 PRE-WIRED 125 AMP, 120/240 VOLT, SINGLE PHASE, 3 WIRE 24 SPACE SUB-PANEL (PL-2) TO BE SURFACED MOUNTED.
- 5 TWO 3x6-8" INSULATED REINFORCED STEEL DOORS (1 G. GA.) W/ 1 G. GA. STEEL FRAME, 1 1/2" PAIR BUTTS, LEVER HANDLES WITH CYLINDER LOCK (RIGHT LEAF), 1 1/2" PAIR BUTTS, HEAD 4 FOOT BOLT (LEFT LEAF). PROVIDE SURFACE MOUNTED CLOSERS, WEATHER STRIP, BOTTOM DOOR SWEEPS (EACH LEAF) AND THRESHOLD & CENTER ASTRAGAL.
- 6 4" STEEL TUBE BASE WITH 12 GAUGE DIAMOND PLATED STEEL FLOORING WITH NON-SKID PAINT.
- 7 TWO (2) 3"x4" EXTERIOR ALUMINUM DOWN SPOUTS
- 8 TEN (10) ANCHOR BRACKETS 0.75 DIA. HOLES (SEE DETAIL).
- 9 EXTERIOR WALL MOUNTED LIGHT "LITHONIA" WALL PACK, 70 WATT, 120 VOLT, HPS, MODEL #TWAG 70 HPS 120 LPI DWH W/ BRONZE DIE CAST ALUM. FRAME & POLYCARBONATE LENS. FURNISH COMPLETE W/ HPS LAMP. (POWERED BY EXTERNAL PHOTO CELL)
- 10 EXTERIOR ALUMINUM GUTTER TO BE LOCATED IN THE REAR WITH DOWN SPOUTS.
- 11 MAIN DISTRIBUTION PANEL (PL-1)

GENERAL NOTES:

- A. SHELTER SHALL BE PRE-ASSEMBLED, DESIGNED AND STRUCTURALLY ENGINEERED UNIT, TO WITHSTAND 50-LBF/SQ.FT LIVE LOAD AND 30-LBF/SQ.FT WIND LOAD, READY TO BE SHIPPED FOR OFF-LOADING AND INSTALLATION.
- B. CONSTRUCTED WITH 14 GAUGE SQUARE TUBING, 2" X 2" (TYP). ALL STRUCTURAL MEMBERS SHALL MEET OR EXCEED ASTM-A500 GRADE B 46KSI STANDARDS.
- C. WALLS TO BE 14 GAUGE GALVANIZED EXTERIOR PANELS AND 16 GAUGE INTERIOR PANELS, FABRICATED AND FITTED BETWEEN VERTICAL AND HORIZONTAL POST. WALLS TO BE FULLY INSULATED TO A MINIMUM R-10 VALUE.
- D. FASCIA SHALL BE 4" WITH 2" OVERHANG. FASCIA TO BE FABRICATED WITH 14 GAUGE GALVANIZED STEEL FORMED SHEET METAL. BOOTH TO BE SLOPED 3" TO THE REAR TO EXTERIOR GUTTER AND DOWN SPOUTS. ROOF DECK TO BE POLYURETHANE SEALED AND TOP COATED WITH WHITE ELASTOMERIC MEMBRANE SEAL SYSTEM. NO CEILING.
- E. TWO (2) STEEL SHING DOORS TO BE HEAVY DUTY INDUSTRIAL TYPE, STAINLESS STEEL HINGES, HEAVY DUTY LOCK WITH LEVER HANDLE HYDRAULIC DOOR CLOSER. DOORS TO BE FULLY WEATHER STRIPPED TO PREVENT ANY WEATHER INTRUSION.
- F. UNIT TO BE PRIMED AND SEALED WITH MARINE BASE 2-PART EPOXY PRIMER AND PAINTED IN ACCORDANCE WITH THE STANDARDS ESTABLISHED BY THE STEEL STRUCTURES PAINTING COUNCIL. HIGH SOLIDS, 2-PART POLYURETHANE FINISH COAT TO HAVE FADE, IMPACT AND CHEMICAL RESISTANCE.
- G. ALL METAL JOINTS ARE PRESSURE SEALED AGAINST ANY WEATHER INTRUSION. WEATHER STRIPPING AND WEATHER GASKETING IS PROVIDED FOR DOOR AND WINDOWS.
- H. THE UNIT SHALL BE DELIVERED WIRED READY FOR POWER INTERCONNECTIONS BY CONTRACTOR. ALL ELECTRICAL COMPONENTS WILL BE UL APPROVED AND INSTALLED IN ACCORDANCE WITH THE N.E.C. ALL WIRING TO BE A MINIMUM #12 GAUGE COPPER THHN TO BE SURFACED MOUNTED AND CONTAINED IN THINWALL EMT CONDUIT.
- I. BUILDING WILL BE FULLY INSPECTED BEFORE DELIVERY. CHECKING WORKMANSHIP, DIMENSIONS, PAINT AND SPECIAL FEATURES. NAMEPLATE WILL ENSURE WORKMANSHIP. UP TO THREE (3) SETS OF BLUE LINE DRAWINGS ARE PROVIDED FOR PLAN CHECK AND FINAL APPROVAL. EXTRA COPIES SUPPLIED AT ADDITIONAL CHARGE.



BLDG FLOOR / FOUNDATION EDGE DETAIL

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DRAWN BY: Tim H	REVISIONS			
CHECKED BY: RJC	LEVEL	BY	DATE	DESCRIPTION
DATE: NOVEMBER 2012				

CHAMLIN ASSOCIATES
 PERU MORRIS ILLINOIS

**ILLINOIS VALLEY REGIONAL AIRPORT (VYS)
 SEPARATE RUNWAY CIRCUITS
 AND CONSTRUCT VAULT**
 PERU, ILLINOIS

PROPOSED EQUIPMENT BUILDING

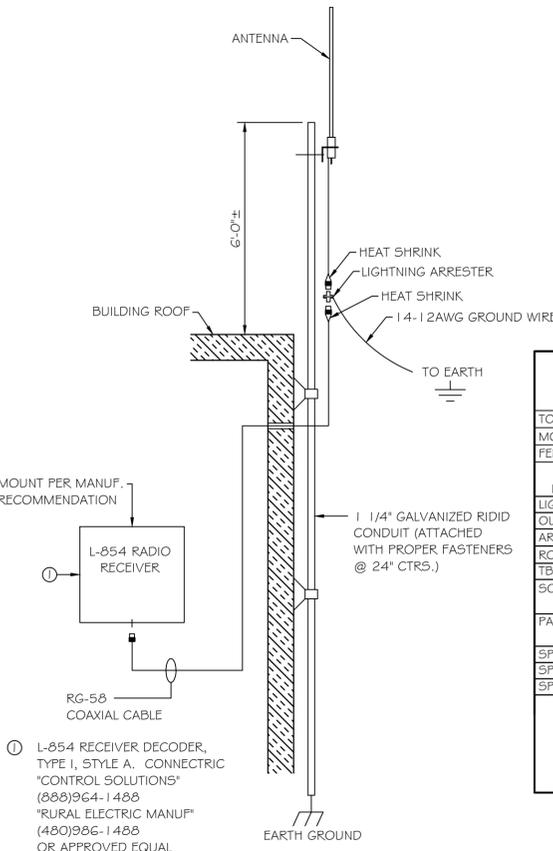
CONSTRUCTION PLANS

CURRENT AS OF: 11/16/2012	
SCALE: As Noted	SHEET 9
FILE NO.: 1000.96	OF 10

REGULATOR - "HONEYWELL", SERIES 3G,
 FERRO FAA TYPE L-828, DRY TYPE, 20 kw,
 60 Hz, 208 VOLT INPUT, 6.6 AMP OUTPUT,
 3 STEP CONSTANT CURRENT REGULATOR.
 (EXISTING TO BE USED AS A SPARE)
 REPAIR AS REQUIRED

MDP PANEL (PL-1)					
LOAD DESCRIPTION	KW	INPUT	OUTPUT	STEP	AMP
SPARE REGULATOR	20	208V	6.6A	3-STEP	125A
RUNWAY 18-36	20	208V	6.6A	3-STEP	125A
RUNWAY 07-25	20	208V	6.6A	3-STEP	125A
TAXIWAY	10	208V	6.6A	3-STEP	70A
FUTURE	NA	208V	6.6A	---	---
SUB-PANEL	208/120	208V	---	NA	125A

SUB-PANEL (PL-2)											
TOTAL KW: 40.2kw		ENCLOSURE: NEMA-1 PHASE: 1, 3W 4 GRD.				VOLTAGE: 120/208V					
MOUNTING: SURFACE		BUSSING: COPPER				FAULT CURRENT RATING: 22,000 AIC		M.L.O.			
FEEDER: SEE ONE-LINE DIAGRAM		LOCATION: EQUIPMENT SHELTER									
LOAD DESCRIPTION	TRIP	POLE	A--	B--	CCT. NO.	A--	B--	TRIP	POLE	LOAD DESCRIPTION	
LIGHTS	15	1	1,800		1 2	2400		20	1	OUTLETS	
OUTLETS	20	1		2400	3 4		1,800	15	1	ENTRY LIGHT	
ARCL (RADIO RECEIVER)	15	1	1,800		5 6	1,800		15	1	TBD	
ROTATING BEACON	30	1		2800	7 8		2400	20	1	AC / HEATER	
TBD	15	1	1,800		9 10	2000		20	1	WIND CONE	
SOUTH APRON LIGHTS	20	2		2000	11 12		2,800	30	2	NORTH APRON LIGHTS	
				2000	13 14	2,800					
PARKING LOT LIGHTS	50	2		4,800	15 16					SPARE	
				4,800	17 18					SPARE	
SPARE					19 20					SPARE	
SPARE					21 22					SPARE	
SPARE					23 24					SPARE	
					1,200		2,000				9,000
											7,000
											TOTAL= 40,200



L-854 RECEIVER DECODER,
 TYPE I, STYLE A. CONNECTIC
 "CONTROL SOLUTIONS"
 (888)964-1488
 "RURAL ELECTRIC MANUF"
 (480)986-1488
 OR APPROVED EQUAL

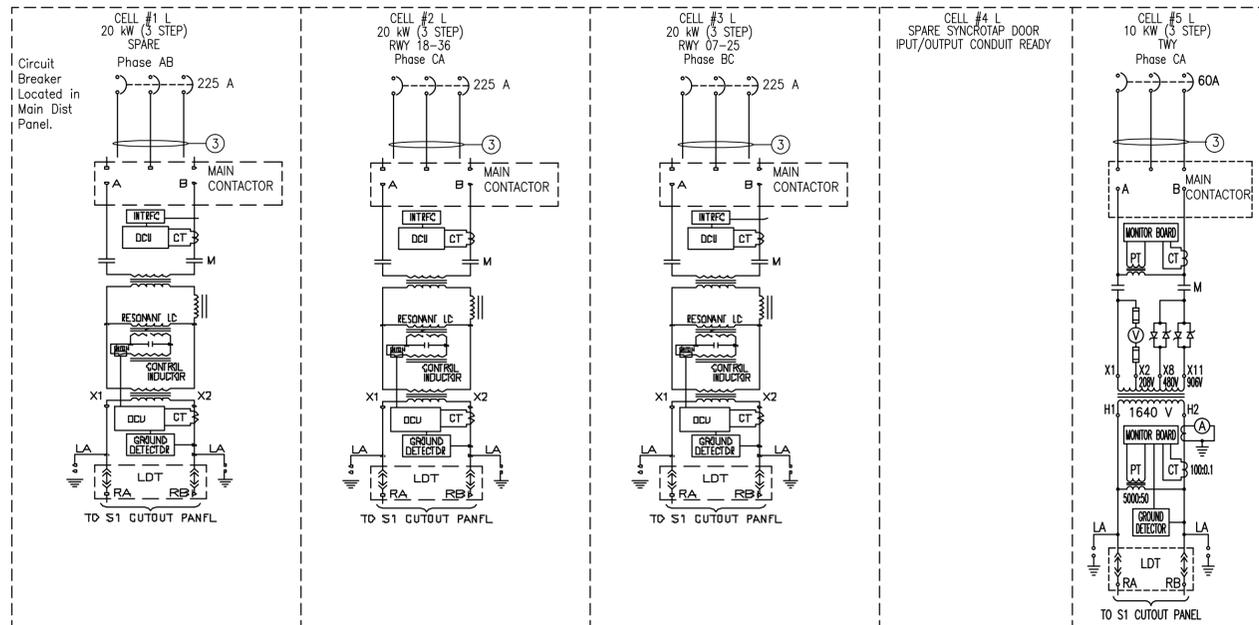
ANTENNA INSTALLATION
 NOT TO SCALE

Remote Control Inputs:
 ARCAL unit to control all three CCR simultaneously.
 Parallel each CCR input lines CC, B10, B30, & B100.

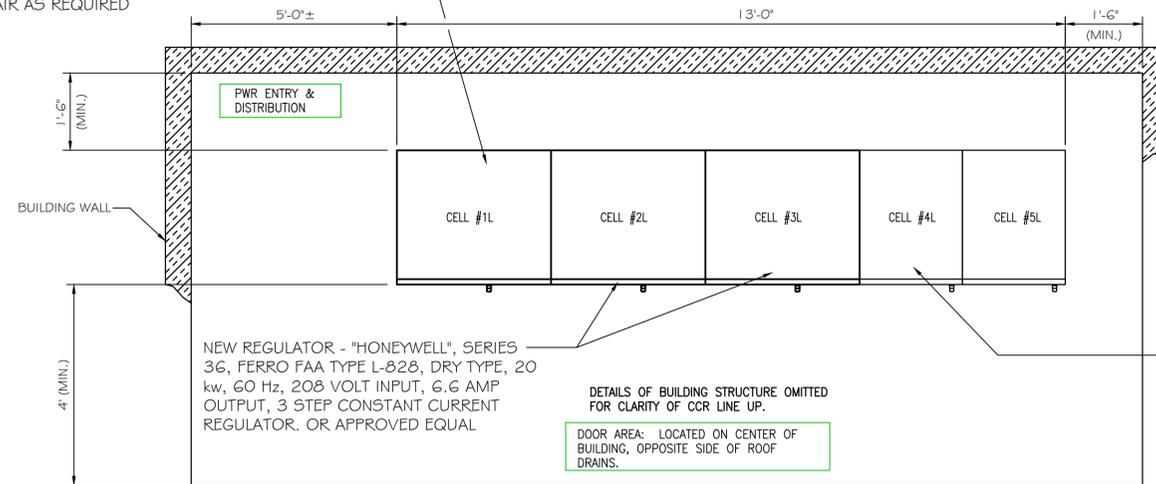
AIRPORT LIGHTING STANDAD OPERATION SEQUENCE :

1. TYPICAL OPERATIONS - PHOTOCELL ACTIVATES RUNWAY / TAXIWAY LIGHTS, WIND CONE, APRON LIGHTS AND ROTATING BEACON.
2. PHOTOCELL BYPASS - MANUAL SWITCH IN NEW EQUIPMENT BUILDING (LOCATE IN FIELD).
3. SECONDARY PHOTOCELL BYPASS - EXISTING TOGGLE SWITCH LOCATED IN FBO BUILDING. EXTEND TO NEW EQUIPMENT BUILDING AS REQUIRED.

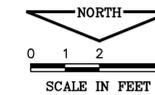
* CONTRACTORS SHALL VERIFY EXISTING AIRPORT OPERATIONS TO ASSURE THAT ALL NEW LIGHTING EQUIPMENT FUNCTIONS IN THE SAME MANNER.



CONSTANT CURRENT REGULATOR WIRING DIAGRAM
 NOT TO SCALE



PLAN VIEW - REGULATOR BANK #1

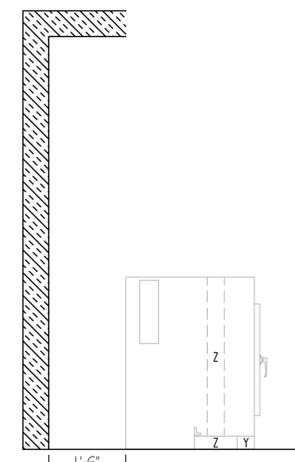


NOTES:

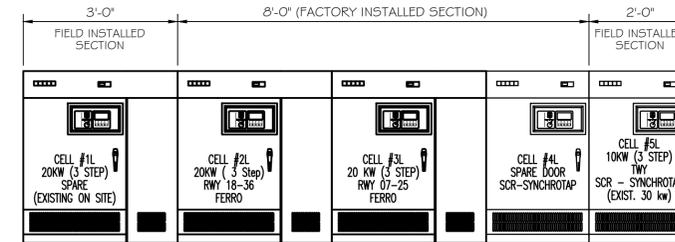
- 1 - REGULATOR ENCLOSURE, STANDARD
- 2 - FINISH - EXTERIOR PAINTED LIGHT GREY, EEMAC-2Y-1-1958
- 3 - FLOOR ENTRY FOR INPUT AND OUTPUT
- 4 - POWER SUPPLY, 208V, 3 PH, 3 WIRE, 60 Hz
- 5 - INTERRUPT RATING OF REGULATOR INCOMING BREAKER, 25KA SYM
- 6 - REGULATOR CONTROL POWER SUPPLY IS 24 VDC.

WIRING DESIGNATIONS

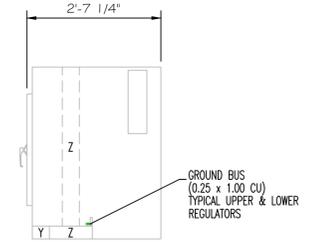
- X - STANDARD ENTRANCE FOR SERIES LIGHTING CABLE
- Y - REMOTE CONTROL WIRING RACEWAY
- Z - REGULATOR CONTROL WIRING RACEWAY



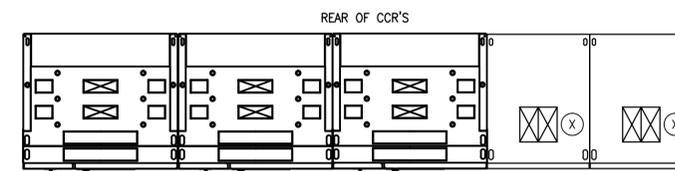
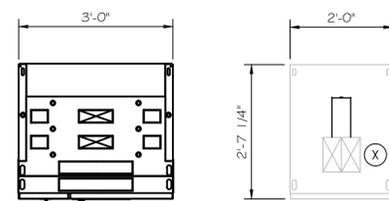
LEFT SIDE ELEVATION
 REGULATOR BANK #1 SHOWN
 GHOSTED FOR REFERENCE ONLY



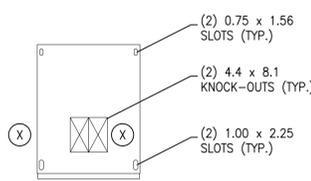
FRONT ELEVATION - REGULATOR BANK #1



RIGHT SIDE ELEVATION



BASE PLAN (UNDERSIDE VIEW)



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CHECKED BY: RJC	LEVEL	BY	DATE	DESCRIPTION
DATE: NOVEMBER 2012				

CHAMLIN ASSOCIATES
 PERU MORRIS ILLINOIS

ILLINOIS VALLEY REGIONAL AIRPORT (VYS)
 SEPARATE RUNWAY CIRCUITS
 AND CONSTRUCT VAULT
 PERU, ILLINOIS

PROPOSED ELECTRICAL EQUIPMENT

CONSTRUCTION PLANS
 CURRENT AS OF: 11/16/2012
 SCALE: As Noted SHEET 10
 FILE NO.: 1000.96 Y- OF 10