

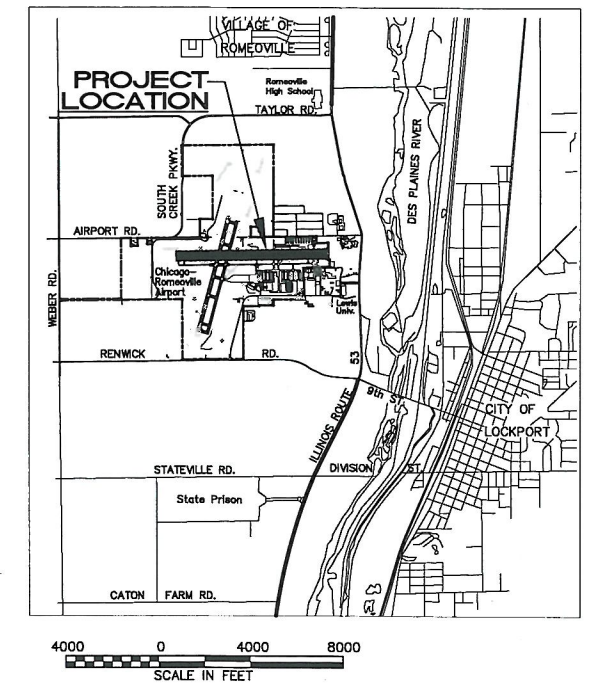
CONSTRUCTION PLANS

REHABILITATE WEST PORTION OF RUNWAY 9-27

JOLIET REGIONAL PORT DISTRICT CHICAGO-ROMEOVILLE AIRPORT (LOT) ROMEDEVILLE, WILL COUNTY, ILLINOIS

AIP PROJECT NO. 3-17-0140-B51 IDA PROJECT NO. LOT-4193

VICINITY MAP



No.	Issue/Description	Sheets Changed	Date	By

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Seal (Sheets 52-53)
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 Date of Plans: 1/11/13
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 Date: JANUARY 11, 2013

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SUMMARY OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	AS BID	RECORD PAID
AR108158	1/C #8 5 KV UG CABLE IN UD	LINEAR FOOT	24,500.0	
AR108960	REMOVE CABLE	LINEAR FOOT	1,375.0	
AR109200	INSTALL ELECTRICAL EQUIPMENT	LUMP SUM	1.0	
AR125420	TAXIWAY LIGHT INPAVEMENT	EACH	2.0	
AR125442	TAXI GUIDANCE SIGN, 2 CHARACTER	EACH	12.0	
AR125443	TAXI GUIDANCE SIGN, 3 CHARACTER	EACH	7.0	
AR125444	TAXI GUIDANCE SIGN, 4 CHARACTER	EACH	2.0	
AR125445	TAXI GUIDANCE SIGN, 5 CHARACTER	EACH	2.0	
AR125446	TAXI GUIDANCE SIGN, 6 CHARACTER	EACH	3.0	
AR125505	MIRL, STAKE MOUNTED	EACH	32.0	
AR125510	MIRL, BASE MOUNTED	EACH	9.0	
AR125545	MI THRESHOLD LIGHT BASE MTD	EACH	24.0	
AR125901	REMOVE STAKE MOUNTED LIGHT	EACH	36.0	
AR125902	REMOVE BASE MOUNTED LIGHT	EACH	33.0	
AR125904	REMOVE TAXI GUIDANCE SIGN	EACH	21.0	
AR150510	ENGINEER'S FIELD OFFICE	LUMP SUM	1.0	
AR152410	UNCLASSIFIED EXCAVATION	CUBIC YARD	5,442.0	
AR156510	SILT FENCE	LINEAR FOOT	2,115.0	
AR156513	SEPARATION FABRIC	SQUARE YARD	6,486.0	
AR156520	INLET PROTECTION	EACH	2.0	
AR201661	CLEAN & SEAL BITUMINOUS CRACKS	LINEAR FOOT	2,050.0	
AR208515	POROUS GRANULAR EMBANKMENT	CUBIC YARD	927.0	
AR209610	CRUSHED AGG. BASE COURSE - 10"	SQUARE YARD	6,486.0	
AR401613	BIT. SURF. CSE.-METHOD I, SUPERPAVE	TON	1,590.0	
AR401650	BITUMINOUS PAVEMENT MILLING	SQUARE YARD	124.0	
AR401660	SAW & SEAL BIT. JOINTS	LINEAR FOOT	169.0	
AR401665	BITUMINOUS PAVEMENT SAWING	LINEAR FOOT	522.0	
AR401900	REMOVE BITUMINOUS PAVEMENT	SQUARE YARD	6,293.0	
AR401910	REMOVE & REPLACE BIT. PAVEMENT	SQUARE YARD	45.0	
AR402621	POROUS FRICTION COURSE, 1"	SQUARE YARD	12,514.0	
AR403614	BIT. BASE CSE.-METHOD II, SUPERPAVE	TON	3,732.0	
AR403630	BITUMINOUS BASE TEST SECTION	EACH	1.0	
AR602510	BITUMINOUS PRIME COAT	GALLONS	1,910.0	
AR603510	BITUMINOUS TACK COAT	GALLONS	5,929.0	
AR620520	PAVEMENT MARKING-WATERBORNE	SQUARE FOOT	13,280.0	
AR705506	6" PERFORATED UNDERDRAIN	LINEAR FOOT	1,531.0	
AR705630	UNDERDRAIN INSPECTION HOLE	EACH	4.0	
AR705640	UNDERDRAIN CLEANOUT	EACH	2.0	
AR705900	REMOVE UNDERDRAIN	LINEAR FOOT	1,432.0	
AR705904	REMOVE UNDERDRAIN CLEANOUT	EACH	2.0	
AR705944	ADJUST UNDERDRAIN CLEANOUT	EACH	3.0	
AR800910	BITUMINOUS PRESSURE RELIEF JOINT	LINEAR FOOT	100.0	
AR800927	GRANULAR DRAINAGE SUBBASE - 6"	SQUARE YARD	6,486.0	
AR800934	TEMP. CONSTRUCT. SIGNS	LUMP SUM	1.0	
AR800938	CRACK CONTROL OVERLAY MATERIAL (8501)	SQUARE YARD	829.0	
AR800939	CRACK CONTROL REPAIR MATERIAL (8502)	SQUARE YARD	56.0	
AR800990	ARRESTOR IN BASE CAN	EACH	2.0	
AR901510	SEEDING	ACRE	1.1	
AR904510	SODDING	SQUARE YARD	3,207.0	
AR905520	TOPSOILING (FROM OFF SITE)	CUBIC YARD	940.0	
AR908510	MULCHING	ACRE	1.1	

PAYMENT WILL BE MADE UNDER THE ITEM NUMBERS, DESCRIPTIONS AND UNITS NOTED IN THE ABOVE TABLE IN ACCORDANCE WITH THE BASIS OF PAYMENT FOR EACH RESPECTIVE WORK ITEM NOTED IN THE SPECIAL PROVISIONS, COMPLETED AND ACCEPTED BY THE ENGINEER.

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.

REVISION	DATE

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Hanson No. 12A00860	Filename 02-INDEX AND SQQ.DWG	Date 1/9/13	LDH
Scale N/A	Date 1/9/13	LDH	LDH
Date JANUARY 11, 2013	REVIEWED RMH	1/10/13	

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SHEET INDEX AND SUMMARY OF QUANTITIES
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

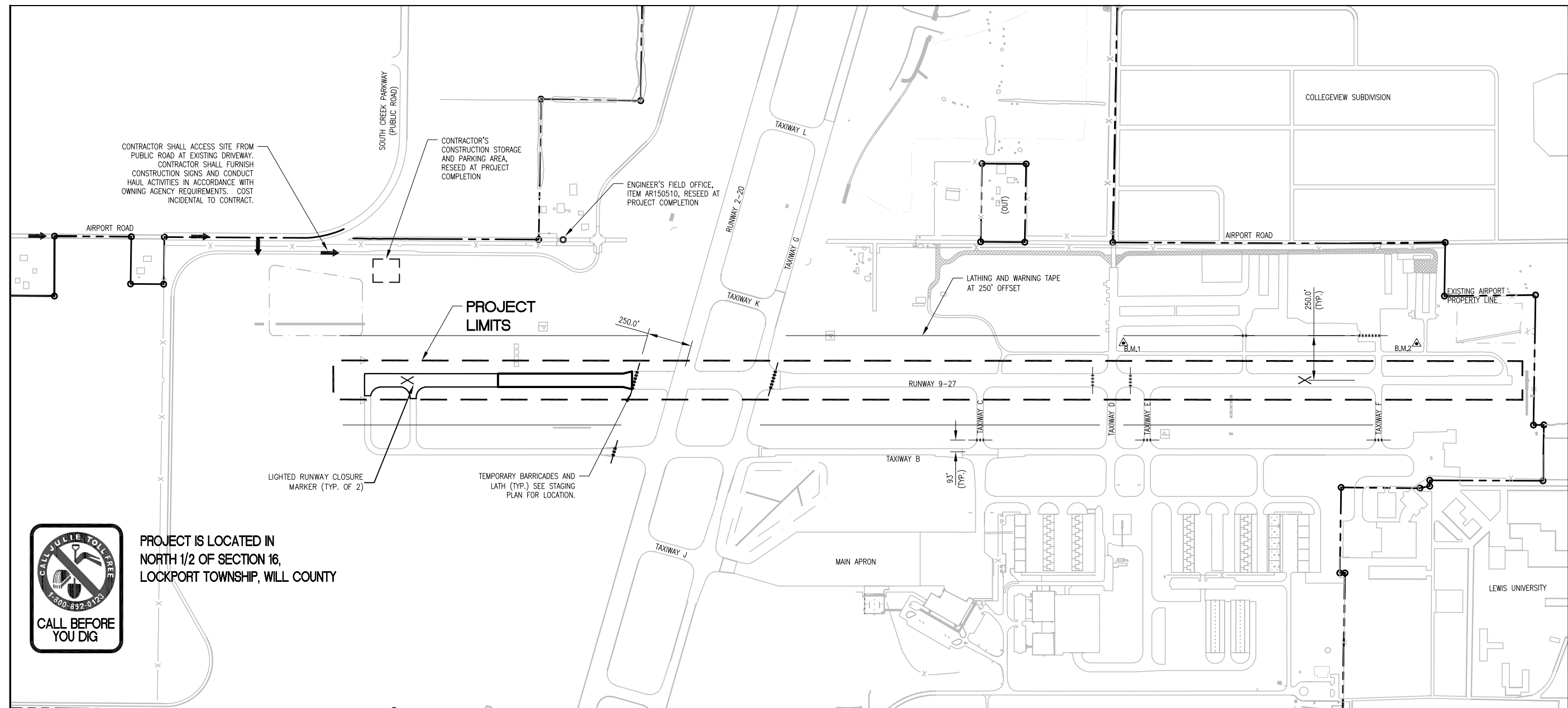
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	1/10/13

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SITE PLAN AND GENERAL NOTES

REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



CONTRACTOR SHALL ACCESS SITE FROM PUBLIC ROAD AT EXISTING DRIVEWAY. CONTRACTOR SHALL FURNISH CONSTRUCTION SIGNS AND CONDUCT HAUL ACTIVITIES IN ACCORDANCE WITH OWNING AGENCY REQUIREMENTS. COST INCIDENTAL TO CONTRACT.

CONTRACTOR'S CONSTRUCTION STORAGE AND PARKING AREA, RESEED AT PROJECT COMPLETION

ENGINEER'S FIELD OFFICE, ITEM AR150510, RESEED AT PROJECT COMPLETION

LATHING AND WARNING TAPE AT 250' OFFSET

EXISTING AIRPORT PROPERTY LINE

PROJECT LIMITS

LIGHTED RUNWAY CLOSURE MARKER (TYP. OF 2)

TEMPORARY BARRICADES AND LATH (TYP.) SEE STAGING PLAN FOR LOCATION.



PROJECT IS LOCATED IN NORTH 1/2 OF SECTION 16, LOCKPORT TOWNSHIP, WILL COUNTY

GENERAL NOTES

- PROJECT DESCRIPTION**
- THIS PROJECT IS TO REHABILITATE THE WEST PORTION OF RUNWAY 9-27 AT CHICAGO-ROMEDEVILLE AIRPORT INCLUDING, AMONG OTHER INCIDENTAL WORK, THE FOLLOWING ITEMS:
- PLACEMENT OF TEMPORARY SOIL EROSION CONTROL MEASURES.
 - REMOVAL AND ADJUSTMENT OF EXISTING SUBSURFACE UNDERDRAIN PIPE AND STRUCTURES.
 - REMOVAL OF EXISTING HOT MIX ASPHALT (HMA) PAVEMENTS.
 - PROVISION OF UNCLASSIFIED EXCAVATION, INCLUDING UNSUITABLE SUBGRADE REMOVAL AND BACKFILL.
 - CONSTRUCTION OF NEW SUBSURFACE UNDERDRAIN PIPE SYSTEM AND STRUCTURES.
 - ADDITION OF NEW GRANULAR DRAINAGE SUBBASE, CRUSHED AGGREGATE BASE COURSE, AND HMA BASE AND SURFACE COURSE PAVEMENTS.
 - HMA OVERLAY OF EXISTING ASPHALT PAVEMENTS.
 - CONSTRUCTION OF POROUS FRICTION COURSE ON NEW AND OVERLAIN RUNWAY PAVEMENTS.
 - PLACEMENT OF PAVEMENT MARKINGS.
 - REMOVAL AND REPLACEMENT OF EXISTING MRL EDGE LIGHTS, THRESHOLD LIGHTS, AND AIRFIELD GUIDANCE SIGNS.
 - INSTALLATION OF NEW AIRFIELD CABLE IN UNIT DUCT.
 - INSTALLATION AND TESTING OF AIRFIELD ELECTRICAL VAULT EQUIPMENT.
 - TOPSOILING, SEEDING AND MULCHING, AND SODDING ALONG NEW PAVEMENT EDGES.

PROTECTION OF EXISTING AIRPORT FACILITIES

THE CONTRACTOR IS TO BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND LIGHTING EQUIPMENT; DRIVEWAY AND ROAD PAVEMENT AND SHOULDERS; RUNWAY, TAXIWAY AND APRON PAVEMENTS AND SHOULDERS; RUNWAY, TAXIWAY AND AIRPORT LIGHTING EQUIPMENT; AND SEEDED AND TURFED AREAS THAT ARE UTILIZED IN OR AFFECTED BY THE CONTRACTOR'S ACTIVITIES. ITEMS DAMAGED BY THE CONTRACTOR ARE TO BE REPAIRED AT CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF AIRPORT MANAGER AND THE OWNER'S REPRESENTATIVE.

IN ADDITION, WHEN CONDITIONS DICTATE OR AS DETERMINED BY THE AIRPORT MANAGER OR THE OWNER'S REPRESENTATIVE, THE CONTRACTOR SHALL BE REQUIRED TO USE A PICK-UP TYPE SWEEPER IN ALL ACTIVE CONSTRUCTION AIRFIELD PAVEMENT AREAS. THE CONTRACTOR WILL BE REQUIRED TO HAVE A SWEEPER AVAILABLE FOR USE AT ALL TIMES. THE COST OF SWEEPING SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

CONTRACTOR'S ACCESS AND TEMPORARY FACILITIES

CONTRACTOR'S ACCESS TO THE PROJECT WHEN ON AIRPORT PROPERTY IS SHOWN ON THIS SHEET. CONTRACTOR'S ACCESS TO THE AIRPORT ITSELF IS TO BE PROVIDED BY PUBLIC RIGHTS-OF-WAY. THE CONTRACTOR IS TO SECURE ALL NECESSARY PERMITS FOR THE USE OF ANY PUBLIC RIGHTS-OF-WAY AND IS TO MAINTAIN TRAFFIC ON THESE PUBLIC ROADS AT ALL TIMES, WITH THE COSTS OF PERMITTING, CLEANING AND REPAIRING OF PAVEMENT DAMAGED BY CONTRACTOR'S ACTIVITIES INCIDENTAL TO THE CONTRACT. USE OF AND REPAIRS TO ANY PUBLIC FACILITIES ARE TO BE COMPLETED TO THE SATISFACTION OF THE FACILITY'S OWNER.

THE CONTRACTOR IS TO PROVIDE TEMPORARY CONSTRUCTION ROADS WITHIN THE CONSTRUCTION LIMIT LINES AS MAY BE REQUIRED BY HIS ACTIVITIES. HEAVY VEHICLES SHALL NOT CROSS EXISTING PAVEMENT SURFACES EXCEPT AS APPROVED BY THE AIRPORT MANAGER AND THE OWNER'S REPRESENTATIVE. ANY DAMAGE TO PAVEMENTS THAT MAY OCCUR BY THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE AIRPORT MANAGER AND THE OWNER'S REPRESENTATIVE.

THE CONTRACTOR IS TO PROVIDE AN EQUIPMENT STORAGE AND PARKING AREA AT THE LOCATIONS SHOWN ON THIS SHEET. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE ACCESS ROADS AND THE STORAGE AREA DURING CONSTRUCTION AND TO RESTORE THE AREAS AT PROJECT COMPLETION TO CONDITIONS SUITABLE TO THE AIRPORT MANAGER AND THE OWNER'S REPRESENTATIVE. AT THE AIRPORT MANAGER'S DISCRETION, THE TEMPORARY FACILITIES MAY REMAIN, BUT THEY MUST BE LEFT IN CONDITIONS SUITABLE TO THE AIRPORT MANAGER. THE COST OF PROVIDING, MAINTAINING AND RESTORING THE TEMPORARY FACILITIES IS INCIDENTAL TO THE CONTRACT.

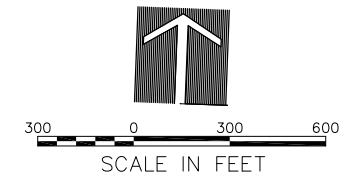
RESPONSIBILITY FOR EXISTING UTILITIES

THE LOCATION, SIZE AND/OR TYPE OF MATERIAL OF EXISTING UNDERGROUND OR OVERHEAD UTILITIES AS MAY BE INDICATED ON THESE CONSTRUCTION PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE PROJECT ENGINEER HAVE INDEPENDENTLY VERIFIED THIS INFORMATION AND NEITHER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO THE ACCURACY, SUFFICIENCY OR COMPLETENESS OF THE INFORMATION AND GIVE NO EXPRESSED OR IMPLIED GUARANTEE THAT ANY CONDITIONS INDICATED ARE REPRESENTATIVE OF ACTUAL CONDITIONS TO BE ENCOUNTERED.

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 ALL UTILITY COMPANIES AND AGENCIES OF HIS CONSTRUCTION PLANS AND SHALL OBTAIN FROM EACH PARTY DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF ALL UTILITIES AND THE WORKING SCHEDULE OF ANY REMOVALS OR ADJUSTMENTS REQUIRED OF THE UTILITY. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (PHONE 800-892-0123) TO ASSIST IN THE ABOVE.

THE CONTRACTOR SHALL PROTECT ANY FACILITIES TO THE SATISFACTION OF THE UTILITY OR OWNING-AGENCY WITH THE COST OF ANY REQUIRED PROTECTION TO BE INCIDENTAL TO THE CONTRACT. IN THE EVENT A UTILITY LINE OR SERVICE IS UNEXPECTEDLY ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND THE UTILITY COMPANY OR AGENCY OF JURISDICTION. ANY SUCH UTILITIES DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO SERVICE AT ONCE.

- EXISTING BENCHMARKS**
- PROJECT BENCHMARKS ARE AS FOLLOWS:
- ▲ B.M.1 N 1,800,236.82
E 1,051,080.54
ELEV. 666.67
 - ▲ B.M.2 N 1,800,302.96
E 1,052,719.90
ELEV. 664.18
- THIS DATA IS NOT ILLINOIS STATE PLANE COORDINATES



- NOTES**
1. MAXIMUM HEIGHT OF CONTRACTOR'S EQUIPMENT 25 FEET FOR ALL WORK, EXCEPT BY PRIOR APPROVAL OF THE ENGINEER (SEE SPECIAL PROVISIONS).
 2. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.
 3. FOR STAGING INFORMATION, SEE STAGING PLAN.

CONSTRUCTION AND SAFETY NOTES

SEQUENCE OF CONSTRUCTION

TO MINIMIZE DISRUPTIONS TO AIRPORT OPERATIONS, CONSTRUCTION OPERATIONS MUST BE CONTROLLED THROUGHOUT THE PROJECT'S DURATION AND WORK MUST BE COMPLETED EXPEDITIOUSLY. A CONSTRUCTION STAGING PLAN DETAILING THE SEQUENCING OF THE CONTRACTOR'S WORK THROUGHOUT THE PROJECT IS INCLUDED IN THE PLANS. THE CONTRACTOR SHALL PROVIDE HIS WRITTEN ACCEPTANCE OF THE PROJECT CONSTRUCTION STAGING PLAN AT THE PRE-CONSTRUCTION CONFERENCE. ANY AND ALL CHANGES TO THE CONSTRUCTION STAGING PLAN THAT MAY BE REQUESTED BY THE CONTRACTOR MUST BE APPROVED BY THE PROJECT ENGINEER AND THE AIRPORT OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SUFFICIENT ADVANCE NOTICE OF ANY PROPOSED STAGING CHANGE TO PERMIT CONSIDERATION AND APPROVAL BY THE PROJECT ENGINEER AND THE AIRPORT OWNER. THE CONTRACTOR SHALL NOT BE ENTITLED TO ANY EXTRA COMPENSATION NOR EXTENSION TO THE CONTRACT TIME BECAUSE OF A STAGING CHANGE REQUEST NOR FOR ANY TIME NECESSARY IN RECEIVING THE REQUIRED APPROVALS.

LATHING AND WARNING TAPE

THE PROJECT WILL REQUIRE THE PLACEMENT OF LATHING AND WARNING TAPE TO DELINEATE THE WORK AREA FROM ACTIVE AIRPORT OPERATIONS AREAS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE, PLACE AND MAINTAIN LATHING AND WARNING TAPE SHOWN ON THE STAGING PLAN ON SHEETS 5, 6, AND 7 AND IN DETAIL A, THIS SHEET, AND AS DIRECTED BY THE RESIDENT ENGINEER AND THE AIRPORT DIRECTOR. THE CONTRACTOR WILL FURNISH, PLACE, MAINTAIN AND RELOCATE THE LATHING AND WARNING TAPE AS REQUIRED. THE COST OF THESE ITEMS, AND THEIR MAINTENANCE, IS TO BE INCIDENTAL TO THE CONTRACT.

TEMPORARY BARRICADES ON AIRFIELD

THE PROJECT WILL REQUIRE THE PLACEMENT OF BARRICADES TO DELINEATE PORTIONS OF THE CONSTRUCTION AREA AND TO EFFECT TEMPORARY CLOSURES OF ACTIVE RUNWAYS, TAXIWAYS AND APRONS. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, PLACE AND MAINTAIN BARRICADES AS SHOWN ON THE STAGING PLAN ON SHEETS 5, 6, AND 7 AND IN DETAIL B, THIS SHEET, AND AS DIRECTED BY THE RESIDENT ENGINEER AND AIRPORT DIRECTOR. THE COST OF THESE ITEMS, AND THEIR MAINTENANCE, IS TO BE INCIDENTAL TO THE CONTRACT. ANY WORK THAT REQUIRES PORTIONS OF AN ACTIVE TAXIWAY OR APRON TO BE CLOSED MUST BE COMPLETED EXPEDITIOUSLY TO MINIMIZE DISRUPTION TO AIRCRAFT OPERATIONS.

OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIAL AT THE CONSTRUCTION SITE SHALL BE DELINEATED WITH THE USE OF BARRICADES DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS. NO OPEN TRENCHES OR DROPOFFS FROM PAVEMENT EDGES GREATER THAN 3 INCHES SHALL BE ALLOWED WITHIN AN ACTIVE RUNWAY SAFETY AREA (RSA) OR AN ACTIVE TAXIWAY SAFETY AREA (TSA). THE RSA IS DEFINED AS 75 FEET FROM THE RUNWAY 9-27 CENTERLINE AND 250 FEET FROM THE RUNWAY 2-20 CENTERLINE AND 1,000 FEET FROM THE END OF THE RUNWAY. THE TSA IS MEASURED AT 24.5 FEET FROM THE CATEGORY I TAXIWAY CENTERLINE, 39.5 FEET FROM THE CATEGORY II TAXIWAY CENTERLINE AND 59.0 FEET FROM THE CATEGORY III TAXIWAY CENTERLINE. THE CONTRACTOR WILL HAVE STEEL PLATES ON-SITE TO ALLOW FOR THE RAPID COVERING OF TRENCHES IN AN ACTIVE RSA OR TSA IN THE EVENT OF UNEXPECTED WORK STOPPAGES FOR WEATHER OR AIRPORT EMERGENCIES.

RUNWAY CLOSURE

THE PROJECT WILL REQUIRE THE PLACEMENT, OPERATION AND MAINTENANCE OF LIGHTED RUNWAY CLOSURE MARKERS; SEE STAGING PLAN ON SHEETS 5, 6, AND 7 AND DETAIL C, THIS SHEET. TO MINIMIZE DISRUPTION TO AIRCRAFT OPERATIONS ASSOCIATED WITH THE RUNWAY CLOSURE, CONSTRUCTION WORK MUST BE COMPLETED EXPEDITIOUSLY. RUNWAY CLOSINGS SHALL ONLY BE PERMITTED BY PRIOR AUTHORIZATION OF THE RESIDENT ENGINEER AND THE AIRPORT OWNER.

THE CONTRACTOR WILL INSTALL, OPERATE, MAINTAIN AND REMOVE LIGHTED RUNWAY CLOSURE MARKERS FURNISHED BY THE OWNER AS SPECIFIED ON THIS SHEET AND IN THE SPECIAL PROVISIONS. IF NECESSARY FOR EMERGENCIES OR EXTENDED MAINTENANCE OF THE LIGHTED MARKER EQUIPMENT BY THE CONTRACTOR, THE CONTRACTOR WILL TEMPORARILY USE PRE-MANUFACTURED, VINYL MARKERS TO BE FURNISHED TO THE CONTRACTOR BY THE OWNER. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO INSTALL, RELOCATE AND MAINTAIN RUNWAY CLOSURE MARKERS AT THE LOCATIONS SHOWN IN THE PLAN, AND AS DIRECTED BY THE RESIDENT ENGINEER AND AIRPORT OWNER. THE COST OF PLACING AND RELOCATING THESE ITEMS, AND THEIR OPERATION AND MAINTENANCE, IS TO BE INCIDENTAL TO THE CONTRACT.

THE AIRPORT OWNER WILL DE-ENERGIZE AIRPORT/RUNWAY NAVAIDS, AND AIRFIELD LIGHTING POWER AND CONTROL CIRCUITS WHEN THE RUNWAY IS CLOSED.

VEHICULAR TRAFFIC CONTROL

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE AND PLACE ROAD WARNING SIGNS AND BARRICADES ON THE EXISTING ROADWAYS PRIOR TO THE START OF CONSTRUCTION IN THE VICINITY. THE CONTRACTOR SHALL PROVIDE, INSTALL AND RELOCATE THE ITEMS AS REQUIRED. THE COST OF THIS WORK IS TO BE INCIDENTAL TO THE CONTRACT.

THE CONTRACTOR SHALL SECURE ANY PERMITS FOR HAULING ON LOCAL STREET OR STATE HIGHWAYS AS REQUIRED.

CONTRACTOR SHALL PROVIDE, INSTALL AND REMOVE ALL TRAFFIC CONTROL ITEMS WHEN CONSTRUCTION ACTIVITIES ARE WITHIN 15 FEET OF AN ACTIVE ROADWAY EDGE OR AS REQUIRED BY THE SITE PLAN. COST OF THIS WORK IS TO BE INCIDENTAL TO THE CONTRACT.

AIRFIELD OPERATIONAL SAFETY DURING CONSTRUCTION

ALL CONSTRUCTION TRAFFIC AND PERSONNEL SHALL REMAIN WITHIN THE CONSTRUCTION LIMIT LINE SHOWN ON THE SITE PLAN FOR THE CURRENT WORK. CONTRACTOR'S PERSONNEL AND EQUIPMENT MUST REMAIN AT LEAST 250 FEET FROM THE CENTERLINE OF ACTIVE RUNWAYS, 1,000 FEET FROM THE END OF ACTIVE RUNWAYS, 44.5 FEET FROM ACTIVE CATEGORY I TAXIWAY CENTERLINES, 65.5 FEET FROM ACTIVE CATEGORY II TAXIWAY CENTERLINES, 93.0 FEET FROM THE ACTIVE CATEGORY III TAXIWAY CENTERLINES (EXCEPT WORK WILL BE PERMITTED WITHIN 44.5 FEET OF THE CENTERLINES OF TAXIWAY D IN THE STAGE 1B AREA AND TAXIWAY F IN THE STAGE 2 AREA), AND 10 FEET FROM THE EDGE OF ACTIVE APRONS.

WHEN IT IS NECESSARY FOR CONSTRUCTION VEHICLES TO OPERATE ON OR WITHIN THESE LIMITS, THE RUNWAY, TAXIWAYS OR APRON MUST BE CLOSED. THE CONTRACTOR WILL PROVIDE POSITIVE CONTROL OF CONSTRUCTION VEHICLES USING RADIO-EQUIPPED FLAGGERS. ALL CONTRACTOR'S EQUIPMENT USED IN ACTIVE AIRPORT OPERATIONS AREAS SHALL BE EQUIPPED WITH A FAA-STANDARD FLAG, AS REFERENCED IN FAA AC 150/5370-2, CURRENT ISSUE. AIRCRAFT SHALL HAVE THE RIGHT-OF-WAY. CONSTRUCTION VEHICLES SHALL NOT CROSS AN ACTIVE RUNWAY. THE COST OF ALL TRAFFIC CONTROL, BOTH WITHIN AND OUTSIDE OF AIRPORT OPERATIONS AREAS, IS TO BE INCIDENTAL TO THE CONTRACT.

WHEN NOT IN USE AND DURING NONWORKING HOURS, CONTRACTOR'S EQUIPMENT SHALL BE PARKED WITHIN THE CONTRACTOR'S EQUIPMENT STORAGE AND PARKING AREAS. THE EQUIPMENT STORAGE AND PARKING AREAS ARE TO BE LOCATED AS SHOWN ON THE SITE PLAN, SHEET 3. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION ENTRANCE IN GOOD CONDITION. THE COST OF MAINTAINING THE CONSTRUCTION ENTRANCE IS TO BE INCIDENTAL TO THE CONTRACT.

AT NO TIME SHALL THE CONTRACTOR OPERATE OR PARK EQUIPMENT OR STOCKPILE MATERIAL SO AS TO OBSTRUCT AN AIRPORT IMAGINARY SURFACE.

BEFORE REOPENING TEMPORARILY CLOSED RUNWAYS, TAXIWAYS OR ROADWAYS, THE CONTRACTOR SHALL INSPECT AND CLEAN, AS NECESSARY, THE PAVEMENT TO ASSURE THAT NO MATERIALS OR OBJECTS THAT MAY DAMAGE AIRCRAFT OR VEHICLES REMAIN. ANY REQUIRED CLEANING SHALL BE TO THE SATISFACTION OF THE RESIDENT ENGINEER AND AIRPORT OWNER AND IS INCIDENTAL TO THE CONTRACT.

ALL CONTRACTOR EQUIPMENT IS LIMITED TO A HEIGHT OF 25 FEET.

NOTIFICATIONS BY CONTRACTOR

THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER AND AIRPORT OWNER 5 DAYS IN ADVANCE OF THE CONTRACTOR'S CLOSING OF ACTIVE RUNWAYS, TAXIWAYS AND APRONS. THE DATE, TIME AND SCHEDULED DURATION OF THE CLOSING MUST BE APPROVED BY THE RESIDENT ENGINEER AND THE AIRPORT OWNER. THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER AND AIRPORT OWNER 72 HOURS IN ADVANCE OF THE CONTRACTOR'S CLOSING OF OTHER ACTIVE ROADWAYS, AIRFIELD OR ROADWAY LIGHTING CIRCUITS, OR OTHER AIRPORT FACILITIES.

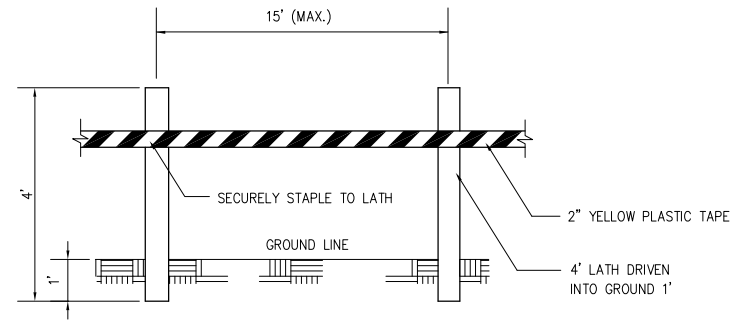
CONTRACTOR'S USE OF SITE

THE CONTRACTOR SHALL NOT OPERATE WITHIN, ENCROACH UPON OR OBSTRUCT AIRPORT OPERATIONAL AREAS, INCLUDING ACTIVE RUNWAY, TAXIWAYS AND APRON SAFETY AREAS, OBJECT AND OBSTACLE FREE ZONES, RUNWAY PROTECTION ZONES AND AIRPORT IMAGINARY SURFACES AS DEFINED IN FEDERAL AVIATION REGULATIONS (FAR) PART 77, "OBJECTS AFFECTING NAVIGABLE AIRSPACE".

THE CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF THE WORK AREA PRIOR TO BEGINNING WORK AT A NEW LOCATION.

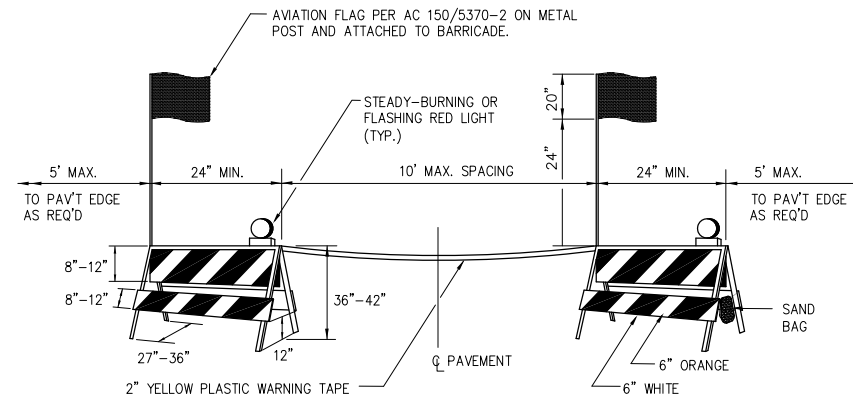
UTILITY OUTAGES AND SHUTDOWNS

THE CONTRACTOR SHALL PROVIDE 72 HOURS PRIOR NOTICE OF ANY OUTAGES OR SHUTDOWNS TO THE OWNER AND THE AGENCY OWNING THE AFFECTED UTILITY. THE CONTRACTOR SHALL PROVIDE ANY TEMPORARY CONNECTIONS OR OTHER MEASURES AS MAY BE REQUIRED TO MAINTAIN SERVICE AS MAY BE REQUIRED BY THE OWNING AGENCY AT NO COST TO THE OWNER.



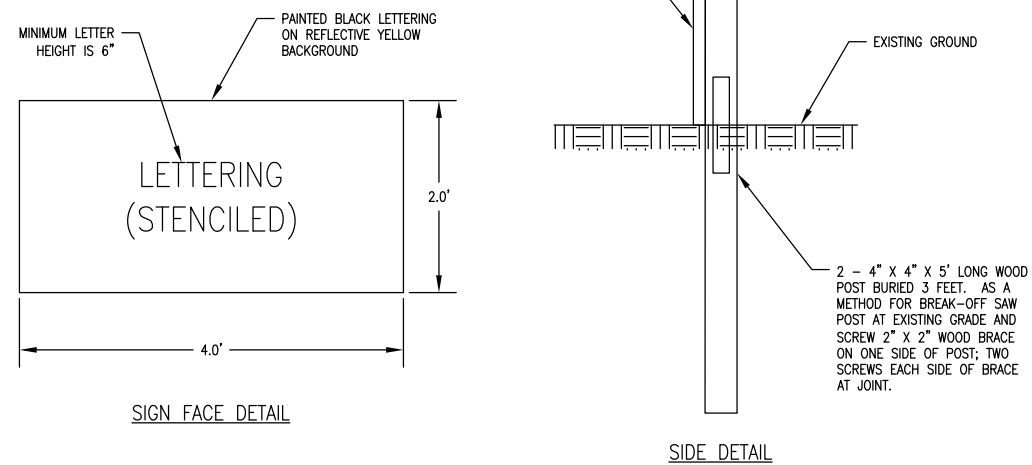
MATERIALS ARE TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION. COST OF MATERIALS, INSTALLATION, RELOCATION AND MAINTENANCE OF LATHING AND WARNING TAPE IS TO BE INCIDENTAL TO THE CONTRACT.

**DETAIL A
LATHING AND WARNING TAPE**



BARRICADES ARE TO BE OF IDOT TYPE I. A STEADY-BURNING OR FLASHING RED LIGHT FACING PASSING TRAFFIC IS TO BE MOUNTED ABOVE THE TOP OF EACH BARRICADE FRAME. THE BARRICADE IS TO BE STABILIZED FROM WIND BY SANDBAGS PLACED ON THE FRAME OR OTHER METHODS APPROVED BY THE RESIDENT ENGINEER. NO PART OF THE REFLECTORIZED PORTION OF THE BARRICADE IS TO BE OBSTRUCTED IN ANY MANNER. COST OF FURNISHING, INSTALLING, RELOCATING, MAINTAINING AND REMOVING BARRICADES IS TO BE INCIDENTAL TO THE CONTRACT.

**DETAIL B
PAVEMENT BARRICADES**



TEMPORARY SIGN DETAIL

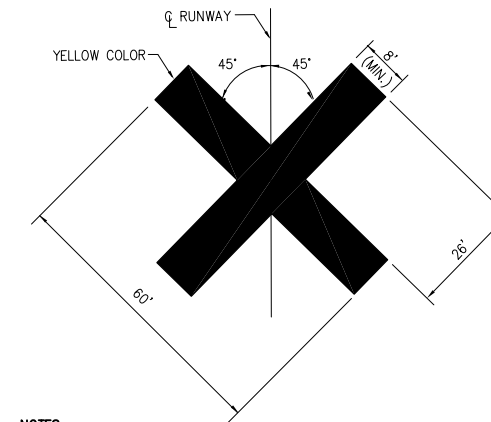
NOTE:
ALL WORK PAID UNDER ITEM AR800934.



NOTES

1. LIGHTED MARKER SHALL BE FURNISHED BY THE OWNER.
2. THE LIGHTED MARKERS SHALL BE PLACED OVER THE RUNWAY NUMERALS AS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER.
3. LIGHTED MARKERS SHALL BE SECURED FROM WIND EFFECTS BY THE CONTRACTOR AS RECOMMENDED BY THE MANUFACTURER.
4. THE LIGHTED MARKERS SHALL BE IN PLACE AND OPERATING WHENEVER THE RUNWAY IS CLOSED AND REMOVED WHEN THE RUNWAY IS RE-OPENED.
5. SHOULD IT BE NECESSARY FOR THE CONTRACTOR TO TEMPORARILY REMOVE THE LIGHTED MARKERS FROM SERVICE, SUCH INTERRUPTION SHALL BE DURING DAYLIGHT CONDITIONS ONLY. THE LIGHTED MARKER SHALL BE REPLACED WITH OWNER-SUPPLIED VINYL MARKERS, WHICH SHALL BE PLACED, SECURED AND REMOVED BY THE CONTRACTOR AS SHOWN IN THE DETAIL, THIS SHEET. THE COST OF THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.

LIGHTED RUNWAY CLOSURE MARKER



NOTES

1. VINYL MARKERS SHALL BE FURNISHED BY THE OWNER. THE CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS FOR INSTALLING, RELOCATING AND MAINTAINING THE MARKERS, WHOSE COST SHALL BE INCIDENTAL TO THE CONTRACT.
2. CONTRACTOR SHALL LOCATE THE MARKERS ON TOP OF THE RUNWAY NUMERALS DURING CLOSURE OF THE RUNWAY.
3. MARKERS TO BE SECURED BY CONTRACTOR AS RECOMMENDED BY THE MANUFACTURER.

**VINYL RUNWAY CLOSURE MARKERS
(DAYLIGHT USE ONLY)**

**DETAIL C
RUNWAY CLOSURE MARKERS**

DETAILS SHOWN ARE NOT TO SCALE

LE044

REVISION	DATE

Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
1 George Michas Drive
Romeoville, Illinois 60446
Telephone: 815.838.9497
Fax: 815.838.9524

Hanson No. 12A00860	Filename 04-SAFETY NOTES.DWG	Scale N/A	Date JANUARY 11, 2013
LAYOUT	LDH	7/20/12	
DRAWN	LDH	7/20/12	
REVIEWED	RMH	1/10/13	

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CONSTRUCTION SAFETY NOTES AND DETAILS
REHABILITATE WEST PORTION OF RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51

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REVISION	DATE

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JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
 Telephone: 815.838.9497
 Fax: 815.838.9524

Hanson No.	12A0086D
Filename	05-STAGING-PLAN.DWG
Scale	1"=300'
Date	JANUARY 11, 2013
LAYOUT	LDH
DRAWN	LDH
REVIEWED	RMH
	7/16/12
	7/16/12
	1/10/13

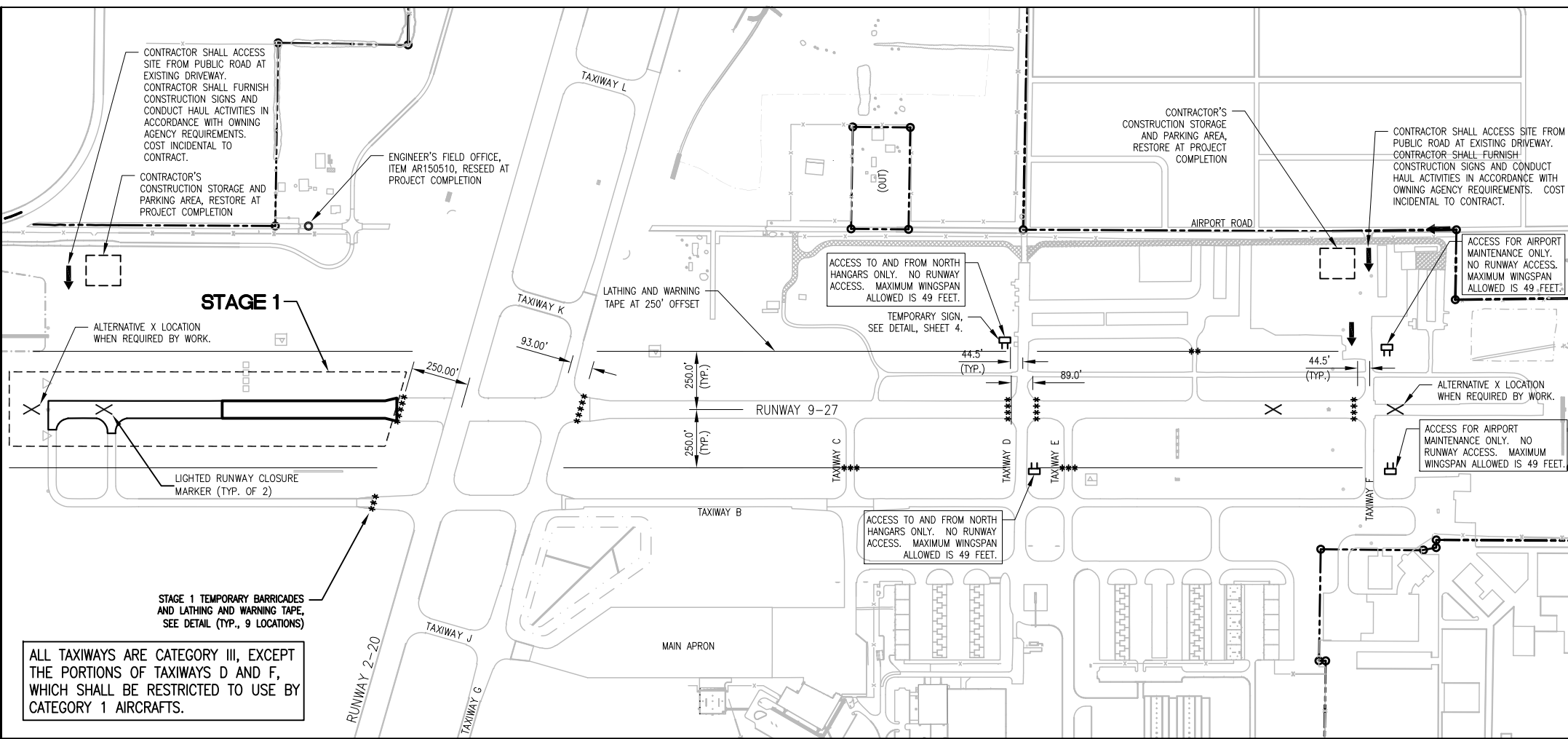
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CONSTRUCTION STAGING
PLAN - STAGE 1 AND 2

REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

STAGE 1

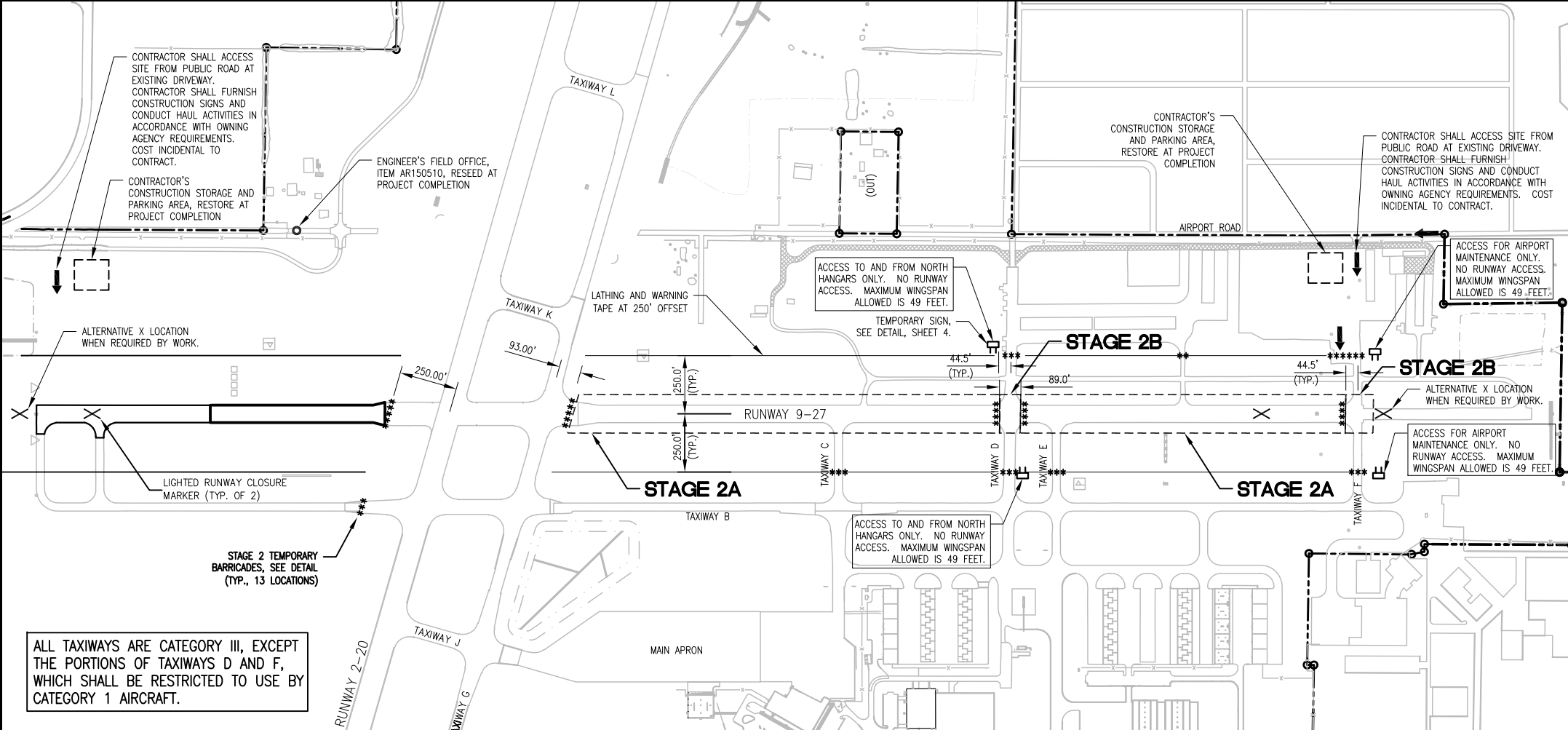
- NOTES:**
- ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
 - ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER.
 - OPERATIONS ON RUNWAY 2-20 SHALL ONLY BE AFFECTED WHILE MARKING WITHIN 250 FEET OF THE RUNWAY CENTERLINE, THIS SHALL BE LIMITED TO ONE CALENDAR DAY.
 - SEE CONSTRUCTION AND SAFETY NOTES, SHEET 4.
- THE FOLLOWING ITEMS ARE TO BE COMPLETED IN STAGE 1:**
- INSTALL EROSION CONTROL MEASURES FOR ENTIRE PROJECT AREA.
 - REMOVE EXISTING PAVEMENTS WITHIN STAGE 1 LIMITS.
 - INSTALL AGGREGATE AND BASE COURSE WITHIN STAGE 1 LIMITS.
 - INSTALL UNDERDRAIN WITHIN STAGE 1 LIMITS.
 - ADJUST ELECTRICAL ITEMS WITHIN STAGE 1 LIMITS
 - INSTALL SURFACE COURSE WITHIN STAGE 1 LIMITS
 - PLACE PAVEMENT MARKING WITHIN STAGE 1 LIMITS. RUNWAY 2-20 SHALL BE CLOSED WHEN WORKING WITHIN 250 FEET OF THE RUNWAY CENTERLINE.
 - TOPSOIL, SEEDING AND MULCHING WITHIN STAGE 1 LIMITS.



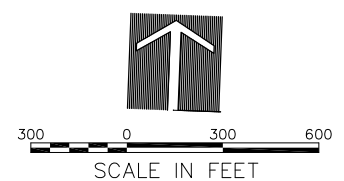
ALL TAXIWAYS ARE CATEGORY III, EXCEPT THE PORTIONS OF TAXIWAYS D AND F, WHICH SHALL BE RESTRICTED TO USE BY CATEGORY 1 AIRCRAFTS.

STAGE 2

- NOTES:**
- ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
 - ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER.
 - TAXIWAY D AND F SHALL BE CLOSED DURING STAGE 2B ONLY. 5 DAYS ADVANCE NOTICE SHALL BE GIVEN PRIOR TO CLOSING EITHER TAXIWAY. WORK IN THIS STAGE SHALL BE LIMITED TO 3 CALENDAR DAYS.
 - WORK IN STAGE 2 CAN BEGIN DURING STAGE 1 SO LONG AS THE PRODUCTION RATES TO COMPLETE STAGE 1 ARE MAINTAINED TO THE SATISFACTION OF THE ENGINEER.
 - CONTRACTOR'S EQUIPMENT MAY NOT DISRUPT FLIGHT OPERATIONS ON RUNWAY 2-20 AT ANY TIME.
 - SEE CONSTRUCTION AND SAFETY NOTES, SHEET 4.
- THE FOLLOWING ITEMS ARE TO BE COMPLETED IN STAGE 2:**
- REPLACE RUNWAY LIGHTING WITHIN STAGE 2 LIMITS
 - REPLACE GUIDANCE SIGNS WITHIN STAGE 2 LIMITS
 - REPLACE CABLE WITHIN STAGE 2 LIMITS

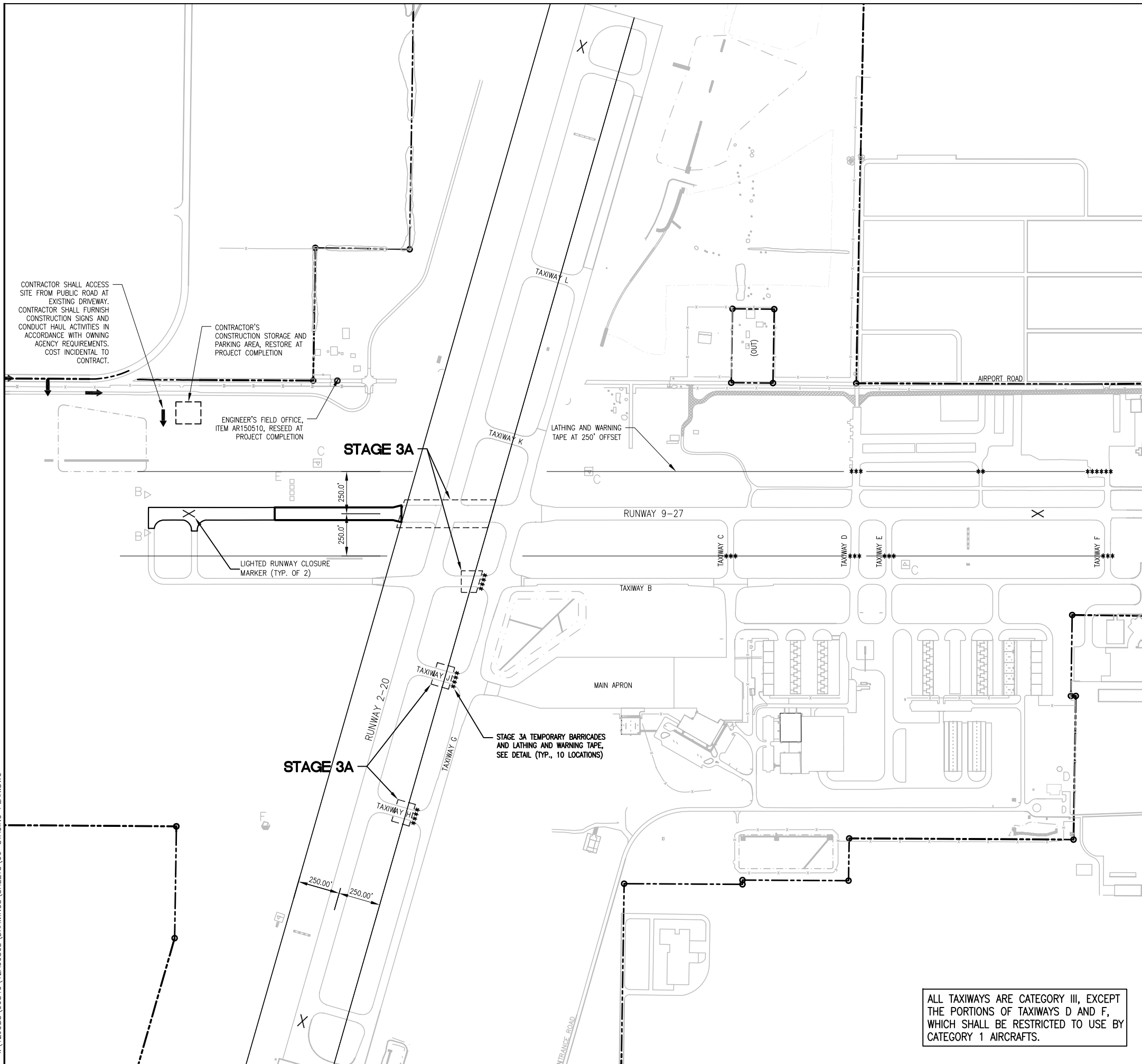


ALL TAXIWAYS ARE CATEGORY III, EXCEPT THE PORTIONS OF TAXIWAYS D AND F, WHICH SHALL BE RESTRICTED TO USE BY CATEGORY 1 AIRCRAFT.



JAN 14, 2013 11:58 AM HAUSM00682 I:\12085\00840\12A0086D\DRAWINGS\SHEETS\05-STAGING-PLAN.DWG

JAN 14, 2013 12:01 PM HAUSM00682
 I:\12105\00840\12A00860\DRAWINGS\SHEETS\06-STAGING PLAN.DWG



ALL TAXIWAYS ARE CATEGORY III, EXCEPT THE PORTIONS OF TAXIWAYS D AND F, WHICH SHALL BE RESTRICTED TO USE BY CATEGORY 1 AIRCRAFTS.

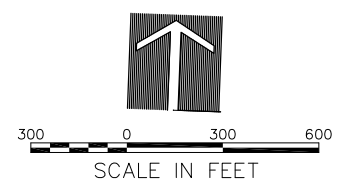
STAGE 3A

NOTES:

- ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
- ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER.
- WORK IN THIS AREA WILL REQUIRE BOTH RUNWAYS TO BE CLOSED.
- WORK IN STAGE 3A SHALL BE COMPLETED WITHIN A FOUR HOUR PERIOD DURING A MAXIMUM OF 3 CALENDAR DAYS.
- SEE CONSTRUCTION AND SAFETY NOTES, SHEET 4.

THE FOLLOWING ITEMS ARE TO BE COMPLETED IN STAGE 3A:

- REPLACE RUNWAY LIGHTING WITHIN STAGE 3A LIMITS.
- REPLACE GUIDANCE SIGNS WITHIN STAGE 3A LIMITS.
- REPLACE CABLE WITHIN STAGE 3A LIMITS



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REVISION	DATE

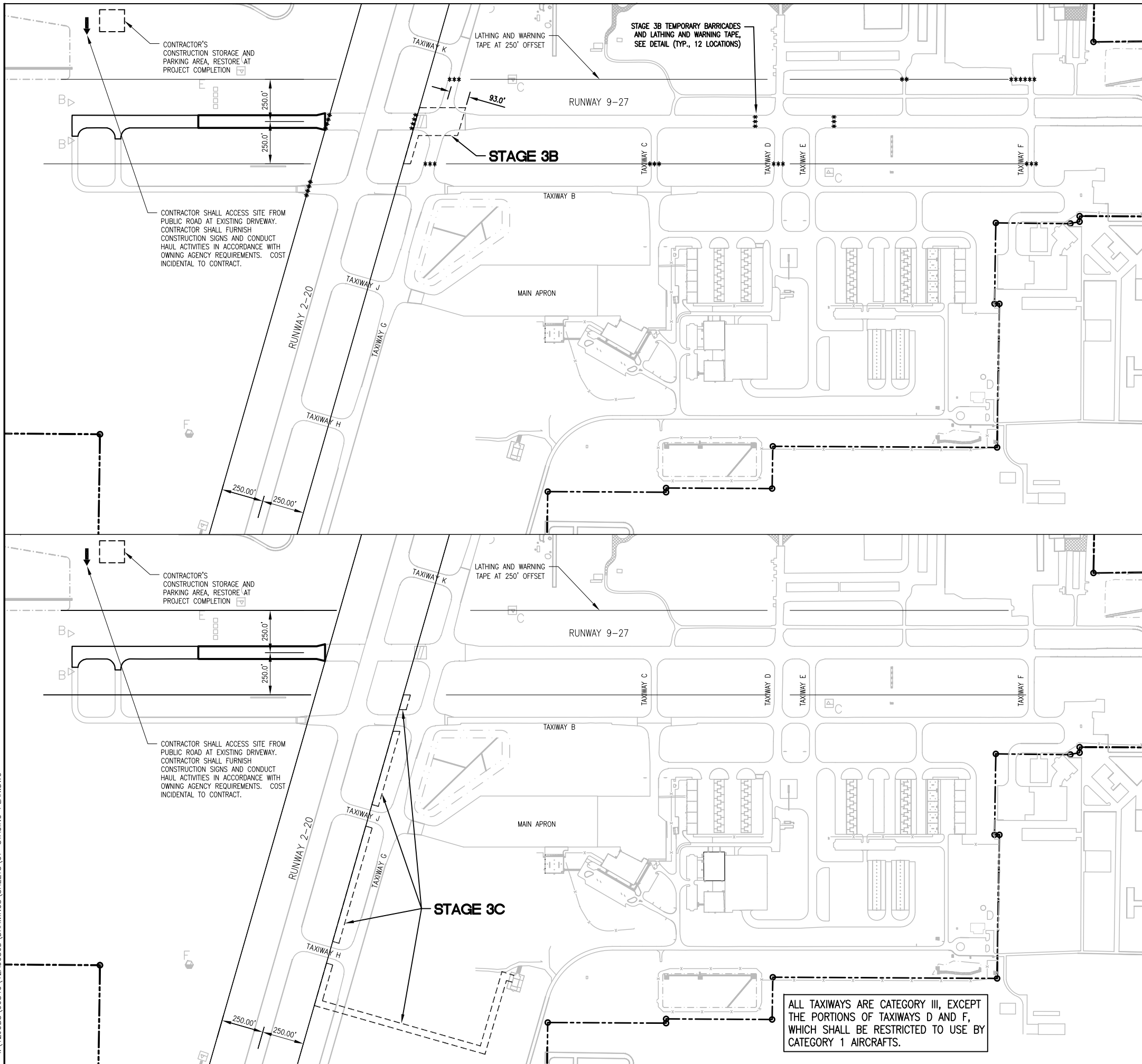
Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
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Hanson No. 12A00860	Filename 06-STAGING_PLAN.DWG	Date JANUARY 11, 2013
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CONSTRUCTION STAGING PLAN - STAGE 3A
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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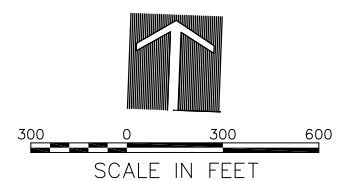
STAGE 3B

- NOTES:**
- ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
 - ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER.
 - RUNWAY 9-27 SHALL BE CLOSED WHEN WORKING WITHIN 250 FEET OF THE CENTERLINE.
 - SEE CONSTRUCTION AND SAFETY NOTES, SHEET 4.
- THE FOLLOWING ITEMS ARE TO BE COMPLETED IN STAGE 3B:**
- REPLACE RUNWAY LIGHTING WITHIN STAGE 3B LIMITS.
 - REPLACE GUIDANCE SIGNS WITHIN STAGE 3B LIMITS.
 - REPLACE CABLE WITHIN STAGE 3B LIMITS
 - PLACE HOME RUN CABLES FOR RUNWAY CIRCUIT TO MAIN AIRPORT VAULT WITHIN STAGE 3B LIMITS.

STAGE 3C

- NOTES:**
- ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
 - ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER.
 - NO RUNWAY CLOSURES WILL BE ALLOWED DURING STAGE 3C.
 - SEE CONSTRUCTION AND SAFETY NOTES, SHEET 4.
- THE FOLLOWING ITEMS ARE TO BE COMPLETED IN STAGE 3C:**
- PLACE HOME RUN CABLES FOR RUNWAY CIRCUIT TO MAIN AIRPORT VAULT WITHIN STAGE 3C LIMITS.

ALL TAXIWAYS ARE CATEGORY III, EXCEPT THE PORTIONS OF TAXIWAYS D AND F, WHICH SHALL BE RESTRICTED TO USE BY CATEGORY 1 AIRCRAFTS.



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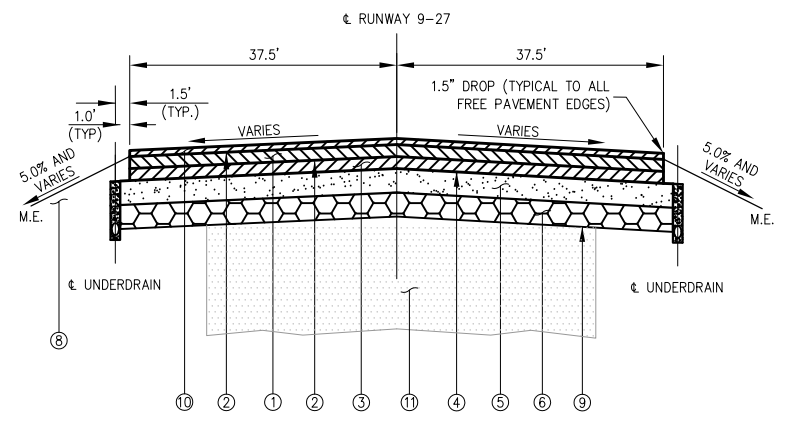
Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
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Hanson No. 12A00860	Filename 07-STAGING_PLAN.DWG	Date JANUARY 11, 2013
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	LAYOUT LDH	7/16/12
	DRAWN LDH	7/16/12
	REVIEWED RMH	1/10/13

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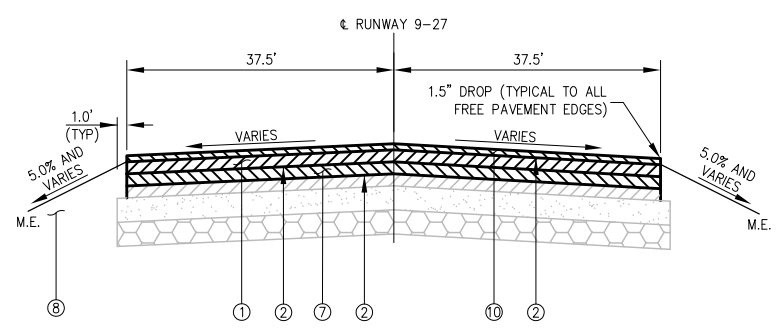
CONSTRUCTION STAGING PLAN - STAGE 3B AND 3C
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

REVISION	
DATE	

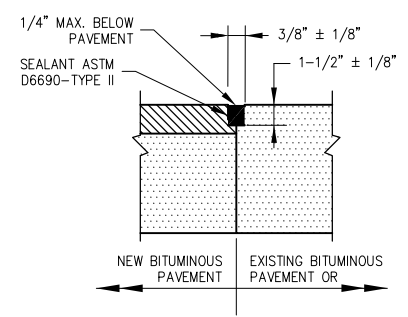


TYPICAL SECTION - RUNWAY 9-27
STA. 31+32.50 THRU STA. 38+82.51
 (SECTION SHOWN LOOKING EAST)

- ① PROPOSED 2 INCH BITUMINOUS SURFACE COURSE, ITEM AR401614
- ② PROPOSED BITUMINOUS TACK COAT, ITEM AR603510
- ③ PROPOSED 6 INCH BITUMINOUS BASE COURSE, ITEM AR403614
- ④ PROPOSED BITUMINOUS PRIME COAT, ITEM AR602510
- ⑤ PROPOSED 10 INCH CRUSHED AGGREGATE BASE COURSE, ITEM AR209610
- ⑥ PROPOSED 6 INCH GRANULAR DRAINAGE SUBBASE, ITEM AR800927
- ⑦ PROPOSED BITUMINOUS BASE COURSE, VARIES, 2.5" NOMINAL, ITEM AR403614
- ⑧ PROPOSED 4 INCH TOPSOIL, ITEM AR905510
- ⑨ PROPOSED SEPARATION FABRIC, ITEM AR156513
- ⑩ PROPOSED 1 INCH POROUS FRICTION COURSE, ITEM AR402621
- ⑪ PROPOSED UNDERCUT (ITEM AR152410) AND BACKFILL (ITEM AR208515). SEE SUBGRADE REMOVAL PLAN AND CROSS SECTIONS FOR LOCATION AND DEPTH.

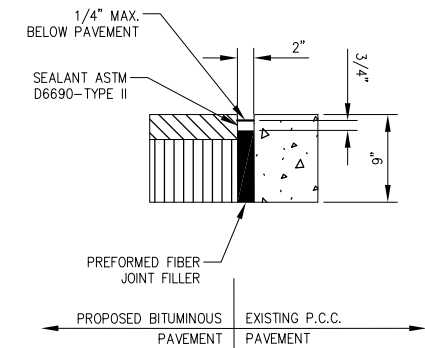


TYPICAL SECTION - RUNWAY 9-27
STA. 23+85.64 THRU STA. 31+32.50
 (SECTION SHOWN LOOKING EAST)



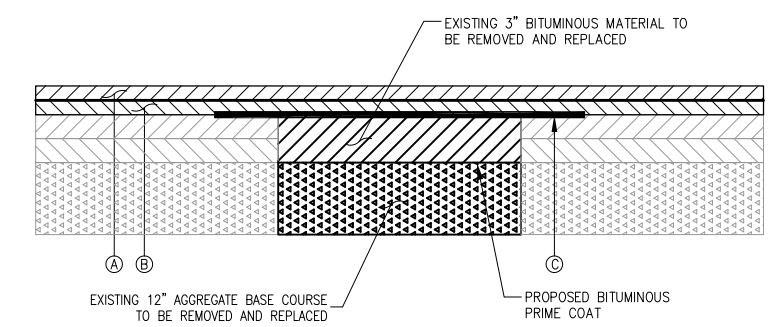
NOTE:
 ALL BITUMINOUS/BITUMINOUS JOINT SEALING TO BE PAID UNDER SAW AND SEAL BITUMINOUS JOINTS, ITEM AR401660.

BITUMINOUS/BITUMINOUS SEAL



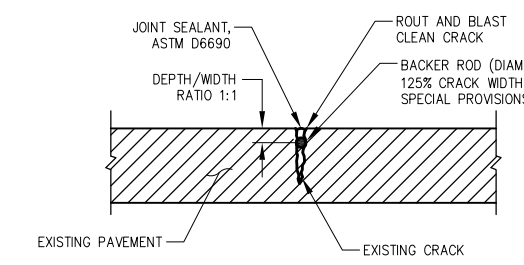
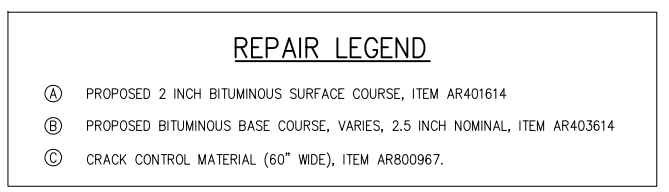
NOTE:
 ALL JOINT SEALING TO BE PAID UNDER BITUMINOUS PRESURE RELIEF JOINT, ITEM AR800910.

PRESSURE EXPANSION JOINT

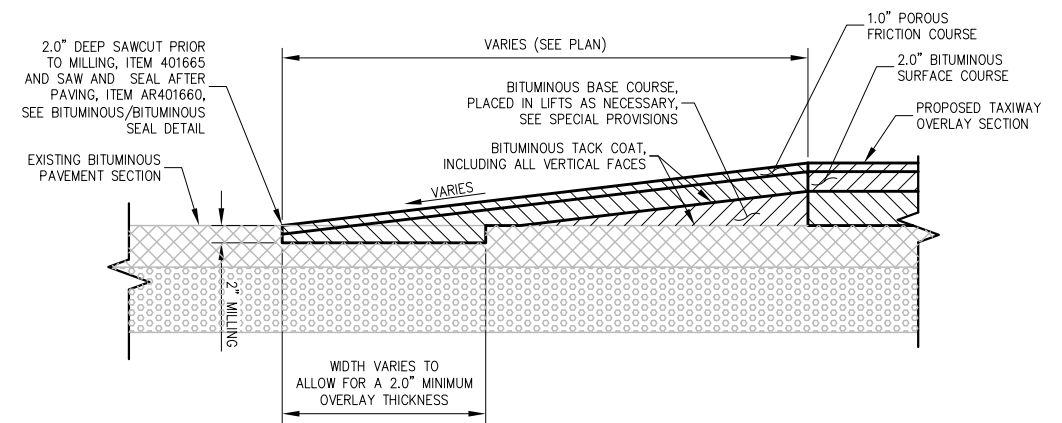


- NOTES**
- CRACK CONTROL MATERIAL SHALL OVERLAP BITUMINOUS PATCH 6" EACH SIDE.
 - BITUMINOUS PAVEMENT SAWING TO BE PAID UNDER ITEM AR401665.
 - WHERE WIDTH IS GREATER THAN 60-INCHES, THE CRACK CONTROL MATERIAL SHALL BE OVERLAPPED BY 12-INCHES. THE OVERLAP SHALL NOT BE MEASURED FOR PAYMENT BUT SHALL BE INCLUDED IN THE COST FOR CRACK CONTROL MATERIAL.

BITUMINOUS PAVEMENT REMOVAL/REPAIR TYPE D



CLEAN AND SEAL CRACKS TYPE B



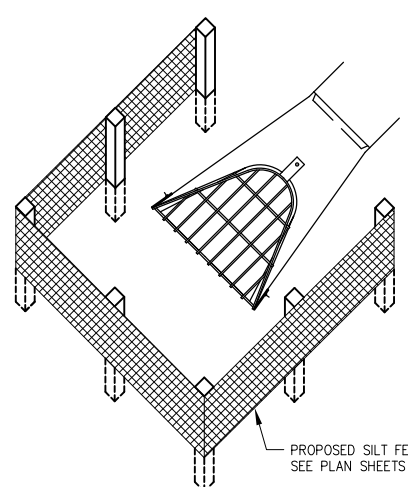
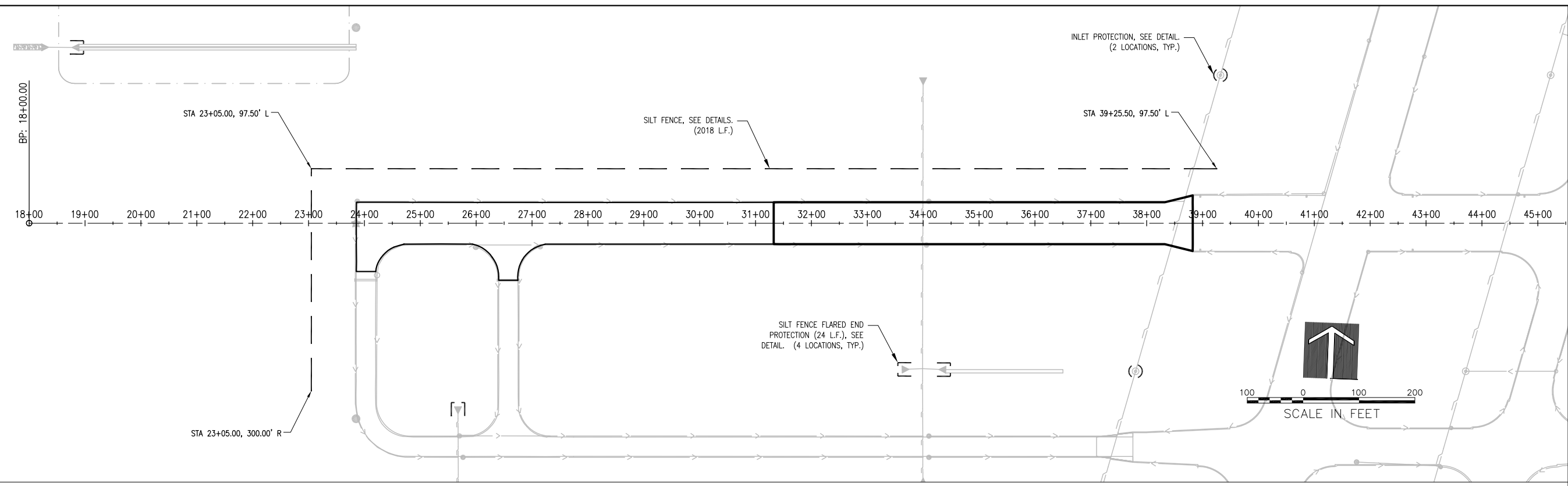
BITUMINOUS TAPER DETAIL

Chicago-Romeoville Airport
 JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
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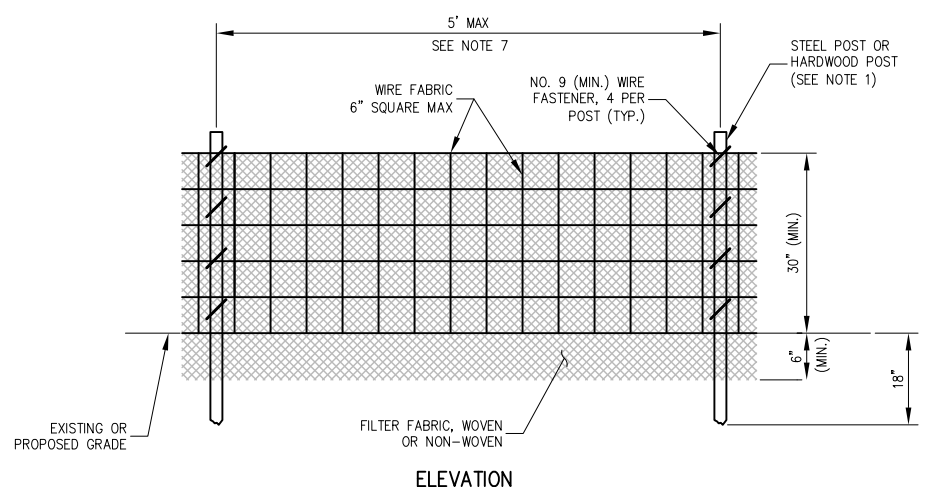
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Filename	08-TYPICAL SECTIONS.DWG	Scale	N/A
Drawn	LDH	Reviewed	RMH
Checked	LDH	Drawn	LDH
Reviewed	LDH	Checked	LDH

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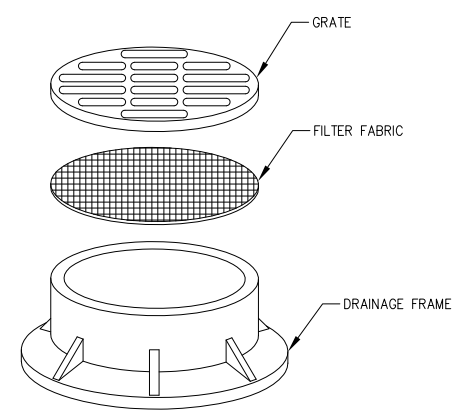
TYPICAL SECTIONS AND PAVEMENT DETAILS
 REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



SILT FENCE PLACEMENT AT FLARED END SECTIONS (FES)



ELEVATION



INLET PROTECTION - DRAINAGE STRUCTURE FILTER WRAP

NOTES:

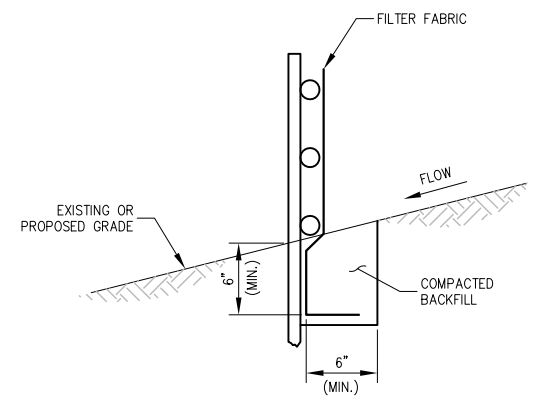
1. FILTER WRAP TO BE PLACED IN ALL MANHOLES AS SHOWN.
2. FABRIC SHALL BE IN CONFORMANCE WITH MATERIALS SPECIFIED FOR SILT FENCE.
3. FABRIC SHALL OVERLAY FRAME BY 2 INCHES (MINIMUM).
4. CONTRACTOR SHALL CLEAR DEBRIS AND SILT AS REQUIRED FROM FABRIC TO MAINTAIN DRAINAGE THROUGH THE STRUCTURE.
5. FABRIC SHALL REMAIN IN PLACE UNTIL TURFED AREAS HAVE DEVELOPED A MINIMUM OF 80% OF COVERAGE.
6. COST OF FILTER WRAP SHALL BE INCIDENTAL TO INLET PROTECTION.

SEDIMENTATION AND EROSION CONTROL NOTES:

- A. 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.
- B. SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
- C. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN 14 CALENDAR DAYS OF THE END OF ACTIVE HYDROLOGIC DISTURBANCE, OR REDISTURBANCE.
- D. AREAS OR ENBANKMENTS HAVING SLOPES GREATER THAN OR EQUAL TO 3H:1V, AND APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE STABILIZED WITH SOD, MAT OR BLANKET IN COMBINATION WITH SEEDING.
- E. EROSION CONTROL BLANKET SHALL BE REQUIRED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN NORMAL WATER LEVEL AND HIGH WATER LEVEL.
- F. ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED, BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
- G. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.
- H. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.
- I. A STABILIZED MAT OF AGGREGATE UNDERLAIN WITH FILTER CLOTH (OR OTHER APPROPRIATE MEASURE) SHALL BE LOCATED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA. ANY 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.
- J. SOIL STOCKPILES SHALL NOT BE LOCATED IN A FLOOD PRONE AREA OR A DESIGNATED BUFFER PROTECTING WATERS OF THE UNITED STATES OR ISOLATED WATERS OF LAKE COUNTY.
- K. 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).
- L. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.

NOTES:

1. FENCE POST SHALL BE EITHER STEEL "T" LINE POST OR HARDWOOD POST WITH A MINIMUM SECTIONAL AREA OF 3.0 SQUARE INCHES. A CARPENTER'S 2"x2" POST WILL NOT MEET SPECIFICATIONS.
2. TOP AND BOTTOM WIRE OF WIRE FABRIC SHALL BE MINIMUM GAGE NO. 9. INTERMEDIATE WIRES OF THE WIRE FABRIC SHALL BE MINIMUM GAGE NO. 11.
3. WIRE FABRIC SHALL BE SECURELY FASTENED TO FENCE POSTS WITH NO. 9 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 BOTTOM.
5. 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 EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
7. A MAXIMUM OF 5 FEET IS USED FOR POST-TO-POST SPACING.
8. 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.
9. ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
10. 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.
11. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN BULGES DEVELOP IN THE SILT FENCE.
12. 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).
13. FENCE POSTS SHALL BE REMOVED WHEN DIRECTED AT PROJECT END.
14. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.



FABRIC ANCHOR DETAIL

SILT FENCE DETAILS

REVISION	DATE

Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
 Telephone: 815.838.9497
 Fax: 815.838.9524

Hanson No. 12A0086D	Filename 09-SWPPP.DWG	Date JANUARY 11, 2013
Scale 1"=100'	LDH	7/20/12
	LDH	7/20/12
	RMH	1/10/13

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STORM WATER POLLUTION PREVENTION PLAN
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

JAN 14, 2013 2:20 PM HALSUM06B2
 I:\121085\00840\12A0086D\DRAWINGS\SHEETS\09-SWPPP.DWG

ITEM	QUANTITY
BITUMINOUS PAVEMENT REMOVAL	6,293 S.Y.
BITUMINOUS PAVEMENT SAWING	175 L.F.
UNDERCUT (2.25 FEET BELOW SURFACE)	843 C.Y.
UNDERDRAIN CLEANOUT REMOVAL	2 EACH
UNDERDRAIN REMOVAL	1,432 L.F.
CABLE REMOVAL	1,369 L.F.
STAKE MOUNTED LIGHT REMOVAL	36 EACH
BASE MOUNTED LIGHT REMOVAL	33 EACH
TAXI GUIDANCE SIGN REMOVAL	21 EACH

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

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

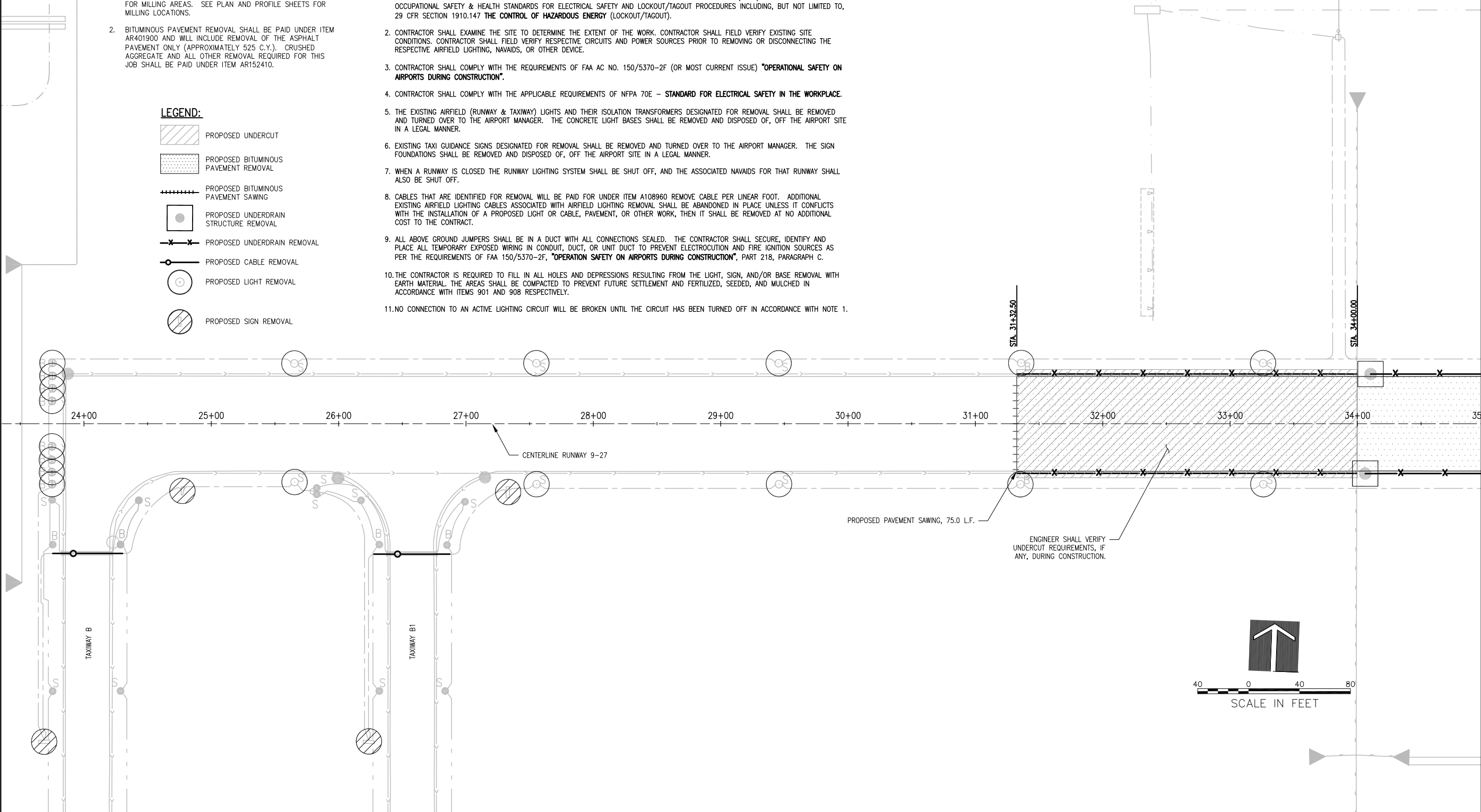
AIRFIELD LIGHTING REMOVAL NOTES

- ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT DIRECTOR/MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING OR DISCONNECTING THE RESPECTIVE AIRFIELD LIGHTING, NAVAIDS, OR OTHER DEVICE.
- CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2F (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
- CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
- THE EXISTING AIRFIELD (RUNWAY & TAXIWAY) LIGHTS AND THEIR ISOLATION TRANSFORMERS DESIGNATED FOR REMOVAL SHALL BE REMOVED AND TURNED OVER TO THE AIRPORT MANAGER. THE CONCRETE LIGHT BASES SHALL BE REMOVED AND DISPOSED OF, OFF THE AIRPORT SITE IN A LEGAL MANNER.
- EXISTING TAXI GUIDANCE SIGNS DESIGNATED FOR REMOVAL SHALL BE REMOVED AND TURNED OVER TO THE AIRPORT MANAGER. THE SIGN FOUNDATIONS SHALL BE REMOVED AND DISPOSED OF, OFF THE AIRPORT SITE IN A LEGAL MANNER.
- WHEN A RUNWAY IS CLOSED THE RUNWAY LIGHTING SYSTEM SHALL BE SHUT OFF, AND THE ASSOCIATED NAVAIDS FOR THAT RUNWAY SHALL ALSO BE SHUT OFF.
- CABLES THAT ARE IDENTIFIED FOR REMOVAL WILL BE PAID FOR UNDER ITEM A108960 REMOVE CABLE PER LINEAR FOOT. ADDITIONAL EXISTING AIRFIELD LIGHTING CABLES ASSOCIATED WITH AIRFIELD LIGHTING REMOVAL SHALL BE ABANDONED IN PLACE UNLESS IT CONFLICTS WITH THE INSTALLATION OF A PROPOSED LIGHT OR CABLE, PAVEMENT, OR OTHER WORK, THEN IT SHALL BE REMOVED AT NO ADDITIONAL COST TO THE CONTRACT.
- ALL ABOVE GROUND JUMPERS SHALL BE IN A DUCT WITH ALL CONNECTIONS SEALED. THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT, OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA 150/5370-2F, "OPERATION SAFETY ON AIRPORTS DURING CONSTRUCTION", PART 218, PARAGRAPH C.
- THE CONTRACTOR IS REQUIRED TO FILL IN ALL HOLES AND DEPRESSIONS RESULTING FROM THE LIGHT, SIGN, AND/OR BASE REMOVAL WITH EARTH MATERIAL. THE AREAS SHALL BE COMPACTED TO PREVENT FUTURE SETTLEMENT AND FERTILIZED, SEEDED, AND MULCHED IN ACCORDANCE WITH ITEMS 901 AND 908 RESPECTIVELY.
- NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

- NOTES:**
- THE SAWING QUANTITY SHOWN IS FULL DEPTH AND FOR PAVEMENT REMOVAL ONLY. ADDITIONAL SAWING IS REQUIRED FOR MILLING AREAS. SEE PLAN AND PROFILE SHEETS FOR MILLING LOCATIONS.
 - BITUMINOUS PAVEMENT REMOVAL SHALL BE PAID UNDER ITEM AR401900 AND WILL INCLUDE REMOVAL OF THE ASPHALT PAVEMENT ONLY (APPROXIMATELY 525 C.Y.). CRUSHED AGGREGATE AND ALL OTHER REMOVAL REQUIRED FOR THIS JOB SHALL BE PAID UNDER ITEM AR152410.

LEGEND:

	PROPOSED UNDERCUT
	PROPOSED BITUMINOUS PAVEMENT REMOVAL
	PROPOSED BITUMINOUS PAVEMENT SAWING
	PROPOSED UNDERDRAIN STRUCTURE REMOVAL
	PROPOSED UNDERDRAIN REMOVAL
	PROPOSED CABLE REMOVAL
	PROPOSED LIGHT REMOVAL
	PROPOSED SIGN REMOVAL



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REVISION	DATE

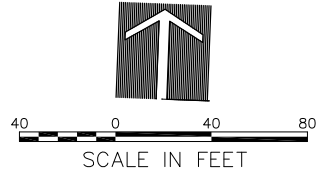
Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
 Telephone: 815.838.9497
 Fax: 815.838.9524

Hanson No. 12A00860	Filename 10-REMOVAL PLAN.DWG
Scale 1"=40'	Date JANUARY 11, 2013
LDH	7/23/12
LDH	7/23/12
RMH	1/10/13

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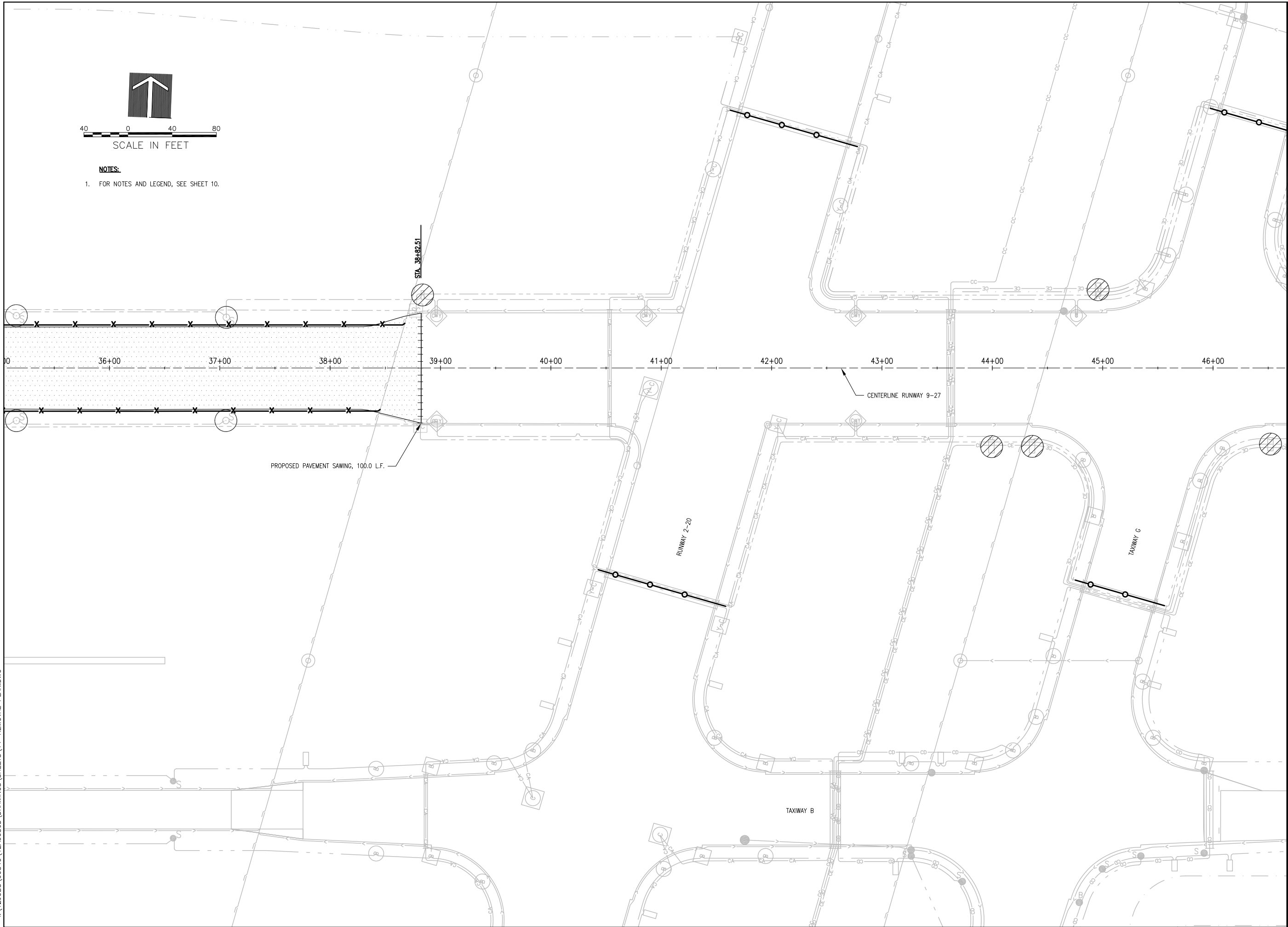
REMOVAL PLAN
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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I:\12055\00840\12A00860\DRAWINGS\SHEETS\11-REMOVAL PLAN.DWG



NOTES:

- 1. FOR NOTES AND LEGEND, SEE SHEET 10.



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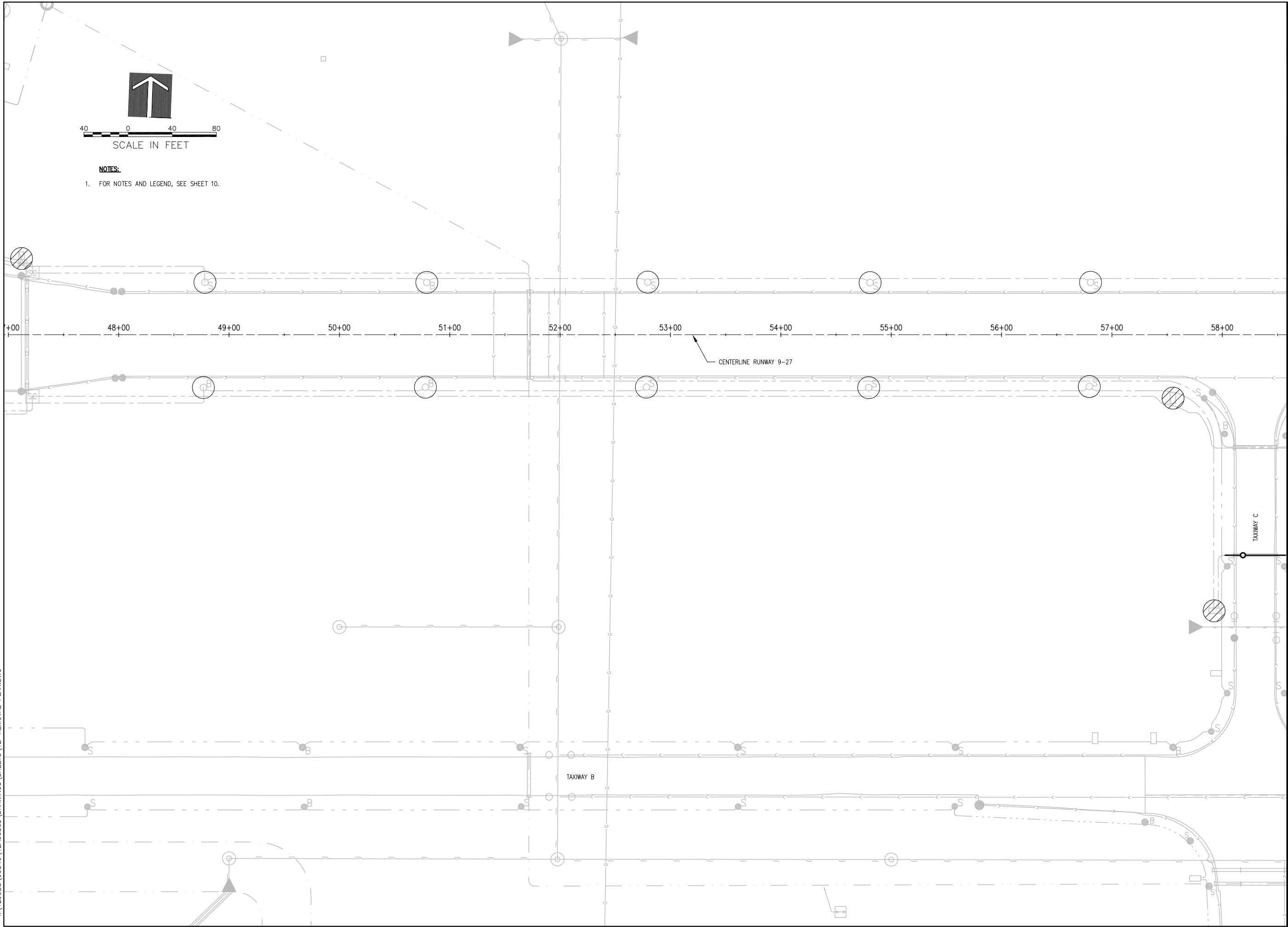


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DRAWN	LDH
REVIEWED	RMH
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NOTES:
 1. FOR NOTES AND LEGEND, SEE SHEET 10.

LE044

DATE	REVISION

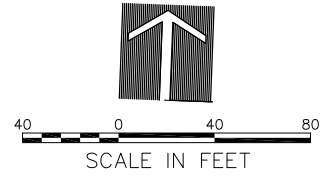
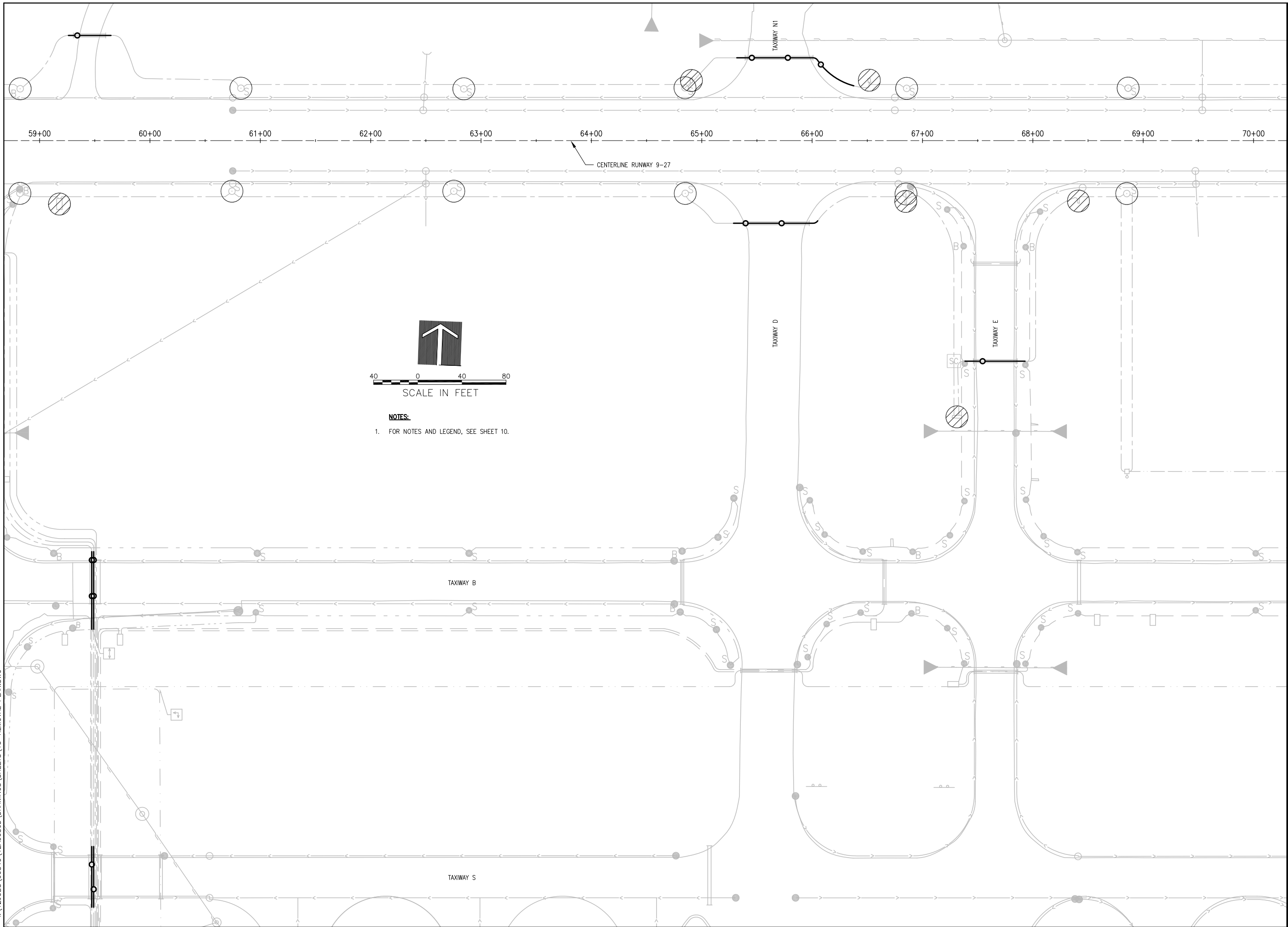
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12A00860	12-REMOVAL PLAN.DWG	1"=40'	JANUARY 11, 2013	DRAWN	LDH	7/23/12
				REVIEWED	RMH	1/10/13

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REMOVAL PLAN
REHABILITATE WEST PORTION OF RUNWAY 9-27
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NOTES:
 1. FOR NOTES AND LEGEND, SEE SHEET 10.

LE044

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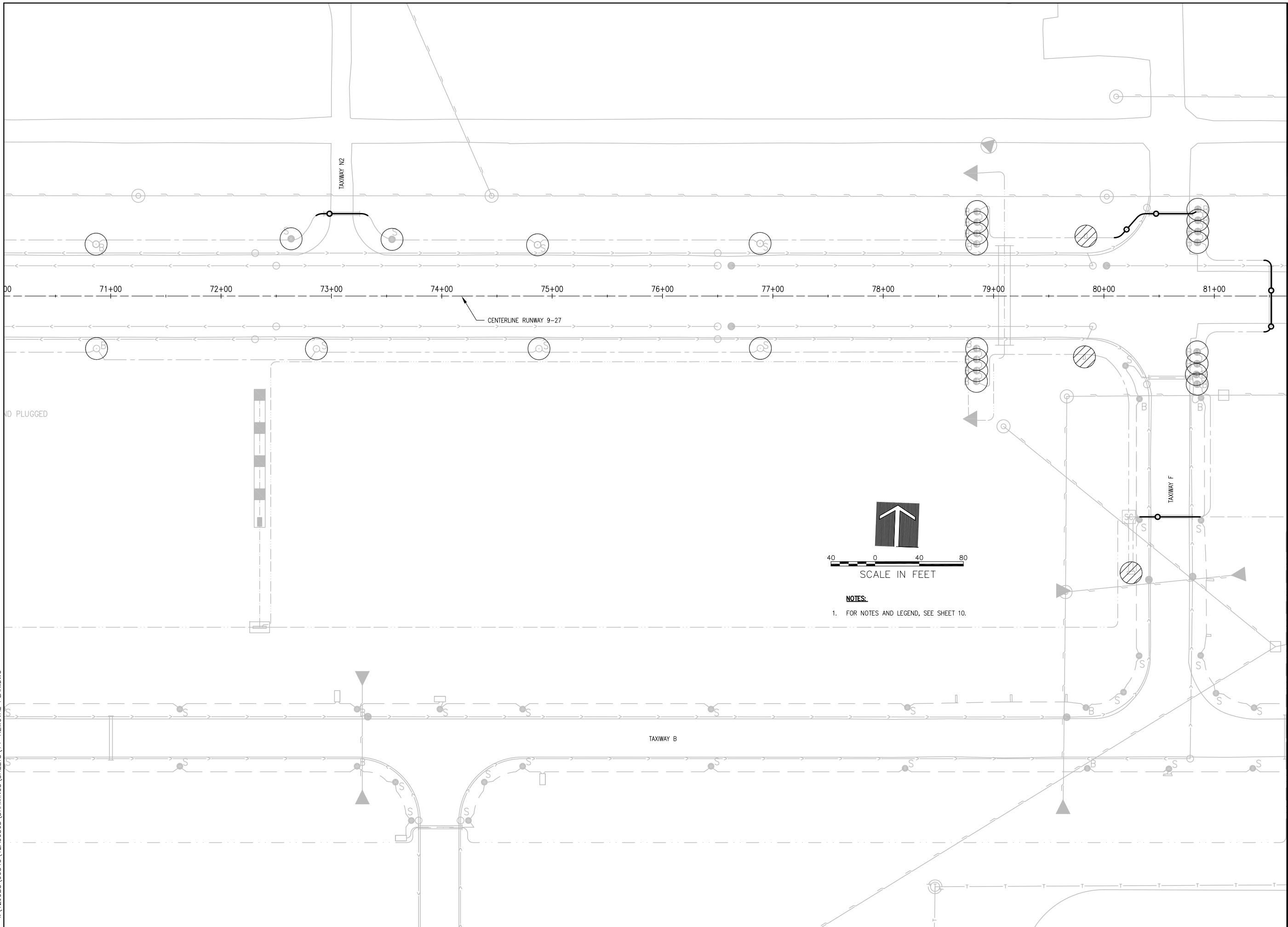
Chicago-Romeoville Airport
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Hanson No.	Filename	Scale	Date	LAYOUT	DRAWN	REVIEWED
12A00860	13-REMOVAL PLAN.DWG	1"=40'	JANUARY 11, 2013	LH	LH	RMH

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REMOVAL PLAN
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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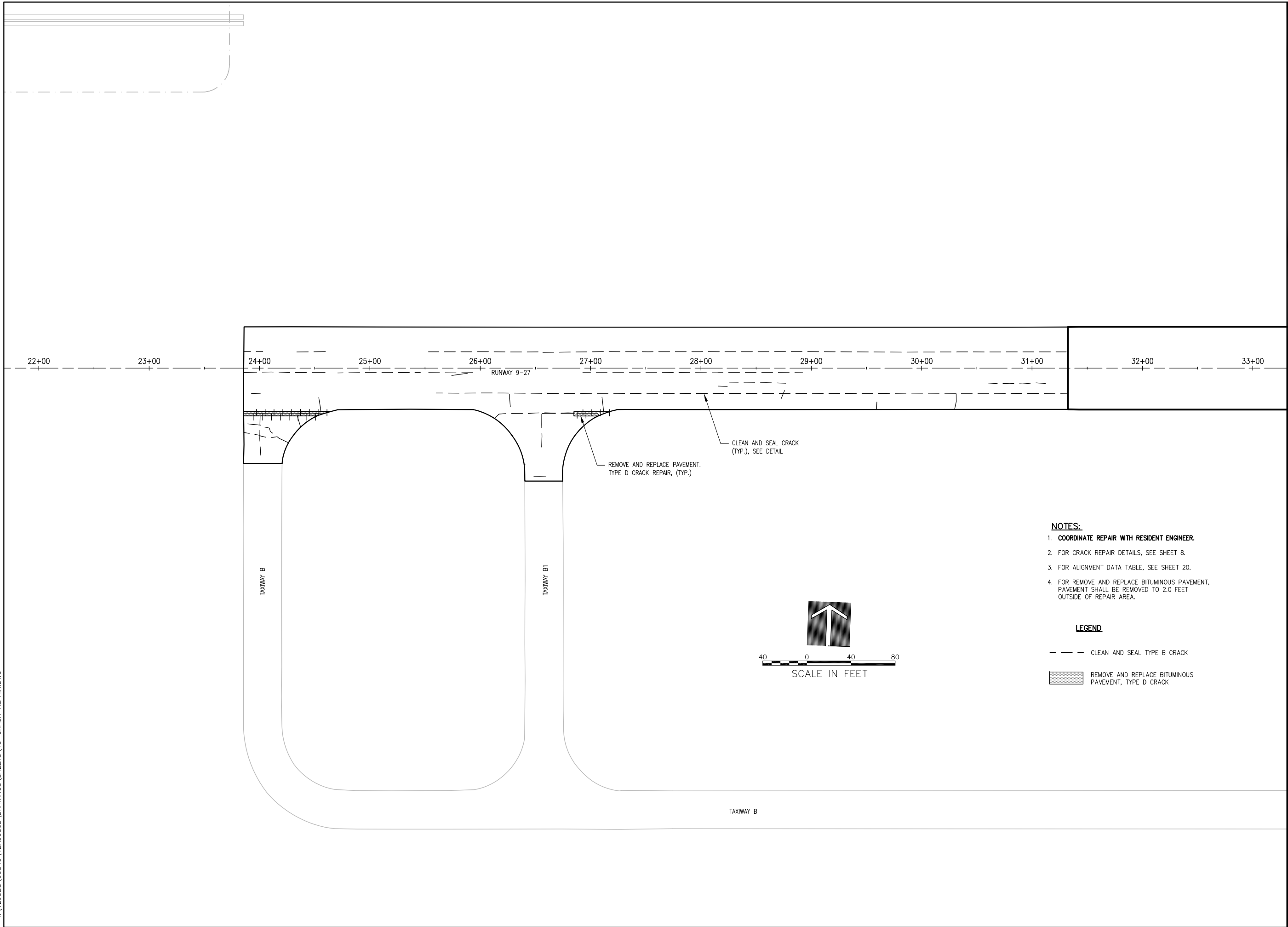
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Hanson No.	12A00860
Filename	14-REMOVAL PLAN.DWG
Scale	1"=40'
Date	JANUARY 11, 2013
LAYOUT	LDH
DRAWN	LDH
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	7/23/12
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REMOVAL PLAN
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



NOTES:

1. COORDINATE REPAIR WITH RESIDENT ENGINEER.
2. FOR CRACK REPAIR DETAILS, SEE SHEET 8.
3. FOR ALIGNMENT DATA TABLE, SEE SHEET 20.
4. FOR REMOVE AND REPLACE BITUMINOUS PAVEMENT, PAVEMENT SHALL BE REMOVED TO 2.0 FEET OUTSIDE OF REPAIR AREA.

LEGEND

- CLEAN AND SEAL TYPE B CRACK
- [Hatched Box] REMOVE AND REPLACE BITUMINOUS PAVEMENT, TYPE D CRACK

REVISION	DATE

Chicago-Memphis Airport
JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
 Telephone: 815.838.9497
 Fax: 815.838.9524

Hanson No. 12A00860	Filename 15-CRACK REPAIR.DWG	Scale 1"=40'	Date JANUARY 11, 2013
LAYOUT	LDH	7/24/12	
DRAWN	LDH	7/24/12	
REVIEWED	RMH	1/10/13	

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CRACK REPAIR PLAN
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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 JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
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 Fax: 815.838.9524

Hanson No. 12A00860
 Filename 16-P&P 9-27.DWG
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 Date JANUARY 11, 2013

LAYOUT	LDH	7/23/12
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REVIEWED	RMH	1/10/13

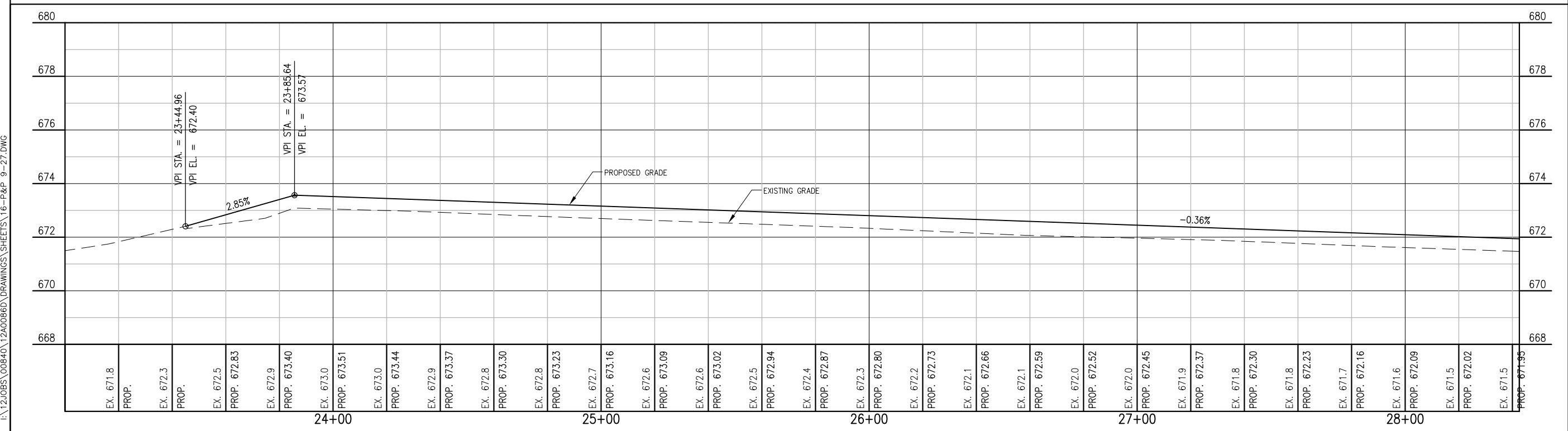
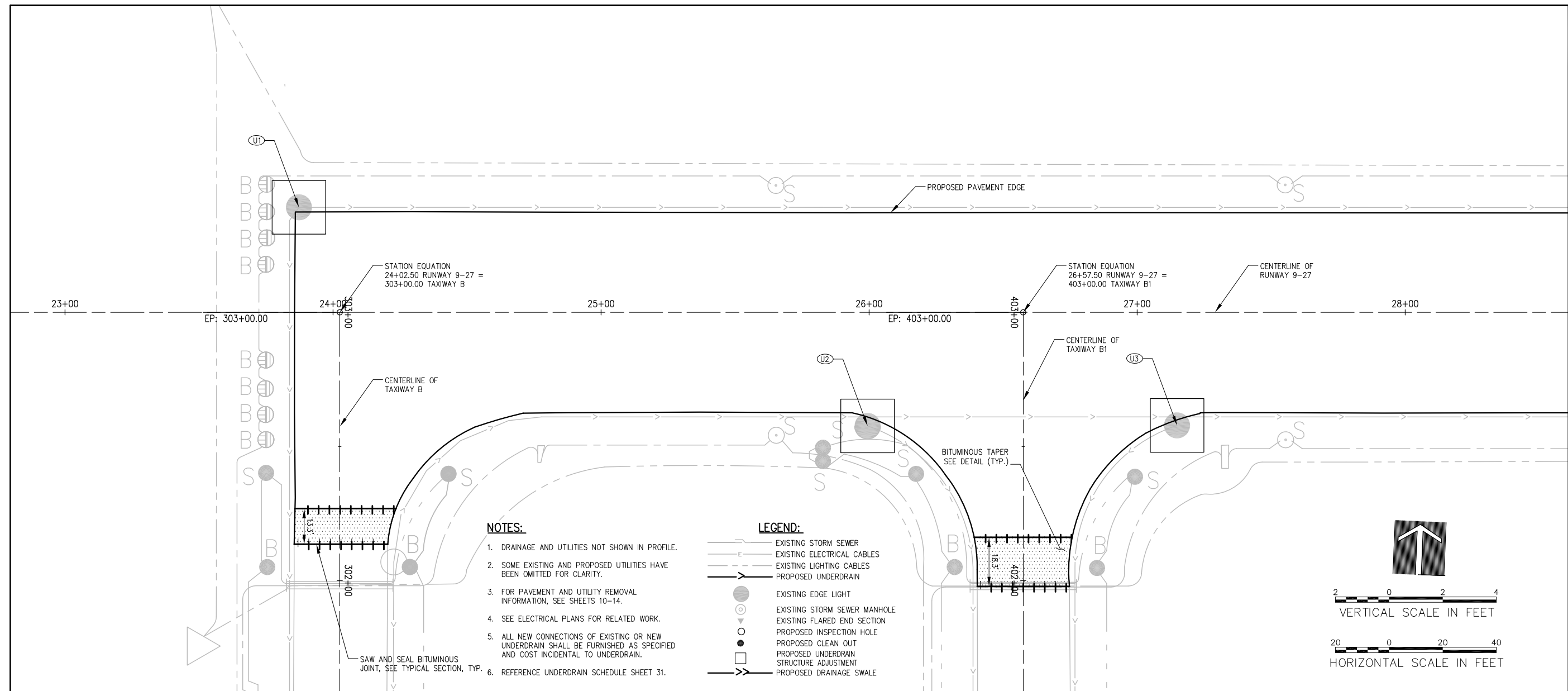
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PLAN AND PROFILE
 RUNWAY 9-27

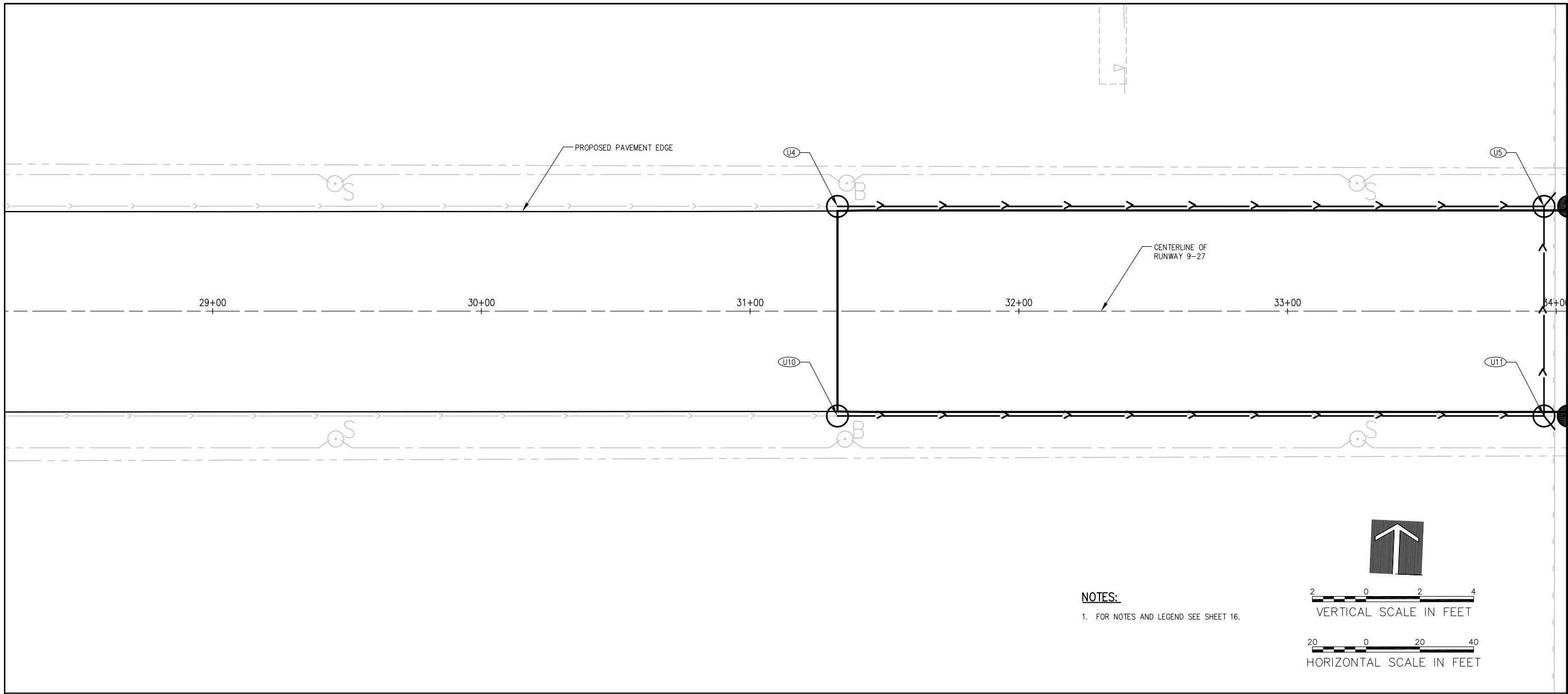
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 RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

16

16 of 56 sheets

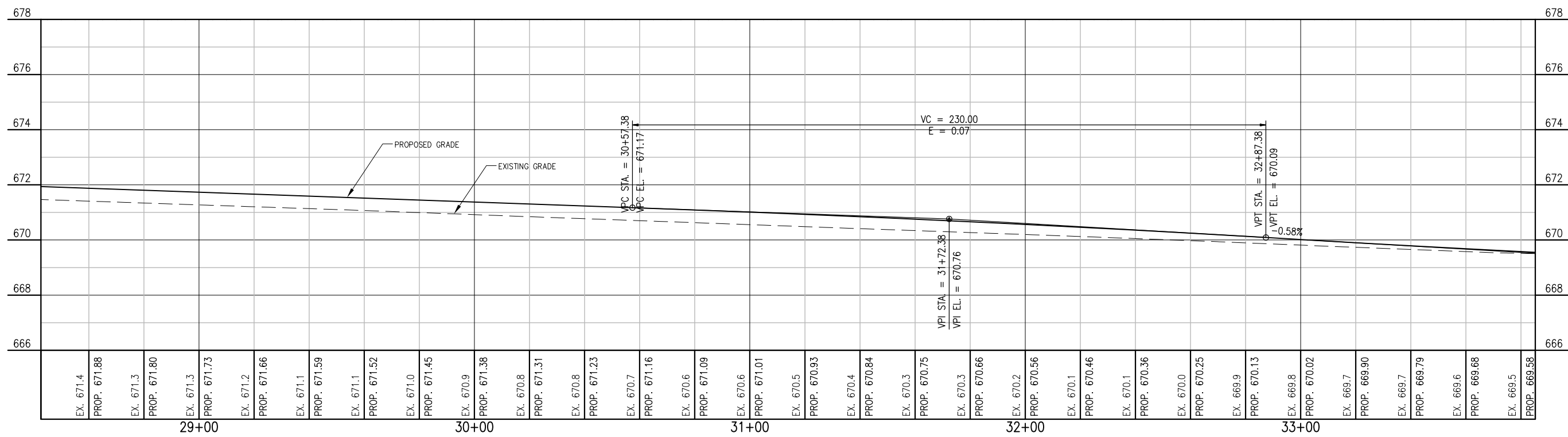
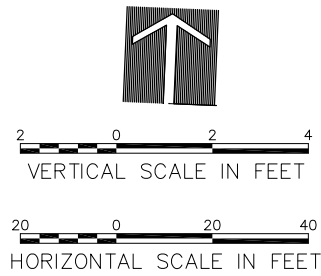


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NOTES:

1. FOR NOTES AND LEGEND SEE SHEET 16.



EX. 671.4	PROP. 671.88	EX. 671.3	PROP. 671.80	EX. 671.3	PROP. 671.73	EX. 671.2	PROP. 671.66	EX. 671.1	PROP. 671.59	EX. 671.1	PROP. 671.52	EX. 671.0	PROP. 671.45	EX. 670.9	PROP. 671.38	EX. 670.8	PROP. 671.31	EX. 670.8	PROP. 671.23	EX. 670.7	PROP. 671.16	EX. 670.6	PROP. 671.09	EX. 670.6	PROP. 671.01	EX. 670.5	PROP. 670.93	EX. 670.4	PROP. 670.84	EX. 670.3	PROP. 670.75	EX. 670.3	PROP. 670.66	EX. 670.2	PROP. 670.56	EX. 670.1	PROP. 670.46	EX. 670.1	PROP. 670.36	EX. 670.0	PROP. 670.25	EX. 669.9	PROP. 670.13	EX. 669.8	PROP. 670.02	EX. 669.7	PROP. 669.90	EX. 669.7	PROP. 669.79	EX. 669.6	PROP. 669.68	EX. 669.5	PROP. 669.58
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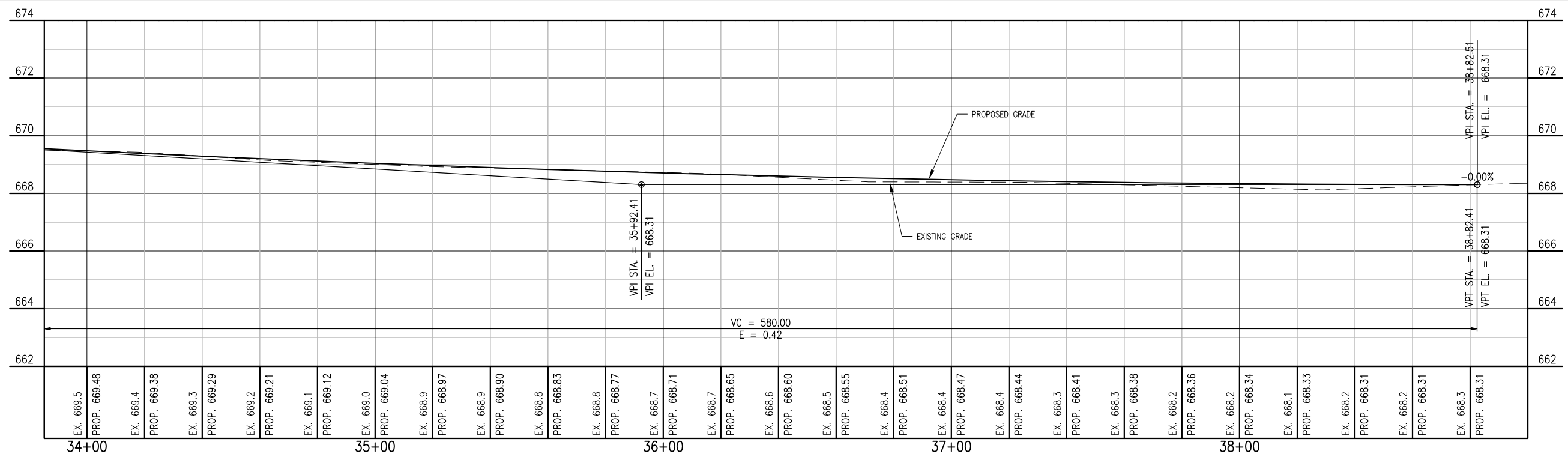
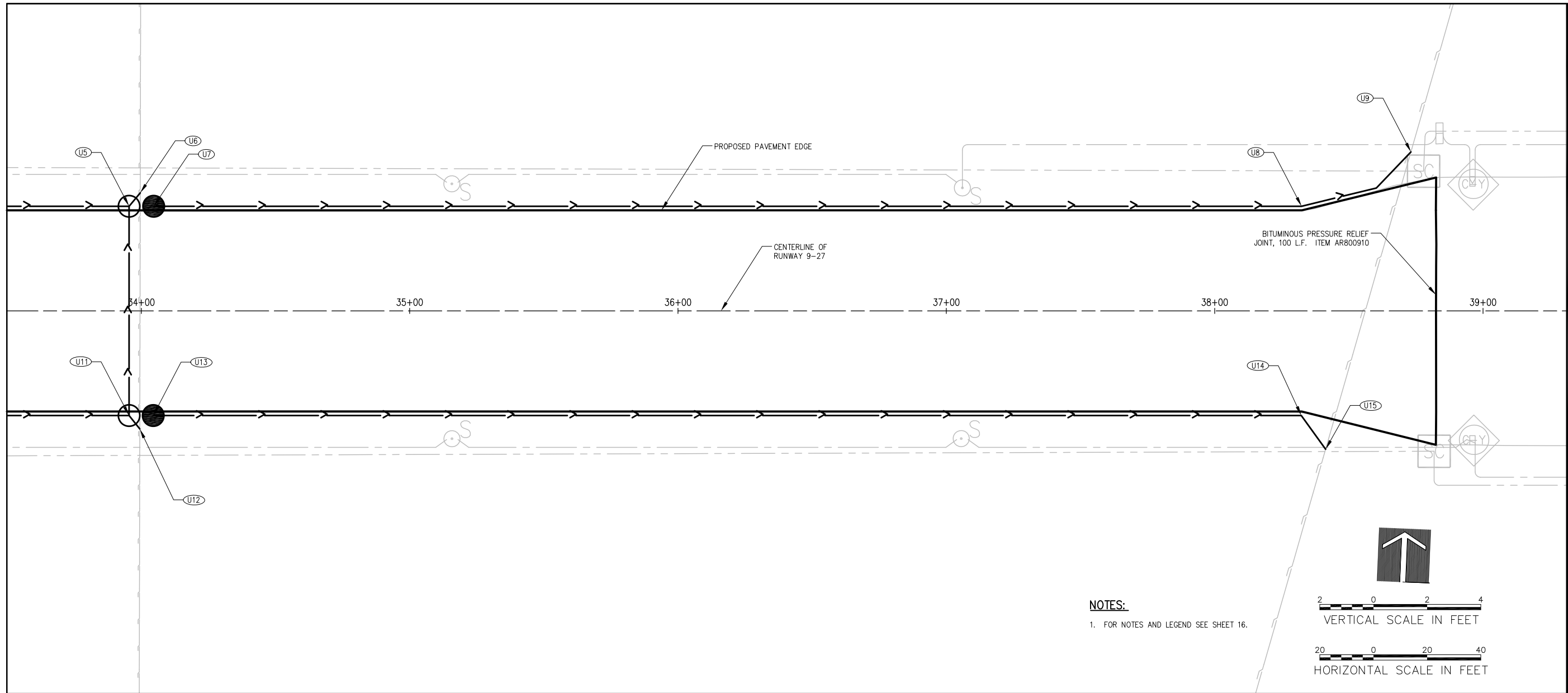
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Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
 Telephone: 815.838.9497
 Fax: 815.838.9524

Hanson No. 12A00860	Filename 17-P&P 9-27.DWG	Scale 1"=20'	Date JANUARY 11, 2013
LAYOUT	LDH	7/23/12	
DRAWN	LDH	7/23/12	
REVIEWED	RMH	1/10/13	

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PLAN AND PROFILE
RUNWAY 9-27
REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



LE044

REVISION	DATE	BY	CHECKED	DATE	BY

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 Fax: 815.838.9524

Hanson No. 12A00860	Filename 18-P&P 9-27.DWG	Scale 1"=20'	Date JANUARY 11, 2013
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REVIEWED	RMH	1/10/13	

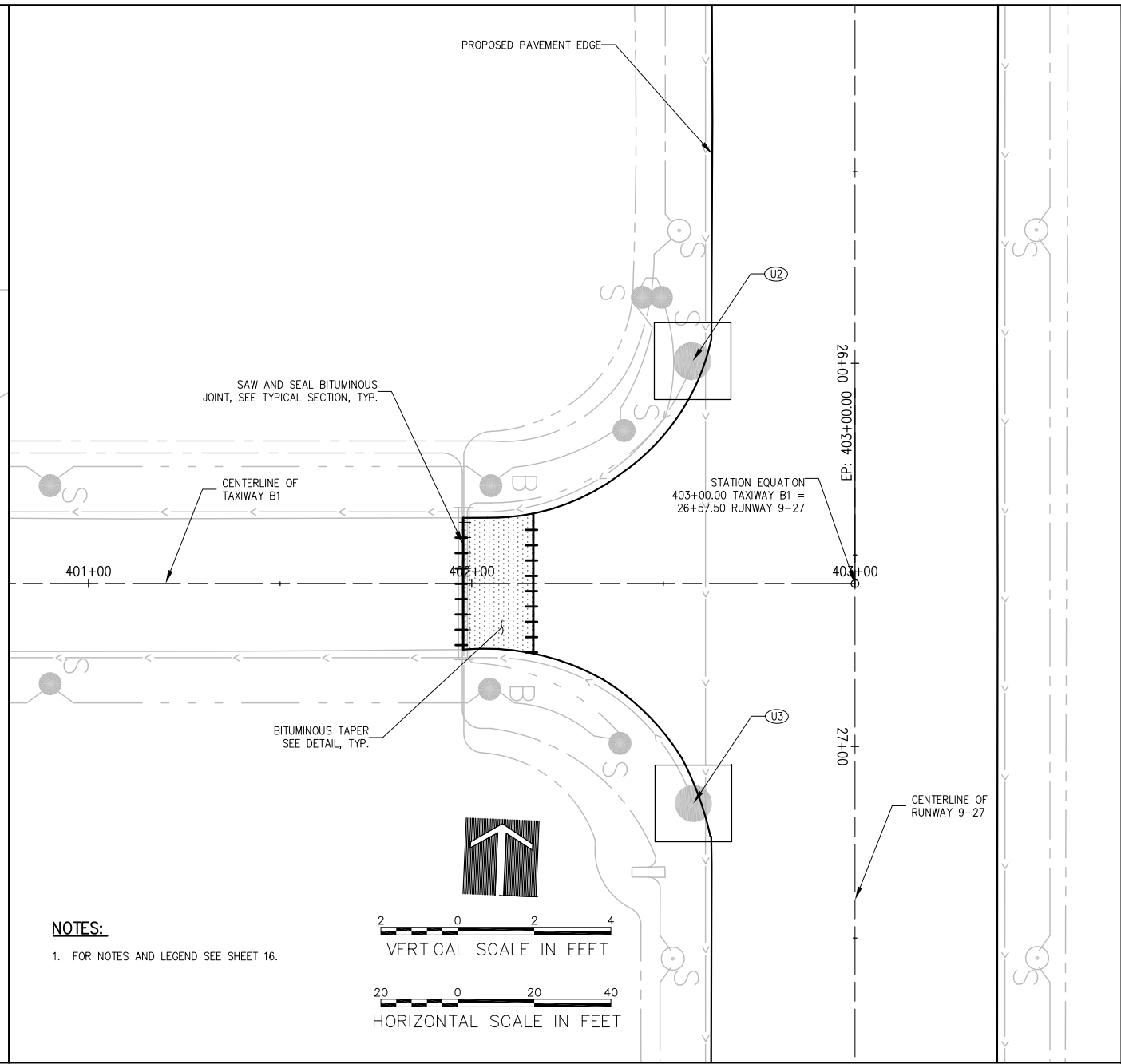
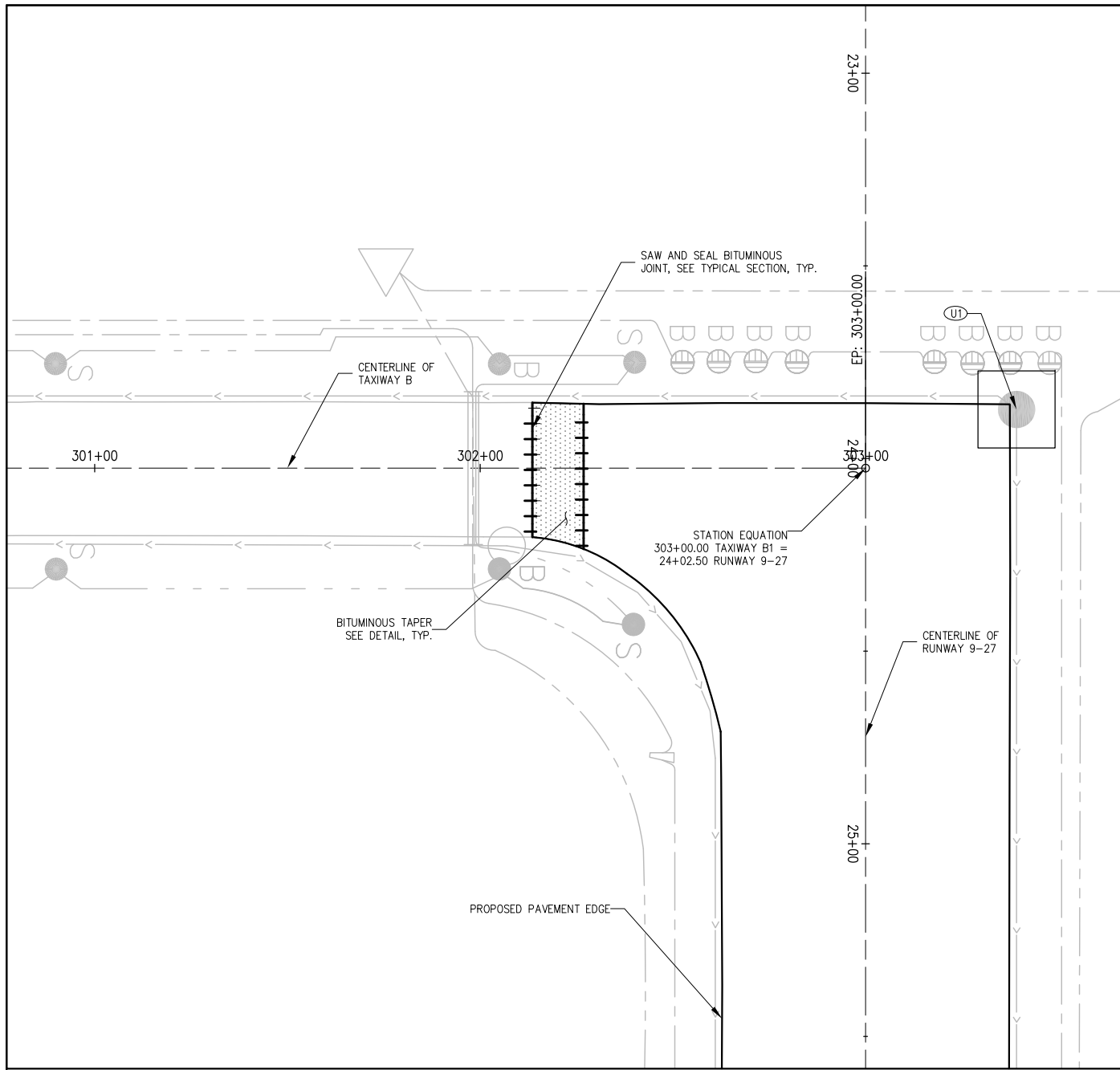
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PLAN AND PROFILE
RUNWAY 9-27

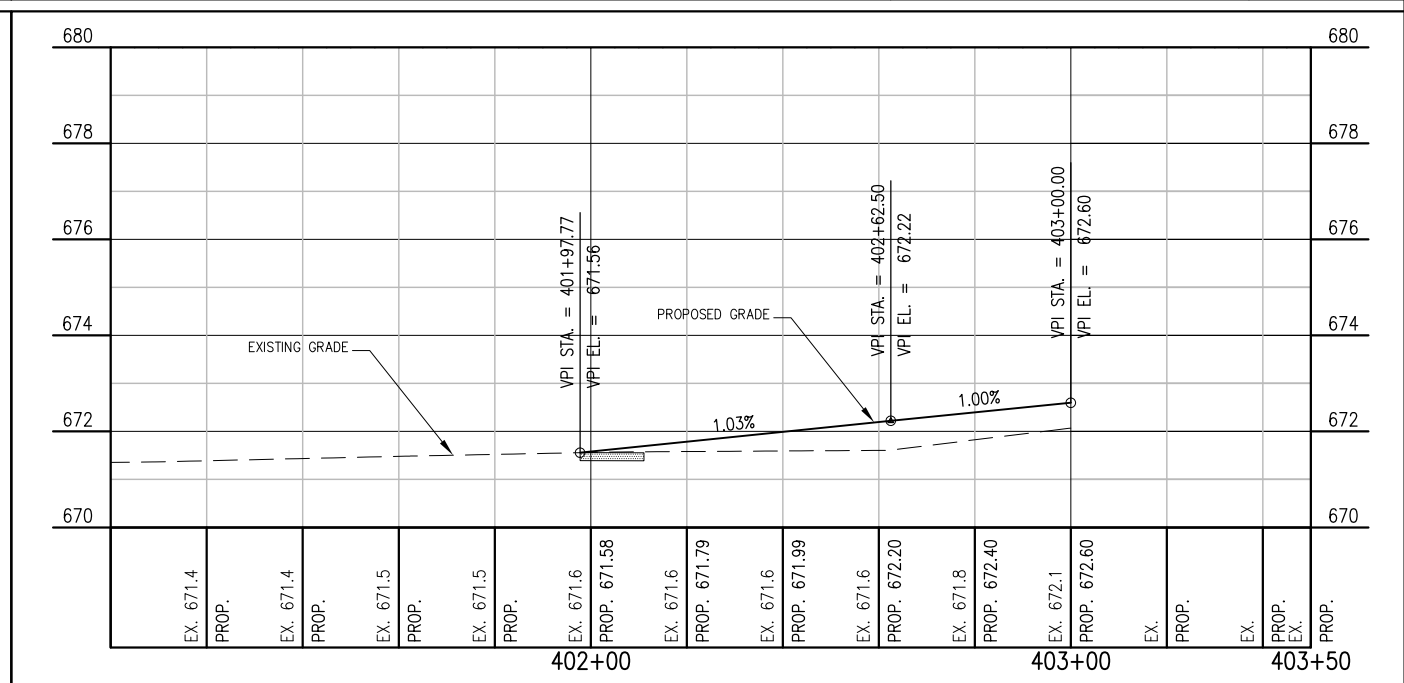
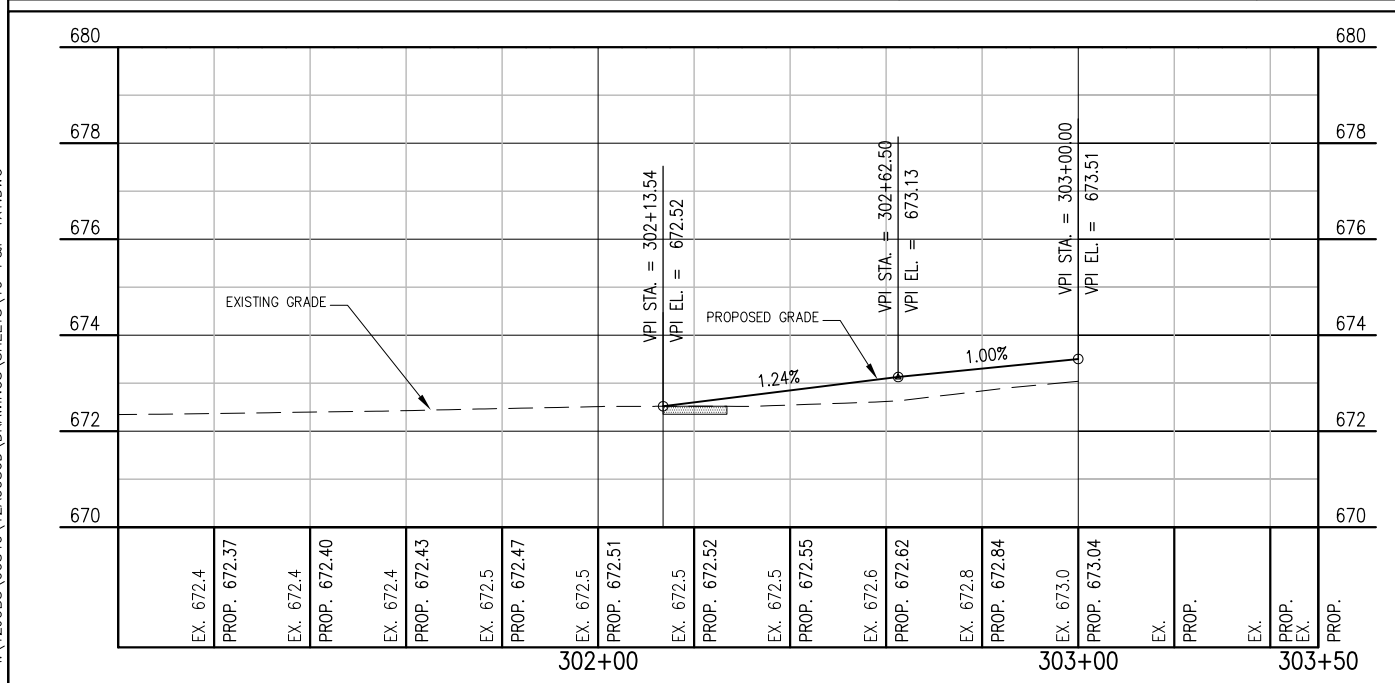
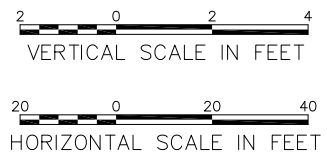
REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

18

18 of 56 sheets



NOTES:
 1. FOR NOTES AND LEGEND SEE SHEET 16.



REVISION	DATE

Chicago-Romeoville Airport
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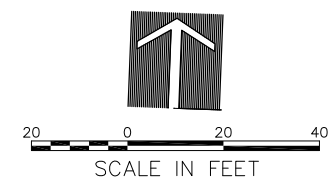
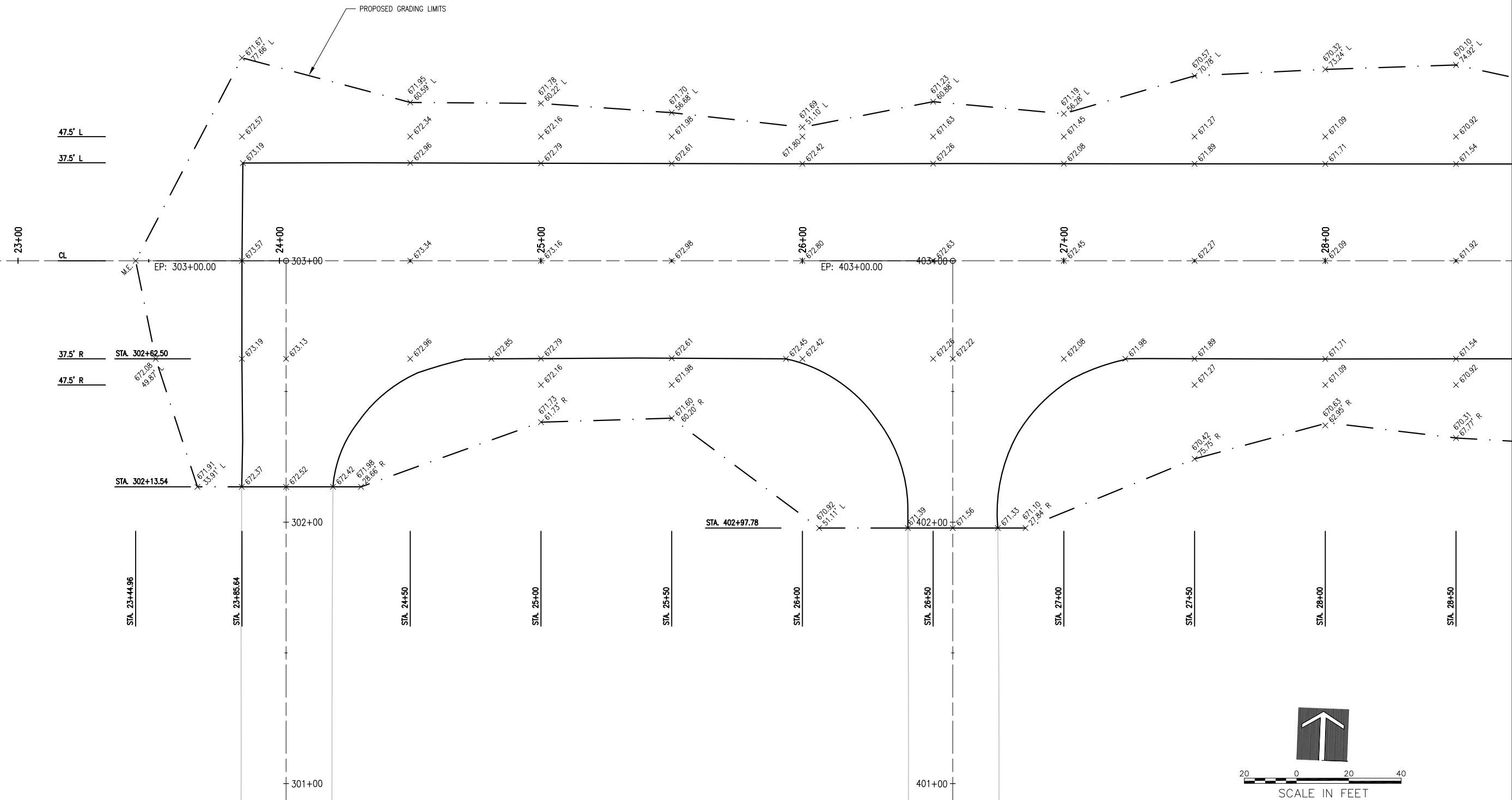
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Date	JANUARY 11, 2013
LAYOUT	LDH
DRAWN	LDH
REVIEWED	RMH
DATE	7/24/12
DATE	7/24/12
DATE	1/10/13

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PLAN AND PROFILE
TAXIWAY B AND B1
REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

ALIGNMENT DATA TABLE

Runway/Taxiway	Description	Station	Project Coordinates	
			Northing	Easting
ALIGNMENT 0 - RUNWAY 9-27	BEGINNING OF ALIGNMENT	18+00.00	1799824.0347	1046261.0927
	END OF ALIGNMENT	82+00.00	1800094.7452	1052655.3648
ALIGNMENT 300 - TAXIWAY B	BEGINNING OF ALIGNMENT	300+00.00	1799549.788	1046875.743
	END OF ALIGNMENT	303+00.00	1799849.5195	1046863.0534
ALIGNMENT 400 - TAXIWAY B1	BEGINNING OF ALIGNMENT	400+00.00	1799560.5741	1047130.5148
	END OF ALIGNMENT	403+00.00	1799860.3057	1047117.8252



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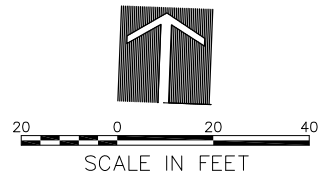
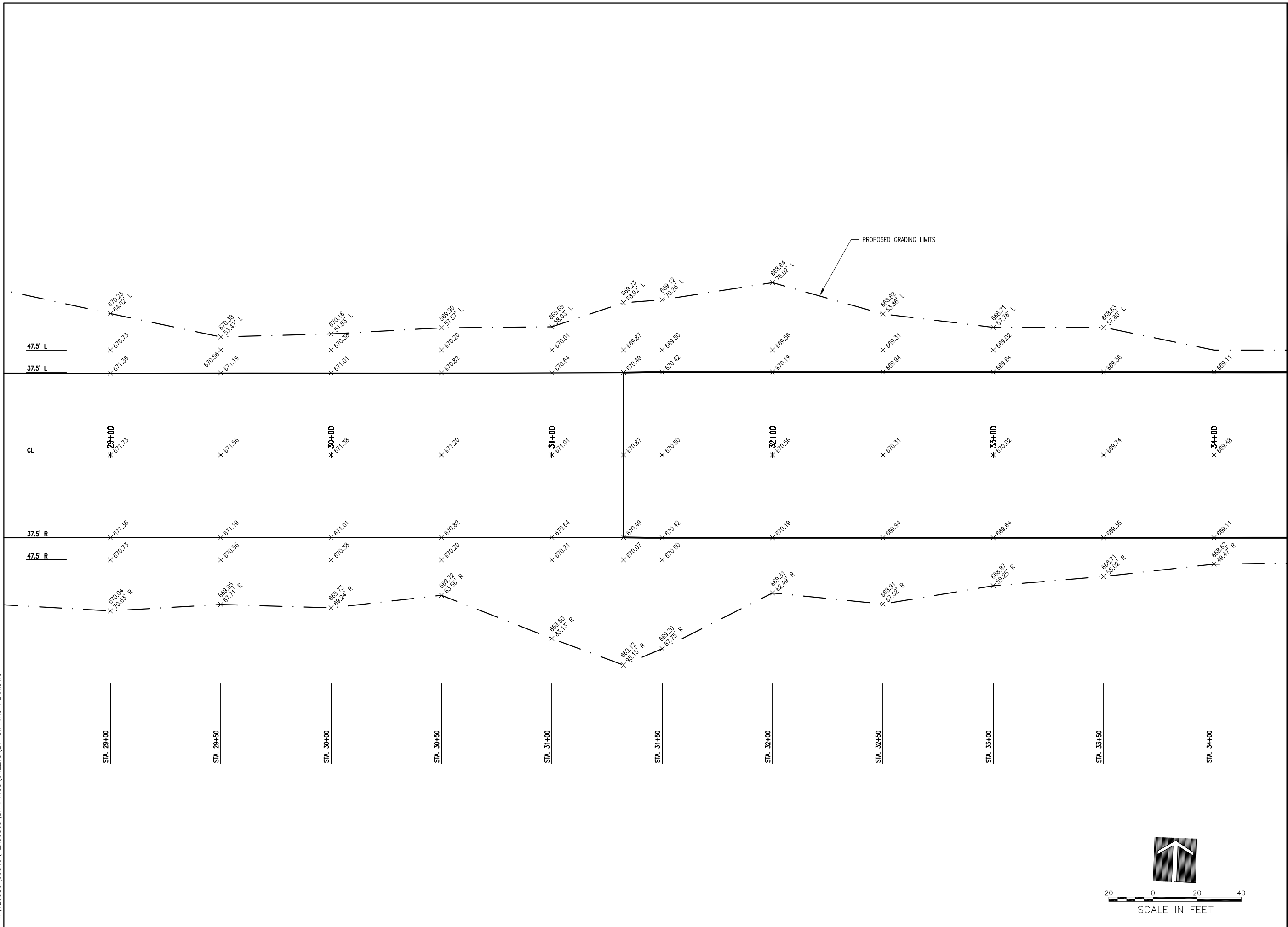
DATE

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Hanson No.	12A00860
Filename	20-STAKING_PLAN.DWG
Scale	1"=20'
Date	JANUARY 11, 2013
LAYOUT	LDH 8/1/12
DRAWN	LDH 8/1/12
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STAKING PLAN
 RUNWAY 9-27 AND TAXIWAYS
 REHABILITATE WEST PORTION OF
 RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



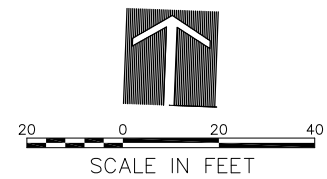
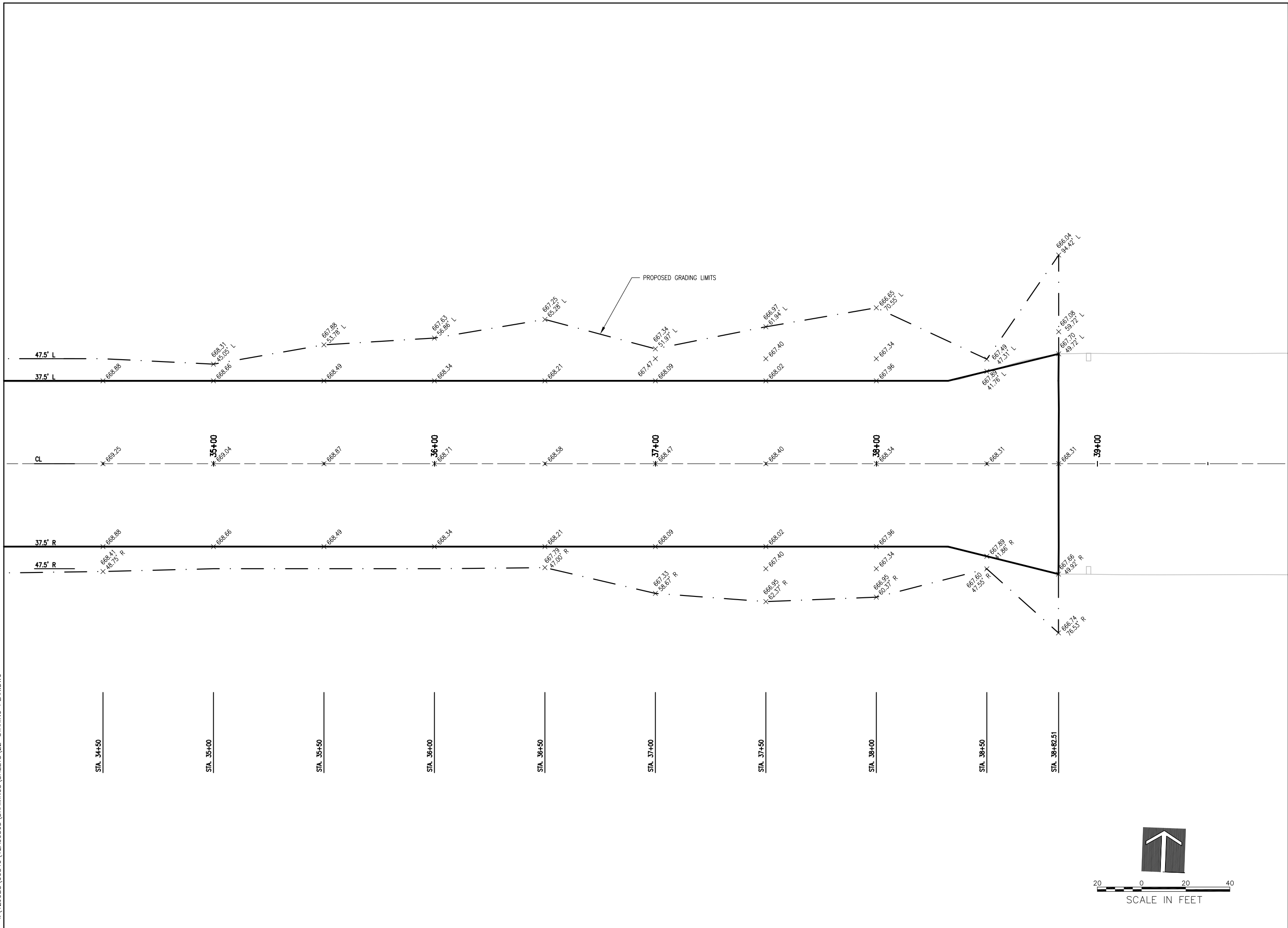
DATE	REVISION

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Hanson No.	12A00860
Filename	21-STAKING PLAN.DWG
Scale	1"=20'
Date	JANUARY 11, 2013
LAYOUT	LDH 8/6/12
DRAWN	LDH 8/6/12
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STAKING PLAN
RUNWAY 9-27
REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



DATE	REVISION

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Hanson No. 12A00860	Filename 22-STAKING_PLAN.DWG
Scale 1"=20'	Date JANUARY 11, 2013
LAYOUT LDH	8/6/12
DRAWN LDH	8/6/12
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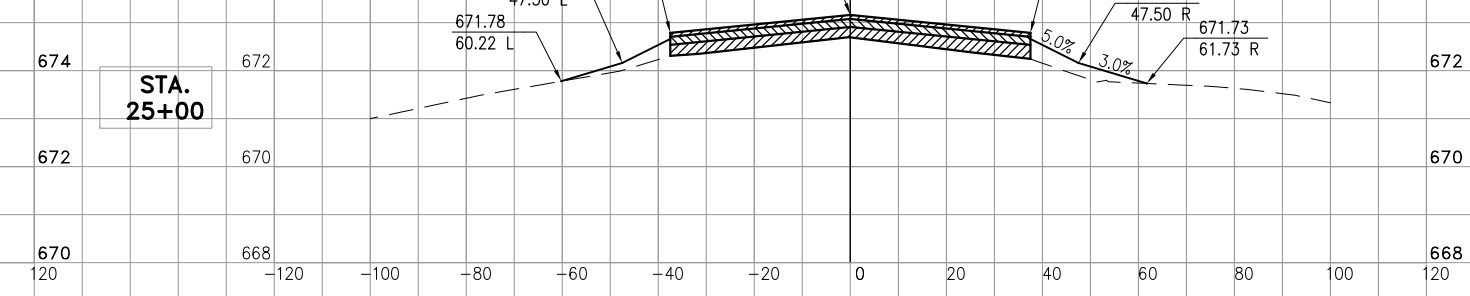
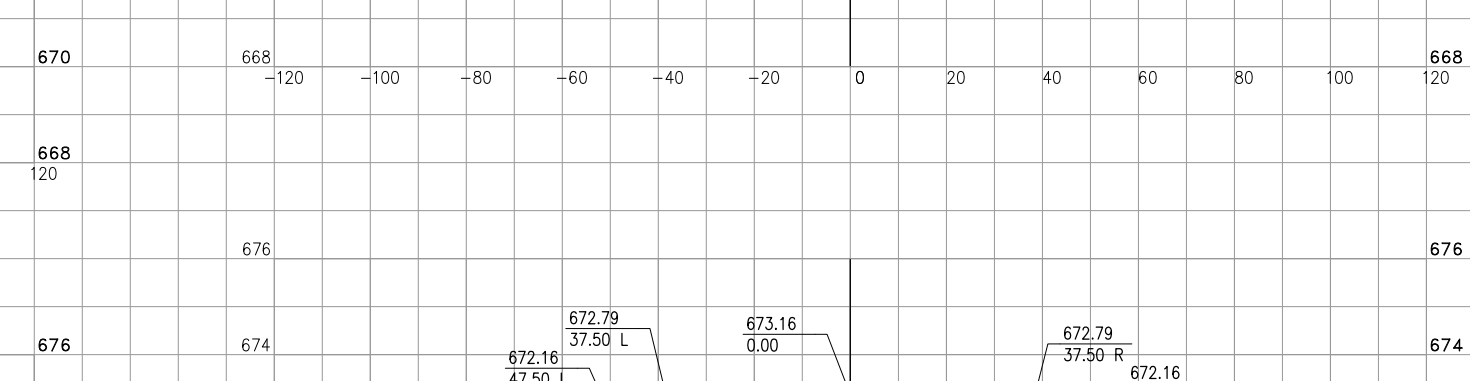
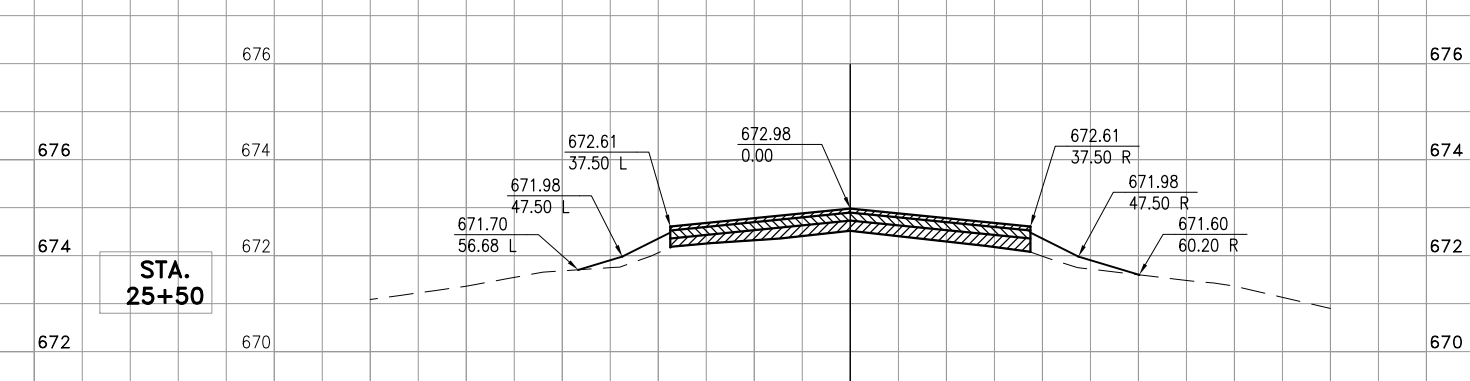
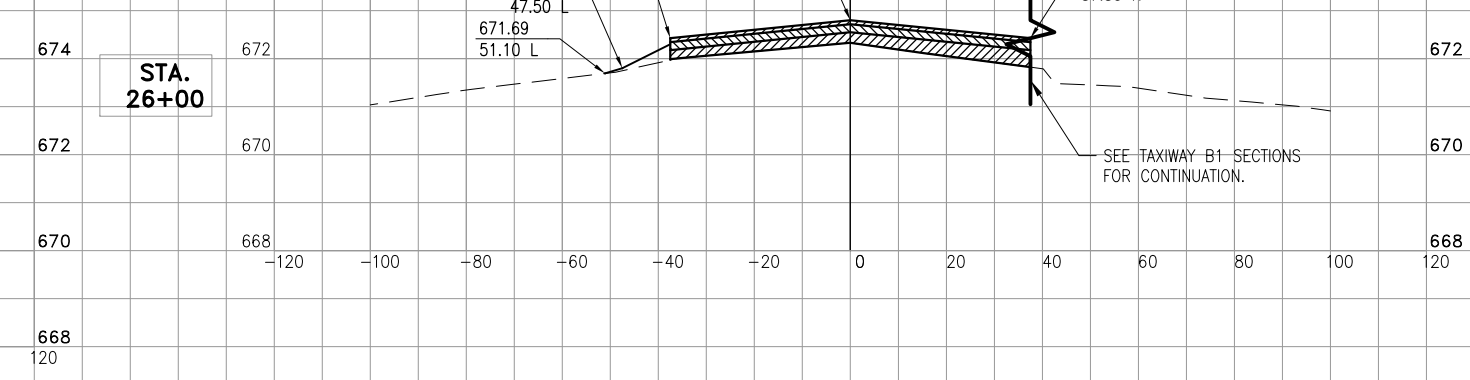
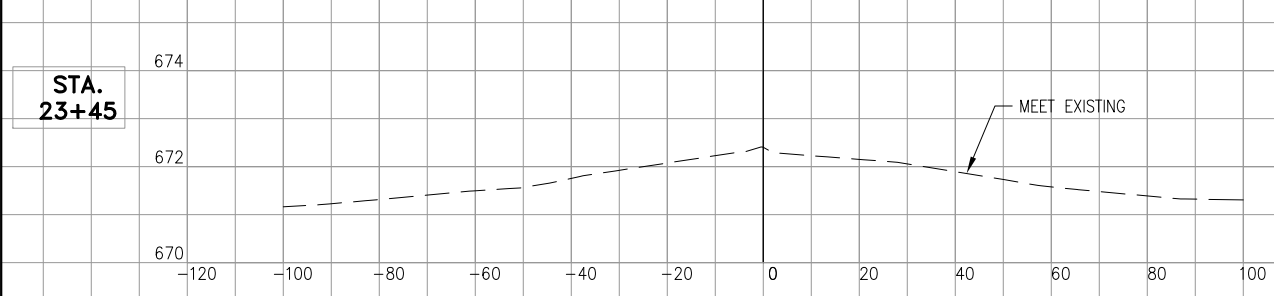
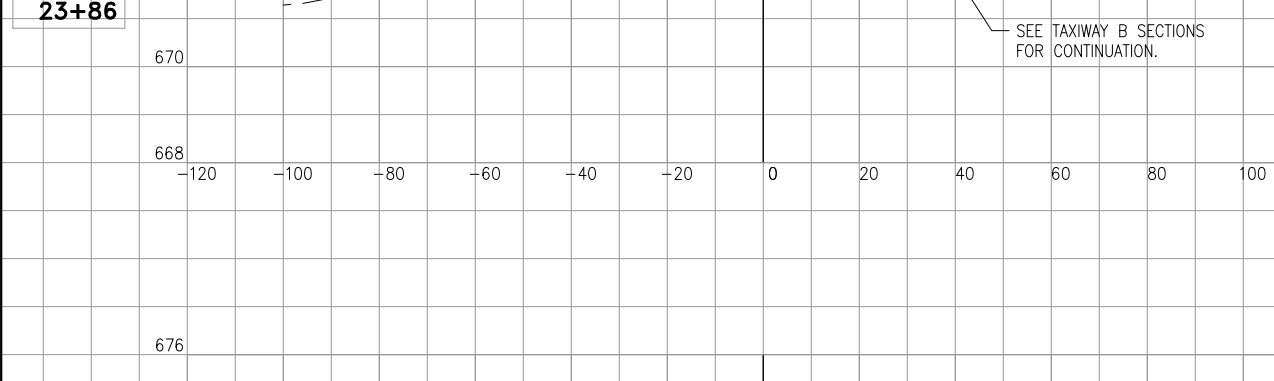
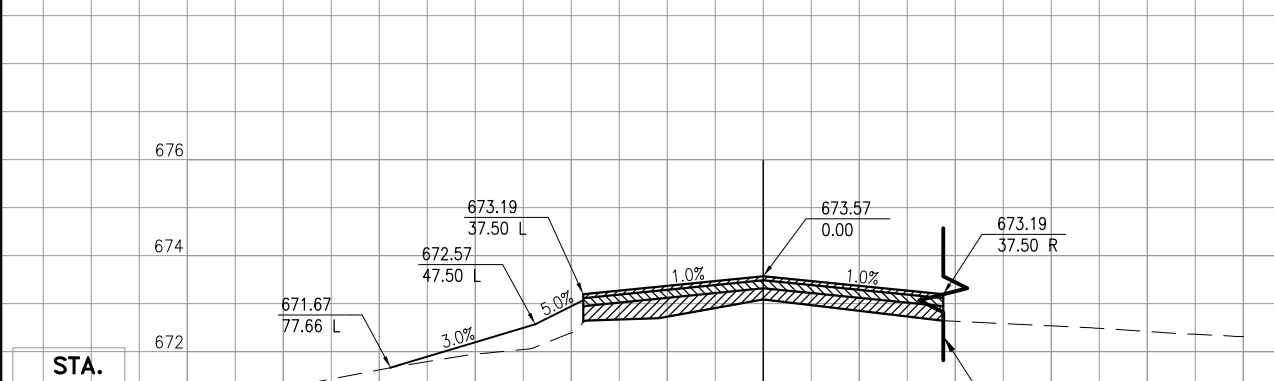
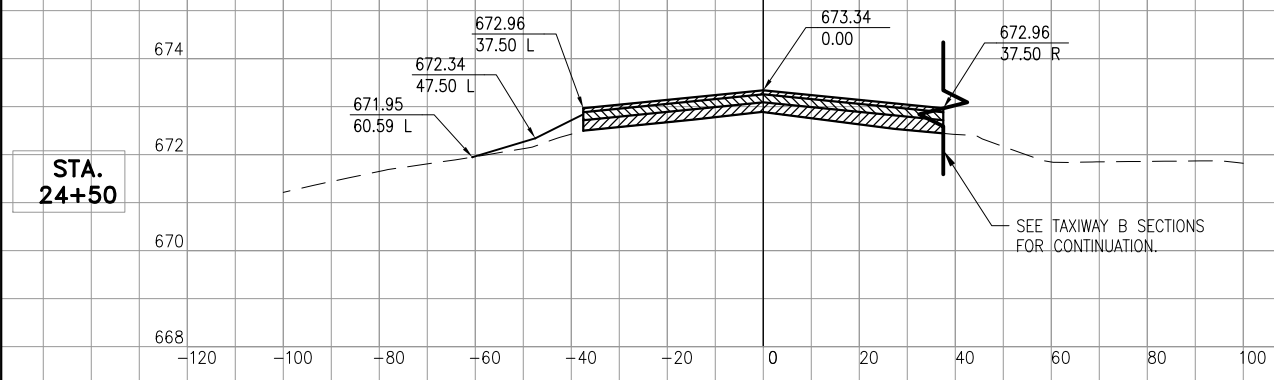
STAKING PLAN
RUNWAY 9-27
REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

JAN 15, 2013 9:13 AM HAUSM00682

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EARTHWORK SUMMARY IN CUBIC YARDS		
CUT		
Topsoil	0	
Clay	5,442	
TOTAL UNCLASSIFIED CUT		5,442
CLAY FILL		
Fill	147	
Shrink (10%)	15	
TOTAL UNCLASSIFIED FILL		162
Excess Clay for Haul and Disposal Off-site*		5,280
TOPSOIL FILL		
Topsoil from On Site	0	
TOTAL TOPSOIL REQUIRED		940
Off Site Topsoil Required		940

* Haul and disposal costs are incidental to Unclassified Excavation.



LE044

REVISION	DATE

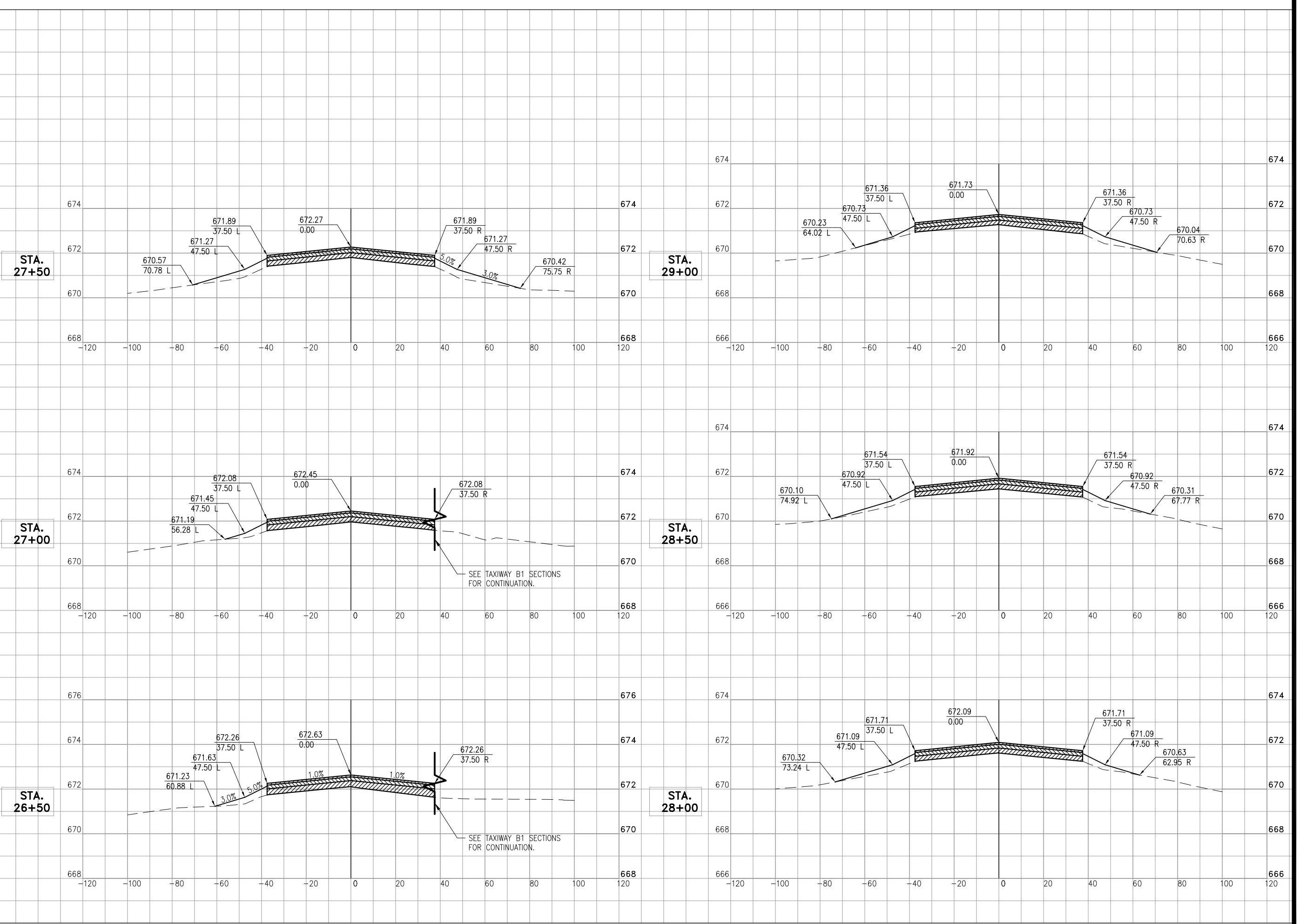
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Hanson No. 12A00860	Filename 23-CROSS SECTIONS.DWG	Date JANUARY 11, 2013
Scale 1"=20'	LAYOUT LDH	7/27/12
	DRAWN LDH	7/27/12
	REVIEWED RMH	1/10/13

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CROSS SECTIONS
RUNWAY 9-27
REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-01-40-B51

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REVISION	DATE	DRAWN	CHECKED	DATE	REVIEWED
		LDH	LDH	7/27/12	7/27/12
				7/27/12	7/27/12
				1/10/13	1/10/13

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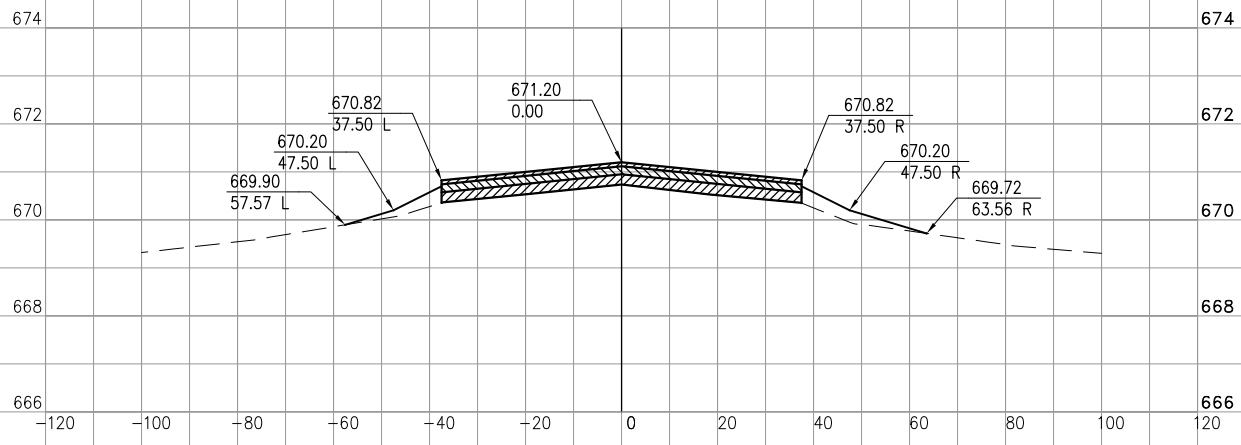
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REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

24

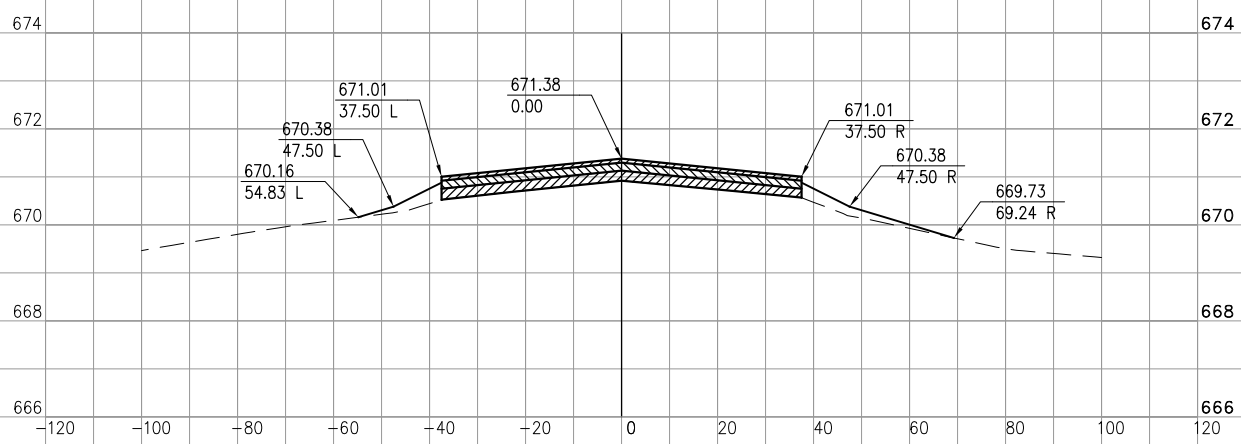
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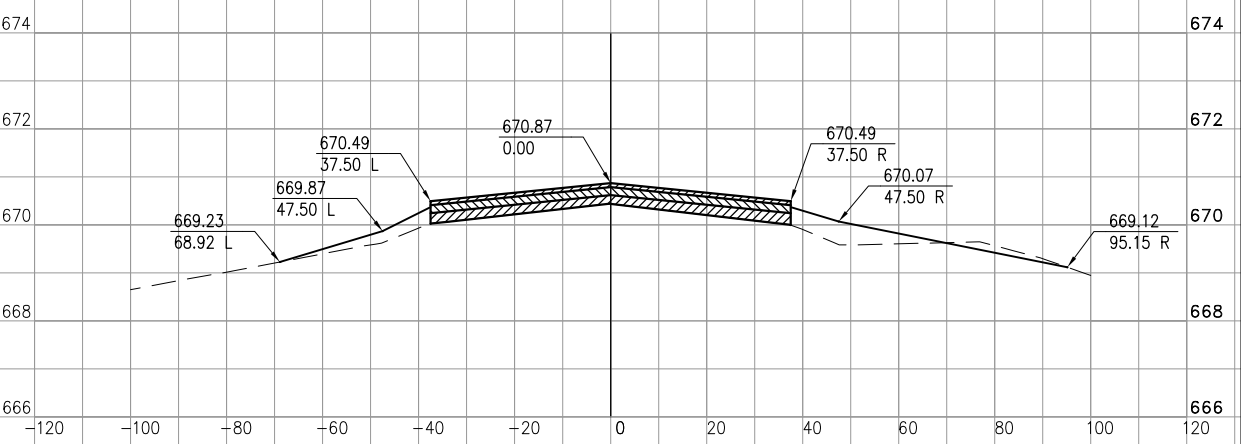
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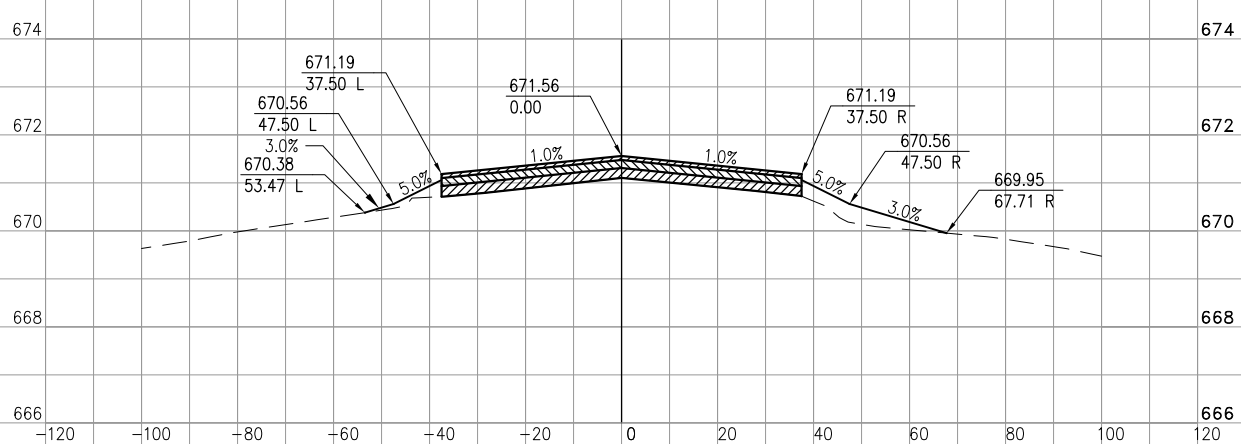
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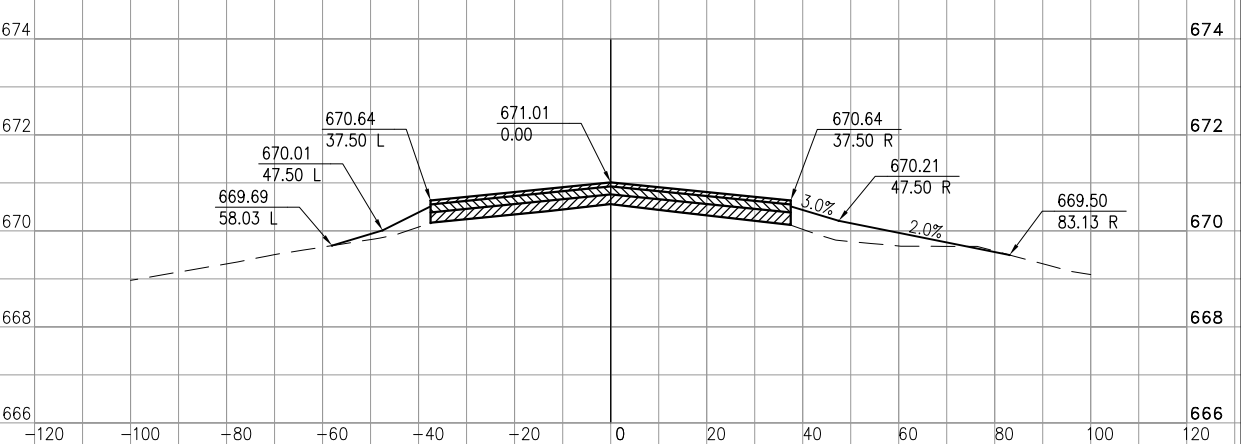
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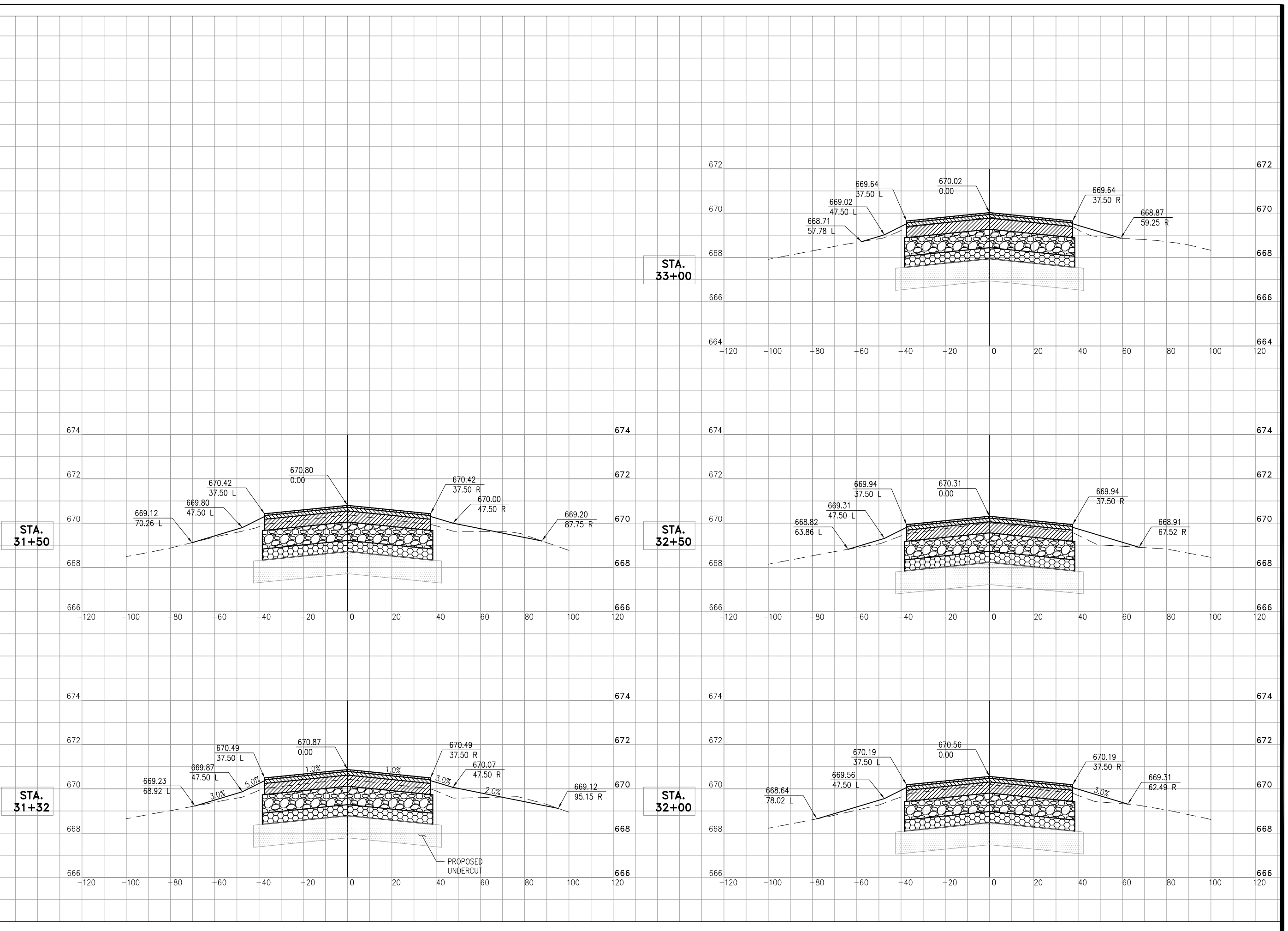
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Filename	Date	Drawn	Reviewed
25-CROSS SECTIONS.DWG	JANUARY 11, 2013	LDH	RMH

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CROSS SECTIONS
 RUNWAY 9-27
 REHABILITATE WEST PORTION OF
 RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-01-40-B51

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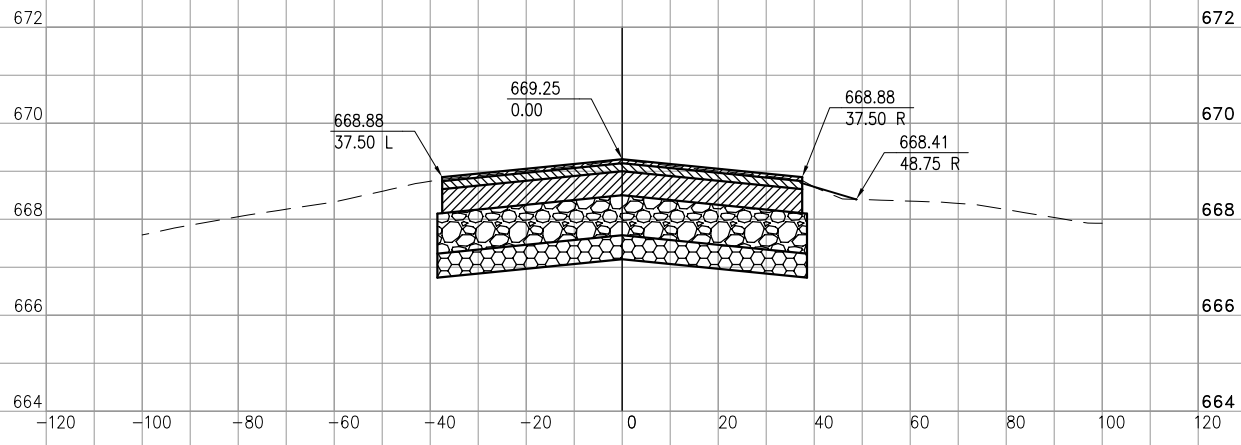
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DRAWN LDH	7/27/12
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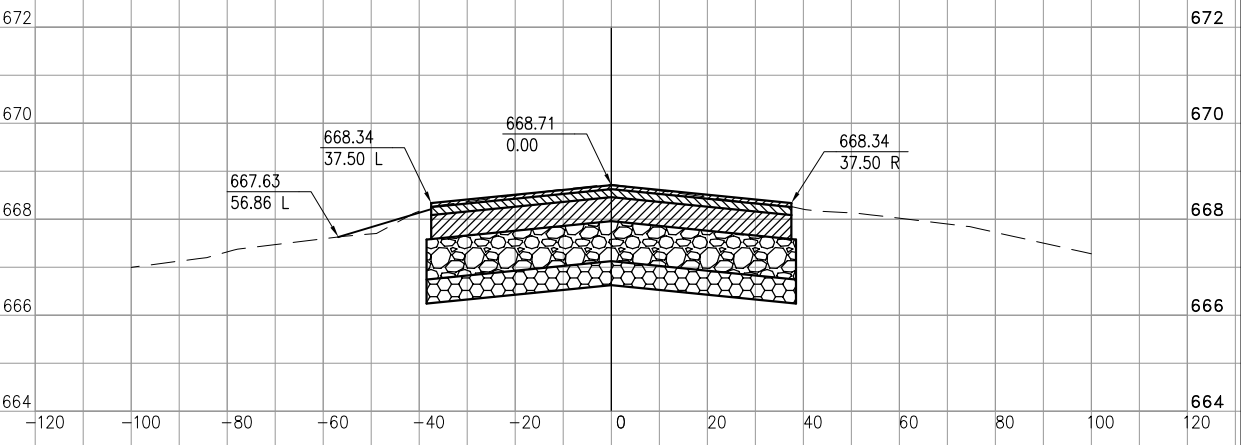
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RUNWAY 9-27
REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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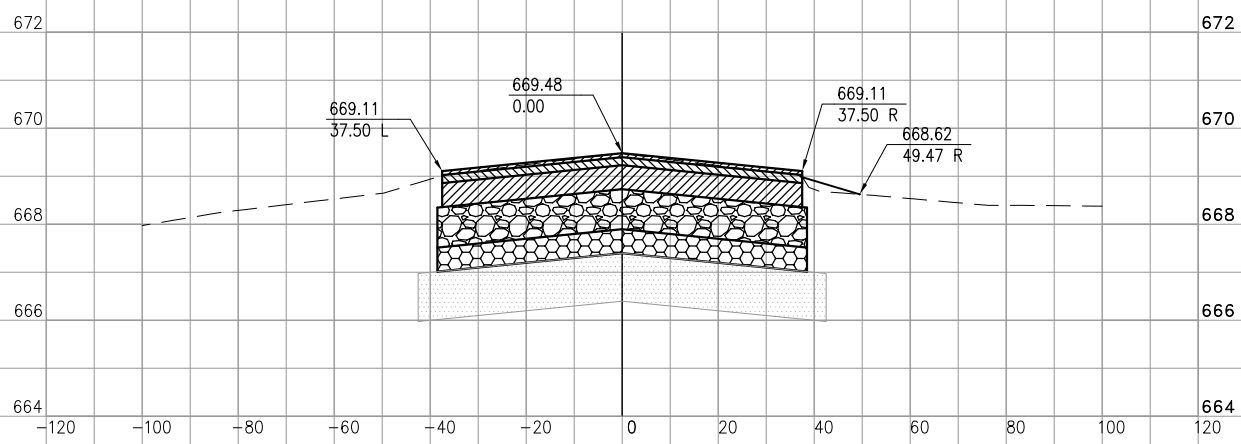
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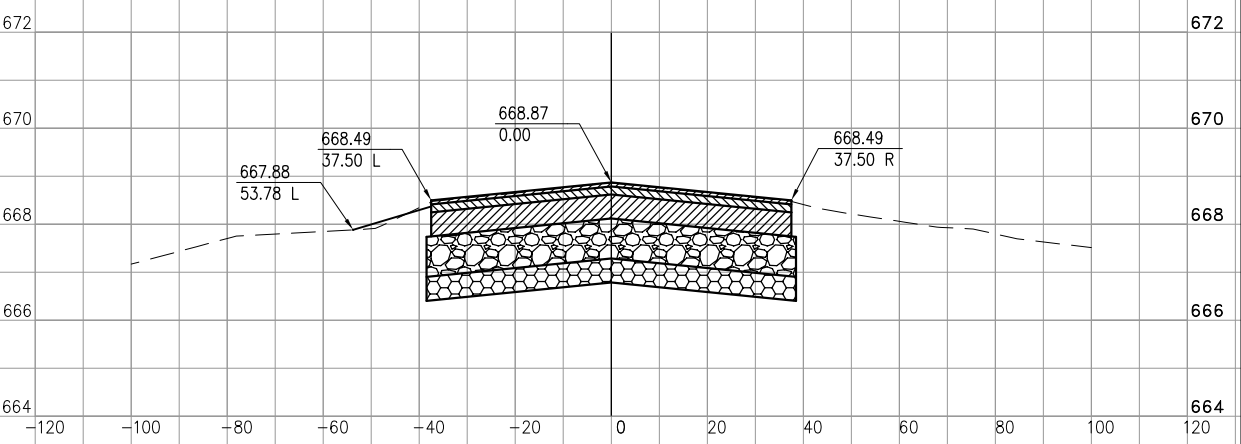
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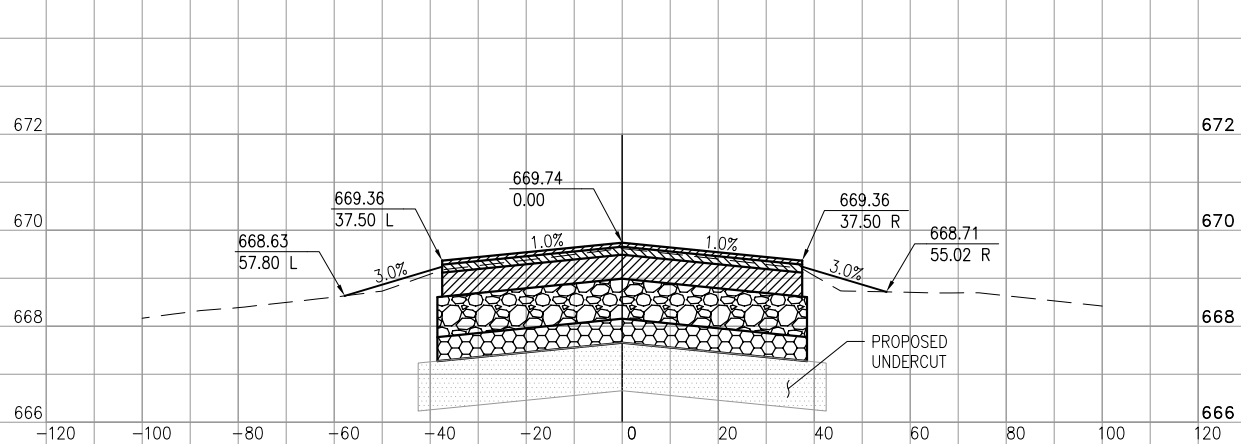
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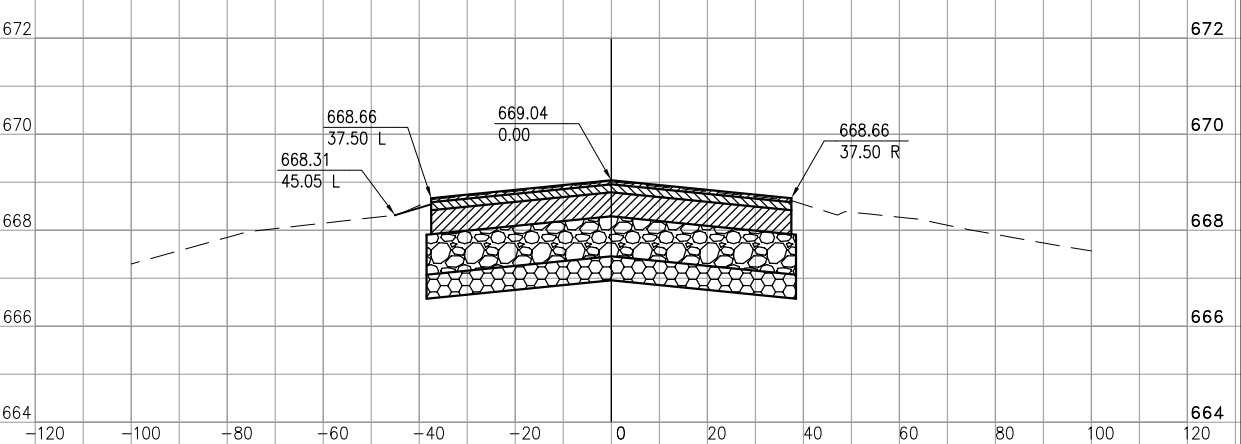
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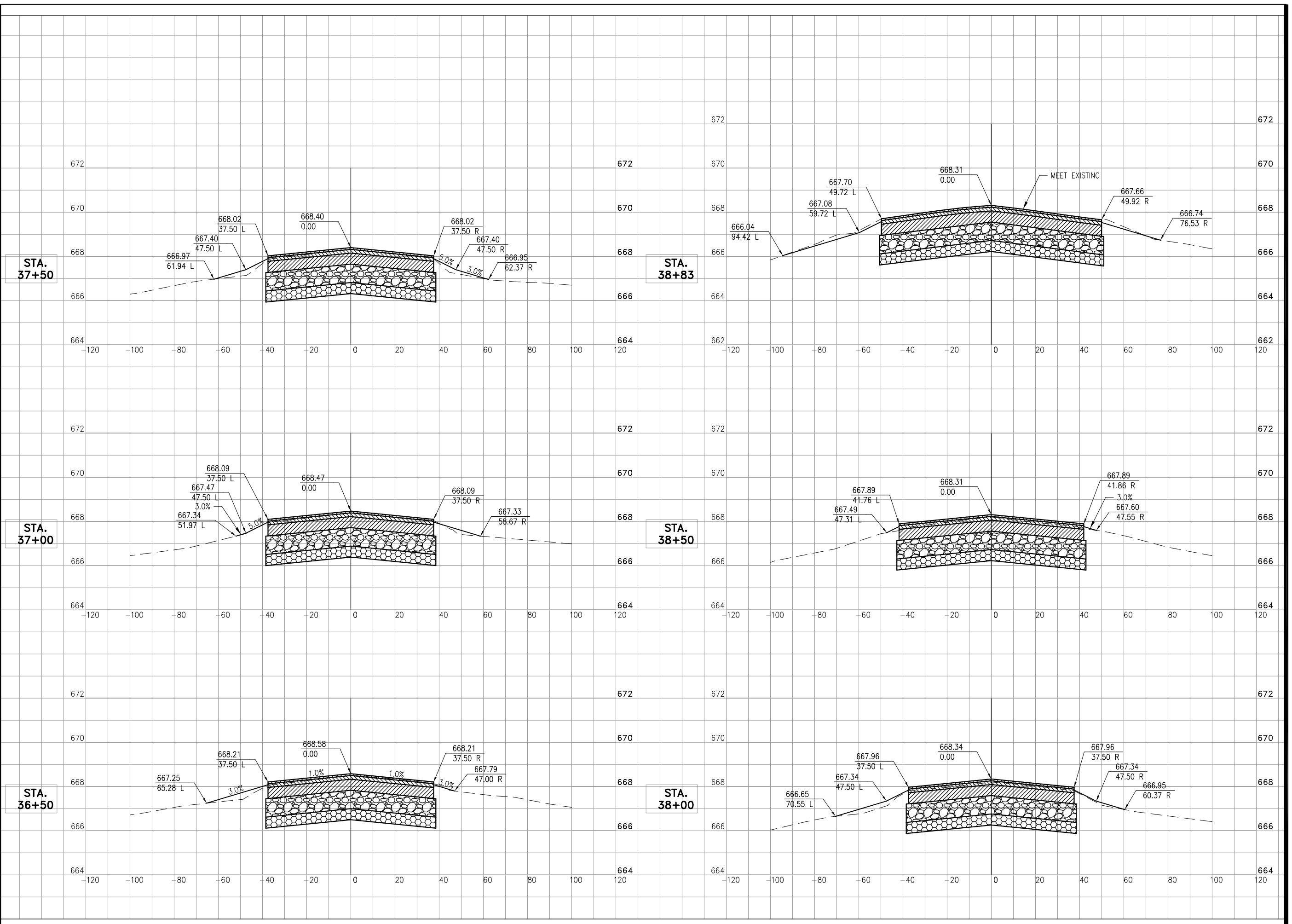
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Hanson No.	Filename	Scale	Date	LAYOUT	LDH	7/27/12
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				REVIEWED	RMH	1/10/13

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CROSS SECTIONS
 RUNWAY 9-27
 REHABILITATE WEST PORTION OF
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 IDA No. LOT-4193 AIP No. 3-17-01-40-B51



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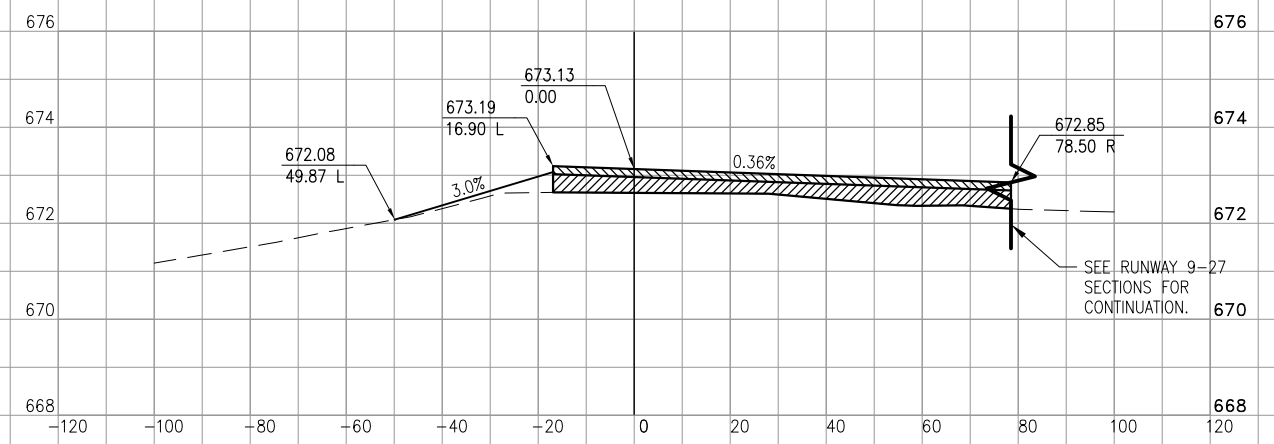
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		LDH	LDH
		LDH	LDH
		LDH	LDH
		LDH	LDH
		LDH	LDH
		LDH	LDH

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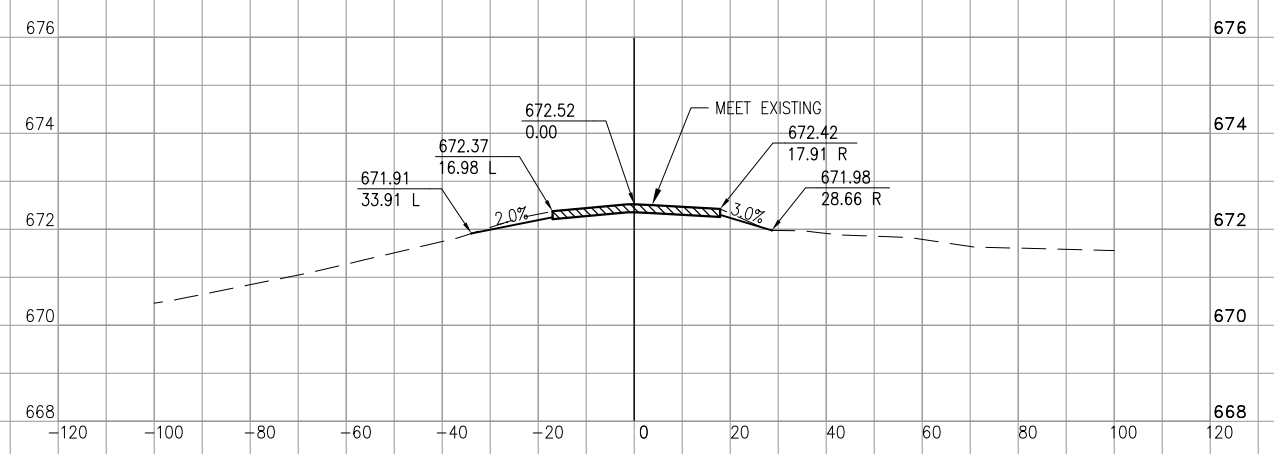
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 RUNWAY 9-27
 REHABILITATE WEST PORTION OF
 RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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STA.
302+62



STA.
302+14



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Hanson No. 12A00860	Filename 29-CROSS SECTIONS.DWG	Date JANUARY 11, 2013
Scale 1"=20'	LAYOUT LDH	7/27/12
	DRAWN LDH	7/27/12
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CROSS SECTIONS
 TAXIWAY B
 REHABILITATE WEST PORTION OF
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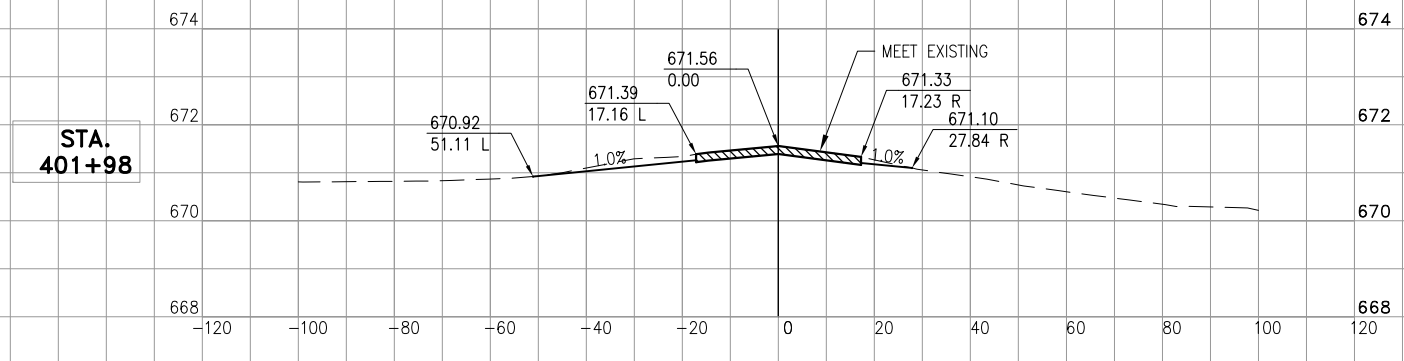
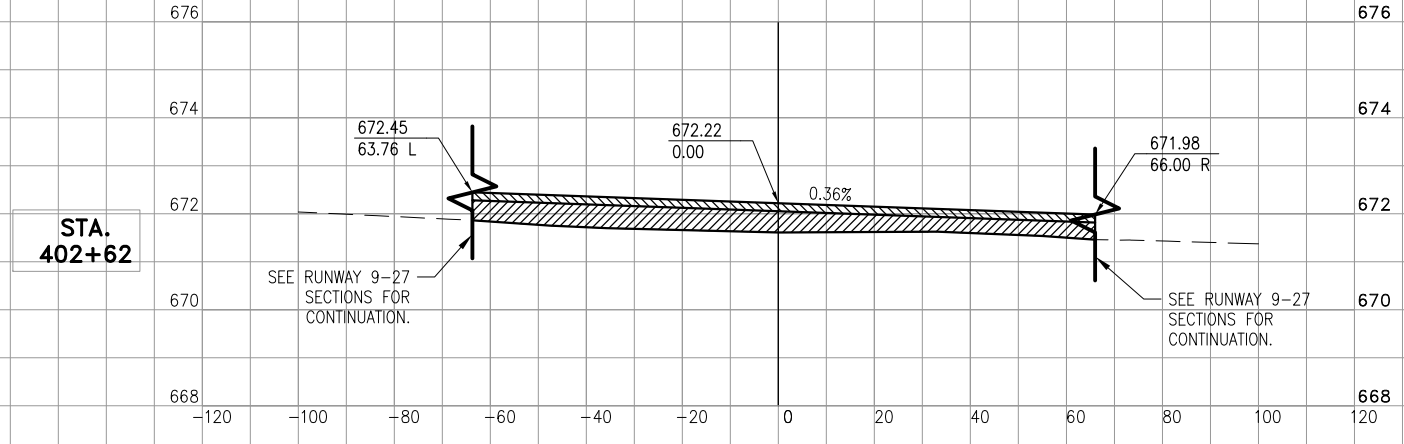
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Scale 1"=20'	LAYOUT LDH	7/27/12
	DRAWN LDH	7/27/12
	REVIEWED RMH	1/10/13

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CROSS SECTIONS TAXIWAY B1
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

30

30 of 56 sheets



UNDERDRAIN SCHEDULE

Structure	Station	Offset	Type	Rim El.	Invert El.	Pay Length	Slope %
U4	31+32.51	39.00 LT	Inspection Hole	670.30	667.00	262.9	0.41
U5	33+95.44	39.00 LT	Inspection Hole	668.94	665.92	4.0	0.25
U6	33+99.44	44.00 LT	RCP Connection	---	665.91		
U7	34+04.59	39.00 LT	Cleanout	668.94	666.94	456.5	0.30
U8	38+32.37	39.00 LT	Slope Change	---	665.55	18.6	38.88
U9	38+73.13	59.25 LT	RCP Connection	---	658.31		
U10	31+32.51	39.00 RT	Inspection Hole	670.33	666.80	262.9	0.25
U11	33+95.44	39.00 RT	Inspection Hole	668.94	666.15	4.0	0.25
U12	33+99.44	44.00 RT	RCP Connection	---	666.14		
U13	34+04.44	39.00 RT	Cleanout	668.94	666.94	427.8	0.30
U14	38+32.27	39.00 RT	Slope Change	---	665.64	15.5	45.48
U15	38+41.35	51.56 RT	RCP Connection	---	658.59		
U11	33+95.44	39.00 RT	Inspection Hole	668.94	666.15	78.0	0.29
U5	33+95.44	39.00 LT	Inspection Hole	668.94	665.92		

**UNDERDRAIN STRUCTURE
ADJUSTMENT SCHEDULE**

Structure	Station	Offset	Type	Rim El.
U1	23+87.29	39.17 LT	Adjust Inspection Hole	673.00
U2	25+99.43	42.37 RT	Adjust Clean Out	672.22
U3	27+14.89	42.17 RT	Adjust Clean Out	671.80

NOTES:

- ALL CONNECTIONS SHALL BE FURNISHED; COST INCIDENTAL TO UNDERDRAIN.
- RIM ELEVATIONS SHOWN ARE BASED UPON THE DESIGN PAVEMENT EDGE ELEVATION. CONFIRM PAVEMENT EDGE PRIOR TO CONSTRUCTION.

DATE	REVISION

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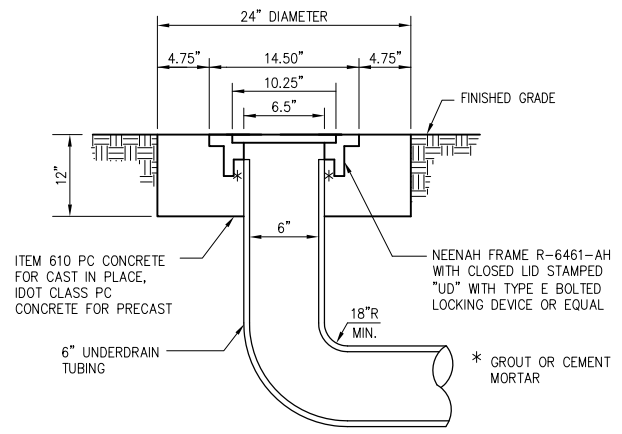
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DRAWN	LDH	LDH	8/7/12
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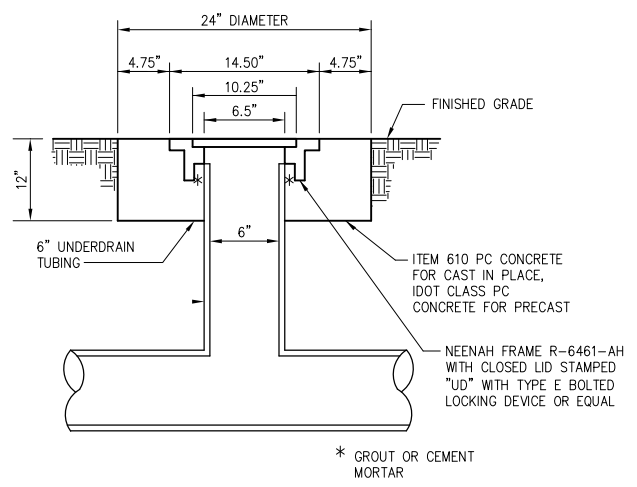
UNDERDRAIN SCHEDULE
 REHABILITATE WEST PORTION OF
 RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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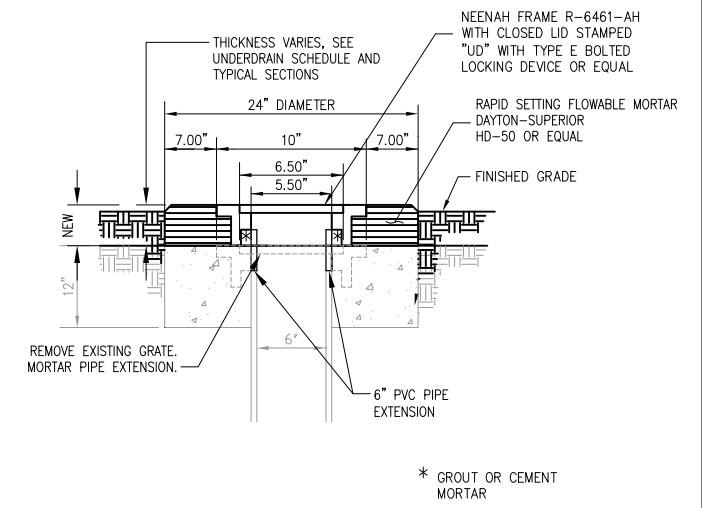
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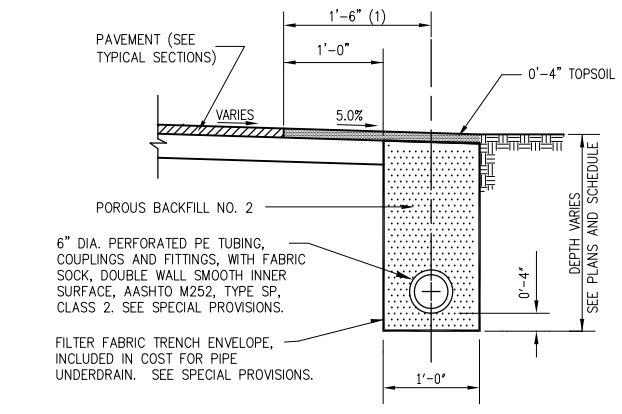
UNDERDRAIN CLEANOUT



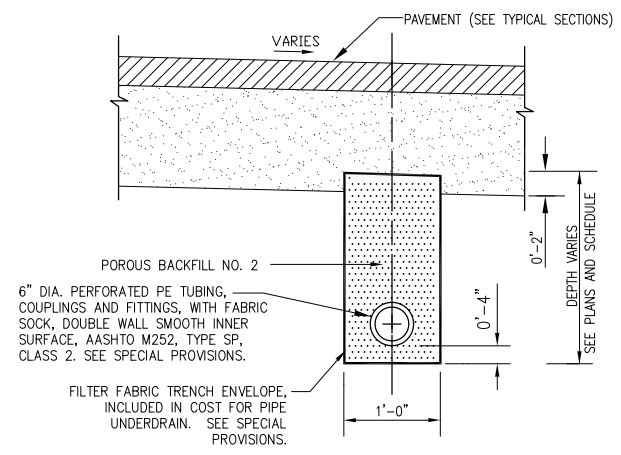
UNDERDRAIN INSPECTION HOLE



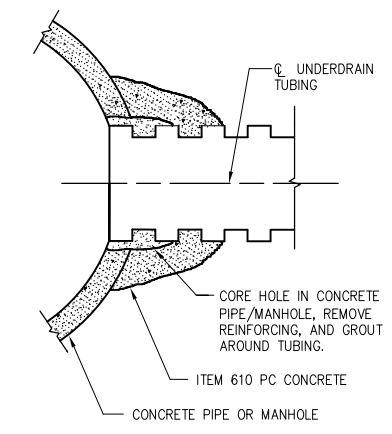
PROPOSED UNDERDRAIN STRUCTURE ADJUSTMENT



UNDERDRAIN ALONG PAVEMENT EDGE



UNDERDRAIN UNDER PAVEMENT



STORM SEWER CONCRETE COLLAR AND GROUT CONNECTION

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Hanson No.	12A00860
Filename	32-UD_DETAILS.DWG
Scale	N/A
Date	JANUARY 11, 2013
LAYOUT	LDH 8/7/12
DRAWN	LDH 8/7/12
REVIEWED	RMH 1/10/13

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UNDERDRAIN DETAILS
 REHABILITATE WEST PORTION OF
 RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

DETAILS SHOWN ARE NOT TO SCALE

AIRFIELD LIGHTING NOTES

1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT DIRECTOR/MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
2. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING OR DISCONNECTING THE RESPECTIVE AIRFIELD LIGHTING, NAVAID, OR OTHER DEVICE.
3. PROPOSED RUNWAY, THRESHOLD, AND TAXIWAY LIGHTS SHALL BE PLACED 10' (FT.) FROM THE FULL STRENGTH PAVEMENT EDGE UNLESS SHOWN OTHERWISE ON THESE CONSTRUCTION DRAWINGS. PROPOSED TAXI GUIDANCE SIGNS SHALL BE LOCATED SUCH THAT THE CLOSEST SIDE OF THE SIGN IS 15' FROM THE PAVEMENT EDGE, UNLESS SHOWN OTHERWISE.
4. PROPOSED RUNWAY LIGHTS, THRESHOLD LIGHTS, TAXIWAY LIGHTS, GUIDANCE SIGNS, OTHER AIRFIELD LIGHTING, SPLICE CANS, HANDHOLES, MANHOLES, ELECTRICAL DUCTS, AND CABLE SHALL BE INSTALLED AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS, SPECIAL PROVISIONS, RESPECTIVE DETAILS, AND MANUFACTURER'S RECOMMENDATIONS.
5. PROPOSED CABLE FOR RUNWAY AND TAXIWAY LIGHTING SHALL BE INSTALLED APPROXIMATELY 12" FROM THE PAVEMENT EDGE. CABLES SHALL BE PLACED A MINIMUM OF 18" BELOW FINISHED GRADE.
6. THE PROPOSED RUNWAY AND TAXIWAY LIGHTING CABLE SHALL BE 1/C, #8 AWG, FAA L-824, 5000 VOLT, TYPE C UNDERGROUND CABLE IN UNIT DUCT.
7. IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE, THE CONTRACTOR IS REQUIRED TO HAND DIG THE TRENCH NECESSARY FOR THE PROPOSED CABLE. AT OTHER LOCATIONS, THE PROPOSED CABLE MAY BE TRENCHED OR PLOWED INTO PLACE. HAND DIGGING, TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED CABLES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
8. PROPOSED RUNWAY LIGHTS SHALL BE FITTED WITH LENSES IN ACCORDANCE WITH THE "LIGHT LENS SCHEDULE". ALL PROPOSED TAXIWAY LIGHTS WILL BE FITTED WITH 360° BLUE LENSES.
9. ALL PROPOSED RUNWAY, THRESHOLD, AND TAXIWAY LIGHTS SHALL BE TAGGED BY THE CONTRACTOR IN ACCORDANCE WITH THE LIGHT NUMBERS SHOWN ON THESE CONSTRUCTION DRAWINGS.
10. SEE "TAXI GUIDANCE SIGN SCHEDULE" AND/OR RESPECTIVE TAXI SIGN DETAILS FOR INFO ON SIGN LEGENDS.
11. THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA AC 150/5370-2F, PARAGRAPH C. ALL LABOR, MATERIALS, AND TIME NECESSARY TO COMPLY WITH THIS REQUIREMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
12. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR DUCT SHALL BE RUN TOGETHER IN THE SAME RACEWAY OR DUCT.
13. EXISTING AIRFIELD LIGHTING CABLES IN AREAS OF NEW WORK SHALL BE DISCONNECTED & REMOVED WHERE IN CONFLICT WITH NEW CONSTRUCTION. IN OTHER AREAS CABLES MAY BE ABANDONED IN PLACE.
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. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

EXISTING LEGEND

- E ELECTRICAL
- T TELEPHONE
- G GAS
- SW STORM SEWER
- UD UNDERDRAIN
- LC LIGHTING CABLES (CIRCUIT 1)
- LC LIGHTING CABLES (CIRCUIT 2)
- LC LIGHTING CABLES (CIRCUIT 3)
- LC LIGHTING CABLES (CIRCUIT 4)
- CA LIGHTING CABLES (CIRCUIT A)
- CB LIGHTING CABLES (CIRCUIT B)
- CC LIGHTING CABLES (CIRCUIT C)
- CD LIGHTING CABLES (CIRCUIT D)
- CE LIGHTING CABLES (CIRCUIT E)
- PC PAPI CABLES
- RC REIL CABLES
- LC LOCALIZER CABLES
- AS AIRFIELD SIGN
- B L-861T BASE MOUNTED TAXIWAY EDGE LIGHT, OMNIDIRECTIONAL: BLUE
- B L-861T STAKE MOUNTED TAXIWAY EDGE LIGHT, OMNIDIRECTIONAL: BLUE
- C-C-Y L-861 BASE MOUNTED RUNWAY EDGE LIGHT, BIDIRECTIONAL: CLEAR, CLEAR-YELLOW, YELLOW-CLEAR
- C-C-Y L-861 STAKE MOUNTED RUNWAY EDGE LIGHT, OMNIDIRECTIONAL: CLEAR, CLEAR-YELLOW, YELLOW-CLEAR
- C-C-Y L-850C BASE MOUNTED IN-PAVEMENT RUNWAY EDGE LIGHT: CLEAR, CLEAR-YELLOW, YELLOW-CLEAR
- R-G G-R L-861E BASE MOUNTED RUNWAY THRESHOLD LIGHT, BIDIRECTIONAL: RED-GREEN, GREEN-RED
- SC SPLICE CAN
- S L-861 EDGE LIGHT, OMNIDIRECTIONAL
- CE CONCRETE ENCASED DUCT, OR DIRECT BURIAL

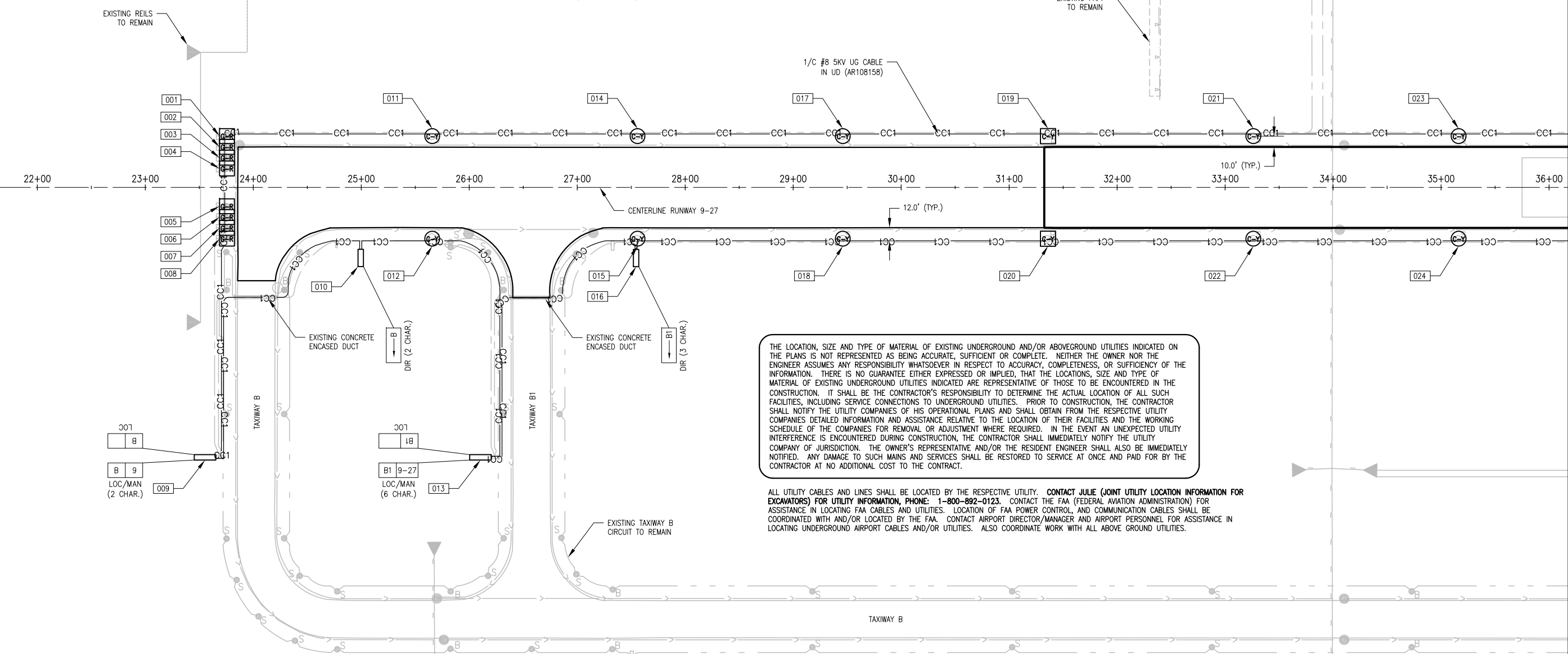
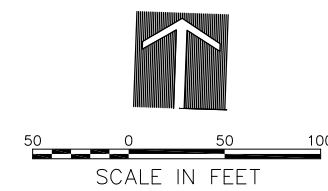
PROPOSED LEGEND

- L-858 AIRFIELD SIGN SIZE 1, STYLE 5, CLASS 2 WITH L-830 ISOLATION TRANSFORMER
- Y-C L-861 BASE MOUNTED RUNWAY EDGE LIGHT, BIDIRECTIONAL: YELLOW/CLEAR WHITE
- Y-C L-861 STAKE MOUNTED RUNWAY EDGE LIGHT, BIDIRECTIONAL: YELLOW/CLEAR WHITE
- C L-861 BASE MOUNTED RUNWAY EDGE LIGHT, OMNIDIRECTIONAL: CLEAR WHITE
- C L-861 STAKE MOUNTED RUNWAY EDGE LIGHT OMNIDIRECTIONAL; CLEAR WHITE
- C-C L-852D BASE MOUNTED IN-PAVEMENT RUNWAY EDGE LIGHT; YELLOW/CLEAR WHITE
- C-C L-852D BASE MOUNTED IN-PAVEMENT RUNWAY EDGE LIGHT; CLEAR WHITE
- R-G L-861E BASE MOUNTED RUNWAY THRESHOLD LIGHT, BIDIRECTIONAL: RED/GREEN
- LA LIGHTNING ARRESTOR IN BASE CAN
- CC1 SERIES CIRCUIT LIGHTING CABLES; 1/C #8 AWG, FAA L-824, 5000 VOLT, TYPE C UG CABLE IN UNIT-DUCT

LOC = LOCATION SIGN FACE, YELLOW ON BLACK
 DIR = DIRECTIONAL SIGN FACE, BLACK ON YELLOW
 DES = DESTINATION SIGN FACE, BLACK ON YELLOW
 MAN = MANDATORY SIGN FACE, WHITE ON RED

NOTE: LOC LETTER IS ALWAYS THE FIRST CHARACTER ON THE SIGN FACE

FOR REMOVAL OF EXISTING LIGHTING AND CABLE, SEE REMOVAL PLANS, SHEETS 10-14.



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

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

JAN 15, 2013 10:33 AM HAUSM00682 I:\12085\00840\DRAWINGS\SHEETS\33-LIGHTING PLAN.DWG

LE044

REVISION	DATE

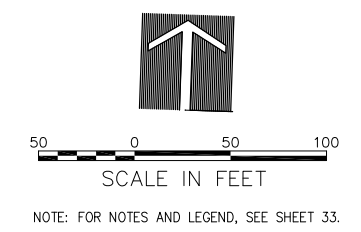
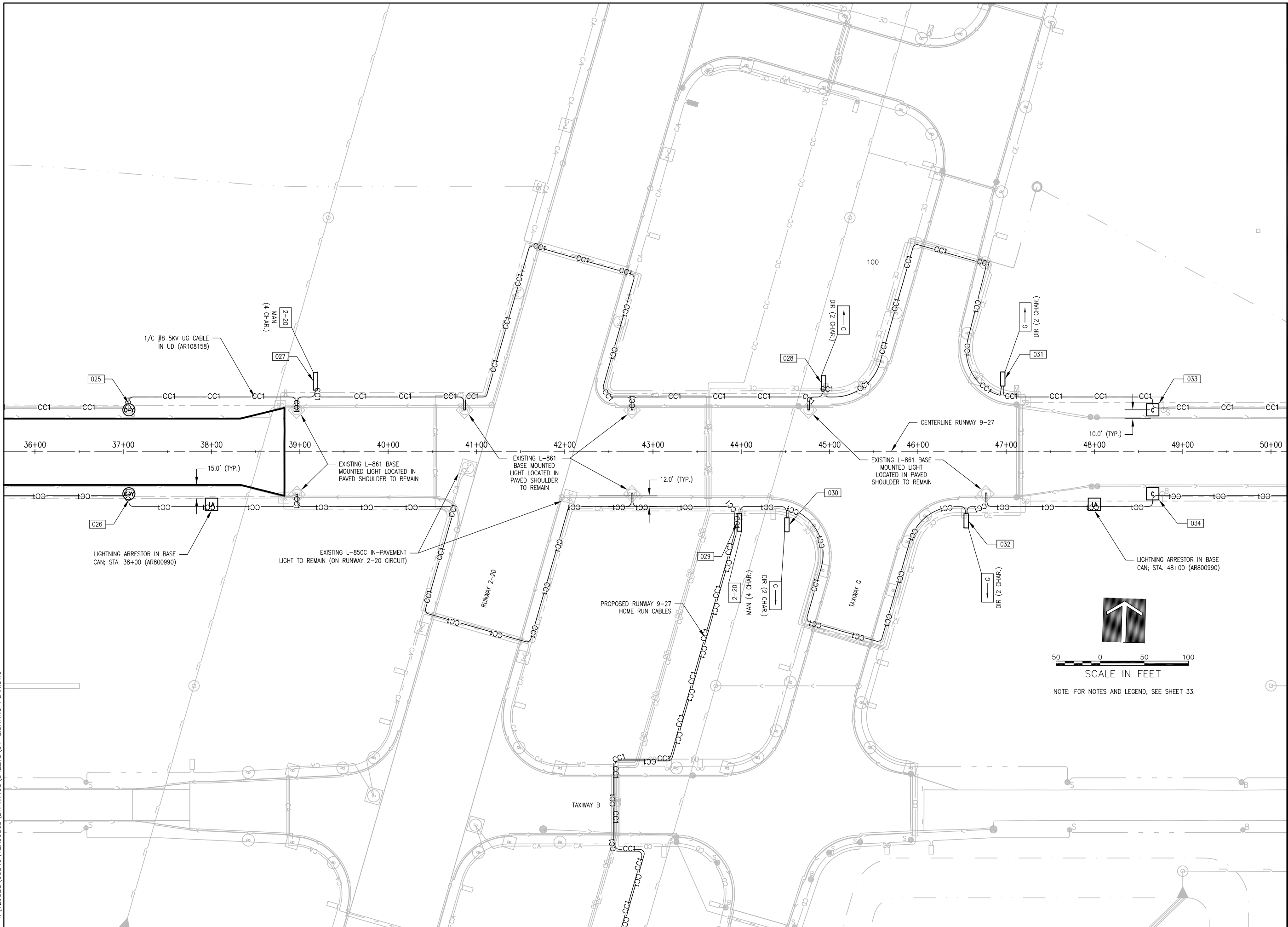
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Hanson No. 12A0086D	Filename 33-LIGHTING PLAN.DWG	Date JANUARY 11, 2013
Scale 1"=50'	Drawn LDH	Reviewed RMH
	Drawn LDH	Reviewed RMH
	Drawn LDH	Reviewed RMH

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LIGHTING AND SIGNAGE PLAN
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

JAN 14, 2013 5:01 PM HALISM00682
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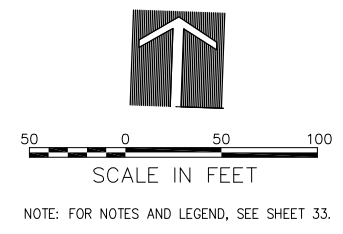
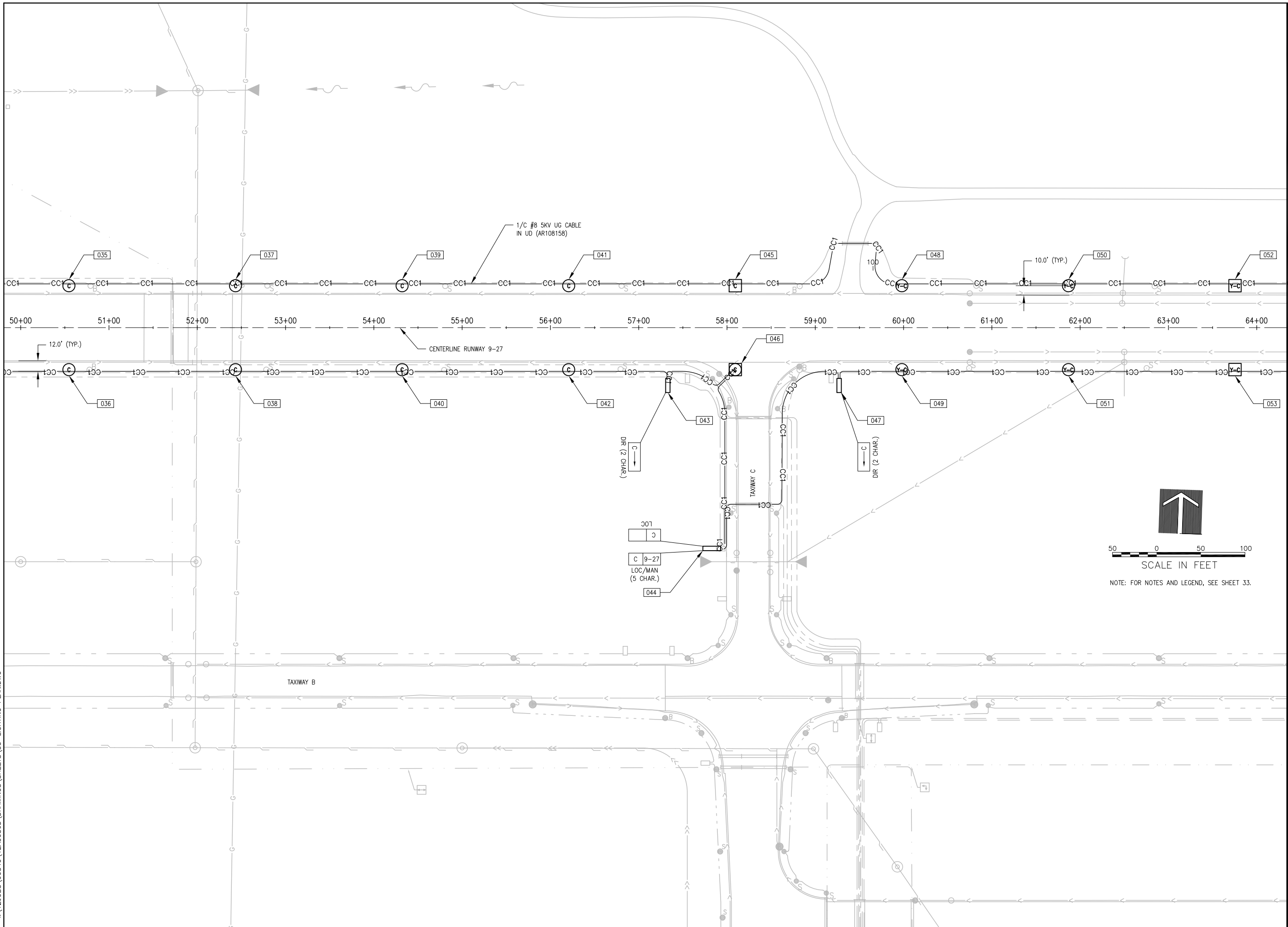


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Scale 1"=50'	Date JANUARY 11, 2013
LAYOUT LDH	8/7/12
DRAWN LDH	8/7/12
REVIEWED RMH	1/10/13

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LIGHTING AND SIGNAGE PLAN

REHABILITATE WEST PORTION OF
 RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



REVISION	DATE

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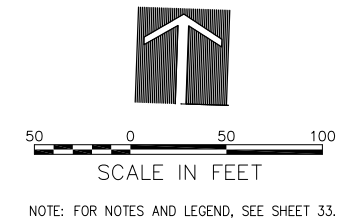
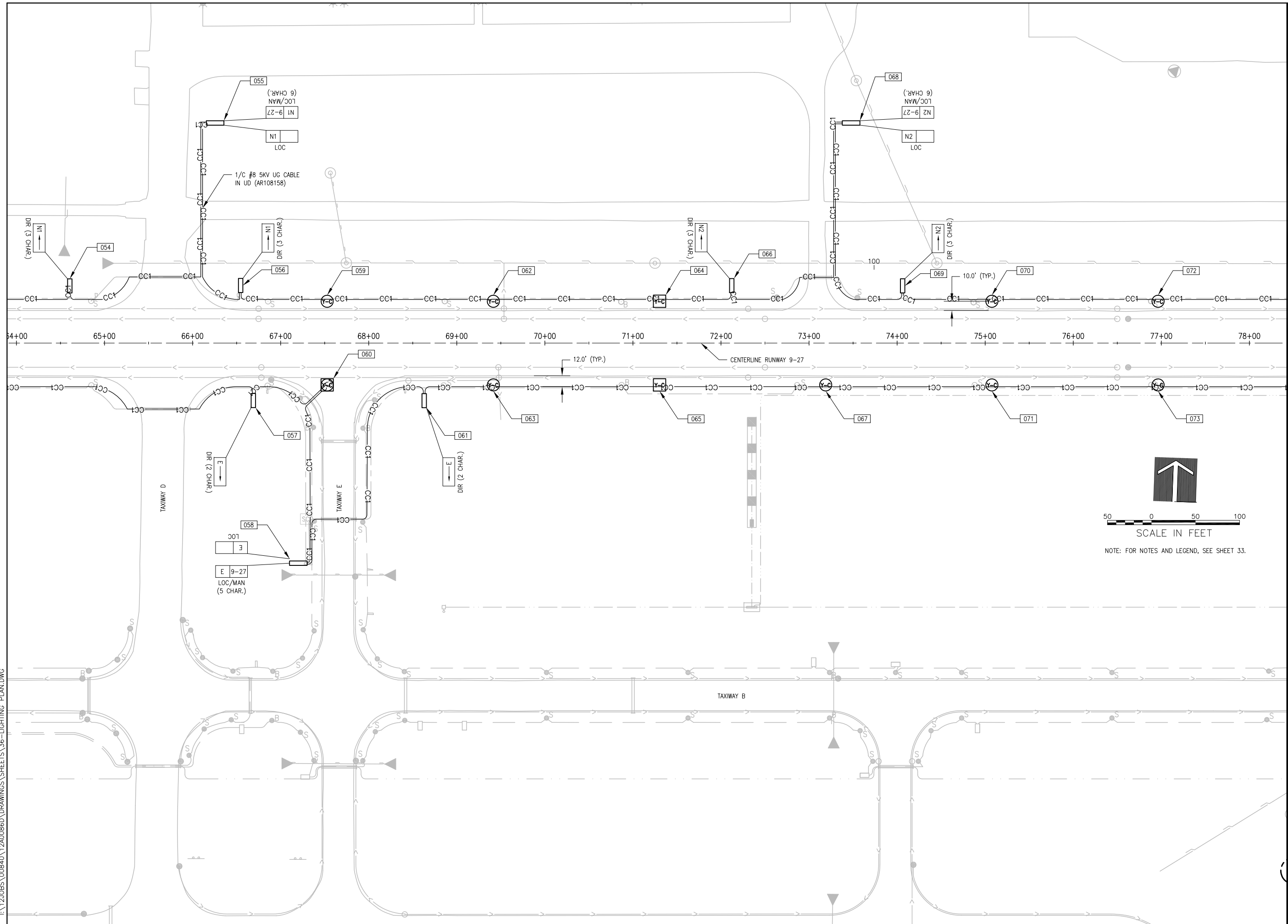
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Scale	1"=50'
Date	JANUARY 11, 2013
LAYOUT	LDH 8/7/12
DRAWN	LDH 8/7/12
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 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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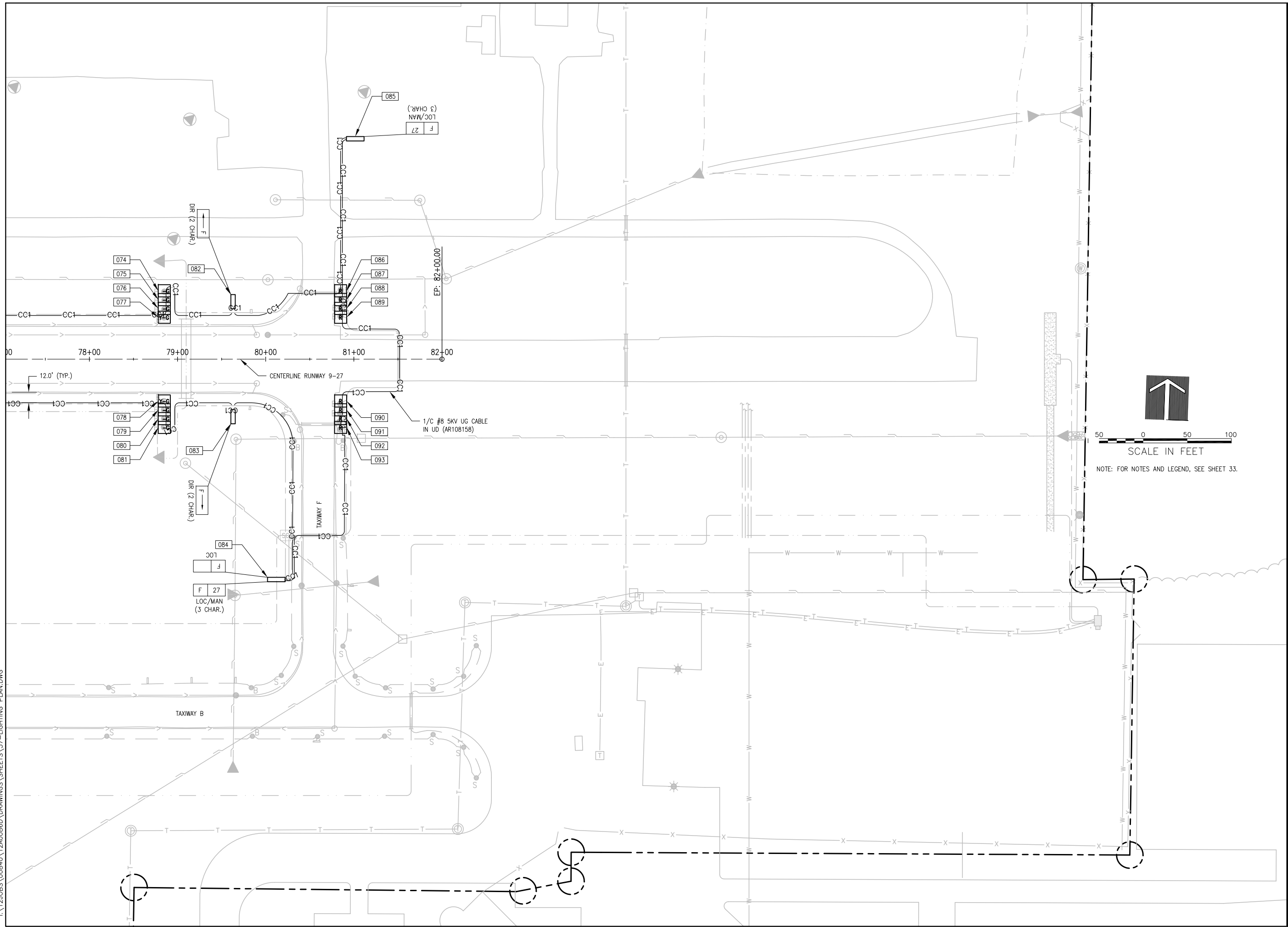
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Filename	36-LIGHTING PLAN.DWG
Scale	1"=50'
Date	JANUARY 11, 2013
LAYOUT	LDH 8/7/12
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LIGHTING AND SIGNAGE PLAN
 REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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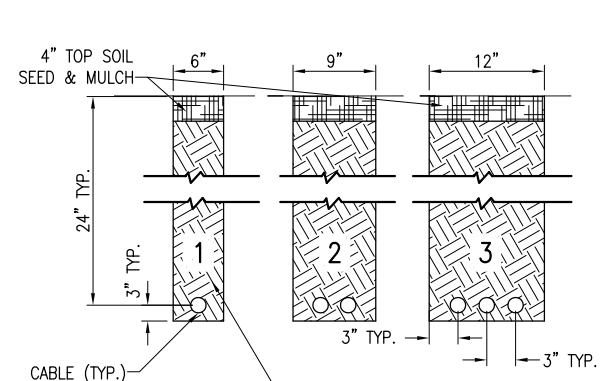
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Hanson No.	12A00860
Filename	37-LIGHTING PLAN.DWG
Scale	1"=50'
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LAYOUT	LDH 8/7/12
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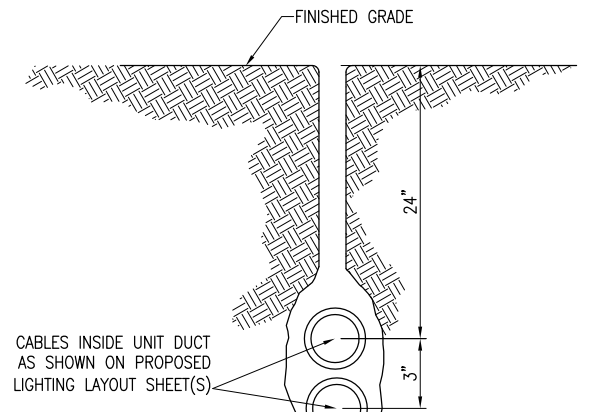
LIGHTING AND SIGNAGE PLAN
REHABILITATE WEST PORTION OF RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



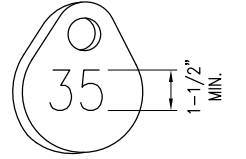
- NOTES:**
1. DETAIL NUMBERS INDICATE NO. OF CABLES.
 2. TRENCHES WITH MORE THAN THREE CABLES SHALL BE INCREASED 3" IN WIDTH FOR EACH ADDITIONAL CABLE; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
 3. DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 4. ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.

CABLE TRENCHES
(NOT TO SCALE)

EARTH BACKFILL WILL HAVE MAXIMUM 1" SIZE PARTICLES AND WILL BE PLACED IN TWO LIFTS AS APPROXIMATELY SHOWN (TYPICAL FOR ALL TRENCHES)

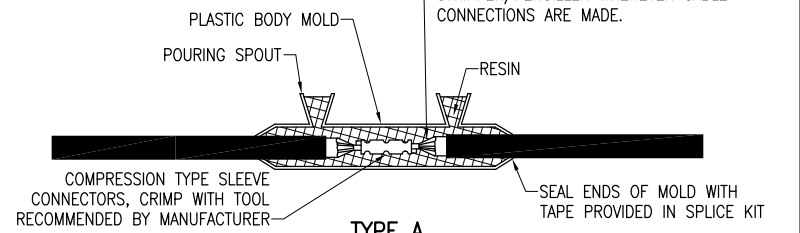


PLOWED CABLE
(NOT TO SCALE)



NOTE:
AFFIX NON-CORROSIVE TAG TO FIXTURE FACING RUNWAY WITH SET SCREW, WIRE TIE, OR METAL BAND. NUMERALS SHALL BE ENGRAVED FOR PERMANENT READABILITY.

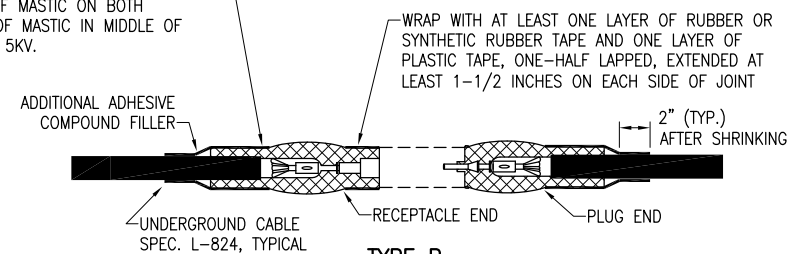
TAG DETAIL
(NOT TO SCALE)



TYPE A

CONTINUOUS HEAT SHRINK TUBING PLACED OVER THE ENTIRE L-823 CONNECTOR(S) BOTH MALE AND FEMALE AT ALL 5KV JUNCTIONS. THE HEAT SHRINK TUBING SHALL BE APPROXIMATELY 18" IN LENGTH WITH 6 INCHES OF MASTIC ON BOTH ENDS AND VOID OF MASTIC IN MIDDLE OF TUBE RATED FOR 5KV.

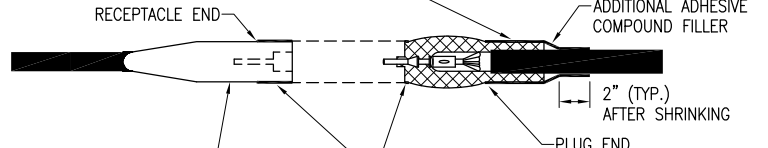
FOR SPLICES IN LOW VOLTAGE CABLE (600V) HOMERUNS FOR EXTENSIONS TO EXISTING LOW VOLTAGE CABLES ONLY. TYPE A SPLICES SHALL BE MADE IN SPLICE CANS, HANDHOLES, MANHOLES, OR JUNCTIONS BOXES



TYPE B

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

HEAT SHRINKABLE TUBING WITH INTERNAL ADHESIVE. HEAT SHRINKABLE TUBING SHALL EXTEND FROM THE CABLE TO AT LEAST AN INCH PAST THE COMPLETED CONNECTION.



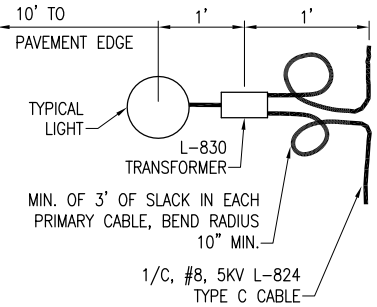
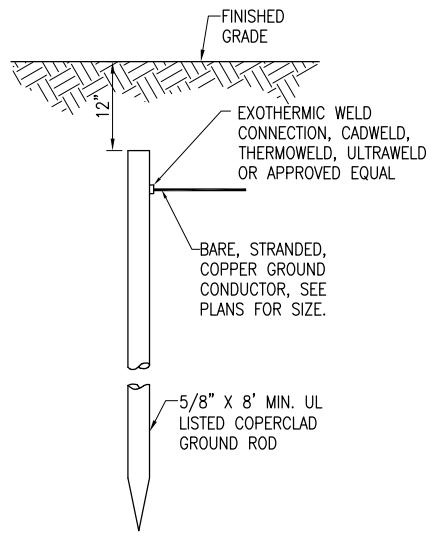
TYPE C

FOR SPLICES AT RUNWAY AND TAXIWAY LIGHTS

NOTE:
SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR SPLICE TYPE.

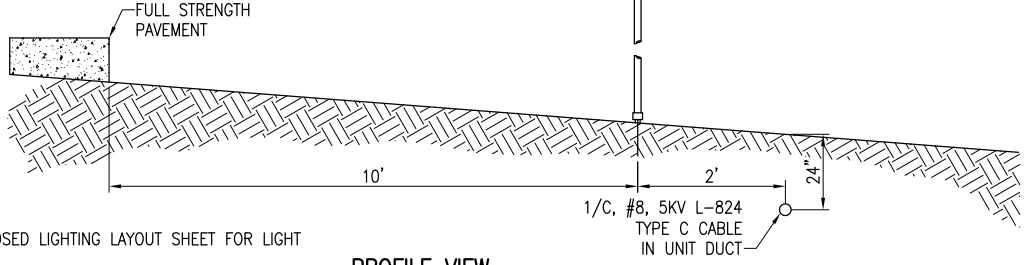
CABLE SPLICES
(NOT TO SCALE)

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



PLAN VIEW

PER FAA AC 150/5340-30G DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, A LIGHT BASE GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 5/8-INCH DIAMETER BY 8-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.



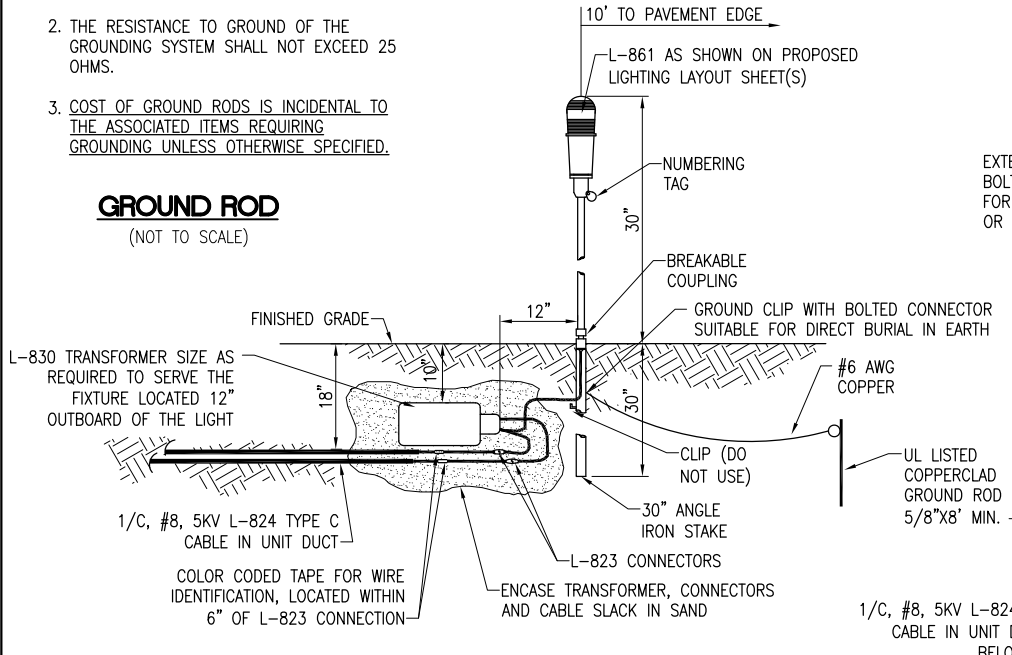
PROFILE VIEW

LIGHT AND CABLE INSTALLATION DETAIL
(NOT TO SCALE)

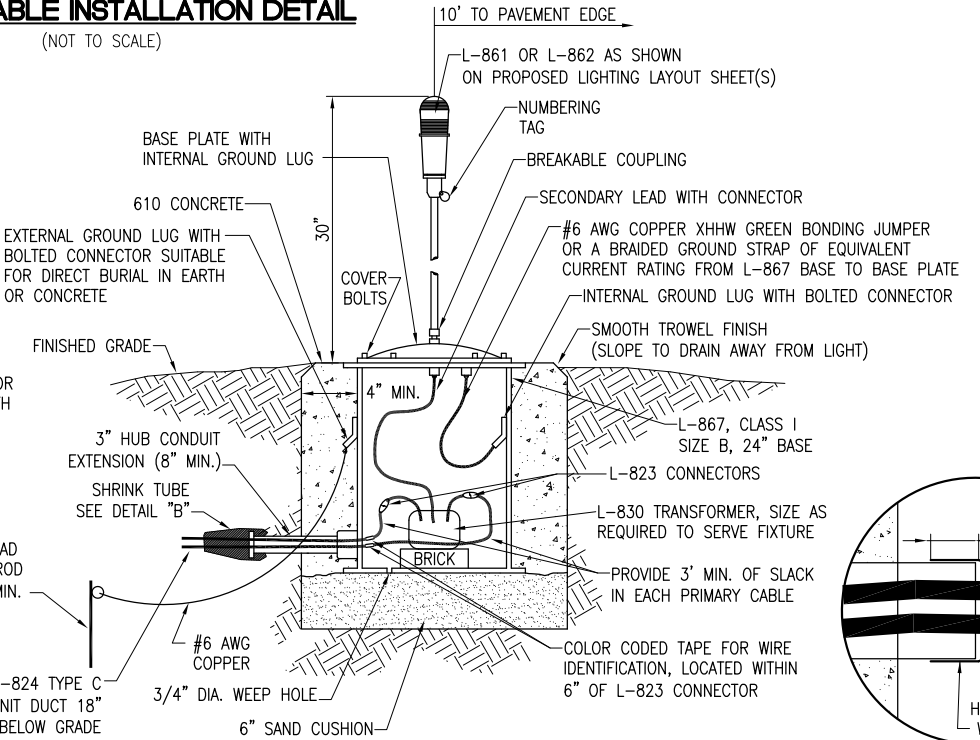
NOTES:
SEE PROPOSED LIGHTING LAYOUT SHEET FOR LIGHT LOCATIONS.

- NOTES:**
1. TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
 2. THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
 3. COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.

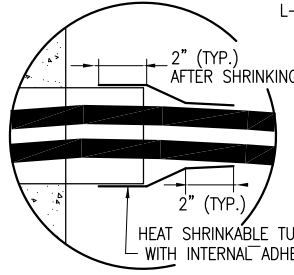
GROUND ROD
(NOT TO SCALE)



MEDIUM/HIGH INTENSITY LIGHT - STAKE MOUNTED
(NOT TO SCALE)



MEDIUM/HIGH INTENSITY LIGHT - BASE MOUNTED
(NOT TO SCALE)



DETAIL 'B'
(NOT TO SCALE)

REVISION
DATE

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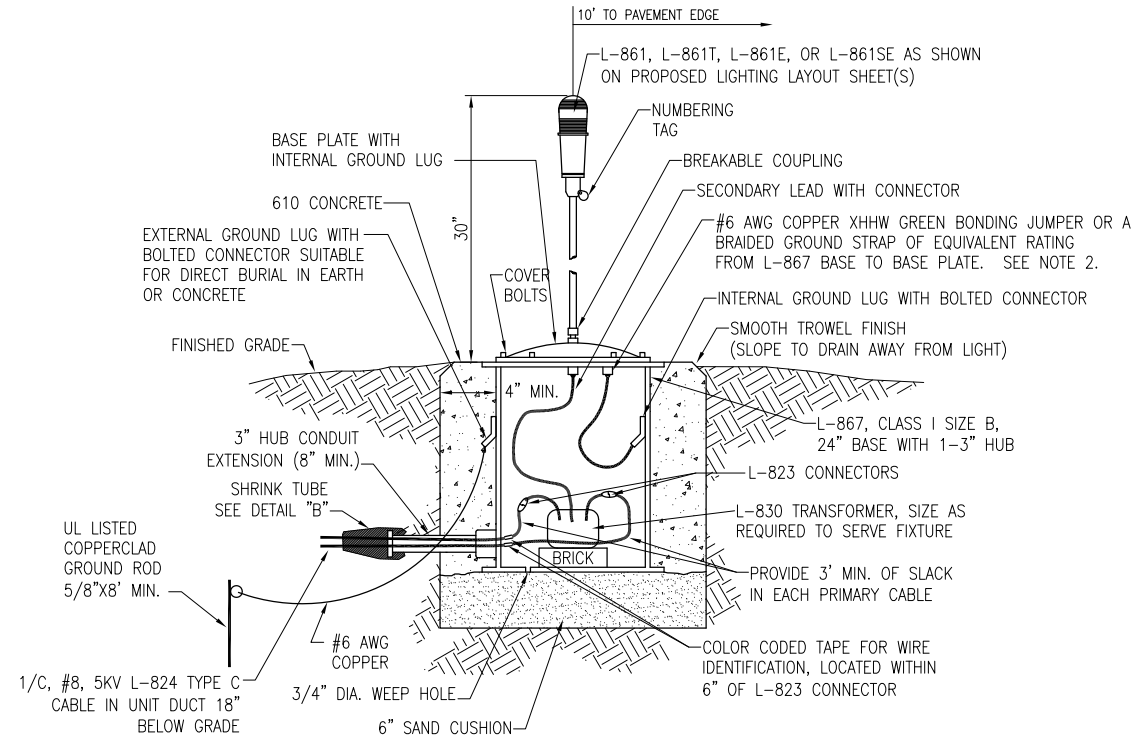
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Filename	39-E-501-ELEC.DWG	SCALE	N/A
LAYOUT	KNL	DATE	12/1/12
DRAWN	LDH	DATE	12/3/12
REVIEWED	RMH	DATE	1/10/13

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ELECTRICAL DETAILS
SHEET 1

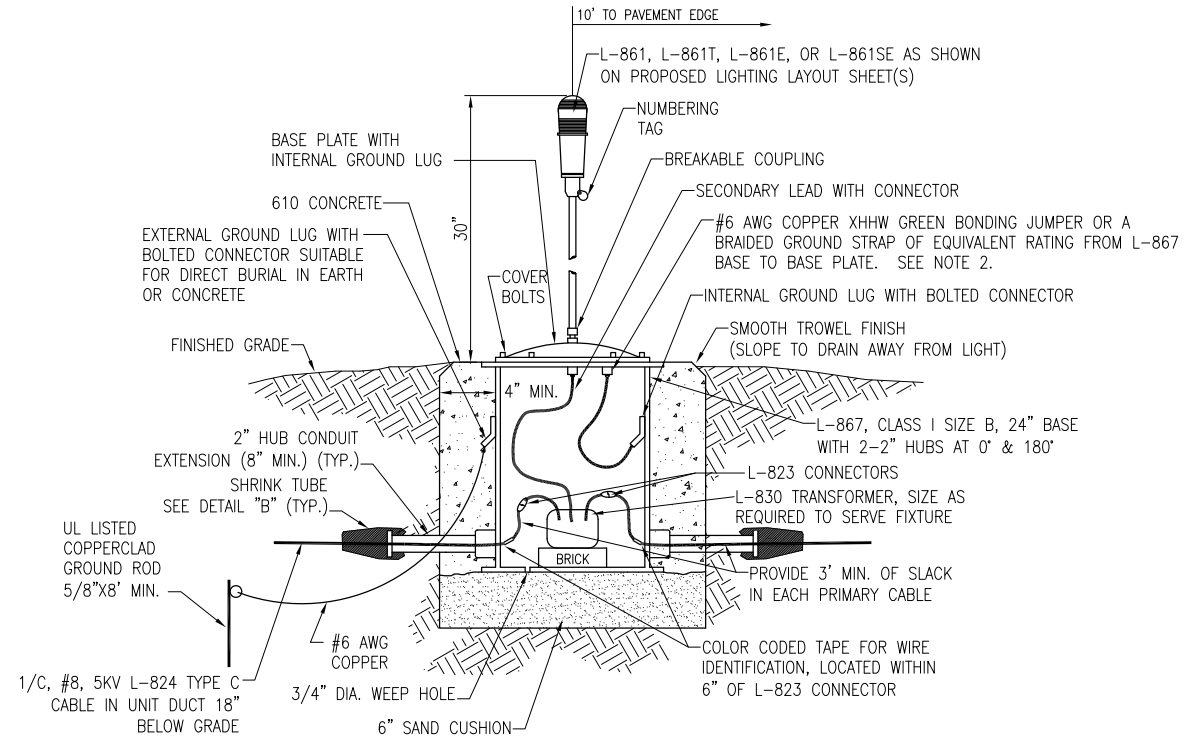
REHABILITATE WEST PORTION OF
RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51

JAN 15, 2013 9:28 AM HAUSM006B2
I:\21085\00840\210086D\DRAWINGS\SHEETS\39-E-501-ELEC.DWG



MEDIUM/HIGH INTENSITY LIGHT - BASE MOUNTED OPTION 1

(NOT TO SCALE)

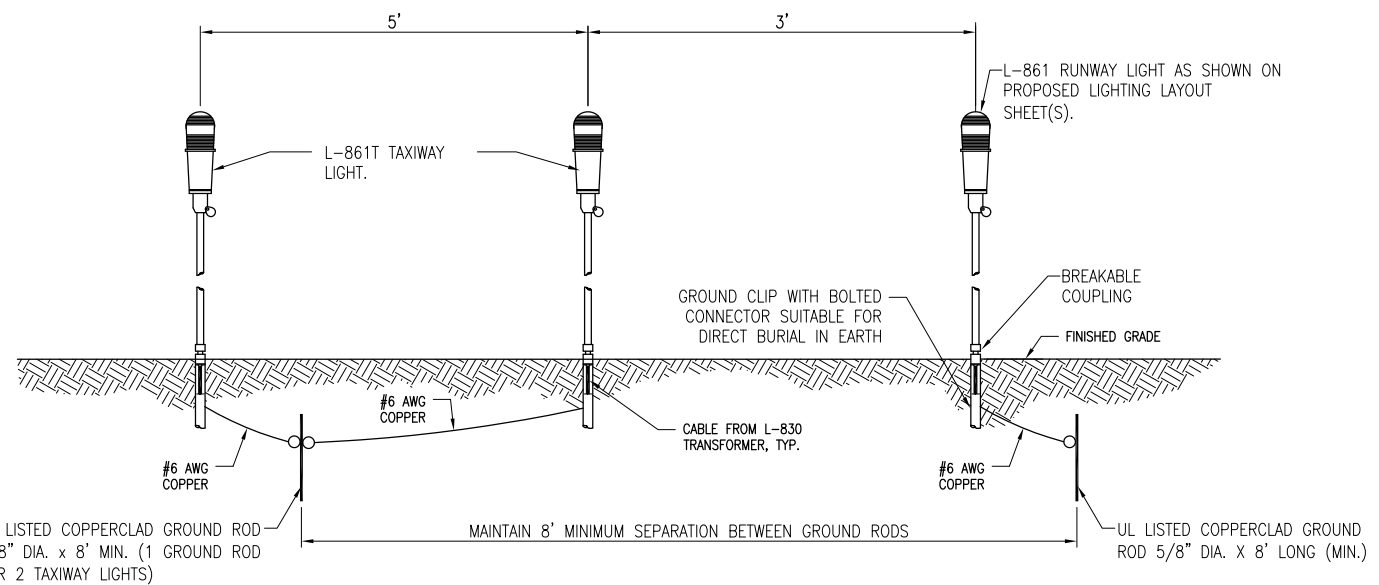


MEDIUM/HIGH INTENSITY LIGHT - BASE MOUNTED OPTION 2

(NOT TO SCALE)

NOTES

- GROUNDING FOR RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS SHALL BE AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. PER FAA AC 150/5340-30G DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 5/8-INCH DIAMETER BY 8-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE: 800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE: 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437), OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS. TOP OF GROUND RODS SHALL BE BURIED 12 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS.
- FOR BASE MOUNTED LIGHT FIXTURES THE LIGHT FIXTURE MUST BE BONDED TO THE LIGHT BASE INTERNAL GROUND LUG VIA A #6 AWG STRANDED COPPER WIRE RATED FOR 600 VOLTS WITH GREEN XHHW INSULATION OR A BRAIDED GROUND STRAP OF EQUIVALENT CURRENT RATING. THE GROUND WIRE LENGTH MUST BE SUFFICIENT TO ALLOW THE REMOVAL OF THE LIGHT FIXTURE FROM THE LIGHT BASE FOR ROUTINE MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S INSTRUCTIONS FOR PROPER METHODS OF ATTACHING A BONDING WIRE.
- FOR TAXIWAY LIGHTS THAT ARE SPACED WITH LESS THAN 10 FEET OF SEPARATION BETWEEN THEM PROVIDE ONE 5/8-INCH DIAMETER BY 8-FOOT LONG GROUND ROD PER TWO ADJACENT TAXIWAY LIGHTS.
- STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100% DOMESTIC STEEL.
- 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 2011 NATIONAL ELECTRICAL CODE ARTICLE 250-12.
- PER FAA 150/5340-30G THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.
- FOR EACH GROUND ROD/GROUNDING ELECTRODE SYSTEM 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 GROUNDING ELECTRODE SYSTEM. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. RECORD DATE AND SITE CONDITIONS FOR EACH TEST. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT PROJECT REPRESENTATIVE/RESIDENT ENGINEER.



GROUNDING DETAIL FOR TAXIWAY LIGHT SPACING LESS THAN 10'

(NOT TO SCALE)

Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
1 George Michas Drive
Romeoville, Illinois 60446
Telephone: 815.838.9497
Fax: 815.838.9524

Hanson No.	12A0086D		
Filename	40-E-502-ELEC.DWG		
Scale	N/A		
Date	JANUARY 11, 2013		
LAYOUT	KNL	12/1/12	
DRAWN	LDH	12/3/12	
REVIEWED	RMH	1/10/13	

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Oak Brook, Illinois 60523

ELECTRICAL DETAILS
SHEET 2

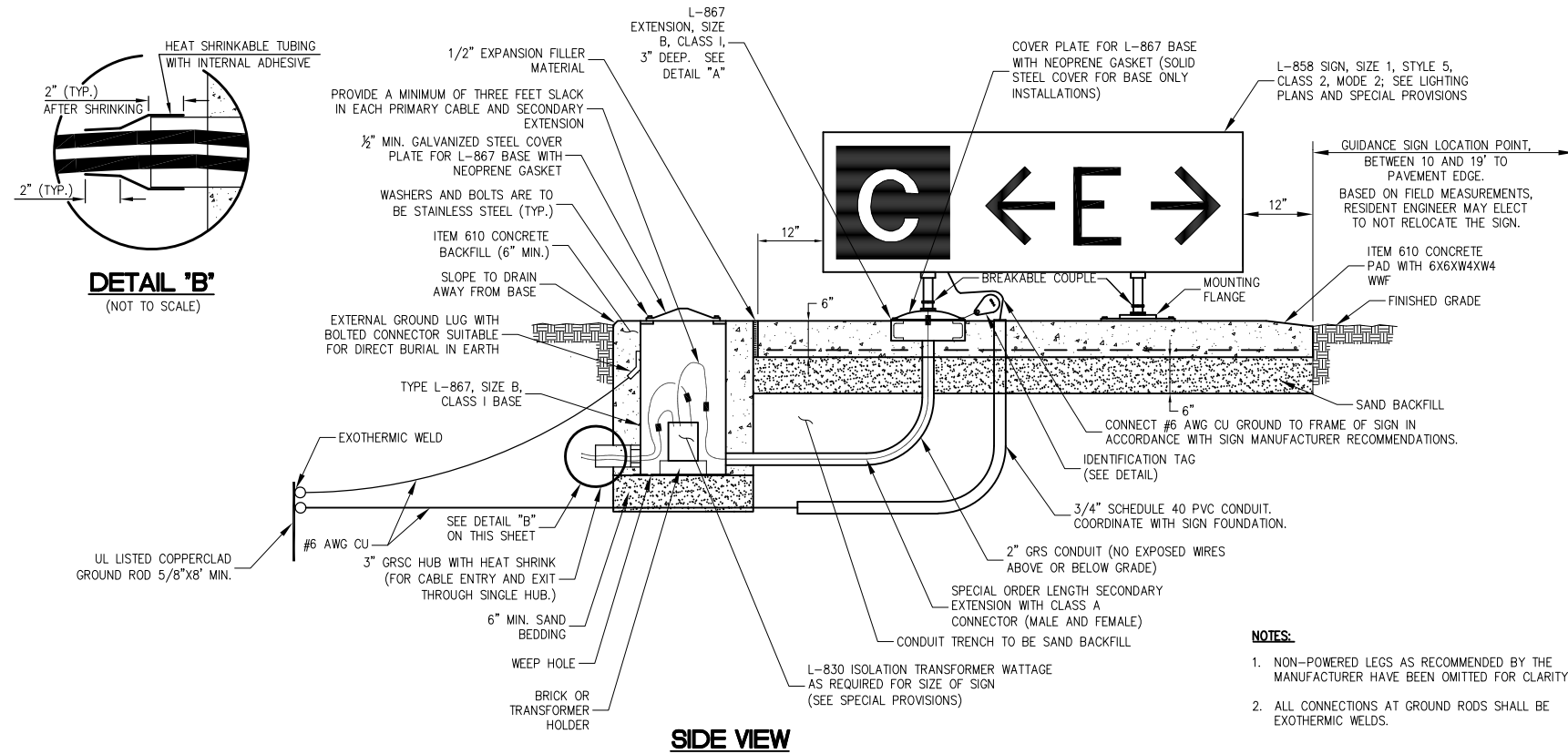
REHABILITATE WEST PORTION OF
RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51

Hanson No.	12A00860	File Name	41-E-503-ELEC.DWG
Scale	N/A	Date	JANUARY 11, 2013
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DRAWN	LDH	12/3/12	
REVIEWED	RMH	1/10/13	

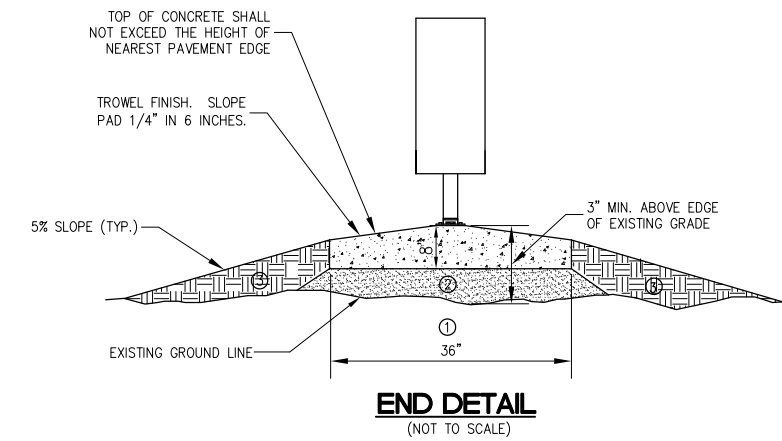
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ELECTRICAL DETAILS
SHEET 3

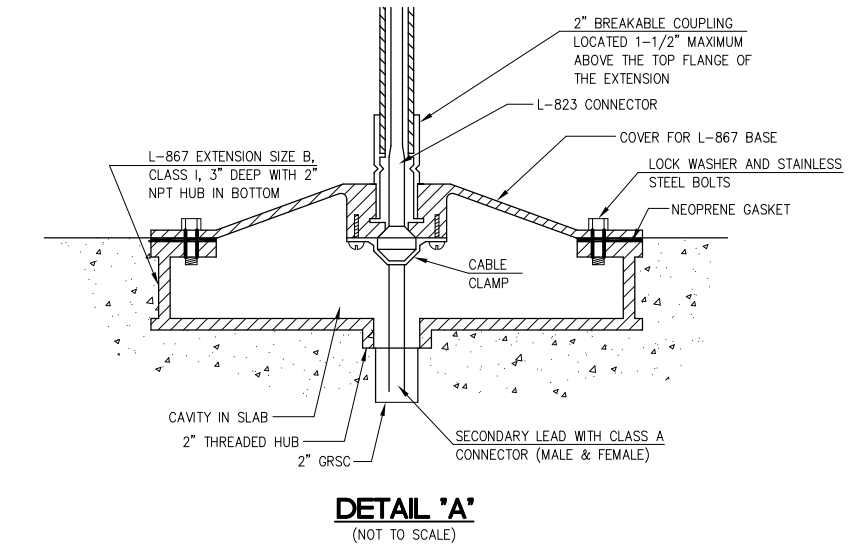
REHABILITATE WEST PORTION OF
RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51



- NOTES:**
- NON-POWERED LEGS AS RECOMMENDED BY THE MANUFACTURER HAVE BEEN OMITTED FOR CLARITY.
 - ALL CONNECTIONS AT GROUND RODS SHALL BE EXOTHERMIC WELDS.



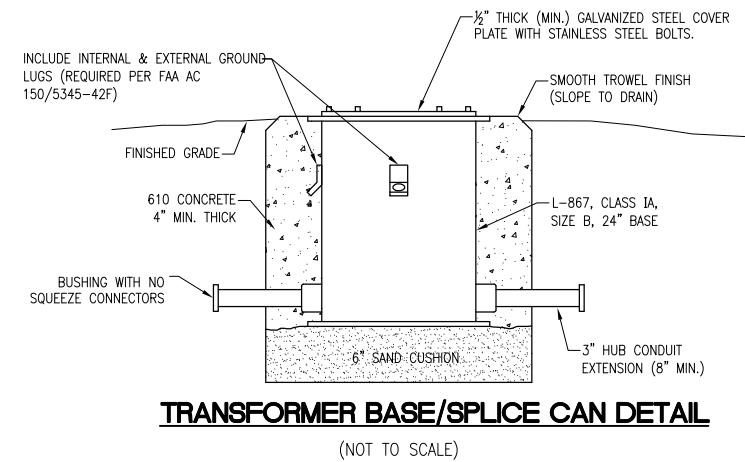
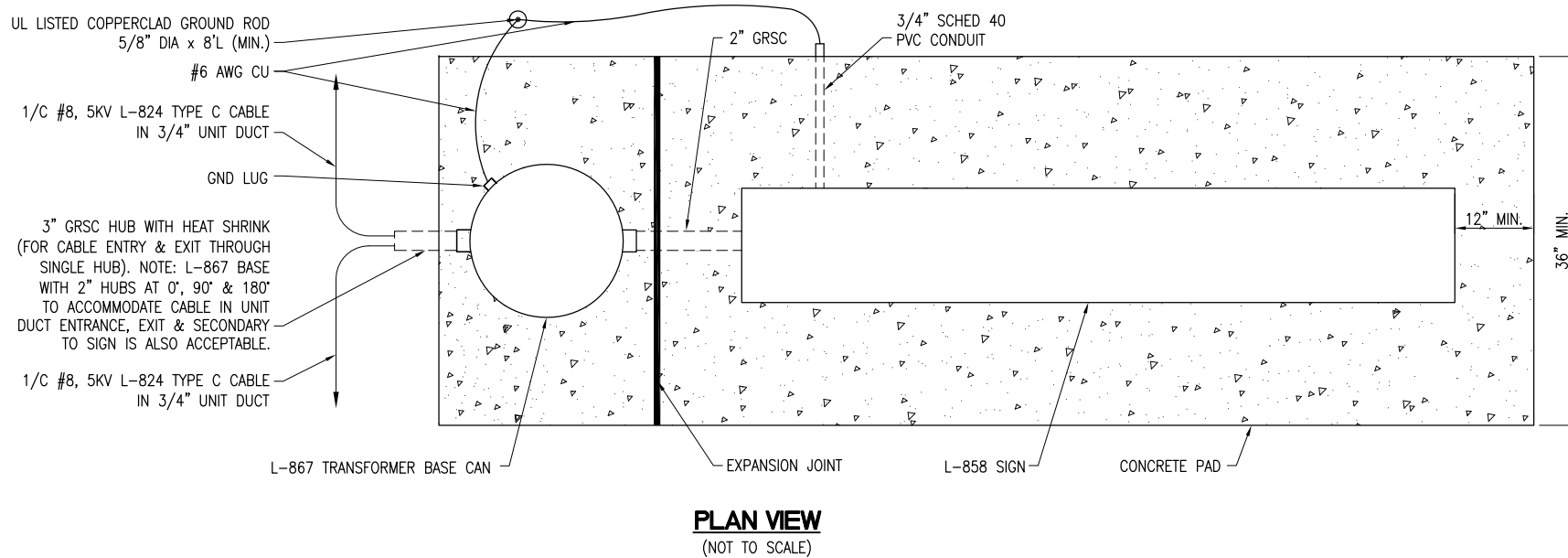
- ① EXISTING SOD TO BE STRIPPED AND REMOVED
② SAND BACKFILL, VARIABLE DEPTH
③ PROPOSED TOPSOIL BACKFILL MATERIAL



GENERAL NOTES:

- SEE ELECTRICAL NOTES SHEETS.

PER FAA AC 150/5340-30G DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, A LIGHT BASE GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 5/8-INCH DIAMETER BY 8-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. ALSO BOND THE SIGN FRAME TO THE GROUND ROD WITH A #6 AWG BARE COPPER CONDUCTOR.



NOTE:
FOR THE PURPOSE OF ENHANCING SAFETY, EACH BASE MUST HAVE INSTALLED, BY THE MANUFACTURER, AN INTERNAL AND EXTERNAL GROUND STRAP THAT IS AVAILABLE FOR THE PURPOSE OF ATTACHING A GROUND LUG THAT IS CONNECTED TO AN EARTH GROUND OR A SAFETY GROUND CONDUCTOR INSTALLED WITH THE RESPECTIVE CIRCUIT. FOR AIRPORT PROJECTS RECEIVING FEDERAL FUNDS THIS REQUIREMENT IS MANDATORY PER FAA AC 150/5345-42F.

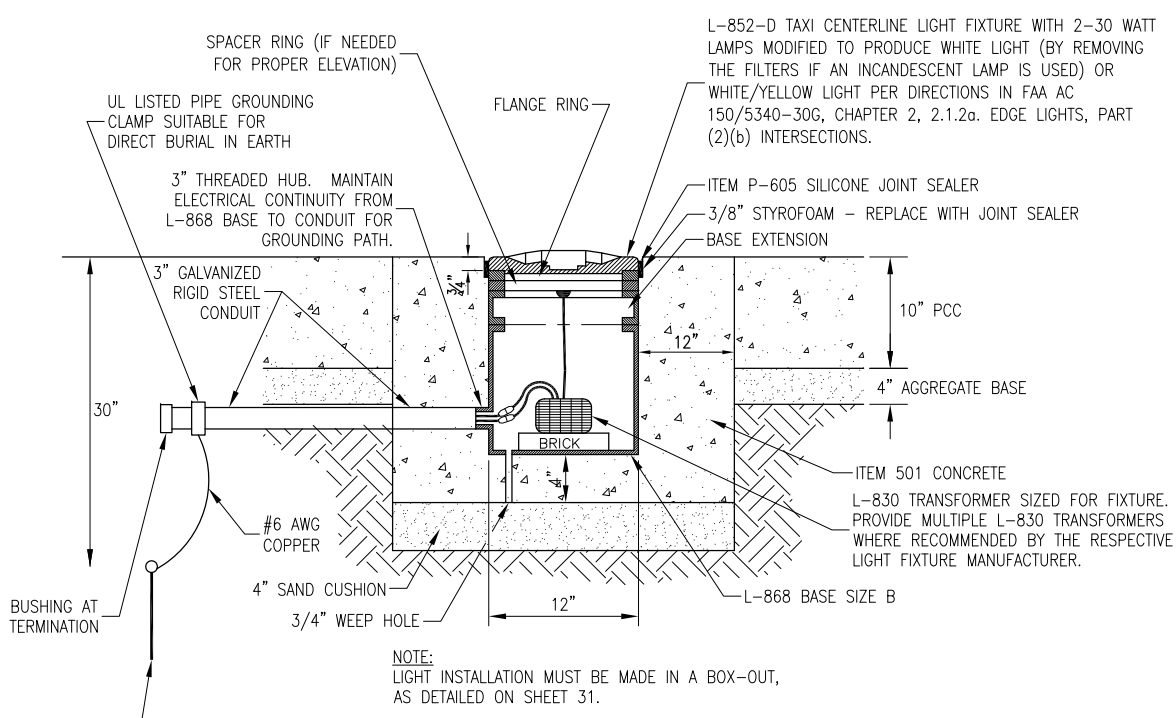
REVISION
DATE

Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
1 George Michas Drive
Romeoville, Illinois 60446
Telephone: 815.838.9497
Fax: 815.838.9524

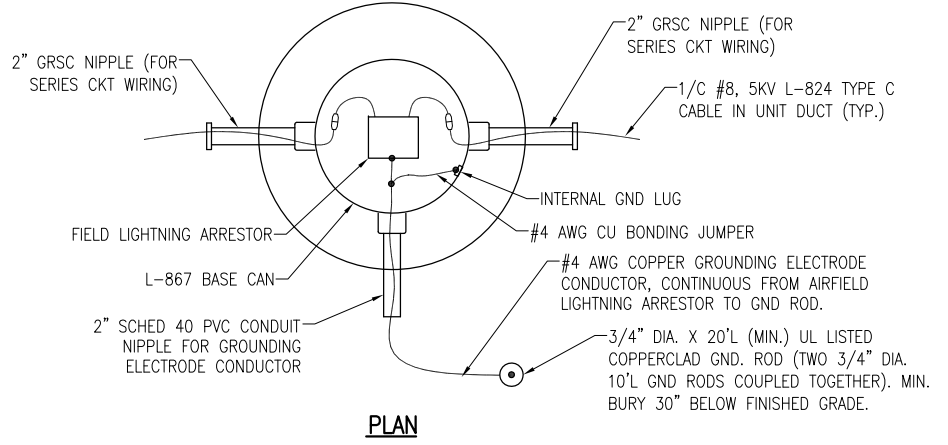
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Scale	N/A	DATE	JANUARY 11, 2013
LAYOUT	KNL	12/1/12	
DRAWN	LDH	12/3/12	
REVIEWED	RMH	1/10/13	

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Oak Brook, Illinois 60523

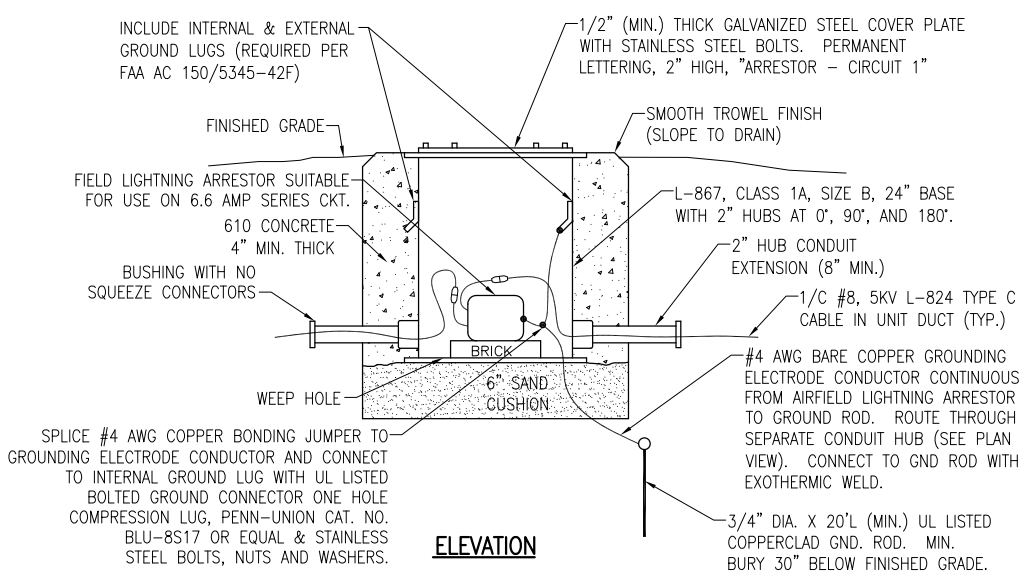
ELECTRICAL DETAILS
SHEET 4
REHABILITATE WEST PORTION OF
RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51



IN-PAVEMENT RUNWAY LIGHT



PLAN

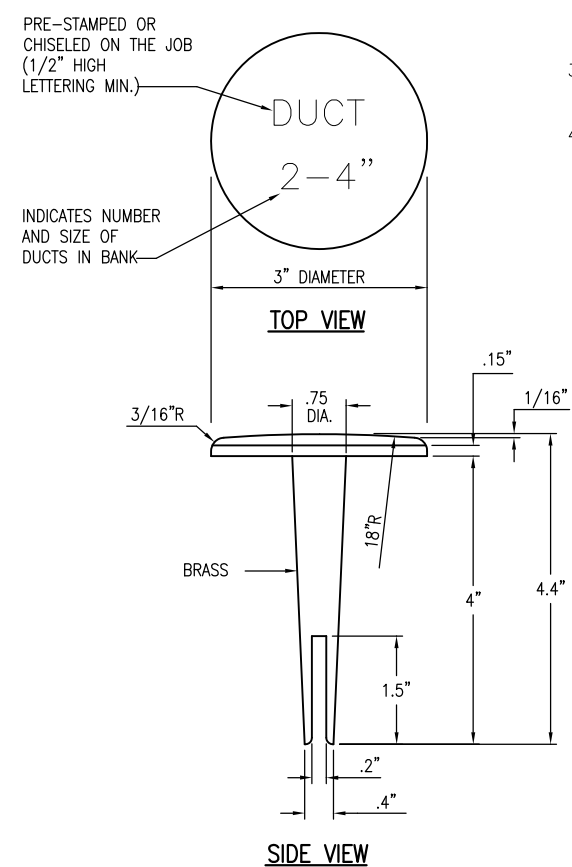


ELEVATION

FIELD LIGHTNING ARRESTOR IN BASE CAN

(NOT TO SCALE)

INCLUDE INTERNAL AND EXTERNAL GROUND LUGS (REQUIRED PER FAA AC A50/5345-42F)



SIDE VIEW

NOTES:

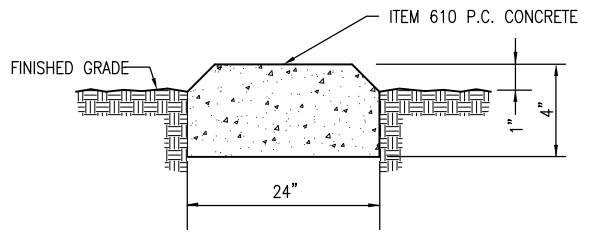
1. TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE.
2. BRASS DUCT MARKERS ARE AVAILABLE FROM G&S FOUNDRY AND MANUFACTURING CO. INC., 210 KASKASKIA DRIVE, RED BUD, IL 62278, PHONE: 618-282-4114

BITUMINOUS PAVEMENT MARKER

TURF AND PAVEMENT DUCT AND CABLE MARKERS

CABLE & DUCT MARKER NOTES:

1. THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
2. BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE FORMED AS DESCRIBED IN NOTE 4.
3. CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE RUNS.
4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.



CONCRETE MARKER

NOTES:

1. THE COSTS OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
2. BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE FORMED AS DESCRIBED IN NOTE 4.
3. CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND EVERY 200' ALONG CABLE RUNS.
4. LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.

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GENERAL NOTES

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

POWER AND CONTROL NOTES

- 1. PROVIDE LEGEND PLATES FOR ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, CIRCUIT VOLTAGE AND PHASE. WHERE THE EQUIPMENT CONTAINS FUSES, ALSO IDENTIFY THE FUSE OR FUSE LINK AMPERE RATING. WHERE THE EQUIPMENT DOES NOT HAVE SUFFICIENT AREA TO INSTALL LEGEND PLATES, THE LEGEND PLATES SHALL BE INSTALLED ON THE WALL NEXT TO THE UNIT. LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.
2. COLOR CODE ALL PHASE WIRING BY THE USE OF COLORED WIRE INSULATION AND/OR COLORED TAPE. WHERE TAPE IS USED, THE WIRE INSULATION SHALL BE BLACK. BLACK AND RED SHALL BE USED FOR PHASE CONDUCTORS ON 120/240VAC SINGLE-PHASE, THREE WIRE SYSTEMS AND BLACK, 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).
3. ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE SHALL BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING SHALL BE EXTENDED TO THE POINT OF UTILIZATION.
4. IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL, ETC.
5. LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE INSTALLED IN SEPARATE WIREWAYS.
6. NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND JUNCTION/PULL BOXES.
7. THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:
A. IN STRAIGHT PULLS THE LENGTH OF THE BOX SHALL NOT BE LESS THAN EIGHT TIMES THE TRADE DIAMETER OF THE LARGER CONDUIT. THE TOTAL AREA (INCLUDING THE CONDUIT CROSS-SECTIONAL AREA) OF A BOX END SHALL BE AT LEAST 3 TIMES GREATER THAN THE TOTAL TRADE CROSS-SECTIONAL AREA OF THE CONDUITS TERMINATING AT THE END.
B. IN ANGLE PULLS OR 'U' PULLS THE DISTANCE BETWEEN EACH CONDUIT ENTRY INSIDE THE BOX AND THE OPPOSITE WALL OF THE BOX SHALL NOT BE LESS THAN SIX (6) TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT. THIS DISTANCE SHALL BE INCREASED FOR ADDITIONAL ENTRIES BY THE AMOUNT OF THE SUM OF THE DIAMETERS OF ALL OTHER CONDUIT ENTRIES ON THE SAME WALL AS THE BOX. THE DISTANCE BETWEEN CONDUIT ENTRIES ENCLOSING THE SAME CONDUCTOR SHALL NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT.
8. A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, SQUARE DUCTS AND PULL/JUNCTION BOXES, SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL), INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE TERMINATIONS, CAST, CONDUIT TYPE OUTLETS SHALL NOT BE TREATED AS PULL/JUNCTION BOXES.
9. EQUIPMENT CABINETS SHALL NOT BE USED AS PULL/JUNCTION BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT SHALL BE BROUGHT INTO THESE ENCLOSURES.
10. SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS, AND AT EASILY ACCESSIBLE LOCATIONS.
11. CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL(S) SHALL BE THERMAL-MAGNETIC MOLDED CASE, PERMANENT TRIP WITH 100 AMPERE, MINIMUM FRAME.
12. DUAL LUGS SHALL BE USED WHERE TWO (2) WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMINAL.
13. ALL INTERIOR WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED ON HOT DIPPED GALVANIZED STEEL STRUT SUPPORT, OR STAINLESS STEEL STRUT SUPPORT, WITH CORROSION RESISTANT HARDWARE.
14. SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE HOT DIPPED GALVANIZED STEEL STRUT SUPPORT OR STAINLESS STEEL STRUT SUPPORT WITH STAINLESS STEEL HARDWARE. PROVIDE ZINC RICH PAINT APPLIED TO FIELD CUTS OF GALVANIZED STEEL SUPPORT TO MINIMIZE THE POTENTIAL FOR CORROSION PER THE RESPECTIVE STRUT SUPPORT MANUFACTURER'S RECOMMENDATIONS.
15. CONDUITS FOR ELECTRIC SERVICE ENTRANCE AND FEEDERS SHALL BE AS DETAILED HEREIN ON THE PLANS. WHERE GALVANIZED RIGID STEEL CONDUIT IS SPECIFIED IT SHALL HAVE THREADED FITTINGS. SET SCREW TYPE FITTINGS WILL NOT BE ACCEPTABLE. CONDUITS FOR UNDERGROUND APPLICATIONS SHALL BE AS DETAILED HEREIN. CONDUITS FOR GROUNDING ELECTRODE CONDUCTORS OR INDIVIDUAL GROUNDING CONDUCTORS SHALL BE SCHEDULE 40 OR SCHEDULE 80 PVC.
16. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AT CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION OR WHERE FLEXIBILITY IS REQUIRED. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING, SUNLIGHT RESISTANT, AND RESISTANT TO OIL, GASOLINE, AND GREASE. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO MOTORS, TRANSFORMERS, & CONSTANT CURRENT REGULATORS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL LISTED. CONFIRM LIQUID-TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
17. UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.
18. ALL STEEL CONDUITS, FITTINGS, NUTS, BOLTS, ETC. SHALL BE GALVANIZED.
19. USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG OR LARGER UNDERGROUND WIRE IS INSTALLED, USE INSULATED BUSHINGS.
20. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
21. WRAP ALL PRIMARY AND SECONDARY POWER TRANSFORMER CONNECTIONS WITH SUFFICIENT LAYERS OF INSULATING TAPE (3M SCOTCH 23 ALL-VOLTAGE SPLICING TAPE, 3M SCOTCH 130C LINERLESS RUBBER SPLICING TAPE, OR APPROVED EQUAL) AND COVER WITH VINYL ELECTRICAL TAPE (3M SCOTCH 88 VINYL ELECTRICAL TAPE OR APPROVED EQUAL) FOR FULL VALUE OF CABLE INSULATION VOLTAGE.
22. UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG. COPPER MINIMUM.
23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:
A. FOR INTERIOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 12 (DUST TIGHT) ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. FOR EXTERIOR/OUTDOOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 4X STAINLESS STEEL ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. ALL CONDUIT ENTRIES INTO NEMA 4, 4X ENCLOSURES SHALL HAVE NEMA 4 HUBS LISTED SUITABLE FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE.
B. THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS, TERMINAL BLOCKS AND INCOMING AND INTERNAL WIRING.
C. ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED-EYE TERMINATIONS, OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.
D. WHEN THE ENCLOSURE COVER IS OPENED, ALL CIRCUIT COMPONENTS, WIRING AND TERMINALS SHALL BE EXPOSED AND ACCESSIBLE WITHOUT REMOVAL OF ANY PANELS, COVERS, ETC., EXCEPT THOSE COVERING HIGH VOLTAGE COMPONENTS.
E. ACCESS TO, OR REMOVAL OF A CIRCUIT COMPONENT OR TERMINAL BLOCK WILL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR TERMINAL BLOCK.
F. EACH CIRCUIT COMPONENT SHALL BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWINGS AND ITS FUNCTION.
G. A COMPLETE WIRING DIAGRAM SHALL BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE.
H. THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL.
I. ALL WIRING SHALL BE NEATLY TRAINED AND LACED.
J. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG.
24. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH METER SOCKET, SERVICE DISCONNECT, SAFETY SWITCH, CUTOUT, PANELBOARD, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "FLASH PROTECTION".

REVISION

DATE

Chicago-Romeoville Airport
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Table with columns: Hanson No., Filename, Scale, Date, LAYOUT, DRAWN, REVIEWED, KNL, LDH, RMH, 12/1/12, 12/3/12, 1/10/13

HANSON Professional Services Inc. 2013
Hanson Professional Services Inc.
815 Commerce Drive Suite 200
Oak Brook, Illinois 60523

ELECTRICAL NOTES SHEET 1

REHABILITATE WEST PORTION OF RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51

JAN 14, 2013 5:26 PM HALSUM0682
I:\121085\00840\12400860\DRAWINGS\SHETS\43-E-001-ELEC.DWG

AIRFIELD LIGHTING NOTES

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

20. ENTRANCES INTO L-867 BASES SHALL HAVE CONDUIT COUPLINGS OR REDUCERS TO INTERFACE UNIT DUCT/CONDUIT TO L-867 BASE HUBS, OR SHALL BE SEALED WITH HEAT SHRINK AS SHOWN IN DETAIL "B" ON ELECTRICAL DETAILS SHEET 1.
21. GALVANIZED/PAINTED EQUIPMENT/COMPONENT SURFACES SHALL NOT BE DAMAGED BY DRILLING, FILING, ETC. DRAIN HOLES IN METAL TRANSFORMER HOUSINGS SHALL BE MADE BEFORE GALVANIZING.
22. EDGE LIGHT NUMBERING TAGS SHALL BE FACING THE PAVEMENT.
23. CABLE/SPLICE/DUCT MARKERS SHALL BE PRECAST CONCRETE OF THE SIZE SHOWN. LETTERS/NUMBERS/ARROWS FOR THE LEGEND TO BE IMPRESSED INTO THE TOPS OF THE MARKERS SHALL BE PRE-ASSEMBLED AND SECURED IN THE MOLD BEFORE THE CONCRETE IS POURED. LEGEND INSCRIBED BY HAND IN WET CONCRETE SHALL NOT BE ACCEPTABLE.
24. ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 FEET MAXIMUM SPACING, WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS SHALL BE INSTALLED IMMEDIATELY ABOVE THE CABLES.
25. THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823 CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE SHOWN.
26. APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS.
27. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT MARKERS.
28. WHERE A PARALLEL, CONSTANT VOLTAGE PAPI SYSTEM IS PROVIDED, THE "T" SPLICES SHALL BE OF THE CAST TYPE.
29. CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND TRANSFORMER HOUSINGS, MARKINGS, ETC. SHALL BE 3500 PSI, AIR-ENTRAINED.
30. ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES SHALL BE TAGGED. USE EMBOSSED COPPER STRIPS TO BE ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MAN/HAND HOLE-ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT.
31. THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY 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 J.U.L.I.E. FOR UTILITY INFORMATION AT 1-800-892-0123. 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.
32. WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.

GROUNDING NOTES FOR AIRFIELD LIGHTING

1. GROUNDING FOR RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS SHALL BE AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. PER FAA AC 150/5340-30G DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 5/8-INCH DIAMETER BY 8-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE: 800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE: 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437), OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS. TOP OF GROUND RODS SHALL BE BURIED 12 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS.
2. FOR BASE MOUNTED LIGHT FIXTURES THE LIGHT FIXTURE MUST BE BONDED TO THE LIGHT BASE INTERNAL GROUND LUG VIA A #6 AWG STRANDED COPPER WIRE RATED FOR 600 VOLTS WITH GREEN XHHW INSULATION, OR A BRAIDED GROUND STRAP OF EQUIVALENT CURRENT RATING. THE GROUND WIRE LENGTH MUST BE SUFFICIENT TO ALLOW THE REMOVAL OF THE LIGHT FIXTURE FROM THE LIGHT BASE FOR ROUTINE MAINTENANCE. SEE LIGHT FIXTURE MANUFACTURER'S INSTRUCTIONS FOR PROPER METHODS OF ATTACHING A BONDING WIRE.
3. 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 2011 NATIONAL ELECTRICAL CODE ARTICLE 250-12.
4. PER FAA 150/5340-30G THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.
5. FOR EACH GROUND ROD/GROUNDING ELECTRODE SYSTEM 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 GROUNDING ELECTRODE SYSTEM. IF GROUND RESISTANCE EXCEEDS 25 OHM, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. RECORD DATE AND SITE CONDITIONS FOR EACH TEST. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT PROJECT REPRESENTATIVE/RESIDENT ENGINEER.

JAN 15, 2013 9:38 AM HAUSM006B2 I:\1210BS\00840\12A00860\DRAWINGS\SHEETS\44-E-002-ELEC.DWG

REVISION	DATE

Chicago-Romeoville Airport

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Hanson No.	12A00860
Filename	44-E-002-ELEC.DWG
Scale	N/A
Date	JANUARY 11, 2013
LAYOUT	KNL
DRAWN	LDH
REVIEWED	RMH
	12/1/12
	12/3/12
	1/10/13

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ELECTRICAL NOTES
SHEET 2

REHABILITATE WEST PORTION OF
RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51

REVISION
DATE

Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
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Hanson No. 12A0086D
Filename: 45-E-003-LEGNDWG
Scale: N/A
Date: JANUARY 11, 2013

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DRAWN	LDH	12/3/12
REVIEWED	RMH	1/10/13

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
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ELECTRICAL LEGEND AND ABBREVIATIONS
REHABILITATE WEST PORTION OF RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-01-40-B51

ELECTRICAL LEGEND - ONE-LINE DIAGRAM	
	CABLE TERMINATOR/LUG
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	FUSE
	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE
	GROUND - GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL
	INDICATING LIGHT
	MOTOR
	LOAD, MOTOR, # = HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE
	EQUIPMENT, XXX = DEVICE DESCRIPTION
	GROUND BUS OR TERMINAL
	NEUTRAL BUS
	PANELBOARD WITH MAIN LUGS
	PANELBOARD WITH MAIN BREAKER
	FUSE PANEL WITH MAIN FUSE PULLOUT
	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE
	CONTROL STATION
	TRANSFER SWITCH
	ENGINE GENERATOR SET

ELECTRICAL LEGEND - SCHEMATIC	
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	STARTER COIL, * = STARTER NUMBER
	OVERLOAD RELAY CONTACT
	CONTROL RELAY, * = CONTROL RELAY NUMBER
	RELAY, * = RELAY NUMBER
	TOGGLE SWITCH / 2 POSITION SWITCH
	2-POSITION SELECTOR SWITCH
	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)
	2 POLE DISCONNECT SWITCH
	3 POLE DISCONNECT SWITCH
	PHOTOCELL
	TERMINAL BLOCK, * = TERMINAL NUMBER
	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER
	INTERNAL PANEL WIRING
	FIELD WIRING
	FUSE
	GROUND BUS OR TERMINAL
	NEUTRAL BUS
	GROUND, GROUND ROD, GROUND BUS
	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
	S1 CUTOUT HANDLE REMOVED
	S1 CUTOUT HANDLE INSERTED
	N.O. THERMAL SWITCH
	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
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CR	CONTROL RELAY
CU	COPPER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
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
HOA	HAND OFF AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
J	JUNCTION BOX
KVA	KILOVOLT AMPERE(S)
KW	KILOWATTS
LC	LIGHTING CONTACTOR
LTFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT (UL LISTED)
LTG	LIGHTING
LP	LIGHTING PANEL
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCUAR MIL
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE (NFPA 70)
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OHE	OVERHEAD ELECTRIC
OL	OVERLOAD

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

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

NOTES:

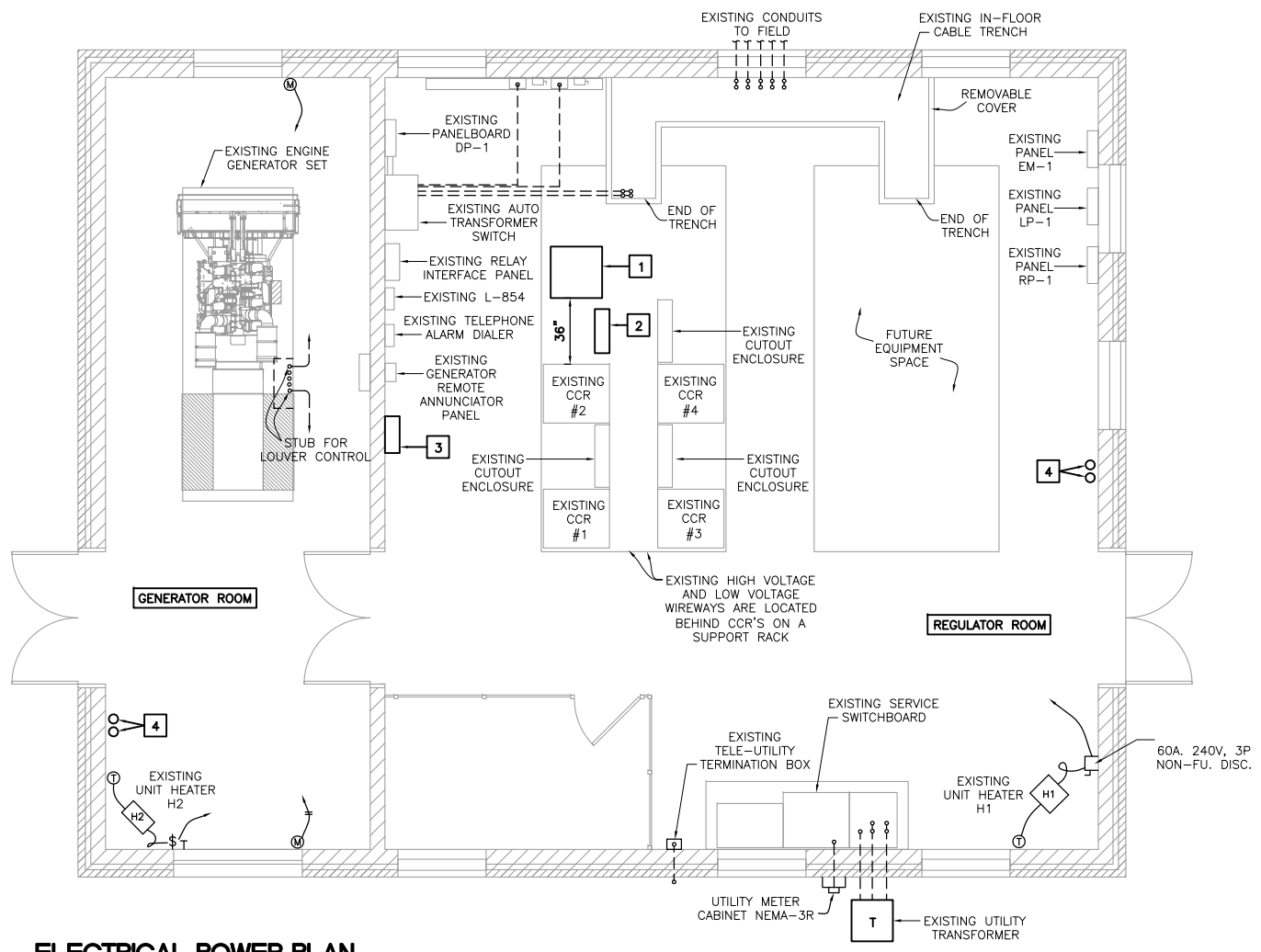
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- ALL VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- COLOR CODE PHASE AND NEUTRAL CONDUCTOR INSULATION FOR NO. 6 AWG OR SMALLER. PROVIDE COLORED INSULATION OR COLORED MARKING TAPE FOR PHASE AND NEUTRAL CONDUCTORS FOR NO. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR AWG AND/OR KCMIL TO COMPLY WITH NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE COLORED INSULATION FOR NO. 6 AWG AND SMALLER TO MEET THE REQUIREMENTS OF NEC 200.6. STANDARD COLORS FOR POWER WIRING AND BRANCH CIRCUITS SHALL BE AS FOLLOWS:
120/240 VAC, 1 PHASE, 3 WIRE
PHASE A BLACK
PHASE B RED
NEUTRAL 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.
- HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR HANDHOLE.

Hanson No.	12A0086D	Filename	46-E-101-PP.DWG
Scale	N/A	Date	JANUARY 11, 2013
LAYOUT	KNL	12/1/12	
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**NEW FLOOR PLAN
 FOR VAULT**

REHABILITATE WEST PORTION OF
 RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



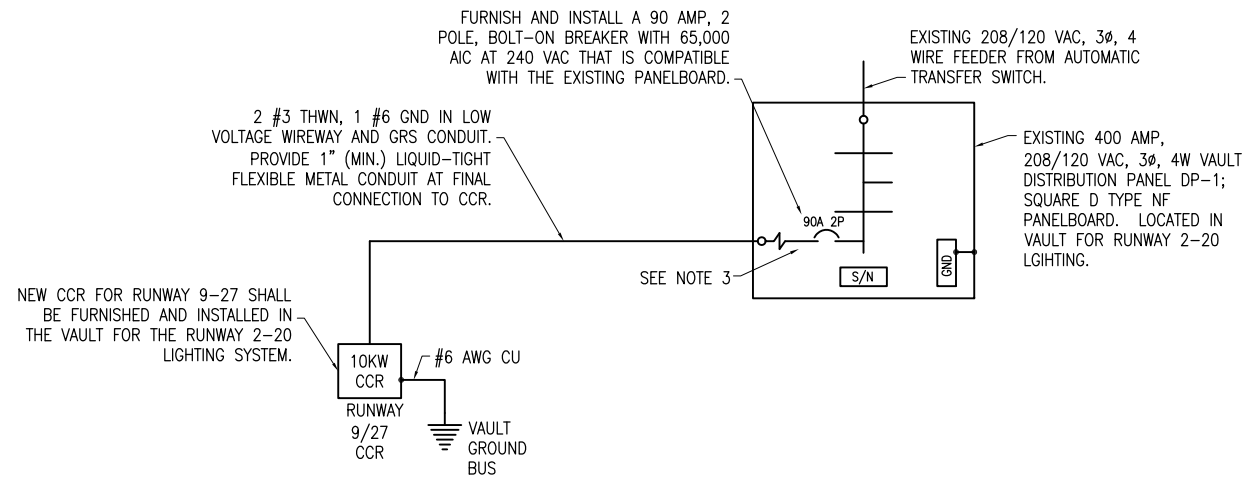
ELECTRICAL POWER PLAN

GENERAL NOTES:

1. CONTRACTOR SHALL EXAMINE VAULT TO DETERMINE EXISTING CONDITIONS.
2. SEE "RUNWAY 9-27 CONSTANT CURRENT REGULATOR ONE-LINE DIAGRAM" FOR LOW VOLTAGE INPUT POWER WIRING REQUIREMENTS TO CONSTANT CURRENT REGULATOR. SEE "HIGH VOLTAGE WIRING SCHEMATIC" FOR CCR OUTPUT WIRING REQUIREMENTS. SEE "RUNWAY 9-27 LIGHTING CONTROL WIRING SCHEMATIC" FOR CCR CONTROL WIRING REQUIREMENTS.
3. CONSTANT CURRENT REGULATORS AND THEIR RESPECTIVE SERIES PLUG CUTOUPS SHALL BE CLEARLY LABELED TO IDENTIFY THE RESPECTIVE REGULATOR DESIGNATION, RUNWAY OR TAXIWAY SERVED, POWER SOURCE OR CIRCUIT, AND VOLTAGE SYSTEM.
4. MAINTAIN SEPARATION OF HIGH VOLTAGE WIRING FROM LOW VOLTAGE WIRING TO COMPLY WITH NEC 300.3(C)(2). HIGH VOLTAGE AND LOW VOLTAGE WIRING SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, WIREWAY, PULL BOX, SPLICE CAN, HANDHOLE, OR MANHOLE.
5. THE CONTRACTOR SHALL SECURE, IDENTIFY, AND PLACE ANY TEMPORARY EXPOSED WIRING IN CONDUIT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA AC 150/5370-2F OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION, PART 218, PARAGRAPH C.
6. BOND EACH CCR FRAME/HOUSING TO VAULT GROUND BUS WITH #6 AWG COPPER BONDING JUMPER.
7. MAINTAIN SEPARATION OF HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS. LOW VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE LOW VOLTAGE SECTION. HIGH VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE HIGH VOLTAGE SECTION.

KEYED NOTES:

1. NEW RUNWAY 9-27 CCR, SEE GENERAL NOTE 2.
2. NEW CUTOUP FOR RUNWAY 9-27 CCR IN A NEMA 1 OR NEMA 12 ENCLOSURE WITH HINGED COVER AND PAD LOCKABLE FEATURE. PROVIDE 36" WIDE CLEAR WORKING SPACE IN FRONT OF CUTOUP TO COMPLY WITH NEC 110.32 AND 110.34. MOUNT TO EXISTING SUPPORT PACK. SEE GENERAL NOTE 2.
3. NEW RELAY INTERFACE PANEL FOR RUNWAY 9-27. FIELD VERIFY LOCATION TO ACCOMMODATE SITE CONDITIONS. COORDINATE LOCATION WITH THE AIRPORT MANAGER AND/OR THE RESIDENT PROJECT REPRESENTATIVE. SEE GENERAL NOTE 2.
4. FURNISH AND INSTALL TWO UL RATED, 10 POUND CARBON DIOXIDE FIRE EXTINGUISHERS SUITABLE FOR USE ON CLASS C FIRES AND TWO 10 POUND CLASS 4A:80B:C DRY CHEMICAL ABC FIRE EXTINGUISHERS SUITABLE FOR USE ON CLASS A, B, C FIRES IN THE VAULT BUILDING. PER NFPA 10 "PORTABLE FIRE EXTINGUISHERS" CLASS C ARE FOR FIRES THAT INVOLVE ENERGIZED ELECTRICAL EQUIPMENT. FIRE EXTINGUISHER SHALL BE MADE IN THE UNITED STATES OF AMERICA TO COMPLY WITH THE BUY AMERICAN REQUIREMENT. FIRE EXTINGUISHER TYPE CO2 SHALL BE AMEREX MODEL 330, ANSUL SENTRY 10 MODEL CD10A-1 OR APPROVED EQUAL. FIRE EXTINGUISHER DRY CHEMICAL TYPE ABC SHALL BE AMEREX MODEL B456, OR APPROVED EQUAL. PROVIDE WALL MOUNTING BRACKET FOR EACH FIRE EXTINGUISHER. CONFIRM MODEL NUMBERS WITH THE RESPECTIVE FIRE EXTINGUISHER MANUFACTURER. LOCATE ONE OF EACH TYPE OF FIRE EXTINGUISHER IN THE GENERATOR ROOM AND IN THE VAULT REGULATOR ROOM.



RUNWAY 9/27 CONSTANT CURRENT REGULATOR
ELECTRICAL ONE-LINE DIAGRAM

NOTES

- CONTRACTOR SHALL EXAMINE THE SITE AND FIELD VERIFY EXISTING CONDITIONS.
- ALL VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT SUPERINTENDENT AND THE AIRPORT FBO 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).
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- ALL CONDUCTORS/WIRING SHALL BE COPPER.
- CONTRACTOR SHALL CONFIRM POWER REQUIREMENTS WITH THE ACTUAL NAMEPLATE ON EACH CONSTANT CURRENT REGULATOR (OR OTHER RESPECTIVE EQUIPMENT) AND ADJUST CIRCUIT BREAKER, WIRE SIZES & CONDUIT SIZES TO CONFORM WITH NEC & MANUFACTURER'S RECOMMENDATIONS WHERE APPLICABLE. WIRE SIZES SHOWN ON THE PLANS ARE MINIMUM.
- HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, HANDHOLE, JUNCTION BOX, OR RACEWAY.
- 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.
- BRANCH CIRCUITS TO REGULATORS SHALL BE INSTALLED IN THE RESPECTIVE LOW VOLTAGE WIREWAY/DUCT, WITH GRSC AT TRANSITIONS AND UL LISTED LIQUID TIGHT FLEXIBLE METAL CONDUIT AT FINAL CONNECTIONS TO THE REGULATORS. CONDUITS SHALL BE SIZED IN ACCORDANCE WITH NEC.
- BOND ALL REGULATORS TO THE RESPECTIVE VAULT GROUND BUS WITH A DEDICATED #6 AWG BONDING JUMPER FOR EACH REGULATOR.
- VAULT WORK WILL BE PAID FOR UNDER ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT PER LUMP SUM.

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RWY 9-27 CCR ELECTRICAL ONE LINE DIAGRAM
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 IDA No. LOT-4193 AIP No. 3-17-0140-B51

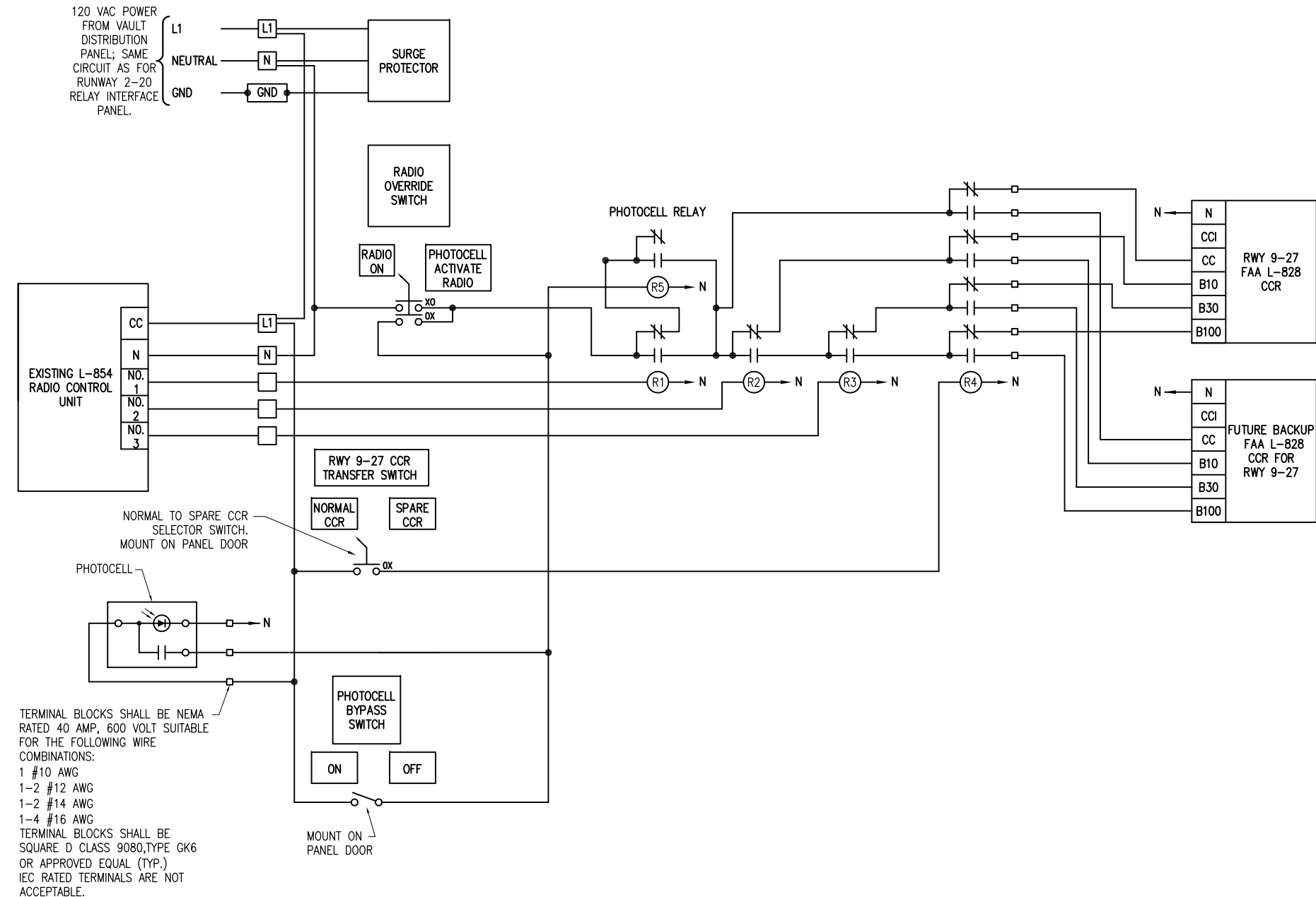
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RUNWAY 9-27 LIGHTING CONTROL WIRING SCHEMATIC
REHABILITATE WEST PORTION OF RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51



TERMINAL BLOCKS SHALL BE NEMA RATED 40 AMP, 600 VOLT SUITABLE FOR THE FOLLOWING WIRE COMBINATIONS:
1 #10 AWG
1-2 #12 AWG
1-2 #14 AWG
1-4 #16 AWG
TERMINAL BLOCKS SHALL BE SQUARE D CLASS 9080, TYPE GK6 OR APPROVED EQUAL (TYP.)
IEC RATED TERMINALS ARE NOT ACCEPTABLE.

NOTES:

- RELAY INTERFACE CONTROL PANEL SHALL BE MANUFACTURED BY AN FAA APPROVED L-821 PANEL BUILDER OR A UL 508 INDUSTRIAL CONTROL PANEL BUILDER, AND SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENT AND THE "BUY AMERICAN ACT". RELAY INTERFACE CONTROL PANEL SHALL BE A SEPARATE PANEL. WHERE THE RELAY INTERFACE PANEL IS BUILT BY AN L-821 PANEL MANUFACTURER IT SHALL BE LABELED AS AN L-821 PANEL.
- PANEL SHALL BE IN A NEMA 12 ENCLOSURE WITH HINGED COVER. DRILL HOLE IN BOTTOM OF ENCLOSURE TO ALLOW CONDENSATION TO ESCAPE.
- EXTERNAL CONTROL CABLE SHALL BE NO. 12 AWG COPPER, 600 VOLT CABLE. ALL PANEL INTERIOR CONTROL CABLE SHALL BE MINIMUM 16 AWG, COPPER, 600 VOLT CABLE.
- IN THE AUTOMATIC MODE OF OPERATION THE RUNWAY 9-27 CONSTANT CURRENT REGULATORS (PRIMARY UNIT & BACKUP UNIT) SHALL BE CONTROLLED BY THE PHOTOCELL & THE L-854 RADIO CONTROL UNIT IN THE FOLLOWING MANNER:
PHOTOCELL - 10% BRIGHTNESS & ACTIVATE RADIO CONTROL
5 CLICKS - 30% BRIGHTNESS
7 CLICKS - 100% BRIGHTNESS
- THE RADIO OVERRIDE SWITCH WILL ACTIVATE L-854 RADIO CONTROL 24 HOURS PER DAY IN THE "RADIO ON" POSITION. THE PHOTOCELL WILL ACTIVATE RADIO CONTROL IN THE "PHOTOCELL ACTIVATE RADIO" POSITION.
- EQUIPMENT GROUND WIRES SHALL BE INCLUDED WITH EACH BRANCH CIRCUIT & EACH CONTROL CIRCUIT.
- INCLUDE PHOTOCELL BYPASS SWITCH.
- SURGE PROTECTOR SHALL BE UL LISTED PER UL 1449, SUITABLE FOR 120 VAC, 1 PH, 2 WIRE PLUS GROUND SYSTEM WITH SURGE CURRENT RATING OF 40 KA (MIN.), 8x20 MICROSECOND WAVE, AND STATUS INDICATION LIGHTS IN A WEATHERPROOF HOUSING, JOSLYN MODEL 1260-21, OR APPROVED EQUAL. MAINTAIN LEADS AS SHORT & AS STRAIGHT AS POSSIBLE. INCLUDE MOUNTING BRACKET.
- INCLUDE EQUIPMENT GROUND BAR, ILSCO D167-12 OR EQUAL.
- CONTROL RELAYS SHALL HAVE 10 AMP CONTACT RATINGS AT 240 VAC WITH 120 VAC COILS. PROVIDE 3 SPARE RELAYS FOR EACH TYPE USED IN THE RELAY INTERFACE PANEL.
- COLOR CODING FOR THE CONTROL WIRING TO EACH CONSTANT CURRENT REGULATOR SHALL BE CONSISTENT FOR ALL REGULATORS. COLOR CODING SHALL BE AS FOLLOWS:
CC -RED
10% -ORANGE
30% -YELLOW
100% -BLUE
NEUTRAL -WHITE
EQUIPT. GND -GREEN
ALSO TAG THE CONTROL WIRES WITH THE RESPECTIVE DESIGNATION (CC, 10%, 30%, 100%)
- "N" DESIGNATES NEUTRAL CONNECTION OR NEUTRAL CONDUTOR.

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RUNWAY 9-27 LIGHTING CONTROL WIRING SCHEMATIC

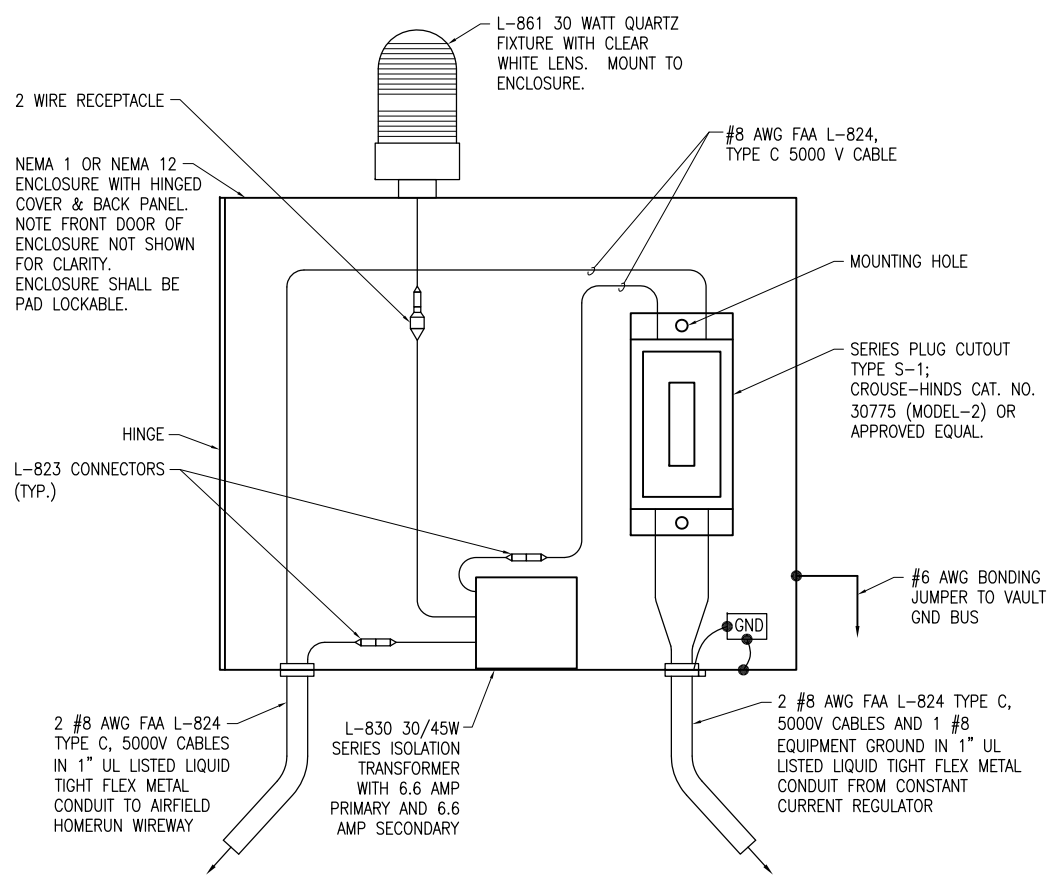
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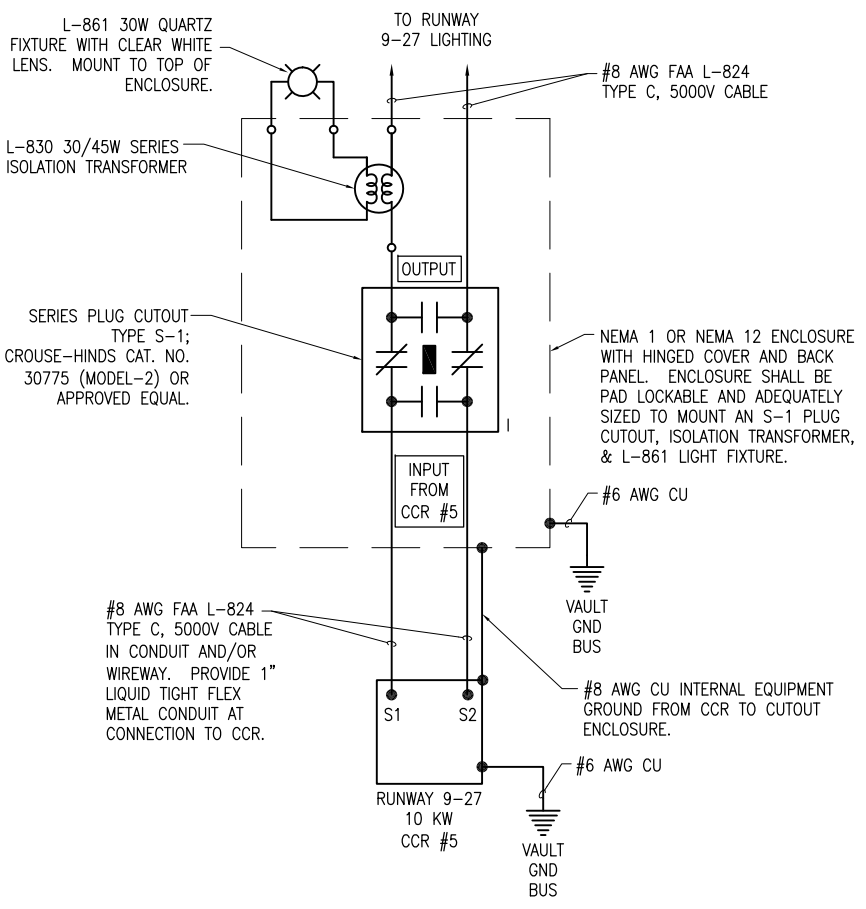
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HIGH VOLTAGE
WIRING SCHEMATIC
REHABILITATE WEST PORTION OF
RUNWAY 9-27
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**SERIES PLUG CUTOUT
MOUNTING DETAIL FOR RUNWAY 9-27 CIRCUIT**



HIGH VOLTAGE WIRING SCHEMATIC

NOTES

1. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CONSTANT CURRENT REGULATOR NOTING THE RUNWAY AND/OR TAXIWAY SERVED.
2. EACH PLUG CUTOUT CABINET SHALL BE FURNISHED WITH A PHENOLIC ENGRAVED LEGEND PLATE THAT IDENTIFIES THE RESPECTIVE RUNWAY OR TAXIWAY CIRCUIT OR REGULATOR. INCLUDE AN ADDITIONAL LEGEND PLATE LABELED "CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF".
3. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR THE CUTOUTS TO IDENTIFY THE RESPECTIVE REGULATOR OUTPUT CONNECTION AND THE RESPECTIVE CIRCUIT LOAD CONNECTION.
4. BOND EACH REGULATOR FRAME TO VAULT GROUND BUS WITH A DEDICATED #6 AWG COPPER BONDING JUMPER.
5. PROVIDE ADEQUATE WORKING SPACE IN FRONT OF EACH CUTOUT ENCLOSURE TO MEET NEC CLEARANCE REQUIREMENTS.
6. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING AND SUNLIGHT RESISTANT. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS USED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER (MINIMUM). DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL LISTED. CONFIRM LIQUID TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
7. SERIES PLUG CUTOUTS SHALL BE TYPE S-1, RATED 5000 VOLTS, 20-AMP, AND SHALL COMPLY WITH FAA AC 150/5340-4C. SERIES PLUG CUTOUTS SHALL BE RATED SUITABLE FOR NORMAL OPERATION WITH HANDLE REMOVED OR HANDLE INSERTED. CUTOUTS SHALL DISCONNECT THE INPUT FROM THE OUTPUT, SHORT THE INPUT TERMINALS, AND SHORT THE OUTPUT TERMINALS WHEN THE HANDLE/PLUG IS REMOVED. SERIES PLUG CUTOUTS SHALL BE CROUSE-HINDS CAT. NO. 30775, OR APPROVED EQUAL. THE RESPECTIVE MANUFACTURER SHALL CERTIFY IN WRITING THAT THEIR CUTOUT IS SUITABLE AND RATED FOR THE RESPECTIVE APPLICATION.
8. HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, HANDHOLE, JUNCTION BOX, OR RACEWAY.

LEGEND

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

LEGEND PLATE SCHEDULE	
DEVICE	LABEL
RUNWAY 9-27 CCR	RUNWAY 9-27
CUTOUT ENCLOSURE FOR RUNWAY 9-27	RUNWAY 9-27
CUTOUT INPUT SIDE CONNECTION FOR RUNWAY 9-27	INPUT FROM CCR
CUTOUT (RUNWAY 9-27) OUTPUT SIDE CONNECTION	OUTPUT
EACH CUTOUT ENCLOSURE	CAUTION OPERATE CUTOUTS WITH CCR'S SHUT OFF
RUNWAY 9-27 RADIO RELAY INTERFACE PANEL	RUNWAY 9-27 RADIO RELAY INTERFACE PANEL

NOTES:

1. LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.
2. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH SAFETY SWITCH, PANELBOARD, LOAD CENTER, CUTOUT, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "FLASH PROTECTION". LABELS SHALL BE HAZARD COMMUNICATION SYSTEMS, LLC (190 OLD MILFORD RD., BOX 1174, MILFORD, PA 18337, PHONE: 1-877-748-0244) PART NO. H6010-9VWHBJ OR APPROVED EQUAL.



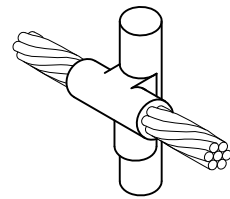
'DANGER - HIGH VOLTAGE KEEP OUT' SIGN

PROVIDE WARNING SIGN ON VAULT EXTERIOR DOORS LABELED "DANGER - HIGH VOLTAGE - KEEP OUT" PER THE REQUIREMENTS OF NEC 110.34 (C). PROVIDE MINIMUM OF 4 SIGNS (ONE ON EACH DOOR TO THE VAULT). SIGNS SHALL BE APPROXIMATELY 10" X 14".

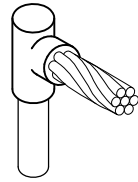


'DANGER - HIGH VOLTAGE' SIGN

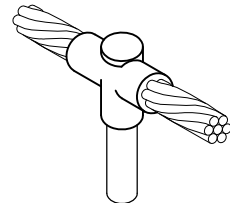
FURNISH AND INSTALL "DANGER - HIGH VOLTAGE" LABELS/SIGNS FOR EACH CUTOUT ENCLOSURE, EACH CONSTANT CURRENT REGULATOR, AND THE HIGH VOLTAGE WIREWAY, TO COMPLY WITH FAA AC 150/5340-26B "MAINTENANCE OF AIRPORT VISUAL AID FACILITIES". LABELS SHALL BE APPROXIMATELY 4" X 6" OR 5" X 7".



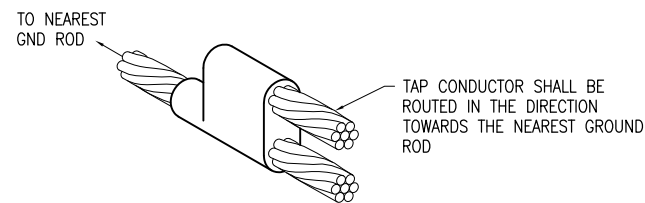
CABLE TO GROUND ROD



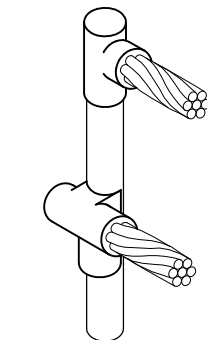
CABLE TO GROUND ROD



CABLE TO GROUND ROD



CABLE TO CABLE
HORIZONTAL PARALLEL TAP

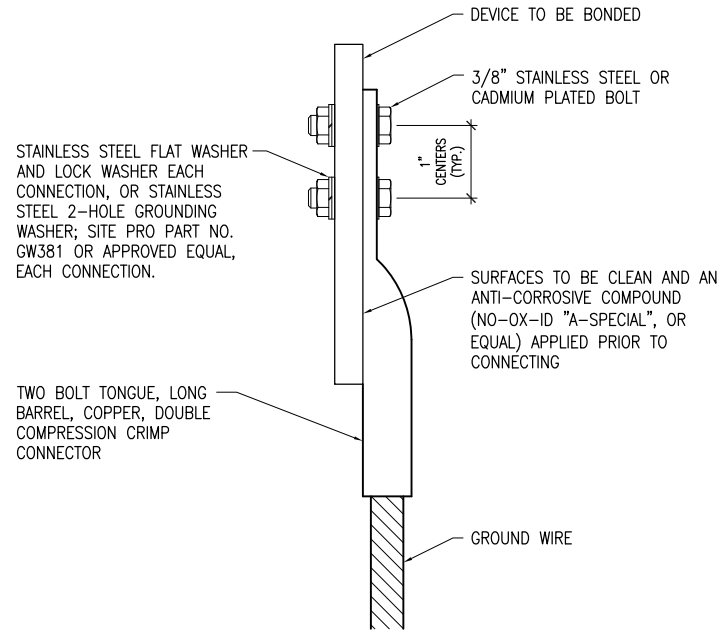


CABLES TO GROUND ROD

DETAIL NOTES

- ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONDUCTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS. EXOTHERMIC WELDS SHALL BE CADWELDED AS MANUFACTURED BY ERICO PRODUCTS, SOLON, OHIO, ULTRAWELDED AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, GRAYSLAKE, IL, OR THERMOWELDED AS MANUFACTURED BY CONTINENTAL INDUSTRIES, TULSA, OKLAHOMA. VERIFY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.
- 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.
- INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 40 PVC CONDUIT AS REQUIRED IN FOUNDATIONS, FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT.

EXOTHERMIC WELD DETAILS

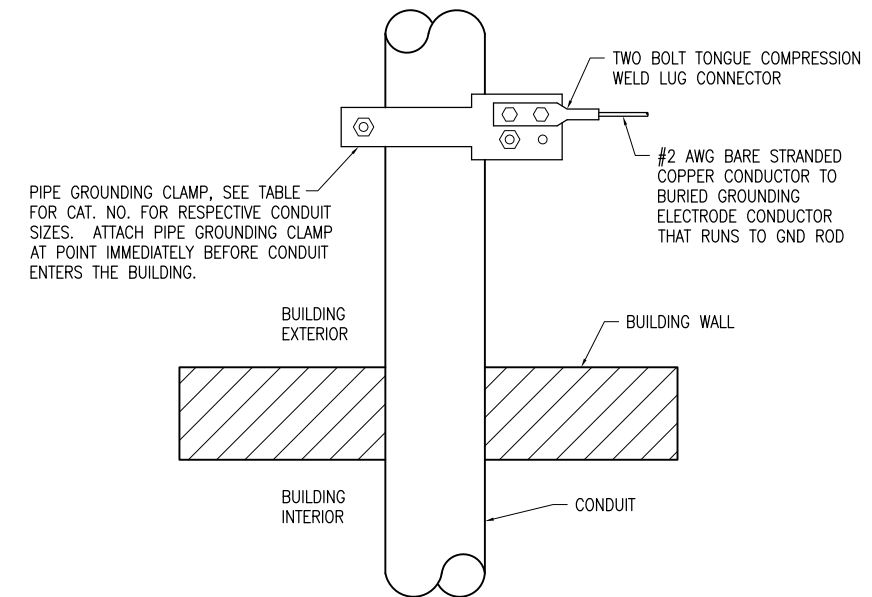


2 HOLE LONG BARREL COMPRESSION LUG TABLE			
WIRE SIZE	BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PENN-UNION CAT. NO.
#8 AWG STRANDED	YA8C-2TC38	256-30695-1157	BBLU-8D-2TC38
#6 AWG SOLID	YA8C-2TC38 OR YGA6C-2TC38E2G1		
#6 AWG STRANDED	YA6C-2TC38	256-30695-1158	BBLU-6D-2TC38
#4 AWG STRANDED	YA4C-2TC38	256-30695-1159	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

- ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
- GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIP MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE.
- 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 MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC APTH FROM ENCIRCLING THE CONDUIT.
- ALL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL



PIPE GROUNDING CLAMP TABLE	
BURNDY CAT. NO.	CONDUIT SIZE
GAR3902TC	1/2" - 1"
GAR3903TC	1 1/4" - 2"
GAR3904TC	2 1/2" - 3 1/2"
GAR3905TC	4" - 5"
GAR3906TC	6"
GAR3907TC	8"

NOTES

- EXTERIOR CONDUIT GROUNDING IS REQUIRED FOR THE PHOTOCELL CONDUIT, RADIO ANTENNA CONDUIT, & OTHER CONDUITS EXTENDING TO THE ROOF LEVEL.
- CONNECTIONS TO BURIED GROUNDING ELECTRODE CONDUCTOR SHALL BE EXOTHERMIC WELD.

EXTERIOR CONDUIT GROUNDING DETAIL

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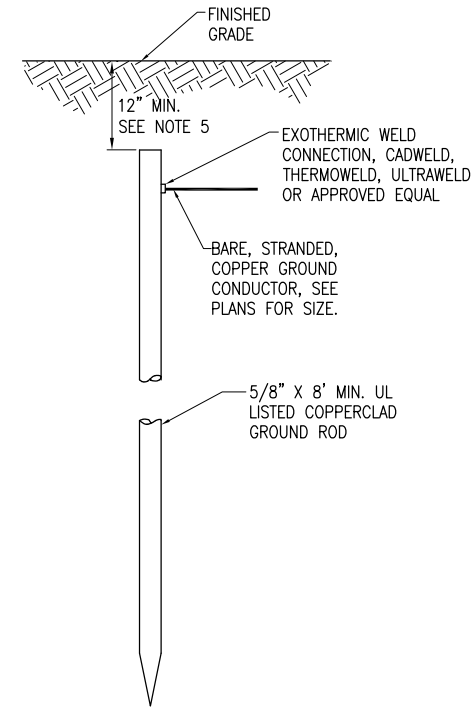
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GROUNDING DETAILS
REHABILITATE WEST PORTION OF
RUNWAY 9-27
IDA No. LOT-4193 AIP No. 3-17-0140-B51

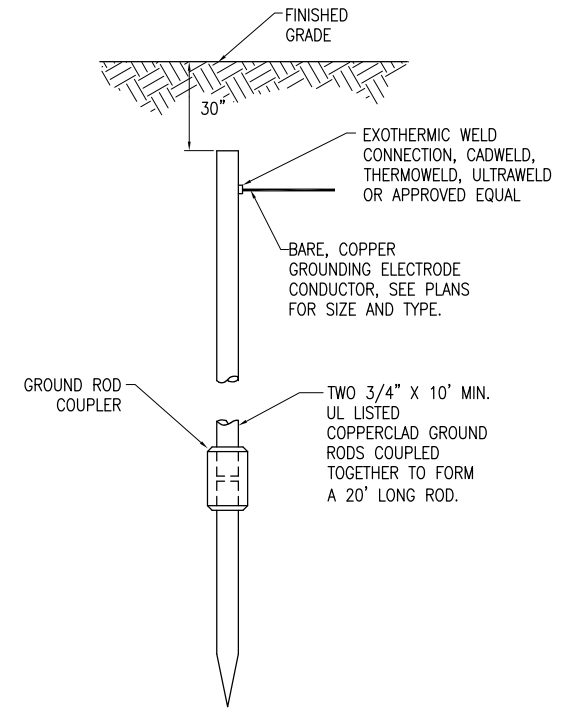
GROUNDING NOTES

- 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 (LIGHTNING AND SURGE PROTECTION, GROUNDING, BONDING, AND SHIELDING REQUIREMENTS FOR FACILITIES AND ELECTRONIC EQUIPMENT). THE RELIABILITY OF THE GROUNDING SYSTEM IS DEPENDENT ON CAREFUL, PROPER INSTALLATION AND CHOICE OF MATERIALS. IMPROPER PREPARATION OF SURFACES TO BE JOINED TO MAKE AN ELECTRICAL PATH, LOOSE JOINTS OR CORROSION CAN INTRODUCE IMPEDANCE THAT WILL SERIOUSLY IMPAIR THE ABILITY OF THE GROUND PATH TO PROTECT PERSONNEL AND EQUIPMENT AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELIABLE GROUND SYSTEM:
- FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS FOR AIRFIELD LIGHTING (RUNWAY LIGHTING, TAXIWAY LIGHTING, TAXI GUIDANCE SIGNS, & 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 1-800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE 918-663-1440) OR ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE 1-800-842-7437) OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
- CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE.
- 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, SANGCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND, BURNDY PENETROX E, OR EQUAL.
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2011 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, 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, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT 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.

- 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.
- IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS WILL NOT BE CONSIDERED AS ADEQUATE GROUNDING.
- 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 GROUND NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
- EACH AND ALL GROUND 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.
- ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, OR APPROVED EQUAL.
- BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 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 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.
- 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.
- 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.
- GROUND RODS SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS. STEEL USED TO MANUFACTURER GROUND RODS SHALL BE 100 PERCENT DOMESTIC STEEL.



8 FT. GROUND ROD



20 FT. GROUND ROD

NOTES

- TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
- THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
- COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
- GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
- TOP OF GROUND RODS SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN.
- GROUND RODS FOR RUNWAY LIGHTING, TAXIWAY LIGHTING, AND TAXI GUIDANCE SIGNS SHALL BE A MINIMUM 5/8-INCH DIAMETER BY 8-FT LONG UL LISTED COPPER CLAD.
- GROUND RODS FOR FIELD LIGHTNING ARRESTOR APPLICATIONS SHALL BE 3/4 INCH DIAMETER BY 20 FEET LONG UL LISTED COPPER-CLAD (TWO 3/4 INCH DIAMETER BY 10 FEET LONG GROUND RODS COUPLED TOGETHER TO FORM A 20 FOOT LONG GROUND ROD).

GROUND RODS
(NOT TO SCALE)

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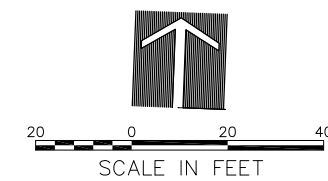
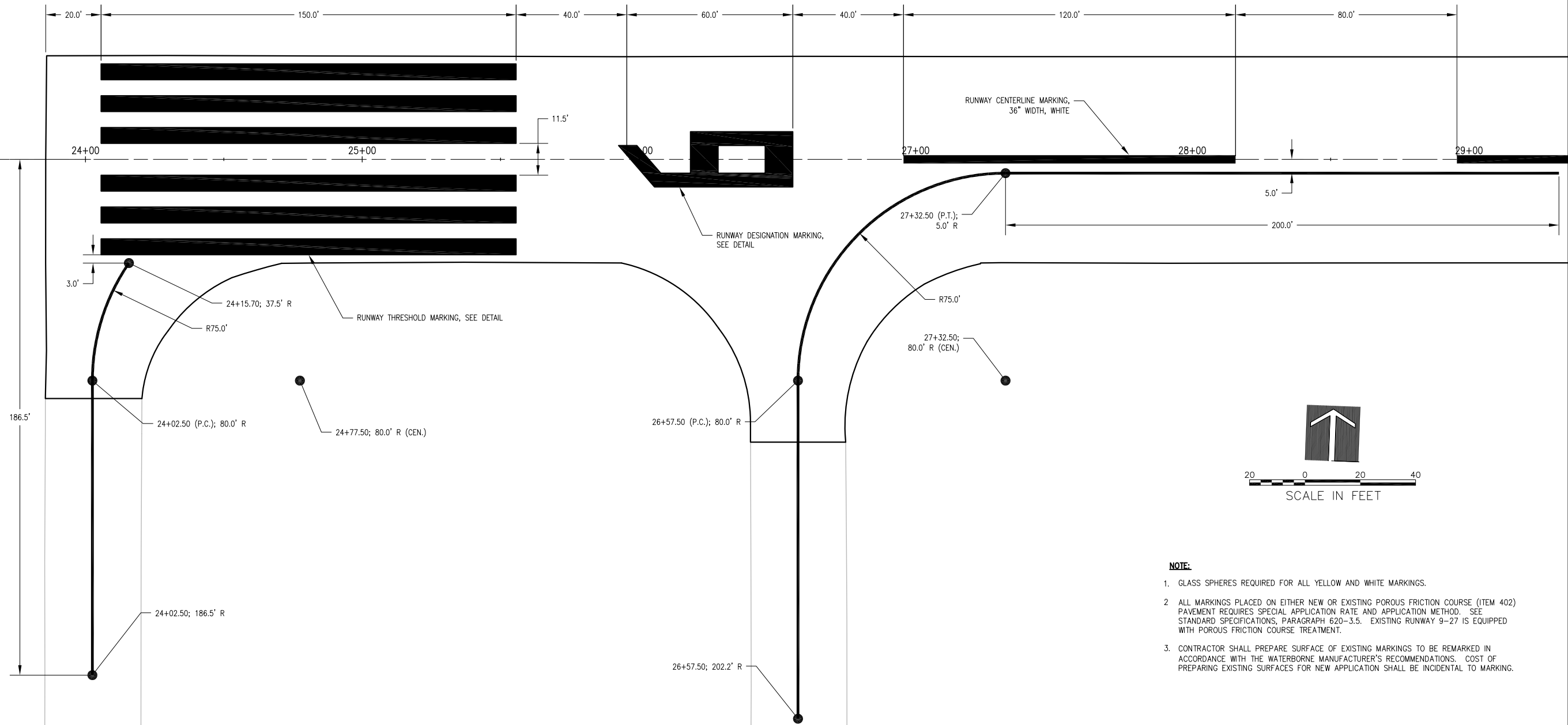
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DRAWN	LDH	12/3/12	
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GROUNDING NOTES
REHABILITATE WEST PORTION OF
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IDA No. LOT-4193 AIP No. 3-17-0140-B51

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- NOTE:**
- GLASS SPHERES REQUIRED FOR ALL YELLOW AND WHITE MARKINGS.
 - ALL MARKINGS PLACED ON EITHER NEW OR EXISTING POROUS FRICTION COURSE (ITEM 402) PAVEMENT REQUIRES SPECIAL APPLICATION RATE AND APPLICATION METHOD. SEE STANDARD SPECIFICATIONS, PARAGRAPH 620-3.5. EXISTING RUNWAY 9-27 IS EQUIPPED WITH POROUS FRICTION COURSE TREATMENT.
 - CONTRACTOR SHALL PREPARE SURFACE OF EXISTING MARKINGS TO BE REMARKED IN ACCORDANCE WITH THE WATERBORNE MANUFACTURER'S RECOMMENDATIONS. COST OF PREPARING EXISTING SURFACES FOR NEW APPLICATION SHALL BE INCIDENTAL TO MARKING.

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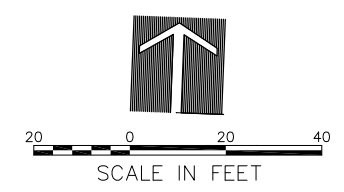
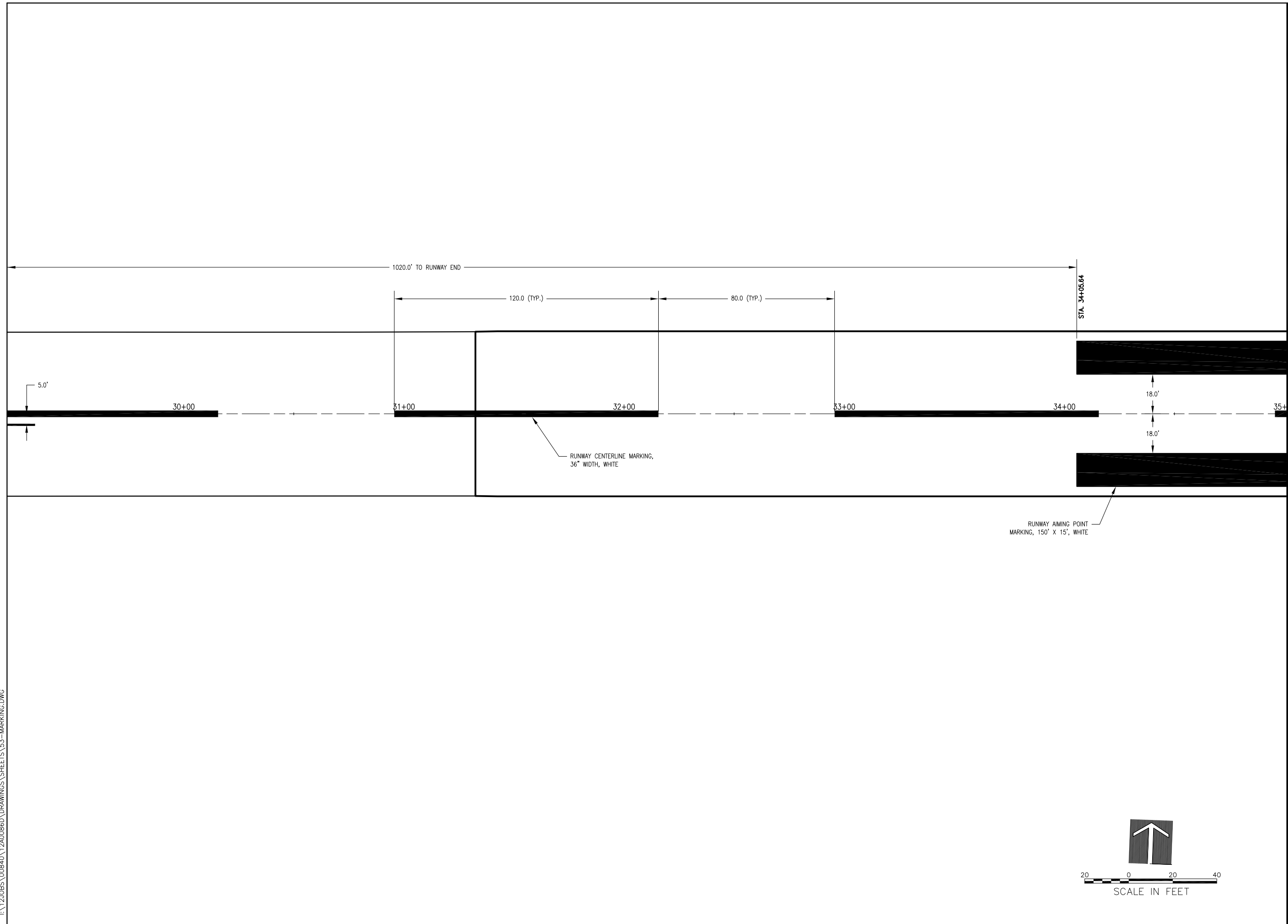
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Filename 52-MARKING.DWG	LDH	8/13/12
Scale 1"=20'	RMH	1/10/13
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MARKING PLAN
RUNWAY 9-27
REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51

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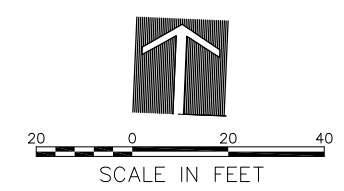
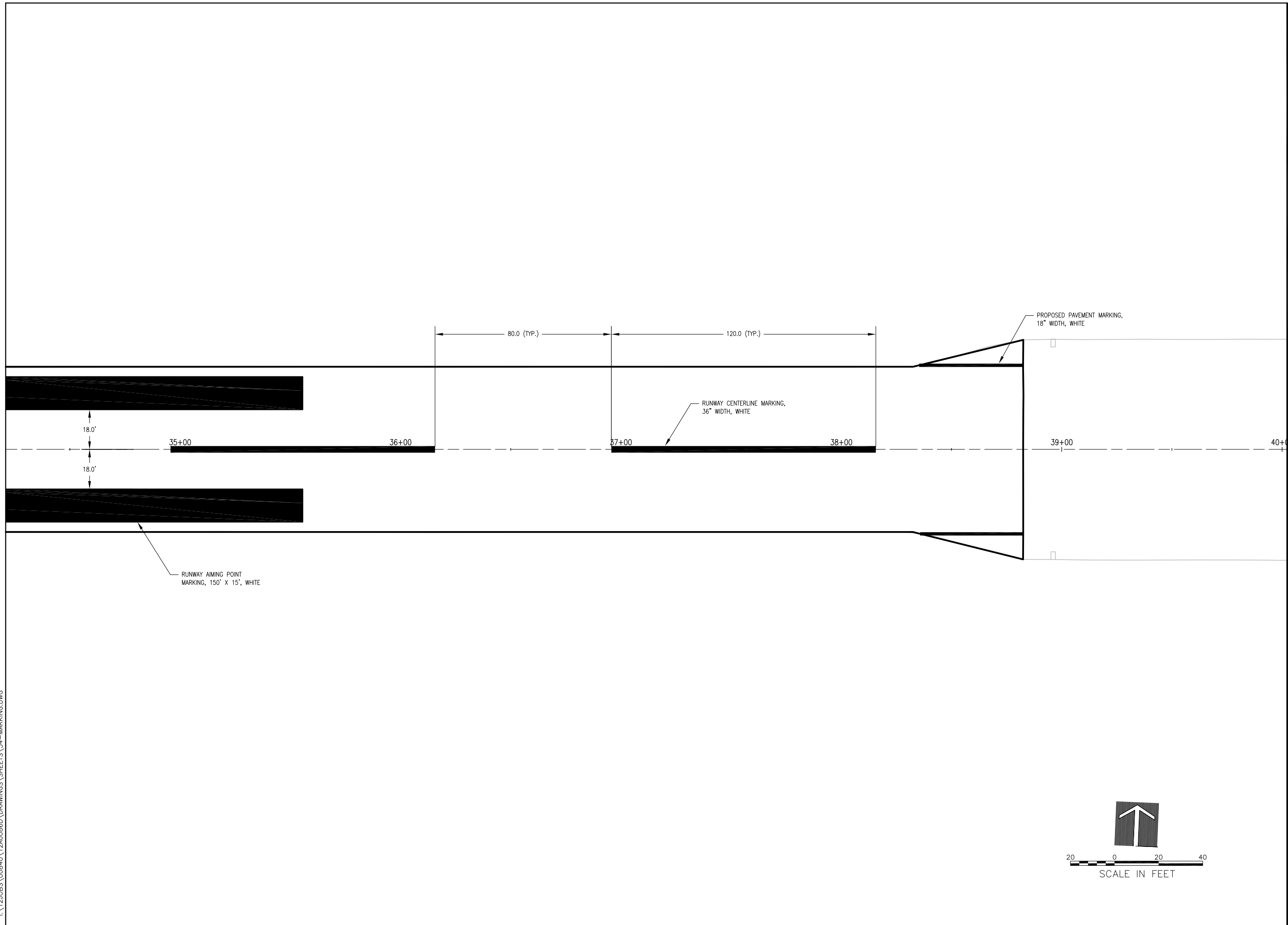
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MARKING PLAN
RUNWAY 9-27

REHABILITATE WEST PORTION OF
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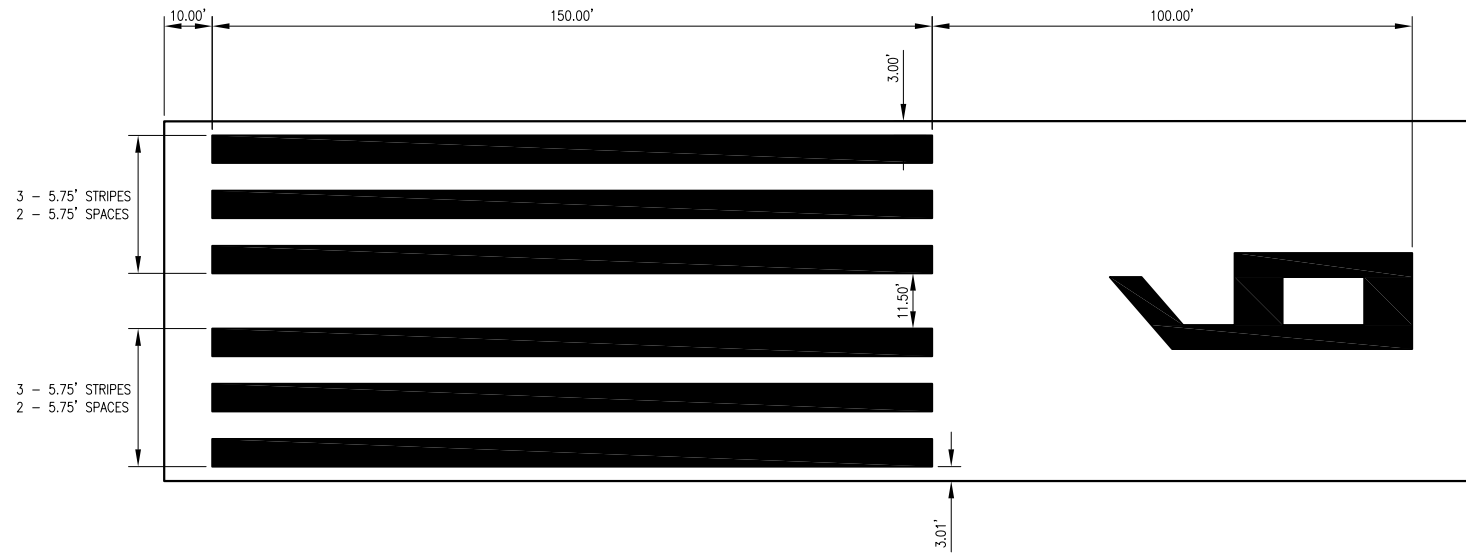
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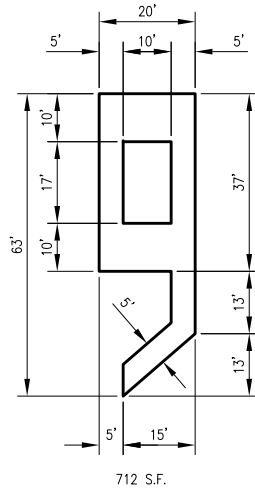
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MARKING PLAN
RUNWAY 9-27

REHABILITATE WEST PORTION OF
RUNWAY 9-27
 IDA No. LOT-4193 AIP No. 3-17-0140-B51



THRESHOLD MARKING DETAIL



RUNWAY NUMERAL DIMENSIONING NOTES:

1. ALL RUNWAY MARKING WILL BE WHITE IN COLOR AND WILL BE APPLIED WITH TWO COATS OF REFLECTIVE MEDIA IN ACCORDANCE WITH THE SPECIFICATIONS.
2. ALL NUMERALS EXCEPT FOR THE NUMERAL ELEVEN (AS SHOWN) ARE HORIZONTALLY SPACED 15 FEET APART.
3. DOUBLE DIGIT NUMERAL DESIGNATIONS ARE CENTERED ON THE RUNWAY PAVEMENT CENTERLINE BASED ON THE CENTER OF THE OUTER EDGES OF THE TWO NUMERALS.
4. CUT-OFF SHEETS WILL BE REQUIRED TO INSURE STRAIGHT EDGES.
5. ALL CURING COMPOUND WILL BE CLEANED FROM CONCRETE PAVEMENT PRIOR TO APPLYING PAINT. NO EXCEPTIONS.

RUNWAY DESIGNATION MARKING DETAIL

DETAILS SHOWN ARE NOT TO SCALE

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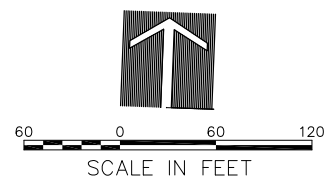
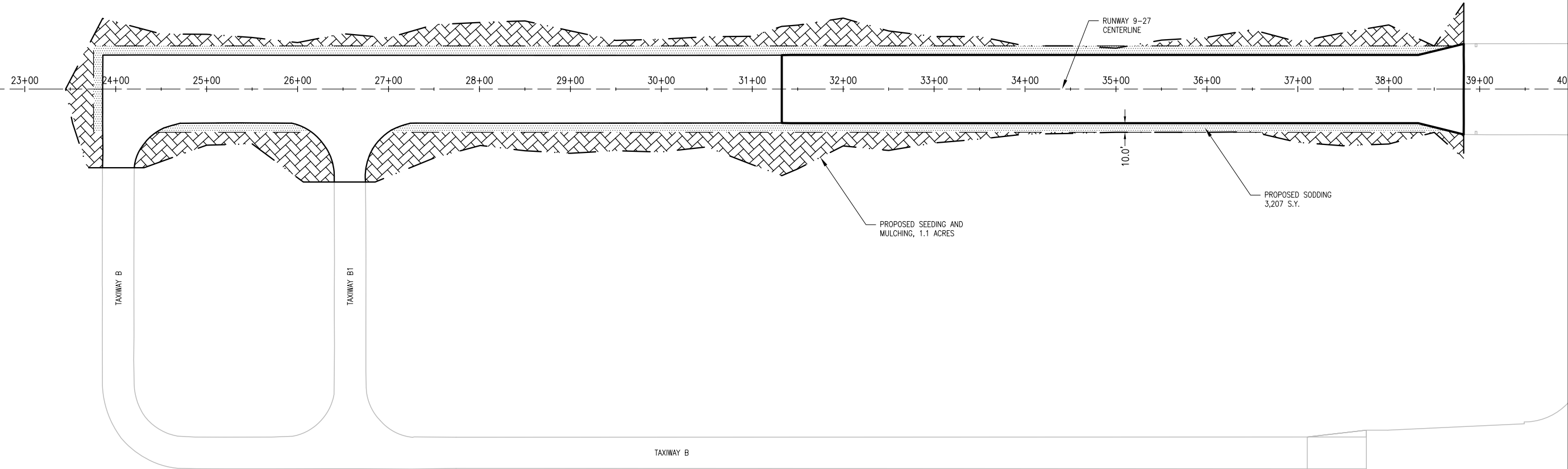
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MARKING DETAILS
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LANDSCAPING PLAN

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