

**GENERAL NOTES**

**PROJECT DESCRIPTION**

THIS PROJECT IS TO CONSTRUCT TAXIWAY T AND EXTEND TAXIWAY R AS ACCESS TO THE LEWIS UNIVERSITY AVIATION CENTER AT LEWIS UNIVERSITY AIRPORT INCLUDING, AMONG OTHER INCIDENTAL WORK, THE FOLLOWING ITEMS:

- PLACEMENT OF TEMPORARY SOIL EROSION CONTROL MEASURES.
- PROVISION OF TRAFFIC MAINTENANCE.
- PROVISION OF REQUIRED UNCLASSIFIED EXCAVATION.
- REMOVAL AND INSTALLATION OF NEW TAXIWAY LIGHTS ALONG TAXIWAY B.
- INSTALLATION OF DRAINAGE LAYER, AGGREGATES AND BITUMINOUS TAXIWAY PAVEMENTS.
- INSTALLATION OF UNDERDRAINS AND REQUIRED STORM SEWER.
- PLACEMENT OF PAVEMENT MARKINGS.
- TOPSOILING, SEEDING AND MULCHING 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. FOR HAUL ROUTES MADE BY CONTRACTOR THROUGH GRASSED AREAS, CONTRACTOR SHALL GRADE, LEVEL, TOPSOIL, SEE AND MULCH AT THE END OF THE PROJECT, COSTS INCIDENTAL TO THE CONTRACT.

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



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

OBJECT INFORMATION										
ITEM NO.	DESCRIPTION	PHASE	MOBILITY	GROUND ELEVATION	OBJECT ELEVATION	LATITUDE	LONGITUDE	RUNWAY 9-27 STATION	RUNWAY 9-27 OFFSET	RUNWAY 9-27 EXIST EL.
1	CONSTRUCTION EQUIPMENT	1	MOVING	663.2	688.2	41° 36' 26.4592" N	88° 05' 04.9408" N	77+68.51	467.3	667.1
2	CONSTRUCTION EQUIPMENT	2	MOVING	665.8	690.8	41° 36' 24.6797" N	88° 05' 05.2675" N	77+36.61	646.3	667.3
3	CONSTRUCTION EQUIPMENT	3 & 5	MOVING	664.7	689.7	41° 36' 27.0025" N	88° 05' 03.1089" N	79+09.73	417.9	666.2
4	CONSTRUCTION EQUIPMENT	4	MOVING	665.3	690.3	41° 36' 24.9184" N	88° 05' 06.1575" N	76+70.00	619.5	667.6
5	CONSTRUCTION EQUIPMENT	6	MOVING	662.4	687.4	41° 36' 28.1640" N	88° 04' 58.6119" N	82+55.72	313.8	664.9
6	CONTRACTOR'S CONSTRUCTION STORAGE	ALL	STATIONARY	666.5	691.5	41° 36' 23.4238" N	88° 05' 12.8226" N	71+58.10	750.7	668.7
7	ENGINEER'S FIELD OFFICE	ALL	STATIONARY	665.5	680.5	41° 36' 19.8578" N	88° 05' 14.9364" N	69+83.41	1105.0	668.7
8	CONTRACTOR'S PARKING	ALL	STATIONARY	665.9	690.9	41° 36' 19.9702" N	88° 05' 11.4028" N	72+52.09	1104.2	668.7
9	CONTRACTOR'S CONSTRUCTION STORAGE	ALL	STATIONARY	662.4	687.4	41° 36' 19.4984" N	88° 05' 03.8205" N	78+25.77	1174.7	666.8
10	HAUL ROUTE	ALL	MOVING	654.0	679.0	41° 36' 28.2820" N	88° 04' 46.7850" N	91+53.93	337.3	664.9
11	HAUL ROUTE	ALL	MOVING	655.2	680.2	41° 36' 34.9058" N	88° 04' 47.4726" N	91+28.13	334.7	664.9
12	PERMANENT STOCKPILE	ALL	STATIONARY	669.4	674.4	41° 36' 36.3758" N	88° 05' 18.4605" N	67+81.87	576.1	668.7
13	PERMANENT STOCKPILE	ALL	STATIONARY	670.9	675.9	41° 36' 36.5220" N	88° 05' 13.5277" N	71+56.87	576.1	668.7

**RUNWAY END COORDINATES**

DESCRIPTION	LATITUDE	LONGITUDE	RUNWAY STATION
RUNWAY 9 END	41°36'28.9758" N	88°06'15.9913" W	23+85.38
RUNWAY 27 END	41°36'31.1949" N	88°05'01.0708" W	80+81.15
RUNWAY 2 END	41°35'57.2760" N	88°06'03.2207" W	100+00.40
RUNWAY 20 END	41°36'59.6552" N	88°05'42.9106" W	165+00.00

**NOTES**

- COORDINATES ARE IN NAD 83 FOR HORIZONTAL AND NAVD 88 FOR VERTICAL.
- STATIONS, OFFSETS AND ELEVATIONS SHOWN ARE IN FEET.
- THE APPROACH END OF RUNWAY 9 IS STATION 23+85. THE APPROACH END OF RUNWAY 2 IS STATION 100+00.
- THE AIRPORT REFERENCE CODE FOR RUNWAY 9-27 IS B-II WITH NONPRECISION APPROACHES WITH VISIBILITY 1 MILE OR GREATER ON BOTH RUNWAY 9 AND RUNWAY 27.
- THE AIRPORT REFERENCE CODE FOR RUNWAY 2-20 IS D-III WITH NONPRECISION APPROACHES WITH VISIBILITY AS LOW AS 3/4 MILE ON RUNWAY 2 AND AS LOW AS 1 MILE ON RUNWAY 20.

## CONSTRUCTION AND SAFETY NOTES

### SAFETY IS REQUIRED

CONSTRUCTION OF THE PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH THE GUIDELINES SPECIFIED IN FAA ADVISORY CIRCULAR 150/5370-2 (CURRENT ISSUE) AND THE AIRPORT VEHICLE OPERATIONS REGULATIONS (AS PUBLISHED ON THE AIRPORT'S WEBSITE AT WWW.FLYLOT.COM, UNDER JRPD ORDINANCES AND MINUTES (EXCEPT FEES FOR VEHICLE DRIVING PERMITS SHALL NOT BE PAID)). ANY ACTIVITIES REQUIRED FOR PROJECT SAFETY SHALL BE INCIDENTAL TO THE CONTRACT.

### SEQUENCE OF CONSTRUCTION

TO MINIMIZE DISRUPTIONS AT AIRPORT OPERATIONS, CONSTRUCTION OPERATIONS MUST BE CONTROLLED THROUGHOUT THE PROJECT'S DURATION, AND WORK MUST BE COMPLETED EXPEDITIOUSLY. A CONSTRUCTION PHASING 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 PHASING 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 PHASING 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. THE CONTRACTOR SHALL EXPEDITE WORK AT THOSE STAGES WHERE ACTIVE TAXIWAYS, HANGAR ACCESS, APRONS, ROADWAYS OR PARKING LOTS MUST BE CLOSED, TO MINIMIZE THE LENGTH OF TIME THAT AIRPORT OPERATIONS ARE RESTRICTED.

AT THE PRE-CONSTRUCTION CONFERENCE, THE CONTRACTOR SHALL PROVIDE A CONTRACTOR COORDINATION PLAN THAT COORDINATES HIS WORK WITH THE WORK OF HIS SUBCONTRACTORS AND THE WORK OF OTHER CONTRACTORS OF OTHER ON-GOING AIRPORT PROJECTS.

### CONSTRUCTION LIMITS

THE CONTRACTOR SHALL REMAIN WITHIN THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. THE CONTRACTOR SHALL FURNISH MEASURES TO PREVENT EQUIPMENT AND PERSONNEL FROM OPERATING OUTSIDE THESE LIMITS.

### TEMPORARY BARRICADES

THE CONTRACTOR SHALL FURNISH BARRICADES FOR ANY AIRFIELD OR ROADWAY PAVEMENT TO BE CLOSED BY HIS WORK. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, PLACE AND MAINTAIN BARRICADES AS SHOWN 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.

### VEHICULAR TRAFFIC CONTROL

THE CONTRACTOR SHALL ERECT AND MAINTAIN, AT NO COST TO THE CONTRACT, DIRECTIONAL AND INFORMATIONAL SIGNS FOR THE CONTRACTOR'S ACCESS ROUTES AT THE EXISTING CONSTRUCTION ENTRANCE AND FOR THE CONTRACTOR'S ROUTE WITHIN THE AIRPORT OPERATIONS AREA, AS NOTED ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER. WHERE CONTRACTOR EQUIPMENT IS OPERATING WITHIN ACTIVE AIRCRAFT TAXIWAYS, RADIO-EQUIPPED FLAGGERS SHALL BE FURNISHED BY THE CONTRACTOR. CONTINUING PAVEMENT SWEEPING SHALL BE FURNISHED TO REMOVE DEBRIS FROM ACTIVE TAXI PATHS. THE COST OF TRAFFIC CONTROL/FLAGGERS AND PAVEMENT SWEEPING SHALL BE INCIDENTAL TO THE CONTRACT.

### AIRFIELD OPERATIONAL SAFETY DURING CONSTRUCTION

THE CONTRACTOR SHALL NOT HAVE ACCESS TO ANY PART OF THE ACTIVE AIRFIELD (RUNWAYS, TAXIWAYS OR APRONS) FOR ANY EQUIPMENT OR PERSONNEL WITHOUT THE APPROVAL OF THE RESIDENT ENGINEER AND THE AIRPORT OWNER. ACTIVITIES WITHIN THE AIRPORT OPERATIONS AREA (AOA) ARE SUBJECT TO FEDERAL ACCESS CONTROL. BECAUSE OF THE HIGH REQUIREMENTS FOR AIRPORT SECURITY AND SAFETY, THE FOLLOWING REQUIREMENTS MUST BE ADHERED TO:

- ALL EMPLOYEES OF THE CONTRACTOR SHALL PARK THEIR PERSONAL VEHICLES IN THE DESIGNATED EQUIPMENT PARKING AND STORAGE AREA. EACH PERSON OR VEHICLE ENTERING THE CONTRACTOR AREA SHALL DO SO IN ACCORDANCE WITH THE POLICIES AND PROCEDURES OF THE AIRPORT OWNER. THE CONTRACTOR WILL TRANSPORT THE WORKERS FROM THE PARKING AREAS TO THE WORK AREA. ONLY CONTRACTOR VEHICLES WILL BE ALLOWED OUTSIDE OF THE PROPOSED EQUIPMENT STORAGE AND PARKING AREAS.
- SHOULD ANY CONTRACTOR PERSONNEL BE IDENTIFIED AS NONCOMPLIANT WITH ANY VEHICLE DRIVING SAFETY REQUIREMENTS IN THIS SAFETY PLAN OR IN THE AIRPORT VEHICLE OPERATIONS REGULATIONS, SUCH DRIVERS SHALL BE PENALIZED BY RESCISSION OF THEIR ON-AIRPORT DRIVING PRIVILEGES, AND THEIR ACCESS TO THE CONSTRUCTION LIMIT AREA WHEN OPERATING VEHICLES SHALL BE REVOKED.
- THE CONTRACTOR WILL BE REQUIRED TO BE IN CONTACT WITH AIRPORT OPERATIONS. THIS WILL KEEP THE CONTRACTOR IN CONTACT WITH AIRPORT PERSONNEL AND ENABLE THE AIRPORT PERSONNEL TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTICAL EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

THE CONTRACTOR SHALL REMAIN WITHIN THE CONSTRUCTION LIMITS LINE SHOWN IN THE PLANS. WHEN OUTSIDE THESE LIMITS, ALL CONTRACTOR ACTIVITIES SHALL REMAIN MORE THAN 250 FEET FROM THE CENTERLINE AND 300 FEET FROM THE END OF ACTIVE RUNWAY 9-27, AND 250 FEET FROM THE CENTERLINE AND 1,000 FEET FROM THE END OF ACTIVE RUNWAY 2-20. FOR WORK NEAR TAXIWAYS AND APRONS, THE CONTRACTOR'S PERSONNEL AND EQUIPMENT MUST REMAIN AT LEAST 44.5 FEET FROM CENTERLINE OF ACTIVE CATEGORY I TAXIWAYS, 65.5 FEET FROM ACTIVE CATEGORY II TAXIWAYS AND 93 FEET FROM ACTIVE CATEGORY III TAXIWAYS, AND TEN (10) FEET FROM ACTIVE APRONS. WHEN CONSTRUCTION OPERATIONS MUST BE CONDUCTED WITHIN THESE SEPARATIONS, THE PAVEMENT MUST BE CLOSED TO AIRCRAFT ACTIVITY BY THE CONTRACTOR BY PROVIDING TEMPORARY BARRICADES AS SHOWN IN THE PLANS. NO CLOSURE OF ANY RUNWAY WILL BE PERMITTED FOR THIS PROJECT.

CLOSING OF ANY RUNWAY BY CONTRACTOR ACTIVITIES SHALL NOT BE PERMITTED IN THIS PROJECT.

THE CONTRACTOR SHALL KEEP ALL OF HIS EQUIPMENT AND PERSONNEL AT LEAST 15 FEET FROM THE EDGE OF ANY ACTIVE ROADWAY OR AUTO PARKING PAVEMENT. WHEN HIS ACTIVITIES REQUIRE WORKING WITHIN 15 FEET OF THE ROAD/PAVEMENT EDGE, THE CONTRACTOR SHALL PROVIDE FOR TRAFFIC CONTROL IN ACCORDANCE WITH IDOT SPECIFICATIONS (HIGHWAY STANDARDS).

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 SHALL BE ALLOWED WITHIN THE RUNWAY SAFETY AREA (RSA) OR THE TAXIWAY SAFETY AREA (TSA) WHEN THE RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC (INCLUDING OVERNIGHT). THE RSA IS DEFINED AS 75 FEET FROM THE CENTERLINE AND 300 FEET FROM THE END OF RUNWAY 9-27, AND 250 FEET FROM THE CENTERLINE AND 1,000 FEET FROM THE END OF RUNWAY 2-20. THE TSA IS MEASURED AT 24.5 FEET FROM THE CATEGORY I TAXIWAY CENTERLINE, AND 39.5 FEET FROM THE CATEGORY II TAXIWAY CENTERLINE. NO VERTICAL DROP OF GREATER THAN 3-INCHES IN HEIGHT FROM PAVEMENT EDGE TO EARTH GRADE OR EARTH GRADE TO EARTH GRADE WITHIN THE RSA OR TSA WILL BE PERMITTED WHEN THE RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC. THE CONTRACTOR WILL HAVE STEEL PLATES ON-SITE TO ALLOW FOR THE RAPID COVERING OF TRENCHES OR EARTH DROPS IN THE EVENT OF UNEXPECTED WORK STOPPAGES FOR WEATHER OR AIRPORT EMERGENCIES.

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 STAGING PLAN. 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 SO AS TO OBSTRUCT AN ACTIVE RUNWAY APPROACH SURFACE.

BEFORE REOPENING TEMPORARILY CLOSED PAVEMENTS, 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.

CONTRACTOR'S EQUIPMENT SHALL EXTEND NO HIGHER THAN 25 FEET.

ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROVED PROJECT SAFETY PLAN, ISSUED BY THE ILLINOIS DIVISION OF AERONAUTICS.

FAILURE TO USE THESE PRESCRIBED PROCEDURES OR ADHERE TO THE SAFETY REQUIREMENTS WILL RESULT IN THE SUSPENSION OF WORK.

### NOTIFICATIONS BY CONTRACTOR

THE CONTRACTOR MUST NOTIFY THE RESIDENT ENGINEER AND THE AIRPORT OWNER 72 HOURS IN ADVANCE OF ANY REQUIRED PARTIAL OR COMPLETE CLOSING OF ANY TAXIWAY OR APRON. 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.

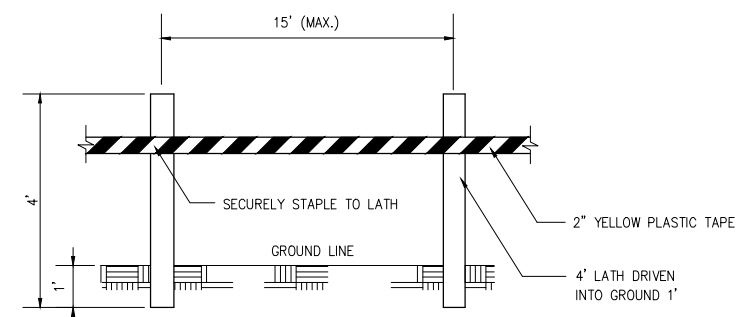
### CONTRACTOR'S USE OF SITE

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.

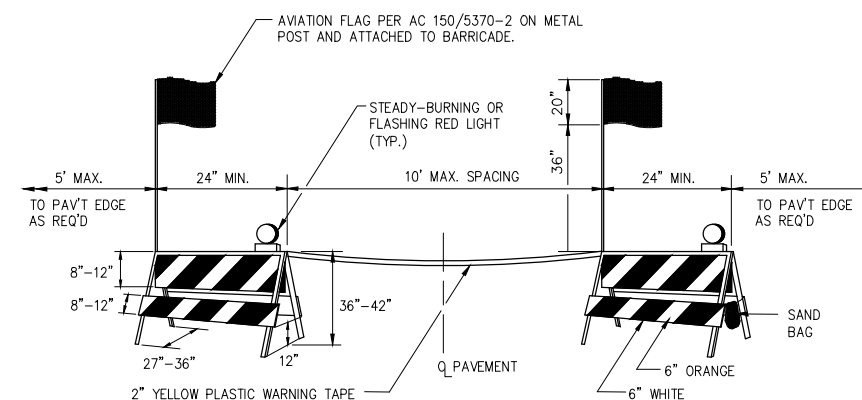
### UTILITY OUTAGES AND SHUTDOWNS

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 PAID UNDER ITEM AR150530.

**DETAIL B**  
**PAVEMENT BARRICADES**

DETAILS SHOWN ARE NOT TO SCALE

REHABILITATE  
TAXIWAY N1, N2, & R1  
AND PORTIONS OF  
TAXIWAY R

IDA No: LOT-4426  
SBG No: 3-17-SBGP-TBD

LE0XX

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: July 8, 2014

PROJECT NO: 14A0072

CAD FILE: 04-SAFETYNOTES.DWG

LAYOUT BY: LDH 7/15/14

DRAWN BY: LDH 7/15/14

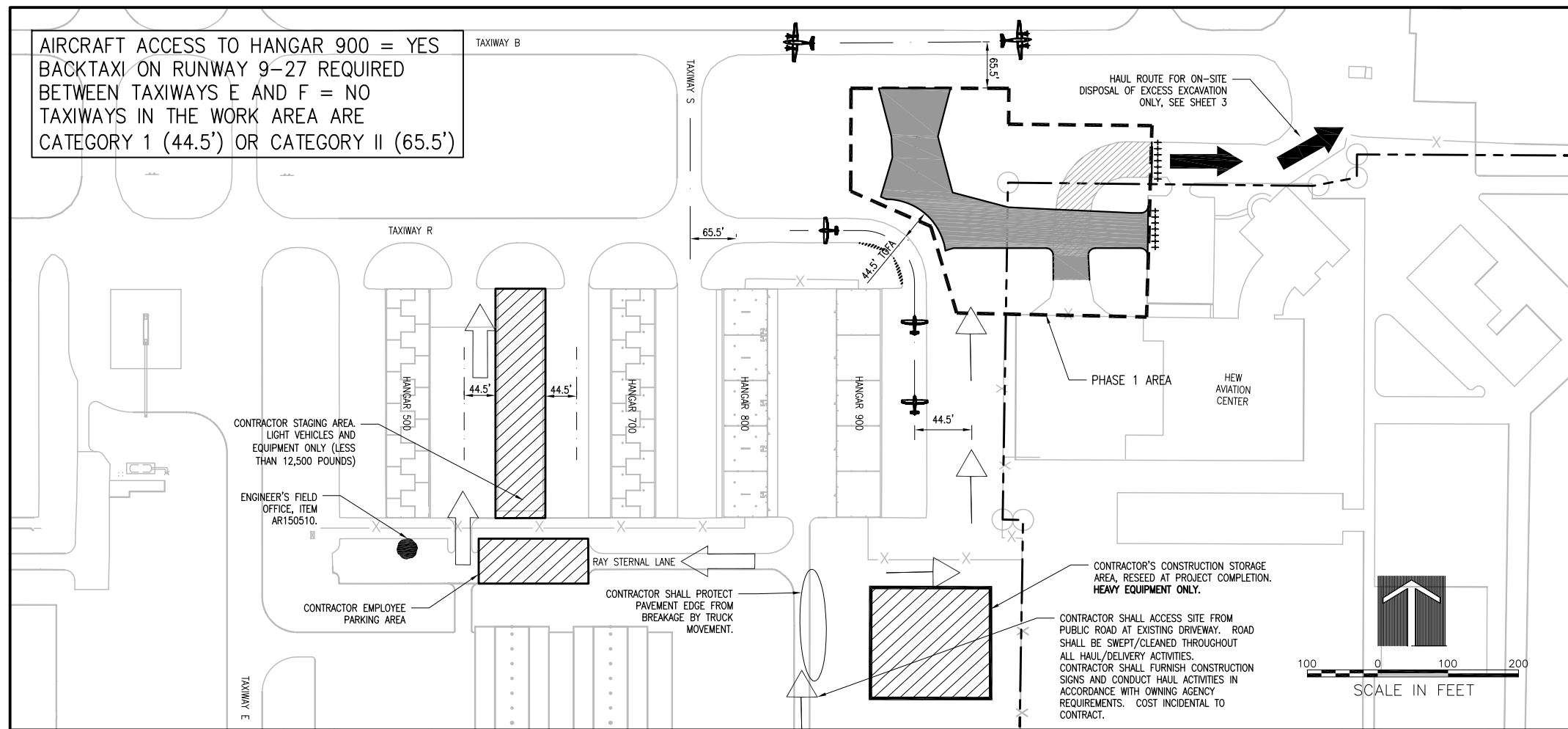
REVIEWED BY: RMH XX/XX/XX

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SHEET TITLE

CONSTRUCTION  
SAFETY NOTES  
AND DETAILS

AIRCRAFT ACCESS TO HANGAR 900 = YES  
BACKTAXI ON RUNWAY 9-27 REQUIRED  
BETWEEN TAXIWAYS E AND F = NO  
TAXIWAYS IN THE WORK AREA ARE  
CATEGORY 1 (44.5') OR CATEGORY II (65.5')



### PHASE 1

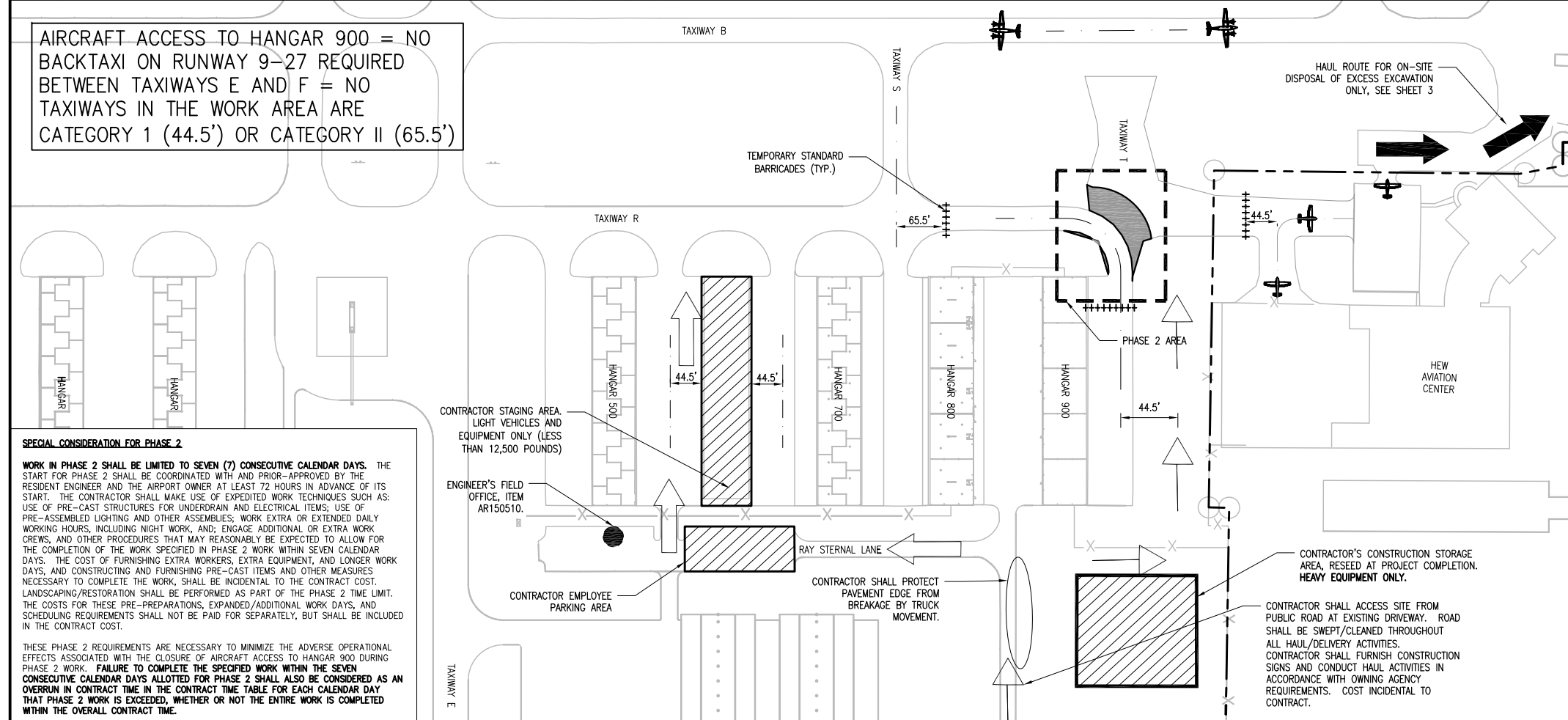
#### NOTES

1. ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
2. ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER (SEE SPECIAL PROVISIONS)
3. CONTRACTOR'S EQUIPMENT MAY NOT DISRUPT FLIGHT OPERATIONS ON RUNWAY 2-20 OR 9-27 AT ANY TIME DURING PHASE 1.
4. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.
5. SEE CONSTRUCTION SITE PLAN ON SHEET 3 AND SAFETY NOTES ON SHEET 4.

#### THE FOLLOWING ITEMS ARE TO BE COMPLETED IN PHASE 1:

1. PAVEMENT REMOVAL WITHIN PHASE 1 LIMITS
2. EXCAVATION WITHIN PHASE 1 LIMITS.
3. INSTALL STORM SEWER WITHIN PHASE 1 LIMITS.
4. INSTALL DRAINAGE LAYER AND AGGREGATE WITHIN PHASE 1 LIMITS
5. INSTALL UNDERDRAIN WITHIN PHASE 1 LIMITS.
6. INSTALL BITUMINOUS BASE PAVEMENT WITHIN PHASE 1 LIMITS
7. GRADE AND LANDSCAPE WITHIN PHASE 1 LIMITS.

AIRCRAFT ACCESS TO HANGAR 900 = NO  
BACKTAXI ON RUNWAY 9-27 REQUIRED  
BETWEEN TAXIWAYS E AND F = NO  
TAXIWAYS IN THE WORK AREA ARE  
CATEGORY 1 (44.5') OR CATEGORY II (65.5')



### PHASE 2

#### NOTES

1. ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
2. ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER (SEE SPECIAL PROVISIONS)
3. WORK IN STAGE 2 SHOULD BE COMPLETED EXPEDITIOUSLY IN ORDER TO MINIMIZE THE TIME THE 900 HANGARS ARE LEFT UNAVAILABLE TO BE USED. TAXIWAY T SHALL BE CLOSED WHEN WORKING WITHIN 44.5 FEET OF THE CENTERLINE.
4. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.
5. THIS WORK SHALL BE LIMITED TO 7 WORKING DAYS, SEE NOTE ON THIS SKETCH.
6. SEE CONSTRUCTION SITE PLAN ON SHEET 3 AND SAFETY NOTES ON SHEET 4

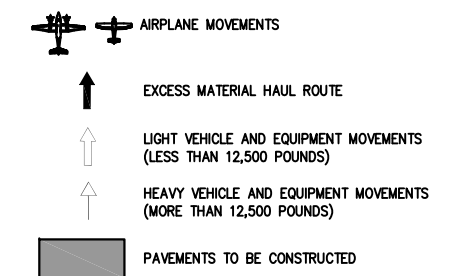
#### THE FOLLOWING ITEMS ARE TO BE COMPLETED IN PHASE 2:

1. EXCAVATION WITHIN PHASE 2 LIMITS.
2. INSTALL DRAINAGE LAYER AND AGGREGATE WITHIN PHASE 2 LIMITS
3. INSTALL UNDERDRAIN WITHIN PHASE 2 LIMITS.
4. INSTALL BITUMINOUS BASE PAVEMENT WITHIN PHASE 2 LIMITS
5. GRADE AND LANDSCAPE WITHIN PHASE 2 LIMITS.

**SPECIAL CONSIDERATION FOR PHASE 2**

WORK IN PHASE 2 SHALL BE LIMITED TO SEVEN (7) CONSECUTIVE CALENDAR DAYS. THE START FOR PHASE 2 SHALL BE COORDINATED WITH AND PRIOR-APPROVED BY THE RESIDENT ENGINEER AND THE AIRPORT OWNER AT LEAST 72 HOURS IN ADVANCE OF ITS START. THE CONTRACTOR SHALL MAKE USE OF EXPEDITED WORK TECHNIQUES SUCH AS: USE OF PRE-CAST STRUCTURES FOR UNDERDRAIN AND ELECTRICAL ITEMS; USE OF PRE-ASSEMBLED LIGHTING AND OTHER ASSEMBLIES; WORK EXTRA OR EXTENDED DAILY WORKING HOURS, INCLUDING NIGHT WORK; AND: ENGAGE ADDITIONAL OR EXTRA WORK CREWS, AND OTHER PROCEDURES THAT MAY REASONABLY BE EXPECTED TO ALLOW FOR THE COMPLETION OF THE WORK SPECIFIED IN PHASE 2 WORK WITHIN SEVEN CALENDAR DAYS. THE COST OF FURNISHING EXTRA WORKERS, EXTRA EQUIPMENT, AND LONGER WORK DAYS, AND CONSTRUCTING AND FURNISHING PRE-CAST ITEMS AND OTHER MEASURES NECESSARY TO COMPLETE THE WORK, SHALL BE INCIDENTAL TO THE CONTRACT COST. LANDSCAPING/RESTORATION SHALL BE PERFORMED AS PART OF THE PHASE 2 TIME LIMIT. THE COSTS FOR THESE PRE-PREPARATIONS, EXPANDED/ADDITIONAL WORK DAYS, AND SCHEDULING REQUIREMENTS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE CONTRACT COST.

THESE PHASE 2 REQUIREMENTS ARE NECESSARY TO MINIMIZE THE ADVERSE OPERATIONAL EFFECTS ASSOCIATED WITH THE CLOSURE OF AIRCRAFT ACCESS TO HANGAR 900 DURING PHASE 2 WORK. FAILURE TO COMPLETE THE SPECIFIED WORK WITHIN THE SEVEN CONSECUTIVE CALENDAR DAYS ALLOTTED FOR PHASE 2 SHALL ALSO BE CONSIDERED AS AN OVERTURN IN CONTRACT TIME IN THE CONTRACT TIME TABLE FOR EACH CALENDAR DAY THAT PHASE 2 WORK IS EXCEEDED, WHETHER OR NOT THE ENTIRE WORK IS COMPLETED WITHIN THE OVERALL CONTRACT TIME.



CONSTRUCTION VEHICLES SHALL BE CONTROLLED BY CONTRACTOR AND SHALL ALWAYS YIELD TO AIRCRAFT. SEE SPECIAL PROVISIONS

### CONSTRUCT TAXIWAY R TO AVIATION CENTER

IDA No: LOT-4235  
LE048

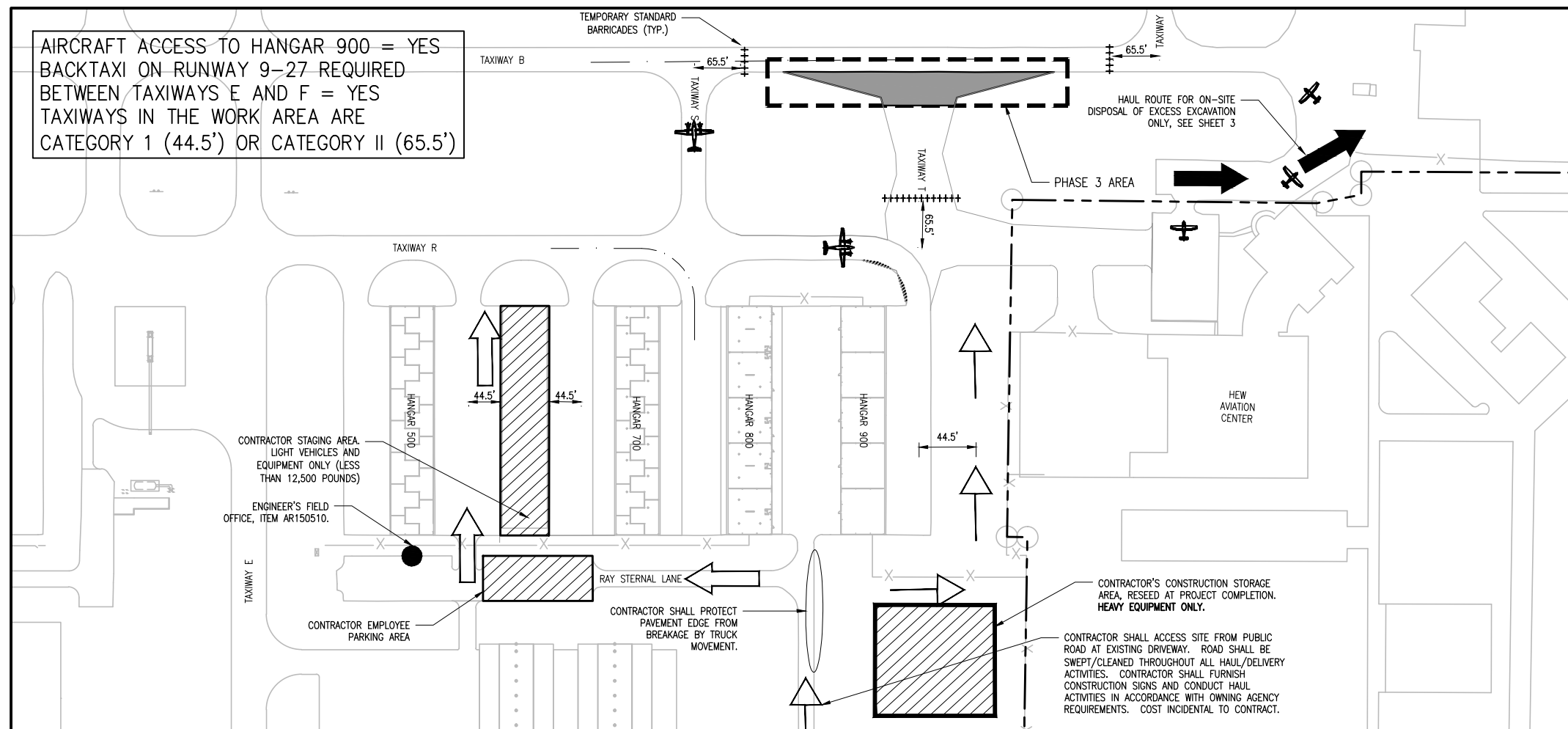
NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 05-PHASING PLAN.DWG  
DESIGN BY: LDH 7/25/14  
DRAWN BY: LDH 7/25/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

### PHASING PLAN PHASE 1 AND 2

AIRCRAFT ACCESS TO HANGAR 900 = YES  
BACKTAXI ON RUNWAY 9-27 REQUIRED  
BETWEEN TAXIWAYS E AND F = YES  
TAXIWAYS IN THE WORK AREA ARE  
CATEGORY 1 (44.5') OR CATEGORY II (65.5')



### PHASE 3

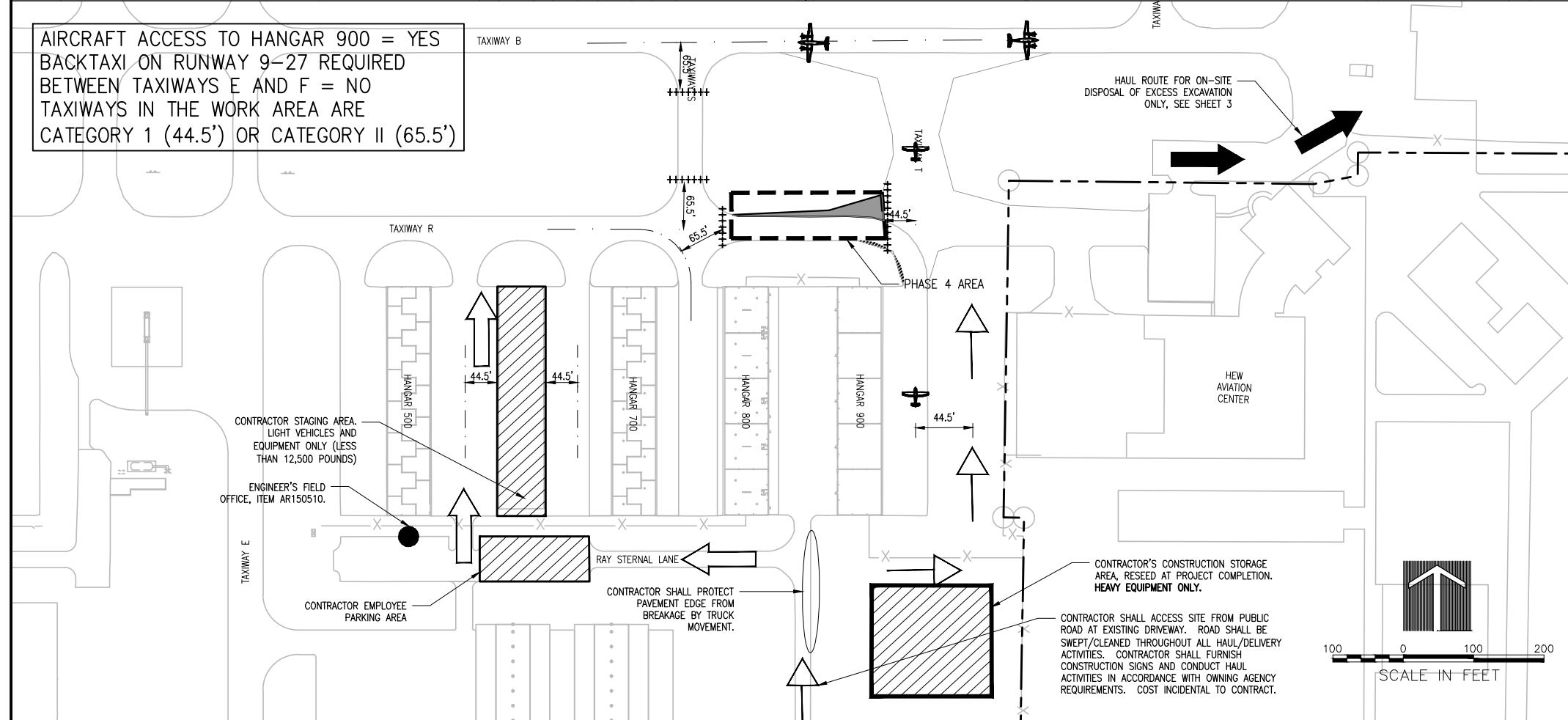
#### NOTES

1. ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
2. ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER (SEE SPECIAL PROVISIONS)
3. WORK IN PHASE 3 SHOULD BE COMPLETED EXPEDITIOUSLY IN ORDER TO MINIMIZE THE TIME TAXIWAY B IS REQUIRED TO BE CLOSED. TAXIWAY B SHALL BE CLOSED WHEN WORKING WITHIN 65.5 FEET OF THE CENTERLINE.
4. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.
5. SEE CONSTRUCTION SITE PLAN ON SHEET 3 AND SAFETY NOTES ON SHEET 4.

#### THE FOLLOWING ITEMS ARE TO BE COMPLETED IN PHASE 3:

1. EXCAVATION WITHIN PHASE 3 LIMITS.
2. REMOVE AND INSTALL NEW TAXIWAY LIGHTS WITHIN PHASE 3 LIMITS.
3. INSTALL DRAINAGE LAYER AND AGGREGATE WITHIN PHASE 3 LIMITS
4. INSTALL UNDERDRAIN WITHIN PHASE 3 LIMITS.
5. INSTALL BITUMINOUS BASE PAVEMENT WITHIN PHASE 3 LIMITS
6. GRADE AND LANDSCAPE WITHIN PHASE 3 LIMITS.

AIRCRAFT ACCESS TO HANGAR 900 = YES  
BACKTAXI ON RUNWAY 9-27 REQUIRED  
BETWEEN TAXIWAYS E AND F = NO  
TAXIWAYS IN THE WORK AREA ARE  
CATEGORY 1 (44.5') OR CATEGORY II (65.5')



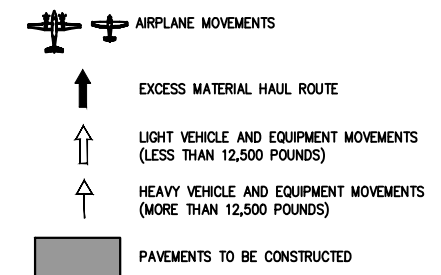
### PHASE 4

#### NOTES

1. ALL CONTRACTOR ACTIVITIES SHALL TAKE PLACE WITHIN CONSTRUCTION LIMIT LINES AS SHOWN.
2. ALL CONSTRUCTION EQUIPMENT WILL BE LIMITED TO A HEIGHT OF 25 FEET UNLESS PRIOR APPROVAL GIVEN BY THE ENGINEER (SEE SPECIAL PROVISIONS)
3. CONTRACTOR'S EQUIPMENT MAY NOT DISRUPT FLIGHT OPERATIONS ON RUNWAY 2-20 OR 9-27 AT ANY TIME DURING STAGE 1.
4. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.
5. SEE CONSTRUCTION SITE PLAN ON SHEET 3 AND SAFETY NOTES ON SHEET 4.

#### THE FOLLOWING ITEMS ARE TO BE COMPLETED IN PHASE 4:

1. EXCAVATION WITHIN PHASE 4 LIMITS.
2. INSTALL DRAINAGE LAYER AND AGGREGATE WITHIN PHASE 4 LIMITS
3. INSTALL UNDERDRAIN WITHIN PHASE 4 LIMITS.
4. INSTALL BITUMINOUS BASE PAVEMENT WITHIN PHASE 4 LIMITS
5. GRADE AND LANDSCAPE WITHIN PHASE 4 LIMITS.



CONSTRUCTION VEHICLES SHALL BE CONTROLLED BY CONTRACTOR AND SHALL ALWAYS YIELD TO AIRCRAFT. SEE SPECIAL PROVISIONS



### CONSTRUCT TAXIWAY R TO AVIATION CENTER

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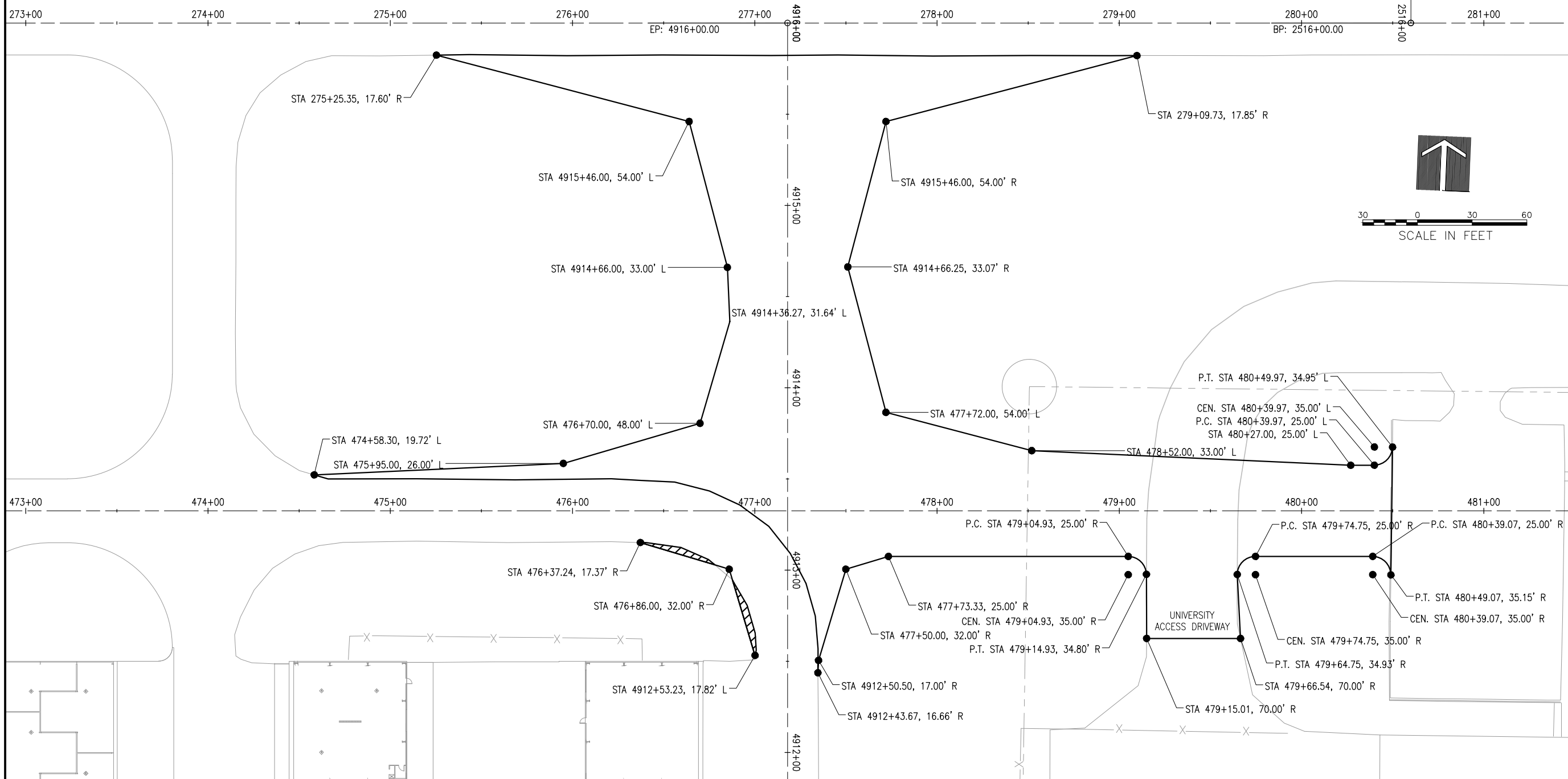
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DESIGN BY: LDH 7/25/14  
DRAWN BY: LDH 7/25/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

### PHASING PLAN PHASE 3 AND 4



ALIGNMENT DATA TABLE				
ALIGNMENT	DESCRIPTION	STATION	PROJECT COORDINATES	
			NORTHING	EASTING
TAXIWAY B	BEGINNING OF ALIGNMENT	265+00	1799623.1957	1050973.8059
	END OF ALIGNMENT	285+00	1799707.7927	1052972.0160
TAXIWAY F	BEGINNING OF ALIGNMENT	2516+00	1799689.1814	1052532.4095
	END OF ALIGNMENT	2520+00	1800088.8234	1052515.4901
TAXIWAY R	BEGINNING OF ALIGNMENT	470+00	1799377.0844	1051484.6730
	END OF ALIGNMENT	481+00	1799423.6127	1052583.6885
TAXIWAY 900/T	BEGINNING OF ALIGNMENT	4909+00	1798975.3417	1052220.3245
	END OF ALIGNMENT	4916+00	1799674.7153	1052190.7156



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**CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER**

IDA No: LOT-4235

LE048

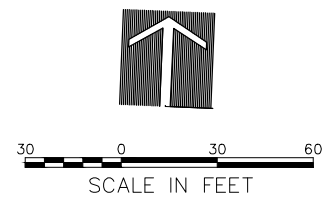

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CAD FILE: 08-ALIGN.DWG  
DESIGN BY: LDH 7/28/14  
DRAWN BY: LDH 7/28/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

**ALIGNMENT DATA  
TABLE AND  
PAVMENT LAYOUT**





 STATE/LOCAL FUNDING

 LOCAL ONLY FUNDING

TAXIWAY T

TAXIWAY R

TAXIWAY R

UNIVERSITY ACCESS  
DRIVEWAY

**CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER**

IDA No: LOT-4235

LE048

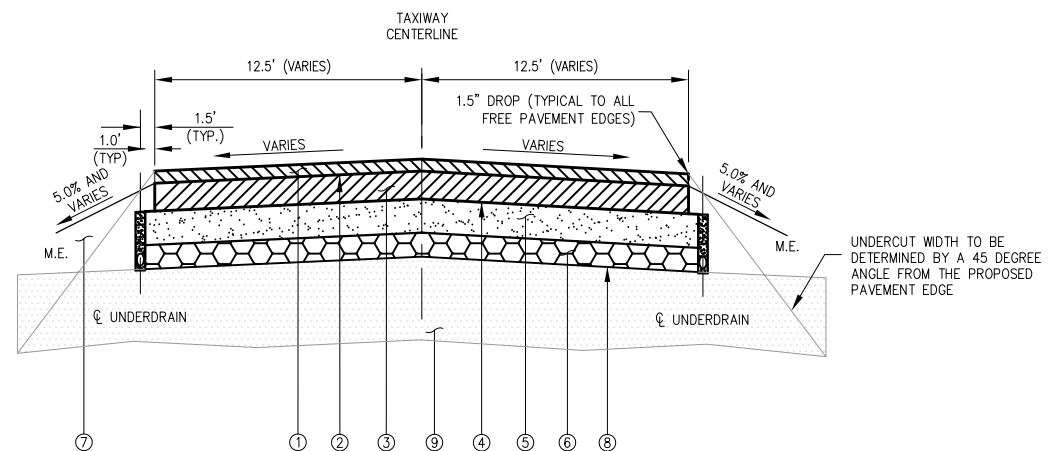
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ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 09-ELIGIBILITY.DWG  
DESIGN BY: LDH 10/30/14  
DRAWN BY: LDH 10/30/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

**PAVEMENT  
ELIGIBILITY PLAN**

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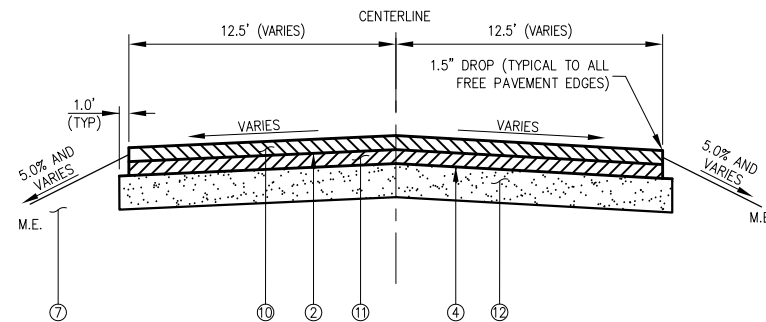
**TYPICAL SECTION - TAXIWAY**

(SECTION SHOWN LOOKING NORTH/EAST)

- ① PROPOSED 2 INCH BITUMINOUS SURFACE COURSE, ITEM AR401613
- ② PROPOSED BITUMINOUS TACK COAT, ITEM AR603510 (BETWEEN ALL LIFTS, 0.15 GALLONS/SQUARE YARD)
- ③ PROPOSED 4 INCH BITUMINOUS BASE COURSE, ITEM AR403613
- ④ PROPOSED BITUMINOUS PRIME COAT, ITEM AR602510 (0.30 GALLONS/SQUARE YARD)
- ⑤ PROPOSED 12 INCH CRUSHED AGGREGATE BASE COURSE, ITEM AR209612
- ⑥ PROPOSED 6 INCH GRANULAR DRAINAGE SUBBASE, ITEM AR800927
- ⑦ PROPOSED 4 INCH TOPSOIL, ITEM AR905510
- ⑧ PROPOSED SEPARATION FABRIC, ITEM AR156513
- ⑨ PROPOSED UNDERCUT (ITEM AR152410) AND BACKFILL (ITEM AR800926). SEE SUBGRADE REMOVAL PLAN AND CROSS SECTIONS FOR LOCATION AND DEPTH.
- ⑩ PROPOSED 1.5 INCH BITUMINOUS SURFACE COURSE, ITEM AR401613
- ⑪ PROPOSED 1.5 INCH BITUMINOUS BASE COURSE, ITEM AR403613
- ⑫ PROPOSED 8 INCH CRUSHED AGGREGATE BASE COURSE, AR209608

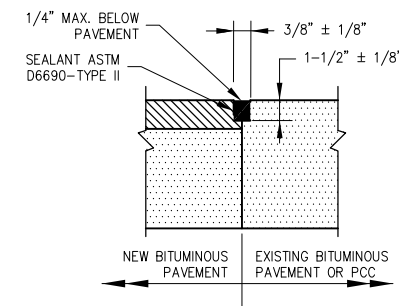
**NOTE:**

1. BITUMINOUS PRIME COAT AND BITUMINOUS TACK COAT SHALL BE REQUIRED AS SPECIFIED. SEE SPECIAL PROVISIONS AND STANDARD PROVISIONS.
2. BITUMINOUS TACK COAT SHALL BE APPLIED BETWEEN EACH LIFT OF BITUMINOUS BASE COURSE AND BETWEEN THE BITUMINOUS BASE COURSE TOP LIFT AND THE BITUMINOUS SURFACE COURSE - NO EXCEPTIONS.



**TYPICAL SECTION - UNIVERSITY ACCESS DRIVEWAY**

(SECTION SHOWN LOOKING NORTH)



**NOTE:**

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

**BITUMINOUS/BITUMINOUS SEAL**

REHABILITATE  
TAXIWAY N1, N2, & R1  
AND PORTIONS OF  
TAXIWAY R

IDA No: LOT-4426  
SBG No: 3-17-SBGP-TBD

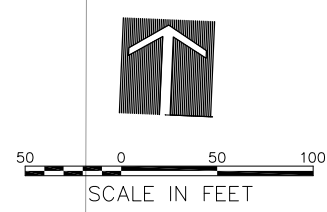
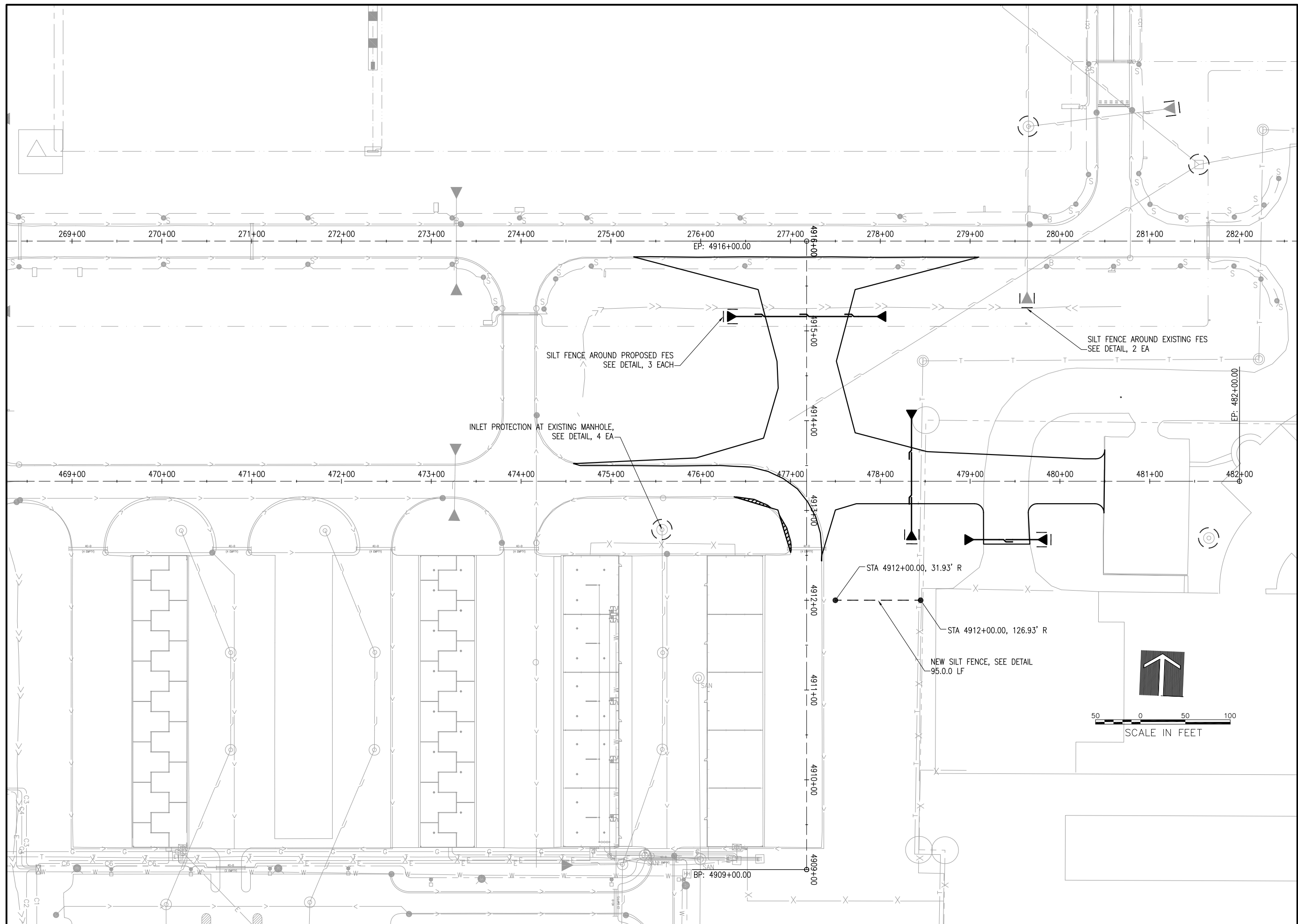
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ISSUE: July 8, 2014  
PROJECT NO: 14A0072  
CAD FILE: 10-TYPSECTION.DWG  
LAYOUT BY: LDH 7/16/14  
DRAWN BY: LDH 7/16/14  
REVIEWED BY: RMH XX/XX/XX

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SHEET TITLE

TYPICAL SECTIONS  
AND PAVEMENT  
DETAILS



**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235  
LE048

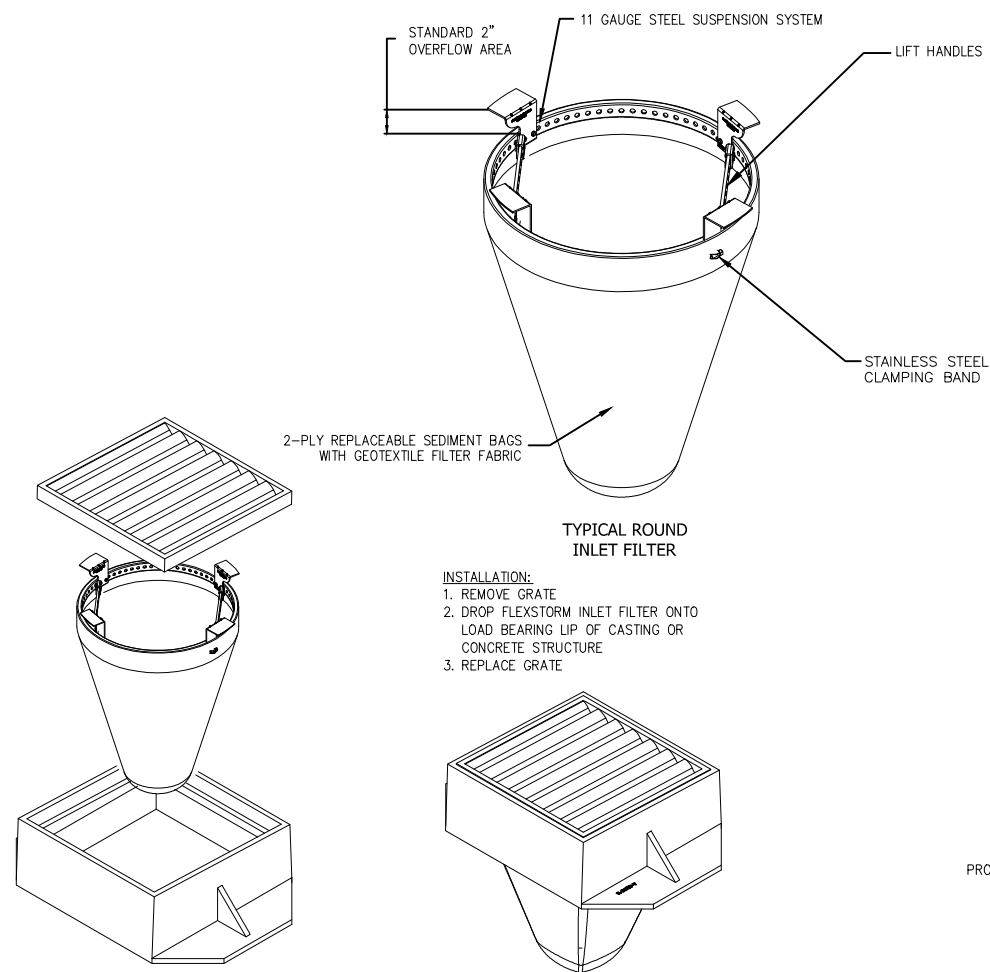

NO.	DATE	DESCRIPTION		
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PROJECT NO: 14A0084  
CAD FILE: 11-SWPPP.DWG  
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DRAWN BY: LDH 7/28/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

**STORM WATER POLLUTION PREVENTION PLAN**

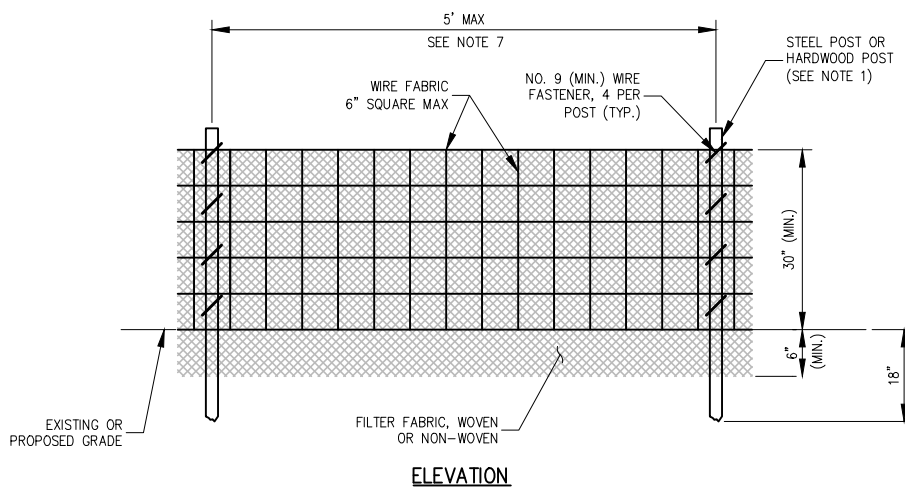
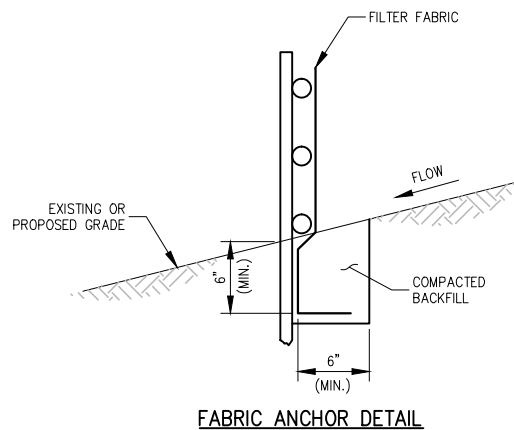
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**NOTES:**

- FILTER FABRIC INLET PROTECTION SHALL CONSIST OF INLET BASKET AND FABRIC INSERT, IPP FLEXSTORM BY EROTEX OR EQUAL.
- DEVICE SHALL BE EQUIPPED WITH AN OVERFLOW FEATURE SO DRAINAGE TO INLET IS NOT COMPLETELY BLOCKED IF DEVICE IS FULL OF SILT.
- INLET BASKET IS AVAILABLE TO FIT ROUND, RECTANGULAR, BEEHIVE OR CURB INLET CASTINGS.
- FILTER FABRIC SHALL HAVE AN APPARENT OPENING SIZE (AOS) OF AT LEAST 70 SIEVE FOR NONWOVEN.
- FILTER FABRIC SHALL HAVE A TENSILE STRENGTH OF AT LEAST 100 LBS FOR NON WOVEN.
- POLYESTER OUTER REINFORCEMENT BAG SHALL HAVE FABRIC WITH A WEIGHT OF 4.55 OZ/SQYD +/- 15 PERCENT.
- FRAME CONSTRUCTION SHALL HAVE A TENSILE STRENGTH OF AT LEAST 58,000 PSI AND A YIELD STRENGTH OF AT LEAST 36,000 PSI.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED. REMOVE SILT FROM FABRIC INSERT WHEN 50% OF CAPACITY IS REACHED. REMOVE SILT FROM INTERIOR AND EXTERIOR OF INLET DAM WHEN 50% OF DAM HEIGHT IS REACHED.
- PAYMENT FOR INLET PROTECTION MAINTENANCE SHALL BE INCIDENTAL TO INLET PROTECTION.

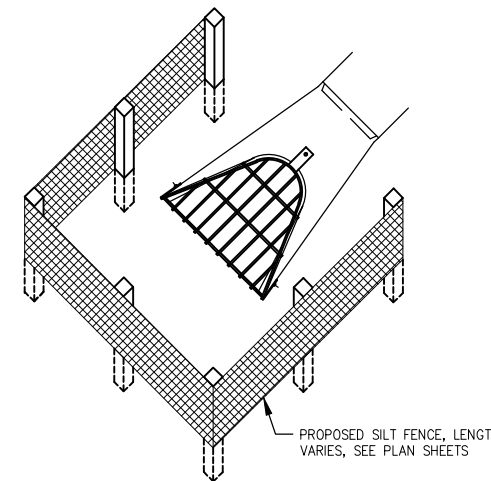
**INLET PROTECTION**



**NOTES:**

- FENCE POST SHALL BE EITHER STEEL "T" LINE POST OR HARDWOOD POST WITH A MINIMUM SECTIONAL AREA OF 2.0 SQUARE INCHES. A CARPENTER'S (NOMINAL) 2"x2" POST WILL MEET SPECIFICATIONS.
- TOP AND BOTTOM WIRE OF WIRE FABRIC SHALL BE MINIMUM GAGE NO. 9. INTERMEDIATE WIRES OF THE WIRE FABRIC SHALL BE MINIMUM GAGE NO. 11.
- WIRE FABRIC SHALL BE SECURELY FASTENED TO FENCE POSTS WITH NO. 9 GAGE WIRE MINIMUM. FOUR (4) FASTENERS PER POST REQUIRED.
- 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.
- WHEN TWO SECTIONS OF FILTER FABRIC MEET, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED AND ATTACHED TO THE WIRE FABRIC AT A POST.
- FILTER FABRIC SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS WITH APPARENT OPENING SIZE (AOS) OF AT LEAST 40 FOR NONWOVEN AND WOVEN (OR MAXIMUM OF 0.60mm).
- A MAXIMUM OF 5 FEET IS USED FOR POST-TO-POST SPACING.
- SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES.
- ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. PERIODIC INSPECTION SHALL BE PERFORMED AND REQUIRED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN BULGES DEVELOP IN THE SILT FENCE.
- 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).
- FENCE POSTS SHALL BE REMOVED WHEN DIRECTED AT PROJECT END.
- 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.

**SILT FENCE**



**SEDIMENTATION AND EROSION CONTROL NOTES:**

- 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.
- SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
- DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN 14 CALENDAR DAYS OF THE END OF ACTIVE HYDROLOGIC DISTURBANCE, OR REDISTURBANCE.
- AREAS OR EMBANKMENTS HAVING SLOPES GREATER THAN OR EQUAL TO 8H:1V SHALL BE STABILIZED WITH SOD, MAT OR BLANKET IN COMBINATION WITH SEEDING.
- EROSION CONTROL BLANKET SHALL BE REQUIRED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN NORMAL WATER LEVEL AND HIGH WATER LEVEL.
- ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED, BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
- 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.
- 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.
- 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.
- SOIL STOCKPILES SHALL NOT BE LOCATED IN A FLOOD PRONE AREA OR A DESIGNATED BUFFER. NO STOCKPILES SHALL BE LOCATED WITHIN AN ACTIVE RUNWAY SAFETY AREA, RUNWAY OBJECT FREE AREA, RUNWAY OBSTACLE FREE ZONE, OR ACTIVE TAXIWAY OBJECT FREE AREA.
- 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).
- 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.

**STORM WATER POLLUTION PREVENTION NOTES**

**GENERAL**

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

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

**POLLUTION PREVENTION MEASURES**

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

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

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

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

**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235

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NO.	DATE	DESCRIPTION		
		DES	DWN	REV

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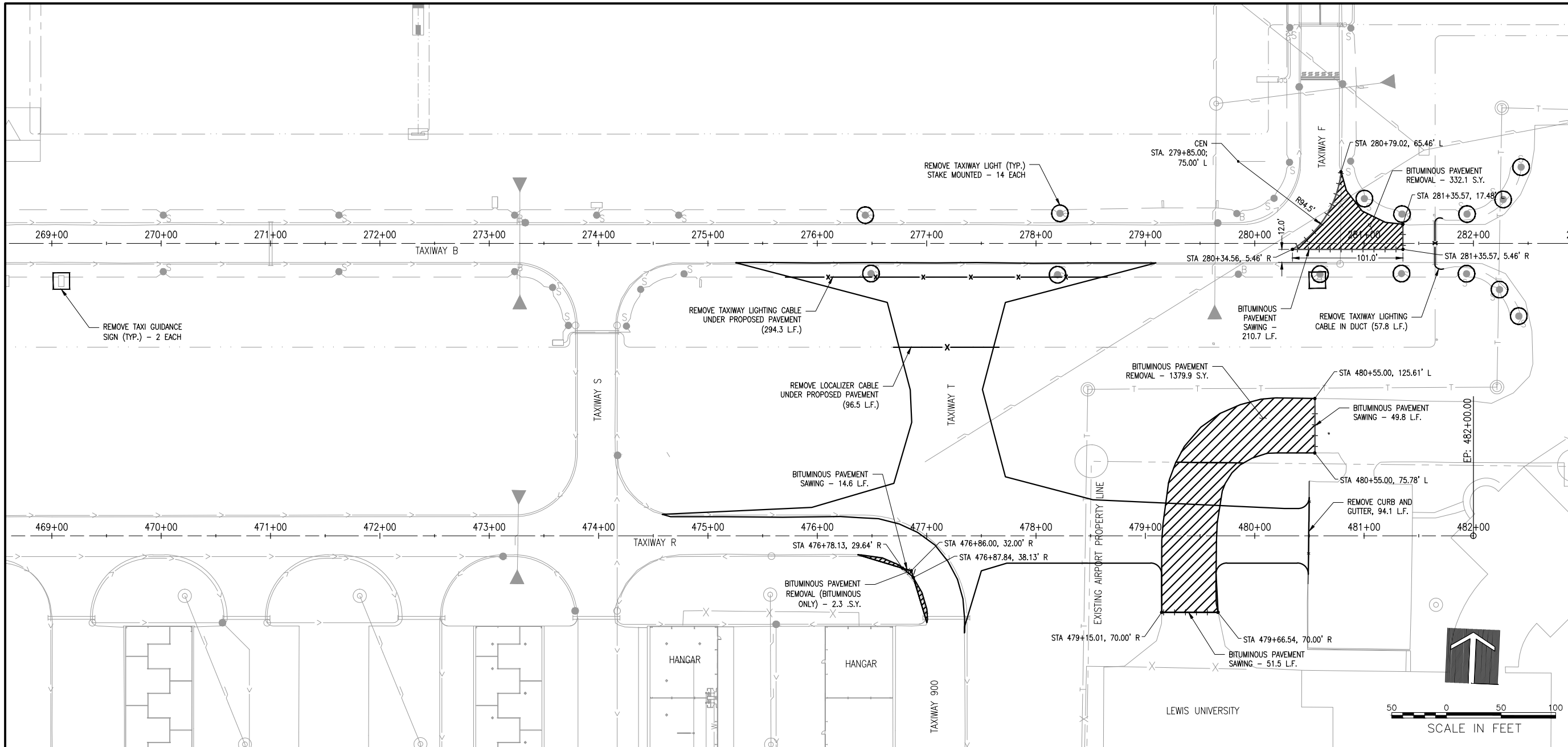
DESIGN BY: LDH 7/28/14

DRAWN BY: LDH 7/28/14

REVIEWED BY: RMH 11/20/14

SHEET TITLE

SWPPP  
DETAILS



**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. POWER FOR THE EXISTING TAXIWAY B IS UNDERSTOOD TO BE POWERED FROM THE RESPECTIVE AIRPORT ELECTRICAL VAULT. LEWIS UNIVERSITY AIRPORT HAS TWO ELECTRICAL VAULTS. 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 TAXIWAY LIGHTS DESIGNATED FOR REMOVAL SHALL BE DISCONNECTED, 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.
- THE EXISTING AIRFIELD LIGHTING CABLES ASSOCIATED WITH AIRFIELD LIGHTING REMOVALS SHALL BE ABANDONED IN PLACE UNLESS IT IS DESIGNATED AS A REMOVAL WORK ITEM OR CONFLICTS WITH THE INSTALLATION OF A PROPOSED LIGHT OR CABLE, PAVEMENT, OR OTHER WORK, THEN IT SHALL BE REMOVED AND DISPOSED OF OFF SITE AT NO ADDITIONAL COST TO THE CONTRACT. CONTRACTOR MAY REMOVE ABANDONED CABLES AT NO ADDITIONAL COST TO THE CONTRACT AND SHALL HAVE THE SALVAGE RIGHTS TO ABANDONED CABLES.
- 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, "OPERATIONAL 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.

**LEGEND:**

- PROPOSED CABLE REMOVAL
- PROPOSED SAWCUT
- PROPOSED BITUMINOUS PAVEMENT REMOVAL
- PROPOSED LIGHT REMOVAL
- PROPOSED SIGN REMOVAL

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.

**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235

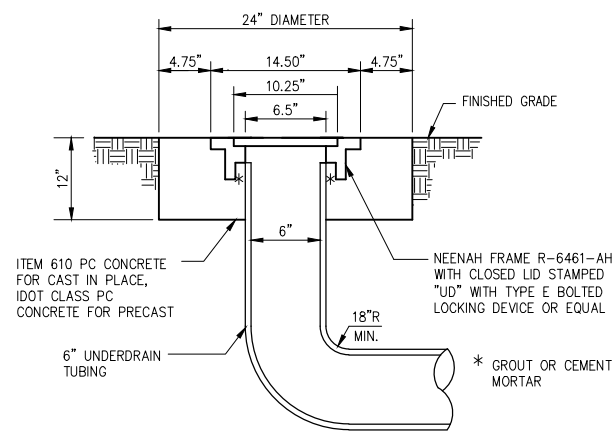
LE048

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

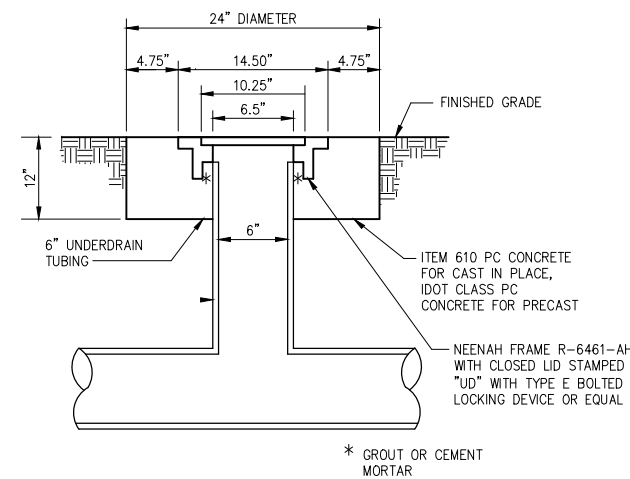
ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 13-REMOVAL.DWG  
DESIGN BY: LDH 7/28/14  
DRAWN BY: LDH 7/28/14  
REVIEWED BY: RMH 11/20/14  
SHEET TITLE

**REMOVAL PLAN**

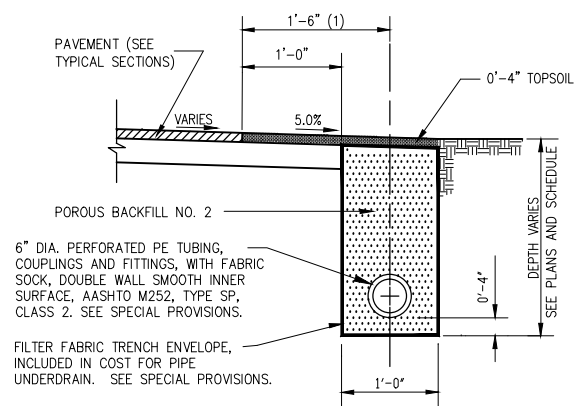




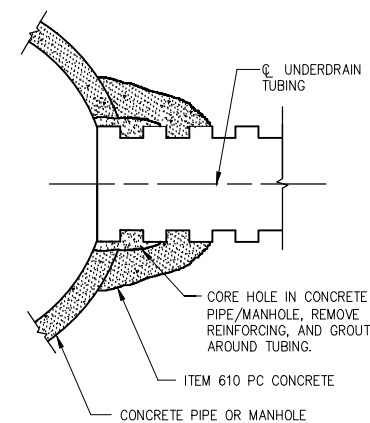
**UNDERDRAIN CLEANOUT**



**UNDERDRAIN INSPECTION HOLE**



**UNDERDRAIN ALONG PAVEMENT EDGE**



**STORM SEWER CONCRETE COLLAR AND GROUT CONNECTION**

CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

LE048

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014

PROJECT NO: 14A0084  
CAD FILE: 15-UD DETAILS.DWG  
DESIGN BY: LDH 8/1/14  
DRAWN BY: LDH 8/1/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

UNDERDRAIN  
DETAILS

DETAILS SHOWN ARE NOT TO SCALE





**STORM SEWER SCHEDULE**

Structure	Station	Offset	Type	Rim El.	Invert	Pipe Pay Length	Size	Type	Slope %	
S1	4915+16.02	88.0	LT	FES	--	662.98	164.0	12.0	RCP	0.30
S2	4915+16.02	88.0	RT	FES	--	662.45				
S3	478+34.75	65.0	RT	FES	--	663.06	132.0	12.0	RCP	0.30
S4	478+34.75	79.0	LT	FES	--	662.63				
S5	479+85.34	65.0	RT	FES	--	663.51	79.0	12.0	RCP	0.30
S6	478+94.34	65.0	RT	FES	--	663.24				

**UNDERDRAIN SCHEDULE**

Structure	Station	Offset	Type	Rim El.	Invert El.	Pay Length	Slope %	
U1	4915+44.77	55.23	LT	Cleanout	665.00	663.14	29.7	0.15
U2	4915+16.02	47.68	LT	RCP Connection	---	663.10		
U3	4913+59.94	123.42	LT	Cleanout	666.26	664.26	215.7	0.42
U4	4915+16.02	47.68	LT	RCP Connection	---	663.35		
U5	4915+20.85	48.95	RT	Cleanout	665.29	663.29	218.1	0.30
U6	4915+70.61	245.79	RT	RCP Connection	---	662.64		
U7a	479+60.00	29.56	LT	Capped End	--	663.19	5.0	0.15
U7	479+55.00	29.79	LT	Inspection Hole	664.49	663.18		
U8	478+34.75	39.08	LT	RCP Connection	---	663.00	121.0	0.15
U9	4913+72.85	111.92	RT	Cleanout	665.38	663.38		
U10	4915+16.02	47.68	RT	RCP Connection	---	662.81	191.2	0.30
U11	4912+66.52	23.37	RT	Cleanout	665.84	663.84		
U12	4913+06.00	116.75	RT	RCP Connection	---	663.48	118.8	0.30
U13	479+04.93	26.50	RT	Capped End	--	663.29		
U13	478+99.93	26.50	RT	Inspection Hole	664.97	663.28	5.0	0.15
U14	478+34.75	26.50	RT	RCP Connection	---	663.18		

CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

LE048

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 17-DRAINAGESCH.DWG  
DESIGN BY: LDH 10/30/13  
DRAWN BY: LDH 10/30/13  
REVIEWED BY: RMH 11/20/14

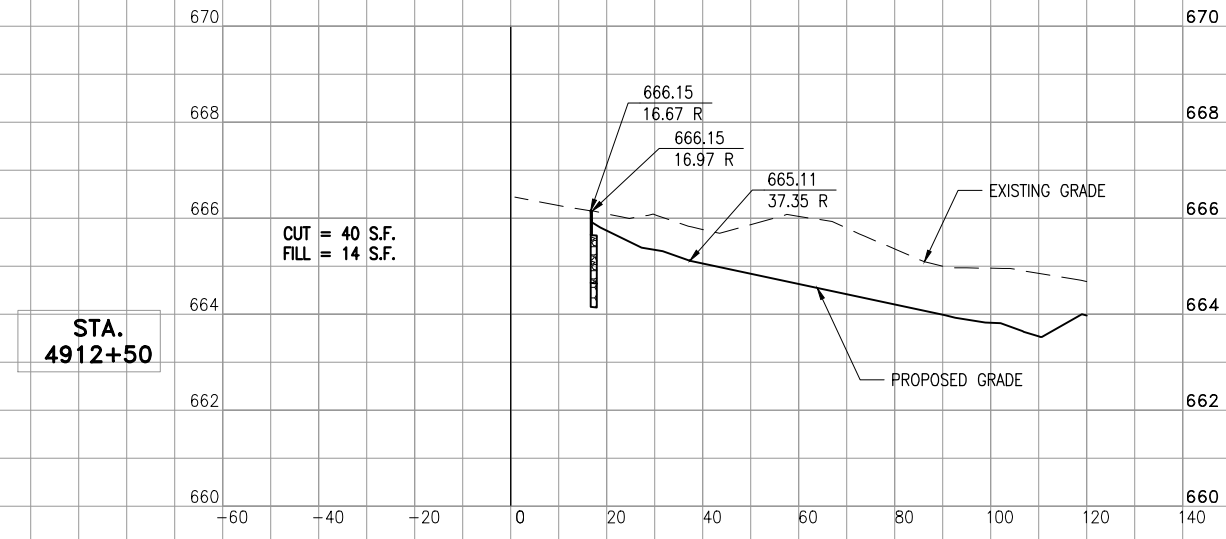
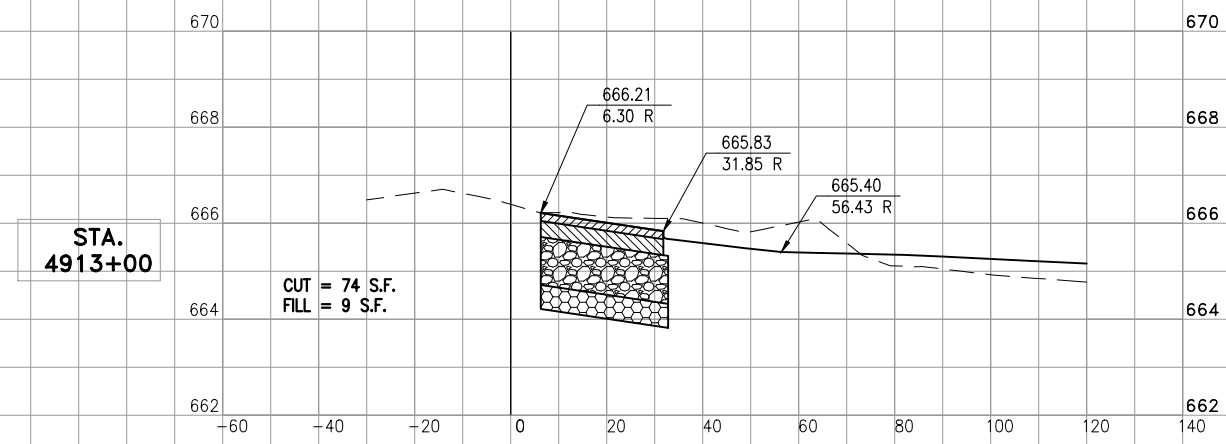
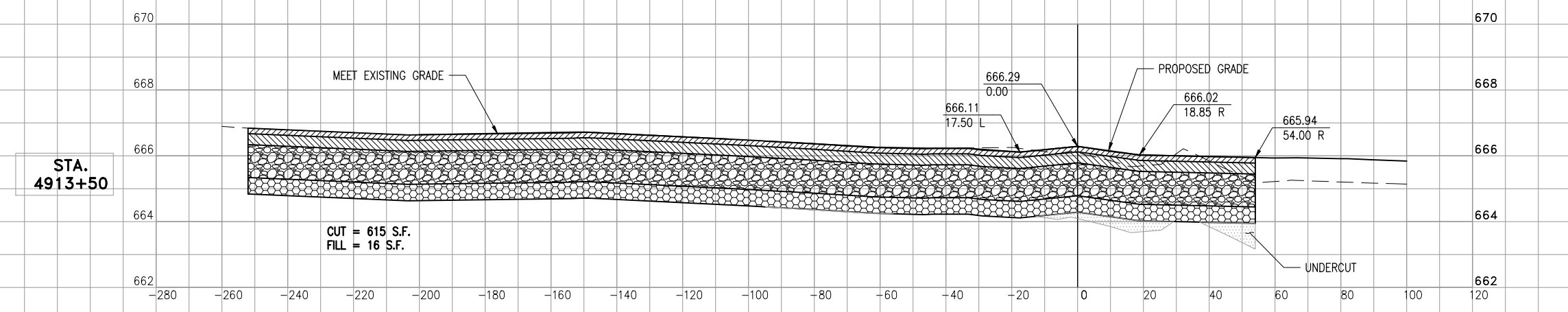
SHEET TITLE

DRAINAGE  
SCHEDULES





FOR ADDITIONAL GRADING  
INFORMATION, SEE  
GRADING PLANS



EARTHWORK SUMMARY IN CUBIC YARDS		
<b>CUT</b>		
Topsoil	7,809	
Suitable Material	801	
<b>TOTAL UNCLASSIFIED CUT</b>	<b>8,610</b>	
<b>SUITABLE FILL</b>		
Fill	70	
Shrink (10%)	7	
<b>TOTAL SUITABLE FILL</b>	<b>77</b>	
<b>TOPSOIL FILL</b>		
Topsoil from On Site	7,809	
<b>TOTAL TOPSOIL REQUIRED</b>	<b>1,757</b>	
<b>CA-6 AGGREGATE BACKFILL</b>	<b>829</b>	
<b>Excess Material to be Hauled and Placed at On-Site location*</b>	<b>6,776</b>	

\* Haul and disposal costs are incidental to Unclassified Excavation.

**NOTE:**  
HAUL OF MATERIALS, INCLUDING EXCESS MATERIAL FROM EXCAVATION, SHALL NOT BE CARRIED ACROSS RUNWAY 9-27.

CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235  
LE048

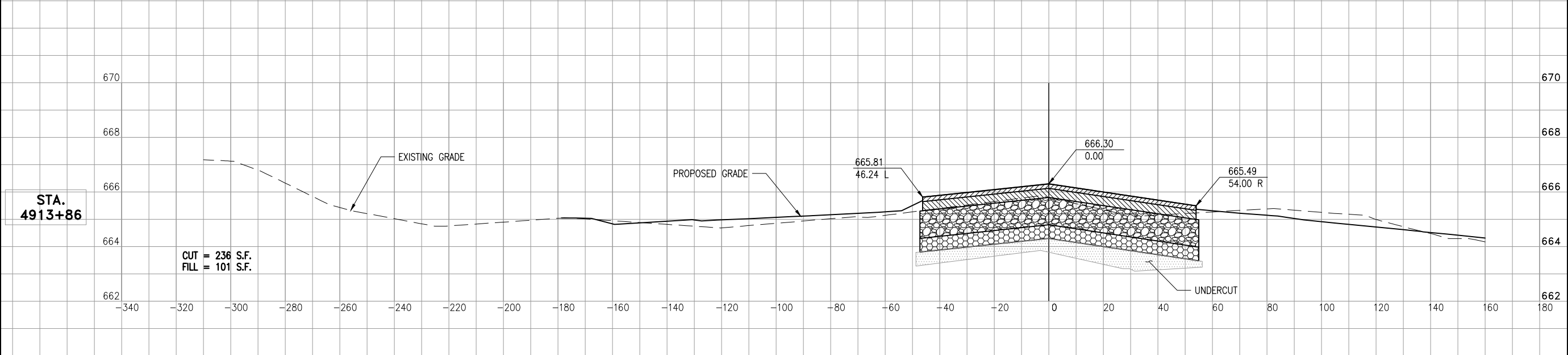
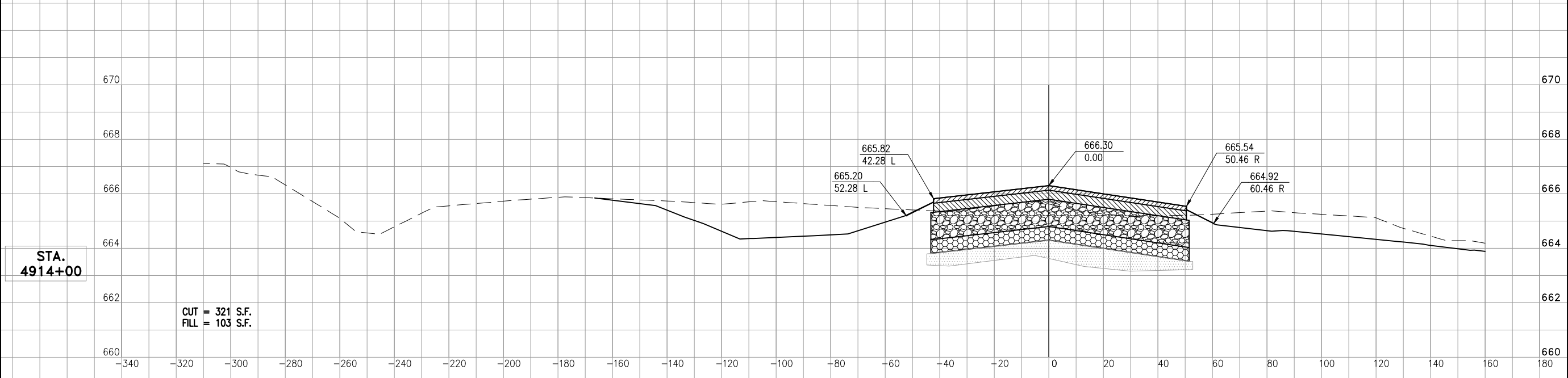
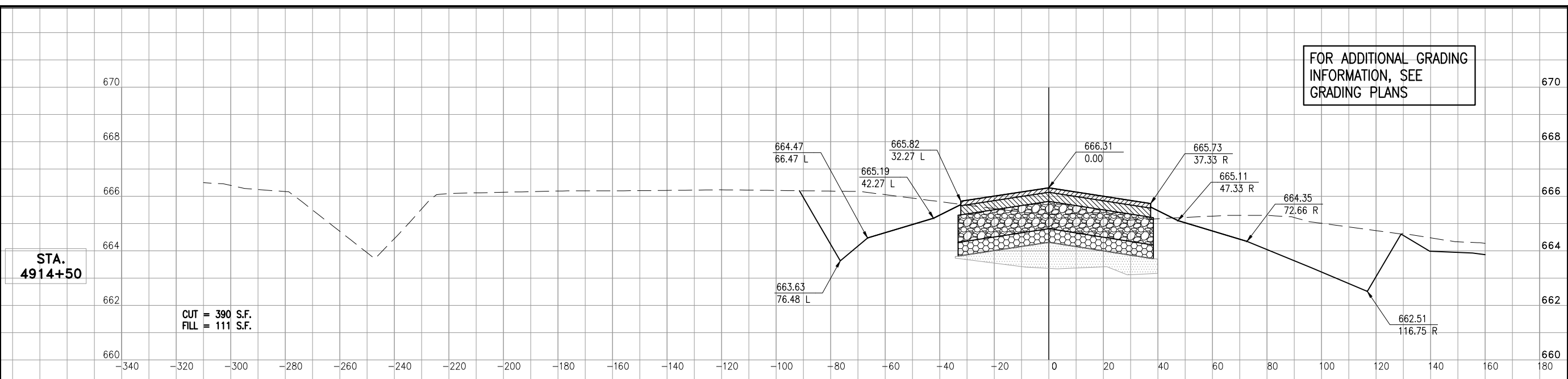
NO.	DATE	DESCRIPTION

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 20-XSECT-T.DWG  
DESIGN BY: LDH 10/30/13  
DRAWN BY: LDH 10/30/13  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

CROSS SECTIONS  
TAXIWAY T

FOR ADDITIONAL GRADING  
INFORMATION, SEE  
GRADING PLANS



CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235  
LE048

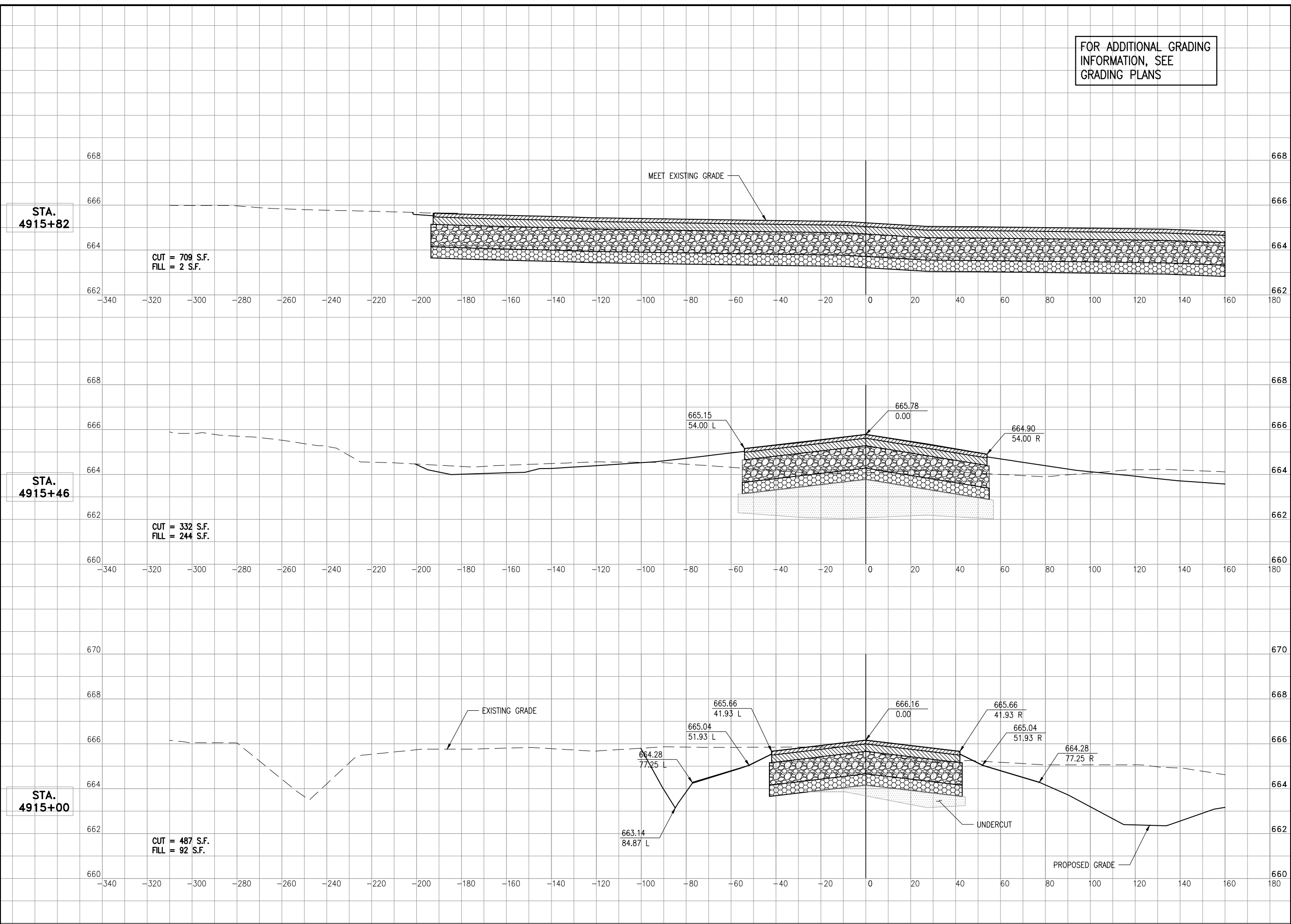
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		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
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DRAWN BY: LDH 10/30/13  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

CROSS SECTIONS  
TAXIWAY T

FOR ADDITIONAL GRADING  
INFORMATION, SEE  
GRADING PLANS



CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235  
LE048


NO.	DATE	DESCRIPTION		
		DES	DWN	REV

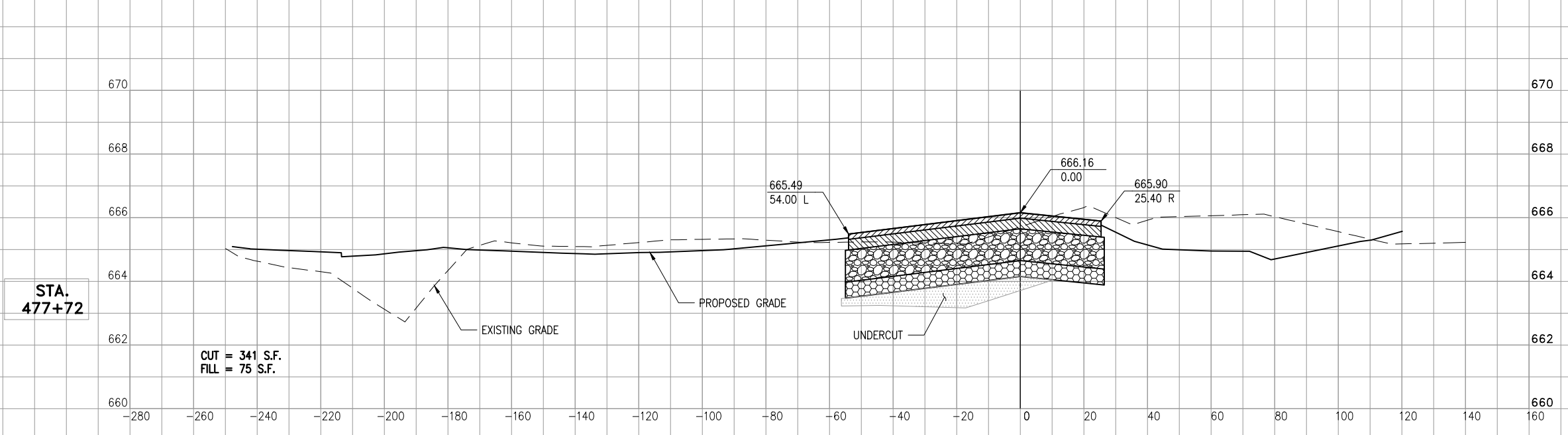
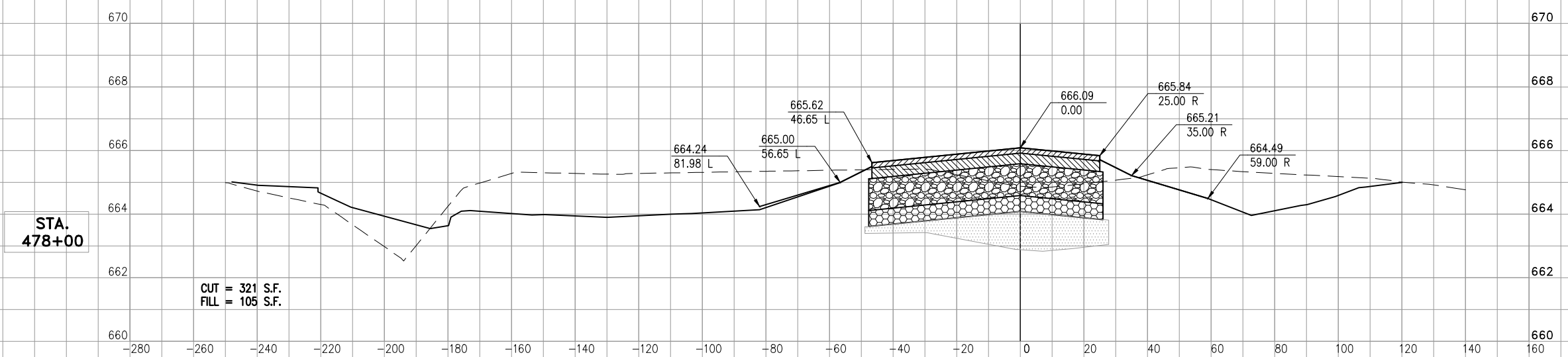
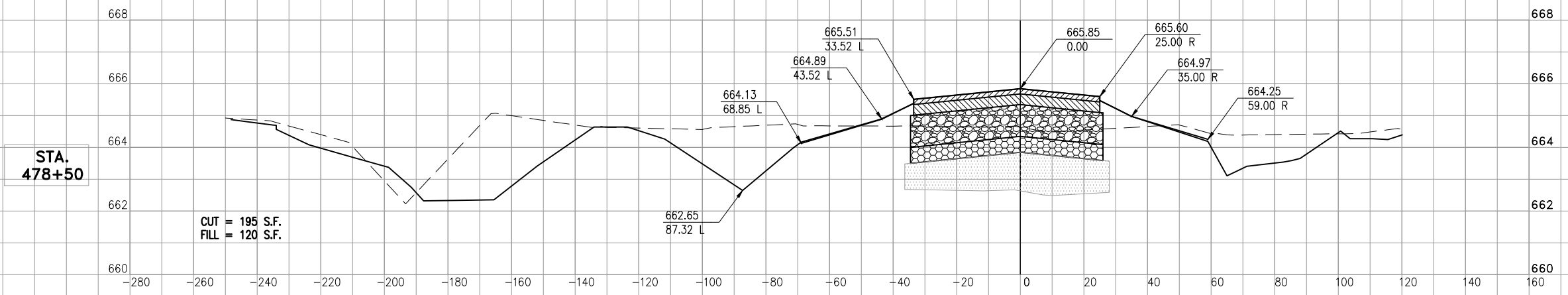
ISSUE: NOVEMBER 21, 2014

PROJECT NO: 14A0084  
CAD FILE: 22-XSECT-T.DWG  
DESIGN BY: LDH 10/30/13  
DRAWN BY: LDH 10/30/13  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

CROSS SECTIONS  
TAXIWAY T

FOR ADDITIONAL GRADING  
INFORMATION, SEE  
GRADING PLANS



**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235  
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NO.	DATE	DESCRIPTION		
		DES	DWN	REV

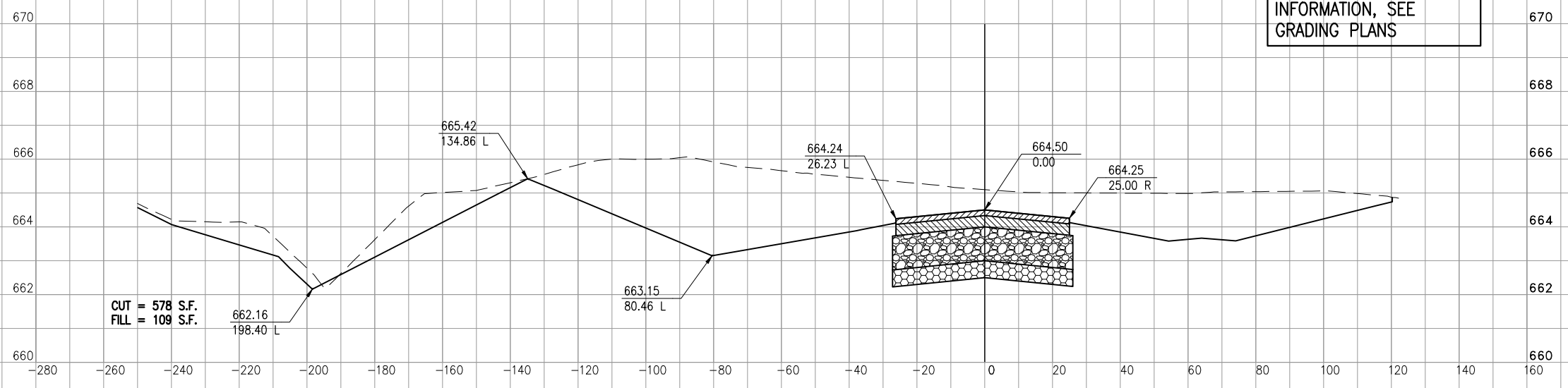
ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
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DESIGN BY: LDH 10/30/13  
DRAWN BY: LDH 10/30/13  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

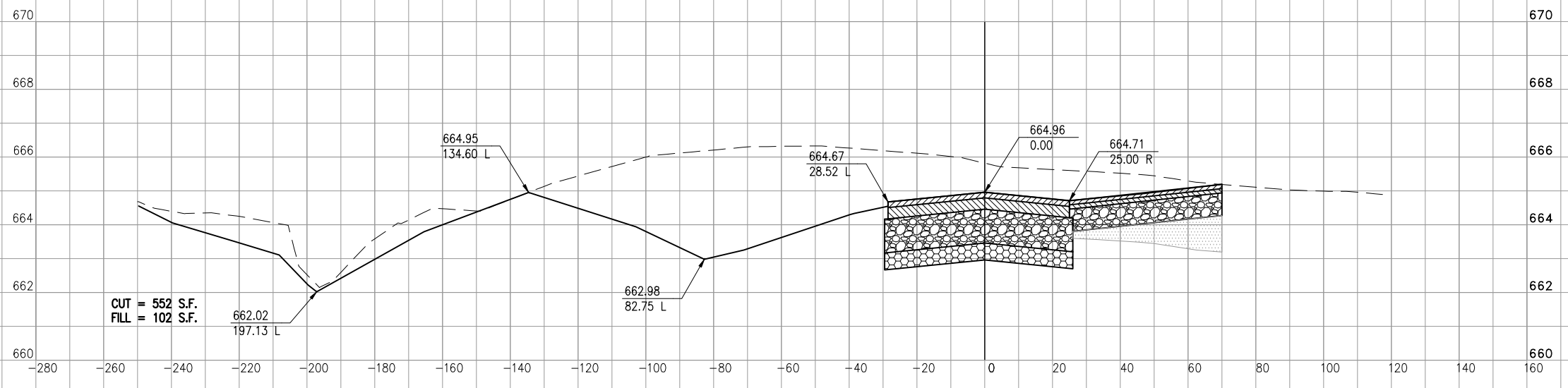
**CROSS SECTIONS TAXIWAY R**

FOR ADDITIONAL GRADING  
INFORMATION, SEE  
GRADING PLANS

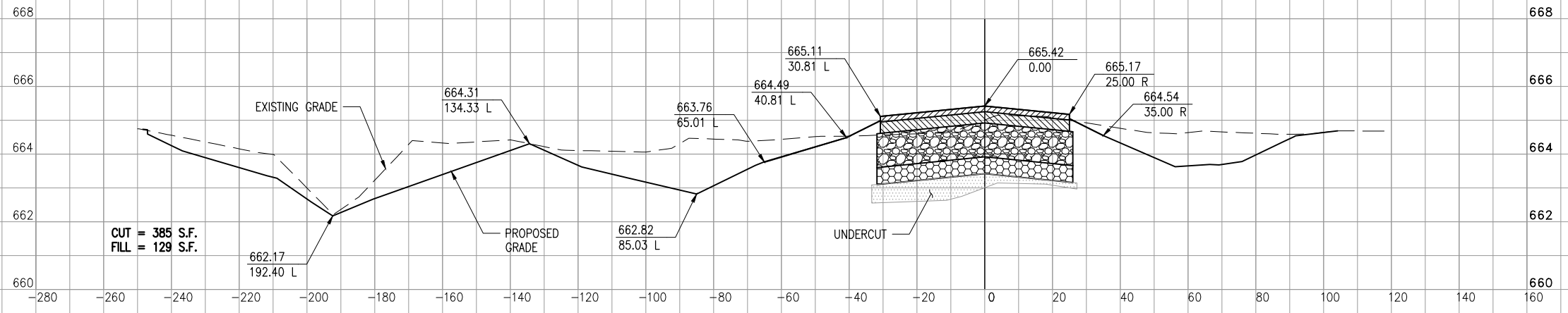
STA.  
480+00



STA.  
479+50



STA.  
479+00



CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

LE048

NO.	DATE	DESCRIPTION

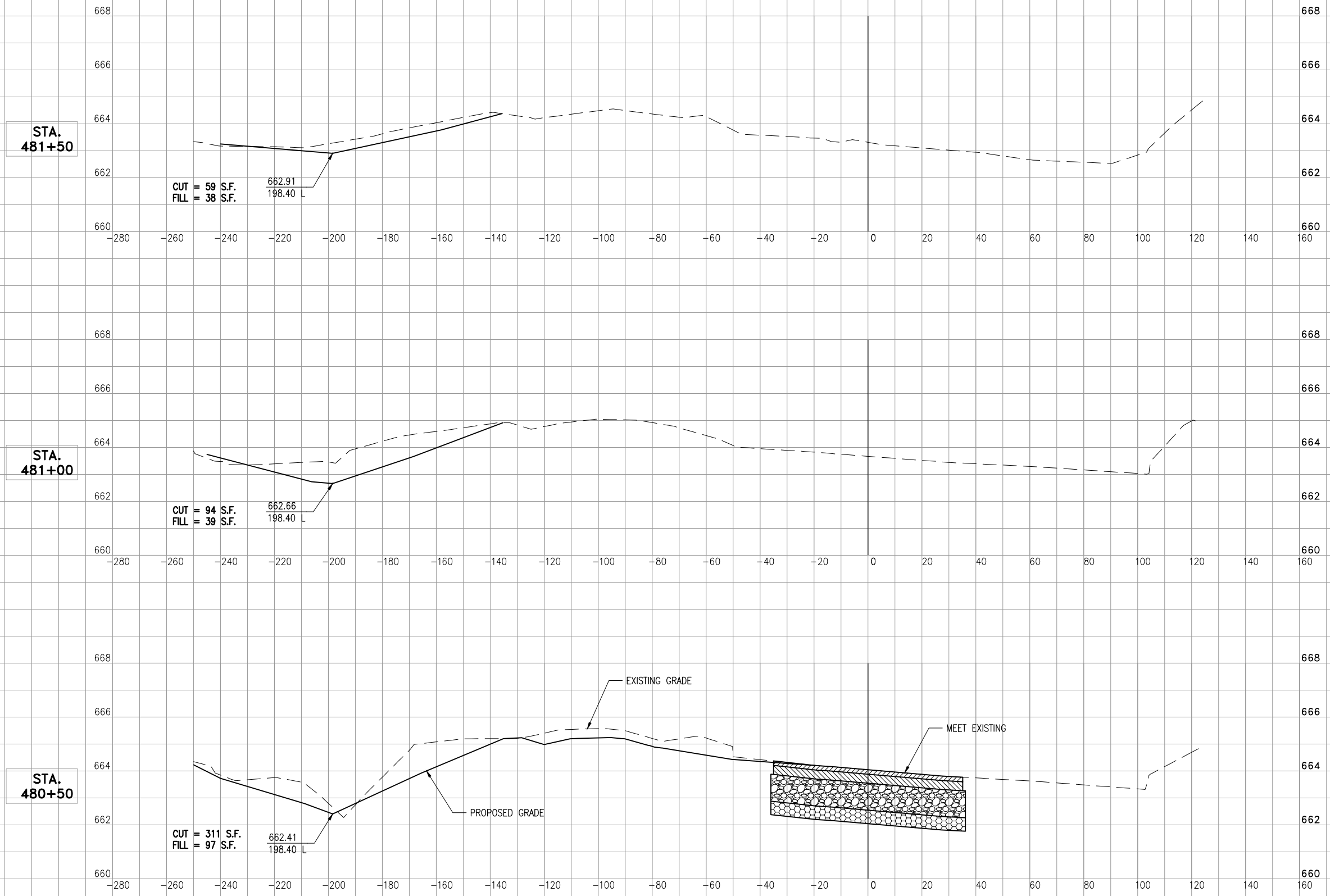
ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 24-XSECT-R.DWG  
DESIGN BY: LDH 10/30/13  
DRAWN BY: LDH 10/30/13  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

CROSS SECTIONS  
TAXIWAY R



FOR ADDITIONAL GRADING  
INFORMATION, SEE  
GRADING PLANS



CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

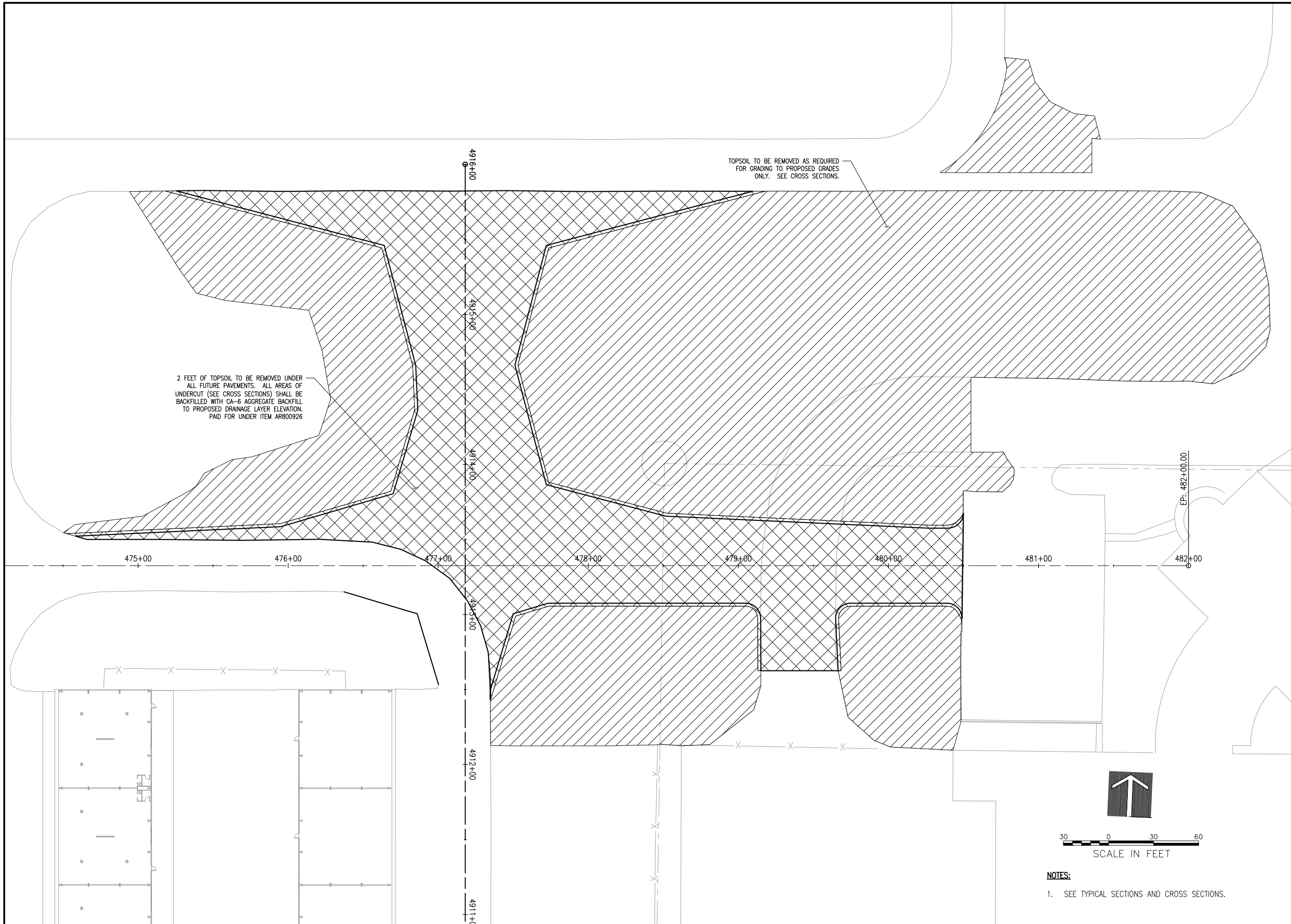
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NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 25-XSECT-R.DWG  
DESIGN BY: LDH 10/30/13  
DRAWN BY: LDH 10/30/13  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

CROSS SECTIONS  
TAXIWAY R



**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235

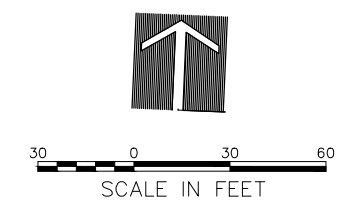
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NO.	DATE	DESCRIPTION		
		DES	DWN	REV

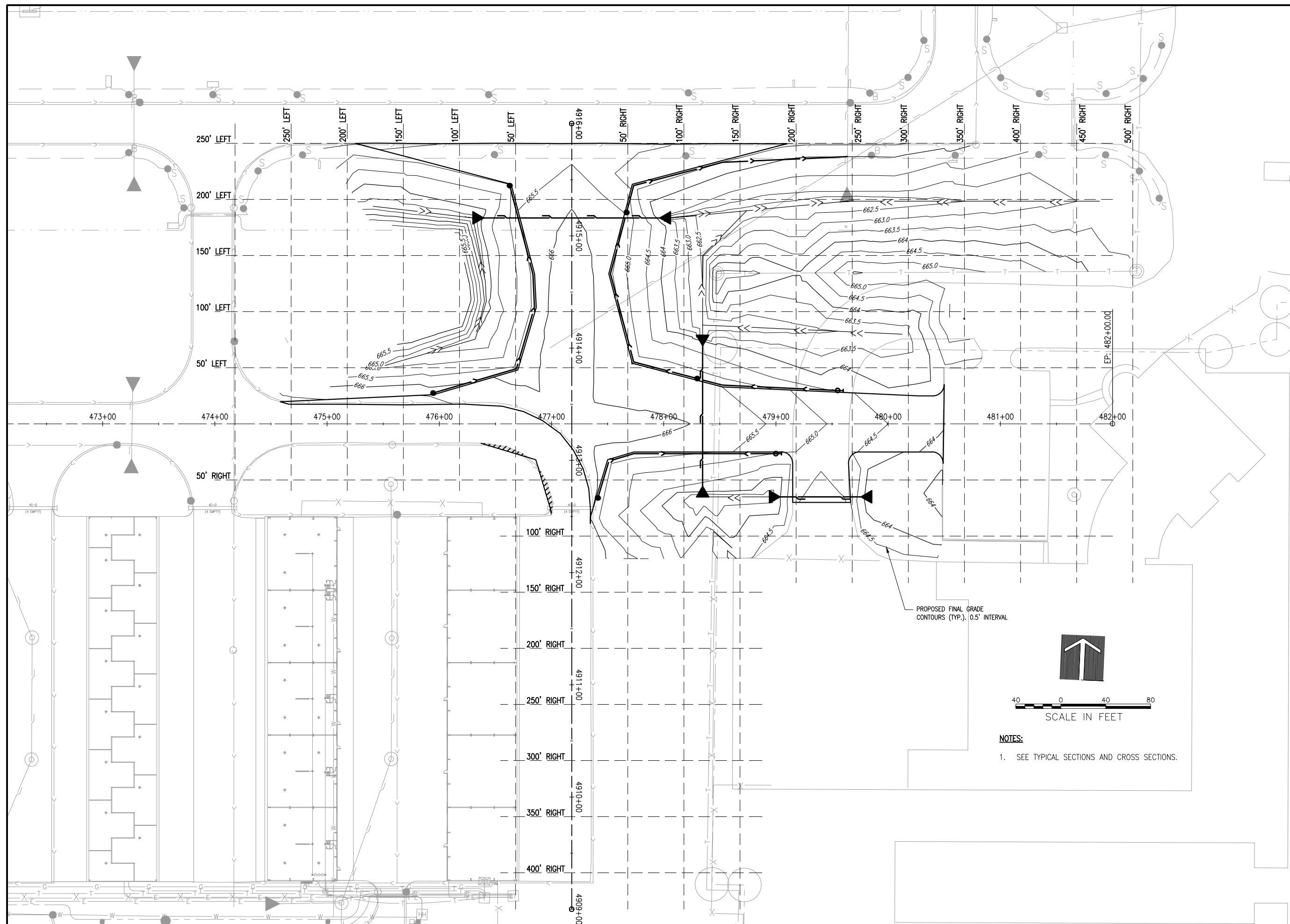
ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 26-UNDERCUT.DWG  
DESIGN BY: LDH 11/18/14  
DRAWN BY: LDH 11/18/14  
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SHEET TITLE

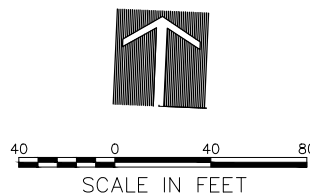
**UNDERCUT AND TOPSOIL REMOVAL PLAN**



- NOTES:**
- SEE TYPICAL SECTIONS AND CROSS SECTIONS.



PROPOSED FINAL GRADE  
CONTOURS (TYP.) 0.5' INTERVAL



- NOTES:**  
1. SEE TYPICAL SECTIONS AND CROSS SECTIONS.

**CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER**

IDA No: LOT-4235  
LE048


NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014

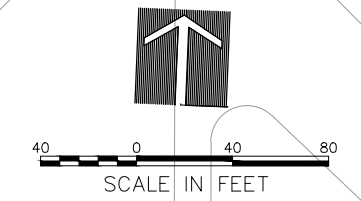
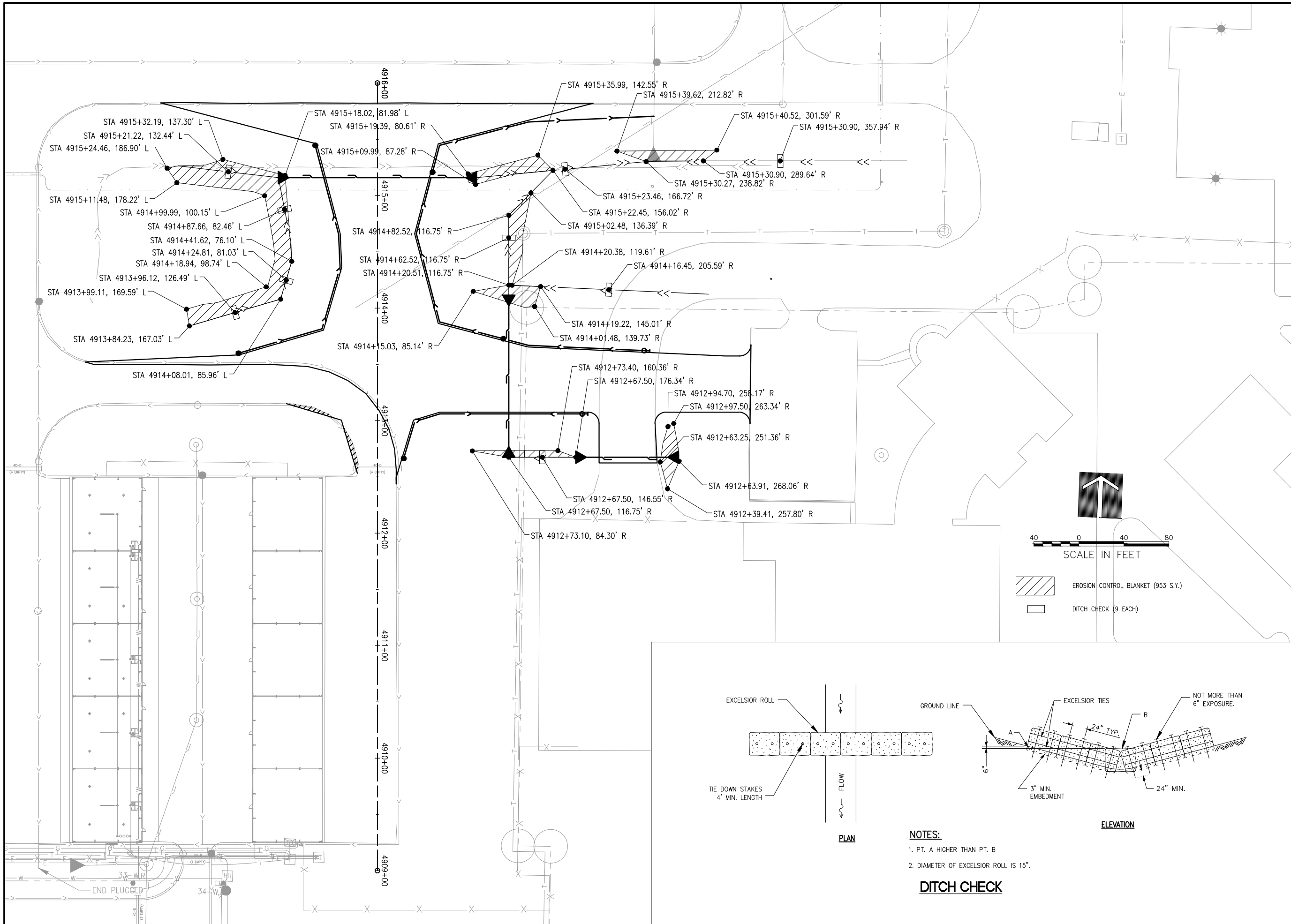
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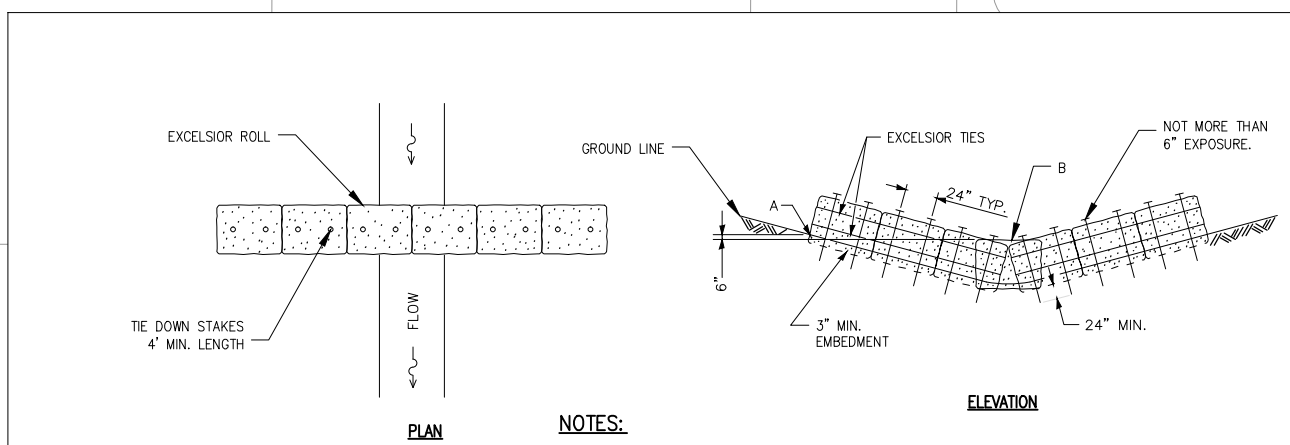
REVIEWED BY: RMH 11/20/14

SHEET TITLE

**GRADING PLAN**



EROSION CONTROL BLANKET (953 S.Y.)  
 DITCH CHECK (9 EACH)



**NOTES:**  
1. PT. A HIGHER THAN PT. B  
2. DIAMETER OF EXCELSIOR ROLL IS 15".

**DITCH CHECK**

**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235  
LE048


NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 28-EC PLAN.DWG  
DESIGN BY: LDH 11/6/14  
DRAWN BY: LDH 11/6/14  
REVIEWED BY: RMH 11/20/14

**EROSION CONTROL PLAN**

NOV 21, 2014 9:41 AM HAUSM00682  
P:\DRAWING\ME0681\40084\DRAWINGS\SHEETS\28-EC PLAN.DWG



AIRFIELD LIGHTING SCHEDULE

TAG ID.	DESCRIPTION	TYPE	DIRECTION	COLOR	MOUNTING	STATION	OFFSET		TAG ID.
15-4-01	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	275+82.49	42.94	RT	15-4-01
15-4-02	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	276+55.81	62.19	RT	15-4-02
15-4-04	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	277+80.19	62.19	RT	15-4-04
15-4-05	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	278+53.51	42.94	RT	15-4-05
15-4-06	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	280+24.99	21.55	RT	15-4-06
15-4-07	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	280+58.89	1.11	LT	15-4-07
15-4-08	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	280+81.55	35.01	LT	15-4-08
15-4-09	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	278+53.51	27.50	LT	15-4-09
15-4-10	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	277+18.00	27.50	LT	15-4-10
15-4-12	Taxiway Edge Light	L-861-T	Omnidirectional	Blue	Stake	275+82.49	27.50	LT	15-4-12

CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

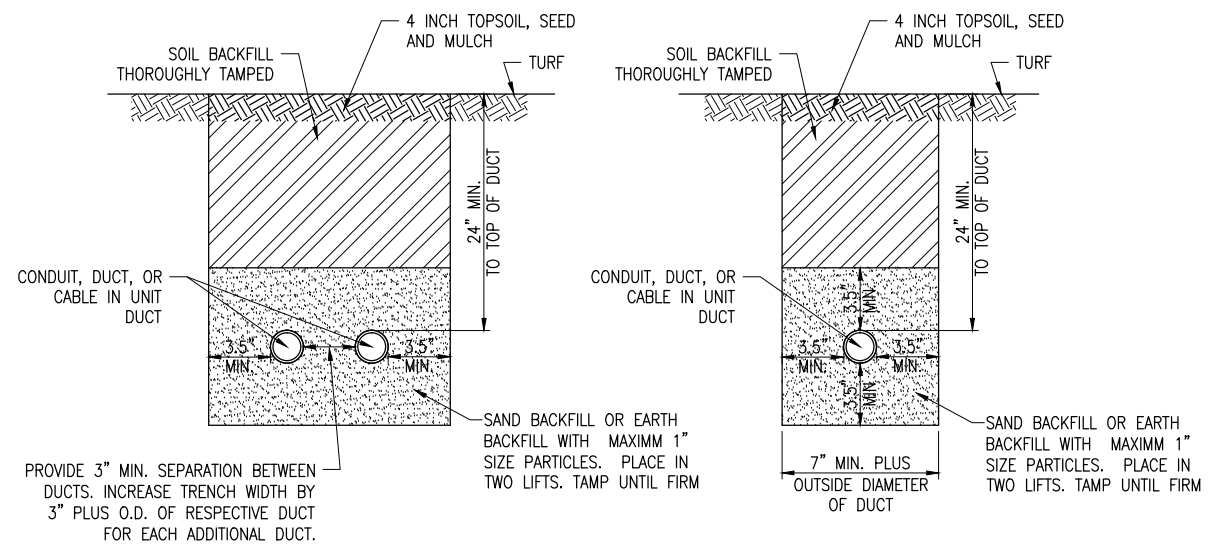
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ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 30-ELEC.DWG  
DESIGN BY: LDH 8/1/14  
DRAWN BY: LDH 8/1/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

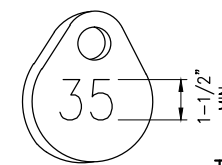
LIGHTING  
SCHEDULE



**CONDUIT IN TRENCH**  
"NOT TO SCALE"

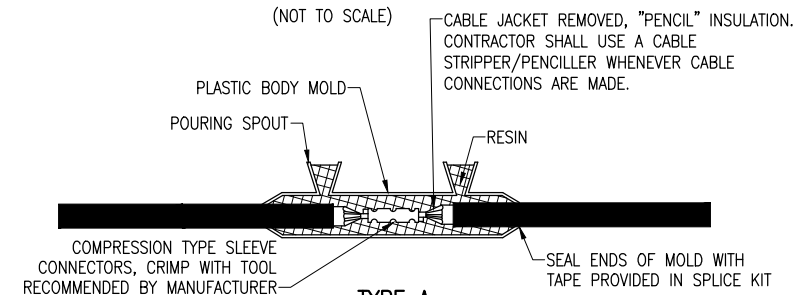
**NOTES:**

- DIMENSIONS FOR COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
- TRENCHES WITH MORE THAN TWO DUCTS OR CABLE IN UNIT DUCTS SHALL BE INCREASED 3" IN WIDTH PLUS DIAMETER OF RESPECTIVE DUCT FOR EACH ADDITIONAL CONDUIT, DUCT, OR CABLE IN UNIT DUCT; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
- DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS. MINIMUM COVER REQUIREMENTS FOR CABLES AND DUCTS AT AIRPORT RUNWAYS AND ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED IS 18 INCHES PER NEC 300.5 AND 300.50. COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT-BURIED CONDUCTOR, CABLE, CONDUIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE OR SIMILAR COVER.
- HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, HANDHOLE, OR MANHOLE.
- DUCT INTERFACE TO HANDHOLES, MANHOLES, SPLICE CANS, OR OTHER JUNCTION STRUCTURES WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE CABLE IN UNIT DUCT PAY ITEM OR RESPECTIVE DUCT PAY ITEM.
- ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.



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

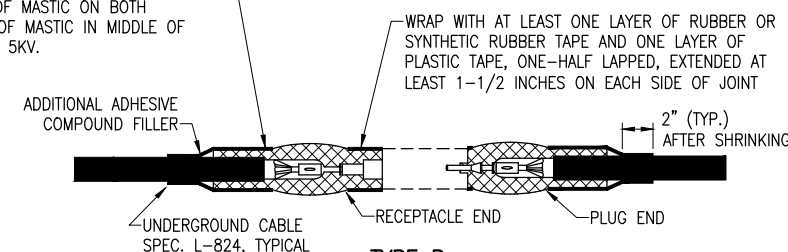
**TAG DETAIL**  
(NOT TO SCALE)



**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.

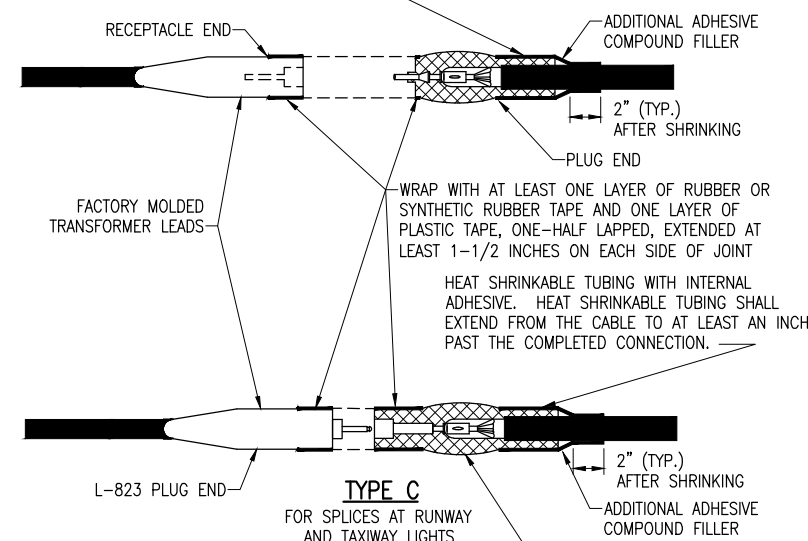
FOR SPLICES IN LOW VOLTAGE CABLE (600V) HOMERUNS FOR EXTENSIONS TO EXISTING LOW VOLTAGE CABLES ONLY. TYPE A SPLICES SHALL BE MADE IN SPLICE CANS, HANDHOLES, MANHOLES, OR JUNCTIONS BOXES



**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.

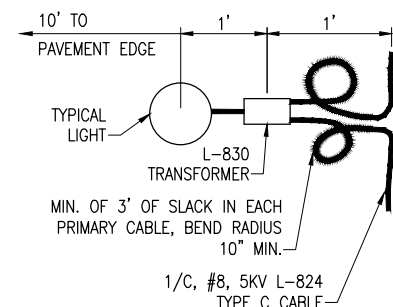


**TYPE C**

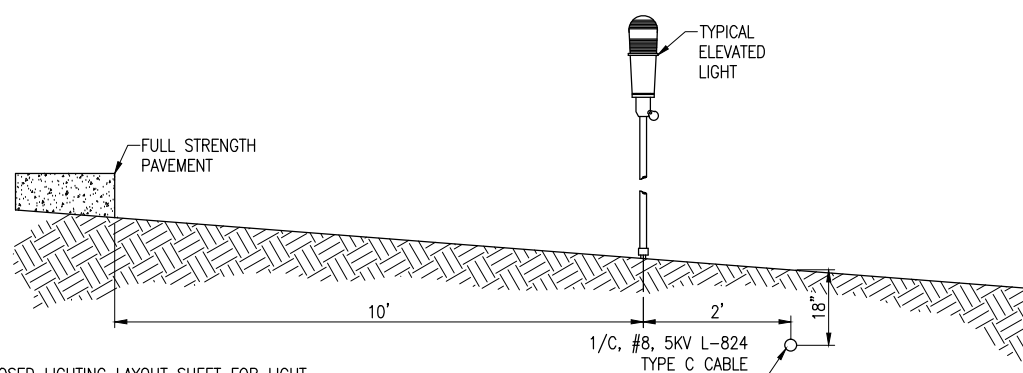
FOR SPLICES AT RUNWAY AND TAXIWAY LIGHTS

**NOTES:**  
SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR SPLICE TYPE.  
INSIDE DIAMETER OF CONNECTOR SHALL PROPERLY MATCH THE OUTSIDE DIAMETER OF CABLE.

**CABLE SPLICES**  
(NOT TO SCALE)



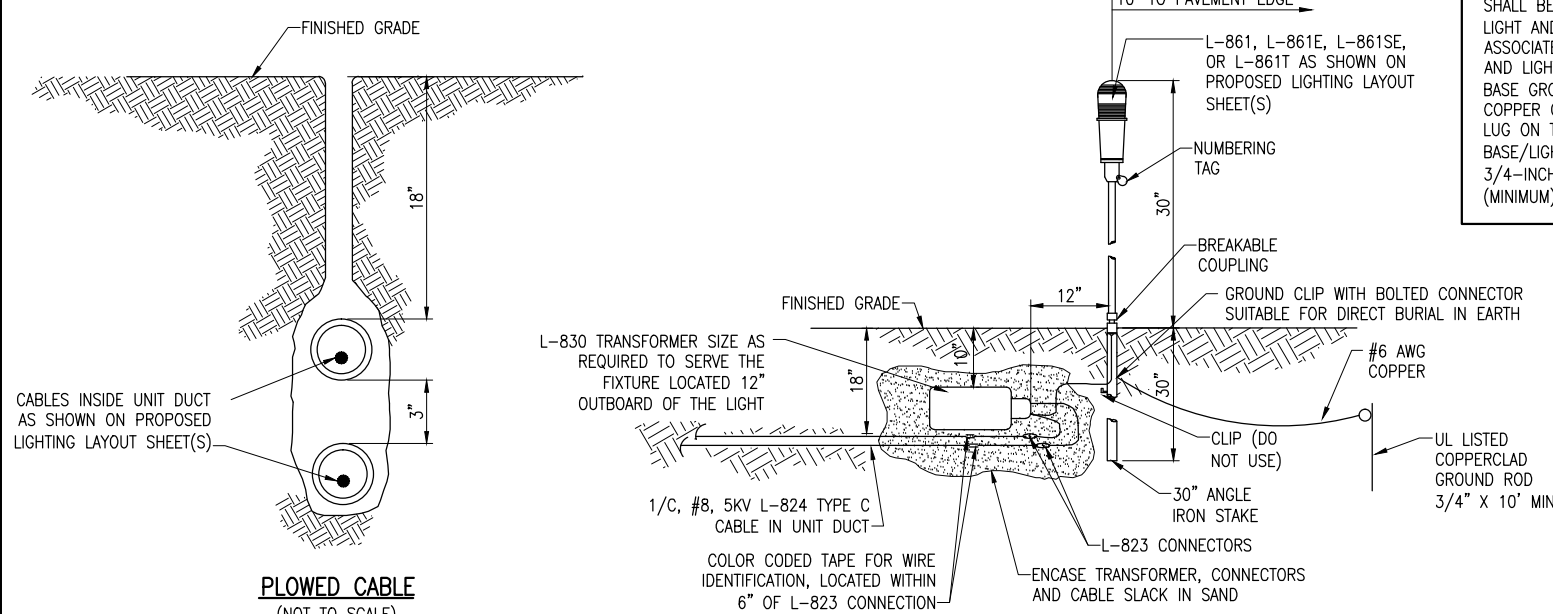
**PLAN VIEW**



**PROFILE VIEW**

**LIGHT AND CABLE INSTALLATION DETAIL**  
(NOT TO SCALE)

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



**MEDIUM INTENSITY LIGHT - STAKE MOUNTED**  
(NOT TO SCALE)

**PLOWED CABLE**  
(NOT TO SCALE)

**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235

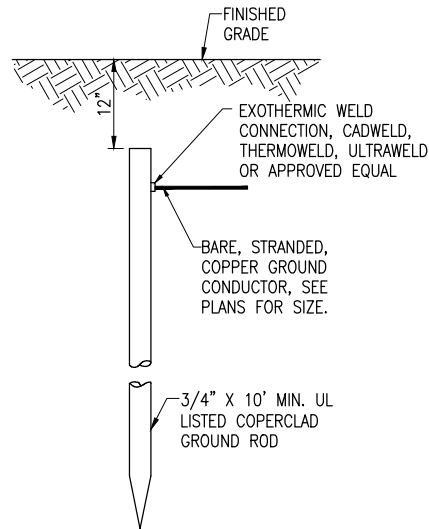
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SHEET TITLE

**ELECTRICAL DETAILS SHEET 1**

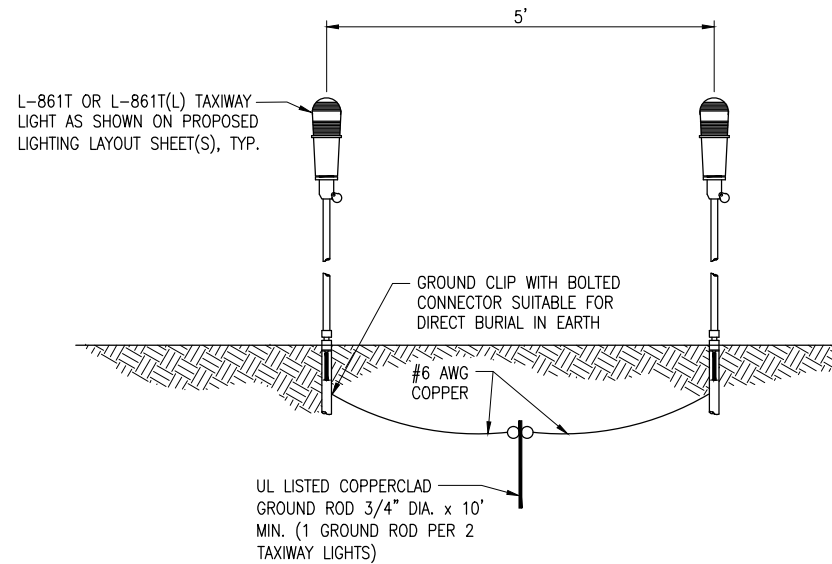


NOTES:  
TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.

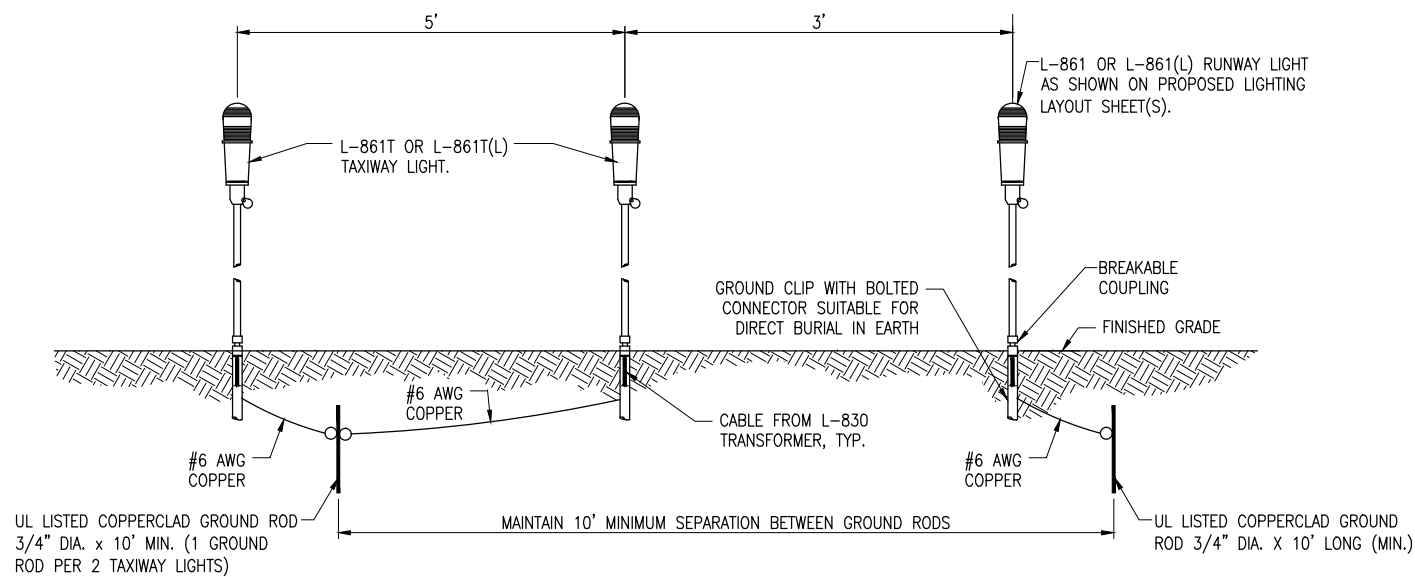
THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.

COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.

**GROUND ROD**  
(NOT TO SCALE)



**GROUNDING DETAIL FOR ADJACENT TAXIWAY LIGHTS**  
(NOT TO SCALE)



**GROUNDING DETAIL FOR ADJACENT RUNWAY AND TAXIWAY LIGHTS**  
(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 150/5340-30H DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR SUITABLE FOR DIRECT BURIAL IN EARTH OR CONCRETE. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE: 800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE: 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437), OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS. TOP OF GROUND RODS SHALL BE BURIED 12 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS
- 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 2014 NATIONAL ELECTRICAL CODE ARTICLE 250-12.
- PER FAA 150/5430-30H THE RESISTANCE TO THE GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.
- FOR EACH 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. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE.

**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235

LE048

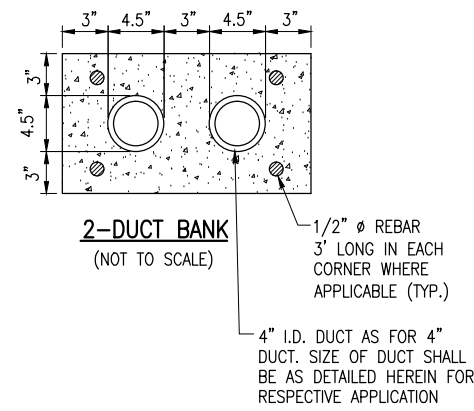
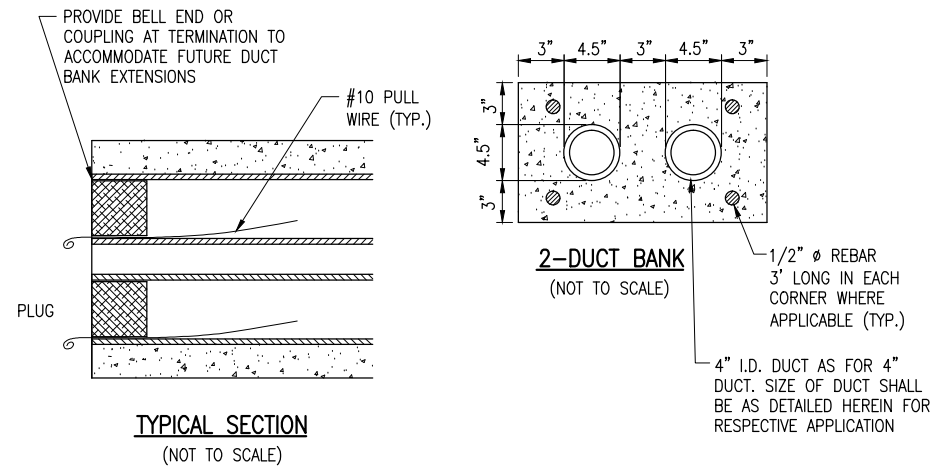
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		DES	DWN	REV

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SHEET TITLE

**ELECTRICAL DETAILS SHEET 2**



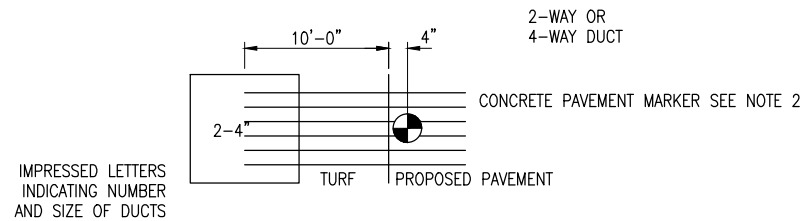


**DUCT BANK NOTES:**

- DIMENSIONS FOR CONCRETE COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
- INCLUDE DUCT SPACERS AS MANUFACTURED BY UNDERGROUND DEVICES INC., OR APPROVED EQUAL TO MAINTAIN PROPER SEPARATION OF CONDUITS.
- PROVIDE REBAR WHERE APPLICABLE TO ACCOMMODATE INTERFACE OF CONCRETE ENCASED DUCT BANKS TERMINATING IN HANDHOLE. PROVIDE REBAR WHERE APPLICABLE TO EXTEND AN EXISTING CONCRETE ENCASED DUCT BANK. REBAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 706, GRADE 60.
- CONDUITS FOR CONCRETE ENCASED DUCT SHALL BE SCHEDULE 40 (MIN.) PVC OR HDPE CONFORMING TO ITEM 110.
- DEPTH OF DUCT SHALL BE ADJUSTED TO PASS BELOW EXISTING OR PROPOSED UNDERDRAIN.
- HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, HANDHOLE, OR MANHOLE.
- HOMERUN CABLES FOR A RESPECTIVE CIRCUIT SHALL BE INSTALLED IN THE SAME RACEWAY OR DUCT.
- DUCT INTERFACE TO HANDHOLES OR MANHOLES WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT PAY ITEM.
- DUCTS SHALL EXTEND FOR 3 FEET BEYOND ANY EXISTING OR PROPOSED PAVEMENT EDGE.

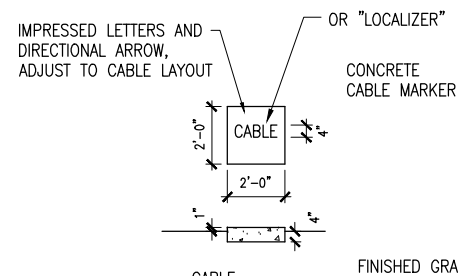
**CABLE & DUCT MARKER NOTES:**

- 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.
- 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.
- CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE RUNS.
- 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.
  - REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
  - INCREASE THE MARKER SIZE TO 30" X 30".
  - PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE.
- EMPLOY THE FOLLOWING METHODS WHERE ADDITIONAL SPACE TO FIT LEGEND IS REQUIRED:
  - REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
  - INCREASE THE MARKER SIZE TO 30" X 30".
  - PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE.

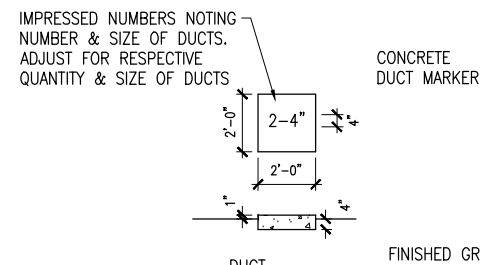


CONCRETE DUCT MARKER

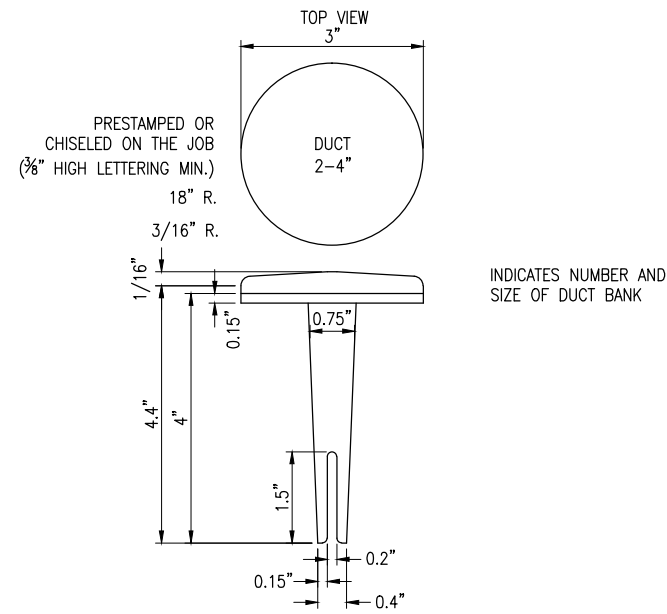
**DUCT MARKER DETAIL**  
"NOT TO SCALE"



**TURF CABLE MARKERS**  
"NOT TO SCALE"

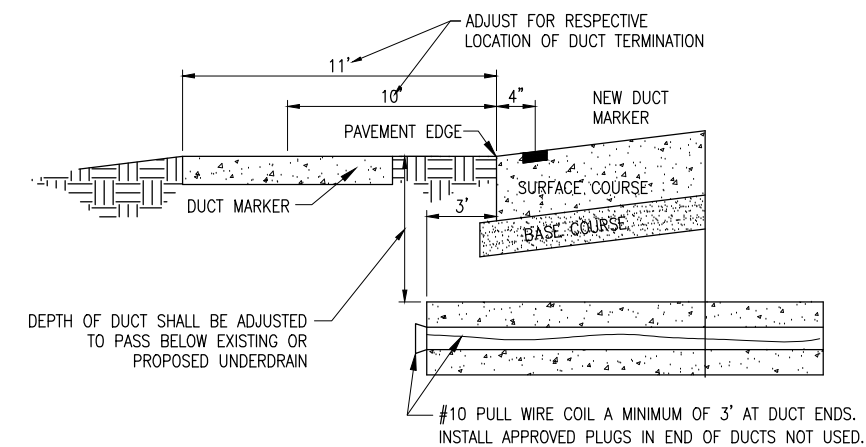


**TURF DUCT MARKERS**  
"NOT TO SCALE"



**BITUMINOUS PAVEMENT DUCT MARKERS**  
"NOT TO SCALE"

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



**UNDERGROUND ELECTRICAL DUCT**  
(NOT TO SCALE)

**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

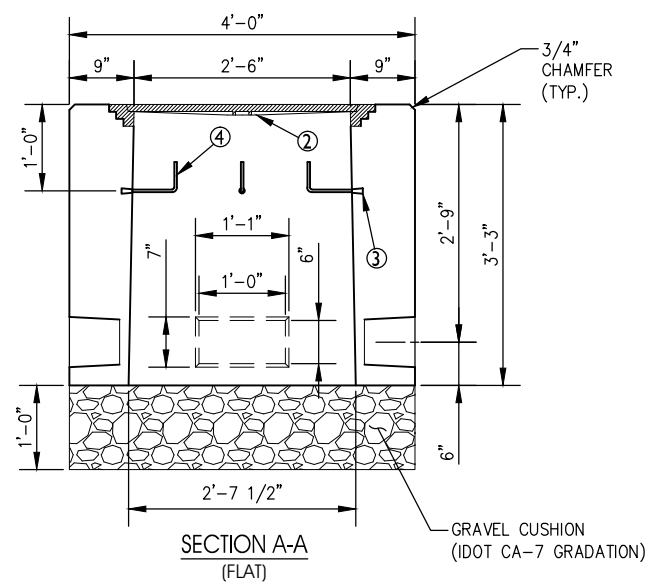
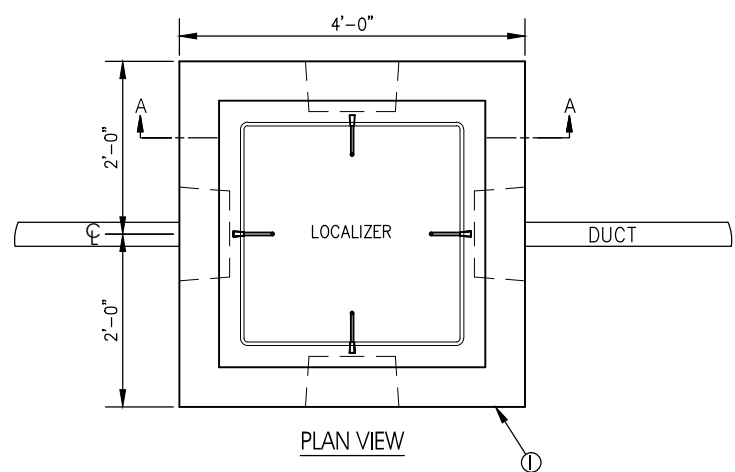
IDA No: LOT-4235

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		DES	DWN	REV
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DRAWN BY: LDH 8/1/14				
REVIEWED BY: RMH 11/20/14				

SHEET TITLE

**ELECTRICAL DETAILS SHEET 3**



PARTS LIST (PER EACH)		
ITEM	DESCRIPTION	QUANTITY
1	PRECAST CONCRETE JUNCTION BOX	1
2	CAST IRON FRAME & COVER; NEENAH FOUNDRY COMPANY CAT. NO. R-6662-PH OR APPROVED EQUAL. WITH CONCEALED HINGE COVER. LETTERING "LOCALIZER".	1
3	3/8" PLASTIC THREADED INSERT	4
4	3/8" $\phi$ GALVANIZED CABLE HOOK	4
5	4T LIFTING ANCHORS	4

**SPECIFICATIONS**

CONCRETE: 5,000 P.S.I. @ 28 DAYS, 5%-8% ENTRAINED AIR, PC/SI IDOT CLASS

DESIGN CRITERIA: PRECAST VERSION OF ILLINOIS STATE TOLL HIGHWAY AUTHORITY STANDARD NO. RL 03-07 LIGHT AND HEAVY DUTY JUNCTION BOXES.

WEIGHT: APPROX. 4,990# FLAT TOP

**NOTES**

- HANDHOLE SHALL BE PRECAST AS DETAILED. PRECAST MANUFACTURERS MUST BE ON THE IDOT (ILLINOIS DEPARTMENT OF TRANSPORTATION) APPROVED LIST OF CERTIFIED PRECAST CONCRETE PRODUCERS.
- PRECAST HANDHOLE TO BE UTILITY CONCRETE PRODUCTS, LLC. 30" X 30" JUNCTION BOX OR APPROVED EQUAL.
- HANDHOLE FRAME AND LID SHALL BE HEAVY DUTY SUITABLE FOR 40,000 POUND LOADING. LIDS FOR HANDHOLES USED WITH RUNWAY 9 LOCALIZER ELECTRICAL CABLES SHALL BE LABELED "LOCALIZER".
- GRAVEL CUSHION SHALL BE INCIDENTAL TO THE HANDHOLE.
- HANDHOLES WILL BE PAID FOR UNDER ITEM AR110610 ELECTRICAL HANDHOLE PER EACH.
- ALL CORING, INTERFACE, AND LABOR ASSOCIATED WITH CONDUIT, DUCT, CABLE IN UNIT DUCT AND/OR CABLE ENTRIES WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE HANDHOLE AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

**ELECTRICAL HANDHOLE**

CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

LE048

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014

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CAD FILE: 34-E-504-DETL.DWG

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DRAWN BY: LDH 8/1/14

REVIEWED BY: RMH 11/20/14

SHEET TITLE

ELECTRICAL DETAILS  
SHEET 4





**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:**

- CONTRACTOR SHALL EXAMINE THE SITE AND VAULT TO DETERMINE EXISTING SITE CONDITIONS.
- 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:

**208/120 VAC, 3 PHASE, 4 WIRE**

PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN

**480 VAC, 3 PHASE, 3 WIRE**

PHASE A	BROWN
PHASE B	ORANGE
PHASE C	YELLOW
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 U.L. LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.
- HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR HANDHOLE.

CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

LE048

NO.	DATE	DESCRIPTION		
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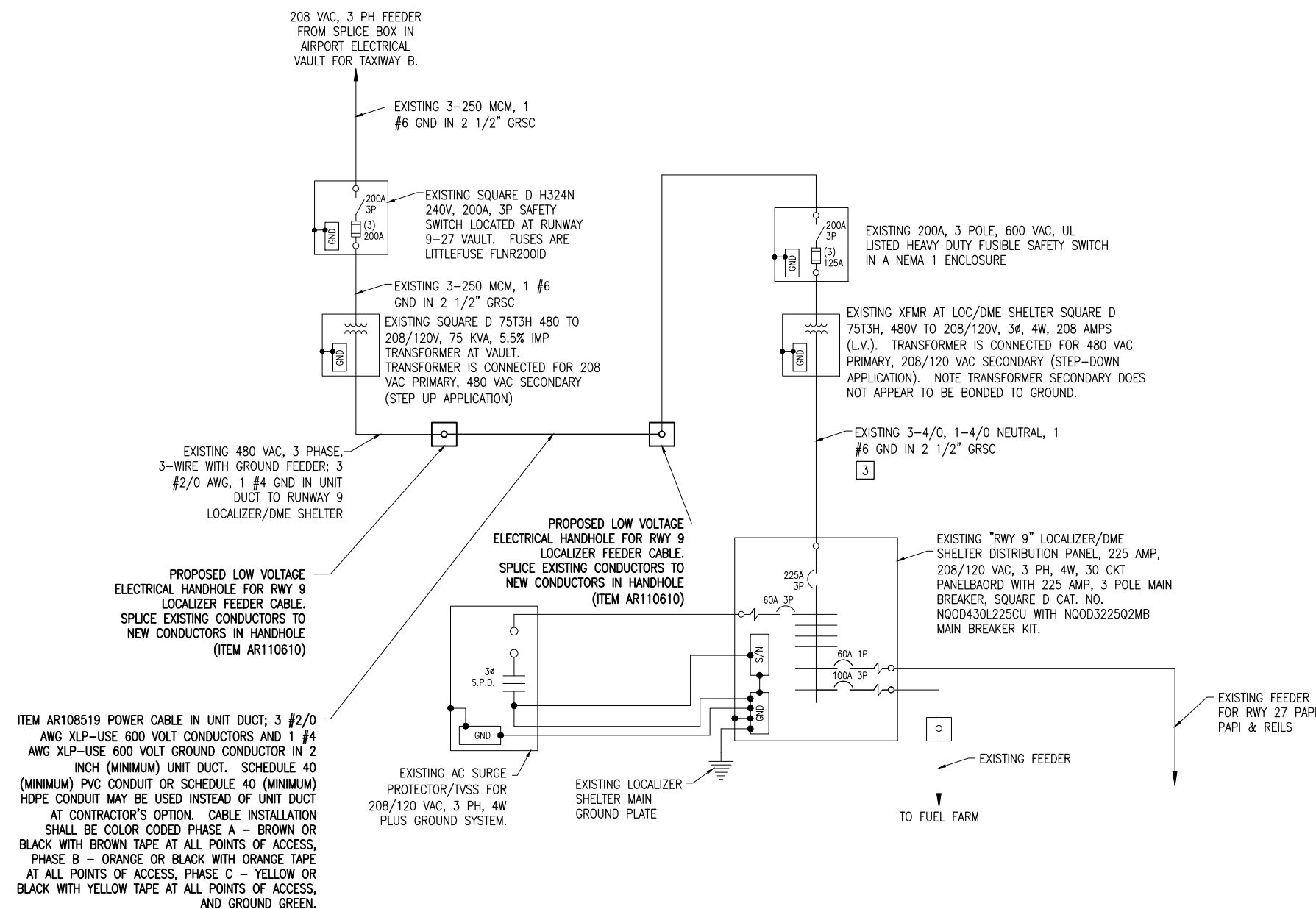
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REVIEWED BY: RMH 11/20/14

SHEET TITLE

ELECTRICAL LEGEND,  
ABBREVIATIONS AND  
NOTES

**NOTES:**

1. EXISTING ONE-LINE DIAGRAM WIRING IS BASED ON FIELD DATA AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND WIRING AND REPORT ANY VARIATIONS TO THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE.
2. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
3. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING OR CONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, OR OTHER DEVICE.
4. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE UL LISTING, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
5. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2F (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
6. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
7. EQUIPMENT AND MATERIALS NOT LABELED AS "EXISTING" ARE NEW.
8. THE RWY 9 LOCALIZER DISTRIBUTION PANEL ALSO POWERS THE PAPI AND REILS ON RUNWAY 27. COORDINATE ANY SHUTDOWNS WITH THE AIRPORT MANAGER AND THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE.



**RUNWAY 9 LOCALIZER ONE-LINE DIAGRAM**

**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235

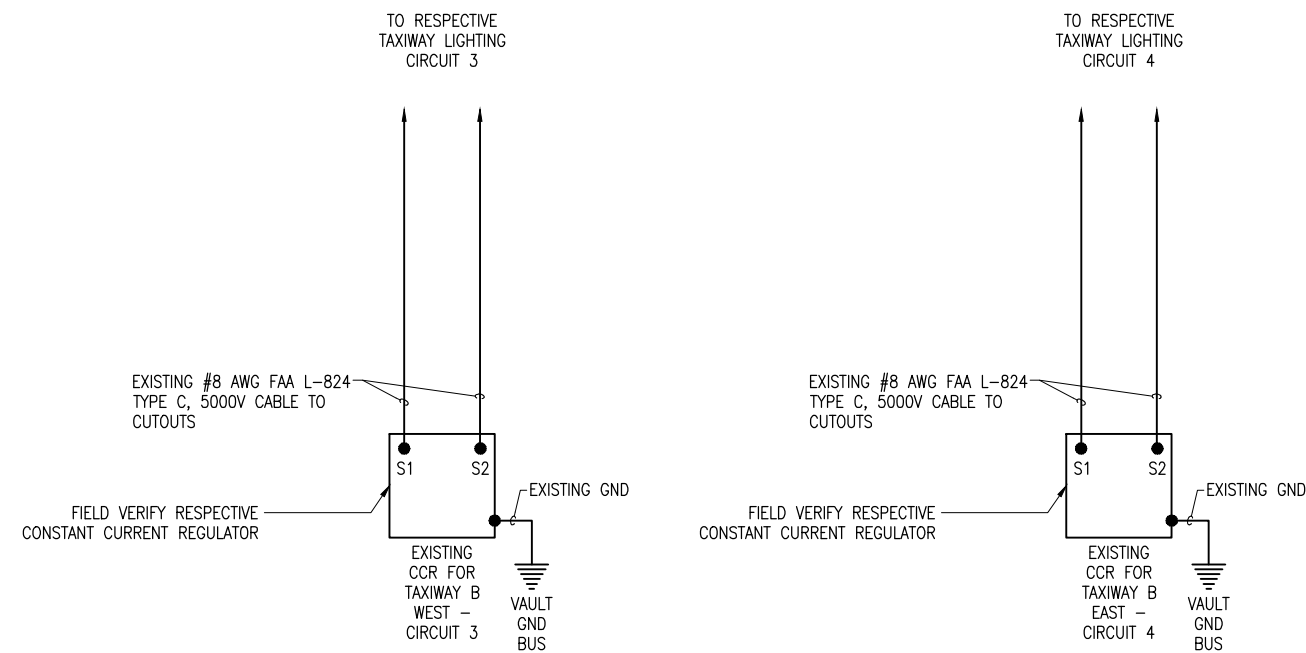
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SHEET TITLE

**RUNWAY 9 LOCALIZER ONE-LINE DIAGRAM**



EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAY B

**NOTES:**

1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND THE RESPECTIVE FAA ATCT PERSONNEL. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & 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 EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS. NOTE THE LEWIS UNIVERSITY AIRPORT HAS TWO AIRPORT ELECTRICAL VAULTS. CONTRACTOR SHALL CONFIRM POWER SOURCES FOR RESPECTIVE SYSTEMS PRIOR TO WORKING ON THE RESPECTIVE CIRCUITS.
3. THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.
4. NOTE THE CONDITION OF THE EXISTING TAXIWAY CIRCUIT CUTOUTS IS UNKNOWN. IT IS POSSIBLE THAT SOME CUTOUTS MIGHT NOT FUNCTION PROPERLY. CONTRACTOR SHALL EXERCISE CAUTION, PRACTICE SAFETY, AND DISCONNECT THE SERIES CIRCUITS FROM THE RESPECTIVE CONSTANT CURRENT REGULATORS, AS APPLICABLE WHEN PERFORMING WORK ON THE AIRFIELD LIGHTING OR WORK THAT MIGHT AFFECT THE AIRFIELD LIGHTING. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL.
5. CONDUCT TESTS FOR AREAS OF WORK WHERE THE RESPECTIVE CIRCUITS MIGHT BE AFFECTED. MEGGER TEST AND RECORD EXISTING SERIES CIRCUITS PRIOR TO CABLE WORK AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, AND/OR UPGRADES HAVE BEEN COMPLETED. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE.
6. CCR FOR TAXIWAY B WEST CIRCUIT 3 AND CCR FOR TAXIWAY B EAST CIRCUIT 4 ARE EXISTING.
7. THE RESPECTIVE CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE ANY AIRFIELD WORK THAT MIGHT AFFECT LIGHTING CIRCUITS, REMOVAL WORK, MODIFICATIONS, AND/OR ADDITIONS AND AFTER THE AIRFIELD WORK AND ADDITIONS HAVE BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES (WHERE APPLICABLE) OF OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT PROJECT REPRESENTATIVE/RESIDENT ENGINEER.

CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

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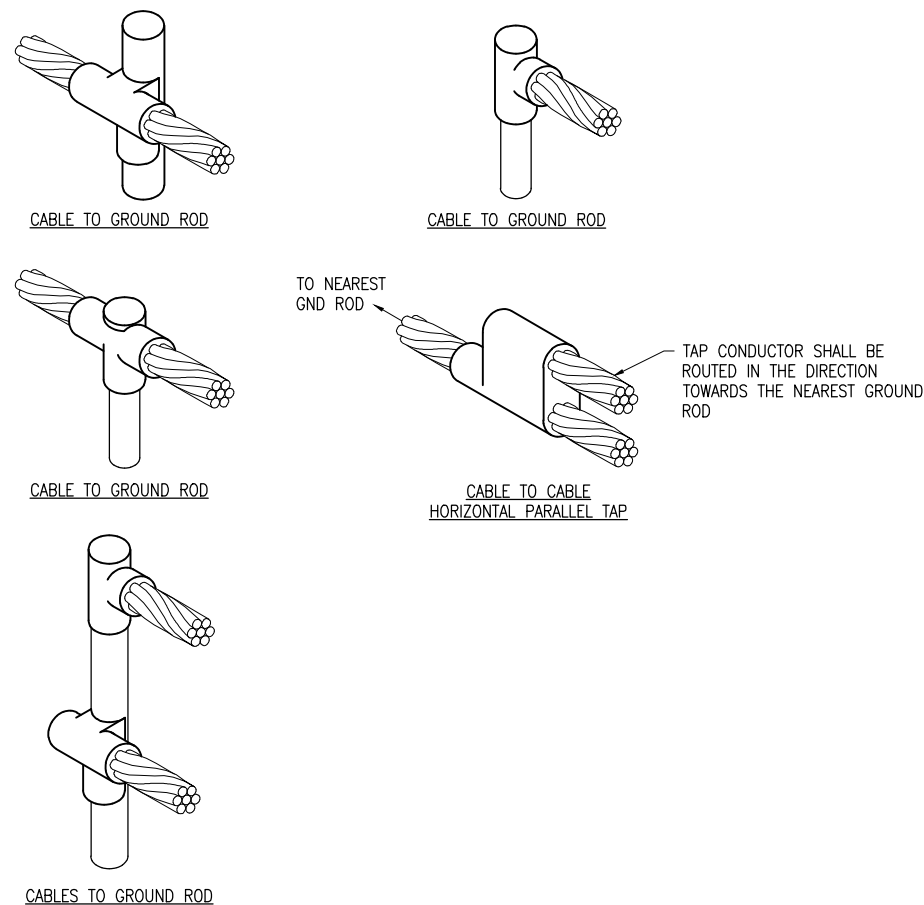
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SHEET TITLE

HIGH VOLTAGE  
WIRING SCHEMATIC  
FOR TAXIWAY B

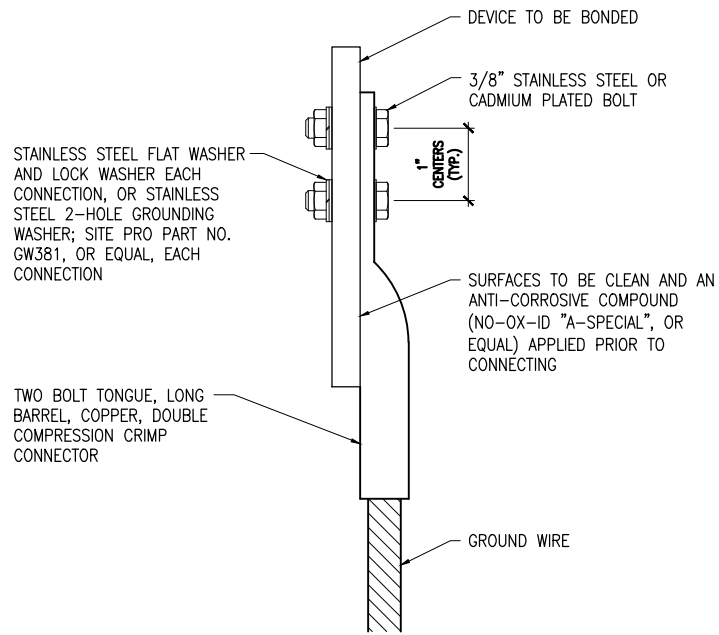
LEGEND

"CCR" DENOTES CONSTANT CURRENT REGULATOR



TO NEAREST GND ROD

TAP CONDUCTOR SHALL BE ROUTED IN THE DIRECTION TOWARDS THE NEAREST GROUND ROD

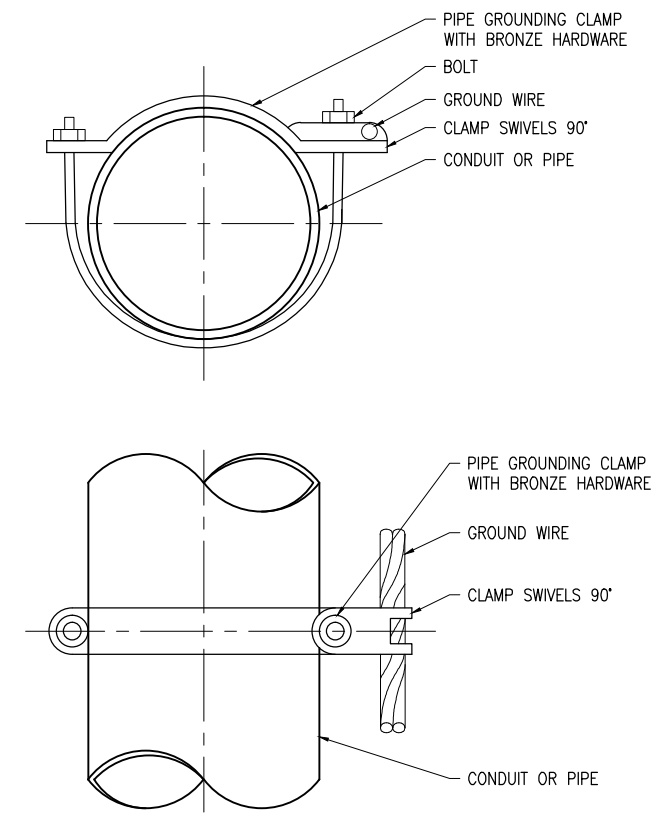


2 HOLE LONG BARREL COMPRESSION LUG TABLE			
WIRE SIZE	BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PENN-UNION CAT. NO.
#8 AWG STRANDED	YA8C-2TC38	256-30695-1157	BBLU-8D-2TC38
#6 AWG SOLID	YA8C-2TC38 OR YGA6C-2TC38E2G1		
#6 AWG STRANDED	YA6C-2TC38	256-30695-1158	BBLU-6D-2TC38
#4 AWG STRANDED	YA4C-2TC38	256-30695-1159	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 EQUIPT 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.	PIPE SIZE
GAR3902-BU	1/2" - 1"
GAR3903-BU	1 1/4" - 2"
GAR3904-BU	2 1/2" - 3 1/2"
GAR3905-BU	4" - 5"
GAR3906-BU	6"

NOTES

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

PIPE/CONDUIT GROUNDING CLAMP DETAIL

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, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, GRAYSLAKE, IL, THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES, TULSA, OKLAHOMA, OR APPROVED EQUAL. 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

**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235  
LE048

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

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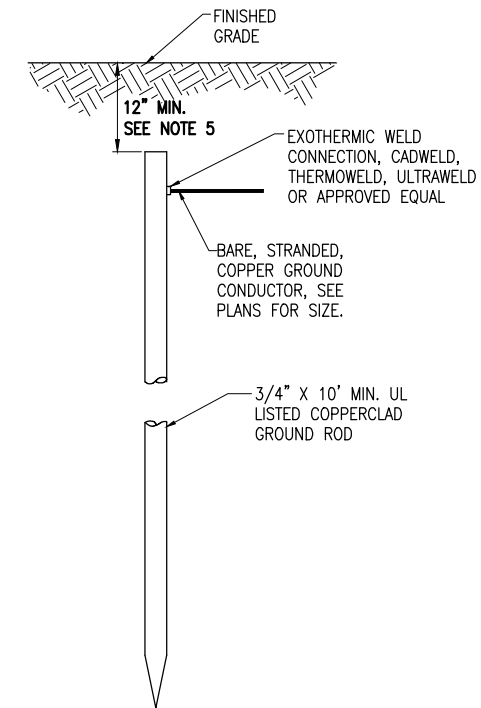
**GROUNDING DETAILS**



**GROUNDING NOTES**

- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING AS MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THE LATEST NATIONAL ELECTRICAL CODE (NFPA 70) IN FORCE AND FAA-STD-019e (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 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR OTHER APPLICATIONS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS AND THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE 1-800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE 918-663-1440) OR ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE 1-800-842-7437) OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
- 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, SANCHEM 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 2014 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 2014 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED 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 2014 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2014 NEC 250-102.
- 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 GROUNDING 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 2014 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.



**10 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. TOP OF GROUND RODS FOR VAULT SHALL BE 40" MINIMUM BELOW GRADE. GROUND RING CONDUCTORS SHALL BE 50" MINIMUM BELOW GRADE TO BE BELOW FROST LINE (FOR WILL COUNTY, ILLINOIS).
- GROUND RODS FOR RUNWAY LIGHTING, TAXIWAY LIGHTING, AND TAXI GUIDANCE SIGNS SHALL BE A MINIMUM 3/4-INCH DIAMETER BY 10-FT LONG UL LISTED COPPER CLAD.
- GROUND RODS FOR VAULT SHALL BE MINIMUM 3/4-INCH DIAMETER BY 10-FOOT LONG UL LISTED COPPER CLAD.

**GROUND RODS**

(NOT TO SCALE)

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**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235

LE048

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014

PROJECT NO: 14A0084

CAD FILE: 41-E-004-NOTE.DWG

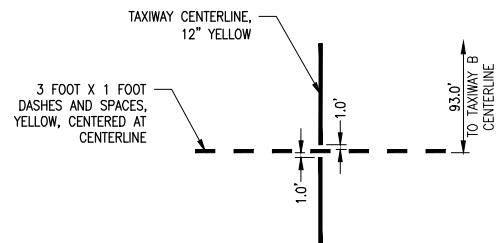
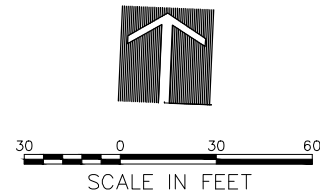
DESIGN BY: KNL 8/1/14

DRAWN BY: LDH 8/1/14

REVIEWED BY: RMH 11/20/14

SHEET TITLE

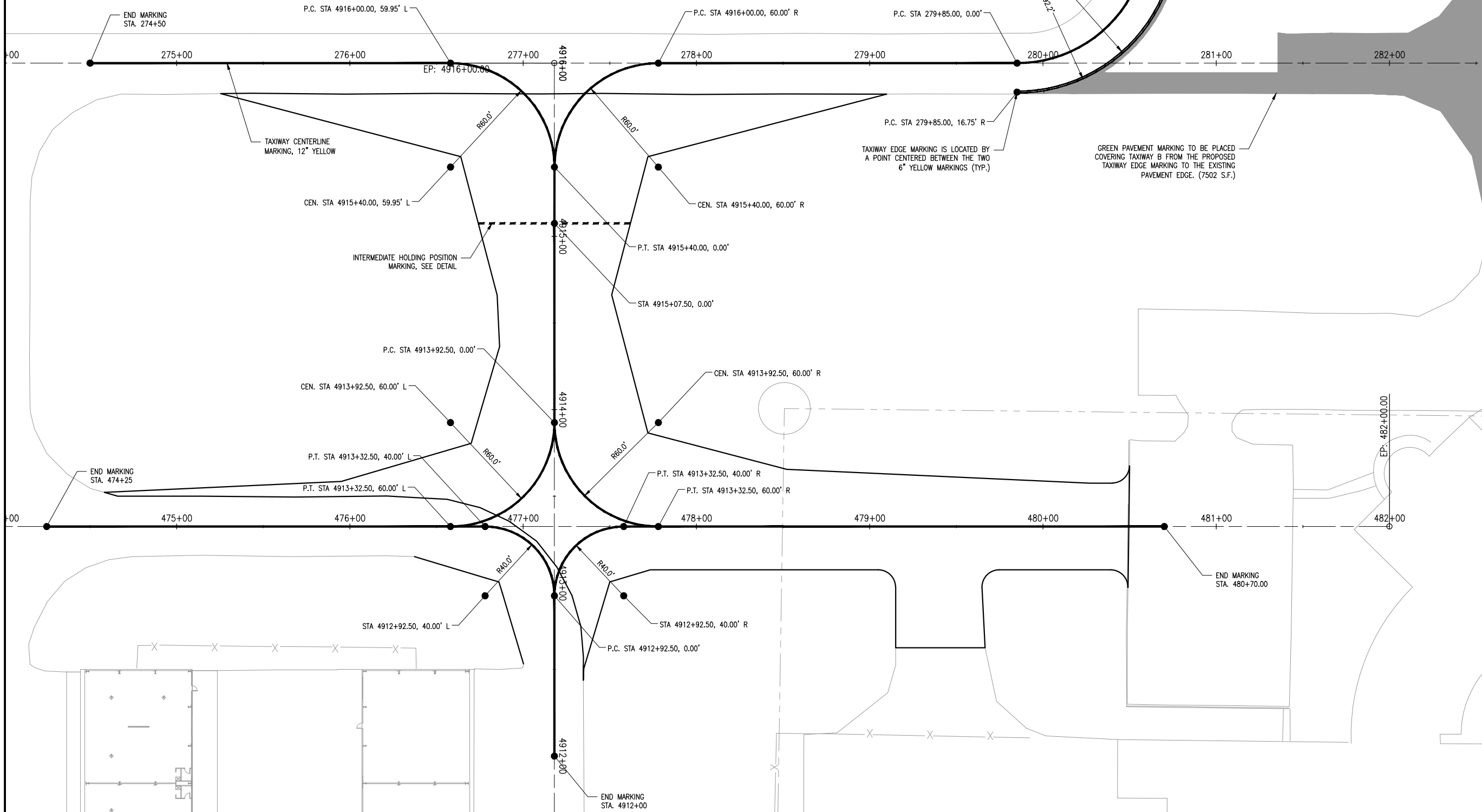
**GROUNDING NOTES**



**NOTES:**

- GLASS SPHERES SHALL BE USED FOR ALL YELLOW MARKINGS. GLASS SPHERES NOT REQUIRED FOR GREEN MARKINGS.
- WATERBORNE MARKING SHALL BE USED ON BITUMINOUS PAVEMENT.

**DETAIL - INTERMEDIATE HOLDING POSITION MARKING**



**CONSTRUCT TAXIWAY R TO AVIATION CENTER**

IDA No: LOT-4235

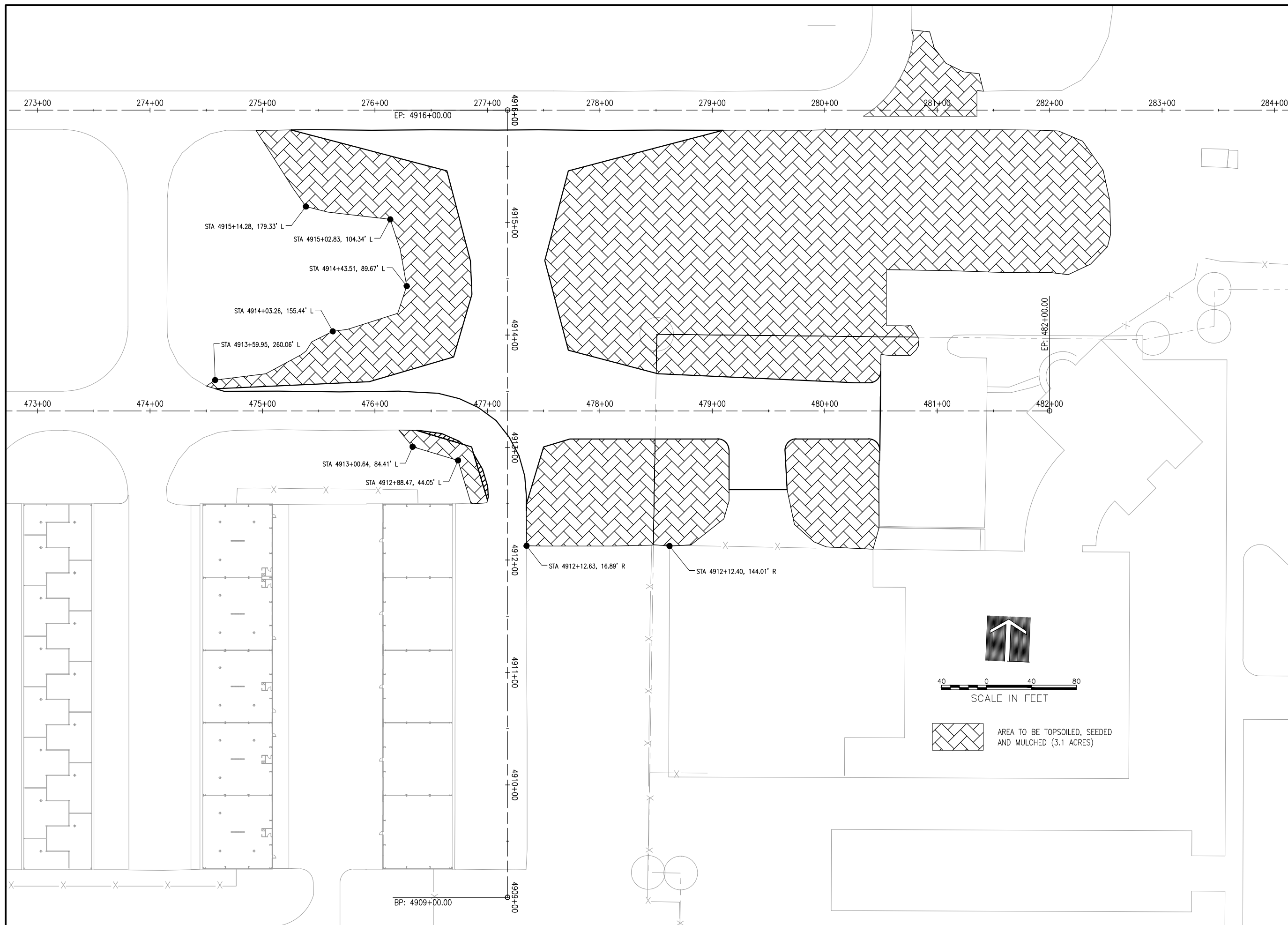
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NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 42-MARKING.DWG  
DESIGN BY: LDH 7/28/14  
DRAWN BY: LDH 7/28/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

**MARKING PLAN**



CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

LE048


NO.	DATE	DESCRIPTION		
		DES	DWN	REV

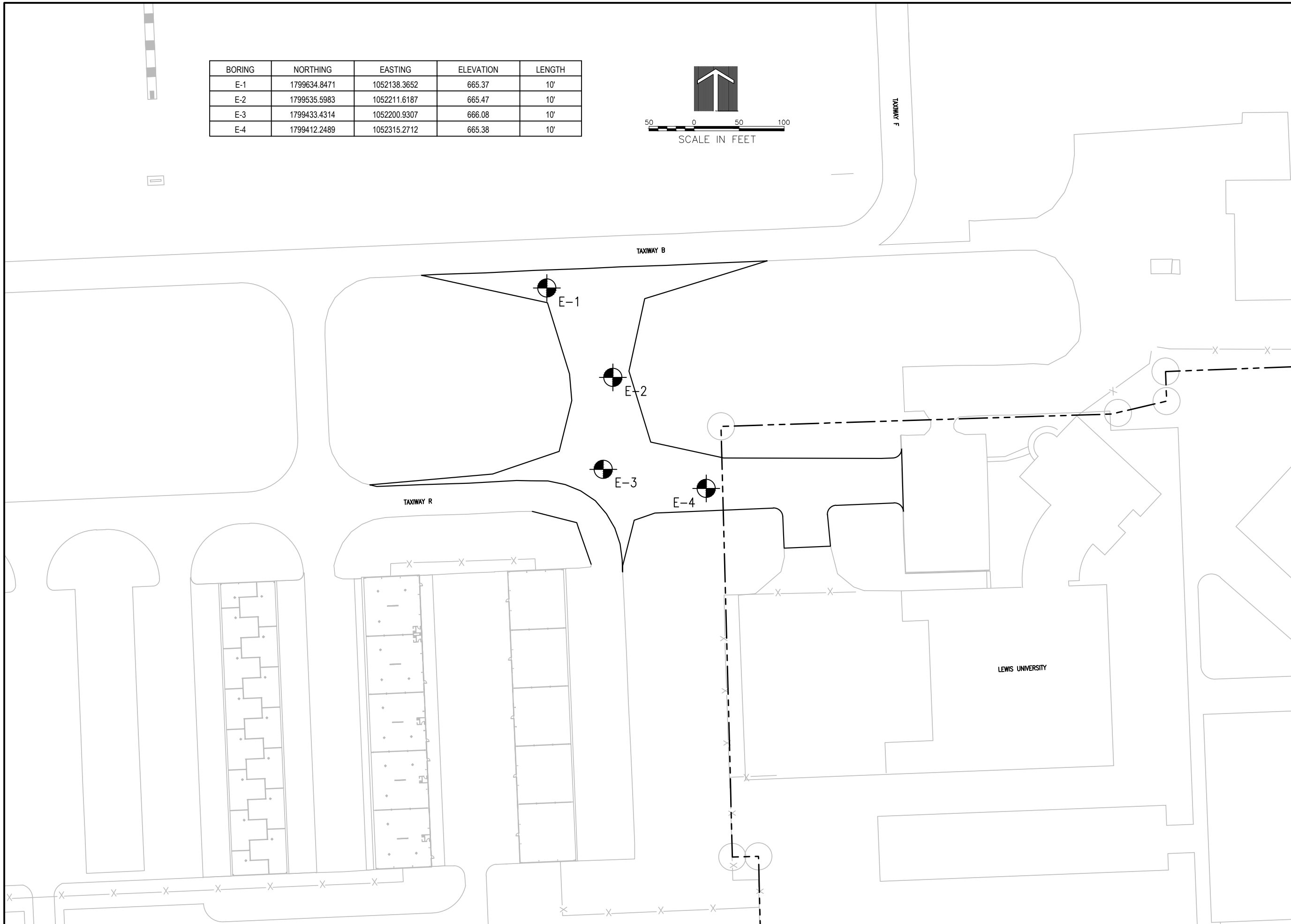
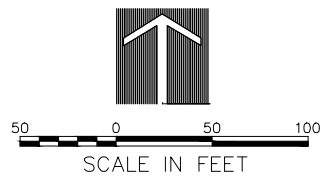
ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 43-LANDSCAPING.DWG  
DESIGN BY: LDH 11/4/14  
DRAWN BY: LDH 11/4/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

LANDSCAPING PLAN

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BORING	NORTHING	EASTING	ELEVATION	LENGTH
E-1	1799634.8471	1052138.3652	665.37	10'
E-2	1799535.5983	1052211.6187	665.47	10'
E-3	1799433.4314	1052200.9307	666.08	10'
E-4	1799412.2489	1052315.2712	665.38	10'



CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

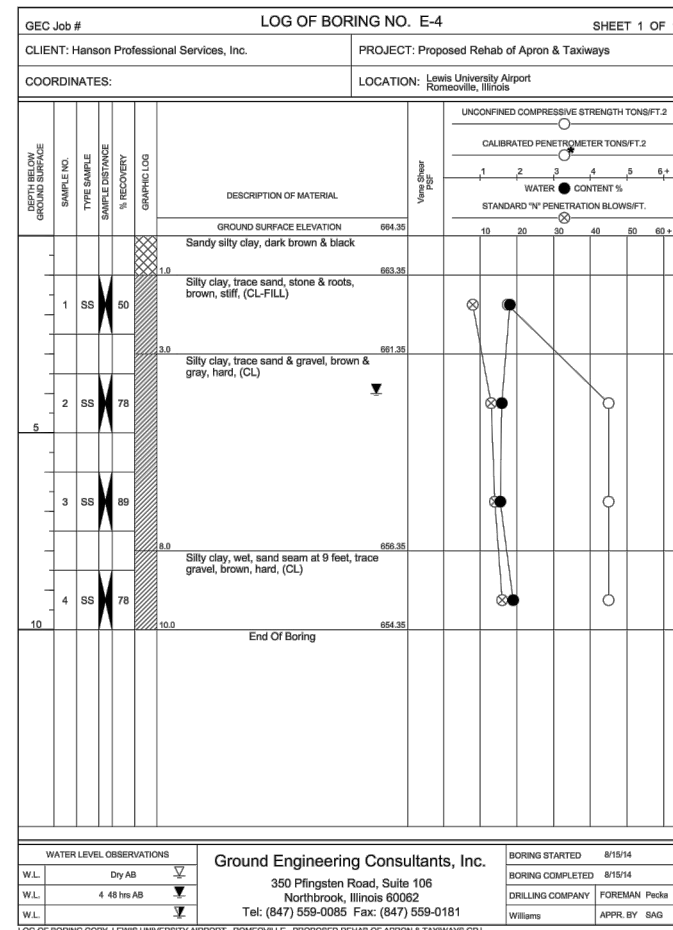
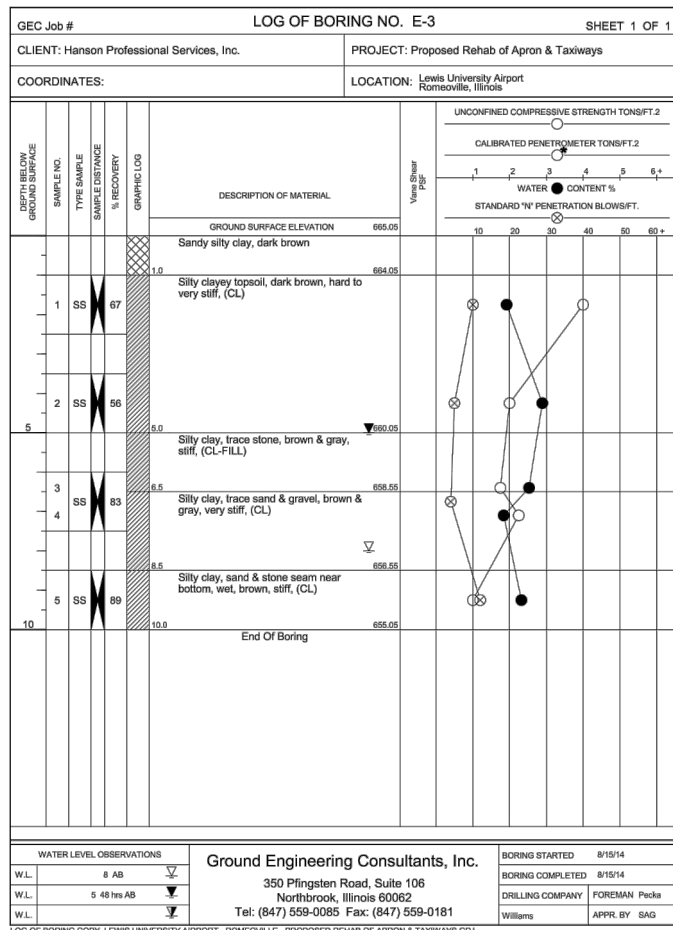
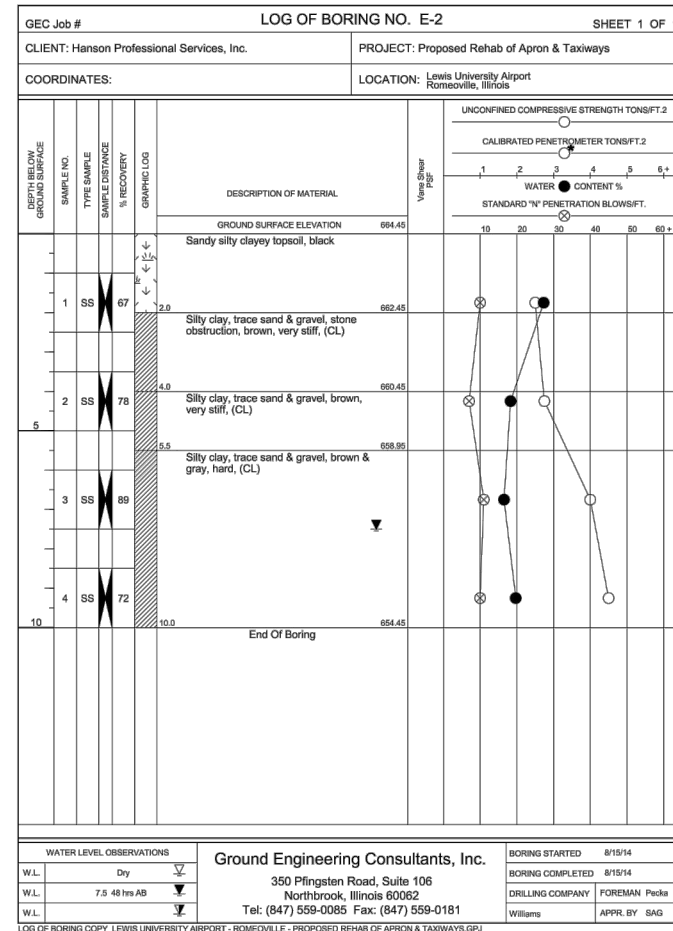
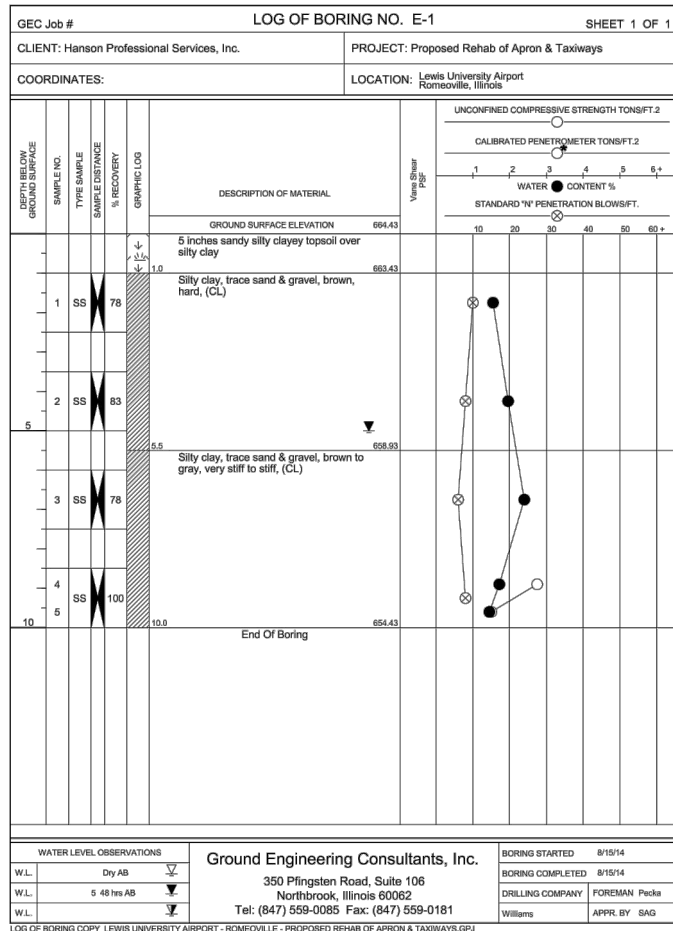
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NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 44-BORINGMAP.DWG  
DESIGN BY: LDH 11/3/14  
DRAWN BY: LDH 11/3/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

BORING LOCATION  
MAP



CONSTRUCT  
TAXIWAY R TO  
AVIATION CENTER

IDA No: LOT-4235

LE048

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: NOVEMBER 21, 2014  
PROJECT NO: 14A0084  
CAD FILE: 45-BORINGS.DWG  
DESIGN BY: LDH 11/3/14  
DRAWN BY: LDH 11/3/14  
REVIEWED BY: RMH 11/20/14

SHEET TITLE

BORING LOGS  
E-1 THRU E-4