

CONSTRUCTION PLANS

FOR

MARSHALL COUNTY AIRPORT

LACON, MARSHALL COUNTY, ILLINOIS

CONSTRUCT AN 805' EXTENSION TO RUNWAY END 31; INCLUDING PAVING, LIGHTING, MARKING & ASSOCIATED ITEMS



COVERING
ELECTRICAL DESIGN



Hanson Professional Services Inc.
ELECTRICAL ENGINEER

Submitted by: *Kevin N. Lightfoot* ENG'R
Date Submitted: 1/11/2013
Lic. Exp. Date: 11/30/2013



Hanson Professional Services Inc.
CIVIL ENGINEER

Submitted by: *Charles A. Hagloch* ENG'R
Date Submitted: 01/11/13
Lic. Exp. Date: 11/30/13

MARSHALL COUNTY AIRPORT

Approved: *Boyd L. Key* AIRPORT MANAGER
Date: 1/11/2013

SCOPE OF WORK

BASE BID

THIS PROJECT CONSISTS OF PAVING, LIGHTING & MARKING AN 805' EXTENSION TO RUNWAY END 31. ASSOCIATED WORK WILL INCLUDE UNCLASSIFIED EXCAVATION, DRAINAGE, EROSION PROTECTION, SEEDING AND MULCHING. PROJECT ALSO INCLUDES THE REPLACEMENT OF THE MIRL SYSTEM ON RUNWAY 13-31.

ADDITIVE ALTERNATE NO. 1

ADDITIVE ALTERNATE NO. 1 WILL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE PRECISION APPROACH PATH INDICATOR (PAPI) UNITS ON RUNWAY END 31.

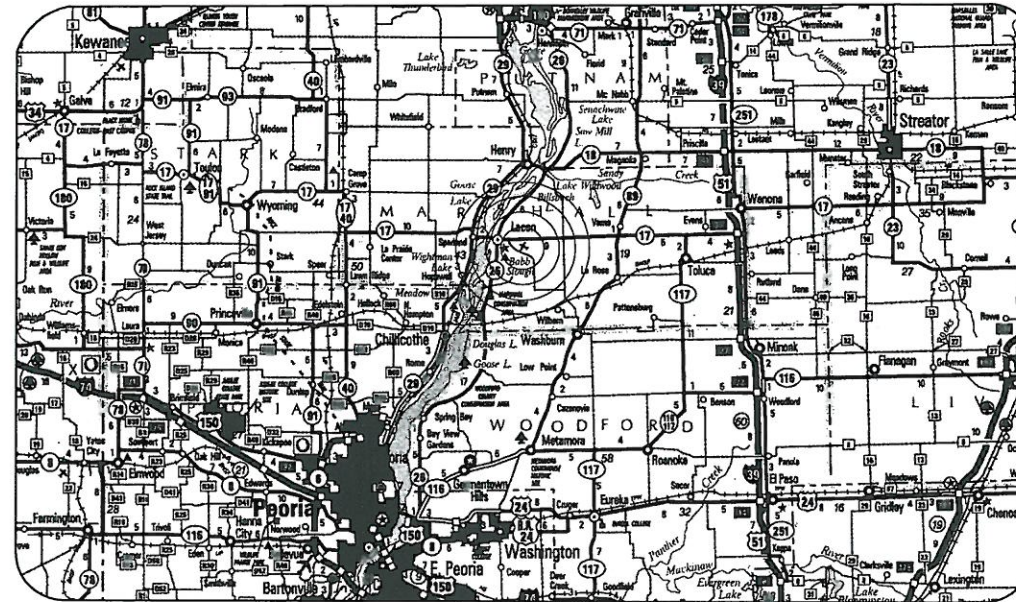
ADDITIVE ALTERNATE NO. 2

ADDITIVE ALTERNATE NO. 2 WILL CONSIST OF THE UPGRADE OF THE MEDIUM INTENSITY RUNWAY LIGHTS TO TYPE L-861(L) WITH LED (LIGHT EMITTING DIODE) ILLUMINATION, UPGRADE OF THE MEDIUM INTENSITY THRESHOLD LIGHTS TO TYPE L-861E(L) WITH LED ILLUMINATION.

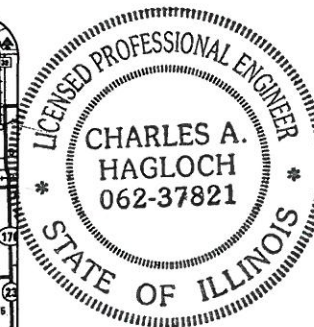
ADDITIVE ALTERNATE NO. 3

ADDITIVE ALTERNATE NO. 3 WILL CONSIST OF REPAINTING THE REMAINING PORTION OF THE MARKING ON RUNWAY 13-31.

ILL. PROJ.: C75-4223
BLOCK GRANT. PROJ.: 3-17-0059-B15
LATITUDE: 41° 01' 05"
LONGITUDE: 89° 23' 08"
ELEVATION: 569.0' M.S.L.
DATE: DECEMBER 21, 2012



LOCATION



DATE	REVISION	MARSHALL COUNTY AIRPORT LACON, ILLINOIS	BLOCK GRANT PROJ.: 3-17-0059-B15 ILL. PROJ.: C75-4223
Hanson Prof. No. 10A0051 Filename: R-001.CVR.DWG Scale: NOT TO SCALE Date: 12/14/12	LAYOUT DRAWN: BAK REVIEWED: CAH	07/08/10 07/08/10	 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2886 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide
MARSHALL COUNTY AIRPORT 805' EXTENSION COVER SHEET	1 1 of 75 sheets		

SUMMARY OF QUANTITIES – BASE BID

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AR108158	1/C #8 5 KV UG CABLE IN UD	L.F.	9,097	
AR108756	1/C #6 GROUND	L.F.	9,097	
AR109200	INSTALL ELECTRICAL EQUIPMENT	L.S.	1	
AR110013	3" DIRECTIONAL BORE	L.F.	230	
AR125410	MITL-STAKE MOUNTED	EACH	11	
AR125442	TAXI GUIDANCE SIGN, 2 CHARACTER	EACH	1	
AR125445	TAXI GUIDANCE SIGN, 5 CHARACTER	EACH	2	
AR125505	MIRL, STAKE MOUNTED	EACH	32	
AR125510	MIRL, BASE MOUNTED	EACH	10	
AR125540	MI THRESHOLD LIGHT STAKE MTD	EACH	16	
AR125901	REMOVE STAKE MOUNTED LIGHT	EACH	38	
AR125902	REMOVE BASE MOUNTED LIGHT	EACH	10	
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1	
AR150520	MOBILIZATION	L.S.	1	
AR150540	HAUL ROUTE	L.S.	1	
AR151450	CLEARING AND GRUBBING	AC.	1.5	
AR152410	UNCLASSIFIED EXCAVATION	C.Y.	29,972	
AR152441	ON-SITE BORROW	C.Y.	128	
AR155540	BY-PRODUCT LIME	TON	248	
AR155612	SOIL PROECSSING - 12"	S.Y.	8,159	
AR156510	SILT FENCE	L.F.	2,230	
AR156511	DITCH CHECK	EA.	3	
AR156530	TEMPORARY SEEDING	ACRE	9.3	
AR156531	EROSION CONTROL BLANKET	S.Y.	877	
AR156544	RIPRAP-GRADATION NO. 4	S.Y.	445	
AR161510	CLASS C FENCE	L.F.	860	
AR161630	CLASS C GATE - 30'	EACH	1	
AR209510	CRUSHED AGGREGATE BASE COURSE	TON	1,881	
AR401613	BIT. SURF. CSE.-METHOD I, SUPERPAVE	TON	713	
AR403614	BIT. BASE CSE.-METHOD II, SUPERPAVE	TON	3,123	
AR403630	BITUMINOUS BASE TEST SECTION	EACH	1	
AR602510	BITUMINOUS PRIME COAT	GAL.	2,829	
AR603510	BITUMINOUS TACK COAT	GAL.	2,403	
AR620520	PAVEMENT MARKING - WATERBORNE	S.F.	20,499	
AR620525	PAVEMENT MARKING - BLACK BORDER	S.F.	2,880	
AR620900	PAVEMENT MARKING REMOVAL	S.F.	6,803	
AR620912	TEMPORARY MARK & LIGHT	L.S.	1	
AR705410	POROUS BACKFILL	C.Y.	113	
AR705526	6" PERFORATED UNDERDRAIN W/SOCK	L.F.	1,513	
AR705630	UNDERDRAIN INSPECTION HOLE	EACH	4	
AR705903	REMOVE UNDERDRAIN INSP. HOLE	EACH	1	
AR901510	SEEDING	ACRE	1	
AR901511	SEEDING-FORMULA 1	ACRE	8.3	
AR908510	MULCHING	ACRE	9.1	

SUMMARY OF QUANTITIES – ADDITIVE ALTERNATE NO. 1

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AS108656	3/C #6 600 V UG CABLE IN UD	L.F.	3,954	
AS110014	4" DIRECTIONAL BORE	L.F.	290	
AS125615	PAPI (L-880 SYSTEM)	EACH	1	
AS125908	REMOVE PAPI	EACH	1	

SUMMARY OF QUANTITIES – ADDITIVE ALTERNATE NO. 2

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AT800413	MIRL LED UPGRADE	EACH	42	
AT800414	MI THRESHOLD LIGHT LED UPGRADE	EACH	16	

SUMMARY OF QUANTITIES – ADDITIVE ALTERNATE NO. 3

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AU620520	PAVEMENT MARKING - WATERBORNE	S.F.	10,814	
AU620525	PAVEMENT MARKING - BLACK BORDER	S.F.	3,197	

INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	SUMMARY OF QUANTITIES AND INDEX TO SHEETS
3	PROPOSED SAFETY PLAN
4	SUMMARY OF QUANTITIES FOR 805' RUNWAY EXTENSION
5	PROPOSED TEMPORARY MARKING AND LIGHTING PLAN
6	PROPOSED TEMPORARY MARKING AND LIGHTING NOTES AND DETAILS
7	PROPOSED STORMWATER POLLUTION PREVENTION PLAN
8	PROPOSED PLAN AND PROFILE STA. 110+00 TO STA. 122+00
9	PROPOSED CONSTRUCTION PLAN
10	PROPOSED DRAINAGE PLAN
11	PROPOSED STAKING PLAN
12	EXISTING ELECTRICAL PLAN STA. 120+90 TO STA. 129+50
13	EXISTING ELECTRICAL PLAN STA. 129+50 TO STA. 143+00
14	EXISTING ELECTRICAL PLAN STA. 143+00 TO STA. 153+10
15	PROPOSED ELECTRICAL PLAN STA. 112+85 TO STA. 126+00
16	PROPOSED ELECTRICAL PLAN STA. 126+00 TO STA. 139+50
17	PROPOSED ELECTRICAL PLAN STA. 139+50 TO STA. 146+00
18	PROPOSED ELECTRICAL PLAN STA. 146+00 TO STA. 153+10
19	ELECTRICAL DETAILS SHEET 1
20	ELECTRICAL DETAILS SHEET 2
21	ELECTRICAL DETAILS SHEET 3
22	ELECTRICAL DETAILS SHEET 4
23	PROPOSED PAPI DETAILS AHD NOTES RUNWAY END 31
24	PAPI FOUNDATION DETAILS
25	ELECTRICAL NOTES SHEET 1
26	ELECTRICAL NOTES SHEET 2
27	ELECTRICAL LEGEND AND ABBREVIATIONS
28	EXISTING ELECTRICAL ONE-LINE FOR VAULT AND AIRFIELD
29	PROPOSED ELECTRICAL ONE-LINE FOR VAULT AND AIRFIELD
30	AIRFIELD LIGHTING CONTROL WIRING SCHEMATIC
31	LIGHTING CONTACTOR SCHEMATIC
32	LIGHTING CONTACTOR PANEL DETAIL
33	PAPI FIELD WIRING CONNECTIONS
34	HIGH VOLTAGE WIRING SCHEMATIC
35	LEGEND PLATE SCHEDULE
36	VAULT GROUND BUS RISER AND GROUNDING DETAILS
37	GROUNDING NOTES
38	PROPOSED MARKING PLAN STA. 112+95 TO STA. 140+50
39	PROPOSED MARKING PLAN STA. 140+50 TO STA. 153+00
40	CROSS-SECTIONS FOR RUNWAY EXTENSION STA. 112+00 TO STA. 112+50
41	CROSS-SECTIONS FOR RUNWAY EXTENSION STA. 112+95 TO STA. 113+50
42	CROSS-SECTIONS FOR RUNWAY EXTENSION STA. 114+00 TO STA. 115+50
43	CROSS-SECTIONS FOR RUNWAY EXTENSION STA. 116+00 TO STA. 117+50
44	CROSS-SECTIONS FOR RUNWAY EXTENSION STA. 118+00 TO STA. 119+50
45	CROSS-SECTIONS FOR RUNWAY EXTENSION STA. 120+00 TO STA. 121+50
46	CROSS-SECTIONS FOR TURN AROUND STA. 10+38 TO STA. 11+50
47	CROSS-SECTIONS FOR TURN AROUND STA. 11+75 TO STA. 12+00
48	SUMMARY OF QUANTITIES FOR APPROACH WORK TO RUNWAY END 31
49	PROPOSED SITE PLAN
50	PROPOSED STORMWATER POLLUTION PREVENTION PLAN
51	CROSS-SECTIONS FOR APPROACH WORK STA. 100+00
52	CROSS-SECTIONS FOR APPROACH WORK STA. 100+50
53	CROSS-SECTIONS FOR APPROACH WORK STA. 101+00
54	CROSS-SECTIONS FOR APPROACH WORK STA. 101+50
55	CROSS-SECTIONS FOR APPROACH WORK STA. 102+00
56	CROSS-SECTIONS FOR APPROACH WORK STA. 102+50
57	CROSS-SECTIONS FOR APPROACH WORK STA. 103+00
58	CROSS-SECTIONS FOR APPROACH WORK STA. 103+50
59	CROSS-SECTIONS FOR APPROACH WORK STA. 104+00
60	CROSS-SECTIONS FOR APPROACH WORK STA. 104+50
61	CROSS-SECTIONS FOR APPROACH WORK STA. 104+75
62	CROSS-SECTIONS FOR APPROACH WORK STA. 105+00
63	CROSS-SECTIONS FOR APPROACH WORK STA. 105+25
64	CROSS-SECTIONS FOR APPROACH WORK STA. 105+50
65	CROSS-SECTIONS FOR APPROACH WORK STA. 105+75
66	CROSS-SECTIONS FOR APPROACH WORK STA. 106+00
67	CROSS-SECTIONS FOR APPROACH WORK STA. 106+50
68	CROSS-SECTIONS FOR APPROACH WORK STA. 107+00
69	CROSS-SECTIONS FOR APPROACH WORK STA. 107+50
70	CROSS-SECTIONS FOR APPROACH WORK STA. 108+00
71	CROSS-SECTIONS FOR APPROACH WORK STA. 108+50
72	CROSS-SECTIONS FOR APPROACH WORK STA. 109+00
73	CROSS-SECTIONS FOR APPROACH WORK STA. 109+50
74	CROSS-SECTIONS FOR APPROACH WORK STA. 110+00 TO STA. 110+50
75	CROSS-SECTIONS FOR APPROACH WORK STA. 111+00 TO STA. 111+50

REVISION	
DATE	01/11/13
	ADDED AR125445

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No.	10A00051
Filename	R-002FLP.DWG
Scale	N/A
Date	12/14/12
LAYOUT	BAK 07/08/10
DRAWN	BAK 07/08/10
REVIEWED	CAH

Hanson Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2886
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

SUMMARY OF QUANTITIES
AND INDEX TO SHEETS

FEB 14, 2013 2:00 PM HGL000382
I:\AIRPORTS\MARSHALL\10A0051\AIRPORT SHEETS\R-002FLP.DWG

UTILITY NOTE

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

HAUL ROUTE AND VEHICLE PARKING

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

CONTRACTOR RESPONSIBILITIES

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

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

THE CONTRACTOR SHALL FOLLOW THE PROPOSED STAGING PLAN IN THE SPECIAL PROVISIONS FOR KEEPING RUNWAYS/TAXIWAYS OPEN AND CLOSING THEM.

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

NO TRENCHES OR HOLES WILL REMAIN OPEN OVERNIGHT.

BARRICADES

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

LEGEND

- EXISTING IMPROVEMENTS
- PROPOSED IMPROVEMENTS
- FUTURE PAVEMENT
- EXISTING BUILDINGS
- EXISTING HAUL ROUTE AND EQUIPMENT PARKING AREA
- PROPOSED HAUL ROUTE
- PROPOSED BENCHMARK
- PROPOSED BARRICADES WHEN RUNWAY 13-31 IS CLOSED
- PROPOSED BARRICADES WHEN RUNWAY 18-36 IS CLOSED

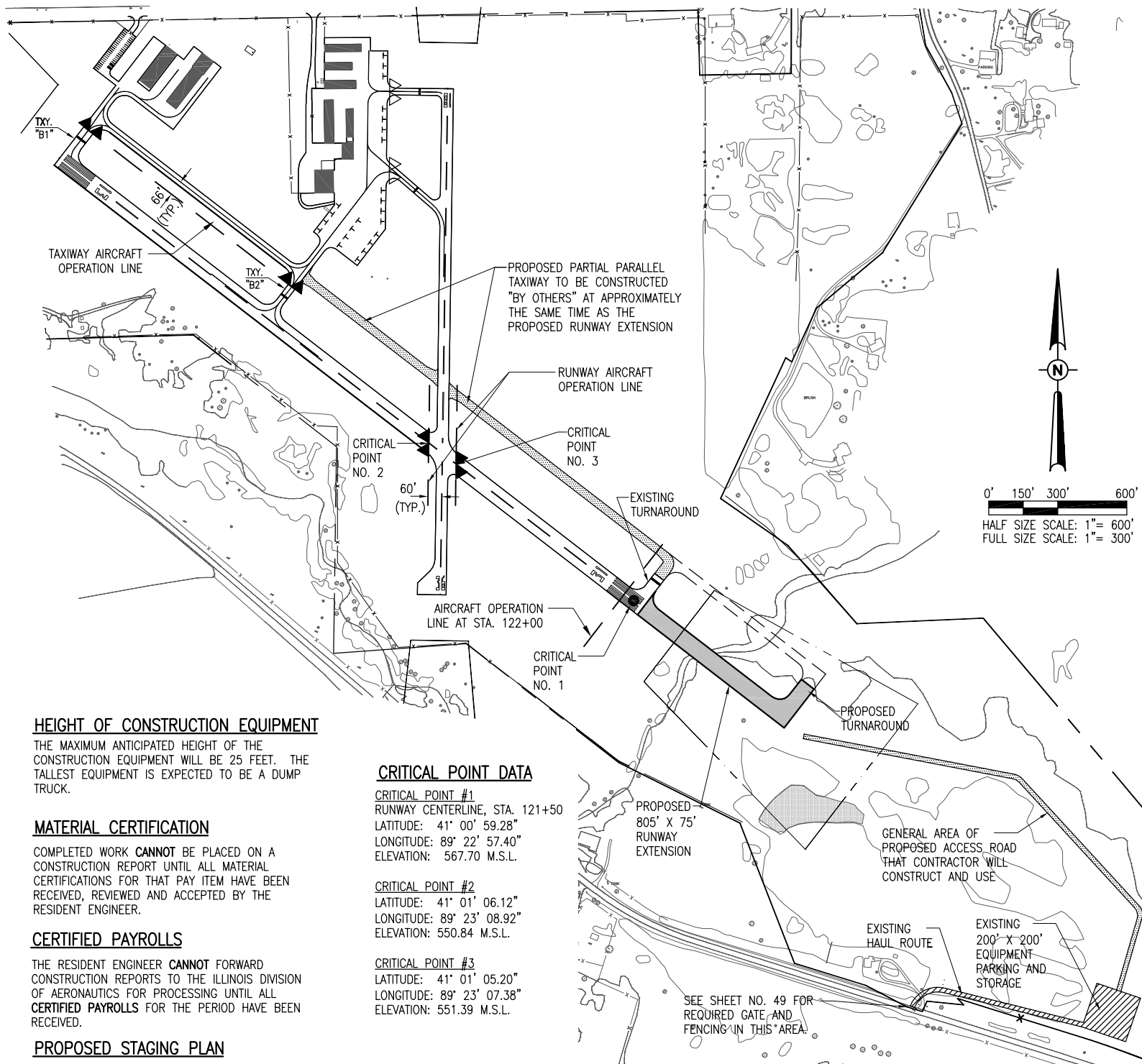
SCOPE OF WORK

BASE BID
THIS PROJECT CONSISTS OF PAVING, LIGHTING & MARKING AN 805' EXTENSION TO RUNWAY END 31. ASSOCIATED WORK WILL INCLUDE UNCLASSIFIED EXCAVATION, DRAINAGE, EROSION PROTECTION, SEEDING AND MULCHING. PROJECT ALSO INCLUDES THE REPLACEMENT OF THE MRL SYSTEM ON RUNWAY 13-31.

ADDITIVE ALTERNATE NO. 1
ADDITIVE ALTERNATE NO. 1 WILL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE PRECISION APPROACH PATH INDICATOR (PAPI) UNITS ON RUNWAY END 31.

ADDITIVE ALTERNATE NO. 2
ADDITIVE ALTERNATE NO. 2 WILL CONSIST OF THE UPGRADE OF THE MEDIUM INTENSITY RUNWAY LIGHTS TO TYPE L-861(L) WITH LED (LIGHT EMITTING DIODE) ILLUMINATION, UPGRADE OF THE MEDIUM INTENSITY THRESHOLD LIGHTS TO TYPE L-861E(L) WITH LED ILLUMINATION.

ADDITIVE ALTERNATE NO. 3
ADDITIVE ALTERNATE NO. 3 WILL CONSIST OF THE REPAINTING OF THE REMAINING PORTION OF THE MARKING ON RUNWAY 13-31.



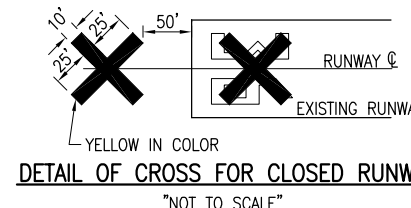
BENCHMARK DATA

NO.	DESCRIPTION	NORTHING	EASTING	ELEV.
1	LACPORT NGS MONUMENT	1,585,214.690	2,512,981.969	565.44
2	LACPORT AZ MONUMENT	1,587,067.557	2,510,579.083	536.82
3	5/8" IRON PIN W/ HEI METAL CAP	1,586,449.457	2,511,380.665	549.16

NOTE

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

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



NOTE:

COST OF CONSTRUCTING, PLACING, MAINTAINING AND REMOVING CROSSES WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. THE CROSSES WILL BE YELLOW IN COLOR AND SHALL BE MADE OF A SUITABLE MATERIAL AS APPROVED BY THE AIRPORT MANAGER. THE CROSSES WILL BE PLACED OVER THE NUMERALS AND SECURED IN A MANNER APPROVED BY THE MANAGER. THE PROPOSED CROSSES WILL BE PLACED EACH DAY THE RUNWAY IS CLOSED AND REMOVED WHEN THE RUNWAY IS RE-OPENED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PLACEMENT AND REMOVAL OF THE CROSSES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

J.U.L.I.E. INFORMATION

COUNTY MARSHALL
CITY LACON
TOWNSHIP HOPEWELL
SECTION NO. 31
ADDRESS MARSHALL COUNTY AIRPORT
LACON, ILLINOIS 61540

PROPOSED SAFETY PLAN

GENERAL - THE MARSHALL COUNTY AIRPORT IS COMPRISED OF TWO RUNWAYS. SEE THE SPECIAL PROVISIONS FOR THE PROPOSED STAGING PLAN AND ANTICIPATED RUNWAY CLOSURES.

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

RADIO CONTROL - THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO-WAY RADIO CONTACT (122.80 Mhz.) WITH THE AIRPORT UNICOM. THIS WILL KEEP THE CONTRACTOR IN CONSTANT CONTACT WITH THE MARSHALL COUNTY AIRPORT AND ENABLE THE AIRPORT TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTIC EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

150-ENGINEER'S FIELD OFFICE NOTES

THE PROPOSED ENGINEER'S FIELD OFFICE WILL BE FURNISHED, MAINTAINED, AND REMOVED IN ACCORDANCE WITH ITEM AR150510 "ENGINEER'S FIELD OFFICE" AS STATED ON PAGE 49 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS NOV. 2, 2009.

THE LOCATION OF THE PROPOSED ENGINEER'S FIELD OFFICE WILL BE DETERMINED AT THE PRE-CONSTRUCTION MEETING.

THE ENGINEERING FIRM WILL MAKE PAYMENT FOR ALL LONG DISTANCE TELEPHONE CALLS IN EXCESS OF ONE HUNDRED DOLLARS (\$100.00) PER MONTH.

THE CONTRACTOR WILL FURNISH A WIRELESS PHONE TO THE RESIDENT ENGINEER FOR HIS EXCLUSIVE USE FOR THE DURATION OF THIS PROJECT. THE RESIDENT ENGINEER WILL USE THIS PHONE FOR PROJECT BUSINESS ONLY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL CHARGES ASSOCIATED WITH THIS CELL PHONE.

THE PROPOSED ENGINEER'S FIELD OFFICE WILL BE PAID FOR UNDER ITEMS: AR150510 ENGINEER'S FIELD OFFICE ____ 1 L.S.

EROSION CONTROL

THIS PROJECT WILL DISTURB MORE THAN 1 ACRE OF LAND, THEREFORE A N.P.D.E.S. PERMIT WILL BE REQUIRED.

AIRCRAFT OPERATION LINE

THE CONTRACTOR WILL LOCATE THESE LINES AT THE START OF CONSTRUCTION AND WILL PLACE FLAGGED LATHE EVERY 150' ALONG THEM. THESE LINES WILL BE THE LIMITS THAT ALL CONTRACTOR PERSONNEL MAY VENTURE WHEN A RUNWAY/TAXIWAY IS NOT CLOSED. THE CONTRACTOR WILL MAINTAIN THESE LATHE LINES.

JAN 10, 2013 2:27 PM K:\CADD\394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT SHEETS\R-003SFY.DWG

MA025
REVISION
DATE
MARSHALL COUNTY AIRPORT
LACON, ILLINOIS
BLOCK GRANT PROJ.: 3-17-0059-B15
ILL. PROJ.: C75-4223
Hanson Proj. No. 10A0051
Filename R-003SFY.DWG
Scale 1"=300'
Date 12/14/12
LAYOUT BAK 07/08/10
DRAWN BAK 07/08/10
REVIEWED CAH 03/30/11
HANSON Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide
PAVE, LIGHT AND MARK
805' EXTENSION
PROPOSED SAFETY PLAN
3
3 of 75 sheets

805' EXTENSION TO RUNWAY END 31

SUMMARY OF QUANTITIES - BASE BID

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AR108158	1/C #8 5 KV UG CABLE IN UD	L.F.	9,097	
AR108756	1/C #6 GROUND	L.F.	9,097	
AR109200	INSTALL ELECTRICAL EQUIPMENT	L.S.	1	
AR110013	3" DIRECTIONAL BORE	L.F.	230	
AR125410	MITL-STAKE MOUNTED	EACH	11	
AR125442	TAXI GUIDANCE SIGN, 2 CHARACTER	EACH	1	
AR125505	MIRL, STAKE MOUNTED	EACH	32	
AR125510	MIRL, BASE MOUNTED	EACH	10	
AR125540	MI THRESHOLD LIGHT STAKE MTD	EACH	16	
AR125901	REMOVE STAKE MOUNTED LIGHT	EACH	38	
AR125902	REMOVE BASE MOUNTED LIGHT	EACH	10	
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1	
AR150520	MOBILIZATION	L.S.	1	
AR150540	HAUL ROUTE	L.S.	1	
AR152410	UNCLASSIFIED EXCAVATION	C.Y.	658	
AR152441	ON-SITE BORROW	C.Y.	128	
AR155540	BY-PRODUCT LIME	TON	248	
AR155612	SOIL PROECSSING- 12"	S.Y.	8,159	
AR156510	SILT FENCE	L.F.	2,230	
AR156530	TEMPORARY SEEDING	ACRE	1	
AR156531	EROSION CONTROL BLANKET	S.Y.	877	
AR209510	CRUSHED AGGREGATE BASE COURSE	TON	1,881	
AR401613	BIT. SURF. CSE.-METHOD I, SUPERPAVE	TON	713	
AR403614	BIT. BASE CSE.-METHOD II, SUPERPAVE	TON	3,123	
AR403630	BITUMINOUS BASE TEST SECTION	EACH	1	
AR602510	BITUMINOUS PRIME COAT	GAL.	2,829	
AR603510	BITUMINOUS TACK COAT	GAL.	2,403	
AR620520	PAVEMENT MARKING - WATERBORNE	S.F.	20,499	
AR620525	PAVEMENT MARKING - BLACK BORDER	S.F.	2,880	
AR620900	PAVEMENT MARKING REMOVAL	S.F.	6,903	
AR620912	TEMPORARY MARK & LIGHT	L.S.	1	
AR705410	POROUS BACKFILL	C.Y.	113	
AR705526	6" PERFORATED UNDERDRAIN W/SOCK	L.F.	1,513	
AR705630	UNDERDRAIN INSPECTION HOLE	EACH	4	
AR705903	REMOVE UNDERDRAIN INSP. HOLE	EACH	1	
AR901510	SEEDING	ACRE	1	
AR908510	MULCHING	ACRE	0.8	

SUMMARY OF QUANTITIES - ADDITIVE ALTERNATE NO. 3

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AU620520	PAVEMENT MARKING - WATERBORNE	S.F.	10,814	
AU620525	PAVEMENT MARKING - BLACK BORDER	S.F.	3,197	

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename R-003FLP.DWG	Scale N/A	Date 12/14/12
LAYOUT	BAK	07/08/10	
DRAWN	BAK	07/08/10	
REVIEWED	CAH		



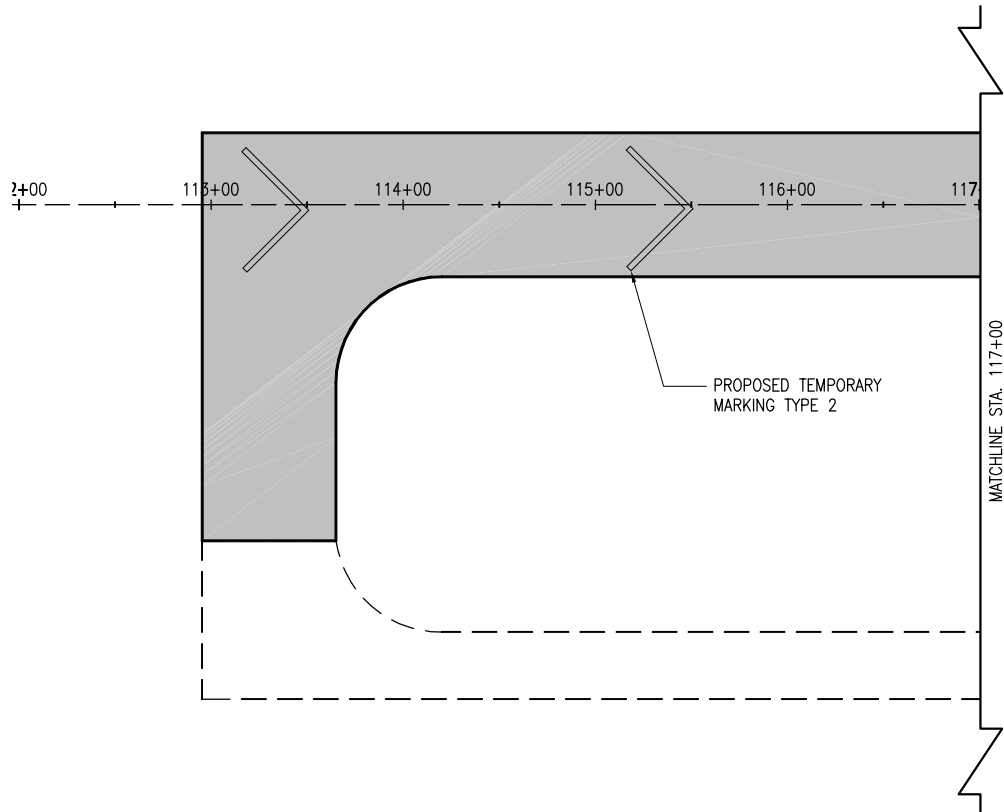
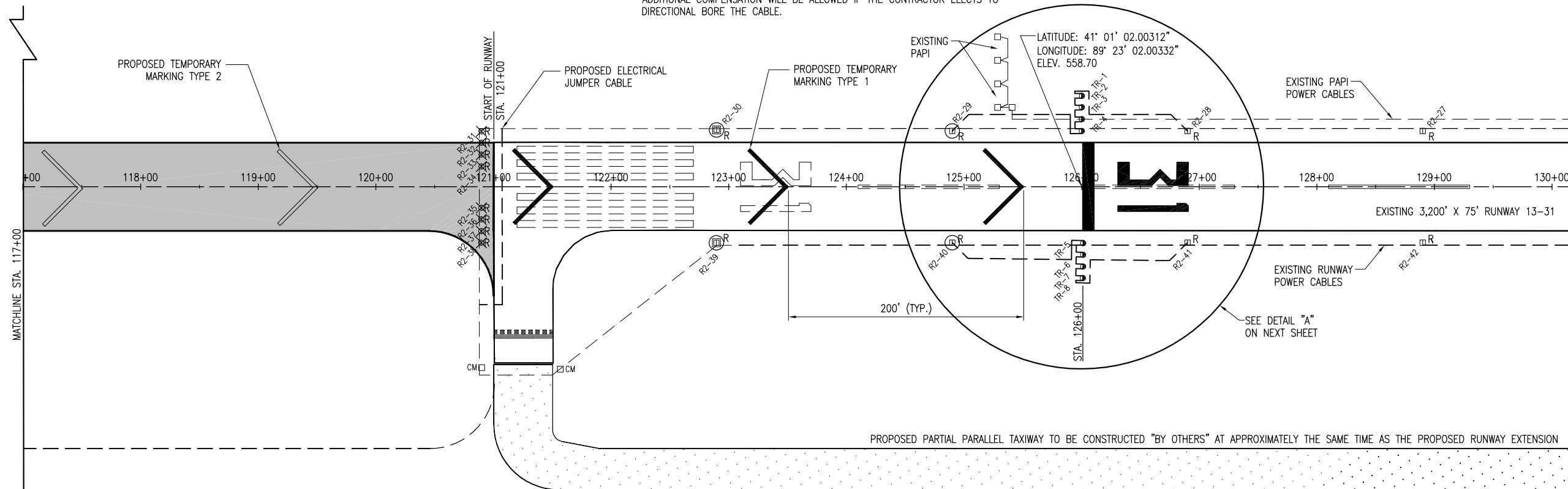
© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-hnc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

SUMMARY OF QUANTITIES
FOR 805' RUNWAY EXTENSION

NOTE:

THE CONTRACTOR MAY ELIMINATE THE ABOVE GROUND JUMPERS BETWEEN THE TEMPORARILY DISPLACED THRESHOLD LIGHTS AND RUNWAY LIGHTS R2-29 AND R2-40 BY DIRECTIONAL BORING A CABLE IN UNIT DUCT UNDER THE RUNWAY AT STATION 126+00 AND CONNECTING THAT CABLE TO LIGHTS TR-4 AND TR-5. NO ADDITIONAL COMPENSATION WILL BE ALLOWED IF THE CONTRACTOR ELECTS TO DIRECTIONAL BORE THE CABLE.



MARKING REMOVAL QUANTITIES			
DESCRIPTION	UNIT AREA	NO. REQUIRED	TOTAL AREA
RUNWAY THRESHOLD STRIPES	862.5	6	5,175
RUNWAY CENTERLINE STRIPES	360	2	720
NUMBER 1	318	1	318
NUMBER 3	634	1	634
TOTAL MARKING			6,847

LEGEND

- EXISTING PAVEMENT
- EXISTING MARKING (TO REMAIN IN PLACE)
- EXISTING MARKING (TO BE REMOVED)
- PROPOSED TEMPORARY MARKING TYPE 1
- PROPOSED TEMPORARY MARKING TYPE 2
- EXISTING ELECTRICAL DUCT
- EXISTING ELECTRICAL CABLES
- PROPOSED ELECTRICAL CABLES
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED RUNWAY LIGHT (TO BE COVERED)
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT (TO BE COVERED)
- EXISTING STAKE MOUNTED RUNWAY THRESHOLD LIGHT (TO BE RELOCATED)
- RELOCATED STAKE MOUNTED RUNWAY THRESHOLD LIGHT

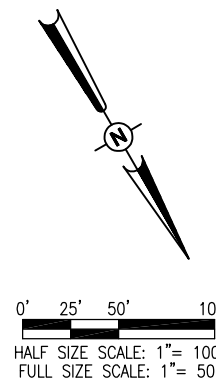
620900-PAVEMENT MARKING REMOVAL NOTES

THE EXISTING PAVEMENT MARKING SHALL BE REMOVED IN ACCORDANCE WITH ITEM 620 "PAVEMENT MARKING" AS STATED ON PAGE 272 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THE AREAS THAT ARE DESIGNATED FOR REMOVAL ARE SHOWN ON THE CONSTRUCTION PLANS.

ALL AREAS TO BE REMOVED ARE CALCULATED AREAS. ANY ADDITIONAL AREAS, DUE TO OVER SPRAY, SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

THE PROPOSED MARKING REMOVAL WILL BE PAID FOR UNDER ITEM: AR620900 PAVEMENT MARKING REMOVAL ___ PER S.F.



REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A00051	BAK	07/09/10
Filename R-551MRK.DWG	BAK	07/09/10
Scale 1"=50'	CAH	03/30/11
Date 12/14/12		
LAYOUT		
DRAWN		
REVIEWED		

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION
PROPOSED TEMPORARY
MARKING AND LIGHTING PLAN

NOTES DISPLACED THRESHOLD FOR RUNWAY CONSTRUCTION

THIS PROJECT WILL REQUIRE THE TEMPORARY DISPLACEMENT OF RUNWAY 31 END. THIS DISPLACEMENT WILL BE IN ACCORDANCE WITH THE LAYOUTS AND DETAILS SHOWN ON THE PREVIOUS SHEET AND THIS SHEET.

THE PROPOSED TEMPORARY MARKING (TYPE 1) WILL CONSIST OF PLACING REFLECTIVE TAPE ON THE EXISTING PAVEMENT AT THE LOCATIONS AND DETAILS SHOWN ON THE PREVIOUS SHEET AND THIS SHEET.

THE REFLECTIVE TAPE WILL BE 4" WIDE, WHITE OR YELLOW IN COLOR. THE PROPOSED TAPE SHALL BE STANDARD HIGHWAY PRESSURE SENSITIVE TRAFFIC MARKING TAPE OR APPROVED EQUAL.

THE TEMPORARY RELOCATED THRESHOLD BAR AND RUNWAY NUMERALS WILL BE WHITE IN COLOR.

THE PROPOSED TEMPORARY CHEVRONS WILL BE YELLOW IN COLOR.

THE PROPOSED TEMPORARY MARKING (TYPE 2) WILL BE YELLOW IN COLOR AND CONSTRUCTED IN ACCORDANCE WITH THE DETAIL ON THIS SHEET. TEMPORARY CHEVRONS LOCATED ON THE PROPOSED RUNWAY EXTENSION WILL BE SOLID AND YELLOW IN COLOR AND CONSTRUCTED OF A SUITABLE MATERIAL AS APPROVED BY THE RESIDENT ENGINEER.

THE TEMPORARY CHEVRONS WILL BE PLACED ON THE PROPOSED EXTENSION ONCE THE CRUSHED AGGREGATE BASE COURSE HAS BEEN INSTALLED. THE CHEVRONS WILL BE REMOVED AND REPLACED AS SUBSEQUENT PAVING OPERATIONS PROCEED. THE TEMPORARY CHEVRONS WILL BE IN PLACE AT THE END OF EACH WORKING DAY.

ALL TEMPORARY MARKING WILL BE IN PLACE AT THE END OF THE DAY AND REPAIRED TO THE SATISFACTION OF THE RESIDENT ENGINEER.

ALL EXISTING RUNWAY LIGHTS SOUTH-EAST OF THE TEMPORARY THRESHOLD WILL BE COVERED IN A WAY THAT WILL OMIT NO LIGHT AND BE APPROVED BY THE RESIDENT ENGINEER.

EXISTING THRESHOLD LIGHTS R-31 THRU R-38 WILL BE RELOCATED AS SHOWN ON THE PREVIOUS SHEET TO COMPLETE THE DISPLACED THRESHOLD.

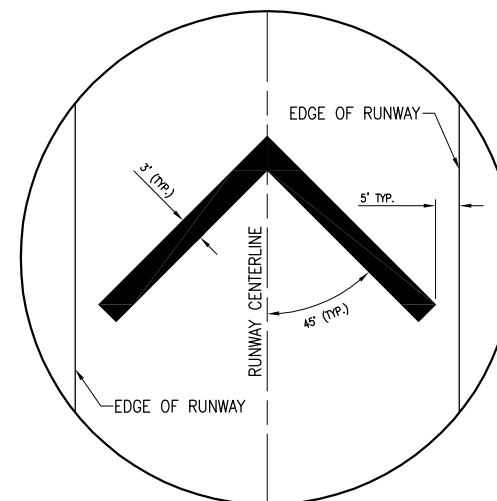
APPROXIMATELY 600' OF NO. 8, 5KV., 1/C TYPE C U.G. CABLE WILL BE REQUIRED TO CONNECT BETWEEN RUNWAY LIGHT R2-28 TO RUNWAY LIGHT R2-29 AND PLACING INTO THE LIGHTING CIRCUIT TEMPORARY THRESHOLD LIGHT NUMBERS TR-1 THROUGH TR-4 AND CONNECT BETWEEN RUNWAY LIGHT R2-40 AND R2-41 AND PLACE INTO THE LIGHTING CIRCUIT TEMPORARY THRESHOLD LIGHT NUMBERS TR-5 THROUGH TR-8. APPROXIMATELY 96' OF NO. 8, 5KV., 1/C, TYPE C U.G. CABLE IN UNIT DUCT WILL BE CONNECTED BETWEEN RUNWAY LIGHTS R2-30 THRU R2-39. ALL CABLE USED FOR THIS ITEM WILL BE PINNED DOWN TO THE GROUND TO PREVENT MOVEMENT. THE UNIT DUCT WILL EITHER BE ORANGE IN COLOR OR PAINTED ORANGE TO IMPROVE VISIBILITY AND REDUCE THE POSSIBILITY OF SOMEONE TRIPPING OVER IT.

THE EXISTING PAPI ON RUNWAY END 31 IS TURNED OFF AT THE VAULT AND WILL REMAIN SO UNTIL IT IS REMOVED AND TURNED OVER TO THE AIRPORT.

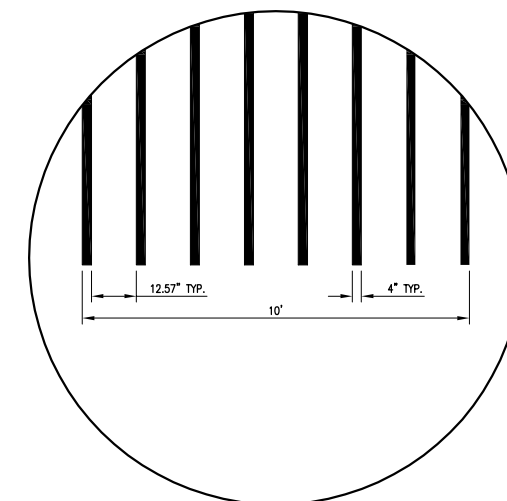
ALL PROPOSED NO. 8, 5KV., 1/C TYPE C CABLE NEEDED TO TEMPORARILY WIRE THE PROPOSED TEMPORARY THRESHOLD LIGHTS WILL BE DISPOSED OF OFF THE AIRPORT SITE UPON REMOVAL OF THE DISPLACED THRESHOLD. THIS CABLE WILL BE CONSIDERED INCIDENTAL TO THE TEMPORARY MARKING AND LIGHTING AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

THE TEMPORARY MARKING AND LIGHTING WILL BE PAID FOR UNDER ITEM AR620912 TEMPORARY MARK & LIGHT 1 L.S..

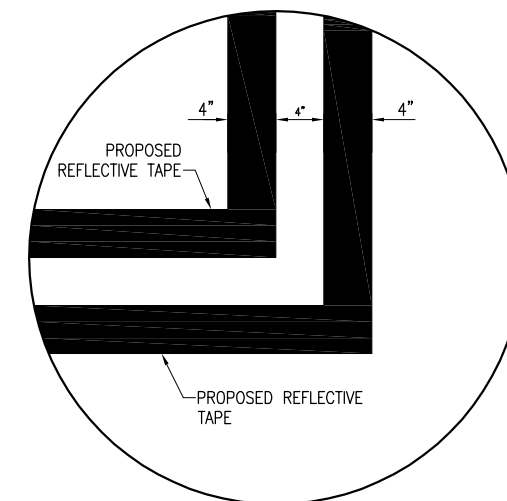
MA025



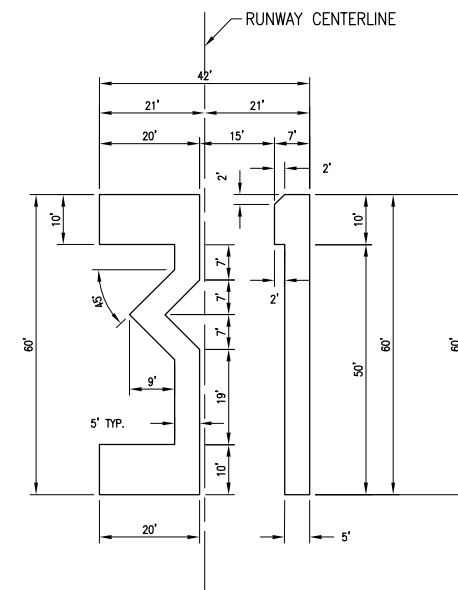
TEMPORARY CHEVRON DETAIL
"NOT TO SCALE"



TEMPORARY RELOCATED THRESHOLD BAR DETAIL
"NOT TO SCALE"



TEMPORARY MARKING DETAIL
"NOT TO SCALE"



TEMPORARY NUMERAL DETAIL FOR RUNWAY END 31
"NOT TO SCALE"

TEMPORARY RUNWAY NUMERAL DIMENSIONING NOTES:

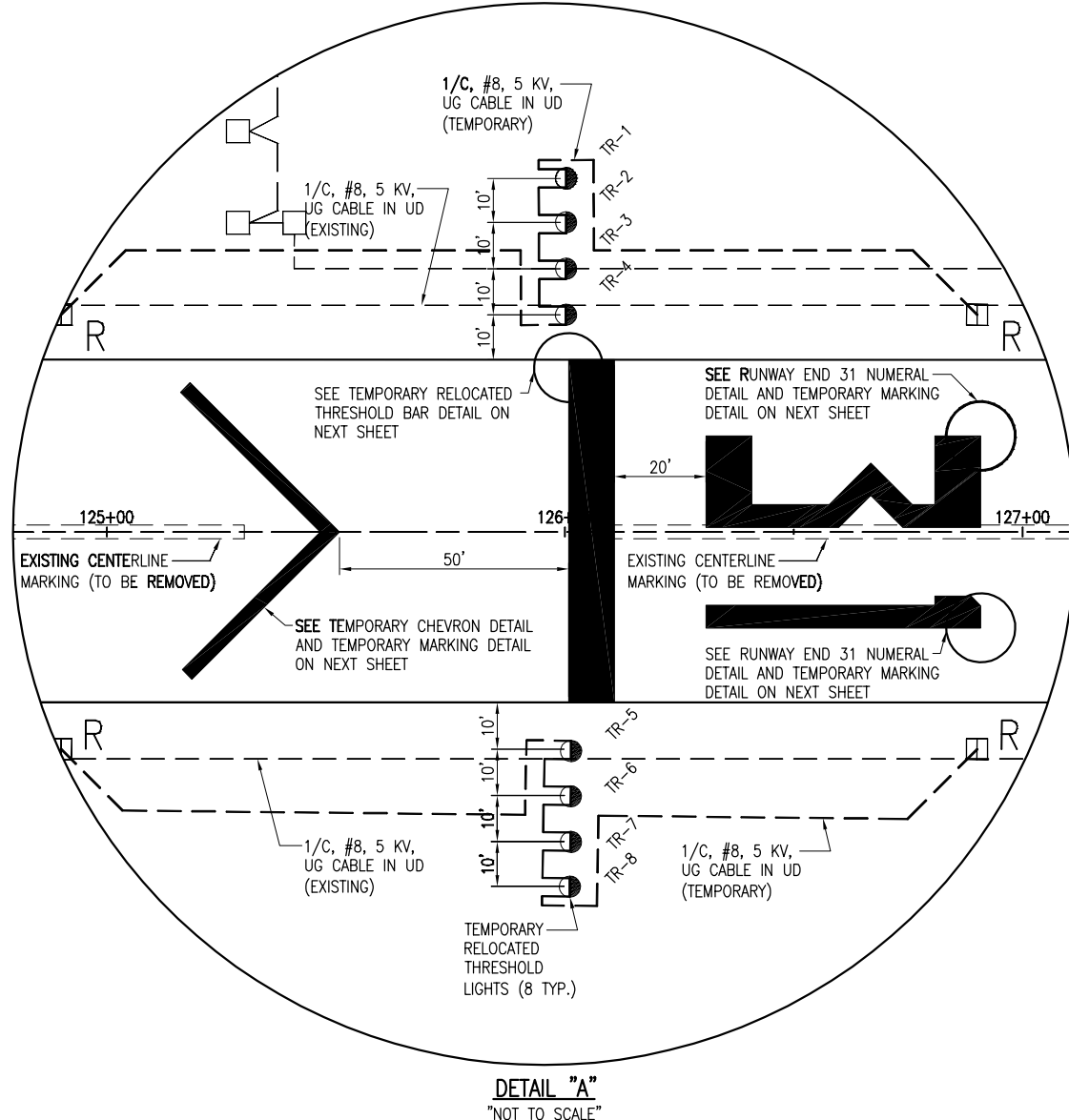
NUMERALS ARE HORIZONTALLY SPACED 15 FEET APART.

ALL DIMENSIONS ARE EXPRESSED IN INCREMENTS OF FEET.

DOUBLE DIGIT NUMERAL DESIGNATIONS ARE CENTERED ON THE RUNWAY PAVEMENT CENTERLINE BASED ON THE CENTER OF THE OUTER EDGES OF THE TWO NUMERALS.

LEGEND

- [Symbol] EXISTING PAVEMENT
- [Symbol] EXISTING MARKING (TO REMAIN IN PLACE)
- [Symbol] EXISTING MARKING (TO BE REMOVED)
- [Symbol] PROPOSED TEMPORARY MARKING
- [Symbol] EXISTING ELECTRICAL DUCT
- [Symbol] EXISTING ELECTRICAL CABLES
- [Symbol] PROPOSED ELECTRICAL CABLES
- [Symbol] EXISTING STAKE MOUNTED RUNWAY LIGHT
- [Symbol] EXISTING STAKE MOUNTED RUNWAY LIGHT (TO BE COVERED)
- [Symbol] EXISTING BASE MOUNTED RUNWAY LIGHT
- [Symbol] EXISTING BASE MOUNTED RUNWAY LIGHT (TO BE COVERED)
- [Symbol] EXISTING STAKE MOUNTED RUNWAY THRESHOLD LIGHT (TO BE RELOCATED)
- [Symbol] RELOCATED STAKE MOUNTED RUNWAY THRESHOLD LIGHT



DETAIL "A"
"NOT TO SCALE"

JAN 10, 2013 2:38 PM KINC400394
E:\AIRPORTS\MARSHALL\T0A0051\AIRPORT\SHEETS\1R-35\MRK.DWG

REVISION	
DATE	

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

BLOCK GRANT PROJ.: 3-17-0059-B15
ILL PROJ.: C75-4223

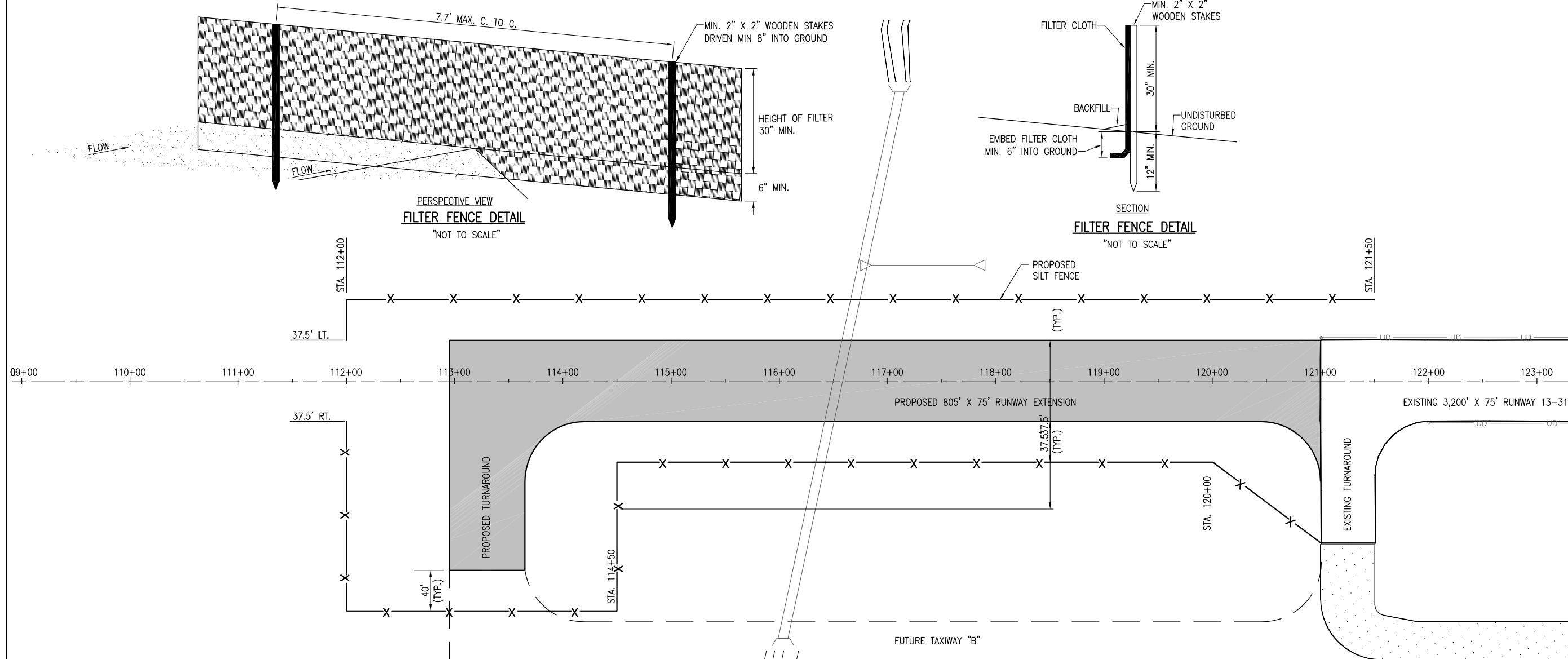
Hanson Proj. No. 10A0051
Filename: R-35\MRK.DWG
Scale: 1"=50'
Date: 12/14/12

LAYOUT	BAK	07/09/10
DRAWN	BAK	07/09/10
REVIEWED	CAH	03/30/11

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED TEMPORARY
MARKING AND LIGHTING
NOTES AND DETAILS



EROSION CONTROL NOTES

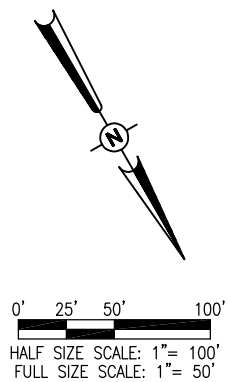
ALL PROPOSED EROSION CONTROL MEASURES SHALL BE COMPLETED AS DETAILED ON THIS EROSION CONTROL PLAN AND IN ACCORDANCE WITH THE SPECIFICATIONS.

EROSION CONTROL MEASURES ARE GOVERNED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S STANDARDS AND SPECIFICATIONS FOR SOIL EROSIONS AND SPECIFICATION FOR SOIL EROSIONS AND SEDIMENT CONTROL.

EROSION CONTROL FENCE SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM WATER DRAINAGE.

COST OF REMOVAL AND REPLACEMENT SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM:
AR156510 SILT FENCE.

- LEGEND**
- EXISTING PAVEMENT
 - PROPOSED IMPROVEMENTS
 - FUTURE IMPROVEMENTS
 - PROPOSED SILT FENCE
 - PROPOSED INLET PROTECTION



REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223
BLOCK GRANT PROJ.: 3-17-0059-B15

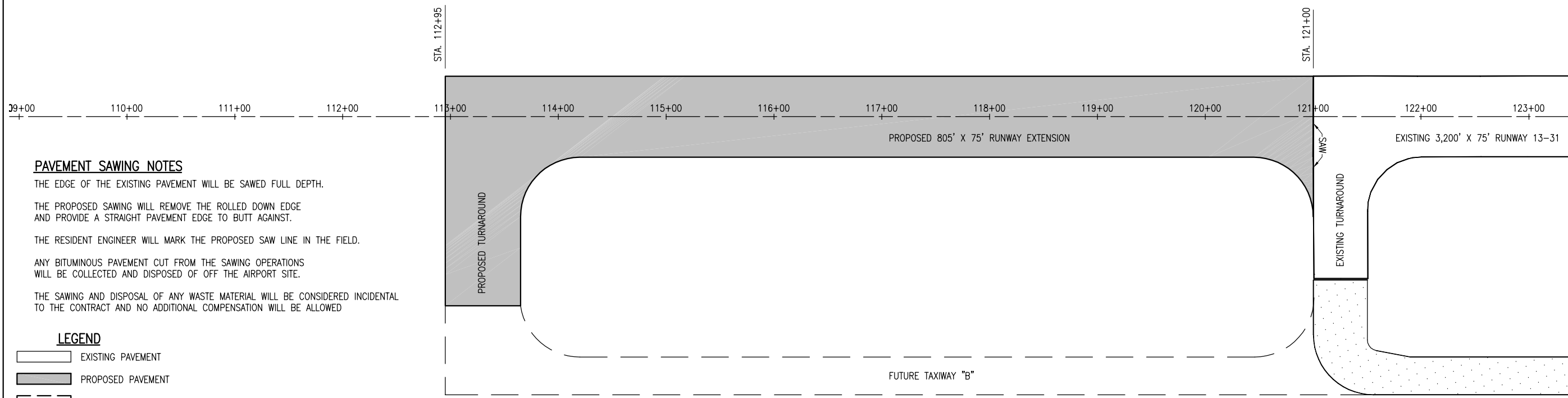
Hanson Proj. No. 10A0051	
Filename R-181SMP.DWG	
Scale 1"=50'	
Date 12/14/12	
LAYOUT MDR 03/01/11	
DRAWN MDR 03/01/11	
REVIEWED CAH 03/30/11	

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED STORMWATER
POLLUTION PREVENTION PLAN

JAN 10, 2013 2:41 PM KINC400394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\R-181SMP.DWG

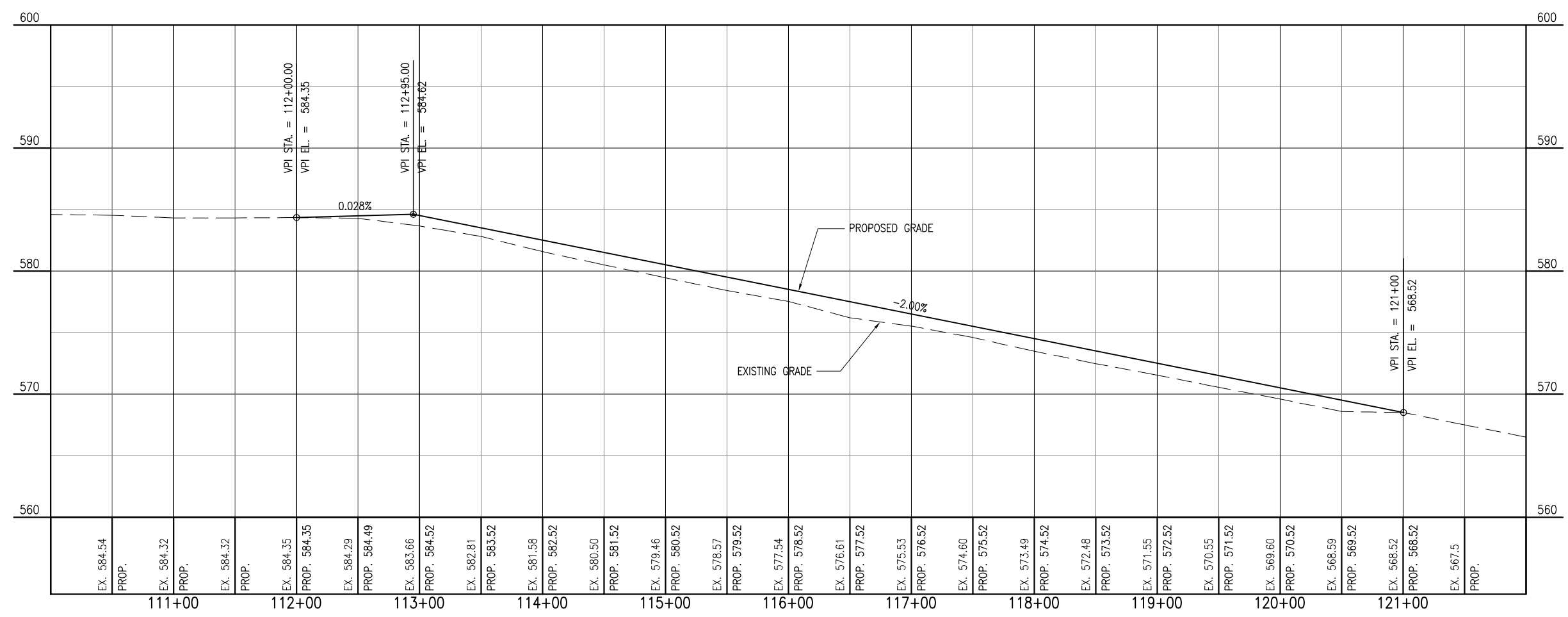


PAVEMENT SAWING NOTES

- THE EDGE OF THE EXISTING PAVEMENT WILL BE SAWED FULL DEPTH.
- THE PROPOSED SAWING WILL REMOVE THE ROLLED DOWN EDGE AND PROVIDE A STRAIGHT PAVEMENT EDGE TO BUTT AGAINST.
- THE RESIDENT ENGINEER WILL MARK THE PROPOSED SAW LINE IN THE FIELD.
- ANY BITUMINOUS PAVEMENT CUT FROM THE SAWING OPERATIONS WILL BE COLLECTED AND DISPOSED OF OFF THE AIRPORT SITE.
- THE SAWING AND DISPOSAL OF ANY WASTE MATERIAL WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED

LEGEND

- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- FUTURE PAVEMENT
- PROPOSED PARTIAL PARALLEL TAXIWAY "BY OTHERS"



REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

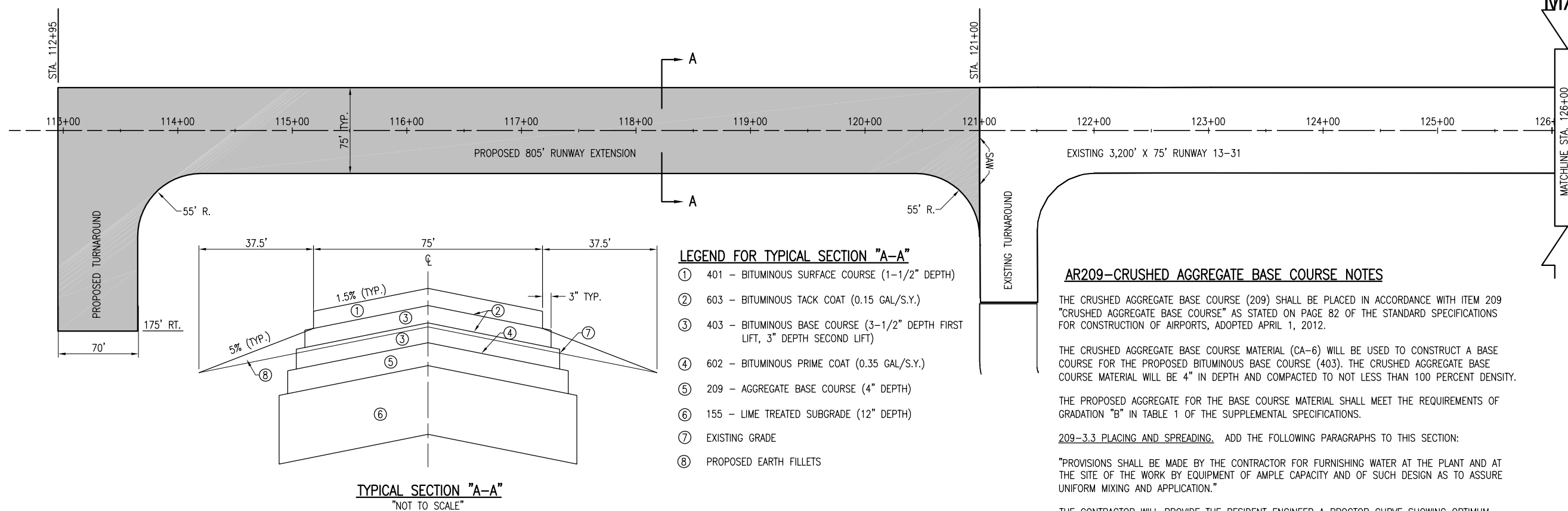
Hanson Proj. No. 10A00051	Filename R-701PNP-REV.DWG	Scale 1"=50'	Date 12/14/12
LAYOUT	MDR	03/01/11	
DRAWN	MDR	03/01/11	
REVIEWED	CAH	03/30/11	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2986
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED PLAN AND
PROFILE STA. 110+00 TO
STA. 122+00

JAN 10, 2013 2:45 PM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\ R-701PNP-REV.DWG



- LEGEND FOR TYPICAL SECTION "A-A"**
- ① 401 - BITUMINOUS SURFACE COURSE (1-1/2" DEPTH)
 - ② 603 - BITUMINOUS TACK COAT (0.15 GAL/S.Y.)
 - ③ 403 - BITUMINOUS BASE COURSE (3-1/2" DEPTH FIRST LIFT, 3" DEPTH SECOND LIFT)
 - ④ 602 - BITUMINOUS PRIME COAT (0.35 GAL/S.Y.)
 - ⑤ 209 - AGGREGATE BASE COURSE (4" DEPTH)
 - ⑥ 155 - LIME TREATED SUBGRADE (12" DEPTH)
 - ⑦ EXISTING GRADE
 - ⑧ PROPOSED EARTH FILLETS

AR209-CRUSHED AGGREGATE BASE COURSE NOTES

THE CRUSHED AGGREGATE BASE COURSE (209) SHALL BE PLACED IN ACCORDANCE WITH ITEM 209 "CRUSHED AGGREGATE BASE COURSE" AS STATED ON PAGE 82 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THE CRUSHED AGGREGATE BASE COURSE MATERIAL (CA-6) WILL BE USED TO CONSTRUCT A BASE COURSE FOR THE PROPOSED BITUMINOUS BASE COURSE (403). THE CRUSHED AGGREGATE BASE COURSE MATERIAL WILL BE 4" IN DEPTH AND COMPACTED TO NOT LESS THAN 100 PERCENT DENSITY.

THE PROPOSED AGGREGATE FOR THE BASE COURSE MATERIAL SHALL MEET THE REQUIREMENTS OF GRADATION "B" IN TABLE 1 OF THE SUPPLEMENTAL SPECIFICATIONS.

209-3.3 PLACING AND SPREADING. ADD THE FOLLOWING PARAGRAPHS TO THIS SECTION:

"PROVISIONS SHALL BE MADE BY THE CONTRACTOR FOR FURNISHING WATER AT THE PLANT AND AT THE SITE OF THE WORK BY EQUIPMENT OF AMPLE CAPACITY AND OF SUCH DESIGN AS TO ASSURE UNIFORM MIXING AND APPLICATION."

THE CONTRACTOR WILL PROVIDE THE RESIDENT ENGINEER A PROCTOR CURVE SHOWING OPTIMUM DENSITY AND MOISTURE FOR THE SUPPLIED BASE COURSE MATERIAL.

THE COMPACTION CONTROL TEST TO BE USED SHALL BE FAA COMPACTION CONTROL TEST T-611 FOR AIRCRAFT WEIGHING LESS THAN 60,000 LBS.

209-5.1. PAYMENT WILL BE MADE UNDER:

AR209510 CRUSHED AGGREGATE BASE COURSE --- PER TON.

403-BITUMINOUS BASE COURSE-METHOD II, SUPERPAVE NOTES

THE BITUMINOUS BASE COURSE (403) SHALL BE PLACED IN ACCORDANCE WITH ITEM AR403614 "BITUMINOUS BASE COURSE-METHOD II, SUPERPAVE" AS STATED ON PAGE 187 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THIS ITEM OF WORK SHALL CONSIST OF CONSTRUCTING TWO LIFTS OF BITUMINOUS BASE COURSE (3-1/2 INCHES AND 3 INCHES IN DEPTH) ON THE PROPOSED CRUSHED AGGREGATE BASE COURSE FOR THE PROPOSED RUNWAY EXTENSION.

THE PROPOSED BITUMINOUS BASE COURSE WILL BE DESIGNED TO A SUPERPAVE DESIGN FOR AIRCRAFT WEIGHING LESS THAN 60,000 POUNDS.

403-6.1 PAYMENT WILL BE MADE UNDER:

AR403613 BIT. BASE CSE.-METHOD I, SUPERPAVE --- PER TON.
AR403630 BITUMINOUS BASE TEST SECTION --- PER EACH.

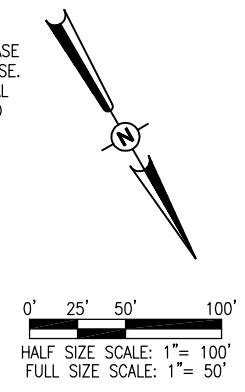
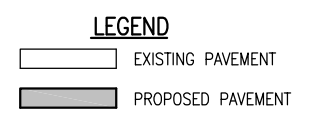
602-BITUMINOUS PRIME COAT NOTES:

THE BITUMINOUS PRIME COAT (602) SHALL BE PLACED IN ACCORDANCE WITH ITEM AR602 "BITUMINOUS PRIME COAT" AS STATED ON PAGE 247 OF THE STANDARD SPECIFICATION FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THE PROPOSED BITUMINOUS PRIME COAT SHALL BE PLACED ON THE PROPOSED AGGREGATE BASE COURSE PRIOR TO THE PLACEMENT OF THE FIRST LIFT OF PROPOSED BITUMINOUS BASE COURSE. THE PROPOSED AGGREGATE BASE COURSE SHALL HAVE A PRIME COAT OF BITUMINOUS MATERIAL APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS.

THE PROPOSED BITUMINOUS PRIME COAT WILL BE PAID FOR UNDER ITEM:

AR602510 BITUMINOUS PRIME COAT ____ PER GAL.



AR401613 BITUMINOUS SURFACE COURSE-METHOD 1, SUPERPAVE

THE BITUMINOUS SURFACE COURSE (401) SHALL BE PLACED IN ACCORDANCE WITH ITEM AR401613 "BITUMINOUS SURFACE COURSE-METHOD 1, SUPERPAVE" AS STATED ON PAGE 127 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THIS ITEM OF WORK SHALL CONSIST OF CONSTRUCTING 1 LIFTS OF BITUMINOUS SURFACE COURSE-METHOD 1, SUPERPAVE (1-1/2 INCH DEPTH EACH) ON THE BITUMINOUS BASE COURSE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE QUALITY CONTROL IN THE PRODUCTION AND CONSTRUCTION OF THE BITUMINOUS SURFACE COURSE METHOD 1, SUPERPAVE.

PRIOR TO STARTING THE BITUMINOUS SURFACE COURSE-METHOD 1, SUPERPAVE OPERATION, THE CONTRACTOR SHALL SUBMIT TO THE RESIDENT ENGINEER A DETAILED OUTLINE SHOWING AREAS AND ORDER OF PAVING WIDTHS OF PAVING LANES, AND REQUIRED OFFSETS FOR ELECTRONIC GRADE.

THE PROPOSED BITUMINOUS SURFACE COURSE METHOD 1, SUPERPAVE WILL BE DESIGNED TO A SUPERPAVE DESIGN FOR AN AIRCRAFT WEIGHING LESS THAN 60,000 POUNDS.

401-4.9 ADD THE FOLLOWING TO THIS SECTION:

WHEN HAND SPREADING IS PERMITTED, THE MIXTURE WILL BE DISTRIBUTED AND SPREAD USING HAND TOOLS. WHEN THE WORK IS COMPLETED, THE LAYER WILL HAVE THE REQUIRED THICKNESS AND CONFORM TO THE GRADE AND SURFACE CONTOUR SHOWN ON THE PLANS.

401-4.12 ADD THE FOLLOWING TO THIS PARAGRAPH:

ALL PAVEMENT EDGES (LONGITUDINAL, RADIUS, AND PAVEMENT ENDS) MUST BE LEFT IN PROPER ALIGNMENT AS SHOWN ON THE PLANS. THIS MAY BE ACCOMPLISHED BY THE TRIMMING METHOD OUTLINED ABOVE OR AT THE CONTRACTOR'S OPTION BY SAWING AFTER THE PAVING HAS BEEN COMPLETED. NO ADDITIONAL COMPENSATION WILL BE MADE IF THE SAWING METHOD IS USED.

401-6.1 PAYMENT WILL BE MADE UNDER:

AR401613 BIT. SURF. CSE.-METHOD I, SUPERPAVE --- PER TON.

603-BITUMINOUS TACK COAT NOTES:

THE BITUMINOUS TACK COAT (603) SHALL BE PLACED IN ACCORDANCE WITH ITEM AR603 "BITUMINOUS TACK COAT" AS STATED ON PAGE 250 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THE PROPOSED BITUMINOUS TACK COAT SHALL BE PLACED ON THE PROPOSED BITUMINOUS PAVEMENT PRIOR TO THE PLACEMENT OF THE NEXT LIFT OF PROPOSED BITUMINOUS SURFACE COURSE. THE PROPOSED BITUMINOUS PAVEMENT SHALL HAVE A TACK COAT OF BITUMINOUS MATERIAL APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS.

THE PROPOSED BITUMINOUS TACK COAT WILL BE PAID FOR UNDER ITEM:
AR603510 BITUMINOUS TACK COAT --- PER GAL.

155-LIME-MODIFIED SUBGRADE NOTES:

THE PROPOSED LIME-MODIFIED SUBGRADE SHALL BE COMPLETED IN ACCORDANCE WITH ITEM 155 "LIME TREATED SUBGRADE" AS STATED ON PAGE 68 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THIS ITEM OF WORK SHALL CONSIST OF CONSTRUCTING A 12" DEEP COURSE OF A MIXTURE OF SOIL, LIME AND WATER IN ACCORDANCE WITH THE RATES AND METHODS DESIGNED IN THE SPECIFICATIONS (EITHER THE WET OR DRY METHODS IS ACCEPTABLE).

THE SUBGRADE WILL BE CUT PRIOR TO LIME-MODIFICATION.

ANY SWELL WILL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF ON THE AIRPORT SITE AS DIRECTED BY THE RESIDENT ENGINEER. NO ADDITIONAL PAYMENT WILL BE MADE FOR REMOVAL OF SWELL.

THE LIME-MODIFIED SUBGRADE SHALL BE CUT TO FINISHED ELEVATION UPON COMPLETION (0.05+) IN ACCORDANCE TO SECTION 152-2.11 OF THE SPECIFICATIONS. THE LIME-MODIFIED SUBGRADE WILL BE WET CURED FOR 2 DAYS.

THE CONTRACTOR WILL LIME-MODIFY THE SUBGRADE FROM THE CENTERLINE TO 1' OUTSIDE OF THE PROPOSED PAVEMENT SURFACE ON BOTH SIDES.

THE LIME-MODIFIED SUBGRADE WILL BE COMPACTED IN ACCORDANCE WITH PROCEDURES FOR AIRCRAFT WEIGHING LESS THAN 60,000 POUNDS.

THE ENTIRE THICKNESS OF THE TREATED SUBGRADE SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN (95 PERCENT OF THE STANDARD DRY DENSITY (92 PERCENT OF THE MODIFIED DRY DENSITY).

THE LIME, BY-PRODUCT LIME (CODE L), WAS CALCULATED AT 6% OF THE DRY SOIL WEIGHT AT MAXIMUM DENSITY. THE ACTUAL AMOUNT WILL BE DETERMINED PRIOR TO THE START OF CONSTRUCTION, BUT SHALL NOT EXCEED 6% BY WEIGHT. THE COST OF LIME WILL BE PAID FOR UNDER ITEM AR155540.

THE SOIL TEST INDICATES AN AVERAGE SOIL WEIGHT OF 112.7 POUNDS PER CUBIC FOOT. THEREFORE, THE MAXIMUM TONNAGE OF LIME WILL BE 248 TONS.

THE PROPOSED LIME-MODIFIED SUBGRADE WILL BE PAID FOR UNDER ITEMS:
AR155540 BY-PRODUCT LIME _____ PER TONS
AR155612 SOIL PROCESSING-12" _____ PER S.Y.

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223
BLOCK GRANT PROJ.: 3-17-0059-B15

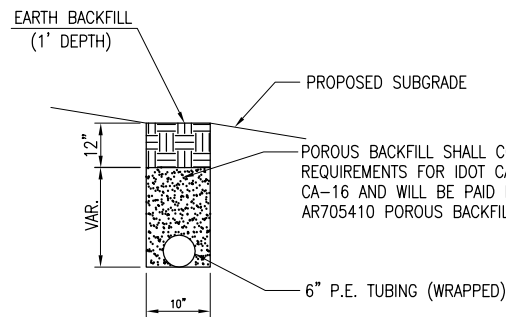
Hanson Proj. No. 10A00051	Filename R-121CON.DWG	Scale 1"=50'	Date 12/14/12
LAYOUT	BAK	07/15/10	
DRAWN	BAK	07/15/10	
REVIEWED	CAH	03/30/11	

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED CONSTRUCTION
PLAN

JAN 10, 2013 2:58 PM KINC400394
E:\AIRPORTS\MARSHALL\0A0051\AIRPORT\ SHEETS\ R-121CON.DWG



UNDERDRAIN DETAIL
NOT TO SCALE

705-UNDERDRAIN NOTES:

THE PROPOSED UNDERDRAIN PIPE WILL BE CONSTRUCTED IN ACCORDANCE WITH ITEM 705 "PIPE UNDERDRAINS FOR AIRPORTS" AS STATED ON PAGE 305 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING 6" P.E. TUBING (WRAPPED) AND UNDERDRAIN INSPECTION HOLES AT THE LOCATIONS AND TO THE GRADES SHOWN ON THE CONSTRUCTION PLANS.

705-3.3 LAYING AND INSTALLING PIPE. REVISE THIS SECTION AS FOLLOWS:

"PIPE DRAINS SHALL BE INSTALLED AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE. THE PIPE SHALL BE BEDDED IN THE UNDERLYING MATERIAL TO A DEPTH NOT LESS THAN 10 PERCENT OF THE EXTERNAL DIAMETER OF THE PIPE, AND WHERE TRENCHING IS REQUIRED, THE TRENCH SHALL HAVE A WIDTH OF NOT LESS 10 IN. THE BOTTOM OF THE TRENCH SHALL BE COMPACTED IN A MANNER MEETING THE APPROVAL OF THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE.

JOINTS AND FITTINGS MAY BE ASSEMBLED WITHOUT GASKETS OR SOLVENT CEMENT IF THE JOINT IS SAND TIGHT AND THE SPIGOT ENTERS THE SOCKET NOT LESS THAN 1/3 OF THE SOCKET DEPTH FOR SOLVENT CEMENT JOINTS AND FULL-DEPTH FOR ELASTOMERIC GASKET JOINTS.

NO PIPE SHALL BE PLACED IN THE TRENCH UNTIL IT AND THE PREPARED FOUNDATION HAVE BEEN APPROVED BY THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE. THE PIPE SHALL BE LAID SO THAT THE FLOWLINE WILL BE AT THE GRADE SHOWN ON THE PLANS OR ESTABLISHED BY THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE. THE PERMISSIBLE MINIMUM COVER OVER A PIPE SHALL BE 6 IN.

LAYING OF PIPES SHALL COMMENCE AT THE OUTLET END AND PROCEED TOWARD THE INLET END WITH THE PIPES TRUE TO LINE AND GRADE.

THE ENDS OF THE PIPE SHALL BE CAREFULLY CLEANED BEFORE THEY ARE PLACED, AND SHALL BE PLACED TO AVOID UNNECESSARY HANDLING ON THE FOUNDATION. AS EACH LENGTH OF PIPE IS LAID, THE ENDS OF THE PIPE SHALL BE PROTECTED TO PREVENT THE ENTRANCE OF ANY MATERIAL.

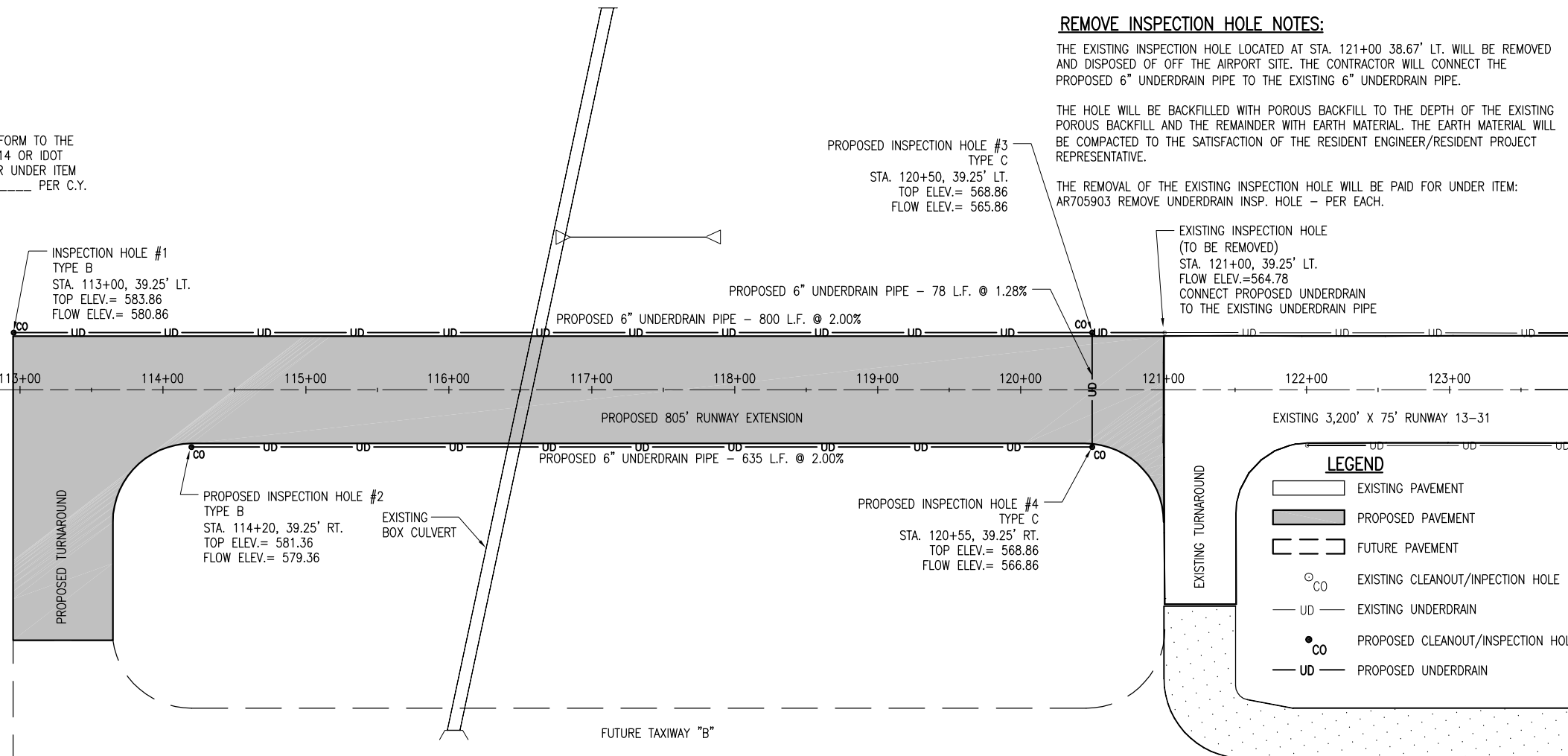
LONGITUDINAL LAPS SHALL BE PLACED AT THE SIDES AND SEPARATE SECTIONS OF PIPE SHALL BE JOINED WITH TIGHTLY-DRAWN, APPROVED CONNECTING BANDS.

THE TRENCH SHALL BE BACKFILLED WITH SELECT MATERIAL, MEETING THE APPROVAL OF THE ENGINEER, PLACED IN 8 IN. LAYERS, LOOSE MEASUREMENT, AND COMPACTED TO THE RESIDENT ENGINEER'S/RESIDENT PROJECT REPRESENTATIVE SATISFACTION. THE PIPE UNDER PROPOSED PAVEMENT, PLUS 5 FT ON EITHER SIDE, WILL BE BACKFILLED WITH POROUS BACKFILL TO THE ORIGINAL GROUND ELEVATIONS.

705-3.6 BACKFILLING; ADD THE FOLLOWING TO THIS SECTION:

"THE EDGE DRAIN TRENCH WILL BE BACKFILLED WITH POROUS BACKFILL IN ACCORDANCE WITH THE DETAIL ON THE CONSTRUCTION PLANS. THE POROUS BACKFILL WILL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATION SET FORTH FOR GRANULAR MATERIAL BACKFILL."

THE PROPOSED UNDERDRAIN PIPE WILL BE PAID FOR UNDER ITEMS:
AR705410 POROUS BACKFILL PER C.Y.
AR705526 6" PERFORATED UNDERDRAIN W/SOCK PER L.F.
AR705630 UNDERDRAIN INSPECTION HOLE PER EACH



REMOVE INSPECTION HOLE NOTES:

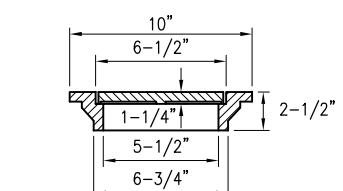
THE EXISTING INSPECTION HOLE LOCATED AT STA. 121+00 38.67' LT. WILL BE REMOVED AND DISPOSED OF OFF THE AIRPORT SITE. THE CONTRACTOR WILL CONNECT THE PROPOSED 6" UNDERDRAIN PIPE TO THE EXISTING 6" UNDERDRAIN PIPE.

THE HOLE WILL BE BACKFILLED WITH POROUS BACKFILL TO THE DEPTH OF THE EXISTING POROUS BACKFILL AND THE REMAINDER WITH EARTH MATERIAL. THE EARTH MATERIAL WILL BE COMPACTED TO THE SATISFACTION OF THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE.

THE REMOVAL OF THE EXISTING INSPECTION HOLE WILL BE PAID FOR UNDER ITEM: AR705903 REMOVE UNDERDRAIN INSP. HOLE - PER EACH.

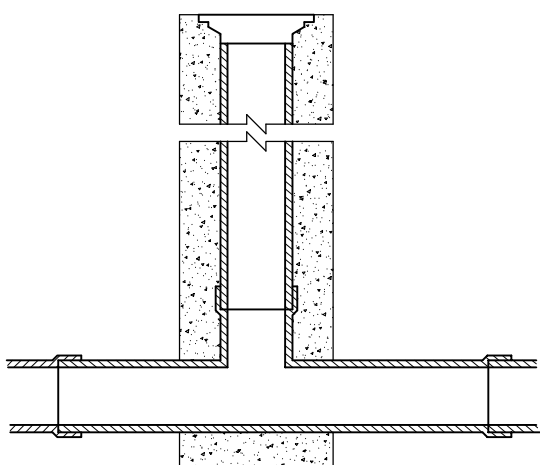
LEGEND

- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- FUTURE PAVEMENT
- EXISTING CLEANOUT/INSPECTION HOLE
- EXISTING UNDERDRAIN
- PROPOSED CLEANOUT/INSPECTION HOLE
- PROPOSED UNDERDRAIN

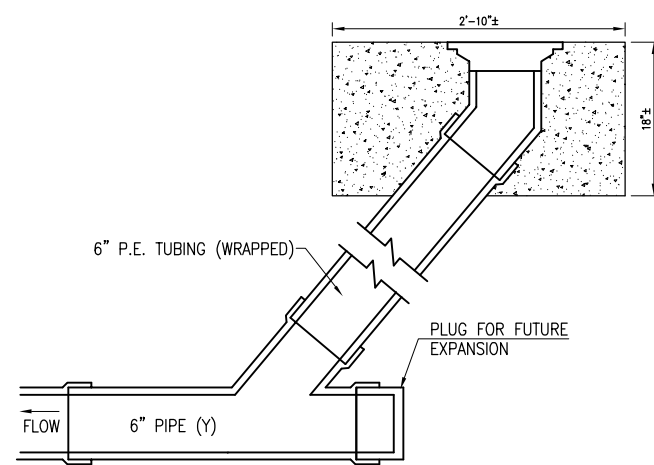


CAST IRON FRAME AND COVER

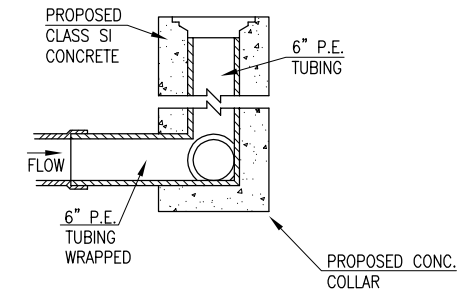
NEENAH R-6013, DEETER 1810,
EAST JORDAN 2790-6 OR
APPROVED EQUAL



INSPECTION HOLE-TYPE A



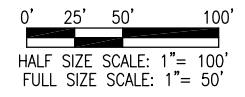
CLEANOUT HOLE-TYPE B



TYPE C INSPECTION HOLE DETAIL
"NOT TO SCALE"

INSPECTION HOLE NOTES

- DIAMETER OF PIPE AS SPECIFIED.
- TOP OF INSPECTION HOLES SHALL BE 2" ABOVE FINISH GROUND LINE AT LOCATION SHOWN ON PLANS.
- 1/2" CHAMFER TO BE USED ON ALL EXPOSED EDGES OF INSPECTION HOLES.
- THE CONCRETE SHALL BE STRUCTURAL PORTLAND CEMENT CONCRETE (NON-REINFORCED)



REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223
BLOCK GRANT PROJ.: 3-17-0059-B15

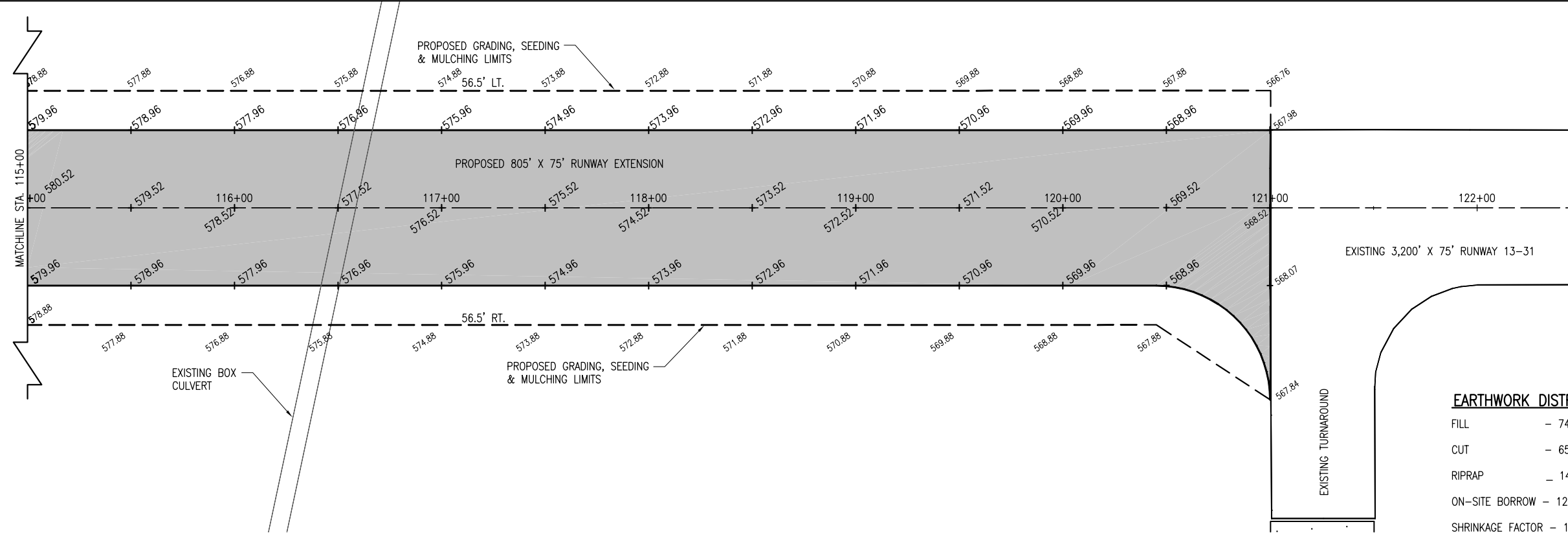
Hanson Proj. No. 10A00051	BAK	07/09/10
Filename: R-131DRN.DWG	BAK	07/09/10
Scale: 1"=50'	BAK	07/09/10
Date: 12/14/12	CAH	
LAYOUT		
DRAWN		
REVIEWED		

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED DRAINAGE PLAN

JAN 10, 2013 3:01 PM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\R-131DRN.DWG



EARTHWORK DISTRIBUTION

FILL	- 747 C.Y.
CUT	- 658 C.Y.
RIPRAP	- 148 C.Y.
ON-SITE BORROW	- 128 C.Y.
SHRINKAGE FACTOR	- 1.25%

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

ILL. PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A00051	Filename R-191STK.DWG	Scale 1" = 30'	Date 12/14/12
LAYOUT	MDR	03/01/11	
DRAWN	MDR	03/01/11	
REVIEWED	CAH	03/30/11	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED STAKING PLAN

EARTH FILLETS

EARTH FILLETS WILL BE CONSTRUCTED ADJACENT TO ALL PAVEMENT OVERLAY AREAS. THE EARTH FILLETS ARE SHOWN ON THE CROSS-SECTIONS AND THE STAKING PLAN SHEETS AS THE PROPOSED GRADING, SEEDING AND MULCHING LIMITS. A 1-1/2 INCH DROP SHALL BE MAINTAINED FROM THE PAVEMENT EDGE TO THE EARTH SHOULDER. THE EARTH FILLETS WILL NOT REQUIRE COMPACTING OR GRADING, OTHER THAN LIGHT ROLLING AND SHAPING. THE MATERIAL FOR THE PROPOSED EARTH FILLETS WILL BE OBTAINED FROM OFF-SITE.

THE MATERIAL FOR THE PROPOSED EARTH FILLETS WILL BE PAID FOR UNDER: ITEM AR152410 "UNCLASSIFIED EXCAVATION" PER CUBIC YARD.

QUANTITY OF UNCLASSIFIED EXCAVATION _____ 658 CU.YDS.

MULCHING DATA

ALL EARTHEN AREAS WITHIN THE GRADING LIMITS WILL BE MULCHED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS

THE PROPOSED MULCHING WILL BE PAID FOR UNDER: AR908510 "MULCHING" --- PER ACRE.

AREA TO BE MULCHED _____ 0.8 ACRES

DATE MULCHING COMPLETED _____

TEMPORARY SEEDING DATA

THE GRADING LIMITS ARE SHOWN ON THE STAKING PLAN SHEETS BY A HEAVY DASHED LINE (_ _ _). ALL AREAS WITHIN THESE LIMITS, EXCEPT THE PROPOSED PAVEMENT, SHALL BE LIMED, FERTILIZED AND SEEDDED IN ACCORDANCE WITH THE FOLLOWING FORMULA AND RATES OF APPLICATION.

SEEDING (MINIMUM POUNDS OF PURE LIVE SEED PER ACRE)
 PERENNIAL RYEGRASS _____ 50
 SPRING OATS* _____ 64
 *OTHER SEEDS MAY BE USED IF APPROVED BY THE ENGINEER.
 AREA TO BE SEEDDED _____ 1.0 ACRES

DATE SEEDING COMPLETED _____

THE PROPOSED TEMPORARY SEEDING WILL BE PAID FOR UNDER: AR156530 "TEMPORARY SEEDING" --- PER ACRE.

LEGEND

- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- FUTURE PAVEMENT
- PROPOSED GRADING AND SEEDING LIMITS
- EXISTING GRADE
- PROPOSED GRADE

SEEDING DATA

THE GRADING LIMITS ARE SHOWN ON THE STAKING PLAN SHEETS BY A HEAVY DASHED LINE (_ _ _). ALL AREAS WITHIN THESE LIMITS, EXCEPT THE PROPOSED PAVEMENT, SHALL BE LIMED, FERTILIZED AND SEEDDED IN ACCORDANCE WITH THE FORMULA AND RATES OF APPLICATION AS STATED IN THE STANDARD SPECIFICATIONS.

DATE SEEDING COMPLETED _____

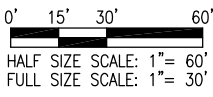
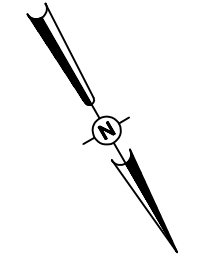
THE PROPOSED SEEDING WILL BE PAID FOR UNDER: AR901510 "SEEDING" --- PER ACRE.

EROSION CONTROL BLANKET NOTES

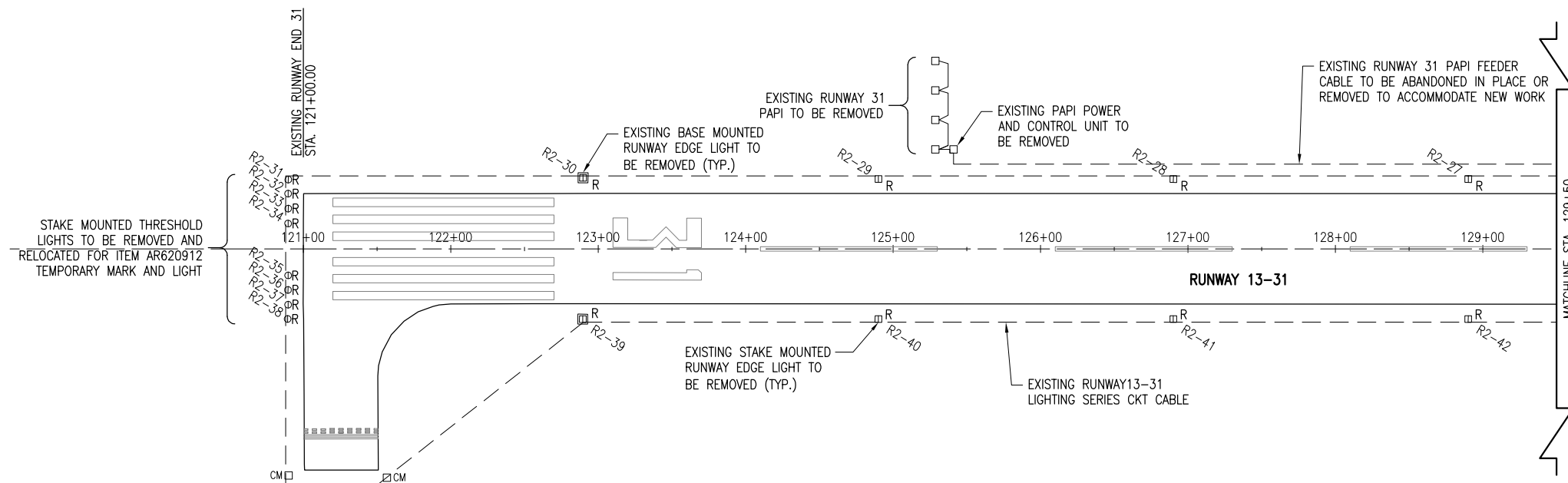
AN EROSION CONTROL MATERIAL (KNITTED STRAW MAT) 4' IN WIDTH WILL BE INSTALLED ALONG THE SHOULDER OF ALL PAVEMENTS WITH IN THE GRADING AND SEEDING LIMITS SHOWN ON THESE CONSTRUCTION PLAN SHEETS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

AREA TO RECEIVE EROSION CONTROL BLANKET _ _ _ 877 S.Y.

THIS ITEM OF WORK SHALL BE PAID FOR UNDER: ITEM AR156531 "EROSION CONTROL BLANKET" --- PER S.Y.



JAN 10, 2013 3:03 PM KINC400394
 E:\AIRPORTS\MARSHALL\MA025\AIRPORT SHEETS\R-191STK.DWG



LIGHT REMOVAL NOTES

1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT DIRECTOR/MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
2. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING OR DISCONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, OR OTHER DEVICE.
3. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2F (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION".
4. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
5. THE EXISTING THRESHOLD LIGHTS DESIGNATED FOR REMOVAL SHALL BE REMOVED AND RELOCATED FOR USE WITH ITEM AR620912 TEMPORARY MARK AND LIGHT. WHEN THE TEMPORARY THRESHOLD IS REMOVED THE LIGHTS AND THEIR ISOLATING TRANSFORMERS SHALL BE TURNED OVER TO THE AIRPORT MANAGER. REMOVAL AND RELOCATION OF THE EXISTING THRESHOLD LIGHTS WILL BE PAID FOR UNDER ITEM AR620912 TEMPORARY MARK AND LIGHT, PER LUMP SUM.
6. THE CONTRACTOR IS ENCOURAGED TO INSPECT EACH EXISTING LIGHT PRIOR TO RELOCATION AND IDENTIFY TO THE RESIDENT ENGINEER ANY DAMAGED OR INOPERABLE PARTS. ONCE THE EXISTING LIGHT IS REMOVED, THE CONTRACTOR IS RESPONSIBLE FOR ALL FIXTURES DAMAGED DURING THE RELOCATION. ALL LIGHTS WILL BE REINSTALLED IN PROPER WORKING ORDER, OR REPLACED AT THE CONTRACTOR'S EXPENSE.
7. THE EXISTING AIRFIELD LIGHTS AND THEIR ISOLATED TRANSFORMERS DESIGNATED FOR REMOVAL SHALL BE REMOVED AND TURNED OVER TO THE AIRPORT. THE CONCRETE LIGHT BASES SHALL BE REMOVED AND DISPOSED OF OFF THE AIRPORT SITE IN A LEGAL MANNER. REMOVAL OF THE THE EXISTING AIRFIELD LIGHTS WILL BE PAID FOR UNDER ITEM AR125901 REMOVE STAKE MOUNTED LIGHT, PER EACH AND AR125902 REMOVE BASE MOUNTED LIGHT, PER EACH.
8. THE EXISTING AIRFIELD LIGHTING CABLES ASSOCIATED WITH THE AIRFIELD LIGHTING REMOVALS SHALL BE ABANDONED IN PLACE UNLESS IT CONFLICTS WITH THE INSTALLATION OF THE 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.
9. ALL ABOVEGROUND JUMPERS SHALL BE IN A DUCT WITH ALL CONNECTIONS SEALED. THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT, OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA 150/5370-2F, OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION, SECTION 218, PARAGRAPH C.
10. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

PAPI REMOVAL NOTES

1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT DIRECTOR / MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
2. POWER FOR THE PAPI SYSTEM SHALL BE DISCONNECTED AT THE RESPECTIVE POWER SOURCE PRIOR TO DISCONNECTING AND REMOVING THE PAPI SYSTEM. POWER FOR THE EXISTING PAPI SYSTEM LOCATED ON RUNWAY 31 IS UNDERSTOOD TO BE POWERED FROM THE AIRPORT ELECTRICAL VAULT. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS AND CONFIRM POWER SOURCE FOR THE PAPI SYSTEM.
3. THE EXISTING PAPI AND POWER & CONTROL UNIT SHOWN TO BE REMOVED ARE TO BE UNBOLTED, REMOVED AND TURNED OVER TO THE AIRPORT MANAGER. THE EXISTING PAPI CONCRETE BASES ARE TO BE REMOVED TO THEIR FULL DEPTH AND DISPOSED OF OFF THE AIRPORT SITE.
4. THE HOLES LEFT FROM THE REMOVAL OF PAPI BASES AND POWER & CONTROL UNIT SHALL BE FILLED IN WITH EARTH AND COMPACTED TO PREVENT FUTURE SETTLEMENT. THE DISTURBED AREAS SHALL BE FERTILIZED AND SEEDED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
5. THE EXISTING PAPI CABLES WILL BE ABANDONED IN PLACE UNLESS IT CONFLICTS WITH THE INSTALLATION OF A PROPOSED LIGHT OF CABLE, PAVEMENT, OR OTHER WORK, THEN IT SHALL BE REMOVED AT NO ADDITIONAL COST TO THE CONTRACT.
6. AN EXISTING PAPI UNIT CONSISTS OF THE PAPI LIGHT HOUSINGS AND PAPI POWER & CONTROL UNIT.
7. REMOVAL OF THE EXISTING PAPI UNITS WILL BE PAID FOR UNDER ITEM:
AR125908 "REMOVE PAPI" PER EACH

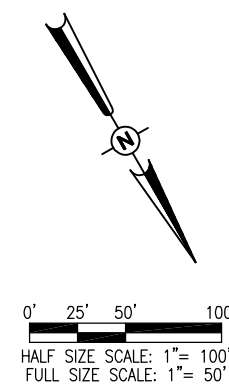
QUANTITY OF PAPI UNITS TO BE REMOVED -----1 EACH.
8. NO CONNECTION TO AN ACTIVE LIGHTING, NAVAID, OR OTHER CIRCUIT SHALL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

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

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

LEGEND

- EXISTING PAVEMENT
- EXISTING STAKE MOUNTED RUNWAY LIGHT (TO BE REMOVED)
- EXISTING BASE MOUNTED RUNWAY LIGHT (TO BE REMOVED)
- EXISTING STAKE MOUNTED THRESHOLD LIGHT (TO BE RELOCATED AS PART OF TEMPORARY MARKING AND LIGHTING)
- EXISTING CABLE MARKER
- EXISTING ELECTRICAL CABLES



REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

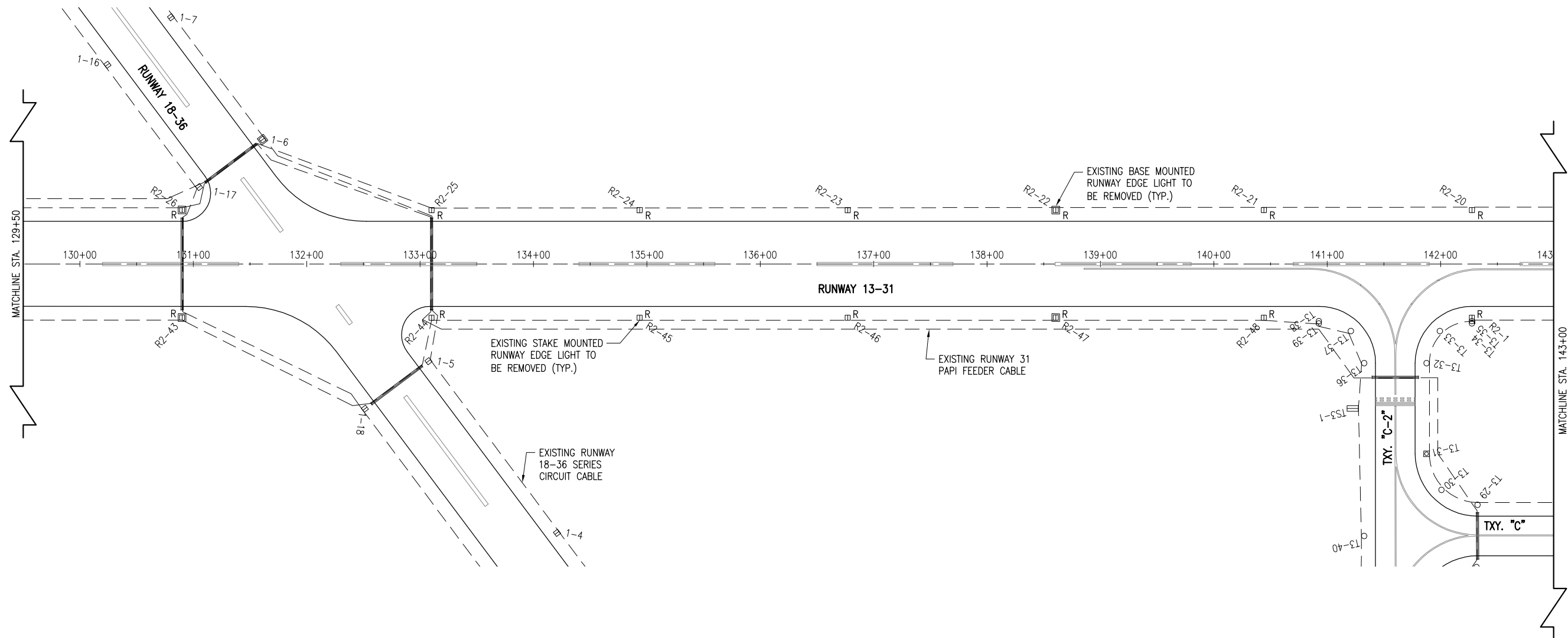
Hanson Proj. No. 10A0051	Filename R-141ELE.DWG	Scale 1"=50'	Date 12/14/12
LAYOUT	KNL/MLH	07/15/10	
DRAWN	MLH	08/30/10	
REVIEWED	CAH/KNL	03/30/11	

HANSON
© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

EXISTING ELECTRICAL PLAN
STA. 120+90 TO STA. 129+50

JAN 10, 2013 3:07 PM KINC400394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\R-141ELE.DWG

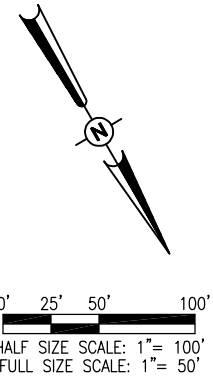


THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY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

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

LEGEND

- EXISTING PAVEMENT
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED RUNWAY LIGHT (TO BE REMOVED)
- EXISTING BASE MOUNTED RUNWAY LIGHT (TO BE REMOVED)
- EXISTING STAKE MOUNTED TAXIWAY LIGHT
- EXISTING BASE MOUNTED TAXIWAY LIGHT
- EXISTING TAXI GUIDANCE SIGN
- EXISTING CABLE MARKER
- EXISTING ELECTRICAL CABLES
- EXISTING ELECTRICAL DUCT



JAN. 10. 2013 3:10 PM KINC400394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\141ELE.DWG

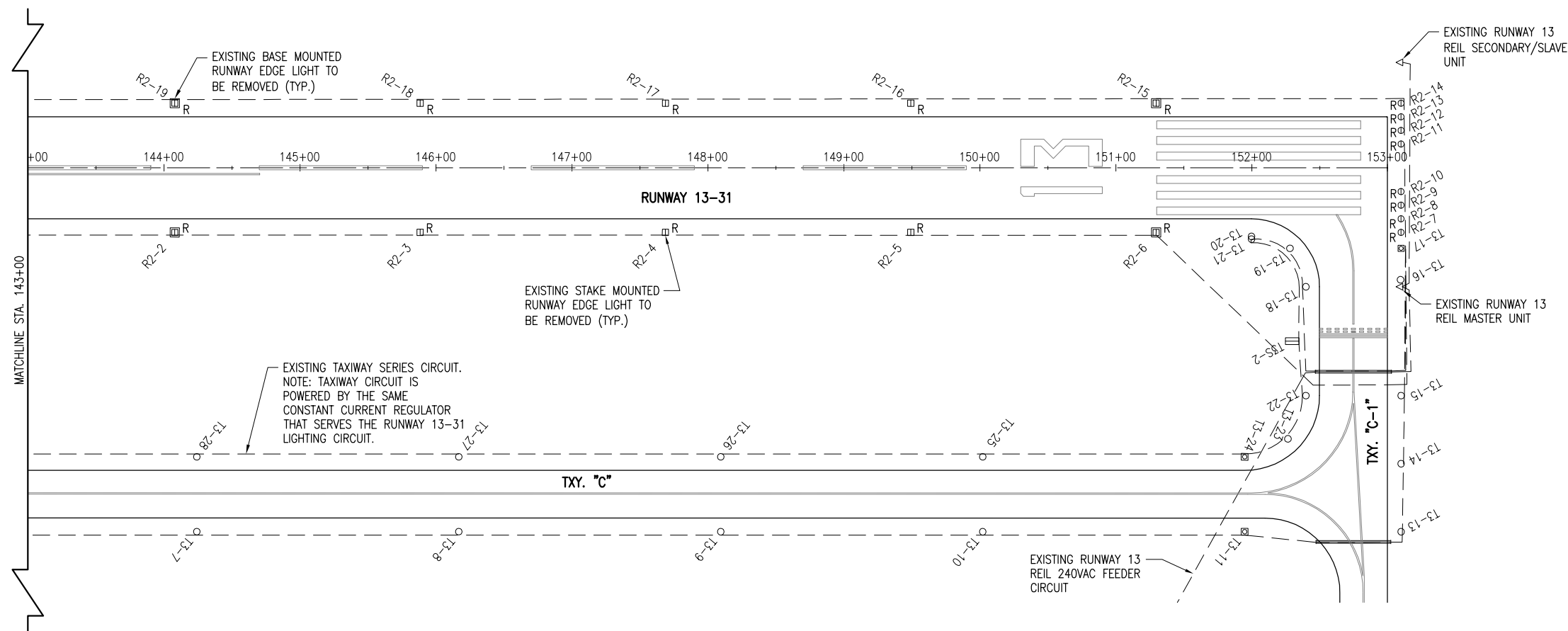
REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename R-141ELE.DWG	Scale 1"=50'	Date 12/14/12
LAYOUT	KNL/MLH	07/15/10	
DRAWN	MLH	08/30/10	
REVIEWED	CAH/KNL	03/30/11	

© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2866
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION
 EXISTING ELECTRICAL PLAN
 STA. 129+50 TO STA. 143+00



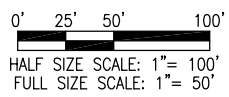
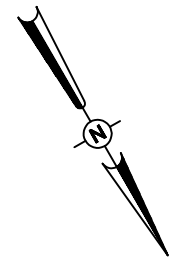
MATCHLINE STA. 143+00

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

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

LEGEND

- EXISTING PAVEMENT
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED RUNWAY LIGHT (TO BE REMOVED)
- EXISTING BASE MOUNTED RUNWAY LIGHT (TO BE REMOVED)
- EXISTING STAKE MOUNTED THRESHOLD LIGHT (TO BE REMOVED)
- EXISTING STAKE MOUNTED TAXIWAY LIGHT
- EXISTING BASE MOUNTED TAXIWAY LIGHT
- EXISTING TAXI GUIDANCE SIGN
- EXISTING CABLE MARKER
- EXISTING ELECTRICAL CABLES
- EXISTING ELECTRICAL DUCT



REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

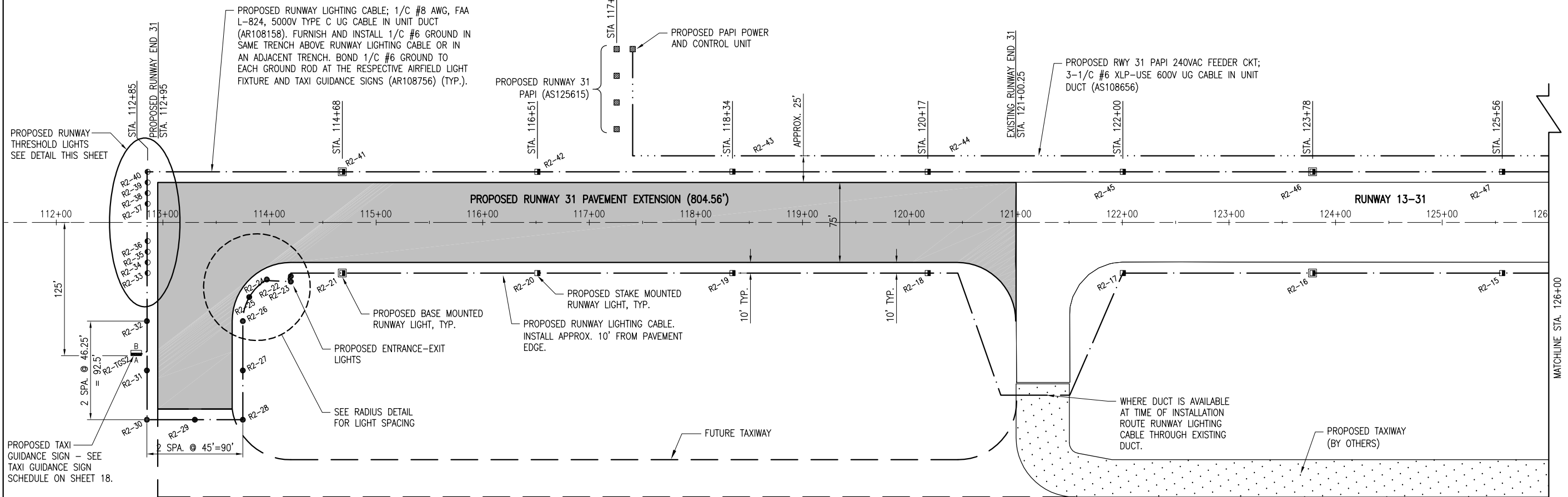
IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename R-141ELE.DWG	Scale 1"=50'	Date 12/14/12
LAYOUT	KNL/MLH	07/15/10	
DRAWN	MLH	08/30/10	
REVIEWED	CAH/KNL	03/30/11	

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

**PAVE, LIGHT AND MARK
805' EXTENSION**

EXISTING ELECTRICAL PLAN
STA. 143+00 TO STA. 153+10



PROPOSED TAXI GUIDANCE SIGN - SEE TAXI GUIDANCE SIGN SCHEDULE ON SHEET 18.

PROPOSED RUNWAY LIGHTING CABLE; 1/C #8 AWG, FAA L-824, 5000V TYPE C UG CABLE IN UNIT DUCT (AR108158). FURNISH AND INSTALL 1/C #6 GROUND IN SAME TRENCH ABOVE RUNWAY LIGHTING CABLE OR IN AN ADJACENT TRENCH. BOND 1/C #6 GROUND TO EACH GROUND ROD AT THE RESPECTIVE AIRFIELD LIGHT FIXTURE AND TAXI GUIDANCE SIGNS (AR108756) (TYP.).

PROPOSED PAPI POWER AND CONTROL UNIT

PROPOSED RWY 31 PAPI 240VAC FEEDER CKT; 3-1/C #6 XLP-USE 600V UG CABLE IN UNIT DUCT (AS108656)

LIGHT LENS SCHEDULE

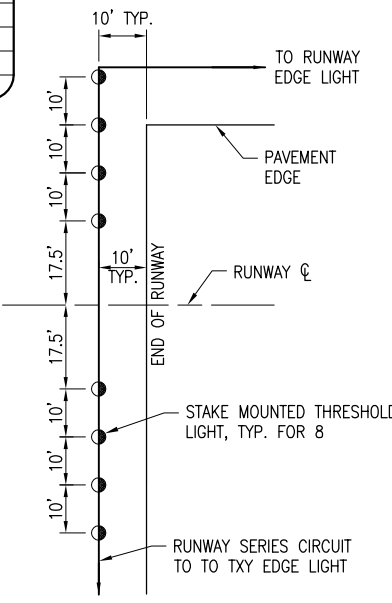
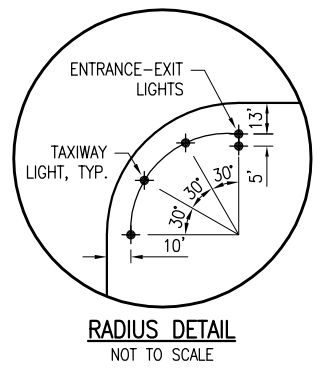
LIGHT NUMBERS	LENS	ORIENTATION	FIXTURE TYPE
R2-1 TO R2-11	CLEAR WHITE/YELLOW	YELLOW SIDE FACING SOUTHEAST (TOWARD RUNWAY 31 APPROACH)	L-861 OR L-861(L)
R2-12 TO R2-21	CLEAR WHITE/YELLOW	YELLOW SIDE FACING NORTHWEST (TOWARD RUNWAY 13 APPROACH)	L-861 OR L-861(L)
R2-22 TO R2-32	BLUE	---	L-861T(L)
R2-33 TO R2-40	RED/GREEN	GREEN SIDE FACING SOUTHEAST (TOWARD RUNWAY 31 APPROACH)	L-861E OR L-861E(L)
R2-41 TO R2-50	CLEAR WHITE/YELLOW	YELLOW SIDE FACING NORTHWEST (TOWARD RUNWAY 13 APPROACH)	L-861 OR L-861(L)
R2-51 TO R2-61	CLEAR WHITE/YELLOW	YELLOW SIDE FACING SOUTHEAST (TOWARD RUNWAY 31 APPROACH)	L-861 OR L-861(L)
R2-62 TO R2-69	RED/GREEN	GREEN SIDE FACING NORTHWEST (TOWARD RUNWAY 13 APPROACH)	L-861E OR L-861E(L)

LEGEND

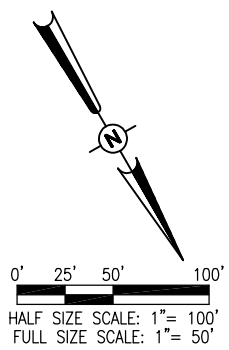
- [Symbol] EXISTING PAVEMENT
- [Symbol] PROPOSED PAVEMENT
- [Symbol] PROPOSED TAXIWAY (BY OTHERS)
- [Symbol] FUTURE TAXIWAY
- [Symbol] PROPOSED ELECTRICAL DUCT
- [Symbol] EXISTING ELECTRICAL DUCT
- [Symbol] EXISTING ELECTRICAL CABLE
- [Symbol] PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT
- [Symbol] PROPOSED 3-1/C #6 XLP-USE 600V UG CABLE IN UNIT DUCT
- [Symbol] EXISTING TAXI GUIDANCE SIGN
- [Symbol] EXISTING STAKE MOUNTED TAXIWAY LIGHT
- [Symbol] EXISTING BASE MOUNTED TAXIWAY LIGHT
- [Symbol] EXISTING STAKE MOUNTED RUNWAY LIGHT
- [Symbol] EXISTING BASE MOUNTED RUNWAY LIGHT
- [Symbol] EXISTING ELECTRICAL HANDHOLE OR SPLICE CAN
- [Symbol] EXISTING CABLE MARKER
- [Symbol] PROPOSED STAKE MOUNTED RUNWAY LIGHT
- [Symbol] PROPOSED BASE MOUNTED RUNWAY LIGHT
- [Symbol] PROPOSED STAKE MOUNTED THRESHOLD LIGHT
- [Symbol] PROPOSED STAKE MOUNTED TAXIWAY LIGHT
- [Symbol] PROPOSED TAXI GUIDANCE SIGN

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

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



PROPOSED RUNWAY END 31 THRESHOLD LIGHT DETAIL NOT TO SCALE



REVISION	DATE
1/11/13 RENUMBERED R2-1G52	

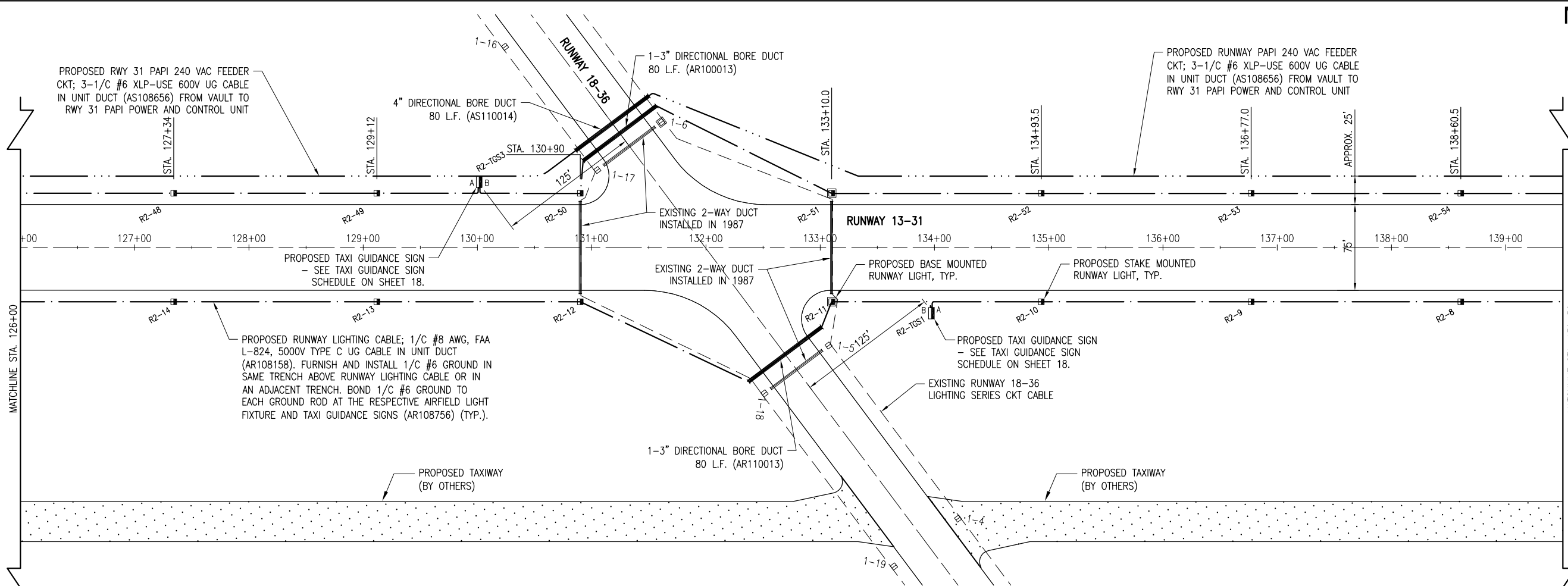
MARSHALL COUNTY AIRPORT
LACON, ILLINOIS
BLOCK GRANT PROJ.: 3-17-0059-B15
ILL. PROJ.: C75-4223
IL PROJ.: C75-4223

DATE	BY	REVIEWED
07/15/10	KNL/MLH	07/15/10
08/30/10	MLH	08/30/10
03/30/11	CAH/KNL	03/30/11

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION
PROPOSED ELECTRICAL PLAN
STA. 112+85 TO STA. 126+00

JAN 11, 2013 11:37 AM K:\NCAD00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\142ELE.DWG



AIRFIELD LIGHTING NOTES

- ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING OR DISCONNECTING THE RESPECTIVE AIRFIELD LIGHTING, NAVAID, OR OTHER DEVICE.
- PROPOSED RUNWAY LIGHTS SHALL BE PLACED 10' (FT.) FROM THE PAVEMENT EDGE UNLESS SHOWN OTHERWISE ON THESE CONSTRUCTION DRAWINGS. PROPOSED TAXI GUIDANCE SIGNS SHALL BE LOCATED SUCH THAT THE CLOSEST SIDE OF THE SIGN IS 15' FROM THE PAVEMENT EDGE, UNLESS SHOWN OTHERWISE.
- PROPOSED RUNWAY LIGHTS, TAXIWAY LIGHTS, GUIDANCE SIGNS, OTHER AIRFIELD LIGHTING, SPLICE CANS, HANDHOLES, MANHOLES, ELECTRICAL DUCTS, AND CABLE SHALL BE INSTALLED AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS, SPECIAL PROVISIONS, RESPECTIVE DETAILS, AND MANUFACTURER'S RECOMMENDATIONS.
- PROPOSED CABLE FOR RUNWAY AND TAXIWAY LIGHTING SHALL BE INSTALLED APPROXIMATELY 10' FROM THE PAVEMENT EDGE. CABLES SHALL BE PLACED A MINIMUM OF 18" BELOW FINISHED GRADE.
- THE PROPOSED RUNWAY AND TAXIWAY LIGHTING CABLE SHALL BE 1/C, #8 AWG, FAA L-824, 5000 VOLT, TYPE C UNDERGROUND CABLE IN UNIT DUCT (AR108158), OR DUCT AS DETAILED HEREIN.
- IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE, THE CONTRACTOR IS REQUIRED TO HAND DIG THE TRENCH NECESSARY FOR THE PROPOSED CABLE. AT OTHER LOCATIONS, THE PROPOSED CABLE MAY BE TRENCHED OR PLOWED INTO PLACE. HAND DIGGING, TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED CABLES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- THE PROPOSED RUNWAY AND THRESHOLD LIGHTS SHALL BE FITTED WITH LENSES IN ACCORDANCE WITH THE LIGHT LENSES SCHEDULE. ALL PROPOSED TAXIWAY LIGHTS SHALL BE L-861T(L) WITH LED (LIGHT EMITTING DIODE) ILLUMINATION AND FITTED WITH 360° BLUE LENSES.
- ALL PROPOSED AIRFIELD LIGHTS SHALL BE TAGGED BY THE CONTRACTOR IN ACCORDANCE WITH THE LIGHT NUMBERS SHOWN ON THESE CONSTRUCTION DRAWINGS.
- SEE "TAXI GUIDANCE SIGN SCHEDULE" AND/OR DETAILS FOR INFO ON SIGN LEGENDS.
- THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA AC 150/5370-2F, PART 218, PARAGRAPH C. ALL LABOR, MATERIALS, AND TIME NECESSARY TO COMPLY WITH THIS REQUIREMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR DUCT SHALL BE RUN TOGETHER IN THE SAME RACEWAY OR DUCT.
- EXISTING AIRFIELD LIGHTING CABLES IN AREAS OF NEW WORK SHALL BE DISCONNECTED & REMOVED WHERE IN CONFLICT WITH NEW CONSTRUCTION. IN OTHER AREAS CABLES MAY BE ABANDONED IN PLACE.

- THE CONTRACTOR IS REQUIRED TO FILL IN ALL HOLES AND DEPRESSIONS RESULTING FROM THE NEW WORK, WITH EARTH MATERIAL. THE AREAS SHALL BE COMPACTED TO PREVENT FUTURE SETTLEMENT AND FERTILIZED, SEEDED, AND MULCHED IN ACCORDANCE WITH ITEMS 901 AND 908 RESPECTIVELY. THIS WORK WILL BE CONSIDERED AS AN INCIDENTAL ITEM AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- FURNISH AND INSTALL A #6 AWG BARE SOLID COPPER GROUND AND BOND IT TO EACH GROUND ROD AT THE RESPECTIVE AIRFIELD LIGHT FIXTURES AND TAXI GUIDANCE SIGNS. THE #6 AWG GROUND SHALL BE DIRECT BURIAL IN TRENCH APPROXIMATELY 12 TO 18 IN. BELOW GRADE. THE GROUND CONDUCTOR MAY BE INSTALLED ABOVE THE #8 FAA L-824, 5,000-VOLT CABLE IN UNIT DUCT OR IN AN ADJACENT TRENCH. THE #6 AWG GROUND SHALL BE CONNECTED TO EACH RESPECTIVE GROUND ROD WITH AN EXOTHERMIC WELD CONNECTION. THE COMPLETED GROUND WIRE INSTALLED WILL PROVIDE A GROUND RING SYSTEM FOR THE RESPECTIVE AIRFIELD LIGHTING CIRCUIT. THE GROUND WIRE WILL NOT BE INSTALLED WITH THE HOMERUN CABLES FOR THE RESPECTIVE AIRFIELD LIGHTING CIRCUIT. THE #6 AWG BARE SOLID COPPER GROUND WILL BE PAID FOR UNDER ITEM AR108756 1/C #6 GROUND PER LINEAL FOOT
- IN THE EVENT THAT THE OTHER CONSTRUCTION PROJECTS ARE IN PROGRESS AT THE AIRPORT AT THE SAME TIME AS THIS PROJECT, THE CONTRACTOR WILL BE REQUIRED TO COOPERATE WITH ALL OTHER CONTRACTORS AND THE AIRPORT MANAGER IN THE COORDINATION OF THE WORK.
- NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

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

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

LEGEND

- EXISTING PAVEMENT
- PROPOSED TAXIWAY (BY OTHERS)
- PROPOSED ELECTRICAL DUCT
- EXISTING ELECTRICAL DUCT
- EXISTING ELECTRICAL CABLE
- PROPOSED 1/2" #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT
- PROPOSED 3-1/2" #6 XLP-USE 600V UG CABLE IN UNIT DUCT
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY LIGHT
- PROPOSED STAKE MOUNTED RUNWAY LIGHT
- PROPOSED BASE MOUNTED RUNWAY LIGHT

DUCT NOTES

- THE CONTRACTOR WILL INSTALL THE PROPOSED DUCTS AT THE LOCATIONS SHOWN ON THE PROPOSED LIGHTING PLAN AND IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS.
- THE CONTRACTOR WILL REPAIR THE DISTURBED AREAS TO THEIR ORIGINAL STATE. SEEDING WILL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- THE PROPOSED DUCTS INSTALLED BY DIRECTIONAL BORING WILL BE PAID FOR UNDER ITEMS:
AR110013 3" DIRECTIONAL BORE ___ PER L.F.
AS110014 4" DIRECTIONAL BORE ___ PER L.F.

DATE	REVISION
1/11/13	ADDED R2-TGS1 & R2-TGS3

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

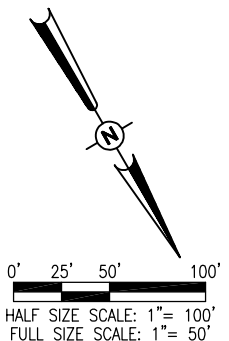
IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

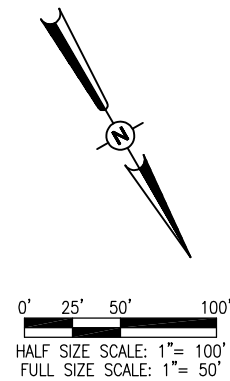
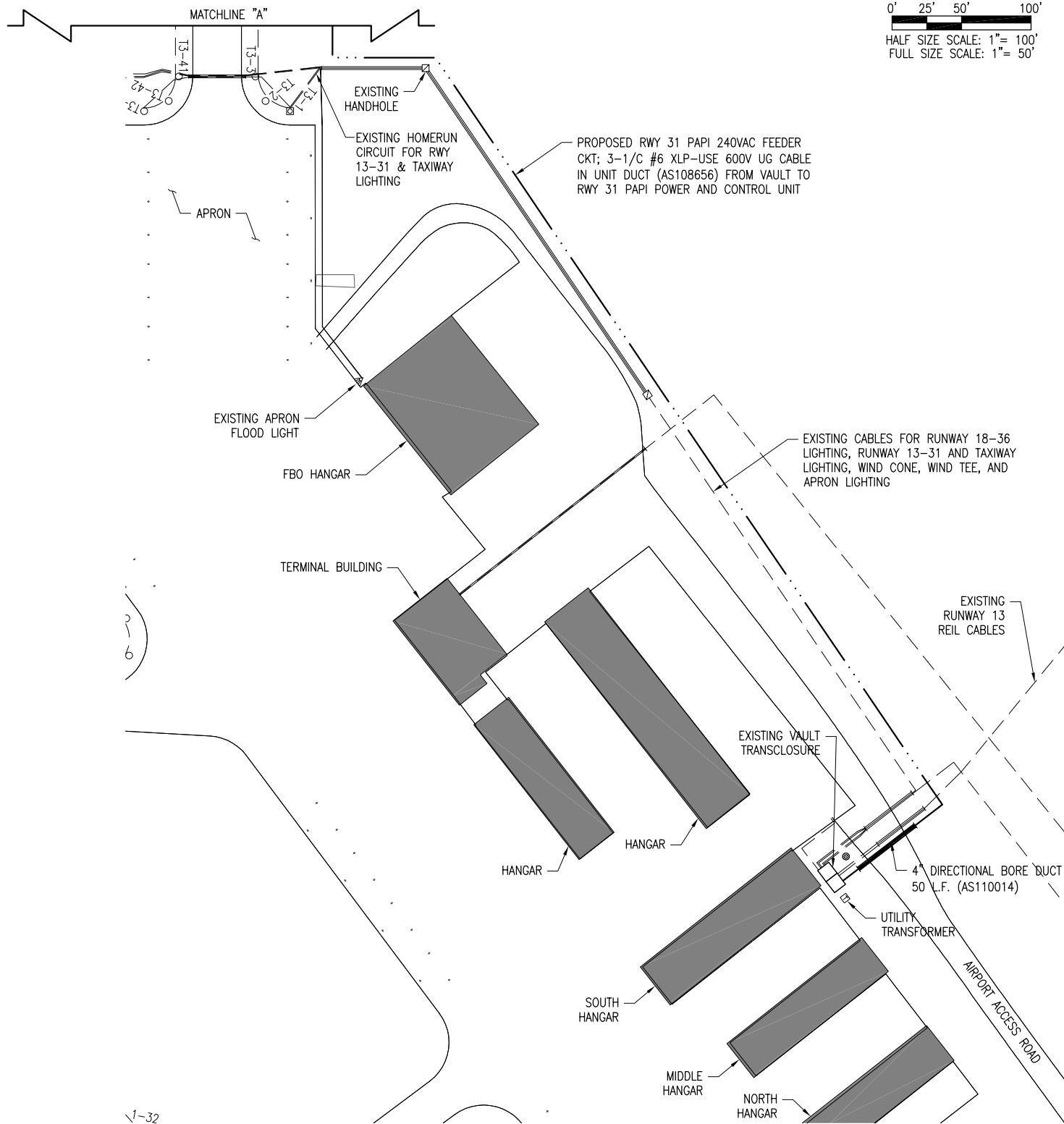
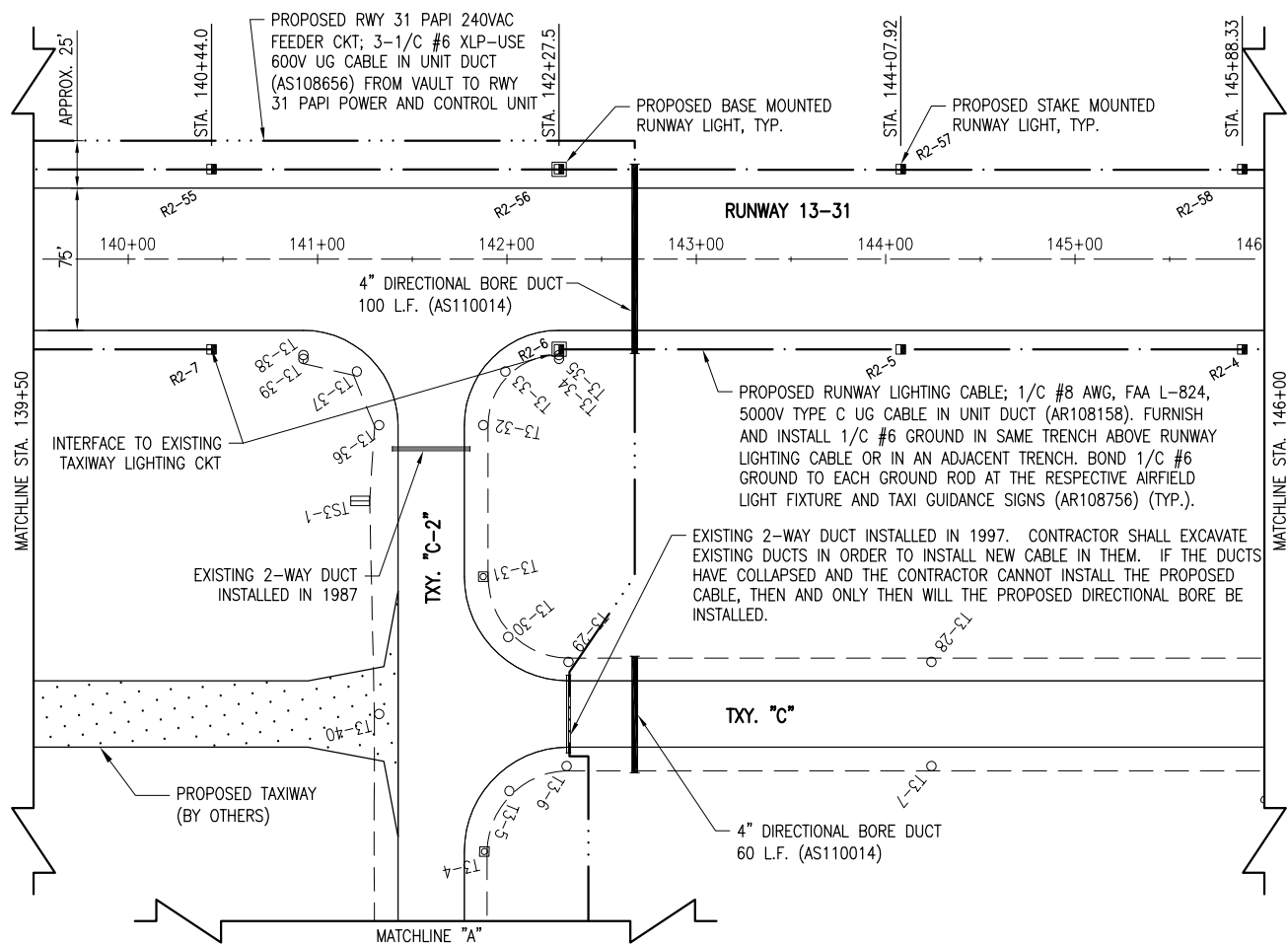
Hanson Proj. No. 10A00051	Filename R-142ELE.DWG	Scale 1"=50'	Date 12/14/12
LAYOUT	KNL/MLH	07/15/10	
DRAWN	MLH	08/30/10	
REVIEWED	CAH/KNL	03/30/11	

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED ELECTRICAL PLAN
STA. 126+00 TO STA. 139+50





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

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

- LEGEND**
- EXISTING PAVEMENT
 - EXISTING BUILDING
 - PROPOSED TAXIWAY (BY OTHERS)
 - PROPOSED ELECTRICAL DUCT
 - EXISTING ELECTRICAL DUCT
 - EXISTING ELECTRICAL CABLE
 - PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT
 - PROPOSED 3-1/C #6 XLP-USE 600V UG CABLE IN UNIT DUCT
 - EXISTING TAXI GUIDANCE SIGN
 - EXISTING STAKE MOUNTED TAXIWAY LIGHT
 - EXISTING BASE MOUNTED TAXIWAY LIGHT
 - EXISTING ELECTRICAL HANDHOLE OR SPLICE CAN
 - PROPOSED STAKE MOUNTED RUNWAY LIGHT
 - PROPOSED BASE MOUNTED RUNWAY LIGHT

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

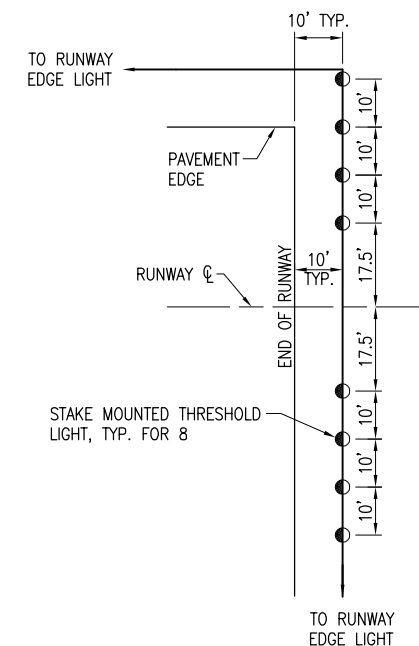
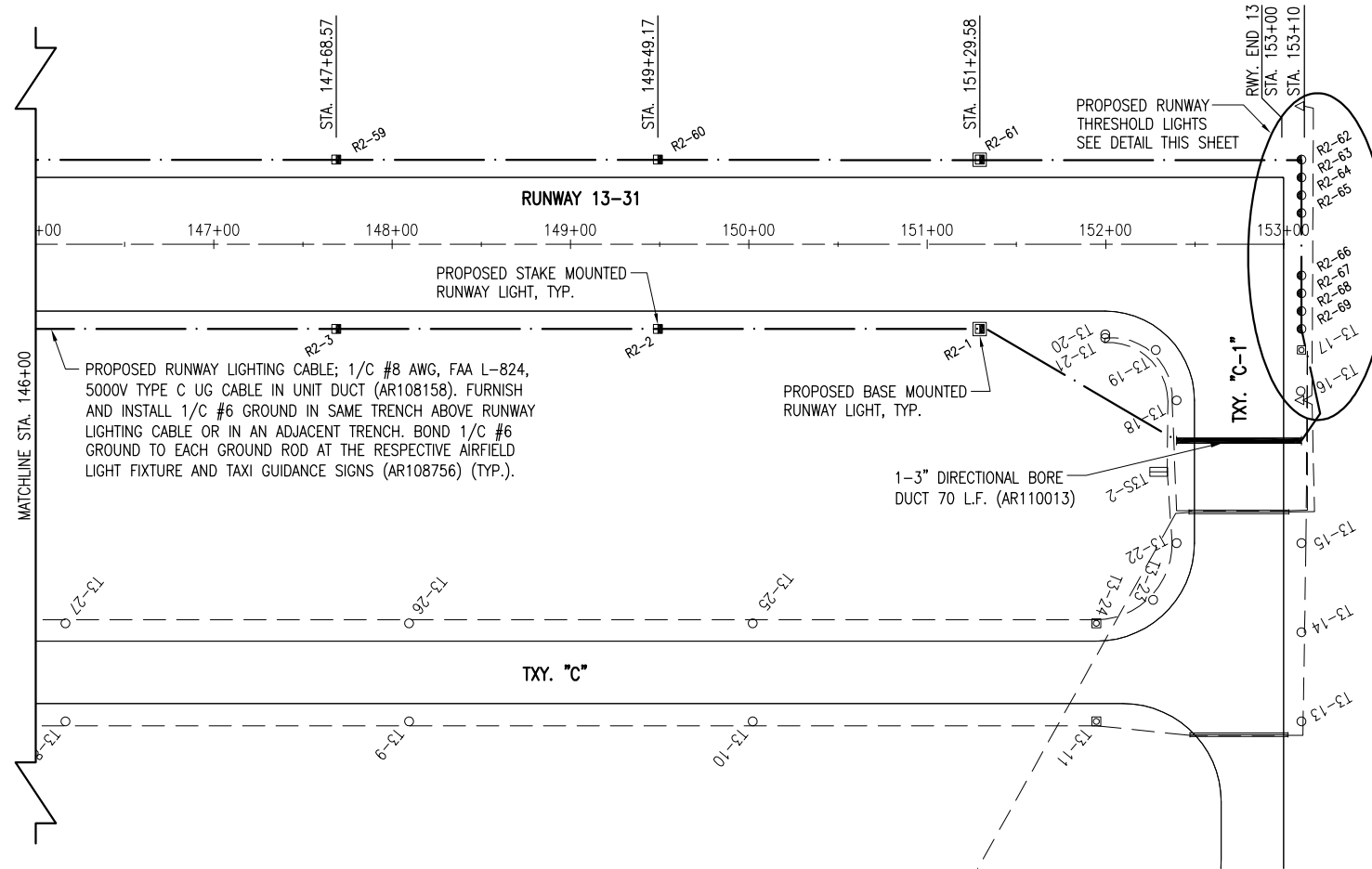
Hanson Proj. No. 10A0051	07/15/10
Filename R-142ELE.DWG	08/30/10
Scale 1"=50'	03/30/11
Date 12/14/12	
LAYOUT KNL/MLH	
DRAWN MLH	
REVIEWED CAH/KNL	

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED ELECTRICAL PLAN
STA. 139+50 TO STA. 146+00

JAN 10, 2013 3:21 PM KINC00394 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\142ELE.DWG



**PROPOSED RUNWAY END 13
THRESHOLD LIGHT DETAIL**
NOT TO SCALE

TAXI GUIDANCE SIGN SCHEDULE			
SIGN NUMBERS	LOCATION	SIDE A	SIDE B
R2-TGS1	RUNWAY 13 INTERSECTION WITH RUNWAY 18-36	18-36	BLANK
R2-TGS2	TURNAROUND AT RUNWAY END 31 (AT HOLD LINE)	31	BLANK
R2-TGS3	RUNWAY 31 INTERSECTION WITH RUNWAY 36-18	36-18	BLANK

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

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

TAXI GUIDANCE SIGN LEGEND

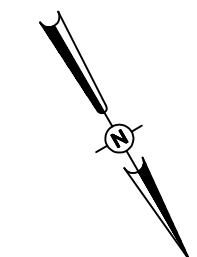
- A** TYPE L-858(L) LOCATION SIGN - YELLOW LEGEND AND BORDER ON A BLACK BACKGROUND
- 13-31** TYPE L-858R(L) MANDATORY INSTRUCTION SIGN - BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON A RED BACKGROUND
- RAMP ↑** TYPE L-858Y(L) DIRECTION, DESTINATION, AND BOUNDARY SIGN - BLACK LEGEND ON A YELLOW BACKGROUND
- BLANK** BLANK - BLACK BACKGROUND

TAXI GUIDANCE SIGN NOTES

- THE PROPOSED LIGHTED TAXI GUIDANCE SIGNS SHALL CONFORM TO ADVISORY CIRCULAR 150/5345 44J (OR LATEST ISSUE IN FORCE) AND BE FAA-APPROVED FOR TYPE L-858Y(L) DIRECTION, DESTINATION, AND BOUNDARY SIGNS (BLACK LEGEND ON YELLOW BACKGROUND); TYPE L-858R(L) MANDATORY INSTRUCTION SIGN (BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON RED BACKGROUND); AND/OR TYPE L-858L(L) LOCATION SIGN (YELLOW LEGEND AND BORDER ON BLACK BACKGROUND).
- THE SIGNS SHALL BE SIZE 1, 18-IN. SIGN FACE WITH A 12-IN. LEGEND; STYLE 2, POWERED FROM A 4.8 TO 6.6 AMP SERIES LIGHTING CIRCUIT; CLASS 2, FOR OPERATION FROM -40 DEGREES F TO 131 DEGREES F; MODE 2, TO WITHSTAND WIND LOADS OF 200 M.P.H., BASE-MOUNTED, DOUBLE-SIDED, AS SPECIFIED ON THE PLANS.
- TAXI GUIDANCE SIGNS SHALL HAVE LED (LIGHT EMITTING DIODE) TYPE ILLUMINATION AND SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF FAA ENGINEERING BRIEF NO. 67D LIGHT SOURCES OTHER THAN INCANDESCENT AND XENON FOR AIRPORT AND OBSTRUCTION LIGHTING FIXTURES.

LEGEND

- EXISTING PAVEMENT
- EXISTING ELECTRICAL DUCT
- PROPOSED ELECTRICAL DUCT
- EXISTING ELECTRICAL CABLE
- PROPOSED 1/C #8 AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT
- EXISTING TAXI GUIDANCE SIGN
- EXISTING STAKE MOUNTED TAXIWAY LIGHT
- EXISTING BASE MOUNTED TAXIWAY LIGHT
- PROPOSED STAKE MOUNTED RUNWAY LIGHT
- PROPOSED BASE MOUNTED RUNWAY LIGHT
- PROPOSED STAKE MOUNTED THRESHOLD LIGHT



0' 25' 50' 100'
HALF SIZE SCALE: 1" = 100'
FULL SIZE SCALE: 1" = 50'

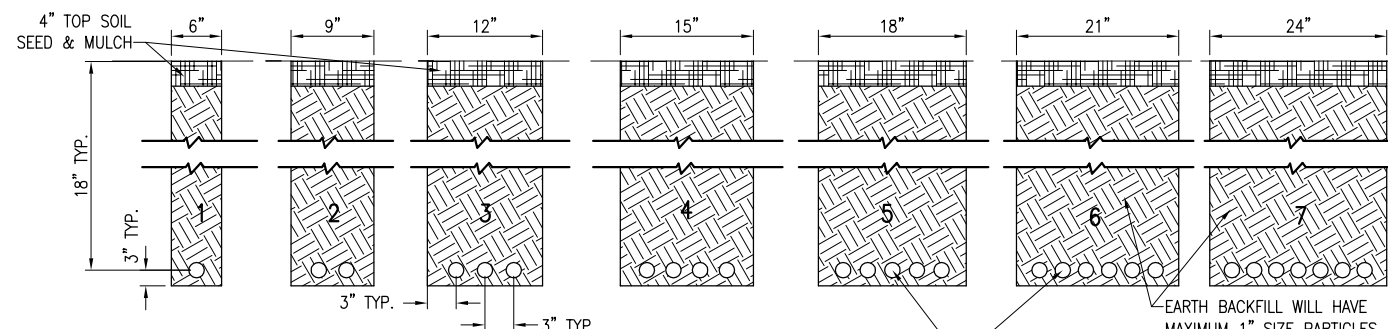
REVISION	DATE	ADDED TAXI GUIDANCE SIGN SCHEDULE
1/11/13		

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS
BLOCK GRANT PROJ.: 3-17-0059-B15
IL PROJ.: C75-4223

Hanson Proj. No. 10A0051	Filename R-142ELE.DWG	Scale 1"=50'	Date 12/14/12
LAYOUT	KNL/MLH	07/15/10	
DRAWN	MLH	08/30/10	
REVIEWED	CAH/KNL	03/30/11	

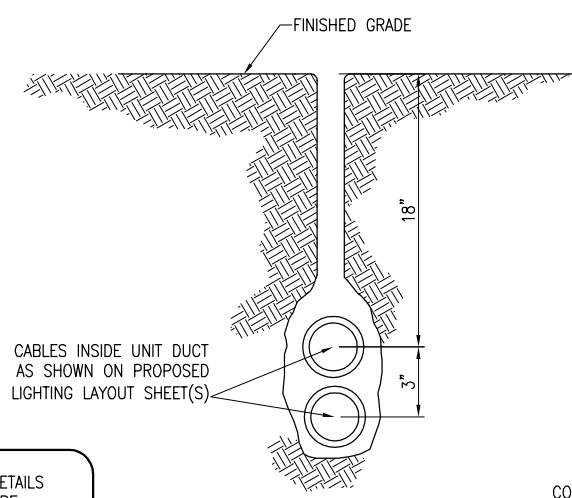
HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION
PROPOSED ELECTRICAL PLAN
STA. 146+00 TO STA. 153+10

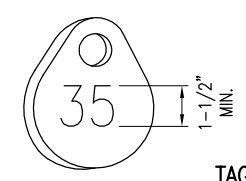


NOTES:
 DETAIL NUMBERS INDICATE NO. OF CABLES.
 TRENCHES WITH MORE THAN SEVEN CABLES SHALL BE INCREASED 3" IN WIDTH FOR EACH ADDITIONAL CABLE; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
 DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 ALL DISTURBED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

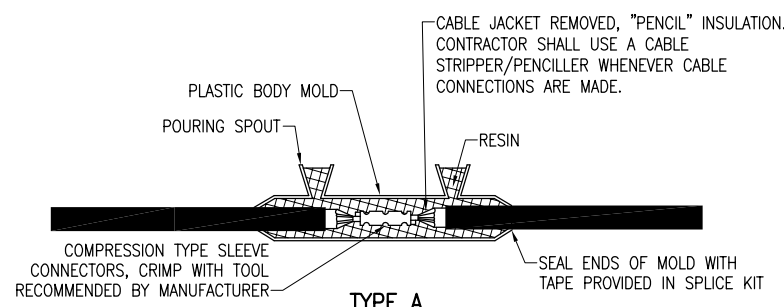
CABLE TRENCHES
 (NOT TO SCALE)



PLOWED CABLE
 (NOT TO SCALE)

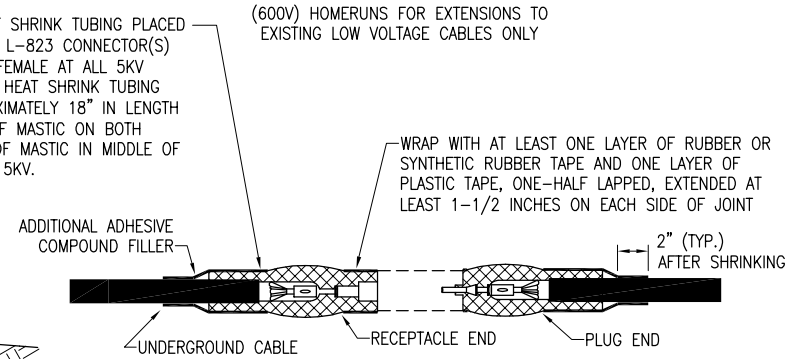


TAG DETAIL
 (NOT TO SCALE)



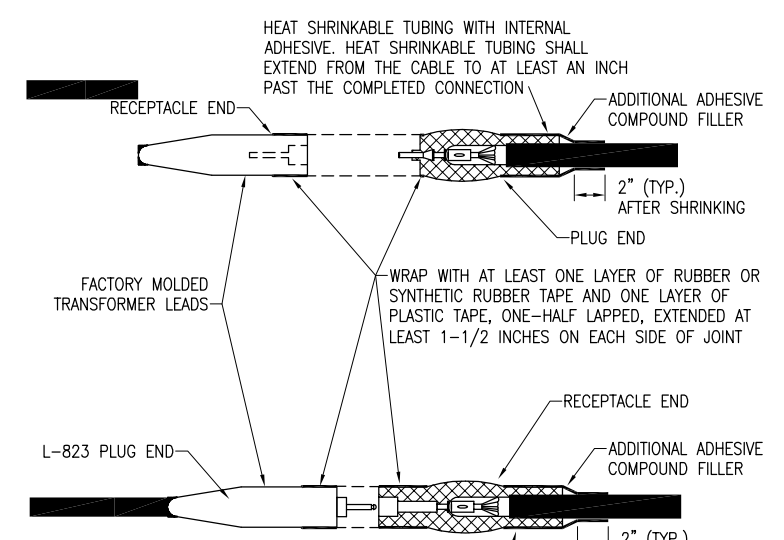
TYPE A

FOR SPLICES IN LOW VOLTAGE CABLE (600V) HOMERUNS FOR EXTENSIONS TO EXISTING LOW VOLTAGE CABLES ONLY



TYPE B

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

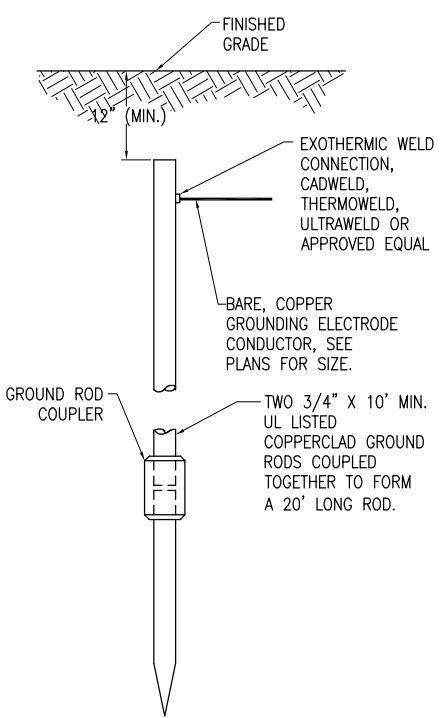


TYPE C

FOR SPLICES AT RUNWAY AND TAXIWAY LIGHTS
 HEAT SHRINKABLE TUBING WITH INTERNAL ADHESIVE. HEAT SHRINKABLE TUBING SHALL EXTEND FROM THE CABLE TO AT LEAST AN INCH PAST THE COMPLETED CONNECTION

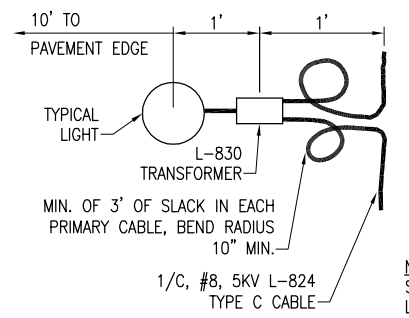
NOTES:
 SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR SPLICE TYPE.
 INSIDE DIAMETER OF CONNECTOR SHALL PROPERLY MATCH THE OUTSIDE DIAMETER OF CABLE.

CABLE SPLICES
 (NOT TO SCALE)

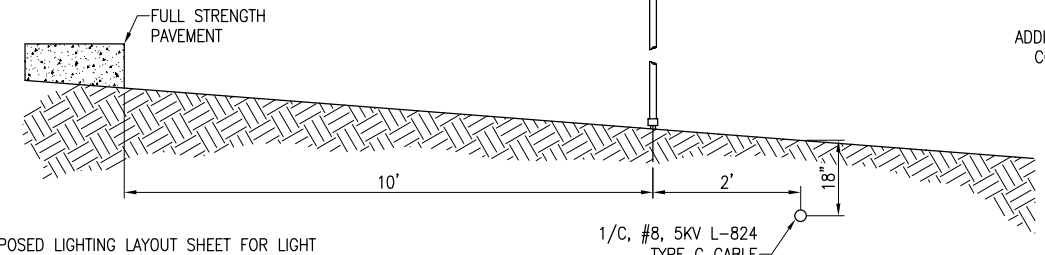


NOTES:
 TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
 THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
 COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.

GROUND ROD
 (NOT TO SCALE)



PLAN VIEW

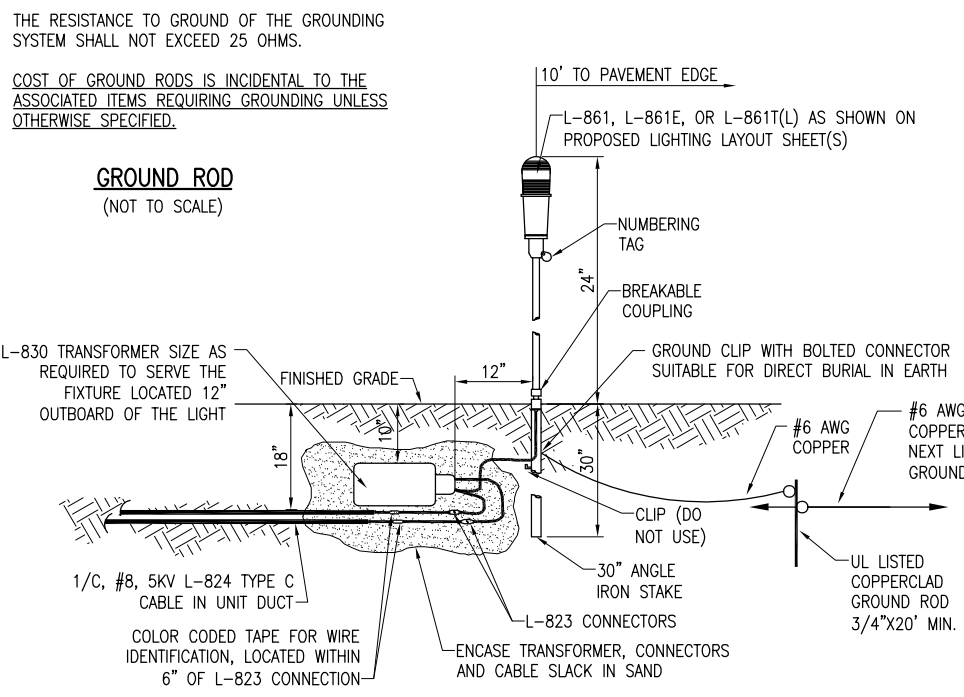


PROFILE VIEW

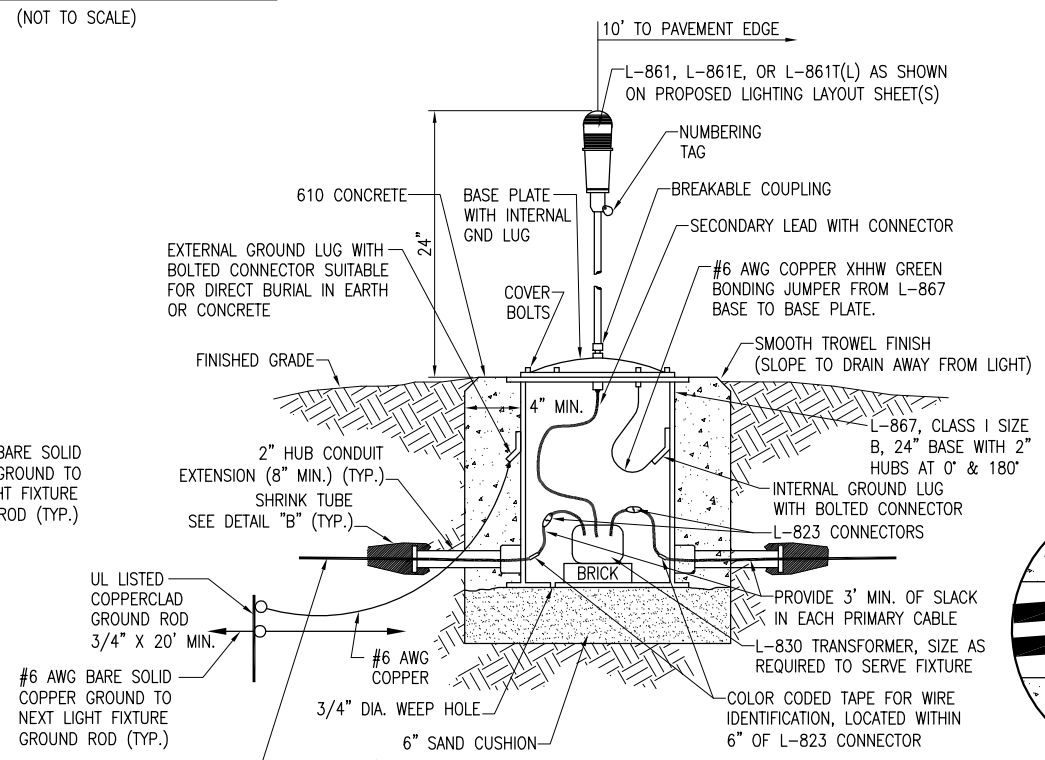
LIGHT AND CABLE INSTALLATION DETAIL
 (NOT TO SCALE)

PER FAA AC 150/5340-30G DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, A LIGHT BASE GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 20- FEET LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.

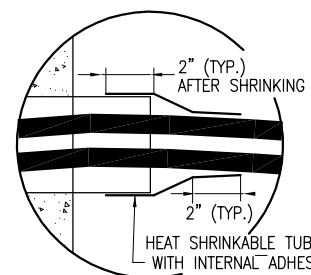
NOTES:
 SEE PROPOSED LIGHTING LAYOUT SHEET FOR LIGHT LOCATIONS.



MEDIUM INTENSITY LIGHT - STAKE MOUNTED
 (NOT TO SCALE)



MEDIUM/HIGH INTENSITY LIGHT - BASE MOUNTED OPTION 2
 (NOT TO SCALE)



DETAIL "B"
 (NOT TO SCALE)

JAN 10, 2013 3:24 PM KINC00394
 I:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\R-54\ELE.DWG

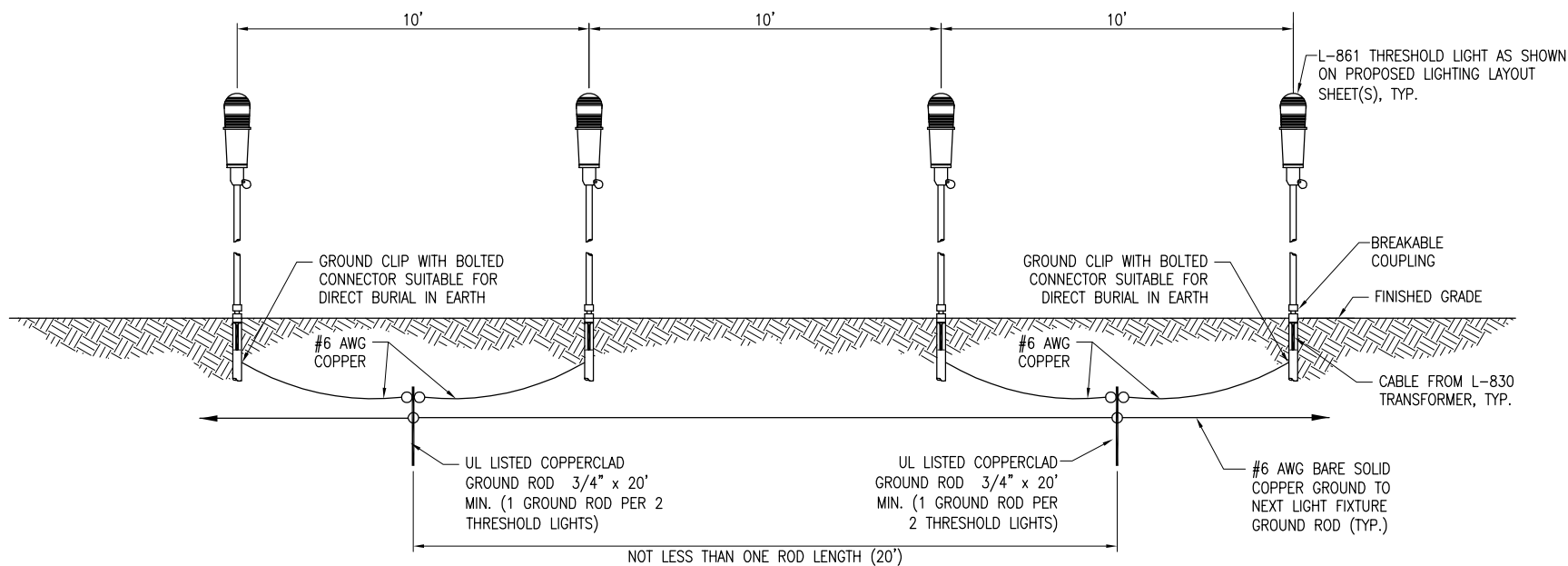
REVISION	DATE	DESCRIPTION
12/11/12	12/11/12	UPDATED LT FIXTURE GROUNDING PER FAA AC 150/5340-30G & SOIL CONDITIONS

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 BLOCK GRANT PROJ.: 3-17-0059-B15
 IL PROJ.: C75-4223

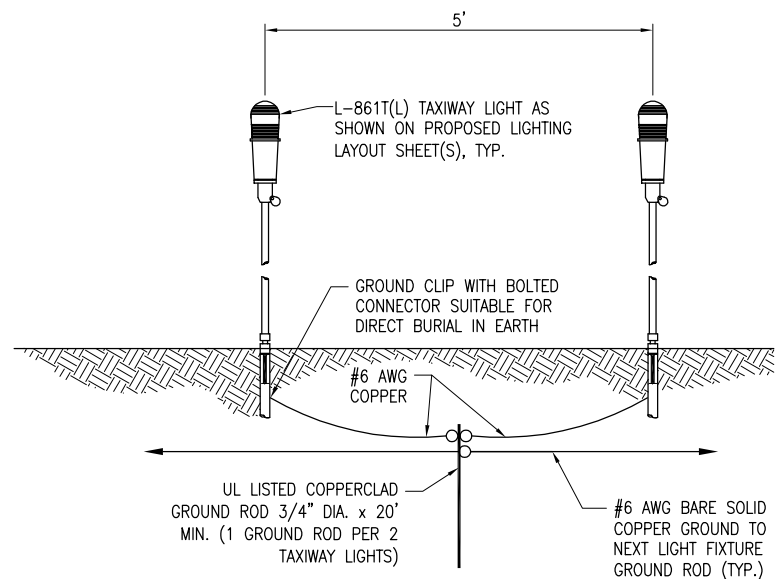
Hanson Proj. No. 10A0051	DATE	12/14/12
Filename R-54ELE.DWG	SCALE	NONE
Scale NONE	LAYOUT	KNL 08/26/10
Date 12/14/12	DRAWN	MLH 09/01/10
	REVIEWED	KNL/CAH 12/11/12

HANSON
 Professional Services Inc. 2013
 1525 South Sixth Street
 Springfield, Illinois 62703-2986
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

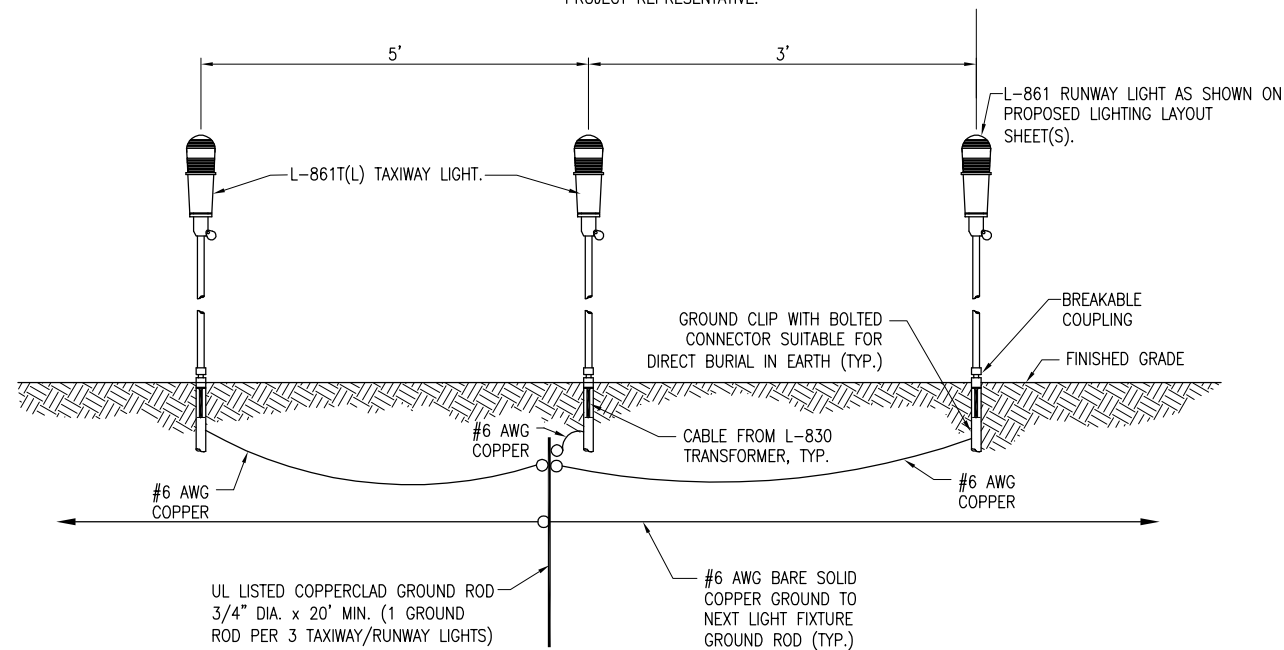
PAVE, LIGHT AND MARK
 805' EXTENSION
 ELECTRICAL DETAILS
 SHEET 1



GROUNDING DETAIL FOR THRESHOLD LIGHTS
(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 150/5340-30G DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 20-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. (TWO 3/4-INCH DIAMETER BY 10-FOOT LONG, UL LISTED COPPERCLAD GROUND RODS COUPLED TOGETHER). 20-FOOT LONG GROUND RODS ARE REQUIRED DUE TO POOR RESISTANCE OF THE SOIL AT THE RESPECTIVE SITE. 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 OR USE INSULATION. 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.
- FURNISH AND INSTALL A #6 AWG BARE SOLID COPPER GROUND AND BOND IT TO EACH GROUND ROD AT THE RESPECTIVE AIRFIELD LIGHT FIXTURES AND TAXI GUIDANCE SIGNS. THE #6 AWG GROUND SHALL BE DIRECT BURIAL IN TRENCH APPROXIMATELY 12 TO 18 INCHES BELOW GRADE. THE GROUND CONDUCTOR MAY BE INSTALLED ABOVE THE #8 FAA L-824, 5000-VOLT CABLE IN UNIT DUCT OR IN AN ADJACENT TRENCH. THE #6 AWG GROUND SHALL BE CONNECTED TO EACH RESPECTIVE GROUND ROD WITH AN EXOTHERMIC WELD CONNECTION. THE COMPLETED GROUND WIRE INSTALLED WILL PROVIDE A GROUND RING SYSTEM FOR THE RESPECTIVE AIRFIELD LIGHTING CIRCUIT. THE GROUND WIRE WILL NOT BE INSTALLED WITH THE HOMERUN CABLES FOR THE #6 AWG BARE SOLID COPPER GROUND WILL BE PAID FOR UNDER ITEM AR108756 1/C #6 GROUND PER LINEAR FOOT.
- FOR TAXIWAY LIGHTS THAT ARE SPACED WITH LESS THAN 10 FEET OF SEPARATION BETWEEN THEM PROVIDE ONE 3/4-INCH DIAMETER BY 20-FOOT LONG GROUND ROD PER TWO ADJACENT TAXIWAY LIGHTS.
- FOR RUNWAY THRESHOLD LIGHTS THAT ARE SPACED WITH 10 FEET OF SEPARATION BETWEEN THEM, PROVIDE ONE 3/4-INCH DIAMETER BY 20-FOOT LONG GROUND ROD PER TWO ADJACENT THRESHOLD LIGHTS. LOCATE GROUND ROD MIDWAY BETWEEN THE TWO THRESHOLD LIGHTS.
- STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100% DOMESTIC STEEL.
- 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.

REVISION	12/11/12	UPDATED LT FIXTURE GROUNDING PER FAA AC 150/5340-30G & SOIL CONDITIONS
DATE		

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223
BLOCK GRANT PROJ.: 3-17-0059-B15

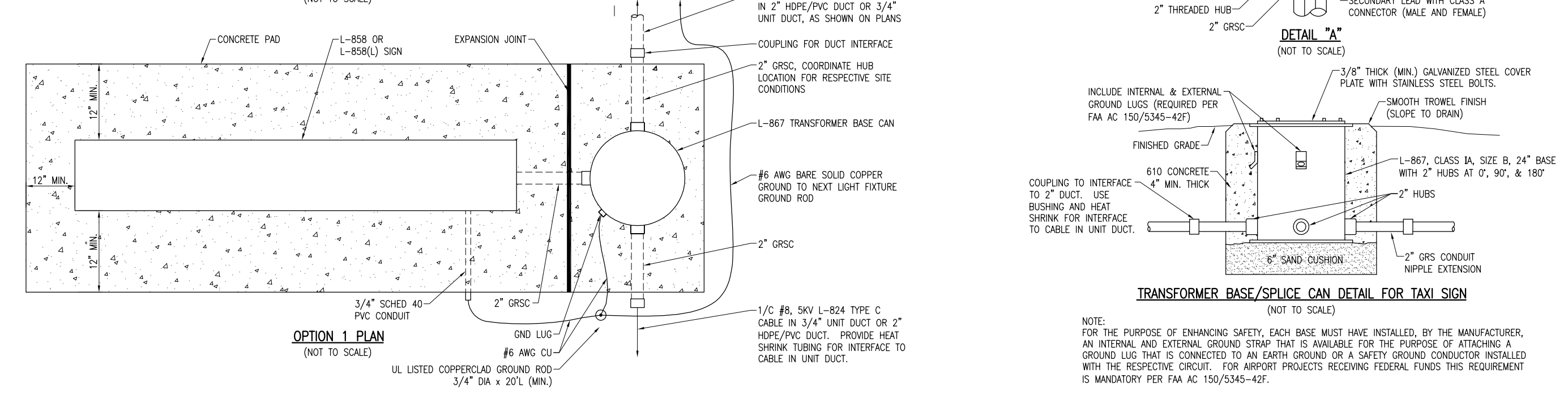
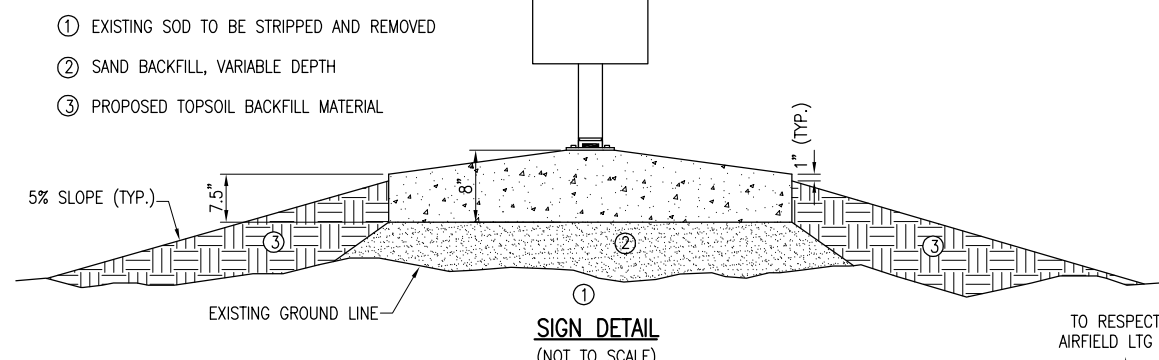
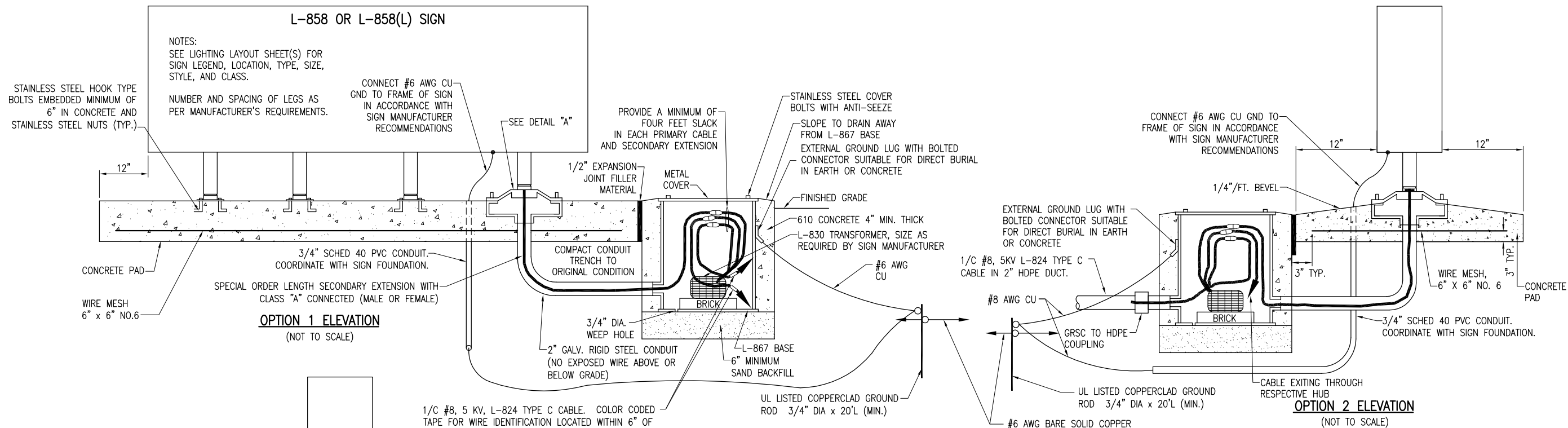
Hanson Proj. No.	10A0051	
Filename	R-546LE.DWG	
Scale	NONE	
Date	12/14/12	
LAYOUT	KNL	08/26/10
DRAWN	MLH	09/01/10
REVIEWED	KNL/CAH	03/30/11

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

ELECTRICAL DETAILS
SHEET 2

JAN 10, 2013 3:27 PM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\R-546LE.DWG



REVISION	DATE	DESCRIPTION
12/11/12	12/11/12	UPDATED LT FIXTURE GROUNDING PER FAA AC 150/5340-30G & SOIL CONDITIONS

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

BLOCK GRANT PROJ.: 3-17-0059-B15

IL PROJ.: C75-4223

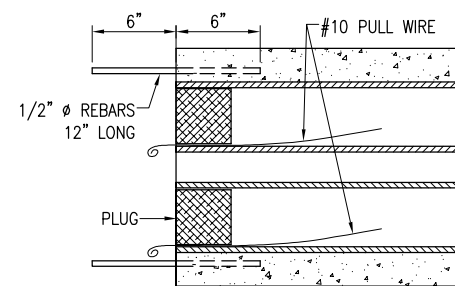
REVISION	DATE	DESCRIPTION
12/11/12	12/11/12	LAYOUT
12/11/12	12/11/12	DRAWN
12/11/12	12/11/12	REVIEWED

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

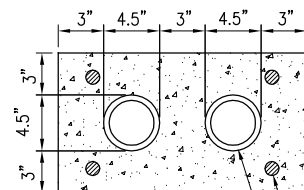
PAVE, LIGHT AND MARK
805' EXTENSION

ELECTRICAL DETAILS
SHEET 3

JAN 10, 2013 3:29 PM KINC400394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT SHEETS\R-545ELE.DWG

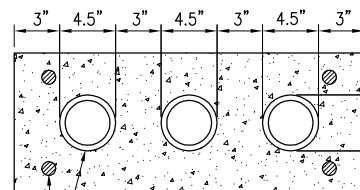


DUCT BANK TYPICAL SECTION
(NOT TO SCALE)



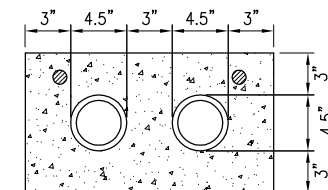
2-DUCT BANK
(NOT TO SCALE)

1/2" Ø REBAR
3' LONG IN
EACH CORNER
4" I.D. DUCT



3-DUCT BANK
(NOT TO SCALE)

4" I.D. CONDUIT
1/2" Ø REBAR
3' LONG IN
EACH CORNER



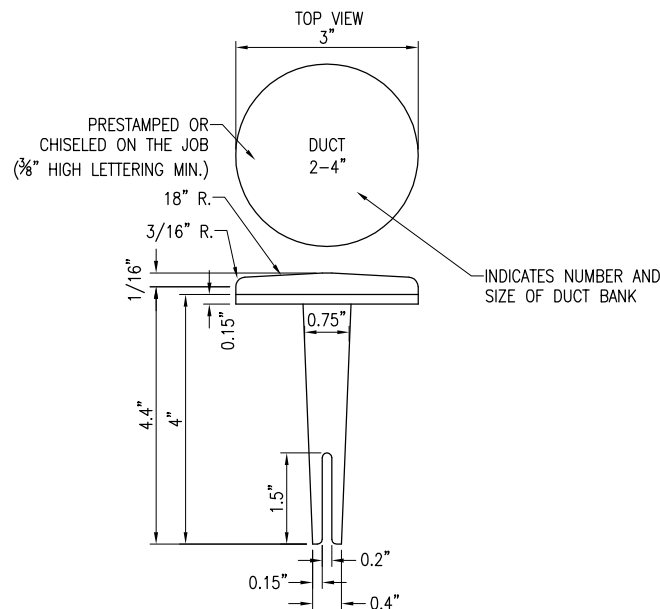
4-DUCT BANK
(NOT TO SCALE)

DUCT BANK NOTES:

- DIMENSIONS FOR CONCRETE COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
- INCLUDE DUCT SPACERS AS MANUFACTURED BY UNDERGROUND DEVICES INC., TO MAINTAIN PROPER SEPARATION OF CONDUITS.
- REBAR IS REQUIRED TO ACCOMMODATE FUTURE DUCT EXTENSIONS & INTERFACE AT DUCT BANK TERMINATIONS. CONCRETE ENCASED DUCT BANKS TERMINATING IN HANDHOLES REQUIRE REBAR AT TERMINATIONS.
- CONDUITS FOR CONCRETE ENCASED DUCT SHALL BE SCHEDULE 40 PVC CONFORMING TO ITEM 110.
- MINIMUM DEPTH OF TOP OF DUCT ENCASEMENT SHALL BE 18" BELOW FINISHED GRADE.
- 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.

CABLE & DUCT MARKER NOTES:

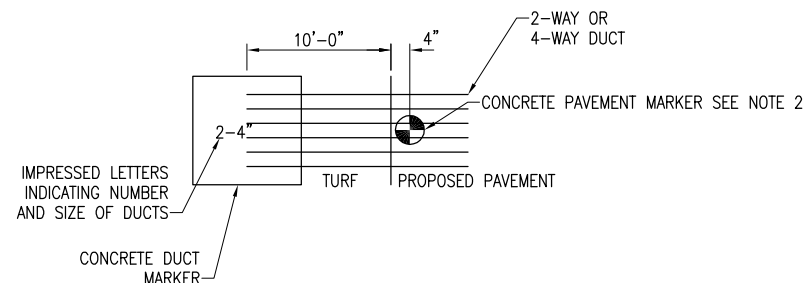
- THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
- BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE 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.



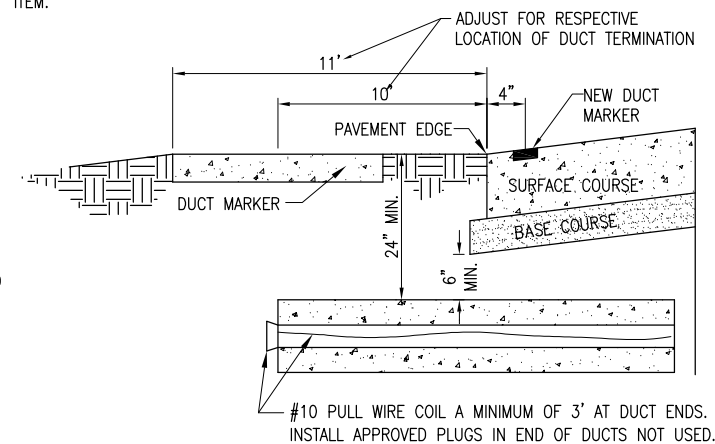
BITUMINOUS PAVEMENT DUCT MARKERS
"NOT TO SCALE"

NOTES:

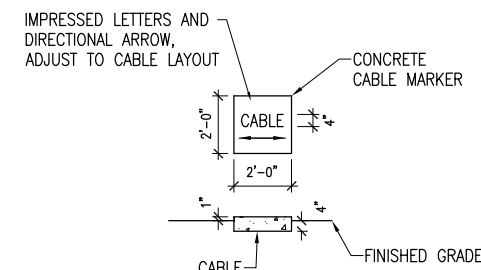
- TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE.
- BRASS DUCT MARKERS ARE AVAILABLE FROM G&S FOUNDRY & MANUFACTURING CO. INC., 210 KASKASKIA DRIVE, RED BUD, IL. 62278 PHONE: (618)-282-4114.



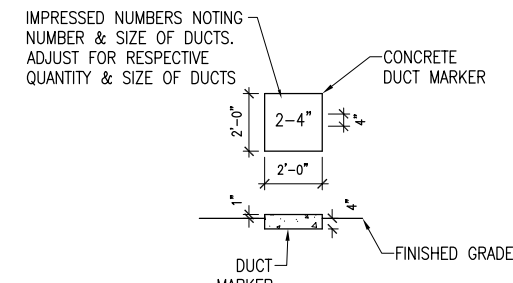
DUCT MARKER DETAIL
"NOT TO SCALE"



UNDERGROUND ELECTRICAL DUCT
(NOT TO SCALE)



TURF CABLE MARKERS
"NOT TO SCALE"



TURF DUCT MARKERS
"NOT TO SCALE"

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	FILENAME R-542ELE.DWG	SCALE NONE	DATE 12/14/12
LAYOUT	KNL	08/26/10	
DRAWN	MLH	09/01/10	
REVIEWED	KNL/CAH	03/30/11	

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION
ELECTRICAL DETAILS
SHEET 4

REVISION	DATE	ADDED NOTE PER PAPI SIGNAL ZONE
12/11/12		

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223
BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A00051	Filename R-543ELE.DWG	Scale NOT TO SCALE	Date 12/14/12
LAYOUT	KNL	09/03/10	
DRAWN	MLH	09/03/10	
REVIEWED	KNL/CAH	03/30/11	

HANSON
© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

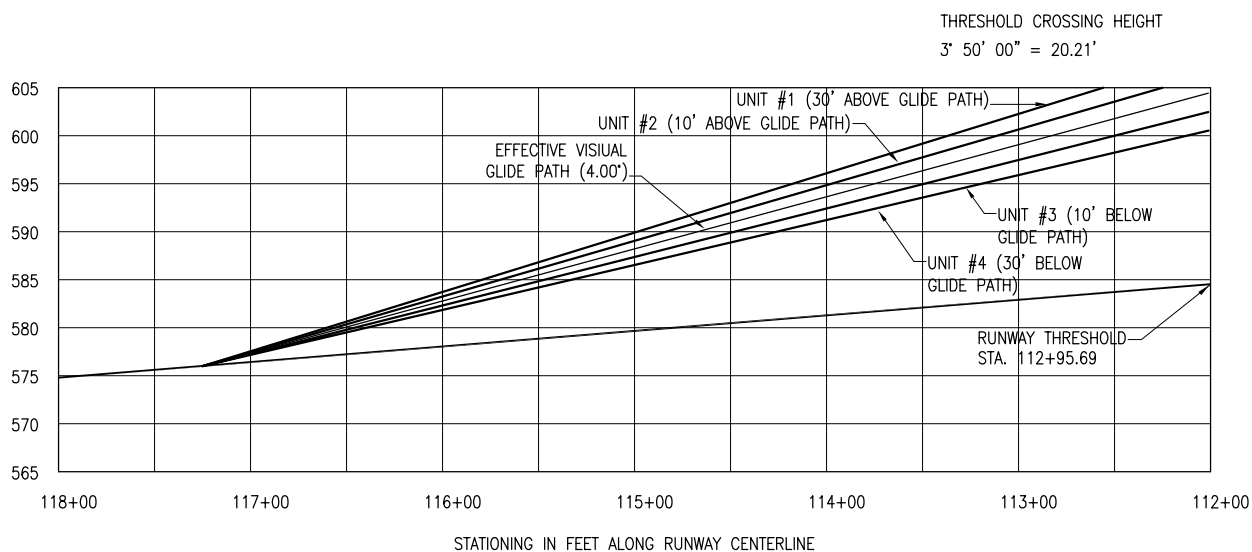
PROPOSED PAPI DETAILS
AND NOTES RUNWAY END 31

P.A.P.I. NOTES

- THE PROPOSED PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEM SHALL BE PLACED AT THE LOCATION SHOWN ON THE "PROPOSED ELECTRICAL PLAN STA. 112+85 TO STA. 126+00" SHEET NO. 14.
- THE PROPOSED CONCRETE PEDESTALS SHALL BE AS DETAILED ON THE "PAPI FOUNDATION DETAILS" SHEET. THE NUMBER OF PEDESTALS CONSTRUCTED FOR EACH PAPI UNIT SHALL DEPEND ON THE UNIT SELECTED BY THE CONTRACTOR FOR INSTALLATION.
- SIX (6") INCHES OF GRAVEL ON TOP OF BLACK PLASTIC SHALL BE PLACED UNDER EACH PAPI UNIT AND POWER/CONTROL UNIT TO HALT VEGETATION GROWTH.
- EACH PAPI UNIT WILL BE CONSTRUCTED SUCH THAT THE BEAM CENTERS WILL BE WITHIN ±1" OF ELEVATION 576.00'.
- THE PROPOSED POWER CABLE TO THE PAPI SYSTEM SHALL BE 3-1/C NO. 6, 600V., TYPE XLP-USE UNDERGROUND CABLE IN 1.25" UNIT DUCT. THIS CABLE WILL BE TRENCHED IN PLACE AT A MINIMUM DEPTH OF 18" BELOW FINISH GRADE.
- THE PROPOSED PAPI SIGNAL SHALL BE VISIBLE FOR A 10 DEGREE ZONE ON EITHER SIDE OF THE RUNWAY CENTERLINE IN ACCORDANCE WITH FAA ADVISORY CIRCULAR 150/5340-30G, FIGURE 80. THE PAPI SIGNAL SHALL NOT BE VISIBLE BEYOND THE 10 DEGREE ZONE WITH A TOLERANCE OF PLUS 0.50 DEGREE, MINUS 0.00 DEGREE. IT WILL BE THE PAPI MANUFACTURER'S RESPONSIBILITY TO COMPLY WITH THIS REQUIREMENT. ANY FIELD ADJUSTMENTS WILL BE IN ACCORDANCE WITH THE PAPI MANUFACTURER'S INSTRUCTIONS AND WILL BE CONSIDERED AS INCIDENTAL TO THE INSTALLATION OF THE PROPOSED PAPI AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- THE PAPI INSTALLATION WILL BE PAID FOR UNDER ITEM: AR125615 PAPI (L-880 SYSTEM) PER LUMP SUM.
- THE POWER CABLE WILL BE PAID FOR UNDER ITEM: AR108656 3/C #6 600V UG. CABLE IN UD PER LIN. FT.

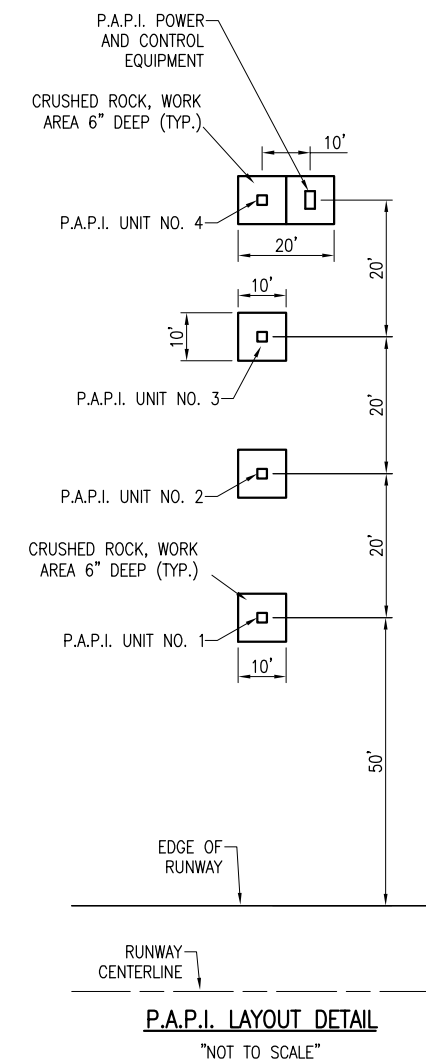
NOTE:

LOWEST ON-COURSE ANGLE - 3° 50' ELEVATION A = 604.81' TCH = 20.21'

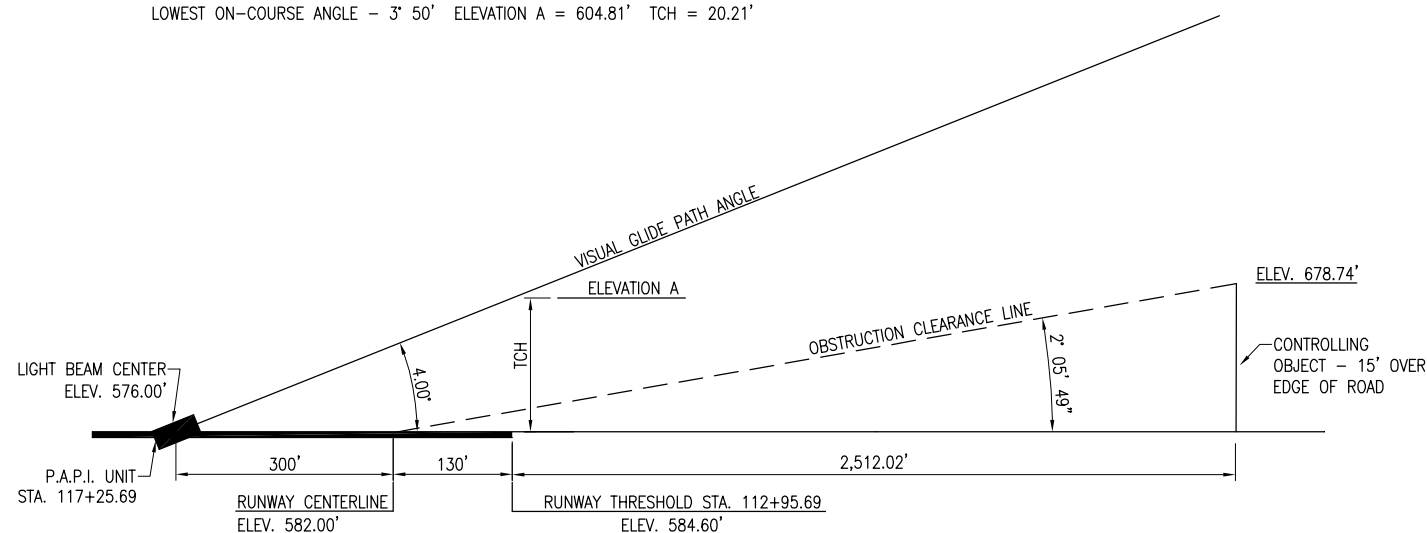


RUNWAY CENTERLINE PROFILE

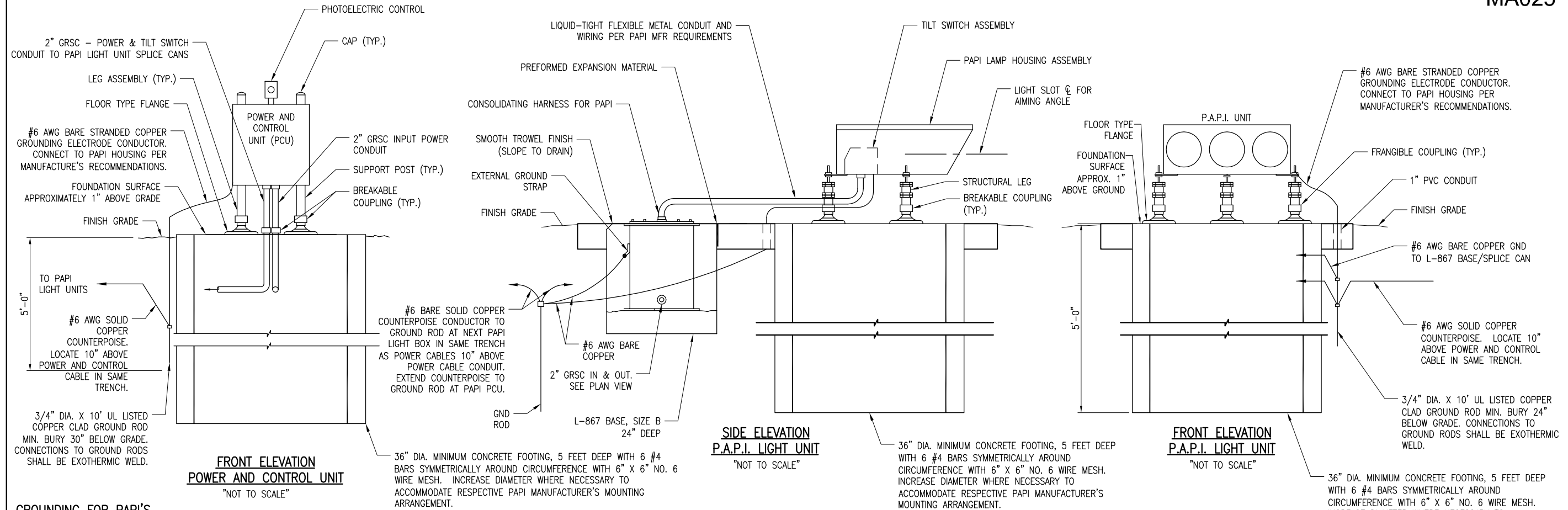
PAPI DATA-RUNWAY END 31					
	P.A.P.I. UNIT #1	P.A.P.I. UNIT #2	P.A.P.I. UNIT #3	P.A.P.I. UNIT #4	P AND C UNIT
DISTANCE FROM RUNWAY CL	87.5'	107.5'	127.5'	147.5'	147.5'
AIMING ANGLE	4°30'	4°10'	3°50'	3°30'	N/A
APPROXIMATE GROUND ELEVATION	572.8'	572.8'	572.8'	572.8'	572.6'
P.A.P.I. UNIT APERTURE ELEVATION	576.0'	576.0'	576.0'	576.0'	N/A



P.A.P.I. LAYOUT DETAIL
"NOT TO SCALE"

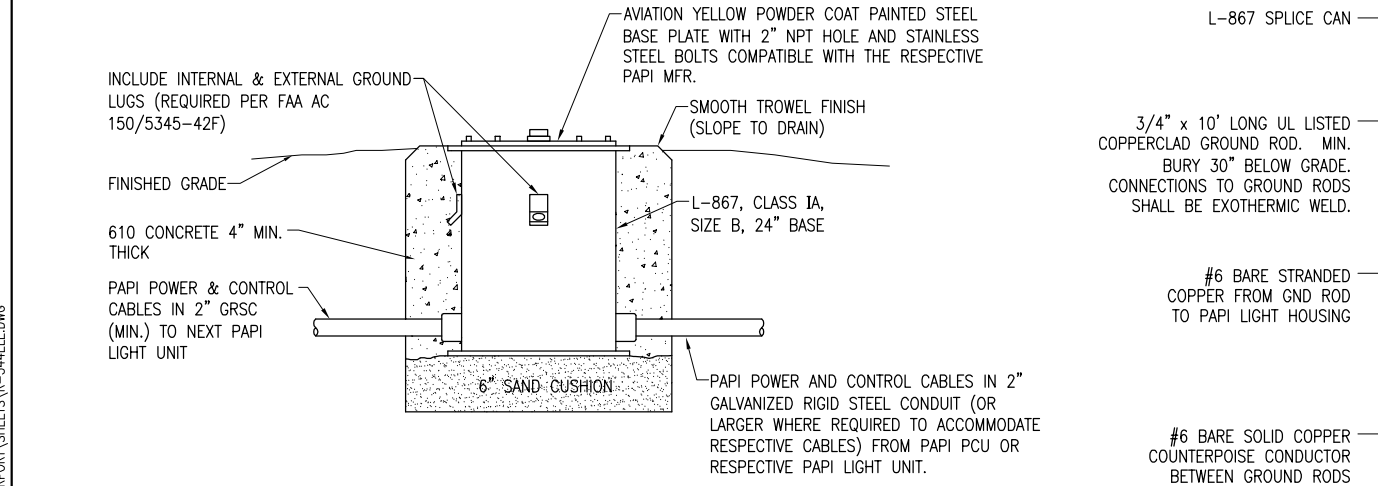


P.A.P.I. AIMING DIAGRAM RUNWAY END 31
"NOT TO SCALE"

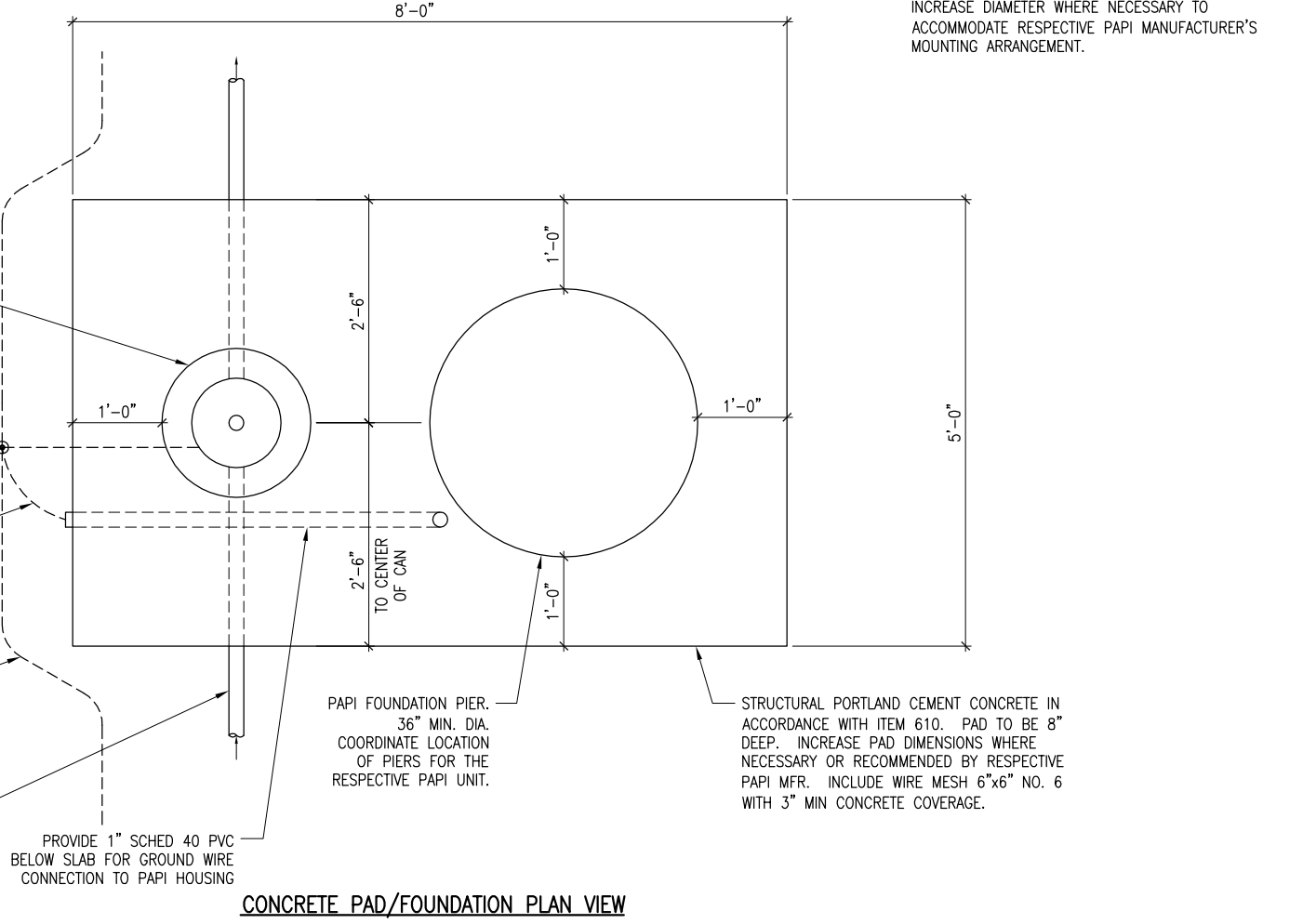


GROUNDING FOR PAPI'S

1. GROUNDING FOR PAPI'S SHALL CONFORM TO THE RESPECTIVE PAPI MANUFACTURER'S INSTALLATION INSTRUCTIONS. AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. THE POWER CIRCUIT TO EACH PAPI UNIT INCLUDING THE PAPI PCU (POWER AND CONTROL UNIT) SHALL INCLUDE ON EQUIPMENT GROUND WIRE OF THE SAME SIZE AND TYPE AS THE PHASE CONDUCTORS. FURNISH AND INSTALL A 3/4-INCH DIAMETER BY 20-FEET LONG COPPER CLAD GROUND ROD AT THE PAPI PCU AND AT EACH PAPI LIGHTING UNIT. BOND EACH PAPI UNIT (PCU AND LIGHTING UNITS) AND THE RESPECTIVE L-867 SPLICE CAN TO THE RESPECTIVE GROUND ROD WITH A #6 AWG STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR. TOP OF GROUND RODS SHALL BE BURIED APPROXIMATELY 24 INCHES BELOW GRADE. ALL CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS; CADWELD BY ERICO PRODUCTS, IN SOLON, OHIO (PHONE: 800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE: 918-663-1440), OR ULTRAWELD BY HARGER LIGHTENING PROTECTION GROUNDING EQUIPMENT, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437), OR APPROVED EQUAL. CONNECTIONS TO L-867 SPLICE CANS SHALL BE WITH UL LISTED GROUNDING CONNECTORS SUITABLE FOR USE IN DIRECT BURIAL OR CONCRETE ENCASUREMENT APPLICATIONS. CONNECTIONS TO PAPI UNIT FRAME SHALL BE AS RECOMMENDED BY THE MANUFACTURER OR WITH A UL LISTED GROUNDING CONNECTOR. ALL GROUND RODS ASSOCIATED WITH THE COMPLETE PAPI INSTALLATION SHALL BE BONDED TOGETHER WITH A #6 AWG SOLID COPPER COUNTERPOISE CONDUCTOR. THIS COUNTERPOISE CONDUCTOR SHALL BE INSTALLED IN THE SAME TRENCH LOCATED 10 INCHES ABOVE THE POWER AND CONTROL CONDUCTORS, BETWEEN EACH RESPECTIVE PAPI UNIT (PCU AND/OR LIGHT HOUSING UNIT).



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



REVISION	DATE	DESCRIPTION
12/11/12	12/11/12	UPDATED FOUNDATION DETAIL

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

BLOCK GRANT PROJ.: 3-17-0059-B15
IL PROJ.: C75-4223

Hanson Proj. No. 10A0051	File Name R-544E.DWG	Scale NOT TO SCALE	Date 12/14/12
LAYOUT	KNL	08/27/10	
DRAWN	MLH	09/02/10	
REVIEWED	KNL/CAH	03/30/11	

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PAPI FOUNDATION DETAILS

GENERAL NOTES

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

POWER AND CONTROL NOTES

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

REVISION	8
DATE	12/11/12
UPDATED	NOTE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No.	10A00051
Filename	E-002.DWG
Scale	AS SHOWN
Date	12/14/12
LAYOUT	KNL 08/26/10
DRAWN	MJH 09/01/10
REVIEWED	KNL/CAH 03/30/11

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2903
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

ELECTRICAL NOTES
SHEET 1

JAN 10, 2013 3:36 PM KINC400394
I:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\E-002.DWG

AIRFIELD LIGHTING NOTES

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

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

GROUNDING NOTES FOR AIRFIELD LIGHTING

- GROUNDING FOR RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS SHALL BE AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. PER FAA AC 150/5340-30G DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 20-FEET LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD (TWO 3/4-INCH DIAMETER BY 10-FEET LONG, UL LISTED COPPER CLAD GROUND RODS COUPLED TOGETHER). 20-FEET LONG GROUND RODS ARE REQUIRED DUE TO POOR RESISTANCE OF THE SOIL AT THE RESPECTIVE SITE. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE: 800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE: 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437), OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS. TOP OF GROUND RODS SHALL BE BURIED 30 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS.
- FURNISH AND INSTALL A #6 AWG BARE SOLID COPPER GROUND AND BOND IT TO EACH GROUND ROD AT THE RESPECTIVE AIRFIELD LIGHT FIXTURES AND TAXI GUIDANCE SIGNS. THE #6 AWG GROUND SHALL BE DIRECT BURIAL IN TRENCH APPROXIMATELY 12 TO 18 INCHES BELOW BELOW GRADE. THE GROUND CONDUCTOR MAY BE INSTALLED ABOVE THE #8 FAA L-824, 5000-VOLT CABLE IN UNIT DUCT OR IN AN ADJACENT TRENCH. THE #6 AWG GROUND SHALL BE CONNECTED TO EACH RESPECTIVE GROUND ROD WITH AND EXOTHERMIC WELD CONNECTION. THE COMPLETED GROUND WIRE INSTALLED WILL PROVIDE A GROUND RING SYSTEM FOR THE RESPECTIVE AIRFIELD LIGHTING CIRCUIT. THE GROUND WIRE WILL NOT BE INSTALLED WITH THE HOMERUN CABLES FOR TH#6 AWG BARE SOLID COPPER GROUND WILL BE PAID FOR UNDER ITEM AR108756 1/C #6 GROUND PER LINEAR FOOT.
- FOR BASE MOUNTED LIGHT FIXTURES THE LIGHT FIXTURE MUST BE BONDED TO THE LIGHT BASE INTERNAL GROUND LUG VIA A #6 AWG STRANDED COPPER WIRE RATED FOR 600 VOLTS WITH GREEN XHHW OR USE INSULATION. THE GROUND WIRE LENGTH MUST BE SUFFICIENT TO ALLOW THE REMOVAL OF THE LIGHT FIXTURE FROM THE LIGHT BASE FOR ROUTING MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S INSTRUCTIONS FOR PROPER METHODS OF ATTACHING BONDING WIRE.
- CLEAN ALL METAL SURFACES BEFORE MAKING GROUND CONNECTIONS. METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL PER 2011 NATIONAL ELECTRICAL CODE ARTICLE 250-12.
- PER FAA 150/5340-30G THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.
- FOR RUNWAY THRESHOLD LIGHTS THAT ARE SPACED WITH 10 FEET OF SEPARATION BETWEEN THEM, PROVIDE ONE 3/4-INCH DIAMETER BY 20-FOOT LONG GROUND ROD PER TWO ADJACENT THRESHOLD LIGHTS. LOCATE GROUND ROD MIDWAY BETWEEN THE TWO THRESHOLD LIGHTS.
- FOR TAXIWAY LIGHTS THAT ARE SPACED WITH LESS THAN 20 FEET OF SEPARATION BETWEEN THEM, PROVIDE ONE 3/4-INCH DIAMETER BY 20 FEET LONG GROUND ROD PER TWO ADJACENT TAXIWAY LIGHTS. LOCATE GROUND ROD MIDWAY BETWEEN THE TWO TAXIWAY LIGHTS.
- FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAID THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGN FOR TESTING GROUND SYSTEMS. TEST RESULT SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAIDS INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE PROJECT ENGINEER.

MA025

JAN 10, 2013 3:40 PM KINC400394
E:\AIRPORTS\MARSHALL\10A025\AIRPORT SHEETS\E-003.DWG

REVISION		DATE		12/11/12	
UPDATES TO GROUNDING NOTES PER FAA AC 150/5340-30G & SOIL CONDITIONS					
MARSHALL COUNTY AIRPORT LACON, ILLINOIS					
BLOCK GRANT PROJ.: 3-17-0059-B15 IL PROJ.: C75-4223					
Hanson Proj. No. 10A0051	Filename E-003.DWG	Scale NONE	Date 12/14/12	LAYOUT KNL	08/26/10
				DRAWN MLH	09/01/10
				REVIEWED KNL/CAH	03/30/11
HANSON Professional Services Inc. 2013 1525 South Sixth Street Springfield, Illinois 62703-2986 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide					
PAVE, LIGHT AND MARK 805' EXTENSION			ELECTRICAL NOTES SHEET 2		
26			26 of 75 sheets		

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

ELECTRICAL LEGEND - SCHEMATIC	
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	STARTER COIL, * = STARTER NUMBER
	OVERLOAD RELAY CONTACT
	CONTROL RELAY, * = CONTROL RELAY NUMBER
	RELAY, * = RELAY NUMBER
	TOGGLE SWITCH / 2 POSITION SWITCH
	2-POSITION SELECTOR SWITCH
	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)
	2 POLE DISCONNECT SWITCH
	3 POLE DISCONNECT SWITCH
	PHOTOCELL
	TERMINAL BLOCK, * = TERMINAL NUMBER
	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER
	INTERNAL PANEL WIRING
	FIELD WIRING
	FUSE
	GROUND BUS OR TERMINAL
	NEUTRAL BUS
	GROUND, GROUND ROD, GROUND BUS
	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
	S1 CUTOUT HANDLE REMOVED
	S1 CUTOUT HANDLE INSERTED
	N.O. THERMAL SWITCH
	N.C. THERMAL SWITCH
	L-830 SERIES ISOLATION TRANSFORMER

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

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

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

NOTES:

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

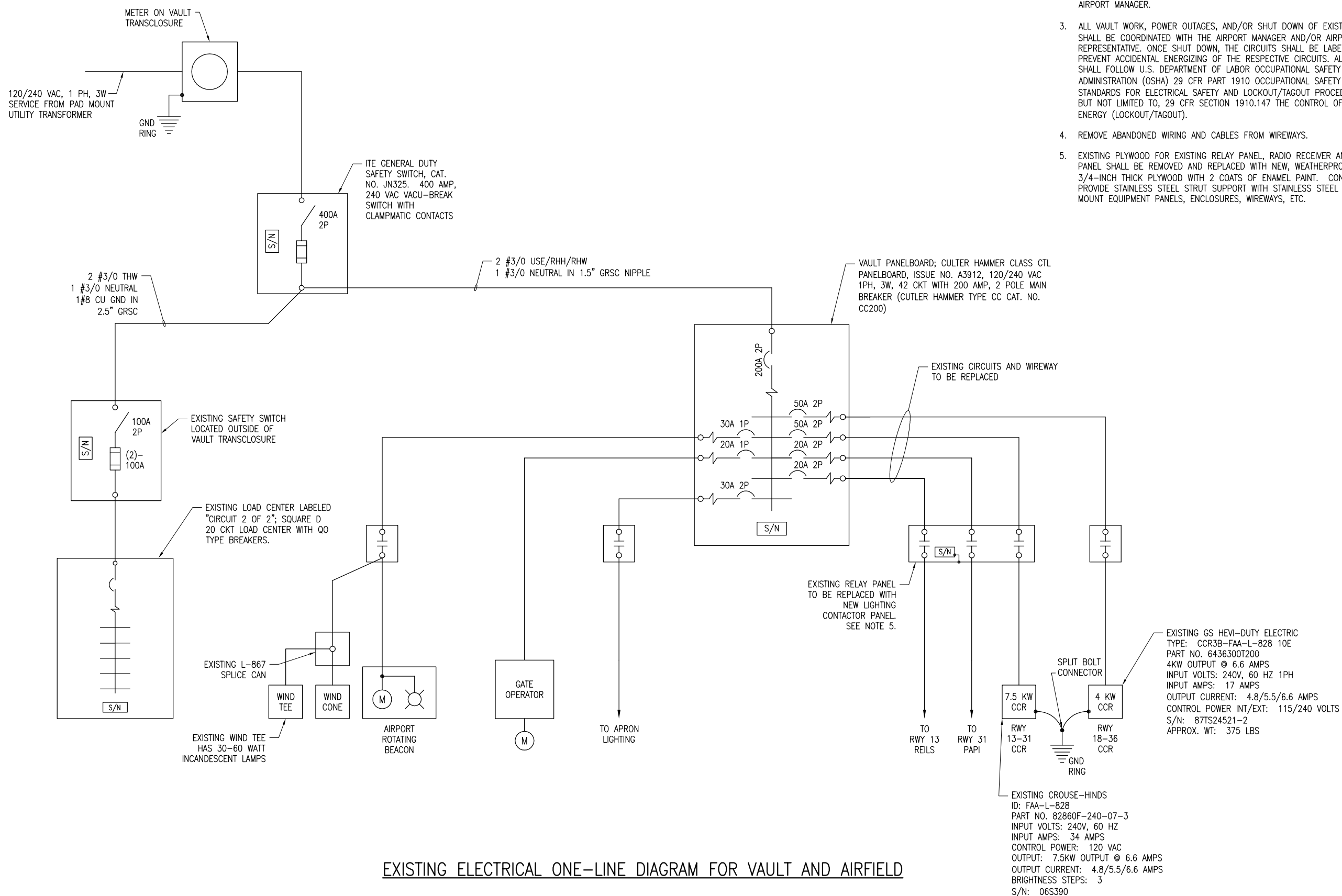
120/240 VAC, 1 PHASE, 3 WIRE

PHASE A	BLACK
PHASE B	RED
NEUTRAL	WHITE
GROUND	GREEN
- SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
- LTFMC DENOTES LIQUID TIGHT FLEXIBLE METAL CONDUIT UL LISTED, SUNLIGHT RESISTANT, & SUITABLE FOR GROUNDING. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS USED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER (MINIMUM). DO NOT INSTALL LTFMC THAT IS NOT UL LISTED. CONFIRM LTFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
- ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES UL LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.
- HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR HANDHOLE.

REVISION	DATE	12/11/12	ADDED NOTES 6 & 7
MARSHALL COUNTY AIRPORT LACON, ILLINOIS			
BLOCK GRANT PROJ.: 3-17-0059-B15 IL PROJ.: C75-4223			
Hanson Proj. No.	10A0051	LAYOUT	KNL 08/26/10
Filename	E-001.DWG	DRAWN	MLH 09/01/10
Scale	NONE	REVIEWED	KNL/CAH 03/30/11
Date	12/14/12		
 © Copyright Hanson Professional Services Inc. 2013 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2986 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide			
PAVE, LIGHT AND MARK 805' EXTENSION		ELECTRICAL LEGEND AND ABBREVIATIONS	
<div style="display: flex; justify-content: space-between;"> 27 of 75 sheets </div>			

NOTES

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS
2. ALL VAULT WORK AND/OR POWER OUTAGES SHALL BE COORDINATED WITH THE AIRPORT MANAGER.
3. ALL VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER AND/OR AIRPORT REPRESENTATIVE. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
4. REMOVE ABANDONED WIRING AND CABLES FROM WIREWAYS.
5. EXISTING PLYWOOD FOR EXISTING RELAY PANEL, RADIO RECEIVER AND INTERFACE PANEL SHALL BE REMOVED AND REPLACED WITH NEW, WEATHERPROOF TREATED 3/4-INCH THICK PLYWOOD WITH 2 COATS OF ENAMEL PAINT. CONTRACTOR SHALL PROVIDE STAINLESS STEEL STRUT SUPPORT WITH STAINLESS STEEL HARDWARE TO MOUNT EQUIPMENT PANELS, ENCLOSURES, WIREWAYS, ETC.



EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT AND AIRFIELD

REVISION	DATE	DESCRIPTION
12/11/12	12/11/12	UPDATES TO WIND CONE & WIND TEE CKTS

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

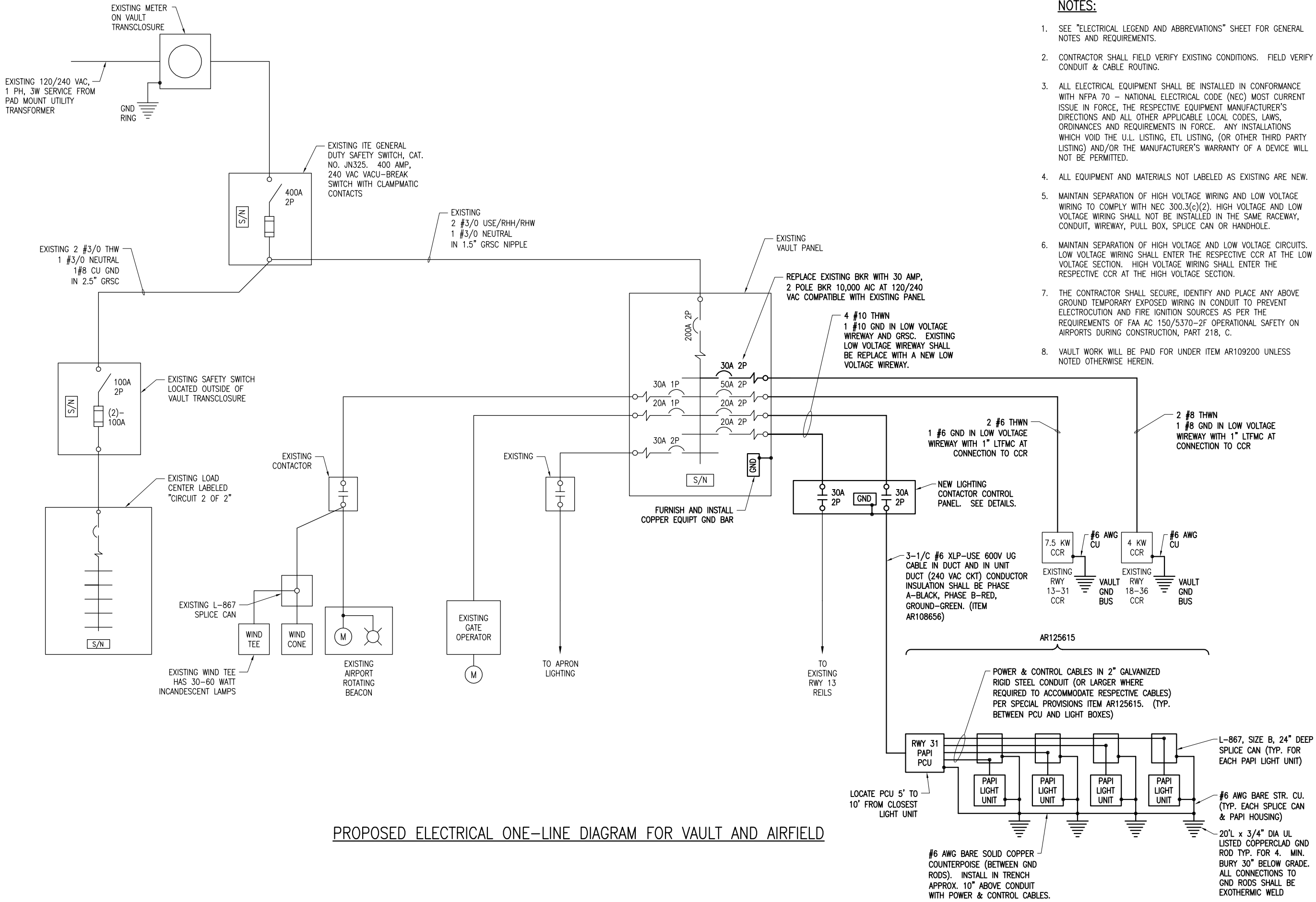
Hanson Proj. No. 10A0051	DATE	12/14/12
Filename E-601.DWG	SCALE	NONE
Scale NONE	DRAWN	MLH
Date 12/14/12	REVIEWED	KNL/CAH
	LAYOUT	KNL
	DRAWN	MLH
	REVIEWED	KNL/CAH
	DATE	08/26/10
	DATE	09/01/10
	DATE	12/11/12

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

EXISTING ELECTRICAL ONE-LINE
FOR VAULT AND AIRFIELD

JAN 10, 2013 3:43 PM KINC400394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\ E-601.DWG



- NOTES:**
- SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
 - CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS. FIELD VERIFY CONDUIT & CABLE ROUTING.
 - 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 EQUIPMENT AND MATERIALS NOT LABELED AS EXISTING ARE NEW.
 - MAINTAIN SEPARATION OF HIGH VOLTAGE WIRING AND LOW VOLTAGE WIRING TO COMPLY WITH NEC 300.3(c)(2). HIGH VOLTAGE AND LOW VOLTAGE WIRING SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, WIREWAY, PULL BOX, SPLICE CAN OR HANDHOLE.
 - MAINTAIN SEPARATION OF HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS. LOW VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE LOW VOLTAGE SECTION. HIGH VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE HIGH VOLTAGE SECTION.
 - THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ANY ABOVE GROUND TEMPORARY EXPOSED WIRING IN CONDUIT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA AC 150/5370-2F OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION, PART 218, C.
 - VAULT WORK WILL BE PAID FOR UNDER ITEM AR109200 UNLESS NOTED OTHERWISE HEREIN.

PROPOSED ELECTRICAL ONE-LINE DIAGRAM FOR VAULT AND AIRFIELD

REVISION	
DATE	12/11/12

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

BLOCK GRANT PROJ.: 3-17-0059-B15
IL PROJ.: C75-4223

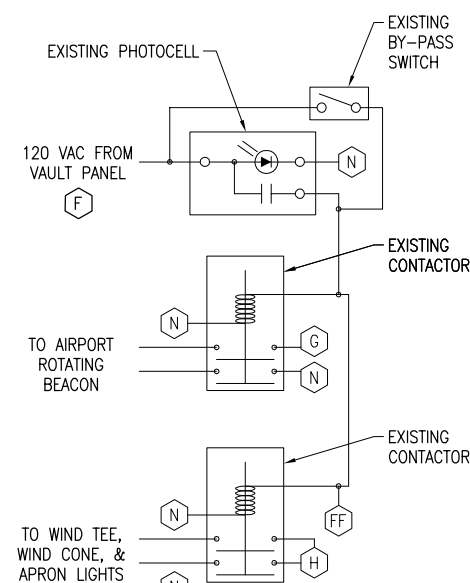
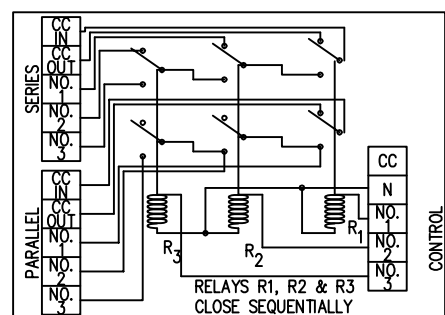
Hanson Proj. No.	10A0051
Filename	E-602.DWG
Scale	NONE
Date	12/14/12
LAYOUT	KNL 08/26/10
DRAWN	MLH 09/02/10
REVIEWED	KNL/CAH 03/30/11

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

PROPOSED ELECTRICAL
ONE-LINE FOR VAULT AND
AIRFIELD

JAN 10, 2013 3:53 PM KINC400394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\E-602.DWG



SHEET LEGEND

- (A) VAULT PANEL 240 VAC CKT 2,4 (RUNWAY 18-36 CCR)
- (B) VAULT PANEL 240 VAC CKT 6,8 (RUNWAY 13-31 CCR)
- (C) VAULT PANEL 240 VAC CKT 10,12 (RUNWAY 31 PAPI)
- (D) VAULT PANEL 240 VAC CKT 14,16 (RUNWAY 13 REILS)
- (E) VAULT PANEL 120 VAC CKT 18 (L-854 RADIO AND CCR CONTROL POWER)
- (F) VAULT PANEL 120 VAC CKT 1 (PHOTOCELL POWER)
- (FF) PHOTOCELL OUTPUT POWER
- (G) VAULT PANEL 120 VAC CKT 5 (BEACON)
- (H) VAULT PANEL 120/240 VAC CKT FOR WIND TEE, WIND CONE AND APRON FLOOD LIGHTS
- (N) N DESIGNATES NEUTRAL FROM THE RESPECTIVE PANEL THAT POWERS THE DEVICE. FOR CONTROL CIRCUIT INPUTS TO CCR'S N SHALL BE FROM THE RESPECTIVE INTERFACE PANEL CIRCUIT NEUTRAL CONNECTION.

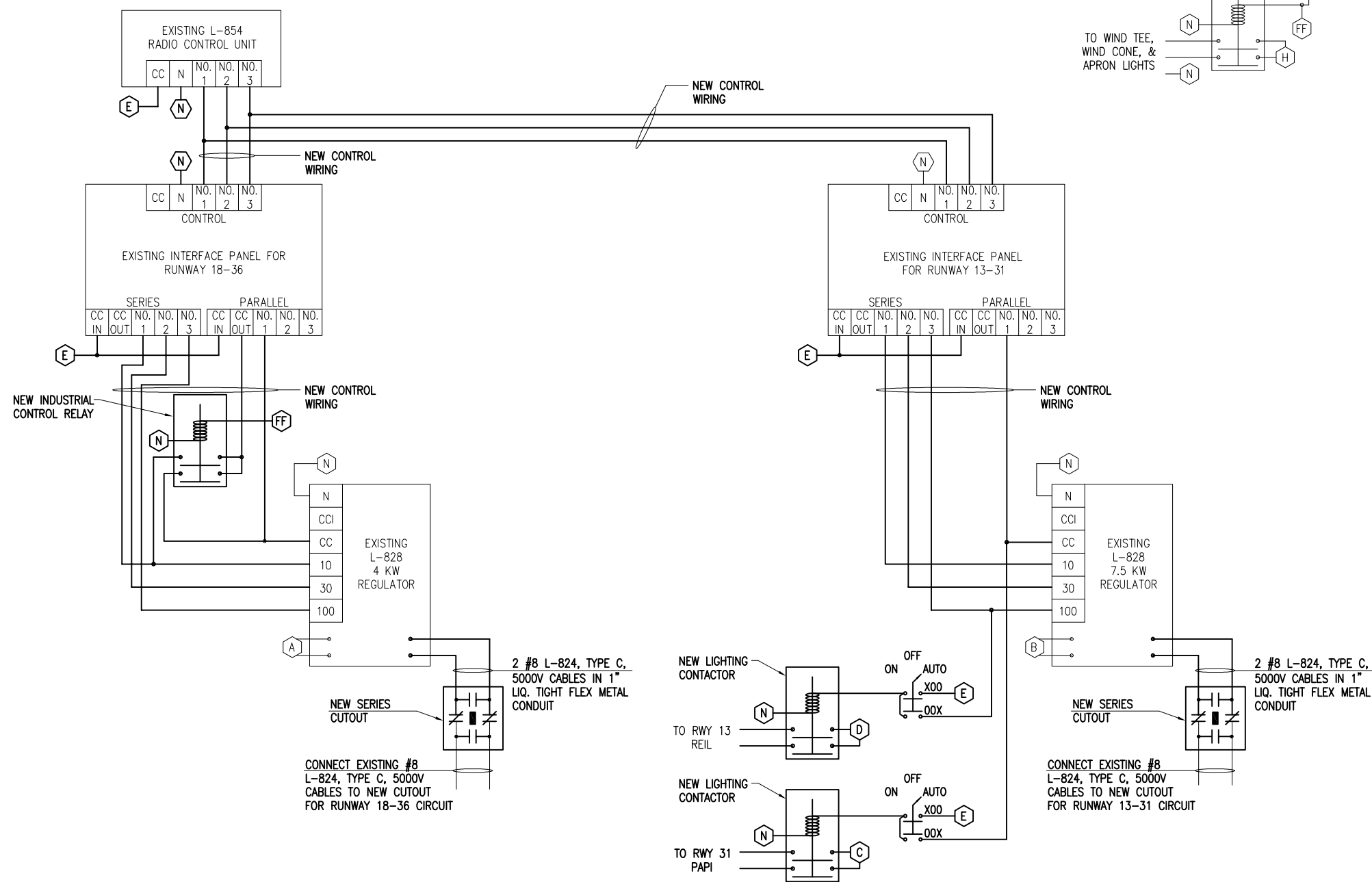
NOTES

1. ALL ELECTRICAL EQUIPMENT WILL BE WIRED IN ACCORDANCE WITH THE SCHEMATIC WIRING DIAGRAM AND ALL APPLICABLE CODES.
2. ALL CONTROL CABLE WILL BE NO. 12 AWG COPPER, 600 VOLT CABLE.
3. ALL ELECTRICAL EQUIPMENT WILL BE PROPERLY LABELED AND ALL ELECTRICAL CABLES WILL BE TAGGED.
4. ALL ELECTRICAL CABLES INSIDE THE VAULT WILL BE IN CONDUIT OR DUCT.
5. THE RUNWAY 18-36 CIRCUIT SHALL BE CONTROLLED BY THE PHOTOCELL AND L-854 RADIO RECEIVER UNIT IN THE FOLLOWING MANNER:

PHOTOCELL ON - 10% BRIGHTNESS
3 CLICKS - 10% BRIGHTNESS
5 CLICKS - 30% BRIGHTNESS
7 CLICKS - 100% BRIGHTNESS
6. THE RUNWAY 13-31 AND TAXIWAY CIRCUIT SHALL BE CONTROLLED BY THE L-854 RADIO RECEIVER UNIT IN THE FOLLOWING MANNER:

3 CLICKS - 10% BRIGHTNESS, PAPI ON
5 CLICKS - 30% BRIGHTNESS, PAPI TO REMAIN ON
7 CLICKS - 100% BRIGHTNESS, PAPI TO REMAIN ON, REILS ON
7. L-854 RADIO RECEIVER UNIT SHALL BE ACTIVE 24 HOURS PER DAY.
8. L-854 RADIO RECEIVER UNIT, THE TWO INTERFACE PANELS FOR THE REGULATORS, PHOTOCELL, 4 KW CCR FOR RWY 18-36 AND 7.5 KW CCR FOR RWY 13-31 AND TAXIWAY ARE EXISTING.
9. EQUIPMENT GROUND WIRES SHALL BE INCLUDED WITH EACH NEW BRANCH/FEEDER CIRCUIT & THE NEW CONTROL CIRCUITS TO THE CONSTANT CURRENT REGULATORS.
10. CUTOUTS, ENCLOSURES, AND ASSOCIATED 5000V SERIES CIRCUIT WIRING SHALL BE NEW. LIGHTING CONTACTOR PANEL AND ASSOCIATED POWER AND CONTROL WIRING SHALL BE NEW. CONTROL WIRING FOR CCR'S SHALL BE NEW.
11. COLOR CODING FOR THE CONTROL WIRING TO EACH CONSTANT CURRENT REGULATOR SHALL BE CONSISTENT FOR ALL REGULATORS. COLOR CODING SHALL BE AS FOLLOWS:

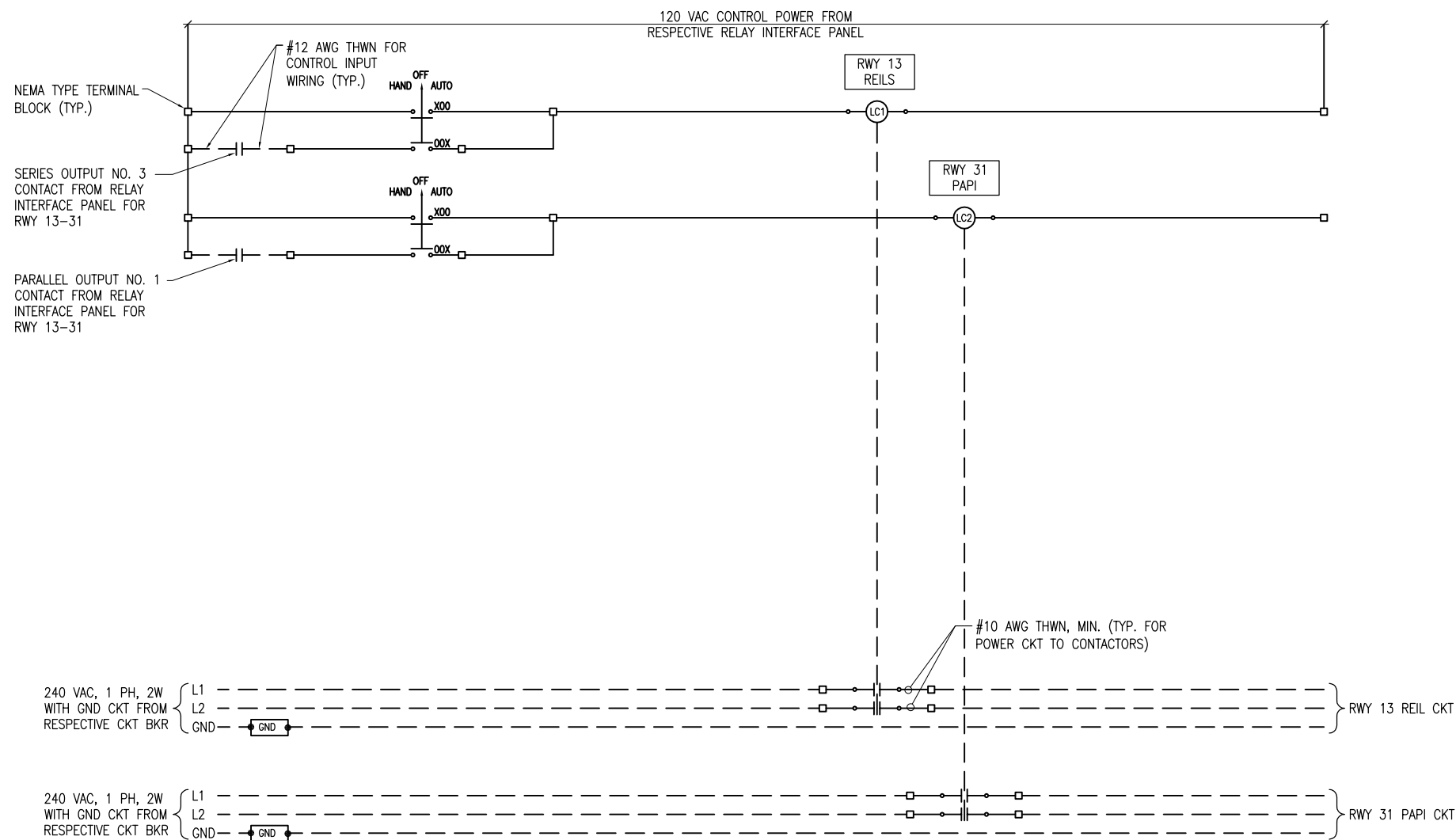
CC	- RED
10%	- ORANGE (WHERE APPLICABLE)
30%	- YELLOW
100%	- BLUE
NEUTRAL	- WHITE
EQUIPT. GND	- GREEN



AIRFIELD LIGHTING SCHEMATIC WIRING DIAGRAM

Hanson Proj. No. 10A0051	Date 12/14/12
Filename E-603.DWG	Scale NONE
LAYOUT 08/26/10	KNL
DRAWN 09/02/10	MLH
REVIEWED 12/11/12	KNL/CAH

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide



CONTROL PANEL FOR AIRFIELD NAVAIDS SCHEMATIC

CONTROL PANEL FOR AIRFIELD NAVAIDS SCHEMATIC

NOTES

- 15 AMP & 20 AMP INPUT POWER/BRANCH CIRCUITS SHALL BE #10 AWG COPPER THWN FROM THE RESPECTIVE POWER SOURCE TO THE LIGHTING CONTACTOR/RELAY PANEL. 25 AMP AND 30 AMP INPUT POWER/BRANCH CIRCUITS SHALL BE #8 AWG COPPER THWN (MIN.) FROM THE RESPECTIVE POWER SOURCE TO THE LIGHTING CONTACTOR/RELAY PANEL.
- INPUT CONTROL CIRCUITS SHALL BE #12 AWG COPPER THWN.
- FOR 120 VAC BRANCH CIRCUITS THE NEUTRAL CONDUCTOR SHALL NOT BE SWITCHED THROUGH THE RELAY CONTACTS. USE TERMINAL BLOCKS TO TRANSITION FROM VAULT BRANCH CIRCUIT WIRING TO FIELD WIRING.
- PROVIDE #10 AWG COPPER BONDING JUMPER FROM PANEL ENCLOSURE FRAME TO ENCLOSURE DOOR.
- PROVIDE 3-POSITION MAINTAINED CONTACT "HAND-OFF-AUTO" SELECTOR SWITCH FOR EACH LIGHTING CONTACTOR & MOUNT ON LIGHTING CONTACTOR PANEL ENCLOSURE DOOR. SELECTOR SWITCH SHALL BE SQUARE D CLASS 9001, TYPE SK SERIES, 30MM, OR APPROVED EQUAL. INCLUDE LEGEND PLATE TO IDENTIFY THE DEVICE CONTROLLED. SELECTOR SWITCHES SHALL BE RATED NEMA 4/4X TO BE COMPATIBLE WITH THE NEMA 4X ENCLOSURE.

REVISION	DATE
12/11/12	TWO LIG CONTACTORS

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename E-604.DWG	Scale NONE	Date 12/14/12
LAYOUT	KNL	08/26/10	
DRAWN	MLH	09/02/10	
REVIEWED	KNL/CAH	03/30/11	

HANSON
Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

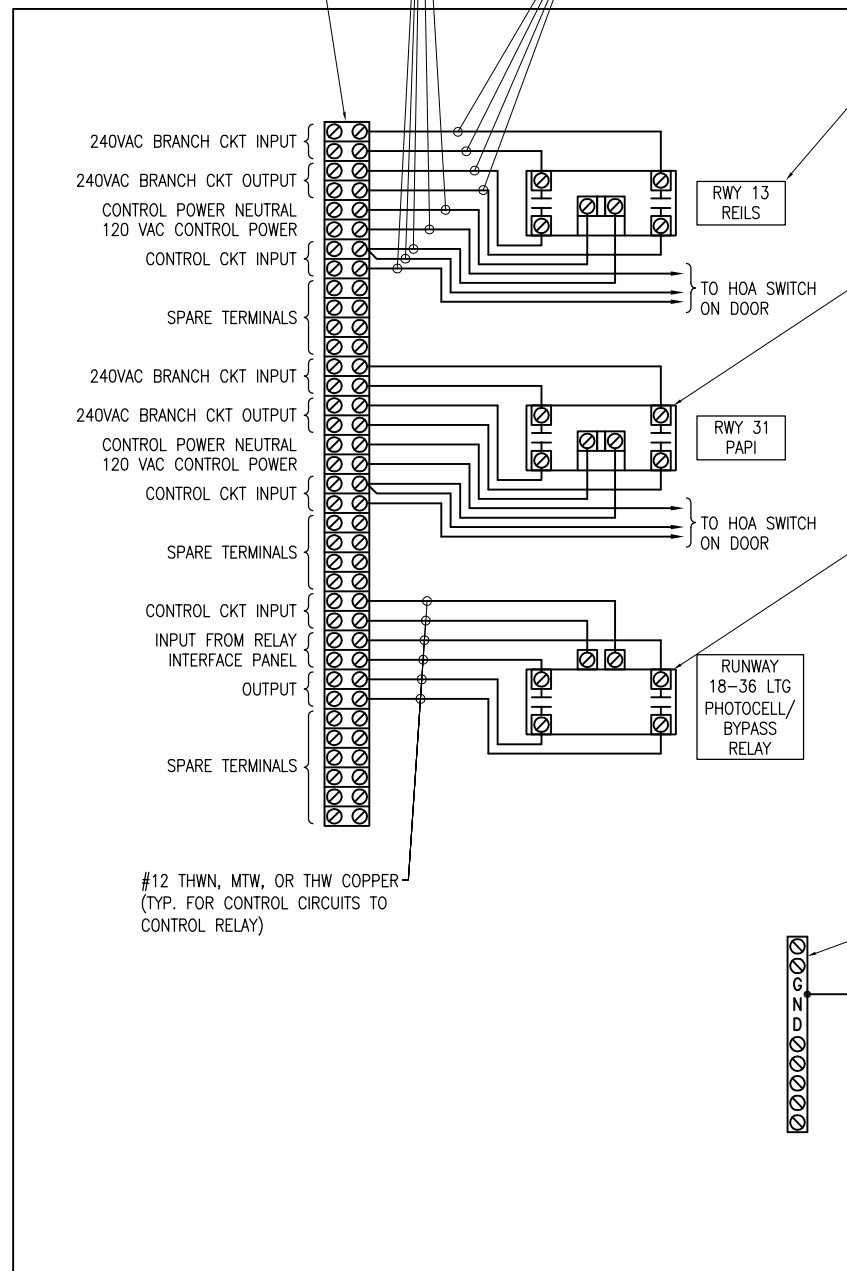
LIGHTING CONTACTOR
SCHEMATIC

JAN 11, 2013 7:39 AM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\E-604.DWG

NEMA TYPE TERMINAL BLOCKS RATED 85A, 600 VOLT SUITABLE FOR THE FOLLOWING WIRE COMBINATIONS
 1 #4 AWG
 1 #6 AWG
 1-2 #8 AWG
 1-4 #10 AWG
 1-5 #12 AWG
 TERMINAL BLOCKS SHALL BE SQUARE D CLASS 9080 TYPE GC6 OR APPROVED EQUAL. IEC RATED TERMINAL BLOCKS ARE NOT ACCEPTABLE.

#14 THWN, MTW, OR THW COPPER (TYP. FOR INTERNAL WIRING CONTROL CIRCUITS TO LIGHTING CONTACTORS). MAX. CIRCUIT BREAKER SIZE FOR CONTROL POWER SHALL BE 15 AMP.

#10 THWN, MTW, OR THW COPPER (TYP. FOR POWER CIRCUITS TO CONTACTORS)



FURNISH & INSTALL ENGRAVED LEGEND PLATES TO IDENTIFY EACH RELAY/CONTACTOR

30 AMP, 600 VAC, 2 POLE ELECTRICALLY HELD LIGHTING CONTACTOR WITH 120 VAC COIL, SQUARE D CLASS 8903, TYPE SM01V02, OR APPROVED EQUAL (TYPICAL FOR 5)

10 AMP, 600 VAC, 2 POLE NEMA TYPE INDUSTRIAL CONTROL RELAY WITH 120 VAC COIL, SQUARE D CLASS 8501, TYPE X020V02, OR APPROVED EQUAL

COPPER EQUIPMENT GROUND BAR ADEQUATELY SIZED FOR ALL GROUND WIRES TO AND FROM LIGHTING CONTACTOR PANEL; ILSCO D167-12, OR EQUAL. INSTALL ONE GROUND WIRE PER TERMINAL.

NEMA 4X STAINLESS STEEL OR ALUMINUM ENCLOSURE WITH HINGED DOOR SIZED AS REQUIRED TO HOUSE LIGHTING CONTACTORS, CONTROL RELAY, TERMINAL BLOCKS, WIRING & INTERFACE TO EXISTING CONDUITS, APPROXIMATE 24"Hx20"Wx8"D AS MANUFACTURED BY HOFFMAN OR APPROVED EQUAL. CONFIRM DIMENSIONS AND PROVIDE AN ENCLOSURE TO HOUSE EQUIPMENT AND TO FIT INSIDE VAULT TRANSCLOSURE. NOTE - NEMA 4X RATING IS TO ACCOMMODATE FUTURE RELOCATION TO AN OUTDOOR LOCATION.

CONTROL PANEL FOR AIRFIELD LIGHTING AND NAVAIDS

NOTES

- 15 AMP & 20 AMP INPUT POWER/BRANCH CIRCUITS SHALL BE #10 AWG COPPER THWN FROM THE RESPECTIVE POWER SOURCE TO THE LIGHTING CONTACTOR/RELAY PANEL. 30 AMP INPUT POWER/BRANCH CIRCUITS SHALL BE #8 AWG COPPER THWN (MIN.) FROM THE RESPECTIVE POWER SOURCE TO THE LIGHTING CONTACTOR/RELAY PANEL.
- INPUT CONTROL CIRCUITS SHALL BE #12 AWG COPPER THWN.
- FOR 120 VAC BRANCH CIRCUITS THE NEUTRAL CONDUCTOR SHALL NOT BE SWITCHED THROUGH THE RELAY CONTACTS. USE TERMINAL BLOCKS TO TRANSITION FROM VAULT BRANCH CIRCUIT WIRING TO FIELD WIRING.
- PROVIDE #10 AWG COPPER BONDING JUMPER FROM PANEL ENCLOSURE FRAME TO ENCLOSURE DOOR.
- PROVIDE 3-POSITION MAINTAINED CONTACT "HAND-OFF-AUTO" SELECTOR SWITCH FOR EACH LIGHTING CONTACTOR & MOUNT ON LIGHTING CONTACTOR PANEL ENCLOSURE DOOR. SELECTOR SWITCH SHALL BE SQUARE D CLASS 9001, TYPE KSTYPE SK SERIES RATED NEMA 4, 4X OR APPROVED EQUAL. INCLUDE LEGEND PLATE TO IDENTIFY THE DEVICE CONTROLLED (EX: "RWY 13 REILS" OR "RWY 31 PAPI").
- SEE "LIGHTING CONTACTOR SCHEMATIC" SHEET FOR ADDITIONAL INFORMATION ON WIRING. ALSO SEE "AIRFIELD LIGHTING CONTROL WIRING SCHEMATIC" SHEET FOR INFORMATION ON WIRING.
- INCLUDE LEGEND PLATE LABELED "NOTICE: CONTACTORS HAVE REMOTE LOCATED CONTROLS AND MAY ACTIVATE AT ANY TIME".
- 120/240 VAC PHASE "A" CONDUCTORS SHALL HAVE BLACK COLORED INSULATION. 120/240 VAC PHASE "B" CONDUCTORS SHALL HAVE RED COLORED INSULATION. NEUTRAL CONDUCTORS SHALL HAVE WHITE COLORED INSULATION. INSULATED EQUIPMENT GROUND WIRES SHALL HAVE GREEN COLORED INSULATION.
- CONTROL PANEL FOR AIRFIELD LIGHTING AND NAVAIDS SHALL BE MANUFACTURED BY A UL 508 INDUSTRIAL CONTROL PANEL BUILDER OR AN FAA APPROVED L-821 PANEL BUILDER, AND SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN PREFERENCE REQUIREMENTS. WHERE THE PANEL IS MANUFACTURED BY AN L-821 PANEL BUILDER IT SHALL BE LABELED AS AN L-821 PANEL.
- ALL FEEDER AND/OR BRANCH CIRCUIT CONDUCTORS OF THE SAME CIRCUIT (INCLUDING NEUTRAL CONDUCTORS AND EQUIPMENT GROUNDING CONDUCTORS) SHALL BE CONTAINED WITHIN THE SAME RACEWAY, AUXILIARY GUTTER, OR WIREWAY TO COMPLY WITH NEC 300.3(B). FOR VOLTAGE POWERED CIRCUITS TO AIRFIELD DEVICES, ROUTE ALL PHASE, NEUTRAL, AND EQUIPMENT GROUNDING CONDUCTORS FROM THE VAULT PANELBOARD TO THE RELAY/CONTACTOR PANEL AND THEN TO THE RESPECTIVE AIRFIELD DEVICE.

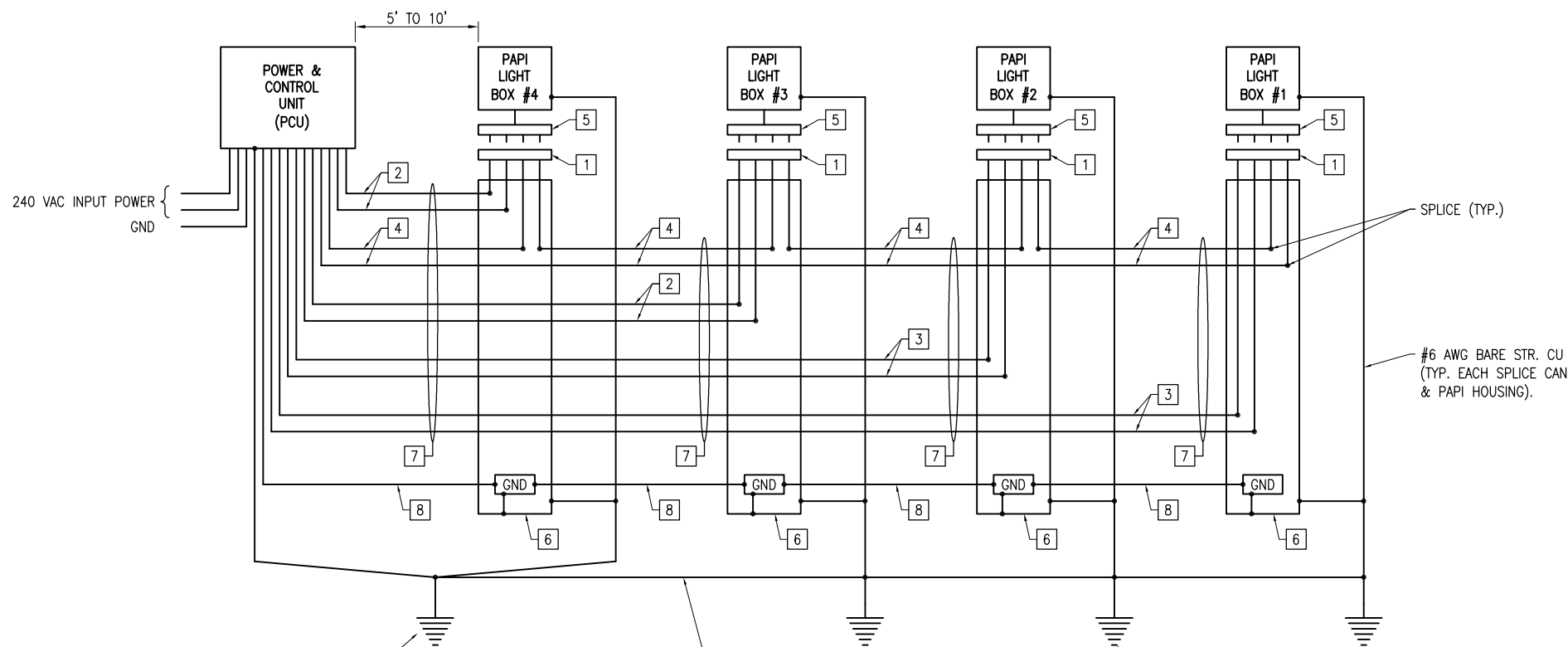
REVISION	
DATE	12/11/12
	TWO LIG CONTACTORS

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 BLOCK GRANT PROJ.: 3-17-0059-B15
 IL PROJ.: C75-4223

Hanson Proj. No.	10A00051
Filename	E-605.DWG
Scale	NONE
Date	12/14/12
LAYOUT	KNL 08/26/10
DRAWN	MLH 09/02/10
REVIEWED	KNL/CAH 03/30/11

HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
 805' EXTENSION
 LIGHTING CONTACTOR
 PANEL DETAIL



WHERE PCU (POWER AND CONTROL UNIT) AND PAPI LIGHT BOX #4 (CLOSEST LIGHT BOX TO PCU) ARE LOCATED WITHIN 10 FT. FROM EACH OTHER, PROVIDE ONE GROUND ROD TO SERVE BOTH.

#6 AWG BARE SOLID COPPER COUNTERPOISE (BETWEEN GND RODS). INSTALL IN TRENCH APPROX. 10" ABOVE CONDUIT WITH POWER & CONTROL CABLES.

20'L x 3/4" DIA. UL LISTED COPPERCLAD GND ROD TYP. FOR 4. MIN. BURY 30" BELOW GRADE. ALL CONNECTIONS TO GND RODS SHALL BE EXOTHERMIC WELD.

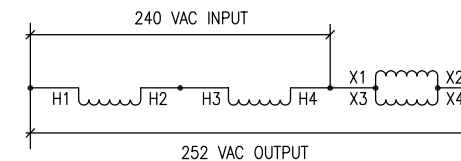
**PAPI FIELD WIRING CONNECTIONS
(FOR CROUSE-HINDS 880A3A-1 PAPI)**

NOTES

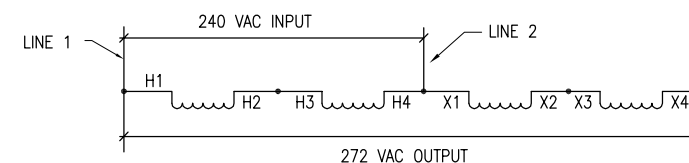
- PAPI FIELD WIRING CONNECTION DIAGRAM IS BASED ON A CROUSE-HINDS PART NO 880A3A-1, L-880 STYLE A PAPI WITH 3 LAMPS PER LIGHT BOX, & INFORMATION PROVIDED BY CROUSE-HINDS FIELD SERVICE SUPPORT CENTER. WIRING REQUIREMENTS VARY FOR DIFFERENT PAPI MANUFACTURERS AND DIFFERENT PAPI MODEL NUMBERS BY THE SAME MANUFACTURER. CONTRACTOR SHALL CONFIRM WIRING REQUIREMENTS WITH THE RESPECTIVE PAPI MANUFACTURER AND ADJUST TO MEET MANUFACTURER INSTRUCTIONS AND RECOMMENDATIONS. POWER WIRING REQUIREMENTS SHOWN ARE MINIMUM, FOR THE RESPECTIVE PAPI SYSTEM.
- INCLUDE #6 AWG EQUIPMENT GROUND WIRE IN CONDUIT WITH POWER & CONTROL WIRING BETWEEN THE POWER & CONTROL UNIT & THE PAPI LIGHT BOXES.
- CONDUIT BETWEEN PAPI PCU AND SPLICE CANS AT PAPI LIGHT UNITS SHALL BE GALVANIZED RIGID STEEL CONDUIT.
- PROVIDE DUCT SEAL FOR CONDUITS ENTERING/LEAVING THE PAPI POWER AND CONTROL UNIT.

KEYED NOTES

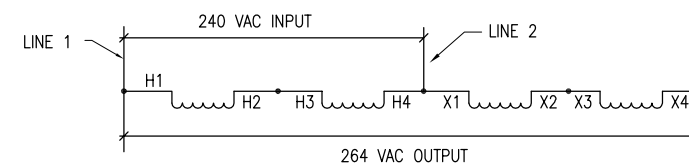
- CONSOLIDATING HARNESS, 4 #14 AWG LEADS AS FURNISHED OR REQUIRED BY PAPI MFR.
- OUTGOING POWER FEED FROM POWER & CONTROL UNIT TO THE TWO CLOSEST PAPI LIGHT BOXES (#1 & #2), #8 AWG XLP-USE OR THWN (MIN.)
- OUTGOING POWER FEED FROM POWER & CONTROL UNIT TO THE TWO FURTHEST PAPI LIGHT BOXES (#3 & #4), #6 AWG XLP-USE OR THWN (MIN.)
- TILT SWITCH WIRING #14 AWG XLP-USE OR THWN (MIN.) CONFIRM WIRING WITH PAPI MFR & ADJUST AS APPLICABLE.
- PLUG WITH CABLE ASSEMBLY AS FURNISHED OR REQUIRED BY PAPI MFR.
- L-867, CLASS IA, SIZE B, 24" DEEP SPLICE CAN.
- 2" MINIMUM GALVANIZED RIGID STEEL CONDUIT BETWEEN PAPI PCU AND L-867 SPLICE CANS AT PAPI LIGHT UNITS.
- #6 AWG EQUIPMENT GROUND.



**240 VAC TO 252 VAC BOOST TRANSFORMER CONNECTION DIAGRAM
120 x 240 VAC PRIMARY, 12/24 VAC SECONDARY TRANSFORMER**



**240 VAC TO 272 VAC BOOST TRANSFORMER CONNECTION DIAGRAM
120 x 240 VAC PRIMARY, 16/32 VAC SECONDARY TRANSFORMER**



**240 VAC TO 264 VAC BOOST TRANSFORMER CONNECTION DIAGRAM
120 x 240 VAC PRIMARY, 12/24 VAC SECONDARY TRANSFORMER**

NOTES

- WIRING DIAGRAMS SHOWN ARE TYPICAL FOR MULTIPLE 120 x 240 VAC PRIMARY, 12/24 OR 16/32 VAC SECONDARY BUCK-BOOST TRANSFORMERS FROM VARIOUS MANUFACTURERS. WIRING MAY VARY BETWEEN MANUFACTURERS. CONFIRM WIRING WITH RESPECTIVE TRANSFORMER MFR.
- PROVIDE BOOST TRANSFORMER AT VAULT WHERE VOLTAGE DROP FROM VAULT TO RESPECTIVE PAPI UNIT EXCEEDS 5% (12 VOLTS FOR 240 VAC NORMAL SUPPLY). MEASURE VOLTAGE AT PLASI UNIT WITH PAPI OPERATING. ADJUST CONNECTIONS TO BOOST TRANSFORMER AND SELECT BOOST TRANSFORMER TO PROVIDE VOLTAGE WITHIN 5% OF 240 VAC AT RESPECTIVE PAPI UNIT.
- BOOST TRANSFORMER SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENT AND THE "BUY AMERICAN ACT".

JAN 11, 2013 7:44 AM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\ SHEETS\E-605.DWG

REVISION	
DATE	

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS
BLOCK GRANT PROJ.: 3-17-0059-B15
ILL. PROJ.: C75-4223

Hanson Proj. No. 10A0051	FILENAME E-605.DWG	SCALE NONE	DATE 12/14/12
LAYOUT	KNL	08/26/10	
DRAWN	MLH	09/02/10	
REVIEWED	KNL/CAH	03/30/11	

HANSON
© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

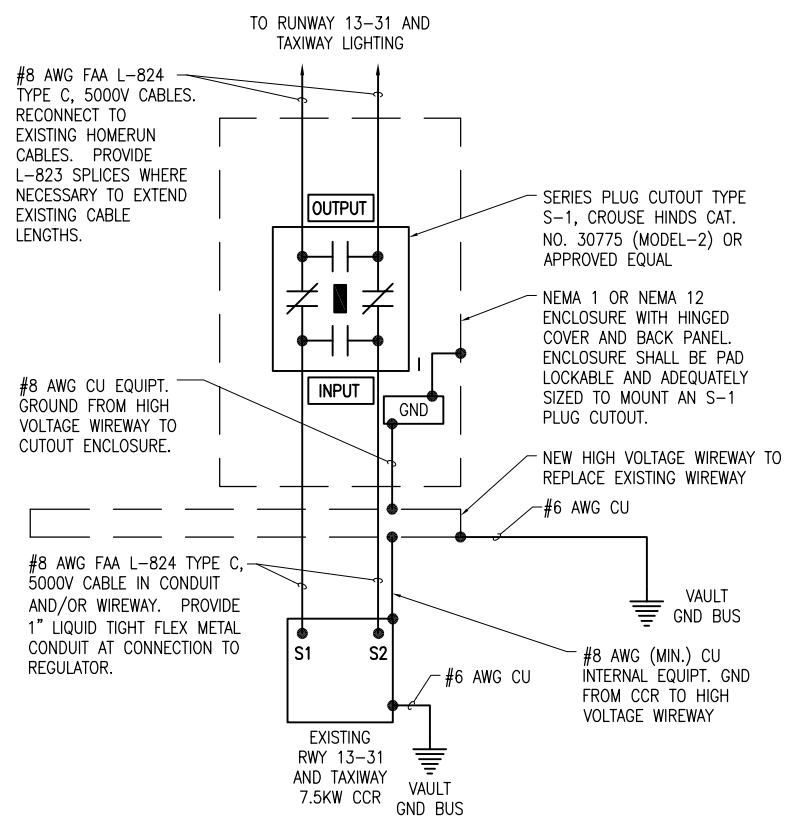
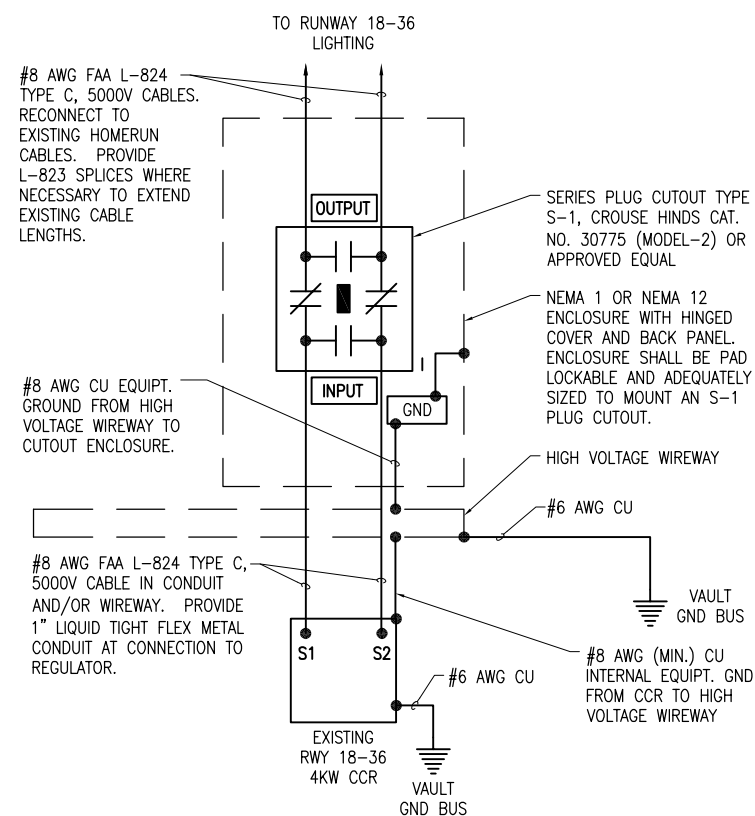
PAVE, LIGHT AND MARK
805' EXTENSION
PAPI FIELD WIRING
CONNECTIONS

NOTES

1. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CONSTANT CURRENT REGULATOR (EXISTING & NEW) NOTING THE RUNWAY AND/OR TAXIWAY SERVED.
2. EACH PLUG CUTOUT CABINET SHALL BE FURNISHED WITH A PHENOLIC ENGRAVED LEGEND PLATE THAT IDENTIFIES THE RESPECTIVE RUNWAY OR TAXIWAY CIRCUIT OR REGULATOR. INCLUDE AN ADDITIONAL LEGEND PLATE LABELED "CAUTION OPERATE CUTOUPS WITH CCR SHUT OFF".
3. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR THE CUTOUPS TO IDENTIFY THE RESPECTIVE REGULATOR OUTPUT CONNECTION AND THE RESPECTIVE CIRCUIT LOAD CONNECTION.
4. BOND REGULATOR FRAME TO VAULT GROUND BUS WITH A DEDICATED #6 AWG BONDING JUMPER.
5. PROVIDE ADEQUATE WORKING SPACE IN FRONT OF EACH CUTOUP ENCLOSURE TO MEET NEC CLEARANCE REQUIREMENTS.
6. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING AND SUNLIGHT RESISTANT. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS USED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER (MINIMUM). DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL LISTED. CONFIRM LIQUID TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
7. SERIES PLUG CUTOUPS SHALL BE TYPE S-1, RATED 5000 VOLTS, 20 AMP, AND SHALL COMPLY WITH FAA AC 150/5340-4C. SERIES PLUG CUTOUP SHALL DISCONNECT THE INPUT FROM THE OUTPUT, SHORT THE INPUT TERMINALS, AND SHORT THE OUTPUT TERMINALS WHEN THE HANDLE/PLUG IS REMOVED. CUTOUPS SHALL BE SUITABLE FOR NORMAL OPERATION WITH HANDLE REMOVED OR HANDLE INSERTED. SERIES PLUG CUTOUPS SHALL BE TYPE S-1, CROUSE HINDS CAT. NO. 30775, (MODEL-2) OR APPROVED EQUAL. THE RESPECTIVE CUTOUP MANUFACTURER SHALL CERTIFY IN WRITING THAT THEIR CUTOUP IS SUITABLE AND RATED FOR THE RESPECTIVE APPLICATION. SERIES DISCONNECTS ARE REQUIRED FOR EACH CONSTANT CURRENT REGULATOR PER FAA AC 150/5340-30G, CHAPTER 3, PART 3.5 EQUIPMENT AND MATERIAL, PARAGRAPH e, REGULATORS.
8. MAINTAIN SEPARATION OF HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS. HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, OR RACEWAY. COORDINATE HIGH VOLTAGE WIRING ENTRIES INTO THE CCR HIGH VOLTAGE SECTION. COORDINATE LOW VOLTAGE WIRING ENTRIES INTO THE CCR LOW VOLTAGE SECTION.
9. FURNISH AND INSTALL A UL RATED 10 POUND CARBON DIOXIDE FIRE EXTINGUISHER SUITABLE FOR USE ON CLASS C FIRES IN THE VAULT. PER NFPA 10 "PORTABLE FIRE EXTINGUISHERS" CLASS C FIRES ARE FIRES THAT INVOLVE ENERGIZED ELECTRICAL EQUIPMENT. FIRE EXTINGUISHER SHALL BE AMEREX 330, OR APPROVED EQUAL. CONFIRM MODEL NUMBERS WITH THE RESPECTIVE FIRE EXTINGUISHER MANUFACTURER.

LEGEND

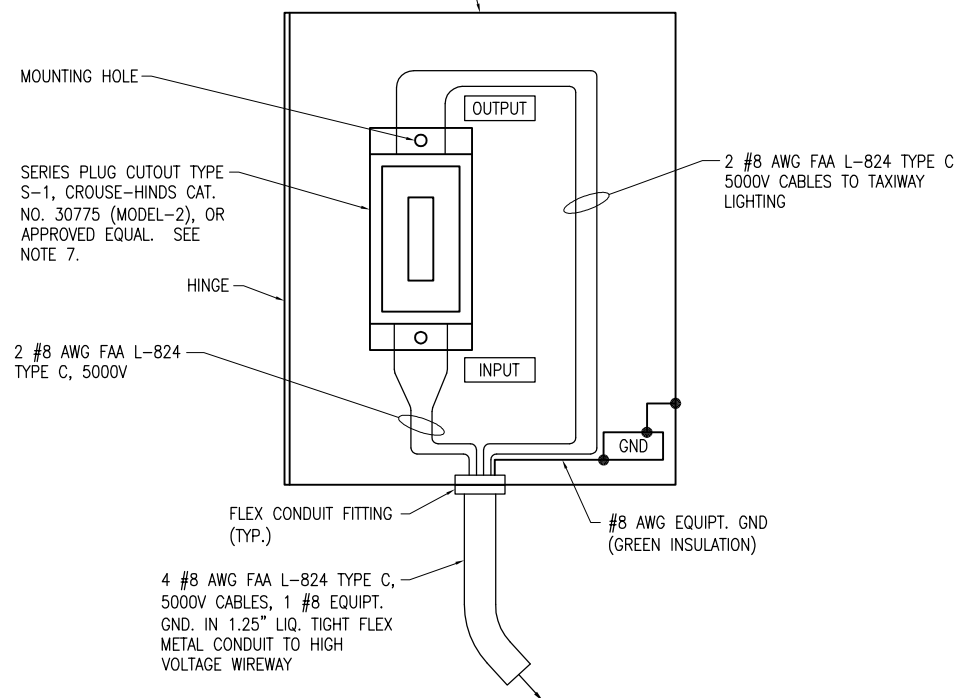
- "I" DENOTES PLUG CUTOUP WITH PLUG INSERTED
- "P" DENOTES PLUG CUTOUP WITH PLUG PULLED
- "CCR" DENOTES CONSTANT CURRENT REGULATOR



HIGH VOLTAGE WIRING SCHEMATIC

NOT TO SCALE

14"H x 12"W x 8"D (APPROXIMATE DIMENSIONS) NEMA 1 OR NEMA 12 ENCLOSURE WITH HINGED COVER & BACK PANEL. NOTE FRONT DOOR OF ENCLOSURE NOT SHOWN FOR CLARITY. ADJUST ENCLOSURE DIMENSIONS AS NECESSARY TO ACCOMMODATE THE RESPECTIVE CUTOUP.



SERIES PLUG CUTOUP MOUNTING DETAIL

NOT TO SCALE

REVISION	DATE	UPDATE PER
150/5340-30F	9/19/12	PER FAA AC
12/11/12	12/11/12	UPDATED NOTES 7 & 9

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	FILENAME E-606.DWG	SCALE NONE	DATE 12/14/12
LAYOUT	KNL	08/26/10	
DRAWN	MLH	09/01/10	
REVIEWED	KNL/CAH	03/30/11	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2986
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

HIGH VOLTAGE WIRING
SCHEMATIC

LEGEND PLATE SCHEDULE	
DEVICE	LABEL
SERVICE DISCONNECT FOR VAULT (LOCATED INSIDE VAULT)	SERVICE DISCONNECT FOR VAULT AND HANGARS 120/240VAC, 1PH, 3W
VAULT PANELBOARD/LOAD CENTER	VAULT PANEL 120/240 VAC, 1 PH, 3W FED FROM SERVICE DISCONNECT
RUNWAY 18-36 CCR	RUNWAY 18-36
RUNWAY 13-31 CCR	RUNWAY 13-31 AND TAXIWAY
CUTOUT ENCLOSURE FOR RUNWAY 18-36	RUNWAY 18-36 CUTOUT
EACH CUTOUT ENCLOSURE (2 LEGEND PLATES)	CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF
CUTOUT ENCLOSURE FOR RUNWAY 13-31 AND TAXIWAY	RUNWAY 13-31 AND TAXIWAY CUTOUT
EACH CUTOUT INPUT SIDE CONNECTION (2 LEGEND PLATES)	INPUT
EACH CUTOUT OUTPUT SIDE CONNECTION (2 LEGEND PLATES)	OUTPUT
CONTROL PANEL FOR AIRFIELD LIGHTING AND NAVAIDS	CONTACTOR PANEL FOR AIRFIELD LIGHTING AND NAVAIDS
CONTROL PANEL FOR AIRFIELD LIGHTING AND NAVAIDS	NOTICE CONTACTORS HAVE REMOTE LOCATED CONTROLS AND MAY ACTIVATE AT ANY TIME
LOW VOLTAGE WIREWAY (PROVIDE 2 LEGEND PLATES 1/2" HIGH BLACK LETTERS WHITE BACKGROUND)	LOW VOLTAGE
HIGH VOLTAGE WIREWAY (PROVIDE 2 LEGEND PLATES 1/2" HIGH BLACK LETTERS WHITE BACKGROUND)	HIGH VOLTAGE
VAULT GROUND BUS (PROVIDE 1 LEGEND PLATE 1/2" HIGH WHITE LETTERS GREEN BACKGROUND; INSTALL ABOVE OR BELOW GROUND BUS)	VAULT GROUND BUS
GROUNDING ELECTRODE CONDUCTORS TERMINATED ON VAULT GROUND BUS. (PROVIDE 2 LEGEND PLATES & SECURE TO CONDUCTORS WITH NYLON STRING OR CABLE TIES)	DO NOT DISCONNECT

NOTE: LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.

FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH SAFETY SWITCH, PANELBOARD, LOAD CENTER, CUTOUT, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "FLASH PROTECTION". LABELS SHALL BE HAZARD COMMUNICATION SYSTEMS, LLC (190 OLD MILFORD RD., BOX 1174, MILFORD, PA 18337, PHONE: 1-877-748-0244) PART NO. H6010-9VWHB/J OR APPROVED EQUAL.



"DANGER - HIGH VOLTAGE KEEP OUT" SIGN

PROVIDE WARNING SIGN ON VAULT EXTERIOR DOORS LABELED "DANGER - HIGH VOLTAGE - KEEP OUT" PER THE REQUIREMENTS OF NEC 110.34 (c). PROVIDE MINIMUM OF 2 SIGNS (ONE ON EACH DOOR TO THE VAULT).



"DANGER - HIGH VOLTAGE" SIGN

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

NOTES

1. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CONSTANT CURRENT REGULATOR (EXISTING & NEW) NOTING THE RUNWAY AND/OR TAXIWAY SERVED.
2. EACH PLUG CUTOUT CABINET SHALL BE FURNISHED WITH A PHENOLIC ENGRAVED LEGEND PLATE THAT IDENTIFIES THE RESPECTIVE RUNWAY OR TAXIWAY CIRCUIT OR REGULATOR. INCLUDE AN ADDITIONAL LEGEND PLATE LABELED "CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF".
3. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR THE CUTOUTS TO IDENTIFY THE RESPECTIVE REGULATOR OUTPUT CONNECTION AND THE RESPECTIVE CIRCUIT LOAD CONNECTION.

REVISION	
DATE	

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	
Filename E-607.DWG	
Scale NONE	
Date 12/14/12	
LAYOUT	KNL 08/26/10
DRAWN	MLH 09/01/10
REVIEWED	KNL/CAH 03/30/11

HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

LEGEND PLATE SCHEDULE

TO SERVICE DISCONNECT ENCLOSURE GROUND BUS/LUG. CONFIRM GROUNDING REQUIREMENTS FOR METER BASE WITH SERVING ELECTRIC UTILITY. CONNECT #1/0 AWG CU GROUNDING ELECTRODE CONDUCTOR TO METER BASE IN ACCORDANCE WITH SERVING ELECTRIC UTILITY CO. REQUIREMENTS/STANDARDS.

HIGH VOLTAGE WIREWAY #2 LOW VOLTAGE WIREWAY #2

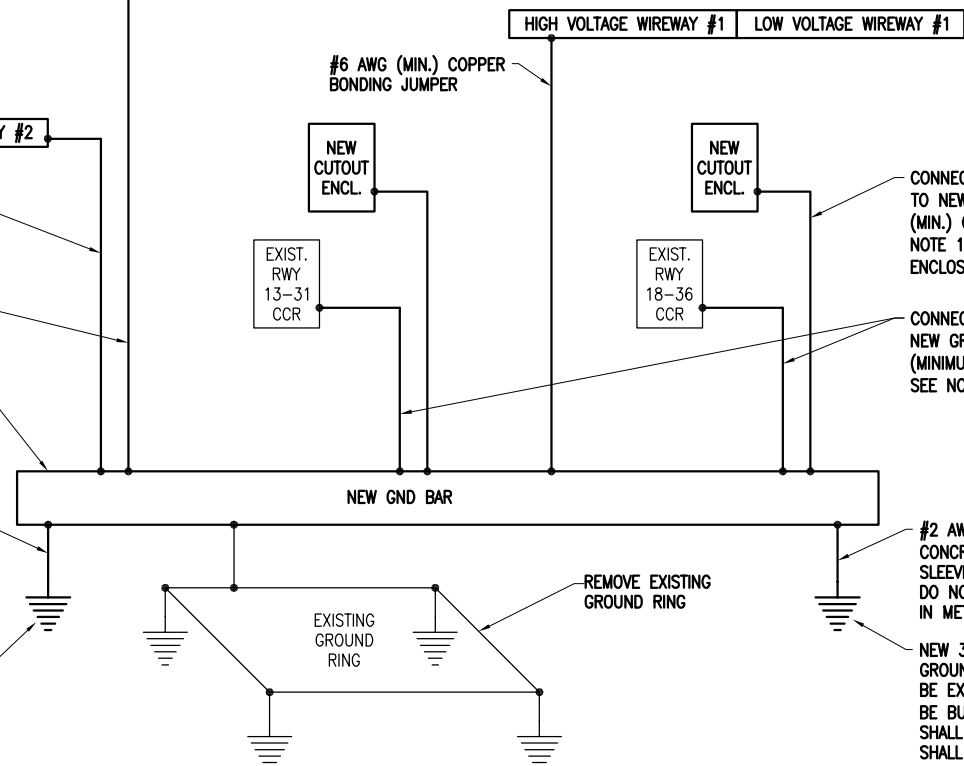
BOND HIGH VOLTAGE & LOW VOLTAGE WIREWAYS TO NEW GROUND BUS WITH A #6 AWG (MIN.) COPPER BONDING JUMPER. SEE NOTE 1.

#1/0 AWG COPPER IN 3/4" SCHEDULE 40 PVC

1/4" THICK x 2" HIGH x 20" LONG COPPER GROUND BUS WITH STANDOFF INSULATORS. GROUND BUS SHALL BE AS MANUFACTURED BY HARGER CAT. NO. GBI 14220N OR APPROVED EQUAL. FIELD VERIFY & COORDINATE LOCATION INSIDE EXISTING VAULT TRANSCLOSURE.

#2 AWG BARE COPPER. CORE DRILL THROUGH CONCRETE SLAB & INSTALL 3/4" SCHED 40 PVC SLEEVE FOR GROUNDING ELECTRODE CONDUCTOR. DO NOT INSTALL GROUNDING ELECTRODE CONDUCTOR IN METAL RACEWAY OR METAL CONDUIT.

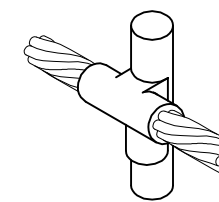
NEW 3/4" DIA x 20'L UL LISTED COPPERCLAD GROUND ROD. CONNECTION TO GROUND RODS SHALL BE EXOTHERMIC WELD. TOP OF GROUND ROD SHALL BE BURIED 30" MIN. BELOW GRADE. GROUND RODS SHALL BE ON OPPOSITE CORNERS OF THE VAULT AND SHALL BE SEPARATED BY A MINIMUM DISTANCE OF ONE ROD LENGTH (20 FT).



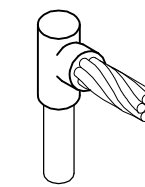
VAULT GROUND BUS RISER

NOTES

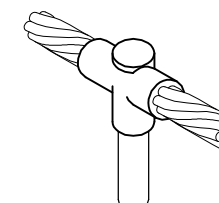
1. CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2-HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR WITH 3/8" STAINLESS STEEL BOLTS, NUTS, AND WASHERS.
2. ALL INSULATED GROUND WIRES SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR AWG AND KCMIL.
3. CONSTANT CURRENT REGULATORS SHALL BE SHUT OFF PRIOR TO DISCONNECTING EXISTING FRAME GROUNDS AND SHALL REMAIN OFF UNTIL GROUNDING UPGRADES AND NEW GROUND CONNECTIONS ARE COMPLETED.
4. ALL WORK SHOWN ON THIS SHEET SHALL BE PAID FOR UNDER ITEM AR109200 "INSTALL ELECTRICAL EQUIPMENT" PER LUMP SUM.
5. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS. REPORT ANY VARIATIONS TO THE RESIDENT ENGINEER. EXISTING EQUIPMENT CONNECTED TO THE EXISTING GROUND SYSTEM SHALL BE RECONNECTED TO THE NEW GROUND BAR.



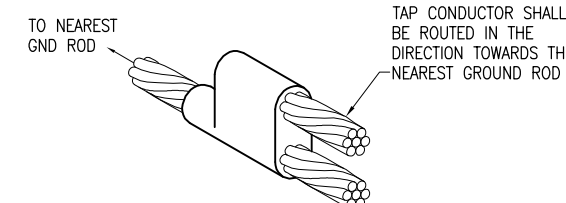
CABLE TO GROUND ROD



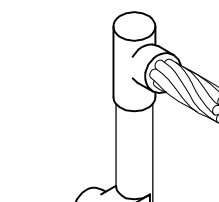
CABLE TO GROUND ROD



CABLE TO GROUND ROD



CABLE TO CABLE HORIZONTAL PARALLEL TAP



CABLES TO 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 YA6C-2TC38E2G1		
#6 AWG STRANDED	YA6C-2TC38	256-30695-1158	BBLU-6D-2TC38
#4 AWG STRANDED	YA4C-2TC38	256-30695-1159	BBLU-4D-2TC38
#2 AWG STRANDED	YA2C-2TC38	256-30695-1160	BBLU-2D-2TC38
#2 AWG SOLID	YA3C-2TC38	256-30695-1160	BBLU-3D-2TC38
#1/0 AWG STRANDED	YA25-2TC38	256-30695-1162	BBLU-1/0D-2TC38
#2/0 AWG STRANDED	YA26-2TC38	256-30695-1116	BBLU-2/0D-2TC38
#3/0 AWG STRANDED	YA27-2TC38	54816BE	BBLU-3/0D-2TC38
#4/0 AWG STRANDED	YA28-2TC38	256-30695-1117	BBLU-4/0D-2TC38

NOTES

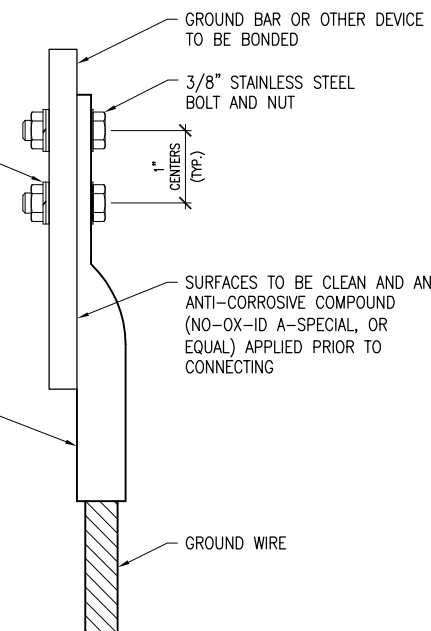
1. ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
2. GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIP MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE.
3. GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS, & INDIVIDUAL GROUND WIRES SHALL NOT BE INSTALLED IN METAL CONDUIT. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY RENCIRCLE 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.
4. ALL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", OR BURNDY PENETROX E, OR APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL

DETAIL NOTES

1. 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.
2. FOR APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.
3. INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 40 PVC CONDUIT AS REQUIRED IN FOUNDATIONS, FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT.

EXOTHERMIC WELD DETAILS



STAINLESS STEEL FLAT WASHER AND LOCK WASHER EACH CONNECTION, OR STAINLESS STEEL 2-HOLE GROUND LUG WASHER; SITE PRO PART NO. GW381, OR EQUAL, EACH CONNECTION

TWO BOLT TONGUE, LONG BARREL, COPPER, DOUBLE COMPRESSION CRIMP CONNECTOR

GROUND WIRE

SURFACES TO BE CLEAN AND AN ANTI-CORROSIVE COMPOUND (NO-OX-ID A-SPECIAL, OR EQUAL) APPLIED PRIOR TO CONNECTING

1" CENTERS (TYP.)

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

BLOCK GRANT PROJ.: 3-17-0059-B15
IL PROJ.: C75-4223

Hanson Proj. No. 10A0051	FILENAME E-606.DWG	Scale NONE	Date 12/14/12
LAYOUT	KNL	08/26/10	
DRAWN	MLH	09/01/10	
REVIEWED	KNL/CAH	03/30/11	

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

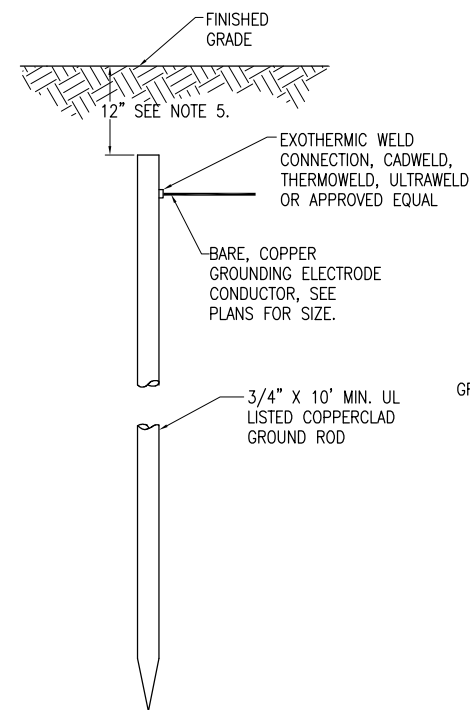
PAVE, LIGHT AND MARK
805' EXTENSION

VAULT GROUND BUS RISER
AND GROUNDING DETAILS

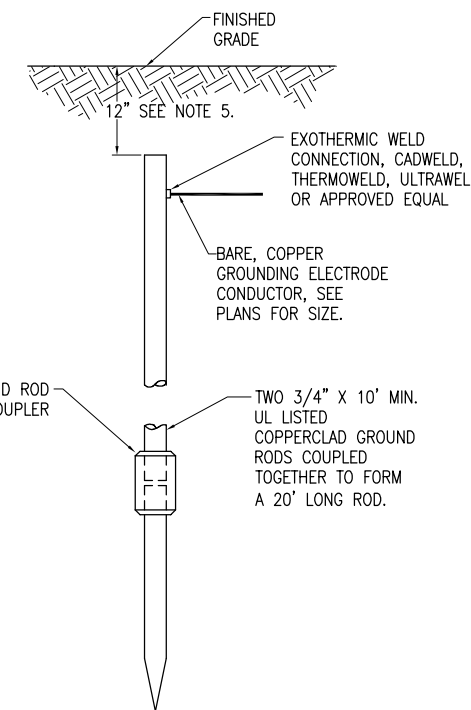
GROUNDING NOTES

- 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-019a (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 20-FT LONG, UL-LISTED COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING (TWO 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD GROUND RODS COUPLED TOGETHER). GROUND RODS FOR OTHER APPLICATIONS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 20-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), 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 2011 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2011 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

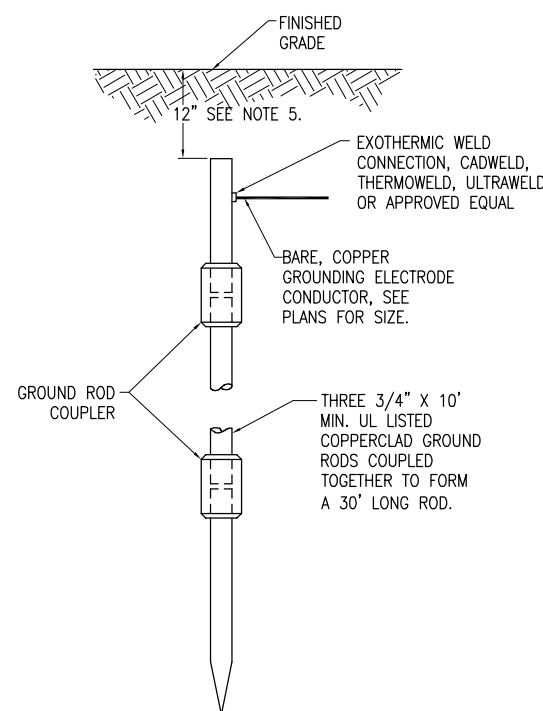
- ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2011 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2011 NEC 250-102.
- IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS WILL NOT BE CONSIDERED AS ADEQUATE GROUNDING.
- PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED 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 GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
- ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, OR EQUAL.
- BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY ENIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. GIRDLING OF A GROUND CONDUCTOR IS THE RESULT OF PLACING THE CONDUCTOR IN A RING OF MAGNETIC MATERIAL. THIS RING COULD BE A METALLIC CONDUIT, U-BOLT OR STRUT SUPPORT PIPE CLAMP, OR OTHER SUPPORT HARDWARE. THE RESULT OF GIRDLING GROUND CONDUCTORS SIGNIFICANTLY INCREASES THE INDUCTIVE IMPEDANCE OF THE GROUND CONDUCTOR. INDUCTIVE AND CAPACITIVE IMPEDANCE IS A TYPE OF RESISTANCE THAT OPPOSES THE FLOW OF ALTERNATING CURRENT. ANY INCREASE IN THE IMPEDANCE OF A GROUND CONDUCTOR REDUCES ITS ABILITY TO EFFECTIVELY MITIGATE RADIO FREQUENCY NOISE IN THE GROUND SYSTEM. THE CONDITION WHERE A GROUND CONDUCTOR IS GIRDLED DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLTS AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN A LOW DC RESISTANCE PATH.
- IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2011 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.
- WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE RESIDENT ENGINEER OR PROJECT ENGINEER FOR FURTHER DIRECTIONS.
- GROUND RODS SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS. STEEL USED TO MANUFACTURER GROUND RODS SHALL BE 100 PERCENT DOMESTIC STEEL.



10 FT. GROUND ROD



20 FT. GROUND ROD




30 FT. GROUND ROD

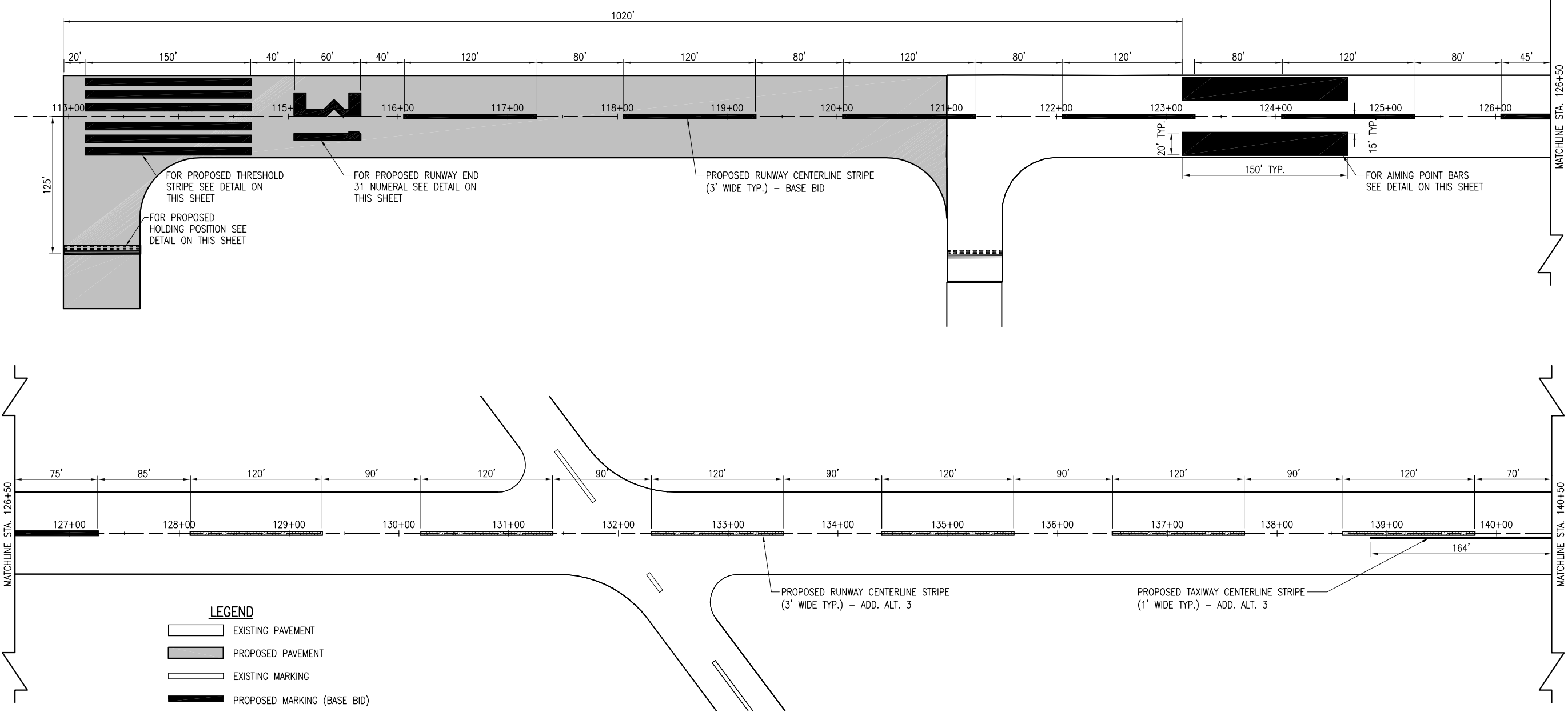
GROUND RODS
(NOT TO SCALE)

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 FOR VAULT WILL BE CONSIDERED INCIDENTAL TO ITEM AR109200.
- GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
- TOP OF GROUND RODS SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN. GROUND RING CONDUCTORS SHALL BE 40" MINIMUM BELOW GRADE OR BELOW FROST LINE WHICHEVER IS DEEPER.

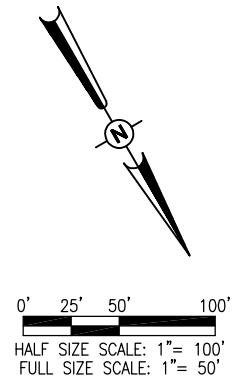
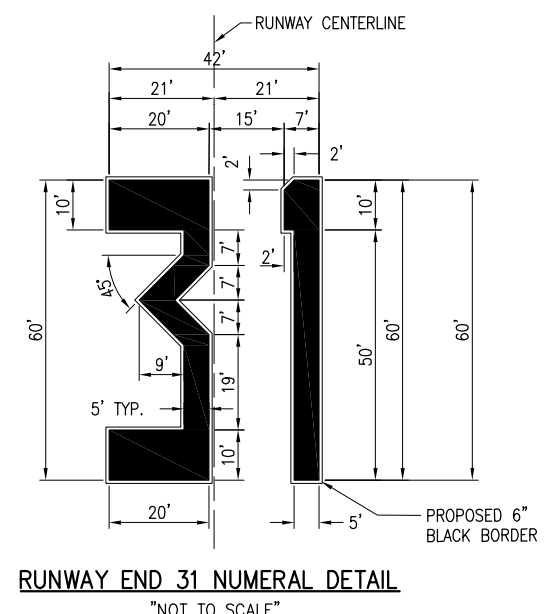
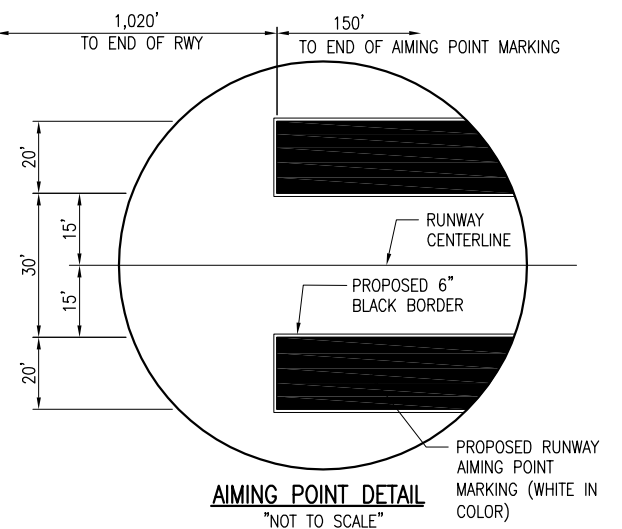
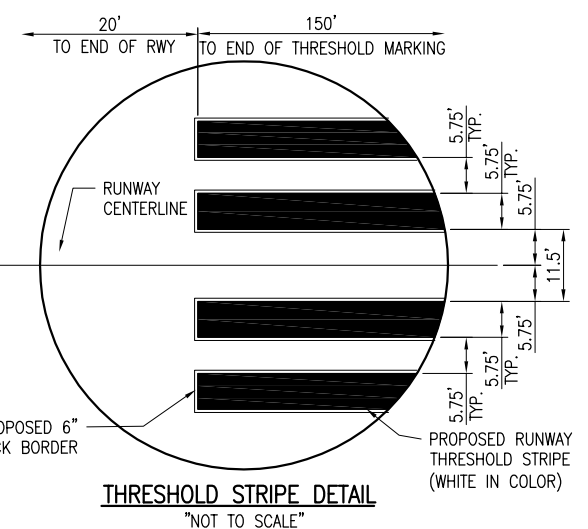
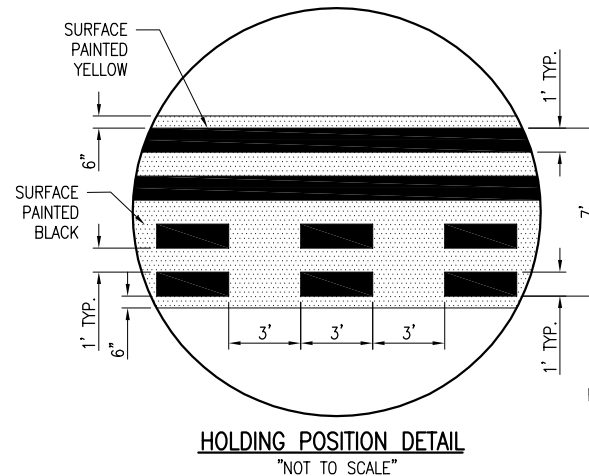
JAN 11, 2013 7:54 AM KINCAD0394
I:\AIRPORTS\MARSHALL\MA025\AIRPORT SHEETS\E-004.DWG

REVISION	DATE	DESCRIPTION
	12/11/12	UPDATED NOTE 3
MARSHALL COUNTY AIRPORT LACON, ILLINOIS		
BLOCK GRANT PROJ.: 3-17-0059-B15 IL PROJ.: C75-4223		
Hanson Proj. No. 10A00051	Scale NONE	Date 12/14/12
Filename E-004.DWG	LAYOUT	08/26/10
Scale NONE	DRAWN	09/01/10
Date 12/14/12	REVIEWED	03/30/11
 HANSON Professional Services Inc. 2013 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2886 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide		
PAVE, LIGHT AND MARK 805' EXTENSION		GROUNDING NOTES
37		37 of 75 sheets



LEGEND

	EXISTING PAVEMENT
	PROPOSED PAVEMENT
	EXISTING MARKING
	PROPOSED MARKING (BASE BID)
	PROPOSED MARKING (ADD. ALT. 3)



JAN 11, 2013 7:59 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\10A0051\MARK.DWG

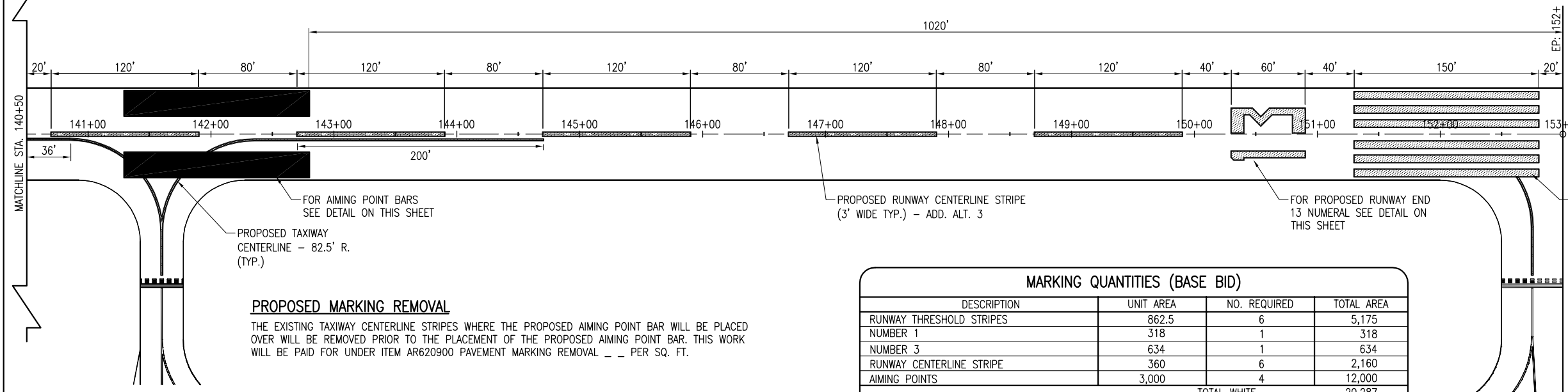
REVISION	DATE

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 BLOCK GRANT PROJ.: 3-17-0059-B15
 ILL. PROJ.: C75-4223

Hanson Proj. No. 10A0051	BAK	07/15/10
Filename R-151MRK.DWG	BAK	07/15/10
Scale 1"=50'	CAH	03/30/11
Date 12/14/12		
LAYOUT		
DRAWN		
REVIEWED		

HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2986
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

**PAVE, LIGHT AND MARK
 805' EXTENSION**
 PROPOSED MARKING PLAN
 STA. 112+95 TO STA. 140+50



PROPOSED MARKING REMOVAL
 THE EXISTING TAXIWAY CENTERLINE STRIPES WHERE THE PROPOSED AIMING POINT BAR WILL BE PLACED OVER WILL BE REMOVED PRIOR TO THE PLACEMENT OF THE PROPOSED AIMING POINT BAR. THIS WORK WILL BE PAID FOR UNDER ITEM AR620900 PAVEMENT MARKING REMOVAL __ PER SQ. FT.

620-PAVEMENT MARKING-WATERBORNE NOTES
 THE PAVEMENT MARKING-WATERBORNE (620) SHALL BE PLACED IN ACCORDANCE WITH ITEM 620 "PAVEMENT MARKING" AS STATED ON PAGE 272 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED APRIL 1, 2012.

THIS ITEM SHALL CONSIST OF RUNWAY AND TURNAROUND MARKING (BASE BID) AND RUNWAY AND TAXIWAY MARKING (ADDITIVE ALTERNATE NO. 3) IN ACCORDANCE WITH THESE SPECIFICATIONS AND AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. ALL MARKING WILL BE WHITE, YELLOW AND SOLID IN COLOR. ALL PROPOSED MARKING WILL HAVE A 6-IN BLACK BORDER. THE PROPOSED PAVEMENT MARKING WILL BE APPLIED IN TWO APPLICATIONS.

ANY MATERIAL DELIVERED THAT FAILS TO MEET THE SPECIFICATIONS SHALL BE DISPOSED OF BY THE VENDOR AND IMMEDIATELY REPLACED WITH ACCEPTABLE MATERIAL ENTIRELY AT THE VENDOR'S EXPENSE, INCLUDING HANDLING AND TRANSPORTATION CHARGES.

ALL CURING COMPOUND WILL BE CLEANED FROM CONCRETE PAVEMENT PRIOR TO APPLYING PAINT. NO EXCEPTIONS.

ALL PROPOSED MARKING WILL BE COMPLETED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION PLANS.

ALL PROPOSED PAVEMENT MARKING SHALL BE WATERBORNE PAINT IN ACCORDANCE WITH ITEM 620.

GLASS BEADS SHALL BE REQUIRED ONLY ON THE SECOND APPLICATION OF YELLOW MARKING.

CUT-OFF SHEETS WILL BE REQUIRED TO INSURE STRAIGHT EDGES.

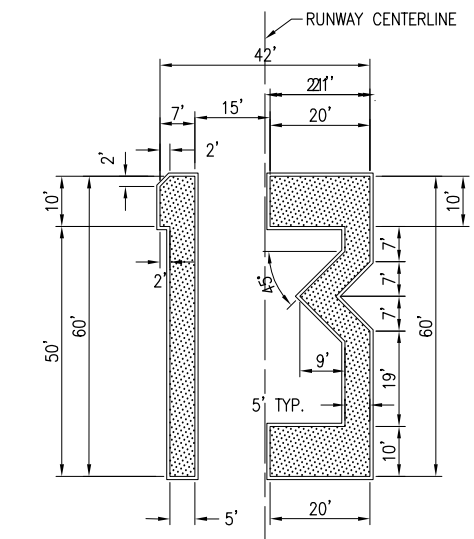
THE PROPOSED MARKING WILL BE PAID FOR UNDER ITEM:
BASE BID:
 AR620520 PAVEMENT MARKING-WATERBORNE __ PER S.F.
 AR620525 PAVEMENT MARKING-BLACK BORDER __ PER S.F.
ADDITIVE ALTERNATE NO. 3
 AU620520 PAVEMENT MARKING-WATERBORNE __ PER S.F.
 AU620525 PAVEMENT MARKING-BLACK BORDER __ PER S.F.

MARKING QUANTITIES (BASE BID)

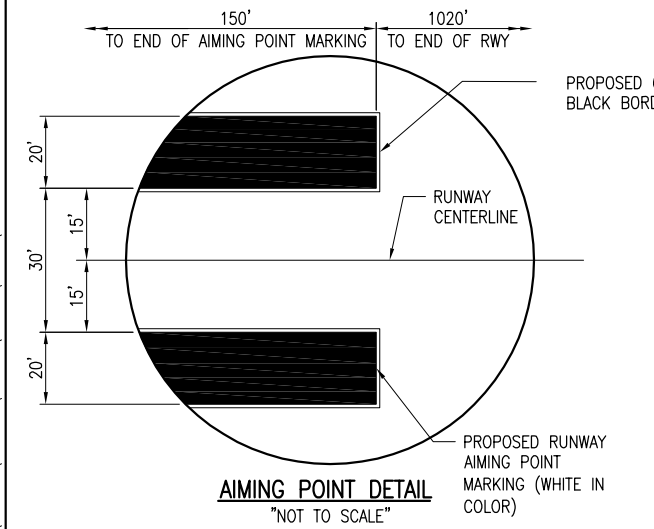
DESCRIPTION	UNIT AREA	NO. REQUIRED	TOTAL AREA
RUNWAY THRESHOLD STRIPES	862.5	6	5,175
NUMBER 1	318	1	318
NUMBER 3	634	1	634
RUNWAY CENTERLINE STRIPE	360	6	2,160
AIMING POINTS	3,000	4	12,000
TOTAL WHITE			20,287
HOLDING LINE	212	1	212
TOTAL YELLOW			212
RUNWAY THRESHOLD STRIPES (BLACK BORDER)	6	156.75	941
NUMBER 1 (BLACK BORDER)	67	1	67
NUMBER 3 (BLACK BORDER)	94	1	94
RUNWAY CENTERLINE STRIPE (BLACK BORDER)	6	124	744
AIMING POINTS (BLACK BORDER)	171	4	684
HOLDING LINE (BLACK BORDER)	350	1	350
TOTAL BLACK			2,880
TOTAL MARKING			23,379

MARKING QUANTITIES (ADDITIVE ALTERNATE NO. 3)

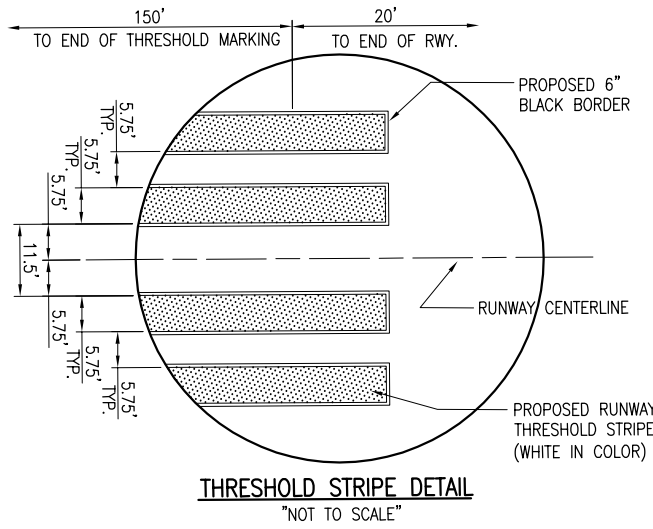
DESCRIPTION	UNIT AREA	NO. REQUIRED	TOTAL AREA
RUNWAY THRESHOLD STRIPES	862.5	6	5,175
NUMBER 1	318	1	318
NUMBER 3	634	1	634
RUNWAY CENTERLINE STRIPE	360	11	3,960
TOTAL WHITE			10,087
TAXIWAY CENTERLINE STRIPE	727	1	727
TOTAL YELLOW			727
RUNWAY THRESHOLD STRIPES (BLACK BORDER)	6	156.75	941
NUMBER 1 (BLACK BORDER)	67	1	67
NUMBER 3 (BLACK BORDER)	94	1	94
RUNWAY CENTERLINE STRIPE (BLACK BORDER)	124	11	1,364
TAXIWAY CENTERLINE STRIPE (BLACK BORDER)	731	1	731
TOTAL BLACK			3,197
TOTAL MARKING			14,011



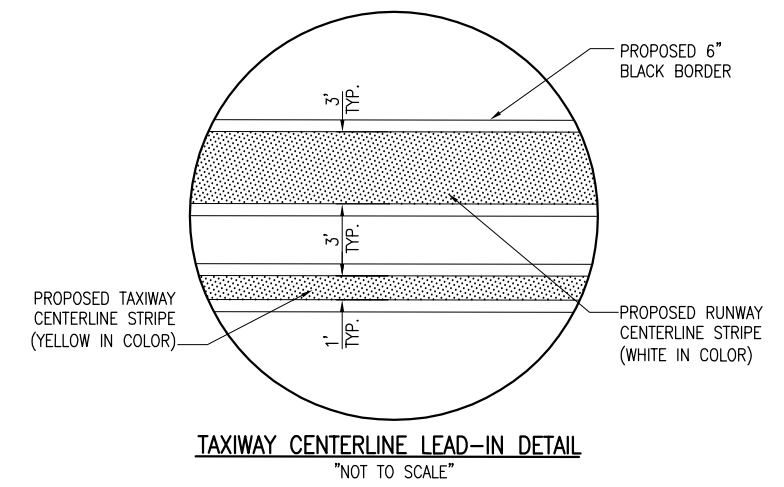
RUNWAY END 31 NUMERAL DETAIL
 "NOT TO SCALE"



AIMING POINT DETAIL
 "NOT TO SCALE"



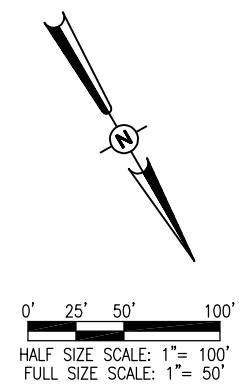
THRESHOLD STRIPE DETAIL
 "NOT TO SCALE"



TAXIWAY CENTERLINE LEAD-IN DETAIL
 "NOT TO SCALE"

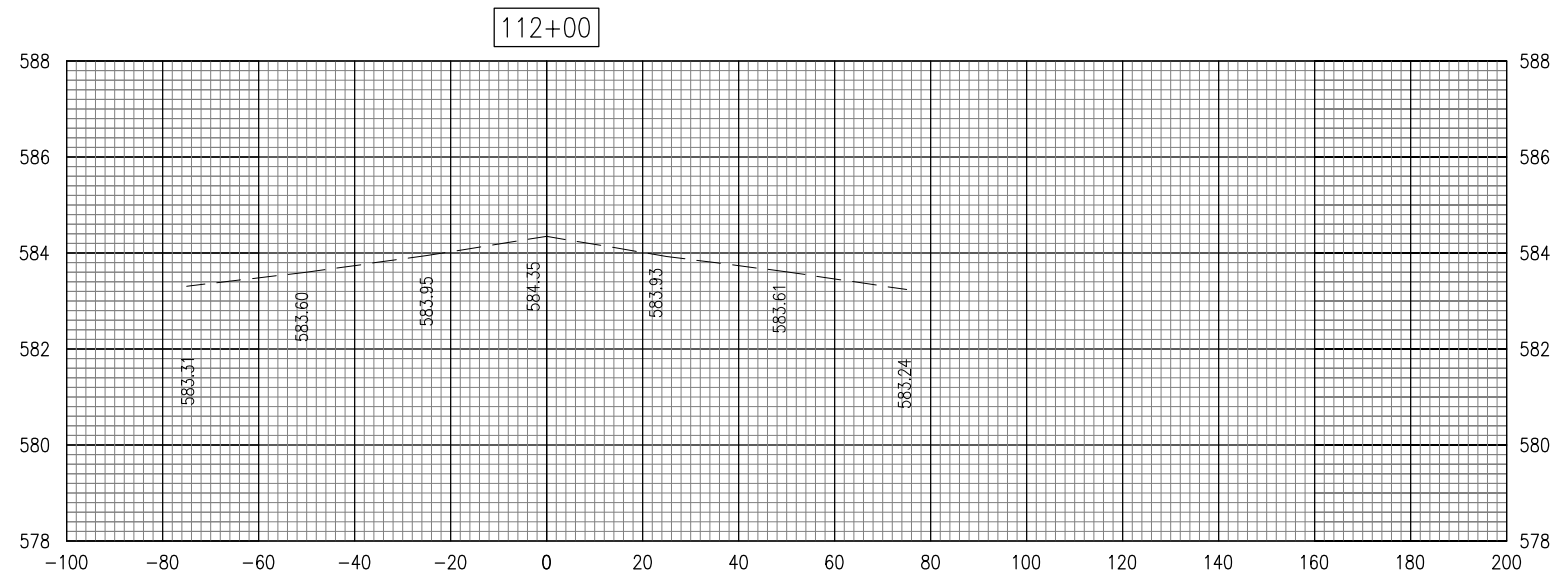
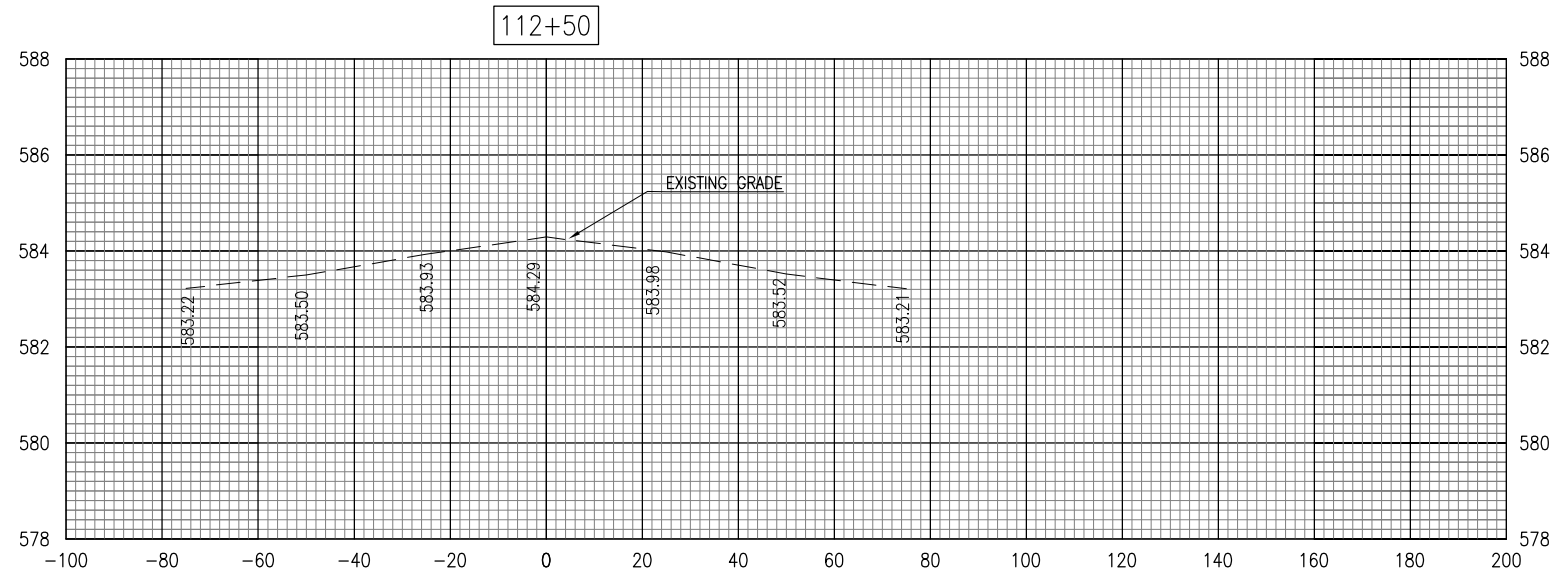
LEGEND

- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- EXISTING MARKING
- PROPOSED MARKING (BASE BID)
- PROPOSED MARKING (ADD. ALT. 3)



JAN 11, 2013 8:00 AM K:\CADD\394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\1515\1515.MRK.DWG

REVISION		MARSHALL COUNTY AIRPORT LACON, ILLINOIS	BLOCK GRANT PROJ.: 3-17-0059-B15 IL PROJ.: C75-4223
DATE			
Hanson Proj. No. 10A0051 Filename R=1515.MRK.DWG Scale 1"=50' Date 12/14/12		LAYOUT BAK 07/15/10 DRAWN BAK 07/15/10 REVIEWED CAH 03/30/11	
© Copyright Hanson Professional Services Inc. 2013 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2986 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide		PAVE, LIGHT AND MARK 805' EXTENSION	PROPOSED MARKING PLAN STA. 140+50 TO STA. 153+00
39 39 of 75 sheets			



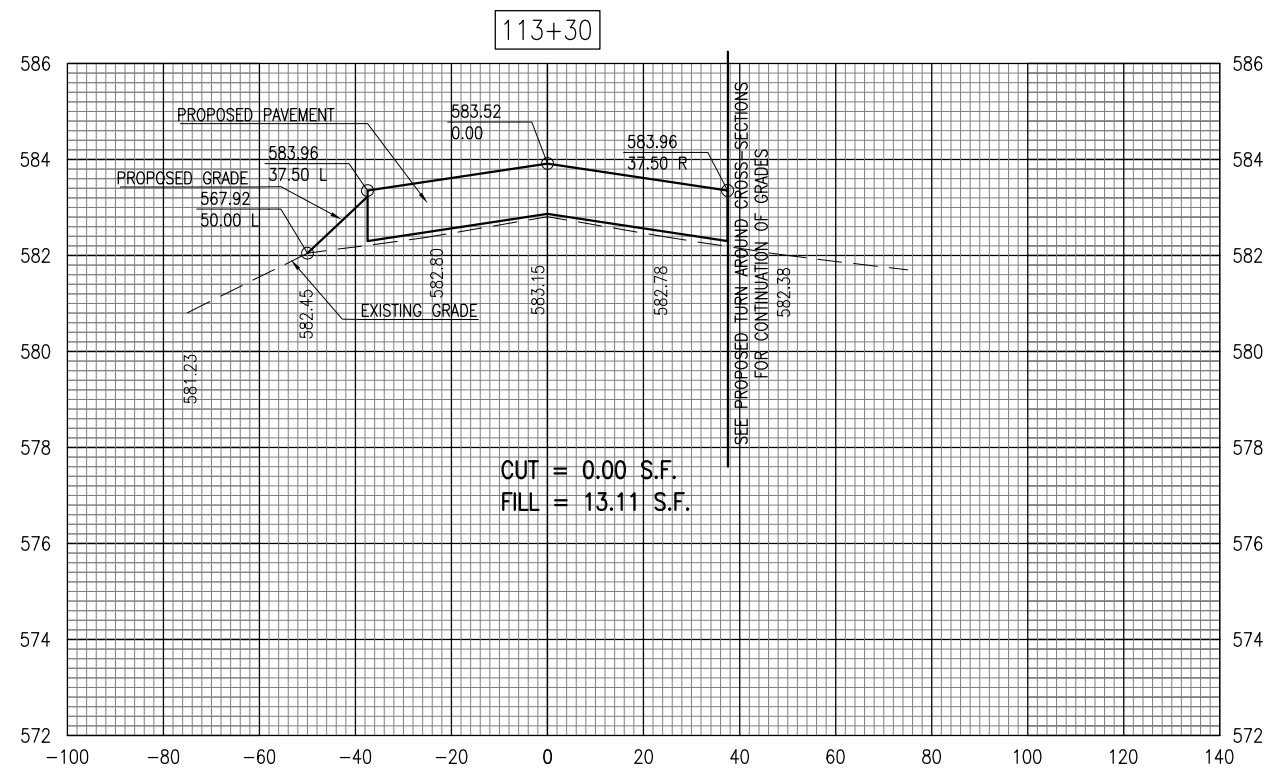
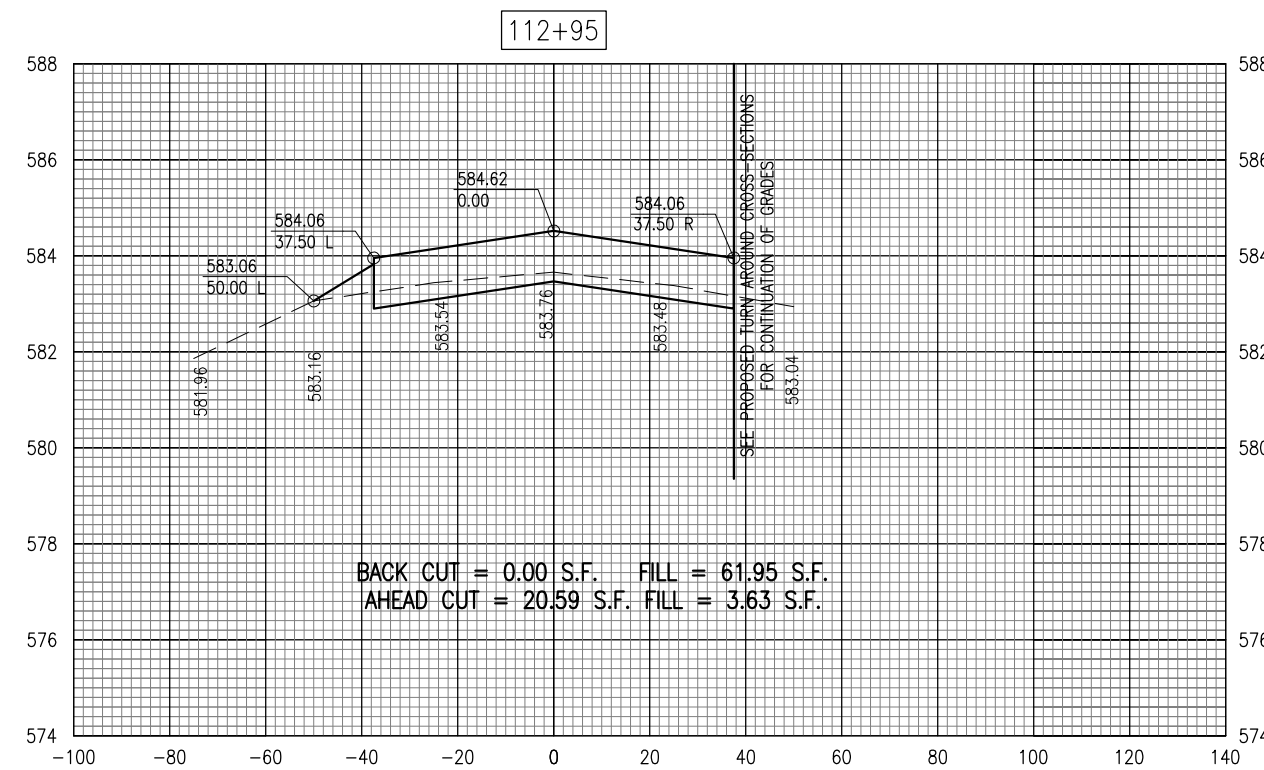
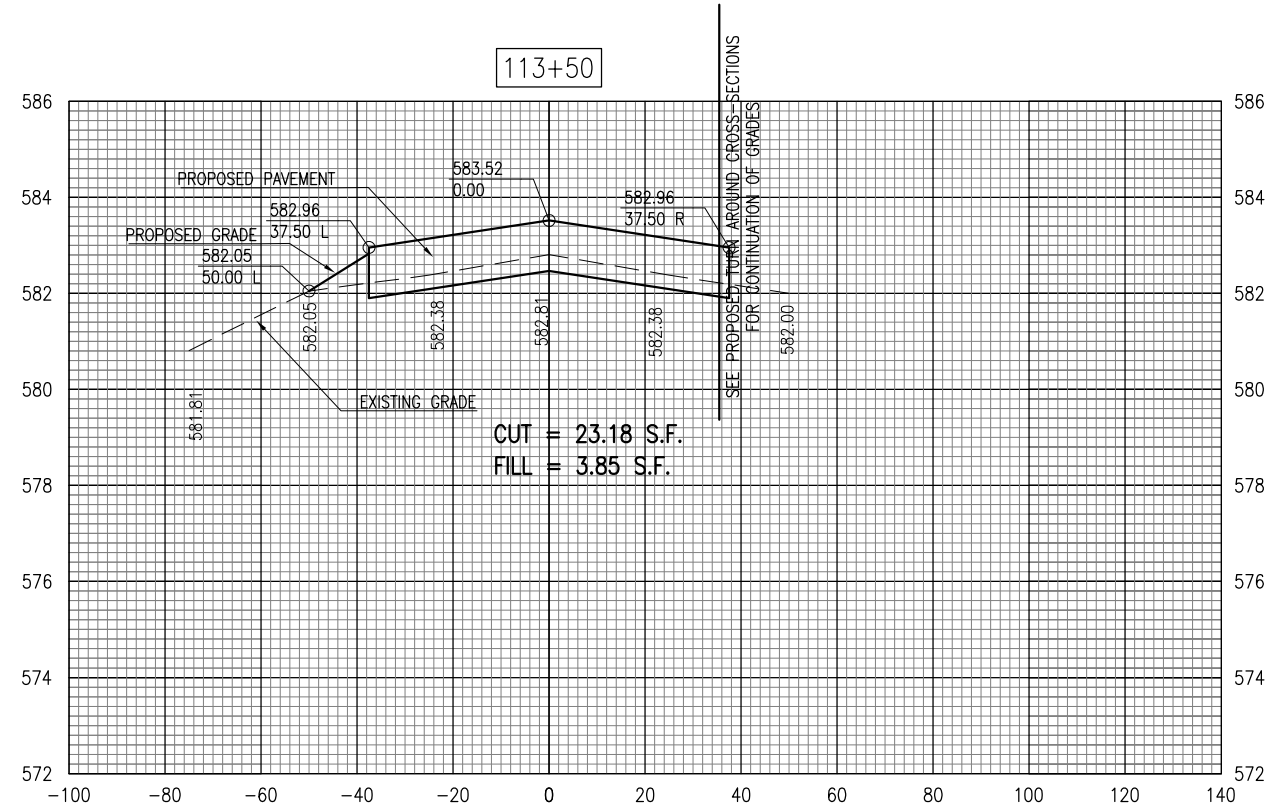
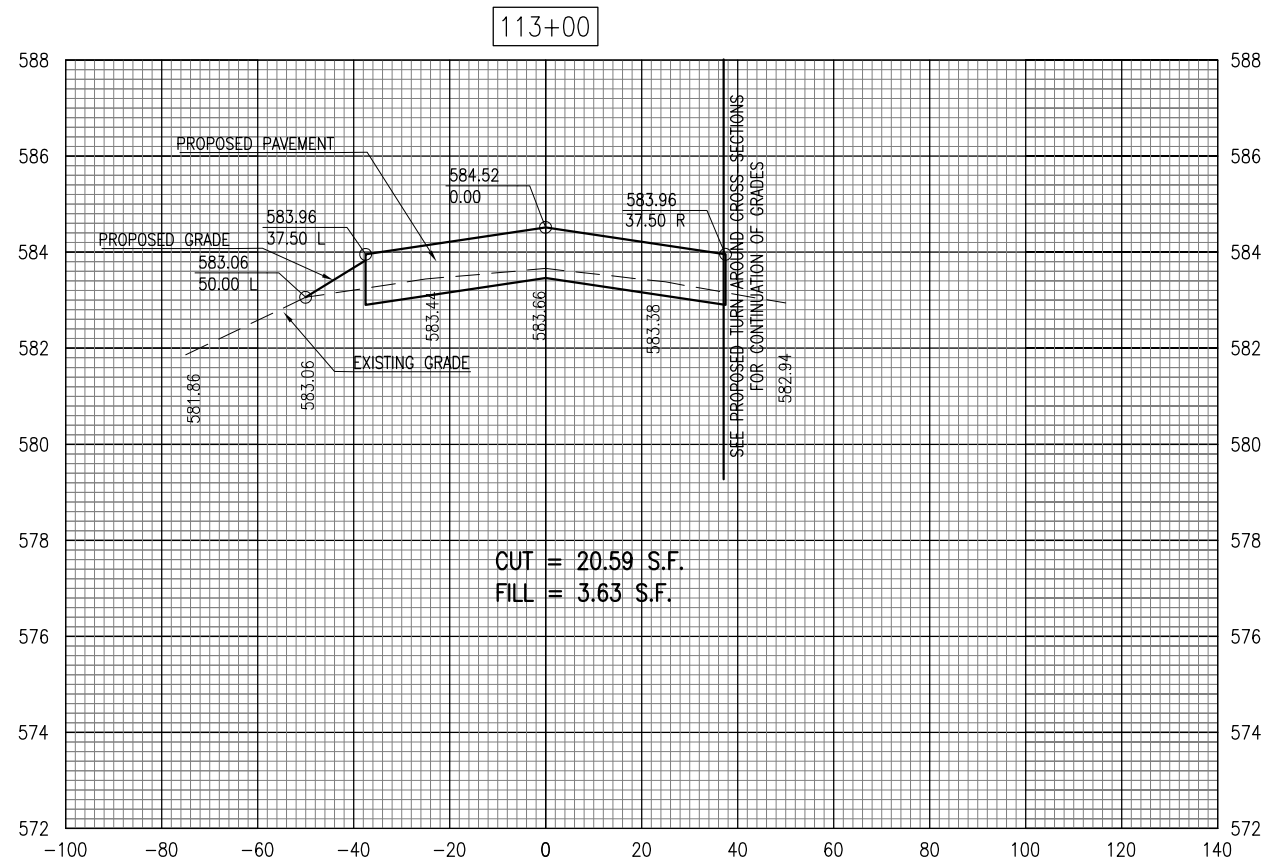
DATE	REVISION

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename R-301XSEC.DWG	Scale NOT TO SCALE	Date 12/14/12
LAYOUT	BAK	07/08/10	
DRAWN	BAK	07/08/10	
REVIEWED	CAH	03/30/11	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
 805' EXTENSION
 CROSS-SECTIONS FOR
 RUNWAY EXTENSION STA.
 112+00 TO STA. 112+50



JAN 11, 2013 8:06 AM KINC00394
E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\R-301XSEC.DWG

REVISION	DATE

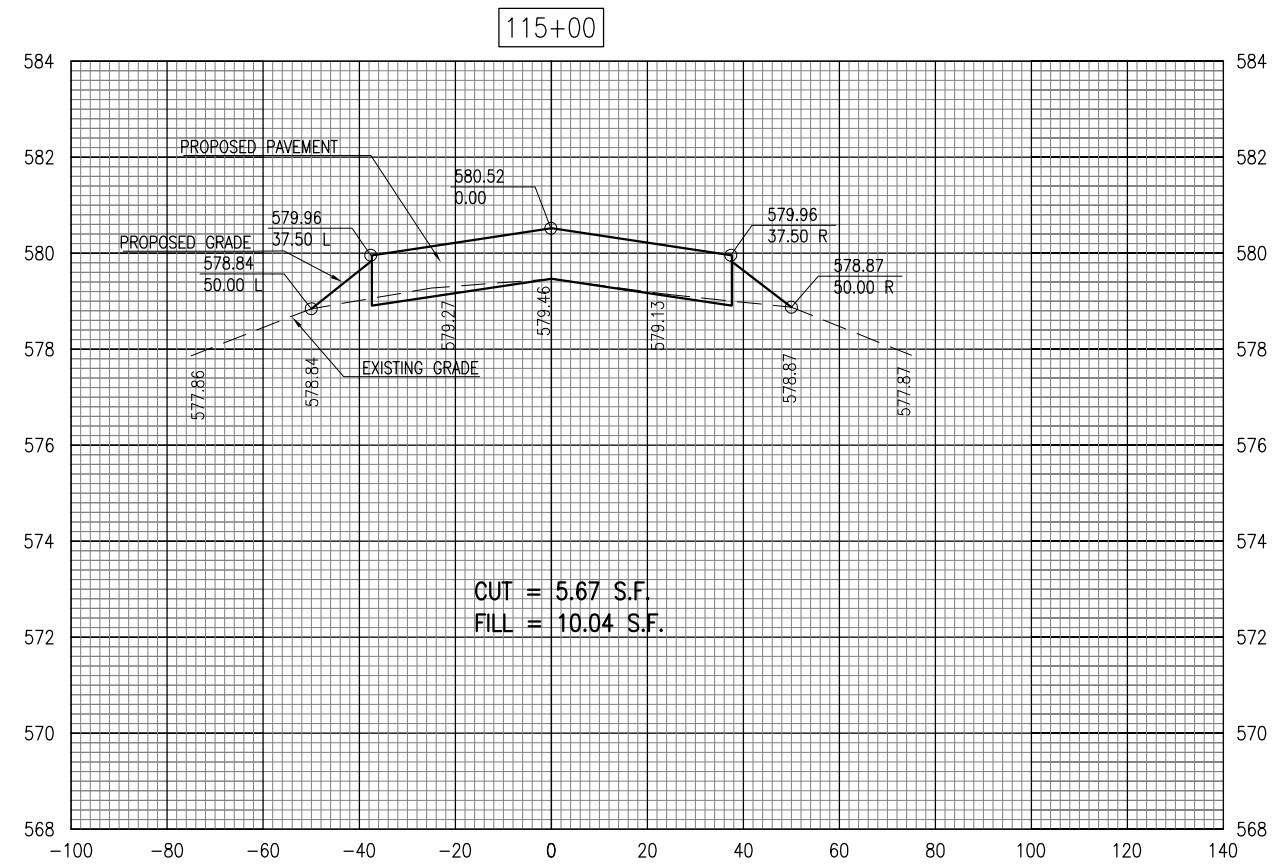
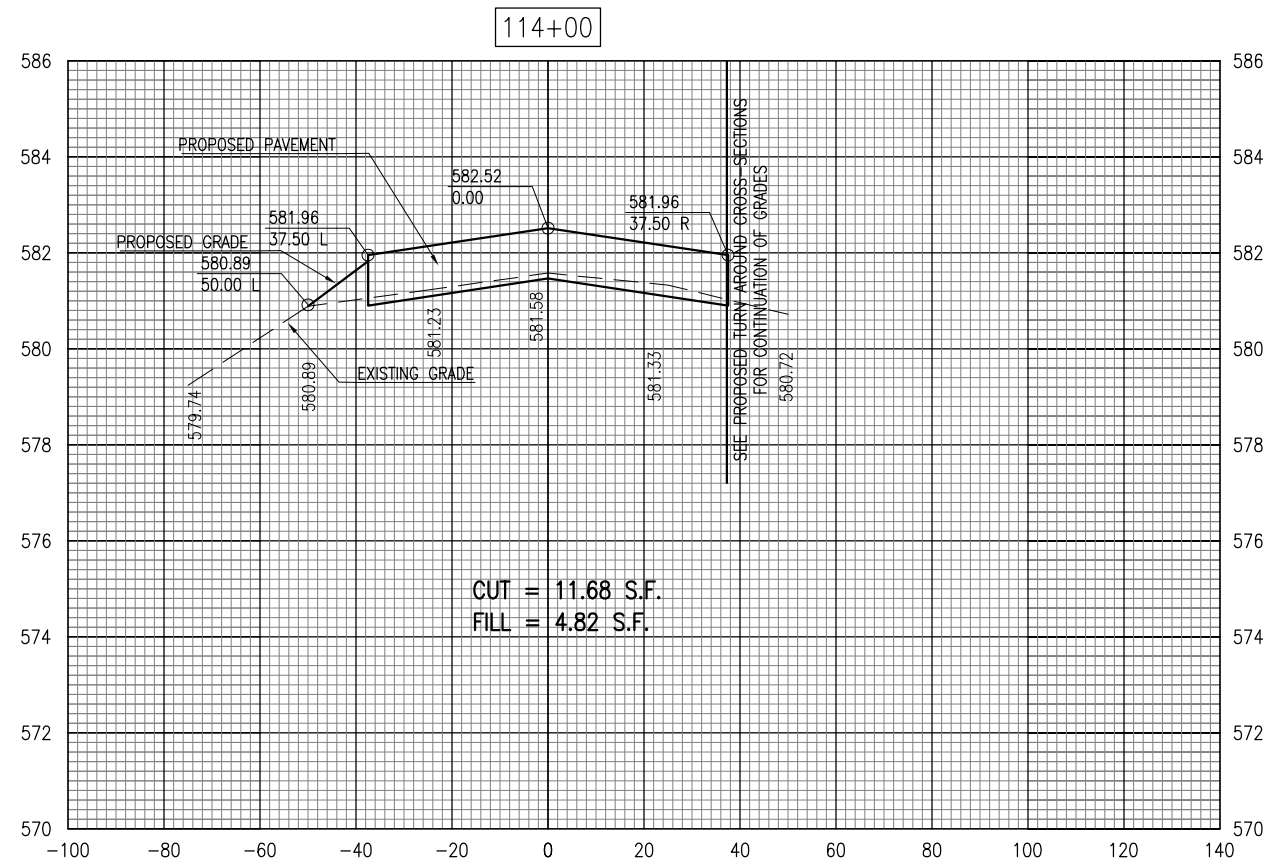
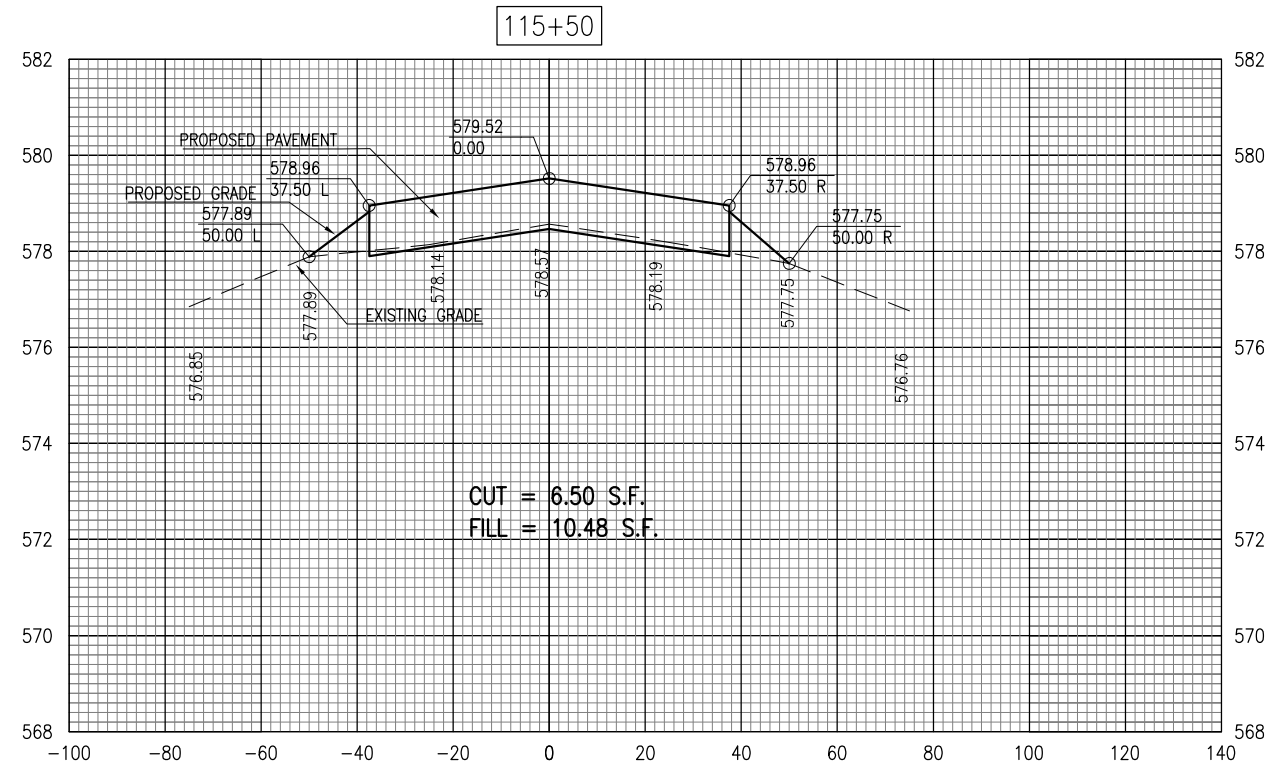
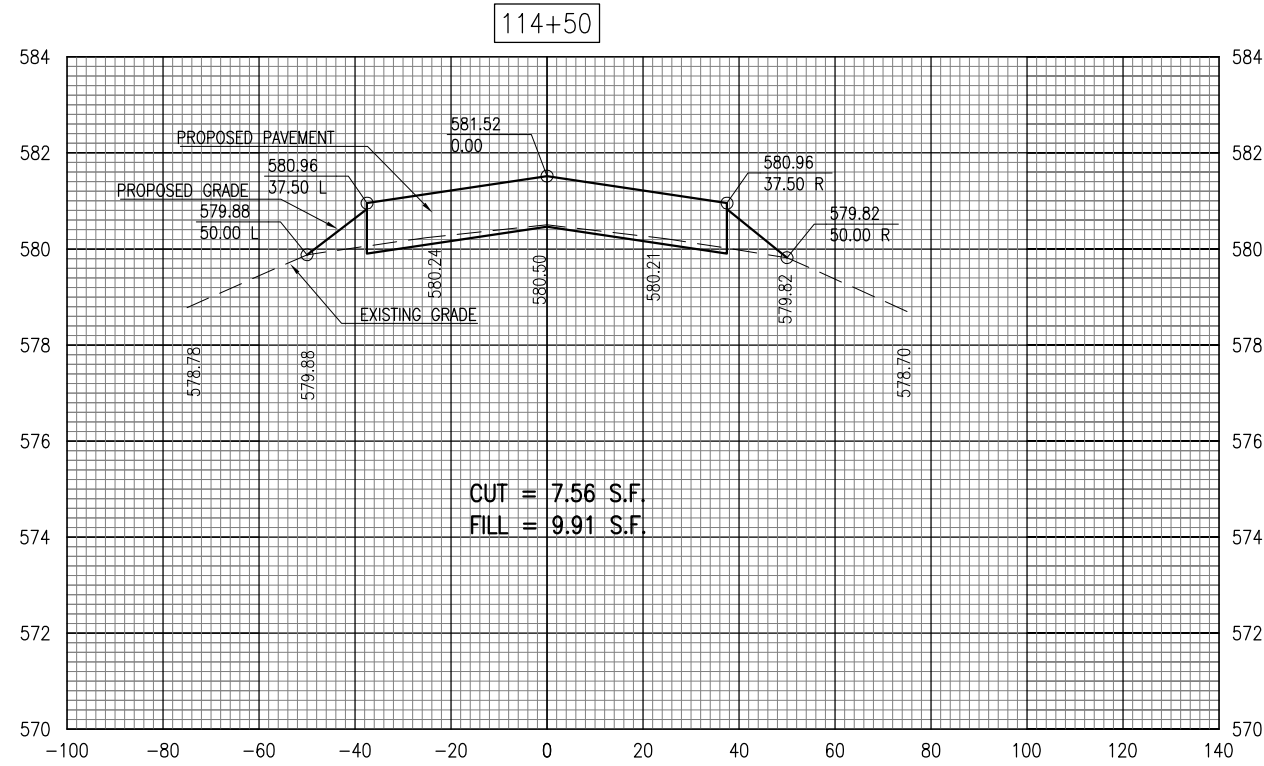
MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	FILENAME R-301XSEC.DWG	Scale NOT TO SCALE	Date 12/14/12
LAYOUT	BAK	07/08/10	
DRAWN	BAK	07/08/10	
REVIEWED	CAH	03/30/11	

HANSON
© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION
CROSS-SECTIONS FOR
RUNWAY EXTENSION STA.
112+95 TO STA. 113+50



JAN 11, 2013 8:06 AM KINC00394
E:\AIRPORTS\MARSHALL\10A005\AIRPORT\ SHEETS\R-30\XSEC.DWG

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

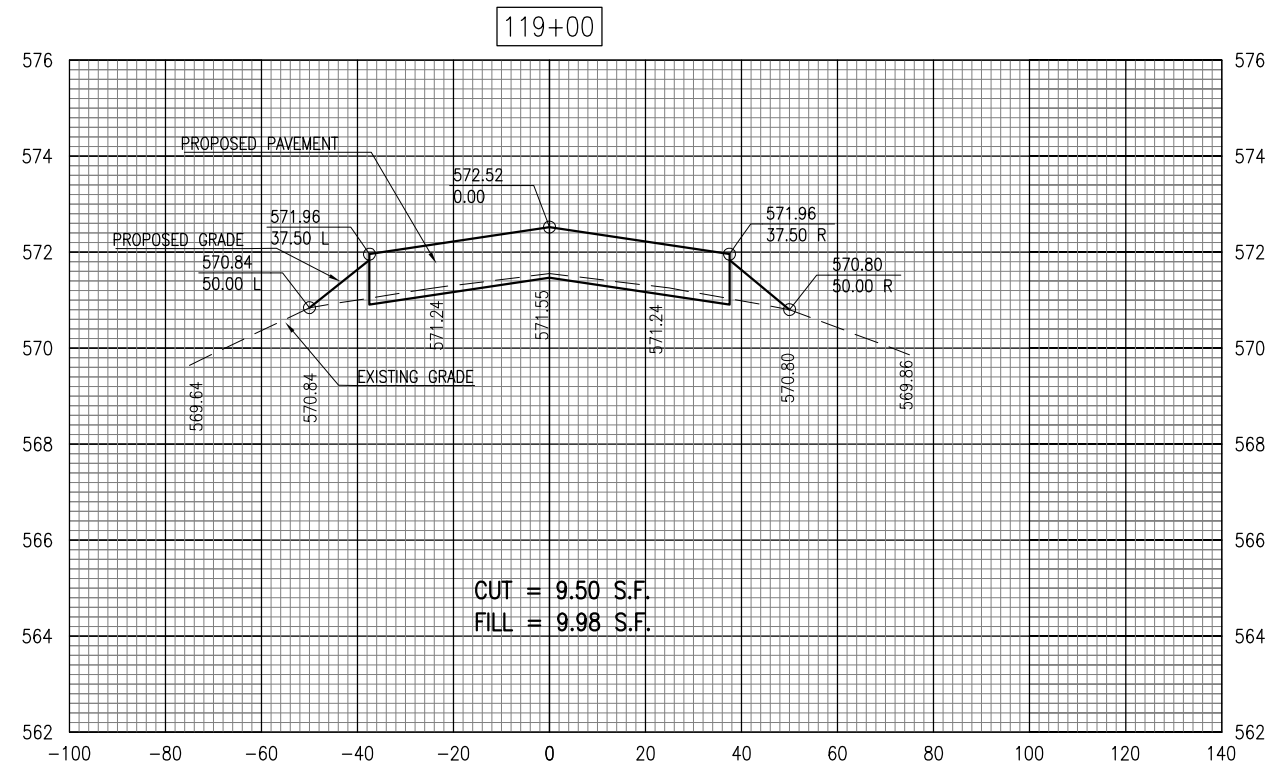
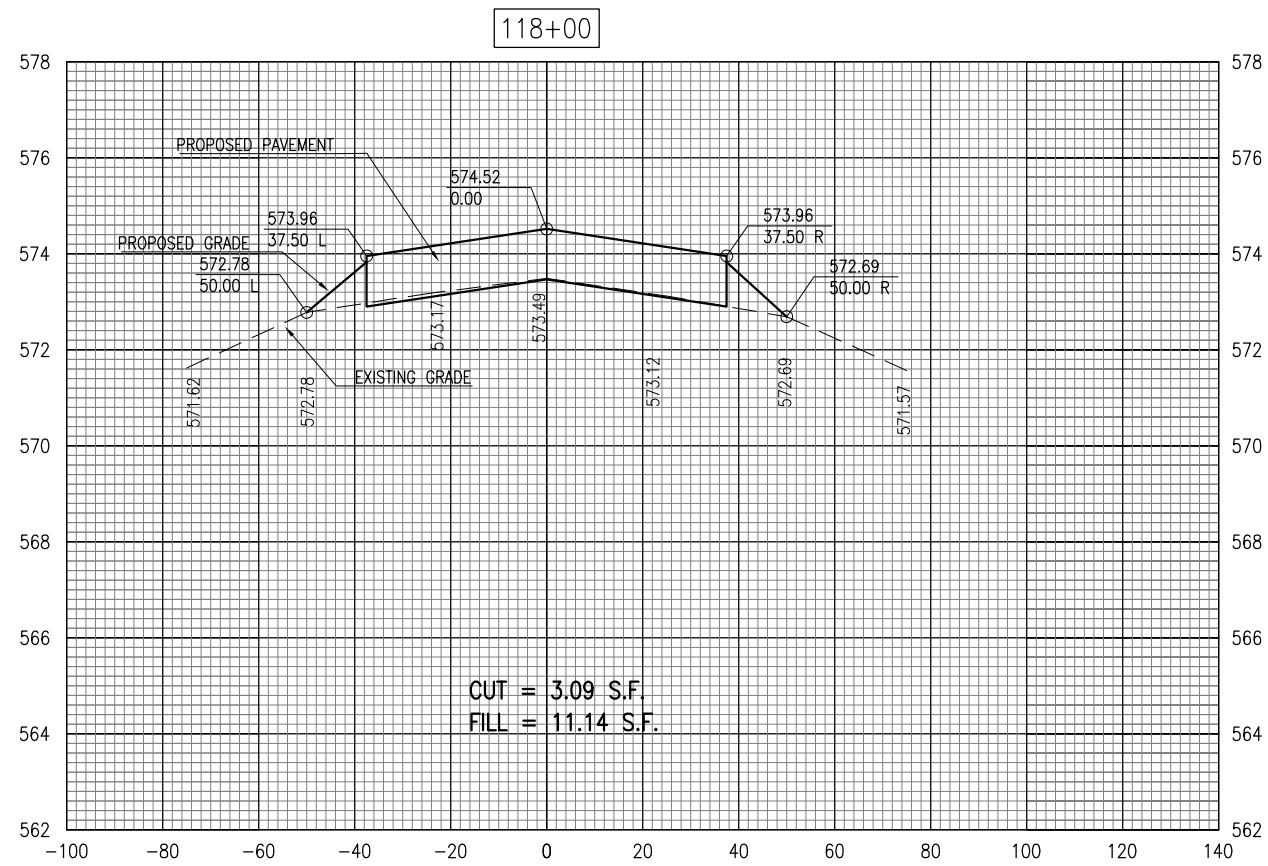
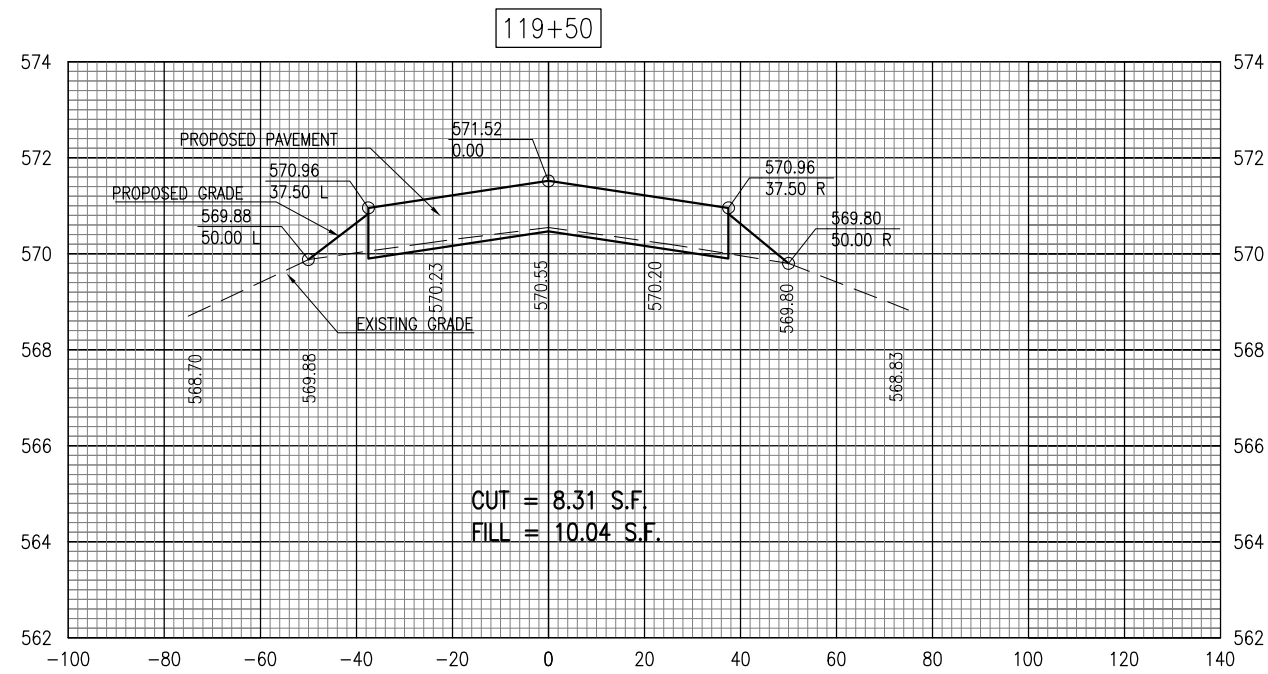
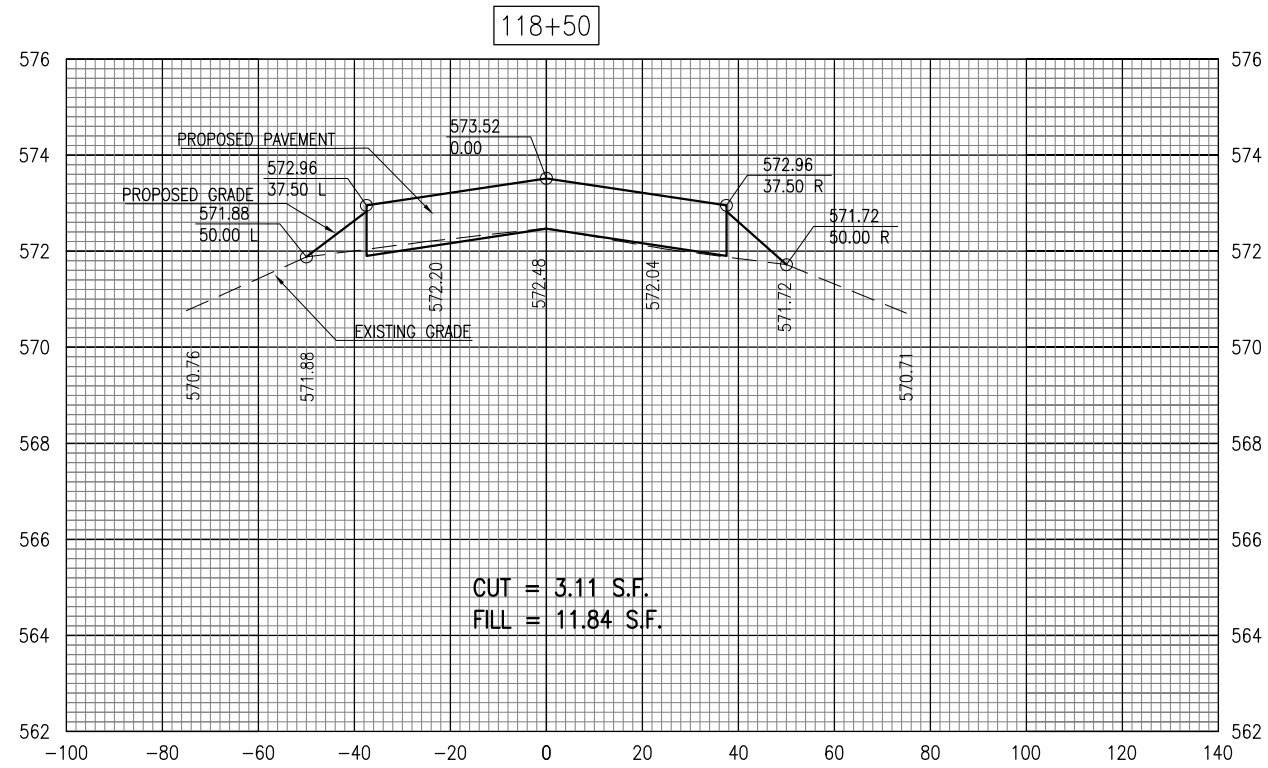
ILL. PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	FILENAME R-30\XSEC.DWG	SCALE NOT TO SCALE	DATE 12/14/12
LAYOUT	BAK	07/08/10	
DRAWN	BAK	07/08/10	
REVIEWED	CAH	03/30/11	

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2886
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

CROSS-SECTIONS FOR
RUNWAY EXTENSION STA.
114+00 TO STA. 115+50



JAN 11, 2013 8:09 AM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\R-30\XSEC.DWG

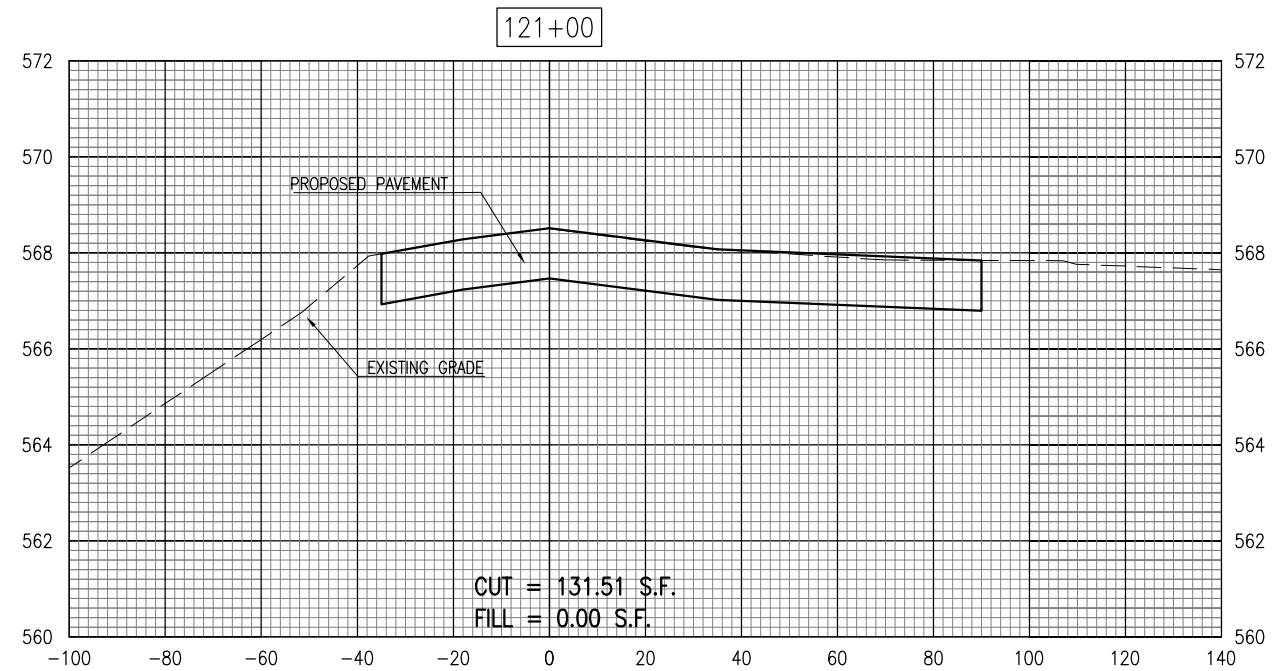
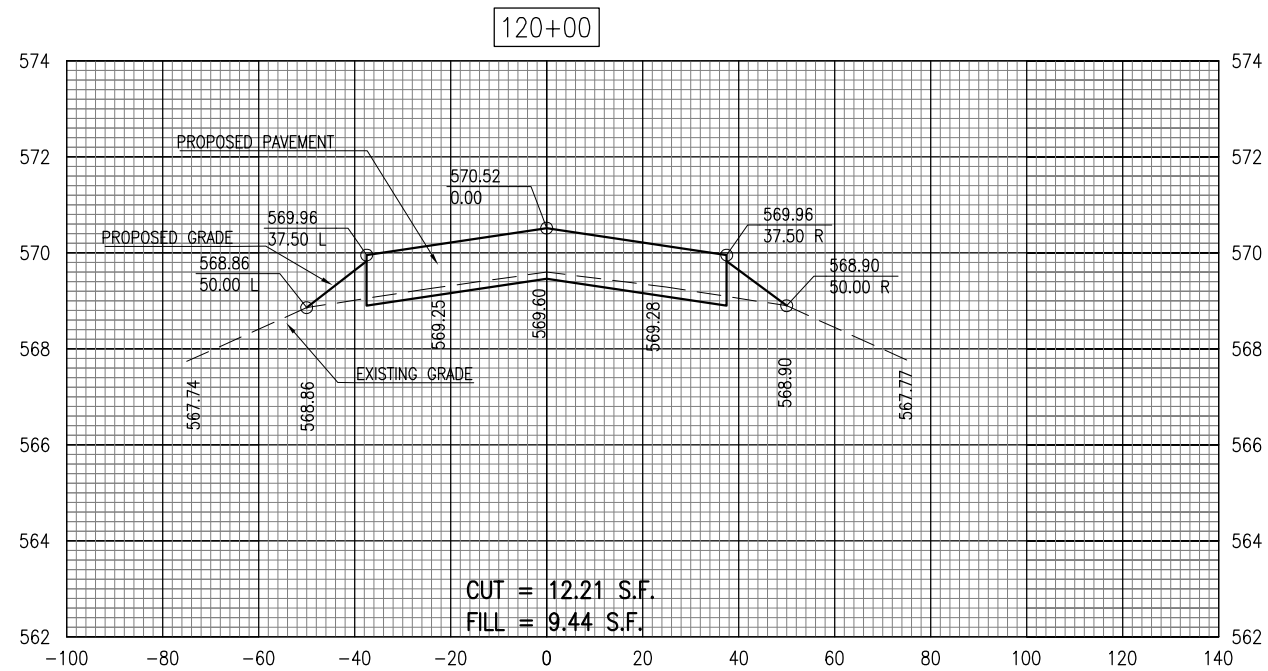
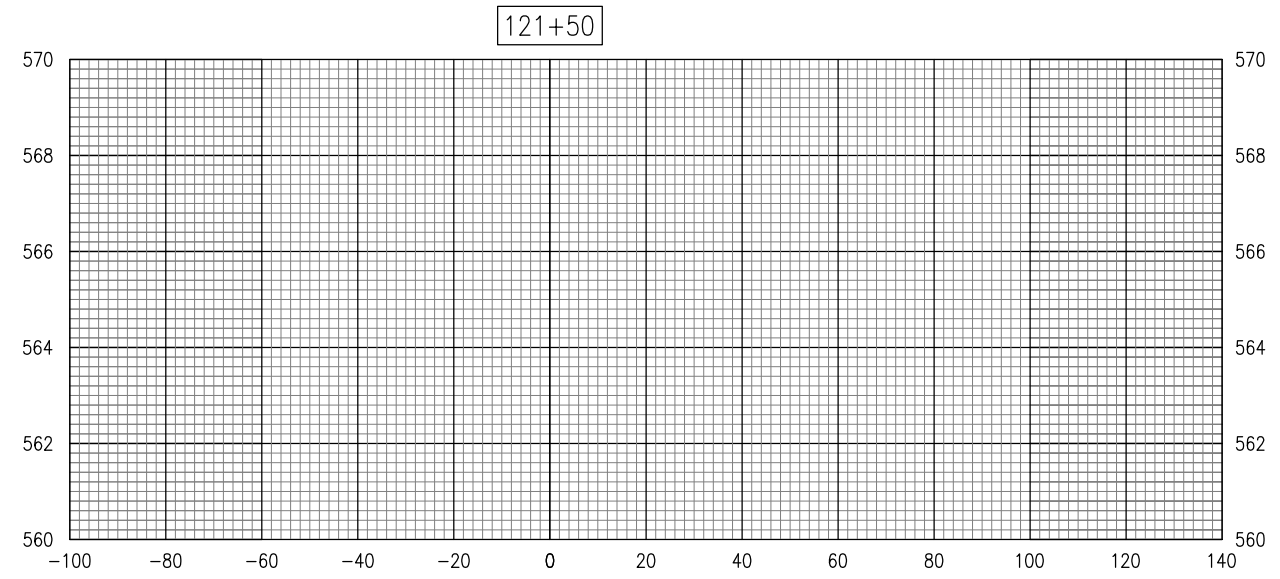
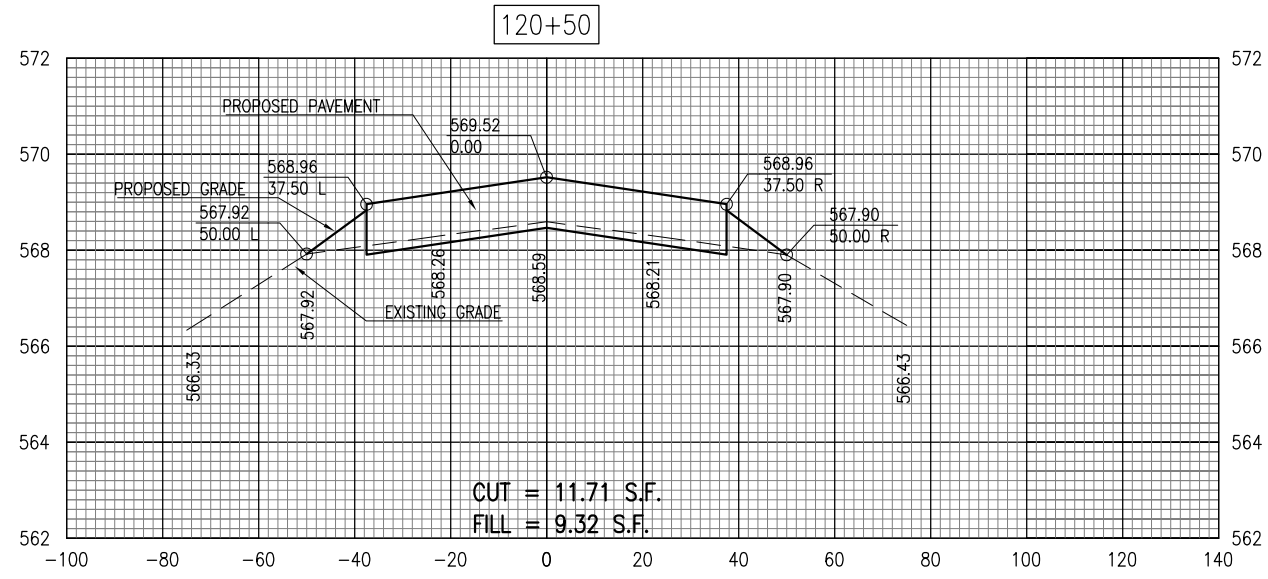
REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS
BLOCK GRANT PROJ.: 3-17-0059-B15
IL PROJ.: C75-4223

Hanson Proj. No. 10A0051	Filename R-30\XSEC.DWG	Scale NOT TO SCALE	Date 12/14/12
LAYOUT	BAK	07/08/10	
DRAWN	BAK	07/08/10	
REVIEWED	CAH	03/30/11	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION
CROSS-SECTIONS FOR
RUNWAY EXTENSION STA.
118+00 TO STA. 119+50



REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

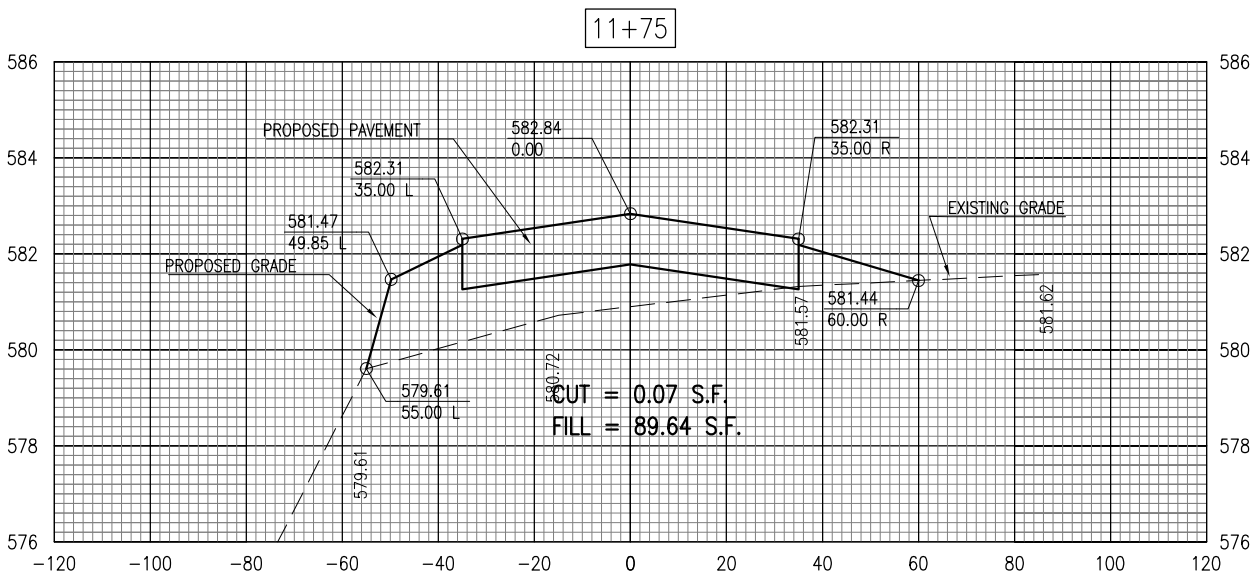
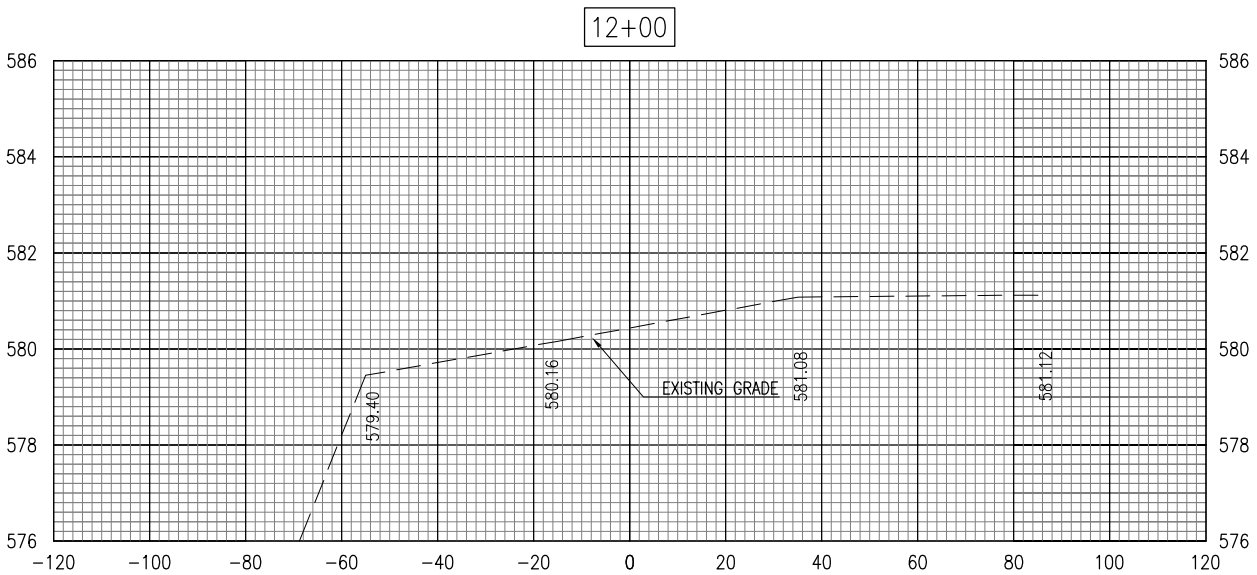
FILENAME	SCALE	DATE	LAYOUT	REVIEWED
Hanson Proj. No. 10A0051 Filename: R-302XSEC.DWG	NOT TO SCALE	12/14/12	BAK	CAH

HANSON
Professional Services Inc. 2013
1525 South Sixth Street
Springfield, Illinois 62703-2986
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

CROSS-SECTIONS FOR
RUNWAY EXTENSION STA.
120+00 TO STA. 121+50

JAN 11, 2013 8:15 AM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\R-302XSEC.DWG



JAN 11, 2013 8:17 AM K:\CADD\0394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\R-303XSEC.DWG

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS









IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename R-303XSEC.DWG	Scale NOT TO SCALE	Date 12/14/12
LAYOUT	BAK	07/08/10	
DRAWN	BAK	07/08/10	
REVIEWED	CAH	03/30/11	

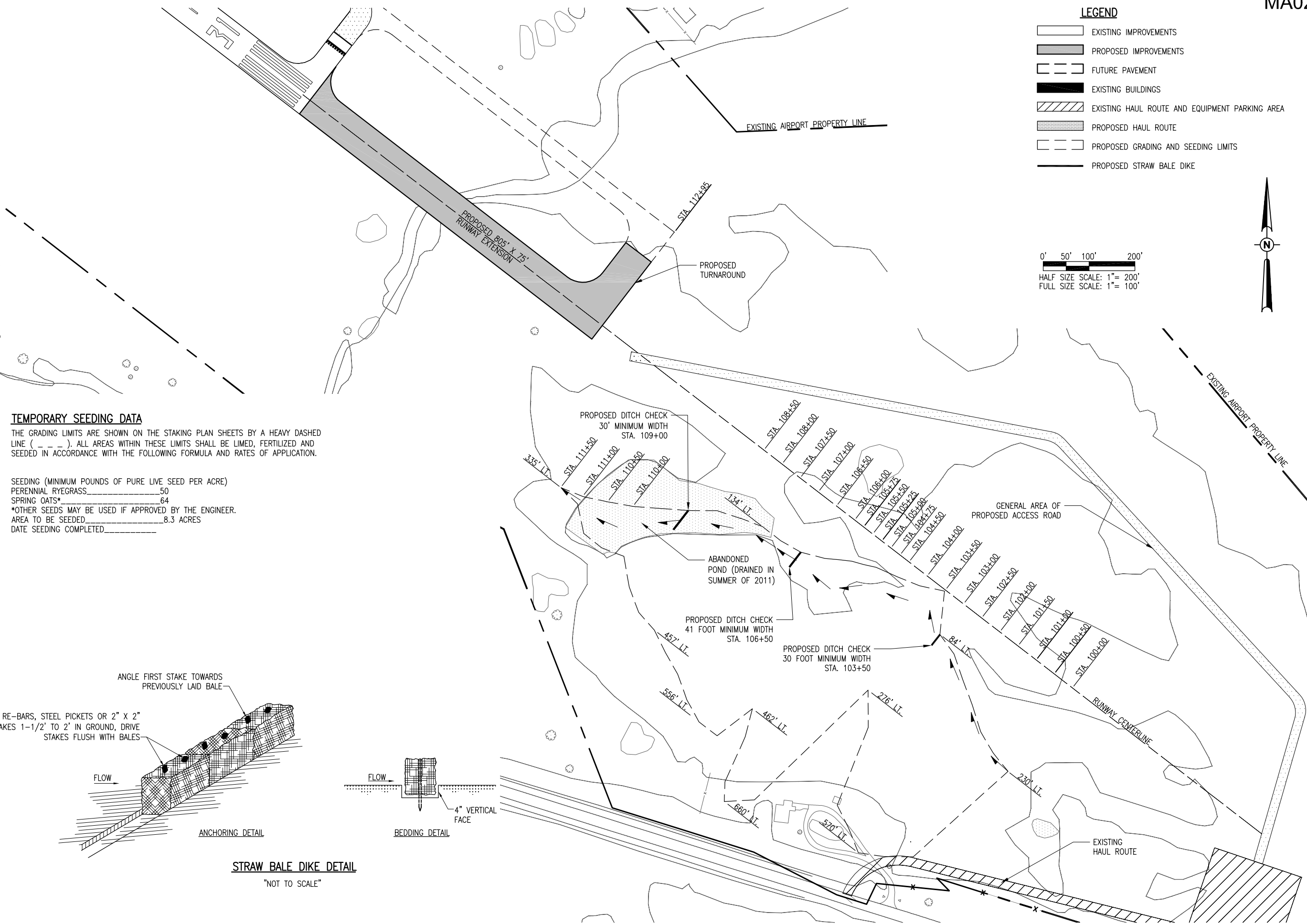
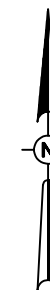
HANSON
© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Ph: (217) 788-2450 Fax: (217) 788-2503
www.hanson-inc.com
Offices Nationwide

PAVE, LIGHT AND MARK
805' EXTENSION

CROSS-SECTIONS FOR
TURN AROUND STA. 11+75
TO STA. 12+00

- LEGEND**
-  EXISTING IMPROVEMENTS
 -  PROPOSED IMPROVEMENTS
 -  FUTURE PAVEMENT
 -  EXISTING BUILDINGS
 -  EXISTING HAUL ROUTE AND EQUIPMENT PARKING AREA
 -  PROPOSED HAUL ROUTE
 -  PROPOSED GRADING AND SEEDING LIMITS
 -  PROPOSED STRAW BALE DIKE

0' 50' 100' 200'
 HALF SIZE SCALE: 1" = 200'
 FULL SIZE SCALE: 1" = 100'



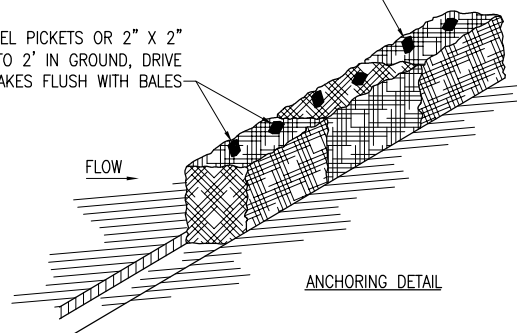
TEMPORARY SEEDING DATA

THE GRADING LIMITS ARE SHOWN ON THE STAKING PLAN SHEETS BY A HEAVY DASHED LINE (_ _ _). ALL AREAS WITHIN THESE LIMITS SHALL BE LIMED, FERTILIZED AND SEEDING IN ACCORDANCE WITH THE FOLLOWING FORMULA AND RATES OF APPLICATION.

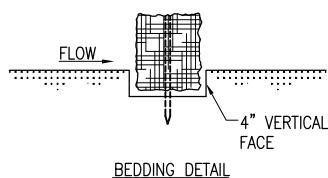
SEEDING (MINIMUM POUNDS OF PURE LIVE SEED PER ACRE)
 PERENNIAL RYEGRASS _____ 50
 SPRING OATS* _____ 64
 *OTHER SEEDS MAY BE USED IF APPROVED BY THE ENGINEER.
 AREA TO BE SEEDING _____ 8.3 ACRES
 DATE SEEDING COMPLETED _____

ANGLE FIRST STAKE TOWARDS
 PREVIOUSLY LAID BALE

2 RE-BARS, STEEL PICKETS OR 2" X 2"
 STAKES 1-1/2' TO 2' IN GROUND, DRIVE
 STAKES FLUSH WITH BALES



ANCHORING DETAIL



BEDDING DETAIL

STRAW BALE DIKE DETAIL

"NOT TO SCALE"

REVISION	DATE

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

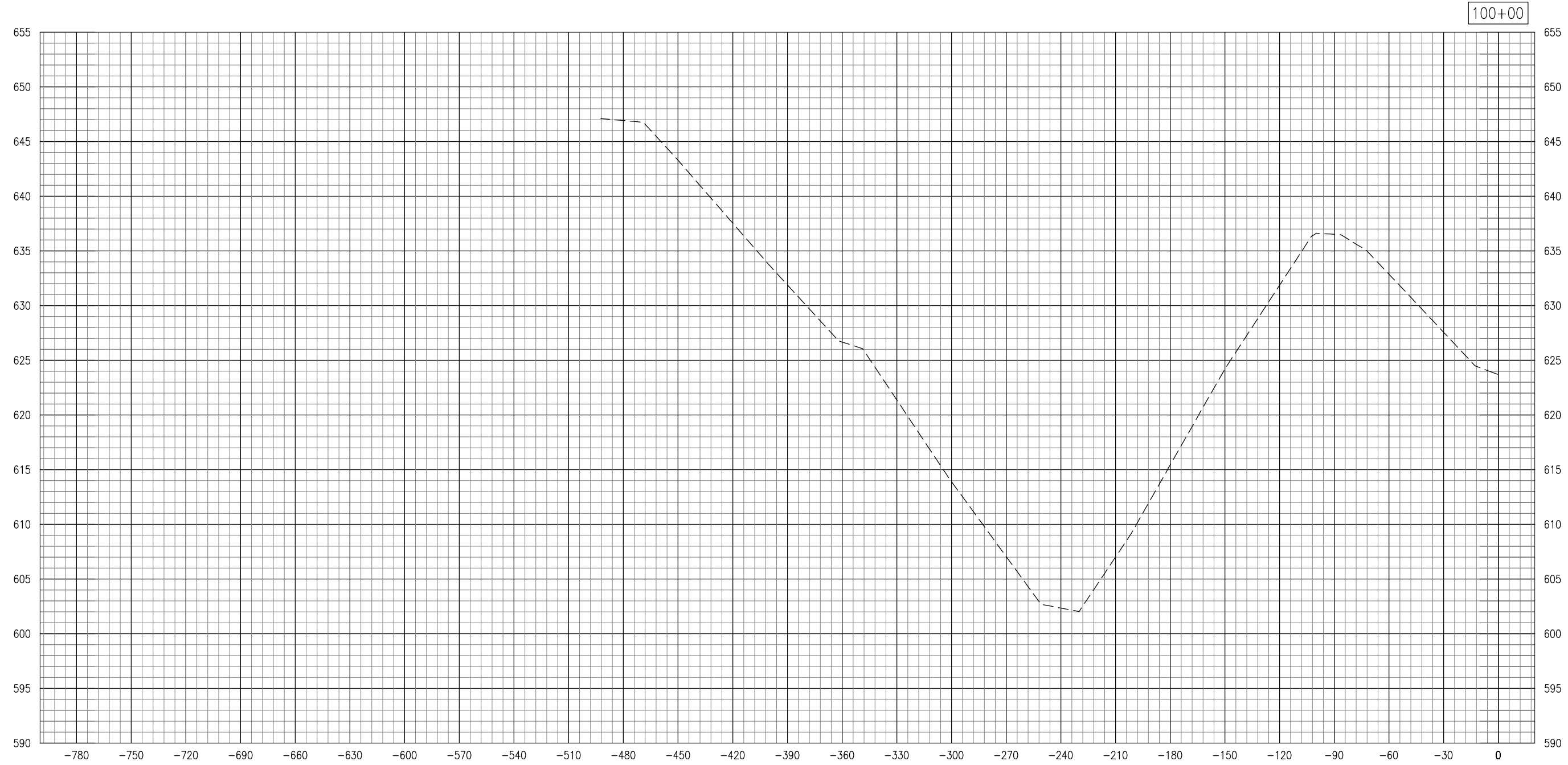
IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A00051	BAK	07/08/10
Filename R-182SMP.DWG	BAK	07/08/10
Scale 1"=100'	BAK	07/08/10
Date 12/14/12	CAH	03/30/11
LAYOUT		
DRAWN		
REVIEWED		

HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2986
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 PROPOSED STORMWATER
 POLLUTION PREVENTION PLAN


JAN 11, 2013 8:34 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



DATE	REVISION

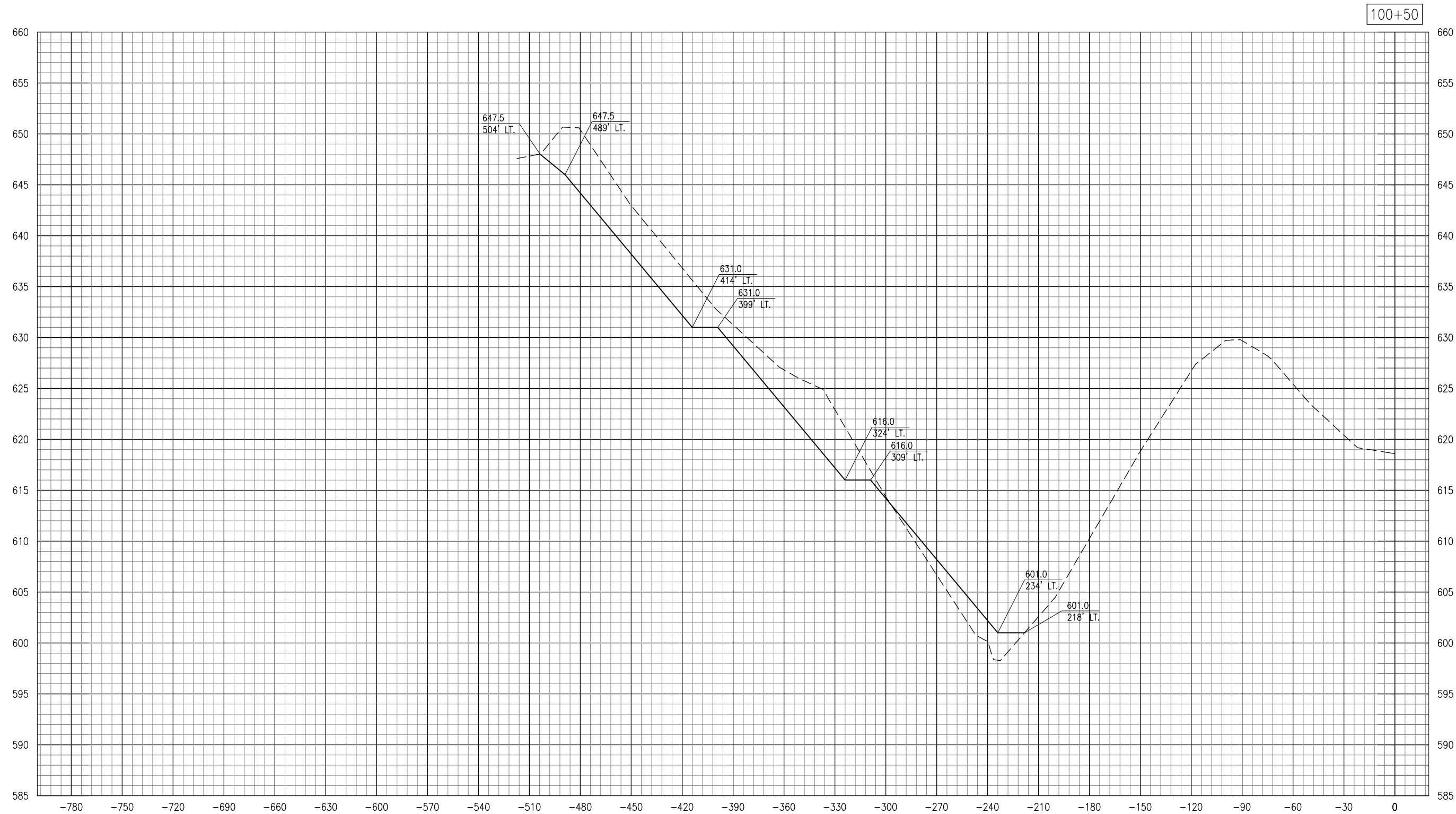
MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	REVIEWED JSL
DRAWN DAW 03/30/12	


 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 100+00

JAN 11, 2013 8:35 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



REVISION	DATE

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

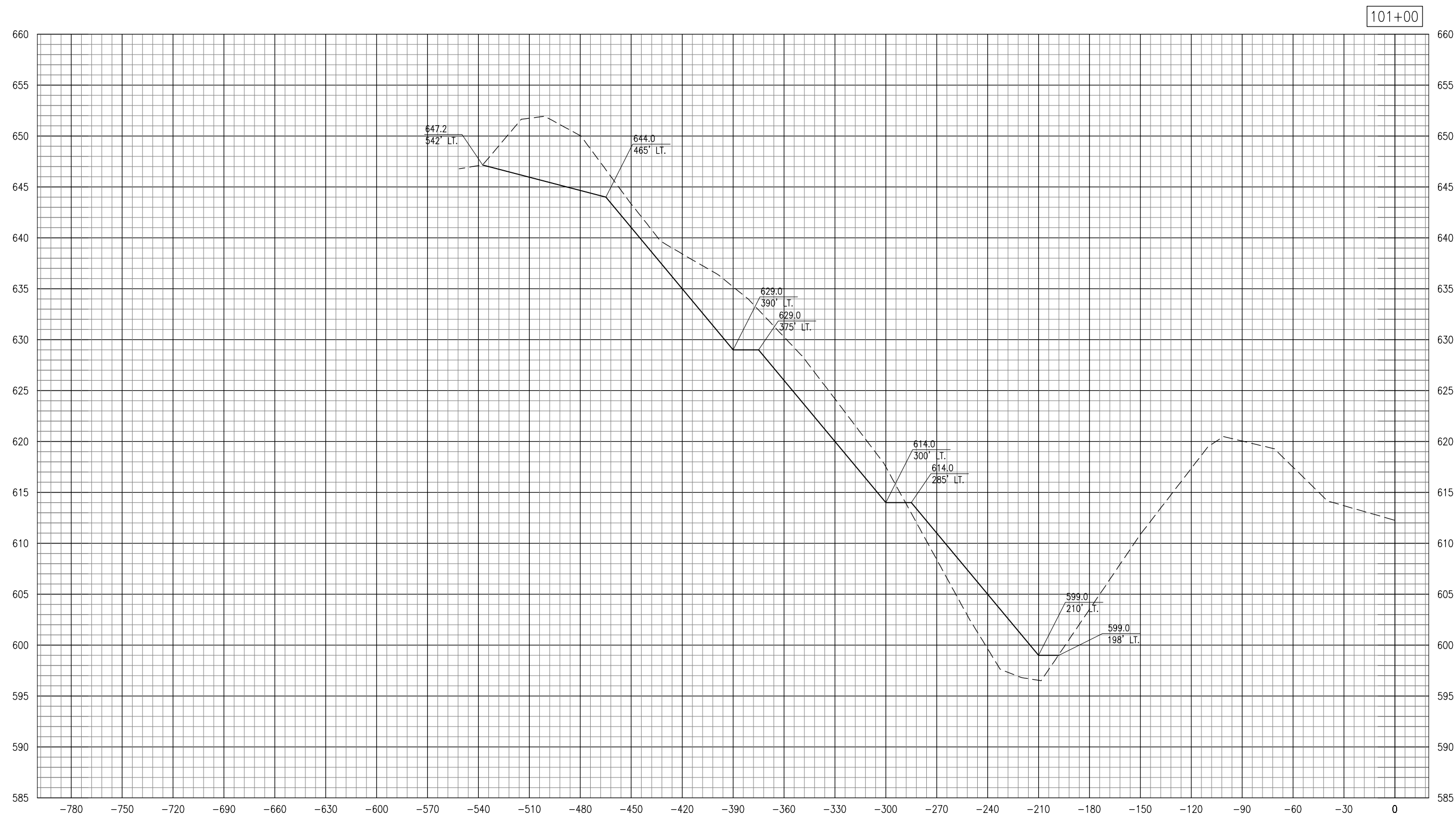
Hanson Proj. No. 10A0051	Filename SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	DRAWN DAW 03/30/12
REVIEWED JSL	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31

CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 100+50

JAN 11, 2013 8:36 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



DATE	REVISION

101+00

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

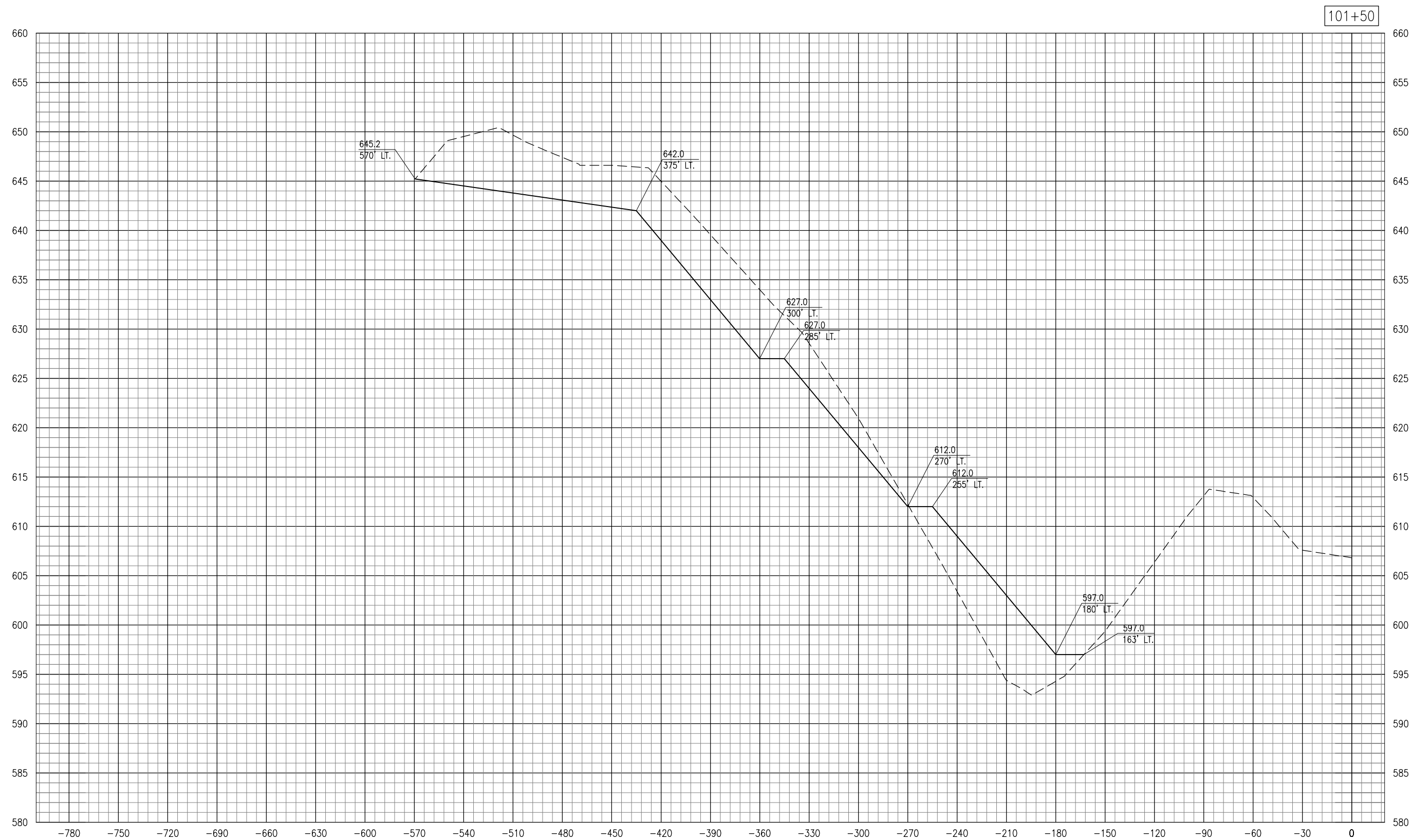
Hanson Proj. No. 10A0051	Filename SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	REVIEWED JSL
DRAWN DAW 03/30/12	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31

CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 101+00

JAN 11, 2013 8:36 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



101+50

DATE	REVISION

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

Hanson Proj. No. 10A0051	FILENAME SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	REVIEWED JSL
DRAWN DAW 03/30/12	

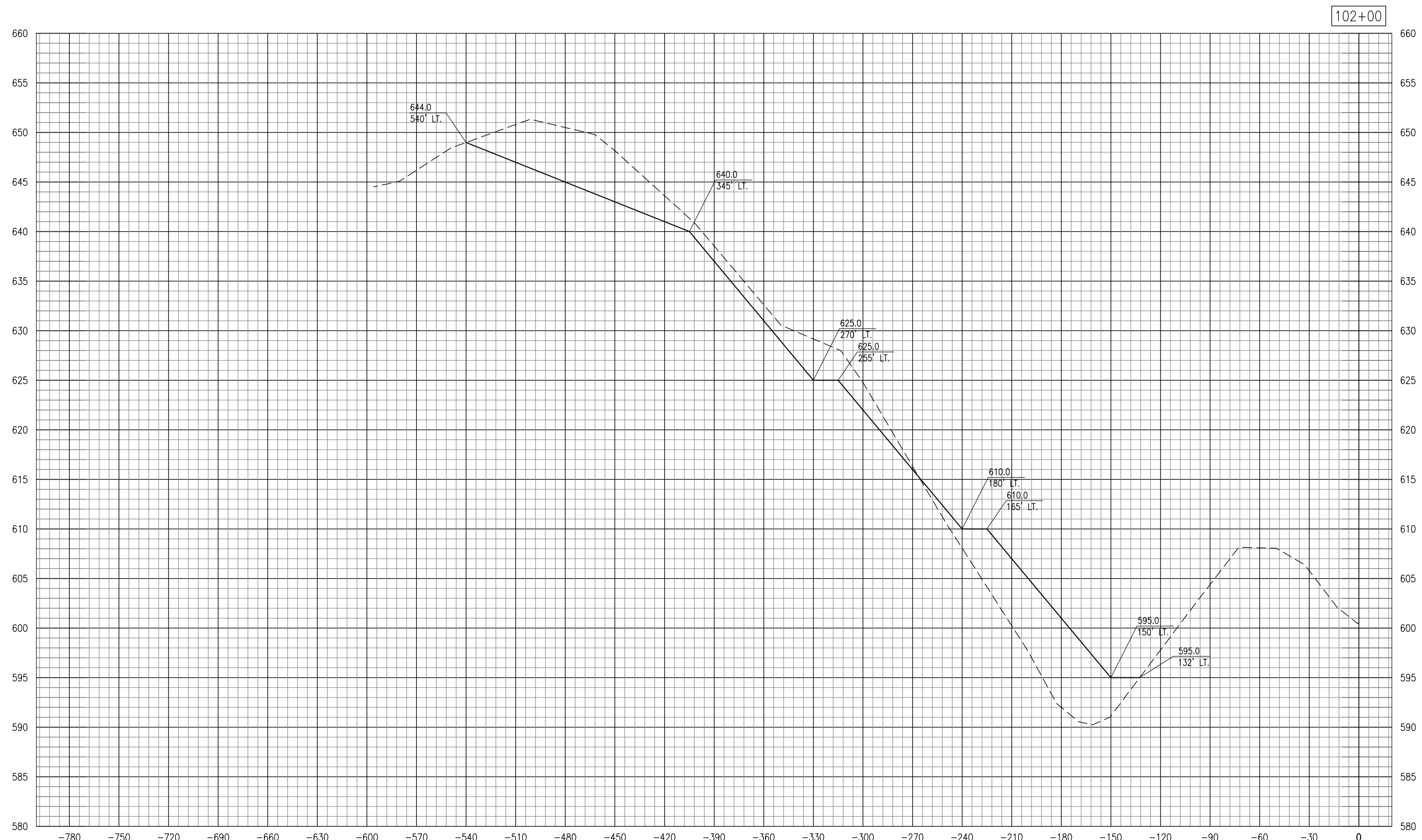
HANSON
 © Copyright Hanson Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31

CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 101+50

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

JAN 11, 2013 8:38 AM KINC00394
E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



REVISION	DATE

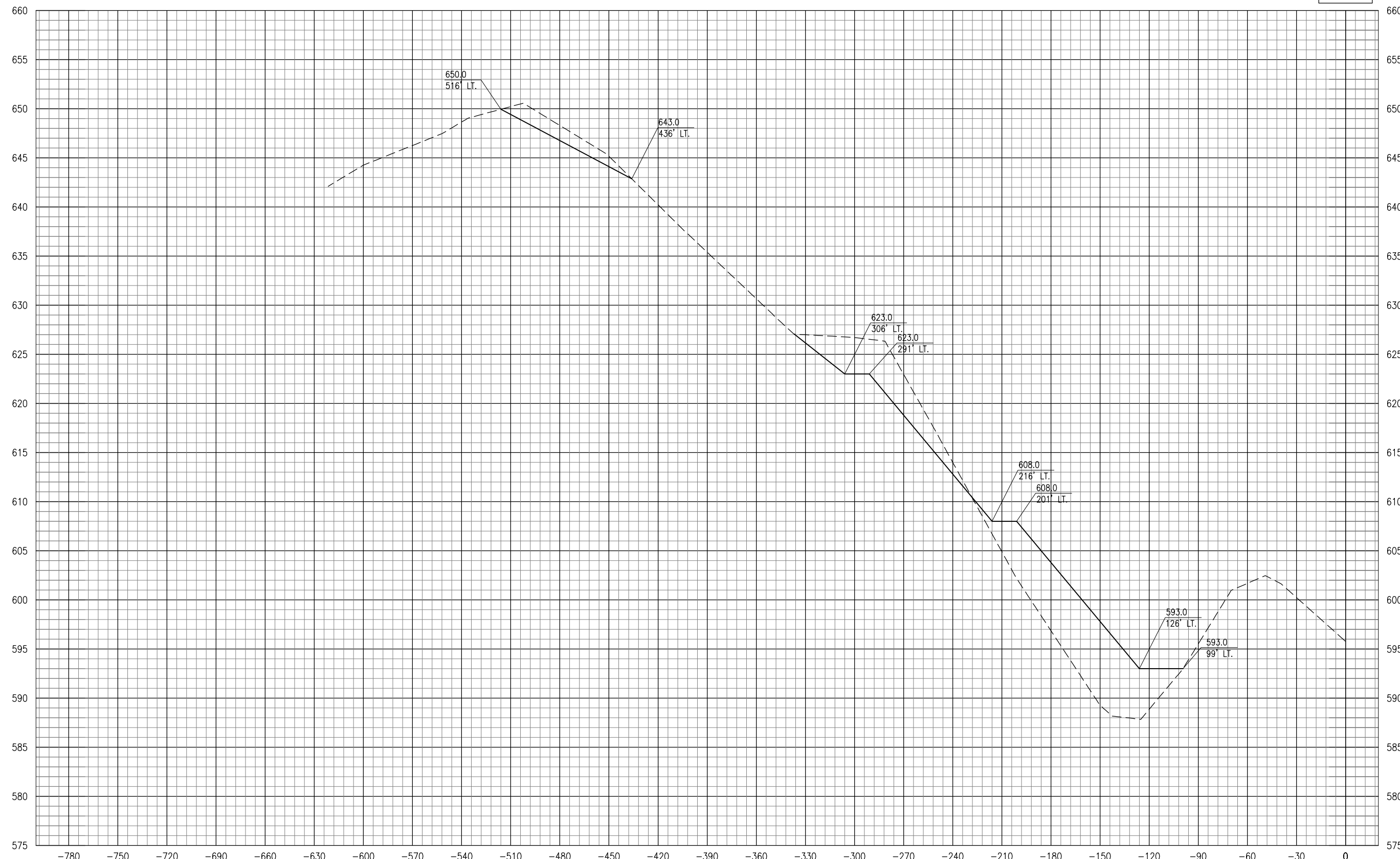
MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	FILENAME SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
DRAWN DAW	REVIEWED JSL
MILH 03/30/12	DAW 03/30/12


HANSON
 Professional Services Inc. 2013
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 102+00

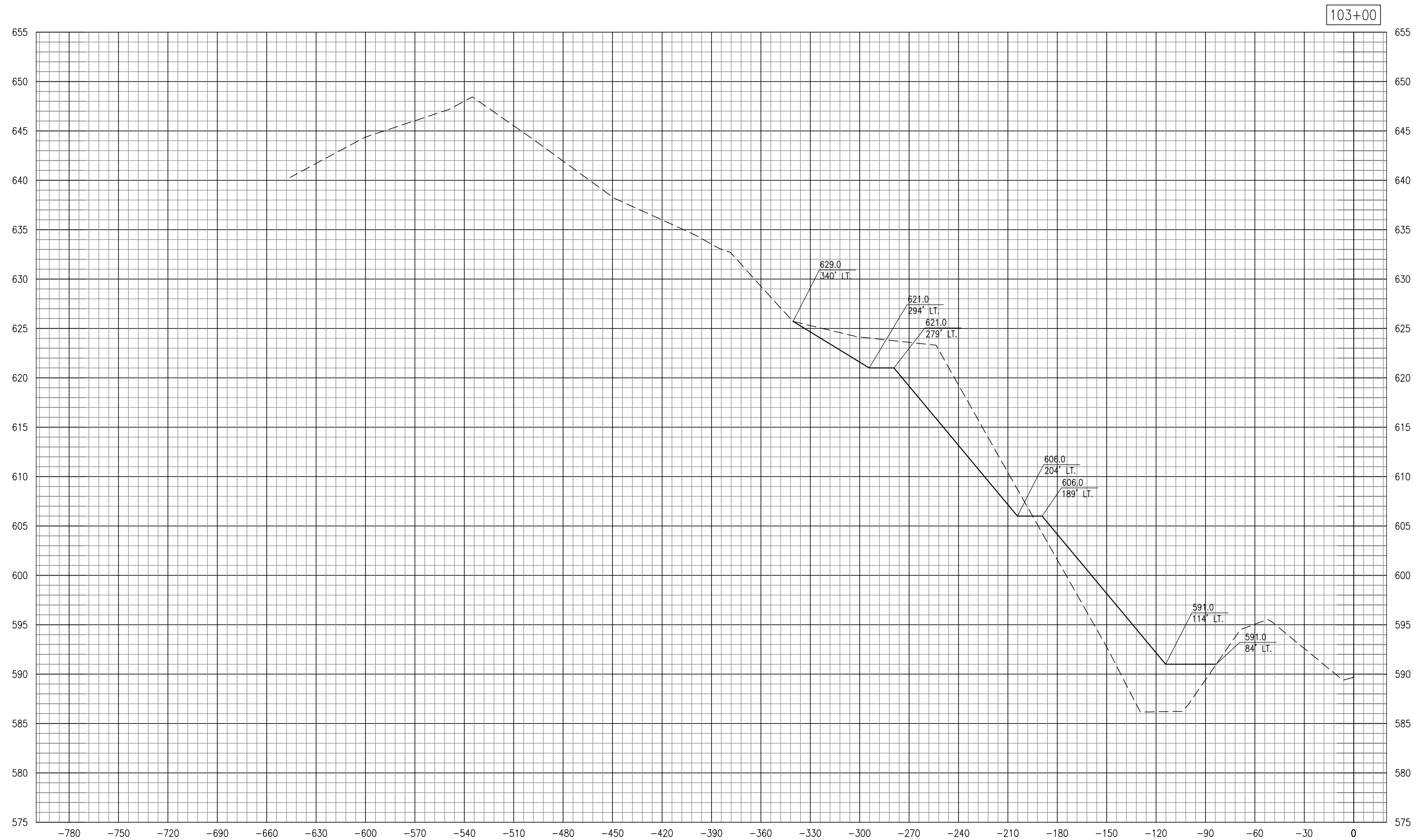
102+50



JAN 11, 2013 8:45 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG

REVISION		MARSHALL COUNTY AIRPORT LACON, ILLINOIS IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15
DATE		
Hanson Proj. No. 10A0051 Filename SECTIONS-2012-11\SURVEY-25FT.DWG Scale H. 1" = 20' V. 1" = 5' Date 12/14/12		
LAYOUT	MLH	03/30/12
DRAWN	DAW	03/30/12
REVIEWED	JSL	
© Copyright Hanson Professional Services Inc. 2013 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2886 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide		
APPROACH WORK TO RUNWAY END 31		CROSS-SECTIONS FOR APPROACH WORK STA. 102+50
56 56 of 75 sheets		

JAN 11, 2013 8:45 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



DATE	REVISION

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

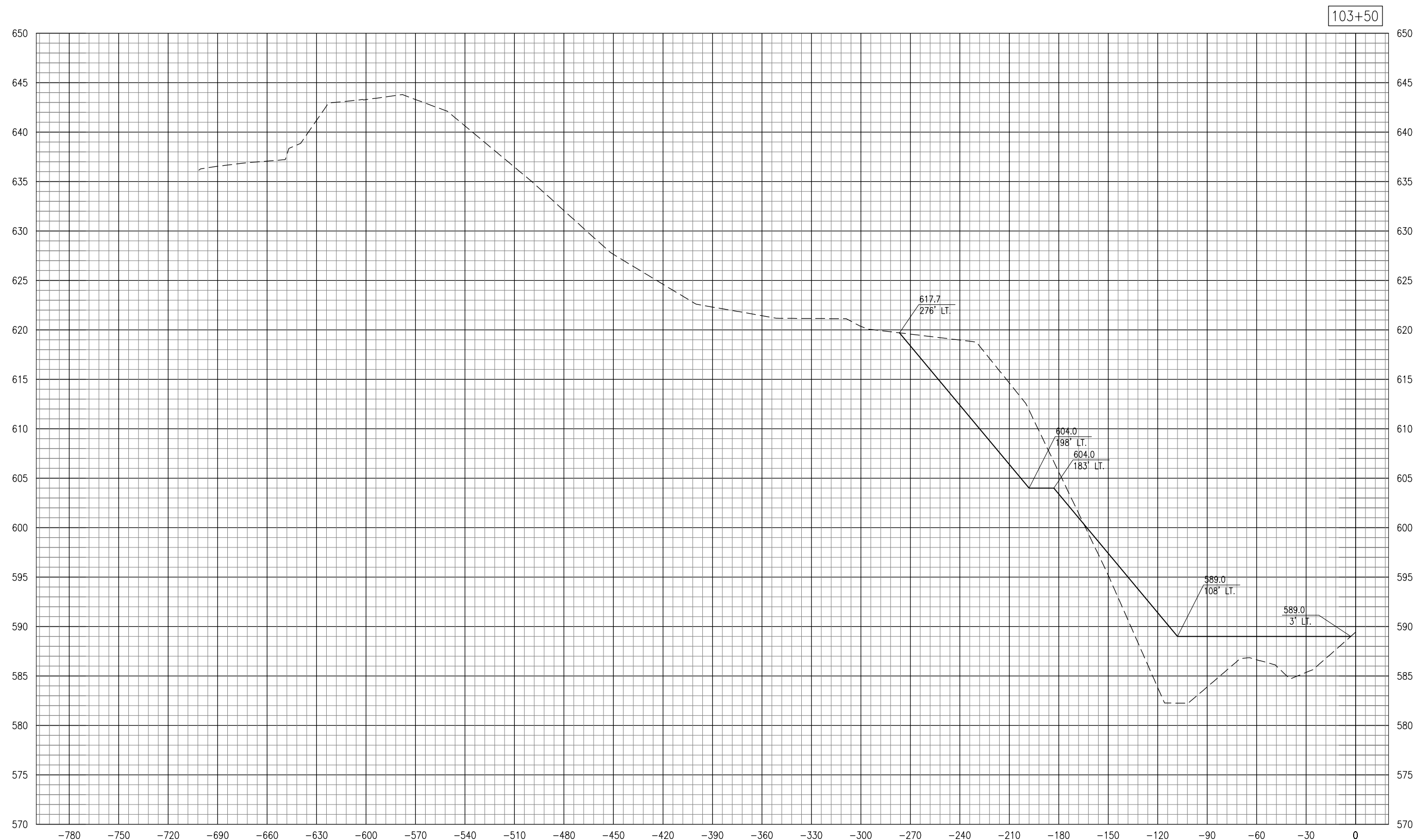
Hanson Proj. No. 10A0051	FILENAME SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	DRAWN DAW 03/30/12
REVIEWED JSL	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31

CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 103+00

JAN 11, 2013 8:46 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



DATE	REVISION

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

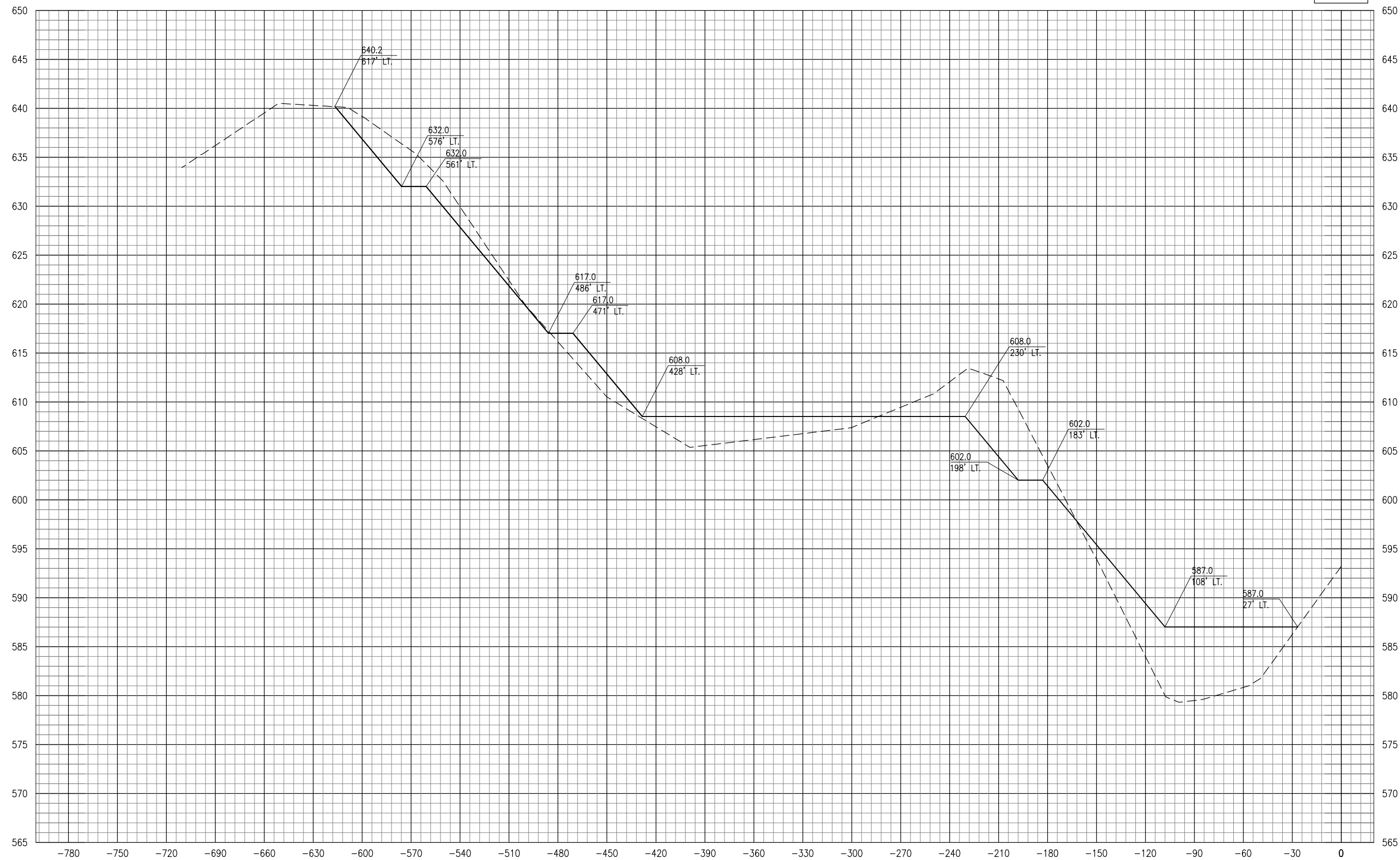
Hanson Proj. No. 10A0051	
Filename: SECTIONS-2012-11\SURVEY-25FT.DWG	
Scale	H. 1" = 20' V. 1" = 5'
Date	12/14/12
LAYOUT	MLH 03/30/12
DRAWN	DAW 03/30/12
REVIEWED	JSL

© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31

CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 103+50

104+00



JAN 11, 2013 8:47 AM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG

REVISION	DATE

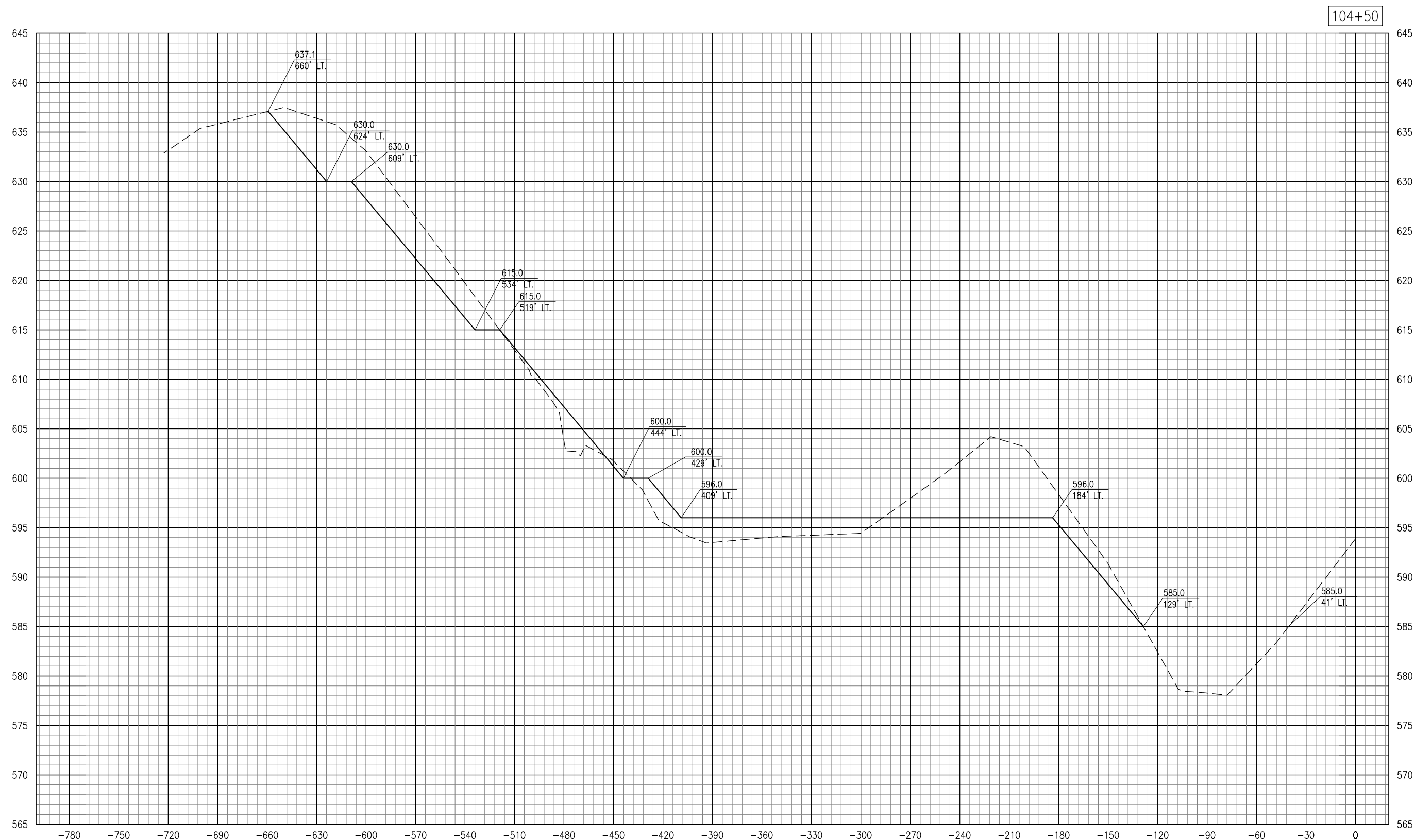
MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT	MLH 03/30/12
DRAWN	DAW 03/30/12
REVIEWED	JSL

© Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 104+00

JAN 11, 2013 8:48 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



REVISION	DATE

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	Filename SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH	03/30/12
DRAWN DAW	03/30/12
REVIEWED JSL	


HANSON
 Professional Services Inc. 2013
 Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2986
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 104+50

104+75



JAN 11, 2013 8:52 AM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG

REVISION	DATE

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

Hanson Proj. No. 10A0051	
Filename: SECTIONS-2012-11\SURVEY-25FT.DWG	
Scale	H. 1" = 20' V. 1" = 5'
Date	12/14/12
LAYOUT	MLH 03/30/12
DRAWN	DAW 03/30/12
REVIEWED	JSL

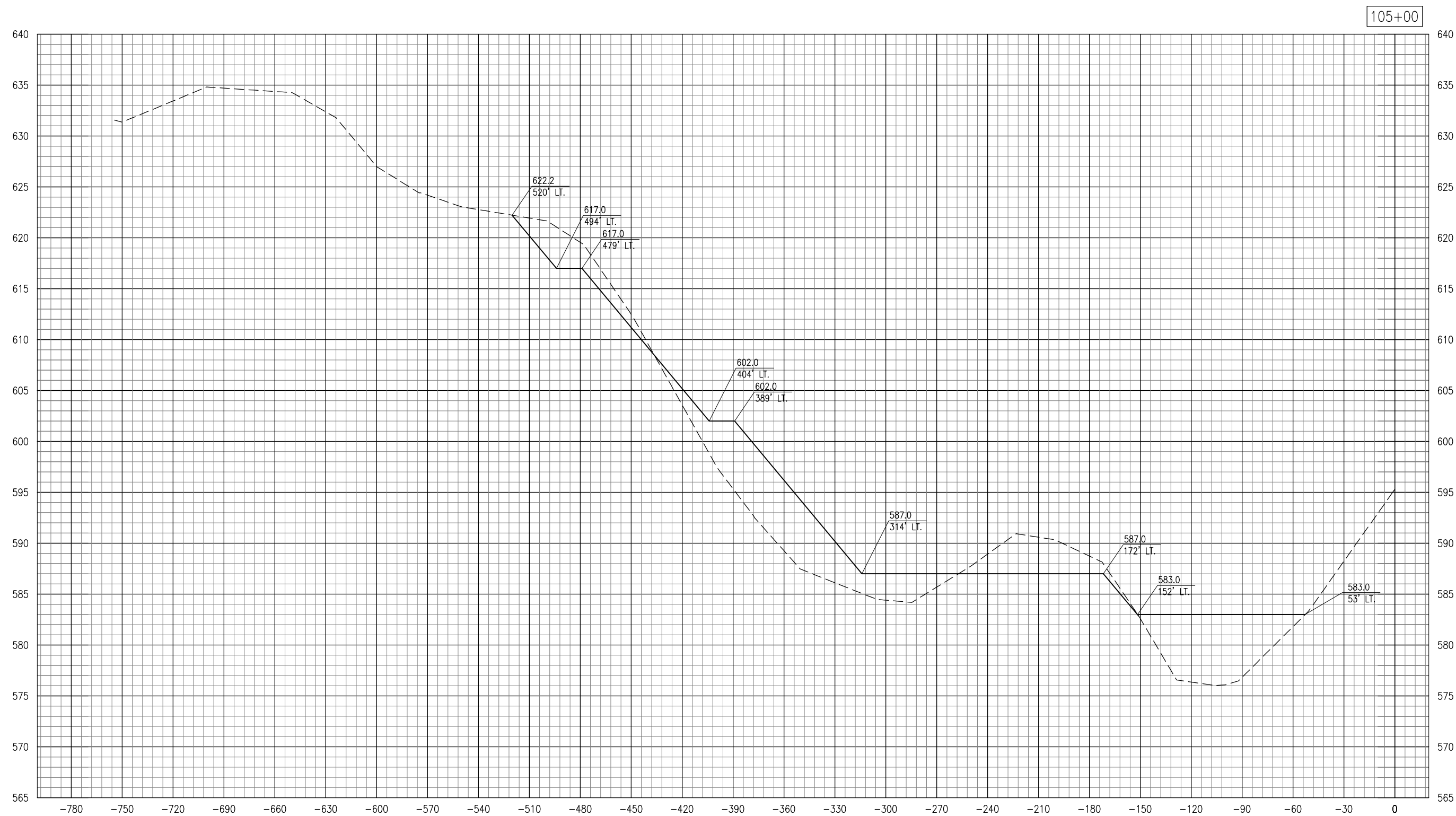
HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
RUNWAY END 31

CROSS-SECTIONS FOR
APPROACH WORK
STA. 104+75

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

JAN 11, 2013 8:52 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



REVISION	DATE

105+00

640
635
630
625
620
615
610
605
600
595
590
585
580
575
570
565

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

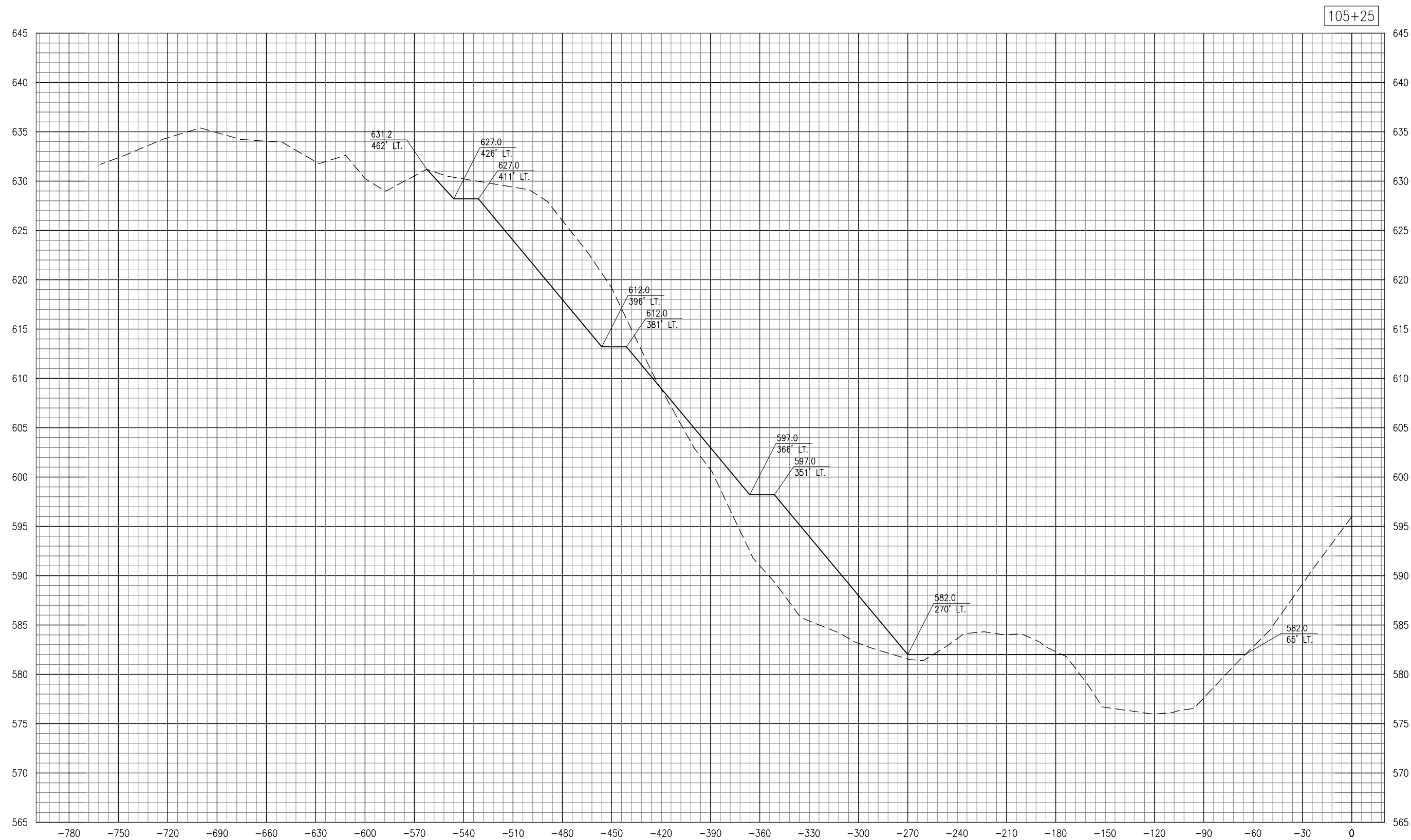
Hanson Proj. No. 10A0051	FILENAME SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	REVIEWED JSL
DRAWN DAW 03/30/12	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31

CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 105+00

JAN 11, 2013 8:53 AM KINC00394
E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



DATE	REVISION

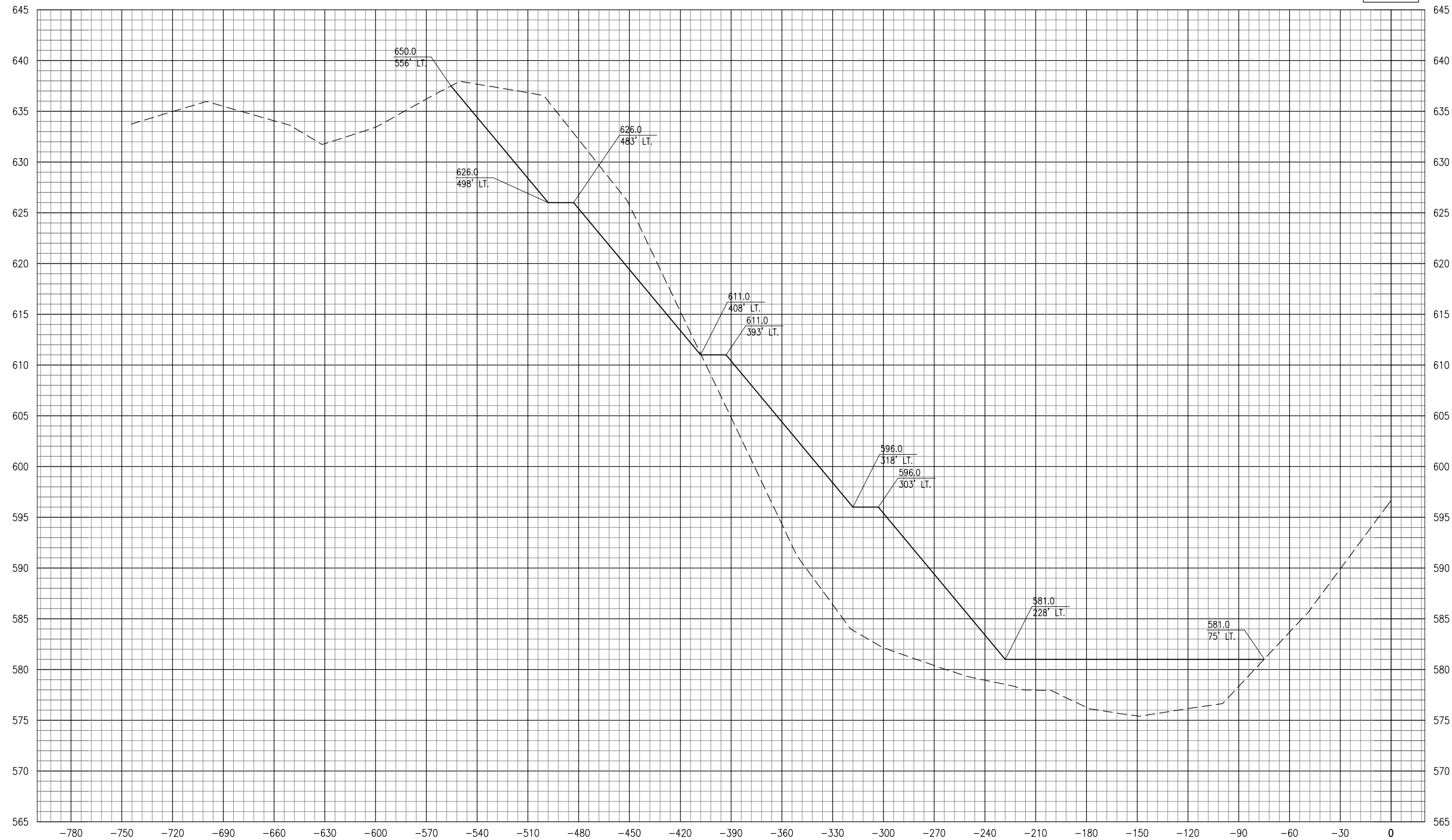
HANSON
 PROFESSIONAL SERVICES INC.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

Hanson Proj. No. 10A0051	FILENAME SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	DRAWN DAW 03/30/12
REVIEWED JSL	

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 105+25

105+50



JAN 11, 2013 8:56 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG

REVISION	DATE

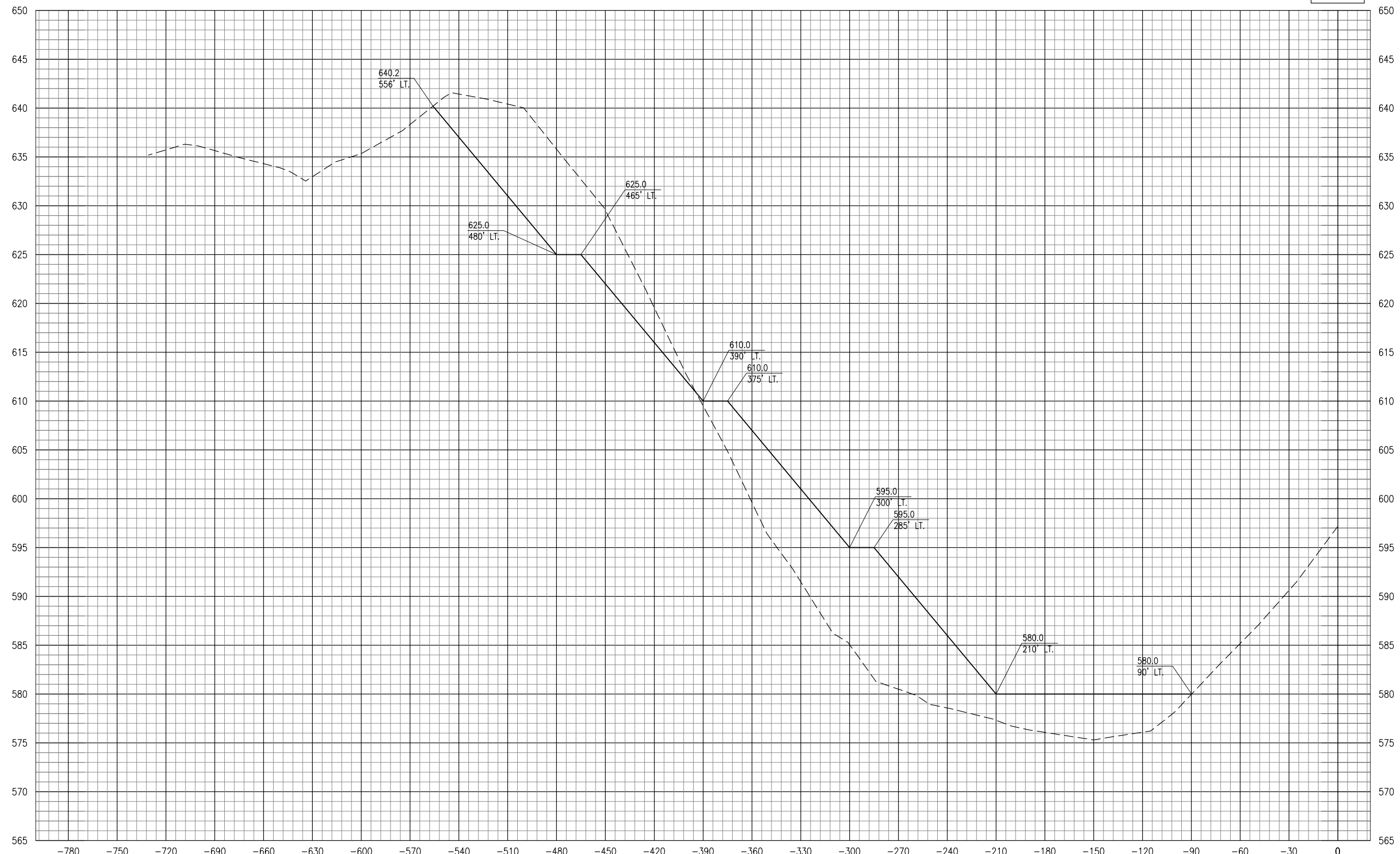
MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	FILENAME SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	REVIEWED JSL
DRAWN DAW 03/30/12	


 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 105+50

105+75



JAN 11, 2013 8:58 AM KINC00394
E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG

REVISION	DATE

HANSON PROJ. NO. 10A0051
 FILENAME: SECTIONS-2012-11\SURVEY-25FT.DWG
 SCALE: H. 1" = 20' V. 1" = 5'
 DATE: 12/14/12

LAYOUT	MLH	03/30/12
DRAWN	DAW	03/30/12
REVIEWED	JSL	

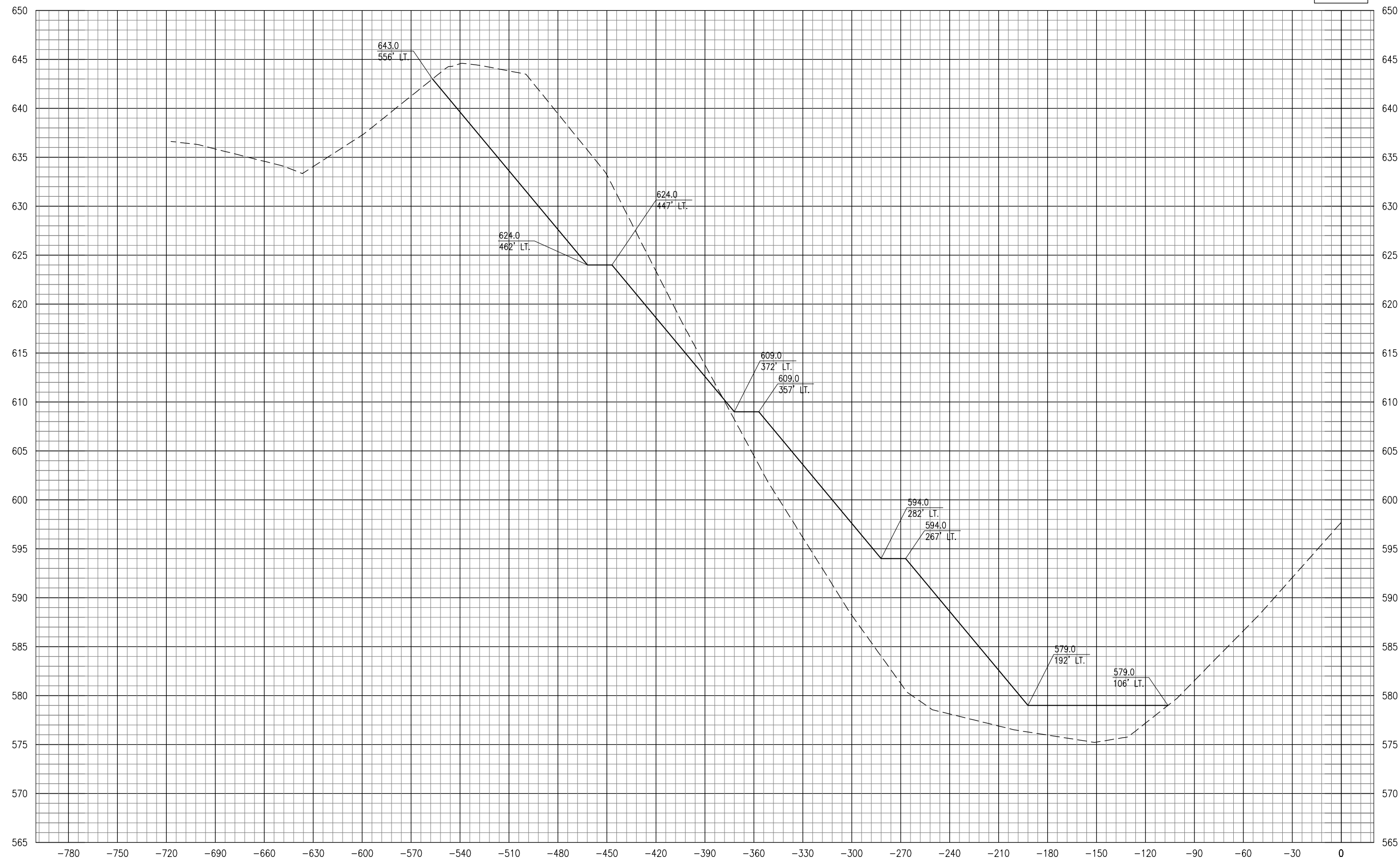
HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2986
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 105+75

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

MARSHALL COUNTY AIRPORT
LACON, ILLINOIS

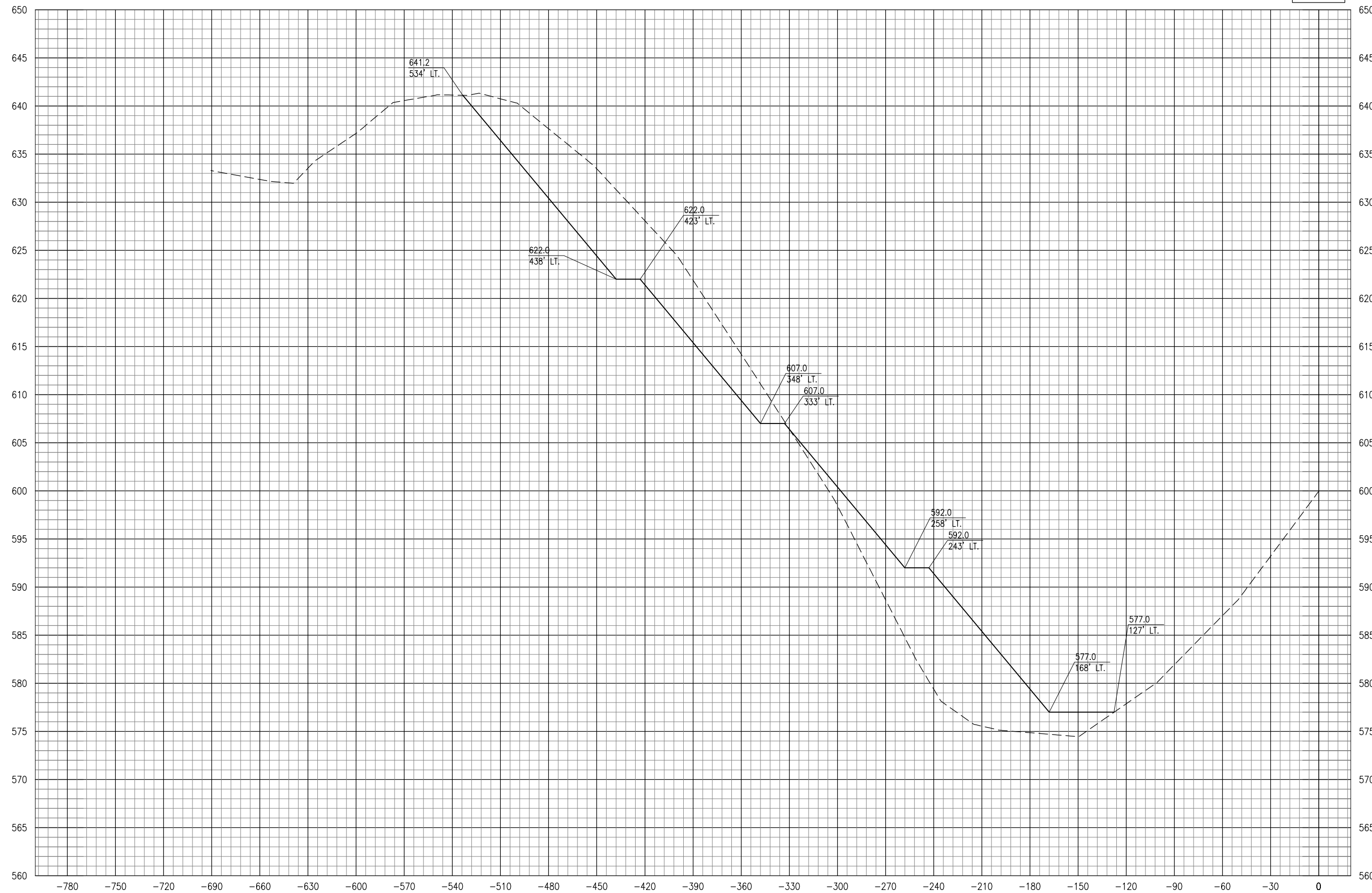
106+00



JAN 11, 2013 8:59 AM KINC00394
E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG

REVISION		MARSHALL COUNTY AIRPORT LACON, ILLINOIS IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15
DATE		
Hanson Proj. No. 10A0051 Filename: SECTIONS-2012-11\SURVEY-25FT.DWG Scale: H. 1" = 20' V. 1" = 5' Date: 12/14/12		
LAYOUT	MLH	03/30/12
DRAWN	DAW	03/30/12
REVIEWED	JSL	
© Copyright Hanson Professional Services Inc. 2013 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2886 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide		
APPROACH WORK TO RUNWAY END 31	CROSS-SECTIONS FOR APPROACH WORK STA. 106+00	
66 66 of 75 sheets		

106+50



JAN 11, 2013 9:00 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG

REVISION	DATE

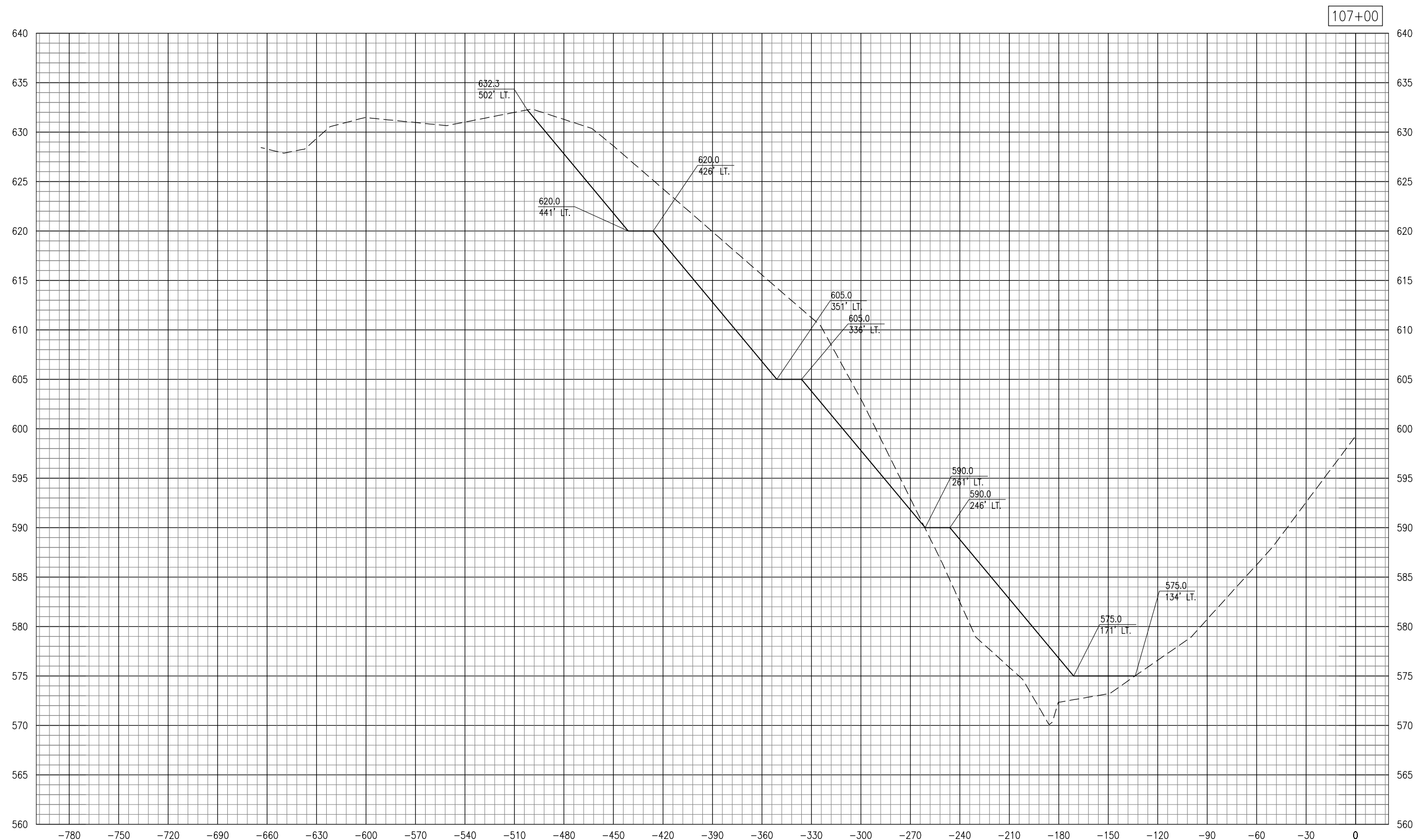
HANSON
 PROFESSIONAL SERVICES INC.
 1525 SOUTH SIXTH STREET
 SPRINGFIELD, ILLINOIS 62703-2886
 PH: (217) 788-2450 FAX: (217) 788-2503
 WWW.HANSON-INC.COM
 OFFICES NATIONWIDE

Hanson Proj. No. 10A0051	FILENAME SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	DRAWN DAW 03/30/12
REVIEWED JSL	

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 106+50

JAN 11, 2013 9:02 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



107+00

REVISION	DATE

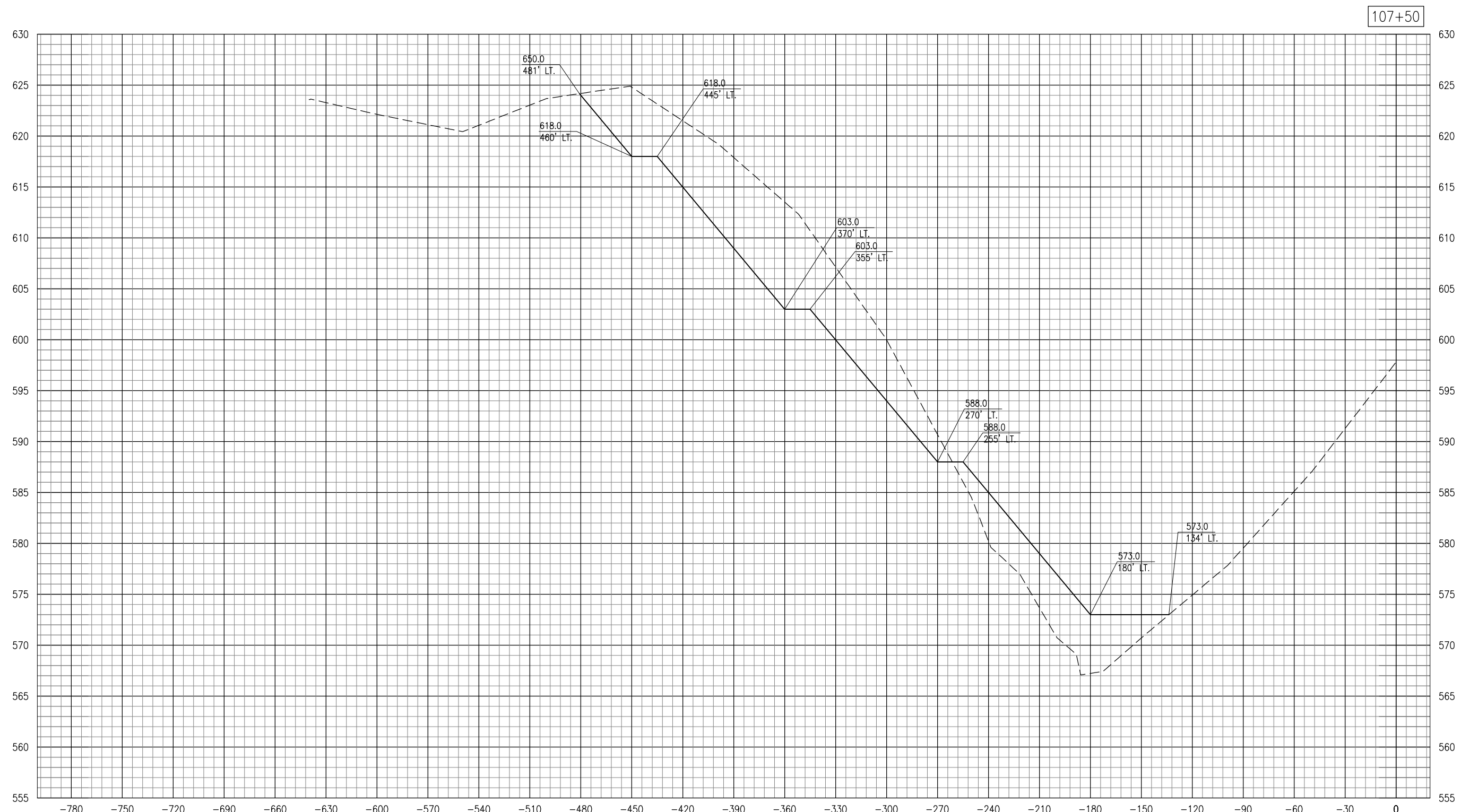
MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	FILENAME SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH 03/30/12	DRAWN DAW 03/30/12
REVIEWED JSL	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 107+00

JAN 11, 2013 9:05 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



REVISION	DATE

107+50

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

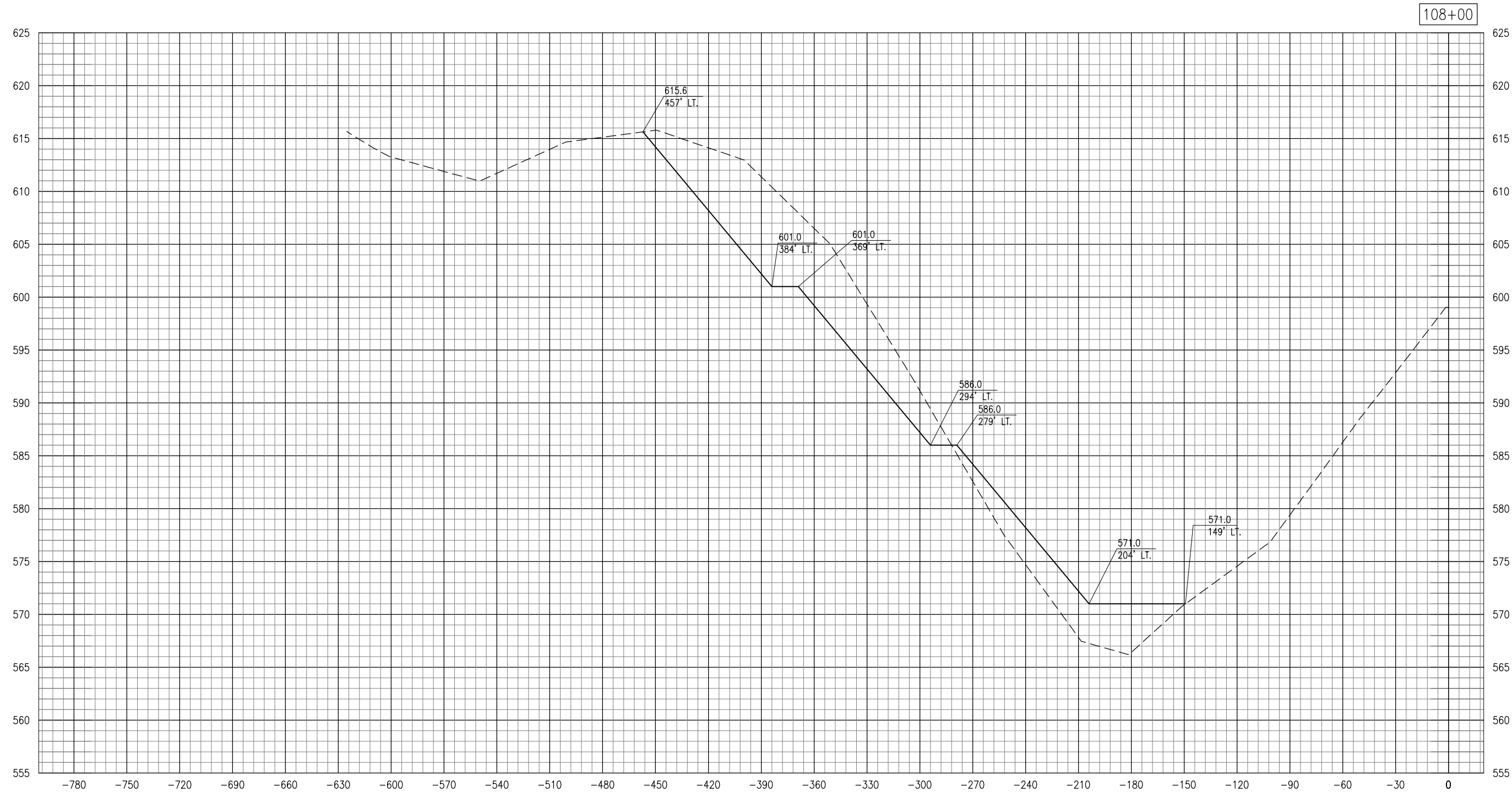
Hanson Proj. No. 10A0051	Filename SECTIONS-2012-11\SURVEY-25FT.DWG
Scale H. 1" = 20' V. 1" = 5'	Date 12/14/12
LAYOUT MLH	03/30/12
DRAWN DAW	03/30/12
REVIEWED JSL	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31

CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 107+50

JAN 11, 2013 9:11 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



DATE	REVISION

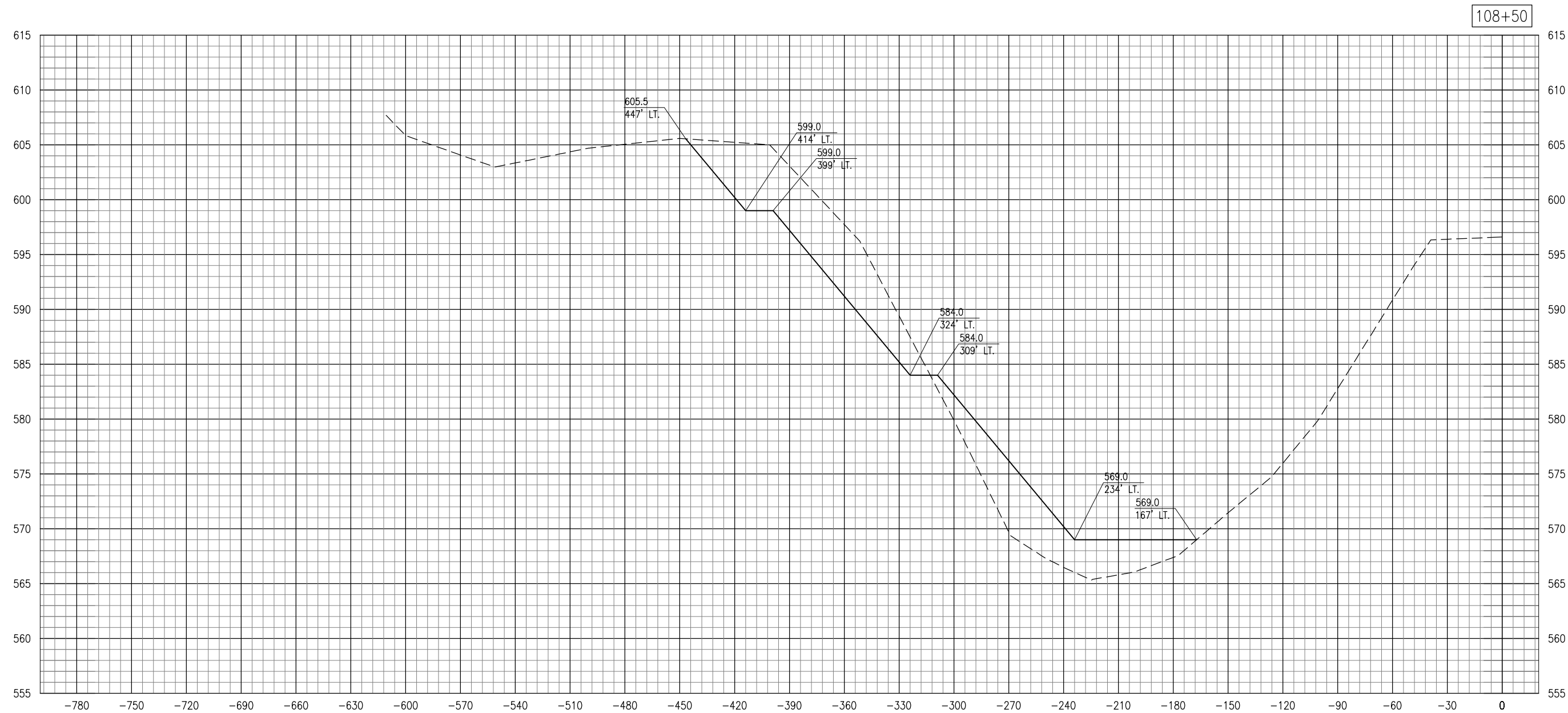
MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051 Filename: SECTIONS-2012-11\SURVEY-25FT.DWG Scale: H. 1" = 20' V. 1" = 5' Date: 12/14/12	
LAYOUT	MLH 03/30/12
DRAWN	DAW 03/30/12
REVIEWED	JSL


 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 108+00

JAN 11, 2013 9:12 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A005\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



DATE	REVISION

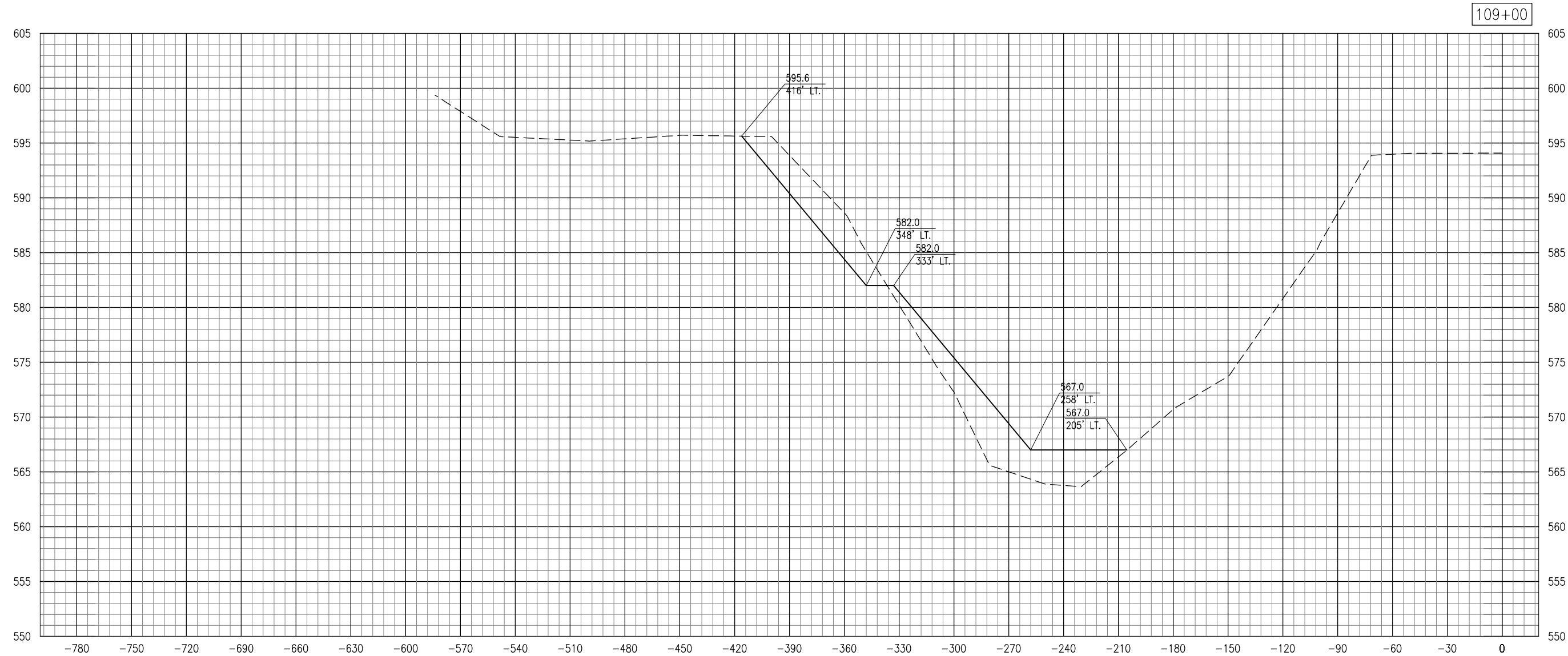
MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS
 IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

Hanson Proj. No. 10A0051	
Filename: SECTIONS-2012-11\SURVEY-25FT.DWG	
Scale	H. 1" = 20' V. 1" = 5'
Date	12/14/12
LAYOUT	MLH 03/30/12
DRAWN	DAW 03/30/12
REVIEWED	JSL

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31
 CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 108+50

JAN 11, 2013 9:13 AM KINC00394
 E:\AIRPORTS\MARSHALL\10A0051\AIRPORT\SHEETS\SECTIONS-2012-11\SURVEY-25FT.DWG



DATE	REVISION

MARSHALL COUNTY AIRPORT
 LACON, ILLINOIS

IL PROJ.: C75-4223 BLOCK GRANT PROJ.: 3-17-0059-B15

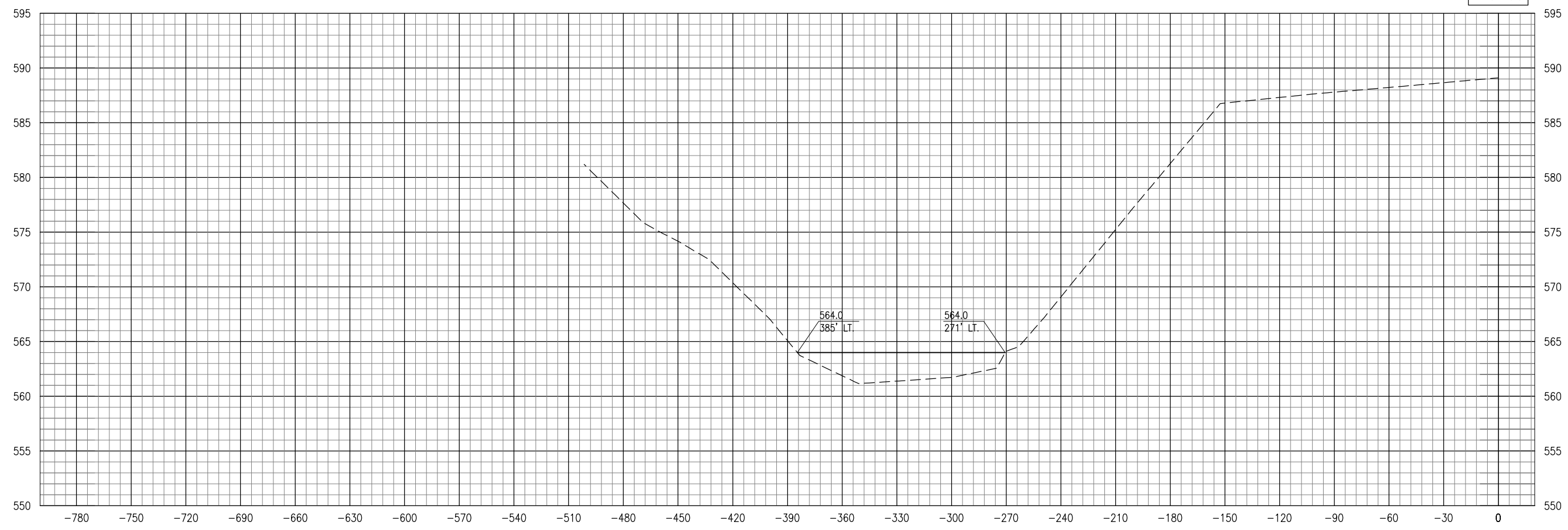
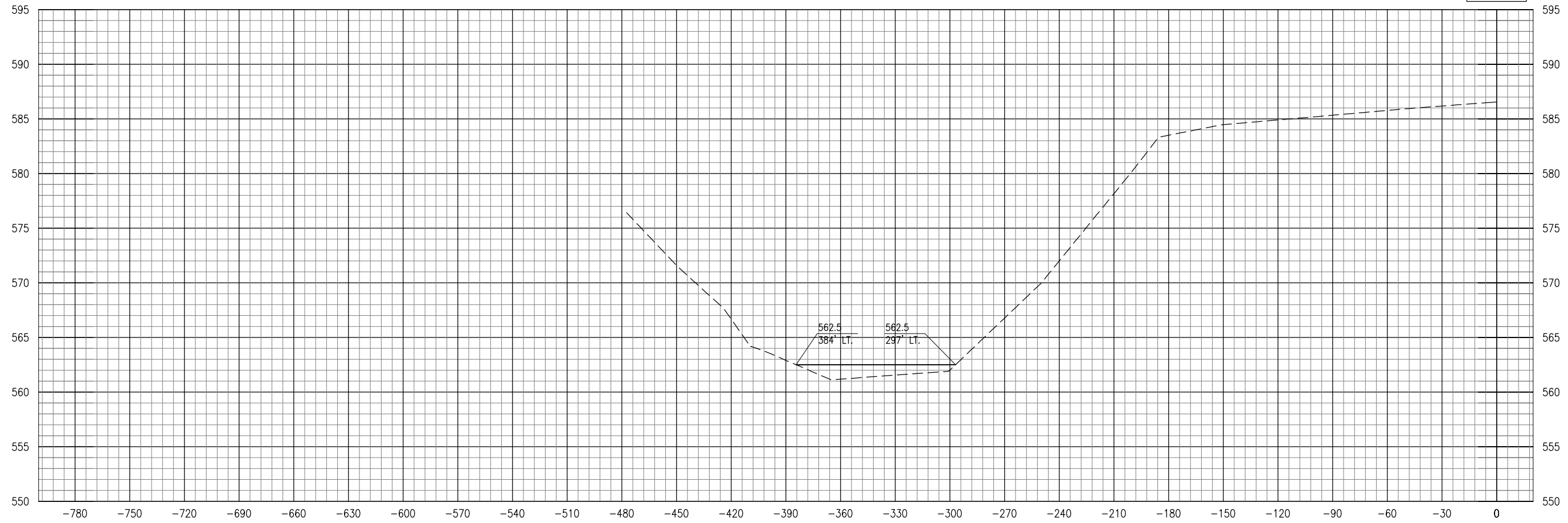
Hanson Proj. No. 10A0051
 Filename: SECTIONS-2012-11\SURVEY-25FT.DWG
 Scale: H. 1" = 20' V. 1" = 5'
 Date: 12/14/12

LAYOUT	MLH	03/30/12
DRAWN	DAW	03/30/12
REVIEWED	JSL	

HANSON
 © Copyright Hanson Professional Services Inc. 2013
Hanson Professional Services Inc.
 1525 South Sixth Street
 Springfield, Illinois 62703-2886
 Ph: (217) 788-2450 Fax: (217) 788-2503
 www.hanson-inc.com
 Offices Nationwide

APPROACH WORK TO
 RUNWAY END 31

CROSS-SECTIONS FOR
 APPROACH WORK
 STA. 109+00

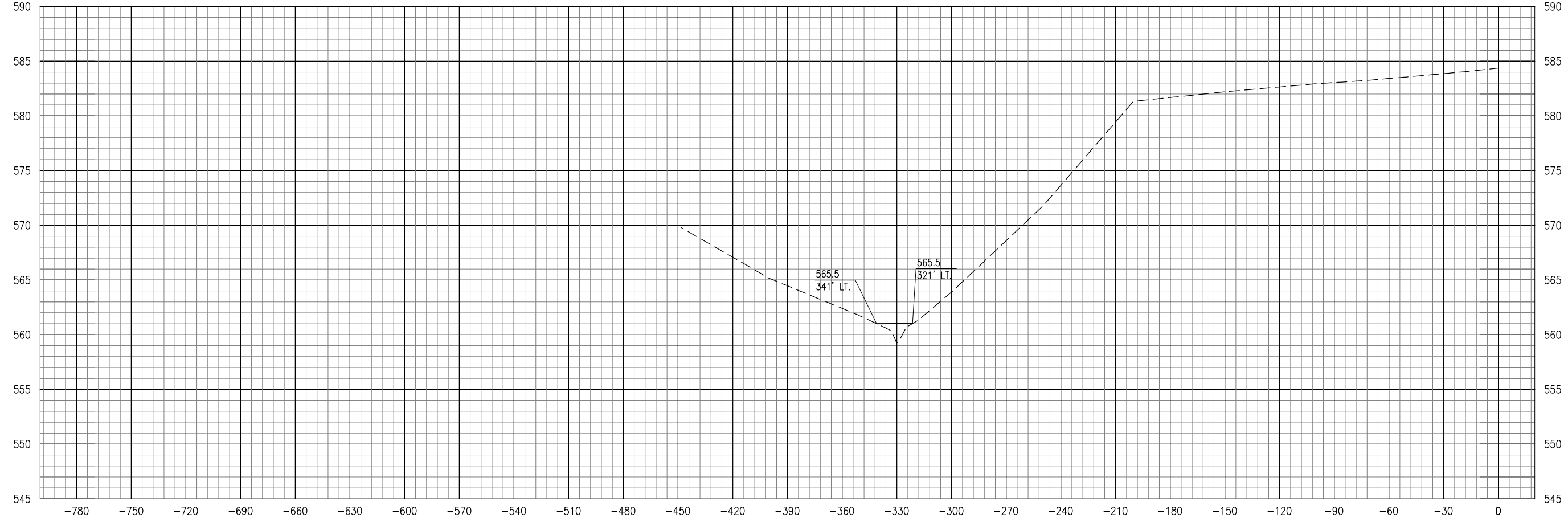


REVISION		MARSHALL COUNTY AIRPORT LACON, ILLINOIS	BLOCK GRANT PROJ.: 3-17-0059-B15 IL PROJ.: C75-4223
DATE			
Hanson Proj. No. 10A0051 Filename: SECTIONS-2012-11\SURVEY-25FT.DWG Scale: H. 1" = 20' V. 1" = 5' Date: 12/14/12		LAYOUT: MLH 03/30/12 DRAWN: DAW 03/30/12 REVIEWED: JSL	
 <small>© Copyright Hanson Professional Services Inc. 2013 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2986 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide</small>		APPROACH WORK TO RUNWAY END 31 CROSS-SECTIONS FOR APPROACH WORK STA. 110+00 TO STA. 110+50	
74		74 of 75 sheets	

MA025
 111+50



111+00



REVISION		DATE	
MARSHALL COUNTY AIRPORT LACON, ILLINOIS			
BLOCK GRANT PROJ.: 3-17-0059-B15			
IL PROJ.: C75-4223			
Hanson Proj. No. 10A0051		SECTIONS-2012-11\SURVEY-25FT.DWG	
Filename		Scale H. 1" = 20' V. 1" = 5'	
Date 12/14/12		Date	
LAYOUT	MLH	03/30/12	
DRAWN	DAW	03/30/12	
REVIEWED	JSL		
 © Copyright Hanson Professional Services Inc. 2013 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2886 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide			
APPROACH WORK TO RUNWAY END 31		CROSS-SECTIONS FOR APPROACH WORK STA. 111+00 TO STA. 111+50	
<div style="font-size: 2em; font-weight: bold;">75</div> 75 of 75 sheets			