

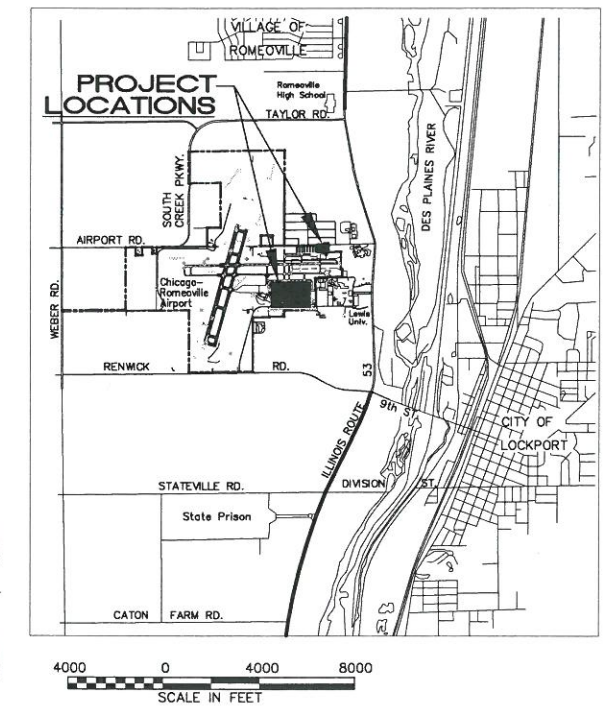
CONSTRUCTION PLANS

EXTEND FENCING AND GATES

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

AIP PROJECT NO. 3-17-0140-B50
IDA PROJECT NO. LOT-4192

VICINITY MAP



No.	Issue/Description	Sheets Changed	Date	By

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Seal (Sheets 15-25)

KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS
LICENSED PROFESSIONAL ENGINEER

Date of Plans: 4/9/2013
Kevin Lightfoot
EXP: 11/30/2013

Kevin N. Lightfoot, P.E.
Project Engineer

Seal (Sheets 1-14, 20-22)

STEPHEN J. McLAUGHLIN
062-059973
STATE OF ILLINOIS
LICENSED PROFESSIONAL ENGINEER

Date of Plans: Exp. 11/30/2013
Stephen J. McLaughlin
April 19, 2013

Stephen J. McLaughlin, P.E.
Project Engineer

HANSON
HANSON PROFESSIONAL SERVICES INC.
815 Commerce Drive, Suite 200
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Ronald M. Hudson
Ronald M. Hudson, AICP
Project Manager

APRIL 19, 2013
Date

Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT

1 George Michas Drive
Romeoville, Illinois 60446
Telephone: 815.838.9497
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Chris Lawson
Chris Lawson
Director of Aviation

APRIL 19, 2013
Date

REVISION
DATE

INDEX OF SHEETS	
SHEET NO.	TITLE
1	COVER SHEET
2	SHEET INDEX AND SUMMARY OF QUANTITIES
3	SITE PLAN AND GENERAL NOTES
4	CONSTRUCTION SAFETY NOTES AND DETAILS
5	STORMWATER POLLUTION PREVENTION PLAN
6	SITE PLAN - ALIGNMENT 100 - STA. 100+00 THRU 109+50
7	SITE PLAN - ALIGNMENT 100 - STA. 109+50 THRU 118+50
8	SITE PLAN - ALIGNMENT 100 - STA. 118+50 THRU 127+70
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10	FENCE DETAILS
11	28' GATE DETAILS
12	MISCELLANEOUS DETAILS
13	DRAINAGE AND EROSION CONTROL DETAILS
14	PAVED DITCH DETAILS
15	ELECTRICAL LEGEND AND ABBREVIATIONS
16	ELECTRICAL SITE PLAN - ALIGNMENT 100 - GATE T-7
17	ELECTRICAL SITE PLAN - ALIGNMENT 500 - GATE N-2
18	ELECTRICAL SLIDE GATE DETAILS
19	CARD READER, BOLLARD AND GATE OPERATOR DETAILS
20	ELECTRICAL ONE-LINE FOR GATE T-7
21	ELECTRICAL ONE-LINE FOR GATE N-2
22	ELECTRIC CABLE AND DUCT DETAILS
23	ELECTRICAL NOTES
24	GROUNDING DETAILS AND LEGEND PLATE SCHEDULE
25	GROUNDING NOTES
26	LANDSCAPING PLAN - ALIGNMENT 100
27	LANDSCAPING PLAN - ALIGNMENT 500

SUMMARY OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	AS BID	RECORD PAID
AR108051	POWER CABLE IN UNIT DUCT	LINEAR FOOT	124.0	
AR108052	POWER CABLE IN CONDUIT	LINEAR FOOT	228.0	
AR150510	ENGINEER'S FIELD OFFICE	LUMP SUM	1.0	
AR152499	UNCLASSIFIED EXCAVATION (LS)	LUMP SUM	1.0	
AR156510	SILT FENCE	LINEAR FOOT	966.0	
AR156513	SEPARATION FABRIC	SQUARE YARD	550.0	
AR208606	6" AGGREGATE BASE COURSE	SQUARE YARD	48.0	
AR501604	4" PCC SIDEWALK	SQUARE FOOT	376.0	
AR754610	PAVED DITCH	LINEAR FOOT	1653.0	
AR800906	CONCRETE CABLE BOTTOM	SQUARE YARD	544.0	
AR901510	SEEDING	ACRE	1.6	
AR905520	TOPSOILING (FROM OFF SITE)	CUBIC YARD	158.0	
AR908510	MULCHING	ACRE	1.6	

ALTERNATE A				
ITEM NO.	DESCRIPTION	UNIT	AS BID	RECORD PAID
AS162605	CLASS E GATE-5'	EACH	5.0	
AS800944	CL. E FENCE 10' BARB W/2' BUR. GALV	LINEAR FOOT	3120.0	
AS800947	28' ELECTRICAL SLIDING GATE-GALV	EACH	2.0	
AS800948	28' MANUAL SLIDING GATE-GALV	EACH	3.0	

ALTERNATE B				
ITEM NO.	DESCRIPTION	UNIT	AS BID	RECORD PAID
AT800963	28' ELECTRICAL SLIDING GATE-VINYL	EACH	2.0	
AT800975	CLASS E GATE 5'-VINYL	EACH	5.0	
AT800976	CL. E FENCE 10' BARB W/2' BUR.-VINYL	LINEAR FOOT	3120.0	
AT800977	28' MANUAL SLIDING GATE-VINYL	EACH	3.0	

SOME FENCE ITEMS ARE BID AS ALTERNATE A ITEMS (AS) AND OTHERS ARE BID AS ALTERNATE B (AT). THE AWARD WILL BE MADE BASED ON THE BASE BID AND EITHER ALTERNATE A OR ALTERNATE B. ONLY ONE OF THE ALTERNATES WILL BE AWARDED.

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

Chicago-Romeoville Airport
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Hanson No. 12A0087D	Filename: 02-INDEX AND SQO.DWG	Scale: N/A	Date: MARCH 22, 2013
LAYOUT	SJM	12/18/12	
DRAWN	SJM	12/18/12	
REVIEWED	RMH	3/22/13	

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SHEET INDEX AND SUMMARY OF QUANTITIES
EXTEND FENCING AND GATES
IDA No. LOT-4192 AIP No. 3-17-0140-B50

REVISION
DATE

Chicago-Romeoville Airport
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Hanson No. 12A0087D
Filename 03-SITE PLAN.DWG
Scale 1"=200'
Date MARCH 22, 2013

HANSON
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Hanson Professional Services Inc.
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Oak Brook, Illinois 60523

SITE PLAN AND GENERAL NOTES
EXTEND FENCING AND GATES
IDA No. LOT-4192 AIP No. 3-17-0140-B50

GENERAL NOTES

PROJECT DESCRIPTION

THIS PROJECT IS TO EXTEND THE PERIMETER FENCING AND INSTALL GATES AT CHICAGO-ROMEUVILLE, INCLUDING, AMONG OTHER INCIDENTAL WORK, THE FOLLOWING ITEMS:

- PLACEMENT OF TEMPORARY EROSION CONTROL MEASURES.
- PROVIDE SELECT GRADING OF EARTH TO ACCOMMODATE FENCE LINE AND CONSTRUCTION OF PAVED DITCH AND CABLE BOTTOM.
- INSTALL PRECAST CONCRETE CABLE BOTTOM TREATMENT.
- CONSTRUCT PC CONCRETE SIDEWALK.
- CONSTRUCT PC CONCRETE PAVED DITCH.
- INSTALL CHAIN -LINK FENCING.
- INSTALL ELECTRIC VEHICULAR SLIDING GATES, MANUAL VEHICULAR SLIDING GATES, AND MANUAL PEDESTRIAN SWINGING GATES.
- CONSTRUCT ELECTRICAL POWER AND CONTROL CABLING AND EQUIPMENT.
- TOPSOIL, SEED, AND MULCH FENCE LINE AND DISTURBED AREAS.

PROTECTION OF EXISTING AIRPORT FACILITIES

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

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

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE FAA (SMO) THROUGH THE RESIDENT ENGINEER TO LOCATE ALL FAA CABLES ON THE PROJECT SITE. ALL FAA CABLES SHALL BE PROTECTED AT ALL TIMES.

CONTRACTOR'S ACCESS AND TEMPORARY FACILITIES

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

HEAVY VEHICLES SHALL NOT CROSS EXISTING PAVEMENT SURFACES EXCEPT AS APPROVED BY THE AIRPORT MANAGER AND THE OWNER'S REPRESENTATIVE. ANY DAMAGE TO PAVEMENTS THAT MAY OCCUR BY THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE AIRPORT MANAGER AND THE OWNER'S REPRESENTATIVE.

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

RESPONSIBILITY FOR EXISTING UTILITIES

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

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND AGENCIES OF HIS CONSTRUCTION PLANS AND SHALL OBTAIN FROM EACH PARTY DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF ALL UTILITIES AND THE WORKING SCHEDULE OF ANY REMOVALS OR ADJUSTMENTS REQUIRED OF THE UTILITY. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (PHONE 800-892-0123) TO ASSIST IN THE ABOVE.

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.

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

AIRPORT SECURITY

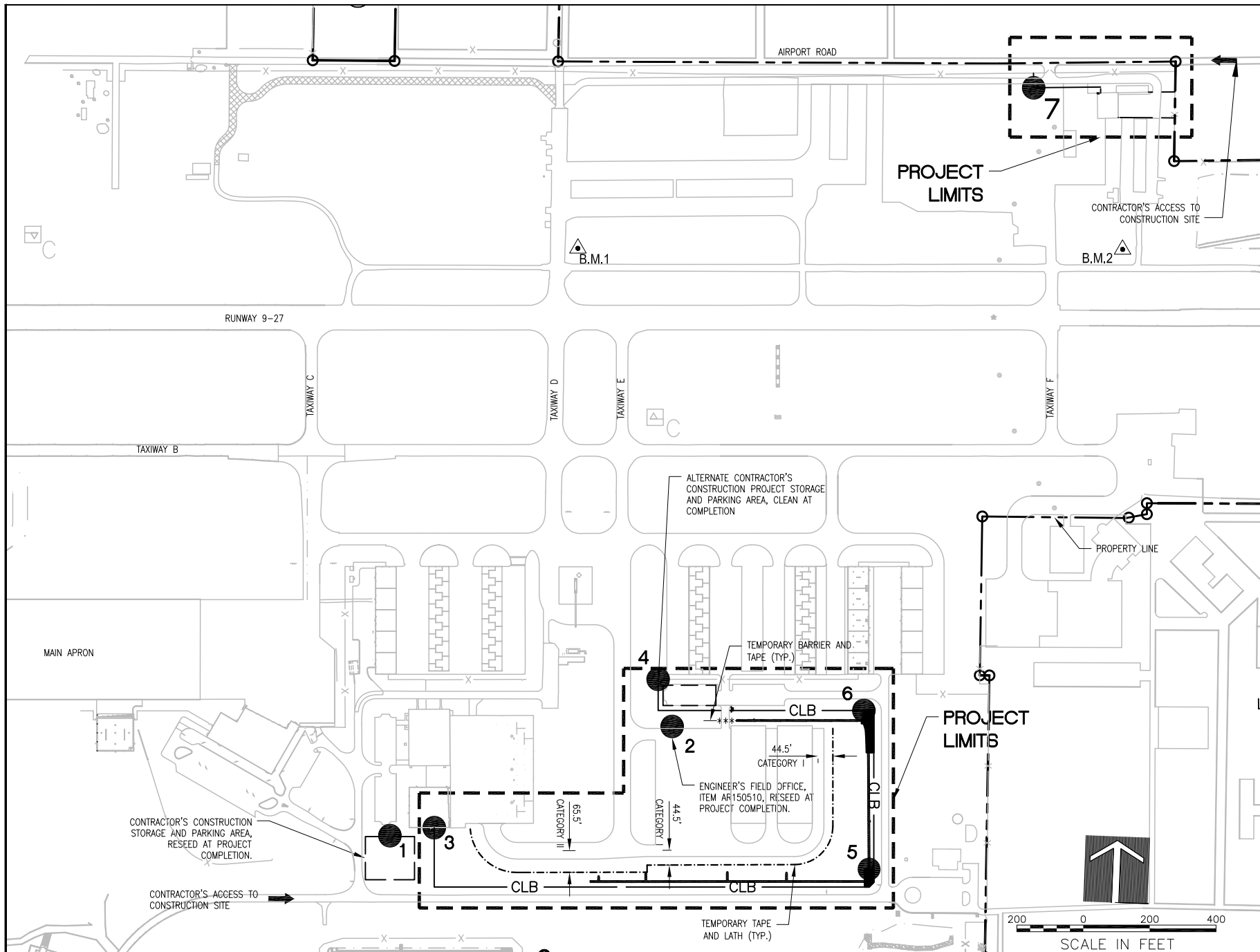
THE CONTRACTOR IS TO COORDINATE GATE SECURITY, THROUGH THE RESIDENT ENGINEER, WITH THE AIRPORT MANAGEMENT. AIRPORT SECURITY SHALL BE MAINTAINED AT ALL TIMES.

EXISTING BENCHMARK

PROJECT BENCHMARKS ARE AS FOLLOWS:

- ▲ B.M.1 N 1,800,236.82
E 1,051,080.54
ELEV. 666.67
- ▲ B.M.2 N 1,800,302.96
E 1,052,719.90
ELEV. 664.18

THIS DATA IS NOT ILLINOIS STATE PLANE COORDINATES



OBJECT INFORMATION

ITEM NO.	DESCRIPTION	MOBILITY	GROUND ELEVATION	OBJECT ELEVATION	LATITUDE	LONGITUDE	RUNWAY 9-27 STATION	RUNWAY 9-27 OFFSET	RUNWAY 9-27 EXIS. EL.
1	ENGINEER'S FIELD OFFICE	STATIONARY	665.1	690.1	41°36'14.9973" N	88°05'26.7624" W	60+66.28	1561.1	668.7
2	CONTRACTOR STAGING AREA	STATIONARY	662.9	687.9	41°36'18.5784" N	88°05'15.7517" W	69+16.41	1232.0	668.7
3	CONSTRUCTION EQUIPMENT	MOVING	665.6	690.6	41°36'15.2877" N	88°05'25.0190" W	61+99.78	1537.0	668.7
4	CONSTRUCTION EQUIPMENT	MOVING	664.7	689.7	41°36'19.9635" N	88°05'16.3808" W	68+74.18	1090.0	668.7
5	CONSTRUCTION EQUIPMENT	MOVING	656.8	706.8	41°36'14.5657" N	88°05'07.7258" W	75+12.64	1661.9	668.2
6	CONSTRUCTION EQUIPMENT	MOVING	661.5	711.5	41°36'19.1767" N	88°05'08.1710" W	74+94.00	1184.0	668.3
7	CONSTRUCTION EQUIPMENT	MOVING	665.6	690.6	41°36'38.0001" N	88°05'02.4251" W	80+05.51	692.4	665.5

RUNWAY END COORDINATES

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

NOTES

1. WORK MUST BE CONTROLLED.
2. MAXIMUM HEIGHT OF CONTRACTOR'S EQUIPMENT SHALL BE 50 FEET FOR INSTALLATION OF CONCRETE CABLE BOTTOM, ALL OTHER WORK MAXIMUM HEIGHT SHALL BE 25 FEET, EXCEPT BY PRIOR APPROVAL OF THE ENGINEER (SEE SPECIAL PROVISIONS).
3. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.
4. NO CLOSURES TO TAXIWAY, APRON, ROADWAY, AND AUTO PARKING SHALL BE CONDUCTED EXCEPT AS SHOWN IN THE SITE PLAN.

ALL TAXIWAYS WITHIN THE PROJECT LIMITS ARE FAA CATEGORY II.



PROJECT IS LOCATED IN
NORTHEAST 1/4 OF SECTION 16
LOCKPORT TOWNSHIP, WILL COUNTY

CONSTRUCTION AND SAFETY NOTES

SEQUENCE OF CONSTRUCTION

TO MINIMIZE DISRUPTIONS TO AIRPORT OPERATIONS, CONSTRUCTION OPERATIONS MUST BE CONTROLLED THROUGHOUT THE PROJECT'S DURATION AND WORK MUST BE COMPLETED EXPEDITIOUSLY. THE CONTRACTOR IS TO PREPARE AND FOLLOW A STAGING PLAN THAT COORDINATES HIS WORK WITH THE WORK OF HIS SUBCONTRACTORS AND THE WORK OF OTHER CONTRACTORS ON-FIELD. THIS STAGING PLAN MUST BE SATISFACTORY TO THE PROJECT ENGINEER AND THE AIRPORT DIRECTOR. THE CONTRACTOR SHALL EXPEDITE WORK AT THOSE STAGES WHEN ACTIVE TAXIWAYS, APRONS, ROADWAYS OR PARKING LOTS MUST BE CLOSED TO MINIMIZE THE LENGTH OF TIME THAT AIRPORT OPERATIONS ARE RESTRICTED.

LATHING AND WARNING TAPE

THE PROJECT WILL REQUIRE THE PLACEMENT OF LATHING AND WARNING TAPE TO DELINEATE THE CONSTRUCTION AREA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE, PLACE AND MAINTAIN LATHING AND WARNING TAPE SHOWN ON DETAIL A, THIS SHEET, AND AS DIRECTED BY THE RESIDENT ENGINEER AND THE AIRPORT MANAGER. THE CONTRACTOR WILL FURNISH, PLACE, MAINTAIN AND RELOCATE THE LATHING AND WARNING TAPE AS REQUIRED. THE COST OF THESE ITEMS, AND THEIR MAINTENANCE, IS TO BE INCIDENTAL TO THE CONTRACT.

TEMPORARY BARRICADES ON AIRFIELD

THE PROJECT WILL REQUIRE THE PLACEMENT OF BARRICADES TO DELINEATE PORTIONS OF THE CONSTRUCTION AREA AND FOR TEMPORARY CLOSURES OF ACTIVE ACCESS ROADS. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, PLACE AND MAINTAIN BARRICADES AS SHOWN IN DETAIL A, THIS SHEET, AND AS DIRECTED BY THE RESIDENT ENGINEER AND AIRPORT DIRECTOR. THE COST OF THESE ITEMS, AND THEIR MAINTENANCE, IS TO BE INCIDENTAL TO THE CONTRACT. ANY WORK THAT REQUIRES PORTIONS OF AN ACTIVE TAXIWAY OR APRON TO BE CLOSED MUST BE COMPLETED EXPEDITIOUSLY TO MINIMIZE DISRUPTION TO AIRCRAFT OPERATIONS.

VEHICULAR TRAFFIC CONTROL

THE CONTRACTOR SHALL ERECT AND MAINTAIN, AT NO COST TO THE CONTRACT, DIRECTIONAL AND INFORMATIONAL SIGNS FOR THE CONTRACTOR'S ACCESS ROUTES AT THE EXISTING CONSTRUCTION ENTRANCE AND FOR THE CONTRACTOR'S ROUTE WITHIN THE AIRPORT OPERATIONS AREA, AS NOTED ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.

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

AIRFIELD OPERATIONAL SAFETY DURING CONSTRUCTION

THE CONTRACTOR SHALL REMAIN WITHIN THE CONSTRUCTION LIMITS LINE SHOWN IN THE PLANS. WHEN OUTSIDE THESE LIMITS, ALL CONTRACTOR ACTIVITIES SHALL REMAIN MORE THAN 250 FEET FROM THE RUNWAY CENTERLINE AND 1,000 FEET FROM THE RUNWAY END. FOR WORK NEAR TAXIWAYS AND APRONS, THE CONTRACTOR'S PERSONNEL AND EQUIPMENT MUST REMAIN AT LEAST 65.5 FEET FROM ACTIVE CATEGORY II TAXIWAYS, 93 FEET FROM ACTIVE CATEGORY III TAXIWAYS, AND 44.5 FEET FROM ACTIVE T-HANGAR TAXILANES, AND TEN (10) FEET FROM ACTIVE APRONS. WHEN CONSTRUCTION OPERATIONS MUST BE CONDUCTED WITHIN THESE SEPARATIONS, THE PAVEMENT MUST BE CLOSED TO AIRCRAFT ACTIVITY BY THE CONTRACTOR BY PROVIDING TEMPORARY BARRICADES AS SHOWN IN THE PLANS, AND IN THE CASE OF RUNWAY PAVEMENTS, CLOSED RUNWAY MARKERS. CLOSING OF RUNWAYS WILL NOT BE PERMITTED UNDER THE CONSTRUCTION PROJECT.

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

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

OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIAL AT THE CONSTRUCTION SITE SHALL BE DELINEATED WITH THE USE OF BARRICADES DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS. NO OPEN TRENCHES SHALL BE ALLOWED WITHIN THE RUNWAY SAFETY AREA (RSA) OR THE TAXIWAY SAFETY AREA (TSA) WHEN THE RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC (INCLUDING OVERNIGHT). THE RSA IS DEFINED AS 250 FEET FROM THE RUNWAY CENTERLINE AND 1,000 FEET FROM THE END OF THE RUNWAY. THE TSA IS MEASURED AT 39.5 FEET FROM THE TAXIWAY CENTERLINE FOR CATEGORY II TAXIWAYS, 59 FEET FROM THE CENTERLINE FOR CATEGORY III TAXIWAYS, AND 24.5 FEET FROM THE T-HANGAR TAXILANE CENTERLINE. NO VERTICAL DROP OF GREATER THAN 3-INCHES IN HEIGHT FROM PAVEMENT EDGE TO EARTH GRADE OR EARTH GRADE TO EARTH GRADE WITHIN THE RSA OR TSA WILL BE PERMITTED WHEN THE RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC. THE CONTRACTOR WILL HAVE STEEL PLATES ON-SITE TO ALLOW FOR THE RAPID COVERING OF TRENCHES OR EARTH DROPS IN THE EVENT OF UNEXPECTED WORK STOPPAGES FOR WEATHER OR AIRPORT EMERGENCIES.

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

AT NO TIME SHALL THE CONTRACTOR OPERATE OR PARK EQUIPMENT SO AS TO OBSTRUCT AN ACTIVE RUNWAY APPROACH SURFACE.

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

ALL CONTRACTOR EQUIPMENT IS LIMITED TO A HEIGHT OF 25 FEET, EXCEPT WHEN INSTALLING CONCRETE CABLE BOTTOM, EQUIPMENT IS LIMITED TO A HEIGHT OF 50 FEET.

THE AIRPORT OWNER WILL DE-ENERGIZE AIRPORT/RUNWAY NAVAIDS, AND AIRFIELD LIGHTING POWER AND CONTROL CIRCUITS WHEN REQUIRED BY THE CONTRACTOR'S ACTIVITIES. THE CONTRACTOR SHALL NOT PROCEED WITH FURTHER WORK UNTIL AFTER THE REQUIRED CHANGES TO THE AIRPORT POWER AND CONTROL CIRCUITS HAVE BEEN MADE BY THE AIRPORT OWNER.

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

NOTIFICATIONS BY CONTRACTOR

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

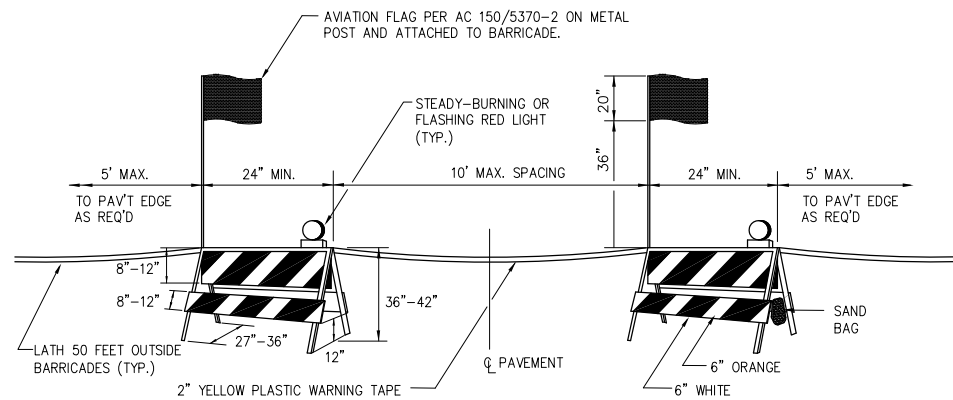
CONTRACTOR'S USE OF SITE

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

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

UTILITY OUTAGES AND SHUTDOWNS

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



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

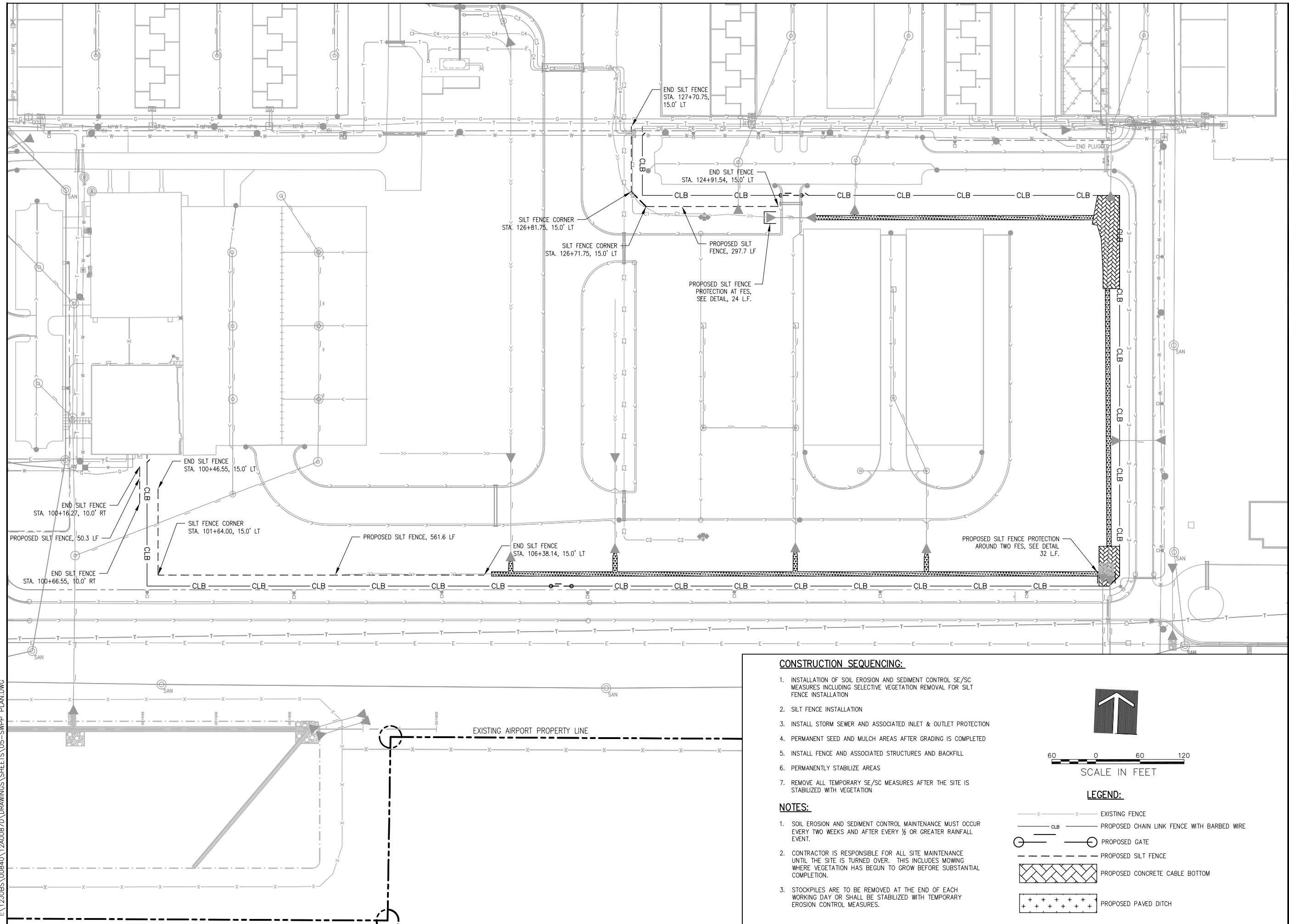
DETAIL A
PAVEMENT BARRICADES
NTS

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1 George Michas Drive
Romeoville, Illinois 60446
Telephone: 815.838.9497
Fax: 815.838.9524

Hanson No.	12A0087D
Filename	04-SAFETY NOTES.DWG
Scale	N/A
Date	MARCH 22, 2013
LAYOUT	SJM 12/18/12
DRAWN	SJM 12/18/12
REVIEWED	RMH 3/22/13

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

CONSTRUCTION SAFETY
NOTES AND DETAILS
EXTEND FENCING AND GATES
IDA No. LOT-4192 AIP No. 3-17-0140-B50

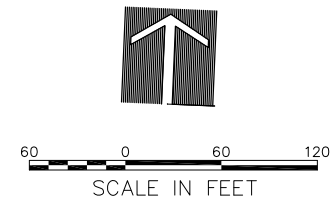


CONSTRUCTION SEQUENCING:



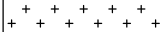
1. INSTALLATION OF SOIL EROSION AND SEDIMENT CONTROL SE/SC MEASURES INCLUDING SELECTIVE VEGETATION REMOVAL FOR SILT FENCE INSTALLATION
2. SILT FENCE INSTALLATION
3. INSTALL STORM SEWER AND ASSOCIATED INLET & OUTLET PROTECTION
4. PERMANENT SEED AND MULCH AREAS AFTER GRADING IS COMPLETED
5. INSTALL FENCE AND ASSOCIATED STRUCTURES AND BACKFILL
6. PERMANENTLY STABILIZE AREAS
7. REMOVE ALL TEMPORARY SE/SC MEASURES AFTER THE SITE IS STABILIZED WITH VEGETATION

NOTES:

1. SOIL EROSION AND SEDIMENT CONTROL MAINTENANCE MUST OCCUR EVERY TWO WEEKS AND AFTER EVERY 1/2 OR GREATER RAINFALL EVENT.
2. CONTRACTOR IS RESPONSIBLE FOR ALL SITE MAINTENANCE UNTIL THE SITE IS TURNED OVER. THIS INCLUDES MOWING WHERE VEGETATION HAS BEGUN TO GROW BEFORE SUBSTANTIAL COMPLETION.
3. STOCKPILES ARE TO BE REMOVED AT THE END OF EACH WORKING DAY OR SHALL BE STABILIZED WITH TEMPORARY EROSION CONTROL MEASURES.



LEGEND:

- x-x- EXISTING FENCE
- CLB- PROPOSED CHAIN LINK FENCE WITH BARBED WIRE
 PROPOSED GATE
- - - - - PROPOSED SILT FENCE
 PROPOSED CONCRETE CABLE BOTTOM
 PROPOSED PAVED DITCH

Hanson No.	12A0087D	LAYOUT	KMS	12/21/12
Filename	05-SWPP PLAN.DWG	DRAWN	KMS	12/21/12
Scale	1"=60'	REVIEWED	RMH	3/22/13
Date	MARCH 22, 2013			

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STORM WATER POLLUTION
PREVENTION PLAN

EXTEND FENCING AND GATES
IDA No. LOT-4192 AIP No. 3-17-0140-B50

REVISION	DATE

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

Hanson No.	12A0087D
Filename	06-SITE PLAN ALIGNMENT 100.DWG
Scale	1"=30'
Date	MARCH 22, 2013
LAYOUT	SJM
DRAWN	KMS
REVIEWED	RMH
	12/13/12
	12/20/12
	3/22/13

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SITE PLAN ALIGNMENT 100
STA. 100+00 - 109+50
EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50

LEGEND:

- EXISTING STORM SEWER
- EXISTING UNDERDRAIN
- EXISTING ELECTRICAL
- EXISTING POWER CABLE
- EXISTING TELEPHONE
- EXISTING FENCE
- EXISTING STORM SEWER MANHOLE
- ▽ EXISTING FLARED END SECTION
- CLB — PROPOSED CHAIN LINK FENCE WITH BARBED WIRE
- E — PROPOSED ELECTRICAL
- PROPOSED FENCE REMOVAL
- PROPOSED GATE
- ▨ PROPOSED CONCRETE CABLE BOTTOM
- ▤ PROPOSED PAVED DITCH

NOTES:

1. PROPOSED FENCE LINE FOLLOWS THE EXISTING GRADE UNLESS OTHERWISE NOTED. ALSO, SEE SPECIAL PROVISIONS FOR ADDITIONAL FENCELINE REQUIREMENTS.
2. SOME EXISTING AND PROPOSED UTILITIES HAVE BEEN OMITTED FOR CLARITY.
3. SWING GATES ARE STATIONED AT THE ANCHOR POST. SLIDE GATES ARE STATIONED AT THE CENTER OF THE GATE.

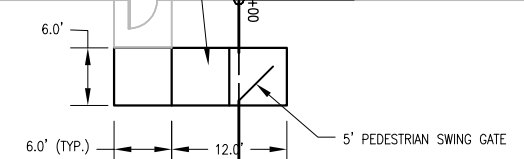


ALIGNMENT 100

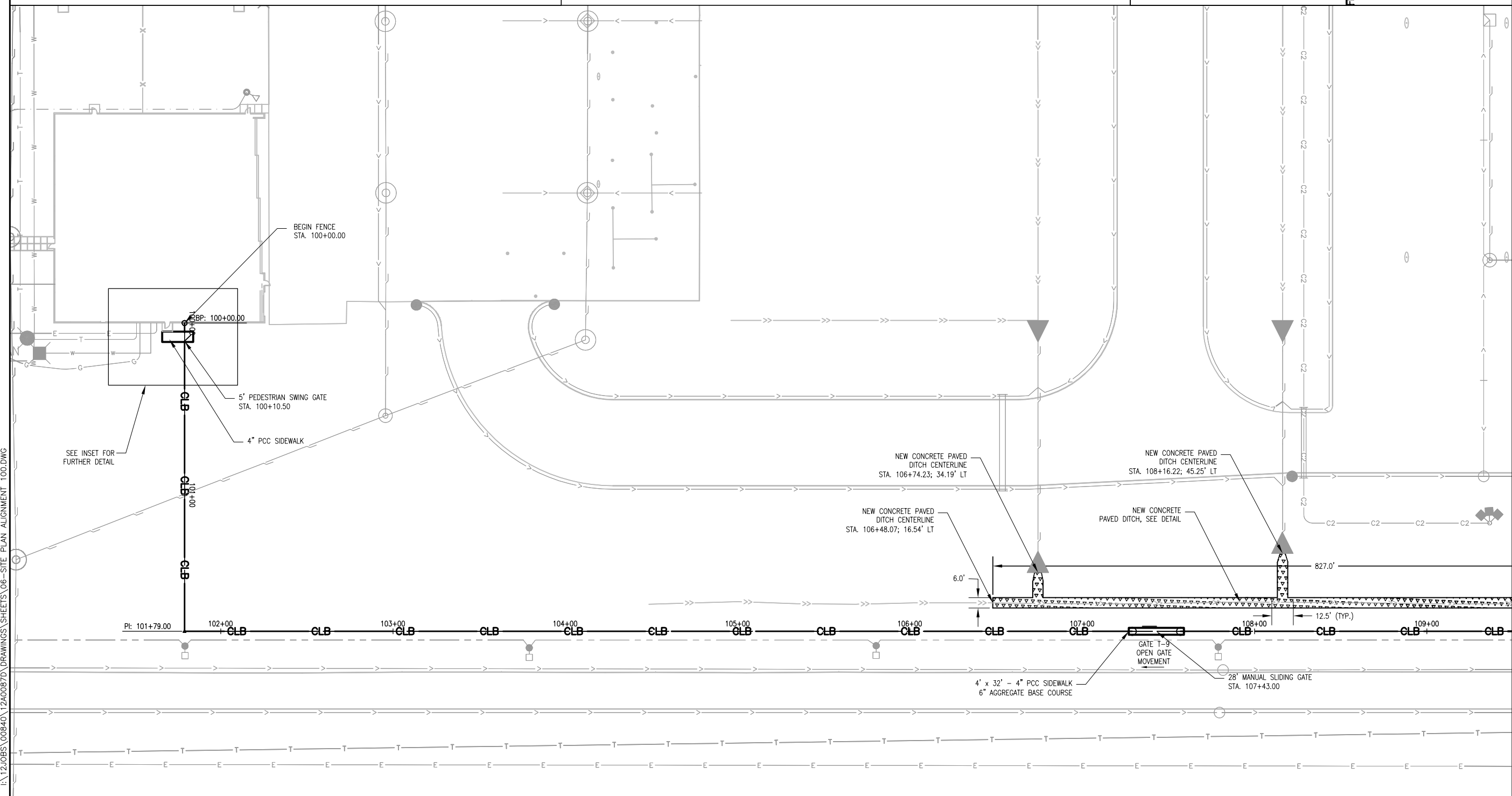
ALIGNMENT	STATION	NORTHING	EASTING
BEGINNING OF ALIGNMENT	100+00.00	1798474.5178	1050721.9497
PI	101+79.00	1798295.6747	1050729.5213
PI	114+89.08	1798351.0890	1050238.4246
PI	115+09.08	1798365.8166	1052051.9559
PI	120+26.94	1798883.2110	1052030.0512
PI	126+76.75	1798855.7247	1051380.8155
END OF ALIGNMENT	127+70.75	1798949.6406	1051376.8395

NOTE:
 COORDINATES ARE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE, US SURVEY FOOT, NAD 83

4" PCC SIDEWALK
 6" AGGREGATE BASE COURSE



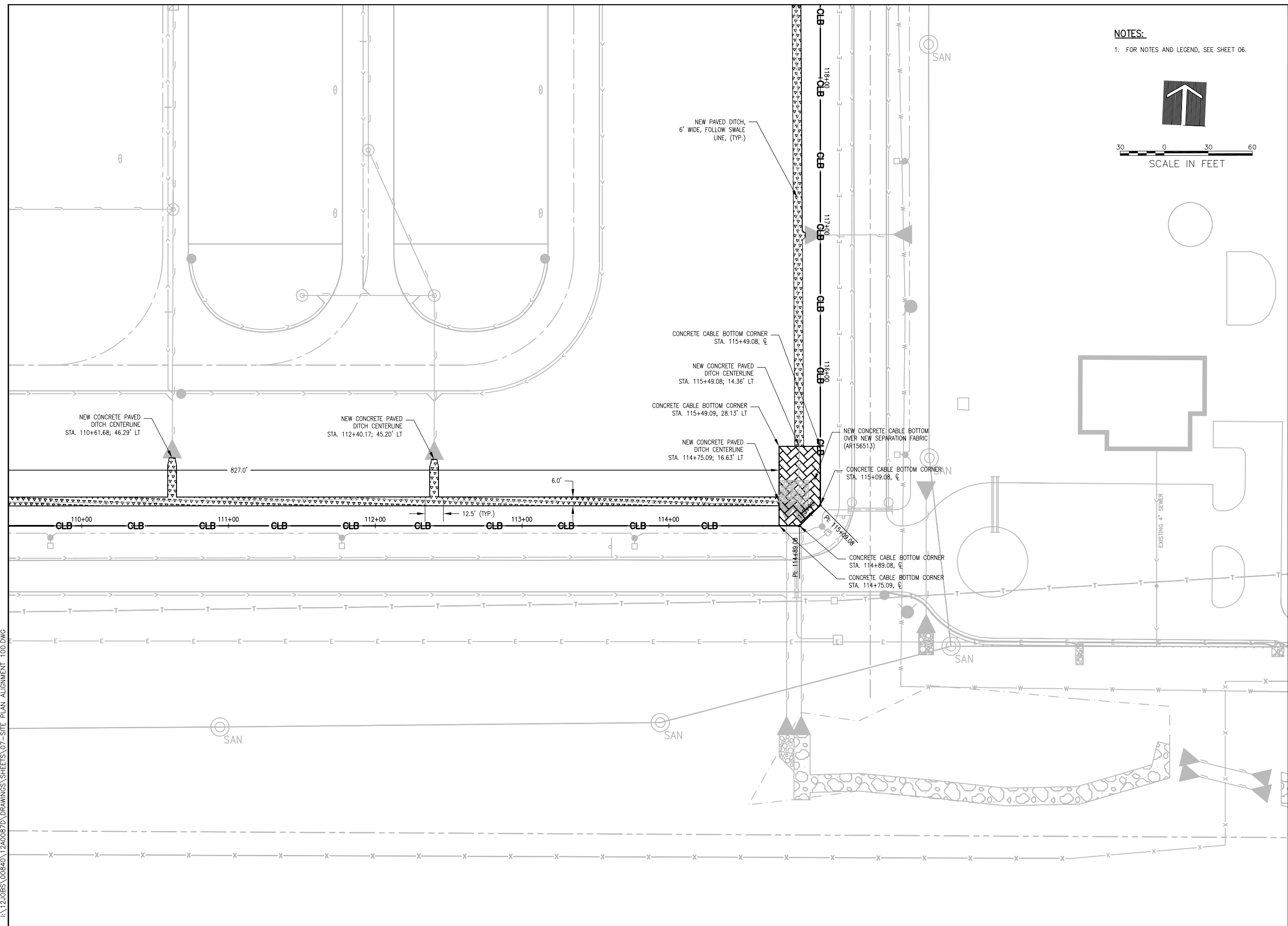
NOTE:
 1. UTILITIES IN INSET OMITTED FOR CLARITY.



APR 26, 2013 8:20 AM SPITZ01394 I:\12\085\00840\12A0087D\DRAWINGS\SHEETS\06-SITE PLAN ALIGNMENT 100.DWG

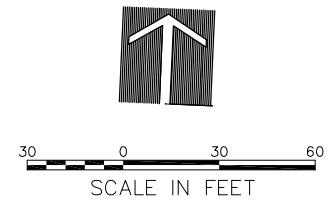
APR 19, 2013 11:32 AM SPITZ01394

I:\12105\00840\1240087D\DRAWINGS\SHEETS\07-SITE PLAN ALIGNMENT 100.DWG



NOTES:

1. FOR NOTES AND LEGEND, SEE SHEET 06.



LE045

REVISION	DATE

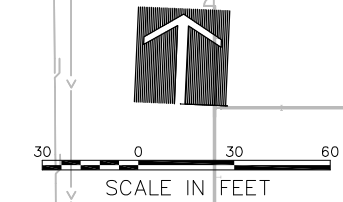
Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
 Telephone: 815.838.9497
 Fax: 815.838.9524

Hanson No. 1240087D	12/13/12
Filename 07-SITE PLAN ALIGNMENT 100	SJM
Scale 1"=30'	KMS
Date MARCH 22, 2013	RMH
LAYOUT	12/13/12
DRAWN	12/20/12
REVIEWED	3/22/13

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 815 Commerce Drive Suite 200
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SITE PLAN ALIGNMENT 100
STA. 109+50 - 118+50
EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50

NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 06

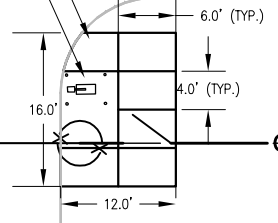


4" PCC SIDEWALK,
6" AGGREGATE BASE COURSE
ITEM 208

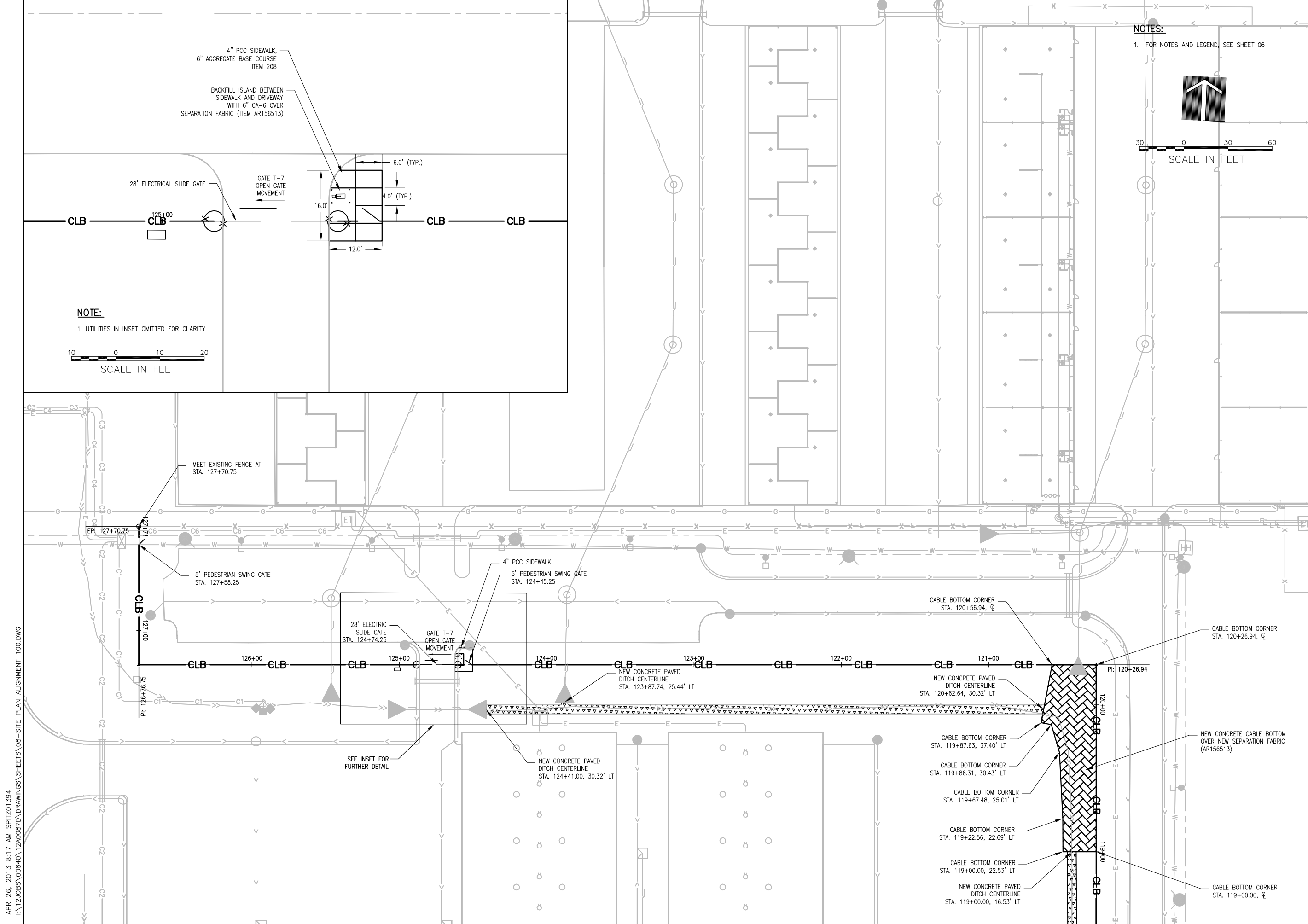
BACKFILL ISLAND BETWEEN
SIDEWALK AND DRIVEWAY
WITH 6" CA-6 OVER
SEPARATION FABRIC (ITEM AR156513)

28' ELECTRICAL SLIDE GATE

GATE T-7
OPEN GATE
MOVEMENT



NOTE:
1. UTILITIES IN INSET OMITTED FOR CLARITY



REVISION	DATE

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Hanson No. 12A0087D	Client 08-SITE PLAN ALIGNMENT 100	Date MARCH 22, 2013
Scale 1"=30'	Scale 1"=30'	Scale 1"=30'
LAYOUT SJM	12/13/12	
DRAWN KMS	12/20/12	
REVIEWED RMH	3/22/13	

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SITE PLAN ALIGNMENT 100
STA. 118+50 - 127+70

EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50

APR 26, 2013 8:17 AM SPITZ01394
 I:\12\085\00840\12A0087D\DRAWINGS\SHEETS\08-SITE PLAN ALIGNMENT 100.DWG

ALIGNMENT 500

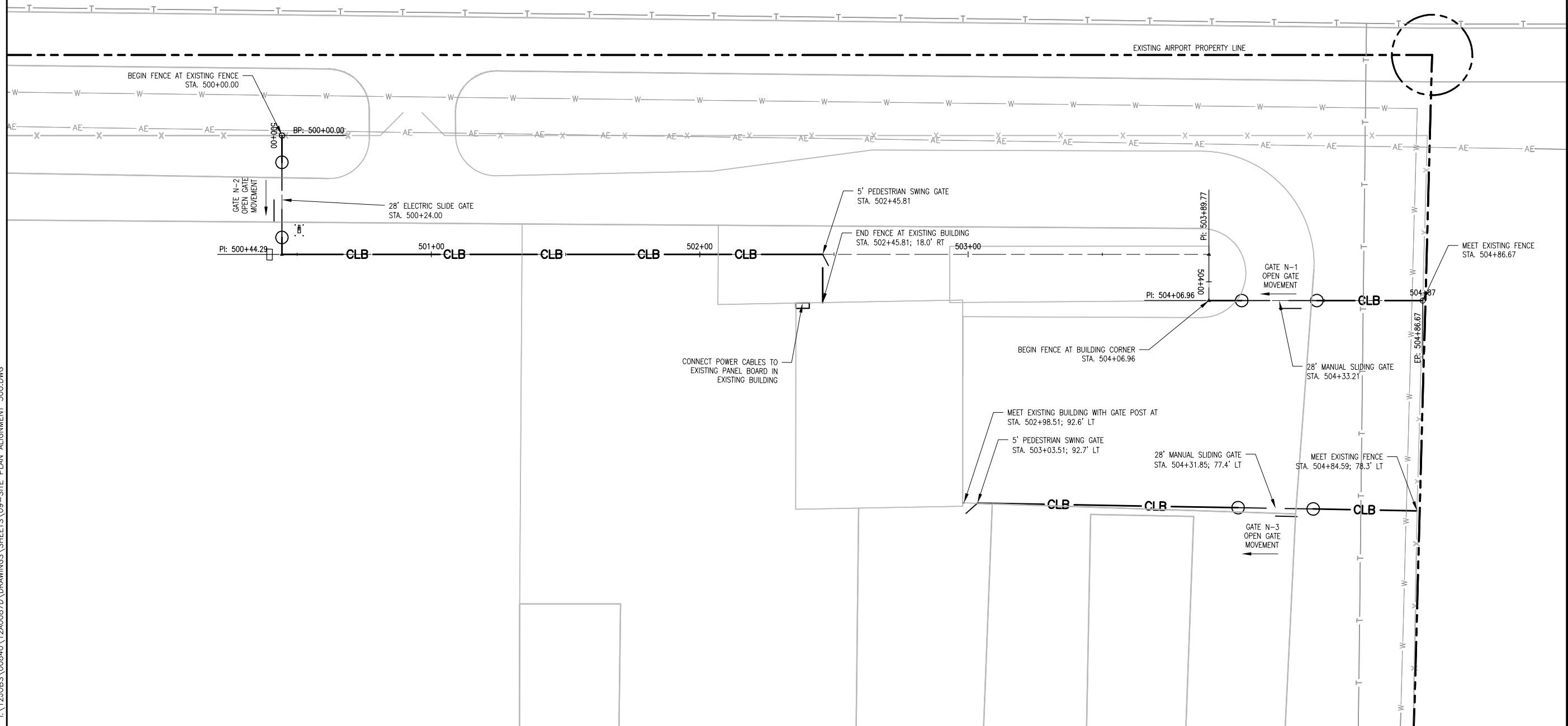
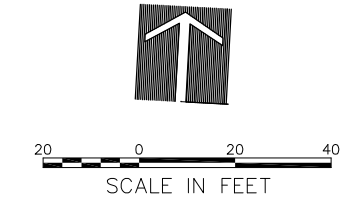
ALIGNMENT	STATION	NORTHING	EASTING
BEGINNING OF ALIGNMENT	500+00.00	1800822.5115	1052429.3791
PI	500+44.29	1800778.2812	1052431.7587
PI	503+89.77	1800796.8411	1052776.7319
PI	504+06.96	1800779.6668	1052777.6290
END OF ALIGNMENT	504+86.67	1800783.9490	1052857.2231

NOTE:

- COORDINATES ARE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE, US SURVEY FOOT, NAD 83
- SWING GATES ARE STATIONED AT THE ANCHOR POST. SLIDE GATES ARE STATIONED AT THE CENTER OF THE GATE.

NOTES:

- FOR NOTES AND LEGEND, SEE SHEET 6



REVISION

DATE

Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
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 Romeoville, Illinois 60446
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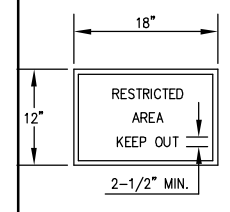
Hanson No. 12A0087D	12/13/12
Filename 09-SITE PLAN ALIGNMENT 500.DWG	SJM
Scale 1"=20'	KMS
Date MARCH 22, 2013	RMH
	3/22/13

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SITE PLAN
ALIGNMENT 500

EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50

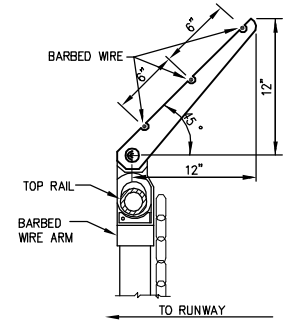
APR 26, 2013 8:21 AM MCLAU1058 I:\12\08\00840\12\08\07\DRAWINGS\SHEETS\10-FENCING DETAILS.DWG



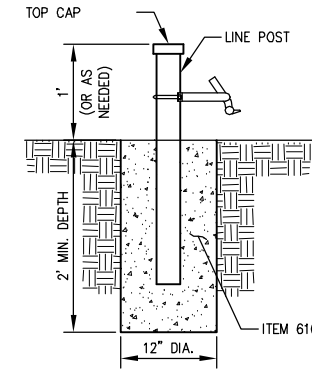
0.08 GA. ALUMINUM ALLOY SHEET
(LETTERING COLOR SHALL BE RED ON WHITE BACKGROUND.)

NOTES:

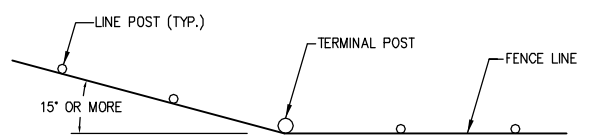
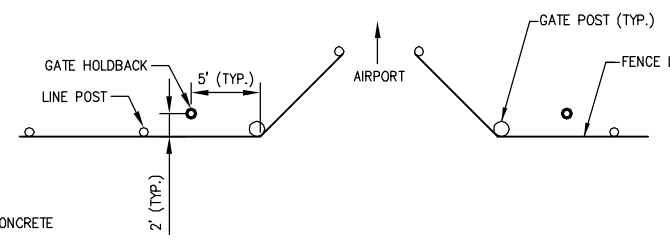
- EACH GATE SHALL REQUIRE ONE SIGN.
- EVERY 100' OF FENCE SHALL REQUIRE ONE SIGN.
- COST OF THESE SIGNS AND THEIR INSTALLATION IS INCIDENTAL TO FENCE OR GATE.



BARBED WIRE ARM

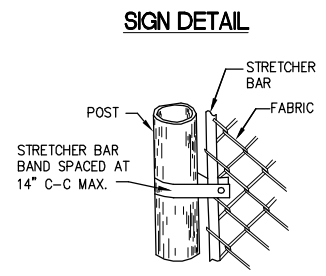


GATE HOLDBACK

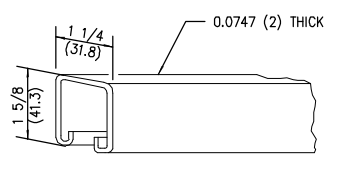


WHEN FENCE LINE HAS A CHANGE IN DIRECTION OF 15° OR MORE, A TERMINAL POST SHALL BE PLACED AS SHOWN ABOVE. WHERE ANGLE IS LESS THAN 15° AND EXISTING CONDITIONS REQUIRE A TERMINAL POST, THEY SHALL BE PLACED AS DIRECTED BY THE RESIDENT ENGINEER.

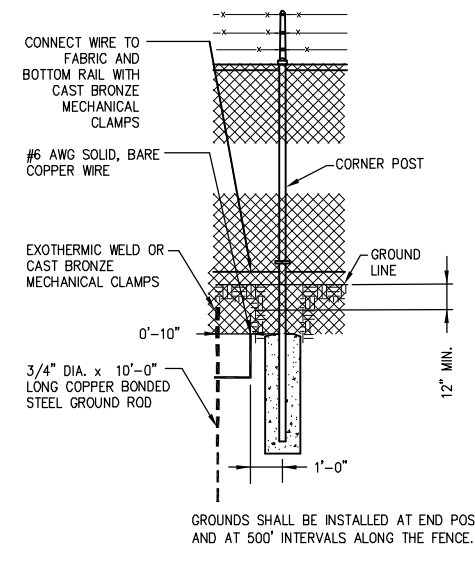
INSTALLATION AT CORNERS



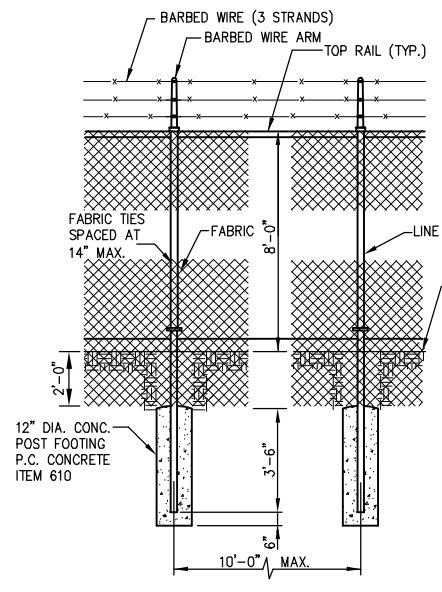
SIGN DETAIL



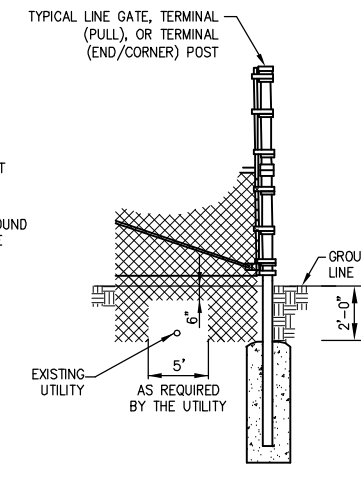
ROLL FORMED SECTION OF BRACE



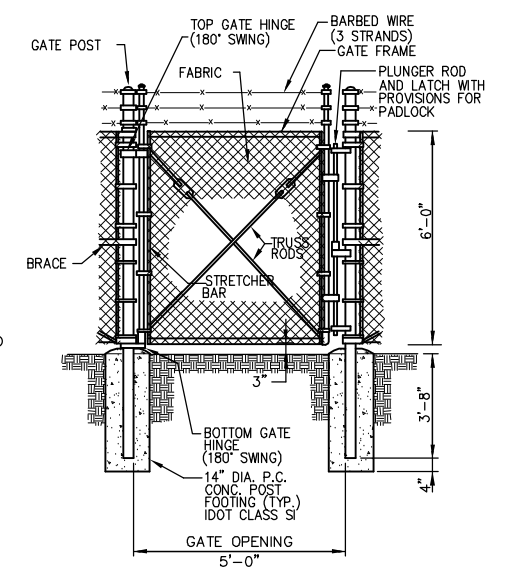
PROTECTIVE ELECTRICAL GROUND



LINE POST



FENCE INSTALLATION OVER UTILITIES

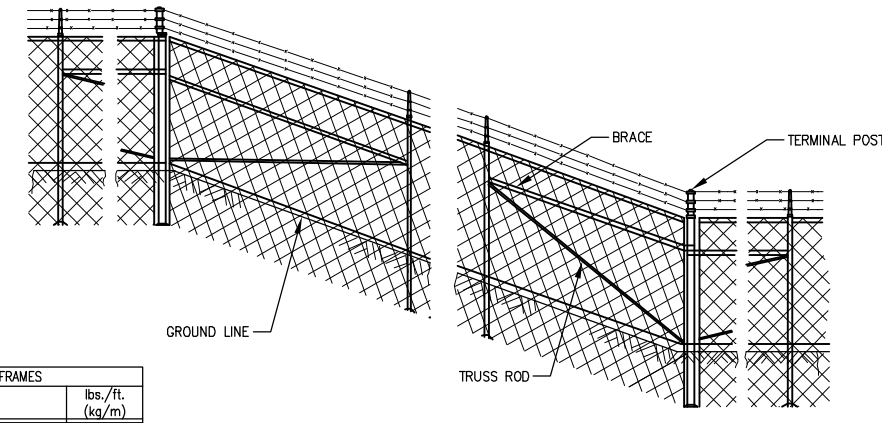


PEDESTRIAN GATE, 5 FOOT WIDE

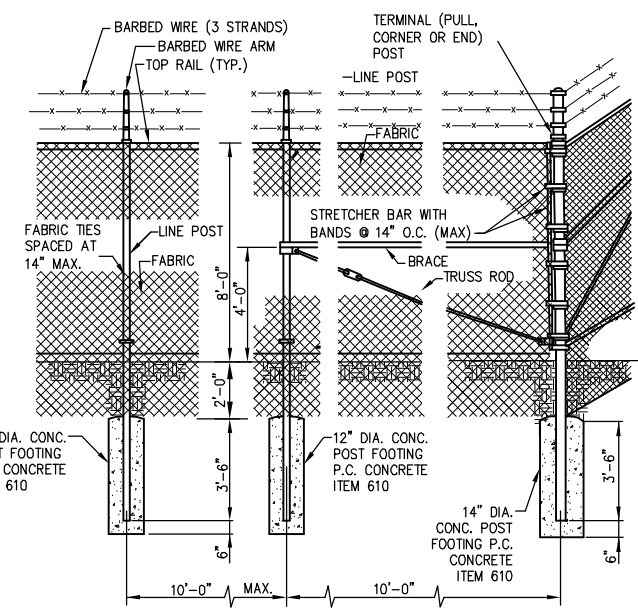
NOTE: 180° HINGES FOR GATES SHALL NOT BE AN "ADJUSTABLE ARM HINGE." INSTEAD HINGE SHALL BE HOOVER FENCE COMPANY'S BULLDOG CHAIN LINK GATE HINGE OR APPROVED EQUAL.

FENCING NOTES

- ALL FENCE, FABRIC, POSTS, GATES, TENSION WIRE, RODS, BRACES, ARMS, BARBED WIRE AND MISCELLANEOUS FITTINGS SHALL BE GALVANIZED STEEL EXCEPT FOR ITEMS AT800963, AT800975, AT800976, AND AT800977 WHICH SHALL BE GREEN VINYL COATED.
- BARBED WIRE FOR FENCE AND GATES SHALL BE GALVANIZED STEEL.
- FENCE HEIGHT SHALL BE 10' WITH BOTTOM 2' BURIED. GATE HEIGHT ABOVE GROUND LINE SHALL BE 8'-0" AS SHOWN.
- PULL POSTS SHALL BE PLACED AT 660 FOOT INTERVALS BETWEEN CORNER OR END POSTS TO WHICH THE ENDS OF THE FABRIC ARE CLAMPED OR MIDWAY BETWEEN SUCH POSTS WHEN THE DISTANCE IS LESS THAN 1,320 FEET AND GREATER THAN 660 FEET.
- ALUMINUM RESTRICTED AREA SIGNS SHALL BE FURNISHED AS SHOWN IN THE DETAIL. COST INCIDENTAL TO FENCE OR GATE.
- SONOTUBE TO BE USED FOR CASTING POST FOUNDATIONS WHERE REQUIRED BY THE SOIL CONDITIONS TO PROVIDE A CONSTANT WIDTH FOOTING.
- COST OF TRENCHING FOR FENCE FABRIC BURIAL SHALL BE INCIDENTAL TO CHAIN LINK FENCE.
- SOME FENCE ITEMS ARE BID AS ALTERNATE BID A ITEMS (AS) AND OTHERS ARE BID AS ALTERNATE BID B ITEMS (AT). THE AWARD WILL BE MADE BASED ON THE BASE BID AND EITHER ALTERNATE BID A OR ALTERNATE BID B. ONLY ONE OF THE ALTERNATES WILL BE AWARDED.
- SEE SPECIAL PROVISIONS.



INSTALLATION ON SLOPES



TERMINAL (PULL, CORNER OR END) POST

LINE POST	
Section	lbs./ft. (kg/m)
Pipe Type A 2.375 (60.3) O.D.	4.64 (6.90)
Pipe Type B 2.375 (60.3) O.D.	4.64 (6.90)
Pipe Type C 2.25x1.7 (57.2x43.2)	2.78 (4.14)
H 2.25x1.70 (57.2x43.2)	2.72 (4.05)

TERMINAL POST	
Section	lbs./ft. (kg/m)
Pipe Type A 2.875 (73.0) O.D.	4.64 (6.90)
Pipe Type B 2.875 (73.0) O.D.	4.64 (6.90)
Pipe Type C 3.5x3.5 (89.0x89.0)	5.10 (7.59)
Roll Formed 3.5x3.5 (89.0x89.0)	See detail
Sq. Tubing 2.5x2.5 (63.5x63.5)	5.10 (7.59)

HORIZONTAL BRACES	
Section	lbs./ft. (kg/m)
Pipe Type A 1.66 (42.2) O.D.	2.27 (3.38)
Pipe Type B 1.66 (42.2) O.D.	1.83 (2.72)
Pipe Type C 1.66 (42.2) O.D.	1.82 (2.71)
H 1.31x1.5 (33.3x38.1)	2.25 (3.35)
Roll Formed 1.625x1.25 (41.3x31.8)	See detail

GATE FRAMES	
Section	lbs./ft. (kg/m)
Pipe Type A 1.66 (42.2) O.D.	2.27 (3.38)
Pipe Type B 1.66 (42.2) O.D.	1.83 (2.72)
Pipe Type C 1.66 (42.2) O.D.	1.82 (2.71)

GATE POSTS *						
Gate Opening * ft. (m)		Pipe Type A		Pipe Type B		
Single	Double	Size (O.D.)	lbs./ft. (kg/m)	Size (O.D.)	lbs./ft. (kg/m)	Size (O.D.) (lbs./ft.) (kg/m)
Up to 4 (1.2)	Up to 8 (2.5)	2.375 (60.3)	3.65 (5.43)	2 1/2 (63.5)	4.32 (6.43)	2.375 (60.3) 3.11 (4.63)
Over 4 (1.2) to 8 (2.5)	Over 8 (2.5) to 16 (5.0)	2.875 (73.0)	5.79 (8.62)	3 (76.2)	5.78 (8.60)	2.875 (73.0) 4.64 (6.91)
Over 8 (2.5) to 12 (3.6)	Over 16 (5.0) to 24 (7.4)	3.5 (89.0)	7.58 (11.28)	3 (76.2)	8.80 (13.10)	3.5 (89) 5.707 (8.49)

* The 3 1/2 x 3 1/2 (89.0 x 89.0) roll formed section as detailed may be used as gate posts for single gate up to 6' (1.8 m) and double gate up to 12' (3.6 m).

* The 3.5x3.5 (89.0 x 89.0) roll formed section as detailed may be used as gate posts for single gate up to 6' (1.8 m) and double gate up to 12' (3.6 m).

GATE POSTS *				
Gate Opening * ft. (m)	Pipe Type A		Pipe Type B	
	Size (O.D.)	lbs./ft. (kg/m)	Size (O.D.)	lbs./ft. (kg/m)
Over 12 (3.75) but not over 30 (9.375)	4.0 (101.6)	9.11 (13.6)	4.0 (101.6)	9.11 (13.6)

DETAILS SHOWN ARE NOT TO SCALE

REVISION

DATE

HANSON

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

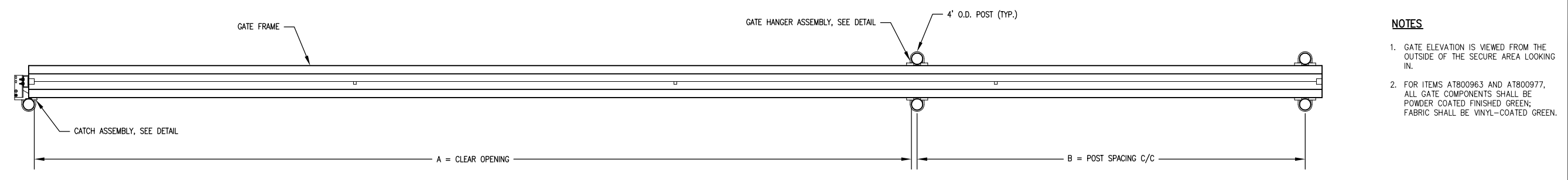
Professional Services Inc. 2013
Hanson Professional Services Inc.
815 Commerce Drive Suite 200
Oak Brook, Illinois 60523

FENCE DETAILS

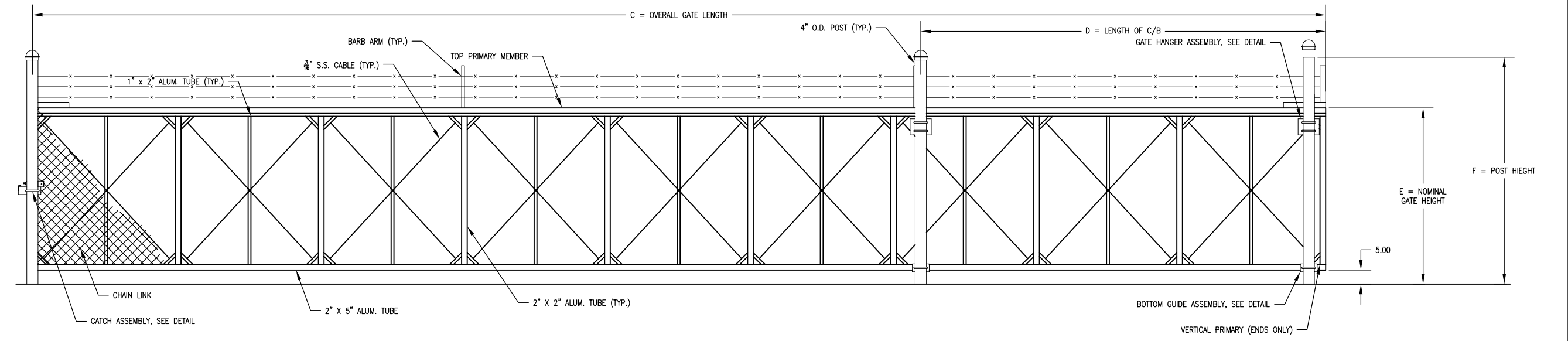
EXTEND FENCING AND GATES
IDA No. LOT-4192 AIP No. 3-17-0140-B50

10

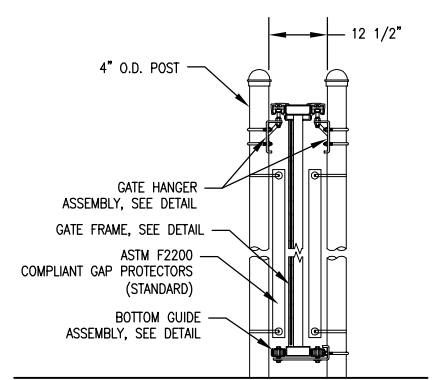
10 of 27 sheets



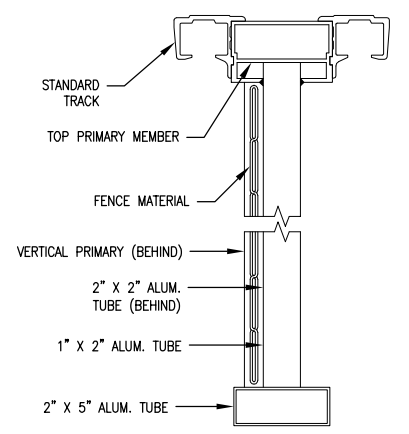
PLAN VIEW



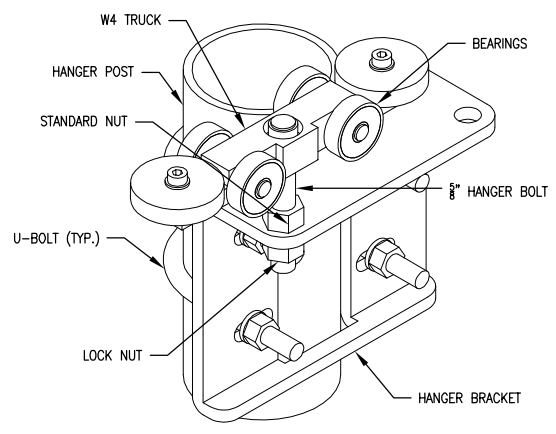
ELEVATION



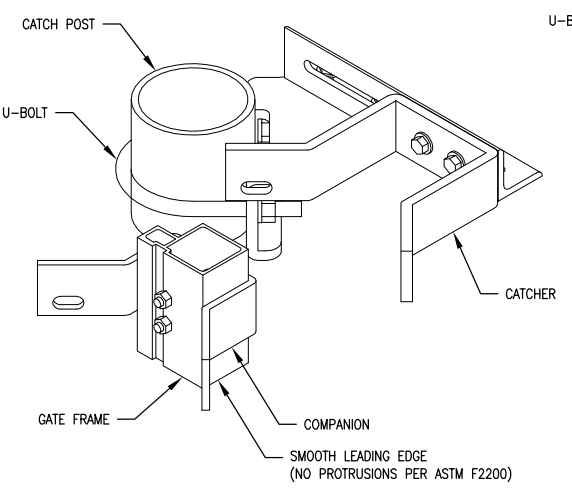
ASSEMBLY SECTION



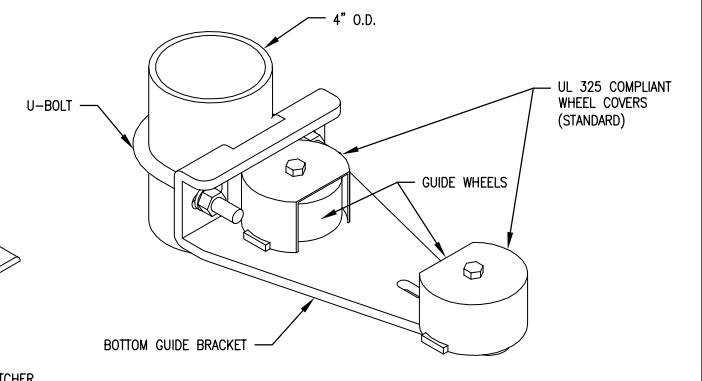
GATE FRAME SECTION



GATE HANGER ASSEMBLY



CATCH ASSEMBLY



BOTTOM GUIDE ASSEMBLY

NOMINAL GATE SIZE		
28' W X 8'-1" H		
CRITICAL DIMENSION CHART		
A	CLEAR OPENING	28'-0"
B	COUNTERBALANCE POST SPACING C/C	13'-1"
C	OVERALL GATE LENGTH	42'-0"
D	COUNTERBALANCE LENGTH	14'-0"
E	NOMINAL GATE HEIGHT	8'-0"
F	POST HEIGHT	9'-6"

NOTES

1. GATE ELEVATION IS VIEWED FROM THE OUTSIDE OF THE SECURE AREA LOOKING IN.
2. FOR ITEMS AT800963 AND AT800977, ALL GATE COMPONENTS SHALL BE POWDER COATED FINISHED GREEN; FABRIC SHALL BE VINYL-COATED GREEN.

APR. 26, 2013 8:10 AM SPITZ01394 I:\12\055\00840\12\00870\DRAWINGS\SHEETS\11-FENCE 28' GATE DETAILS.DWG

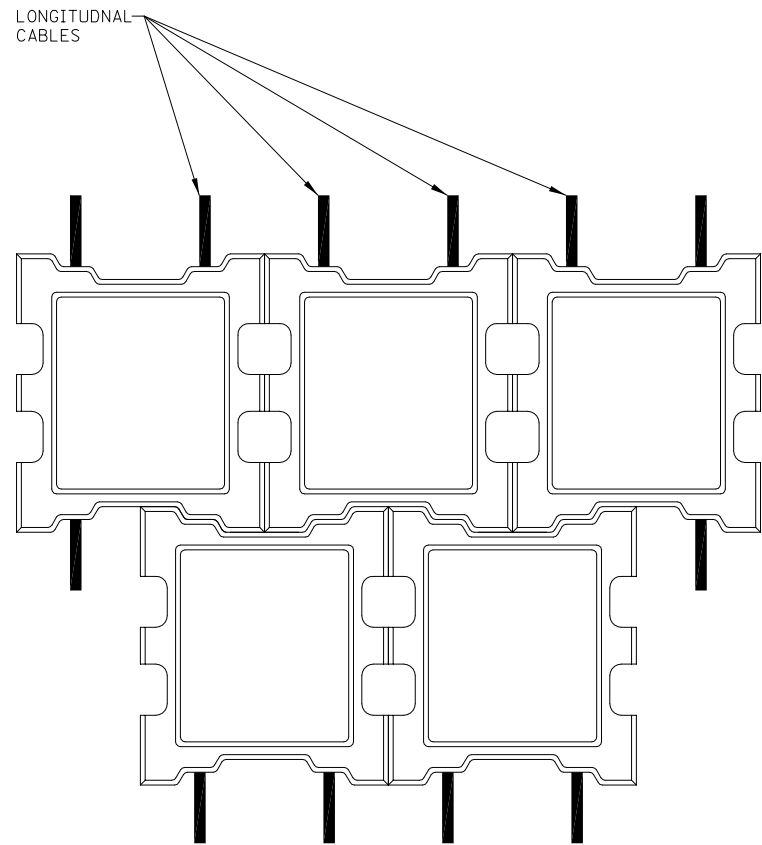
REVISION	DATE

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

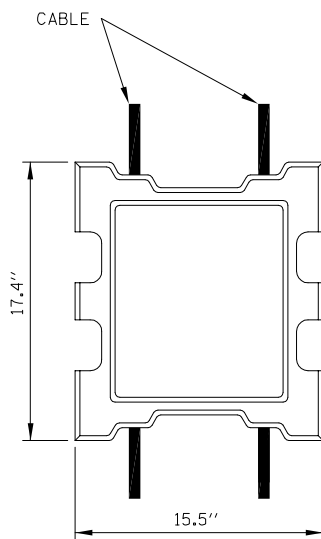
Hanson No. 12A0087D	12/18/12
Filename 11-FENCE 28' GATE DETAILS.DWG	SJM
Scale N/A	SJM
Date MARCH 22, 2013	RMH
	3/22/13

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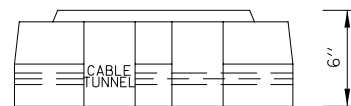
28' GATE DETAILS
 EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50



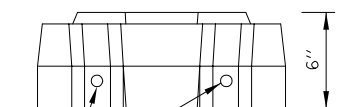
PLAN



TOP VIEW



SIDE VIEW



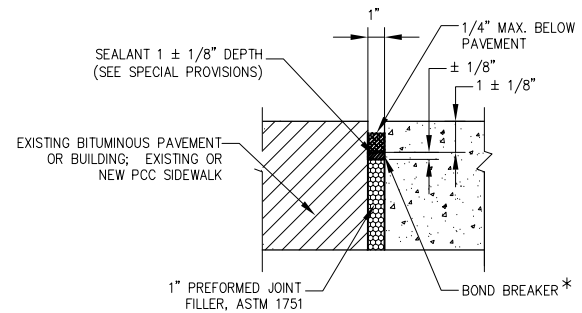
END VIEW

CONCRETE CABLE

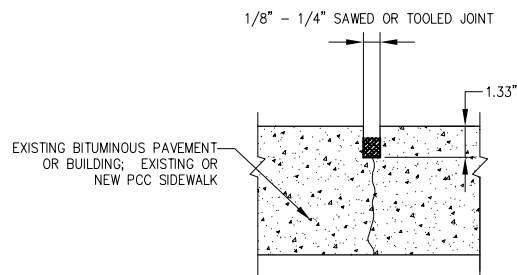
(ARMORFLEX CLOSED STANDARD CLASS 55 DIMENSIONS OR APPROVED EQUIVALENT)

NOTES

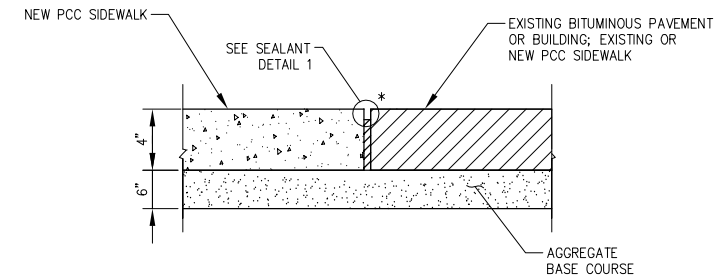
1. FILTER FABRIC MEETING THE REQUIREMENTS OF ITEM AR156513 IS TO BE PLACED ON TOP OF COMPACTED SUBGRADE BEFORE ARMORFLEX BLOCK IS PLACED.
2. ALL WORK FOR THIS ITEM IS TO BE PAID UNDER AR800906.



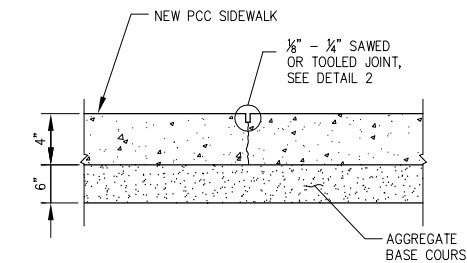
DETAIL 1 - SEALANT



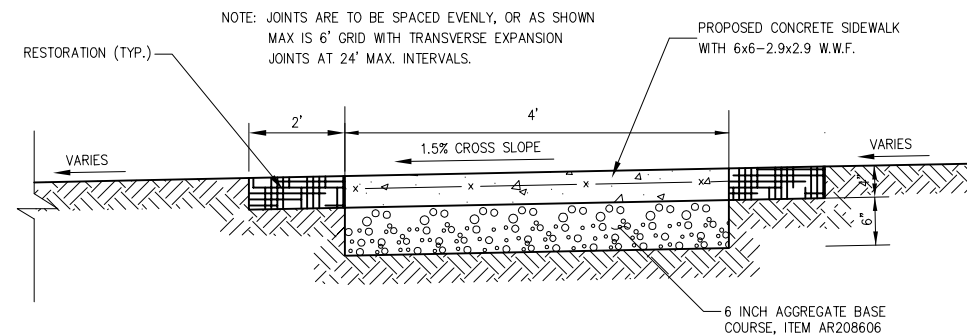
DETAIL 2 - SEALANT



EXPANSION JOINT



SAWED OR TOOLED CONTRACTION JOINT



CROSS SECTION

SIDEWALK

NOTES

1. EXPANSION JOINT TO BE FURNISHED IN ALL LOCATIONS WHERE SIDEWALK IS ADJACENT TO EXISTING PAVEMENT, SIDEWALK, OR BUILDING.
2. SIDEWALK SHALL BE SET AT 2 INCHES ABOVE EXISTING GRADE AND SLOPED TRANSVERSELY TO MEET FENCE GRADE.
3. ALL JOINT AND JOINT SEALING IS INCIDENTAL TO SIDEWALK.

REVISION

DATE

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Hanson No.	12A0087D	DATE	MARCH 22, 2013
Filename	12-MISCELLANEOUS	SCALE	N/A
LAYOUT	SJM	DRAWN	SJM
REVIEWED	RMH	DATE	3/22/13

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MISCELLANEOUS DETAILS
 EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50

NOTES:

- FENCE POST SHALL BE EITHER STEEL "1" LINE POST OR HARDWOOD POST WITH A MINIMUM SECTIONAL AREA OF 3.0 SQUARE INCHES. A CARPENTER'S (NOMINAL) 2"x2" POST WILL NOT MEET SPECIFICATIONS.
- TOP AND BOTTOM WIRE OF WIRE FABRIC SHALL BE MINIMUM GAGE NO. 9. INTERMEDIATE WIRES OF THE WIRE FABRIC SHALL BE MINIMUM GAGE NO. 11.
- WIRE FABRIC SHALL BE SECURELY FASTENED TO FENCE POSTS WITH NO. 9 GAGE WIRE MINIMUM. FOUR (4) FASTENERS PER POST REQUIRED.
- FILTER FABRIC SHALL BE SECURELY FASTENED TO WIRE FABRIC AND POSTS WITH TIES OR STAPLES SPACED AT 12" APART AT THE TOP, MIDDLE AND BOTTOM.
- WHEN TWO SECTIONS OF FILTER FABRIC MEET, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED AND ATTACHED TO THE WIRE FABRIC AT A POST.
- FILTER FABRIC SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
- A MAXIMUM OF 5 FEET IS USED FOR POST-TO-POST SPACING.
- SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES.
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. PERIODIC INSPECTION SHALL BE PERFORMED EVERY 2 WEEKS OR AFTER 0.5 INCH RAINFALL IN A 24 HOUR PERIOD, AND REQUIRED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN BULGES DEVELOP IN THE SILT FENCE.
- IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION. DISCHARGES SHALL BE ROUTED THROUGH AN EFFECTIVE SEDIMENT CONTROL MEASURE (E.G. SEDIMENT TRAP, SEDIMENT BASIN, OR OTHER APPROPRIATE MEASURE).
- FENCE POSTS SHALL BE REMOVED WHEN DIRECTED AT PROJECT END.
- THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.

SEDIMENTATION AND EROSION CONTROL NOTES:

- SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES.
- SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
- DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN 14 CALENDAR DAYS OF THE END OF ACTIVE HYDROLOGIC DISTURBANCE, OR REDISTURBANCE.
- AREAS OR ENBANKMENTS HAVING SLOPES GREATER THAN OR EQUAL TO 3H:1V, AND APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE STABILIZED WITH SOD, MAT OR BLANKET IN COMBINATION WITH SEEDING.
- EROSION CONTROL BLANKET SHALL BE REQUIRED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN NORMAL WATER LEVEL AND HIGH WATER LEVEL.
- ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED, BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.
- ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.
- A STABILIZED MAT OF AGGREGATE UNDERLAIN WITH FILTER CLOTH (OR OTHER APPROPRIATE MEASURE) SHALL BE LOCATED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA. ANY SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
- SOIL STOCKPILES SHALL NOT BE LOCATED IN A FLOOD PRONE AREA OR A DESIGNATED BUFFER PROTECTING WATERS OF THE UNITED STATES OR ISOLATED WATERS OF THE COUNTY.
- IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION. DISCHARGES SHALL BE ROUTED THROUGH AN EFFECTIVE SEDIMENT CONTROL MEASURE (e.g. SEDIMENT TRAP, SEDIMENT BASIN, OR OTHER APPROPRIATE MEASURE.)
- THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.

STORM WATER POLLUTION PREVENTION NOTES

GENERAL

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

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

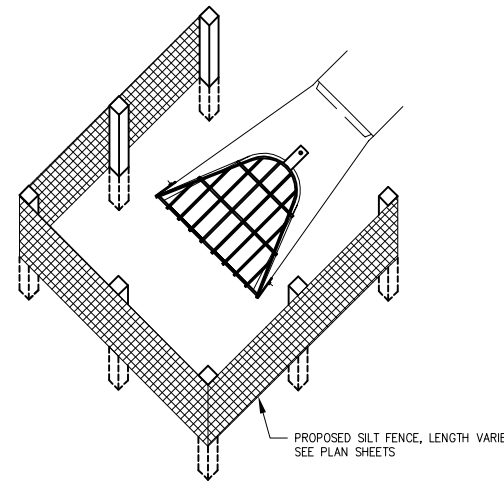
POLLUTION PREVENTION MEASURES

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

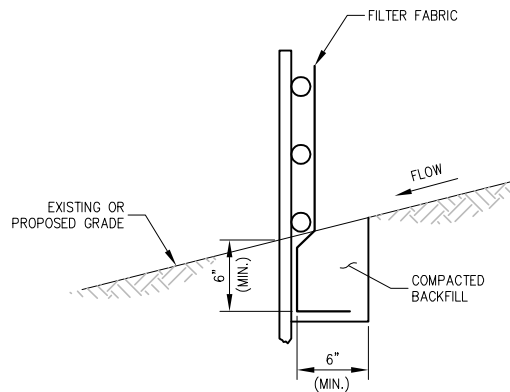
POLLUTION CONTROL ITEMS SHALL BE PROVIDED AS NOTED ON THE STORM WATER POLLUTION PREVENTION PLAN AND IN THE STORM WATER POLLUTION PREVENTION DETAILS AND AS DIRECTED BY THE ENGINEER. THE LIMITS OF SUCH MEASURES SHALL BE STAKED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SUCH LIMITS MAY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

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

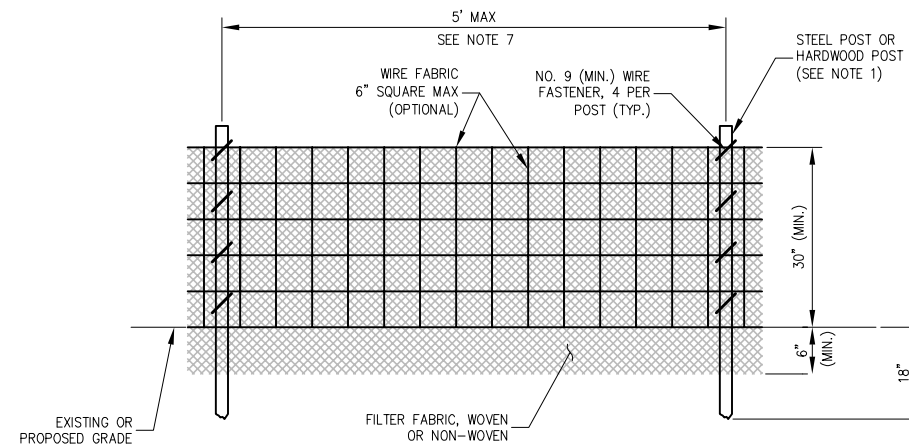
ADDITIONAL STORMWATER POLLUTION PREVENTION MEASURES ARE EXISTING ON SITE LOCATED AT DRAINAGE FACILITIES AND ALONG THE PROPERTY LINE.



SILT FENCE PLACEMENT AT FLARED END SECTIONS (FES)



FABRIC ANCHOR DETAIL



ELEVATION

SILT FENCE DETAILS

REVISION	DATE

CONTROL DETAILS
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Hanson No. 12A0087D	12/18/12
Filename 13-DRAINAGE AND EROSION CONTROL DETAILS.DWG	12/18/12
Scale N/A	12/18/12
Date MARCH 22, 2013	3/22/13
LAYOUT SJM	RMH
DRAWN SJM	
REVIEWED RMH	

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DRAINAGE AND EROSION CONTROL DETAILS
EXTEND FENCING AND GATES
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DETAILS SHOWN ARE NOT TO SCALE

APR 19, 2013 11:44 AM SPITZ01394 I:\12\085\00840\12A0087D\DRAWINGS\SHEETS\13-DRAINAGE AND EROSION CONTROL DETAILS.DWG

APR 19, 2013 12:01 PM SPITZ01394 I:\1210BS\00840\12A0087D\DRAWINGS\SHEETS\15-ELECTRICAL LEGEND AND ABBREVIATIONS.DWG

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 CIRCLUAR 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

ELECTRICAL LEGEND - ONE-LINE DIAGRAM	
	CABLE TERMINATOR/LUG, TERMINAL BLOCK, OR SPLICE
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	TOGGLE SWITCH / 2 POSITION SWITCH
	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 OR TERMINALS
	EQUIPMENT, XXX = DEVICE DESCRIPTION
	GROUND BAR, GROUND BUS OR GROUND TERMINAL
	SOLID NEUTRAL, NEUTRAL BUS, OR NEUTRAL TERMINAL
	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: N = NORMAL EM = EMERGENCY L = LOAD
	ENGINE GENERATOR SET

ELECTRICAL LEGEND - PLANS	
	CONDUIT (EXPOSED)
	CONDUIT OR UNIT DUCT (CONCEALED OR BURIED)
	DUCT
	DUCT
	BURIED/UNDERGROUND ELECTRIC
	OVERHEAD ELECTRIC
	TOGGLE SWITCH
	PUSH BUTTON STATION
	WALL OR CEILING MTD. JUNCTION BOX. CONFIGURATION VARIES WITH USE
	SINGLE THROW DISCONNECT SWITCH
	SINGLE THROW, FUSIBLE DISCONNECT SWITCH
	ENCLOSED CIRCUIT BREAKER
	MOTOR
	TRANSFORMER
	ELECTRIC UTILITY METER
	ENCLOSURE
	CIRCUIT BREAKER PANEL-SEE SCHEDULES
	CONTROL PANEL
	GROUND ROD
	POLE WITH CAMERA

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 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).
- 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

208/120 VAC, 3 PHASE, 4 WIRE
 PHASE A BLACK
 PHASE B RED
 PHASE C BLUE
 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 U.L. LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.
- HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR HANDHOLE.
- PER NEC 511 THE GARAGE AREA OF THE MAINTENANCE BUILDING MIGHT BE CLASSIFIED AS A CLASS I, DIVISION 2, GROUP D HAZARDOUS LOCATION FOR A LEVEL OF 18 IN. ABOVE THE FLOOR. ALL ELECTRICAL INSTALLATIONS SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEC 500, 501, AND 511 IN ADDITION TO THE OTHER APPLICABLE SECTIONS OF NEC. WHERE ELECTRICAL EQUIPMENT IS INSTALLED IN A CLASSIFIED HAZARDOUS LOCATION, IT SHALL BE SUITABLE FOR USE IN THE RESPECTIVE CLASSIFIED HAZARDOUS LOCATION. WHERE POSSIBLE, AVOID INSTALLATION OF ELECTRICAL EQUIPMENT, RACEWAYS, AND WIRING IN THE CLASSIFIED HAZARDOUS AREAS OF THE FACILITY.

REVISION	DATE

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 Fax: 815.838.9524

REVISION	DATE	BY	APP'D
LAYOUT	3/25/13	KNL	
DRAWN	3/26/13	LDH	
REVIEWED	3/22/13	RMH	

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ELECTRICAL LEGEND AND ABBREVIATIONS
 EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50

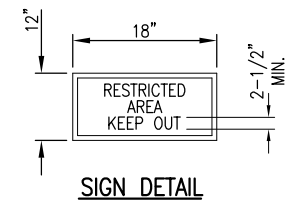
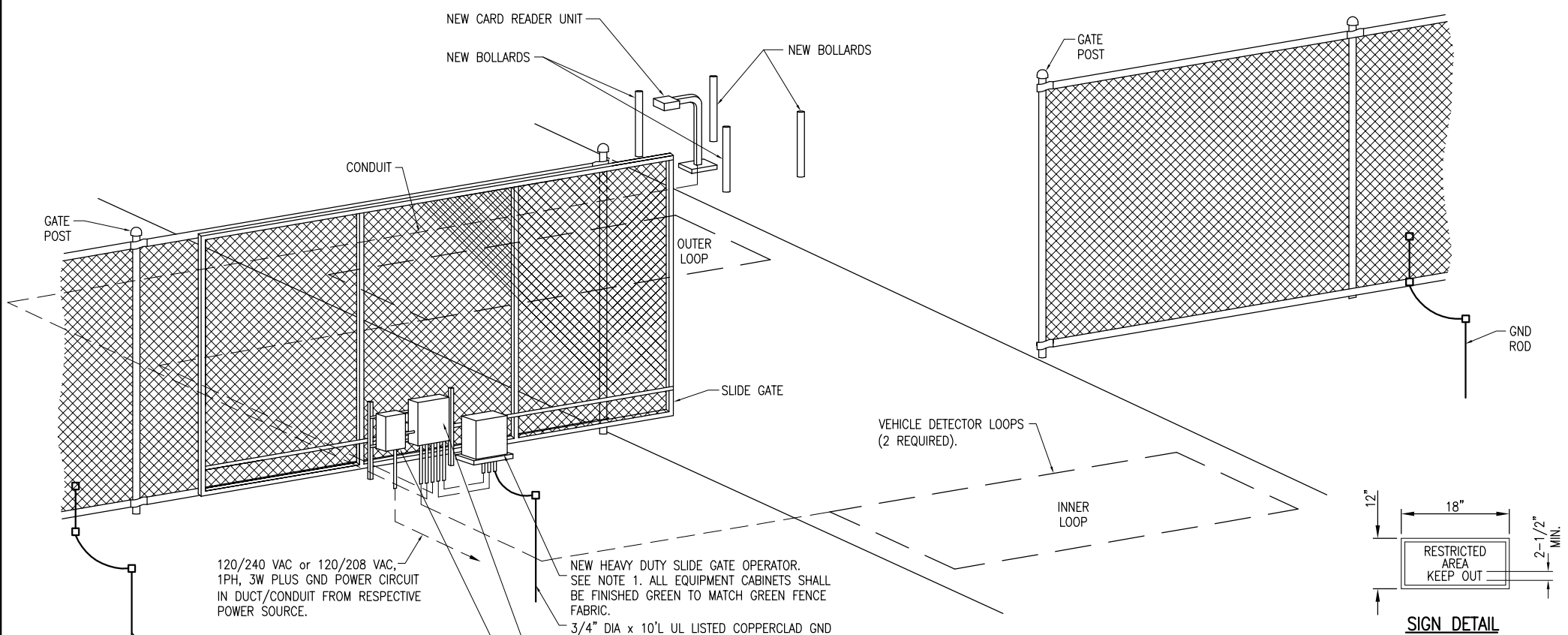
Hanson No.	12A0087D	OPERATOR	
Filename	18-- ELECTRICAL_GATE_OPERATOR		
Scale	N/A		
Date	MARCH 22, 2013		
LAYOUT	KNL	3/25/13	
DRAWN	LDH	3/26/13	
REVIEWED	RMH	3/27/13	

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ELECTRICAL SLIDE GATE DETAILS
EXTEND FENCING AND GATES
IDA No. LOT-4192 AIP No. 3-17-0140-B50

NOTES:

- SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON RESPECTIVE GATE & GATE OPERATOR SYSTEM.
- ALL DIMENSIONS AND LAYOUT INFORMATION SHOWN SHOULD BE ADJUSTED AS RECOMMENDED BY THE MANUFACTURER. SEE RESPECTIVE SITE PLAN FOR EACH GATE.
- CONCRETE FOUNDATIONS SHALL BE PROVIDED FOR THE SLIDE GATE OPERATOR AND THE CARD READER ACCESS CONTROL UNIT. FOUNDATION FOR THE GATE OPERATOR SHALL BE 48" (MIN.) IN DEPTH AND OF THE SIZE RECOMMENDED BY THE MANUFACTURER. FOUNDATION FOR THE KEYPAD ACCESS CONTROL UNIT SHALL BE 48" (MIN.) IN DEPTH, AS DETAILED ON "KEYPAD UNIT, BOLLARD AND GATE OPERATOR DETAILS" SHEET.
- 1" GRS CONDUIT WILL BE REQUIRED BETWEEN THE SLIDE GATE OPERATOR INSTALLATION AND THE CARD READER ACCESS CONTROL UNIT AND THE DETECTOR LOOPS. THE MINIMUM BURYING DEPTH IS 24". ALL METAL CONDUITS ENTERING THE GATE OPERATOR SHALL BE BONDED TO THE GATE OPERATOR FRAME WITH A #8 AWG (MIN.) COPPER BONDING JUMPER. CONFIRM CONTROL WIRING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR SALES AND SERVICE REPRESENTATIVE.
- THE GUARD/BOLLARD POSTS SHALL BE 4" DIA. STEEL (HEAVY WALL) PIPE, CONCRETE FILLED, AND SHALL EXTEND FROM THE TOP OF THE KEYPAD CONTROL UNIT TO A DEPTH OF 48" BELOW THE GROUND LINE. THE CONCRETE FOOTER DIMENSION SHALL BE AS DETAILED HEREIN. GUARD/BOLLARD POSTS SHALL BE PAINTED WITH YELLOW COLORED ENAMEL FINISH.
- CONTRACTOR SHALL PROVIDE VERIFICATION THAT THE PROPOSED GATE OPERATOR IS SUITABLE FOR USE WITH AND PROPERLY SIZED FOR THE EXISTING SLIDE GATE.
- (RESERVED).
- CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES TO EXISTING EQUIPMENT WITH THE RESPECTIVE OWNER'S REPRESENTATIVE AND THE AIRPORT DIRECTOR.
- INCLUDE AC SURGE PROTECTION DEVICE FOR EACH GATE OPERATOR, UL 1449 THIRD EDITION LISTED, SURGE CURRENT RATING OF 40KA, SUITABLE FOR USE ON A 120/240 VAC, 1 PHASE, 3 WIRE SYSTEM WITH LED INDICATING OPERATIONAL STATUS, JOSLYN MODEL 1265-21 OR APPROVED EQUAL. INCLUDE MOUNTING BRACKET.
- CONCRETE USED FOR INSTALLING THE GATE OPERATOR, CARD READER ACCESS CONTROL UNIT, & FENCE SHALL MEET THE REQUIREMENTS OF STRUCTURAL PORTLAND CEMENT CONCRETE ITEM 610.
- 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 UL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- PROVIDE A WEATHERPROOF ENGRAVED PHENOLIC OR PLASTIC LEGEND PLATE FOR THE SAFETY SWITCH AT THE RESPECTIVE GATE OPERATOR NOTING THE GATE SERVED, VOLTAGE, AND RESPECTIVE POWER SOURCE CIRCUIT AND LOCATION.
- PAYMENT FOR EACH SLIDE GATE, CARD READER, GATE OPERATOR, AND ALL ASSOCIATED CONTROL & SAFETY DEVICES SHALL BE ON A LUMP SUM BASIS AND SHALL BE FULL COMPENSATION FOR ALL MATERIALS, EQUIPMENT, CABLE IN CONDUIT, DUCT, OR UNIT DUCT, GROUNDING, LABOR, TOOLS, COORDINATION, TESTING, AND INCIDENTALS REQUIRED TO INSTALL THE GATE COMPLETE AND IN OPERATING CONDITION.
- CONTROL CIRCUIT WIRING SHALL NOT BE ROUTED THROUGH THE SAFETY SWITCH/DISCONNECT.
- ALL CONTROL POWER TRANSFORMERS, POWER SUPPLIES, RECEPTACLES, LOOP DETECTOR AMPLIFIERS, SECONDARY SAFETY DEVICE EQUIPMENT, AND ANY OTHER ASSOCIATED CONTROLS SHALL BE INSTALLED EITHER INSIDE THE GATE OPERATOR CONTROL PANEL OR INSIDE A SEPARATE NEMA 4 STAINLESS STEEL CONTROL PANEL ENCLOSURE. WHERE THE CONTROL EQUIPMENT IS TO BE INSTALLED INSIDE THE GATE OPERATOR CONTROL PANEL THE CONTRACTOR SHALL COORDINATE THIS WITH THE GATE OPERATOR MANUFACTURER AND THE RESPECTIVE GATE OPERATOR EQUIPMENT SUPPLIER. LOCATING THESE CONTROLS OUTSIDE OF GATE OPERATOR CONTROL PANEL BUT WITHIN THE GATE OPERATOR HOUSING WILL NOT MEET THIS REQUIREMENT.



NOTE: 0.08 GA. ALUMINUM ALLOY SHEET LETTERING COLOR SHALL BE RED. EACH GATE SHALL REQUIRE ONE SIGN. EVERY 100' OF FENCE SHALL REQUIRE ONE SIGN.

GATE DETAIL (ISOMETRIC)
"NOT TO SCALE"

120/240 VAC or 120/208 VAC, 1PH, 3W PLUS GND POWER CIRCUIT IN DUCT/CONDUIT FROM RESPECTIVE POWER SOURCE.

5/8" DIA. x 8'L UL LISTED COPPERCLAD GND ROD WITH #8 AWG (MIN.) BARE SOLID CU FROM FENCE FABRIC & TENSION WIRE TO GND ROD. CONNECTION TO GND ROD SHALL BE EXOTHERMIC WELD. CONNECTION TO FENCE FABRIC SHALL BE WITH UL LISTED BRONZE GROUND CONNECTORS WITH BRONZE OR STAINLESS STEEL BOLTS & WASHERS. LOCATE GND RODS WITHIN 100 FT. OF EACH SIDE OF EACH GATE.

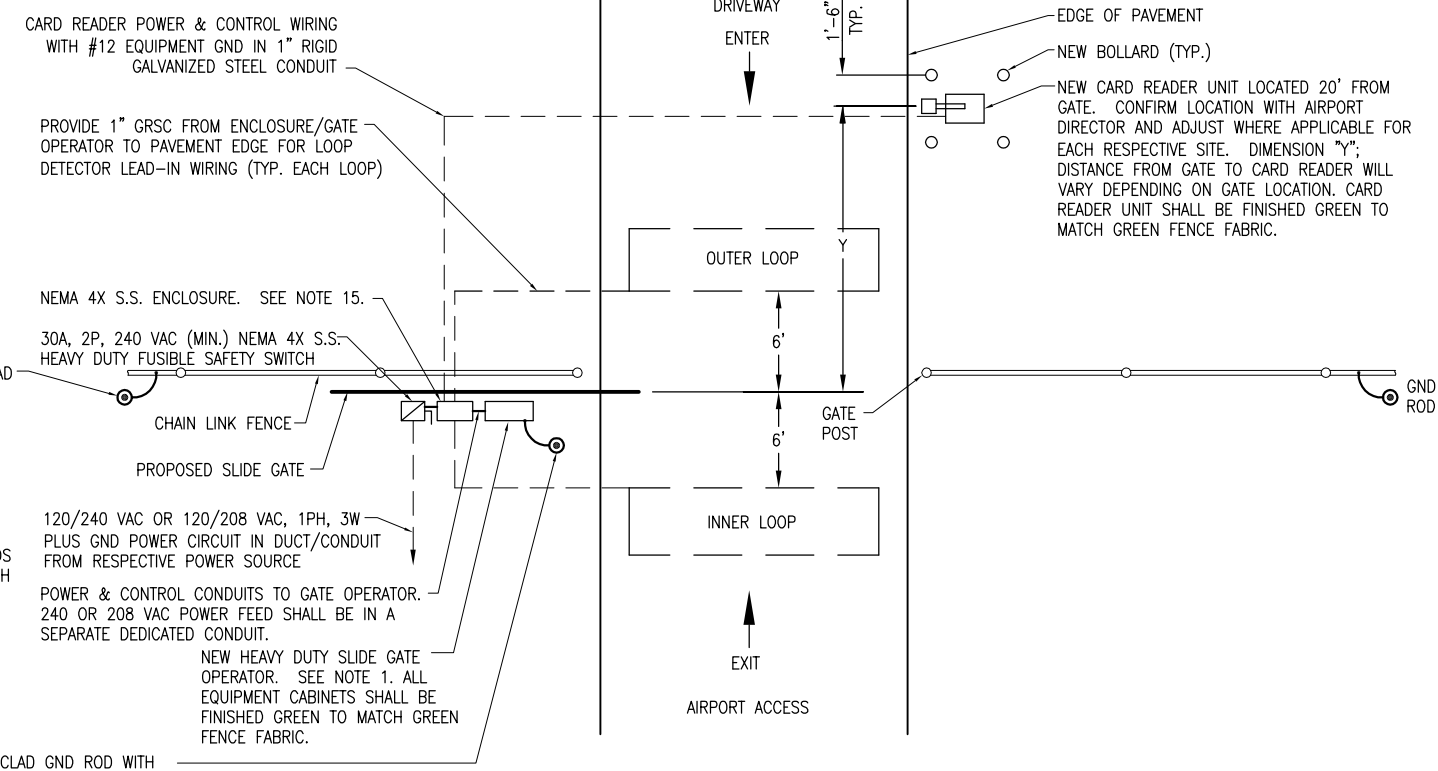
NEW HEAVY DUTY SLIDE GATE OPERATOR. SEE NOTE 1. ALL EQUIPMENT CABINETS SHALL BE FINISHED GREEN TO MATCH GREEN FENCE FABRIC.

3/4" DIA x 10'L UL LISTED COPPERCLAD GND ROD WITH #6 AWG BARE COPPER GROUNDING ELECTRODE CONDUCTOR BONDED TO THE GATE OPERATOR FRAME & EXOTHERMIC WELDED TO THE GND ROD. PROVIDE 1" SCHED 40 PVC CONDUIT ELBOW INTO GATE OPERATOR FOUNDATION.

NEMA 4X S.S. ENCLOSURE. SEE NOTE 15.

30A, 2P, 240 VAC (MIN.) NEMA 4X S.S. HEAVY DUTY FUSIBLE SAFETY SWITCH

VEHICLE DETECTOR LOOPS		
GATE SIZE	LOOP SIZE	NO. OF TURNS
8' TO 12'	4' X 6'	3 TURNS
12' TO 16'	4' X 10'	2 TURNS
16' TO 20'	4' X 14'	2 TURNS
20' TO 24'	4' X 18'	2 TURNS
24' TO 30'	6' X 22'	2 TURNS
30' TO 34'	6' X 26'	2 TURNS



ELECTRIC GATE PLAN
"NOT TO SCALE"

CARD READER POWER & CONTROL WIRING WITH #12 EQUIPMENT GND IN 1" RIGID GALVANIZED STEEL CONDUIT

PROVIDE 1" GRSC FROM ENCLOSURE/GATE OPERATOR TO PAVEMENT EDGE FOR LOOP DETECTOR LEAD-IN WIRING (TYP. EACH LOOP)

NEMA 4X S.S. ENCLOSURE. SEE NOTE 15.

30A, 2P, 240 VAC (MIN.) NEMA 4X S.S. HEAVY DUTY FUSIBLE SAFETY SWITCH

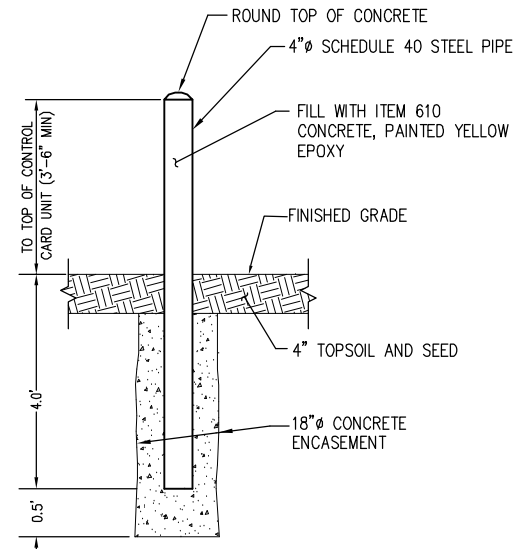
5/8" DIA. x 8'L UL LISTED COPPERCLAD GND ROD WITH #8 AWG (MIN.) BARE SOLID CU FROM FENCE FABRIC & TENSION WIRE TO GND ROD. CONNECTION TO GND ROD SHALL BE EXOTHERMIC WELD. CONNECTION TO FENCE FABRIC SHALL BE WITH UL LISTED BRONZE GROUND CONNECTORS WITH BRONZE OR STAINLESS STEEL BOLTS & WASHERS. LOCATE GND RODS WITHIN 100 FT. OF EACH SIDE OF EACH GATE.

120/240 VAC OR 120/208 VAC, 1PH, 3W PLUS GND POWER CIRCUIT IN DUCT/CONDUIT FROM RESPECTIVE POWER SOURCE

POWER & CONTROL CONDUITS TO GATE OPERATOR. 240 OR 208 VAC POWER FEED SHALL BE IN A SEPARATE DEDICATED CONDUIT.

NEW HEAVY DUTY SLIDE GATE OPERATOR. SEE NOTE 1. ALL EQUIPMENT CABINETS SHALL BE FINISHED GREEN TO MATCH GREEN FENCE FABRIC.

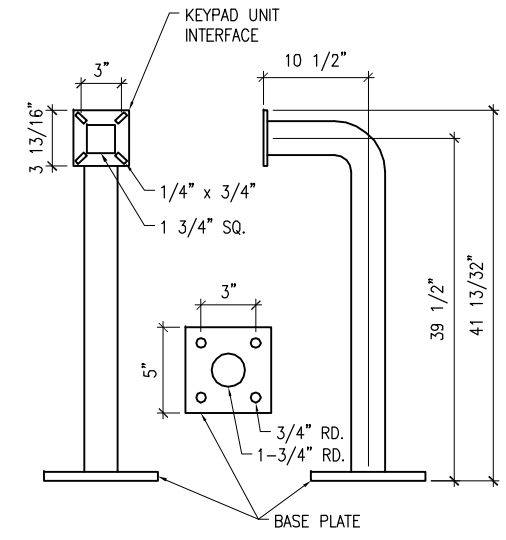
3/4" DIA x 10'L UL LISTED COPPERCLAD GND ROD WITH #6 AWG BARE COPPER GROUNDING ELECTRODE CONDUCTOR BONDED TO THE GATE OPERATOR FRAME & EXOTHERMIC WELDED TO THE GND ROD. PROVIDE 1" SCHED 40 PVC CONDUIT ELBOW INTO GATE OPERATOR FOUNDATION.



NOTES

1. THE EXPOSED PORTION OF THE BOLLARD SHALL BE PAINTED YELLOW EPOXY.
2. BOLLARD AND ASSOCIATED ITEMS ARE INCIDENTAL TO THE ELECTRIC SLIDING GATE.

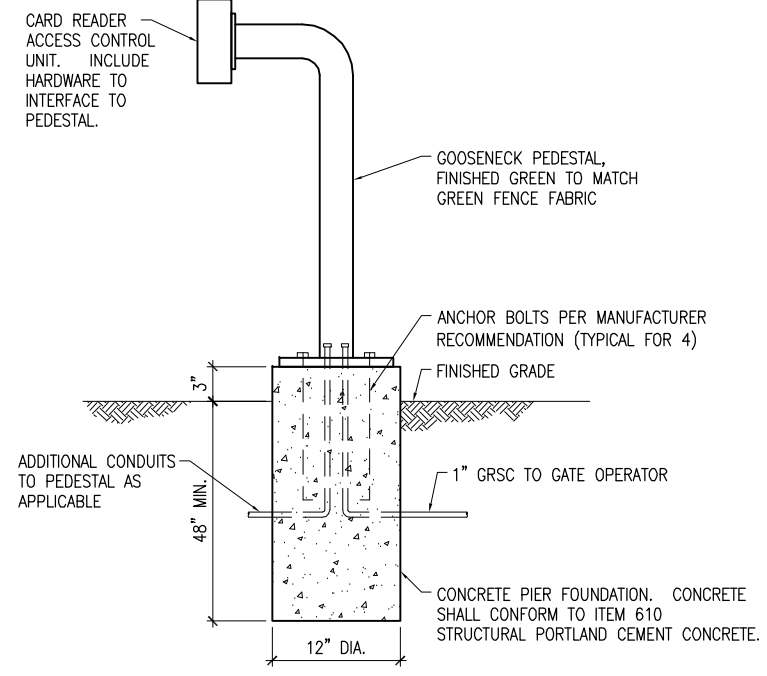
BOLLARD DETAIL
NOT TO SCALE



GOOSENECK PEDESTAL DETAIL
NOT TO SCALE

NOTE:

GOOSENECK PEDESTAL SHALL BE AMERICAN ACCESS SYSTEMS, INC. (7079 SOUTH JORDAN RD., UNIT 6, ENGLEWOOD, CO 80112, PHONE: 800-541-5677, FAX 303-799-9756) MODEL 18-001 OR APPROVED EQUAL.



NOTES

1. SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON CARD READER ACCESS CONTROL UNIT.
2. INCLUDE #12 AWG EQUIPMENT GND WIRE TO CARD READER.
3. CARD READER SHALL NOT EXTEND BEYOND BOLLARDS.

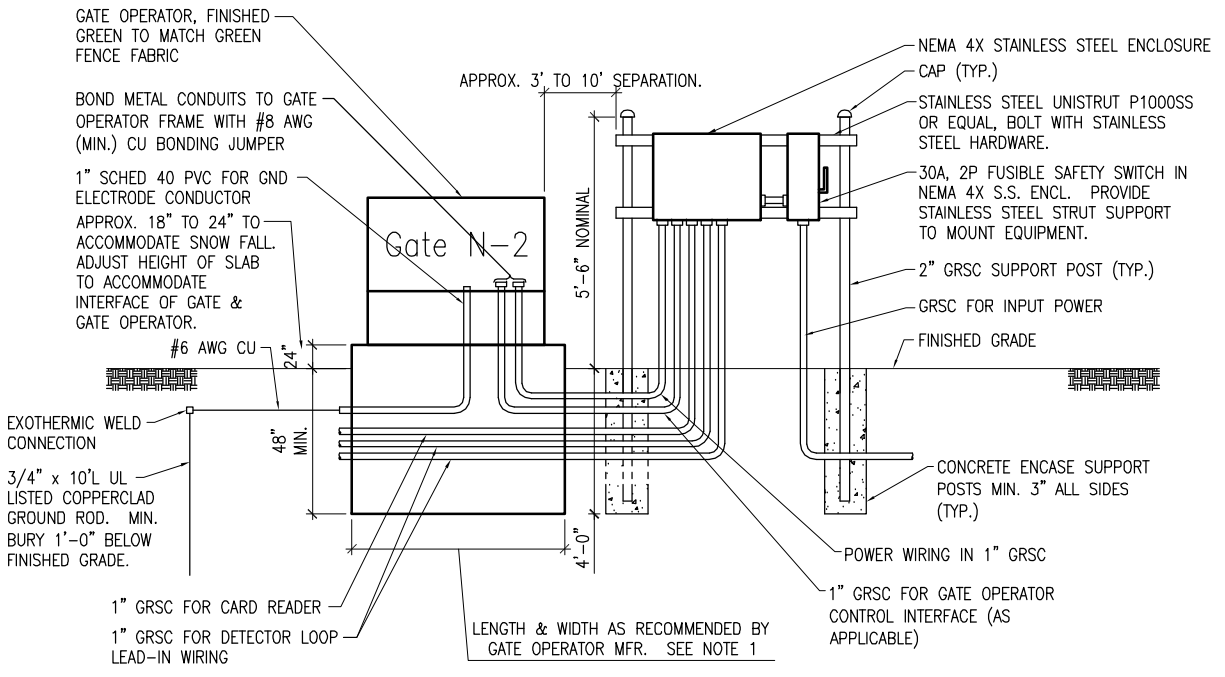
CARD READER ACCESS CONTROL UNIT PEDESTAL ELEVATION DETAIL
NOT TO SCALE



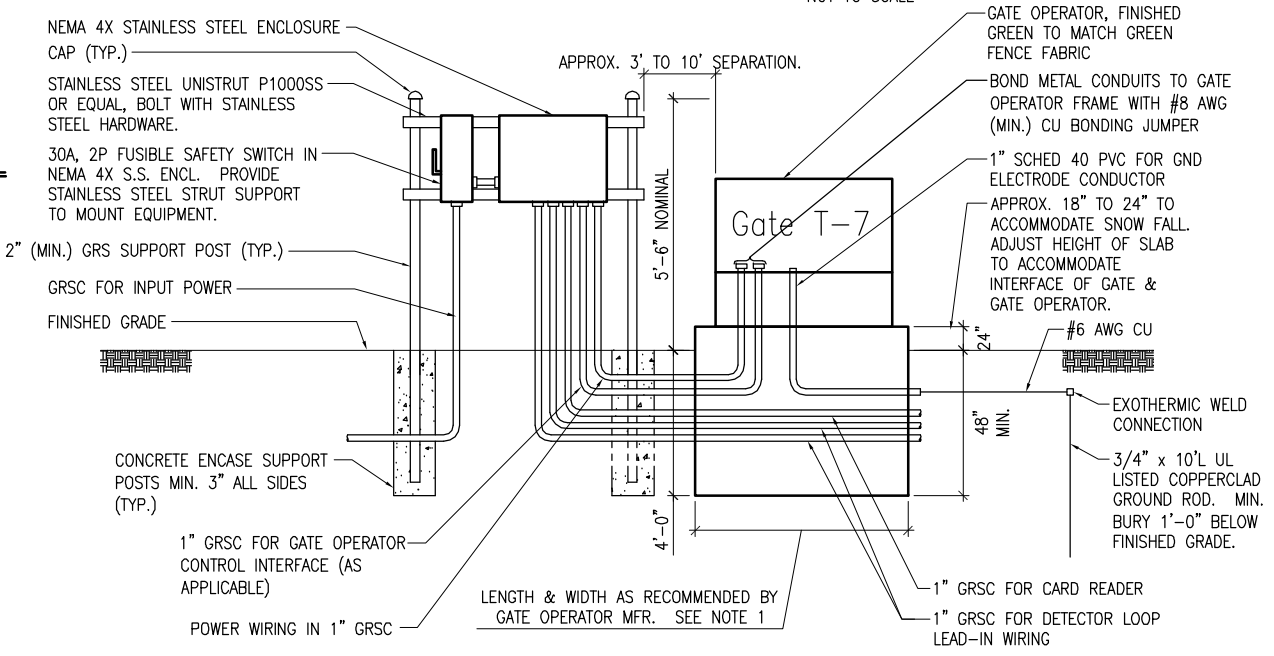
WARNING SIGN DETAIL
NOT TO SCALE

NOTES

1. WARNING SIGNS/PLACARDS AS DETAILED ABOVE OR SIMILAR, SHALL BE INSTALLED WHERE CLEARLY VISIBLE ON BOTH SIDES OF EACH ELECTRIC SLIDE GATE. WARNING SIGNS SHALL BE WEATHERPROOF, CORROSION RESISTANT METAL, AS DETAILED ABOVE (OR SIMILAR), AND IN ACCORDANCE WITH THE RESPECTIVE GATE OPERATOR MANUFACTURER'S RECOMMENDATIONS.



GATE OPERATOR FOUNDATION DETAIL 1
"NOT TO SCALE"



GATE OPERATOR FOUNDATION DETAIL 2
"NOT TO SCALE"

NOTES

1. FOUNDATION FOR GATE OPERATOR SHALL BE 48" MIN. IN DEPTH AND OF THE LENGTH & WIDTH RECOMMENDED BY THE MANUFACTURER.
2. COORDINATE CONDUITS INTO FOUNDATION.
3. CONFIRM CONDUIT SIZES AND WIRING REQUIREMENTS WITH THE GATE OPERATOR MFR. ADJUST/INCREASE CONDUIT SIZES WHERE APPLICABLE. REQUIREMENTS VARY BETWEEN DIFFERENT MANUFACTURERS.
4. ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES U.L. LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.
5. DETAIL NO. 1 ABOVE IS FOR GATE N-2.
6. DETAIL NO. 2 ABOVE IS FOR GATE T-7.

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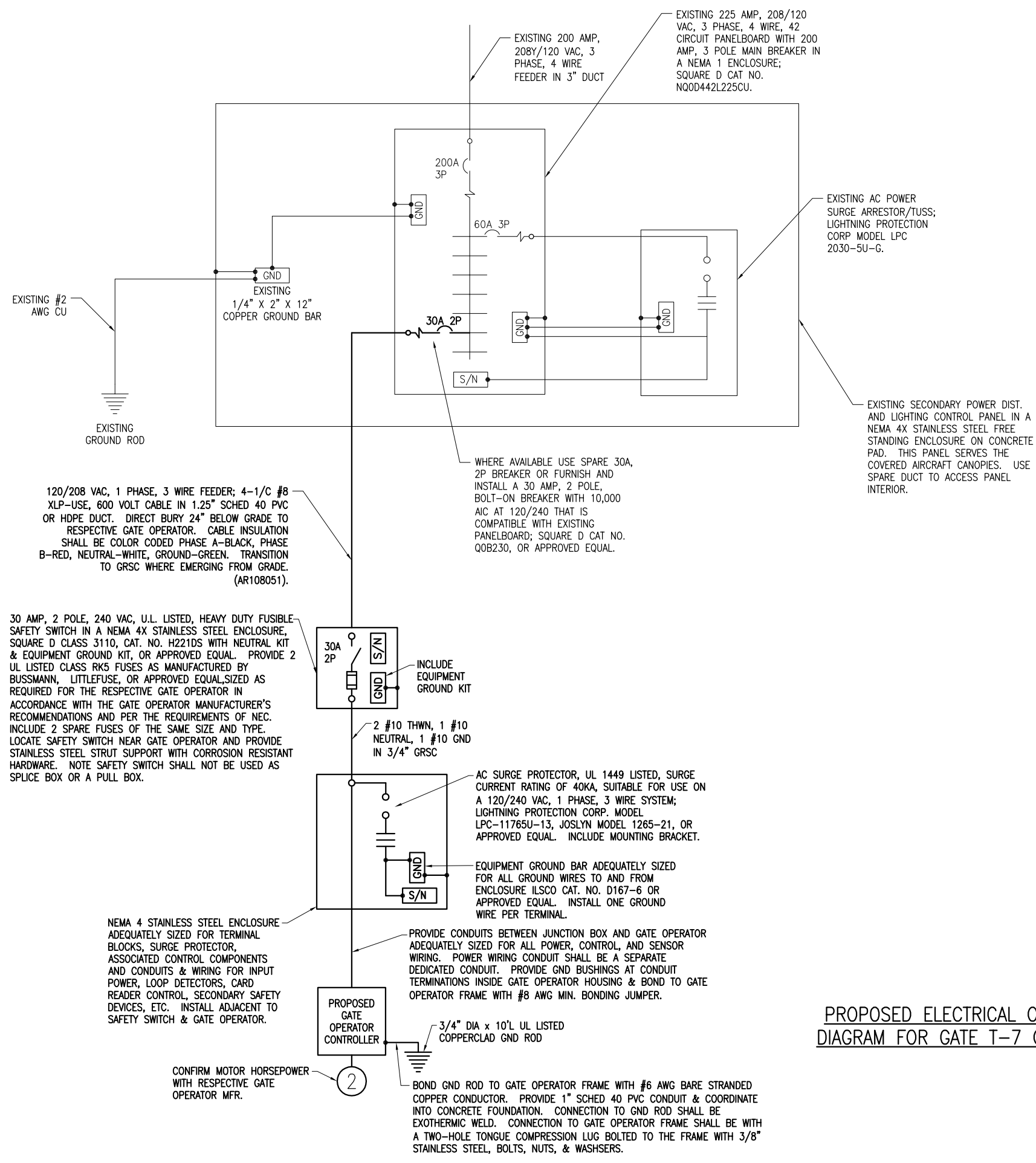
REVISION	
DATE	
Chicago-Romeoville Airport JOLIET REGIONAL PORT DISTRICT 1 George Michas Drive Romeoville, Illinois 60446 Telephone: 815.838.9497 Fax: 815.838.9524	
Hanson No. 12A0087D	12A0087D
Filename 19- ELECTRICAL CARD READER	19- ELECTRICAL CARD READER
Scale N/A	N/A
Date MARCH 22, 2013	MARCH 22, 2013
LAYOUT KNL	3/25/13
DRAWN LDH	3/26/13
REVIEWED RMH	3/22/13
Copyright Hanson Professional Services Inc. 2013 Hanson Professional Services Inc. 815 Commerce Drive Suite 200 Oak Brook, Illinois 60523	
CARD READER, BOLLARD AND GATE OPERATOR DETAILS	
EXTEND FENCING AND GATES IDA No. LOT-4192 AIP No. 3-17-0140-B50	
19 19 of 27 sheets	

Hanson No.	12A0087D
Revision	20-T-7 ONE LINE.DWG
Scale	N/A
Date	MARCH 22, 2013
LAYOUT	KNL
DRAWN	LDH
REVIEWED	RMH
	3/22/13
	3/22/13
	3/22/13

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

**ELECTRICAL ONE-LINE
FOR GATE T-7**
EXTEND FENCING AND GATES
IDA No. LOT-4192 A/P No. 3-17-0140-B50

- NOTES**
- CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE EXISTING CONDITIONS.
 - SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
 - 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 SHOWN NOT LABELED AS EXISTING IS NEW.
 - ALL CONTROL POWER TRANSFORMERS, POWER SUPPLIES, SIMPLEX RECEPTACLES, LOOP DETECTOR AMPLIFIERS, SECONDARY SAFETY DEVICE EQUIPMENT, AND ANY OTHER ASSOCIATED CONTROLS SHALL BE INSTALLED EITHER INSIDE THE GATE OPERATOR CONTROL PANEL OR INSIDE A SEPARATE NEMA 4 STAINLESS STEEL CONTROL PANEL ENCLOSURE. WHERE THE CONTROL EQUIPMENT IS TO BE INSTALLED INSIDE THE GATE OPERATOR CONTROL PANEL THE CONTRACTOR SHALL COORDINATE THIS WITH THE GATE OPERATOR MANUFACTURER AND THE RESPECTIVE GATE OPERATOR EQUIPMENT SUPPLIER. LOCATING THESE CONTROLS OUTSIDE OF GATE OPERATOR CONTROL PANEL BUT WITHIN THE GATE OPERATOR HOUSING WILL NOT MEET THIS REQUIREMENT.
 - THE FEEDER CIRCUIT IN DUCT FROM THE POWER SOURCE TO THE GATE OPERATOR DISCONNECT WILL BE PAID FOR UNDER ITEM AR108051 POWER CABLE IN UNIT DUCT PER LINEAL FOOT.
 - PROPOSED 28 FT. ELECTRIC SLIDE GATE AND ASSOCIATED WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AS800947 OR AT800963 PER EACH.
 - ALL CONDUCTORS/WIRING SHALL BE COPPER.
 - CONTRACTOR SHALL CONFIRM POWER REQUIREMENTS WITH THE ACTUAL NAMEPLATE ON EACH GATE OPERATOR (OR OTHER RESPECTIVE EQUIPMENT) AND ADJUST CIRCUIT BREAKER, WIRE SIZES AND CONDUIT SIZES TO CONFORM WITH NEC AND MANUFACTURER'S RECOMMENDATIONS WHERE APPLICABLE. WIRE SIZES SHOWN ON THE PLANS ARE MINIMUM.
 - CONFIRM CONTROL WIRING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR SYSTEM MANUFACTURER'S REPRESENTATIVE.
 - GATE OPERATORS SHALL BE RATED FOR THE RESPECTIVE VOLTAGE AVAILABLE AT THE SITE AND SHALL PROPERLY OPERATE ON THE RESPECTIVE NOMINAL VOLTAGE SYSTEM PLUS OR MINUS 10 PERCENT. CONTRACTOR SHALL CONFIRM WITH THE GATE OPERATOR MANUFACTURER THAT THE RESPECTIVE GATE OPERATOR HE SELECTS IS RATED SUITABLE FOR THE RESPECTIVE APPLICATION, IS SUITABLE AND COMPATIBLE WITH THE RESPECTIVE GATE, AND WILL OPERATE PROPERLY ON THE RESPECTIVE POWER SUPPLY. NOTE THE GATE OPERATOR MUST ALSO OPERATE PROPERLY ON STANDBY ENGINE GENERATOR POWER AND SHALL NOT REQUIRE MANUAL RESET DUE TO TRANSFER FROM UTILITY POWER TO STANDBY GENERATOR POWER OR BACK TO UTILITY POWER. THE GATE OPERATOR MUST NOT REQUIRE MANUAL RESET FOR MOMENTARY POWER OUTAGES. WHERE A POWER OUTAGE OCCURS THE GATE OPERATOR SHALL AUTOMATICALLY RESUME NORMAL OPERATION UPON RESTORATION OF POWER.



**PROPOSED ELECTRICAL ONE-LINE
DIAGRAM FOR GATE T-7 OPERATOR**

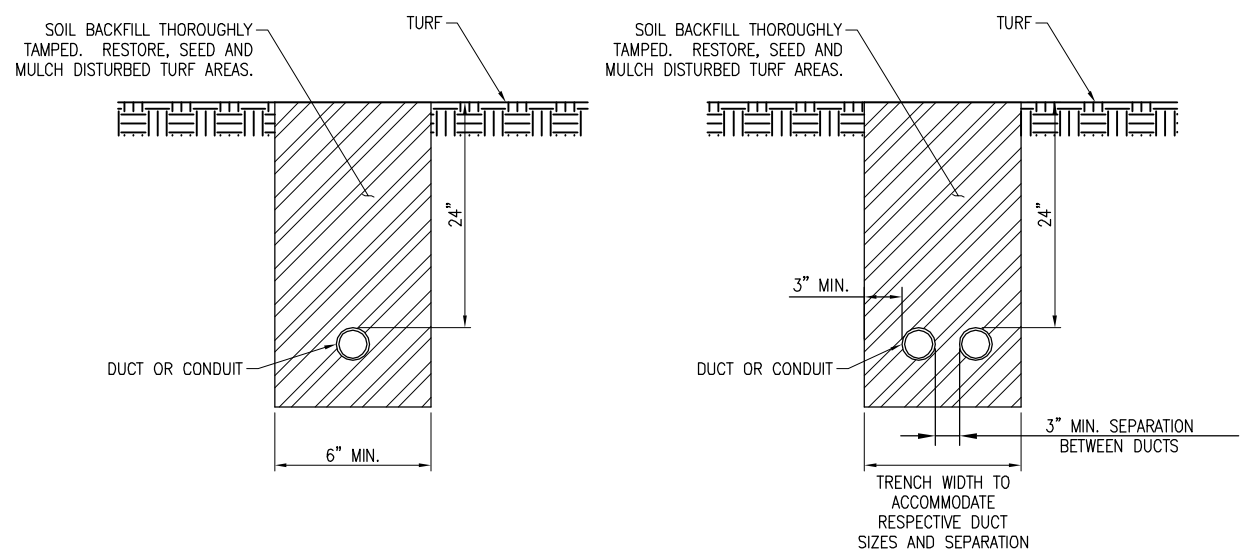
REVISION
DATE

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

Hanson No.	12A0087D		
Revision	22-ELEC DET.DWG		
Scale	N/A		
Date	MARCH 22, 2013		
LAYOUT	KNL	3/22/13	
DRAWN	LDH	3/22/13	
REVIEWED	RMH	3/22/13	

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

ELECTRIC CABLE AND DUCT DETAILS
EXTEND FENCING AND GATES
IDA No. LOT-4192 AIP No. 3-17-0140-B50



SINGLE DUCT

TWO DUCTS

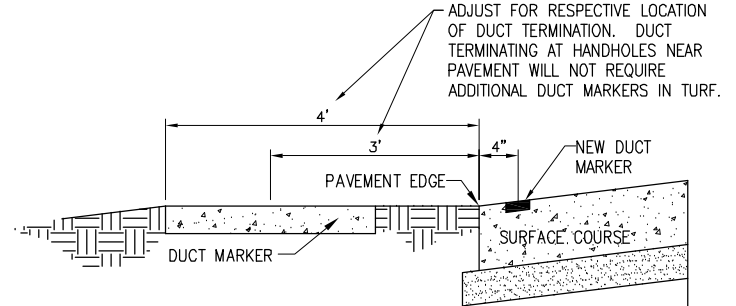
NOTES:

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 AND/OR RESPECTIVE CABLE OR DUCT WORK.

CONDUIT IN TRENCH

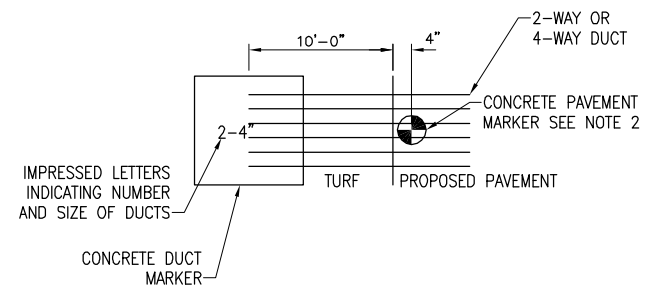
NOT TO SCALE



#10 PULL WIRE COIL A MINIMUM OF 3' AT DUCT ENDS. INSTALL APPROVED PLUGS IN END OF DUCTS NOT USED.

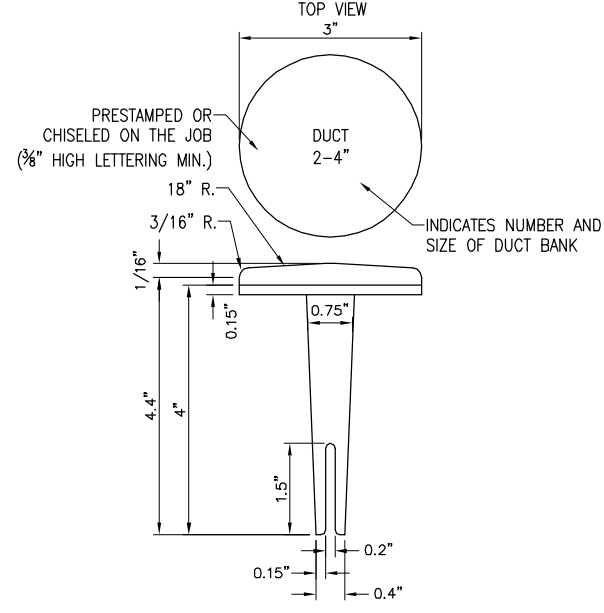
UNDERGROUND ELECTRICAL DUCT

(NOT TO SCALE)



DUCT MARKER DETAIL

"NOT TO SCALE"

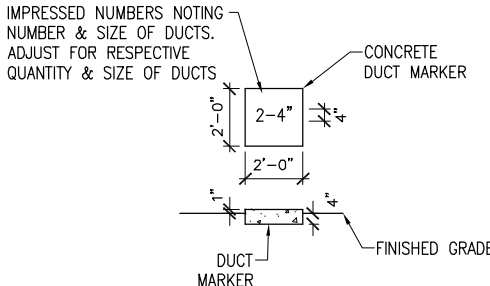


BITUMINOUS PAVEMENT DUCT MARKERS

"NOT TO SCALE"

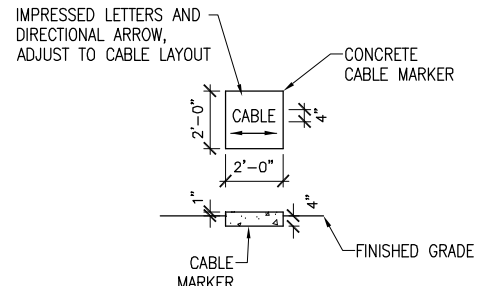
NOTE:

- 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.



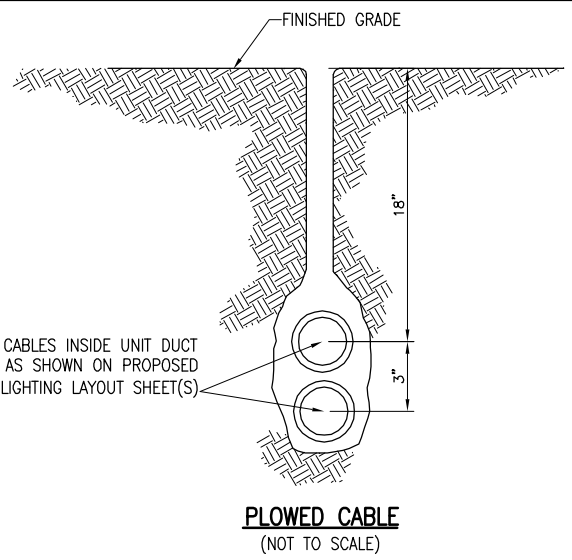
TURF DUCT MARKERS

"NOT TO SCALE"



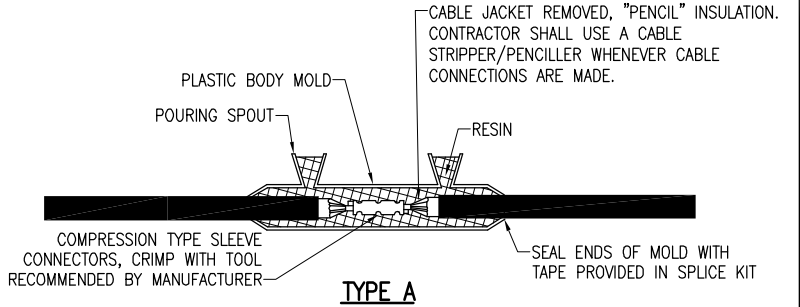
TURF CABLE MARKERS

"NOT TO SCALE"



PLOWED CABLE

(NOT TO SCALE)



TYPE A

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

LOW VOLTAGE (600V) CABLE SPLICE

(NOT TO SCALE)

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 IMPORMED 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.
- EMPLOY THE FOLLOWING METHODS WHERE ADDITIONAL SPACE TO FIT THE LEGEND IS REQUIRED:
A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
B. INCREASE THE MARKER SIZE TO 30" X 30".
C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE.

DETAILS SHOWN ARE NOT TO SCALE

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GENERAL NOTES

- 1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
2. CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.
3. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
4. THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS AND/OR OTHER EQUIPMENT 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 OR OTHER 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. BLACK, RED, AND BLUE SHALL BE USED FOR PHASE CONDUCTORS ON 208/120VAC 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".

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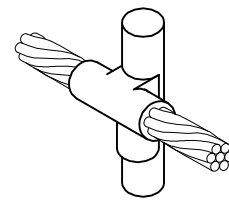
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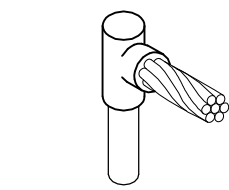
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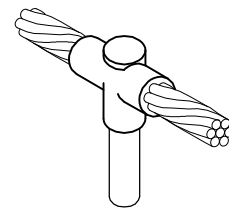
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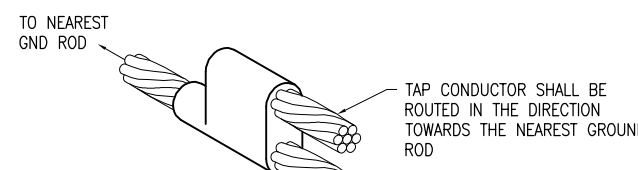
CABLE TO GROUND ROD



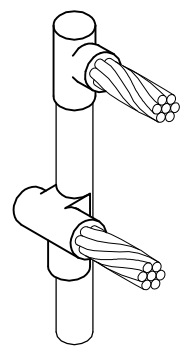
CABLE TO GROUND ROD



CABLE TO GROUND ROD



CABLE TO CABLE
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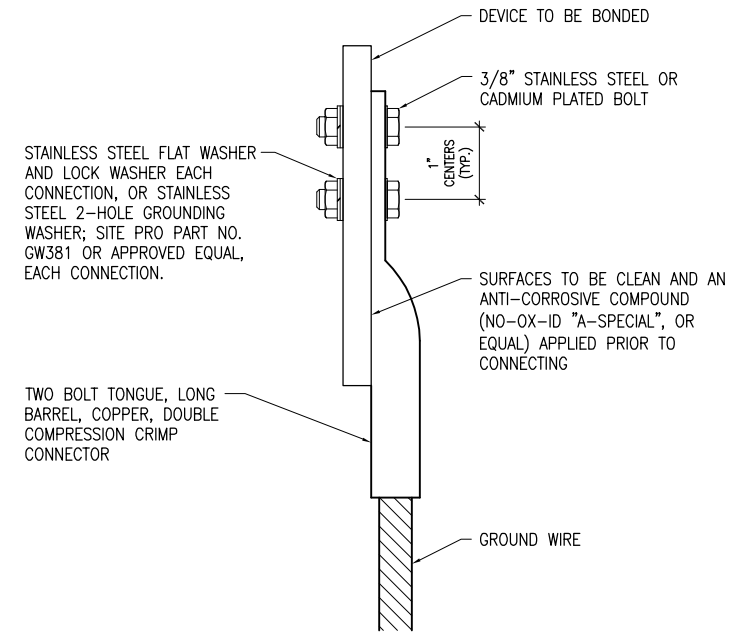


CABLES TO GROUND ROD

DETAIL NOTES

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

EXOTHERMIC WELD DETAILS



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

NOTES

1. ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
2. GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE.
3. GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS, & INDIVIDUAL GROUND WIRES SHALL NOT BE INSTALLED IN METAL CONDUIT. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC APTH FROM ENCIRCLING THE CONDUIT.
4. ALL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR 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

LEGEND PLATE SCHEDULE	
DEVICE	LABEL
GATE T-7 OPERATOR DISCONNECT	GATE T-7 120/208VAC FED FROM DIST. PNL FOR AIRCRAFT CANOPIES
GATE N-2 OPERATOR DISCONNECT	GATE N-2 120/240VAC FED FROM LOAD CENTER IN NORTH MAINT. BLDG.

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.

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Filename 24-GROUNDING-DETAILS.DWG	Scale N/A
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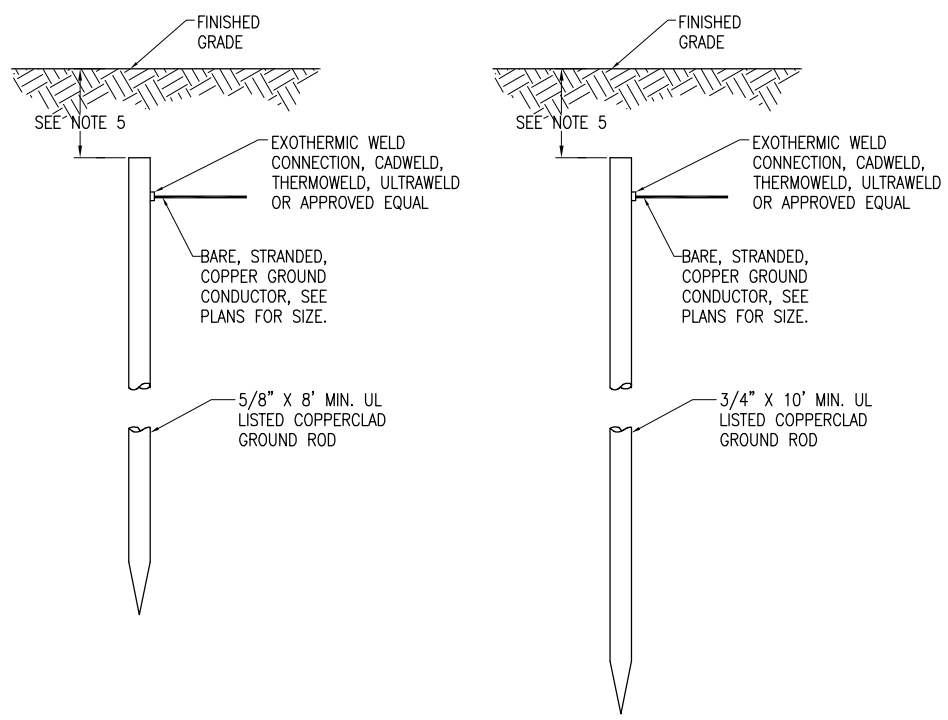
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GROUNDING DETAILS AND LEGEND PLATE SCHEDULE
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GROUNDING NOTES

- 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 AS DETAILED HEREIN. 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 ELECTRICAL INSTALLATIONS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR FENCE GROUNDING SHALL BE 5/8-IN. DIAMETER BY 10-FT. LONG, UL LISTED, COPPER CLAD WITH 10-MILL 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, GROUND FIELDS, AND/OR 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 FIELD 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 ENCIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. GIRDLING OF A GROUND CONDUCTOR IS THE RESULT OF PLACING THE CONDUCTOR IN A RING OF MAGNETIC MATERIAL. THIS RING COULD BE A METALLIC CONDUIT, U-BOLT OR STRUT SUPPORT PIPE CLAMP, OR OTHER SUPPORT HARDWARE. THE RESULT OF GIRDLING GROUND CONDUCTORS SIGNIFICANTLY INCREASES THE INDUCTIVE IMPEDANCE OF THE GROUND CONDUCTOR. INDUCTIVE AND CAPACITIVE IMPEDANCE IS A TYPE OF RESISTANCE THAT OPPOSES THE FLOW OF ALTERNATING CURRENT. ANY INCREASE IN THE IMPEDANCE OF A GROUND CONDUCTOR REDUCES ITS ABILITY TO EFFECTIVELY MITIGATE RADIO FREQUENCY NOISE IN THE GROUND SYSTEM. THE CONDITION WHERE A GROUND CONDUCTOR IS GIRDLED DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLTS AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN A LOW DC RESISTANCE PATH.
- 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 PREFERENCE REQUIREMENTS. STEEL USED TO MANUFACTURER GROUND RODS SHALL BE 100 PERCENT DOMESTIC STEEL.



8 FT. GROUND ROD

10 FT. GROUND ROD

NOTES

- TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLANS.
- THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
- COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
- GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
- TOP OF GROUND RODS SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN.

GROUND RODS

(NOT TO SCALE)

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REVISION	DATE

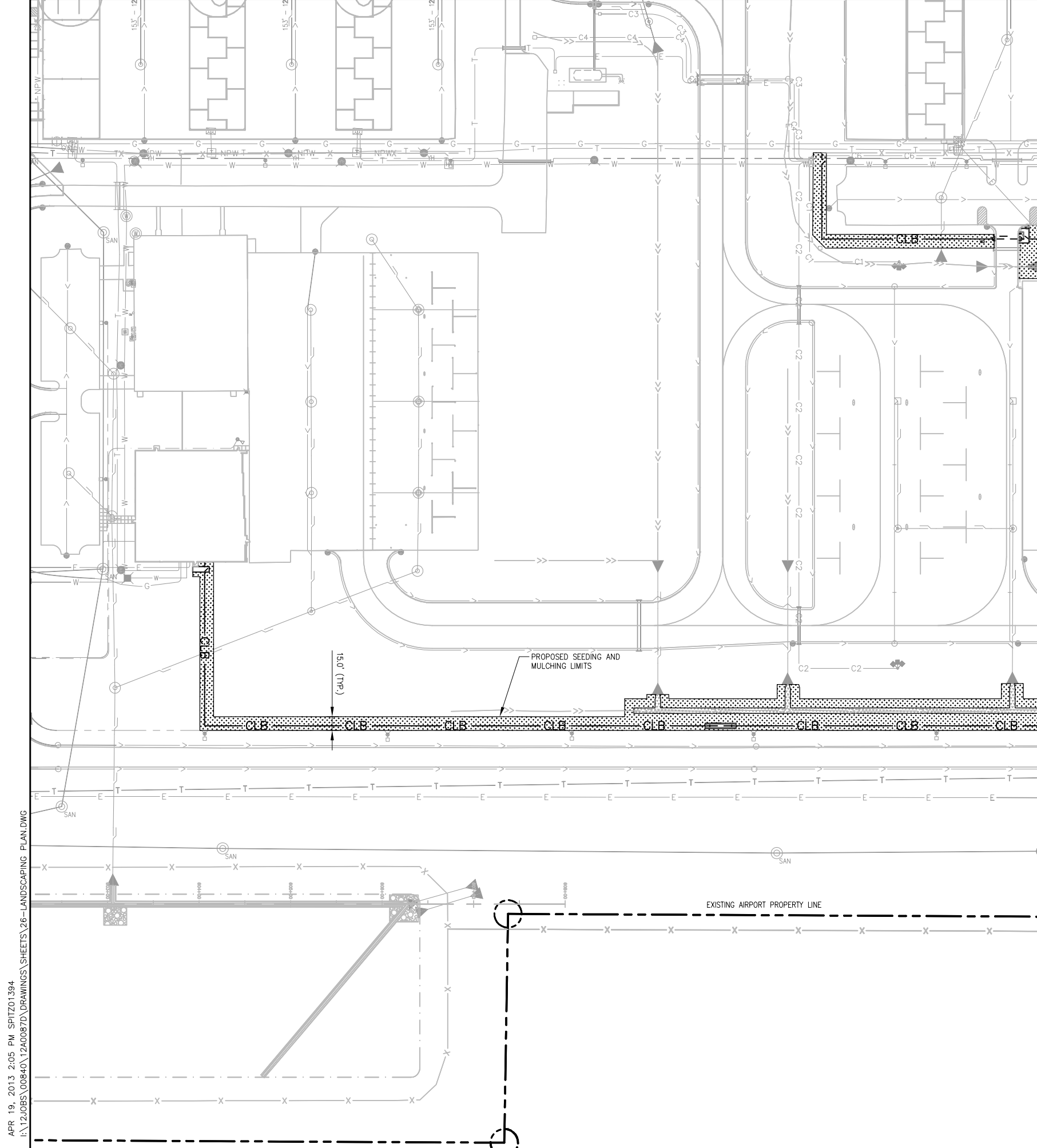
Chicago-Romeoville Airport
JOLIET REGIONAL PORT DISTRICT
 1 George Michas Drive
 Romeoville, Illinois 60446
 Telephone: 815.838.9497
 Fax: 815.838.9524

Hanson No. 12A0087D	Notes
Filename 25-GROUNDING NOTES.DWG	Notes
Scale N/A	Notes
Date MARCH 22, 2013	Notes
LAYOUT	KNL
DRAWN	LDH
REVIEWED	RMH

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

GROUNDING NOTES

EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50



NOTES:

1. LANDSCAPING AND SEEDING WILL BE 5' OUTSIDE OF FENCE AND 10' INSIDE OF FENCE UNLESS PLANS STATE OTHERWISE, OR AS DIRECTED BY RESIDENT ENGINEER.
2. STOCKPILES ARE TO BE REMOVED AT THE END OF EACH WORKING DAY OR SHALL BE STABILIZED WITH TEMPORARY EROSION CONTROL MEASURES.



LEGEND:

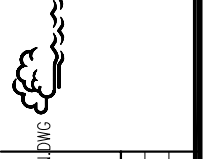
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- CLB — PROPOSED CHAIN LINK FENCE WITH BARBED WIRE
- ⊙ — PROPOSED GATE
- [Stippled Area] PROPOSED SEEDING AND MULCHING
- [Hatched Area] PROPOSED PAVED DITCH
- >> — EXISTING DITCH
- [Cross-hatched Area] PROPOSED CONCRETE CABLE BOTTOM

APR 19, 2013 2:05 PM SPITZ01394 I:\12\085\00840\12A0087D\DRAWINGS\SHEETS\26-LANDSCAPING PLAN.DWG

LE045

REVISION	DATE

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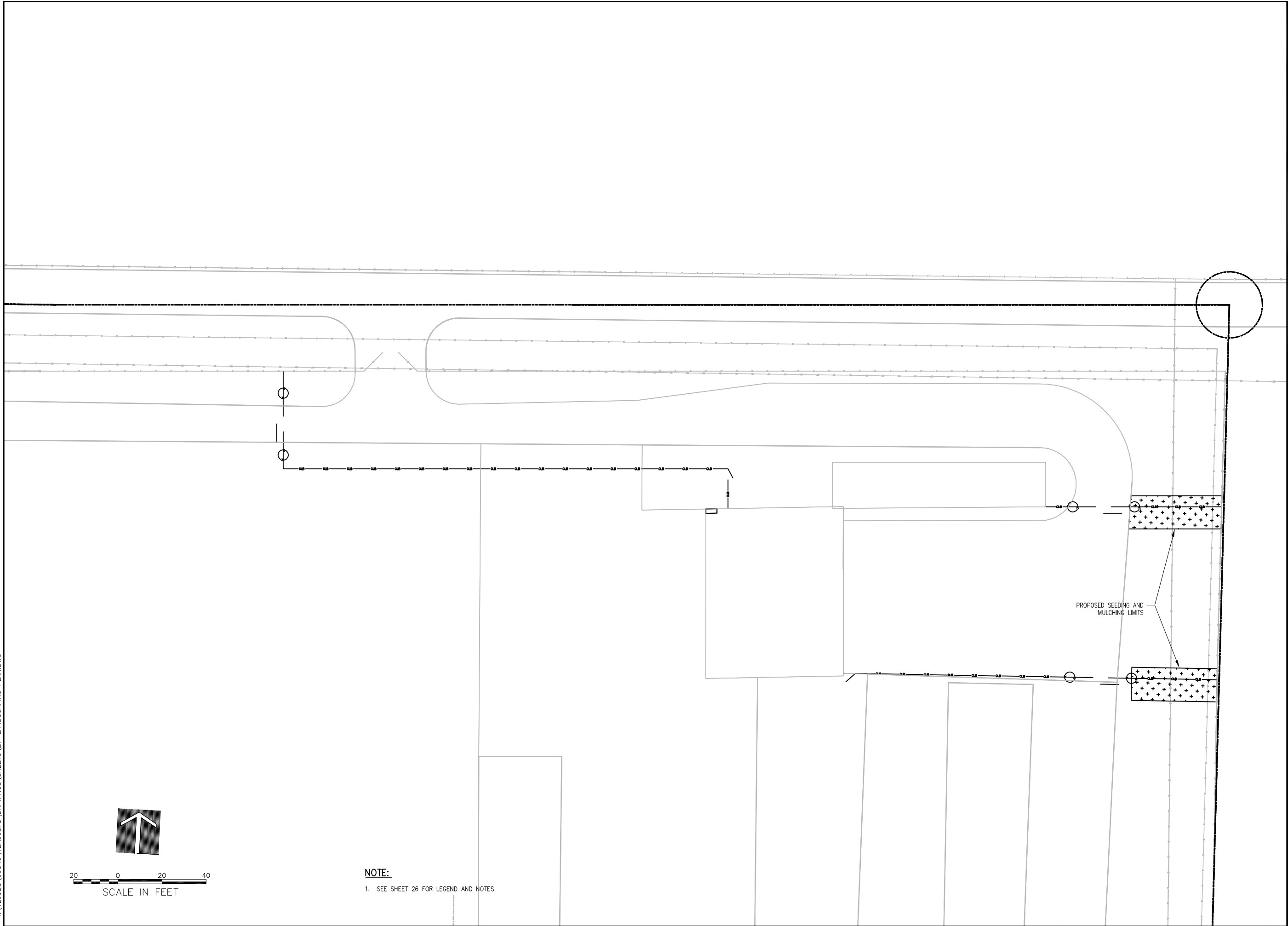
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Filename	26-LANDSCAPING PLAN.DWG
Scale	1"=60'
Date	MARCH 22, 2013
LAYOUT	KMS
DRAWN	KMS
REVIEWED	RMH
	12/13/12
	12/20/12
	3/22/13

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LANDSCAPING PLAN
ALIGNMENT 100
EXTEND FENCING AND GATES
 IDA No. LOT-4192 AIP No. 3-17-0140-B50



NOTE:
1. SEE SHEET 26 FOR LEGEND AND NOTES



PROPOSED SEEDING AND
MULCHING LIMITS

LANDSCAPING PLAN
ALIGNMENT 500

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Hanson No.	12A0087D
Filename	27-LANDSCAPING PLAN.DWG
Scale	1"=20'
Date	MARCH 22, 2013
LAYOUT	KMS 12/13/12
DRAWN	KMS 12/27/12
REVIEWED	RMH 3/22/13

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