LETTING ITEM NO. 11A
IDOT LETTING: JANUARY 19, 2024

LE056
TOTAL SHEETS = 31

CONSTRUCTION PLANS

INSTALL AIRPORT SECURITY FENCING

JOLIET REGIONAL PORT DISTRICT
LEWIS UNIVERSITY AIRPORT (LOT)
ROMEOVILLE, WILL COUNTY, ILLINOIS

SBG PROJECT NO. 3-17-SBGP-TBD
IDA PROJECT NO. LOT-4536
CONTRACT NO. LE056

100% SUBMITTAL
NOVEMBER 10, 2023

SPECIAL NOTICE

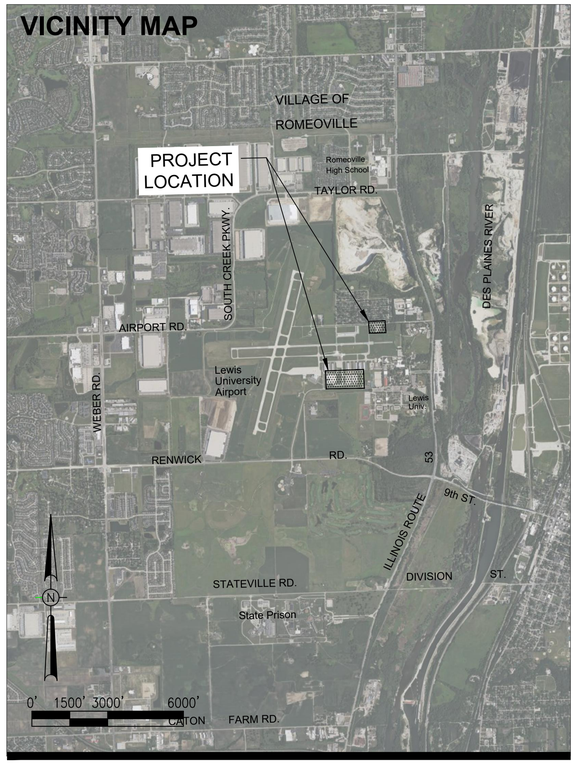
THIS PROJECT IS GOVERNED BY FAA REQUIRED BUY AMERICAN PREFERENCE REQUIREMENTS. ALL BIDS MUST INCLUDE COMPLETED FAA REQUIRED CERTIFICATIONS AT THE TIME OF BID. SEE THE BID PROPOSAL AND ANY SOLICITATION ADDENDA REGARDING THIS MATTER.

NOTE: THIS PROJECT WAS PREVIOUSLY BID AS 03A ON THE SEPTEMBER 22, 2023 LETTING

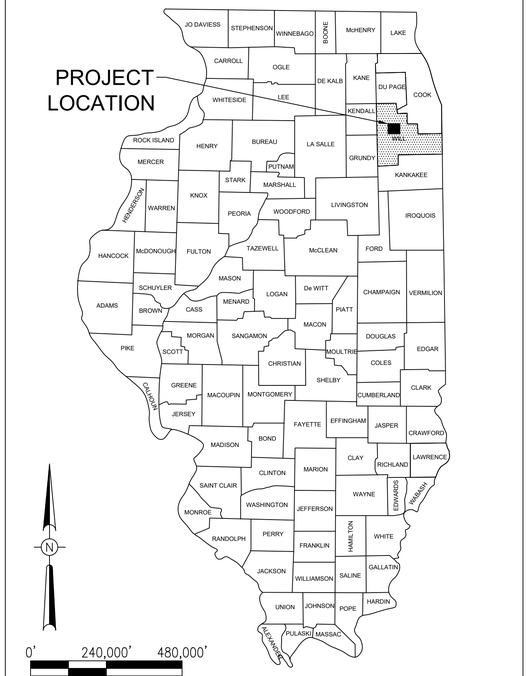
NOTICE TO CONTRACTORS AND BIDDERS

THESE CONSTRUCTION PLANS RELY UPON THE SPECIAL PROVISIONS AND THE SPECIFICATIONS TO PROVIDE FOR A COMPLETE DESCRIPTION OF THE WORK AND CONSTRUCTION REQUIREMENTS. THE PLANS SHALL ONLY BE USED IN COMBINATION WITH ALL CONTRACT DOCUMENTS.

VICINITY MAP



LOCATION MAP



No.	Issue/Description	Sheets Changed	Date	By

Seal

KRISTOFFER W. SALVATERA
062.060052
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS
Date: 11/8/23
Exp: 11/30/23

Date of Plans

NOVEMBER 10, 2023

Kris Salvatera, P.E.
Project Engineer

Date

Primera
550 WEST JACKSON BOULEVARD, SUITE 600
CHICAGO, ILLINOIS 60601

NOVEMBER 10, 2023

Ronald M. Hudson, AICP
Project Manager

Date

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

NOVEMBER 10, 2023

Chris Lawson
Director of Aviation

Date

INDEX OF SHEETS

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4	CONSTRUCTION SAFETY PLAN
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26	ELECTRICAL GATE DETAILS -3
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30	GROUNDING DETAILS AND LEGEND PLATE SCHEDULE
31	GROUNDING NOTES

SUMMARY OF QUANTITIES

BASE BID - INSTALL SECURITY FENCING

ITEM NO.	DESCRIPTION	UNITS	PLAN QUANTITY	RECORD QUANTITY
AR108051	POWER CABLE IN UNIT DUCT	FOOT	420.0	
AR108052	POWER CABLE IN CONDUIT	FOOT	245.0	
AR150510	ENGINEER'S FIELD OFFICE	L SUM	1.0	
AR150520	MOBILIZATION	L SUM	1.0	
AR150530	TRAFFIC MAINTENANCE	L SUM	1.0	
AR152411	UNCLASSIFIED EXCAVATION	L SUM	1.0	
AR156511	DITCH CHECK	EACH	10.0	
AR156520	INLET PROTECTION	EACH	4.0	
AR156540	RIPRAP	SQ YD	33.0	
AR162230	CLASS E MANUAL SLIDE GATE - 30'	EACH	3.0	
AR162506	CLASS E FENCE 6'	FOOT	3,100.0	
AR162530	WALKWAY GATES, CLASS E (5')	EACH	3.0	
AR162630	CLASS E GATE-30'	EACH	3.0	
AR162900	REMOVE CLASS E FENCE	FOOT	930.0	
AR162905	REMOVE GATE	EACH	3.0	
AR208606	6" AGGREGATE BASE COURSE	SQ YD	72.0	
AR501606	6" PCC SIDEWALK	SQ FT	620.0	
AR701524	24" RCP, CLASS IV	FOOT	25.0	
AR701530	30" RCP, CLASS IV	FOOT	90.0	
AR701536	36" RCP, CLASS IV	FOOT	90.0	
AR751567	MANHOLE 7'	EACH	1.0	
AR752430	PRECAST REINFORCED CONC. FES 30"	EACH	1.0	
AR752436	PRECAST REINFORCED CONC. FES 36'	EACH	1.0	
AR752530	GRATING FOR CONC. FES 30"	EACH	1.0	
AR752536	GRATING FOR CONC. FES 36"	EACH	1.0	
AR752900	REMOVE END SECTION	EACH	1.0	
AR801006	INFILTRATION BASIN	SQ YD	140.0	
AR801013	PROTECTION BOLLARD	EACH	3.0	
AR801036	ELECTRIC GATE OPERATOR - COMPLETE	EACH	1.0	
AR901510	SEEDING	ACRE	0.97	
AR905530	TOPSOILING	SQ YD	4,695.0	
AR908516	MULCHING	SQ YD	4,695.0	

ADDITIVE ALTERNATE NO. 1 - SECOND ELECTRIC GATE OPERATOR

ITEM NO.	DESCRIPTION	UNITS	PLAN QUANTITY	RECORD QUANTITY
AS801013	PROTECTION BOLLARD	EACH	3.0	
AS801036	ELECTRIC GATE OPERATOR - COMPLETE	L SUM	1.0	

ADDITIVE ALTERNATE NO. 2 - FENCE COATING VINYL UPGRADE

ITEM NO.	DESCRIPTION	UNITS	PLAN QUANTITY	RECORD QUANTITY
AT801037	FENCE COATING UPGRADE TO VINYL	L SUM	1.0	
AT801038	GATE COATING UPGRADE TO VINYL	L SUM	1.0	

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

Primera
550 WEST JACKSON BLVD, SUITE 600, CHICAGO, ILLINOIS 60661

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

No.	Description	By	Chk.	App.	Date

Issues

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

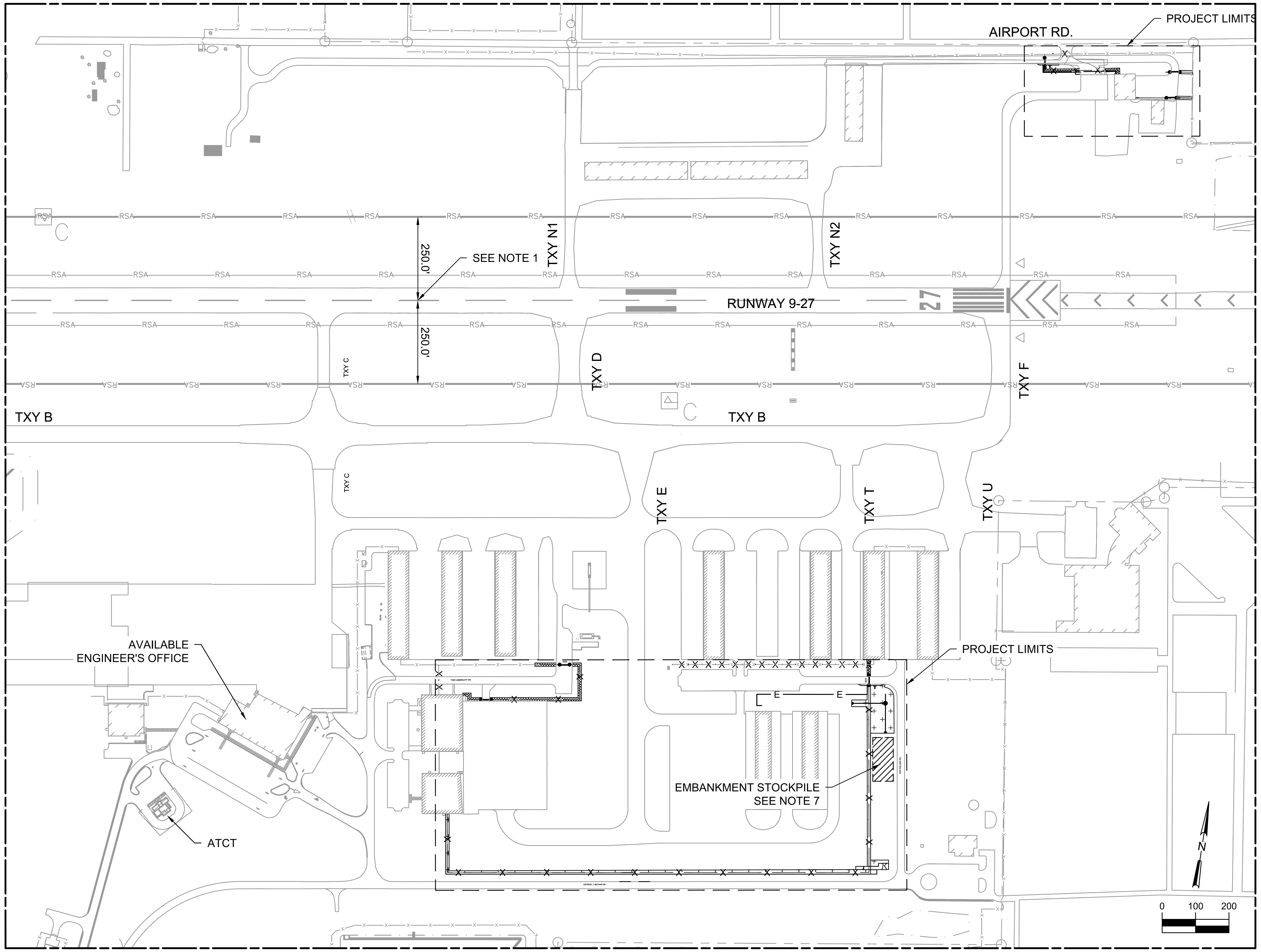
100% FINAL

KEY PLAN

DRAWING TITLE
INDEX OF SHEETS AND SUMMARY OF QUANTITIES

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

FILE SAVED 11/8/2023 8:16 AM
DATE PRINTED 11/8/2023 10:37 AM
PRINTED BY KRIS SALVATERA



ALL TAXIWAYS WITHIN THE PROJECT LIMITS ARE FAA CATEGORY II.

811 Know what's below. Call before you dig.

J.U.L.I.E.
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
www.illinois1call.com

THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ACTUAL LOCATIONS OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF HIS OPERATIONAL PLANS, OBTAIN FROM RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION AND THE ONE-CALL NOTICE SYSTEM. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY SUCH UTILITY OR SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.

CALL J.U.L.I.E. FOR UTILITY INFORMATION AT 811.

NOTES

1. NO WORK WITHIN THESE LIMITS AT ANY TIME. THE CONTRACTOR SHALL NOT CROSS ANY RUNWAYS OR OTHER ACTIVE AIRFIELD MOVEMENT AREA PAVEMENTS.
2. WORK MUST BE CONTROLLED.
3. MAXIMUM HEIGHT SHALL BE 25 FEET AT ALL LOCATIONS, EXCEPT FOR CRANE HEIGHTS OF 50 FEET AT THE PROPOSED SLIDING GATE LOCATIONS, AND/OR BY PRIOR APPROVAL OF THE ENGINEER (SEE SPECIAL PROVISIONS).
4. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.
5. NO CLOSURES TO TAXIWAY, APRON, ROADWAY, AND AUTO PARKING SHALL BE CONDUCTED EXCEPT AS SHOWN IN THE SITE PLAN.
6. THE AIRCRAFT AND GROUND VEHICLE TRAFFIC IS UNDER THE CONTROL OF AN FAA AIRCRAFT CONTROL TOWER. ALL CONTRACTOR ACTIVITY IS SUBJECT TO THIS CONTROL. THE AIRPORT MANAGER OR THEIR REPRESENTATIVE WILL COORDINATE CONTRACTOR ACTIVITIES WITH THE FAA CONTROL TOWER MANAGER. THE CONTRACTOR IS REQUIRED TO GIVE ADVANCE NOTICE OF ANY REQUESTS ON ANY ACTIVE AIRFIELD RUNWAYS OR TAXIWAYS.
7. EMBANKMENT BORROW STOCKPILE SHALL BE RESTORED TO EXISTING LANDSCAPING CONDITIONS AT THE PROJECT END.

EXISTING BENCHMARKS

PROJECT BENCHMARKS ARE AS FOLLOWS:

N 1,798,251.29
E 1,050,054.84
ELEV 668.13

N 1,798,457.54
E 1,050,630.31
ELEV 666.06

THIS DATA IS NOT ILLINOIS STATE PLANE COORDINATES

GENERAL NOTES

PROJECT DESCRIPTION

THIS PROJECT IS TO EXTEND THE CHAIN-LINK FENCING AND INSTALL GATES AT CHICAGO-ROMEOVILLE AIRPORT, INCLUDING, AMONG OTHER INCIDENTAL WORK, THE FOLLOWING BASE BID ITEMS:

- PLACEMENT OF TEMPORARY EROSION CONTROL MEASURES.
- PROVIDE SELECT GRADING OF EARTH TO ACCOMMODATE FENCE LINE AND DRAINAGE FLOW.
- INSTALL DRAINAGE PIPE, MANHOLES AND FLARED END SECTIONS.
- CONSTRUCT PC CONCRETE SIDEWALK.
- INSTALL CLASS E CHAIN -LINK FENCING.
- INSTALL ELECTRIC GATES, MANUAL GATES, AND MANUAL PEDESTRIAN SWINGING GATES.
- CONSTRUCT ELECTRICAL POWER AND CONTROL CABLING AND EQUIPMENT.
- TOPSOIL, SEED, AND MULCH FENCE LINE AND DISTURBED AREAS.

AS ADDITIVE ALTERNATE NO. 1, AN ADDITIONAL ELECTRIC GATE OPERATOR AND PROTECTIVE BOLLARS ARE TO BE INSTALLED.

AS ADDITIVE ALTERNATIVE NO. 2, ALL FENCE AND GATES ARE TO BE VINYL COATED GREEN.

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. NO FAA CABLING HAS BEEN IDENTIFIED WITHIN THE PROJECT LIMITS.

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.

Primera

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

No.	Description	By	Chk.	App.	Date

Issues

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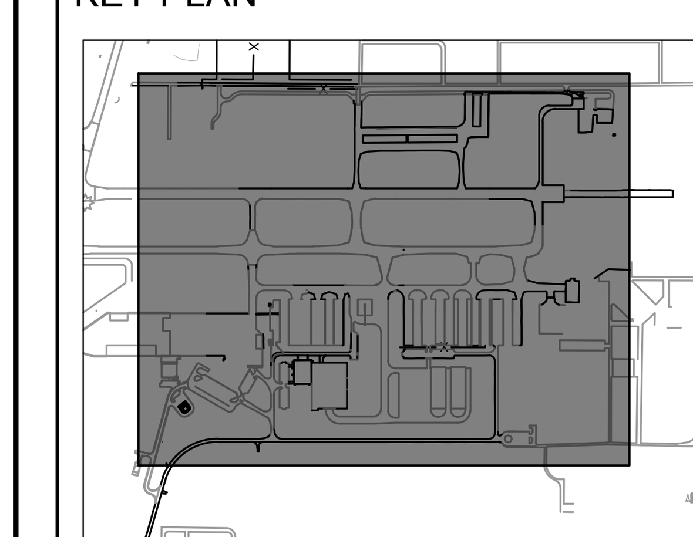
IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

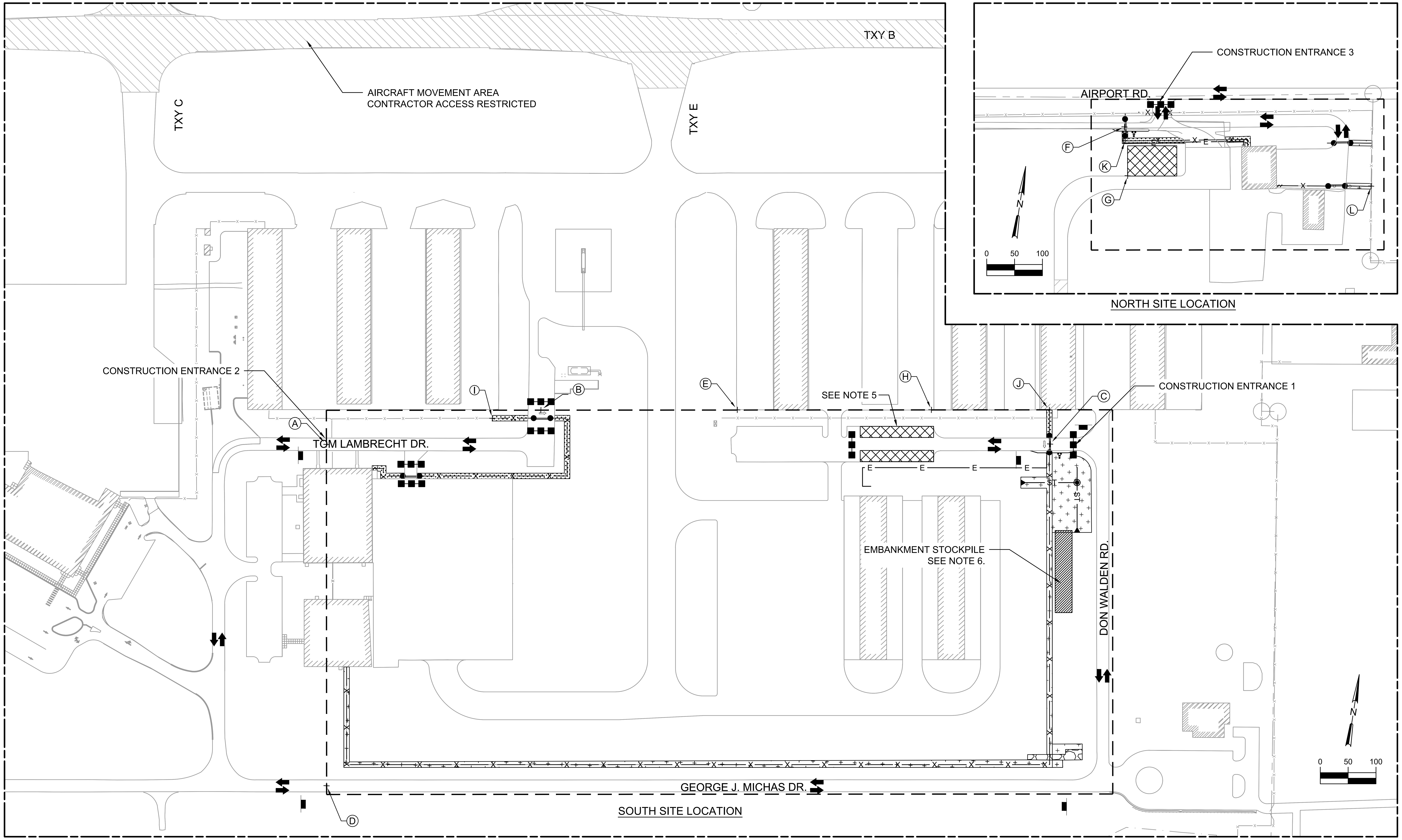
KEY PLAN



DRAWING TITLE

SITE PLAN, PROJECT CONTROL PLAN, AND GENERAL NOTES

APPROVED RH
CHECKED KWS
DRAWN BY JVJ



LEGEND

- PROJECT SITE LIMITS
- CONTRACTOR'S STAGING AREAS AND EMPLOYEE PARKING
- CONTRACTOR'S ACCESS ROUTE
- TEMPORARY TYPE II BARRICADE WITH FLASHING LIGHT OR REFLECTORIZED CONE (SEE NOTE 1).
- TEMPORARY TRAFFIC CONTROL SIGN
- EXISTING BUILDING
- EXISTING FENCE
- PROPOSED FENCE
- STOCKPILE LOCATION
- AIRCRAFT MOVEMENT AREA
- (A) CONTROL POINT (SEE CONSTRUCTIONS SAFETY PLAN NOTES AND DETAILS)

NOTES

1. CONTRACTOR SHALL NOTIFY THE AIRPORT OWNER AND RESIDENT ENGINEER 5-DAYS IN ADVANCE OF ANY ROADWAY ACCESS CLOSURE REQUIRED FOR CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE A SCHEDULE OF ROAD CLOSURE DURATIONS AND SHALL LIMIT ALL CLOSURES TO ONLY WORK REQUIRED TO CLOSE ACTIVE ROADWAYS.
2. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL (BARRICADES, CONES, SIGNAGE, ETC.) AND PERSONNEL TO SAFELY DIRECT TRAFFIC FOR THE DURATION OF CONSTRUCTION WORK THAT IMPACTS ACTIVE ROADWAYS. COST OF PROVIDING TRAFFIC CONTROL SHALL BE INCLUDED IN THE COST OF ITEM AR150530 - TRAFFIC MAINTENANCE.
3. TEMPORARY TRAFFIC CONTROL SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" AND APPLICABLE IDOT STANDARD DETAILS FOR TEMPORARY TRAFFIC CONTROL.
4. THE CONTRACTOR SHALL REMOVE ALL DEMOLITION DEBRIS, WASTE, AND LOOSE MATERIAL, ALSO KNOWN AS FOREIGN OBJECT DEBRIS (FOD). FOD CAN DAMAGE CAN DAMAGE AIRCRAFT OR VEHICLE. THE PROJECT SITE SHALL REMAIN CLEAN AND REMOVE ALL FOD DEBRIS UNTIL THE FINAL COMPLETION OF THE PROJECT.
5. CONTRACTOR MAY USE EXISTING PAVEMENT LOT AS A STAGING AND STORAGE AREA, BUT SHALL NOT BLOCK ROADWAY ACCESS FOR VEHICULAR TRAFFIC WHEN THE ROADWAY IS ACTIVE.
6. THE EMBANKMENT BORROW STOCKPILE WILL BE PLACED BY OTHERS PRIOR TO THE PROJECT START. CONTRACTOR SHALL BORROW FROM THIS STOCKPILE FOR ADJACENT PROJECT DRAINAGE WORK. RESTORE AREA AT THE END OF THE PROJECT.

Primera
Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

No. Description By Chk. App. Date
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100% FINAL

KEY PLAN

DRAWING TITLE
CONSTRUCTION SAFETY PLAN

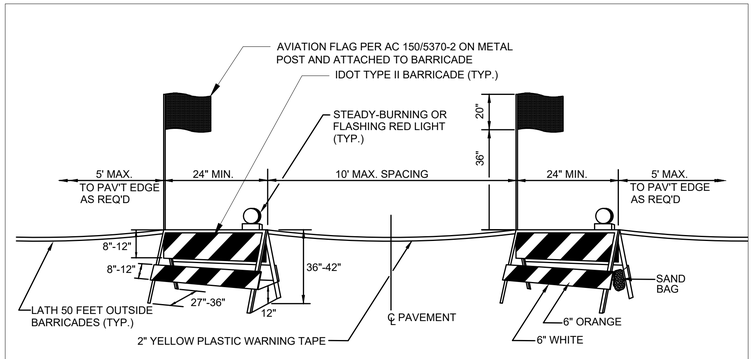
APPROVED RMH
CHECKED KWS
DRAWN BY JJ

SHEET NO.
4

CRITICAL POINT (SEE SHEET 4 FOR LOCATIONS)								
CRITICAL POINT	APPROX. GROUND ELEVATION (FT)	CONSTRUCTION EQUIPMENT OR STUCTURE	EQUIPMENT OR STUCTURE HEIGHT (FT)	EQUIPMENT OR STRUCTURE ELEVATION (FT)	NORTHING	EASTING	LATITUDE	LONGITUDE
A	665.8	SEMI/DUMP TRUCK	25	690.8	1798868.4376'	1050668.9611'	N041° 36' 19.18"	W088° 05' 25.70"
B	665.0	CRANE	50	715.0	1798946.4150'	1051050.8535'	N041° 36' 19.94"	W088° 05' 20.67"
C	664.0	CRANE	50	714.0	1798924.1264'	1051966.6070'	N041° 36' 19.69"	W088° 05' 08.62"
D	665.0	SEMI/DUMP TRUCK	25	690.0	1798256.2987'	1050695.1058'	N041° 36' 13.13"	W088° 05' 25.38"
E	665.3	SEMI/DUMP TRUCK	25	690.3	1798961.6706'	1051403.1938'	N041° 36' 20.08"	W088° 05' 16.03"
F	671.5	CRANE	50	721.5	1800793.4897'	1052411.8603'	N041° 36' 38.15"	W088° 05' 02.69"
G	667.0	SEMI/DUMP TRUCK	25	692.0	1800706.0295'	1052421.2586'	N041° 36' 37.29"	W088° 05' 02.57"
H	664.9	SEMI/DUMP TRUCK	25	689.9	1798976.3954'	1051751.2040'	N041° 36' 20.22"	W088° 05' 11.45"
I	666.0	FENCE	6	672.0	1798927.8013'	1050964.3908'	N041° 36' 19.76"	W088° 05' 21.81"
J	665.6	FENCE	6	671.6	1798985.0897'	1051962.5242'	N041° 36' 20.30"	W088° 05' 08.67"
K	670.0	FENCE	6	676.0	1800768.8394'	1052413.9161'	N041° 36' 37.91"	W088° 05' 02.66"
L	664.0	FENCE	6	670.0	1800706.0188'	1052858.5427'	N041° 36' 37.27"	W088° 04' 56.81"

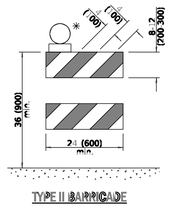
RUNWAY END COORDINATES

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

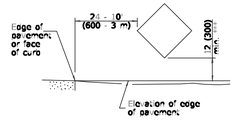


BARRICADES ARE TO BE OF IDOT TYPE I. A STEADY-BURNING OR FLASHING RED LIGHT FACING PASSING TRAFFIC IS TO BE MOUNTED ABOVE THE TOP OF EACH BARRICADE FRAM. THE BARRICADE IS TO BE STABILIZED FROM WIND BY SANDBAGS PLACED ON THE FRAME R OTHER METHODS APPROVED BY THE RESIDENT ENGINEER. NO PART OF THE REFLECTORIZED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

DETAIL A
PAVEMENT BARRICADES
NTS



TYPE II BARRICADE



SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.

SAFETY REQUIRED

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

SAFETY PLAN COMPLIANCE DOCUMENT

PRIOR TO THE ISSUANCE OF A CONSTRUCTION NOTICE-TO-PROCEED (NTP) BY THE ILLINOIS DIVISION OF AERONAUTICS, THE CONTRACTOR SHALL PREPARE AND SUBMIT A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) IN ACCORDANCE WITH FAA ADVISORY CIRCULAR 150/5370-2 (CURRENT ISSUE), PARAGRAPH 204b, OR EQUIVALENT SECTION IN SUBSEQUENT/CURRENT ISSUE. THE SPCD SHALL BE REVIEWED AND APPROVED BY THE AIRPORT MANAGER, WHO WILL THEN SUBMIT THE DOCUMENT TO THE ILLINOIS DIVISION OF AERONAUTICS FOR THEIR APPROVAL PRIOR TO NOTICE TO PROCEED.

SEQUENCE OF CONSTRUCTION

TO MINIMIZE DISRUPTIONS TO AIRPORT OPERATIONS, CONSTRUCTION OPERATIONS MUST BE CONTROLLED THROUGHOUT THE PROJECT'S DURATION, AND WORK MUST BE COMPLETED EXPEDITIOUSLY. A CONSTRUCTION SAFETY AND PLAN DETAILING THE SEQUENCING OF THE CONTRACTOR'S WORK THROUGHOUT THE PROJECT IS INCLUDED IN THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL PROVIDE HIS WRITTEN ACCEPTANCE OF THE PROJECT CONSTRUCTION SAFETY AND PLAN AT THE PRE-CONSTRUCTION CONFERENCE. ANY AND ALL CHANGES TO THE CONSTRUCTION SAFETY AND PHASING PLAN THAT MAY BE REQUESTED BY THE CONTRACTOR MUST BE APPROVED BY THE PROJECT ENGINEER AND THE AIRPORT OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SUFFICIENT ADVANCE NOTICE OF ANY PROPOSED PHASING CHANGE TO PERMIT CONSIDERATION AND APPROVAL BY THE PROJECT ENGINEER AND THE AIRPORT OWNER. THE CONTRACTOR SHALL NOT BE ENTITLED TO ANY EXTRA COMPENSATION NOR EXTENSION TO THE CONTRACT TIME BECAUSE OF A PHASING CHANGE REQUEST NOR FOR ANY TIME NECESSARY IN RECEIVING THE REQUIRED APPROVALS. THE CONTRACTOR SHALL EXPEDITE WORK AT THOSE STAGES WHERE ACTIVE TAXIWAYS, HANGAR ACCESS, APRONS, ROADWAYS OR PARKING LOTS MUST BE CLOSED, TO MINIMIZE THE LENGTH OF TIME THAT AIRPORT OPERATIONS ARE RESTRICTED.

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

CONSTRUCTION LIMITS

THE CONTRACTOR SHALL REMAIN WITHIN THE CONSTRUCTION LIMITS SHOWN ON THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL FURNISH MEASURES TO PREVENT EQUIPMENT AND PERSONNEL FROM OPERATING OUTSIDE THESE LIMITS. SEE DETAIL A, SHEET C2.2.

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 ENTRANCES AND FOR THE CONTRACTOR'S ROUTE WITHIN THE AIRPORT OPERATIONS AREA, AS NOTED ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER. WHERE CONTRACTOR EQUIPMENT IS OPERATING WITHIN ACTIVE AIRCRAFT OPERATIONS AREAS, RADIO-EQUIPPED FLAGGERS SHALL BE FURNISHED BY THE CONTRACTOR. CONTINUOUS PAVEMENT SWEEPING SHALL BE FURNISHED TO REMOVE DEBRIS FROM ACTIVE AIRCRAFT MOVEMENT PATHS. THE COST OF TRAFFIC CONTROL/FLAGGERS AND PAVEMENT SWEEPING SHALL BE INCIDENTAL TO THE CONTRACT.

AIRFIELD OPERATIONAL SAFETY DURING CONSTRUCTION

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

- ALL EMPLOYEES OF THE CONTRACTOR SHALL PARK THEIR PERSONAL VEHICLES IN THE DESIGNATED EQUIPMENT PARKING AND STORAGE AREA. EACH PERSON OR VEHICLE ENTERING THE CONTRACTOR AREA SHALL DO SO IN ACCORDANCE WITH THE POLICIES AND PROCEDURES OF THE AIRPORT OWNER. THE CONTRACTOR WILL TRANSPORT THE WORKERS FROM THE PARKING AREAS TO THE WORK AREA. ONLY CONTRACTOR VEHICLES WILL BE ALLOWED OUTSIDE OF THE PROPOSED EQUIPMENT STORAGE AND PARKING AREAS.

- SHOULD ANY CONTRACTOR PERSONNEL BE IDENTIFIED AS NONCOMPLIANT WITH ANY VEHICLE DRIVING SAFETY REQUIREMENTS IN THIS SAFETY PLAN OR IN THE AIRPORT VEHICLE OPERATIONS REGULATIONS, SUCH DRIVERS SHALL BE PENALIZED BY RESCISSION OF THEIR ON-AIRPORT DRIVING PRIVILEGES, AND THEIR ACCESS TO THE CONSTRUCTION LIMIT AREA WHEN OPERATING VEHICLES SHALL BE REVOKED.

- THE CONTRACTOR WILL BE REQUIRED TO BE IN CONTACT WITH THE RESIDENT ENGINEER AND ATCT AT ALL TIMES. THIS WILL KEEP THE CONTRACTOR IN CONTACT WITH AIRPORT PERSONNEL, WITH ATCT PERSONNEL, AND ENABLE THE AIRPORT PERSONNEL TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTICAL EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

RUNWAY CLOSURES

NO CLOSING OF EITHER RUNWAY 2-20 OR RUNWAY 9-27 WILL BE PERMITTED DURING THIS PROJECT.

CONTRACTOR USE OF SITE

THE CONTRACTOR SHALL FURNISH, PLACE, MAINTAIN, RELOCATE, AND REMOVE TRAFFIC SAFETY DEVICES ON ACTIVE PAVEMENTS AS SPECIFIED IN IDOT TRAFFIC STANDARDS SHOWN AND DETAILED IN THE CONSTRUCTION PLANS, OR AS DIRECTED BY THE RESIDENT ENGINEER. THE COST OF THIS WORK SHALL BE INCLUDED IN ITEM AR150530, TRAFFIC MAINTENANCE.

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".

WHEN NOT IN USE AND DURING NON-WORKING HOURS, CONTRACTORS 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 CONSTRUCTION SAFETY AND PHASING PLAN. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION ENTRANCES AND CONTRACTOR AREAS IN GOOD CONDITION. THE COST OF MAINTAINING THE CONSTRUCTION ENTRANCE AND CONTRACTOR AREAS IS TO BE INCIDENTAL TO THE CONTRACT. THE CONTRACTOR SHALL PROTECT ALL EXISTING PAVEMENT EDGES FROM DAMAGE FROM CONSTRUCTION EQUIPMENT AND HAUL VEHICLES.

AT NO TIME SHALL THE CONTRACTOR OPERATE OR PARK EQUIPMENT SO AS TO OBSTRUCT AN ACTIVE PART 77 AIRPORT IMAGINARY SURFACES. CONTRACTOR'S EQUIPMENT SHALL EXTEND NO HIGHER THAN 25 FEET. CRANES SHALL NOT BE USED DURING INSTRUMENT WEATHER CONDITIONS OR AT NIGHT. CRANES SHALL BE LOWERED WHEN NOT IN USE.

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

ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROVED PROJECT SAFETY PLAN, ISSUED BY THE ILLINOIS DIVISION OF AERONAUTICS. FAILURE TO USE THESE PRESCRIBED PROCEDURES OR ADHERE TO THE SAFETY REQUIREMENTS WILL RESULT IN THE SUSPENSION OF WORK.

ALL NOTES AND DETAILS SHOWN ON THE PHASING PLAN ARE APPLICABLE TO THIS PROJECT.

NOTIFICATIONS BY CONTRACTOR

THE CONTRACTOR MUST NOTIFY THE RESIDENT ENGINEER AND THE AIRPORT OWNER THREE (3) DAYS IN ADVANCE OF ANY REQUIRED PARTIAL OR COMPLETE CLOSING OF ANY TAXIWAY OR APRON, OR AIRFIELD LIGHTING CIRCUIT. 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 THREE (3) DAYS IN ADVANCE OF THE CONTRACTOR'S CLOSING OF OTHER ACTIVE ROADWAYS, ROADWAY LIGHTING CIRCUITS, OR OTHER AIRPORT FACILITIES.

UTILITY OUTAGES AND SHUTDOWNS

THE CONTRACTOR SHALL PROVIDE THREE (3) DAYS 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.

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Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

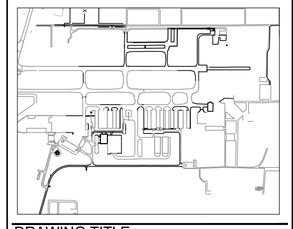
No.	Description	By	Chk.	App.	Date
Issues					

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN



DRAWING TITLE

CONSTRUCTION SAFETY NOTES AND DETAILS

APPROVED	SHEET NO.
RMH	5
CHECKED	
KWS	
DRAWN BY	
JJ	

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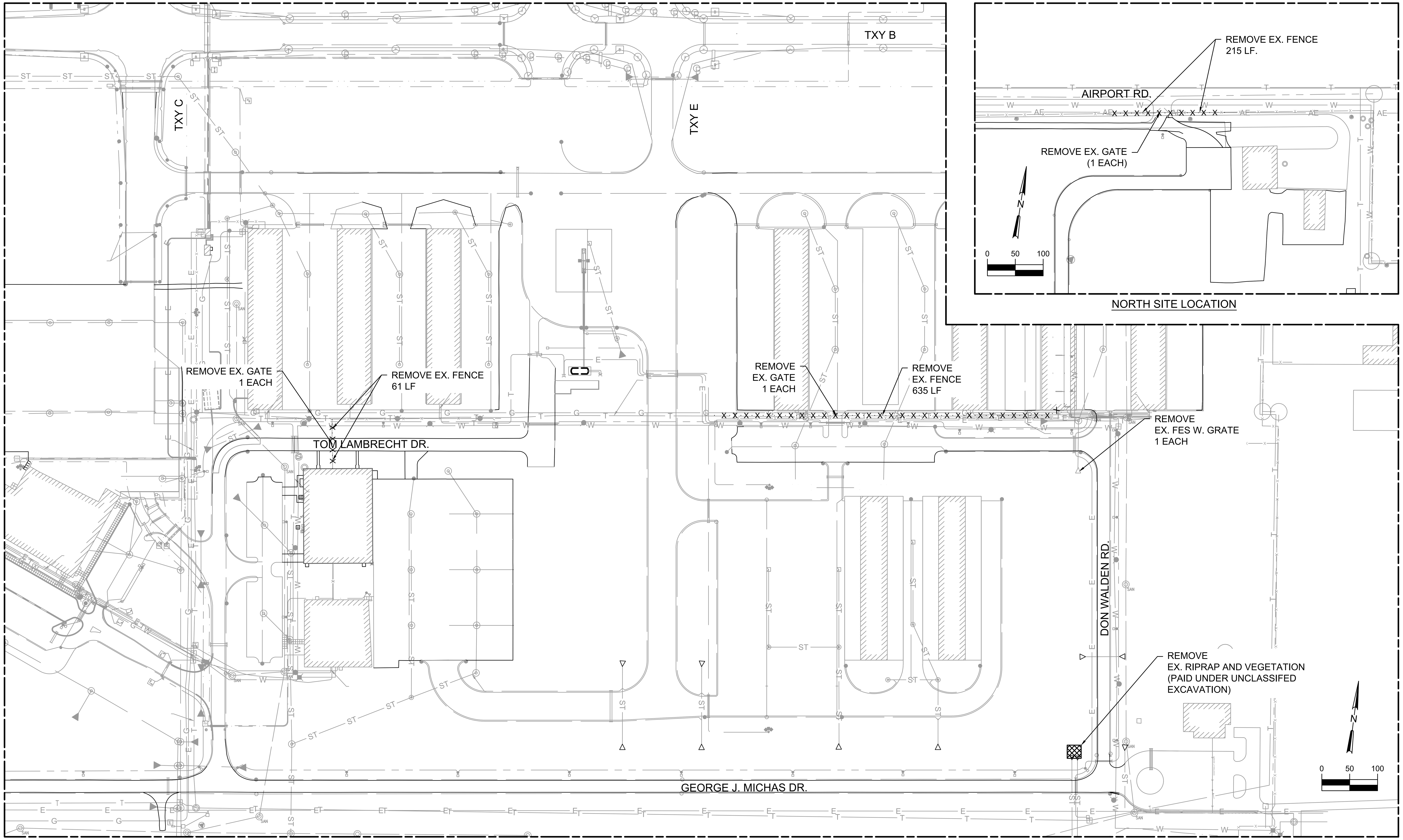

NORTH SITE LOCATION

SOUTH SITE LOCATION

LEGEND

ST	EX. STORM SEWER
SA	EX. SANITARY MAIN
G	EX. NATURAL GAS
FO	EX. FIBER / TELECOMMUNICATIONS LINE
E	EX. ELECTRIC LINE
X	EX. FENCE.
— —	EX. PROPERTY LINE
○	EX. MANHOLE
□	EX. INLET
△	EX. DRAINAGE END SECTION (FES)
○ SAN	EX. SANITARY MANHOLE
	EX. LIGHT POLE
	EX. BUILDING
X X X X X	PROPOSED LINEAR DEMOLITION
	PROPOSED AREA DEMOLITION

NOTES

1. THE CONTRACTOR SHALL CONDUCT THEIR OWN FIELD INVESTIGATION TO DETERMINE THE EXACT LOCATION OF THE UNDERGROUND UTILITIES. THE LOCATION OF UNDERGROUND UTILITIES AS INDICATED ON THE PLANS HAS BEEN OBTAINED FROM EXISTING RECORDS. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. ANY UTILITY, INCLUDING AIRFIELD ELECTRICAL CABLE AND LIGHTS, DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY HIM AT THIS OWN EXPENSE IN A MANNER WHICH IS SATISFACTORY TO THE ENGINEER AND TO THE OWNER OF THE UTILITY. ANY REPAIRS THAT MUST BE MADE BY THE OWNER OF THE UTILITY SHALL HAVE THE COST REIMBURSED TO THE UTILITY BY THE CONTRACTOR. AIRFIELD LIGHTING CABLES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY A QUALIFIED ELECTRICIAN WITH THE COSTS TO BE BORNE BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL TAKE MEASURES TO PROTECT EXISTING PAVEMENTS. ANY PAVEMENTS DAMAGED BY THE CONTRACTOR'S EQUIPMENT SHALL BE SAWCUT PER THE OWNER OR RESIDENT ENGINEER AND REPLACED IN KIND AT NO ADDITIONAL COST TO THE CONTRACT.
3. THE CONTRACTOR SHALL REMOVE EXISTING FENCE AS CALLED OUT IN THE PLANS TO THE NEAREST EXISTING END FEST POST.

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Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

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SBG No: 3-17-SBGP-TBD

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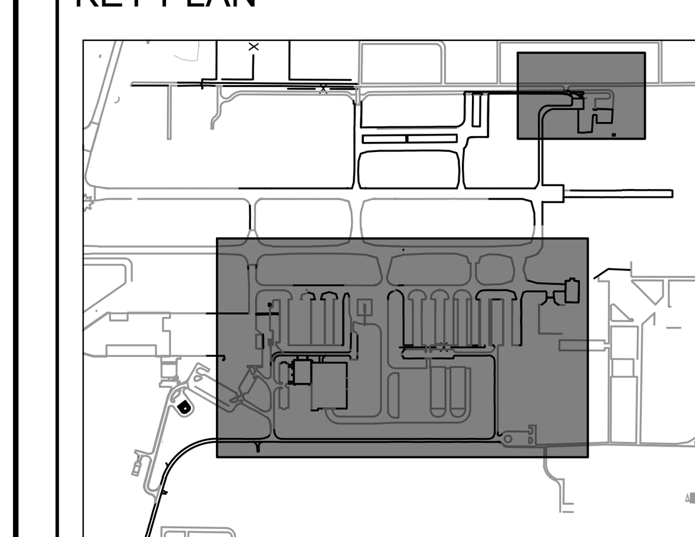


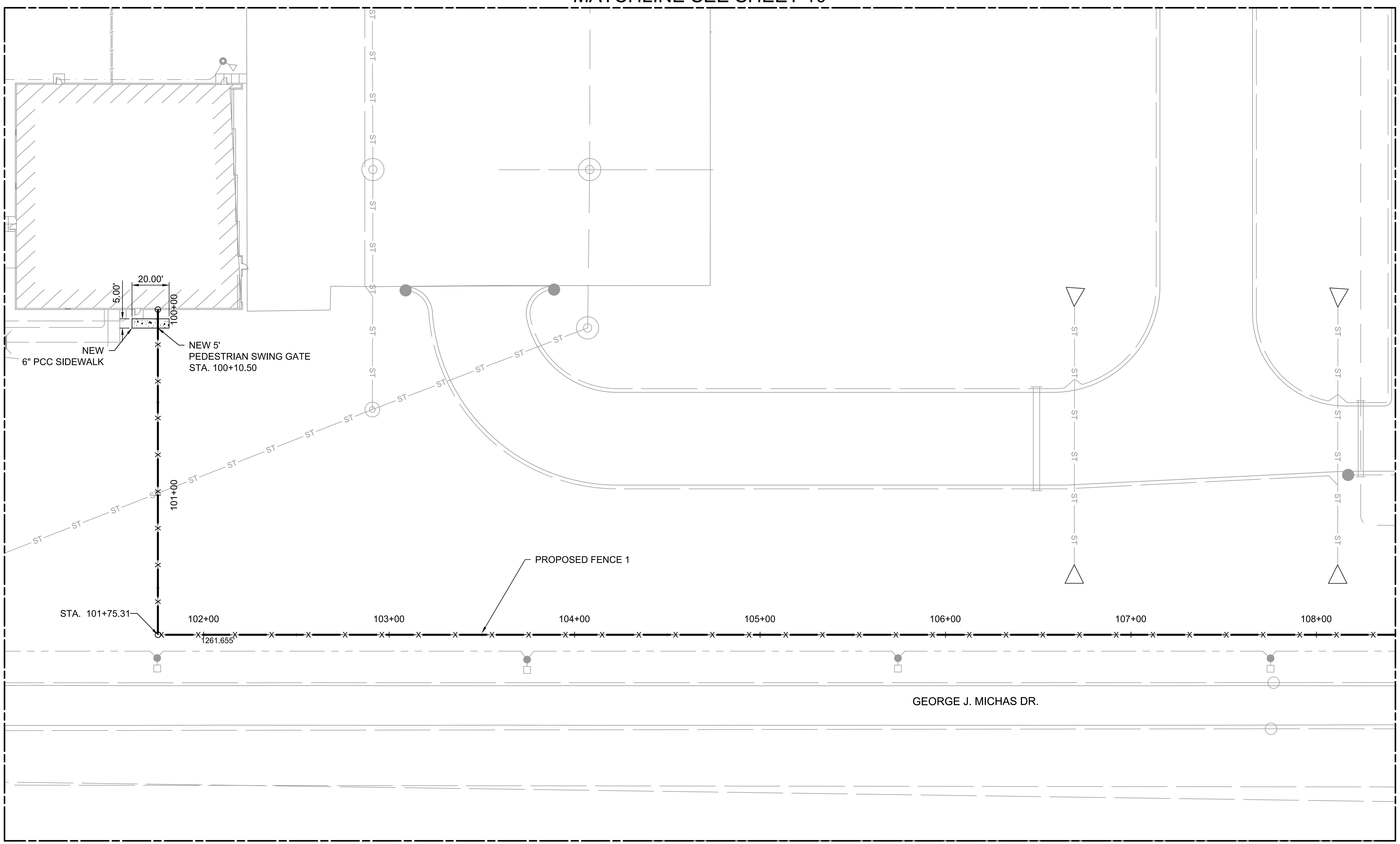
DRAWING TITLE

EXISTING CONDITIONS AND PROPOSED REMOVALS

APPROVED RMH
CHECKED KWS
DRAWN BY KWS

SHEET NO.
6
OF 31

MATCHLINE SEE SHEET 10



MATCHLINE SEE SHEET 8

LEGEND

- EX. 6' HIGH SECURITY FENCE
- PROPOSED 6' HIGH CLASS E SECURITY FENCE
- PROPOSED 6' HIGH CLASS E GATE
- PROPOSED 6' HIGH CLASS E PEDESTRIAN WALKWAY GATE
- NEW DRAINAGE STORM SEWER
- NEW DRAINAGE STRUCTURES
- NEW INFILTRATION BASIN

NOTES

1. NEW FENCE LINE FOLLOWS THE EXISTING GRADE UNLESS OTHERWISE NOTED. ALSO, SEE SPECIAL PROVISIONS FOR ADDITIONAL FENCE LINE GRADING REQUIREMENTS.
2. SOME EXISTING AND NEW UTILITIES HAVE BEEN OMITTED FOR CLARITY.
3. GATES ARE STATIONED AT THE CENTER OF THE GATE.
4. SEE PROPOSED DRAINAGE SHEETS FOR DRAINAGE PLAN DETAILS
5. CLEARING OF THE FENCE LINE AND SURFACE IRREGULARITIES SHALL BE PERFORMED UNDER ITEM 162 OF THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS. WORK SHALL BE PAID UNDER ITEM 152, AR152411 - UNCLASSIFIED EXCAVATION.
6. AT CONNECTION AT EXISTING FENCE, CONTRACTOR SHALL SET A NEW CORNER/END POST AND CONNECT NEW AND EXISTING FABRIC AT NEW POST. COST OF THIS WORK WILL NOT BE MEASURED SEPARATELY BUT SHALL BE INCLUDED IN THE UNIT PRICE FOR CLASS E FENCE.

ALIGNMENT DATA - FENCE 1			
DESCRIPTION	STATION	NORTHING	EASTING
START OF ALIGNMENT	100+00.00	1,798,470.83	1,050,722.10
PI	101+75.31	1,798,295.68	1,050,729.52
PI	114+37.78	1,798,349.04	1,051,990.05
END ALIGNMENT	120+74.21	1,798,985.69	1,051,962.69

N

0 15 30

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Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

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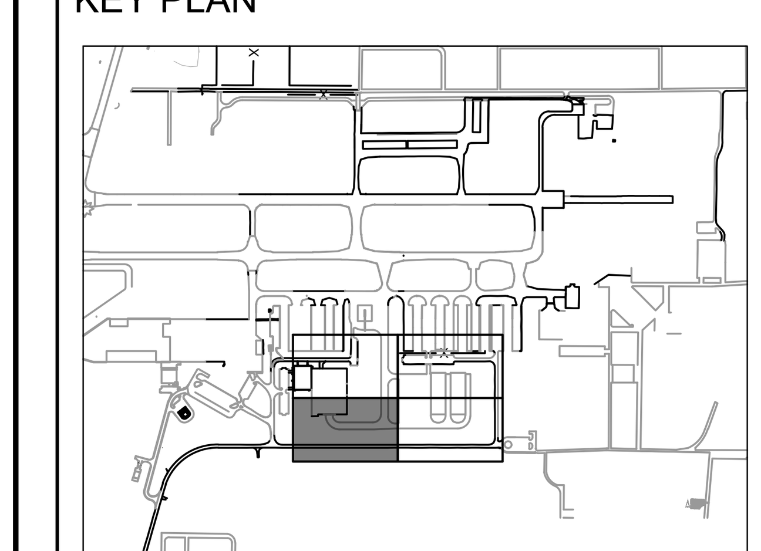
100% FINAL

KEY PLAN

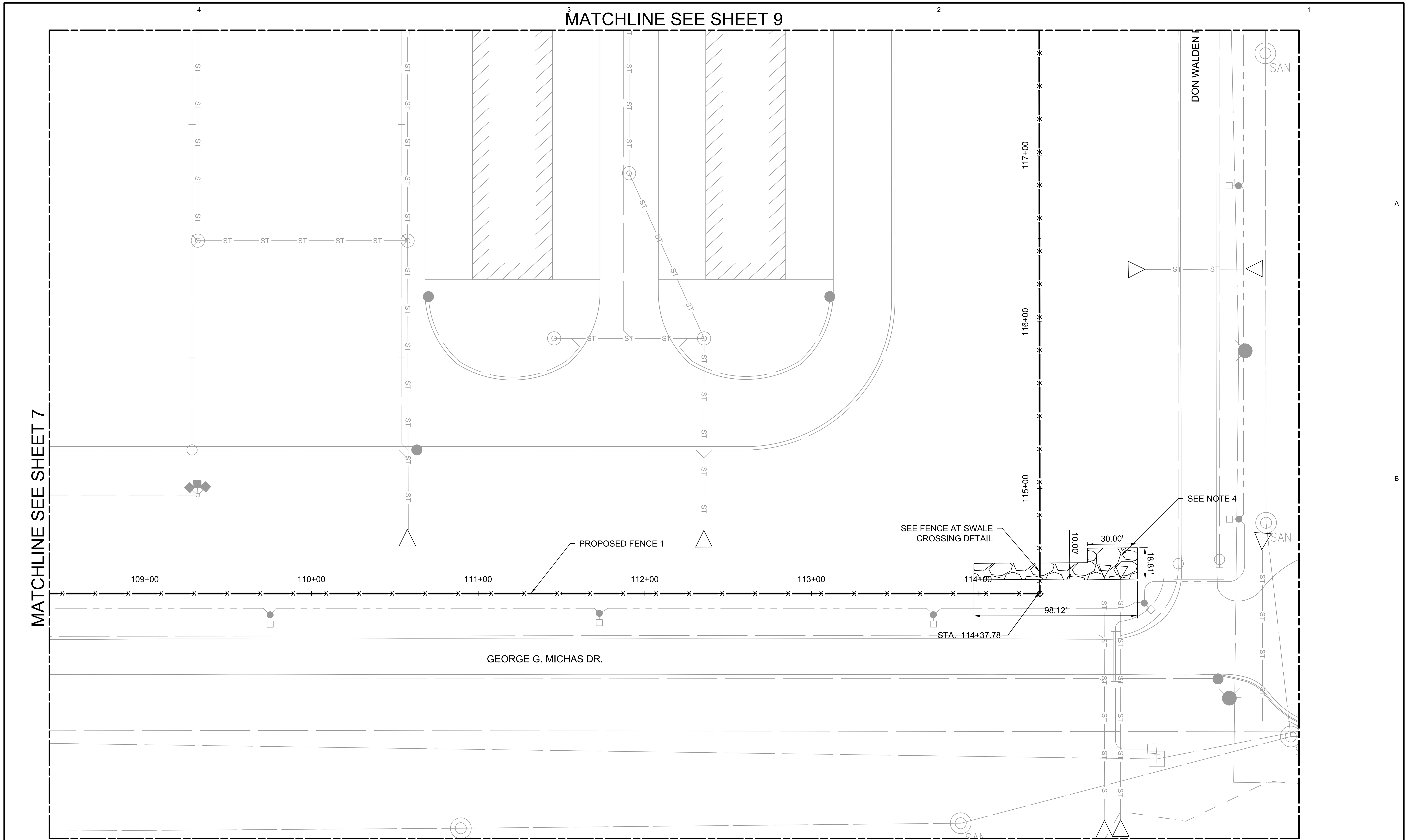


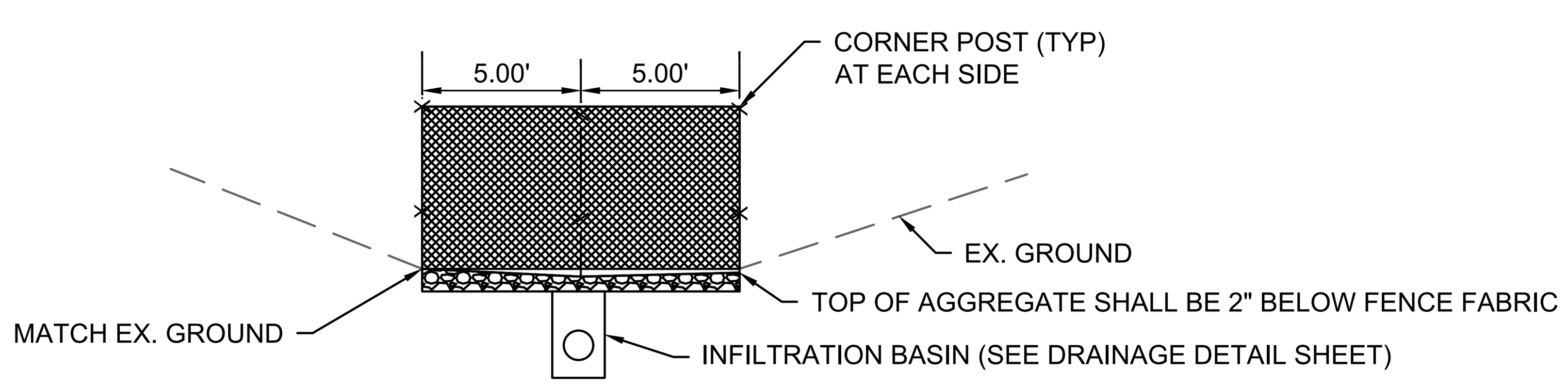
DRAWING TITLE

PROPOSED FENCING PLAN - 1

APPROVED RMH
CHECKED KWS
DRAWN BY KWS

SHEET NO.
7
OF 31





FENCE AT SWALE CROSSING

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Lewis University Airport

JOLIET REGIONAL PORT DISTRICT

No.	Description	By	Chk.	App.	Date

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INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN

DRAWING TITLE

PROPOSED FENCING PLAN - 2

APPROVED RMH

CHECKED KWS

DRAWN BY JJ

SHEET NO.

8

OF 31

MATCHLINE SEE SHEET 10

NEW 30' CLASS E
SLIDING GATE WITH ELECTRIC GATE
OPERATOR
STA. 120+13.04

SLIDE DIRECTION

120+74.21

120+00

4.00'

NEW
6" PCC SIDEWALK

SAWCUT STRAIGHT EDGE
6" INSIDE EXISTING PAVEMENT
EDGE AND PROVIDE A
CLEAN VERTICAL EDGE
FOR PAVING

PROXIMETER CARD READER,
PEDESTAL AND PROTECTIVE
BOLLARDS (3)

NEW NOTE 4

119+00

118+00

MATCHLINE SEE SHEET 8

0 15 30

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No.	Description	By	Chk.	App.	Date
Issues					

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
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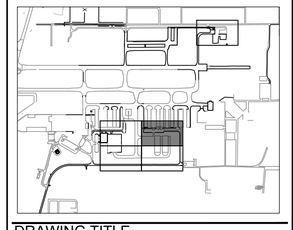
KEY PLAN



DRAWING TITLE

PROPOSED FENCING PLAN - 3

APPROVED	SHEET NO.
RMH	9
CHECKED	
KWS	
DRAWN BY	
JJ	

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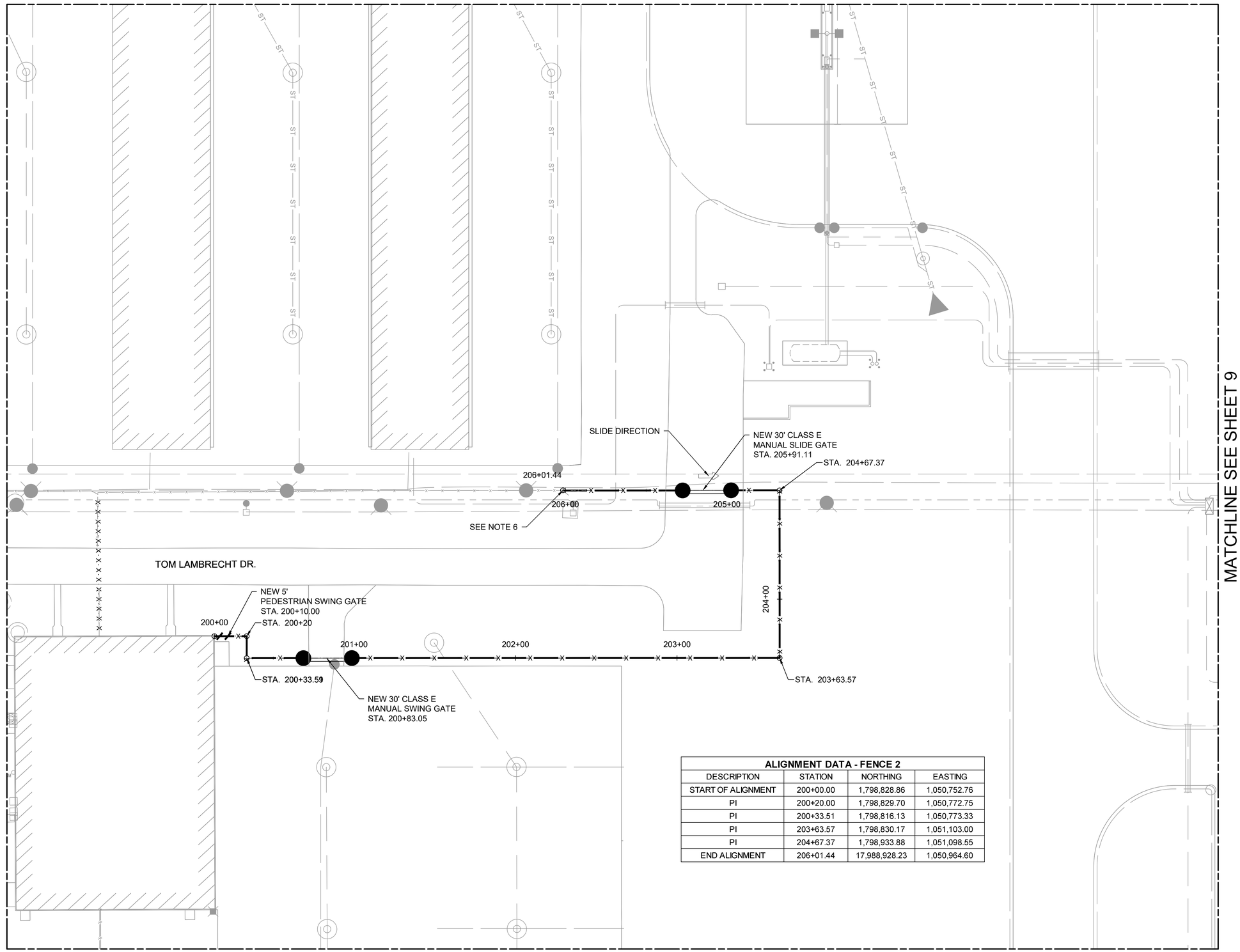

ALIGNMENT DATA - FENCE 2			
DESCRIPTION	STATION	NORTHING	EASTING
START OF ALIGNMENT	200+00.00	1,798,828.86	1,050,752.76
PI	200+20.00	1,798,829.70	1,050,772.75
PI	200+33.51	1,798,816.13	1,050,773.33
PI	203+63.57	1,798,830.17	1,051,103.00
PI	204+67.37	1,798,933.88	1,051,098.55
END ALIGNMENT	206+01.44	17,988,928.23	1,050,964.60

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Issues					

INSTALL AIRPORT SECURITY FENCING

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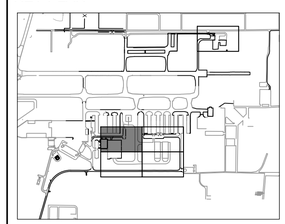
KEY PLAN



DRAWING TITLE

PROPOSED FENCING PLAN - 4

APPROVED	SHEET NO.
RMH	10
CHECKED	
KWS	
DRAWN BY	
JJ	

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ALIGNMENT DATA - FENCE 3

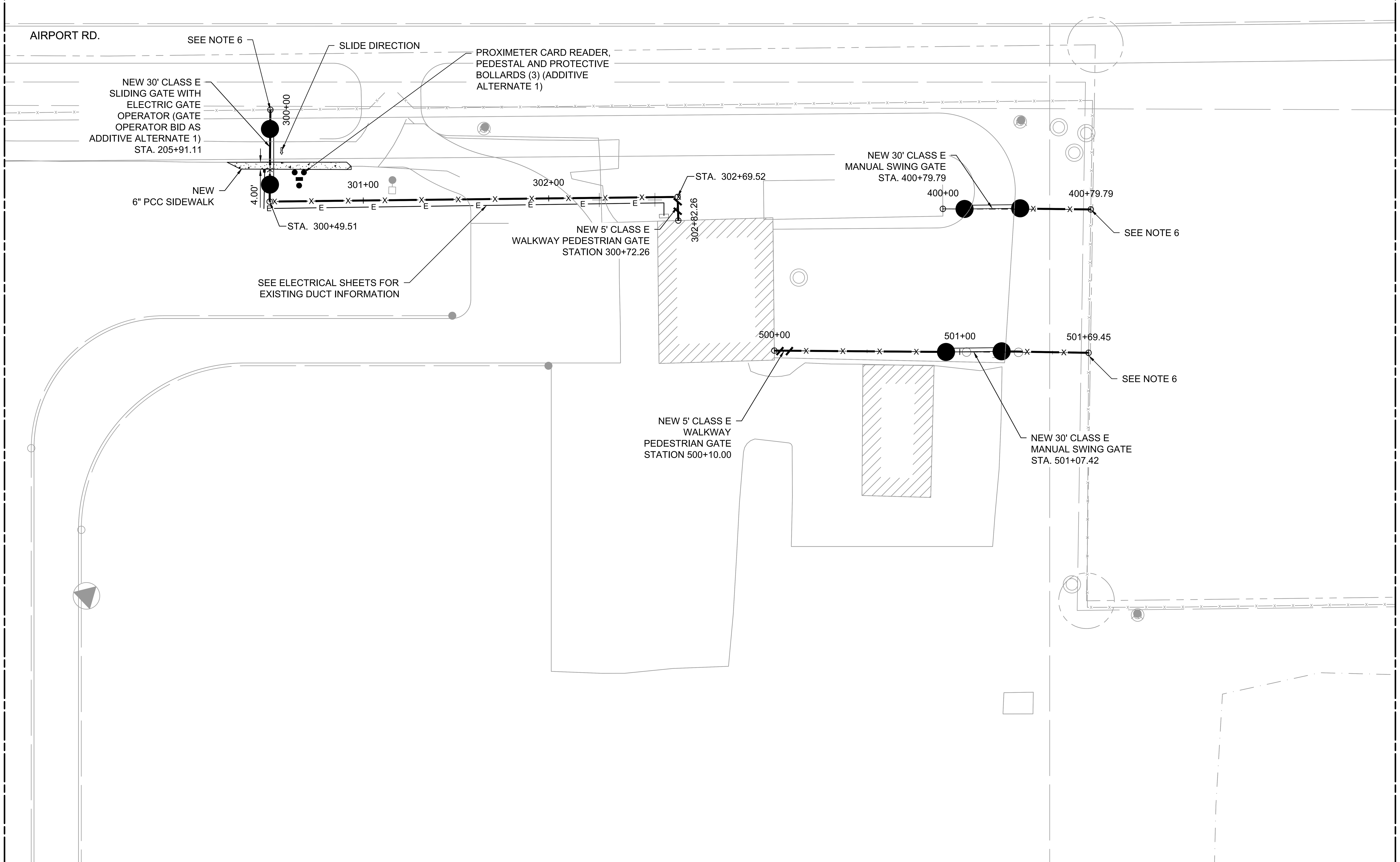
DESCRIPTION	STATION	NORTHING	EASTING
START OF ALIGNMENT	300+00.00	1,800,817.90	1,052,412.08
PI	300+49.51	1,800,768.41	1,052,413.78
PI	302+69.52	1,800,780.23	1,052,633.46
END ALIGNMENT	300+72.26	1,800,767.52	1,052,634.38

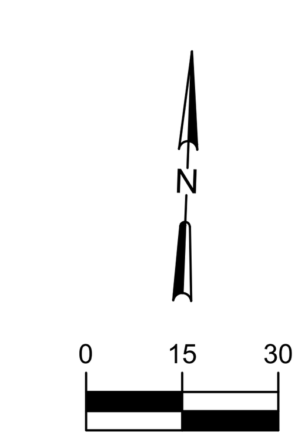
ALIGNMENT DATA - FENCE 4

DESCRIPTION	STATION	NORTHING	EASTING
START OF ALIGNMENT	400+00.00	1,800,779.83	1,052,776.62
END ALIGNMENT	400+79.79	1,800,782.90	1,052,856.35

ALIGNMENT DATA - FENCE 5

DESCRIPTION	STATION	NORTHING	EASTING
START OF ALIGNMENT	500+00.00	1,800,699.60	1,052,689.07
END ALIGNMENT	501+69.45	1,800,705.59	1,052,858.41





Primera

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

No.	Description	By	Chk.	App.	Date

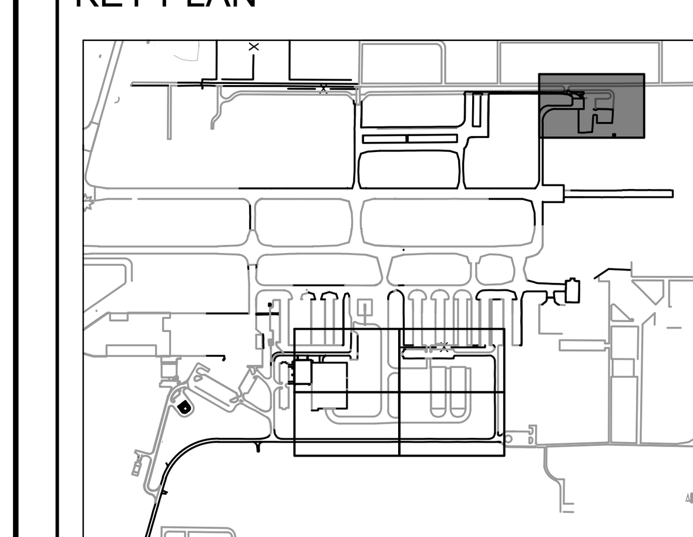
Issues

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN

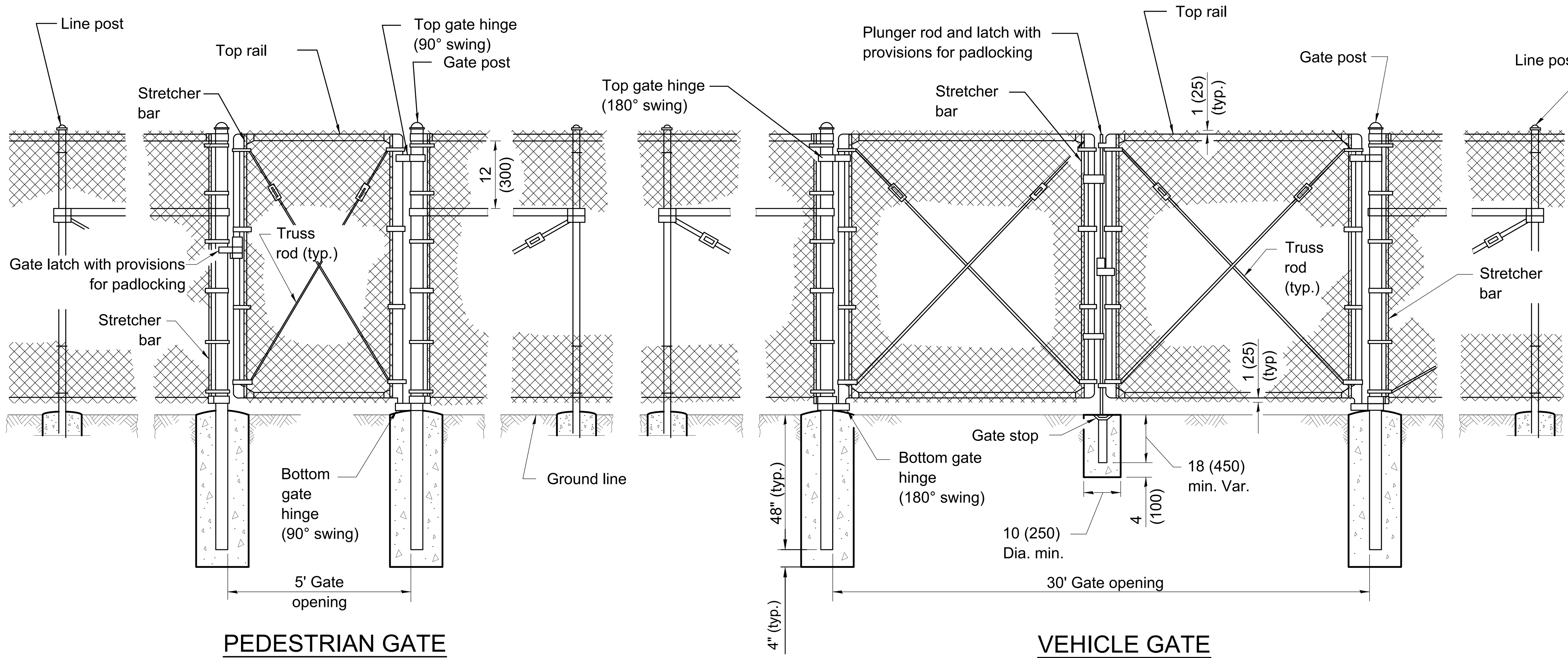


DRAWING TITLE

PROPOSED FENCING PLAN - 5

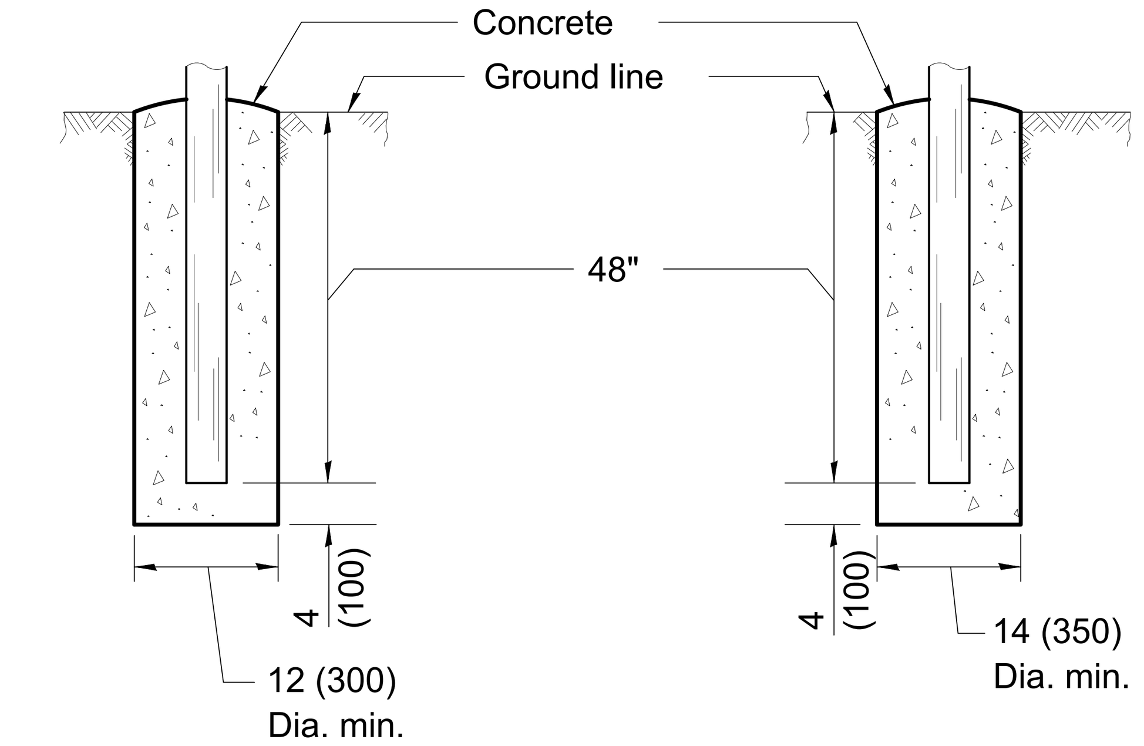
APPROVED RMH
CHECKED KWS
DRAWN BY JJ

SHEET NO. 11 OF 31



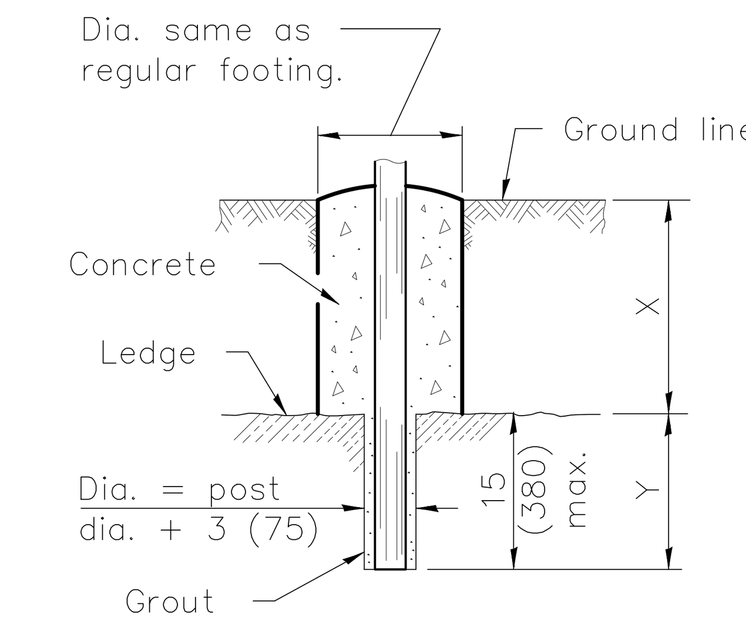
PEDESTRIAN GATE ARRANGEMENT

VEHICLE GATE ARRANGEMENT

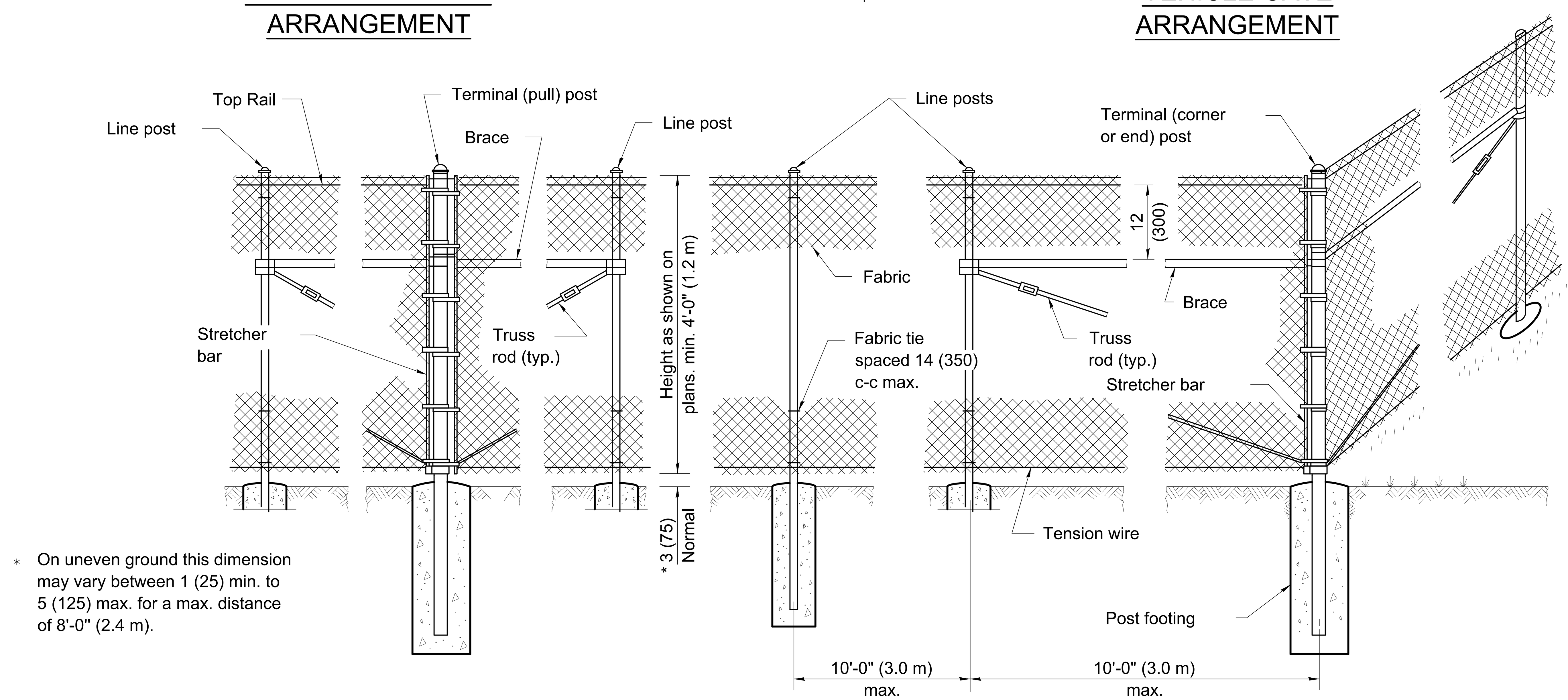


FOOTING FOR LINE POST

FOOTING FOR GATE & TERMINAL POST



FOOTING FOR POST IN ROCK LEDGE



* On uneven ground this dimension may vary between 1 (25) min. to 5 (125) max. for a max. distance of 8'-0" (2.4 m).

PULL POST ARRANGEMENT

LINE POST ARRANGEMENT

CORNER OR END POST ARRANGEMENT

GENERAL NOTES

Pull posts shall be placed at locations determined by the Engineer. They shall be placed at 660' (200 m) intervals between posts to which the ends of the fabric are clamped or midway between such posts when the distance is less than 1320' (400 m) and greater than 660' (200 m).

X + Y shall not exceed 24 (600), 30 (750), or 36 (900), as applicable. When X is 0 - 9 (0 - 225), 15 (380), or 21 (525), then Y = 15 (375) and the post shall be shortened as required. When X exceeds 9 (225), 15 (380), or 21 (525), then Y shall be decreased correspondingly.

All dimensions are in inches (millimeters) unless otherwise shown.

FENCING NOTES

1. ALL FENCE, FABRIC, POSTS, GATES, TENSION WIRE RODS, BRACES, ARMS, BARBED WIRE AND MISCELLANEOUS FITTINGS SHALL BE GALVANIZED STEEL EXCEPT UNLESS ADDITIVE ALTERNATE NO. 2 IS AWARDED.
2. FENCE HEIGHT SHALL BE 6'.
3. 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.
4. ALUMINUM RESTRICTED AREA SIGNS SHALL BE FURNISHED AS SHOWN IN THE DETAIL. COST INCIDENTAL TO FENCE OR GATE.
5. SONOTUBE TO BE USED FOR CASTING POST FOUNDATIONS WHERE REQUIRED BY THE SOIL CONDITIONS TO PROVIDE A CONSTANT WIDTH FOOTING.
6. SEE SPECIAL PROVISIONS

Primera
Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

No.	Description	By	Chk.	App.	Date

Issues

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN

DRAWING TITLE

FENCE DETAILS - 1

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

SHEET NO.
12

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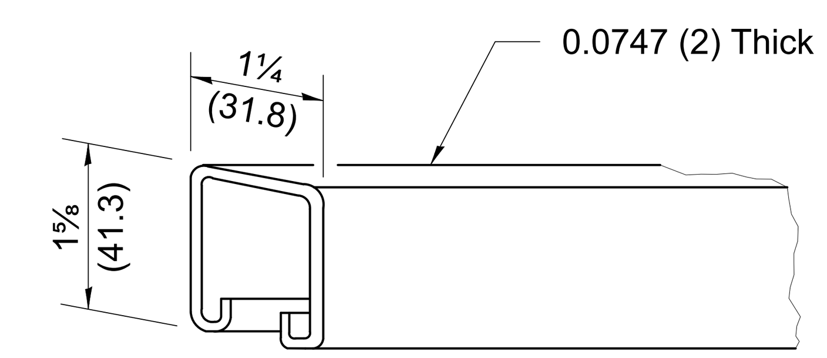
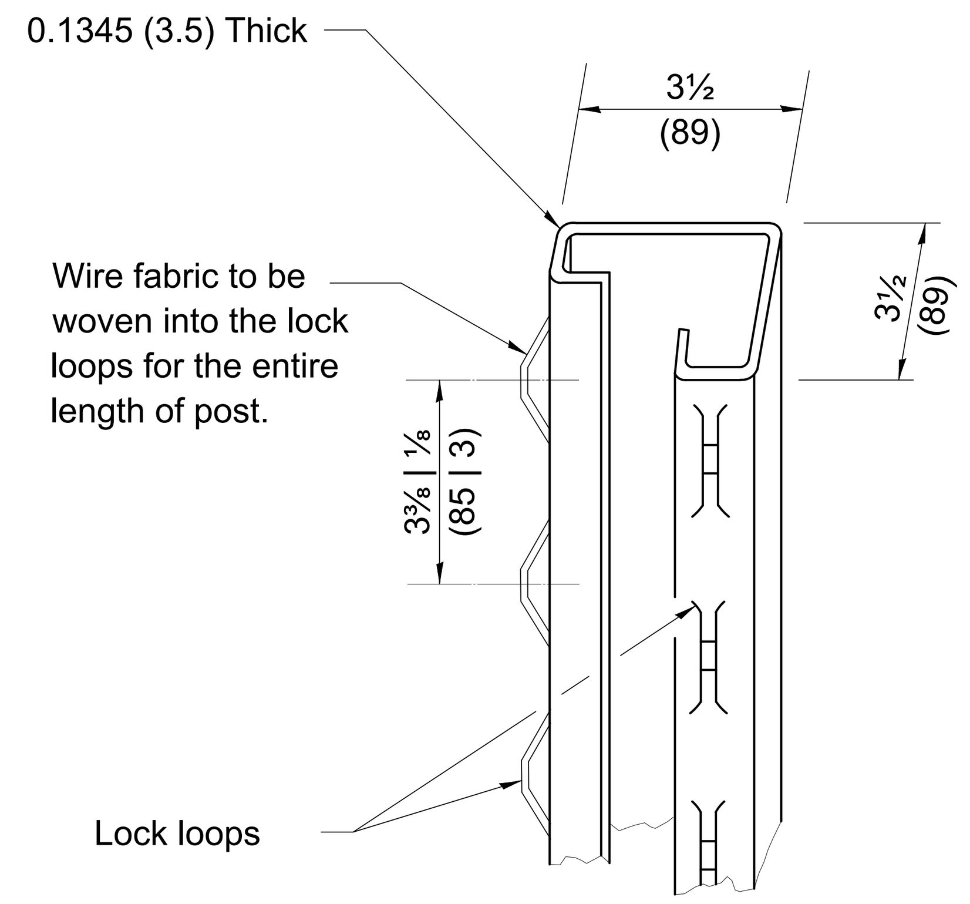
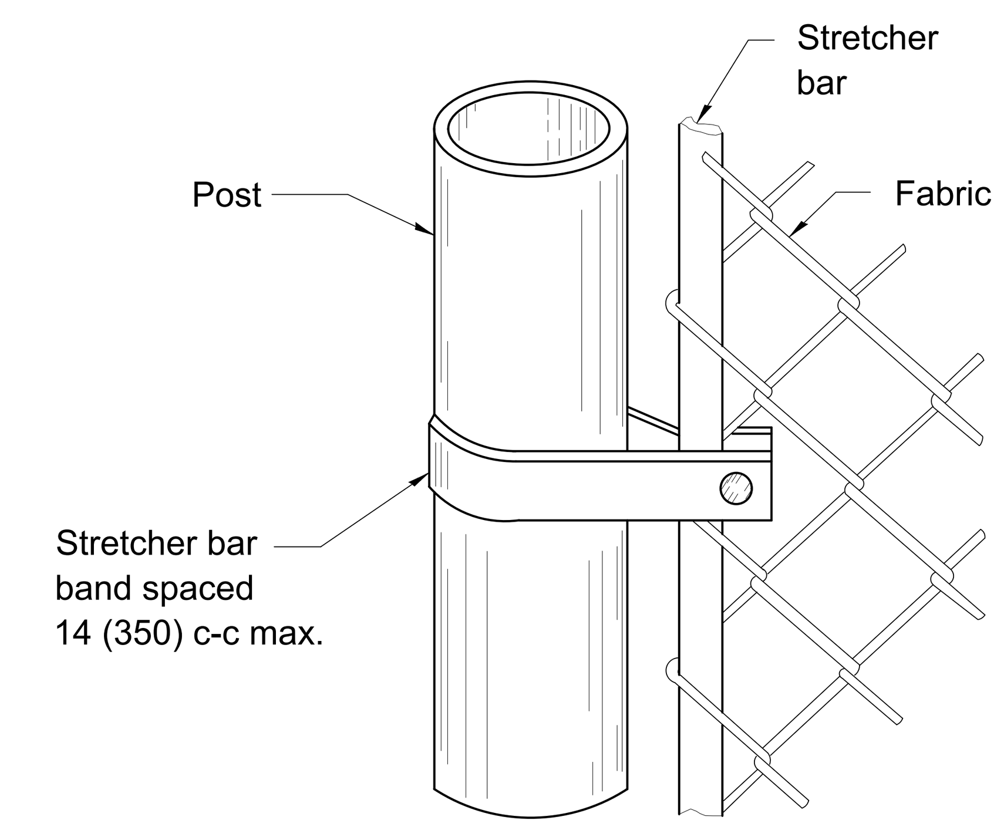


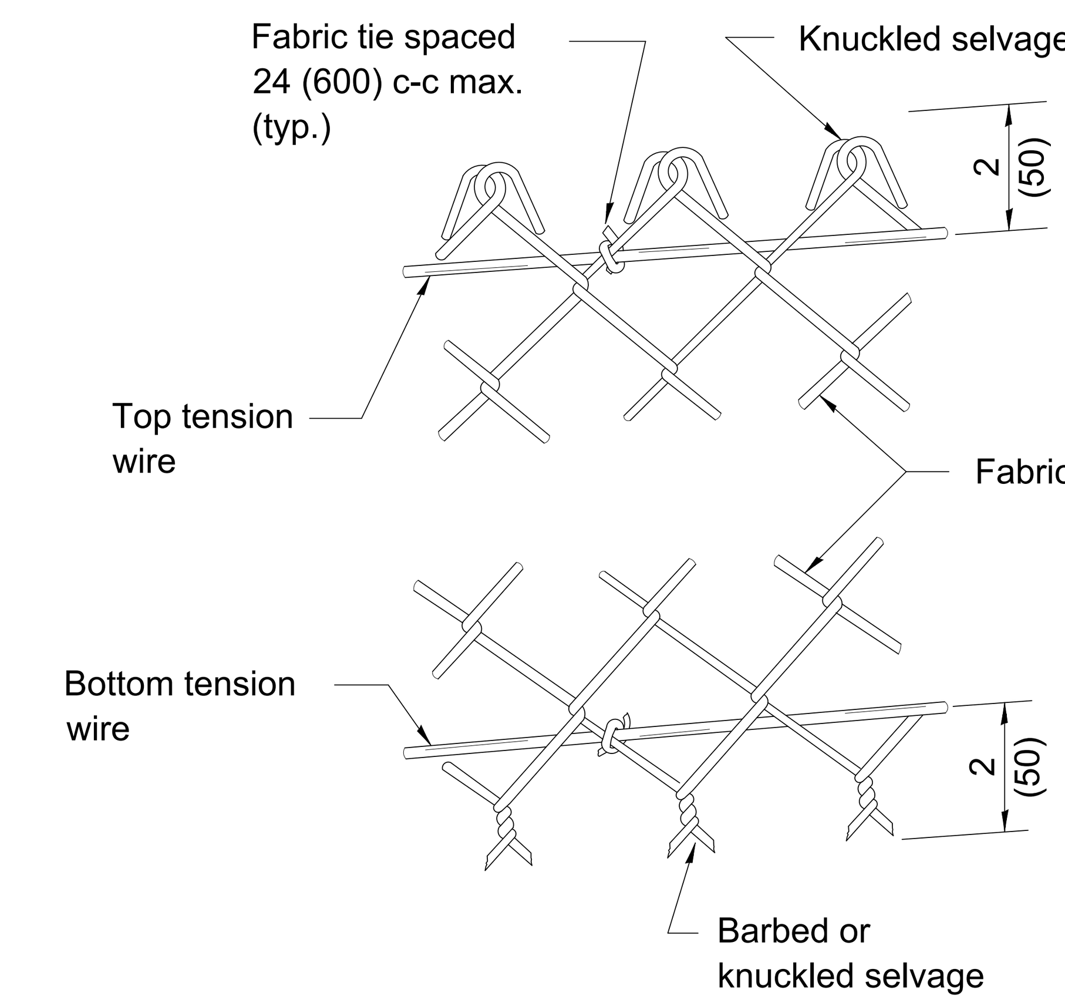
ROLL FORMED SECTION OF BRACE



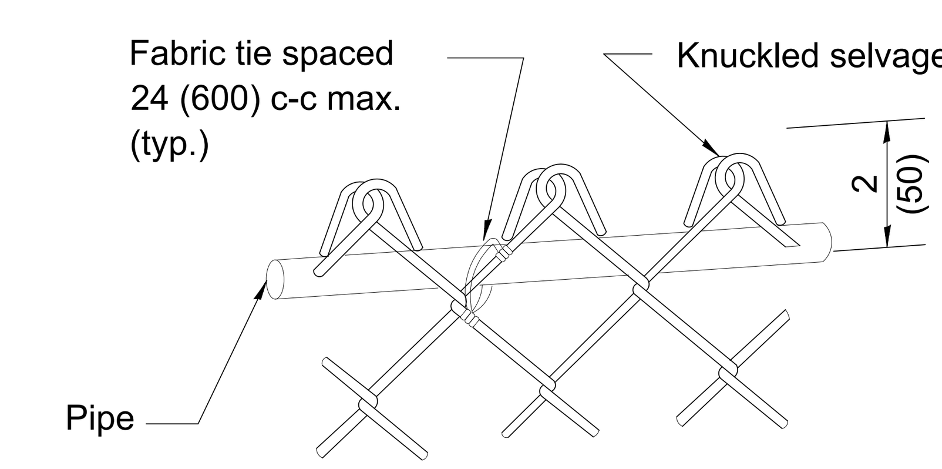
ROLL FORMED SECTION OF TERMINAL & GATE POST



METHOD OF FASTENING STRETCHER BAR TO POST



METHOD OF TYING FABRIC TO TENSION WIRES



METHOD OF TYING FABRIC TO PIPE

LINE POST

Section	lbs./ft. (kg/m)
Pipe Type A 1.90 (48.3) O.D.	2.72 (4.05)
Pipe Type B 1.90 (48.3) O.D.	2.28 (3.39)
Pipe Type C 1.90 (48.3) O.D.	2.26 (3.36)
H 1.875x1.625 (47.6x41.3)	2.72 (4.05)
□	1.60 (2.38)
I	2.30 (3.42)

TERMINAL POST

Section	lbs./ft. (kg/m)
Pipe Type A 2.375 (60.3) O.D.	3.65 (5.43)
Pipe Type B 2.375 (60.3) O.D.	3.11 (4.63)
Pipe Type C 2.375 (60.3) O.D.	3.09 (4.60)
Roll Formed 3½x3½ (89.0x89.0)	See detail
Sq. Tubing 2½x2½ (63.5x63.5)	4.32 (6.43)

TOP RAIL AND 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 1⅝x1¼ (41.3x31.8)	See detail

GATE POSTS *

Gate Opening * ft. (m)		Pipe Type A		Sq. Tubing		Pipe Type B	
Single	Double	Size (O.D.)	lbs./ft. (kg/m)	Size	lbs./ft. (kg/m)	Size (O.D.)	kg/m (lbs./ft.)
Up to 4 (1.2)	Up to 8 (2.5)	2.375 (60.3)	3.65 (5.43)	2½ (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 3½ x 3½ (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 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)

Primera

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

No. Description By Chk. App. Date
Issues

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

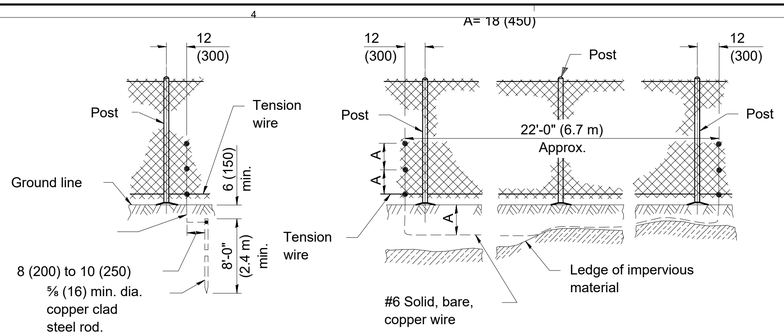
100% FINAL

KEY PLAN

DRAWING TITLE
FENCE DETAILS - 2

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

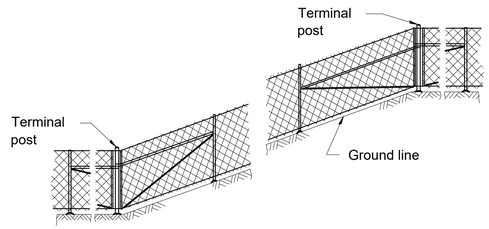
SHEET NO.



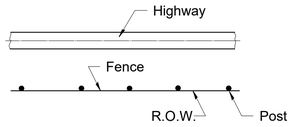
STANDARD GROUND

COUNTERPOISE GROUND
(ALTERNATE)

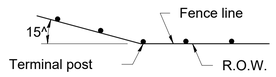
PROTECTIVE ELECTRICAL GROUNDS



INSTALLATION ON SLOPES



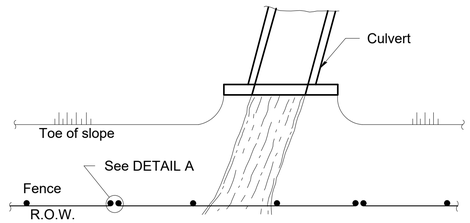
PLAN



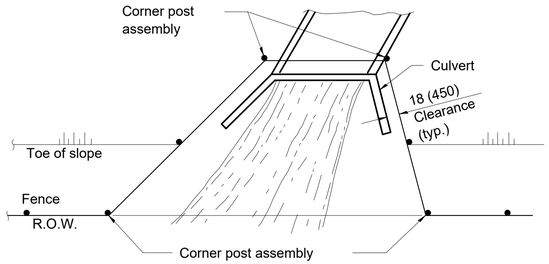
When fence line has a change in direction of 15° or more, a terminal post shall be placed as shown above.

Where angle is less than 15° and existing conditions require a terminal post, they shall be placed as directed by the Engineer.

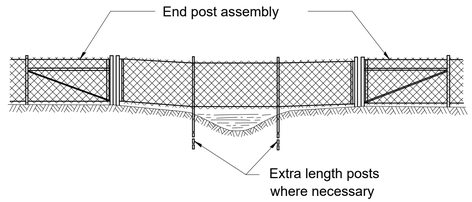
INSTALLATION AT CORNERS



PLAN
AT STREAM CROSSING

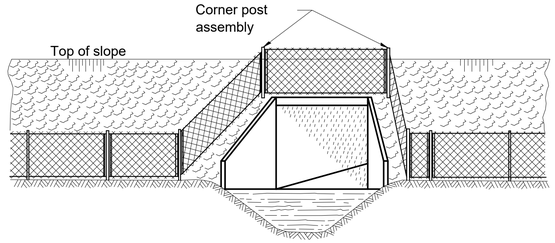


PLAN
AT HEADWALL



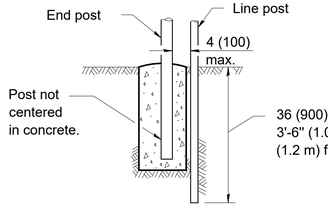
The chain link fabric shall be replaced by barbed wire strands at 12 (300) maximum centers between the double posts shown on DETAIL A when shown on the plans.

ELEVATION
INSTALLATION OVER STREAM

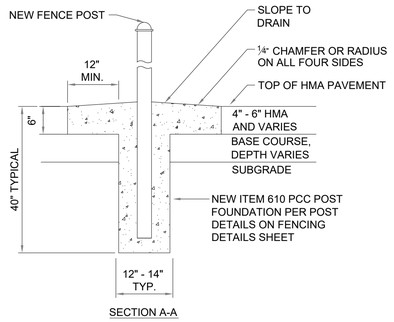


When the width of the culvert makes it necessary to anchor a post to the top of the culvert, a cast iron shoe or other device approved by the Engineer shall be used.

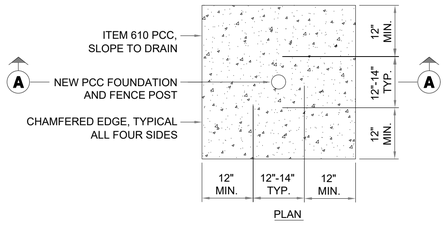
ELEVATION
INSTALLATION AROUND HEADWALL



DETAIL A



SECTION A-A



PLAN

NOTES:

1. NEW FENCE POSTS SHALL BE LOCATED AT THE LOCATION OF REMOVED POSTS.
2. EXISTING POST HOLES SHALL BE AUGURED CLEAN AFTER REMOVAL OF THE EXISTING FOUNDATION.
3. THE TOP OF THE NEW FOUNDATION SHALL BE SLOPED TO DRAIN, TROWELED AND BROOMED.
4. THE EDGES OF THE NEW FOUNDATION SHALL BE CHAMFERED WITH A MINIMUM
5. THE COSTS ASSOCIATED WITH INSTALLATION OF NEW FENCE POSTS IN EXISTING HMA PAVEMENT SHALL BE CONSIDERED INCIDENTAL TO THE NEW FENCE/GATE PAY ITEM.

NEW FENCE/GATE POST FOUNDATION
IN EXISTING HMA PAVEMENT

N.T.S.

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550 WEST JACKSON BLVD., SUITE 600, CHICAGO, ILLINOIS 60661

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

No.	Description	By	Chk.	App.	Date
Issues					

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

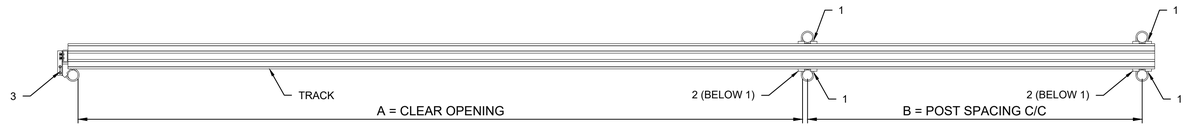
100% FINAL

KEY PLAN

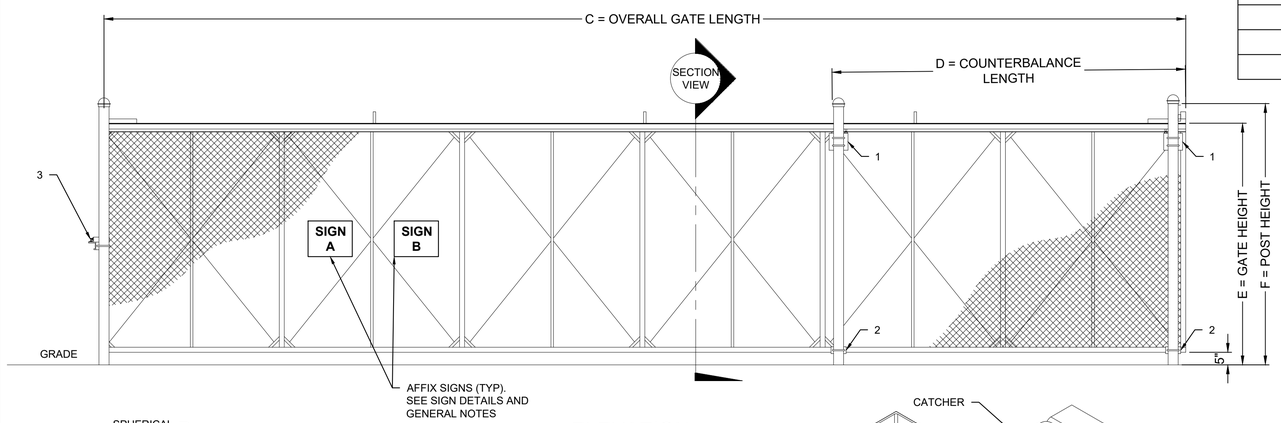
DRAWING TITLE
FENCE DETAILS - 3

APPROVED **RMH**
CHECKED **KWS**
DRAWN BY **JVJ**

SHEET NO.
14
OF 31



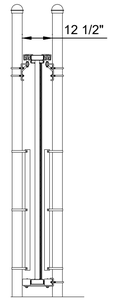
PLAN VIEW



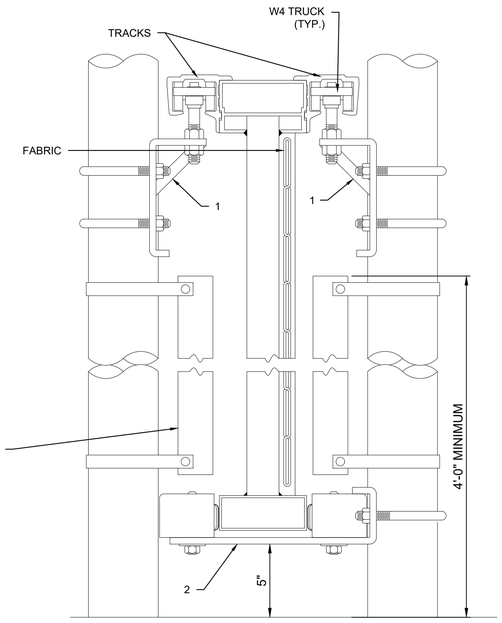
ELEVATION

CRITICAL DIMENSION CHART			
MARK	DESCRIPTION	FORMULA	DIM.
A	CLEAR OPENING	A	30'-0"
B	COUNTERBALANCE SPACING C/C	(A/2) - 11"	14'-1"
C	OVERALL GATE LENGTH	A x 1.5	45'-0"
D	COUNTERBALANCE LENGTH	A x 0.5	15'-0"
E	NOMINAL GATE HEIGHT	E	6'-0"
F	POST HEIGHT	E + 1'-6"	6'-0"
G	FABRIC HEIGHT	E - 1'-0"	5'-0" +

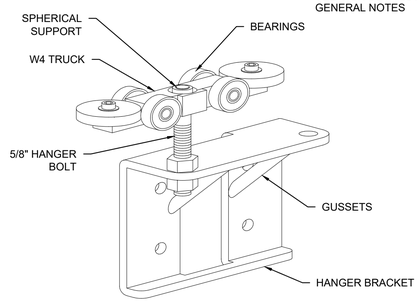
* OR PER MANUFACTURER DETAILS



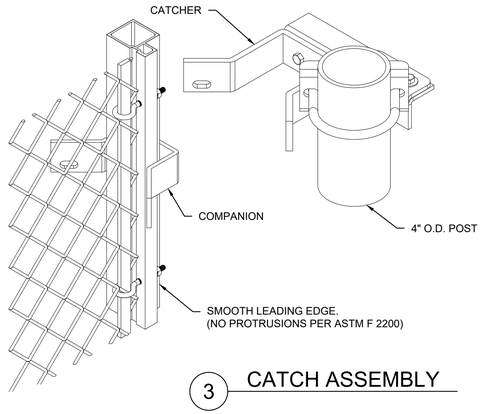
SECTION



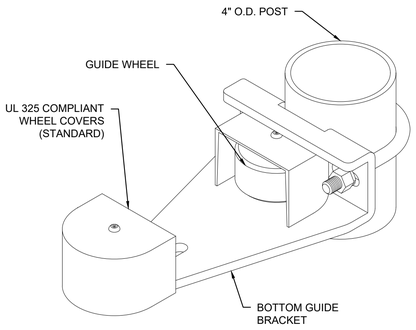
ENLARGED SECTION



1 GATE HANGER ASSEMBLY



3 CATCH ASSEMBLY



2 BOTTOM GUIDE

WARNING SIGN DETAIL - A
NOT TO SCALE

NOTES

1. SIGN SHALL BE 24" DIAMOND-SHAPED OF HEAVY-DUTY RUSTPROOF ALUMINUM CONFORMING WITH IDOT HIGHWAY STANDARDS.
2. SIGN COLOR SHALL BE DIAMOND-GRADE FLUORESCENT YELLOW WITH BLACK LETTERING.

WARNING SIGN DETAIL - B
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 A ACCORDANCE WITH THE RESPECTIVE GATE OPERATOR MANUFACTURER'S RECOMMENDATIONS.

GENERAL NOTES

1. ALL FITTINGS STANDARDLY PROVIDED FOR 4" O.D. POSTS. OTHER SIZES AVAILABLE UPON REQUEST.
2. SEE PLANS FOR SIDE GATE OPENING DIRECTION.
3. THE FABRIC TYPE AND FINISH OF THE GATE SHALL MATCH THE PROPOSED FENCE OR BE AS DIRECTED BY THE ENGINEER.
4. WARNING SIGNS MUST BE AFFIXED TO BOTH SIDES OF THE SLIDE GATEON THE MESH FABRIC WITH RUSTPROOF STAINLESS STEEL FASTENERS. SIGNS SHALL NOT BE MEASURED SEPARATELY, BUT SHALL BE INCLUDED IN THE UNIT PRICE OF THE SLIDING GATE.
5. GATE INSTALLATION SHALL ADHERE TO ALL REQUIREMENTS OF UL 235 - STANDARDS FOR SAFETY OF AUTOMATED VEHICULAR GATES.

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Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

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Issues					

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN

DRAWING TITLE
SLIDING GATE DETAILS

APPROVED **RMH**
CHECKED **KWS**
DRAWN BY **JVJ**

SHEET NO. **15**
OF 31

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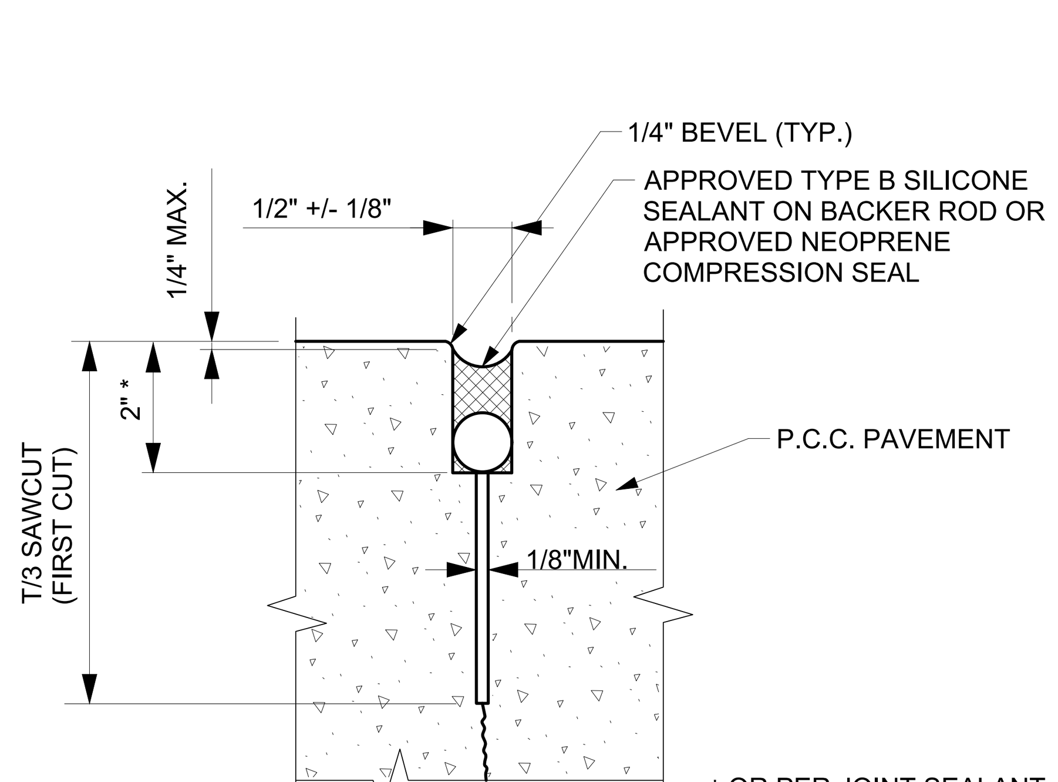
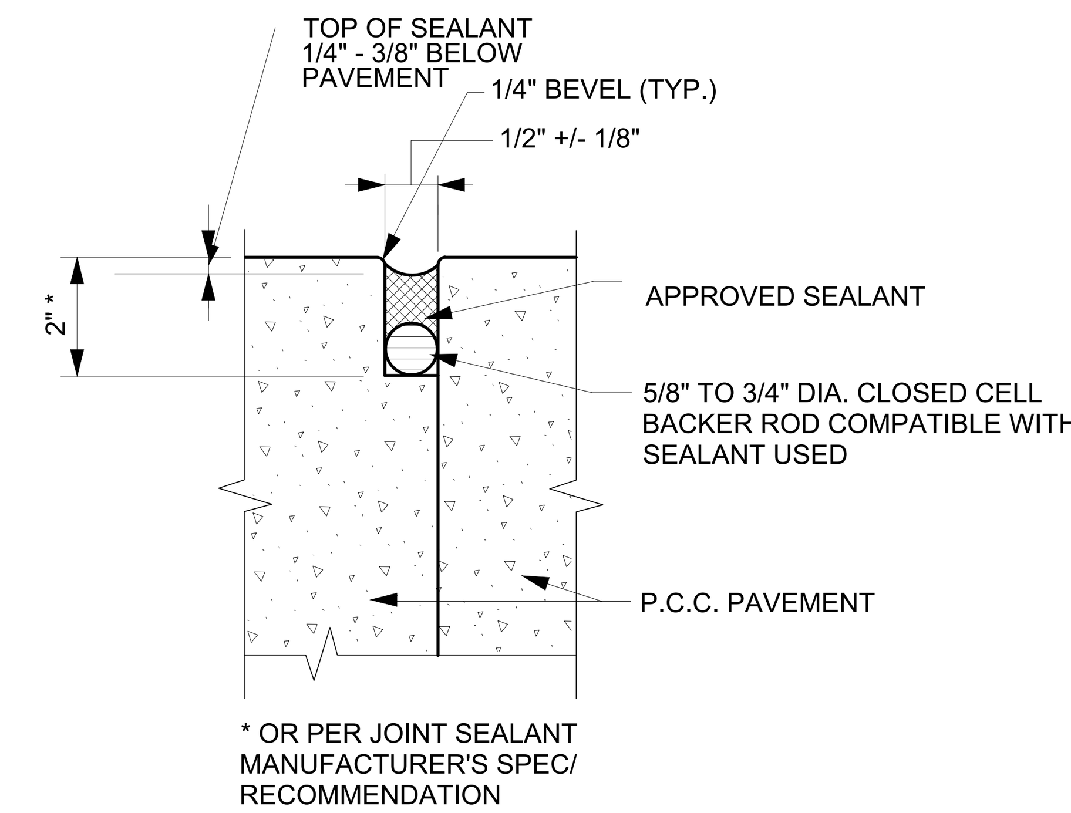
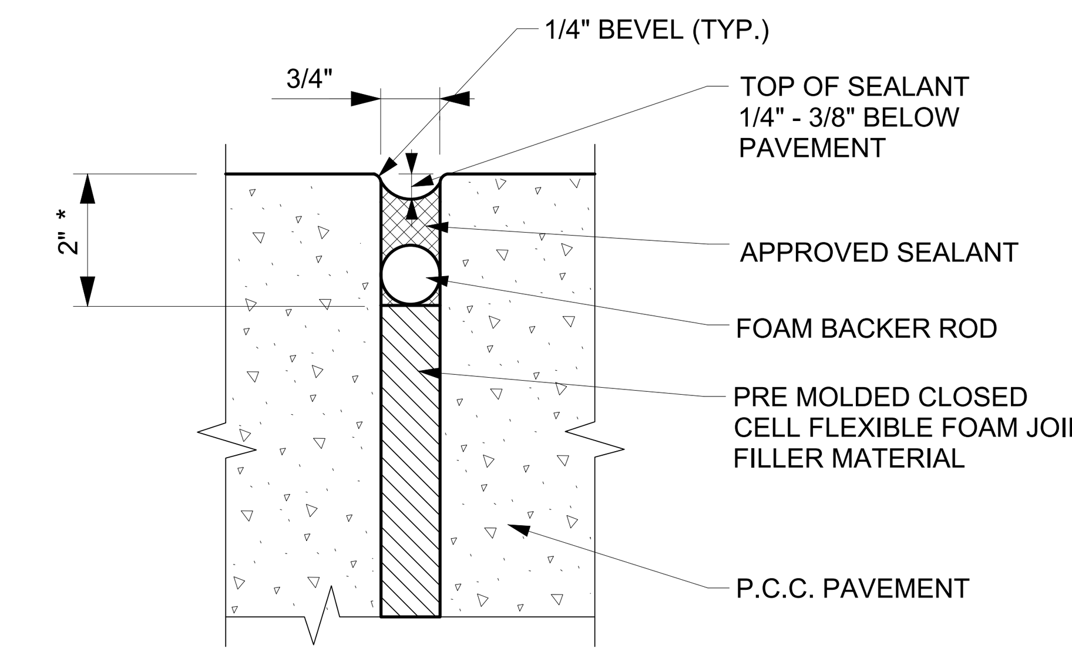


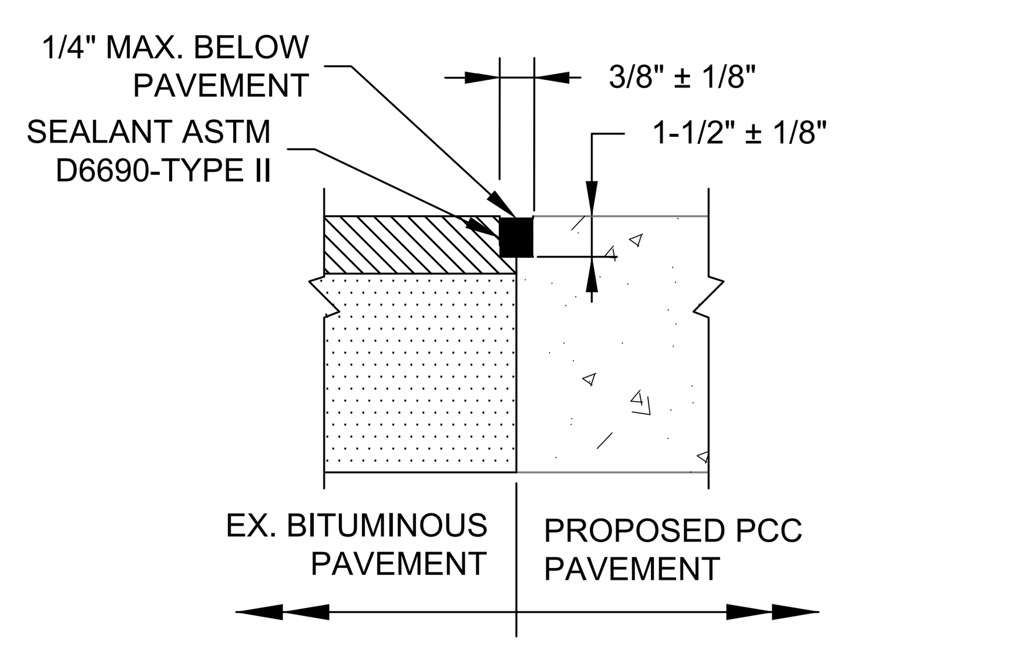
1 CONTRACTION JOINT SEALANT
NTS



2 CONSTRUCTION JOINT SEALANT
NTS



3 EXPANSION JOINT SEALANT
NTS

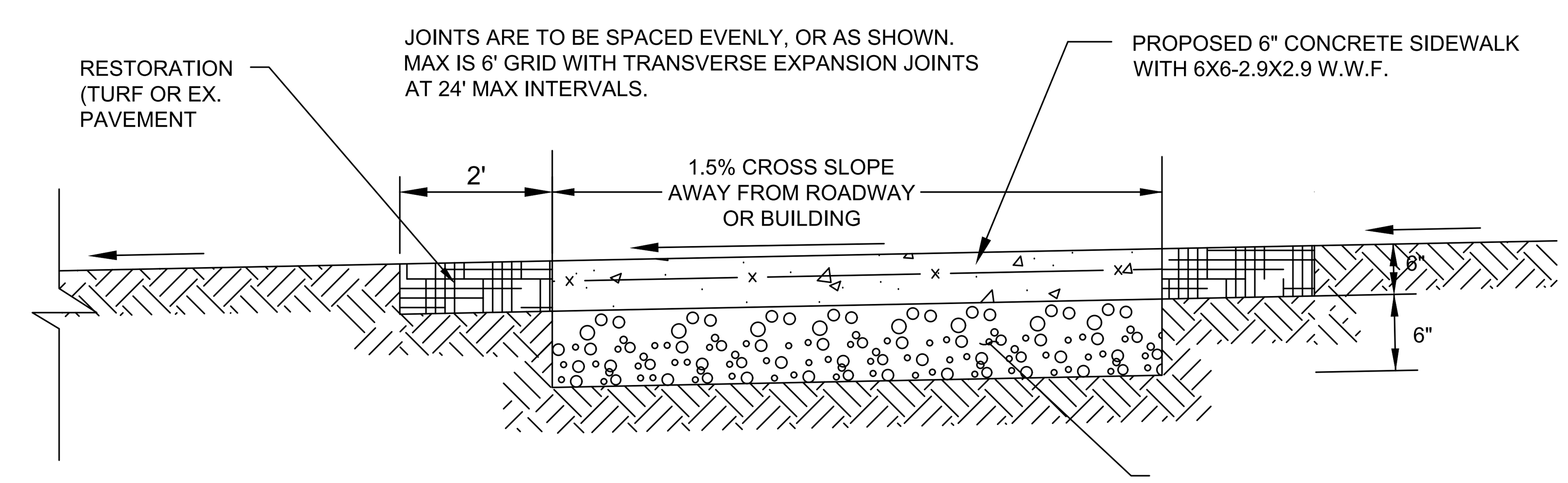


NOTE:
ALL BITUMINOUS/BITUMINOUS JOINT SEALING TO BE PAID UNDER SAW AND SEAL BITUMINOUS JOINTS, ITEM AR401660.

4 BITUMINOUS/CONRETE SEAL
NTS

NOTE:

JOINTS ARE TO BE SPACED EVENLY, OR AS SHOWN. MAX IS 6' GRID WITH TRANSVERSE EXPANSION JOINTS AT 24' MAX INTERVALS.



2 SIDEWALK DETAIL
NTS

1. EXPANSION JOINTS TO BE FURNISHED IN AL LOCATIONS WHERE SIDEWALK IS ADJACENT TO EXISTING PAVEMENT, SIDEWALK, OR BUILDING.
2. JOINTING SHALL BE AS DETAILED.
3. ALL JOINT AND JOINT SEALING IS INCIDENTAL TO SIDEWALK.
4. ALL SIDEWALK TO SLOPE AWAY FROM ROADWAY EDGE.

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Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

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Issues

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN

DRAWING TITLE
PAVEMENT DETAILS

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

SHEET NO. 16 OF 31

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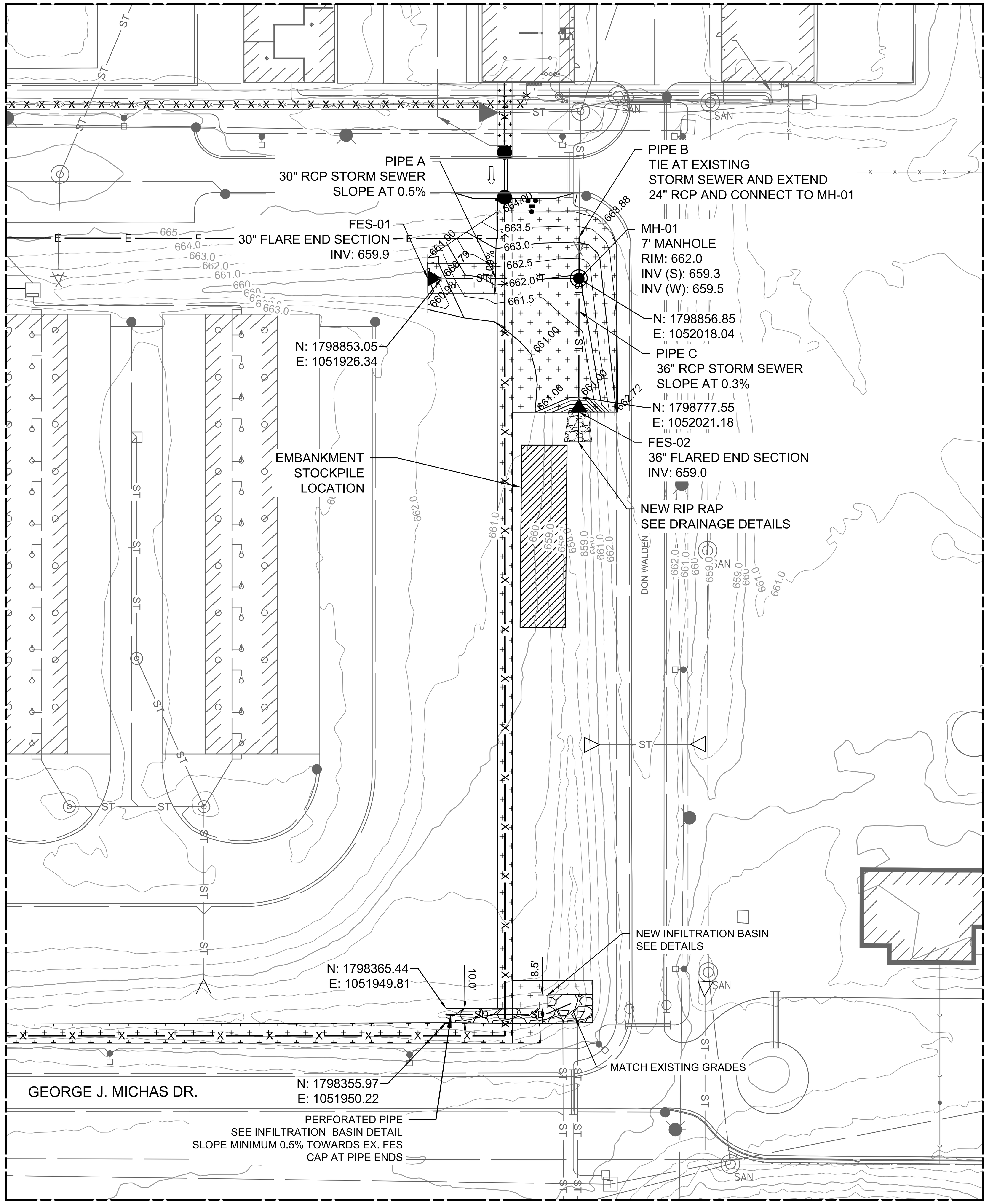


N

0 25 50

DRAINAGE PIPE SCHEDULE

PIPE	UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE SIZE / TYPE	PIPE LENGTH	PIPE SLOPE
A	FES-01	MH-01	659.90	659.50	30" RCP	85.00	0.5%
B*	EX. PIPE	MH-01	MATCH EX.	659.50	24" RCP	20.00	0.3%
C	MH-01	FES-02	659.30	659.00	36" RCP	80.00	0.3%

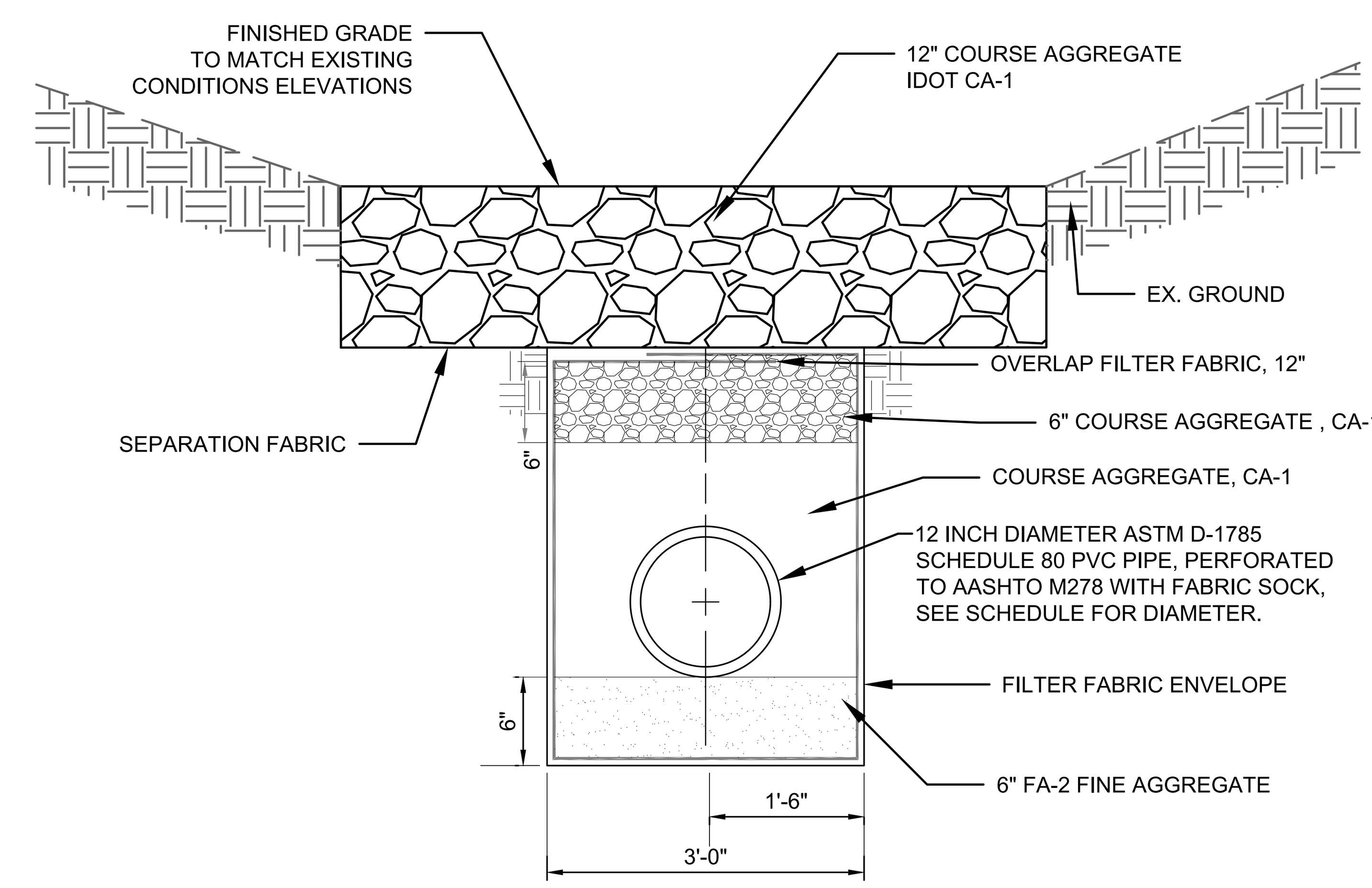
*CONTRACTOR SHALL VERIFY NEW PIPE EXTENSION MAINTAINS A MINIMUM SLOPE OF 0.3%

EARTHWORK SUMMARY TABLE

LOCATION	4" TOPSOIL STRIPPING (CUBIC YARDS)	4" TOPSOIL PLACEMENT (CUBIC YARDS)	UNCLASSIFIED CUT (CUBIC YARDS)	UNCLASSIFIED FILL WITH 15% SHRINKAGE (CUBIC YARDS)
FILL GRADING SITE	145.5	145.5	1.3	679.3
INFILTRATION TRENCH	15.4	0.0	161.2	0.0
PCC SIDEWALK	6.3	0.0	18.8	0.0
TOTAL NET	**167.2**	**145.5**	**181.3**	**679.3**

EARTHWORK NOTES

1. TOPSOIL STRIPPING, UNCLASSIFIED CUT, AND UNCLASSIFIED FILL EMBANKMENT SHALL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR UNCLASSIFIED EXCAVATION AR152411 - LUMP SUM.
2. AREAS OF UNSUITABLE MATERIAL (EXISTING RIPRAP, DEAD VEGETATION, ETC.) SHALL BE DESIGNATED WITH THE RESIDENT ENGINEER IN THE FIELD. UNSUITABLE MATERIAL SHALL NOT BE USED AS EMBANKMENT FILL MATERIAL AND SHALL BE HAULED OFF-SITE.
3. EMBANKMENT SOIL SHALL BE TAKEN FROM STOCKPILE PROVIDED.
4. STOCKPILE FOR EMBANKMENT IN ADJACENT AREA. STOCKPILE TO BE RESTORED AT PROJECT END, AND SHALL NOT BE PAID FOR SEPARATELY BUT INCIDENTAL TO AR152411 (SEE CONSTRUCTION SAFETY PLAN).
5. TOPSOIL PLACEMENT SHALL BE PAID UNDER PAY ITEM AR905530 - TOPSOILING.



INFILTRATION BASIN

NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER FOR THE LAYOUT OF THE INFILTRATION TRENCH PRIOR TO INSTALLATION.
2. THE INFILTRATION TRENCH LAYOUT AND ELEVATION GRADES SHALL MATCH THE BOTTOM OF THE EXISTING DITCH GRADES AND CONDITIONS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER OF THE FINAL LAYOUT OF THE INFILTRATION TRENCH PRIOR TO INSTALLATION.
3. UNSUITABLE MATERIAL ENCOUNTERED DURING PLACEMENT OF BEDDING SHALL BE REMOVED AND REPLACED.
4. SEPARATE PAYMENT FOR COURSE AND FINE AGGREGATES, FILTER FABRIC ENVELOPE, PVC PIPE, AND FABRIC SOCK WILL NOT BE MADE BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER SQUARE YARD FOR INFILTRATION BASIN.
5. SEE SPECIAL PROVISIONS.

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Lewis University Airport
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Issues

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Contract No: LE056
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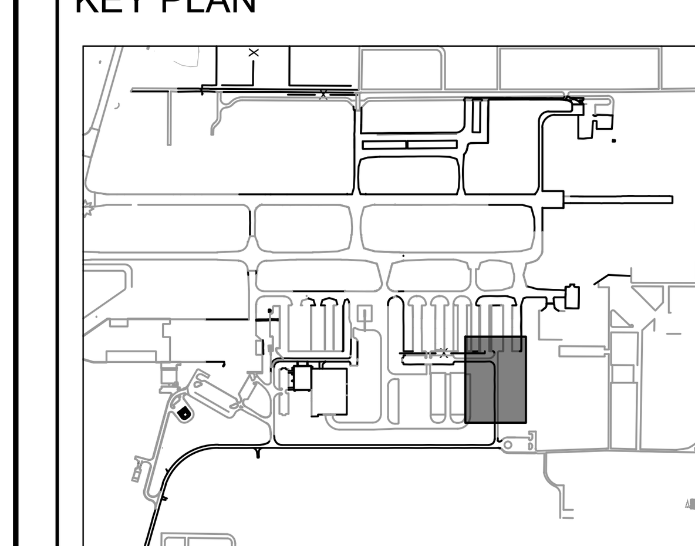
KEY PLAN



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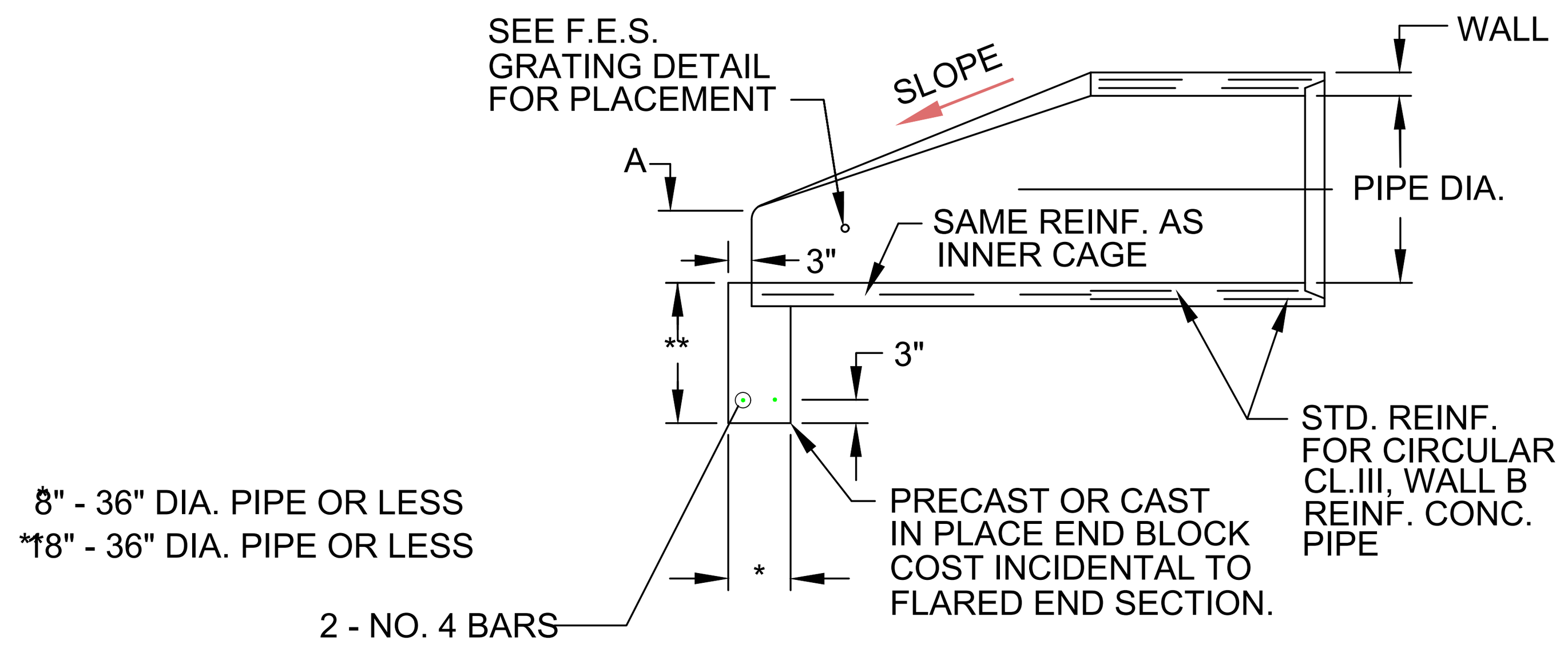
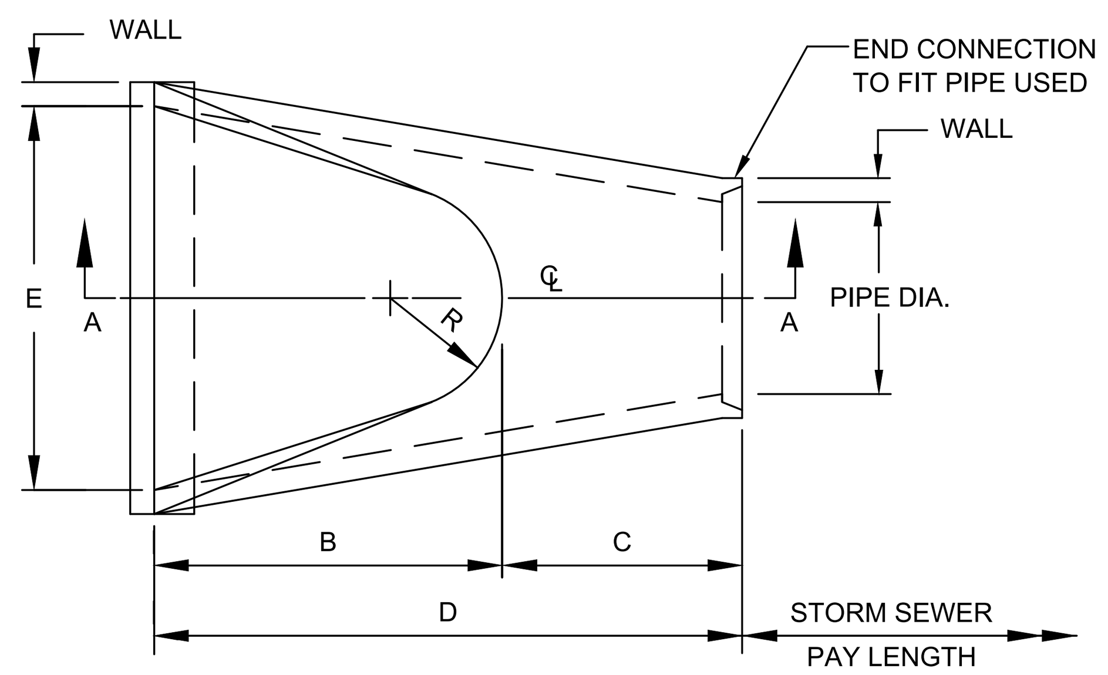
PROPOSED GRADING AND DRAINAGE PLAN

APPROVED RMH
CHECKED KWS
DRAWN BY KWS

SHEET NO. 17



SECTION A-A



TOP VIEW

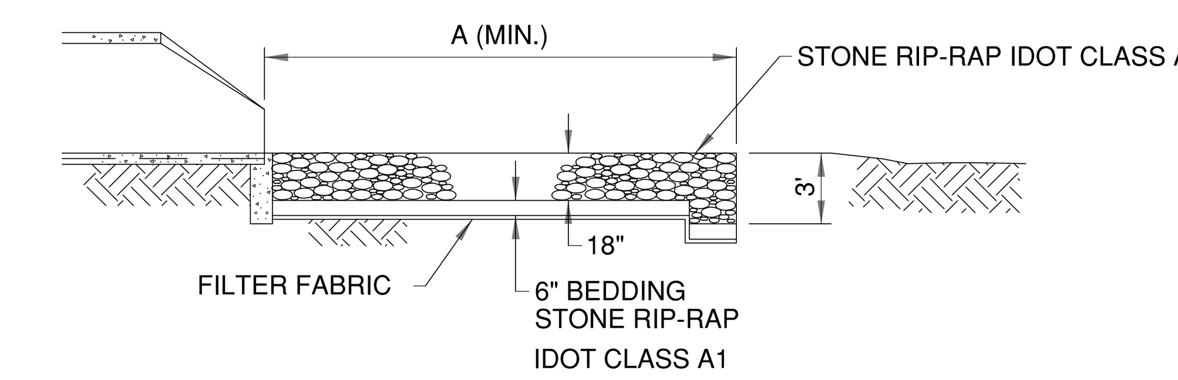
PRECAST CONCRETE FLARED END SECTION

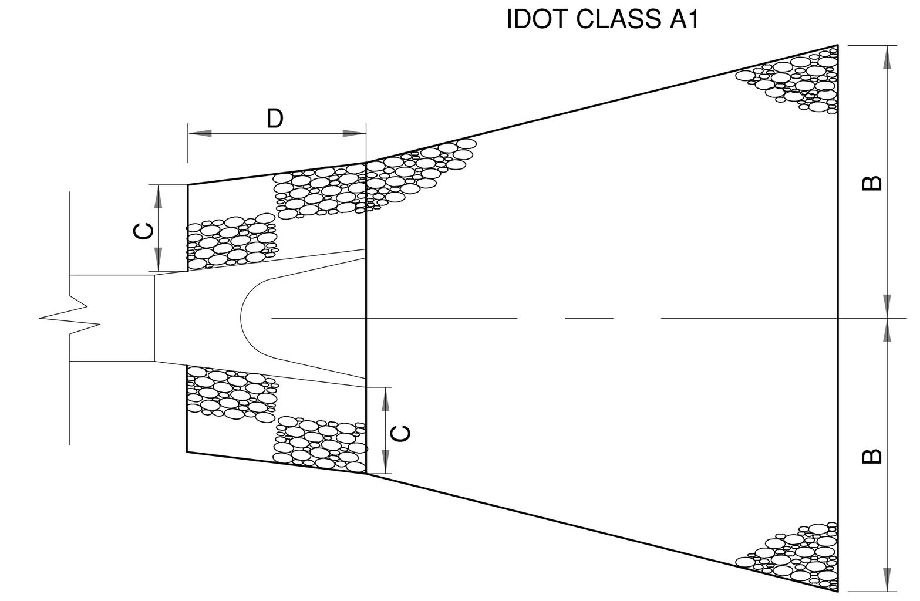
(IDOT STANDARD 542301-MODIFIED)

	PIPE DIA.	WALL	A	B	C	D	E	R	SLOPE
	12"	2"	4"	2'-0"	4'-0 7/8"	6'-0 7/8"	2'-0"	9"	3:1
	15"	2 1/4"	6"	2'-3"	3'-10"	6'-1"	2'-6"	11"	3:1
	18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	12"	3:1
	21"	2 3/4"	9"	2'-11"	3'-2"	6'-1"	3'-6"	13"	3:1
	24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	14"	3:1
	27"	3 1/4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	4'-6"	14 1/2"	3:1
*	30"	3 1/2"	1'-0"	4'-6 1/2"	1'-7 3/4"	6'-1 3/4"	5'-0"	15"	3:1
	33"	3 3/4"	1'-1 1/2"	4'-10 1/2"	3'-3 1/4"	8'-1 3/4"	5'-6"	17 1/2"	3:1
*	36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	20"	3:1
	42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	22"	3:1
	48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	22"	3:1
	54"	5 1/2"	2'-3"	5'-5"	2'-11"	8'-4"	7'-6"	24"	2.4:1

NOTES

1. GRATING SHALL BE PAID FOR UNDER ITEM AR752530 AND AR152536.
2. THE END BLOCK SHALL BE PLACED PRIOR TO THE INSTALLATION OF THE FLARED END SECTION. THE END BLOCK SHALL BE BACKFILLED IN ACCORDANCE WITH ARTICLE 502.10 OF IDOT SPECIFICATIONS, WITH COST INCIDENTAL TO FLARED END SECTION.
3. PRECAST CONCRETE FLARED END SECTIONS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-170 CLASS III, WALL B REINFORCED CONCRETE PIPE.
4. MODIFICATION IS DUE TO THE RELOCATION OF THE CONNECTION POINT BETWEEN THE GRATE AND THE FLARED END SECTION.
5. SEE SPECIAL PROVISIONS FOR COORDINATION WITH GRATING AND FLARED END SECTION.





PLAN VIEW

	INSIDE DIAMETER STORM SEWER (IN.)	MIN. DIMENSION (FT)				ROCK RIP RAP SIZE IDOT GRADATION
		A	B	C	D	
	12" thru 24"	15	4	1.5	4	RR-3
	27" thru 30"	18	5	2.0	6	RR-4
*	36" thru 48"	22	6	2.5	8	RR-4
	54" thru 60"	25	7	3.0	10	RR-5
	72" thru 96"	32	8	3.5	12	RR-6

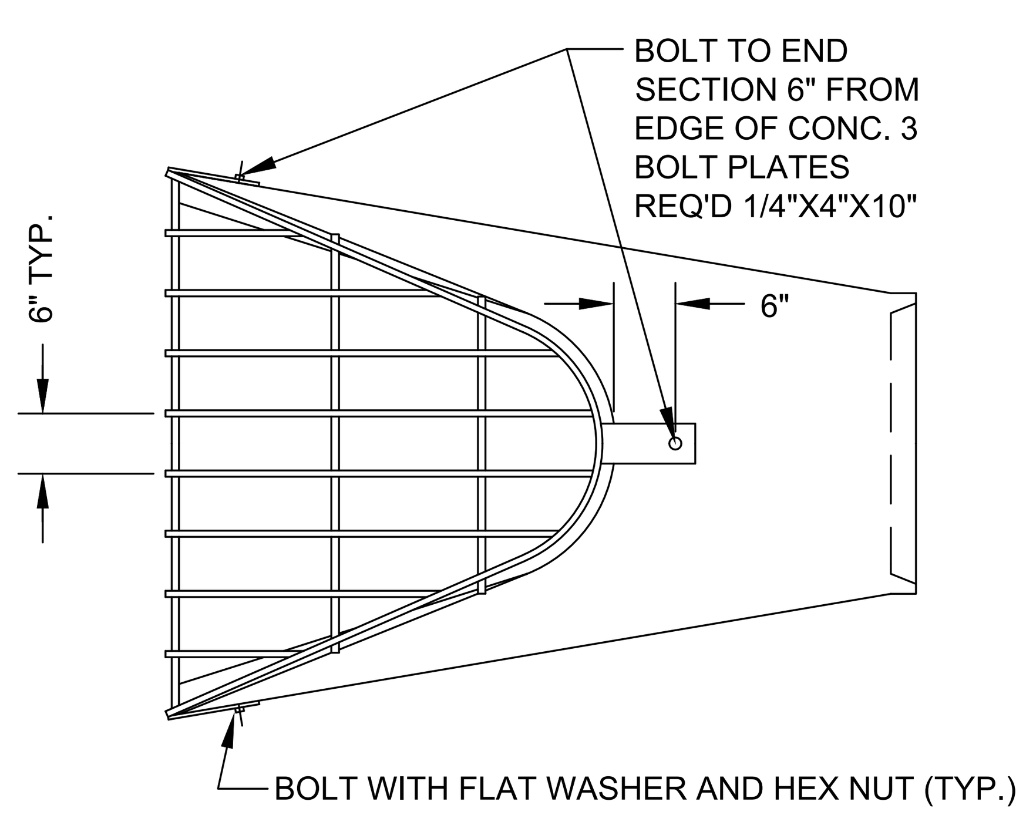
IF NO DIMENSIONS SHOWN ON PLANS, USE DIMENSIONS FROM TABLE.

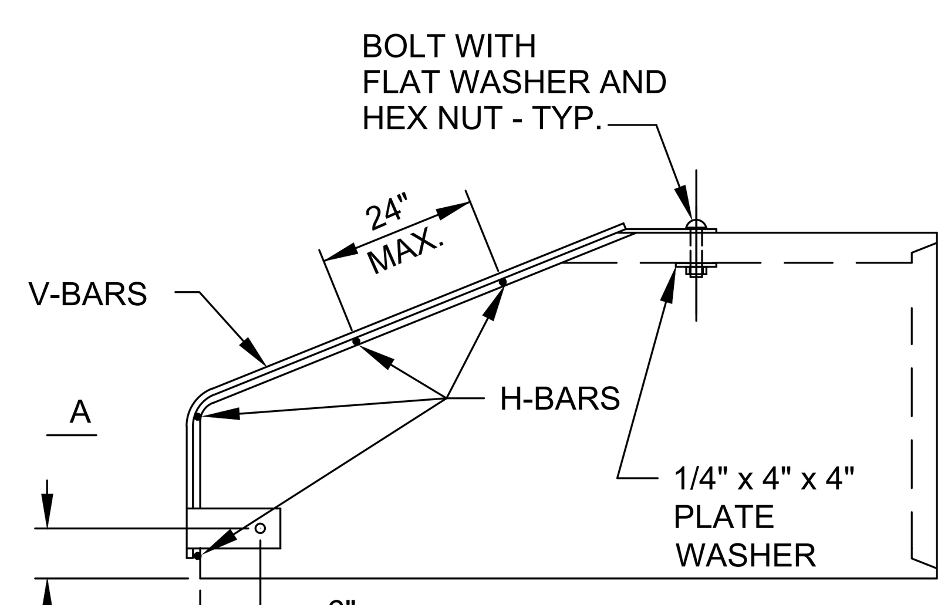
MAINTENANCE NOTES:

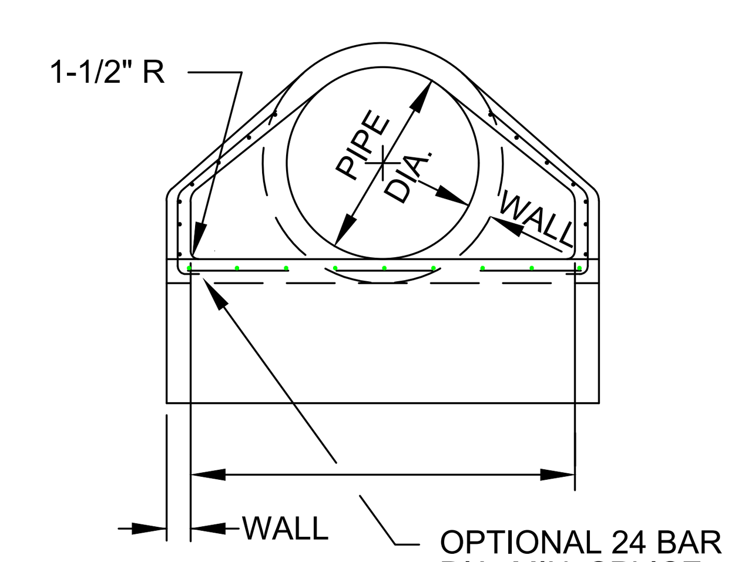
1. INSPECT RIP RAP AFTER STORM EVENTS FOR STONE DISPLACEMENT AND FOR EROSION AT THE SIDES AND ENDS OF THE APRON.
2. TAKE NEEDED REPAIRS IMMEDIATELY; USE APPROPRIATE SIZE STONE, AND DO NOT PLACE THEM ABOVE FINISHED GRADE.
3. THE ENGINEER SHALL DETERMINE THE FINAL RIP-RAP CONFIGURATION IN THE FIELD.

RIP RAP AT END SECTIONS

NOT TO SCALE







END VIEW

	DIA. INCHES	V-BAR SIZE	H-BAR SIZE	No. OF H-BARS REQ'D.	BOLT DIA.	"A" DIM.	
		INCHES			INCHES		
END SECTIONS	12	1/2Ø	5/8Ø	3	1/2	4	
	15	1/2Ø	5/8Ø	3	1/2	4 1/2	
	18	1/2Ø	5/8Ø	4	1/2	4 1/2	
	21	1/2Ø	5/8Ø	4	1/2	5	
	24	5/8Ø	3/4Ø	4	1/2	5	
	27	5/8Ø	3/4Ø	4	1/2	5 1/2	
	30	5/8Ø	3/4Ø	4	1/2	5 1/2	*
	36	3/4Ø	1Ø	4	3/4	8	*
	42	3/4Ø	1Ø	4	3/4	8	
	48	3/4Ø	1Ø	5	3/4	8	
	54	3/4Ø	1-1/2 PIPE	5	3/4	8	

NOTES

1. BARS AND PLATES ARE HOT ROLLED STEEL.
2. BARS, PLATES, PIPE AND BOLTS ARE GALVANIZED.
3. SEE SPECIAL PROVISIONS FOR COORDINATION WITH GRATING AND FLARED END SECTION.

GRATING FOR FLARED END SECTION

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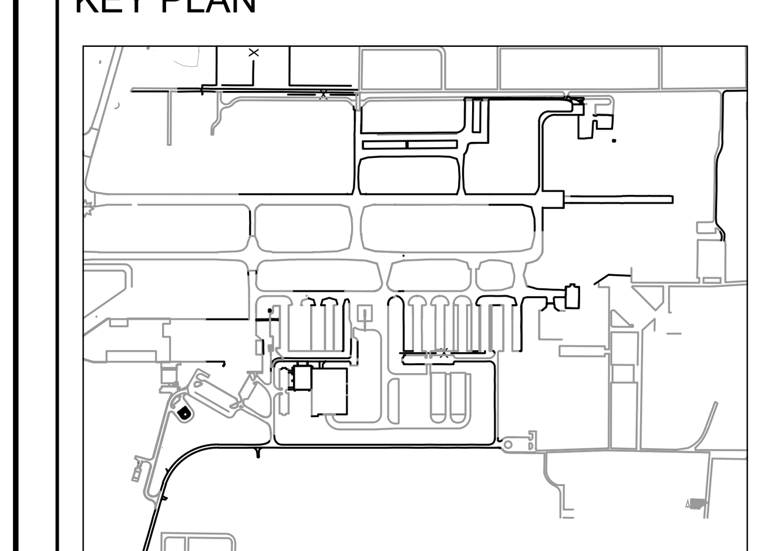

DRAWING TITLE

PROPOSED DRAINAGE DETAILS - 1

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CHECKED KWS
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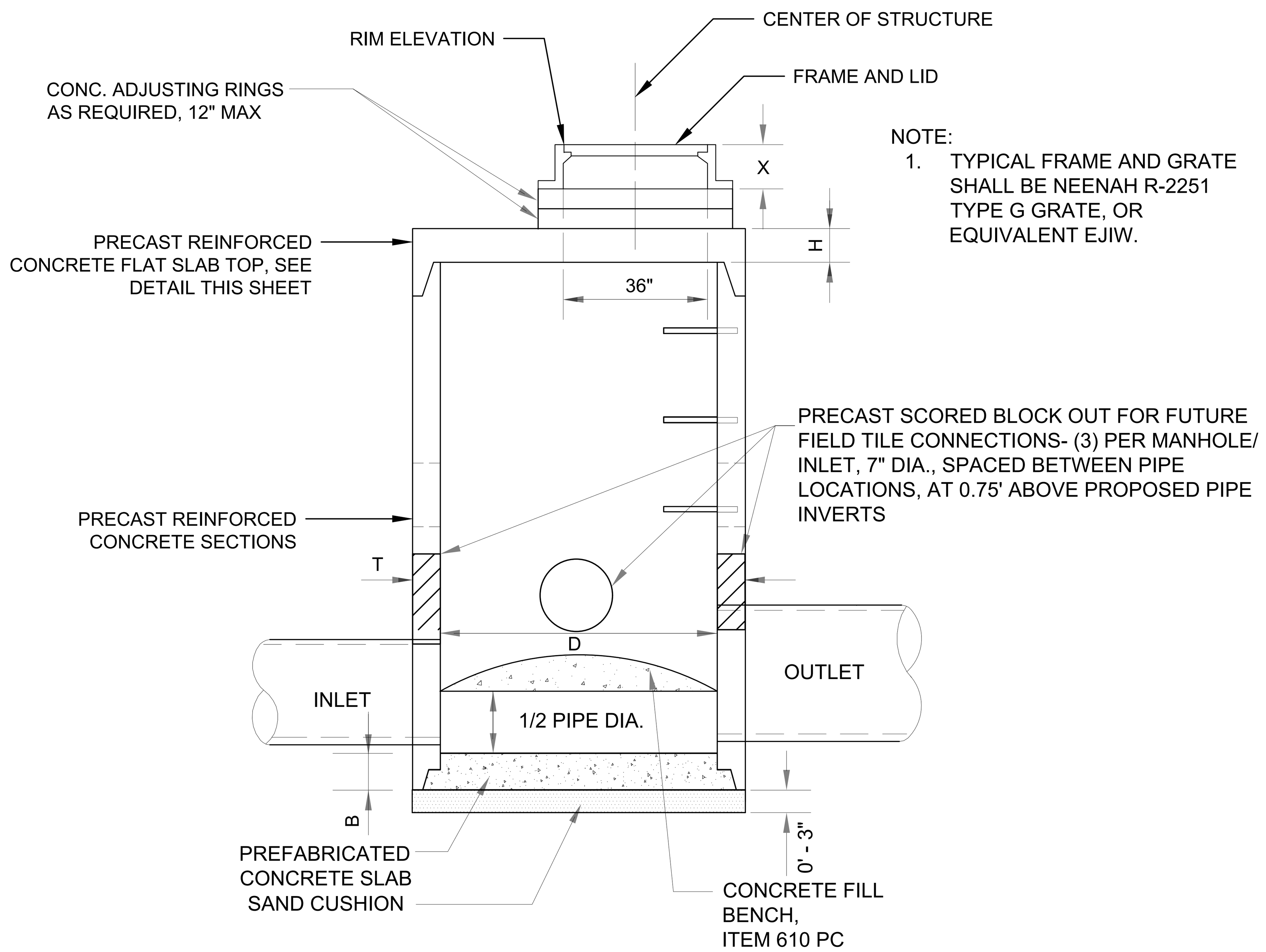


NOTE:

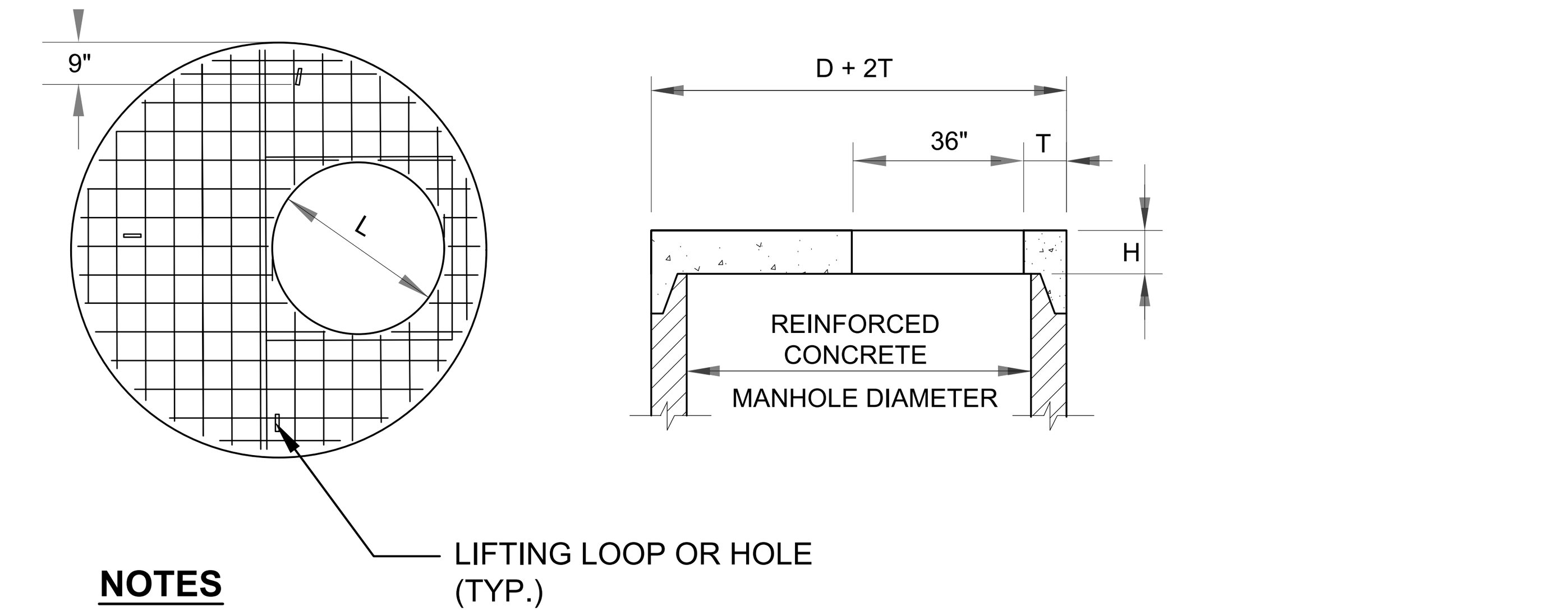
1. TYPICAL FRAME AND GRATE SHALL BE NEENAH R-2251 TYPE G GRATE, OR EQUIVALENT EJIW.

MANHOLE DATA - 7'
(IDOT STANDARD MODIFIED)

INSIDE DIA. "D" (IN)	WALL THICKNESS "T" (IN.)	TOP THICKNESS "H" (IN.)	BOTTOM THICKNESS "B" (IN.)
84"	8"	9"	9"

NOTES

1. FOR "L" DIMENSION AND FRAME AND LID INFORMATION, SEE DRAINAGE PIPE SCHEDULE.
2. CENTER OF FRAME TO BE USED FOR LOCATING STRUCTURE. FOR STRUCTURE LOCATIONS AND ADDITIONAL INFORMATION, SEE DRAINAGE PIPE SCHEDULE.
3. ALL STRUCTURES ARE TO BE PRECAST REINFORCED CONCRETE SECTIONS, BENCHES WAY TO BE CAST IN PLACE.



NOTES

1. ADDITIONAL TOP AND BOTTOM BARS PLACED ADJACENT TO ACCESS MANHOLE.
2. MINIMUM 1" COVER ON ALL STEEL BARS.
3. THREE LIFTING LOOPS OR HOLES.
4. MINIMUM STEEL REINFORCEMENT IN EACH DIRECTION TO BE WWF 1.06 SQ. IN./FT. IN ACCORDANCE WITH AASHTO M199 AND IDOT STANDARDS.
5. FOR "L" DIMENSION SEE STORM SEWER SCHEDULES.

PRECAST REINFORCED CONCRETE FLAT SLAB TOP

Primera
550 WEST JACKSON BLVD, SUITE 600, CHICAGO, ILLINOIS 60661

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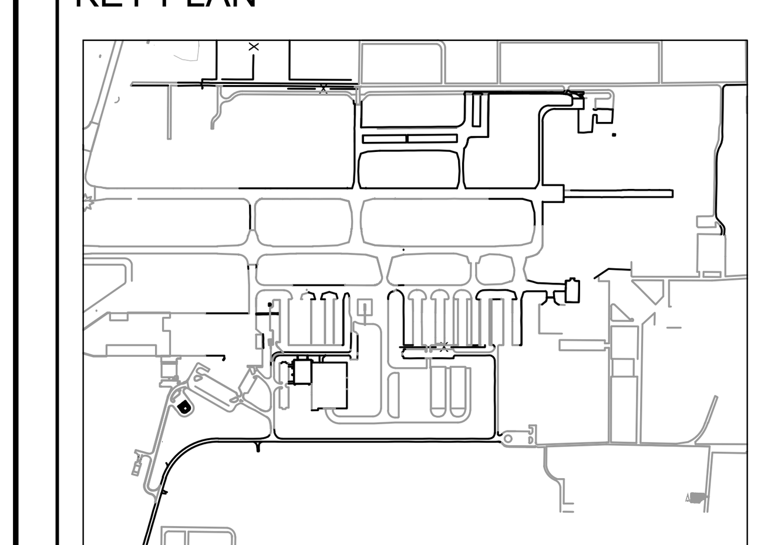

DRAWING TITLE

PROPOSED DRAINAGE DETAILS - 2

APPROVED RMH
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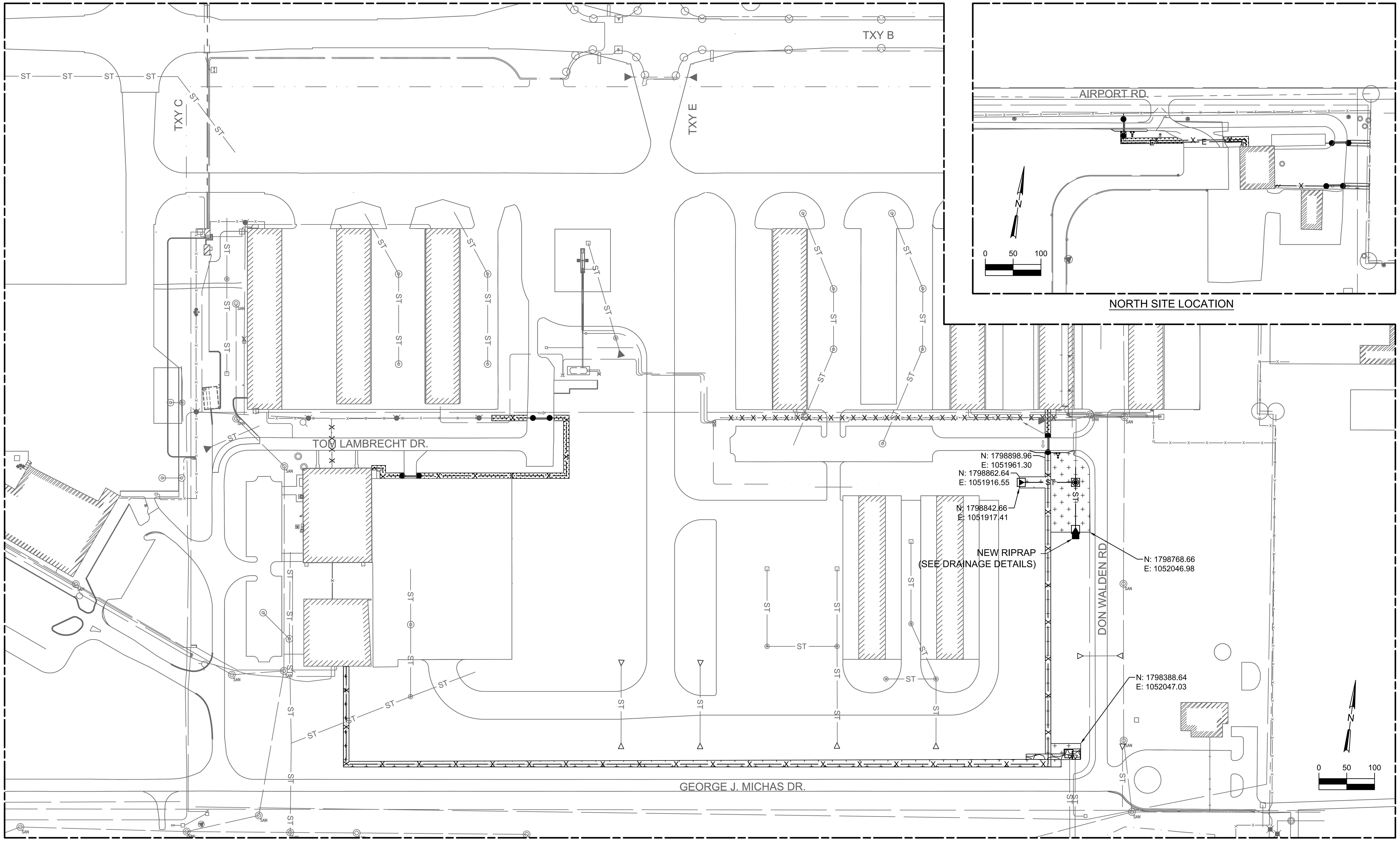
SHEET NO. 19 OF 31



SOUTH SITE LOCATION

LEGEND

- ☐ NEW INLET PROTECTION
- + + + NEW SEEDING AND MULCHING

NOTES

1. SOIL EROSION AND SEDIMENT CONTROL MAINTENANCE MUST OCCUR EVERY TWO WEEKS AND AFTER EVERY ½ 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.
4. LANDSCAPING AND SEEDING WILL BE 5' OUTSIDE OF OF THE FENCE LINE IN BOTH DIRECTIONS UNLESS PLANS STATE OTHERWISE, OR AS DIRECTED BY RESIDENT ENGINEER.
5. RIPRAP IS A PERMANENT EROSION CONTROL METHOD TO REMAIN.
6. TEMPORARY DITCH CHECKS NOT SHOWN ON PLANS AND SHALL BE DETERMINED AND PLACED AS DIRECTED BY THE RESIDENT ENGINEER IF REQUIRED.
7. STOCKPILES USED FOR STORING SUITABLE MATERIAL SHALL BE SEEDED AND MULCHED.

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

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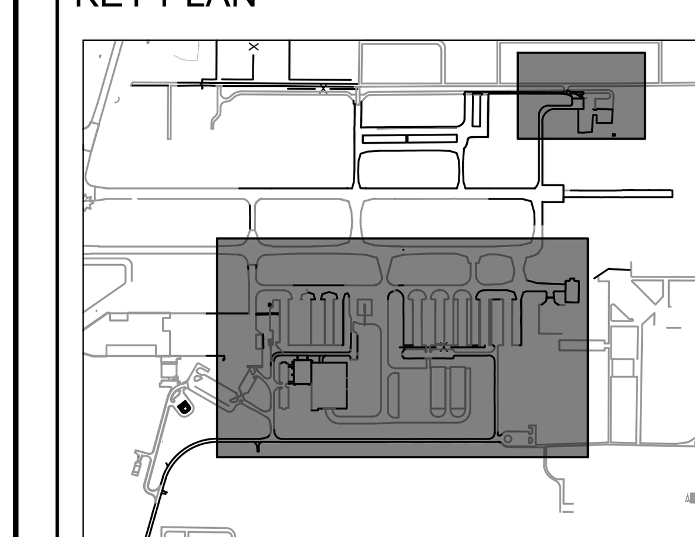

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SOIL EROSION, SEDIMENT CONTROL AND LANDSCAPING PLAN

APPROVED RMH	SHEET NO.
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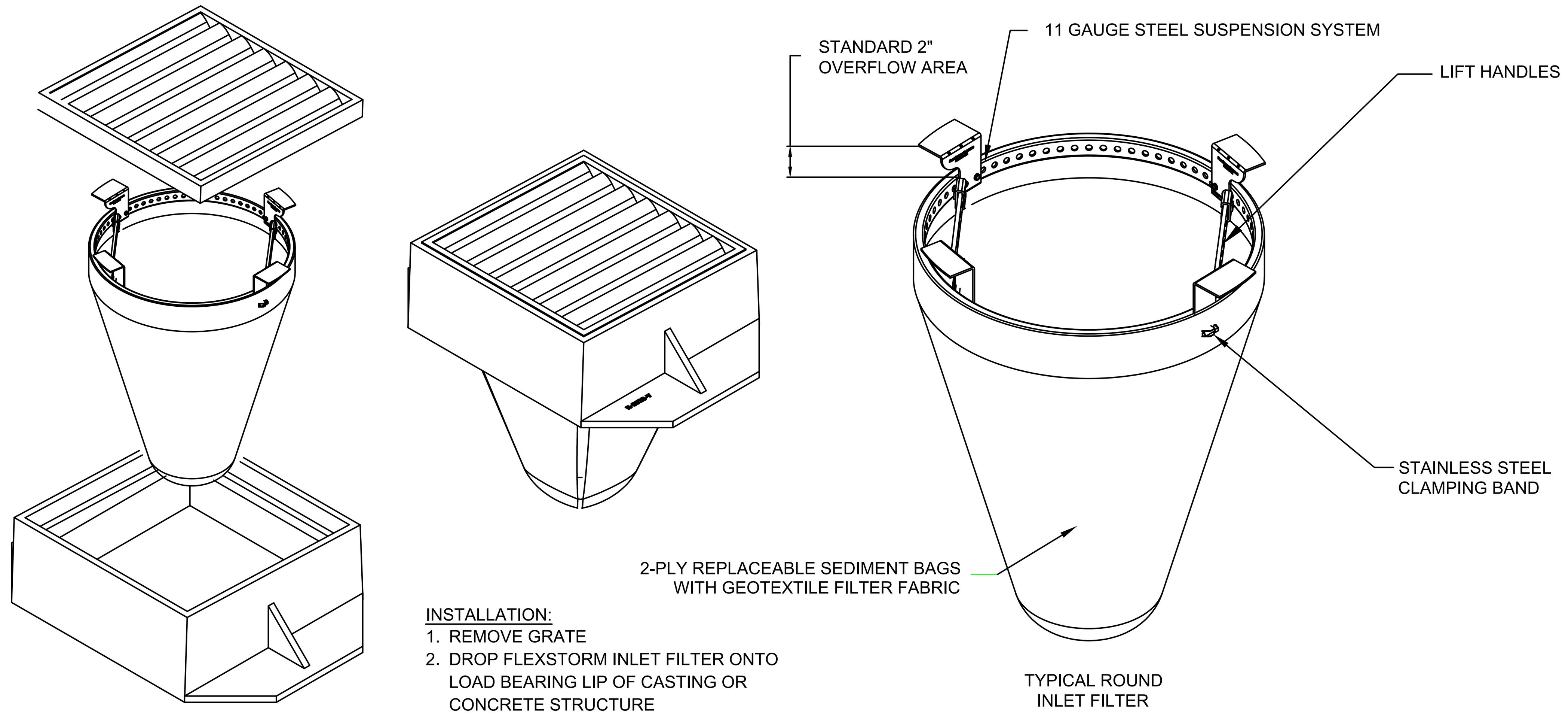
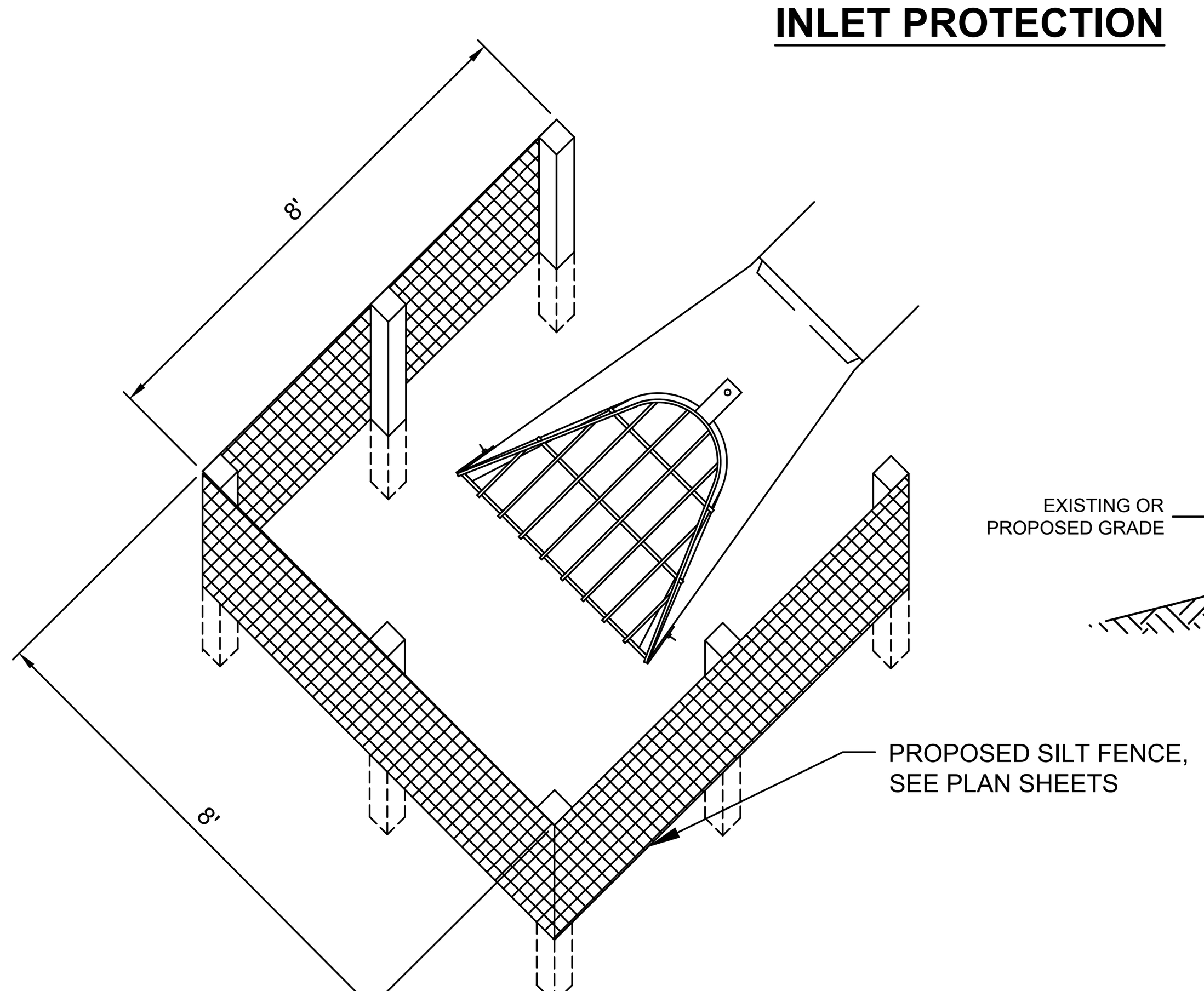


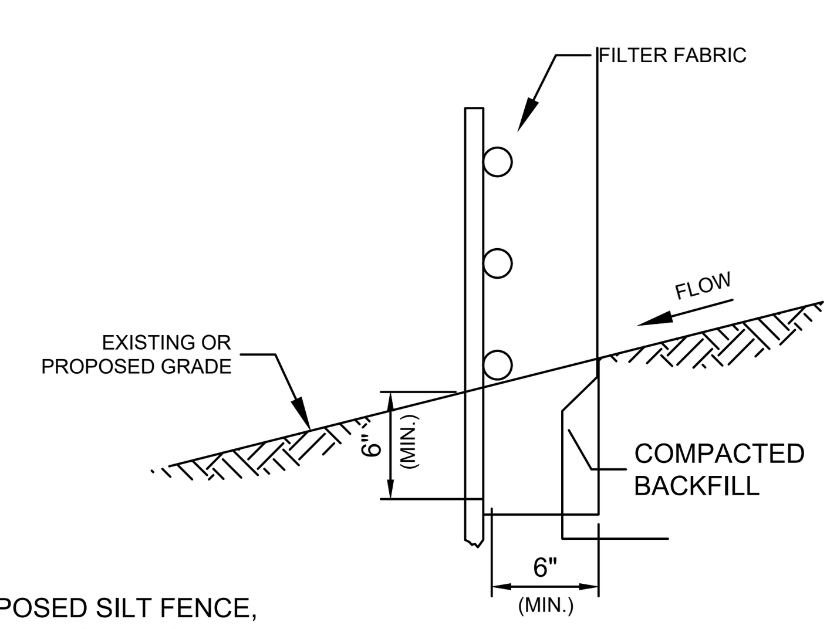
INSTALLATION:
1. REMOVE GRATE
2. DROP FLEXSTORM INLET FILTER ONTO LOAD BEARING LIP OF CASTING OR CONCRETE STRUCTURE
3. REPLACE GRATE

NOTES:

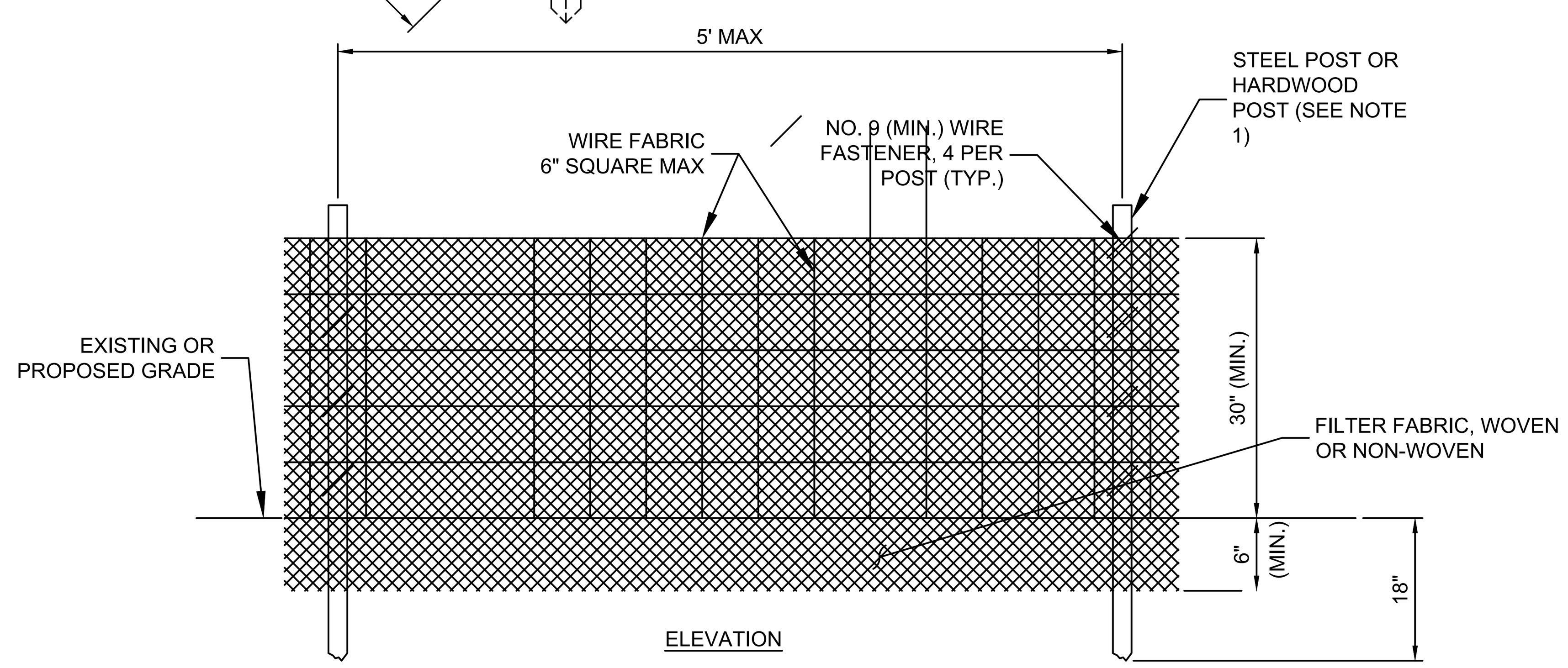
1. FILTER FABRIC INLET PROTECETION SHALL CONSIST OF INLET BASKET AND FABRIC INSERT, IPP FLEXSTORM CATCH-IT BY ADVANCED DRAINAGE SYSTEMS, FLOGARD TEMPORARY INLET FILTER BY OLDCASTLE, OR APPROVED EQUAL.
2. DEVICE SHALL BE EQUIPPED WITH AN OVERFLOW FEATURE SO DRAINAGE TO INLET IS NOT COMPLETELY BLOCKED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

INLET PROTECTION





FABRIC ANCHOR DETAIL



ELEVATION

SILT FENCE PLACEMENT

NOTES:

1. FENCE POST SHALL BE EITHER STEEL "T" LINE POST OR HARDWOOD POST WITH A MINIMUM SECTIONAL AREA OF 2.0 SQUARE INCHES. A CARPENTER'S (NOMINAL) 2"x2" POST WILL MEET SPECIFICATIONS.
2. TOP AND BOTTOM WIRE OF WIRE FABRIC SHALL BE MINIMUM GAGE NO. 9. INTERMEDIATE WIRES OF THE WIRE FABRIC SHALL BE MINIMUM GAGE NO. 11.
3. WIRE FABRIC SHALL BE SECURELY FASTENED TO FENCE POSTS WITH NO. 9 GAGE WIRE MINIMUM. FOUR (4) FASTENERS PER POST REQUIRED.
4. FILTER FABRIC SHALL BE SECURELY FASTENED TO WIRE FABRIC AND POSTS WITH TIES OR STAPLES SPACED AT 12" APART AT THE TOP, MIDDLE AND BOTTOM.
5. WHEN TWO SECTIONS OF FILTER FABRIC MEET, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED AND ATTACHED TO THE WIRE FABRIC AT A POST.
6. FILTER FABRIC SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS WITH APPARENT OPENING SIZE (AOS) OF AT LEAST 40 FOR NONWOVEN AND WOVEN.
7. 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.
8. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. PERIODIC INSPECTION SHALL BE PERFORMED AND REQUIRED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.
9. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN BULGES DEVELOP IN THE SILT FENCE.
10. FENCE POSTS SHALL BE REMOVED WHEN DIRECTED AT PROJECT END.
11. 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:

A. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES.

B. SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.

C. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN 14 CALENDAR DAYS OF THE END OF ACTIVE HYDROLOGIC DISTURBANCE, OR REDISTURBANCE.

D. AREAS OR EMBANKMENTS HAVING SLOPES GREATER THAN OR EQUAL TO 8H:1V SHALL BE STABILIZED WITH SOD, MAT OR BLANKET IN COMBINATION WITH SEEDING.

E. EROSION CONTROL BLANKET SHALL BE REQUIRED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN NORMAL WATER LEVEL AND HIGH WATER LEVEL.

F. ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED, BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.

G. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.

H. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.

I. A STABILIZED MAT OF AGGREGATE UNDERLAIN WITH FILTER CLOTH (OR OTHER APPROPRIATE MEASURE) SHALL BE LOCATED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA. ANY SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

J. SOIL STOCKPILES SHALL NOT BE LOCATED IN A FLOOD PRONE AREA OR A DESIGNATED BUFFER. NO STOCKPILES SHALL BE LOCATED WITHIN AN ACTIVE RUNWAY SAFETY AREA, RUNWAY OBJECT FREE AREA, RUNWAY OBSTACLE FREE ZONE, OR ACTIVE TAXIWAY OBJECT FREE AREA.

K. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION. DISCHARGES SHALL BE ROUTED THROUGH AN EFFECTIVE SEDIMENT CONTROL MEASURE (e.g. SEDIMENT TRAP, SEDIMENT BASIN, OR OTHER APPROPRIATE MEASURE.

L. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.

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 WHEREVER 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.

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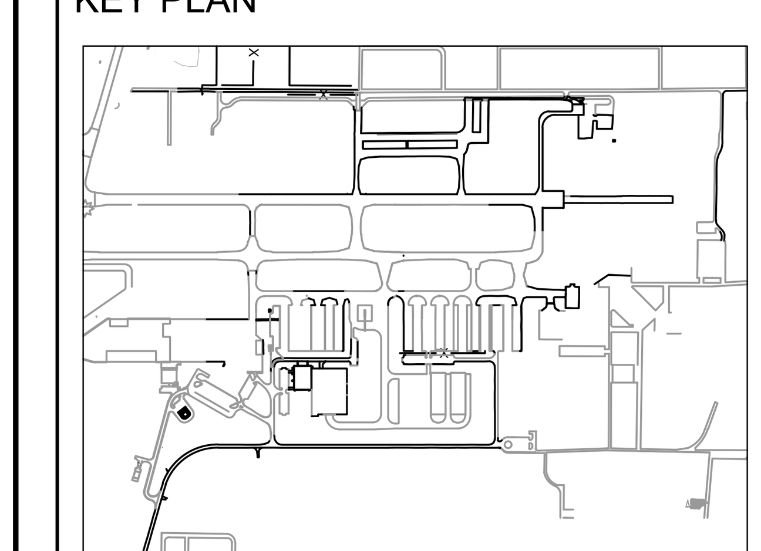
100% FINAL

KEY PLAN



DRAWING TITLE

SOIL EROSION, SEDIMENT CONTROL AND LANDSCAPING NOTES AND DETAILS

APPROVED RMH
CHECKED KWS
DRAWN BY KWS

SHEET NO. 21 OF 31

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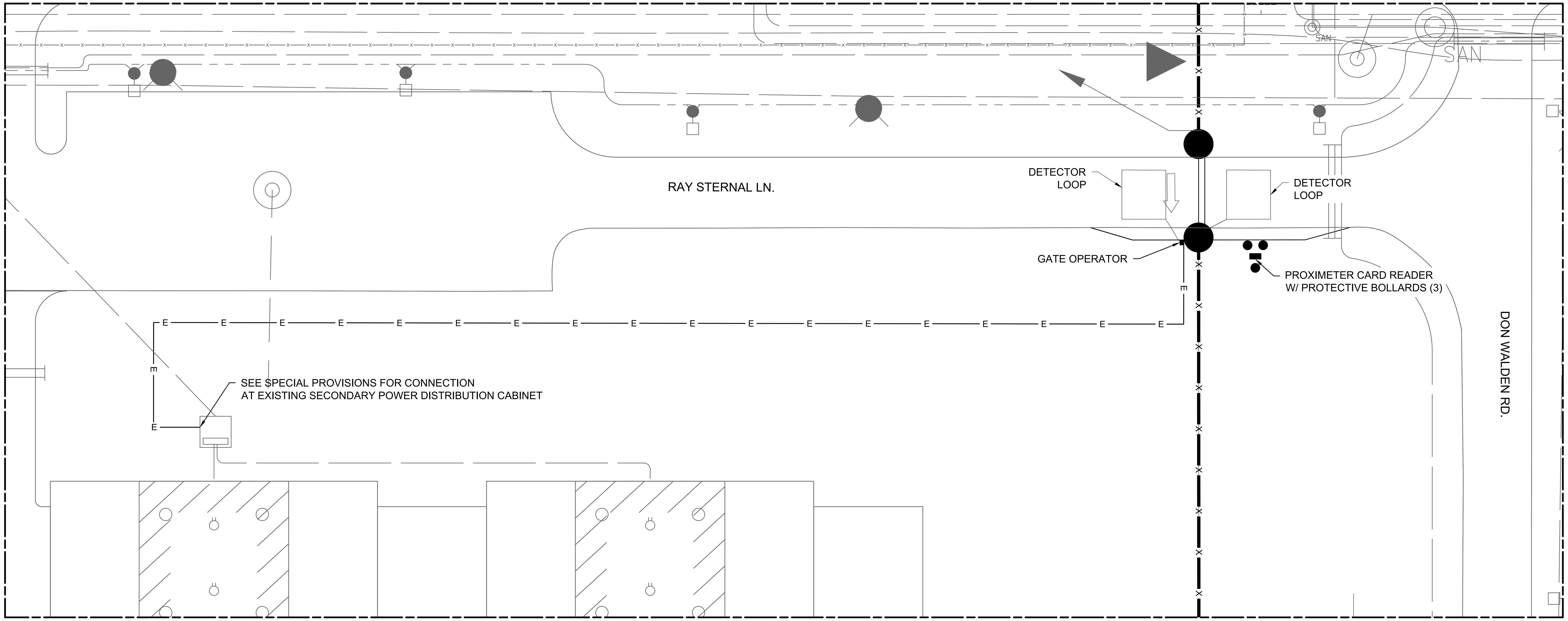
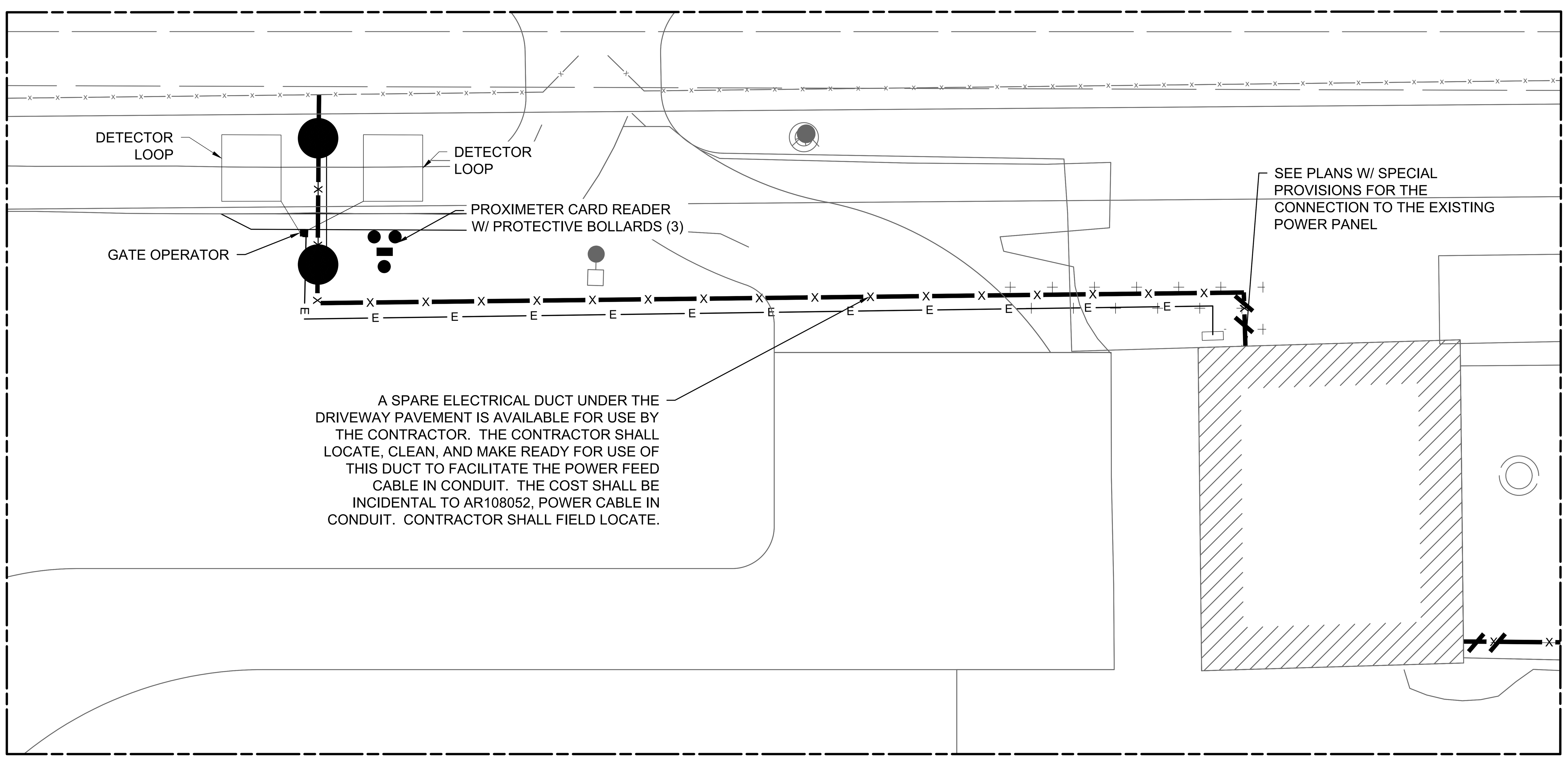


SOUTH SITE LOCATION



NORTH SITE LOCATION

NOTES

1. SEE ELECTRICAL DETAILS SHEETS FOR GATE OPERATOR AND PEDESTAL DETAILS.

Primera

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

No.	Description	By	Chk.	App.	Date

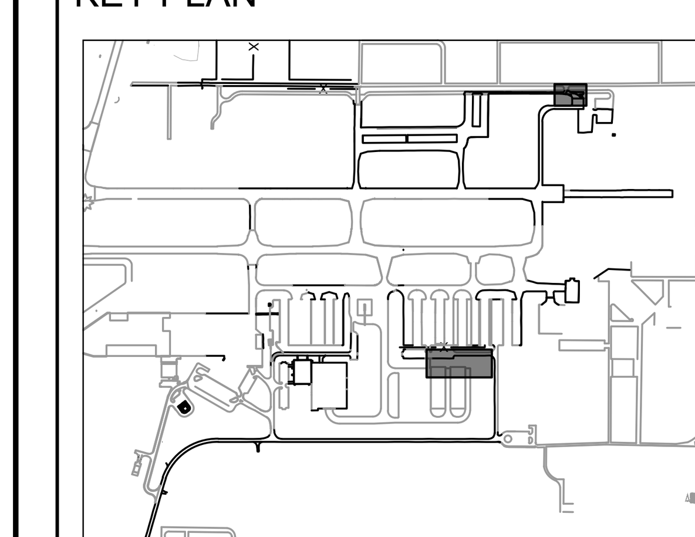
Issues

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN



DRAWING TITLE

ELECTRICAL SITE PLAN

APPROVED RMH
CHECKED KWS
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SHEET NO. **22** OF 31

ELECTRICAL ABBREVIATONS	
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 ROOF
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	LIGHTNING CONTACTOR
LTFMC	LIQUID FLEXIBLE METAL CONDUIT (UL LISTED)
LTG	LIGHTING
LP	LIGHTING PANEL
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR 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 POSTITION SWITCH
	FUSE
	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE
	GROUND - GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL
	INDICATING LIGHT
M	MOTOR
#	LOAD. MOTOR. # - HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE OR TERMINALS
XXX	EQUIPMENT, XXX = DEVICE DESCRIPTION
GND	GROUND BAR, GROUND BUS OR GROUND TERMINAL
S/N	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
N EM L	TRANSFER SWITCH N = NORMAL EM = EMERGENCY L = LOAD
G	ENGINE GENERATOR SET

ELECTRICAL LEGEND - PLANS	
	CONDUIT (EXPOSED)
	CONDUIT OR UNIT DUCT (CONCEALED OR BURIED)
	DUCT
	DUCT
E	BURIED/UNDERGROUND ELECTRIC
OHE	OVERHEAD ELCTRIC
	TOGGLE SWITCH
	PUSH BUTTON STATION
	WALL OR CEILING MT'D. JUNCTION BOX. CONFIGURATION VARIES WITH USE
	SINGLE THROW DISCONNECT SWITCH
	SINGLE THROW, FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
M	MOTOR
T	TRANSFORMER
	ELECTRIC UTILITY METER
	ENCLOSURE
	CIRCUIT BREAKER PANEL - SEE SCHEDULES
CP	CONTROL PANEL
	GROUND ROD
	POLE WITH CAMERA

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. 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).
3. 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

4. SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
5. 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 SHALL BE #6 AWG COPPER (MINIMUM). DO NOT INSTALL LTFMC THAT IS NOT UL LISTED. CONFIRM LTFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
6. 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.
7. HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR HANDHOLE.
8. 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.

Primera

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JOLIET REGIONAL PORT DISTRICT

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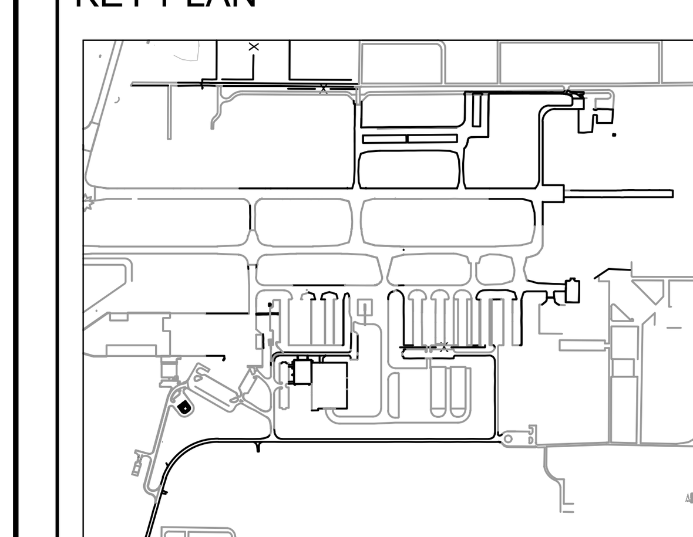
KEY PLAN



DRAWING TITLE
ELECTRICAL LEGEND AND ABBREVIATIONS

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

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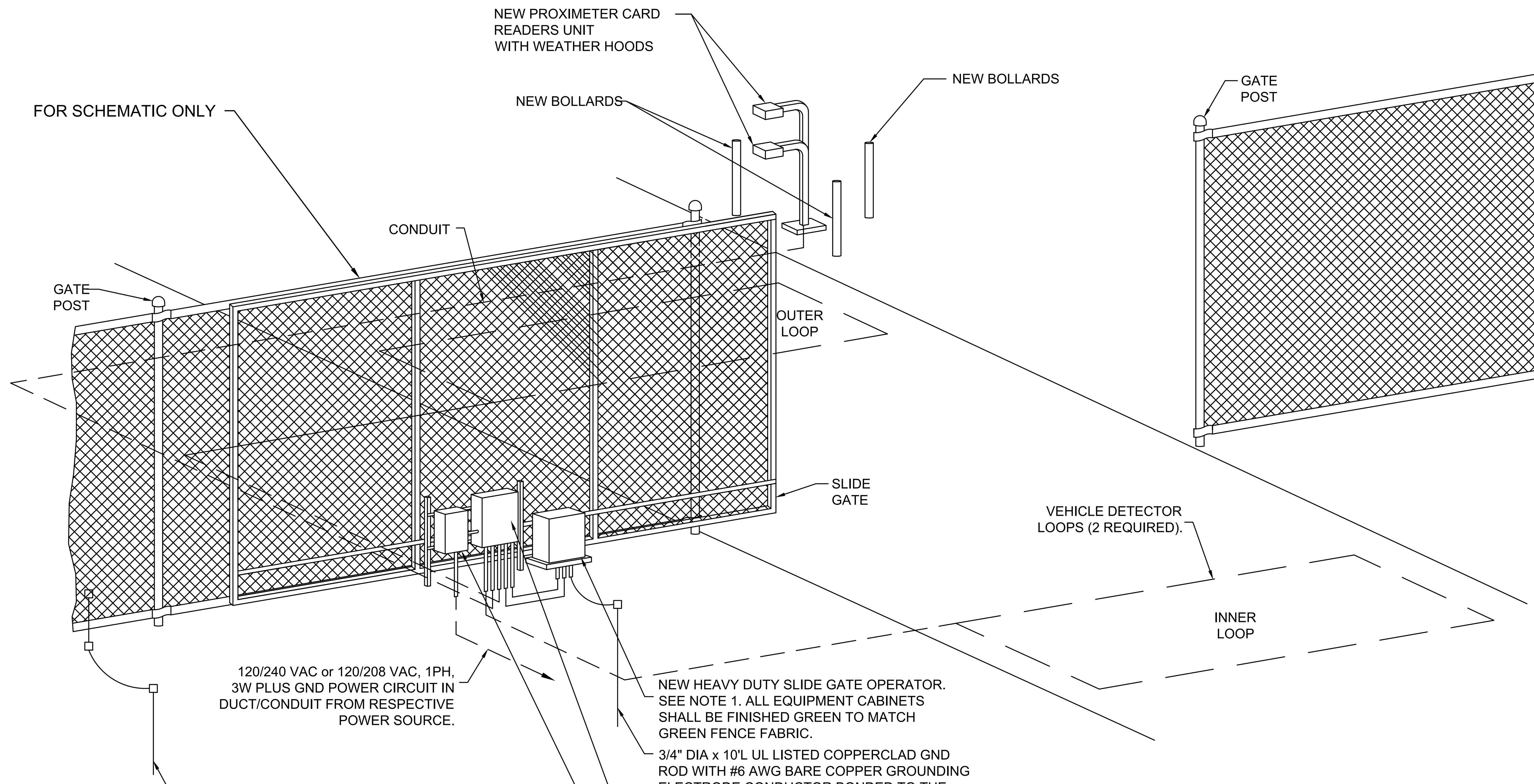
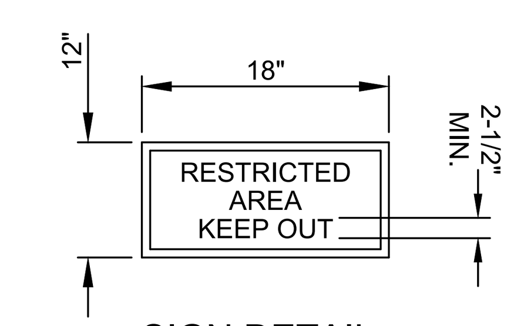


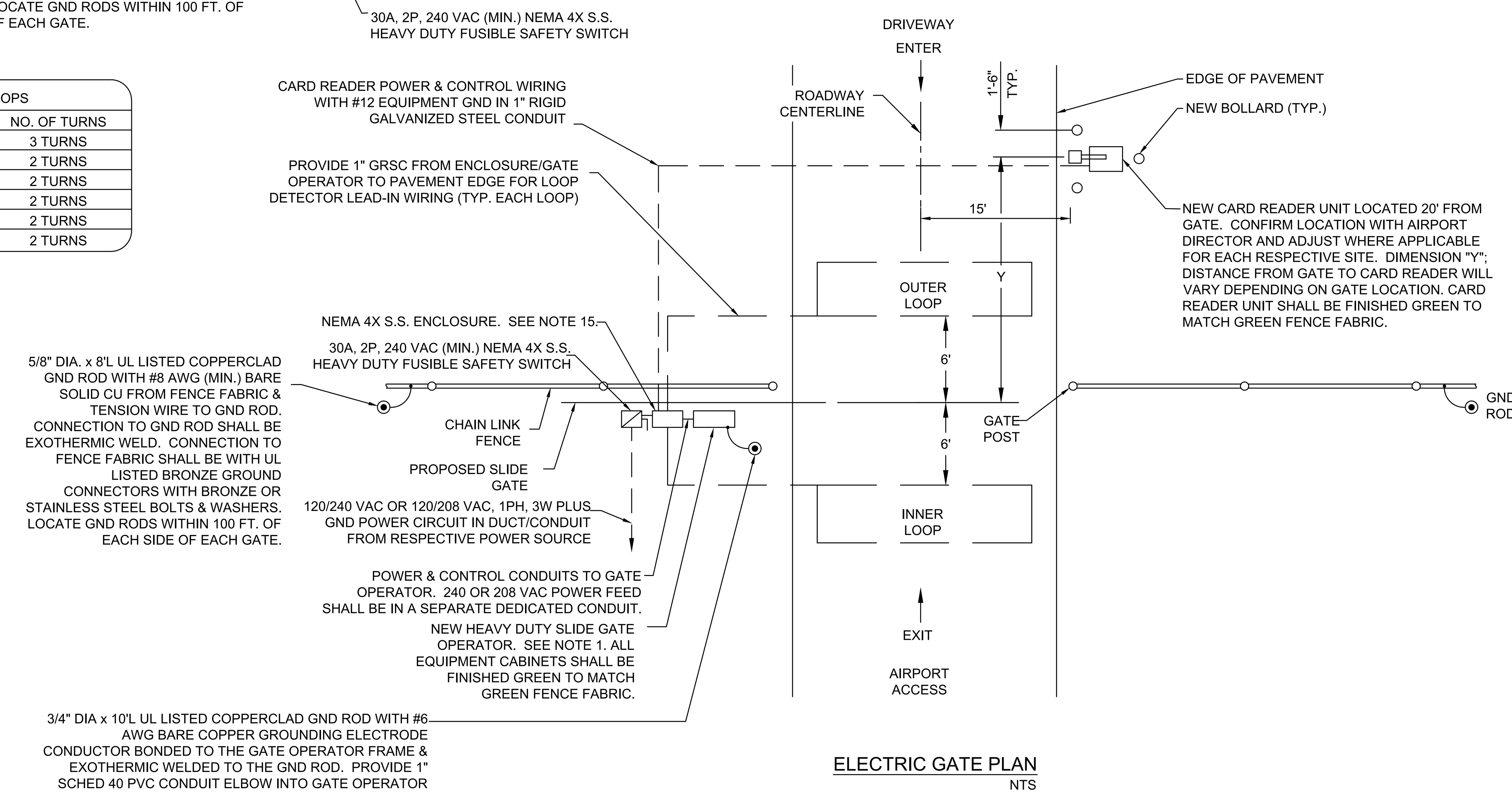
GATE DETAIL (ISOMETRIC)
NTS



SIGN DETAIL

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.

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
NTS

NOTES

1. SEE SPECIAL PROVISIONS FOR REQUIREMENTS ON RESPECTIVE GATE & GATE OPERATOR SYSTEM.
2. ALL DIMENSIONS AND LAYOUT INFORMATION SHOWN SHOULD BE ADJUSTED AS RECOMMENDED BY THE MANUFACTURER. SEE RESPECTIVE SITE PLAN FOR EACH GATE.
3. 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 PROXIMETER CARD ACCESS CONTROL UNIT SHALL BE 48" (MIN.) IN DEPTH, AS DETAILED ON "PROXIMETER CARD READER UNIT, BOLLARD AND GATE OPERATOR DETAILS" SHEET.
4. 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.
5. THE GUARD/BOLLARD POSTS SHALL BE 4" DIA. STEEL (HEAVY WALL) PIPE, CONCRETE FILLED, AND SHALL EXTEND FROM THE TOP OF THE CONTROL UNIT TO A DEPTH OF 48" BELOW THE GROUND LINE. THE CONCRETE FOOTER DIMENSION SHALL BE AS DETAILED HEREIN. GUARD/BOLLARD POSTS SHALL FURNISHED WITH A MANUFACTURED PLASTIC COVER AS DETAILED/
6. CONTRACTOR SHALL PROVIDE VERIFICATION THAT THE PROPOSED GATE OPERATOR IS SUITABLE FOR USE WITH AND PROPERLY SIZED FOR THE NEW SLIDE GATE.
7. TWO (2) PROXIMITY CARD READER / KEY PAD UNITS SHALL BE INSTALLED AT EACH LOCATION, ONE AT 42" LENGTH HEIGHT AND THE SECOND AT 72" LENGTH HEIGHT.
8. CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES TO EXISTING EQUIPMENT WITH THE RESPECTIVE OWNER'S REPRESENTATIVE AND THE AIRPORT DIRECTOR.
9. 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.
10. CONCRETE USED FOR INSTALLING THE GATE OPERATOR, CARD READER ACCESS CONTROL UNIT, & FENCE SHALL MEET THE REQUIREMENTS OF STRUCTURAL PORTLAND CEMENT CONCRETE ITEM 610.
11. 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, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
12. 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.
13. PAYMENT FOR EACH ELECTRIC GATE LOCATIONS WITH , PROXIMETER CARD READER, AND GOOSENECK, 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.
14. CONTROL CIRCUIT WIRING SHALL NOT BE ROUTED THROUGH THE SAFETY SWITCH/DISCONNECT.
15. 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.
16. DETAILS SHOWN ON THIS SHEET IS A SCHEMATIC ONLY. CONTRACTOR SHALL VERIFY WITH THE MANUFACTURER DETAILS OF THE ELECTRIC GATE OPERATORS.

Primera
550 WEST JACKSON BLVD, SUITE 600, CHICAGO, ILLINOIS 60661

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

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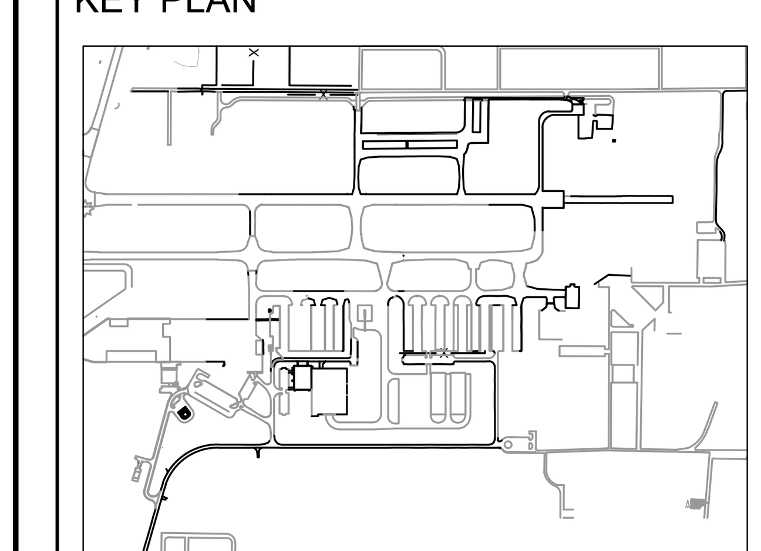

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ELECTRICAL GATE DETAILS - 1

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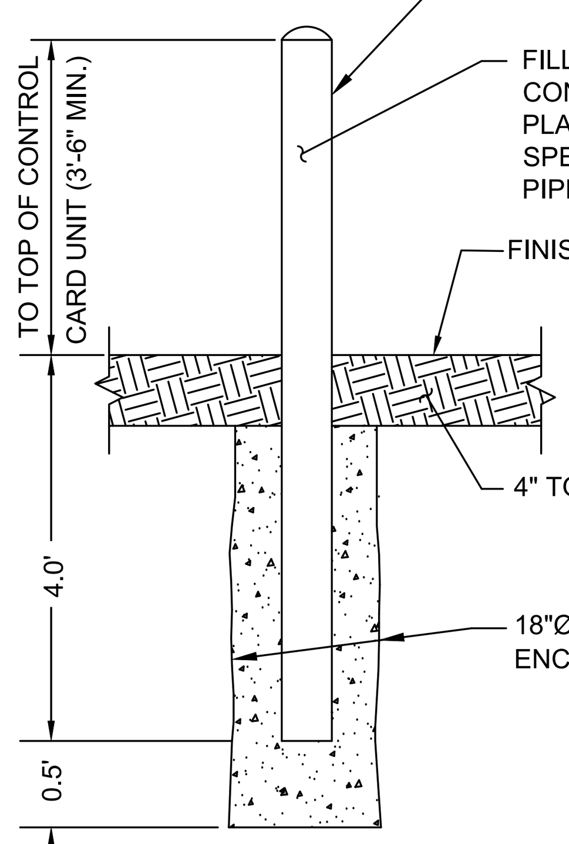
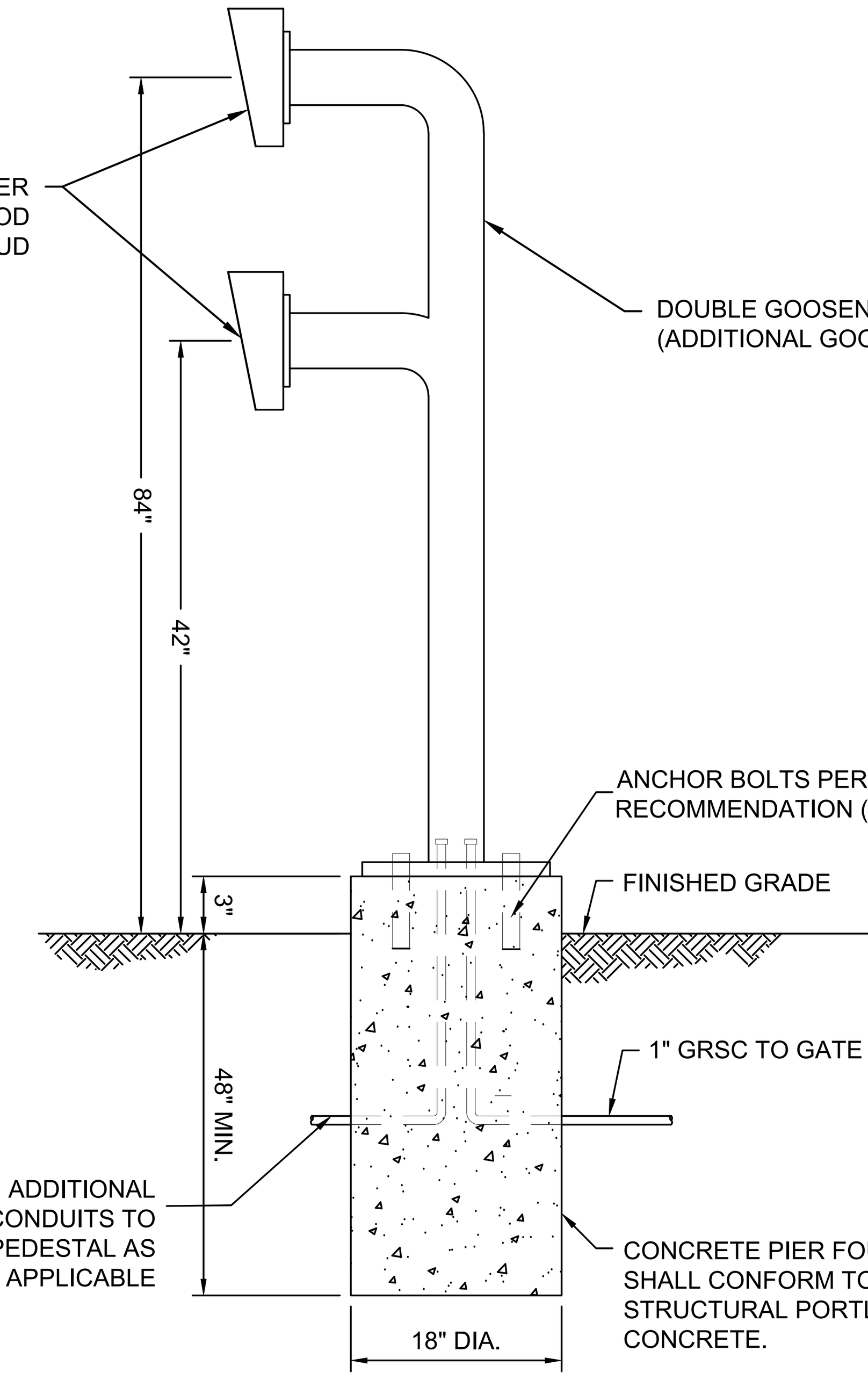


NOTES

1. THE EXPOSED PORTION OF THE BOLLARD SHALL BE COVERED WITH A YELLOW PLASTIC SLEEVE.
2. BOLLARD AND ASSOCIATED ITEMS ARE INCIDENTAL TO THE ELECTRIC SLIDING GATE.
3. SEE SHEET 26 AND SPECIAL PROVISIONS FOR ADDITIONAL DETAILS

BOLLARD DETAIL

NTS

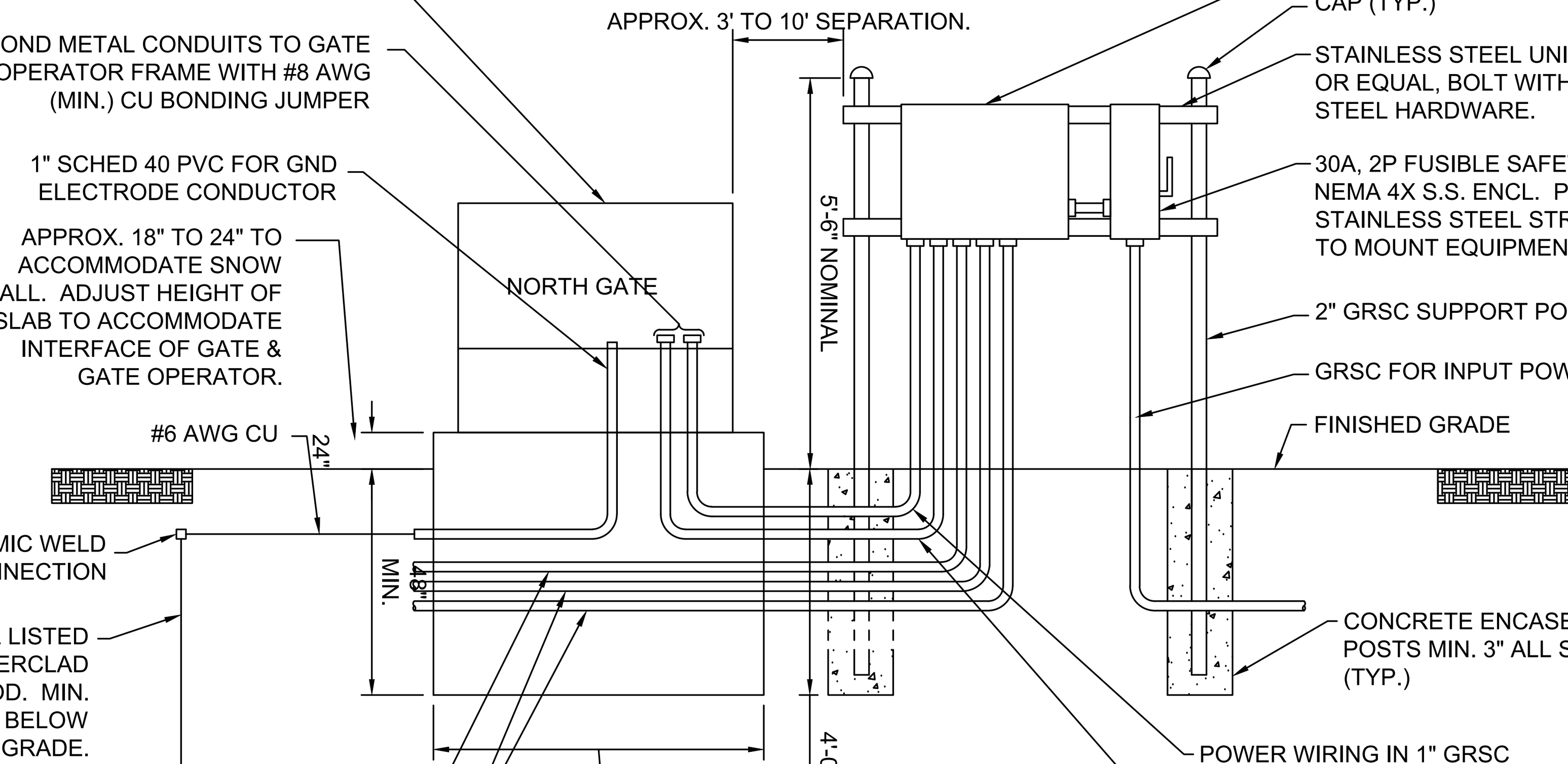


NOTES

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.

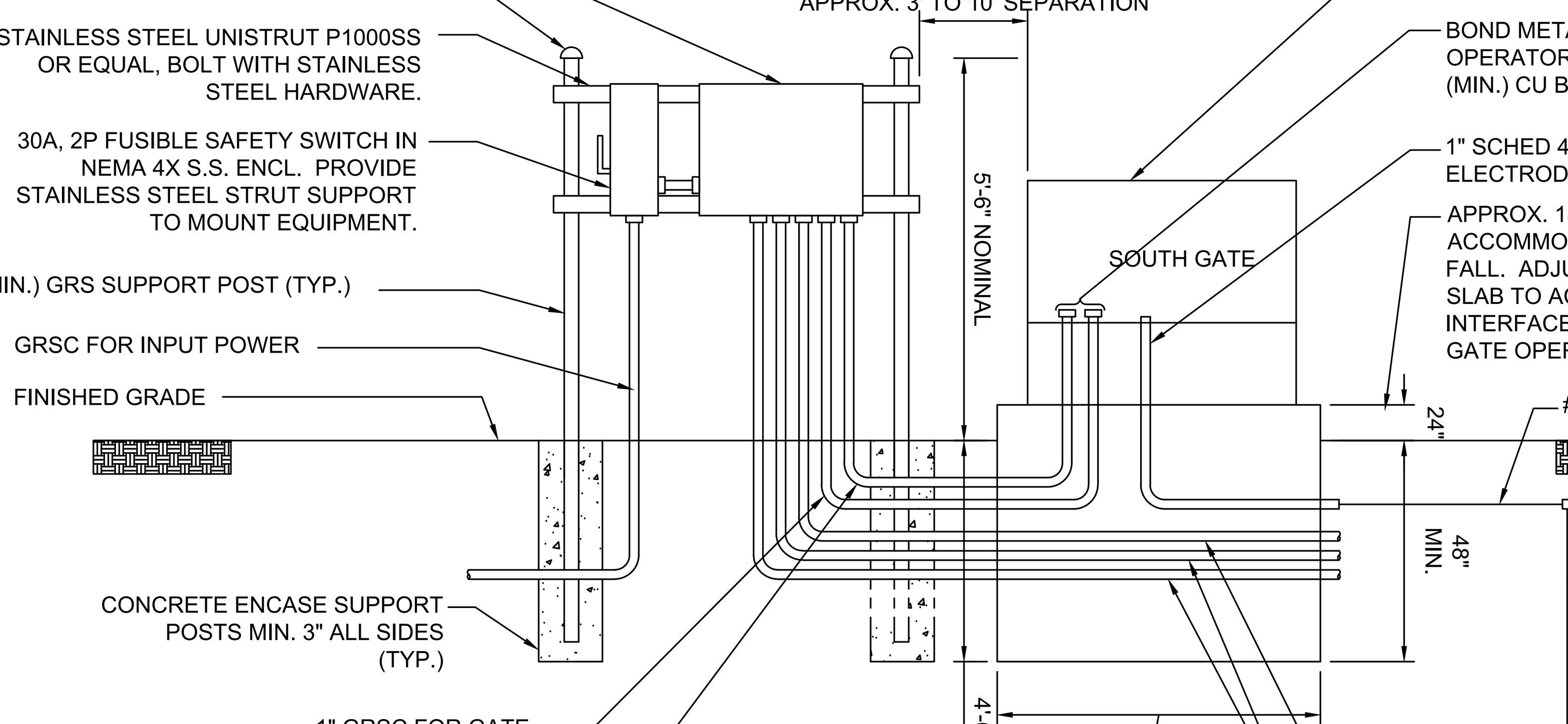
CARD READER ACCESS CONTROL UNIT PEDESTAL ELEVATION DETAIL

NTS



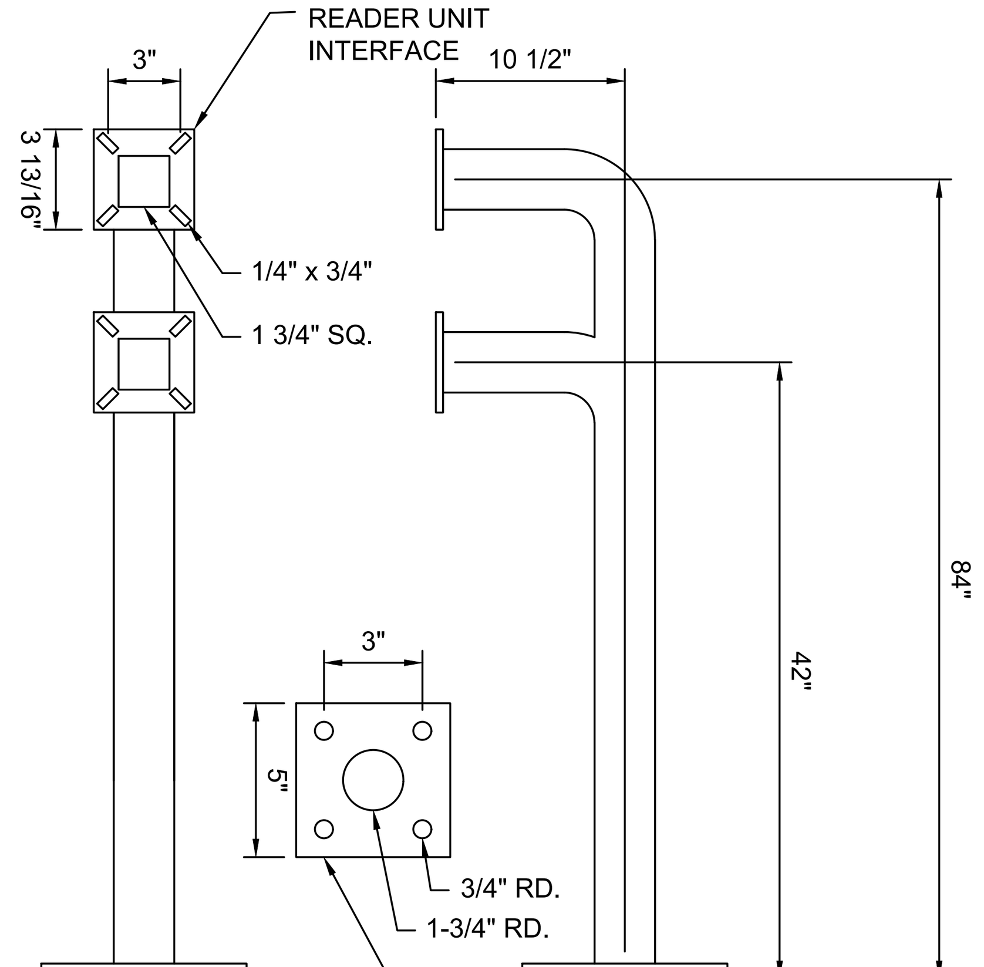
GATE OPERATOR FOUNDATION DETAIL 1

NTS



GATE OPERATOR FOUNDATION DETAIL 2

NTS



GOOSENECK PEDESTAL DETAIL

NTS

NOTE

GOOSENECK PEDESTAL SHALL DUAL HEAD AT THE DETAILED HEIGHTS IN ACCORDANCE WITH BUY AMERICAN AND APPROVAL OF THE ENGINEER.

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 A ACCORDANCE WITH THE RESPECTIVE GATE OPERATOR MANUFACTURER'S RECOMMENDATIONS.

WARNING SIGN DETAIL

NTS

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 NORTH GATE.
6. DETAIL NO. 2 ABOVE IS FOR SOUTH GATE

Primera

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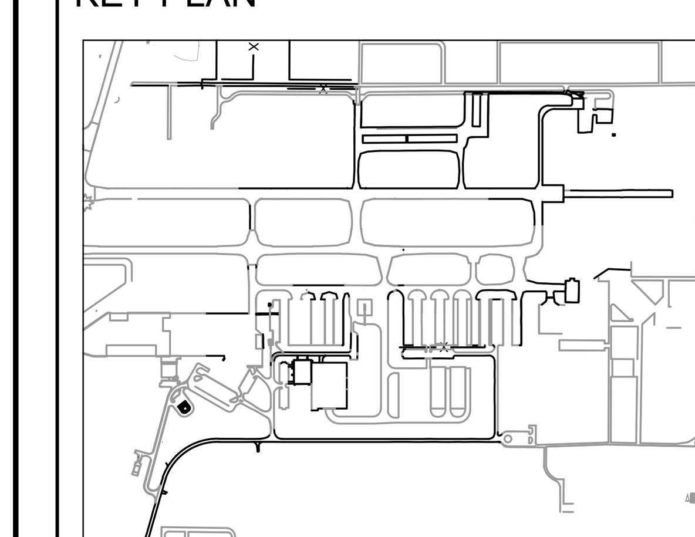

DRAWING TITLE

ELECTRICAL GATE DETAILS - 2

APPROVED RMH
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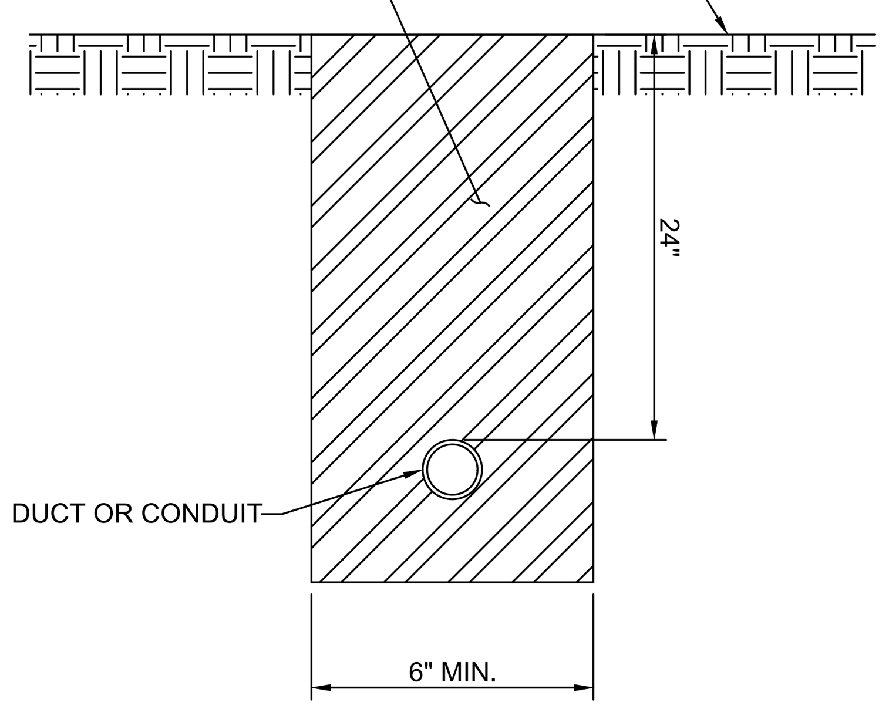
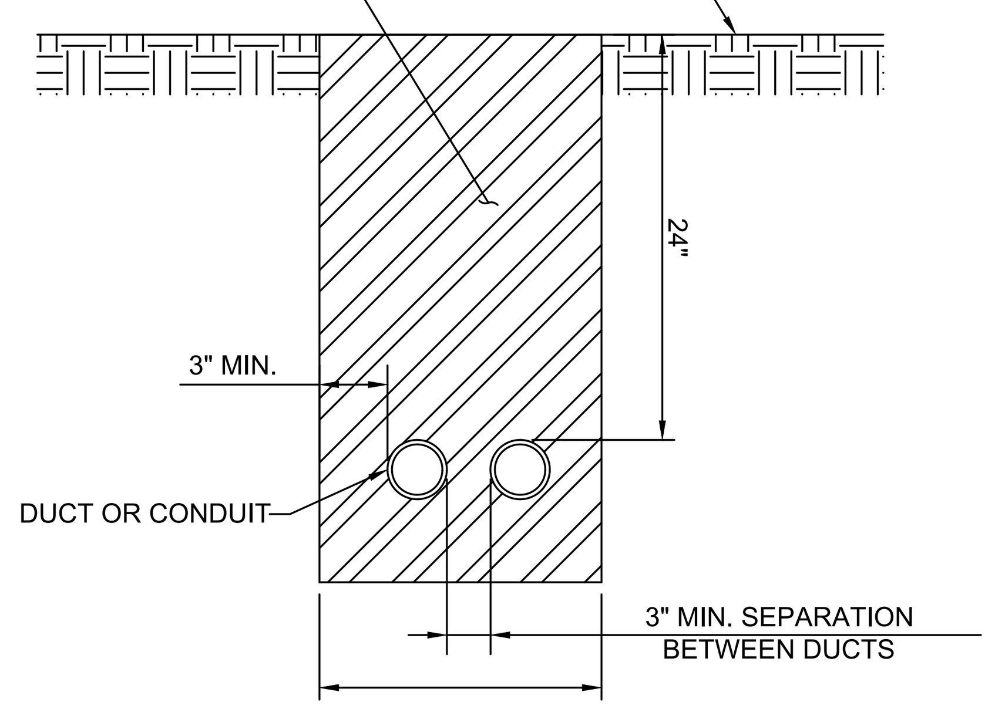
SHEET NO. 25 OF 31



SINGLE DUCT



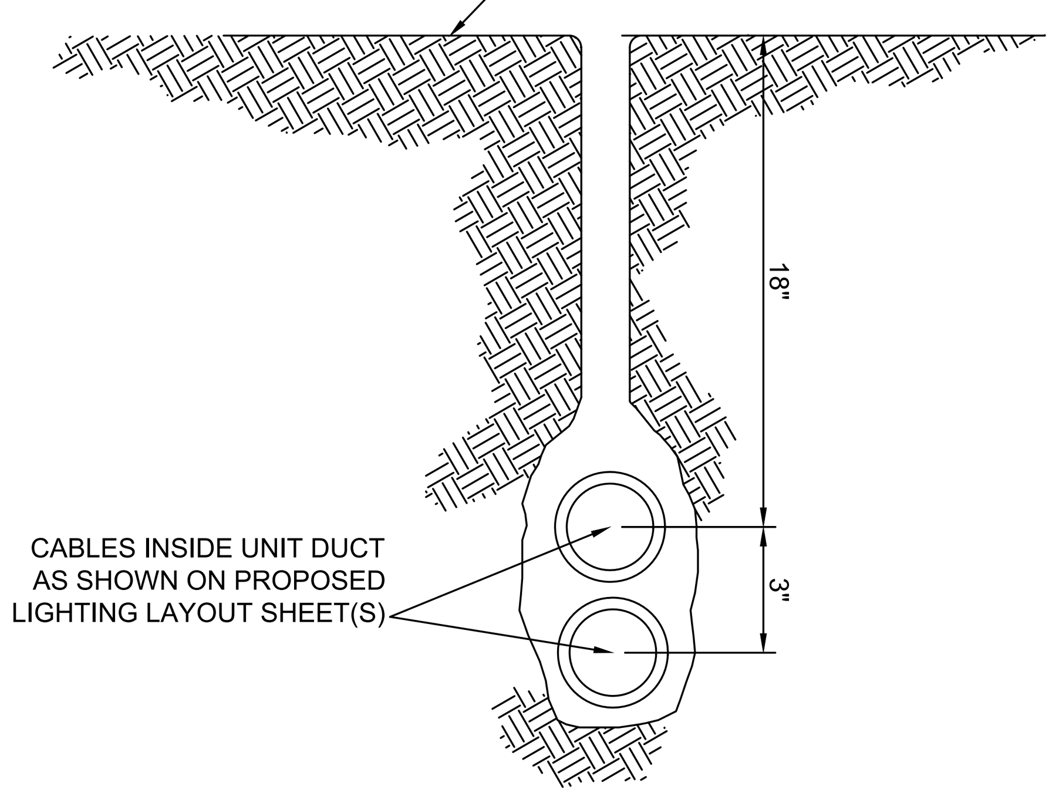
TWO DUCTS

NOTES

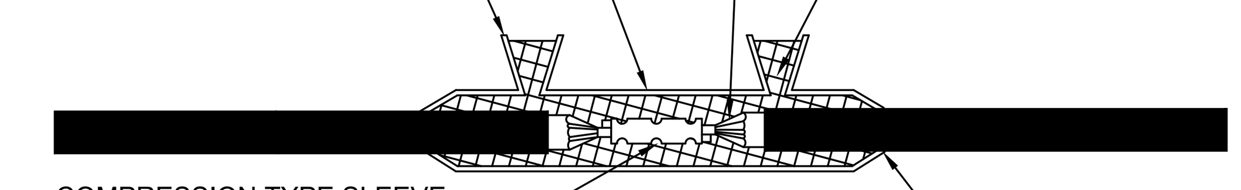
DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.

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
NTS



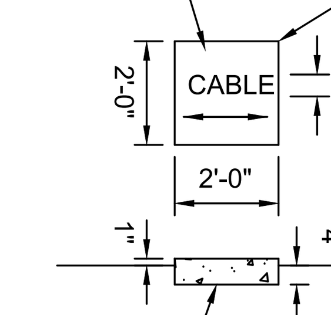
PLOWED CABLE
NTS



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

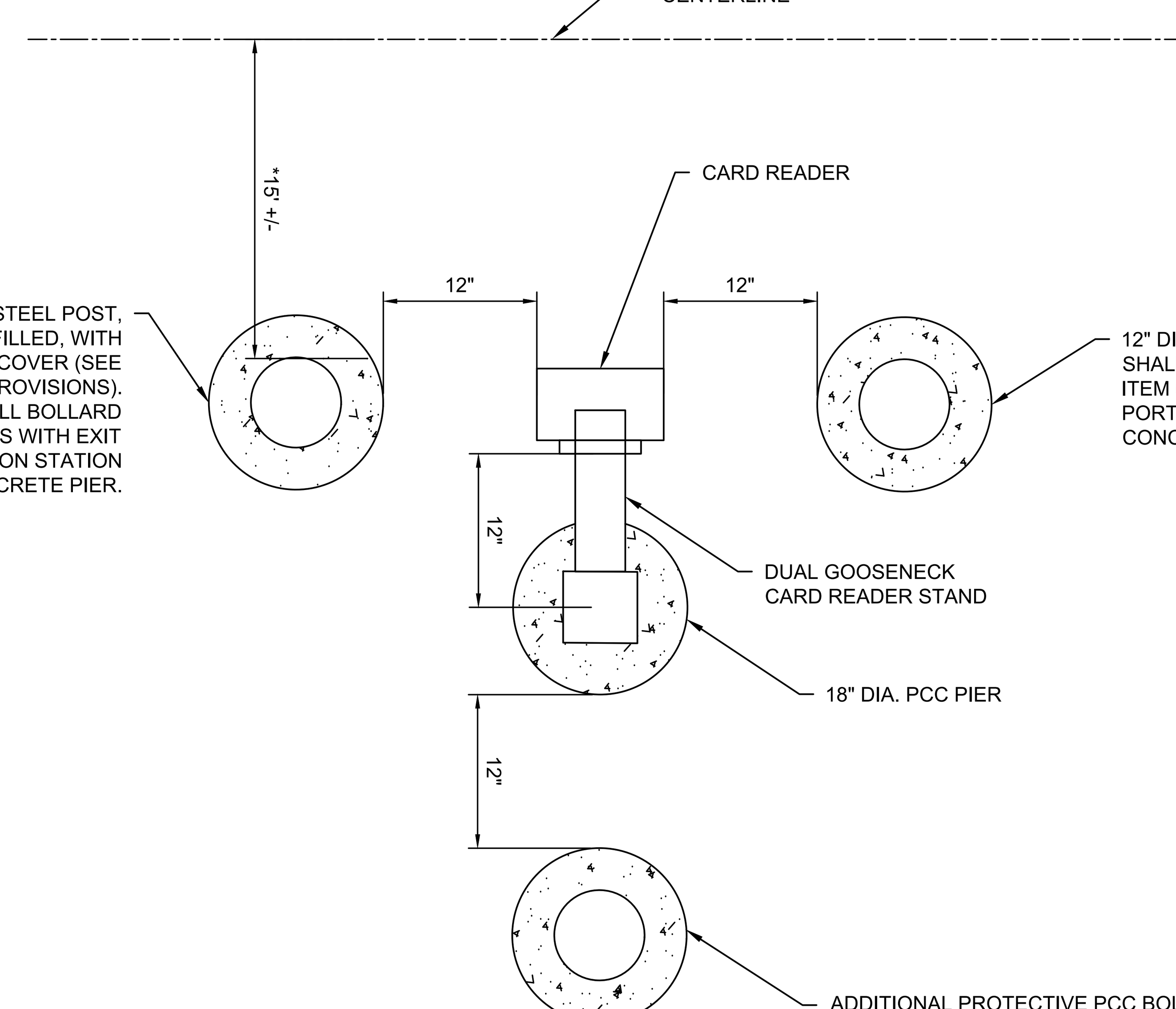
LOW VOLTAGE (600 V) CABLE SPLICE
NTS



TURF CABLE MARKERS
NTS

CABLE MARKER NOTES

1. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
2. CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE RUNS.
3. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE ½" AND ¼" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.
4. 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.



CARD READER AND BOLLARD LAYOUT DETAIL
NTS

* FIELD VERIFY DIMENSIONS AT NORTH LOCATION

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JOLIET REGIONAL PORT DISTRICT

No.	Description	By	Chk.	App.	Date

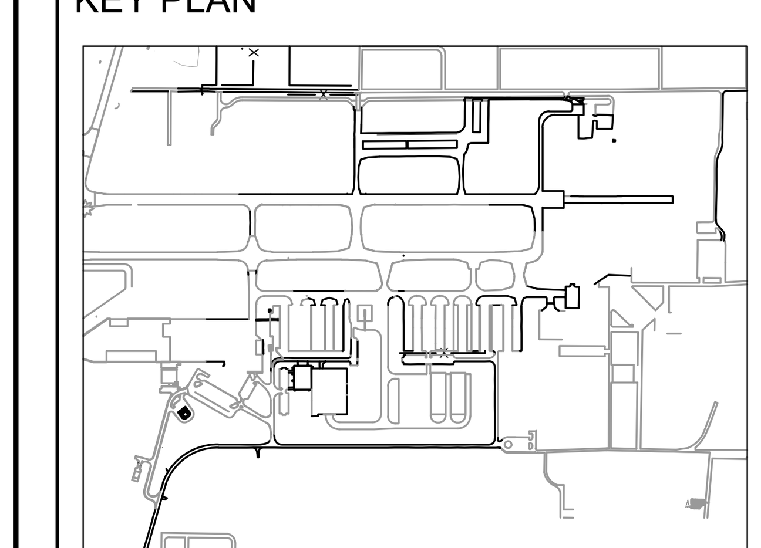
Issues

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN

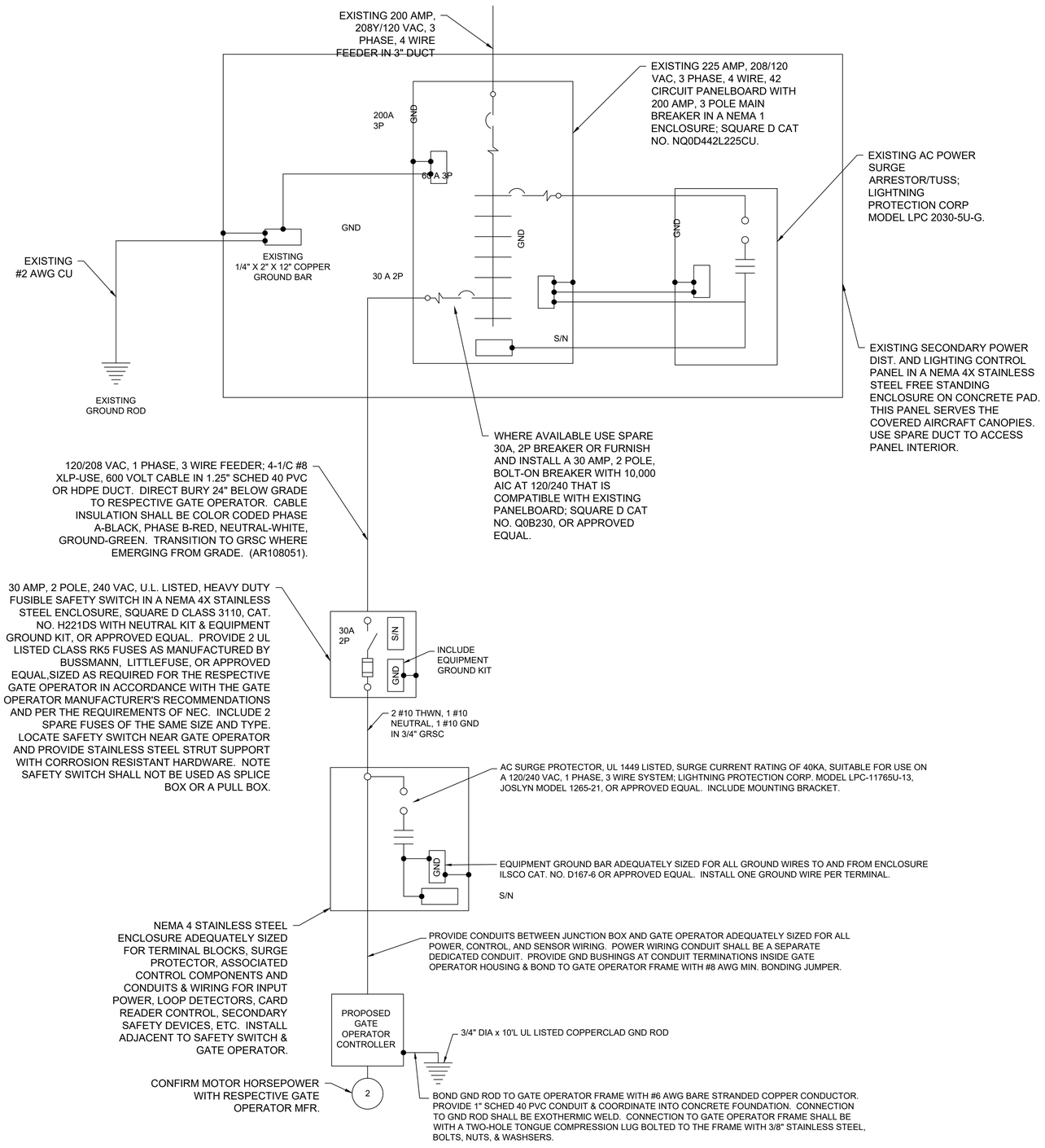


DRAWING TITLE

ELECTRICAL GATE DETAILS - 3

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

SHEET NO.
26
OF 31



PROPOSED ELECTRICAL ONE-LINE DIAGRAM FOR SOUTH GATE

NOTES

1. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE EXISTING CONDITIONS.
2. SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
3. 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.
4. ALL EQUIPMENT SHOWN NOT LABELED AS EXISTING IS NEW.
5. 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.
6. 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.
7. PROPOSED 30 FT. ELECTRIC SLIDE GATE AND ASSOCIATED WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AR801030, PER LUMP SUM.
8. ALL CONDUCTORS/WIRING SHALL BE COPPER.
9. 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.
10. CONFIRM CONTROL WIRING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR SYSTEM MANUFACTURER'S REPRESENTATIVE.
11. 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.

Primera
550 WEST JACKSON BLVD., SUITE 600, CHICAGO, ILLINOIS 60661

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

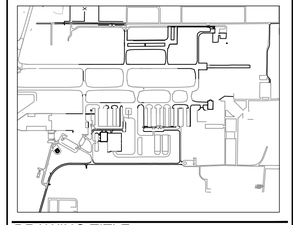
No.	Description	By	Chk.	App.	Date
Issues					

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

KEY PLAN



DRAWING TITLE

ELECTRICAL GATE DETAILS - 4

APPROVED **RMH**	SHEET NO. **27**
CHECKED **KWS**	
DRAWN BY **JVJ**	

OF 31

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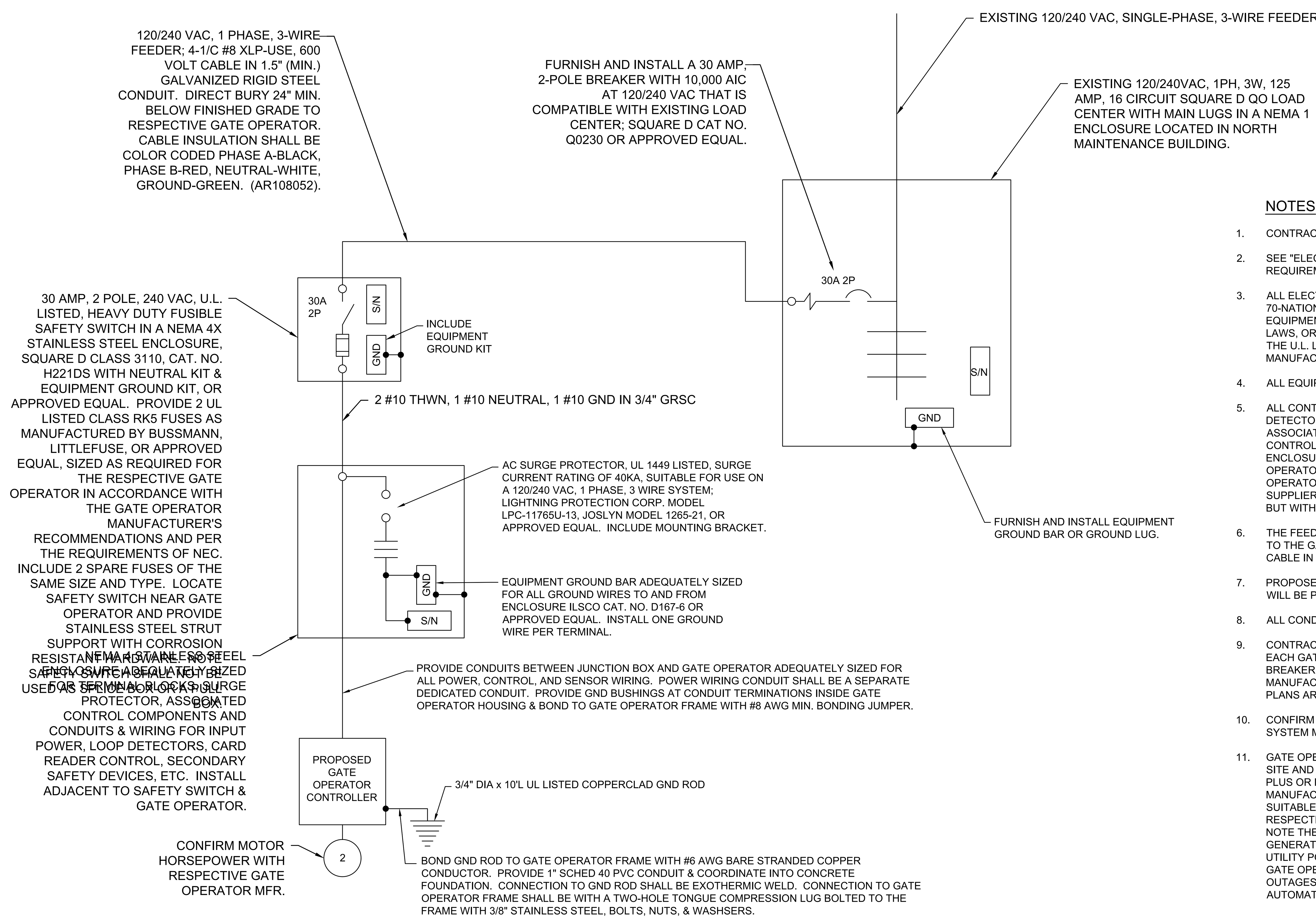

PROPOSED ELECTRICAL ONE-LINE DIAGRAM FOR NORTH GATE

NOTES

1. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE EXISTING CONDITIONS.
2. SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
3. 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.
4. ALL EQUIPMENT SHOWN NOT LABELED AS EXISTING IS NEW.
5. 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.
6. THE FEEDER CIRCUIT IN GALVANIZED RIGID STEEL CONDUIT FROM THE POWER SOURCE TO THE GATE OPERATOR DISCONNECT WILL BE PAID FOR UNDER ITEM AR108052 POWER CABLE IN CONDUIT, PER LINEAL FOOT.
7. PROPOSED 30 FT. ELECTRIC SLIDE GATE AND ASSOCIATED WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AS801036 PER LUMP SUM.
8. ALL CONDUCTORS/WIRING SHALL BE COPPER.
9. 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.
10. CONFIRM CONTROL WIRING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR SYSTEM MANUFACTURER'S REPRESENTATIVE.
11. 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.

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JOLIET REGIONAL PORT DISTRICT

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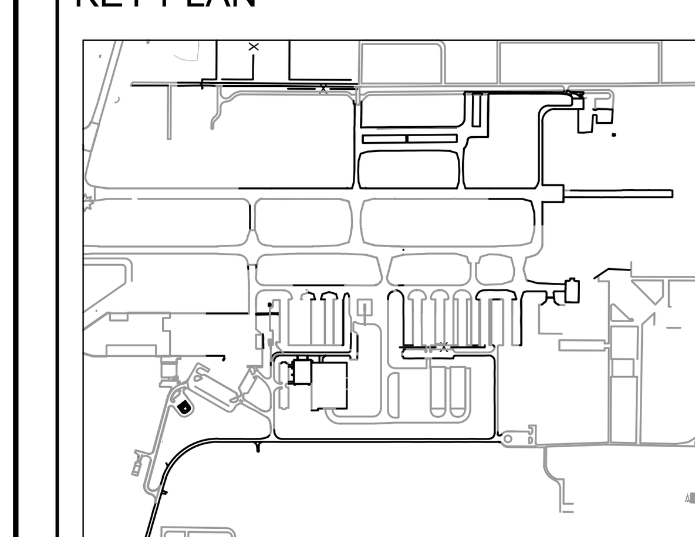
KEY PLAN



DRAWING TITLE
ELECTRICAL GATE DETAILS - 5

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

SHEET NO.
28
OF 31

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 MINUMUM.
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".

Primera

Lewis University Airport
JOLIET REGIONAL PORT DISTRICT

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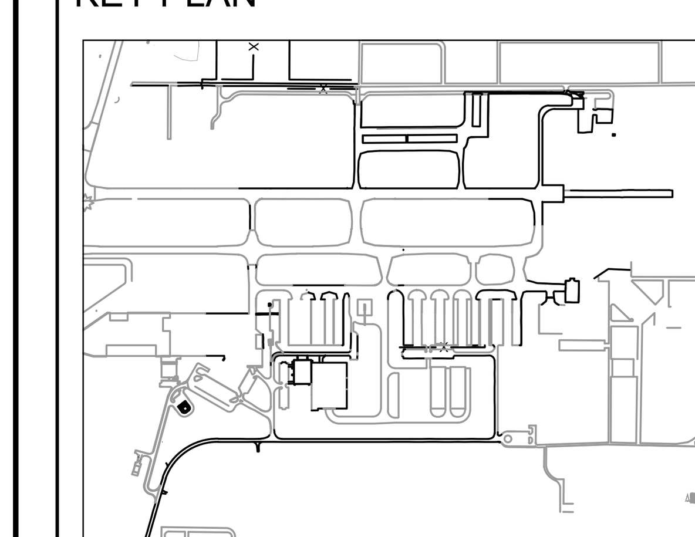
Issues

INSTALL AIRPORT SECURITY FENCING

IDA No: LOT-4536
Contract No: LE056
SBG No: 3-17-SBGP-TBD

100% FINAL

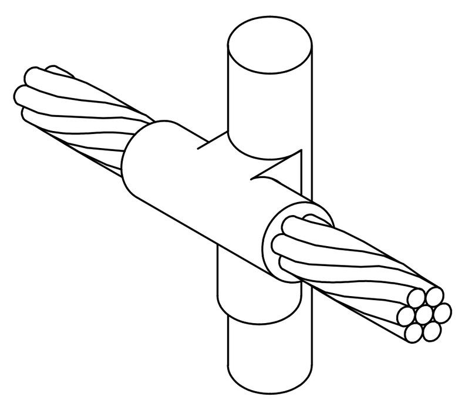
KEY PLAN



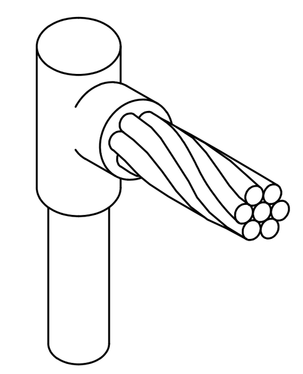
DRAWING TITLE

ELECTRICAL NOTES

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ



CABLE TO GROUND ROD



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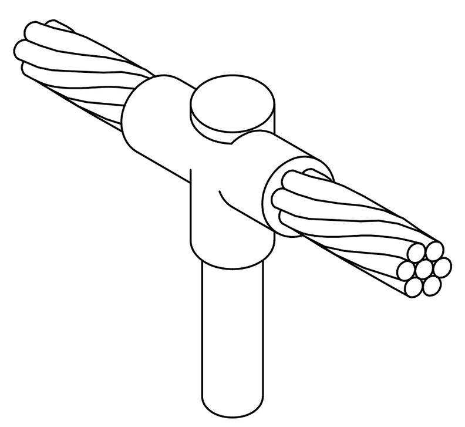
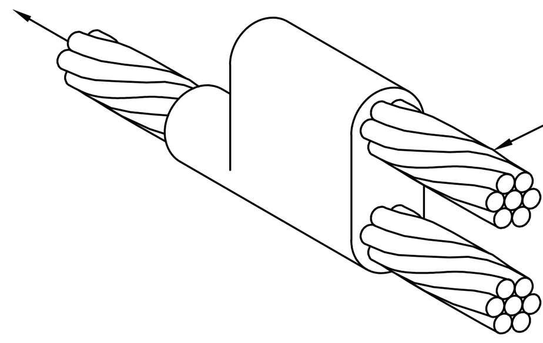


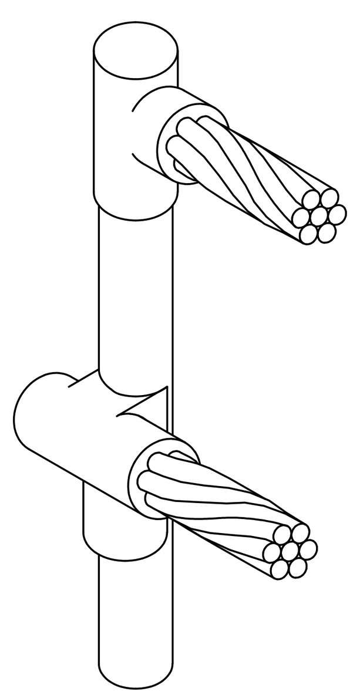
CABLE TO GROUND ROD

TO NEAREST GND ROD



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

CABLE TO CABLE HORIZONTAL PARALLEL TAP

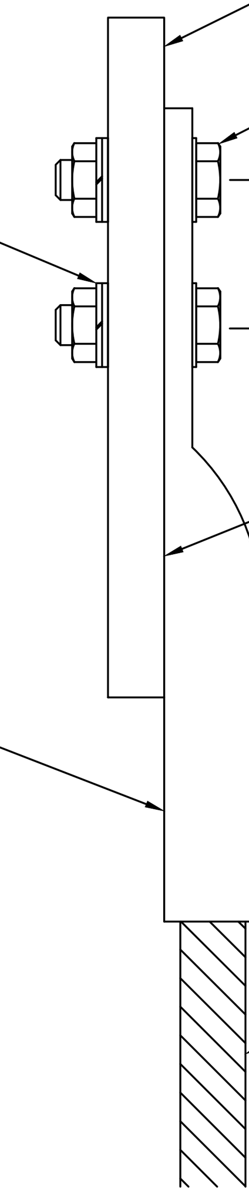


CABLES TO GROUND ROD

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 TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
2. GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE 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
SOUTH GATE OPERATOR DISCONNECT	SOUTH GATE 120/208VAC FED FROM DIST. PNL FOR AIRCRAFT CANOPIES
NORTH GATE OPERATOR DISCONNECT	NORTH GATE 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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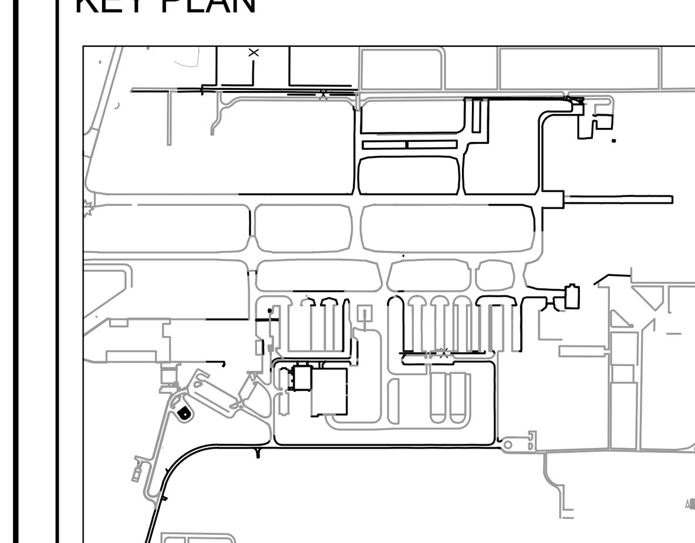


DRAWING TITLE

GROUNDING DETAILS AND LEGEND PLATE SCHEDULE

APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

SHEET NO. **30**

GROUNDING NOTES

1. 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:

2. 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.

3. CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 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.

4. ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.

5. ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND, BURNDY PENETROX E, OR EQUAL.

6. METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2011 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.

7. METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT

8. ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.

9. ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.

10. PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.

11. EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2011 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

12. ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2011 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2011 NEC 250-102.

13. IT IS THE INTENT OF THIS SPECIFICATION THAT ALL 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.

14. PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.

15. EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.

16. ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, OR EQUAL.

17. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.

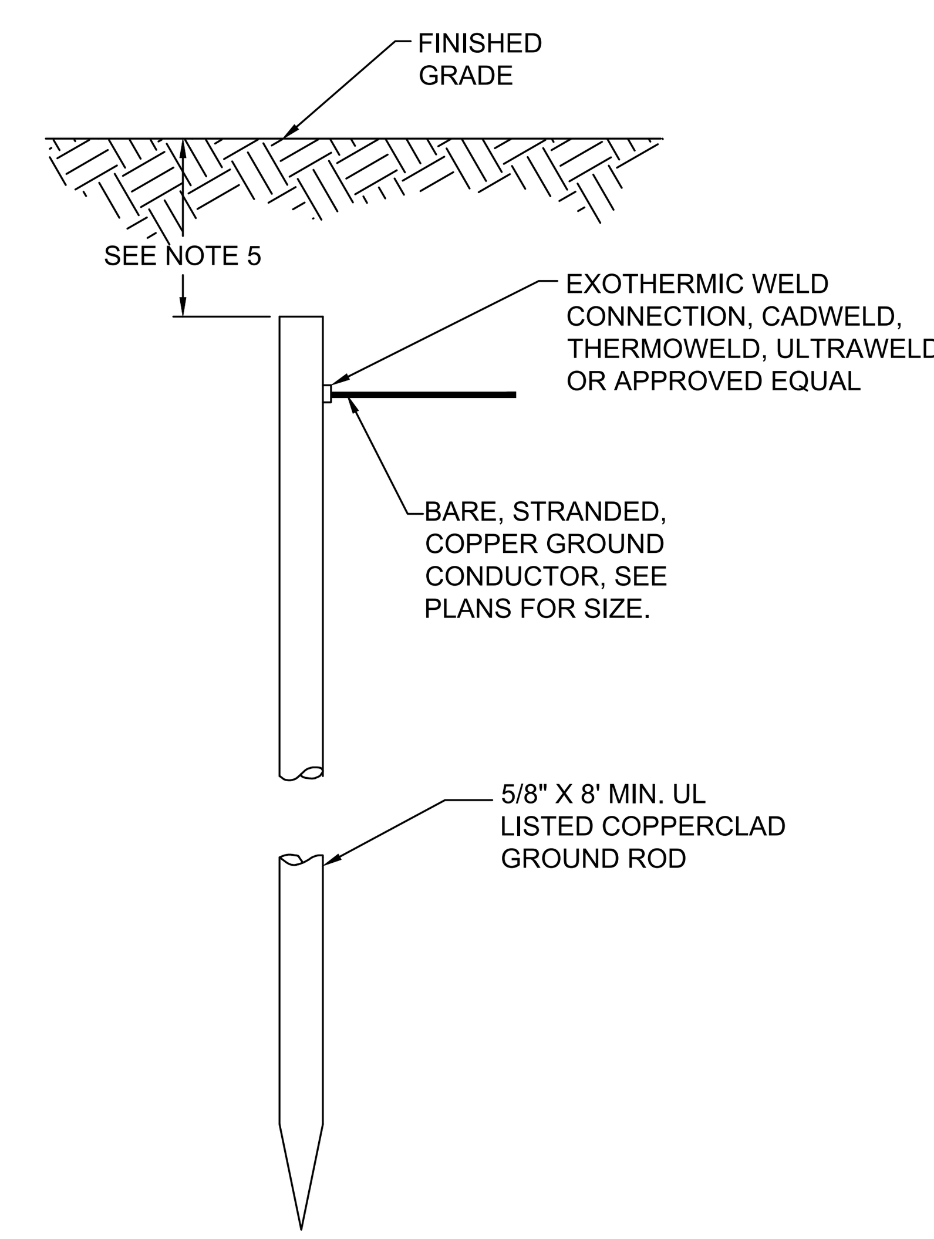
18. BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.

19. INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY 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.

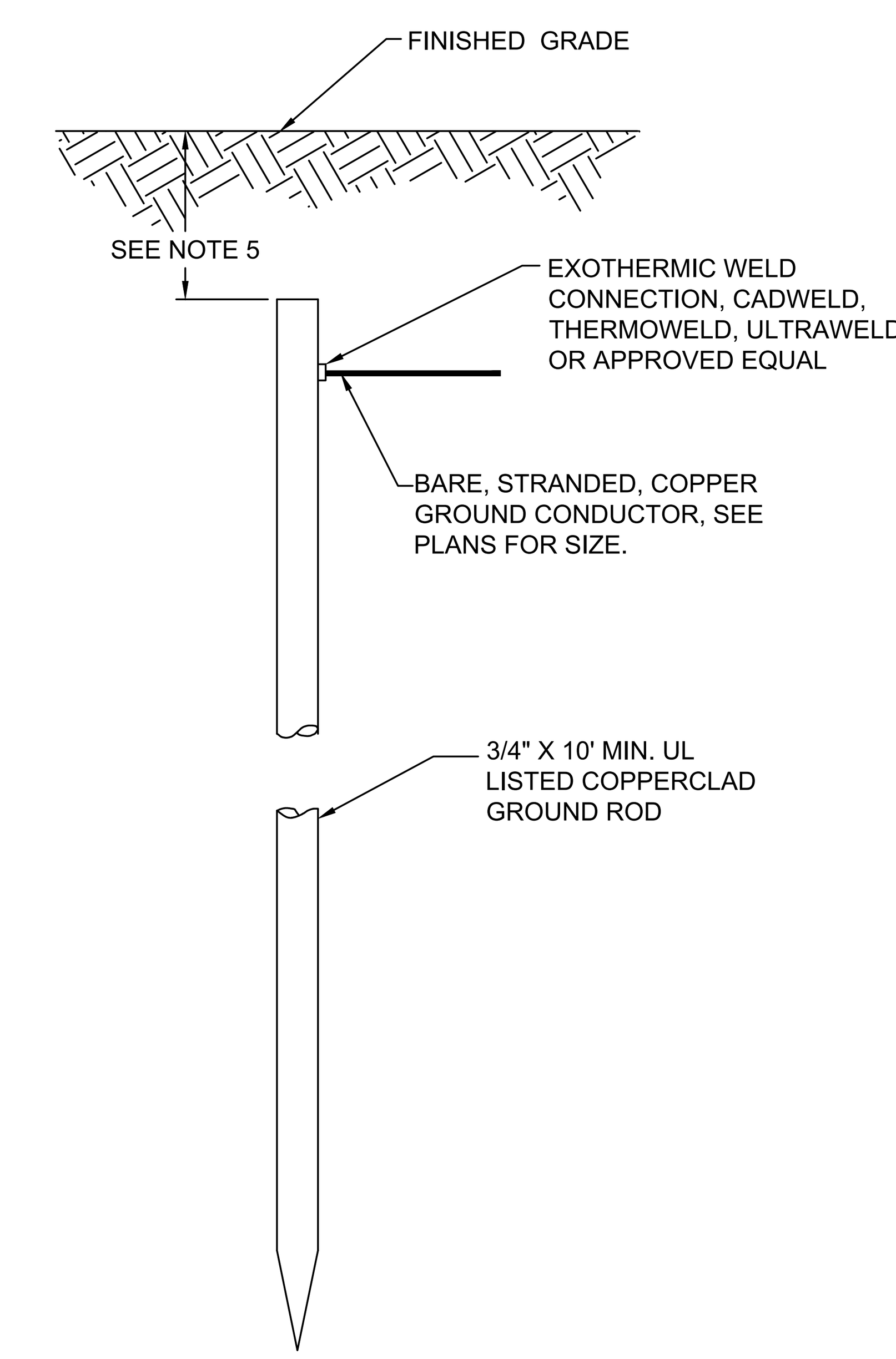
20. IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2011 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.

21. WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE RESIDENT ENGINEER OR PROJECT ENGINEER FOR FURTHER DIRECTIONS.

22. GROUND 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

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

GROUND RODS
NTS

Primera

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APPROVED RMH
CHECKED KWS
DRAWN BY JVJ

SHEET NO. **31** OF 31

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