# **CONSTRUCTION PLANS**

# REPLACE PERIMETER FENCE, PHASE 2

CITY OF MT. STERLING MT. STERLING MUNICIPAL AIRPORT (163) MT. STERLING, BROWN COUNTY, ILLINOIS

IDA PROJECT NO. 163 - 4827 SBG PROJECT NO. 3-17-SBGP-156/TBD

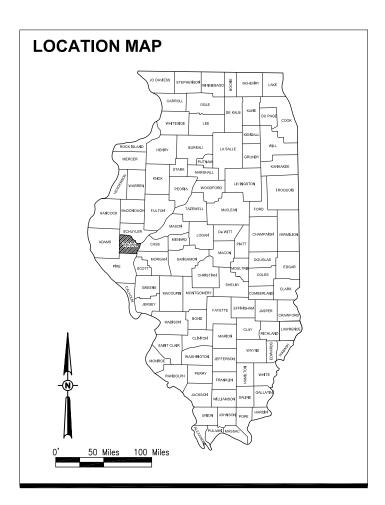
**NOVEMBER 13, 2020** 

No.	Issue/Description	Sheets Changed	Date	Ву

## 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.

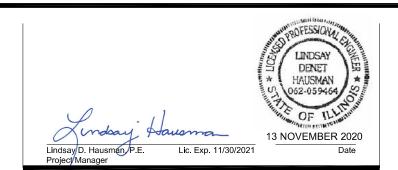


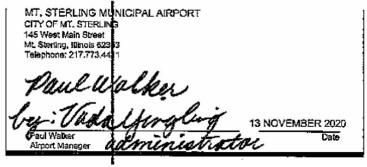




HANSON PROFESSIONAL SERVICES INC. 1525 S. Sixth St. Springfield, Illinois 62703 Telephone: 217.788.2450 Fax: 217.788.2503







#### INDEX OF SHEETS SHEET NO. TITLE COVER SHEET SHEET INDEX AND SUMMARY OF QUANTITIES SITE AND SAFETY PLAN SITE AND SAFETY PLAN NOTES CONSTRUCTION SAFETY NOTES ALIGNMENT DATA TABLE STORM WATER POLLUTION PREVENTION PLAN REMOVAL PLAN REMOVAL PLAN 10 PLAN & PROFILE - PROPOSED FENCE PLAN & PROFILE - PROPOSED FENCE PLAN & PROFILE - PROPOSED FENCE 12 PLAN & PROFILE - PROPOSED FENCE 13 PLAN & PROFILE - PROPOSED FENCE 14 PLAN & PROFILE - PROPOSED FENCE 15 PLAN & PROFILE - PROPOSED FENCE 16 17 FENCE DETAILS AND NOTES 18 FENCE DETAILS 19 ELECTRICAL LEGEND AND ABBREVIATIONS 20 ELECTRICAL SITE PLAN PROPOSED SLIDE GATE DETAILS 22 GATE OPERATOR DETAILS CABLE AND DUCT MARKER DETAILS 23 SIGNAGE DETAILS 24 GROUNDING NOTES 25 PROPOSED GATE OPERATOR ONE LINE DIAGRAM CONTROL BLOCK DIAGRAM FOR GATE OPERATOR

## SUMMARY OF QUANTITIES

## BASE BID

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT QUANTITY
AR150510	ENGINEER'S FIELD OFFICE	LUMP SUM	1.00	
AR150520	MOBILIZATION	LUMP SUM	1.00	
AR150530	TRAFFIC MAINTENANCE	LUMP SUM	1.00	
AR156511	DITCH CHECK	EACH	7.00	
AR161900	REMOVE CLASS C FENCE	LINEAR FOOT	8,919.00	
AR161910	REMOVE CLASS C GATE	EACH	2.00	
AR162230	CLASS E MANUAL SLIDE GATE - 30'	EACH	3.00	
AR162504	CLASS E FENCE 4'	LINEAR FOOT	301.00	
AR162510	CLASS E FENCE 10'	LINEAR FOOT	8,449.00	
AR162606	CLASS E GATE - 6'	EACH	1.00	
AR162900	REMOVE CLASS E FENCE	LINEAR FOOT	1,842.00	
AR162910	REMOVE CLASS E GATE	EACH	2.00	

## ADDITIVE ALTERNATE NO. 1

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT QUANTITY
AS800549	EQUIPMENT FOR ELECTRIC SLIDE GATE	LUMP SUM	1.00	

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



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Illinois Licensed Professional Service Corporation #184-001084

MT. STERLING MUNICIPAL AIRPORT City of Mt. Sterling 145 W. Main Street Mt. Sterling, Illinois 62353 phone: 217.779-7329

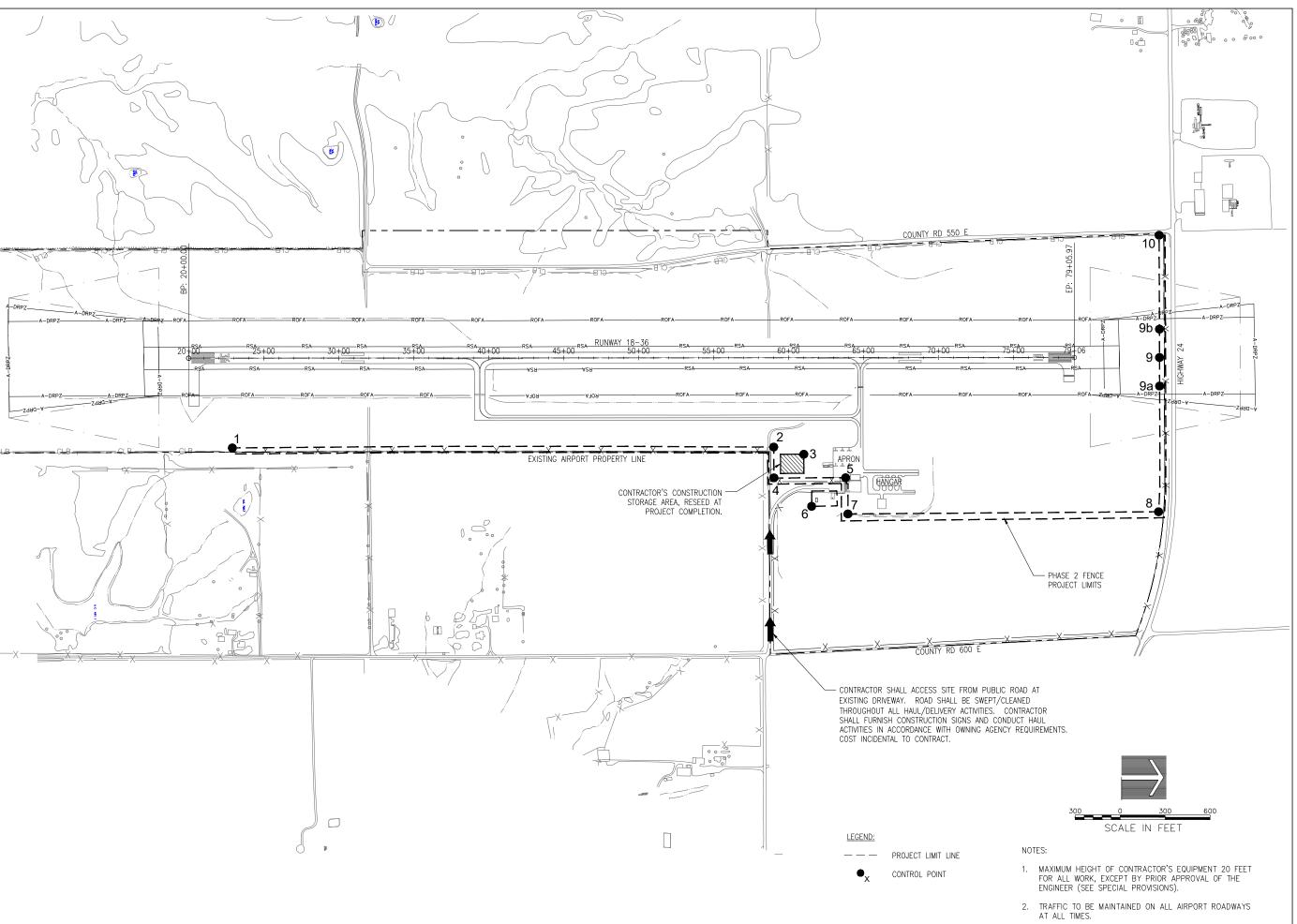
REPLACE PERIMETER FENCE, PHASE 2

SBGP No: 3-17-SBGP-156/TBD IDA No: I63-4827

Contract No. MS010

NO.	DATE	DES	CRIPT	ION	
LINO.	DAIL	DES	DWN	REV	
ISSUE:	ISSUE: NOVEMBER 13, 2020				
PROJEC	CT NO: 2	0A000	5		
CAD FILE: 02-SOQ.DWG					
DESIGN BY: LDH 9/29/2020					
DRAWN	BY: LDI	H 9/29	/2020		
REVIEW	REVIEWED BY: LDH 11/10/2020				

SHEET INDEX AND SUMMARY OF QUANTITIES



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REPLACE PERIMETER FENCE, PHASE 2

SBGP No: 3-17-SBGP-156/TBD IDA No: 163-4827

Contract No. MS010

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: NOVEMBER 13, 2020
PROJECT NO: 20A0005
CAD FILE: 03-SITEPLAN DWG
DESIGN BY: LDH 3/4/2020
DRAWN BY: LDH 3/4/2020

SITE AND SAFETY PLAN

SHEET TITLE

REVIEWED BY: LDH 11/10/2020

## **GENERAL NOTES**

#### PROJECT DESCRIPTION

THIS PROJECT IS TO INSTALL THE REMAINDER OF THE PERIMETER FENCE AT MT. STERLING MUNICIPAL AIRPORT INCLUDING, AMONG OTHER INCIDENTAL WORK, THE FOLLOWING ITEMS:

- PLACEMENT OF TEMPORARY SOIL FROSION CONTROL MEASURES.
- REMOVAL OF EXISTING CLASS C & E FENCE AND GATES.
- INSTALLATION OF PROPOSED CLASS E FENCE AND GATES

#### 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 THE 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

## CONTRACTOR'S ACCESS AND TEMPORARY FACILITIES

CONTRACTOR'S ACCESS TO THE PROJECT WHEN ON AIRPORT PROPERTY IS SHOWN ON SHEET 3. CONTRACTOR'S ACCESS TO THE AIRPORT ITSELF IS TO BE PROVIDED BY PUBLIC RIGHTS-OF-WAY. THE CONTRACTOR IS TO SECURE ALL NECESSARY PERMITS FOR THE USE OF ANY PUBLIC RIGHTS-OF-WAY AND IS TO MAINTAIN TRAFFIC ON THESE PUBLIC ROADS AT ALL TIMES, WITH THE COSTS OF PERMITTING, CLEANING AND REPAIRING OF PAVEMENT DAMAGED BY CONTRACTOR'S ACTIVITIES INCIDENTAL TO THE CONTRACT. USE OF AND REPAIRS TO ANY PUBLIC FACILITIES ARE TO BE COMPLETED TO THE SATISFACTION OF THE FACILITY'S OWNER

THE CONTRACTOR IS TO PROVIDE TEMPORARY CONSTRUCTION ROADS WITHIN THE CONSTRUCTION LIMIT LINES AS MAY BE REQUIRED BY HIS ACTIVITIES. HEAVY VEHICLES SHALL NOT CROSS EXISTING PAVEMENT SURFACES EXCEPT AS APPROVED BY THE AIRPORT MANAGER AND THE OWNER'S REPRESENTATIVE. ANY DAMAGE TO PAVEMENTS THAT MAY OCCUR BY THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE AIRPORT MANAGER AND THE OWNER'S REPRESENTATIVE. FOR HAUL ROUTES MADE BY CONTRACTOR THROUGH GRASSED AREAS, CONTRACTOR SHALL GRADE, LEVEL, TOPSOIL, SEED AND MULCH AT THE END OF THE PROJECT, COST INCIDENTAL TO THE CONTRACT.

THE CONTRACTOR IS TO PROVIDE AN EQUIPMENT STORAGE AND PARKING AREA AT THE LOCATIONS SHOWN ON SHEET 3. 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 WHATSOFVER IN RESPECT TO THE ACCURACY. SUFFICIENCY OR COMPLETENESS OF THE INFORMATION AND GIVE NO EXPRESSED OR IMPLIED GUARANTEE THAT ANY CONDITIONS INDICATED ARE REPRESENTATIVE OF ACTUAL CONDITIONS TO BE ENCOUNTERED.

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

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

#### EXISTING BENCHMARKS

PROJECT BENCHMARKS ARE AS FOLLOWS:

NGS MONUMENT E 15 RESET

E 2,122,530.33 ELEV. 713.10



PROJECT IS LOCATED IN SECTION 12 & 13, LEE TOWNSHIP, BROWN COUNTY

#### <u>NOTES</u>

- 1. VERTICAL COORDINATES ARE IN NGVD 88.
- 2. STATIONS, OFFSETS AND ELEVATIONS SHOWN ARE IN FEET.
- 3. THE APPROACH END OF RUNWAY 36 IS STATION 20+00.
- 4. THE AIRPORT REFERENCE CODE FOR RUNWAY 18-36 IS B-II. BOTH RUNWAY 18 AND 36 HAVE A NON-PRECISION APPROACH WITH VISIBILITY MINIMUM OF GREATER THAN 1 MILE.

## RUNWAY END COORDINATES

DESCRIPTION	LATITUDE	LONGITUDE	RUNWAY STATION	RUNWAY ELEVATION
RUNWAY 18 END RUNWAY 36 END		90°48'14.2864" W 90°48'15.5208" W	79+05 20+00	733.7 715.2

	OBJECT INFORMATION									
ITEM NO.	DESCRIPTION	MOBILITY	GROUND ELEVATION	EQUIPTMENT ELEVATION	FENCE ELEVATION	LATITUDE	LONGITUDE	RUNWAY 18-36 STATION	RUNWAY 18-36 OFFSET	RUNWAY 18-36 EXIST EL.
1	CONSTRUCTION EQUIPMENT	MOVING	711.7	731.7	722.7	39° 58′ 41.0067″ N	90° 48' 07.7631" W	22+90.49	598.63' R	716.0
2	CONSTRUCTION EQUIPMENT	MOVING	724.4	744.4	735.4	39° 59' 16.6823" N	90° 48' 07.0552" W	59+00.85	595.31' R	727.0
3	CONSTRUCTION EQUIPMENT	STATIONARY	726.0	746.0	737.0	39° 59' 18.6618" N	90° 48' 06.3930" W	61+01.96	643.60' R	728.0
4	CONSTRUCTION EQUIPMENT	MOVING	722.0	742.0	733.0	39° 59' 16.6615" N	90° 48' 04.3971" W	59+02.08	800.74' R	727.0
5	CONSTRUCTION EQUIPMENT	MOVING	730.4	750.4	741.4	39° 59' 21.4328" N	90° 48' 04.3340" W	63+80.90	799.31' R	728.0
6	CONSTRUCTION EQUIPMENT	MOVING	725.0	745.0	736.0	39° 59' 19.1149" N	90° 48' 01.9210" W	61+53.43	990.89' R	728.0
7	CONSTRUCTION EQUIPMENT	MOVING	721.9	741.9	732.9	39° 59' 21.4963" N	90° 48' 01.2158" W	63+95.26	1041.87' R	728.0
8	CONSTRUCTION EQUIPMENT	MOVING	729.9	749.9	740.9	39° 59' 41.9723" N	90° 48' 00.9544" W	84+67.25	1028.65' R	734.0
9	CONSTRUCTION EQUIPMENT	MOVING	731.8	751.8	742.8	39° 59' 42.2078" N	90° 48' 14.1683" W	84+74.44	0.00'	734.0
9a	CONSTRUCTION EQUIPMENT	MOVING	731.0	751.0	742.0	39° 59' 42.1825" N	90° 48' 11.7221" W	84+74.95	190.40' R	734.0
9b	CONSTRUCTION EQUIPMENT	MOVING	732.3	752.3	743.3	39° 59' 42.2329" N	90° 48' 16.5992" W	84+73.92	189.23' L	734.0
10	CONSTRUCTION EQUIPMENT	MOVING	733.3	753.3	744.3	39° 59' 42.3160" N	90° 48' 24.6461" W	84+72.22	815.52' L	734.0

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REPLACE PERIMETER FENCE, PHASE 2

SBGP No: 3-17-SBGP-156/TBD IDA No: 163-4827

Contract No. MS010

DESCRIPTION NO. DATE DES DWN REV ISSUE: NOVEMBER 13, 2020 PROJECT NO: 20A0005 CAD FILE: 04-GENEALNOTES.DWG DESIGN BY: 1 DH 10/1/2020 DRAWN BY: LDH 10/1/2020 REVIEWED BY: LDH 11/10/2020

SITE & SAFETY PLAN NOTES

CONSTRUCTION OF THE PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH THE GUIDELINES SPECIFIED IN FAA ADVISORY CIRCULAR 150/5370-2 (CURRENT ISSUE). ANY CONTRACTOR ACTIVITIES REQUIRED FOR PROJECT SAFETY SHALL BE PROVIDED BY THE CONTRACTOR AND INCIDENTAL TO THE CONTRACT. THE CONTRACTOR SHALL MAINTAIN A COPY OF FAA ADVISORY CIRCULAR 150/5370-2G, CURRENT ISSUE AT THE PROJECT SITE AT ALL TIMES.

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—2G, PARAGRAPH 2.4.2, OR EQUIVALENT SECTION IN SUBSEQUENT/CURRENT ISSUES. 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 PHASING PLAN DETAILING THE SEQUENCING OF THE CONTRACTOR'S WORK THROUGHOUT THE PROJECT IS INCLUDED IN THE PLANS. THE CONTRACTOR SHALL PROVIDE HIS WRITTEN ACCEPTANCE OF THE PROJECT CONSTRUCTION SAFETY AND PHASING 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 PHASES WHEN ACTIVE RUNWAYS, TAXIWAYS, HANGAR ACCESS, APRONS, ROADWAYS OR PARKING LOTS MUST BE CLOSED, TO MINIMIZE THE LENGTH OF TIME THAT AIRPORT OPERATIONS ARE RESTRICTED.

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

#### CONSTRUCTION LIMITS

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

#### VEHICULAR TRAFFIC CONTROL

CONTRACTOR ACCESS TO THE PROJECT WHEN ON AIRPORT PROPERTY IS SHOWN IN THE PLANS. CONTRACTOR'S ACCESS TO THE AIRPORT ITSELF IS TO BE PROVIDED BY 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 THE CONTRACTOR'S ACTIVITIES INCIDENTAL TO THE CONTRACT. USE OF AND REPAIRS TO ANY PUBLIC FACILITIES ARE TO BE COMPLETED TO THE SATISFACTION OF THE FACILITY'S OWNER.

THE CONTRACTOR IS TO PROVIDE TEMPORARY CONSTRUCTION ROADS WITHIN THE CONSTRUCTION LIMIT LINES AS MAY BE REQUIRED BY HIS ACTIVITIES. THE CONTRACTOR MAY MAKE USE OF ANY EXISTING HAUL ROUTES WITHIN THE PROJECT LIMITS, BUT SHALL REPAIR/MAINTAIN SAME DURING CONSTRUCTION, AND SHALL REMOVE THE EXISTING HAUL ROUTES AT PROJECT END, IF DIRECTED BY THE RESIDENT ENGINEER. HEAVY VEHICLES SHALL NOT CROSS EXISTING PAVEMENT SURFACES EXCEPT AS APPROVED BY THE AIRPORT OWNER AND THE RESIDENT ENGINEER. 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 OWNER AND THE RESIDENT ENGINEER. FOR HAUL ROUTES MADE BY THE CONTRACTOR THROUGH GRASSED AREAS OR EXISTING HAUL ROUTES USED BY THE CONTRACTOR, CONTRACTOR SHALL REMOVE, GRADE, LEVEL, TOPSOIL, SEED AND MULCH AT THE END OF THE PROJECT; COST INCIDENTAL TO THE CONTRACT.

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

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 ARES, RADIO—EQUIPMENT DEFINED 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. 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 PROJECT SAFETY PLAN OR IN THE AIRPORT VEHICLE OPERATIONS REGULATIONS, SUCH DRIVERS SHALL BE PENALIZED BY RESCISSION OF THEIR ON—AIRPORT DRIVING PRIVILEGES, AND THEIR ACCESS TO THE CONSTRUCTION LIMIT AREA WHEN OPERATING VEHICLES SHALL BE REVOKED.
- THE CONTRACTOR WILL BE REQUIRED TO BE IN CONTACT WITH AIRPORT MANAGEMENT THROUGH THE RESIDENT ENGINEER PRIOR TO AND DURING WORK OUTSIDE THE CONSTRUCTION LIMIT AREA AND INSIDE THE AIRPORT OPERATIONS AREA. THIS WILL KEEP THE CONTRACTOR IN CONTACT WITH AIRPORT PERSONNEL AND ENABLE THE AIRPORT PERSONNEL TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTICAL EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.
- THE CONTRACTOR SHALL COORDINATE GATE SECURITY THROUGH THE RESIDENT ENGINEER WITH THE AIRPORT OWNER. AIRPORT SECURITY SHALL BE MAINTAINED AT ALL TIMES.

THE CONTRACTOR SHALL REMAIN WITHIN THE PROJECT LIMITS LINE SHOWN IN THE PLANS. WHEN OUTSIDE THE PROJECT LIMIT LINE, ALL CONTRACTOR ACTIVITIES SHALL REMAIN OUTSIDE THE RUNWAY OBJECT FREE ZONE (ROFZ). THE ROFZ IS DEFINED AS THE AREA WITHIN 200 FEET OF THE CENTERLINE AND WITHIN 300 FEET OF THE ENDS OF ACTIVE RUNWAY 18-36. FOR WORK NEAR TAXIWAYS AND APRONS, THE CONTRACTOR'S PERSONNEL AND EQUIPMENT MUST REMAIN AT LEAST 44.5 FEET FROM ACTIVE CATEGORY I TAXIWAYS, 65.5 FEET FROM ACTIVE CATEGORY II TAXIWAY CENTERLINES, AND 93 FEET FROM ACTIVE CATEGORY III TAXIWAY CENTERLINES, 44.5 FEET FROM ACTIVE THANGAR TAXILANE CENTERLINES, AND TEN (10) FEET FROM ACTIVE APRON EDGES. WHEN CONSTRUCTION OPERATIONS MUST BE CONDUCTED WITHIN THESE SEPARATIONS, THE PAVEMENT MUST BE CLOSED TO AIRCRAFT ACTIVITY BY THE CONTRACTOR BY PROVIDING TEMPORARY BARRICADES AS SHOWN IN THE PLANS, AND IN THE CASE OF RUNWAY PAVEMENTS, CLOSED RUNWAY MARKERS. NO CLOSURE OF ANY RUNWAY WILL BE PERMITTED FOR THIS PROJECT, EXCEPT AS NOTED ELSEWHERE IN THIS PARAGRAPH.

THE PROJECT DOES NOT INCLUDE THE CLOSING OF ANY RUNWAY, TAXIWAY, APRON, OR OTHER AIRPORT PAVEMENTS AT ANY TIME DURING THE PROJECT. SHOULD THE CONTRACTOR REQUEST, AND THE AIRPORT OWNER AGREE TO ANY PAVEMENT CLOSING, THE FOLLOWING SHALL APPLY:

- SUCH CLOSING SHALL HAVE BEEN PRIOR APPROVED THROUGH THE SUBMITTAL AND APPROVAL OF A REVISED CONSTRUCTION SAFETY AND
  PHASING PLAN.
- FOR RUNWAYS, THE CONTRACTOR SHALL, AT HIS EXPENSE, PLACE AND MAINTAIN THE RUNWAY CLOSURE MARKERS.
- TO MINIMIZE DISRUPTION TO AIRCRAFT OPERATIONS ASSOCIATED WITH THE RUNWAY CLOSURE, CONSTRUCTION WORK MUST BE COMPLETED EXPEDITIOUSLY. RUNWAY CLOSINGS SHALL ONLY BE PERMITTED BY PRIOIR AUTHORIZATION OF THE RESIDENT ENGINEER AND THE AIRPORT OWNER, AND IN ACCORDANCE WITH THE REVISED CONSTRUCTION SAFETY AND PHASING PLAN.
- THE CONTRACTOR, AT HIS EXPENSE, SHALL FURNISH, PLACE, MAINTAIN, RELOCATE, AND REMOVE TEMPORARY BARRICADES ON AIRFIELD RUNWAYS, TAXIWAYS, AND OTHER PAVEMENTS SURFACES AS DIRECTED BY THE RESIDENT ENGINEER.
- WHEN THE RUNWAY IS TO BE CLOSED, THE AIRPORT OWNER WILL DE-ENERGIZE AIRPORT/RUNWAY NAVAIDS, AND AIRFIELD LIGHTING POWER
  AND CONTROL CIRCUITS WHEN REQUIRED BY THE CONTRACTOR'S ACTIVITIES. THE CONTRACTOR SHALL NOT PROCEED WITH FURTHER WORK
  UNTIL AFTER THE REQUIRED CHANGES TO THE AIRPORT POWER AND CONTROL CIRCUITS HAVE BEEN MADE BY THE AIRPORT OWNER.

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

OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIAL AT THE CONSTRUCTION SITE SHALL BE DELINEATED WITH THE USE OF BARRICADES DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS. NO OPEN TRENCHES SHALL BE ALLOWED WITHIN THE RUNWAY SAFETY AREA (RSA) OR THE TAXIWAY SAFETY AREA (TSA) WHEN THE RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC (INCLUDING OVERNICHT). THE RSA IS DEFINED AS 75 FEET FROM THE CENTERLINE AND 300 FEET FROM THE END OF RUNWAY 18—36. THE TSA IS MEASURED AT 24.5 FEET FROM THE CATEGORY II TAXIWAY CENTERLINE, AND 59 FEET FROM THE CATEGORY III TAXIWAY CENTERLINE, AND 59 FEET FROM THE CATEGORY III TAXIWAY CENTERLINE, AND 24.5 FEET FROM THE T-HANGAR TAXILANE CENTERLINE. NO VERTICAL DROP OF GREATER THAN 3—INCHES IN HEIGHT FROM PAVEMENT EDGE TO EARTH GRADE OR EARTH GRADE TO EARTH GRADE WITHIN THE RSA OR TSA WILL BE PERMITTED WHEN THE RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC. THE CONTRACTOR WILL HAVE STEEL PLATES ON—SITE TO ALLOW FOR THE RAPID COVERING OF TRENCHES OR EARTH DROPS IN THE EVENT OF UNEXPECTED WORK STOPPAGES FOR WEATHER OR AIRPORT EMERGENCIES.

WHEN NOT IN USE AND DURING NONWORKING HOURS, CONTRACTOR'S EQUIPMENT SHALL BE PARKED WITHIN THE CONTRACTOR'S EQUIPMENT STORAGE AND PARKING AREAS. THE EQUIPMENT STORAGE AND PARKING AREAS ARE TO BE LOCATED AS SHOWN ON THE CONSTRUCTION SAFETY AND PHASING PLAN. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION ENTRANCE IN GOOD CONDITION. THE COST OF MAINTAINING THE CONSTRUCTION ENTRANCE IS TO BE INCIDENTAL TO THE CONTRACT. THE CONTRACTOR SHALL PROTECT ALL EXISTING PAVEMENT EDGES FROM DAMAGE FROM CONSTRUCTION EQUIPMENT AND HAUL VEHICLES.

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

CONTRACTOR'S EQUIPMENT SHALL EXTEND NO HIGHER THAN 20 FEET. CRANES SHALL NOT BE USED DURING INSTRUMENT WEATHER CONDITIONS OR AT NIGHT. CRANES SHALL BE LOWERED WHEN NOT IN USE.

## NOTIFICATIONS BY CONTRACTOR

IF ANY CLOSURES ARE REQUIRED, AND HAVE BEEN APPROVED IN ADVANCE, 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 RUNWAY, TAXIWAY OR APRON. THE DATE, TIME AND SCHEDULED DURATION OF THE CLOSING MUST BE APPROVED BY THE RESIDENT ENGINEER AND THE AIRPORT OWNER. THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER AND AIRPORT OWNER THREE (3) DAYS IN ADVANCE OF THE CONTRACTOR'S CLOSING OF OTHER ACTIVE ROADWAYS, AIRFIELD OR ROADWAY LIGHTING CIRCUITS, OR OTHER AIRPORT FACILITIES.

### CONTRACTOR'S USE OF SITE

AT NO TIME SHALL THE CONTRACTOR CONDUCT ANY ACTIVITIES OR OPERATE OR PARK EQUIPMENT SO AS TO OBSTRUCT ACTIVE PART 77 AIRPORT IMAGINARY SURFACES.

- ALL WORK SHALL BE LIMITED TO THOSE AREAS WITHIN THE CONSTRUCTION LIMIT LINE SHOWN ON THE CONSTRUCTION SAFETY AND PHASING PLAN, INCLUDING ALL MEN, EQUIPMENT, AND MATERIALS/HAUL VEHICLES.
- START OF ANY WORK SHALL BE PREVIOUSLY NOTIFIED AND PRIOR APPROVED BY THE RESIDENT ENGINEER AND THE AIRPORT OWNER.

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

#### UTILITY OUTAGES AND SHUTDOWNS

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

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

ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROVED PROJECT CONSTRUCTION AND PHASING 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.

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REPLACE PERIMETER FENCE, PHASE 2

SBGP No: 3-17-SBGP-156/TBD IDA No: I63-4827

Contract No. MS010

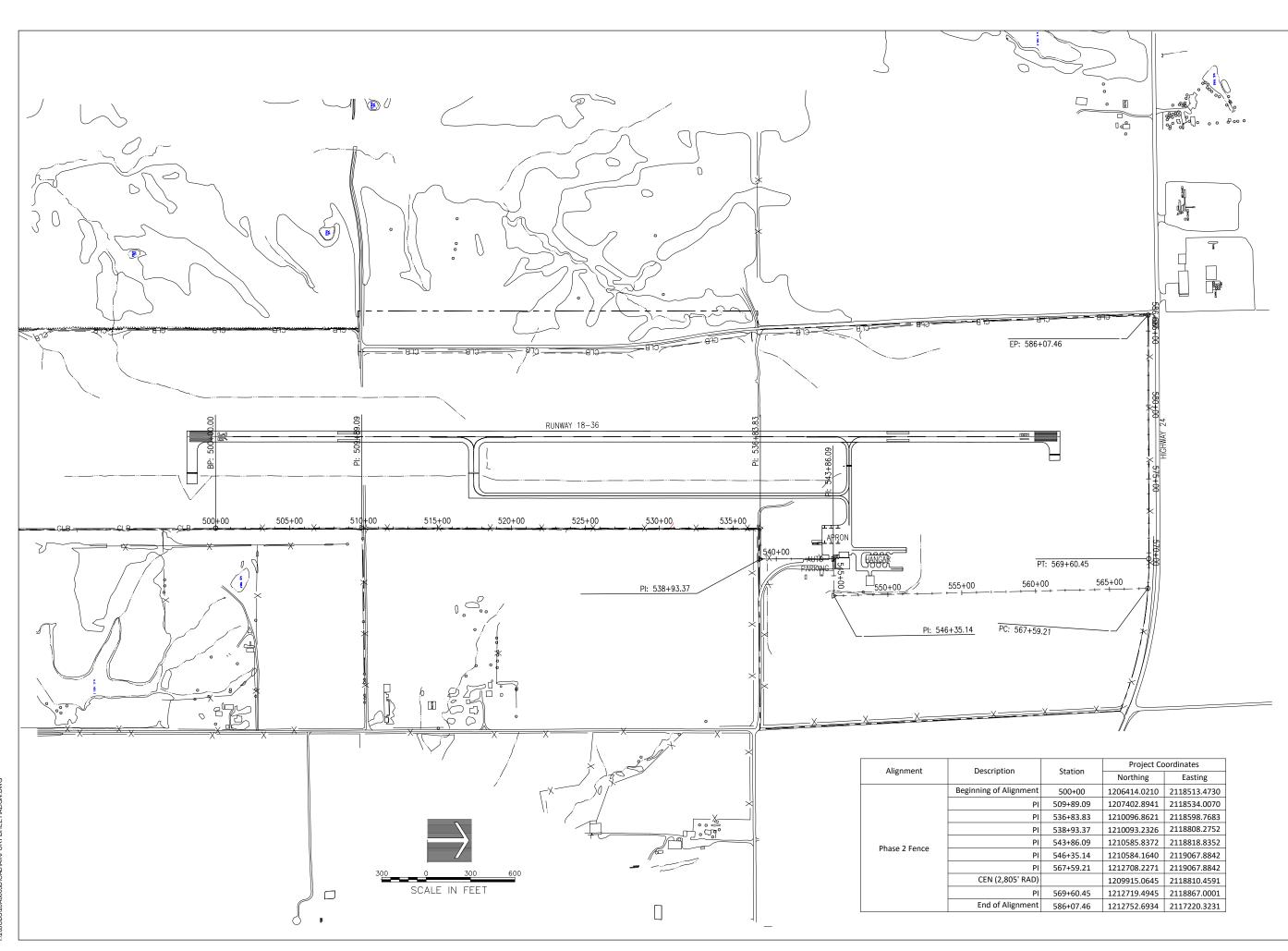
NO. DATE DESCRIPTION
DES DWN REV
ISSUE: NOVEMBER 13, 2020
PROJECT NO: 20A0005
CAD FILE: 05-SAFETYNOTES DWG
DESIGN BY: LDH 10/1/2020

CONSTRUCTION SAFETY NOTES

SHEET TITLE

DRAWN BY: LDH 10/1/2020

REVIEWED BY: LDH 11/10/2020





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Contract No. MS010

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ISSUE: NOVEMBER 13, 2020
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DRAWN BY: LDH 9/21/2020

ALIGNMENT DATA TABLE

REVIEWED BY: LDH 11/10/2020



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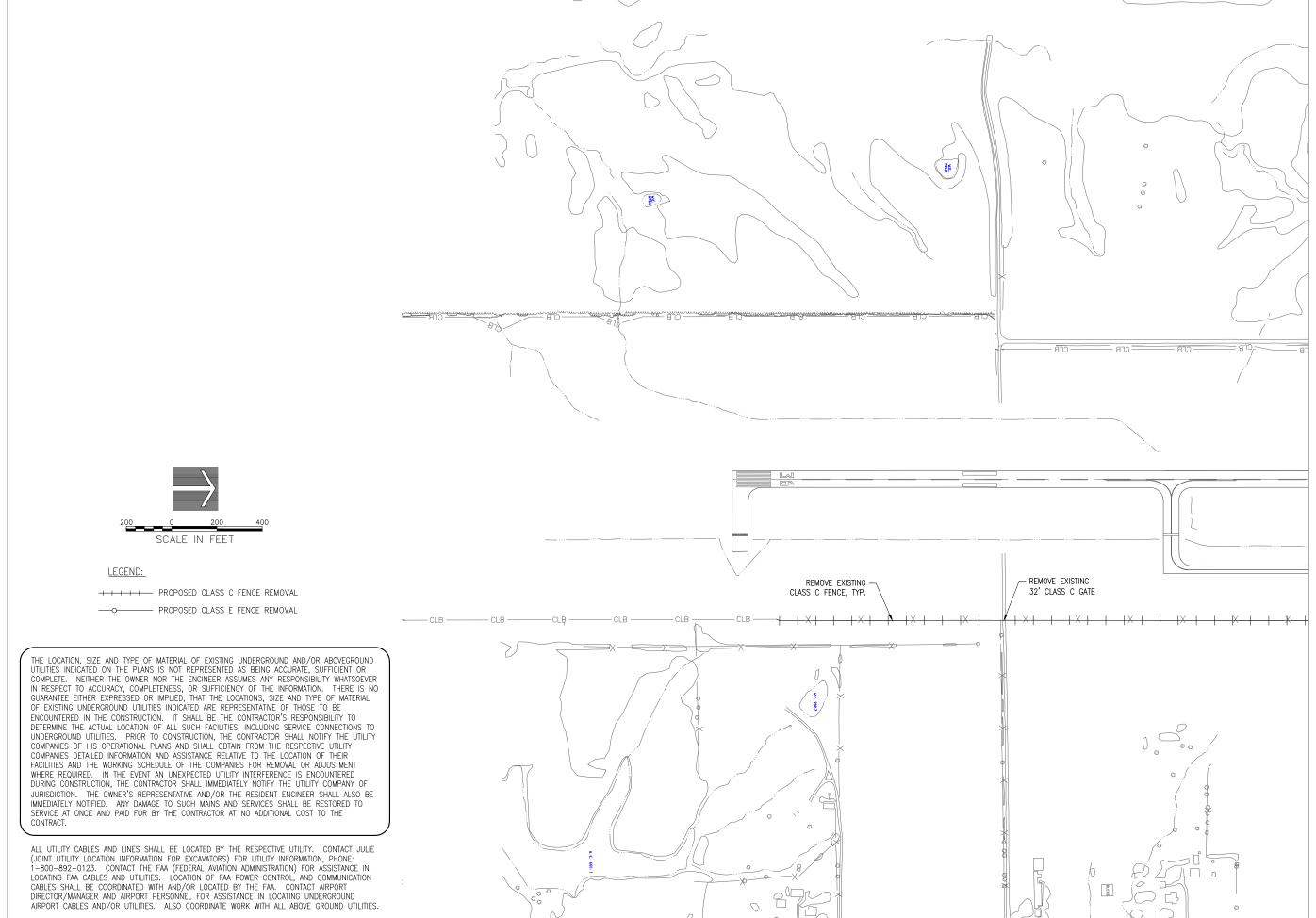
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DESIGN BY: LDH XX/XX/XXXX

DRAWN BY: LDH XX/XX/XXXX

STORM WATER
POLLUTION
PREVENTON PLAN

REVIEWED BY: LDH 11/10/2020





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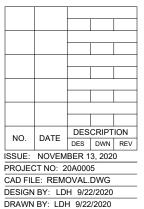
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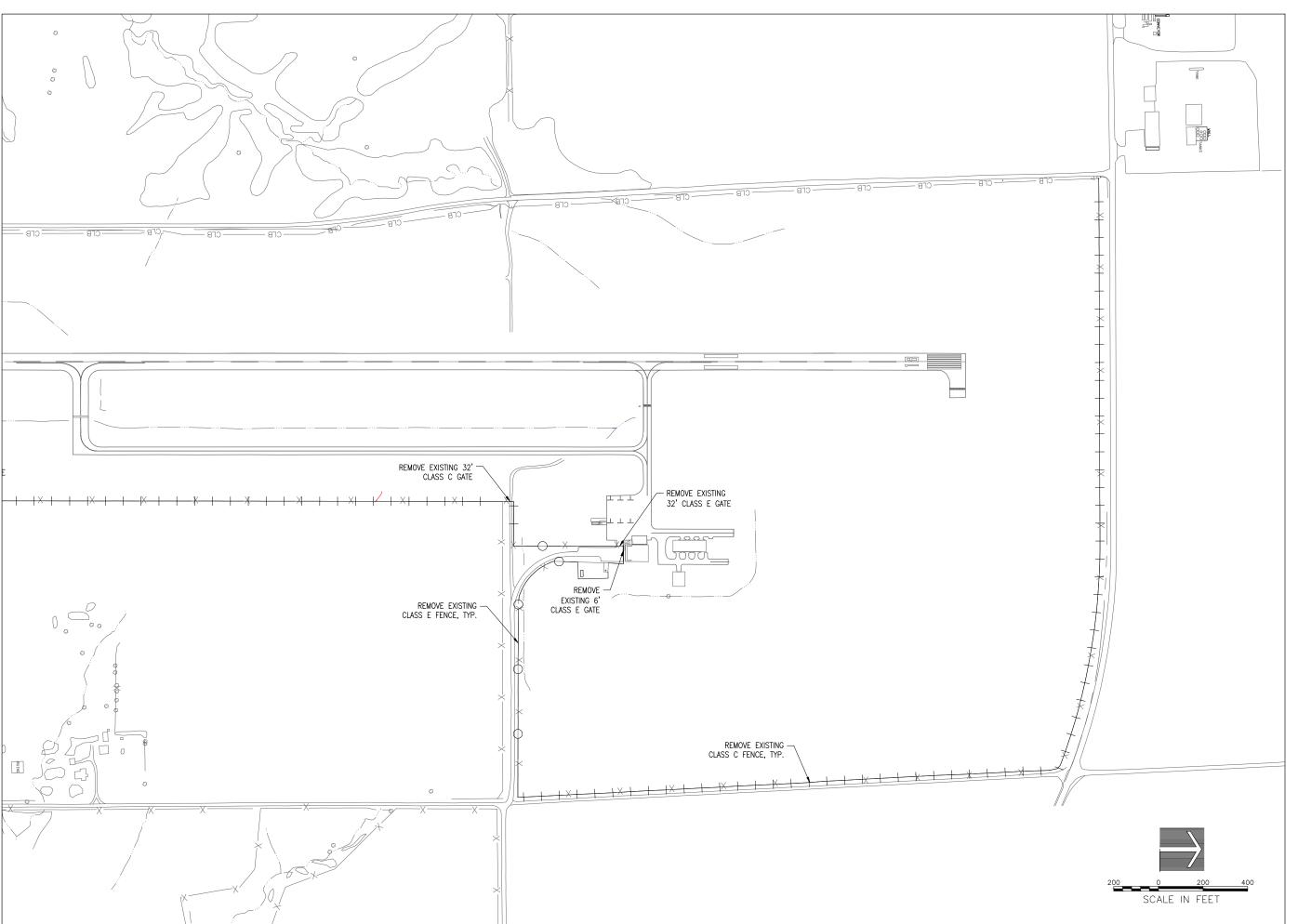
Contract No. MS010



REVIEWED BY: LDH 11/10/2020

SHEET TITLE

REMOVAL PLAN





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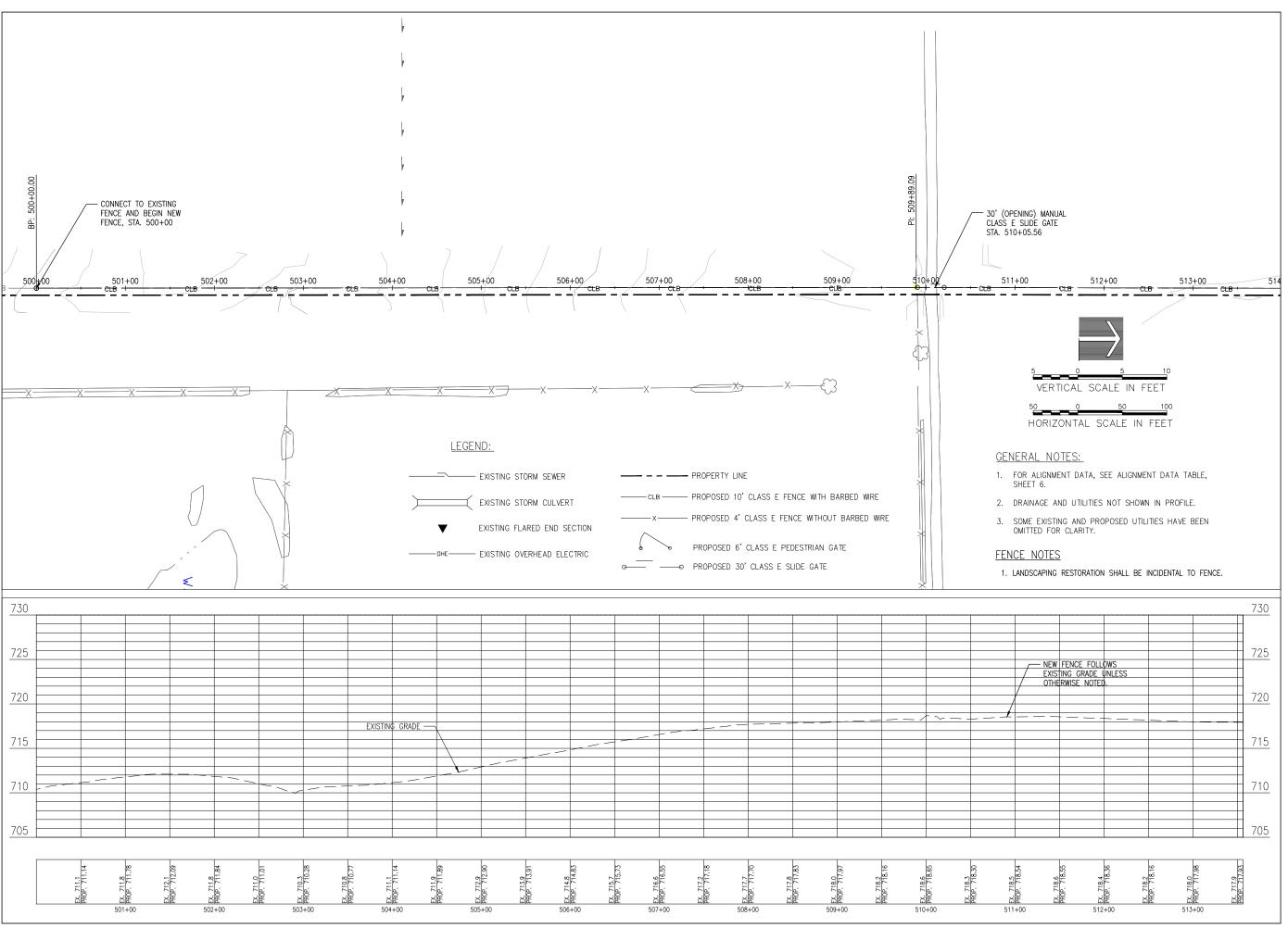
PROJECT NO: 20A0005

CAD FILE: REMOVAL.DWG

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REMOVAL PLAN

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DRAWN BY: LDH 9/22/2020
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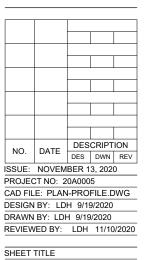
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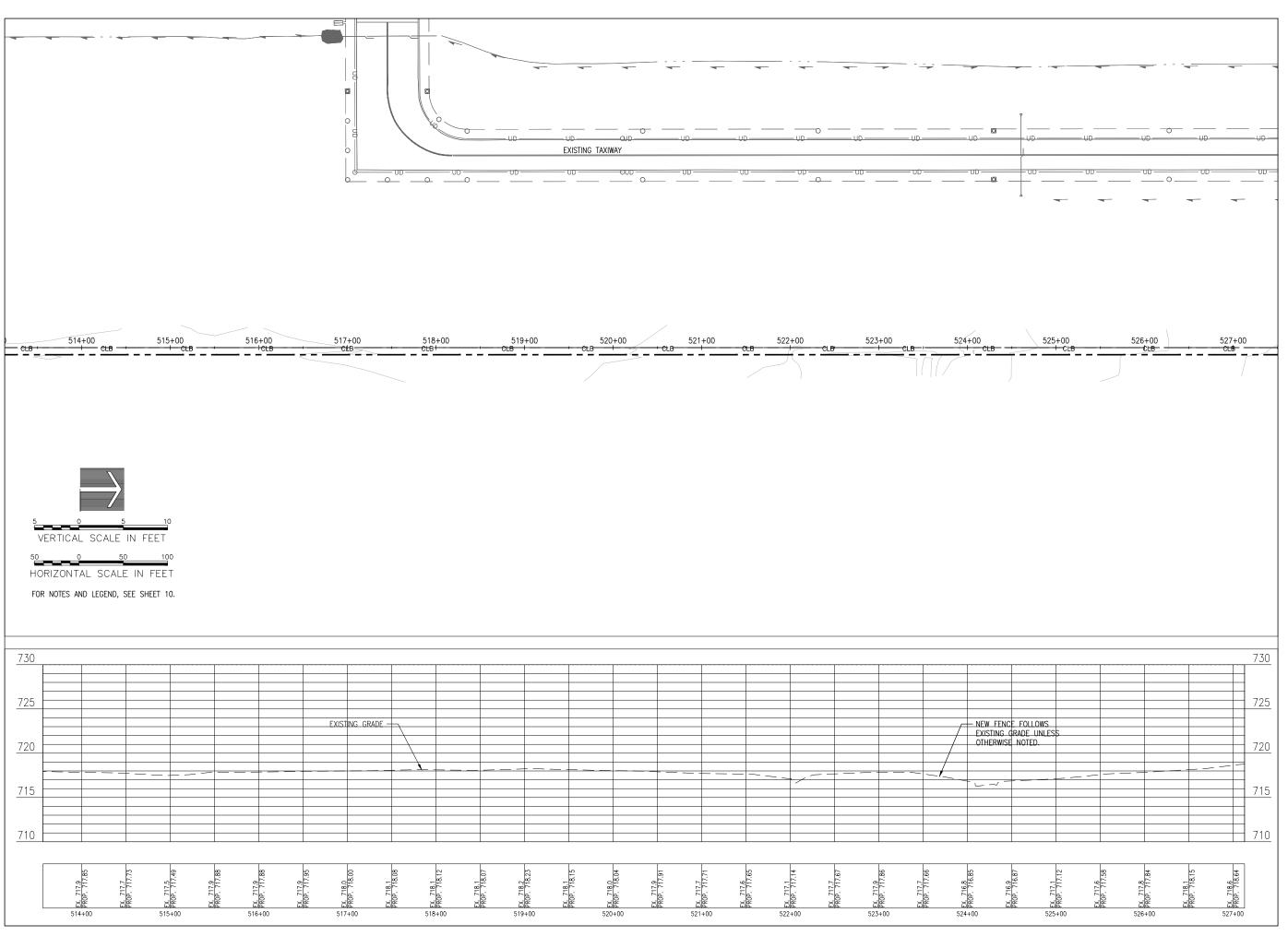
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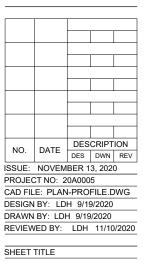
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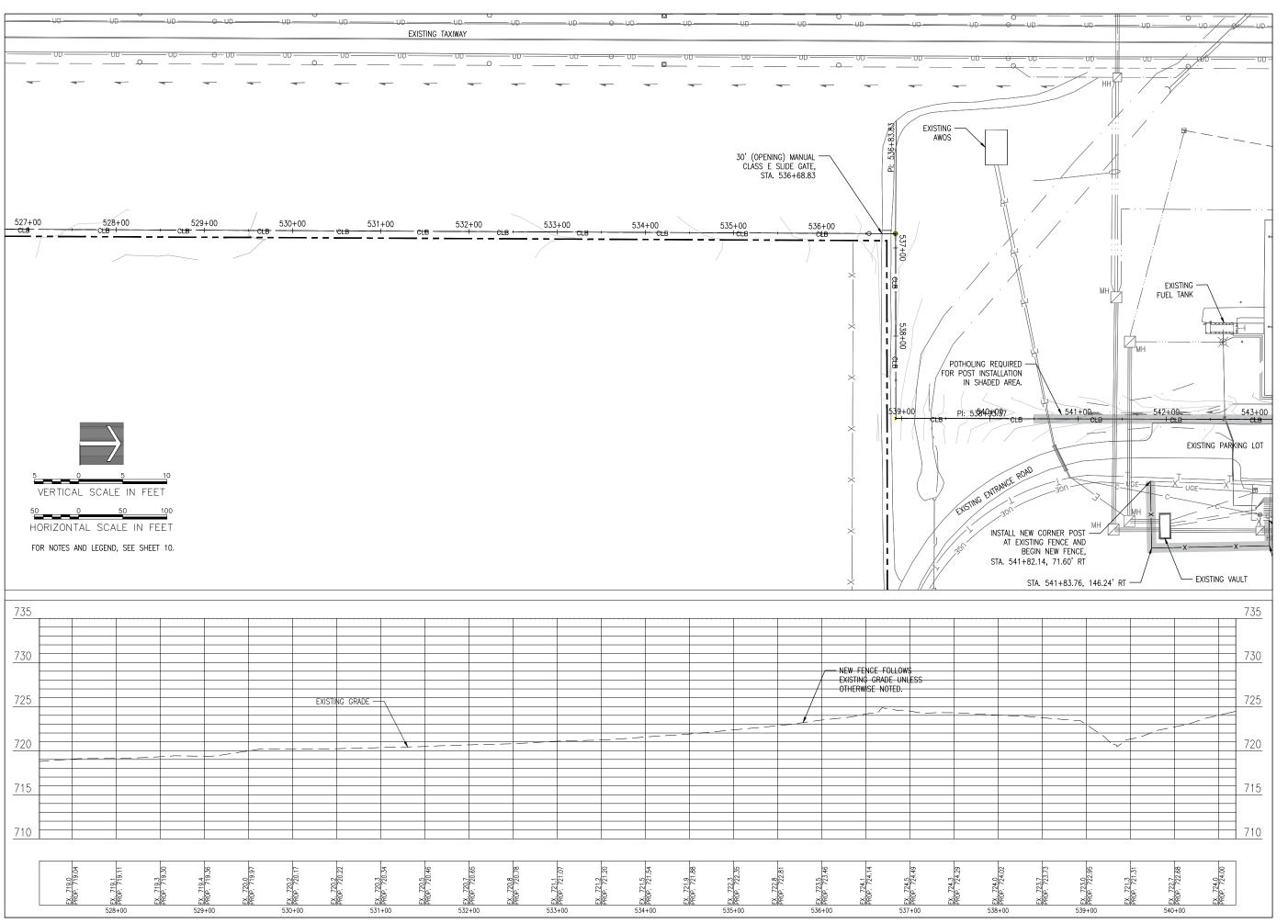
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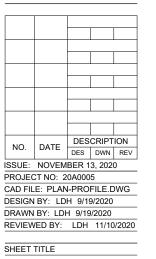
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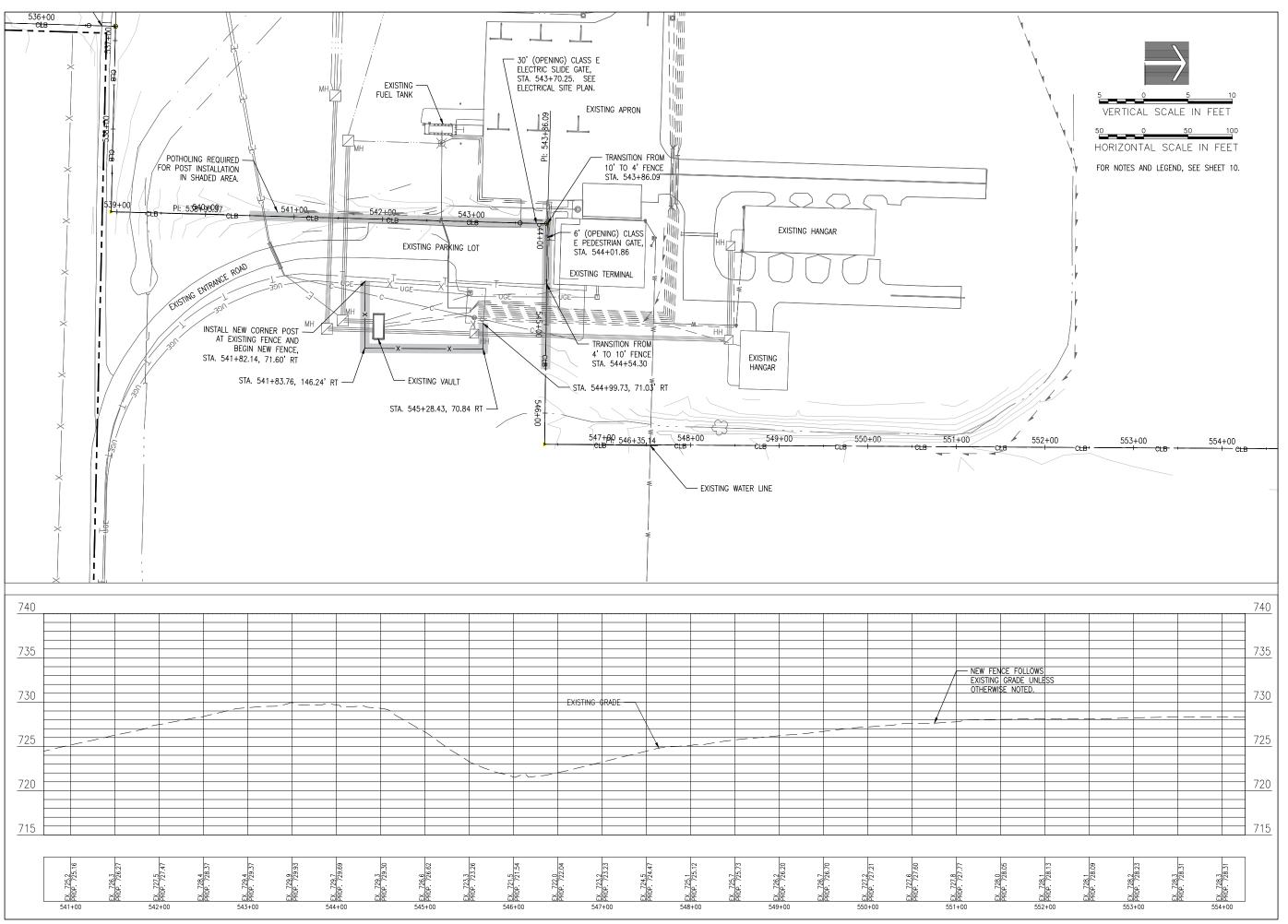
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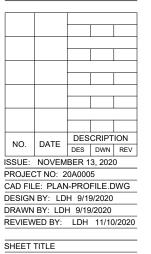
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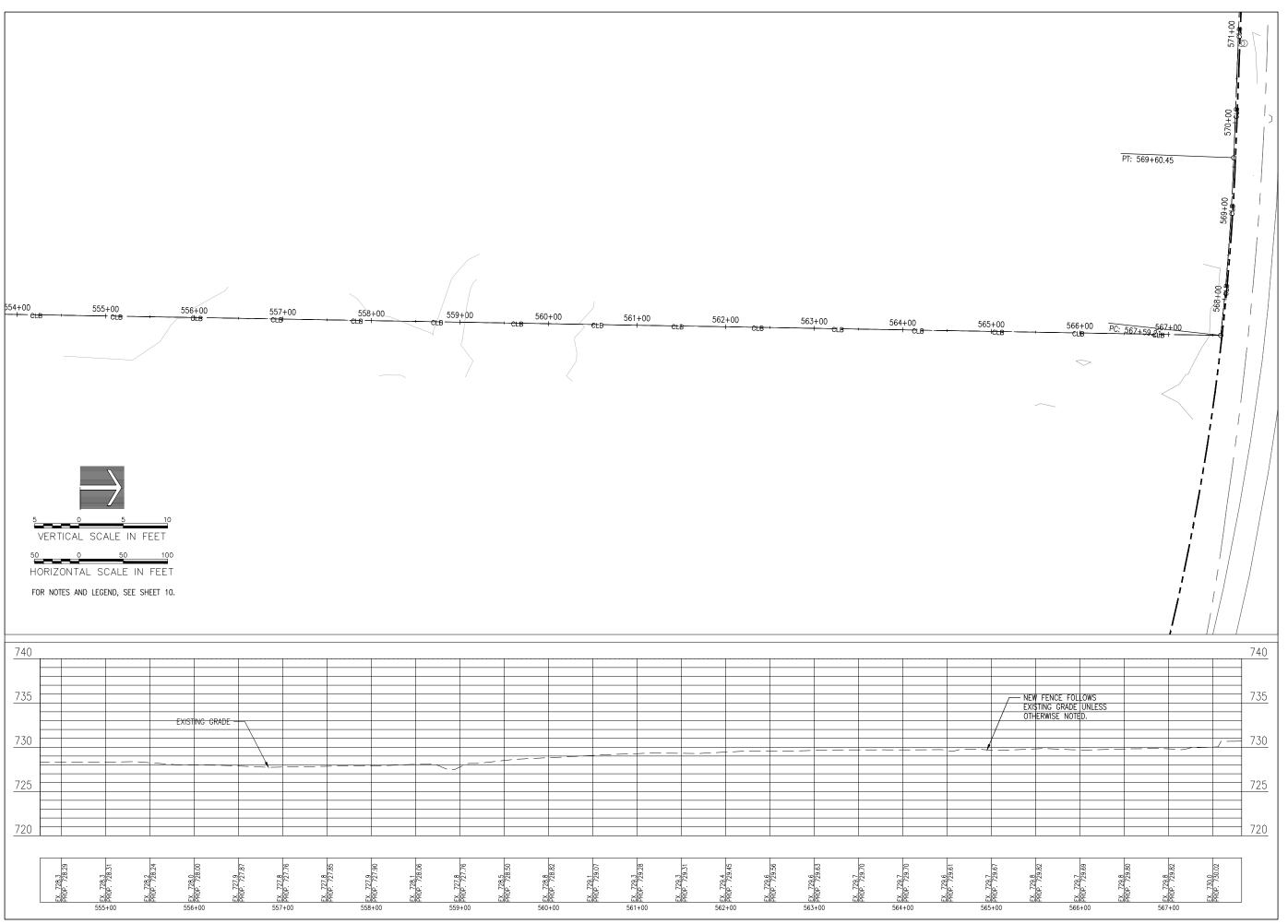
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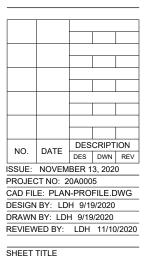
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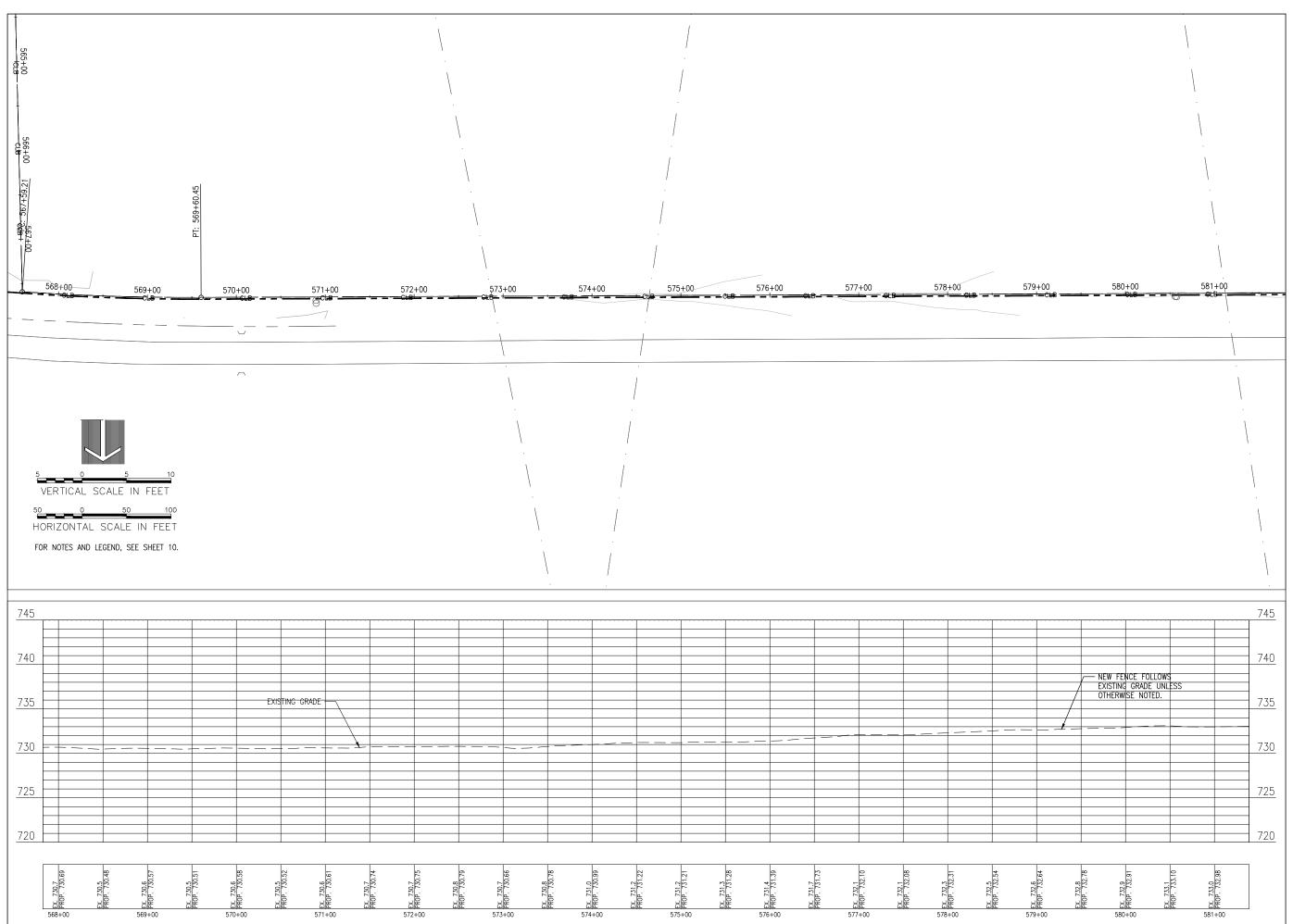
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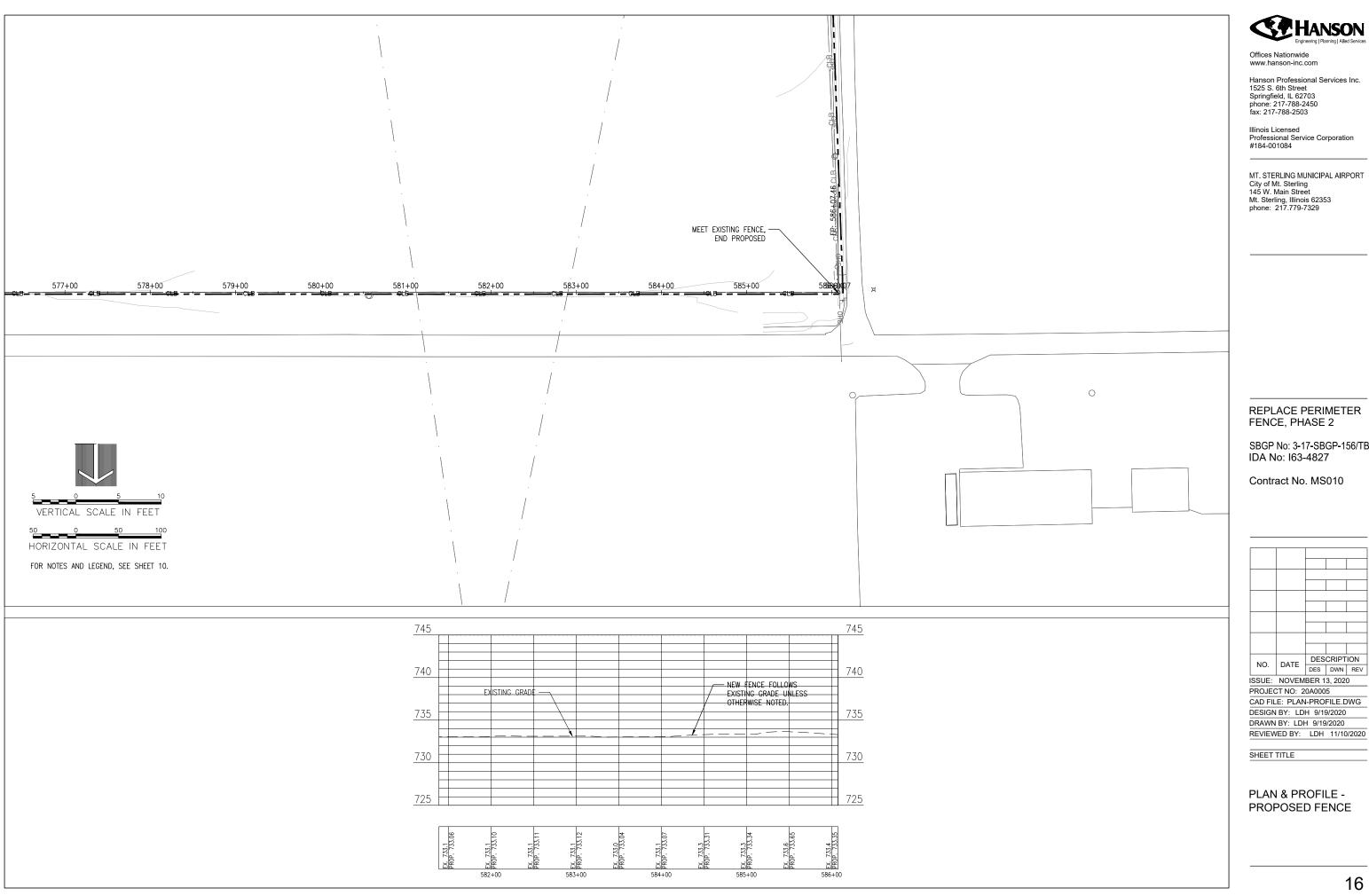
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- ZINC-COATED STEEL FABRIC SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 181, TYPE 1, CLASS D. THE FABRIC SHALL BE GALVANIZED AFTER WEAVING.
- ALUMINUM-COATED STEEL FABRIC SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 181
  TYPE II. THE UNIT WEIGHT OF THE COATING SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO
  T 213. THE ALUMINUM-COATED STEEL FABRIC SHALL BE GIVEN A CLEAR ORGANIC COATING AFTER
  FABRICATION.
- ALUMINUM—ALLOY FABRIC SHALL BE MADE FROM WIRE CONFORMING TO THE REQUIREMENTS OF AASHTO, M. 181, TYPE III.
- 4. VINYL-COATED FABRIC IS NOT INCLUDED.
- ZINC-5% ALUMINUM-MISCHMETAL ALLOY-COATED STEEL SHALL CONFORM TO THE REQUIREMENTS
  OF ASTM F 1345, CLASS 2.

METAL POSTS - METAL POSTS (LINE, CORNER, END, PULL AND GATE POSTS) SHALL BE THE SHAPES, DIMENSIONS, AND WEIGHT SHOWN IN THE TRABLES WITHIN IDOT STANDARD 664001-02 - CHAIN LINK FENCE, FOR THE SHAPES IDENTIFIED BELOW.

- 1. STEEL PIPE, TYPE A, SHALL BE HOT-DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS
- 2. STEEL PIPE, TYPE B, SHALL BE MANUFACTURED FROM COLD ROLLED ELECTRIC RESISTANCE WELDED, HEATED AND TEMPERED STEEL. THE STEEL STRIP USED IN THE MANUFACTURE OF THE PIPE SHALL CONFORM TO ASTM A 569 OR ASTM A 607. THE WALL THICKNESS SHALL NOT BE LESS THAN THAT SHOWN IN THE TABLES. THE PRODUCT OF THE YIELD STRENGTH AND SECTION MODULUS OF THE PIPE SHALL NOT BE LESS THAN THAT OF THE PIPE MEETING THE REQUIREMENTS OF ASTM F 1083.

#### THE PROTECTIVE COATINGS SHALL BE AS FOLLOWS:

- EXTERNAL AND INTERNAL HOT-DIPPED ZINC COATING ACCORDING TO ASTM F1083.
   EXTERNAL COATING SHALL BE IN-LINE HOT-DIPPED ZINC COATING AFTER FABRICATION FOLLOWED
- EXTERNAL COATING SHALL BE IN-LINE HOT-DIPPED ZINC COATING AFTER FABRICATION FOLLOWED
  BY A CHROMATE CONVERSION COATING WITH AN ELECTROSTATIC THERMOPLASTIC FINISH. THE ZINC
  COATING SHALL BE NOT LESS THAN .9 OUNCES PER SQUARE FOOT OF SURFACE. THE CHROMATE
  COATING WEIGHT SHALL BE 30 MICROGRAMS + .0002 INCHES
- COATING WEIGHT SHALL BE 30 MICROGRAMS + .0002 INCHES.

  THE INTERNAL SURFACE SHALL BE GIVEN CORROSION PROTECTION BY IN-LINE APPLICATION OF A FULL ZINC BASE ORGANIC COATING AFTER FABRICATION. THE COATING SHALL BE 87% ZINC POWDER BY WEIGHT AND CAPABLE OF PROVIDING GALVANIC PROTECTION. THE THICKNESS SHALL BE A MINIMUM OF .5 MIL. THE EXTERNAL PROTECTIVE COATING SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING TESTS:

 EXPOSURE TEST
 ASTM
 DESIGNATION EXPOSURE TIME

 SALT SPRAY
 ASTM B 117
 1000 HRS. MIN.

 HUMIDITY
 ASTM D 2247
 500 HRS. MIN.

 WEATHERING
 ASTM G 23
 500 HRS. MIN.

THE INTERNAL PROTECTIVE COATING SHALL BE CAPABLE OF WITHSTANDING EXPOSURE TO SALT SPRAY, ASTM B 117, FOR A MINIMUM OF 500 HOURS.

- 3. STEEL PIPE, TYPE C, SHALL BE MANUFACTURED BY ROLLED FORMING ALUMINIZED STEEL TYPE 2 STRIP AND ELECTRIC RESISTANCE WELDING INTO TUBULAR FORM. THE OUTSIDE OF THE WELD AREA SHALL BE METALLIZED WITH COMMERCIALLY PURE ALUMINUM TO A THICKNESS SUFFICIENT TO PROVIDE RESISTANCE TO CORROSION EQUAL TO THAT OF THE REMAINDER OF THE OUTSIDE OF THE TUBE. THE ALUMINUM COATING WEIGHT SHALL BE A MINIMUM OF 0.75 OUNCES PER SQUARE FOOT, TRIPLE SPOT TEST, 0.70 OUNCES PER SQUARE FOOT SINGLE SPOT TEST, AS MEASURED IN ACCORDANCE WITH ASTM A 428. THE STEEL STRIP USED IN THE MANUFACTURE OF THE PIPE SHALL CONFORM TO ASTM A 787 TYPE 1 AND SHALL HAVE A MINIMUM YIELD STRENGTH OF 50,000 P.S.I. THE WEIGHT OF THE PIPE SHALL NOT BE LESS THAN THAT SHOWN ON THE PLANS AND THE PRODUCT OF THE YIELD STRENGTH AND SECTION MODULUS OF THE PIPE SHALL NOT BE LESS THAN THAT OF PIPE MEETING THE REQUIREMENTS OF ASTM A 120.
- 4. SQUARE HOLLOW STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 500, GRADE B OR ASTM A 501. THE TUBING SHALL BE GALVANIZED INSIDE AND OUTSIDE IN ACCORDANCE WITH AASHTO M 111, USING ZINC OF ANY GRADE CONFORMING TO THE REQUIREMENT OF AASHTO M 120. THE ZINC COATING SHALL NOT BE LESS THAN 2.0 OUNCES PER SQUARE FOOT OF SURFACE.
- 5. STRUCTURAL SHAPES SHALL BE EXCLUDED.

BOTTOM TENSION WIRE - THE BOTTOM TENSION WIRE SHALL BE #9 GAUGE GALVANIZED STEEL WIRE MEETING THE REQUIREMENTS OF AASHTO M 181, THE WIRE SHALL BE STRETCHED TIGHT WITH GALVANIZED TURNBUCKLES SPACED AT INTERVALS NOT MORE THAN 1,000 FEET. THE ZINC COATING SHALL BE NOT LESS THAN 12 OUNCES PER SOLIAPE FOOT OF SURFACE

METAL BRACES - METAL BRACES SHALL HAVE THE SHAPES SHOWN ON THE PLANS AND AT THE DIMENSIONS SHOWN WITHIN THE TABLE WITHIN 10DT STANDARD 664001-02 - CHAIN LINK FENCE. THEY SHALL BE ACCORDING TO THE SPECIFICATIONS FOR METAL POSTS, EITHER STEEL PIPE, STRUCTURAL SHAPE OR ROLLED FORMED SECTION AND SHALL BE GALVANIZED AS SPECIFIED FOR METAL POSTS.

GATE - THE GATE TYPE AND SIZE SHALL CONFORM TO THE DETAILS SHOWN ON THE PLANS AND AS PROVIDED IN THE SPECIAL PROVISIONS

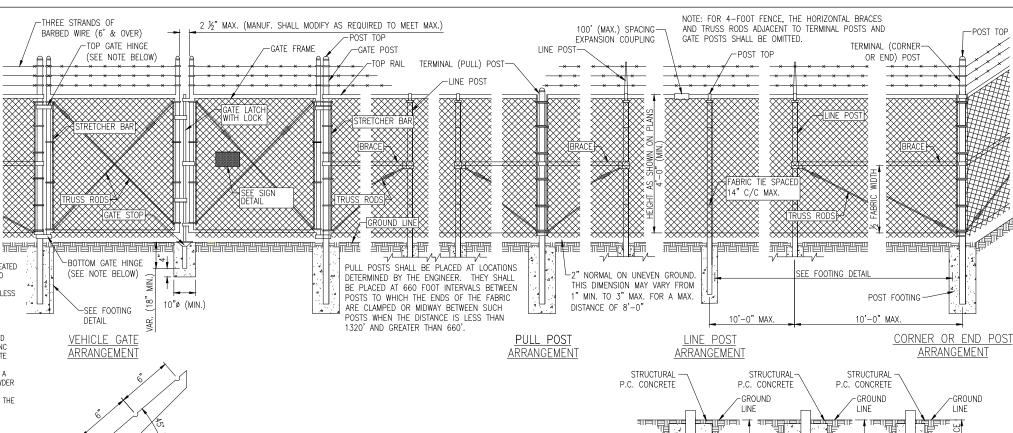
STRUCTURAL P.C. CONCRETE — THE STRUCTURAL P.C. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ITEM 610 OF THE STANDARD SPECIFICATIONS. A HIGH EARLY STRENGTH CONCRETE MAY BE USED. THE CONCRETE MIX DESIGN SHALL BE APPROVED FOR USE BY IDOT-AERONAUTICS PRIOR TO USING IT ON THE PROJECT.

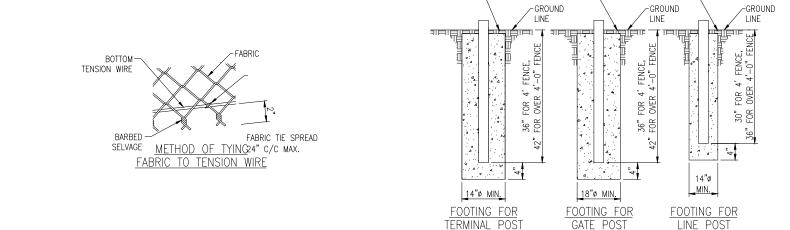
BOLTS AND NUTS - ALL BOLTS AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 307 AND SHALL BE ZINC-COATED IN ACCORDANCE WITH AASHTO M 298, CLASS 50 OR ASTM A 153.

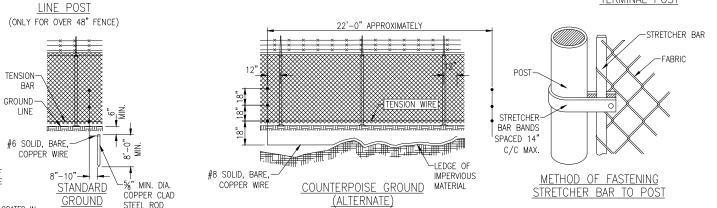
WIRE TIES AND TENSION WIRE — WIRE FABRIC TIES, WIRE TIES, AND TENSION WIRE FURNISHED FOR USE IN CONJUNCTION WITH A GIVEN TYPE OF FABRIC SHALL BE OF THE SAME MATERIAL AND COATING WEIGHT IDENTIFIED WITH THE FABRIC TYPE. ZINC—COATED STEEL WIRE, ALUMINUM—COATED STEEL WIRE, AND ALUMINUM ALLOY WIRE SHALL CONFORM TO REQUIREMENTS OF AASHTO M 181, TYPE I CLASS 2 OR TYPE II. THE TOP TENSION WIRE WILL BE DELETED IN LIEU OF THE TOP RAIL WHEN TOP RAIL IS REQUIRED. THE BOTTOM TENSION WIRE IS REQUIRED.

TOP RAILS — THE TOP RAILS SHALL BE 1.66 INCH O.D., GALVANIZED OR ALUMINUM COATED PIPE HAVING A MINIMUM BENDING STRENGTH OF 202 LBS. AT THE CENTER OF A 10 FT. SPAN AND WILL BE REQUIRED.

BARBED WIRE — BARBED WIRE MAY BE EITHER GALVANIZED STEEL BARBED WIRE OR ALUMINUM—COATED STEEL BARBED WIRE CONSISTING OF 2 STRANDS OF 12 1/2 GAUGE WIRE WITH 4—POINT BARBS OF 14 GAUGE WIRE SPACED 5 INCHES APART CONFORMING TO THE FOLLOWING REQUIREMENTS: (1) GALVANIZED BARBED WIRE SHALL CONFORM TO THE SPECIFICATIONS OF ZINC—COATED (GALVANIZED) STEEL BARBED WIRE, ASSHTO M 280, CLASS 3 WITH A MINIMUM COATING OF 0.80 OUNCES PER SQUARE FOOT OF WIRE SURFACE (2) ALUMINUM— COATED STEEL BARBED WIRE SHALL CONFORM TO THE SPECIFICATIONS FOR GALVANIZED STEEL BARBED WIRE, EXCEPT THE WIRE SHALL BE ALUMINUM COATED. THE WIRE SHALL HAVE NOT LESS THAN 0.25 OUNCES OF COATING OF ALUMINUM ALLOY PER SQUARE FOOT OF UNCOATED SURFACE. THE WEIGHT OF THE ALUMINUM ALLOY COATING SHALL BE DETERMINED IN ACCORDANCE WITH ASSHTO T 213.







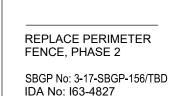
## PROTECTIVE ELECTRICAL GROUND

#### NERAL NOTE:

BARBED

WIRE ARM OF

CONTINUOUS FENCE SHALL BE GROUNDED AT INTERVALS NOT EXCEEDING 500 FT IN URBAN AREAS AND 1,000 FT IN RURAL AREAS. THERE SHALL BE A GROUND WITHIN 100 FT OF GATES IN EACH SECTION OF THE FENCE ADJACENT TO THE GATE. FENCE UNDER A POWER LINE SHALL BE GROUNDED BY THREE GROUNDS; ONE DIRECTLY UNDER THE CROSSING AND ONE ON EACH SIDE 25 FT TO 50 FT AWAY. A SINGLE GROUND SHALL BE LOCATED DIRECTLY UNDER EACH TELEPHONE WIRE OR CABLE CROSSING. THE COUNTERPOISE GROUND SHALL BE USED ONLY WHERE IT IS IMPOSSIBLE TO DRIVE A GROUND ROD. THE GROUND WIRE SHALL BE CONNECTED TO THE FABRIC AND TENSION WIRE WITH UL LISTED GROUNDING CONNECTORS OF CAST BRONZE BODY AND BRONZE OR STAINLESS STELL BOLTS AND WASHERS. GROUNDING CONNECTORS SHALL BE SIZED AND SUITABLE FOR THE RESPECTIVE APPLICATION. CONNECTIONS TO GROUND RODS SHALL BE WITH UL LISTED GROUNDING CONNECTORS SUITABLE FOR EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., DIRECT BURIAL IN EARTH OR SOLON, OHIO, (PHONE 1-800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE 918-663-1440) OR ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE 1-800-842-7437). EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS SUITABLE FOR EACH RESPECTIVE APPLICATION. GROUND RODS SHALL BE \$5/8-IN. DIAMETER BY 8 FT LONG (MINIMUM), UL-LISTED, COPPER-CLAD. THE GROUND WIRE USED TO BOND THE FENCE FABRIC AND TENSION WIRE TO THE GROUND ROD SHALL BE #6 AWG BARE SOLID COPPER CONDUCTOR.



Contract No. MS010

www.hanson-inc.com

1525 S. 6th Street

#184-001084

City of Mt. Sterling

145 W. Main Stree

Mt. Sterling, Illinois 62353

phone: 217.779-7329

Springfield, IL 62703

phone: 217-788-2450 fax: 217-788-2503

nson Professional Services Inc

Professional Service Corporation

MT. STERLING MUNICIPAL AIRPORT

NO. DATE DESCRIPTION DES DWN REV

-FABRIC

SPRFAD

MAX

METHOD OF TYING

FABRIC TO PIPE

WHERE THE FENCE LINE HAS A CHANGE IN

ANGLE IS LESS THAN 15° AND EXISTING

DIRECTION OF 15° OR MORE A TERMINAL POST

CONDITIONS REQUIRE TERMINAL POST, THEY SHALL BE PLACED AS DIRECTED BY ENGINEER.

SHALL BE PLACED AS SHOWN ABOVE WHERE

24" C/C

-TERMINAL POST

-FENCE LINE

KNUCKLE-

TOP RAIL PIPE

PROJECT NO: 20A0005
CAD FILE: FENCEDET1.DWG
DESIGN BY: LDH 9/23/2020
DRAWN BY: LDH 9/23/2020
REVIEWED BY: LDH 11/10/2020

SHEET TITLE

FENCE DETAILS AND NOTES

NOV 14, 2020 11:05 AM HAUSM00682

17



Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62703 phone: 217-788-2450 fax: 217-788-2503

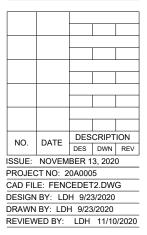
Illinois Licensed Professional Service Corporation #184-001084

MT. STERLING MUNICIPAL AIRPORT City of Mt. Sterling 145 W. Main Street Mt. Sterling, Illinois 62353 phone: 217.779-7329

REPLACE PERIMETER FENCE, PHASE 2

SBGP No: 3-17-SBGP-156/TBD IDA No: I63-4827

Contract No. MS010



FENCE DETAILS

	ELECTRICAL LEGEND — SCHEMATIC
⊣⊢	NORMALLY OPEN (N.O.) CONTACT
<b>-</b> ₩-	NORMALLY CLOSED (N.C.) CONTACT
(S*)	STARTER COIL, * = STARTER NUMBER
OL OL	OVERLOAD RELAY CONTACT
<del> }</del> / (CR*)	CONTROL RELAY, * = CONTROL RELAY NUMBER
(R*)	RELAY, * = RELAY NUMBER
	TOGGLE SWITCH / 2 POSITION SWITCH
OFF, AUTO	Toole Simon / 2 roomen simon
	2-POSITION SELECTOR SWITCH
o ox	
HAND F AUTO SOO OOX	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)
Н	2 POLE DISCONNECT SWITCH
	3 POLE DISCONNECT SWITCH
<b>&gt;</b>	PHOTOCELL
	TERMINAL BLOCK, * = TERMINAL NUMBER
-	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER
	INTERNAL PANEL WIRING
	FIELD WIRING
	FUSE
GND	GROUND BUS OR TERMINAL
S/N	NEUTRAL BUS
<u></u>	GROUND, GROUND ROD, GROUND BUS
0 0	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
+ 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1	S1 CUTOUT HANDLE REMOVED
#	S1 CUTOUT HANDLE INSERTED
<i>%</i>	N.O. THERMAL SWITCH
°Ţ°	N.C. THERMAL SWITCH
	L-830 SERIES ISOLATION TRANSFORMER

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  EOR ENGINEER OF RECORD  EP EXPLOSION PROOF  ES EMERGENCY STOP  ETL INTERTEK – ELECTRICAL TESTING LABS  ETM ELAPSE TIME METER  GFCI GROUND FAULT CIRCUIT INTERRUPTER  GRO GROUND  GRSC GALVANIZED RIGID STEEL CONDUIT  HID HIGH INTENSITY DISCHARGE  HOA HAND OFF AUTOMATIC  HP HORSEPOWER  HPS HIGH PRESSURE SODIUM  J JUNCTION BOX	
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HP HORSEPOWER HPS HIGH PRESSURE SODIUM  J JUNCTION BOX	
HPS HIGH PRESSURE SODIUM  J JUNCTION BOX	
J JUNCTION BOX	
<u> </u>	
IOVA KILOVOLT AMPEDEVO	
KVA KILOVOLT AMPERE(S)	
KW KILOWATTS	
LC LIGHTING CONTACTOR	
LTFMC LIQUID TIGHT FLEXIBLE METAL CONDUIT (UL LIS	TED)
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	
٧	VOLTS	
W/	WITH	
W/0	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  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 END IDENTIFIER LIGHT  ROFA RUNWAY SAFETY AREA  RVR RUNWAY VISUAL RANGE  TOFA TAXIWAY OBJECT FREE AREA  TSA TAXIWAY SAFETY AREA  VADI VISUAL APPROACH SLOPE INDICATOR  VASI VISUAL APPROACH DESCENT INDICATOR		
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LIR LOW IMPACT—RESISTANT  LOC LOCALIZER FACILITY  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  ROFA RUNWAY OBJECT FREE AREA  RSA RUNWAY SAFETY AREA  RVR RUNWAY VISUAL RANGE  TOFA TAXIWAY OBJECT FREE AREA  TSA TAXIWAY SAFETY AREA  VADI VISUAL APPROACH DESCENT INDICATOR  VASI VISUAL APPROACH SLOPE INDICATOR	ILS	INSTRUMENT LANDING SYSTEM
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VADI VISUAL APPROACH DESCENT INDICATOR  VASI VISUAL APPROACH SLOPE INDICATOR	TOFA	TAXIWAY OBJECT FREE AREA
VASI VISUAL APPROACH SLOPE INDICATOR	TSA	TAXIWAY SAFETY AREA
	VADI	VISUAL APPROACH DESCENT INDICATOR
VEDY LIGHT EDECHENCY OF MIDIDECTIONAL	VASI	VISUAL APPROACH SLOPE INDICATOR
VOR RANGE FACILITY	VOR	VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE FACILITY
WC WIND CONE	WC	WIND CONE

## NOTES:

- 1. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING/CONSTRUCTION FOR USE AS A REFERENCE.
- 3. 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).
- 4. 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

- CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E- STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
- 6. SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
- CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS.
  CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND
  POWER SOURCES PRIOR TO REMOVING, DISCONNECTING,
  RELOCATING, ADJUSTING, WORKING ON, INSTALLING, OR
  CONNECTING THE RESPECTIVE EQUIPMENT OR OTHER DEVICE.
- HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE OR HANDHOLE.

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MT. STERLING MUNICIPAL AIRPORT City of Mt. Sterling 145 W. Main Street Mt. Sterling. Illinois 62353 phone: 217.779-7329

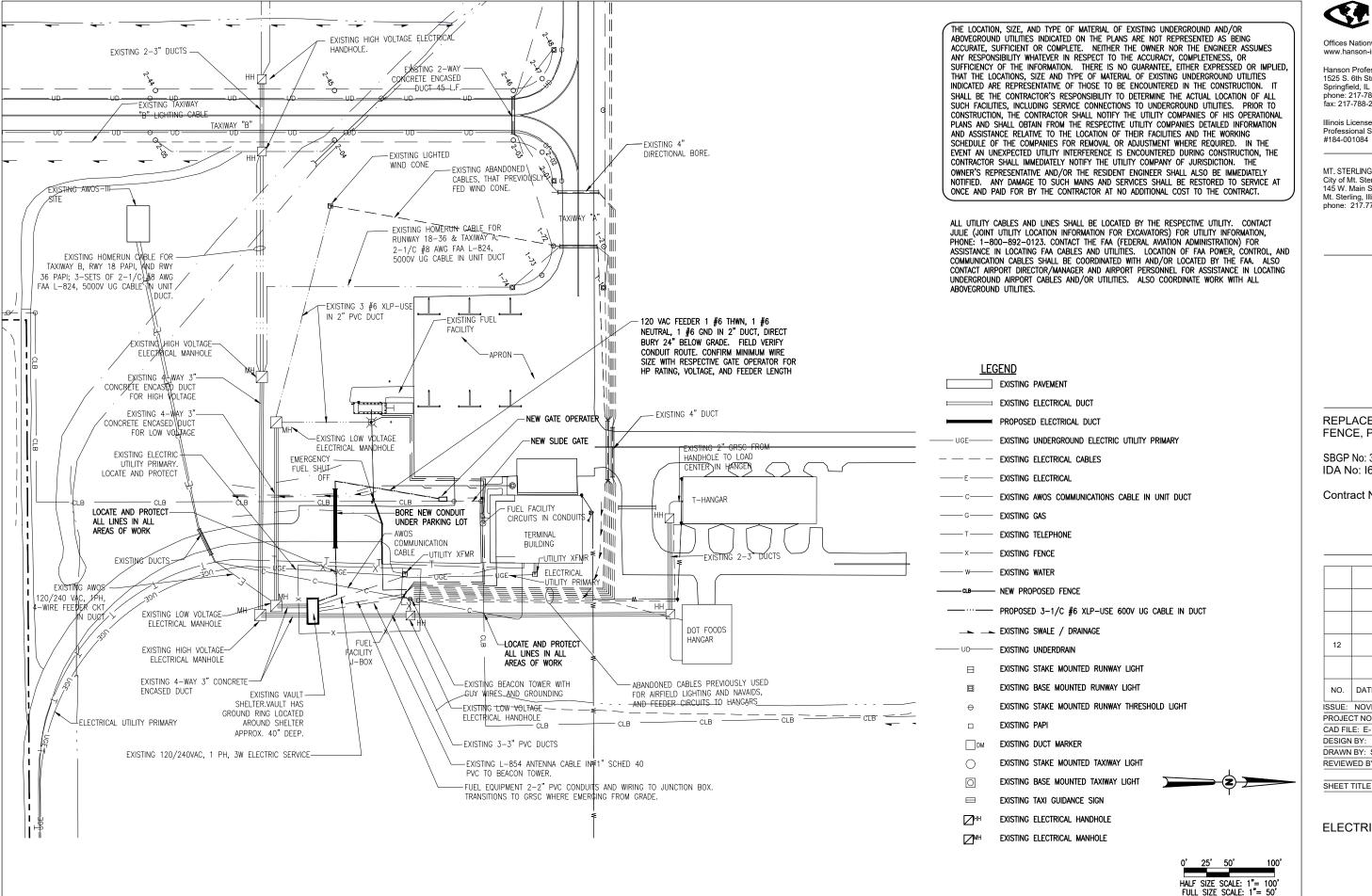
REPLACE PERIMETER FENCE, PHASE 2

SBGP No: 3-17-SBGP-156/TBD IDA No: 163-4827

Contract No. MS010

NO. DATE DESCRIPTION
DES DWN REV
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PROJECT NO: 20A0005
CAD FILE: E-001-LGND.DWG
DESIGN BY: KNL 09/01/2020
DRAWN BY: SDN 09/04/2020
REVIEWED BY: LDH 11/10/2020

ELECTRICAL LEGEND AND ABBREVIATIONS



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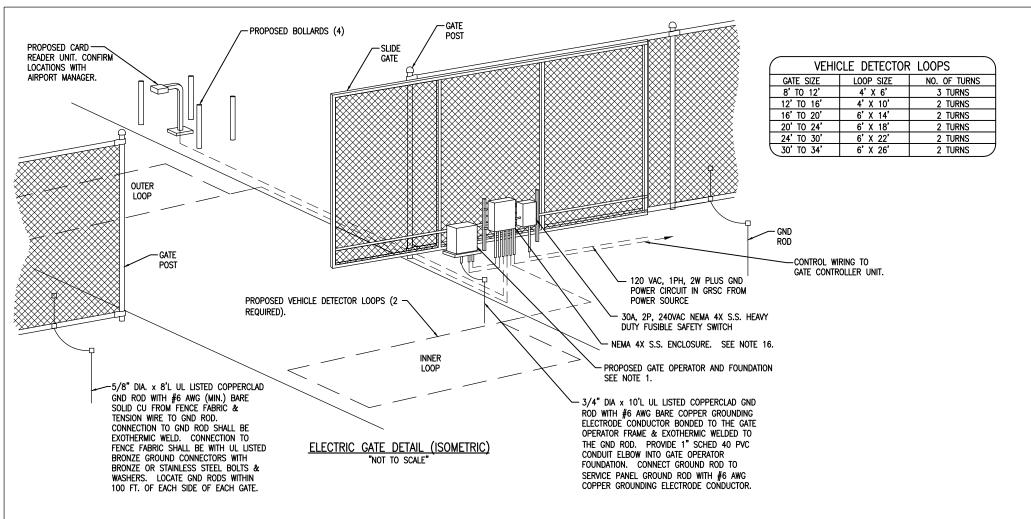
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12 DESCRIPTION NO. DATE DES DWN REV ISSUE: NOVEMBER 13, 2020 PROJECT NO: 20A0005 CAD FILE: E-101-SITE.DWG DESIGN BY: KNI 09/01/2020 DRAWN BY: SDN 09/08/2020 REVIEWED BY: LDH 11/10/2020

**ELECTRICAL SITE PLAN** 





# Serious Injury or Death.

KEEP CLEAR! Gate may move at any time without prior warning.

Do not let children operate the gate or play in the gate area.

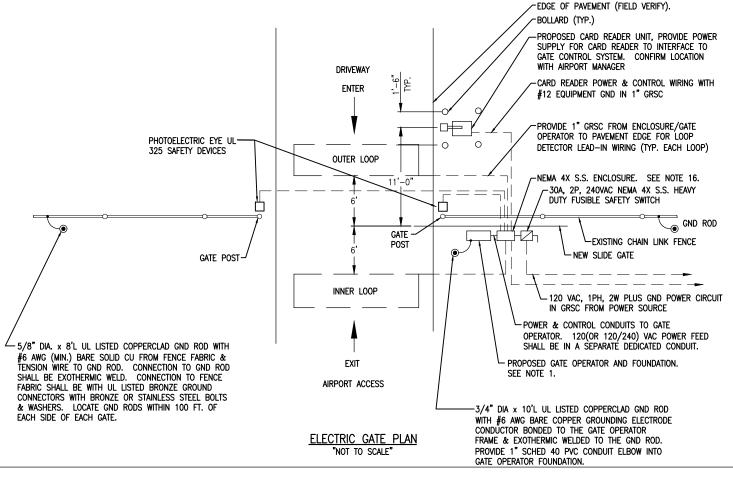
This entrance is for vehicles only.

Pedestrians must use separate entrance.

### WARNING SIGN DETAIL

### <u>NOTES</u>

. 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, AND IN ACCORDANCE WITH THE RESPECTIVE GATE MANUFACTURER'S RECOMMENDATIONS.



## NOTES:

- SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON GATE & GATE OPERATOR SYSTEM.
- ALL DIMENSIONS AND LAYOUT INFORMATION SHOWN SHOULD BE ADJUSTED AS RECOMMENDED BY THE MANUFACTURER. SEE SITE PLAN FOR GATE.
- CONCRETE FOUNDATIONS SHALL BE PROVIDED FOR THE SLIDE GATE OPERATOR UNIT. FOUNDATION FOR THE GATE OPERATOR SHALL BE 48" (MIN.) IN DEPTH AND OF THE SIZE RECOMMENDED BY THE MANUFACTURER.
- . 1" GRS CONDUIT WILL BE REQUIRED BETWEEN THE SLIDE GATE OPERATOR INSTALLATION AND THE CARD READER, GATE ACCESS CONTROLLER UNIT, THE PHOTO-ELECTRIC EYES, 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 GATE OPERATOR SALES AND SERVICE REPRESENTATIVE.
- INSTALL CARD READER FOUNDATION, PEDESTAL AND BOLLARDS AT GATE.
   FOUNDATION SHALL BE 48" (MIN.) IN DEPTH AS DETAILED HEREIN. INTERFACE KEYPAD INSTALLATION TO NEW GATE OPERATOR.
- THE SLIDING GATE SHALL BE CANTILEVER TYPE OF THE SIZE CALLED FOR ON THE PLANS, SHALL HAVE AN ENCLOSED ROLLER ASSEMBLY WHICH IS PROTECTED FROM FRFFZING RAIN AND SNOW.
  - LOOP DETECTOR WIRING SHALL BE COMPATIBLE WITH THE DETECTOR AMPLIFIERS. INDUCTION LOOPS SHALL BE INSTALLED IN SAW CUT GROOVES CREATED BY THE CONTRACTOR IN THE ROAD SURFACE; SUCH GROOVES OF LENGTH, WIDTH, AND DEPTH AS REQUIRED BY THE MANUFACTURER OF THE LOOP CONTROL EQUIPMENT. LOOP DETECTOR WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE RESPECTIVE GATE OPERATOR AND/OR LOOP DETECTOR MANUFACTURER INSTRUCTIONS. CONTRACTOR SHALL SAW CUT APPROXIMATELY 6° MINIMUM DEPTH AT THE PAVEMENT EDGE SUCH THAT THE CONDUIT FOR THE LOOP DETECTOR LEAD—IN WIRING WILL NOT BE LESS THAN 6° BELOW GRADE AT THE INTERFACE POINT TO THE PAVEMENT. LOOP WIRES SHALL BE HELD IN PLACE IN THE BITUMINOUS/CONCRETE PAVEMENT BY COMPLETELY BACKFILLING AND COVERING SLOT WITH A SEALER RATED SUITABLE FOR THE RESPECTIVE APPLICATION. SEALER SHALL CONFORM TO THE REQUIREMENTS ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 1079 DETECTOR LOOP.
- CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES TO EXISTING EQUIPMENT WITH THE RESPECTIVE OWNER'S REPRESENTATIVE AND THE AIRPORT MANAGER.
- INCLUDE AC SURGE PROTECTOR FOR THE GATE OPERATOR, UL 1449 SECOND EDITION LISTED, SURGE CURRENT RATING OF 40KA, SUITABLE FOR USE ON A 120 VAC, 1 PHASE, 2 WIRE SYSTEM; JOSLYN MODEL 1260-21, SQUARE D CATALOG NO. SDSA1175T, OR APPROVED EQUAL. INCLUDE MOUNTING BRACKET.
- CONCRETE USED FOR INSTALLING THE GATE OPERATOR, ASSOCIATED EQUIPMENT, & FENCE SHALL MEET THE REQUIREMENTS OF STRUCTURAL PORTLAND CEMENT CONCRETE ITEM 610
- 11. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE UL LISTING, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- PROVIDE A WEATHERPROOF ENGRAVED PHENOLIC OR PLASTIC LEGEND PLATE FOR THE SAFETY SWITCH AT THE GATE OPERATOR NOTING THE VOLTAGE, AND RESPECTIVE POWER SOURCE CIRCUIT AND LOCATION.
- 3. PAYMENT FOR ELECTRIC SLIDE, GATE OPERATOR, AND ALL ASSOCIATED CONTROL & SAFETY DEVICES SHALL BE PER LUMPSUM, 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 PROVIDE THE GATE COMPLETE AND IN OPERATING CONDITION. PAYMENT FOR SLIDE GATE WILL BE A SEPARATE PAY ITEM.
- CONTROL CIRCUIT WIRING SHALL NOT BE ROUTED THROUGH THE SAFETY SWITCH/DISCONNECT.
- THE GUARD/BOLLARD POSTS SHALL BE 4" DIA. STEEL (HEAVY WALL) PIPE, CONCRETE FILLED, AND SHALL EXTEND FROM THE TOP OF THE CARD CONTROL UNIT TO A DEPTH OF 48" BELOW THE GROUND LINE. THE CONCRETE FOOTER DIMENSION SHALL BE AS DETAILED HEREIN. GUARD/BOLLARD POSTS SHALL BE PAINTED WITH YELLOW COLORED ENAMEL FINISH.
- 16. 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.



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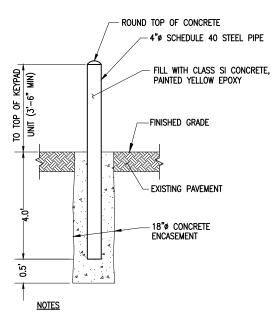
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PROPOSED SLIDE GATE DETAILS

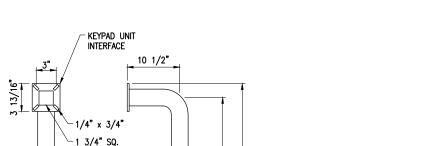


- 1. THE EXPOSED PORTION OF THE BOLLARD SHALL BE PAINTED YELLOW EPOXY.
- 2. BOLLARD AND ASSOCIATED ITEMS ARE INCIDENTAL TO THE ELECTRIC SLIDING GATE UPGRADE

**BOLLARD DETAIL** NOT TO SCALE

- PROPOSED CARD READER WITH PEDESTAL & FOUNDATION WILL REQUIRE INTERFACE TO THE NEW GATE OPERATOR CONTROL SYSTEM.
- INCLUDE #12 AWG EQUIPMENT GND WIRE TO CARD READER.
- FACE OF CARD READER SHALL NOT EXTEND BEYOND BOLLARDS.

## CARD READER ACCESS CONTROL UNIT PEDESTAL ELEVATION DETAIL NOT TO SCALE

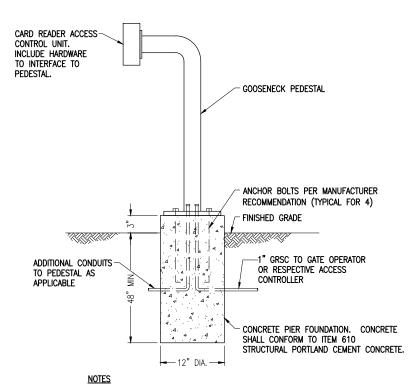


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GOOSENECK PEDESTAL DETAIL NOT TO SCALE

1-3/4" RD.

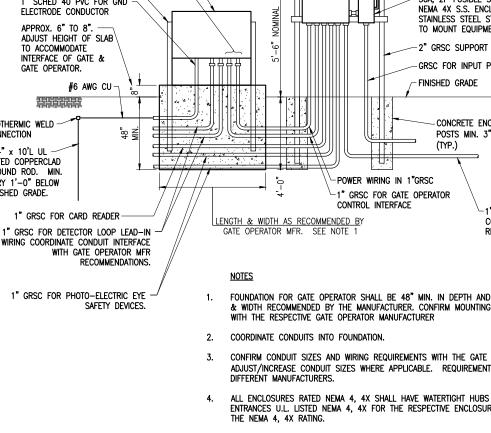
BASE PLATE



- NEMA 4X STAINLESS STEEL ENCLOSURE PROVIDE UL LISTED LIQUID TIGHT-FLEX METAL CONDUIT AT FINAL - CAP (TYP.) CONNECTION TO ENCLOSURE. -STAINLESS STEEL UNISTRUT P1000SS OR EQUAL, BOLT WITH STAINLESS STEEL HARDWARE. 3" DIA. HEAVY WALL -FENCE PIPE (TYP.) 30A, 2P FUSIBLE SAFETY SWITCH IN 1" SCHED 40 PVC FOR GND NEMA 4X S.S. ENCL. PROVIDE ELECTRODE CONDUCTOR STAINLESS STEEL STRUT SUPPORT APPROX. 6" TO 8". -TO MOUNT EQUIPMENT. ADJUST HEIGHT OF SLAB TO ACCOMMODATE -2" GRSC SUPPORT POST (TYP.) INTERFACE OF GATE & -GRSC FOR INPUT POWER GATE OPERATOR. - FINISHED GRADE #6 AWG CU ¬ EXOTHERMIC WELD -- CONCRETE ENCASE SUPPORT CONNECTION POSTS MIN. 3" ALL SIDES (TYP.) 3/4" x 10'L UL LISTED COPPERCLAD GROUND ROD. MIN. -POWER WIRING IN 1"GRSC BURY 1'-0" BELOW FINISHED GRADE. -1" GRSC FOR GATE OPERATOR CONTROL INTERFACE 1"GRSC FOR GATE ACCESS 1" GRSC FOR CARD READER LENGTH & WIDTH AS RECOMMENDED BY CONTROLLER UNIT, AND 1" GRSC FOR DETECTOR LOOP LEAD-IN GATE OPERATOR MFR. SEE NOTE 1 REMOTE CONTROL STATION WIRING COORDINATE CONDUIT INTERFACE WITH GATE OPERATOR MFR RECOMMENDATIONS. NOTES 1" GRSC FOR PHOTO-ELECTRIC EYE FOUNDATION FOR GATE OPERATOR SHALL BE 48" MIN. IN DEPTH AND OF THE LENGTH SAFETY DEVICES. & WIDTH RECOMMENDED BY THE MANUFACTURER. CONFIRM MOUNTING REQUIREMENTS
  - CONFIRM CONDUIT SIZES AND WIRING REQUIREMENTS WITH THE GATE OPERATOR MFR. ADJUST/INCREASE CONDUIT SIZES WHERE APPLICABLE. REQUIREMENTS VARY BETWEEN
  - 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
  - GATE WILL REQUIRE PHOTOELECTRIC EYE SECONDARY SAFETY DEVICES. PROVIDE CONDUITS BETWEEN GATE OPERATOR SYSTEM AND SAFETY DEVICES.

GATE OPERATOR FOUNDATION DETAIL

NOT TO SCALE



HEAVY DUTY CHAIN DRIVE-

GATE OPERATOR.

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REPLACE PERIMETER

SBGP No: 3-17-SBGP-156/TBD

FENCE, PHASE 2

IDA No: 163-4827

Contract No. MS010

www.hanson-inc.com

1525 S. 6th Street

fax: 217-788-2503

#184-001084

City of Mt. Sterling

145 W. Main Street

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Springfield, IL 62703

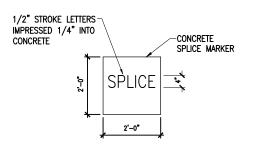
phone: 217-788-2450

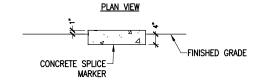
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MT. STERLING MUNICIPAL AIRPORT

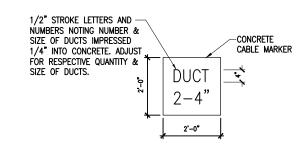
**GATE OPERATOR** DETAILS

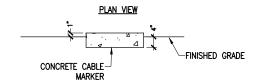




#### SECTION VIEW

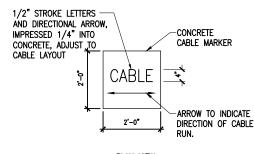
# TURF CABLE MARKERS "NOT TO SCALE"

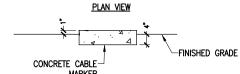




## SECTION VIEW

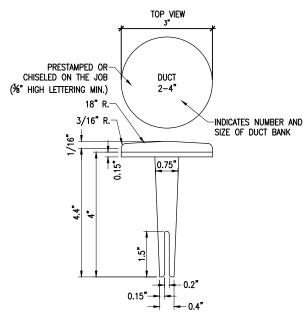
# TURF CABLE MARKERS "NOT TO SCALE"





## SECTION VIEW

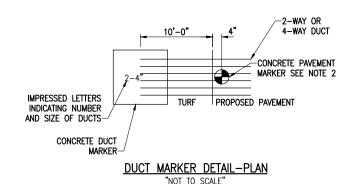
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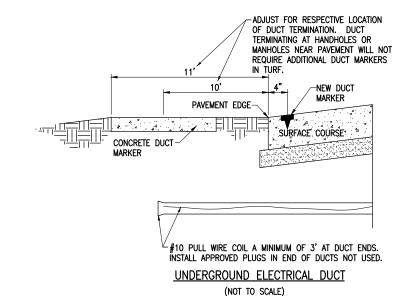


BITUMINOUS PAVEMENT DUCT MARKERS
"NOT TO SCALE"

## NOTE

TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE.
 MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH
 FPOXY CLUE





## CABLE & DUCT MARKER NOTES:

- THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
- BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE INFORMED AS DESCRIBED IN NOTE 4.
- 3. UNDERGROUND CABLE RUNS MUST BE IDENTIFIED BY CABLE MARKERS AT 200 FEET (61 M) MAXIMUM SPACING WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS MUST BE INSTALLED ABOVE THE CABLE. CABLE MARKERS ARE NOT REQUIRED FOR CABLE RUNS BETWEEN RUNWAY/TAXIWAY EDGE LIGHTS.
- 4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE ½" AND ¾" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE
- 5. 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
- TURF DUCT MARKERS ARE NOT REQUIRED AT PAVEMENT CROSSINGS WHERE DUCTS TERMINATE IN HANDHOLES, OR JUNCTION STRUCTURES.
- LOCATION OF ALL DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICE/CONNECTIONS, EXCEPT THOSE AT ISOLATION TRANSFORMERS, MUST BE IDENTIFIED BY SPLICE MARKERS. SPLICE MARKERS MUST BE PLACED ABOVE THE SPLICE/CONNECTIONS. DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICES SHALL BE AVOIDED WHERE POSSIBLE. CABLE SPLICES SHALL BE LOCATED IN SPLICE CANS, LIGHT BASES, HANDHOLES, MANHOLES, OR OTHER JUNCTION STRUCTURES UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.
- 8. THE CABLE AND SPLICE MARKERS MUST IDENTIFY THE CIRCUITS TO WHICH THE CABLES BELONG, FOR EXAMPLE: GATE 1.
- 9. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS MUST BE IDENTIFIED BY DUCT MARKERS

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MT. STERLING MUNICIPAL AIRPORT City of Mt. Sterling 145 W. Main Street Mt. Sterling, Illinois 62353 phone: 217.779-7329

REPLACE PERIMETER FENCE, PHASE 2

SBGP No: 3-17-SBGP-156/TBD IDA No: I63-4827

Contract No. MS010

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: NOVEMBER 13, 2020
PROJECT NO: 20A0005
CAD FILE: E-503-DETL.DWG
DESIGN BY: KNL 09/01/2020
DRAWN BY: SDN 09/08/2020
REVIEWED BY: LDH 11/10/2020

CABLE AND DUCT MARKER DETAILS

# NO TRESPASSING

STATE LAW PROHIBITS UNAUTHORIZED ENTRY, TAMPERING WITH AIRPORT FACILITIES, OR TAMPERING WITH AIRCRAFT. VIOLATORS WILL BE FINED AND/OR

**IMPRISONED** 

#### SIGN NOTES

- INSTALL SIGNS AT EACH ACCESS GATE AND ALONG FENCE AT SPACING NOT TO EXCEED 100 FEET. SIGNS ALONG FENCE LINE SHALL BE LOCATED SUCH THAT WHEN STANDING AT ONE SIGN, THE OBSERVER IS ABLE TO SEE THE NEXT SIGN IN BOTH DIRECTIONS.
- 2. TOP OF SIGN SHALL BE INSTALLED APPROXIMATELY ONE FOOT BELOW THE TOP RAIL OF THE FENCE. CONFIRM MOUNTING HEIGHT WITH OWNER REPRESENTATIVE.
- MOUNT SIGNS TO THE FENCE WITH COMPATIBLE MOUNTING HARDWARE, SUCH AS BRACKETS, BOLTS WASHERS, AND NUTS. THERE IS NO SEPARATE PAY ITEM FOR FURNISHING AND INSTALLING THE SIGNS TO THE FENCE. MOUNTING IS INCLUDED IN THE PAY ITEMS FOR FENCE AND GATES.

T 1.5" ‡.75**"** 1.5" <sup>‡</sup>.75" 1.5" ‡.75**"** 1.5" ‡.75**"** 1.5" .75" 1.5"

2.5"

## FENCING SIGN DETAIL

NOT TO SCALE

SIZED TO ACCOMMODATE TEXT, CONTRUCTED OF DURABLE MATERIALS, CONTRASTING COLORS, AND REFLECTIVE MATERIAL SIGN BLANK 0.080" ALUMINUM

LEGEND FOR "NO TRESPASSING" - RED TEXT BACKGROUND - WHITE (RETROREFLECTIVE) LEGEND FOR REMAINING - BLACK TEXT BACKGROUND - WHITE (RETROREFLECTIVE)

MUTCD/FHWA (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES/FEDERAL HIGHWAY ADMINISTRATION) "SERIES C 2000" OR EQUIVALENT

## ELECTRIC SLIDE GATE SIGN DETAIL

WAIT FOR

GATE TO CLOSE

BEHIND YOU

BEFORE PROCEEDING

NOT TO SCALE

24" X 14"(MINIMUM) SIGN BLANK 0.080" ALUMINUM COLORS:

LEGEND - RED BACKGROUND - WHITE (RETROREFLECTIVE)

TEXT: MUTCD/FHWA "SERIES C 2000"

**▲ WARNING** 

## **Moving Gate Can Cause** Serious Injury or Death. **KEEP CLEAR!**

Gate May Move At Any Time. Children Should Not Play Near Gate. Children Should Not Operate The Gate. Operate Gate Only When In Sight and Free of People and Obstructions. This Gate System for Vehicles Only.

## **NOTES**

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. PROVIDE SIGNS FOR EACH ELECTRIC SLIDE GATE (EXISTING AND NEW), ON EACH SIDE OF EACH GATE.

WARNING SIGN DETAIL

R=1.5"

LEGEND PLATE SCHEDULE DEVICE LABEL GATE OPERATOR GATE OPERATOR DISCONNECT 120VAC FED FROM VAULT BLDG. NOTICE THIS JUNCTION BOX CONTAINS GATE OPERATOR CONTROL WIRING FOR GATE JUNCTION BOX OPERATOR. DISCONNECT ALL POWER SOURCES BEFORE SERVICING.

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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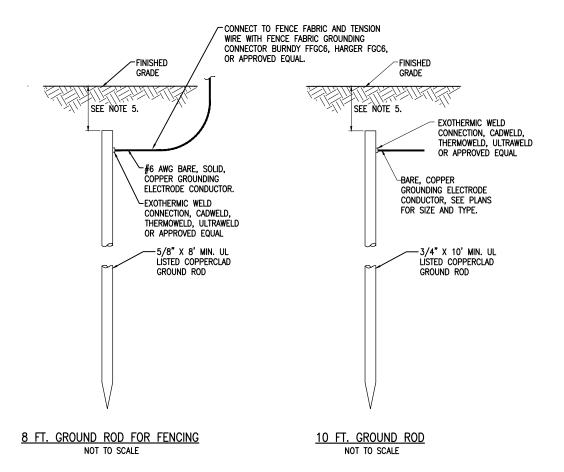
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SIGNAGE DETAILS

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:

- 1. 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 8—FT. LONG, UL LISTED, COPPER CLAD WITH 10—MIL MINIMUM COPPER COATING, GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS, GROUND FIELDS, AND/OR THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, ULTRAWELD BY HARGER, 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.
- 2. 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. ALSO REFER TO EOR-047643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS, WHERE APPLICABLE. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT PROJECT REPRESENTATIVE AND THE PROJECT FNGINFER.
- ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
- ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND. BURNDY PENETROX F. OR APPROVED FOULL.
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2017 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- 6. 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.
- 7. 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.
- 8. ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- 10. EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIPMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2017 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, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

- 11. 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 2017 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 2017 NEC 250-102.
- 12. 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 <u>WILL NOT</u> BE CONSIDERED AS ADFOLIATE GROUNDING.
- 13. 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.
- 14. 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.
- 15. 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, DOSSERT CORPORATION, ILSCO CORPORATION, PENN-UNION CORPORATION, THOMAS & BETTS, OR APPROVED EQUAL.
- 16. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- 17. BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM
- 18. 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,  $\underline{DO}$  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.
- 19. 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 2017 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.
- 20. NEVER REMOVE, ALTER, OR ATTEMPT TO REPAIR CONDUCTORS OR CONDUIT SYSTEMS PROVIDING GROUNDING OR ELECTRICAL BONDING FOR ANY ELECTRICAL EQUIPMENT UNTIL ALL POWER IS REMOVED FROM EQUIPMENT. WARN ALL PERSONNEL OF THE UNGROUNDED CONDITION OF THE EQUIPMENT. DISPLAY APPROPRIATE WARNING SIGNS, SUCH AS DANGER TAGS TO WARN PERSONNEL OF THE POSSIBLE HAZARDS.
- 21. GROUNDING WORK AND MODIFICATIONS SHALL NOT BE PERFORMED DURING A THUNDERSTORM OR WHEN A THUNDERSTORM IS PREDICTED IN THE AREA.
- 22. WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE RESIDENT PROJECT REPRESENTATIVE OR PROJECT ENGINEER FOR FURTHER DIRECTIONS.
- 23. GROUND RODS SHALL BE MANUFACTURED IN THE UNITES STATES OF AMERICA FROM 100 PERCENT DOMESTIC STEEL TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS, AND THE STEEL PRODUCTS PROCUREMENT ACT.



## <u>NOTES</u>

- TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
- THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
- 3. COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
- GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
- 5. TOP OF GROUND RODS FOR ELECTRICAL INSTALLATIONS SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN. TOP OF GROUND RODS FOR FENCING APPLICATIONS (NON-ELECTRICAL INSTALLATIONS) SHALL BE 6" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN.
- GROUND RODS FOR FENCING SHALL BE A MINIMUM 5/8-INCH DIAMETER BY 8-FT LONG UL LISTED COPPER CLAD.
- GROUND RODS FOR GATE OPERATORS AND OTHER ELECTRICAL EQUIPMENT SHALL BE A MINIMUM 3/4-INCH DIAMETER BY 10-FT LONG UL LISTED COPPER CLAD.
- CONTINUOUS FENCE SHALL BE GROUNDED AT INTERVALS NOT EXCEEDING 500 FT IN URBAN AREAS AND 1,000 FT IN RURAL AREAS. THERE SHALL BE A GROUND WITHIN 100 FT OF GATES IN EACH SECTION OF THE FENCE ADJACENT TO THE GATE. FENCE UNDER A POWER LINE SHALL BE GROUNDED BY THREE GROUNDS; ONE DIRECTLY UNDER THE CROSSING AND ONE ON EACH SIDE 25 FT TO 50 FT AWAY. A SINGLE GROUND SHALL BE LOCATED DIRECTLY UNDER EACH TELEPHONE WIRE OR CABLE CROSSING. THE GROUND WIRE SHALL BE CONNECTED TO THE FABRIC AND TENSION WIRE WITH UL LISTED FENCE FABRIC GROUND CLAMPS; BURNDY CAT. NO. FFGC6, HARGER CAT NO. FGC6, OR APPROVED EQUAL. GROUNDING CONNECTIONS TO GROUND RODS SHALL BE WITH UL LISTED CONNECTORS SUITABLE FOR DIRECT BURY IN EARTH OR EXOTHERMIC WELD TYPE CONNECTORS. THE GROUND WIRE USED TO BOND THE FENCE FABRIC AND TENSION WIRE TO THE GROUND ROD SHALL BE #6 AWG BARE SOLID COPPER CONDUCTOR.

GROUND RODS
NOT TO SCALE

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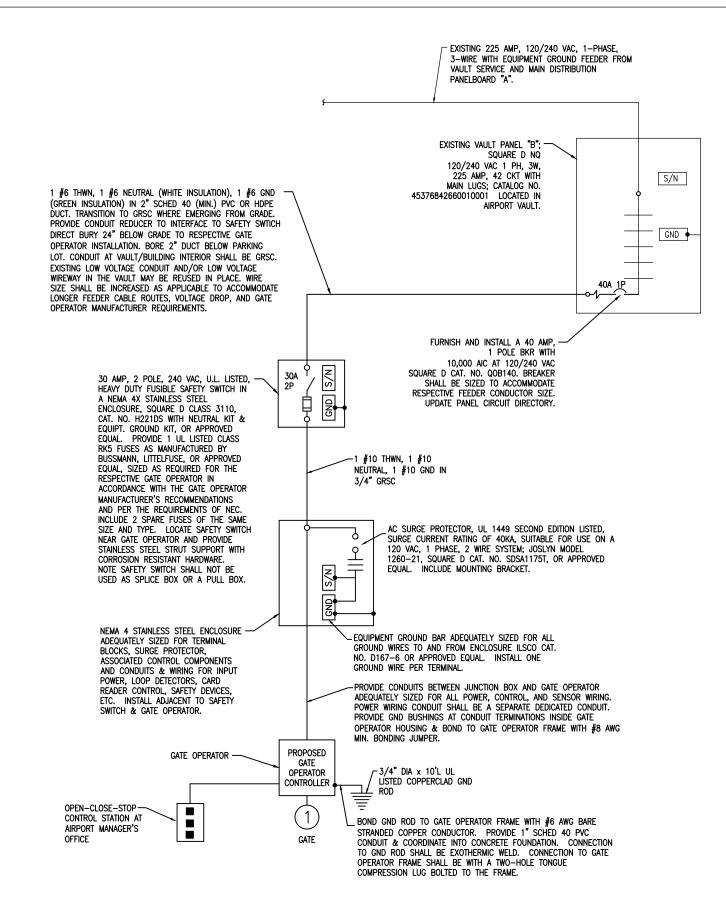
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NO. DATE

DESCRIPTION
DES DWN REV

ISSUE: NOVEMBER 13, 2020
PROJECT NO: 20A0005
CAD FILE: E-002-NOTES.DWG
DESIGN BY: KNL 09/01/2020
DRAWN BY: SDN 09/04/2020
REVIEWED BY: LDH 11/10/2020

**GROUNDING NOTES** 



NOTES:

- 1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.
- 2. ALL VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER AND/OR AIRPORT REPRESENTATIVE. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
- 4. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- 5. ALL EQUIPMENT AND MATERIALS NOT LABELED AS EXISTING ARE NEW.
- HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY.
- 7. ALL CONDUCTORS/WIRING SHALL BE COPPER
- 8. CONTRACTOR SHALL CONFIRM POWER REQUIREMENTS WITH THE ACTUAL NAMEPLATE ON EACH GATE OPERATOR (OR OTHER RESPECTIVE EQUIPMENT) AND ADJUST CIRCUIT BERAKER, WIRE SIZES AND CONDUIT SIZES TO CONFORM WITH NEC AND MANUFACTURER'S RECOMMENDATIONS WHERE APPLICABLE. WIRE SIZES SHOWN ON THE PLANS ARE MINIMUM.
- CONFIRM CONTROL WIRING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR SYSTEM MANUFACTURER'S REPRESENTATIVE.
- 10. 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.
- 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.
- 12. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND AGENCIES WHICH HAVE LINES, UTILITIES, CABLES, AND/OR CONDUITS IN THE PROPOSED WORK AREA. ALL LINES, UTILITIES, AND CONDUITS SHALL BE LOCATED AND IDENTIFIED FOR DEPTH BEFORE ANY WORK BEGINS. THE CONTRACTOR SHALL CONTACT J.U.L.I.E (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) PHONE: 1-800-892-0123 FOR ASSISTANCE IN LOCATING UTILITY LINES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL UNDERGROUND LINES, UTILITIES, CABLES, AND CONDUITS LOCATED WITHIN THE PROPOSED CONSTRUCTION LIMITS. THESE UNDERGROUND LINES, UTILITIES, CABLES, AND CONDUITS SHALL BE LOCATED AT THE CONTRACTOR'S OWN EXPENSE PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. ANY EXISTING UTILITY LINES, CABLES, CONDUITS OR OTHER STRUCTURES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

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REPLACE PERIMETER FENCE. PHASE 2

SBGP No: 3-17-SBGP-156/TBD IDA No: 163-4827

Contract No. MS010

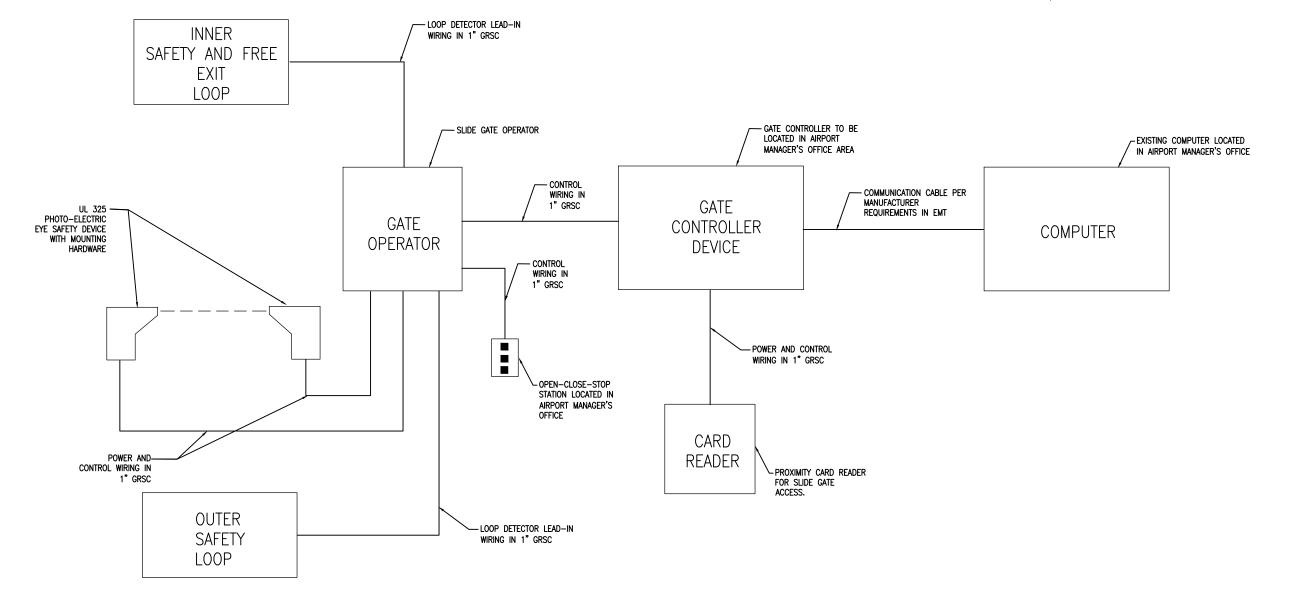
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CAD FILE: E-601.DWG
DESIGN BY: KNL 09/01/2020
DRAWN BY: SDN 09/09/2020
REVIEWED BY: LDH 11/10/2020
SHEFT TITLE

PROPOSED GATE OPERATOR ONE-LINE DIAGRAM

PROPOSED GATE OPERATOR ELECTRICAL ONE-LINE DIAGRAM

# NOTES:

- 1. A GATE CONTROLLER DEVICE IS REQUIRED TO INTERFACE THE GATE OPERATOR AND PROXIMITY CARD READER TO A COMPUTER TO MONITOR AND RECORD TIME, DATE, AND INDIVIDUAL (RESPECTIVE ACCESS CARD) ENTERING THE SECURE AREA OF THE AIRPORT THROUGH THE ELECTRIC SLIDE GATE. CONTRACTOR SHALL PROVIDE EQUIPMENT, MATERIALS, ADAPTERS, INTERFACING RELAYS, TRANSFORMERS, LOOP DETECTORS, SAFETY DEVICES, CONTROL STATIONS, CARD READER, CARDS, POWER CABLES, CONTROL CABLES, COMMUNICATION CABLES, SOFTWARE, HARDWARE, TRAINING, TOOLS, TESTING AND INCIDENTALS TO PROVIDE A COMPLETE AND OPERATIONAL GATE OPERATOR SYSTEM.
  - CONTRACTOR IS RESPONSIBLE TO CONFIRM EQUIPMENT PART NUMBERS AND MATERIALS WITH THE RESPECTIVE SECURITY SYSTEM MANUFACTURER REPRESENTATIVE AND GATE OPERATOR REPRESENTATIVE, TO PROVIDE A COMPLETE, OPERATIONAL, AND COMPATIBLE SYSTEM.



CONTROL BLOCK DIAGRAM FOR GATE OPERATOR



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