



GENERAL NOTES

PROJECT DESCRIPTION

THIS PROJECT IS TO EXTEND THE PERIMETER FENCING AND INSTALL GATES AT WAUKEGAN NATIONAL AIRPORT INCLUDING, AMONG OTHER INCIDENTAL WORK, THE FOLLOWING ITEMS:

- PLACEMENT OF TEMPORARY EROSION CONTROL MEASURES.
- PROVIDE SELECT GRADING OF EARTH TO RE-GRADE FENCE LINE AND TO ACCOMMODATE GRADE CHANGES OF EROSION CONTROL FACILITIES.
- INSTALL CHAIN-LINK FENCING.
- INSTALL ELECTRIC VEHICULAR SLIDING GATES AND MANUAL VEHICULAR SLIDING GATES.
- CONSTRUCT ELECTRICAL POWER AND CONTROL CABLING AND EQUIPMENT.
- REMOVE PAVEMENTS AND CONSTRUCT PCC SIDEWALK AND COMBINATION CURB AND GUTTER. APPLY PAVEMENT SEAL COAT AND PAVEMENT MARKINGS.
- TOPSOIL, SEED AND MULCH FENCE LINE AND DISTURBED AREAS.

AS ADDITIVE ALTERNATE NO. 1 WORK, THE UPGRADING OF FENCE MATERIALS TO VINYL-COATED, AND THE UPGRADING OF GATE MATERIALS TO VINYL-COATED OR POWDER COATED, ARE TO BE FURNISHED IN THE TERMINAL AREA (ALIGNMENTS 700, 800 AND 1000).

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 PAVEMENT AREAS. THE CONTRACTOR WILL BE REQUIRED TO HAVE A SWEEPER AVAILABLE FOR USE AT ALL TIMES. THE COST OF SWEEPING SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

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

CONTRACTOR'S ACCESS AND TEMPORARY FACILITIES

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

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

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

RESPONSIBILITY FOR EXISTING UTILITIES

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

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

CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA.

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

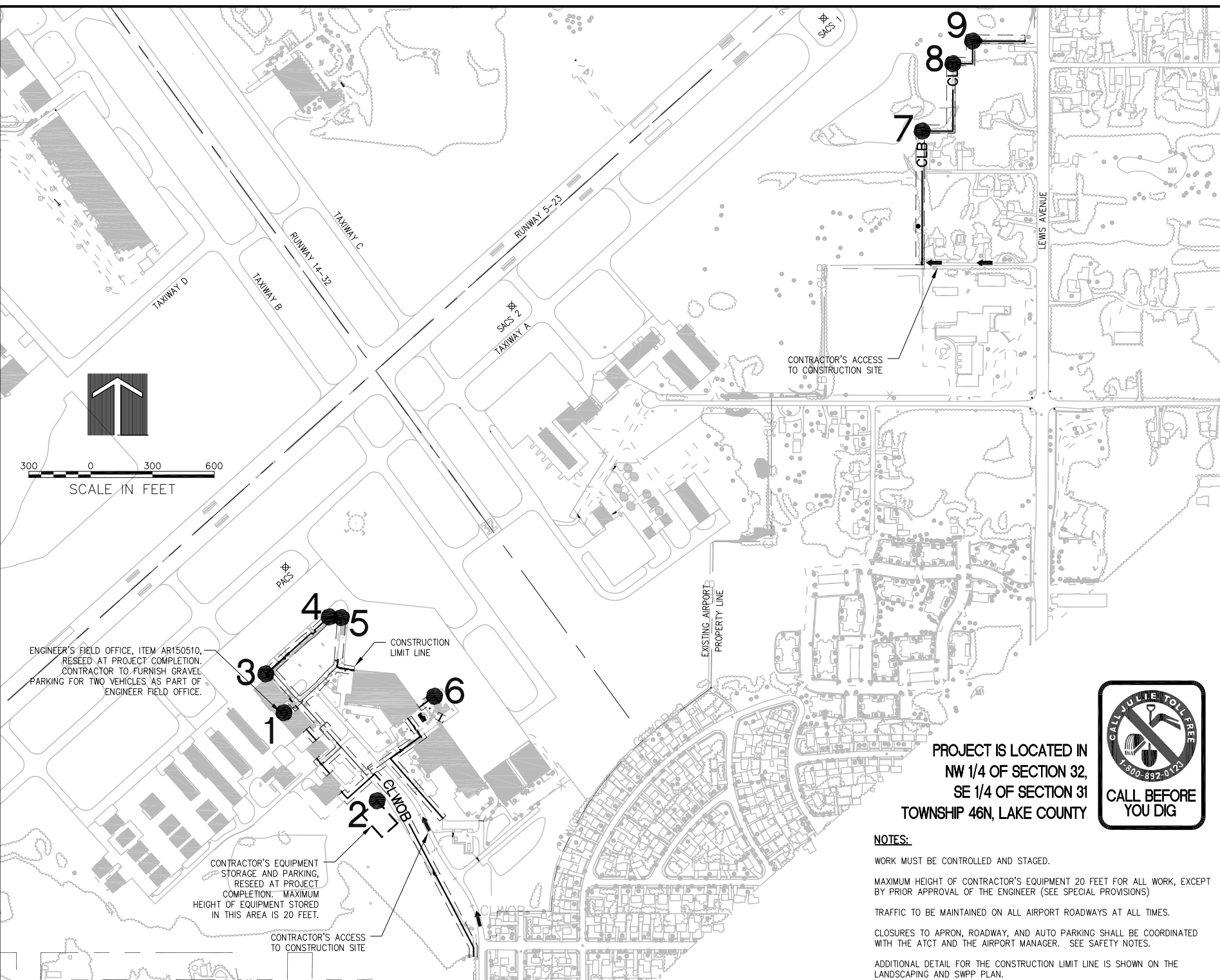
AIRPORT SECURITY

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

EXISTING CONTROL POINTS

PACS: N 2095587.482 E 1109729.492 ELEV. 705.1
SACS 1 N 2098251.587 E 1112341.241 ELEV. 717.6
SACS 2 N 2096854.703 E 1110827.340 ELEV. 709.1

RUNWAY END COORDINATES				
DESCRIPTION	LATITUDE	LONGITUDE	STATION	ELEVATION
RUNWAY 5 END	42° 24' 57.0507" N	87° 52' 32.2310" W	100+00.00	725.75
RUNWAY 23 END	42° 25' 36.3758" N	87° 51' 32.3244" W	159+98.70	723.50
RUNWAY 14 END	42° 25' 39.5792" N	87° 52' 22.7232" W	237+49.37	727.97
RUNWAY 14 END	42° 25' 35.5735" N	87° 52' 18.8240" W	232+49.41	728.14
RUNWAY 32 END	42° 25' 09.5378" N	87° 51' 53.4845" W	200+00.00	712.00



PROJECT IS LOCATED IN
NW 1/4 OF SECTION 32,
SE 1/4 OF SECTION 31
TOWNSHIP 46N, LAKE COUNTY



NOTES:

- 1. WORK MUST BE CONTROLLED AND STAGED.
- 2. MAXIMUM HEIGHT OF CONTRACTOR'S EQUIPMENT 20 FEET FOR ALL WORK, EXCEPT BY PRIOR APPROVAL OF THE ENGINEER (SEE SPECIAL PROVISIONS)
- 3. TRAFFIC TO BE MAINTAINED ON ALL AIRPORT ROADWAYS AT ALL TIMES.
- 4. CLOSURES TO APRON, ROADWAY, AND AUTO PARKING SHALL BE COORDINATED WITH THE ATCT AND THE AIRPORT MANAGER. SEE SAFETY NOTES.
- 5. ADDITIONAL DETAIL FOR THE CONSTRUCTION LIMIT LINE IS SHOWN ON THE LANDSCAPING AND SWPP PLAN.

NOTES:

1. COORDINATES ARE IN NAD 83 FOR HORIZONTAL AND NAVD 88 FOR VERTICAL.
2. STATIONS, OFFSETS AND ELEVATIONS SHOWN ARE IN FEET.
3. THE APPROACH END OF RUNWAY 5 IS STATION 100+00. THE APPROACH END OF RUNWAY 32 IS STATION 200+00.
4. THE AIRPORT REFERENCE CODE FOR RUNWAY 14-32 IS B-II WITH VISUAL APPROACHES ON BOTH RUNWAY 14 AND RUNWAY 32.
5. THE AIRPORT REFERENCE CODE FOR RUNWAY 5-23 IS D-III WITH NONPRECISION APPROACH GREATER THAN 3/4 MILE FOR RUNWAY 5 AND PRECISION APPROACH TO RUNWAY 23.

OBJECT INFORMATION

ITEM NO.	DESCRIPTION	MOBILITY	GROUND ELEVATION	OBJECT ELEVATION	LATITUDE	LONGITUDE	RUNWAY 5-23 STATION	RUNWAY 5-23 OFFSET	RUNWAY 5-23 EXIST EL.	RUNWAY 14-32 STATION	RUNWAY 14-32 OFFSET	RUNWAY 14-32 EXIST EL.
1	ENGINEER'S FIELD OFFICE	STATIONARY	706.0	721.0	42° 25' 01.0665" N	87° 52' 07.2313" W	116+69.17	938.9	711.0	199+07.66	1337.9	712.0
2	CONTRACTOR'S STAGING AREA	MOVING	707.5	727.5	42° 24' 56.8231" N	87° 52' 01.2324" W	117+21.03	1558.8	711.0	192+96.05	1224.2	712.0
3	CONSTRUCTION EQUIPMENT	MOVING	706.6	726.6	42° 25' 02.9348" N	87° 52' 08.3917" W	117+29.46	739.6	711.0	--	--	--
4	CONSTRUCTION EQUIPMENT	MOVING	706.5	726.5	42° 25' 05.6450" N	87° 52' 04.2654" W	121+43.07	739.5	710.0	--	--	--
5	CONSTRUCTION EQUIPMENT	MOVING	706.6	726.6	42° 25' 05.6130" N	87° 52' 03.4854" W	--	--	--	201+16.65	840.8	711.5
6	CONSTRUCTION EQUIPMENT	MOVING	709.2	729.2	42° 25' 01.8176" N	87° 51' 57.4859" W	--	--	--	195+41.80	700.5	712.0
7	CONSTRUCTION EQUIPMENT	MOVING	689.6	709.6	42° 25' 28.7799" N	87° 51' 25.7246" W	158+59.85	903.8	722.5	--	--	--
8	CONSTRUCTION EQUIPMENT	MOVING	689.6	709.6	42° 25' 32.0044" N	87° 51' 23.7105" W	161+89.38	759.7	723.5	--	--	--
9	CONSTRUCTION EQUIPMENT	MOVING	692.6	712.6	42° 25' 33.0811" N	87° 51' 22.4286" W	163+33.62	741.8	723.5	--	--	--

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NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 03-SITEPLAN.DWG
LAYOUT BY: KMS 01/15/2014
DRAWN BY: LDH 02/12/2014
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

SITE PLAN AND GENERAL NOTES

CONSTRUCTION AND SAFETY NOTES

SAFETY IS REQUIRED

CONSTRUCTION OF THE PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH THE GUIDELINES SPECIFIED IN FAA ADVISORY CIRCULAR 150/5370-2 (CURRENT ISSUE) AND THE AIRPORT VEHICLE OPERATIONS REGULATIONS (AS PUBLISHED ON THE AIRPORT'S WEBSITE AT http://waukeganport.com/wkgn_airport/). ANY ACTIVITIES REQUIRED FOR PROJECT SAFETY SHALL BE INCIDENTAL TO THE CONTRACT.

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 STAGING PLAN DETAILING THE SEQUENCING OF THE CONTRACTOR'S WORK THROUGHOUT THE PROJECT SHALL BE FURNISHED TO THE RESIDENT ENGINEER BY THE CONTRACTOR AT THE PRE-CONSTRUCTION CONFERENCE FOR THE REVIEW AND APPROVAL OF THE OWNER AND PROJECT ENGINEER. ANY AND ALL CHANGES TO THE CONSTRUCTION STAGING PLAN THAT IS SUBSEQUENTLY APPROVED THAT MAY BE REQUESTED BY THE CONTRACTOR AFTER PROJECT START 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 STAGING CHANGE TO PERMIT CONSIDERATION AND APPROVAL BY THE PROJECT ENGINEER AND THE AIRPORT OWNER. THE CONTRACTOR SHALL NOT BE ENTITLED TO ANY EXTRA COMPENSATION NOR EXTENSION TO THE CONTRACT TIME BECAUSE OF A STAGING CHANGE REQUEST NOR FOR ANY TIME NECESSARY IN RECEIVING THE REQUIRED APPROVALS. THE CONTRACTOR SHALL EXPEDITE WORK AT THOSE STAGES WHEN ACTIVE TAXIWAYS, 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 AIRPORT PROJECTS.

CONSTRUCTION LIMITS

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

TEMPORARY BARRICADES

THE CONTRACTOR SHALL FURNISH BARRICADES FOR ANY AIRFIELD OR ROADWAY PAVEMENT TO BE CLOSED BY HIS WORK. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, PLACE AND MAINTAIN BARRICADES AS SHOWN IN DETAIL A, THIS SHEET, AND AS DIRECTED BY THE RESIDENT ENGINEER AND AIRPORT DIRECTOR. THE COST OF THESE ITEMS, AND THEIR MAINTENANCE, IS TO BE INCIDENTAL TO THE CONTRACT. ANY WORK THAT REQUIRES PORTIONS OF AN ACTIVE TAXIWAY OR APRON TO BE CLOSED MUST BE COMPLETED EXPEDITIOUSLY TO MINIMIZE DISRUPTION TO AIRCRAFT OPERATIONS.

VEHICULAR TRAFFIC CONTROL

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

AIRFIELD OPERATIONAL SAFETY DURING CONSTRUCTION

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

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

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

THE CONTRACTOR WILL BE REQUIRED TO BE IN CONTACT WITH AIRPORT OPERATIONS. THIS WILL KEEP THE CONTRACTOR IN CONTACT WITH AIRPORT PERSONNEL AND ENABLE THE AIRPORT PERSONNEL TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTICAL EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

THE CONTRACTOR SHALL REMAIN WITHIN THE CONSTRUCTION LIMITS LINE SHOWN IN THE PLANS. WHEN OUTSIDE THESE LIMITS, ALL CONTRACTOR ACTIVITIES SHALL REMAIN MORE THAN 200 FEET FROM THE CENTERLINE AND 300 FEET FROM THE END OF ACTIVE RUNWAY 14-32, AND 250 FEET FROM THE CENTERLINE AND 1,000 FEET FROM THE END OF ACTIVE RUNWAY 5-23. FOR WORK NEAR TAXIWAYS AND APRONS, THE CONTRACTOR'S PERSONNEL AND EQUIPMENT MUST REMAIN AT LEAST 44.5 FEET FROM CENTERLINE OF ACTIVE CATEGORY I TAXIWAYS, 65.5 FEET FROM ACTIVE CATEGORY II TAXIWAYS AND 93 FEET FROM ACTIVE CATEGORY III TAXIWAYS, AND TEN (10) FEET FROM ACTIVE APRONS. WHEN CONSTRUCTION OPERATIONS MUST BE CONDUCTED WITHIN THESE SEPARATIONS, THE PAVEMENT MUST BE CLOSED TO AIRCRAFT ACTIVITY BY THE CONTRACTOR BY PROVIDING TEMPORARY BARRICADES AS SHOWN IN THE PLANS. NO CLOSURE OF ANY RUNWAY WILL BE PERMITTED FOR THIS PROJECT.

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

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

OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIAL AT THE CONSTRUCTION SITE SHALL BE DELINEATED WITH THE USE OF BARRICADES DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS. NO OPEN TRENCHES SHALL BE ALLOWED WITHIN THE RUNWAY SAFETY AREA (RSA) OR THE TAXIWAY SAFETY AREA (TSA) WHEN THE RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC (INCLUDING OVERNIGHT). THE RSA IS DEFINED AS 75 FEET FROM THE CENTERLINE AND 300 FEET FROM THE END OF RUNWAY 14-32, AND 250 FEET FROM THE CENTERLINE AND 1,000 FEET FROM THE END OF RUNWAY 5-23. THE TSA IS MEASURED AT 39.5 FEET FROM THE CATEGORY II TAXIWAY CENTERLINE AND 59 FEET FROM THE CATEGORY III TAXIWAY CENTERLINE, AND 24.5 FEET FROM THE CATEGORY I TAXIWAY CENTERLINE. NO VERTICAL DROP OF GREATER THAN 3-INCHES IN HEIGHT FROM PAVEMENT EDGE TO EARTH GRADE OR EARTH GRADE TO EARTH GRADE WITHIN THE RSA OR TSA WILL BE PERMITTED WHEN THE RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC. THE CONTRACTOR WILL HAVE STEEL PLATES ON-SITE TO ALLOW FOR THE RAPID COVERING OF TRENCHES OR EARTH DROPS IN THE EVENT OF UNEXPECTED WORK STOPPAGES FOR WEATHER OR AIRPORT EMERGENCIES.

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

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

BEFORE REOPENING TEMPORARILY CLOSED 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.

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

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

NOTIFICATIONS BY CONTRACTOR

THE CONTRACTOR MUST NOTIFY THE RESIDENT ENGINEER AND THE AIRPORT OWNER 72 HOURS IN ADVANCE OF ANY REQUIRED PARTIAL OR COMPLETE CLOSING OF ANY TAXIWAY OR APRON. THE DATE, TIME AND SCHEDULED DURATION OF THE CLOSING MUST BE APPROVED BY THE RESIDENT ENGINEER AND THE AIRPORT OWNER. THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER AND AIRPORT OWNER 72 HOURS IN ADVANCE OF THE CONTRACTOR'S CLOSING OF OTHER ACTIVE ROADWAYS, AIRFIELD OR ROADWAY LIGHTING CIRCUITS, OR OTHER AIRPORT FACILITIES.

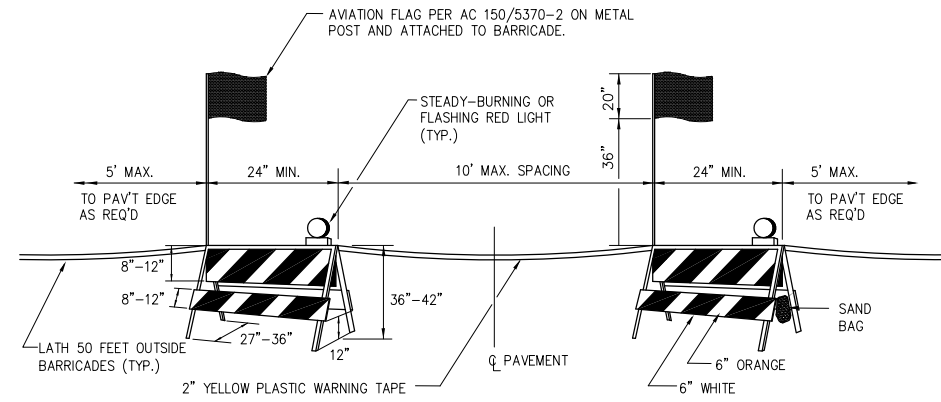
CONTRACTOR'S USE OF SITE

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

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

UTILITY OUTAGES AND SHUTDOWNS

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



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

**DETAIL A
PAVEMENT BARRICADES**
NTS



**INSTALL PERIMETER
FENCE, PHASE 3**

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

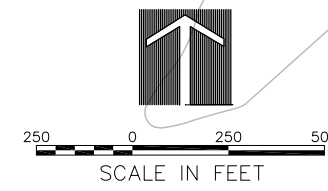
Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 04-SAFNOTES.DWG
LAYOUT BY: LDH 01/15/2014
DRAWN BY: SJM 02/12/2014
REVIEWED BY: RMH 4/18/14

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SHEET TITLE

**CONSTRUCTION AND
SAFETY NOTES**



ALIGNMENT 700

ALIGNMENT	STATION	NORTHING	EASTING	DESCRIPTION
BEGINNING OF ALIGNMENT	700+00.00	2093700.420	1110642.976	STARTING POINT
PI	700+42.38	2093742.798	1110642.565	
PI	708+68.98	2094475.446	1110259.815	
PI	710+14.65	2094583.899	1110162.567	
PI	711+92.17	2094465.383	1110030.397	
PI	712+36.84	2094498.763	1110000.722	CORNER OF SRE BUILDING
PI	713+41.44	2094586.483	1109943.740	CORNER OF SRE BUILDING
PI	714+38.86	2094660.227	1109880.076	NEXT (PERPENDICULAR) TO HANGAR BUILDING
PI	715+27.23	2094748.562	1109877.687	CORNER OF HANGAR
PI	715+97.88	2094801.348	1109830.723	NEXT (PERPENDICULAR) TO HANGAR BUILDING
PI	717+05.01	2094901.105	1109791.669	CORNER OF HANGAR
PI	717+25.36	2094916.211	1109778.033	NEXT (PERPENDICULAR) TO VAULT BUILDING
PI	717+49.28	2094934.387	1109762.488	NEXT (PERPENDICULAR) TO HANGAR BUILDING
PI	717+69.31	2094949.452	1109749.284	NEXT (PERPENDICULAR) TO HANGAR BUILDING
PI	719+16.60	2095055.640	1109647.218	CORNER OF OPERATIONS OFFICE
PI	719+36.20	2095070.234	1109634.132	
PI	722+33.78	2095268.860	1109855.722	FENCE CORNERS AROUND FUEL TANK
PI	722+41.78	2095262.902	1109861.061	FENCE CORNERS AROUND FUEL TANK
PI	722+61.78	2095276.248	1109875.956	FENCE CORNERS AROUND FUEL TANK
PI	722+69.78	2095282.206	1109870.618	FENCE CORNERS AROUND FUEL TANK
PI	723+65.81	2095346.290	1109942.136	
PI	724+24.41	2095343.373	1110000.660	
PI	724+56.99	2095310.831	1109999.038	CORNER OF TSA SECURITY OFFICE
PI	725+07.16	2095260.931	1109993.866	CORNER OF TSA SECURITY OFFICE
PI	726+33.61	2095135.118	1109981.171	
PI	726+61.61	2095107.164	1109979.566	
PI	726+74.75	2095098.323	1109989.290	
END OF ALIGNMENT	727+48.02	2095086.131	1110061.540	MEET CORNER OF LANDMARK BUILDING

ALIGNMENT 800

ALIGNMENT	STATION	NORTHING	EASTING	DESCRIPTION
BEGINNING OF ALIGNMENT	800+00.00	2094907.578	1110378.582	MEET CORNER OF HANGAR BUILDING
PI	800+91.79	2094961.625	1110452.779	
PI	801+30.35	2094930.461	1110475.480	TOWER BUILDING CORNER
PI	801+88.75	2094874.039	1110490.560	TOWER BUILDING CORNER
PI	802+24.31	2094842.596	1110473.952	CORNER OF HANGAR
PI	803+39.41	2094767.264	1110386.928	
PI	805+22.89	2094659.084	1110238.732	
END OF ALIGNMENT	809+08.46	2094369.061	1110492.800	MEET CORNER OF PHASE 1 FENCE

ALIGNMENT 900

ALIGNMENT	STATION	NORTHING	EASTING	DESCRIPTION
BEGINNING OF ALIGNMENT	900+00.00	2097056.571	1112819.362	MEET PHASE 1 FENCE
PI	906+47.72	2097704.286	1112819.849	
PI	907+96.87	2097703.918	1112969.001	
PI	911+24.50	2098031.546	1112969.077	
PI	912+20.00	2098031.082	1113064.577	
PI	913+30.00	2098141.093	1113064.602	
PI	915+83.23	2098139.852	1113317.831	
END OF ALIGNMENT	915+88.60	2098144.981	1113319.412	MEET PHASE 1 FENCE

ALIGNMENT 1100

ALIGNMENT	STATION	NORTHING	EASTING	DESCRIPTION
BEGINNING OF ALIGNMENT	1100+00.00	2094767.26	1110386.928	MEET ALIGNMENT 800 FENCE CORNER POST
END OF ALIGNMENT	1101+08.23	2094854.68	1110323.115	NEXT (PERPENDICULAR) TO HANGAR BUILDING

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 05-ALIGN.DWG
LAYOUT BY: SJM 01/15/2014
DRAWN BY: SJM 01/15/2014
REVIEWED BY: RMH 4/18/14
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ALIGNMENT DATA TABLES



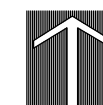
CONSTRUCTION SEQUENCING:

1. INSTALLATION OF SOIL EROSION AND SEDIMENT CONTROL SE/SC MEASURES INCLUDING SELECTIVE VEGETATION REMOVAL FOR SILT FENCE INSTALLATION
2. SILT FENCE INSTALLATION
3. TREE REMOVAL WHERE NECESSARY (CLEAR & GRUB)
4. GRADE SELECTIVE SITES SHOWN IN PLANS
5. INSTALL STORM SEWER AND ASSOCIATED INLET & OUTLET PROTECTION
6. PERMANENT SEED AND MULCH AREAS AFTER GRADING AS COMPLETED
7. INSTALL FENCE AND ASSOCIATED STRUCTURES AND BACKFILL
8. PERMANENTLY STABILIZE AREAS
9. REMOVE ALL TEMPORARY SE/SC MEASURES AFTER THE SITE IS STABILIZED WITH VEGETATION

NOTES:

SOIL EROSION AND SEDIMENT CONTROL MAINTENANCE MUST OCCUR EVERY TWO WEEKS AND AFTER EVERY 1/2" OR GREATER RAINFALL EVENT.

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.



0 40 80
SCALE IN FEET

NOTES:

1. SEEDING SHALL ONLY BE DONE IN THE WETLAND AREAS AROUND THE FENCE POSTS. NO OTHER GROUND SHALL BE DISTURBED IN THESE AREAS, UNLESS OTHERWISE NOTED.
2. THE SEEDING MIX IN THE WETLAND AREAS WILL BE IDOT SEEDING MIXTURE 4B.
3. CONTRACTOR IS TO KEEP VEHICLES AND EQUIPMENT OUT OF DELINEATED WETLAND AREAS, UNLESS OTHERWISE NOTED. WORK SHALL BE PERFORMED IN THESE AREAS ONLY DURING DRY PERIODS. CONTRACTOR SHALL NOT DISTURB THE WETLAND DELINEATION FLAGS.
4. CONTRACTOR THAT NOT PLACE ANY ITEMS IN THE CHANNEL AT APPROXIMATELY STATION 909+12 THAT WOULD RESTRICT THE FLOW EITHER IN OR OUT OF THE CULVERT. THE RESIDENT ENGINEER OR DECI RESERVES THE RIGHT TO DIRECT CONTRACTOR TO REMOVE ANY ITEMS THAT ARE RESTRICTING FLOW.
5. PRIOR TO WORK START, CONTRACTOR SHALL ARRANGE FOR ANIONIC POLYACRYLAMIDE POLYMERS (PAM) IF NEEDED IN WETLAND AREAS.
6. STOCKPILES ARE TO BE REMOVED AT THE END OF EACH WORKING DAY OR SHALL BE STABILIZED WITH TEMPORARY EROSION CONTROL MEASURES.

LEGEND:

- X— EXISTING FENCE
- CLB— PROPOSED CHAIN LINK FENCE WITH BARBED WIRE
- CLWOB— PROPOSED CHAIN LINK FENCE WITHOUT BARBED WIRE
- E— PROPOSED ELECTRICAL
- +++++ PROPOSED FENCE REMOVAL
- PROPOSED GATE
- - - - - PROPOSED SILT FENCE
- ▨ PROPOSED SELECTIVE GRADING
- ▩ PROPOSED SEEDING AND MULCHING
- ▧ PROPOSED EROSION CONTROL BLANKET
- ▲—▲ EXISTING WETLAND AREAS (SEE NOTES)

SILT FENCE AROUND INLET, SEE DETAIL (TYP.)

PROPOSED SEEDING AND MULCHING LIMITS

PI: 700+42.38
BP: 700+00.00
START SILT FENCE; STA. 699+73.94, 0.0' RT
END SILT FENCE; STA. 699+94.85, 21.72' RT

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INSTALL PERIMETER FENCE, PHASE 3

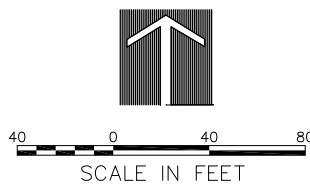
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
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LANDSCAPING AND SWPP PLAN



NOTE:
FOR NOTES AND LEGEND SEE SHEET 6.

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

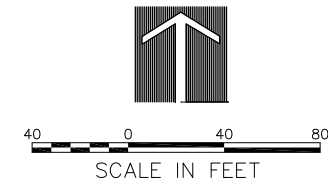
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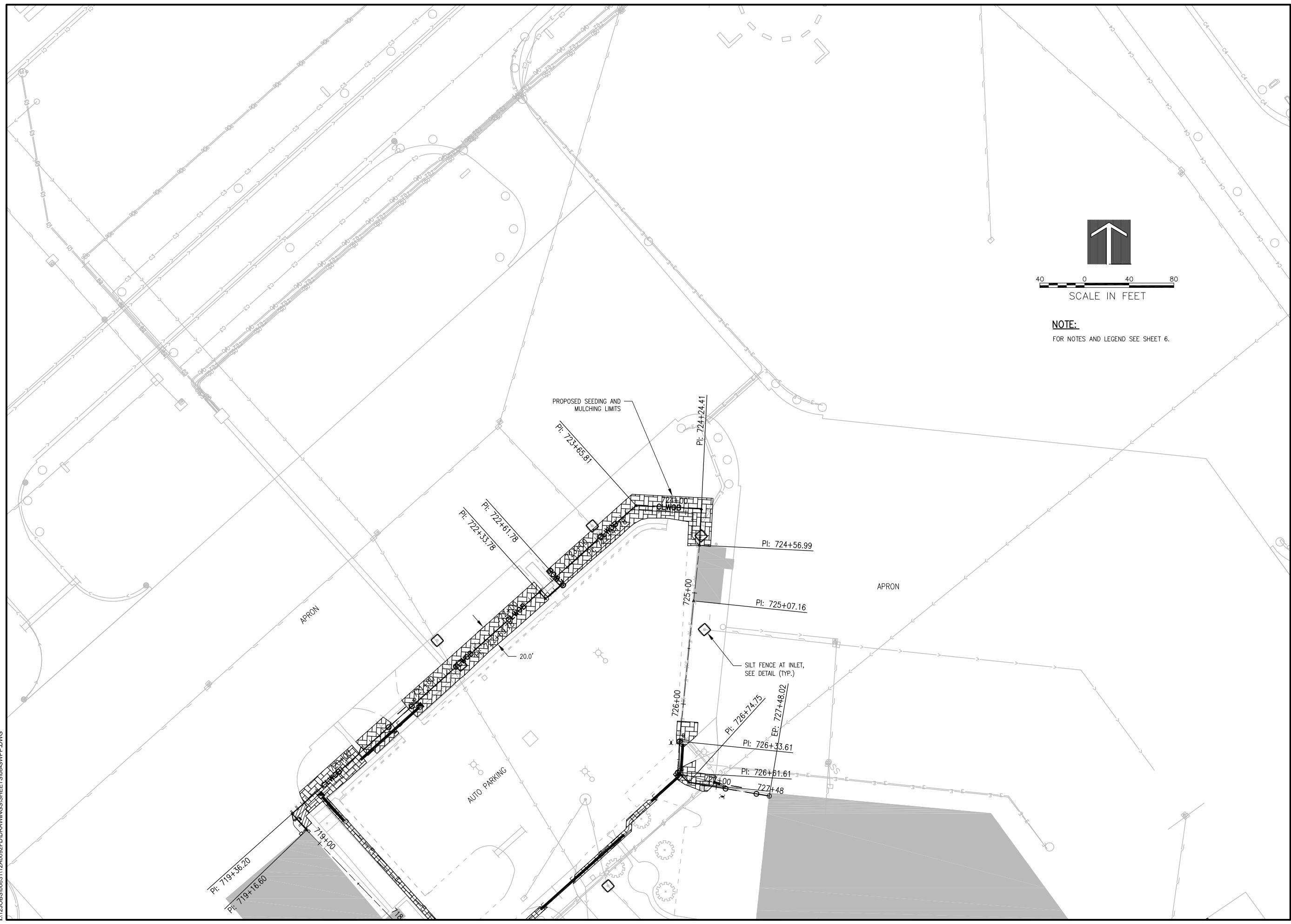
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NOTE:
FOR NOTES AND LEGEND SEE SHEET 6.



INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
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LANDSCAPING AND SWPP PLAN

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**INSTALL PERIMETER
FENCE, PHASE 3**

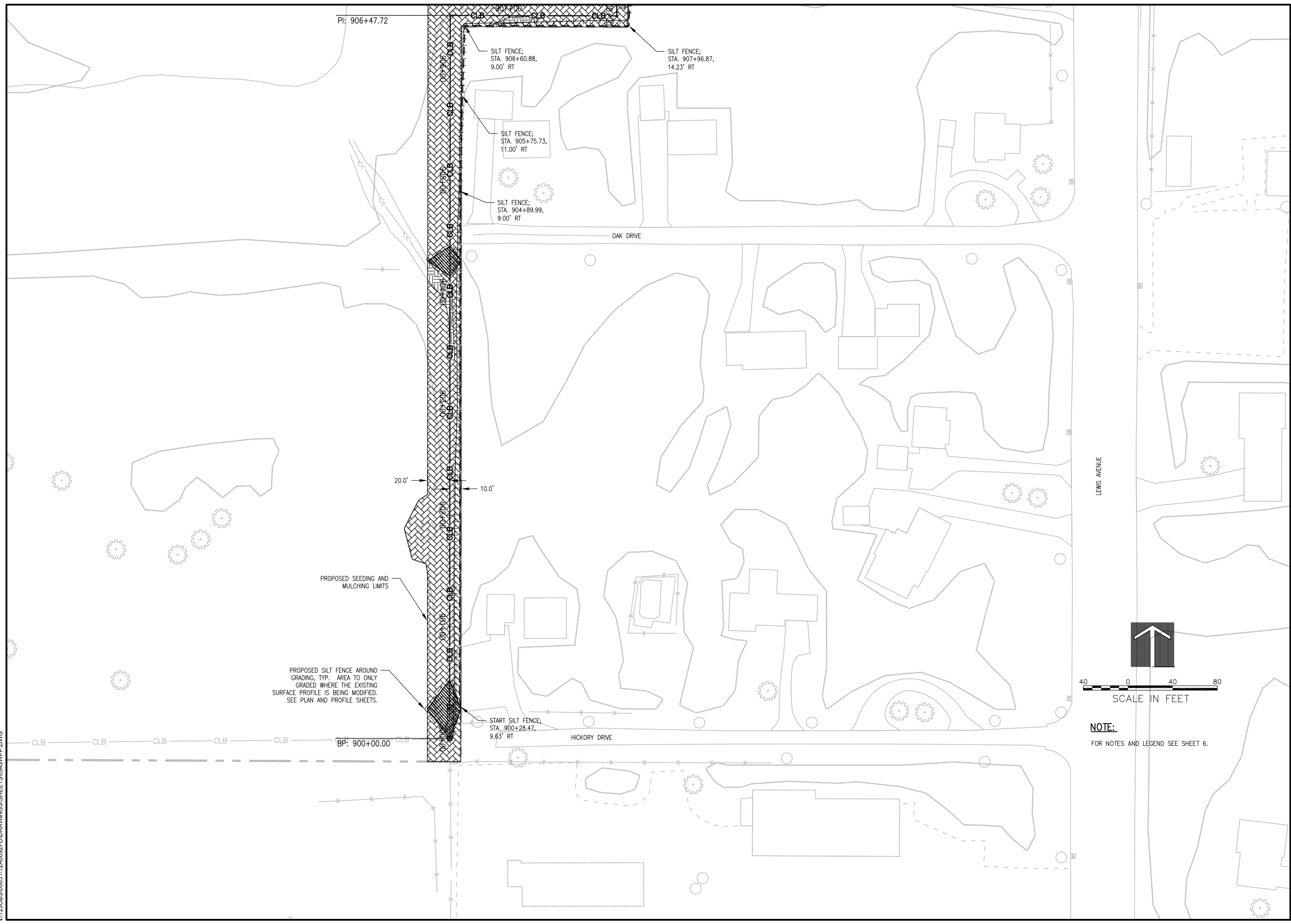
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Contract No: WA068

NO.	DATE	DESCRIPTION		
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**LANDSCAPING
AND SWPP PLAN**



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**INSTALL PERIMETER
FENCE, PHASE 3**

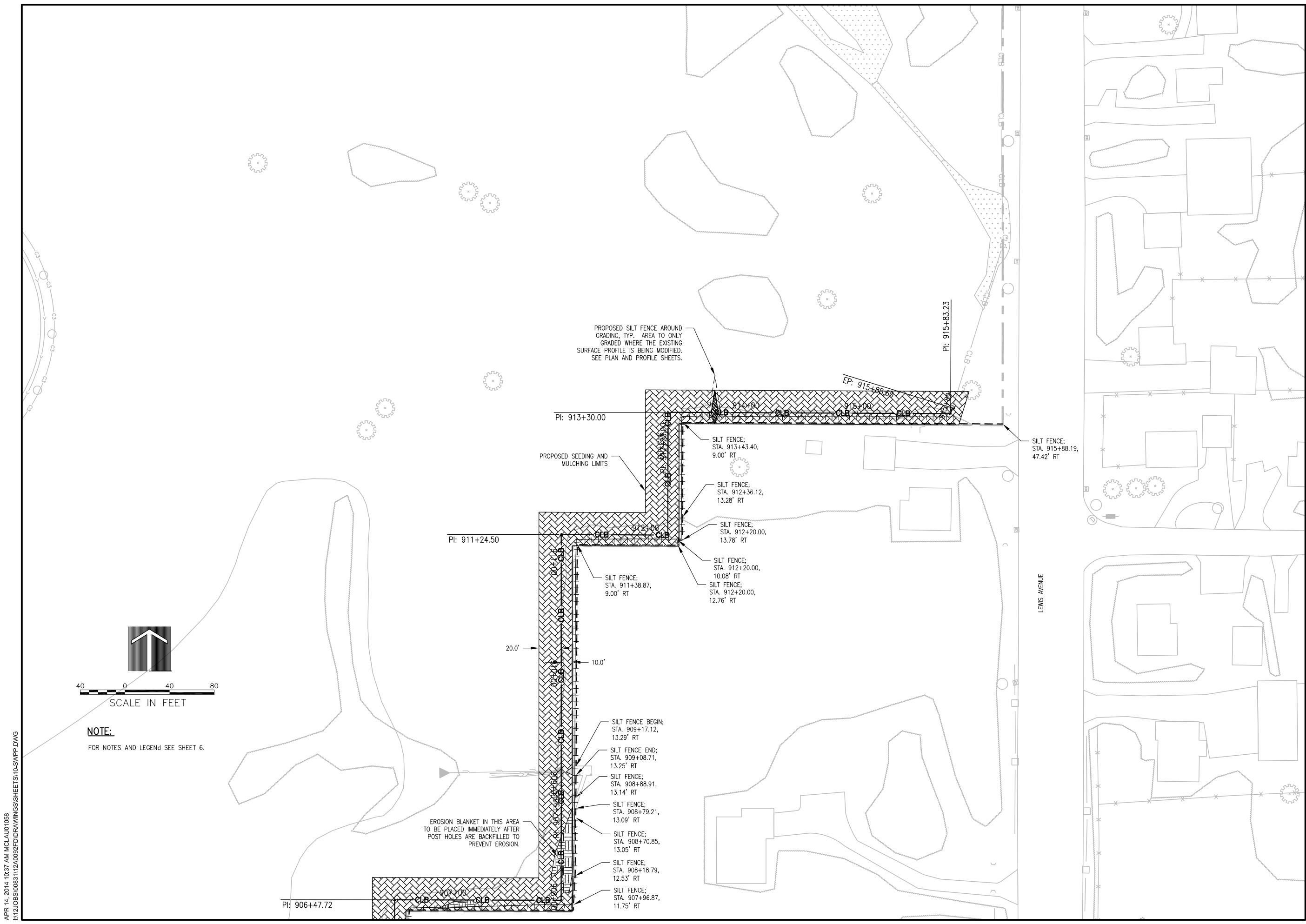
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Contract No: WA068

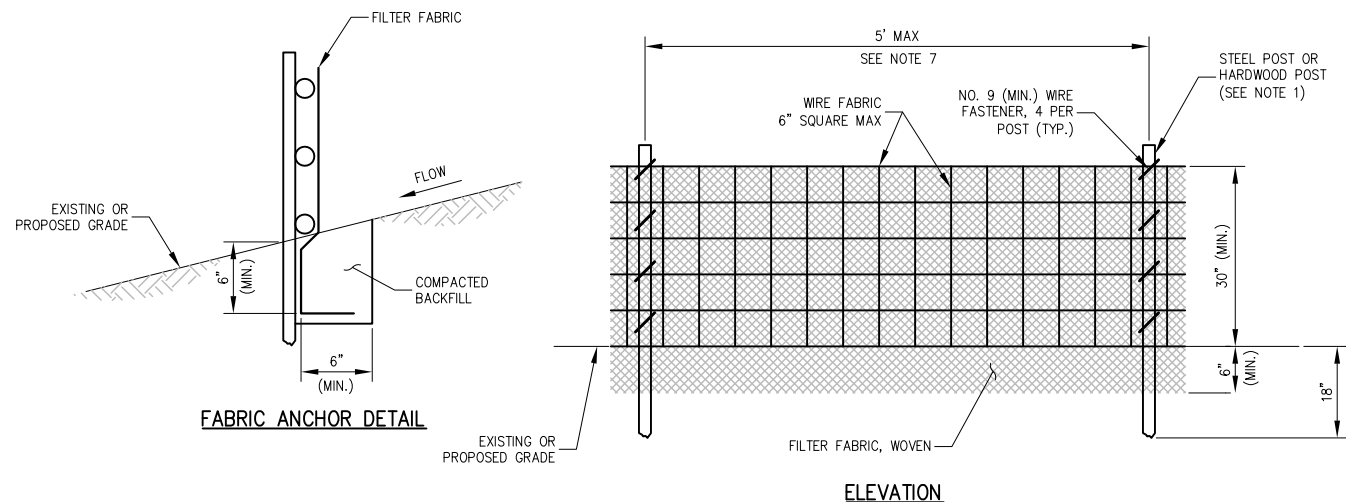
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**LANDSCAPING
AND SWPP PLAN**



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NOTES:

1. FILTER WRAP TO BE PLACED IN ALL MANHOLES AS SHOWN.
2. FABRIC SHALL BE IN CONFORMANCE WITH MATERIALS SPECIFIED FOR SILT FENCE.
3. FABRIC SHALL OVERLAY FRAME BY 2 INCHES (MINIMUM).
4. CONTRACTOR SHALL CLEAR DEBRIS AND SILT AS REQUIRED FROM FABRIC TO MAINTAIN DRAINAGE THROUGH THE STRUCTURE.
5. FABRIC SHALL REMAIN IN PLACE UNTIL TURFED AREAS HAVE DEVELOPED A MINIMUM OF 80% OF COVERAGE.
6. COST OF FILTER WRAP SHALL BE INCIDENTAL TO INLET PROTECTION.

NOTES:

1. SILT FENCE SHALL BE WOVEN AND WILL AT A MINIMUM MEET AASHTO M288 SPECIFICATIONS FOR UNSUPPORTED SILT FENCE WITH LESS THAN 50 PERCENT GEOTEXTILE ELONGATION. OTHER PROPERTIES OF SILT FENCE SHALL MEET AASHTO M288 UNLESS OTHERWISE STATED IN THESE PLANS OR SPECIAL PROVISIONS.
2. 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.
3. 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.
4. WIRE FABRIC SHALL BE SECURELY FASTENED TO FENCE POSTS WITH NO. 9 GAGE WIRE MINIMUM. FOUR (4) FASTENERS PER POST REQUIRED.
5. 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.
6. WHEN TWO SECTIONS OF FILTER FABRIC MEET, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED AND ATTACHED TO THE WIRE FABRIC AT A POST.
7. FILTER FABRIC SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS WITH APPARENT OPENING SIZE (AOS) OF AT LEAST 40 FOR WOVEN (OR MAXIMUM OF 0.60mm).
8. A MAXIMUM OF 5 FEET IS USED FOR POST-TO-POST SPACING.
9. 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.
10. ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
11. 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.
12. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN BULGES DEVELOP IN THE SILT FENCE.
13. 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).
14. FENCE POSTS SHALL BE REMOVED WHEN DIRECTED AT PROJECT END.
15. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.

STORM WATER POLLUTION PREVENTION NOTES

GENERAL

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

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

POLLUTION PREVENTION MEASURES

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

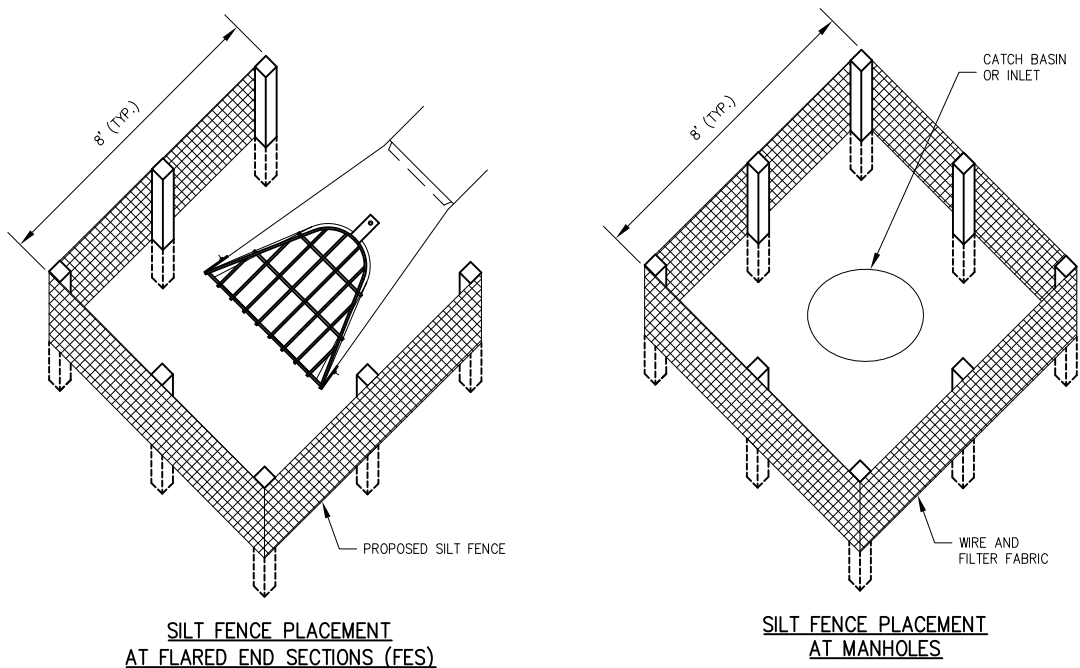
POLLUTION CONTROL ITEMS SHALL BE PROVIDED AS NOTED ON THE STORM WATER POLLUTION PREVENTION PLAN AND IN THE STORM WATER POLLUTION PREVENTION DETAILS AND AS DIRECTED BY THE ENGINEER. THE LIMITS OF SUCH MEASURES SHALL BE STAKED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SUCH LIMITS MAY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

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

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

SEDIMENTATION AND EROSION CONTROL NOTES:

1. 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.
2. SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
3. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN 14 CALENDAR DAYS OF THE END OF ACTIVE HYDROLOGIC DISTURBANCE, OR REDISTURBANCE.
4. AREAS OR EMBANKMENTS HAVING SLOPES GREATER THAN OR EQUAL TO 3H:1V, AND APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE STABILIZED WITH SOD, MAT OR BLANKET IN COMBINATION WITH SEEDING.
5. EROSION CONTROL BLANKET SHALL BE REQUIRED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN NORMAL WATER LEVEL AND HIGH WATER LEVEL.
6. ALL STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED, BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
7. 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.
8. 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.
9. 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.
10. SOIL STOCKPILES SHALL NOT BE LOCATED IN A FLOOD PRONE AREA OR A DESIGNATED BUFFER PROTECTING WATERS OF THE UNITED STATES OR ISOLATED WATERS OF LAKE COUNTY.
11. 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).
12. 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.



NOTES:

1. FILTER FABRIC SHALL BE EMBEDDED 8" INTO THE SOIL.
2. INSPECTION SHALL BE FREQUENT AND REPAIR/REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
3. SILT FENCE SHALL BE REMOVED WHEN IT HAS SERVED ITS USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE. CONTRACTOR SHALL PLACE SEED AND MULCH AROUND STRUCTURES PER LANDSCAPING PLAN. COST OF REMOVAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR SILT FENCE.
4. AREAS DISTURBED OUTSIDE OF CONSTRUCTION LIMITS DURING PLACEMENT OF INLET PROTECTION TO BE REGRADED, SEEDED AND MULCHED, COST INCIDENTAL TO SILT FENCE.
5. FENCE AND POSTS SHALL BE REMOVED WHEN DIRECTED AT PROJECT END.

SILT FENCE DETAILS IN TURF AREAS

DETAILS SHOWN ARE NOT TO SCALE

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

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DRAINAGE AND EROSION CONTROL DETAILS

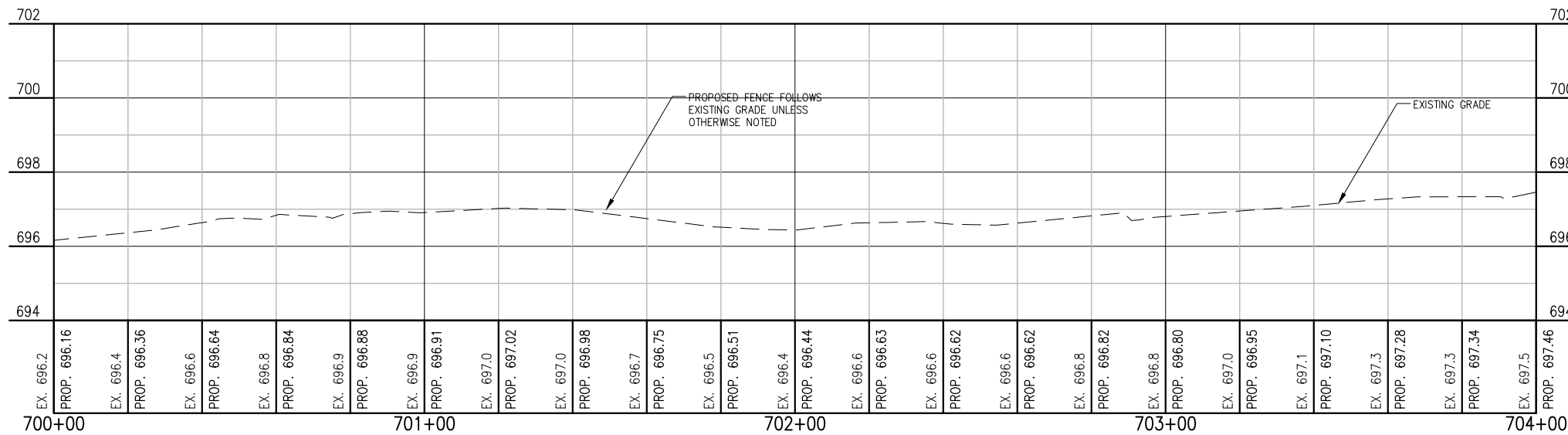
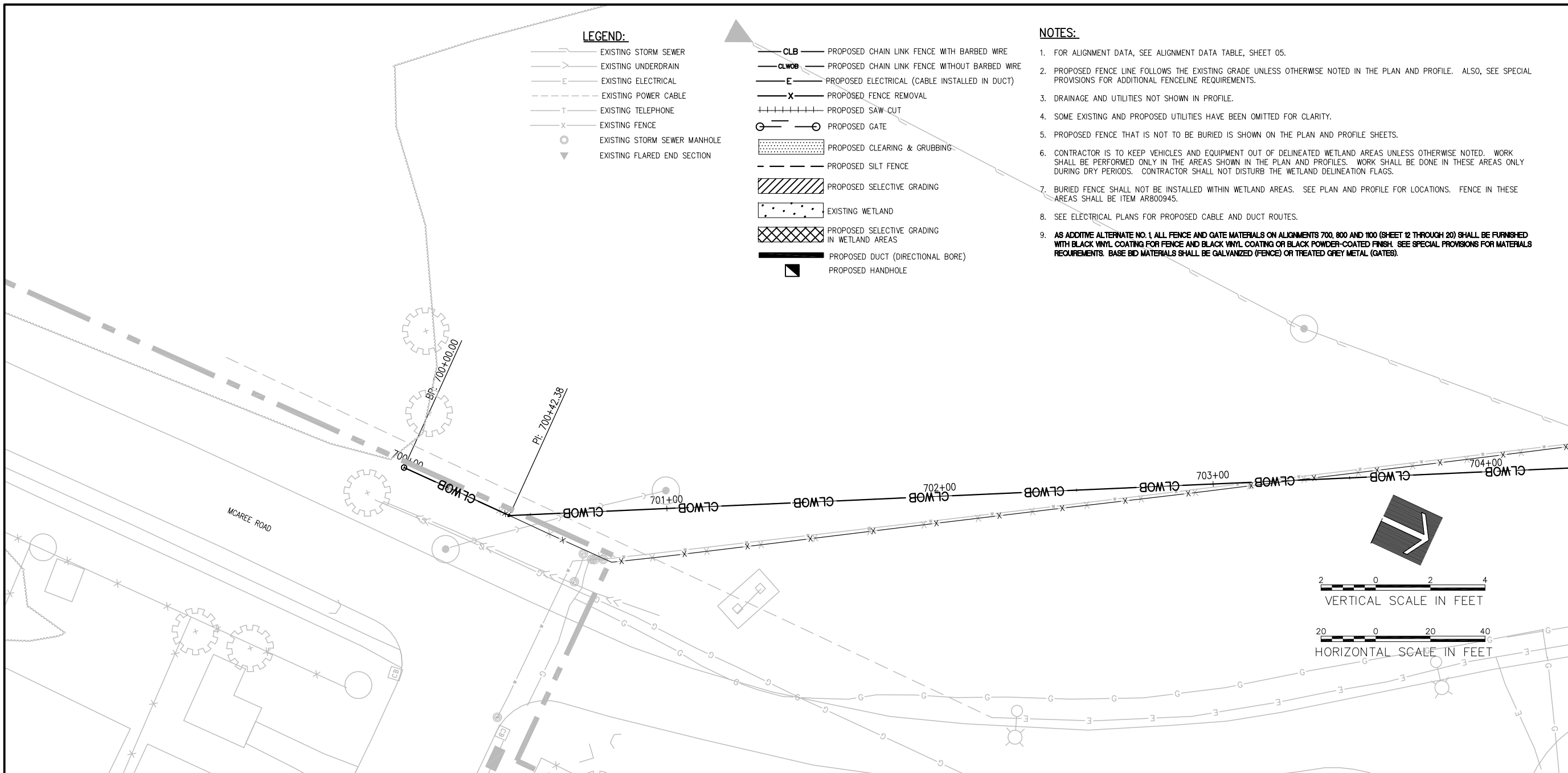


LEGEND:

- EXISTING STORM SEWER
- EXISTING UNDERDRAIN
- EXISTING ELECTRICAL
- - - EXISTING POWER CABLE
- - - EXISTING TELEPHONE
- - - EXISTING FENCE
- EXISTING STORM SEWER MANHOLE
- ▽ EXISTING FLARED END SECTION
- CLB — PROPOSED CHAIN LINK FENCE WITH BARBED WIRE
- CLWOB — PROPOSED CHAIN LINK FENCE WITHOUT BARBED WIRE
- E — PROPOSED ELECTRICAL (CABLE INSTALLED IN DUCT)
- X — PROPOSED FENCE REMOVAL
- ++++ PROPOSED SAW CUT
- PROPOSED GATE
- [Stippled Box] PROPOSED CLEARING & GRUBBING
- - - PROPOSED SILT FENCE
- [Diagonal Lines Box] PROPOSED SELECTIVE GRADING
- [Dotted Box] EXISTING WETLAND
- [Cross-hatched Box] PROPOSED SELECTIVE GRADING IN WETLAND AREAS
- PROPOSED DUCT (DIRECTIONAL BORE)
- ▣ PROPOSED HANDHOLE

NOTES:

1. FOR ALIGNMENT DATA, SEE ALIGNMENT DATA TABLE, SHEET 05.
2. PROPOSED FENCE LINE FOLLOWS THE EXISTING GRADE UNLESS OTHERWISE NOTED IN THE PLAN AND PROFILE. ALSO, SEE SPECIAL PROVISIONS FOR ADDITIONAL FENCE LINE REQUIREMENTS.
3. DRAINAGE AND UTILITIES NOT SHOWN IN PROFILE.
4. SOME EXISTING AND PROPOSED UTILITIES HAVE BEEN OMITTED FOR CLARITY.
5. PROPOSED FENCE THAT IS NOT TO BE BURIED IS SHOWN ON THE PLAN AND PROFILE SHEETS.
6. CONTRACTOR IS TO KEEP VEHICLES AND EQUIPMENT OUT OF DELINEATED WETLAND AREAS UNLESS OTHERWISE NOTED. WORK SHALL BE PERFORMED ONLY IN THE AREAS SHOWN IN THE PLAN AND PROFILES. WORK SHALL BE DONE IN THESE AREAS ONLY DURING DRY PERIODS. CONTRACTOR SHALL NOT DISTURB THE WETLAND DELINEATION FLAGS.
7. BURIED FENCE SHALL NOT BE INSTALLED WITHIN WETLAND AREAS. SEE PLAN AND PROFILE FOR LOCATIONS. FENCE IN THESE AREAS SHALL BE ITEM AR800945.
8. SEE ELECTRICAL PLANS FOR PROPOSED CABLE AND DUCT ROUTES.
9. AS ADDITIVE ALTERNATE NO. 1, ALL FENCE AND GATE MATERIALS ON ALIGNMENTS 700, 800 AND 100 (SHEET 12 THROUGH 20) SHALL BE FURNISHED WITH BLACK VINYL COATING FOR FENCE AND BLACK VINYL COATING OR BLACK POWDER-COATED FINISH. SEE SPECIAL PROVISIONS FOR MATERIALS REQUIREMENTS. BASE BID MATERIALS SHALL BE GALVANIZED (FENCE) OR TREATED GREY METAL (GATES).



INSTALL PERIMETER FENCE, PHASE 3

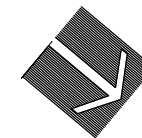
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SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

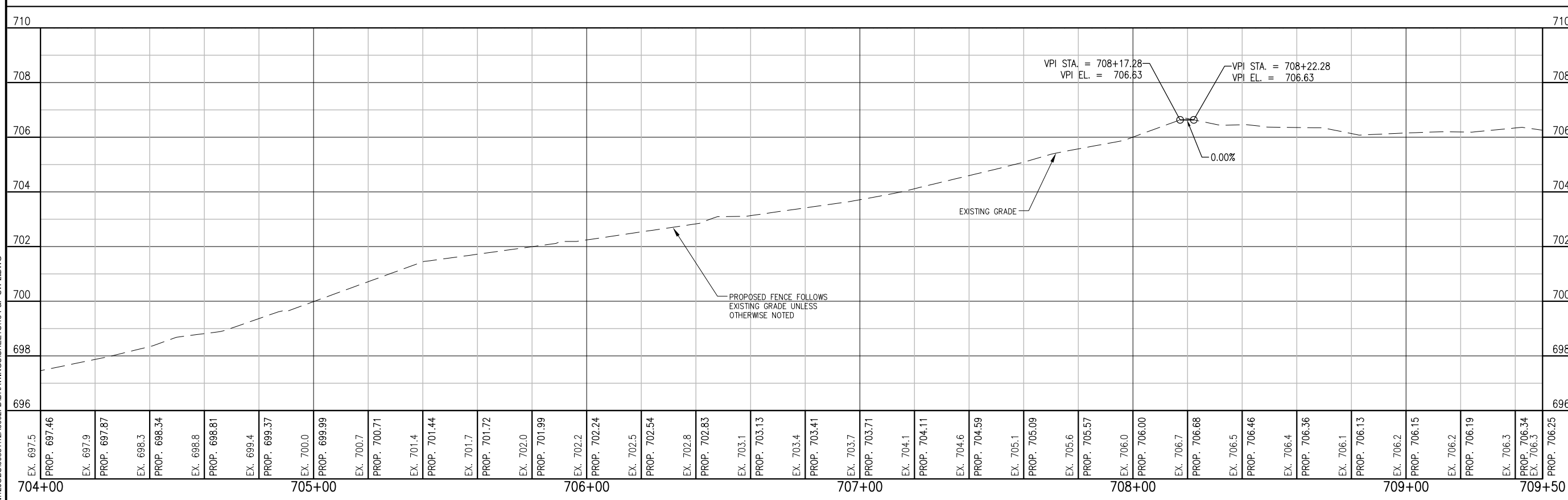
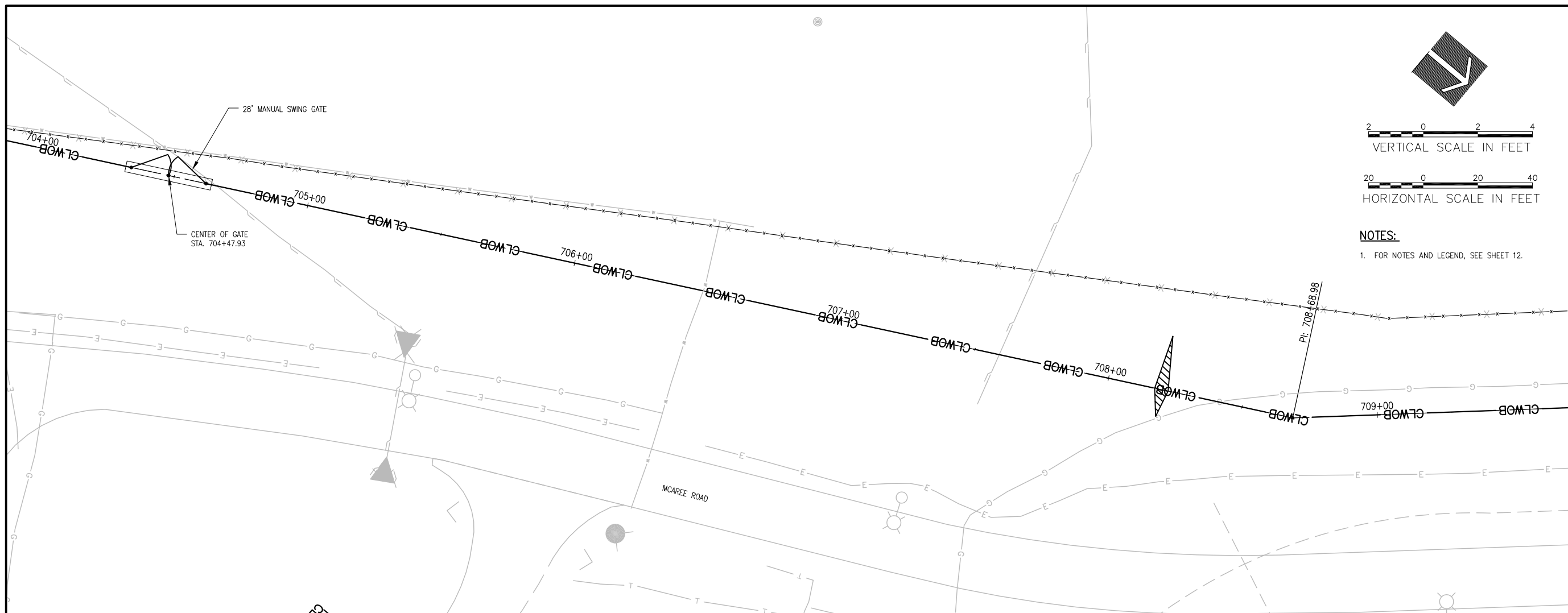
ISSUE: August 2, 2013
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CAD FILE: 12-P&P-SW-1.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/20/13
REVIEWED BY: RMH 4/18/14
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PLAN AND PROFILE ALIGNMENT 700



NOTES:

- FOR NOTES AND LEGEND, SEE SHEET 12.



EX. 697.5	PROP. 697.46	EX. 697.9	PROP. 697.87	EX. 698.3	PROP. 698.34	EX. 698.8	PROP. 698.81	EX. 699.4	PROP. 699.37	EX. 700.0	PROP. 699.99	EX. 700.7	PROP. 700.71	EX. 701.4	PROP. 701.44	EX. 701.7	PROP. 701.72	EX. 702.0	PROP. 701.99	EX. 702.2	PROP. 702.24	EX. 702.5	PROP. 702.54	EX. 702.8	PROP. 702.83	EX. 703.1	PROP. 703.13	EX. 703.4	PROP. 703.41	EX. 703.7	PROP. 703.71	EX. 704.1	PROP. 704.11	EX. 704.6	PROP. 704.59	EX. 705.1	PROP. 705.09	EX. 705.6	PROP. 705.57	EX. 706.0	PROP. 706.00	EX. 706.7	PROP. 706.68	EX. 706.5	PROP. 706.46	EX. 706.4	PROP. 706.36	EX. 706.1	PROP. 706.13	EX. 706.2	PROP. 706.15	EX. 706.2	PROP. 706.19	EX. 706.3	PROP. 706.34	EX. 706.3	PROP. 706.25
704+00		705+00				706+00				707+00				708+00				709+00				709+50																																			

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

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PLAN AND PROFILE ALIGNMENT 700

APR 14, 2014 2:10 PM MCLAU01058
R12\JOBS\0083112A0092\FDDRAWINGS\SHEETS\13-P&P-SW-2.DWG



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WAUKEGAN PORT DISTRICT
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Waukegan, Illinois 60087
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Fax: 847.244.3813



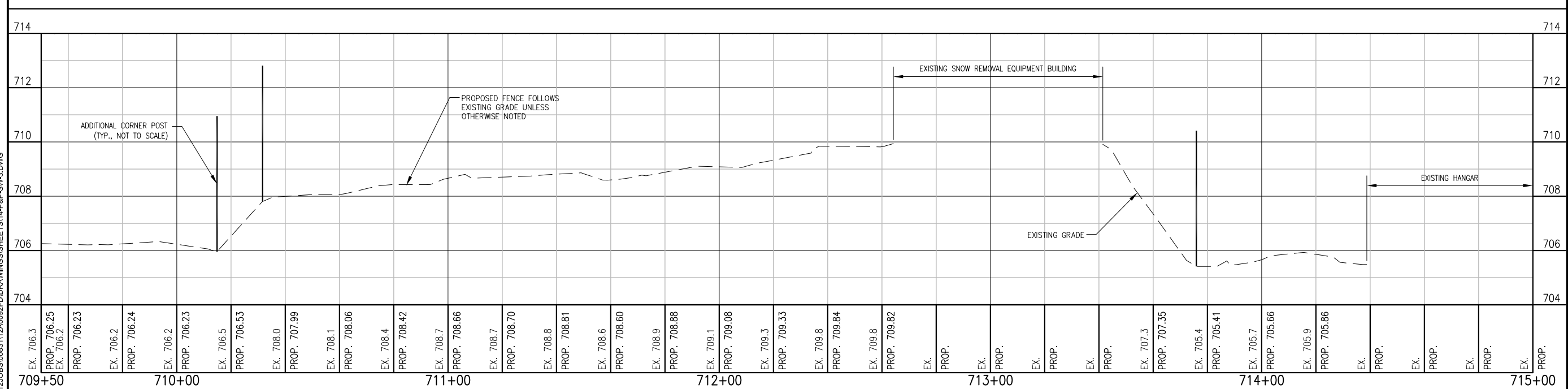
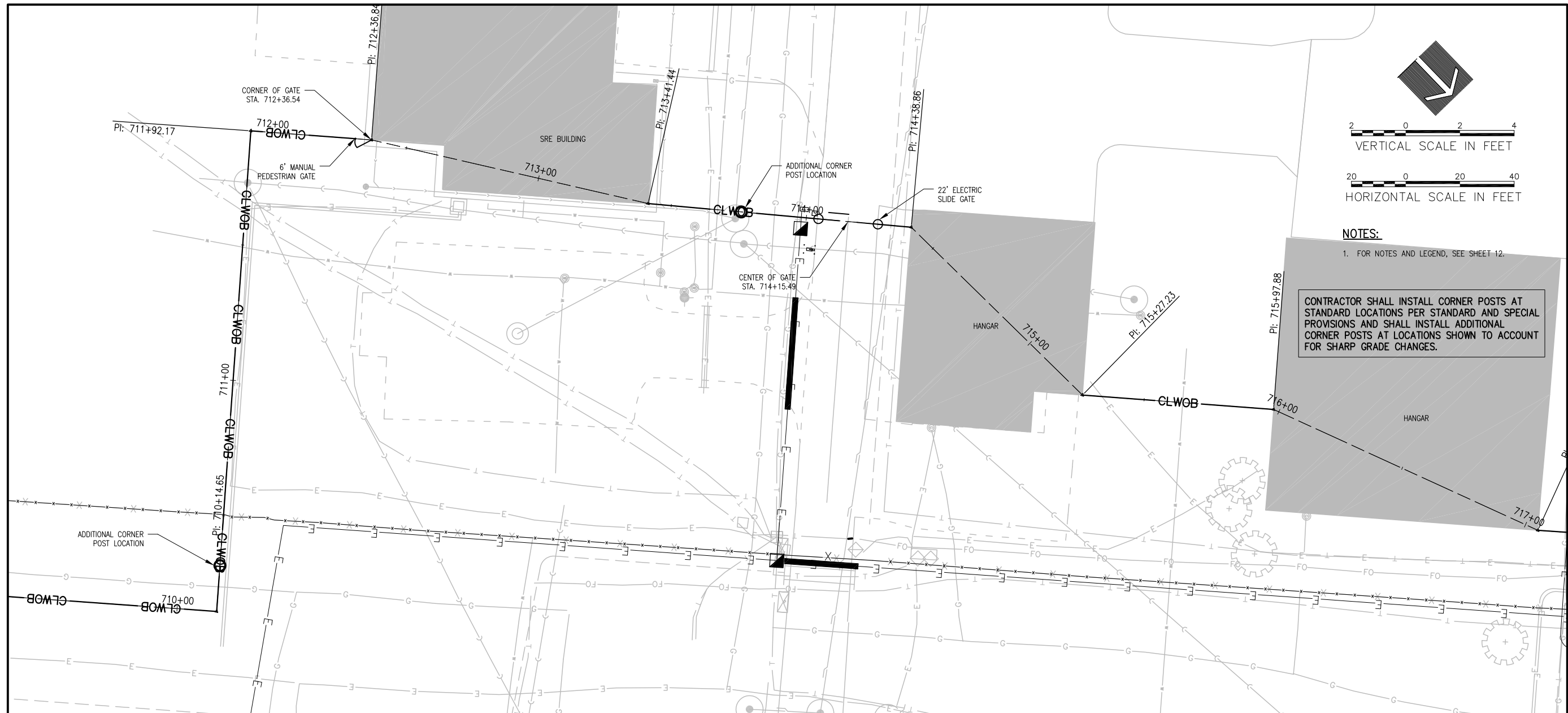
2 0 2 4
VERTICAL SCALE IN FEET

20 0 20 40
HORIZONTAL SCALE IN FEET

NOTES:

1. FOR NOTES AND LEGEND, SEE SHEET 12.

CONTRACTOR SHALL INSTALL CORNER POSTS AT STANDARD LOCATIONS PER STANDARD AND SPECIAL PROVISIONS AND SHALL INSTALL ADDITIONAL CORNER POSTS AT LOCATIONS SHOWN TO ACCOUNT FOR SHARP GRADE CHANGES.



INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

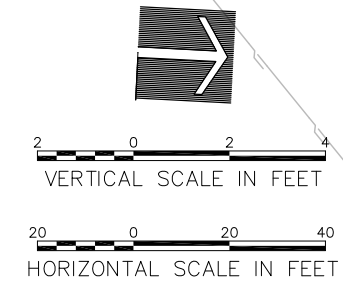
ISSUE: August 2, 2013

PROJECT NO: 12A0092
CAD FILE: 14-P&P-SW-3.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/20/13
REVIEWED BY: RMH 4/18/14

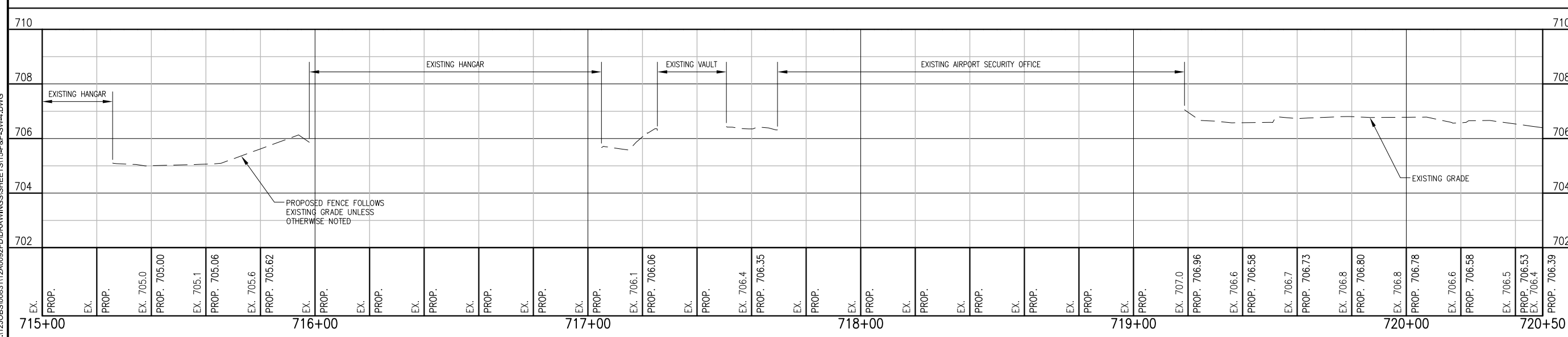
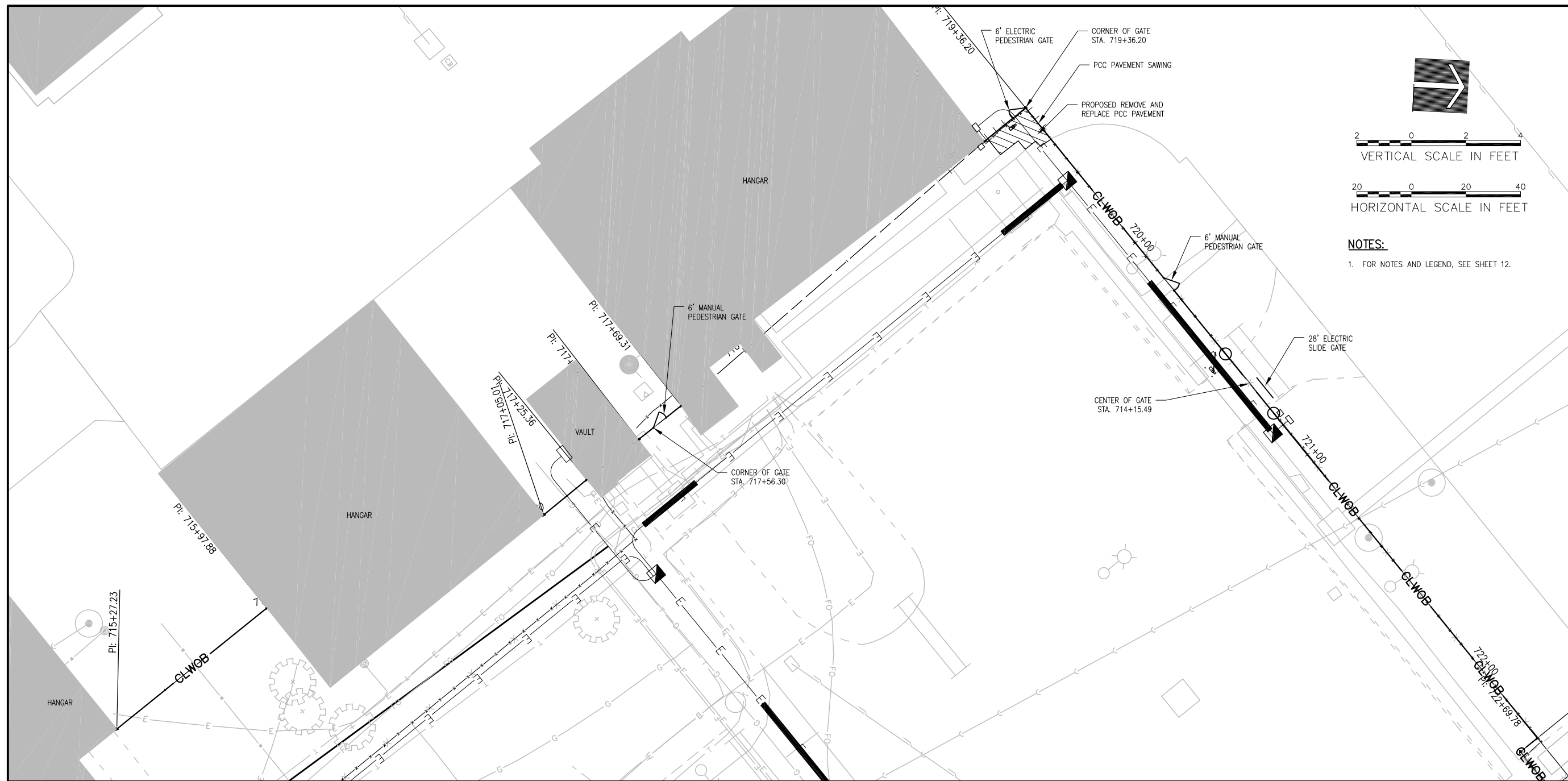
SHEET TITLE

PLAN AND PROFILE ALIGNMENT 700

APR 14, 2014 4:00 PM MCLAU1058
R12\JOBS\0083112A0092\FDDRAWINGS\SSHEETS\14-P&P-SW-3.DWG



NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.



**INSTALL PERIMETER
FENCE, PHASE 3**
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD
Contract No: WA068

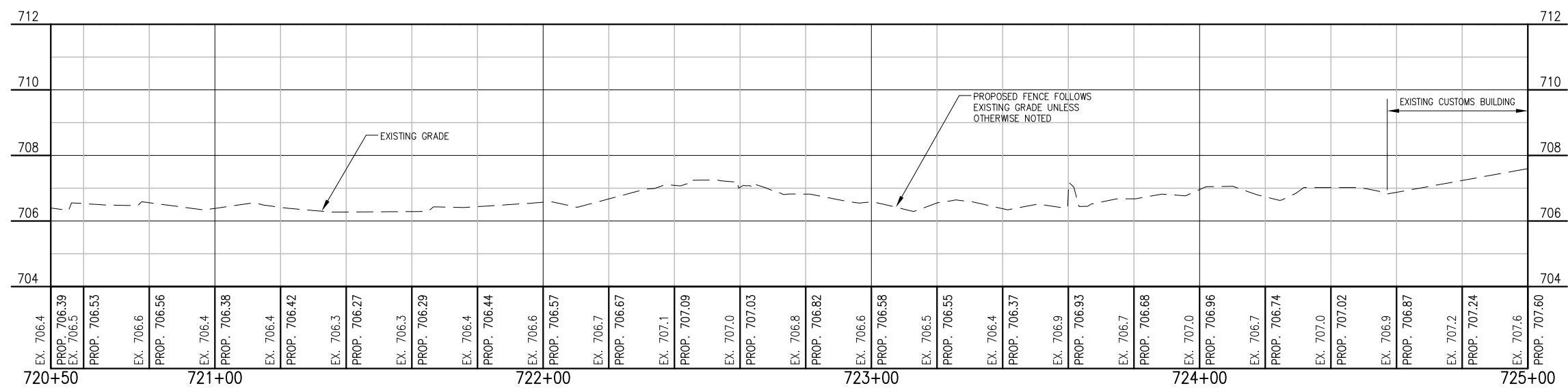
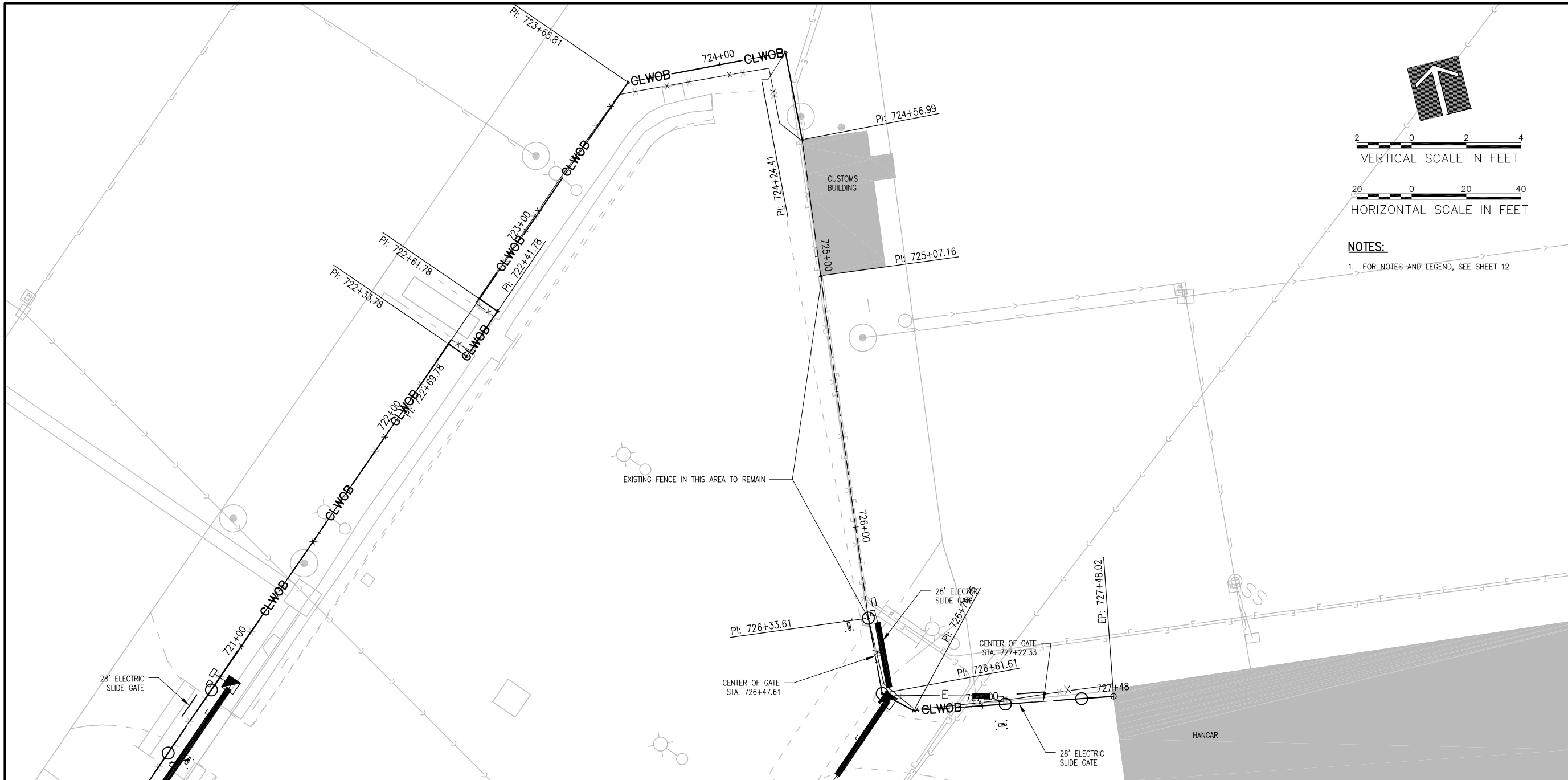
NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 15-P&P-SW-4.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/20/13
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

**PLAN AND PROFILE
ALIGNMENT 700**



NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.

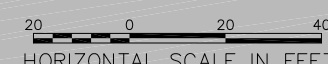
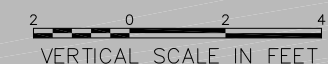
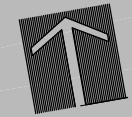
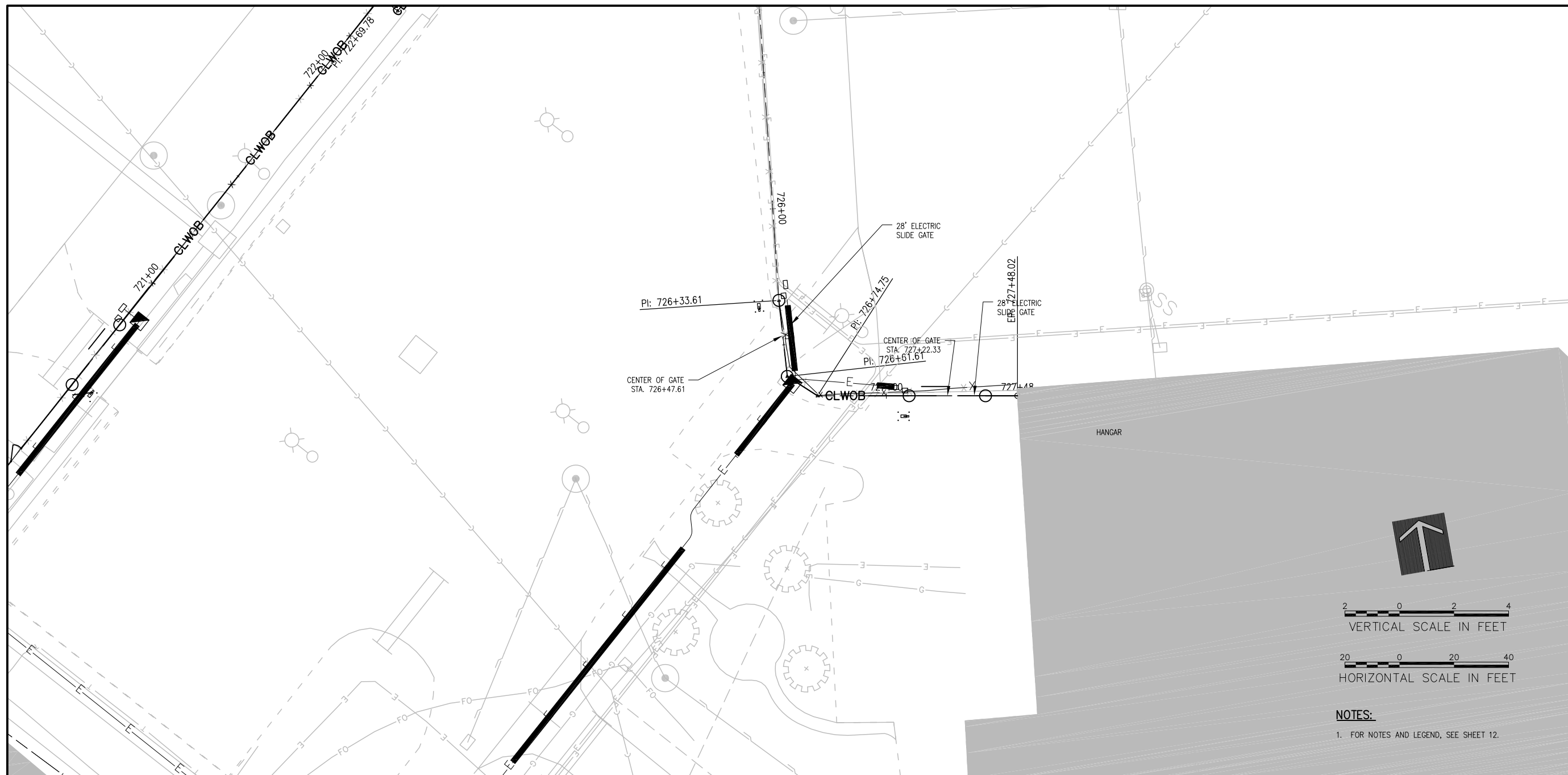


INSTALL PERIMETER FENCE, PHASE 3
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD
Contract No: WA068

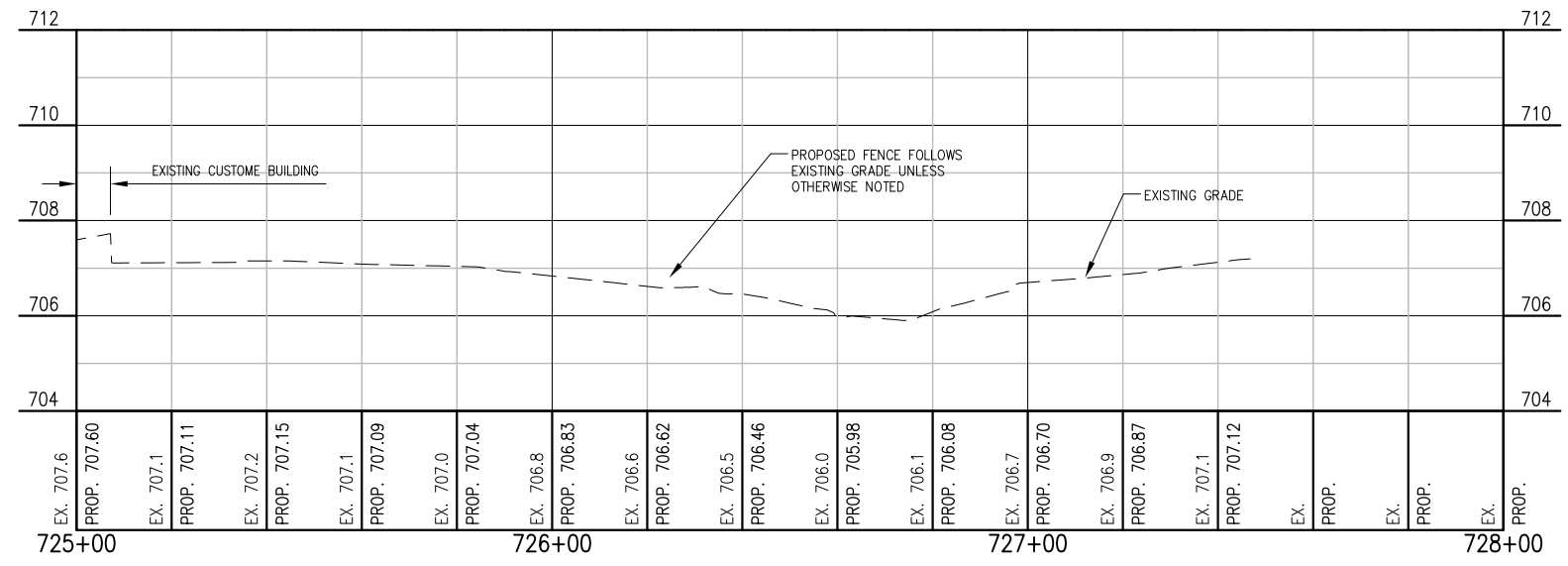
NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 16-P&P-SW-5.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/20/13
REVIEWED BY: RMH 4/18/14
SHEET TITLE

PLAN AND PROFILE ALIGNMENT 700



NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.



I:\12\085\085\12A0092\FR\DRAWINGS\SHEETS\17-P&P-SW-6.DWG, APR 14, 2014 4:07PM MCLAU01058
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INSTALL PERIMETER FENCE, PHASE 3

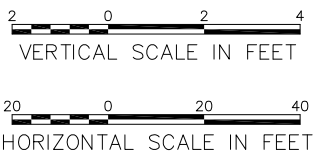
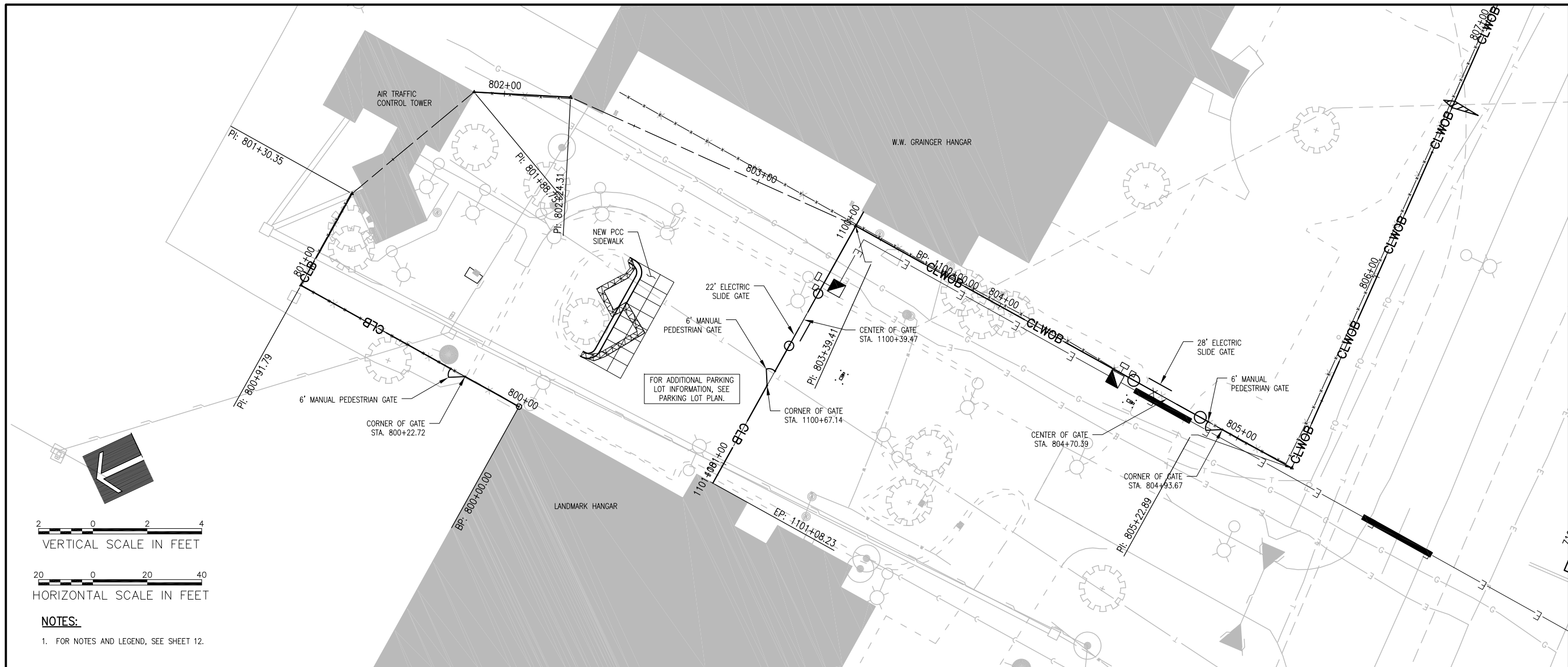
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

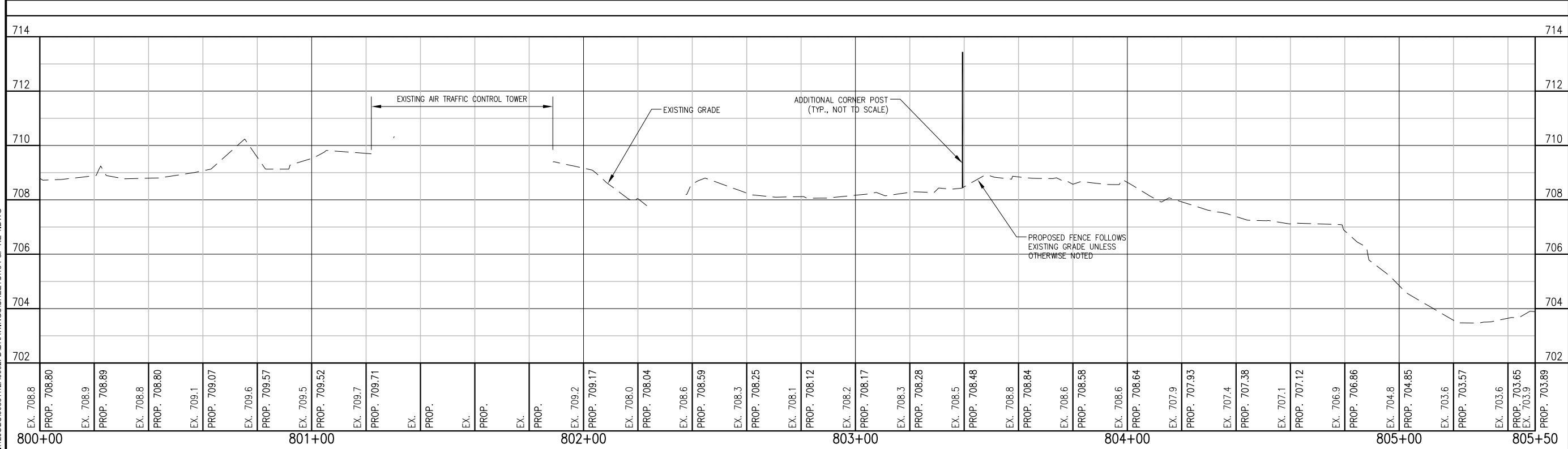
NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
 PROJECT NO: 12A0092
 CAD FILE: 17-P&P-SW-6.DWG
 LAYOUT BY: LDH 12/13/2013
 DRAWN BY: KMS 12/20/2013
 REVIEWED BY: RMH 4/18/14
 SHEET TITLE

PLAN AND PROFILE ALIGNMENT 700



NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.

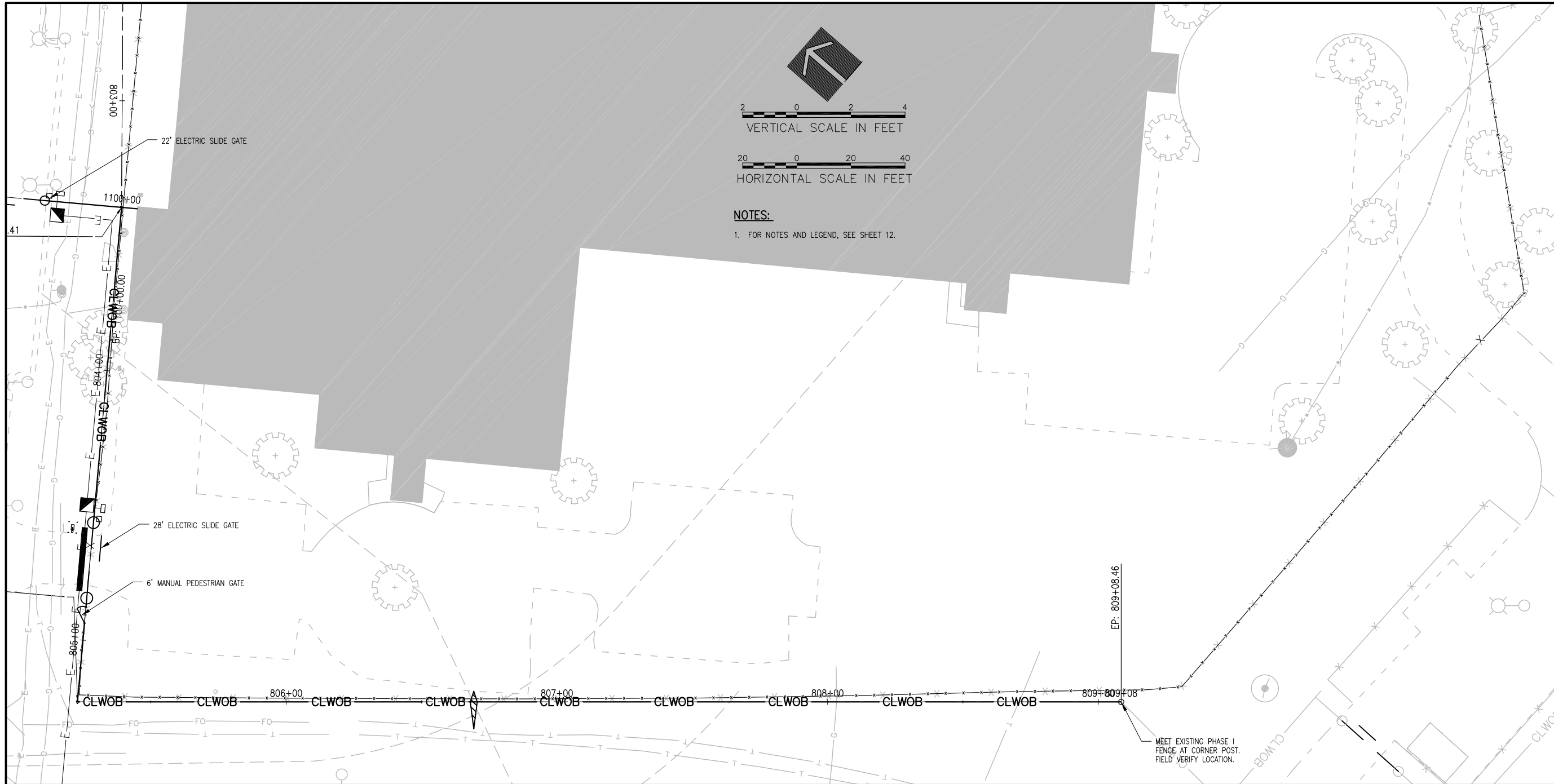


NO.	DATE	DESCRIPTION
		LAY DWN REV

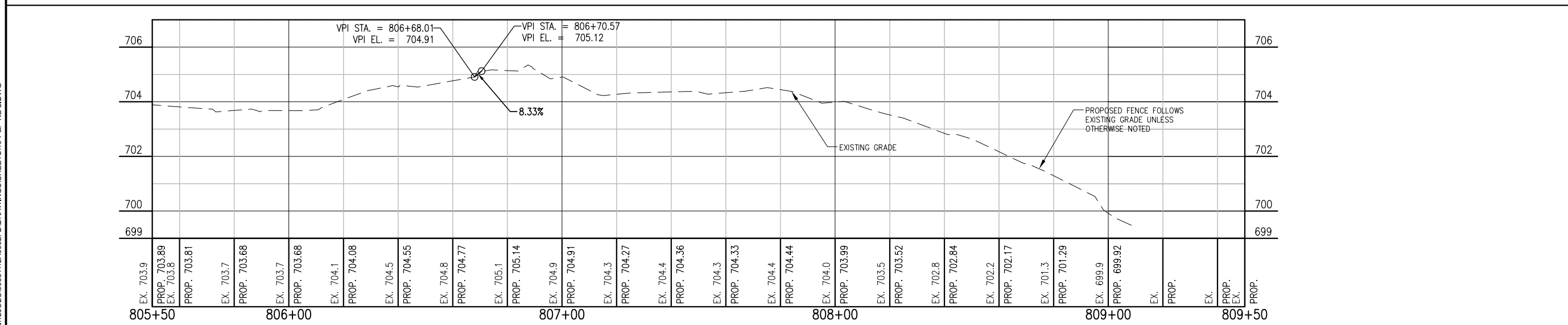
ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 18-P&P-NE-1.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/20/13
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**PLAN AND PROFILE
ALIGNMENT 800**

APR 14, 2014 4:05 PM MCLAU01058 R12\JOBS\0083112A0092\FDDRAWINGS\SHEETS\18-P&P-NE-1.DWG



NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.



INSTALL PERIMETER FENCE, PHASE 3

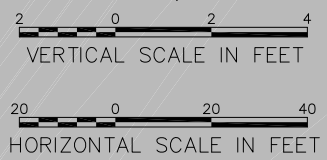
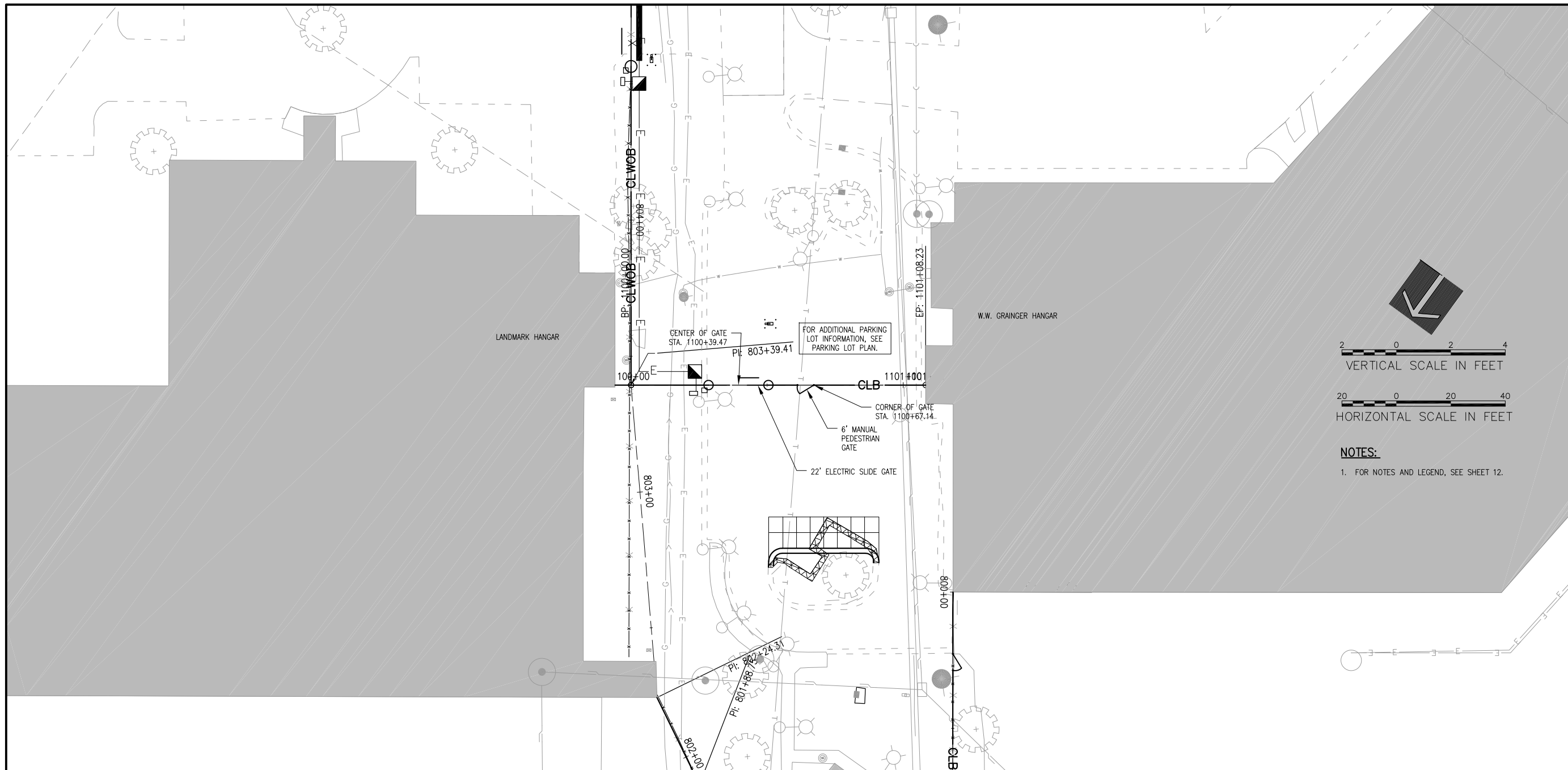
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 19-P&P-NE-2.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/20/13
REVIEWED BY: RMH 4/18/14
SHEET TITLE

PLAN AND PROFILE ALIGNMENT 800



NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.

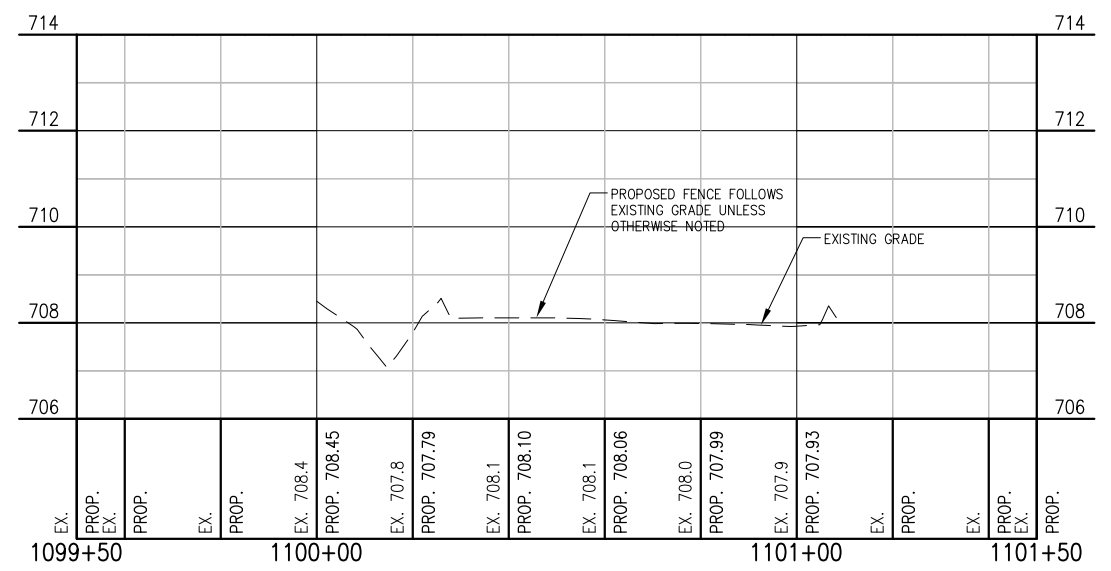
INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

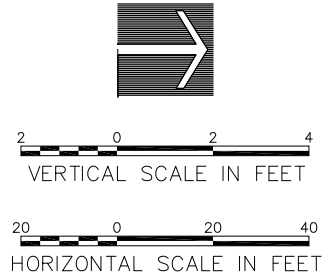
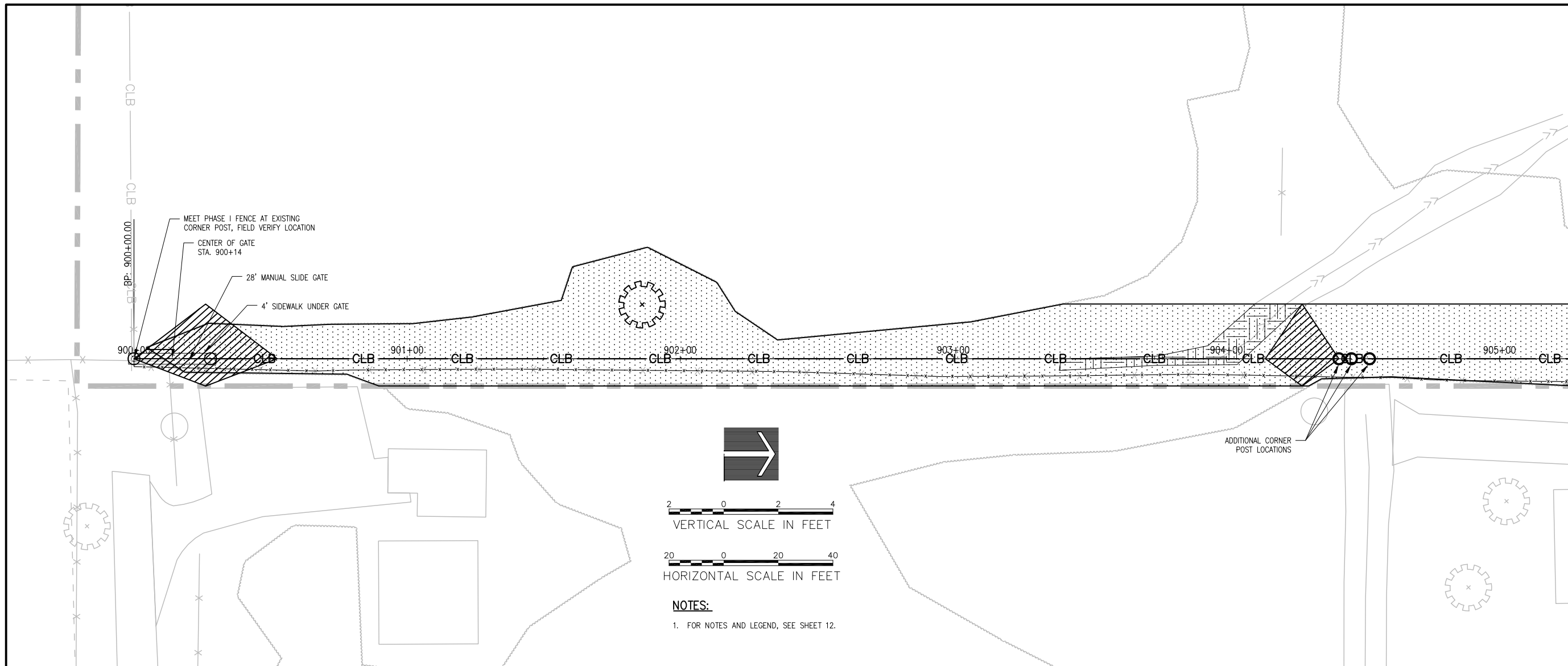
Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

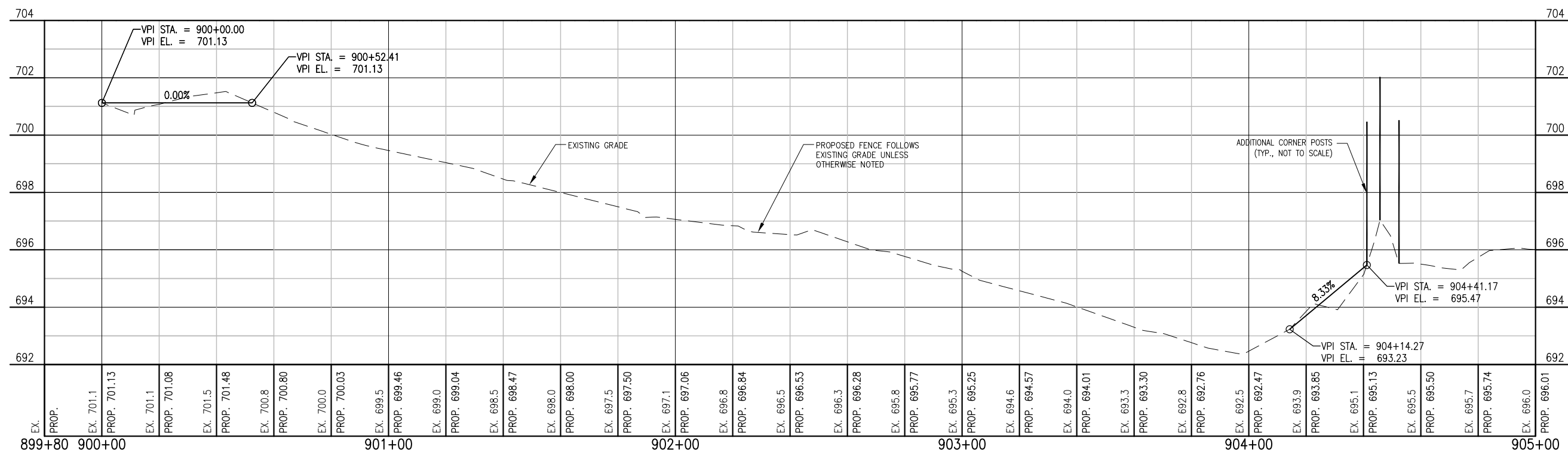
ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 20-P&P-LOT.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/20/13
REVIEWED BY: RMH 4/18/14
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SHEET TITLE



PLAN AND PROFILE ALIGNMENT 1100



NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.

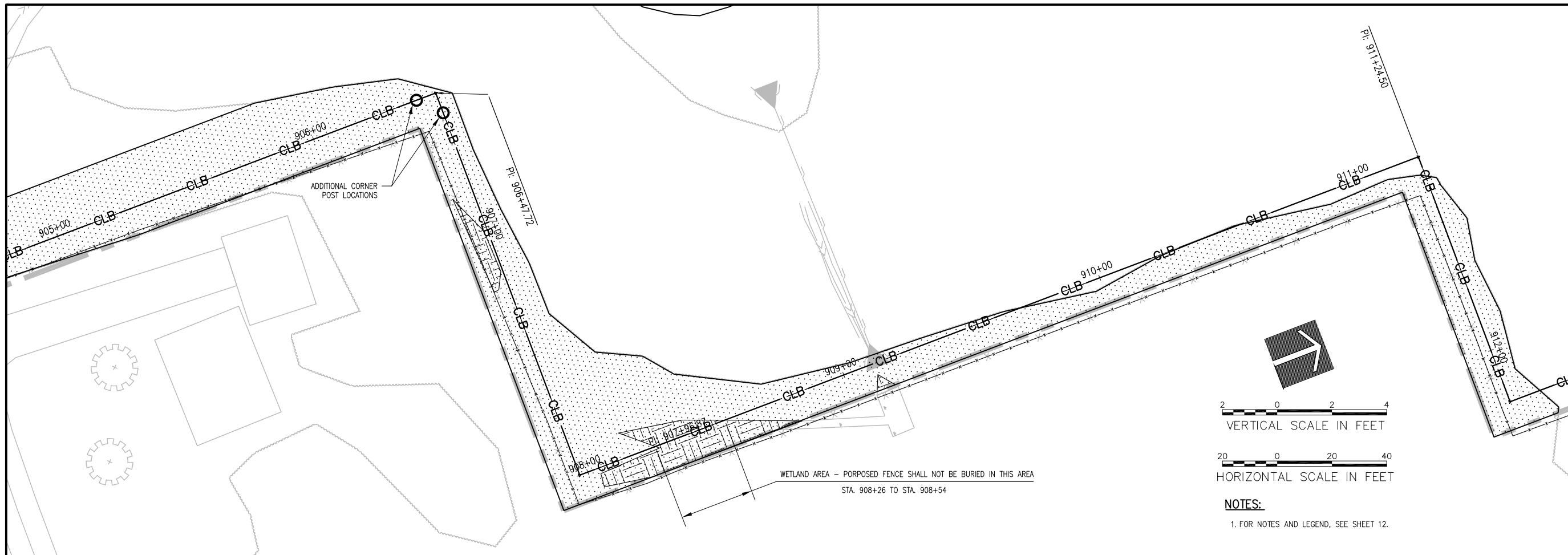


NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

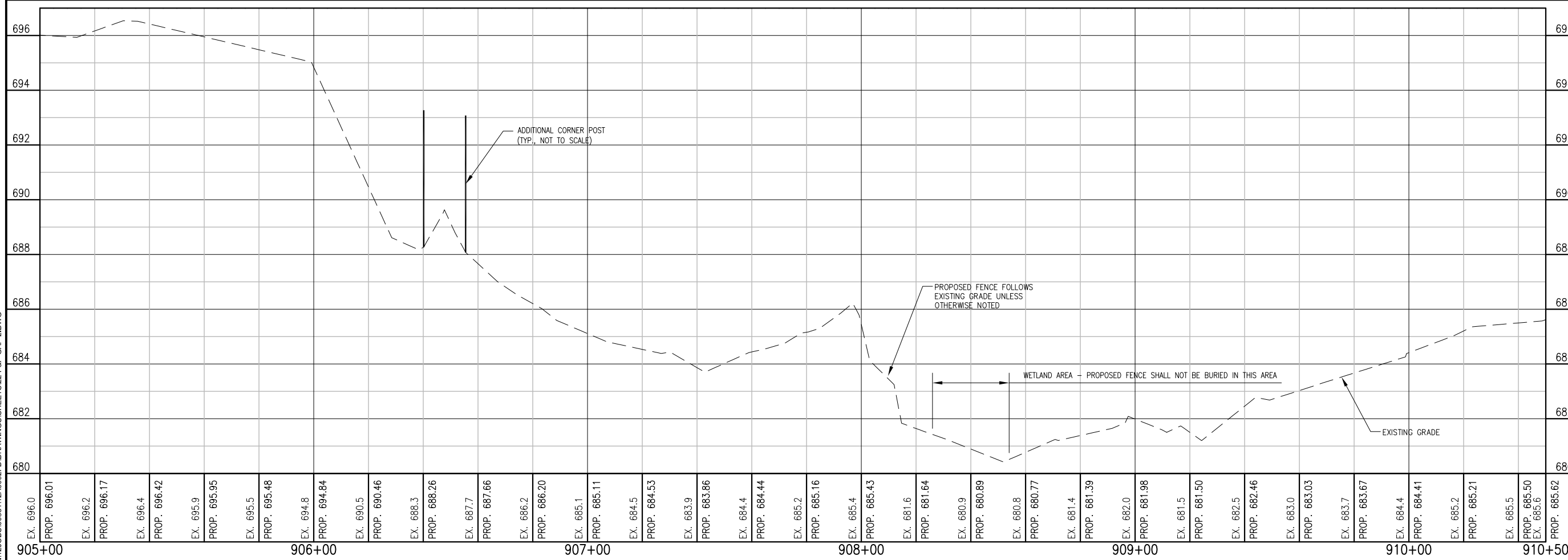
ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 21-P&P-GAP-1.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/26/13
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

**PLAN AND PROFILE
ALIGNMENT 900**

APR 14, 2014 3:16 PM MCLAU01058
R12:JOBS0083112A0092\FDDRAWINGS\SHEETS\21-P&P-GAP-1.DWG



NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.



INSTALL PERIMETER FENCE, PHASE 3

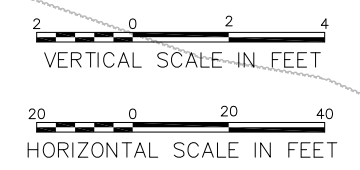
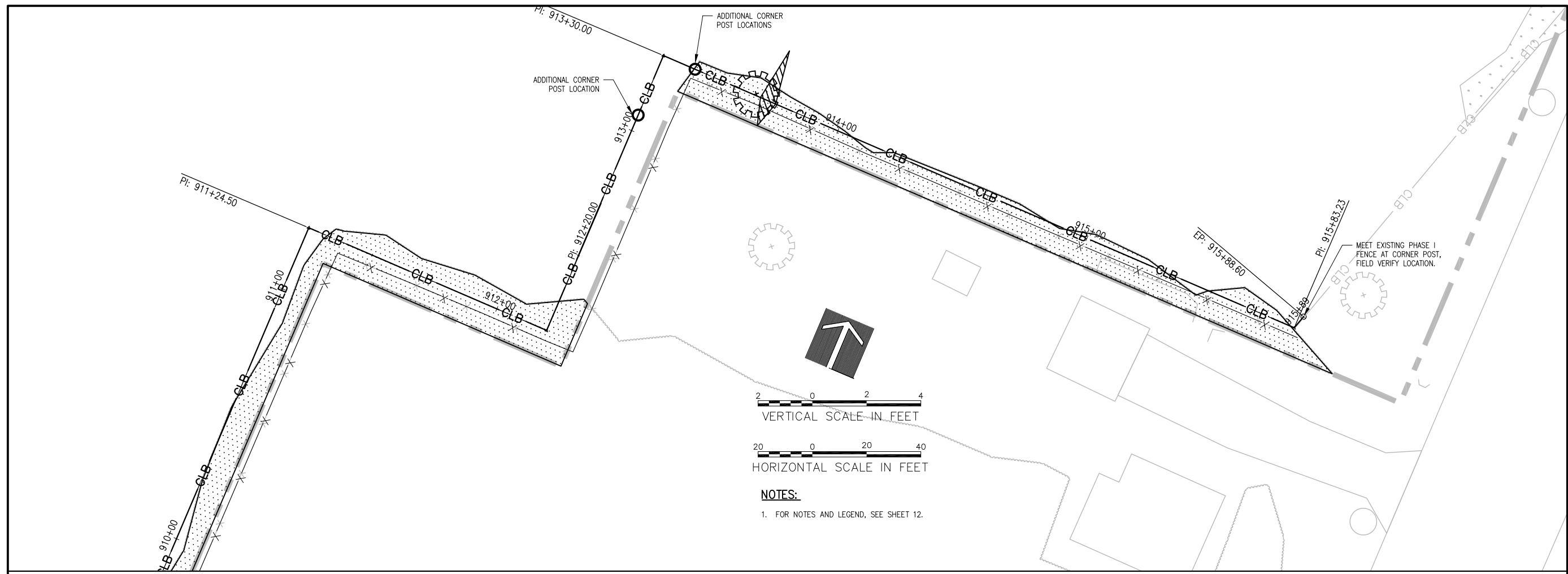
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 22-P&P-GAP-2.DWG
LAYOUT BY: LDH 12/13/13
DRAWN BY: KMS 12/26/13
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

PLAN AND PROFILE ALIGNMENT 900

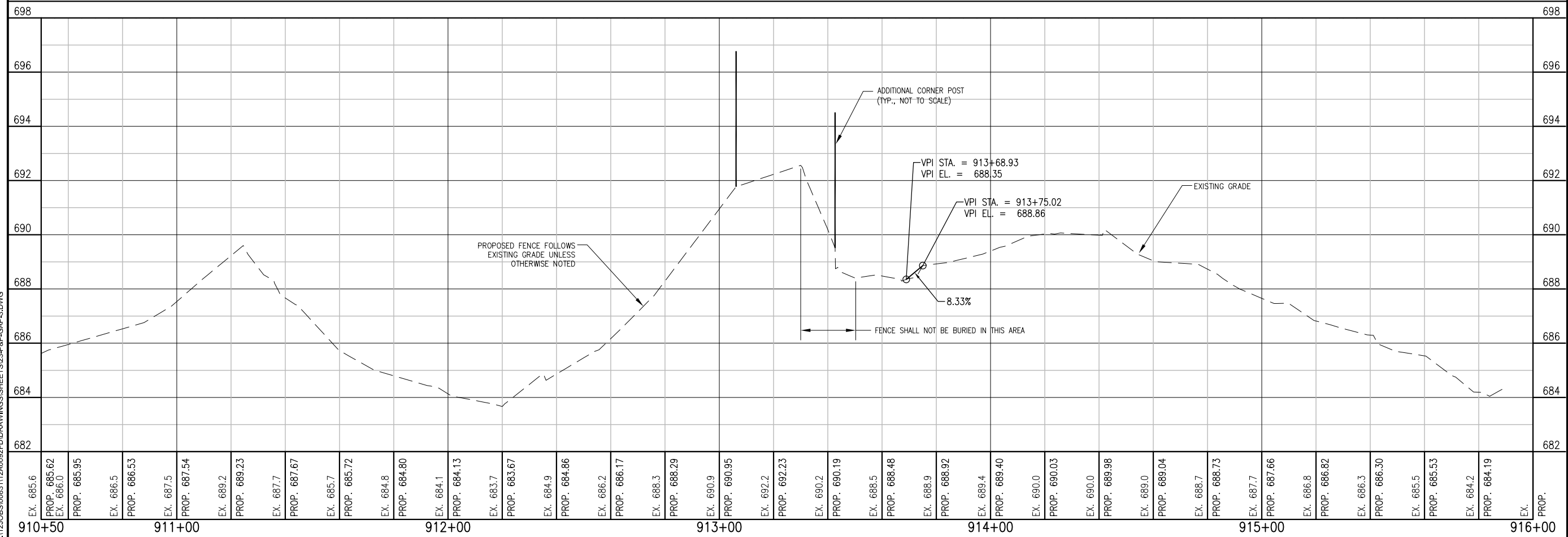


NOTES:
1. FOR NOTES AND LEGEND, SEE SHEET 12.

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068



NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 23-P&P-GAP-3.DWG
LAYOUT BY: LSH 12/13/13
DRAWN BY: KMS 12/26/13
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

PLAN AND PROFILE ALIGNMENT 900

APR 14, 2014 2:25 PM MCLAU01058 R12\JOBS\0083112A0092\FD\DRAWINGS\SHEETS\23-P&P-GAP-3.DWG



INSTALL PERIMETER FENCE, PHASE 3

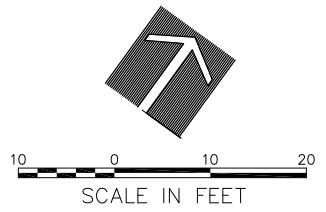
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 24-PKGLT PLAN.DWG
LAYOUT BY: LDH 2/11/14
DRAWN BY: LDH 2/11/14
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

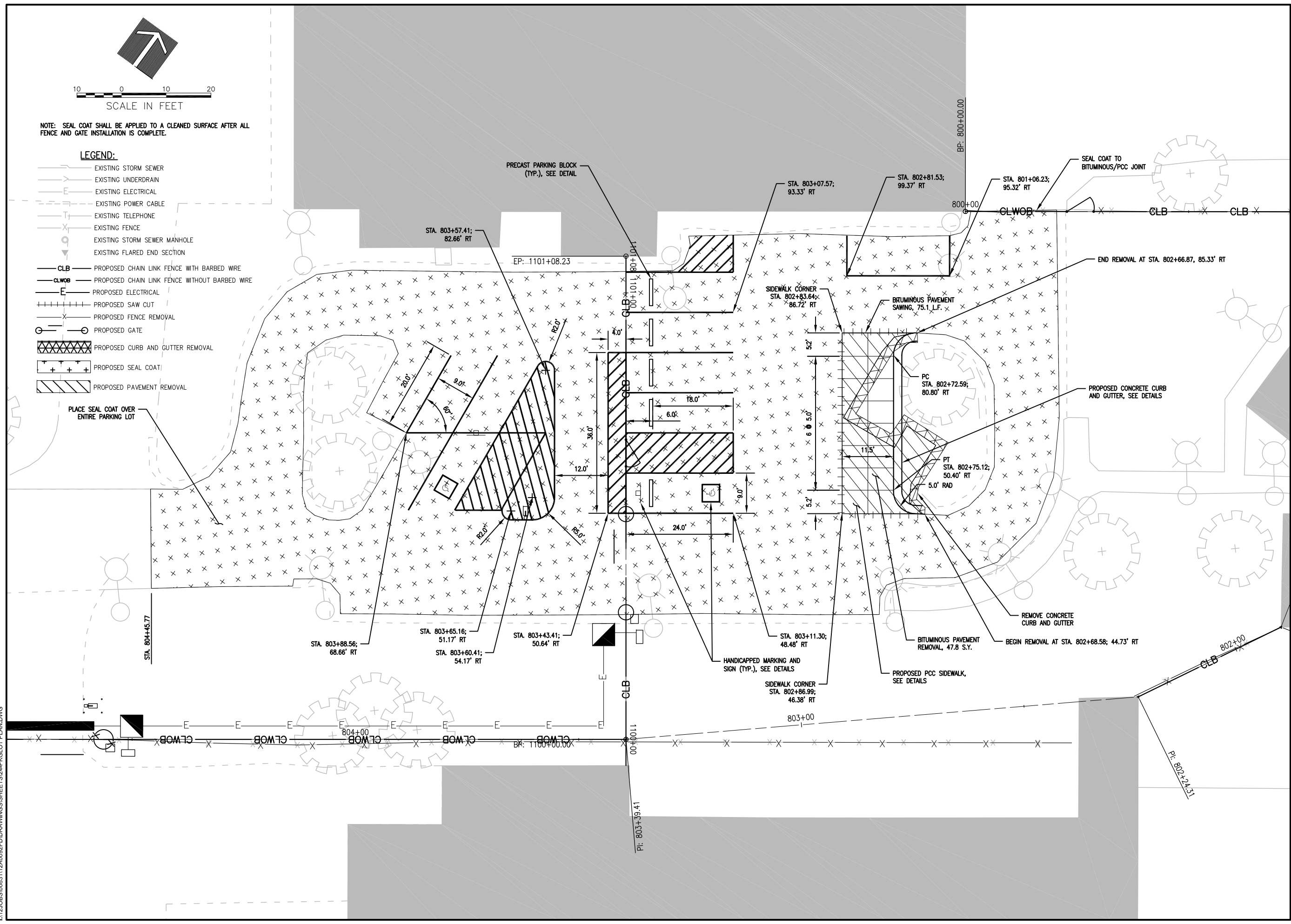
PARKING LOT PLAN



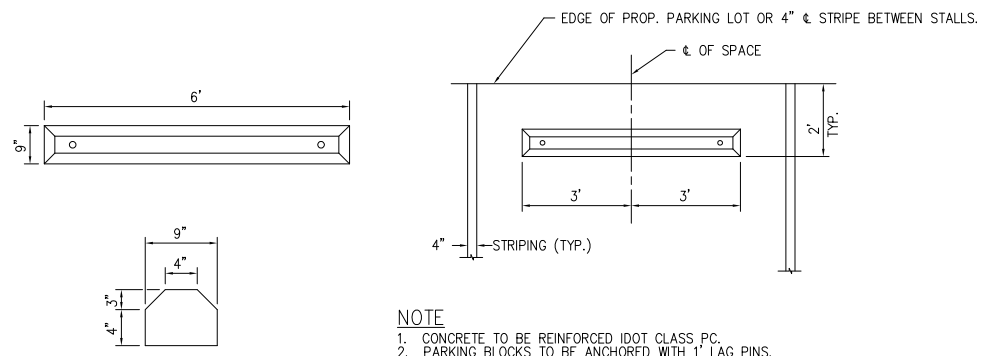
NOTE: SEAL COAT SHALL BE APPLIED TO A CLEANED SURFACE AFTER ALL FENCE AND GATE INSTALLATION IS COMPLETE.

- LEGEND:**
- - - - - EXISTING STORM SEWER
 - - - - - EXISTING UNDERDRAIN
 - - - - - EXISTING ELECTRICAL
 - - - - - EXISTING POWER CABLE
 - - - - - EXISTING TELEPHONE
 - - - - - EXISTING FENCE
 - EXISTING STORM SEWER MANHOLE
 - EXISTING FLARED END SECTION
 - CLB — PROPOSED CHAIN LINK FENCE WITH BARBED WIRE
 - CLWOB — PROPOSED CHAIN LINK FENCE WITHOUT BARBED WIRE
 - - - - - PROPOSED ELECTRICAL
 - +++++ PROPOSED SAW CUT
 - ××××× PROPOSED FENCE REMOVAL
 - PROPOSED GATE
 - XXXXX PROPOSED CURB AND GUTTER REMOVAL
 - +++++ PROPOSED SEAL COAT
 - ////// PROPOSED PAVEMENT REMOVAL

PLACE SEAL COAT OVER ENTIRE PARKING LOT



APR 24, 2014 8:21 AM MCLAU01058 R12JOBS0083112A0092FDDRAWINGS\SSHEETS\24-PKGLT PLAN.DWG

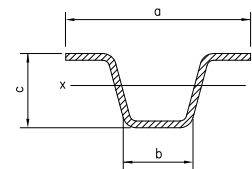


NOTE
1. CONCRETE TO BE REINFORCED IDOT CLASS PC.
2. PARKING BLOCKS TO BE ANCHORED WITH 1" LAG PINS.

**TYPICAL PRECAST CONCRETE PARKING BLOCK
DETAIL AND LOCATION**

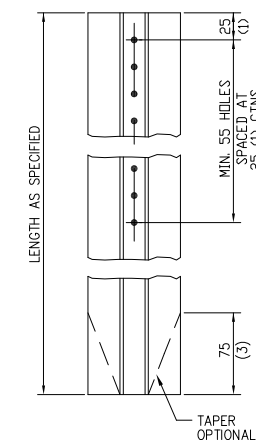
NOTES:

- DIMENSIONS FOR CROSS SECTIONS ARE MINIMUM.
- S_{x-x} IS THE MINIMUM SECTION MODULUS ABOUT THE X-X AXIS OF THE POST AS SHOWN. FOR POST IN WHICH HOLES ARE PUNCHED OR DRILLED FOR MORE THAN HALF THEIR LENGTH, S_{x-x} SHALL BE COMPUTED FOR THE NEXT SECTION.
- SOIL PRESSURE: MINIMUM ALLOWABLE SOIL PRESSURE = 1.25 TSF (120 KLA).
- ALL HOLES ARE 3/8" (10mm) IN DIAMETER.
- LOADING FOR 60 MPH (95 km/h) WIND VELOCITY WITH 30% GUST FACTOR, NORMAL TO SIGN.
- MATERIALS: POST SHALL BE STRUCTURAL STEEL—BREAKAWAY CONFORMING WITH THE REQUIREMENTS OF SECTION 1093.01 OF THE IDOT SPECIFICATIONS. BOLTS, NUTS AND WASHERS SHALL BE HIGH-STRENGTH STEEL, GALVANIZED AND SHALL CONFORM TO SECTION 1006.08 OF THE IDOT SPECIFICATIONS.
- IN AREAS WHERE POSTS PENETRATE PAVEMENT, THE PAVEMENT SHALL BE CORED. AFTER THE POST IS SET, THE HOLE SHALL BE GROUTED WITH AN IDOT APPROVED NON-SHRINK GROUT. COST INCIDENTAL TO SIGN.



SECTION

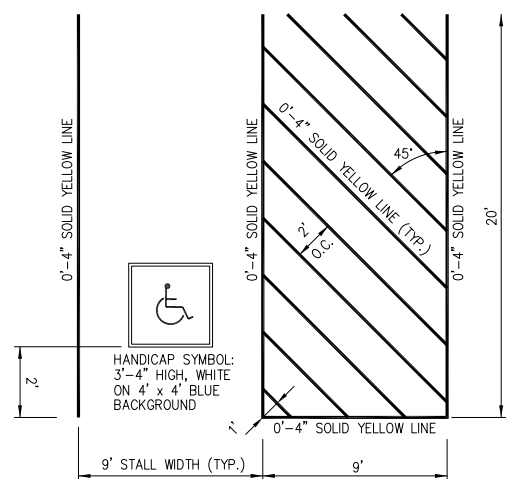
TYPE B		a	b	c	S _{x-x} mm ³ (in. ³)	kg/m (lbs./ft.)
		STEEL	81 (3 3/16)	32 (1 1/4)	38 (1 1/2)	5,588 (0.341)
	ALUMINUM	118 (4 5/8)	57 (2 1/4)	60 (2 3/8)	14,552 (0.888)	1.93 (1.30)



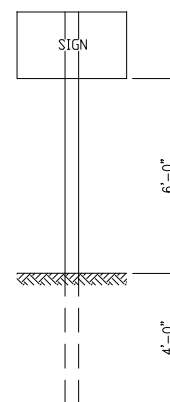
TYPE B

MARKING NOTES:

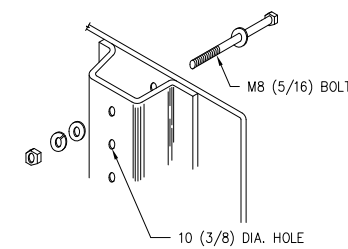
- ALL WHITE AND YELLOW PAVEMENT MARKINGS TO INCLUDE REFLECTIVE GLASS SPHERES.
- ALL MARKINGS TO BE WATERBORNE PAINT.
- DIMENSIONS GIVEN TO CENTERLINE OF MARKING.



ACCESSIBLE SPACE DETAIL



ONE POST INSTALLATION



NOTE: MINIMUM OF 2 BOLTS PER POST REQUIRED
DETAIL OF MOUNTING SIGN TO POST

ROADWAY SIGN POST

(IDOT STANDARD 720011, 720006, & 729001)

DETAILS SHOWN ARE NOT TO SCALE

**INSTALL PERIMETER
FENCE, PHASE 3**

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 25-PARKING LOT DET.DW
LAYOUT BY: LDH 2/11/14
DRAWN BY: LDH 2/11/14
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

**PARKING LOT
DETAILS**



INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION	LAY	DWN	REV

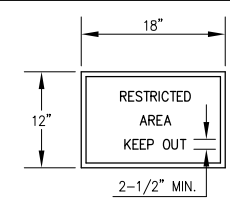
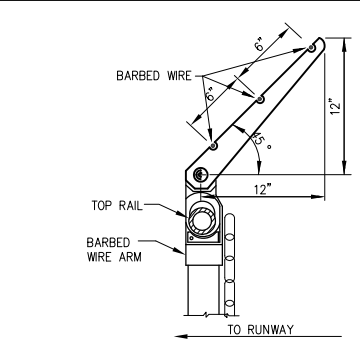
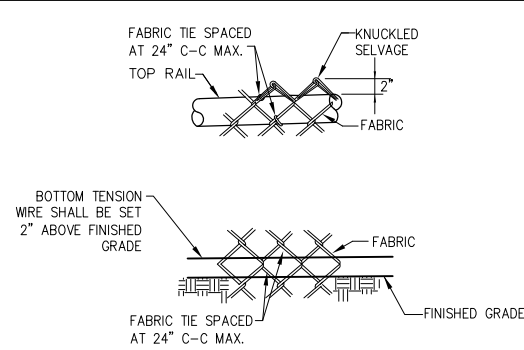
ISSUE: August 2, 2013

PROJECT NO: 12A0092
CAD FILE: 26-FENCEDET.DWG
LAYOUT BY: SJM 03/06/2014
DRAWN BY: SJM 03/06/2014
REVIEWED BY: RMH 4/18/14

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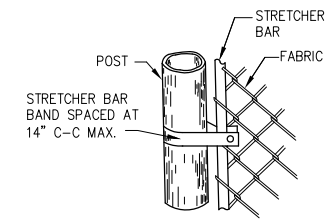
SHEET TITLE

FENCE DETAILS

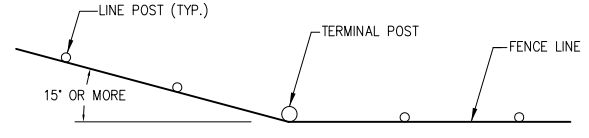


0.08 GA. ALUMINUM ALLOY SHEET
(LETTERING COLOR SHALL BE RED ON WHITE BACKGROUND.)

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

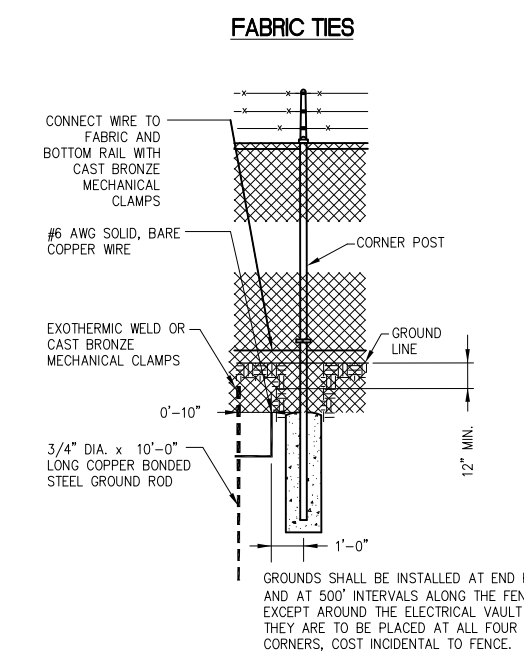


STRETCHER BAR BAND

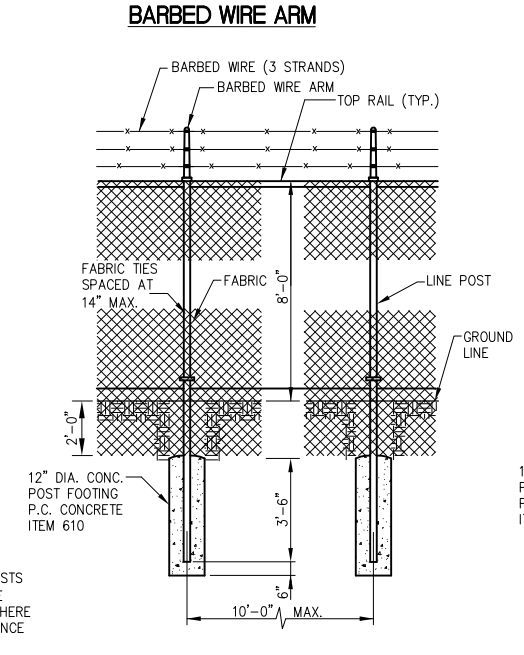


WHEN FENCE LINE HAS A CHANGE IN DIRECTION OF 15° OR MORE, A TERMINAL POST SHALL BE PLACED AS SHOWN ABOVE. WHERE ANGLE IS LESS THAN 15° AND EXISTING CONDITIONS REQUIRE A TERMINAL POST, THEY SHALL BE PLACED AS DIRECTED BY THE RESIDENT ENGINEER.

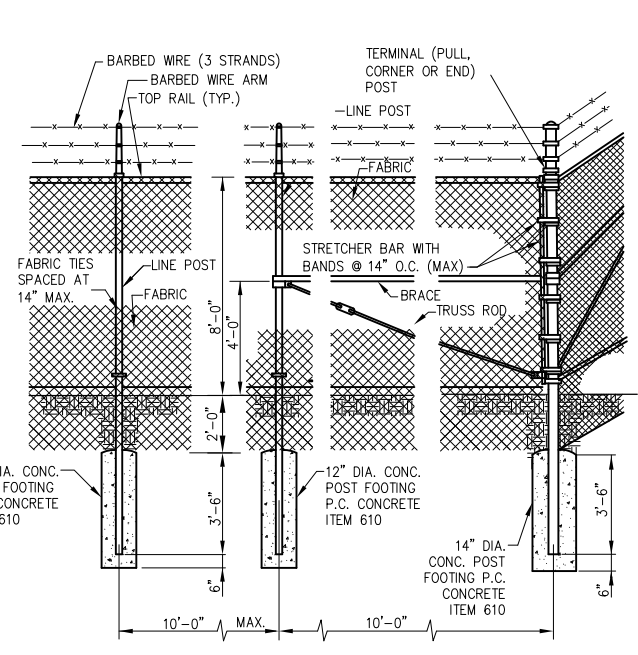
INSTALLATION AT CORNERS



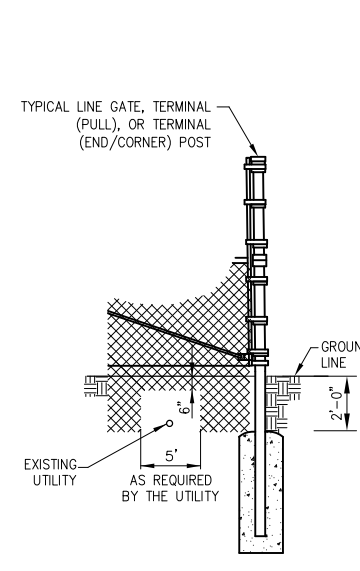
PROTECTIVE ELECTRICAL GROUND



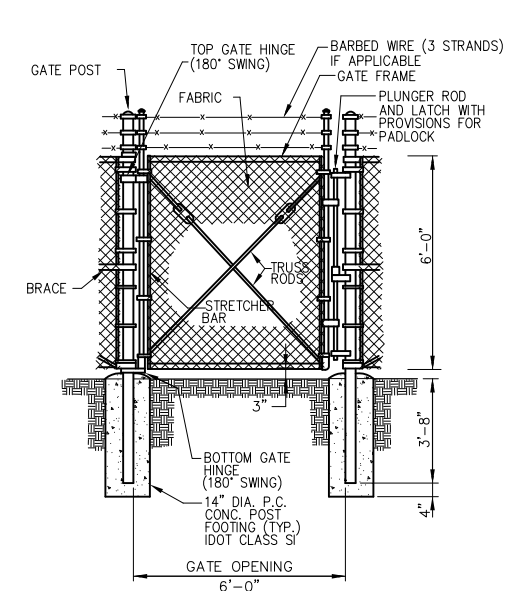
LINE POST



TERMINAL (PULL, CORNER OR END) POST

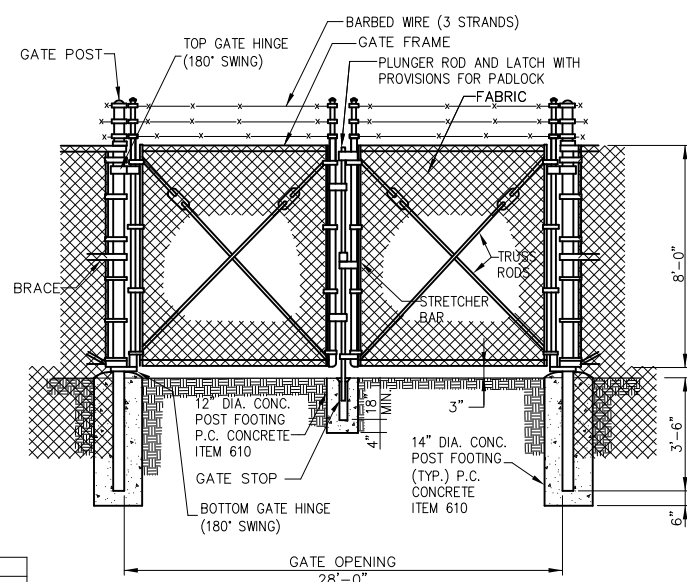


FENCE INSTALLATION OVER UTILITIES



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

PEDESTRIAN GATE, 6 FOOT WIDE

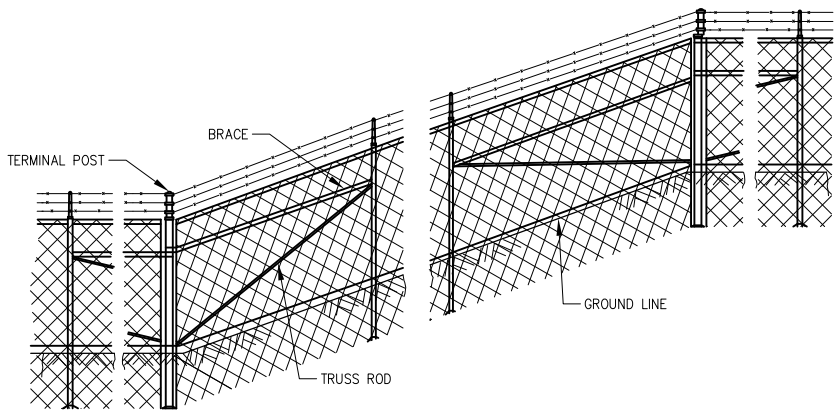


MANUAL SWING GATE, 28' (DOUBLE 14')

DETAILS SHOWN ARE NOT TO SCALE

FENCING NOTES

- ALL FENCE, FABRIC, POSTS, GATES, TENSION WIRE, RODS, BRACES, ARMS, BARBED WIRE AND MISCELLANEOUS FITTINGS SHALL BE GALVANIZED STEEL, EXCEPT FOR ITEMS AS800982 AND AS800983 WHICH SHALL BE BLACK VINYL OR POWDER COATED.
- BARBED WIRE FOR FENCE AND GATES SHALL BE GALVANIZED STEEL.
- FENCE HEIGHT SHALL BE 10' WITH BOTTOM 2' BURIED. GATE HEIGHT ABOVE GROUND LINE SHALL BE 8'-0" AS SHOWN.
- PULL POSTS SHALL BE PLACED AT 660 FOOT INTERVALS BETWEEN CORNER OR END POSTS TO WHICH THE ENDS OF THE FABRIC ARE CLAMPED OR MIDWAY BETWEEN SUCH POSTS WHEN THE DISTANCE IS LESS THAN 1,320 FEET AND GREATER THAN 660 FEET.
- ALUMINUM RESTRICTED AREA SIGNS SHALL BE FURNISHED AS SHOWN IN THE DETAIL. COST INCIDENTAL TO FENCE OR GATE.
- SONOTUBE TO BE USED FOR CASTING POST FOUNDATIONS IN WETLAND AREAS AND WHERE REQUIRED BY THE SOIL CONDITIONS TO PROVIDE A CONSTANT WIDTH FOOTING
- COST OF TRENCHING FOR FENCE FABRIC BURIAL SHALL BE INCIDENTAL TO CHAIN LINK FENCE.
- SOME FENCE ITEMS ARE ALSO BID AS ADDITIVE ALTERNATE NO. 1 ITEMS (AS800982 & AS800983).
- SEE SPECIAL PROVISIONS.
- FOOTINGS FOR SLIDE GATES SHALL BE 14" DIAMETER.



INSTALLATION ON SLOPES

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

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

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

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

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

Gate Opening * ft. (m)		Pipe Type A		Pipe Type B	
		Size (O.D.)	lbs./ft. (kg/m)	Size (O.D.)	lbs./ft. (kg/m)
Up to 4 (1.2)	Single	2,375 (60.3)	3.65 (5.43)	2 1/2 (63.5)	4.32 (6.43)
	Double	2,875 (73.0)	5.79 (8.62)	3 (76.2)	5.78 (8.60)
Over 4 (1.2) to 8 (2.5)	Single	3,5 (89.0)	7.58 (11.28)	3 (76.2)	8.80 (13.10)
	Double	4,0 (101.6)	9.11 (13.6)	4 (101.6)	9.11 (13.6)

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

INSTALL PERIMETER FENCE, PHASE 3

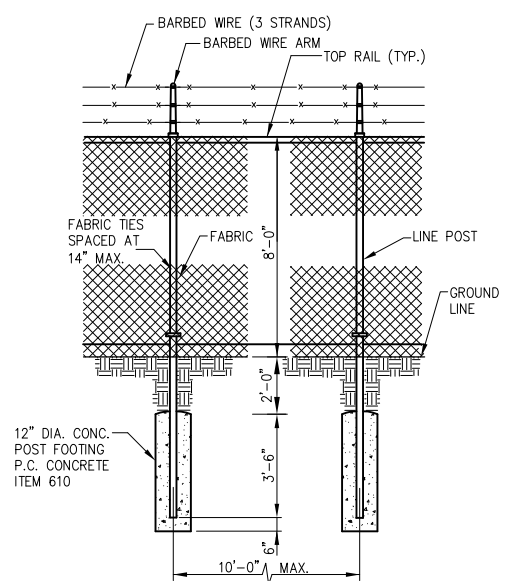
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

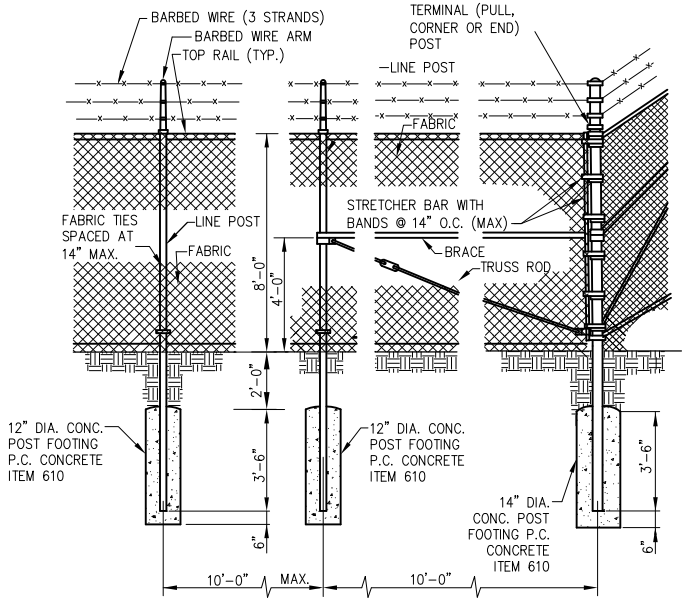
NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

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SHEET TITLE

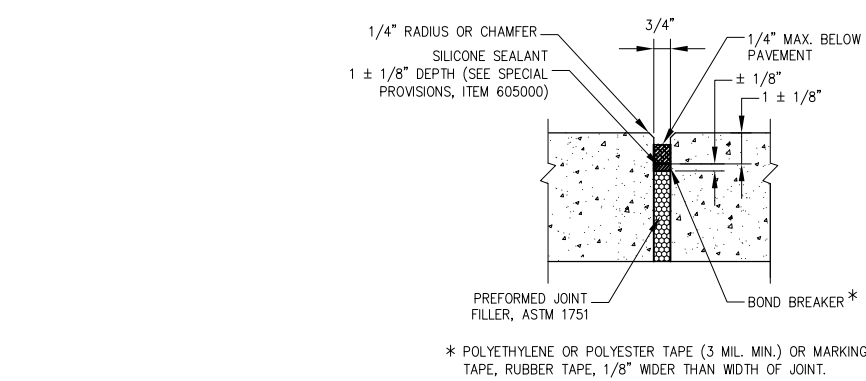
FENCE DETAILS 2



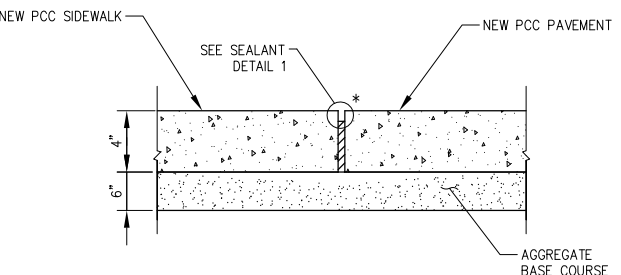
LINE POST - NO BURIED SKIRT



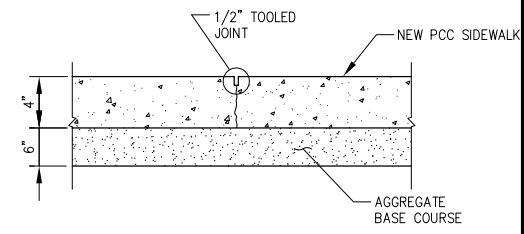
TERMINAL (PULL, CORNER OR END) POST - NO BURIED SKIRT



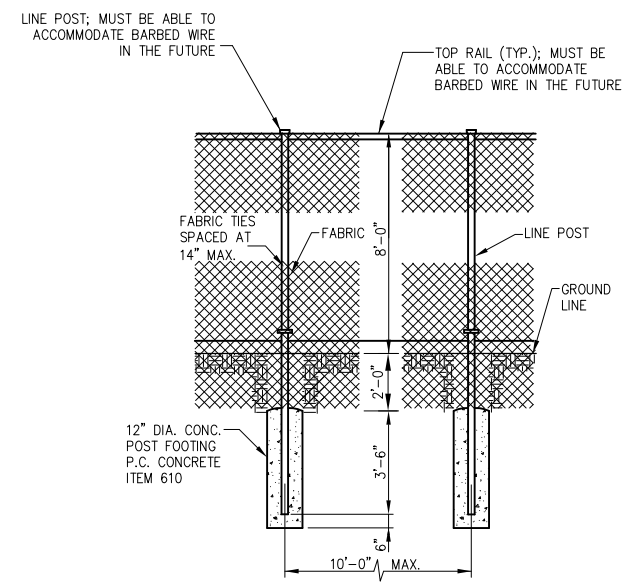
DETAIL 1 - SEALANT



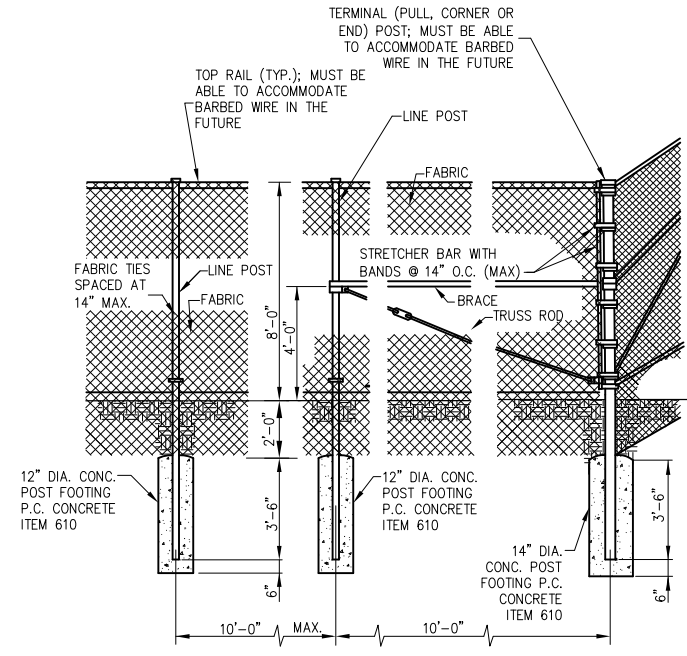
EXPANSION JOINT



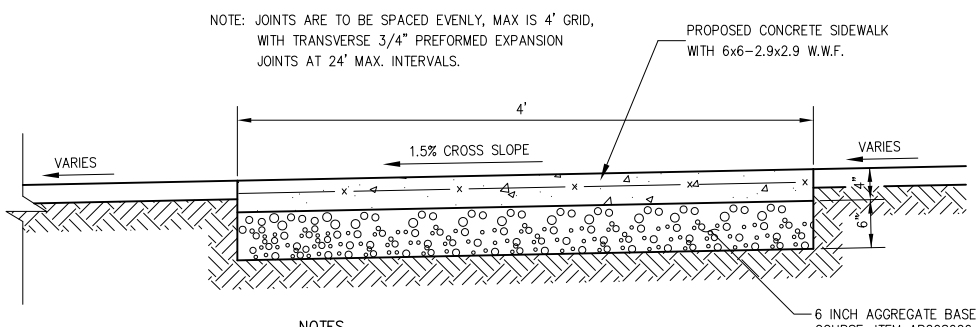
TOOLED CONTRACTION JOINT



LINE POST - NO BARBED WIRE

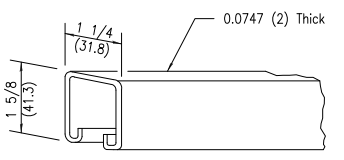


TERMINAL (PULL, CORNER OR END) POST - NO BARBED WIRE

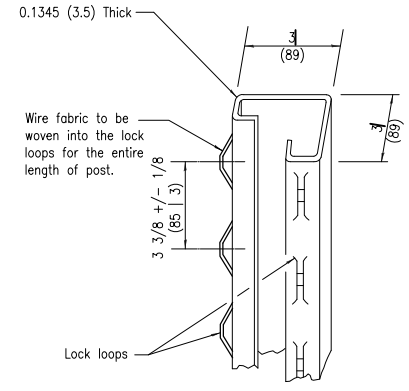


- NOTES**
- 3/4" PREFORMED JOINT FILLER TO BE USED IN ALL LOCATIONS WHERE SIDEWALK IS ADJACENT TO EXISTING PAVEMENT.
 - SIDEWALK SHALL BE SET AT 2 INCHES ABOVE EXISTING GRADE AND SLOPED TRANSVERSELY TO MEET FENCE GRADE.

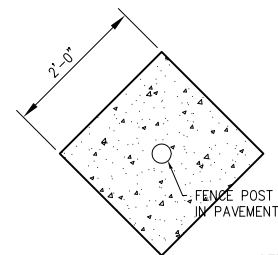
SIDEWALK CROSS SECTION DETAIL



ROLL FORMED SECTION OF BRACE

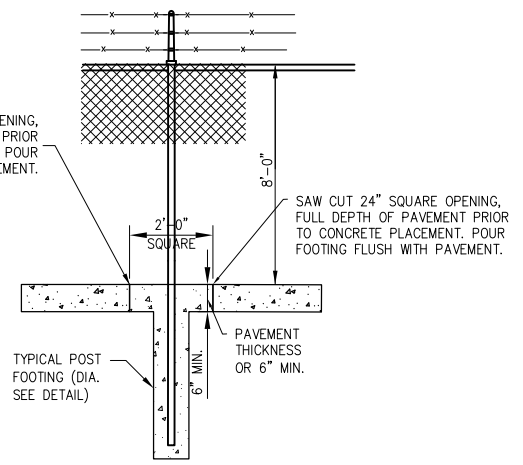


ROLL FORMED SECTION OF TERMINAL + GATE POST



- NOTES**
- CONTRACTOR SHALL PROTECT FINAL PAVEMENT EDGE, AND REPLACE WHEN DAMAGED.
 - COST OF SAWCUTTING AND PROTECTION SHALL BE INCIDENTAL TO FENCE.

POST FOOTING IN PAVEMENT



TYPICAL POST FOOTING (DIA. SEE DETAIL)

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DETAILS SHOWN ARE NOT TO SCALE

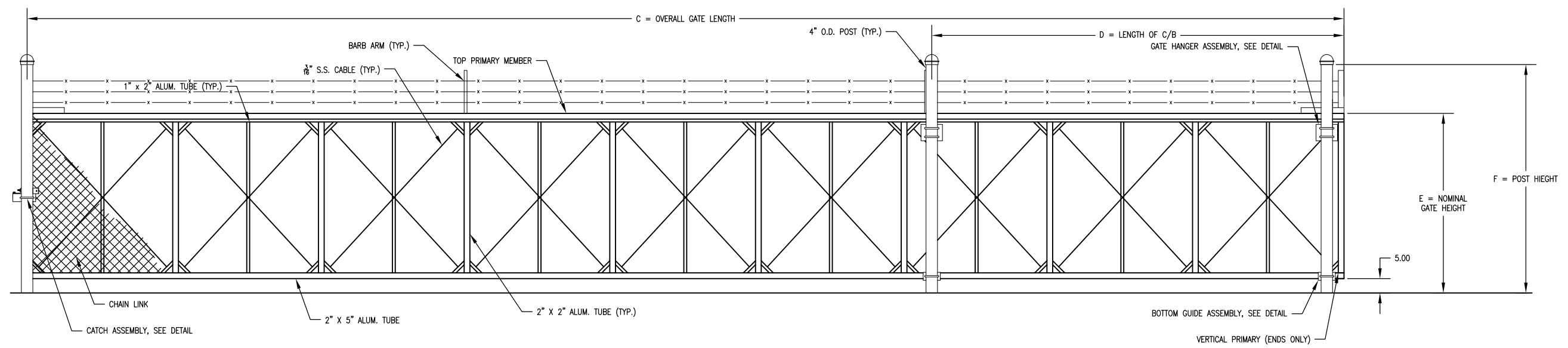


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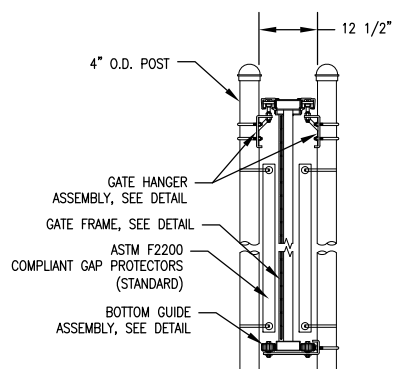
- GATE ELEVATION IS VIEWED FROM THE OUTSIDE OF THE SECURE AREA LOOKING IN.
- BARB WIRE SHALL BE FURNISHED FOR GATES WITHIN BARBED WIRE FENCE SEGMENTS.
- SEE NOTES ON SHEET 12 FOR GATE COLOR.



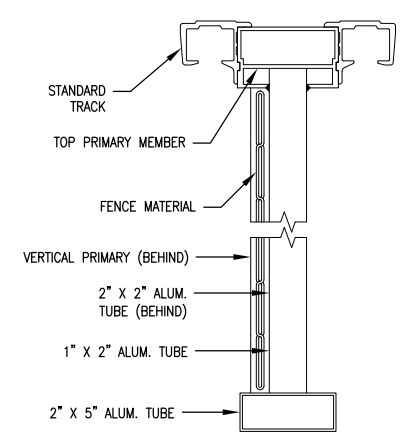
PLAN VIEW



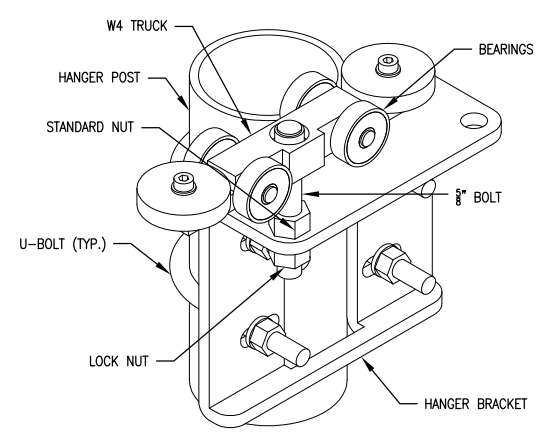
ELEVATION



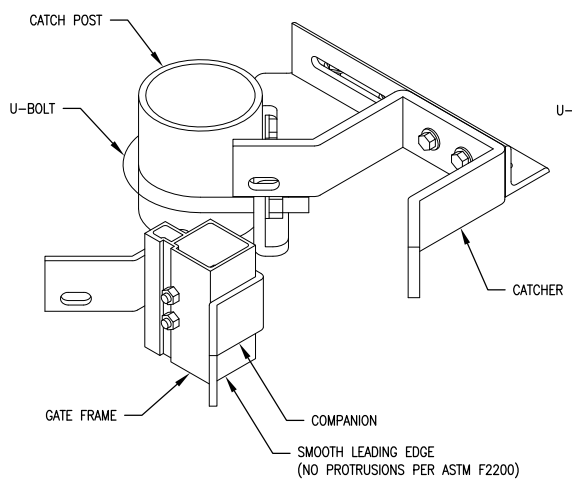
ASSEMBLY SECTION



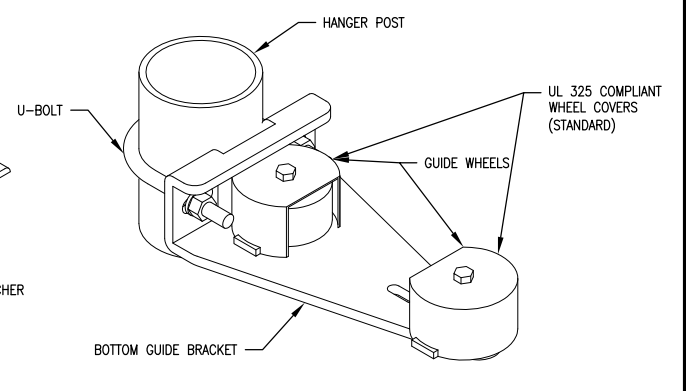
GATE FRAME SECTION



GATE HANGER ASSEMBLY



CATCH ASSEMBLY



BOTTOM GUIDE ASSEMBLY

CRITICAL DIMENSION CHART

NOMINAL GATE SIZE	28' W X 8'+1" H	22' W X 8'+1" H
A CLEAR OPENING	28'-0"	22'-0"
B COUNTERBALANCE POST SPACING C/C	13'-1"	10'-1"
C OVERALL GATE LENGTH	42'-0"	33'-0"
D COUNTERBALANCE LENGTH	14'-0"	11'-0"
E NOMINAL GATE HEIGHT	8'-0"	8'-0"
F POST HEIGHT	9'-6"	9'-6"

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

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SHEET TITLE

22' AND 28' GATE DETAILS

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ELECTRICAL LEGEND -- ONE-LINE DIAGRAM	
	CABLE TERMINATOR/LUG, TERMINAL BLOCK, OR SPLICE
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	TOGGLE SWITCH / 2 POSITION SWITCH
	FUSE
	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE
	GROUND -- GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL
	INDICATING LIGHT
	MOTOR
	LOAD, MOTOR, # = HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE OR TERMINALS
	EQUIPMENT, XXX = DEVICE DESCRIPTION
	GROUND BAR, GROUND BUS OR GROUND TERMINAL
	SOLID NEUTRAL, NEUTRAL BUS, OR NEUTRAL TERMINAL
	PANELBOARD WITH MAIN LUGS
	PANELBOARD WITH MAIN BREAKER
	FUSE PANEL WITH MAIN FUSE PULLOUT
	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE
	CONTROL STATION
	TRANSFER SWITCH: N = NORMAL EM = EMERGENCY L = LOAD
	ENGINE GENERATOR SET

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

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

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

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

NOTES:

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

240/120 VAC, 3 PHASE, 4 WIRE	
PHASE A	BLACK
PHASE B (HIGH LEG)	ORANGE
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN
- SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
- LTFMC DENOTES LIQUID TIGHT FLEXIBLE METAL CONDUIT UL LISTED, SUNLIGHT RESISTANT, & SUITABLE FOR GROUNDING. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS USED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER (MINIMUM). DO NOT INSTALL LTFMC THAT IS NOT UL LISTED. CONFIRM LTFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
- ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES U.L. LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.
- HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR HANDHOLE.

INSTALL PERIMETER
FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
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SHEET TITLE

ELECTRICAL
LEGEND AND
ABBREVIATIONS

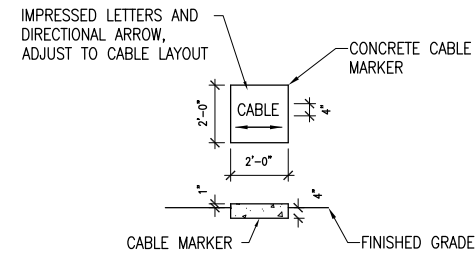


LEGEND:

- EXISTING STORM SEWER
- EXISTING UNDERDRAIN
- EXISTING GAS
- EXISTING SANITARY SEWER
- EXISTING FIBER OPTIC
- EXISTING ELECTRIC
- EXISTING WATER
- EXISTING TELEPHONE
- EXISTING FENCE
- EXISTING STORM SEWER MANHOLE
- EXISTING CATCH BASIN
- EXISTING END SECTION
- EXISTING LIGHT POLE
- PROPOSED CHAIN LINK FENCE WITH BARBED WIRE
- PROPOSED GATE
- PROPOSED ELECTRIC (CABLE INSTALLED IN DUCT)
- PROPOSED DUCT (DIRECTIONAL BORE)
- PROPOSED HANDHOLE

NOTES:

1. SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL REQUIREMENTS.
2. SEE "ELECTRICAL ONE LINE FOR GATE OPERATORS" SHEETS FOR DETAILS.
3. SEE "ELECTRIC SLIDE GATE DETAILS" SHEETS FOR GATE OPERATOR INSTALLATION DETAIL AND ELECTRIC GATE PLAN.
4. CONTRACTOR SHALL EXAMINE THE SITE AND REPORT ANY POSSIBLE INTERFERENCES TO THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE PRIOR TO INSTALLATION OF THE GATE OPERATOR AND CONTROLS.
5. DIRECT-BURIED CONDUIT/DUCT SHALL BE INSTALLED A MINIMUM OF 24" BELOW FINISHED GRADE. CONTRACTOR SHALL FIELD VERIFY PROPOSED CONDUIT ROUTING PRIOR TO INSTALLATION. CONTRACTOR SHALL COORDINATE INSTALLATION OF PROPOSED CONDUIT WITH PROPOSED FENCING. PROPOSED FENCING WILL BE INSTALLED PARTIALLY BELOW GRADE, THEREFORE ANY CONDUIT/FENCING CROSSINGS MUST BE INSTALLED BELOW LOWER LIMIT OF FENCING. CONDUIT SHALL NOT PENETRATE FENCING BELOW GRADE.
6. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND AGENCIES WHICH HAVE LINES, UTILITIES, AND/OR CONDUITS IN THE PROPOSED WORK AREA. ALL LINES, UTILITIES, AND CONDUITS SHALL BE LOCATED AND IDENTIFIED FOR DEPTH BEFORE ANY WORK BEGINS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL UNDERGROUND ELECTRIC SERVICE LINES, UTILITIES, AND CONDUITS LOCATED WITHIN THE PROPOSED CONSTRUCTION LIMITS. THESE UNDERGROUND LINES, UTILITIES, AND CONDUITS SHALL BE LOCATED AT THE CONTRACTOR'S OWN EXPENSE PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. ANY EXISTING UTILITY LINES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.



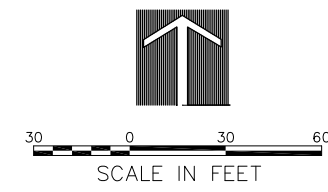
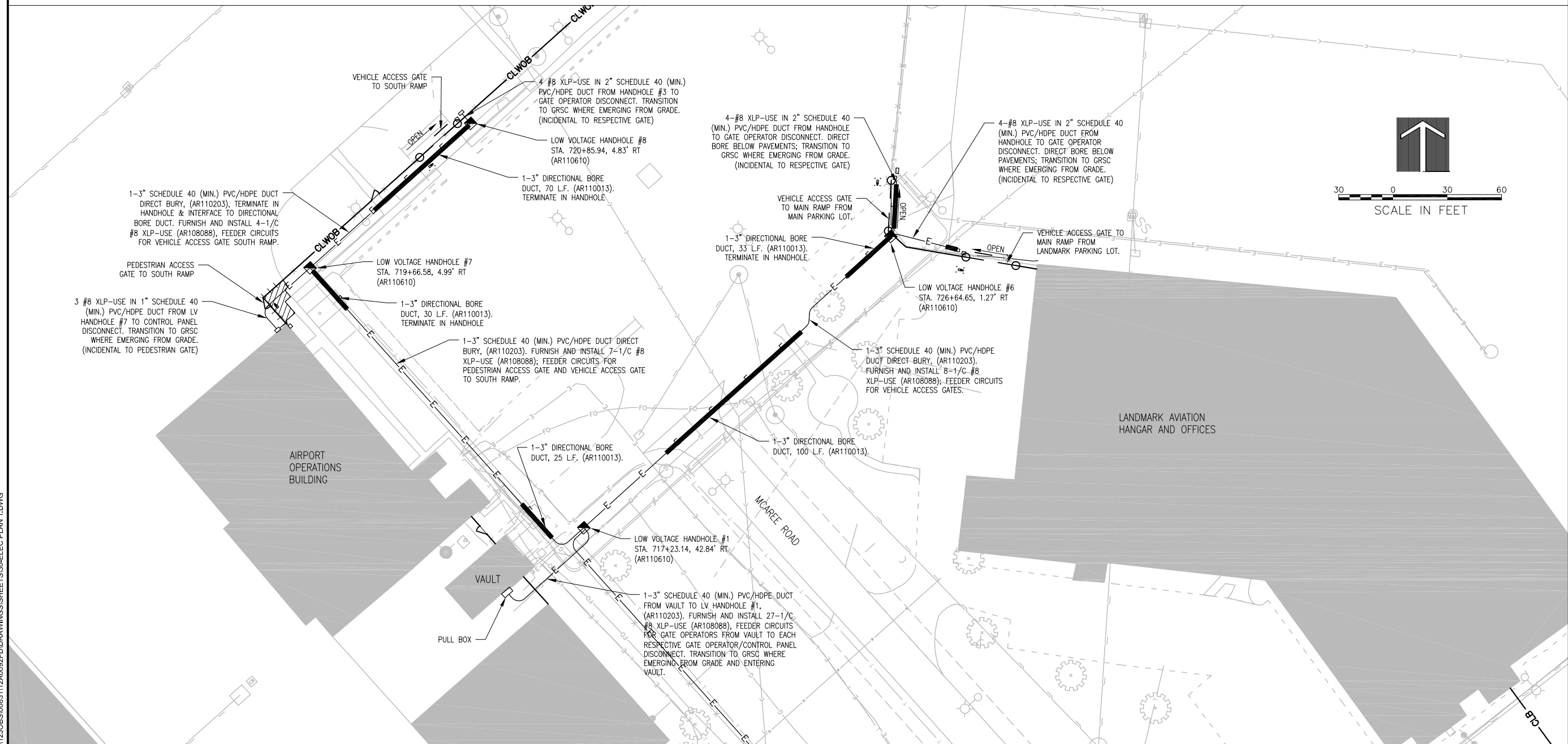
CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 50' ALONG CABLE AND/OR CONDUIT RUNS. CONCRETE CABLE MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH A STROKE OF 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.

TURF CABLE MARKERS

"NOT TO SCALE"

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

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



INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 30-ELEC PLAN 1.DWG
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REVIEWED BY: RMH 4/18/14

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SHEET TITLE

ELECTRICAL PLAN - 1



INSTALL PERIMETER FENCE, PHASE 3

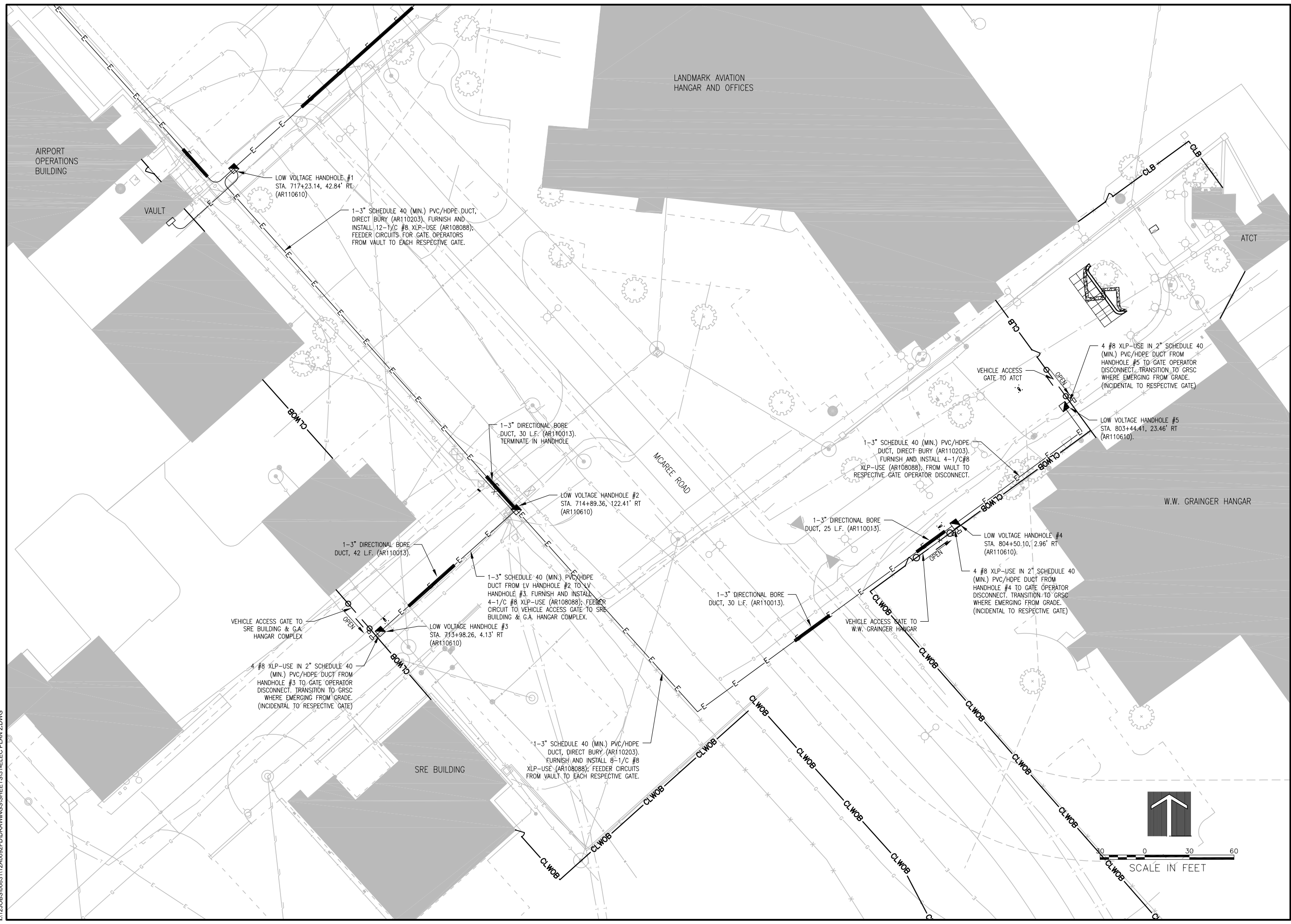
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

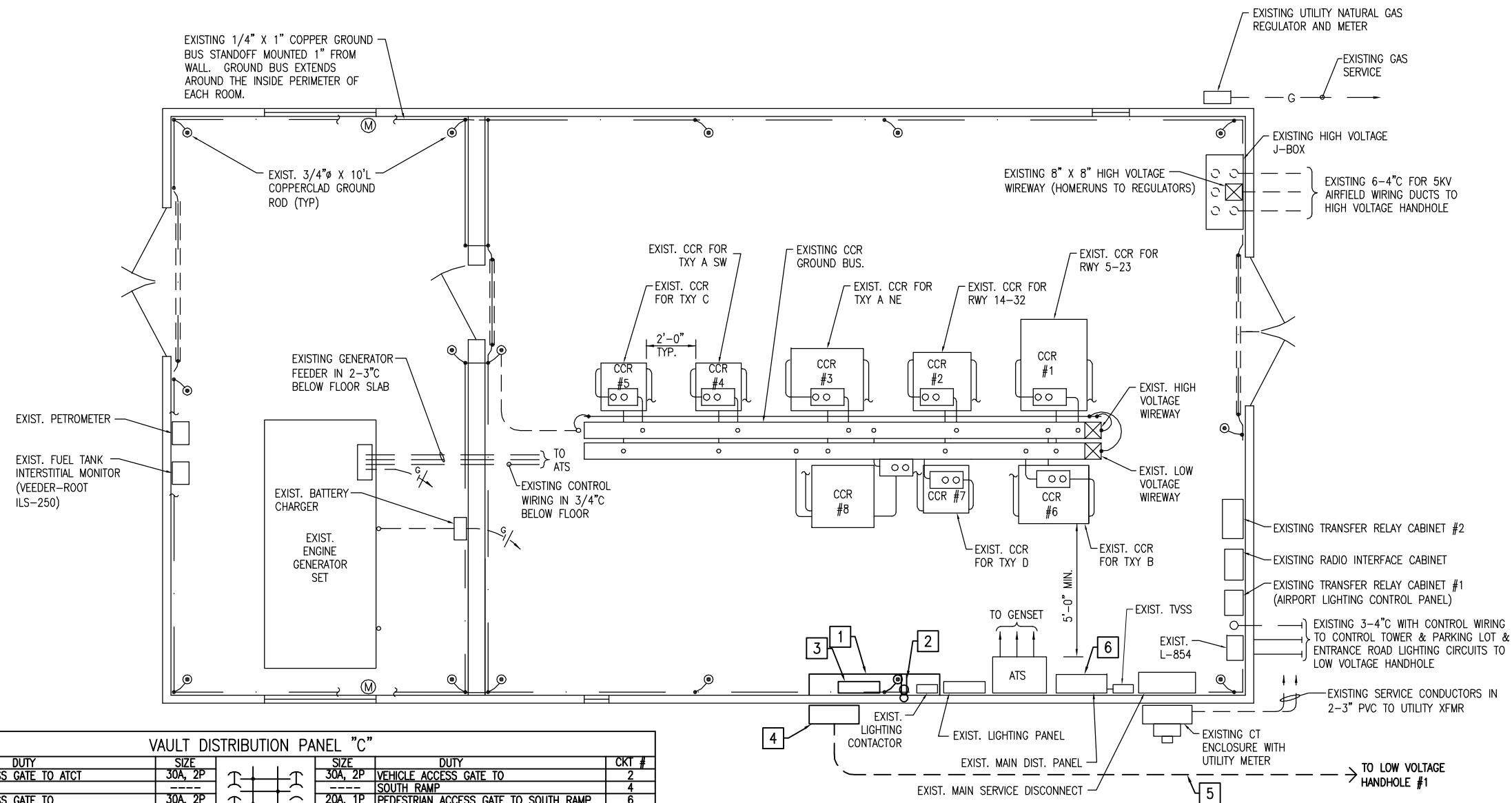
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		LAY	DWN	REV

ISSUE: August 2, 2013
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CAD FILE: 31-ELEC PLAN 2.DWG
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SHEET TITLE

ELECTRICAL PLAN - 2



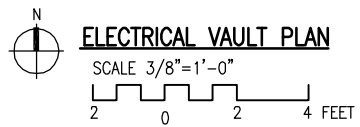
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VAULT DISTRIBUTION PANEL "C"			
CKT #	DUTY	SIZE	CKT #
1	VEHICLE ACCESS GATE TO ATCT	30A, 2P	2
3	---	---	4
5	VEHICLE ACCESS GATE TO	30A, 2P	6
7	W.W. GRAINGER HANGAR	---	8
9	VEHICLE ACCESS GATE TO	30A, 2P	10
11	SRE BUILDING & G.A. HANGAR COMPLEX	---	12
13	SPARE	30A, 2P	14
15	---	---	16
17	BLANK	---	18
19	BLANK	---	20
21	BLANK	---	22
23	BLANK	---	24
25	BLANK	---	26
27	BLANK	---	28
29	BLANK	---	30
31	BLANK	---	32
33	BLANK	---	34
35	BLANK	---	36
37	BLANK	---	38
39	BLANK	---	40
41	BLANK	---	42

225AMP, 120/240VAC, 1 PHASE, 3 WIRE 42 CIRCUIT PANELBOARD WITH MAIN LUGS IN A NEMA 1 ENCLOSURE. PANELBOARD SHALL ACCOMMODATE FEEDER AND BRANCH BREAKERS UP TO 100AMP, 2 POLE FRAME & TRIP RATING. PANELBOARD SHALL BE SQUARE D CAT. NO. NQ42L2C WITH COPPER NEUTRAL & COPPER GROUND BAR KIT, OR APPROVED EQUAL.

- NOTES**
- PANELBOARD BUSSES SHALL BE COPPER. NEUTRAL SHALL BE COPPER. EQUIPMENT GROUND BAR SHALL BE COPPER.
 - ALL BRANCH CIRCUIT & FEEDER BREAKERS SHALL BE BOLT-ON TYPE WITH 22,000 AIC AT 120/240 VAC.
 - INCLUDE ENGRAVED, PHENOLIC OR PLASTIC LEGEND PLATE LABELED "PANELBOARD C, 120/240 VAC, 1PH, 3W".
 - PANELBOARD SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS. PROVIDE CERTIFICATION OF MANUFACTURE IN THE UNITED STATES WITH SHOP DRAWING SUBMITTAL.
 - CIRCUIT BREAKERS AND WIRING SHALL BE SIZED FOR THE ACTUAL EQUIPMENT FURNISHED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S RECOMMENDATION AND N.E.C. CONTRACTOR SHALL ADJUST CIRCUIT BREAKER SIZES & WIRING WHERE APPLICABLE TO CONFORM WITH THE MANUFACTURER'S RECOMMENDATIONS AND N.E.C.



- NOTES**
- ALL VAULT WORK AND/OR POWER OUTAGES SHALL BE COORDINATED WITH THE AIRPORT MANAGER.
 - ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 (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.
 - SEE "ELECTRICAL ONE LINE FOR GATE OPERATORS FEEDERS" FOR REQUIREMENTS ON BRANCH CIRCUIT WIRING, CONDUIT, EQUIPMENT, ETC.
 - HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY.

- KEYED NOTES**
- NEW 8"x8" NEMA 1 LOW VOLTAGE WIREWAY. INTERFACE TO EXISTING WIREWAY WITH 4" GRSC NIPPLE.
 - RELOCATE EXISTING 120VAC RECEPTACLE. PROVIDE 1-#12 THWN, 1-#12 NEUTRAL, 1-#12 GND IN LOW VOLTAGE WIREWAY & 3/4" GRSC FROM RESPECTIVE POWER SOURCE TO RECEPTACLE.
 - NEW PANELBOARD C FOR GATE OPERATORS. SEE SCHEDULE, PROVIDE 3-3" GRSC NIPPLES FROM LV WIREWAY INTO PANELBOARD.
 - NEMA 4X STAINLESS STEEL PULL BOX WITH HINGED COVER AND PAD LOCK FEATURE, MINIMUM 24" HIGH X 24" WIDE X 12" DEEP. PROVIDE 3" GRSC NIPPLE OR 2-2" GRSC NIPPLES INTO VAULT LOW VOLTAGE WIREWAY.
 - GATE OPERATOR FEEDER CIRCUITS IN 3" SCHED 40 (MIN.) PVC/HDPE DUCT FROM PULL BOX TO RESPECTIVE LOW VOLTAGE HANDHOLE. TRANSITION TO GRSC WHERE EMERGING FROM GRADE.
 - FURNISH AND INSTALL A 100 AMP, 2 POLE BREAKER WITH 22,000 AIC AT 240VAC THAT IS COMPATIBLE WITH THE EXISTING PANELBOARD. CONFIRM CONNECTIONS TO PROVIDE 120/240 VAC, 1 PHASE, 3-WIRE FEEDER TO PANELBOARD "C". DO NOT CONNECT TO THE "HIGH LEG".

INSTALL PERIMETER FENCE, PHASE 3
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD
Contract No: WA068

NO.	DATE	DESCRIPTION			
			LAY	DWN	REV

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SHEET TITLE

ELECTRICAL VAULT FLOOR PLAN



INSTALL PERIMETER
FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

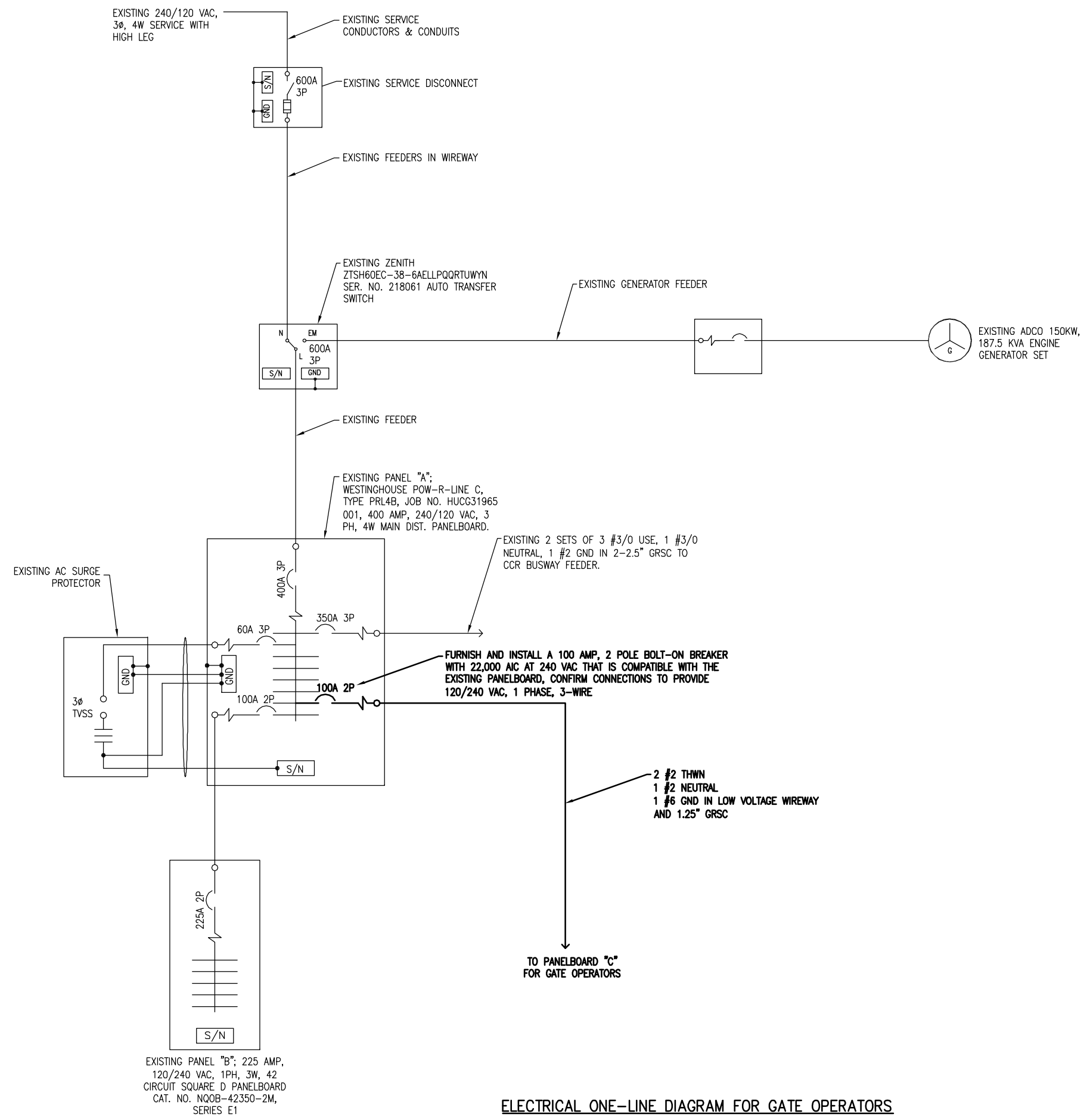
Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

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PROJECT NO: 12A0092
CAD FILE: 33-ONELINE.DWG
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SHEET TITLE

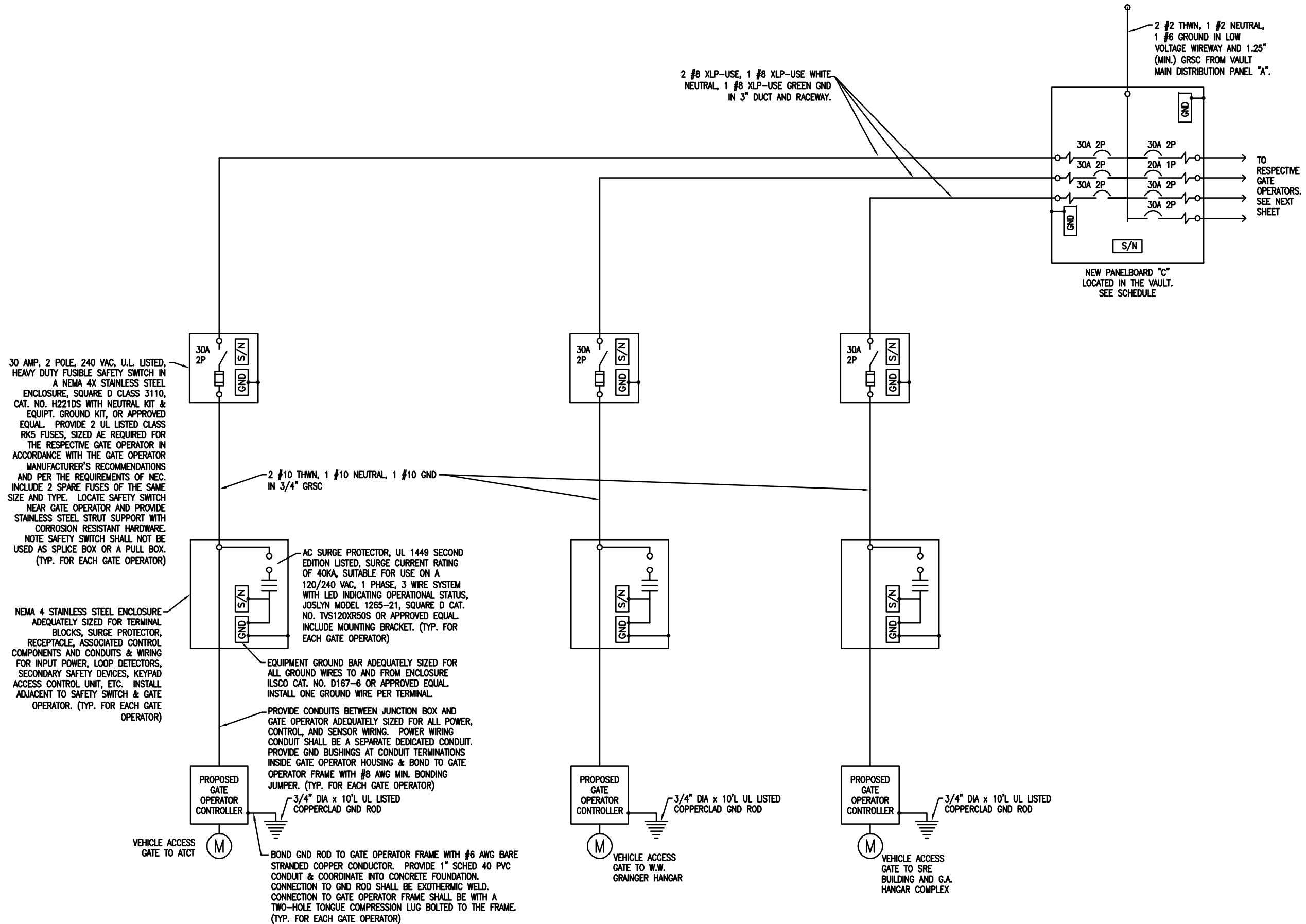
ONE LINE DIAGRAM
FOR ELECTRIC
GATES - 1

- NOTES**
- CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE EXISTING CONDITIONS.
 - SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
 - ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70-NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED. CONTRACTOR SHALL KEEP A COPY OF NEC (NATIONAL ELECTRICAL CODE) MOST CURRENT ISSUE IN FORCE, AND A COPY OF THE CITY OF WAUKEGAN ELECTRICAL CODE AMENDMENTS ON SITE FOR USE AS A REFERENCE.
 - ALL EQUIPMENT SHOWN NOT LABELED AS EXISTING IS NEW.
 - ALL CONTROL POWER TRANSFORMERS, POWER SUPPLIES, SIMPLEX RECEPTACLES, LOOP DETECTOR AMPLIFIERS, SECONDARY SAFETY DEVICE EQUIPMENT, AND ANY OTHER ASSOCIATED CONTROLS SHALL BE INSTALLED EITHER INSIDE THE GATE OPERATOR CONTROL PANEL OR INSIDE A SEPARATE NEMA 4 STAINLESS STEEL CONTROL PANEL ENCLOSURE. WHERE THE CONTROL EQUIPMENT IS TO BE INSTALLED INSIDE THE GATE OPERATOR CONTROL PANEL THE CONTRACTOR SHALL COORDINATE THIS WITH THE GATE OPERATOR MANUFACTURER AND THE RESPECTIVE GATE OPERATOR EQUIPMENT SUPPLIER. LOCATING THESE CONTROLS OUTSIDE OF GATE OPERATOR CONTROL PANEL BUT WITHIN THE GATE OPERATOR HOUSING WILL NOT MEET THIS REQUIREMENT.
 - 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.
 - HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY.



ELECTRICAL ONE-LINE DIAGRAM FOR GATE OPERATORS

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ELECTRICAL ONE-LINE DIAGRAM FOR GATE OPERATORS
CONTINUED - SHEET 2

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

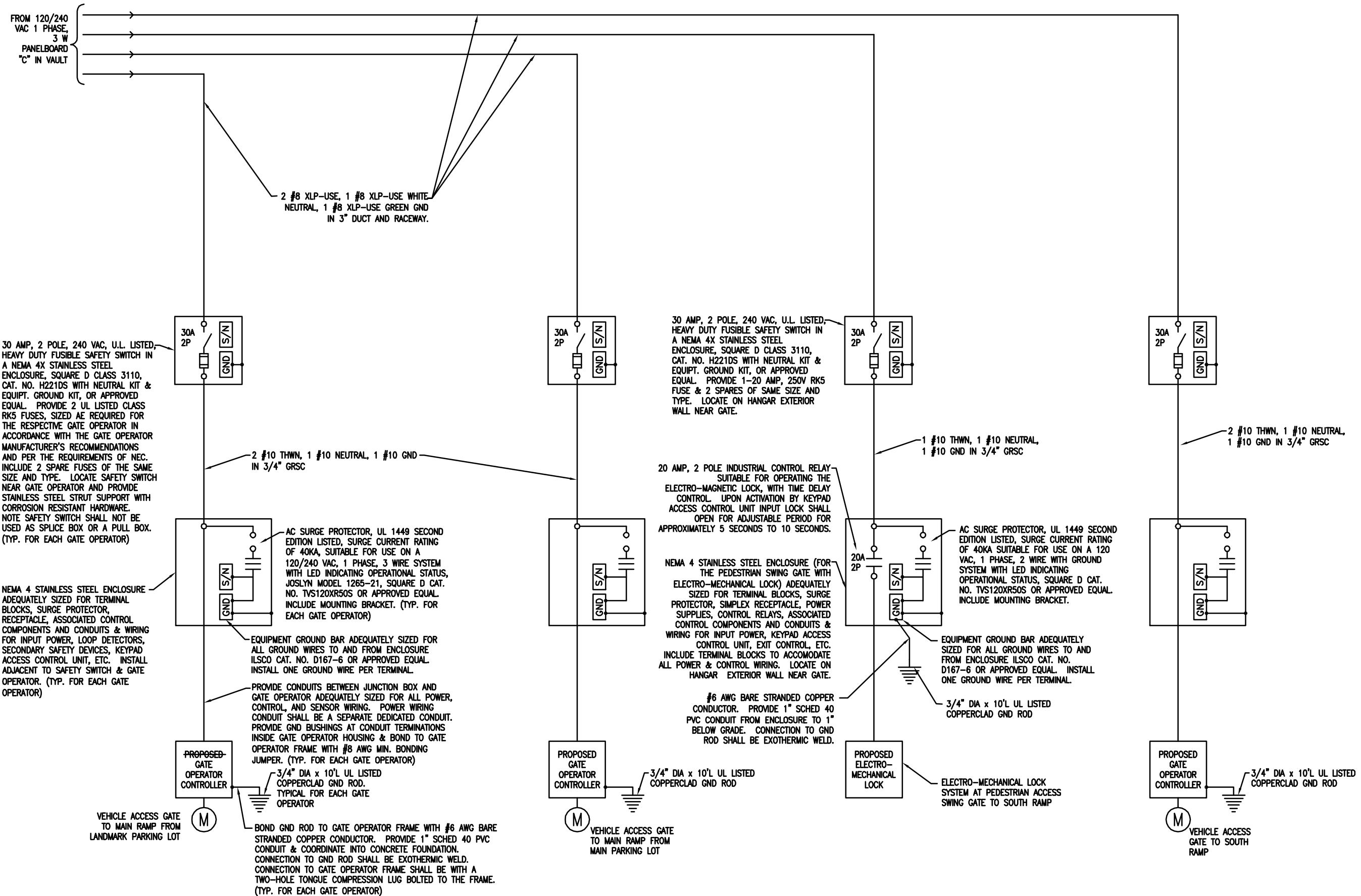
Contract No: WA068

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SHEET TITLE

ONE LINE DIAGRAM FOR ELECTRIC GATES - 2

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ELECTRICAL ONE-LINE DIAGRAM FOR GATE OPERATORS
CONTINUED - SHEET 3

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBG-TBD

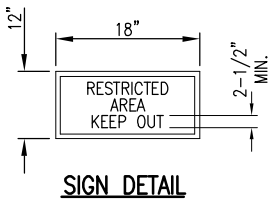
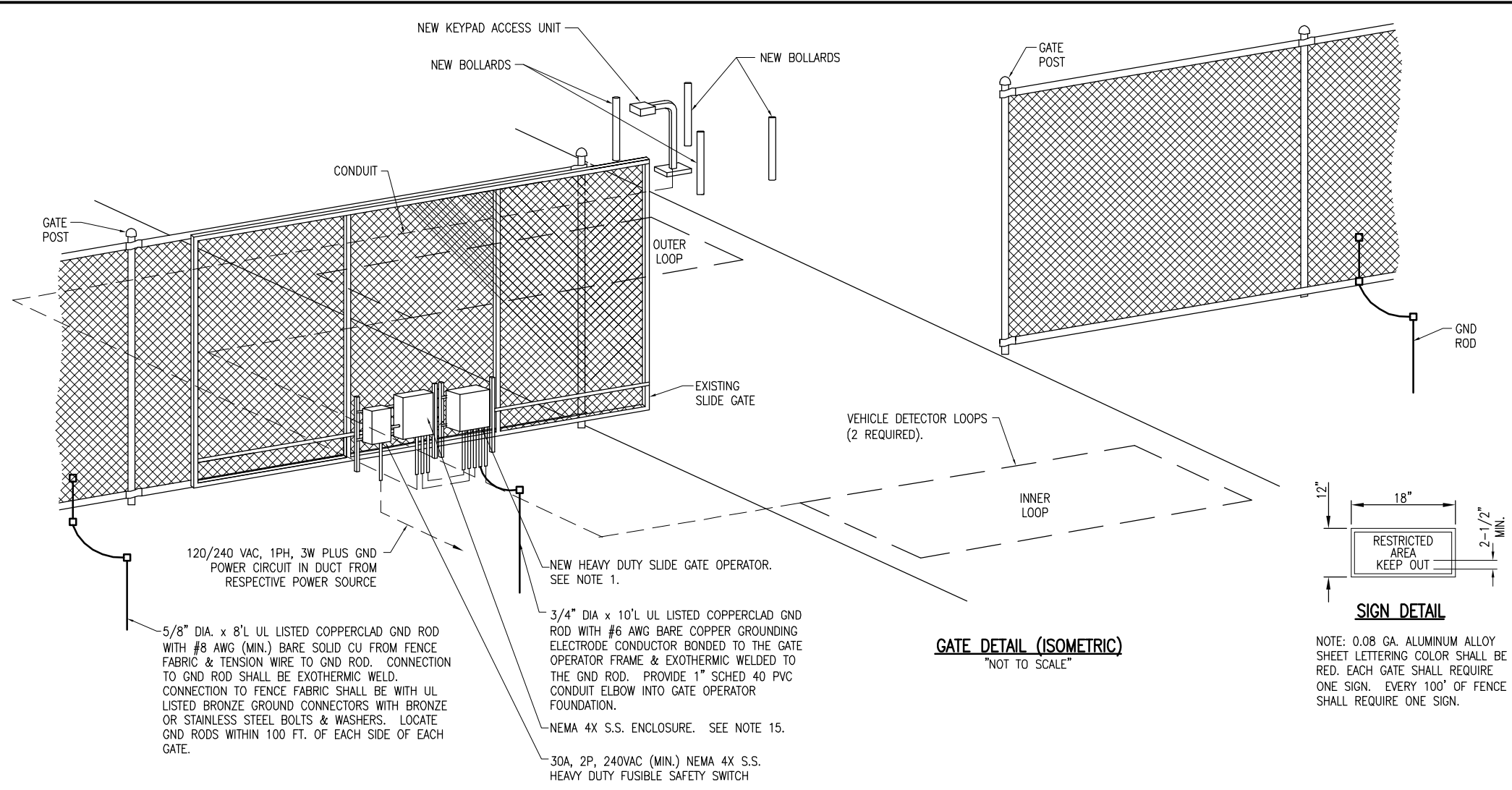
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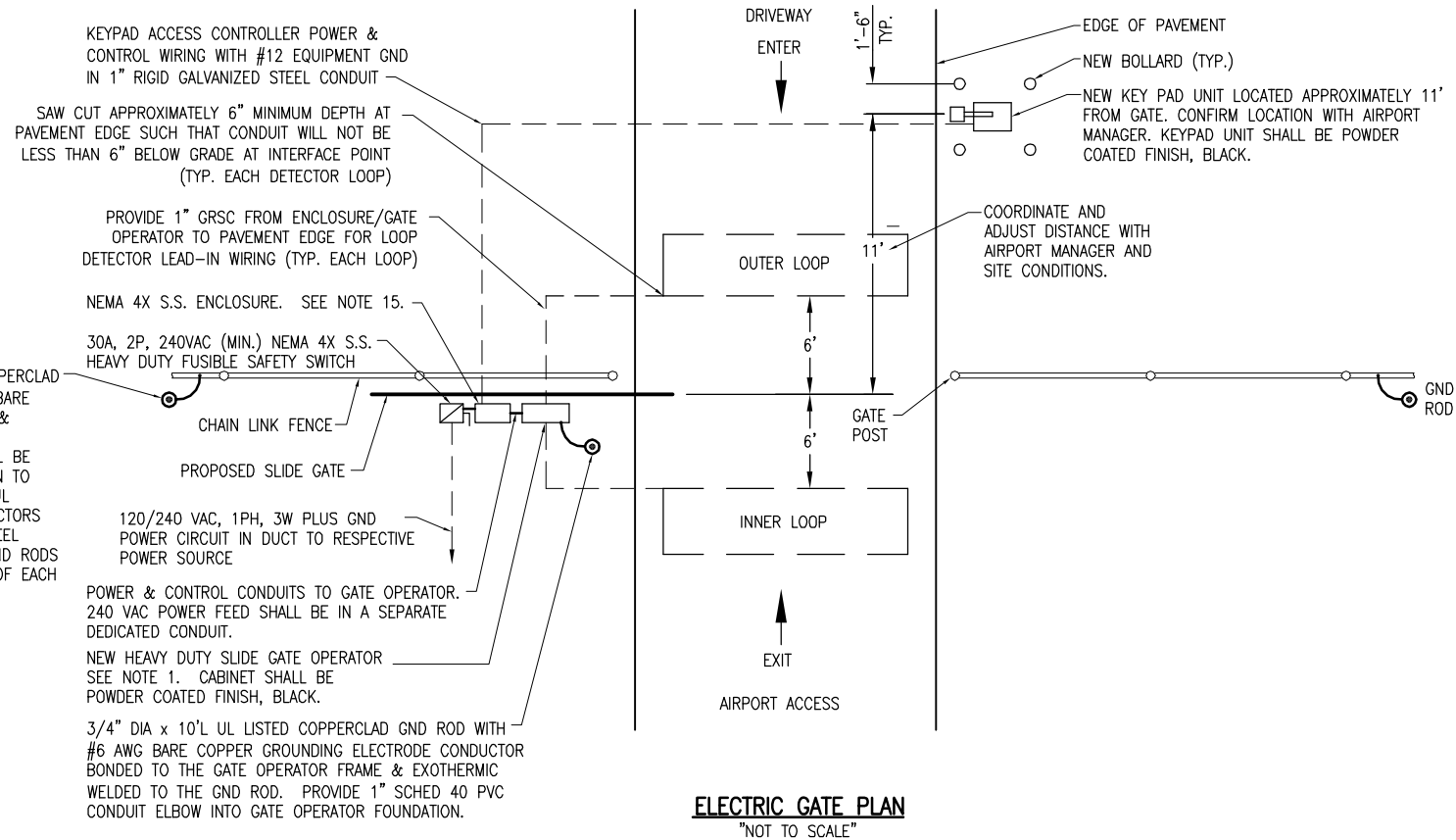
ONE LINE DIAGRAM FOR ELECTRIC GATES - 3

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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



NOTES:

- SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON RESPECTIVE GATE & GATE OPERATOR SYSTEM.
- ALL DIMENSIONS AND LAYOUT INFORMATION SHOWN SHOULD BE ADJUSTED AS RECOMMENDED BY THE MANUFACTURER. SEE RESPECTIVE SITE PLAN FOR EACH GATE.
- CONCRETE FOUNDATIONS SHALL BE PROVIDED FOR THE SLIDE GATE OPERATOR AND THE CARD READER ACCESS CONTROL UNIT. FOUNDATION FOR THE GATE OPERATOR SHALL BE 48" (MIN.) IN DEPTH AND OF THE SIZE RECOMMENDED BY THE MANUFACTURER. FOUNDATION FOR THE KEYPAD ACCESS CONTROL UNIT SHALL BE 48" (MIN.) IN DEPTH, AS DETAILED ON "KEYPAD UNIT, BOLLARD AND GATE OPERATOR DETAILS" SHEET.
- 1" GRS CONDUIT WILL BE REQUIRED BETWEEN THE SLIDE GATE OPERATOR INSTALLATION AND THE KEYPAD ACCESS CONTROL UNIT AND THE DETECTOR LOOPS. THE MINIMUM BURYING DEPTH IS 24". ALL METAL CONDUITS ENTERING THE GATE OPERATOR SHALL BE BONDED TO THE GATE OPERATOR FRAME WITH A #8 AWG (MIN.) COPPER BONDING JUMPER. CONFIRM CONTROL WIRING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR SALES AND SERVICE REPRESENTATIVE.
- THE GUARD/BOLLARD POSTS SHALL BE 4" DIA. STEEL (HEAVY WALL) PIPE, CONCRETE FILLED, AND SHALL EXTEND FROM THE TOP OF THE KEYPAD CONTROL UNIT TO A DEPTH OF 48" BELOW THE GROUND LINE. THE CONCRETE FOOTER DIMENSION SHALL BE AS DETAILED HEREIN. GUARD/BOLLARD POSTS SHALL BE PAINTED WITH YELLOW COLORED ENAMEL FINISH.
- CONTRACTOR SHALL PROVIDE VERIFICATION THAT THE PROPOSED GATE OPERATOR IS SUITABLE FOR USE WITH AND PROPERLY SIZED FOR THE EXISTING SLIDE GATE.
- (RESERVED).
- CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES TO EXISTING EQUIPMENT WITH THE RESPECTIVE OWNER'S REPRESENTATIVE AND THE AIRPORT DIRECTOR.
- INCLUDE AC SURGE PROTECTION DEVICE FOR EACH GATE OPERATOR, UL 1449 THIRD EDITION LISTED, SURGE CURRENT RATING OF 40KA, SUITABLE FOR USE ON A 120/240 VAC, 1 PHASE, 3 WIRE SYSTEM WITH LED INDICATING OPERATIONAL STATUS, JOSLYN MODEL 1265-21, SQUARE D CAT NO. TVS120XR50S OR APPROVED EQUAL. INCLUDE MOUNTING BRACKET.
- CONCRETE USED FOR INSTALLING THE GATE OPERATOR, CARD READER ACCESS CONTROL UNIT, & FENCE SHALL MEET THE REQUIREMENTS OF STRUCTURAL PORTLAND CEMENT CONCRETE ITEM 610.
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE UL LISTING, 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 RESPECTIVE GATE OPERATOR NOTING THE GATE SERVED, VOLTAGE, AND RESPECTIVE POWER SOURCE CIRCUIT AND LOCATION.
- PAYMENT FOR EACH SLIDE GATE, KEYPAD ACCESS UNIT, GATE OPERATOR, AND ALL ASSOCIATED CONTROL & SAFETY DEVICES SHALL BE INCLUDED AS PART OF THE COMPLETE SYSTEM AND SHALL BE FULL COMPENSATION FOR ALL MATERIALS, EQUIPMENT, CABLE IN CONDUIT, DUCT, OR UNIT DUCT, GROUNDING, LABOR, TOOLS, COORDINATION, TESTING, AND INCIDENTALS REQUIRED TO INSTALL THE GATE COMPLETE AND IN OPERATING CONDITION.
- CONTROL CIRCUIT WIRING SHALL NOT BE ROUTED THROUGH THE SAFETY SWITCH/DISCONNECT.
- ALL CONTROL POWER TRANSFORMERS, POWER SUPPLIES, RECEPTACLES, LOOP DETECTOR AMPLIFIERS, SECONDARY SAFETY DEVICE EQUIPMENT, AND ANY OTHER ASSOCIATED CONTROLS SHALL BE INSTALLED EITHER INSIDE THE GATE OPERATOR CONTROL PANEL OR INSIDE A SEPARATE NEMA 4 STAINLESS STEEL CONTROL PANEL ENCLOSURE. WHERE THE CONTROL EQUIPMENT IS TO BE INSTALLED INSIDE THE GATE OPERATOR CONTROL PANEL THE CONTRACTOR SHALL COORDINATE THIS WITH THE GATE OPERATOR MANUFACTURER AND THE RESPECTIVE GATE OPERATOR EQUIPMENT SUPPLIER. LOCATING THESE CONTROLS OUTSIDE OF GATE OPERATOR CONTROL PANEL BUT WITHIN THE GATE OPERATOR HOUSING WILL NOT MEET THIS REQUIREMENT.
- SEE NOTES ON SHEET 12 FOR GATE COLOR.

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NO.	DATE	DESCRIPTION		
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SHEET TITLE

ELECTRIC SLIDE GATE DETAILS - 1



INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

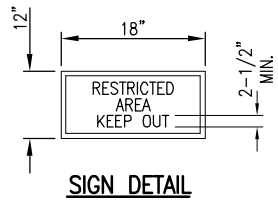
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ELECTRIC SLIDE GATE DETAILS - 2

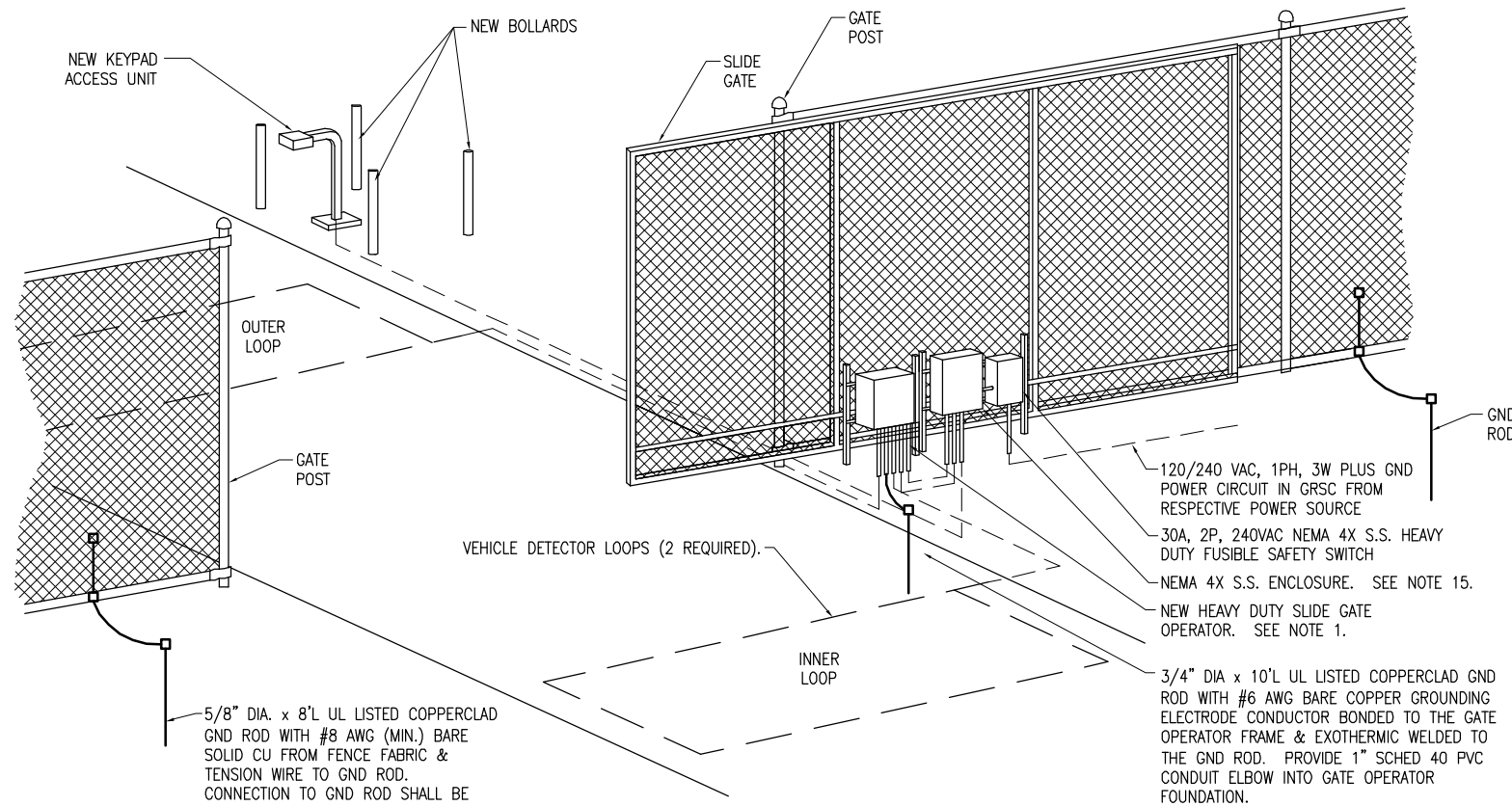
NOTES:

- SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON RESPECTIVE GATE & GATE OPERATOR SYSTEM.
- ALL DIMENSIONS AND LAYOUT INFORMATION SHOWN SHOULD BE ADJUSTED AS RECOMMENDED BY THE MANUFACTURER. SEE RESPECTIVE SITE PLAN FOR EACH GATE.
- CONCRETE FOUNDATIONS SHALL BE PROVIDED FOR THE SLIDE GATE OPERATOR AND THE CARD READER ACCESS CONTROL UNIT. FOUNDATION FOR THE GATE OPERATOR SHALL BE 48" (MIN.) IN DEPTH AND OF THE SIZE RECOMMENDED BY THE MANUFACTURER. FOUNDATION FOR THE KEYPAD ACCESS CONTROL UNIT SHALL BE 48" (MIN.) IN DEPTH, AS DETAILED ON "KEYPAD UNIT, BOLLARD AND GATE OPERATOR DETAILS" SHEET.
- 1" GRS CONDUIT WILL BE REQUIRED BETWEEN THE SLIDE GATE OPERATOR INSTALLATION AND THE KEYPAD ACCESS CONTROL UNIT AND THE DETECTOR LOOPS. THE MINIMUM BURYING DEPTH IS 24". ALL METAL CONDUITS ENTERING THE GATE OPERATOR SHALL BE BONDED TO THE GATE OPERATOR FRAME WITH A #8 AWG (MIN.) COPPER BONDING JUMPER. CONFIRM CONTROL WIRING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR SALES AND SERVICE REPRESENTATIVE.
- THE GUARD/BOLLARD POSTS SHALL BE 4" DIA. STEEL (HEAVY WALL) PIPE, CONCRETE FILLED, AND SHALL EXTEND FROM THE TOP OF THE KEYPAD CONTROL UNIT TO A DEPTH OF 48" BELOW THE GROUND LINE. THE CONCRETE FOOTER DIMENSION SHALL BE AS DETAILED HEREIN. GUARD/BOLLARD POSTS SHALL BE PAINTED WITH YELLOW COLORED ENAMEL FINISH.
- CONTRACTOR SHALL PROVIDE VERIFICATION THAT THE PROPOSED GATE OPERATOR IS SUITABLE FOR USE WITH AND PROPERLY SIZED FOR THE EXISTING SLIDE GATE.
- (RESERVED).
- CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES TO EXISTING EQUIPMENT WITH THE RESPECTIVE OWNER'S REPRESENTATIVE AND THE AIRPORT DIRECTOR.
- INCLUDE AC SURGE PROTECTION DEVICE FOR EACH GATE OPERATOR, UL 1449 THIRD EDITION LISTED, SURGE CURRENT RATING OF 40KA, SUITABLE FOR USE ON A 120/240 VAC, 1 PHASE, 3 WIRE SYSTEM WITH LED INDICATING OPERATIONAL STATUS, JOSLYN MODEL 1265-21, SQUARE D CAT NO. TVS120XR50S OR APPROVED EQUAL. INCLUDE MOUNTING BRACKET.
- CONCRETE USED FOR INSTALLING THE GATE OPERATOR, CARD READER ACCESS CONTROL UNIT, & FENCE SHALL MEET THE REQUIREMENTS OF STRUCTURAL PORTLAND CEMENT CONCRETE ITEM 610.
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE UL LISTING, 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 RESPECTIVE GATE OPERATOR NOTING THE GATE SERVED, VOLTAGE, AND RESPECTIVE POWER SOURCE CIRCUIT AND LOCATION.
- PAYMENT FOR EACH SLIDE GATE, KEYPAD ACCESS UNIT, GATE OPERATOR, AND ALL ASSOCIATED CONTROL & SAFETY DEVICES SHALL BE INCLUDED AS PART OF THE COMPLETE SYSTEM AND SHALL BE FULL COMPENSATION FOR ALL MATERIALS, EQUIPMENT, CABLE IN CONDUIT, DUCT, OR UNIT DUCT, GROUNDING, LABOR, TOOLS, COORDINATION, TESTING, AND INCIDENTALS REQUIRED TO INSTALL THE GATE COMPLETE AND IN OPERATING CONDITION.
- CONTROL CIRCUIT WIRING SHALL NOT BE ROUTED THROUGH THE SAFETY SWITCH/DISCONNECT.
- ALL CONTROL POWER TRANSFORMERS, POWER SUPPLIES, RECEPTACLES, LOOP DETECTOR AMPLIFIERS, SECONDARY SAFETY DEVICE EQUIPMENT, AND ANY OTHER ASSOCIATED CONTROLS SHALL BE INSTALLED EITHER INSIDE THE GATE OPERATOR CONTROL PANEL OR INSIDE A SEPARATE NEMA 4 STAINLESS STEEL CONTROL PANEL ENCLOSURE. WHERE THE CONTROL EQUIPMENT IS TO BE INSTALLED INSIDE THE GATE OPERATOR CONTROL PANEL THE CONTRACTOR SHALL COORDINATE THIS WITH THE GATE OPERATOR MANUFACTURER AND THE RESPECTIVE GATE OPERATOR EQUIPMENT SUPPLIER. LOCATING THESE CONTROLS OUTSIDE OF GATE OPERATOR CONTROL PANEL BUT WITHIN THE GATE OPERATOR HOUSING WILL NOT MEET THIS REQUIREMENT.
- SEE NOTES ON SHEET 12 FOR GATE COLOR.

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'	6' X 14'	2 TURNS
20' TO 24'	6' X 18'	2 TURNS
24' TO 30'	6' X 22'	2 TURNS
30' TO 34'	6' X 26'	2 TURNS



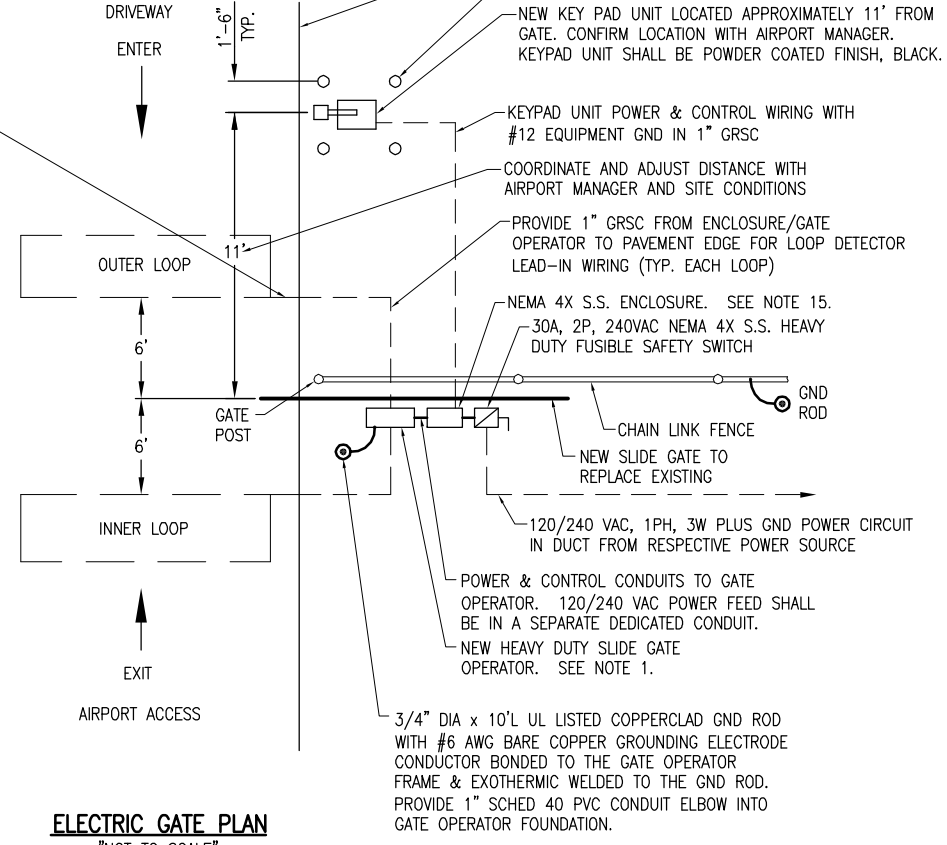
SIGN DETAIL
NOTE:
0.08 GA. ALUMINUM ALLOY SHEET
LETTERING COLOR SHALL BE RED.
EACH GATE SHALL REQUIRE ONE
SIGN. EVERY 100' OF FENCE
SHALL REQUIRE ONE SIGN.



ELECTRIC GATE DETAIL (ISOMETRIC)

"NOT TO SCALE"
NOTE: PHOTO-ELECTRIC EYES ARE REQUIRED FOR THE GATE OPENING ON GATE NO. 1 & GATE NO. 2 BUT NOT SHOWN THIS DETAIL.

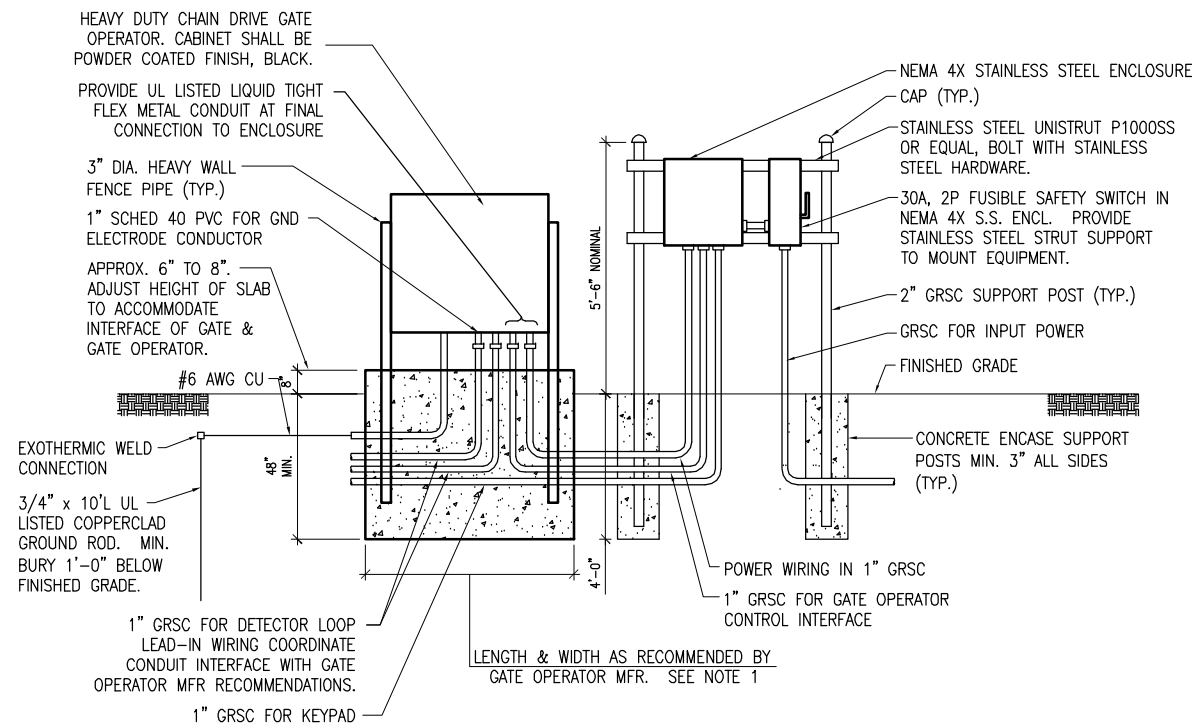
SAW CUT APPROXIMATELY 6" MINIMUM DEPTH AT PAVEMENT EDGE SUCH THAT CONDUIT WILL NOT BE LESS THAN 6" BELOW GRADE AT INTERFACE POINT (TYP. EACH DETECTOR)



ELECTRIC GATE PLAN

"NOT TO SCALE"

APR 14, 2014 3:38 PM\MICLAUD\01068 13:12.OBS\008311\2A0092F\DRAWINGS\SI\SI\HEETS\37-SLIDEGATEOPDET2.DWG

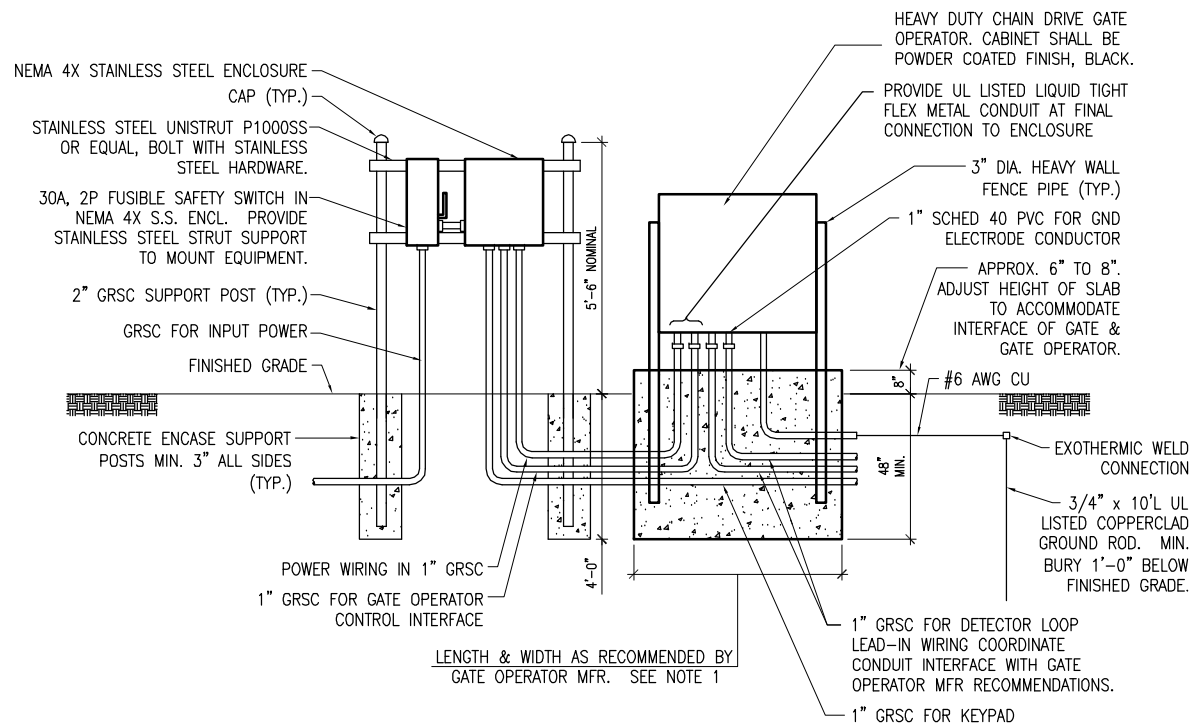


NOTES

1. FOUNDATION FOR GATE OPERATOR SHALL BE 48" MIN. IN DEPTH AND OF THE LENGTH & WIDTH RECOMMENDED BY THE MANUFACTURER. CONFIRM MOUNTING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR 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.

GATE OPERATOR FOUNDATION DETAIL 1
NOT TO SCALE

- THIS DETAIL APPLIES TO THE FOLLOWING GATES:
- VEHICLE ACCESS GATE TO THE MAIN RAMP FROM MAIN PARKING LOT
 - VEHICLE ACCESS GATE TO THE MAIN RAMP FROM LANDMARK PARKING LOT
 - VEHICLE ACCESS GATE TO SRE BUILDING & G.A. HANGAR COMPLEX
 - VEHICLE ACCESS GATE TO W.W. GRAINGER HANGAR



NOTES

1. FOUNDATION FOR GATE OPERATOR SHALL BE 48" MIN. IN DEPTH AND OF THE LENGTH & WIDTH RECOMMENDED BY THE MANUFACTURER. CONFIRM MOUNTING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR 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.

GATE OPERATOR FOUNDATION DETAIL 2
NOT TO SCALE

- THIS DETAIL APPLIES TO THE FOLLOWING GATES:
- VEHICLE ACCESS GATE TO THE SOUTH RAMP
 - VEHICLE ACCESS GATE TO THE ATCT

INSTALL PERIMETER FENCE, PHASE 3

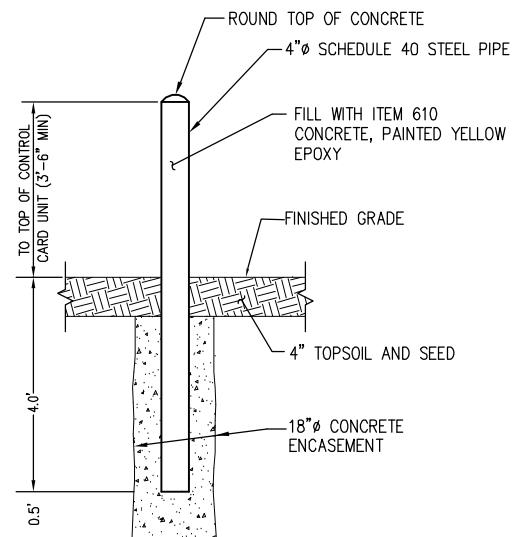
IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

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PROJECT NO: 12A0092
CAD FILE: 38-GATEOPERDET.DWG
LAYOUT BY: KNL 03/10/2014
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REVIEWED BY: RMH 4/18/14
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SHEET TITLE

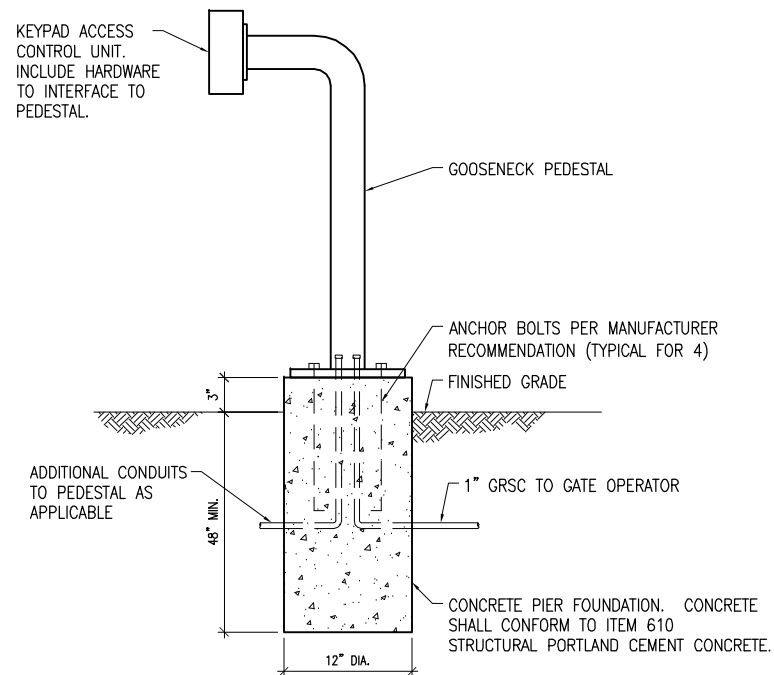
GATE OPERATOR DETAILS



NOTES

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

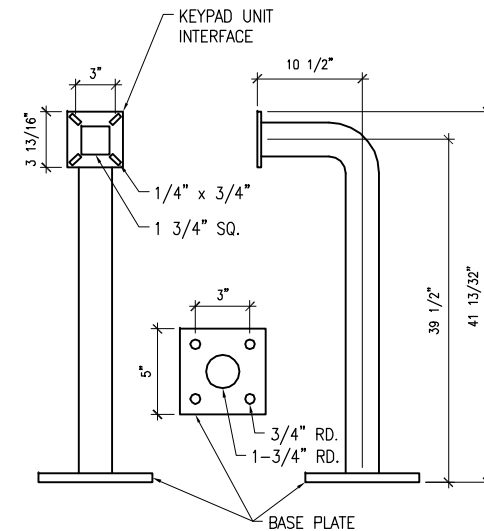
BOLLARD DETAIL
NOT TO SCALE



NOTES

1. SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON KEYPAD ACCESS CONTROL UNIT.
2. INCLUDE #12 AWG EQUIPMENT GND WIRE TO KEYPAD.
3. KEYPAD SHALL NOT EXTEND BEYOND BOLLARDS.
4. KEYPAD ACCESS CONTROL UNIT AND GOOSENECK PEDESTAL SHALL BE POWDER-COATED FINISH, BLACK.

KEYPAD ACCESS CONTROL UNIT PEDESTAL ELEVATION DETAIL
NOT TO SCALE



GOOSENECK PEDESTAL DETAIL
NOT TO SCALE

NOTE:

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

▲ 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

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

WARNING SIGN DETAIL
NOT TO SCALE

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

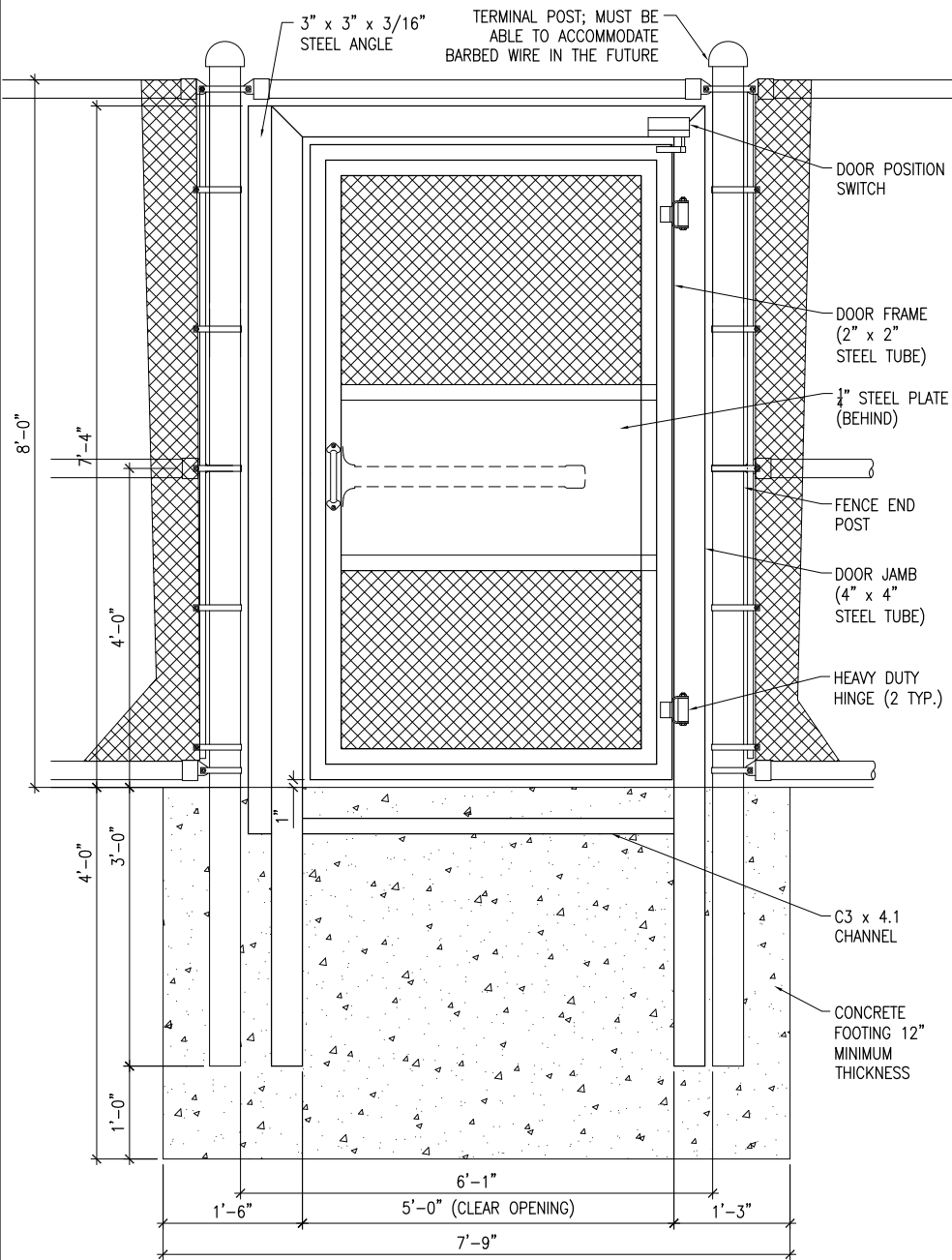
NO.	DATE	DESCRIPTION		
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SHEET TITLE

KEYPAD UNIT AND BOLLARD DETAILS

NOTES:

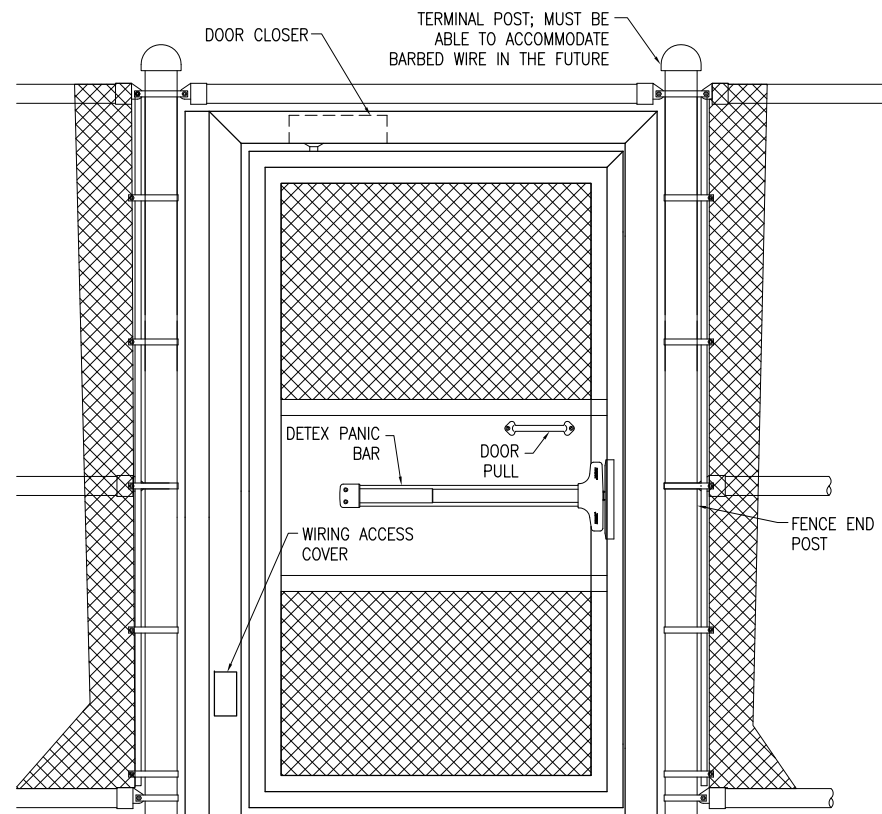
- SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON PEDESTRIAN GATE WITH ELECTRO-MAGNETIC LOCK.
- ALL DIMENSIONS AND LAYOUT INFORMATION SHOWN SHOULD BE ADJUSTED AS RECOMMENDED BY THE MANUFACTURER. SEE RESPECTIVE SITE PLAN FOR EACH GATE.
- CONCRETE FOUNDATIONS SHALL BE PROVIDED FOR THE PEDESTRIAN GATE, AND THE KEYPAD ACCESS CONTROL UNIT. FOUNDATION FOR THE PEDESTRIAN GATE SHALL BE 48" (MIN.) IN DEPTH AND OF THE SIZE RECOMMENDED BY THE MANUFACTURER. FOUNDATION FOR THE KEYPAD ACCESS CONTROL UNIT SHALL BE 48" (MIN.) IN DEPTH, AS DETAILED HEREIN.
- CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES TO EXISTING EQUIPMENT WITH THE RESPECTIVE OWNER'S REPRESENTATIVE AND THE AIRPORT DIRECTOR.
- CONCRETE USED FOR INSTALLING THE PEDESTRIAN SWING GATE, KEYPAD ACCESS CONTROL UNIT, SIDEWALK, & FENCE SHALL MEET THE REQUIREMENTS OF STRUCTURAL PORTLAND CEMENT CONCRETE ITEM 610.
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE UL LISTING, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- SEE NOTES ON SHEET 12 FOR GATE COLOR.



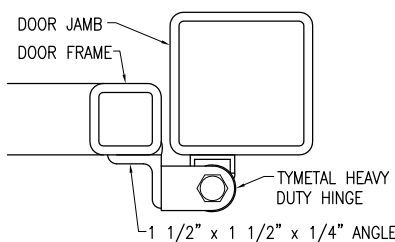
SWING GATE OUTSIDE ELEVATION
 "NOT TO SCALE"
 (CONFIRM DIMENSIONS WITH RESPECTIVE GATE MANUFACTURER)

NOTES (CONT.):

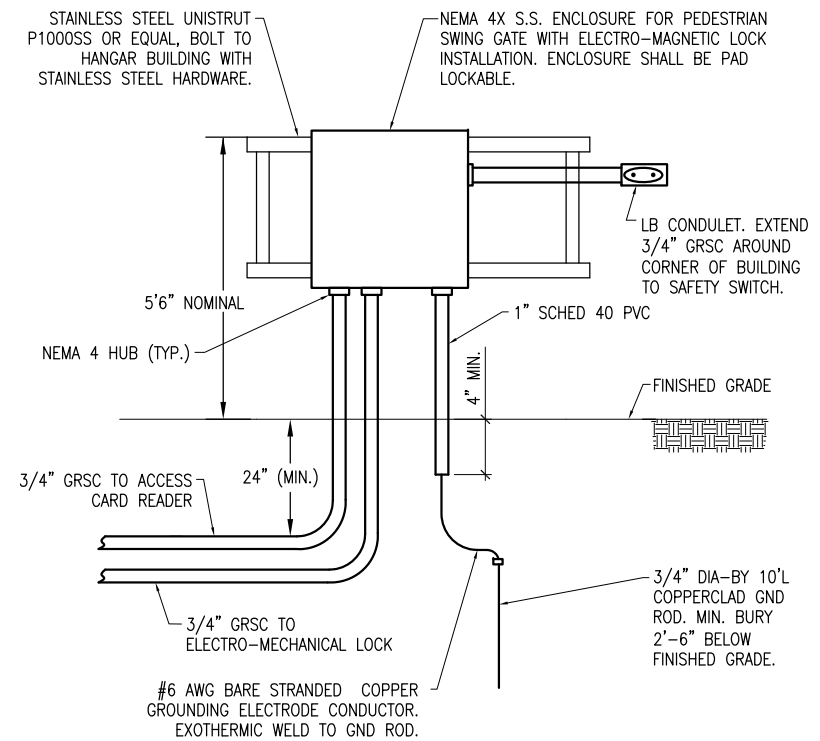
- PROVIDE A WEATHERPROOF ENGRAVED PHENOLIC OR PLASTIC LEGEND PLATE FOR THE CONTROL PANEL AT THE RESPECTIVE GATE NOTING THE GATE SERVED, VOLTAGE, AND RESPECTIVE POWER SOURCE CIRCUIT AND LOCATION.
- PAYMENT FOR EACH GATE, KEYPAD ACCESS CONTROL UNIT, AND ALL ASSOCIATED CONTROL & SAFETY DEVICES SHALL BE 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. ASSOCIATED SIDEWALK REMOVAL, REPLACEMENT, & RESTORATION WILL BE CONSIDERED INCIDENTAL TO THE PEDESTRIAN GATE WITH LOCK.



SWING GATE INSIDE ELEVATION
 "NOT TO SCALE"

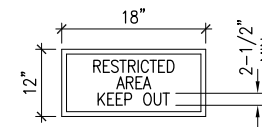


HINGE DETAIL
 "NOT TO SCALE"

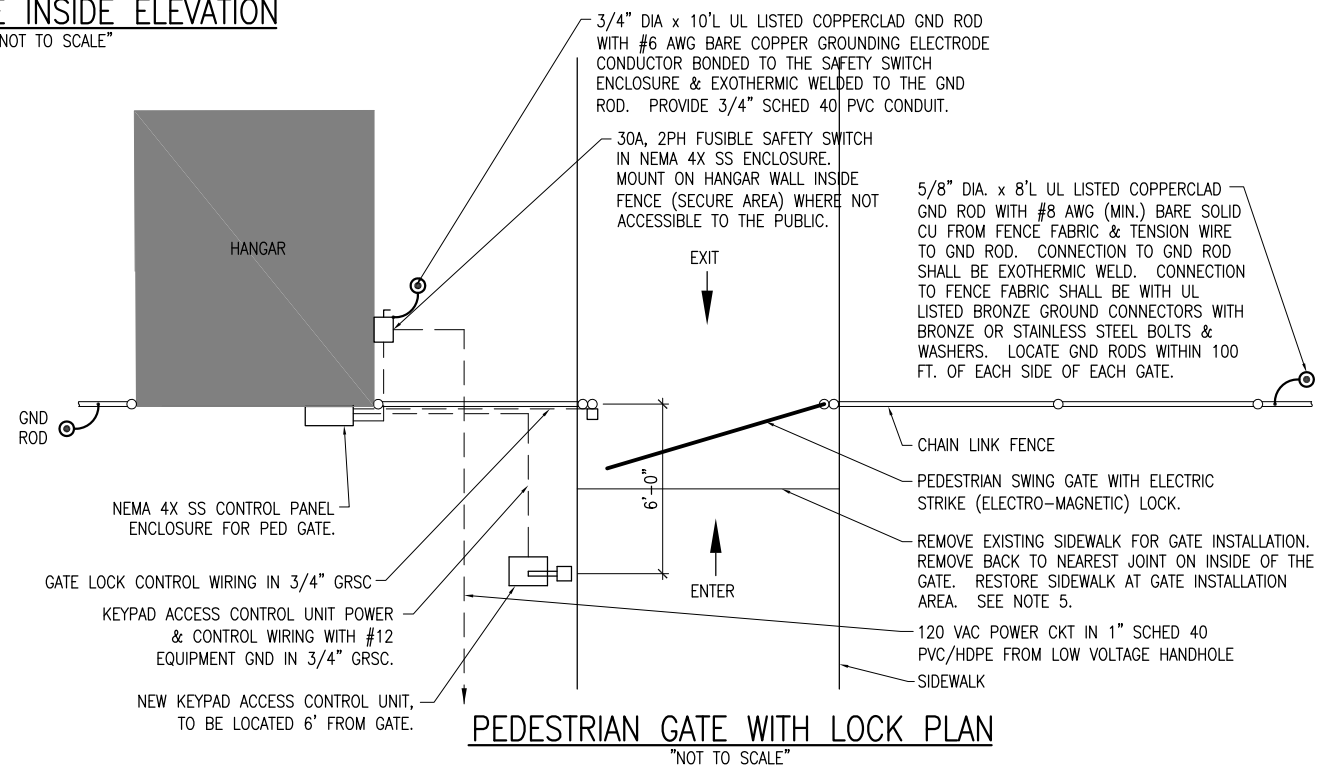


CONTROL PANEL FOR PEDESTRIAN SWING GATE W/ LOCK ELEVATION
 "NOT TO SCALE"

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.



SIGN DETAIL



PEDESTRIAN GATE WITH LOCK PLAN
 "NOT TO SCALE"



INSTALL PERIMETER FENCE, PHASE 3

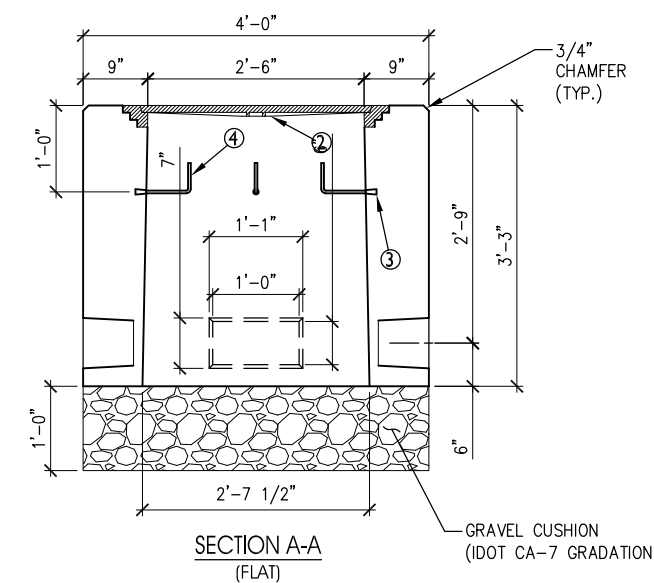
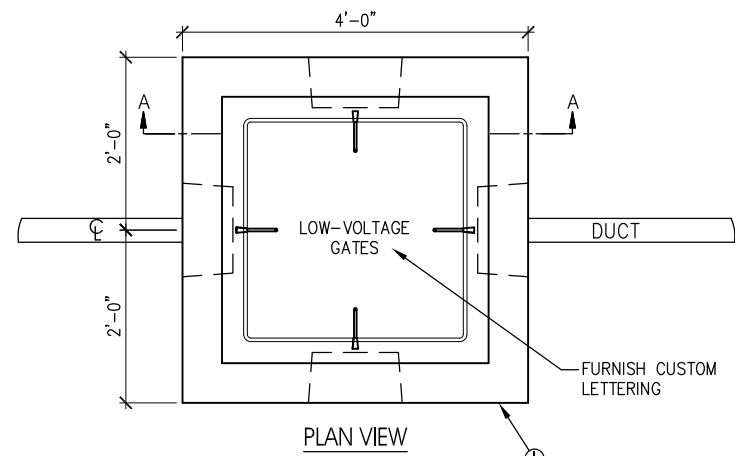
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 SHEET TITLE

PEDESTRIAN SWING GATE DETAILS



NOTES

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

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

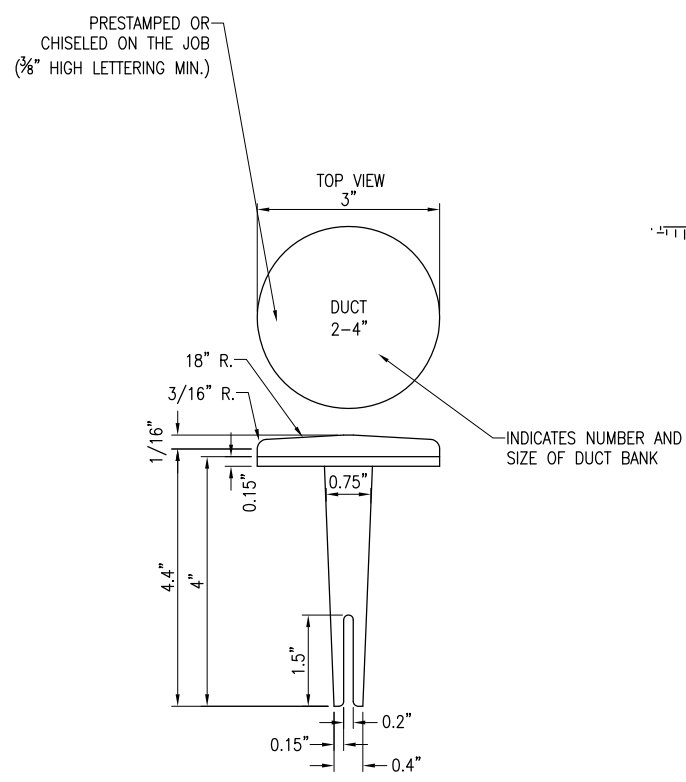
SPECIFICATIONS

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

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

WEIGHT: APPROX. 4,990# FLAT TOP

ELECTRICAL HANDHOLE
"NOT TO SCALE"

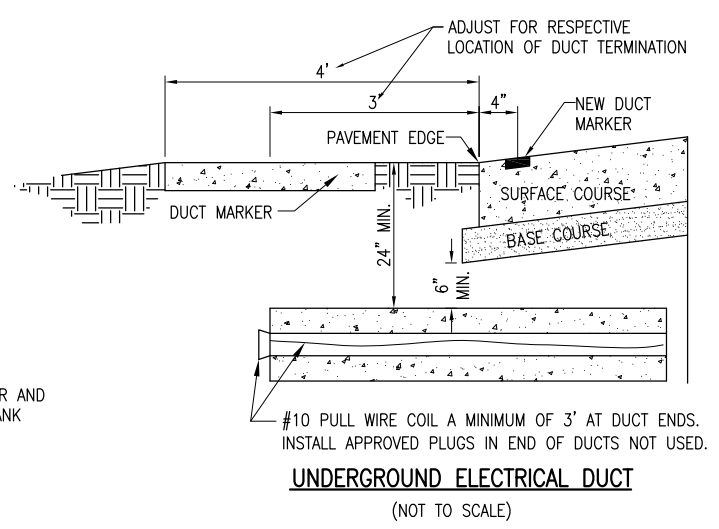


BITUMINOUS PAVEMENT DUCT MARKERS
"NOT TO SCALE"

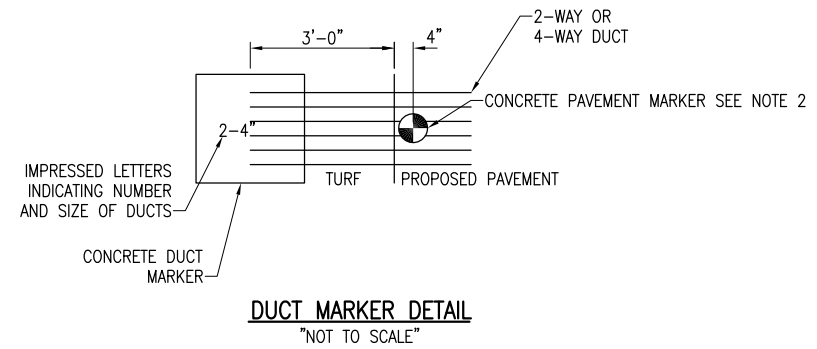
NOTE:
TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE.

CABLE & DUCT MARKER NOTES:

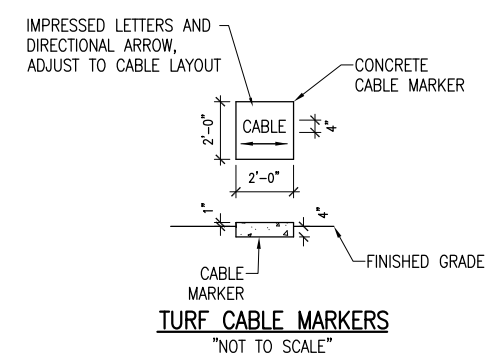
- THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
- BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE FORMED AS DESCRIBED IN NOTE 4.
- CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE RUNS.
- CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.
- EMPLOY THE FOLLOWING METHODS WERE ADDITIONAL SPACE TO FIT LEGEND IS REQUIRED:
 - REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
 - INCREASE THE MARKER SIZE TO 30" X 30".
 - PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE.



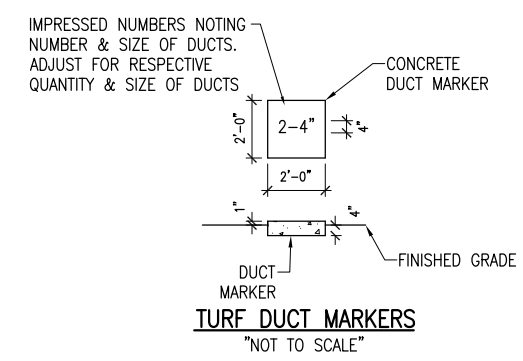
UNDERGROUND ELECTRICAL DUCT
"NOT TO SCALE"



DUCT MARKER DETAIL
"NOT TO SCALE"



TURF CABLE MARKERS
"NOT TO SCALE"



TURF DUCT MARKERS
"NOT TO SCALE"

INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

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SHEET TITLE

DUCT AND HANDHOLE DETAILS

GENERAL NOTES

1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
2. CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.
3. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
4. THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS FURNISHED BY HIM, INCLUDING FAA APPROVED EQUIPMENT, ARE COMPATIBLE IN ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NONCOMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR SHALL BE REPLACED BY HIM AT NO ADDITIONAL COST TO THE AIRPORT SPONSOR WITH A SIMILAR UNIT, APPROVED BY THE ENGINEER (DIFFERENT MODEL OR DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.
5. IN CASE THE CONTRACTOR ELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING EQUIPMENT REQUIRING ADDITIONAL WIRING, TRANSFORMERS, ADAPTORS, MOUNTINGS, ETC., TO THOSE SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATION, ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE EQUIPMENT COST.
6. THE CONTRACTOR INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) SHALL NOT GENERATE ANY ELECTROMAGNETIC INTERFERENCE IN THE EXISTING AND/OR NEW COMMUNICATIONS, WEATHER, AIR NAVIGATION, AND AIR TRAFFIC CONTROL EQUIPMENT. ANY EQUIPMENT GENERATING SUCH INTERFERENCE SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST WITH THE EQUIPMENT MEETING THE APPLICABLE SPECIFICATIONS AND NOT GENERATING ANY INTERFERENCE.
7. WHEN A SPECIFIC TYPE, STYLE, CLASS, ETC. OF FAA APPROVED EQUIPMENT IS SPECIFIED ONLY THAT TYPE, STYLE, CLASS, WILL BE ACCEPTABLE, EVEN THOUGH EQUIPMENT OF OTHER TYPES STYLES, CLASSES, ETC. MAY BE APPROVED.
8. ANY AND ALL INSTRUCTIONS FROM THE RESIDENT ENGINEER 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 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 BLUE SHALL BE USED FOR PHASE CONDUCTORS ON 120/240VAC SINGLE-PHASE, THREE WIRE SYSTEMS THAT ORIGINATE FROM A 240/120 VAC, THREE-PHASE, FOUR WIRE SYSTEM. BLACK, ORANGE, AND BLUE SHALL BE USED FOR PHASE CONDUCTORS ON 240/120 VAC THREE-PHASE, FOUR WIRE SYSTEMS (THAT INCLUDE A "HIGH LEG"). NEUTRAL CONDUCTORS, SIZE NO. 6 AWG OR SMALLER, SHALL BE IDENTIFIED BY A CONTINUOUS WHITE OR NATURAL GRAY OUTER FINISH ALONG ITS ENTIRE LENGTH. NEUTRAL CONDUCTORS LARGER THAN NO. 6 AWG SHALL BE IDENTIFIED EITHER BY A CONTINUOUS WHITE OR NATURAL GRAY OUTER FINISH ALONG ITS ENTIRE LENGTH OR BY THE USE OF WHITE TAPE AT ITS TERMINATIONS AND INSIDE ACCESSIBLE WIREWAYS. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR SIZES (AWG OR KCMIL).
3. ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE SHALL BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING SHALL BE EXTENDED TO THE POINT OF UTILIZATION.
4. IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL, ETC.
5. LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE INSTALLED IN SEPARATE WIREWAYS.
6. NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND JUNCTION/PULL BOXES.
7. THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:
 - A. IN STRAIGHT PULLS THE LENGTH OF THE BOX SHALL NOT BE LESS THAN EIGHT TIMES THE TRADE DIAMETER OF THE LARGER CONDUIT. THE TOTAL AREA (INCLUDING THE CONDUIT CROSS-SECTIONAL AREA) OF A BOX END SHALL BE AT LEAST 3 TIMES GREATER THAN THE TOTAL TRADE CROSS-SECTIONAL AREA OF THE CONDUITS TERMINATING AT THE END.
 - B. IN ANGLE PULLS OR 'U' PULLS THE DISTANCE BETWEEN EACH CONDUIT ENTRY INSIDE THE BOX AND THE OPPOSITE WALL OF THE BOX SHALL NOT BE LESS THAN SIX (6) TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT. THIS DISTANCE SHALL BE INCREASED FOR ADDITIONAL ENTRIES BY THE AMOUNT OF THE SUM OF THE DIAMETERS OF ALL OTHER CONDUIT ENTRIES ON THE SAME WALL AS THE BOX. THE DISTANCE BETWEEN CONDUIT ENTRIES ENCLOSING THE SAME CONDUCTOR SHALL NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT.
8. A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, SQUARE DUCTS AND PULL/JUNCTION BOXES, SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL), INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE TERMINATIONS, CAST, CONDUIT TYPE OUTLETS SHALL NOT BE TREATED AS PULL/JUNCTION BOXES.
9. EQUIPMENT CABINETS SHALL NOT BE USED AS PULL/JUNCTION BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT SHALL BE BROUGHT INTO THESE ENCLOSURES.
10. SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS, AND AT EASILY ACCESSIBLE LOCATIONS.
11. CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL(S) SHALL BE THERMAL-MAGNETIC MOLDED CASE, PERMANENT TRIP WITH 100 AMPERE, MINIMUM FRAME.
12. DUAL LUGS SHALL BE USED WHERE TWO (2) WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMINAL.
13. ALL INTERIOR WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED ON HOT DIPPED GALVANIZED STEEL STRUT SUPPORT, OR STAINLESS STEEL STRUT SUPPORT, WITH CORROSION RESISTANT HARDWARE.
14. SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE HOT DIPPED GALVANIZED STEEL STRUT SUPPORT OR STAINLESS STEEL STRUT SUPPORT WITH STAINLESS STEEL HARDWARE. PROVIDE ZINC RICH PAINT APPLIED TO FIELD CUTS OF GALVANIZED STEEL SUPPORT TO MINIMIZE THE POTENTIAL FOR CORROSION PER THE RESPECTIVE STRUT SUPPORT MANUFACTURER'S RECOMMENDATIONS.
15. CONDUITS FOR ELECTRIC SERVICE ENTRANCE AND FEEDERS SHALL BE AS DETAILED HEREIN ON THE PLANS. WHERE GALVANIZED RIGID STEEL CONDUIT IS SPECIFIED IT SHALL HAVE THREADED FITTINGS. SET SCREW TYPE FITTINGS WILL NOT BE ACCEPTABLE. CONDUITS FOR UNDERGROUND APPLICATIONS SHALL BE AS DETAILED HEREIN. CONDUITS FOR GROUNDING ELECTRODE CONDUCTORS OR INDIVIDUAL GROUNDING CONDUCTORS SHALL BE SCHEDULE 40 OR SCHEDULE 80 PVC.
16. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AT CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION OR WHERE FLEXIBILITY IS REQUIRED. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING, SUNLIGHT RESISTANT, AND RESISTANT TO OIL, GASOLINE, AND GREASE. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO MOTORS, TRANSFORMERS, & CONSTANT CURRENT REGULATORS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL LISTED. CONFIRM LIQUID-TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
17. UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.
18. ALL STEEL CONDUITS, FITTINGS, NUTS, BOLTS, ETC. SHALL BE GALVANIZED.
19. USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG OR LARGER UNDERGROUND WIRE IS INSTALLED, USE INSULATED BUSHINGS.
20. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
21. WRAP ALL PRIMARY AND SECONDARY POWER TRANSFORMER CONNECTIONS WITH SUFFICIENT LAYERS OF INSULATING TAPE (3M SCOTCH 23 ALL-VOLTAGE SPlicing TAPE, 3M SCOTCH 130C LINERLESS RUBBER SPlicing TAPE, OR APPROVED EQUAL) AND COVER WITH VINYL ELECTRICAL TAPE (3M SCOTCH 88 VINYL ELECTRICAL TAPE OR APPROVED EQUAL) FOR FULL VALUE OF CABLE INSULATION VOLTAGE.
22. UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG. COPPER MINIMUM.
23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:
 - A. FOR INTERIOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 12 (DUST TIGHT) ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. FOR EXTERIOR/OUTDOOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 4X STAINLESS STEEL ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. ALL CONDUIT ENTRIES INTO NEMA 4, 4X ENCLOSURES SHALL HAVE NEMA 4 HUBS LISTED SUITABLE FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE.
 - B. THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS, TERMINAL BLOCKS AND INCOMING AND INTERNAL WIRING.
 - C. ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED-EYE TERMINATIONS, OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.
 - D. WHEN THE ENCLOSURE COVER IS OPENED, ALL CIRCUIT COMPONENTS, WIRING AND TERMINALS SHALL BE EXPOSED AND ACCESSIBLE WITHOUT REMOVAL OF ANY PANELS, COVERS, ETC., EXCEPT THOSE COVERING HIGH VOLTAGE COMPONENTS.
 - E. ACCESS TO, OR REMOVAL OF A CIRCUIT COMPONENT OR TERMINAL BLOCK WILL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR TERMINAL BLOCK.
 - F. EACH CIRCUIT COMPONENT SHALL BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWINGS AND ITS FUNCTION.
 - G. A COMPLETE WIRING DIAGRAM SHALL BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE.
 - H. THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL.
 - I. ALL WIRING SHALL BE NEATLY TRAINED AND LACED.
 - J. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG.
24. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH METER SOCKET, SERVICE DISCONNECT, SAFETY SWITCH, CUTOUT, PANELBOARD, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "FLASH PROTECTION".



INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 42-ELECTNOTES.DWG
LAYOUT BY: KNL 03/04/2014
DRAWN BY: SJM 03/05/2014
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

ELECTRICAL NOTES



INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

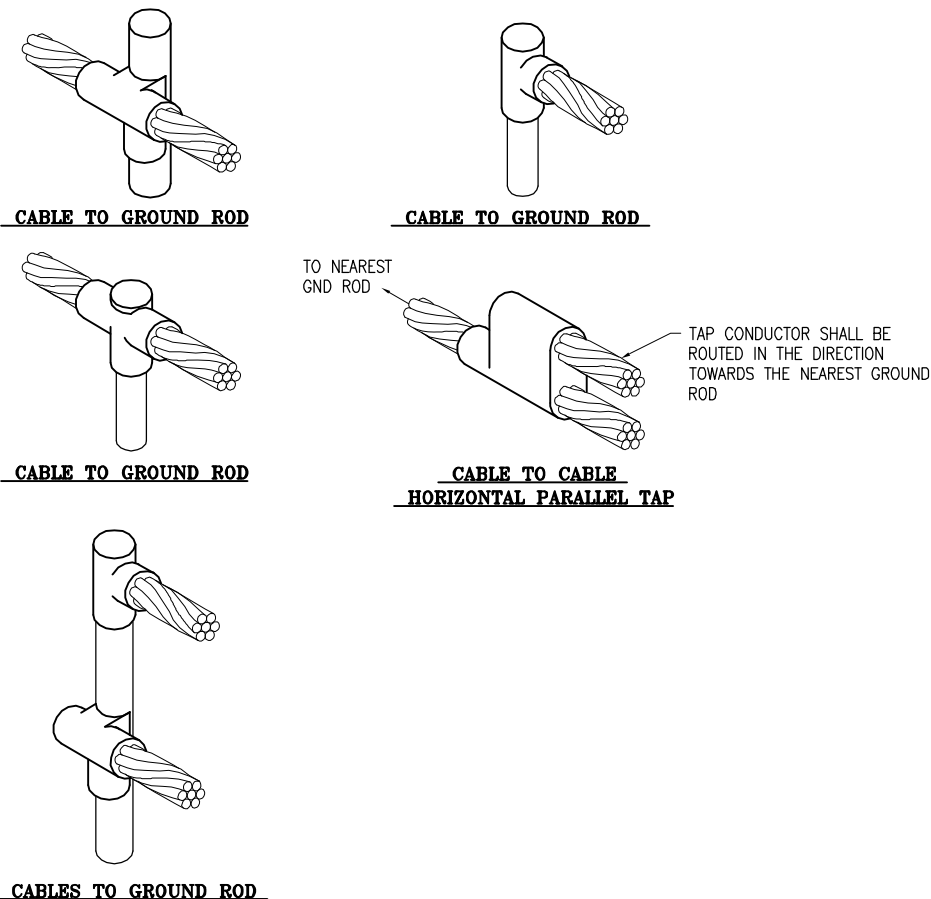
NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: August 2, 2013
PROJECT NO: 12A0092
CAD FILE: 43-GROUNDINGDETAILS.D
LAYOUT BY: KNL 03/14/2014
DRAWN BY: SJM 03/14/2014
REVIEWED BY: RMH 4/18/14
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SHEET TITLE

GROUNDING DETAILS

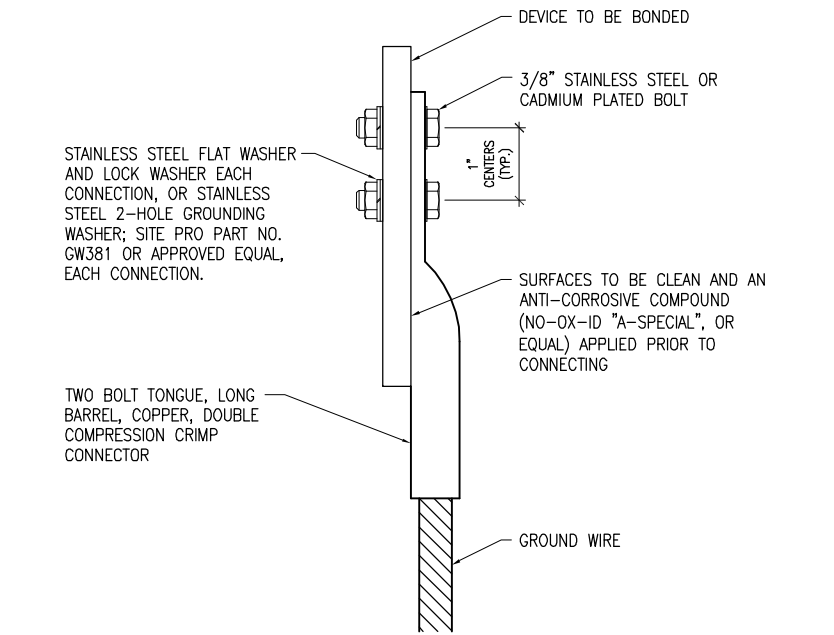
DEVICE	LABEL
GATE OPERATOR DISCONNECT AT VEHICLE ACCESS GATE TO ATCT	ATCT ACCESS GATE 120/240VAC, 1PH 3W+G FED FROM VAULT
GATE OPERATOR DISCONNECT AT VEHICLE ACCESS GATE TO W.W. GRAINGER HANGAR	W.W. GRAINGER GATE 120/240VAC, 1PH 3W+G FED FROM VAULT
GATE OPERATOR DISCONNECT AT VEHICLE ACCESS GATE TO SRE BUILDING AND G.A. HANGAR COMPLEX	SRE AND GA HGR GATE 120/240VAC, 1PH 3W+G FED FROM VAULT
GATE OPERATOR DISCONNECT AT VEHICLE ACCESS GATE TO MAIN RAMP FROM LANDMARK PARKING LOT	LANDMARK GATE 120/240VAC, 1PH 3W+G FED FROM VAULT
GATE OPERATOR DISCONNECT AT VEHICLE ACCESS GATE TO MAIN RAMP FROM MAIN PARKING LOT	MAIN PARKING GATE 120/240VAC, 1PH 3W+G FED FROM VAULT
DISCONNECT FOR PEDESTRIAN GATE TO SOUTH RAMP	PEDESTRIAN S. RAMP GATE 120 VAC, 1PH 2W+G FED FROM VAULT
GATE OPERATOR DISCONNECT AT VEHICLE ACCESS GATE TO SOUTH RAMP	SOUTH RAMP GATE 120/240VAC, 1PH 3W+G FED FROM VAULT

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.



TO NEAREST GND ROD

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



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

- NOTES**
- ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
 - GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE.
 - GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS, & INDIVIDUAL GROUND WIRES SHALL NOT BE INSTALLED IN METAL CONDUIT. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC APTH FROM ENCIRCLING THE CONDUIT.
 - ALL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL
NOT TO SCALE

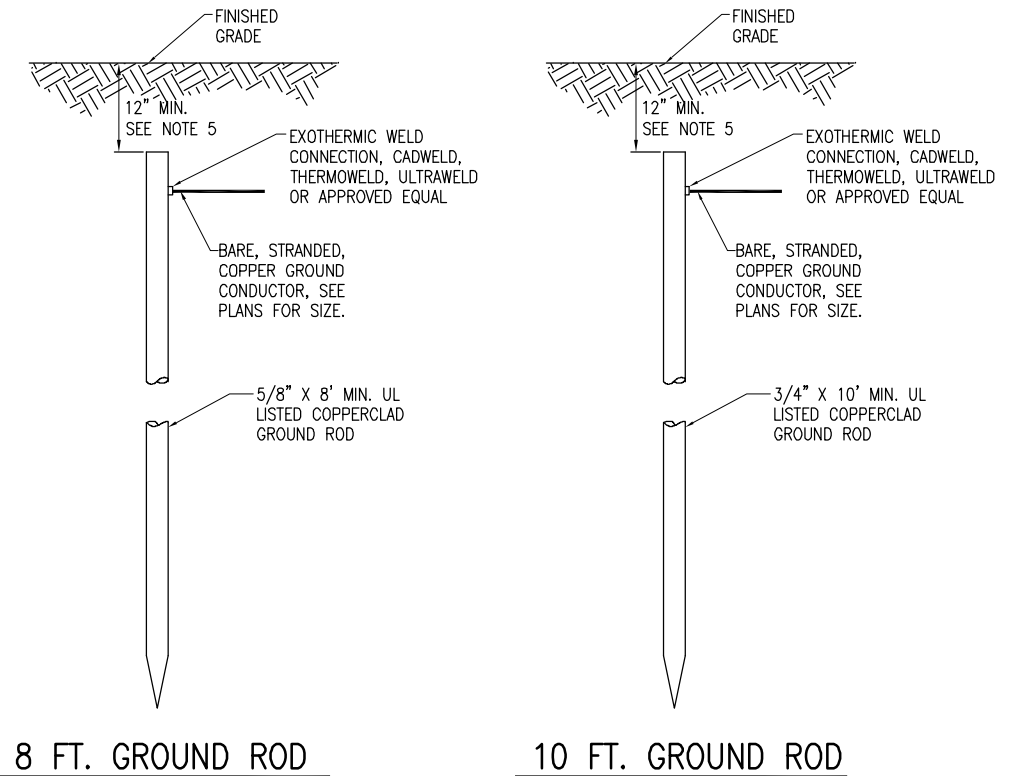
- DETAIL NOTES**
- ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONDUCTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY ERICO PRODUCTS, SOLON, OHIO, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, GRAYSLAKE, 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.
 - FOR APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.
 - INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 40 PVC CONDUIT AS REQUIRED IN FOUNDATIONS, FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT.

EXOTHERMIC WELD DETAILS
NOT TO SCALE

APR 14, 2014 3:42 PM I:\MCLAU01068\172.LOBS\0083\172A\0092\DRAWINGS\SHS\172A\GROUNDINGDETAILS.DWG

GROUNDING NOTES

- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING AS MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THE LATEST NATIONAL ELECTRICAL CODE (NFPA 70) IN FORCE AND AS DETAILED HEREIN. THE RELIABILITY OF THE GROUNDING SYSTEM IS DEPENDENT ON CAREFUL, PROPER INSTALLATION AND CHOICE OF MATERIALS. IMPROPER PREPARATION OF SURFACES TO BE JOINED TO MAKE AN ELECTRICAL PATH, LOOSE JOINTS OR CORROSION CAN INTRODUCE IMPEDANCE THAT WILL SERIOUSLY IMPAIR THE ABILITY OF THE GROUND PATH TO PROTECT PERSONNEL AND EQUIPMENT AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELIABLE GROUND SYSTEM:
- FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS FOR ELECTRICAL INSTALLATIONS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR FENCE GROUNDING SHALL BE 5/8-IN. DIAMETER BY 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 ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE 1-800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE 1-800-842-7437), OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
- CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND FIELD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE AND PROJECT ENGINEER.
- ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
- ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND, BURNDY PENETROX E, OR APPROVED EQUAL.
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2014 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2014 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.
- ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2014 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2014 NEC 250-102.
- IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS WILL NOT BE CONSIDERED AS ADEQUATE GROUNDING.
- PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
- EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
- ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, OR EQUAL.
- BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY ENCIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. GIRDLING OF A GROUND CONDUCTOR IS THE RESULT OF PLACING THE CONDUCTOR IN A RING OF MAGNETIC MATERIAL. THIS RING COULD BE A METALLIC CONDUIT, U-BOLT OR STRUT SUPPORT PIPE CLAMP, OR OTHER SUPPORT HARDWARE. THE RESULT OF GIRDLING GROUND CONDUCTORS SIGNIFICANTLY INCREASES THE INDUCTIVE IMPEDANCE OF THE GROUND CONDUCTOR. INDUCTIVE AND CAPACITIVE IMPEDANCE IS A TYPE OF RESISTANCE THAT OPPOSES THE FLOW OF ALTERNATING CURRENT. ANY INCREASE IN THE IMPEDANCE OF A GROUND CONDUCTOR REDUCES ITS ABILITY TO EFFECTIVELY MITIGATE RADIO FREQUENCY NOISE IN THE GROUND SYSTEM. THE CONDITION WHERE A GROUND CONDUCTOR IS GIRDLING DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLTS AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN A LOW DC RESISTANCE PATH.
- IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2014 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.
- WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTIONS.
- GROUND RODS SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN PREFERENCE REQUIREMENTS. STEEL USED TO MANUFACTURER GROUND RODS SHALL BE 100 PERCENT DOMESTIC STEEL.



NOTES

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

GROUND RODS
(NOT TO SCALE)

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INSTALL PERIMETER FENCE, PHASE 3

IDA No: UGN-4299
SBG No: 3-17-SBGP-TBD

Contract No: WA068

NO.	DATE	DESCRIPTION		
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GROUNDING NOTES

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