

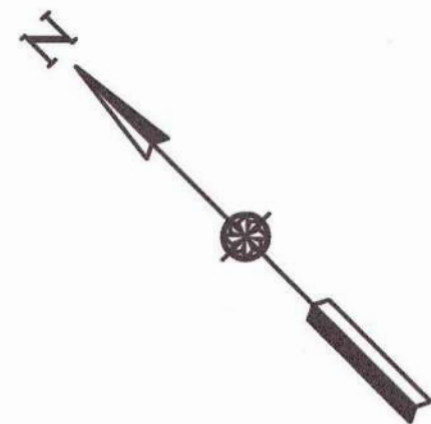
**The Enclosed Document Is Provided For Your Convenience.**

**Please Email ALL Questions:**  
**[MailTo:ContractAdministration@TampaGov.net](mailto:ContractAdministration@TampaGov.net)**

**Please Let Us Know If You Plan To Bid**

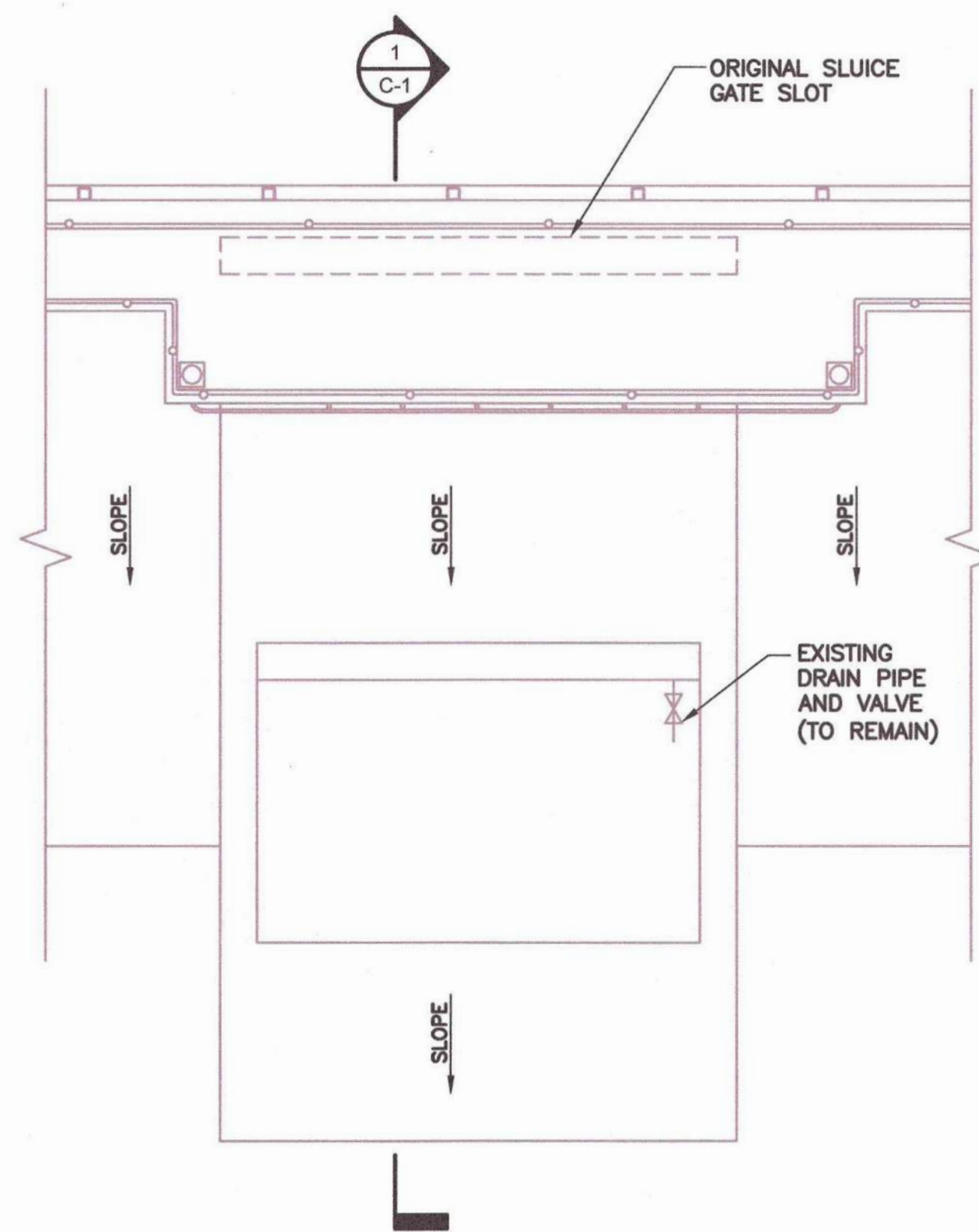
City of Tampa  
Contract Administration Department  
306 E. Jackson St. #280A4N  
Tampa, FL 33602  
(813)274-8456



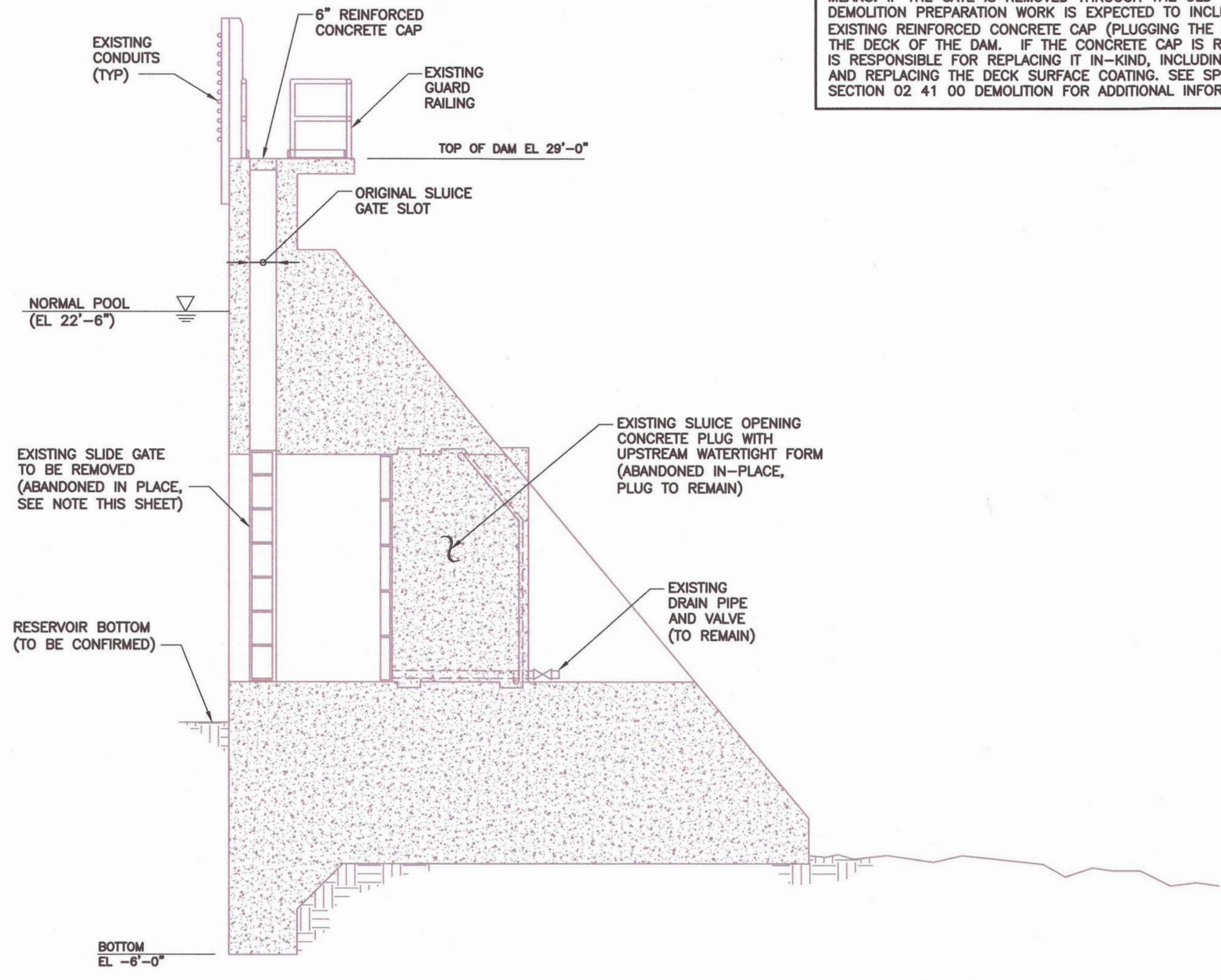


**EXISTING SLIDE GATE REMOVAL NOTE:**

REMOVAL OF THE EXISTING SLIDE GATE IS A MEANS AND METHODS OPERATION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND ACCOUNTING FOR THE CONDITION OF THE GATE AND VERIFYING EXISTING CONDITIONS AND DIMENSIONS OF ALL ITEMS RELATED TO THE GATE REMOVAL. THE GATE HAS BEEN SUBMERGED FOR AN EXTENDED PERIOD OF TIME AND AS A RESULT HAS EXPERIENCED CORROSION. REMOVAL OF THE GATE IS ANTICIPATED TO CONSIST OF CUTTING IT INTO PIECES AND REMOVING IT THROUGH THE TEMPORARY COFFER DAM, REMOVING IT VERTICALLY THROUGH THE OLD SLUICE GATE SLOT, OR SOME OTHER MEANS. IF THE GATE IS REMOVED THROUGH THE OLD SLUICE GATE SLOT, DEMOLITION PREPARATION WORK IS EXPECTED TO INCLUDE REMOVAL OF THE EXISTING REINFORCED CONCRETE CAP (PLUGGING THE SLUICE GATE SLOT) ON THE DECK OF THE DAM. IF THE CONCRETE CAP IS REMOVED, THE CONTRACTOR IS RESPONSIBLE FOR REPLACING IT IN-KIND, INCLUDING REPAIRING ANY DAMAGE, AND REPLACING THE DECK SURFACE COATING. SEE SPECIFICATION SECTION 02 41 00 DEMOLITION FOR ADDITIONAL INFORMATION.



**PLAN VIEW AT SLIDE GATE**  
SCALE: 1" = 4'-0"



**SECTION**  
SCALE: 1" = 4'-0"

**SHEET NOTES:**

1. ELEVATIONS ARE APPROXIMATE BASED ON RECORD DRAWINGS.

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Engineering Business No. 00000002

**CITY OF TAMPA  
HILLSBOROUGH RIVER DAM  
MINIMUM FLOW CONTROL GATE**

**EXISTING PLAN AND SECTION**

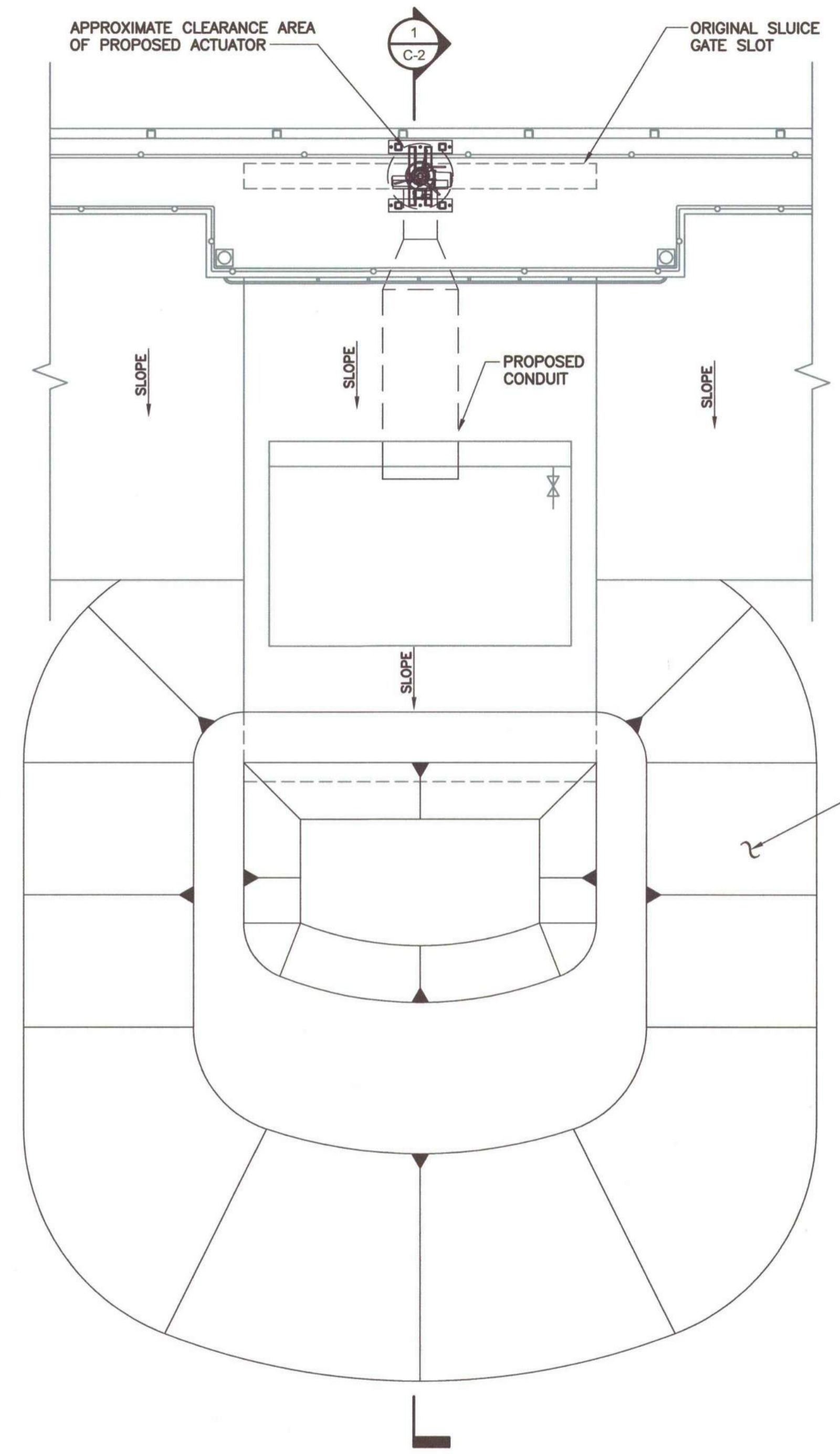


DESIGNED AJL	JOB NO. 62070	<b>C-1</b>
DRAWN HGH	PROJECT NAME -	
CHECKED SSV	OPEN DATE 04/14/2017	
FINAL SUBMITTAL		

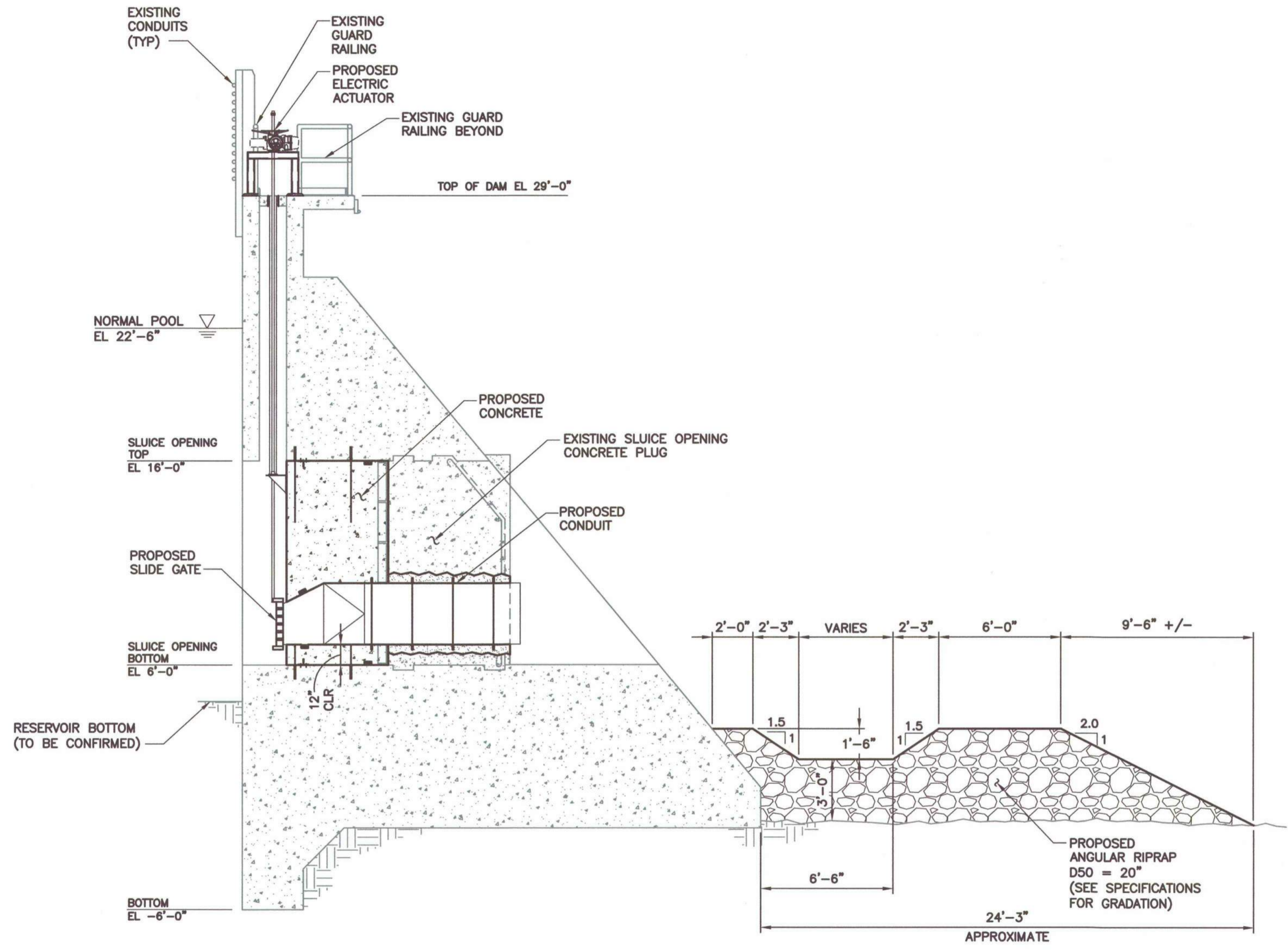
NO.	DATE	REVISIONS	APP'D



ABBREVIATIONS	
DIA	DIAMETER
EL	ELEVATION
S.S.	STAINLESS STEEL
S.S.P.	STAINLESS STEEL PIPE
TYP	TYPICAL



**PLAN VIEW AT SLIDE GATE**  
SCALE: 1" = 4'-0"



**SECTION**  
SCALE: 1" = 4'-0"

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**CITY OF TAMPA  
HILLSBOROUGH RIVER DAM  
MINIMUM FLOW CONTROL GATE**

**PLAN AND SECTION**



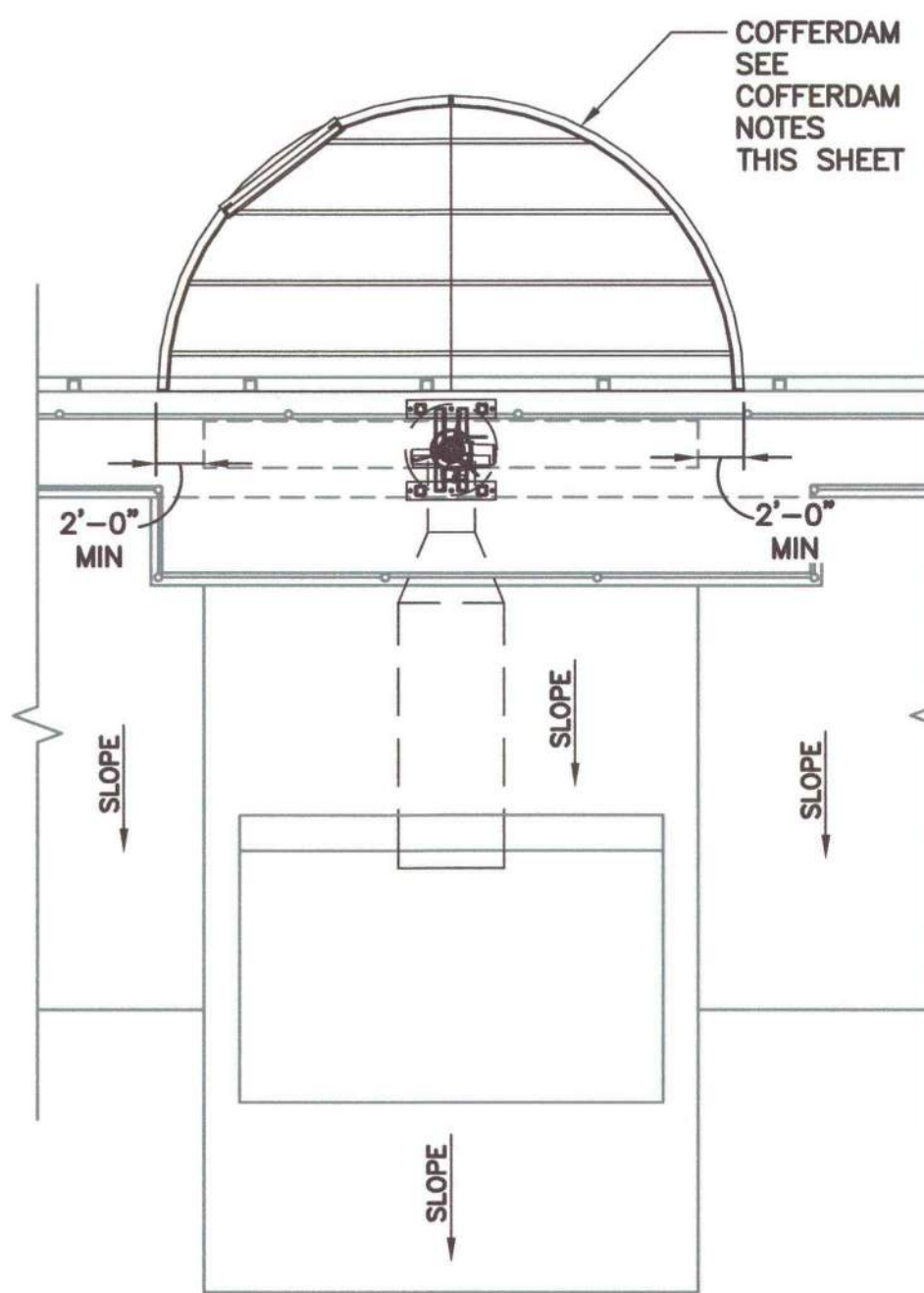
**SHEET NOTES:**  
1. ELEVATIONS ARE APPROXIMATE  
BASED ON RECORD DRAWINGS.

DESIGNED AJL	JOB NO. 62070	DATE 05/01/2017	SCALE C-2
DRAWN HGH	PROJECT NAME	DATE	3 OF 15
CHECKED SSV	DATE		

NO.	DATE	REVISIONS	APP'D

FINAL SUBMITTAL

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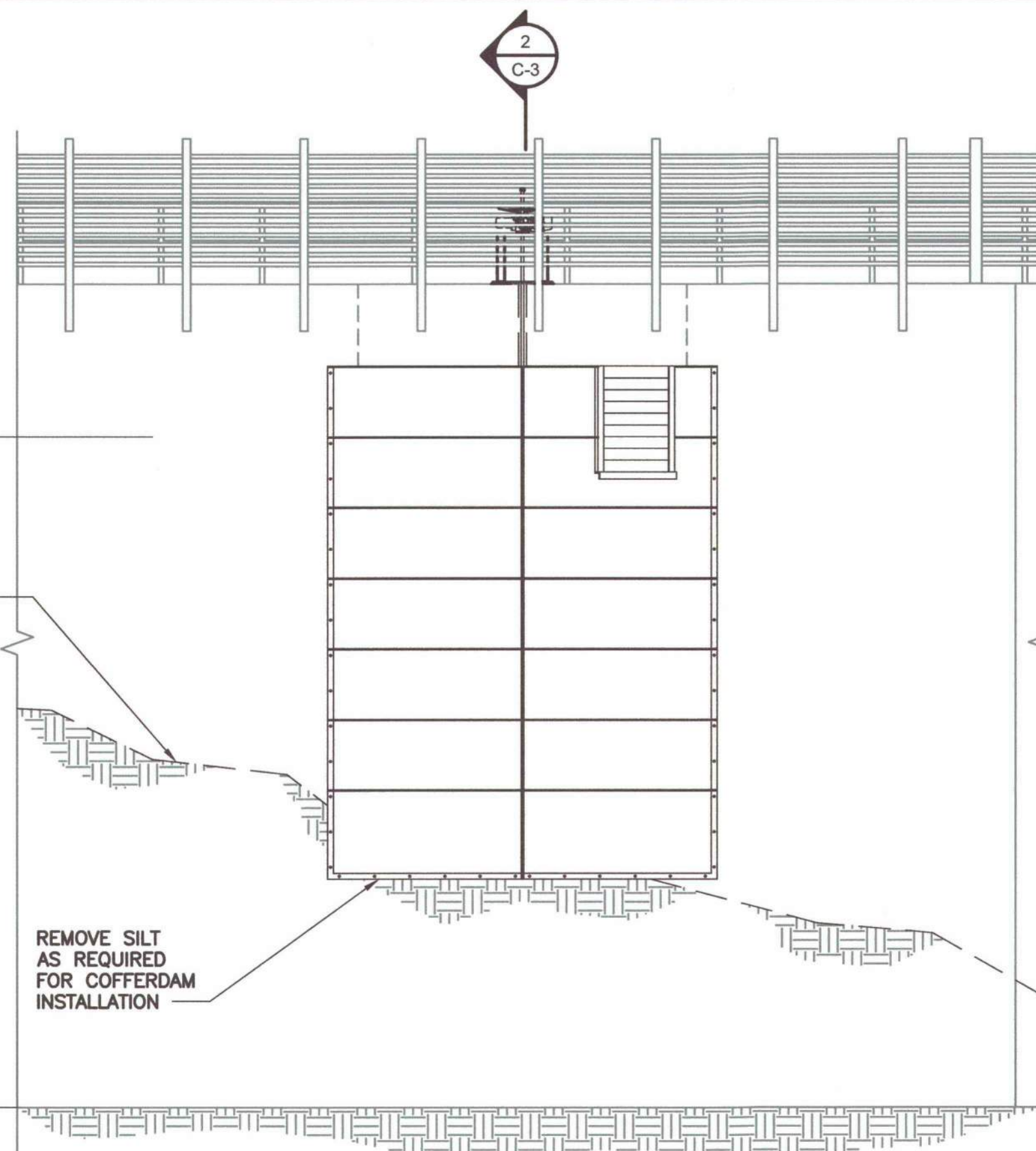
PLAN VIEW  
SCALE: 3/16" = 1'-0"

TOP OF DAM  
EL 29'-0"

NORMAL POOL  
(EL 22'-6")

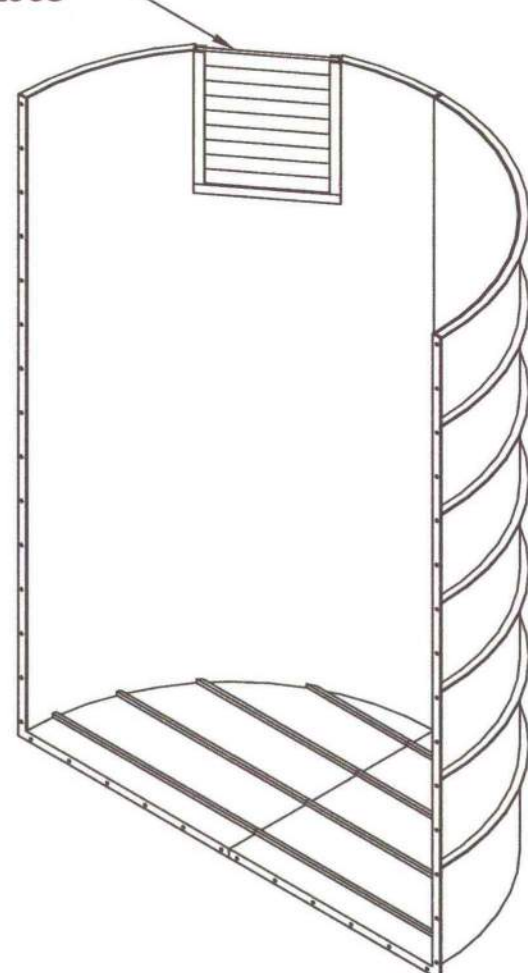
RESERVOIR BOTTOM  
(TO BE CONFIRMED)

BOTTOM EL -6'-0"

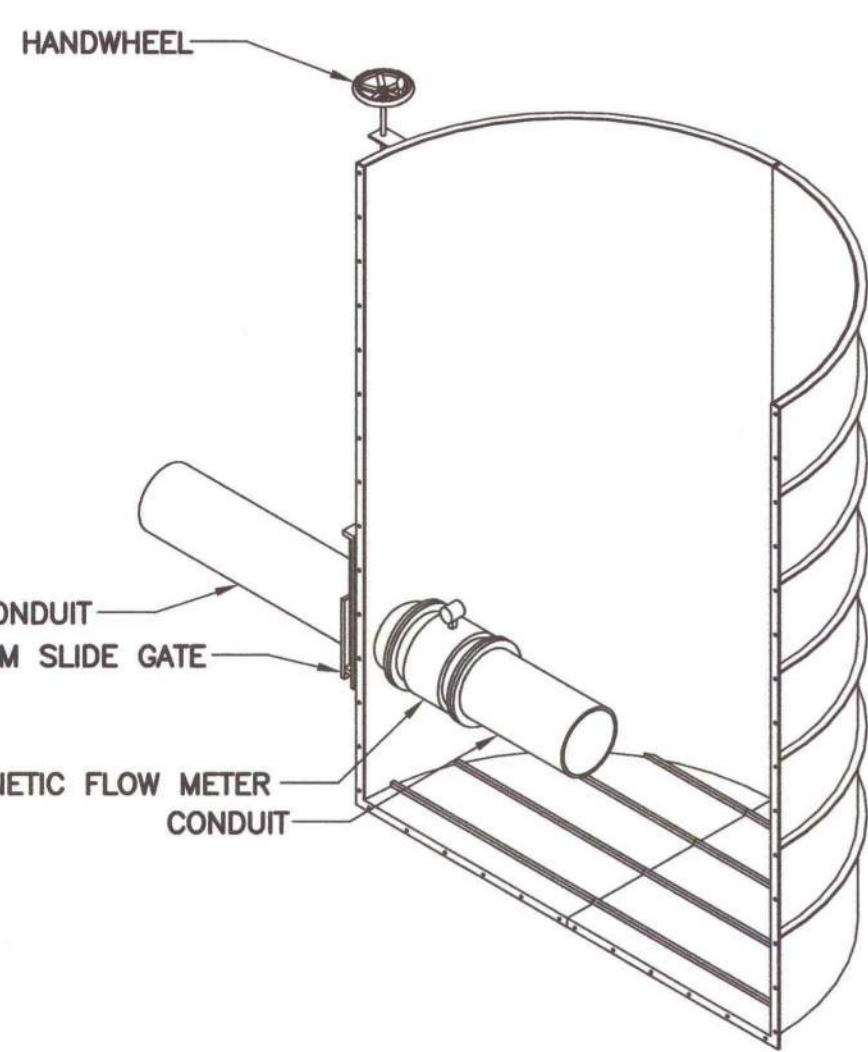


ELEVATION  
SCALE: 3/16" = 1'-0"

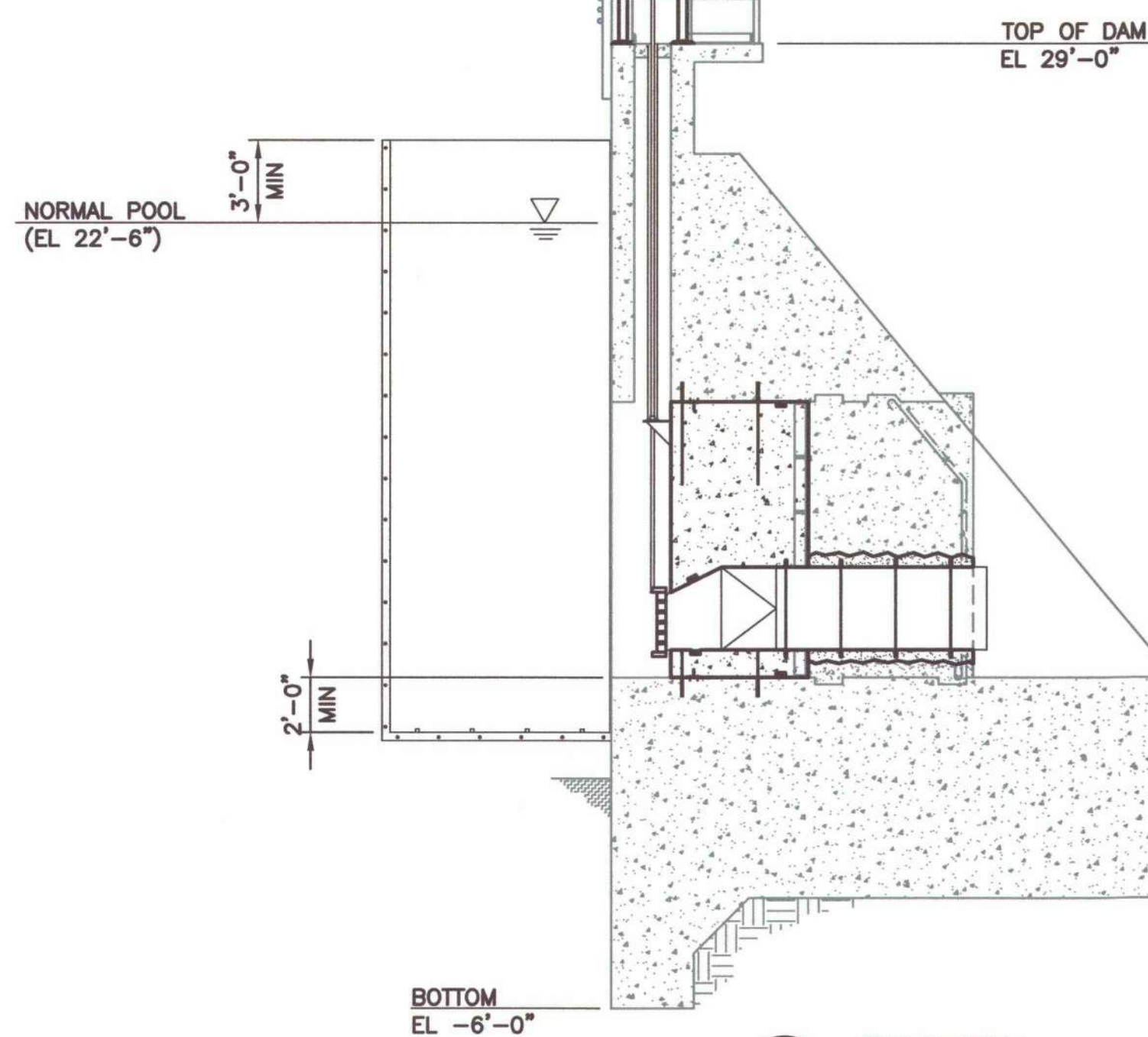
FLOW INLET WEIR  
WITH STOPLOGS



COFFERDAM  
ISOMETRIC VIEW  
SCALE: 3/16" = 1'-0"



COFFERDAM WITH UPSTREAM  
FLOW METERING  
ISOMETRIC VIEW  
SCALE: 3/16" = 1'-0"



SECTION  
SCALE: 3/16" = 1'-0"

COFFERDAM NOTES:

1. UNDER THIS WORK, THE CONTRACTOR SHALL DESIGN, FURNISH, INSTALL, MAINTAIN, REMOVE, AND LEAVE TO THE OWNER A TEMPORARY COFFERDAM. THE FINAL STORAGE OF THE COFFERDAM WILL BE AT THE LEFT ABUTMENT AREA AS INSTRUCTED BY THE OWNER.
2. THE COFFERDAM CONCEPTS PRESENTED HERE SHOW INTENT, ARE NOT COMPREHENSIVE, ARE CONSIDERED POTENTIAL CONFIGURATIONS, AND MAY NOT REPRESENT THE CONTRACTOR'S DESIGN AND APPROACH.
3. THE COFFERDAM SHALL BE USED FOR DEWATERING, CONSTRUCTION, AND TESTING OF THE FLOW CONTROL GATE.
4. THE COFFERDAM DESIGN SHALL CONSIDER MODES OF INSTALLATION, SUCH AS FLOATING INTO PLACE WITH THE AID OF FLOATING/BOUYANCY TANKS, CRANE INSTALLATION, A COMBINATION OF METHODS, OR OTHER METHODS.
5. THE COFFERDAM SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER, LICENSED TO PRACTICE IN THE STATE OF FLORIDA, WITH AT LEAST FIVE (5) YEARS OF EXPERIENCE DESIGNING COFFERDAMS, AND HAVING DESIGNED A SIMILAR COFFERDAM IN THE LAST TEN (10) YEARS.
6. FLOW TESTING OR OTHER TEMPORARY PENETRATIONS THROUGH THE COFFERDAM SHALL BE CLOSED UP (E.G. BLIND FLANGED) PRIOR TO LEAVING THE COFFERDAM TO THE OWNER.
7. MINIMUM PERFORMANCE CONSIDERATIONS:
  - A. STATIC WATER PRESSURE.
  - B. BUOYANCY FORCES.
  - C. HANDLING, INSTALLATION AND REMOVAL LOADS.
  - D. LIFTING HOOKS AND/OR PROVISION(S) FOR FLOATING INTO PLACE.
  - E. NON-DESTRUCTIVE REUSABLE ANCHORAGE TO THE UPSTREAM FACE OF THE DAM.
  - F. BUOYANCY PROVISIONS FOR INSTALLATION.
  - G. FLOW PORT/WEIR FOR DELIVERING WATER DURING GATE FLOW TESTING. SEE SPECIFICATION SECTION 35 22 26.
  - H. MINIMUM FLOW DELIVERY RATE THROUGH THE PORT/WEIR SHALL BE 24 CFS.
  - I. DEFORMABLE GASKETS TO SEAL THE COFFERDAM TO THE CONCRETE FACE.
  - J. THE COFFERDAM SHALL BE DESIGNED FOR REUSE WITHOUT ADDITIONAL DESIGN OR STRUCTURAL MODIFICATIONS.
  - K. THE INTERIOR OF THE COFFERDAM SHALL INCLUDE ELEVATION GRADUATIONS AT A MINIMUM ACCURACY OF 0.1 FT FOR DETERMINING AND RECORDING INTERIOR WATER SURFACE ELEVATION DURING FLOW TESTING.
8. MATERIALS:
  - A. STRUCTURAL STEEL CONFORMING TO ASTM A36.
  - B. ANCHORS SHALL BE AISI TYPE 316 STAINLESS STEEL.
  - C. STAINLESS STEEL NUTS SHALL CONFORM TO ASTM F594.
9. SUBMITTALS:
  - A. DETAILED DESIGN DRAWINGS AND DESIGN CALCULATIONS (INCLUDING DESIGN LOADS) STAMPED AND SIGNED BY A QUALIFIED ENGINEER LICENSED IN THE STATE OF FLORIDA.
  - B. FABRICATION DRAWINGS.
  - C. INSTALLATION AND REMOVAL INSTRUCTIONS INCLUDING INSTRUCTIONS FOR THE FLOW PORT/WEIR.
10. DELIVERABLES:
  - A. ONE (1) COMPLETE SPARE SET OF DEFORMABLE GASKETS.

SHEET NOTES:

1. ELEVATIONS ARE APPROXIMATE BASED ON RECORD DRAWINGS.



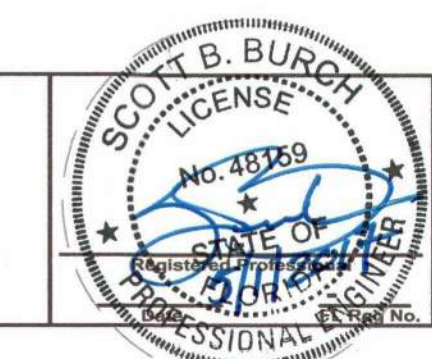
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CITY OF TAMPA  
HILLSBOROUGH RIVER DAM  
MINIMUM FLOW CONTROL GATE

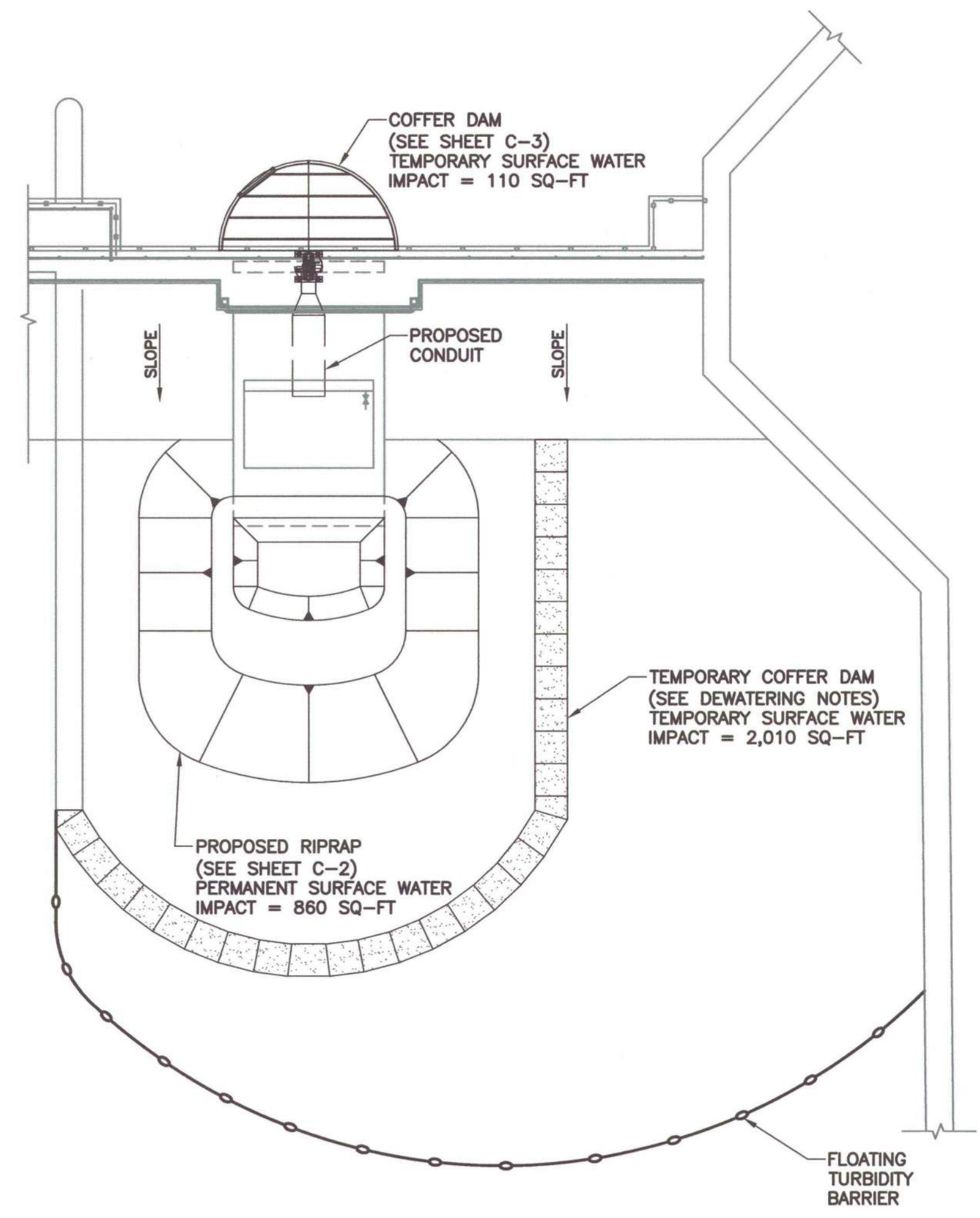
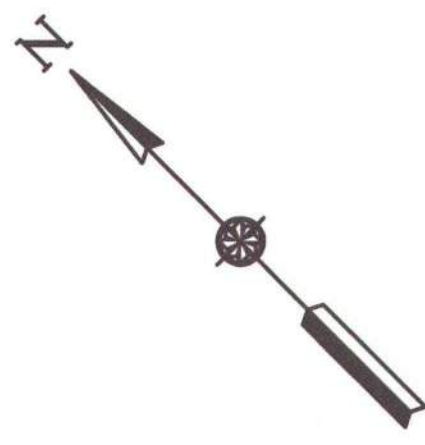
COFFERDAM CONCEPT



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DRAWN HGH	PROJECT NAME		
CHECKED SSV			

C-3

4 OF 15

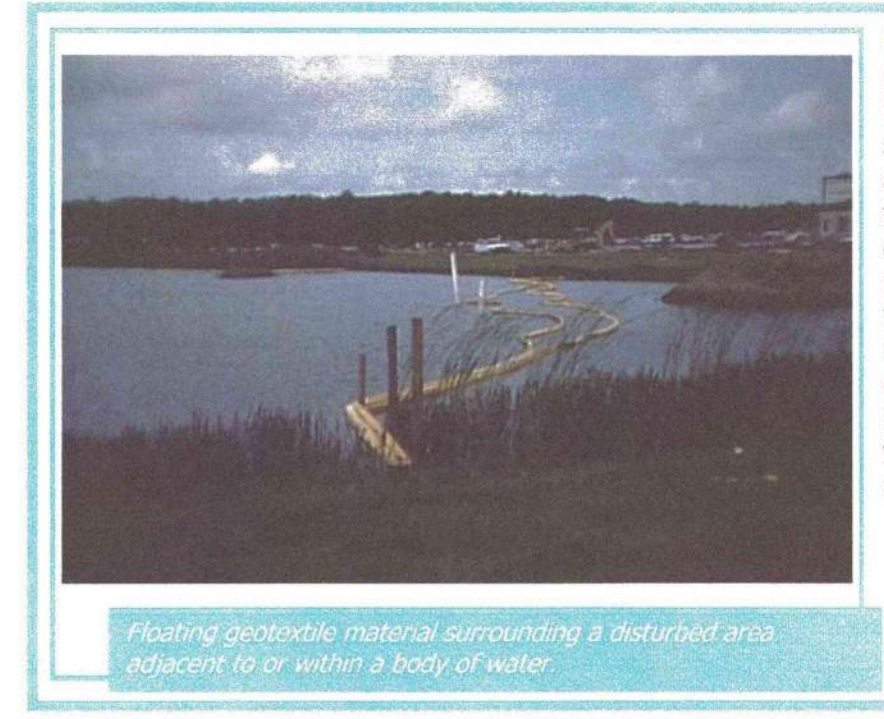


**SEDIMENT CONTROL PLAN CONCEPT**  
SCALE: 3/32" = 4'-0"

**SHEET NOTES:**  
SEDIMENT CONTROL PLAN CONCEPT SHOWN HERE IS FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE DESIGNING AND FOR PREPARING THEIR OWN SEDIMENT CONTROL PLAN, SELECTING AND IMPLEMENTING AS NECESSARY TO SATISFY REGULATORY REQUIREMENTS. SEE NOTES THIS SHEET.

**Stormwater BMP Selection and Implementation**  
Construction Site BMPs

**Floating Turbidity Barrier**



**Purpose:**  
Minimizes introduction of sediment into a watercourse from dredging or filling within the watercourse or from land disturbance up-slope of the watercourse.

It is always the goal to keep sediment out of watercourses. However, if this is not possible, a floating turbidity barrier is essential to deflect and contain sediment within a limited area and provides enough residence time so that particles fall out of suspension and do not travel to affect widespread areas over long distances.

**Site Preparation**

The proposed site for a turbidity curtain must be carefully surveyed to insure proper selection of curtain type appropriate for existing water conditions. There must be adequate knowledge of the area to allow for proper installation.

**Construction Materials**

Barrier fabrics must meet Florida DEP specifications. They should be bright yellow or "international" orange in color. They must encompass adequate buoyancy and be properly anchored.

**Stormwater BMP Selection and Implementation**  
Construction Site BMPs

**Construction Plan / Design Considerations**

This BMP relates only to minimal and moderate flow conditions where velocity of the flow reaches only five feet per second. For higher flow rates, qualified engineers should be involved in curtain selection and design.

Turbidity curtains should not be installed across channel flows – they do not halt the movement of water itself, but are designed only to trap sediment. By constructing part of the curtain from a heavy woven filter fabric, water may pass through the curtain, but sediment particles are retained, during water movements such as high and low tides.

There are numerous Florida DEP guidelines relating to the selection, installation and removal of floating turbidity barriers. They apply to differing conditions from protected areas to areas with considerable current, wind and/or wave action. These guidelines should be reviewed in detail prior to barrier selection.

**Maintenance**

- ✓ Inspection and repair, as necessary, to insure protection of watercourse.
- ✓ Sediment removal and appropriate disposal at end of project to restore original water depth.
- ✓ Removal of the curtain to minimize turbidity

STORMWATER BMP PAGES INCLUDED FROM **STORMWATER BEST MANAGEMENT PRACTICE (BMP) SELECTION AND IMPLEMENTATION (JANUARY 2003)**

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NOTES:**

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREPARE, MAINTAIN, AND UPDATE A COMPREHENSIVE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THIS CONTRACT THAT COVERS ALL OPERATORS AT THE SITE IN ACCORDANCE WITH THE BASIC REQUIREMENTS IN PART 4 OF THE FDEP NPDES GENERIC PERMIT, INCLUDING THE ACTIVITIES OF THE CONTRACTOR AND ALL SUBCONTRACTORS.
  - A. THE SWPPP IS THE OPERATOR'S DOCUMENT THAT CHARACTERIZES THE CONSTRUCTION ACTIVITY, IDENTIFIES POTENTIAL SOURCES OF POLLUTANTS, AND DESCRIBES HOW THE SITE WILL BE MANAGED AND MONITORED, AND THE BEST MANAGEMENT PRACTICES (BMPs) THAT WILL BE IMPLEMENTED TO HELP INSURE POLLUTANTS DO NOT REACH SURFACE WATERS.
  - B. PREPARE THE SWPPP REQUIRED FOR THIS CONTRACT BY FOLLOWING THE GUIDANCE WITHIN PART 4 OF FDEP NPDES GENERIC PERMIT.
  - C. ADDITIONAL GUIDANCE FOR PREPARING THE REQUIRED SWPPP MAY BE FOUND ON-LINE AT:  
<http://www.dep.state.fl.us/water/stormwater/npdes/construction3.htm>
2. THE SWPPP MUST PROVIDE A SITE DESCRIPTION THAT IDENTIFIES SOURCES OF POLLUTION TO STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY ON SITE, AND MUST IDENTIFY AND IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMPs) TO REDUCE POLLUTANTS IN STORMWATER DISCHARGES TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE FDEP NPDES GENERIC PERMIT.
  - A. PREPARE A SWPPP THAT USES BEST MANAGEMENT PRACTICES (BMPs) FOR BOTH SEDIMENT AND EROSION CONTROLS TO MINIMIZE EROSION OF DISTURBED LAND DURING CONSTRUCTION AND POST-CONSTRUCTION ACTIVITIES AND TO MINIMIZE DISCHARGE OF POLLUTANTS.
  - B. SUBMIT THE SWPPP TO THE ENGINEER FOR APPROVAL PRIOR TO SUBMITTING IT TO FDEP.
  - C. KEEP THE SWPPP ONSITE WHENEVER CONSTRUCTION OR SUPPORT ACTIVITIES ARE ACTIVELY UNDERWAY, AND MAKE IT AVAILABLE FOR REVIEW WHEN FDEP OR OTHER AUTHORITIES HAVING JURISDICTION PERFORM ONSITE INSPECTIONS.
3. REMOVE TEMPORARY CONTROLS AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE FDEP NPDES GENERIC PERMIT.
4. RETAIN THE SWPPP AND ALL OTHER RECORDS AND REPORTS REQUIRED BY THE FDEP NPDES GENERIC PERMIT FOR A MINIMUM OF 3 YEARS FROM THE DATE THE SITE REACHED FINAL STABILIZATION AND THE NOT IS SUBMITTED.
5. SUBMITTALS:
  - A. SWPPP AND UPDATES
  - B. NOTICE OF INTENT (NOI) AND AUTHORIZATION LETTER
  - C. NOTICE OF TERMINATION (NOT)

**DEWATERING NOTES:**

1. THE CONTRACTOR IS RESPONSIBLE FOR SELECTING, DESIGNING, INSTALLING, MAINTAINING, AND REMOVING DEWATERING FACILITIES. THE DEWATERING SYSTEM SHALL INCLUDE, BUT IS NOT LIMITED TO, CONSTRUCTION BARRIERS, LINERS, PUMPS, AND OTHER EQUIPMENT AND APPURTENANCES INSTALLED OUTSIDE LIMITS OF NEW WORK AND SUFFICIENT TO COMPLETE THE WORK.
2. WELLS, SUMPS AND/OR EXCAVATION IS NOT PERMITTED WITHOUT AUTHORIZATION FROM THE CITY OF TAMPA.
3. FURNISH AND OPERATE DEWATERING EQUIPMENT HAVING SUFFICIENT CAPACITY FOR DEWATERING.
4. DISPOSE OF THE WATER SO THAT IT DOES NOT CAUSE INJURY TO THE PUBLIC HEALTH, TO PUBLIC OR PRIVATE PROPERTY, TO THE WORK OF OTHERS, OR TO PORTIONS OF THE WORK COMPLETED OR IN PROGRESS, AND DOES NOT CAUSE AN IMPEDIMENT TO THE USE OF THE REMAINDER OF THE DAM FACILITY.
5. SELECT AND INCORPORATE BEST MANAGEMENT PRACTICES (BMP'S) TO MEET FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) REQUIREMENTS (SEE SWPPP NOTES).
6. SUBMITTALS:
  - A. PREPARE A DEWATERING PLAN FOR REVIEW AND ACCEPTANCE BY THE CITY OF TAMPA PRIOR TO INITIATING WORK.

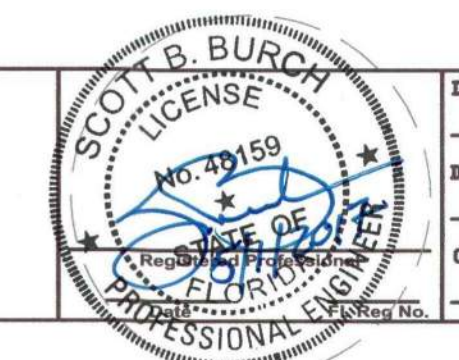
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**CITY OF TAMPA**  
**HILLSBOROUGH RIVER DAM**  
**MINIMUM FLOW CONTROL GATE**

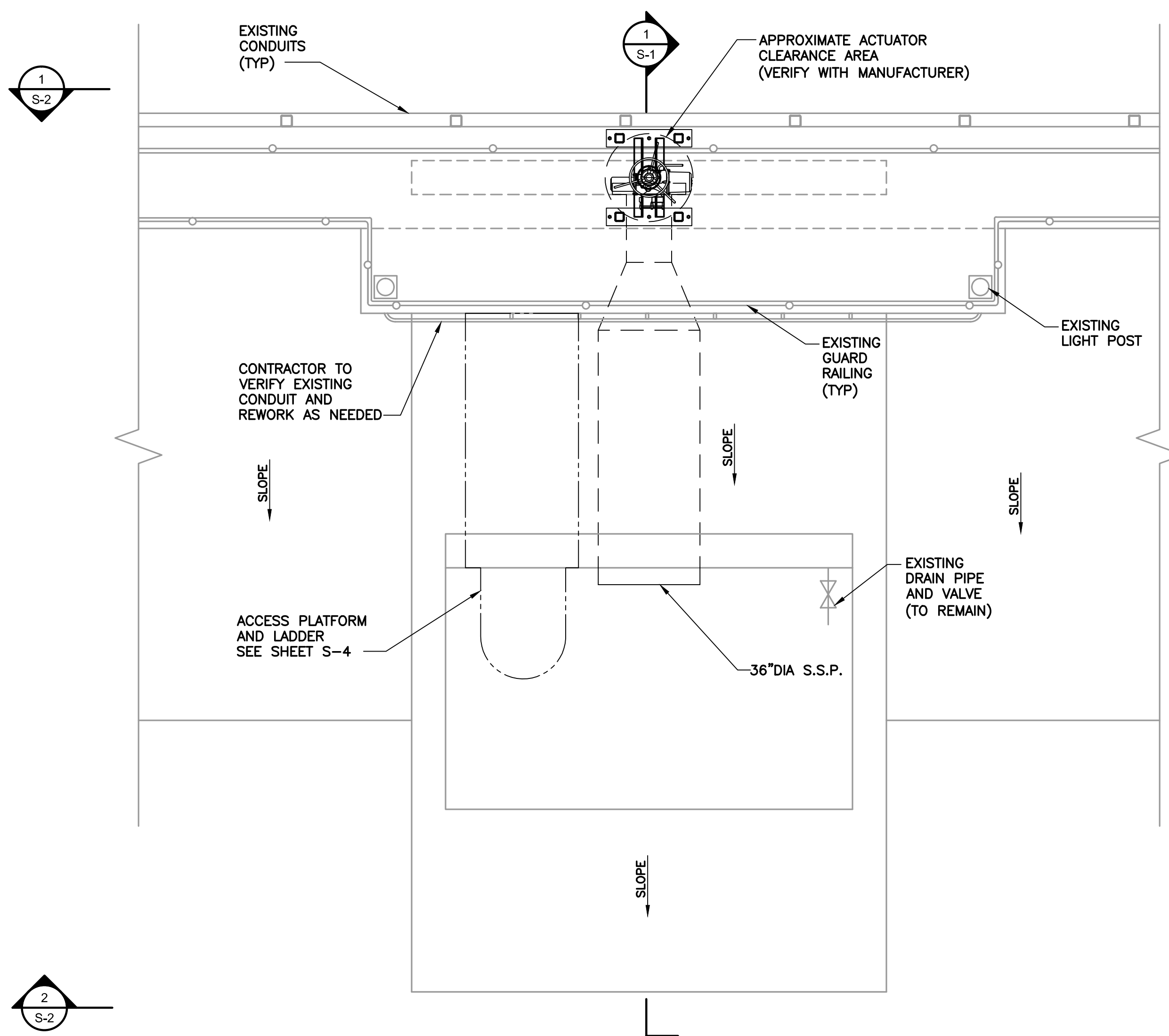
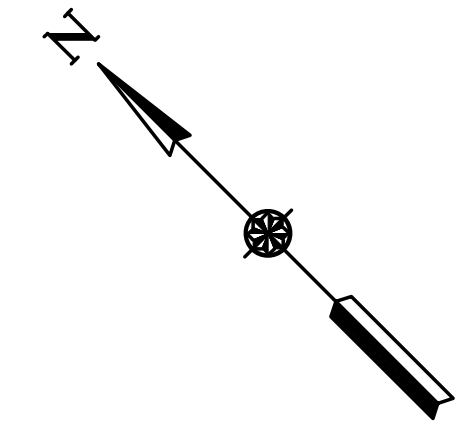
**SEDIMENT CONTROL CONCEPT**



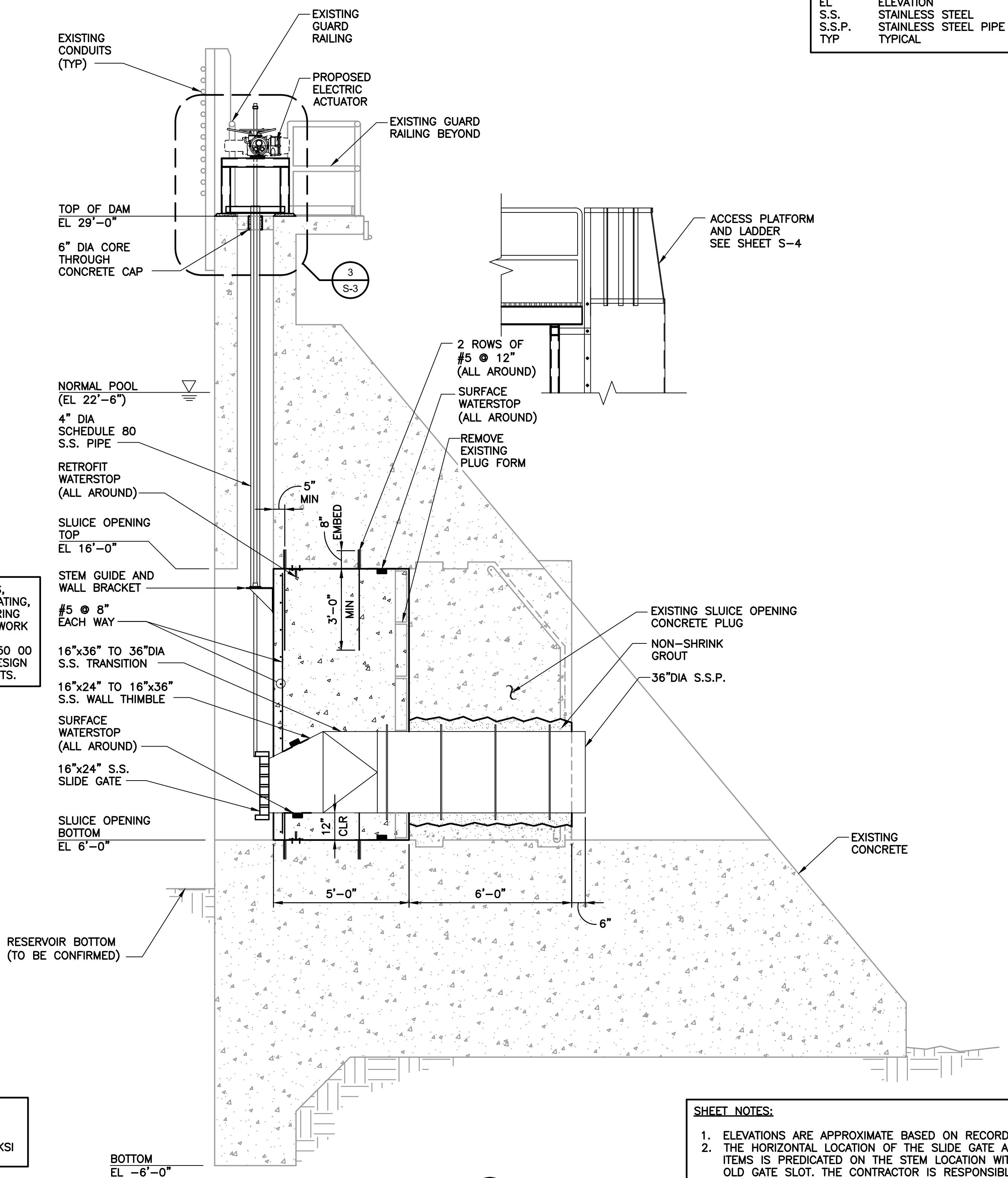
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DRAWN HGH	PROJECT NAME -	
CHECKED SSV	OPEN DATE 05/01/2017	
PROFESSIONAL ENGINEER		

NO.	DATE	REVISIONS	APP'D

ABBREVIATIONS	
DIA	DIAMETER
EL	ELEVATION
S.S.	STAINLESS STEEL
S.S.P.	STAINLESS STEEL PIPE
TYP	TYPICAL



**PLAN VIEW AT SLIDE GATE**  
SCALE: 3/8" = 1'-0"



ACCESS PLATFORM, LADDERS, LADDER CAGE, RAILINGS, GRATING, SUPPORT MEMBERS, ANCHORING AND ALL ASSOCIATED METALWORK IS SHOWN SCHEMATIC. SEE SPECIFICATION SECTION 05 50 00 METAL FABRICATIONS FOR DESIGN AND SUBMITTAL REQUIREMENTS.

- GENERAL NOTES:**
1. CONCRETE:  $f'_c = 4000\text{PSI}$
  2. REINFORCEMENT: ASTM A615,  $F_y = 60\text{KSI}$

- SHEET NOTES:**
1. ELEVATIONS ARE APPROXIMATE BASED ON RECORD DRAWINGS.
  2. THE HORIZONTAL LOCATION OF THE SLIDE GATE AND RELATED ITEMS IS PREDICATED ON THE STEM LOCATION WITHIN THE OLD GATE SLOT. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE FINAL LOCATIONS OF THE GATE, STEM, GATE FRAMES, THIMBLE, CONDUIT, UPSTREAM FACE OF NEW CONCRETE, ETC., TO PROVIDE A FULLY FUNCTIONING SLIDE GATE CONFORMING TO THE CONTRACT DOCUMENTS.

**SECTION**  
SCALE: 3/8" = 1'-0"

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**CITY OF TAMPA  
HILLSBOROUGH RIVER DAM  
MINIMUM FLOW CONTROL GATE**

**STRUCTURAL PLAN AND SECTION**

**Vladimir Cecka**  
REGISTERED PROFESSIONAL ENGINEER  
Date: 4/17/17  
FL Reg. No. 72544

DESIGNED AJL	JOB NO. 62070	DATE 04/14/2017
DRAWN HGH	PROJECT NAME -	
CHECKED SSV	DATE 04/14/2017	

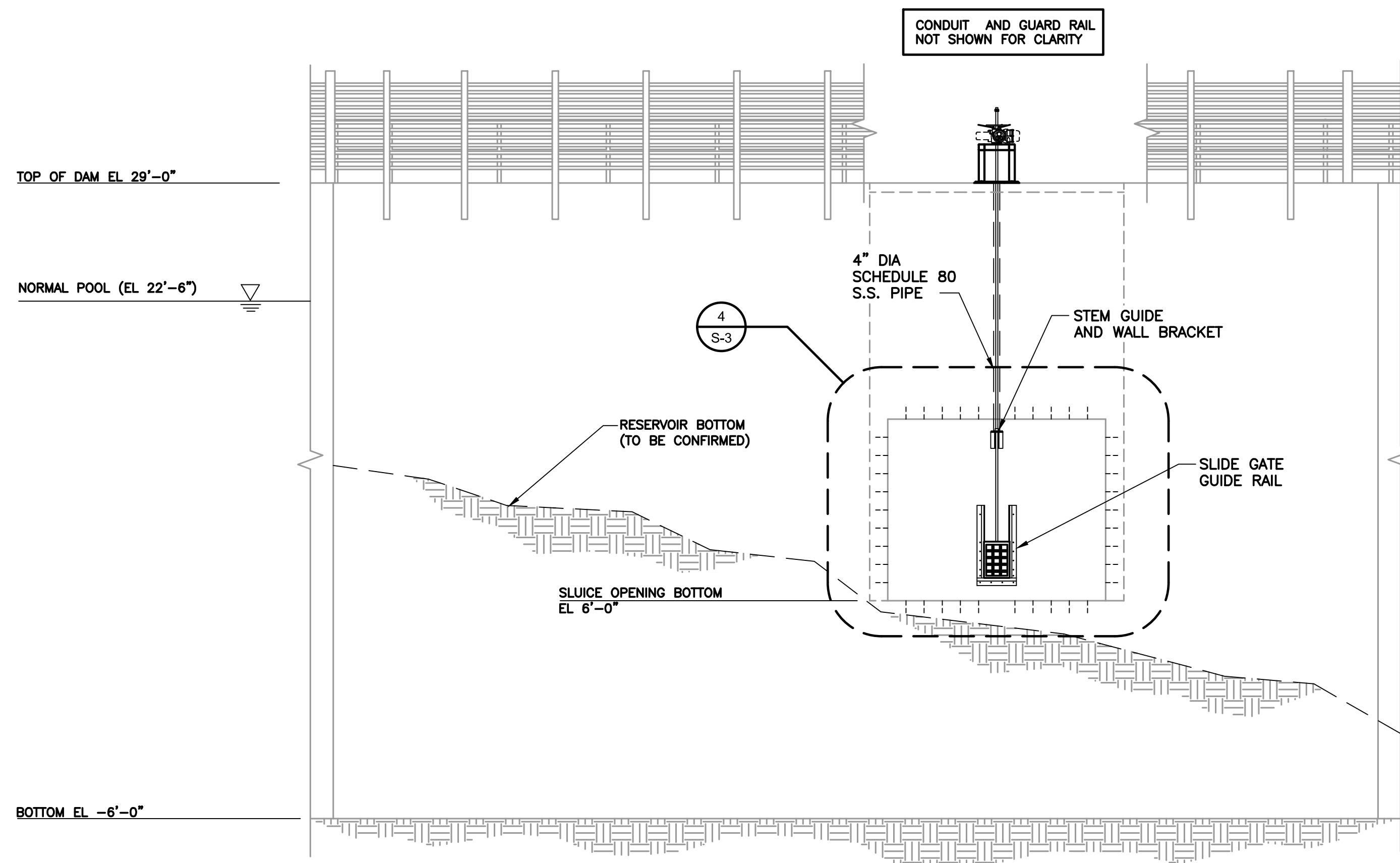
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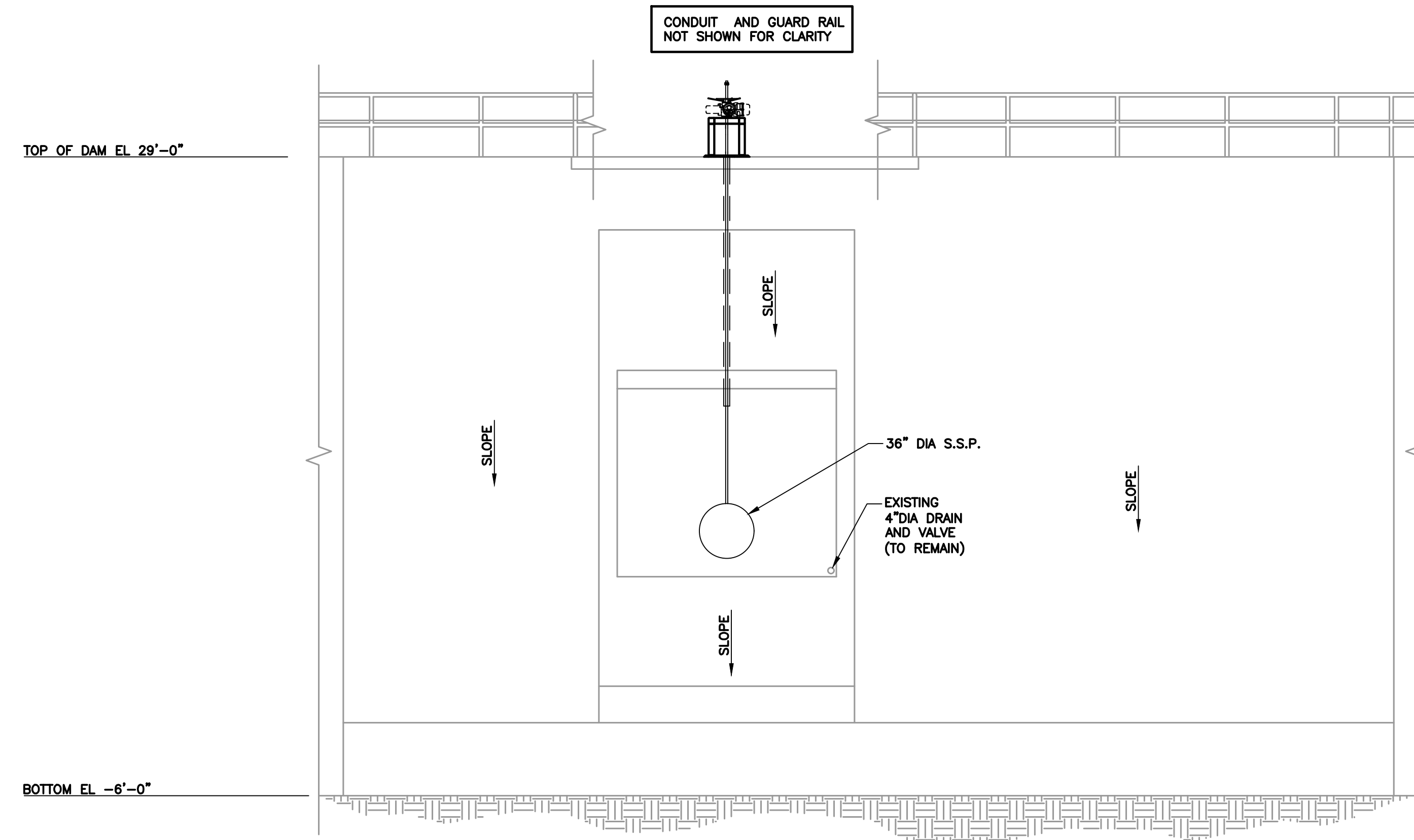
NO.	DATE	REVISIONS	APP'D

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1 ELEVATION LOOKING DOWNSTREAM  
SCALE: 3/16" = 1'-0"



2 ELEVATION LOOKING UPSTREAM  
SCALE: 3/16" = 1'-0"

**SHEET NOTES:**  
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**CITY OF TAMPA  
HILLSBOROUGH RIVER DAM  
MINIMUM FLOW CONTROL GATE**

**ELEVATIONS**

Vladimir Cecka  
VLADIMIR CECKA  
Registered Professional  
4/17/17 72544  
Date Fl Reg No

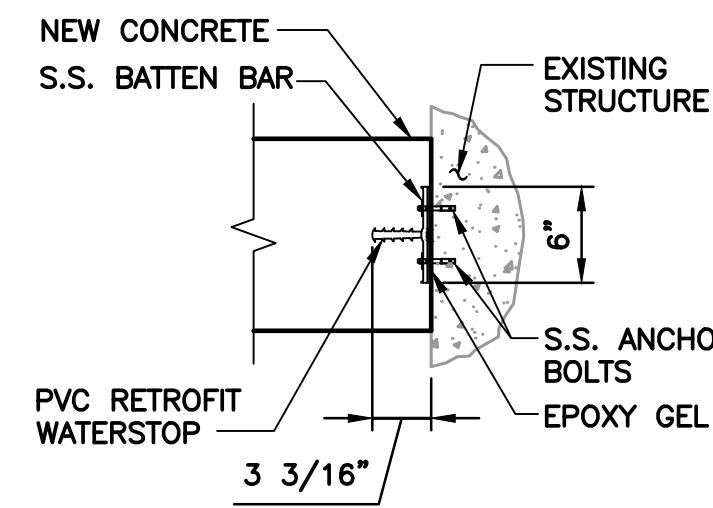
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DRAWN HGH	PROJECT NAME -	
CHECKED SSV	OPEN DATE 04/14/2017	
DATE 4/17/17		

FINAL SUBMITTAL

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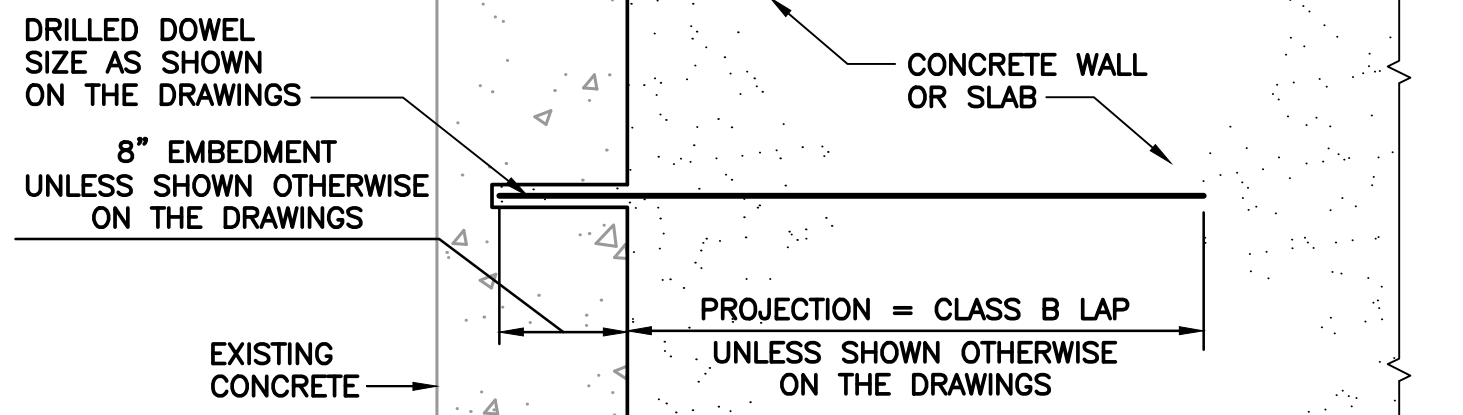


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**PVC RETROFIT WATERSTOP**

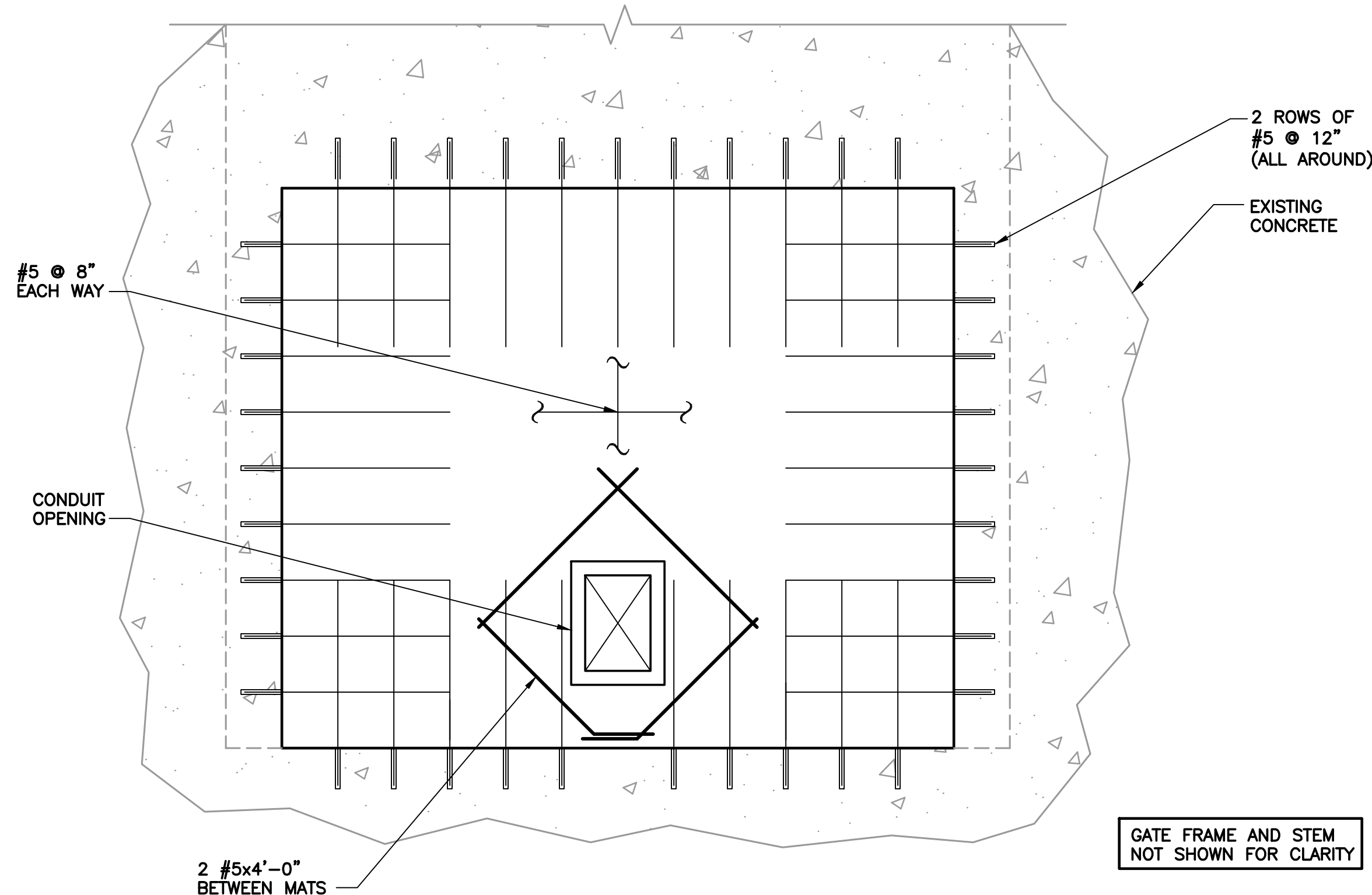
**1 DETAIL**  
S-3 SCALE: 1" = 1'-0"



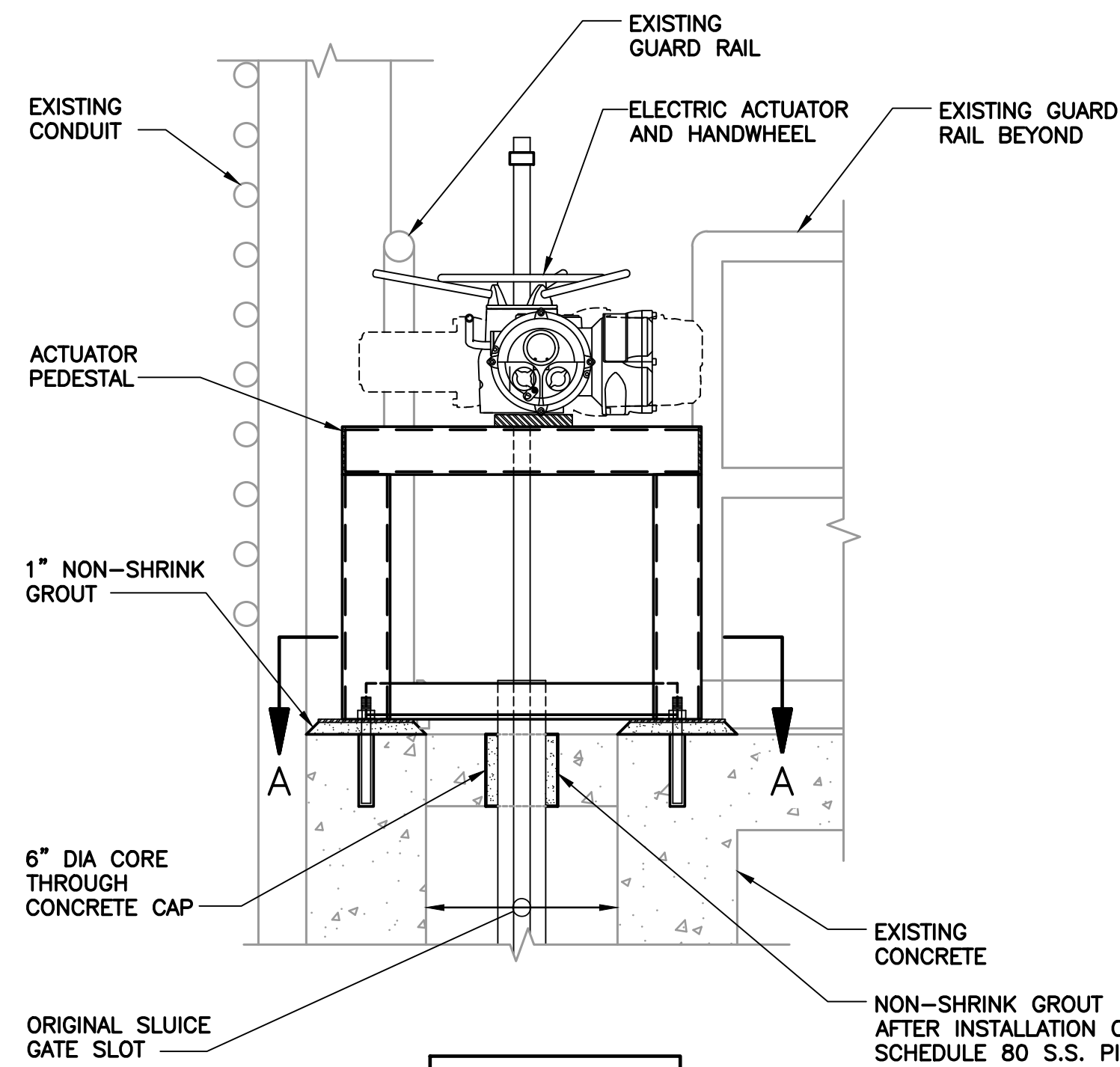
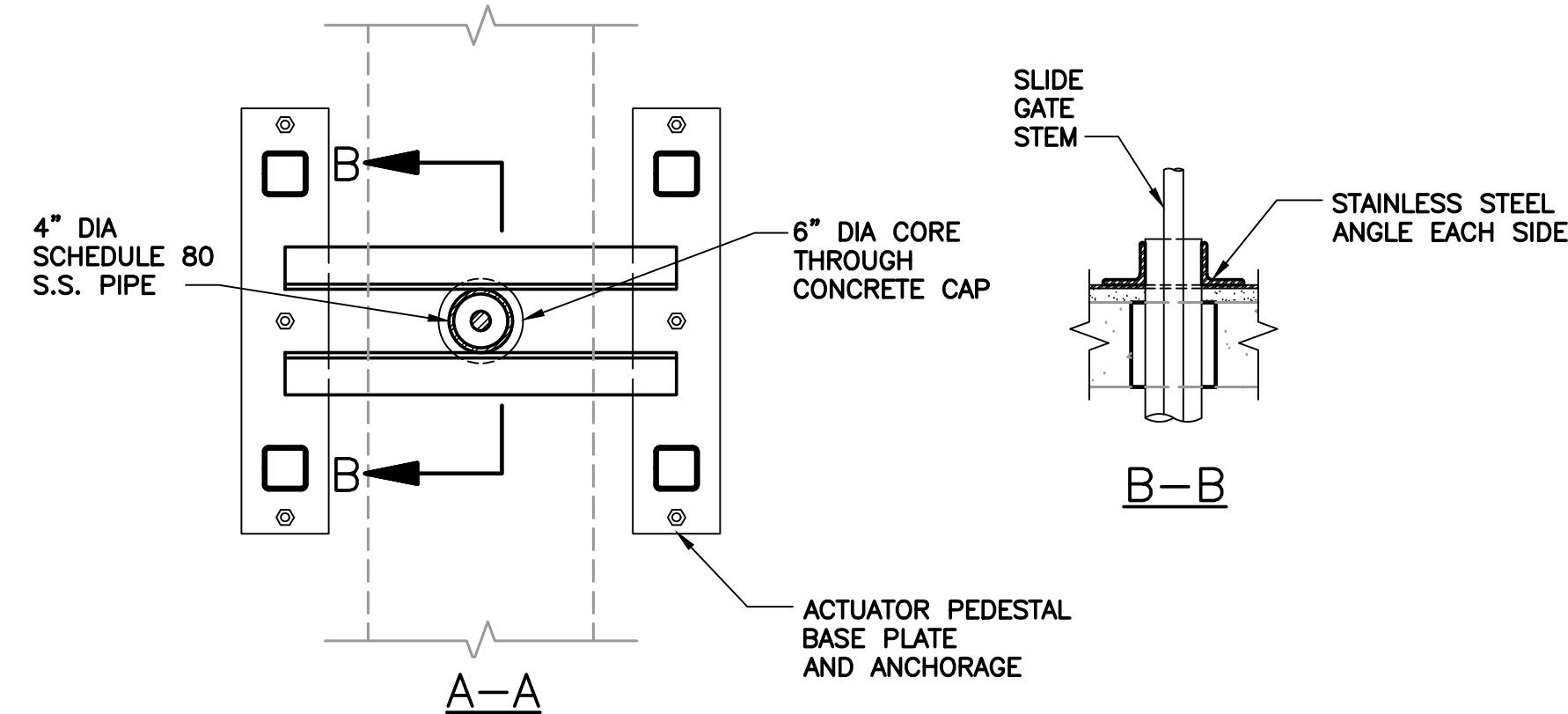
**DRILLED IN DOWEL**

- DRILLED DOWEL NOTES:**
1. USE ROTARY PERCUSSION DRILL TO AVOID CUTTING EXISTING REINFORCING BARS. DO NOT USE CORE DRILL.
  2. DRILL HOLE DIAMETER OF SIZE PER ADHESIVE MANUFACTURER'S INSTRUCTIONS AND ICC-ES REPORT.
  3. THOROUGHLY CLEAN HOLE AND INSTALL DOWELS PER ADHESIVE MANUFACTURER'S INSTRUCTIONS AND ICC-ES REPORT.
  4. ADHESIVE SHALL BE HILTI HIT-RE 500-V3 (ICC REPORT ESR 3814) OR APPROVED EQUAL.
  5. DO NOT CUT EXISTING REINFORCING

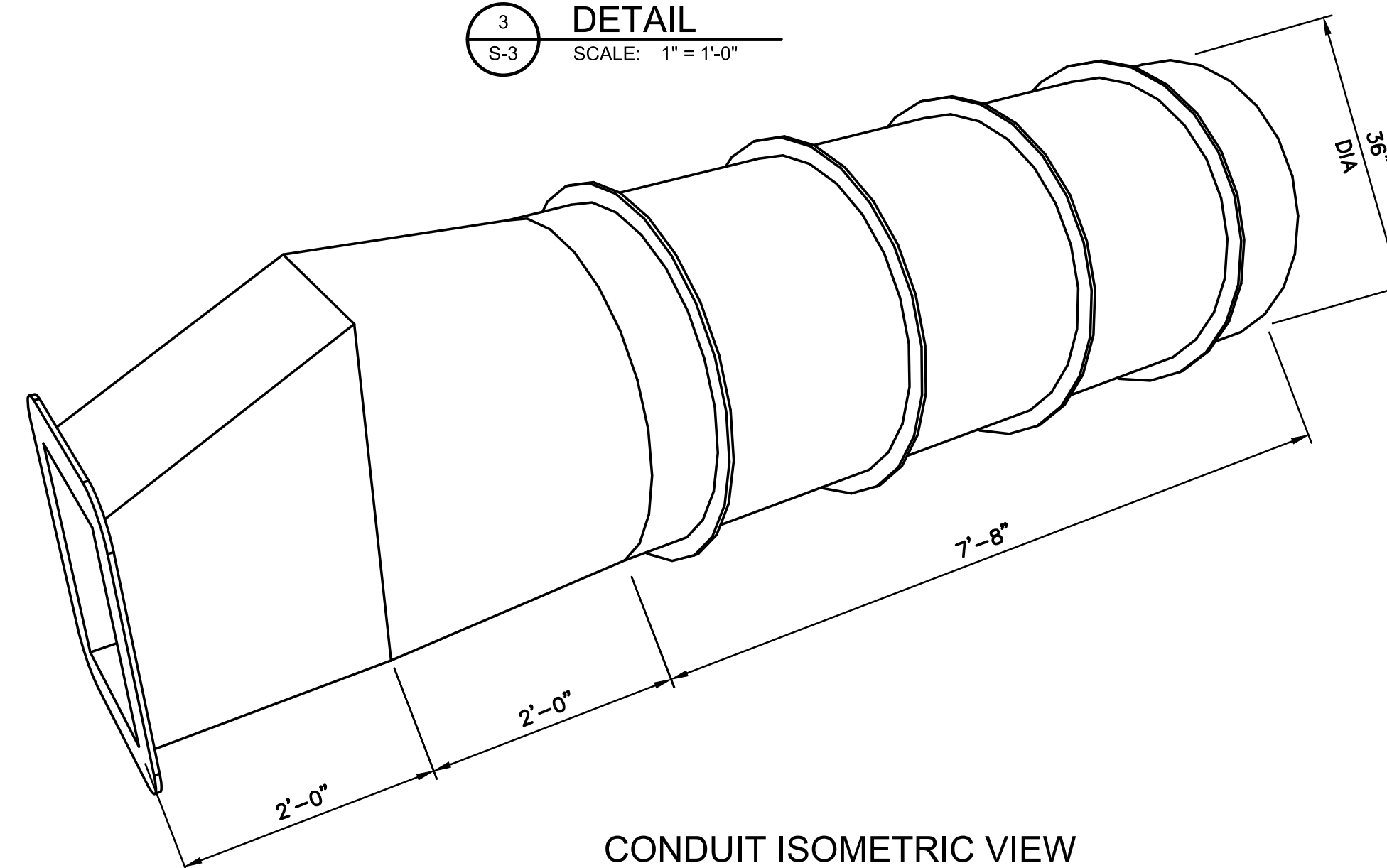
**2 DETAIL**  
S-3 SCALE: 1" = 1'-0"



**4 DETAIL**  
S-3 SCALE: 1/2" = 1'-0"



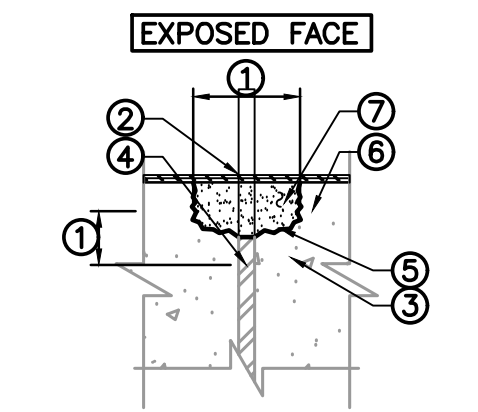
**3 DETAIL**  
S-3 SCALE: 1" = 1'-0"



**CONDUIT ISOMETRIC VIEW**  
SCALE: N.T.S.

**PEDESTAL NOTES:**

1. UNDER THIS WORK, THE CONTRACTOR/GATE VENDOR SHALL DESIGN, FURNISH AND INSTALL THE GATE PEDESTAL INCLUDING THE ANCHORS TO THE TOP-OF-DAM.
2. THE GATE PEDESTAL AND ANCHORS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER, LICENSED TO PRACTICE IN THE STATE OF FLORIDA.
3. MINIMUM DESIGN CONSIDERATIONS:
  - A. ALL GATE LOADS UP TO A MAXIMUM WATER SURFACE ELEVATION OF 29.0 FEET INCLUDING PULLOUT FORCES
  - B. THE PEDESTAL HEIGHT SHALL BE SUCH THAT THE HANDWHEEL OR PINION SHAFT ON THE CRANK-OPERATED GEARBOX IS LOCATED APPROXIMATELY 36-IN ABOVE THE OPERATING FLOOR.
  - C. FLOOR MOUNTING ANCHORS SHALL NOT BE WITHIN 5-INCHES OF THE PREVIOUS SLUICE GATE SLOT OR EDGE OF CONCRETE.
  - D. BRACKETS SHALL BE CONSTRUCTED OF STAINLESS STEEL.
  - E. BRACKETS SHALL BE REINFORCED TO WITHSTAND IN COMPRESSION AT LEAST TWO TIMES THE RATED OUTPUT OF THE OPERATOR WITH A 40LB EFFORT ON THE CRANK OR HANDWHEEL.
4. MATERIALS
  - A. STAINLESS STEEL
5. SUBMITTALS
  - A. DESIGN CALCULATIONS STAMPED AND SIGNED BY AN ENGINEER LICENSED IN THE STATE OF FLORIDA THAT AT MINIMUM INCLUDE:
    - I. ANCHORAGE DESIGN CALCULATIONS
    - II. MAXIMUM OPENING LOAD
    - III. MAXIMUM CLOSING LOAD
    - IV. COEFFICIENT OF FRICTION
    - V. STEM/ROD TENSILE ANALYSIS
    - VI. STEM/ROD BUCKLING ANALYSIS
  - B. ANCHOR BOLT SIZE, EMBEDMENT, TYPE, LAYOUT, AND INSTALLATION INSTRUCTIONS
  - C. FABRICATION DRAWINGS
  - D. RAILING MODIFICATION DRAWINGS (TO ADDRESS RAILING CONFLICTS WITH THE GATE MOTOR ACTUATOR AND PEDESTAL ASSEMBLY)
6. LOCATE REINFORCEMENT AND DEPTH OF BARS BEFORE SAW CUTTING OR OUTLINING CONCRETE REPAIR AREAS BY NON-DESTRUCTIVE MEANS (FERRO-SCAN, X-RAY OR 3-D GROUND PENETRATION RADAR).



**DIMPLE SECTION**

SEE EXPOSED REINFORCEMENT REPAIR PROCEDURES FOR KEYNOTES

**EXPOSED REINFORCEMENT REPAIR PROCEDURES**

1. REMOVE EXISTING CONCRETE (DIMPLE) AROUND REINFORCEMENT TO A DIAMETER OF 2.5 TIMES THE REBAR DIAMETER (1-1/2 -INCH DIAMETER MINIMUM) AND A MINIMUM DEPTH OF 1-INCH. DIMPLE SIDES SHALL BE NEAR PERPENDICULAR TO EXPOSED SURFACE FACE.
2. REMOVE/ TORCH CUT THE EXPOSED REINFORCING END TO THE BOTTOM OF DIMPLE.
3. ROUGHEN AND CLEAN DIMPLE SURFACE TO A MINIMUM SURFACE PROFILE OF +/- 1/16 INCH.
4. COAT END OF EXPOSED REINFORCEMENT WITH SIKA ARMATEC 110 EPOCEM. SIKA ARMATEC REQUIRES TWO COATS WITH A DRYING PERIOD IN-BETWEEN COATS. SEE PRODUCT LITERATURE FOR ADDITIONAL INFORMATION.
5. AFTER SECOND COAT OF SIKA ARMATEC HAS DRIED, FILL DIMPLE USING A REPAIR MORTAR SUCH AS SIKATOP 122 PLUS.
6. SEE OVERALL SECTION FOR EXTENT OF COATING. CONCRETE SURFACES SHALL BE CLEAN AND FREE FROM ANY DUST, LAITANCE, GREASE, AND ALL BOND-INHIBITING MATERIALS.

**EXPOSED REINF REPAIR PROCEDURE DETAIL**

**5 DETAIL**  
S-3 SCALE: N.T.S.

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Engineering Business No. 00000002

**CITY OF TAMPA  
HILLSBOROUGH RIVER DAM  
MINIMUM FLOW CONTROL GATE**

**SECTIONS AND DETAILS**

DESIGNED <b>AJL</b>		JOB NO. <b>62070</b>	
DRAWN <b>HGH</b>		PROJECT NAME <b>-</b>	
CHECKED <b>SSV</b>		OPEN DATE <b>04/14/2017</b>	
Date <b>4/17/17</b>		Date <b>7/25/14</b>	
FL Reg. No. <b>72544</b>		FL Reg. No. <b>-</b>	

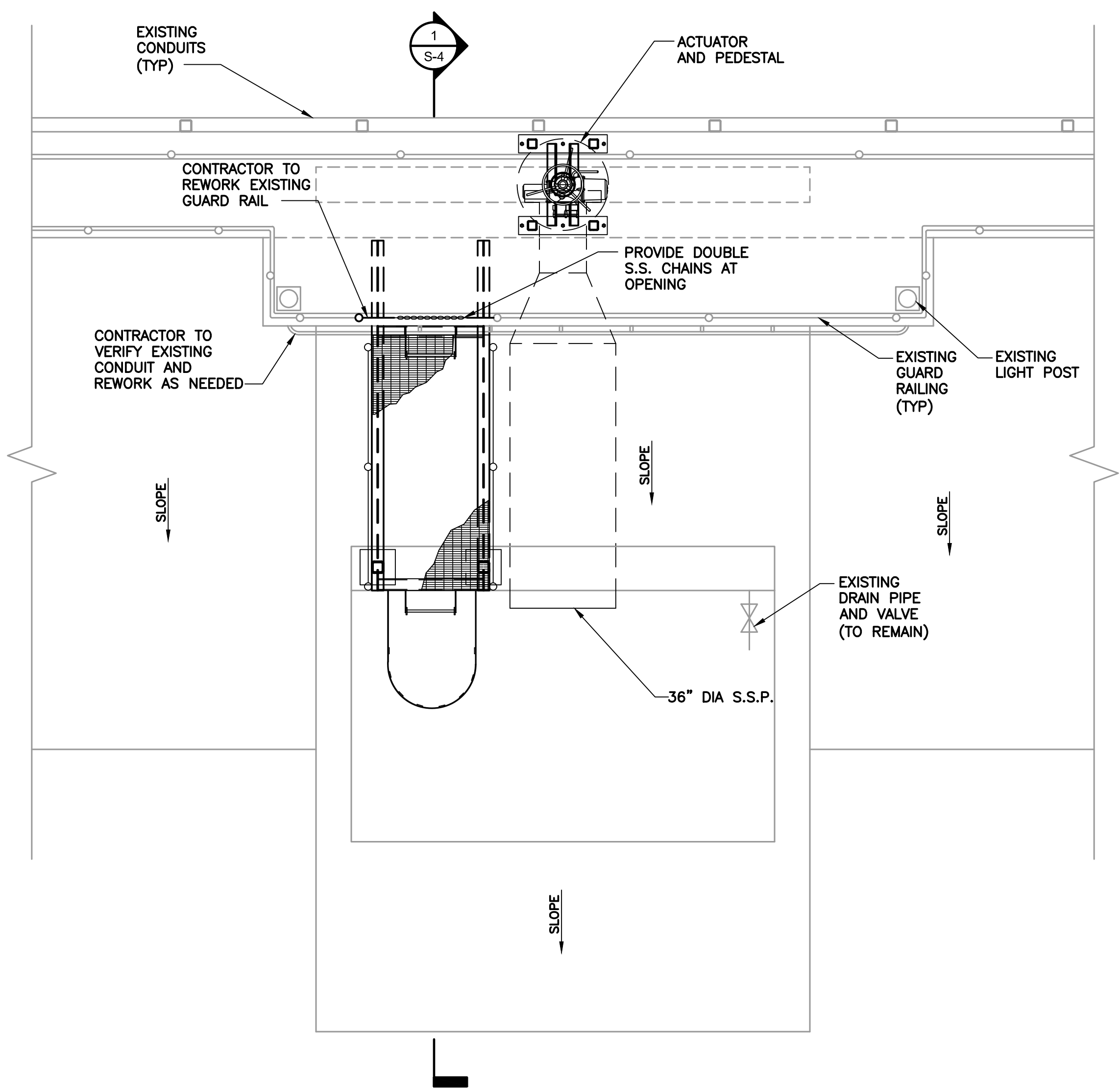
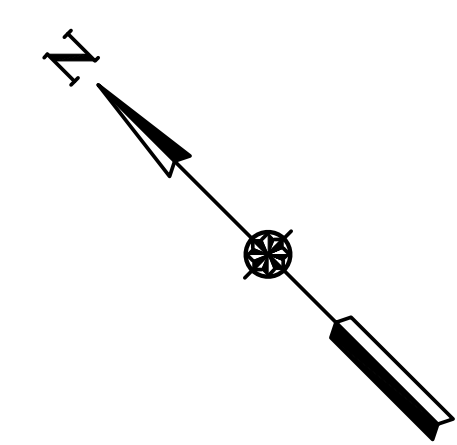
FINAL SUBMITTAL

S-3

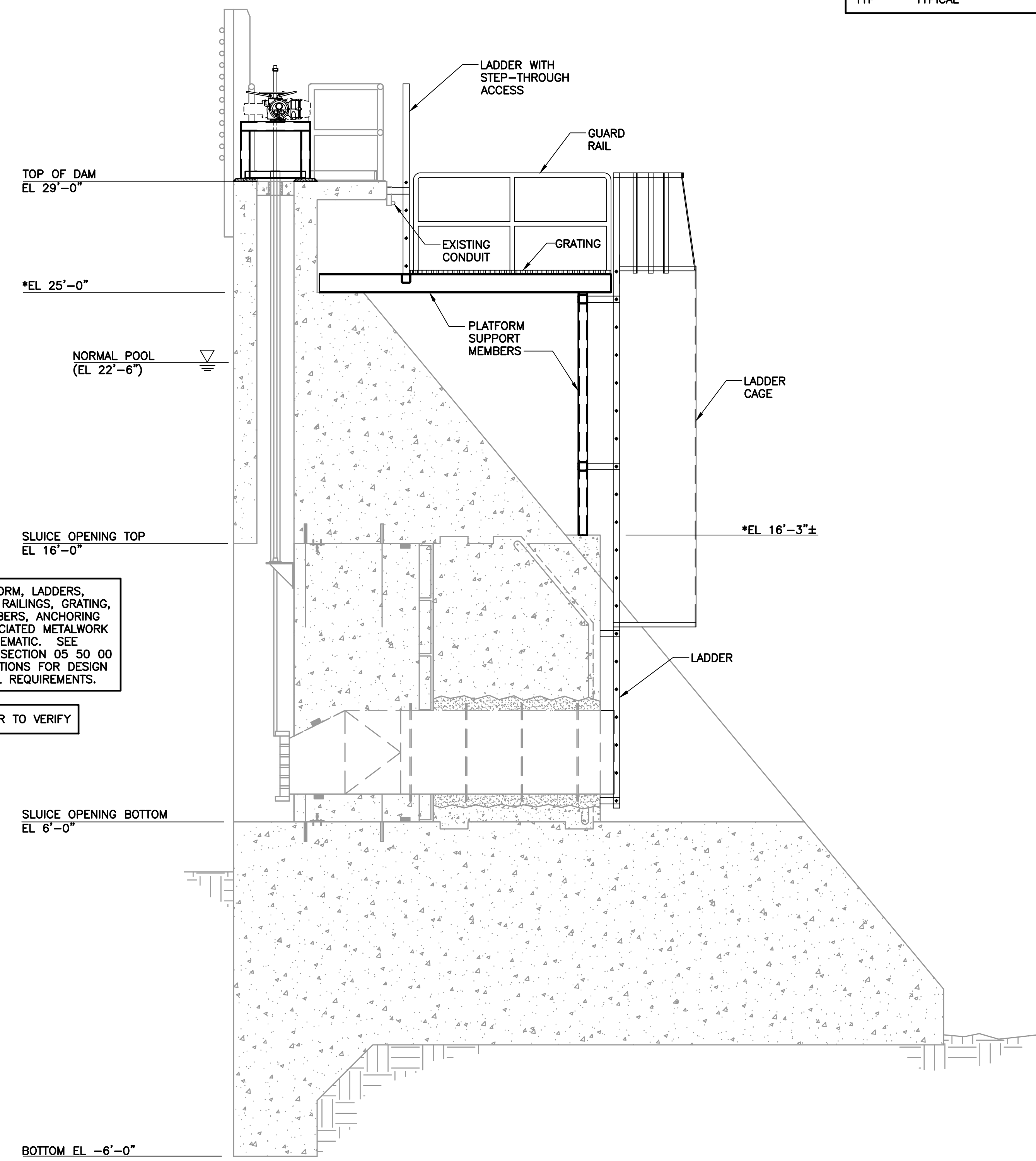
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Note: The digital signature associated with this sheet may have been lost to accommodate combining of sheets. See the unaltered version for the digital signature.

ABBREVIATIONS	
DIA	DIAMETER
EL	ELEVATION
S.S.	STAINLESS STEEL
S.S.P.	STAINLESS STEEL PIPE
TYP	TYPICAL



PLAN VIEW AT SLIDE GATE  
SCALE: 3/8" = 1'-0"



ACCESS PLATFORM, LADDERS, LADDER CAGE, RAILINGS, GRATING, SUPPORT MEMBERS, ANCHORING AND ALL ASSOCIATED METALWORK IS SHOWN SCHEMATIC. SEE SPECIFICATION SECTION 05 50 00 METAL FABRICATIONS FOR DESIGN AND SUBMITTAL REQUIREMENTS.

(\* ) CONTRACTOR TO VERIFY

SECTION  
S-1  
SCALE: 3/8" = 1'-0"

SHEET NOTES:  
1. ELEVATIONS ARE APPROXIMATE BASED ON RECORD DRAWINGS.

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**CITY OF TAMPA  
HILLSBOROUGH RIVER DAM  
MINIMUM FLOW CONTROL GATE**

**LADDER  
PLAN AND SECTION**

Vladim r Cecka VLADIMIR CECKA Registered Professional 4/17/17 Date 72544 FL Reg. No.	DESIGNED	AJL	JOB NO.	62070
	DRAWN	HGH	PROJECT NAME	-
	CHECKED	SSV	OPEN DATE	04/14/2017
	SHEET NO.		OF	

FINAL SUBMITTAL

S-4  
9 OF 15

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NO.	DATE	REVISIONS	APP'D

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**PRIMARY ELEMENT:**

- FLOW**
- MAGNETIC
  - CORIOLIS
  - THERMAL DISPERSION
  - ULTRASONIC TRANSIT-TIME OR DOPPLER
  - VENTURI
  - ORIFICE PLATE
  - PITOT TUBE OR ANNUBAR
  - PROPELLER OR TURBINE
  - VORTEX
  - ROTAMETER
  - FLUME
  - FLOW SWITCH
  - WEIR

- LEVEL**
- BUBBLER TUBE
  - ULTRASONIC
  - CAPACITANCE
  - ELECTRODES (W/HOLDER)
  - FLOAT
  - OPTICAL

**TRANSIENT VOLTAGE SURGE SUPPRESSOR:**

- TVSS-XX
- XX DENOTES SPECIFIC TYPE IDENTIFIER

**INPUT/OUTPUT DESIGNATION:**

- ALPHANUMERIC CHARACTERS TO IDENTIFY CONTROL PANEL
- XX DENOTES ONE OF THE FOLLOWING:
  - AO=ANALOG OUTPUT
  - AI=ANALOG INPUT
  - DI=DISCRETE INPUT
  - DO=DISCRETE OUTPUT
  - SC=SERIAL COMMUNICATIONS
  - Y DENOTES QUANTITY OF THE I/O TYPE
  - ALPHABET CHARACTER TO IDENTIFY MULTIPLE I/O SIGNAL DESCRIPTIONS

**EQUIPMENT POWER:**

- AC POWERED INSTRUMENTS
- DC POWERED INSTRUMENTS
- XXX DENOTES POWER VOLTAGE, 120V UNLESS OTHERWISE NOTED
- YYY ALPHANUMERIC CHARACTERS TO IDENTIFY THE SOURCE OF POWER, PP (POWER PANEL) UNLESS OTHERWISE NOTED

**ACTUATORS:**

- ACTUATOR WITH POSITIONER
- CYLINDER
- MOTOR
- ELECTROPNEUMATIC
- ELECTROHYDRAULIC
- MANUAL (SHOWN ONLY FOR CERTAIN HAND OPERATED VALVES)
- SOLENOID
- DIAPHRAM (SPRING OPPOSED)
- DIAPHRAM (PRESSURE BALANCED)
- PRESSURE OR VACUUM RELIEF SPRING OR WEIGHT LOADED

NOTE: ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL)

XX DENOTES ONE OF THE FOLLOWING:  
 FO = FAIL OPEN  
 FC = FAIL CLOSED  
 FI = FAIL TO INTERMEDIATE POSITION  
 BLANK = FAIL TO LAST POSITION

**HAND SWITCHES**

- SELECTOR SWITCH (MAINTAINED CONTACTS)
- XX DENOTES ONE OF THE FOLLOWING:
  - AM=AUTO/MANUAL
  - CAM=COMPUTER/AUTO/MANUAL
  - CL=COMPUTER/LOCAL
  - CM=COMPUTER/MANUAL
  - DOB=DRIVE/OFF/BYPASS
  - FOS=FAST/OFF/SLOW
  - FOR=FORWARD/OFF/REVERSE
  - FR=FORWARD/REVERSE
  - FS=FAST/SLOW
  - HOA=HAND/OFF/AUTO
  - KEY=KEYPAD
  - LOR=LOCAL/OFF/REMOTE
  - LOS=LOCKOUT/STOP
  - MFS=MODULATE FASTER/SLOWER
  - MOC=MODULATE OPEN/CLOSE
  - OC=OPEN/CLOSE
  - OO=ON/OFF
  - OSC=OPEN/STOP/CLOSE
  - SS=START/STOP
  - PB=PUSH BUTTON

**ANALYSIS INSTRUMENTS:**

- EXPOSED PROBE OR GAS DETECTION
- TAPPED OR SAMPLED
- IN-LINE
- XX DENOTES ONE OF THE FOLLOWING:
  - CLG=CHLORINE GAS
  - CLR=CHLORINE RESIDUAL
  - PH=PH
  - T=TURBIDITY
  - FLR=FLUORIDE
  - SCD=STREAMING CURRENT
  - PM=PARTICLE MONITOR
  - PC=PARTICLE COUNTER
  - TOC=TOTAL ORGANIC CARBON
  - CON=CONDUCTIVITY
  - AM=AMMONIA

**EQUIPMENT:**

- CENTRIFUGAL PUMP (DRY PIT)
- CENTRIFUGAL PUMP (WET PIT)
- EJECTOR, EDUCTOR
- METERING PUMP-CHEMICAL
- CENTRIFUGAL COMPRESSOR OR BLOWER
- RECIPROCATING COMPRESSOR (PD)
- ROTARY COMPRESSOR (PD) OR BLOWER
- MOTOR
- MIXER
- VERTICAL TURBINE PUMP
- VERTICAL CENTRIFUGAL PUMP
- POSITIVE DISPLACEMENT PUMP
- XX DENOTES ONE OF THE FOLLOWING:
  - CS = CONSTANT SPEED
  - 2S = TWO SPEED
  - VS = VARIABLE SPEED
  - NO MARKS DENOTES UNDEFINED
- GRINDER

**INSTRUMENT TAGGING:**

- XXX=FUNCTIONAL INSTRUMENT IDENTIFICATION LETTERS FROM INSTRUMENT IDENTIFICATION TABLE.
- X=LETTER SUFFIX TO DISTINGUISH BETWEEN INSTRUMENTS IN LOOP WITH SAME FUNCTIONAL IDENTIFICATION. (USED AS REQ'D)
- NNN=LOOP NUMBER

**LINE WEIGHTS**

- LIGHT LINES INDICATE EXISTING OR BY OTHERS
- NEW WORK LINES INDICATE ITEMS PROVIDED BY THE PMCS PROVIDER

**MISCELLANEOUS:**

- DIAPHRAGM SEAL
- ANNULAR DIAPHRAGM
- RUPTURE DISK (PRESSURE RELIEF)
- RUPTURE DISK (VACUUM RELIEF)
- PRESSURE REGULATOR (REGULATED SIDE)
- VENT TO ATMOSPHERE
- AIR GAP
- PURGE SET X DENOTES: W=WATER A=AIR
- FLOW STRAIGHTENER
- EQUIPMENT CONNECTION WITH ELECTRICAL INTERLOCK
- SIGHT GLASS X DENOTES: F=FLOW L=LEVEL
- PRESSURE GAUGE
- MOTOR CONTROL CENTER
- TWO-WAY VALVE, NORMALLY OPEN
- TWO-WAY VALVE, NORMALLY CLOSED
- THREE-WAY VALVE, TOTALLY-FILLED PORT BLOCKED AND PARTIALLY-FILLED PORT OPENED WHEN DEACTIVATED. PORT STATES REVERSE WHEN ACTIVATED.

**FLOW STREAM CONTINUANCE:**

- FLOW STREAM No NN TO SHEET No XX
- FLOW STREAM TO OR FROM EQUIPMENT NOT SHOWN ON OTHER P&ID DRAWINGS

**INSTRUMENT LINE SYMBOLS:**

- CONNECTION TO PROCESS
- PNEUMATIC SIGNAL
- ELECTRICAL CONNECTION
- CAPILLARY TUBING
- HYDRAULIC SIGNAL
- ELECTROMAGNETIC, SONIC SIGNAL, OR RADIATION
- SOFTWARE LINK OR MANUFACTURER'S SYSTEM SUPPLIED CONNECTIONS BETWEEN FUNCTIONS
- FIBER OPTIC CABLE

**VALVES & GATES:**

- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GLOBE VALVE
- DIAPHRAM VALVE
- PINCH VALVE
- PLUG VALVE
- MUD VALVE
- THREE WAY VALVE (ARROW IF SHOWN INDICATES FAIL OPEN PATH)
- TELESCOPING VALVE
- SLUICE GATE
- PREFABRICATED SLIDE GATE
- UNCLASSIFIED GATE
- KNIFE GATE VALVE
- GATE VALVE

**NOTES:**

1. ONLY EXTERNAL INTERFACE SIGNALS ARE SHOWN FOR MOTOR CONTROLLERS/STARTERS (MCC) AND VARIABLE SPEED DRIVES (VFD).
2. PROVIDE DEVICES SHOWN ON THE DRAWING AND AS SPECIFIED.
3. ALL INTERCONNECTING WIRING AND TERMINATORS BETWEEN EQUIPMENT, BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
4. PROCESS MONITORING AND CONTROL SYSTEM CONTRACTOR SHALL PROVIDE THE ELECTRICAL CONTRACTOR WITH A FULL SIZE SET OF THEIR WIRING DIAGRAMS WITH TERMINAL BLOCK NUMBERS FILLED IN.
5. UPON COMPLETION OF THE JOB, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH A FULL SIZE SET OF AS BUILT DRAWINGS. THE DRAWINGS SHALL CONTAIN ALL TERMINAL BLOCK NUMBERS AND WIRE NUMBERS.
6. REFER TO WIRE SEPARATION NOTES ON THE ELECTRICAL DRAWING GENERAL NOTES SHEET FOR COMBINING WIRING.
7. UNLESS OTHERWISE NOTED, ALL DIGITAL INPUT/OUTPUT WIRING SHALL BE #14 AWG, AND ANALOG INPUT/OUTPUT WIRING SHALL BE #16 AWG TWISTED, SHIELDED CABLE.

**EQUIPMENT TAGGING:**

- X DENOTES ONE OF THE FOLLOWING:
  - M=MIXER, B=BLOWER, G=GRINDER,
  - P=PUMP, D=DRIVE UNIT, T=TANK,
  - V=VALVE, C=CONVEYOR,
  - CS=COMPOSITE SAMPLER
- NNN IS EQUAL TO LOOP NUMBER

	FIELD (LOCAL) MOUNTED	PANEL MOUNTED		MOTOR CONTROL CENTER MOUNTED	
		ACCESSIBLE OR EXTERIOR	INACCESSIBLE OR INTERIOR	ACCESSIBLE OR EXTERIOR	INACCESSIBLE OR INTERIOR
DISCRETE INSTRUMENT					
SHARED DISPLAY/CONTROL					
COMPUTER FUNCTION					
PROGRAMMABLE LOGIC CONTROL					
PILOT LIGHT					
COMPOUND INSTRUMENTS (SHARE COMMON HOUSING)					

**INSTRUMENT IDENTIFICATION TABLE** ISA-S5.1-1984

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING (DIMENSIONAL)		GLASS, VIEWING DEVICE		
H	HAND (MANUALLY INITIATED)				HIGH (OPENED)
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW (CLOSED)
M	MOISTURE OR HUMIDITY				MIDDLE OR INTERMEDIATE
N	ON/OFF		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY OR EVENT	INTEGRATE, TOTALIZE			
R	RADIOACTIVITY		RECORD		
S	SPEED, FREQUENCY	SAFETY			SWITCH
T	TEMPERATURE				TRANSMIT
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	OR RADIATION		UNCLASSIFIED		UNCLASSIFIED
Y	USER'S CHOICE			RELAY, COMPUTE, CONVERT	
Z	POSITION			DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

THIS DRAWING IS A GANNETT FLEMING STANDARD DRAWING. SYMBOLS, LEGENDS, AND ABBREVIATIONS ON THIS DRAWING MAY OR MAY NOT REFLECT EVERY CONDITION OF THIS PROJECT.

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**CITY OF TAMPA**  
**HILLSBOROUGH RIVER DAM**  
**MINIMUM FLOW CONTROL GATE**

**INSTRUMENTATION**  
**SYMBOLS, LEGENDS AND**  
**ABBREVIATIONS**

BRAND ALEXANDER SEPT LICENSE  
 64916  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 4-11-2011  
 Date

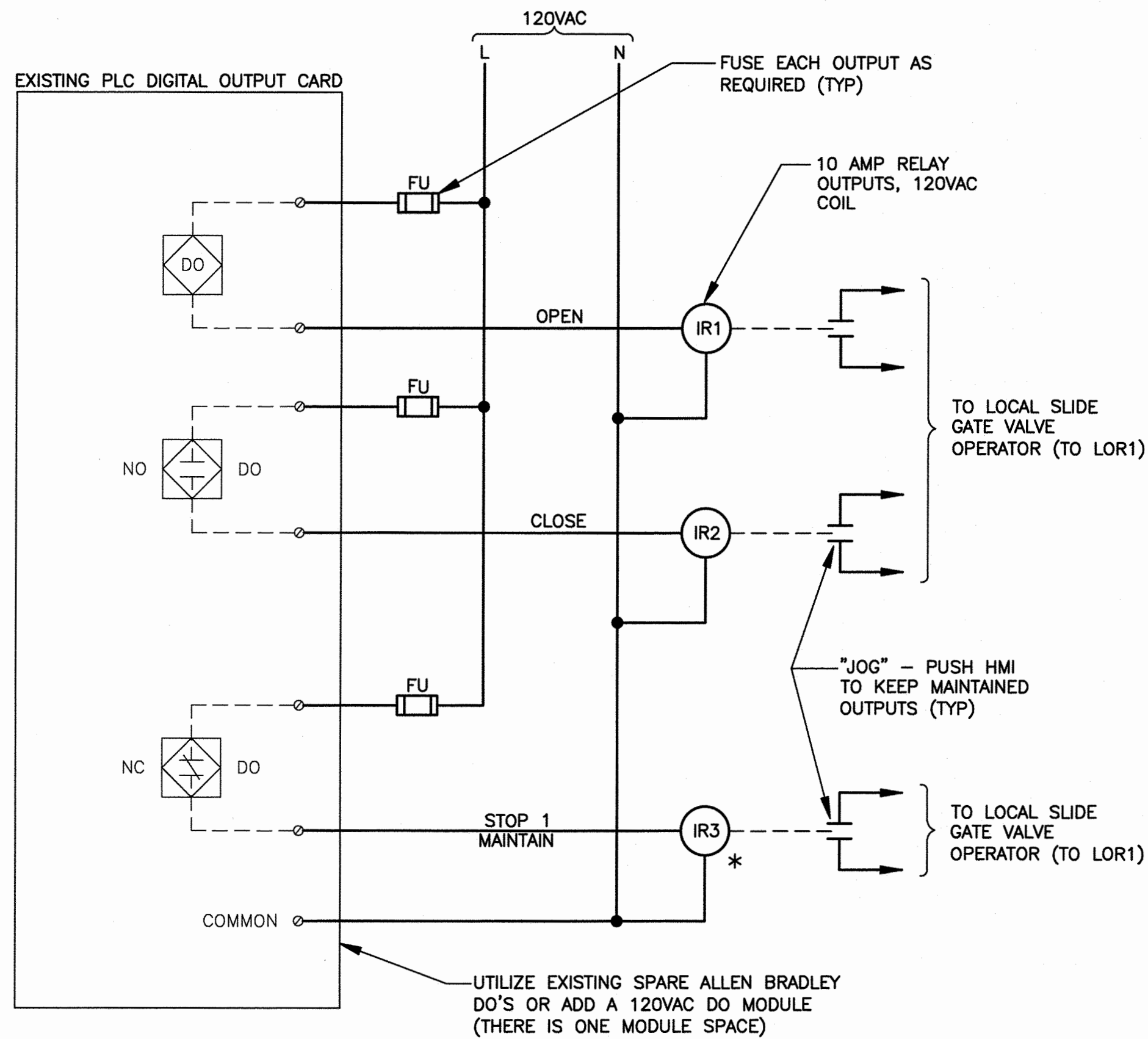
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 DRAWN: MLD  
 CHECKED: JRB

JOB NO. 62070  
 PROJECT NAME: -  
 OPEN DATE: 4/14/2017

FINAL SUBMITTAL  
 1-1  
 10 OF 15

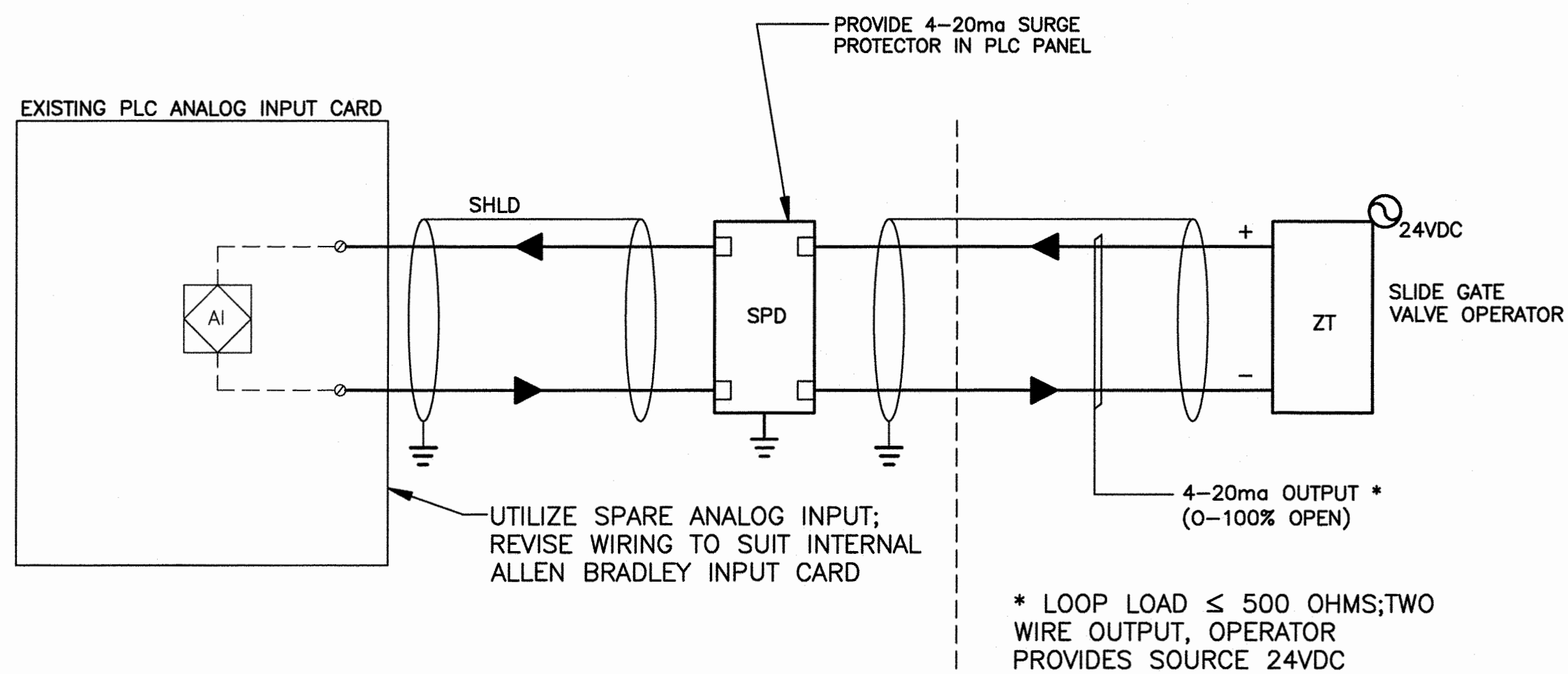
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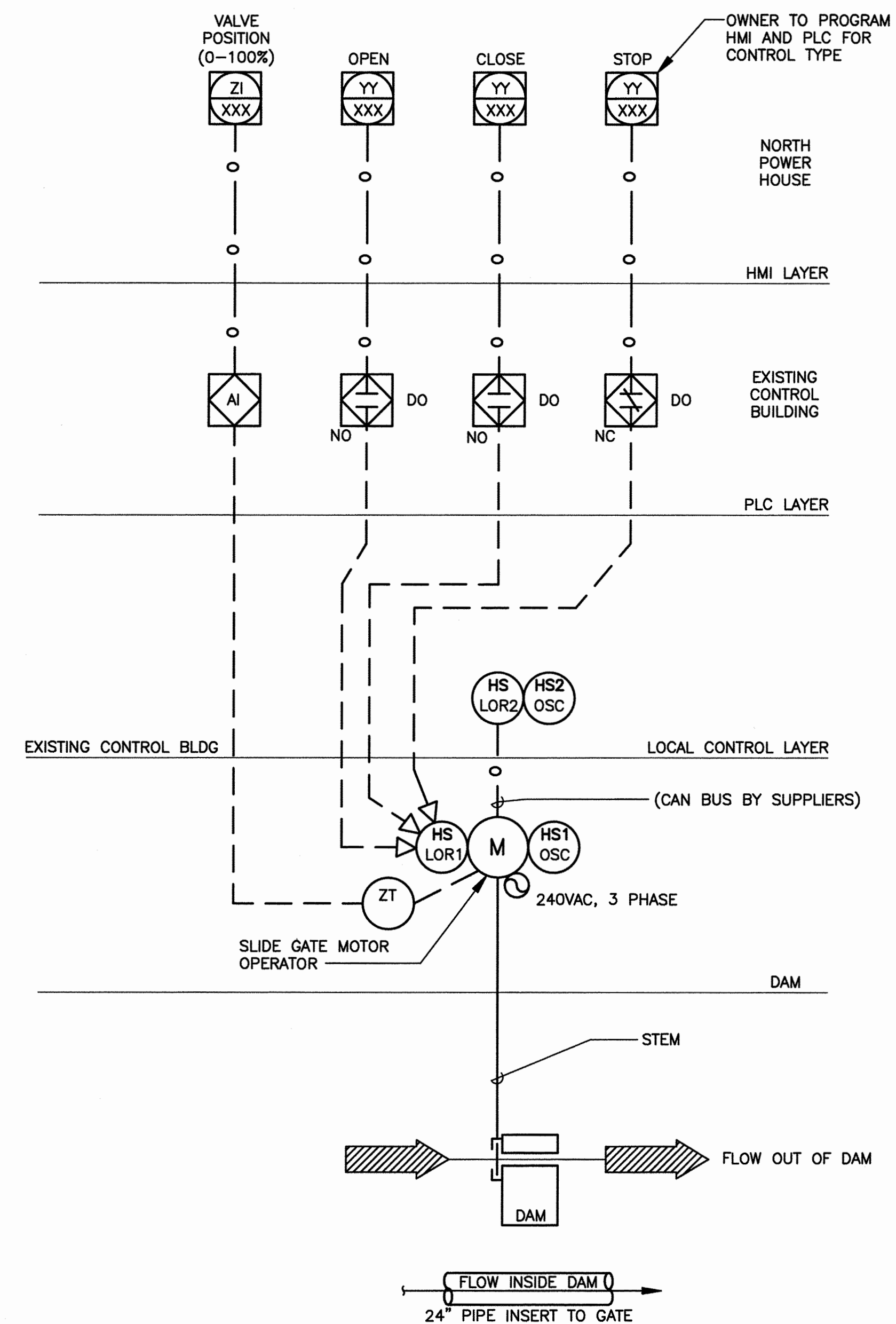
### PLC I/O DIAGRAM - DIGITAL

1. CONTRACTOR TO SET UP CONTROLS PER OWNER; EITHER PROVIDE "JOG" CONTROL OR MAINTAINED/MOMENTARY STOP CONTROL.
2. \* PROVIDE AS REQUIRED BY OWNER PER CONTROL TYPE.
3. MODIFY EXISTING PLC PANEL AS REQUIRED.



### PLC I/O DIAGRAM - ANALOG

1. MODIFY EXISTING PLC PANEL AS REQUIRED
2. SCALE ANALOG INPUT/HMI TO 0-100% VALVE OPEN POSITION; OR AS DIRECTED BY OWNER.



### P&ID DIAGRAM

1. ADD ANALOG INPUT (ISOLATED) AS REQUIRED TO EXISTING ALLEN BRADLEY PLC

K:\365 MAC PROJECTS\62070 HILLSBOROUGH RIVER DAM\LD WORKING FILES\01 SHEET FILES\62070 INSTR\_002.DWG  
Last edited on 4/11/2017 12:12:29 PM by DFENDERFER, MICHAEL L



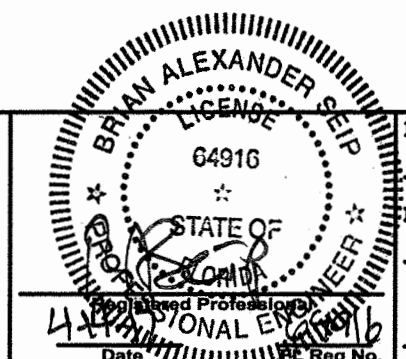
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CITY OF TAMPA  
HILLSBOROUGH RIVER DAM  
MINIMUM FLOW CONTROL GATE

INSTRUMENTATION  
PARTIAL P&ID DIAGRAMS



DESIGNED JLS	JOB NO. 62070	1-2
DRAWN DMQ	PROJECT NAME	
CHECKED JRB	OPEN DATE 4/14/2017	11 OF 15

FINAL SUBMITTAL

**LIGHTING:** (NOTE: LETTER Ⓞ SYMBOL DENOTES FIXTURE TYPE, TYPICAL)

- TYPE SWITCH
- A, E, LP-1 → CIRCUIT # (NOTE: TYPICAL TYPE, SWITCH AND CIRCUIT DESIGNATION)
- CEILING MOUNT 2x2 FLUORESCENT FIXTURE
- CEILING MOUNT 2x4 FLUORESCENT FIXTURE
- 4' CEILING MOUNT FLUORESCENT FIXTURE
- 8' CEILING MOUNT FLUORESCENT FIXTURE
- WALL MOUNT FLUORESCENT FIXTURE
- FLUORESCENT LIGHT FIXTURE DEDICATED FOR EMERGENCY/STANDBY ILLUMINATION
- CEILING MOUNT INCANDESCENT OR HID FIXTURE
- WALL MOUNT INCANDESCENT OR HID FIXTURE
- INCANDESCENT OR HID SPOT/FLOOD LIGHT FIXTURE
- WALL MOUNT INCANDESCENT OR HID SPOT/FLOOD LIGHT FIXTURE
- HID OR INCANDESCENT LIGHT FIXTURE DEDICATED FOR EMERGENCY/STANDBY ILLUMINATION
- POLE STANDARD LIGHT FIXTURE (ONE LUMINAIRE INDICATED)
- EXIT SIGN FIXTURE (SINGLE FACE UNIVERSAL MOUNT INDICATED)
- EXIT SIGN FIXTURE W/DIRECTIONAL ARROWS (DOUBLE FACE UNIVERSAL MOUNT INDICATED)
- S SWITCH, SINGLE POLE
- S<sub>3</sub> SWITCH, 3-WAY
- S<sub>4</sub> SWITCH, 4-WAY
- S<sub>D</sub> SWITCH, DIMMER
- ▲ DIRECTIONAL MOTION DETECTOR LIGHT CONTROL
- ▲ MULTI-DIRECTIONAL MOTION DETECTOR LIGHT CONTROL
- SPECIAL PURPOSE LIGHT SWITCH; DESCRIPTION OF SWITCH WILL BE AS NOTED ON DRAWINGS
- ☉ PHOTOELECTRIC CONTROL
- LIGHTING CONTACTOR:  
LC1 → REPRESENTS LIGHTING CONTACTOR IDENTIFICATION
- LIGHTING CONTACTOR REMOTE CONTROL:  
LC1 → REPRESENTS LIGHTING CONTACTOR TO BE CONTROLLED

**EMERGENCY LIGHTING:**

- EMERGENCY BATTERY PACK FIXTURE WITH TWO HEADS
- REMOTE HEAD FOR EMERGENCY BATTERY PACK UNIT

**FIRE ALARM SYSTEM:**

- FAACP FIRE ALARM CONTROL PANEL
- FAAP FIRE ALARM ANNUNCIATOR PANEL
- BREAK-GLASS PULL STATION
- MANUAL PULL STATION
- SMOKE DETECTOR
- HEAT DETECTOR
- DUCT DETECTOR
- FL WATER FLOW SWITCH FOR SPRINKLER SYSTEM
- TS TAMPER SWITCH
- F FIRE ALARM STROBE
- F FIRE ALARM BEACON
- FO AUDIBLE/VISUAL ALARM (BELL)
- FO AUDIBLE/VISUAL ALARM (HORN)
- FI AUDIBLE/VISUAL ALARM (BUZZER)

(SEE RISER DIAGRAM OR SPECIFICATIONS TO SPECIFY FLUSH OR SURFACE MOUNTED EQUIPMENT)

**RESCUE ASSISTANCE SYSTEM:**

- RACP RESCUE ASSISTANCE CONTROL PANEL
- RA RESCUE ASSISTANCE PUSH-BUTTON STATION WITH AUDIBLE COMMUNICATION

THIS DRAWING IS A GANNETT FLEMING STANDARD DRAWING. SYMBOLS, LEGENDS, AND ABBREVIATIONS ON THIS DRAWING MAY OR MAY NOT REFLECT EVERY CONDITION OF THIS PROJECT.

**GENERAL POWER:**

- DENOTES MOUNTED 6" ABOVE COUNTER TOP
- SINGLE RECEPTACLE
- DENOTES SPECIFIC DEVICE REQUIREMENTS-SEE ABBREVIATIONS
- ⊕ DUPLEX RECEPTACLE, 20 AMP RATED
- ⊕ QUADRUPLEX RECEPTACLE
- ⊕ DUPLEX RECEPTACLE DEDICATED FOR EMERGENCY/STANDBY POWER
- ⊕ SPECIAL PURPOSE RECEPTACLE (AMPACITY AS NOTED)
- ⊕ DUPLEX RECEPTACLE FLOOR MOUNTED
- ⊕ SPECIAL PURPOSE RECEPTACLE FLOOR MOUNTED (AMPACITY AS NOTED)
- ⊕ PLUGMOLD DEVICE; LENGTH AND QUANTITY OF RECEPTACLES AS NOTED
- ⊕ JUNCTION BOX
- NON FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- ⊗ MOTOR STARTER
- ⊗ COMBINATION MOTOR STARTER
- CONTACTOR
- ⊕ TIME CLOCK SWITCH CONTROL
- ST TIME SWITCH
- SM MANUAL MOTOR STARTER SWITCH WITHOUT OVERLOADS
- SMT MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOADS
- SMP MANUAL MOTOR STARTER SWITCH WITHOUT OVERLOADS WITH PILOT LIGHT
- PUSHBUTTON STATION TYPE AS NOTED
- MUSHROOM SWITCH
- MOTOR (HORSEPOWER INDICATED ON PLANS)
- TRANSFORMER
- ⊕ GENERATOR
- MOD MOTOR OPERATED DAMPER
- ⊕ THERMOSTAT
- UPS UNINTERRUPTIBLE POWER SUPPLY
- TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
- UNIT HEATER

**PANELBOARDS:**

- PANELBOARD-208/120V, 3-PHASE
- ▨ PANELBOARD-480/277V, 3-PHASE
- ▩ PANELBOARD-120/240V

**COMMUNICATIONS:**

- ⊕ CEILING SPEAKER
- ⊕ WALL MOUNTED SPEAKER
- ⊕ WALL MOUNTED DOUBLE SPEAKER
- ⊕ POLE MOUNTED SPEAKER
- ⊕ POLE MOUNTED DOUBLE SPEAKER
- DATA OUTLET
- TELEPHONE OUTLET
- PAY TELEPHONE OUTLET
- TELEPHONE TERMINAL CABINET
- DESKTOP HAND SET
- WALL MOUNTED HAND SET

**MISCELLANEOUS:**

- EQUIPMENT IDENTIFICATION
- SECTION IDENTIFICATION
- SECTION NOMENCLATURE
- SHEET NUMBER ON WHICH SECTION IS SHOWN
- SITE WORK
- BLDG PLANS
- DETAIL IDENTIFICATION
- DETAIL NOMENCLATURE
- SHEET NUMBER ON WHICH DETAIL IS SHOWN
- C — COMMUNICATION
- E — ELECTRIC
- E — ELECTRIC SERVICE/DUCTBANK—UNDERGROUND
- T — TELEPHONE
- OHE — OVERHEAD ELECTRIC
- OHT — OVERHEAD TELEPHONE
- G — GROUNDING
- UTILITY POLE
- HH-x HANDHOLE
- MH-x MANHOLE

**CONDUIT FEEDERS & BRANCH CIRCUITS:**

- CONDUIT FEEDERS (TYP)
- JUNCTION BOX INDICATION; ON POWER AND LIGHTING JUNCTION BOX SIZED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE
- CONDUIT - EXPOSED
- CONDUIT - CONCEALED IN WALL OR CEILING
- CONDUIT - EMBEDDED IN FLOOR OR EARTH
- CONDUIT TURNED
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- CONDUIT CAPPED
- IN-LINE HOME RUN
- CIRCUIT NUMBER
- EQUIP LABEL
- LP-# CIRCUIT HOME RUN IDENTIFICATION
- CIRCUIT NUMBER
- CIRCUIT HOME RUN IDENTIFICATION (SEE FEEDER LEGEND ON DRAWING)
- (3)#8, (1)#10 GRD-1" C.
- CIRCUIT HOME RUN IDENTIFICATION
- TYPICAL CIRCUIT HOME RUN W/NO SIZE IDENTIFICATION... BY DEFAULT; (2)#12, (1)#12 GRD-3/4" CONDUIT FOR SINGLE PHASE CIRCUITS.
- OR—
- BY DEFAULT; (3)#12, (1)#12 GRD-3/4" CONDUIT FOR THREE PHASE CIRCUITS AND FOR EMERGENCY LIGHTING CIRCUITS. ALSO REFER TO ONE-LINE DIAGRAM AND SCHEDULES.

**ACCESS CONTROL/INTRUSION ALARM:**

- ACAP ACCESS/INTRUSION ALARM CONTROL PANEL
- DOOR CONTACTOR
- ACCESS KEYPAD
- ACR ACCESS CARD READER
- MD MOTION DETECTOR
- CLOSED CIRCUIT TELEVISION CAMERA

**EMERGENCY SYSTEM:**

- EA AUDIBLE/VISUAL ALARM (HORN)
- TE TAMPER PROOF RED MUSHROOM SWITCH

**GENERAL NOTES:**

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE, CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO INSTALLATION. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER DIVISION TRADES TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. CONTRACTOR SHALL COORDINATE LOCATION OF FIXTURES, DEVICES, ETC. WITH OTHER TRADES IN ORDER TO AVOID INTERFERENCES.
2. ALL WORK SHALL BE PERFORMED AS REQUIRED BY APPLICABLE SECTION OF THE NATIONAL ELECTRICAL CODE, LATEST EDITION, AND ALL GOVERNING LOCAL CODES, LAWS, AND/OR REGULATIONS.
3. SYSTEM AND EQUIPMENT GROUNDING CONTINUITY SHALL BE ASSURED AS REQUIRED BY APPLICABLE SECTIONS OF THE NATIONAL ELECTRICAL CODE.
4. UNLESS OTHERWISE NOTED; MINIMUM POWER WIRING SHALL BE #12, MINIMUM CONTROL WIRING SHALL BE #14, MINIMUM SIGNAL WIRING SHALL BE #16.

**ABBREVIATIONS:**

- |  |  |
|--|--|
| A or AMP AMPERE                          | LC LIGHTING CONTACTOR                    |
| AC ALTERNATING CURRENT                   | LFMC LIQUIDTIGHT FLEXIBLE METAL CONDUIT  |
| AFF ABOVE FINISHED FLOOR                 | LTG LIGHTING                             |
| AFG ABOVE FINISHED GRADE                 | MCC MOTOR CONTROL CENTER                 |
| AIC AMPERE INTERRUPTING CAPACITY         | MCP MAIN CIRCULATION PUMP                |
| AS AMMETER SELECTOR SWITCH               | MH METAL HALIDE                          |
| ATS AUTO TRANSFER SWITCH                 | MLO MAIN LUG ONLY                        |
| AUTO AUTOMATIC                           | MM MILIMETER                             |
| AWG AMERICAN WIRE GAUGE                  | MOA MULTI-OUTLET ASSEMBLY                |
| BCE BASE CIVIL ENGINEER                  | MOD MOTOR OPERATED DAMPER                |
| BLDG BUILDING                            | MS MOTOR STARTER                         |
| C CONDUIT                                | MTD MOUNTED                              |
| CP CONTROL PANEL                         | MTS MANUAL TRANSFER SWITCH               |
| CPT CONTROL POWER TRANSFORMER            | MV MEDIUM VOLTAGE                        |
| DB DEVICE BOX, SINGLE GANG, UON          | N/A NOT APPLICABLE                       |
| DCW DOMESTIC COLD WATER                  | NC NORMALLY CLOSED                       |
| DISC DISCONNECT                          | NO NORMALLY OPEN                         |
| DIV DIVISION                             | No NUMBER                                |
| DS DISCONNECT SWITCH                     | PMT PAD MOUNTED TRANSFORMER              |
| DVC DIGITAL VIDEO CONTROLLER             | PNL PANEL                                |
| EA EACH                                  | PS POWER SUPPLY OR PULSE START           |
| EC ELECTRICAL CONTRACTOR                 | PS MH PULSE START METAL HALIDE           |
| EF EXHAUST FAN                           | PT POTENTIAL TRANSFORMER                 |
| EMT ELECTRICAL METALLIC TUBING (CONDUIT) | PVC POLYVINYL CHLORIDE (CONDUIT)         |
| EMER EMERGENCY                           | RECP RECEPTACLES                         |
| EP EXPLOSION PROOF                       | RGS RIGID GALVANIZED STEEL (CONDUIT)     |
| EQUIP EQUIPMENT                          | RVAT REDUCED VOLTAGE AUTOTRANSFORMER     |
| ETBR EXISTING TO BE REMOVED              | RVSS REDUCED VOLTAGE SOLID STATE         |
| ETR EXISTING TO REMAIN                   | SA SURGE ARRESTOR                        |
| EUH ELECTRIC UNIT HEATER                 | SC SURGE CAPACITOR                       |
| FAAP FIRE ALARM ANNUNCIATOR PANEL        | SW SWITCH                                |
| FACP FIRE ALARM CONTROL PANEL            | SWBD SWITCHBOARD                         |
| F/T FEED THROUGH                         | TB TERMINAL BLOCKS                       |
| FU FUSE                                  | TC CABLE TRAY-CABLE                      |
| FRE FIBERGLASS REINFORCED EPOXY          | TTB TELEPHONE TERMINAL BOARD             |
| GFI GROUND FAULT INTERRUPTER             | TTC TELEPHONE TERMINAL CABINET           |
| HID HIGH INTENSITY DISCHARGE             | TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION |
| HP HORSEPOWER                            | TYP TYPICAL                              |
| HPS HIGH PRESSURE SODIUM                 | UL UNDERWRITER LABORATORIES              |
| HVAC HEAT-VENT-AIR CONDITIONING          | UH UNIT HEATER                           |
| IG ISOLATED GROUND                       | UON UNLESS OTHERWISE NOTED               |
| IFS INTEGRATED FACILITY SYSTEM           | UPS UNINTERRUPTIBLE POWER SUPPLY         |
| IND INDUSTRIAL                           | V VOLT                                   |
| JB JUNCTION BOX                          | VS VOLTMETER SELECTOR SWITCH             |
| JIC JOINT INDUSTRIAL COUNCIL             | W WATT OR WIRE OR WITH                   |
| KV KILOVOLT                              | WP WEATHERPROOF                          |
| KVA KILOVOLT AMPERE                      | XFMR TRANSFORMER                         |
| KW KILOWATT                              | 1-PH SINGLE PHASE                        |
| LA LIGHTNING ARRESTOR                    | 3-PH THREE PHASE                         |

**WIRE SEPARATION NOTES:**

1. SIGNAL CIRCUITS AND ALARM CIRCUITS SHALL BE RUN IN CONDUITS SEPARATE FROM ALL OTHER WIRING.
2. SERVICE ENTRANCE, GENERATOR AND ALL LARGE FEEDERS SHALL BE IN SEPARATE CONDUITS.
3. SEPARATE WIRING INTO RACEWAY BY LEVELS AS FOLLOWS:
  - A. LEVEL 1 1)ANALOG SIGNALS LESS THAN 50 VOLTS AND LESS 50 MILLIAMP.
    1. 4-20ma SHIELDED INSTRUMENTATION.
    2. SHIELDED LOW LEVEL INSTRUMENTATION.
    3. VARIABLE SPEED DRIVE SPEED SIGNALS.
  - 2)DIGITAL SIGNAL AND DATA BUSES
    1. PROGRAMMABLE LOGIC CONTROLLER BUSES.
    2. METERING SYSTEM DATA BUS.
    3. INSTRUMENTATION REMOTE TERMINAL UNIT BUS.
  - B. LEVEL 2 1)ANALOG SIGNAL OVER 50 VOLTS AND LESS THAN 250 VOLTS
    1. TACHOMETER GENERATORS.
    - 2)DIGITAL AND DISCRETE INPUTS TO PROGRAMMABLE LOGIC CONTROLLERS AND REMOTE TERMINAL UNITS ALL OUTPUTS SUPPLYING RELAY COILS SHALL HAVE PROPER SUPPRESSION.
  - C. LEVEL 3 1)POWER CIRCUITS OF 20 AMPERES OR LESS AND 120 VOLTS OR LESS
    1. LIGHTING AND RECEPTACLE CIRCUITS TO BE IN SEPARATE CONDUITS, UNLESS OTHERWISE NOTED.
    2. CLASS 1 CONTROL CIRCUITS ORIGINATING IN A MCC COMPARTMENT OR A MOTOR STARTER CAN BE ROUTED IN THE POWER CONDUIT FROM SAME COMPARTMENT.
  - D. LEVEL 4 1)POWER CIRCUITS OVER 20 AMPERES UP TO 400 AMPERES, 600 VOLTS. EACH CIRCUIT SHALL BE RUN IN SEPARATE CONDUITS.
  - E. LEVEL 5 1)FEEDERS OVER 400 AMPERES.
4. EACH LEVEL MUST BE RUN IN SEPARATE RACEWAYS.
5. UNLESS OTHERWISE NOTED SEPARATE ALL PARALLEL RACEWAY RUN 5'-0" OR LONGER WITH DIFFERENT LEVELS AS FOLLOWS:

LEVEL	1	2	3	4	5
1	0	1"	3"	12"	12"
2	1"	0	3"	9"	12"
3	3"	3"	0	3"	6"
4	12"	9"	6"	0	3"

5. ALL WIRE SHALL BE COPPER. MINIMUM CONDUIT SIZE SHALL BE 3/4".
6. ALL CIRCUIT PROTECTIVE DEVICES SHALL HAVE THE REQUIRED RATING INTERRUPTING CAPACITY EQUAL TO OR GREATER THAN THE AVAILABLE SHORT-CIRCUIT CURRENT AT ITS SUPPLY TERMINAL; MINIMUM INTERRUPTING CAPACITY SHALL BE 10,000 AMPS, SYMMETRICAL A.I.C. FOR 120/240V SYSTEMS AND 14,000 AMPS SYMMETRICAL A.I.C. FOR 277/480V SYSTEMS.
7. UPON COMPLETION OF THE JOB, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH A FULL SIZE SET OF AS BUILT DRAWINGS. THE DRAWINGS SHALL CONTAIN ALL TERMINAL BLOCK NUMBERS AND WIRE NUMBERS.
8. "COT" = CITY OF TAMPA; OWNER IS SYNONYMOUS WITH "COT"

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**CITY OF TAMPA  
 HILLSBOROUGH RIVER DAM  
 MINIMUM FLOW CONTROL GATE**

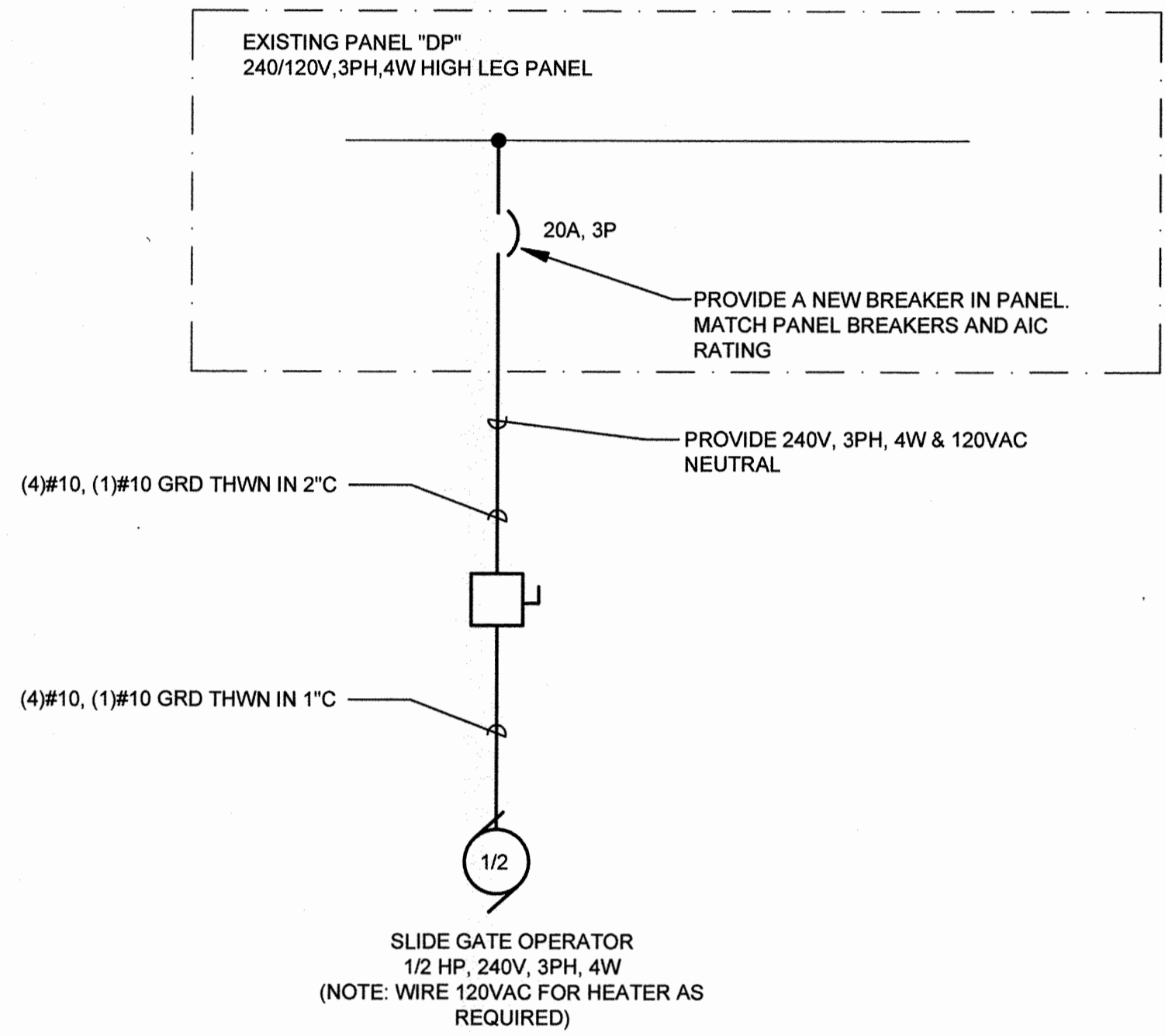
**ELECTRICAL  
 LEGENDS AND ABBREVIATIONS**

FINAL SUBMITTAL

62070  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 MICHAEL L. DIFENDERFER  
 44916  
 Date: 4/11/2017

DESIGNED JLS	JOB NO. 62070	<b>E-1</b>
DRAWN MLD	PROJECT NAME	
CHECKED JRB	DATE 4/14/2017	
12 OF 15		

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**ONE LINE DIAGRAM MODIFICATIONS**

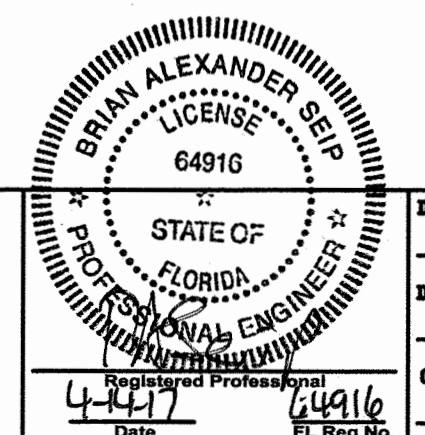
1. REFER TO PLANS FOR CONDUIT TYPE, ROUTING, AND UTILIZATION

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**CITY OF TAMPA  
 HILLSBOROUGH RIVER DAM  
 MINIMUM FLOW CONTROL GATE**

**ELECTRICAL  
 ONE-LINE DIAGRAM MODIFICATIONS**

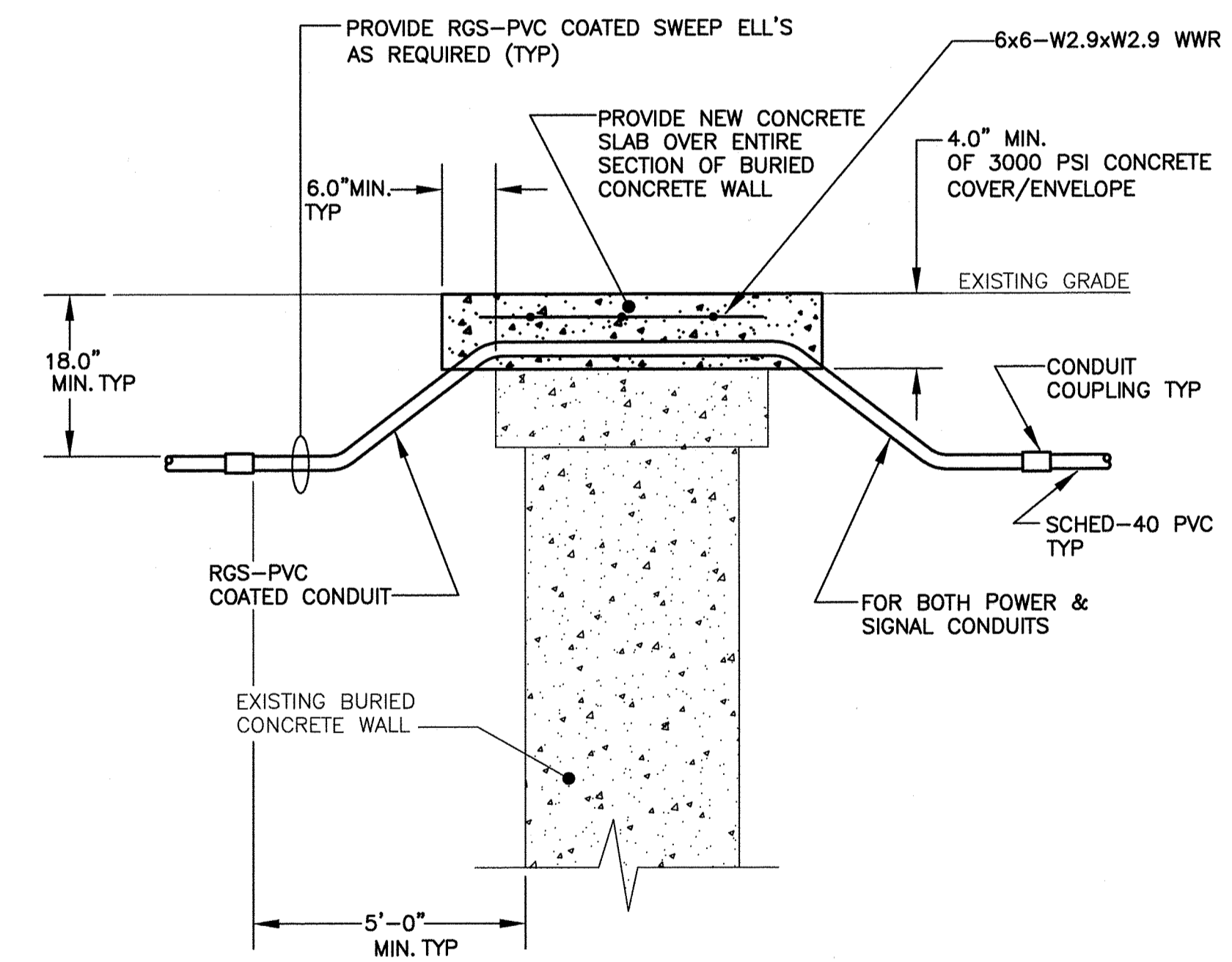
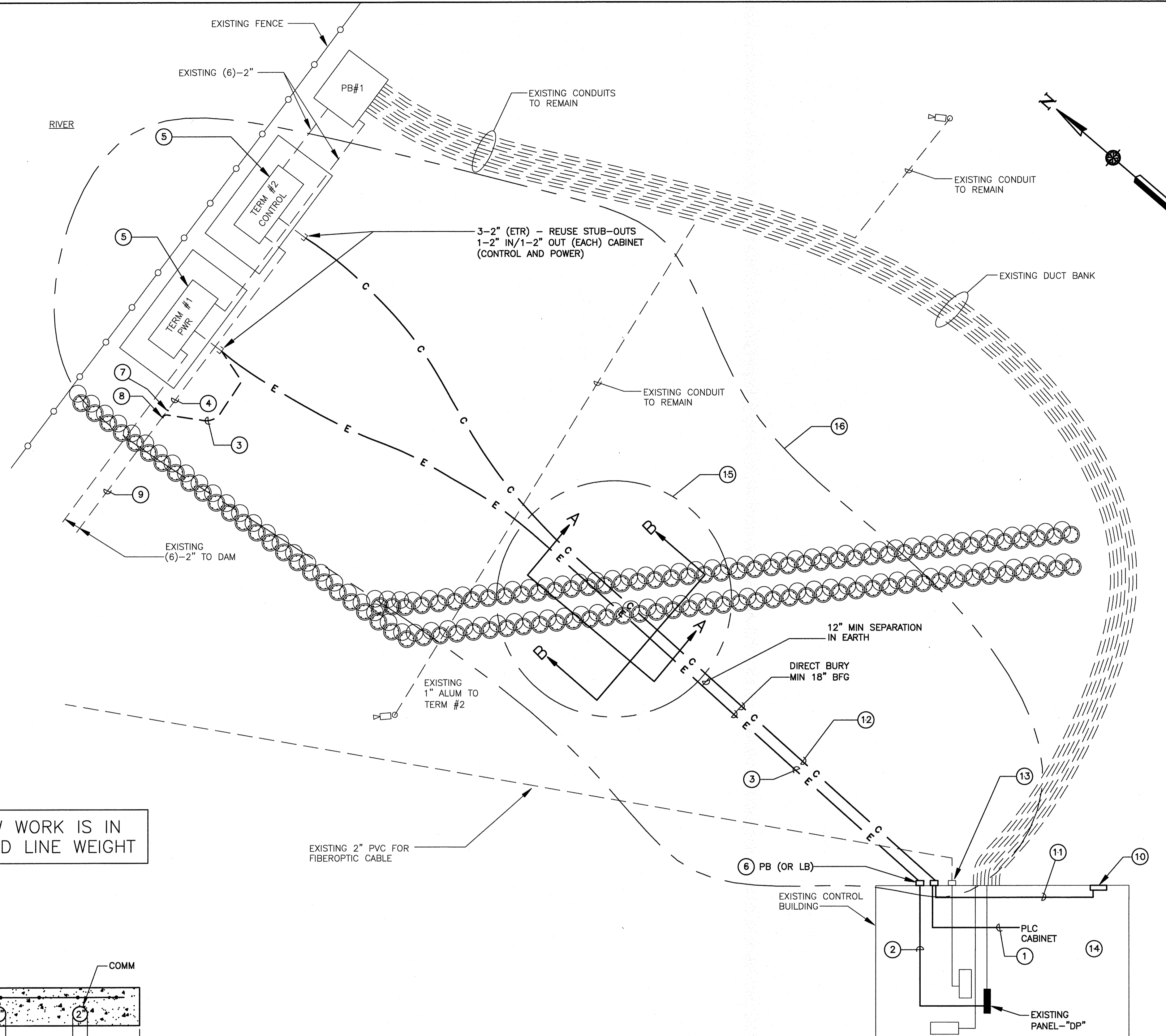


DESIGNED JLS	JOB NO. 62070	<b>E-2</b>
DRAWN MLD	PROJECT NAME -	
CHECKED JRB	OPEN DATE 4/14/2017	13 OF 15

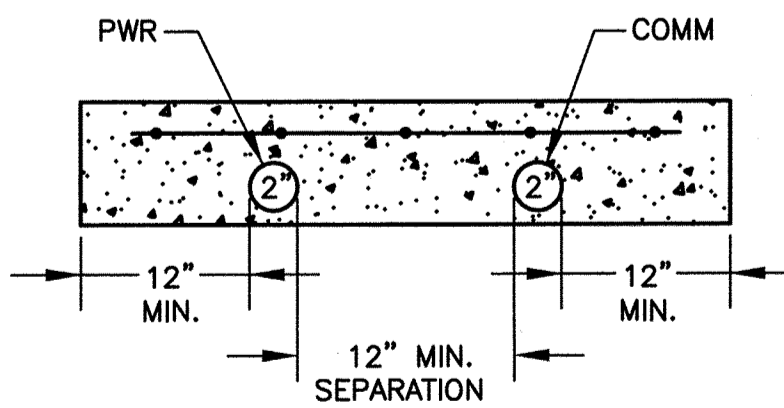
FINAL SUBMITTAL

**NOTES:**

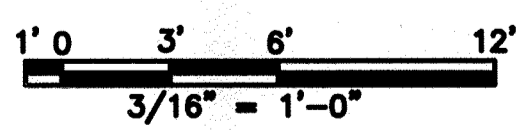
- ① (6) #12 THWN, (1) TP SHLD #16 AWG./1" C
- ② (4) #10, (1) #10 GRD; THWN, 1" C
- ③ 2" PVC SHD 40; (4) #10, (1) #10 GRD; THWN (W/PULL STRINGS)
- ④ RE-USE EMPTY CONDUIT #5; (6) #12 THWN; (1) TSP #16 SHLD; (1) BELDEN #3084A (W/PULL STRINGS)
- ⑤ ROUTE "THRU" POWER & CONTROL TERMINAL BOXES (IN&OUT); PROVIDE/RE-USE EXISTING TERMINAL BLOCKS FOR INTERMEDIATE TERMINATION POINTS; PASS THRU ANALOG SHIELDS
- ⑥ PROVIDE LB (OR 2'X2' NEMA-4X PB) ON WALL & TRANSITION TO PVC SHD 40 (FOR RGS CONDUIT)
- ⑦ CUT-OFF CONDUIT #6 AND CAP
- ⑧ INTERCEPT EXISTING CONDUIT #6; PROVIDE COUPLING AS REQUIRED AND USE FOR OPERATOR POWER FEEDERS
- ⑨ RE-USE SPARE CONDUITS TO DAM (TO NEW SLIDE GATE OPERATOR); CONDUIT #5 FOR CONTROL AND CONDUIT #6 FOR POWER
- ⑩ WALL MOUNT (FIELD LOCATE AND COORDINATE WITH COT) OPERATOR REMOTE CONTROL STATION LOR2/OSC2
- ⑪ BELDEN #3084A, 1" C
- ⑫ 2" PVC SHD 40; (6) #12 THWN; (1) TSP #16 SHLD (W/PULL STRINGS); (1) BELDEN #3084A
- ⑬ PROVIDE A 2' X 2' NEMA 4X PULLBOX ON WALL AND TRANSITION TO PVC SHD 40 (FOR RGS CONDUIT)
- ⑭ ALL WORK WITHIN THE CONTROL BUILDING SHALL BE FIELD LOCATED/FIT AND COORDINATED WITH COT
- ⑮ REMOVE EX. CONCRETE WALL TOP TO PROVIDE MIN. 4" OF CONCRETE COVER OVER NEW CONDUITS
- ⑯ ALL EXCAVATION TO BE PERFORMED BY HAND



NEW WORK IS IN BOLD LINE WEIGHT



**PARTIAL SOUTH PROPOSED PLAN 1**

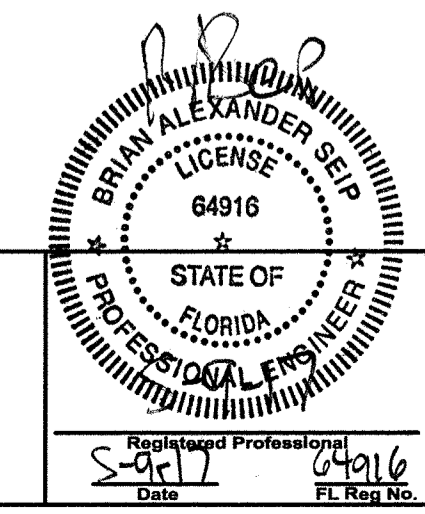


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**CITY OF TAMPA  
 HILLSBOROUGH RIVER DAM  
 MINIMUM FLOW CONTROL GATE**

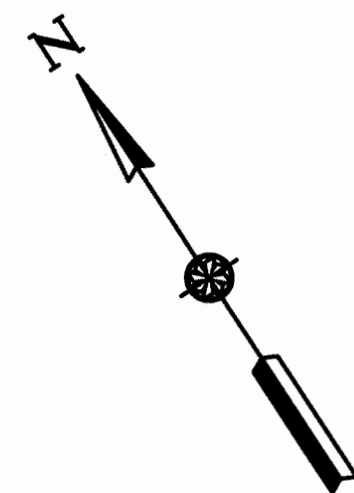
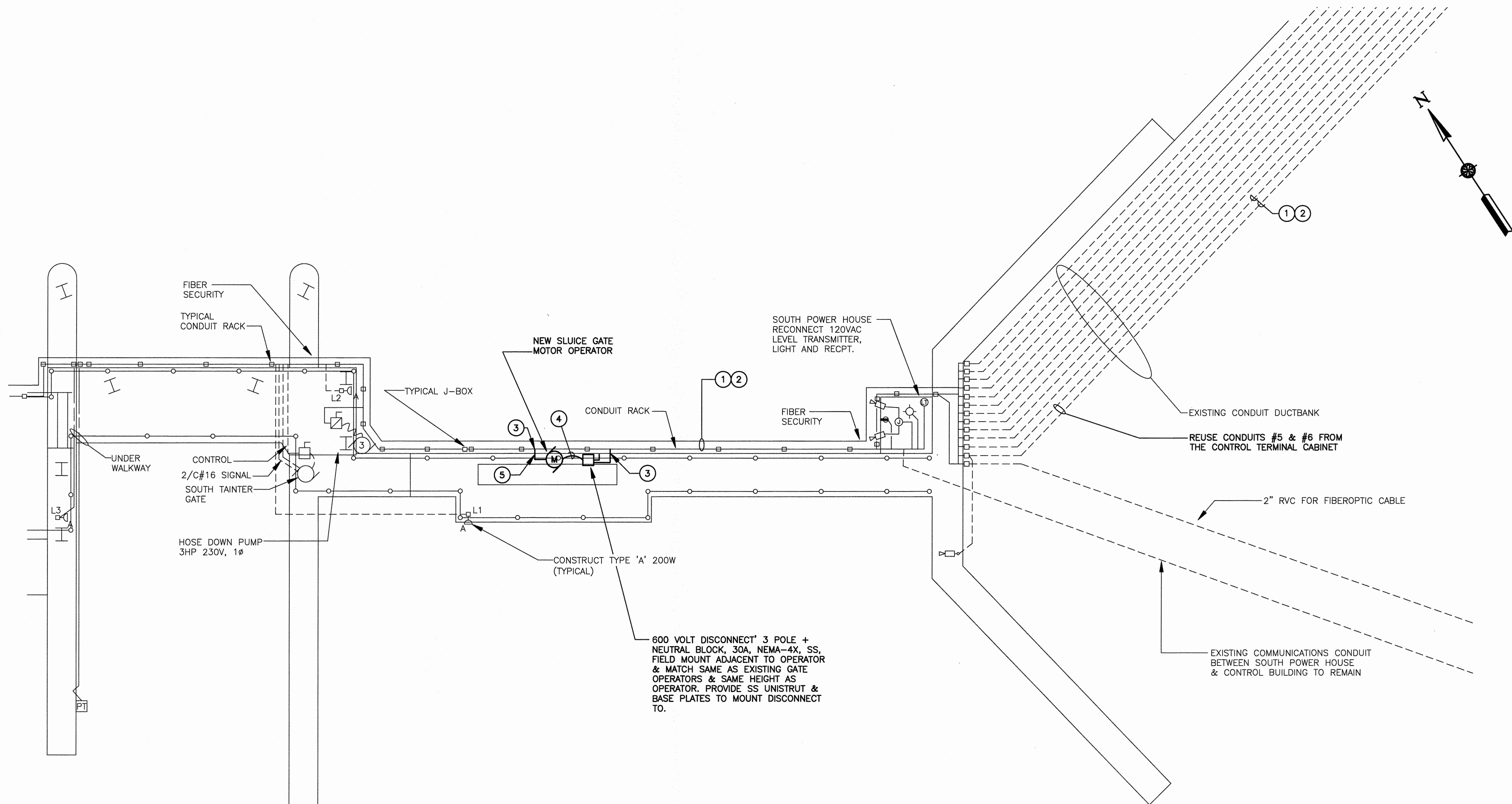
**PARTIAL SOUTH  
 PLAN 1**



DESIGNED JLS	JOB NO. 62070	E-3 3 OF 4
DRAWN MLD	PROJECT NAME	
CHECKED JRB	OPEN DATE 5/9/2017	
DATE 5/9/17	FE Reg No.	

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 Last updated on 5/22/2017 3:06:53 PM by DREMSDORFER, MICHAEL L

NO.	DATE	REVISIONS	APP'D

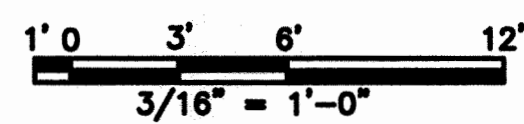


**NOTES:**

- ① (4) #10, (1) #12 GRD, THWN, (W/PULL STRING) IN EXISTING CONDUIT #6
- ② (6) #12 AWG THWN; (1) TSP #16 SHLD, (1) BELDEN #3084A; (W/PULL STRING) IN EXISTING CONDUIT #5
- ③ INTERCEPT EXISTING CONDUITS; CUT EXISTING CONDUIT AND ADD ALUMINUM "L" CONDULET TO MATCH EXISTING CONDUIT SIZE; CAP EXISTING CONDUIT THAT RUNS OUT TO THE WEST AND ABANDON
- ④ 1" LIQUIDTITE FLEXIBLE METALLIC CONDUIT; (4) #10, (1) #12 GRD, THWN
- ⑤ TRANSITION FROM ALUMINUM CONDUIT TO 3/4" LIQUIDTITE FLEXIBLE METALLIC CONDUIT; PROVIDE CONDULET (FOR CONTROL CONDUCTORS)

**PARTIAL SOUTH PROPOSED PLAN 2**

NEW WORK IS IN BOLD LINE WEIGHT

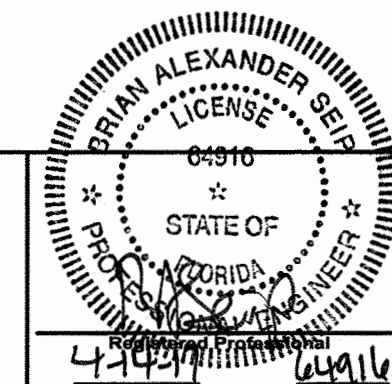


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**CITY OF TAMPA  
 HILLSBOROUGH RIVER DAM  
 MINIMUM FLOW CONTROL GATE**

**PARTIAL SOUTH  
 PLAN 2**



DESIGNED JLS	JOB NO. 62070	<b>E-4</b>
DRAWN MLD	PROJECT NAME -	
CHECKED JRB	OPEN DATE 4/14/2017	
Date: 4/14/17		FL Reg. No. 64910

FINAL SUBMITTAL

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NO.	DATE	REVISIONS	APP'D