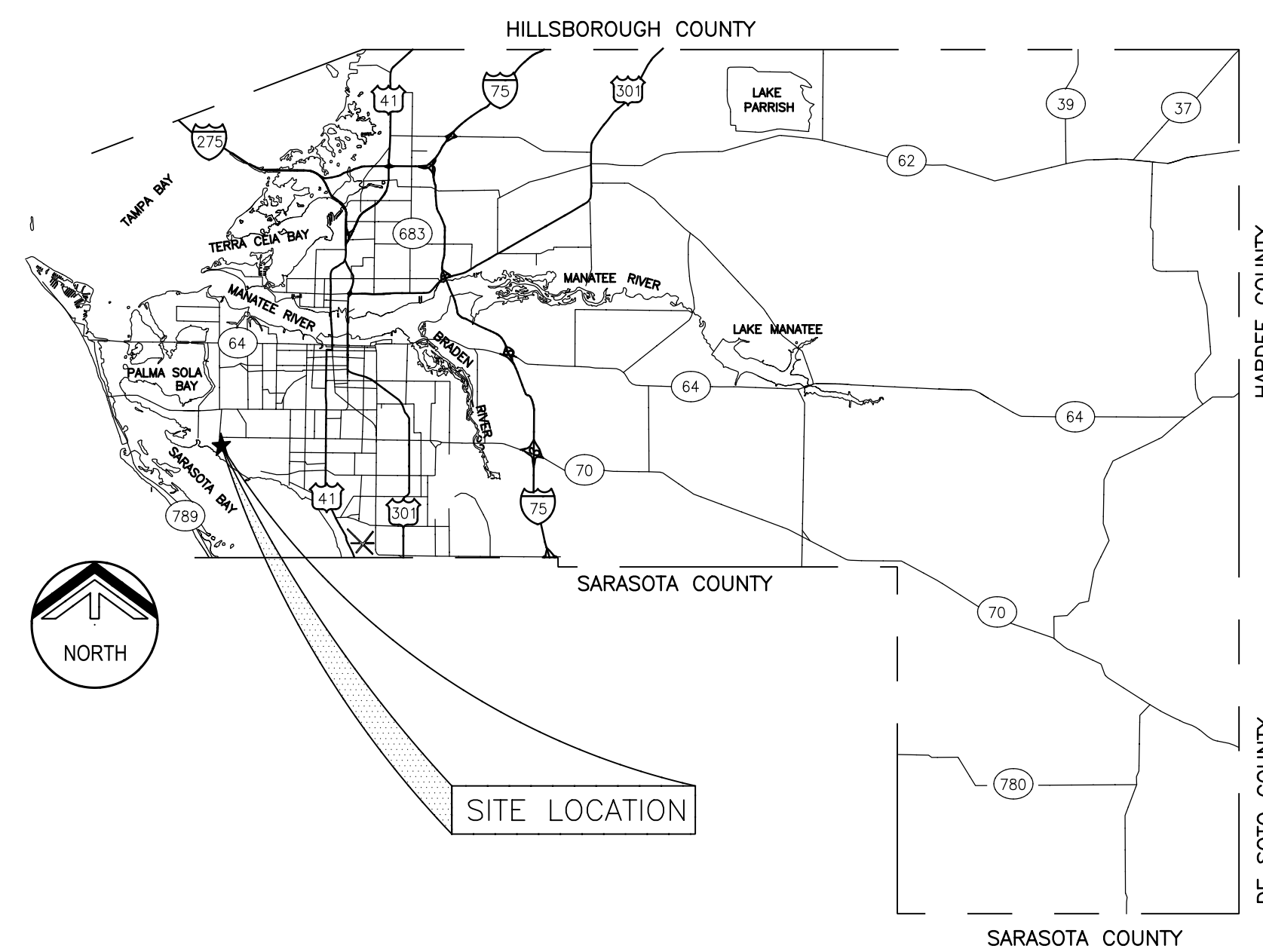


# MANATEE COUNTY GOVERNMENT PUBLIC WORKS DEPARTMENT (MANATEE COUNTY, FLORIDA)

## SOUTHWEST WATER RECLAMATION FACILITY HEADWORKS REHABILITATION

MANATEE COUNTY PROJECT NO. 6036084

MARCH 2013



LOCATION MAP

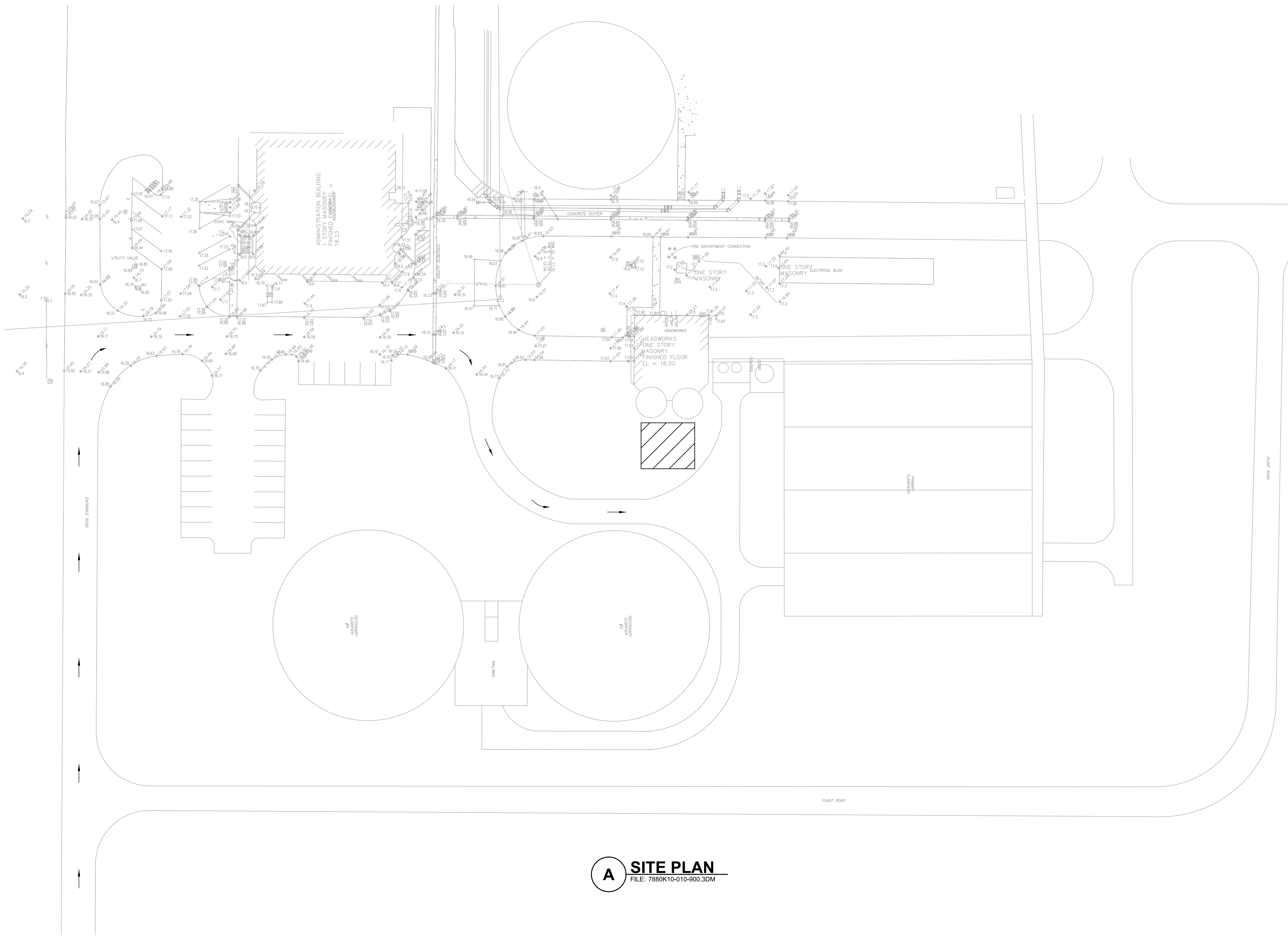
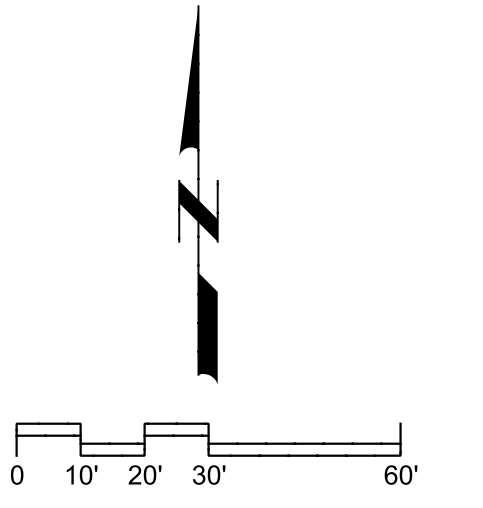
DWG	DISCIPLINE / TITLE
	<b>GENERAL</b>
G-01	COVER SHEET AND DRAWING INDEX
G-02	EXISTING SITE PLAN
	<b>TYPICALS</b>
T-01	TYPICAL DETAILS
	<b>DEMOLITION</b>
D-01	HEADWORKS DEMOLITION PLAN
D-02	CONVEYORS AND CLASSIFIERS DEMOLITION DETAILS
	<b>STRUCTURAL</b>
S-01	TOP OF STRUCTURE PLAN
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	<b>MECHANICAL</b>
M-01	HEADWORKS TOP PLAN
M-02	SECTIONS
	<b>ELECTRICAL</b>
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E-04	EXISTING MCC-HW1 ONE LINE - DEMOLITION
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E-06	HEADWORKS TOP LEVEL - ELECTRICAL PLAN
E-07	HEADWORKS LOWER LEVEL - ELECTRICAL PLAN
E-08	SCHEDULES
E-09	ELECTRICAL DETAILS - SHEET 1
E-10	ELECTRICAL DETAILS - SHEET 2
	<b>INSTRUMENTATION</b>
N-01	INSTRUMENTATION LEGEND AND SYMBOLS
N-02	P&ID - GRIT CLASSIFIERS AND CONVEYORS
N-03	EXISTING PLC PANEL PHOTOS AND INSTRUMENTATION DETAIL

Last Opened By: 2-19-13 03:19pm D:\pwy

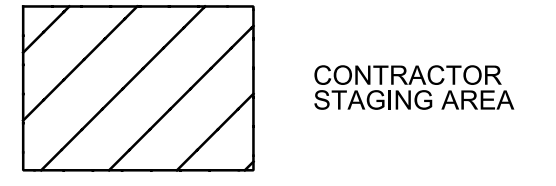
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**carollo**<sup>®</sup>  
401 NORTH CATTLEMEN ROAD, SUITE 306  
SARASOTA, FL 34232  
PHONE: (941) 371-9832 FAX: (941) 371-9873  
CA 00008571

JOB NO. 7880K10
DRAWING NO. G-01



- GENERAL NOTES:**
1. ALL WORK TO BE IN ACCORDANCE WITH MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS, LATEST EDITION IN AFFECT AT TIME OF BID.
  2. CONTRACTOR SHALL COORDINATE WITH OWNER ON ACCESSING THE PLANT SITE AND MOVEMENT WITHIN THE PLANT SITE. OTHER CONSTRUCTION PROJECTS WILL BE ON GOING DURING WORK UNDER THIS CONTRACT.
  3. EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS OBTAINED FROM EXISTING OWNER'S RECORDS. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR FACILITIES AND UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL LOCATIONS, MATERIALS, AND ELEVATIONS IN THE AREAS OF CONSTRUCTION.
  4. THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY CONCERNING ANY CONFLICTS ARISING DURING CONSTRUCTION OF ANY IMPROVEMENTS SHOWN ON THESE DRAWINGS.
  5. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING FACILITIES AND UTILITIES SHOWN OR NOT SHOWN WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY TO THE ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
  6. CONTRACTOR SHALL RESTORE STAGING AREA TO ORIGINAL CONDITION. SOD ALL AREAS DISTURBED BY CONSTRUCTION.
  7. ELEVATIONS ARE BASED ON SITE DATUM NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29).



CONTRACTOR STAGING AREA

**A SITE PLAN**  
FILE: 7880K10-010-900.3DM

REV	DATE	BY	DESCRIPTION

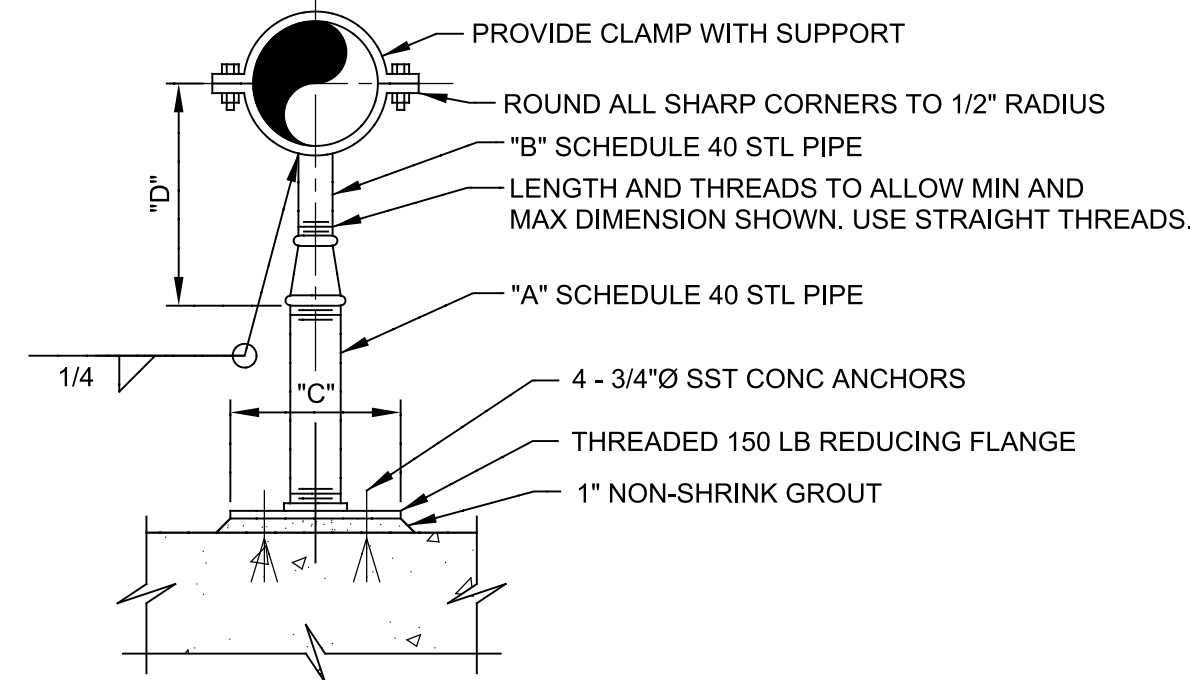
DESIGNED	MV
DRAWN	DVP
CHECKED	EP
DATE	MARCH 2013



MANATEE COUNTY
SWWRF HEADWORKS REHABILITATION
GENERAL
EXISTING SITE PLAN

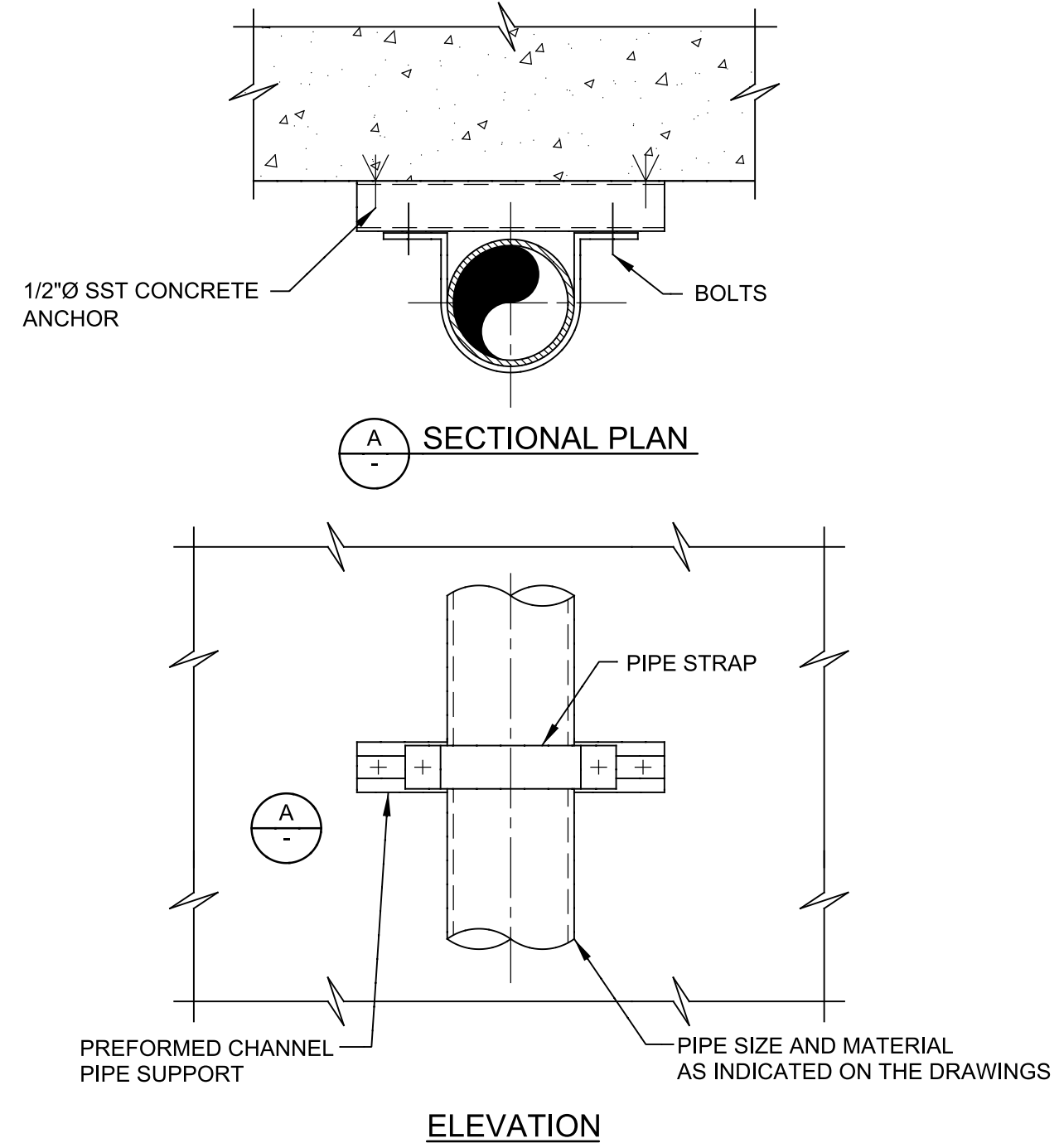
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BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. G-02
0 1"	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

ADJUSTABLE PIPE SADDLE SUPPORT SCHEDULE (INCHES)					
SIZE OF SUPPORTED PIPE	PIPE SIZE "A"	PIPE SIZE "B"	"C"	"D"	
				MINIMUM	MAXIMUM
2 1/2 *	2 1/2	1 1/2	9	8	13
3	2 1/2	1 1/2	9	8 1/2	13 1/2
3 1/2	2 1/2	1 1/2	9	8 1/2	13 1/2
4	3	2 1/2	9	9 1/2	14
6	3	2 1/2	9	10 1/2	15 1/2
8	3	2 1/2	9	11 1/2	16 1/2
10	3	2 1/2	9	13 1/2	18 1/2
12	3	2 1/2	9	15	19 1/2
14	4	3	11	16 1/2	20 1/2
16	4	3	11	17 1/2	22 1/2
18	6	3 1/2	13 1/2	19 1/2	24
20	6	3 1/2	13 1/2	21	25 1/2
24	6	4	13 1/2	23 1/2	28 1/2
30	6	4	13 1/2	27	31 1/2
32	6	4	13 1/2	28 1/2	32 1/2
36	6	4	13 1/2	30 1/2	34 1/2



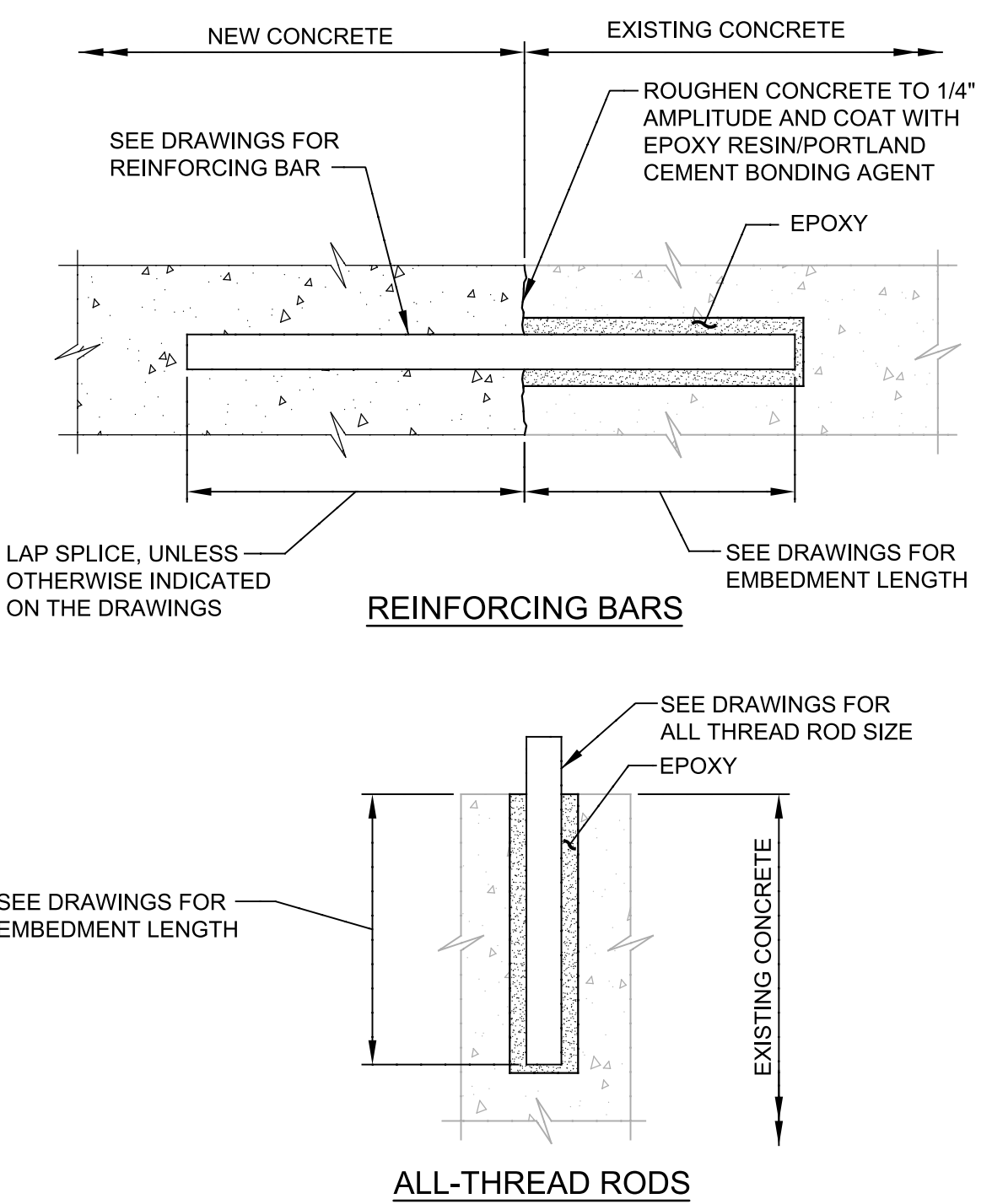
- NOTES:
- 316SS SUPPORT AFTER FABRICATION.
  - \* = USE 2 1/2\"/>

**P624** ADJUSTABLE PIPE SUPPORT  
TYP R 05/16/09



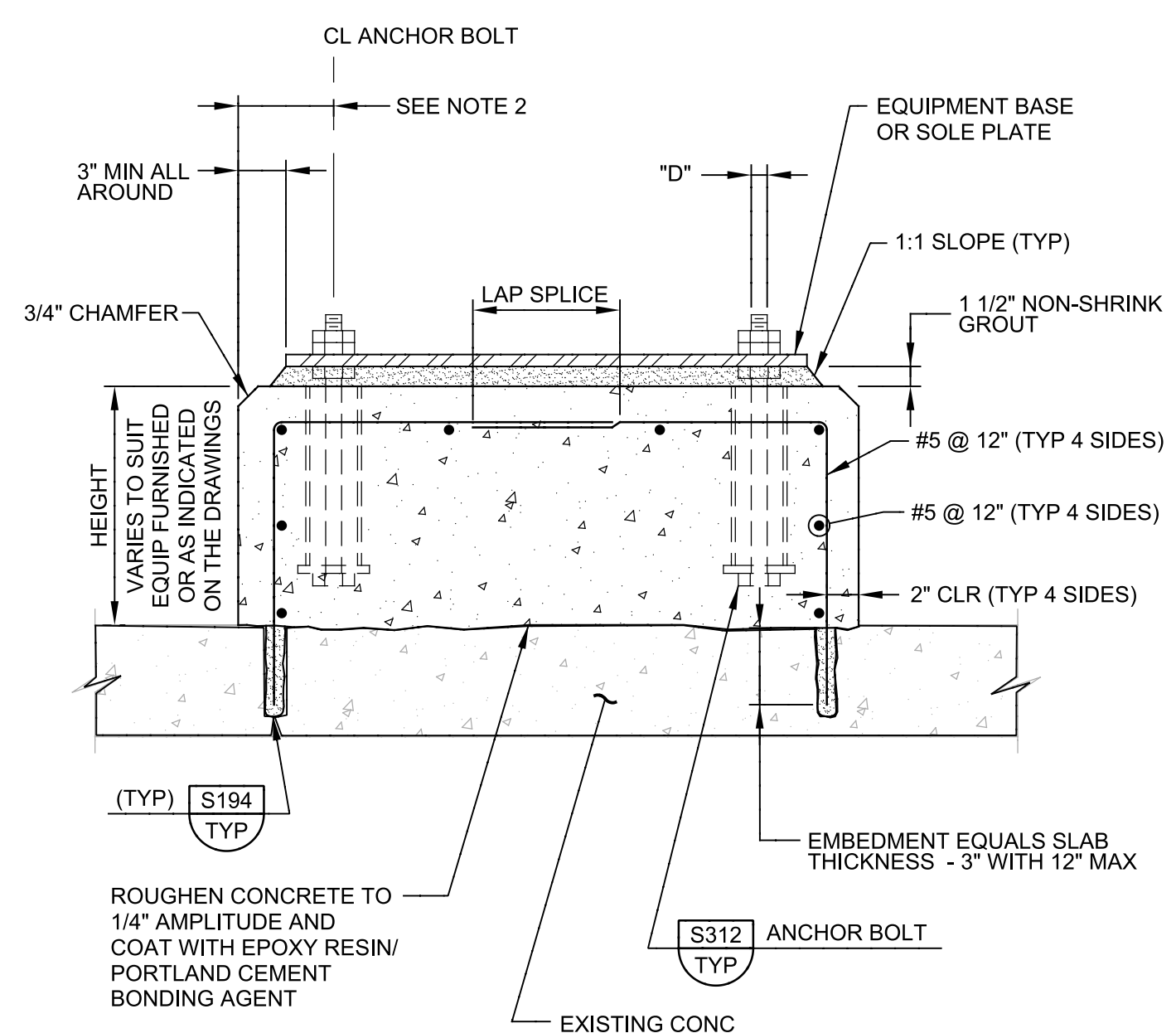
- NOTE:
- IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, THE MATERIALS SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

**P662** PIPE SUPPORT FOR ONE VERTICAL RISER  
TYP N 07/31/08



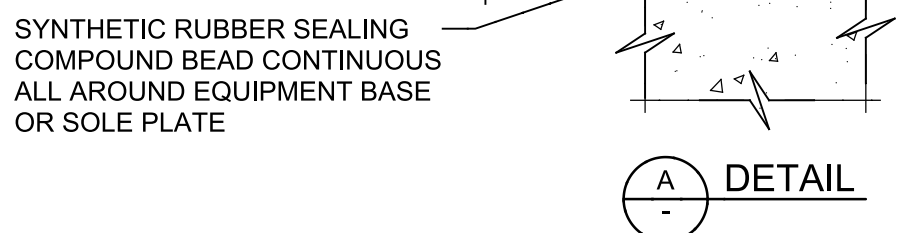
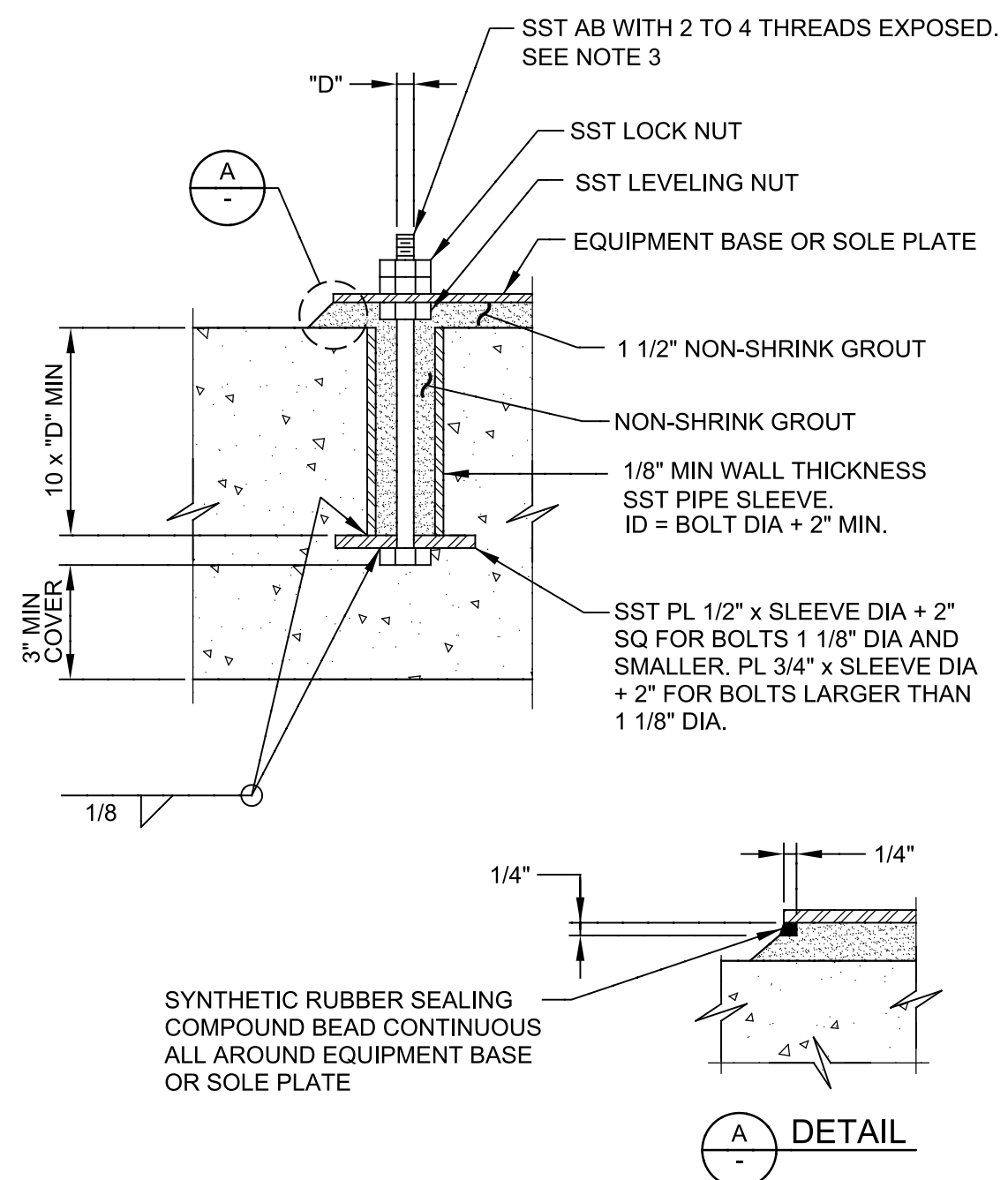
- NOTE:
- INSTALLATION OF REINFORCING BARS AND ALL THREAD RODS AS INDICATED IN THE SPECIFICATIONS.

**S194** EPOXY BONDED REINFORCING BARS OR ALL  
TYP N 04/30/07



- NOTES:
- "D" = DIAMETER OF ANCHOR BOLT.
  - THE EDGE DISTANCE ON THE ANCHOR BOLTS SHALL NOT BE LESS THAN 6" OR 8 x "D".

**S304** EQUIPMENT BASE ON EXISTING CONCRETE SLAB  
TYP N 07/31/08



- NOTES:
- "D" = DIAMETER OF ANCHOR BOLT.
  - ANCHOR BOLT DIAMETER AS INDICATED ON THE DRAWINGS. IF NOT INDICATED ON THE DRAWINGS, THE ANCHOR BOLT SIZE SHALL BE AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
  - DO NOT USE ALL THREAD RODS AS A SUBSTITUTE FOR BOLTS WITH A BOLT HEAD.

**S312** ANCHOR BOLT - IN SLEEVE  
TYP N 07/31/08

REV	DATE	BY	DESCRIPTION

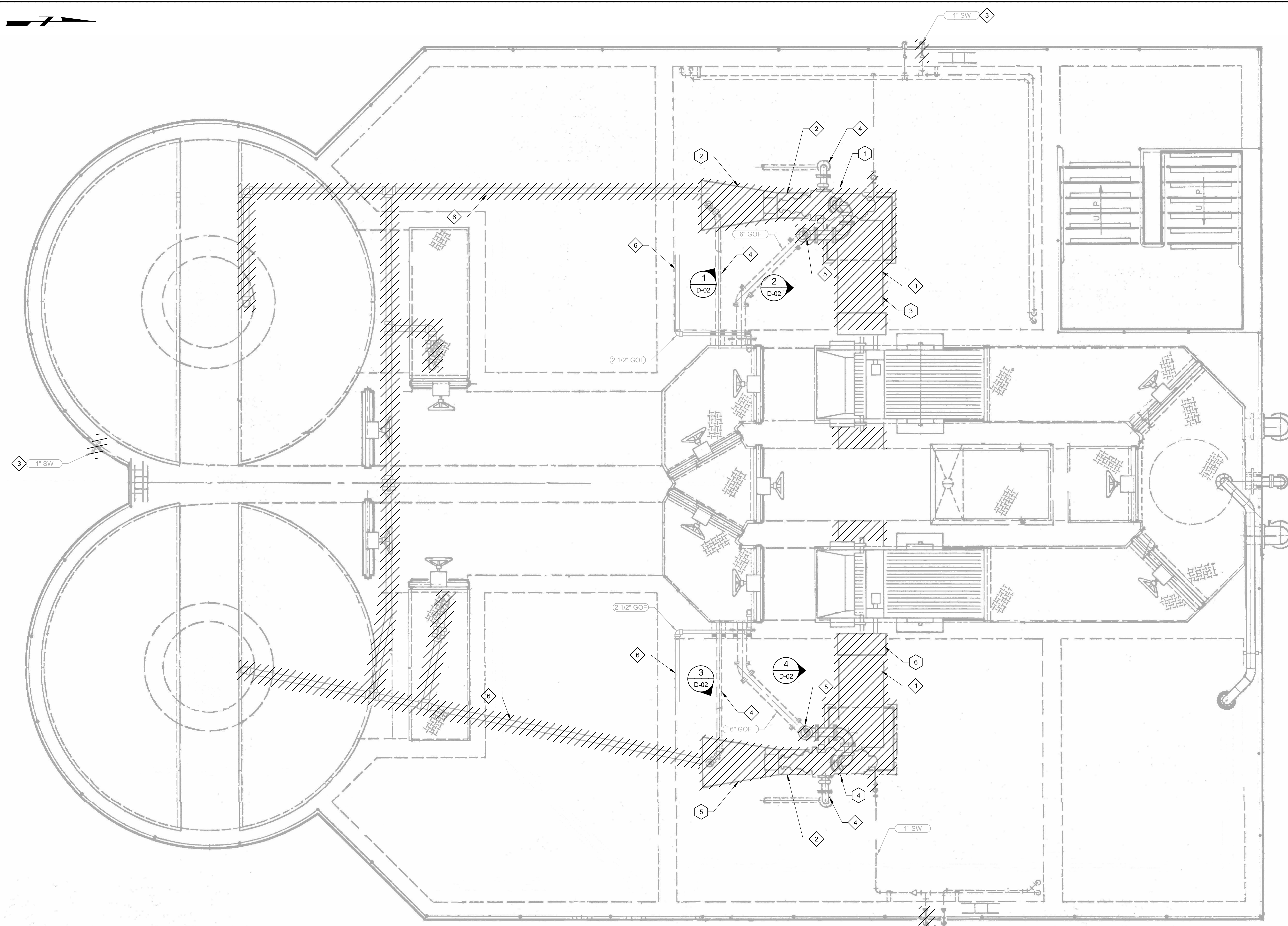
DESIGNED	MV
DRAWN	DVP
CHECKED	EP
DATE	MARCH 2013



MANATEE COUNTY  
SWWRF HEADWORKS REHABILITATION  
DETAILS  
TYPICAL DETAILS

VERIFY SCALES	JOB NO. 7880K10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. T-01
0 1"	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	





**GENERAL NOTES:**

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, PERSONNEL, ETC. ALL EXISTING EQUIPMENT DAMAGED BY CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT EXPENSE OF CONTRACTOR WITHOUT ADDITIONAL COMPENSATION.
4. CONSTRUCTION SEQUENCING SHALL BE COORDINATED TO TAKE ONE GRIT SYSTEM AND CONVEYOR OUT OF SERVICE AT A TIME TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

**KEY NOTES:**

- 1 EXISTING SCREW CONVEYORS TO BE REMOVED.
- 2 EXISTING CYCLONES, GRIT CLASSIFIER, CLASSIFIERS PADS, AND PIPING TO BE REMOVED INCLUDING PIPE ALONG THE WALL TO GRADE.
- 3 EXISTING HOSE BIBS SERVICE WATER BRASS PIPING TO BE REMOVED. INCLUDING PIPE ALONG THE WALL TO GRADE.
- 4 EXISTING PIPE ALREADY ABANDONED IN PLACE AND PLUGGED.
- 5 CONNECTION FOR CYCLONE OVERFLOW.
- 6 NO RECORD DRAWINGS AVAILABLE. PIPE SHOWN FOR INFORMATION ONLY.

**KEY TAGS:**

1	CYCLONE NO.1	GC-1011
2	GRIT CLASSIFIER NO.1	GC-1012
3	CONVEYOR NO. 1	SC-1013
4	CYCLONE NO.2	GC-1021
5	GRIT CLASSIFIER NO.2	GC-1022
6	CONVEYOR NO.2	SC-1023

**A PLAN**  
 SCALE: 3/8" = 1'-0"  
 FILE:



MANATEE COUNTY  
 SWWRF HEADWORKS REHABILITATION  
 DEMOLITION  
 HEADWORKS DEMOLITION PLAN

VERIFY SCALES  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.  
 7880K10  
 DRAWING NO.  
 D-01

REV	DATE	BY	DESCRIPTION

DESIGNED  
 MV  
 DRAWN  
 DVP  
 CHECKED  
 EP  
 DATE  
 MARCH 2013

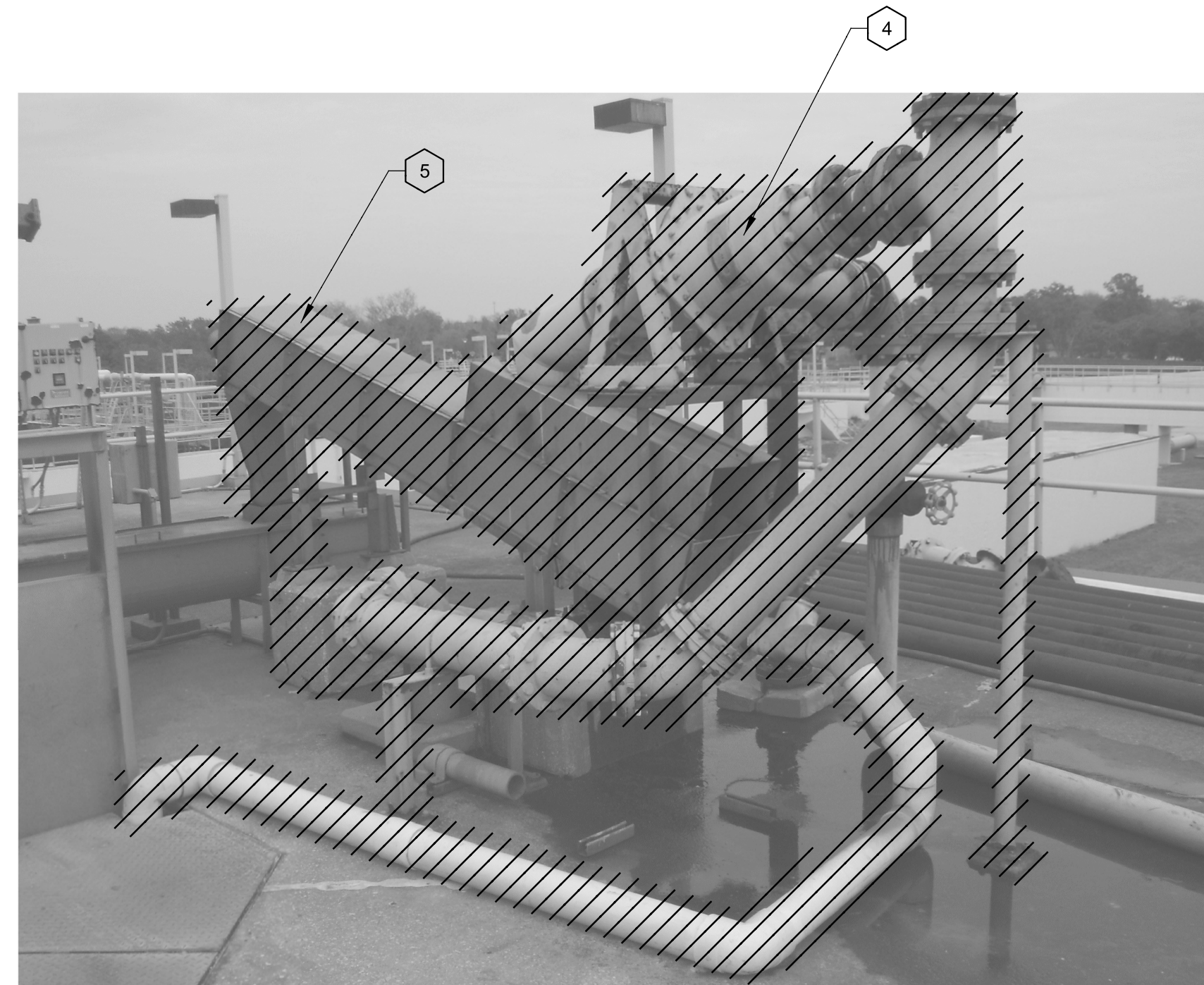




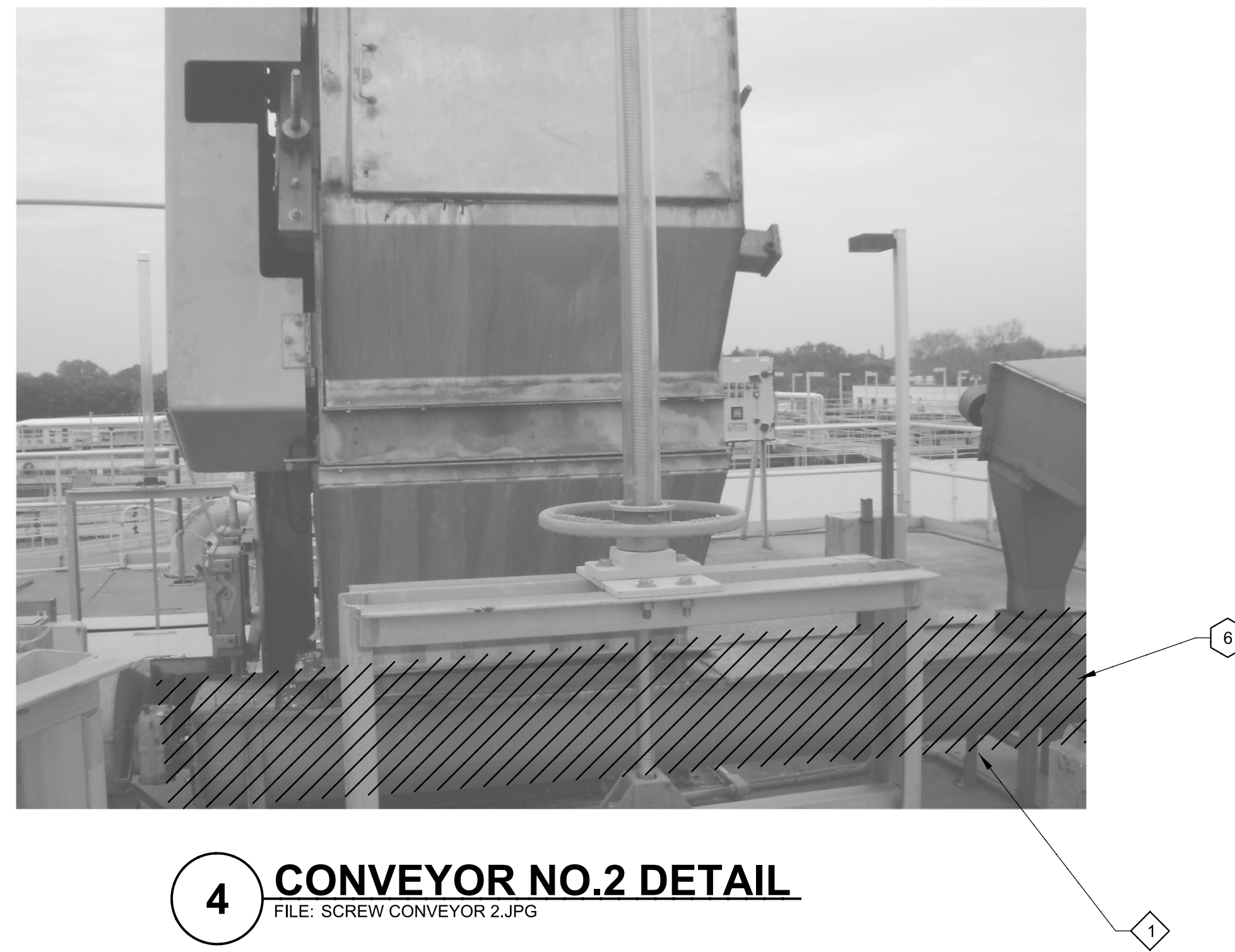
**1 CYCLONE CLASSIFIER NO.1 DETAIL**  
FILE: CLASSIFIER 1.JPG



**2 CONVEYOR NO.1 DETAIL**  
FILE: SCREW CONVEYOR 1.JPG



**3 CYCLONE CLASSIFIER NO.2 DETAIL**  
FILE: CLASSIFIER 2.JPG



**4 CONVEYOR NO.2 DETAIL**  
FILE: SCREW CONVEYOR 2.JPG

**GENERAL NOTES:**

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT EXPENSE OF CONTRACTOR WITHOUT ADDITIONAL COMPENSATION.

**KEY NOTES:**

- 1 EXISTING SCREW CONVEYORS TO BE REMOVED.
- 2 EXISTING CYCLONES, GRIT CLASSIFIER, CLASSIFIERS PADS, AND PIPING TO BE REMOVED.

**KEY TAGS:**

1	CYCLONE NO.1	GC-1011
2	GRIT CLASSIFIER NO.1	GC-1012
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REV	DATE	BY	DESCRIPTION

DESIGNED	MV
DRAWN	DVP
CHECKED	EP
DATE	MARCH 2013

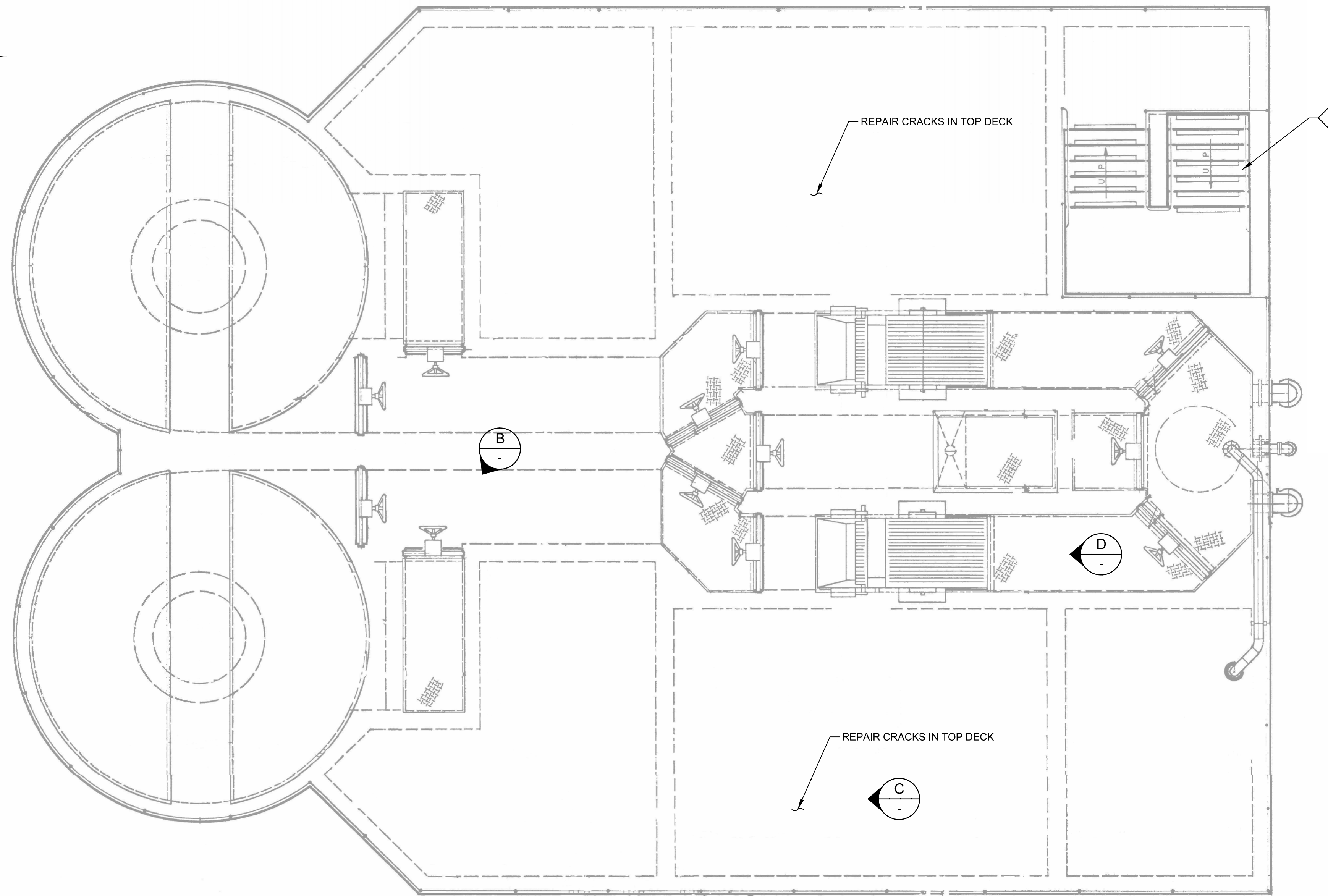


MANATEE COUNTY
SWWRF HEADWORKS REHABILITATION
DEMOLITION
CONVEYORS AND CLASSIFIERS DEMOLITION DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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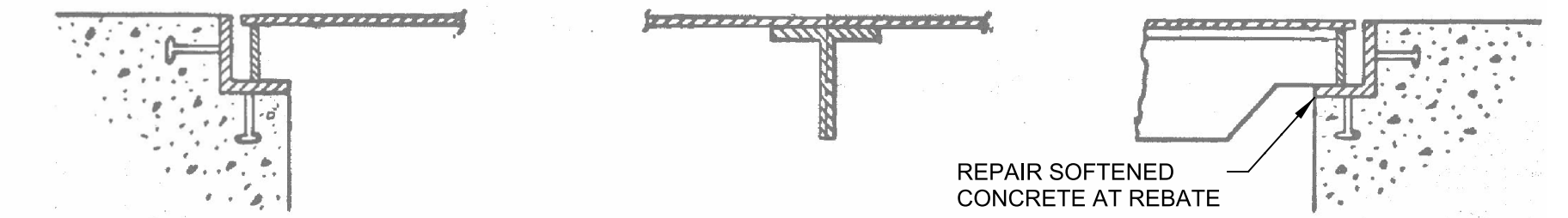
JOB NO.	7880K10
DRAWING NO.	D-02





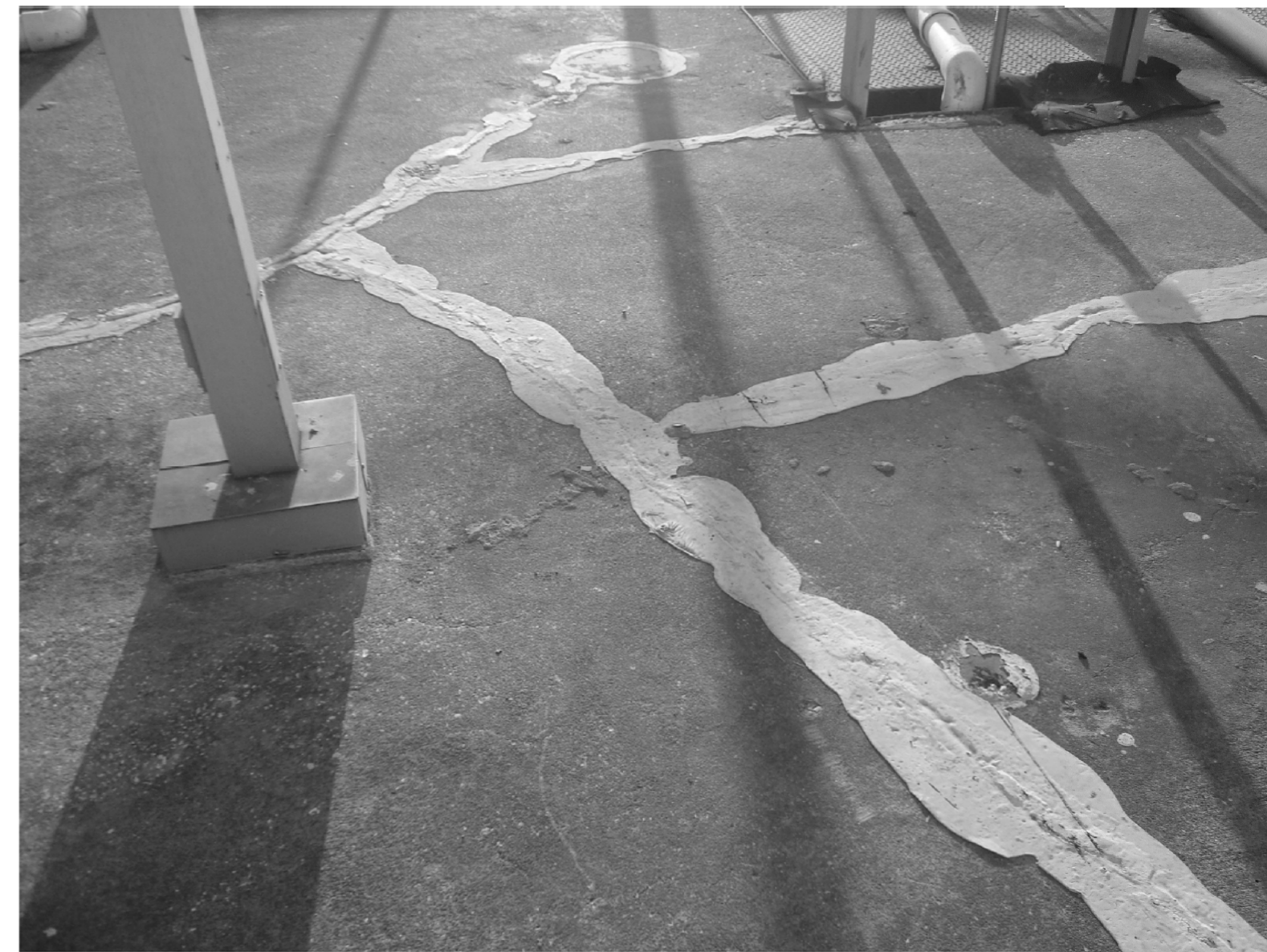
**KEY NOTES:**

1. INSTALL ANTI-SLIP SAFETY TREADS ON STAIRS FROM WOOSTER PRODUCTS STARMASTER TYPE 333 WITH TAPCON SCREWS WITH RIE COATING FOR CORROSIVE ENVIRONMENT AND GRAINGER SURE-FOOT STAR TREAD ADHESIVE. CONTRACTOR TO ENSURE THAT STAIRS AND LANDING ARE SLOPED TO PROVIDE DRAINAGE TO ELIMINATE PONDING. THE SLOPE SHALL NOT BE MORE THAN 1:48 OR 1/4 INCH PER 12 INCHES



**A** **DETAIL**  
SCALE: NOT TO SCALE  
FILE:

**A** **PLAN**  
SCALE: 1/4" = 1'-0"  
FILE:



**B** REPAIR DAMAGED AREAS



**C** REPAIR CRACKS IN CONCRETE



**D** REPAIR SOFTENED CONCRETE AT REBATE



MANATEE COUNTY  
SWWRF HEADWORKS REHABILITATION  
STRUCTURAL  
TOP OF STRUCTURE PLAN

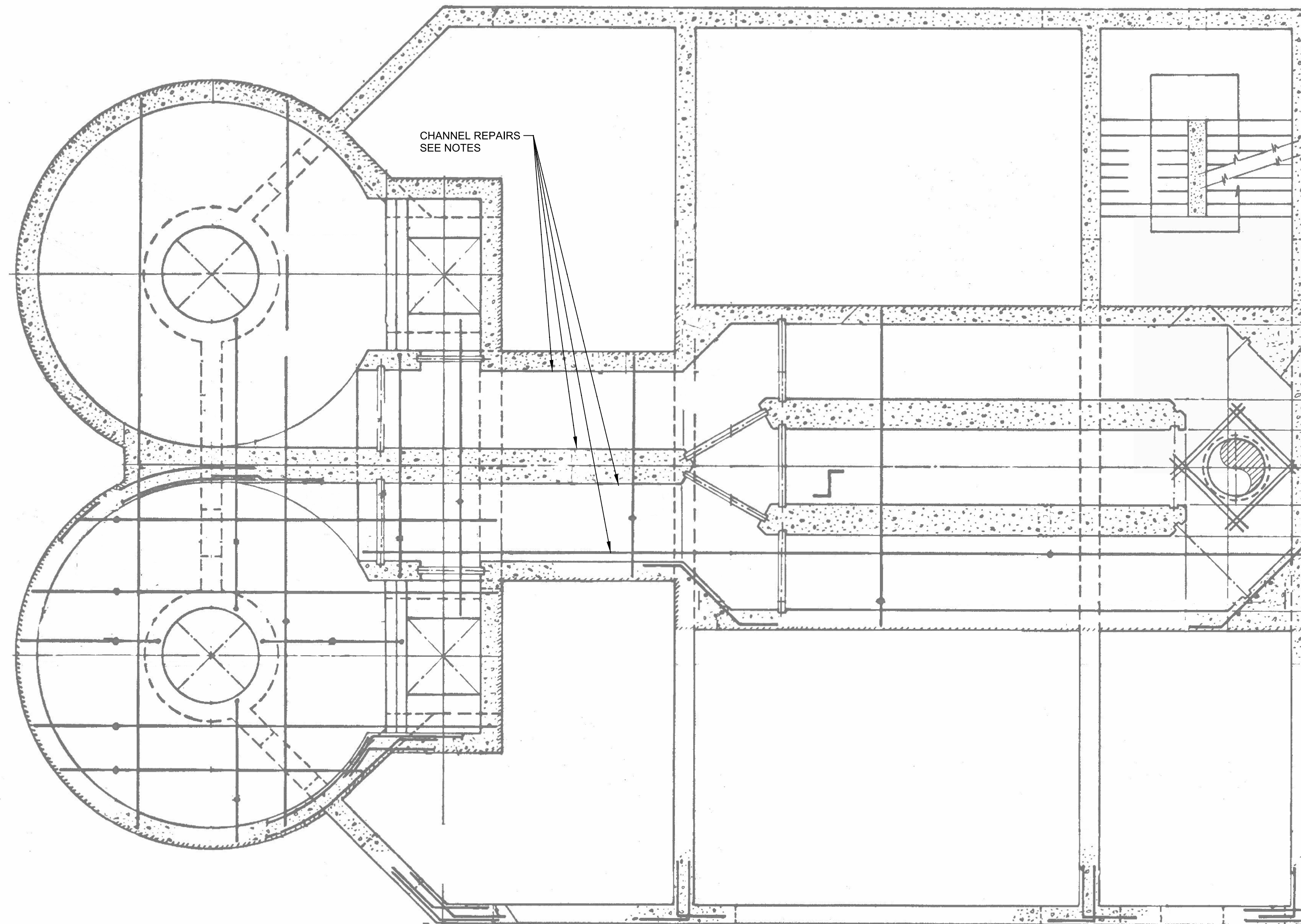
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BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 7880K10  
DRAWING NO. S-01

REV	DATE	BY	DESCRIPTION

DESIGNED JS	
DRAWN DVP	
CHECKED EP	
DATE MARCH 2013	





**A PLAN**  
SCALE: 1/4" = 1'-0"  
FILE:

**GENERAL NOTES:**

1. DETERMINE DAMAGED AREAS BY:  
A. CHECKING FOR SOFT MATERIAL WITH HAMMER.  
B. OBVIOUS SIGNS OF DAMAGE.
2. MARK DAMAGED AREAS
3. REMOVE INFLUENT CHANNELS FLOORS AND WALLS LINER WHERE DAMAGED.
4. BLAST SOFT OR OTHERWISE DAMAGED CONCRETE TO SOLID SUBSTRATE USING HIGH PRESSURE WATER.
5. REPAIR CONCRETE WITH A REPAIR MORTAR AND LET CURE.
6. REPLACE LINER WITH ARROW LOCK OR EQUAL. ADHERE TO REPAIR MORTAR AND SEAL JOINTS USING APPROVED MANUFACTURER'S PROCEDURES.
7. LINE INFLUENT CHANNELS FLOORS, AND WALLS WITH HYDROGEN SULFIDE RESISTANT COATING PER SPECIFICATION 09984.
8. HOLIDAY TEST ENTIRE CHANNEL, INCLUDING REPAIRED REGIONS, AND REPAIR PINHOLES AND OTHER INDICATIONS.
9. COUNTY WILL ISOLATE INDIVIDUAL CHANNELS AND BY-PASS INFLUENT PORTION OF THE CHANNEL TO ALLOW FOR LINER AND CONCRETE REPAIRS.

REV	DATE	BY	DESCRIPTION

DESIGNED JS
DRAWN DVP
CHECKED EP
DATE MARCH 2013





MANATEE COUNTY
SWWRF HEADWORKS REHABILITATION
STRUCTURAL
INTERMEDIATE PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 7880K10
DRAWING NO. S-02

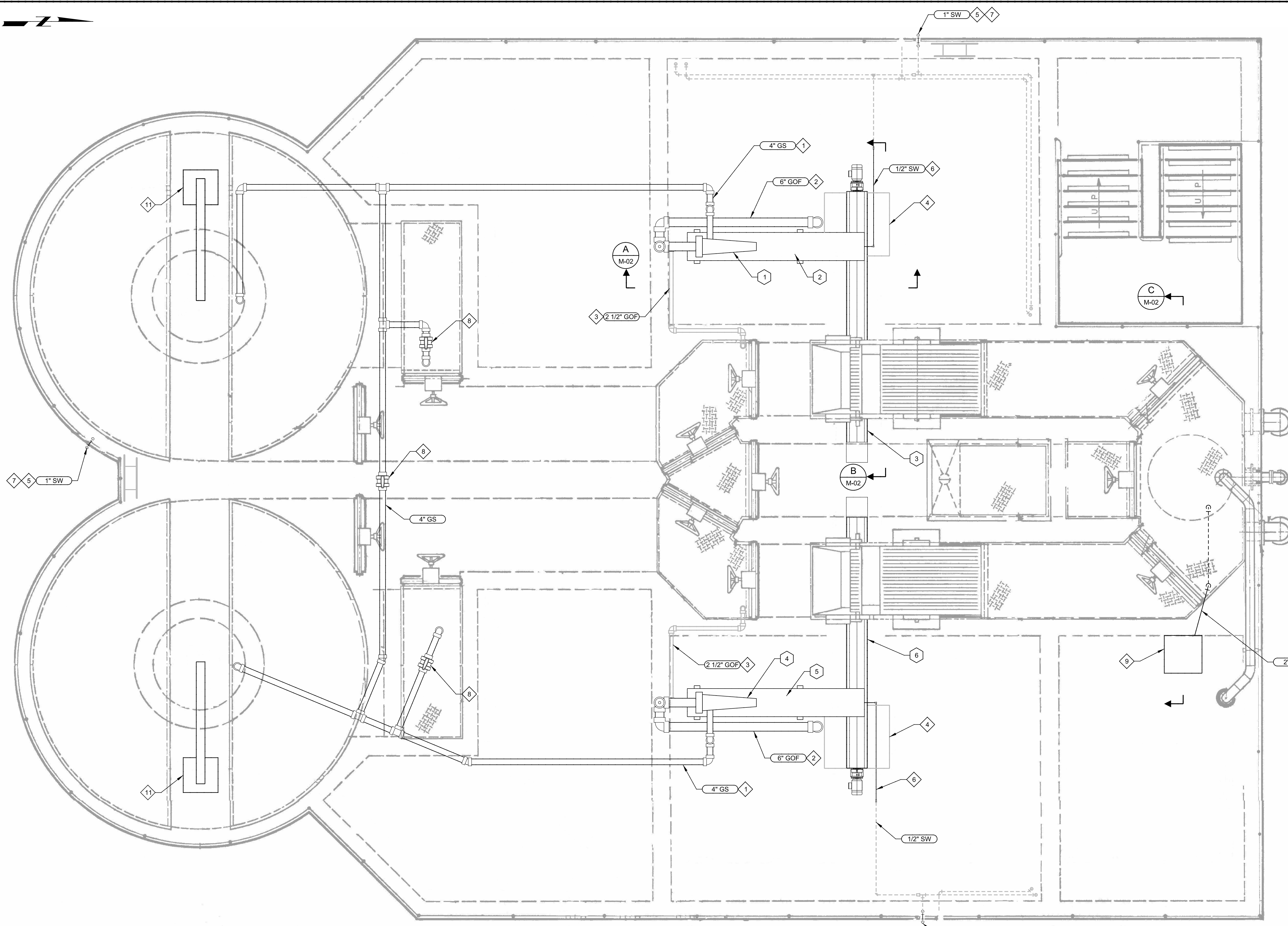


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User: DPerry

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std Pen\_v0905.pen PlotScale: 1:1

LAST SAVED BY: newberry



**GENERAL NOTES:**

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT EXPENSE OF CONTRACTOR WITHOUT ADDITIONAL COMPENSATION.
3. LOCATION AND POSITION OF CLASSIFIER, AND CONVEYOR DEPENDS UPON EQUIPMENT FURNISHED TO MAINTAIN MINIMUM SPACING REQUIREMENTS.
4. COUNTY WILL ISOLATE INFLUENT CHANNELS TO INSTALL THE CLASSIFIERS, CONVEYOR, AND PIPING.

**KEY NOTES:**

- 1 PROVIDE ADDITIONAL FITTINGS AND PIPING REQUIRED TO ALIGN NEW 4" GRIT SLURRY LINE TO CYCLONE. INSTALL LINES THROUGH EXISTING FLOOR PENETRATIONS.
- 2 PROVIDE ADDITIONAL FITTINGS AND PIPING REQUIRED TO ALIGN NEW 6" CYCLONE OVERFLOW WITH EXISTING 6" LINE TO INFLUENT CHANNEL.
- 3 PROVIDE ADDITIONAL FITTINGS AND PIPING REQUIRED TO ALIGN NEW 2.5' CLASSIFIER OVERFLOW WITH EXISTING 2.5" LINE TO INFLUENT CHANNEL.
- 4 EXISTING CHUTE TO REMAIN IN PLACE.
- 5 REMOVE AND REPLACE EXISTING RAW WATER BRASS PIPING WITH PVC SCH. 80 INCLUDING PIPE ALONG THE WALL TO THE GROUND.
- 6 WASH WATER LINE SHOULD BE ROUTED THROUGH EXISTING FLOOR PENETRATIONS.
- 7 HOSE BIBB
- 8 ECCENTRIC PLUG VALVE
- 9 EXISTING COMPOSITE REFRIGERATED SAMPLER
- 10 ROUTE SAMPLER TUBING THROUGH 2" SCHEDULE 80 PVC.
- 11 PROVIDE A 500 LB. CAPACITY FLOOR MOUNTED JIB CRANE WITH MANUAL HOIST MANUFACTURED BY DAVID ROUND OR APPROVED EQUAL. THE CRANE, HOIST, AND CABLE SHALL BE STAINLESS STEEL SUITABLE FOR THIS ENVIRONMENT. THE CRANE SPAN AND UNDER CLEARANCE SHALL BE 8 FT WITH A 360° ROTATING ARM AND A CHAIN HOIST LIFT HEIGHT OF 30 FT.

**KEY TAGS:**

1	CYCLONE NO.1	GC-1011
2	GRIT CLASSIFIER NO.1	GC-1012
3	CONVEYOR NO. 1	SC-1013
4	CYCLONE NO.2	GC-1021
5	GRIT CLASSIFIER NO.2	GC-1022
6	CONVEYOR NO.2	SC-1023

**A PLAN**  
 SCALE: 3/8" = 1'-0"  
 FILE:



MANATEE COUNTY  
 SWWRF HEADWORKS REHABILITATION  
 MECHANICAL  
 HEADWORKS TOP PLAN

VERIFY SCALES  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.  
7880K10  
 DRAWING NO.  
M-01

REV	DATE	BY	DESCRIPTION

DESIGNED  
MV  
 DRAWN  
DVP  
 CHECKED  
EP  
 DATE  
MARCH 2013

**GENERAL NOTES:**

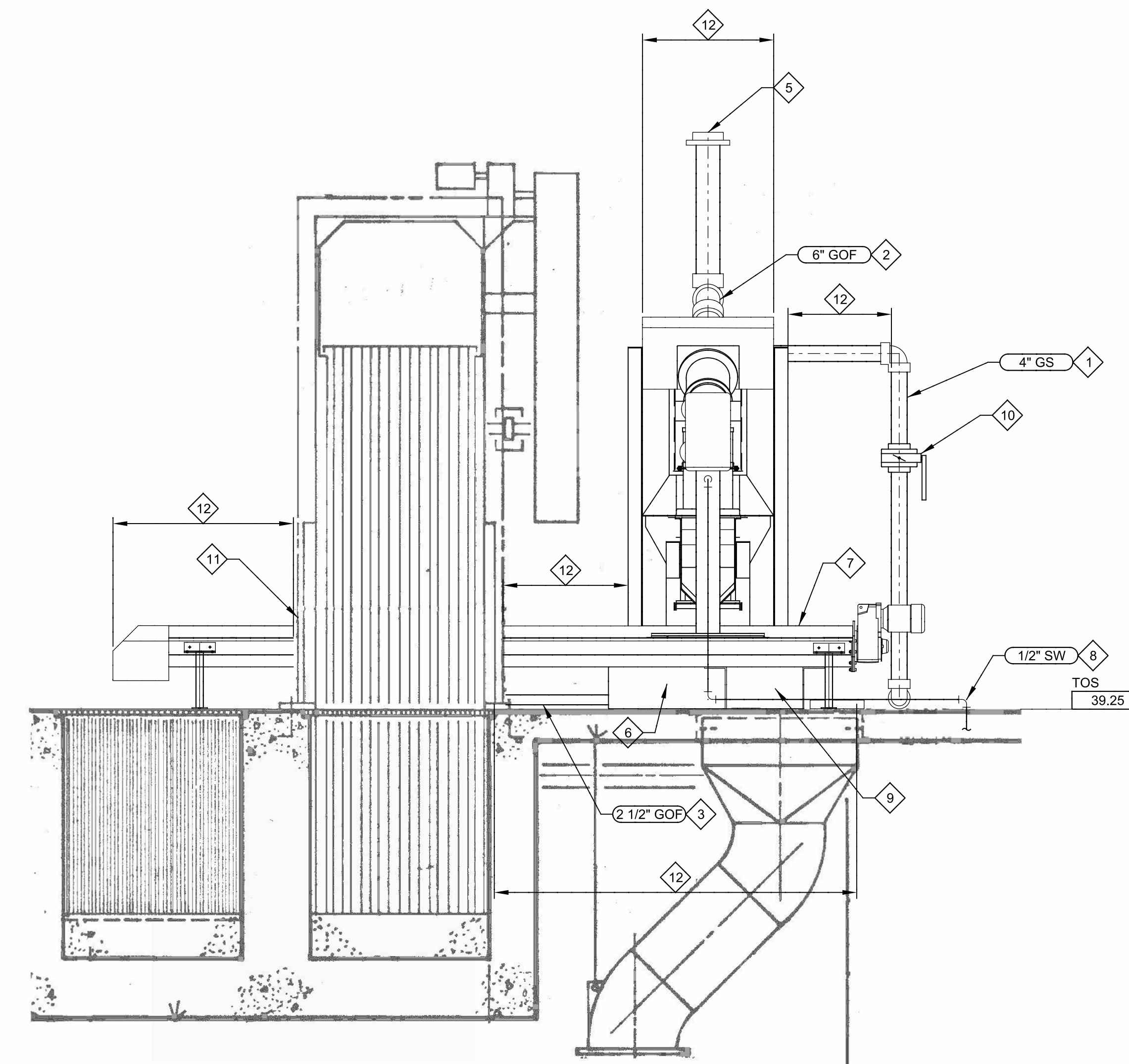
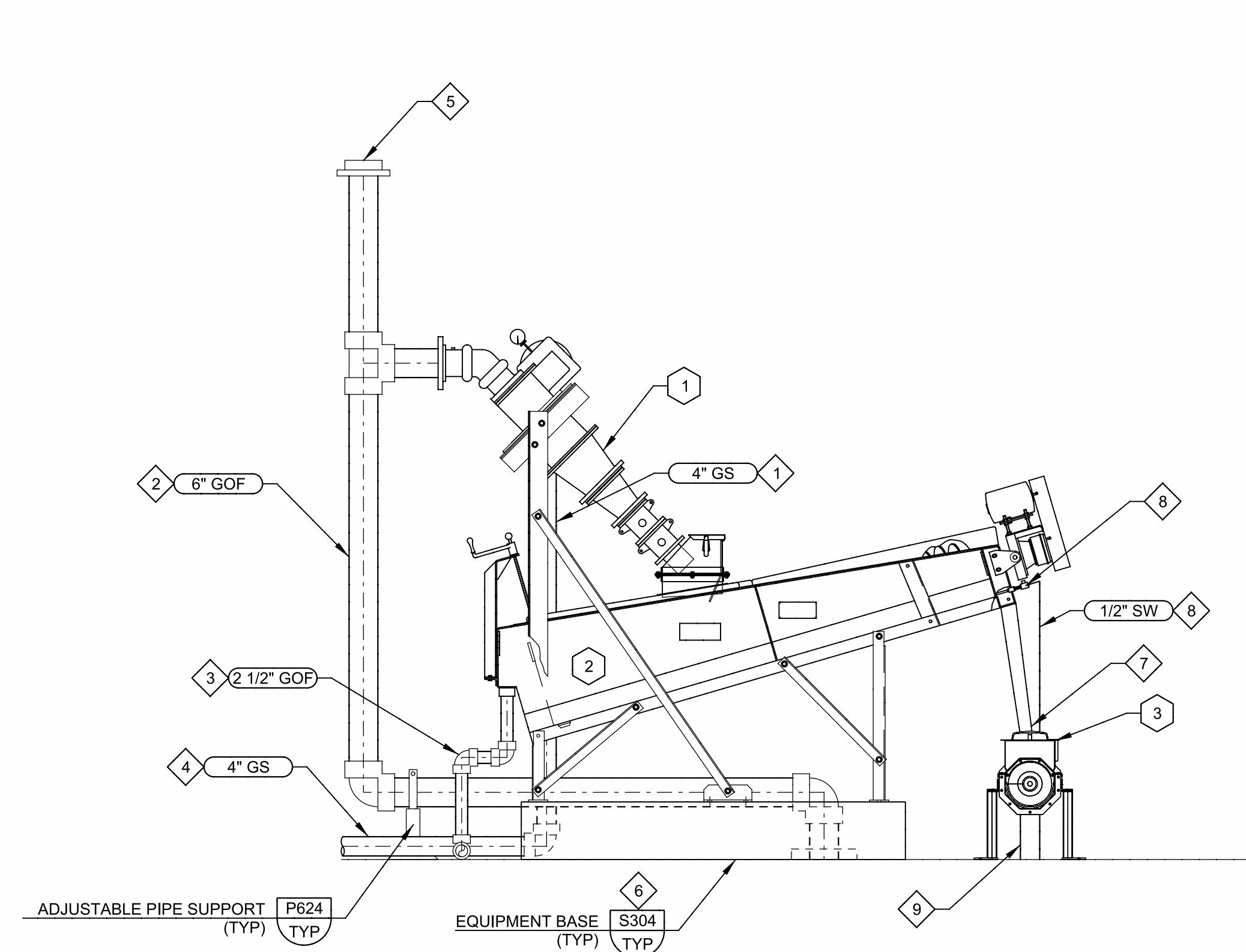
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
- CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT EXPENSE OF CONTRACTOR WITHOUT ADDITIONAL COMPENSATION.
- LOCATION AND POSITION OF CLASSIFIER, AND CONVEYOR DEPENDS UPON EQUIPMENT FURNISHED TO MAINTAIN MINIMUM SPACING REQUIREMENTS.

**KEY NOTES:**

- PROVIDE ADDITIONAL FITTINGS AND PIPING REQUIRED TO ALIGN NEW 4" GRIT SLURRY LINE TO CYCLONE.
- PROVIDE ADDITIONAL FITTINGS AND PIPING REQUIRED TO ALIGN NEW 6" CYCLONE OVERFLOW WITH EXISTING 6" LINE TO INFLUENT CHANNEL.
- PROVIDE ADDITIONAL FITTINGS AND PIPING REQUIRED TO ALIGN NEW 2.5" CLASSIFIER OVERFLOW WITH EXISTING 2.5" LINE TO INFLUENT CHANNEL.
- FROM GRIT PUMP NO.1
- CYCLONE VENT.
- INSTALL CONCRETE PAD FOR CLASSIFIER. S304  
TYP
- CONTRACTOR SHALL COORDINATE AND VERIFY THE ACTUAL DIMENSIONS REQUIRED TO CONSTRUCT THE CONVEYOR ASSEMBLY WITH THE EXISTING MECHANICAL SCREEN AND NEW CLASSIFIER DIMENSIONS & ELEVATIONS WITH MANUFACTURER. MANUFACTURER SHOULD PROVIDE OPENINGS AND REQUIRED CONNECTIONS FOR THE CHUTE, GRIT CLASSIFIER, AND MECHANICAL SCREEN DISCHARGE.
- INSTALL WASH WATER LINE THROUGH EXISTING FLOOR PENETRATION. LOCATION OF NEW LINE DEPENDS ON EQUIPMENT FURNISHED
- CONNECT CONVEYOR DROP CHUTE TO EXISTING DROP CHUTE OPENING TO MATCH EXISTING.
- ECCENTRIC PLUG VALVE
- CONNECT MECHANICAL SCREEN FLANGED DROP CHUTE TO CONVEYOR PORT TO MATCH EXISTING.
- DIMENSION TO BE BASED ON SELECTED MANUFACTURER.
- EXISTING COMPOSITE REFRIGERATED SAMPLER. NO RECORD DRAWING AVAILABLE. LOCATION SHOWN FOR INFORMATION ONLY.
- ROUTE SAMPLER TUBING THROUGH 2" SCHEDULE 80 PVC

**KEY TAGS:**

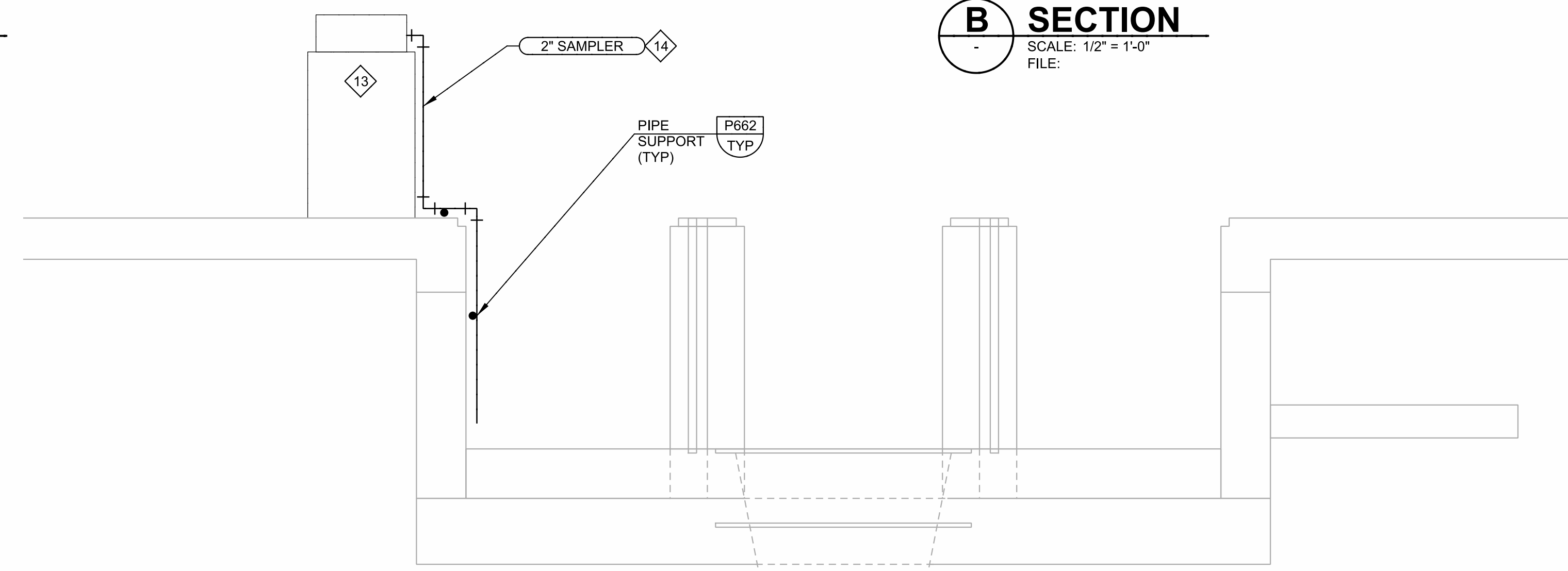
- |   |                      |         |
|---|----------------------|---------|
| 1 | CYCLONE NO.1         | GC-1011 |
| 2 | GRIT CLASSIFIER NO.1 | GC-1012 |
| 3 | CONVEYOR NO. 1       | SC-1013 |



**A SECTION**  
SCALE: 1/2" = 1'-0"  
FILE:

**B SECTION**  
SCALE: 1/2" = 1'-0"  
FILE:

**C SECTION**  
M-01 SCALE: 1/2" = 1'-0"  
FILE:



LAST SAVED BY: jhenbery

REV	DATE	BY	DESCRIPTION

DESIGNED	MV
DRAWN	DVP
CHECKED	EP
DATE	MARCH 2013



MANATEE COUNTY
SWWRF HEADWORKS REHABILITATION
MECHANICAL
SECTIONS

VERIFY SCALES	JOB NO. 7880K10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. M-02
0 1"	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	



ELECTRICAL PLAN/LAYOUT

ONE LINE DIAGRAMS, RISER DIAGRAMS AND SCHEMATICS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION																															
	TELEPHONE TERMINAL CABINET		FIRE ALARM SMOKE DETECTOR EC- MOUNTED TO EXPOSED CEILING H- HARSH ENVIRONMENT RATED		MOTOR, SQUIRREL CAGE INDUCTION UNLESS OTHERWISE NOTED - HORSEPOWER INDICATED		MANUAL MOTOR STARTER SWITCH, NEMA 4X UNLESS OTHERWISE NOTED. NUMBER OF POLES AS REQUIRED																															
	TERMINAL JUNCTION BOX		FIRE ALARM HEAT DETECTOR EC- MOUNTED TO EXPOSED CEILING		OVERLOAD RELAY HEATER		PUSH-BUTTON STATION, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. 4X = NEMA 4X 316 STAINLESS STEEL ENCLOSURE. SEE CONTROL DIAGRAMS FOR TYPE PUSH BUTTON REQUIRED																															
	ELECTRICAL EQUIPMENT		BEAM DETECTOR, T=TRANSMITTER, R=RECEIVER		MAGNETIC STARTER WITH NEMA SIZE INDICATED		NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 316 STAINLESS STEEL																															
	CEILING MOUNTED DOWNLIGHT LUMINAIRE - SEE SCHEDULE FOR TYPE		DUCT SMOKE DETECTOR		MOTOR CIRCUIT PROTECTOR, MAGNETIC, 3 POLE UNLESS INDICATED OTHERWISE.		FUSED DISCONNECT SWITCH, SIZE INDICATED (60 = SWITCH RATING; 40 = FUSE RATING) 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 316 STAINLESS STEEL																															
	FLOURESCENT LUMINAIRE, SURFACE OR LAY IN TYPE SEE SCHEDULE FOR TYPE		REMOTE TEST UNIT		CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.		LIGHTING CONTACTOR, CURRENT RATING INDICATED, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM FOR NUMBER OF POLES. 4X = NEMA 4X 316 STAINLESS STEEL																															
	LUMINAIRE AND POLE - SEE SCHEDULE FOR TYPE		SECURITY CARD READER		FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.		MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 12 ENCLOSURE, UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM. 4X = NEMA 4X 316 STAINLESS STEEL																															
	WALL MOUNTED LUMINAIRE - SEE SCHEDULE FOR TYPE	<b>ABBREVIATIONS</b>			SWITCH - CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.		ELECTRIC RESISTANCE HEATER																															
	FLOOD LIGHTS - AIM IN THE DIRECTION SHOWN SEE SCHEDULE FOR TYPE	<b>ABBREVIATIONS</b>			DRAWOUT CIRCUIT BREAKER, LOW VOLTAGE 600= FRAME RATING, 400=TRIP SETTING		ELAPSED TIME METER																															
	EXIT LIGHTS - SOLID SECTION IS DIRECTION OF FACE SEE SCHEDULE FOR TYPE	<b>ABBREVIATIONS</b>			DRAWOUT CIRCUIT BREAKER, MEDIUM VOLTAGE 600= FRAME RATING, 400=TRIP SETTING		CONTACT - NORMALLY OPEN WITH COIL INDICATED																															
	EMERGENCY LIGHT WITH BATTERY PACK SEE SCHEDULE FOR TYPE	<b>ABBREVIATIONS</b>			DRAWOUT FUSED SWITCH, LOW OR MEDIUM VOLTAGE 600= FRAME RATING, 400=FUSE RATING		CONTACT - NORMALLY CLOSED WITH COIL INDICATED																															
<b>LIGHTING FIXTURE POWER AND SWITCHING LEGEND</b>		<b>ABBREVIATIONS</b>			CURRENT TRANSFORMER, NUMBER OF WINDINGS INDICATED		CONTROL RELAY, X=SEQUENTIAL NUMBER																															
	X=FIXTURE TYPE Y=PANEL-CIRCUIT BRKR Z=SWITCH IF NO Z INDICATED, CONNECT DIRECTLY TO CIRCUIT BREAKER.	<b>ABBREVIATIONS</b>			TRANSFORMER, VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE		LATCHING RELAY, X=SEQUENTIAL NUMBER L - LATCH, U - UNLATCH																															
	CONDUIT/CONDUCTOR - REFER TO CIRCUIT SCHEDULE	<b>ABBREVIATIONS</b>			LIGHTNING ARRESTER		TIME DELAY RELAY, X=SEQUENTIAL NUMBER NOTC=NORMALLY OPEN TIMED CLOSED NOTO=NORMALLY OPEN TIMED OPEN AFTER CLOSE NCTO=NORMALLY CLOSED TIMED OPEN NCTC=NORMALLY CLOSED TIMED CLOSED AFTER OPEN																															
	HOME RUN - PANEL AND CIRCUIT NUMBER SHOWN	<b>ABBREVIATIONS</b>			CAPACITOR OR SURGE CAPACITOR		TEMPERATURE OPENS ON RISING TEMPERATURE, CLOSES ON FALLING TEMPERATURE																															
	EXPOSED CONDUIT AND CONDUCTORS*	<b>ABBREVIATIONS</b>			UTILITY METER		OPENS ON RISING TEMPERATURE, CLOSES ON FALLING TEMPERATURE																															
	UNDERGROUND CONDUIT AND CONDUCTORS* NOTE: * ALL UNMARKED CONDUIT RUNS CONSIST OF 2#12, 1#12G IN 3/4" C.	<b>ABBREVIATIONS</b>			GENERATOR		SELECTOR SWITCH: MAINTAINED CONTACT WITH CONTACT POSITION INDICATED, CHART IDENTIFIES OPERATION																															
	YARD CONDUIT. REFER TO YARD CONDUIT SCHEDULE	<b>ABBREVIATIONS</b>			METER SCALE RANGE SHOWN IF REQUIRED A - AMPS PM - PHASE MONITOR V - VOLTS P - POWER METER	<table border="1"> <tr> <th colspan="4">POSITION</th> </tr> <tr> <th>CKT.</th> <th>HAND</th> <th>OFF</th> <th>AUTO</th> </tr> <tr> <td>1</td> <td>X</td> <td>O</td> <td>O</td> </tr> <tr> <td>2</td> <td>O</td> <td>O</td> <td>X</td> </tr> </table>	POSITION				CKT.	HAND	OFF	AUTO	1	X	O	O	2	O	O	X																
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1	X	O	O																																			
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	DIRECT BURIED CONDUIT	<b>ABBREVIATIONS</b>			FUSE	<table border="1"> <tr> <th colspan="4">GENERAL</th> </tr> <tr> <th>SYMBOL</th> <th colspan="3">DESCRIPTION</th> </tr> <tr> <td></td> <td colspan="3">CONNECTION POINT TO EQUIPMENT SPECIFIED, FURNISHED AND INSTALLED UNDER OTHER SECTIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS SECTION.</td> </tr> <tr> <td></td> <td colspan="3">INDICATES RACEWAY AND CIRCUIT CONDUCTORS. FIRST NUMBER IS RACEWAY SIZE. THE FOLLOWING NUMBERS ARE THE CONDUCTOR QUANTITIES, SIZES, AND TYPES.</td> </tr> <tr> <td></td> <td colspan="3">DEMOLITION TO BE REMOVED OR DELETED</td> </tr> <tr> <th colspan="4">LINE WEIGHT</th> </tr> <tr> <td></td> <td colspan="3">NEW</td> </tr> <tr> <td></td> <td colspan="3">EXISTING</td> </tr> </table>	GENERAL				SYMBOL	DESCRIPTION				CONNECTION POINT TO EQUIPMENT SPECIFIED, FURNISHED AND INSTALLED UNDER OTHER SECTIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS SECTION.				INDICATES RACEWAY AND CIRCUIT CONDUCTORS. FIRST NUMBER IS RACEWAY SIZE. THE FOLLOWING NUMBERS ARE THE CONDUCTOR QUANTITIES, SIZES, AND TYPES.				DEMOLITION TO BE REMOVED OR DELETED			LINE WEIGHT					NEW				EXISTING		
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	CONDUIT, STUBBED AND CAPPED AS SHOWN	<b>ABBREVIATIONS</b>			SURGE PROTECTION DEVICE		GROUND																															
	GROUND WIRE, 4/0 UNLESS OTHERWISE NOTED	<b>ABBREVIATIONS</b>			GROUND FAULT RELAY WITH C.T.		CONTROL TRANSFORMER																															
	6 FOOT GROUND WIRE PIGTAIL, 4/0 UNLESS OTHERWISE NOTED	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED																															
	GROUND ROD - 5/8" x 20' COPPER CLAD UNLESS OTHERWISE NOTED	<b>ABBREVIATIONS</b>			PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK		REMOTE DEVICE																															
	GROUND TEST WELL, SEE DETAIL	<b>ABBREVIATIONS</b>			INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE		PUSH TO TEST AND CONNECT INDICATING LIGHT SCHEMATIC DIAGRAMS ONLY A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE																															
	WALL SWITCH: 2- DOUBLE POLE P- PILOT LIGHT 3- THREE WAY K- KEY OPERATED 4- FOUR WAY D- DIMMER WP- WEATHERPROOF CRE- CORROSION RESISTANT	<b>ABBREVIATIONS</b>			GROUND FAULT INTERRUPTER		REMOTE DEVICE																															
	CONVENIENCE RECEPTACLE - 20A DUPLEX UNLESS SPECIFIED OTHERWISE WP- WEATHERPROOF C- CLOCK HANGER TL- TWIST LOCK CRE- CORROSION RESISTANT GFI-GROUND FAULT INTERRUPTER	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		REMOTE DEVICE																															
	CONVENIENCE RECEPTACLE - 20A QUADROPLEX UNLESS SPECIFIED OTHERWISE	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED		REMOTE DEVICE																															
	CONVENIENCE RECEPTACLE - 20A DUPLEX UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		REMOTE DEVICE																															
	RECEPTACLE, SPECIAL PURPOSE - AMPERAGE AS INDICATED.	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED		REMOTE DEVICE																															
	TELEPHONE/DATA RECEPTACLE (OUTLET BOX, 18" AFF) W - WALL MOUNTED, 54" AFF	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		REMOTE DEVICE																															
	TELEPHONE/DATA RECEPTACLE MOUNTED FLUSH IN FLOOR	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED		REMOTE DEVICE																															
	JUNCTION BOX NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. 4X = NEMA 4X SS	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		REMOTE DEVICE																															
	FIRE ALARM PULL STATION	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED		REMOTE DEVICE																															
	FIRE ALARM HORN/STROBE LIGHT	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		REMOTE DEVICE																															
	FIRE ALARM STROBE LIGHT	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED		REMOTE DEVICE																															
	FIRE ALARM CONTROL PANEL	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		REMOTE DEVICE																															
	FIRE ALARM ANNUNCIATOR PANEL	<b>ABBREVIATIONS</b>			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED		REMOTE DEVICE																															

LAST SAVED BY: lwin

DESIGNED	TW		
DRAWN	DEU		
CHECKED			
PFH			
DATE			
SEPTEMBER 2012			
REV	DATE	BY	DESCRIPTION
PROJECT NO: 7880K10	FILENAME: 7880K10-E-01.dwg		

THEIN WIN, P.E. No. 65722
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**HILLERS ELECTRICAL ENGINEERING, INC.**  
23257 STATE ROAD 7, SUITE 100  
BOCA RATON, FLORIDA 33428  
(561) 451-9185  
(561) 451-4886 FAX  
LICENSE NO: EB 0006877



MANATEE COUNTY
SWWRF HEADWORKS REHABILITATION
ELECTRICAL
ELECTRICAL LEGEND AND SYMBOLS

VERIFY SCALES	JOB NO. 7880K10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. E-1
0 1"	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	