

# CONSTRUCTION PLANS FOR NWRP HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS MANATEE COUNTY, FLORIDA

SEPTEMBER 2019

MANATEE COUNTY PROJECT #6091380/6091480/6091580

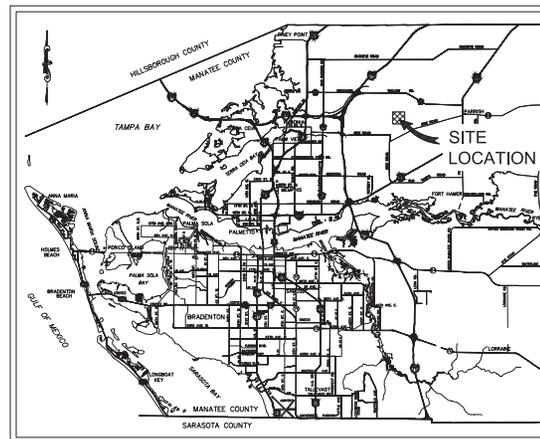


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CONTACT: TONY RUSSO, P.E.  
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TRICON ENGINEERING  
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PROJECT VICINITY MAP  
N.T.S.

## CONSTRUCTION PLANS

PREPARED BY  
**Kimley-Horn**

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THE SITE CONSTRUCTION STAKEOUT SHALL BE PERFORMED UNDER THE DIRECTION OF A FLORIDA REGISTERED SURVEYOR. AUTOCAD FILES WILL BE FURNISHED TO AID IN THE SITE CONSTRUCTION STAKEOUT. ANY DISCREPANCIES FOUND BETWEEN AUTOCAD FILES AND SITE CONSTRUCTION PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR CLARIFICATION PRIOR TO THAT STAKEOUT.

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W. WADE WOOD, P.E. FLORIDA LICENSE NUMBER: 69051 DATE:	

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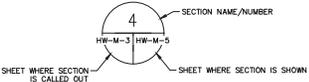
Table with 3 columns: SECTION, SHEET NUMBER, SHEET TITLE. Lists various sections like GENERAL, HEADWORKS, AX/AEROBIC BASINS, CLARIFIERS, CHLORINE CONTACT CHAMBERS, STANDARD DETAILS, GATE SCHEDULE, and STRUCTURAL.

Table with 3 columns: ELECTRICAL, INSTRUMENTATION, and their corresponding symbols and descriptions like E-1 ELECTRICAL LEGEND AND ABBREVIATIONS, HW-E-1 HEADWORKS AREA ELECTRICAL SITE PLAN, etc.

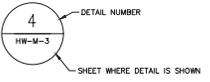
PIPE AND FITTING SYMBOLS

Table showing pipe and fitting symbols for sizes 2" and larger, and 2" and smaller. Includes symbols for elbows, tees, reducers, valves, and joints.

SECTION CALLOUT LEGEND



DETAIL CALLOUT LEGEND



GENERAL NOTES

- 1. THESE PLANS ARE SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE EXISTING CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF WORK. CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING TO CONDUCT A PRELIMINARY INVESTIGATION NECESSARY TO DETERMINE THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED.
2. LOCATION, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATION OF CONSTRUCTION, THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) AFFECTING HIS WORK.
3. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEERS CLARIFICATION BEFORE COMMENCING.
4. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, STORM DRAINS, SEWERS, UTILITIES, AND OTHER FACILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR ANY DAMAGES DUE TO HIS CONSTRUCTION.
5. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURERS' MAXIMUM RECOMMENDED DEFLECTION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE EXISTING DRAINAGE SYSTEM WITHIN THE LIMITS OF THE PROJECT AREA FOR THE DURATION OF THE PROJECT.
7. THE CONTRACTOR SHALL PROVIDE CERTIFIED RECORD DRAWINGS AS OUTLINED IN THE SPECIFICATIONS. RED-LINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APPLICATION SUBMITTED AND WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS. PAYMENT WILL NOT BE MADE TO CONTRACTOR WITHOUT APPROVED RED-LINE DRAWINGS. THE MOST CURRENT SET OF RED-LINE DRAWINGS SHALL ALSO BE BROUGHT TO EACH MONTHLY PROGRESS MEETING.
8. THE CONTRACTOR SHALL REVIEW PHASING PLAN ESTABLISHED AS PART OF THE CONSTRUCTION DOCUMENTS INCLUDED HEREIN. IF THE CONTRACTOR DESIRES TO PHASE THE PROJECT DIFFERENT THAN SHOWN, THEY SHALL SUBMIT AN ALTERNATIVE PRIOR TO CONSTRUCTION FOR REVIEW AND APPROVAL BY THE OWNER AND ENGINEER.
9. FIELD CONDITIONS MAY NECESSITATE ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED PIPELINES TO AVOID CONFLICTS. NO ADDITIONAL PAYMENT SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND THE OWNER'S ENGINEER.
10. THE CONTRACTOR SHALL INCLUDE IN HIS BID-BY-PASS PUMPING FACILITIES, PUMPS, FITTINGS, LABOR, ETC. AS NECESSARY, BASED ON METHOD AND SEQUENCE OF CONSTRUCTION TO COMPLETE ALL WORK WHILE MAINTAINING THE EXISTING WASTEWATER TREATMENT PLANT OPERATIONS AT ALL TIMES.
11. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROPERLY DISPOSE OF ALL SOLID AND LIQUID WASTEWATER, AND GRIFF WITHIN ALL PIPES TO BE DEMOLISHED, REMOVED, OR CONNECTED TO.
12. ALL PROPOSED WORK SHALL BE COORDINATED WITH WASTEWATER TREATMENT PLANT PERSONNEL AND MANATEE COUNTY UTILITIES DEPARTMENT AT LEAST TWO WEEKS IN ADVANCE OF PROPOSED CONSTRUCTION.
13. THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS PER SPECIFICATIONS SECTION 01450 TO THE ENGINEER FOR REVIEW OF ALL PIPE CONNECTIONS, TRANSITIONS, AND SPECIAL APPLICANCES PRIOR TO FABRICATION OR DELIVERY TO THE JOB SITE.
14. CONNECTIONS TO EXISTING FACILITIES SHALL BE ACCOMPLISHED IN A NEAT WORKMANSHIP LIKE WELDING. WHEN FIELD CONDITIONS INDICATE ANY VARIANCE FROM DETAILED METHODS, THE CONTRACTOR SHALL PROVIDE COMPREHENSIVE AND DETAILED DRAWINGS FOR OWNER REVIEW AND APPROVAL PRIOR TO MAKING THE CONNECTIONS.
15. UNLESS OTHERWISE INDICATED OR APPROVED, ALL BELOW GROUND DUCTILE IRON PIPE SHALL HAVE PUSH-ON OR MECHANICAL JOINTS AND ALL ABOVE GROUND DUCTILE IRON PIPE SHALL HAVE FLANGED JOINTS. ALL JOINTS SHALL BE FULLY REINFORCED. PERMANENT TO FULL RESTRAINT EXISTING PIPE AT TE-IN LOCATIONS OF NEW PIPE IN ACCORDANCE WITH JOINT RESTRAINT TABLE.
16. ALL PIPELINES SHALL HAVE A MINIMUM COVER OF 36" BELOW EXISTING GRADE UNLESS OTHERWISE NOTED OR DIRECTED.
17. WATER SHALL NOT BE PERMITTED IN BUILDING EXCAVATIONS OR TRENCHES DURING CONSTRUCTION. DOWATERING IS REQUIRED TO A MINIMUM OF 18" BELOW BOTTOM OF EXCAVATION.
18. THE CONTRACTOR SHALL NOT ALLOW ANY DISCHARGE OF WASTEWATER TO LANDS AND/OR ADJACENT WATER BODIES OR STORM DRAINS. ANY LEAKAGE MUST BE CONTAINED AND REMOVED BY THE CONTRACTOR TO THE PLANT DRAIN PUMP STATION AT THE WASTEWATER TREATMENT PLANT. CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING ANY SPILLS TO FDEP.
19. ALL BELOW-GRADE PIPE AND FITTINGS 4-INCHES AND GREATER IN DIAMETER SHALL BE MECHANICAL JOINT DUCTILE IRON. IF EXPOSED TO WASTEWATER, INTERIOR COATING SHALL BE THINME SERIES 433 PERMA-SHIELD PL. IF EXPOSED TO CLARIFIED WATER, INTERIOR COATING SHALL HAVE A STANDARD THICKNESS CEMENT LINING. ALL PIPES' AND FITTINGS' EXTERIOR COATING SHALL BE COAL TAR ENAMEL OR A FACTORY-APPLIED EPOXY. ALL COATINGS SHALL BE PER SPECIFICATIONS SECTION 02615.
20. ALL EXPOSED PIPE AND FITTINGS 4-INCHES AND GREATER IN DIAMETER SHALL BE FLANGED DUCTILE IRON. IF EXPOSED TO WASTEWATER, INTERIOR COATING SHALL BE THINME SERIES 433 PERMA-SHIELD PL. IF EXPOSED TO CLARIFIER SOUM, INTERIOR COATING SHALL HAVE A STANDARD FACTORY-APPLIED GLASS LINING. ALL PIPES' AND FITTINGS' EXTERIOR COATING SHALL BE PER SPECIFICATIONS SECTION 02615.
21. ALL EXPOSED VALVES, EQUIPMENT AND STRUCTURES SHALL BE COATED ON THE OUTSIDE WITH DESIGNATED COLORS ASSOCIATED WITH THEIR USAGE AS PROVIDED IN SPECIFICATIONS SECTION 09992.
22. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED ON THE OUTSIDE WITH DESIGNATED COLORS ASSOCIATED WITH THEIR USAGE AS PROVIDED IN SPECIFICATIONS SECTION 09992.
23. ALL NEW PIPELINES SHALL BE FUSED, PRESSURE TESTED, AND APPROVED PRIOR TO TE-INS TO EXISTING FACILITIES. THE CONTRACTOR WILL BE ALLOWED TO USE TEMPORARY PLUGS FOR PRESSURE TESTING.
24. CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES AND LOTCHES DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL BE REQUIRED TO INSTALL ALL EROSION, SEDIMENT, AND TURBIDITY CONTROL MEASURES PRIOR TO CONSTRUCTION OF ANY COMPONENTS ASSOCIATED WITH THE PROJECT.

- SEDIMENT CONTROL INCLUDES SILT DAMS, TRAPS, EROSION PROTECTION, AND ANY OTHER APPLICANCES NEEDED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS.
25. CONTRACTOR SHALL PROVIDE PROTECTIVE MATTING, FUEL CONTAINMENT AND ALL OTHER MATERIALS, EQUIPMENT AND LABOR TO PROTECT THE STAGING AREA DURING CONSTRUCTION.
26. CONTRACTOR SHALL, PRIOR TO BEGINNING CONSTRUCTION, SUBMIT A FUELING SPILL PREVENTION PLAN THAT SHALL CLEARLY INDICATE HOW FUEL SPILLS WILL BE PREVENTED WHEN FUELING BOTH WITHIN AND OUTSIDE OF THE STAGING AREA.
27. THE CONTRACTOR SHALL COORDINATE THE STAGING AREA WITH THE OWNER, AND IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A SECURE AREA FOR THE STORAGE AND STAGING OF EQUIPMENT, INCLUDING BUT NOT LIMITED TO FENCING, GATES, AND ANY ADDITIONAL ITEMS THAT MAY BE NECESSARY TO SECURE THE AREA.
28. CONTRACTOR SHALL MAINTAIN PROCESS FLOWS IN ACCORDANCE WITH EPA RELIABILITY RULES WHILE PERFORMING WORK AT THE PLANT. TEMPORARY MODIFICATIONS TO PROCESS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER.

UTILITY NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE FOLLOWING JURISDICTIONAL BODIES AND UTILITY COMPANIES:
NORTH WATER RECLAMATION FACILITY
DUNA MILL
8500 69TH STREET EAST
PALM BAY, FL 32909
941-792-8811 EXT. 8056
CALL 2 BUSINESS DAYS BEFORE YOU DIG
IT'S THE LAW!
Know what's below. Call before you dig.
MANATEE COUNTY PUBLIC WORKS
TONY RUSSO, P.E.
1201 20TH AVENUE EAST
BRADENTON, FL 34208-3916
(941) 708-7450 EXT. 7349
2. ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE MANATEE COUNTY UTILITY STANDARDS, UNLESS OTHERWISE SPECIFIED.
3. ALL VALVE BOX COVERS SHALL BE PAINTED TO INDICATE THEIR TYPE OF SERVICE.
4. ALL TEST POINT TAPPING SHALL BE CUT LOOSE FROM THE CORPORATION. STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. THE CORPORATION STOP SHALL BE CAPPED AND REMAIN IN PLACE.

RESTORATION AND MISCELLANEOUS NOTES

- 1. ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL REPLACE ALL EXISTING PAVING, STABILIZED EARTH, CURBS, SIDEWALKS, FENCES, LANDSCAPING, AND OTHER IMPROVEMENTS WITH THE SAME OR BETTER TYPE AND QUANTITY OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
3. ALL EXISTING FENCES DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED AND REINSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER UNLESS SHOWN TO BE REMOVED ON CONSTRUCTION PLANS.
4. CONTRACTOR SHALL RESTORE ALL IRRIGATION SYSTEM COMPONENTS TO PRE-CONSTRUCTION CONDITIONS.
5. ALL DISTURBED GRASSED AREAS SHALL BE RESTORED WITH SOIL IN LINE KIND UNLESS OTHERWISE DIRECTED BY OWNER. CONTRACTOR SHALL ROLL ALL SOODED AREAS.
6. CONCRETE SIDEWALKS OUTSIDE OF DRIVEWAYS SHALL BE RESTORED WITH 4 INCHES OF 3,000 PSI CONCRETE PER FOOT DESIGN STANDARDS, SECTIONS 522 & 310.

ABBREVIATIONS

Table listing abbreviations and their corresponding full names: ARV AIR RELEASE VALVE, BW BUILT-UP, CCW CHLORINE CONTACT CHAMBER, etc.



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KHA PROJECT 145-00021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY NEW
MANATEE COUNTY



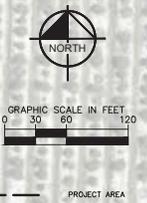
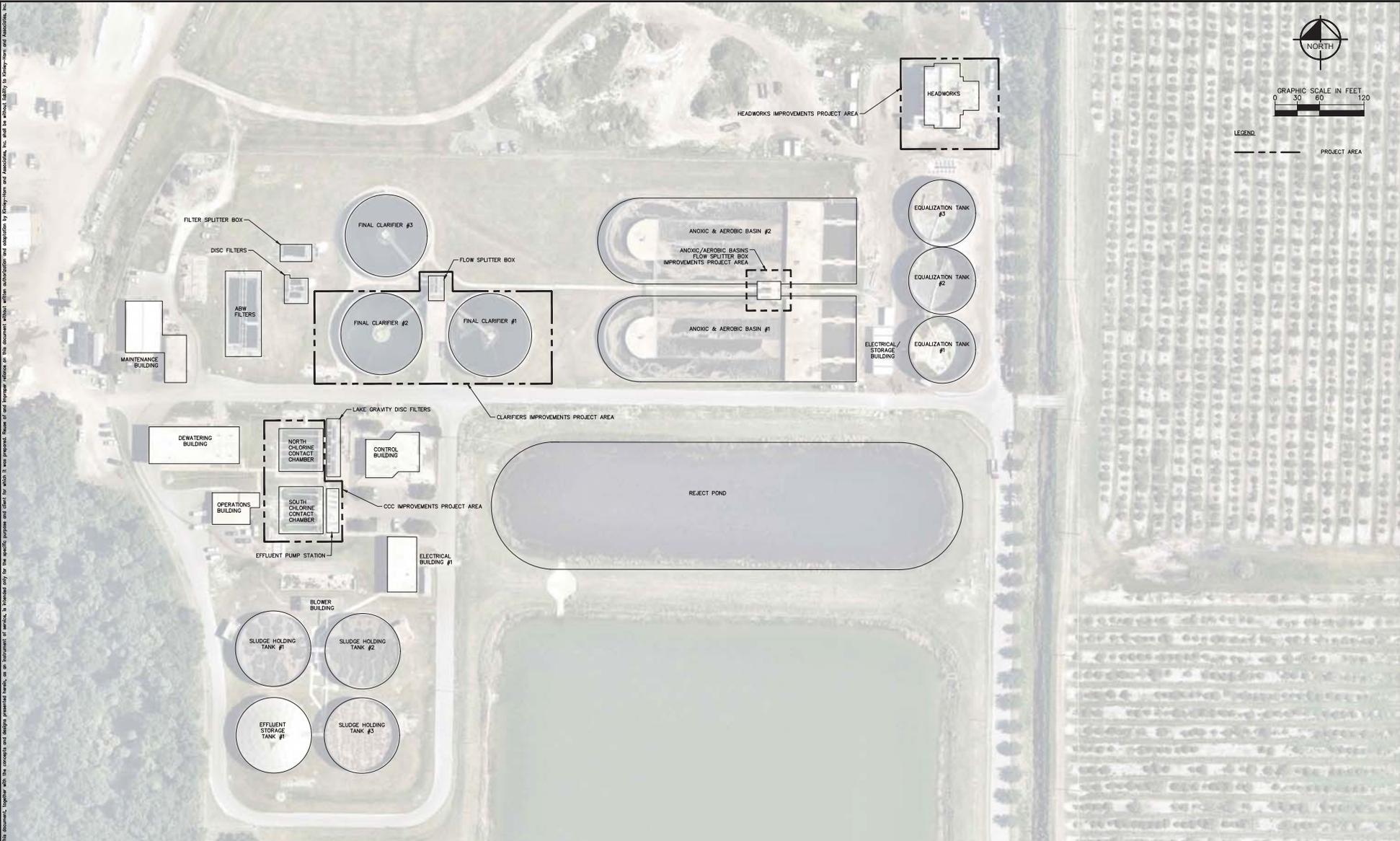
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FL STATE BOARD OF PROFESSIONAL ENGINEERS

NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

DRAWING INDEX AND GENERAL NOTES G-2

Table with 4 columns: No., REVISIONS, DATE, BY

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**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

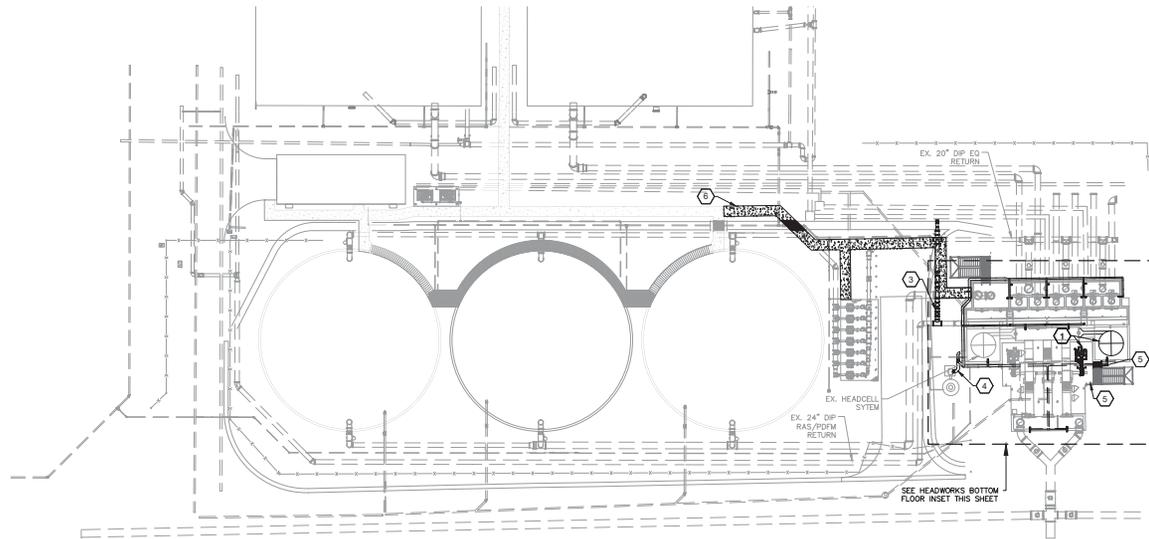
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FL DATE:

**PROJECT LOCATION MAP**

SHEET NUMBER	G-3
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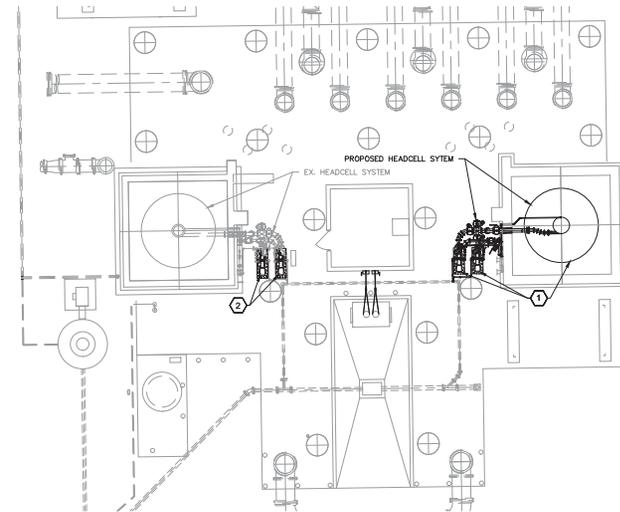
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**SITE CONSTRUCTION**  
1" = 30'-0"

**CONSTRUCTION SEQUENCING**

- ① INSTALL PROPOSED HEADCELL SYSTEM INCLUDING PUMPS & PERFORM EQUIPMENT TESTING
- ② REPLACE EX. HEADCELL SYSTEM PUMPS
- ③ COORDINATE WITH COUNTY TO CLOSE APPROPRIATE VALVES AND SHUT OFF RAS/PDFM PUMPS TO INSTALL RAS/PDFM RETURN TIE-IN
- ④ COORDINATE WITH EVOQUA TO INSTALL/REHABILITATE ODOR CONTROL DUCTWORK
- ⑤ INSTALL LIGHTING AND STAIRCASE EXTENSION
- ⑥ INSTALL SIDEWALK



**HEADWORKS BOTTOM FLOOR CONSTRUCTION**  
1" = 10'-0"

ADDENDUM 6	2/22/2017	WW
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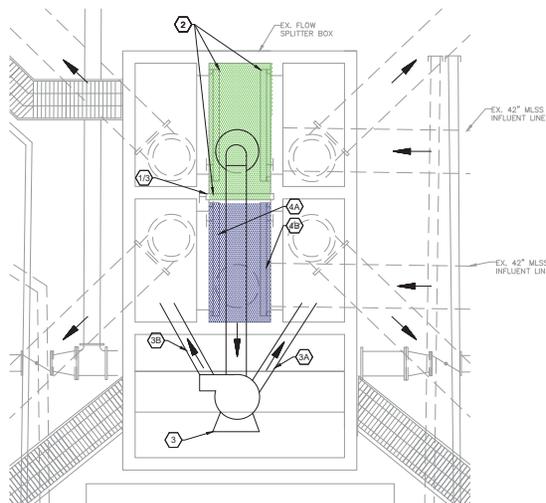
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AND CCC IMPROVEMENTS**  
MANATEE COUNTY



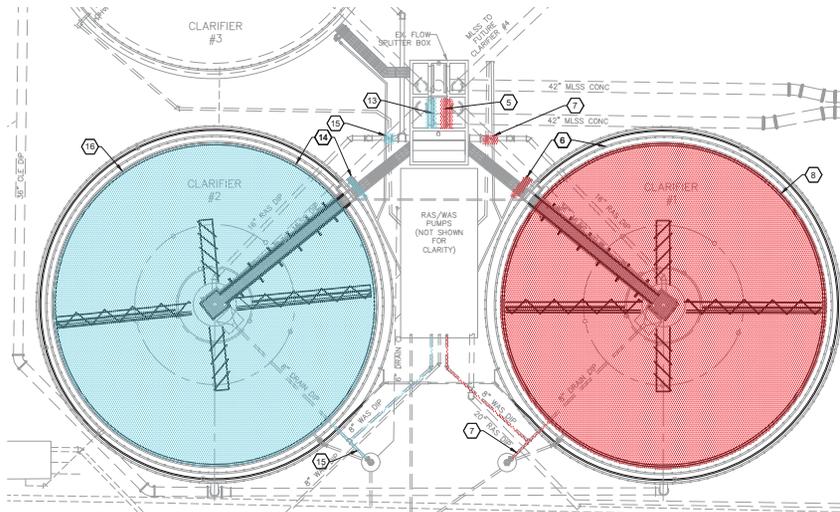
**HEADWORKS PHASING PLAN**

SHEET NUMBER  
**G-4**

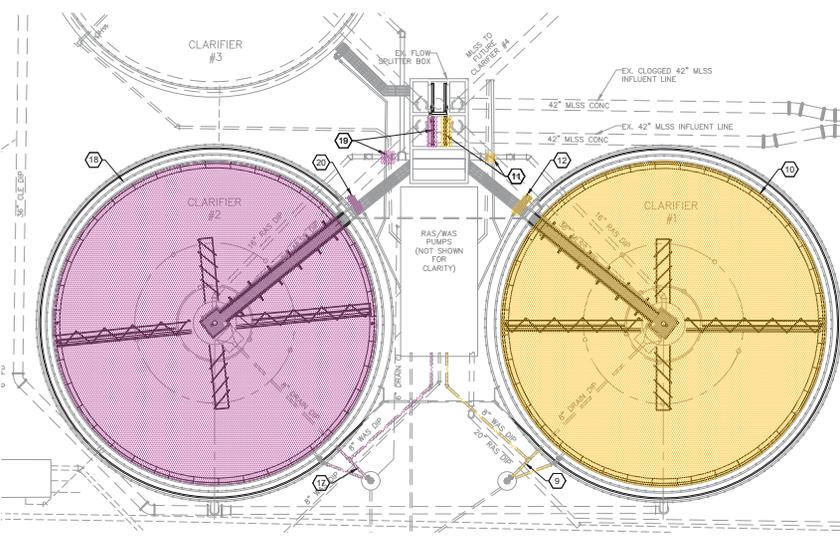
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**FLOW SPLITTER BOX GATE MODIFICATIONS**  
1" = 5'-0"



**CLARIFIER DEMOLITION**  
1" = 20'-0"



**CLARIFIER MODIFICATIONS**  
1" = 20'-0"



- CONSTRUCTION SEQUENCING**
- PHASE I GATE REPLACEMENTS
- PHASE I GATE REPLACEMENTS SEQUENCING**
- 1 COORDINATE WITH COUNTY TO CLOSE GATE TRANSFERRING ALL FLOWS TO CLARIFIER #1 AND #2
  - 2 PERFORM PHASE I GATE REPLACEMENTS
- PHASE II GATE REPLACEMENTS
- PHASE II GATE REPLACEMENTS SEQUENCING**
- 3 COORDINATE WITH COUNTY TO CLOSE GATE TRANSFERRING FLOWS TO CLARIFIER #3 AND INSTALL BYPASS PUMP SYSTEM TO TRANSFER FLOWS TO CLARIFIER #1 OR #2
  - 3A CLOSE CLARIFIER #1 GATE AND PUMP FLOWS TO CLARIFIER #1
  - 3B REPLACE CLARIFIER #2 GATE
  - 3C CLOSE CLARIFIER #2 GATE AND PUMP FLOWS TO CLARIFIER #2
  - 3D REPLACE CLARIFIER #1 GATE
- PHASE III DEMOLITION
- PHASE III DEMOLITION SEQUENCING**
- 5 COORDINATE WITH COUNTY TO CLOSE CLARIFIER #1 GATE TRANSFERRING ALL FLOWS TO CLARIFIER #2 AND #3
  - 6 SHUT OFF CLARIFIER #1 EQUIPMENT AND SCUM PUMP
  - 7 CLOSE EX. CLARIFIER #1 16" RAS LINE VALVE AND DRAIN CLARIFIER
  - 8 PERFORM PHASE III EQUIPMENT DEMOLITION
- PHASE III MODIFICATIONS
- PHASE III MODIFICATIONS SEQUENCING**
- 9 HYDROJET CLARIFIER #1 8" DRAIN LINES
  - 10 PERFORM PHASE III MODIFICATIONS & EQUIPMENT TESTING
  - 11 OPEN CLARIFIER #1 GATE AND 16" RAS LINE VALVE
  - 12 TURN ON CLARIFIER #1 EQUIPMENT AND SCUM PUMP
- PHASE IV DEMOLITION
- PHASE IV DEMOLITION SEQUENCING**
- 13 COORDINATE WITH COUNTY TO CLOSE CLARIFIER #2 GATE TRANSFERRING ALL FLOWS TO CLARIFIER #1 AND #3
  - 14 SHUT OFF CLARIFIER #2 EQUIPMENT AND SCUM PUMP
  - 15 CLOSE EX. CLARIFIER #2 16" RAS LINE VALVE AND DRAIN CLARIFIER
  - 16 PERFORM PHASE IV EQUIPMENT DEMOLITION
- PHASE IV MODIFICATIONS
- PHASE IV MODIFICATIONS SEQUENCING**
- 17 HYDROJET CLARIFIER #2 8" DRAIN LINES
  - 18 PERFORM PHASE IV MODIFICATIONS & EQUIPMENT TESTING
  - 19 OPEN CLARIFIER #2 GATE & 16" RAS LINE VALVE
  - 20 TURN ON CLARIFIER #2 EQUIPMENT AND SCUM PUMP

No.	REVISIONS	DATE	BY

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KHA PROJECT  
148400021  
DATE  
1/7/2019  
SCALE AS SHOWN  
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DRAWN BY KEG  
CHECKED BY WEW

  
**NORTH WRF HEADWORKS, CLARIFIERS,  
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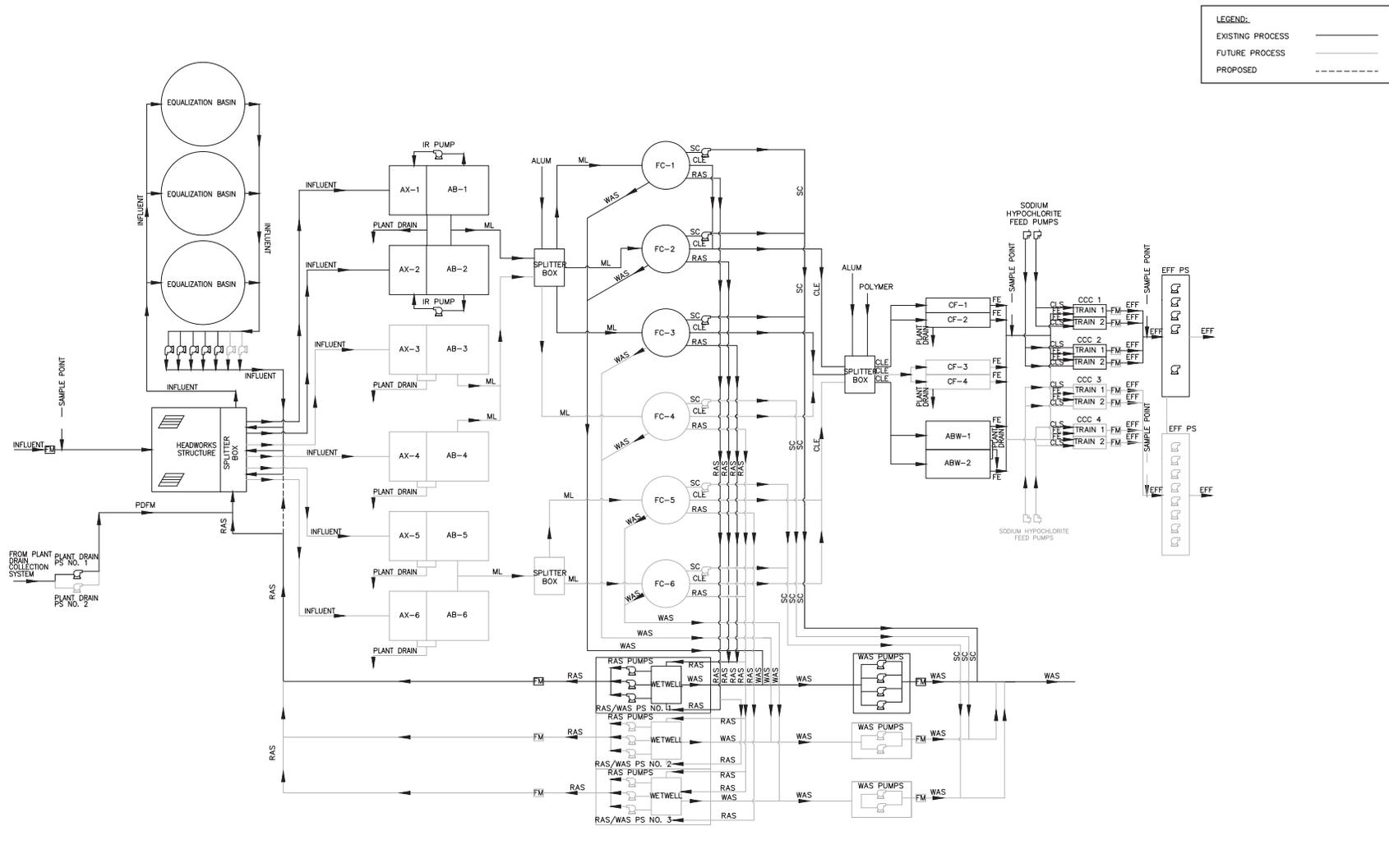
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FL  
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**CLARIFIERS PHASING PLAN**

SHEET NUMBER  
**G-5**



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PROCESS FLOW DIAGRAM

No.	REVISIONS	DATE	BY

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KHA PROJECT 148400021  
 DATE 1/7/2019  
 SCALE AS SHOWN  
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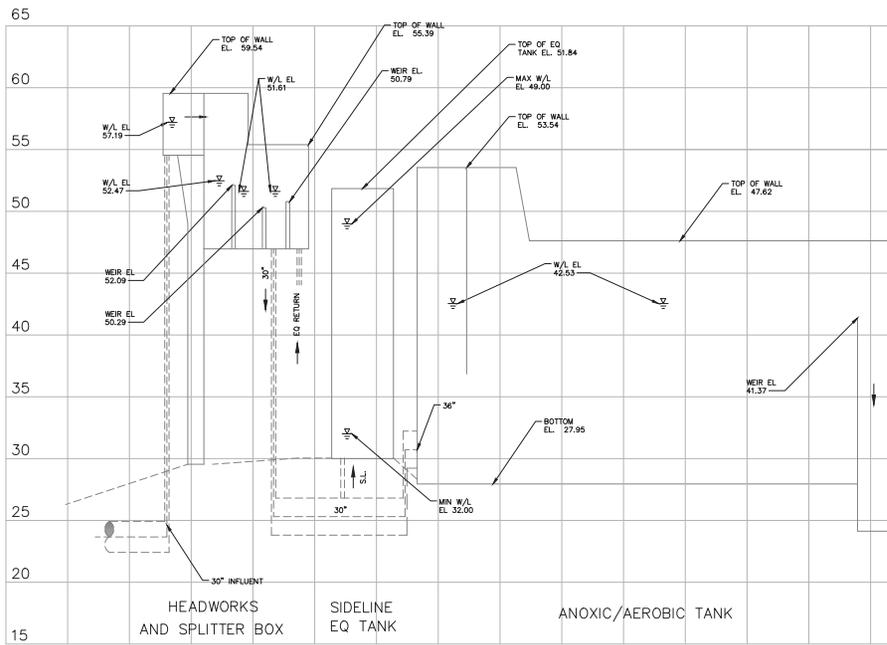
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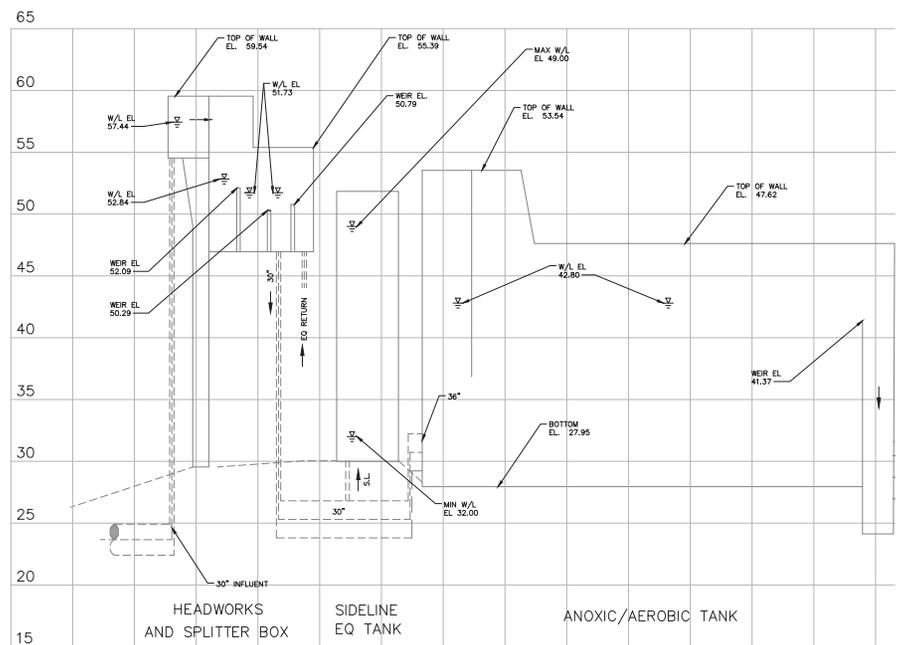
**PROCESS FLOW DIAGRAM**

SHEET NUMBER  
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HYDRAULIC PROFILE -- AVERAGE ANNUAL DAILY FLOW 8 MGD



HYDRAULIC PROFILE -- PEAK HOURLY FLOW 22 MGD

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CHECKED BY WEW

NORTH WRF HEADWORKS, CLARIFIERS,  
AND CCC IMPROVEMENTS

MANATEE COUNTY

FL DATE:

LICENSED PROFESSIONAL

Digitally signed by: [Name]  
 DN: cn=[Name], o=[Firm], ou=[Department], email=[Email], c=US

HYDRAULIC PROFILE

SHEET NUMBER  
**G-8**



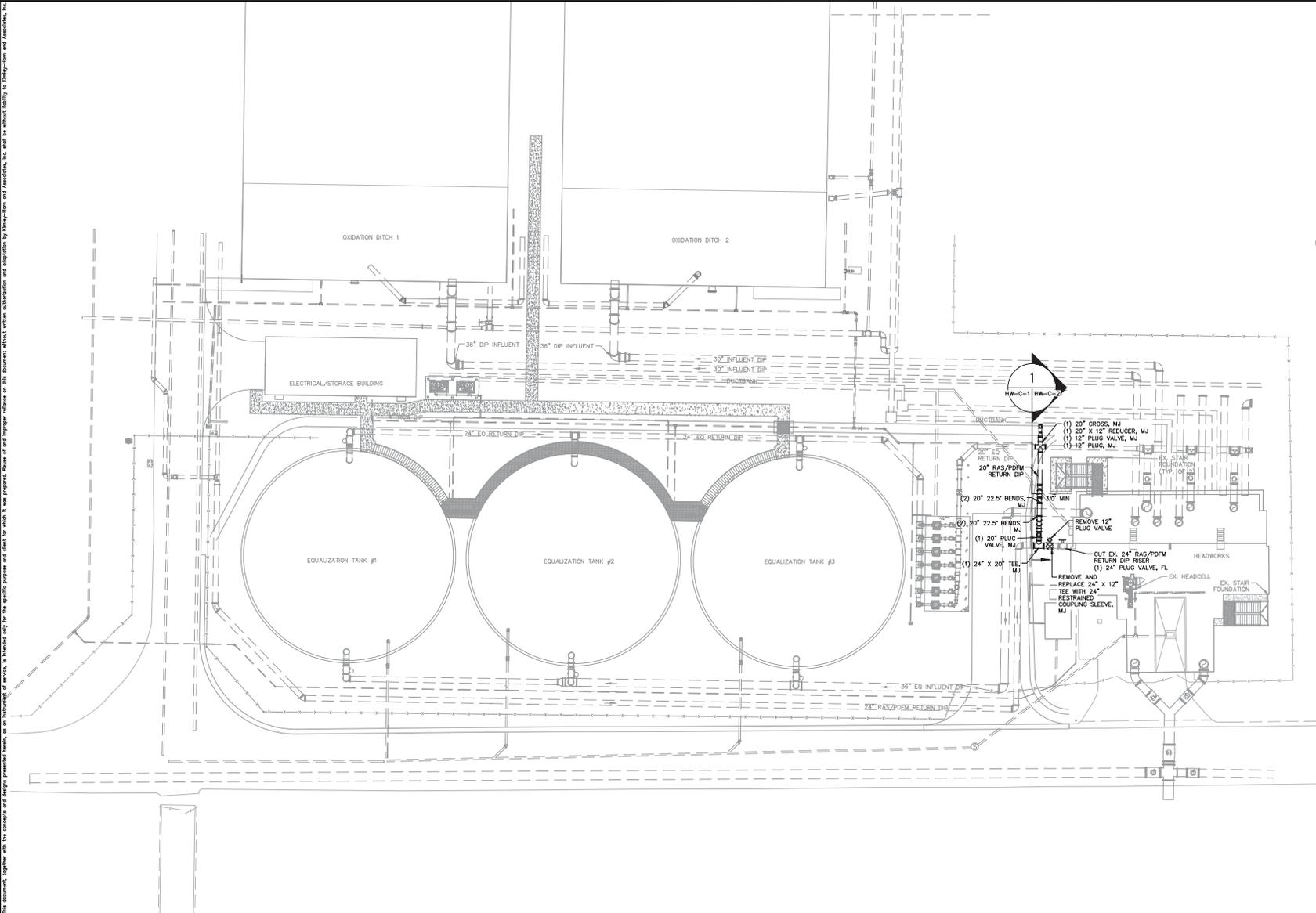
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**GENERAL NOTES**

1. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
2. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
3. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09922.

**LEGEND**



No.	REVISIONS	DATE	BY

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KHA PROJECT 145400021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

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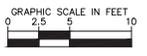
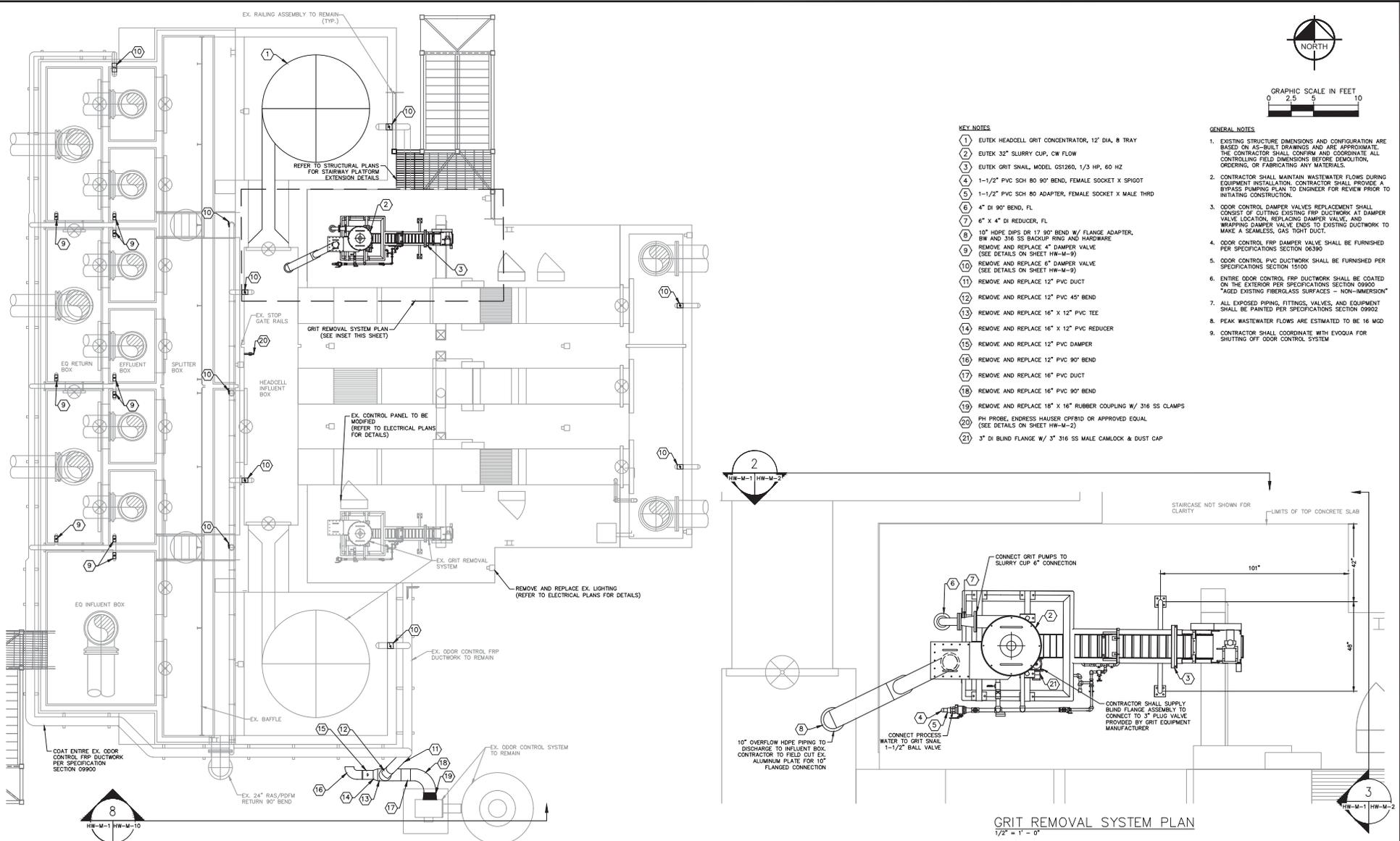
**HEADWORKS SITE PIPING PLAN**

SHEET NUMBER  
**HW-C-1**





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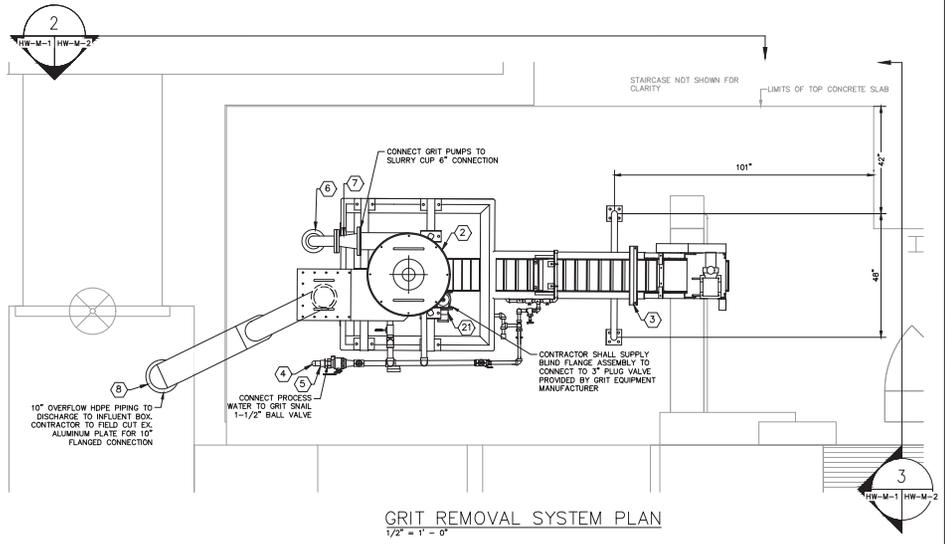


**KEY NOTES**

- 1 EUTEX HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY
- 2 EUTEX 32" SLURRY CUP, CW FLOW
- 3 EUTEX GRIT SNAIL, MODEL GS1260, 1/3 HP, 60 HZ
- 4 1-1/2" PVC SCH 80 90° BEND, FEMALE SOCKET X SPIGOT
- 5 1-1/2" PVC SCH 80 ADAPTER, FEMALE SOCKET X MALE THRD
- 6 4" DI 90° BEND, FL
- 7 6" x 4" DI REDUCER, FL
- 8 10" HDPE DIPS DR 17 90° BEND W/ FLANGE ADAPTER, BW AND 316 SS BACKUP RING AND HARDWARE
- 9 REMOVE AND REPLACE 4" DAMPER VALVE (SEE DETAILS ON SHEET HW-M-9)
- 10 REMOVE AND REPLACE 6" DAMPER VALVE (SEE DETAILS ON SHEET HW-M-9)
- 11 REMOVE AND REPLACE 12" PVC DUCT
- 12 REMOVE AND REPLACE 12" PVC 45° BEND
- 13 REMOVE AND REPLACE 16" x 12" PVC TEE
- 14 REMOVE AND REPLACE 16" x 12" PVC REDUCER
- 15 REMOVE AND REPLACE 12" PVC DAMPER
- 16 REMOVE AND REPLACE 12" PVC 90° BEND
- 17 REMOVE AND REPLACE 16" PVC DUCT
- 18 REMOVE AND REPLACE 16" PVC 90° BEND
- 19 REMOVE AND REPLACE 18" x 16" RUBBER COUPLING W/ 316 SS CLAMPS
- 20 PH PROBE, ENDRESS HAUSER CPF8D OR APPROVED EQUAL (SEE DETAILS ON SHEET HW-M-2)
- 21 3" DI BLIND FLANGE W/ 3" 316 SS MALE CAMLOCK & DUST CAP

**GENERAL NOTES**

1. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
2. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS DURING EQUIPMENT INSTALLATION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
3. ODOR CONTROL DAMPER VALVES REPLACEMENT SHALL CONSIST OF CUTTING EXISTING FRP DUCTWORK AT DAMPER VALVE LOCATION, REPLACING DAMPER VALVE, AND WRAPPING DAMPER VALVE ENDS TO EXISTING DUCTWORK TO MAKE A SEAMLESS, GAS TIGHT DUCT.
4. ODOR CONTROL FRP DAMPER VALVE SHALL BE FURNISHED PER SPECIFICATIONS SECTION 0900
5. ODOR CONTROL PVC DUCTWORK SHALL BE FURNISHED PER SPECIFICATIONS SECTION 15100
6. ENTIRE ODOR CONTROL FRP DUCTWORK SHALL BE COATED ON THE EXTERIOR PER SPECIFICATIONS SECTION 0900 "AGED EXISTING FIBERGLASS SURFACES - NON-IMMERSION"
7. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 0900
8. PEAK WASTEWATER FLOWS ARE ESTIMATED TO BE 16 MGD
9. CONTRACTOR SHALL COORDINATE WITH EVOQUA FOR SHUTTING OFF ODOR CONTROL SYSTEM



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DATE 1/7/2019
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CHECKED BY WEW

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MANATEE COUNTY

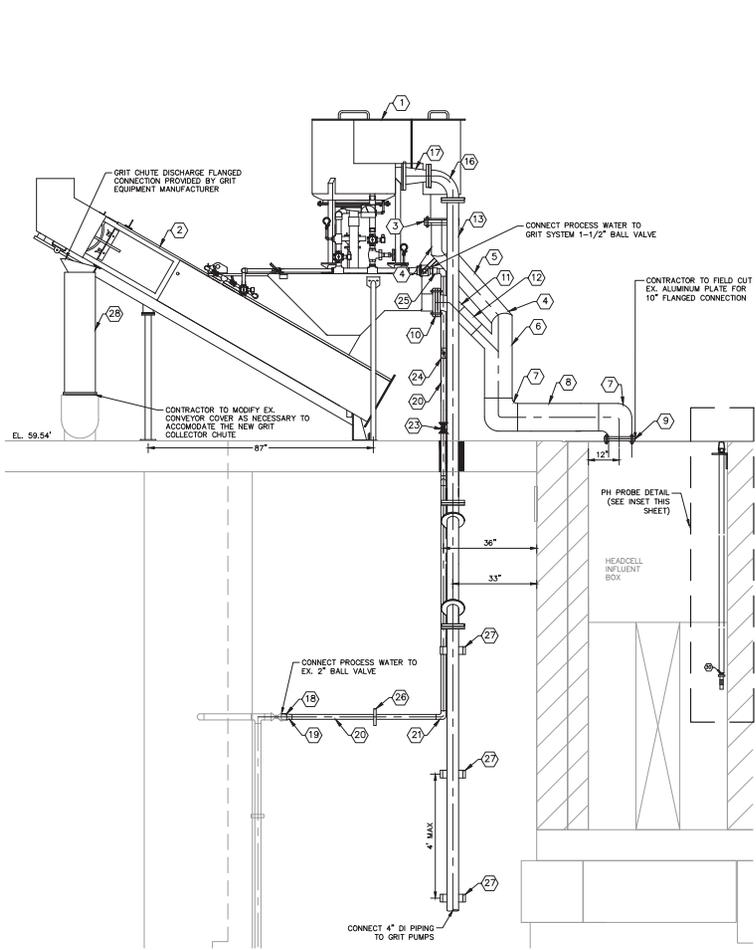
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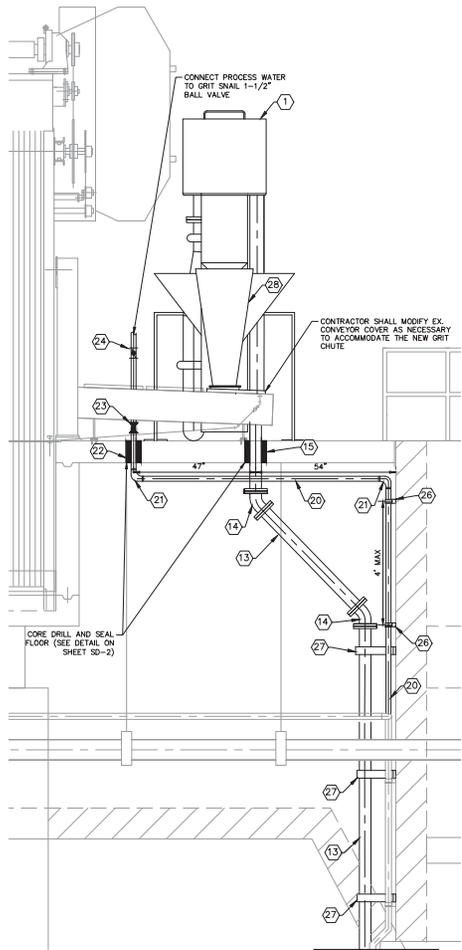
HEADWORKS IMPROVEMENTS TOP PLAN

SHEET NUMBER  
HW-M-1

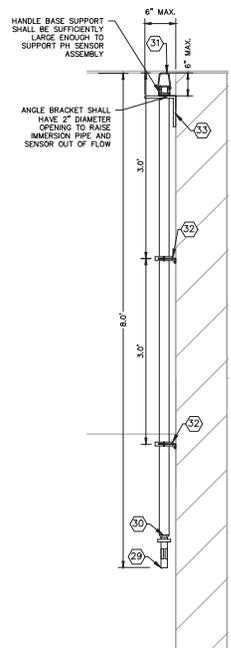
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SECTION 2  
1/2" = 1'-0"  
HW-M-1 HW-M-2



SECTION 3  
1/2" = 1'-0"  
HW-M-1 HW-M-2



PH PROBE DETAIL  
1" = 1'-0"

- GENERAL NOTES**
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  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09952.
  - ALL CORE DRILLS SHALL BE LARGE ENOUGH FOR FLANGES TO PASS THROUGH.

- KEY NOTES**
- EUTEK 32" SLURRY CUP, CW FLOW
  - EUTEK GRIT SNAIL, MODEL GS1260, 1/3 HP, 60HZ
  - 8" HDPE DIPS DR 17 FLANGE ADAPTER, BW W/ 316 SS BACKUP RING AND HARDWARE
  - 8" HDPE DIPS DR 17 45° BEND, BW
  - 8" HDPE DIPS DR 17 PIPE, BW
  - 6"x8"x10" HDPE DIPS DR 17 WYE, BW
  - 10" HDPE DIPS DR 17 90° BEND, BW
  - 10" HDPE DIPS DR 17 PIPE, BW
  - 10" HDPE DIPS DR 17 FLANGE ADAPTER, BW W/ 316 SS BACKUP RING AND HARDWARE
  - 6" HDPE DIPS DR 17 FLANGE ADAPTER, BW W/ 316 SS BACKUP RING AND HARDWARE
  - 6" HDPE DIPS DR 17 45° BEND, BW
  - 6" HDPE DIPS DR 17 PIPE, BW
  - 4" DI PIPE, FL
  - 4" DI 45° LONG RADIUS BEND, FL
  - LINK SEAL FOR 4" DI PIPE (SEE DETAIL ON SHEET SD-2)
  - 4" DI 90° LONG RADIUS BEND, FL
  - 6"x4" DI REDUCER, FL
  - 2" PVC SCH 80 PIPE, SPIGOT
  - 2"x1-1/2" PVC SCH 80 REDUCER, FEMALE SOCKET
  - 1-1/2" PVC SCH 80 PIPE, SPIGOT
  - 1-1/2" PVC SCH 80 90° BEND, FEMALE SOCKET
  - LINK SEAL FOR 1-1/2" PVC SCH 80 PIPE (SEE DETAIL ON SHEET SD-2)
  - 1-1/2" BALL VALVE
  - 1-1/2" CHECK VALVE
  - 1-1/2" PVC SCH 80 ADAPTER, FEMALE SOCKET X MALE THRD
  - STRUT PIPE SUPPORT (SEE DETAIL ON SHEET SD-1)
  - PIPE STRAP SUPPORT (SEE DETAIL ON SHEET SD-1)
  - 316 SS COLLECTOR CHUTE, BY GRIT SYSTEM MANUFACTURER
  - PH PROBE, ENDRESS HAUSER OFFRID OR APPROVED EQUAL (REFER TO ELECTRICAL PLANS FOR DETAILS)
  - 1-1/2" 316 SS IMMERSION PIPE WITH PROBE CONNECTION, ENDRESS HAUSER MODEL CYA112 ASSEMBLY OR APPROVED EQUAL
  - 316 SS HANDLE ASSEMBLY, PROVIDED BY ENDRESS HAUSER OR APPROVED EQUAL
  - 1-1/2" 316 SS CLEVIS HANGER W/ 316 SS HARDWARE AND THREADED ROD, MODEL #115X BY EMPIRE INDUSTRIES OR APPROVED EQUAL
  - 316 SS 90° ANGLE BRACKET, 3/4" THICK, 6" LENGTH WITH 2" DIAMETER OPENING

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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KHA PROJECT  
148400021  
DATE  
1/7/2019  
SCALE AS SHOWN  
DESIGNED BY WWW  
DRAWN BY KEG  
CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

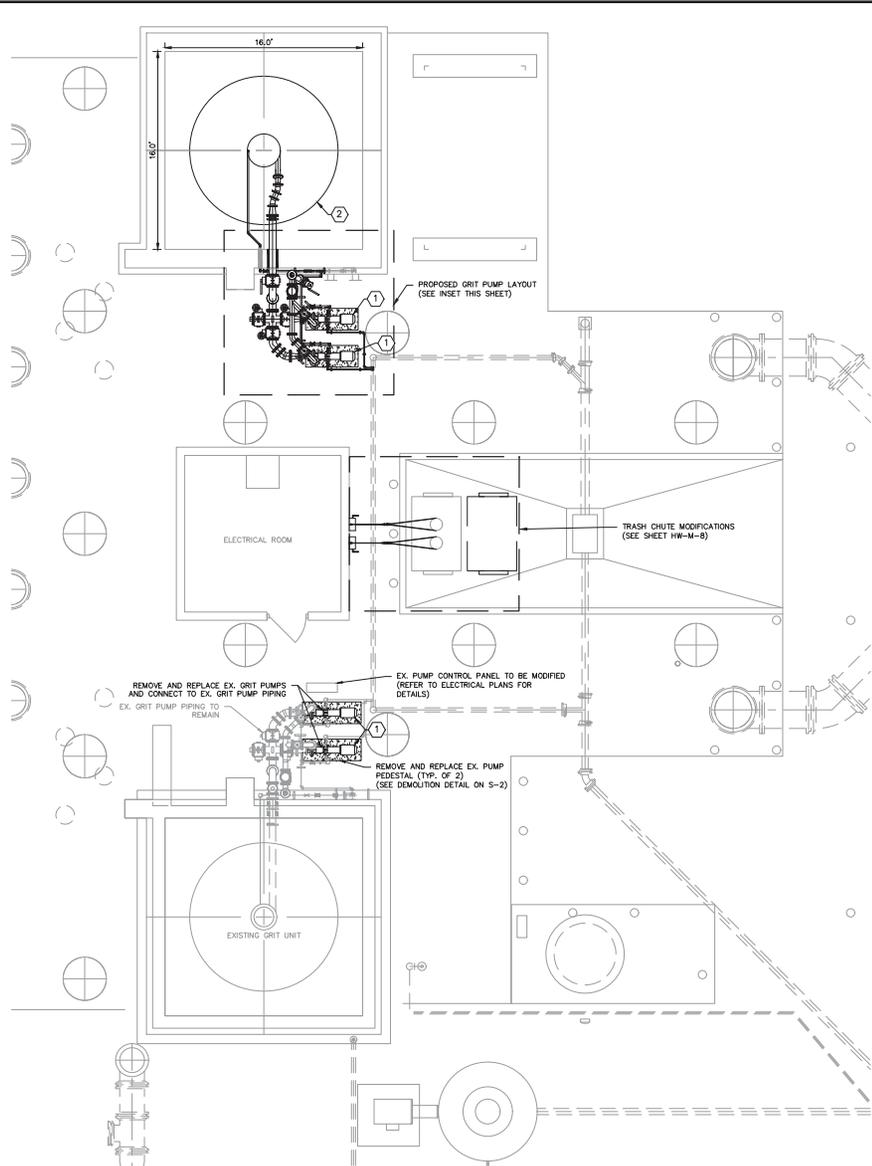
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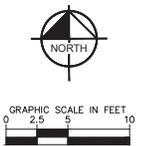
**HEADWORKS EQUIPMENT MECHANICAL SECTIONS**

SHEET NUMBER  
HW-M-2

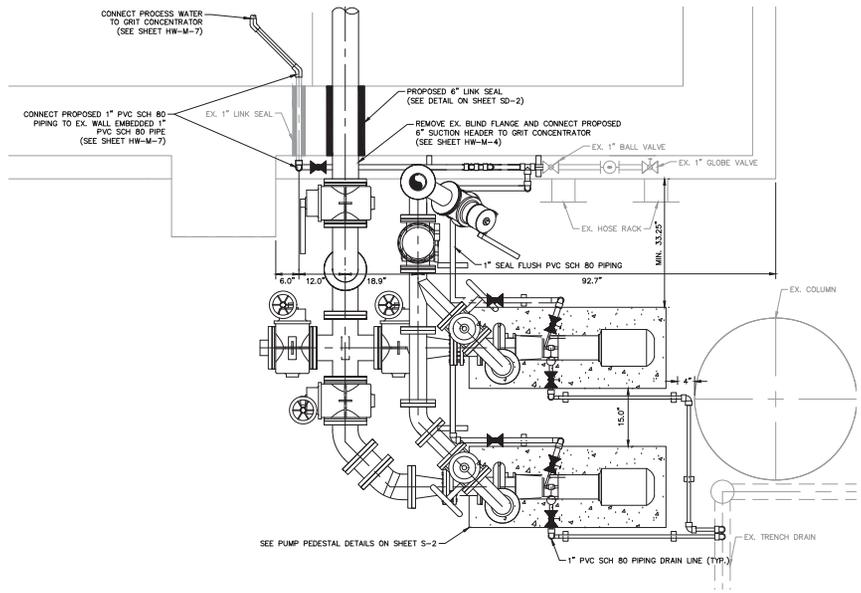
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EX. SITE LAYOUT 1  
N.T.S.  
HW-M-3



- GENERAL NOTES**
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  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09802
- KEY NOTES**
- HAYWARD GORDON GRIT PUMP, MODEL XR3(8) TORUS RECESSED IMPELLER, 6 IN IMP, 300 GPM @ 31 FT, 10HP, 60HZ
  - EUTEX HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY



PROPOSED GRIT PUMP LAYOUT  
3/4" = 1' = 0"

No.	REVISIONS	DATE	BY

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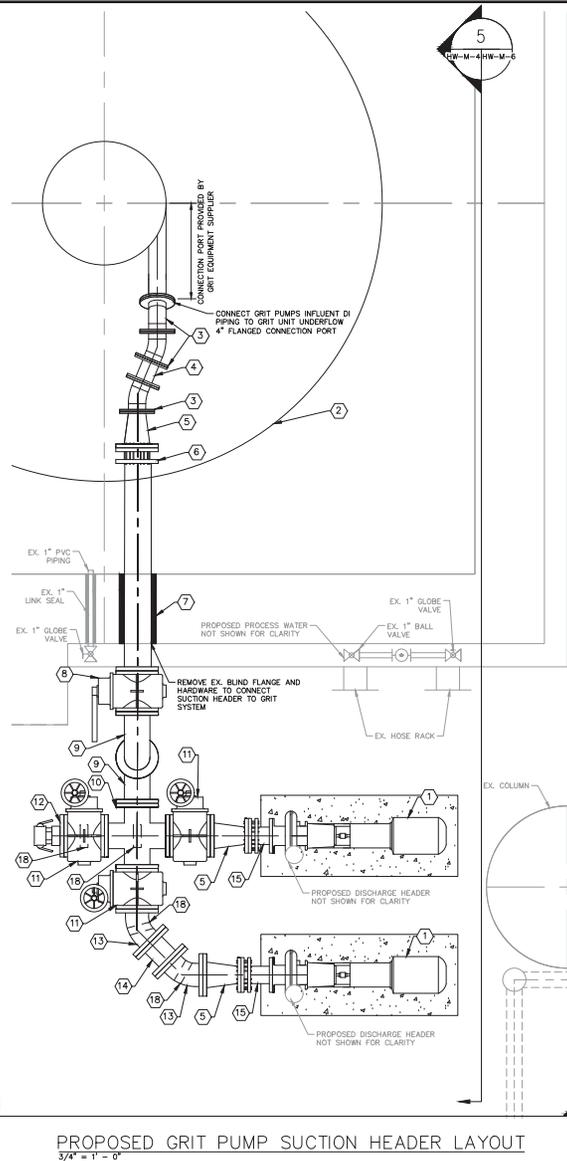
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 KEVIN E. GORDON  
 P.E.  
 FL DATE: \_\_\_\_\_

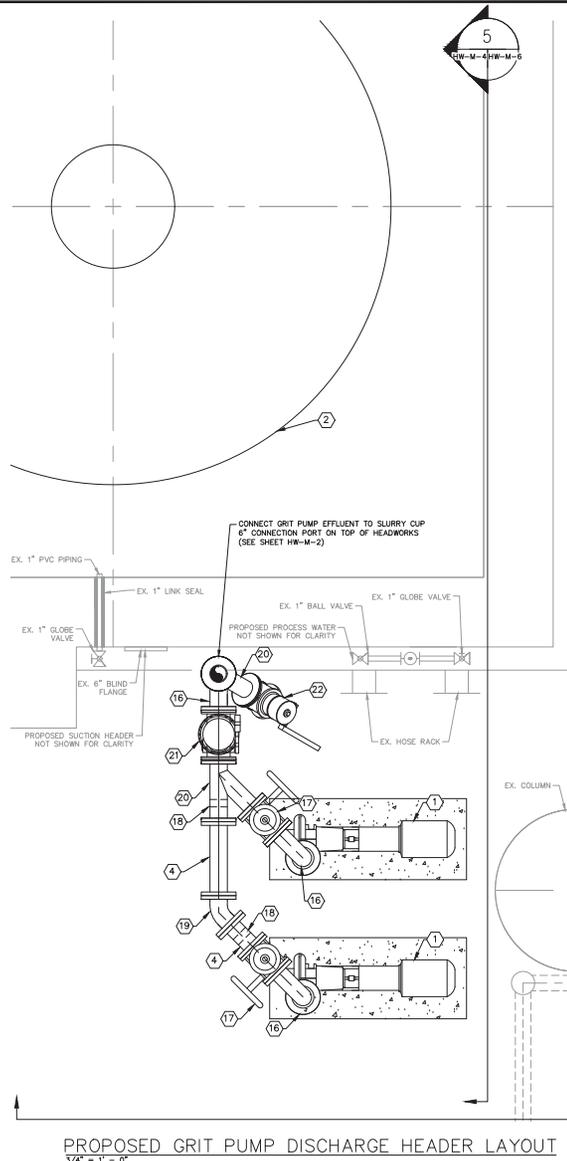
**HEADWORKS IMPROVEMENTS  
BOTTOM LAYOUT PLAN**

SHEET NUMBER  
**HW-M-3**

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PROPOSED GRIT PUMP SUCTION HEADER LAYOUT  
3/4" = 1' - 0"



PROPOSED GRIT PUMP DISCHARGE HEADER LAYOUT  
3/4" = 1' - 0"



- GENERAL NOTES**
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  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902.

- KEY NOTES**
- HAYWARD GORDON GRIT PUMP, MODEL XR3(8) TORUS RECESSED IMPELLER, 6 IN IMP, 300 GPM @ 29 FT, 15HP, 60HZ
  - EUTEK HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY
  - 4" DI 22.5° BEND, FL
  - 4" DI PIPE, FL
  - 6" X 4" DI REDUCER, FL
  - 6" DI PIPE, FL X PE W/ FLANGED COUPLING ADAPTER
  - LINK SEAL FOR 6" DI PIPE (SEE DETAIL ON SHEET SD-2)
  - 6" NUT ACTUATED PLUG VALVE W/ 1" LEVER, FL
  - 6" DI 90° LONG RADIUS BEND, FL
  - 6" DI CROSS, FL
  - 6" HANDWHEEL ACTUATED PLUG VALVE, FL
  - 6" DI BLIND FLANGE W/ 4" 316 SS CAMLOCK ADAPTER & CAP
  - 6" DI 45° BEND, FL
  - 6" DI PIPE, FL
  - 4" DI PIPE, FL X PE W/ FLANGED COUPLING ADAPTER
  - 4" DI 90° LONG RADIUS BEND, FL
  - 4" HANDWHEEL ACTUATED PLUG VALVE, FL
  - PIPE COLUMN SUPPORT (SEE DETAIL ON SHEET SD-2)
  - 4" DI 45° LONG RADIUS BEND, FL
  - 4" DI WYE, FL
  - 4" SWING & LEVER CHECK VALVE, FL
  - 4" FLUG VALVE W/ 1" LEVER, FL (SUPPORT USING PIPE COLUMN SUPPORT, SEE DETAIL ON SHEET SD-2)

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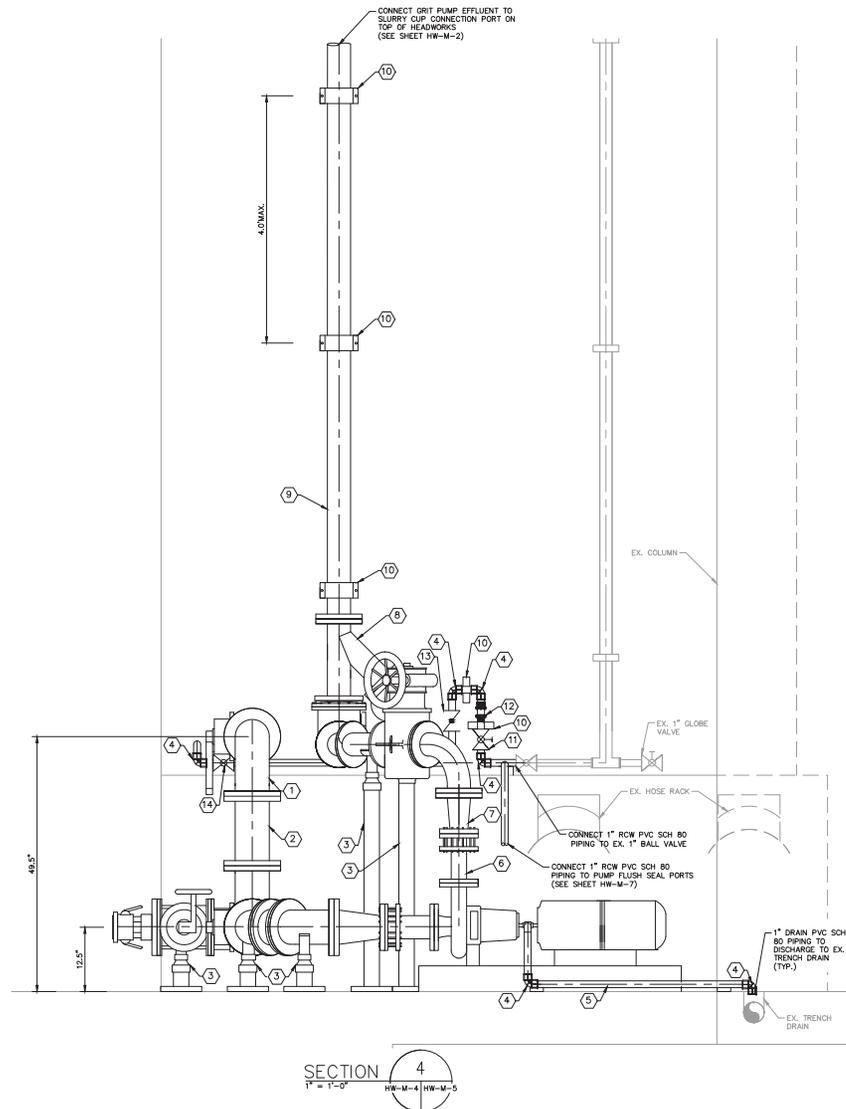
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**HEADWORKS GRIT PUMP MECHANICAL PLAN**

SHEET NUMBER  
**HW-M-4**

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  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

- KEY NOTES**
- 6" DI 90 LONG RADIUS BEND, FL
  - 6" DI PIPE, FL
  - PIPE COLUMN SUPPORT (SEE DETAIL ON SHEET SD-2)
  - 1" PVC SCH 80 90° BEND, FEMALE SOCKET
  - 1" PVC SCH 80 PIPE, SPIGOT
  - 3" DI PIPE, FL X PE W/ FLANGED COUPLING ADAPTER
  - 4" X 3" DI REDUCER, FL
  - 4" DI WYE, FL W/ 4" PLUG VALVE (W/ 1" LEVER), FL
  - 4" DI PIPE, FL
  - PIPE STRAP SUPPORT (SEE DETAIL ON SHEET SD-1)
  - 1" BRONZE GLOBE VALVE, PROVIDED BY GRIT EQUIPMENT MANUFACTURER
  - FLOW METER, MODEL F-420N 8-40 GPM, PROVIDED BY GRIT EQUIPMENT MANUFACTURER
  - 1" PVC SCH 80 CHECK VALVE
  - 1" BRONZE BALL VALVE, PROVIDED BY GRIT EQUIPMENT MANUFACTURER

SECTION 4  
1" = 1'-0"  
HW-M-4 HW-M-5

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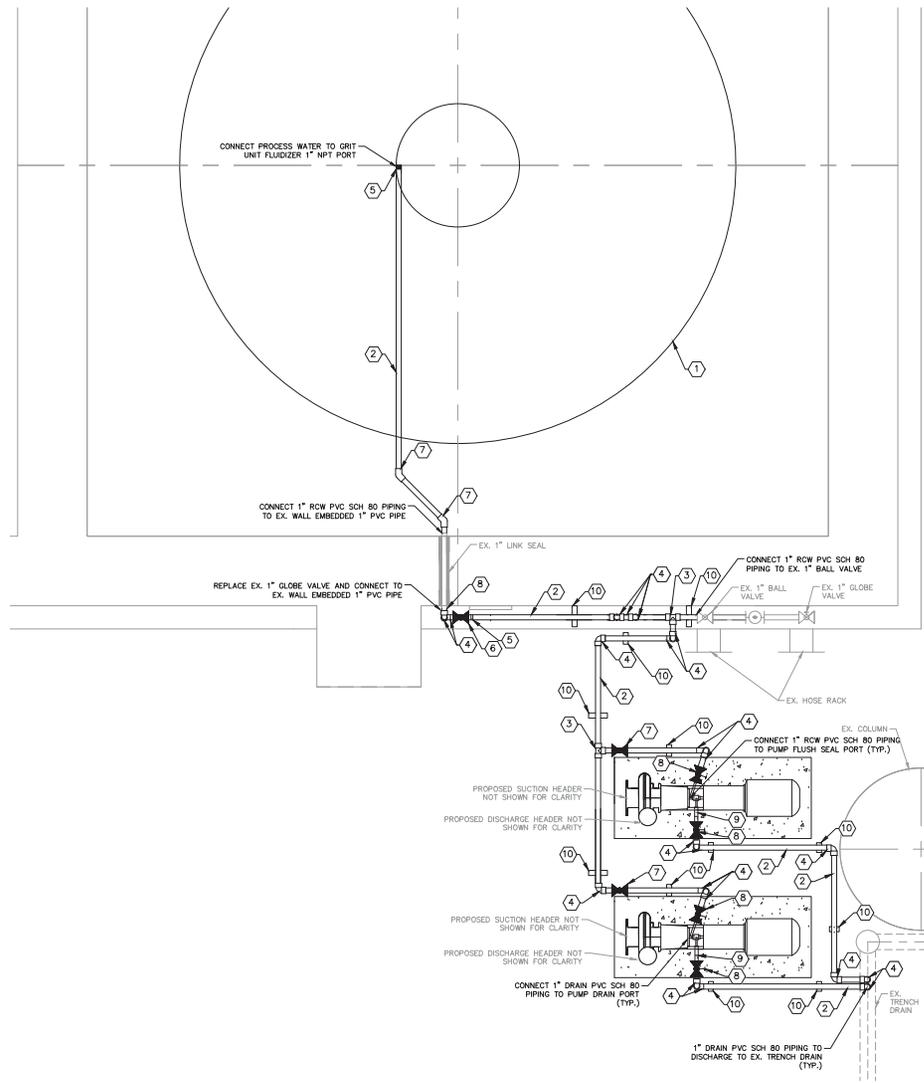
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**HEADWORKS GRIT PUMP MECHANICAL SECTION**

SHEET NUMBER  
**HW-M-5**



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  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902
  - PVC FITTINGS SHOWN ON CONTRACT DRAWINGS ARE NOT TO TRUE SCALE FOR CLARITY.

- KEY NOTES**
- EUTEK HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY
  - 1" PVC SCH 80 PIPE, SPIGOT
  - 1" PVC SCH 80 TEE, FEMALE SOCKET
  - 1" PVC SCH 80 90° BEND, FEMALE SOCKET
  - 1" PVC ADAPTER, FEMALE SOCKET X MALE THRD
  - 1" BRASS BALL VALVE, SUPPLIED BY GRIT EQUIPMENT MANUFACTURER
  - 1" PVC BALL VALVE, FEMALE SOCKET
  - 1" PVC GLOBE VALVE, FEMALE SOCKET
  - 1/4" NPT, 0-60 PSI PRESSURE GAUGE (SEE DETAIL ON SHEET SD-2)
  - STRUT PIPE SUPPORT (SEE DETAIL ON SHEET SD-1)

**PROPOSED RECLAIMED WATER PIPING LAYOUT**  
3/4" = 1' - 0"

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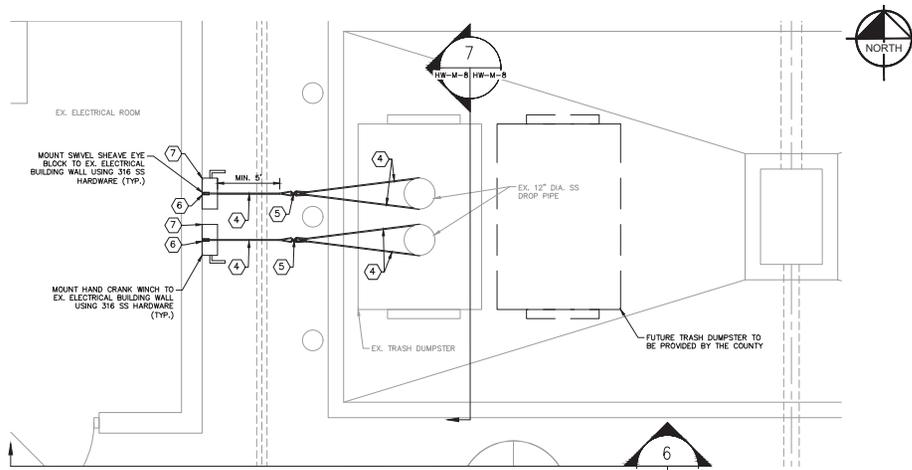
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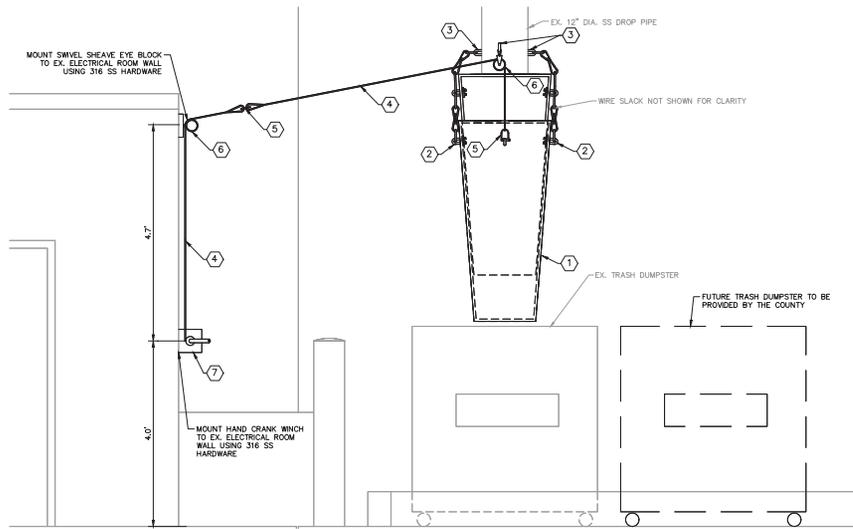
**HEADWORKS RECLAIMED WATER PIPING PLAN**

SHEET NUMBER <b>HW-M-7</b>
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**BOTTOM FLOOR TRASH CHUTE AREA PLAN**  
1/2" = 1'-0"



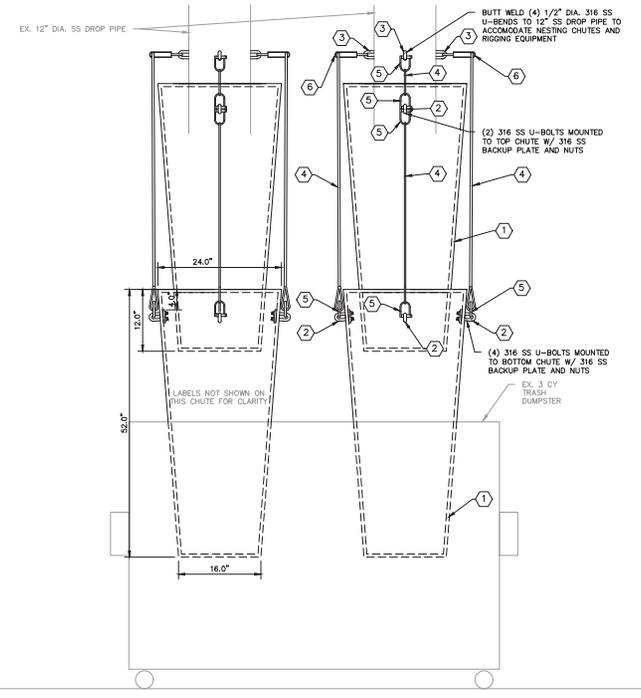
**SECTION 6**  
3/4" = 1'-0"

**KEY NOTES**

- ① BLUE ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE NESTING CHUTE, 24" OD, 1/4" WALL THICKNESS, MANUFACTURED BY SUPERCUTE OR APPROVED EQUAL
- ② 1/2" DIA. 316 SS U-BOLT
- ③ 1/2" DIA. 316 SS U-BEND
- ④ 5/16" DIA. 316 SS WIRE W/ LOOPED ENDS
- ⑤ 3/16" DIA. 316 SS SCREW PIN ANCHOR SHACKLE, 1/4" DIA. PIN
- ⑥ 316 SS SWIVEL SHEAVE EYE BLOCK, FOR 5/16" DIA. CABLE, 1400 LB WORKING LOAD LIMIT, 5000 LB ULTIMATE
- ⑦ 316 SS WINCH M4042P8SS, 1000 LB WORKING LOAD LIMIT, FOR 5/16" DIA. CABLE X 30' LONG, MANUFACTURED BY THERN OR APPROVED EQUAL

**GENERAL NOTES**

- 1. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
- 2. CONTRACTOR TO INSTALL FULLY FUNCTIONING RETRACTABLE NESTING CHUTE MECHANISM USING RIGGING SYSTEM AS INTENDED IN CONTRACT DRAWINGS.
- 3. RIGGING SYSTEM SHALL BE INSTALLED SO THAT THE LOWEST HANGING NESTING CHUTE CAN BE FULLY RETRACTED ABOVE THE TRASH DUMPSTER UNDERNEATH AND EXTENDED INTO THE ADJACENT TRASH DUMPSTER PROVIDED BY THE COUNTY



**SECTION 7**  
1" = 1'-0"

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MANATEE COUNTY

LICENSED PROFESSIONAL

**KEG**

FL DATE:

**HEADWORKS TRASH CHUTE MODIFICATION**

SHEET NUMBER  
**HW-M-8**

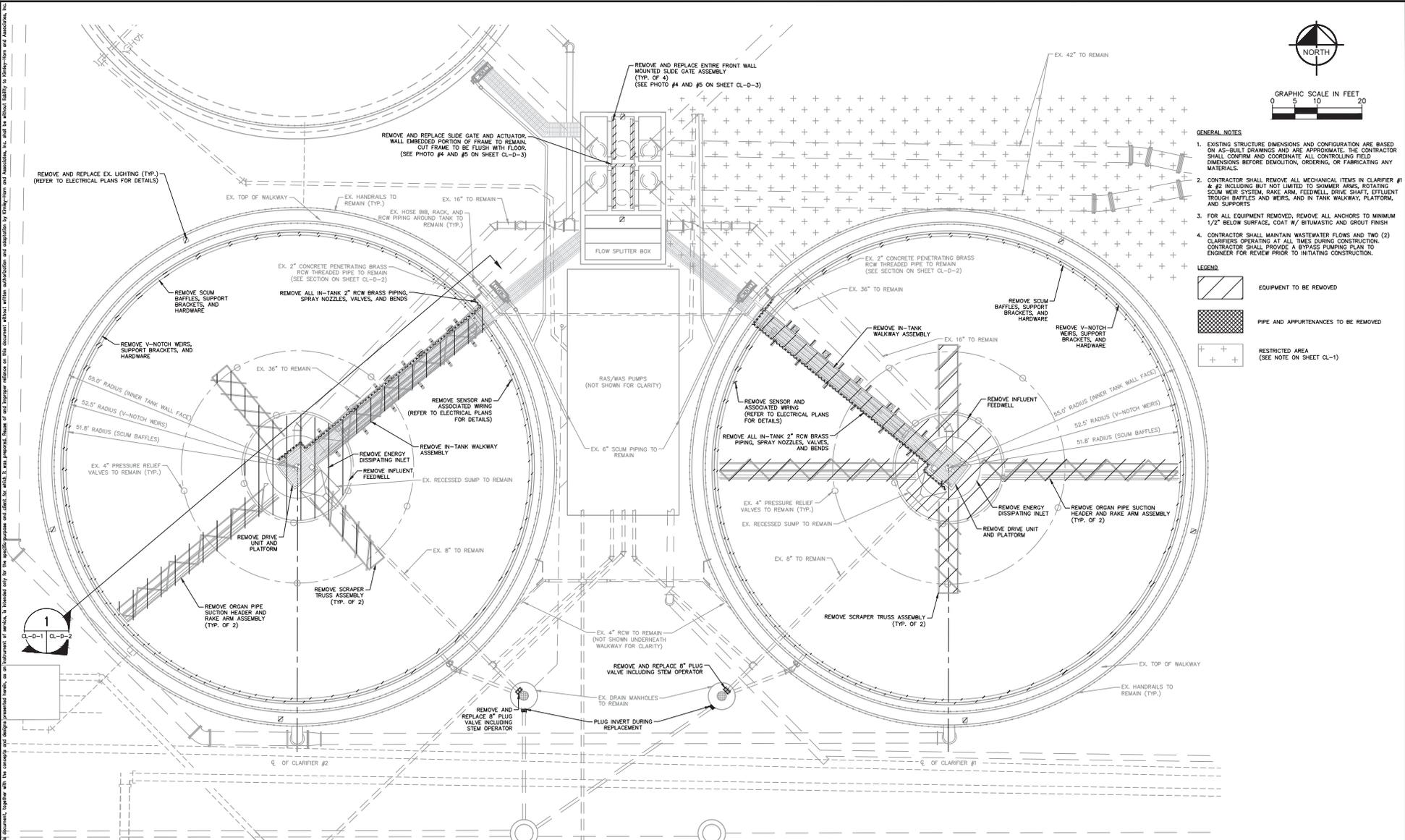








This document, together with the concept and design presented herein, is an instrument of service, in testimony of which, I am prepared, State of and I agree to provide on this document without limitation or restriction, my professional services and those of my firm, Kimley-Horn and Associates, Inc. I shall be without liability to Kimley-Horn and Associates, Inc.



- GENERAL NOTES**
- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFORM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
  - CONTRACTOR SHALL REMOVE ALL MECHANICAL ITEMS IN CLARIFIER #1 & #2 INCLUDING BUT NOT LIMITED TO SKIMMER ARMS, ROTATING SCUM WEIR SYSTEM, RAKE ARM, FEEDWELL, DRIVE SHAFT, EFFLUENT TROUGH BAFFLES AND WEIRS, AND IN-TANK WALKWAY, PLATFORM, AND SUPPORTS.
  - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
  - CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND TWO (2) CLARIFIERS OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.

- LEGEND**
- EQUIPMENT TO BE REMOVED
  - PIPE AND APPURTENANCES TO BE REMOVED
  - RESTRICTED AREA (SEE NOTE ON SHEET CL-1)

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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 100 2ND AVENUE SOUTH, SUITE 105-N, ST. PETERSBURG, FL 33701  
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KHA PROJECT  
145400321  
 DATE  
1/7/2019  
 SCALE AS SHOWN  
 DESIGNED BY WVV  
 DRAWN BY KEG  
 CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

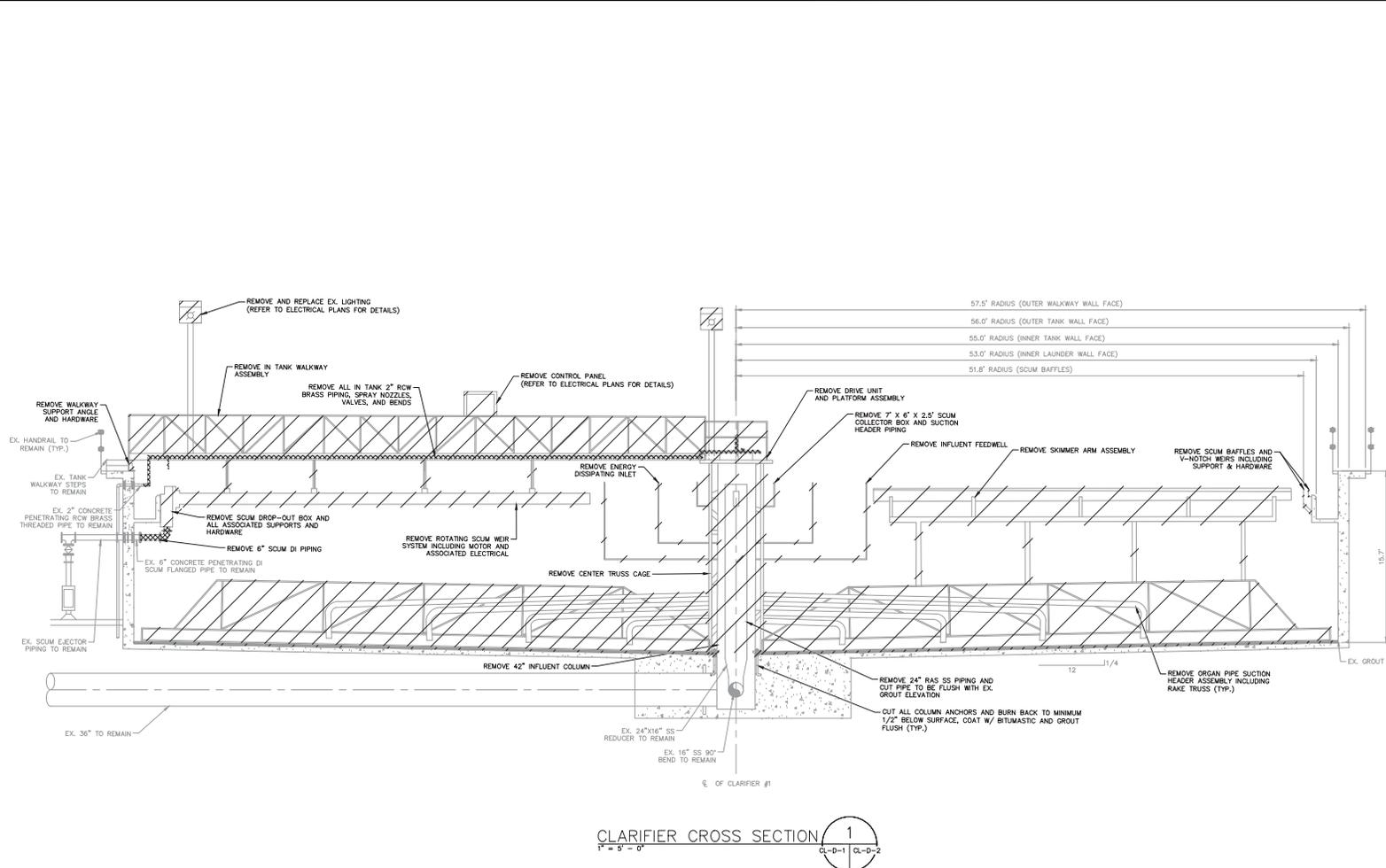
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FL DATE:

**CLARIFIERS 1 AND 2  
DEMOLITION PLAN**

SHEET NUMBER  
**CL-D-1**

This document, together with the concepts and designs presented herein, is an instrument of service, in testimony of service, in witness whereof the undersigned has hereunto set his hand and signature on this 1st day of September, 2019, at St. Petersburg, Florida.



- GENERAL NOTES**
- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
  - CONTRACTOR SHALL REMOVE ALL MECHANICAL ITEMS IN CLARIFIER #1 & #2 INCLUDING BUT NOT LIMITED TO SKIMMER ARMS, ROTATING SCUM WEIR SYSTEM, RAKE ARM, FEEDWELL, DRIVE SHAFT, EFFLUENT TROUGH BAFFLES AND WEIRS, AND IN TANK WALKWAY, PLATFORM, AND SUPPORTS
  - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH
  - CONTRACTOR SHALL MAINTAIN WASTEWATER FLOW AND TMD (2) CLARIFIERS OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
  - SECTION VIEW OF CLARIFIER #1 IS A MIRROR IMAGE OF CLARIFIER #2
  - CONTRACTOR SHALL SURVEY EX. CLARIFIER WATER LEVEL ELEVATION DURING NORMAL OPERATING CONDITIONS AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR TO USE ELEVATION AS BASELINE FOR EQUIPMENT INSTALLATION AS SHOWN IN CONTRACT DRAWINGS AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
  - CONTRACTOR SHALL SURVEY EX. V-NOTCH WEIR INVERT ELEVATION AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR SHALL MATCH PROPOSED WEIR INVERT ELEVATION TO EX. WEIR INVERT ELEVATION AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.

**LEGEND**

EQUIPMENT TO BE REMOVED

PIPE AND APPURTENANCES TO BE REMOVED

CLARIFIER CROSS SECTION 1  
1" = 5' - 0"

No.	REVISIONS	DATE	BY

**Kimley»Horn**

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KHA PROJECT  
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**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

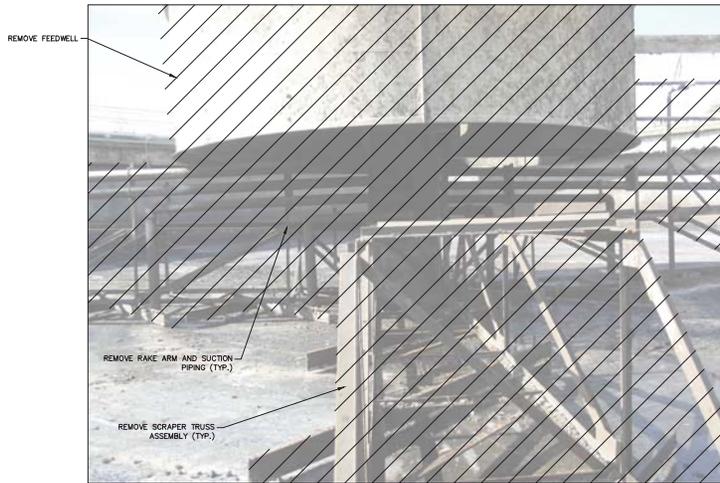
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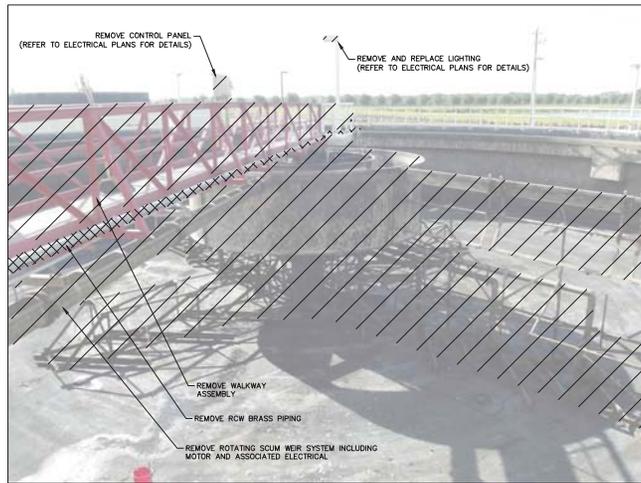
**CLARIFIERS 1 AND 2 DEMOLITION SECTION**

SHEET NUMBER  
**CL-D-2**

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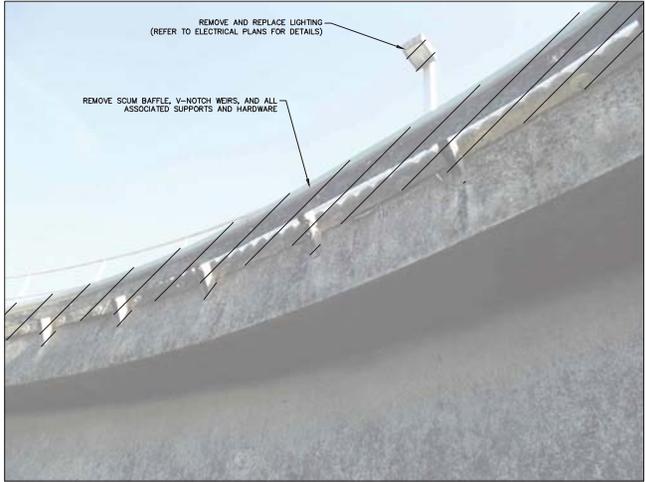
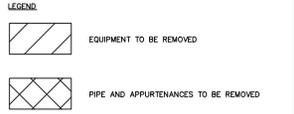


EX. CLARIFIER MECHANISM 1  
N.T.S. CL-D-3



EX. CLARIFIER MECHANISM 2  
N.T.S. CL-D-3

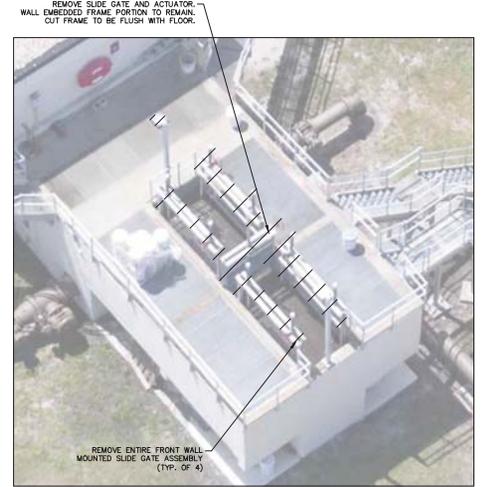
- GENERAL NOTES**
- CONTRACTOR SHALL REMOVE ALL MECHANICAL ITEMS IN CLARIFIER #1 & #2 INCLUDING BUT NOT LIMITED TO SKIMMER ARMS, ROTATING SCUM WEIR SYSTEM, RAKE ARMS, FEEDWELL, DRIVE SHAFT, EFFLUENT TROUGH Baffles AND WEIRS, AND IN TANK WALKWAY, PLATFORM, AND SUPPORTS.
  - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
  - CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND TWO (2) CLARIFIERS OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
  - CONTRACTOR SHALL SURVEY EX. CLARIFIER WATER LEVEL ELEVATION DURING NORMAL OPERATING CONDITIONS AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR TO USE ELEVATION AS BASELINE FOR EQUIPMENT INSTALLATION AS SHOWN IN CONTRACT DRAWINGS AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
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EX. SCUM Baffle AND WEIRS 3  
N.T.S. CL-D-3



EX. FLOW SPLITTER BOX 4  
N.T.S. CL-D-3



EX. FLOW SPLITTER BOX 5  
N.T.S. CL-D-3

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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KHA PROJECT	145400321
DATE	7/14/2019
SCALE	AS SHOWN
DESIGNED BY	WWW
DRAWN BY	KEG
CHECKED BY	WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

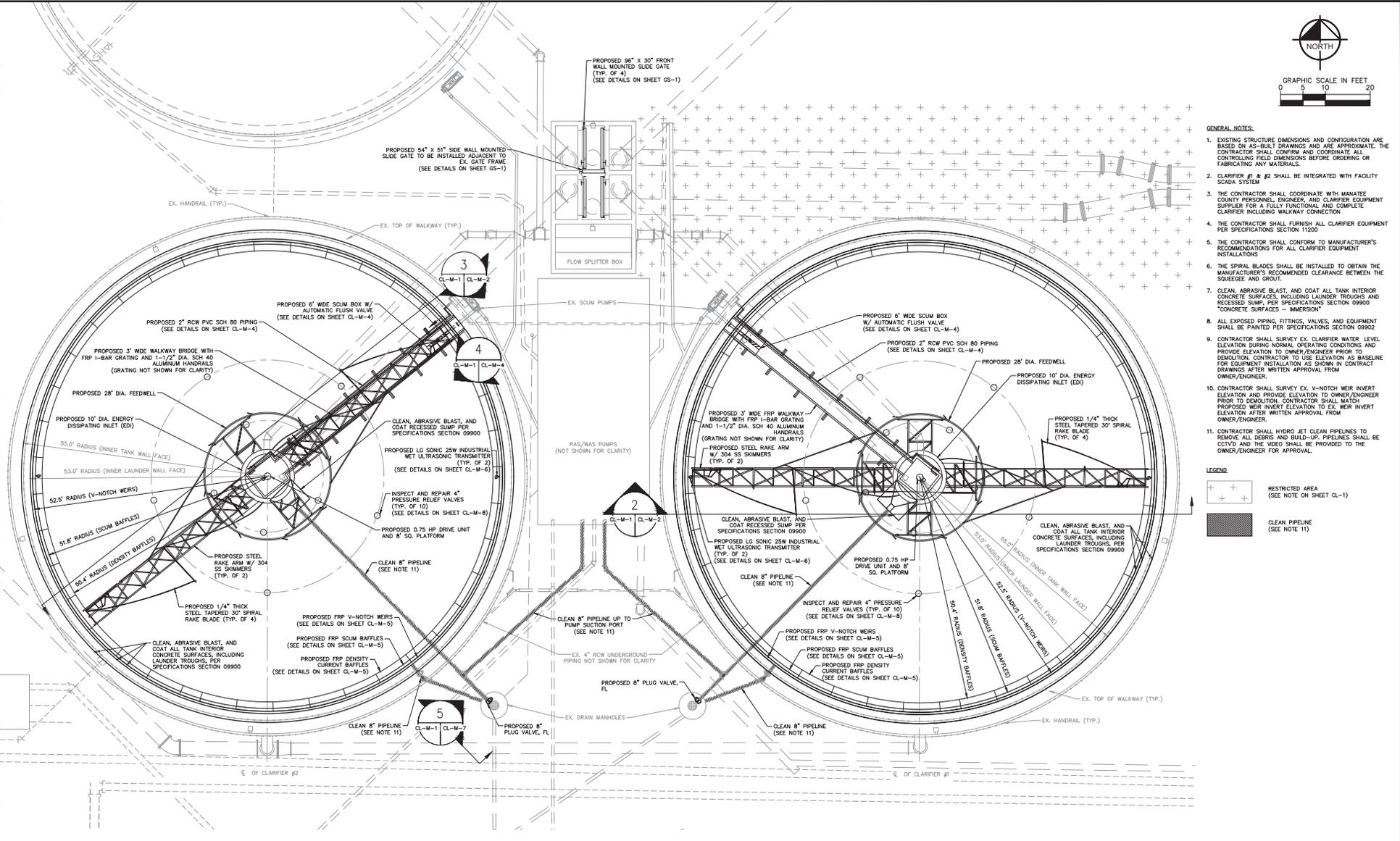
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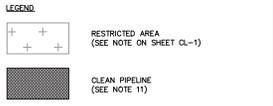
**CLARIFIERS 1 AND 2 DEMOLITION DETAILS**

SHEET NUMBER  
**CL-D-3**

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- GENERAL NOTES:**
- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.
  - CLARIFIER #1 & #2 SHALL BE INTEGRATED WITH FACILITY SCADA SYSTEM
  - THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY PERSONNEL, ENGINEER, AND CLARIFIER EQUIPMENT SUPPLIER FOR A FULLY FUNCTIONAL AND COMPLETE CLARIFIER INCLUDING WALKWAY CONNECTION
  - THE CONTRACTOR SHALL FURNISH ALL CLARIFIER EQUIPMENT PER SPECIFICATIONS SECTION 11200
  - THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS
  - THE SPIRAL BLADES SHALL BE INSTALLED TO OBTAIN THE MANUFACTURER'S RECOMMENDED CLEARANCE BETWEEN THE SQUEEGEE AND GROUT.
  - CLEAN, ABRASIVE BLAST, AND COAT ALL TANK INTERIOR CONCRETE SURFACES, INCLUDING LAUNDER TROUGHS AND RECESSED SUMP, PER SPECIFICATIONS SECTION 09900 "CONCRETE SURFACES - IMMERSION"
  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902
  - CONTRACTOR SHALL SURVEY EX. CLARIFIER WATER LEVEL ELEVATION DURING NORMAL OPERATING CONDITIONS AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR TO USE ELEVATION AS BASELINE FOR EQUIPMENT INSTALLATION AS SHOWN IN CONTRACT DRAWINGS AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
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  - CONTRACTOR SHALL HYDRO JET CLEAN PIPELINES TO REMOVE ALL DERRIS AND BUILD-UP. PIPELINES SHALL BE CCTV'D AND THE VIDEO SHALL BE PROVIDED TO THE OWNER/ENGINEER FOR APPROVAL.



No.	REVISIONS	DATE	BY

**Kimley Horn**

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**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

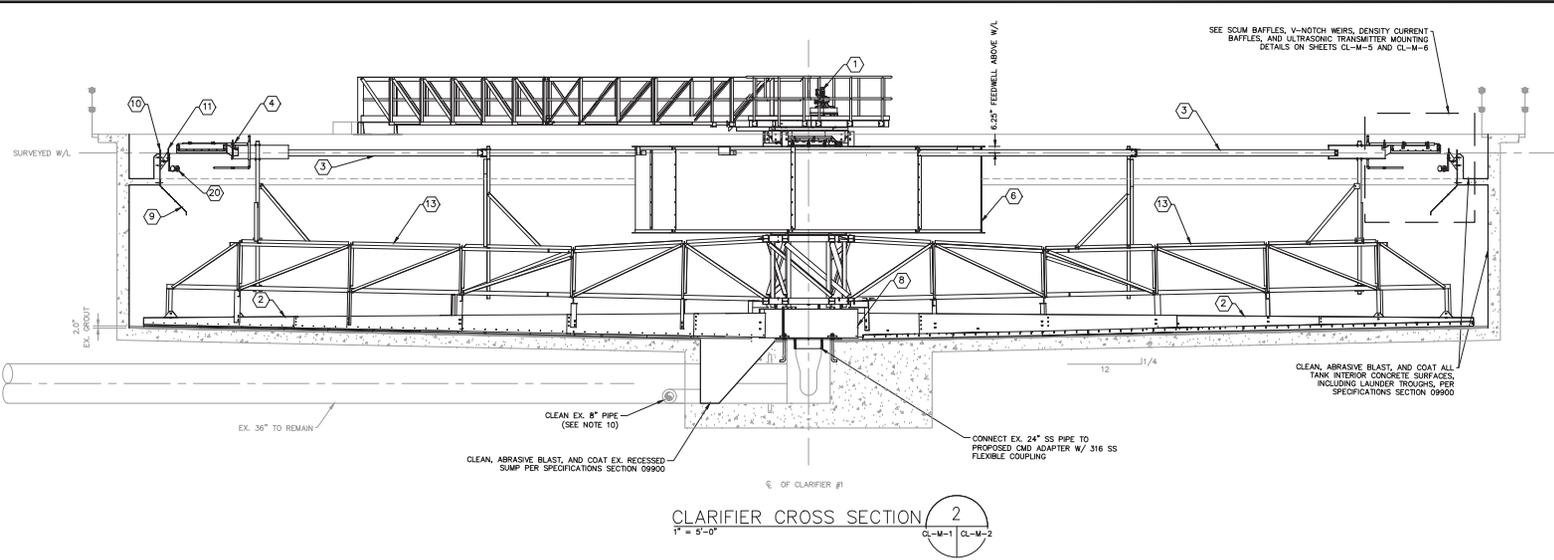
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DATE:

**CLARIFIERS 1 AND 2 IMPROVEMENTS PLAN**

SHEET NUMBER  
**CL-M-1**

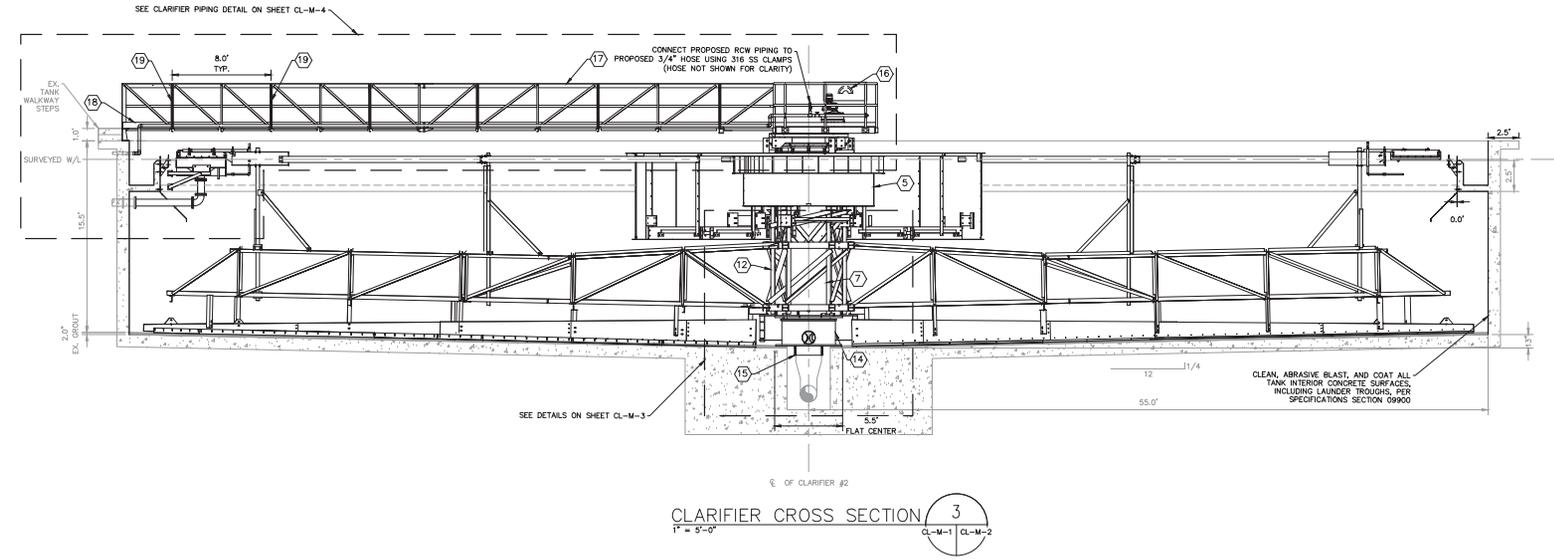
This document, together with the concepts and design presented herein, is an instrument of service, in testimony of which, it is hereby certified that it was prepared, drawn and designed by Kimley-Horn and Associates, Inc. and that the undersigned is duly licensed and qualified to practice as a Professional Engineer in the State of Florida. It is further certified that the design and construction of the project herein is in accordance with the Florida Statutes and the Florida Building Code. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Kimley-Horn and Associates, Inc.



CLARIFIER CROSS SECTION 2  
1" = 5'-0"

- GENERAL NOTES**
- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.
  - CLARIFIER #1 & #2 SHALL BE INTEGRATED WITH FACILITY SCADA SYSTEM.
  - THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY PERSONNEL, ENGINEER, AND CLARIFIER EQUIPMENT SUPPLIER FOR A FULLY FUNCTIONAL AND COMPLETE CLARIFIER INCLUDING WALKWAY CONNECTION.
  - THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS.
  - SECTION VIEWS ARE MIRROR-IMAGES OF CLARIFIER #1 AND #2.
  - CLEAN, ABRASIVE BLAST, AND COAT ALL TANK INTERIOR CONCRETE SURFACES, INCLUDING LAUNDER TROUGHS AND RECESSED SUMP, PER SPECIFICATIONS SECTION 09900 "CONCRETE SURFACES - IMMERSION"
  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE COATED PER SPECIFICATIONS SECTION 09902.
  - CONTRACTOR SHALL SURVEY EX. CLARIFIER WATER LEVEL ELEVATION DURING NORMAL OPERATING CONDITIONS AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR TO USE ELEVATION AS BASELINE FOR EQUIPMENT INSTALLATION AS SHOWN IN CONTRACT DRAWINGS AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
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  - CONTRACTOR SHALL HYDRO-JET CLEAN PIPELINES TO REMOVE ALL DEBRIS AND BUILD-UP. PIPELINES SHALL BE CCTV'D AND THE VIDEO SHALL BE PROVIDED TO THE OWNER/ENGINEER FOR APPROVAL.

- KEY NOTES**
- DRIVE UNIT, 3/4 HP, 460V, 3PH, 60HZ
  - 1/4" THICK STEEL TAPERED 30" SPIRAL RAKE BLADE W/ 304 SS SOLESSEES (SEE DETAILS ON SHEET CL-M-3)
  - 304 SS SURFACE SCUM SKIMMER BLADE
  - SCUM SKIMMING DEVICE
  - 10'-0" ENERGY DISSIPATING INLET (EDI)
  - 28"-0" DIA. FEEDWELL W/ (8) SCUM BAFFLES
  - 3'-0" DIA. INFLUENT COLUMN W/ (4) EQ. SPACED PORTS
  - 5'-6" DIA. SLUDGE COLLECTION DRUM (SEE DETAIL ON SHEET CL-M-3)
  - FRP DENSITY CURRENT BAFFLES (SEE DETAILS ON SHEET CL-M-6)
  - FRP V-NOTCH WEIRS W/ SLOTTED HOLES FOR ADJUSTMENTS (SEE DETAILS ON SHEET CL-M-5)
  - FRP SCUM BAFFLES W/ SLOTTED HOLES FOR ADJUSTMENTS (SEE DETAILS ON SHEET CL-M-5)
  - MIN. 4'-0" SQ. CAGE
  - MIN. 3'-10" SQ. RAKE ARM
  - 24" I.D. COLLECTION MANIFOLD DEVICE (CMD) ADAPTER (SEE DETAILS ON SHEET CL-M-3)
  - 24" 316 SS FLEXIBLE COUPLING
  - GUARDRAIL MOUNTED HOSE RACK (SEE DETAIL ON SHEET SD-2)
  - 1-1/2" DIA. SCH 40 ALUMINUM HANDRAIL
  - EXTRUDED ALUMINUM TOEBOARD, ANODIZED FINISH, 0.7 MIL THICKNESS
  - STUB OUT ANGLE BRACKETS
  - INDUSTRIAL WET ULTRASONIC TRANSMITTER, 25W, MANUFACTURED BY LG SONIC (ROTATED 45°) OR APPROVED EQUAL (SEE DETAILS ON SHEET CL-M-6)



CLARIFIER CROSS SECTION 3  
1" = 5'-0"

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

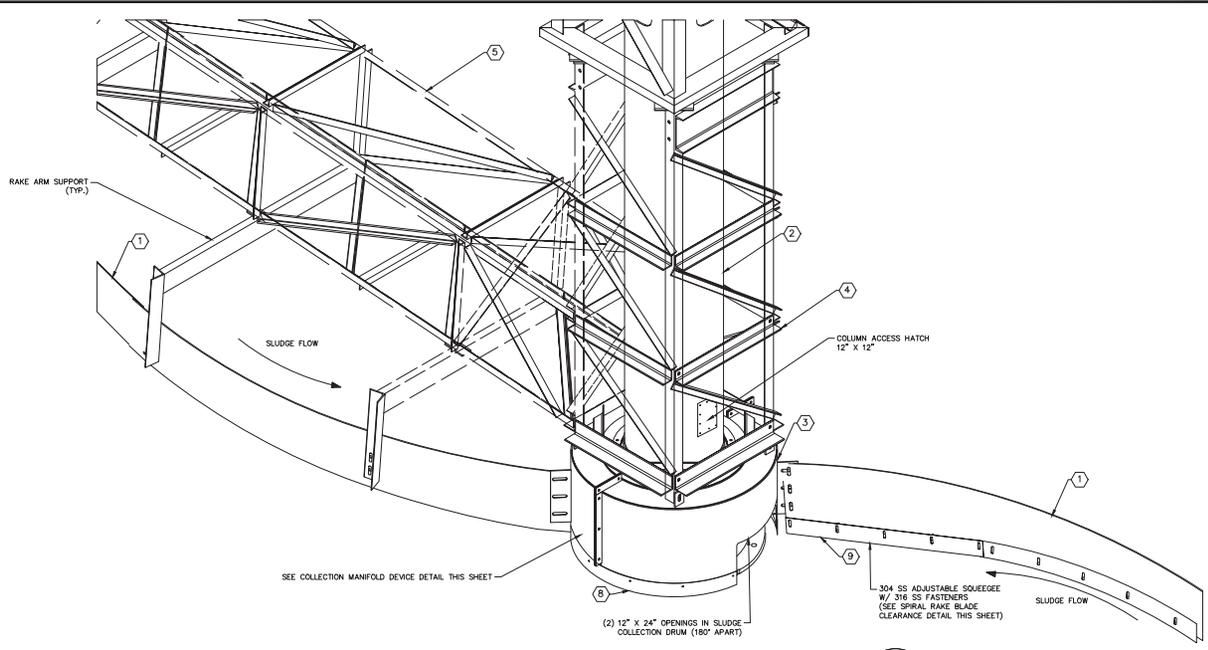
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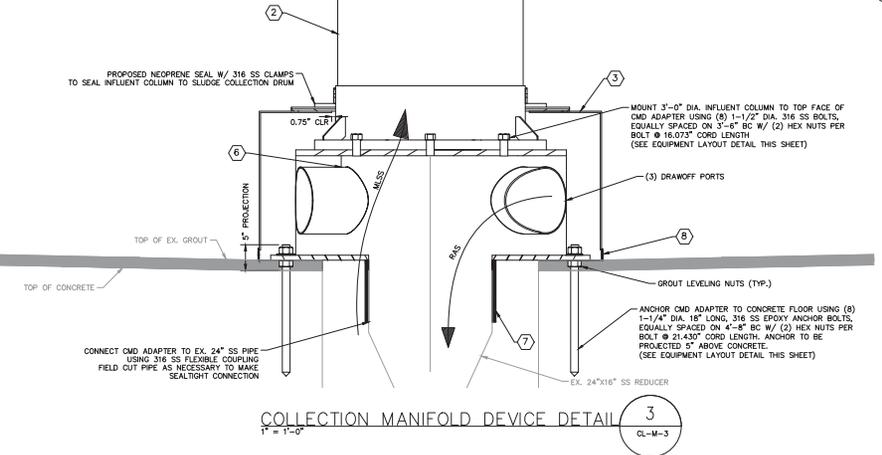
**CLARIFIERS 1 AND 2 EQUIPMENT SECTIONS**

SHEET NUMBER  
CL-M-2

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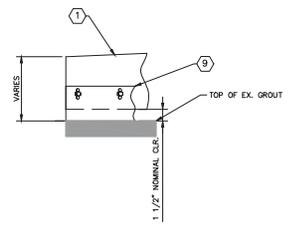


SLUDGE COLLECTION EQUIPMENT ISOMETRIC DETAIL  
N.T.S. 1 CL-M-3

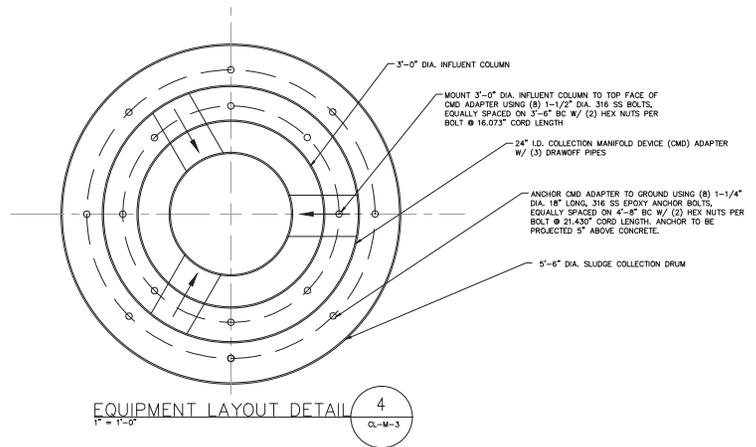


COLLECTION MANIFOLD DEVICE DETAIL 3 1" = 1'-0" CL-M-3

- GENERAL NOTES
1. ISOMETRIC DRAWING IS SHOWN FOR GENERAL GUIDANCE. CONTRACTOR TO USE SCALED DRAWINGS FOR DIMENSION LAYOUTS.
- KEY NOTES
- 1 1/4" THICK STEEL TAPERED 30° SPIRAL RAKE BLADE
  - 2 3"-0" DIA. INFLUENT COLUMN W/ (4) EQ. SPACED PORTS
  - 3 5'-6" DIA. SLUDGE COLLECTION DRUM
  - 4 MIN. 4'-0" SQ. CAGE
  - 5 MIN. 3'-10" SQ. RAKE ARM
  - 6 24" I.D. COLLECTION MANIFOLD DEVICE (CMD) ADAPTER
  - 7 24" 316 SS FLEXIBLE COUPLING
  - 8 304 SS SEALANT STRIP W/ 316 SS SELF TAPPING FASTENERS
  - 9 304 SS ADJUSTABLE SQUEEGES W/ 316 SS FASTENERS



SPIRAL RAKE BLADE CLEARANCE DETAIL 2 1-1/2" = 1'-0" CL-M-3



EQUIPMENT LAYOUT DETAIL 4 1" = 1'-0" CL-M-3

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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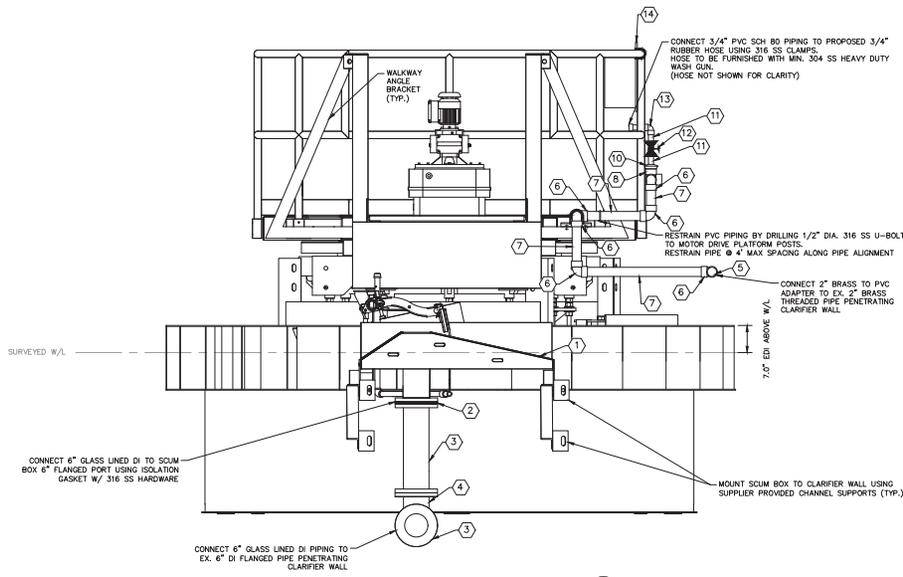
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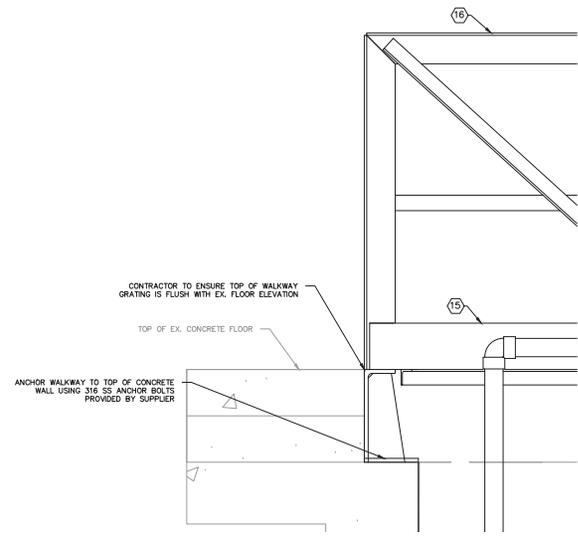
CLARIFIERS 1 AND 2  
EQUIPMENT DETAILS

SHEET NUMBER  
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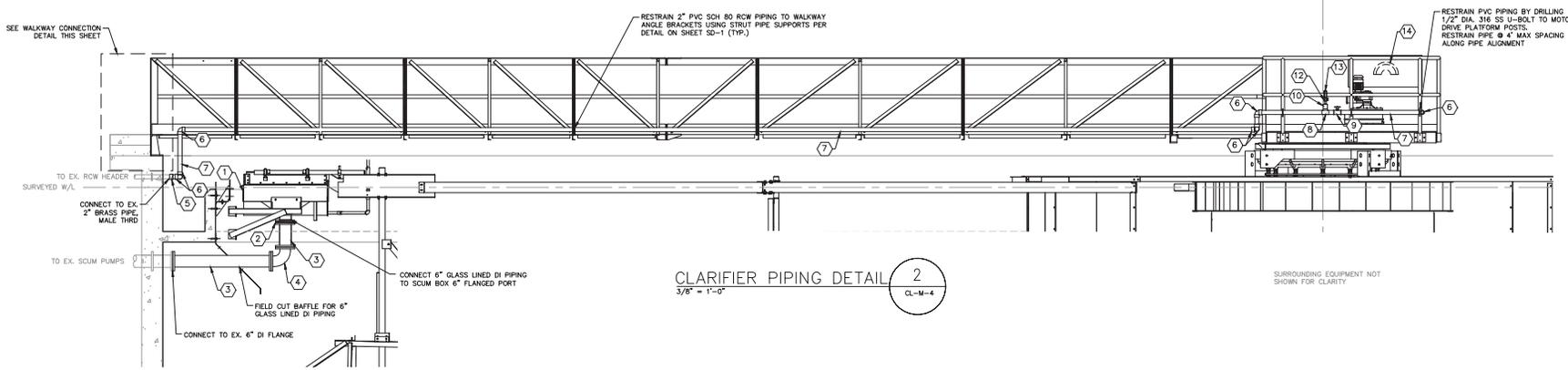
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**WALKWAY CROSS SECTION 4**  
1" = 5'-0"  
CL-M-1 CL-M-4



**WALKWAY CONNECTION DETAIL 1**  
3/8" = 1'-0"  
CL-M-4



**CLARIFIER PIPING DETAIL 2**  
3/8" = 1'-0"  
CL-M-4

- GENERAL NOTES**
- CLARIFIER #1 & #2 SHALL BE INTEGRATED WITH FACILITY SEADA SYSTEM
  - THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY PERSONNEL, ENGINEER, AND CLARIFIER EQUIPMENT SUPPLIER FOR A FULLY FUNCTIONAL AND COMPLETE CLARIFIER INCLUDING WALKWAY CONNECTION
  - THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS
  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902
- KEY NOTES**
- SCUM BOX W/ AUTOMATIC FLUSH VALVE
  - 6" ISOLATION GASKET KIT
  - 6" GLASS LINED DI PIPE, FL
  - 6" GLASS LINED DI 90° BEND, FL
  - 2" BRASS TO PVC SCH 80 TRANSITION ADAPTER, FEMALE THRD X SPIGOT
  - 2" PVC SCH 80 90° BEND, FEMALE SOCKET
  - 2" PVC SCH 80 PIPE, SPIGOT
  - 2" PVC SCH 80 TEE, FEMALE SOCKET
  - PVC GLOBE VALVE, FEMALE SOCKET
  - 2" X 3/4" PVC SCH 80 REDUCING COUPLING, SPIGOT X FEMALE SOCKET
  - 3/4" PVC SCH 80 PIPE, SPIGOT
  - 3/4" PVC GLOBE VALVE, FEMALE SOCKET
  - 3/4" PVC SCH 80 90° BEND, FEMALE SOCKET
  - GUARDRAIL MOUNTED HOSE RACK (SEE DETAIL ON SHEET SD-2)
  - EXTRUDED ALUMINUM TOEBOARD, ANODIZED FINISH, 0.7 MIL ANODIZED
  - 1-1/2" DIA. SCH 40 ALUMINUM HANDRAIL

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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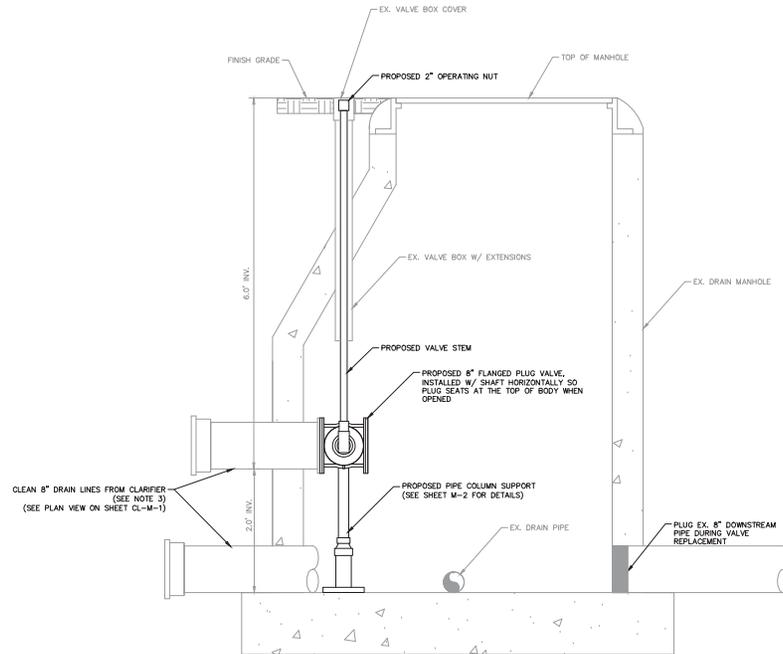
**CLARIFIERS 1 AND 2 PIPING DETAILS**

SHEET NUMBER  
**CL-M-4**





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DRAIN MANHOLE SECTION 5  
 1" = 1'-0" CL-M-1 CL-M-7

- GENERAL NOTES**
1. THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS
  2. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902
  3. CONTRACTOR SHALL HYDRO JET CLEAN PIPELINES TO REMOVE ALL DEBRIS AND BUILD-UP. PIPELINES SHALL BE CCTV'D AND THE VIDEO SHALL BE PROVIDED TO THE OWNER/ENGINEER FOR APPROVAL
  4. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND TWO (2) CLARIFIERS OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
  5. PIPELINE CLEANING AND VALVE INSTALLATION FOR CLARIFIER #1 AND #2 DRAIN MANHOLES SHALL BE COORDINATED WITH COUNTY AND ENGINEER TO ENSURE LEACHATE DELIVERY TO RECEIVING MANHOLE IS NOT IMPAIRED
  6. DRAIN MANHOLE SECTION REPRESENTS BOTH CLARIFIER #1 AND #2 DRAIN MANHOLES

No.	REVISIONS	DATE	BY

**Kimley»Horn**

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KHA PROJECT 148400021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWV
DRAWN BY KEG
CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

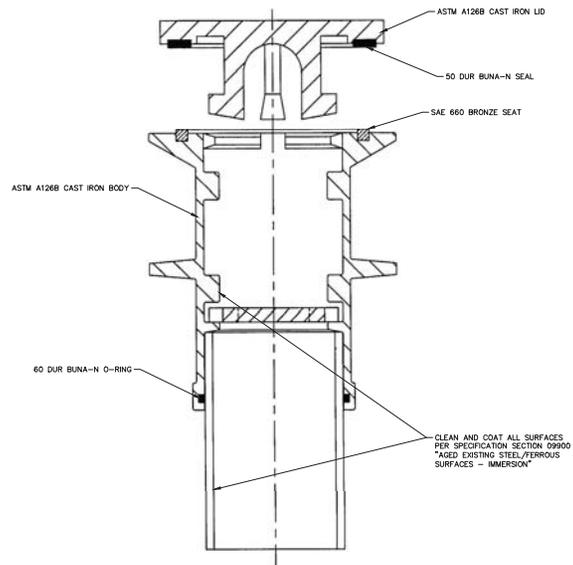
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**CLARIFIERS 1 AND 2 DRAIN MANHOLE SECTION**

SHEET NUMBER <b>CL-M-7</b>
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PRESSURE RELIEF VALVE REPAIR DETAIL 1  
6" = 1'-0" CL-M-8

- GENERAL NOTES**
1. REMOVE ANY DEBRIS/SLUDGE/OILS FROM VALVE INTERIOR SURFACES
  2. PRESSURE WASH/ABRASIVE BLAST/VACUUM, AS NECESSARY, ALL INTERIOR SURFACES OF PRESSURE RELIEF VALVES TO COMPLETELY REMOVE TUBERCULATION BUILD-UP



REMOVE ALL TUBERCULATION BUILD-UP

PRESSURE RELIEF VALVE BODY REPAIR DETAIL 2  
N.T.S. CL-M-8



CLEAN CAST IRON LID

PRESSURE RELIEF VALVE LID DETAIL 3  
N.T.S. CL-M-8

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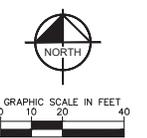
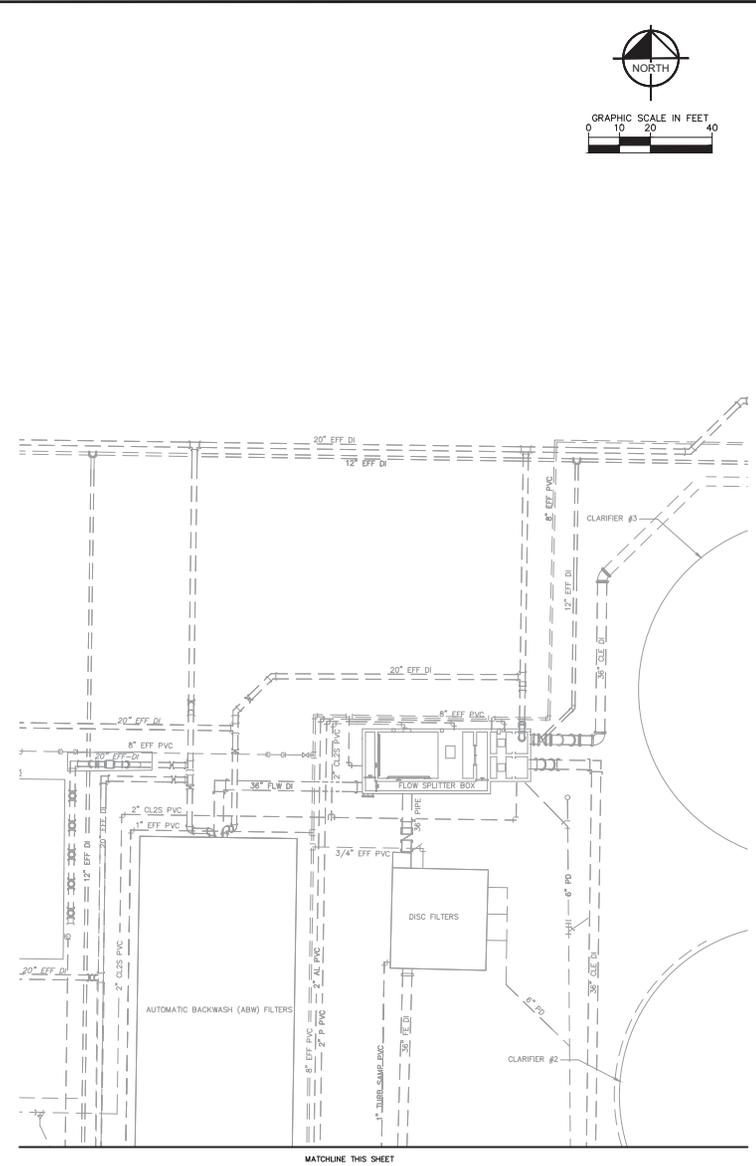
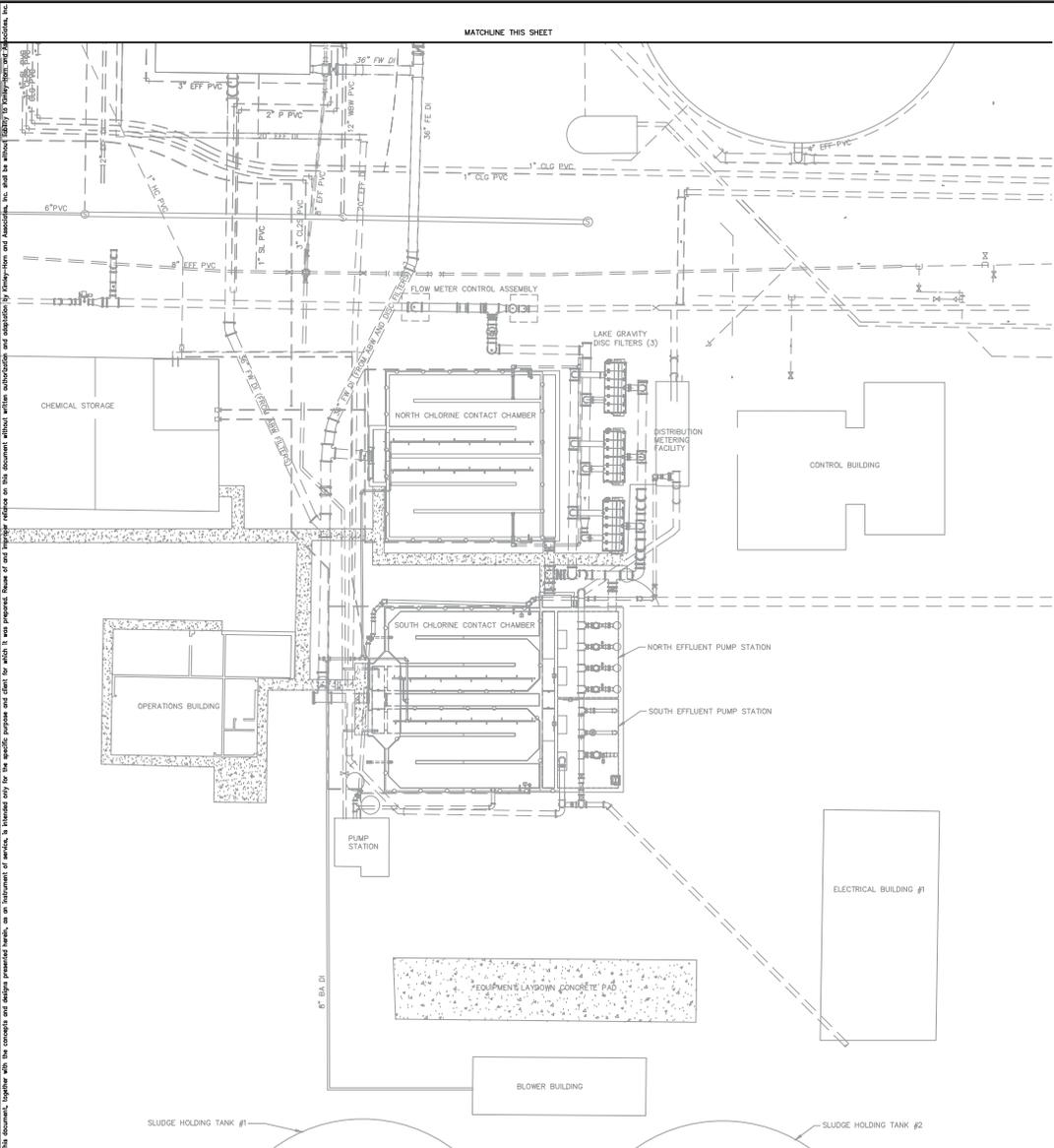
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**CLARIFIERS 1 AND 2  
PRESSURE RELIEF VALVE  
DETAILS**

SHEET NUMBER	CL-M-8
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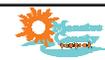
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MANATEE COUNTY

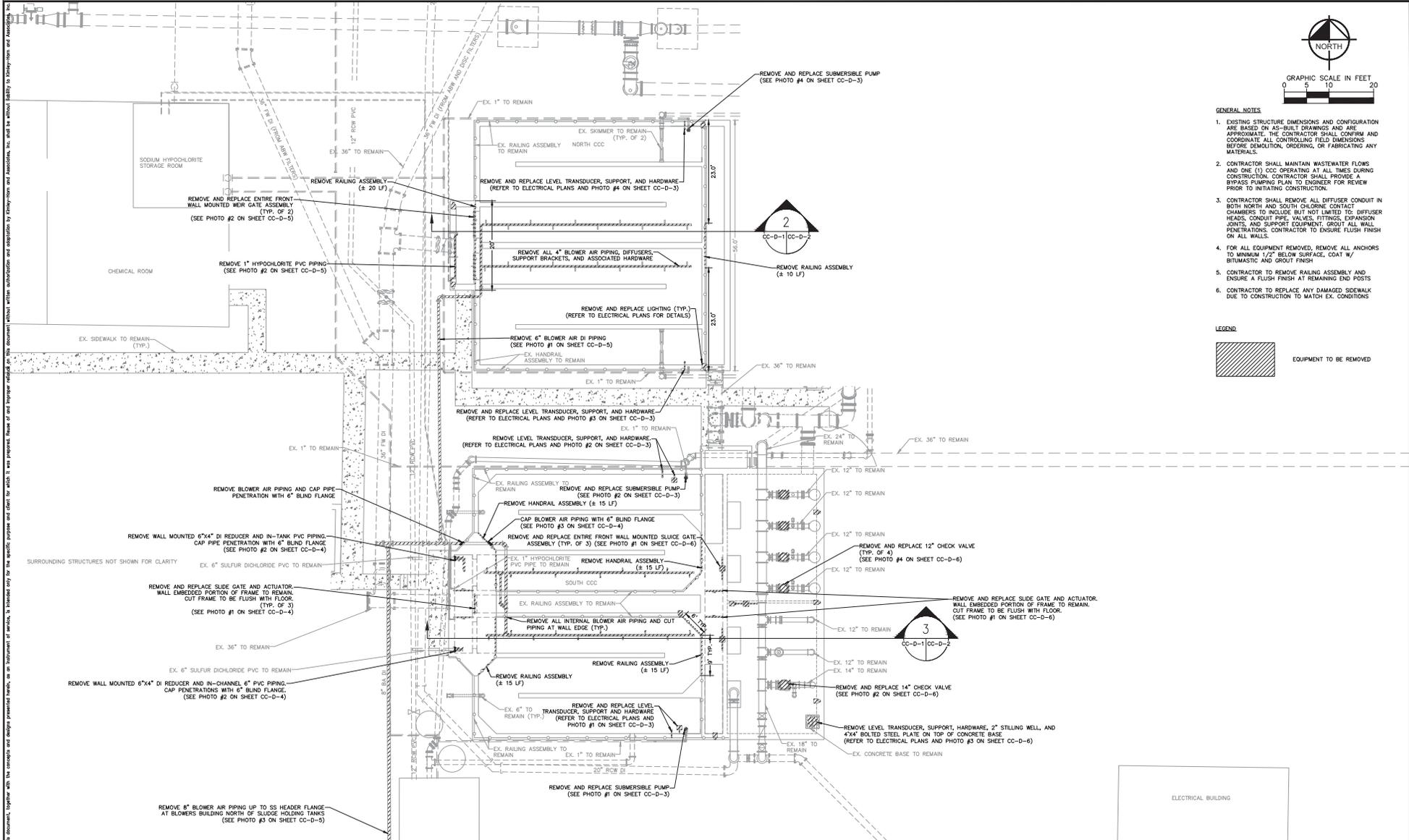


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**OVERALL CCC EXISTING SITE PLAN**

SHEET NUMBER  
**CC-1**



- GENERAL NOTES**
- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
  - CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) COC OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
  - CONTRACTOR SHALL REMOVE ALL DIFFUSER CONDUIT IN BOTH NORTH AND SOUTH CHLORINE CONTACT CHAMBERS TO INCLUDE BUT NOT LIMITED TO: DIFFUSER HEADS, CONDUIT PIPE, VALVES, FITTINGS, EXPANSION JOINTS, AND SUPPORT EQUIPMENT. GROUT ALL WALL PENETRATIONS. CONTRACTOR TO ENSURE FLUSH FINISH ON ALL WALLS.
  - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
  - CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.
  - CONTRACTOR TO REPLACE ANY DAMAGED SIDEWALK DUE TO CONSTRUCTION TO MATCH EX. CONDITIONS.



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1/7/2019

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MANATEE COUNTY

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**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

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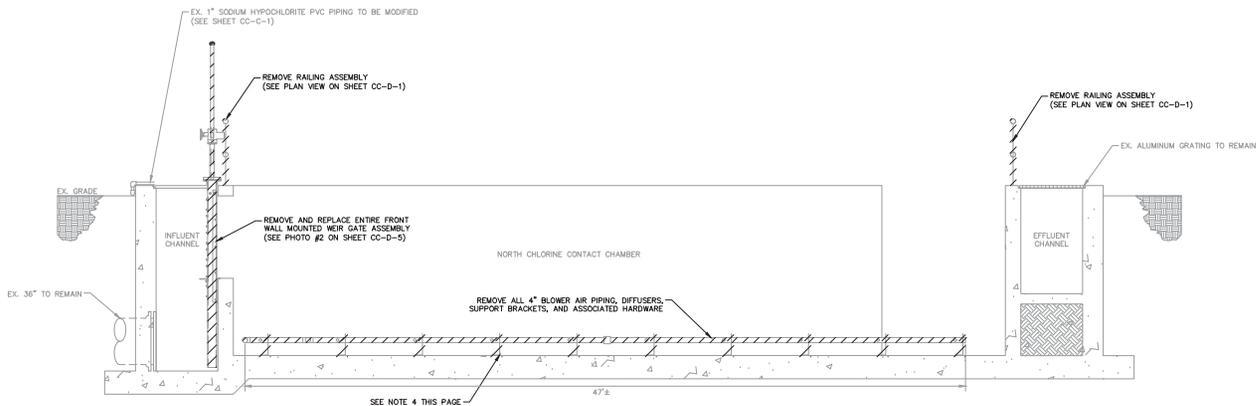
DATE:

**CCC DEMOLITION PLAN**

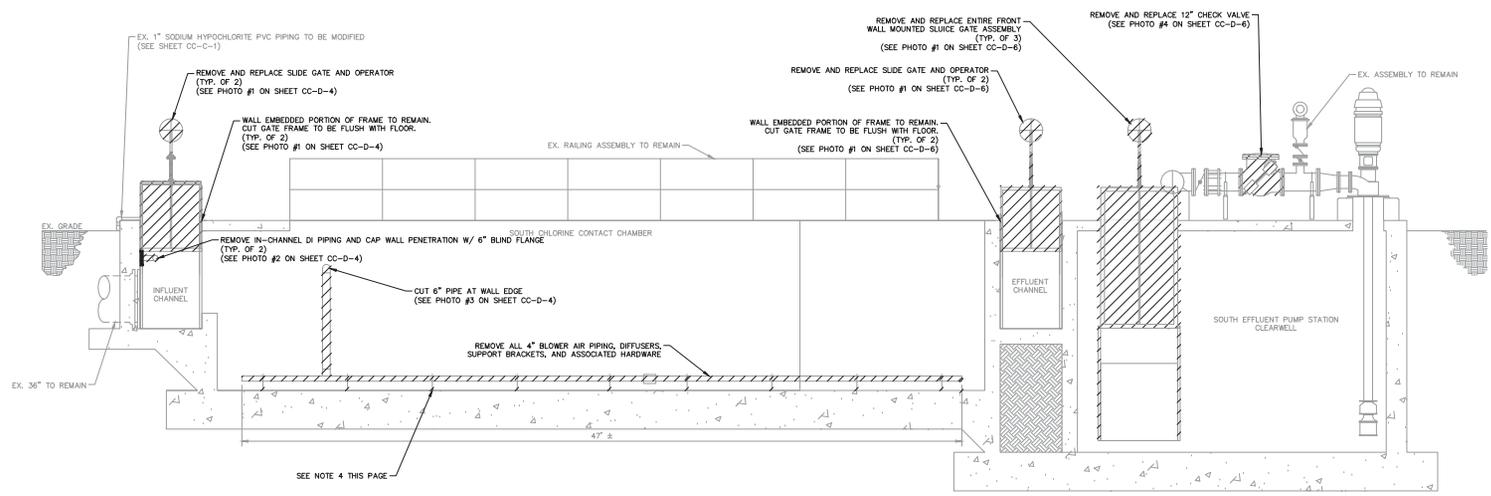
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**CC-D-1**

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  - CONTRACTOR SHALL REMOVE ALL DIFFUSER CONDUIT IN BOTH NORTH AND SOUTH CHLORINE CONTACT CHAMBERS TO INCLUDE BUT NOT LIMITED TO: DIFFUSER HEADS, CONDUIT PIPE, VALVES, FITTINGS, AND SUPPORT EQUIPMENT.
  - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE. COAT W/ BITUMASTIC AND GROUT FINISH.



**NORTH CHLORINE CONTACT CHAMBER SECTION 2**  
1/4" = 1'-0"



**SOUTH CHLORINE CONTACT CHAMBER SECTION 3**  
1/4" = 1'-0"

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MANATEE COUNTY

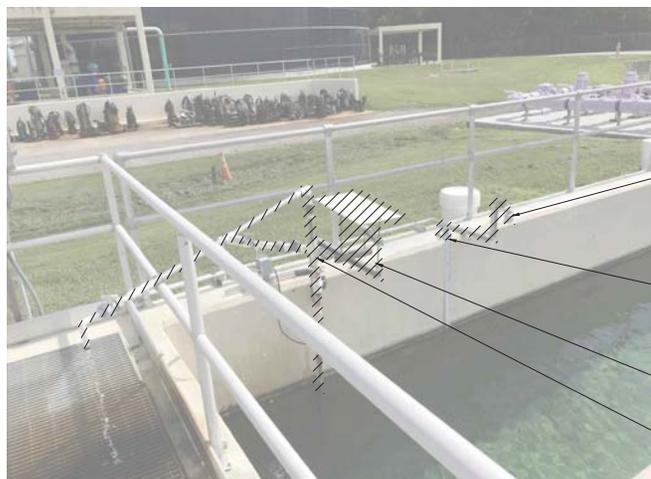
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**CCC DEMOLITION SECTION**

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REMOVE RAILING ASSEMBLY  
CONTRACTOR TO ENSURE A FLUSH FINISH AT REMAINING END POSTS

REMOVE AND REPLACE LEVEL TRANSDUCER, SUPPORT, HARDWARE, AND WIRING (REFER TO ELECTRICAL PLANS FOR DETAILS)

CUT STAFF GAUGE SO THAT TOP OF GAUGE IS FLUSH WITH FLOOR. REPLACE FLOOR MOUNT WITH WALL MOUNT BRACKET.

REMOVE LEVEL TRANSDUCER SUPPORT AND HARDWARE

REMOVE AND REPLACE SUBMERSIBLE PUMP AND ABOVEGROUND 1" PVC PIPING

EX. SOUTH CCC TRANSDUCER AND PUMP ASSEMBLY (SOUTH TRAIN) 1  
N.T.S. CC-D-3



GENERAL NOTES

- CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC IN OPERATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
- FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
- CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

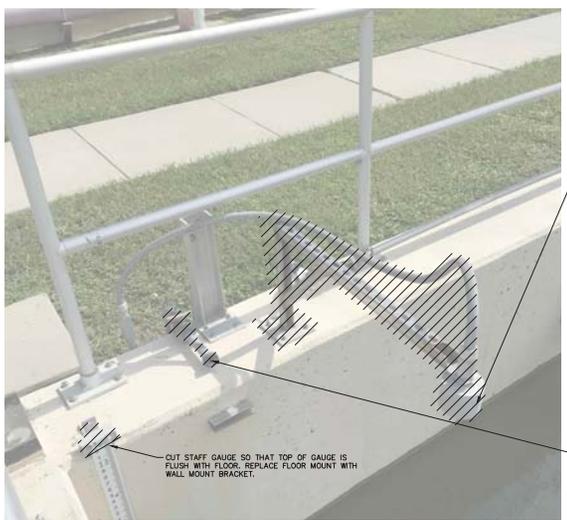
LEGEND:

EQUIPMENT TO BE REMOVED

REMOVE AND REPLACE LEVEL TRANSDUCER, SUPPORT, HARDWARE, AND WIRING (REFER TO ELECTRICAL PLANS FOR DETAILS)

REMOVE AND REPLACE SUBMERSIBLE PUMP AND ABOVEGROUND 1" PVC PIPING

EX. SOUTH CCC TRANSDUCER AND PUMP ASSEMBLY (NORTH TRAIN) 2  
N.T.S. CC-D-3



REMOVE AND REPLACE LEVEL TRANSDUCER, SUPPORTS, HARDWARE, AND WIRING (REFER TO ELECTRICAL PLANS FOR DETAILS)

REMOVE AND REPLACE SUBMERSIBLE PUMP AND ABOVEGROUND 1" PVC PIPING

EX. NORTH CCC TRANSDUCER (SOUTH TRAIN) 3  
N.T.S. CC-D-5



CUT STAFF GAUGE SO THAT TOP OF GAUGE IS FLUSH WITH FLOOR. REPLACE FLOOR MOUNT WITH WALL MOUNT BRACKET.

EX. NORTH CCC TRANSDUCER AND PUMP ASSEMBLY (NORTH TRAIN) 4  
N.T.S. CC-D-5

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DRAWN BY	KEG
CHECKED BY	WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

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**CCC NORTH & SOUTH DEMOLITION DETAILS**

SHEET NUMBER	CC-D-3
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EX. NORTH CCC INFLUENT CHAMBER 1  
N.T.S. CC-D-5



EX. NORTH CCC INFLUENT CHAMBER 2  
N.T.S. CC-D-5

- GENERAL NOTES**
- CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC IN OPERATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
  - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
  - CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

**LEGEND:**  
 EQUIPMENT TO BE REMOVED

REMOVE 1" HYPOCHLORITE PVC PIPING UP TO 90° BEND AND INSTALL CPVC SCH 80 PIPING FOR PROPOSED SUBMERSIBLE MIXER CONNECTION (SEE SHEET CC-M-5)

INSTALL 1" CPVC SCH 80 BALL VALVE AND 90° BEND TO DISCHARGE TO INFLUENT BOX (SEE SHEET CC-M-5)

REMOVE AND REPLACE ENTIRE FRONT WALL MOUNTED SLIDE GATE (TYP. OF 2)



EX. BLOWER BUILDING 3  
N.T.S. CC-D-5

CAP BLOWER AIR HEADER WITH 8" 316 SS BLIND FLANGE

REMOVE BLOWER AIR PIPING DIFFUSING TO NORTH AND SOUTH CCC

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 MANATEE COUNTY

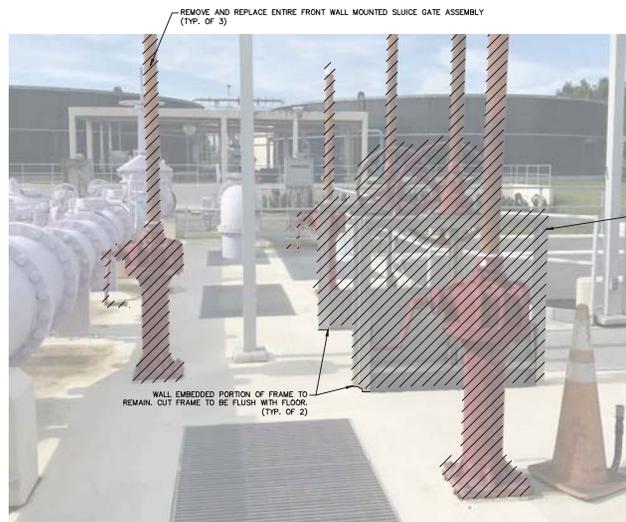
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**CCC NORTH DEMOLITION DETAILS**

SHEET NUMBER <b>CC-D-5</b>
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REMOVE AND REPLACE ENTIRE FRONT WALL MOUNTED SLUICE GATE ASSEMBLY (TYP. OF 3)

REMOVE AND REPLACE SLUICE GATE AND ACTUATOR (TYP. OF 2)

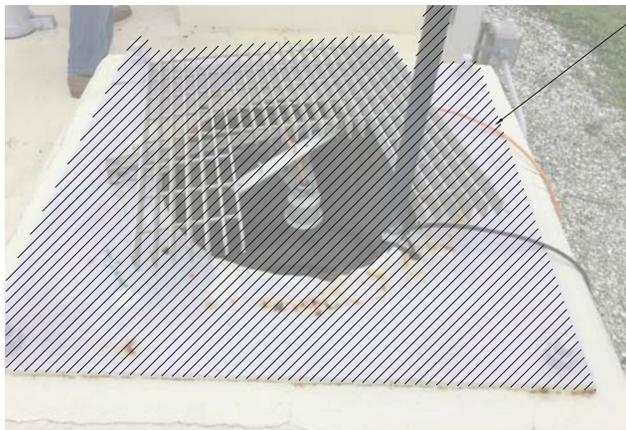
WALL EMBEDDED PORTION OF FRAME TO REMAIN. CUT FRAME TO BE FLUSH WITH FLOOR (TYP. OF 2)

EX. EFFLUENT PUMP STATION GATE ASSEMBLY 1  
N.T.S. CC-D-6



REMOVE AND REPLACE 14" CHECK VALVE

EX. 14" CHECK VALVE ASSEMBLY 2  
N.T.S. CC-D-6



REMOVE AND REPLACE LEVEL TRANSDUCER, STILLING WELL, SUPPORTS, HARDWARE, WIRING, AND 4"x4" STEEL PLATE (REFER TO ELECTRICAL PLANS FOR DETAILS)

EX. EFFLUENT PUMP STATION LEVEL TRANSDUCER 3  
N.T.S. CC-D-6



REMOVE AND REPLACE 12" CHECK VALVE (TYP. OF 4)

EX. 12" CHECK VALVE ASSEMBLY 4  
N.T.S. CC-D-6

**GENERAL NOTES**

- CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC IN OPERATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
- FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE. COAT W/ BITUMASTIC AND GROUT FINISH.
- CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

**LEGEND**



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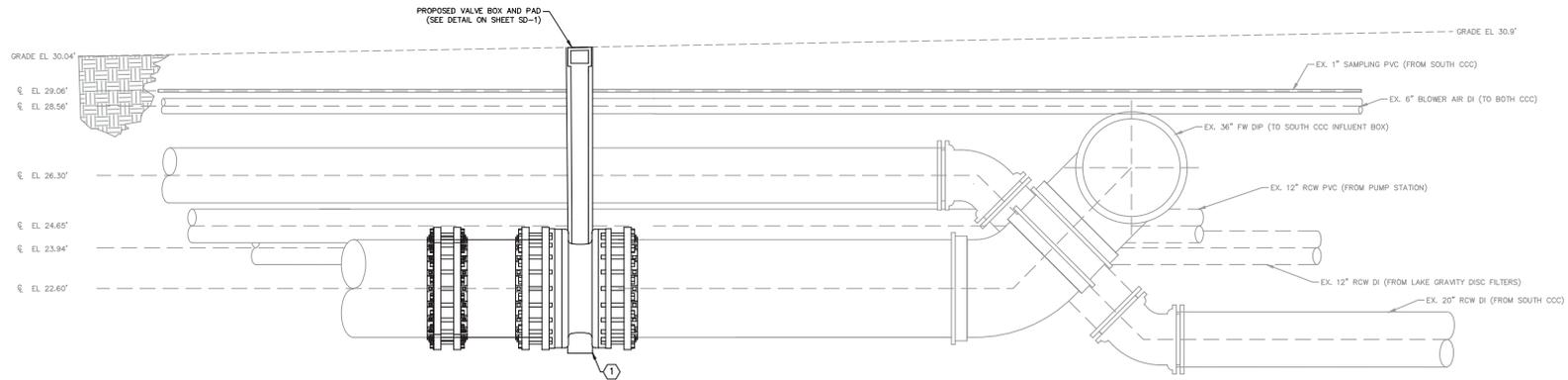
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 P.E.  
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**EFFLUENT PUMP STATION DEMOLITION DETAILS**

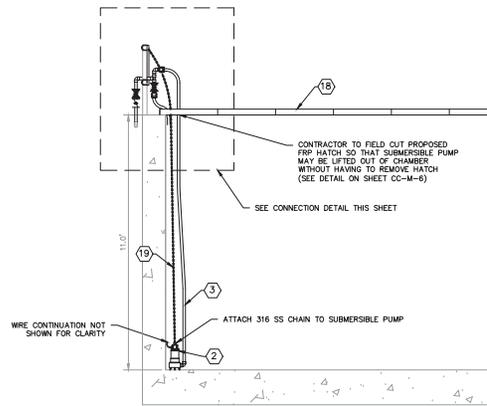
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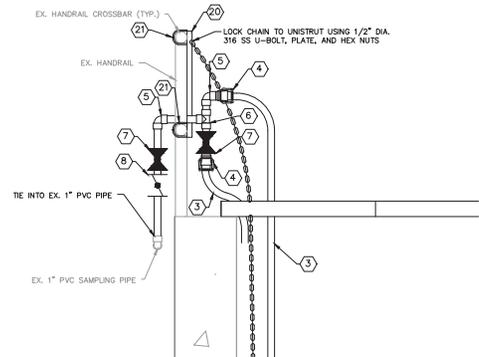
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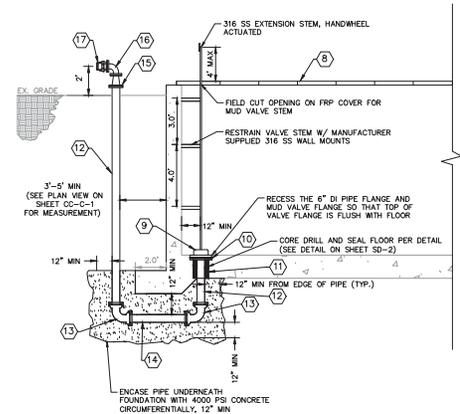
BUTTERFLY VALVE TIE-IN CROSS SECTION  
1/2" = 1'-0"



TYPICAL SUBMERSIBLE PUMP INSTALLATION SECTION  
1/2" = 1'-0"



TYPICAL SUBMERSIBLE PUMP CONNECTION DETAIL  
1" = 1'-0"



MUD VALVE DRAIN PIPING SECTION  
1/4" = 1'-0"

- GENERAL NOTES**
- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
  - CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
  - CONTRACTOR TO MODIFY FRP COVERS FOR ALL EQUIPMENT INSTALLATION AS NECESSARY.
  - SECTION VIEW OF MUD VALVE DRAIN PIPING REPRESENTS TYPICAL INSTALLATION FOR BOTH MUD VALVE INSTALLATIONS IN NORTH CCC.
  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

- KEY NOTES**
- 36" NUT ACTUATED BUTTERFLY VALVE WITH DI RESTRAINED SLEEVE, MJ
  - DAYTON SUBMERSIBLE SUMP PUMP, PROPLENE MODEL 3YU68, OR APPROVED EQUAL, 1/2 HP, 120 VAC, 3.3 A
  - 1" PTFE FLEX HOSE, MIN. 15' LENGTH
  - 316 SS CAMLOCK
  - 1" PVC SCH 80 90° BEND, FEMALE SOCKET
  - 1" PVC SCH 80 TEE, FEMALE SOCKET
  - 1" PVC BALL VALVE
  - 1" PVC CHECK VALVE
  - 6" 316 SS MUD VALVE, TROY MODEL MV-X, OR APPROVED EQUAL, W/ 316 SS EXTENSION STEM, COUPLER, GUIDES, AND HANDWHEEL OPERATOR
  - 6" ISOLATION GASKET KIT
  - LINK SEAL FOR 6" DI PIPE (SEE DETAIL ON SHEET SD-2)
  - 6" DI PIPE, FL X PE
  - 6" DI 90° BEND, MJ
  - 6" DI PIPE, PE
  - 6" X 4" DI REDUCER, FL
  - 4" DI 90° BEND, FL
  - 4" DI BLIND FLANGE W/ 316 SS CAMLOCK W/ CAP AND CHAIN
  - FRP COVER (SEE DETAILS ON SHEET CC-M-6)
  - 1/2" DIA. 316 SS CHAIN, MIN. 15' LENGTH
  - 1-1/2" 316 SS UNISTRUT
  - 1-1/2" 316 SS STRUT CLAMP, WESTRUT MODEL W-6134 OR APPROVED EQUAL.

No.	REVISIONS	DATE	BY

**Kimley Horn**

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KHA PROJECT 14S400021
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CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

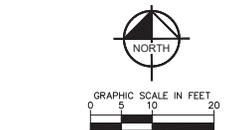
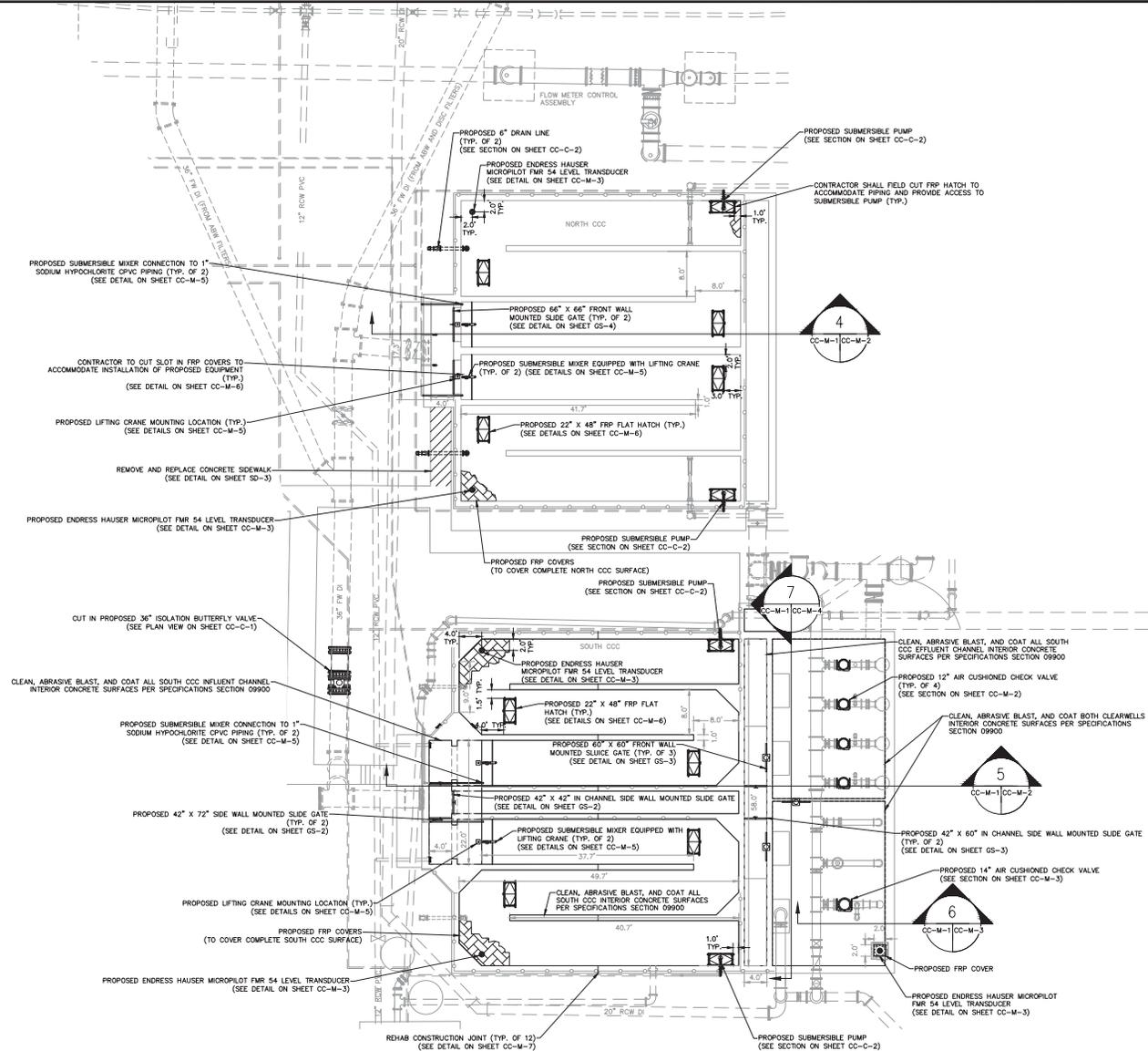
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**CCC SITE PIPING SECTION**

SHEET NUMBER  
**CC-C-2**

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  - CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
  - SUBMERSIBLE MIXERS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS PER SPECIFICATIONS SECTION 11500.
  - CLEAN, ABRASIVE BLAST, AND COAT ALL INTERIOR CONCRETE SURFACES IN SOUTH CCC, INCLUDING INFLUENT AND EFFLUENT CHANNELS, AND EFFLUENT PUMP STATION CLEARWELLS PER SPECIFICATIONS SECTION 09900. "CONCRETE SURFACES - IMMERSION"
  - CONTRACTOR TO MODIFY FRP COVERS FOR ALL EQUIPMENT INSTALLATION AS NECESSARY.
  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902.

No.	REVISIONS	DATE	BY

**Kimley»Horn**

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 PHONE: 727-547-3999  
 WWW.KIMLEY-HORN.COM CA 0000696

KHA PROJECT  
 145400021  
 DATE  
 1/7/2019  
 SCALE AS SHOWN  
 DESIGNED BY WVV  
 DRAWN BY KEG  
 CHECKED BY NEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

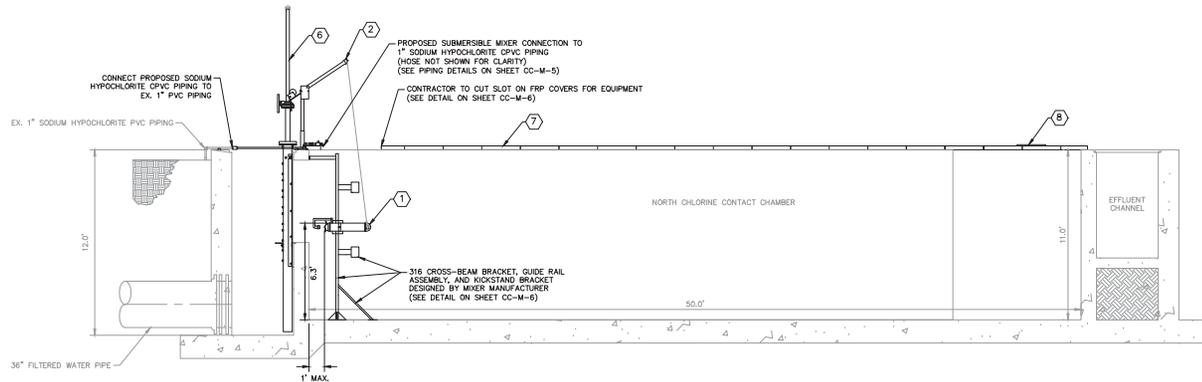
LICENSED PROFESSIONAL

Kevin M. Williams  
 12512  
 Mechanical  
 State of Florida  
 E-MAIL: kwilliams@kimley-horn.com

**CCC NORTH & SOUTH IMPROVEMENTS PLAN**

SHEET NUMBER  
**CC-M-1**

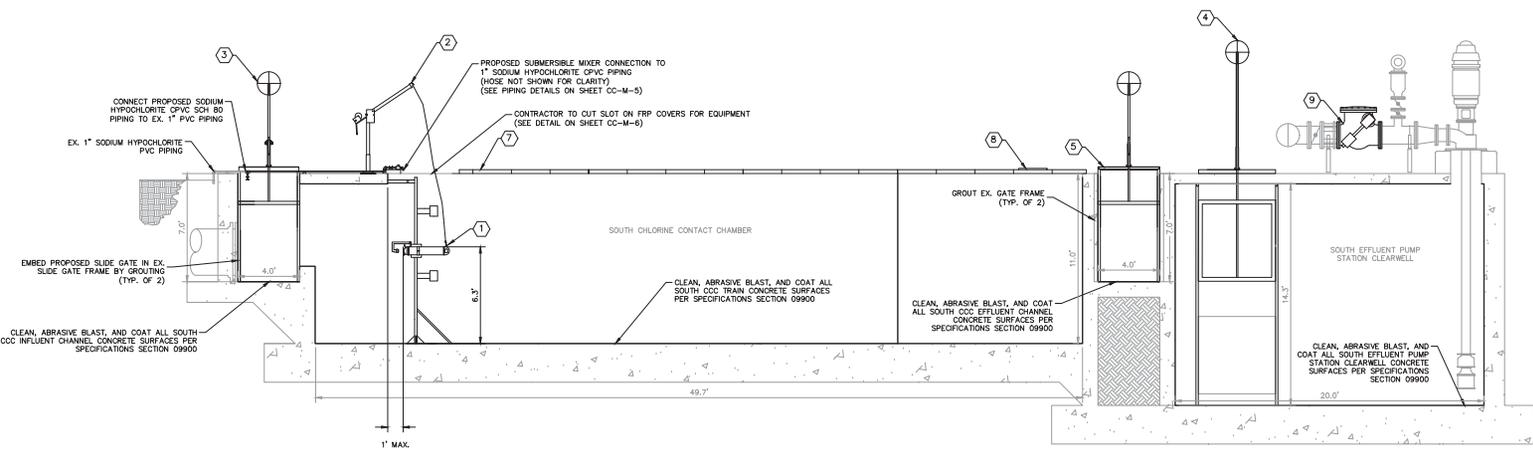
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NORTH CHLORINE CONTACT CHAMBER SECTION 4  
1/4" = 1'-0" CC-M-1 CC-M-2

- GENERAL NOTES**
- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
  - CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
  - SUBMERSIBLE MIXERS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS PER SPECIFICATIONS SECTION 11300.
  - CLEAN, ABRASIVE BLAST AND COAT ALL INTERIOR CONCRETE SURFACES IN SOUTH CCC, INCLUDING INFLUENT AND EFFLUENT CHANNELS, AND EFFLUENT PUMP STATION CLEARWELLS PER SPECIFICATION SECTION 09900 "CONCRETE SURFACES - IMMERSION".
  - CONTRACTOR TO MODIFY FRP COVERS FOR ALL EQUIPMENT INSTALLATION AS NECESSARY.
  - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 0902.

- KEY NOTES**
- EVOQUA WATER CHAMP SUBMERSIBLE MIXER, MODEL SPX, 316 SS 6" FRANKLIN MOTOR, OR APPROVED EQUAL, 5 HP, 60 HZ (SEE SHEET CC-M-5 FOR DETAILS)
  - DAVT CRANE, THERM MODEL SFFSM1, OR APPROVED EQUAL, 316 SS 5/32" DIA. LIFT CABLE X 25 FT (SEE SHEET CC-M-5 FOR DETAILS)
  - 42" WIDE X 72" HIGH COPLASTIX SLIDE GATE (SEE DETAIL ON SHEET OS-2)
  - 60" WIDE X 60" HIGH COPLASTIX SLUICE GATE (SEE DETAIL ON SHEET OS-3)
  - 42" WIDE X 60" HIGH COPLASTIX SLIDE GATE (SEE DETAIL ON SHEET OS-3)
  - 66" WIDE X 66" HIGH COPLASTIX SLIDE GATE (SEE DETAIL ON SHEET OS-4)
  - FRP COVERS (SEE DETAILS ON SHEET CC-M-6)
  - 30" X 48" FRP FLAT HATCH (SEE DETAILS ON SHEET CC-M-6)
  - DEZURK 12" AIR CUSHIONED SIDE MOUNTED CYLINDER (LEVER & WEIGHT) SMING CHECK VALVE MODEL CVS 250A, FL



SOUTH CHLORINE CONTACT CHAMBER SECTION 5  
1/4" = 1'-0" CC-M-1 CC-M-2

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KHA PROJECT 145400321
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WVV
DRAWN BY KEG
CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

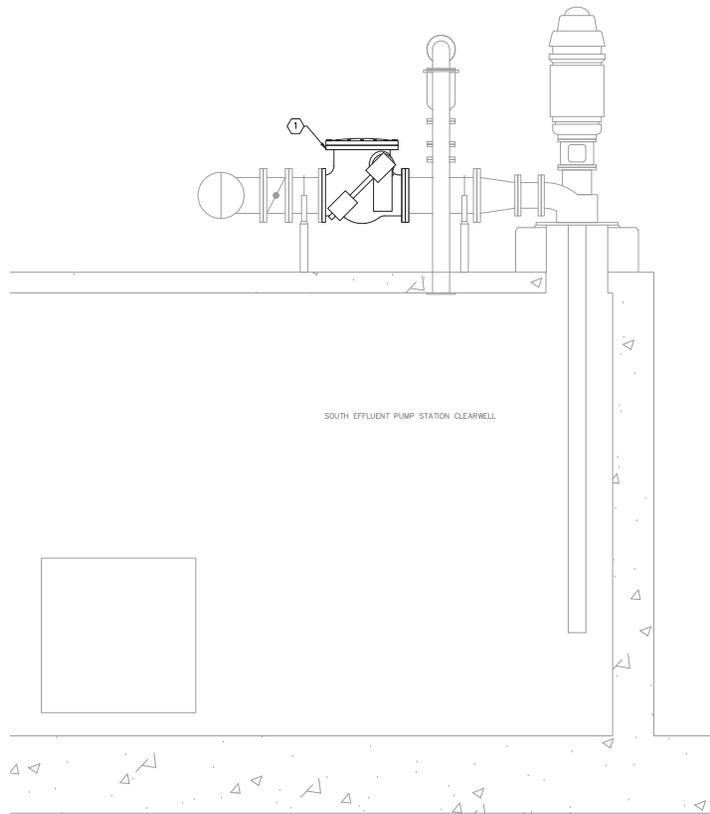
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FL DATE:

**CCC NORTH & SOUTH IMPROVEMENTS SECTION**

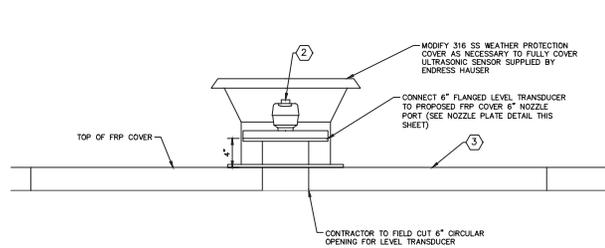
SHEET NUMBER  
**CC-M-2**

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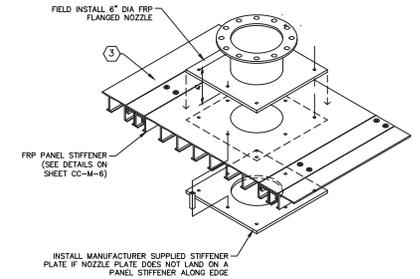
**EFFLUENT PUMP STATION SECTION**  
1/2" = 1'-0"

6  
CC-M-1/CC-M-3



**LEVEL TRANSDUCER MOUNTING DETAIL**  
1-1/2" = 1'-0"

1  
CC-M-3



**NOZZLE PLATE MOUNTING DETAIL**  
1" = 1'-0"

2  
CC-M-3

**GENERAL NOTES**

- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
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- CONTRACTOR TO MODIFY FRP COVERS FOR ALL EQUIPMENT INSTALLATION AS NECESSARY
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

**KEY NOTES**

- SEZURIK 14" AIR CUSHIONED SIDE MOUNTED CYLINDER (LEVER & WEIGHT) SWING CHECK VALVE MODEL CYS 250A, FL
- ENDRESS HAUSER MICROPILOT FMR 54 W/ HORN, 6" ANTENNA, LEVEL TRANSDUCER W/ 316 SS WEATHER PROTECTION COVER
- FRP COVER (SEE DETAILS ON SHEET CC-M-6)

No.	REVISIONS	DATE	BY

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KHA PROJECT 148400021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS SECTION**  
MANATEE COUNTY

**LICENSED PROFESSIONAL**  
Digitally signed by [Name] DN: cn=[Name], o=[Firm], ou=[Department], email=[Email], c=US  
[Signature]

FL DATE:

**CCC NORTH & SOUTH IMPROVEMENTS SECTION**

SHEET NUMBER <b>CC-M-3</b>
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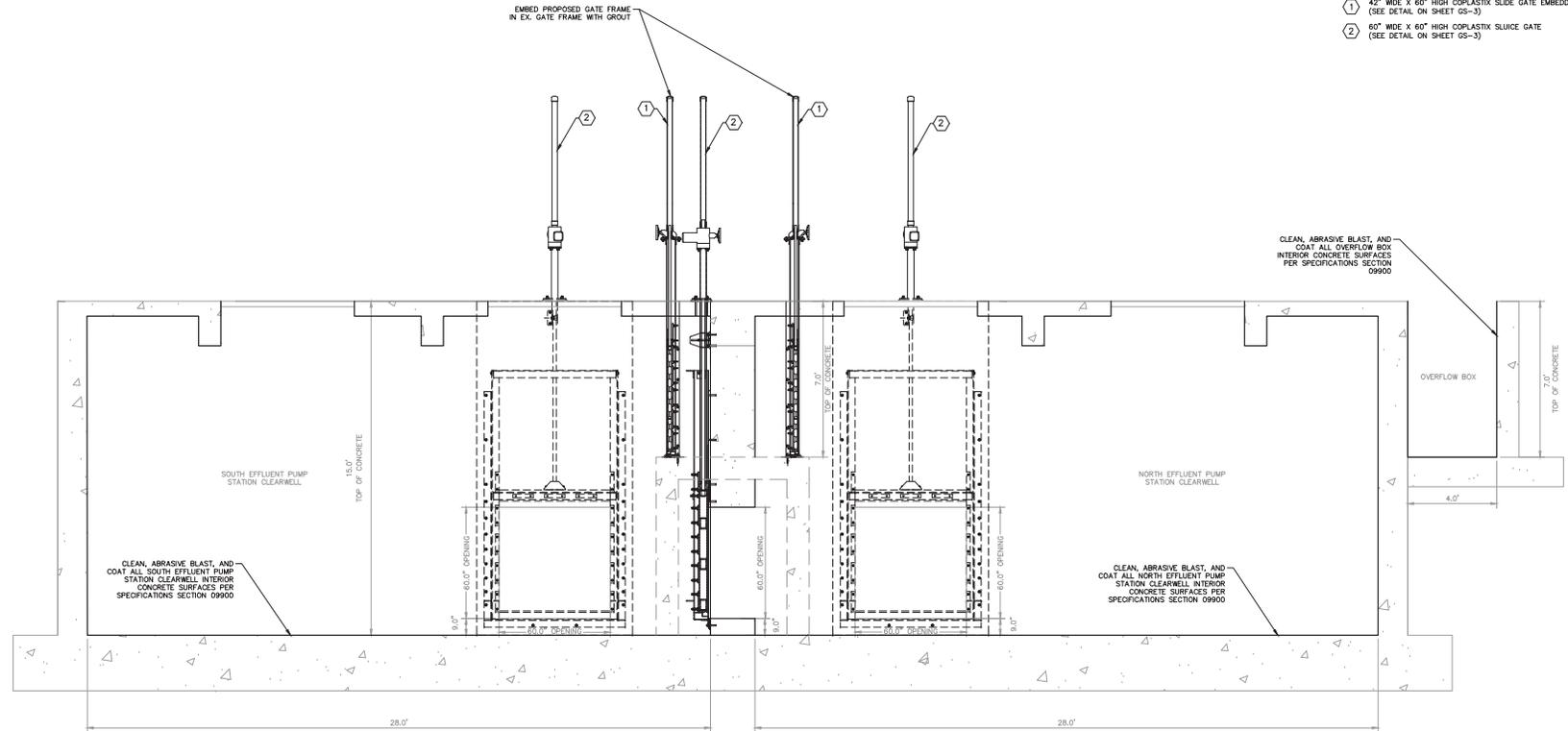
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**KEY NOTES**

- 42" WIDE X 60" HIGH COPLASTIC SLIDE GATE EMBEDDED IN EX. GATE FRAME (SEE DETAIL ON SHEET 05-3)
- 60" WIDE X 60" HIGH COPLASTIC SLUICE GATE (SEE DETAIL ON SHEET 05-3)



EFFLUENT PUMP STATION SECTION 7  
1/2" = 1'-0"

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KHA PROJECT	149400021
DATE	1/7/2019
SCALE	AS SHOWN
DESIGNED BY	WWW
DRAWN BY	KEG
CHECKED BY	WEW

**NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS**  
 MANATEE COUNTY

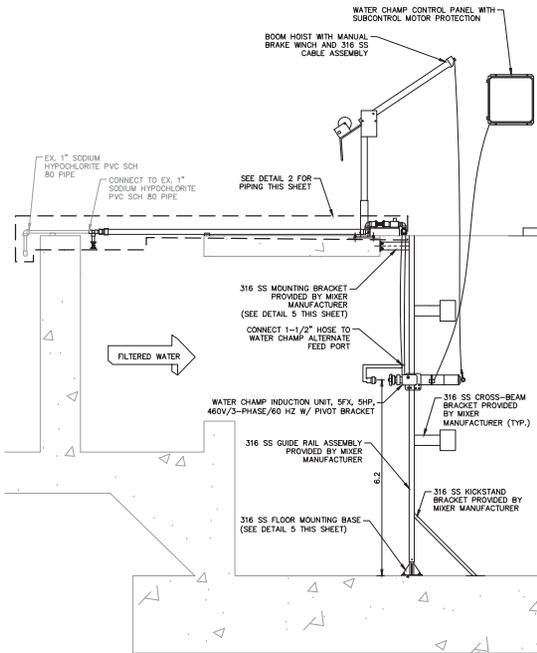
**LICENSED PROFESSIONAL**  
 Digitally signed by **William Wade**  
 DN: cn=William Wade, o=Kimley-Horn and Associates, ou=Kimley-Horn and Associates, email=wwade@kimley-horn.com, c=US

FL DATE: \_\_\_\_\_

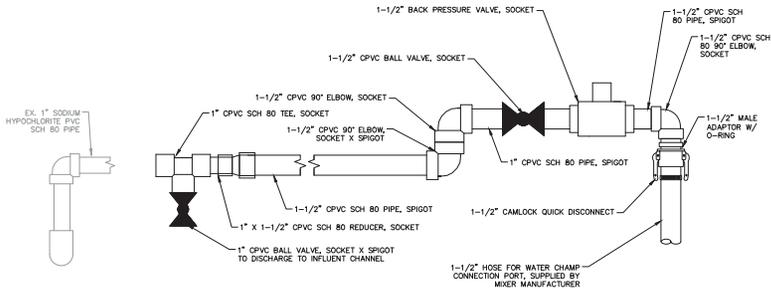
**EFFLUENT PUMP STATION IMPROVEMENTS SECTION**

SHEET NUMBER	CC-M-4
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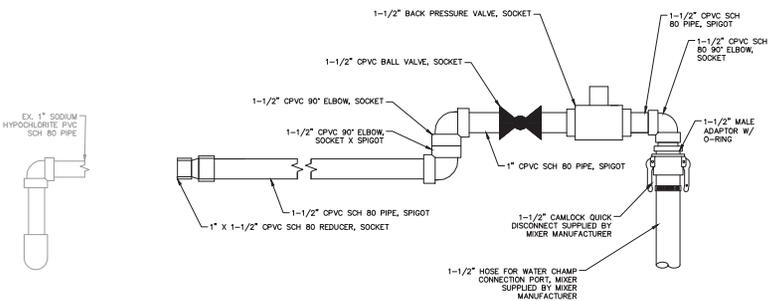
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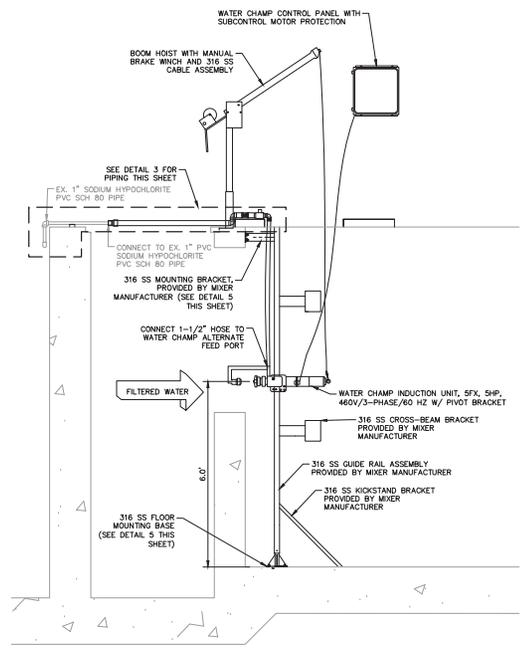
**SOUTH CCC SUBMERSIBLE MIXER DETAIL 1**  
SCALE: 1/2" = 1'-0"



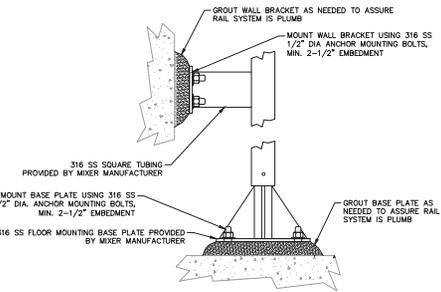
**SOUTH CCC SODIUM HYPOCHLORITE CONNECTION DETAIL 2**  
SCALE: 1" = 1'-0"



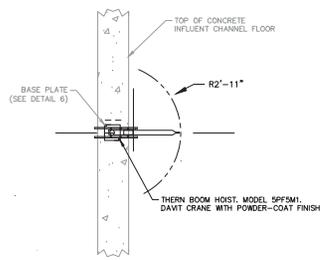
**NORTH CCC SODIUM HYPOCHLORITE CONNECTION DETAIL 3**  
SCALE: 1" = 1'-0"



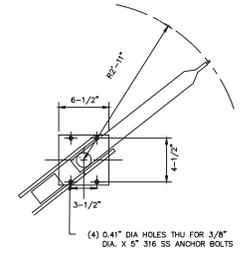
**NORTH CCC SUBMERSIBLE MIXER DETAIL 4**  
SCALE: 1/2" = 1'-0"



**SUBMERSIBLE MIXER MOUNTING DETAIL 5**  
N.T.S.



**DAVIT CRANE LAYOUT DETAIL 6**  
SCALE: 1/2" = 1'-0"



**DAVID CRANE BASE PLATE DETAIL 7**  
SCALE: 1/2" = 1'-0"

No.	REVISIONS	DATE	BY

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KHA PROJECT  
148400021  
DATE  
1/7/2019  
SCALE AS SHOWN  
DESIGNED BY WWV  
DRAWN BY KEG  
CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

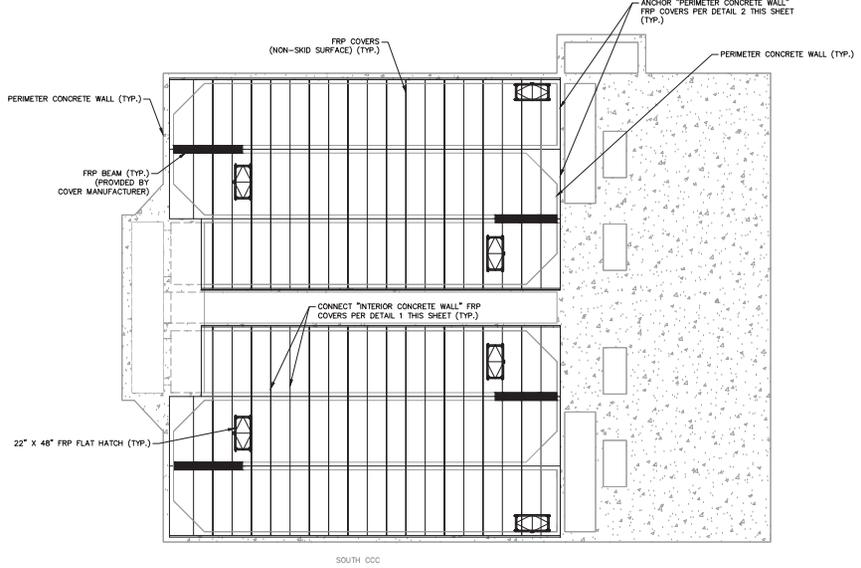
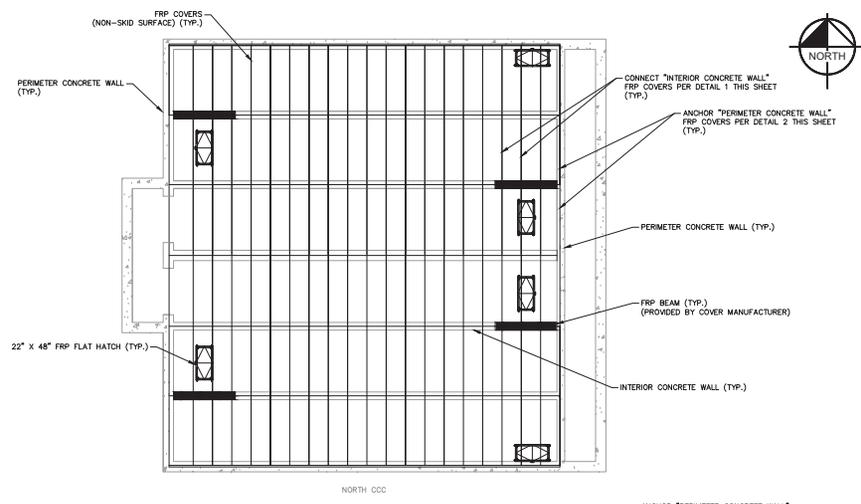
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DATE:

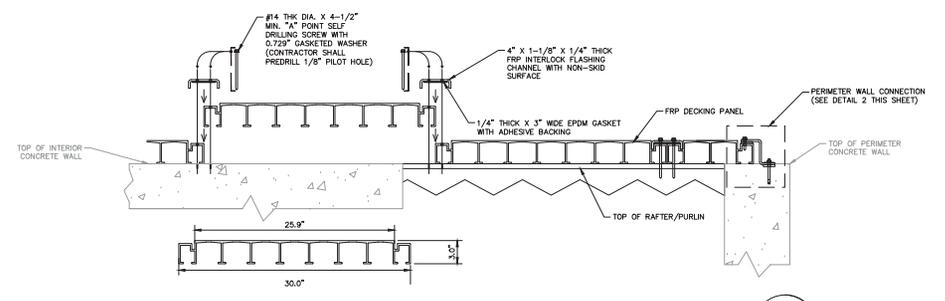
**CCC NORTH & SOUTH IMPROVEMENTS DETAILS**

SHEET NUMBER  
**CC-M-5**

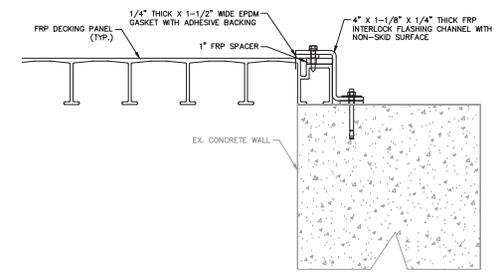
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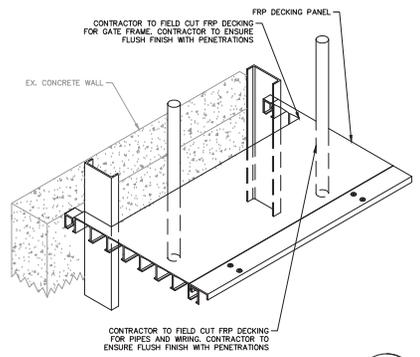
FRP COVERS LAYOUT  
1/8" = 1'-0"



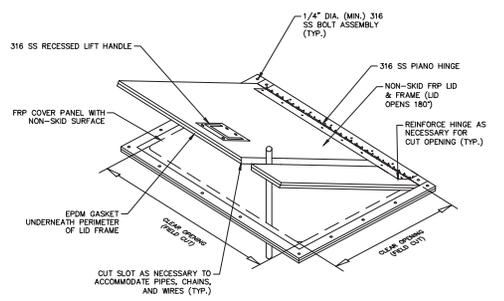
FRP COVER CONNECTION TO INTERIOR CONCRETE WALLS DETAIL 1  
SCALE: 1-1/2" = 1'-0"  
CC-M-6



FRP COVER CONNECTION TO PERIMETER CONCRETE WALLS DETAIL 2  
SCALE: 3" = 1'-0"  
CC-M-6



TYPICAL FIELD CUTS ISOMETRIC DETAIL 3  
N.T.S.  
CC-M-6



TYPICAL FLAT HATCH ISOMETRIC DETAIL 4  
N.T.S.  
CC-M-6

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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KHA PROJECT 145400021  
DATE 1/7/2019  
SCALE AS SHOWN  
DESIGNED BY WWW  
DRAWN BY KEG  
CHECKED BY WEW

**KIMLEY-HORN**

**NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS**

MANATEE COUNTY

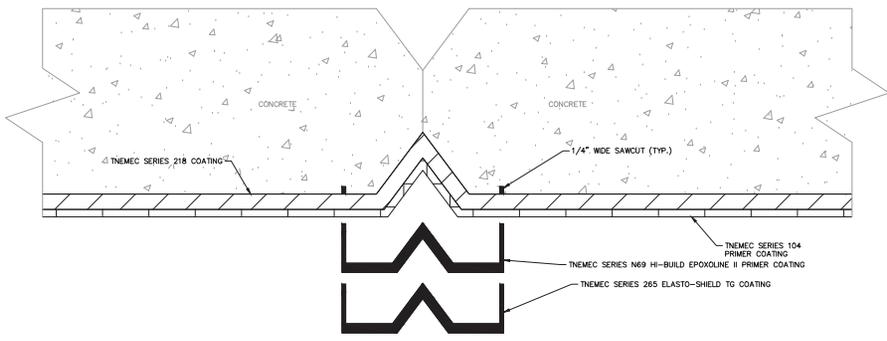
LICENSED PROFESSIONAL  
  
 KEVIN E. GORMAN  
 P.E.  
 12549  
 12/31/2022

FL DATE:

**FRP COVER DETAILS**

SHEET NUMBER  
**CC-M-6**

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**NOTE:**  
SURFACE PREPARATION AND COATING SHALL BE PERFORMED PER SPECIFICATIONS SECTION 09900 "CONCRETE SURFACES - ELASTO-SHIELD CRACK REPAIRS"

REHAB CONSTRUCTION JOINT DETAIL 1  
SCALE: 3" = 1'-0"  
CC-M-7



EX. SOUTH CCC CONSTRUCTION JOINTS 2  
N.T.S.  
CC-M-7

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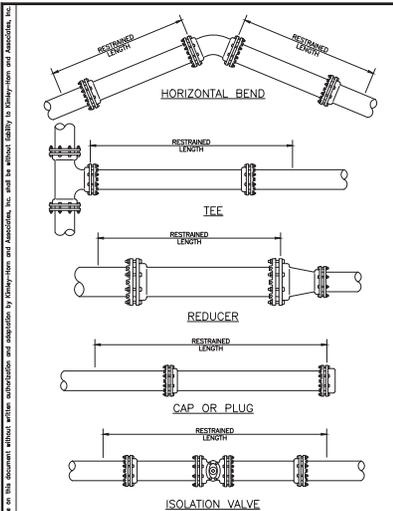
KHA PROJECT 148400021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWJ
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AND CCC IMPROVEMENTS**  
MANATEE COUNTY

LICENSED PROFESSIONAL  
  
FL DATE:

**CCC SOUTH COATING  
IMPROVEMENTS**

SHEET NUMBER <b>CC-M-7</b>
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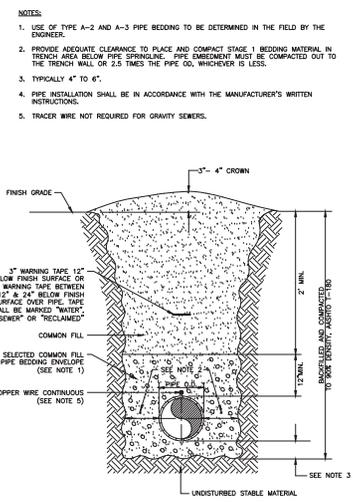
**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)**

MAIN PIPE SIZE	HORIZ. BENDS	TEES										REDUCERS	PLUGS & VALVES		
		SIZE		SIZE		SIZE		SIZE		SIZE				SIZE	
36	142	28	24	24	24	24	24	24	24	24	24	24	24	24	453
30	124	51	25	24	24	24	24	24	24	24	24	24	24	24	391
24	106	44	21	24	24	24	24	24	24	24	24	24	24	24	327
20	92	38	18	24	24	24	24	24	24	24	24	24	24	24	280
16	77	32	15	24	24	24	24	24	24	24	24	24	24	24	231
12	61	25	12	24	24	24	24	24	24	24	24	24	24	24	181
10	52	22	10	24	24	24	24	24	24	24	24	24	24	24	153
8	44	18	9	24	24	24	24	24	24	24	24	24	24	24	128
6	34	14	7	24	24	24	24	24	24	24	24	24	24	24	98
4	24	10	5	24	24	24	24	24	24	24	24	24	24	24	69

**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)**

MAIN PIPE SIZE	HORIZ. BENDS	TEES										REDUCERS	PLUGS & VALVES		
		SIZE		SIZE		SIZE		SIZE		SIZE				SIZE	
36	100	42	20	24	24	24	24	24	24	24	24	24	24	24	188
30	88	37	18	24	24	24	24	24	24	24	24	24	24	24	162
24	75	31	15	24	24	24	24	24	24	24	24	24	24	24	135
20	65	27	13	24	24	24	24	24	24	24	24	24	24	24	116
16	54	22	11	24	24	24	24	24	24	24	24	24	24	24	96
12	43	18	8	24	24	24	24	24	24	24	24	24	24	24	75
10	37	15	7	24	24	24	24	24	24	24	24	24	24	24	63
8	30	13	6	24	24	24	24	24	24	24	24	24	24	24	53
6	24	10	5	24	24	24	24	24	24	24	24	24	24	24	41
4	17	7	3	24	24	24	24	24	24	24	24	24	24	24	29

NOTE:  
1. SEE RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 8 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.  
2. FOR VERTICAL BENDS, SEE ADDITIONAL RESTRAIN LENGTHS DETAIL FOR DIP THIS PAGE



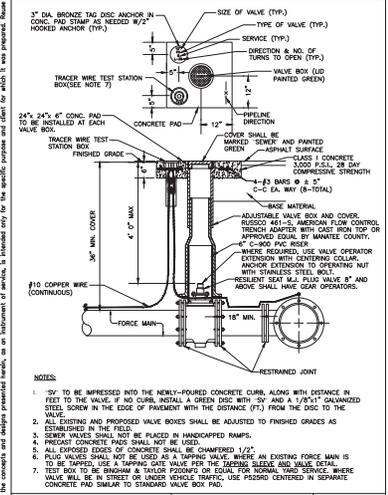
REVISION	DATE	DESCRIPTION
1	03/08/11	DATE OF APPROVAL
2	03/08/11	DATE OF APPROVAL

**ADDITIONAL RESTRAIN LENGTHS DETAIL FOR DIP**

- (SOURCES: EBAA IRON RESTRAIN LENGTH CALCULATION PROGRAM FOR DI PIPE, RELEASE 7.1.2)
- NOTE:  
1. THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:  
SOIL TYPE-4  
TEST PRESSURE-200 PSI  
TRENCH TYPE-3  
SAFETY FACTOR-1.5  
MINIMUM PIPE LENGTH ALONG TEE RUN-3'  
DEPTH OF BURY-3' VERTICAL OFFSET-3'
2. THE RESTRAINED PIPE LENGTHS APPLY TO POLYWRAPPED DI PIPE.  
3. ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.  
4. RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF FITTINGS.  
5. RESTRAINED JOINTS SHALL EXTEND ONE JOINT BEYOND MIN. LENGTH REQUIRED.

FITTING TYPE	PIPE SIZE											
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"		
90° VERT. OFFSET	UPPER BEND	77	109	143	171	201	257	311	363	435	503	
	LOWER BEND	77	109	143	171	201	257	311	363	435	503	
45° VERT. OFFSET	UPPER BEND	32	45	59	71	83	107	129	151	180	209	
	LOWER BEND	12	16	21	24	28	36	43	49	58	66	
22.5° VERT. OFFSET	UPPER BEND	16	22	29	34	40	52	62	73	87	100	
	LOWER BEND	6	8	10	12	14	17	21	24	28	32	
11.25° VERT. OFFSET	UPPER BEND	8	11	14	17	20	26	28	31	36	43	
	LOWER BEND	3	4	5	6	7	9	10	11	12	14	

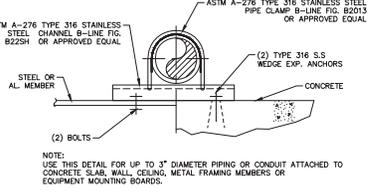
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2	03/08/11	DATE OF APPROVAL



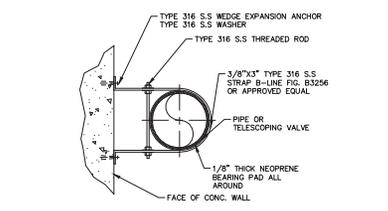
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1	03/08/11	DATE OF APPROVAL
2	03/08/11	DATE OF APPROVAL

REVISION	DATE	DESCRIPTION
1	03/08/11	DATE OF APPROVAL
2	03/08/11	DATE OF APPROVAL

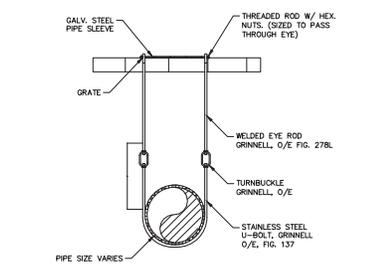
REVISION	DATE	DESCRIPTION
1	03/08/11	DATE OF APPROVAL
2	03/08/11	DATE OF APPROVAL



**STRUT PIPE SUPPORT 1**  
N.T.S. SD-1



**PIPE STRAP SUPPORT 2**  
N.T.S. SD-1



**PIPE SUPPORT HANGER DETAIL 3**  
N.T.S. SD-1

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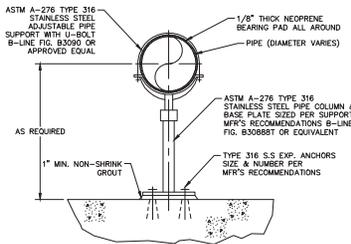
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**KHA PROJECT**  
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MANATEE COUNTY

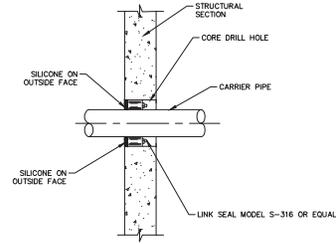
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FL DATE:

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SD-1

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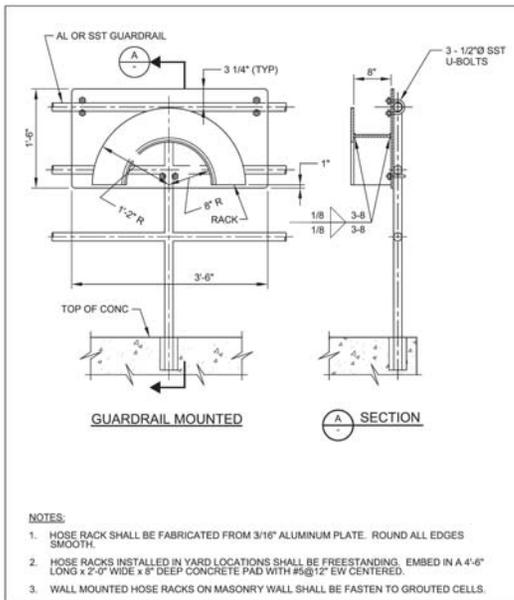


**PIPE COLUMN SUPPORT** 1  
N.T.S. SD-2



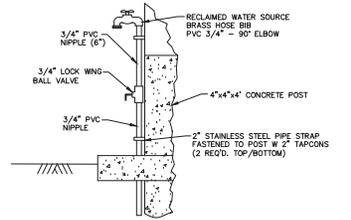
**PIPE PENETRATION DETAIL** 3  
N.T.S. SD-2

**NOTE:**  
1. INSTALL SEALS FROM DRY SIDE OF PENETRATION. WET SIDE FIELD WITH WATERPROOF NON-SHRINK GROUT.  
2. ALL SEAL ELEMENTS SHALL BE EPDM  
3. ALL BOLTS AND NUTS SHALL BE 316 SS  
4. COORDINATE WALL PENETRATION DIAMETER WITH PENETRATION SEAL MANUFACTURER AND PIPE O.D.

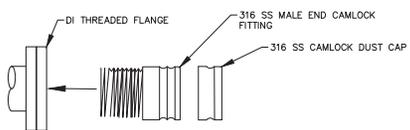


**HOSE RACK DETAIL** 4  
N.T.S. SD-2

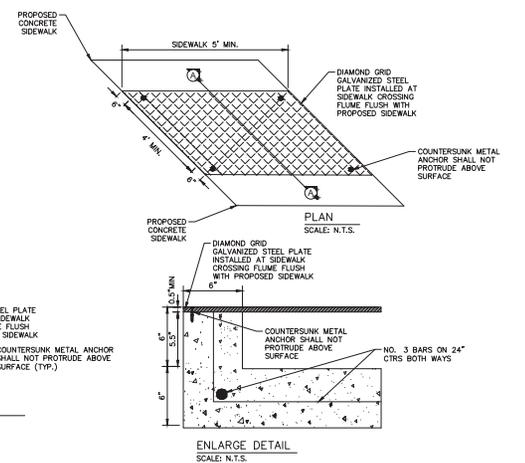
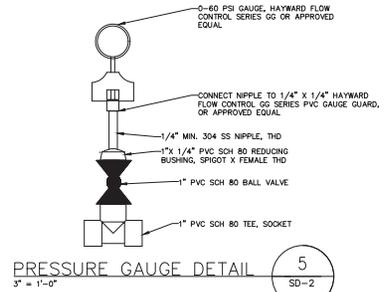
**NOTES:**  
1. HOSE RACK SHALL BE FABRICATED FROM 3/16" ALUMINUM PLATE. ROUND ALL EDGES SMOOTH.  
2. HOSE RACKS INSTALLED IN YARD LOCATIONS SHALL BE FREESTANDING. EMBED IN A 4'-6" LONG x 2'-0" WIDE x 8" DEEP CONCRETE PAD WITH #5@12" EW CENTERED.  
3. WALL MOUNTED HOSE RACKS ON MASONRY WALL SHALL BE FASTEN TO GROUTED CELLS.



**HOSE BIB DETAIL** 2  
N.T.S. SD-2



**CAMLOCK CONNECTION DETAIL** 3  
N.T.S. SD-2



BASED ON 100 P.S.I. LIVE LOAD AND MAX DEAD & LIVE LOAD DEFLECTION OF L/240

PLATE THICKNESS SHALL BE BRASS BOLTS. BOLTS SHALL BE FLUSH WITH TOP OF PLATE AND SPACED A MAXIMUM OF 12" ON CENTERS.

1/2" DIA. SELF-DRILLING ANCHORS SHALL BE USED AND SPACED THE SAME. SURFACE OF PLATE SHALL BE A NON-SOD MATERIAL.

SPAN (FEET)	PLATE THICKNESS (INCHES)
4	1/2"
6	5/8"
8	3/4"
10	7/8"

**SIDEWALK FLUME DETAIL** 6  
N.T.S. SD-2

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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KHA PROJECT 149400021  
DATE 1/7/2019  
SCALE AS SHOWN  
DESIGNED BY WWW  
DRAWN BY KEG  
CHECKED BY NEW

**NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

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FL DATE:

**STANDARD DETAILS**

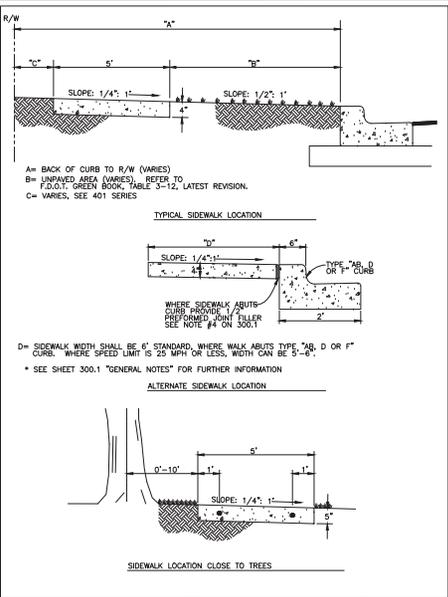
SHEET NUMBER SD-2

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**GENERAL NOTES**

- SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 PSI CONCRETE. WHERE SIDEWALK EXISTS A DRIVEWAY, THE MINIMUM SHALL BE 6" OF CLASS 1 CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH.
  - SEE SHEETS #101.2 & 101.3.
- ALL SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY LAND DEVELOPMENT CODE, SECTION 722. A MINIMUM (5) FOOT WIDE SIDEWALK SHALL BE INSTALLED ALONG THE NORTH AND WEST SIDES OF ALL NEW LOCAL STREETS WHICH ARE CONSTRUCTED IN CONJUNCTION WITH A NEW RESIDENTIAL DEVELOPMENT. A SIDEWALK A MINIMUM OF (5) FEET IN WIDTH SHALL BE INSTALLED ON BOTH SIDES OF ALL THOROUGHFARES. REFER TO F.D.O.T. ROADWAY AND TRAFFIC STANDARDS, LATEST REVISION FOR CURB CUT RAMP SPECIFICATIONS.
- THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/4" UNDER A TEN FOOT STRAIGHTEDGE, NOR MORE THAN 1/8" ON A FIVE-FOOT TRAVERSE SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2".
- EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALKS AND THE CURB OR DRIVEWAY OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2" MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR AASHTO M213. FOR LOW FLOORS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.
- CONTRACTION JOINTS:
  - OPEN TYPE JOINTS
  - OPEN TYPE CONSTRUCTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND THE SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE FINISHED WITH A TOOL HAVING A 1/2" RADIUS.
  - SAWED JOINTS
  - A SLOT APPROXIMATELY 3/16" WIDE AND NOT LESS THAN 1" DEEP AT 10' CENTERS SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.
- SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.
- HANDICAP RAMP SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND SECTIONS 301.0, 301.1 AND 301.2.
- ALL SIDEWALKS ON R/W WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 6" IN DIAMETER AT MATURITY SHALL BE 5" THICK AND CONTAIN 2-#3 REBAR CENTERED VERTICALLY AND SPACED 3' ON CENTER. PALMS ARE NOT CONSIDERED TREES.

\*NOTE: FOR COMPLETE SIDEWALK DETAILS, SEE F.D.O.T. DESIGN STANDARDS, 2006 EDITION, INDEX 304, SHEETS 1 THROUGH 6 AND INDEX 510, SHEETS 1 & 2.



MANATEE COUNTY TRANSPORTATION DEPARTMENT		SIDEWALKS GENERAL NOTES	301.0
REV#	DATE		
	6/12/07		
	DATE OF BLDG. APPROVAL		

MANATEE COUNTY TRANSPORTATION DEPARTMENT		SIDEWALK REQUIREMENTS	301.1
REV#	DATE		
	6/12/07		
	DATE OF BLDG. APPROVAL		

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KHA PROJECT 148400021
DATE 1/7/2019
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**NORTH WRF HEADWORKS, CLARIFIERS,  
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MANATEE COUNTY

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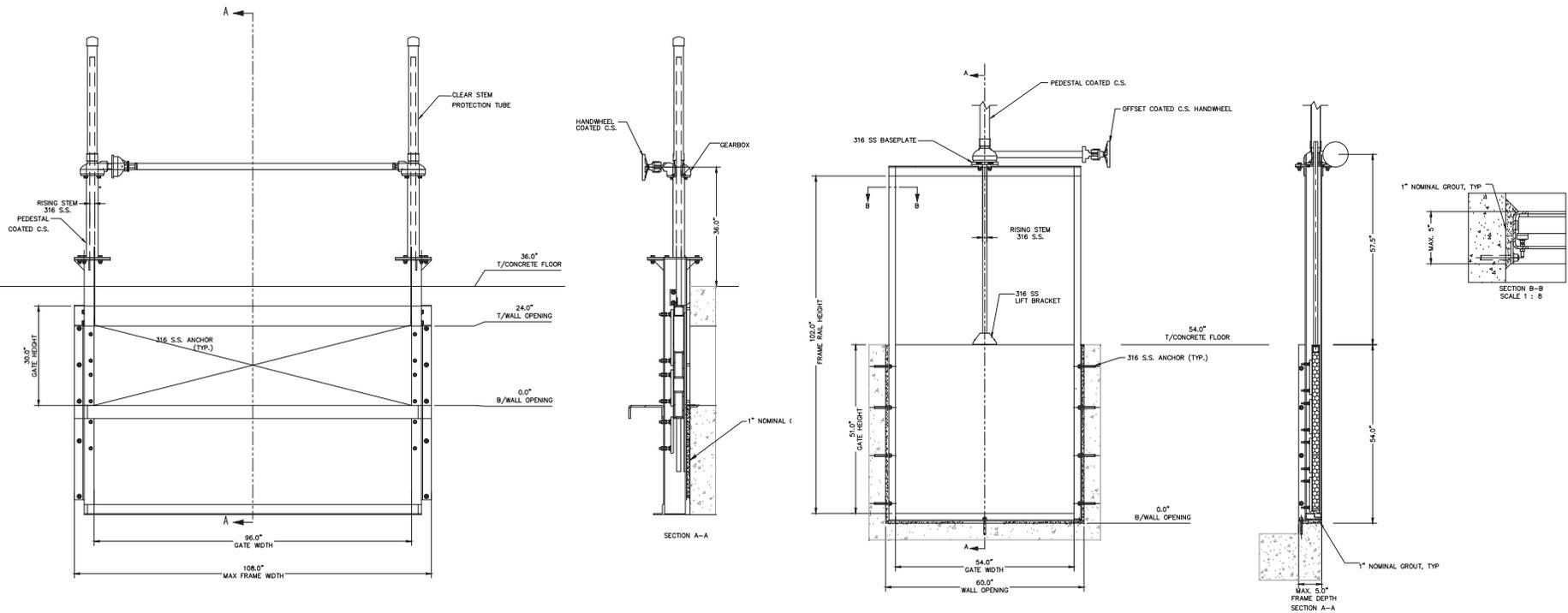
Kevin White  
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STANDARD DETAILS

SHEET NUMBER  
SD-3

GATE SCHEDULE							
PROJECT AREA	LOCATION	TYPE	SIZE	QUANTITY	NUMBER LABEL	HEAD PRESSURE	FRAME MATERIAL
CLARIFIER	FLOW SPLITTER BOX	FRONT WALL MOUNTED WEIR GATE	96" X 36"	FOUR (4)	#1-#4	DOOR DEPTH	316 LSS
		SIDE WALL MOUNTED SLIDE GATE	54" X 51"	ONE (1)	#5	DOOR DEPTH	316 LSS
SOUTH CCC	INFLUENT BOX	SIDE WALL MOUNTED SLIDE GATE	42" X 72"	TWO (2)	#6 AND #7	DOOR DEPTH	ZINC-SPRAYED CARBON STEEL
	INFLUENT BYPASS CHANNEL	SIDE WALL MOUNTED SLIDE GATE	42" X 42"	ONE (1)	#8	DOOR DEPTH	ZINC-SPRAYED CARBON STEEL
EFFLUENT PUMP STATION	EFFLUENT CHANNEL	SIDE WALL MOUNTED SLIDE GATE	42" X 60"	TWO (2)	#9 AND #10	DOOR DEPTH	ZINC-SPRAYED CARBON STEEL
	CLARIFWELL	FRONT WALL MOUNTED SLUICE GATE	60" X 60"	THREE (3)	#11-#13	13'-0"	ZINC-SPRAYED CARBON STEEL
NORTH CCC	INFLUENT BOX	SIDE WALL MOUNTED SLIDE GATE	66" X 66"	TWO (2)	#14 AND #15	DOOR DEPTH	ZINC-SPRAYED CARBON STEEL
	INFLUENT BOX	FRONT WALL MOUNTED SLUICE GATE	42" X 42"	ONE (1)	#16	18'-0"	316 LSS
AEROBIC/ANOXIC BASINS	FLOW SPLITTER BOX	FRONT WALL MOUNTED SLUICE GATE	48" X 48"	ONE (1)	#17	18'-0"	316 LSS

- NOTE
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  - 3) ALL DIMENSIONS IN INCHES
  - 4) ALL GATES SHALL BE HANDWHEEL ACTUATED
  - 5) ALL GATES INSTALLATIONS SHALL PASS LEAKAGE TEST PER AWWA C563



96" X 30" WEIR GATE - #1, #2, #3, #4 1  
3/4" = 1'-0" GS-1

54" X 51" SLIDE GATE - #5 2  
3/4" = 1'-0" GS-1

No.	REVISIONS	DATE	BY

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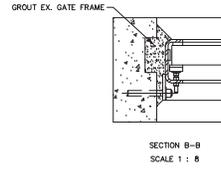
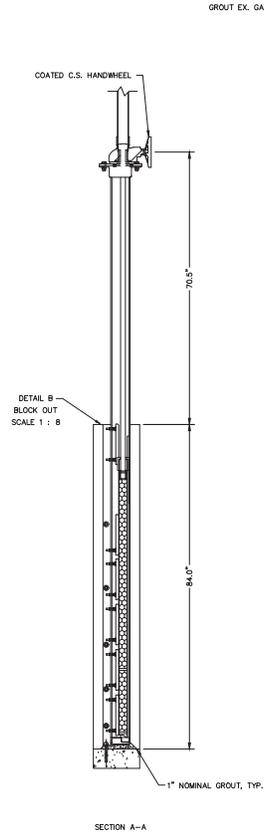
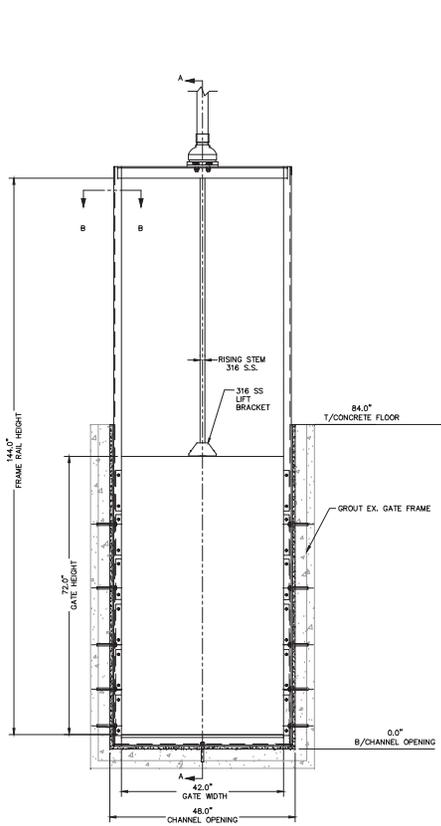
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**GATE SCHEDULE**

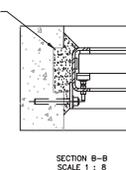
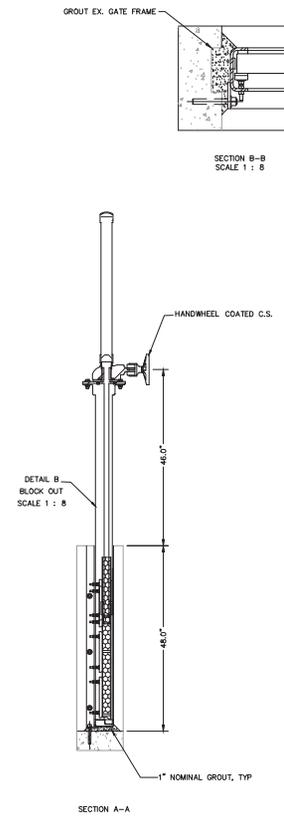
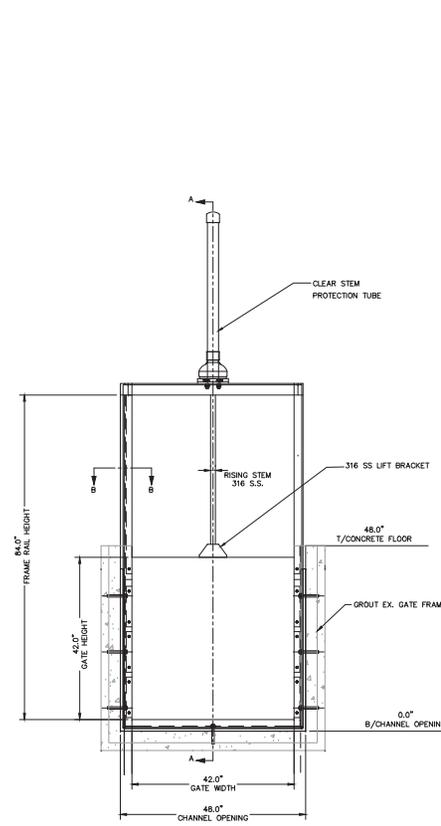
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  - 3) ALL DIMENSIONS IN INCHES
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  - 5) ALL GATES INSTALLATIONS SHALL PASS LEAKAGE TEST PER AWWA C603



42" X 72" SLIDE GATE - #6 & #7  
3/4" = 1'-0" 1  
GS-2



42" X 42" SLIDE GATE - #8  
3/4" = 1'-0" 2  
GS-2

No.	REVISIONS	DATE	BY

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KHA PROJECT 148400021
DATE 1/7/2019
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DESIGNED BY WWV
DRAWN BY KEG
CHECKED BY WEW

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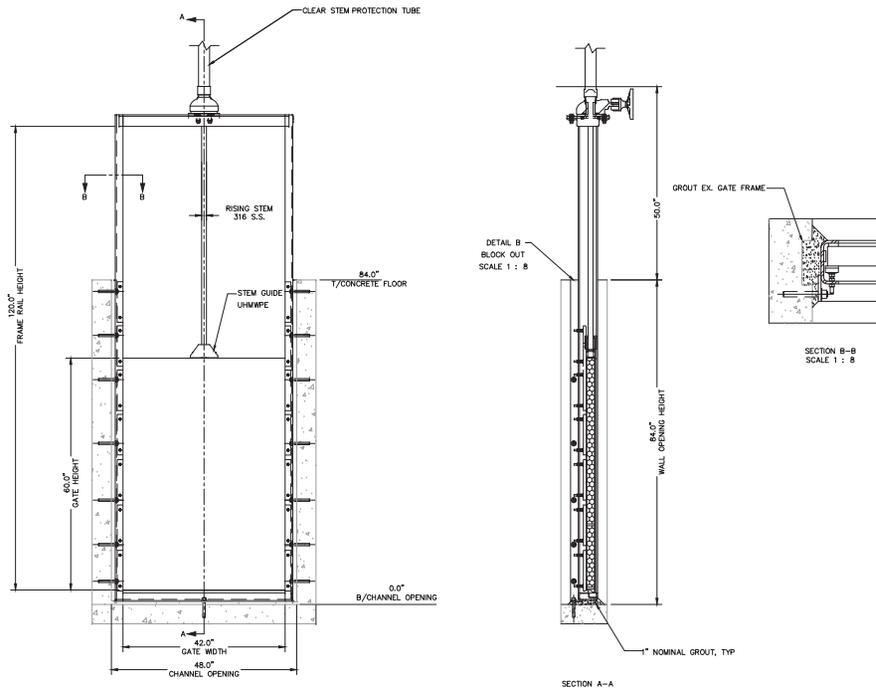
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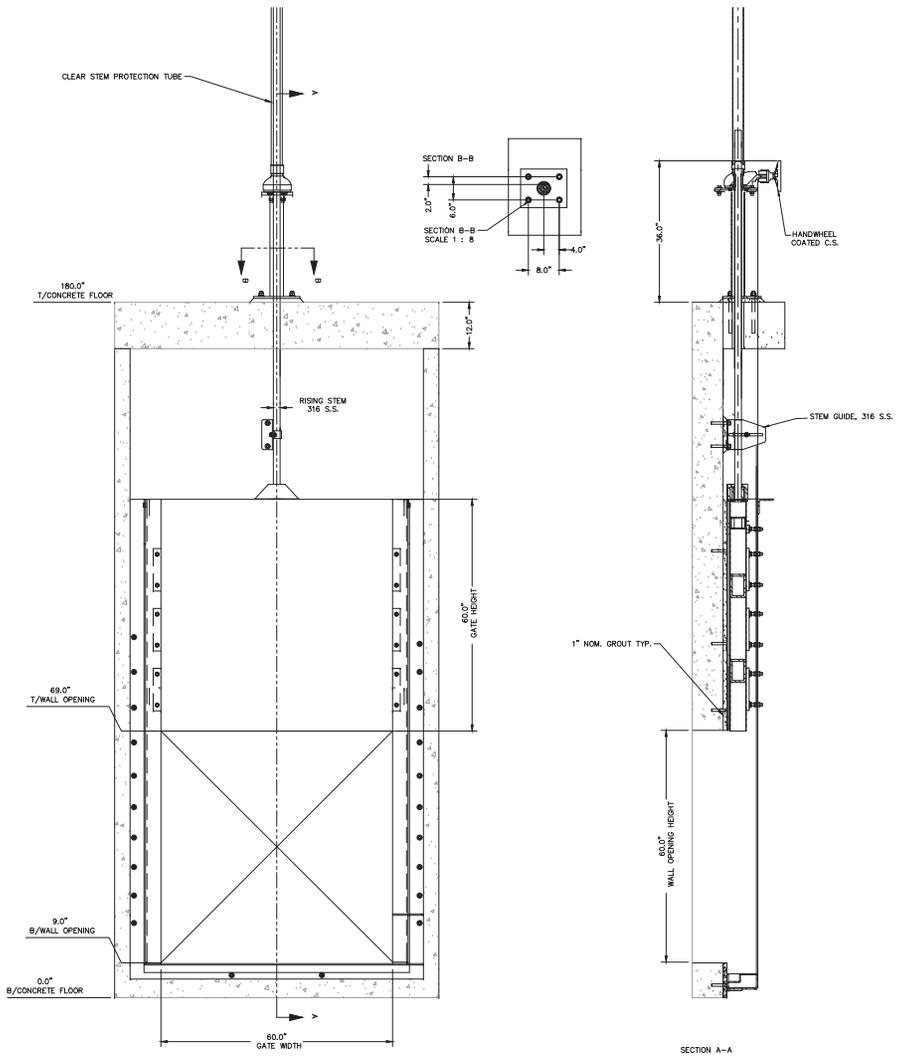
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42" X 60" SLIDE GATE - #9 & #10 1  
3/4" - 1'-0" GS-3



60" X 60" SLUICE GATE - #11, #12, #13 2  
3/4" - 1'-0" GS-3

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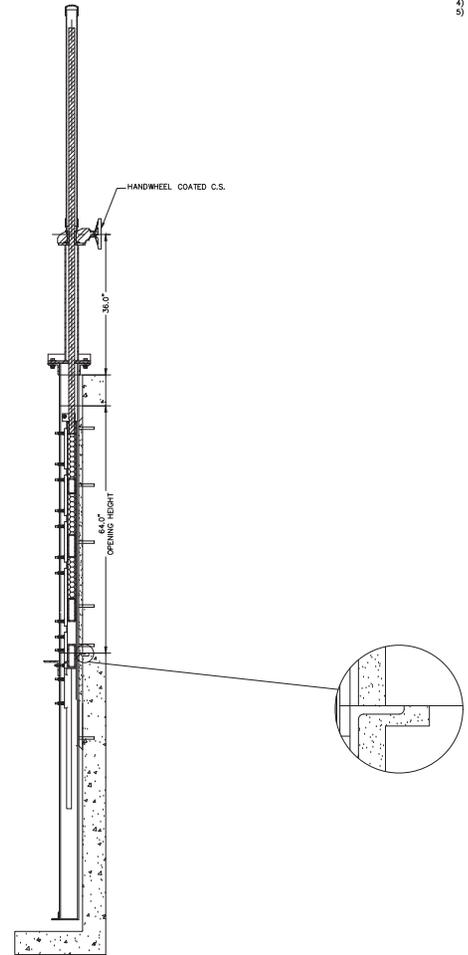
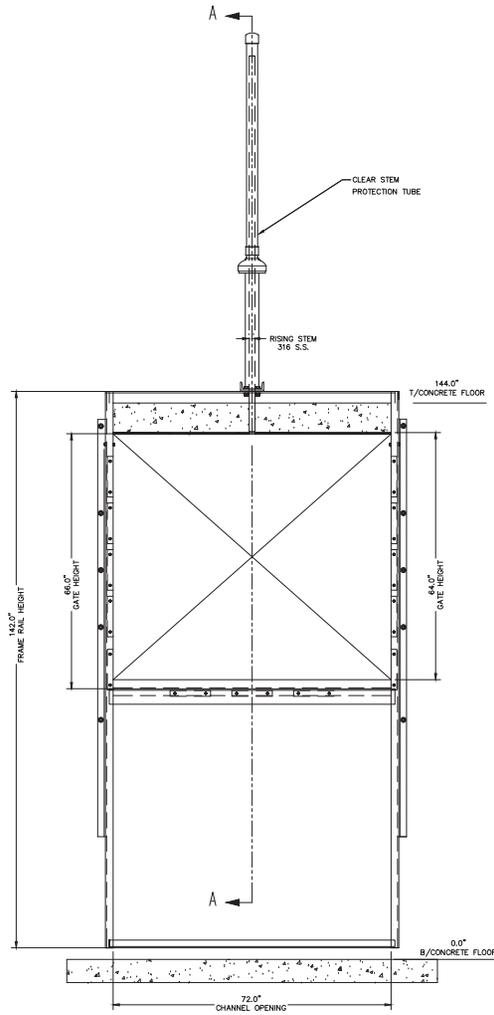
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**GATE SCHEDULE**

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  - 5) ALL GATES INSTALLATIONS SHALL PASS LEAKAGE TEST PER AWWA C563

66" X 66" SLIDE GATE - #14 & #15  
 3/4" = 1'-0" 1  
GS-4

No.	REVISIONS	DATE	BY

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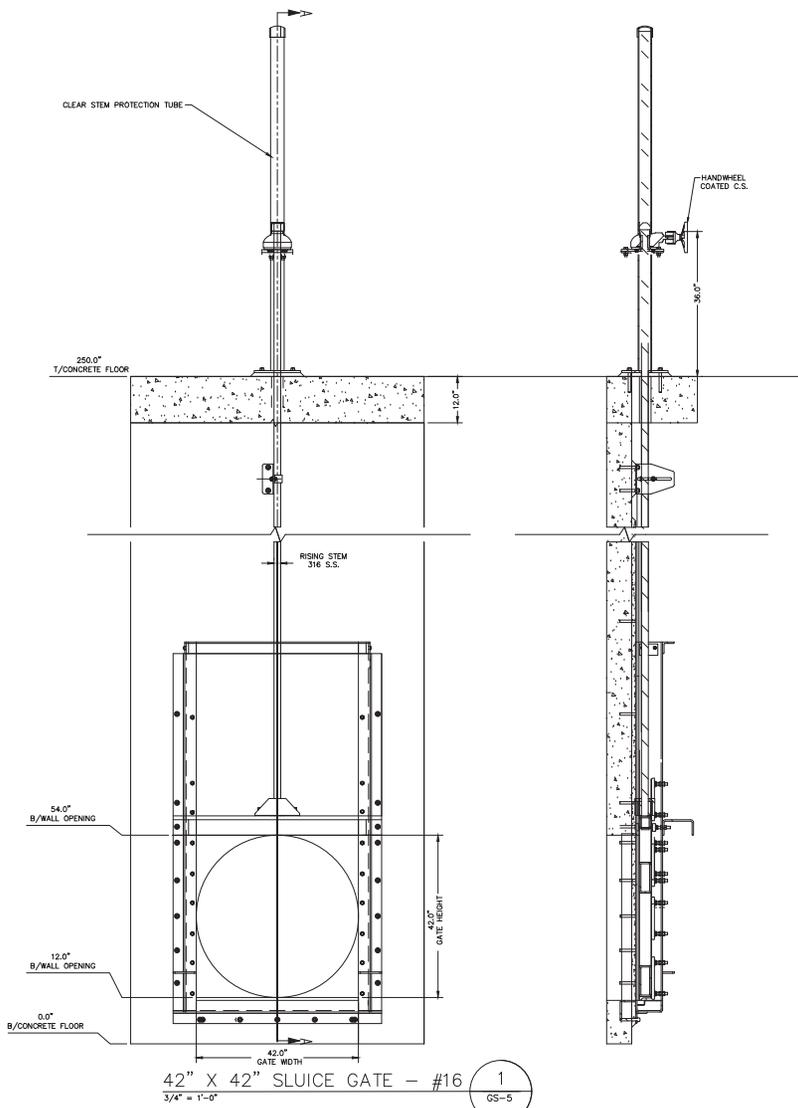
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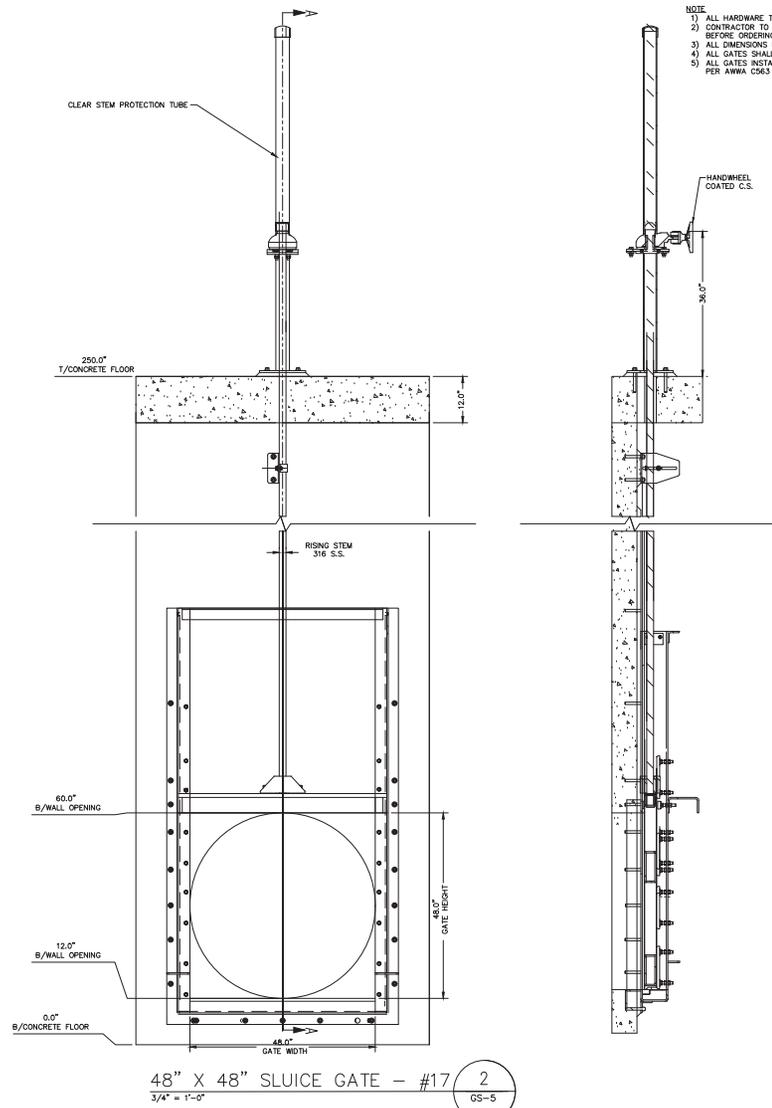
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42" X 42" SLUICE GATE - #16 1  
3/4" = 1'-0" GS-5



48" X 48" SLUICE GATE - #17 2  
3/4" = 1'-0" GS-5

- NOTE
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FL DATE:

**GATE SCHEDULE**

**GS-5**

SHEET NUMBER