

CONSTRUCTION DRAWINGS FOR THE SOUTH WATER RECLAMATION FACILITY (SWRF) HYPOCHLORITE STORAGE AND FEED SYSTEMS ORANGE COUNTY, FLORIDA

PROJECT TEAM



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CONSULTING ENGINEERS

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GENERAL, CIVIL, MECHANICAL

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STRUCTURAL

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MRI ARCHITECTURAL GROUP, INC.

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PREPARED FOR:



ISSUED FOR BID

**ORANGE COUNTY CONTRACT NO.
SEQUENCE NO. 75165
CAP NO. 1555-15**

REI Project No. 110022

**ORANGE COUNTY UTILITIES
ENGINEERING DIVISION
9150 CURRY FORD ROAD, 2ND FLOOR
ORLANDO, FL 32825
PHONE: 407-254-9900**

**BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY MAYOR TERESA JACOBS
DISTRICT 1 : COMMISSIONER S. SCOTT BOYD
DISTRICT 2 : COMMISSIONER BRYAN NELSON
DISTRICT 3 : COMMISSIONER PETE CLARKE
DISTRICT 4 : COMMISSIONER JENNIFER THOMPSON
DISTRICT 5 : COMMISSIONER TED B. EDWARDS
DISTRICT 6 : COMMISSIONER VICTORIA P. SIPLIN
COUNTY ADMINISTRATOR: AJIT LALCHANDANI
DIRECTOR ORANGE COUNTY UTILITIES DEPARTMENT:
RAYMOND E. HANSON, P.E.**

Parent Sheet Set: 110022-SWRF-F1P0 Rev: 01/10/17/2016 7:07 AM Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF - SODIUM HYPOCHLORITE DESIGN DRAWINGS\FINAL\DESIGN\G01.DWG

REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	RLL



GENERAL NOTES

PROJECT LOCATION MAP

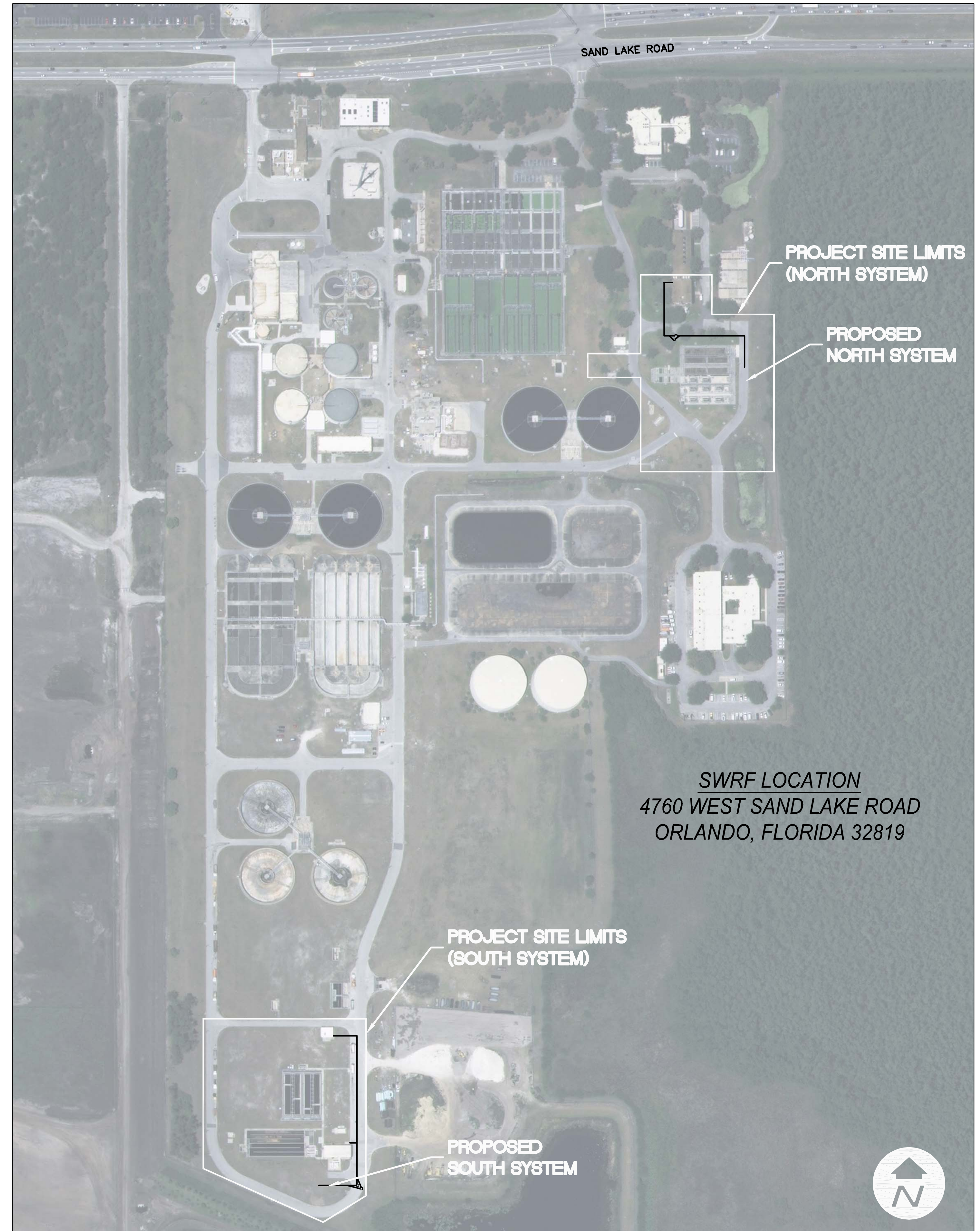
OCU GENERAL NOTES:

1. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING IN PROXIMITY OF WATER MAINS, WASTEWATER FORCE MAINS, GRAVITY MAINS, STORMWATER MAINS, DRAINAGE STRUCTURES, RECLAIMED WATER MAINS, HYPOCHLORITE PIPING, ELECTRICAL DUCTBANKS, CONTROL AND COMMUNICATION CONDUITS, AND OTHER BURIED UTILITIES. MAIN LOCATIONS SHOWN ON PLANS MAY NOT BE EXACT. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS. HAND DIGGING IS REQUIRED FOR INSTALLATION OF HYPOCHLORITE YARD PIPING.
2. SHOULD A PIPE EMERGENCY OCCUR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OCU DISPATCH OPERATOR (407-836-2777) AND THE OCU RPR, AND THE SWRF PLANT MANAGER (407-254-7724).
3. THE CONTRACTOR SHALL NOTIFY THE RPR AND OCU CONSTRUCTION DIVISION AT LEAST SEVEN DAYS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION PROJECT BY CALLING (407) 254-9798.
4. THE CONTRACTOR SHALL NOTIFY THE RPR AND OCU CONSTRUCTION DIVISION AT LEAST 48 HOURS PRIOR TO ANY UTILITIES CONSTRUCTION BY CALLING (407) 254-9798.
5. THE MATERIALS, PRODUCTS, AND CONSTRUCTION OF ALL UTILITIES CONNECTING TO THE OCU SYSTEM SHALL BE IN CONFORMANCE WITH THE ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL.
6. ALL OCU MAINS AND FACILITIES WITHIN THE LIMITS OF THE PROJECT SHALL BE SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION.
7. THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, SHALL IMMEDIATELY REPAIR ALL DAMAGES TO OCU MAINS AND FACILITIES. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY OCU, OCU MAY PERFORM REQUIRED REPAIRS AND CLEANUP. THE CONTRACTOR WILL BE CHARGED FOR ALL EXPENSES ASSOCIATED WITH THE REPAIR.
8. ONLY OCU SHALL OPERATE OCU WATER, WASTEWATER, AND RECLAIMED WATER VALVES. THE CONTRACTOR SHALL COORDINATE VALVE OPERATION WITH THE OCU RPR. FOR OPERATION OF MAINS NOT OWNED BY OCU, IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE APPROPRIATE UTILITY REPRESENTATIVE.
9. CONSTRUCTION ACTIVITIES SHALL NOT CAUSE INTERRUPTIONS IN WATER, WASTEWATER, OR RECLAIMED WATER SERVICE WITHOUT PRIOR APPROVAL FROM OCU. THE CONTRACTOR SHALL COORDINATE PRE-APPROVED INTERRUPTIONS OF SERVICE WITH THE OCU RPR A MINIMUM OF 7 WORKING DAYS IN ADVANCE.
10. ALL VALVES INSTALLED AS PART OF THIS CONSTRUCTION PROJECT SHALL REMAIN CLOSED DURING CONSTRUCTION UNLESS APPROVED BY OCU.
11. THE CONTRACTOR SHALL PROVIDE A JUMPER ASSEMBLY WITH A BACKFLOW PREVENTER FOR MAKING TEMPORARY CONNECTIONS TO AN EXISTING POTABLE WATER SOURCE IN ORDER TO CHLORINATE AND FLUSH NEW PIPELINES WITH POTABLE WATER.
12. FOR PIPE THAT WILL BE OWNED AND MAINTAINED BY OCU, NO PIPE BENDING IS ALLOWED. THE MAXIMUM ALLOWABLE TOLERANCE FOR JOINT DEFLECTION IS 0.75 DEGREES (3-INCHES PER JOINT PER 20 FT STICK OF PIPE.) ALIGNMENT CHANGE SHALL BE MADE ONLY WITH SLEEVES AND FITTINGS.
13. FOR NON-PVC PIPE THAT WILL BE OWNED AND MAINTAINED BY OCU. MAXIMUM DEFLECTIONS AT PIPE JOINTS, FITTINGS AND LAYING RADIUS FOR THE VARIOUS PIPE LENGTHS SHALL NOT EXCEED 75 PERCENT OF THE PIPE MANUFACTURER'S RECOMMENDATION.
14. THE CONTRACTOR SHALL SOD ALL DISTURBED AREAS.

SURVEY NOTES:

COORDINATES ARE BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE NAD83(90) AND TIED INTO THE ORANGE COUNTY HORIZONTAL CONTROL NETWORK. REFERENCE MONUMENTS; NW CORNER OF SECTION 32, TOWNSHIP 23 S, RANGE 29 EAST. (CCR #072486), N 1/4 CORNER OF SECTION 31, TOWNSHIP 23 S, RANGE 29 EAST. (CCR #072484). W 1/4 CORNER OF SECTION 32, TOWNSHIP 23 SOUTH, RANGE 29 EAST. (CCR #072489).

ELEVATIONS ARE BASED ON ORANGE COUNTY BENCH MARK #L1019020, ELEVATION = 90.41 (88 DATUM), BEING A BRASS DISK IN CURB ON THE SOUTH SIDE OF SAND LAKE ROAD AT THE WEST ENTRANCE TO ORANGE COUNTY'S SOUTH WATER RECLAMATION FACILITY, AND ORANGE COUNTY BENCH MARK #L1019015, ELEVATION = 96.65 (88 DATUM), BEING A SQUARE CUT ON THE EAST SIDE OF CONCRETE STRUCTURE FOR AN AIR RELEASE VALVE 1,110' SOUTH OF SAND LAKE ROAD.



SWRF LOCATION
 4760 WEST SAND LAKE ROAD
 ORLANDO, FLORIDA 32819

Parent Sheet: Set: 110022SWRFHYPO - Rev/Plot by: ROBERT L. LUPU - Rev on: 8/11/2016 2:03 PM - Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF SODIUM HYPOCHLORITE DESIGN\DRAWINGS\FINALDESIGN\G02.DWG



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Issue Certification
 Curtis I. Kunihiro, P.E.
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 Reiss Engineering, Inc.
 Certificate of Authorization No. 8181
 1016 Spring Villas Pt.
 Winter Springs, FL 32708

Designed DNN
 Drawn RLL
 Checked BRW
 Reviewed BRW
 Approved CLK

LINE IS 1"=10'
 FULL SIZE

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

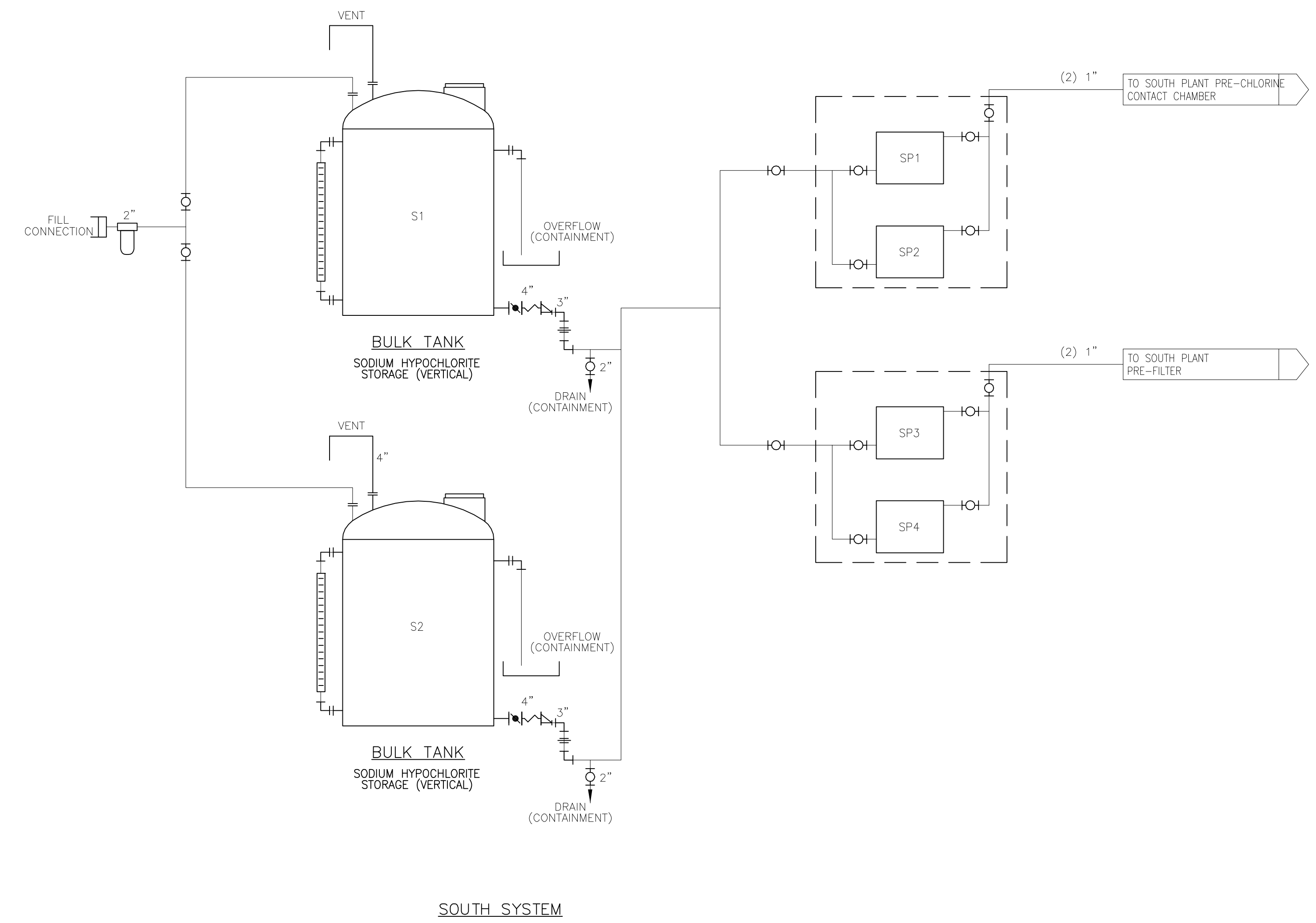
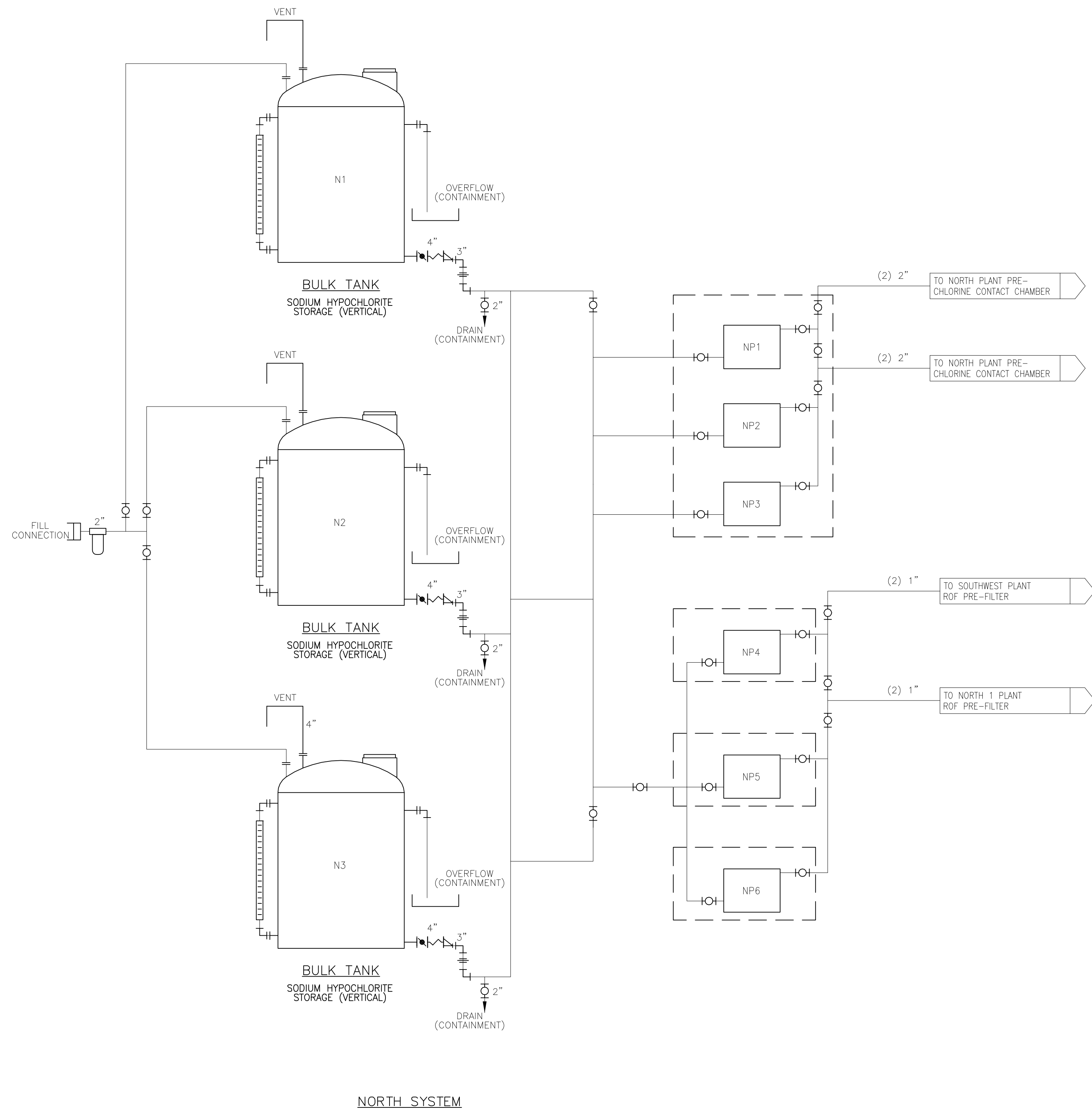
GENERAL

GENERAL NOTES AND LOCATION MAP

PROJECT NO.: 110022	
SCALE: NONE	REVISION: 0
DRAWING NO. G02	SHEET NO.: 02 OF 46

RE REISS ENGINEERING, INC.
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Parent Sheet Set: 110022SWRFHYPO - Rev/Plot by: ROBERT L. LUPO - Rev on: 1/26/2015 11:06 AM - Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF SODIUM HYPOCHLORITE DESIGN\DRAWINGS\FINALDESIGN\G04.DWG



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Designed DNN
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ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

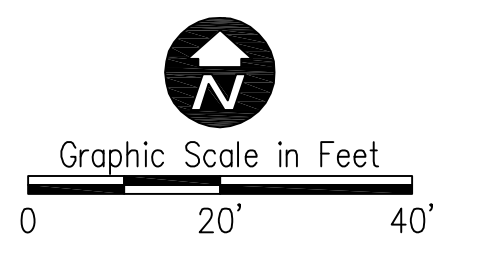
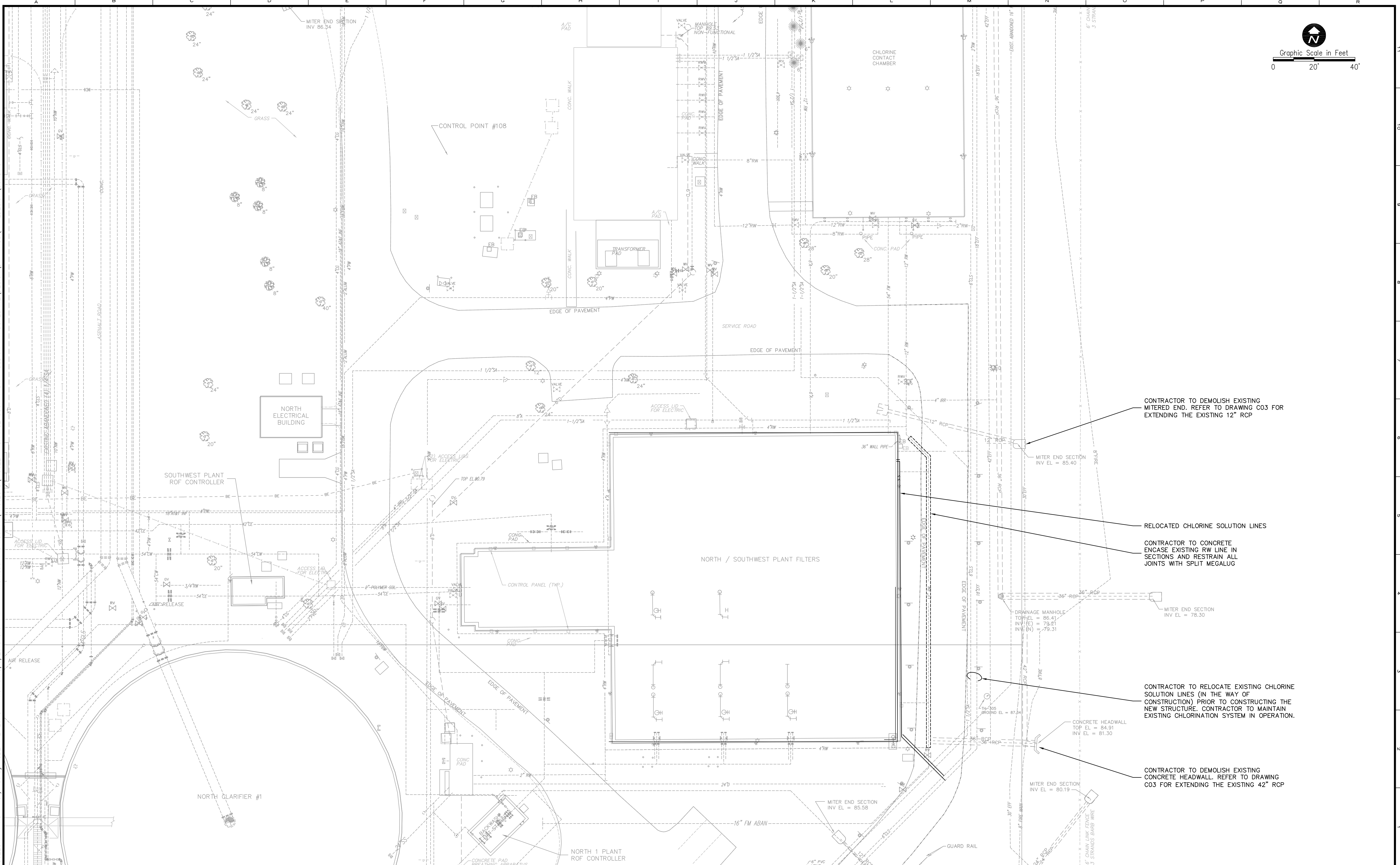
GENERAL

PROCESS FLOW DIAGRAM

PROJECT NO.: 110022	
SCALE: NONE	REVISION: 0
DRAWING NO. G04	SHEET NO.: 04 OF 46

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CONTRACTOR TO DEMOLISH EXISTING MITERED END. REFER TO DRAWING C03 FOR EXTENDING THE EXISTING 12" RCP

RELOCATED CHLORINE SOLUTION LINES

CONTRACTOR TO CONCRETE ENCASE EXISTING RW LINE IN SECTIONS AND RESTRAIN ALL JOINTS WITH SPLIT MEGALUG

CONTRACTOR TO RELOCATE EXISTING CHLORINE SOLUTION LINES (IN THE WAY OF CONSTRUCTION) PRIOR TO CONSTRUCTING THE NEW STRUCTURE. CONTRACTOR TO MAINTAIN EXISTING CHLORINATION SYSTEM IN OPERATION.

CONTRACTOR TO DEMOLISH EXISTING CONCRETE HEADWALL. REFER TO DRAWING C03 FOR EXTENDING THE EXISTING 42" RCP



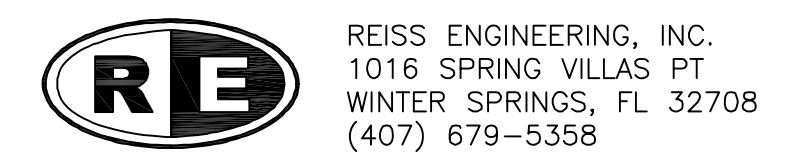
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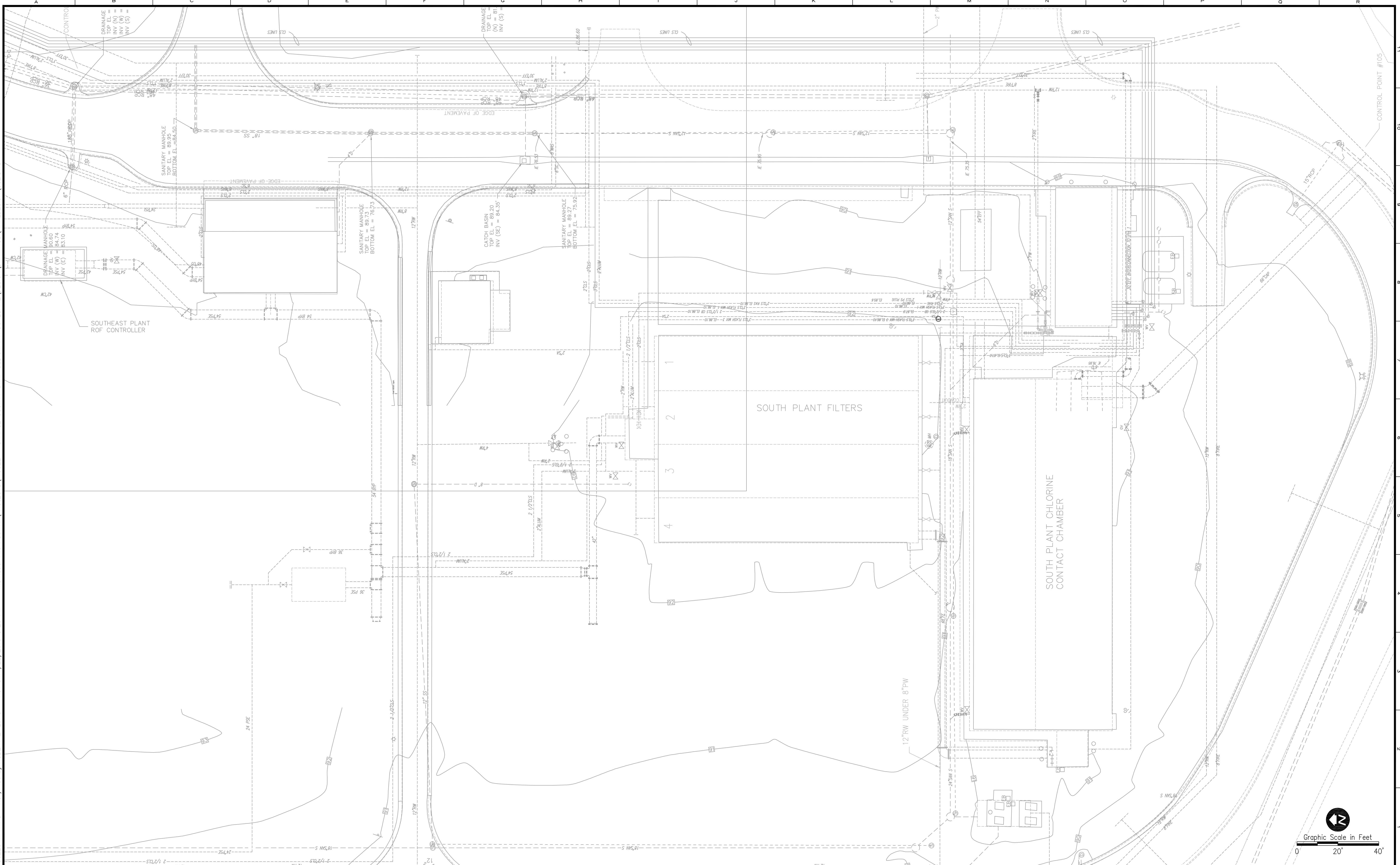
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 Reviewed BRW
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ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 CIVIL
 EXISTING SITE PLAN - NORTH SYSTEM

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. C01	SHEET NO.: 05 OF 46



Parent Sheet Set: 110022SWRFHYPO Rev/Plot by: ROBERT L. LUPO Rev on: 1/22/2015 3:29 PM Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF HYPOCHLORITE DESIGN\FINAL\DESIGN\C02.DWG



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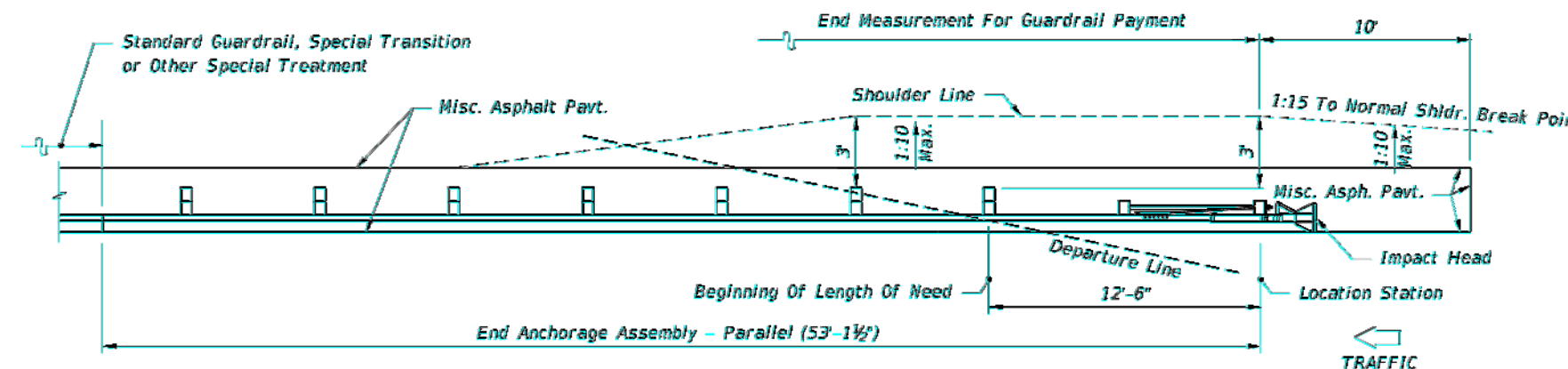
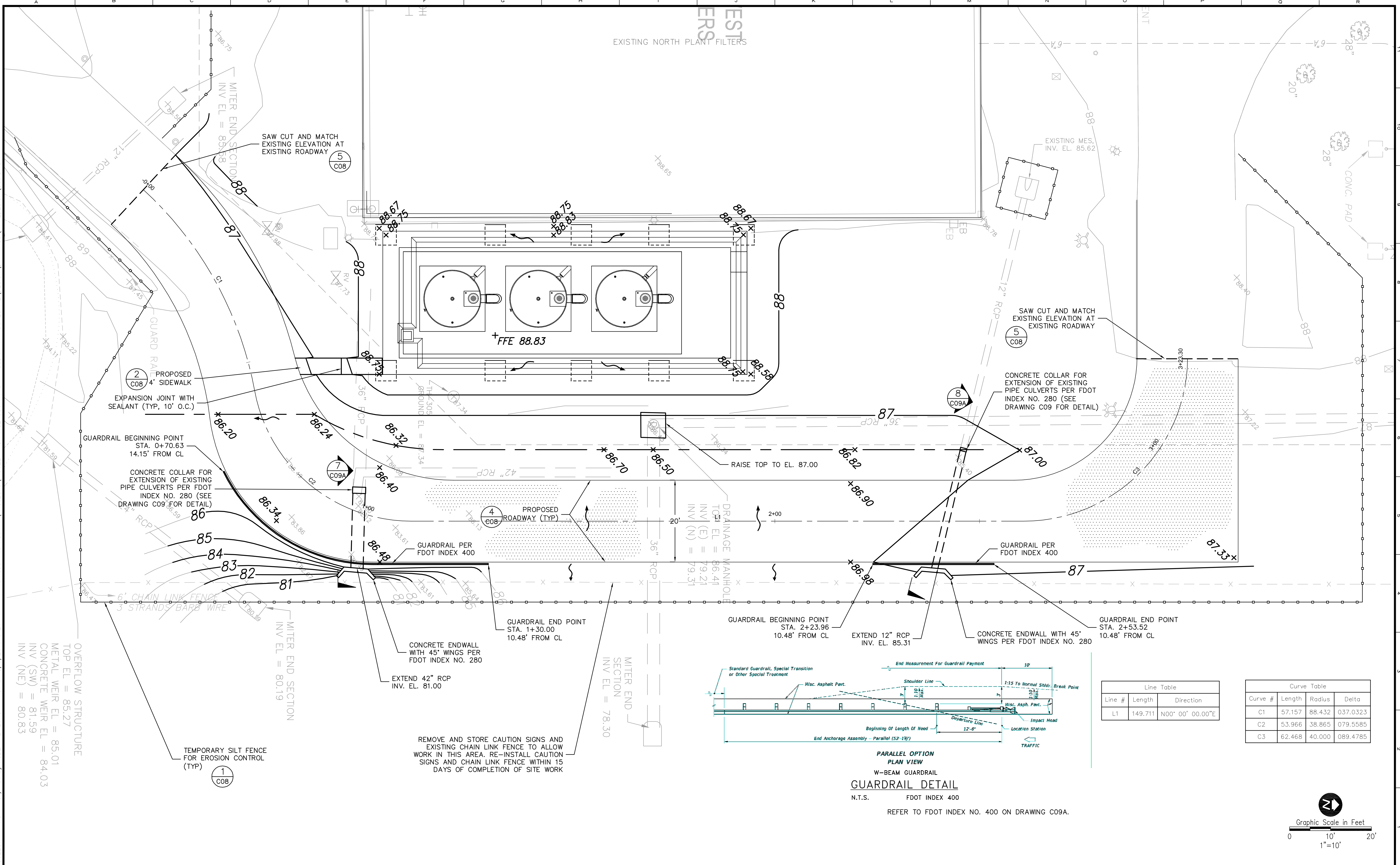
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 Approved CLK

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 CIVIL
 EXISTING SITE PLAN - SOUTH SYSTEM

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. C02	SHEET NO.: 06 OF 46

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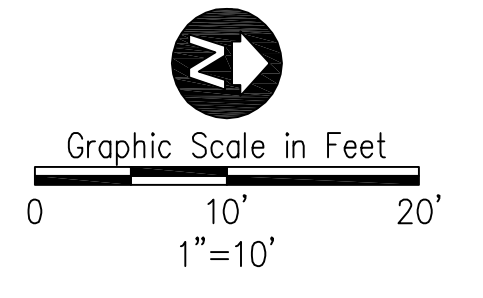
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**PARALLEL OPTION
PLAN VIEW
W-BEAM GUARDRAIL
GUARDRAIL DETAIL**
N.T.S. FDOT INDEX 400
REFER TO FDOT INDEX NO. 400 ON DRAWING C09A.

Line Table		
Line #	Length	Direction
L1	149.711	N00° 00' 00.00"E

Curve Table			
Curve #	Length	Radius	Delta
C1	57.157	88.432	0.37.0323
C2	53.966	38.865	0.79.5585
C3	62.468	40.000	0.89.4785



REMOVE AND STORE CAUTION SIGNS AND EXISTING CHAIN LINK FENCE TO ALLOW WORK IN THIS AREA. RE-INSTALL CAUTION SIGNS AND CHAIN LINK FENCE WITHIN 15 DAYS OF COMPLETION OF SITE WORK

OVERFLOW STRUCTURE
TOP EL = 85.27
METAL WEIR EL = 85.01
CONCRETE WEIR EL = 84.03
INV (SW) = 81.59
INV (NE) = 80.83

PROPOSED 4' SIDEWALK
EXPANSION JOINT WITH SEALANT (TYP, 10' O.C.)
CONCRETE COLLAR FOR EXTENSION OF EXISTING PIPE CULVERTS PER FDOT INDEX NO. 280 (SEE DRAWING C09 FOR DETAIL)

TEMPORARY SILT FENCE FOR EROSION CONTROL (TYP)

SAW CUT AND MATCH EXISTING ELEVATION AT EXISTING ROADWAY

SAW CUT AND MATCH EXISTING ELEVATION AT EXISTING ROADWAY

CONCRETE COLLAR FOR EXTENSION OF EXISTING PIPE CULVERTS PER FDOT INDEX NO. 280 (SEE DRAWING C09 FOR DETAIL)

RAISE TOP TO EL. 87.00

CONCRETE ENDWALL WITH 45° WINGS PER FDOT INDEX NO. 280
EXTEND 42" RCP
INV. EL. 81.00

EXTEND 12" RCP
INV. EL. 85.31

CONCRETE ENDWALL WITH 45° WINGS PER FDOT INDEX NO. 280

GUARDRAIL BEGINNING POINT
STA. 0+70.63
14.15' FROM CL

GUARDRAIL END POINT
STA. 1+30.00
10.48' FROM CL

GUARDRAIL BEGINNING POINT
STA. 2+23.96
10.48' FROM CL

GUARDRAIL END POINT
STA. 2+53.52
10.48' FROM CL



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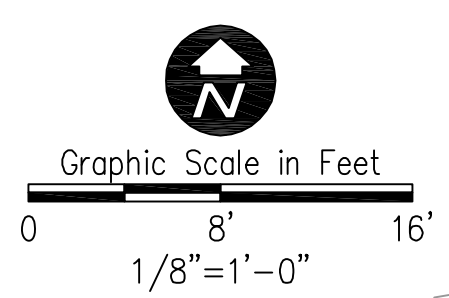
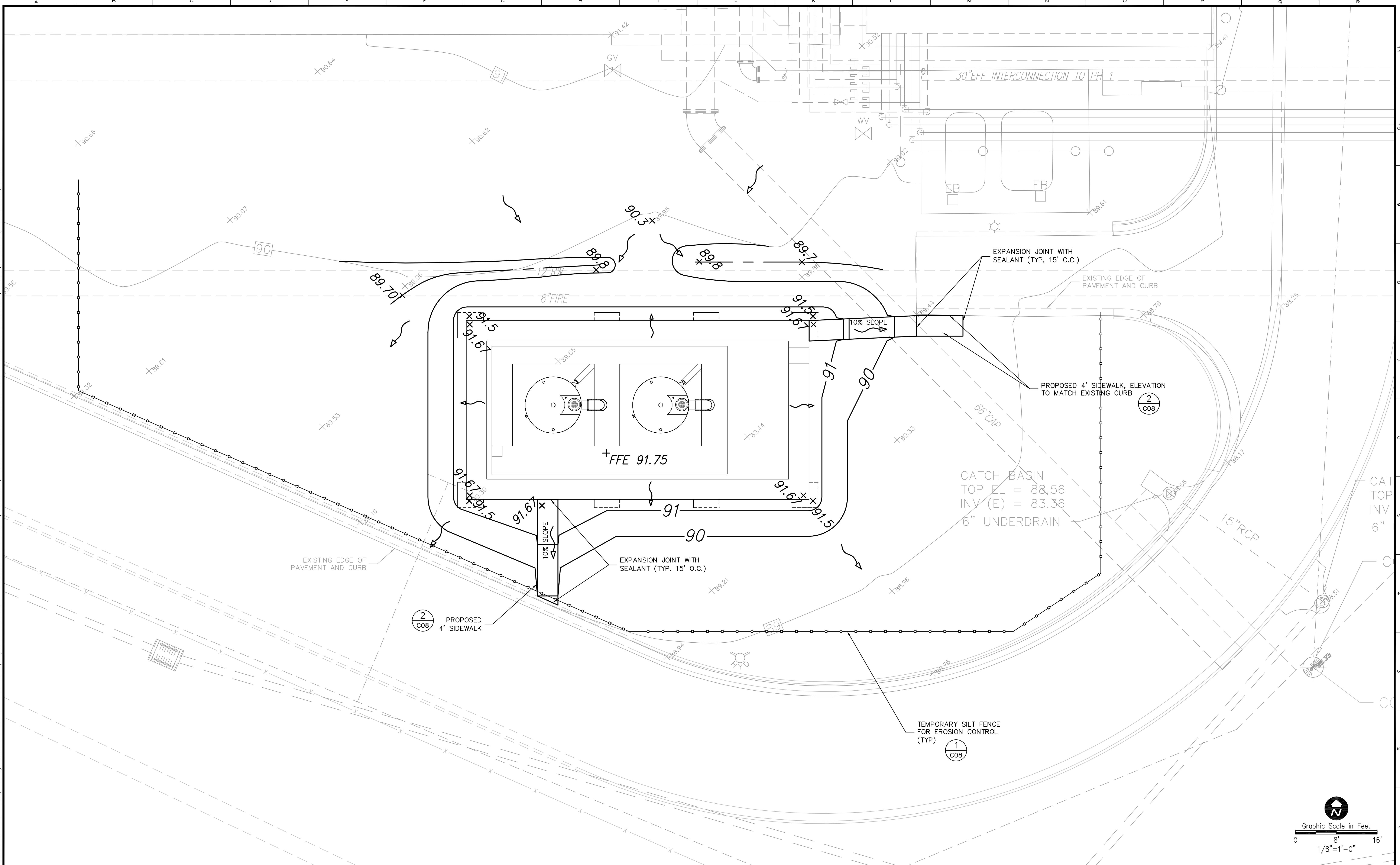
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Reviewed BRW
Approved CLK

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
CIVIL
PAVING, GRADING, AND DRAINAGE PLAN - NORTH SYSTEM

PROJECT NO.:	110022
SCALE:	NOTED
DRAWING NO.:	C03
REVISION:	0
SHEET NO.:	07 OF 46

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1016 SPRING VILLAS PT
WINTER SPRINGS, FL 32708
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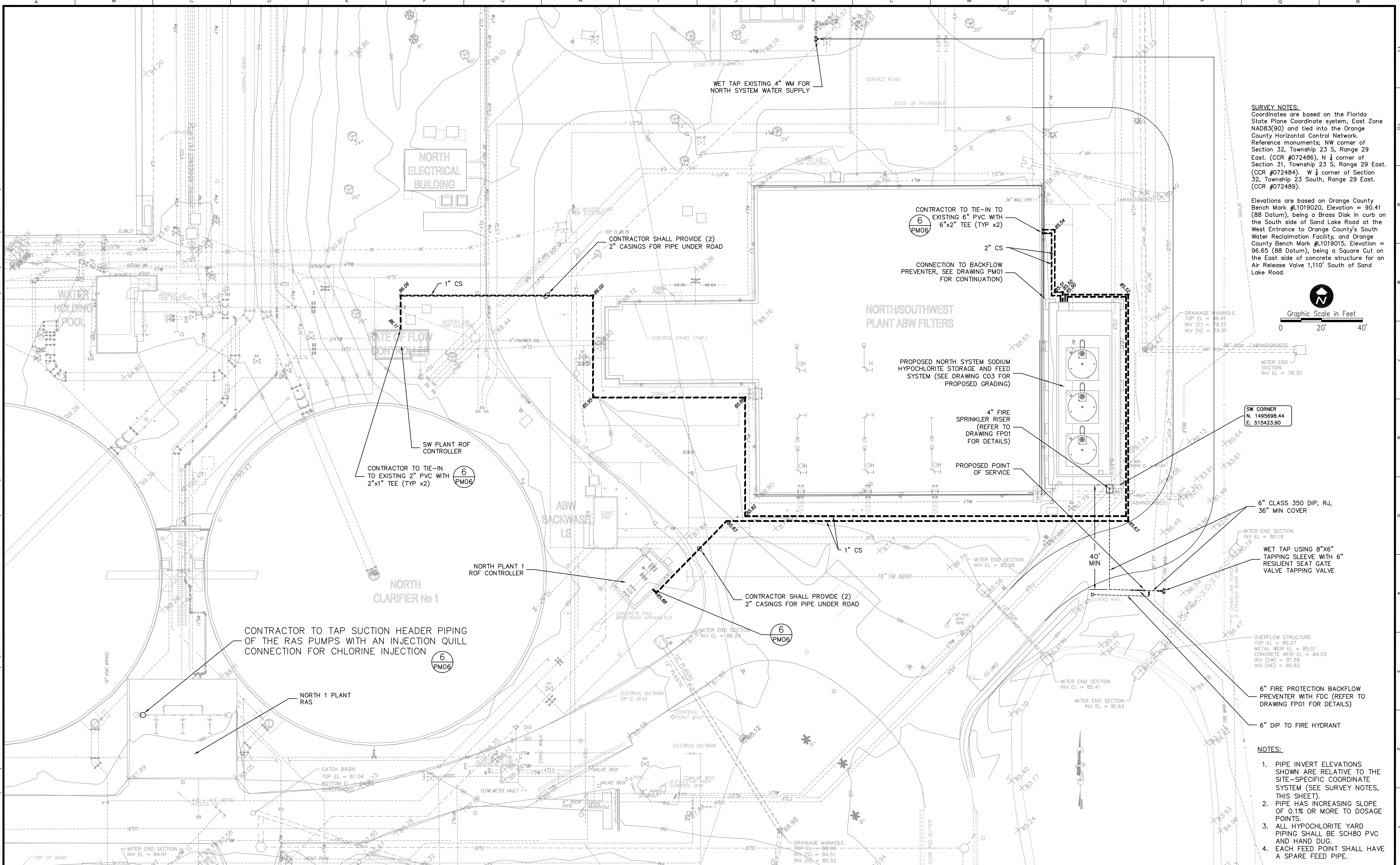
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 Reviewed BRW
 Approved CLK

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 CIVIL
 PAVING, GRADING, AND DRAINAGE PLAN - SOUTH SYSTEM

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 1
DRAWING NO. C04	SHEET NO.: 08 OF 46

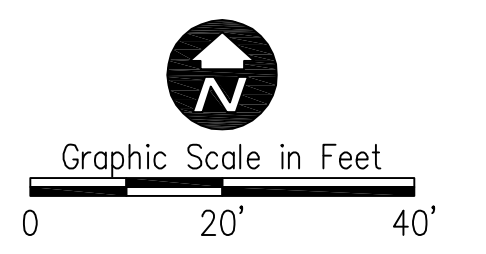
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 1016 SPRING VILLAS PT
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Parent Sheet: Set: 110022:SWRFHYPO Rev/Plot by: ROBERT L. LUPO Rev on: 8/11/2016 2:07 PM Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF HYPOCHLORITE DESIGN\FINALDESIGN_C05.DWG



SURVEY NOTES:
 Coordinates are based on the Florida State Plane Coordinate system, East Zone NAD83(90) and tied into the Orange County Horizontal Control Network. Reference monuments; NW corner of Section 32, Township 23 S, Range 29 East. (CCR #072486), N 1/4 corner of Section 31, Township 23 S, Range 29 East. (CCR #072484), W 1/4 corner of Section 32, Township 23 South, Range 29 East. (CCR #072489).

Elevations are based on Orange County Bench Mark #L1019020, Elevation = 90.41 (88 Datum), being a Brass Disk on curb on the South side of Sand Lake Road at the West Entrance to Orange County's South Water Reclamation Facility, and Orange County Bench Mark #L1019015, Elevation = 96.65 (88 Datum), being a Square Cut on the East side of concrete structure for an Air Release Valve, 1,110' South of Sand Lake Road.



SW CORNER
 N. 1495983.44
 E. 515423.90

- NOTES:**
1. PIPE INVERT ELEVATIONS SHOWN ARE RELATIVE TO THE SITE-SPECIFIC COORDINATE SYSTEM (SEE SURVEY NOTES, THIS SHEET).
 2. PIPE HAS INCREASING SLOPE OF 0.1% OR MORE TO DOSAGE POINTS.
 3. ALL HYPOCHLORITE YARD PIPING SHALL BE SCH80 PVC AND HAND DUG.
 4. EACH FEED POINT SHALL HAVE A SPARE FEED PIPE.



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ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 CIVIL
YARD PIPING PLAN – NORTH SYSTEM

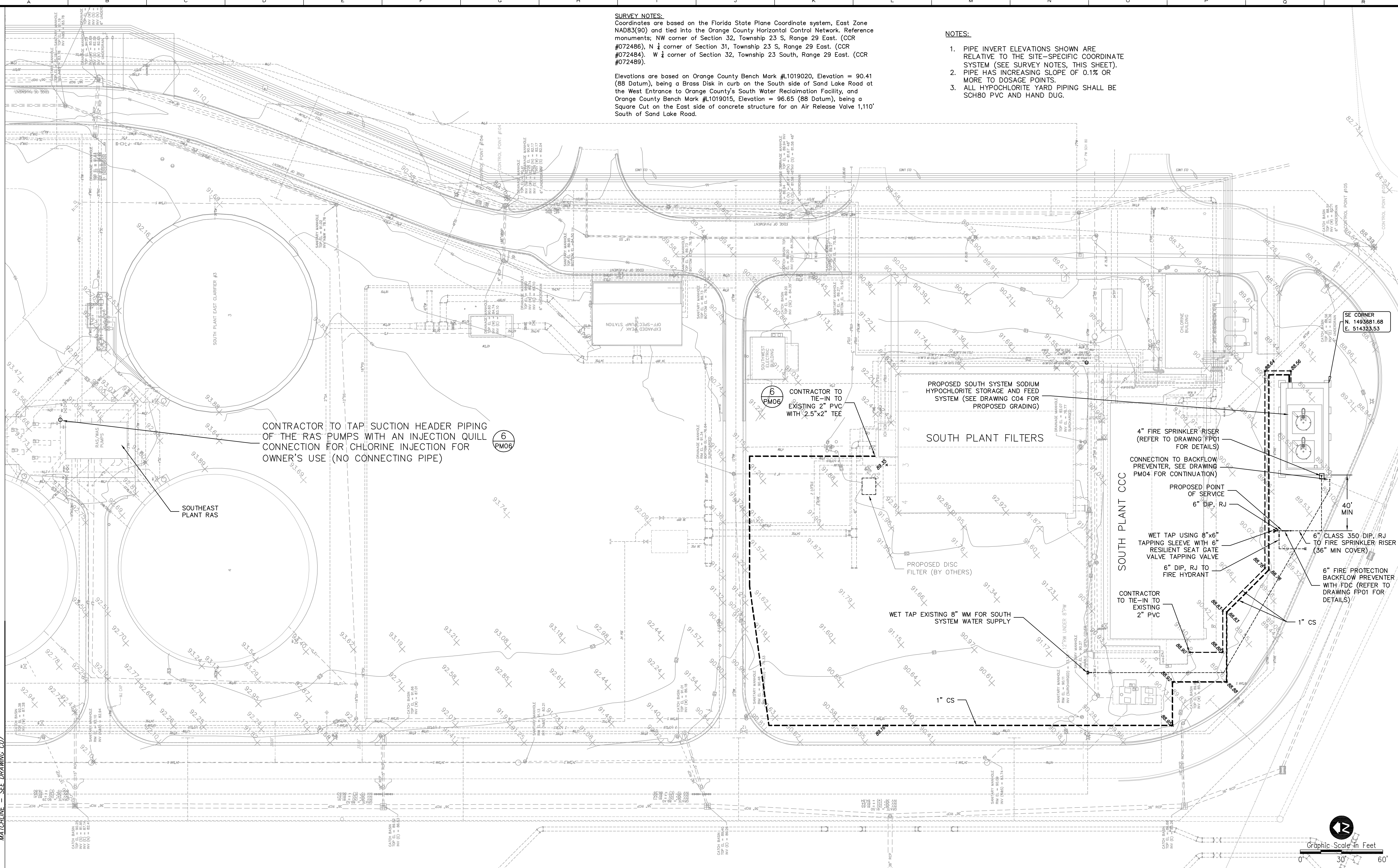
PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO.: C05	SHEET NO.: 09 OF 46

RE REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT
 WINTER SPRINGS, FL 32708
 (407) 679-5358

Parent Sheet: Set: 110022:SWRFHYPO - Rev/Plot by: ROBERT L. LUPO - Rev on: 8/11/2016 2:07 PM - Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF SODIUM HYPOCHLORITE DESIGN \DRAWINGS\FINAL\DESIGN_C05.DWG
 MATCHLINE - SEE DRAWING C02

SURVEY NOTES:
 Coordinates are based on the Florida State Plane Coordinate system, East Zone NAD83(90) and tied into the Orange County Horizontal Control Network. Reference monuments; NW corner of Section 32, Township 23 S, Range 29 East. (CCR #072486), N 1/4 corner of Section 31, Township 23 S, Range 29 East. (CCR #072484), W 1/4 corner of Section 32, Township 23 South, Range 29 East. (CCR #072489).
 Elevations are based on Orange County Bench Mark #L1019020, Elevation = 90.41 (88 Datum), being a Brass Disk in curb on the South side of Sand Lake Road at the West Entrance to Orange County's South Water Reclamation Facility, and Orange County Bench Mark #L1019015, Elevation = 96.65 (88 Datum), being a Square Cut on the East side of concrete structure for an Air Release Valve, 1,110' South of Sand Lake Road.

- NOTES:**
1. PIPE INVERT ELEVATIONS SHOWN ARE RELATIVE TO THE SITE-SPECIFIC COORDINATE SYSTEM (SEE SURVEY NOTES, THIS SHEET).
 2. PIPE HAS INCREASING SLOPE OF 0.1% OR MORE TO DOSAGE POINTS.
 3. ALL HYPOCHLORITE YARD PIPING SHALL BE SCH80 PVC AND HAND DUG.



SE CORNER
 N. 1493881.68
 E. 514323.53

CONTRACTOR TO TAP SUCTION HEADER PIPING OF THE RAS PUMPS WITH AN INJECTION QUILL CONNECTION FOR CHLORINE INJECTION FOR OWNER'S USE (NO CONNECTING PIPE)

CONTRACTOR TO TIE-IN TO EXISTING 2" PVC WITH 2.5"x2" TEE

PROPOSED SOUTH SYSTEM SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM (SEE DRAWING C04 FOR PROPOSED GRADING)

SOUTH PLANT FILTERS

4" FIRE SPRINKLER RISER (REFER TO DRAWING FP01 FOR DETAILS)

CONNECTION TO BACKFLOW PREVENTER, SEE DRAWING PM04 FOR CONTINUATION)

PROPOSED POINT OF SERVICE 6" DIP, RJ

WET TAP USING 8"x6" TAPPING SLEEVE WITH 6" RESILIENT SEAT GATE VALVE TAPPING VALVE

6" CLASS 350 DIP, RJ TO FIRE SPRINKLER RISER (36" MIN COVER)

6" DIP, RJ TO FIRE HYDRANT

6" FIRE PROTECTION BACKFLOW PREVENTER WITH FDC (REFER TO DRAWING FP01 FOR DETAILS)

WET TAP EXISTING 8" WM FOR SOUTH SYSTEM WATER SUPPLY

CONTRACTOR TO TIE-IN TO EXISTING 2" PVC

1" CS

Graphic Scale in Feet
 0 30' 60'



REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	RLL

Issue Certification
 Curtis I. Kunihiro, P.E.
 Florida P.E. No. 33688
 Reiss Engineering, Inc.
 Certificate of Authorization No. 8181
 1016 Spring Villas Pt.
 Winter Springs, FL 32708

Designed DNN
 Drawn RLL
 Checked BRW
 Reviewed BRW
 Approved CLK

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 CIVIL
 YARD PIPING PLAN - SOUTH SYSTEM 1

PROJECT NO.:	110022
SCALE:	NOTED
REVISION:	0
DRAWING NO.:	C06
SHEET NO.:	10 OF 46

RE REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT
 WINTER SPRINGS, FL 32708
 (407) 679-5358

Parent Sheet: Set: 110022SWRFHYPO Rev/Plot by: ROBERT L. LUPO Rev on: 8/11/2016 2:07 PM Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF SODIUM HYPOCHLORITE DESIGN\DRAWINGS\FINAL\DESIGN\C05.DWG

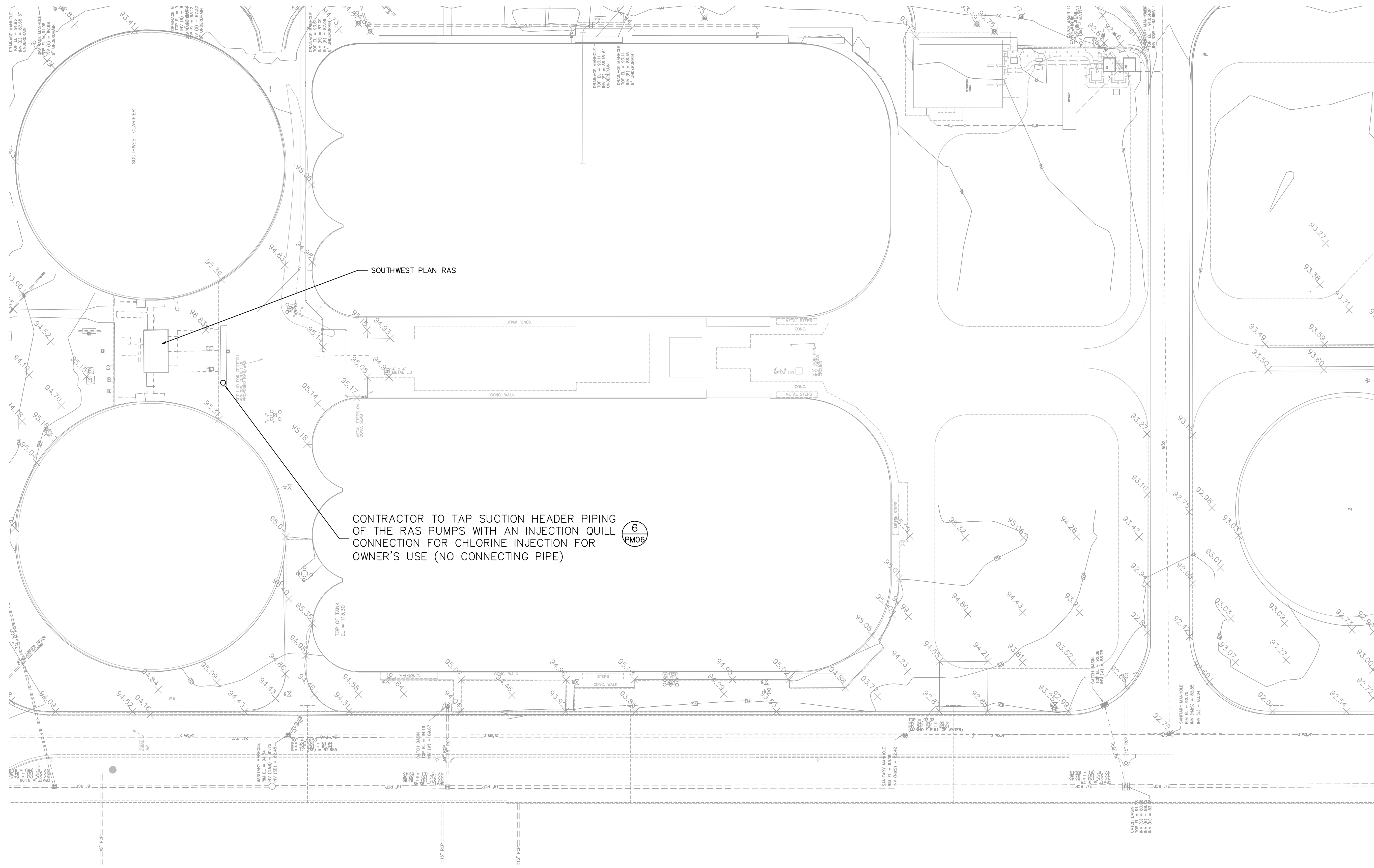
SURVEY NOTES:

Coordinates are based on the Florida State Plane Coordinate system, East Zone NAD83(90) and tied into the Orange County Horizontal Control Network. Reference monuments; NW corner of Section 32, Township 23 S, Range 29 East. (CCR #072486), N 1/4 corner of Section 31, Township 23 S, Range 29 East. (CCR #072484), W 1/4 corner of Section 32, Township 23 South, Range 29 East. (CCR #072489).

Elevations are based on Orange County Bench Mark #L1019020, Elevation = 90.41 (88 Datum), being a Brass Disk in curb on the South side of Sand Lake Road at the West Entrance to Orange County's South Water Reclamation Facility, and Orange County Bench Mark #L1019015, Elevation = 96.65 (88 Datum), being a Square Cut on the East side of concrete structure for an Air Release Valve 1,110' South of Sand Lake Road.

NOTES:

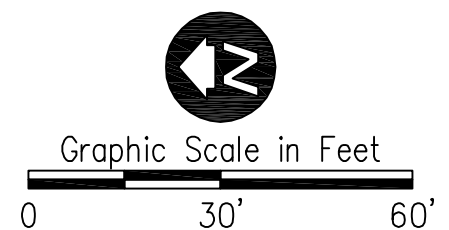
1. PIPE INVERT ELEVATIONS SHOWN ARE RELATIVE TO THE SITE-SPECIFIC COORDINATE SYSTEM (SEE SURVEY NOTES, THIS SHEET).
2. PIPE HAS INCREASING SLOPE OF 0.1% OR MORE TO DOSAGE POINTS.
3. ALL HYPOCHLORITE YARD PIPING SHALL BE SCH80 PVC AND HAND DUG.



CONTRACTOR TO TAP SUCTION HEADER PIPING OF THE RAS PUMPS WITH AN INJECTION QUILL CONNECTION FOR CHLORINE INJECTION FOR OWNER'S USE (NO CONNECTING PIPE)



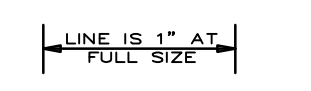
MATCHLINE - SEE DRAWING C06



REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	RLL

Issue Certification
 Curtis I. Kunihiro, P.E.
 Florida P.E. No. 33688
 Reiss Engineering, Inc.
 Certificate of Authorization No. 8181
 1016 Spring Villas Pt.
 Winter Springs, FL 32708

Designed DNN
 Drawn RLL
 Checked BRW
 Reviewed BRW
 Approved CIK

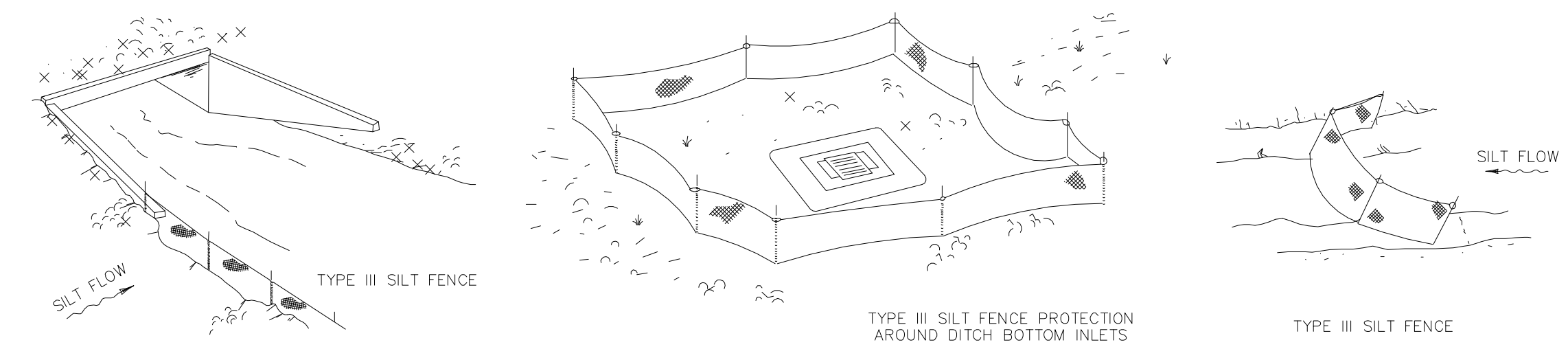
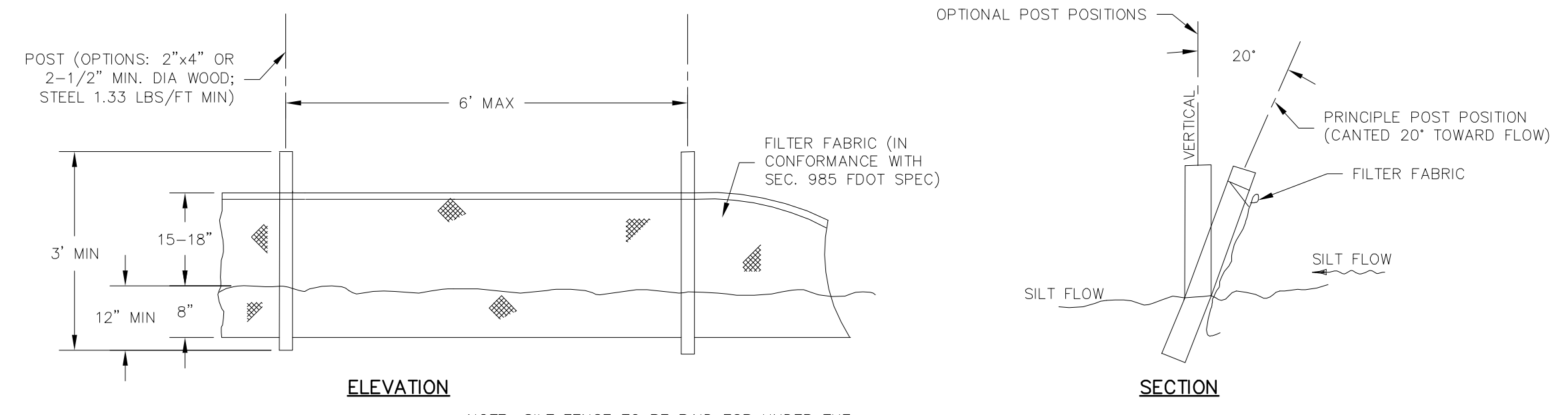
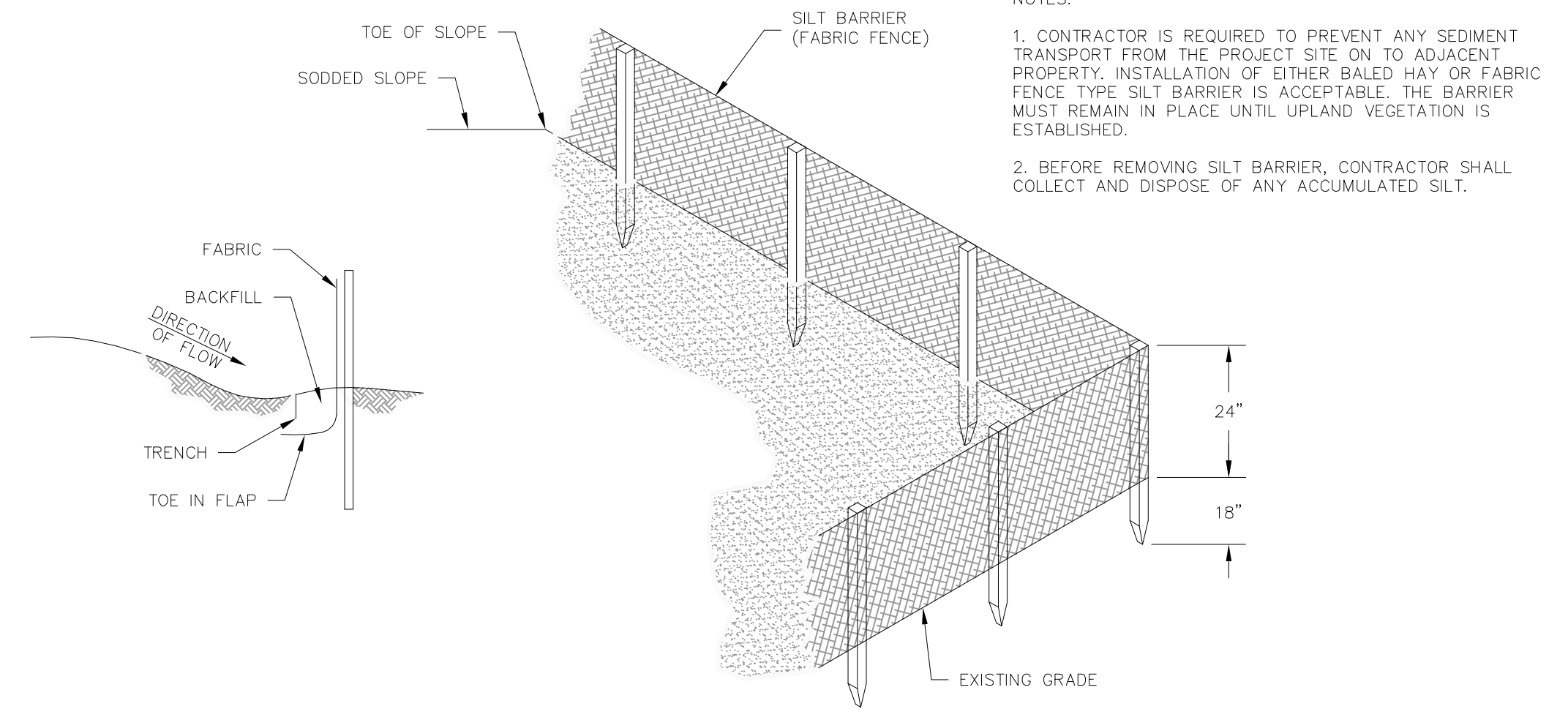


ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 CIVIL
 YARD PIPING PLAN - SOUTH SYSTEM 2

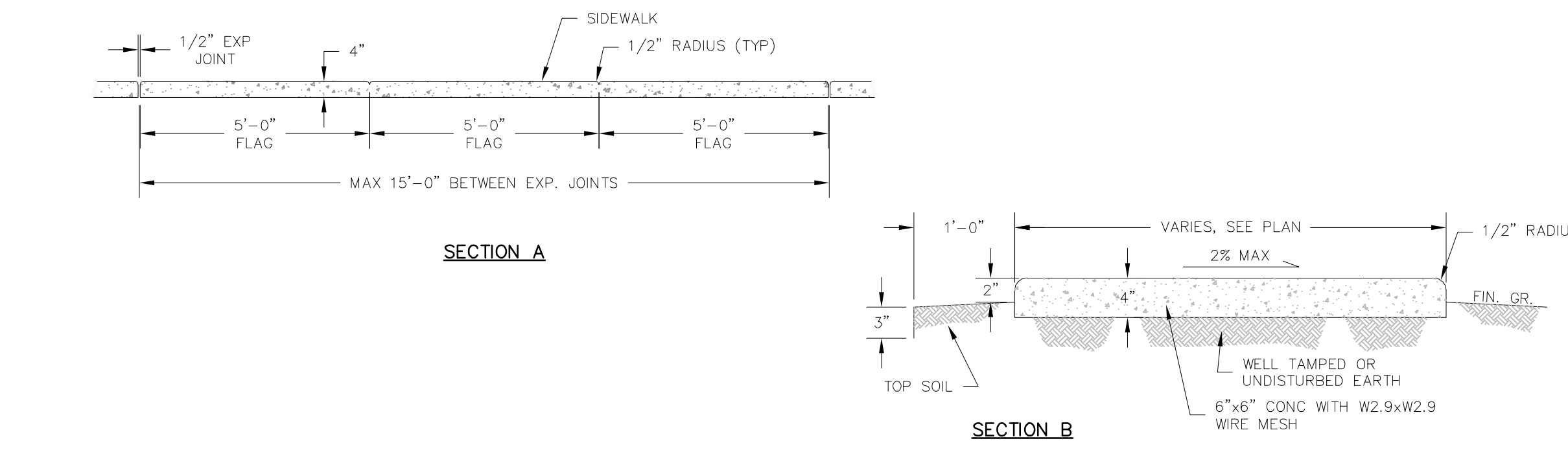
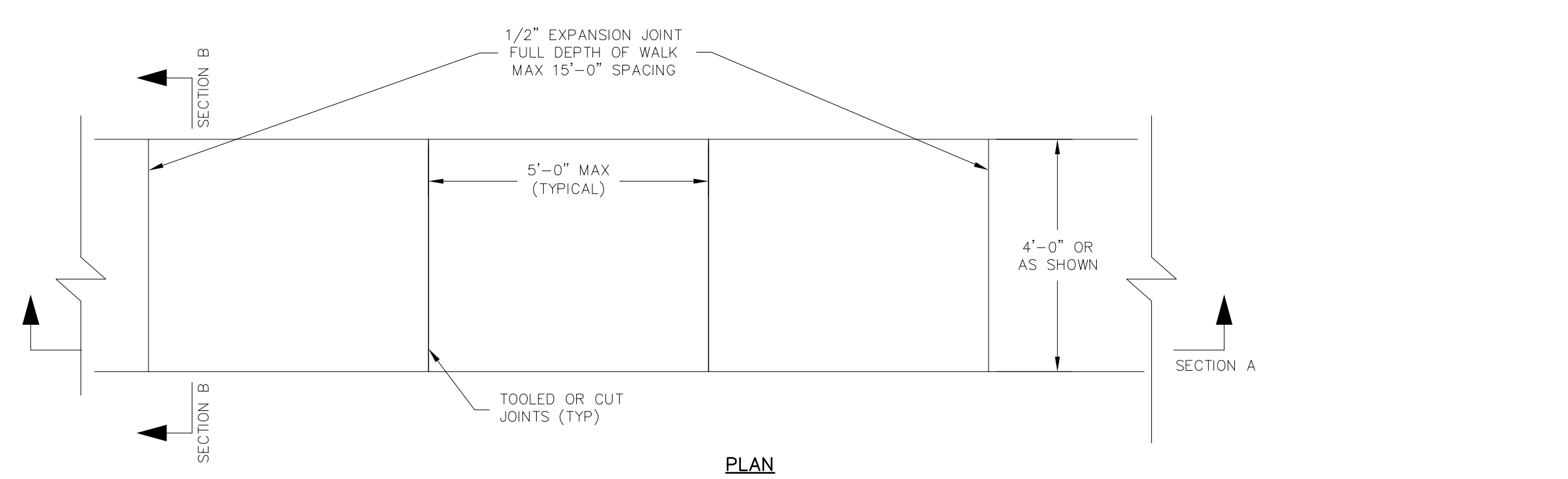
PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. C07	SHEET NO.: 11 OF 46

RE REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT
 WINTER SPRINGS, FL 32708
 (407) 679-5358

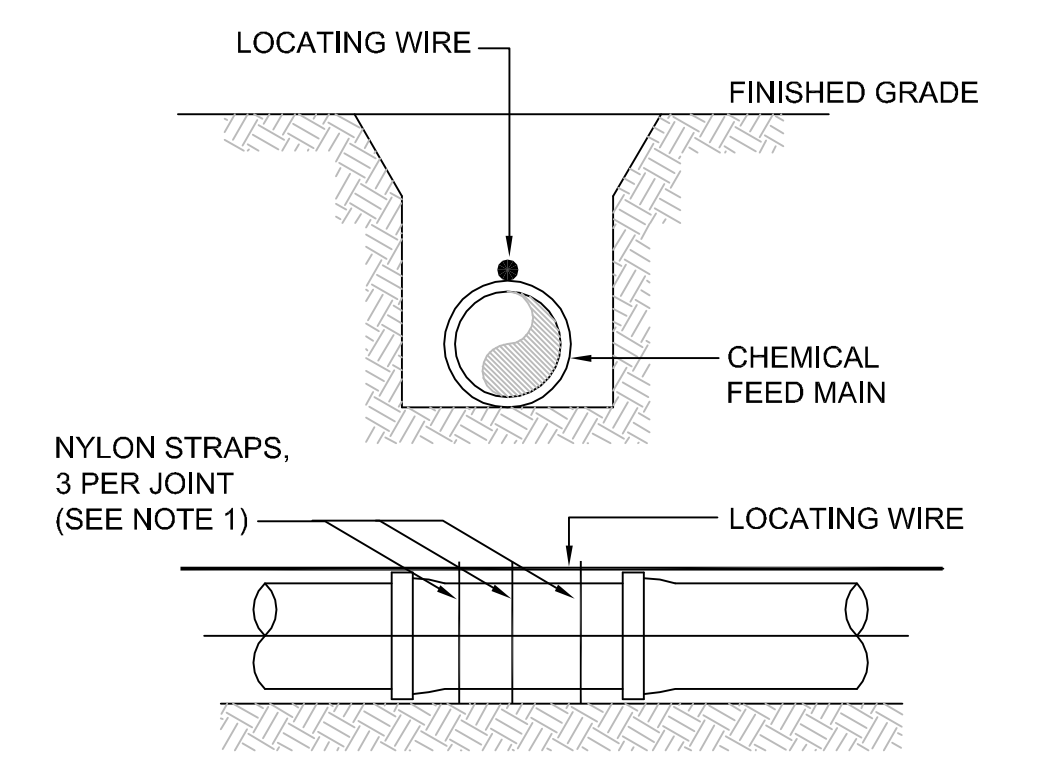
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1 EROSION CONTROL DETAILS
 SCALE: N.T.S.

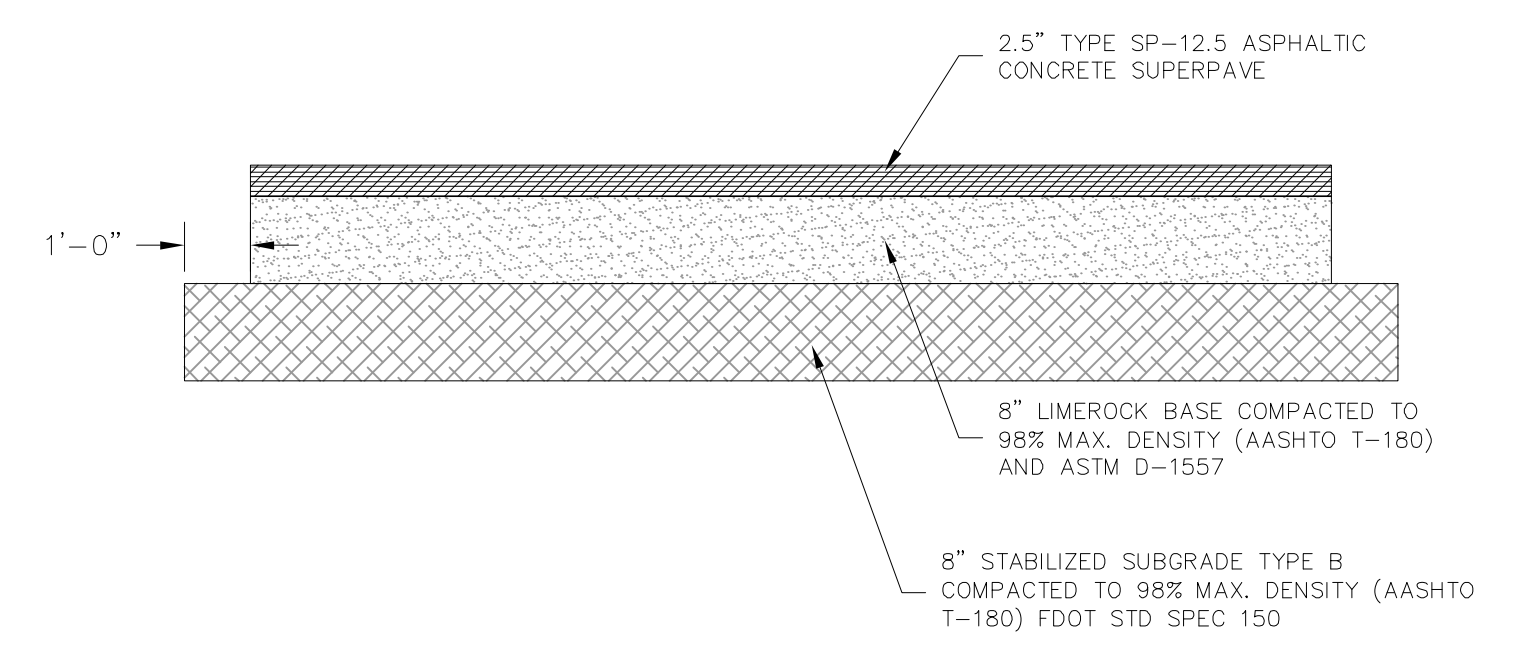


2 SIDEWALK DETAILS
 SCALE: N.T.S.

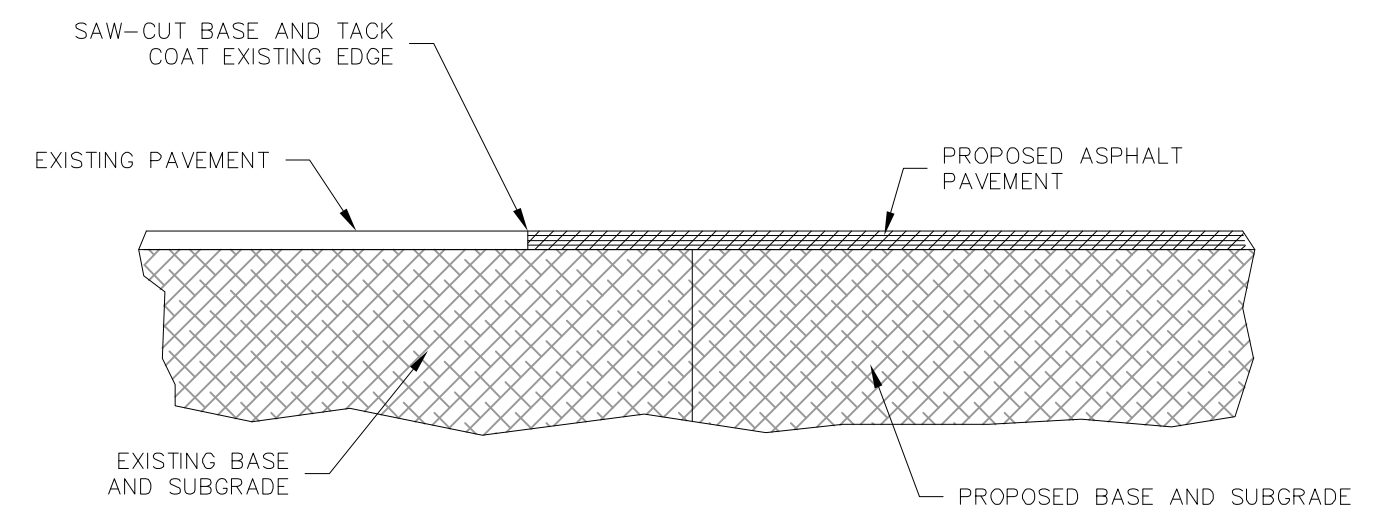


- NOTES:**
 1. ALL PIPE SHALL REQUIRE INSULATED LOCATING WIRE (10 GAUGE SOLID COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE WRAPPED WITH NYLON STRAPS TO TOP CENTERLINE OF THE PIPE.
 2. LOCATING WIRE SHALL BE CONTINUOUS INSIDE VALVE BOXES AND SHALL EXTEND 12" ABOVE TOP OF COLLAR.
 3. WIRE INSULATION SHALL BE COLOR CODED FOR THE TYPE OF PIPE BEING INSTALLED.

3 PIPE LOCATING WIRE
 SCALE: N.T.S.



4 ROAD CROSS SECTION
 SCALE: N.T.S.



5 ROAD TIE-IN DETAIL
 SCALE: N.T.S.



REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	RLL

Issue Certification
 Curtis I. Kunihiro, P.E.
 Florida P.E. No. 33688
 Reiss Engineering, Inc.
 Certificate of Authorization No. 8181
 1016 Spring Villas Pt.
 Winter Springs, FL 32708

Designed DNN
 Drawn RLL
 Checked BRW
 Reviewed BRW
 Approved CLK

LINE IS 1/8" AT FULL SIZE

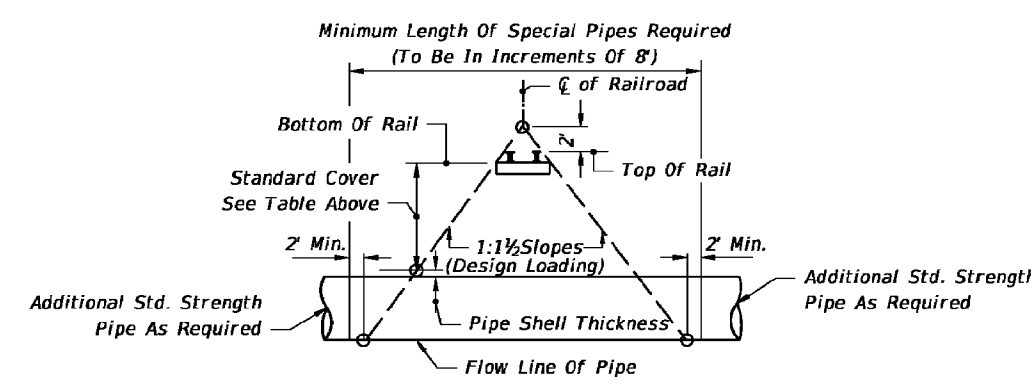
ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 CIVIL
CIVIL DETAILS

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. C08	SHEET NO.: 12 OF 46

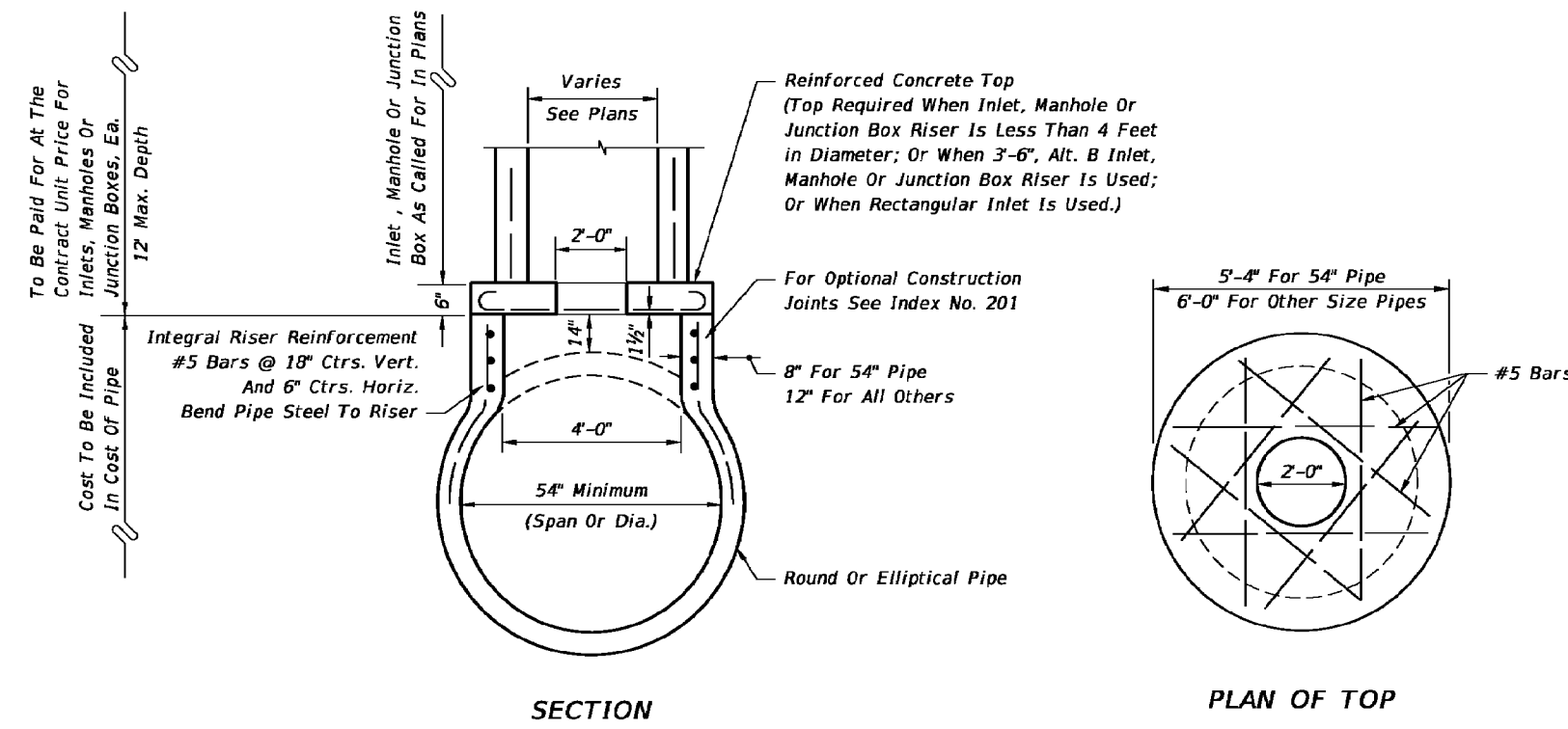
RE REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT
 WINTER SPRINGS, FL 32708
 (407) 679-5358

RAILROAD COMPANY	CLEARANCE BELOW BOTTOM OF RAIL (FEET) ⁽¹⁾	STRENGTH ASTM (C76) CLASS
Alabama & Gulf Coast Railway (Rail America)	5.5	IV
All Railway & Bay Line Railroad (Genesee & Wyoming)	5.5 / 4.5 ^m	V
CSX Transportation	5.5	V
First Coast Railroad (Genesee & Wyoming)	5.5 / 4.5 ^m	V
Florida Midland, Central, and Northern Railroads (Pinsly Railroads)	5.5	V
Florida East Coast (FEC) Railway Company	5.5	IV
Florida West Coast Railroad Company	5.5	V
Georgia & Florida Railway, Inc.	5.5	V
Norfolk Southern (NS) Railway Corporation	5.5 / 4.5 ^m	V
Port of Palm Beach District Railroad	5.5	IV
Seminole Gulf Railway (LP)	6.0	V
South Central Florida Express	6.0	V
Talleyrand Terminal Railroad (Genesee & Wyoming)	5.5 / 4.5 ^m	V
South Florida Regional Transportation Authority (Tri-County Commuter Rail)	5.5	V

- (1) - Distance standard for yard and industrial tracks.
(2) - Clearance is for casing pipe. All subgrade carrier pipelines and wirelines will be installed within a casing pipe which will extend from Right-of-Way line to Right-of-Way line.

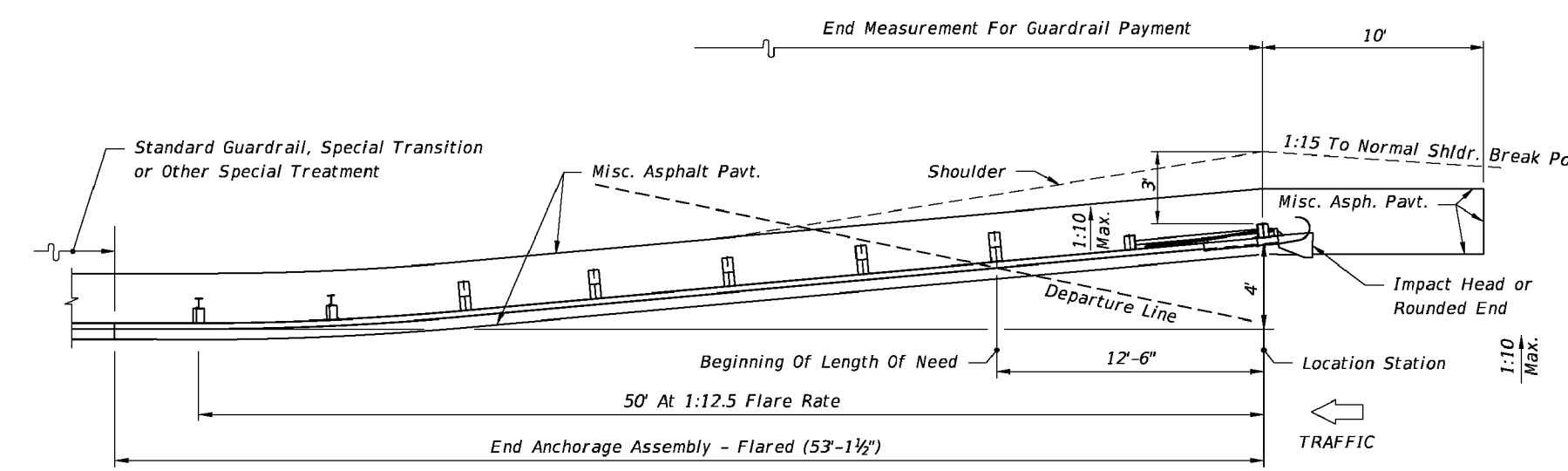


METHOD FOR DETERMINING THE LENGTH OF SPECIAL PIPE REQUIRED UNDER RAILROADS

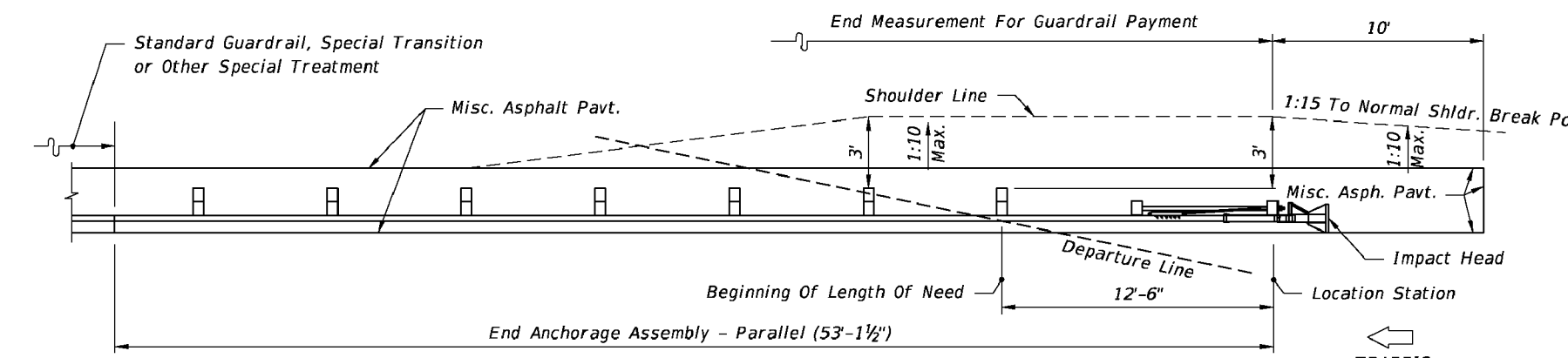


INLETS, MANHOLES OR JUNCTION BOXES ON INTEGRAL PRECAST CONCRETE RISER FOR CONCRETE PIPE

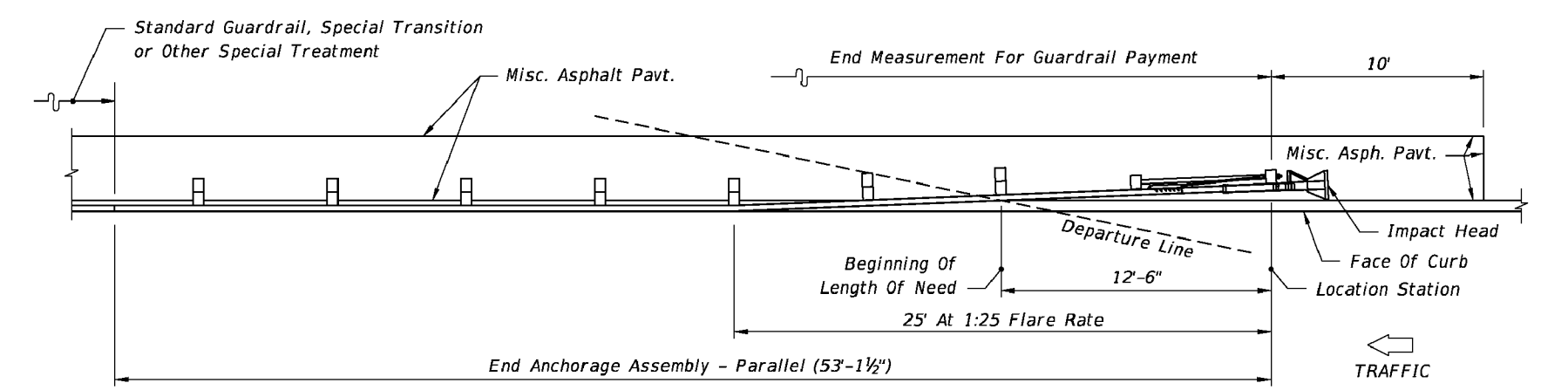
LAST REVISION 07/01/07	DESCRIPTION:	2016 DESIGN STANDARDS	MISCELLANEOUS DRAINAGE DETAILS	INDEX NO. 280	SHEET NO. 3 of 3
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FLARED OPTION PLAN VIEW



PARALLEL OPTION PLAN VIEW

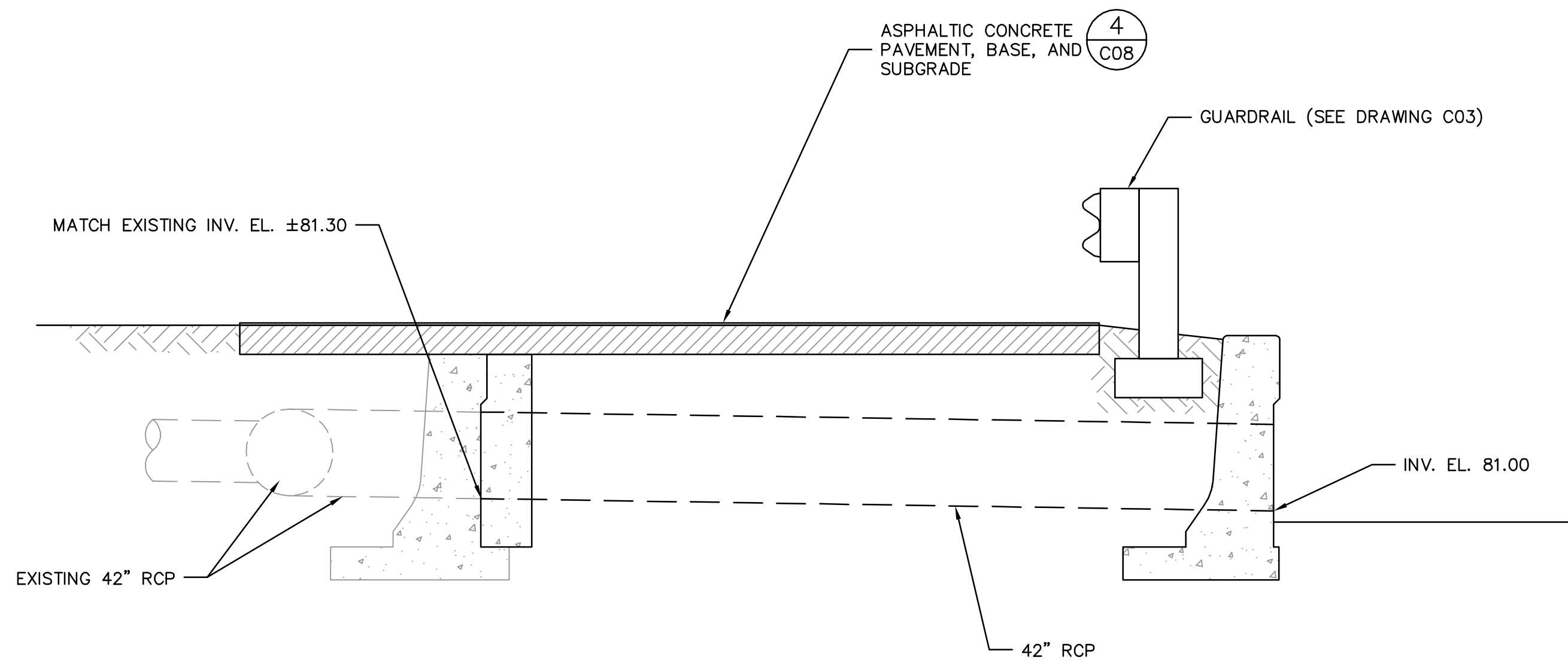


PLACEMENT OF PARALLEL OPTION AT CURBED LOCATIONS PLAN VIEW

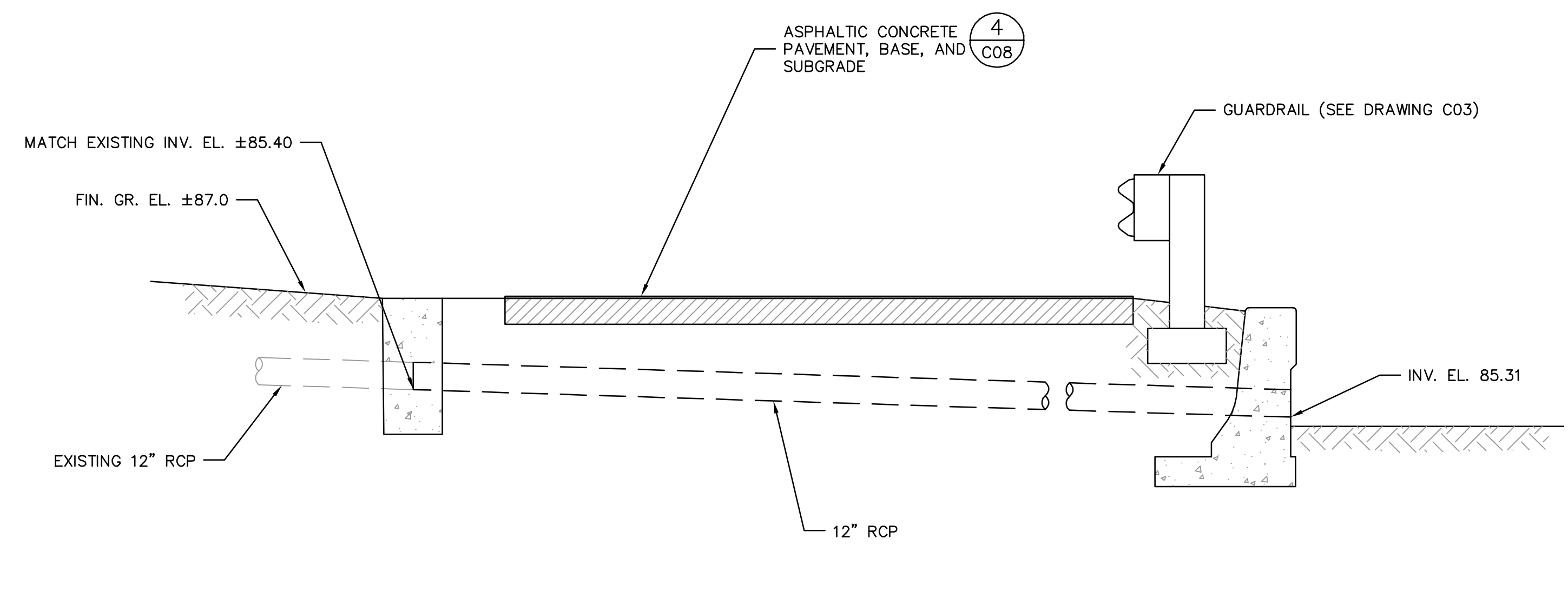
- GENERAL NOTES**
- All FLARED OPTION and PARALLEL OPTION drawings are representative of the various proprietary guardrail and end anchorage assemblies listed on the Department's Approved Products List (APL). For specific details and requirements refer to the manufacturer's detailed drawings, procedures and specifications located on the Approved Products List (APL) website at www.dot.state.fl.us/programmanagement/
 - These drawings present general graphics which depict the limits of payment for guardrail and end anchorage assemblies, modifications to the shoulder, and placement of miscellaneous asphalt mow strips.
 - These drawings, along with the various manufacturer drawings on the APL, are intended to include sufficient details for installation of the end anchorage assembly and their connection to Standard Guardrail. This precludes requirements for shop drawing submittals unless otherwise called for in the plans. The various end anchorage assemblies shall be assembled in accordance with the manufacturer's detailed drawings, procedures and specifications.
 - The various proprietary end anchorage assemblies listed on the APL are intended for use as approach end guardrail anchorages for Standard Guardrail. The actual length of end anchorage assemblies vary refer to the manufacturer's drawings on the APL for their length and use of special panels and details. Standard guardrail, guardrail transitions or other special treatments shall not be included within the limits of the end anchorage assembly. See the manufacturer drawings for the alignment of the end anchorage assemblies with respect to the normal guardrail alignment.
 - Flared or parallel end anchorage assemblies shall not be used in medians where horizontal clearance requires the use of a back rail.
 - Each of the various end anchorage assemblies have unique features. Careful attention shall be given to the types and orientation of the posts and other components. Refer to the manufacturer's drawings on the APL for the specific requirements of each system.
 - For galvanizing requirements of the metallic components see Standard Specifications Section 967.
 - Test Level 3 End Anchorage Assemblies are suitable for all design speeds. However, use a 53-1 1/2' long TL-3 End Anchorage Assembly shown on the APL for Design Speeds greater than or equal to 50 mph and a 40-7 1/2' long TL-2 End Anchorage Assembly shown on the APL for Design Speeds less than or equal to 45 mph.
 - Flared end anchorage assemblies shall be paid for under the contract unit price for Guardrail, End Anchorage Assembly - Flared, EA.
 - Parallel end anchorage assemblies shall be paid for under the contract unit price for Guardrail, End Anchorage Assembly - Parallel, EA.
- The unit price for end anchorage assemblies shall be full compensation for furnishing and installing all components in accordance with these drawings, the plans and the manufacturer's detailed drawings, procedures and specifications.

APPROACH END ANCHORAGE DETAILS

LAST REVISION 07/01/15	DESCRIPTION:	2016 DESIGN STANDARDS	GUARDRAIL	INDEX NO. 400	SHEET NO. 2 of 26
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7 42-INCH CULVERT EXTENSION SCALE: N.T.S.



8 12-INCH CULVERT EXTENSION SCALE: N.T.S.



0	10/31/16	ISSUED FOR BID	RLL
REV	DATE	DESCRIPTION	BY

Issue Certification
Curtis I. Kunihiro, P.E.
Florida P.E. No. 33688
Reiss Engineering, Inc.
Certificate of Authorization No. 8181
1016 Spring Villas Pt.
Winter Springs, FL 32708

Designed DNN
Drawn RLL
Checked BRW
Reviewed BRW
Approved CLK

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

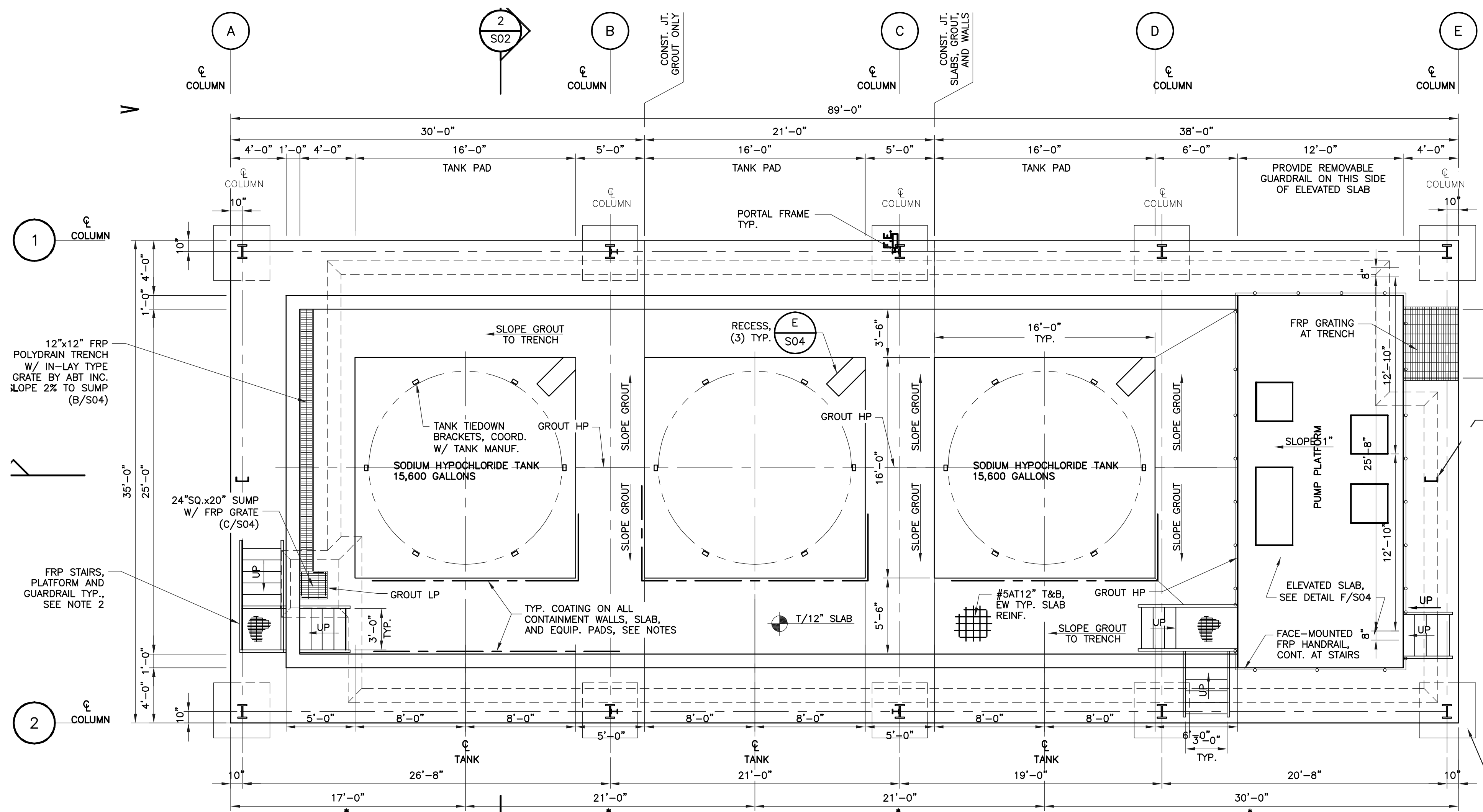
CIVIL
CIVIL DETAILS

PROJECT NO.:	110022
SCALE:	NOTED
REVISION:	0
DRAWING NO.:	CO9A
SHEET NO.:	13A OF 46



REISS ENGINEERING, INC.
1016 SPRING VILLAS PT
WINTER SPRINGS, FL 32708
(407) 679-5358

Parent Sheet: Set: 1100225WRHYPPO - Rev/Plot by: ROBERT L. LUPO - Rev on: 10/17/2016 11:28 AM - Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF HYPOCHLORITE DESIGN\DRAWINGS\FINAL\DESIGN\A01.DWG



1 LIFE SAFETY PLAN
A01 SCALE: 3/16" = 1'-0"

OCCUPANT LOAD
31 OCCUPANTS
1/100 SQ. FT. PER

2A:10B: C

FLO022000000: A HOLD HAS BEEN PLACED ON THE CERTIFICATE OF OCCUPANCY FOR THIS PERMIT UNTIL A FINAL FIRE INSPECTION FROM THE OFFICE OF THE FIRE MARSHAL HAS BEEN CONDUCTED AND APPROVED. PLEASE CALL 407-836-0070 TO SCHEDULE A FIRE INSPECTION.
*** NOTE: 48 HOUR NOTICE IS REQUIRED TO SCHEDULE AN INSPECTION ***
Life Safety, Fire Alarm, Fire Sprinkler System

GROSS AREA: 3,150 SQUARE FEET (NORTH HYPOCHLORITE STORAGE)
TYPE OF CONSTRUCTION: TYPE II-B, NON-COMBUSTIBLE
OCCUPANCY: GROUP H-4, HIGH HAZARD

APPLICABLE CODES:
- FLORIDA BUILDING CODE 2014, BUILDING (FIFTH EDITION)
- FLORIDA FIRE PREVENTION CODE, 5TH EDITION DEC. 31, 2014, NFPA 101, L.S.C. 2012, NFPA 1, FIRE, 2012
SEE ELECTRICAL AND M/E/P PLANS FOR OTHER APPLICABLE CODES

NOTE:
THIS DRAWING IS FOR CODE INFORMATION AND LIFE SAFETY ISSUES. SEE STRUCTURAL DRAWINGS FOR ALL DETAILS OF CONSTRUCTION, STAIRS, RAILINGS, CURBS, ETC. AND DIMENSIONS.

NOTES TO CODE REQUIREMENTS:
1. QUANTITIES OF SODIUM HYPOCHLORITE BEING STORED EXCEED MAXIMUM ALLOWABLE QUANTITIES (MAQ) PER FBC2014, TABLE 307.1(2), CORROSIVE, REQUIRING GROUP H-4 HIGH HAZARD.
2. BUILDING IS UNMANNED, BUT FOR PURPOSES OF CALCULATING EGRESS REQUIREMENTS, USE "INDUSTRIAL" FROM FBC2014, TABLE 1004.1.2.
3. THIS STRUCTURE IS EXEMPT FROM ACCESSIBILITY REQUIREMENTS PER FBC2014, ACCESSIBILITY, 203 GENERAL EXCEPTIONS, 203.5 MACHINERY SPACES.

CHEMICAL BEING STORED	CLASSIFICATION	QUANTITIES BEING STORED	MAXIMUM ALLOWABLE QUANTITY (MAQ) PER CONTROL AREA	EXCEEDS (MAQ) PER CONTROL AREA
SODIUM HYPOCHLORITE 15% SOLUTION	CORROSIVE	(3) 15,600 GALLON TANKS TOTAL OF 46,800 GALLONS	975 LIQUID GALLONS (FBC TABLE 414.2.5(1)) 1,950 LIQUID GALLONS (NFPA-1 TABLE 60.2.5.5)	YES

SUMMARY OF CODE REQUIREMENTS		
	FLORIDA BUILDING CODE 2014, BUILDING (FIFTH EDITION)	FLORIDA FIRE PREVENTION CODE, 5TH EDITION DEC. 31, 2014, NFPA 101, L.S.C. 2012, NFPA 1, FIRE, 2012
BUILDING	CLASSIFICATION OF OCCUPANCY (SEE NOTE #1)	GROUP H-4, HIGH HAZARD (307.6)
	MINIMUM TYPE OF CONSTRUCTION	TYPE II-B (TABLE 503) (TABLE 601)
	MAXIMUM AREA PER FLOOR	17,500 SQ. FT. (TABLE 503)
	MAXIMUM HEIGHT	3 STORIES 55 FEET (TABLE 503)
	DETAILED CONSTRUCTION REQUIREMENTS - TABLE 601 FOR TYPE II-B	
	REQUIRED FIRE RESISTANCE RATINGS OF VARIOUS MEMBERS STRUCTURAL FRAME EXTERIOR BEARING WALLS INTERIOR BEARING WALLS EXTERIOR NON-BEARING WALLS INTERIOR NON-BEARING WALLS FLOORS ROOF	0 HOURS 0 HOURS 0 HOURS 0 HOURS 0 HOURS N/A 0 HOURS
	OCCUPANCY SEPARATION	N/A ALL ONE OCCUPANCY
EGRESS	MINIMUM OCCUPANT LOAD (SEE NOTE #2)	100 SQ. FT. PER PERSON (TABLE 1004.1.)
	NUMBER OF EXITS	TWO (TABLE 1015.1)
	MAXIMUM TRAVEL DISTANCE - NOT SPRINKLED	NO LISTING (TABLE 1016.2)
	MAXIMUM DEAD END	N/A
	MAXIMUM COMMON PATH OF TRAVEL	N/A
	EGRESS WIDTH PER PERSON LEVEL STAIRS	(1005.3) 0.2" / PERSON 0.3" / PERSON
	MINIMUM EXIT DOOR WIDTH	N/A NO DOORS
FIRE PROTECTION	FIRE ALARM	NOT REQUIRED (907)
	FIRE SPRINKLERS	REQUIRED (903.2.5)
	CLASSIFICATION OF HAZARD OF CONTENTS	N/A
	INTERIOR FINISHES	N/A



REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	BY

Issue Certification
Peter Ikegami, AIA NCARB
FL Lic No. AR0013065
MRI Architectural Group, Inc.
5032 Goddard Avenue, Suite A
Orlando, FL 32804

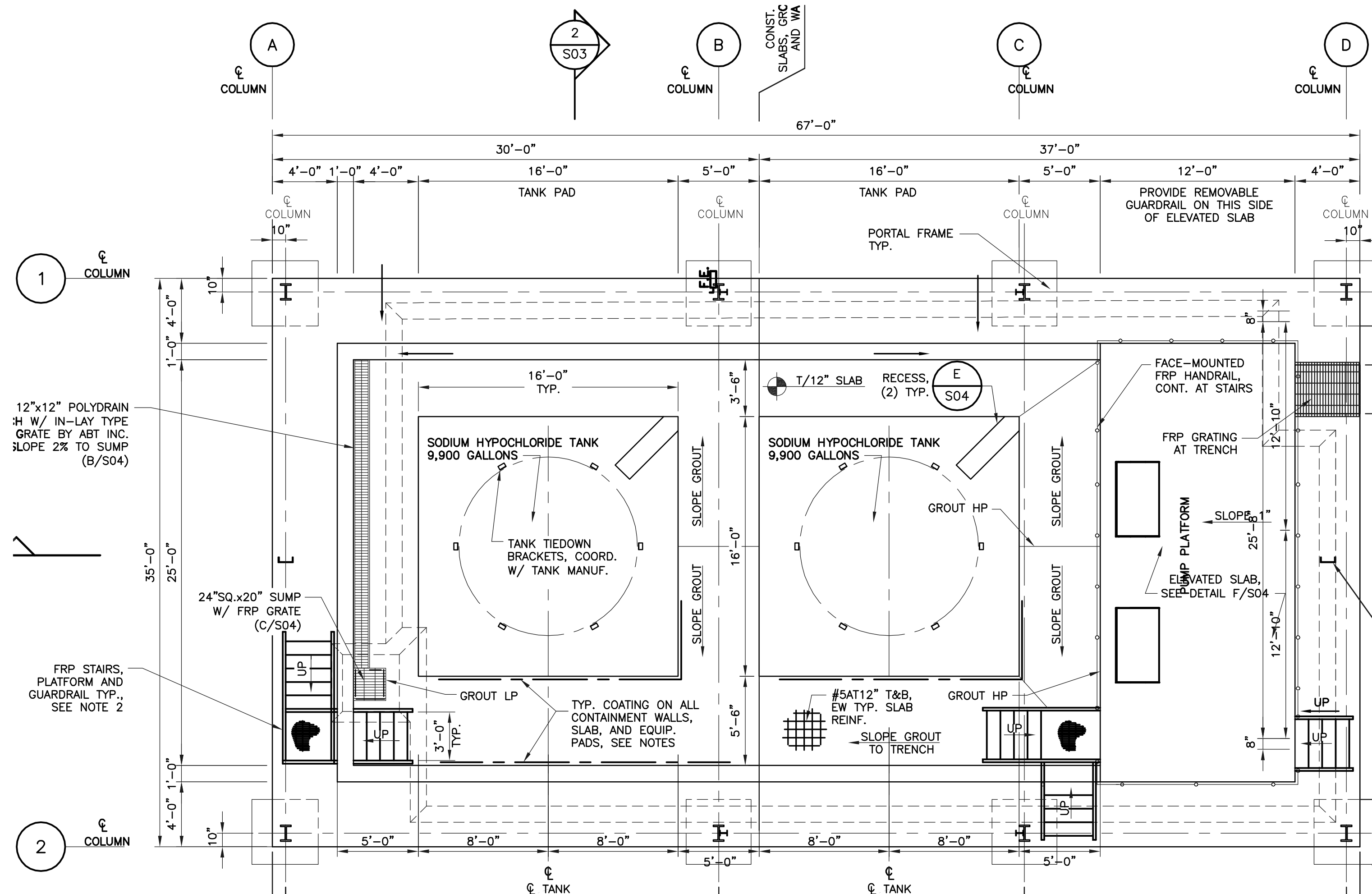
Designed BY _____
Drawn JV _____
Checked DNN _____
Reviewed CLK _____
Approved BY _____

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
ARCHITECTURAL
LIFE SAFETY PLAN - NORTH HYPOCHLORITE STORAGE

PROJECT NO.: 110022
SCALE: NOTED REVISION: 0
DRAWING NO. A01 SHEET NO.: 14 OF 46



Parent Sheet: Set: 1100225SWRFHYPO - Rev: 01/17/2016 11:27 AM - Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF SODIUM HYPOCHLORITE DESIGN DRAWINGS\FINAL\DESIGN_A02.DWG



1 LIFE SAFETY PLAN
A01 SCALE: 3/16" = 1'-0"

OCCUPANT LOAD
 23 OCCUPANTS
 1/100 SQ. FT. PER
 PORTABLE FIRE EXTINGUISHER
 HALOTRON
 2A:10B:C

FL0022000000: A HOLD HAS BEEN PLACED ON THE CERTIFICATE OF OCCUPANCY FOR THIS PERMIT UNTIL A FINAL FIRE INSPECTION FROM THE OFFICE OF THE FIRE MARSHAL HAS BEEN CONDUCTED AND APPROVED. PLEASE CALL 407-836-0070 TO SCHEDULE A FIRE INSPECTION.
 *** NOTE: 48 HOUR NOTICE IS REQUIRED TO SCHEDULE AN INSPECTION ***
 Life Safety, Fire Alarm, Fire Sprinkler System

GROSS AREA: 2,380 SQUARE FEET (SOUTH HYPOCHLORITE STORAGE)
 TYPE OF CONSTRUCTION: TYPE II-B, NON-COMBUSTIBLE
 OCCUPANCY: GROUP H-4, HIGH HAZARD

APPLICABLE CODES:
 - FLORIDA BUILDING CODE 2014, BUILDING (FIFTH EDITION)
 - FLORIDA FIRE PREVENTION CODE, 5TH EDITION DEC. 31,2014, NFPA 101, L.S.C. 2012, NFPA 1, FIRE, 2012
 SEE ELECTRICAL AND M/E/P PLANS FOR OTHER APPLICABLE CODES

NOTE:
 THIS DRAWING IS FOR CODE INFORMATION AND LIFE SAFETY ISSUES. SEE STRUCTURAL DRAWINGS FOR ALL DETAILS OF CONSTRUCTION, STAIRS, RAILINGS, CURBS, ETC. AND DIMENSIONS.

NOTES TO CODE REQUIREMENTS:
 1. QUANTITIES OF SODIUM HYPOCHLORITE BEING STORED EXCEED MAXIMUM ALLOWABLE QUANTITIES (MAQ) PER FBC2014, TABLE 307.1(2), CORROSIVE, REQUIRING GROUP H-4 HIGH HAZARD.
 2. BUILDING IS UNMANNED, BUT FOR PURPOSES OF CALCULATING EGRESS REQUIREMENTS, USE "INDUSTRIAL" FROM FBC2014, TABLE 1004.1.2.
 3. THIS STRUCTURE IS EXEMPT FROM ACCESSIBILITY REQUIREMENTS PER FBC2014, ACCESSIBILITY, 203 GENERAL EXCEPTIONS, 203.5 MACHINERY SPACES.

SUMMARY OF CHEMICALS BEING STORED				
CHEMICAL BEING STORED	CLASSIFICATION	QUANTITIES BEING STORED	MAXIMUM ALLOWABLE QUANTITY (MAQ) PER CONTROL AREA	EXCEEDS (MAQ) PER CONTROL AREA
SODIUM HYPOCHLORITE 15% SOLUTION	CORROSIVE	(2) 9,900 GALLON TANKS TOTAL OF 19,800 GALLONS	975 LIQUID GALLONS (FBC TABLE 414.2.5(1)) 1,950 LIQUID GALLONS (NFPA-1 TABLE 60.4.211.3)	YES

SUMMARY OF CODE REQUIREMENTS			
		FLORIDA BUILDING CODE 2014, BUILDING (FIFTH EDITION)	FLORIDA FIRE PREVENTION CODE, 5TH EDITION DEC. 31,2014, NFPA 101, L.S.C. 2012, NFPA 1, FIRE, 2012
BUILDING	CLASSIFICATION OF OCCUPANCY (SEE NOTE #1)	GROUP H-4, HIGH HAZARD (307.6)	HIGH HAZARD INDUSTRIAL (CHAPTER 40) (40.1.5)/(6.2)
	MINIMUM TYPE OF CONSTRUCTION	TYPE II-B (TABLE 503) (TABLE 601)	NO REQUIREMENT (40.1.6)
	MAXIMUM AREA PER FLOOR	17,500 SQ. FT. (TABLE 503)	N/A
	MAXIMUM HEIGHT	3 STORIES 55 FEET (TABLE 503)	N/A
	DETAILED CONSTRUCTION REQUIREMENTS - TABLE 601 FOR TYPE II-B		N/A
	REQUIRED FIRE RESISTANCE RATINGS OF VARIOUS MEMBERS		
		0 HOURS 0 HOURS 0 HOURS 0 HOURS 0 HOURS N/A 0 HOURS	
OCCUPANCY SEPARATION	N/A ALL ONE OCCUPANCY	N/A ALL ONE OCCUPANCY	
EGRESS	MINIMUM OCCUPANT LOAD (SEE NOTE #2)	100 SQ. FT. PER PERSON (TABLE 1004.1)	100 SQ. FT. PER PERSON (TABLE 7.3.1.2, HIGH HAZARD INDUSTRIAL)
	NUMBER OF EXITS	TWO (TABLE 1015.1)	TWO (7.4.1.1, 40.2.4.1.1)
	MAXIMUM TRAVEL DISTANCE - NOT SPRINKLED	NO LISTING (TABLE 1016.2)	75 FEET (TABLE 40.2.6)
	MAXIMUM DEAD END	N/A	NOT PERMITTED (TABLE 40.2.5)
	MAXIMUM COMMON PATH OF TRAVEL	N/A	NOT PERMITTED (TABLE 40.2.5)
	EGRESS WIDTH PER PERSON LEVEL STAIRS	(1005.3) 0.2" / PERSON 0.3" / PERSON	(TABLE 7.3.3.1) 0.2" / PERSON 0.3" / PERSON
	MINIMUM EXIT DOOR WIDTH	N/A NO DOORS	N/A NO DOORS
FIRE PROTECTION	FIRE ALARM	NOT REQUIRED (907)	NOT REQUIRED (40.3.4.1)
	FIRE SPRINKLERS	REQUIRED (903.2.5)	NOT REQUIRED (40.3.5)
	CLASSIFICATION OF HAZARD OF CONTENTS	N/A	HIGH HAZARD (40.1.2.1.3) (3.3.144.1.4)
	INTERIOR FINISHES	N/A	N/A



REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	

Issue Certification
 Peter Ikegami, AIA NCARB
 FL Lic No. AR0013065
 MRI Architectural Group, Inc.
 5032 Goddard Avenue, Suite A
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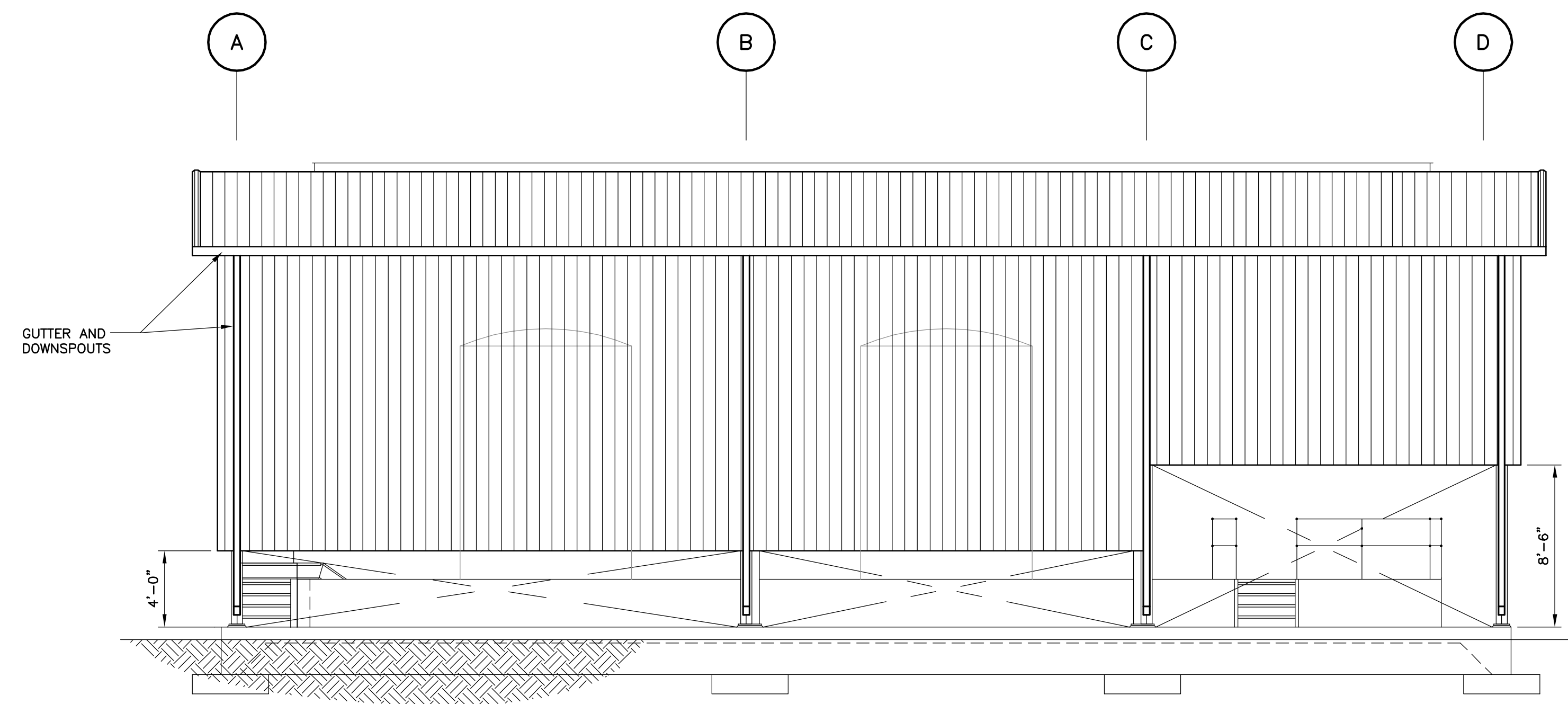
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 Drawn JV _____
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 Reviewed CLK _____
 Approved BY _____

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 ARCHITECTURAL
 LIFE SAFETY PLAN - SOUTH HYPOCHLORITE STORAGE

PROJECT NO.: 110022
 SCALE: NOTED
 DRAWING NO. A02

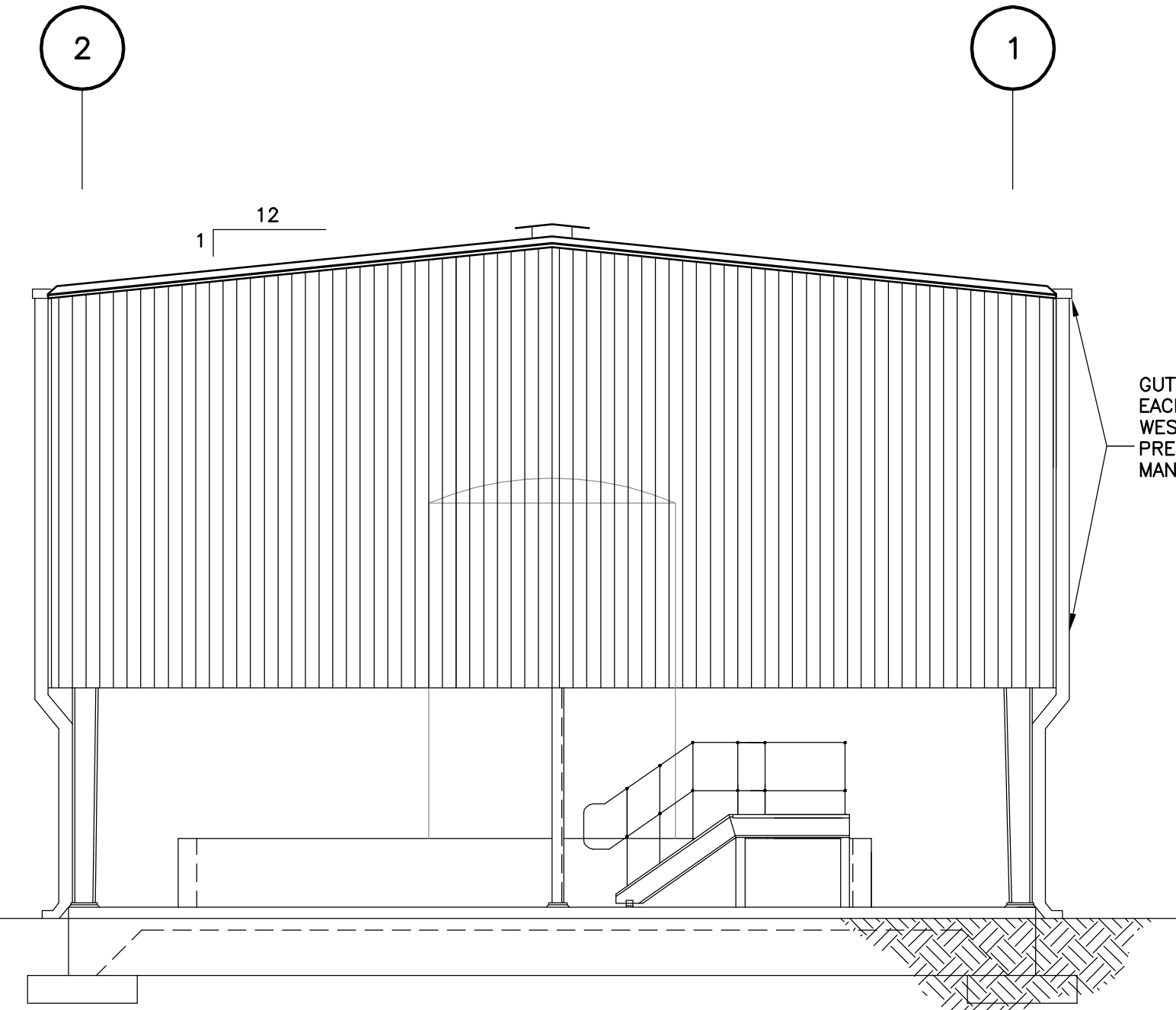
REVISION: 0
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GENERAL STRUCTURAL NOTES



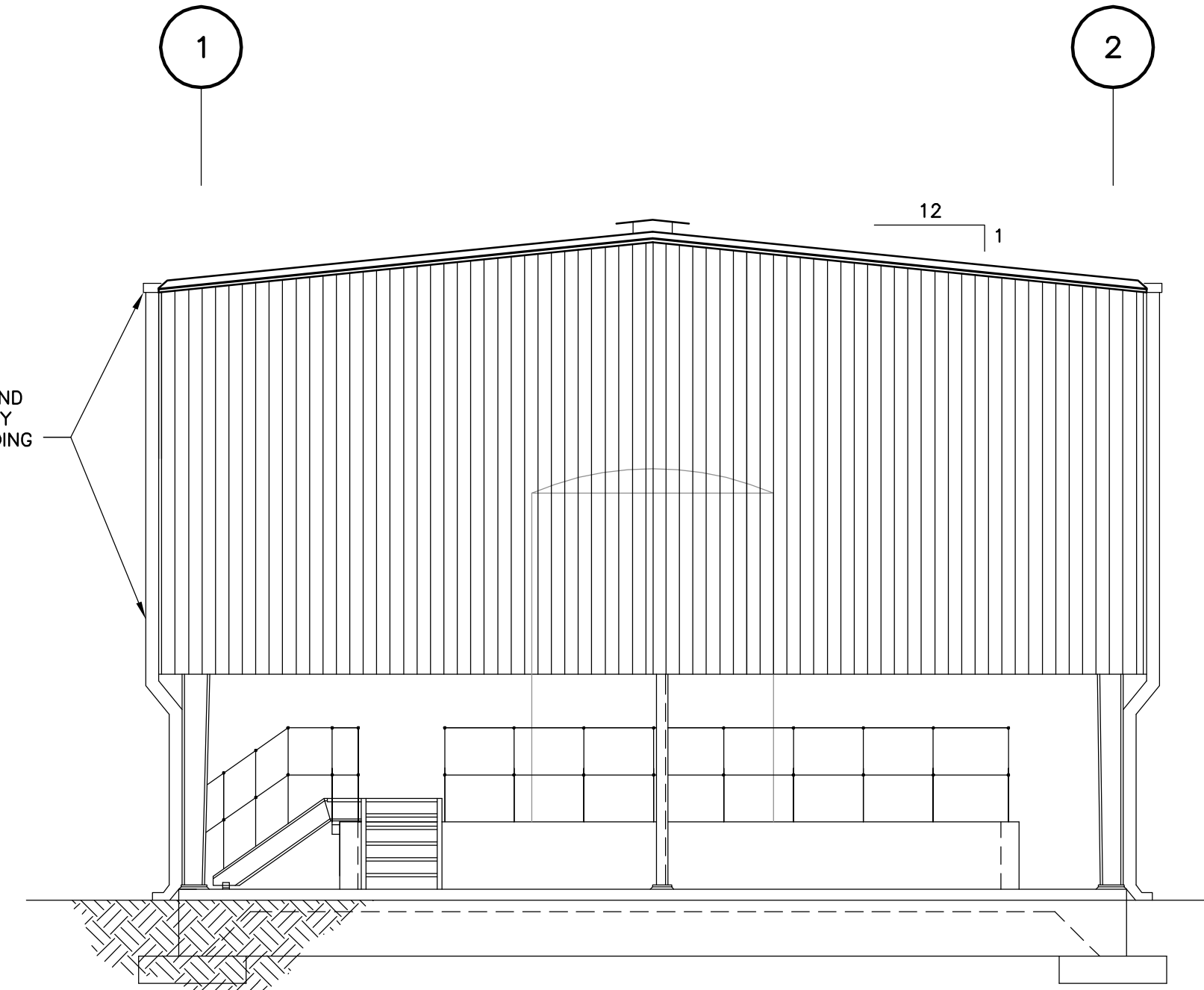
SOUTH ELEVATION
3/16"=1'-0"

NOTE:
ELEVATIONS SHOWN ARE FOR THE SOUTH STRUCTURE, THE NORTH STRUCTURE IS SIMILAR.
THE SOUTH FACING SIDE FOR EACH BUILDING WILL HAVE 4' OPEN SPACE BETWEEN T/SLAB AND SIDING EXCEPT WHERE NOTED ABOVE. ALL OTHER SIDES WILL HAVE 6'-6" OPEN SPACE.



WEST ELEVATION
3/16"=1'-0"

GUTTER AND DOWNSPOUTS ON EACH COLUMN AT THE EAST AND WEST SIDES, TYP. PROVIDED BY PRE-ENGINEERED METAL BUILDING MANUFACTURER



EAST ELEVATION
3/16"=1'-0"

DESIGN CRITERIA

CODES:
2014 FLORIDA BUILDING CODE
REINFORCED CONCRETE:
WATER RETAINING STRUCTURES: ACI 350-06 "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES"
ALL OTHER STRUCTURES: ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

DESIGN LIVE LOADS:

STAIRWAYS AND LANDINGS	100 PSF
SLABS ON GRADE	300 PSF

CONCRETE

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318 REQUIREMENTS (LATEST EDITION)
ALL CONCRETE SHALL BE AIR-ENTRAINED WITH 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS UNLESS OTHERWISE NOTED.
WATER REDUCING AGENT SHALL BE IN ACCORDANCE WITH ASTM C494.
ALL CONCRETE SURFACES EXPOSED TO AIR, UNLESS OTHERWISE NOTED IN SPECIFICATIONS, SHALL BE TREATED WITH AN APPROPRIATE CURING COMPOUND AS SOON AS CEMENT FINISHING IS COMPLETED OR FORMS ARE REMOVED.
ALL EXPOSED CORNERS SHALL HAVE A MINIMUM CHAMFER OF 3/4" UNLESS OTHERWISE NOTED.
THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR THE LOCATIONS OF CONSTRUCTION JOINTS THAT ARE NOT SHOWN ON THE DRAWINGS.

REINFORCING STEEL

REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 REQUIREMENTS. WELDED WIRE FABRIC, ASTM A185. ALL ACCESSORIES SHALL BE IN CONFORMANCE WITH ACI 315 REQUIREMENTS. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR COVER UNLESS OTHERWISE NOTED:
- CONCRETE CAST AGAINST EARTH 3"
- FORMED SURFACES IN CONTACT WITH SOIL, SEWAGE, WATER OR EXPOSED TO WEATHER 2"
LAP SPLICES SHALL BE AS SHOWN ON THE DRAWINGS. FOR LAP SPLICES NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL OBTAIN ENGINEERS APPROVAL.
THE CONTRACTOR SHALL PREPARE PLACING DRAWINGS AND SCHEDULES IN CONFORMANCE WITH ACI 315 REQUIREMENTS.

PRE-ENGINEERED METAL BUILDING

FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO DESIGN, FABRICATE, DELIVER TO JOB SITE AND ERECT THE PRE-ENGINEERED METAL BUILDING AS SHOWN ON THE DRAWINGS.

PRE-ENGINEERED METAL BUILDING MANUFACTURER TO PROVIDE WALL PANELS AND WALL GIRTS TO BE REMOVABLE WITHOUT AFFECTING THE REMAINING STRUCTURE ON THE WEST SIDE OF THE NORTH HYPOCHLORITE STORAGE BUILDING BETWEEN COLUMN LINES A-B, B-C, AND C-D, AND ON THE NORTH SIDE OF THE SOUTH HYPOCHLORITE STORAGE BUILDING BETWEEN COLUMN LINES A-B AND B-C FOR THE PURPOSE OF REMOVAL OF THE TANKS FOR FUTURE REPAIR OR REPLACEMENT. PROVIDE WATERTIGHT SIDELAPS/EDGES AT EACH REMOVABLE SECTION. PRIMARY AND SECONDARY FRAMING SHOWN ON THE DRAWINGS TO BE MODIFIED AS REQUIRED.

SUBMIT TO THE ENGINEER AS PROVIDED COMPLETE PLANS SHOWING SUPERSTRUCTURE COLUMN LINES SET TO COORDINATE WITH CONCRETE DIMENSIONS SHOWN. INDICATE ANCHOR BOLT SIZE AND LOCATIONS AND FOUNDATION REACTIONS IN KIPS AT ALL COLUMNS.

SUBMIT LETTER AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA CERTIFYING THAT THE STRUCTURAL FRAMING AND COVERING PANELS PROPOSED MEET THE DESIGN CRITERIA.

PRIOR TO FOUNDATION CONSTRUCTION, PRE-ENGINEERED METAL BUILDING SUBMITTAL MUST BE APPROVED. CONSTRUCTION DETAILS MAY BE VARIED TO SUITE MANUFACTURER'S STANDARD DESIGN.

DESIGN CRITERIA:

ROOF DEAD LOAD:	SELF WEIGHT
SUPERIMPOSED DEAD LOAD:	8 PSF
ROOF LIVE LOAD:	20 PSF

WIND LOADS:

- ULTIMATE DESIGN WIND SPEED, V _{ult} (3-SECOND GUST)	150 MPH
- NOMINAL DESIGN WIND SPEED, V ₅₀	117 MPH
- RISK CATEGORY	III
- EXPOSURE CATEGORY	B
- DESIGN PRESSURES: PER ASCE 7-10	PARTIALLY ENCLOSED
- ENCLOSURE CLASSIFICATION	±0.55
- INTERNAL PRESSURE COEFFICIENT, C _{pi}	

ALL BUILDING COLUMNS SHALL BE DESIGNED AS "PIN" CONNECTED. COLUMN ENDS SHALL NOT TRANSFER MOMENTS TO FOUNDATION.
COLUMN AND BASE PLATE SIZE SHALL ALLOW FOR A MINIMUM ANCHOR BOLT DISTANCE OF 8" TO ANY VERTICAL EDGE OF CONCRETE UNLESS SPECIFICALLY APPROVED BY ENGINEER. THE MINIMUM ANCHOR ROD EMBEDMENT DEPTH IS 1'-4".

MANUFACTURERS:

BUTLER MANUFACTURING COMPANY, KANSAS CITY, MISSOURI; VARCO PRUDEN BUILDINGS, MEMPHIS, TENNESSEE; OR EQUAL.

MATERIALS:

FRAMING - PRIMARY AND SECONDARY FRAMING SHALL CONSIST OF SHOP FABRICATED WELDED UP PLATE SECTION COLUMNS AND ROOF BEAMS COMPLETE WITH NECESSARY SPLICE, BASE, CAP, COMPRESSION, AND STIFFENER PLATES WITH BOLT CONNECTION HOLES FOR FIELD ASSEMBLY. PURLINS AND GIRTS SHALL BE 8-IN MIN. DEEP "Z" SECTIONS. EAVE STRUTS SHALL BE 8-IN MIN. DEEP "C" SECTIONS. LATERAL BRACING SHALL BE DESIGNED BY THE BUILDING MANUFACTURER. ALL BOLTS FOR STRUCTURAL FRAMING CONNECTIONS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO ASTM A325.

WALL SYSTEM - EXTERIOR WALL PANELS SHALL BE BUTLERB PANELS AS FURNISHED BY BUTLER MANUFACTURING COMPANY OR EQUAL. PANEL MATERIAL SHALL BE ASTM A446, GRADE C, 26 GAUGE GALVANIZED STEEL G90 COATING CONFORMING TO ASTM A525. FURNISH EXTERIOR AND INTERIOR TRIM AS REQUIRED FOR ALL DOORS, FLASHINGS, CLOSURES.

ROOF SYSTEM - THE BUILDING ROOF PANELS SHALL BE PRECISION ROLL FORMED MR-20 PANELS AS FURNISHED BY BUTLER MANUFACTURING COMPANY OR EQUAL. PANEL MATERIAL AS SPECIFIED SHALL BE 20 GAUGE GALVANIZED STEEL (80,000 PSI YIELD) G90 COATING CONFORMING TO ASTM A525. GUTTERS, DOWNSPOUTS AND TRIM PIECES ARE TO BE STANDARD PRODUCTS INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.

FASTENERS - FASTENERS FOR WALL AND ROOF SYSTEM SHALL BE HOT DIPPED GALVANIZED AND FURNISHED WITH AN INTEGRAL GALVANIZED STEEL-BACKED NEOPRENE WASHER. ALL EXPOSED FASTENERS SHALL BE PREPAINTED TO MATCH WALL COLOR.

ANCHOR BOLTS - ANCHOR BOLTS SHALL BE F1554 GRADE 36 HOT DIPPED GALV. HEAVY HEX HEADED. ANCHOR BOLTS SHALL BE DESIGNED BY THE BUILDING MANUFACTURER AND FURNISHED BY THE CONTRACTOR.

PAINTING:

ALL STRUCTURAL STEEL SHALL BE SHOP PREPARED AND FIELD PAINTED PRIOR TO ERECTION. PRIOR TO PAINTING, ALL STEEL SHALL BE CLEANED OF LOOSE RUST, LOOSE MILL SCALE, DIRT AND OTHER FOREIGN MATERIAL. COAT ALL STRUCTURAL STEEL, GUTTERS, DOWNSPOUTS AND OTHER MISCELLANEOUS STEEL WITH THE FOLLOWING COATING SYSTEM BY TNEMEC (OR ENGINEER APPROVED EQUAL BY PPG PROTECTIVE & MARINE COATINGS OR CARBOLINE).

PRIMER - TNEMEC SERIES 66-1211 @3.0-5.0 MILS DFT
INTERMEDIATE - TNEMEC SERIES 66-COLOR @4.0-6.0 MILS DFT

FINISH - TNEMEC SERIES 73-COLOR @2.5-4.0 MILS DFT

INTERIOR & EXTERIOR ROOF AND WALL PANEL FINISH SHALL BE STANDARD BUTLER COTE 500 FP PAINT (70% KYNAR 500 FLUOROPOLYMER).

PAINT COLOR TO BE APPROVED BY THE OWNER.



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Florida P.E. No. 71407
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Lake Mary, FL 32746

Designed JS
Drawn DM
Checked BE
Reviewed JS
Approved JS

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

STRUCTURAL

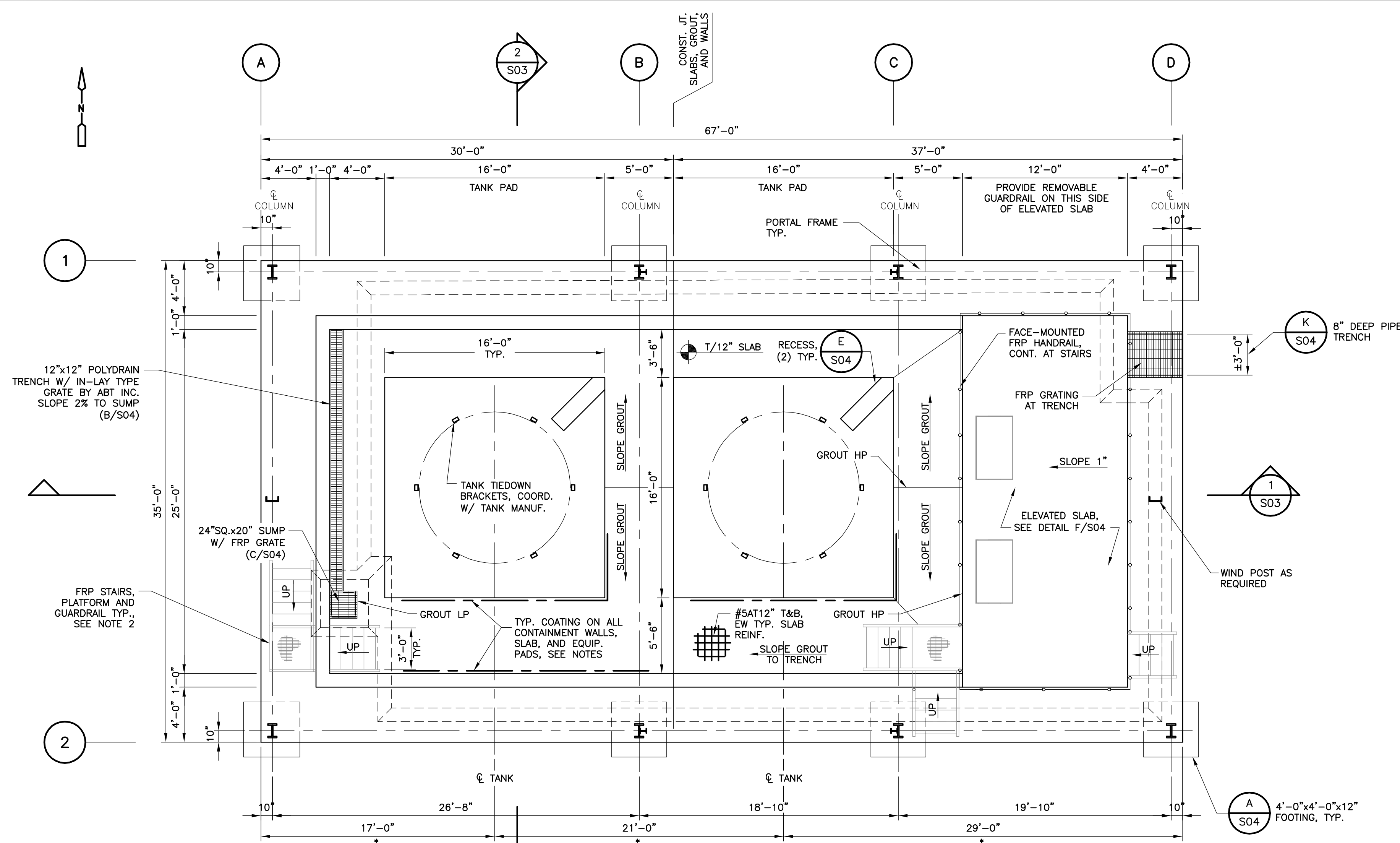
HYPOCHLORITE STORAGE BUILDINGS ELEVATIONS & GENERAL NOTES

PROJECT NO.:	110022
SCALE:	NONE
REVISION:	0
DRAWING NO.:	S01
SHEET NO.:	16 OF 46

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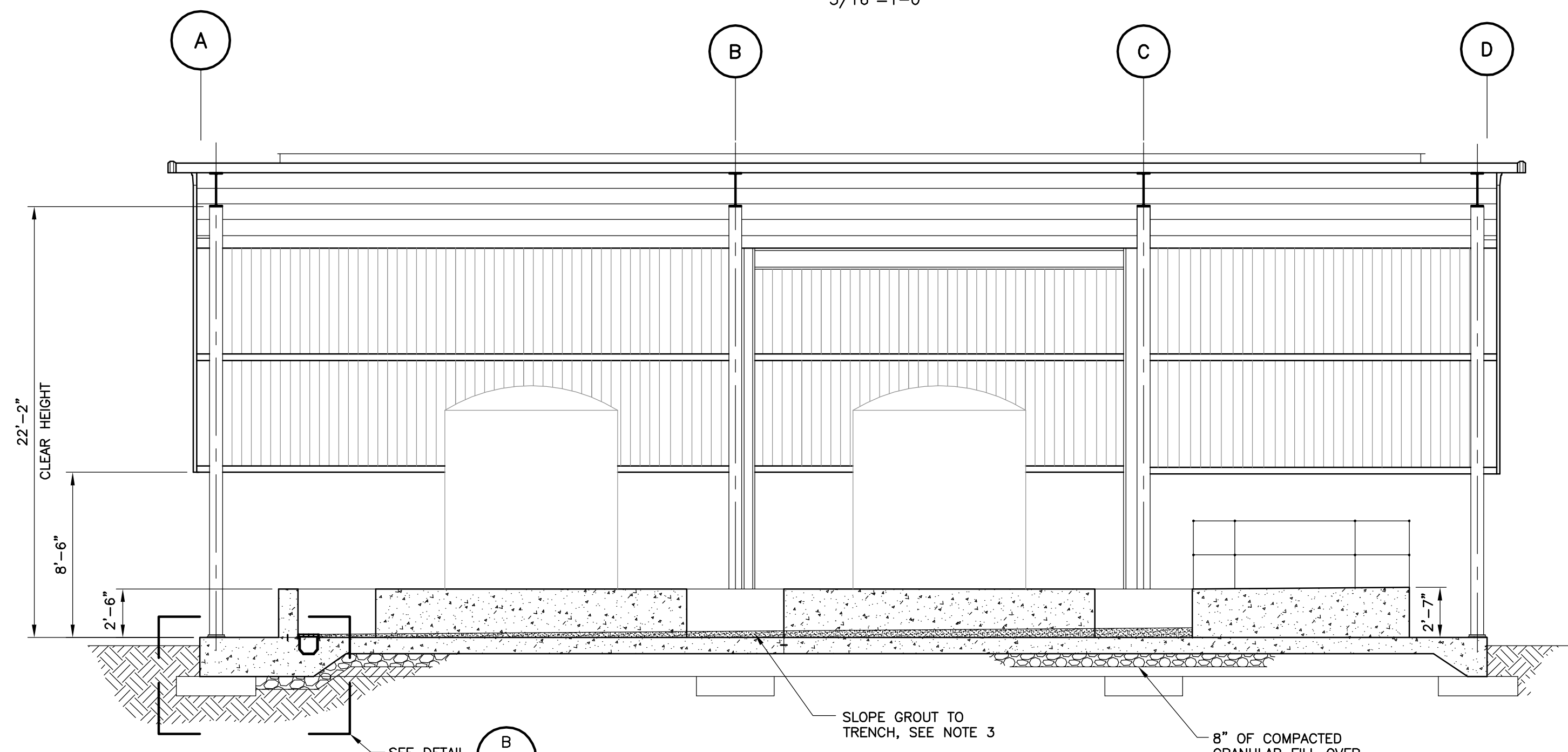
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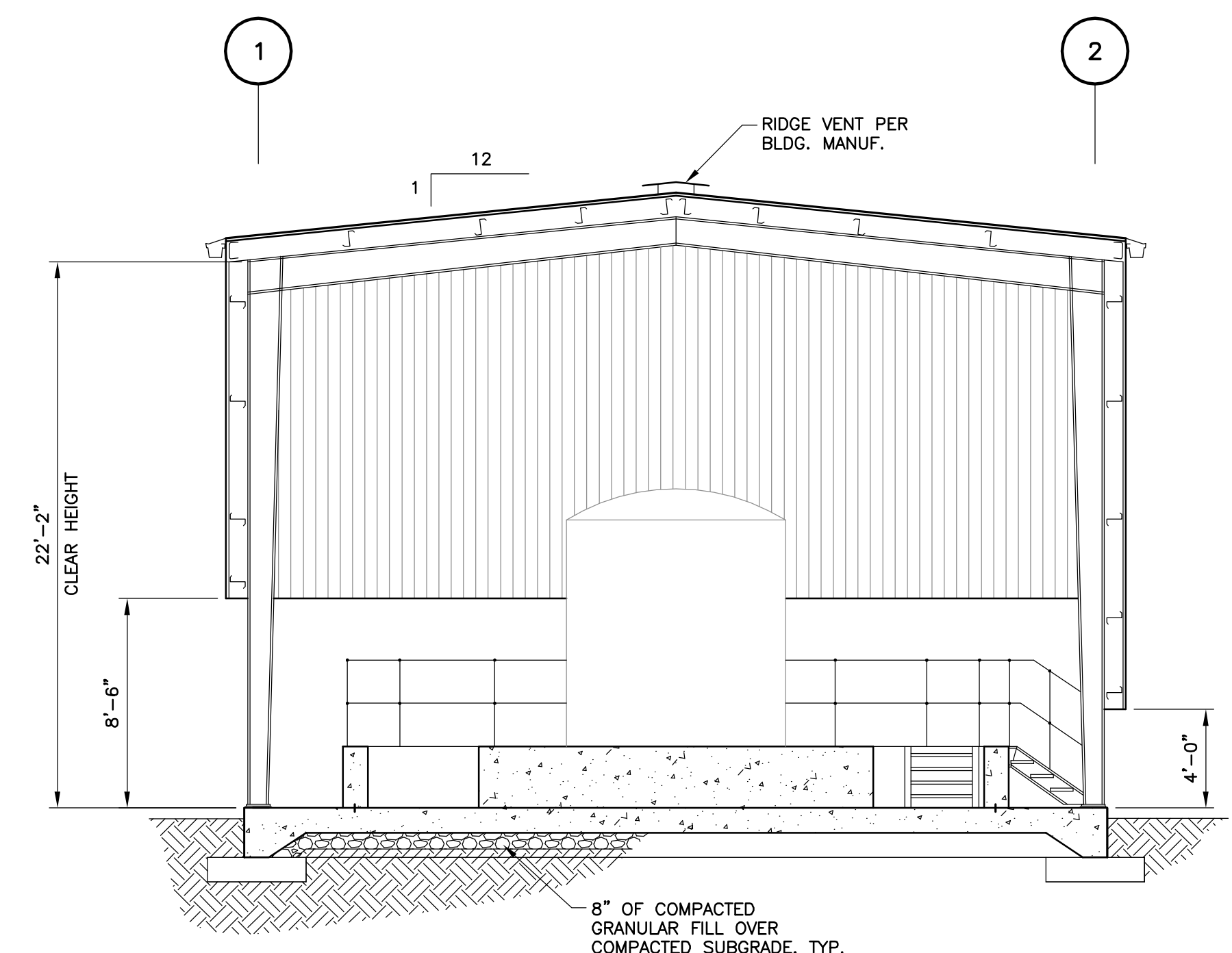


* COORD. DIMENSION WITH TANK MANUF.

BASE SLAB PLAN
3/16" = 1'-0"



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



SECTION 2
3/16" = 1'-0"

GENERAL NOTES

1. PROVIDE GALVANIZED ROD AND PIPE CLEVIS HANGER SUPPORT AT EACH FILL PIPING BENT (TYP. 2) AND VENT LOCATION. ATTACH TO UNISTRUT SPANNING TO PURLINS.
2. FRP STAIRS AND PLATFORM TO USE ALL FRP SHAPES FOR FRAMING AND HANDRAILS. ALL BOLTED CONNECTIONS BETWEEN STRUCTURAL MEMBERS TO USE VINYL ESTER NUTS AND BOLTS. USE A MINIMUM C8X2-3/16X3/8 CHANNEL FOR ALL STRINGERS. ALL STAIR TREADS TO BE FRP. SEE STANDARD DETAILS ON S04 FOR GENERAL GEOMETRY OF FRP HANDRAIL. SEE SPECIFICATION 06615.
3. SLOPE GROUT TO TRENCH. GROUT THICKNESS AT HIGH END TO BE 6" AND 2" AT LOW END. GROUT TO HAVE JOINTS AT LOCATIONS SHOWN AND TO INCLUDE REINFORCING FIBERS PER SPECIFICATIONS. CONCRETE SURFACE TO BE MECHANICALLY ROUGHENED TO A MIN. 1/2" AMPLITUDE PRIOR TO GROUT PLACEMENT.

COATING NOTES

COAT ELEVATED PUMP PAD TOP SLAB SURFACE, INTERIOR OF ALL CONTAINMENT WALLS, FLOOR SLAB, TRENCH DRAIN AND SUMP, AND TANK PAD SURFACES WITH THE FOLLOWING COATING SYSTEM BY NEMEC (OR ENGINEER APPROVED EQUAL BY PPG PROTECTIVE & MARINE COATINGS OR CARBOLINE):

- 1.) PRIME COAT - EPOXOPRIME SERIES 201 AT 6 MILS
- 2.) INTERMEDIATE COAT - STRANLOK SERIES 270 AT 30 MILS
- 3.) TOP COAT - NMEC-GLAZE SERIES 282 AT 10 MILS

ABRASIVE BLAST SURFACES TO ICRI CSP-5 MINIMUM. WHERE BUG HOLES ARE REVEALED THEY SHALL BE FILLED WITH NEMEC SERIES 218. ALL ADDITIONAL SURFACE PREPARATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. FLOOR SURFACE SHALL HAVE A HEAVY ORANGE PEEL SURFACE PROFILE. COATING COLOR SHALL BE CHOSEN BY OWNER.

COAT ALL ANCHOR BOLTS AND CONCRETE FASTENERS INSIDE CONTAINMENT AREA WITH THE FOLLOWING COATING SYSTEM BY NEMEC (OR ENGINEER APPROVED EQUAL BY PPG PROTECTIVE & MARINE COATINGS OR CARBOLINE):

- 1.) PRIME COAT - EPOXOPRIME SERIES 201 AT 6 MILS
- 2.) TOP COAT - NMEC-GLAZE SERIES 282 AT 6 MILS

PRIOR TO APPLICATION OF ANY COATINGS ALL SURFACES MUST BE CLEAN, DRY AND ABRADED. REMOVE ALL GREASE, OIL, DIRT, DUST, MOLD, MILDEW, AND OTHER SOLUBLE CONTAMINANTS. SCARIFY THE SURFACE BY HAND OR POWER SANDING.



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John Sobczak, P.E.
Florida P.E. No. 71407
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Designed JS
Drawn DM
Checked BE
Reviewed JS
Approved JS

LINE IS 1/8" = 1'-0"
FULL SIZE

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

STRUCTURAL

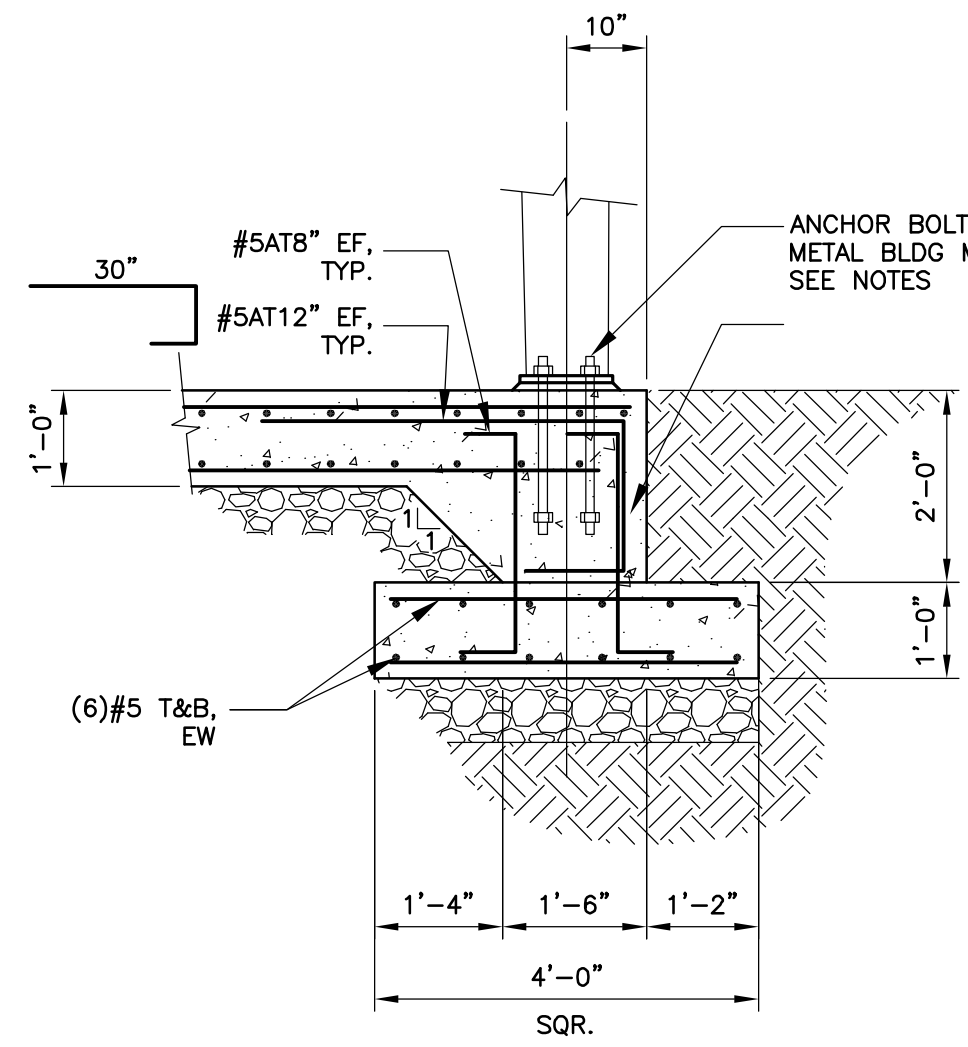
SOUTH HYPOCHLORITE STORAGE BUILDING PLAN & SECTIONS

PROJECT NO.: 110022	
SCALE: NONE	REVISION: 0
DRAWING NO. S02	SHEET NO.: 17 OF 46

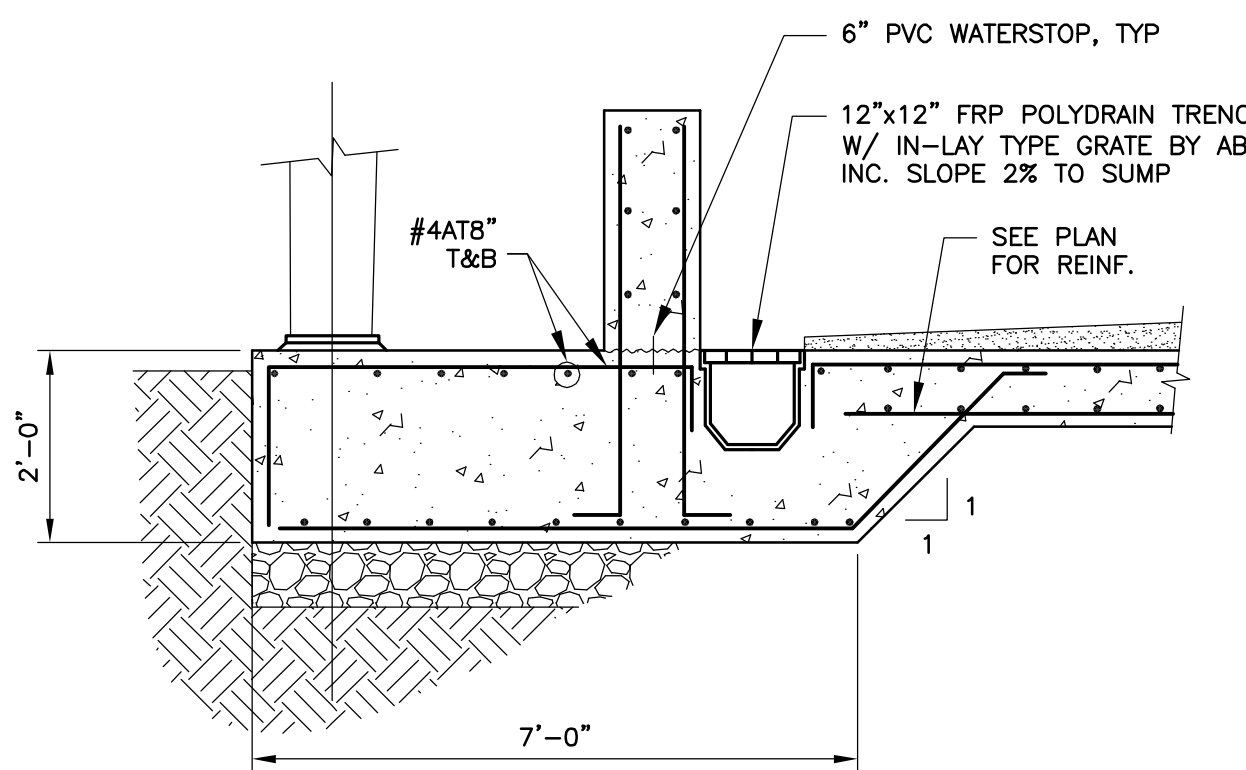


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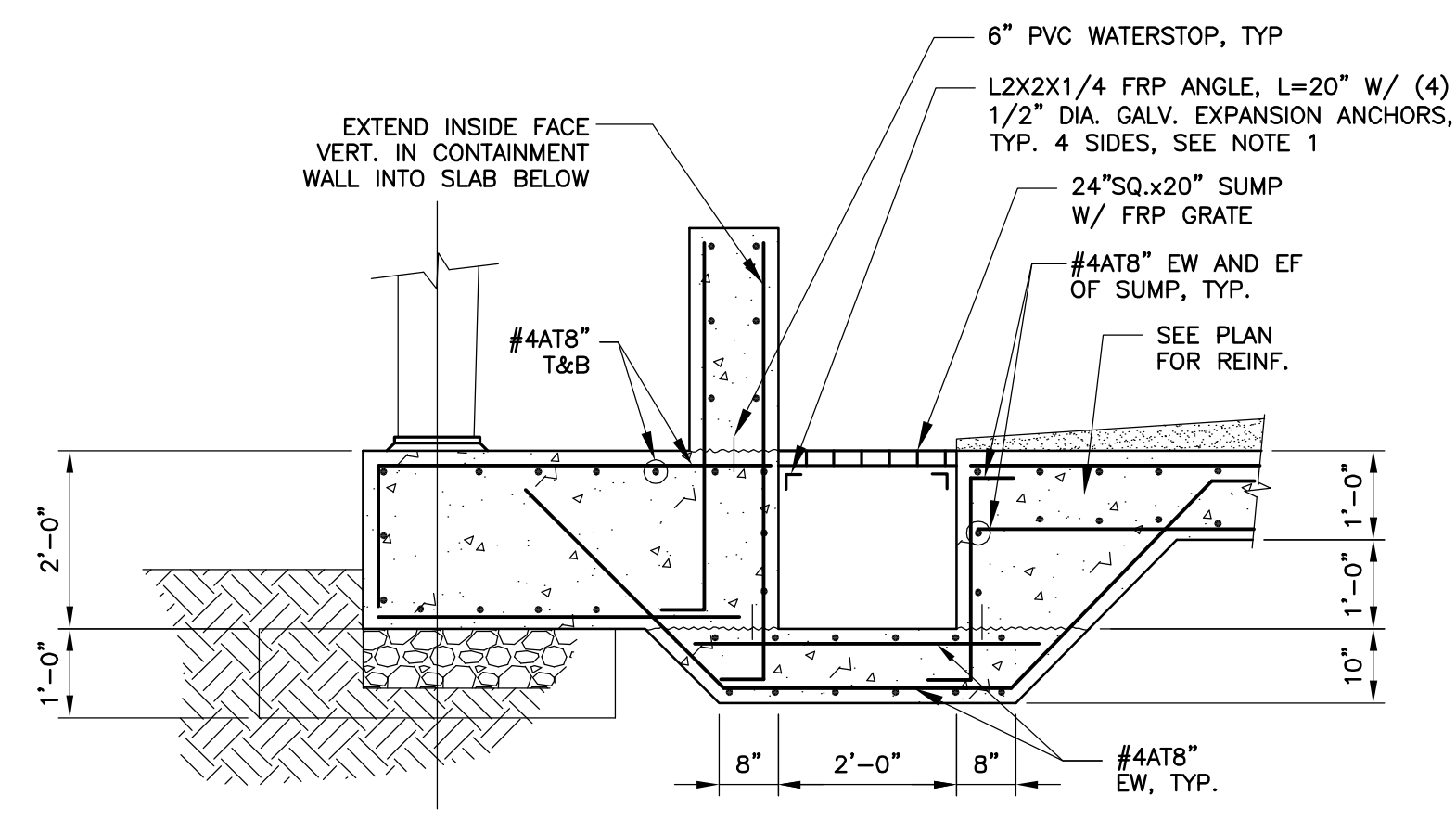
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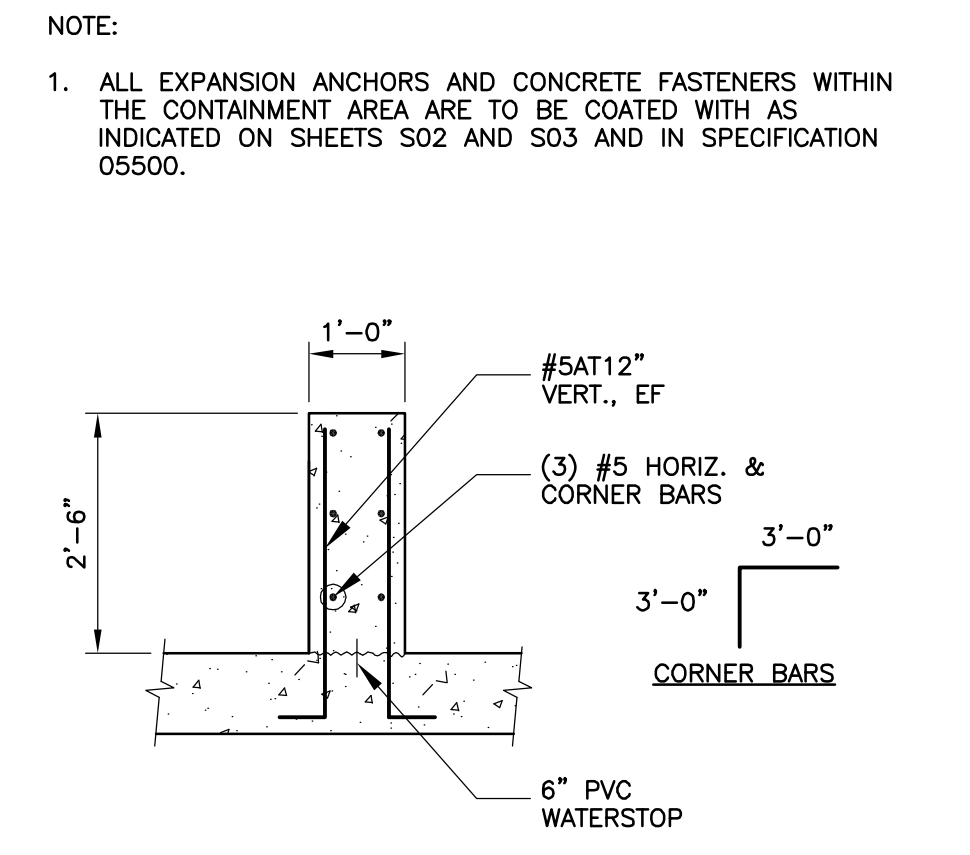
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DETAIL B
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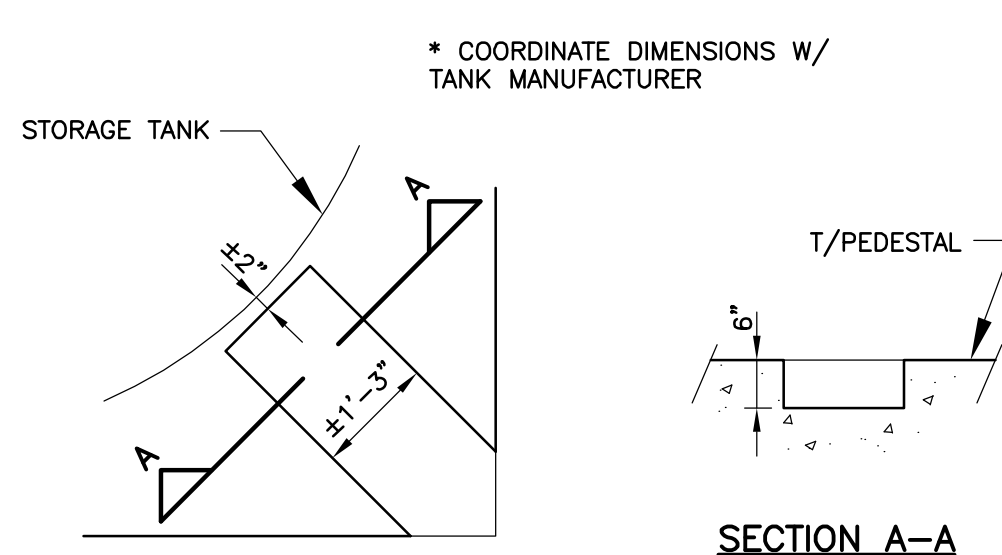


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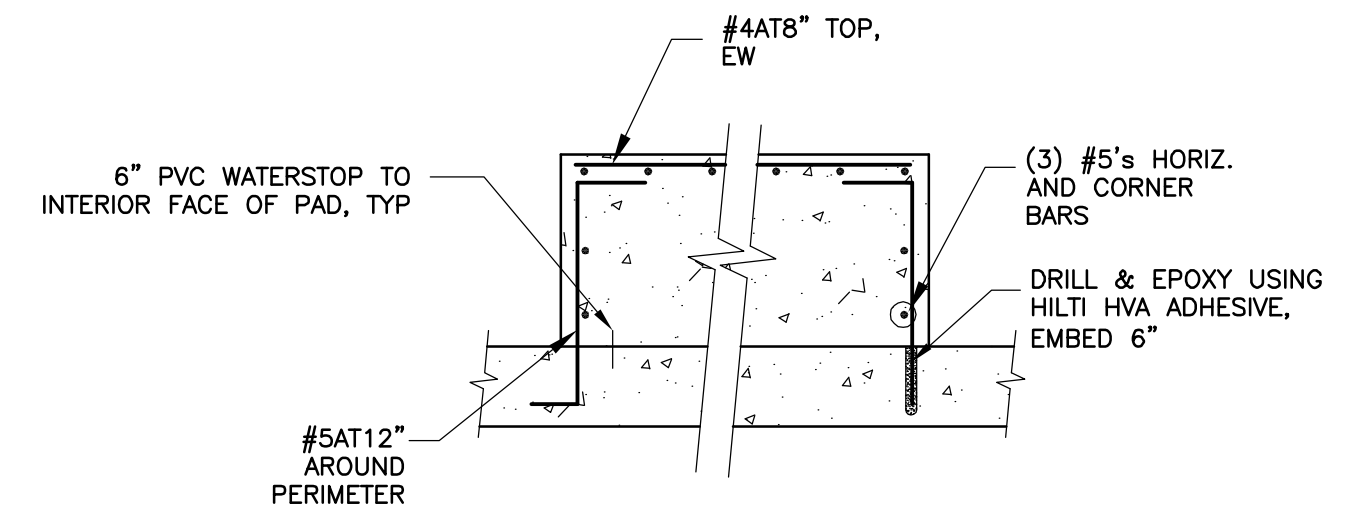


DETAIL D
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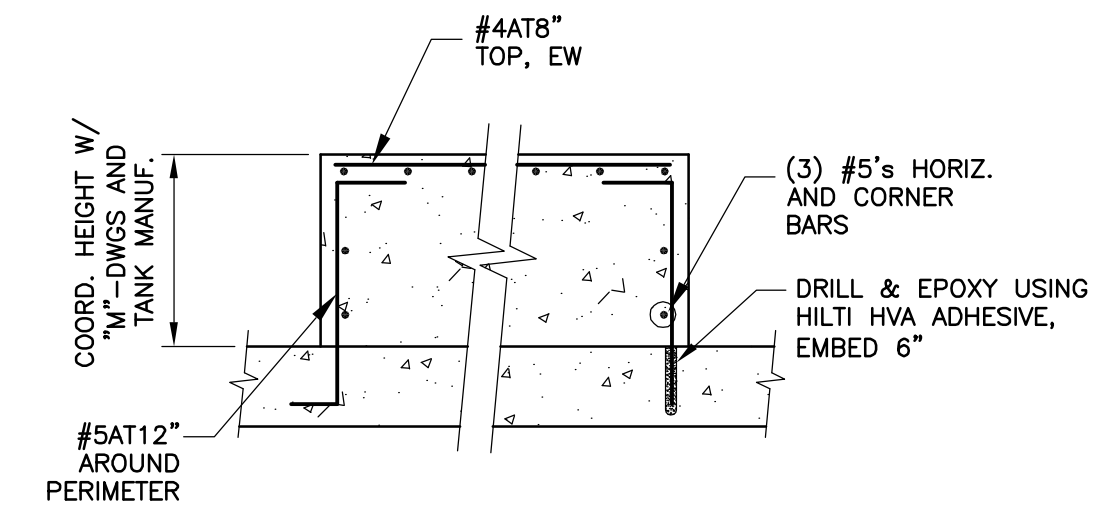
NOTE:
1. ALL EXPANSION ANCHORS AND CONCRETE FASTENERS WITHIN THE CONTAINMENT AREA ARE TO BE COATED WITH AS INDICATED ON SHEETS S02 AND S03 AND IN SPECIFICATION 05500.



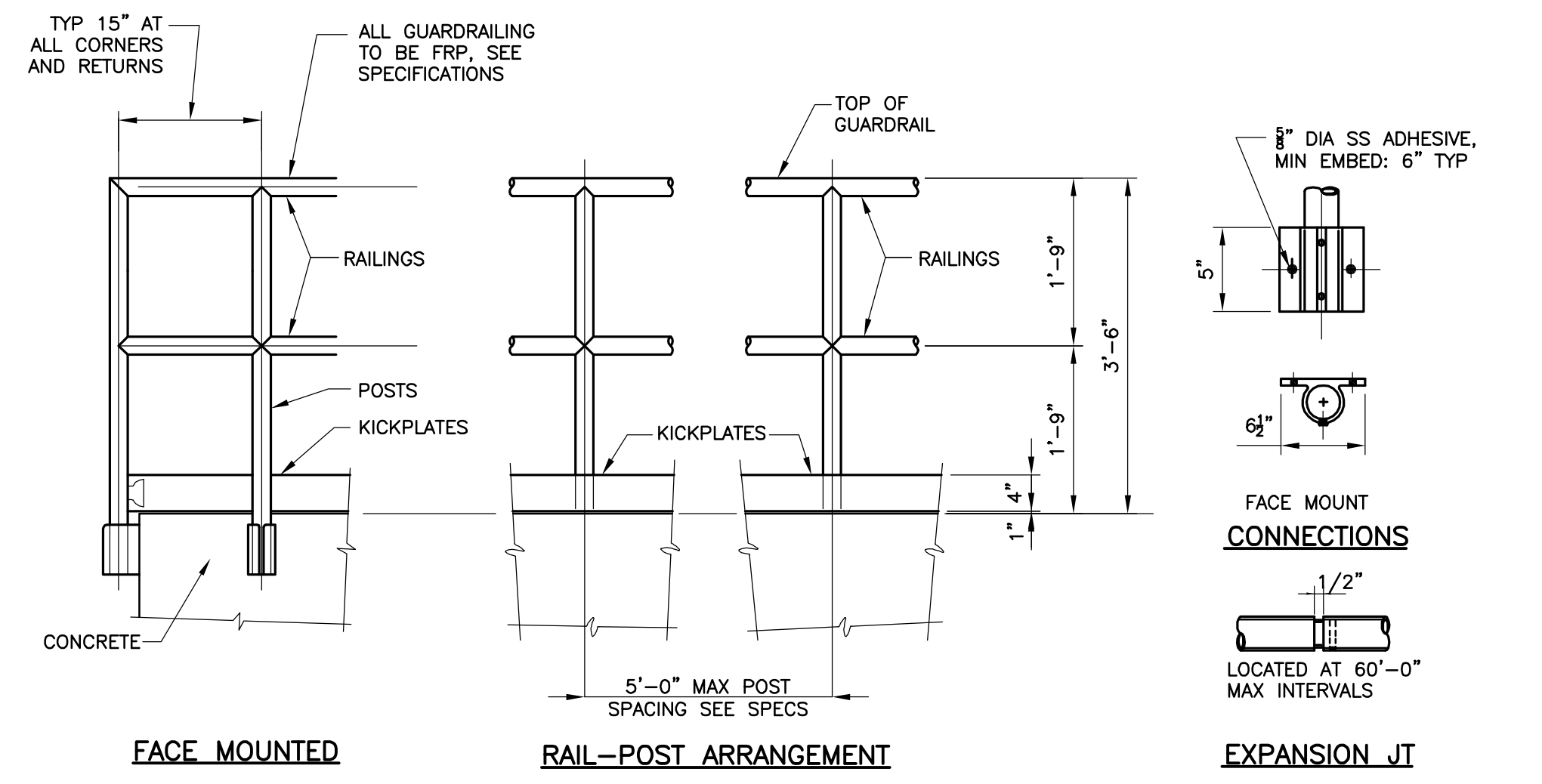
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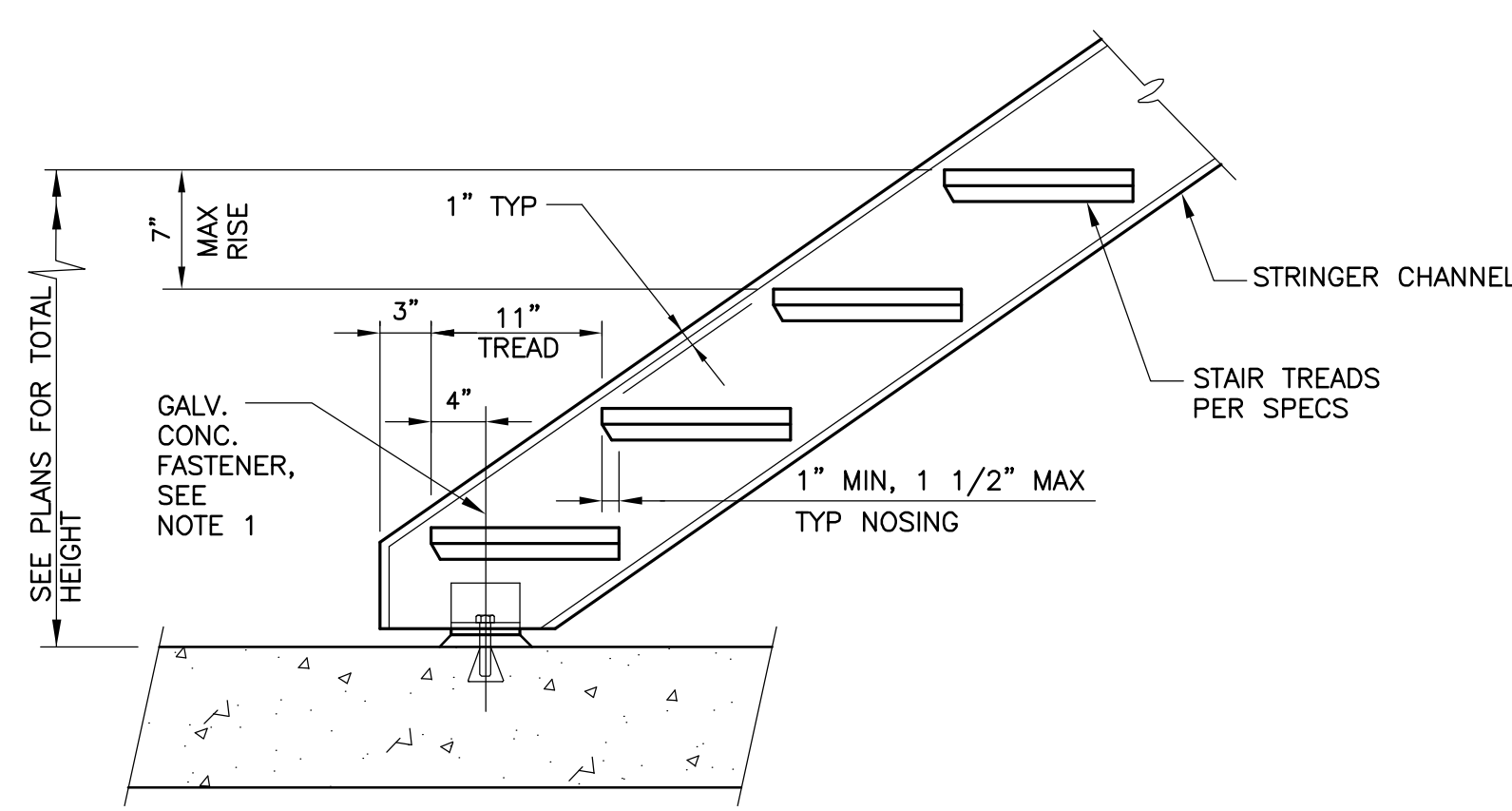
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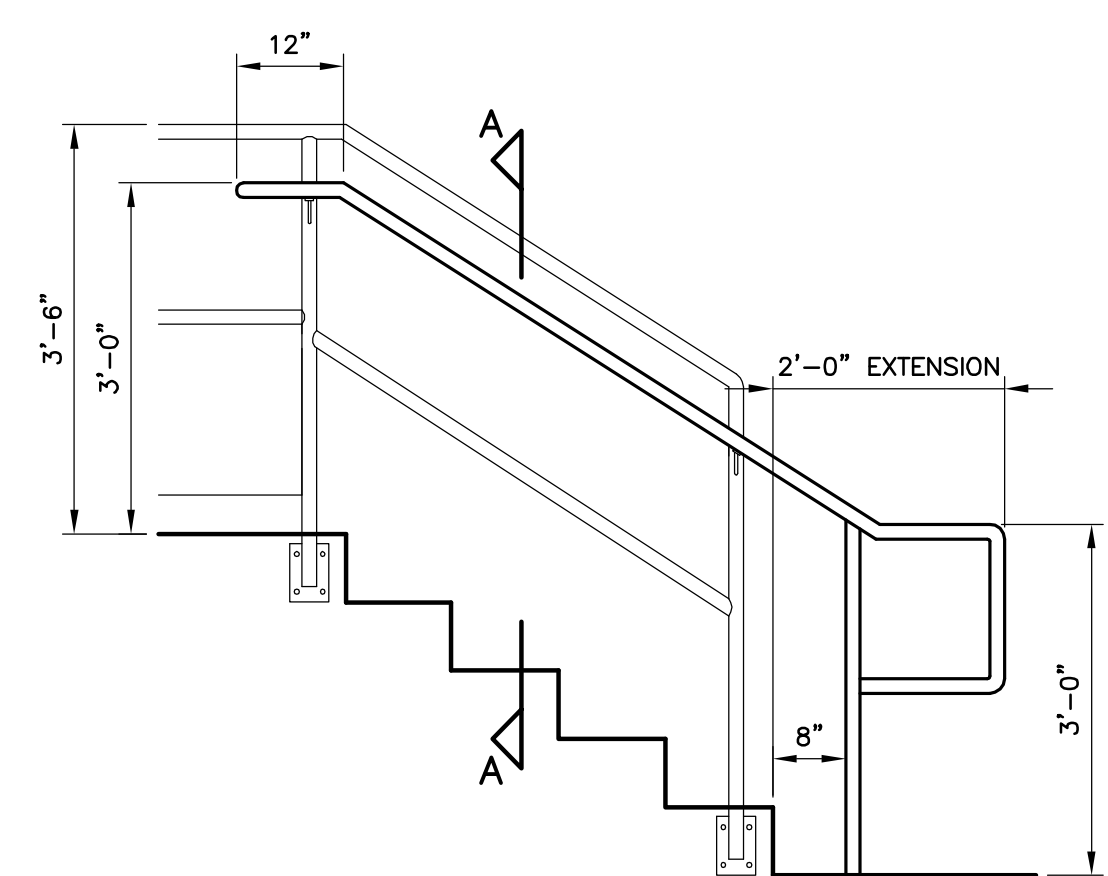
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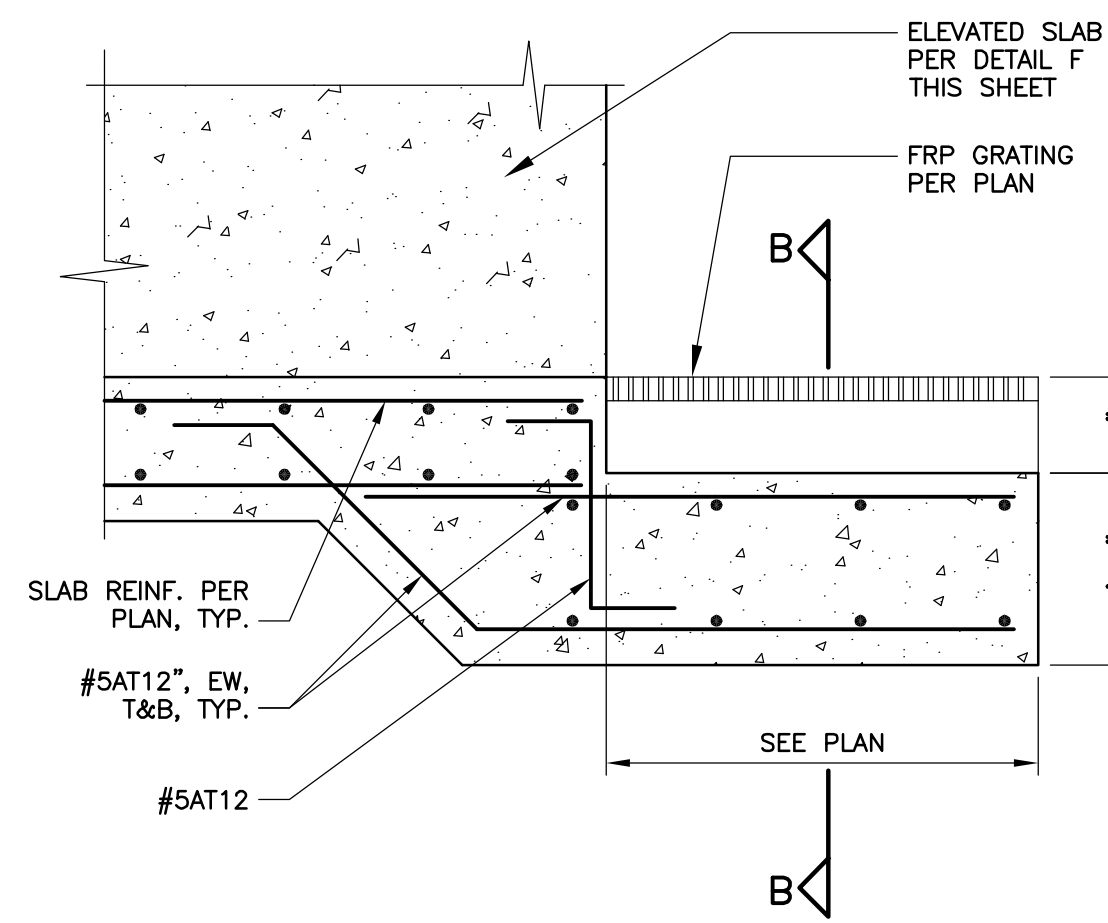
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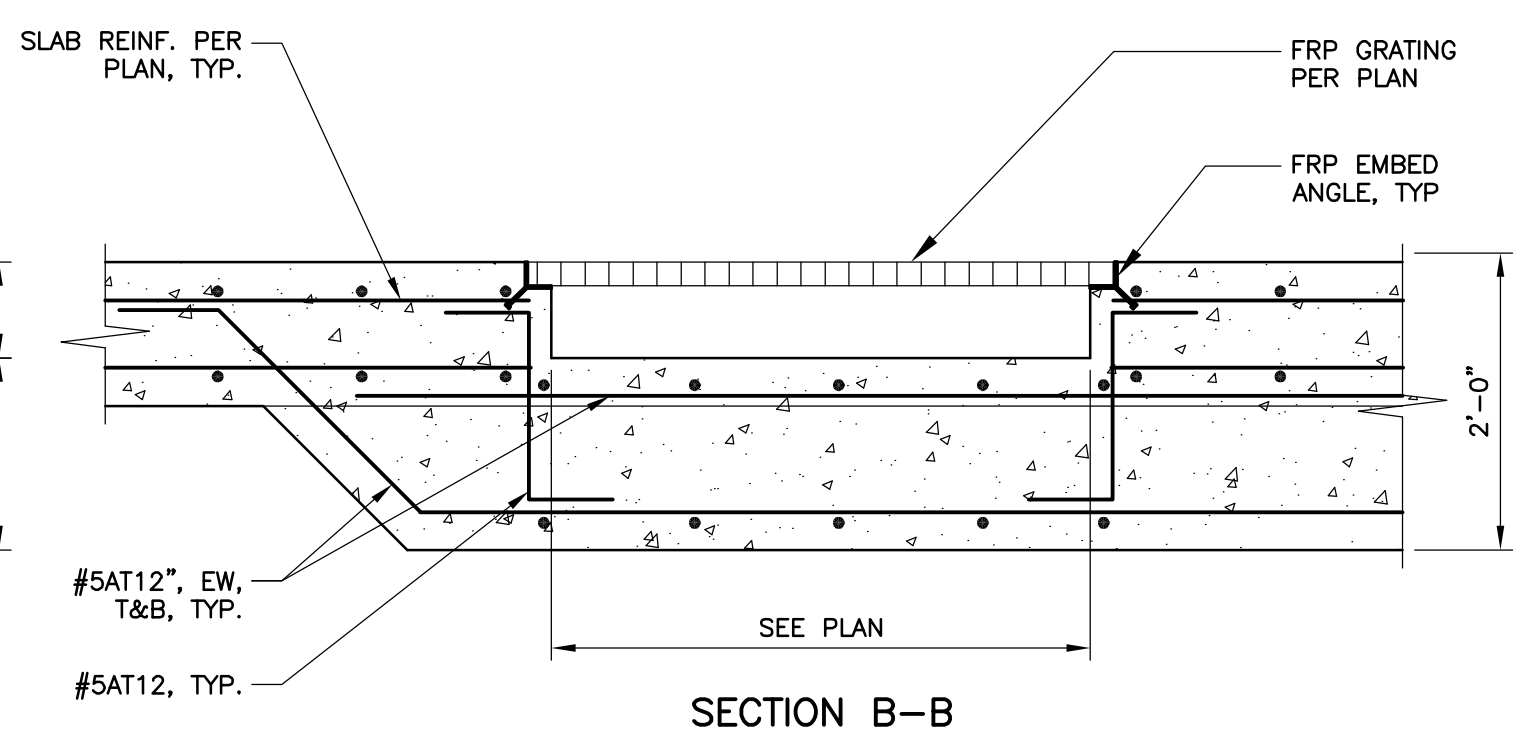
DETAIL I
NTS



DETAIL J
NTS



DETAIL K
S02,S03



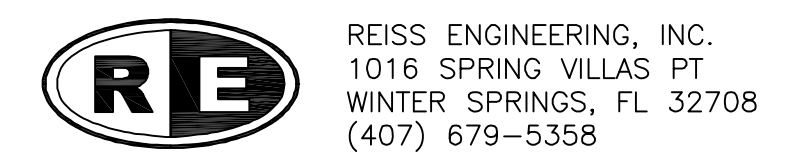
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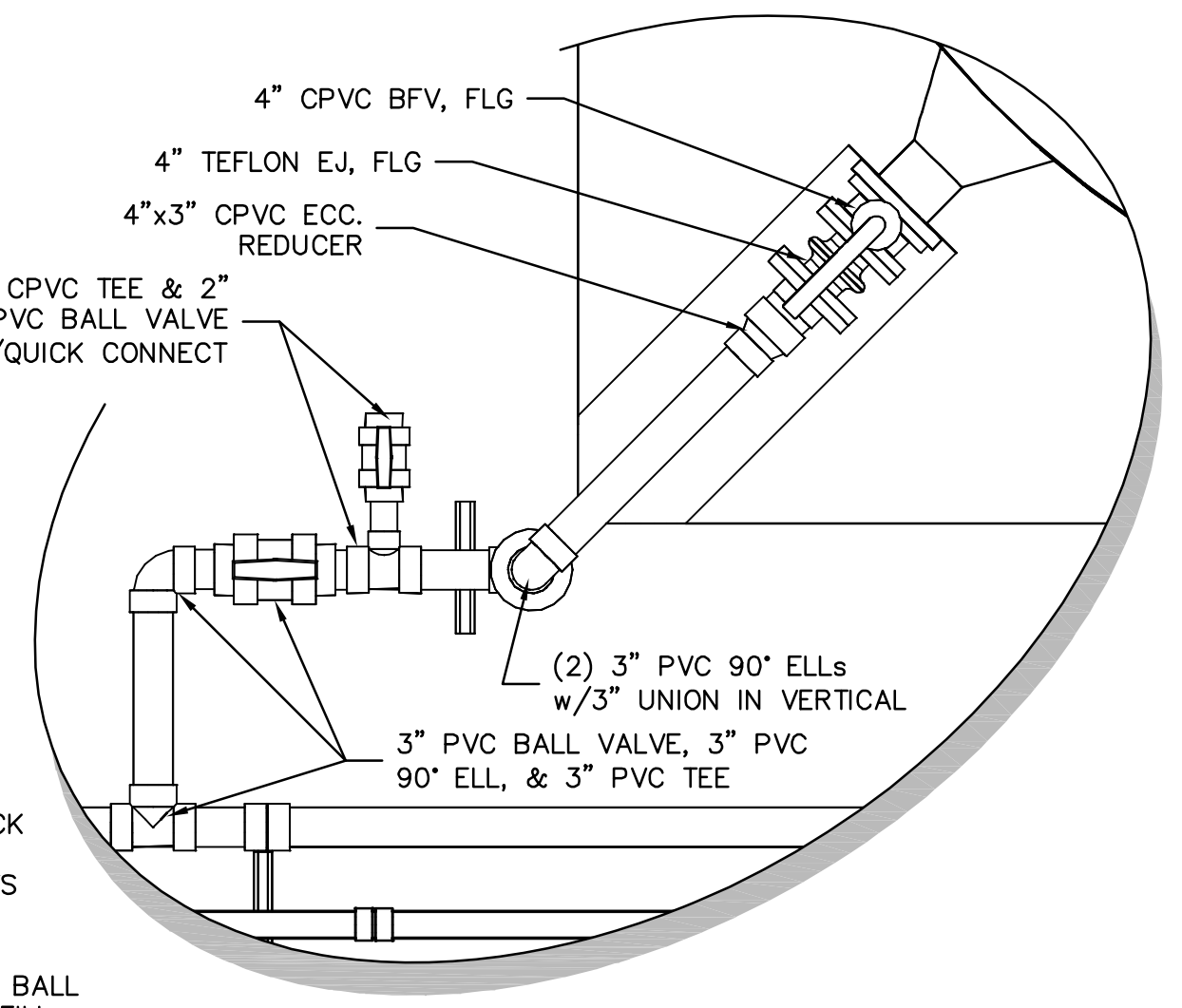
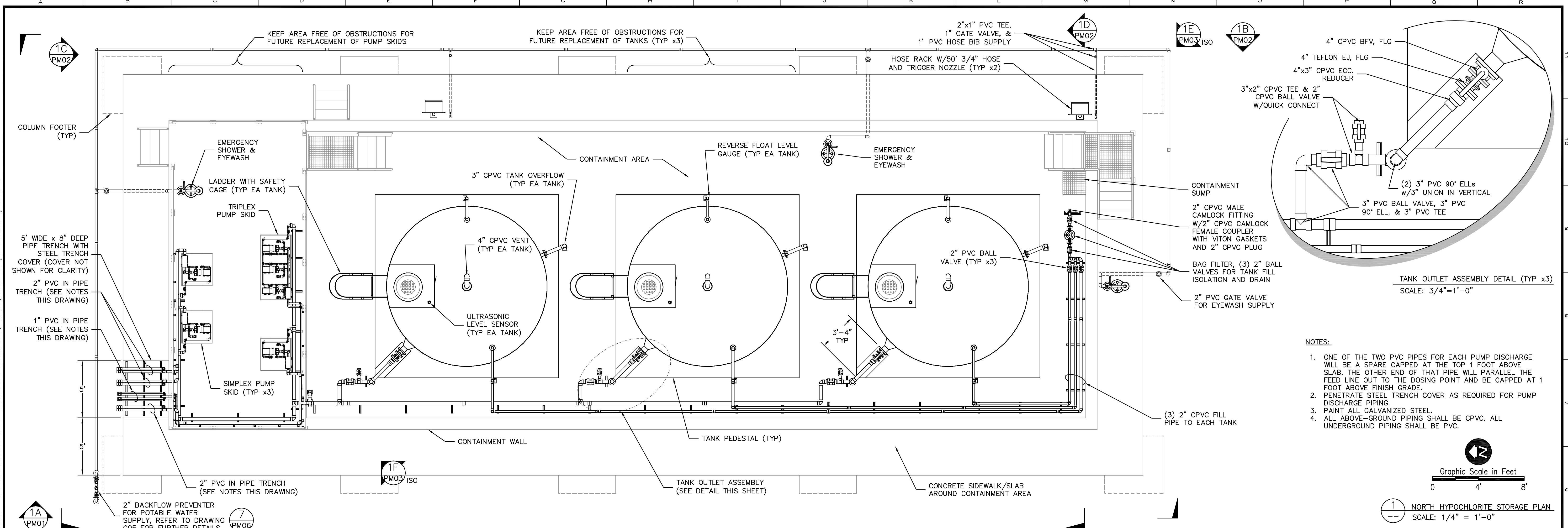
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Designed JS
Drawn DM
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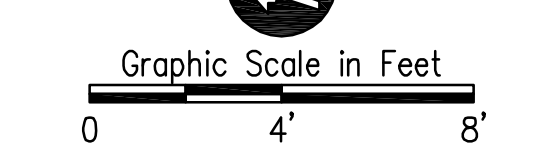
ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
STRUCTURAL
STRUCTURAL DETAILS

PROJECT NO.:	110022
SCALE:	NONE
REVISION:	0
DRAWING NO.:	S04
SHEET NO.:	19 OF 46

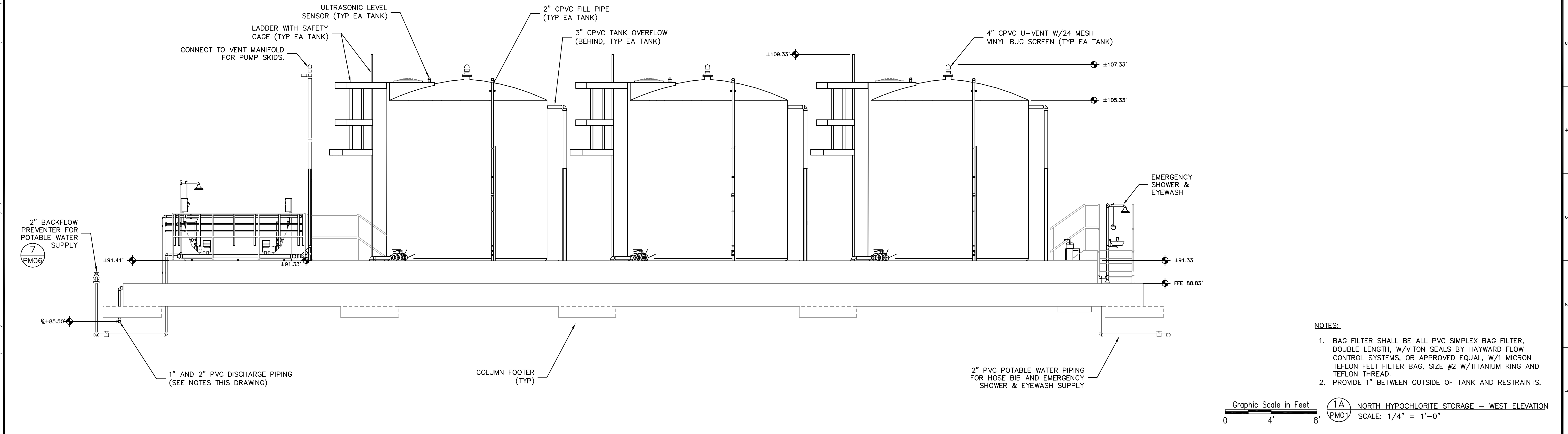




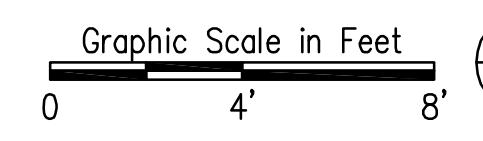
- NOTES:
- ONE OF THE TWO PVC PIPES FOR EACH PUMP DISCHARGE WILL BE A SPARE CAPPED AT THE TOP 1 FOOT ABOVE SLAB. THE OTHER END OF THAT PIPE WILL PARALLEL THE FEED LINE OUT TO THE DOSING POINT AND BE CAPPED AT 1 FOOT ABOVE FINISH GRADE.
 - PENETRATE STEEL TRENCH COVER AS REQUIRED FOR PUMP DISCHARGE PIPING.
 - PAINT ALL GALVANIZED STEEL.
 - ALL ABOVE-GROUND PIPING SHALL BE CPVC. ALL UNDERGROUND PIPING SHALL BE PVC.



1 NORTH HYPOCHLORITE STORAGE PLAN
SCALE: 1/4" = 1'-0"



- NOTES:
- BAG FILTER SHALL BE ALL PVC SIMPLEX BAG FILTER, DOUBLE LENGTH, W/VITON SEALS BY HAYWARD FLOW CONTROL SYSTEMS, OR APPROVED EQUAL, W/1 MICRON TEFLON FELT FILTER BAG, SIZE #2 W/TITANIUM RING AND TEFLON THREAD.
 - PROVIDE 1" BETWEEN OUTSIDE OF TANK AND RESTRAINTS.



1A NORTH HYPOCHLORITE STORAGE - WEST ELEVATION
SCALE: 1/4" = 1'-0"



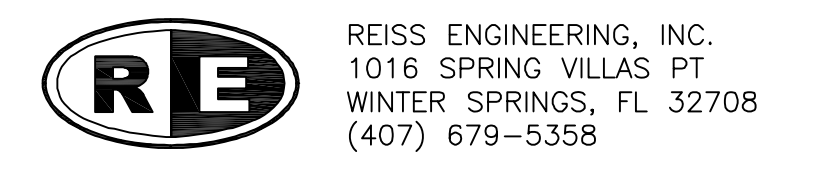
REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	RLL

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Designed DNN
Drawn RLL
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Reviewed BRW
Approved CLK

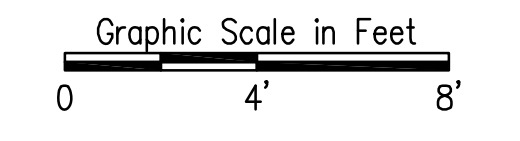
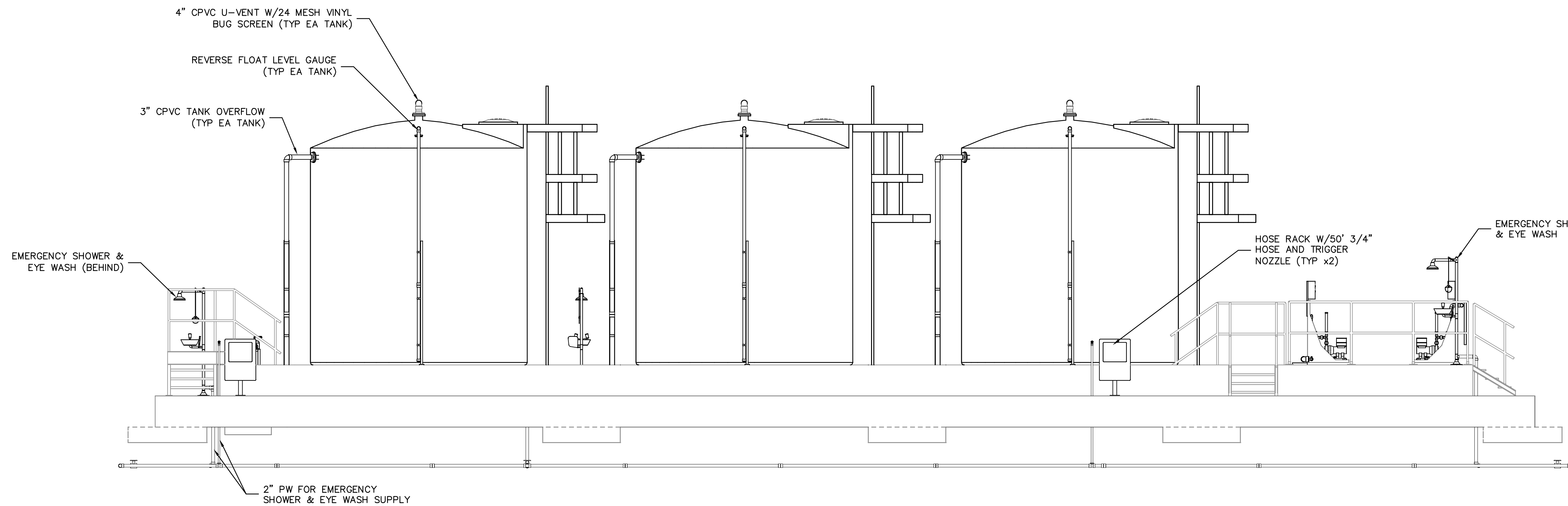
ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
PROCESS MECHANICAL
PLAN - NORTH HYPOCHLORITE STORAGE

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. PM01	SHEET NO.: 20 OF 46

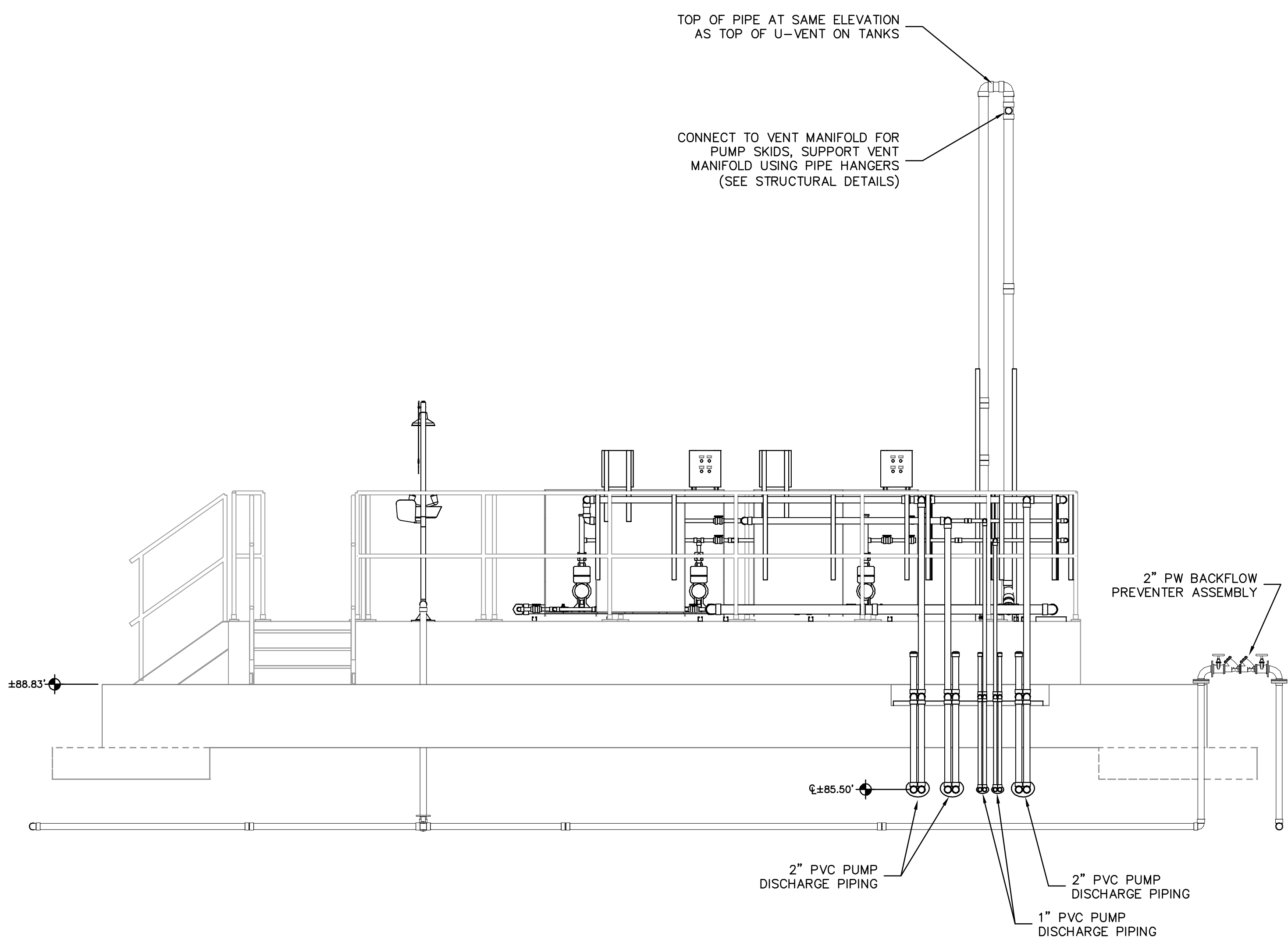


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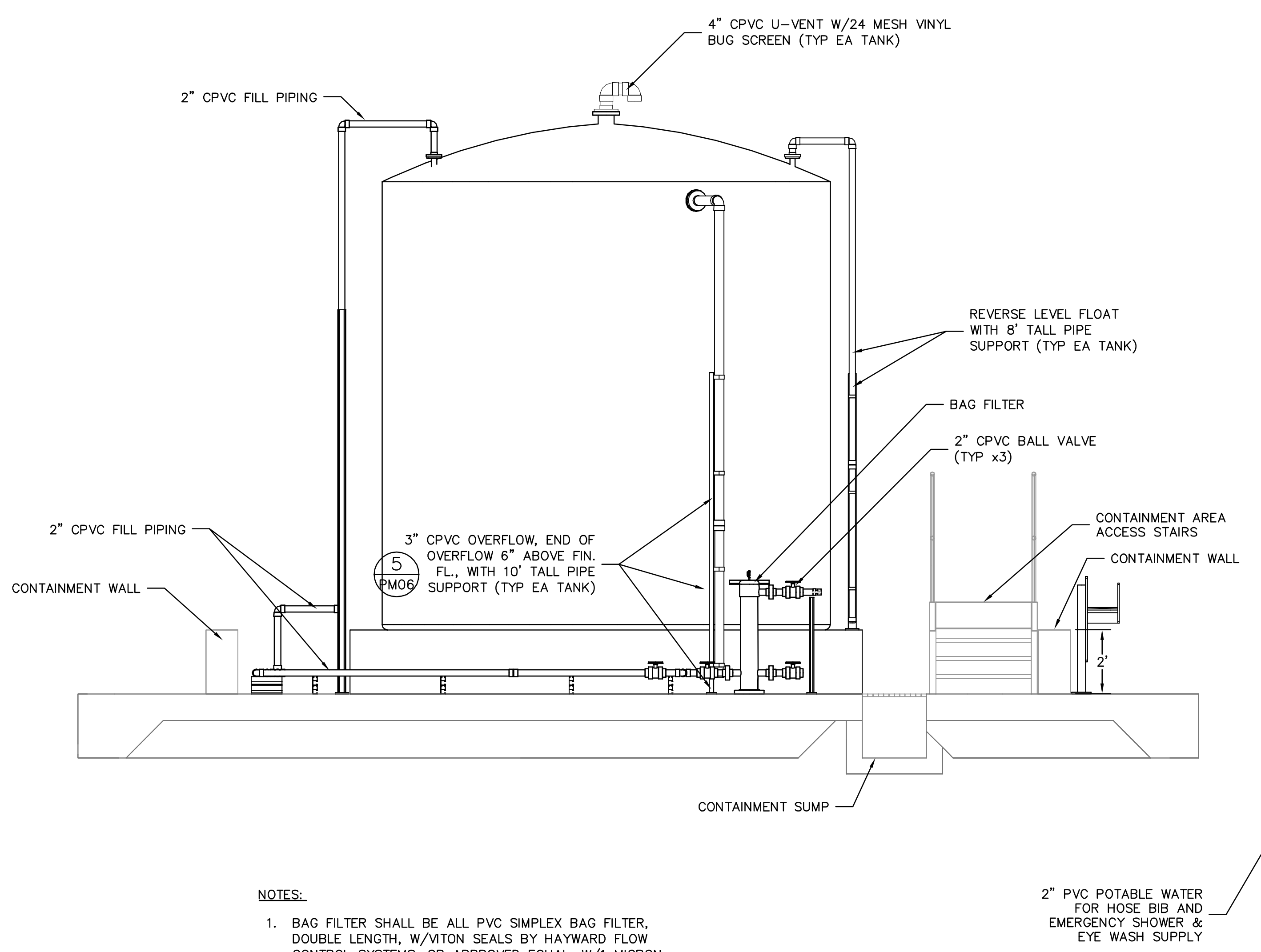
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1B NORTH HYPOCHLORITE STORAGE - EAST ELEVATION
SCALE: 1/4" = 1'-0"



1C NORTH HYPOCHLORITE STORAGE - NORTH ELEVATION
SCALE: 3/8" = 1'-0"



- NOTES:**
- BAG FILTER SHALL BE ALL PVC SIMPLEX BAG FILTER, DOUBLE LENGTH, W/VITON SEALS BY HAYWARD FLOW CONTROL SYSTEMS, OR APPROVED EQUAL, W/1 MICRON TEFLON FELT FILTER BAG, SIZE #2 W/TITANIUM RING AND TEFLON THREAD.
 - PROVIDE 1" BETWEEN OUTSIDE OF TANK AND RESTRAINTS.

1D NORTH HYPOCHLORITE STORAGE - SOUTH SECTION
SCALE: 3/8" = 1'-0"



REV	DATE	DESCRIPTION	BY
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Issue Certification
Curtis I. Kunihiro, P.E.
Florida P.E. No. 33688
Reiss Engineering, Inc.
Certificate of Authorization No. 8181
1016 Spring Villas Pt.
Winter Springs, FL 32708

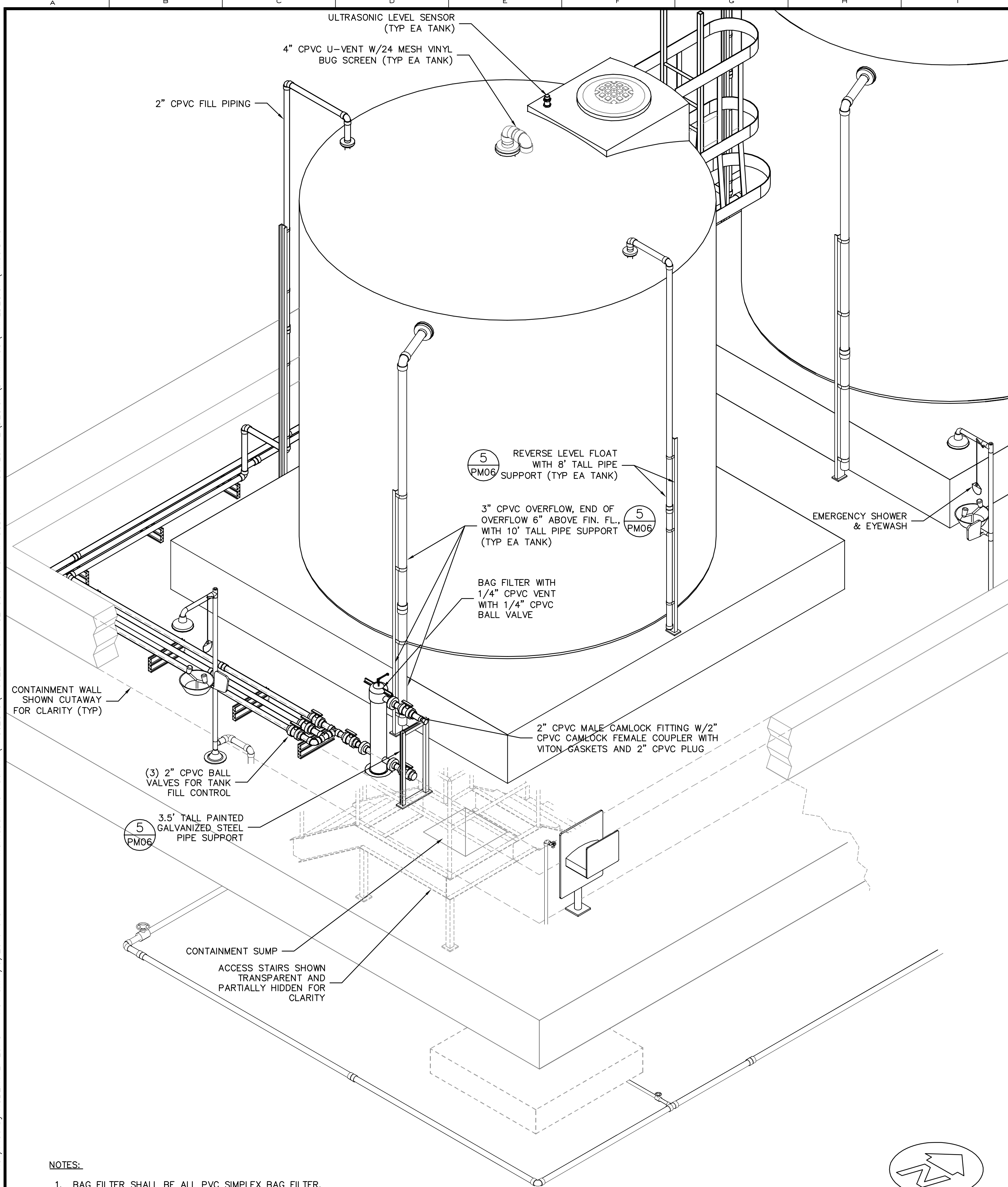
Designed DNN
Drawn RLL
Checked BRW
Reviewed BRW
Approved CLK

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
PROCESS MECHANICAL
SECTIONS - NORTH HYPOCHLORITE STORAGE

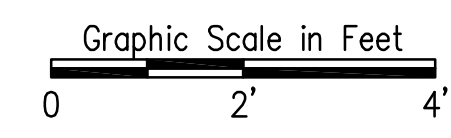
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SCALE: NOTED	REVISION: 0
DRAWING NO. PM02	SHEET NO.: 21 OF 46

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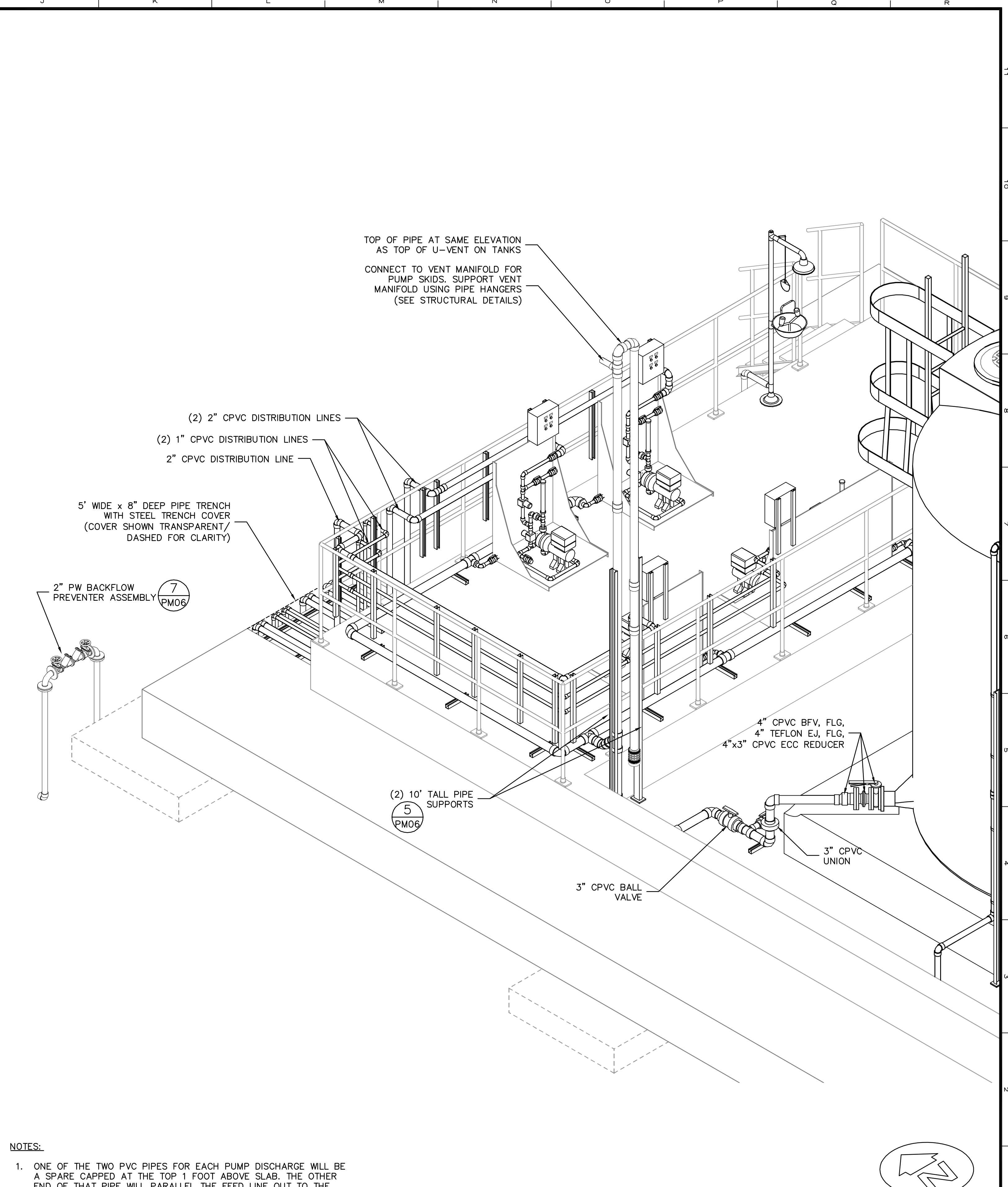
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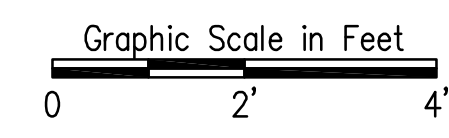
- NOTES:**
- BAG FILTER SHALL BE ALL PVC SIMPLEX BAG FILTER, DOUBLE LENGTH, W/VITON SEALS BY HAYWARD FLOW CONTROL SYSTEMS, OR APPROVED EQUAL, W/1 MICRON TEFLON FELT FILTER BAG, SIZE #2 W/TITANIUM RING AND TEFLON THREAD.
 - PROVIDE 1" BETWEEN OUTSIDE OF TANK AND RESTRAINTS.



1E NORTH HYPOCHLORITE SYSTEM - FILL ASSEMBLY DETAIL
SCALE: 1/2" = 1'-0"



- NOTES:**
- ONE OF THE TWO PVC PIPES FOR EACH PUMP DISCHARGE WILL BE A SPARE CAPPED AT THE TOP 1 FOOT ABOVE SLAB. THE OTHER END OF THAT PIPE WILL PARALLEL THE FEED LINE OUT TO THE DOSING POINT AND BE CAPPED AT 1 FOOT ABOVE FINISH GRADE.
 - PENETRATE STEEL TRENCH COVER AS REQUIRED FOR PUMP DISCHARGE PIPING.
 - PAINT ALL GALVANIZED STEEL.
 - ELECTRICAL PANEL NOT SHOWN FOR CLARITY (SEE ELECTRICAL DRAWINGS).



1F NORTH HYPOCHLORITE SYSTEM - PUMP SKIDS PIPING DETAIL
SCALE: 1/2" = 1'-0"



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Winter Springs, FL 32708

Designed DNN
Drawn RLL
Checked BRW
Reviewed BRW
Approved CIK

LINE IS 1/8" AT FULL SIZE

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

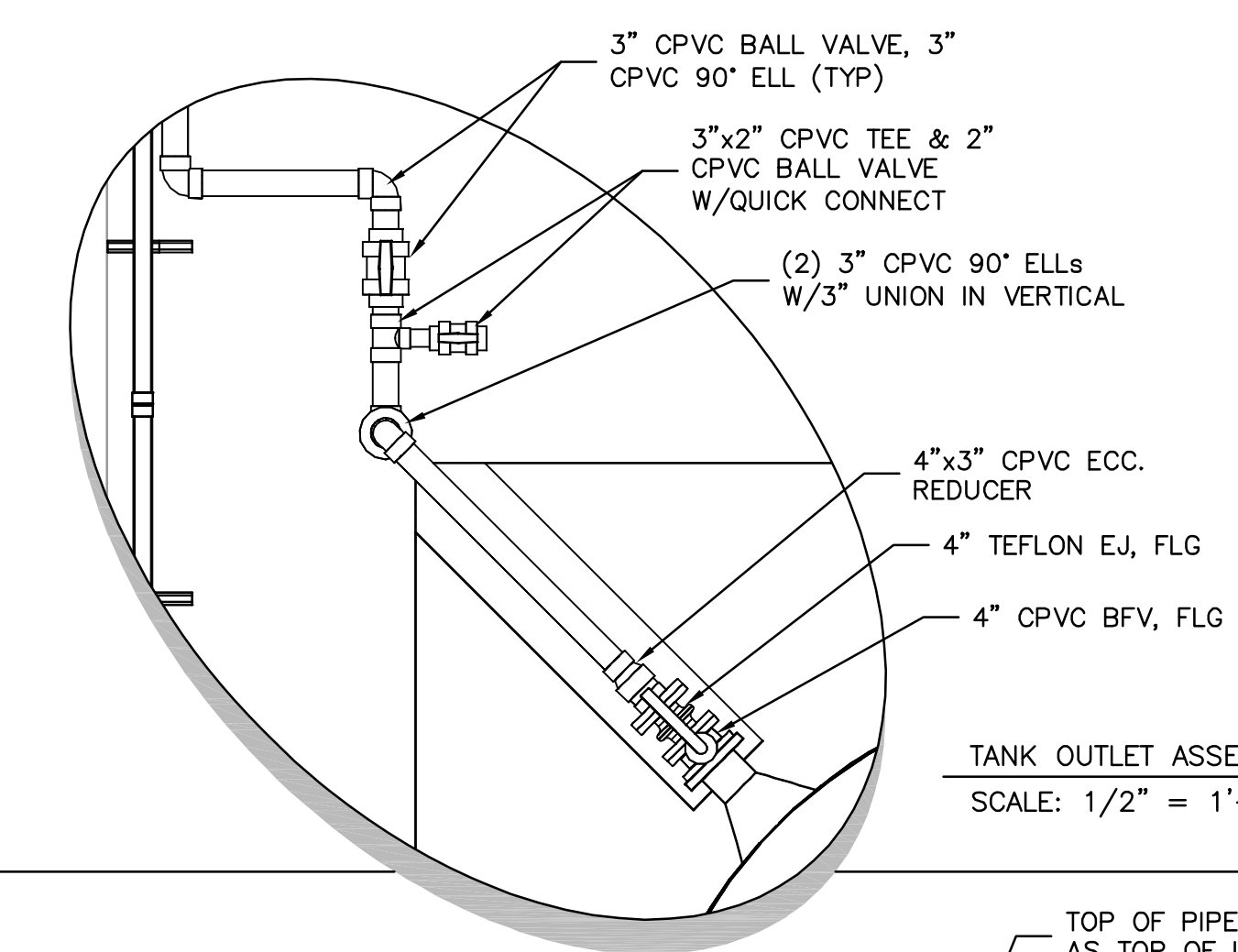
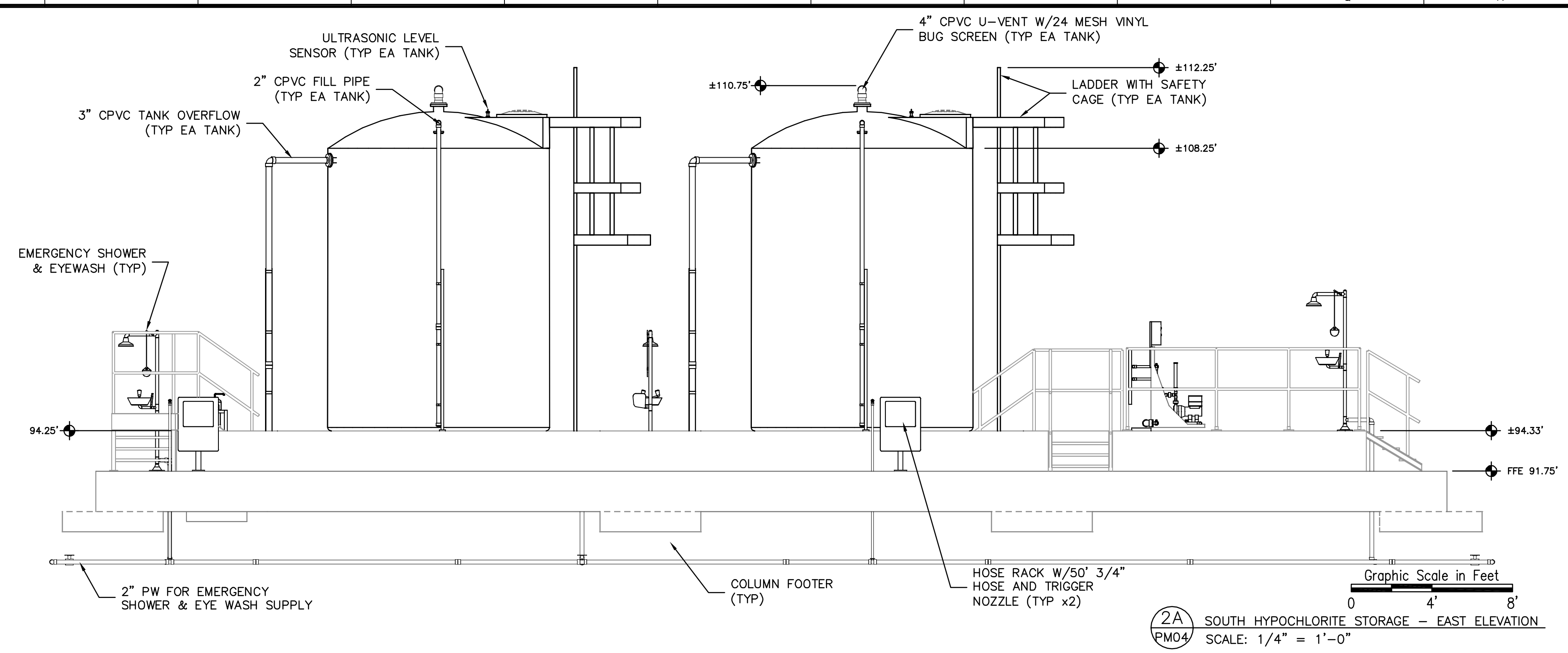
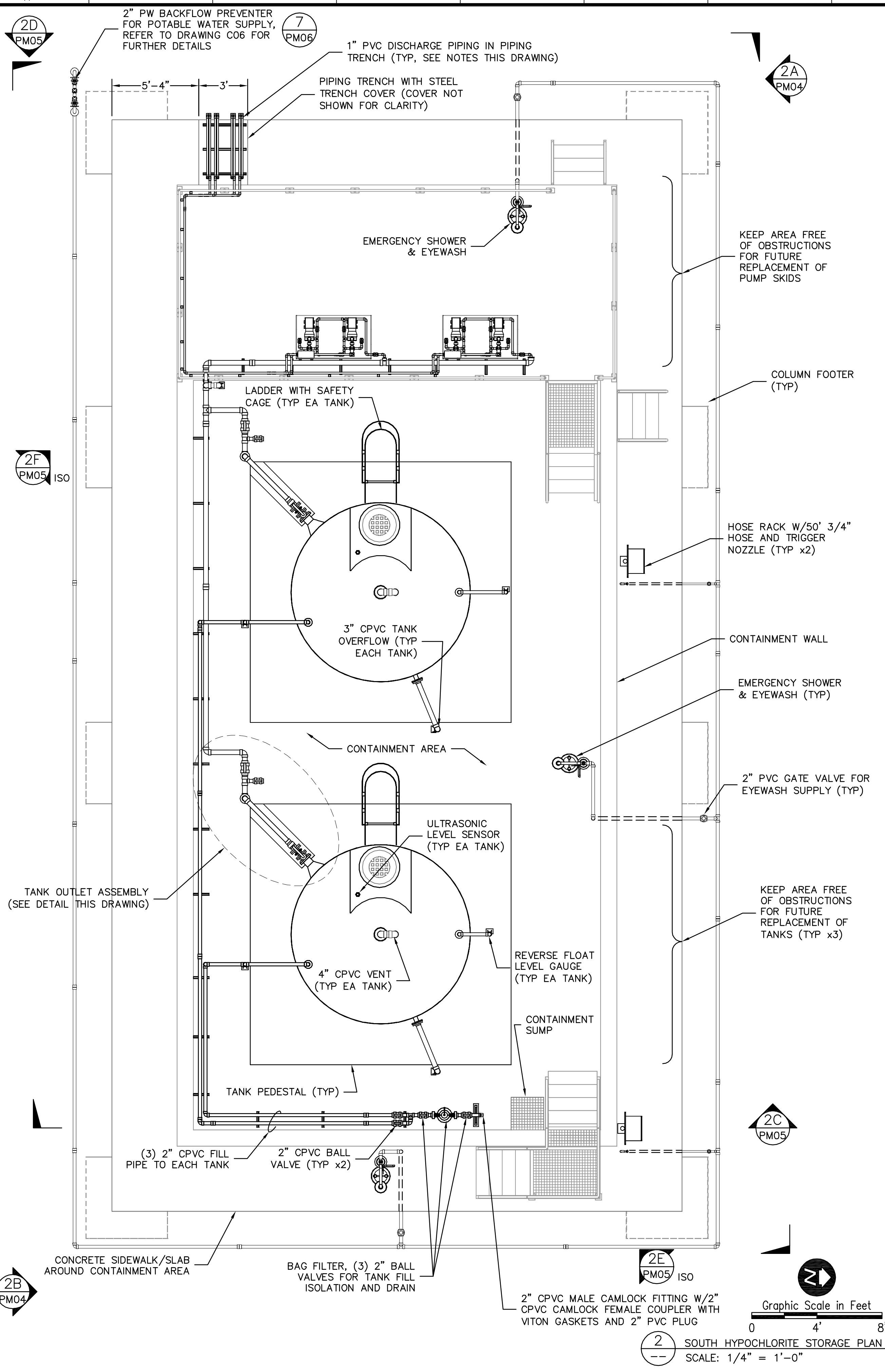
PROCESS MECHANICAL

SECTIONS AND DETAILS - NORTH HYPOCHLORITE STORAGE

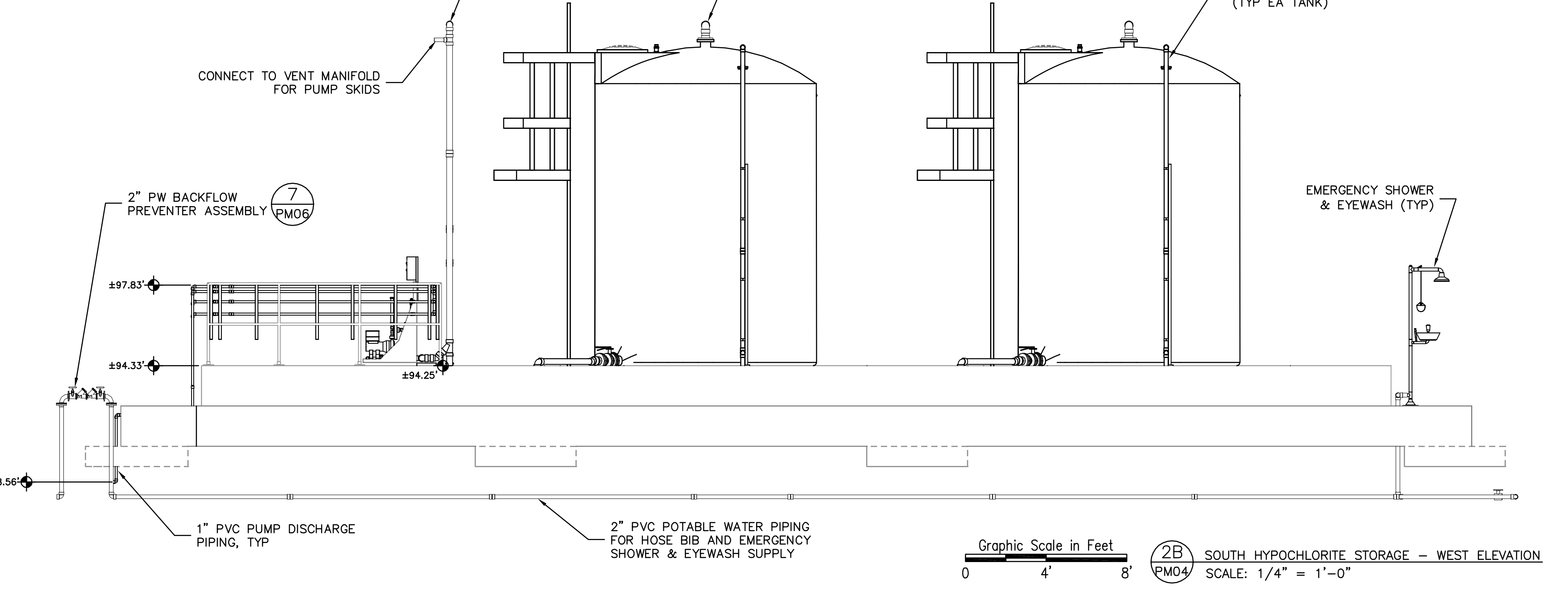
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SCALE: NOTED	REVISION: 0
DRAWING NO. PM03	SHEET NO.: 22 OF 46

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- NOTES:**
- BAG FILTER SHALL BE ALL CPVC SIMPLEX BAG FILTER, DOUBLE LENGTH, W/VITON SEALS BY HAYWARD FLOW CONTROL SYSTEMS, OR APPROVED EQUAL, W/1 MICRON TEFLON FELT FILTER BAG, SIZE #2 W/TITANIUM RING AND TEFLON THREAD.
 - PROVIDE 1" BETWEEN OUTSIDE OF TANK AND RESTRAINTS.
 - ONE OF THE TWO PVC FOR EACH PUMP DISCHARGE WILL BE A SPARE CAPPED AT THE TOP 1 FOOT ABOVE SLAB. THE OTHER END OF THAT PIPE WILL PARALLEL THE FEED LINE OUT TO THE DOSING POINT AND BE CAPPED AT 1 FOOT ABOVE FINISH GRADE.
 - PENETRATE STEEL TRENCH COVER AS REQUIRED FOR PUMP DISCHARGE PIPING.
 - ALL ABOVE-GROUND PIPING TO BE CPVC. ALL UNDERGROUND PIPING TO BE PVC.



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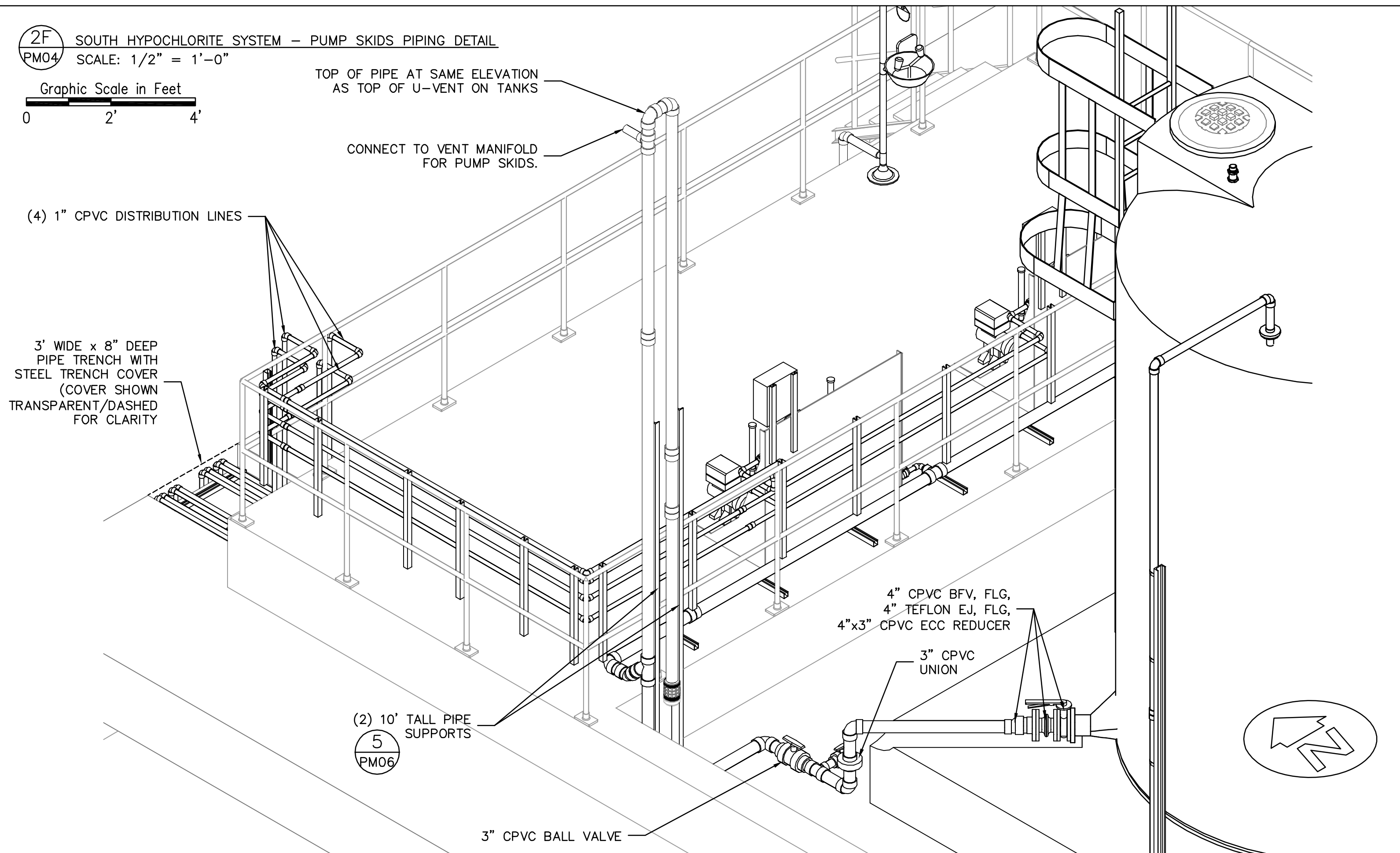
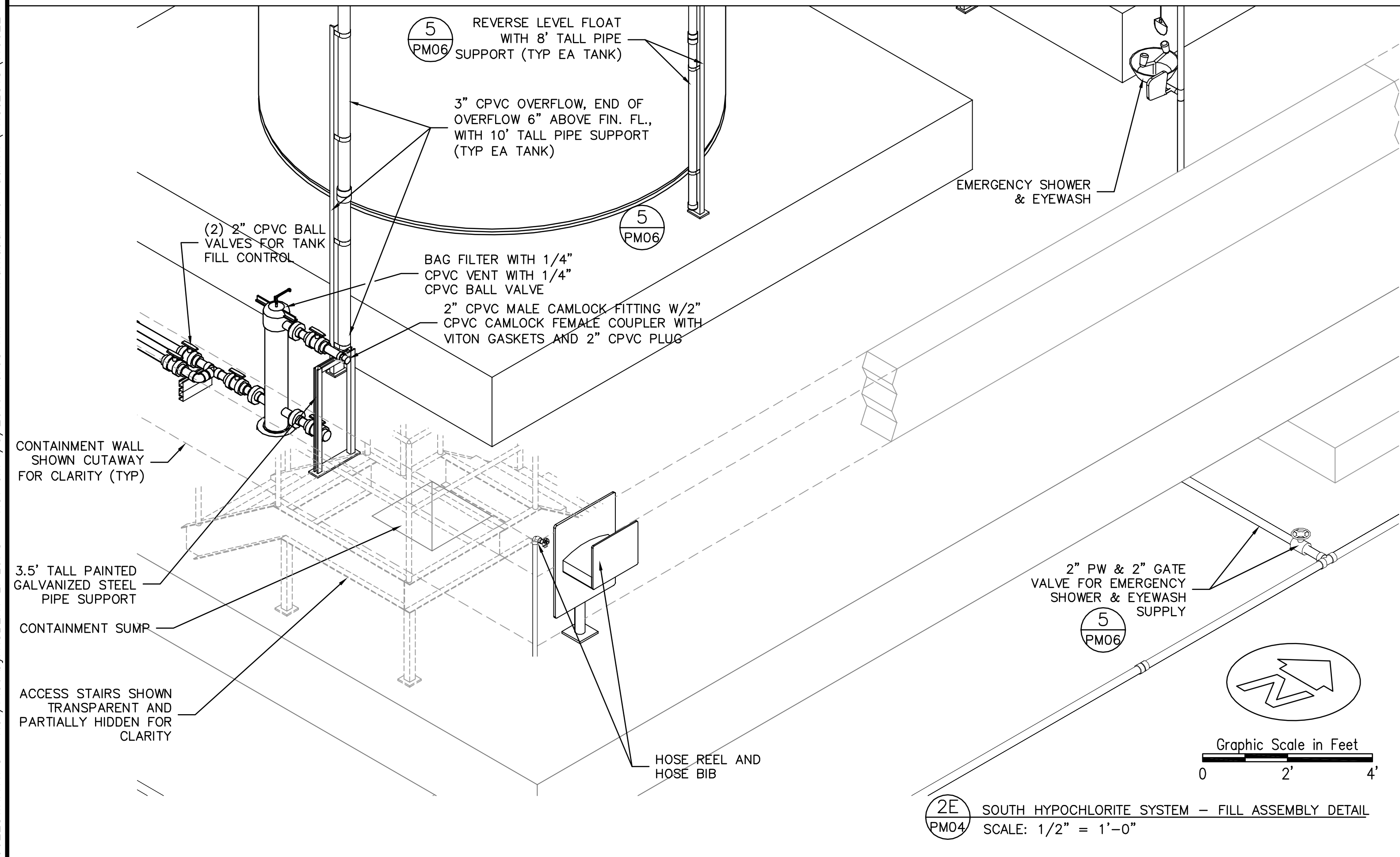
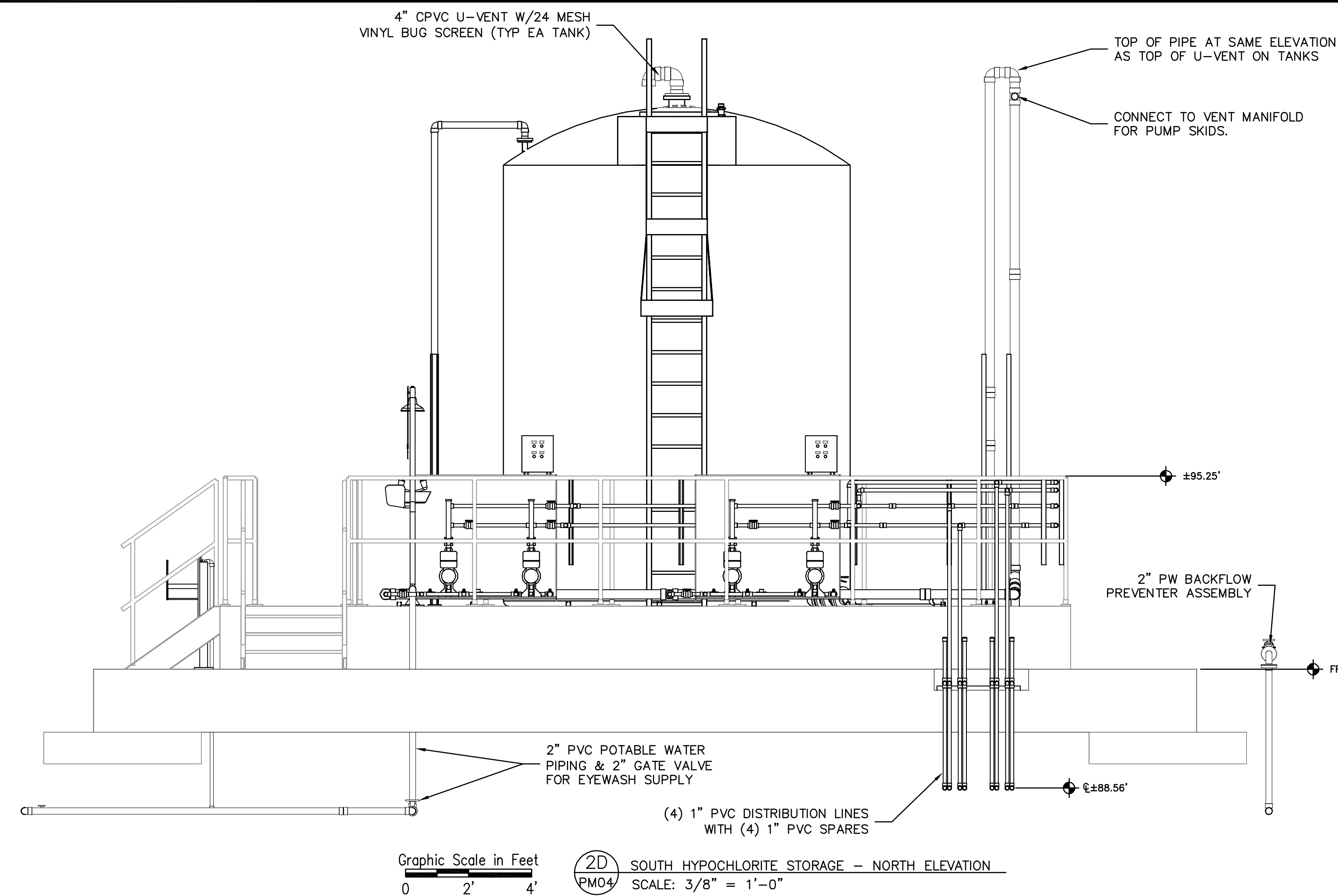
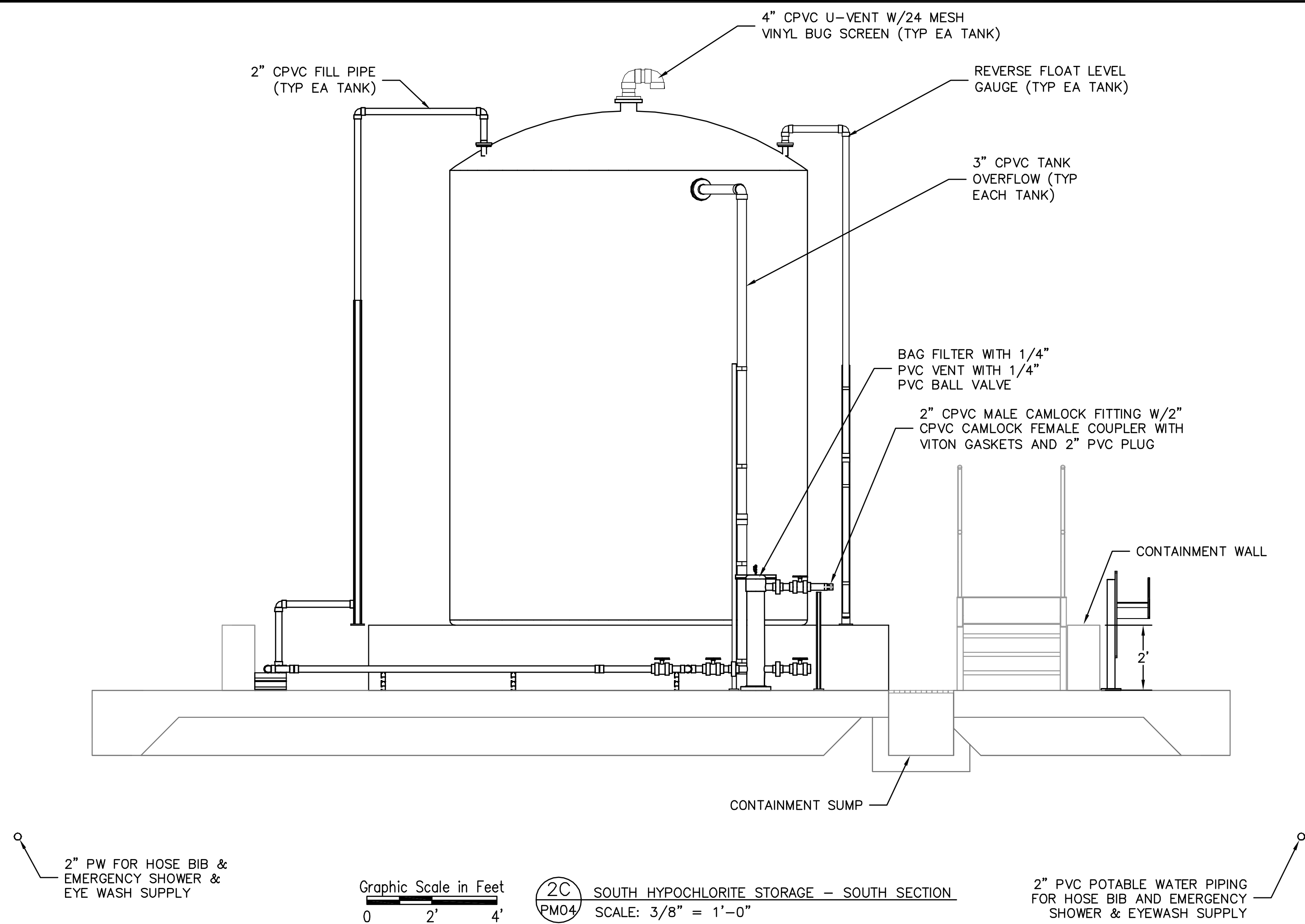
Designed DNN
Drawn RLL
Checked BRW
Reviewed BRW
Approved CLK

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
PROCESS MECHANICAL
PLAN - SOUTH HYPOCHLORITE STORAGE

PROJECT NO.: 110022	REVISION: 0
SCALE: NOTED	SHEET NO.: 23 OF 46
DRAWING NO. PM04	



Parent Sheet: Set: 110022SWRFHYPO - Rev/Plot by: ROBERT L. LUPO - Rev on: 4/5/2016 10:08 AM - Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF HYPOCHLORITE DESIGN\DRAWINGS\FINALDESIGN\PM05.DWG



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 1016 Spring Villas Pt.
 Winter Springs, FL 32708

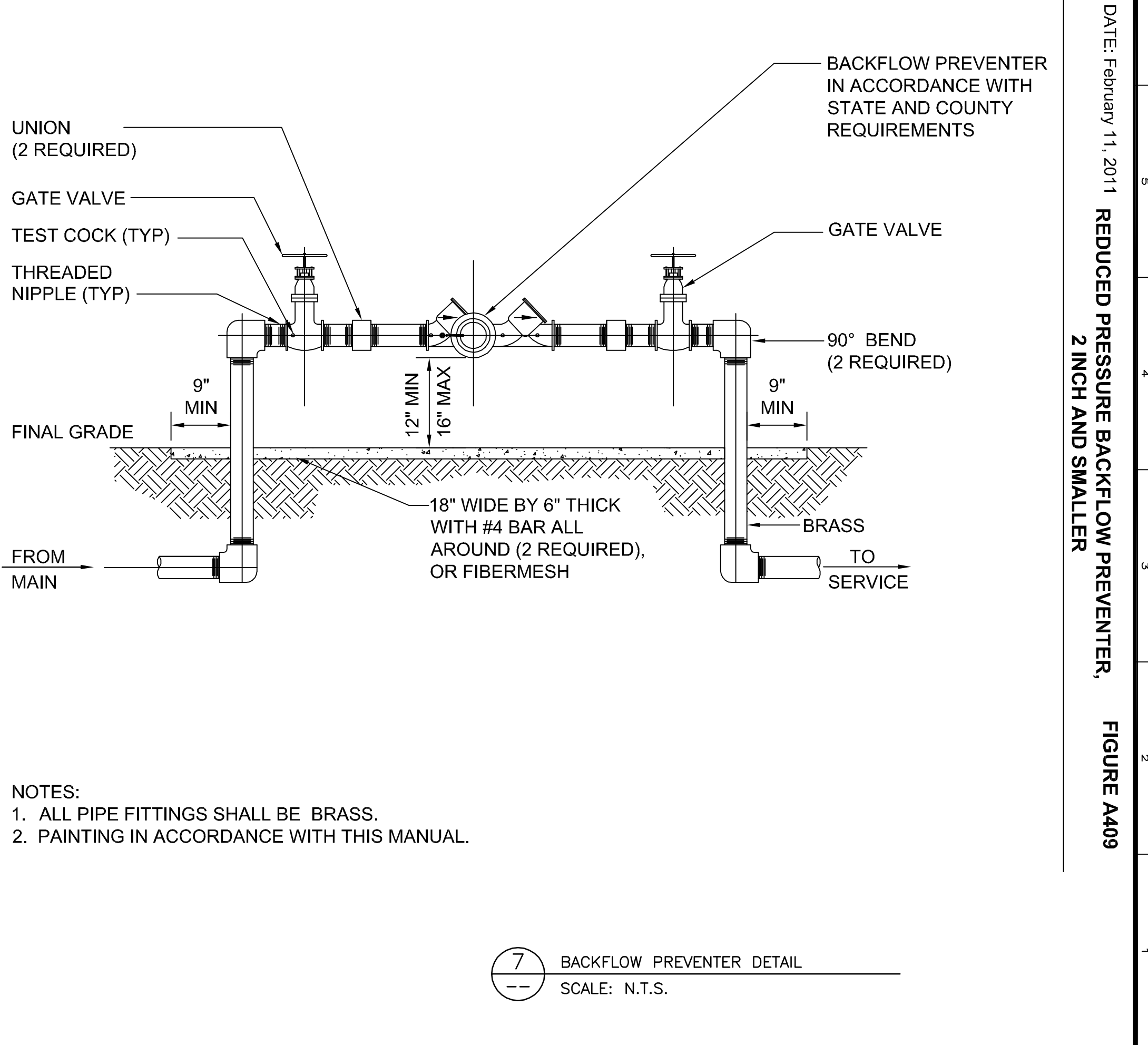
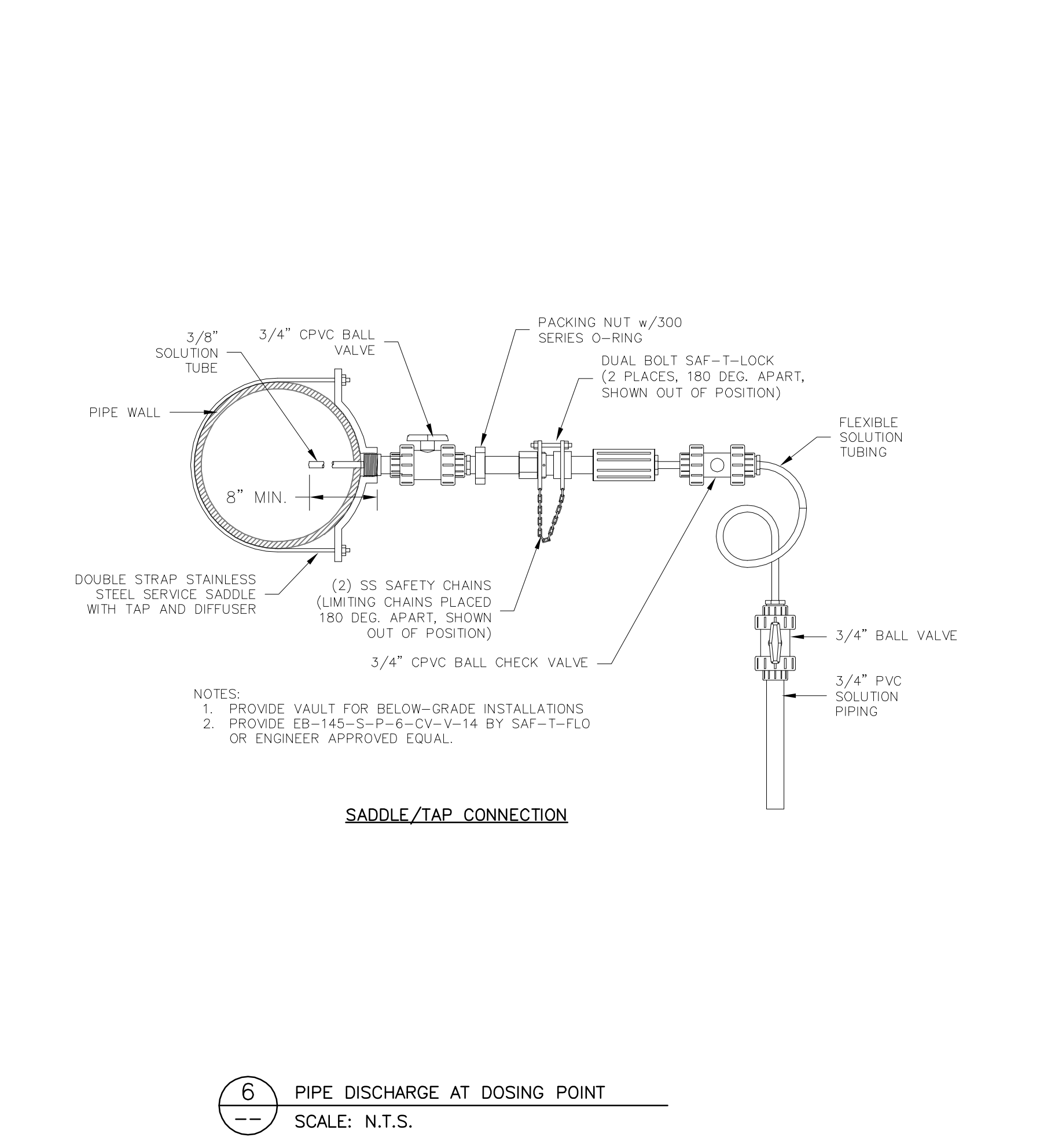
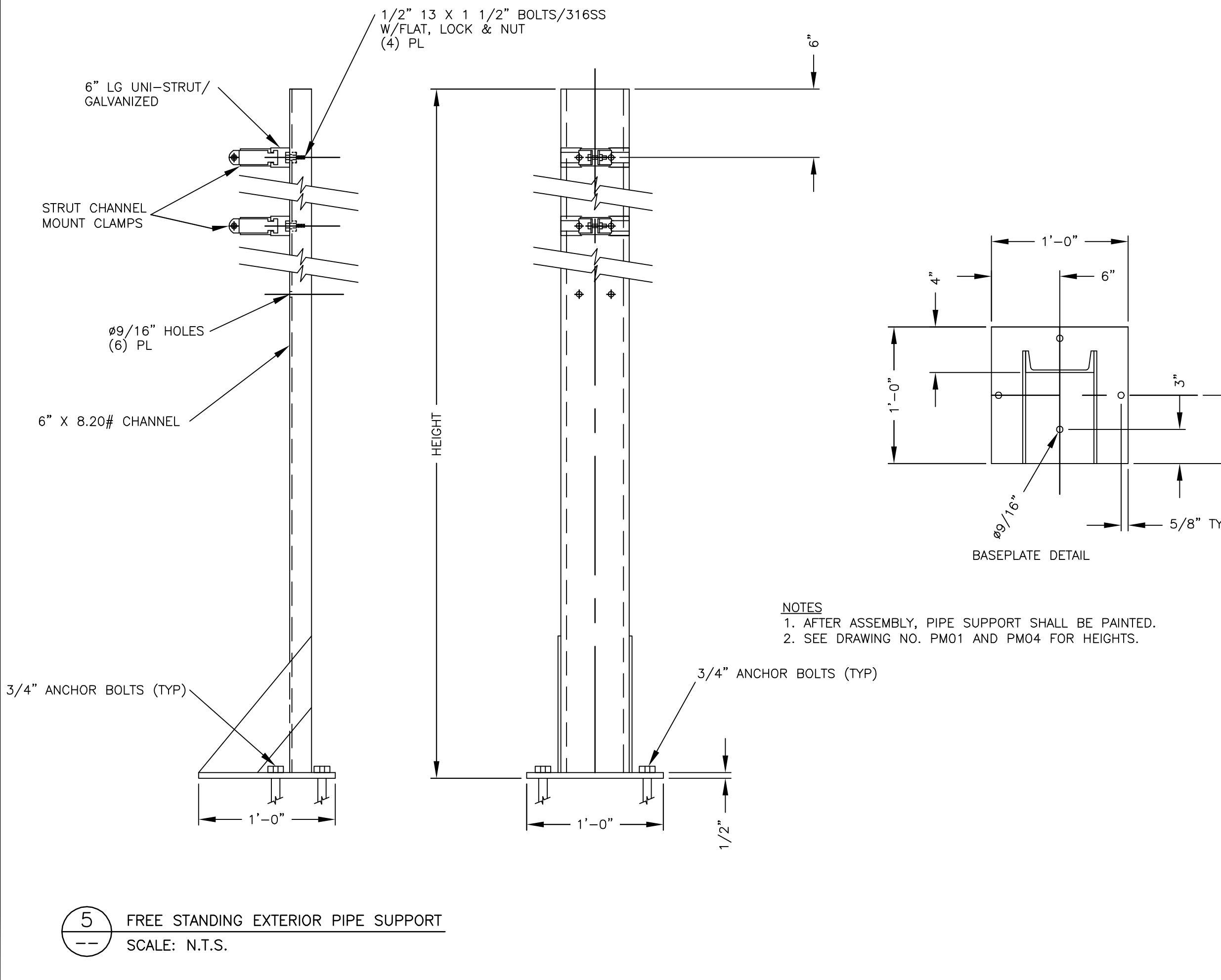
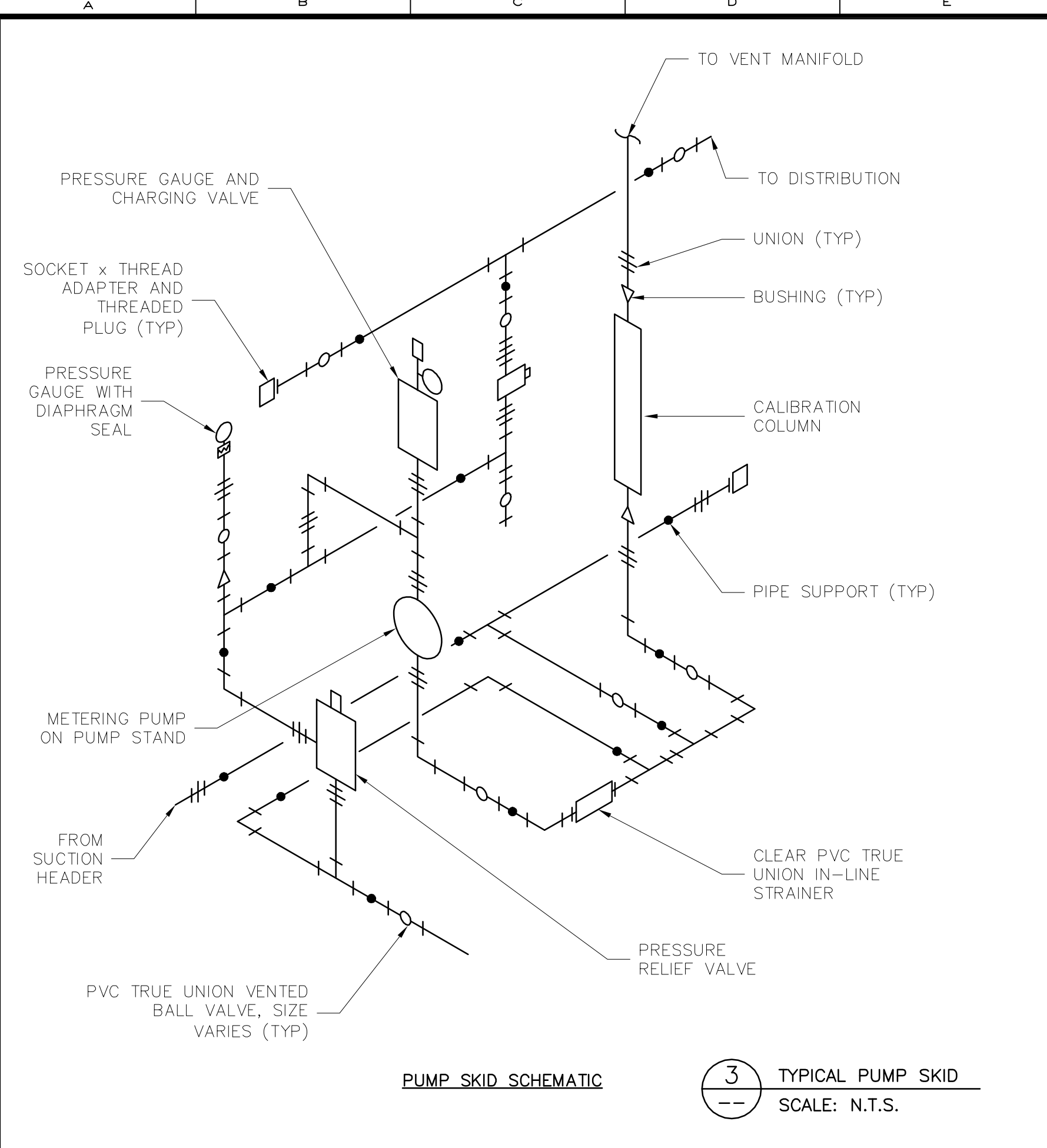
Designed DNN
 Drawn RLL
 Checked BRW
 Reviewed BRW
 Approved CLK

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 PROCESS MECHANICAL
 SECTIONS - SOUTH HYPOCHLORITE STORAGE

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. PM05	SHEET NO.: 24 OF 46

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DATE: February 11, 2011
REDUCED PRESSURE BACKFLOW PREVENTER,
2 INCH AND SMALLER
FIGURE A409



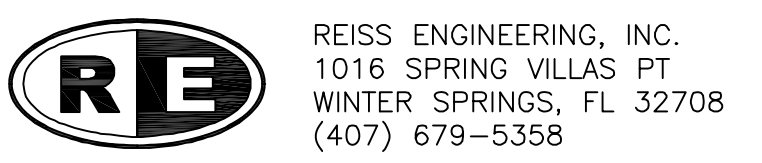
REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	RLL

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Florida P.E. No. 33688
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Certificate of Authorization No. 8181
1016 Spring Villas Pt.
Winter Springs, FL 32708

Designed_DNN
Drawn_RLL
Checked_BRW
Reviewed_BRW
Approved_CJK

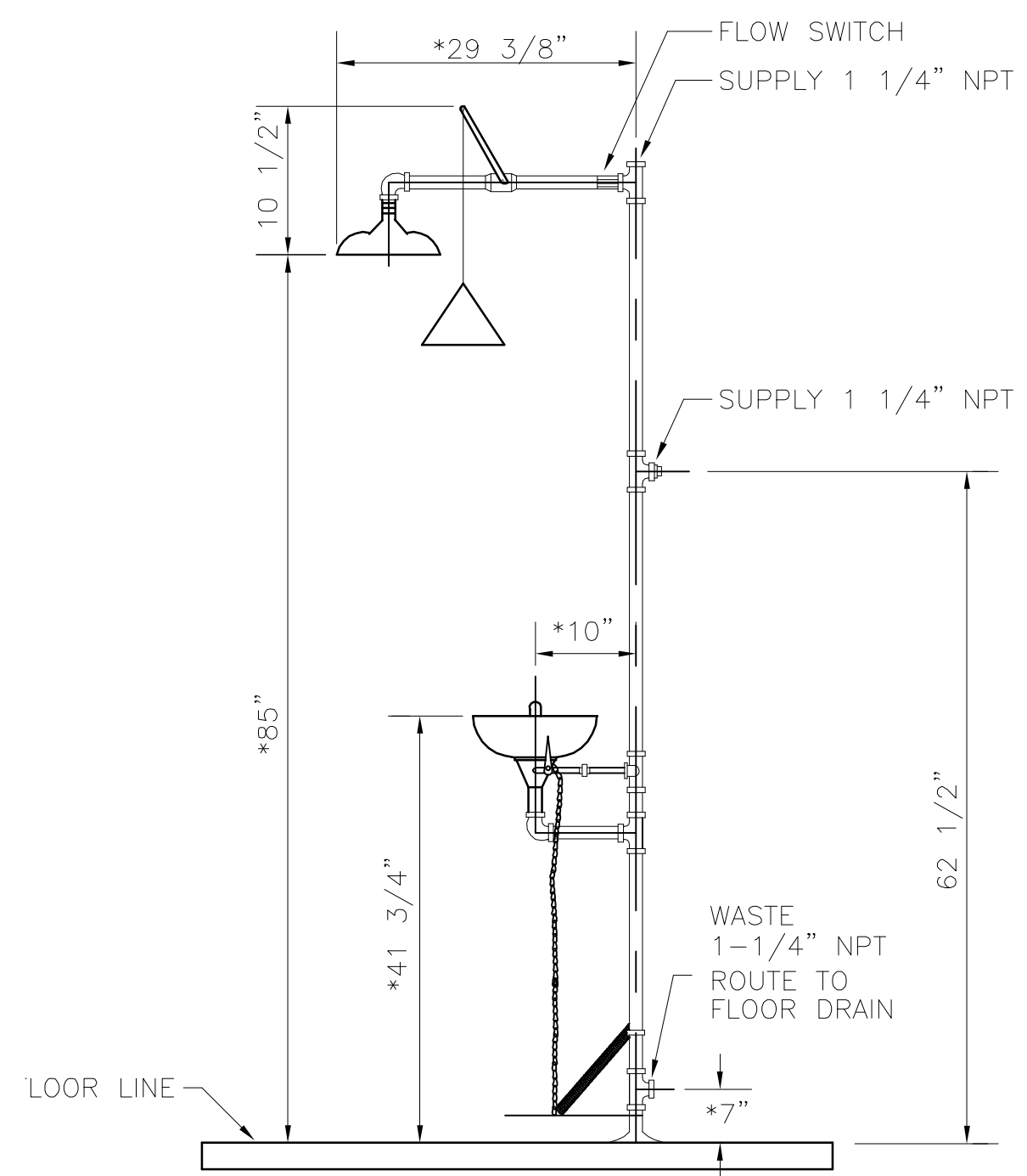
ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
PROCESS MECHANICAL
HYPOCHLORITE STORAGE SYSTEMS DETAILS

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. PM06	SHEET NO.: 25 OF 46



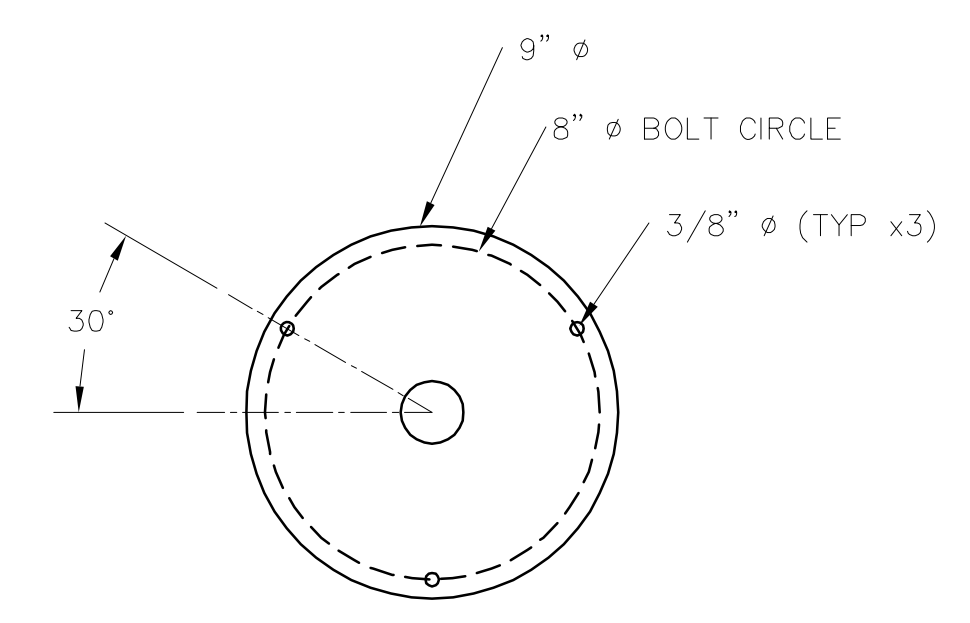
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Parent Sheet Set: 110022SWRFHYPO - Rev/Plot by: ROBERT L. LUPU - Rev on: 5/7/2015 9:46 AM - Individual File Path: R:\PROJECTS\110022 - ORANGE COUNTY SWRF SODIUM HYPOCHLORITE DESIGN\DRAWINGS\FINALDESIGN\PM07.DWG



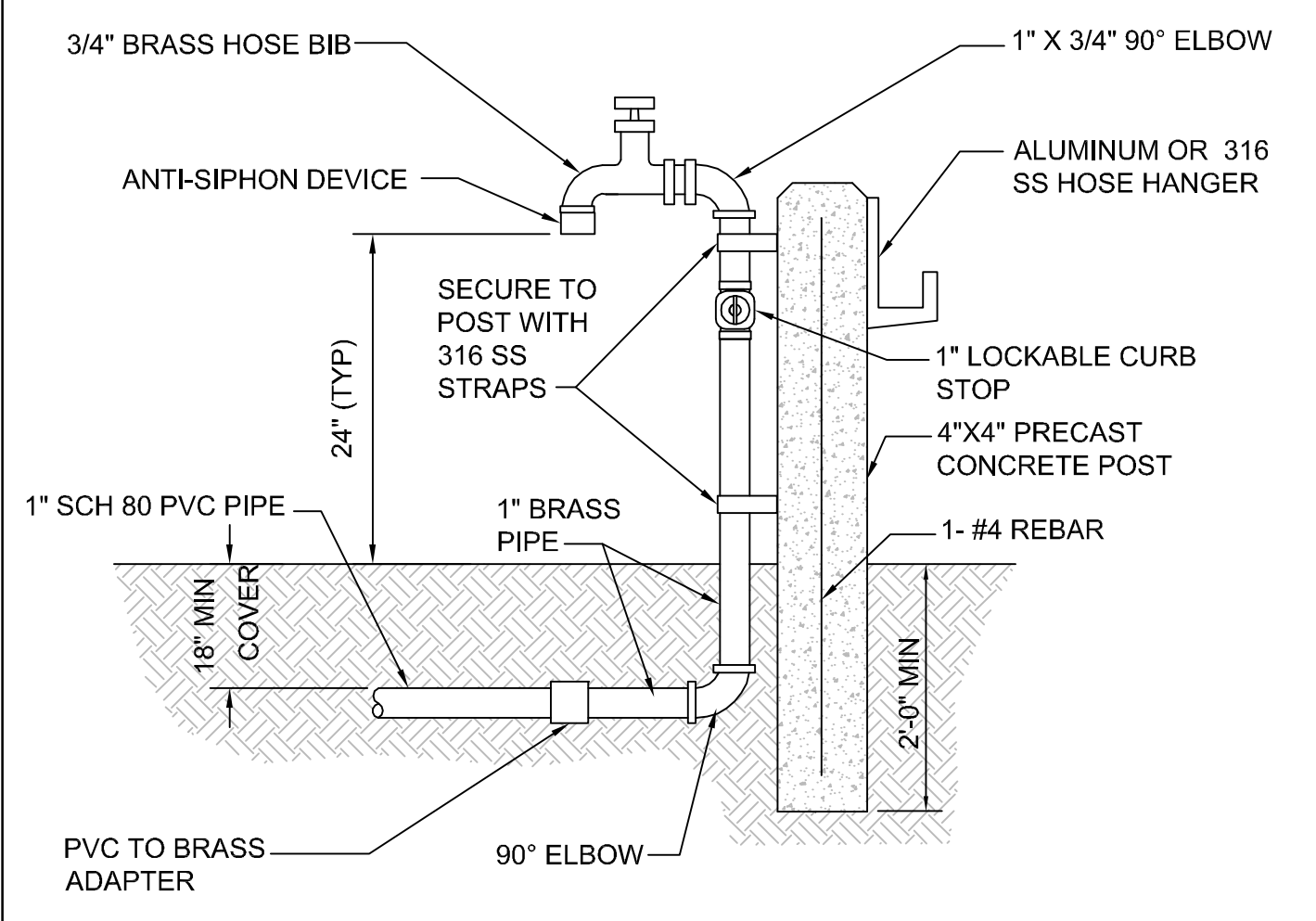
NOTE:
EMERGENCY SHOWER AND EYEWASH SHALL BE HAWS MODEL 8330, (OR EQUAL) AND FLOW SWITCH.

* THESE DIMENSIONS MAY VARY PLUS OR MINUS 1/2"



8 EMERGENCY SHOWER & EYEWASH DETAIL
SCALE: N.T.S.

DATE: February 11, 2011 **HOSE BIBB** **FIGURE A408**



NOTES:

- PROVIDE 50' LONG 3/4" HOSE, GILMOUR FLEXOGEN OR APPROVED EQUAL.
- PROVIDE HOSE NOZZLE, GILMOUR MODEL 483GF OR APPROVED EQUAL.

9 HOSE BIBB DETAIL
SCALE: N.T.S.



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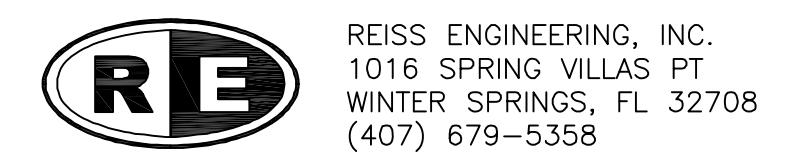
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Drawn RLL
Checked BRW
Reviewed BRW
Approved CLK

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

PROCESS MECHANICAL

DETAILS

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. PM07	SHEET NO.: 26 OF 46



Parent Sheet Set: 1100225WRHYPHO Rev/Plot by: RYAN MEEKS Rev on: 10/26/2016 2:08 PM Individual File Path: W:\2_ACTIVE PROJECTS\REISS\ORANGE COUNTY\Y11-902-PH\SWRF HYPOCHLORITE IMPROVEMENTS\Y11-902-DWG\E-01 NOTE.DWG

PLAN SYMBOLS	PLAN SYMBOLS (CONTINUED)	CONTROL DIAGRAM SYMBOLS	ABBREVIATIONS	NOTES
<p> HOME RUN TO PANELBOARD. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2#12 CONDUCTORS & 1#12 GND IN 3/4" CONDUIT.</p> <p> CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING</p> <p> CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.</p> <p> CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.</p> <p> FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION.</p> <p> CONCRETE ENCASED DUCTBANK.</p> <p> WALL MOUNTED LIGHTING FIXTURE.</p> <p> FLUORESCENT LIGHTING FIXTURE, CEILING MOUNTED.</p> <p> EXTERIOR LUMINAIRE AND MOUNTING STANDARD.</p> <p> EXISTING EXTERIOR LIGHTING.</p> <p> EMERGENCY BATTERY PACK LIGHTING FIXTURE.</p> <p> JUNCTION BOX N.E.C. SURFACE MOUNTED UNLESS INDICATED OTHERWISE.</p> <p> NEMA 4X STAINLESS STEEL JUNCTION BOX PER N.E.C., FLUSH MOUNTED UNLESS INDICATED OTHERWISE.</p> <p> FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD.</p> <p> FLUSH OR SURFACE MOUNTED POWER PANELBOARD.</p> <p> DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING.</p> <p> LIQUID FILLED TRANSFORMER, KVA RATING AS SHOWN</p> <p> SINGLE RECEPTACLE, RATING AS SHOWN</p> <p> 20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.</p> <p> 20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR OR 6" ABOVE FINISHED COUNTER AS REQUIRED (AFC)</p> <p> 20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH, FLOOR MOUNTED OUTLET BOX.</p> <p> 20A, 125V, 3W DUPLEX RECEPTACLE, SURFACE MOUNTED.</p> <p> SURFACE MOUNTED GROUND FAULT DUPLEX WEATHERPROOF RECEPTACLE 20A, 125V, 3W - MOUNTED 48" ABOVE FINISHED GRADE, UNLESS OTHERWISE NOTED.</p> <p> 20A, 125, 3W DOUBLE DUPLEX RECEPTACLE IN FLUSH OUTLET BOX.</p> <p> FLUSH MOUNTED GROUND FAULT DUPLEX RECEPTACLE 20A, 125V, 3W -MOUNTED 48" ABOVE FINISHED FLOOR.</p> <p> DISCONNECT RACK MOUNTED.</p> <p> HANDS/OFF/AUTOMATIC & DISCONNECT RACK MOUNTED WITH JUNCTION BOX MOUNTED BELOW OFF REMOTE</p> <p> SINGLE POLE SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED (TYPICAL).</p> <p> SINGLE POLE SWITCH, SURFACE MOUNTED.</p> <p> THREE-WAY SWITCH IN FLUSH OUTLET BOX.</p> <p> FOUR-WAY SWITCH IN FLUSH OUTLET BOX.</p> <p> NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.</p> <p> 30/20 NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS.</p> <p> ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.</p> <p> FUSED DISCONNECT SWITCH(30/20: 30=SWITCH RATING, 20=FUSE RATING) 3 POLE-UNLESS NOTED OTHERWISE.</p> <p> MOTORIZED VALVE</p> <p> COMBINATION MOTOR STARTER, DISCONNECT SWITCH</p> <p> VARIABLE FREQUENCY DRIVE</p> <p> CONTROL PULLBOX</p> <p> POWER MANHOLE</p> <p> FIBER PATCH PANEL</p>	<p> FLOW SWITCH</p> <p> FLOW ELEMENT</p> <p> LEVEL ELEMENT</p> <p> LIMIT SWITCH</p> <p> PRESSURE SWITCH</p> <p> PRESSURE SWITCH LOW</p> <p> SOLENOID VALVE</p> <p> LIQUID LEVEL SWITCH</p> <p> LOW PRESSURE SWITCH</p> <p> ANALYZING INDICATING TRANSMITTER</p> <p> FLOW INDICATING TRANSMITTER</p> <p> LEVEL INDICATING TRANSMITTER</p> <p> TEMPERATURE SWITCH</p> <p> TORQUE SWITCH</p> <p> SPACE HEATER</p> <p> SEAL FAIL</p> <p> TEMPERATURE SWITCH</p> <p> ANALYTICAL ELEMENT</p> <p> OFF/REMOTE</p> <p> HAND/OFF/AUTO</p> <p> LOCKOUT SWITCH</p> <p> PRESSURE DIFFERENTIAL SWITCH</p>	<p> DUPLEX RECEPTACLE</p> <p> NORMALLY OPEN CONTACT</p> <p> NORMALLY CLOSED CONTACT</p> <p> LIMIT SWITCH, NORMALLY OPEN</p> <p> LIMIT SWITCH, NORMALLY CLOSED</p> <p> PRESSURE SWITCH, NORMALLY OPEN</p> <p> PRESSURE SWITCH, NORMALLY CLOSED</p> <p> FLOAT SWITCH, NORMALLY OPEN</p> <p> FLOAT SWITCH, NORMALLY CLOSED</p> <p> FLOW SWITCH, NORMALLY OPEN</p> <p> FLOW SWITCH, NORMALLY CLOSED</p> <p> TEMPERATURE SWITCH, NORMALLY OPEN</p> <p> TEMPERATURE SWITCH, NORMALLY CLOSED</p> <p> NORMALLY OPEN, TIMED TO CLOSE CONTACT</p> <p> NORMALLY CLOSED, TIMED TO OPEN CONTACT</p> <p> NORMALLY CLOSED, TIMED TO CLOSE CONTACT</p> <p> NORMALLY OPEN, TIMED TO OPEN CONTACT</p> <p> SEAL FAIL</p> <p> LIMIT SWITCH</p> <p> FLOW SWITCH</p> <p> PRESSURE SWITCH</p> <p> SOLENOID VALVE</p> <p> LIQUID LEVEL SWITCH</p> <p> VIBRATION SWITCH</p> <p> ALARM RELAY</p> <p> ALARM TIMER</p> <p> CONTROL RELAY</p> <p> MOTOR STARTER</p> <p> TIMING RELAY</p> <p> TORQUE SWITCH</p> <p> ALARM INDICATING LIGHT</p> <p> RUN INDICATING LIGHT</p> <p> MOMENTARY CONTACT PUSHBUTTON</p> <p> MOMENTARY BREAK PUSHBUTTON OR RESET</p> <p> EMERGENCY LOCKOUT SWITCH. LOCKABLE IN THE OFF POSITION</p> <p> KEYED SWITCH</p> <p> MAINTAINED CONTACT ON-OFF SWITCH</p> <p> START/STOP(S/S) CONTROL SWITCH</p> <p> MAINTAINED CONTACT</p> <p> FUSE</p> <p> MOLDED CASE CIRCUIT BREAKER</p> <p> CONTROL POWER TRANSFORMER</p> <p> REMOTE TERMINAL BLOCK POINT</p>	<p>A AMPERES</p> <p>AFF ABOVE FINISHED FLOOR</p> <p>AIC AMPS INTERRUPTING CURRENT</p> <p>ATS AUTOMATIC TRANSFER SWITCH</p> <p>BKR BREAKER</p> <p>BLDG BUILDING</p> <p>CCC CHLORINE CONTACT CHAMBER</p> <p>CKT CIRCUIT</p> <p>CMH CONTROL MANHOLE</p> <p>CPT CONTROL POWER TRANSFORMER</p> <p>CT CURRENT TRANSFORMER</p> <p>DH DATA HIGHWAY</p> <p>DISC DISCONNECT</p> <p>EFF EFFLUENT</p> <p>ELEC ELECTRICAL</p> <p>EM EMERGENCY</p> <p>ENCL ENCLOSURE</p> <p>ESB ENERGY SAVING BALLAST</p> <p>ETM ELAPSED TIME METER</p> <p>EUH ELECTRIC UNIT HEATER</p> <p>EXH EXHAUST</p> <p>EXIST EXISTING</p> <p>FACP FIRE ALARM CONTROL PANEL</p> <p>FO FIBER OPTIC</p> <p>FOTC FIBER OPTIC TERMINATION CABINET</p> <p>FPP FIBER PATCH PANEL</p> <p>FVNR FULL VOLTAGE NON-REVERSING</p> <p>GFR GROUND FAULT RECEPTACLE</p> <p>GFI GROUND FAULT INTERRUPTER</p> <p>GND GROUND</p> <p>GRS GALVANIZED RIGID STEEL</p> <p>HOA HAND-OFF-AUTOMATIC</p> <p>HOR HAND-OFF-REMOTE</p> <p>HP HORSEPOWER</p> <p>HPS HIGH PRESSURE SODIUM</p> <p>HWY HIGHWAY</p> <p>KVA KILO VOLT-AMPERES</p> <p>KW KILOWATT</p> <p>LA LIGHTNING ARRESTOR</p> <p>LCP LOCAL CONTROL PANEL</p> <p>LED LIGHT EMITTING DIODE</p> <p>LF LINEAR FEET</p> <p>LTG LIGHTING</p> <p>LOS LOCK OUT SWITCH</p> <p>MAX MAXIMUM</p> <p>MCB MAIN CIRCUIT BREAKER</p> <p>MDP MAIN DISTRIBUTION PANEL</p> <p>MFR MANUFACTURER</p> <p>MIN MINIMUM</p> <p>MLO MAIN LUGS ONLY</p> <p>MOV MOTORIZED VALVE</p> <p>MTD MOUNTED</p> <p>NEC NATIONAL ELECTRICAL CODE</p> <p>N NEUTRAL</p> <p>NTS NOT TO SCALE</p> <p>OH OVERHEAD</p> <p>P POLE</p> <p>PCP PROCESS CONTROL PANEL</p> <p>PLC PROGRAMMABLE LOGIC CONTROLLER</p> <p>PM PHASE MONITOR</p> <p>PMH POWER MANHOLE</p> <p>PNL PANEL</p> <p>PS PUMP STATION</p> <p>PVC POLYVINYL CHLORIDE</p> <p>ROF RATE OF FLOW</p> <p>RTU REMOTE TELEMETRY UNIT</p> <p>SC SURGE CAPACITOR</p> <p>SCADA SUPERVISORY CONTROL & DATA ACQUISITION</p> <p>SH SHIELDED</p> <p>SLD SINGLE LINE DIAGRAM</p> <p>SLG SLUICE GATE</p> <p>SPD SURGE PROTECTIVE DEVICE</p> <p>SS STAINLESS STEEL</p> <p>SSS SOLID STATE STARTER</p> <p>STR STARTER</p> <p>SW SWITCH</p> <p>TBR TO BE REMOVED</p> <p>TC TERMINATION CABINET</p> <p>TYP TYPICAL</p> <p>UG UNDERGROUND</p> <p>UPS UNINTERRUPTABLE POWER SUPPLY</p> <p>V VOLT</p> <p>VFD VARIABLE FREQUENCY DRIVE</p> <p>W WATT</p> <p>W/ WITH</p> <p>WP WEATHERPROOF</p> <p>XFMR TRANSFORMER</p> <p>ø PHASE</p>	<ol style="list-style-type: none"> ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL NEW ELECTRICAL WORK INDICATED. ELECTRICAL CONTRACTOR SHALL VISIT JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING ELECTRICAL INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. EXISTING CONDITIONS OF ELECTRICAL EQUIPMENT, LIGHT FIXTURES, ETC... THAT ARE PART OF THE FINAL SYSTEM SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO SUBMITTING HIS BID. ALL WORK SHALL BE DONE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE, ORANGE COUNTY STANDARDS, THE FLORIDA BUILDING CODE AND SHALL COMPLY WITH ALL LOCAL RULES AND ORDINANCES. MINIMUM WIRE SIZE SHALL BE #12 A.W.G. EXCLUDING CONTROL WIRING, UNLESS OTHERWISE NOTED. ALL CONDUCTORS SHALL BE COPPER. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE LATEST EDITION OF THE N.E.C. OR LOCAL CODES. ALL CONDUITS SHALL HAVE A BOND WIRE SIZED PER TABLE 250 OF THE NATIONAL ELECTRICAL CODE. ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY ENGINEER/OWNER. CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN TWO YEARS FROM DATE OF ACCEPTANCE. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED OF HIS WORK. ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS W/ TYPE WRITTEN DIRECTORIES (NEW & EXISTING). ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. REFER TO THE MECHANICAL DRAWINGS AND THE APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT. SHADED/SLANTED TEXT DENOTES EXISTING EQUIPMENT OR STRUCTURES. NON-SHADED TEXT DENOTES NEW EQUIPMENT, STRUCTURES AND WORK. SLANTED TEXT (NOT SHADED) DENOTES FUTURE EQUIPMENT, STRUCTURES AND WORK.
SINGLE LINE DIAGRAM SYMBOLS				
<p> COMBINATION MOTOR STARTER</p> <p> VOLTMETER</p> <p> AMMETER</p> <p> THREE PHASE VOLT SWITCH</p> <p> THREE PHASE AMP SWITCH</p> <p> GROUND FAULT INTERRUPTER</p> <p> WATT HOUR METER</p> <p> FUSE</p> <p> CAPACITOR</p> <p> DRAW-OUT CIRCUIT BREAKER</p> <p> MOLDED CASE CIRCUIT BREAKER</p> <p> TYPICAL SELECTOR SWITCH AND CONTROL SEE ELEMENTARY DIAGRAMS FOR EXACT TYPE.</p> <p> ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.</p> <p> SERVICE OR EQUIPMENT GROUND.</p> <p> NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.</p> <p> NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS.</p> <p> CROUSE HINDS EYSR FITTING</p> <p> CURRENT TRANSFORMERS</p> <p> POTENTIAL TRANSFORMERS.</p>				



REV	DATE	DESCRIPTION	BY
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Lillian M. Reyes, P.E.
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Orlando, FL 32812

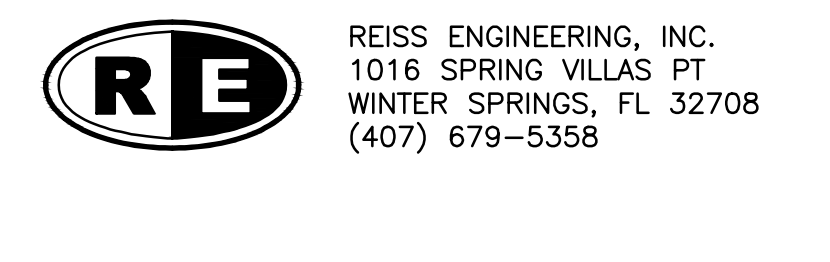
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Drawn_RRM
Checked_LMR
Reviewed_DD
Approved_LMR

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

ELECTRICAL

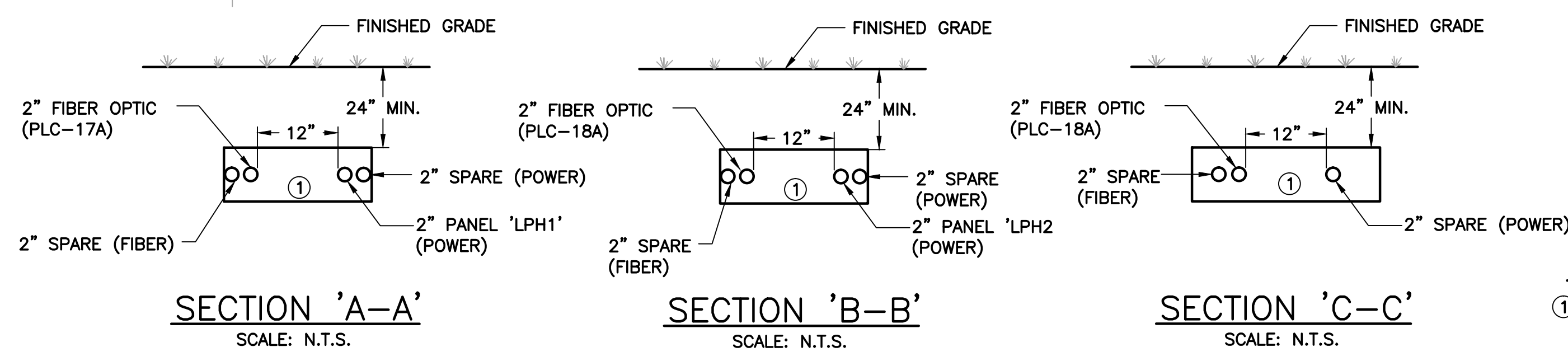
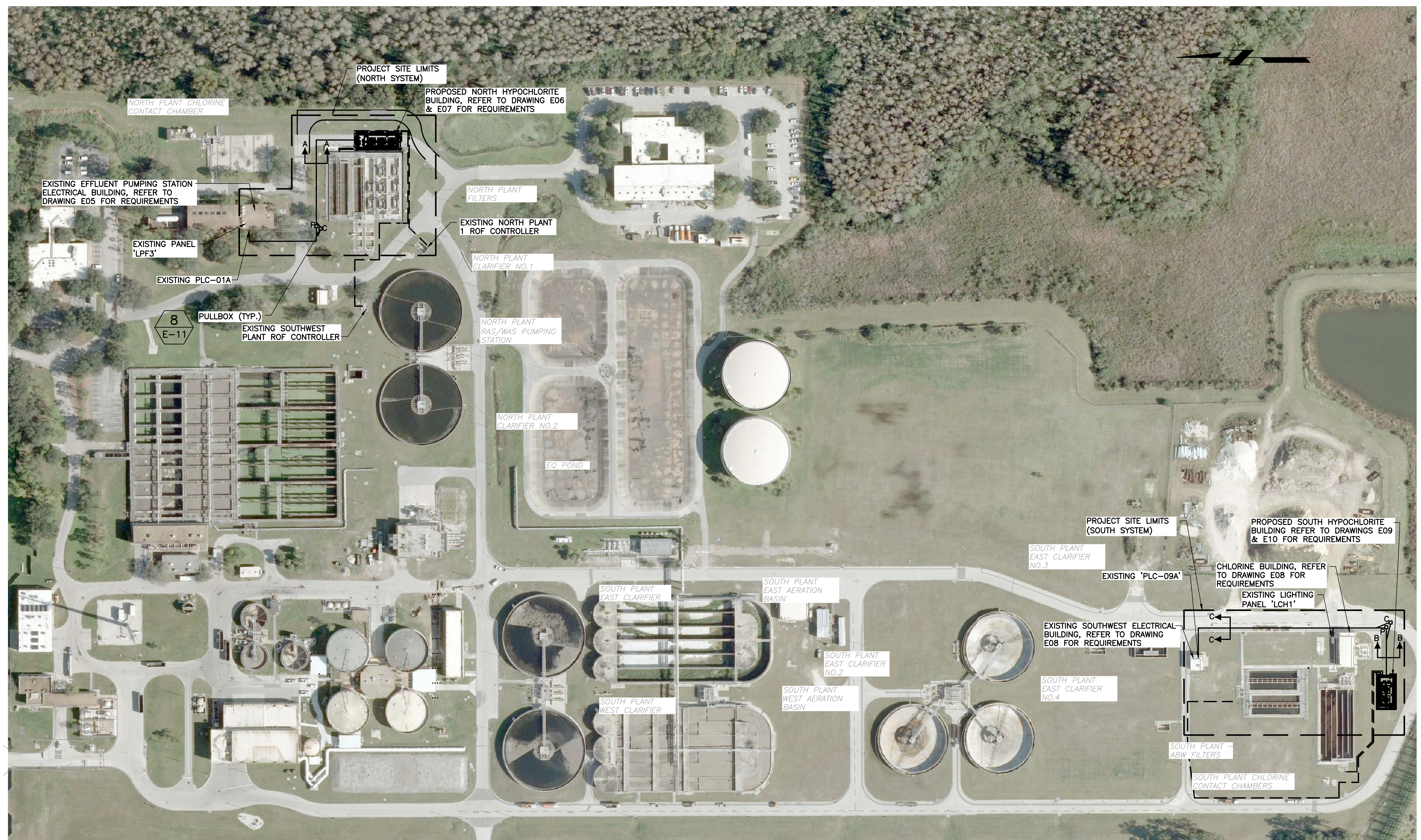
ELECTRICAL SYMBOLS, NOTES AND ABBREVIATIONS

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. E01	SHEET NO.: 27 OF 46

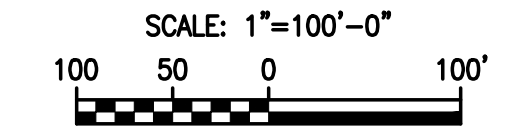


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SAND LAKE ROAD (STATE ROAD #482)



OVERALL ELECTRICAL SITE PLAN



NOTES:
 ① ALL UNDERGROUND CONDUITS SHALL BE CONCRETE ENCASED, INCLUDING INDIVIDUAL CONDUITS. ALL DUCTBANKS SHALL BE DYED RED FOR SAFETY.

EDA
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 FAX: (407) 745-5603
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 LILLIAN M. REYES, P.E.
 Florida P.E. No. 50780



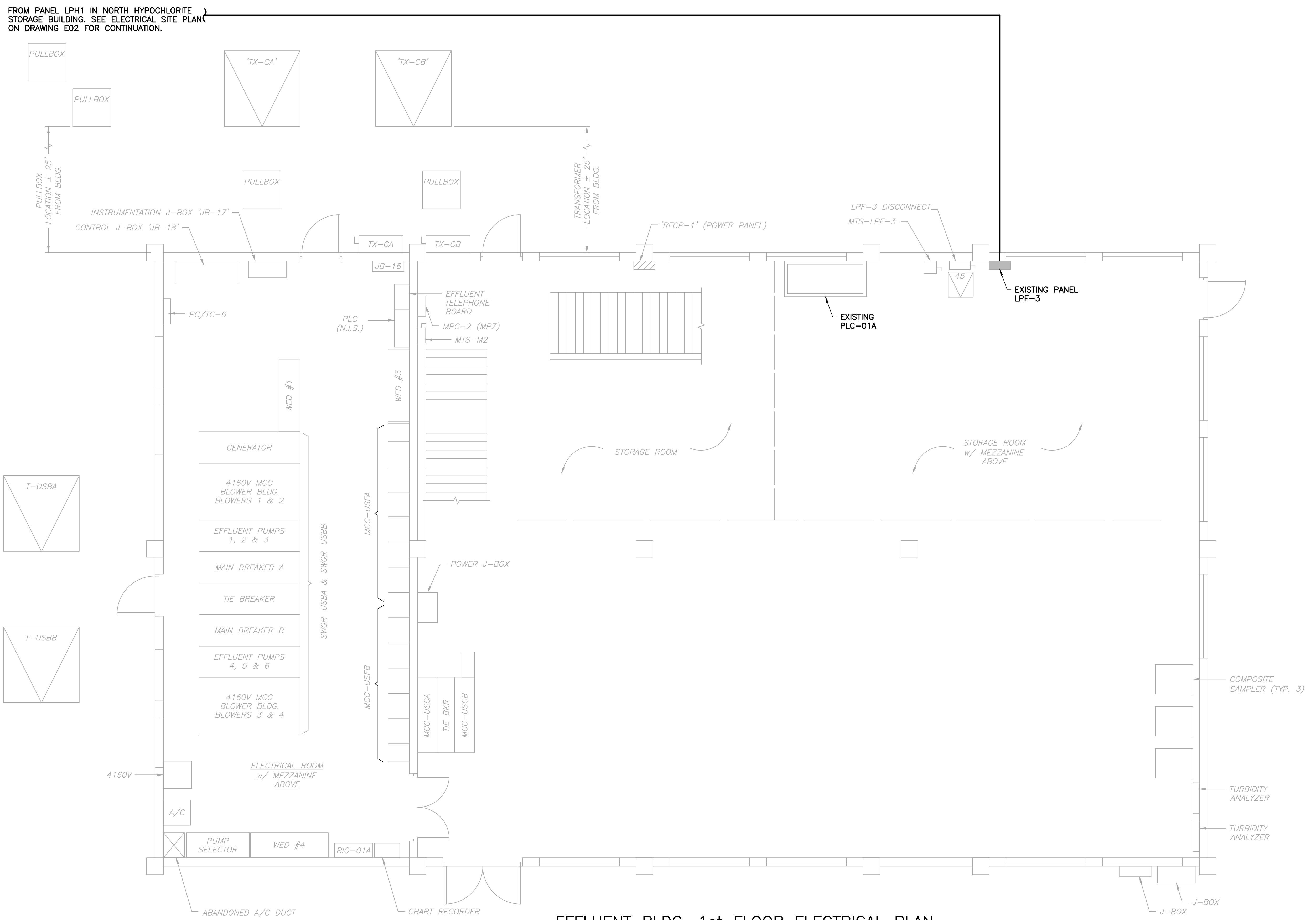
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0	10/31/16	ISSUED FOR BID	RRM

Issue Certification Lillian M. Reyes, P.E. Florida P.E. No. 50780 Electrical Design Associates Certificate of Authorization No. 8079 4763 South Conway Road, Suite E Orlando, FL 32812	Designed_DD Drawn_RBM Checked_LMR Reviewed_DD Approved_LMR
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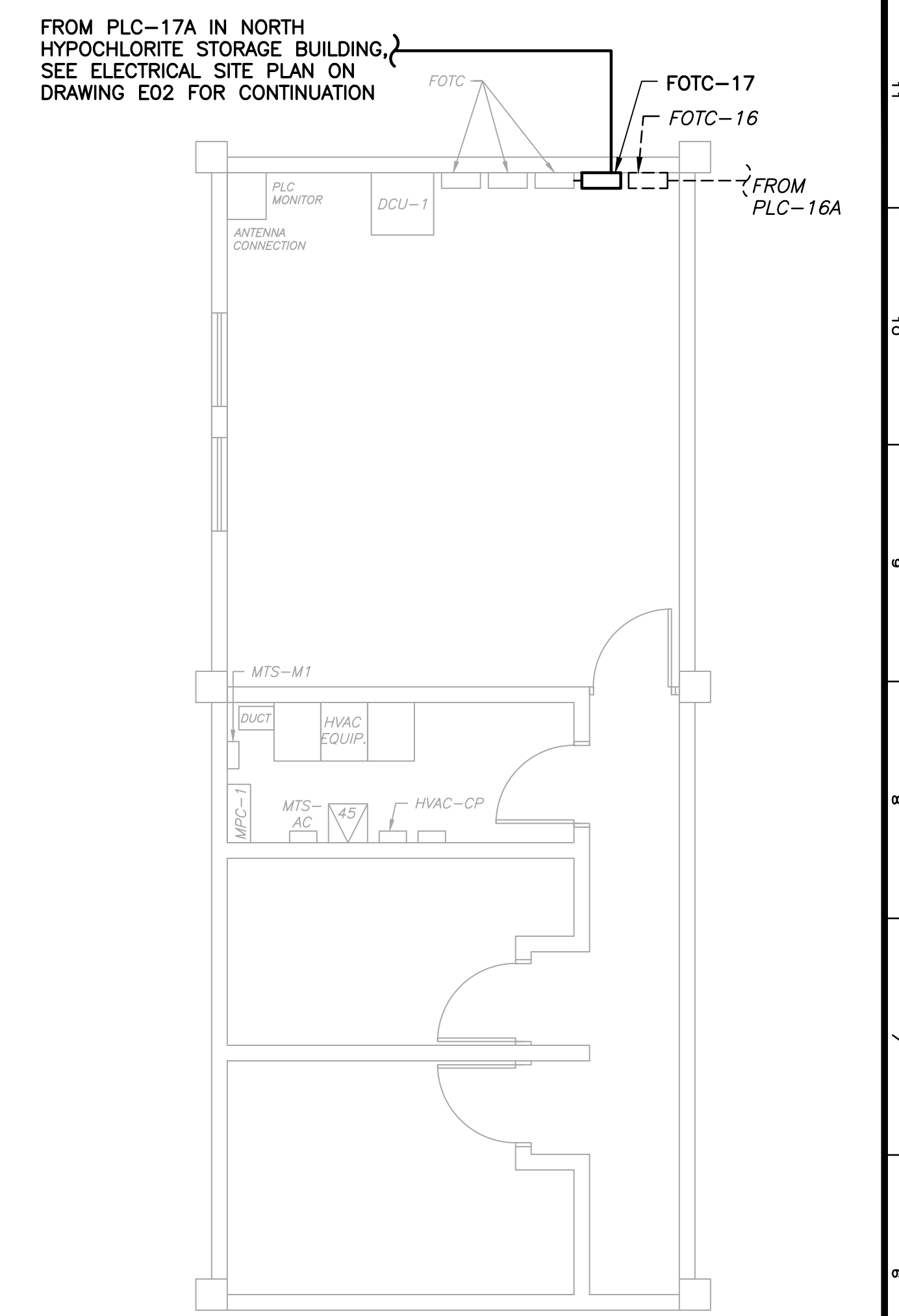
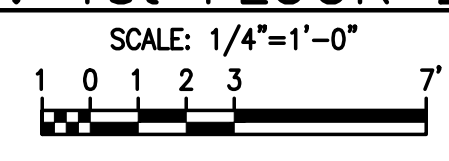
ORANGE COUNTY UTILITIES SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS ELECTRICAL ELECTRICAL SITE PLAN & CONDUIT SECTIONS	PROJECT NO.: 110022 SCALE: NOTED DRAWING NO. E02	REVISION: 0 SHEET NO.: 28 OF 46
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RE REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT
 WINTER SPRINGS, FL 32708
 (407) 679-5358

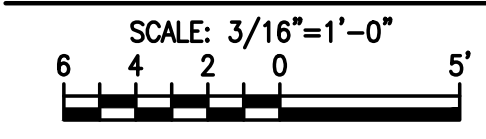
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EFFLUENT BLDG. 1st FLOOR ELECTRICAL PLAN



EFFLUENT P.S. MEZZANINE ELECTRICAL PLAN



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 Checked_LMR _____
 Reviewed_DD _____
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 LINE IS 3/4" AT FULL SIZE

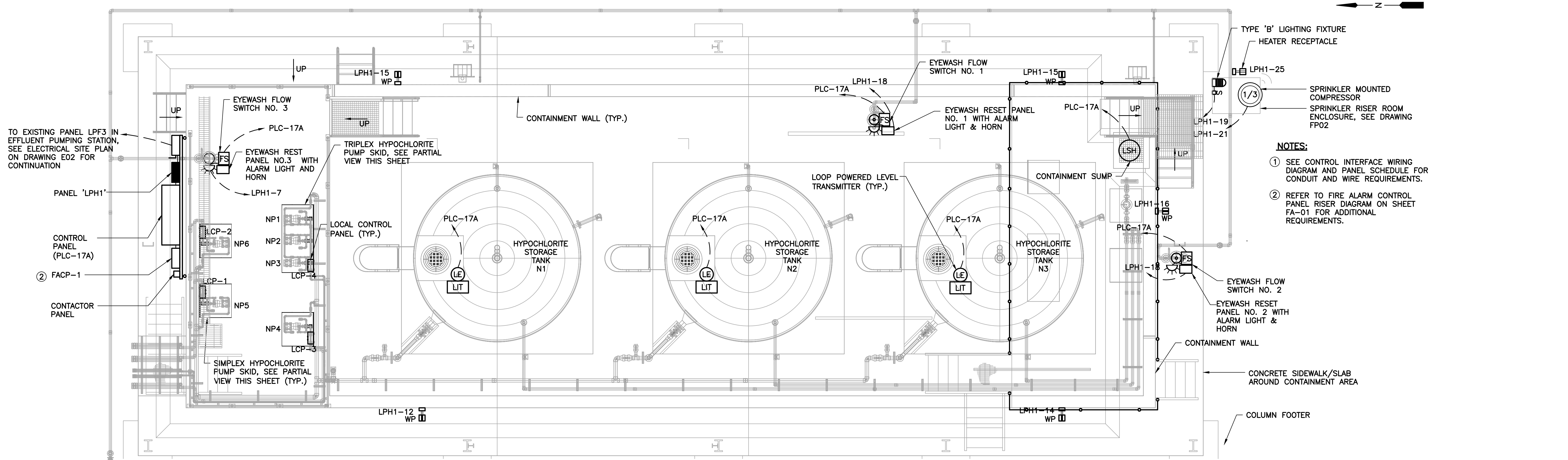
ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 ELECTRICAL
EFFLUENT BUILDING 1ST FLOOR ELECTRICAL PLAN

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. E05	SHEET NO.: 31 OF 46

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 4763 SOUTH CONWAY ROAD, STE. E
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 LILLIAN M. REYES, P.E.
 Florida P.E. No. 50780

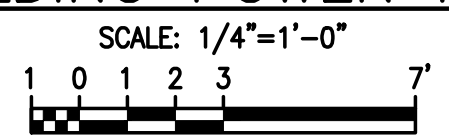
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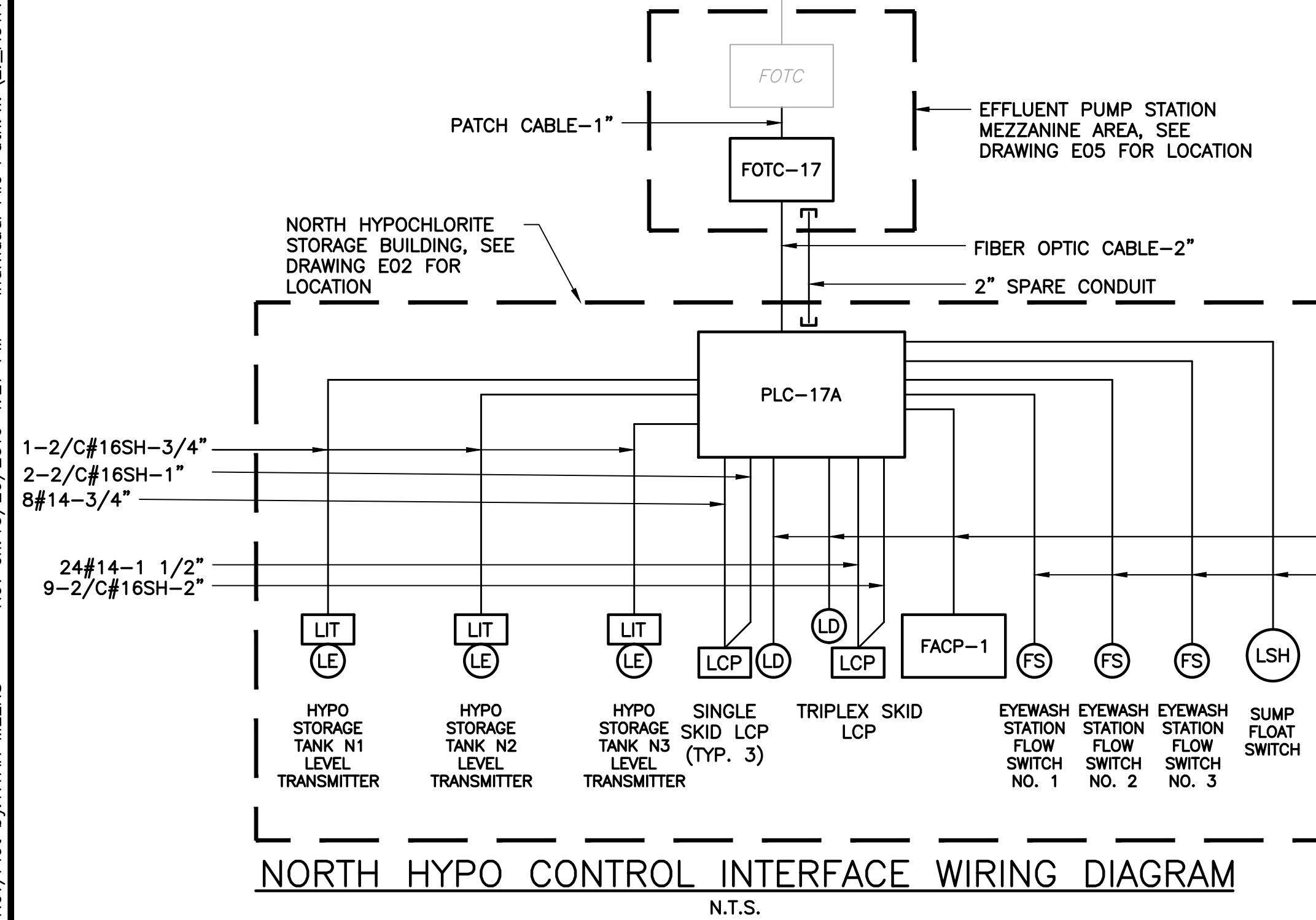


- NOTES:**
- SEE CONTROL INTERFACE WIRING DIAGRAM AND PANEL SCHEDULE FOR CONDUIT AND WIRE REQUIREMENTS.
 - REFER TO FIRE ALARM CONTROL PANEL RISER DIAGRAM ON SHEET FA-01 FOR ADDITIONAL REQUIREMENTS.

NORTH HYPOCHLORITE STORAGE BUILDING POWER PLAN

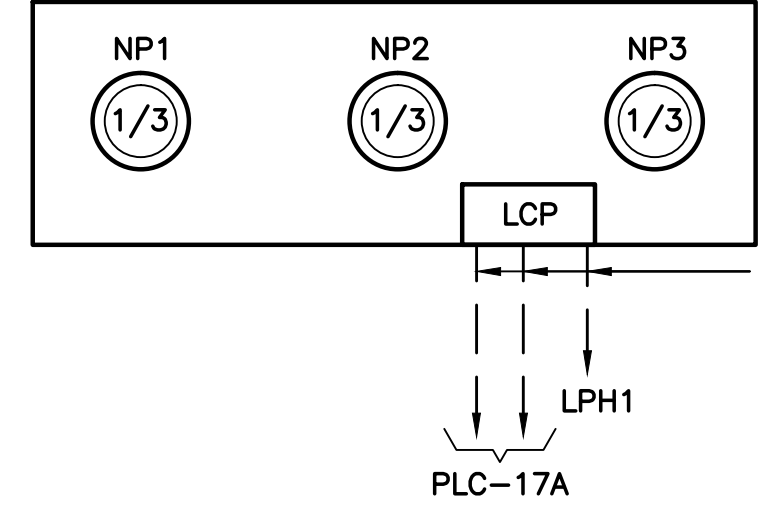


PANEL: LPH1		BUS: 100 AMP		VOLT: 120/208V-3φ-4W															
LOCATION: NORTH HYPOCHLORITE STORAGE BUILDING		MAINS: 40A,3P		REMARKS: PROVIDE SURGE SUPPRESSOR															
MOUNTING: EQUIPMENT RACK		POLES: 30		A.I.C. SYMM: 10,000															
AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA			LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS					
						A	B	C											
20	1	12	12	3/4"	LCP-1	0.27			1	2	0.50			FIRE ALARM CNTRL PANEL	12	12	3/4"	1	20
20	1	12	12	3/4"	EXTERIOR LTG		0.45		3	4		0.27		LCP-2	12	12	3/4"	1	20
20	1	12	12	3/4"	LCP-3			0.27	5	6			0.27	LCP-4	12	12	3/4"	1	20
20	1	12	12	3/4"	EYEWASH RESET PNL NO.3	0.20			7	8	0.20			EYEWASH RESET PNL NO.1	12	12	3/4"	1	20
20	1	-	-	-	SPARE				9	10				SPARE				1	20
20	1	12	12	3/4"	PLC-17A			0.50	11	12			1.44	RECEPTACLE	12	12	3/4"	1	20
20	1	12	12	3/4"	RECEPTACLE	1.44			13	14	1.44			RECEPTACLE	12	12	3/4"	1	20
20	1	12	12	3/4"	RECEPTACLE	1.44			15	16		0.18		RECEPTACLE	12	12	3/4"	1	20
20	1	12	12	3/4"	HYPO TANK AREA LIGHTING			1.28	17	18			0.20	EYEWASH RESET PNL NO.2	12	12	3/4"	1	20
20	1	12	12	3/4"	SPRINKLER RISER ENCL LTG.	0.10			19	20	0.32			EMERGENCY LTG.	12	12	3/4"	1	20
20	1	12	12	3/4"	SPRINKLER RISER MTD. COMPRESSOR	1.00			21	22		0.32		NORMAL LTG				1	20
20	1	-	-	-	SPARE				23	24				SPACE					
20	1	12	12	3/4"	RISER ROOM HEATER CKT	0.20			25	26	0.10			SURGE SUPPRESSOR	8	8		3	40
-	-	-	-	-	SPACE				27	28		0.10							
-	-	-	-	-	SPACE				29	30			0.10						
TOTAL (PHASE):						2.21	2.89	2.05			2.56	0.87	2.01	NOTES:					
TOTAL KVA:											12.59			① BREAKER SHALL BE PAINTED RED AND LOCKED ON THE CLOSED POSITION.					
TOTAL AMPS:											34.94								
TOTAL DEMAND AMPS:											34.94								



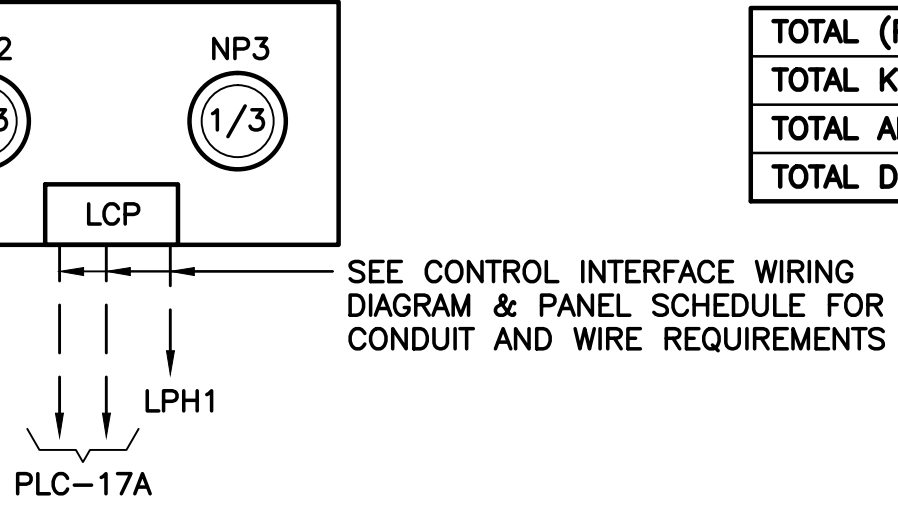
PARTIAL SIMPLEX HYPOCHLORITE PUMP SKID (TYP. 3)

SCALE: N.T.S.



PARTIAL TRIPLEX HYPOCHLORITE PUMP SKID

SCALE: N.T.S.



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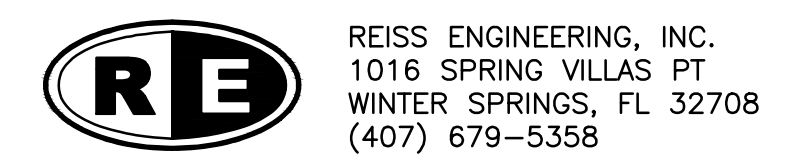
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 Reviewed_DD
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ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

ELECTRICAL

NORTH HYPOCHLORITE STORAGE BUILDING ELECTRICAL PLAN & WIRING DIAGRAMS

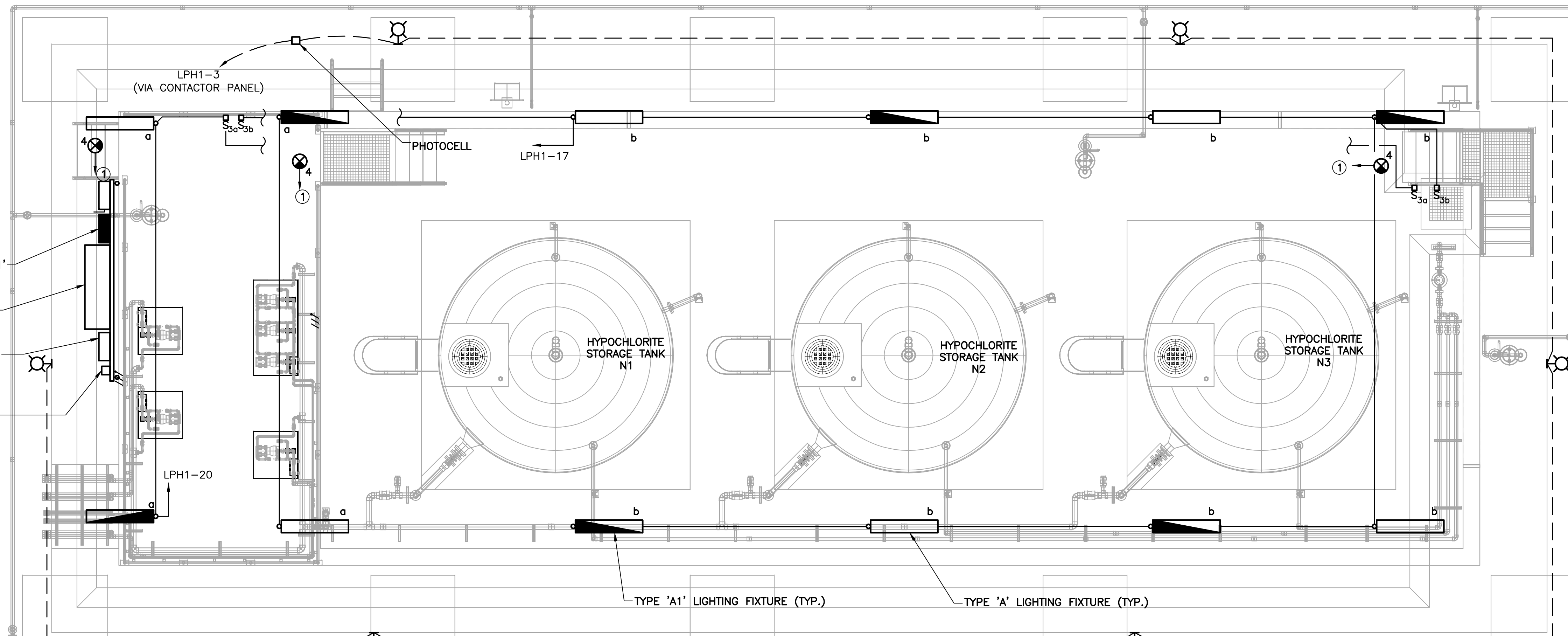
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SCALE:	NOTED
REVISION:	B
DRAWING NO.:	E06
SHEET NO.:	32 OF 46



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REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT
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 (407) 679-5358

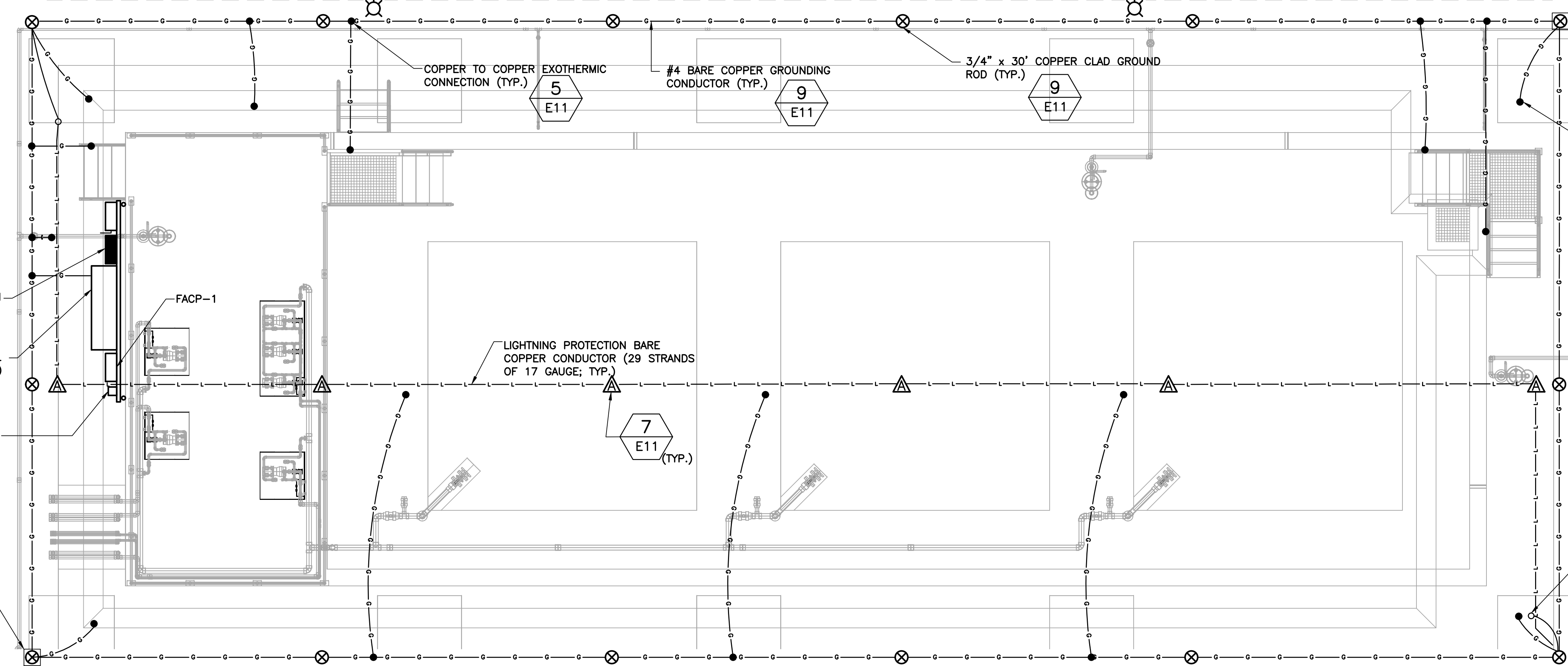
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NOTES:
 ① EXIT LIGHTS SHALL BE WIRED TO THE LINE SIDE OF NEAREST LIGHT SWITCH.

NORTH HYPOCHLORITE STORAGE BUILDING LIGHTING PLAN

SCALE: 1/4"=1'-0"
 1 0 1 2 3 7'



NORTH HYPOCHLORITE STORAGE BUILDING LIGHTNING PROTECTION/GROUNDING PLAN

SCALE: 1/4"=1'-0"
 1 0 1 2 3 7'



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 Orlando, FL 32812

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 Checked_LMR _____
 Reviewed_DD _____
 Approved_LMR _____

LINE IS 3/4" AT FULL SIZE

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 ELECTRICAL
 NORTH HYPOCHLORITE STORAGE BUILDING LIGHTING &
 LIGHTNING PROTECTION/GROUNDING PLANS

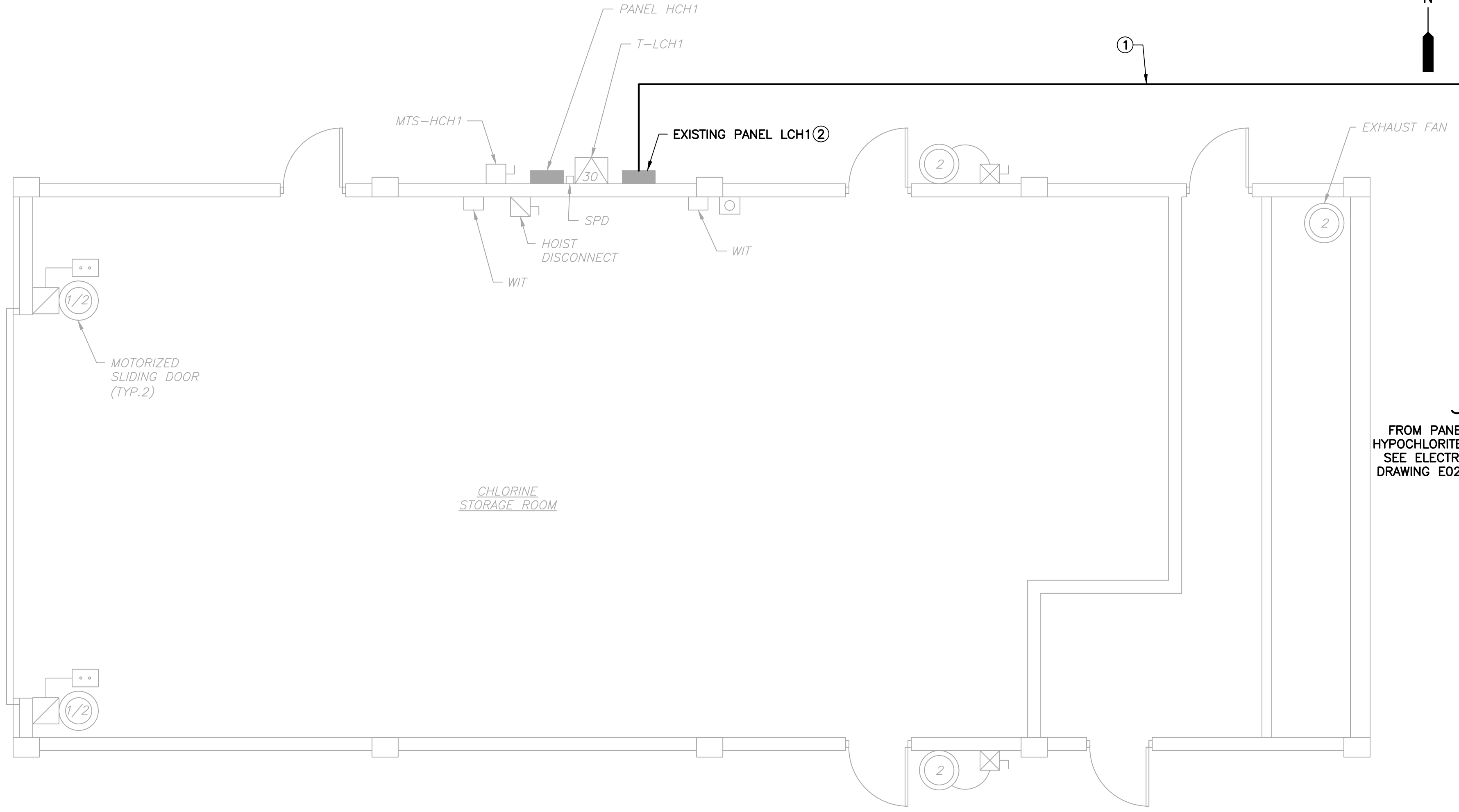
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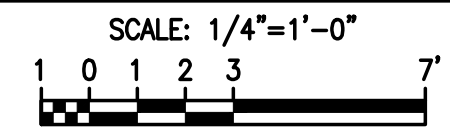
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 1016 SPRING VILLAS PT
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 C.O.A. No. 8079
 LILLIAN M. REYES, P.E.
 Florida P.E. No. 50780

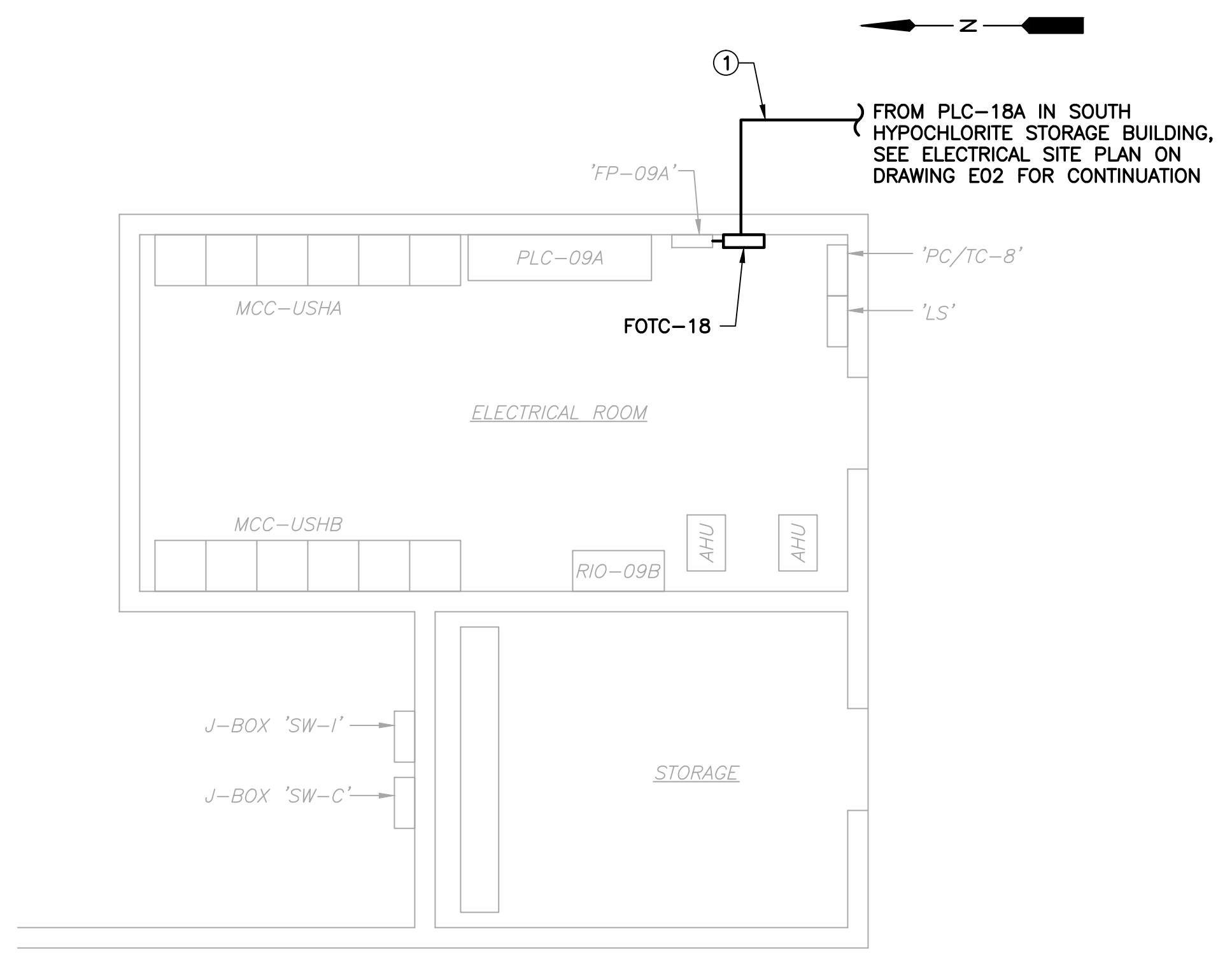
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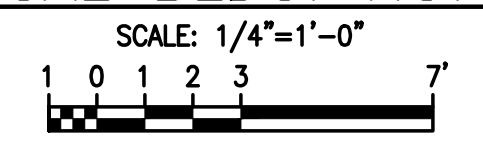
SOUTH PLANT CHLORINE BUILDING ELECTRICAL PLAN



- NOTES:**
- ① SEE SHEET E02 FOR CONDUIT SECTION DETAILS.
 - ② EXISTING EVAPORATOR HEATER CIRCUIT #37 IN EXISTING PANEL LCH1 TO BE RELOCATED TO BLANK SPACE CIRCUIT #42 FOR INSTALLATION OF 40A, 3P BREAKER IN CIRCUITS 37, 39, 41 TO FEED SOUTH HYPOCHLORITE STORAGE BUILDING PANEL LPH2.



SOUTHWEST ELECTRICAL BLDG. NO. 2 ELECTRICAL PLAN



- NOTES:**
- ① SEE SHEET E02 FOR CONDUIT SECTION DETAILS.



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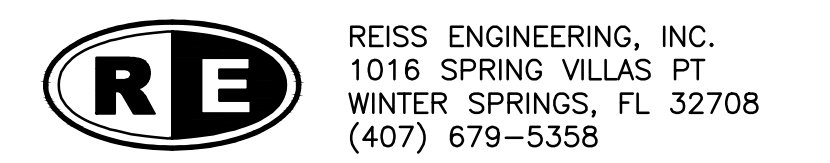
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LINE IS 3/4" AT FULL SIZE

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 ELECTRICAL
 SOUTHWEST ELECTRICAL BUILDING AND SOUTH ELECTRICAL BUILDING ELECTRICAL PLANS

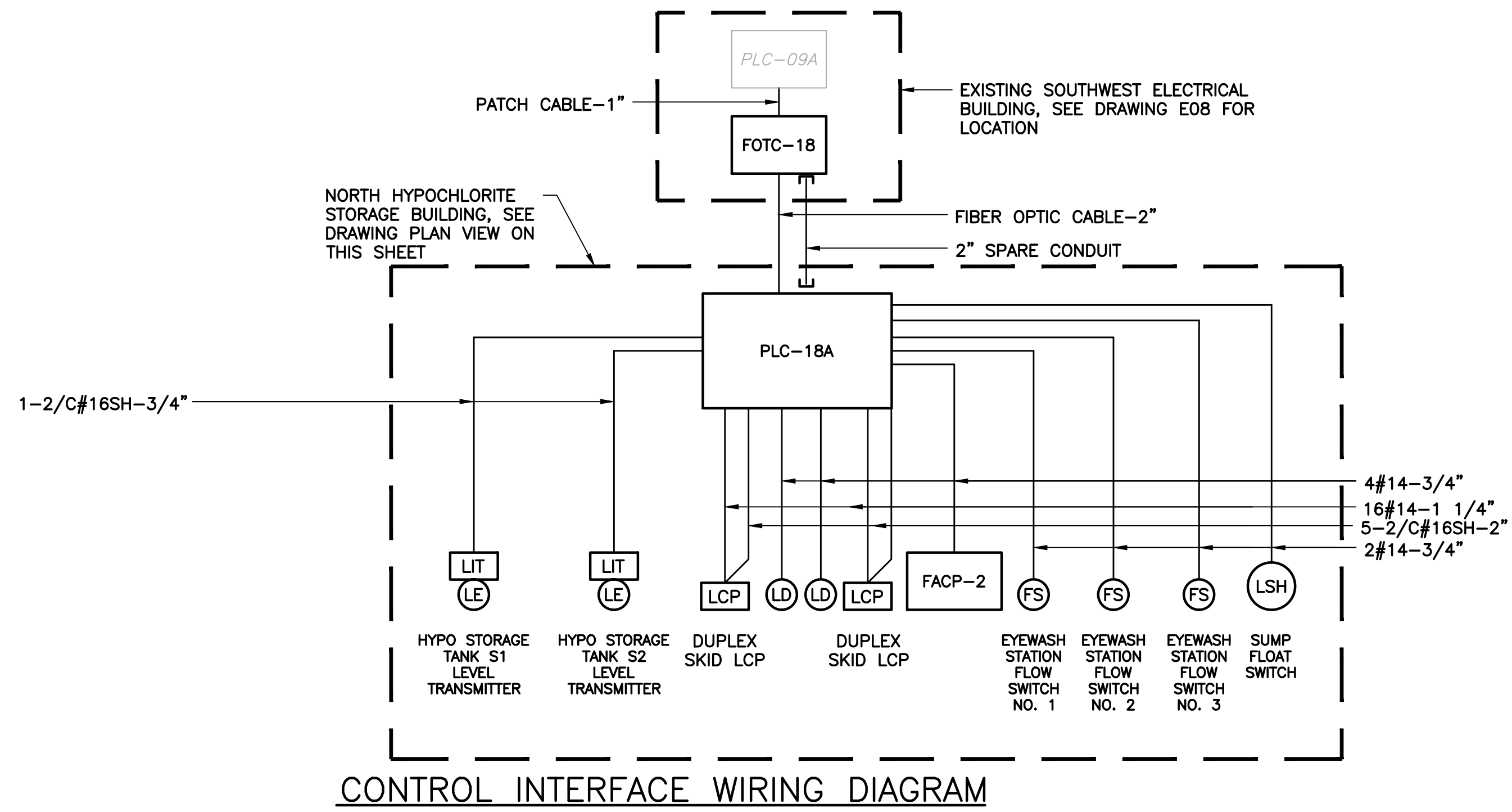
PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. E08	SHEET NO.: 34 OF 46



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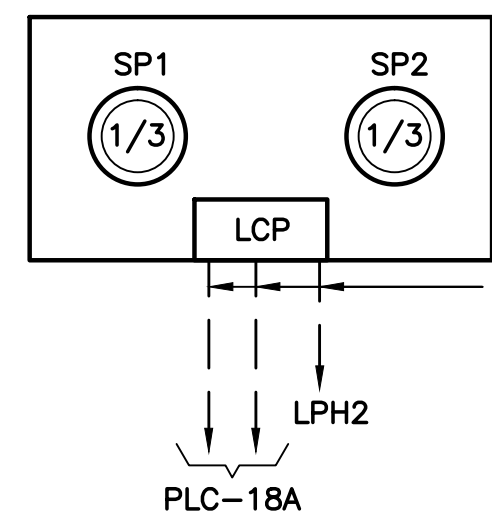
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Parent Sheet Set: 1100225WRHYPHO Rev/Plot by: DAMEION DONALDSON Rev on: 10/26/2016 4:33 PM Individual File Path: W:\2_ACTIVE PROJECTS\REISS\ORANGE COUNTY\Y11-902-PH\SWRF HYPOCHLORITE IMPROVEMENTS\7_BIDSET\DWG\LE-09_PWR.DWG



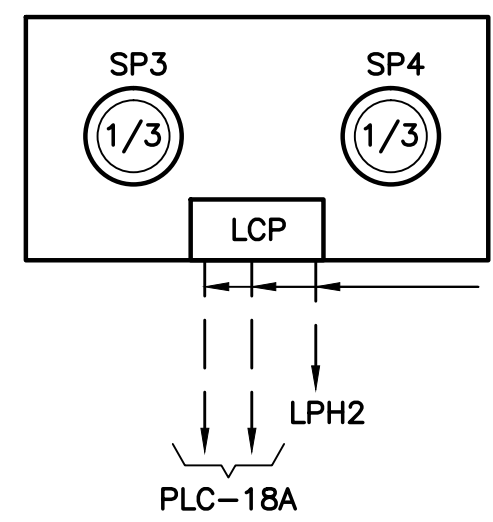
CONTROL INTERFACE WIRING DIAGRAM

N.T.S.



PARTIAL DUPLEX HYPOCHLORITE PUMP SKID

SCALE: N.T.S.



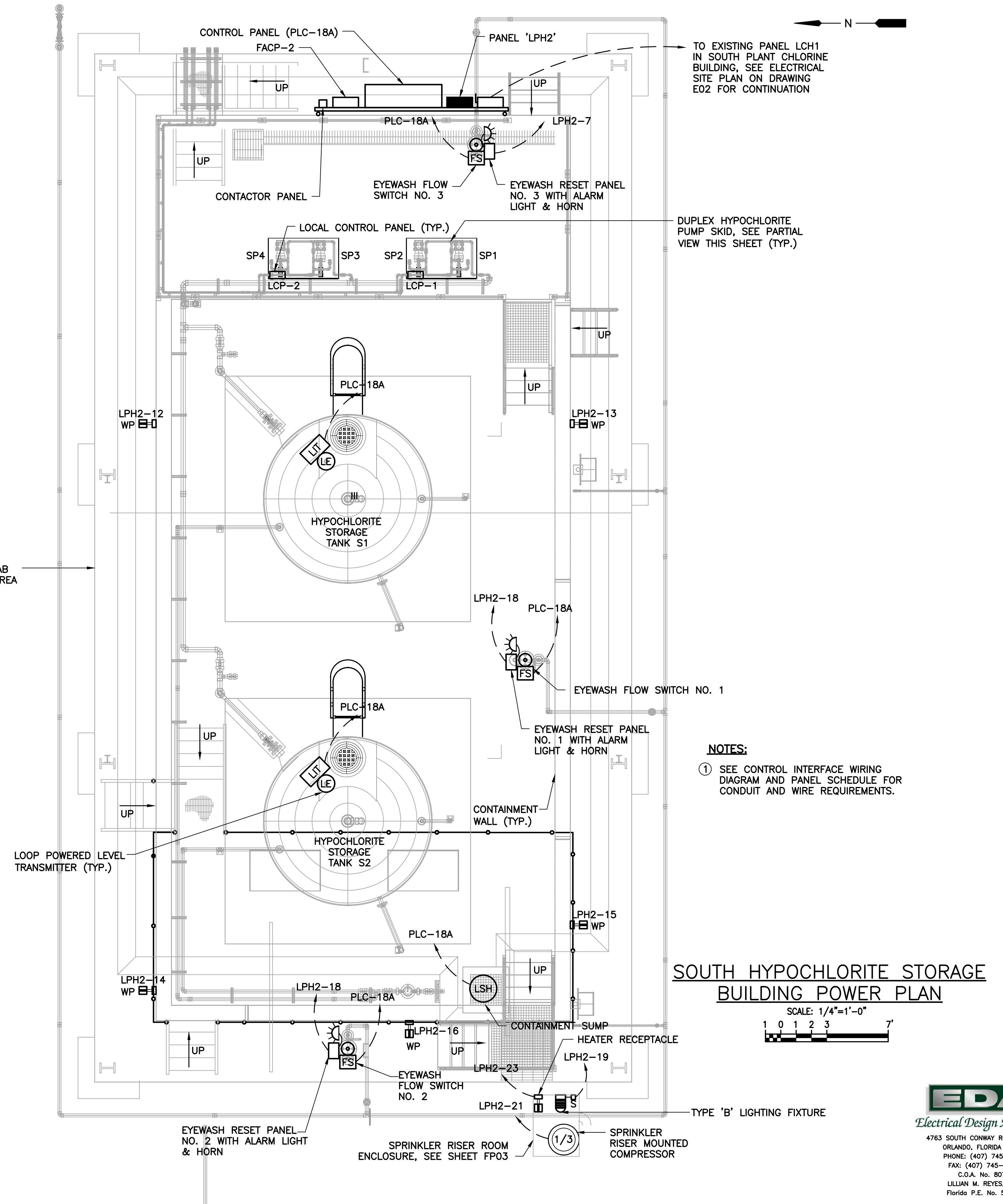
PARTIAL DUPLEX HYPOCHLORITE PUMP SKID

SCALE: N.T.S.

PANEL: LPH2				BUS: 100 AMP				VOLT: 120/208V-3φ-4W											
LOCATION: SOUTH HYPOCHLORITE STORAGE BUILDING				MAINS: 40A, 3P				REMARKS: PROVIDE SURGE SUPPRESSOR											
MOUNTING: EQUIPMENT RACK				POLES: 30				A.I.C. SYMM: 10,000											
AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA			LOAD SERVED			WIRE	GND.	COND.	POLE	AMPS			
						A	B	C	A	B	C								
20	1	12	12	3/4"	LCP-1	0.27			1	2	0.50			FIRE ALARM CNTRL PANEL	12	12	3/4"	1	20
20	1	12	12	3/4"	EXTERIOR LTG	0.45			3	4	0.27			LCP-2	12	12	3/4"	1	20
20	1	-	-	-	SPARE				5	6	-			SPARE	-	-	-	1	20
20	1	12	12	3/4"	EYEWASH RESET PNL NO.3	0.20			7	8	-			SPARE	-	-	-	1	20
20	1	-	-	-	SPARE				9	10	0.20			EYEWASH RESET PNL NO.2	-	-	-	1	20
20	1	12	12	3/4"	PLC-18A		0.50		11	12	1.44			RECEPTACLE	12	12	3/4"	1	20
20	1	12	12	3/4"	RECEPTACLE	1.44			13	14	1.44			RECEPTACLE	12	12	3/4"	1	20
20	1	12	12	3/4"	RECEPTACLE	1.44			15	16	0.18			RECEPTACLE	12	12	3/4"	1	20
20	1	12	12	3/4"	HYPO TANK AREA LIGHTING		1.28		17	18	0.20			EYEWASH RESET PNL NO.2	12	12	3/4"	1	20
20	1	12	12	3/4"	SPRINKLER RISER ENCL. LTG.	0.10			19	20	0.32			EMERGENCY LTG	12	12	3/4"	1	20
20	1	12	12	3/4"	SPRINKLER RISER MID. COMPRESSOR	1.00			21	22	0.32			NORMAL LTG	12	12	3/4"	1	20
20	1	12	12	3/4"	RISER RM. HTR. CKT.		0.20		23	24	-			SPACE	-	-	-	-	-
-	-	-	-	-	SPACE				25	26	0.10			SURGE SUPPRESSOR	8	8	-	3	40
-	-	-	-	-	SPACE				27	28	-			-	-	-	-	-	-
-	-	-	-	-	SPACE				29	30	0.10			-	-	-	-	-	-
TOTAL (PHASE):						2.01	2.89	1.98	TOTAL KVA:			12.05							
TOTAL AMPS:									TOTAL DEMAND AMPS:			33.45							
TOTAL DEMAND AMPS:												33.45							

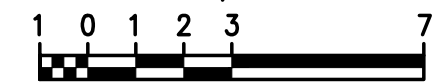
NOTES:
 ① BREAKER SHALL BE PAINTED RED AND LOCKED ON THE CLOSED POSITION.

MINIMUM 40KA/MODE SPD



SOUTH HYPOCHLORITE STORAGE BUILDING POWER PLAN

SCALE: 1/4"=1'-0"



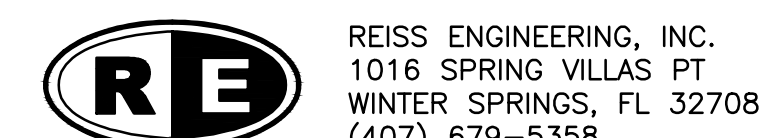
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ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 ELECTRICAL
 SOUTH HYPOCHLORITE STORAGE BUILDING, SW ELECTRICAL BUILDING ELECTRICAL PLANS & WIRING DIAGRAMS

PROJECT NO.:	110022
SCALE:	NOTED
REVISION:	0
DRAWING NO.:	E09
SHEET NO.:	35 OF 46

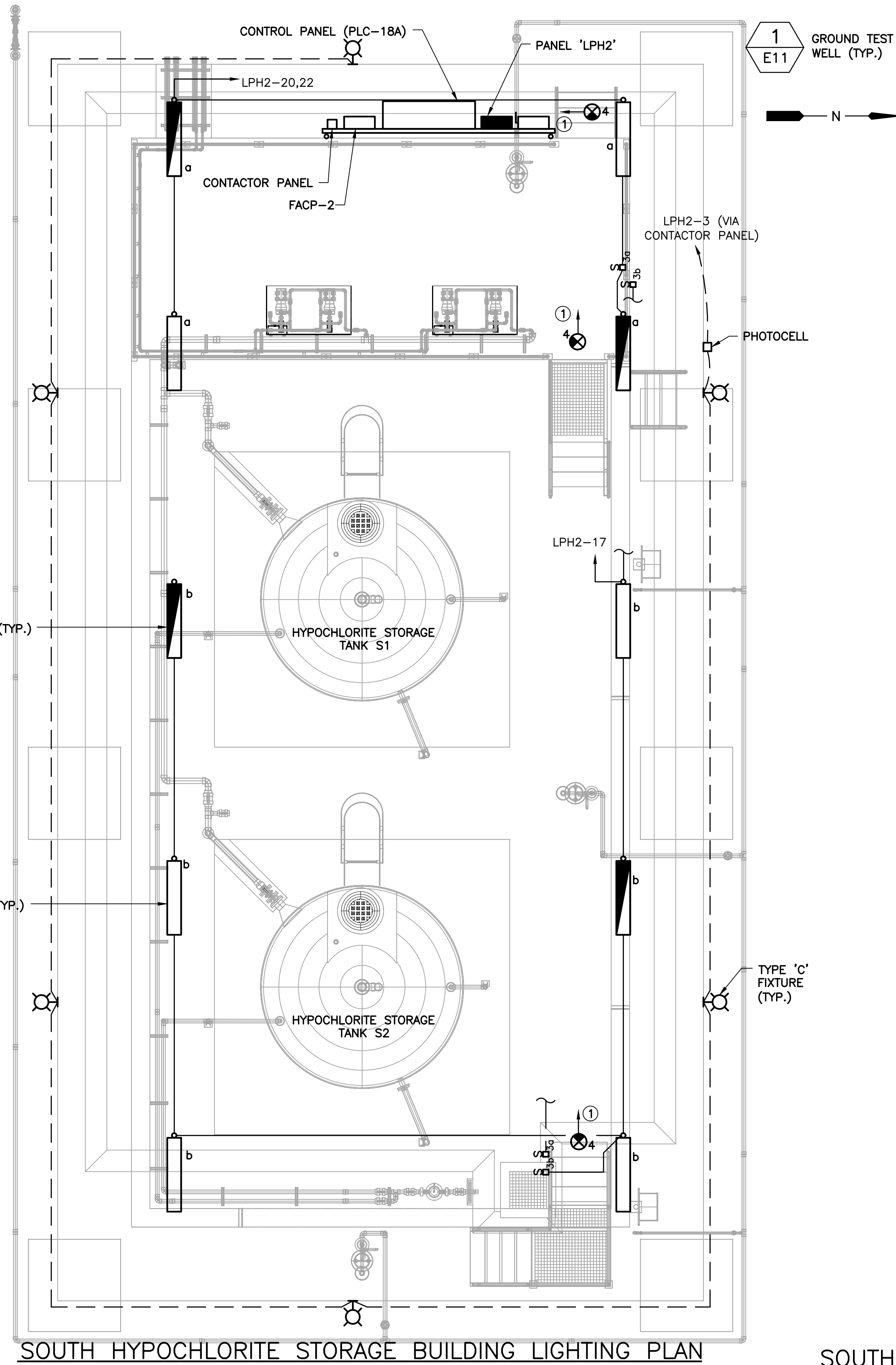


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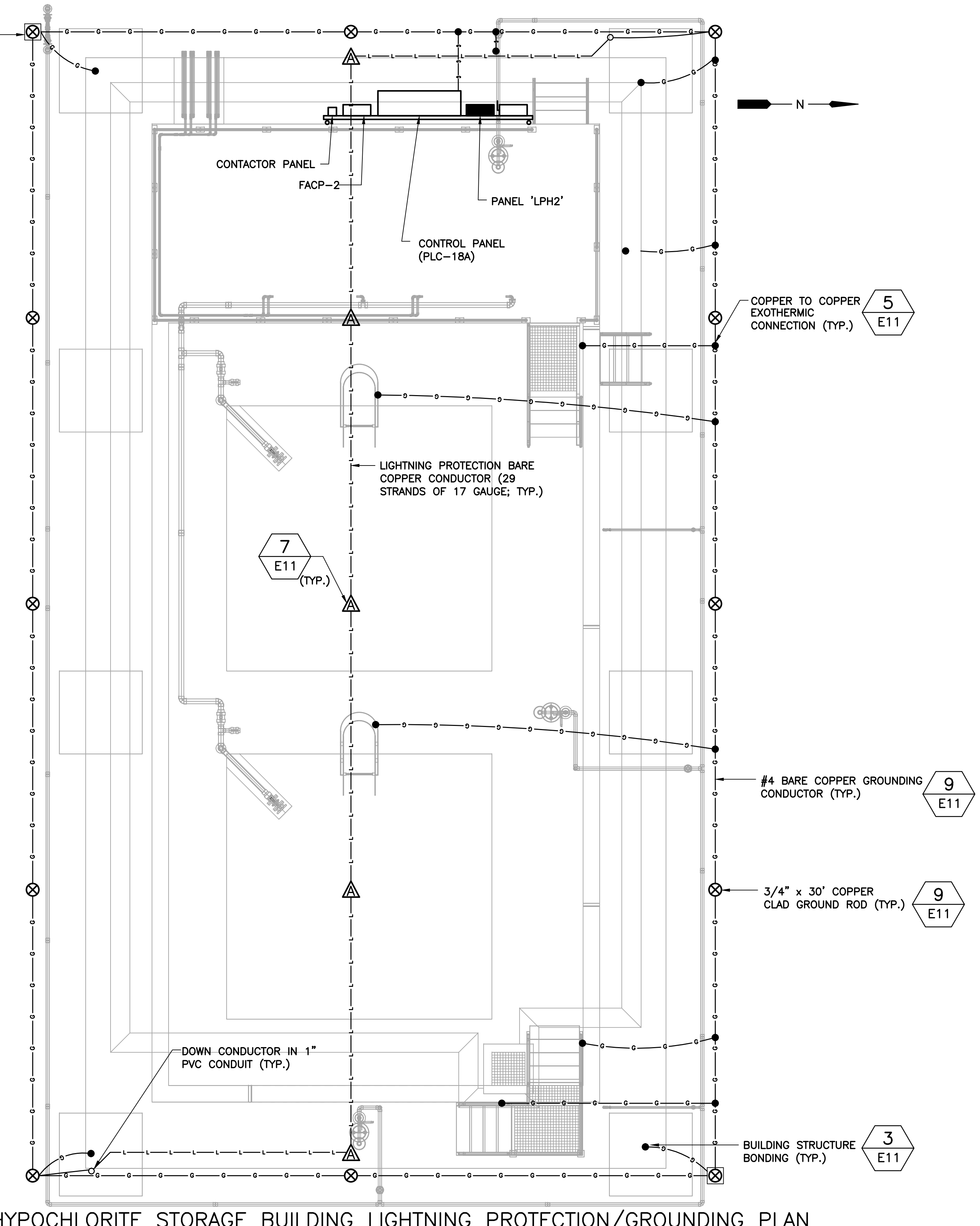
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NOTES:
 ① TIE INTO LINE SIDE OF NEAREST SWITCH.



SOUTH HYPOCHLORITE STORAGE BUILDING LIGHTING PLAN

SCALE: 1/4"=1'-0"
 1 0 1 2 3 7'



SOUTH HYPOCHLORITE STORAGE BUILDING LIGHTNING PROTECTION/GROUNDING PLAN

SCALE: 1/4"=1'-0"
 1 0 1 2 3 7'



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ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 ELECTRICAL
 SOUTH HYPOCHLORITE STORAGE BUILDING LIGHTING & LIGHTNING PROTECTION/GROUNDING PLANS

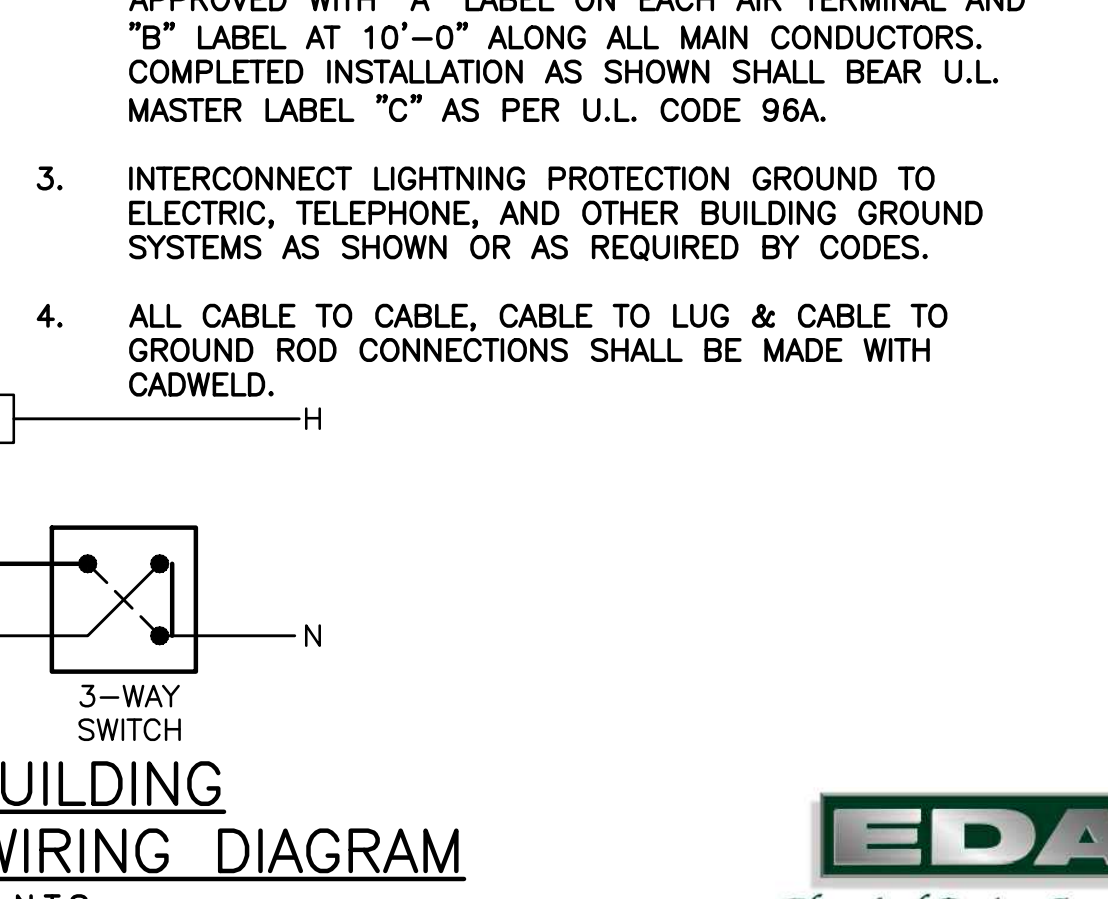
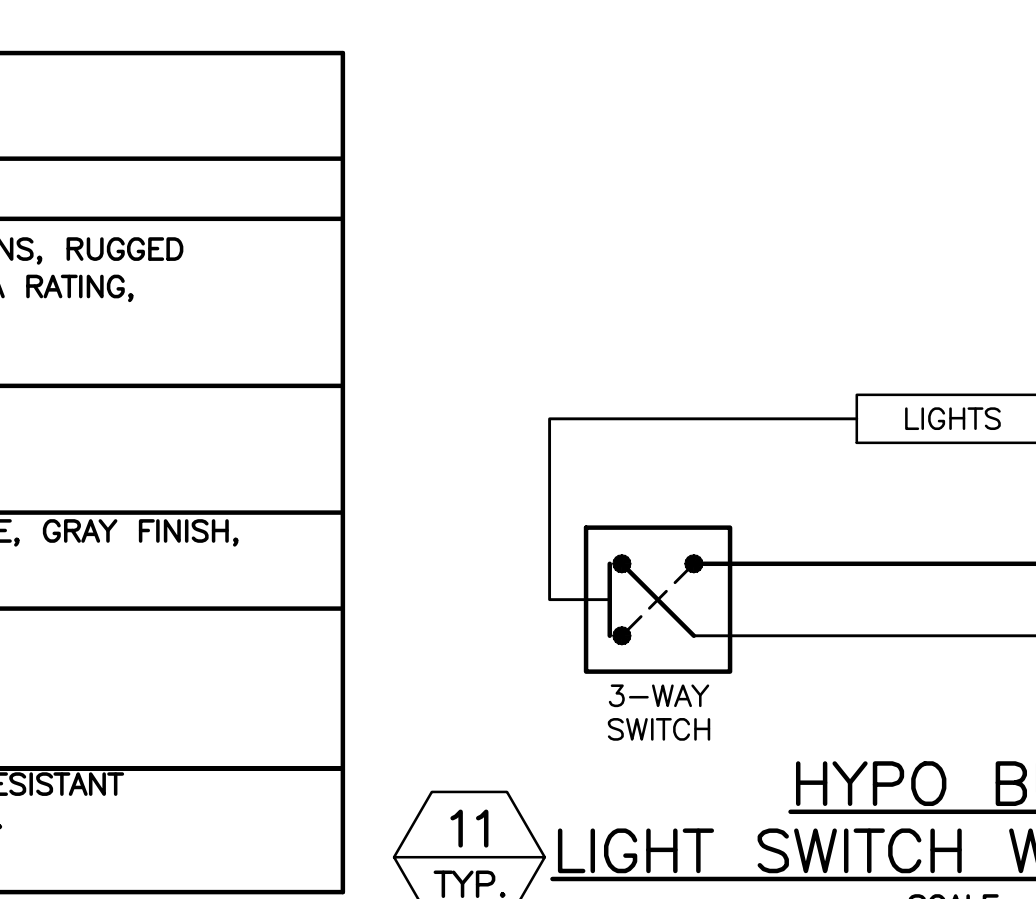
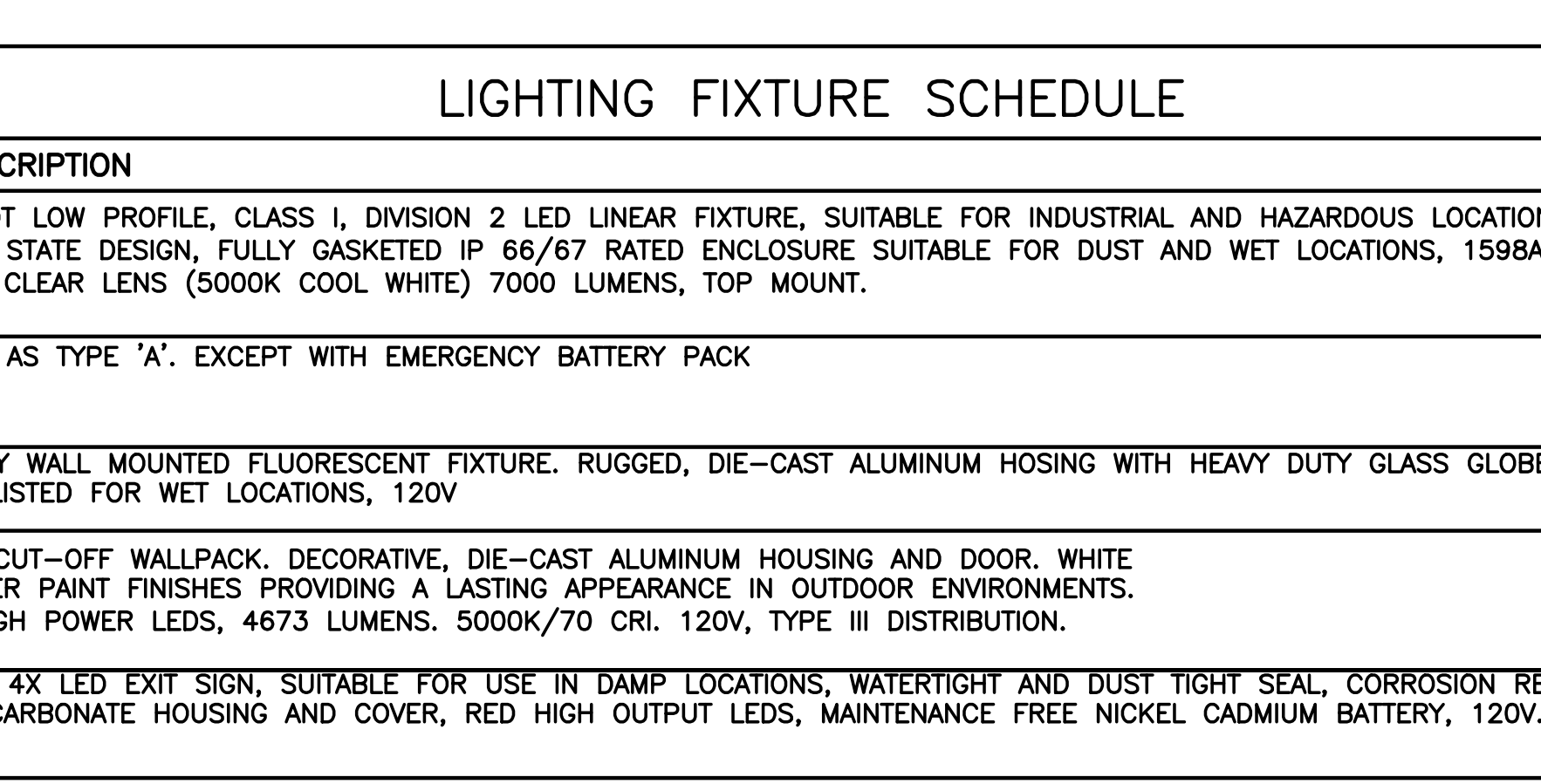
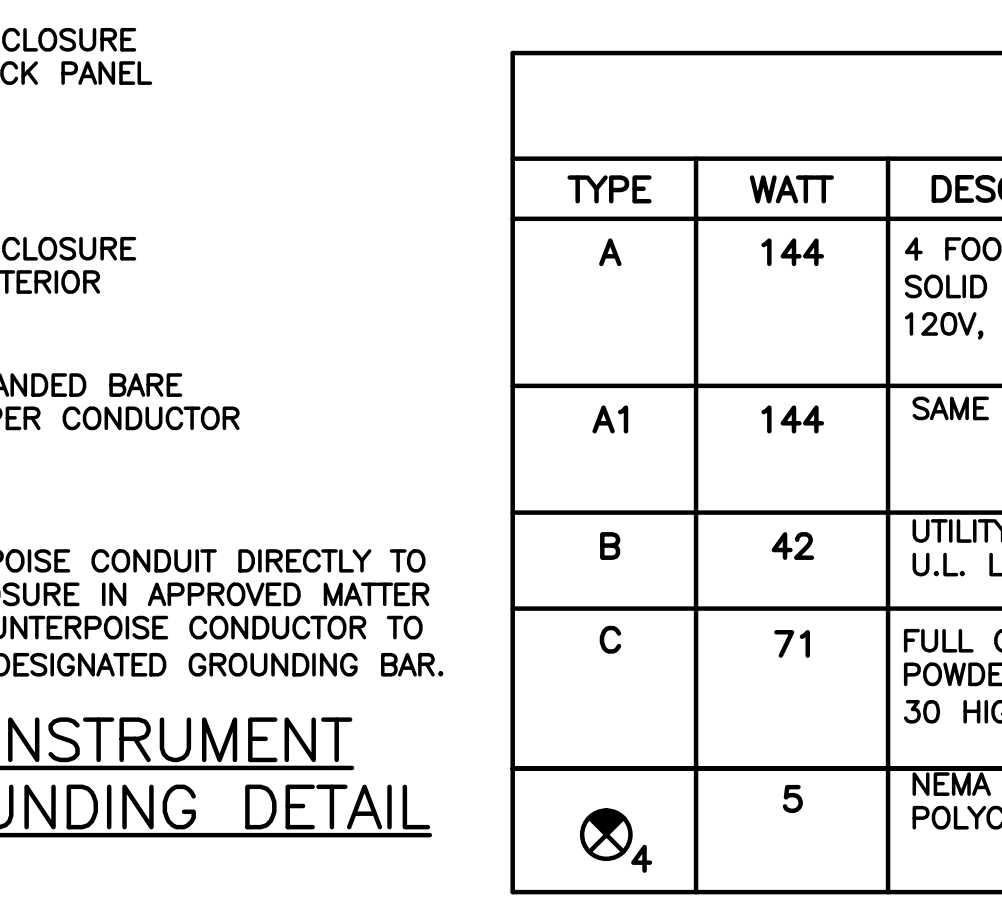
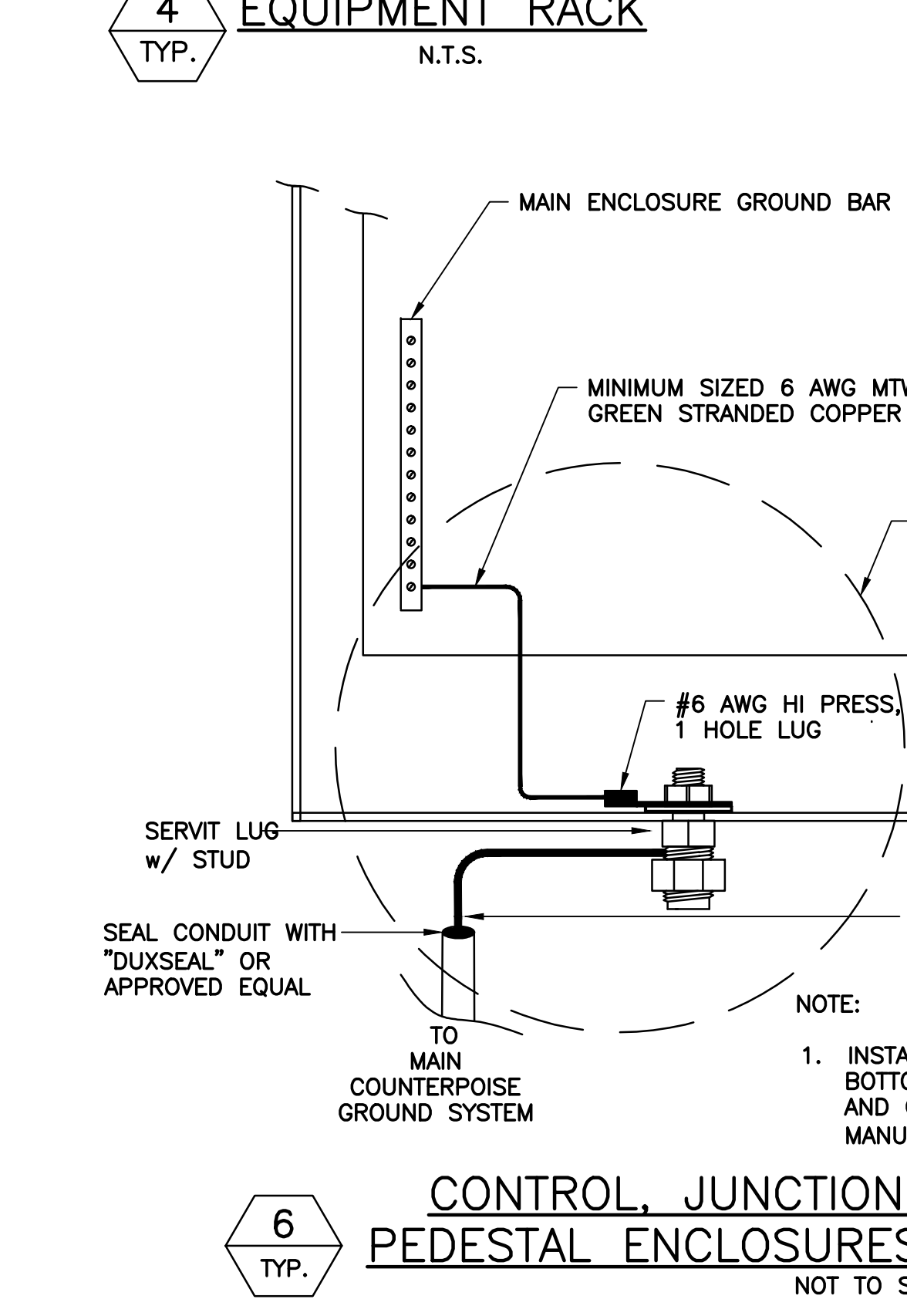
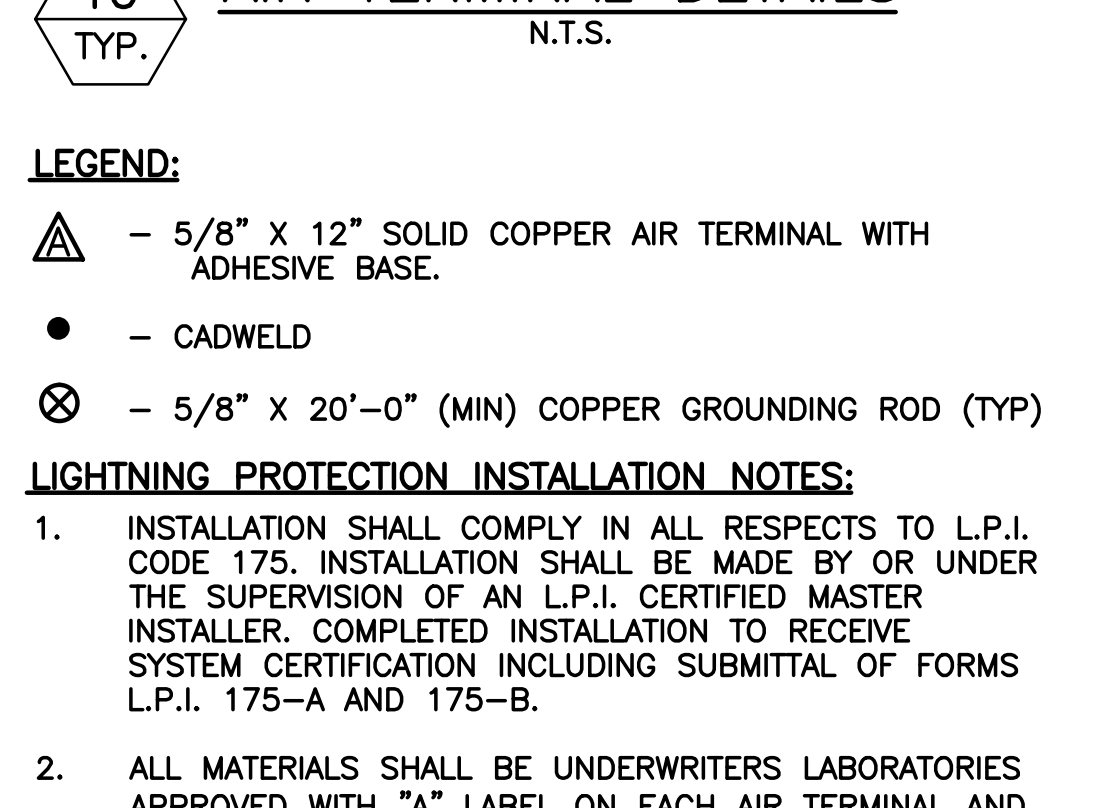
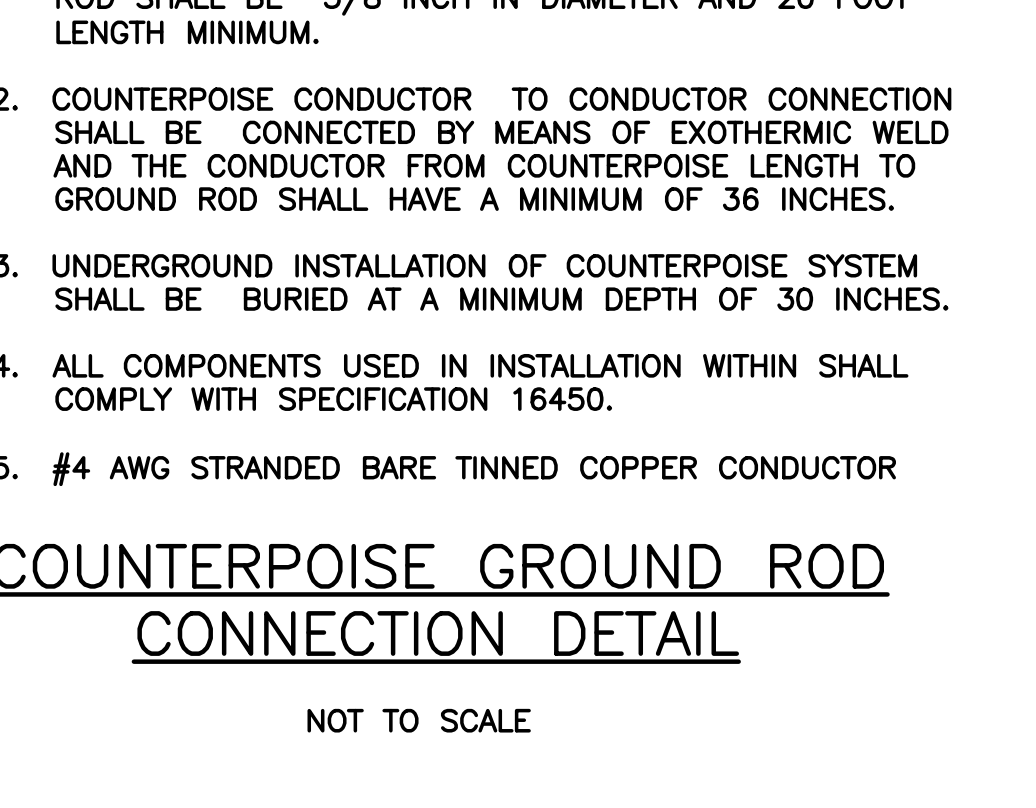
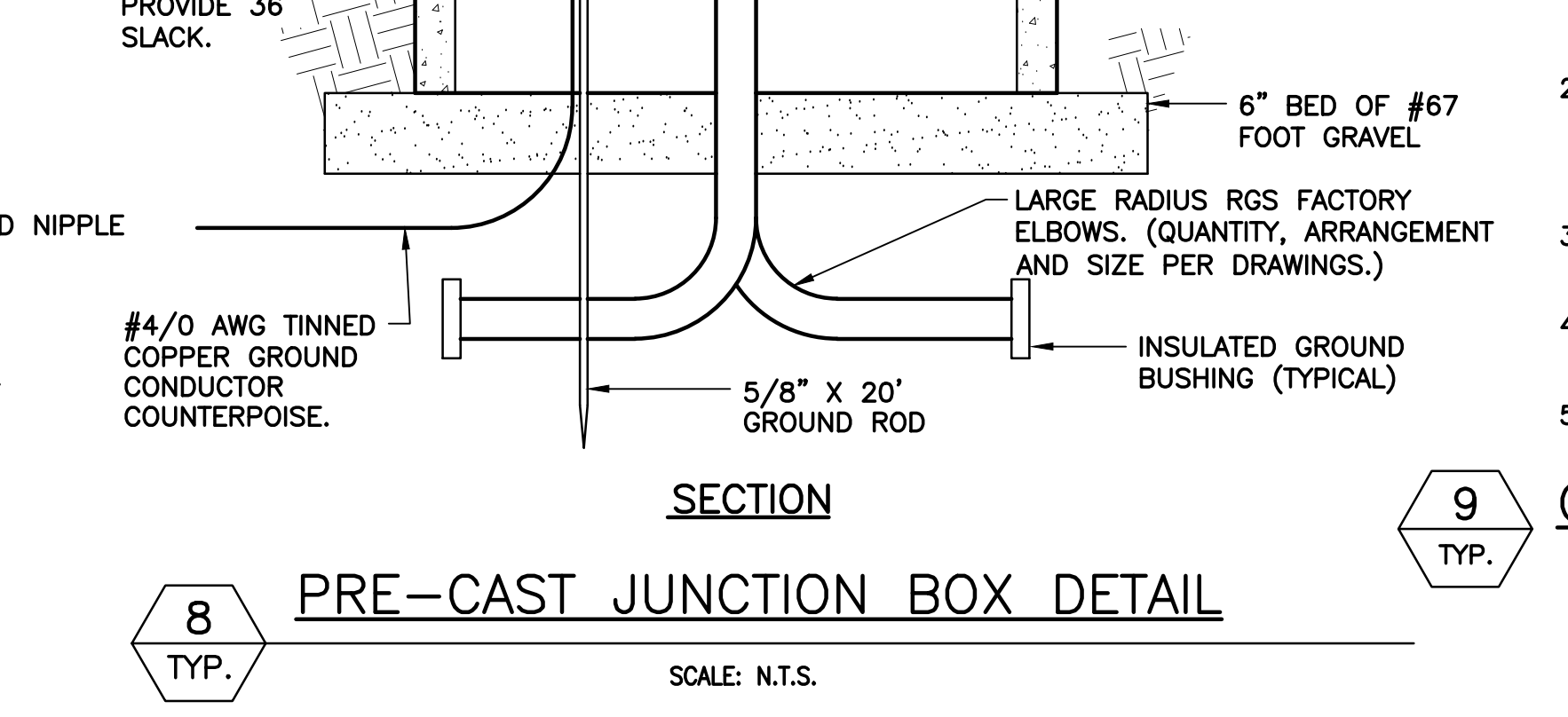
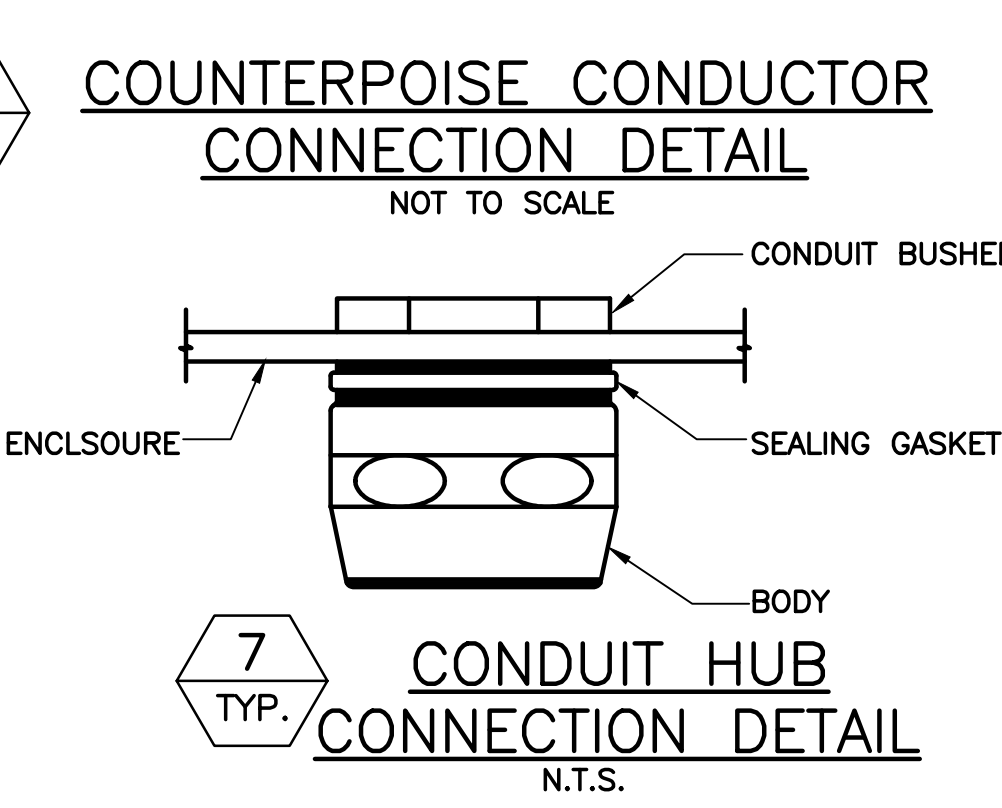
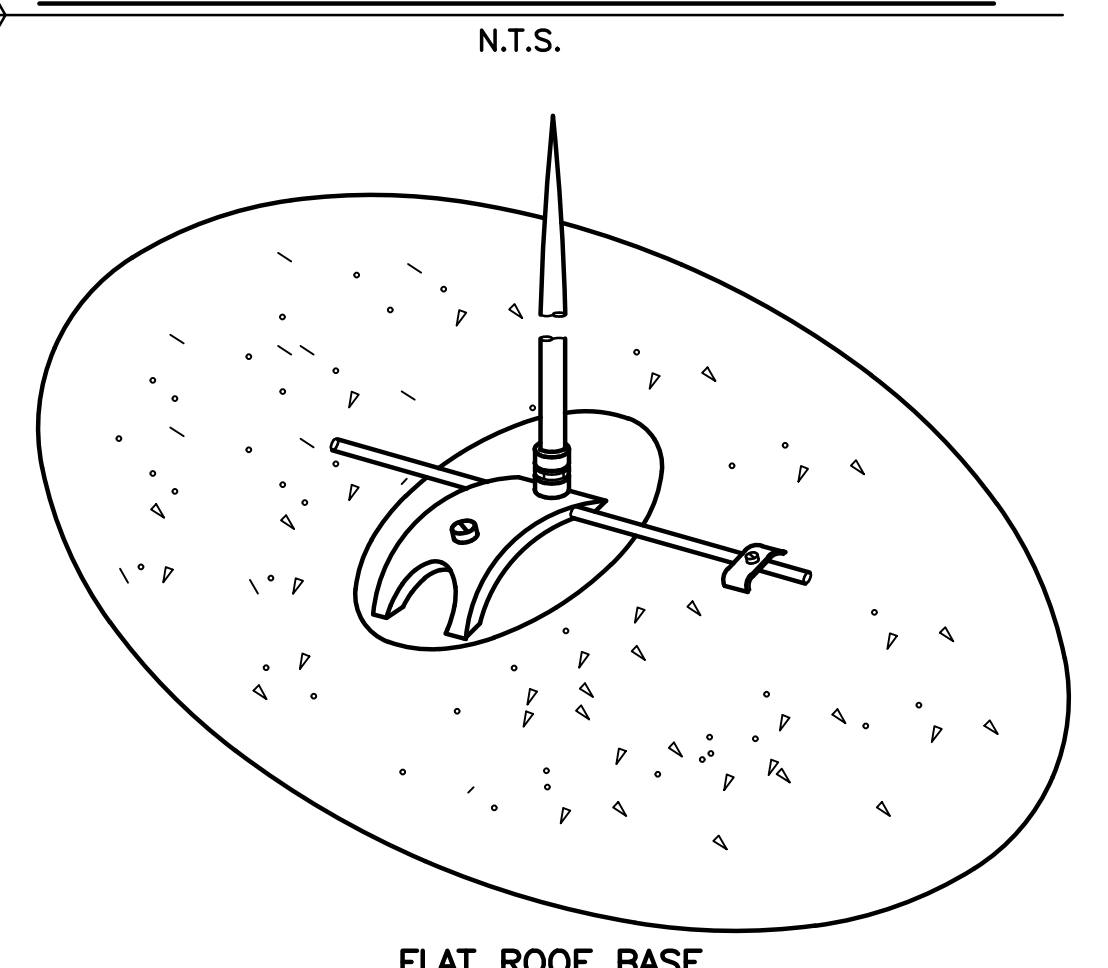
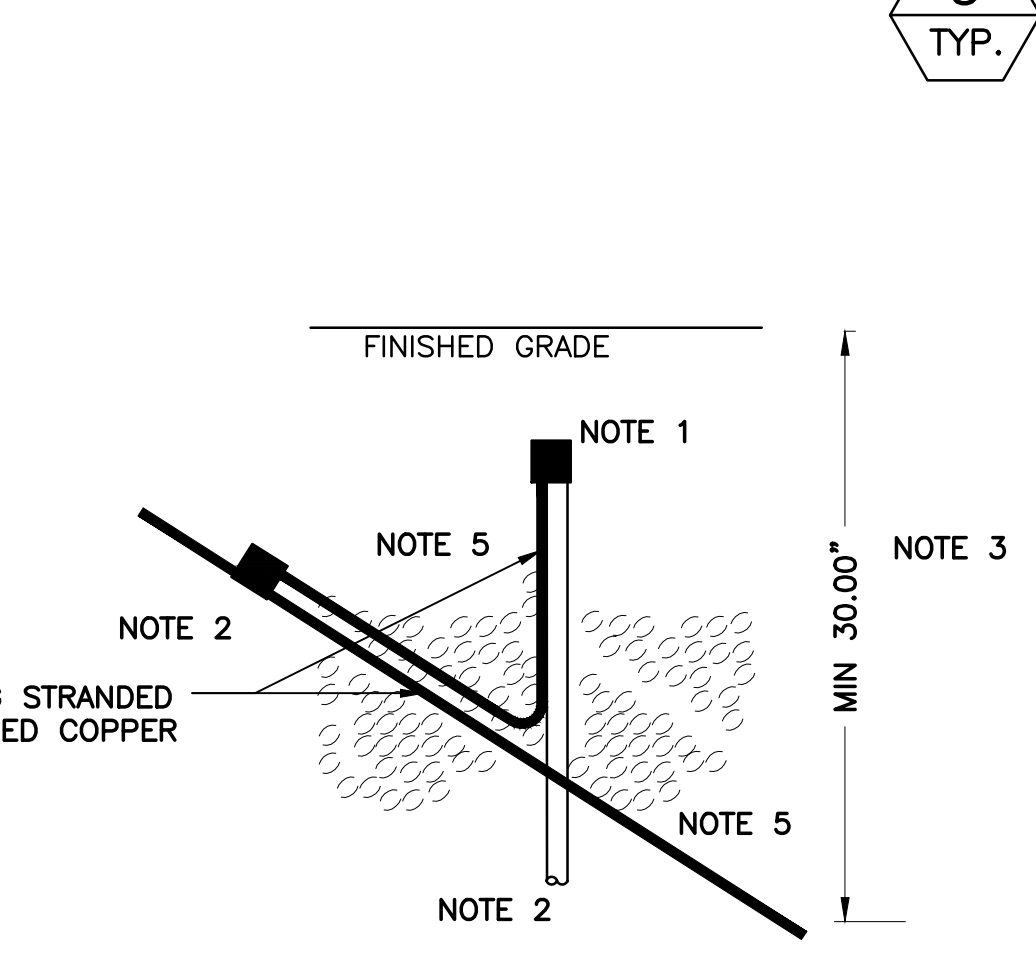
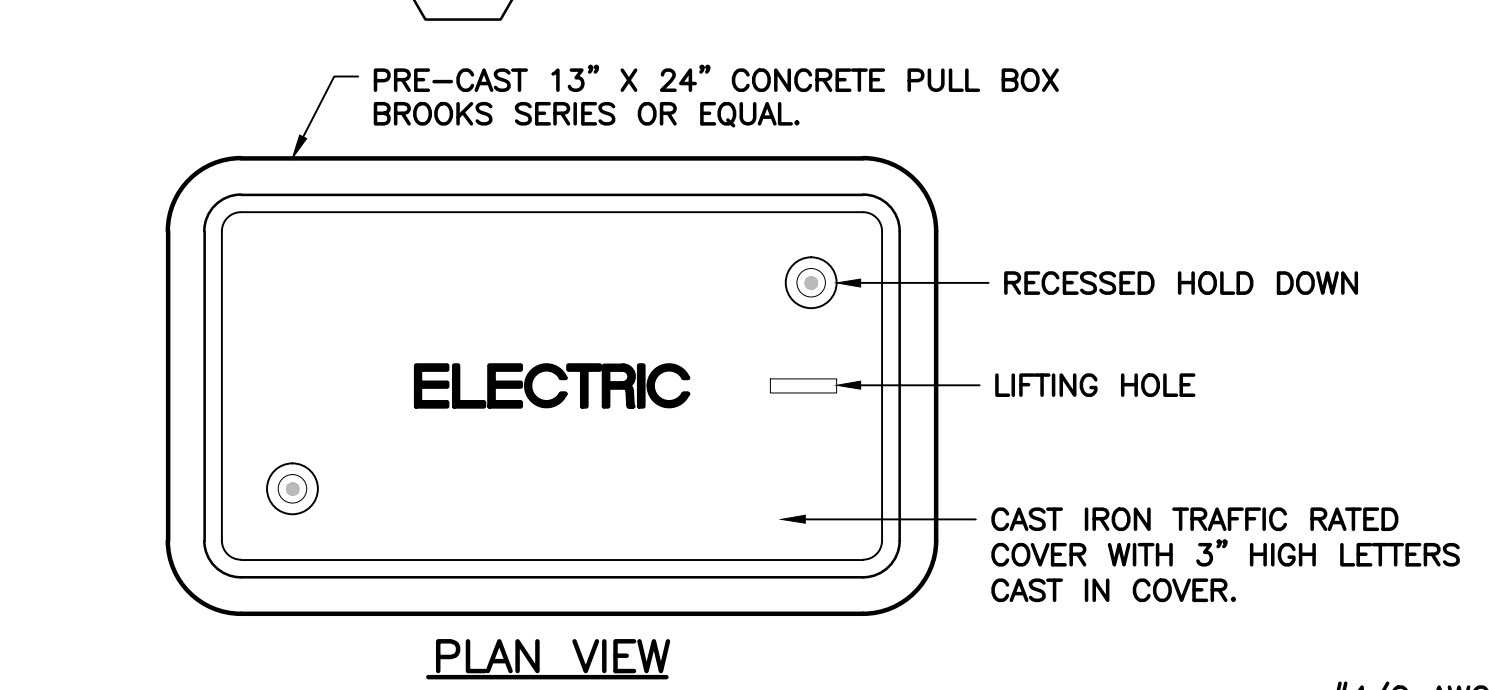
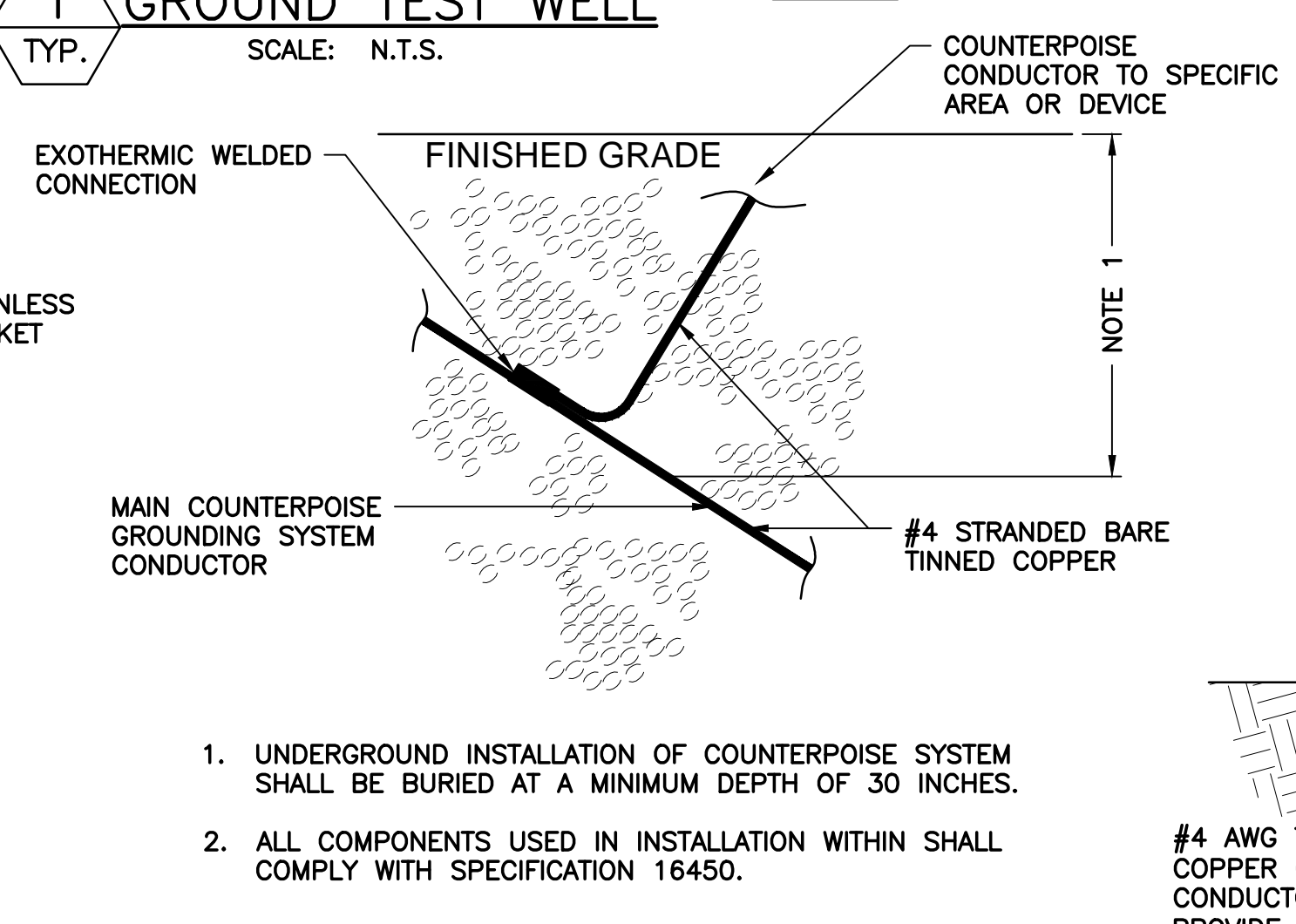
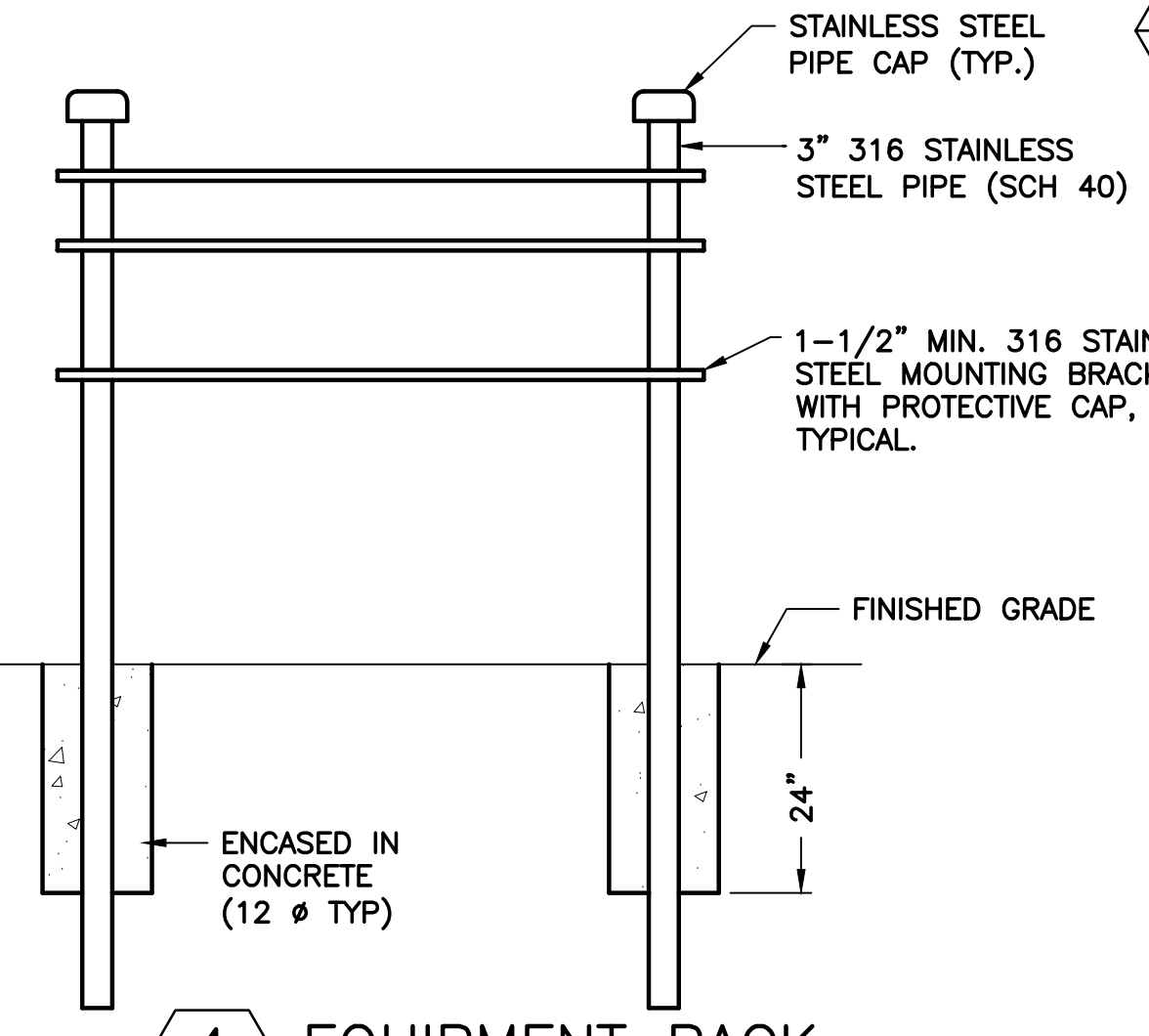
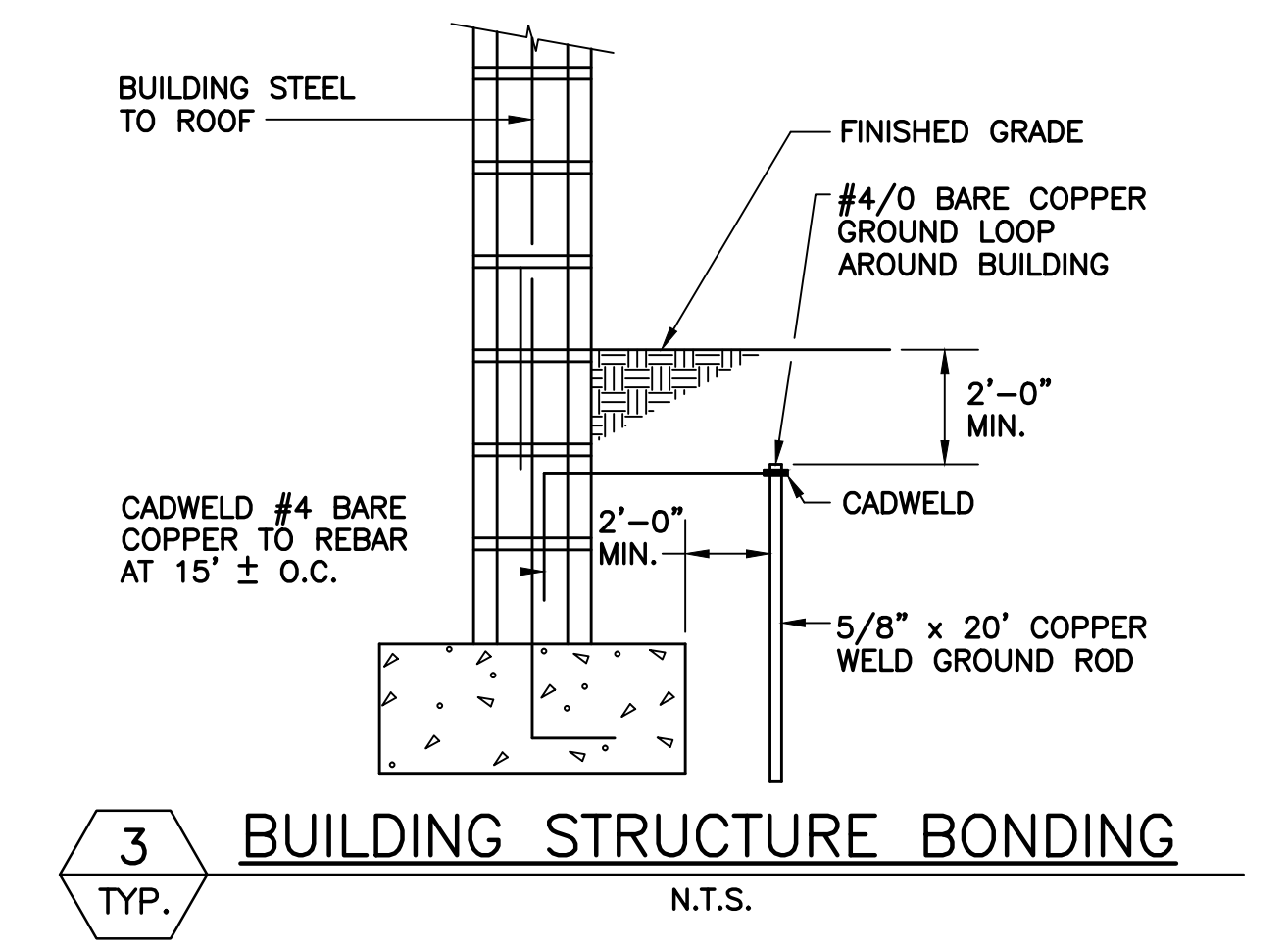
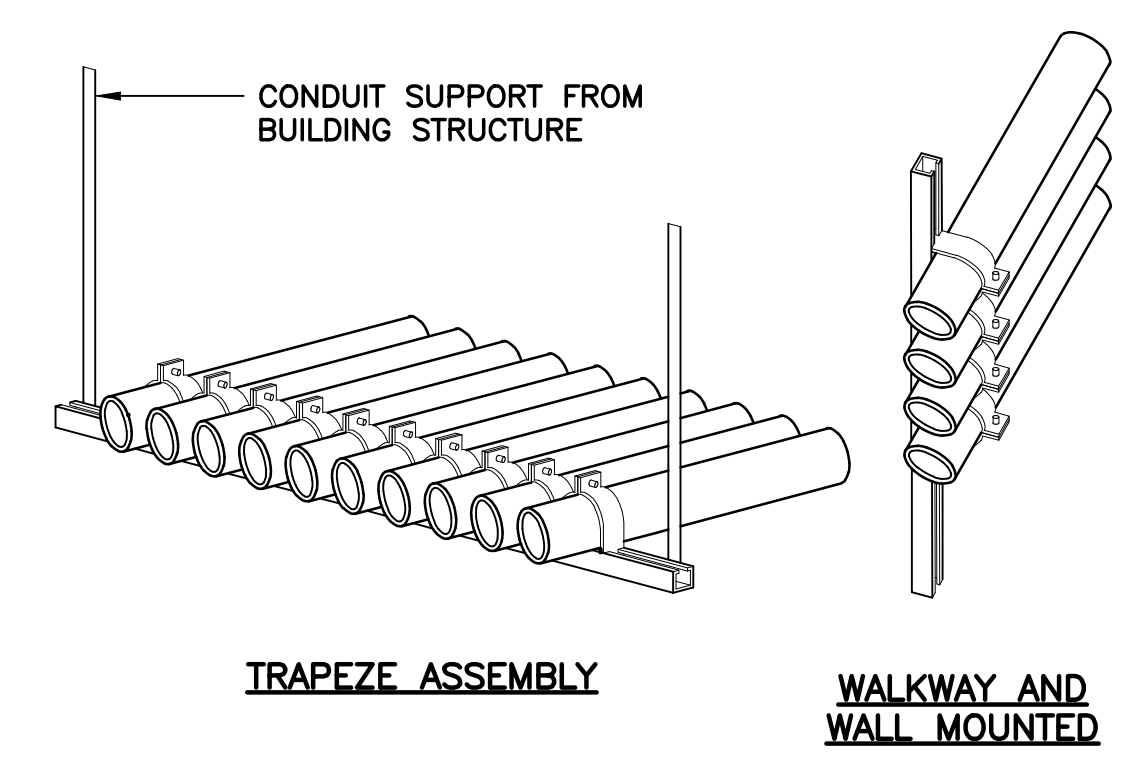
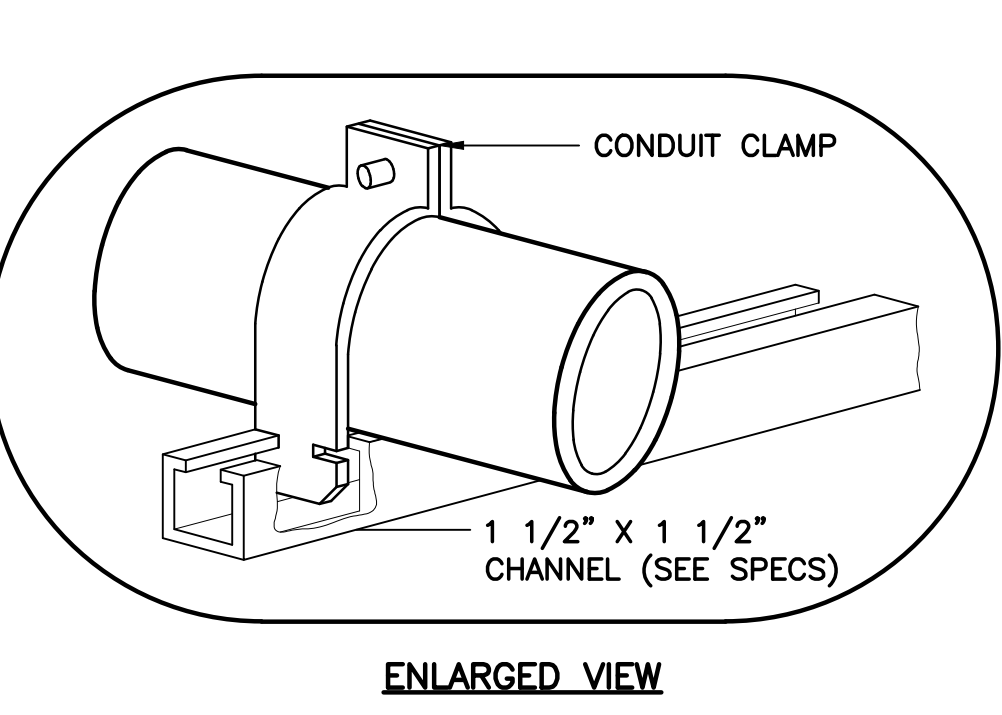
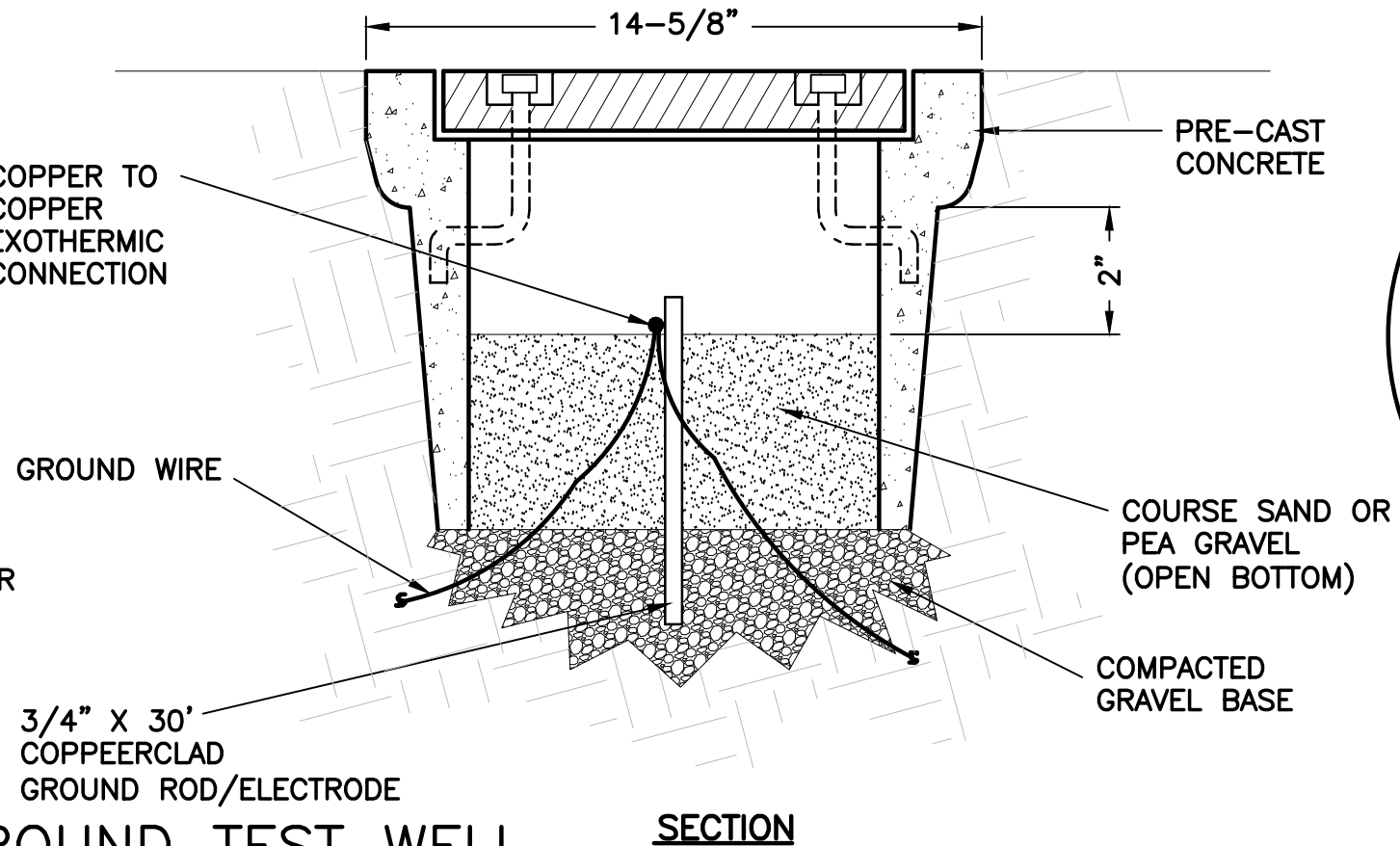
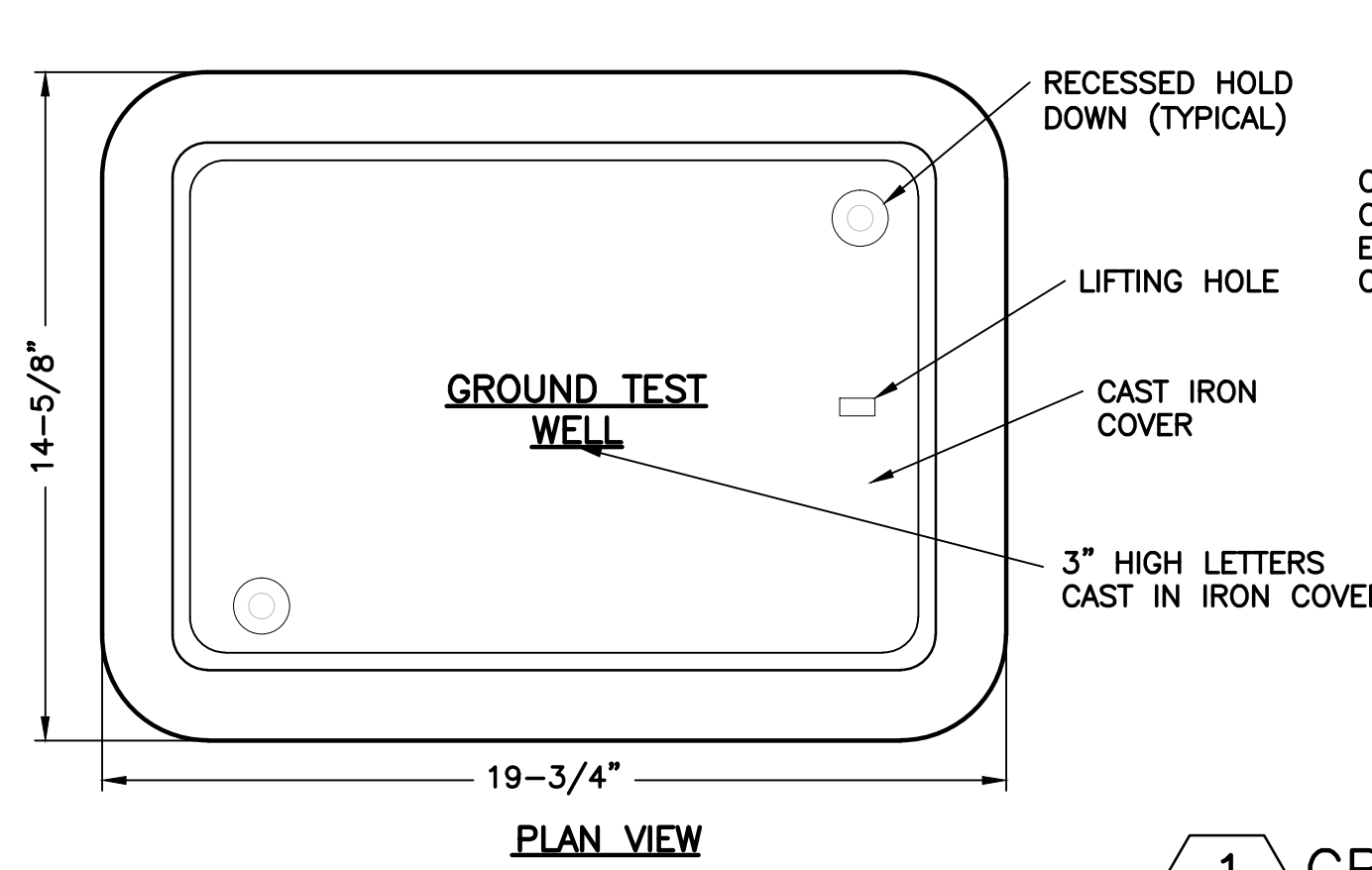
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DRAWING NO.:	E10
SHEET NO.:	36 OF 46



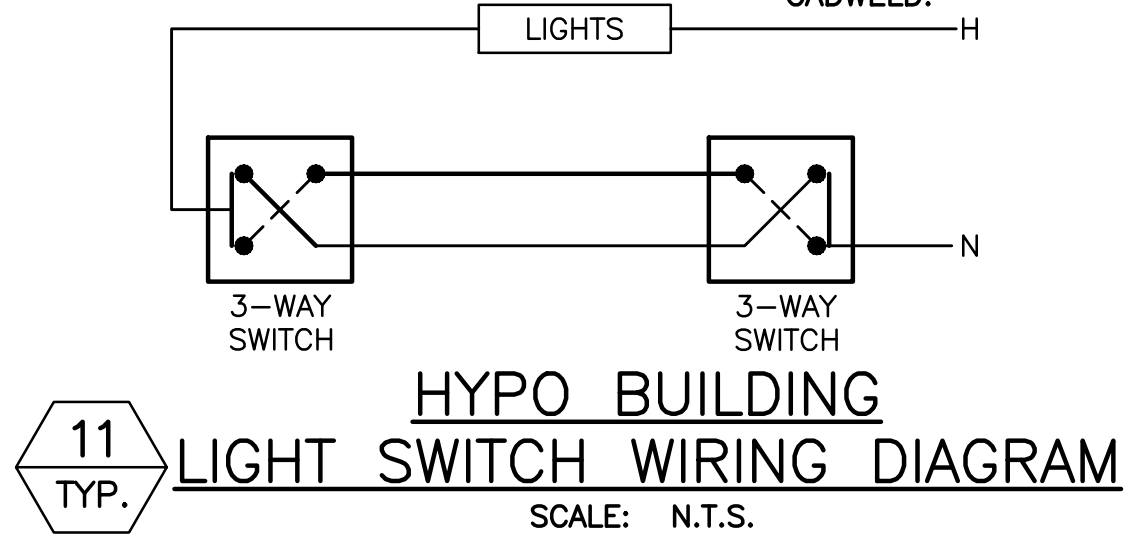
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LIGHTING FIXTURE SCHEDULE		
TYPE	WATT	DESCRIPTION
A	144	4 FOOT LOW PROFILE, CLASS I, DIVISION 2 LED LINEAR FIXTURE, SUITABLE FOR INDUSTRIAL AND HAZARDOUS LOCATIONS, RUGGED SOLID STATE DESIGN, FULLY GASKETED IP 66/67 RATED ENCLOSURE SUITABLE FOR DUST AND WET LOCATIONS, 1598A RATING, 120V, CLEAR LENS (5000K COOL WHITE) 7000 LUMENS, TOP MOUNT.
A1	144	SAME AS TYPE 'A'. EXCEPT WITH EMERGENCY BATTERY PACK
B	42	UTILITY WALL MOUNTED FLUORESCENT FIXTURE. RUGGED, DIE-CAST ALUMINUM HOUSING WITH HEAVY DUTY GLASS GLOBE, GRAY FINISH, U.L. LISTED FOR WET LOCATIONS, 120V
C	71	FULL CUT-OFF WALLPACK. DECORATIVE, DIE-CAST ALUMINUM HOUSING AND DOOR. WHITE POWDER PAINT FINISHES PROVIDING A LASTING APPEARANCE IN OUTDOOR ENVIRONMENTS. 30 HIGH POWER LEDS, 4673 LUMENS. 5000K/70 CRI. 120V, TYPE III DISTRIBUTION.
4	5	NEMA 4X LED EXIT SIGN, SUITABLE FOR USE IN DAMP LOCATIONS, WATERTIGHT AND DUST TIGHT SEAL, CORROSION RESISTANT POLYCARBONATE HOUSING AND COVER, RED HIGH OUTPUT LEDS, MAINTENANCE FREE NICKEL CADMIUM BATTERY, 120V.



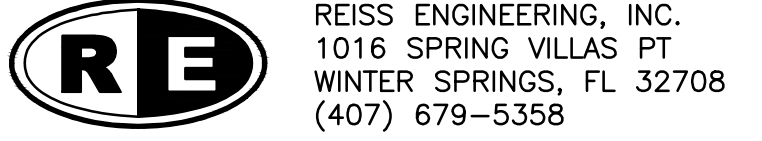
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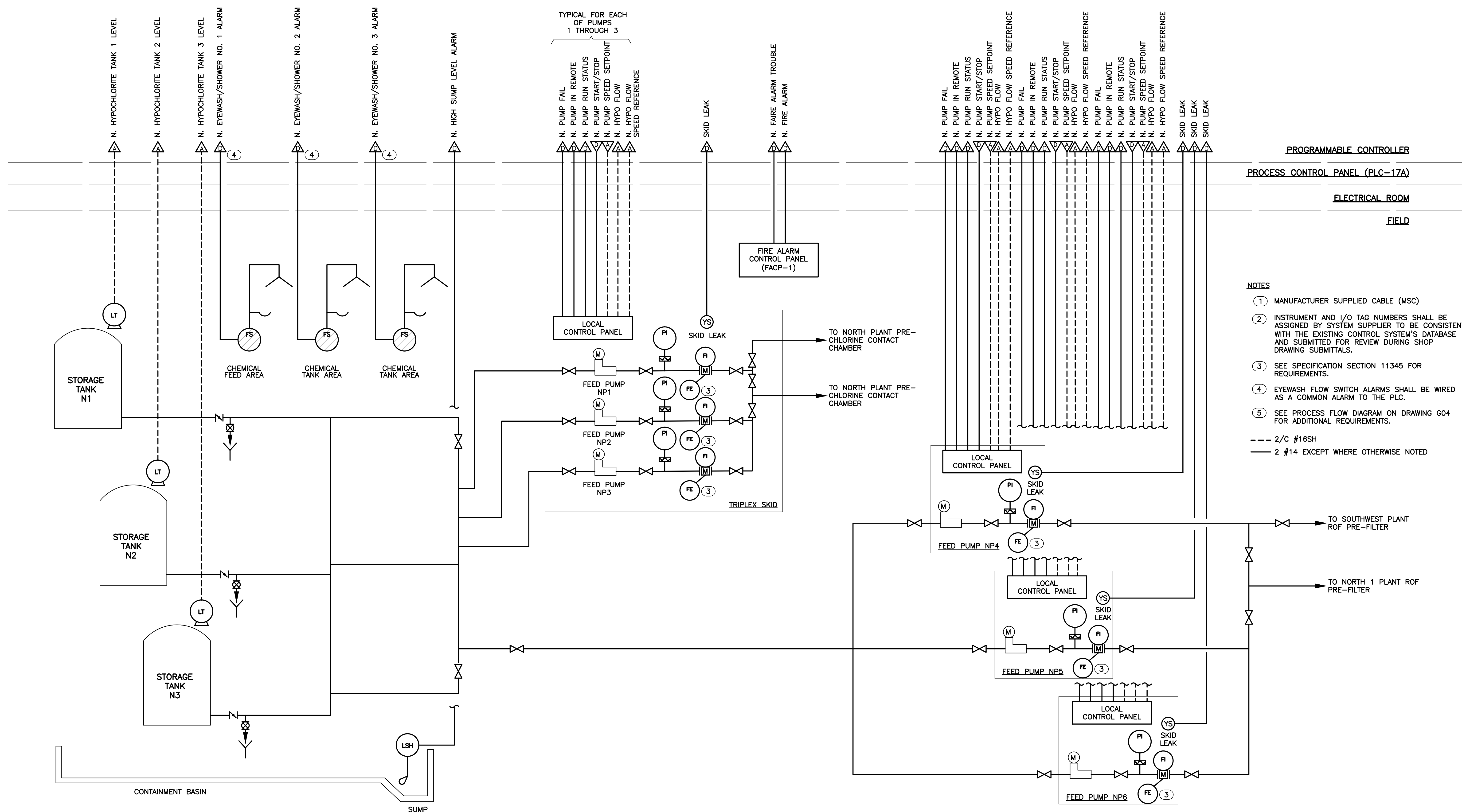
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 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 ELECTRICAL
 LIGHTING FIXTURE SCHEDULE AND ELECTRICAL DETAILS

PROJECT NO.:	110022
SCALE:	NOTED
REVISION:	0
DRAWING NO.:	E11
SHEET NO.:	37 OF 46



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NORTH SODIUM HYPOCHLORITE STORAGE & FEED SYSTEM
N.T.S.

PROGRAMMABLE CONTROLLER
PROCESS CONTROL PANEL (PLC-17A)
ELECTRICAL ROOM
FIELD

- NOTES**
- ① MANUFACTURER SUPPLIED CABLE (MSC)
 - ② INSTRUMENT AND I/O TAG NUMBERS SHALL BE ASSIGNED BY SYSTEM SUPPLIER TO BE CONSISTENT WITH THE EXISTING CONTROL SYSTEM'S DATABASE AND SUBMITTED FOR REVIEW DURING SHOP DRAWING SUBMITTALS.
 - ③ SEE SPECIFICATION SECTION 11345 FOR REQUIREMENTS.
 - ④ EYEWASH FLOW SWITCH ALARMS SHALL BE WIRED AS A COMMON ALARM TO THE PLC.
 - ⑤ SEE PROCESS FLOW DIAGRAM ON DRAWING G04 FOR ADDITIONAL REQUIREMENTS.
- 2/C #16SH
— 2 #14 EXCEPT WHERE OTHERWISE NOTED



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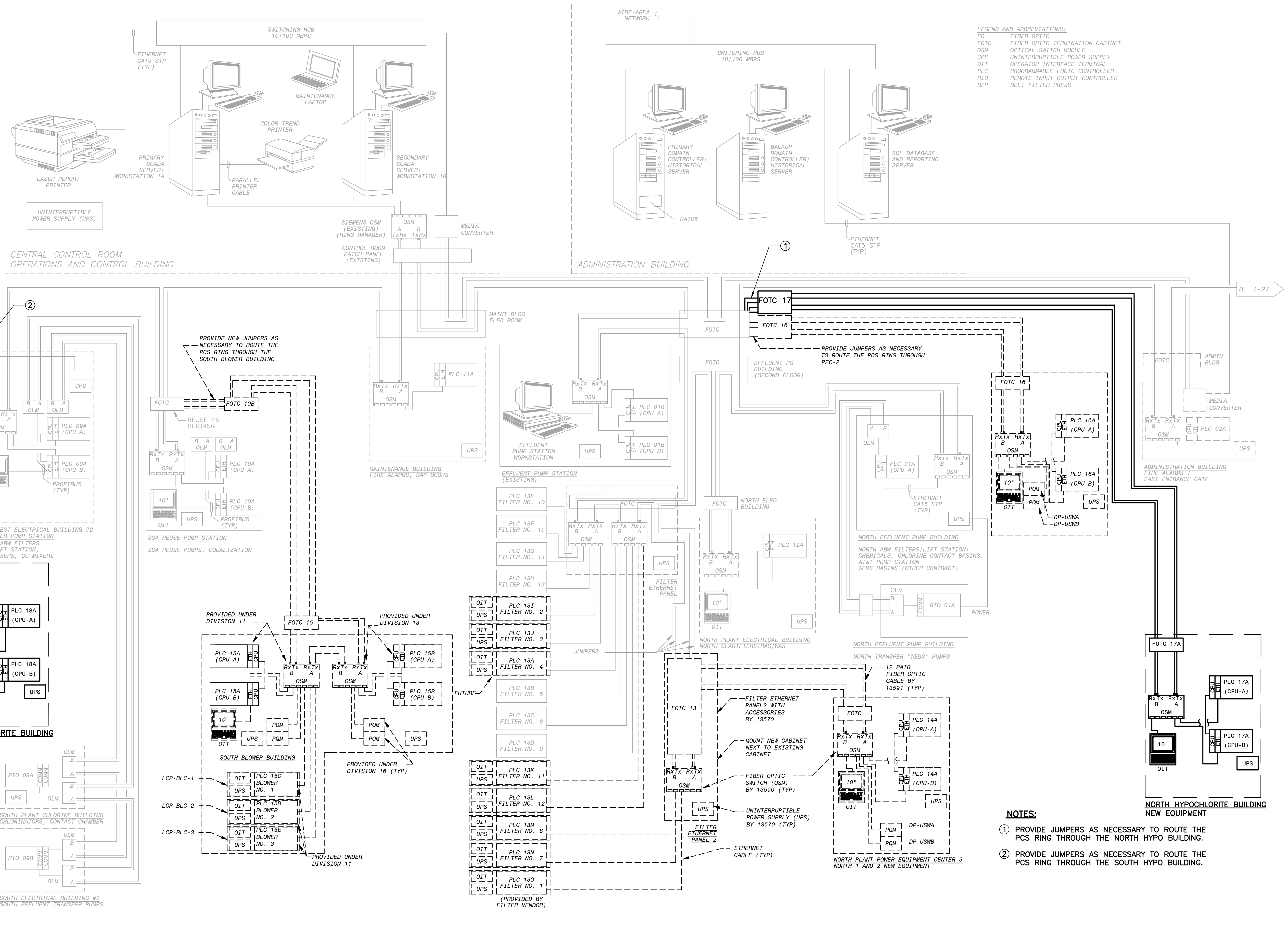
ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
INSTRUMENTATION & CONTROLS
NORTH SODIUM HYPOCHLORITE STORAGE P&ID

PROJECT NO.:	110022
SCALE:	NOTED
REVISION:	0
DRAWING NO.:	102
SHEET NO.:	39 OF 46

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LEGEND AND ABBREVIATIONS:
 FO FIBER OPTIC
 FOTC FIBER OPTIC TERMINATION CABINET
 OSM OPTICAL SWITCH MODULE
 UPS UNINTERRUPTIBLE POWER SUPPLY
 OIT OPERATOR INTERFACE TERMINAL
 PLC PROGRAMMABLE LOGIC CONTROLLER
 RIO REMOTE INPUT OUTPUT CONTROLLER
 BFP BELT FILTER PRESS

- NOTES:**
- 1 PROVIDE JUMPERS AS NECESSARY TO ROUTE THE PCS RING THROUGH THE NORTH HYPO BUILDING.
 - 2 PROVIDE JUMPERS AS NECESSARY TO ROUTE THE PCS RING THROUGH THE SOUTH HYPO BUILDING.



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Drawn RRM
Checked LMR
Reviewed DD
Approved LMR

ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 INSTRUMENTATION & CONTROLS
SYSTEM NETWORK DIAGRAM

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: B
DRAWING NO.: 104	SHEET NO.: 41 OF 46



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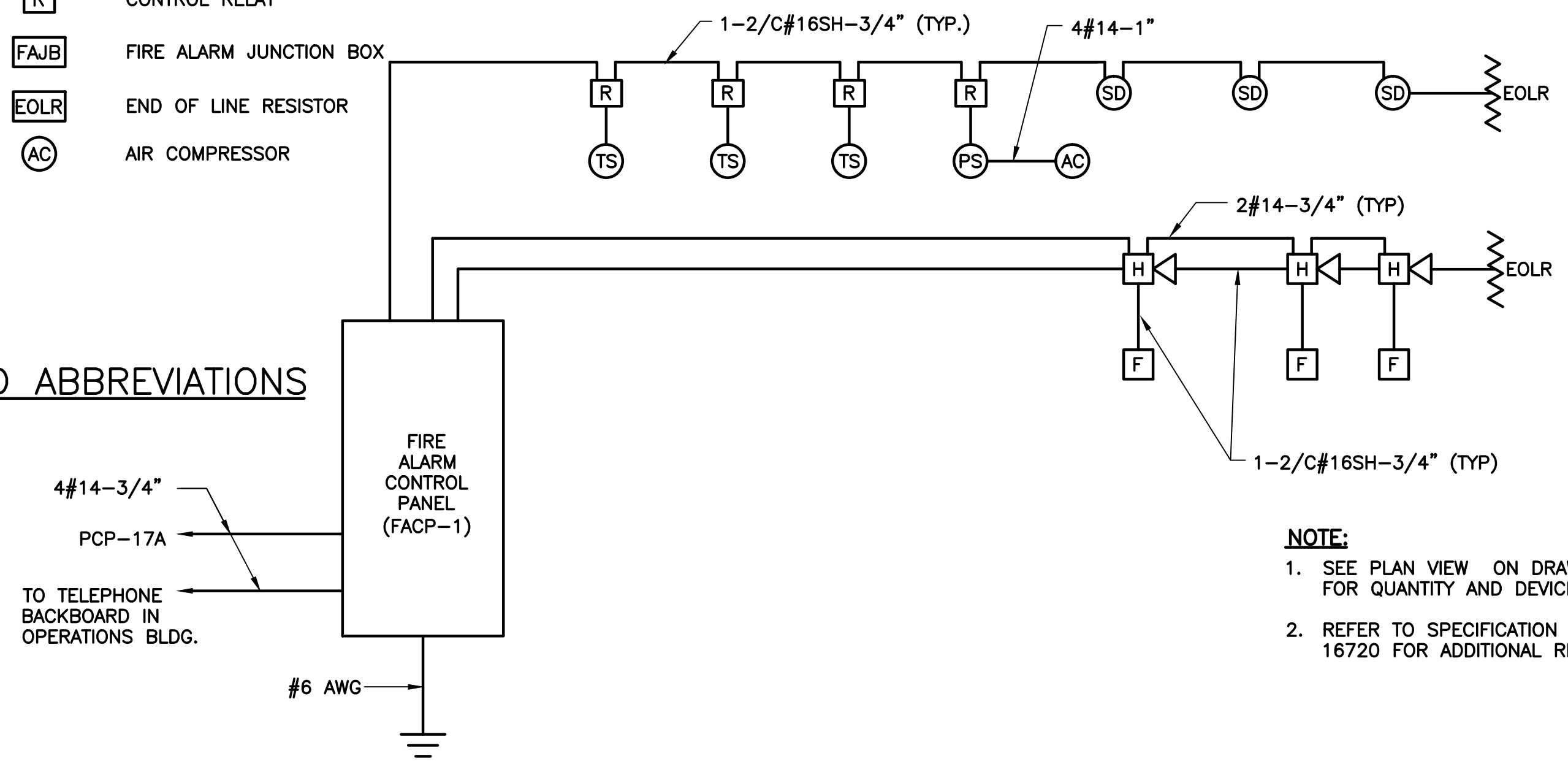
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FIRE EQUIPMENT FUNCTION SYMBOLS

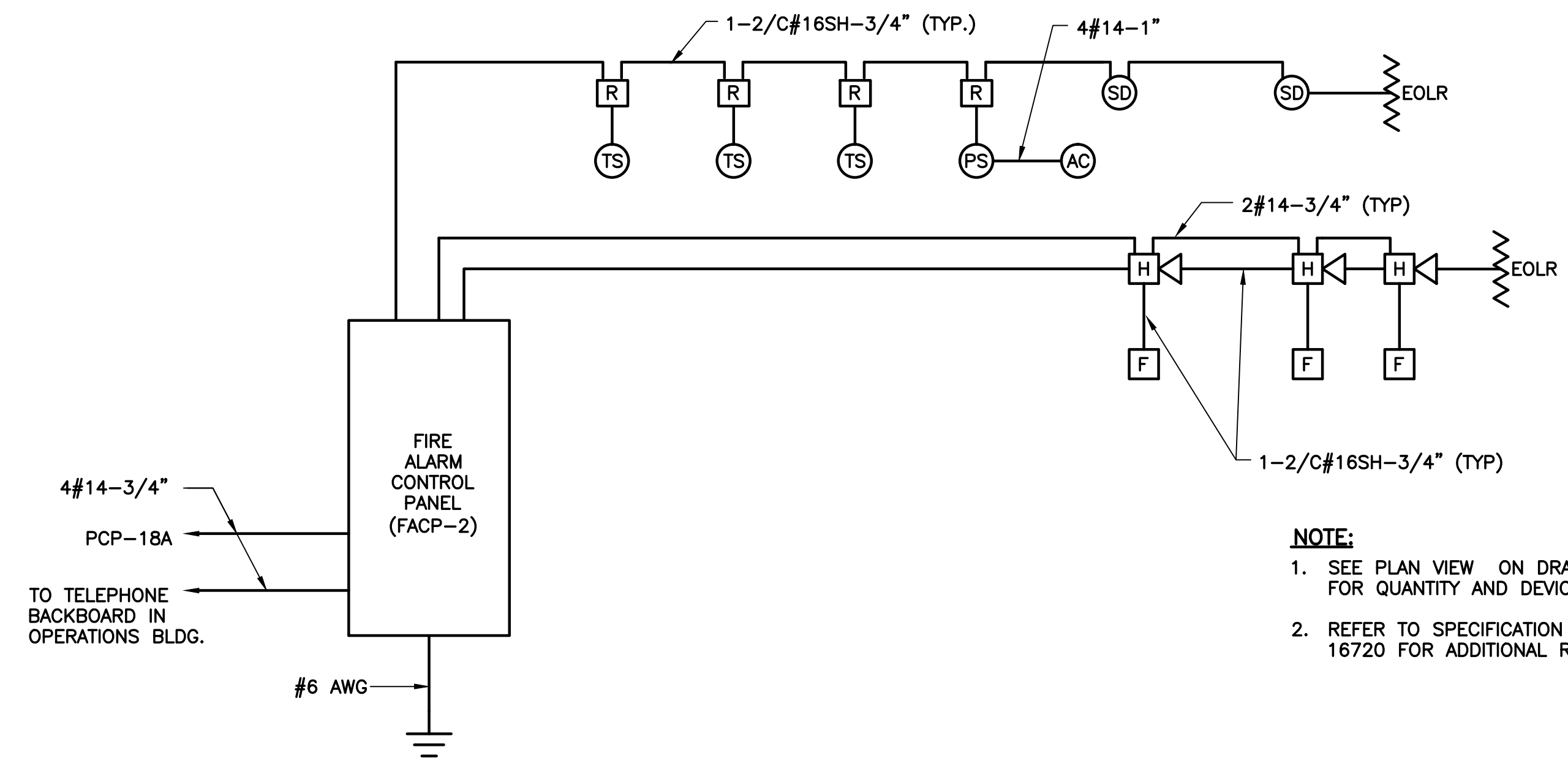
- FACP** FIRE ALARM CONTROL PANEL
- FAAP** FIRE ALARM ANNUNCIATOR PANEL
- H** HORN / STROBE
- L** STROBE LIGHT
- F** PULL STATION
- SD** SMOKE DETECTOR
- DD** DUCT DETECTOR
- FS** FLOW SWITCH
- TS** TAMPERSWITCH
- PS** PRESSURE SWITCH
- I** ISOLATION MODULE
- CR** ADDRESSABLE RELAY MODULE AS REQUIRED
- MX** ADDRESSABLE INPUT MODULE AS REQUIRED
- R** CONTROL RELAY
- FAJB** FIRE ALARM JUNCTION BOX
- EOLR** END OF LINE RESISTOR
- AC** AIR COMPRESSOR

FUNCTION SYMBOLS AND ABBREVIATIONS

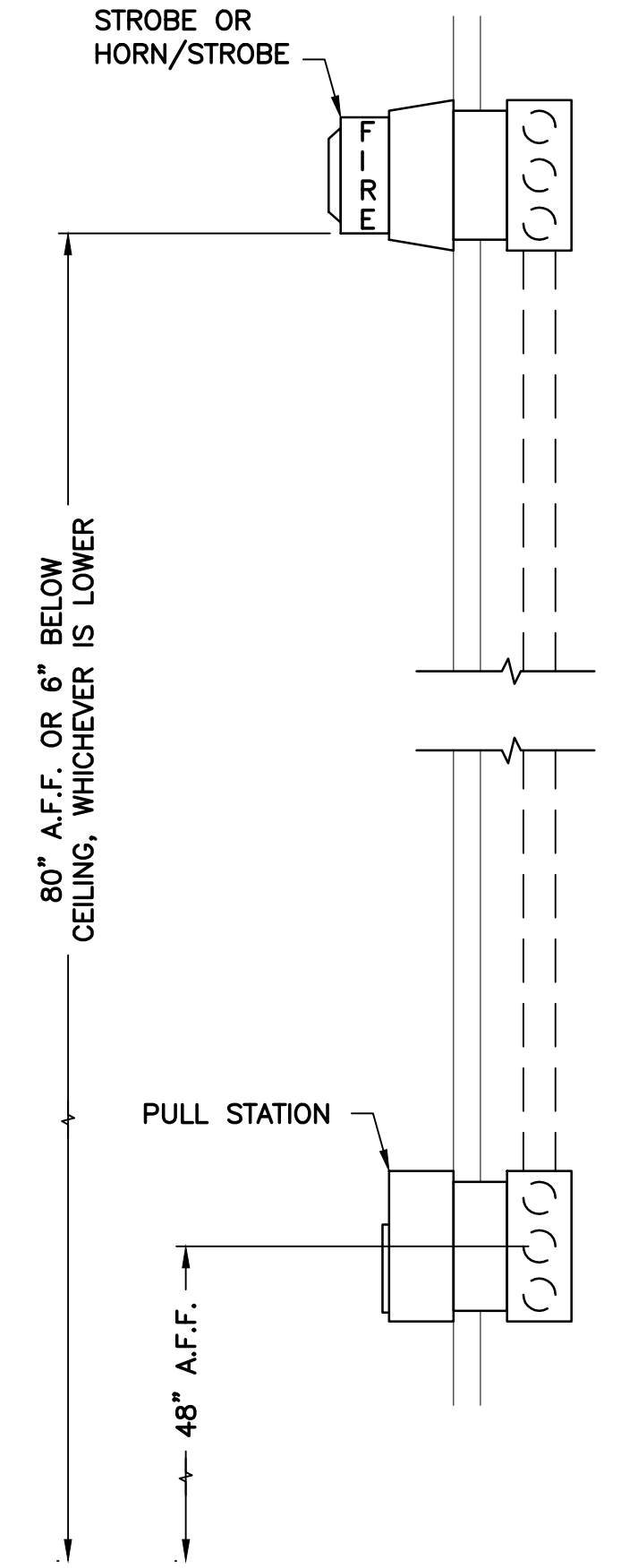
- ELOR END OF LINE RESISTOR
- TP TWISTED PAIR CABLE
- TSP TWISTED SHIELDED PAIR CABLE
- TYP TYPICAL



NORTH HYPOCHLORITE STORAGE BUILDING FIRE ALARM RISER DIAGRAM



SOUTH HYPOCHLORITE STORAGE BUILDING FIRE ALARM RISER DIAGRAM



HEIGHT REQUIREMENTS
SCALE: N.T.S.

FIRE ALARM SYSTEM NOTES:

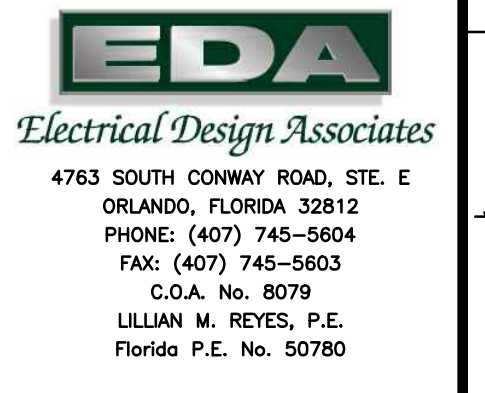
- 1 PROVIDE FULLY OPERABLE ADDRESSABLE, ANALOG FIRE ALARM SYSTEM IN ACCORDANCE TO N.F.P.A. 72 2010 EDITION CODE AND ANY APPLICABLE LOCAL CODES AND ORDINANCES.
- 2 CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ORANGE COUNTY FIRE MARSHAL.
- 3 PROVIDE ANNUNCIATION AS FOLLOWS:
A. EACH DEVICE SHALL HAVE A SEPARATE ADDRESS WITH AN ENGLISH READ OUT AT THE LOCAL FIRE ALARM PANEL AND SHALL COMMUNICATE WITH THE MAIN FIRE ALARM PANEL.
- 4 SYSTEM SHALL BE CONTINUOUSLY SUPERVISED ELECTRICALLY AGAINST COMPONENT-FAILURE, SHALL DETECT OPEN OR SHORT WHICH MIGHT IMPAIR THE FUNCTION OF THE SYSTEM, AND SHALL BE POWER LIMITING.
- 5 ON ALARM INITIATION MANUAL OR AUTOMATIC, THE FOLLOWING FUNCTIONS SHALL OCCUR:
A. SOUND ALL AUDIBLE/VISIBLE STROBE LIGHTING ALARMS IN BUILDING.
B. INDICATE WHICH DEVICE INITIATED ALARM.
C. ACTIVATE ALARM TO MAIN FIRE ALARM PANEL.
- 6 SYSTEM SHALL BE FIELD PROGRAMMABLE.
- 7 HORN STROBE SHALL BE AT LEAST 15 DBA ABOVE THE AMBIENT SOUND AND SHALL HAVE A DURATION OF NO LESS THAN 60 SECONDS MEASURED 5 FOOT ABOVE THE FLOOR IN THE OCCUPIED AREA. THE CONTRACTOR IS REQUIRED TO CERTIFY THE DBA LEVEL WITH AN APPROVED DBA METER PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
- 8 ALL COMPONENTS SHALL BEAR UL LABEL FOR FIRE SERVICE USE AND SHALL BE COMPATIBLE.
- 9 BEFORE THIS INSTALLATION SHALL BE CONSIDERED COMPLETE AND ACCEPTABLE TO THE COUNTY AND ENGINEER, A COMPLETE TEST ON THE SYSTEM SHALL BE PERFORMED, AND A NFPA 72 CERTIFICATE OF COMPLETION SHALL BE RECEIVED FROM THE MANUFACTURER'S REPRESENTATIVE.
- 10 PROVIDE SIX (6) SETS OF POINT-TO-POINT WIRING DIAGRAMS, OWNER MANUALS, INSTALLATION INSTRUCTIONS, BATTERY CALCULATIONS, AND RECORD DRAWINGS.
- 11 DEALER SHALL INCLUDE AT NO CHARGE TO THE OWNER A ONE-YEAR FULL MAINTENANCE SERVICE CONTRACT TO PROVIDE ALL MANUFACTURER'S RECOMMENDED SERVICES WITH A MINIMUM OF FOUR INSPECTIONS PER YEAR. THE DEALER SHALL MAKE AVAILABLE TO THE OWNER AFTER THE FIRST YEAR AN EXTENSION OF THE CONTRACT AT THE DEALER'S REGULAR RATE.
- 12 SIGNALS (HORN/STROBE AND STROBES) TO BE MOUNTED AT 80" AFF. TO BOTTOM OF DEVICE TO MEET ADA.
- 13 PULL STATIONS TO BE MOUNTED AT 48" AFF.
- 14 MANUFACTURER SHALL PROVIDE A THREE YEAR WARRANTY ON ALL FIRE ALARM PARTS.

GENERAL NOTES:

- 1 SEE ELECTRICAL DRAWINGS FOR ADDITIONAL CONDUIT AND CABLE REQUIREMENTS AND INSTALLATION DETAILS.
- 2 EACH SYSTEM SHALL BE SUPPLIED WITH ALL HARDWARE, SOFTWARE, PROGRAMMING, INTERCONNECTING CABLES, POWER SUPPLIES, WIRING, TERMINATION AND INSTALLATION FOR A COMPLETE AND WORKING SYSTEM.
- 3 CONTRACTOR SHALL REVIEW THE DRAWINGS OF ALL DISCIPLINES AND APPROVED SHOP DRAWINGS AND COORDINATE THE INSTALLATION OF PANELS, CONDUIT, CABLE AND TERMINATION REQUIREMENTS FOR EQUIPMENT BEING SUPPLIED AS PART OF OTHER SPECIFICATION SECTION.
- 4 ADJUST LOCATION OF FIRE ALARM DEVICES TO PROVIDE MAXIMUM COVERAGE AND MEET THE REQUIREMENTS OF THE LATEST CODES FOR FIRE ALARM SYSTEMS.
- 5 PROVIDE CONDUIT AND CABLES AS PER MANUFACTURERS REQUIREMENTS AND APPROVED SHOP DRAWINGS. CABLES SHALL BE RATED FOR THE ENVIRONMENT INSTALLED. WET LOCATION FOR ALL CABLES INSTALLED IN BELOW GRADE CONDUIT SYSTEMS. MINIMUM SIZE CONDUIT 3/4", SEE ELECTRICAL SPECIFICATIONS FOR CONDUIT APPLICATIONS.

SCOPE:

- 1 PROVIDE AND INSTALL FIRE ALARM SYSTEMS AS SHOWN ON THE PLANS AND SPECIFICATIONS.
- 2 PROVIDE ALL HARDWARE, SOFTWARE AND PROGRAMMING REQUIRED FOR COMPLETE AND WORKING SYSTEMS.
- 3 PROVIDE AND INSTALL ALL PANELS, DEVICES, POWER SUPPLIES, CONDUIT, CABLE AND TERMINATIONS AS REQUIRED FOR COMPLETE AND WORKING SYSTEMS.
- 4 THE FIRE ALARM SYSTEMS SHALL BE COORDINATED WITH THE COUNTY AND THE FIRE MARSHALL AND SHALL MEET THE REQUIREMENTS OF EACH OFFICE. CONTRACTOR SHALL INCLUDE IN HIS BID ALL HARDWARE AND SOFTWARE REQUIRED FOR U.L. CERTIFICATION OF THE SYSTEM.



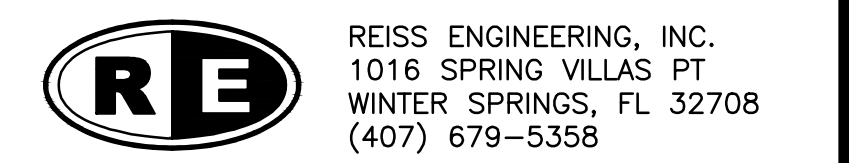
REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	RRM

Issue Certification
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Approved_LMR

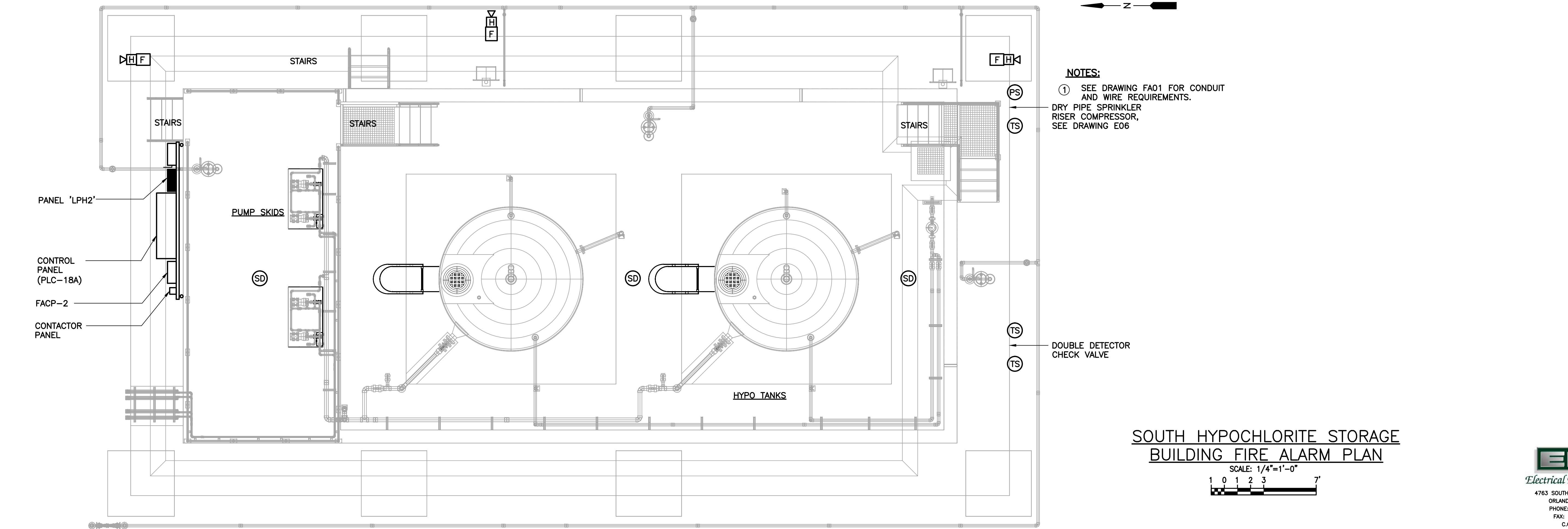
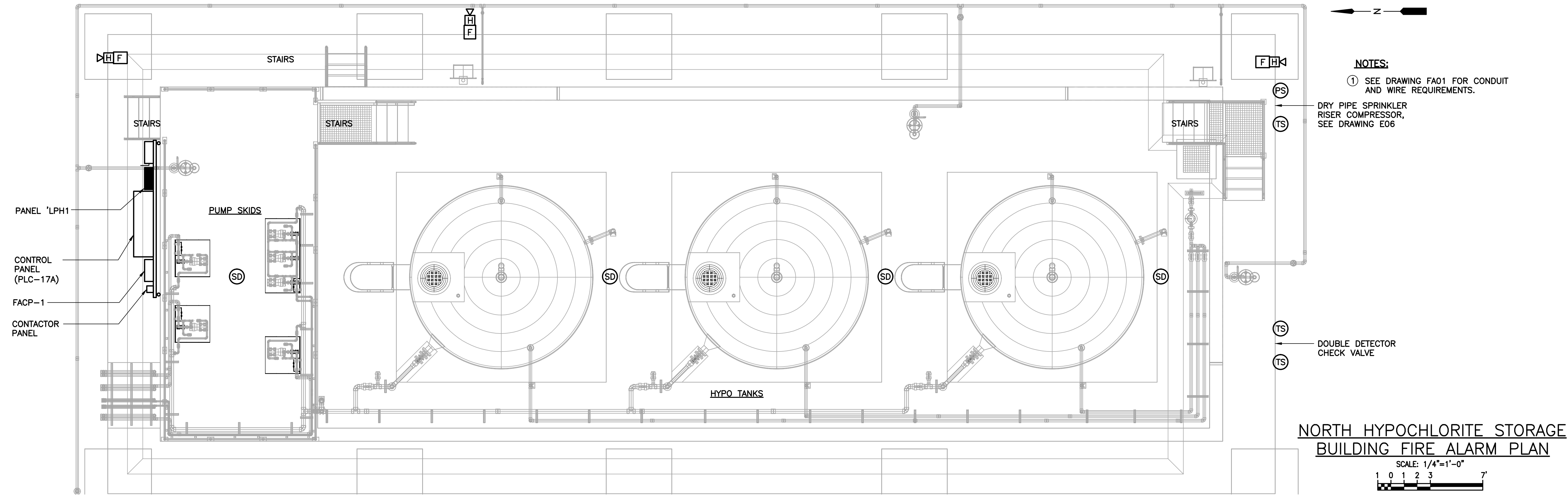
ORANGE COUNTY UTILITIES
SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
FIRE ALARM
NORTH & SOUTH HYPOCHLORITE STORAGE BUILDING
FIRE ALARM RISER DIAGRAMS, LEGEND & NOTES

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. FA01	SHEET NO.: 42 OF 46



Parent Sheet Set: 110022SWRFHYPO Rev/Plot by: RYAN MEEKS Rev on: 10/26/2016 4:05 PM Individual File Path: W:\2_ACTIVE PROJECTS\REISS\ORANGE COUNTY\Y11-902-PH\SWRF HYPOCHLORITE IMPROVEMENTS\Y11-902-PH\DWG\FA01-110022016-454-201 PM_RReiss.dwg

Parent Sheet Set: 1100225WRFHYP0 Rev/Plot by: RYAN MEEKS Rev on: 10/26/2016 4:07 PM Individual File Path: W:\2_ACTIVE PROJECTS\REISS\ORANGE COUNTY\Y11-902-PH\SWRF HYPOCHLORITE IMPROVEMENTS\7_BIDSET\DWGS\FA-02_PLAN.DWG



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 LILLIAN M. REYES, P.E.
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REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	RRM

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 Reviewed_DD
 Approved_LMR

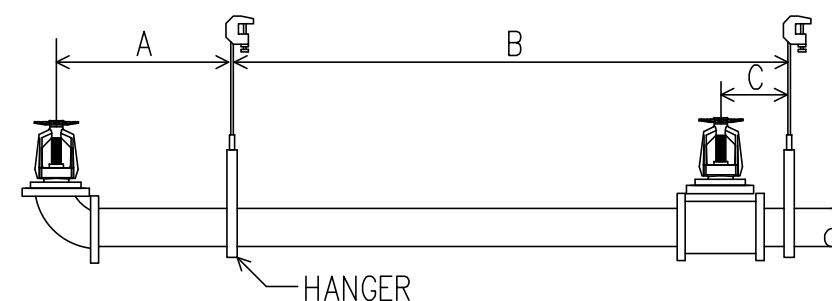
ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 FIRE ALARM
 NORTH & SOUTH SODIUM HYPOCHLORITE
 STORAGE BUILDING FIRE ALARM PLANS

PROJECT NO.:	110022
SCALE:	NOTED
REVISION:	0
DRAWING NO.:	FA02
SHEET NO.:	43 OF 46

RE REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT
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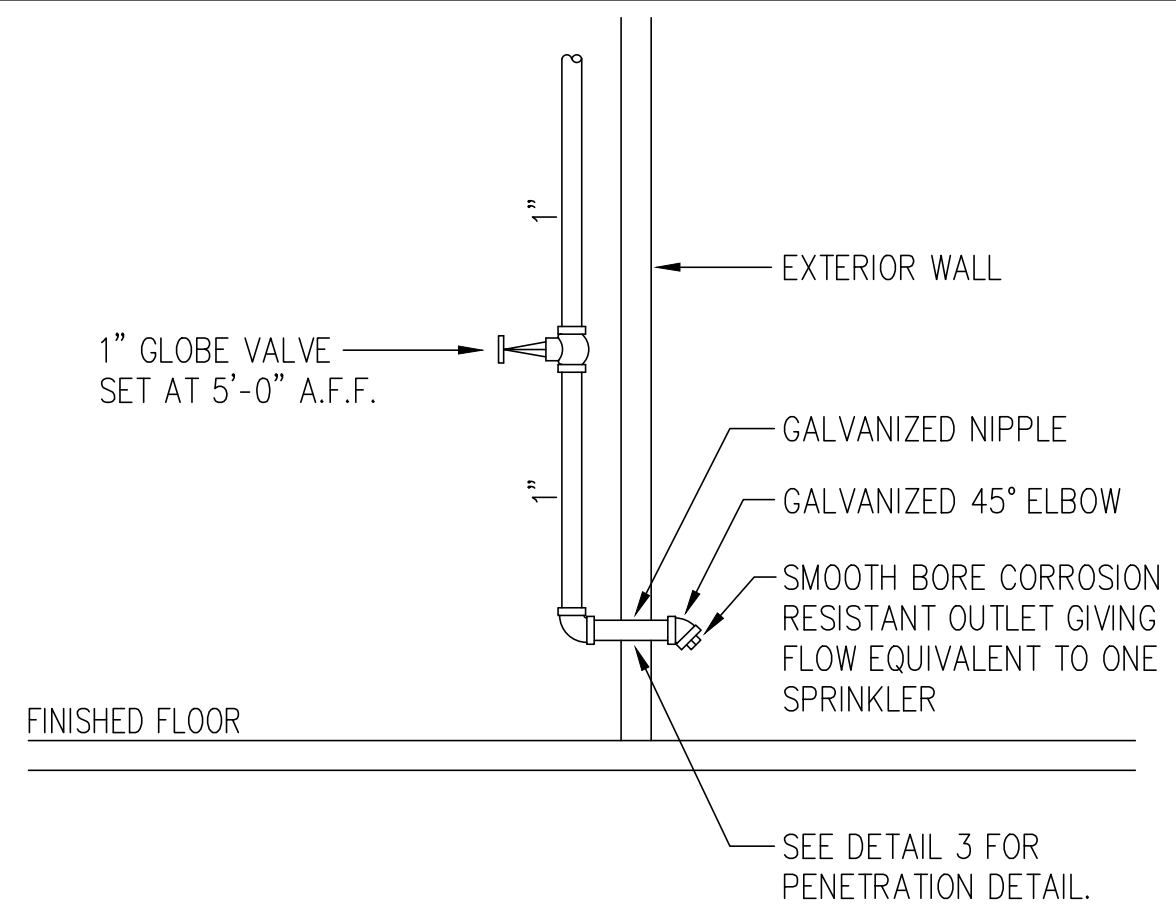
STEEL PIPE HANGER LOCATION DETAIL

PIPE SIZE	A	B	C
1"	3'-0" MAX	12'-0" MAX	3" MIN
1 1/4"	4'-0" MAX	12'-0" MAX	3" MIN
1 1/2" - 8"	5'-0" MAX	12'-0" MAX	3" MIN



THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER AND THE LAST HANGER ON THE LINE SHALL NOT EXCEED 36" FOR 1" PIPE, 48" FOR 1 1/4" PIPE AND 60" FOR 1 1/2" PIPE OR LARGER.

THE CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARMOR TO A SPRINKLER, SPRINKLER DROP, OR SPRIG-UP SHALL NOT EXCEED 24".



INSPECTOR'S TEST DETAIL

Legend	
ID	Description
1	6" MECHANICAL JOINT ELBOW
2	6" DOUBLE DETECTOR CHECK 3000SS
3	BRASS FIRE DEPARTMENT CONNECTION
4	4" KENNEDY WAFER CHECK VALVE
5	6"X4"X6" FLANGED REDUCED TEE
6	6" FLANGED ELBOW
7	4" GROOVED ELBOW
8	4" GROOVED DRY VALVE W/TRIM
9	4" GROOVED B'FLY VALVE W/TAMPER
10	6" OS&Y VALVE W/TAMPER SWITCH
11	RISER MOUNTED COMPRESSOR

FAC 61G15-32.003 NOTES

32.003(1) THE FIRE SPRINKLER CONTRACTOR SHALL PREPARE DETAILED WORKING PLANS IN ACCORDANCE WITH NFPA 13, 2010 EDITION, CHAPTER 14. THE FIRE PROTECTION SYSTEM LAYOUT SHALL FOLLOW THE DESIGN GUIDELINES SET FORTH IN THESE FIRE PROTECTION ENGINEERING DOCUMENTS.

32.003(2) THE FIRE SPRINKLER CONTRACTOR SHALL OBTAIN THE ACCEPTANCE TESTS FROM THE LOCAL AUTHORITY. THE ACCEPTANCE TEST FOR THE OVERHEAD SPRINKLER SYSTEM PIPING SHALL BE IN ACCORDANCE WITH NFPA 13, 2010 EDITION CHAPTER 16, SECTION 16.2 USING THE MATERIAL AND TEST CERTIFICATE FOR ABOVEGROUND PIPING IN FIGURE 16.1. THE ACCEPTANCE TEST FOR THE UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH NFPA 13, 2010 EDITION CHAPTER 10, SECTION 10.10 USING THE MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING IN FIGURE 10.10.1.

FAC 61G15-32.004 NOTES

32.004(2)(a) THE POINT OF SERVICE IS INDICATED AT THE BACKFLOW PREVENTER. AT THIS POINT, THE SYSTEM IS DEDICATED SOLELY FOR FIRE PROTECTION PURPOSES. NO DOMESTIC WATER SHALL BE TAKEN FROM THE SYSTEM BEYOND THIS POINT FOR OTHER PURPOSES.

32.004(2)(b) THE FOLLOWING ARE APPLICABLE STANDARDS:
 FLORIDA FIRE PREVENTION CODE, FIFTH EDITION (2014).
 NFPA 13, 2010 EDITION, INSTALLATION OF SPRINKLER SYSTEMS.
 NFPA 24, 2010 EDITION, STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES.
 NFPA 25, 2011 EDITION, INSPECTION, TESTING AND MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS.

32.004(2)(c) CLASSIFICATIONS OF HAZARD OCCUPANCIES FOR THE AREAS OF DESIGN ARE AS FOLLOWS: (HYPOCHLORITE ROOM) ORDINARY HAZARD GROUP 2 PER NFPA 13, 2010 EDITION.

32.004(2)(d) THE SPRINKLER SYSTEM SHALL BE WET PIPE FOR ORDINARY HAZARD GROUP 2 OCCUPANCY AND SHALL BE HYDRAULICALLY CALCULATED PER NFPA 13, 2010 EDITION, 0.20gpm/sq.ft. OVER THE MOST REMOTE 1950sq.ft. SPRINKLERS SHALL HAVE A TEMPERATURE RATING OF 155°F AND THE SPACING SHALL BE 130sq.ft. INCLUDE A FIRE HOSE ALLOWANCE OF 250gpm.

32.004(2)(e) WATER SUPPLY: THIS BUILDING WILL HAVE A NEW 6" WATER SUPPLY FOR FIRE SPRINKLER PROTECTION BY ORANGE COUNTY.

32.004(2)(f) FLOW TEST #1 - STATIC: 72psi, RESIDUAL 58psi FLOWING 963gpm. TEST WAS TAKEN ON 11-14-2014 AT 10:00am OFF AN 8" WATER MAIN AT THE LOCATION OF THE NEW BUILDING. TEST WAS TAKEN BY ORANGE COUNTY UTILITIES.
 FLOW TEST #2 - STATIC: 72psi, RESIDUAL 51psi FLOWING 1006gpm. TEST WAS TAKEN ON 11-14-2014 AT 8:00am OFF AN 8" WATER MAIN AT THE LOCATION OF THE NEW BUILDING. TEST WAS TAKEN BY ORANGE COUNTY UTILITIES.

32.004(2)(g) VALVE AND ALARM REQUIREMENTS: ALL CONTROL VALVES ON SPRINKLER RISERS AND FIRE PROTECTION BACKFLOW PREVENTERS SHALL HAVE A TAMPER SWITCH.

32.004(2)(h) THE LOCAL WATER PURVEYOR IS REQUESTED TO ADVISE THE ENGINEER OF RECORD IF CONDITIONS EXIST IN THEIR WATER SUPPLY THAT COULD LEAD TO MIC, SO THAT THE ENGINEER CAN DESIGN CORRECTIVE MEASURES. THERE ARE NO KNOWN MIC CONDITIONS IN THE ORANGE COUNTY WATER SYSTEMS.

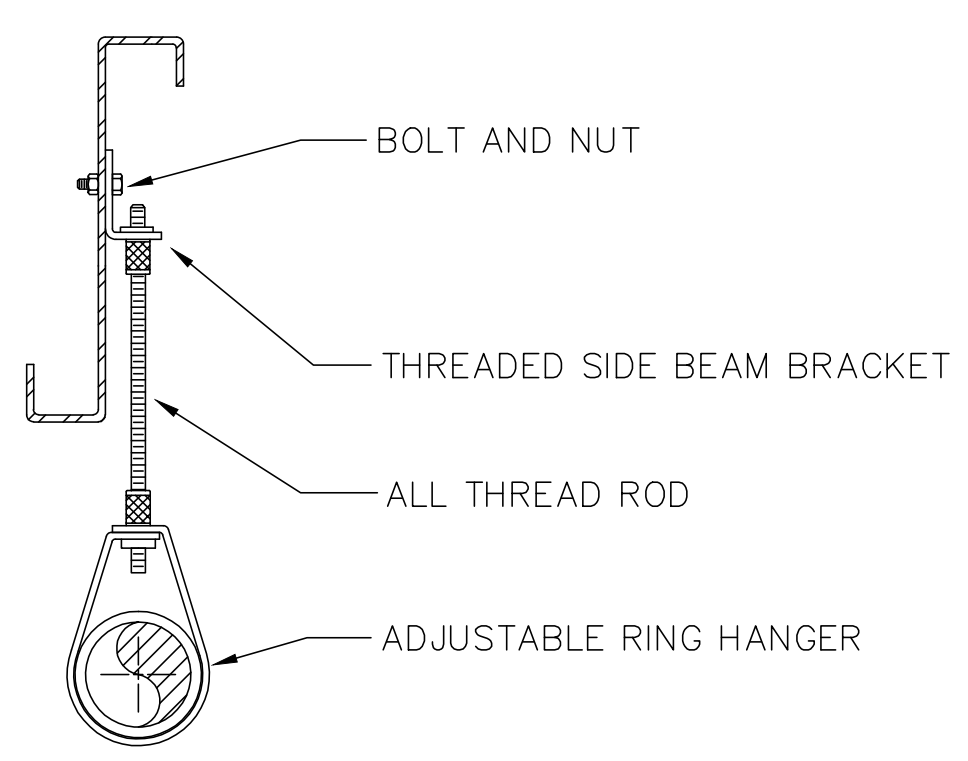
32.004(2)(i) BACKFLOW PREVENTER AND METERING SPECIFICATIONS SHALL MEET OR EXCEED REQUIREMENTS OF ORANGE COUNTY.

32.004(2)(j) YARD AND INTERIOR FIRE PROTECTION COMPONENTS: PRODUCT DATA SHEETS SHALL BE SUBMITTED BY THE SPRINKLER CONTRACTOR ALONG WITH THEIR SHOP DRAWINGS. ALL FIRE PROTECTION DEVICES AND COMPONENTS SHALL BE UL LISTED AND FM APPROVED.

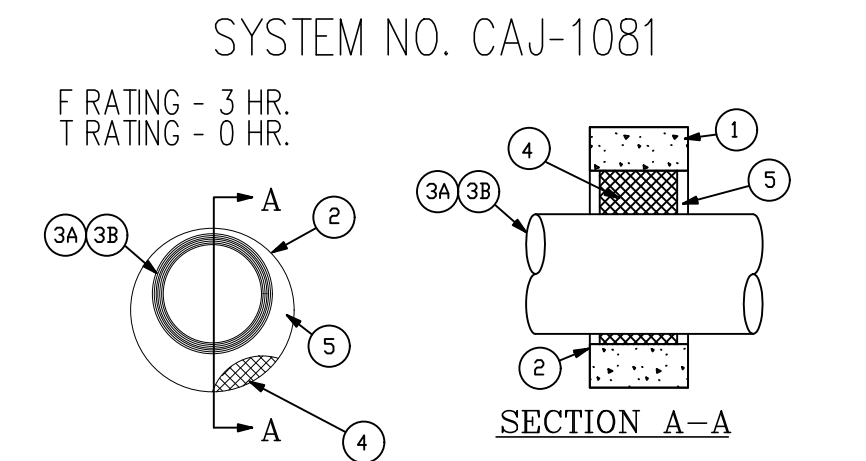
FIRE PROTECTION GENERAL NOTES

- DRY PIPE SPRINKLER SYSTEM DESIGNED PER NFPA 13, 2010 EDITION. ORDINARY HAZARD GROUP 2 OCCUPANCY (HYPOCHLORITE ROOM) USING .20gpm OVER THE MOST REMOTE 1950 sq.ft., 130 sq.ft. MAXIMUM HEAD SPACING & 250gpm HOSE STREAM TO MEET OR EXCEED THE REQUIREMENTS OF NFPA 13, 2010 EDITION AND LOCAL AUTHORITIES.
- ALL FIRE SPRINKLERS SHALL BE IN ACCORDANCE WITH NFPA 13, 2010 EDITION.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH NFPA 13, 2010 EDITION.
- ALL HANGERS & MATERIALS TO BE IN ACCORDANCE WITH NFPA 13, 2010 EDITION.
- ALL CROSS MAINS & RISERS TO BE SCHEDULE 10 GALVANIZED PIPE, U.N.O. ALL BRANCH LINE PIPING TO BE SCHEDULE 40 GALVANIZED PIPE, U.N.O.
- ALL FIRE PROTECTION EQUIPMENT IN HYPOCHLORITE BUILDING, INCLUDING PIPING, FITTINGS, VALVES, AND HANGERS, SHALL BE SUITABLE FOR USE IN A CORROSIVE ENVIRONMENT. PROVIDE CORROSION PROTECTION FOR ALL FIRE PROTECTION ELEMENTS, USING GALVANIZED OR STAINLESS STEEL MATERIALS WHERE POSSIBLE.
- ALL EXPOSED CROSS MAIN PIPING TO HANG TIGHT TO THE BOTTOM OF THE BEAMS. ALL UPRIGHT SPRINKLER DEFLECTORS SHALL BE 2" TO 12" BELOW FINISHED ROOF DECK. COORDINATE ALL PIPING WITH STRUCTURAL ELEMENTS AND ABIDE BY ALL OBSTRUCTION RULES PER NFPA 13, 2010 EDITION AND FIRE SPRINKLER MANUFACTURER'S SPECIFICATIONS.
- SPRINKLER HEAD SPACING IS PER NFPA 13, 2010 EDITION.
- THE CONSTRUCTION MANAGER SHALL PROVIDE, OR HAVE PROVIDED, A SET OF COORDINATION DRAWINGS FOR ALL SYSTEMS AND FEATURES THAT OCCUR ABOVE THE CEILING PLANE. THE COORDINATION DRAWINGS SHALL INCLUDE, BUT NOT BE LIMITED TO, STRUCTURAL MEMBERS, HVAC DUCTWORK, HYDRONIC PIPING, PLUMBING SUPPLY AND WASTE PIPING, FIRE PROTECTION PIPING, ELECTRICAL POWER CONDUITS AND RACEWAYS, AND ELECTRICAL LOW VOLTAGE CONDUITS AND RACEWAYS. THE COORDINATION DRAWINGS SHALL PROVIDE, APPORTION, AND COORDINATE SPACE FOR ALL SYSTEMS, HORIZONTALLY AND VERTICALLY ABOVE THE CEILING PLANE TO THE STRUCTURAL DECK ABOVE ALLOWING EACH TRADE CONTRACTOR THE SPACE TO PROPERLY EXECUTE HIS PORTION OF THE WORK.
- ALL GROOVED FITTINGS TO BE "VICTAULIC" FITTINGS OR APPROVED EQUAL.
- ALL PENETRATIONS THRU 1-HOUR RATED WALLS TO BE PATCHED AS NECESSARY.
- ALL DIMENSIONS TO BE VERIFIED DURING FIELD CHECK OF SPRINKLER SYSTEM.
- THE FOLLOWING ARE ACCEPTABLE SPRINKLER MATERIAL MANUFACTURERS: RELIABLE, TYCO, VICTAULIC, VIKING
- ALL FIRE SPRINKLERS IN CHEMICAL ROOMS SHALL BE UL LISTED AS CORROSION RESISTANT.
- SPRINKLER SYSTEMS, INCLUDING ALL ASSOCIATED FIRE PROTECTION SIGNALS, SHALL BE SUPERVISED BY AN APPROVED CENTRAL, PROPRIETARY, AUXILIARY, OR REMOTE STATION SYSTEM IN ACCORDANCE WITH NFPA.
- FIRE PROTECTION SHOP DRAWINGS, HYDRAULIC CALCULATIONS, AND MATERIAL DATA SUBMITTALS ARE TO BE SUBMITTED TO ENGINEER OF RECORD FOR REVIEW AND APPROVAL.
- CORROSION PROTECTION FOR ALL UNDERGROUND BOLTED JOINT ACCESSORIES SHALL BE CLEANED AND THOROUGHLY COATED WITH ASPHALT OR OTHER CORROSION-RETARDING MATERIAL AFTER INSTALLATION IN ACCORDANCE WITH NFPA 13, 2010 EDITION, SECTION 10.3.6.2.
- THE UNDERGROUND MAIN STARTING AT THE PUBLIC WATER UTILITY POINT OF CONNECTION HAS BEEN DESIGNED TO NFPA 24, 2010 EDITION. INSTALLATION AND TESTING MUST BE IN ACCORDANCE WITH NFPA 24, 2010 EDITION.
- ALL FIRE SPRINKLER COMPONENTS ARE TO BE RATED FOR THE MAXIMUM SYSTEM WORKING PRESSURE TO WHICH THEY ARE EXPOSED IN ACCORDANCE WITH NFPA 13, 2010 EDITION, SECTION 6.1.3.
- THE COMPONENTS OF THE FIRE PROTECTION SYSTEM(S) FURNISHED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE THEREOF, EITHER FOR BENEFICIAL USE OR FINAL ACCEPTANCE, WHICHEVER IS EARLIER, AGAINST DEFECTIVE MATERIALS, DESIGN, AND WORKMANSHIP. UPON RECEIPT OF NOTICE FROM THE ARCHITECT OF FAILURE OF ANY PART OF THE EQUIPMENT DURING THE GUARANTEE PERIOD, THE AFFECTED PART OR PARTS SHALL BE REPLACED PROMPTLY WHICH INCLUDES REMOVING THE DEFECTIVE PART OR PARTS, REPLACING AND INSTALLING THE NEW PART OR PARTS AND AT THE EXPENSE OF THE CONTRACTOR.
- OPERATING AND MAINTENANCE INSTRUCTIONS, PRINTED AND BOUND IN HARD COVER THREE-RING LOOSE LEAF NOTEBOOKS, SHALL BE PROVIDED TO THE OWNER.
- A SEPARATE REVIEW AND PERMIT IS REQUIRED FROM THE OFFICE OF THE FIRE MARSHAL FOR THE INSTALLATION, RENOVATION, DEMOLITION, OR MODIFICATION OF ALL FIRE PROTECTION SYSTEMS.

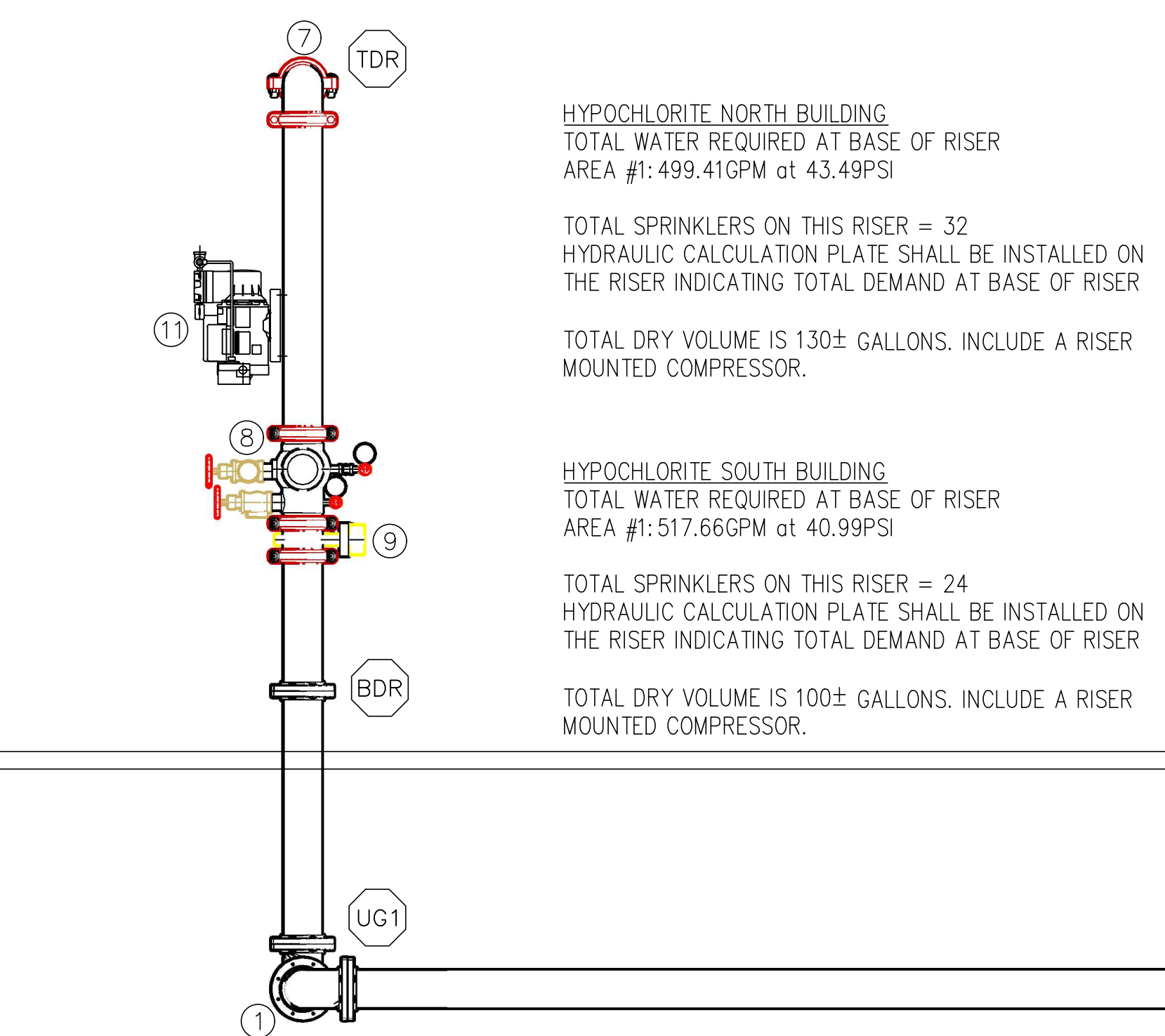
PIPE HANGER SCHEDULE



PURLIN HANGER DETAIL



- FLOOR OR WALL ASSEMBLY - MINIMUM 4 1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE (100-150 PCF) FLOOR OR MINIMUM 5" THICK CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY U.L. CLASSIFIED CONCRETE BLOCKS.
- STEEL SLEEVE - (OPTIONAL) MAXIMUM 16" DIAMETER STEEL SLEEVE WITH LENGTH EQUAL TO THICKNESS OF FLOOR OR WALL.
- METALLIC PIPE - ANY OF THE FOLLOWING MAY BE USED:
 -NOMINAL 10" DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. A MINIMUM 1/4" TO MAXIMUM 4" ANNULAR SPACE.
 -NOMINAL 4" DIAMETER (OR SMALLER) ELECTRICAL METALLIC TUBING (EMT) OR NOMINAL 6" DIAMETER (OR SMALLER) GALVANIZED STEEL RIGID CONDUIT. A MINIMUM OF 1/4" TO MAXIMUM 4" ANNULAR SPACE.
 -NOMINAL 14" DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. A MINIMUM 1/4" TO MAXIMUM 1 15/16" ANNULAR SPACE.
 -NOMINAL 6" DIAMETER (OR SMALLER) TYPE M COPPER TUBING. A MINIMUM 1/4" TO MAXIMUM 1 13/16" ANNULAR SPACE.
 -NOMINAL 4" DIAMETER (OR SMALLER) TYPE M COPPER TUBING OR REGULAR COPPER PIPE. A MINIMUM 1/4" TO MAXIMUM 4" ANNULAR SPACE.
- CABLES - MINIMUM 10% TO MAXIMUM 40% FILL OF 100 PAIR NO. 24 AWG TELEPHONE CABLES WITH POLYVINYL CHLORIDE INSULATION AND JACKET. CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDE OF WALL ASSEMBLY. MINIMUM 1/4" TO A MAXIMUM 4" ANNULAR SPACE.
- FORMING MATERIAL - MINIMUM 2 3/4" THERMAFIBER SAFING INSULATION OR "APPROVED EQUAL".
- FILL, VOID OR CAVITY MATERIAL - MINIMUM 1" DEPTH OF FIRECODE COMPOUND INSTALLED ON TOP SURFACE OF FLOOR AND ON EACH SIDE OF THE WALL.



HYPOCHLORITE NORTH BUILDING
 TOTAL WATER REQUIRED AT BASE OF RISER
 AREA #1: 499.41GPM at 43.49PSI

TOTAL SPRINKLERS ON THIS RISER = 32
 HYDRAULIC CALCULATION PLATE SHALL BE INSTALLED ON THE RISER INDICATING TOTAL DEMAND AT BASE OF RISER

TOTAL DRY VOLUME IS 130± GALLONS. INCLUDE A RISER MOUNTED COMPRESSOR.

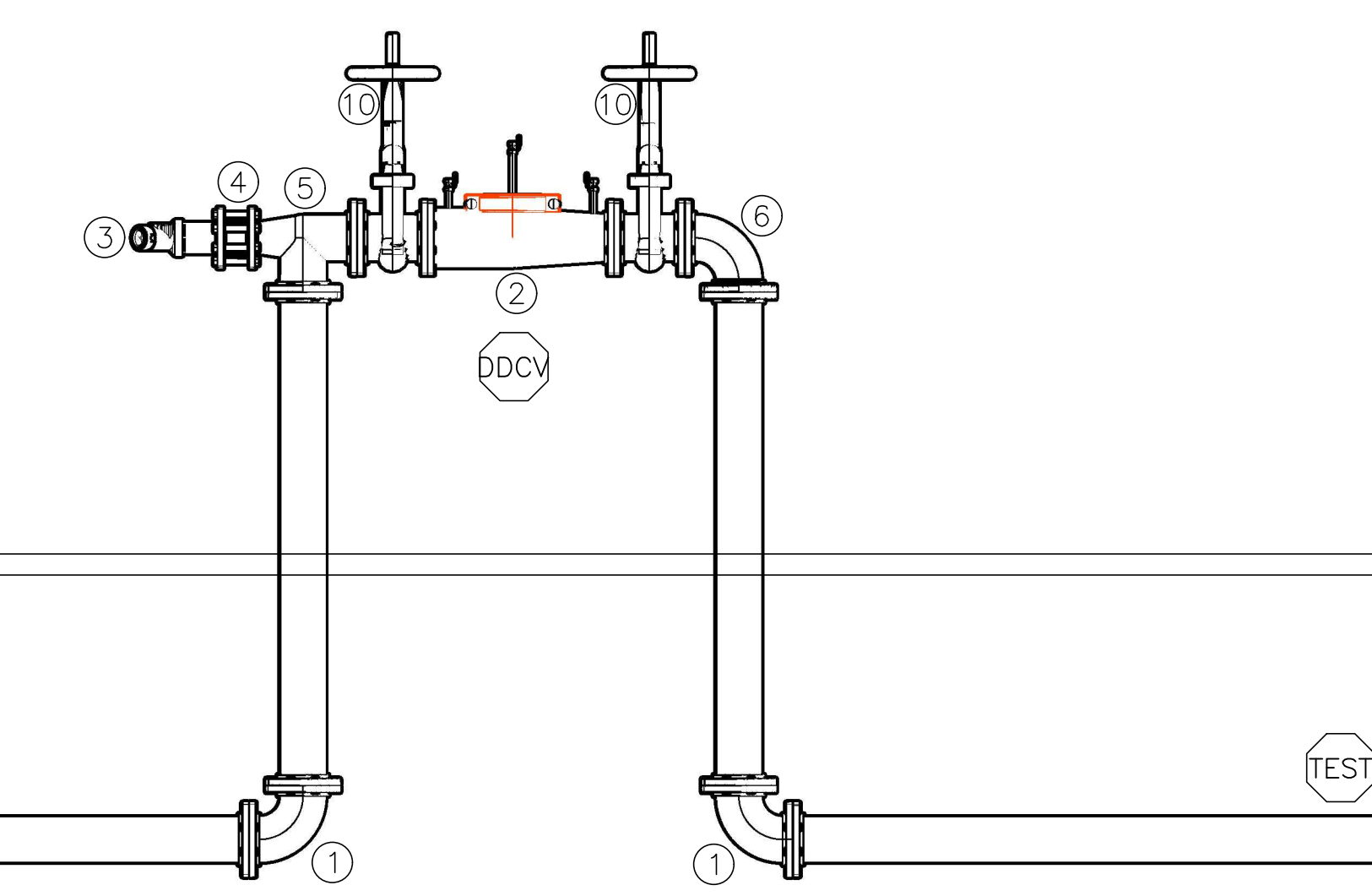
HYPOCHLORITE SOUTH BUILDING
 TOTAL WATER REQUIRED AT BASE OF RISER
 AREA #1: 517.66GPM at 40.99PSI

TOTAL SPRINKLERS ON THIS RISER = 24
 HYDRAULIC CALCULATION PLATE SHALL BE INSTALLED ON THE RISER INDICATING TOTAL DEMAND AT BASE OF RISER

TOTAL DRY VOLUME IS 100± GALLONS. INCLUDE A RISER MOUNTED COMPRESSOR.

PENETRATION FIRESTOP DETAIL

FIRE SPRINKLER RISER DETAIL



FIRE PROTECTION NOTES AND DETAILS



REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	WP

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ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

FIRE PROTECTION

DESIGNED: WP
 DRAWN: WP
 CHECKED: FKG
 REVIEWED: FKG
 APPROVED: FKG

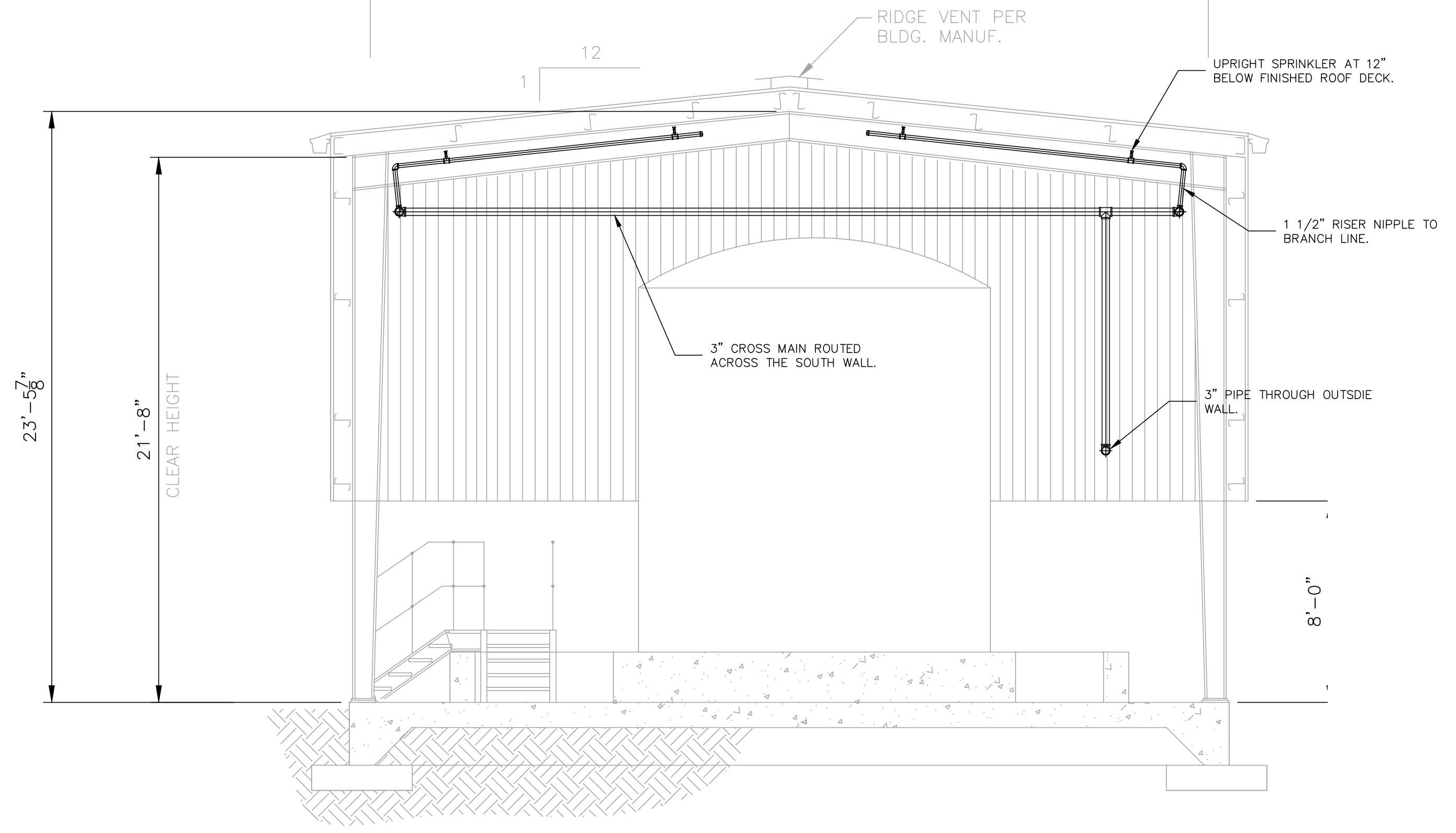
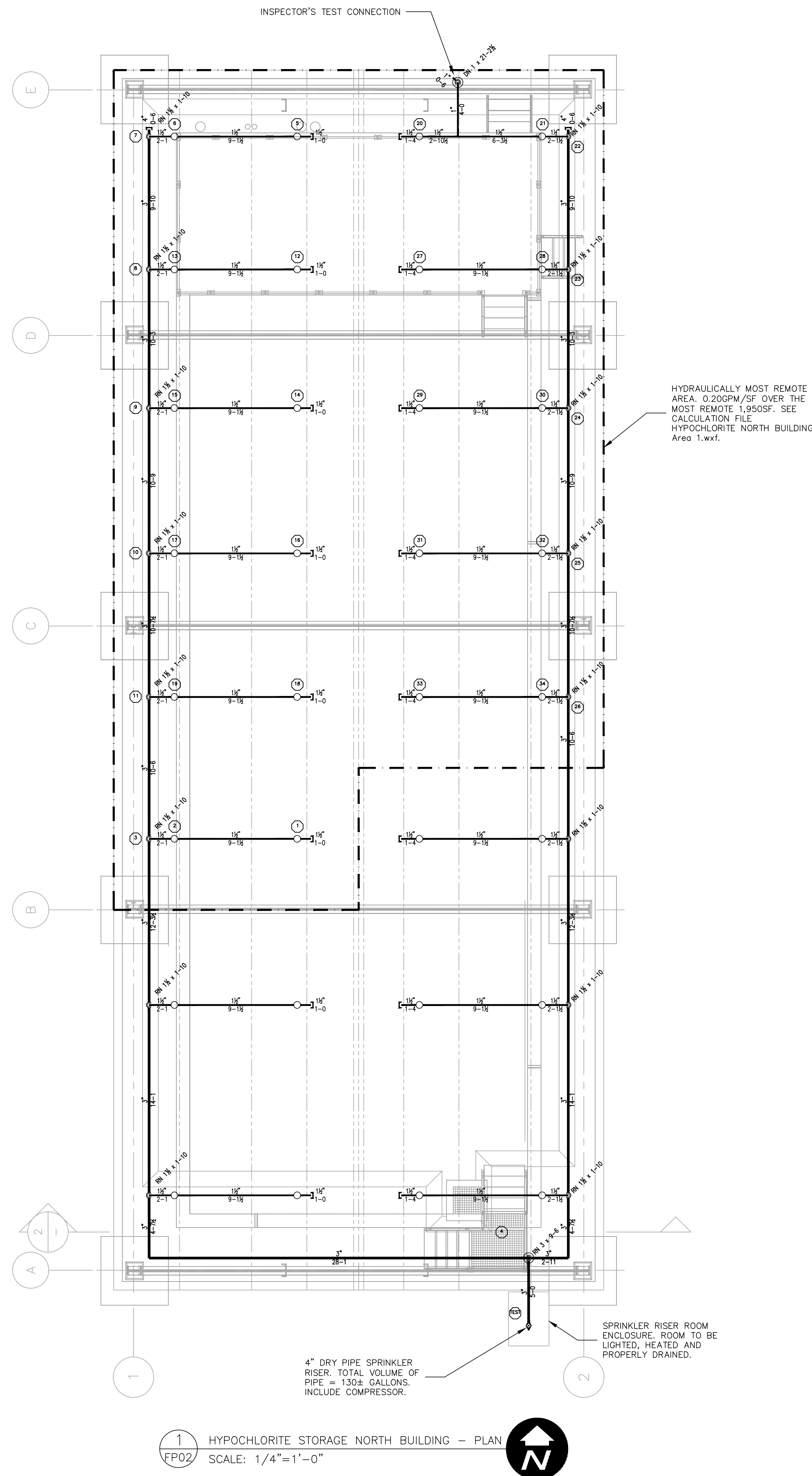
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SCALE:	NOTED
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DRAWING NO.:	FPO1
SHEET NO.:	44 OF 46

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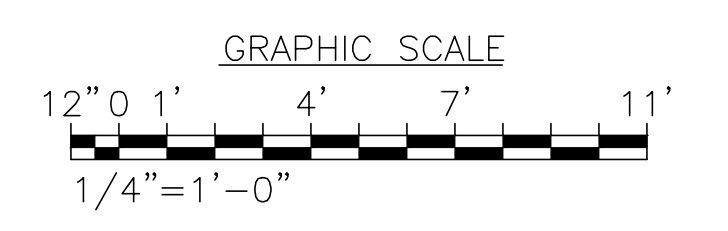
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Parent Sheet Set: 110022SWRFHYPO - Rev/Plot by: GP-FIRE - Rev on: 8/9/2016 1:08 PM - Individual File Path: Z:\PROJECTS\2014\14-178-ORANGE COUNTY SWRF DRAWINGS\FIRE PROTECTION\FP02.DWG



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

Sprinkler Head Schedule					
Symbol	Count	Thread	K-Factor	Description	Note
○	32	1/2"	5.6	TYCO TY3151 1/2" STANDARD RESPONSE 200' WAX COATED UPRIGHT	
32 = Total Number of Heads This Floor					



G & P Engineering LLC
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 (407) 476-3031
 Florida PE License #67330
 C.A. #29937

FIRE PROTECTION ENGINEERS

RE REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT
 WINTER SPRINGS, FL 32708
 (407) 679-5358



REV	DATE	DESCRIPTION	BY
0	10/31/16	ISSUED FOR BID	WP

Issue Certification
 Fadi K. Ghumrawi, P.E.
 Florida P.E. No. 67330
 G&P Engineering LLC
 Cert. of Authorization No. 29937
 P.O. Box 196725
 Winter Springs, FL 32719-6725

Designed WP
 Drawn WP
 Checked FKG
 Reviewed FKG
 Approved FKG

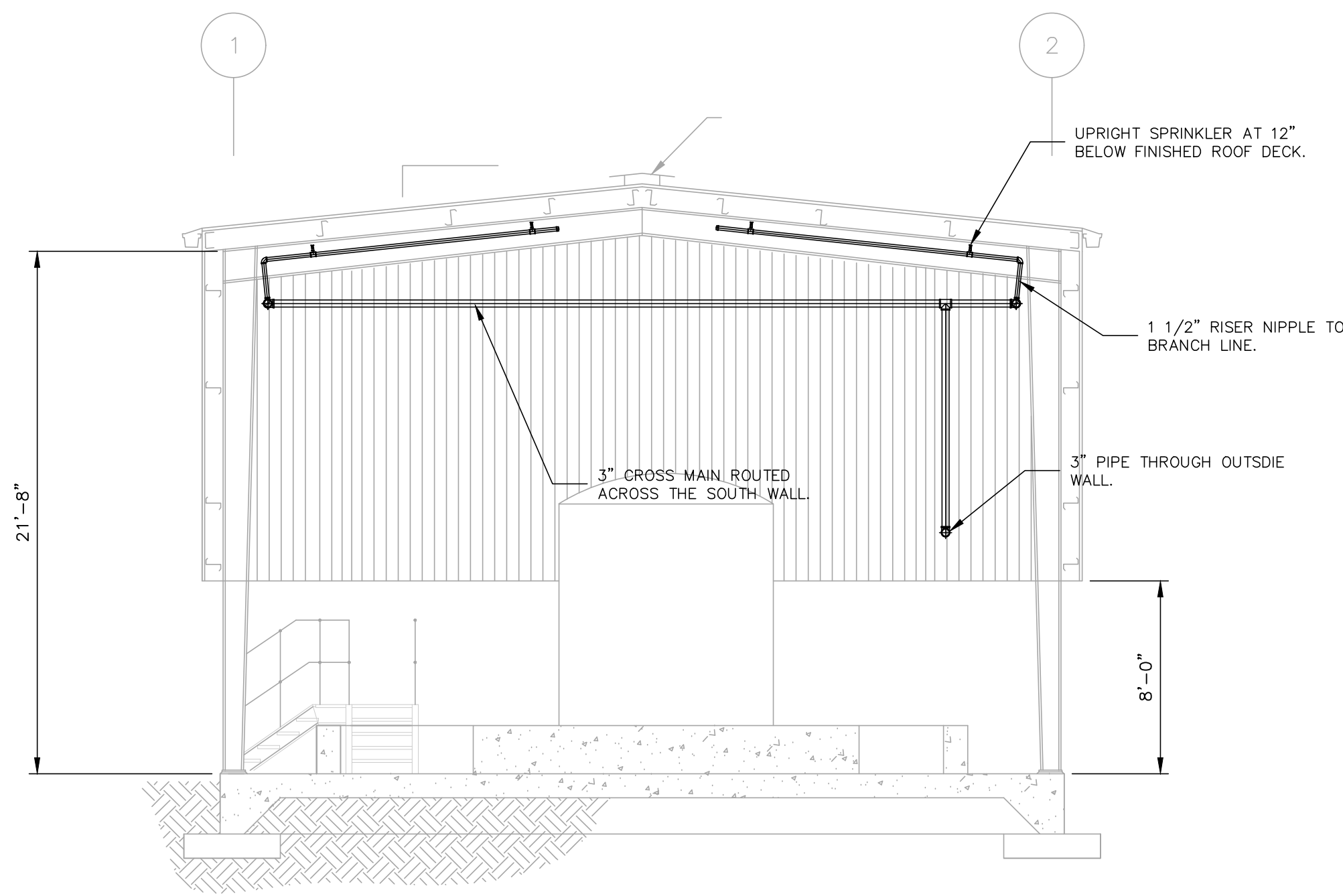
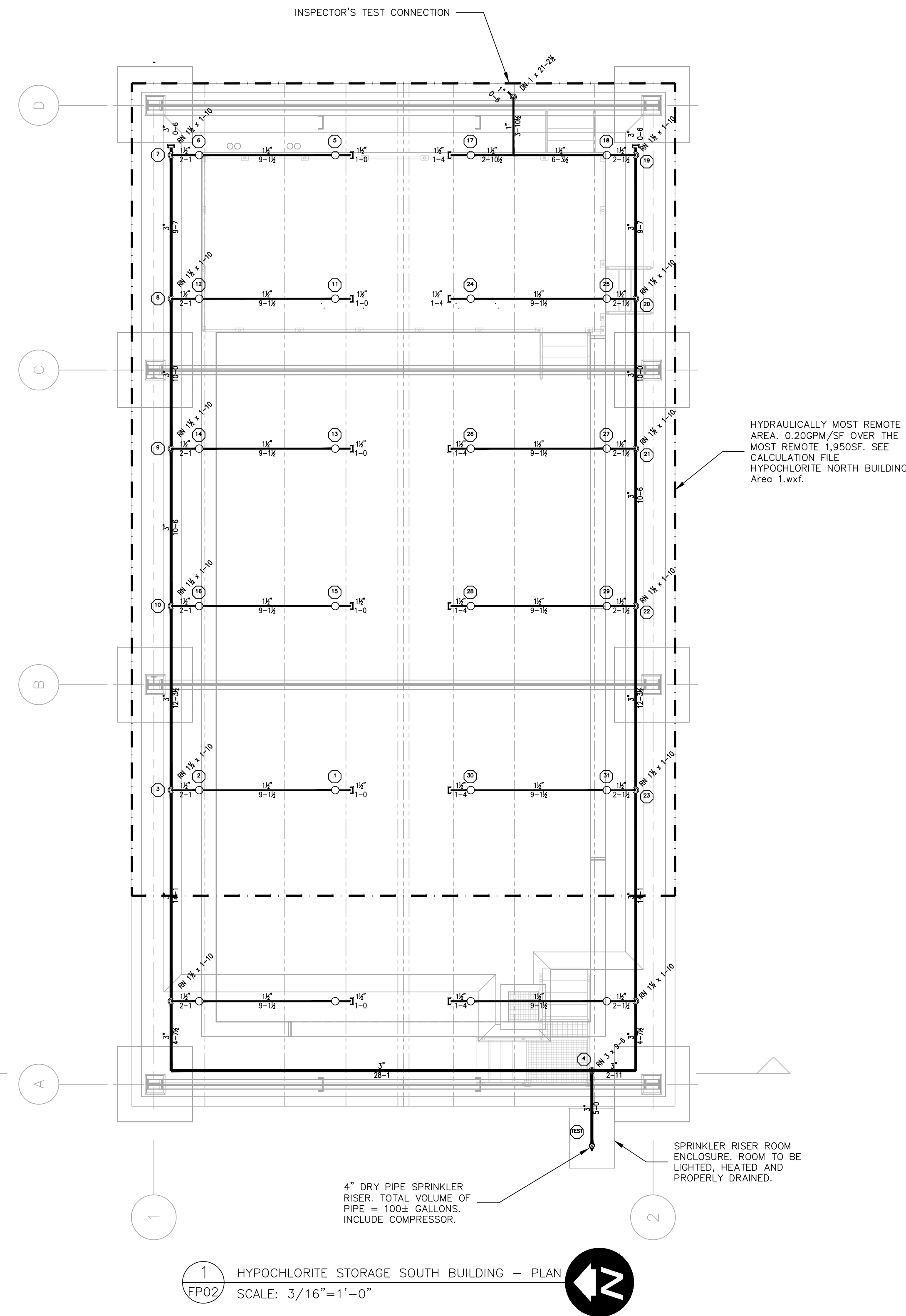
ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS

FIRE PROTECTION

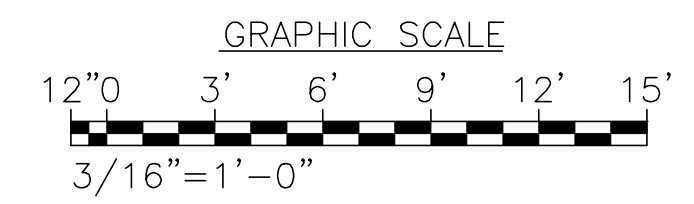
FIRE PROTECTION PLAN - NORTH BUILDING

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. FP02	SHEET NO.: 45 OF 46

Parent Sheet Set: 110022SWRFHYPO Rev/Plot by: GP-FIRE Rev on: 8/9/2016 1:08 PM Individual File Path: Z:\PROJECTS\2014\14-178-ORANGE COUNTY SWRF DRAWINGS\FIRE PROTECTION\FP03.DWG



Sprinkler Head Schedule					
Symbol	Count	Thread	K-Factor	Description	Note
○	24	1/2"	5.6	TYCO TY3151 1/2" STANDARD RESPONSE 200° WAX COATED UPRIGHT	
24 = Total Number of Heads This Floor					



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 P.O. Box 196725
 Winter Springs, FL 32719-6725

Designed WP
 Drawn WP
 Checked FKG
 Reviewed FKG
 Approved FKG

ORANGE COUNTY UTILITIES
 SWRF HYPOCHLORITE STORAGE AND FEED SYSTEMS
 FIRE PROTECTION
 FIRE PROTECTION PLAN - SOUTH BUILDING

PROJECT NO.: 110022	
SCALE: NOTED	REVISION: 0
DRAWING NO. FP03	SHEET NO.: 46 OF 46