

PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

SECURITY WATER DISTRICT (SWD)

Reviewed by
dsdgrimm
03/27/2019 2:10:19 PM



URS Group, Inc.
An AECOM Company

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

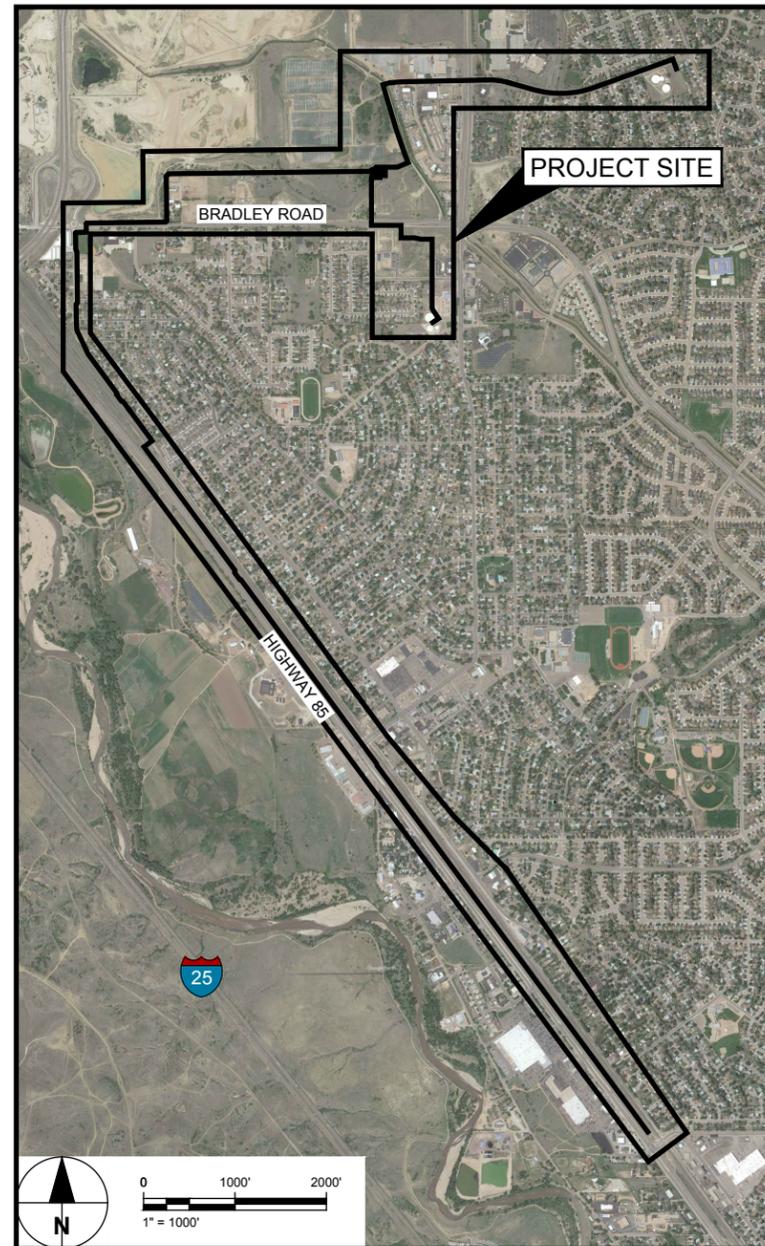
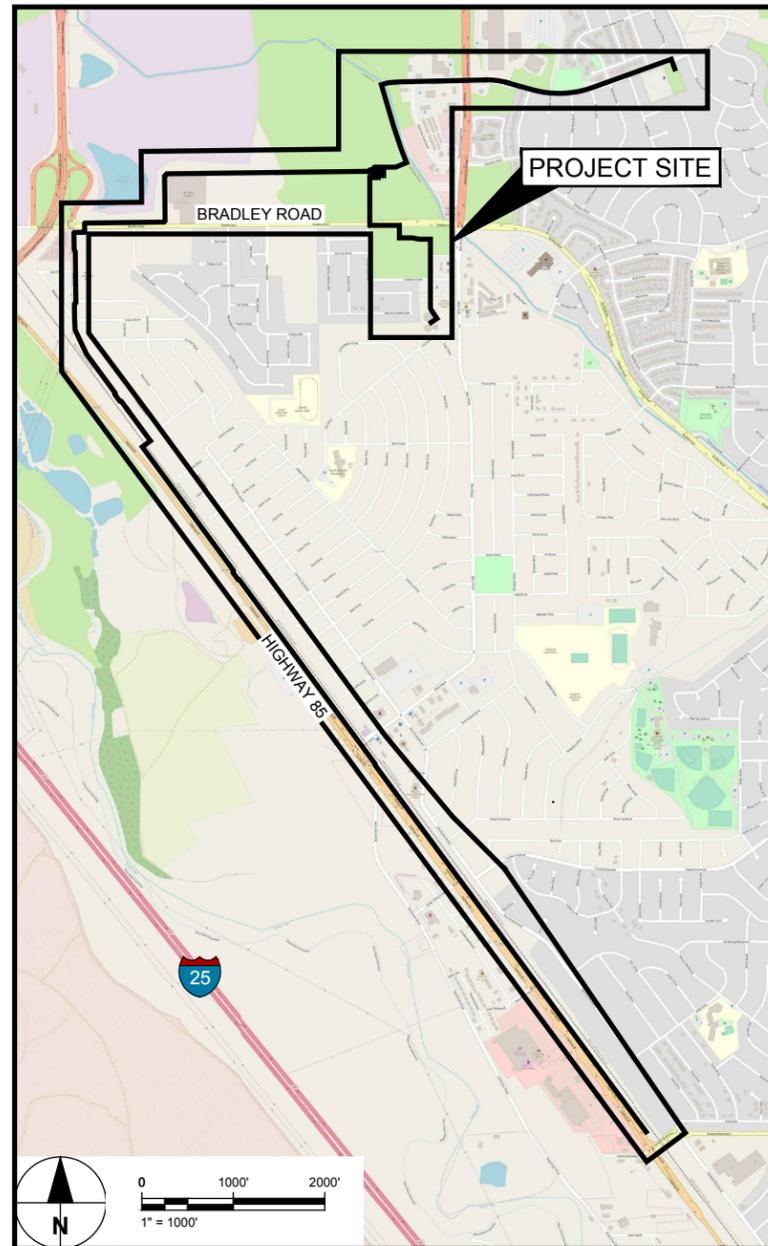
CLIENT
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1616 Capital Ave.
Omaha, NE 68102

CONSULTANT
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12120 Shamrock Plaza
Omaha, NE 68154
T +1 (402) 334 8181. F +1 (402) 334 1984

Prepared for:

USACE Omaha District

1616 Capital Ave., Omaha, NE 68102



Refer to ECM Chapter 4, Section 4.3.5.E.2 Longitudinal Placement. Provide in the construction drawings all applicable standard drawings in Appendix F for the location of the underground utilities within the public right-of-way.

Refer to ECM Chapter 4, Section 4.3.6.A.1 Water Lines. "At no time shall water service lines be placed less than 5 feet in depth measured perpendicularly to the ground line, at any point of the road cross section, to the right-of-way line. It appears that the minimum depth shown in the profiles is 4'. Please revise to meet the ECM standard.

ISSUE/REVISION		
NO.	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
COVER SHEET

SHEET NUMBER
G-200

SHEET LIST

Sheet Number	Description	Revision Number	Revision Date
G-200	COVER SHEET	0	02/28/19
G-201	SHEET LIST AND GENERAL NOTES	0	02/28/19
G-202	GENERAL LEGEND AND SYMBOLS	0	02/28/19
G-203	DRINKING WATER MITIGATION SYSTEM PLAN	0	02/28/19
G-204	PROCESS FLOW DIAGRAM	0	02/28/19
G-205	DRINKING WATER MITIGATION FACILITY (DWMF) SITE PLAN	0	02/28/19
G-209	PROJECT SURVEY CONTROL	0	02/28/19
S-200	STRUCTURAL GENERAL NOTES	0	02/28/19
S-210	DWMS BUILDING STRUCTURAL PLAN	0	02/28/19
S-211	BUILDING ROOF PLAN	0	02/28/19
S-212	BUILDING FLOOR JOINT PLAN	0	02/28/19
S-220	DWMS BUILDING STRUCTURAL SECTIONS	0	02/28/19
S-230	BUILDING ELEVATIONS	0	02/28/19
S-250	SECURITY STRUCTURAL STANDARD DETAILS 1	0	02/28/19
S-251	SECURITY STRUCTURAL STANDARD DETAILS 2	0	02/28/19
S-252	SECURITY STRUCTURAL STANDARD DETAILS 3	0	02/28/19
PP-201	DWMF PROCESS PLAN	0	02/28/19
PP-202	DWMF PROCESS SECTIONS	0	02/28/19
PP-203	SMALL DIAMETER PIPING ISOMETRIC	0	02/28/19
PP-210	PROCESS DETAILS 1	0	02/28/19
PP-211	PROCESS DETAILS 2 (SHEET 2 OF 3)	0	02/28/19
PP-212	PROCESS DETAILS 3 (SHEET 3 OF 3)	0	02/28/19
PP-220	SODIUM HYPOCHLORITE SYSTEM DETAILS	0	02/28/19
PL-200	PIPELINE GENERAL NOTES	B	02/28/19
PL-201	COLLECTION PLAN AND PROFILE KEY MAP	B	02/28/19
PL-216	COLLECTION PLAN AND PROFILE	B	02/28/19
PL-217	COLLECTION PLAN AND PROFILE	B	02/28/19
PL-218	COLLECTION PLAN AND PROFILE	B	02/28/19
PL-219	COLLECTION PLAN AND PROFILE	B	02/28/19
PL-220	COLLECTION PLAN AND PROFILE	B	02/28/19
PL-221	COLLECTION PLAN AND PROFILE	B	02/28/19
PL-222	COLLECTION PLAN AND PROFILE	B	02/28/19
PL-255	WELL S-11 CONNECTION PLAN & PROFILE	B	02/28/19
PL-256	WELL S-12 CONNECTION PLAN & PROFILE	B	02/28/19
E-201	LEGEND AND ABBREVIATIONS	0	02/28/19
E-202	ONE LINE DIAGRAM	0	02/28/19
E-203	CONDUIT AND CONDUCTOR SCHEDULE	0	02/28/19
E-204	SITE PLAN	0	02/28/19
E-205	LIGHTING PLAN	0	02/28/19
E-206	POWER AND GROUNDING	0	02/28/19
E-207	BUILDING ROOF LIGHTNING PLAN	0	02/28/19
E-208	SECURITY MOTOR CONTROL SCHEMATICS	0	02/28/19
E-209	DETAILS	0	02/28/19
I-201	LEGEND AND ABBREVAITION	0	02/28/19
I-202	PLC COMMUNICATION SCHEMATICS AND LAYOUT	0	02/28/19
I-203	PLC CONNECTION SCHEMATIC	0	02/28/19
I-204	PIPING AND INSTRUMENTATION DIAGRAM I	0	02/28/19
I-205	PIPING AND INSTRUMENTATION DIAGRAM II	0	02/28/19
I-206	PIPING AND INSTRUMENTATION DIAGRAM III	0	02/28/19
I-207	PIPING AND INSTRUMENTATION DIAGRAM IV	0	02/28/19

GENERAL NOTES

- CONTRACTOR SHALL UNDERSTAND COMPLY WITH ALL LOCAL BUILDING CODES AND STANDARDS
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WORK ACTIVITIES WITH PUBLIC AND PRIVATE AGENCIES
- CONTRACTOR SHALL PERFORM HIS WORK IN A MANNER THAT MINIMIZES DISRUPTION OF PUBLIC AND PRIVATE SERVICES
- THE GROUND CONFIGURATION IS BASED OFF OF FIELD SURVEY INFORMATION OBTAINED DURING DESIGN. THE INFORMATION IS INTENDED TO REFLECT THE GENERAL GROUND CONFIGURATION AND FEATURES AT THE DATE OF SURVEY ONLY. THE CONTRACTOR SHALL REVIEW AND VERIFY THE EXISTING CONFIGURATIONS PRIOR TO CONSTRUCTION
- CONTRACTOR SHALL PERFORM ALL WORK IN A MANNER CONSISTENT WITH STANDARDS ESTABLISHED BY THE GOVERNING AGENCIES AND PROJECT SPECIFICATIONS.
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN COMPLIANCE WITH CONTRACT DOCUMENTS AND WORK SHALL BE SUBJECT TO OBSERVATION AND ACCEPTANCE BY THE ENGINEER
- CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES, STRUCTURES, IMPROVEMENTS, MONUMENTS AND BENCHMARKS AFFECTED BY THE WORK NOT DESIGNATED FOR DEMOLITION OR REMOVAL AND REPLACEMENT, AND DAMAGE SHALL BE REPAIRED AND RESTORED TO THE SATISFACTION OF THE AFFECTED OWNER, PUBLIC AGENCIES AND THE ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
- CONTRACTOR SHALL IMPLEMENT PROCEDURES TO MINIMIZE EROSION OF AREAS DISTURBED BY THE WORK. CONTRACTOR SHALL MAINTAIN ALL DISTURBED AREAS UNTIL NATIVE VEGETATION IS RE-ESTABLISHED.
- THE CONTRACTOR IS RESPONSIBLE FOR AND ASSUMES RESPONSIBILITY FOR WORKING AROUND AND PROTECTING ALL UTILITIES, EXISTING OVERHEAD AND BURIED UTILITIES AND STRUCTURES LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND MAY NOT REPRESENT ALL BURIED UTILITIES OR ALL EXISTING STRUCTURES PRESENT.

NOTIFICATIONS

- THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN (MAIN LINES - NO LATERALS OR SERVICES SHOWN) ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN ON THE EXISTING DRAWINGS. THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDERGROUND UTILITIES, LATERALS, AND SERVICES PRIOR TO TRENCHING AND SHALL BE REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT ALL LINES SHOWN AND/OR ANY OTHER UNDERGROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THE DRAWINGS. CALL UNDERGROUND LOCATION (USA) AT 811 OR 1-800-922-1987 AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATION.
- THE CONTRACTOR IS REQUIRED TO NOTIFY THE EXISTING AGENCIES IN THE AREA BEFORE THE START OF ANY WORK.

UTILITY CONTACTS:

WATER	SECURITY WATER DISTRICT (719) 392-3475
SEWER	SECURITY SANITATION DISTRICT (719) 392-3475
ROADS	COLORADO DEPARTMENT OF TRANSPORTATION (REGION 2) (719) 227-3202
STREETS	EL PASO COUNTY (719) 520-6460
ELECTRICITY	COLORADO SPRINGS UTILITIES (719) 448-4800
GAS	COLORADO SPRINGS UTILITIES (719) 448-4800
TELEPHONE	CENTURY LINK (719) 647-5231
CABLE TV	COMCAST / XFINITY (800) 934-6489
FLOOD CONTROL	PIKES PEAK REGIONAL BUILDING DEPT. (719) 327-2880
UNDERGROUND FACILITIES	UTILITY NOTIFICATION CENTER OF COLORADO 811 / (800) 922-1987

URS

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PROJECT NUMBER

Project Number: 60589841

SHEET TITLE

SHEET LIST AND GENERAL NOTES

SHEET NUMBER

G-201

VERIFY PRINTED SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY

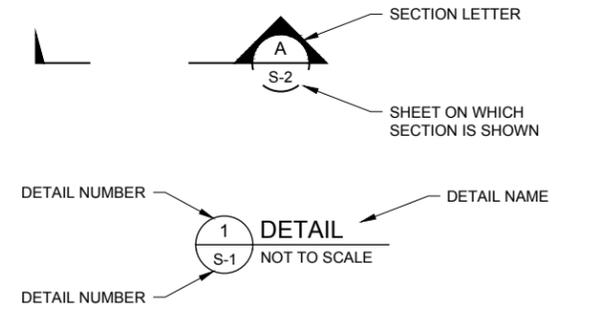
CIVIL LEGEND

	EXISTING TELEPHONE LINE/CABLE
	EXISTING GAS LINE
	EXISTING WATER
	EXISTING STORM DRAIN
	EXISTING SANITARY SEWER
	EXISTING UNDERGROUND ELECTRIC
	EXISTING OVERHEAD ELECTRIC
	EXISTING FIBER OPTIC
	EXISTING CABLE TELEVISION
	EASEMENT LIMITS
	RIGHT OF WAY
	VALVE (EXISTING)
	BLOWOFF (EXISTING)
	EXISTING FIRE HYDRANT
	EXISTING SIGN
	EXISTING TREE / VEGETATION
	NEW WATER
	NEW SANITARY SEWER
	PROPOSED RAW WATER / FINISHED WATER PIPELINE

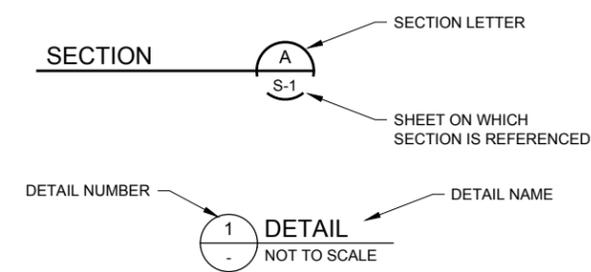
SYMBOLS

	BALL VALVE
	CHECK VALVE
	GATE VALVE
	BUTTERFLY VALVE
	BUTTERFLY VALVE WITH ACTUATOR
	DIAPHRAGM ACTUATED GLOBE VALVE
	GLOBE VALVE
	PUMP
	FLOW METER
	STATIC INLINE MIXER
	CHLORINE MONITOR
	NITRATE MONITOR
	pH MONITOR
	CHLORINE SOLUTION
	SODIUM BISULFATE SOLUTION
	FLEX HOSE

SECTION/DETAILS CALLOUTS



SECTION/DETAILS LABELS



ABBREVIATIONS

@	AT	MAX	MAXIMUM
&	AND	M	METER
A	ANODE	MFR	MANUFACTURER
A.C.	ASPHALTIC CONCRETE	MH	MANHOLE
ACT	ACTUAL	MIN	MINIMUM
ADJ.D.	ADJUST	M.J.	MECHANICAL JOINT
AIX	ANION EXCHANGE	NO. OR #	NUMBER
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	NOM	NOMINAL
APPROX.E.	APPROXIMATE	NPT	NATIONAL PIPE THREAD
ARV	AIR AND VACUUM RELEASE VALVE	N, S, E, W	NORTH, SOUTH, EAST, WEST
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS	NTS	NOT TO SCALE
AWWA	AMERICAN WATER WORKS ASSOCIATION	OD	OUTSIDE DIAMETER
AWG	AMERICAN WIRE GAUGE	OHE	OVERHEAD ELECTRIC
AVE.F.	AVENUE	PC	POINT OF CURVATURE
BFV	BUTTERFLY VALVE	PDIT	PRESSURE DIFFERENTIAL INDICATE TRANSMIT
BLVD.	BOULEVARD	PE	PROFESSIONAL ENGINEER
BOP	BOTTOM OF PIPE	PH	POTHOLE
BOV	BLOWOFF ASSEMBLY & VALVE	PI	PRESSURE INDICATE
BPSV	BACK PRESSURE SUSTAINING VALVE	PL	PROPERTY LINE
BWI	BACKWASH INFLUENT	PP	POWER POLE
CATV	CABLE TELEVISION	PROP	PROPOSED
CB	CATCH BASIN	PRV	PRESSURE REDUCING VALVE
CBC	CONCRETE BOX CULVERT	PS	PRESSURE SWITCH
c.c.	CENTER TO CENTER	PSF	POUNDS PER SQUARE FOOT
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION	PSI	POUNDS PER SQUARE INCH
C&G	CURB AND GUTTER	PT	POINT OF TANGENCY
CHEM.	CHEMICAL	PVC	POLYVINYL CHLORIDE PIPE
CIP	CAST IRON PIPE	PVI	POINT OF VERTICAL INTERSECTION
CL	CENTER LINE	PVT	PRIVATE
CLR.	CLEAR	R	RADIUS
CMP	CORRUGATED METAL PIPE	RCB	REINFORCED CONCRETE BOX
COMM	COMMUNICATIONS	RCP	REINFORCE CONCRETE PIPE
CONC	CONCRETE	NO.	REDUCER
CPLG (INS), (RED), (STR)	COUPLING (INSULATED), (REDUCING), (STRAIGHT)	REINF	REINFORCING
CR	CURB RETURN	REQ'D	REQUIRED
CRA	CONCRETE REVERSE ANCHOR	ROW	RIGHT OF WAY
CS	COLORADO SPRINGS	RSTNT	M.J. RESTRAINT (i.e. MEGALUG)
CSFD	COLORADO SPRINGS FIRE DEPARTMENT	RT	RIGHT
CTB	CONCRETE THRUST BLOCK	RW	RAW WATER
CSU	COLORADO SPRINGS UTILITIES	SAN.	SANITARY
CV	CHECK VALVE	SH	SHEET
CY	CUBIC YARDS	SCH	PIPE SCHEDULE
DBA	DOING BUSINESS AS	SCHED	SCHEDULE
DEFL	DEFLECT	SDR	STANDARD DIMENSION RATIO
DIA	DIAMETER	SLD.SLV	SOLID SLEEVE
DIP	DUCTILE IRON PIPE	SJ	SLIP JOINT
DR	DRAIN	SPECS	SPECIFICATIONS
DWG	DRAWING	SS OR S.S.	SANITARY SEWER
DWMF	DRINKING WATER MITIGATION FACILITY	SST	STAINLESS STEEL
EA	EACH	STA	STATION
E.F.	EACH FACE	STL	STEEL
ELECT.	ELECTRIC	STS	STORM SEWER
EL OR ELEV.	ELEVATION	TELE OR TELCO	TELEPHONE COMPANY
EXIST.	EXISTING	TEMP	TEMPORARY/TEMPORARILY
FCV	FLOW CONTROL VALVE	tf	THICKNESS OF FOOTING
FE	FLOW ELEMENT	THD'D	THREADED
FI	FLOW INDICATOR	TOC	TOP OF CONCRETE
FIG	FIGURE	TOP	TOP OF PIPE
FIMS	FACILITIES INFORMATION MANAGEMENT SYSTEM	TS	TEST STATION
FLG	FLANGE	tw	THICKNESS OF WALL
FM	FORCE MAIN	TYP.	TYPICAL
FO	FIBER OPTIC	U.G.E.	UNDERGROUND ELECTRIC
FT	FEET	UNNC	UTILITY NOTIFICATION CENTER OF COLORADO
GALV	GALVANIZED	UOM	UNIT OF MEASURE
GPM	GALLONS PER MINUTE	USGS	UNITED STATES GEOLOGICAL SURVEY
GR.Y.	GRADE BREAK	VCP	VITRIFIED CLAY PIPE
GV	GATE VALVE	VERT	VERTICAL
H.	HORIZONTAL	VLV	VALVE
HD	HIGH DEFLECTION	WL	WATER LINE
HP	HIGH PRESSURE	W/	WITH
HS	HIGH STRENGTH	WRD	WATER RESOURCES DEPARTMENT
HWL	HIGH WATER LINE	WW	WASTEWATER
HWY	HIGHWAY		
HYD ASSY	INCLUDES FIRE HYDRANT, LATERAL VALVE, TIE RODS, AND REVERSE ANCHOR		
I.D.	INSIDE DIAMETER		
IN.	INCH		
INV	INVERT		
LB	POUNDS		
LF	LINEAR FEET		
LT	LEFT		



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PROJECT

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WIDEFIELD WATER AND SANITATION DISTRICT (WWSD)

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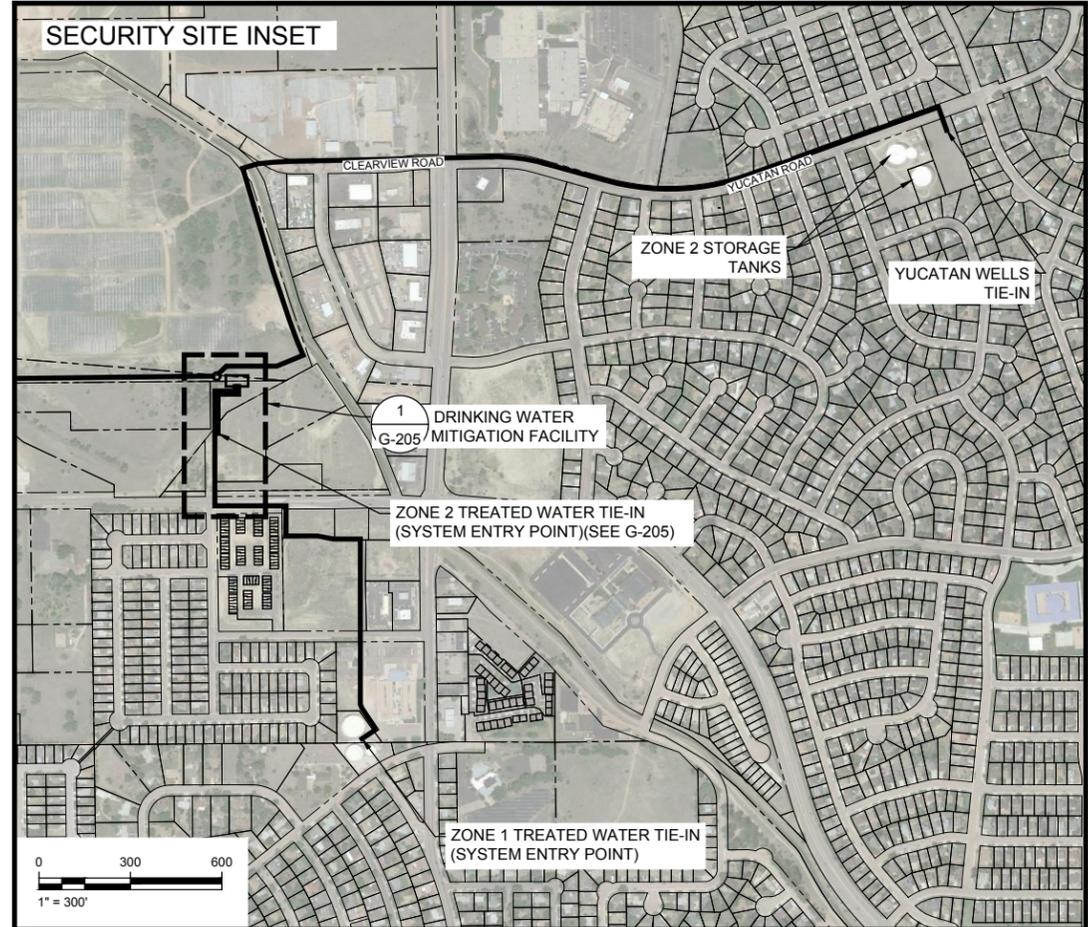
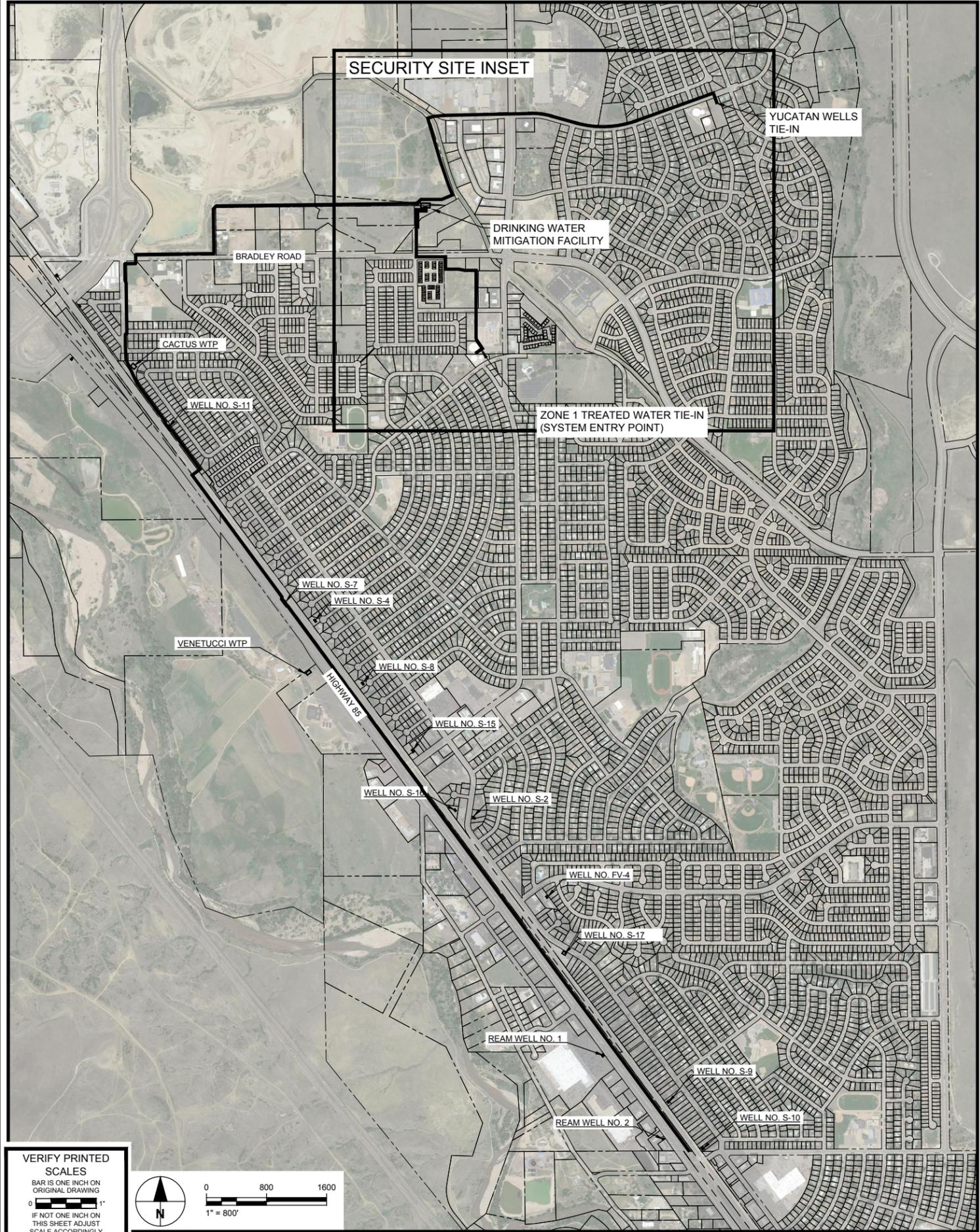
ISSUE/REVISION		
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PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
GENERAL LEGEND AND SYMBOLS

SHEET NUMBER
G-202

ANSI D 22' x 34' | Last saved by: SCHWARTZ(2019-02-27) | Last Plotted: 2019-02-28 | Filename: M:\DCS\PROJECTS\WTRM60589841_PAFB_PFA1900_CAD_GIS\910_CAD\20-SHEETS\G-202_GENERAL_LEGEND_AND_SYMBOLS.DWG



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PROJECT NUMBER
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SHEET TITLE
DRINKING WATER MITIGATION SYSTEM PLAN

SHEET NUMBER
G-203

VERIFY PRINTED SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 800 1600
1" = 800'
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY

RWP-101 THROUGH RWP-104

RAW WATER PUMPS
2,267 GPM AT EACH 171 FT TDH
150 HORSEPOWER PER PUMP
SEPARATE VFD FOR EACH PUMP

F-1 AND F-2

MAIN CARTRIDGE FILTER VESSELS
6,800 GPM EACH, MAX
6,800 GPM EACH, DESIGN
35X40-IN CARTRIDGE FILTERS PER VESSEL
10 MICRON FILTERS

AIX TRAIN NOs 1-4

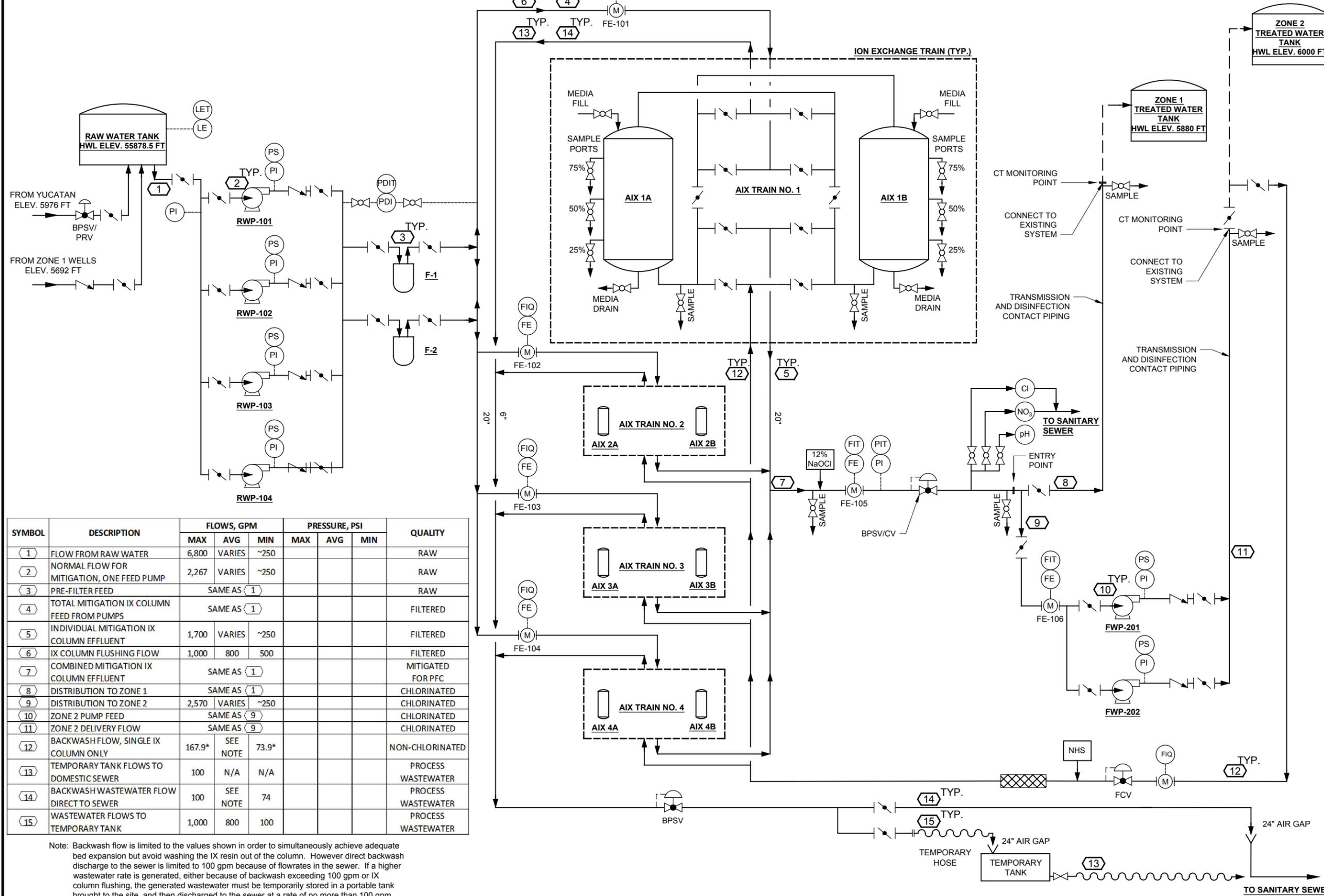
PAIRED ION EXCHANGE VESSELS IN ALTERNATING
LEAD-LAG OPERATIONAL CONFIGURATION
MAX 1800 GPM PER VESSEL
DESIGN 1700 GPM PER VESSEL

AIX 1A-4A AND AIX 1B-4B

ION EXCHANGE VESSELS
12 FT. DIAMETER
(FOR REMOVAL OF PFOA/PFOS)
DISTRIBUTION HEADERS AT TOPS OF TANKS
SCREENED COLLECTOR PIPES AT BOTTOMS OF TANKS

FWP-201 AND FWP-202

ZONE 2 BOOSTER PUMPS
2,570 GPM EACH AT 166 FT TDH
150 HORSEPOWER PER PUMP
SEPARATE VFD FOR EACH PUMP



SYMBOL	DESCRIPTION	FLOWS, GPM			PRESSURE, PSI			QUALITY
		MAX	AVG	MIN	MAX	AVG	MIN	
1	FLOW FROM RAW WATER	6,800	VARIES	~250				RAW
2	NORMAL FLOW FOR MITIGATION, ONE FEED PUMP	2,267	VARIES	~250				RAW
3	PRE-FILTER FEED	SAME AS (1)						RAW
4	TOTAL MITIGATION IX COLUMN FEED FROM PUMPS	SAME AS (1)						FILTERED
5	INDIVIDUAL MITIGATION IX COLUMN EFFLUENT	1,700	VARIES	~250				FILTERED
6	IX COLUMN FLUSHING FLOW	1,000	800	500				FILTERED
7	COMBINED MITIGATION IX COLUMN EFFLUENT	SAME AS (1)						MITIGATED FOR PFC
8	DISTRIBUTION TO ZONE 1	SAME AS (1)						CHLORINATED
9	DISTRIBUTION TO ZONE 2	2,570	VARIES	~250				CHLORINATED
10	ZONE 2 PUMP FEED	SAME AS (9)						CHLORINATED
11	ZONE 2 DELIVERY FLOW	SAME AS (9)						CHLORINATED
12	BACKWASH FLOW, SINGLE IX COLUMN ONLY	167.9*	SEE NOTE	73.9*				NON-CHLORINATED
13	TEMPORARY TANK FLOWS TO DOMESTIC SEWER	100	N/A	N/A				PROCESS WASTEWATER
14	BACKWASH WASTEWATER FLOW DIRECT TO SEWER	100	SEE NOTE	74				PROCESS WASTEWATER
15	WASTEWATER FLOWS TO TEMPORARY TANK	1,000	800	100				PROCESS WASTEWATER

Note: Backwash flow is limited to the values shown in order to simultaneously achieve adequate bed expansion but avoid washing the IX resin out of the column. However direct backwash discharge to the sewer is limited to 100 gpm because of flowrates in the sewer. If a higher wastewater rate is generated, either because of backwash exceeding 100 gpm or IX column flushing, the generated wastewater must be temporarily stored in a portable tank brought to the site, and then discharged to the sewer at a rate of no more than 100 gpm.



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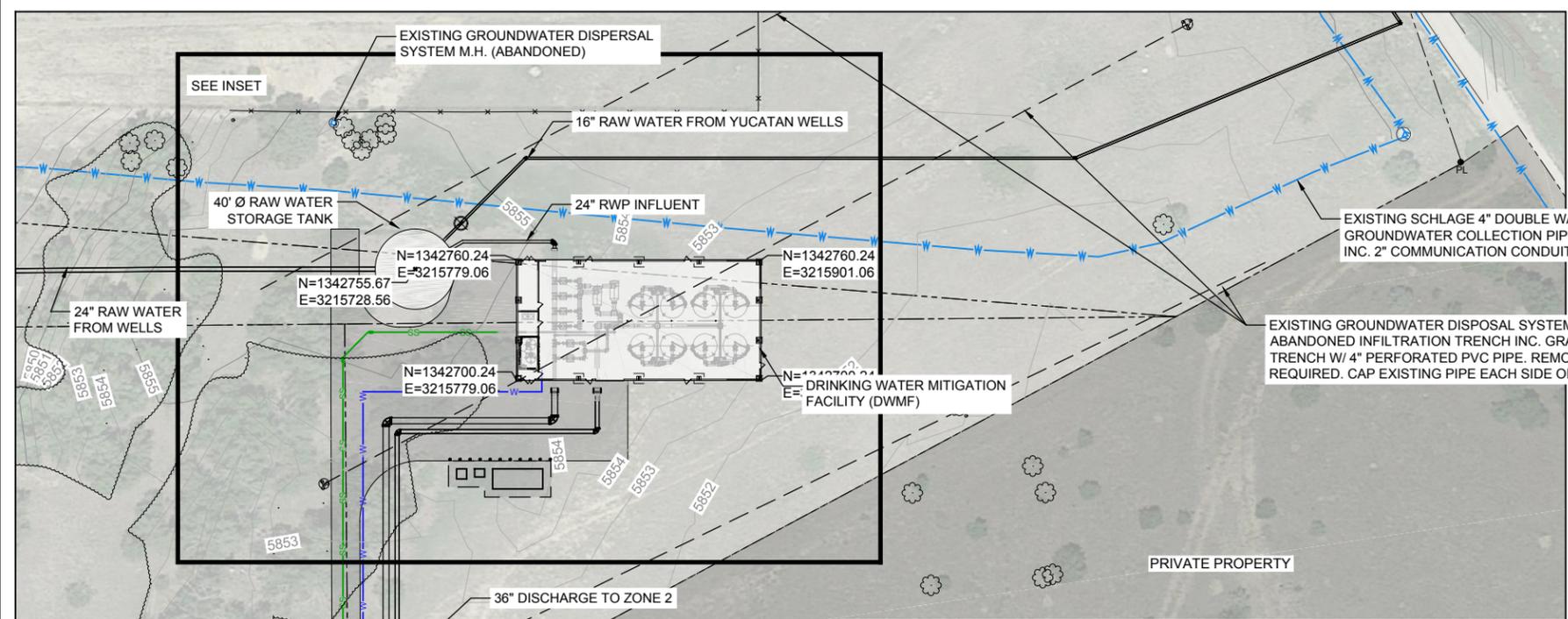
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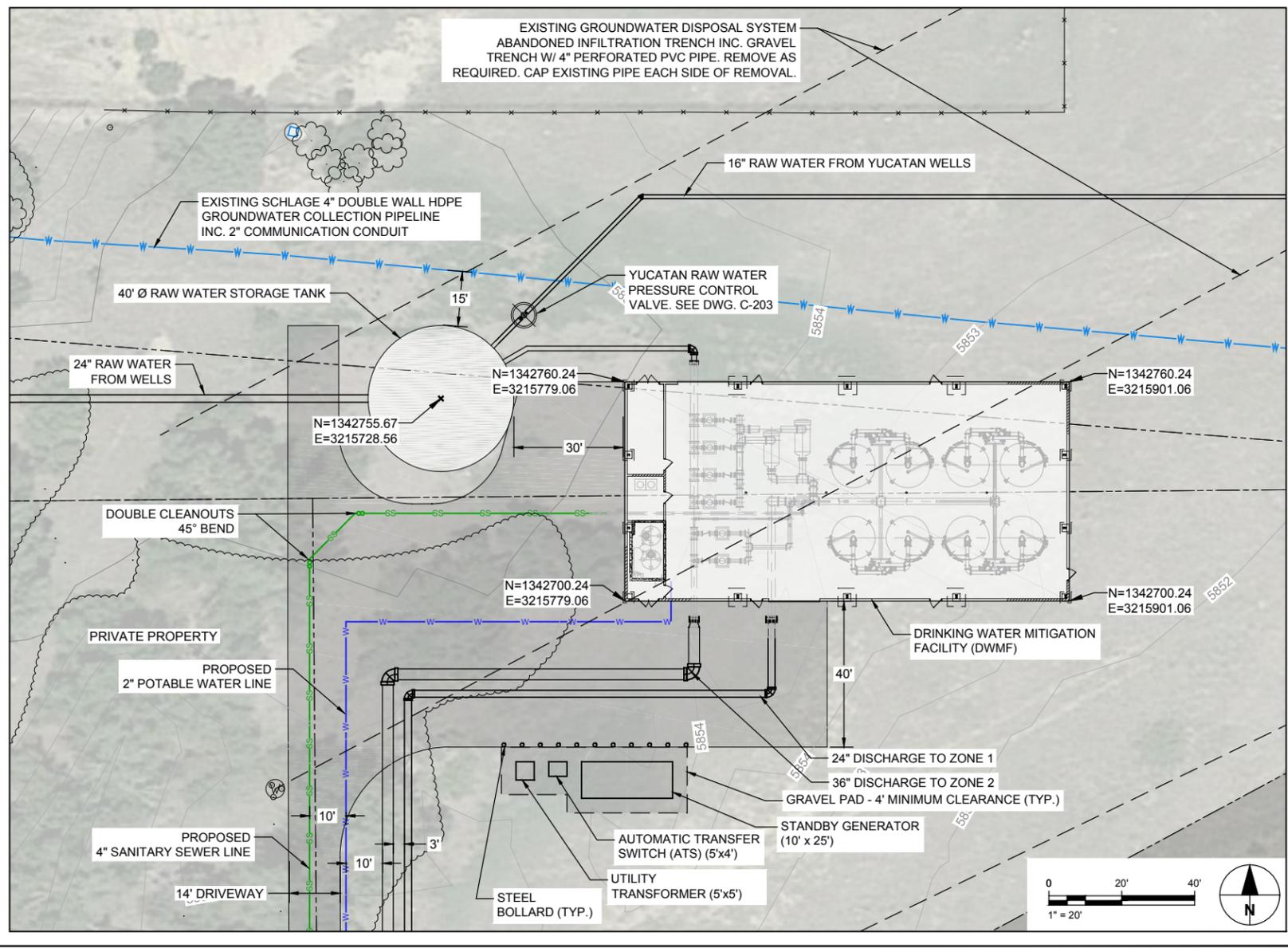
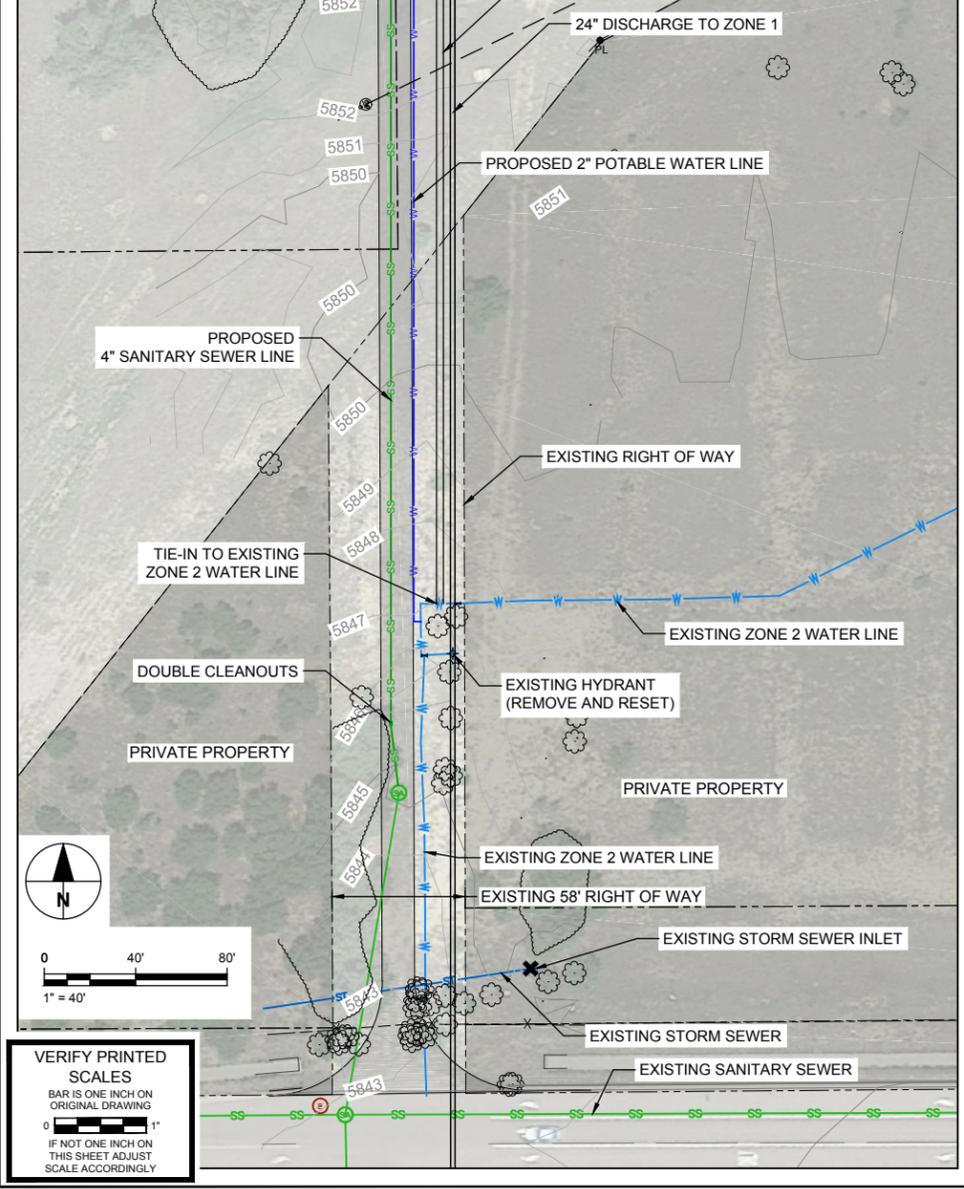
PROJECT NUMBER
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SHEET TITLE
PROCESS FLOW DIAGRAM

SHEET NUMBER
G-204



- GENERAL NOTES:**
- FOR EXISTING GROUNDWATER DISPOSAL SYSTEM INFILTRATION TRENCH REFER TO "ONSITE AND OFFSITE GROUNDWATER TREATMENT DISPOSAL SYSTEM RECORD DRAWINGS DATED OCTOBER 1994."
 - FOR EXISTING SCHLAGE GROUNDWATER PIPELINE REFER TO "GROUNDWATER CONTROL SYSTEM" RECORD DRAWINGS.
 - FOR PROPOSED ACCESS ROAD DETAILS AND PROPOSED SITE GRADING SEE DRAWING G-207.



ISSUE/REVISION

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NOTES:

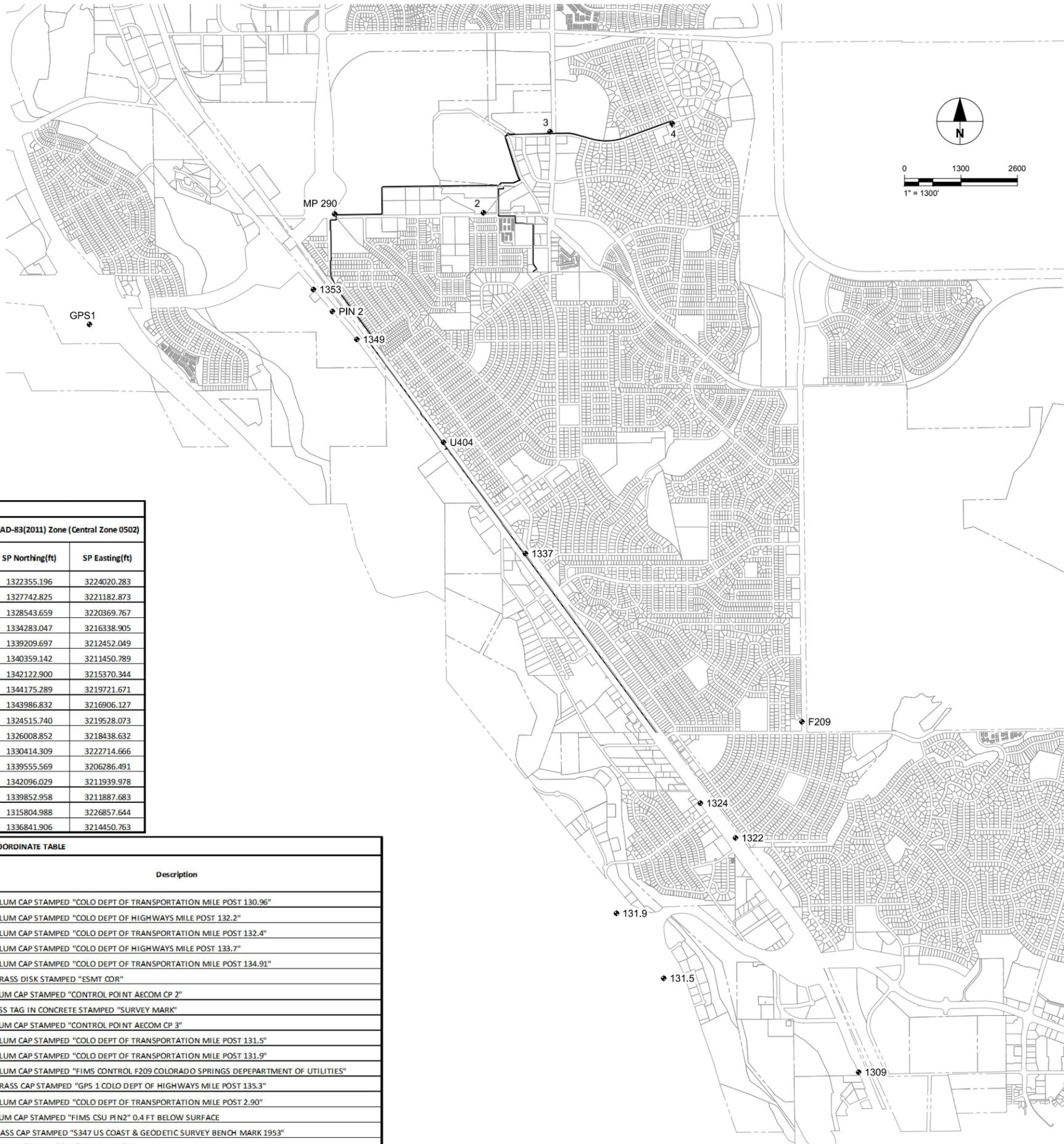
1. THIS SURVEY IS NOT A COMPLETE BOUNDARY AND IS PREPARED AS A SURVEY CONTROL DRAWING ONLY.
2. NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
3. ALL DIMENSIONS SHOWN HEREON ARE IN U.S. SURVEY FEET.
4. SURVEY CONTROL WAS ESTABLISHED BY GPS OBSERVATIONS USING THE FOLLOWING DATUMS:
HORIZONTAL - STATE PLANE COLORADO CENTRAL ZONE, NAD83(2011).
VERTICAL - NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).
5. PROJECT BENCHMARK: NGS CONTROL MONUMENT U 404: A STAINLESS STEEL ROD WITH CAP STAMPED "U 404 1984" LOCATED 7.5 MI SOUTH FROM COLORADO SPRINGS. 7.5 MI SOUTHERLY ALONG THE DENVER AND RIO GRANDE WESTERN RAILROAD FROM THE STATION IN COLORADO SPRINGS, 0.35 MI NORTH OF MAIN STREET IN FOUNTAIN, 128.0 FT NORTHEAST OF THE CENTERLINE OF U.S. HIGHWAY 85, 44.6 FT SOUTHWEST OF THE NEAR RAIL, 43.0 FT SOUTHEAST OF A POWERLINE CROSSING, 20.7 FT NORTH OF THE CENTER OF A SEWAGE MAN HOLE COVER, AND 3.3 FT NORTHWEST OF A UTILITY POLE WITH 4 GUY WIRES. NGS PUBLISHED ELEVATION = 5734.41 FEET (NGVD29).

SURVEYOR'S CERTIFICATE:

I, DEREK S. BROWN, A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF COLORADO, HEREBY CERTIFY THAT THIS SURVEY CONTROL DRAWING WAS PREPARED UNDER MY RESPONSIBLE CHARGE ON _____, 2019 AND TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF THE INFORMATION SHOWN HEREON IS ACCURATE.

PRELIMINARY

DEREK S. BROWN, P.L.S. 38064
FOR AND ON BEHALF OF AECOM
6200 SOUTH QUEBEC ST.,
GREENWOOD VILLAGE, CO 80111
PHONE 303.843.2330
DEREK.BROWN1@AECOM.COM



GEODETIC COORDINATE TABLE								
Point No.	Geodetic Coordinates NAD-83 (2011) (Central Zone 0502)		Ellip Height (NAVD88)(ft)	Ortho Height (NAVD88)(ft)	Meridian Convergence Angle	Combined Scale Factor	NAD-83(2011) Zone (Central Zone 0502)	
	Latitude(N)	Longitude(W)					SP Northing(ft)	SP Easting(ft)
1309	38°42'56.84515"	-104°42'53.49172"	5572.207	5631.098	00°29'43"	0.999691978	1322355.196	3224020.283
1322	38°43'50.34044"	-104°43'28.70998"	5609.472	5668.050	00°29'20"	0.999688499	1327742.825	3221182.873
1324	38°43'58.32482"	-104°43'38.88480"	5617.694	5676.199	00°29'14"	0.999687858	1328543.659	3220369.767
1337	38°44'55.39199"	-104°44'29.14799"	5662.707	5720.796	00°28'42"	0.999683980	1334283.047	3216338.905
1349	38°45'44.40781"	-104°45'17.69961"	5702.123	5759.815	00°28'12"	0.999680673	1339209.697	3212452.049
1353	38°45'55.85058"	-104°45'30.22194"	5711.490	5769.081	00°28'04"	0.999679902	1340359.142	3211450.789
CONTROL 2	38°46'12.96535"	-104°44'40.55072"	5795.545	5853.383	00°28'35"	0.999675405	1342122.900	3215370.344
CONTROL 4	38°46'32.89102"	-104°43'45.38991"	5904.911	5962.987	00°29'10"	0.999669629	1344175.289	3219721.671
CP03	38°46'31.26281"	-104°44'20.96241"	5851.584	5909.479	00°28'47"	0.999672222	1343986.832	3216906.127
CP 131.5	38°43'18.58115"	-104°43'49.93720"	5580.295	5638.835	00°29'07"	0.999690893	1324515.740	3219528.073
CP 131.9	38°43'33.43093"	-104°44'03.52461"	5609.173	5667.600	00°28'58"	0.999689043	1326008.852	3218438.632
F209	38°44'16.61722"	-104°43'09.09020"	5668.896	5727.510	00°29'33"	0.999684849	1330414.309	3222714.666
GPS1	38°45'48.31921"	-104°46'35.50438"	5846.315	5903.489	00°27'23"	0.999673671	1339555.569	3206286.491
MP 290	38°46'12.97945"	-104°45'23.86627"	5730.743	5788.331	00°28'08"	0.999678502	1342096.029	3211939.978
PIN2	38°45'50.81187"	-104°45'24.75824"	5706.148	5763.783	00°28'07"	0.999680299	1339852.958	3211887.683
S347	38°41'51.85525"	-104°42'18.41710"	5545.480	5604.700	00°30'05"	0.999695407	1315804.988	3226857.644
U404	38°45'20.84040"	-104°44'52.71358"	5679.864	5737.760	00°28'27"	0.999682414	1336841.906	3214450.763

PROJECT COORDINATE TABLE				
Point No.	NAD-83(2011) Zone (Central Zone 0502)		Elev(ft) (NGVD29)	Description
	Northing(ft)	Easting(ft)		
1309	1322355.196	3224020.283	5627.748	3.25" ALUM CAP STAMPED "COLO DEPT OF TRANSPORTATION MILE POST 130.96"
1322	1327742.825	3221182.873	5664.700	3.25" ALUM CAP STAMPED "COLO DEPT OF HIGHWAYS MILE POST 132.2"
1324	1328543.659	3220369.767	5672.849	3.25" ALUM CAP STAMPED "COLO DEPT OF TRANSPORTATION MILE POST 132.4"
1337	1334283.047	3216338.905	5717.446	3.25" ALUM CAP STAMPED "COLO DEPT OF HIGHWAYS MILE POST 133.7"
1349	1339209.697	3212452.049	5756.465	3.25" ALUM CAP STAMPED "COLO DEPT OF TRANSPORTATION MILE POST 134.91"
1353	1340359.142	3211450.789	5765.731	2.25" BRASS DISK STAMPED "ESMT COR"
CONTROL 2	1342122.900	3215370.344	5850.033	1.5" ALUM CAP STAMPED "CONTROL POINT AECOM CP 2"
CONTROL 4	1344175.289	3219721.671	5959.638	1" BRASS TAG IN CONCRETE STAMPED "SURVEY MARK"
CP03	1343986.832	3216906.127	5906.129	1.5" ALUM CAP STAMPED "CONTROL POINT AECOM CP 3"
CP 131.5	1324515.740	3219528.073	5635.485	3.25" ALUM CAP STAMPED "COLO DEPT OF TRANSPORTATION MILE POST 131.5"
CP 131.9	1326008.852	3218438.632	5664.250	3.25" ALUM CAP STAMPED "COLO DEPT OF TRANSPORTATION MILE POST 131.9"
F209	1330414.309	3222714.666	5724.180	3.25" ALUM CAP STAMPED "FIMS CONTROL F209 COLORADO SPRINGS DEPARTMENT OF UTILITIES"
GPS1	1339555.569	3206286.491	5900.140	3.25" BRASS CAP STAMPED "GPS 1 COLO DEPT OF HIGHWAYS MILE POST 135.3"
MP 290	1342096.029	3211939.978	5784.981	3.25" ALUM CAP STAMPED "COLO DEPT OF TRANSPORTATION MILE POST 2.90"
PIN2	1339852.958	3211887.683	5760.433	2.5" ALUM CAP STAMPED "FIMS CSU PIN2" 0.4 FT BELOW SURFACE
S347	1315804.988	3226857.644	5601.420	3.5" BRASS CAP STAMPED "S347 US COAST & GEODETIC SURVEY BENCH MARK 1953"
U404	1336841.906	3214450.763	5734.410	5/8" STEEL ROD IN NGS MONUMENT BOX

VERIFY PRINTED SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY



URS Group, Inc.
An AECOM Company

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

CLIENT
USACE Omaha District
1616 Capital Ave.
Omaha, NE 68102

CONSULTANT
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Omaha, NE 68154
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ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
PROJECT SURVEY CONTROL

SHEET NUMBER
G-209

GENERAL STRUCTURAL NOTES**1. BUILDING CODES:**

- A. THESE GENERAL NOTES APPLY TO ALL STRUCTURAL DRAWINGS. THIS PROJECT IS DESIGNED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION, THE "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" (ASCE 7-10), AND THE 2017 PIKES PEAK REGIONAL BUILDING CODE (PPRBC).
- B. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE CODES SPECIFIED ABOVE.

2. DESIGN LOADS:

- A. LIVE LOADS:
REDUCTIONS SHALL BE COMPUTED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE. ROOF LIVE LOADS ARE NON-REDUCIBLE.
PEMB ROOF LIVE LOAD: 20 PSF
ROOF OF INTERIOR ROOMS: 20 PSF
- B. SNOW LOAD:
GROUND SNOW LOAD (PG) 20 PSF
FLAT-ROOF SNOW LOAD(PF) 20+UNBALANCED OR 30 PSF (MIN)
SNOW LOAD EXPOSURE FACTOR (CE) 1.0
SNOW LOAD IMPORTANCE FACTOR (IS) 1.1
SNOW LOAD THERMAL FACTOR (CT) 1.1
- C. DEAD LOAD
BUILDING DEAD LOADS SEE PEMB DRAWINGS
COLLATERAL LOAD 3 PSF OR 1000LB FOR PRIMARY FRAMING AND 100LB FOR SECONDARY FRAMING
- D. WIND LOAD:
ULTIMATE DESIGN WIND SPEED (Vult) 150 MPH
WIND EXPOSURE CATEGORY C
WIND IMPORTANCE FACTOR (Iw) 1.00
RISK CATEGORY III
ENCLOSURE CLASSIFICATION CATEGORY ENCLOSED
- E. SEISMIC LOAD:
RISK CATEGORY III
SOIL SITE CLASS D
SPECTRAL RESPONSE COEFFICIENTS:
SHORT PERIOD (SS) 0.175g
1 SECOND PERIOD (S1) 0.06g
DESIGN SPECTRAL RESPONSE ACCELERATION:
SHORT PERIOD (SDS) 0.187g
1 SECOND PERIOD (SD1) 0.097g
SEISMIC IMPORTANCE FACTOR (IE) 1.25
SEISMIC DESIGN CATEGORY B

3. COORDINATION:

- A. DO NOT SCALE DRAWINGS. CHANGES AFFECTING THE LAYOUT SHOWN MUST BE SPECIFIC AND CLEARLY CONVEYED TO ENGINEER IN WRITTEN FORM AS A CHANGE FOR INCLUSION INTO THESE PLANS. CONTRACTOR AND/OR CLIENT SHALL VERIFY ALL DIMENSIONS AND LAYOUT PRIOR TO CONSTRUCTION. ALL DIMENSIONS ON STRUCTURAL DRAWINGS SHALL BE CHECKED AGAINST PRE-ENGINEERED METAL BUILDING DRAWINGS AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. REFER TO MECHANICAL, ELECTRICAL AND PROCESS DRAWINGS FOR OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS.
- B. SHOP DRAWINGS SHALL BE PREPARED BY THE FABRICATOR. COPYING OF THESE CONSTRUCTION DOCUMENTS FOR USE AS SHOP DRAWINGS WILL NOT BE PERMITTED.
- C. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE-DOWNS MAY BE NECESSARY.
- D. ALL TEMPORARY SHORING AND REQUIRED DESIGN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. METAL BUILDING NOTES:

METAL BUILDING DESIGN DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO. FINAL STAMPED METAL BUILDING DRAWINGS SHALL BE SUBMITTED TO AND ACCEPTED BY THE ENGINEER PRIOR TO FOUNDATION PLACEMENT.

- A. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE FINAL DIMENSIONS OF THE METAL BUILDING FOUNDATION AND EXISTING CONDITIONS WITH THE METAL BUILDING MANUFACTURERS.
- B. THE FOUNDATION HAS BEEN DESIGNED WITH PINNED BASES AT ALL COLUMNS.
- C. THE FOUNDATION DESIGN FOR THE PRE-ENGINEERED METAL BUILDING IS BASED ON THE FOLLOWING ASSUMED MAXIMUM REACTIONS (TO BE VERIFIED WITH FINAL ENGINEER ACCEPTED PEMB SHOP DRAWING):
UPLIFT: 20.4k (ASD)
DOWNWARD: 70k (LRFD)
HORIZONTAL (PERPENDICULAR TO BLDG) 45k (LRFD)
- D. IF THE ACTUAL LOADS PROVIDED BY THE PRE-ENGINEERED METAL BUILDING MANUFACTURER VARY FROM THESE LOADS AECOM MUST BE NOTIFIED TO RE-EVALUATE THE FOUNDATION DESIGN FOR THE METAL BUILDING.
- E. METAL BUILDING STRUCTURAL PERFORMANCE CRITERIA:
MAXIMUM ALLOWABLE BUILDING SWAY (DRIFT): H/100
MAXIMUM ALLOWABLE DEFLECTION OF PRIMARY MEMBERS: L/180
MAXIMUM ALLOWABLE DEFLECTION OF SECONDARY FRAMING: L/180
- F. INSULATION REQUIREMENTS (IN ACCORDANCE WITH ASTM C1363 OR ASTM C518):
EXTERIOR WALLS: R13 + R13 CONTINUOUS INSULATION (U-FACTOR 0.052)
ROOF: R19 + R11 LINER SYSTEM WITH THERMAL SPACER BLOCK (U-FACTOR 0.035)

5. CAST-IN-PLACE CONCRETE:

- A. CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO THE PROJECT MANUAL. CONCRETE HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENT REINFORCED CONCRETE" AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 318 AND ACI 301) LATEST EDITIONS. WET WELL CONCRETE SHALL BE IN ACCORDANCE WITH ACI 350-06, CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES. ALL CONCRETE SHALL BE OF STONE AGGREGATE, UNLESS NOTED OTHERWISE.
- B. CONCRETE MIXES: SEE SPECIFICATIONS.
- C. REINFORCING IS TO BE NEW BILLET STEEL ASTM A615, GRADE-60. NO SPLICES OF REINFORCEMENT ARE PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY AECOM. WELDED WIRE FABRIC (W.W.F.) SHALL BE IN ACCORDANCE WITH ASTM A185 DELIVERED IN FLAT SHEETS. LAP (1) FULL MESH MINIMUM AT SPLICES. LAP WELDED WIRE FABRIC 1 SPACE (2 CROSS WIRES) + 2" AT ALL EDGES AND ENDS OF SHEETS. NO WELDING OF REINFORCEMENT PERMITTED UNLESS DETAILED.
- D. WHERE BAR LENGTHS ARE GIVEN ON THE DRAWINGS, THE LENGTH OF ANY HOOK, IF REQUIRED, IS NOT INCLUDED (U.N.O.). USE STANDARD 90° BAR HOOK UNLESS NOTED OTHERWISE.
- E. PLACING OF REINFORCEMENT: PROVIDE CHAIRS, BOLSTERS, ADDITIONAL REINFORCEMENT, AND ACCESSORIES NECESSARY TO SUPPORT REINFORCEMENT AT POSITION SHOWN ON DRAWINGS. SUPPORT OF REINFORCEMENT ON FORM TIES, WOOD, BRICK, BRICKBAT OR OTHER UNACCEPTABLE MATERIAL, WILL NOT BE PERMITTED.
- F. THE CONTRACTOR SHALL REVIEW ALL DRAWINGS FOR SIZE AND LOCATION OF ALL EMBEDDED ITEMS, SLEEVES, SLAB DEPRESSIONS, OPENINGS, ETC. REQUIRED BY OTHER TRADES. RECONCILE THEIR EXACT SIZES AND LOCATIONS BEFORE PROCEEDING WITH THE WORK. ALL ITEMS SHALL BE FURNISHED AND INSTALLED PRIOR TO PLACEMENT OF CONCRETE. SECURE THE APPROVAL OF AECOM PRIOR TO PLACING OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- G. PROVIDE HORIZONTAL CONTROL/CONSTRUCTION JOINTS IN SLABS AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL SUBMIT ALTERNATE AND ADDITIONAL CONSTRUCTION JOINT LOCATIONS AND DETAILS TO AECOM FOR APPROVAL PRIOR TO CONSTRUCTION. AT LEAST 72 HOURS SHALL ELAPSE BETWEEN CASTING OF ADJOINING UNITS. REINFORCEMENT SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS UNLESS DETAILED OTHERWISE ON THE DRAWINGS. SUBMIT ALL CONSTRUCTION JOINT LOCATIONS WITH THE REINFORCING STEEL SHOP DRAWINGS.
- H. WHERE CONSTRUCTION JOINTS ARE REQUIRED BUT ARE NOT INDICATED ON THE DRAWINGS, THEY SHALL BE LOCATED AT THE MID-SPAN OF SLABS AND WALLS AND SHALL BE SUBJECT TO REVIEW BY AECOM. THE MINIMUM KEY SIZE SHALL BE 1 1/2" DEEP x 1/3 THE DEPTH OR WIDTH OF THE MEMBER.
- I. THE CONTRACTOR SHALL PROVIDE 3/4" CHAMFERS ON ALL EXPOSED CORNERS OF COLUMNS, BEAMS AND WALLS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- J. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING WHEN IT IS SAFE TO REMOVE FORMS AND/OR SHORING. FORMS AND SHORING MUST NOT BE REMOVED UNTIL THE WALLS ARE STRONG ENOUGH TO CARRY THEIR OWN WEIGHT AND ANY ANTICIPATED SUPERIMPOSED LOADS. WHEN FORMS ARE STRIPPED THERE MUST BE NO EXCESSIVE DEFLECTION OR DISTORTION OR DISCOLORATION AND NO EVIDENCE OF DAMAGE TO THE CONCRETE.
- K. PROVIDE 6X6-W2.9XW2.9 WELDED WIRE FABRIC IN ALL SLABS ON GRADE, UNLESS NOTED OTHERWISE. PROVIDE REINFORCING BARS AS SHOWN IN STRUCTURAL DRAWINGS.
- 6. FOUNDATIONS:**
- A. FOUNDATIONS ARE PRELIMINARY PENDING FINAL RECOMMENDATIONS OF GEOTECHNICAL ENGINEERING INVESTIGATION.

PEMB FOUNDATION NOTE:

BUILDING FOUNDATION SHALL NOT BE CONSTRUCTED UNTIL SIGNED AND SEALED PEMB SHOP DRAWING IS RECEIVED AND ACCEPTED BY THE ENGINEER. COLUMN ANCHOR ROD DESIGN WILL BE PROVIDED TO THE CONTRACTOR ONCE FINAL PEMB SHOP DRAWING IS RECEIVED BY THE ENGINEER.

GEOTECHNICAL NOTE:

STRUCTURAL FOUNDATIONS ARE PRELIMINARY PENDING FINAL RECOMMENDATIONS OF GEOTECHNICAL ENGINEERING INVESTIGATION.

ABBREVIATIONS

ABV	ABOVE
ADDL	ADDITIONAL
AB	ANCHOR BOLT
&	AND
B.O.	BOTTOM OF
BOT	BOT
BRG	BEARING
BTWN	BETWEEN
ℓ	CENTERLINE
CLR	CLEAR
CJ	CONTROL JOINT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
COORD	COORDINATION
CSJ	CONSTRUCTION JOINT
CTRD	CENTERED
Ø	DIAMETER
DIR	DIRECTION
DTL	DETAIL
DWG	DRAWING
(E),EXIST	EXISTING
EA	EACH
EF	EACH FACE
EL, ELEV	ELEVATION
EMBED	EMBEDMENT
EV	EACH WAY
FT	FEET
FTG	FOOTING
HGT, HT	HEIGHT
HK	HOOK
HORIZ	HORIZONTAL
HP	HIGH POINT
JT	JOINT
LP	LOW POINT
MAX	MAXIMUM
MFR	MANUFACTURER
MIN	MINIMUM
OC	ON CENTER
PL	PLATE
PEMB	PRE-ENGINEERED METAL BUILDING
REINF	REINFORCING
REQD	REQUIRED
SHT	SHEET
SIM	SIMILAR
STD	STANDARD
STL	STEEL
SPA	SPACE OR SPACING
TBL	TABLE
T & B	TOP AND BOTTOM
TO	TOP OF
THRU	THROUGH
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT, V	VERTICAL
W/	WITH

URSURS Group, Inc.
An AECOM Company**PROJECT****PFOS / PFOA DRINKING WATER MITIGATION SYSTEM****Security Water District (SWD)****CLIENT****USACE Omaha District**1616 Capital Ave.
Omaha, NE 68102**CONSULTANT**URS Group, Inc.
12120 Shamrock Plaza
Omaha, NE 68154
T +1 (402) 334 8181. F +1 (402) 334 1984**ISSUE/REVISION**

NO.	DATE	DESCRIPTION
0	02/28/19	60% DESIGN
I/R	DATE	DESCRIPTION

PROJECT NUMBER

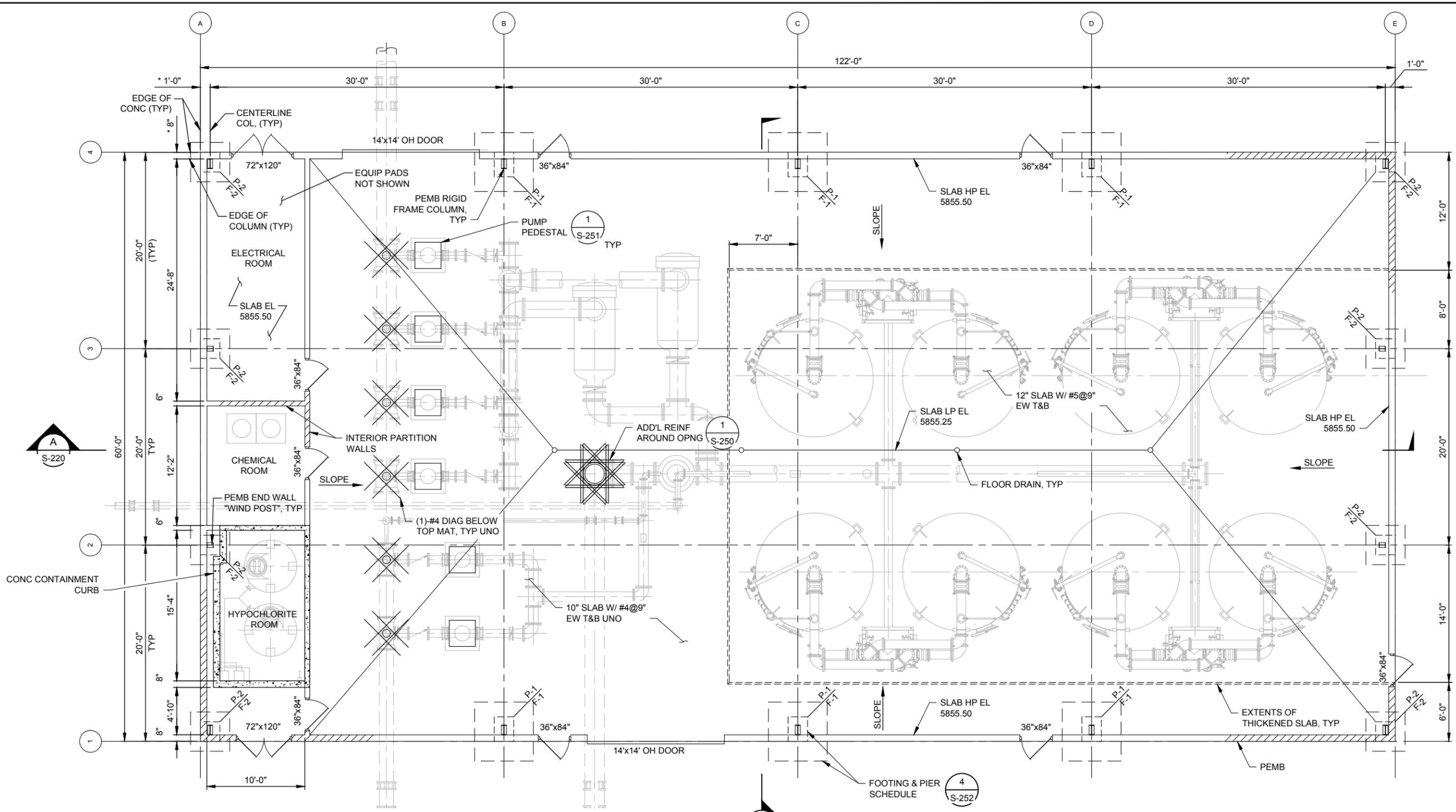
Project Number: 60589841

SHEET TITLE

STRUCTURAL GENERAL NOTES

SHEET NUMBER

S-200



GENERAL NOTES

- FOR STRUCTURAL GENERAL NOTES, DESIGN CRITERIA AND ABBREVIATIONS REFERENCE S-200.
- ASTERISK (*) DENOTES DIMENSION TO BE VERIFIED W/ PEMB SUPPLIER.
- CONTRACTOR TO VERIFY EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS PRIOR TO BEGINNING WORK.
- CONTRACTOR SHALL LOCATE AND VERIFY WITH OTHER DRAWINGS PRIOR TO PLACING CONCRETE SLOPES, BLOCKOUTS, SLAB DEPRESSIONS, AND EQUIPMENT PADS.
- COORDINATE ANCHORAGE FOR PRE-ENGINEERED METAL BUILDING WITH MANUFACTURER.

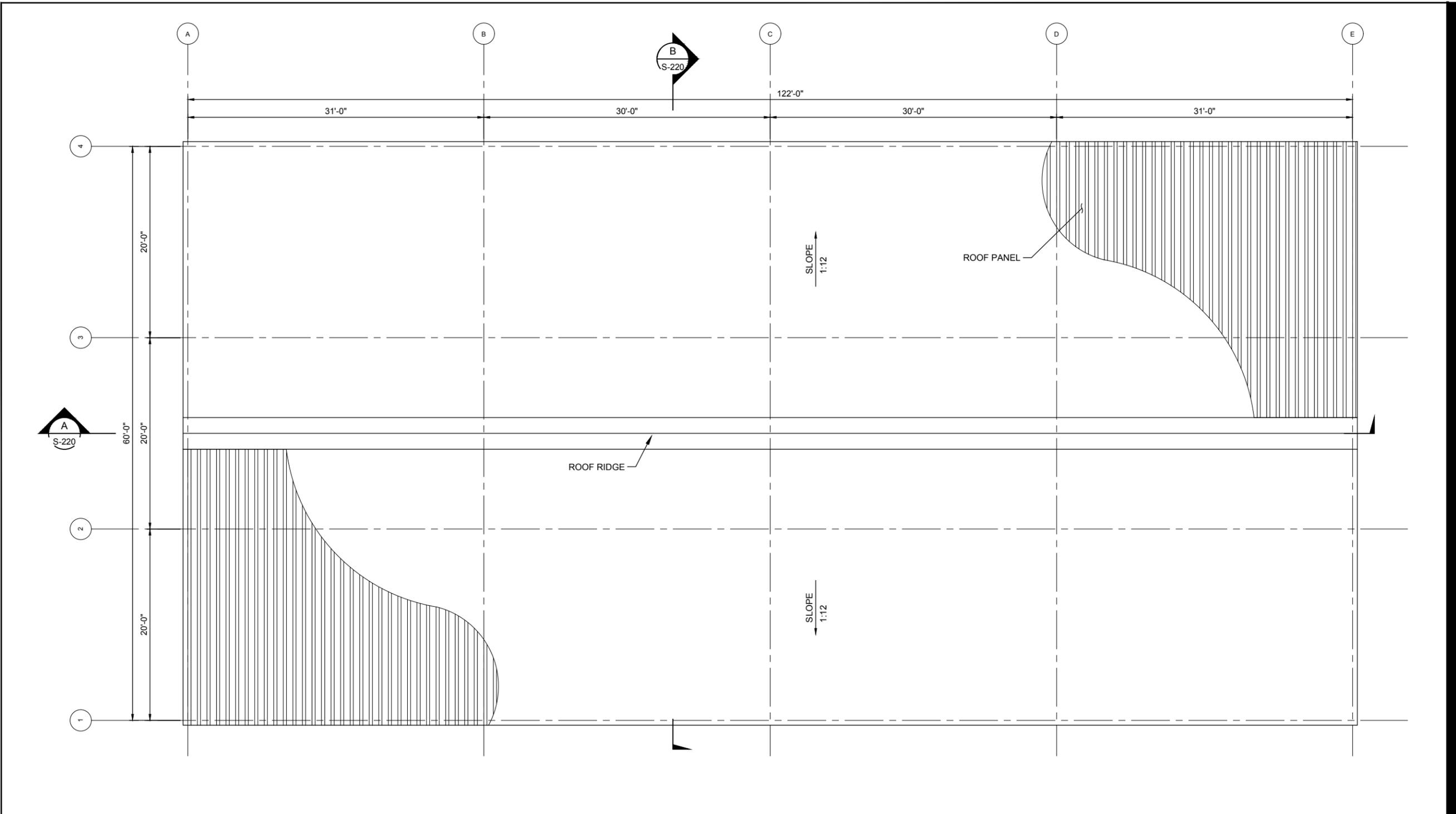
BUILDING FLOOR PLAN
SCALE: 3/16" = 1'-0"

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

SCALE IN FEET

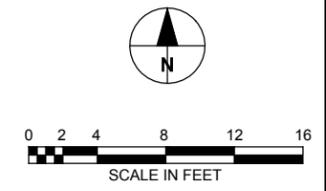
ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER	Project Number: 60589841
SHEET TITLE	DWMS BUILDING STRUCTURAL PLAN
SHEET NUMBER	S-210



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

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



URS Group, Inc.
An AECOM Company

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

CLIENT
USACE Omaha District
1616 Capital Ave.
Omaha, NE 68102

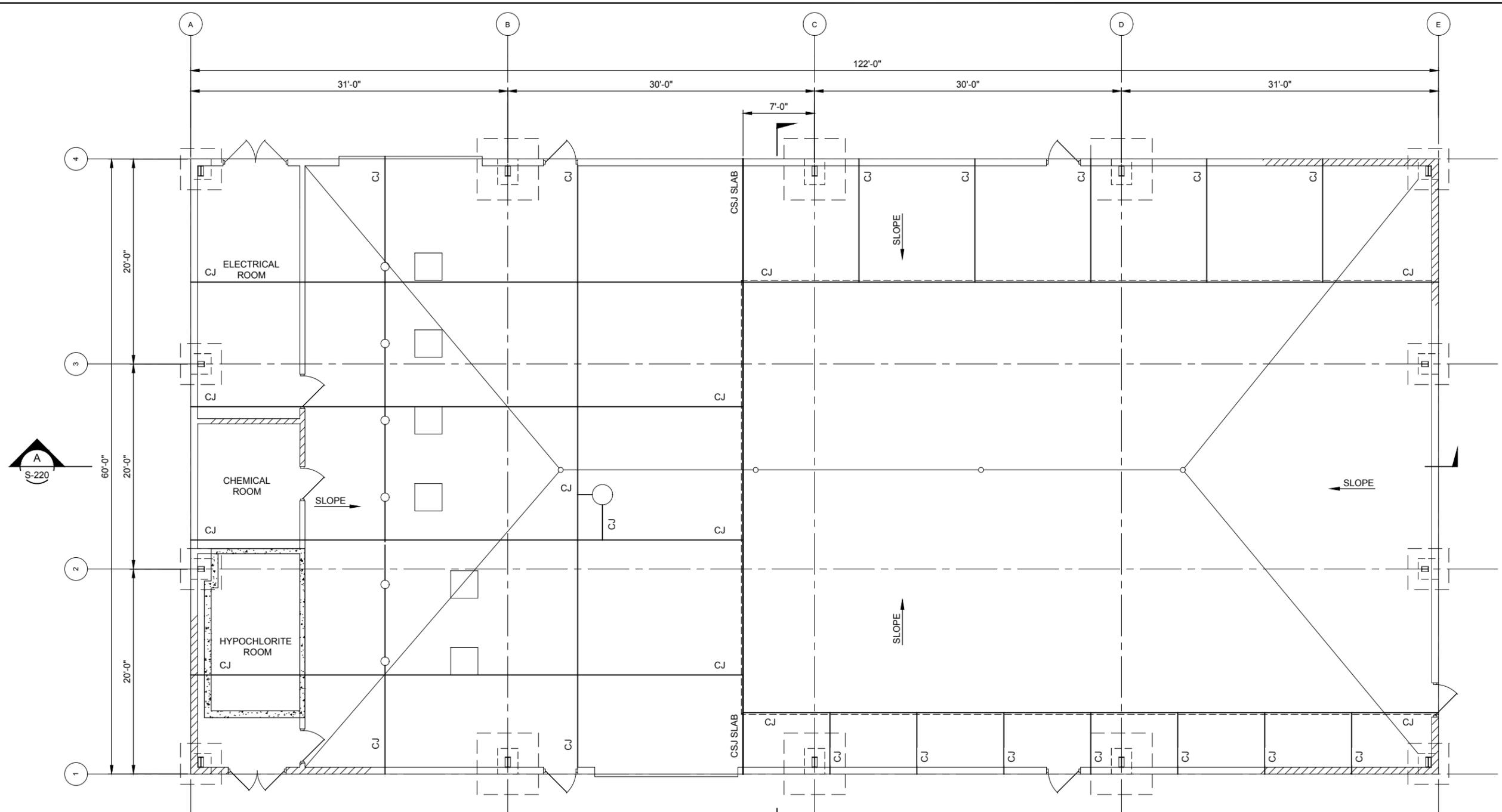
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ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
BUILDING ROOF PLAN

SHEET NUMBER
S-211



GENERAL NOTES

1. PROVIDE CONSTRUCTION (CSJ) AND CONTROL (CJ) JOINTS AS INDICATED. ANY MODIFICATION TO JOINT LAYOUT SHALL BE PROVIDED IN WRITING BY THE ENGINEER.
2. CONTROL JOINTS MAY BE TOOLED OR SAW CUT. SAWCUT JOINTS SHALL BE MADE WITH AN EARLY ENTRY SAW WITHIN 4-HRS OF INITIAL CONCRETE SET.
3. CONTROL JOINTS SHALL NOT CUT TOP REINFORCEMENT BARS.
4. CONSTRUCTION JOINTS IN FLOOR SLAB PERIMETER EDGE NOT SHOWN. PROVIDE CONSTRUCTION JOINTS AS NOTED IN DETAIL 2/S-252.

BUILDING FLOOR JOINT PLAN

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

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

0 2 4 8 12 16
SCALE IN FEET

ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
BUILDING FLOOR JOINT PLAN

SHEET NUMBER
S-212

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SCHWARTZ, ERIC, 2/28/2019 5:08 PM



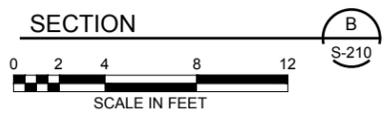
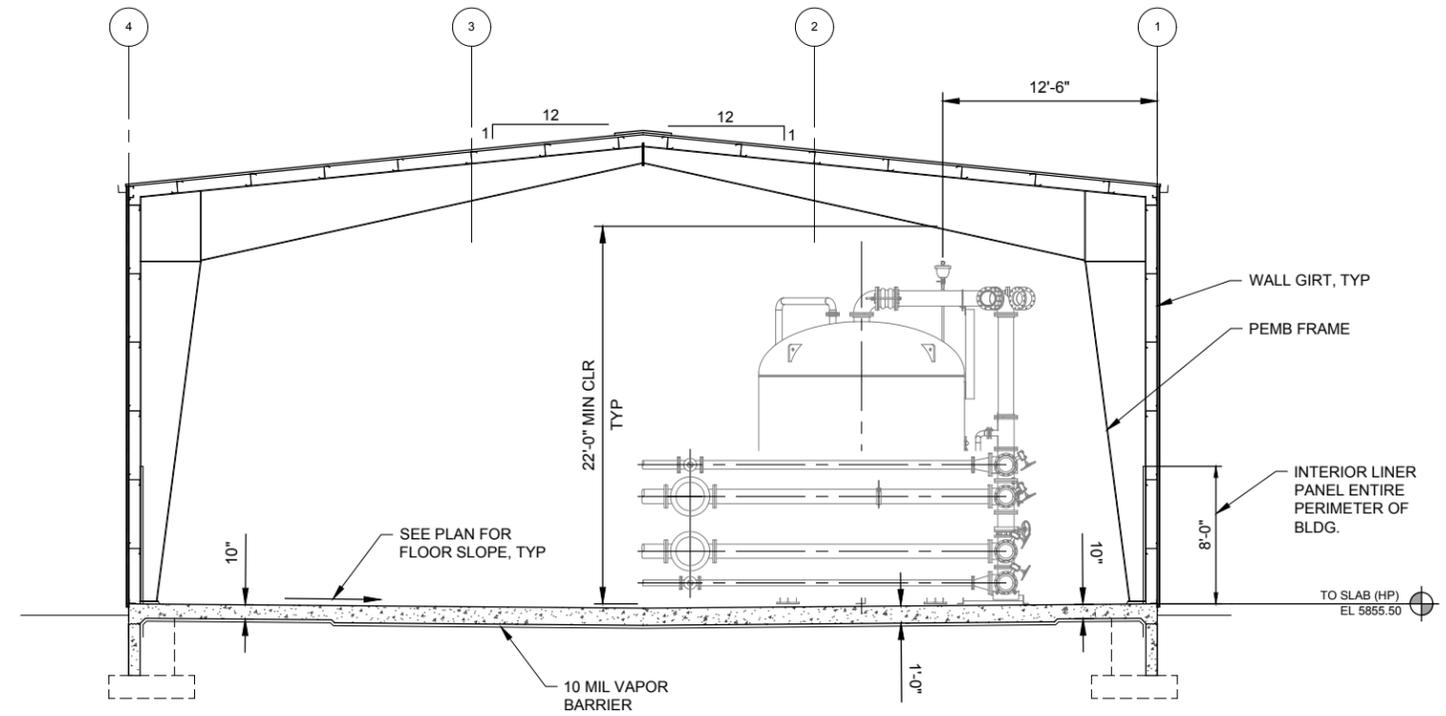
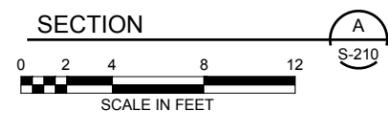
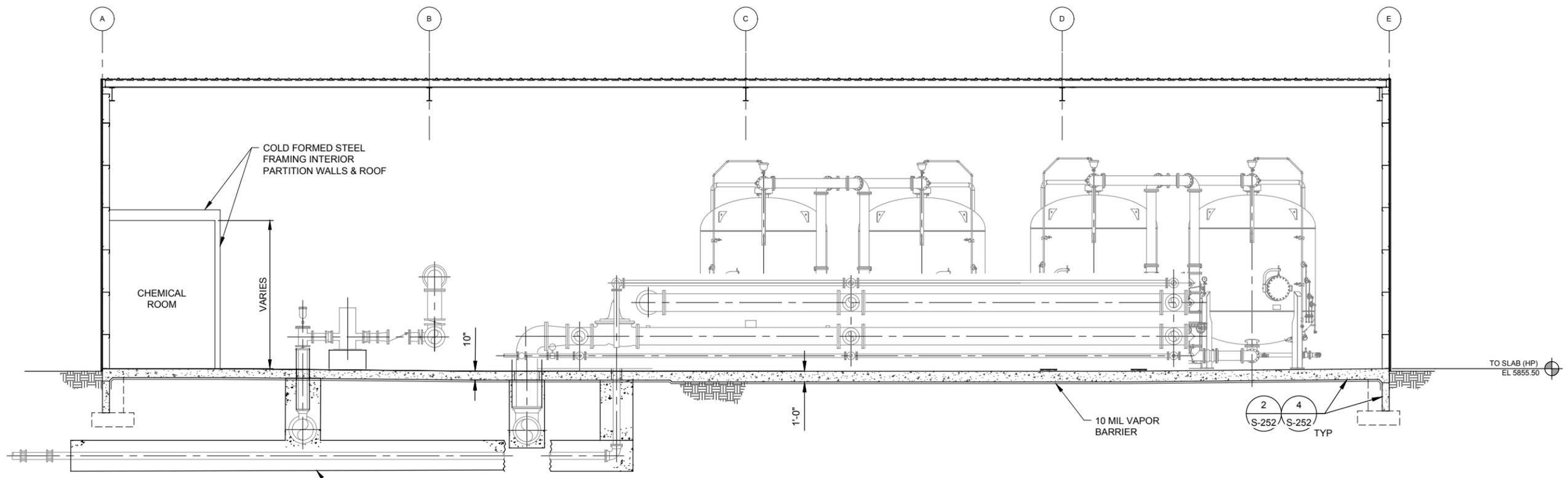
URS Group, Inc.
An AECOM Company

PROJECT
**PFOS / PFOA DRINKING
WATER MITIGATION
SYSTEM**

Security Water District
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VERIFY PRINTED SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY

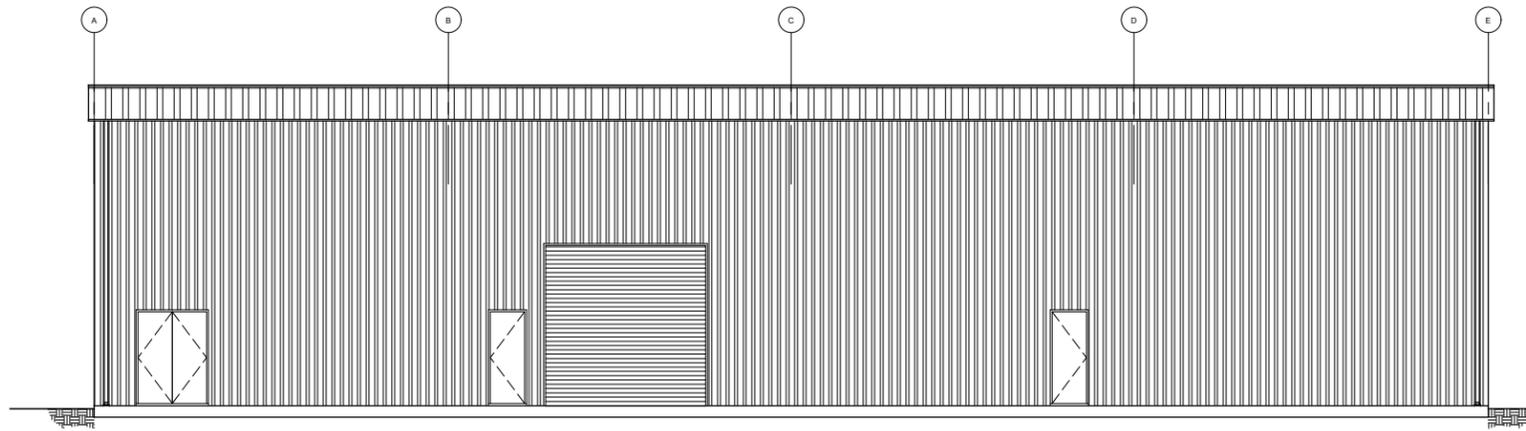
ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
DWMS BUILDING STRUCTURAL SECTIONS

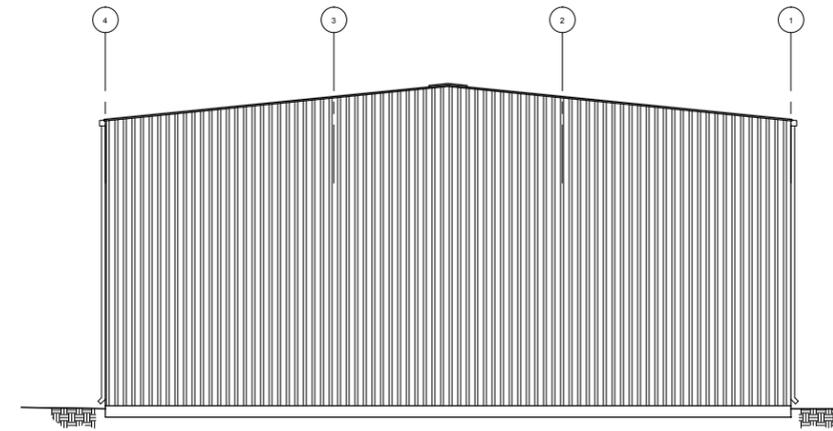
SHEET NUMBER
S-220

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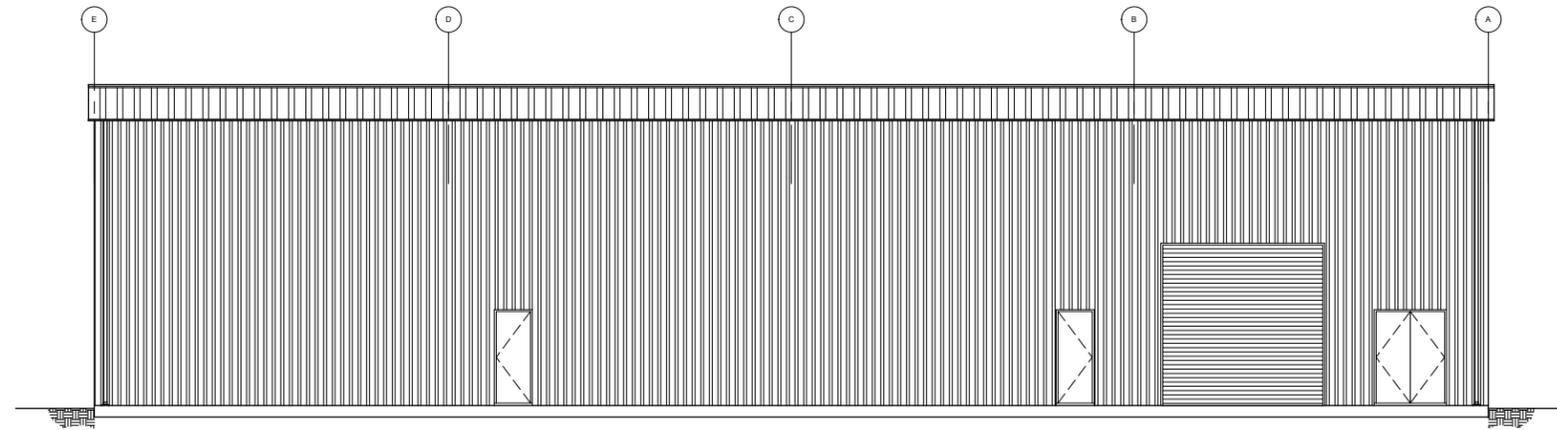
SOUTH ELEVATION A
SCALE: 1/8" = 1'-0"
S-210

SCALE IN FEET



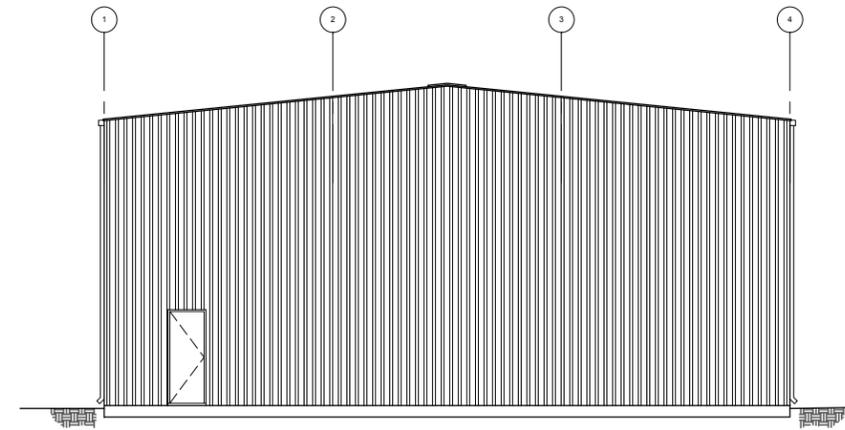
WEST ELEVATION C
SCALE: 1/8" = 1'-0"
S-210

SCALE IN FEET



NORTH ELEVATION B
SCALE: 1/8" = 1'-0"
S-210

SCALE IN FEET



EAST ELEVATION D
SCALE: 1/8" = 1'-0"
S-210

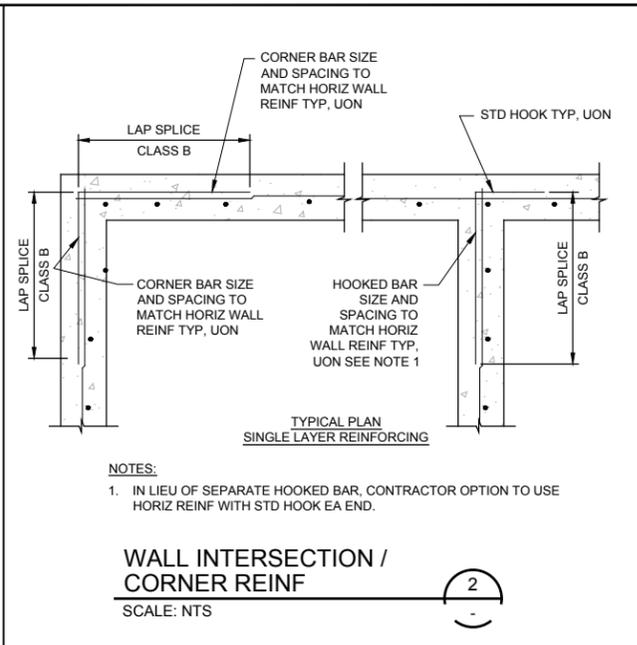
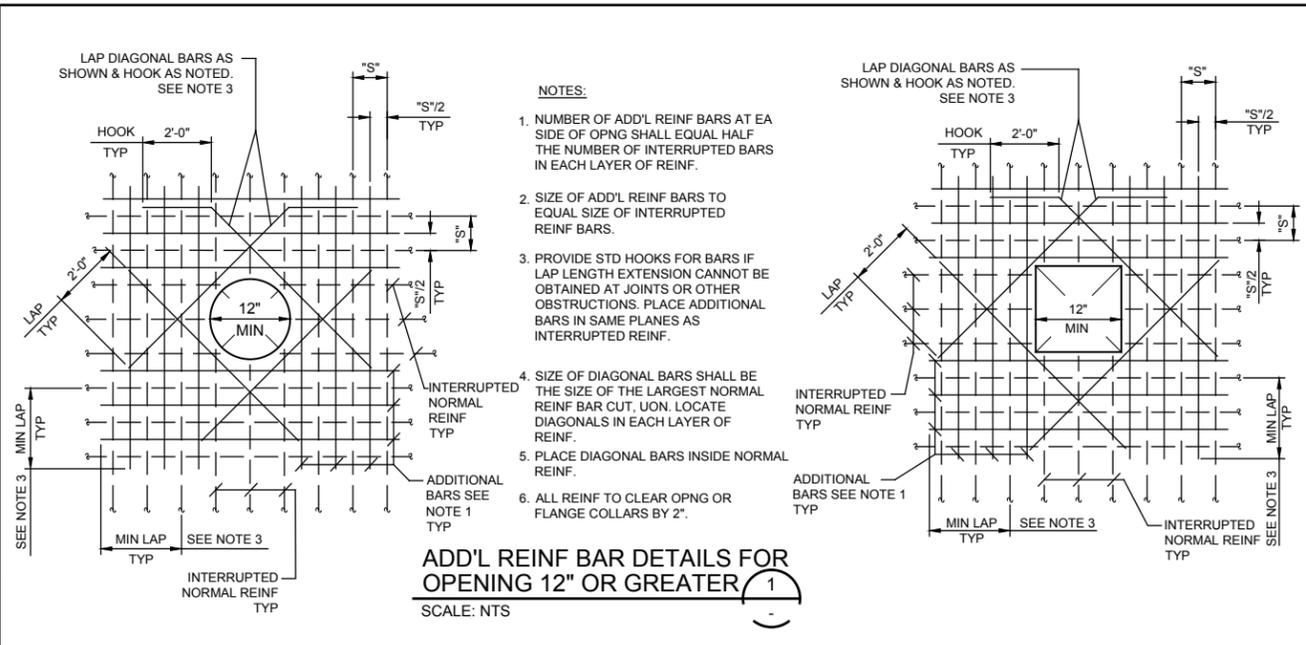
SCALE IN FEET

VERIFY PRINTED SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY

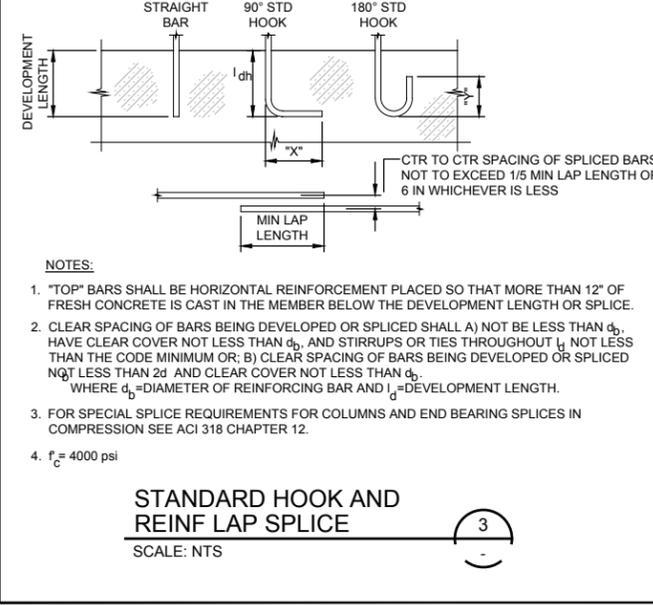
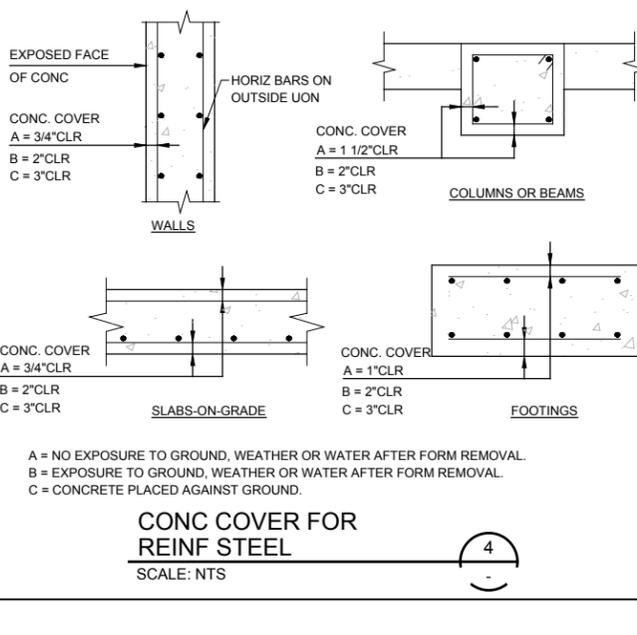
ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN



BAR SIZE	DIAMETER (d _b) (INCHES)	DEVELOPMENT LENGTH (l _d) (INCHES)		CLASS B LAP SPLICE (INCHES)		90° STD HOOK (INCHES)		180° STD HOOK (INCHES)	
		"TOP" BARS	OTHER	"TOP" BARS	OTHER	HOKK "X"	l _{dh}	l _{dh}	l _{dh}
REINFORCING BARS IN TENSION									
#3	0.375	18	14	24	18	6	6	6	6
#4	0.5	25	19	32	25	8	7	7	6
#5	0.625	31	24	40	31	10	9	9	6
#6	0.75	37	28	48	37	12	10	10	6
#7	0.875	54	42	70	54	14	12	12	7
#8	1.0	62	47	80	62	15	14	14	8
#9	1.125	70	54	90	70	17	15	15	9
#10	1.25	78	60	102	78	20	17	17	10.2
#11	1.375	87	67	113	87	22	19	19	11.3
#14	1.75	104	80	136	104	26	32	32	13.5
REINFORCING BARS IN COMPRESSION									
#3	0.375	8		12					
#4	0.5	9		15					
#5	0.625	12		19					
#6	0.75	14		23					
#7	0.875	17		26					
#8	1.0	19		30					
#9	1.125	21		34					
#10	1.25	24		38					
#11	1.375	27		42					
#14	1.75	32		51					

HOOKED BARS SHALL NOT BE USED IN COMPRESSION



ISSUE/REVISION

NO	DATE	DESCRIPTION
0	02/28/19	60% DESIGN
I/R		

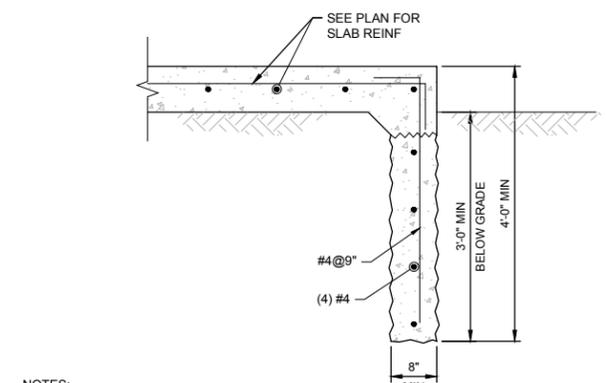
ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

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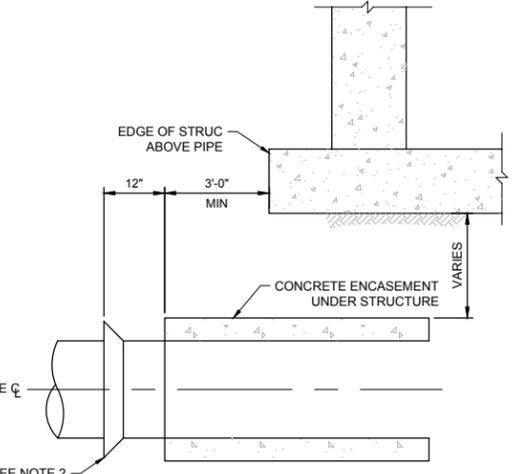
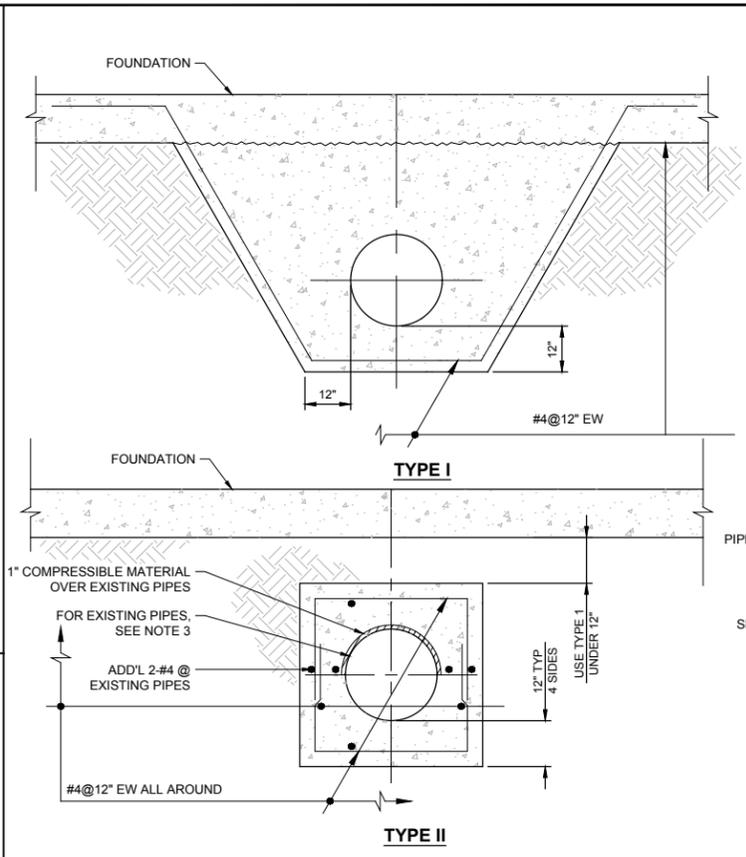


EDGE OF SLAB DETAIL
SCALE: NTS



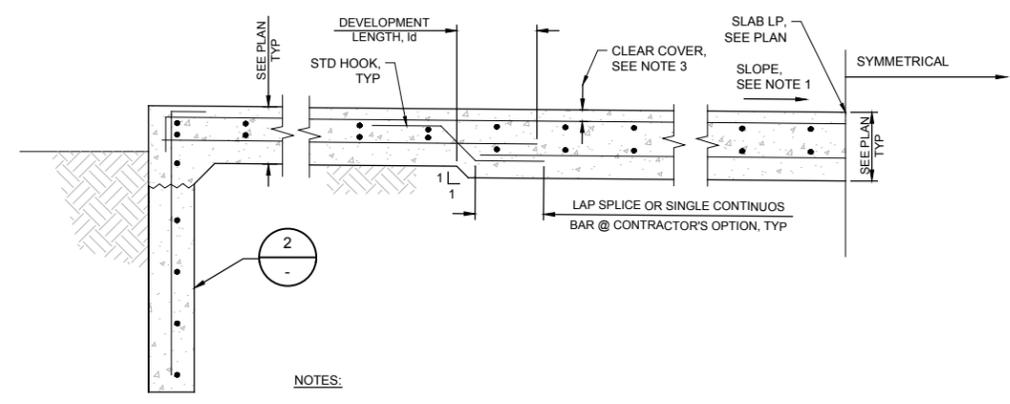
- NOTES:
1. ALL EXPOSED CONCRETE SURFACES SHALL BE FORMED.
 2. VERTICAL TRENCH EXCAVATION SHOWN. IF VERTICAL TRENCH EXCAVATION IS NOT POSSIBLE, NOTIFY THE ENGINEER.
 3. PROVIDE CONSTRUCTION JOINT IN VERTICAL EDGE POUR AT 30'-0" MAX SPACING.

PIPE ENCASEMENT BELOW STRUCTURES
SCALE: NTS



- NOTE:
1. THIS DETAIL APPLICABLE FOR PIPES 48" OR LESS IN DIAMETER.
 2. PIPE BELL OR EXPANSION FITTING TO BE POSITIONED A MINIMUM OF 12" OUTSIDE LIMIT OF CONCRETE ENCASEMENT.
 3. FOR EXISTING PIPES, EXPOSE PIPE FROM THE CENTERLINE OF THE PIPE UPWARDS. PROVIDE 1" THICK COMPRESSIBLE MATERIAL OVER PIPE AND PROVIDE CONCRETE ENCASEMENT FROM THE CENTERLINE OF THE PIPE UPWARDS, AS SHOWN IN TYPE II DETAIL, SIMILAR.
 4. PROVIDE CONTINUOUS HYDROPHILIC WATERSTOP AT ALL PIPE ENCASEMENT CONSTRUCTION JOINTS, TYP.

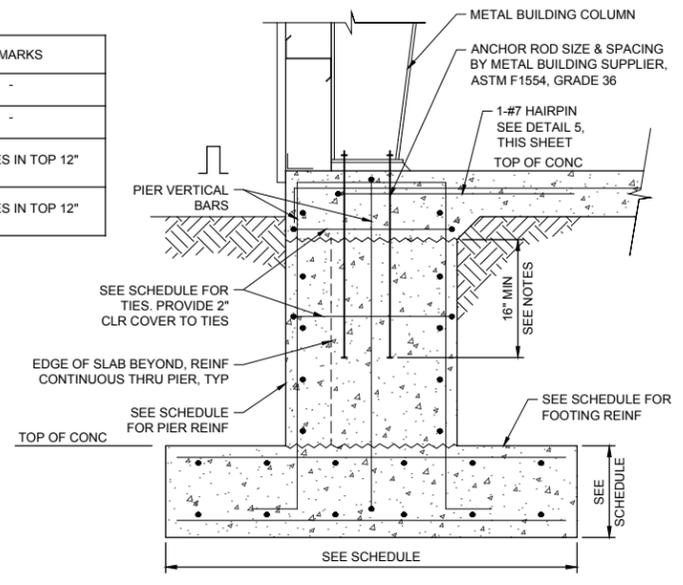
FLOOR SLAB DETAIL
SCALE: NTS



- NOTES:
1. FLOOR SLAB SHALL SLOPE AS NOTED IN PLAN VIEW. PROVIDE SLOPES TO FLOOR DRAIN AND FINISHED FLOOR ELEVATIONS AS NOTED IN PLAN.
 2. SLAB THICKNESS NOTED ARE MINIMUM REQUIRED THICKNESSES.
 3. SLAB REINFORCEMENT SHALL FOLLOW THE CONTOUR OF SLAB SLOPES AND REQUIRED CLEAR COVERS SHALL BE MAINTAINED.

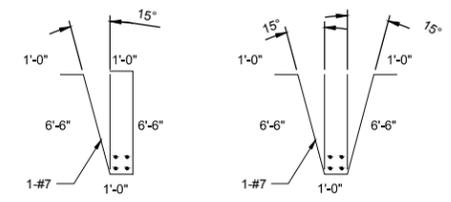
MARK	SIZE	TOP OF CONCRETE	REINFORCEMENT	REMARKS
F-1	6'-0" x 6'-0" x 2'-0"	5851.50	(7)-#5 EW T&B	-
F-2	4'-0" x 4'-0" x 1'-6"	5851.50	(5)-#5 EW T&B	-
P-1	2'-0" x 2'-6"	5855.50	(6)-#5 VERT #3@8" TIES	(3)-#3 TIES IN TOP 12"
P-2	2'-0" x 2'-0"	5855.50	(6)-#5 VERT #3@8" TIES	(3)-#3 TIES IN TOP 12"

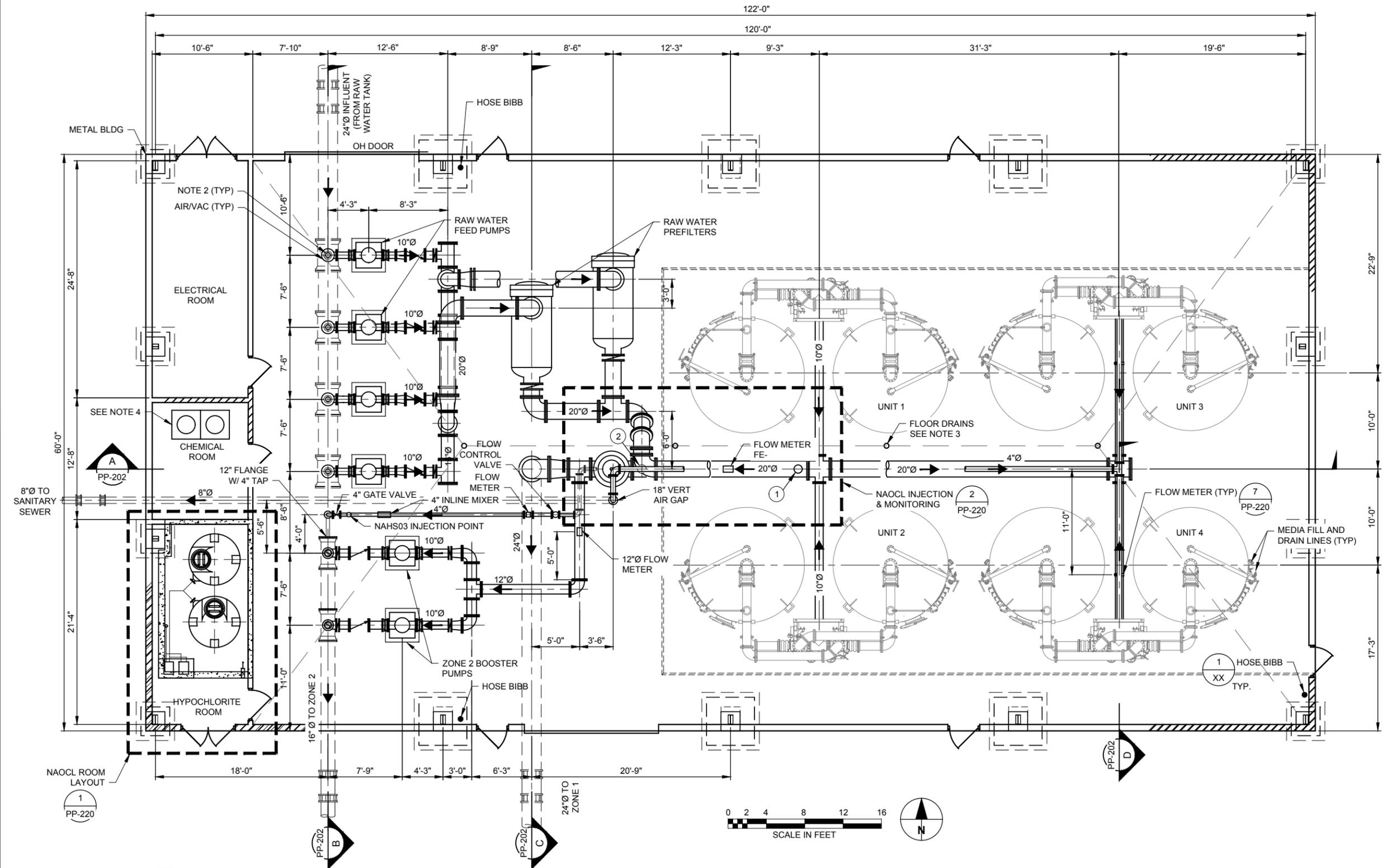
- NOTES:
1. COLUMN ANCHOR RODS SHALL BE DESIGNED BY FOUNDATION ENGINEER BASED ON FINAL BLDG LOAD REACTIONS SHOWN IN ENGINEER ACCEPTED PEMB SHOP DRAWING.
 2. CENTER FOOTING ON PIER.



FOOTING AND PIER SCHEDULE
SCALE: NTS

HAIRPIN DETAIL
SCALE: NTS





- NOTES:**
- ALL PIPE BELOW SLAB IS RESTRAINED JOINT DUCTILE IRON, ENCASED IN CONCRETE
 - ISOLATION VALVES LOCATED IN THE VERTICAL RISER.
 - FLOOR DRAINS - MAKE CONNECTIONS TO DRAIN TO SEWER.
 - POLYETHYLENE SPILL CONTAINMENT PALLET FOR TWO (2) 55 GALLON DRUMS.

EQUIPMENT LIST	
ITEM	DESCRIPTION
①	SODIUM HYPOCHLORITE INJECTION
②	CHLORINE ANALYZER SAMPLE POINT



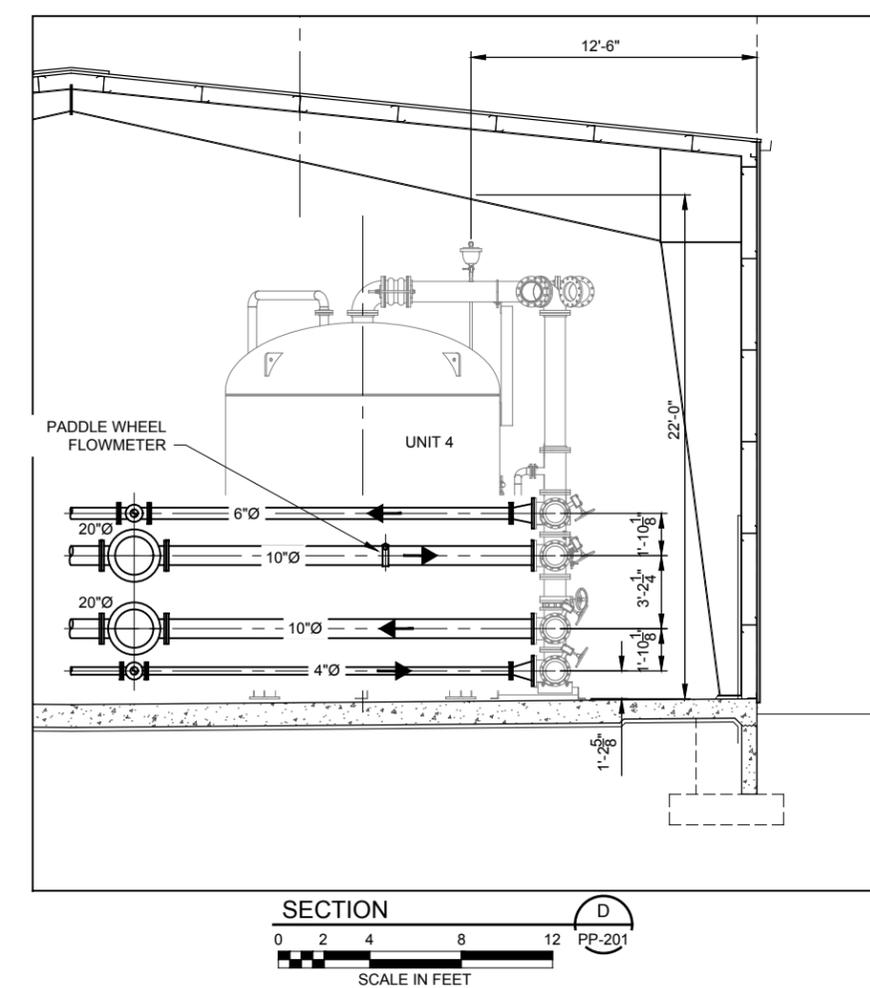
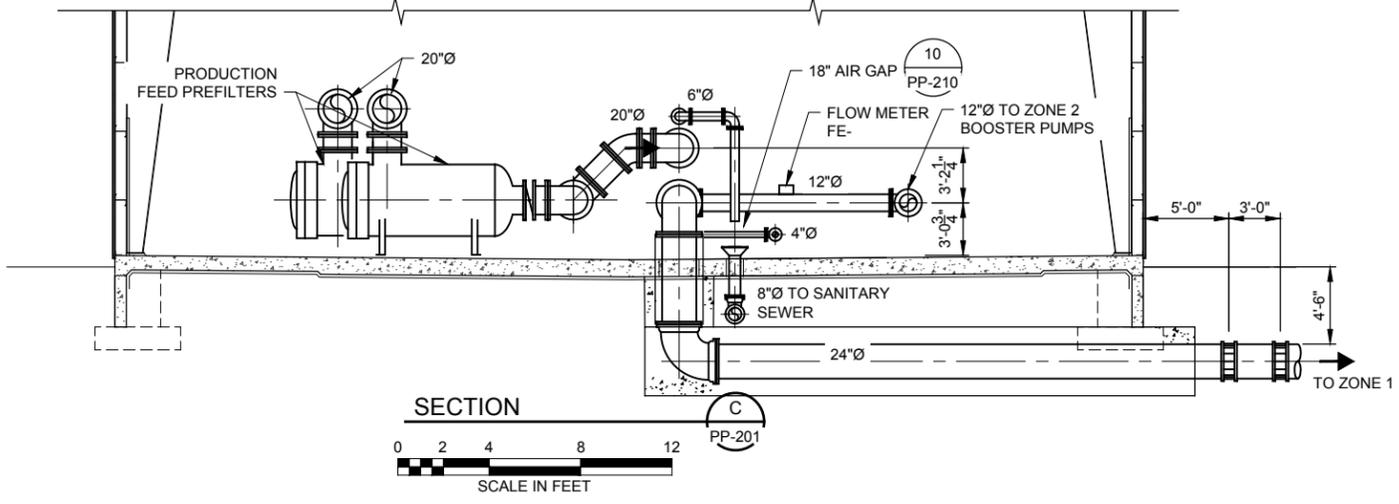
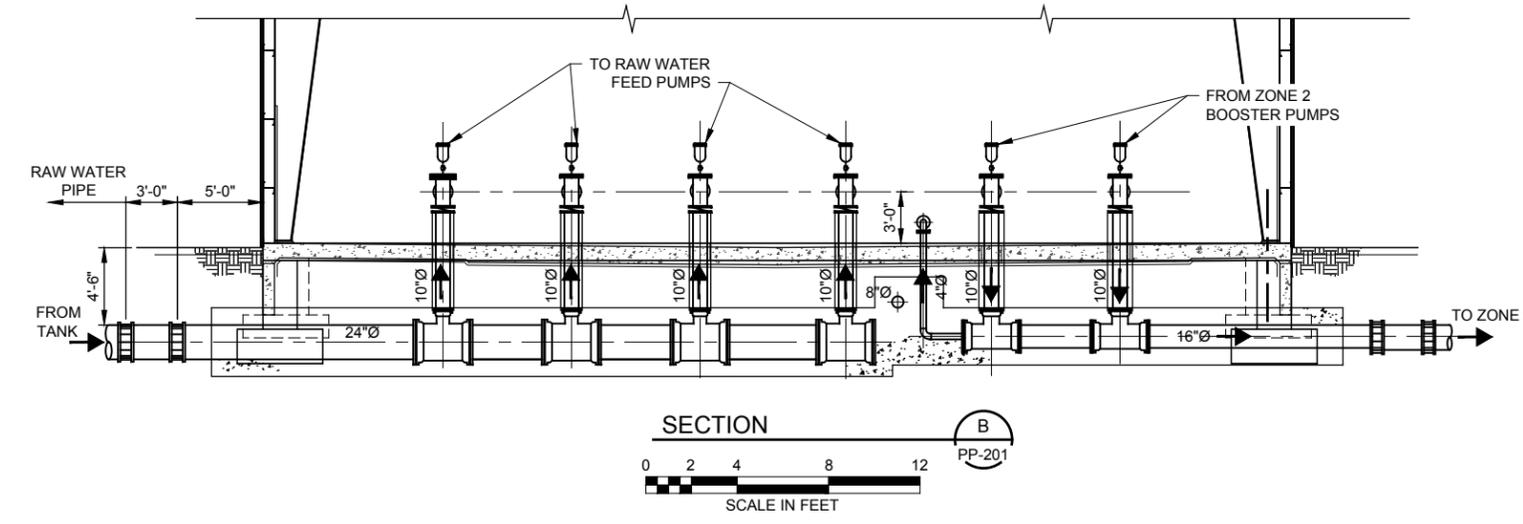
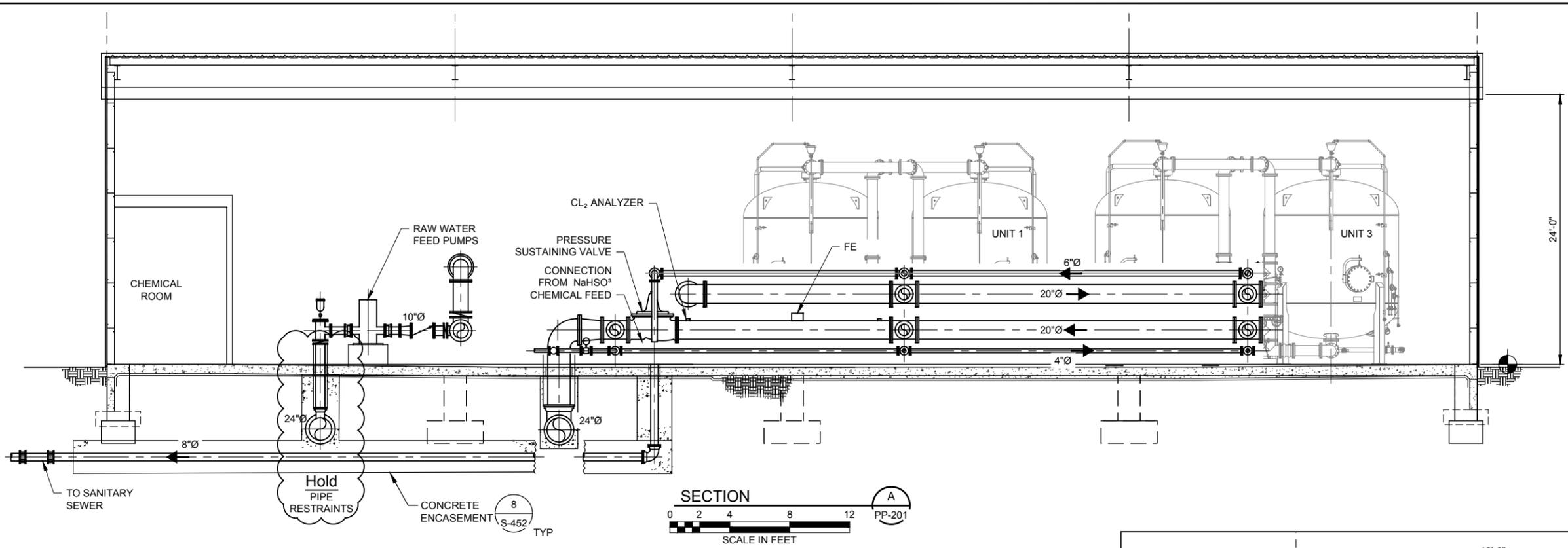
ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
DWMF PROCESS PLAN

SHEET NUMBER
PP-201

ANSI D 22" x 34"



ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER	Project Number: 60589841
SHEET TITLE	DWMF PROCESS SECTIONS
SHEET NUMBER	PP-202

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Filename: M:\DCS\PROJECTS\WTR60589841_PAFB_PFA1900_CAD_GIS\910_CAD\20-SHEETS\PP-202-SECURITY PROCESS SECT.DWG

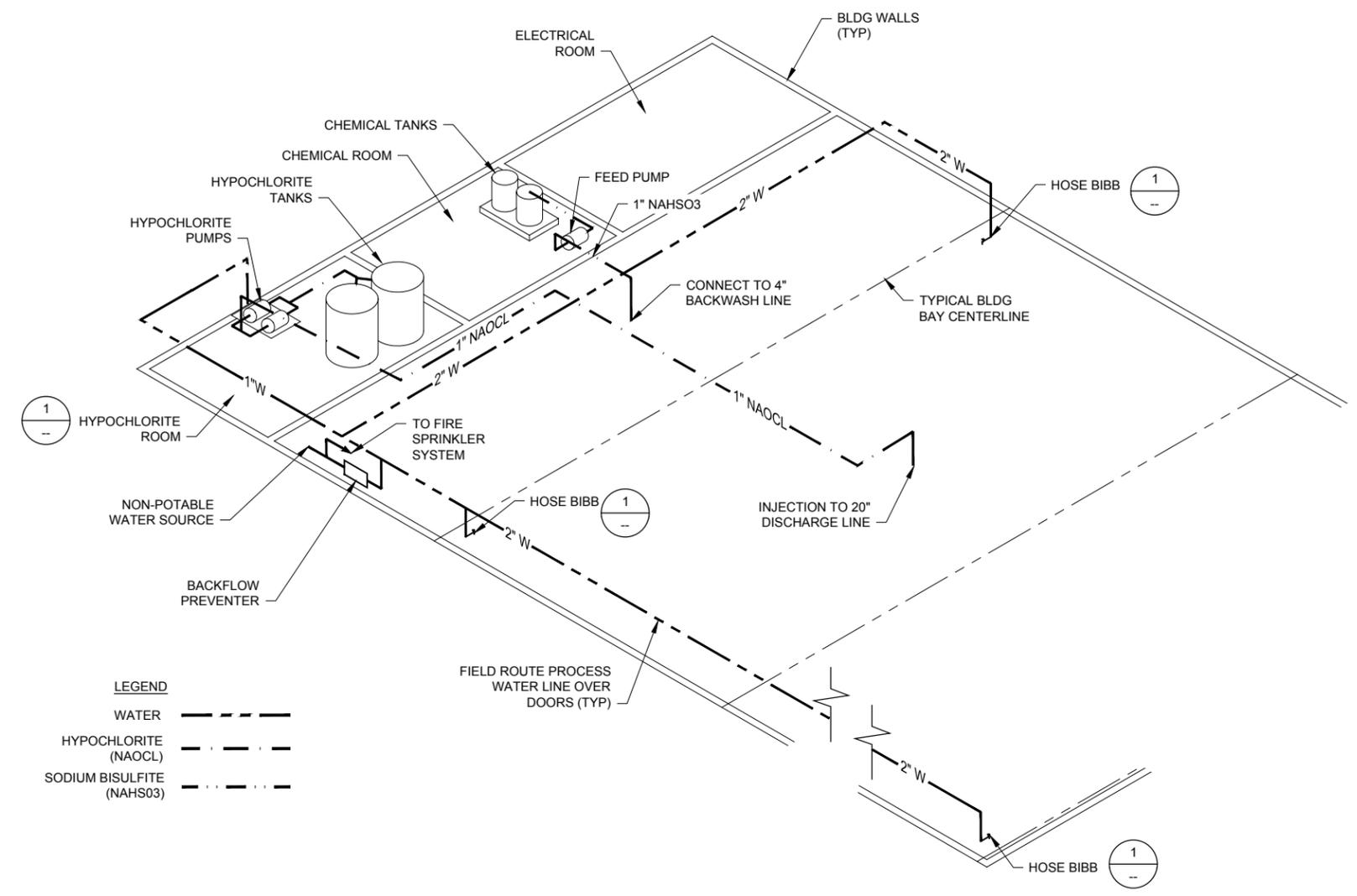
**VERIFY PRINTED
SCALES**
BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON
THIS SHEET ADJUST
SCALE ACCORDINGLY

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

CLIENT
USACE Omaha District
1616 Capital Ave.
Omaha, NE 68102

CONSULTANT
URS Group, Inc.
12120 Shamrock Plaza
Omaha, NE 68154
T +1 (402) 334 8181. F +1 (402) 334 1984



LEGEND

- WATER ————
- HYPOCHLORITE (NAOCL) - · - · -
- SODIUM BISULFITE (NAHSO3) - · · · -

NON-POTABLE WATER & CHEMICAL PIPING ISOMETRIC
NOT TO SCALE

Last saved by: JIM HEALY (2019-02-28) Last Plotted: 2019-02-28
Filename: M:\DCS\PROJECTS\WTR\60589841_PAFB_PFAAS1900_CAD_GIS\910_CAD\20-SHEETS\PP-203 SM. DIA. PIPING ISOMETRIC.DWG

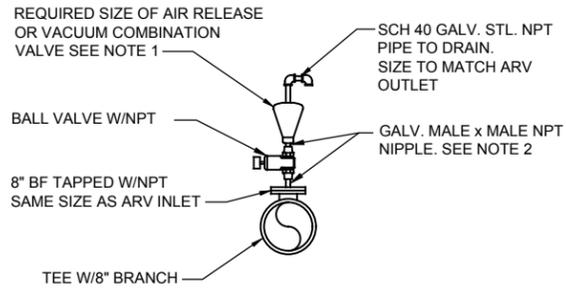
VERIFY PRINTED SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY

ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841

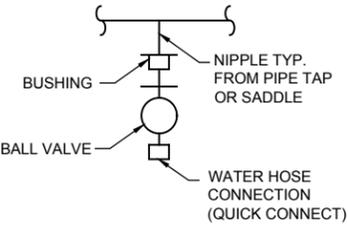
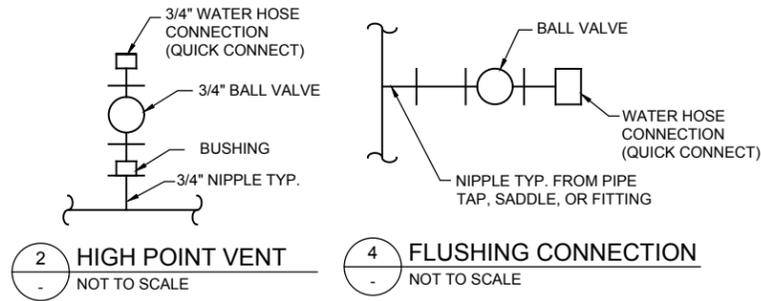
SHEET TITLE
SMALL DIAMETER PIPING ISOMETRIC

SHEET NUMBER
PP-203

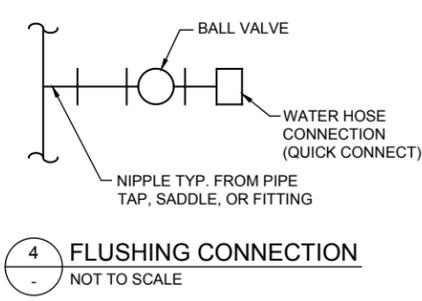


- NOTES:**
- FOR ARV SEE SPECS.
 - FOR ARV'S WITH FLANGED CONNECTIONS REPLACE GALV. NPT W/FLG DIP SIZED TO MATCH ARV INLET SIZE.

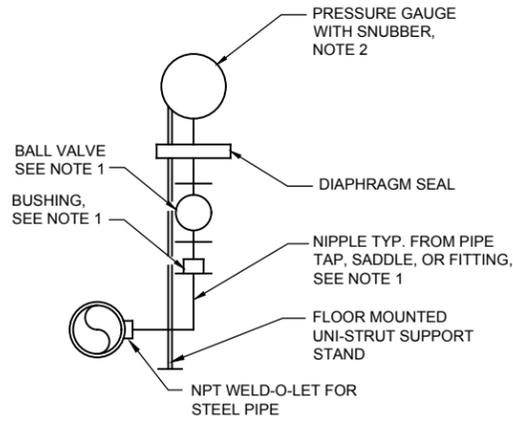
1 AIR RELIEF VALVE INSTALLATION
NOT TO SCALE



3 LOW POINT DRAIN
NOT TO SCALE

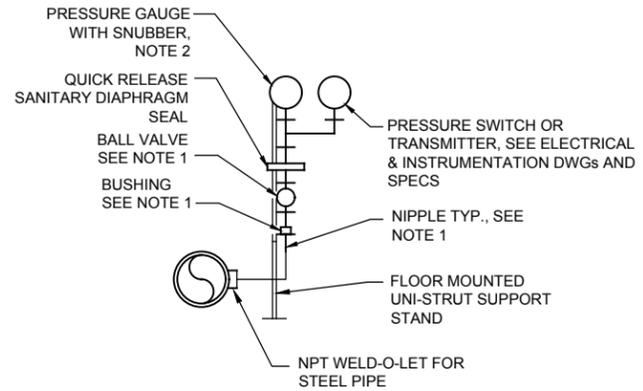


4 FLUSHING CONNECTION
NOT TO SCALE



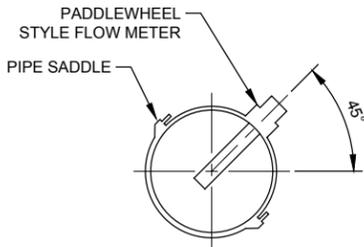
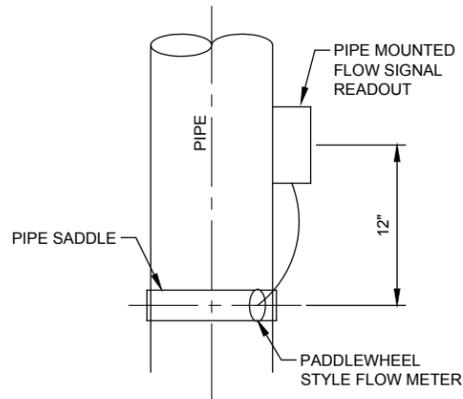
- NOTES:**
- PIPE SIZES:
FOR CLEAR WATER SERVICE: N.A.
FOR WASTE OR RAW WATER SERVICE: 2" DIA.
 - SEE SPECS FOR GAUGE RANGE

5 PRESSURE GAUGE
NOT TO SCALE

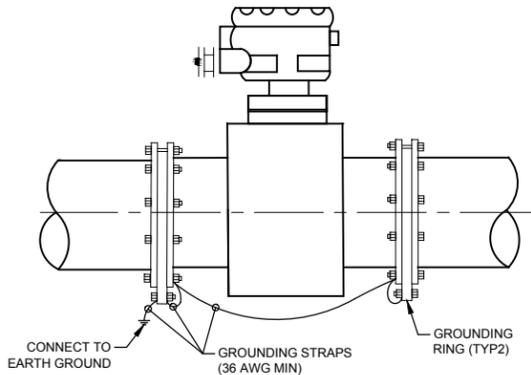


- NOTES:**
- PIPE SIZES:
FOR CLEAR WATER SERVICE: N.A.
FOR WASTE OR RAW WATER SERVICE: 2" DIA.
 - SEE SPECS FOR GAUGE RANGE

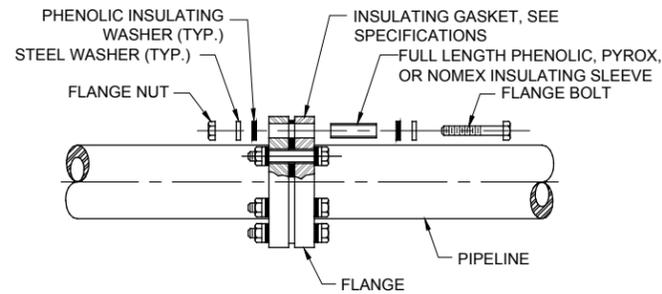
6 PRESSURE GAUGE W/ SWITCH OR TRANS
NOT TO SCALE



7 PADDLE WHEEL FLOW METER
NOT TO SCALE

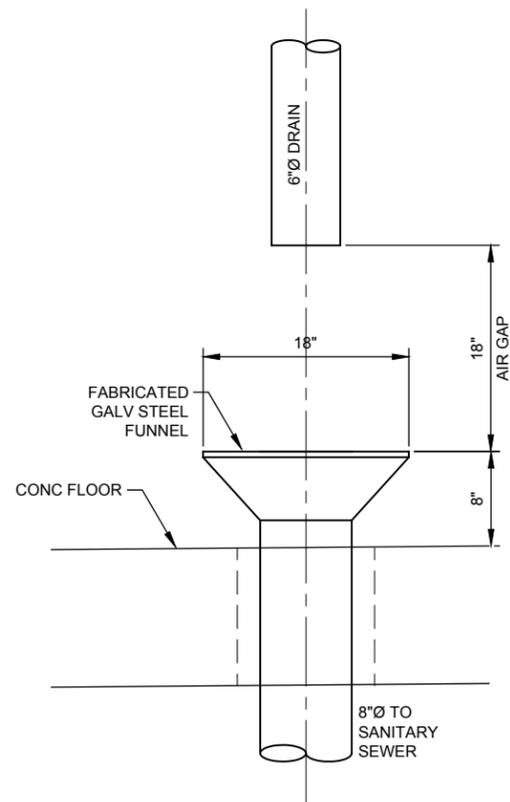


8 MAGNETIC FLOW METER GROUNDING
NOT TO SCALE



- NOTE:**
- HARDWARE QUANTITIES IN INSULATING FLANGE KIT WILL VARY BASED ON GASKET PATTERN AND PIPE SIZE.
 - DO NOT COVER OR SPRAY INSULATING COMPONENTS WITH GREASE.
 - POLYETHYLENE AND MYLAR INSULATING SLEEVES ARE NOT ACCEPTABLE AND WILL BE REJECTED.

9 INSULATING FLANGE ASSEMBLY
NOT TO SCALE



10 AIR GAP DETAIL
NOT TO SCALE

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

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

WIDEFIELD WATER AND SANITATION DISTRICT (WWSD)

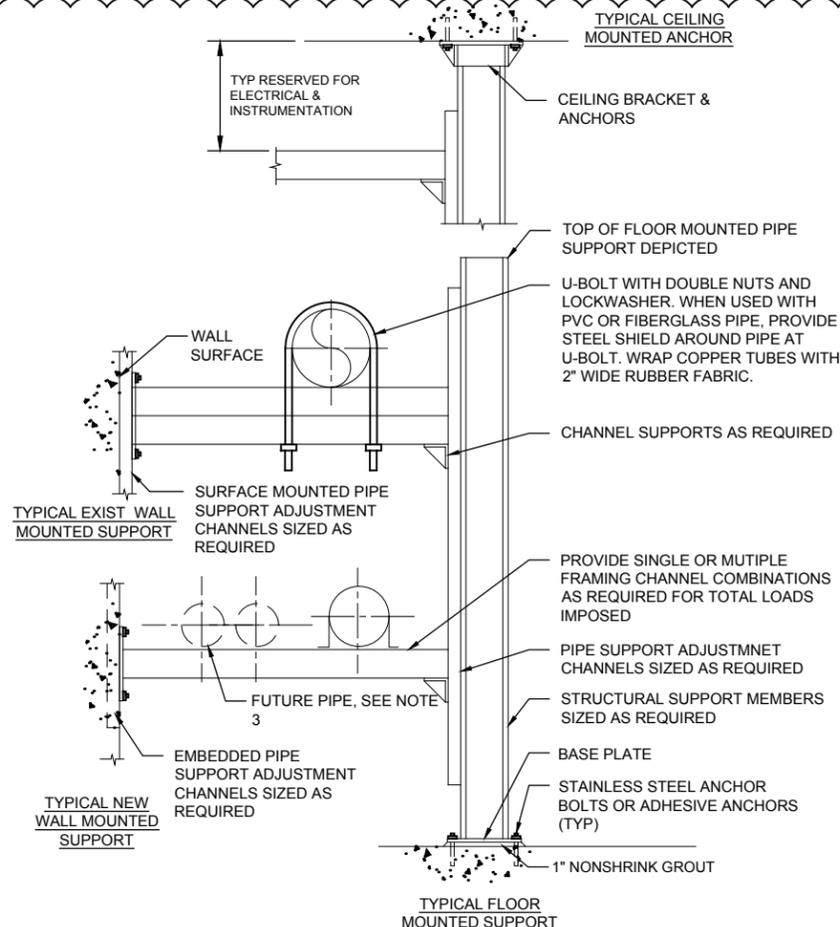
CLIENT
USACE Omaha District
1616 Capital Ave.
Omaha, NE 68102

CONSULTANT
URS Group, Inc.
12120 Shamrock Plaza
Omaha, NE 68154
T +1 (402) 334 8181. F +1 (402) 334 1984

ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841
SHEET TITLE
PROCESS DETAILS 1

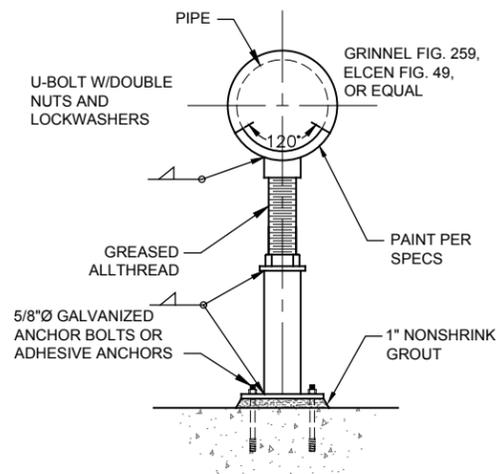
SHEET NUMBER
PP-210



TYPICAL PIPE RACK NOTES

1. THE RACK ILLUSTRATED IS A COMPOSITE FOR REFERENCE USE ONLY. THE VERTICAL SPACING, RACK WIDTH, COMPONENTS SELECTED AND PLACEMENT IS BY THE CONTRACTOR.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL. PROPOSED PIPE SUPPORTS TO BE BASED ON SPECIFIC CONDITIONS
3. WHERE FUTURE PIPES ARE INDICATED ADJACENT TO PIPES IN THIS CONTRACT, SUPPORT CHANNELS SHALL BE SIZED FOR FUTURE REQUIREMENTS.

1 TYPICAL PIPE RACK
NOT TO SCALE



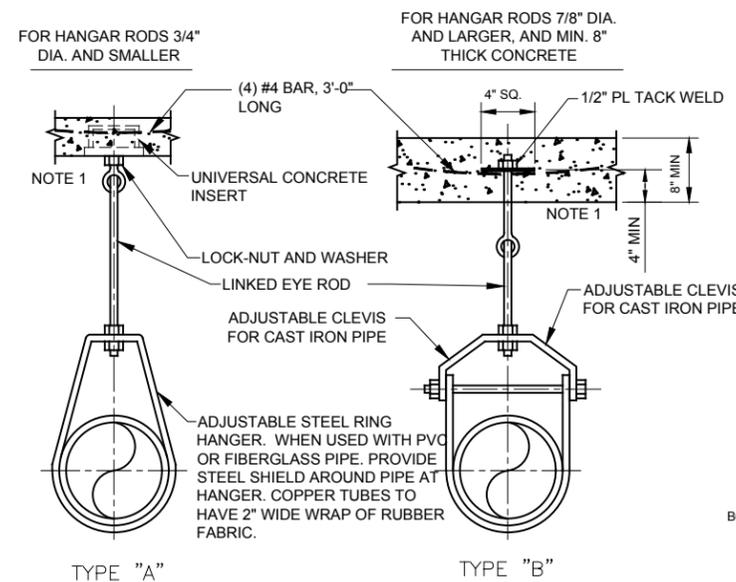
4 PIPE SUPPORT
NOT TO SCALE

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)
BRASS PIPE	10	10
CAST-IRON PIPE	5 ²	15
COPPER OR COPPER-ALLOY PIPE	12	10
COPPER OR COPPER TUBING 1 1/2" DIA. AND SMALLER	6	10
COPPER OR COPPER TUBING 1 1/2" DIA. AND LARGER	10	10
CPVC PIPE OR TUBING 1" OR SMALLER	3	10
CPVC PIPE OR TUBING 1 1/4" OR SMALLER	10	10
STEEL PIPE	12	15
PVC TUBING	8	10
PVC PIPE	4	10

NOTES:

1. REFER TO SECTION 305 LATEST EDITION OF INTERNATIONAL MECHANICAL CODE FOR DETAIL INFORMATION.
2. THE MAXIMUM HORIZONTAL SPACING OF CAST-IRON PIPE HANGERS SHALL BE INCREASED TO 10 FEET WHERE 10-FOOT LENGTHS OF PIPE ARE INSTALLED.
3. ALSO INCLUDES STAINLESS STEEL AIR PIPING SYSTEM.

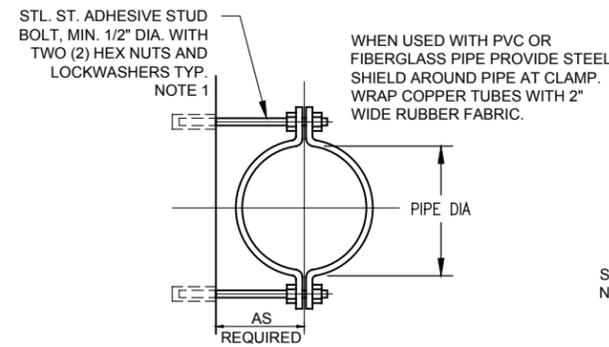
2 PIPE SUPPORT SPACING
NOT TO SCALE



NOTES:

1. DESIGN OF SUPPORTS HUNG FROM STRUCTURAL STEEL ROOF SYSTEMS SHALL BE COORDINATED WITH METAL BLDG. MANUFACTURE.
2. ALL HARDWARE AND RODS SHALL BE TYPE 304L STL. ST.
3. PROVIDE RIGID SUPPORT ON ALL CHANGES OF DIRECTIONS.

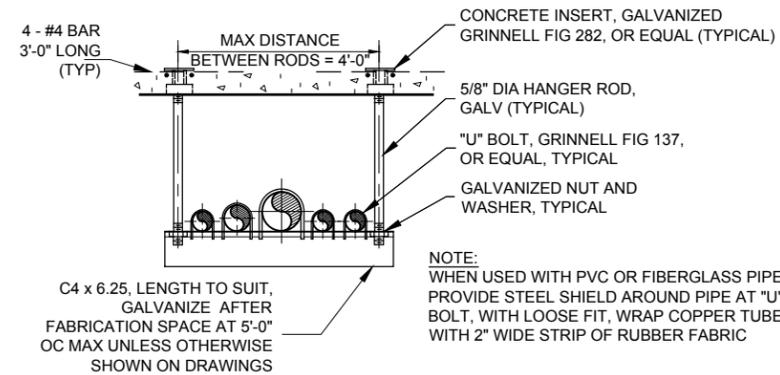
5 PIPE HANGER
NOT TO SCALE



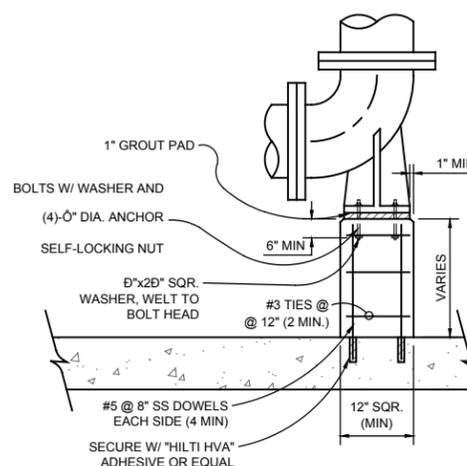
NOTE:

1. GALVANIZE ALL PARTS AFTER FABRICATION. WHERE SUBMERGED, PIPE CLAMP, NUTS, LOCKWASHERS, ANCHORS AND SHIELDS TO BE TYPE 316 STAINLESS STEEL WITH BRONZE NUTS.
2. COORDINATE WALL ANCHORS FOR USE WITH STRUCTURAL STEEL METAL BLDG. WALL FRAME SYSTEMS USING DRILLED HOLES, NUTS AND WASHERS.

6 PIPE CLAMP
NOT TO SCALE



7 TRAPEZE PIPE HANGER
NOT TO SCALE



8 ELBOW SUPPORT
NOT TO SCALE

PIPE DIAMETER	SUPPORT DIAMETER	PLATE THICKNESS	ANCHOR BOLT DIAMETER
4"	2-1/2"	3/8"	3/8"
4" - 12"	3"	3/8"	1/2"
14" - 18"	4"	3/8"	1/2"
18" - 20"	6"	1/2"	5/8"

NOTES:

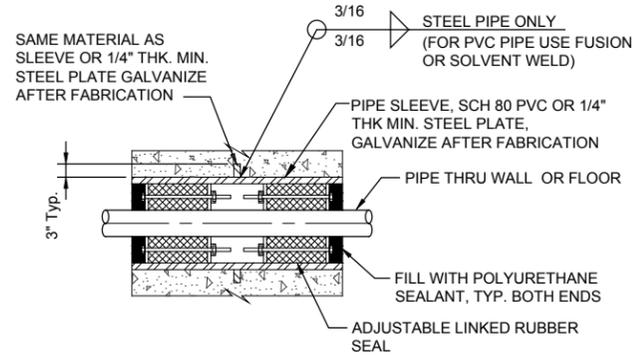
1. ALL STANDARD STEEL PIPING, AND HARDWARE TO BE PAINTED SAME AS PIPING.
2. ALL VERTICAL SUPPORT PIPING SHALL BE STANDARD WEIGHT, ASTM-A53 TYPE E OR S.
3. APPLIES FOR BASE ELBOWS AND BASE TEES.

Hold
PIPE SUPPORTS
FOR FURTHER
DETAIL

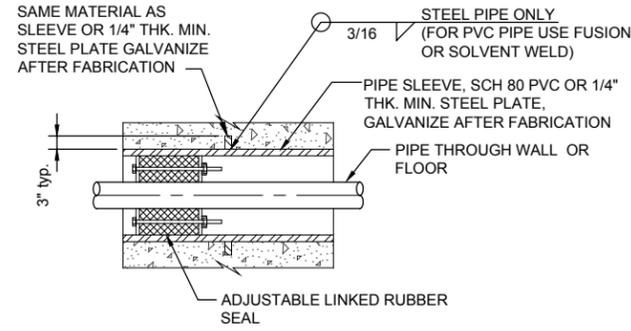
ISSUE/REVISION

NO.	DATE	DESCRIPTION
0	02/28/19	60% DESIGN
1/R		

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

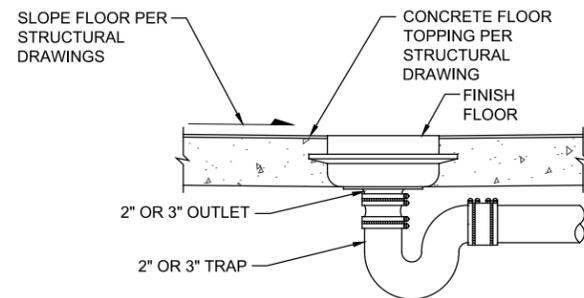


NEW CONSTRUCTION METHOD "A" (WET PENETRATIONS AND PENETRATIONS WITH GROUNDWATER)

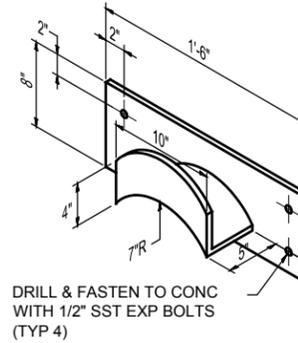
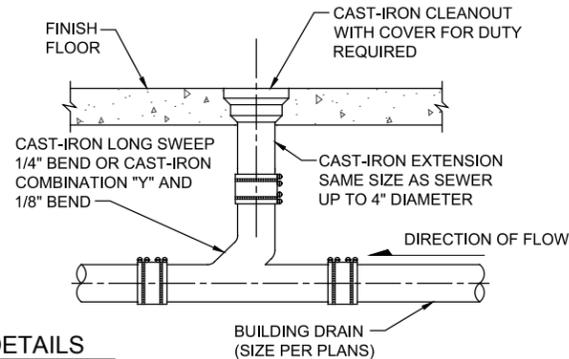


NEW CONSTRUCTION METHOD "B" (DRY PENETRATION)

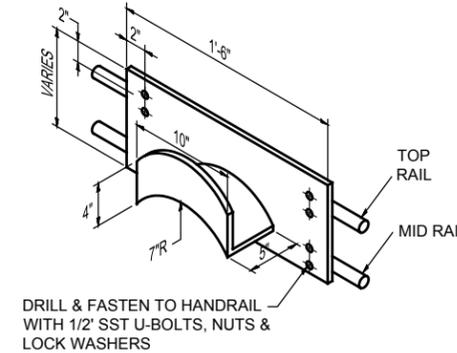
1 PIPE PENETRATIONS
NOT TO SCALE



2 FLOOR DRAIN DETAILS
NOT TO SCALE



WALL MOUNTED

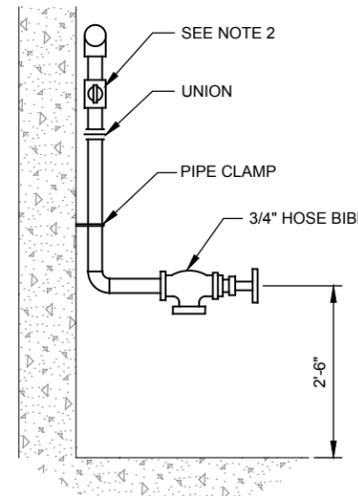


RAIL MOUNTED

NOTE:

WELDED CONSTRUCTION, ALL MATERIALS NO 8 GA SST PL IN CLASSIFIED AREAS, 8 GA GALV STL PL IN NON-CLASSIFIED AREAS, GALV AFTER FABRICATION.

3 HOSE RACK DETAIL
NOT TO SCALE



NOTES:

- FOR SIZE AND LOCATION SEE DRAWING
- ALL HOSE BIBBS TO BE CONTROLLED BY INDIVIDUAL SHUT-OFF VALVES EXCEPT WHERE INDIVIDUALLY CONTROLLED BRANCH MAIN SERVES HOSE BIBB ONLY.
- PROVIDE 7" x 10" PLASTIC WARNING SIGN WHEN USED IN NON-POTABLE WATER SYSTEM. (EMED CO. MODEL NO. 40063 OR EQUAL)

4 INTERIOR HOSE BIBB
NOT TO SCALE

PROJECT

PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

CLIENT

USACE Omaha District

1616 Capital Ave.
Omaha, NE 68102

CONSULTANT

URS Group, Inc.
12120 Shamrock Plaza
Omaha, NE 68154
T +1 (402) 334 8181. F +1 (402) 334 1984

ISSUE/REVISION

NO.	DATE	DESCRIPTION
0	02/28/19	60% DESIGN
I/R		

PROJECT NUMBER

Project Number: 60589841

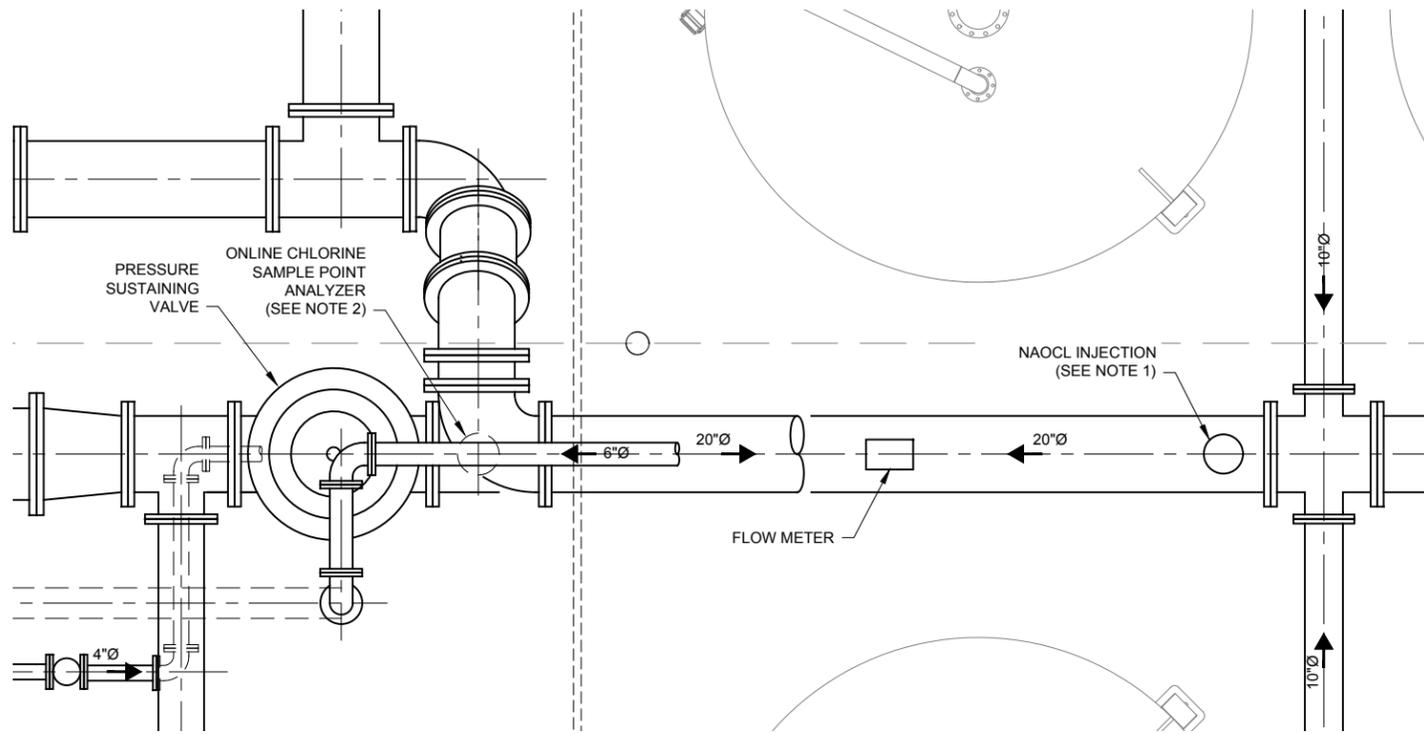
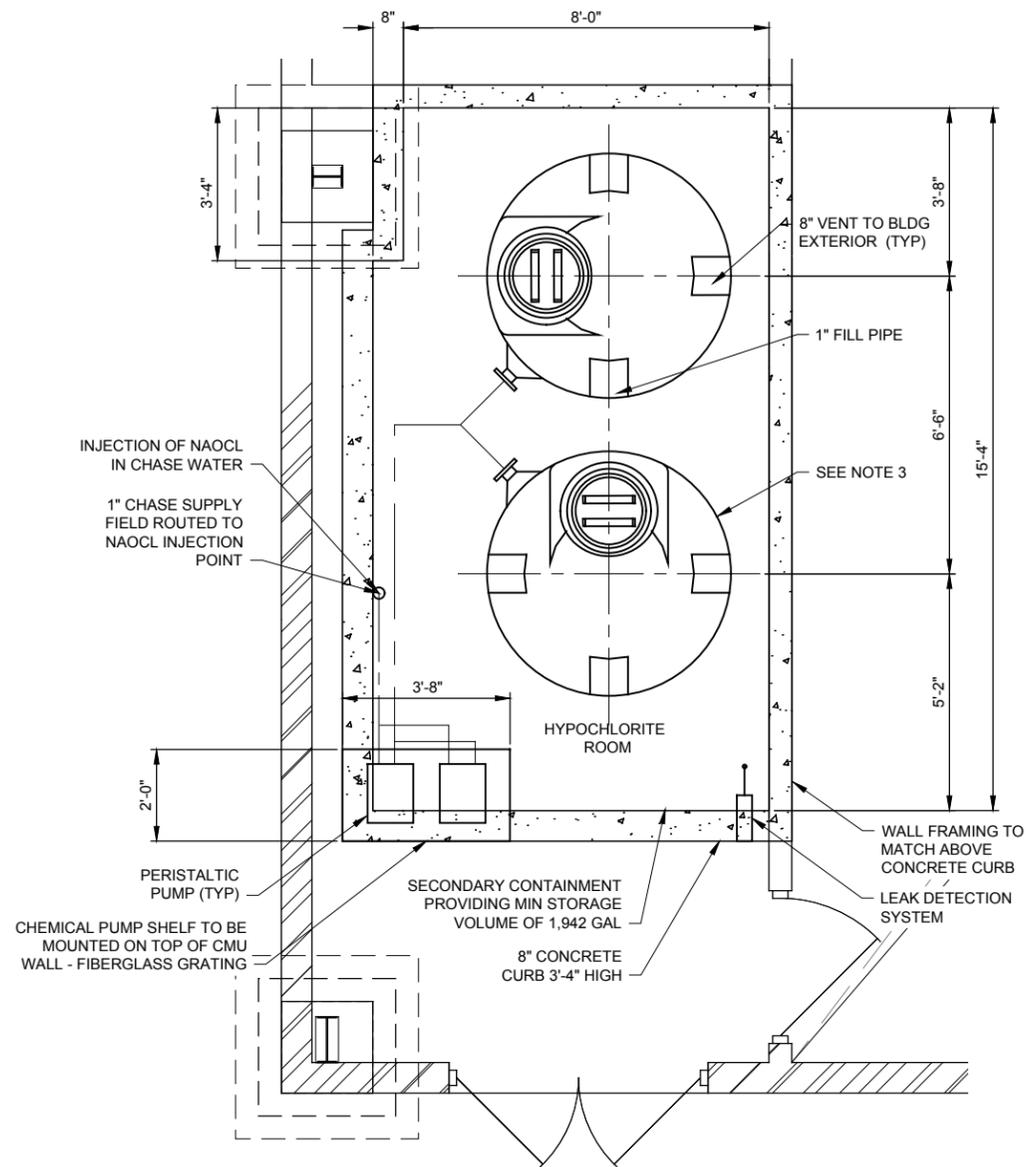
SHEET TITLE

PROCESS DETAILS 3
(SHEET 3 OF 3)

SHEET NUMBER

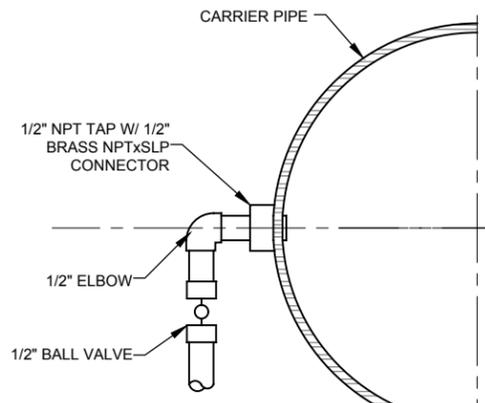
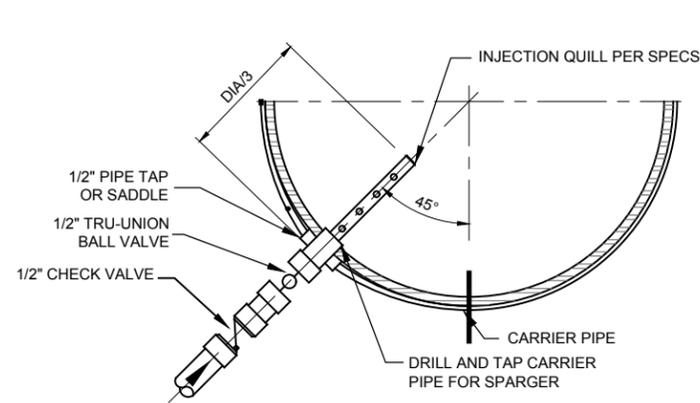
PP-212

VERIFY PRINTED SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY



1 NAOCL ROOM LAYOUT
PP-201

Scale: 0 1 2 4 6 FEET



NOTES:

1. FIELD ROUTE 1" CHASE LINE FROM NAOCL ROOM TO NAOCL INJECTION LOCATION AND TIE IN WITH INJECTION QUILL AND ISOLATION BALL VALVE.
2. INSTALL ONLINE CHLORINE SAMPLE POINT ANALYZER DOWNSTREAM OF LAST FINISHED WATER PUMP. MOUNT 4 FT ABOVE FFL
3. 905 GALLON HYPOCHLORITE TANK - 5'-4"Ø x 6"11 1/2" OVERALL HEIGHT. POLYPROCESSING TANK OR APPROVED EQUAL.

VERIFY PRINTED SCALES
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0 1 1"
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PROJECT

PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

CLIENT

USACE Omaha District

1616 Capital Ave.
Omaha, NE 68102

CONSULTANT

URS Group, Inc.
12120 Shamrock Plaza
Omaha, NE 68154
T +1 (402) 334 8181. F +1 (402) 334 1984

ISSUE/REVISION

NO	DATE	DESCRIPTION
0	02/28/19	60% DESIGN
I/R		

PROJECT NUMBER

Project Number: 60589841

SHEET TITLE

SODIUM HYPOCHLORITE SYSTEM DETAILS

SHEET NUMBER

PP-220

GENERAL NOTES

A. GENERAL

- ALL CONSTRUCTION WORK FOR THIS PROJECT SHALL COMPLY WITH THE SECURITY WATER DISTRICT WATER LINE STANDARDS EXCEPT WHEN CALLED OUT OTHERWISE ON THE PROJECT DRAWINGS OR SPECIFICATIONS. THE CONTRACTOR SHALL KEEP A COPY OF THE ABOVE NAMED SPECIFICATIONS AT THE WORK SITE AT ALL TIMES.
- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH LOCAL BUILDING CODES AND STANDARDS
- ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE ENGINEER AND SECURITY WATER DISTRICT.
- ALL WORK SHALL BE CONDUCTED WITHIN EASEMENT OR ROAD RIGHT-OF-WAYS (ROW).
- ALL WORK IN EL PASO COUNTY ROW SHALL BE IN CONFORMANCE WITH EL PASO COUNTY ENGINEERING DIVISION STANDARD SPECIFICATIONS.
- ALL WORK IN THE CITY OF FOUNTAIN ROW SHALL BE IN CONFORMANCE WITH THE CITY OF FOUNTAIN ENGINEERING DIVISION STANDARD SPECIFICATIONS.
- ALL WORK IN COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) ROW SHALL BE IN CONFORMANCE WITH CDOT ENGINEERING DIVISION STANDARD SPECIFICATIONS.
- ALL WORK IN THE UNION PACIFIC ROW SHALL BE IN CONFORMANCE WITH THE UNION PACIFIC PIPELINE INSTALLATION ENGINEERING SPECIFICATIONS.
- ALL WORK IN THE BNSF ROW SHALL BE IN CONFORMANCE WITH THE BNSF UTILITY ACCOMMODATION POLICY
- THE CONTRACTOR SHALL MAINTAIN AND PROTECT, AT THEIR COST, ALL UTILITIES, STRUCTURES, IMPROVEMENTS, MONUMENTS AND BENCHMARKS AFFECTED BY THE WORK. ANY DAMAGE SHALL BE REPAIRED AND RESTORED TO THE SATISFACTION OF THE AFFECTED OWNER AND THE SECURITY WATER DISTRICT INSPECTOR.
- THE CONTRACTOR SHALL NOTIFY THE SECURITY WATER DISTRICT INSPECTION SUPERVISOR (719-668-4658) 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO OUTLINE METHODS OF CONSTRUCTION, MATERIALS TO BE USED AND CONSTRUCTION STAKING.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SITE SAFETY.
- THE TRANSMISSION WATERLINE IS A RAW WATERLINE. DIAMETER IS INDICATED ON PLANS.
- THE TREATED WATERLINE IS A POTABLE WATERLINE. DIAMETER IS INDICATED ON PLANS.
- FOR EXISTING POTHOLE LOCATIONS AND DATA, SEE POTHOLE DATA (NOT INCLUDED IN DRAWINGS)

B. WATER PIPE MATERIAL

- DUCTILE IRON PIPE (DIP) SHALL CONFORM TO SECURITY WATER DISTRICT WATER LINE STANDARDS AND SHALL BE MINIMUM PRESSURE CLASS OF 350 FOR 4" TO 12" PIPE AND PRESSURE CLASS OF 250 FOR 14" TO 24" PIPE.
- ALL DUCTILE IRON PIPE AND FITTINGS SHALL HAVE BONDED JOINTS, ANODES AND TEST STATIONS PER SECURITY WATER DISTRICT SPECIFICATIONS.
- ALL FITTINGS AND VALVES SHALL BE RATED FOR A MINIMUM OPERATING PRESSURE OF 250 PSIG FOR FITTINGS 14" AND LARGER AND 350 PSI FOR FITTINGS 12" AND UNDER.
- ALL DIP SHALL BE CATHODICALLY PROTECTED.

C. CORROSION PROTECTION

- ELECTRICAL CONTINUITY. THE RELOCATION PIPE SEGMENT SHALL BE MADE ELECTRICALLY CONTINUOUS ALONG THE ENTIRE RELOCATION PIPELINE LENGTH. JOINTS THAT ARE NOT ELECTRICALLY CONTINUOUS SHALL BE BONDED AS SPECIFIED OR SHOWN.
- PIPE SHALL BE POLY WRAPPED INCLUDING ANODES AND TEST STATIONS.

D. PIPE JOINT RESTRAINT

- ALL VALVES SHALL BE INSTALLED WITH M.J. RESTRAINT (i.e. MEGALUG) (RSTNT.) ON BOTH PIPE CONNECTIONS.
- ALL BENDS AND FITTINGS SHALL BE TR FLEX TYPE MECHANICAL JOINT RESTRAINTS INSTALLED PER SECURITY WATER DISTRICT WATERLINE STANDARDS.

E. PIPELINE OPERATING CONSTRAINTS

- THE CONTRACTOR SHALL MAINTAIN ALL WATER DISTRIBUTION PIPELINES IN OPERATION EXCEPT DURING THE TIME A CONNECTION OR DISCONNECTION TO AN EXISTING SYSTEM IS IN THE PROCESS OF BEING MADE. CONTRACTOR SHALL MINIMIZE TIME MAKING CONNECTIONS AND DISCONNECTIONS.
- SHUTDOWN OF ANY OPERATING WATER LINE IS TO BE PERFORMED BY SECURITY WATER DISTRICT PERSONNEL. THE CONTRACTOR SHALL COORDINATE CONNECTION TIME AND PROCEDURE WITH SECURITY WATER DISTRICT.
- ALL RELOCATED WATER PIPELINES SHALL BE CONSTRUCTED AND PRESSURE TESTED BEFORE THE RELOCATED SEGMENT IS CONNECTED TO AN EXISTING AND OPERATING PIPELINE.
- ALL PIPE JOINTS AND FITTINGS SHALL BE RESTRAINED IN LOWERINGS.
- PIPELINE OPERATIONAL REQUIREMENTS. THE EXISTING WATERLINE SHALL BE MAINTAINED IN OPERATION CONTINUALLY EXCEPT FOR AN ALLOWABLE MAXIMUM SHUT DOWN PERIOD AS APPROVED BY SECURITY WATER DISTRICT.
- SHUTDOWN COORDINATION. ONLY SECURITY WATER DISTRICT EMPLOYEES SHALL SHUTDOWN THE EXISTING WATER TRANSMISSION PIPELINE AND RETURN IT TO SERVICE. TIMING OF ANY SHUTDOWN SHALL BE COORDINATED WITH SECURITY WATER DISTRICT. THE CONTRACTOR SHALL GIVE SECURITY WATER DISTRICT 14 CALENDAR DAYS WRITTEN NOTICE TO SCHEDULE SHUTDOWN OF THE WATER TRANSMISSION PIPE.

F. SURVEY LINE AND GRADE

- ALL NEW WATERLINE ELEVATIONS SHOWN ARE TOP OF PIPE UNLESS OTHERWISE NOTED. ALL NEW PIPE AND APPURTENANCES ARE BASED ON PROJECT CONTROL.
- ALL NEW WATERLINE STATIONING IS RELATIVE TO THE CENTERLINE OF WATERLINE.
- ONLY EXISTING GROUND PROFILES ARE SHOWN ON THESE DRAWINGS.

G. INSTALLATION

- PROPOSED WATER MAINS SHALL BE INSTALLED WITH A MINIMUM COVER OF 4 FEET, EXCEPT WHERE SHOWN OTHERWISE.
- ALL BENDS SHALL BE FIELD STAKED PRIOR TO CONSTRUCTION.
- ANY MATERIAL SALVAGED AND NOT RETURNED SHALL BE RETURNED, AT THE CONTRACTORS EXPENSE, TO SECURITY WATER DISTRICT.
- NO TIE-IN POINTS WERE FIELD VERIFIED FOR LOCATION. TIE-IN POINTS UNLESS OTHERWISE REQUESTED SHALL BE EXPOSED AND VERIFIED PRIOR TO CONSTRUCTION.
- WHERE SITE CONDITIONS DO NOT ALLOW FOR PROPER COMPACTION METHODS TO BE USED (I.E. UTILITY LOWERINGS AND CROSSINGS), FLOWABLE FILL BACKFILL MATERIAL SHALL BE USED.
- ALL VALVES, VALVE BOXES AND EXTENSION STEMS (WHERE NECESSARY) SHALL BE INSTALLED PER SECURITY WATER DISTRICT CONSTRUCTION DRAWINGS.

H. SUBMITTALS

- SHOP DRAWINGS. SCHEDULE AND COMPLETE SHOP DRAWINGS SHALL BE SUBMITTED PRIOR TO FABRICATION TO THE ENGINEER AND SECURITY WATER DISTRICT AS SPECIFIED.
- POTHOLE DATA. ALL POTHOLE DATA SHALL BE SUBMITTED TO THE ENGINEER AS SPECIFIED.

I. SUBSURFACE GEOLOGY

- A GEOTECHNICAL REPORT INCLUDING SOIL DATA AND GROUND WATER ELEVATIONS WILL BEEN PREPARED FOR THIS PROJECT BY NINYO MOORE. SEE APPENDIX A OF THE SPECIFICATIONS.

J. MISCELLANEOUS

- THE CONTRACTOR SHALL BE SUBJECT TO SECURITY WATER DISTRICT INSPECTORS FOR INSPECTION OF WORKMANSHIP, MATERIALS, INSTALLATION, TESTING AND ALL ITEMS PER SECURITY WATER DISTRICT STANDARDS AND SUBSEQUENT OVERTIME IF NECESSARY.

- ALL CONSTRUCTION DEBRIS, MATERIALS, AND SIMILAR SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AT A FACILITY PERMITTED TO ACCEPT THE WASTE.

L. EROSION CONTROL

- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN AN EROSION CONTROL SYSTEM IN ACCORDANCE WITH THE PROJECT STORMWATER MANAGEMENT PLAN.

M. DRAWING CONDITIONS

- UTILITY INFORMATION DEPICTED ON THESE DRAWINGS WAS COMPILED FROM INFORMATION FURNISHED BY UTILITY OWNERS, POTHOLAS, AND FIELD OBSERVATION. SECURITY WATER DISTRICT AND AECOM CANNOT GUARANTEE THE LOCATION OR ACCURACY OF UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS OR BE RESPONSIBLE FOR DAMAGE TO UNDERGROUND FACILITIES NOT SHOWN ON THE DRAWINGS. EXISTING UTILITIES ARE SHOWN ON THE DRAWINGS IN APPROXIMATE LOCATIONS ONLY AND NOT ALL UTILITIES MAY BE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE LOCATION OF UNDERGROUND FACILITIES MAY BE IDENTIFIED AND MARKED BY CALLING THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-800-922-1987. UTILITIES IN THE AREA INCLUDE WATER, SANITARY SEWER, STORM DRAIN, ELECTRIC, TELEPHONE, CABLE VISION AND OTHERS.
- IF FIELD CONDITIONS ARE FOUND TO BE DIFFERENT THAN SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE SECURITY WATER DISTRICT AND THE ENGINEER IMMEDIATELY SO THAT APPROPRIATE ACTION CAN BE TAKEN BY THE OWNER.
- CHANGES IN THE DESIGN DETERMINED NECESSARY TO CONFORM TO FIELD CONDITIONS MAY REQUIRE ADDITIONAL MATERIALS NOT INDICATED ON THE DRAWINGS OR SPECIFICATIONS. ALL CHANGES SHALL BE APPROVED BY THE SECURITY WATER DISTRICT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- EXISTING GROUND PROFILES AND CONTOURS AS SHOWN ON THE DRAWING WERE DEVELOPED BY THE SURVEYOR, AERIAL TOPOGRAPHY, AND OTHER AVAILABLE MAPPING DATA. ACTUAL GROUND ELEVATIONS SHOULD BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

N. APPURTENANCES

- CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS APPURTENANT MATERIALS WHETHER OR NOT SHOWN ON THE PLANS, AS REQUIRED FOR PROPER INSTALLATION OF THE PIPE, INCLUDING, BUT NOT LIMITED TO, ALL NUTS, BOLTS, RODS, GASKETS, CONCRETE INSERTS AND ATTACHMENT PLATES. BUILT-UP ENDS AND HARNESS LUGS SHALL BE A PART OF THE FABRICATION AS INDICATED ON THE DRAWINGS.

O. MISCELLANEOUS

- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY PROTECTION, REMOVAL AND REINSTALLATION AT THE SAME LOCATION OF ALL FACILITIES AFFECTED BY HIS WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS ACTIVITIES WITH PUBLIC AND PRIVATE AGENCIES AND OTHER CONTRACTORS WORKING WITHIN THE PROJECT AREA. CONTRACTOR SHALL PERFORM HIS WORK IN A MANNER THAT MINIMIZES DISRUPTION OF PUBLIC AND PRIVATE SERVICES.

POTHOLING NOTES

1. POTHOLE & INVESTIGATION PRIOR TO CONSTRUCTION

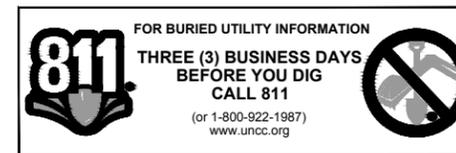
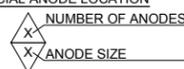
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
- THE ALIGNMENT OF THE EXISTING PIPELINE SHOWN ON THE DRAWINGS IS APPROXIMATE ONLY. IT IS BASED ON POTHOLAS AT LOCATIONS OTHER THAN THE POINTS WHERE THE RELOCATED PIPE SEGMENT WILL CONNECT TO THE EXISTING. [POTHOLING TO BE COMPLETED IN FUTURE SUBMITTAL]
- DURING POTHOLING, THE CONTRACTOR SHALL EXCAVATE SUFFICIENT LENGTH OF EXISTING PIPE TO EXPOSE THE NEAREST PIPE JOINTS ON BOTH SIDES OF THE PROPOSED NEW CONNECTION. THE SLOPE OF THE EXISTING PIPELINE SHALL BE DETERMINED BY ENGINEER FROM THESE TOP-OF-PIPE SURVEY ELEVATIONS.
- EXISTING PIPE DIMENSIONS: THE CONTRACTOR SHALL DETERMINE THE EXISTING CROSS SECTION AND OUTSIDE DIAMETER OF THE EXISTING PIPE AT EACH OF THE CONNECTION POINTS. EXPOSE SUFFICIENT PIPE TO LOCATE NEAREST PIPE JOINTS ON EACH SIDE OF THE PROPOSED CONNECTIONS AND CONFIRM PIPE IS CIRCULAR AND DETERMINE THE AMOUNT OF ANY DEFLECTION.
- PROVIDE TRAFFIC CONTROL, DEWATERING AND OBTAIN PERMITS PRIOR TO POTHOLING.
- SUBMIT ALL FINDINGS IN WRITING TO THE ENGINEER.

CONNECTION AND PHASING NOTES

- PHASING: SHUTDOWN OF THE WATERLINE SHALL MEET THE TIME AND CALENDAR RESTRICTIONS OF THE PROJECT SPECIAL PROVISIONS.
- CONTRACTOR SHALL COORDINATE GROUNDWATER DEWATERING SYSTEMS WITH APPLICABLE AGENCIES.

GENERAL STRUCTURAL NOTES

- THE FOLLOWING NOTES APPLY TO STRUCTURES SHOWN ON PLANS.
- MANHOLES MAY BE CAST-IN-PLACE OR PRECAST AND CONFORM TO AASHTO M199 (ASTM 478)
- STEEL REINFORCEMENT SHALL BE NEW GRADE 60 DEFORMED BARS. ALL BARS SHALL HAVE A 2" MINIMUM CONCRETE COVER, 3" IF CAST DIRECTLY AGAINST SOIL.
- STANDARD ABBREVIATIONS:
EL = ELEVATION, EF = EACH FACE, EW = EACH WAY, INV = INVERT, TYP = TYPICAL,
STD = STANDARD, UNO = UNLESS NOTED OTHERWISE, AND CLR = CLEAR.
- BACKFILL AND SUBGRADE UNDER ALL SPECIAL STRUCTURES SHALL BE COMPACTED PER SPECIFICATIONS. PROVIDE 3/4" CHAMFERS ON ALL CORNERS WHETHER BURIED OR EXPOSED TO VIEW.
- ALL SURFACES OF CONCRETE SHALL BE GROUT RUBBED AND ALL DEFECTS, VOIDS OR "HONEY COMB" REPAIRED PER ACI 301-10.
- ALL EXTERIOR WALLS OF BURIED CONCRETE VAULTS AND PRE-CAST MANHOLES SHALL BE COATED WITH 20 MILS COAL TAR EPOXY.

CATHODIC PROTECTIONCATHODIC TEST STATION SACRIFICIAL ANODE LOCATION
**URS**URS Group, Inc.
An AECOM CompanyPROJECT**PFOS / PFOA DRINKING WATER MITIGATION SYSTEM****Security Water District (SWD)**CLIENT**USACE Omaha District**1616 Capital Ave.
Omaha, NE 68102CONSULTANTURS Group, Inc.
12120 Shamrock Plaza
Omaha, NE 68154
T +1 (402) 334 8181. F +1 (402) 334 1984**NOT FOR CONSTRUCTION**ISSUE/REVISION

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A	11/30/18	ISSUED FOR 30% DESIGN
I/R	DATE	DESCRIPTION

PROJECT NUMBER

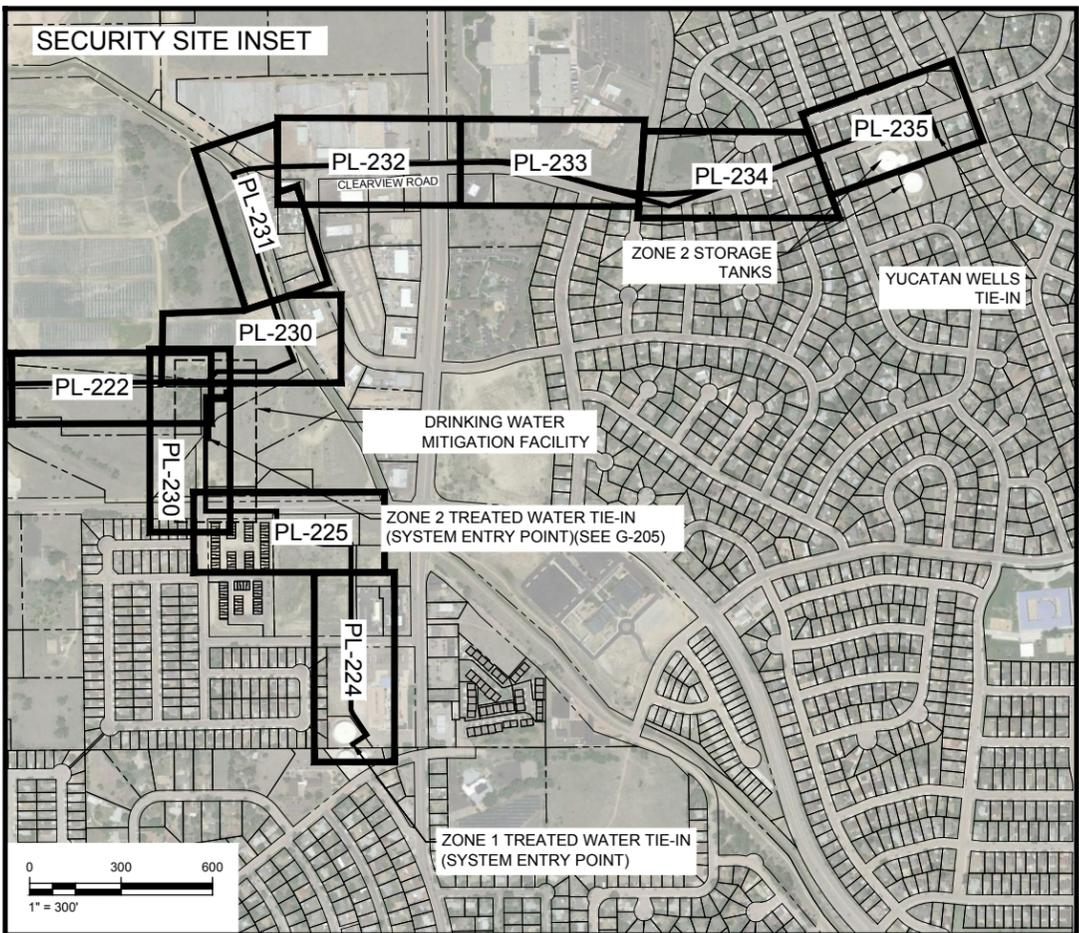
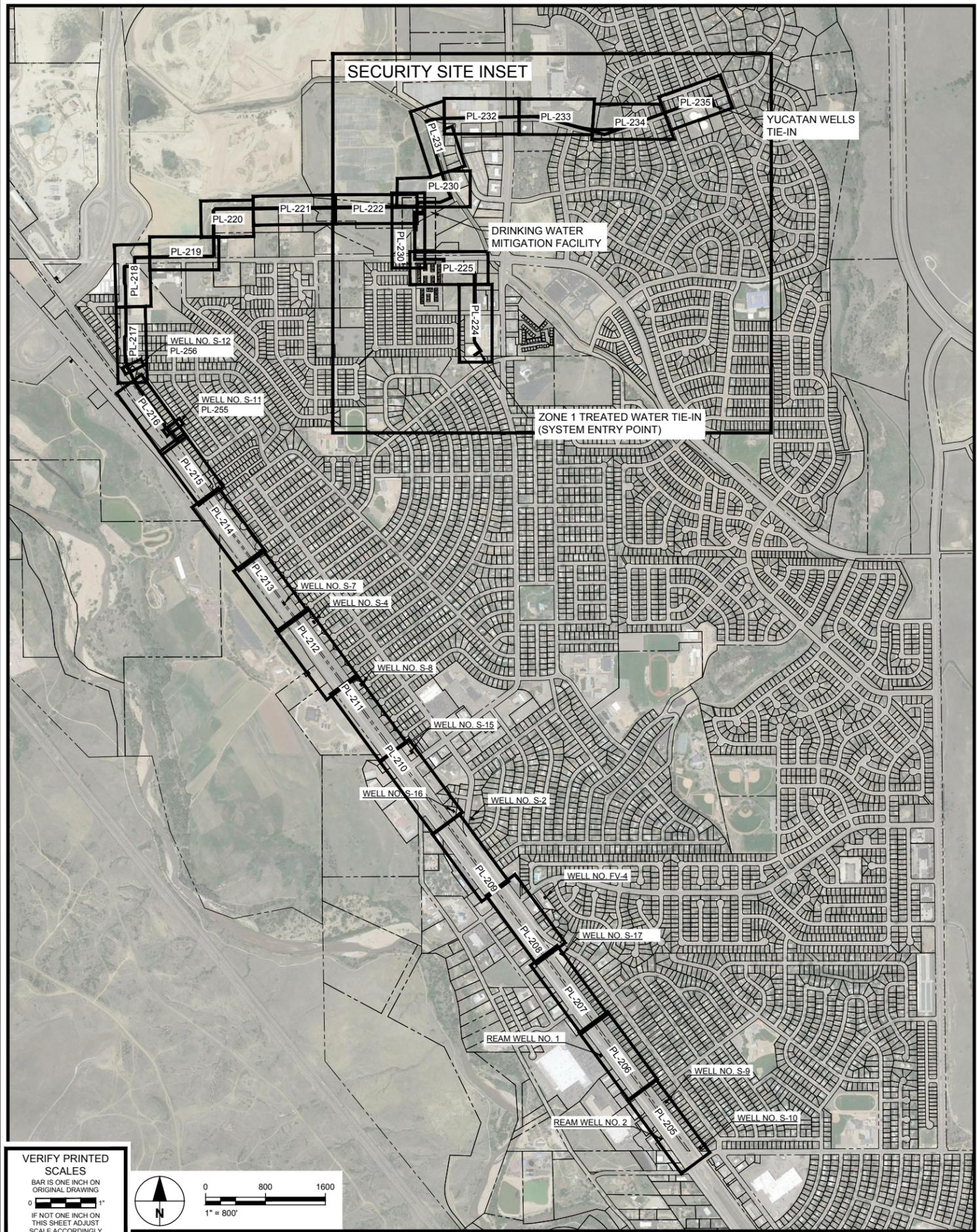
Project Number: 60589841

SHEET TITLE

PIPELINE GENERAL NOTES

SHEET NUMBER

PL-200



URS Group, Inc.
An AECOM Company

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

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Project Number: 60589841

SHEET TITLE
COLLECTION PLAN AND PROFILE KEY MAP

SHEET NUMBER
PL-201

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1" = 800'

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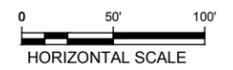
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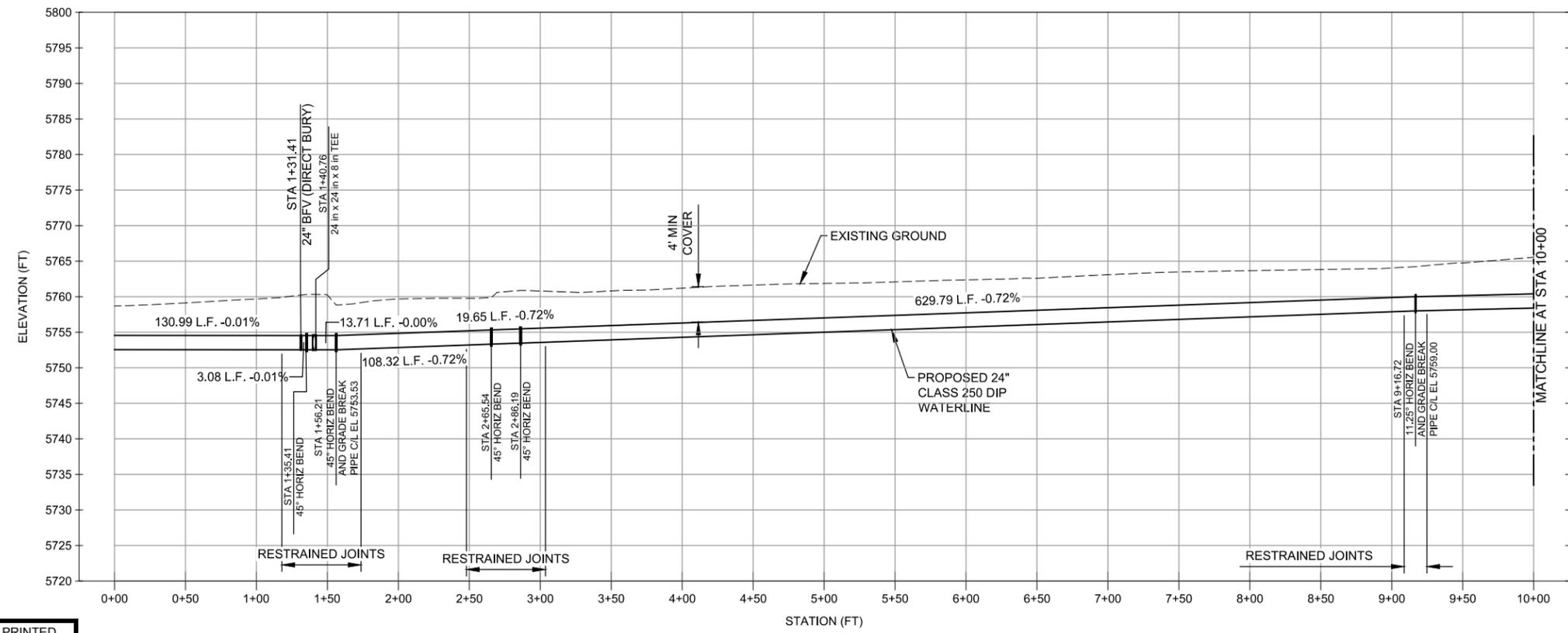
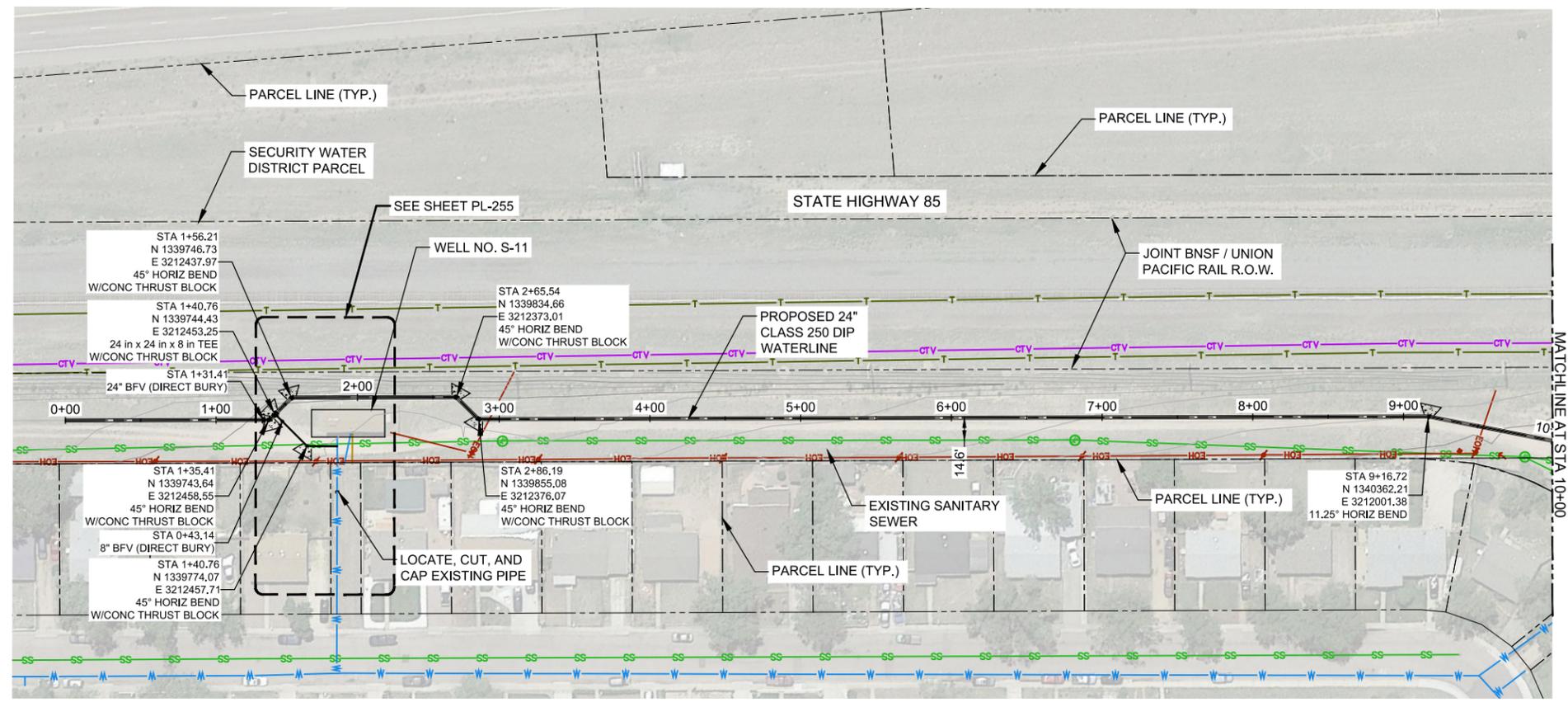
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COLLECTION PLAN AND PROFILE

SHEET NUMBER
PL-216



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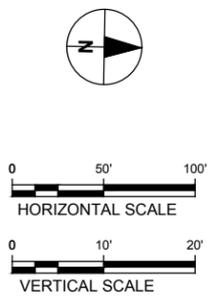
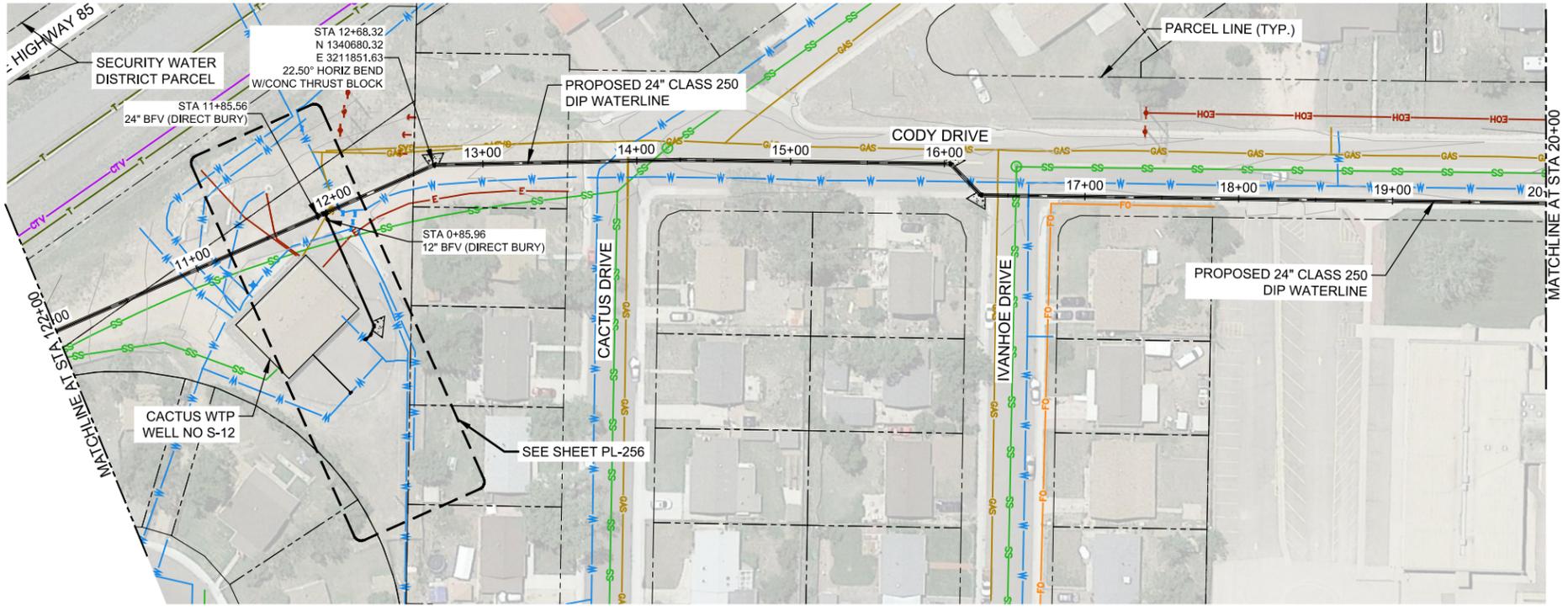
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY CONSTRUCTION EASEMENT



- NOTES:**
- FIELD VERIFY UTILITY LOCATION AND ELEVATIONS.
 - MAXIMUM ALLOWABLE DEFLECTION AT EACH JOINT IS 4" FOR PIPE 12" AND LESS IN DIAMETER, AND 2"24' FOR PIPE 14" AND LARGER IN DIAMETER.

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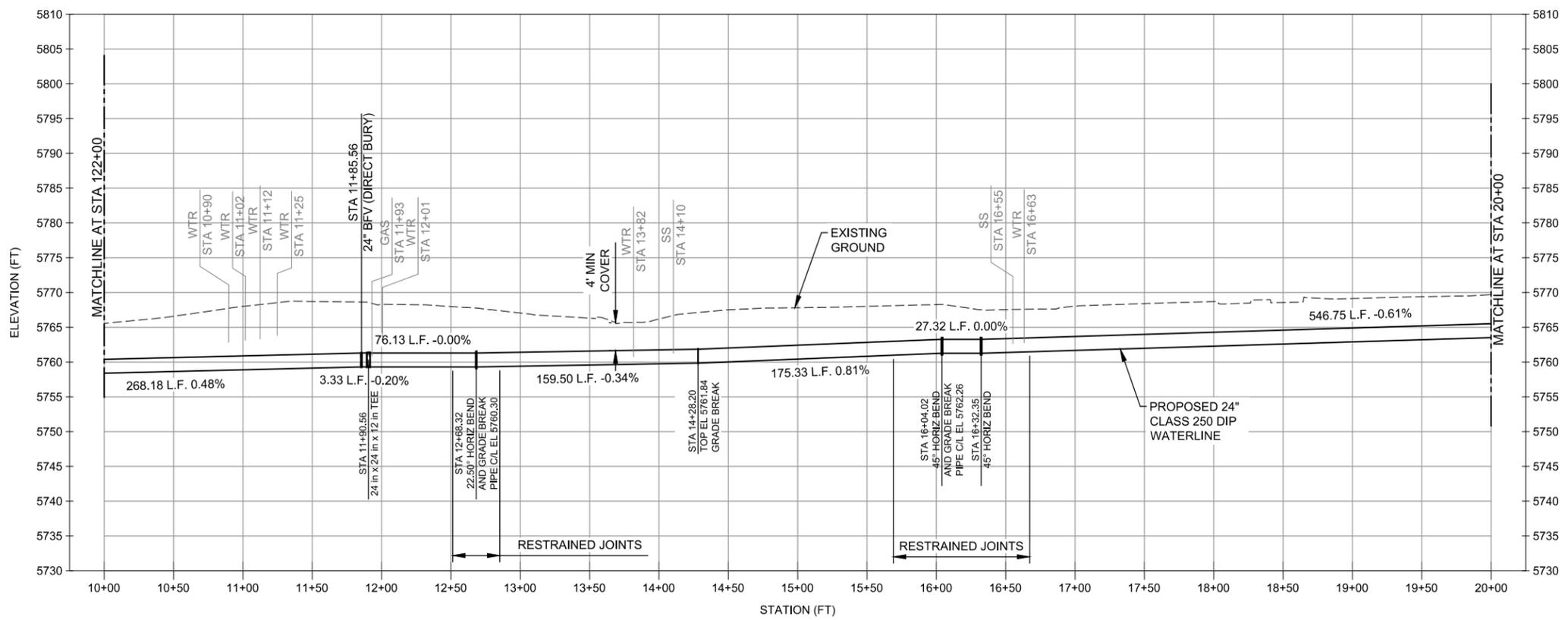
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PROJECT
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ELEVATION (FT)

STATION (FT)

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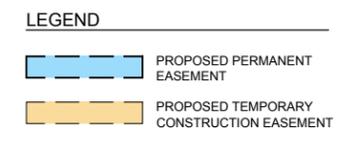
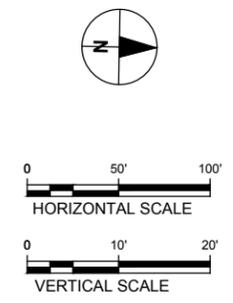
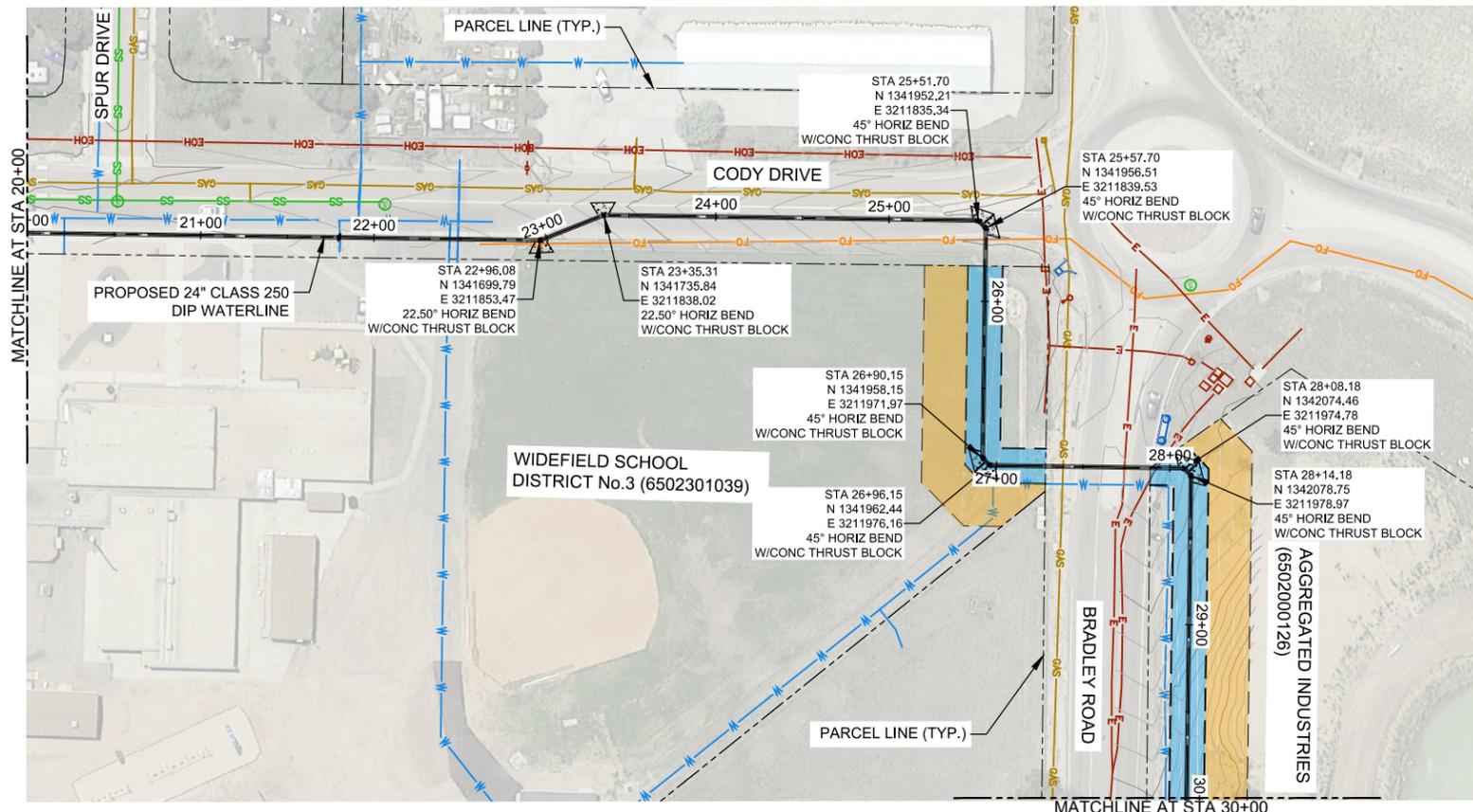
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PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
COLLECTION PLAN AND PROFILE

SHEET NUMBER
PL-217

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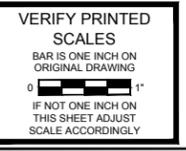
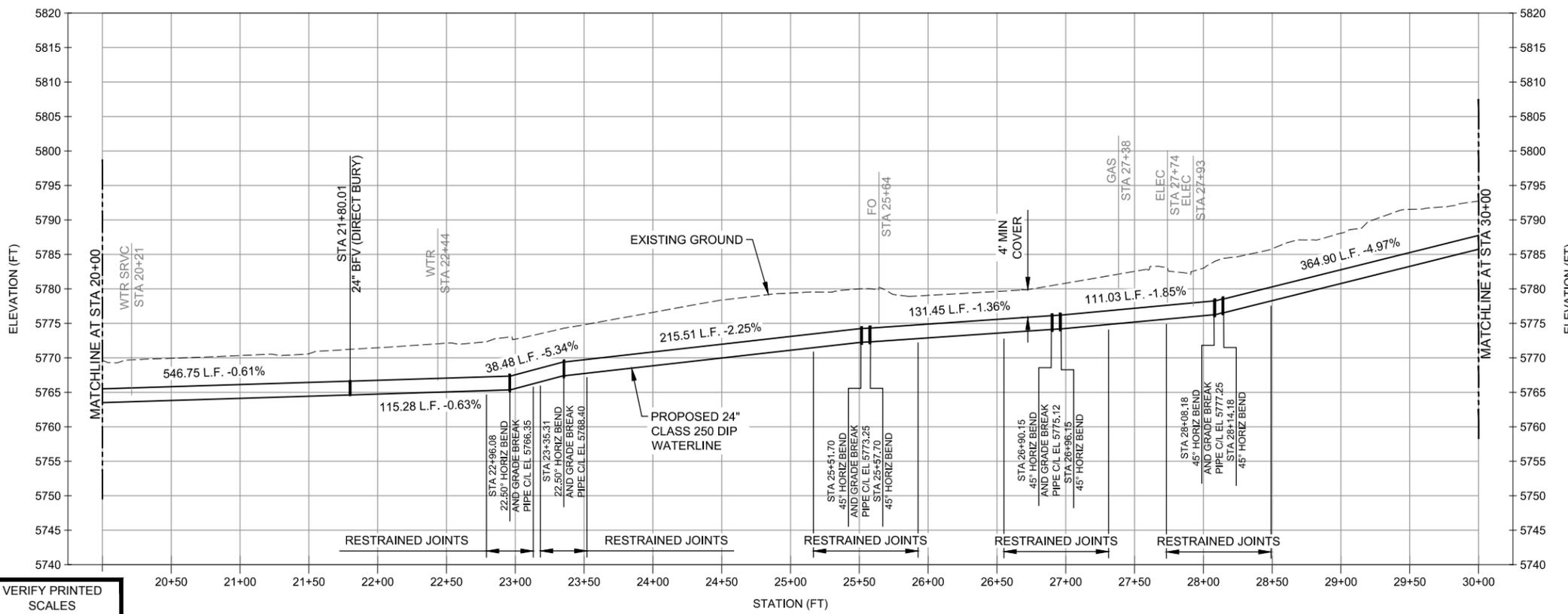
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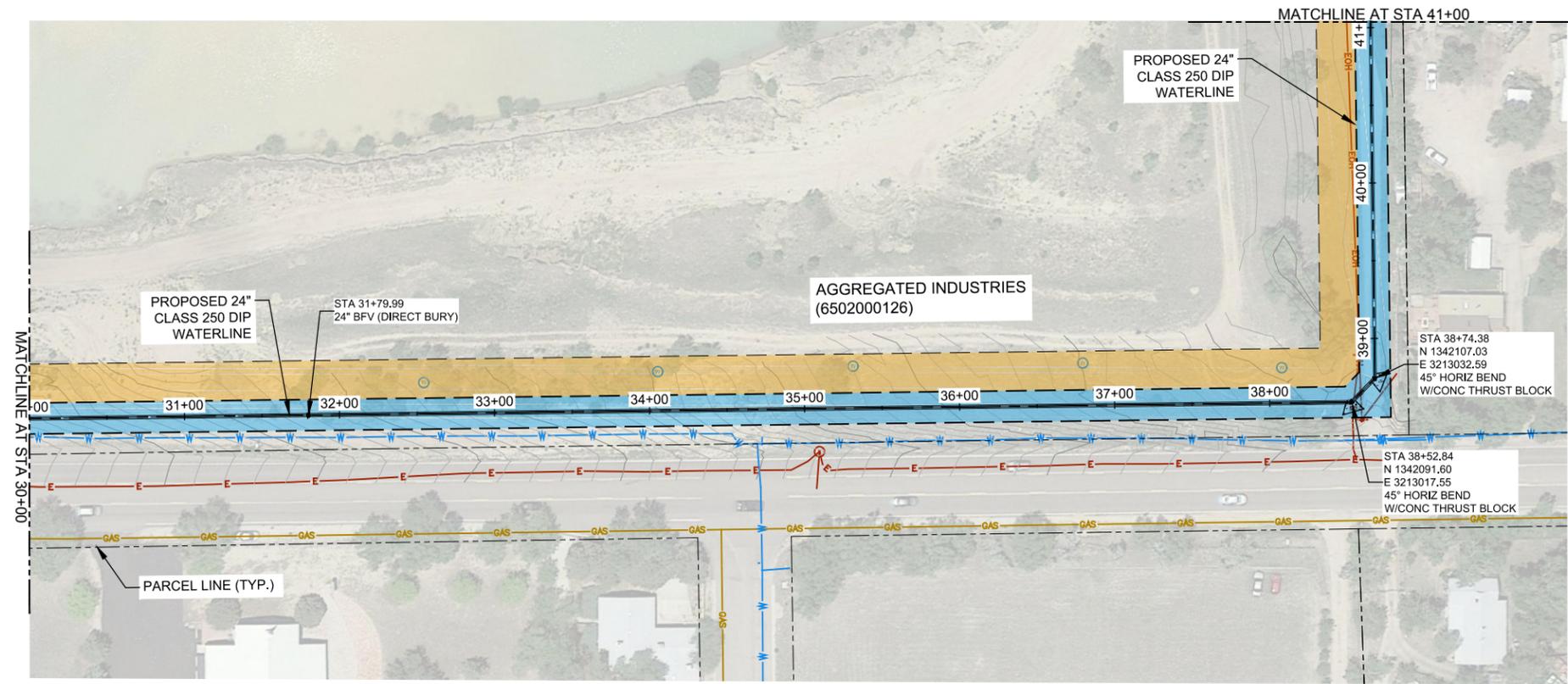
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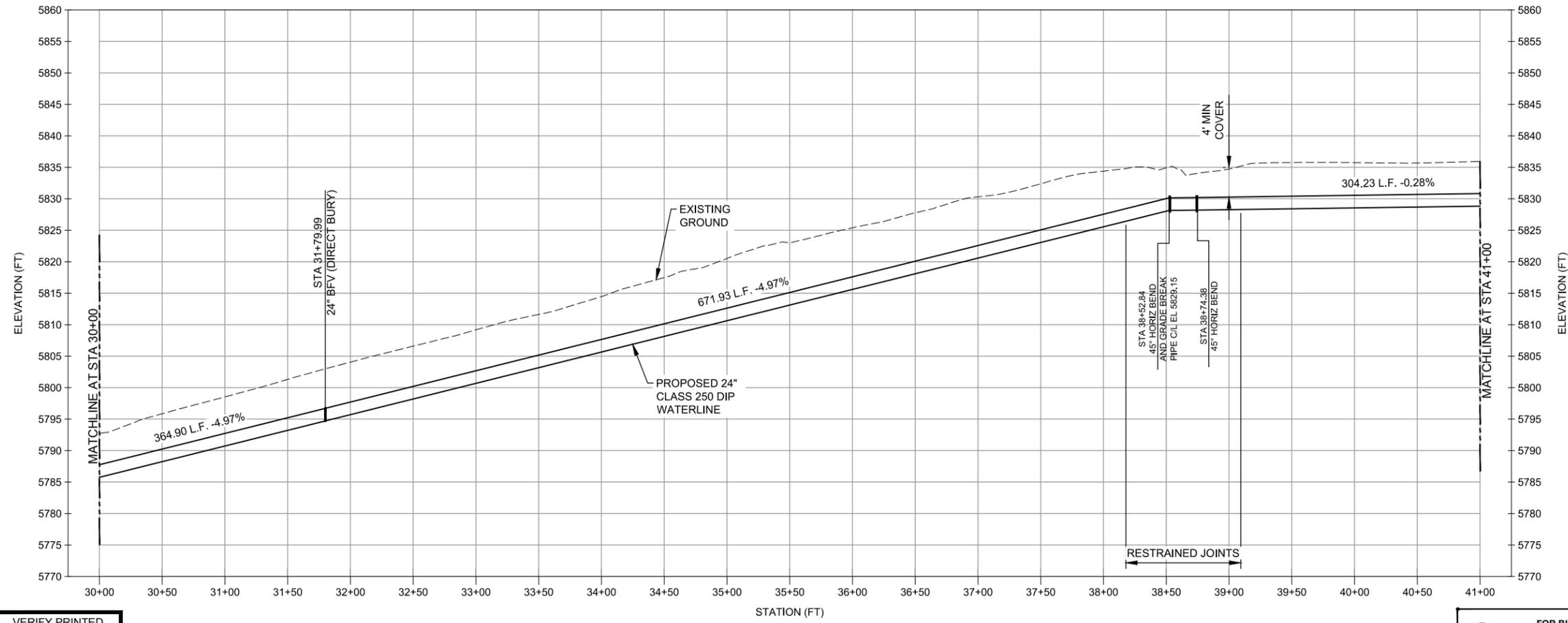
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LEGEND

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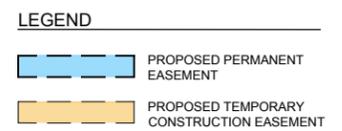
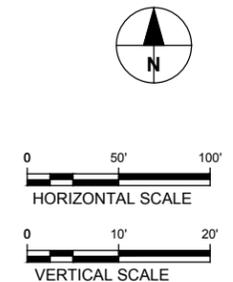
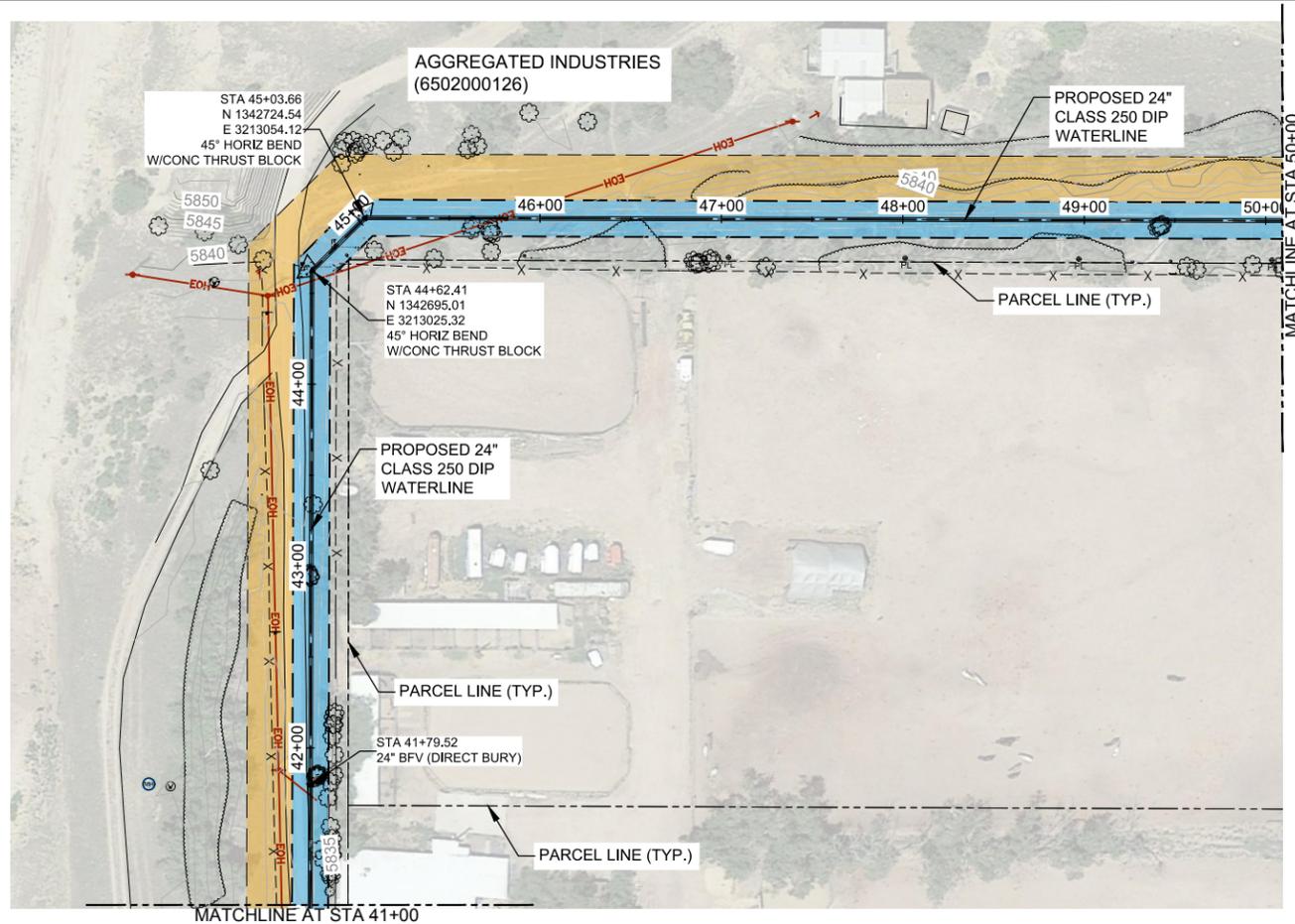
PROJECT NUMBER
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SHEET TITLE
COLLECTION PLAN AND PROFILE

SHEET NUMBER
PL-219

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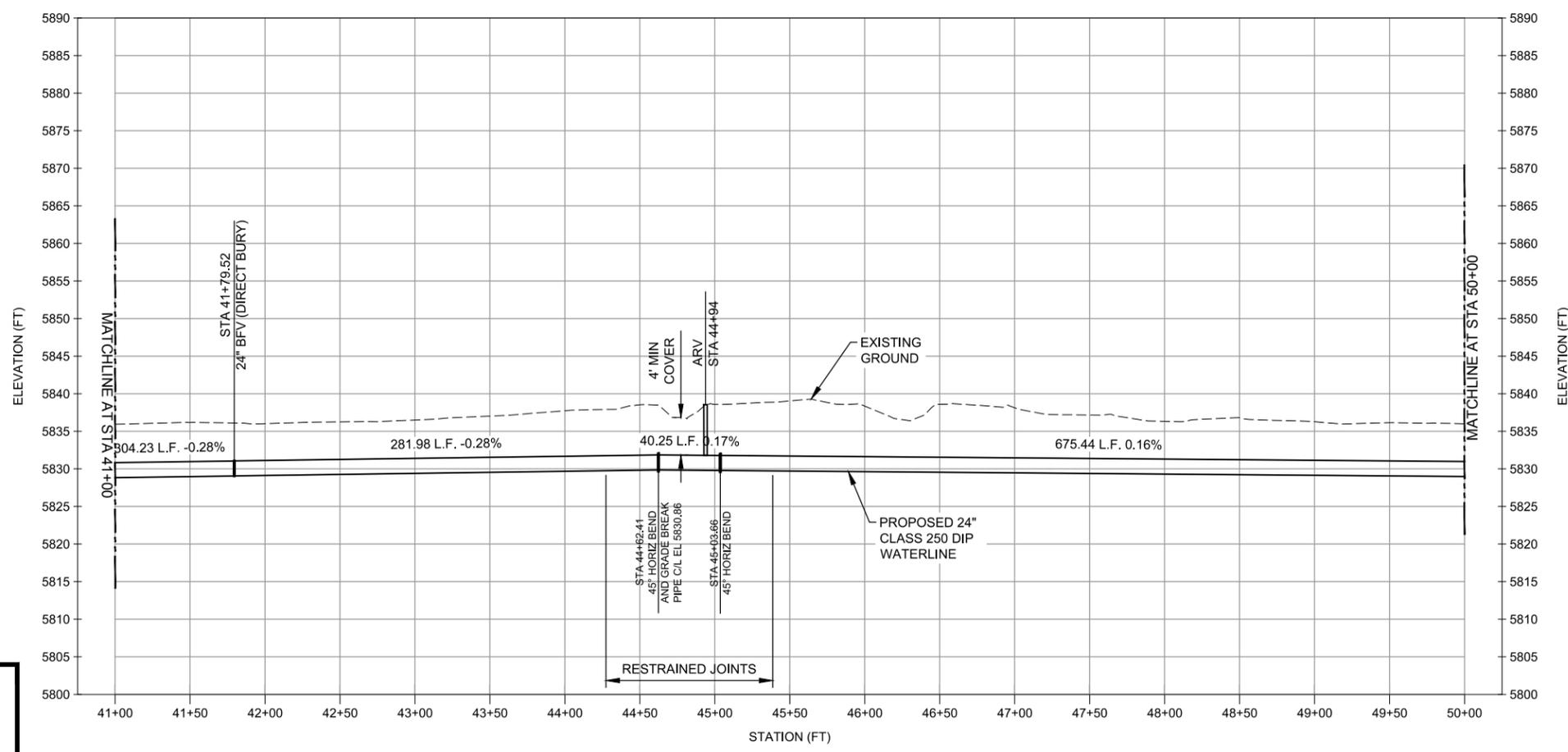
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PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
COLLECTION PLAN AND PROFILE

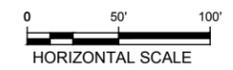
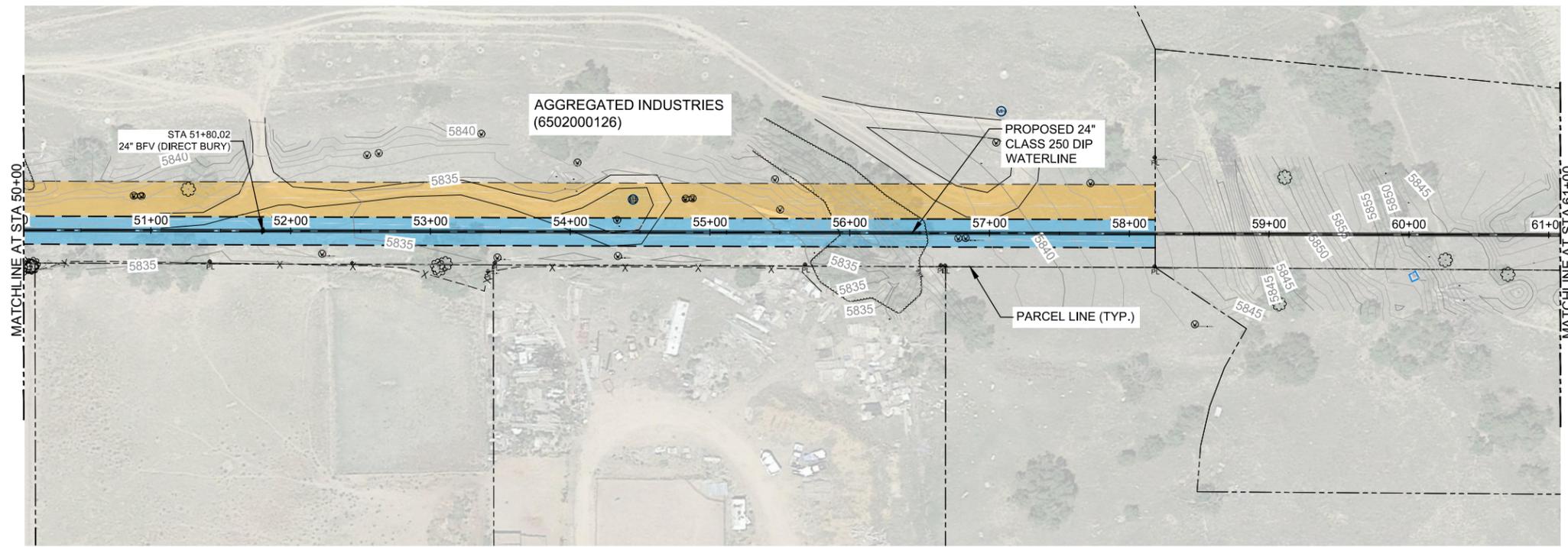
SHEET NUMBER
PL-220



- NOTES:**
- FIELD VERIFY UTILITY LOCATION AND ELEVATIONS.
 - MAXIMUM ALLOWABLE DEFLECTION AT EACH JOINT IS 4" FOR PIPE 12" AND LESS IN DIAMETER, AND 2" 24" FOR PIPE 14" AND LARGER IN DIAMETER.

811 FOR BURIED UTILITY INFORMATION
THREE (3) BUSINESS DAYS BEFORE YOU DIG
CALL 811
(or 1-800-922-1987)
www.uncc.org

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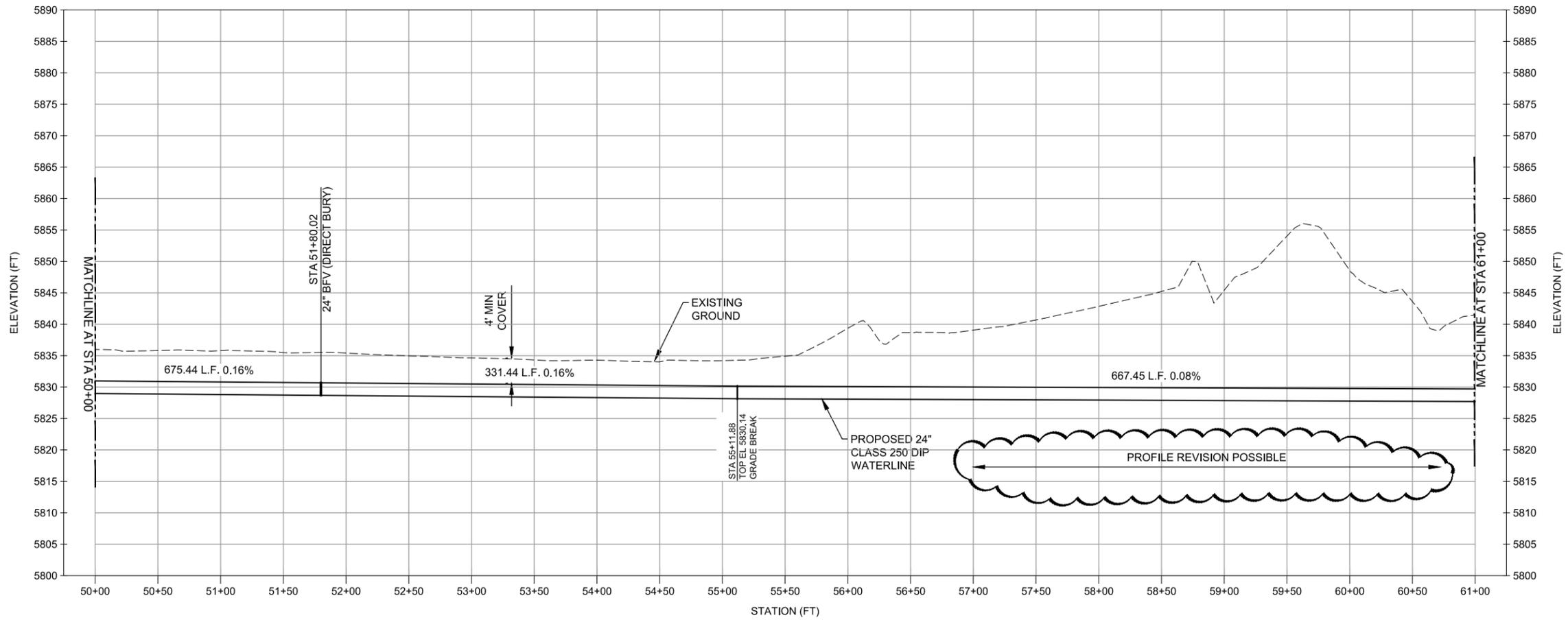


NOTES:

1. FIELD VERIFY UTILITY LOCATION AND ELEVATIONS.
2. MAXIMUM ALLOWABLE DEFLECTION AT EACH JOINT IS 4" FOR PIPE 12" AND LESS IN DIAMETER, AND 2" 24" FOR PIPE 14" AND LARGER IN DIAMETER.

LEGEND

- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY CONSTRUCTION EASEMENT



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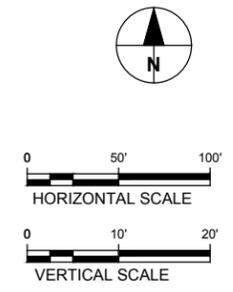
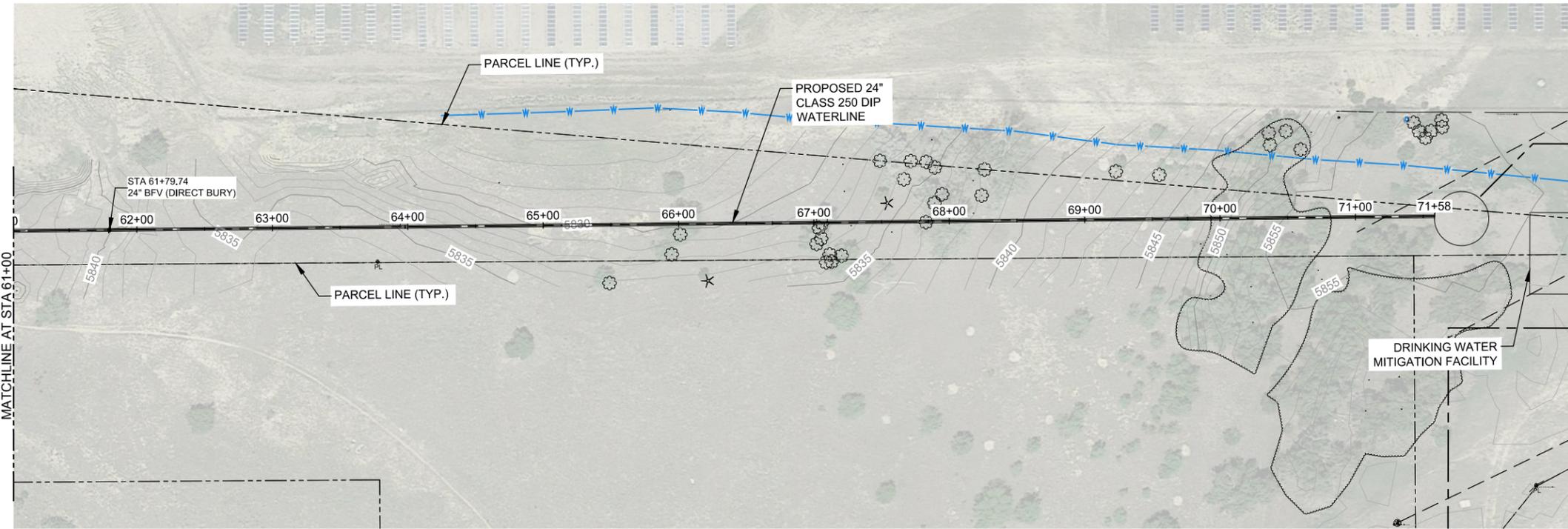
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ISSUE/REVISION		
I/R	DATE	DESCRIPTION
B	02/28/19	60% DESIGN
A	11/30/18	ISSUED FOR 30% DESIGN

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
COLLECTION PLAN AND PROFILE

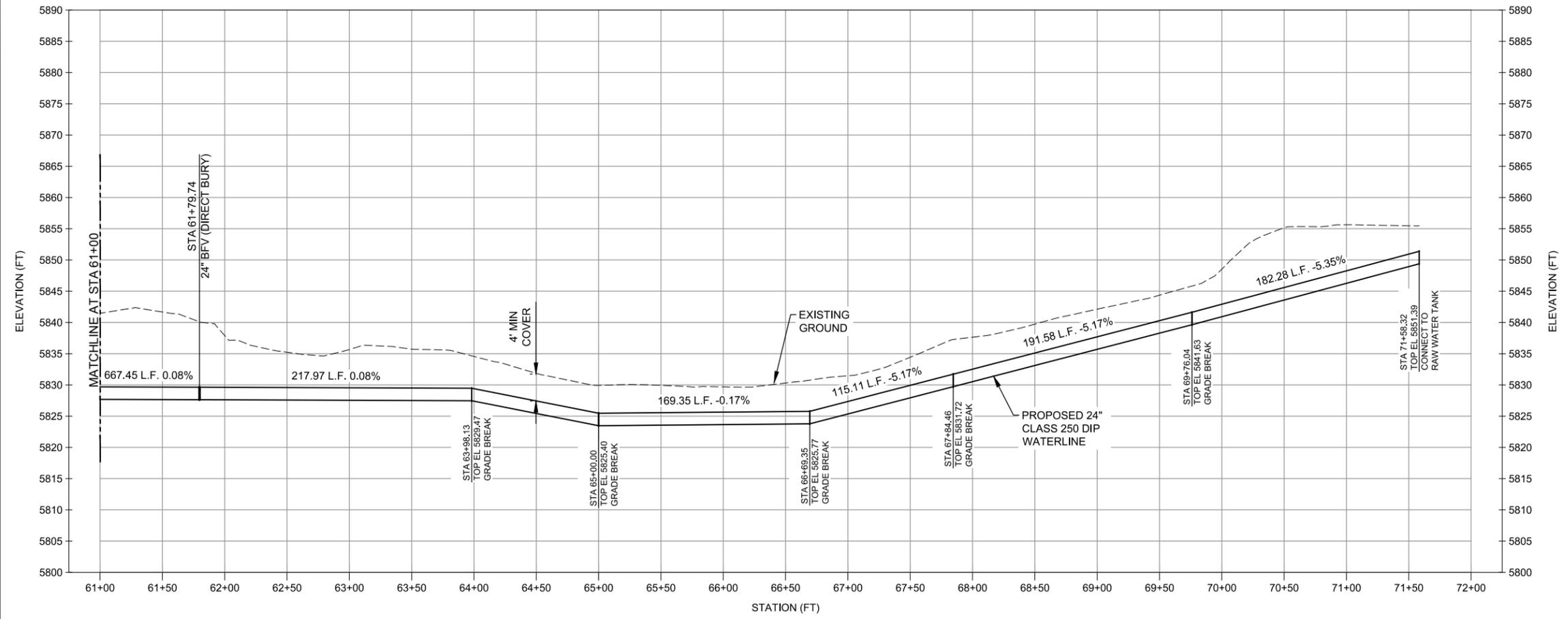
SHEET NUMBER
PL-221



- NOTES:
- FIELD VERIFY UTILITY LOCATION AND ELEVATIONS.
 - MAXIMUM ALLOWABLE DEFLECTION AT EACH JOINT IS 4" FOR PIPE 12" AND LESS IN DIAMETER, AND 2"24" FOR PIPE 14" AND LARGER IN DIAMETER.

LEGEND

- PROPOSED PERMANENT EASEMENT (Blue dashed line)
- PROPOSED TEMPORARY CONSTRUCTION EASEMENT (Yellow dashed line)



Last saved by: YELENA.PHILIPPI(2019-02-28) Last Plotted: 2019-02-28
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URS Group, Inc.
An AECOM Company

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

CLIENT
USACE Omaha District
 1616 Capital Ave.
 Omaha, NE 68102

CONSULTANT
 URS Group, Inc.
 12120 Shamrock Plaza
 Omaha, NE 68154
 T +1 (402) 334 8181. F +1 (402) 334 1984

NOT FOR CONSTRUCTION

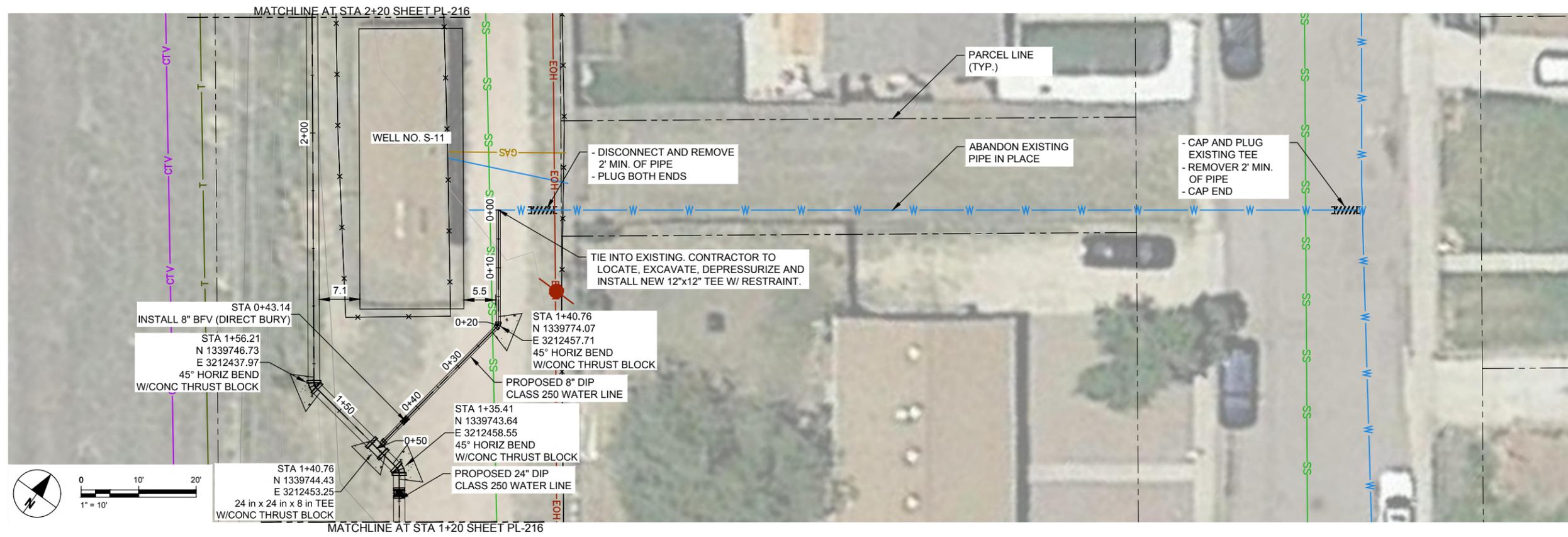
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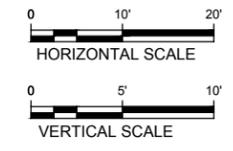
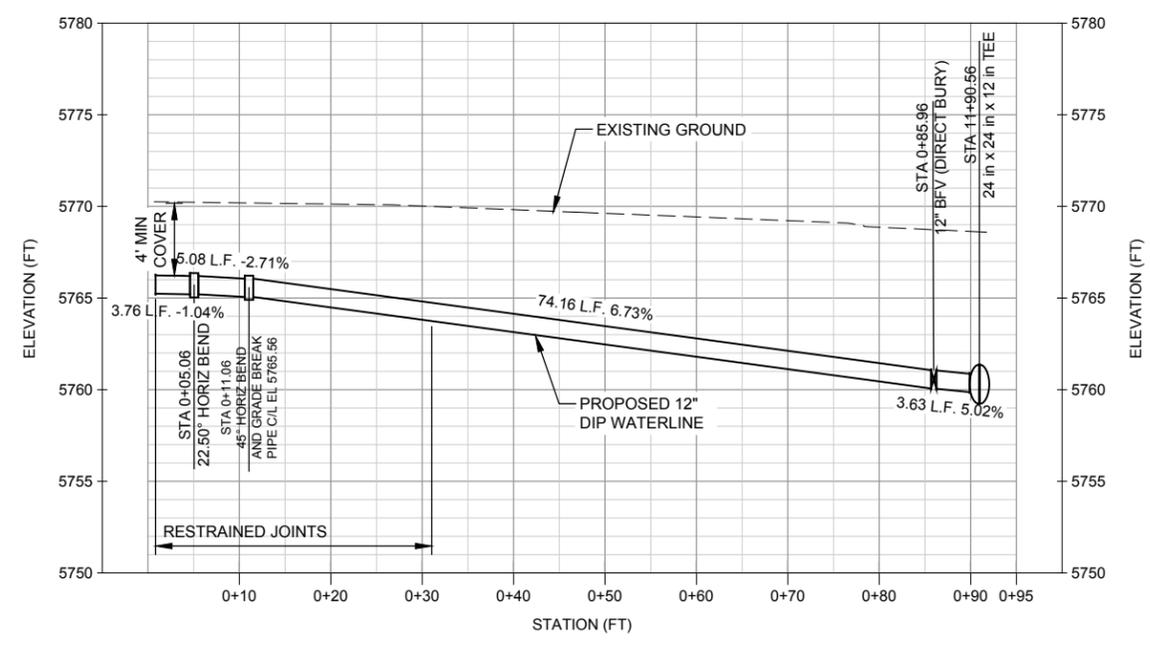
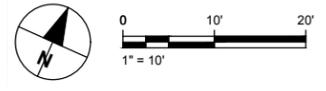
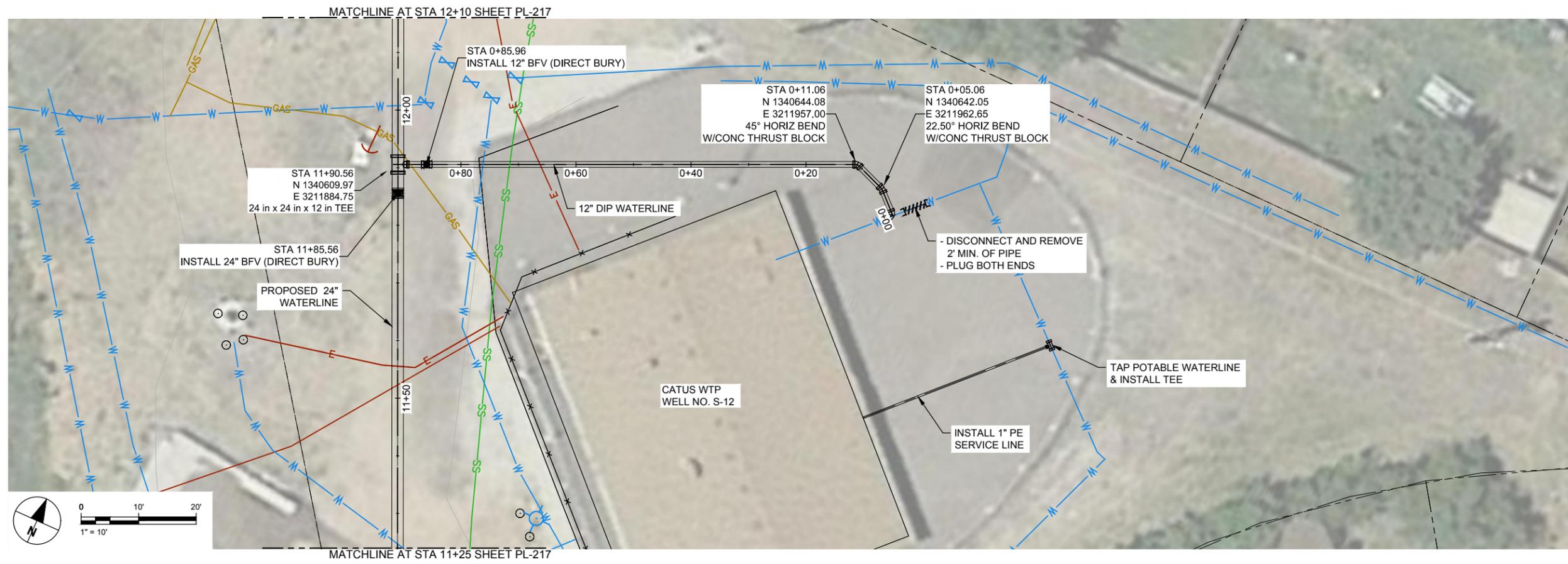
REV	DATE	DESCRIPTION
B	02/28/19	60% DESIGN
A	11/30/18	ISSUED FOR 30% DESIGN
I/R	DATE	DESCRIPTION

PROJECT NUMBER
 Project Number: 60589841

SHEET TITLE
 COLLECTION PLAN AND PROFILE

SHEET NUMBER
 PL-222





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A	11/30/18	ISSUED FOR 30% DESIGN

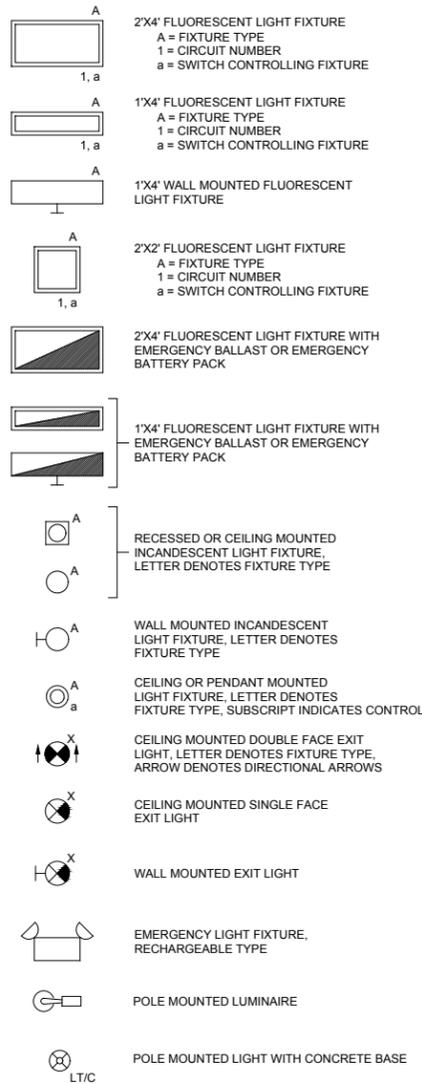
PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
WELL S-12 CONNECTION
PLAN & PROFILE

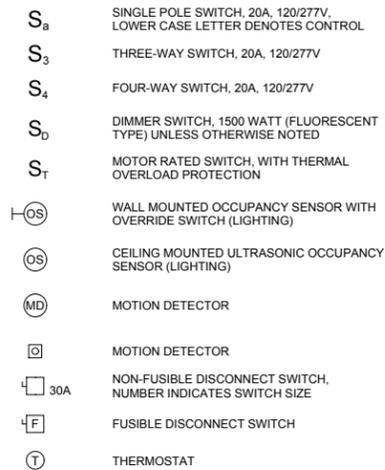
SHEET NUMBER
PL-256

SYMBOLS

LIGHTING



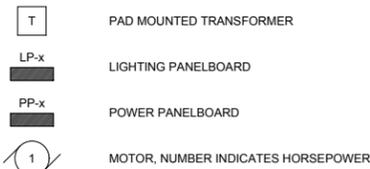
SWITCHES



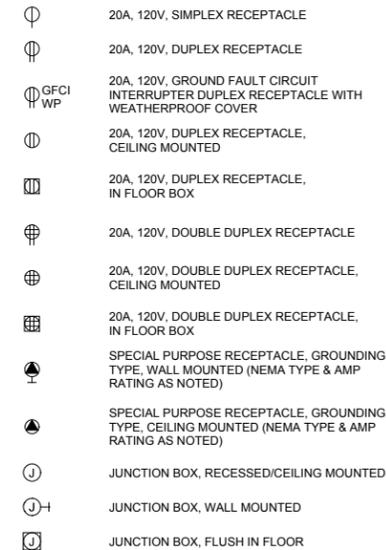
GROUNDING/LIGHTNING PROTECTION



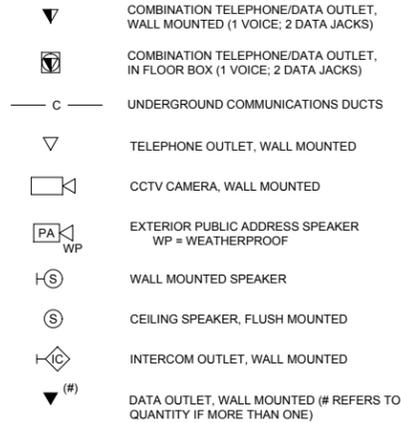
PANELBOARDS/POWER EQUIPMENT



RECEPTACLES/J-BOXES



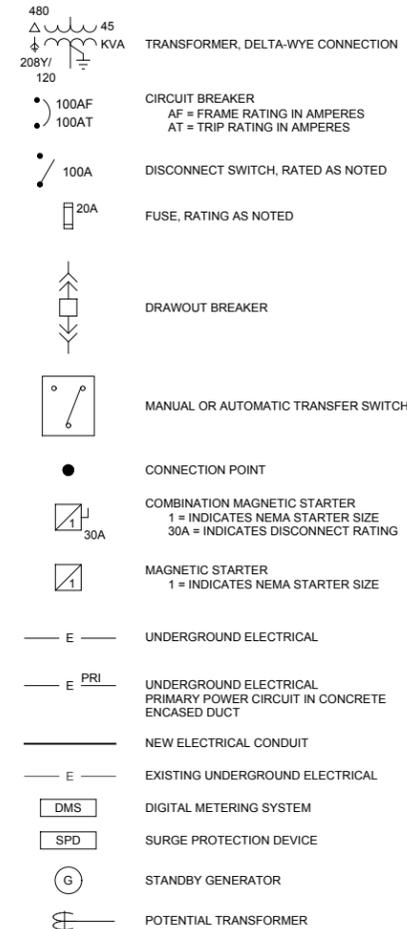
COMMUNICATIONS/SPECIAL SYSTEMS



FIRE ALARM SYSTEM



ONE-LINE DIAGRAM



ABBREVIATIONS

A	AMPERE
AD	AIR DRYER
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
AIC	AMPERES INTERRUPTING CAPACITY
APPROX	APPROXIMATELY
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
C	CONDUIT
CA	AIR COMPRESSOR
CCT	CIRCUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CL	CENTER LINE
CO	CONDUIT ONLY
CONC	CONCRETE
CT	CURRENT TRANSFORMER
CU	COPPER
CWP	WATER CONDENSOR
DMS	DIGITAL METERING SYSTEM
DWP	DOMESTIC WATER PUMP
(E)	EXISTING
EF	EXHAUST FAN
EMH	ELECTRICAL MANHOLE
EMCS	ENERGY MONITORING AND CONTROL SYSTEM
EP	HAZARDOUS CLASSIFICATION - EXPLOSION PROOF
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FAN COIL
FLR	FLOOR
FT	FEET
GA	GAUGE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY DISCHARGE
HH	HANDHOLE
HPF	HIGH POWER FACTOR
HP	HEAT PUMP
HPS	HIGH PRESSURE SODIUM
IN	INCHES
INCAND	INCANDESCENT
KCMIL	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT AMPERE
KWH	KILOWATT-HOUR
LAN	LOCAL AREA NETWORK
LT	LONG TIME
LP	LIGHTING PANEL
M	METER
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANELBOARD
MIN	MINIMUM
mm	MILLIMETER
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
OC	ON CENTER
OCEW	ON CENTER EACH WAY
OH	OVERHEAD
O/P	OUTPUT
PA	PUBLIC ADDRESS
PB	PULL BOX
PR	PAIR
PSI	POUNDS PER SQUARE INCH
PT	POTENTIAL TRANSFORMER
PP	POWER PANEL / POWER POLE
PVC	POLYVINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL
RH	RADIANT HEATER
RM	ROOM
RMS	ROOT MEAN SQUARE
RP	RECEPTACLE PANEL
RSC	RIGID STEEL CONDUIT
ST	SHORT TIME
SPD	SURGE PROTECTION DEVICE
SYM	SYMMETRICAL
T	TRANSFORMER
TC	TERMINAL CABINET
TTB	TELEPHONE TERMINAL BOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION & FILTERING
TW/SHLD	TWISTED SHIELDED
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
VMS	VARIABLE MESSAGE SIGN
W	WATT-WIM
W	WITH
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER



URS Group, Inc.
An AECOM Company

PROJECT

PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

CLIENT

USACE Omaha District

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Omaha, NE 68102

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ISSUE/REVISION

NO	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER

Project Number: 60589841

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

E-201

VERIFY PRINTED SCALES

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NOTES:
 1. REFER TO E-203 FOR CONDUIT AND CONDUCTOR SCHEDULE.

KEYED NOTES 
 1 18-PULSE DRIVE OR ACTIVE FRONT END.

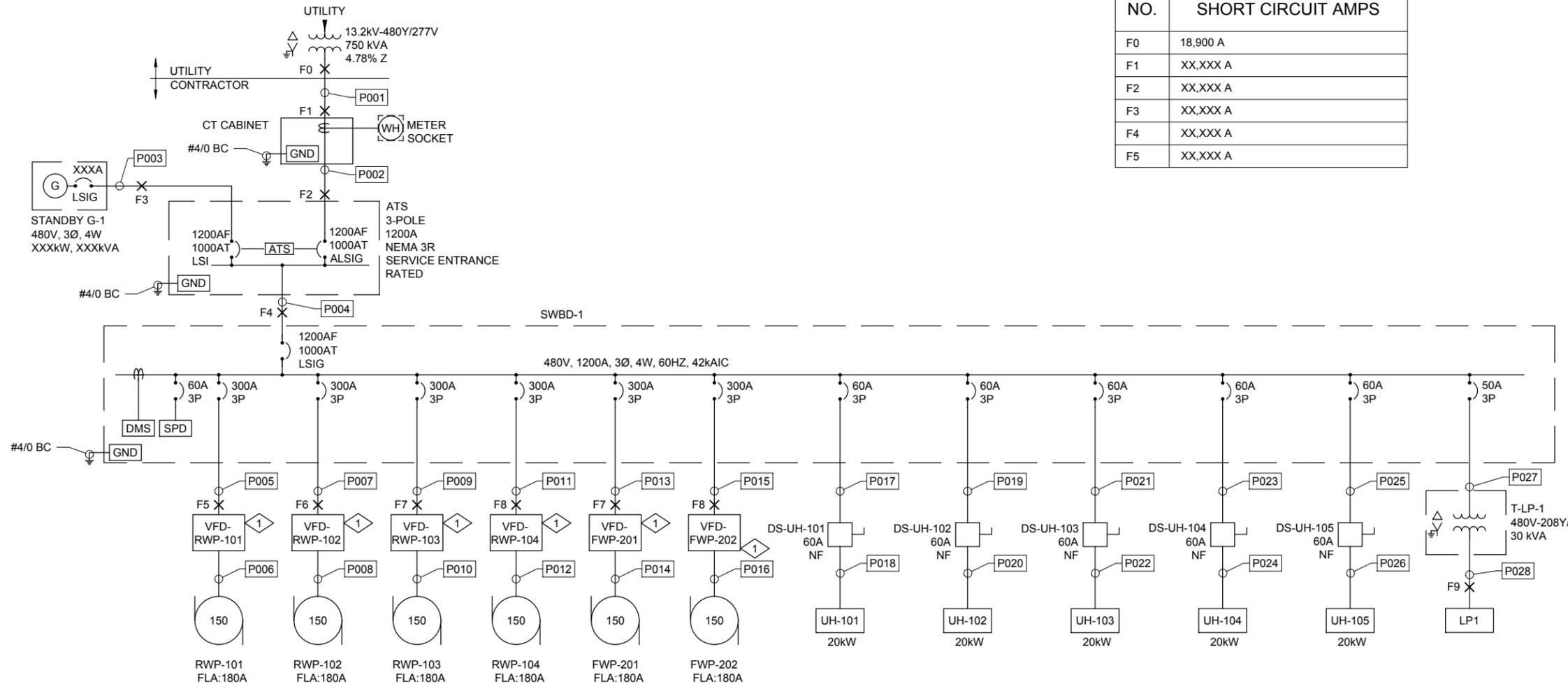
UTILITY LOAD INFORMATION				
TAG	LOAD DESCRIPTION	CONNECTED LOAD (kVA)	DEMAND FACTOR (kVA)	DEMAND LOAD (kVA)
RWP-101	RAW WATER PUMP (150HP)	149.65	1.00	149.65
RWP-102	RAW WATER PUMP (150HP)	149.65	1.00	149.65
RWP-103	RAW WATER PUMP (150HP)	149.65	1.00	149.65
RWP-104	RAW WATER PUMP (150HP)	149.65	0.00	0.00
FWP-201	FINISHED WATER PUMP (150HP)	149.65	1.00	149.65
FWP-202	FINISHED WATER PUMP (150HP)	149.65	0.00	0.00
UH-101	UNIT HEATER (20kW)	20.00	1.00	20.00
UH-102	UNIT HEATER (20kW)	20.00	1.00	20.00
UH-103	UNIT HEATER (20kW)	20.00	1.00	20.00
UH-104	UNIT HEATER (20kW)	20.00	1.00	20.00
UH-105	UNIT HEATER (20kW)	20.00	1.00	20.00
LP1	LP1	15.00	1.00	15.00
	LARGEST MOTOR (25%)	37.41	1.00	37.41
TOTAL		1050.31	0.72	751.01

CONNECTED LOAD	1050.31	kVA
CONNECTED AMPS	1263.33	A
DEMAND LOAD	751.01	kVA
DEMAND AMPS	903.32	A

STANDBY GENERATOR LOAD INFORMATION				
TAG	LOAD DESCRIPTION	CONNECTED LOAD (kVA)	DEMAND FACTOR (kVA)	DEMAND LOAD (kVA)
RWP-101	RAW WATER PUMP (150HP)	149.65	1.00	149.65
RWP-102	RAW WATER PUMP (150HP)	149.65	1.00	149.65
RWP-103	RAW WATER PUMP (150HP)	149.65	0.00	0.00
RWP-104	RAW WATER PUMP (150HP)	149.65	0.00	0.00
FWP-201	FINISHED WATER PUMP (150HP)	149.65	1.00	149.65
FWP-202	FINISHED WATER PUMP (150HP)	149.65	0.00	0.00
UH-101	UNIT HEATER (20kW)	20.00	1.00	20.00
UH-102	UNIT HEATER (20kW)	20.00	1.00	20.00
UH-103	UNIT HEATER (20kW)	20.00	1.00	20.00
UH-104	UNIT HEATER (20kW)	20.00	1.00	20.00
UH-105	UNIT HEATER (20kW)	20.00	1.00	20.00
LP1	LP1	15.00	1.00	15.00
	LARGEST MOTOR (25%)	37.41	1.00	37.41
TOTAL		1050.31	0.57	601.36

CONNECTED LOAD	1050.31	kVA
CONNECTED AMPS	1263.33	A
DEMAND LOAD	601.36	kVA
DEMAND AMPS	723.32	A

FAULT CURRENT TABLE	
NO.	SHORT CIRCUIT AMPS
F0	18,900 A
F1	XX,XXX A
F2	XX,XXX A
F3	XX,XXX A
F4	XX,XXX A
F5	XX,XXX A



SECURITY ONE-LINE DIAGRAM
 NOT TO SCALE

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 URS Group, Inc.
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PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM
Security Water District (SWD)

CLIENT
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 Omaha, NE 68102

CONSULTANT
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ISSUE/REVISION		
I/R	DATE	DESCRIPTION
0	02/28/19	60% DESIGN

PROJECT NUMBER
 Project Number: 60589841

SHEET TITLE
 ONE LINE DIAGRAM

SHEET NUMBER
 E-202

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

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ISSUE/REVISION

NO.	DATE	DESCRIPTION
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PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
CONDUIT AND CONDUCTOR SCHEDULE

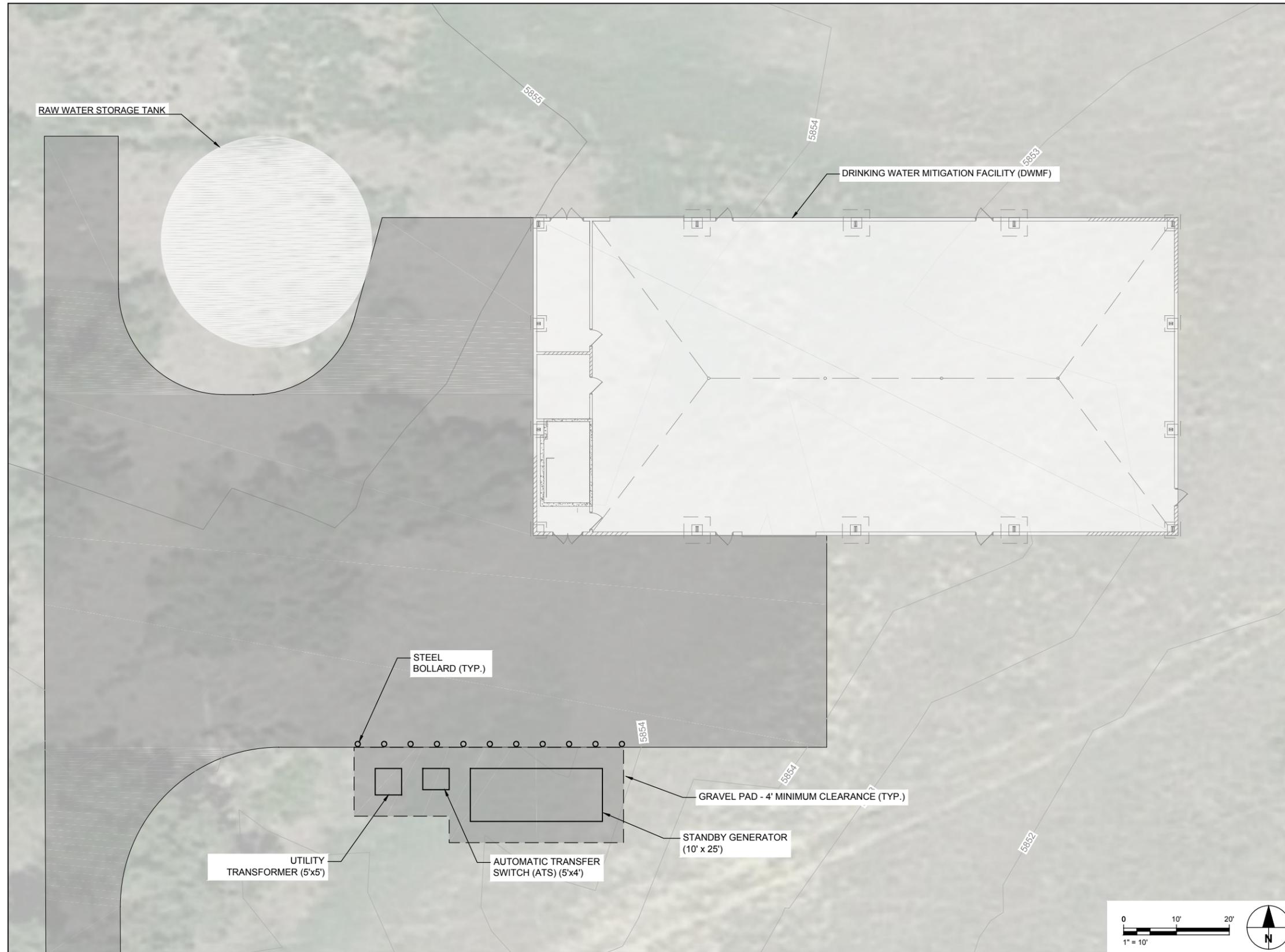
SHEET NUMBER
E-203

SECURITY - POWER CONDUIT AND CONDUCTOR SCHEDULE										
NO.	#SET	SIZE	CONDUCTOR / CABLES			SOURCE	DESTINATION	NOTES		
			TYPE	#	SIZE					
P001	3	3.5"	XHHW-2	4-1/C	#400	#2/0	UTILITY TRANSFORMER	CT CABINET		
P002	3	3.5"	XHHW-2	4-1/C	#400	#2/0	CT CABINET	ATS		
P003	3	3.5"	XHHW-2	4-1/C	#400	#2/0	G-1	ATS		
P004	3	3.5"	XHHW-2	4-1/C	#400	#2/0	ATS	SWBD-1		
P005	2	2.5"	XHHW-2	3-1/C	#1/0	#4	SWBD-1	VFD-RWP-101		
P006	2	2.5"	XHHW-2	3-1/C	#1/0	#4	VFD-RWP-101	RWP-101		
P007	2	2.5"	XHHW-2	3-1/C	#1/0	#4	SWBD-1	VFD-RWP-102		
P008	2	2.5"	XHHW-2	3-1/C	#1/0	#4	VFD-RWP-102	RWP-102		
P009	2	2.5"	XHHW-2	3-1/C	#1/0	#4	SWBD-1	VFD-RWP-103		
P010	2	2.5"	XHHW-2	3-1/C	#1/0	#4	VFD-RWP-103	RWP-103		
P011	2	2.5"	XHHW-2	3-1/C	#1/0	#4	SWBD-1	VFD-RWP-104		
P012	2	2.5"	XHHW-2	3-1/C	#1/0	#4	VFD-RWP-104	RWP-104		
P013	2	2.5"	XHHW-2	3-1/C	#1/0	#4	SWBD-1	VFD-FWP-201		
P014	2	2.5"	XHHW-2	3-1/C	#1/0	#4	VFD-FWP-201	FWP-201		
P015	2	2.5"	XHHW-2	3-1/C	#1/0	#4	SWBD-1	VFD-FWP-202		
P016	2	2.5"	XHHW-2	3-1/C	#1/0	#4	VFD-FWP-202	FWP-202		
P017	1	1"	XHHW-2	3-1/C	#6	#10	SWBD-1	DS-UH-101		
P018	1	1"	XHHW-2	3-1/C	#6	#10	DS-UH-101	UH-101		
P019	1	1"	XHHW-2	3-1/C	#6	#10	SWBD-1	DS-UH-102		
P020	1	1"	XHHW-2	3-1/C	#6	#10	DS-UH-102	UH-102		
P021	1	1"	XHHW-2	3-1/C	#6	#10	SWBD-1	DS-UH-103		
P022	1	1"	XHHW-2	3-1/C	#6	#10	DS-UH-103	UH-103		
P023	1	1"	XHHW-2	3-1/C	#6	#10	SWBD-1	DS-UH-104		
P024	1	1"	XHHW-2	3-1/C	#6	#10	DS-UH-104	UH-104		
P025	1	1"	XHHW-2	3-1/C	#6	#10	SWBD-1	DS-UH-105		
P026	1	1"	XHHW-2	3-1/C	#6	#10	DS-UH-105	UH-105		
P027	1	1"	XHHW-2	3-1/C	#8	#10	SWBD-1	T-LP-1		
P028	1	1.5"	THHN	4-1/C	#3	#8	T-LP-1	LP1		

PANELBOARD LP1														
SERVICE VOLTAGE:			208/120V			BUS SIZE: 125A								
FED FROM:			SWBD-1			MAIN BREAKER: 100A								
LOCATION:			ELECTRICAL ROOM			WIRE: 4								
MOUNTING:			SURFACE			SYM. AIC: 10k								
ENCLOSURE: NEMA 1														
LOAD SERVED	VOLT AMPS	NO. POLE	TRIP AMPS	POLE NO.	PHASE	POLE NO.	TRIP AMPS	NO. POLE	VOLT AMPS	LOAD SERVED				
HYPO. ROOM LIGHTS	152	1	20	1	A	2	20	1	114	CHEMICAL ROOM LIGHTS				
ELECTRIC ROOM LIGHTS	114	1	20	3	B	4	20	1	247	EXTERIOR LIGHTS/EXIT SIGNS				
HIGH BAY LIGHTS		1	20	5	C	6	20	1	780	HIGH BAY LIGHTS				
HYPO. ROOM RECEPT.	300	1	20	7	A	8	20	1	300	HYPO. PUMP RECEPT.				
CHEMICAL ROOM RECEPT.	450	1	20	9	B	10	20	1	600	ELECT. ROOM RECEPT.				
FILTER ROOM NORTH RECEPT.		1	20	11	C	12	20	1	750	FILTER ROOM SOUTH RECEPT.				
FILTER ROOM WEST RECEPT.	600	1	20	13	A	14	20	1	500	CHEMICAL ROOM PUMP RECEPT.				
RTU UPS	500	1	20	15	B	16	20	1		SPARE				
RTU CABINET		1	20	17	C	18	20	1		SPARE				
SPARE		1	20	19	A	20	20	1		SPARE				
SPARE		1	20	21	B	22	20	1		SPARE				
SPARE		1	20	23	C	24	20	1		SPARE				
SPARE	-	1	20	25	A	26	20	1	-	SPARE				
SPARE	-	1	20	27	B	28	20	1	-	SPARE				
SPARE	-	1	20	29	C	30	20	1	-	SPARE				
Totals	1052	1064	2220						914	847	1530			
VOLT AMPS: BUS A			1966			PHASE IMBALANCE (%): A/B			-3%					
BUS B			1911			B/C			-49%					
BUS C			3750			C/A			-91%					

FIXTURE DESIGNATION	DESCRIPTION	VOLTAGE	LAMPS		MINIMUM EFFICIENCY	SMH RATIO	REMARKS	INPUT VA
			QUANTITY	TYPE				
A	HIGH BAY, HEAVY DUTY, LED, PHUZION, HOLOPHANE NO. PHZ_18L_4K_AS_W_W_ELR_PF-105_PHCB	120	-	LED	89	1.3	MOUNT FIXTURE AT 20 FOOT FROM FLOOR. FIXTURE TO INCLUDE BATTERY BACKUP.	130
B	HIGH BAY, HEAVY DUTY, LED, PHUZION, HOLOPHANE NO. PHZ_18L_4K_AS_W_W_PF-105_PHCB	120	-	LED	89	1.3	MOUNT FIXTURE AT 20 FOOT FROM FLOOR.	130
C	EATON METALUX VAPORITE LED, PART NO. 4VT2-LD4-4-DR-UNV-EL10W-L840-WL-U	120	-	LED			FIXTURE TO INCLUDE BATTERY BACKUP.	38
D	EATON METALUX VAPORITE LED, PART NO. 4VT2-LD4-4-DR-UNV-L840-WL-U	120	-	LED				38
H	RAB LIGHTING EXTERIOR FIXTURE, RAB NO. WPLED26	120	-	LED			FIXTURE TO INCLUDE PHOTOCELL AND BATTERY BACKUP.	31
X	SINGLE FACE EXIT SIGN WITH BATTERY BACKUP, LED, WET LOCATION, SELF DIAGNOSTICS, LITHONIA NO. LQC-W-W-G	120	-	LED				5

VERIFY PRINTED SCALES
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0 1"
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VERIFY PRINTED SCALES
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 0 1" 1"
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ISSUE/REVISION

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PROJECT NUMBER
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SHEET TITLE
 SITE PLAN

SHEET NUMBER
 E-204

- NOTES:
1. REFER TO E-203 FOR LIGHT FIXTURE SCHEDULE.
 2. REFER TO E-203 FOR PANEL SCHEDULE.



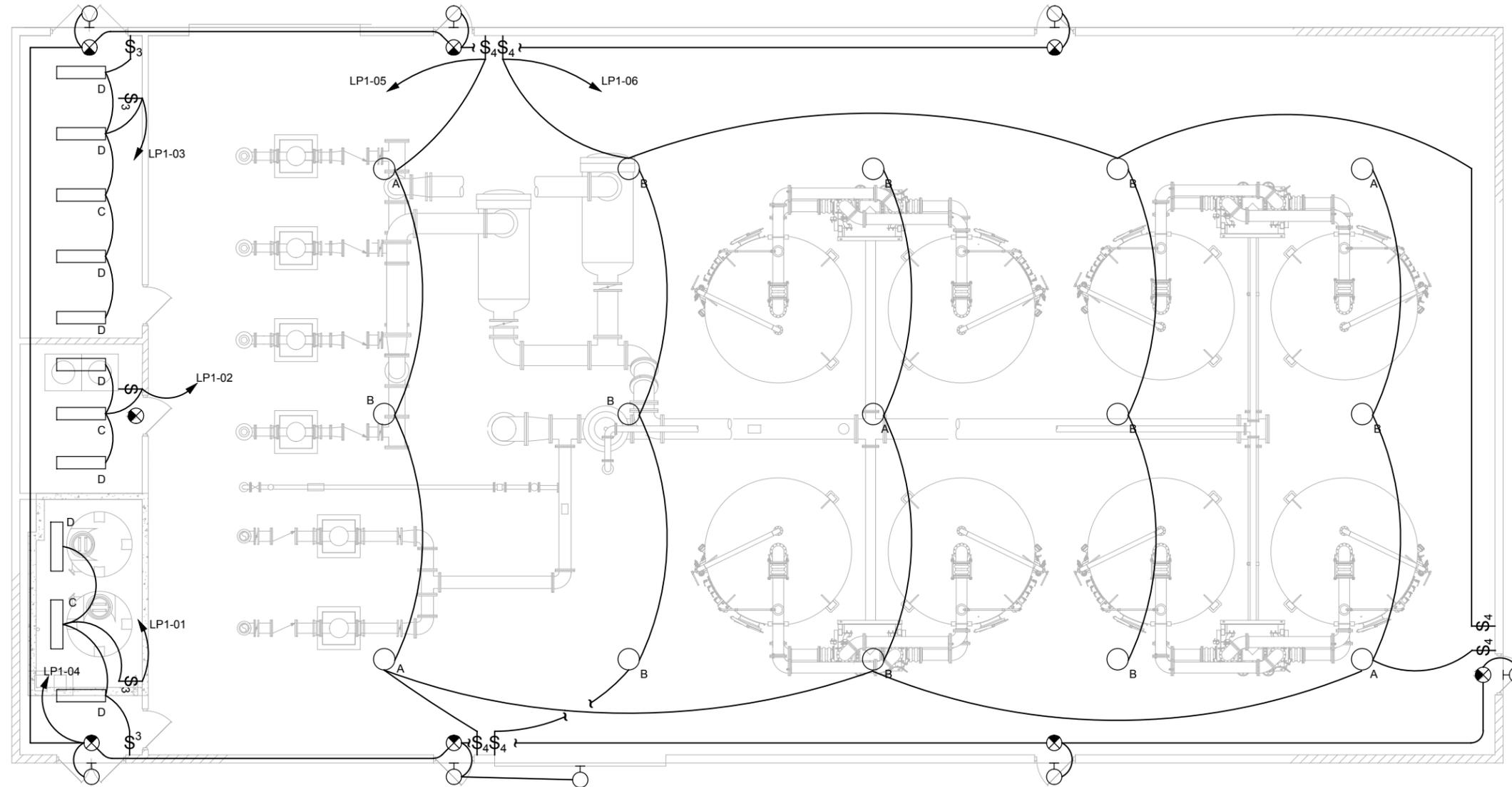
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An AECOM Company

PROJECT
**PFOS / PFOA DRINKING
WATER MITIGATION
SYSTEM**

Security Water District
(SWD)

CLIENT
USACE Omaha District
1616 Capital Ave.
Omaha, NE 68102

CONSULTANT
URS Group, Inc.
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Omaha, NE 68154
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LIGHTING PLAN

3/16" = 1'-0"



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SCALE ACCORDINGLY

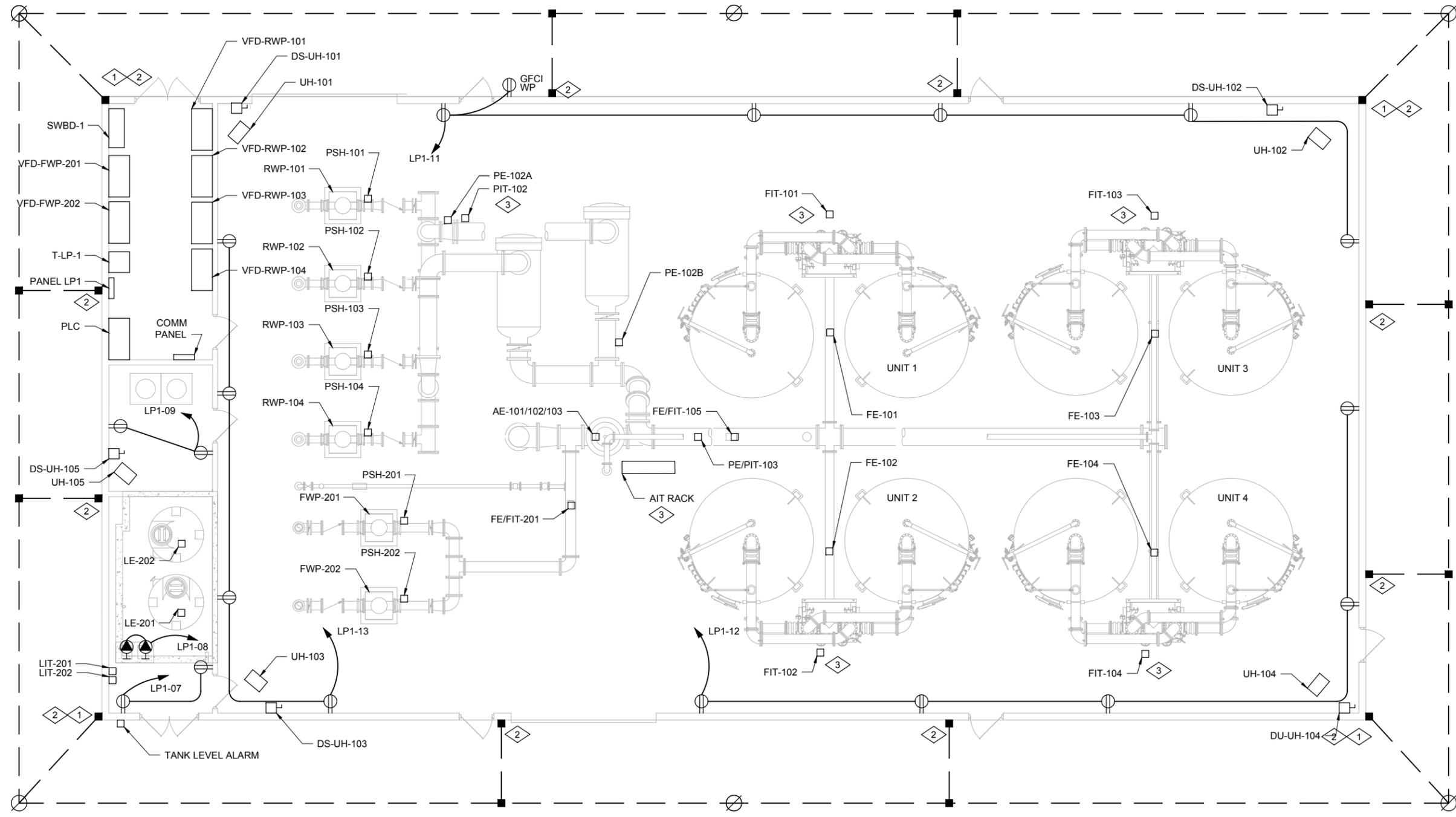
ISSUE/REVISION		
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I/R		

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
LIGHTING PLAN

SHEET NUMBER
E-205

- KEYED NOTES
- 1 BOND GROUNDING ELECTRODE CONDUCTOR TO BOTTOM MAT OF REINFORCING STEEL.
 - 2 BOND GROUNDING CONDUCTOR TO BUILDING STRUCTURAL STEEL.
 - 3 SEE E-409 FOR MOUNTING DETAIL.



POWER AND GROUNDING PLAN

3/16" = 1'-0"



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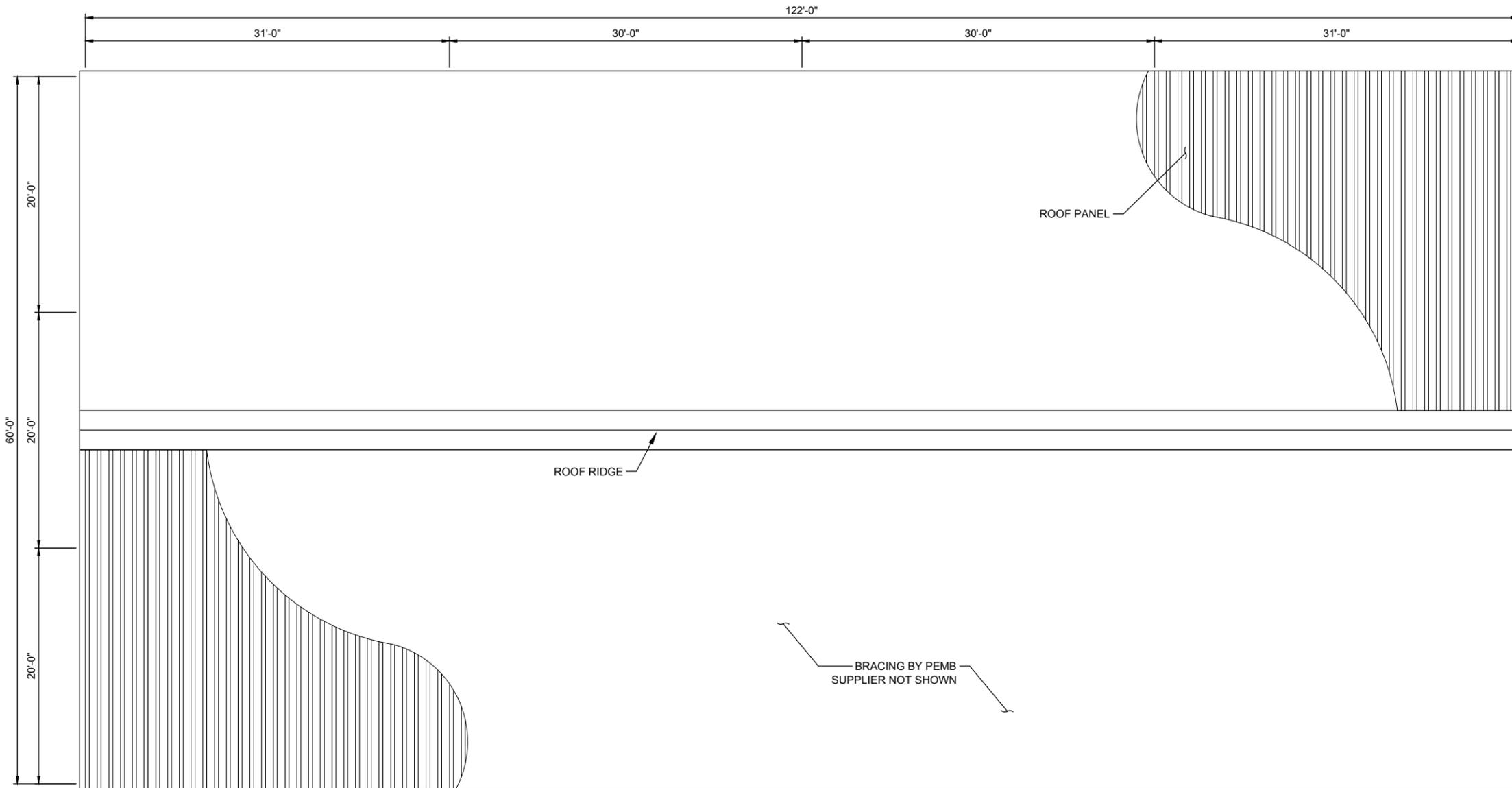
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0	02/28/19	60% DESIGN

PROJECT NUMBER
Project Number: 60589841

SHEET TITLE
POWER AND GROUNDING

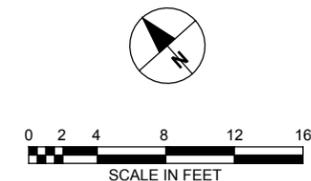
SHEET NUMBER
E-206

NOTES:
1. LIGHTNING PROTECTION TO COMPLY WITH NFPA 780 AND UL 96A.



BUILDING ROOF LIGHTNING PROTECTION PLAN
SCALE: 3/16" = 1'-0"

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SHEET TITLE
BUILDING ROOF LIGHTNING PLAN

SHEET NUMBER
E-207

NOTES:
 1. REFER TO SEQUENCE OF OPERATION FOR PUMP CONTROL DESCRIPTION.

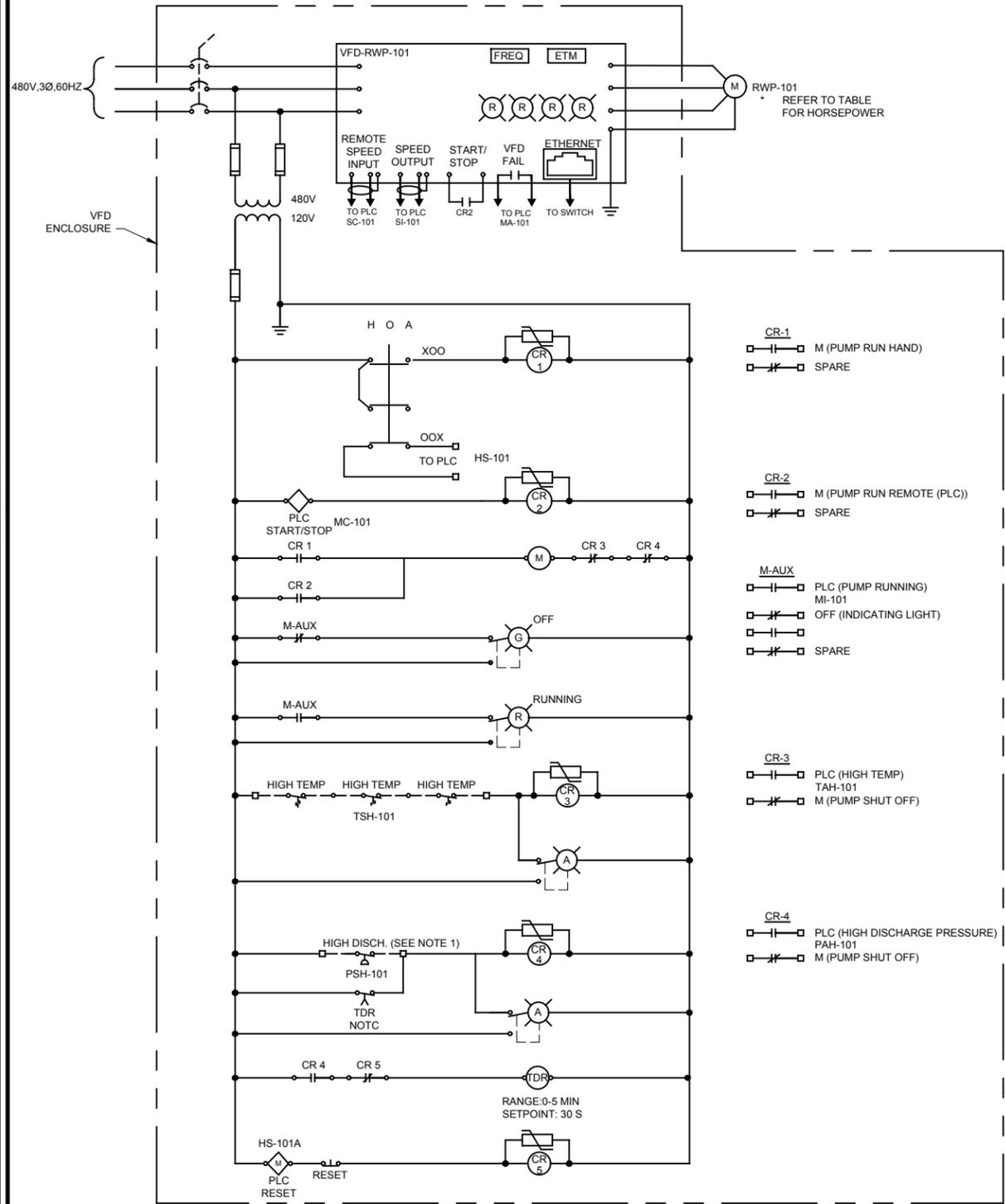


TABLE OF CORRESPONDING DEVICES													
TAG NO.	HP	VFD NO.	REMOTE	REMOTE RESET	RUNNING	START/STOP	SPEED CONTROL	SPEED IND	HIGH DISC PRESS	HIGH DISC ALARM	VFD FAIL	MOTOR TEMP SWITCH	MOTOR HI TEMP
RWP-101	150	VFD-RWP-101	HS-101	HS-101A	MI-101	MC-101	SC-101	SI-101	PSH-101	PAH-101	MA-101	TSH-101	TAH-101
RWP-102	150	VFD-RWP-102	HS-102	HS-102A	MI-102	MC-102	SC-102	SI-102	PSH-102	PAH-102	MA-102	TSH-102	TAH-102
RWP-103	150	VFD-RWP-103	HS-103	HS-103A	MI-103	MC-103	SC-103	SI-103	PSH-103	PAH-103	MA-103	TSH-103	TAH-103
RWP-104	150	VFD-RWP-104	HS-104	HS-104A	MI-104	MC-104	SC-104	SI-104	PSH-104	PAH-104	MA-104	TSH-104	TAH-104
FWP-201	150	VFD-FWP-201	HS-201	HS-201A	MI-201	MC-201	SC-201	SI-201	PSH-201	PAH-201	MA-201	TSH-201	TAH-201
FWP-202	150	VFD-FWP-202	HS-202	HS-202A	MI-202	MC-202	SC-202	SI-202	PSH-202	PAH-202	MA-202	TSH-202	TAH-202

- CR-1**
 □ — | — □ M (PUMP RUN HAND)
 □ — / — □ SPARE
- CR-2**
 □ — | — □ M (PUMP RUN REMOTE (PLC))
 □ — / — □ SPARE
- M-AUX**
 □ — | — □ PLC (PUMP RUNNING)
 □ — / — □ MI-101
 □ — | — □ OFF (INDICATING LIGHT)
 □ — / — □ SPARE
- CR-3**
 □ — | — □ PLC (HIGH TEMP)
 □ — / — □ TAH-101
 □ — / — □ M (PUMP SHUT OFF)
- CR-4**
 □ — | — □ PLC (HIGH DISCHARGE PRESSURE)
 □ — / — □ PAH-101
 □ — / — □ M (PUMP SHUT OFF)



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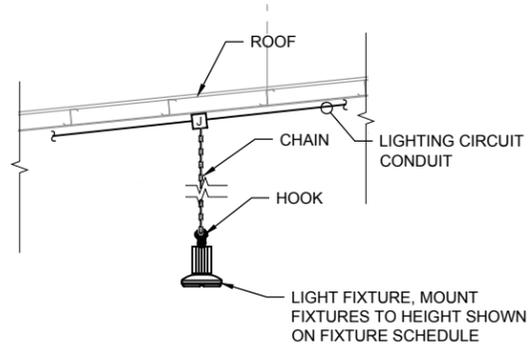
PROJECT NUMBER
 Project Number: 60589841

SHEET TITLE
 SECURITY MOTOR CONTROL SCHEMATICS

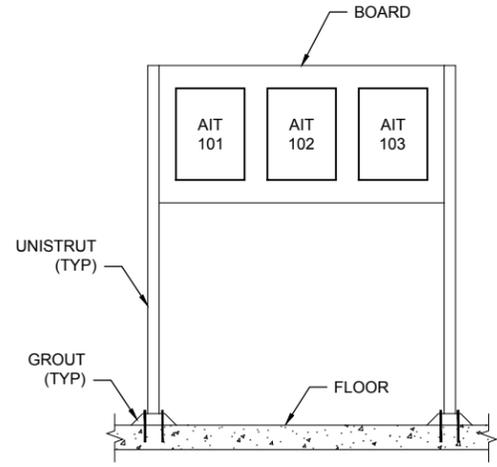
SHEET NUMBER
 E-208

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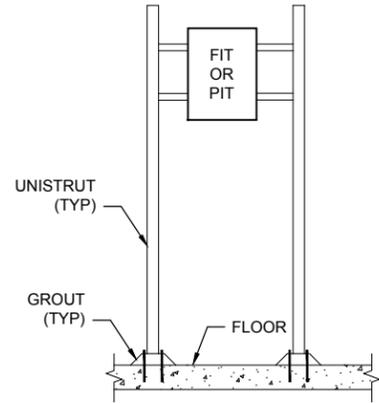
SECURITY MOTOR CONTROL SCHEMATIC
 NOT TO SCALE



TYPICAL LIGHT FIXTURE MOUNTING DETAIL 1
SCALE: NONE E-209



AIT-101, AIT-102, AIT-103 MOUNTING DETAIL 2
SCALE: NONE E-209



TRANSMITTER MOUNTING DETAIL 3
SCALE: NONE E-209

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PROCESS FLOW AND PIPING AND INSTRUMENTATION DIAGRAM LEGEND (ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

LINE TYPES

Table with columns: SYMBOL, DESCRIPTION. Lists various line types such as PROCESS FLOW LINE, INSTRUMENT SUPPLY OR CONNECTION TO PROCESS, UNDEFINED SIGNAL, PNEUMATIC SIGNAL, ELECTRIC SIGNAL, HYDRAULIC SIGNAL, CAPILLARY TUBE, ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED), etc.

ABBREVIATIONS

Table with columns: SYMBOL, DESCRIPTION. Lists abbreviations like AI - ANALOG INPUT, AO - ANALOG OUTPUT, DI - DIGITAL INPUT, DO - DIGITAL OUTPUT.

INSTRUMENT/FUNCTION SYMBOLS

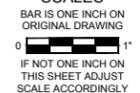
Table with columns: PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR, FIELD MOUNTED, AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR, AUXILIARY LOCATION NORMALLY INACCESSIBLE TO OPERATOR. Lists symbols for DISCRETE INSTRUMENTS, SHARED DISPLAY, COMPUTER FUNCTION, PROGRAMMABLE LOGIC CONTROL, FLOW INDICATOR, and PANEL MOUNTED PATCHBOARD POINT 12.

INSTRUMENTATION IDENTIFICATION TABLE

Diagram showing component numbering scheme (J-1 to J-9) and a table defining the meaning of each number: J-1 COMPONENT FUNCTION NUMBER, J-2 COMPONENT SEQUENCE NUMBER, etc.

NOTE: INSTRUMENTATION FUNCTION IDENTIFIERS (J-1) AND FUNCTION SYMBOLS PER ANSI/ISA S5.1.

VERIFY PRINTED SCALES



VALVE & INSTRUMENTATION FUNCTION IDENTIFIERS (SELECTED)

Large table listing various instrumentation function identifiers (A through ZD) with columns for FIRST-LETTERS, INITIATING, MEASURED, OR CONTROLLED VARIABLE, CONTROLLERS, VALVES, READOUT DEVICE, SWITCHES AND ALARM DEVICES, TRANSMITTERS, SOLENOIDS, RELAYS, COMPUTING DEVICES, PRIMARY ELEMENT, TEST POINT, WELL OR PROBE, VIEWING DEVICE, GLASS, SAFETY DEVICE, and FINAL ELEMENT.

NOTE: THIS TABLE IS NOT ALL-INCLUSIVE.

* A, ALARM, THE ANNUNCIATING DEVICE, MAY BE USED IN THE SAME FASHION AS S, SWITCH, THE ACTING DEVICE.

** THE LETTERS H AND L MAY BE OMITTED IN THE UNDEFINED CASE.

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

OTHER POSSIBLE COMBINATIONS:

Table listing other possible combinations of letters and their meanings: FO (RESTRICTION ORIFICE), FRK, HIK (CONTROL STATIONS), FX (ACCESSORIES), TJR (SCANNING RECORDER), LLH (PILOT LIGHT), PFR (RATIO), KQI (RUNNING TIME INDICATOR), QQI (INDICATING COUNTER), WKIC (RATE-OF-WEIGHT-LOSS CONTROLLER), HMS (HAND MOMENTARY SWITCH).

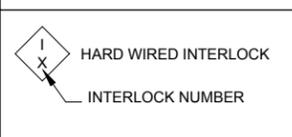
INSTRUMENT/FUNCTION SYMBOLS

Table with columns: SYMBOL, DESCRIPTION. Lists symbols for PURGE OR FLUSHING DEVICE, SOLENOID, DIGITAL, PILOT, TRAP, MAGNETIC FLOWMETER, SET POINT, ROOT EXTRACTION, BIAS, MULTIPLY, HIGH SELECTING, LOW SELECTING, HIGH LIMITING, LOW LIMITING, PROPORTIONAL, REVERSE PROPORTIONAL, SUMMING, DIVIDING, EQUIPMENT TAG, SAFETY CLASS, and SAFETY SIGNIFICANT.

PLAN BREAKS & CONTINUATION FLAGS

Table with columns: SYMBOL, DESCRIPTION. Shows symbols for continuation flags: Y# (PIPE OR WIRE IS CONTINUED ON DRAWING X), X (PIPE OR WIRE IS CONTINUED ON DRAWING X), and X Y# (PIPE OR WIRE IS CONTINUED ON DRAWING X).

INTERLOCK SYMBOL



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ISSUE/REVISION

Table with columns: I/R, DATE, DESCRIPTION. Shows one revision: 0 02/28/19 60% DESIGN.

PROJECT NUMBER

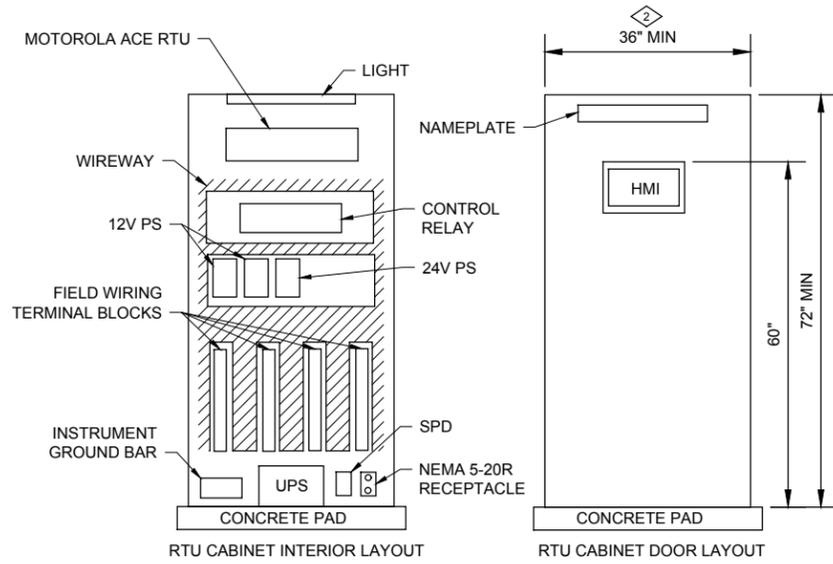
Project Number: 60589841

SHEET TITLE

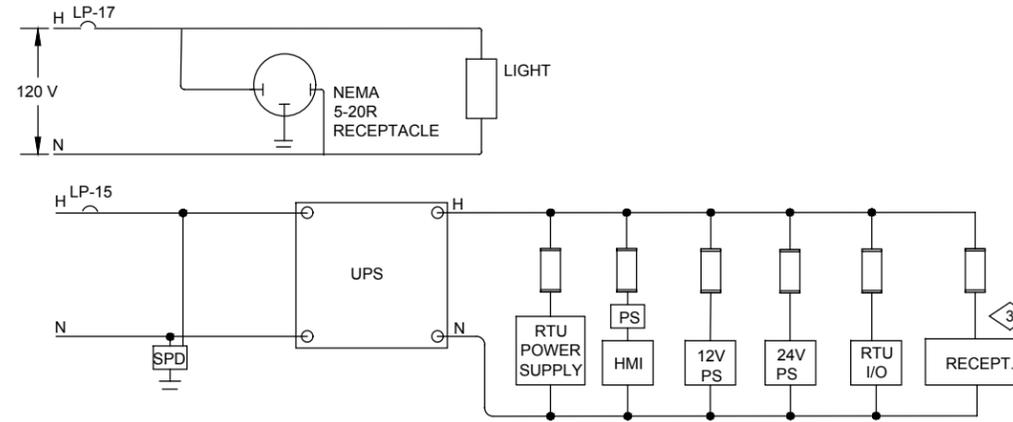
LEGEND AND ABBREVIATION

SHEET NUMBER

I-201



RTU CABINET 1



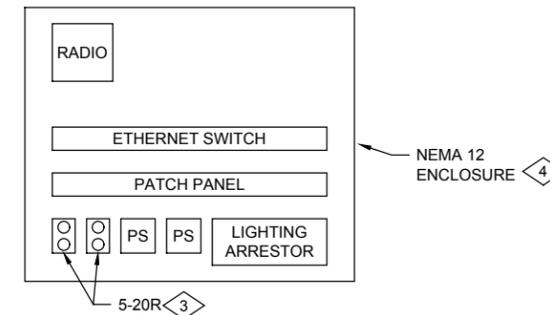
PLC CABINET WIRING DIAGRAM 2

GENERAL NOTES:

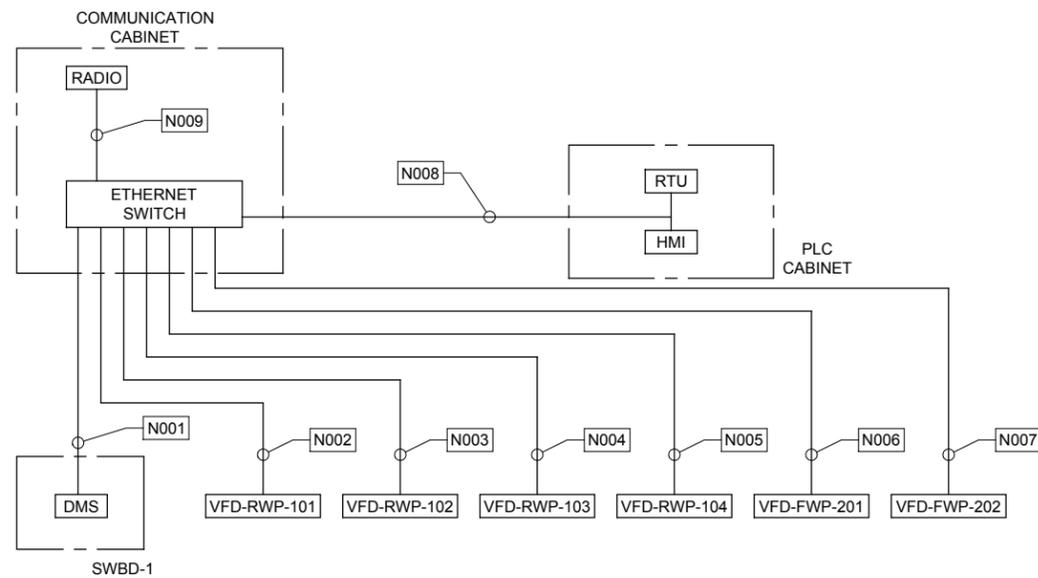
1. ALL CHANNELS FOR EACH I/O MODULE SHALL BE INDIVIDUALLY FUSED.
2. CIRCUIT BREAKERS AND FUSES TYPE AND SIZE TO MEET APPLICABLE CODE REQUIREMENTS.

KEYED NOTES

- 1 REFER TO I/O LIST IN SPECIFICATIONS. RTU LAYOUT IS INTENDED TO DEPICT A TYPICAL LAYOUT RATHER THAN INDICATE EXACT MODULE TYPE AND COUNT.
- 2 MINIMUM PANEL LAYOUT SHOWN. CONTRACTOR TO VERIFY EQUIPMENT SIZES AND ADJUST PANEL SIZE AS NEEDED.
- 3 UPS RECEPTACLE ARE LOCATED IN THE COMMUNICATIONS CABINET. RECEPTACLES TO POWER ETHERNET SWITCH AND RADIO EQUIPMENT.
- 4 COMMUNICATIONS CABINET LAYOUT SHOWN IS PROPOSED. SYSTEM INTEGRATOR TO COORDINATE ENCLOSURE SIZE AND LAYOUT WITH EQUIPMENT SUBMITTALS.



COMMUNICATION PANEL LAYOUT 4



NETWORK CONNECTION SCHEMATIC 3

SECURITY - NETWORK CONDUIT AND CONDUCTOR SCHEDULE									
CONDUIT			CONDUCTOR / CABLES				SOURCE	DESTINATION	NOTES
NO.	#SET	SIZE	TYPE	#	SIZE	GND			
N001	1	0.75"	CAT 6	1	N/A	N/A	ETHERNET SWITCH	SWBD-1	FOR DMS
N002	1	0.75"	CAT 6	1	N/A	N/A	ETHERNET SWITCH	VFD-RWP-101	
N003	1	0.75"	CAT 6	1	N/A	N/A	ETHERNET SWITCH	VFD-RWP-102	
N004	1	0.75"	CAT 6	1	N/A	N/A	ETHERNET SWITCH	VFD-RWP-103	
N005	1	0.75"	CAT 6	1	N/A	N/A	ETHERNET SWITCH	VFD-RWP-104	
N006	1	0.75"	CAT 6	1	N/A	N/A	ETHERNET SWITCH	VFD-FWP-201	
N007	1	0.75"	CAT 6	1	N/A	N/A	ETHERNET SWITCH	VFD-FWP-202	
N008	1	0.75"	CAT 6	2	N/A	N/A	ETHERNET SWITCH	RTU CABINET	
N009	1	0.75"	CAT 6	1	N/A	N/A	ETHERNET SWITCH	RADIO TRANSMITTER	

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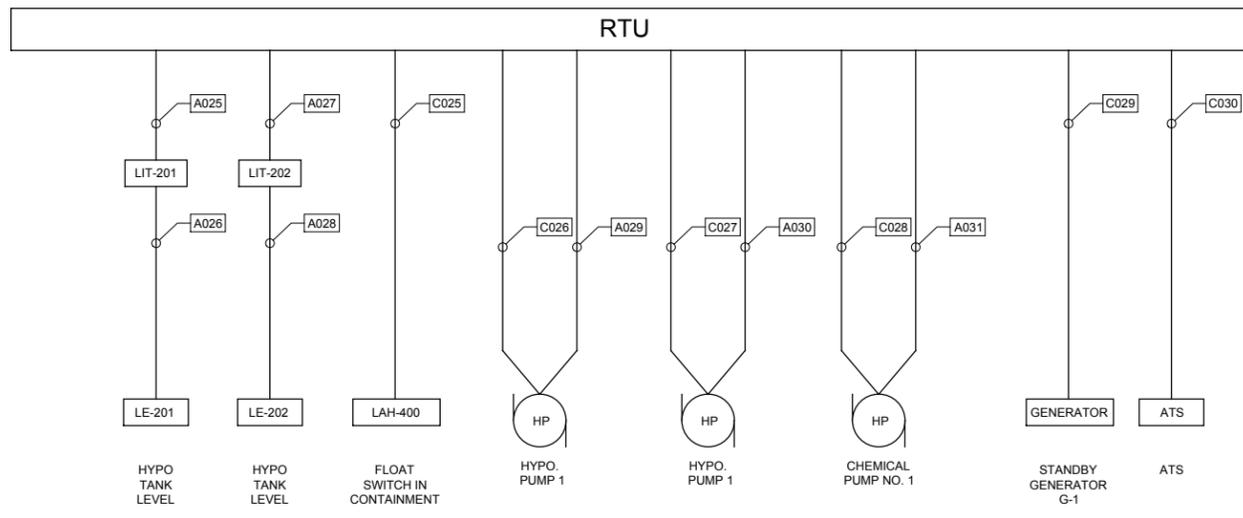
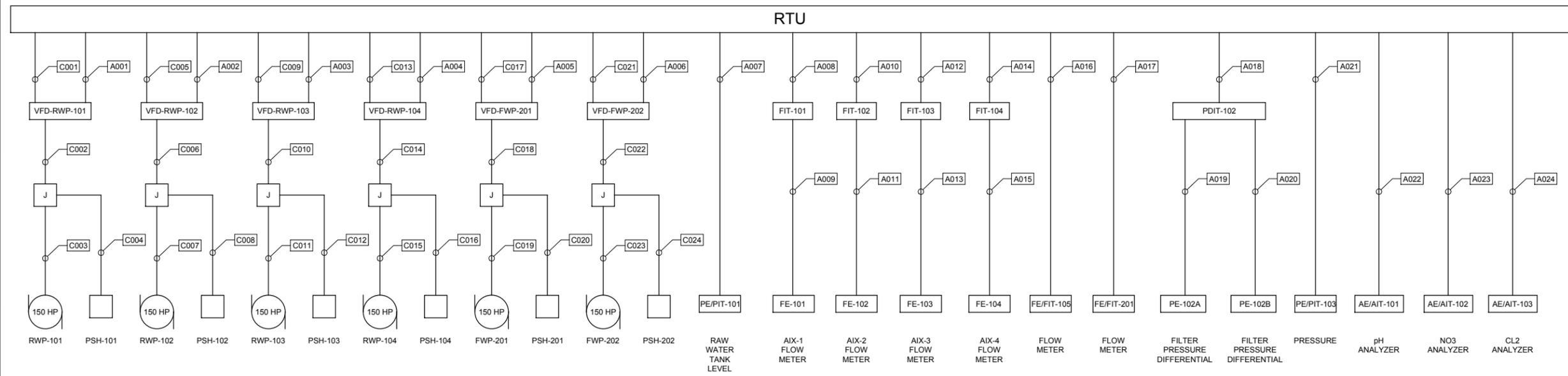
Project Number: 60589841

SHEET TITLE

PLC COMMUNICATION SCHEMATICS AND LAYOUT
 PLC COMMUNICATION SCHEMATICS AND LAYOUT

SHEET NUMBER

I-202



RTU CONNECTION SCHEMATIC

1

SECURITY - CONTROL CONDUIT AND CONDUCTOR SCHEDULE										
CONDUIT		CONDUCTOR / CABLES				SOURCE		DESTINATION		NOTES
NO.	#SET	SIZE	TYPE	#	SIZE	GND				
C001	1	1"	THHN	14	#14	-	RTU	VFD-RWP-101		
C002	1	0.75"	THHN	4	#14	-	VFD-RWP-101	JUNCTION BOX		
C003	1	0.75"	THHN	2	#14	-	JUNCTION BOX	FWP-101		
C004	1	0.75"	THHN	2	#14	-	JUNCTION BOX	PSH-101		
C005	1	1"	THHN	14	#14	-	RTU	VFD-RWP-102		
C006	1	0.75"	THHN	4	#14	-	VFD-RWP-102	JUNCTION BOX		
C007	1	0.75"	THHN	2	#14	-	JUNCTION BOX	FWP-102		
C008	1	0.75"	THHN	2	#14	-	JUNCTION BOX	PSH-102		
C009	1	1"	THHN	14	#14	-	RTU	VFD-RWP-103		
C010	1	0.75"	THHN	4	#14	-	VFD-RWP-103	JUNCTION BOX		
C011	1	0.75"	THHN	2	#14	-	JUNCTION BOX	FWP-103		
C012	1	0.75"	THHN	2	#14	-	JUNCTION BOX	PSH-103		
C013	1	1"	THHN	14	#14	-	RTU	VFD-RWP-104		
C014	1	0.75"	THHN	4	#14	-	VFD-RWP-104	JUNCTION BOX		
C015	1	0.75"	THHN	2	#14	-	JUNCTION BOX	FWP-104		
C016	1	0.75"	THHN	2	#14	-	JUNCTION BOX	PSH-104		
C017	1	1"	THHN	14	#14	-	RTU	VFD-FWP-201		
C018	1	0.75"	THHN	4	#14	-	VFD-FWP-201	JUNCTION BOX		
C019	1	0.75"	THHN	2	#14	-	JUNCTION BOX	FWP-201		
C020	1	0.75"	THHN	2	#14	-	JUNCTION BOX	PSH-201		
C021	1	1"	THHN	14	#14	-	RTU	VFD-FWP-202		
C022	1	0.75"	THHN	4	#14	-	VFD-FWP-202	JUNCTION BOX		
C023	1	0.75"	THHN	2	#14	-	JUNCTION BOX	FWP-202		
C024	1	0.75"	THHN	2	#14	-	JUNCTION BOX	PSH-202		
C025	1	0.75"	THHN	2	#14	-	RTU	LAH-400		
C026	1	0.75"	THHN	8	#14	-	RTU	HYPO CHEM PUMP 1		
C027	1	0.75"	THHN	8	#14	-	RTU	HYPO CHEM PUMP 2		
C028	1	0.75"	THHN	8	#14	-	RTU	CHEMICAL PUMP 1		
C029	1	0.75"	THHN	8	#14	-	RTU	STANDBY GENERATOR		
C030	1	0.75"	THHN	2	#14	-	RTU	ATS		

SECURITY - CONDUIT AND CONDUCTOR SCHEDULE										
CONDUIT		CONDUCTOR / CABLES				SOURCE		DESTINATION		NOTES
NO.	#SET	SIZE	TYPE	#	SIZE	GND				
A001	1	0.75"	TSP	2	#18	-	RTU	VFD-RWP-101		
A002	1	0.75"	TSP	2	#18	-	RTU	VFD-RWP-102		
A003	1	0.75"	TSP	2	#18	-	RTU	VFD-RWP-103		
A004	1	0.75"	TSP	2	#18	-	RTU	VFD-RWP-104		
A005	1	0.75"	TSP	2	#18	-	RTU	VFD-FWP-201		
A006	1	0.75"	TSP	2	#18	-	RTU	VFD-FWP-202		
A007	1	0.75"	TSP	1	#18	-	RTU	PE/PIT-101		
A008	1	0.75"	TSP	1	#18	-	RTU	FIT-101	MANUFACTURE CABLE	
A009	1	0.75"	TSP	1	#18	-	RTU	FIT-102	MANUFACTURE CABLE	
A010	1	0.75"	TSP	1	#18	-	RTU	FIT-103	MANUFACTURE CABLE	
A011	1	0.75"	TSP	1	#18	-	RTU	FIT-104	MANUFACTURE CABLE	
A012	1	0.75"	TSP	1	#18	-	RTU	FE/FIT-105	MANUFACTURE CABLE	
A013	1	0.75"	TSP	1	#18	-	RTU	FE/FIT-201	MANUFACTURE CABLE	
A014	1	0.75"	TSP	1	#18	-	RTU	PDIT-102	MANUFACTURE CABLE	
A015	1	0.75"	TSP	1	#18	-	RTU	PE-102A	MANUFACTURE CABLE	
A016	1	0.75"	TSP	1	#18	-	RTU	PE-102B	MANUFACTURE CABLE	
A017	1	0.75"	TSP	1	#18	-	RTU	AE/AIT-101	MANUFACTURE CABLE	
A018	1	0.75"	TSP	1	#18	-	RTU	AE/AIT-102	MANUFACTURE CABLE	
A019	1	0.75"	TSP	1	#18	-	RTU	AE/AIT-103	MANUFACTURE CABLE	
A020	1	0.75"	TSP	1	#18	-	RTU	LIT-201	MANUFACTURE CABLE	
A021	1	0.75"	TSP	1	#18	-	RTU	LIT-202	MANUFACTURE CABLE	
A022	1	0.75"	TSP	1	#18	-	RTU	HYPO PUMP 1		
A023	1	0.75"	TSP	1	#18	-	RTU	HYPO PUMP 2		
A024	1	0.75"	TSP	1	#18	-	RTU	CHEMICAL PUMP 1		

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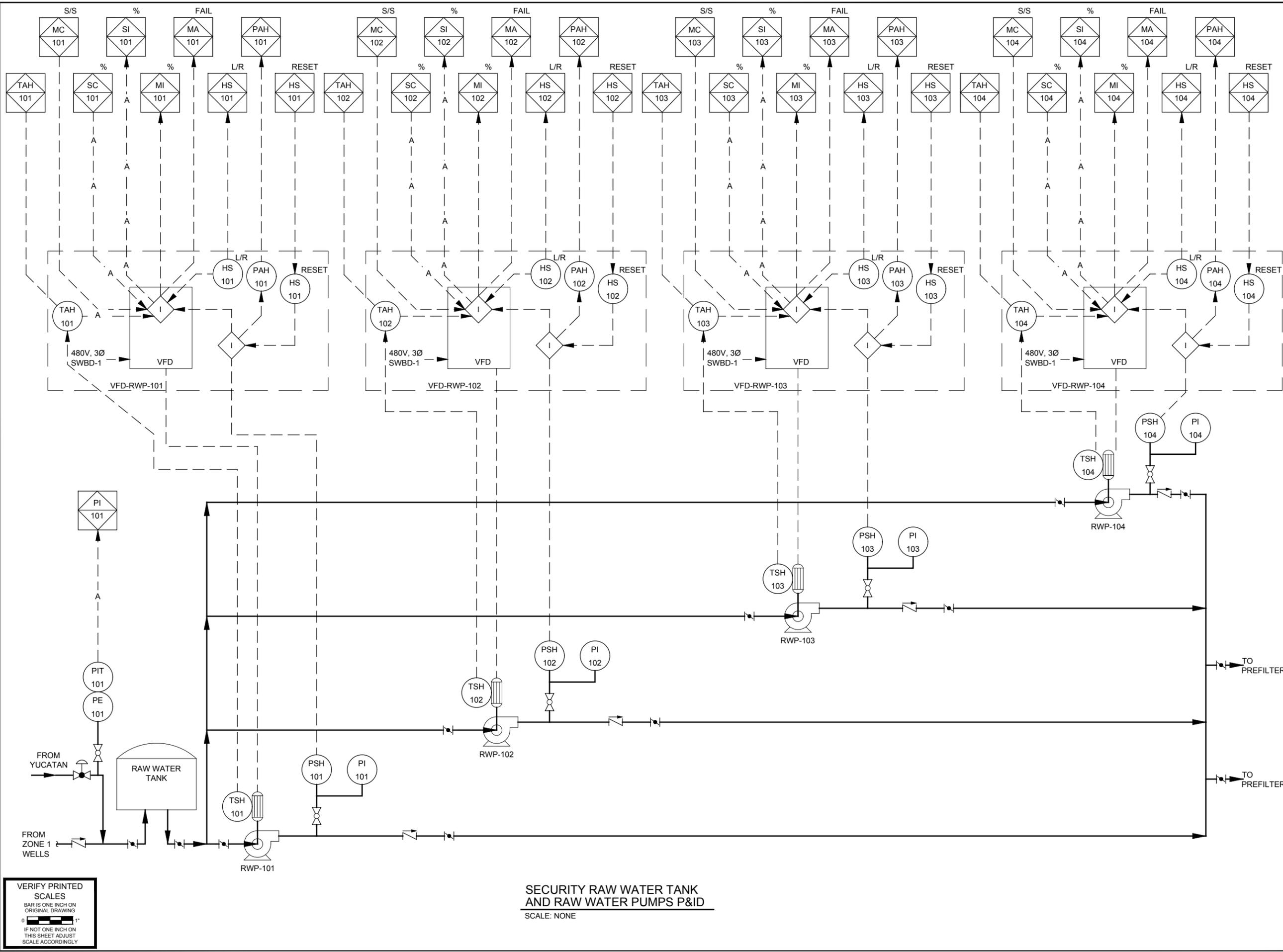
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PROJECT NUMBER
 Project Number: 60589841

SHEET TITLE
 PLC CONNECTION SCHEMATIC

SHEET NUMBER
 I-203

ANSI D 22' x 34'



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SHEET TITLE
PIPING AND INSTRUMENTATION DIAGRAM I

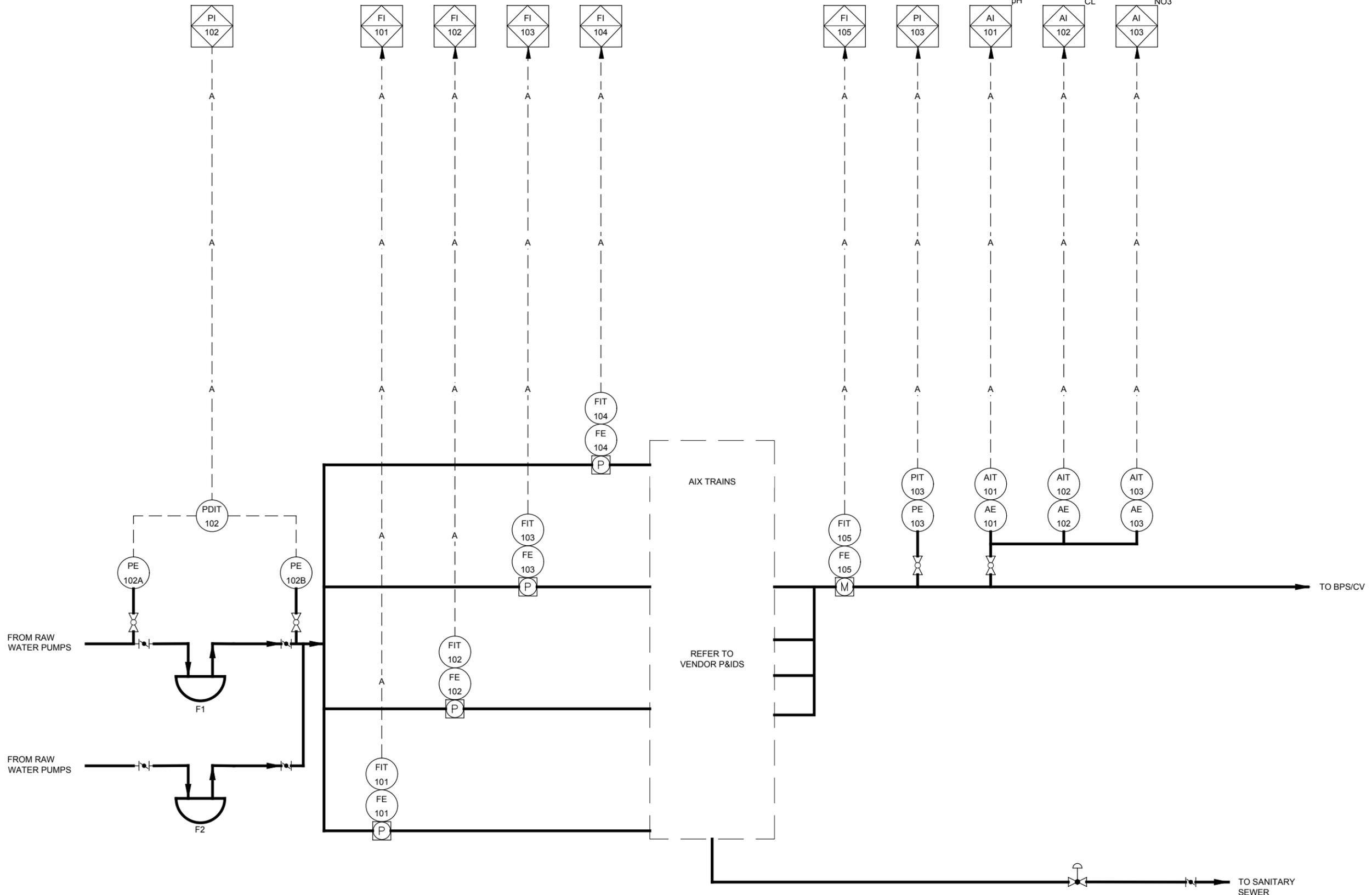
SHEET NUMBER
I-204

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

SECURITY RAW WATER TANK AND RAW WATER PUMPS P&ID
SCALE: NONE

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



SECURITY AIX TRAINS P&ID
 SCALE: NONE



URS Group, Inc.
 An AECOM Company

PROJECT
PFOS / PFOA DRINKING WATER MITIGATION SYSTEM

Security Water District (SWD)

CLIENT
USACE Omaha District
 1616 Capital Ave.
 Omaha, NE 68102

CONSULTANT
 URS Group, Inc.
 12120 Shamrock Plaza
 Omaha, NE 68154
 T +1 (402) 334 8181. F +1 (402) 334 1984

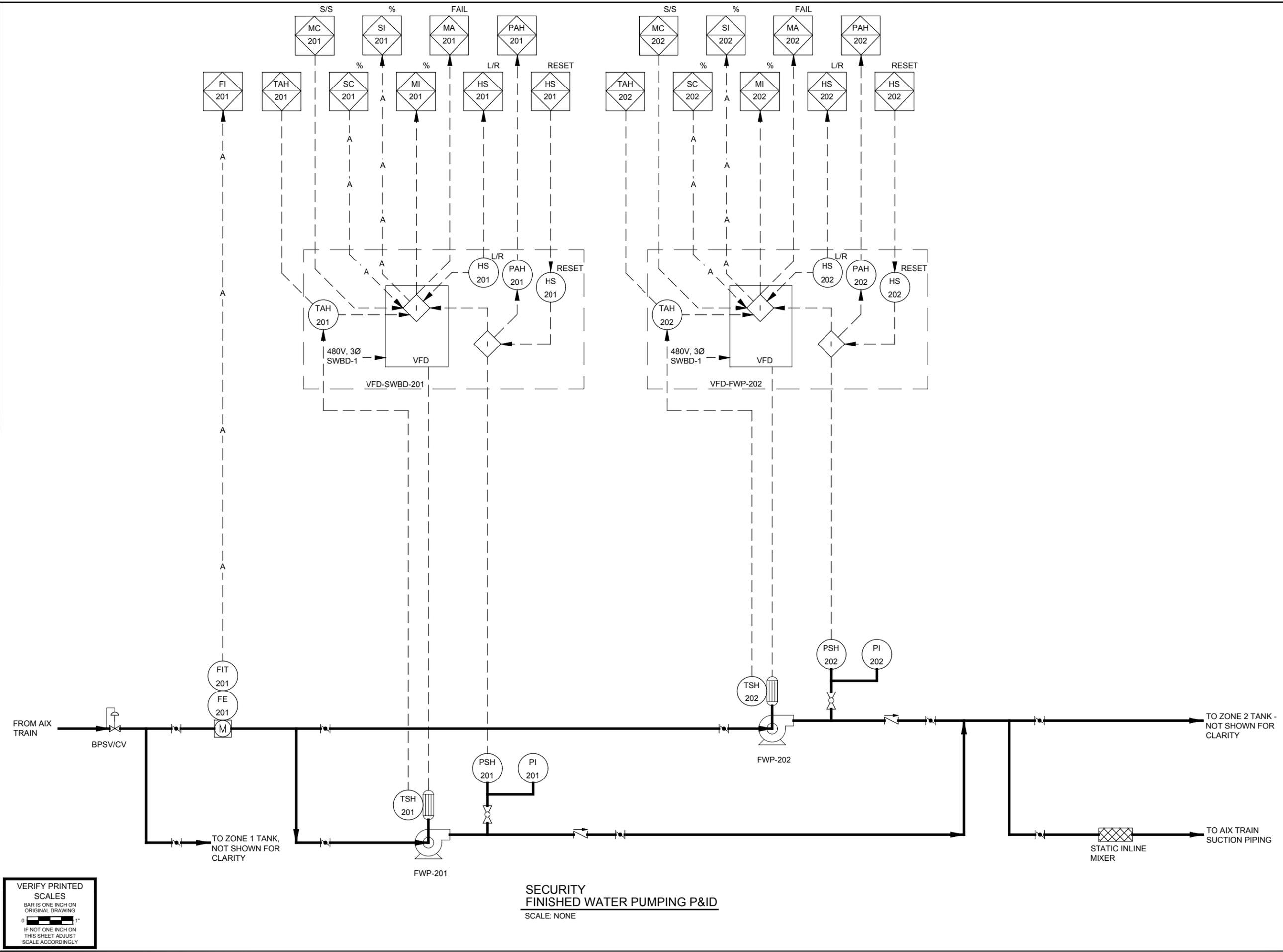
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 Project Number: 60589841

SHEET TITLE
 PIPING AND INSTRUMENTATION DIAGRAM II

SHEET NUMBER
 I-205



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

SECURITY FINISHED WATER PUMPING P&ID
 SCALE: NONE



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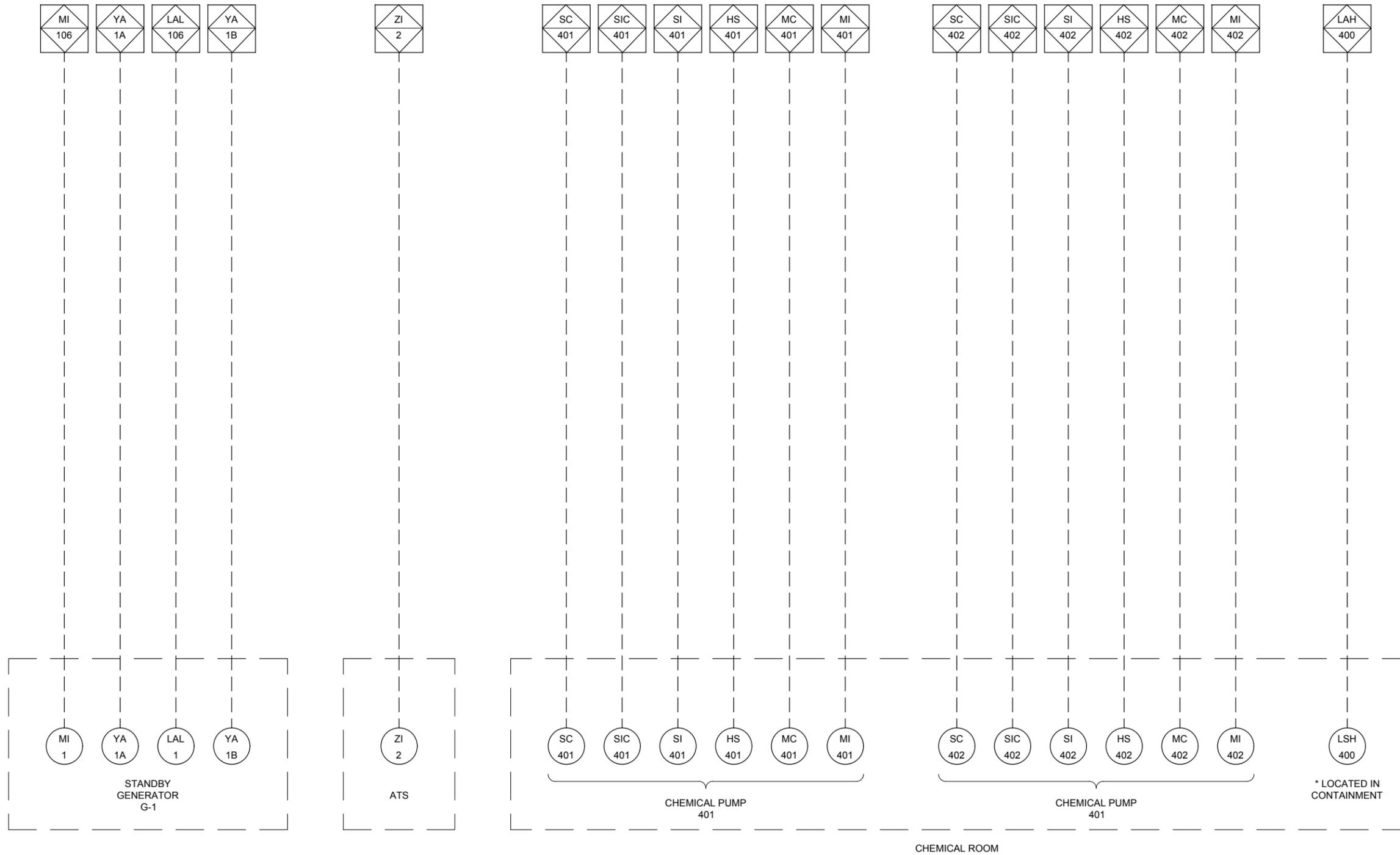
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SHEET TITLE
 PIPING AND INSTRUMENTATION DIAGRAM III

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 I-206



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SHEET TITLE
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 I-207