

WATER RECLAMATION FACILITY

FOR THE CITY OF:
MORRO BAY, CA

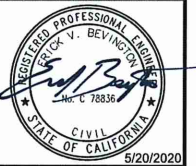
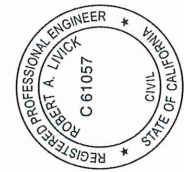
PREPARED BY:
JOINT VENTURE



APPROVED FOR CONSTRUCTION
IFC Effective Date: 20 May 2021

11 January 2021

Rob Livick
Rob Livick, PE/PLS - City Engineer
City of Morro Bay



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

EXISTING MORRO BAY-CAYUCOS
WASTEWATER TREATMENT PLANT

PROPOSED MORRO BAY WATER
RECLAMATION FACILITY PARCEL



CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
COVER SHEET

DESIGNED: EVB, KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530

00-G-001
SHEET
1 OF 412

NO.	DATE	REVISIONS AND RECORD OF USE	BY	CHK	APP
0	5/19/2020	ISSUED FOR CONSTRUCTION	KEZ	EVB	EVB

GENERAL SHEET NO.	DRAWING NO.	DESCRIPTION
1	00-G-001	GENERAL; COVER SHEET
2	00-G-002	GENERAL; SHEET LIST 1
3	00-G-003	GENERAL; SHEET LIST 2
4	00-G-004	GENERAL; ABBREVIATIONS
5	00-G-005	GENERAL; LEGEND
6	00-G-006	GENERAL; PROCESS SCHEMATIC
7	00-G-007	GENERAL; HYDRAULIC PROFILES
8	00-G-008	GENERAL; CODE CLASSIFICATION TABLE
9	00-G-009	GENERAL; GENERAL NOTES 1

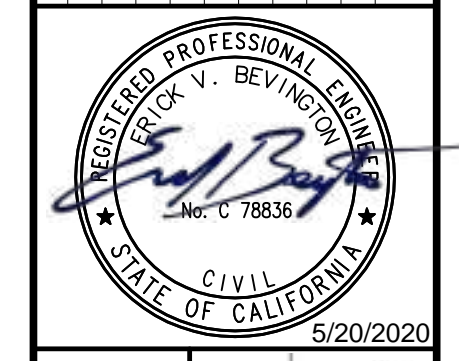
CIVIL SHEET NO.	DRAWING NO.	DESCRIPTION
10	10-C-001	SITE OVERALL; EXISTING SITE GRADE AND FEATURES - SEE IFC EARLY WORKS PACKAGE
11	10-C-002	SITE OVERALL; SITE PREPARATION FINISHED GRADE OVERVIEW - SEE IFC EARLY WORKS PACKAGE
12	10-C-003	SITE OVERALL; DEPTH FROM EXISTING GRADE TO BEDROCK - SEE IFC EARLY WORKS PACKAGE
13	10-C-004	SITE OVERALL; DEPTH FROM SITE PREP GRADE TO BEDROCK - SEE IFC EARLY WORKS PACKAGE
14	10-C-005	SITE OVERALL; DEPTH FROM SITE PREP GRADE TO EXISTING GRADE - SEE IFC EARLY WORKS PACKAGE
15	10-C-006	SITE OVERALL; SITE PREPARATION GRADING AND DRAINAGE KEY PLAN - SEE IFC EARLY WORKS PACKAGE
16	10-C-101	SITE - AREA 1; SITE PREPARATION GRADING AND DRAINAGE PLAN - SEE IFC EARLY WORKS PACKAGE
17	10-C-102	SITE - AREA 2; SITE PREPARATION GRADING AND DRAINAGE PLAN - SEE IFC EARLY WORKS PACKAGE
18	10-C-103	SITE - AREA 3; SITE PREPARATION GRADING AND DRAINAGE PLAN - SEE IFC EARLY WORKS PACKAGE
19	10-C-104	SITE - AREA 4; SITE PREPARATION GRADING AND DRAINAGE PLAN - SEE IFC EARLY WORKS PACKAGE
20	10-C-105	SITE OVERALL; DRAINAGE SWALES PLAN AND PROFILES - SEE IFC EARLY WORKS PACKAGE
21	10-C-301	SITE OVERALL; SITE PREP SECTIONS 1 - SEE IFC EARLY WORKS PACKAGE
22	10-C-302	SITE OVERALL; SITE PREP SECTIONS 2 - SEE IFC EARLY WORKS PACKAGE
23	10-C-501	SITE OVERALL; SITE PREP GRADING AND DRAINAGE DETAILS 1 - SEE IFC EARLY WORKS PACKAGE
24	10-C-502	SITE OVERALL; SITE PREP GRADING AND DRAINAGE DETAILS 2 - SEE IFC EARLY WORKS PACKAGE
25	10-C-603	SITE OVERALL; SITE PREP DETAILS - SEE IFC EARLY WORKS PACKAGE
26	10-C-601	SITE OVERALL; SITE PREP COORDINATE TABLES - SEE IFC EARLY WORKS PACKAGE
27	11-C-001	SITE OVERALL; GRADING AND PAVING KEY PLAN
28	11-C-002	SITE OVERALL; GRADING AND PAVING OVERVIEW
29	11-C-101	SITE - ACCESS ROAD AREA; GRADING AND PAVING PLAN
30	11-C-102	SITE - SOUTH OPERATIONS AREA; GRADING AND PAVING PLAN
31	11-C-103	SITE - NORTH OPERATIONS AREA; GRADING AND PAVING PLAN
32	11-C-104	SITE - SOUTH PROCESS AREA; GRADING AND PAVING PLAN
33	11-C-105	SITE - NORTH PROCESS AREA; GRADING AND PAVING PLAN
34	11-C-601	SITE OVERALL; COORDINATE TABLES 1
35	11-C-602	SITE OVERALL; COORDINATE TABLES 2
36	12-C-001	SITE OVERALL; PIPING KEY PLAN - SEE IFC YARD PIPING PACKAGE
37	12-C-101	SITE NORTH TERESA ROAD AREA; PIPE INTERCONNECTION - SEE IFC YARD PIPING PACKAGE
38	12-C-102	SITE SOUTH OPERATIONS AREA; PIPING PLAN - SEE IFC YARD PIPING PACKAGE
39	12-C-103	SITE NORTH OPERATIONS AREA; PIPING PLAN - SEE IFC YARD PIPING PACKAGE
40	12-C-104	SITE SOUTH PROCESS AREA; PIPING PLAN - SEE IFC YARD PIPING PACKAGE
41	12-C-105	SITE NORTH PROCESS AREA; PIPING PLAN - SEE IFC YARD PIPING PACKAGE
42	12-C-301	SITE OVERALL; PIPING SECTIONS AND DETAILS - SEE IFC YARD PIPING PACKAGE
43	12-C-501	SITE OVERALL; PIPING DETAILS - SEE IFC YARD PIPING PACKAGE
44	12-C-502	SITE OVERALL; PIPING DETAILS - SEE IFC YARD PIPING PACKAGE
45	12-C-503	SITE LIFT STATION; PLAN AND SECTION - SEE IFC YARD PIPING PACKAGE
46	12-C-601	SITE OVERALL; HORIZONTAL ALIGNMENT TABLES 1 - SEE IFC YARD PIPING PACKAGE
47	12-C-602	SITE OVERALL; HORIZONTAL ALIGNMENT TABLES 2 - SEE IFC YARD PIPING PACKAGE
48	12-C-603	SITE OVERALL; PIPE FITTING TABLES 1 - SEE IFC YARD PIPING PACKAGE
49	12-C-604	SITE OVERALL; PIPE FITTING TABLES 2 - SEE IFC YARD PIPING PACKAGE
50	12-C-605	SITE OVERALL; PIPE FITTING, MANHOLES, AND CHEMICAL HANDHOLE TABLES - SEE IFC YARD PIPING PACKAGE
51	12-C-606	SITE OVERALL; VERTICAL CURVE TABLES 1 - SEE IFC YARD PIPING PACKAGE
52	12-C-607	SITE OVERALL; VERTICAL CURVE TABLES 2 - SEE IFC YARD PIPING PACKAGE
53	12-C-608	SITE OVERALL; VERTICAL CURVE TABLES 3 - SEE IFC YARD PIPING PACKAGE
54	12-C-609	SITE OVERALL; VERTICAL CURVE TABLES 4 - SEE IFC YARD PIPING PACKAGE
55	12-C-610	SITE OVERALL; VERTICAL CURVE TABLES 5 - SEE IFC YARD PIPING PACKAGE

LANDSCAPE SHEET NO.	DRAWING NO.	DESCRIPTION
10-L-001	SITE OVERALL; LANDSCAPING COVER SHEET - FORTHCOMING	
10-L-101	SITE - SOUTH OPERATIONS AREA; LANDSCAPING PLAN - FORTHCOMING	
10-L-102	SITE - NORTH OPERATIONS AREA; LANDSCAPING PLAN - FORTHCOMING	
10-L-103	SITE - SOUTH PROCESS AREA; LANDSCAPING PLAN - FORTHCOMING	
10-L-104	SITE - NORTH PROCESS AREA; LANDSCAPING PLAN - FORTHCOMING	
10-L-301	SITE OVERALL; LANDSCAPING DETAILS - FORTHCOMING	
11-L-111	SITE - SOUTH OPERATIONS AREA; IRRIGATION PLAN - FORTHCOMING	
11-L-112	SITE - NORTH OPERATIONS AREA; IRRIGATION PLAN - FORTHCOMING	
11-L-113	SITE - SOUTH PROCESS AREA; IRRIGATION PLAN - FORTHCOMING	
11-L-114	SITE - NORTH PROCESS AREA; IRRIGATION PLAN - FORTHCOMING	
11-L-511	SITE OVERALL; IRRIGATION DETAILS - FORTHCOMING	
11-L-512	SITE OVERALL; IRRIGATION DETAILS - FORTHCOMING	

CIVIL MECHANICAL SHEET NO.	DRAWING NO.	DESCRIPTION
10	00-M-500	GENERAL; CIVIL MECHANICAL LEGENDS AND NOTES
20	00-M-501	GENERAL; CIVIL MECHANICAL DETAILS
21	00-M-502	GENERAL; CIVIL MECHANICAL DETAILS
22	00-M-503	GENERAL; CIVIL MECHANICAL DETAILS
23	00-M-504	GENERAL; CIVIL MECHANICAL DETAILS
24	00-M-505	GENERAL; CIVIL MECHANICAL DETAILS
25	00-M-506	GENERAL; CIVIL MECHANICAL DETAILS
26	00-M-507	GENERAL; CIVIL MECHANICAL DETAILS
27	00-M-508	GENERAL; CIVIL MECHANICAL DETAILS
28	00-M-509	GENERAL; CIVIL MECHANICAL DETAILS
29	00-M-510	GENERAL; CIVIL MECHANICAL DETAILS
30	00-M-511	GENERAL; CIVIL MECHANICAL DETAILS
31	00-M-512	GENERAL; CIVIL MECHANICAL DETAILS
32	00-M-513	GENERAL; CIVIL MECHANICAL DETAILS
33	00-M-514	GENERAL; CIVIL MECHANICAL DETAILS
34	00-M-515	GENERAL; CIVIL MECHANICAL DETAILS
35	00-M-601	PIPE SUPPORT DETAILS 1
36	00-M-602	PIPE SUPPORT DETAILS 2
37	00-M-603	PIPE SUPPORT DETAILS 3
38	20-M-001	HEADWORKS AREA OVERALL; 3D VIEWS
39	20-M-101	HEADWORKS AREA OVERALL; OPERATING LEVEL PLAN
40	20-M-301	HEADWORKS AREA OVERALL; SECTIONS
41	21-M-101	HEADWORKS AREA HEADWORKS; PLAN
42	22-M-101	HEADWORKS AREA FINE SCREENS; PLAN
43	22-M-301	HEADWORKS AREA FINE SCREENS; SECTIONS AND DETAILS 1
44	23-M-101	HEADWORKS AREA ODOR CONTROL; PLAN, SECTIONS, AND DETAILS
45	30-M-001	TREATMENT AREA OVERALL; 3D VIEWS
46	30-M-101	TREATMENT AREA OVERALL; OPERATING LEVEL PLAN
47	30-M-301	TREATMENT AREA OVERALL; SECTIONS
48	31-M-101	TREATMENT AREA BNR BASINS; UPPER LEVEL PLAN
49	31-M-102	TREATMENT AREA BNR BASINS; MIDDLE LEVEL PLAN
50	31-M-103	TREATMENT AREA BNR BASINS; LOWER LEVEL PLAN
51	31-M-301	TREATMENT AREA BNR BASINS; SECTIONS AND DETAILS 1
52	32-M-101	TREATMENT AREA MBR SYSTEM; UPPER LEVEL PLAN
53	32-M-102	TREATMENT AREA MBR SYSTEM; LOWER LEVEL PLAN
54	32-M-301	TREATMENT AREA MBR SYSTEM; SECTIONS
55	33-M-101	TREATMENT AREA RO FEED TANKS; OPERATING LEVEL PLAN AND SECTIONS
56	34-M-101	TREATMENT AREA RECYCLED WATER PUMP; OPERATING LEVEL PLAN AND SECTIONS
57	50-M-001	RO/UV BUILDING OVERALL; 3D VIEWS
58	50-M-101	RO/UV BUILDING OVERALL; OPERATING LEVEL PLAN
59	50-M-301	RO/UV BUILDING OVERALL; SECTIONS
60	51-M-101	RO/UV BUILDING RO SYSTEM; MEMBRANE RACKS PLAN
61	51-M-102	RO/UV BUILDING RO SYSTEM; DIP & FLUSH SYSTEMS PLAN
62	51-M-301	RO/UV BUILDING RO SYSTEM; SECTIONS AND DETAILS 1
63	51-M-302	RO/UV BUILDING RO SYSTEM; SECTIONS AND DETAILS 2
64	52-M-101	RO/UV BUILDING UV SYSTEM; REACTOR SYSTEM PLAN
65	52-M-301	RO/UV BUILDING UV SYSTEM; SECTIONS AND DETAILS 1
66	60-M-001	PRODUCT WATER AREA OVERALL; 3D VIEWS
67	60-M-101	PRODUCT WATER AREA OVERALL; OPERATING LEVEL PLAN
68	61-M-101	PRODUCT WATER AREA CALCITE CONTACTOR; PLAN
69	61-M-301	PRODUCT WATER AREA CALCITE CONTACTOR; SECTIONS AND DETAILS
70	62-M-101	PRODUCT WATER AREA PRODUCT WATER STORAGE TANK; PLAN, SECTIONS, AND DETAILS
71	63-M-101	PRODUCT WATER AREA IPR PRODUCT WATER PUMP STATION; PLAN
72	63-M-301	PRODUCT WATER AREA IPR PRODUCT WATER PUMP STATION; SECTIONS & DETAILS 1
73	64-M-101	PRODUCT WATER AREA OUTFALL PUMP STATION; PLAN
74	64-M-301	PRODUCT WATER AREA OUTFALL PUMP STATION; SECTIONS & DETAILS 1
75	65-M-102	PRODUCT WATER AREA DECHLORINATION FACILITY; PLAN, SECTIONS, AND DETAILS
76	70-M-001	RESIDUALS AREA OVERALL; 3D VIEWS
77	71-M-101	RESIDUALS AREA SLUDGE HOLDING AND SAFE SETTLE TANKS; OPERATING LEVEL PLAN
78	71-M-301	RESIDUALS AREA SLUDGE HOLDING AND SAFE SETTLE TANKS; SECTIONS & DETAILS 1
79	72-M-101	RESIDUALS AREA DEWATERING FACILITY; PLAN
80	72-M-301	RESIDUALS AREA DEWATERING FACILITY; SECTIONS & DETAILS 1
81	73-M-101	RESIDUALS AREA SAFE FILTER SYSTEM; PLAN, SECTIONS, & DETAILS
82	80-M-101	ELECTRICAL BUILDING OVERALL; PLAN AND SECTIONS
83	90-M-001	CHEMICAL FACILITY OVERALL; 3D VIEWS
84	90-M-101	CHEMICAL FACILITY OVERALL; PLAN
85	90-M-301	CHEMICAL FACILITY OVERALL; SECTIONS AND DETAILS 1

PROCESS AND INSTRUMENTATION SHEET NO.	DRAWING NO.	DESCRIPTION
95	90-I-001	PAID - LEGEND AND ABBREVIATIONS - SHEET 1
96	90-I-002	PAID - LEGEND AND ABBREVIATIONS - SHEET 2
97	90-I-003	PAID - LEGEND AND ABBREVIATIONS - SHEET 3
98	90-I-501	INSTALLATION DETAILS 1
99	90-I-502	INSTALLATION DETAILS 2
100	90-I-503	INSTALLATION DETAILS 3
101	90-I-504	INSTALLATION DETAILS 4
102	90-I-505	WATER QUALITY STATION DETAIL
103	90-I-701	OVERALL FIBER OPTIC NETWORK DIAGRAM
104	90-I-702	PLANT CONTROL SYSTEM NETWORK DIAGRAM
105	90-I-703	WIRELESS NETWORK DIAGRAM
106	90-I-704	OFFICE NETWORK AND TELEPHONE SYSTEM DIAGRAM
107	90-I-705	SECURITY DIAGRAM
108	91-I-001	HEADWORKS AREA - HEADWORKS; TRAIN 1
109	91-I-002	HEADWORKS AREA - HEADWORKS; TRAIN 2
110	91-I-001	HEADWORKS AREA - INFL. SCREENS; SPILL DIVERSION DUCK & INFL. SCREENS
111	91-I-001	HEADWORKS AREA - ODOR CONTROL; ODOR CONTROL SYSTEM
112	91-I-001	TREATMENT AREA - BNR BASINS; BASIN 1 & BAS DFOX
113	91-I-001	TREATMENT AREA - BNR BASINS; BASIN 2
114	91-I-003	TREATMENT AREA - MBR BASINS; WAS SYSTEM
115	91-I-004	TREATMENT AREA - BNR BASINS; PROCESS AIR BLOWERS
116	91-I-001	TREATMENT AREA - MBR SYSTEM; MEMBRANE BASIN 1
117	91-I-002	TREATMENT AREA - MBR SYSTEM; MEMBRANE BASIN 2
118	91-I-006	TREATMENT AREA - MBR SYSTEM; FILTRATE MANIFOLD
119	91-I-006	TREATMENT AREA - MBR SYSTEM; MBR SCOUR AIR BLOWERS
120	91-I-007	TREATMENT AREA - MBR SYSTEM; TANK DRAIN PUMP
121	91-I-008	TREATMENT AREA - MBR SYSTEM; AIR COMPRESSOR
122	91-I-001	TREATMENT AREA - RO FEED TANKS; RO FEED TANKS
123	91-I-001	TREATMENT AREA - PLAN; RECYCLED WATER PUMP STATION; PLAN; RECYCLED WATER PUMPS
124	91-I-001	RO/UV BUILDING - RO SYSTEM; RO FILLED CONDITIONING SYSTEM
125	91-I-002	RO/UV BUILDING - RO SYSTEM; RO CARTRIDGE FILTERS
126	91-I-003	RO/UV BUILDING - RO SYSTEM; RO UNIT 1
127	91-I-004	RO/UV BUILDING - RO SYSTEM; RO UNIT 2
128	91-I-005	RO/UV BUILDING - RO SYSTEM; RO UNIT 3
129	91-I-006	RO/UV BUILDING - RO SYSTEM; RO PERMEATE/CONCENTRATE, UNIT 1
130	91-I-007	RO/UV BUILDING - RO SYSTEM; RO PERMEATE/CONCENTRATE, UNIT 2
131	91-I-008	RO/UV BUILDING - RO SYSTEM; RO PERMEATE/CONCENTRATE, UNIT 3
132	91-I-010	RO/UV BUILDING - RO SYSTEM; RO CIP TANKS
133	91-I-011	RO/UV BUILDING - RO SYSTEM; RO FLUSH SYSTEM
134	91-I-001	RO/UV BUILDING - UV SYSTEM; UV/PAH SYSTEM
135	61-I-001	HYDROLYSIS AREA CALCITE CONTACTOR; CALCITE REGENERATION SYSTEM
136	62-I-001	PRODUCT WATER AREA - IPR PRODUCT WATER; IPR PRODUCT WATER STORAGE TANK
137	63-I-001	PRODUCT WATER AREA - IPR PRODUCT WATER; IPR PRODUCT WATER PUMPS
138	64-I-001	PRODUCT WATER AREA - OUTFALL PUMP STATION; OUTFALL TANK & PUMPS
139	65-I-001	PRODUCT WATER AREA - DISINFECTION SYSTEM; OUTFALL DISINFECTION SYSTEM
140	71-I-001	RESIDUALS AREA - SLUDGE & SAFE SETTLE TANKS; SLUDGE HOLDING TANKS
141	71-I-002	RESIDUALS AREA - SLUDGE & SAFE SETTLE TANKS; SAFE SETTLE SYSTEM
142	71-I-003	RESIDUALS AREA - SLUDGE & SAFE SETTLE TANKS; SLUDGE HOLDING TANKS
143	71-I-004	RESIDUALS AREA - DEWATERING SYSTEM; DEWATERING SLUDGE FEED PUMPS
144	72-I-002	RESIDUALS AREA - DEWATERING SYSTEM; BELT FILTER PRESS
145	73-I-001	RESIDUALS AREA - SAFE FILTER SYSTEM; SAFE SYSTEM
146	81-I-001	MISCELLANEOUS - GENERATOR; GENERATOR SYSTEM
147	81-I-002	MISCELLANEOUS - GENERATOR; SWITCHGEAR & MISC.
148	90-I-001	CHEMICALS - CHEMICAL FACILITY; SODIUM HYPOCHLORITE STORAGE & FEED 1
149	90-I-002	CHEMICALS - CHEMICAL FACILITY; SODIUM HYPOCHLORITE STORAGE & FEED 2
150	90-I-003	CHEMICALS - CHEMICAL FACILITY; SODIUM BISULFITE STORAGE & FEED
151	90-I-004	CHEMICALS - CHEMICAL FACILITY; ANTISCALANT STORAGE & FEED
152	90-I-005	CHEMICALS - CHEMICAL FACILITY; CITRIC ACID STORAGE & FEED
153	90-I-006	CHEMICALS - CHEMICAL FACILITY; SULFURIC ACID STORAGE & FEED
154	90-I-007	CHEMICALS - CHEMICAL FACILITY; THICKENING POLYMER STORAGE & FEED
155	90-I-008	CHEMICALS - CHEMICAL FACILITY; THICKENING POLYMER STORAGE & FEED
156	90-I-009	CHEMICALS - CHEMICAL FACILITY; LIQUID AMMONIA STORAGE & FEED
157	95-I-001	SANITARY PUMPING SYSTEM

ISSUED FOR CONSTRUCTION	NO.	DATE
0	KEZ	5/19/2020
1	BY	
2	CHK	
3	APP	



BLACK & VEATCH
FILANC
JOINT VENTURE

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL SHEET LIST 1

DESIGNED: EVB, KEZ
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
00-G-002
 SHEET
 2 OF 412

STRUCTURAL

Table with columns: SHEET NO., DRAWING NO., DESCRIPTION. Lists structural drawings from 152 to 231.

ARCHITECTURAL

Table with columns: SHEET NO., DRAWING NO., DESCRIPTION. Lists architectural drawings from 232 to 317.

PLUMBING

Table with columns: SHEET NO., DRAWING NO., DESCRIPTION. Lists plumbing drawings from 318 to 332.

HYAC

Table with columns: SHEET NO., DRAWING NO., DESCRIPTION. Lists HYAC drawings from 333 to 346.

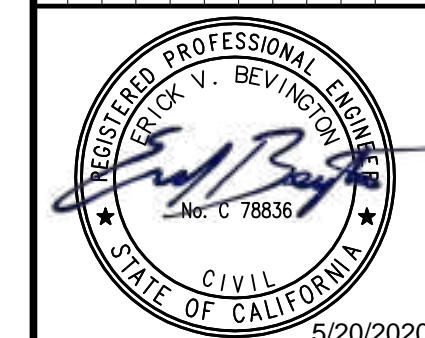
FIRE PROTECTION

Table with columns: SHEET NO., DRAWING NO., DESCRIPTION. Lists fire protection drawings from 347 to 350.

ELECTRICAL

Table with columns: SHEET NO., DRAWING NO., DESCRIPTION. Lists electrical drawings from 351 to 412.

Vertical table with columns: DATE, ISSUED FOR CONSTRUCTION, REVISIONS AND RECORD OF USE. Includes dates like 5/19/2020 and revision numbers.



Logos for BLACK & VEATCH, JOINT VENTURE, and FILANC.

Project title: CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) GENERAL SHEET LIST 2.

Design and check information: DESIGNED: EVB, KEZ; CHECKED: EVB; DATE: 5/19/2020; PROJECT NO. 400530; SHEET 3 OF 412.

A ACID, AMBER INDICATING LIGHT, AMP
AA AIR-AERATION
AC ALTERNATING CURRENT
AER AERATION SYSTEM
AIR PROCESS AIR
ALT ALTERNATE, (IVE)
ALUM ALUMINUM
AM AMP
AMP AMPERE
ANTI ANTISCALANT
AS AMMETER SWITCH
ATS AUTOMATIC TRANSFER SWITCH
AUTO AUTOMATIC
AWG AMERICAN WIRE GAUGE
AWS AERATED WAS
BLDG BUILDING
BNR BNR
C/L CENTERLINE
CA CITRIC ACID
CAKE DEWATERED CAKE SLUDGE
CAL CALCITE
CHANNEL PROCESS CHANNEL
CIP CAST IN PLACE
CIP CAST IRON PIPE
CIPR REVERSE OSMOSIS CIP RETURN
CIPS REVERSE OSMOSIS CIP SUPPLY
CLR CLEAR, (ANCE)
CMU CONCRETE MASONRY UNIT
COMB COMBINATION
CONC CONCRETE
CONST CONSTRUCTION
CONT CONTINUOUS, CONTINUATION, CONTROL
CP CONTROL PANEL
CS CONTROL SWITCH, CONTROL STATION, CUP SINK
CSK COUNTERSUNK, (INK)
CT CERAMIC TILE, CYCLE TIMER
CT CURRENT TRANSFORMER
CU CUBIC
CU YD CUBIC YARD
CW COLD, WATER
D DRAIN
DC DIRECT CURRENT
DEPT DEPARTMENT
DIA DIAMETER
DIF DIFFUSER
DIM DIMENSION
DIP DUCTILE IRON PIPE
DIV DIVISION
DMJ DOUBLE MECHANICAL JOINT
DO DISSOLVED OXYGEN
DR DRAIN
DRN DRAIN
DS DOWNSPOUT
DV DRAIN VALVE
DWG(S) DRAWING(S)
DWL(S) DWEL(S)
DWT DEWATERING
E EAST, ELECTRICAL
EA EACH
ECC ECCENTRIC
EF EACH FACE
EFF EFFLUENT
EL ELEVATION
ELEC ELECTRIC, (AL)
ELEV ELEVATION
EMER EMERGENCY
EQ EQUAL
EQUIP EQUIPMENT
EW EACH WAY
EXIST EXISTING
EXP EXPANSION, EXPOSED
EXP JT EXPANSION JOINT
EXT EXTENSION, EXTERIOR, EXTERNAL
F FIRE PROTECTION WATER SYSTEM
FA FOUL AIR
FBW FILTER BACKWASH
FC FLEXIBLE CONNECTION, FLOW CONTROL
FD FLOOR DRAIN
FDN FOUNDATION
FE FIRE EXTINGUISHER
FEC FIRE EXTINGUISHER CABINET
FF REVERSE OSMOSIS FORWARD FLUSH
FH FLAT HEAD, FIRE HYDRANT
FIG FIGURE
FIW FILTER INLET WASH
FL FLOOR, FLOW LINE
FLEX FLEXIBLE
FM FORCE MAIN
FO FUEL OIL
FOW FILTERED OUTLET WATER
FPW FIRE PROTECTION WATER
FRP FIBERGLASS REINFORCED PLASTIC
FS FAR SIDE, FLOOR SLEEVE, FLOAT SWITCH
FSCM FILTER SCUM
FT FOOT
FTG FOOTING
FUE DIESEL FUEL
FURN FURNISH, FURNISHED
FURN FORWARD
G GAS
GA GAUGE
GAL GALLON
GEN GENERATOR FUEL
GEN GENERAL, GENERATOR
GPM GALLONS PER MINUTE
GRT GRIT
GWB GYPSUM WALLBOARD
GYP GYPSUM
H HIGH, HOUR, HYDROGEN
HDR HEADER
HE HEAT EXCHANGER
HEX HEXAGONAL
HGT HEIGHT
HH HANDHOLE
HORIZ HORIZONTAL
HP HIGH POINT, HORSEPOWER
HR HOUR, HANDRAIL
HS HIGH STRENGTH
HSO4 SULFURIC ACID
HV HOSE VALVE
HVAC HEATING, VENTILATING AND AIR CONDITIONING
HW HOT WATER

I INDICATOR
IA INSTRUMENT AIR
IF INSIDE FACE
IN INCHES
INC INCORPORATED
INV INVERT
IPR INDIRECT POTABLE REUSE WATER
JB JUNCTION BOX
IPS IRON PIPE SIZE
JT JOINT
K KIPS
KV KILOVOLT
KVA KILOVOLT AMPERE
KW KILOWATT
KWH KILOWATT HOUR
L LOUVER
LAB LABORATORY
LAT LEAVING AIR TEMPERATURE
LAT LATERAL
LB(S) POUNDS
LG LENGTH, LONG
LO LOUVER OPENING
LS LEVEL SWITCH
LT LEFT, LAB TABLE
MA MILLIAMPERE
MAX MAXIMUM
MCC MOTOR CONTROL CENTER
MECH MECHANICAL
MEM MEMBRANE
MFP MICROFILTRATION FILTRATE
MFR(S) MANUFACTURER(S)
MG MILLION GALLONS
MGD MILLION GALLONS PER DAY
MH MANHOLE
MIN MINIMUM, MINUTE
MISC MISCELLANEOUS
MJ MECHANICAL JOINT
ML MIXED LIQUOR
MP METERING PUMP
MS MACHINE SCREW
MSL MEAN SEA LEVEL
MTD MOUNTED
MTL MATERIAL
N NORTH
N/A NOT APPLICABLE
N.O. NORMALLY OPEN
NACL SODIUM HYPOCHLORITE
NAOH SODIUM HYDROXIDE
NC NORMALLY CLOSED
NEUT NEUTRAL
NF NEAR FACE
NHS SODIUM BISULFATE
NO.(S) NUMBER(S)
NOCL SODIUM HYPOCHLORITE
NPW NONPOTABLE WATER
NS NEAR SIDE
NTS NOT TO SCALE
OC ON CENTER, ODOR CONTROL
OD OUTSIDE DIAMETER
OF OUTSIDE FACE, OVERFLOW
OH OVERHEAD
OL OVERLOAD
OPER OPERATING
OZ OUNCE
PC POINT OF CURVE
PCC POINT OF COMPOUND CURVATURE
PCR REVERSE OSMOSIS PERMRATE
PD PLAN DIMENSION, SUMP PUMP DISCHARGE
PE PLAIN END
PG PRESSURE GAUGE
PI POINT OF INTERSECTION
PL PLATE
PLYWD PLYWOOD
POLF POLYMER
POLY POLYMER
POW PLANT OUTFALL WATER
PP POWER POLE
PR PAIR
PROJ PROJECTION
PRS PRESSURE REDUCING STATION
PRV POWER ROOF VENTILATOR
PRW PLANT RECYCLED WATER
PS PIPE SUPPORT
PSF POUNDS PER SQUARE FOOT
PSI POUNDS PER SQUARE INCH
PSW PLANT SERVICE WATER
PT POINT, POINT OF TANGENCY
PVC POLYVINYL CHLORIDE, POINT ON VERTICAL CURVE
PVCP POLYVINYL CHLORIDE PIPE
PVMT PAVEMENT
PW POTABLE WATER
R RADIUS, RISER
R / W RIGHT OF WAY
RAS RETURN ACTIVATED SLUDGE
RCW RECLAIMED WATER
RECIRC RECIRCULATING
RED REDUCER, REDUCING
REINF REINFORCING
REQD REQUIRED
REV REVERSED
RM ROOM
RO REVERSE OSMOSIS, ROUGH OPENING
ROF REVERSE OSMOSIS CONCENTRATE
ROF REVERSE OSMOSIS FEED
ROP REVERSE OSMOSIS PERMEATE
RPM REVOLUTIONS PER MINUTE
RS RAW SLUDGE, RAW SEWAGE, ROLLED STEEL
RT RIGHT

S SOUTH, SPEAKER
SA SULFURIC ACID
SAN SANITARY SEWER
SCM SCUM
SCR SCREENINGS
SEC SECOND
SECT SECTION
SH SHEET
SIM SIMILAR
SP SUMP PUMP
SPEC(S) SPECIFICATION(S)
SQ SQUARE
SS SANITARY SEWER, STAINLESS STEEL
ST STORM DRAIN
STD STANDARD
STL STEEL
STR STRUCTURAL
SV SHUTOFF VALVE
SYS SYSTEM
T THERMOSTAT, TREAD, TOTALIZER
T TRANSFORMER, TOP
T&B TOP AND BOTTOM
TEMP TEMPERATURE, TEMPORARY
THK THICK (NESS)
TI TOTALIZING INDICATOR, TEMPERATURE INDICATOR
TP TWISTED PAIR COUPLE, TOWEL PIN
TS TEMPERATURE SWITCH
TW TREATED WATER, TEMPERED OR BLENDED WATER
TYP TYPICAL
UH UNIT HEATER
UNO UNLESS NOTED OTHERWISE
UV ULTRAVIOLET
UVE ULTRAVIOLET TREATMENT EFFLUENT
V VALVE, VOLT, VENT
VAC VACUUM
VBF VALVE, AWMA BUTTERFLY
VBI VALVE, INDUSTRIAL BUTTERFLY
VBL VALVE, BALL
VBM VALVE, BALL MISCELLANEOUS
VC VERTICAL CURVE, VICTAULIC COUPLING
VERT VERTICAL
W WEST, WIDE, WINDOW, WATT, WATER
W/ WITH
W/O WITHOUT
WAS WASTE ACTIVATED SLUDGE
WB WALL BOARD
WC WATER CLOSET
WD WOOD, WIDTH
WH WALL HYDRANT
WL WATER LEVEL
WM WATER METER, WATTMETER
WS WATERSTOP
WT WEIGHT
WW WETWELL
WWF WELDED WIRE FABRIC
WWR WASTEWATER-RAW
WWS WASTEWATER-SCREENED
x BY, TIMES
YH YARD HYDRANT
NUMBER
% PERCENT
& AND
@ AT
< DEFLECTION ANGLE



5/19/2020 ISSUED FOR CONSTRUCTION
0 KEZ RNF EVB
NO. BY
REVISIONS AND RECORD OF USE

DATE

BLACK & VEATCH
JOINT VENTURE
FILANC
BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

GENERAL
ABBREVIATIONS

DESIGNED: EVB, KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530

00-G-004
SHEET
4 OF 412

GENERAL LEGEND

	SURFACED STREET, ROAD OR DRIVE
	SURFACED STREET, ROAD OR DRIVE WITH CURBS
	NON-SURFACED STREET, ROAD OR DRIVE
	CONCRETE WALK
	CATCH BASIN
	MANHOLE
	DRAINAGE COURSE OR FLOW LINE
	EXISTING GROUND CONTOUR
	FINISH GRADE CONTOUR
	BANK OR SLOPE LINES
	TEST HOLE AND NUMBER
	SURVEY LINE WITH PI, PT, OR POT
	CONCRETE ENCASEMENT-PLAN
	CONCRETE REACTION BLOCKING AT BEND, PLUG OR TEE
	DRAINS OR CULVERTS
	TUNNEL CASING - PLAN
	EXISTING
	NEW
	NEW WATER LINE OR SEWER IN PROFILE
	NON-CONNECTING PIPING
	CONSTRUCTION EASEMENT LINE
	EASEMENT LINE
	RIGHT-OF-WAY LINE
	PROPERTY LINE
	PERMANENT EASEMENT LINE
	TEMPORARY EASEMENT LINE
	UTILITY EASEMENT LINE
	SURVEY LINE SECTION LINE
	WATER LINE
	GAS LINE
	TELEPHONE (UNDERGROUND)
	ELECTRICAL (UNDERGROUND)
	POWER OR TELEPHONE LINES (OVERHEAD)
	WATER OR GAS VALVE
	WATER OR GAS METER
	TELEPHONE OR POWER POLE WITH GUY ANCHOR
	FIRE HYDRANT
	YARD HYDRANT
	STREET LIGHT POLE
	TRAFFIC SIGNAL
	TRAFFIC SIGN
	STOP SIGN
	HEDGE, BRUSH, SHRUBS, WOODS
	DECIDUOUS TREE AND TRUNK DIAMETER
	CONIFEROUS TREE AND TRUNK DIAMETER
	SWAMP

	BUILDINGS, STRUCTURES
	STRUCTURES UNDERGROUND
	FUTURE BUILDINGS, STRUCTURES
	CLOTHES LINE
	SWING SET
	FENCE
	FENCE, WOOD
	RAILROAD, EACH TRACK
	CENTERLINE
	SECTION NUMBER OR DETAIL LETTER
	DOOR, WINDOW AND LOUVER SCHEDULE REFERENCE
	WALL ELEVATION
	ABBREVIATION
	SCHEDULE NUMBER
	ROOM NUMBER
	AREA DESIGNATION
	EQUIPMENT OR VALVE IDENTIFICATION CODE
	EQUIPMENT NUMBER
	EQUIPMENT REPRESENTATION WITH CALLOUT
	EXISTING FACILITY TO BE DEMOLISHED OR REMOVED

MATERIALS LEGEND

	EARTH OR GRADE
	GRANULAR FILL (CRUSHED ROCK OR GRAVEL)
	ROCK
	NEW CONCRETE
	EXISTING CONCRETE, PRECAST OR PRESTRESSED CONCRETE
	BRICK, FACE
	BRICK, COMMON
	CONCRETE MASONRY UNITS (CMU)
	CUT STONE OR SAND FILL, GROUT, MORTAR, AND PLASTER
	WOOD, SHEATHING, PANELING, DECKING, ETC.
	WOOD, STUDS, BEAMS, JOISTS, ETC.
	RIPRAP
	CHECKERED PLATE
	STEEL (FOR 1" SCALE & LARGER)
	STEEL OR ALUMINUM (FOR 3/4" SCALE & SMALLER)
	BAR GRATING (LINES IN DIRECTION OF SPAN)
	ALUMINUM
	INSULATION (BATT)
	INSULATION (RIGID)

PIPING SYSTEMS

	NEW PIPING
	UNDERGROUND PIPING
	EXISTING PIPING
	FUTURE PIPING

PIPING ACCESSORIES LEGEND

	BLIND FLANGE
	CAP OR PLUG
	CLEANOUT
	CROSS
	DIAPHRAGM SEAL
	ELBOW
	ELBOW DOWN
	ELBOW TURNING UP
	HOSE CONNECTION
	QUICK COUPLING
	REDUCER
	RUPTURE DISK
	TEE
	TEE LINE DOWN
	TEE LINE UP
	WYE
	WYE STRAINER
	WYE STRAINER WITH BLOWOFF
	DRAIN OR BELL-UP
	CALIBRATING COLUMN
	TRAP
	UNION
	WALL SLEEVE
	AUTOMATIC DRAIN TRAP
	DRIP TRAP
	DUPLEX STRAINER
	EXPANSION COMPENSATOR
	INLINE FILTER
	FLEXIBLE HOSE OR TUBING
	FLEXIBLE CONNECTOR
	HOSE REEL
	INJECTOR, EDUCTOR, BLENDER
	ORIFICE PLATE
	PIPE GUIDE
	SEDIMENT TRAP
	STRAINER
	SUCTION DIFFUSER
	PIPE DIFFUSER

VALVE LEGEND

	PINCH VALVE
	PLUG VALVE, ECCENTRIC
	PLUG VALVE, NON-ECCENTRIC
	BUTTERFLY VALVE
	GATE VALVE
	BALL VALVE
	GLOBE VALVE
	CHECK VALVE
	3 WAY VALVE
	4 WAY VALVE
	ANGLE VALVE
	CHLORINE INSTITUTE VALVE
	DIAPHRAGM VALVE
	THROTTLING VALVE
	FLAME ARRESTER OR CHECK
	BACKWATER VALVE
	INLINE PRESSURE RELIEF VALVE
	PRESSURE REGULATING VALVE
	PRESSURE SUSTAINING OR MAINTAINING VALVE
	VACUUM BREAKER

	SURGE CHAMBER
	VENT - SCREENED
	VENT
	PRESSURE GAUGE W/SNUBBER
	SIGHT FLOW INDICATOR
	TEMPERATURE INDICATOR
	THERMOMETER
	ELECTROMAGNETIC/ULTRASONIC FLOWMETER
	PITOT TUBE
	SIGHT FLOW INDICATOR
	TEMPERATURE INDICATOR
	THERMOMETER
	ELECTROMAGNETIC/ULTRASONIC FLOWMETER
	PITOT TUBE
	ROTAMETER
	TURBINE OR PROPELLOR FLOWMETER
	SET STOP METER
	VENTURI
	FLOW METER

MISCELLANEOUS EQUIPMENT

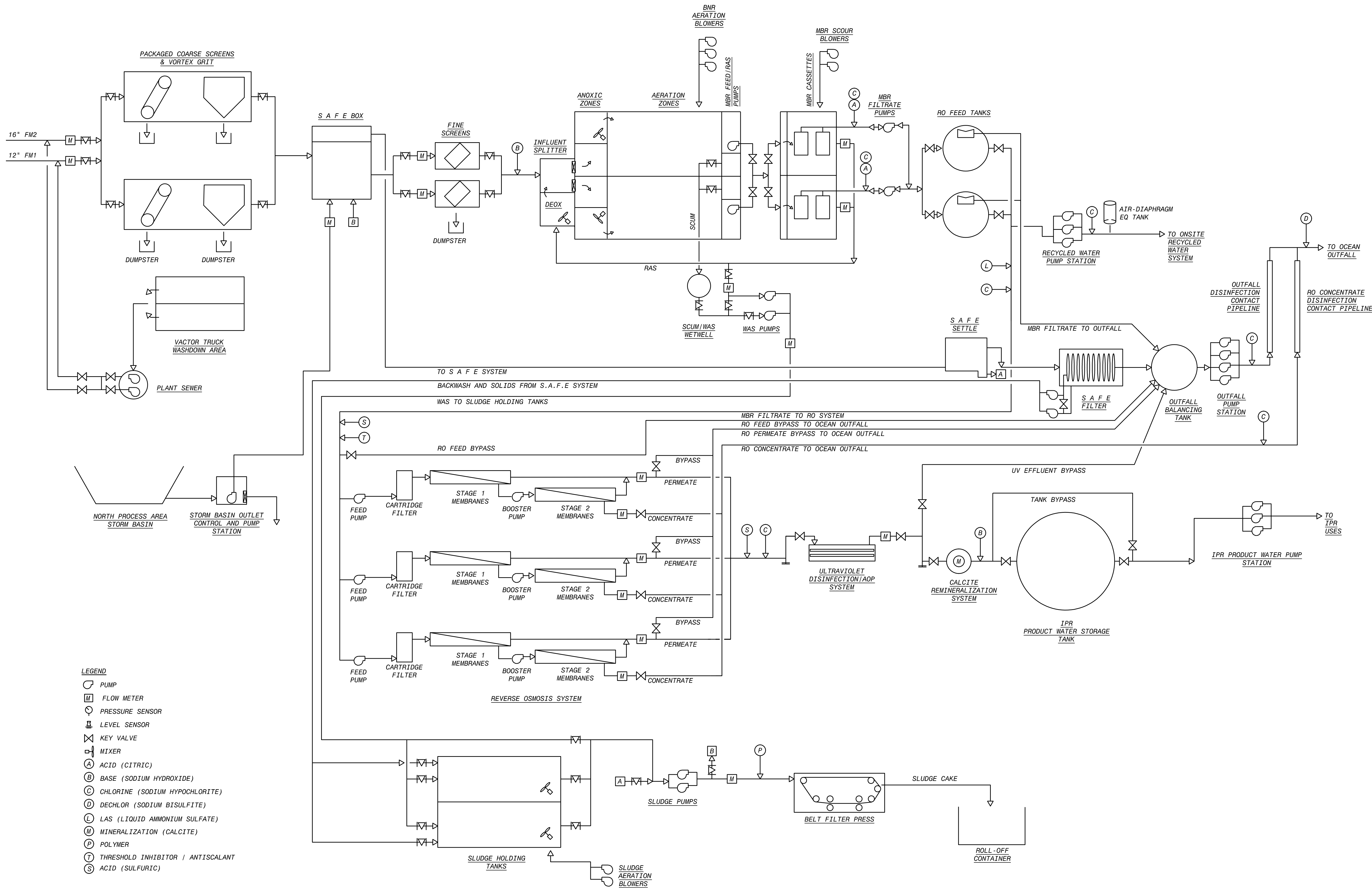
	STATIC MIXER
	VERTICAL MIXER
	SIGHT GLASS
	CENTRIFUGE
	CHANNEL DIFFUSER
	COMPRESSOR OR BLOWER
	PIPE ANCHOR
	PUMP
	SLUICE GATE
	SLIDE GATE
	STOP PLATE
	BAR SCREEN
	EXPANSION TANK
	SCREW (LIFT) PUMP
	FLUME
	WEIR

ACTUATOR LEGEND

	ELECTRIC
	FLOAT
	DIAPHRAGM
	AIR/OIL TANDEM
	SOLENOID
	AIR
	THERMAL SHUTOFF VALVE
	EXPLOSION RELIEF VALVE
	HOSE FAUCET
	HOSE FAUCET W/VACUUM BREAKER
	HOSE VALVE W/HOSE NIPPLE
	BACKFLOW PREVENTER
	SAFETY RELIEF VALVE
	VACUUM RELIEF CHECK VALVE
	PRESSURE VACUUM RELIEF VALVE

NOTE : SYMBOLS ON THIS SHEET WHICH ARE TO BE SHOWN AS EXISTING SHALL BE DELINEATED AS SCREENED THOSE SYMBOLS WHICH ARE TO BE SHOWN AS NEW SHALL BE DELINEATED AS SOLID (HEAVY)

	<p>ISSUED FOR CONSTRUCTION</p> <p>REVISIONS AND RECORD OF USE</p> <p>DATE</p> <p>NO. BY CHK APP</p>
<p>BLACK & VEATCH</p> <p>JOINT VENTURE</p> <p>FILANC</p>	<p>BLACK & VEATCH</p>
<p>CITY OF MORRO BAY</p> <p>MORRO BAY WATER RECLAMATION FACILITY (WRF)</p> <p>GENERAL LEGEND</p>	
<p>DESIGNED: EVB, KEZ</p> <p>DETAILED: MAK</p> <p>CHECKED: EVB</p> <p>APPROVED: EVB</p> <p>DATE: 5/19/2020</p>	
<p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
<p>PROJECT NO.</p> <p>400530</p> <p>00-G-005</p> <p>SHEET</p> <p>5 OF 412</p>	



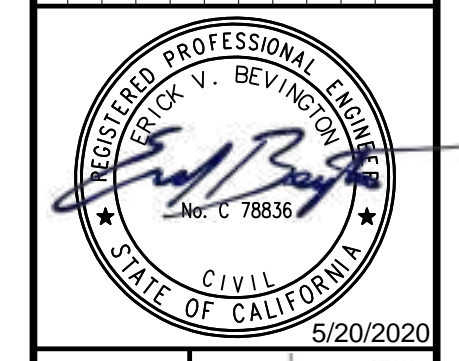
- LEGEND**
- PUMP
 - FLOW METER
 - PRESSURE SENSOR
 - LEVEL SENSOR
 - KEY VALVE
 - MIXER
 - ACID (CITRIC)
 - BASE (SODIUM HYDROXIDE)
 - CHLORINE (SODIUM HYPOCHLORITE)
 - DECHLOR (SODIUM BISULFITE)
 - LAS (LIQUID AMMONIUM SULFATE)
 - MINERALIZATION (CALCITE)
 - POLYMER
 - THRESHOLD INHIBITOR / ANTISCALANT
 - ACID (SULFURIC)

NO.	BY	CHK	APP
0	KEZ	RNF	EVB

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DATE: 5/19/2020

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CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

GENERAL
 PROCESS SCHEMATIC

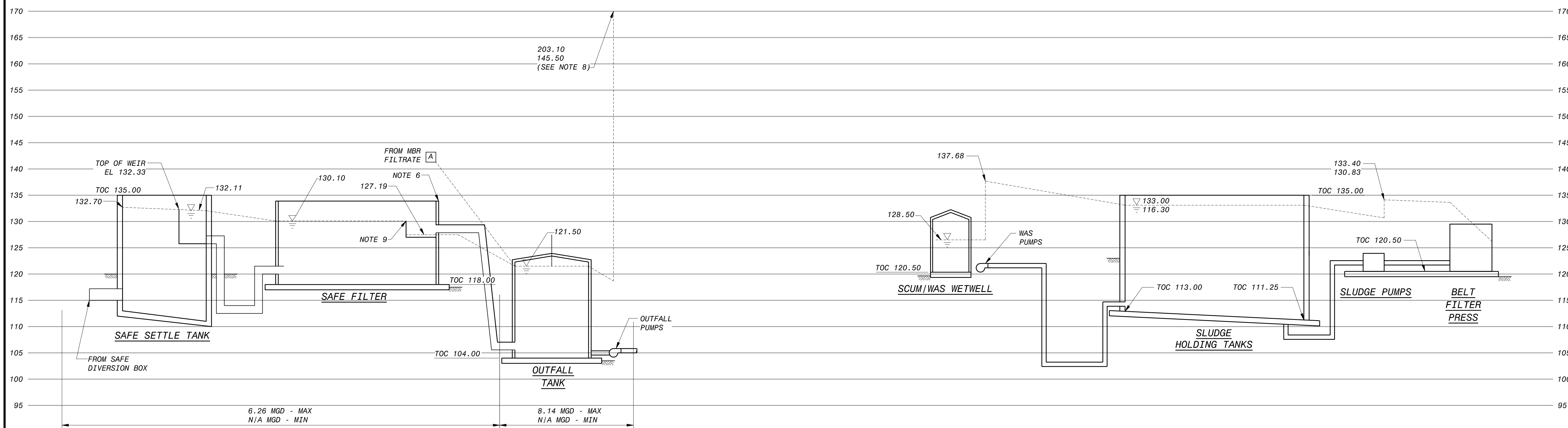
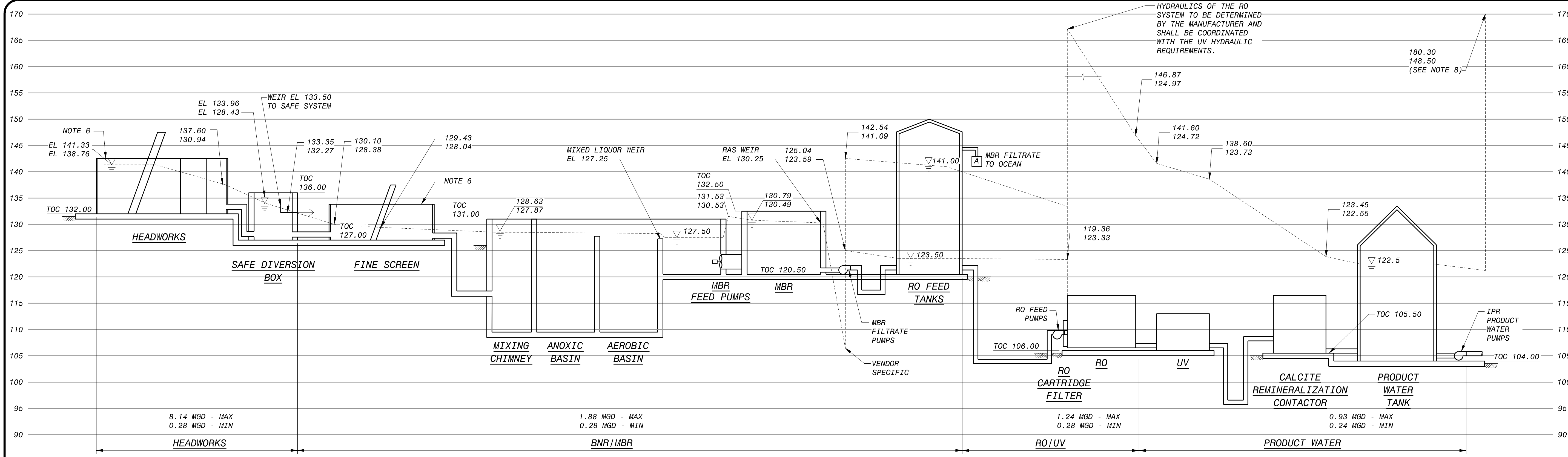
DESIGNED: EVB, KEZ
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

00-G-006
 SHEET
 6 OF 412

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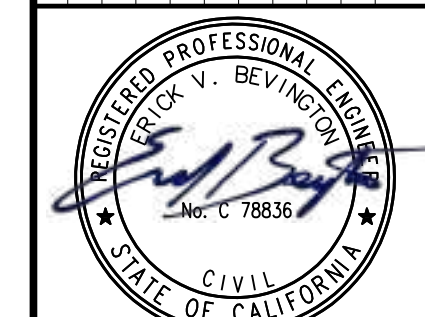
- NOTES:**
- PEAK HOUR FLOW UP TO THE SPLITTER BOX 8.14 MGD.
 - PEAK HOUR FLOW BETWEEN SPLITTER BOX AND MBR IS 1.88 MGD.
 - PEAK HOUR FLOW DOWNSTREAM OF MBR IS 1.16 MGD.
 - THE MINIMUM DIURNAL FLOW MODELED IS 0.25 MGD. THIS OCCURS THROUGHOUT THE LIQUID STREAM OF THE PLANT.
 - THE TOP NUMBER ON THE HYDRAULIC PROFILE IS THE MAXIMUM HGL. THE LOWER NUMBER ON THE HYDRAULIC PROFILE IS THE MINIMUM HGL.
 - STAINLESS STEEL TANK FURNISHED WITH EQUIPMENT PACKAGE. TOP OF TANK EL IS VENDOR SPECIFIC WITH AT LEAST 2' OF FREEBOARD.
 - NOTE FINISHED GRADE ELEVATIONS SHOWN THAT ARE ADJACENT TO TANKS AND CONCRETE SLABS ARE APPROXIMATE. SEE CIVIL GRADING AND PAVING DRAWINGS FOR EXACT FINISHED GRADE ELEVATIONS.
 - PUMP DISCHARGE HYDRAULIC GRADE LINES ARE APPROXIMATE. SEE PUMP SPECIFICATIONS FOR DETAILS.
 - THE FILTER EFFLUENT WEIR SHALL BE SET SUCH THAT IT IS HIGHER THAN THE DOWNSTREAM HGL SHOWN AND SUCH THAT THE FILTER INFLUENT HGL IS NO HIGHER THAN THE INFLUENT HGL ELEVATION SHOWN.

DESIGNED: EVB, KEZ	REGISTERED PROFESSIONAL ENGINEER
DETAILED: MAK	FRANK V. BEVINGTON
CHECKED: EVB	No. C 78836
APPROVED: EVB	CIVIL
DATE: 5/19/2020	STATE OF CALIFORNIA
PROJECT NO. 400530	5/20/2020
00-G-007 SHEET 7 OF 412	BLACK & VEATCH JOINT VENTURE FILANC

CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
GENERAL HYDRAULIC PROFILES

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Table with columns: STRUCTURE, ROOM OR AREA, ROOM NO., IRRADIANCE, HAZARDOUS MATERIALS, BUILDING CODE, FIRE PROTECTION, VENTILATION, IBC CODE REQUIREMENTS, ELECTRICAL CODE, REMARKS.



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JOINT VENTURE
FILANC
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CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
GENERAL CODE CLASSIFICATION TABLE

DESIGNED: EVB, KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

GENERAL NOTES

1. HORIZONTAL CONTROL: COORDINATES ARE BASED ON STATE PLANE COORDINATE SYSTEM (NAD83) CALIFORNIA ZONE V, US FOOT. COORDINATES ON STRUCTURES DEPICT THE EXTERIOR FACE OF THE CONCRETE SUBSTRUCTURE FOUNDATION WALL OR FOOTING WALL.
2. VERTICAL CONTROL: ELEVATIONS ARE BASED ON THE PROJECT BENCHMARK: NGS PID FV1098: BRASS CAP STAMPED "J 693 RESET 1968" SET IN CONCRETE, ELEVATION = 151.79.
3. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. THE LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF SUBSURFACE FACILITIES AND UTILITIES ARE APPROXIMATE, AND NOT ALL UTILITIES AND FACILITIES MAY BE INDICATED. OVERHEAD UTILITIES ARE NOT INDICATED IN ARCHITECTURAL ELEVATIONS, PROFILE OR SECTION DRAWINGS.
4. "SCREENED" (LIGHT) DELINEATION INDICATED ON THE DRAWINGS DENOTES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM EXISTING CONSTRUCTION DRAWINGS AND DATA, IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE ORDERING OF MATERIALS AND BEGINNING OF CONSTRUCTION. "BOLD" DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
5. CALL BEFORE YOU DIG. VERIFY PRECISE LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STRUCTURES, WHETHER INDICATED ON THE DRAWINGS OR NOT, IN THE FIELD IN ADVANCE OF EXCAVATING, BY CONTACTING ALL UTILITIES AND OTHER AGENCIES, AND BY PROSPECTING. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, DEMOLITION, RECONSTRUCTION, AND RECONNECTION OF EXISTING FACILITIES AS REQUIRED TO COMPLETE THE WORK. IF REQUIRED AFTER FIELD VERIFICATION, COORDINATE WITH THE ENGINEER TO DETERMINE ANY NECESSARY MODIFICATIONS TO PROPOSED NEW WORK.
6. BEFORE CONSTRUCTION IS STARTED, COORDINATE WITH THE OWNER OF EACH UTILITY AND DEFINE THE REQUIREMENTS AND METHODS TO ACCOMMODATE THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION OF ANY UTILITIES AFFECTED BY THE PROPOSED NEW WORK.
7. COMPLY WITH THE GOVERNING AGENCY NPDES CONSTRUCTION REQUIREMENTS AND PROVIDE APPROPRIATE MITIGATION MEASURES OR PROTECTION AND RESTORATION AT ALL LOCATIONS AS REQUIRED BY THEIR OPERATIONS, AND AS DIRECTED BY ENGINEER. SPECIAL CONSTRUCTION REQUIREMENTS, TEMPORARY PROTECTIVE FENCING OR BARRICADES, SHEETING, SHORING, EROSION PROTECTION, AND SURFACE RESTORATION AT CERTAIN LOCATIONS ARE INDICATED ON THE DRAWINGS TO BRING ATTENTION TO SENSITIVE AREAS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PROPERTY CORNER MARKERS. PROPERTY CORNER MARKERS DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REESTABLISHED BY A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF CALIFORNIA.
9. REFER TO THE GEOTECHNICAL REPORT FOR TEST HOLE LOCATIONS AND THE FINDINGS OF THE GEOTECHNICAL INVESTIGATIONS.
10. CONTRACTOR SHALL INSTALL ALL PIPELINES, PAVING, WALKWAYS, AND CURB AND GUTTER AT A UNIFORM GRADE BETWEEN ELEVATIONS DEPICTED ON THE DRAWINGS.
11. FOR ALL SITE GRADING, SMOOTH PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE. PARABOLIC ROUNDING SHALL APPLY TO ALL CUT AND FILL SECTIONS.
12. FINISHED GRADE ELEVATION AT THE BUILDING FACE, WHERE NOT ADJACENT TO PAVEMENT, SHALL BE APPROXIMATELY 6 INCHES BELOW FINISHED FLOOR ELEVATION UNLESS OTHERWISE NOTED. FINISHED GRADE ELEVATION ADJACENT TO BASINS SHALL BE APPROXIMATE AS INDICATED BY CONTOURS, OR AS REQUIRED TO MEET STAIR LANDINGS.
13. THE CONTRACTOR'S OPERATIONS SHALL CONFORM TO THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS PERTAINING TO EXCAVATION AND TRENCHING.
14. RESTRAINED JOINTS SHALL BE PROVIDED FOR BURIED PIPING AS INDICATED ON THE DRAWINGS AND/OR AS SCHEDULED IN THE SPECIFICATIONS.
15. THE DRAWINGS INDICATE TYPES OF PIPE SUPPORT SYSTEMS AT VARIOUS LOCATIONS. HOWEVER, ALL PIPE SUPPORTS, HANGERS, BRACKETS, INSERTS OR BRACES ARE NOT SHOWN.
16. THE TERM "PROPOSED" AS INDICATED ON THE DRAWINGS MEANS THE ITEM IS DESIGNED OR PLANNED TO BE PROVIDED BY OWNER OR OTHERS SEPARATE FROM THIS CONTRACT. THE TERM "FUTURE" AS INDICATED ON THE DRAWINGS REFERS TO THE ENGINEER'S INTERPRETATION OF THE ITEM FOR THE FUTURE, BASED ON AVAILABLE INFORMATION.
17. UNLESS OTHERWISE SPECIFIED, INDICATED ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER, INSTALL PIPELINES SLOPING DOWNWARD FROM AN AIR VALVE. HIGH POINTS IN THE PIPELINE WILL NOT BE PERMITTED EXCEPT AT LOCATIONS OF AIR VALVES AS INDICATED ON THE DRAWINGS. REVIEW THE PIPELINE PROFILE REQUIREMENTS WITH THE ENGINEER PRIOR TO PREPARING LAYING SCHEDULES AND PERFORMING FIELD STAKING.
18. FIELD VERIFY PRECISE LOCATION, ELEVATION, AND ARRANGEMENT OF CONNECTIONS OF NEW PIPELINES WITH EXISTING PIPELINES BASED ON FIELD CONDITIONS, INCLUDING EXPOSING EXISTING PIPING PRIOR TO FABRICATING NEW PIPING. PROVIDE FITTINGS, ADAPTERS, SOLID SLEEVE CLOSURES, AND HARNESSED MECHANICAL COUPLING; ROTATE FITTINGS; DEFLECT JOINTS; AND MODIFY EXISTING PIPING AS APPLICABLE AND AS REQUIRED TO MAKE CONNECTIONS, INCLUDING ADJUSTMENTS FOR ANY OFFSETS IN CENTERLINE ELEVATIONS BETWEEN PIPELINES. PROVIDE TEMPORARY PLUG WITH FACTORY OUTLET SIZED AS REQUIRED FOR TESTING AND DISINFECTION WORK BEFORE MAKING CONNECTION, WHEN APPLICABLE. COORDINATE MAKING EACH CONNECTION WITH THE OWNER.

0	KEZ	RT	EVB
	BY		CHK
	NO.		APP

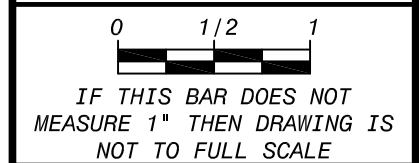
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JOINT VENTURE
FILANC | **BLACK & VEATCH**

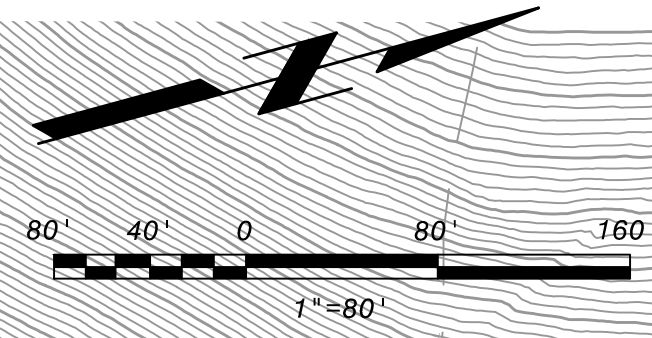
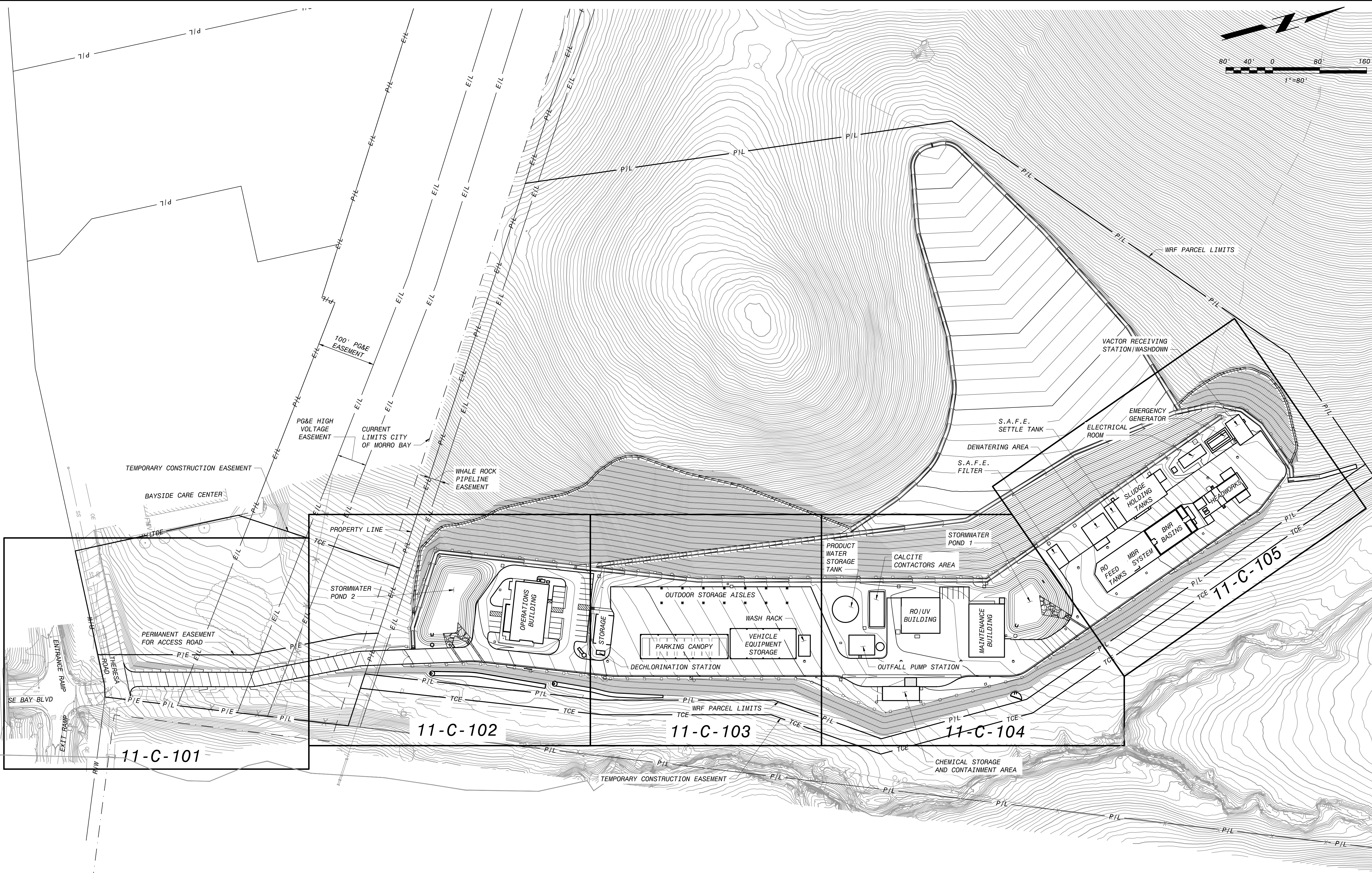
CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
GENERAL NOTES

DESIGNED: EVB, KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020



PROJECT NO.
400530
00-G-009
SHEET
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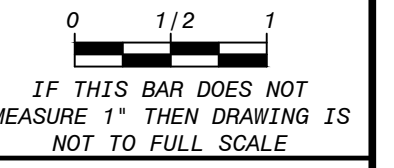
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BLACK & VEATCH
 JOINT VENTURE
FILANC BLACK & VEATCH

**CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)**
 SITE - OVERALL
 CIVIL
 GRADING AND PAVING KEY PLAN

DESIGNED: KEZ
 DETAILED: SIM
 CHECKED: RWF
 APPROVED: EVB
 DATE: 5/19/2020

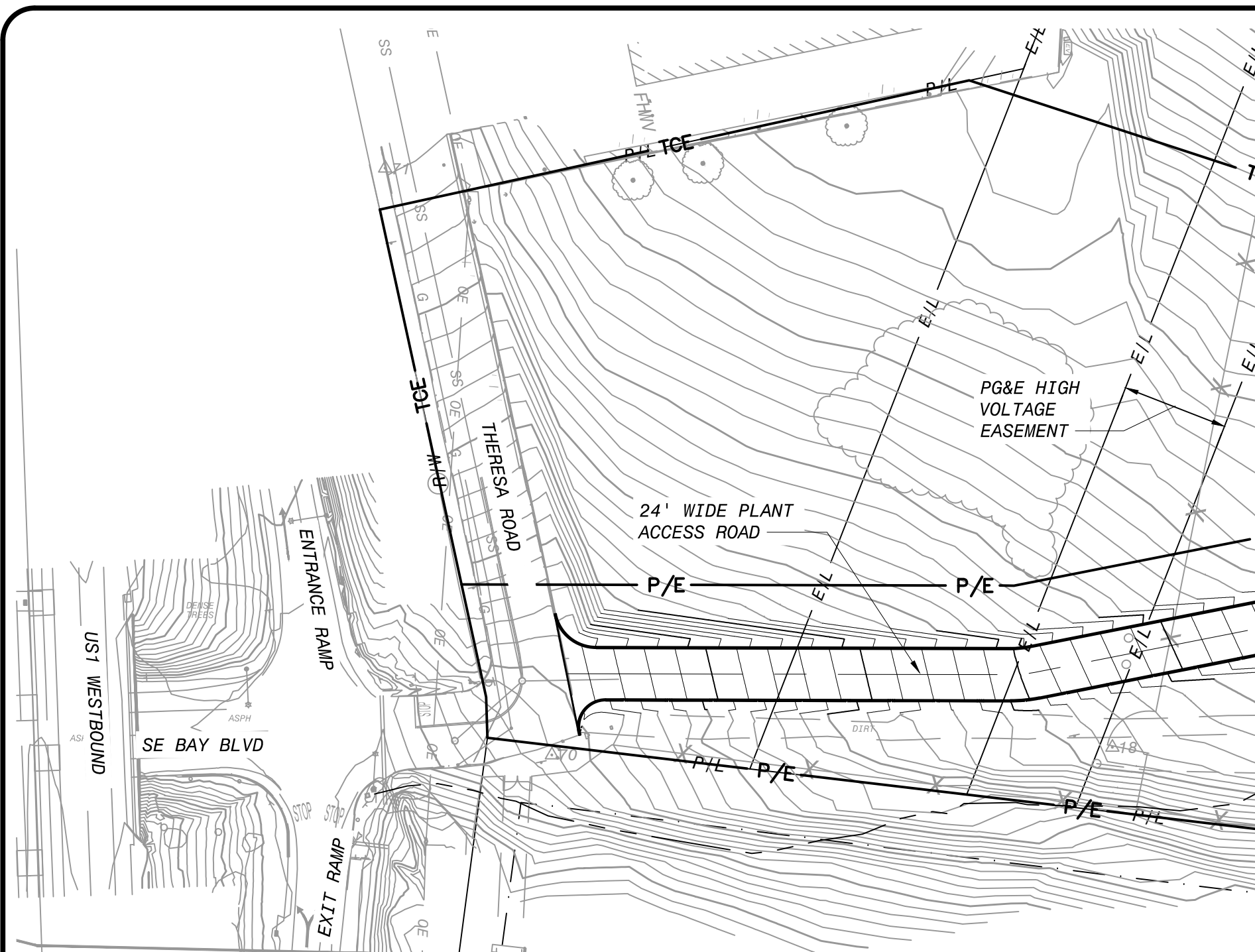


PROJECT NO.
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11-C-001
 SHEET
 10 OF 412

NO.	BY	CHK	APP
0	KEZ	RWF	EVB

DATE: 5/19/2020
 ISSUED FOR CONSTRUCTION
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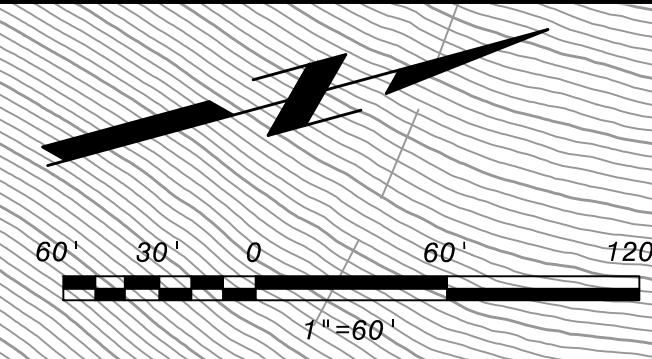


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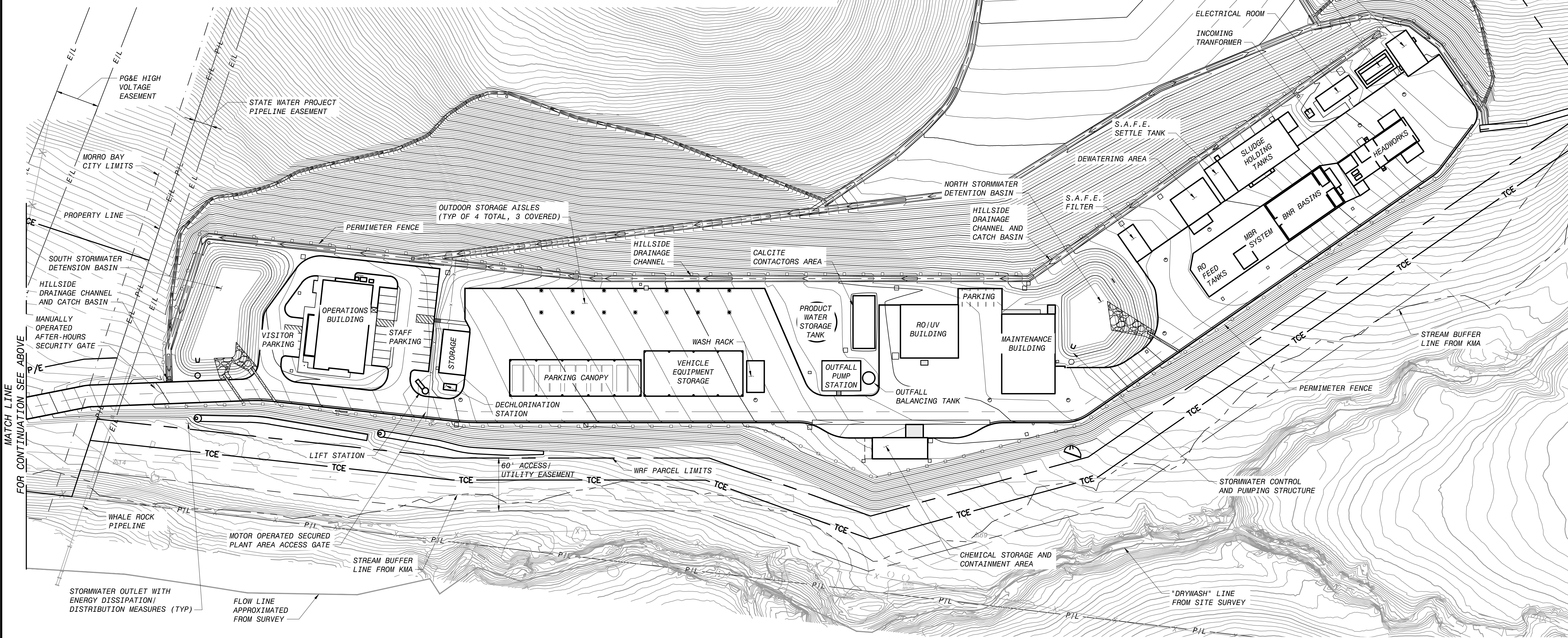
1. UNLESS OTHERWISE NOTED, ALL CURB SHALL HAVE 6 INCH FACE HEIGHT AND SHALL BE TYPE A-2 WITH GUTTER OR TYPE C WITHOUT GUTTER, AS INDICATED AND IN ACCORDANCE WITH THE CITY OF MORRO BAY STANDARD DETAILS.
2. RIBBON CURBS SHALL BE PER DETAIL C ON M-00-514.
3. UNLESS OTHERWISE NOTED, ALL SITE ACCESS ROADWAYS AND OTHER PAVED PARKING AREAS SHALL BE 3 INCHES AC ON 12 INCHES AGGREGATE BASE. ASPHALT AND AGGREGATE BASE MATERIALS SHALL BE PER CALTRANS 2015 STANDARDS.
4. CROSS GUTTERS SHALL BE SIMILAR TO SLO COUNTY DPW STANDARD DETAIL D-5.
5. PAVEMENT AND GUTTERS SHALL BE GRADED AND WARPED IF NECESSARY TO ENSURE POSITIVE DRAINAGE.
6. DRAIN CURB CUTS SHALL HAVE 12 INCH TRANSITIONS ON EACH SIDE OF 12 INCH CURB OPENINGS FLUSH WITH PAVEMENT.
7. SIDEWALKS SHALL BE SIMILAR TO CITY OF MORRO BAY STANDARD DETAIL B-5 WITH #4 REINFORCING PLACED AT 24" EACH WAY. DOWEL TO STRUCTURES AT DOORWAYS. OTHERWISE PROVIDE SEPARATION FROM STRUCTURES. PROVIDE 24 INCHES NON-EXPANSIVE MATERIAL BELOW SIDEWALKS.
8. GUARD POST LOCATIONS ARE APPROXIMATE. ADJUST IN FIELD. UNLESS OTHERWISE NOTED, GUARD POSTS SHALL BE PER DETAIL A/00-M-514.
9. ON ACCESS ROAD, THE MINIMUM VERTICAL CURVE LENGTH ALLOWABLE AT THE INTERSECTION OF TWO GRADES SHALL BE 50 FEET EXCEPT IN THE HEADWORKS AREA WHERE THE MINIMUM VERTICAL CURVE LENGTH SHALL BE 40 FEET. VERTICAL CURVES MAY BE ELIMINATED WHERE THE ALGEBRAIC DIFFERENCE IN GRADES DOES NOT EXCEED 2 PERCENT.

LEGEND

- AC PAVEMENT
- CONCRETE SIDEWALK/PAVEMENT



MATCH LINE FOR CONTINUATION SEE BELOW

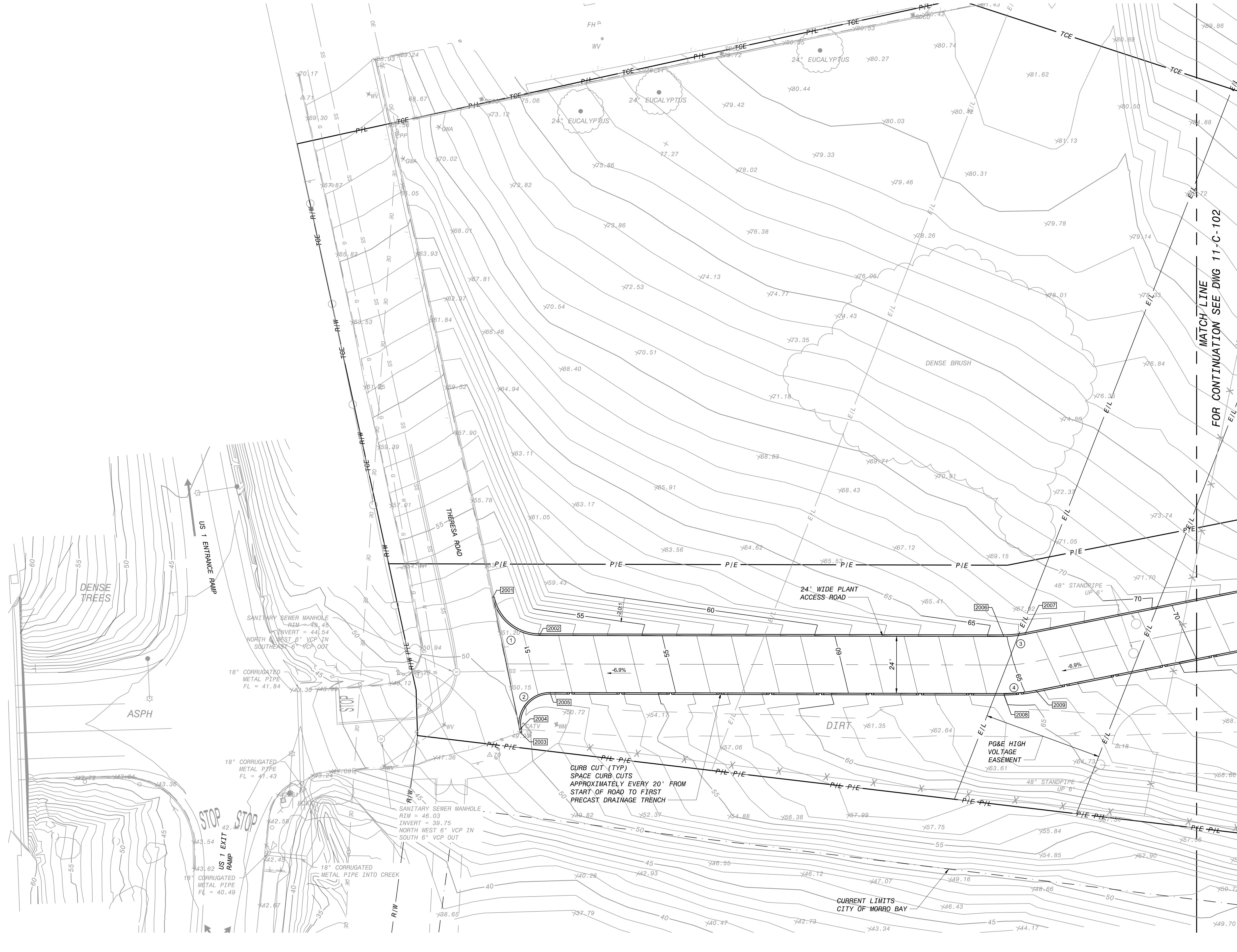


MATCH LINE FOR CONTINUATION SEE ABOVE

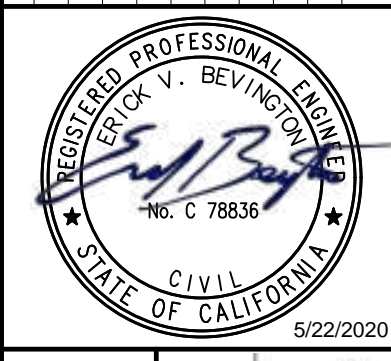
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CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) SITE - OVERALL CIVIL GRADING AND PAVING OVERVIEW	
DESIGNED: KEZ DETAILED: SIM CHECKED: RWF APPROVED: EVB DATE: 5/19/2020	
PROJECT NO. 400530 11-C-002 SHEET 11 OF 412	

0	KEZ	RWF	EVB
NO.	BY	CHK	APP
5/19/2020	ISSUED FOR CONSTRUCTION	REVISED	AND RECORD OF USE
DATE			

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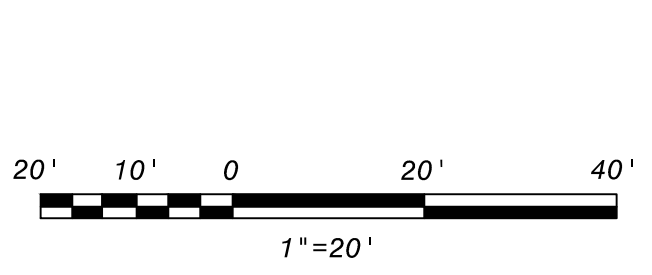
- NOTES:**
- OFFSITE AND HILLSIDE DRAINAGE IS CAPTURED VIA PERIMETER SWALES AND DIVERTED AROUND THE WRF PLANT SITE. THIS IS DONE TO SEGREGATE UNDEVELOPED AREA FLOWS FROM DEVELOPED WRF AREA FLOWS TO BETTER CONTROL STORMWATER QUALITY AND FLOW. SEE SITE PREPARATION DRAWINGS (AREA 10) AND DRAINAGE REPORT FOR DETAILS ABOUT THIS SYSTEM.
 - WRF PLANT AREA STORMWATER PONDS AND OUTLET CONTROL STRUCTURES ARE TO BE CONSTRUCTED WITH EARLY (SITE PREPARATION) WORK. SEE SITE PREPARATION DRAWINGS (AREA 10) AND DRAINAGE REPORT FOR DETAILS ABOUT THIS SYSTEM.
 - SEE DRAWINGS 11-C-601 AND 11-C-602 FOR COORDINATE AND CURVE TABLES.
 - ROADWAY COORDINATES ARE LOCATED AT EDGE OF CONCRETE WHERE CURB OR CURB AND GUTTER MEET ASPHALT.



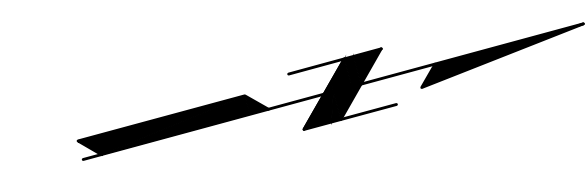
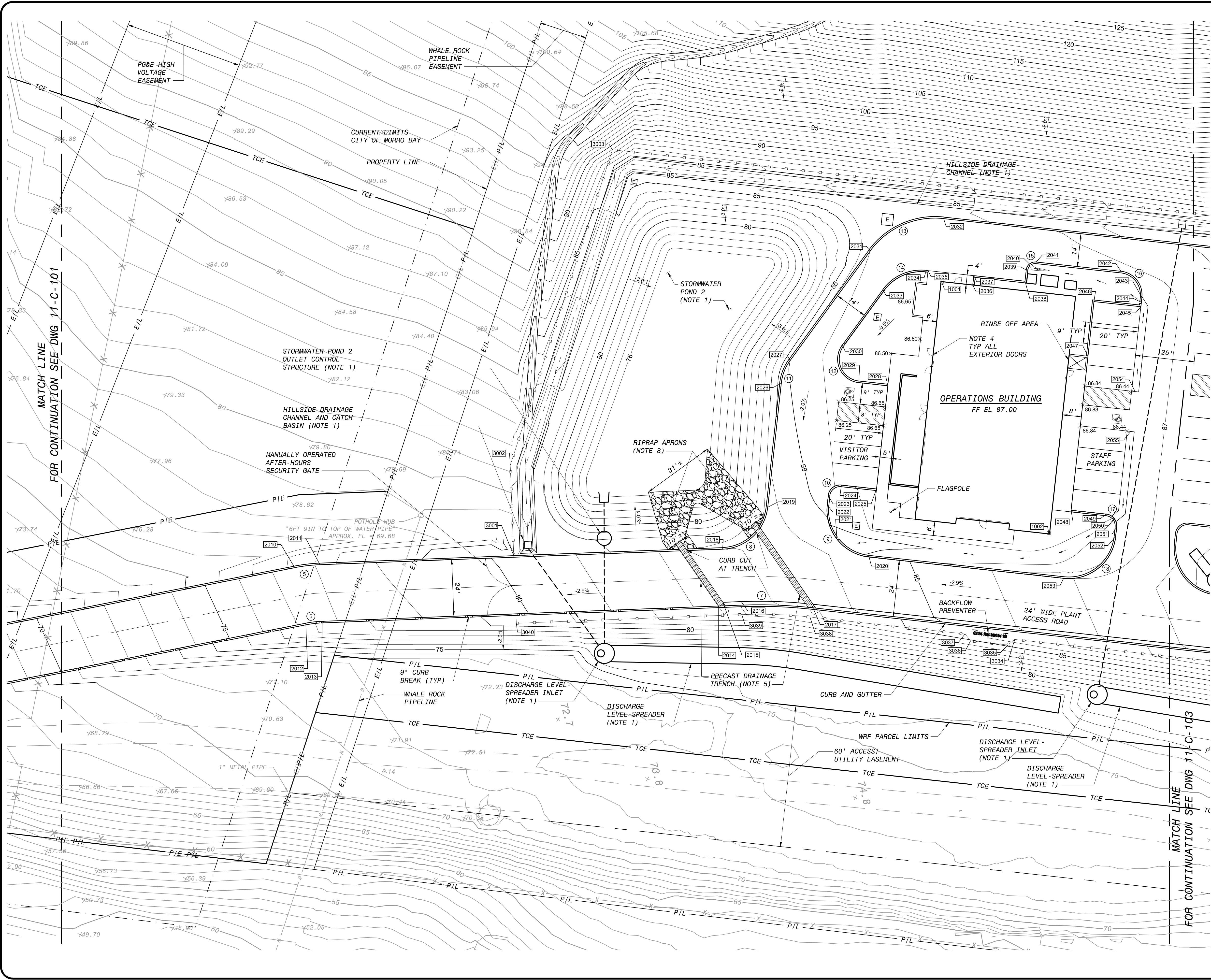
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CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 SITE - ACCESS ROAD AREA
 CIVIL
 GRADING AND PAVING PLAN

DESIGNED: KEZ
 DETAILED: SIMM
 CHECKED: RWF
 APPROVED: EVB
 DATE: 5/19/2020
 PROJECT NO.
400530
11-C-101
 SHEET
 12 OF 412

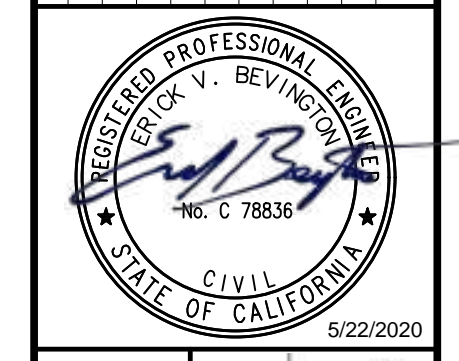


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- NOTES:**
- OFFSITE AND HILLSIDE DRAINAGE IS CAPTURED VIA PERIMETER SWALES AND DIVERTED AROUND THE WRF PLANT SITE. THIS IS DONE TO SEGREGATE UNDEVELOPED AREA FLOWS FROM DEVELOPED WRF AREA FLOWS TO BETTER CONTROL STORMWATER QUALITY AND FLOW. SEE SITE PREPARATION DRAWINGS (AREA 10) AND DRAINAGE REPORT FOR DETAILS ABOUT THIS SYSTEM.
 - WRF PLANT AREA STORMWATER PONDS AND OUTLET CONTROL STRUCTURES ARE TO BE CONSTRUCTED WITH EARLY (SITE PREPARATION) WORK. SEE SITE PREPARATION DRAWINGS (AREA 10) AND DRAINAGE REPORT FOR DETAILS ABOUT THIS SYSTEM.
 - SEE STRUCTURAL DRAWINGS FOR SPECIFIC LOCATION OF INDICATED BUILDING COORDINATE POINTS.
 - ADA ACCESS ZONE. SLOPE PAVING FROM 1/4" BELOW INTERIOR ELEVATION AWAY AT NO MORE THAN 2% FOR 60" OUTWARD FROM BUILDING AND 42" FROM BOTH SIDES OF DOOR.
 - TRENCHES TO BE RATED FOR H-20 TRAFFIC, HAVING BOLT DOWN GRATING WITH HDG FINISH. 23" X 23" INSIDE DIMENSIONS, JENSEN PRECAST MODEL 2222 OR EQUAL. PLACE WITH MIN 9" X 9" CONCRETE COLLAR ALONG BOTH SIDES OF TRENCH LENGTH. DISCHARGE INTO POND ONLY. SLOPE 0.5% TO DISCHARGE END. REMOVE GRATING AND CONCRETE FILL TRENCH AT UPSTREAM END WHERE BEYOND CURB FACE.
 - SEE DRAWINGS 11-C-601 AND 11-C-602 FOR COORDINATE AND CURVE TABLES.
 - ROADWAY COORDINATES ARE LOCATED AT EDGE OF ASPHALT WHERE CURB OR CURB AND GUTTER BEGIN.
 - CALTRANS CLASS I RIPRAP APRON WITH GEOTEXTILE UNDERLAYMENT PER 2015 CALTRANS STANDARD SPECIFICATIONS. 18" DEPTH. CREATE FLOW BY ALIGNING WITH FLOW LINE AND CROSS SECTIONAL AREA OF FEEDING TRENCH DRAIN AT TOP AND FLATTEN OUT SO FLOW FEATHERS OUT AS IT APPROACHES BOTTOM.

NO.	BY	CHK	DATE	REVISIONS AND RECORD OF USE
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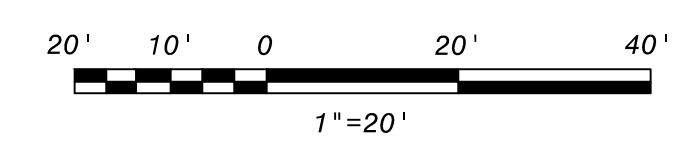
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**CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)**
 SITE - SOUTH OPERATIONS AREA
 CIVIL
 GRADING AND PAVING PLAN

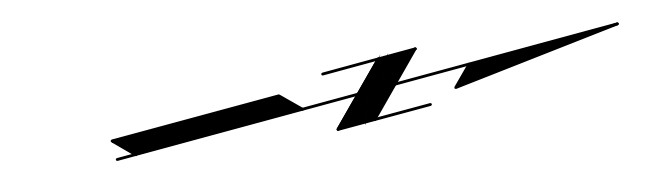
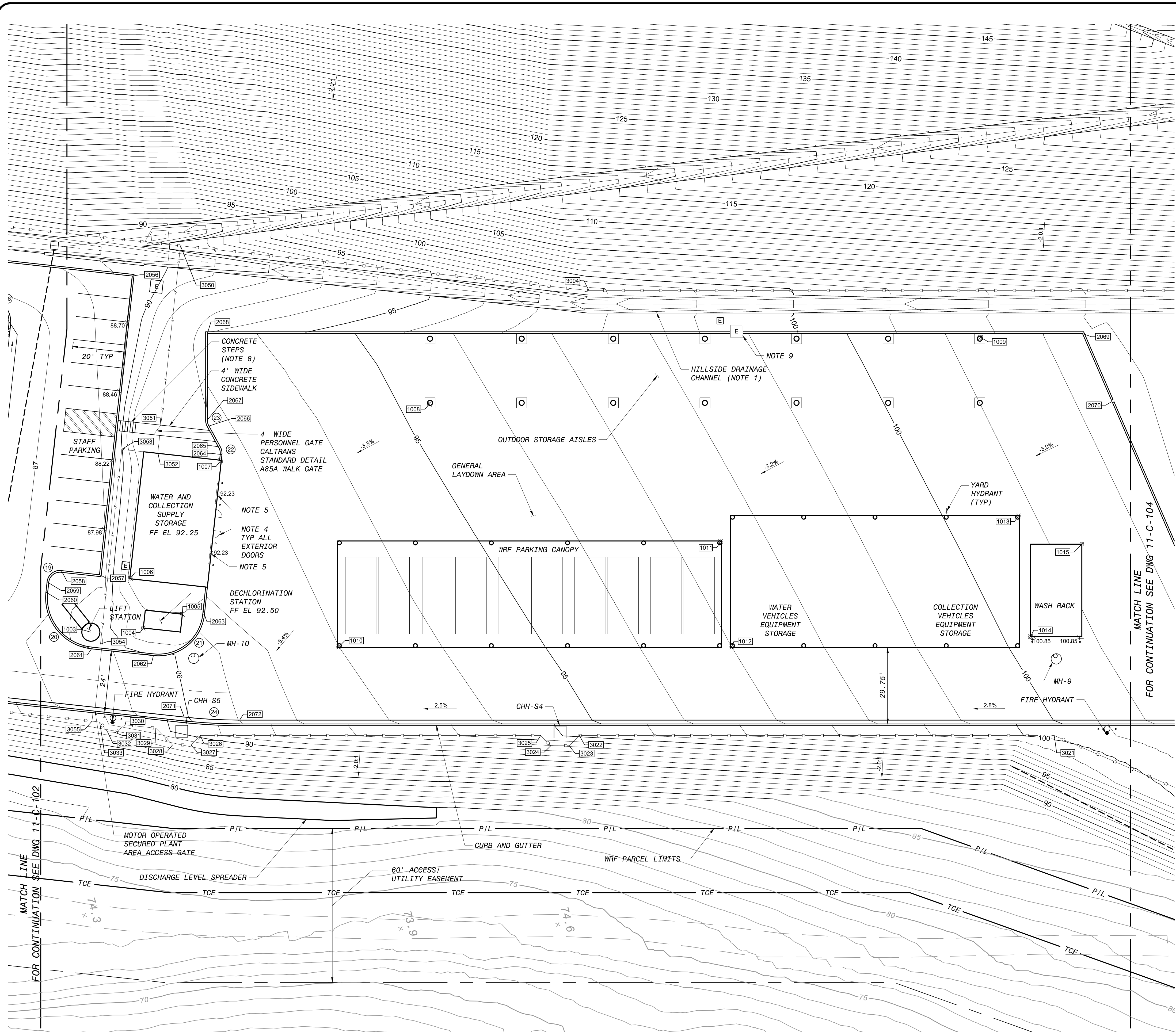
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 CHECKED: RWF
 APPROVED: EVB
 DATE: 5/19/2020

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PROJECT NO.
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11-C-102
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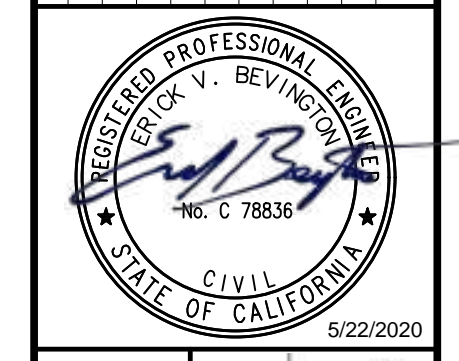
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 PLOTNO: 11-C-103



- NOTES:**
- OFFSITE AND HILLSIDE DRAINAGE IS CAPTURED VIA PERIMETER SWALES AND DIVERTED AROUND THE WRF PLANT SITE. THIS IS DONE TO SEGREGATE UNDEVELOPED AREA FLOWS FROM DEVELOPED WRF AREA FLOWS TO BETTER CONTROL STORMWATER QUALITY AND FLOW. SEE SITE PREPARATION DRAWINGS (AREA 10) AND DRAINAGE REPORT FOR DETAILS ABOUT THIS SYSTEM.
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 - ADA ACCESS ZONE. SLOPE PAVING FROM 1/4" BELOW INTERIOR ELEVATION AWAY AT NO MORE THAN 2% FOR 60" OUTWARD FROM BUILDING AND 42" FROM BOTH SIDES OF DOOR.
 - VEHICLE ACCESS ZONE. SLOPE PAVING FROM 1/4" BELOW INTERIOR ELEVATION AWAY AT NO MORE THAN 5% FOR 60" OUTWARD FROM BUILDING.
 - SEE DRAWINGS 11-C-801 AND 11-C-802 FOR COORDINATE AND CURVE TABLES.
 - ROADWAY COORDINATES ARE LOCATED AT EDGE OF ASPHALT WHERE CURB OR CURB AND GUTTER BEGIN.
 - CONCRETE STAIRS SHALL HAVE 6 RISERS AT 8-INCHES TALL AND 11-INCHES DEEP. STEP WIDTH SHALL MATCH SIDEWALK WIDTH. HANDRAIL SHALL BE PROVIDED PER CAL-OSHA.
 - POUR CURB UP TO ELECTRICAL HANDHOLE. HANDHOLE SHALL BE SET PER ELECTRICAL DRAWINGS AND DETAILS. TOP SHALL BE EQUAL TO OR GREATER THAN THE HIGHER OF TOP OF CURB OR GRADE.

NO.	BY	CHK APP
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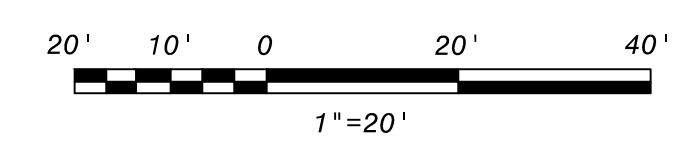
**CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)**
 SITE - NORTH OPERATIONS AREA
 CIVIL
 GRADING AND PAVING PLAN

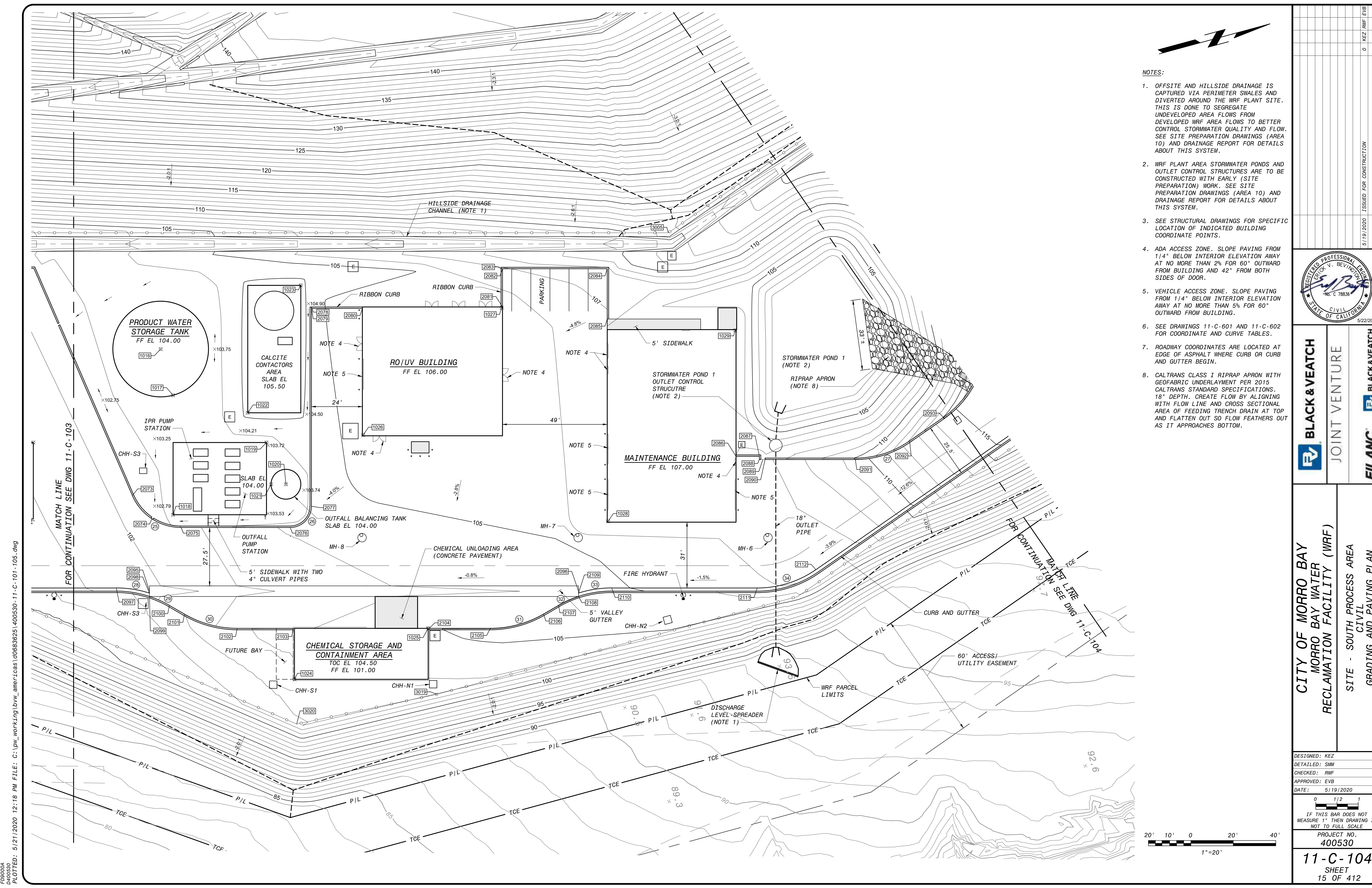
DESIGNED: KEZ
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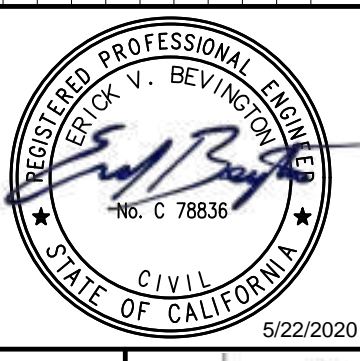
11-C-103
 SHEET
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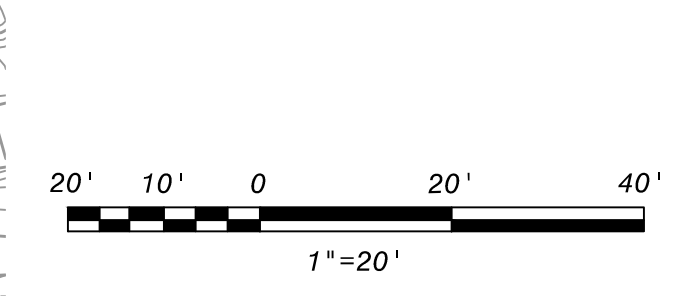
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 GRADING AND PAVING PLAN

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 SITE - SOUTH PROCESS AREA
 CIVIL
 GRADING AND PAVING PLAN

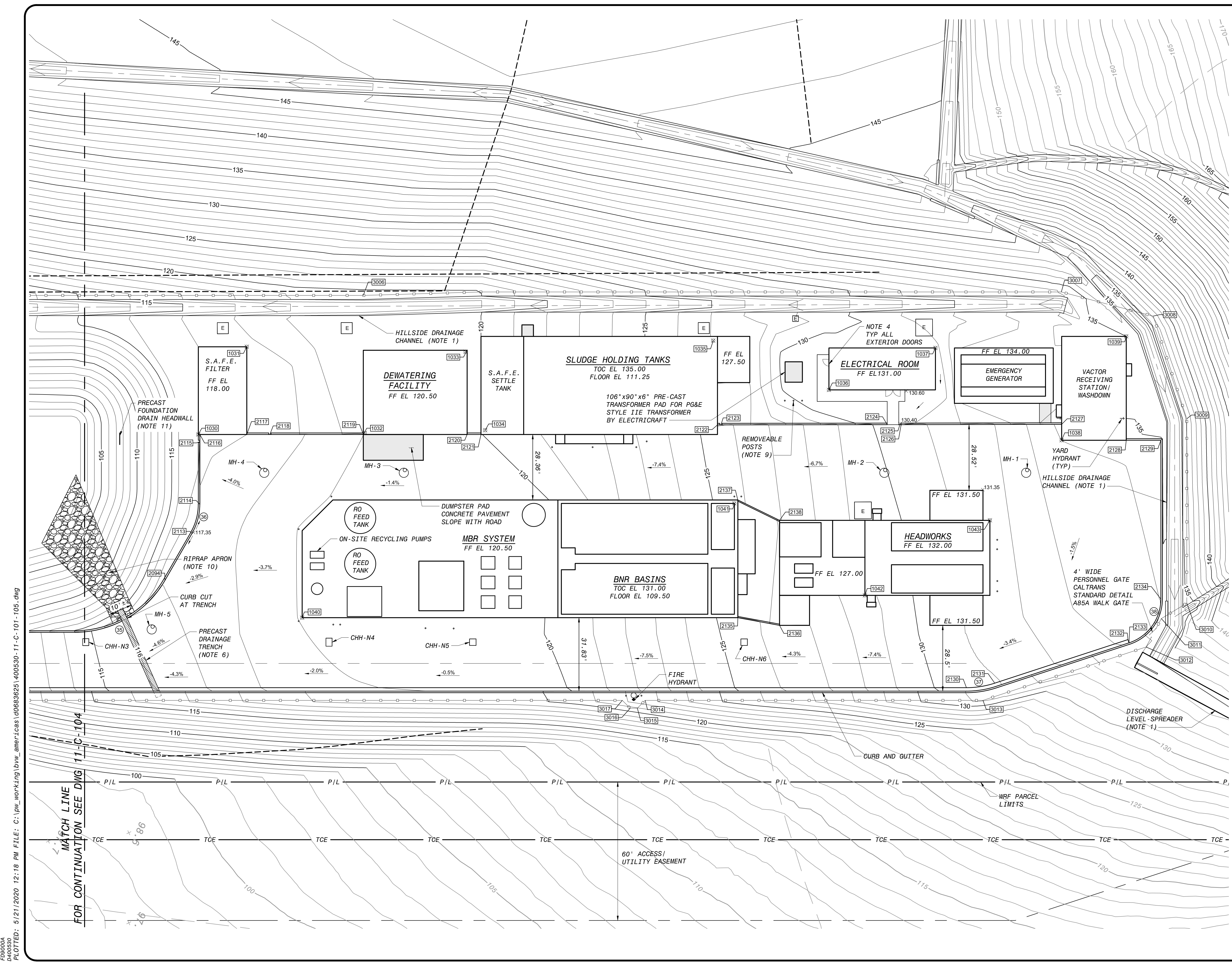
DESIGNED: KEZ
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 APPROVED: EVB
 DATE: 5/19/2020

PROJECT NO.
400530

11-C-104
 SHEET
 15 OF 412



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- SEE DRAWINGS 11-C-601 AND 11-C-602 FOR COORDINATE AND CURVE TABLES.
- ROADWAY COORDINATES ARE LOCATED AT EDGE OF ASPHALT WHERE CURB OR CURB AND GUTTER BEGIN.
- (3) REMOVEABLE BARRIER POSTS PER PG&E 051122 REQUIREMENTS. 8' AWAY FROM TRANSFORMER.
- CALTRANS CLASS I RIPRAP APRON WITH GEOFABRIC UNDERLAYMENT PER 2015 CALTRANS STANDARD SPECIFICATIONS. 18" DEPTH. CREATE FLOW BY ALIGNING WITH FLOW LINE AND CROSS SECTIONAL AREA OF FEEDING TRENCH DRAIN AT TOP AND FLATTEN OUT SO FLOW FEATHERS OUT AS IT APPROACHES BOTTOM.
- CALTRANS D89 OR EQUAL. SLEEVE SIMILAR TO B100-M-507.

NO.	BY	CHK	APP
0	KEZ	RWF	EVB

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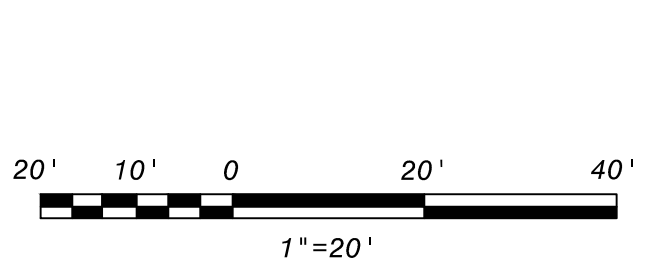
**CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)**
 SITE - NORTH PROCESS AREA
 CIVIL
 GRADING AND PAVING PLAN

DESIGNED: KEZ
 DETAILED: SIM
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11-C-105
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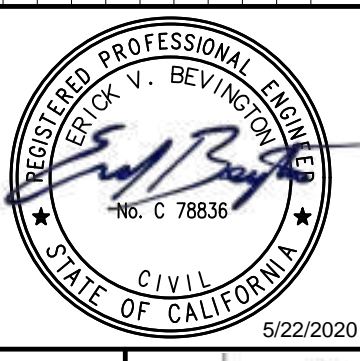
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COORDINATE TABLE - STRUCTURES				
POINT NO.	NORTHING	EASTING	DESCRIPTION	REF DWG
1001	2331632.05	5720001.29	OPERATIONS BLDG, INTERSECTION OF GRID LINES 1 AND A	11-C-102, 95-S-101
1002	2331647.96	5720115.60	OPERATIONS BLDG, INTERSECTION OF GRID LINES 8 AND B	11-C-102, 95-S-101
1003	2331711.06	5720153.30	LIFT STATION CENTER	11-C-103
1004	2331731.18	5720157.05	DECHLORINATION STATION PAD SE CORNER	11-C-103, 65-S-101
1005	2331747.24	5720155.83	DECHLORINATION STATION PAD NW CORNER	11-C-103, 65-S-101
1006	2331731.37	5720137.04	WATER AND COLLECTION SUPPLY STORAGE BLDG, INTERSECTION OF GRID LINES 5 AND B	11-C-103, 16-S-101
1007	2331777.33	5720102.09	WATER AND COLLECTION SUPPLY STORAGE BLDG, INTERSECTION OF GRID LINES 1 AND A	11-C-103, 16-S-101
1008	2331861.39	5720102.08	OUTDOOR STORAGE AISLES, INTERSECTION OF GRID LINES 1 AND A	11-C-103, 17-S-101
1009	2332075.38	5720133.21	OUTDOOR STORAGE AISLES, INTERSECTION OF GRID LINES 9 AND B	11-C-103, 17-S-101
1010	2331802.60	5720184.06	PARKING CANOPY, INTERSECTION OF GRID LINES 1 AND A	11-C-103, 14-S-101
1011	2331956.82	5720183.42	PARKING CANOPY, INTERSECTION OF GRID LINES 8 AND B	11-C-103, 14-S-101
1012	2331950.26	5720224.13	VEHICLE EQUIPMENT STORAGE, INTERSECTION OF GRID LINES 1 AND A	11-C-103, 15-S-101
1013	2332071.39	5720204.16	VEHICLE EQUIPMENT STORAGE, INTERSECTION OF GRID LINES 7 AND B	11-C-103, 15-S-101
1014	2332063.58	5720250.74	VEHICLE WASH RACK PAD SE CORNER	11-C-103, 13-S-101
1015	2332092.31	5720221.23	VEHICLE WASH RACK PAD NW CORNER	11-C-103, 13-S-101
1016	2332161.74	5720194.48	PRODUCT WATER STORAGE TANK CENTER	11-C-104, 60-S-101
1017	2332161.68	5720216.98	PRODUCT WATER STORAGE TANK, POINT IN LINE WITH PUMP STATION PAD	11-C-104, 60-S-101
1018	2332146.94	5720271.29	PRODUCT WATER PUMP STATION PAD SE CORNER	11-C-104, 63-S-101
1019	2332198.31	5720250.00	PRODUCT WATER PUMP STATION PAD NW CORNER	11-C-104, 63-S-101
1020	2332202.01	5720271.38	OUTFALL BALANCING TANK CENTER	11-C-104, 63-S-101
1021	2332195.25	5720269.55	OUTFALL BALANCING TANK, POINT IN LINE WITH PUMP STATION PAD	11-C-104, 63-S-101
1022	2332193.45	5720234.17	CALCITE CONTACTORS PAD SE CORNER	11-C-104, 61-S-101
1023	2332233.29	5720182.82	CALCITE CONTACTORS PAD NW CORNER	11-C-104, 61-S-101
1024	2332181.83	5720361.06	CHEMICAL STORAGE AREA SE CORNER	11-C-104, 90-S-101
1025	2332248.92	5720354.40	CHEMICAL STORAGE AREA NW CORNER	11-C-104, 90-S-101
1026	2332243.19	5720258.51	RO/UV BLDG, INTERSECTION OF GRID LINES 6 AND B	11-C-104, 50-S-101
1027	2332321.85	5720217.78	RO/UV BLDG, INTERSECTION OF GRID LINES 1 AND A	11-C-104, 50-S-101
1028	2332343.85	5720327.96	MAINTENANCE BLDG, INTERSECTION OF GRID LINES 7 AND B	11-C-104, 96-S-101
1029	2332425.22	5720256.87	MAINTENANCE BLDG, INTERSECTION OF GRID LINES 1 AND A	11-C-104, 96-S-101
1030	2332531.07	5720224.05	S.A.F.E. FILTER SE CORNER	11-C-105, 73-S-101
1031	2332538.13	5720181.21	S.A.F.E. FILTER NW CORNER	11-C-105, 73-S-101
1032	2332598.44	5720200.10	DEWATERING FACILITY, INTERSECTION OF GRID LINES 1 AND A	11-C-105, 72-S-101
1033	2332628.62	5720150.64	DEWATERING FACILITY, INTERSECTION OF GRID LINES 5 AND B	11-C-105, 72-S-101
1034	2332647.61	5720180.68	S.A.F.E. SETTLE TANK, SE INSIDE WALL CORNER	11-C-105, 71-S-101
1035	2332727.73	5720110.99	SLUDGE HOLDING TANK, NW INSIDE WALL CORNER	11-C-105, 71-S-101
1036	2332782.13	5720114.30	ELECTRICAL ROOM, INTERSECTION OF GRID LINES 1 AND B	11-C-105, 80-S-101
1037	2332819.54	5720081.72	ELECTRICAL ROOM, INTERSECTION OF GRID LINES 5 AND A	11-C-105, 80-S-101
1038	2332884.46	5720101.08	VACTOR STATION PAD SE CORNER	11-C-105, 20-S-101
1039	2332895.77	5720049.30	VACTOR STATION PAD NW CORNER	11-C-105, 20-S-101
1040	2332600.05	5720283.76	MBR SYSTEM PAD SE CORNER	11-C-105, 30-S-101
1041	2332759.99	5720174.38	BNR BASIN, NW INSIDE WALL CORNER	11-C-105, 30-S-101
1042	2332826.64	5720192.96	HEADWORKS NORTH PAD, SE CORDER	11-C-105, 21-S-101
1043	2332866.80	5720144.20	HEADWORKS NORTH PAD, NW CORDER	11-C-105, 21-S-101

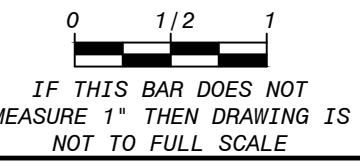
COORDINATE TABLE - FENCE				
POINT NO.	NORTHING	EASTING	DESCRIPTION	REF DWG
3001	2331426.58	5720065.49	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3002	2331435.19	5720028.11	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3003	2331512.03	5719910.41	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3004	2331932.97	5720075.65	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3005	2332406.84	5720204.26	WROUGHT IRON ORNAMENTAL FENCE	11-C-104
3006	2332578.26	5720143.33	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3007	2332862.84	5720040.59	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3008	2332903.88	5720037.12	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3009	2332932.46	5720074.13	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3010	2332959.21	5720149.40	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3011	2332951.06	5720159.44	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3012	2332948.96	5720173.23	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3013	2332890.08	5720218.70	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3014	2332752.15	5720267.73	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3015	2332750.10	5720272.08	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3016	2332747.18	5720273.13	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3017	2332742.77	5720271.06	WROUGHT IRON ORNAMENTAL FENCE	11-C-105
3018	2332420.78	5720385.51	WROUGHT IRON ORNAMENTAL FENCE	11-C-104
3019	2332244.73	5720385.45	WROUGHT IRON ORNAMENTAL FENCE	11-C-104
3020	2332177.34	5720381.68	WROUGHT IRON ORNAMENTAL FENCE	11-C-104
3021	2332062.41	5720290.31	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3022	2331884.05	5720241.91	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3023	2331879.17	5720244.71	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3024	2331872.26	5720242.83	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3025	2331869.47	5720237.95	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3026	2331741.64	5720203.26	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3027	2331737.14	5720205.84	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3028	2331730.24	5720203.97	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3029	2331725.65	5720195.96	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3030	2331714.45	5720191.57	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3031	2331710.03	5720193.49	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3032	2331707.13	5720192.36	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3033	2331705.19	5720187.93	WROUGHT IRON ORNAMENTAL FENCE	11-C-103
3034	2331622.25	5720155.37	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3035	2331618.81	5720156.87	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3036	2331604.01	5720151.06	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3037	2331602.51	5720147.62	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3038	2331540.92	5720123.45	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3039	2331513.31	5720114.90	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3040	2331420.14	5720093.43	WROUGHT IRON ORNAMENTAL FENCE	11-C-102
3050	2331784.12	5720017.22	6' HIGH CHAIN LINK FENCE	11-C-103
3051	2331758.48	5720082.53	6' HIGH CHAIN LINK FENCE, PERSONNEL GATE	11-C-103
3052	2331754.49	5720092.83	6' HIGH CHAIN LINK FENCE	11-C-103
3053	2331741.29	5720087.74	6' HIGH CHAIN LINK FENCE	11-C-103
3054	2331713.42	5720158.72	6' HIGH CHAIN LINK FENCE, VEHICLE GATE	11-C-103
3055	2331702.39	5720186.83	6' HIGH CHAIN LINK FENCE	11-C-103



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CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 SITE - OVERALL
 CIVIL
 COORDINATE TABLES 1

DESIGNED: KEZ
 DETAILED: SIMM
 CHECKED: RWF
 APPROVED: EVB
 DATE: 5/19/2020



PROJECT NO.
 400530
11-C-601
 SHEET
 17 OF 412

NO.	BY	REVISIONS AND RECORD OF USE
0	KEZ	RWF

5/19/2020
 ISSUED FOR CONSTRUCTION
 DATE

PLOTTED: 5/19/2020 6:04 PM FILE: C:\pw\work\ng\bw_amer\cas\00683625\400530-11-C-602.dwg

COORDINATE TABLE - PAVING. Table with columns: POINT NO., NORTHING, EASTING, ELEVATION, DESCRIPTION, REF DWG. Rows 2001-2060.

COORDINATE TABLE - PAVING. Table with columns: POINT NO., NORTHING, EASTING, ELEVATION, DESCRIPTION, REF DWG. Rows 2061-2120.

COORDINATE TABLE - PAVING. Table with columns: POINT NO., NORTHING, EASTING, ELEVATION, DESCRIPTION, REF DWG. Rows 2121-2138.

CURVE DATA TABLE. Table with columns: CURVE, TANGENT (FT), LENGTH (FT), RADIUS (FT), DELTA (°), REF DWG. Rows 1-38.

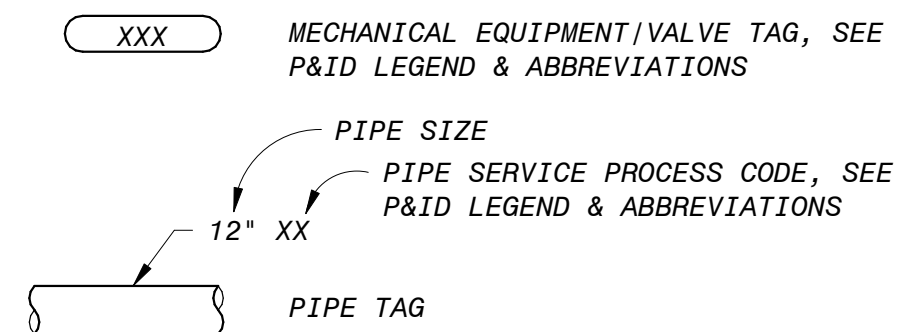
Revision table with columns: DATE, REVISIONS AND RECORD OF USE. Row 0 for 5/19/2020.



CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) SITE - OVERALL CIVIL COORDINATE TABLES 2

DESIGNED: KEZ, CHECKED: RWF, APPROVED: EVB, DATE: 5/19/2020. Includes a graphic scale bar.

PIPE, EQUIPMENT & VALVE TAG LEGEND



PIPE & FITTINGS SYMBOL LEGEND

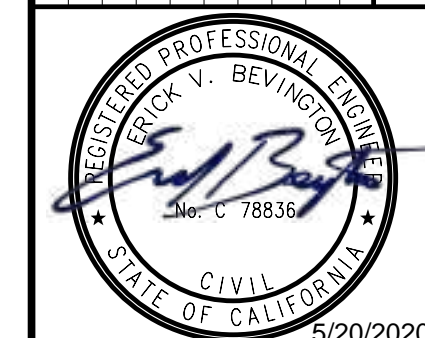
DOUBLE LINE		SINGLE LINE	
	EXISTING PIPE		PIPE SECTION
	NEW PIPE		LATERAL UP
	EXISTING PIPING TO BE REMOVED		LATERAL DOWN
	WELDED JOINT		CONCENTRIC REDUCER
	GROOVED END JOINT		ECCENTRIC REDUCER
	FLANGED JOINT		REDUCING BUSHING
	MECHANICAL JOINT W/INTEGRAL RESTRAINT		UNION
	GROOVED END ADAPTER FLANGE		BLIND FLANGE
	RESTRAINED FLANGED COUPLING ADAPTER		BEND, 90°
	HARNESSED MECHANICAL COUPLING		BEND, 45°
	DISMANTLING JOINT		CROSS
	METAL BELLOWS EXPANSION JOINT W/CONTROL RODS		TEE
	ELASTOMERIC BELLOWS EXPANSION JOINT W/CONTROL RODS		WYE (45° LATERAL)
	BEND UP		
	BEND DOWN		
	TEE UP		
	TEE DOWN		
	BEND		UNION
	BEND DOWN		WYE
	BEND UP		WYE STRAINER
	BLIND FLANGE		DRAIN OR BELL-UP
	CAP OR PLUG		BELLOWS EXPANSION JOINT W/CONTROL RODS
	CROSS		RUPTURE DISK
	REDUCER		
	TEE		
	TEE DOWN		
	TEE UP		

VALVE SYMBOL LEGEND

PLAN VIEW	SECTION/ELEVATION VIEW	DESCRIPTION
		AWWA BALL VALVE
		BALL VALVE
		BUTTERFLY VALVE
		CHECK VALVE: BALL CHECK
		CHECK VALVE: SPLIT DISC
		CHECK VALVE: HORIZONTAL SWING
		COMBINATION AIR VALVES
		DIAPHRAGM VALVE
		ECCENTRIC PLUG VALVE
		GATE VALVE
		GLOBE VALVE
		KNIFE GATE VALVE
		PINCH VALVE
		PLUG VALVE
		3-WAY PLUG VALVE
		PRESSURE CONTROL VALVE
		SOLENOID VALVE

GENERAL PROCESS MECHANICAL NOTES

- LEGENDS SHOWN IN THIS DRAWING ARE BASED ON A TEMPLATE THAT IS NOT PROJECT SPECIFIC. SOME LEGEND SYMBOLS ARE NOT USED ON THIS PROJECT, BUT ARE SHOWN TO PROVIDE A DICTIONARY FOR SYMBOLS THAT MAY ALSO BE USED DURING THE PROJECT CONSTRUCTION PHASE.
- FOR PROCESS MECHANICAL ABBREVIATIONS, REFER TO P&ID LEGEND AND ABBREVIATIONS.
- REFER TO THE P&ID LEGEND AND ABBREVIATIONS FOR SINGLE-LINE VALVE, GATE, ACTUATOR, FITTING, EQUIPMENT, AND OTHER SYMBOLS.
- FITTING TYPES IN THE LEGEND ON THIS SHEET SHOW FLANGED END CONNECTIONS. FITTINGS FOR OTHER END CONNECTION TYPES ARE SIMILAR.
- VALVE TYPES IN THE LEGEND ON THIS SHEET REPRESENT THE TYPICAL APPEARANCE FOR EACH TYPE OF VALVE. THE ACTUAL VALVES USED FOR THIS PROJECT MAY VARY IN APPEARANCE.
- LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
- SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL MATCH CONNECTING PIPING, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS CONNECTING PIPING.
- ALL REQUIRED HANGERS, SUPPORTS, BRACES, INSERTS, AND ACCESSORIES ARE NOT SHOWN ON THE DRAWINGS. PIPE SUPPORTS LOCATIONS AND DESIGN WILL BE COMPLETED DURING THE SHOP DRAWINGS.
- ALL PRESSURIZED OR SURCHARGED PIPELINES, PIPE FITTINGS, COUPLINGS, JOINTS, EXPANSION JOINTS, TANK CONNECTIONS, AND CHANNEL CONNECTIONS SHALL BE PROVIDED WITH THRUST RESTRAINT BASED ON SPECIFIED PRESSURES AND TEMPERATURES.
- NUMBER AND LOCATION OF UNIONS AND COUPLINGS SHOWN ON DRAWINGS IS ONLY APPROXIMATE. CONTRACTOR SHALL PROVIDE ALL UNIONS AND COUPLINGS REQUIRED BY THE SPECIFICATIONS AND AS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
- ORIENT VALVES AS SPECIFIED.
- UNLESS NOTED OTHERWISE, ALL ELBOWS 2" AND LARGER SHALL BE STANDARD LONG RADIUS. USE SHORT RADIUS OR REDUCING ELBOWS IN TIGHT AREAS FOR FIT UP.



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CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
CIVIL - MECHANICAL
LEGENDS AND GENERAL NOTES

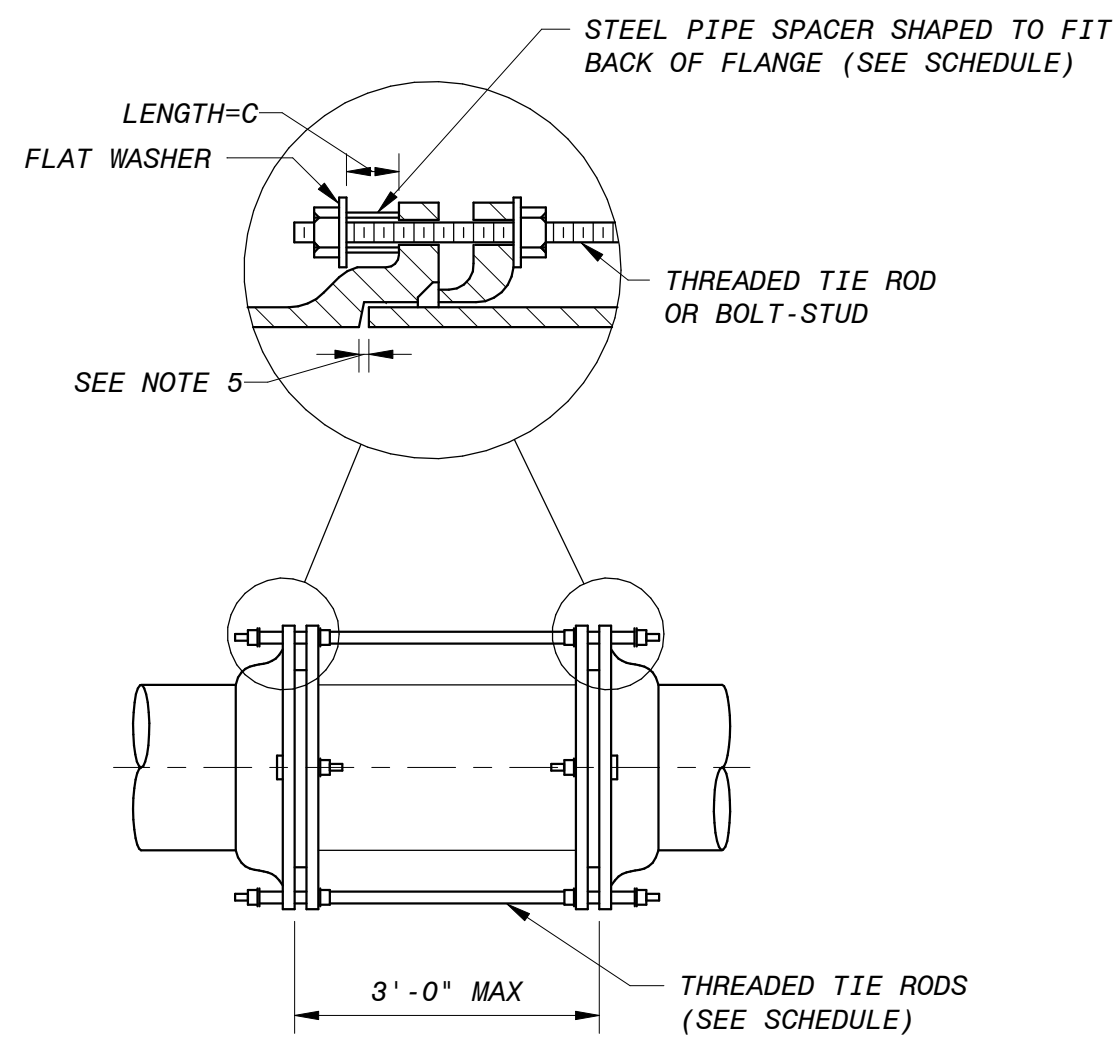
DESIGNED: KEZ
 DETAILED: JPS
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

00-M-500
SHEET
19 OF 412

MECHANICAL TIE ROD SCHEDULE						
PIPE SIZE (INCHES)	MINIMUM PRESSURE (PSI) (NOTE 1)	TIE RODS		PIPE SPACERS		
		NO. OF RODS (NOTE 2)	DIA OF RODS (INCHES)	DIA OF SPACERS (INCHES)	LENGTH=C (INCHES)	PIPE SCHEDULE
4	350 OR LESS	2	3/4	1	2 1/2	40
6	250 OR LESS 350	2 4	3/4	1	2 1/2	40
8	150 OR LESS 300 350	2 4 6	3/4	1	2 1/2	40
10	200 OR LESS 350	2 4	3/4	1	2 1/2	80
12	150 OR LESS 300 350	2 4 6	3/4	1	2 1/2	80
14	100 OR LESS 200 350	2 4 6	3/4	1	3 1/2	80
16	150 OR LESS 250 350	4 6 8	3/4	1	3 1/2	80
18	150 OR LESS 200 300 350	4 6 8 10	3/4	1	3 1/2	80
20	100 OR LESS 150 200 300 350	4 6 8 10 12	3/4	1	3 1/2	80
24	100 OR LESS 150 200 250 300 350	6 8 10 12 14 16	3/4	1	3 1/2	80
30	100 OR LESS 150 200 250	8 10 12 16	1	1 1/4	4	80
36	100 OR LESS 150 200 250	8 12 18 22	1	1 1/4	4	80
42	100 OR LESS 150 200 250	8 12 16 20	1 1/4	1 1/2	4	80
48	100 OR LESS 150 200 250	12 16 22 28	1 1/4	1 1/2	4	80



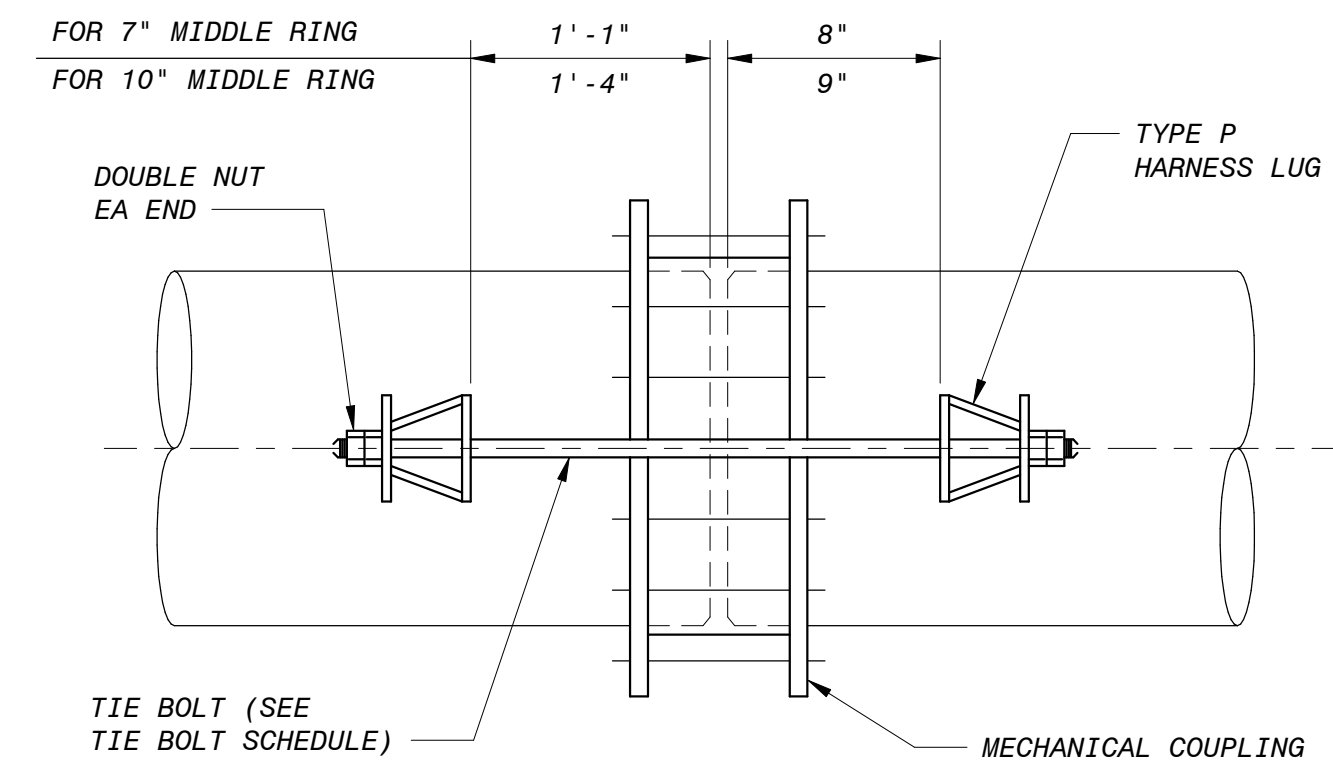
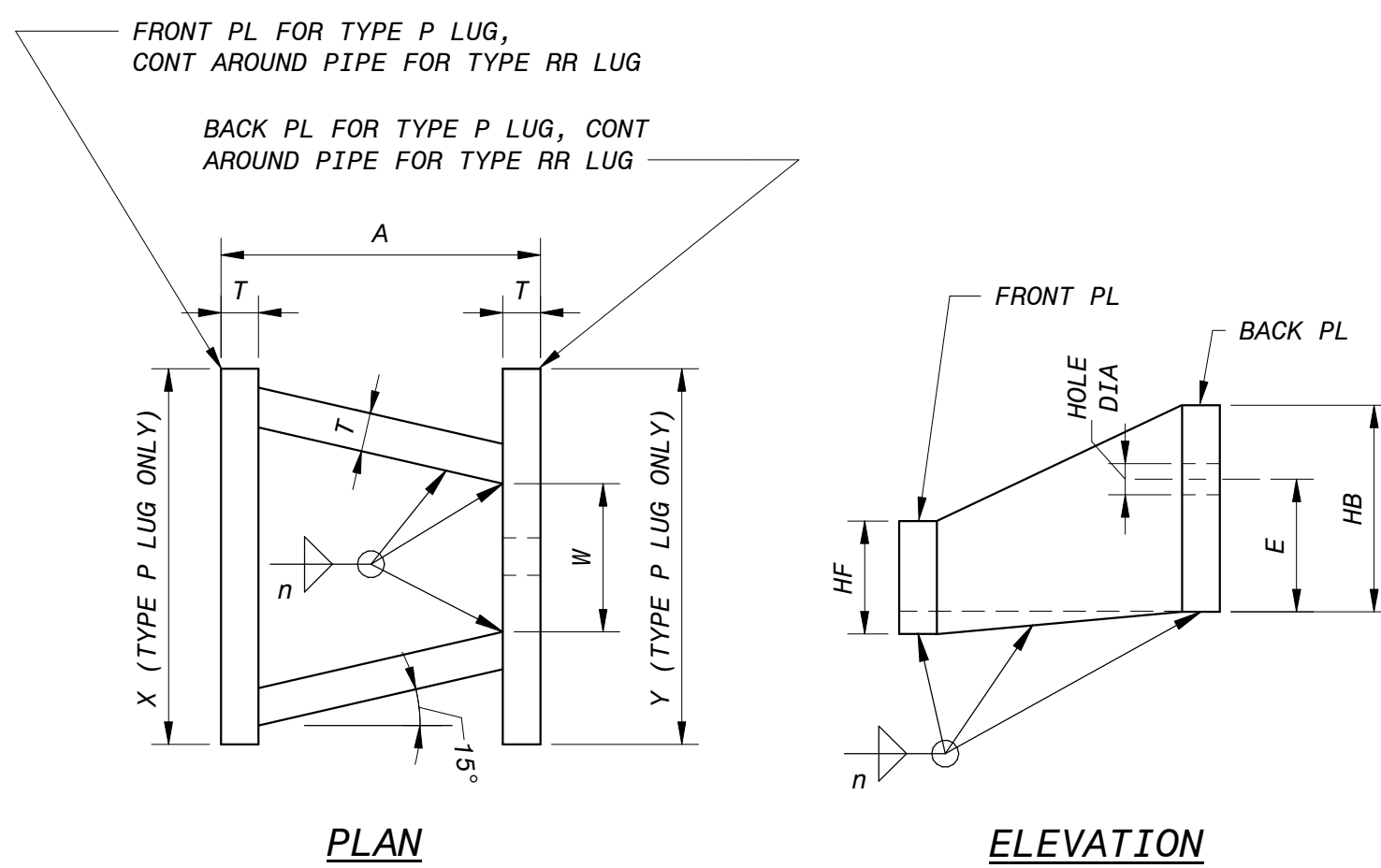
- NOTES :**
- PRESSURE SHALL BE THE PRESSURE AT WHICH THE PIPE IS HYDROSTATICALLY TESTED, OR IF THERE IS NO HYDROSTATIC FIELD TEST, IT SHALL BE THE SPECIFIED SHOP TEST PRESSURE.
 - UNLESS OTHERWISE INDICATED, TIE RODS SHALL BE SPACED UNIFORMLY AROUND THE PIPE, BEGINNING WITH THE FIRST TWO AT THE HORIZONTAL CENTERLINE OF THE PIPE, SUBJECT TO THE APPROVAL OF THE ENGINEER.
 - EXCEPT WHERE TIE RODS ARE REQUIRED, BOLTS FOR FOLLOWER RINGS SHALL BE TEE HEAD BOLTS.
 - AT CONTRACTOR'S OPTION, 4" THROUGH 48" MAY BE FURNISHED AS MECHANICAL JOINT STYLE WITH TIE RODS, OR POSITIVE LOCKING SEGMENTS AND/OR RINGS SUCH AS AMERICAN PIPE 14" THROUGH 36" SIZE MAY BE FURNISHED AS FLEX RING STYLE RESTRAINED JOINTS AND 42" THROUGH 64" SIZE MAY BE FURNISHED AS LOC RING STYLE RESTRAINED JOINTS, OR U.S. PIPE "TR-FLEX", OR GRIFFIN PIPE "SNAP-LOCK".
 - FOR PIPING FLEXIBILITY, PROVIDE GAP LARGE ENOUGH TO FACILITATE PIPE ASSEMBLY AND DISASSEMBLY AT ASSOCIATED FLANGED PIPE JOINTS.

A DIP MECHANICAL JOINT COUPLING WITH TIE RODS
NO SCALE

DIMENSIONS IN INCHES									
TIE BOLT DIAMETER	T	A	Y	W	X	HB	E	HF	HOLE DIAMETER
5/8	3/8	5	5	1 3/8	5	3 7/8	3	2	3/4
3/4	3/8	5	5	1 1/2	5	4 1/8	3 1/8	2	7/8
7/8	1/2	5 1/2	5	1 5/8	5	4 1/4	3 1/8	2	1
1	1/2	5 3/4	RING	1 3/4	RING	4 1/2	3 1/4	2	1 1/8
1 1/8	1/2	7	RING	1 7/8	RING	4 3/4	3 5/8	2 1/2	1 1/4
1 1/4	5/8	7 1/2	RING	2	RING	5	3 3/4	2 1/2	1 3/8
1 3/8	5/8	8 3/4	RING	2 1/8	RING	5 3/8	3 3/4	2 1/2	1 1/2
1 1/2	3/4	10	RING	2 1/4	RING	5 1/2	3 7/8	2 1/2	1 5/8
1 5/8	3/4	10 3/4	RING	2 3/8	RING	5 5/8	3 7/8	2 1/2	1 3/4
1 3/4	7/8	12	RING	2 1/2	RING	5 7/8	4	2 1/2	1 7/8
1 7/8	7/8	13	RING	2 5/8	RING	6	4	2 1/2	2
2	1	14	RING	2 3/4	RING	6 1/4	4 1/4	2 1/2	2 1/8
2 1/4	1	15 3/4	RING	3	RING	6 3/4	4 5/16	2 1/2	2 3/8

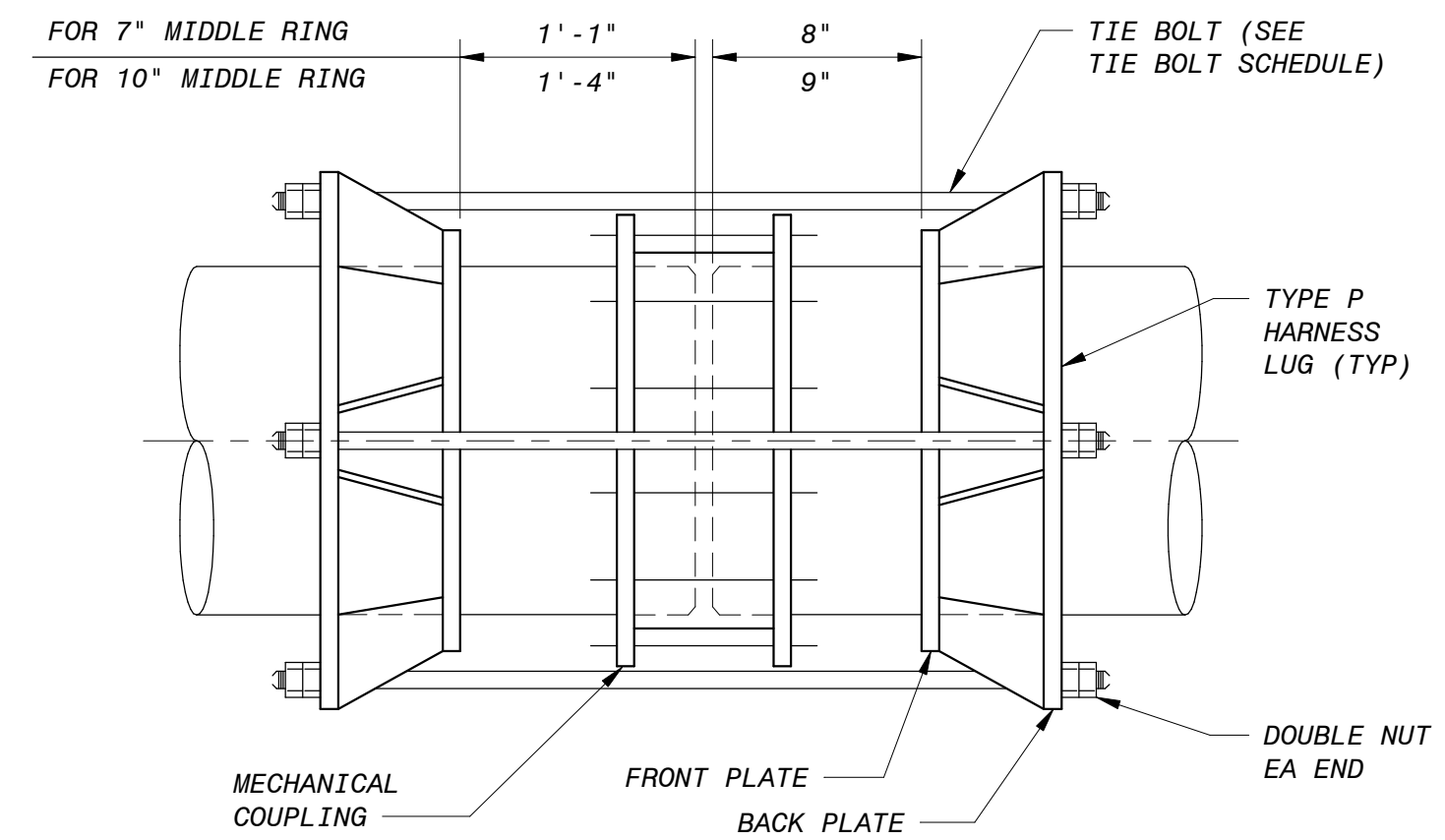
- NOTES :**
- n = PIPE WALL THICKNESS.
 - FOR HARNESS LUG TYPE RR, THE GUSSET PLATES BETWEEN THE FRONT PLATE AND THE BACK PLATE MAY BE PERPENDICULAR TO THE FRONT AND BACK PLATES WITH A MINIMUM CLEAR DISTANCE BETWEEN EACH PAIR OF GUSSET PLATES OF DIMENSION W.

C STEEL PIPE HARNESS LUGS
NO SCALE



- NOTE :**
- THE PIPE FOR LUG DESIGN SHALL INCLUDE WRAPPERS OR PADS OR THE PIPE WALL THICKNESS INCREASED AS REQUIRED TO MEET MINIMUM PIPE THICKNESS IN ACCORDANCE WITH AWWA M-11 DESIGN REQUIREMENTS.

B STEEL PIPE HARNESS MECHANICAL COUPLING WITH TYPE P LUGS
NO SCALE



- NOTES :**
- THE PIPE FOR LUG DESIGN SHALL INCLUDE WRAPPERS OR PADS OR THE PIPE WALL THICKNESS INCREASED AS REQUIRED TO MEET MINIMUM PIPE THICKNESS IN ACCORDANCE WITH AWWA M-11 DESIGN REQUIREMENTS.
 - WHERE HARNESS LUGS ARE SPECIFIED FOR VERTICAL TURBINE PUMP DISCHARGE OUTLETS, THE NUMBER AND SIZE OF THE TIE RODS FOR THE HARNESS COUPLING MUST EQUAL THE AREA OF THE CONNECTING STEEL PIPE WALL. CONTRACTOR SHALL COORDINATE THIS DESIGN REQUIREMENT WITH THE PUMP AND PIPE MANUFACTURERS.

D STEEL PIPE HARNESS MECHANICAL COUPLING WITH TYPE RR LUGS
NO SCALE



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BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

GENERAL
CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

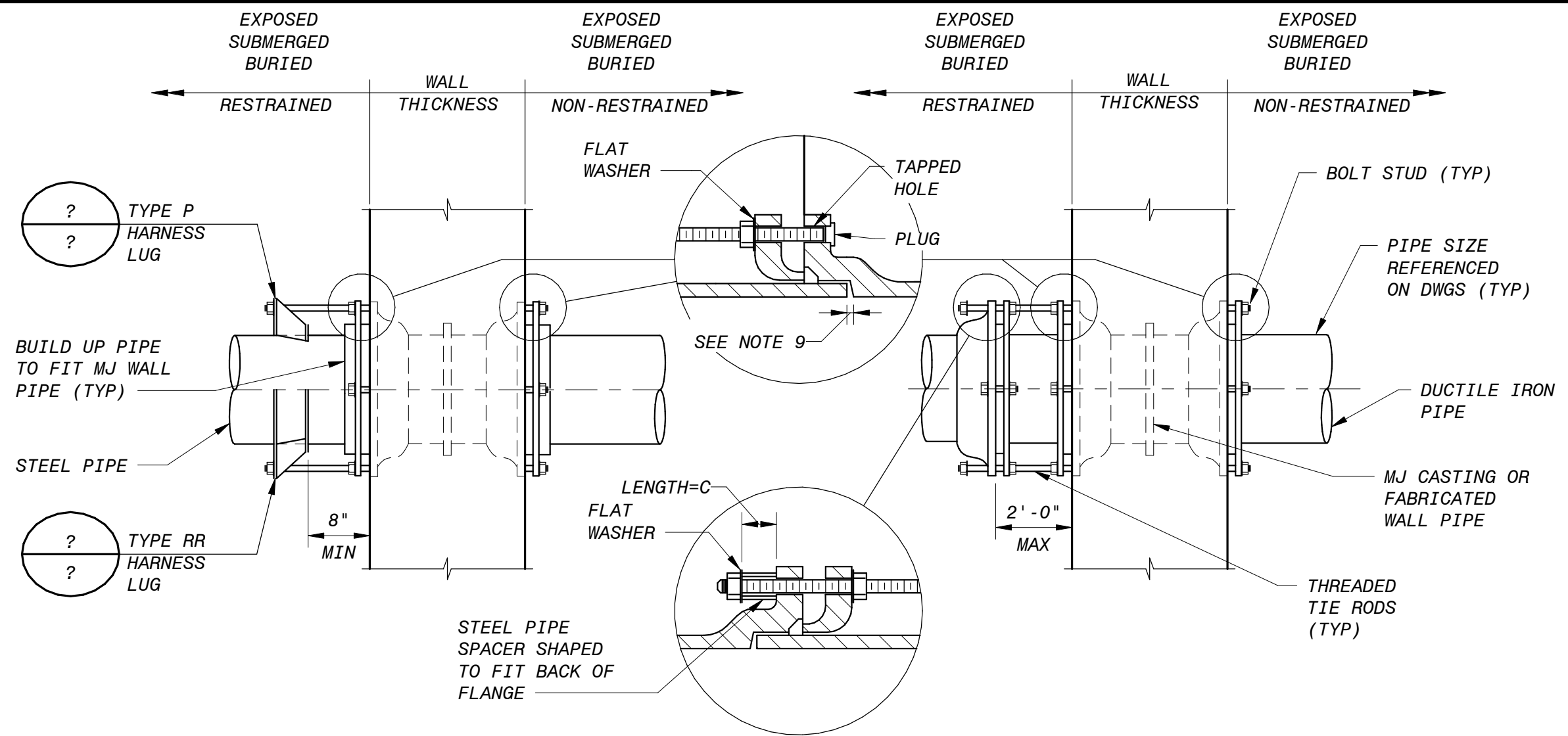
PROJECT NO.
400530

00-M-501
SHEET
20 OF 412

STEEL PIPE TIE BOLT SCHEDULE FOR HARNESSED JOINTS														
NOMINAL PIPE SIZE (INCHES)	PRESSURE (psi) (NOTE 1)	LUG TYPE	TIE BOLT DIA (INCHES)	NO. BOLTS (NOTE 3)	NOMINAL PIPE SIZE (INCHES)	PRESSURE (psi) (NOTE 1)	LUG TYPE	TIE BOLT DIA (INCHES)	NO. BOLTS (NOTE 3)	NOMINAL PIPE SIZE (INCHES)	PRESSURE (psi) (NOTE 1)	LUG TYPE	TIE BOLT DIA (INCHES)	NO. BOLTS (NOTE 3)
6	250 OR LESS	P	5/8	2	30	50	RR	3/4	4	72	50	RR	1 1/4	6
						100	RR	1	4		100	RR	1 1/2	8
8	250 OR LESS	P	5/8	2		150	RR	1 1/8	4		150	RR	2	8
						200	RR	1 1/4	4		200	RR	2	10
10	50	P	5/8	2		250	RR	1 1/2	4		250	RR	2	12
	100	P	5/8	2										
	150	P	5/8	2	36	50	RR	7/8	4	78	50	RR	1 3/8	6
	200	P	3/4	2		100	RR	1 1/8	4		100	RR	2	6
	250	P	3/4	2		150	RR	1 3/8	4		150	RR	2	8
						200	RR	1 1/4	6		200	RR	2	10
12	50	P	5/8	2		250	RR	1 3/8	6		250	RR	2 1/4	12
	100	P	5/8	2										
	150	P	5/8	2	42	50	RR	7/8	4	84	50	RR	1 1/2	6
	200	P	3/4	2		100	RR	1 1/4	4		100	RR	1 3/4	8
	250	P	7/8	2		150	RR	1 1/4	6		150	RR	2	10
						200	RR	1 1/2	6		200	RR	2	12
14	50	RR	5/8	2		250	RR	1 3/4	6		250	RR	2 1/4	14
	100	RR	5/8	2										
	150	RR	3/4	2	48	50	RR	1	4	90	50	RR	1 1/2	6
	200	RR	7/8	2		100	RR	1 1/2	4		100	RR	2	8
	250	RR	1	2		150	RR	1 1/2	6		150	RR	2	10
						200	RR	1 3/4	6		200	RR	2 1/4	12
16	50	RR	5/8	2		250	RR	2	6		250	RR	2 1/4	14
	100	RR	3/4	2										
	150	RR	7/8	2	54	50	RR	1 1/8	4	96	50	RR	1 3/4	6
	200	RR	1	2		100	RR	1 3/8	4		100	RR	2	8
	250	RR	1 1/8	2		150	RR	1 3/4	6		150	RR	2 1/4	10
						200	RR	2	6		200	RR	2 1/4	12
						250	RR	1 3/4	8		250	RR	2 1/4	16
18	50	RR	5/8	2										
	100	RR	7/8	2	60	50	RR	1 1/4	4		50	RR	1 1/2	6
	150	RR	1	2		100	RR	1 1/2	6		100	RR	1 1/2	8
	200	RR	1 1/4	2		150	RR	1 1/2	8		150	RR	1 1/2	10
	250	RR	1 1/4	2		200	RR	1 3/4	8		200	RR	1 3/4	12
20	50	RR	5/8	2		250	RR	1 3/4	10		250	RR	1 3/4	14
	100	RR	7/8	2										
	150	RR	1 1/8	2	66	50	RR	1 3/8	4		50	RR	1 3/8	6
	200	RR	1 1/4	2		100	RR	1 3/4	6		100	RR	1 3/4	8
	250	RR	1	4		150	RR	1 3/4	8		150	RR	1 3/4	10
						200	RR	1 3/4	10		200	RR	1 3/4	12
24	50	RR	3/4	2		250	RR	1 3/4	12		250	RR	1 3/4	16
	100	RR	3/4	4										
	150	RR	1	4										
	200	RR	1 1/8	4										
	250	RR	1 1/4	4										

NOTES :

- PRESSURE SHALL BE THE PRESSURE AT WHICH THE PIPE IS HYDROSTATICALLY TESTED, OR IF THERE IS NO HYDROSTATIC FIELD TEST, IT SHALL BE THE SPECIFIED SHOP TEST PRESSURE.
- NUMBER OF TIE BOLTS IS BASED ON AN ALLOWABLE STRESS ON NET TENSION AREA OF 40,000 PSI.
- UNLESS OTHERWISE INDICATED, TIE BOLTS SHALL BE SPACED UNIFORMLY AROUND THE PIPE, BEGINNING WITH THE FIRST TWO AT THE HORIZONTAL CENTERLINE OF THE PIPE, SUBJECT TO THE APPROVAL OF THE ENGINEER.

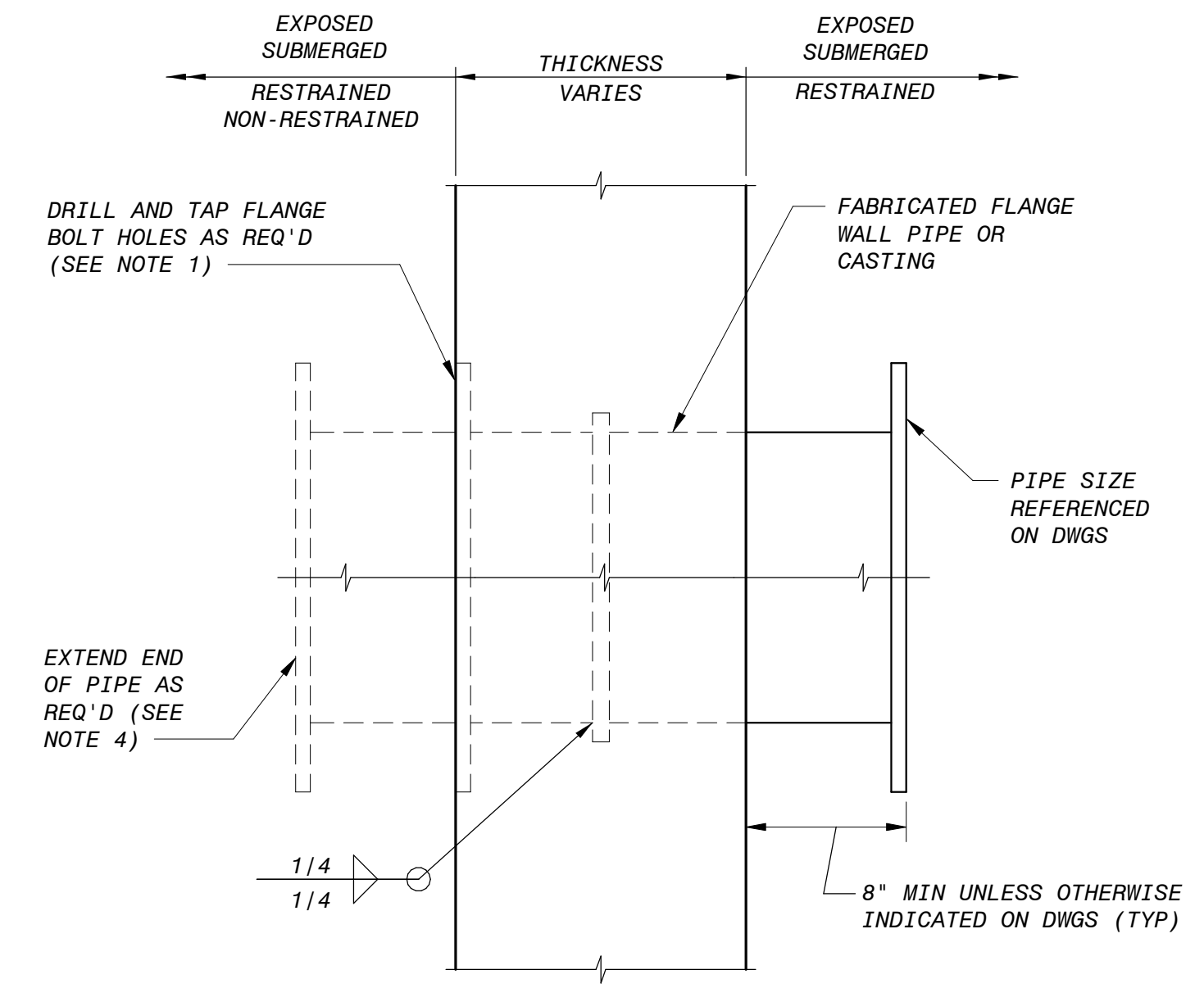


NOTES :

- MECHANICAL JOINT OR PUSH-ON STYLE FITTINGS MAY BE FURNISHED WHERE RESTRAINED JOINTS ARE NOT CALLED FOR ON THE DRAWINGS OR PIPE SCHEDULE.
- PRESSURE SHALL BE THE PRESSURE AT WHICH THE PIPE IS HYDROSTATICALLY TESTED, OR IF THERE IS NO HYDROSTATIC FIELD TEST, IT SHALL BE THE SPECIFIED SHOP TEST PRESSURE.
- UNLESS OTHERWISE INDICATED, TIE RODS SHALL BE SPACED UNIFORMLY AROUND THE PIPE, BEGINNING WITH THE FIRST TWO AT THE HORIZONTAL CENTERLINE OF THE PIPE, SUBJECT TO THE APPROVAL OF THE ENGINEER.
- EXCEPT WHERE TIE RODS ARE REQUIRED, BOLTS FOR FOLLOWER RINGS SHALL BE BOLT-STUDS ON WALL PIPE. ALL BOLT HOLES IN WALL PIPE SHALL BE TAPPED. WALL PIPES SHALL BE ORIENTED SO THAT THE BOLT HOLES STRADDLE THE TOP CENTERLINE.
- AT CONTRACTOR'S OPTION, 4" THROUGH 48" MAY BE FURNISHED AS MECHANICAL JOINT STYLE WITH TIE RODS, OR POSITIVE LOCKING SEGMENTS AND/OR RINGS SUCH AS AMERICAN JOINT STYLE PIPE 14" THROUGH 36" SIZE MAY BE FURNISHED AS FLEX RING STYLE RESTRAINED JOINTS AND 42" THROUGH 64" SIZE MAY BE FURNISHED AS LOC RING STYLE RESTRAINED JOINTS, OR U.S. PIPE "TR-FLEX", OR GRIFFIN PIPE "SNAP-LOCK".
- FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NO MORE THAN 5 FEET.
- USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES, INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.
- WHERE PIPE IS REQUIRED ON ONE SIDE ONLY, PROVIDE MJXPE WALL PIPE.
- FOR PIPING FLEXIBILITY, PROVIDE GAP LARGE ENOUGH TO FACILITATE PIPE ASSEMBLY AND DISASSEMBLY AT ASSOCIATED FLANGE PIPE JOINTS.

MECHANICAL JOINT TIE ROD SCHEDULE						
NOMINAL PIPE SIZE (INCHES)	MAX PRESSURE (PSI) (NOTE 2)	TIE BOLTS		PIPE SPACERS		
		NO. OF RODS (NOTE 3)	DIA OF RODS (INCHES)	DIA (INCHES)	LENGTH (INCHES)	PIPE SCHEDULE
4	350 OR LESS	2	3/4	1	2 1/2	40
6	250 OR LESS 350	2 4	3/4	1	2 1/2	40
8	150 OR LESS 300 350	2 4 6	3/4	1	2 1/2	40
10	200 OR LESS 350	2 4	3/4	1	2 1/2	80
12	150 OR LESS 300 350	2 4 6	3/4	1	2 1/2	80
14	100 OR LESS 200 350	2 4 6	3/4	1	3 1/2	80
16	150 OR LESS 250 350	4 6 8	3/4	1	3 1/2	80
18	150 OR LESS 200 300 350	4 6 8 10	3/4	1	3 1/2	80
20	100 OR LESS 150 200 300 350	4 6 8 10 12	3/4	1	3 1/2	80
24	100 OR LESS 150 200 250 300 350	6 8 10 12 14 16	3/4	1	3 1/2	80
30	100 OR LESS 150 200 250	8 10 12 16	1	1 1/4	4	80
36	100 OR LESS 150 200 250	8 12 18 22	1	1 1/4	4	80
42	100 OR LESS 150 200 250	8 12 16 20	1 1/4	1 1/2	4	80
48	100 OR LESS 150 200 250	12 16 22 28	1 1/4	1 1/2	4	80

A STEEL PIPE TIE BOLT SCHEDULE FOR HARNESSED JOINTS
NO SCALE

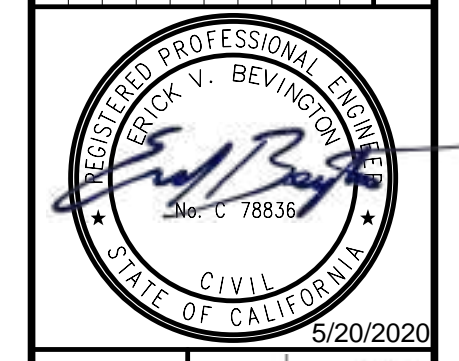


NOTES :

- WALL PIPE MATERIAL SHALL BE DUCTILE IRON, STEEL OR AS INDICATED ON THE DRAWINGS. STEEL PIPE SHALL BE SCHEDULE 40 FOR PIPE 20 INCHES AND SMALLER, 3/8" FOR PIPE LARGER THAN 20", AND COATINGS SAME AS CONNECTING PIPE.
- IF CONNECTING STEEL PIPE THICKNESS IS GREATER THAN 3/8", STEEL WALL PIPE THICKNESS SHALL BE INCREASED TO MATCH CONNECTING PIPE.
- ANNULAR COLLAR SHALL BE SAME MATERIAL AS PIPE, 1/4" X 2" FOR PIPE 20" AND SMALLER, AND 3/8" X 3" FOR PIPE LARGER THAN 20".
- WALL PIPE MAY BE FLUSH WITH FACE OF WALL OR EXTENDED WITH END AS REQUIRED OR INDICATED ON DRAWINGS.
- WALL PIPE SHALL BE ORIENTED SO THAT THE BOLT HOLES STRADDLE THE TOP CENTERLINE.

B FLANGED WALL PIPE
NO SCALE

C MECHANICAL JOINT WALL PIPE WITH TIE RODS
NO SCALE

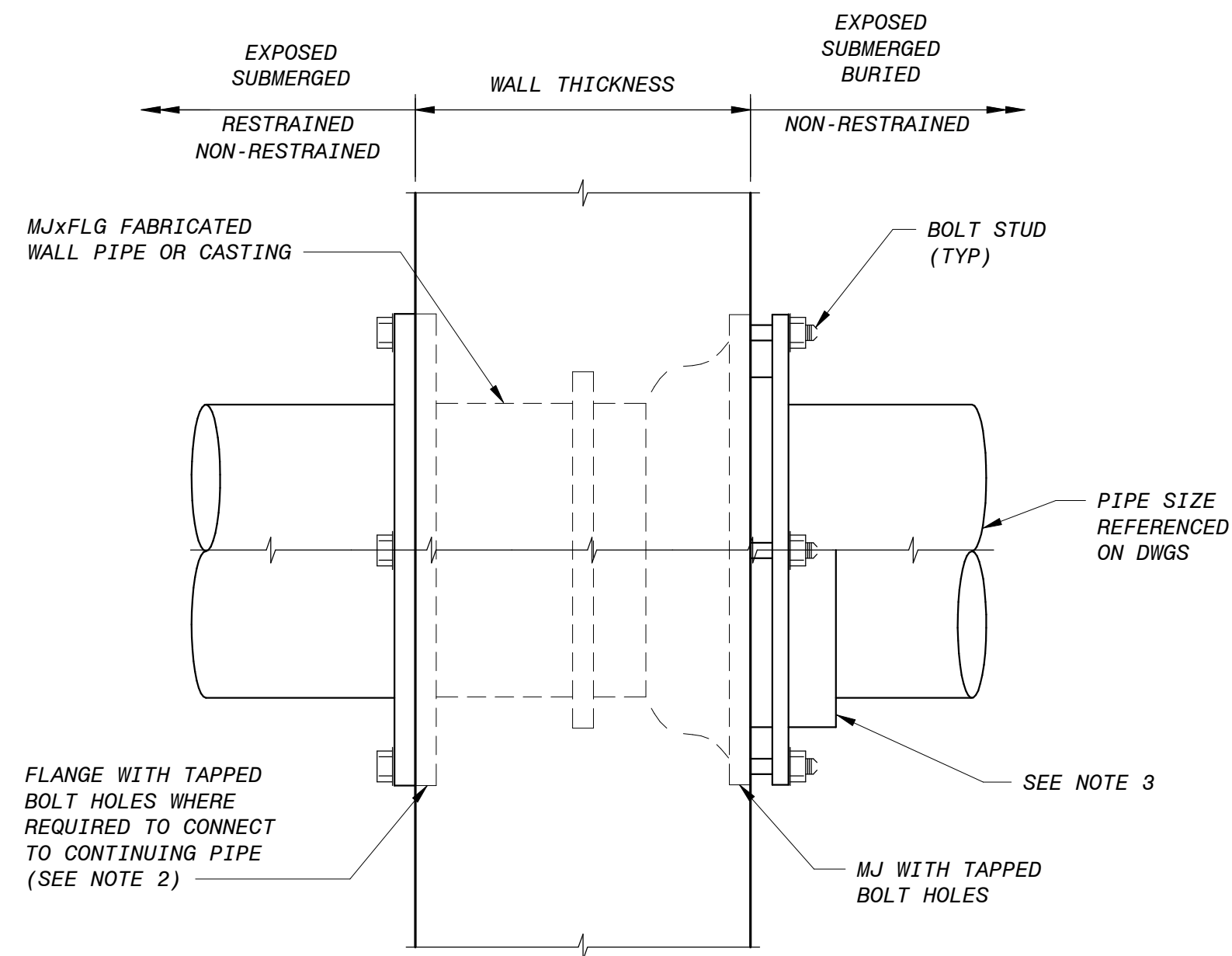


BLACK & VEATCH
JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020
 PROJECT NO. 400530
 SHEET 21 OF 412

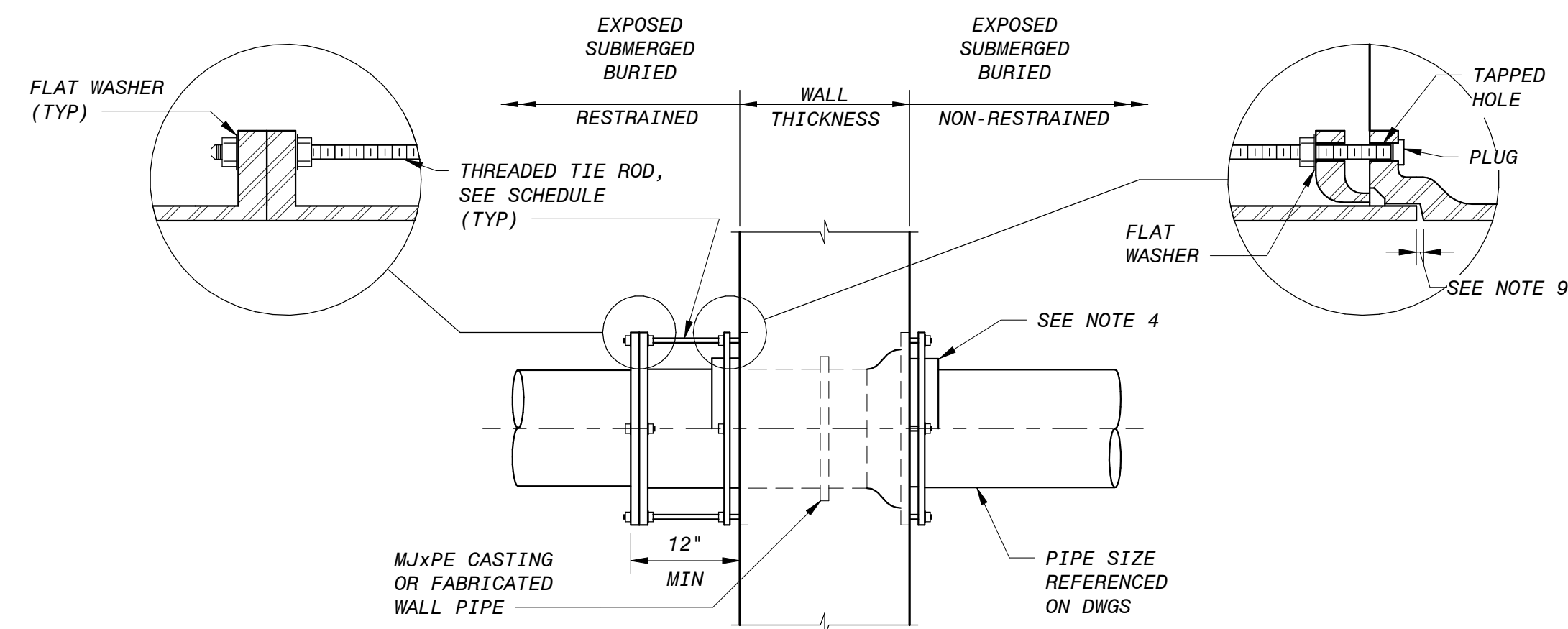
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NOTES :

1. WALL PIPE SHALL BE ORIENTED SO THAT THE BOLT HOLES STRADDLE THE TOP CENTERLINE.
2. WHERE PIPE IS REQUIRED ON ONE SIDE ONLY, PROVIDE MJxPE WALL PIPE.
3. FOR STEEL PIPE APPLICATIONS BUILD UP END OF STEEL PIPE TO FIT MJ WALL PIPE.
4. FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NO MORE THAN 5 FEET.
5. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES, INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.

A FLANGED-MECHANICAL JOINT WALL PIPE
NO SCALE

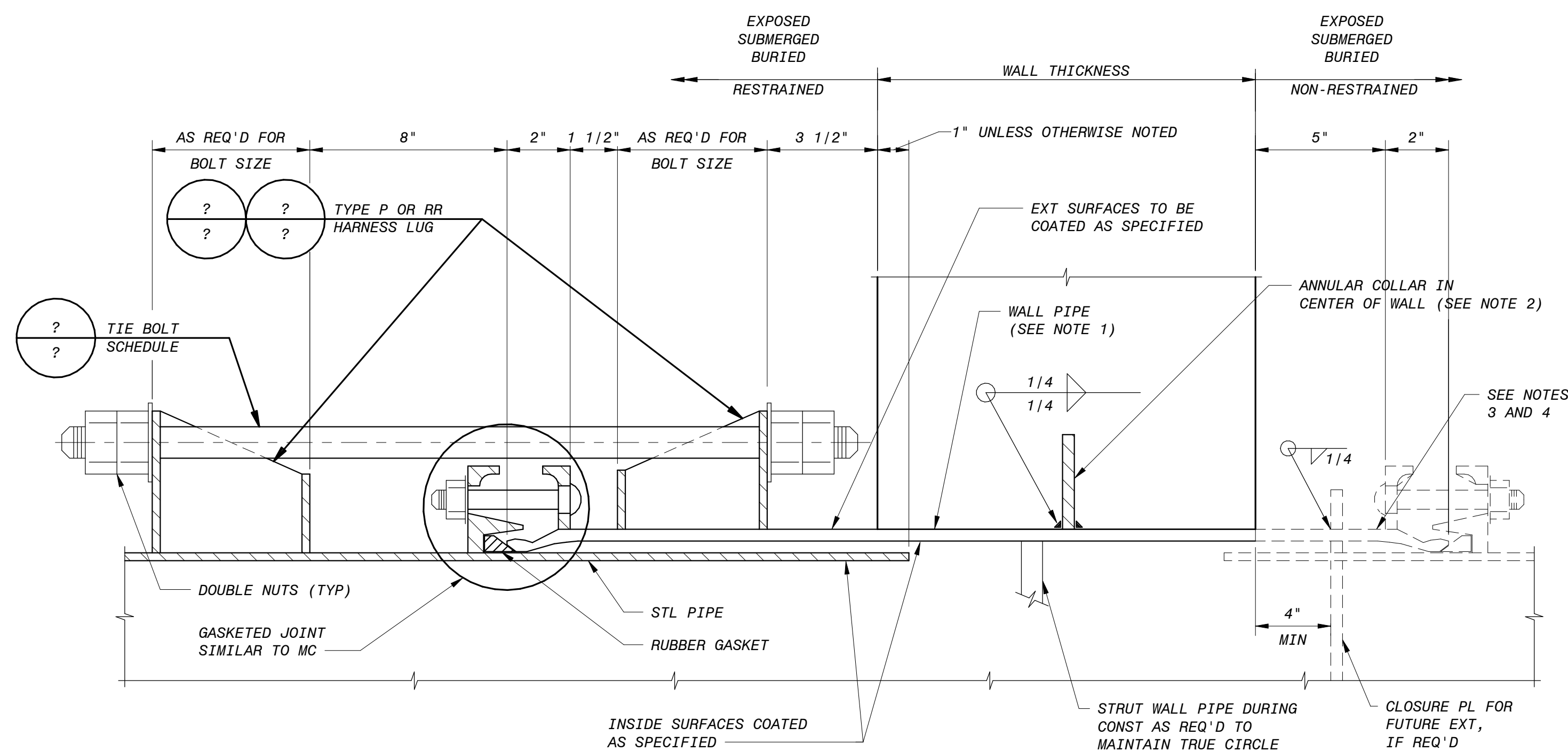


NOTES :

1. PRESSURE SHALL BE THE PRESSURE AT WHICH THE PIPE IS HYDROSTATICALLY TESTED, OR IF THERE IS NO HYDROSTATIC FIELD TEST, IT SHALL BE THE SPECIFIED SHOP TEST PRESSURE.
2. UNLESS OTHERWISE INDICATED, TIE RODS SHALL BE SPACED UNIFORMLY AROUND THE PIPE, BEGINNING WITH THE FIRST TWO AT THE HORIZONTAL CENTERLINE OF THE PIPE, SUBJECT TO THE APPROVAL OF THE ENGINEER.
3. EXCEPT WHERE TIE RODS ARE REQUIRED, BOLTS FOR FOLLOWER RINGS SHALL BE BOLT-STUDS ON WALL PIPE. ALL BOLT HOLES IN WALL PIPE SHALL BE TAPPED. WALL PIPES SHALL BE ORIENTED SO THAT THE BOLT HOLES STRADDLE THE TOP CENTERLINE.
4. FOR STEEL PIPE APPLICATIONS, BUILD UP END OF STEEL PIPE TO FIT MJ WALL PIPE.
6. FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NO MORE THAN 5 FEET.
7. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES, INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.
8. WHERE PIPE IS REQUIRED ON ONE SIDE ONLY, PROVIDE MJxPE WALL PIPE.
9. FOR PIPING FLEXIBILITY, PROVIDE GAP LARGE ENOUGH TO FACILITATE PIPE ASSEMBLY AND DISASSEMBLY AT ASSOCIATED FLANGE PIPE JOINTS.

TIE ROD SCHEDULE			
NOMINAL PIPE SIZE (INCHES)	MAX PRESSURE (PSI) (NOTE 1)	TIE BOLTS	
		NO. OF RODS (NOTE 2)	DIA OF RODS (INCHES)
6	250 OR LESS	2	3/4
8	150 OR LESS	2	3/4
10	200 OR LESS 350	2 6	3/4
12	150 OR LESS 300	2 4	3/4
14	100 OR LESS 200	2 4	3/4
16	75 OR LESS 150	2 4	3/4
18	75 OR LESS 150	2 4	3/4
20	50 OR LESS	2	3/4
24	75	4	3/4
30	50 OR LESS	4	1
36	50 OR LESS 100	4 8	1
42	50 OR LESS	4	1 1/4

B FLANGED - MECHANICAL JOINT WALL PIPE WITH TIE RODS
NO SCALE



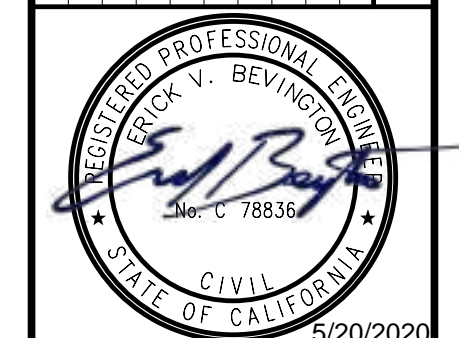
NOTES :

1. WALL PIPE TO BE FABRICATED OF 3/8" MINIMUM STEEL WITH COATINGS SAME AS CONNECTING PIPE, OR 304L SS, OR OTHER MATERIAL AS SPECIFIED OR INDICATED ON DRAWINGS. IF CONNECTING STEEL PIPE THICKNESS IS GREATER THAN 3/8", WALL PIPE THICKNESS SHALL BE INCREASED TO MATCH CONNECTING PIPE.
2. ANNULAR COLLAR SHALL BE SAME MATERIAL AS PIPE, 1/4" X 2" FOR PIPE 20" AND SMALLER, AND 3/8" X 3" FOR PIPE LARGER THAN 20".
3. WALL PIPE MAY BE FLUSH WITH FACE OF WALL, EXTENDED WITH CLOSURE PLATE FOR FUTURE EXTENSION, EXTENDED WITH NON-RESTRAINED GASKETED JOINT, OR RESTRAINED GASKETED JOINTS MAY BE USED ON BOTH SIDES OF THE WALL, AS INDICATED ON THE DRAWINGS.
6. FOR BURIED PIPING WITH NON-RESTRAINED JOINTS, CONTRACTOR TO PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NOT CLOSER THAN 5 FEET.
7. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES, INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.

C HARNESSED WALL PIPE FOR STEEL PIPE
NO SCALE

PLOTTED: 5/14/2020 4:00:12 PM
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0	KEZ	RVB	EVJ
			NO. BY
			CHK
			APP
5/19/2020	ISSUED FOR CONSTRUCTION		REVISONS AND RECORD OF USE
			DATE



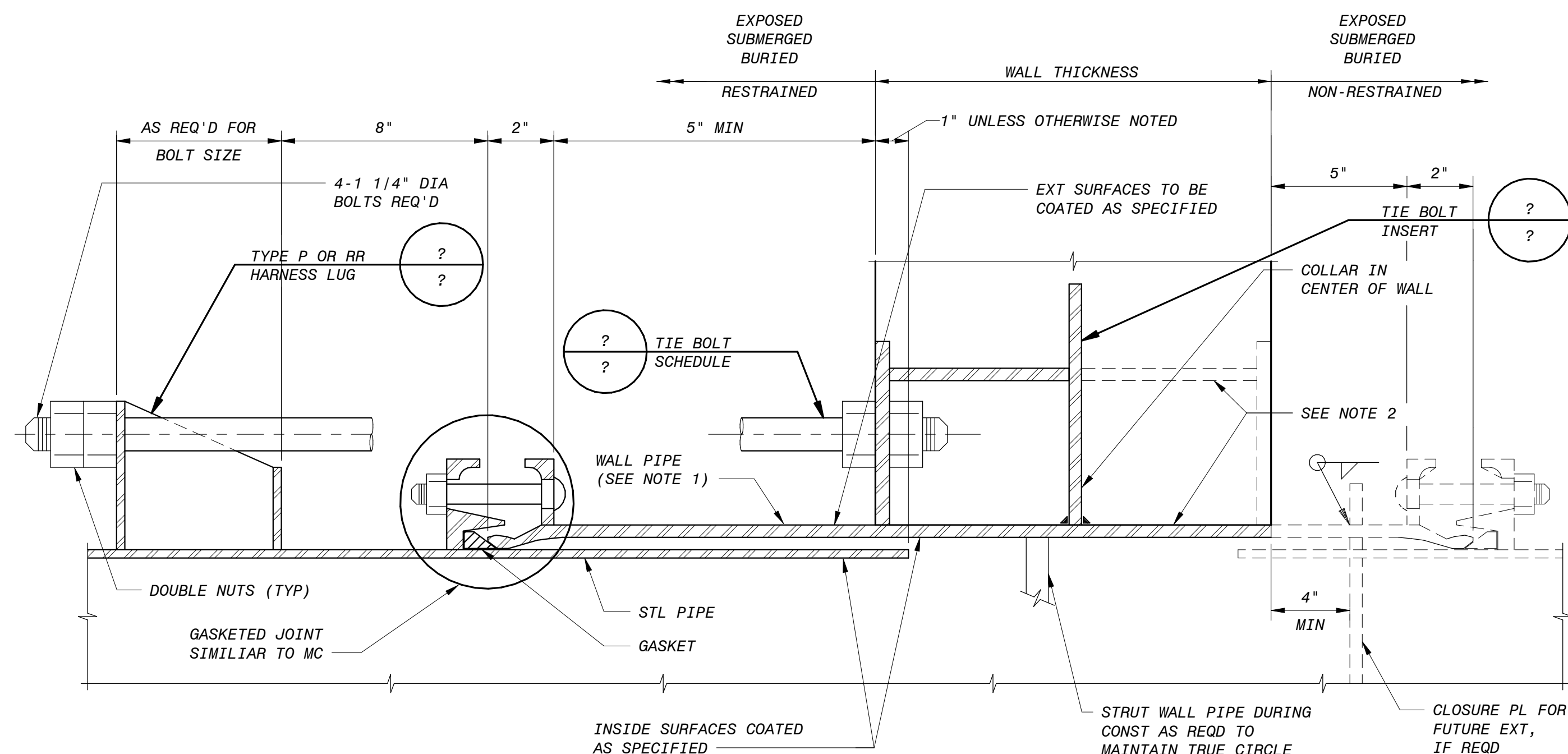
BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

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 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

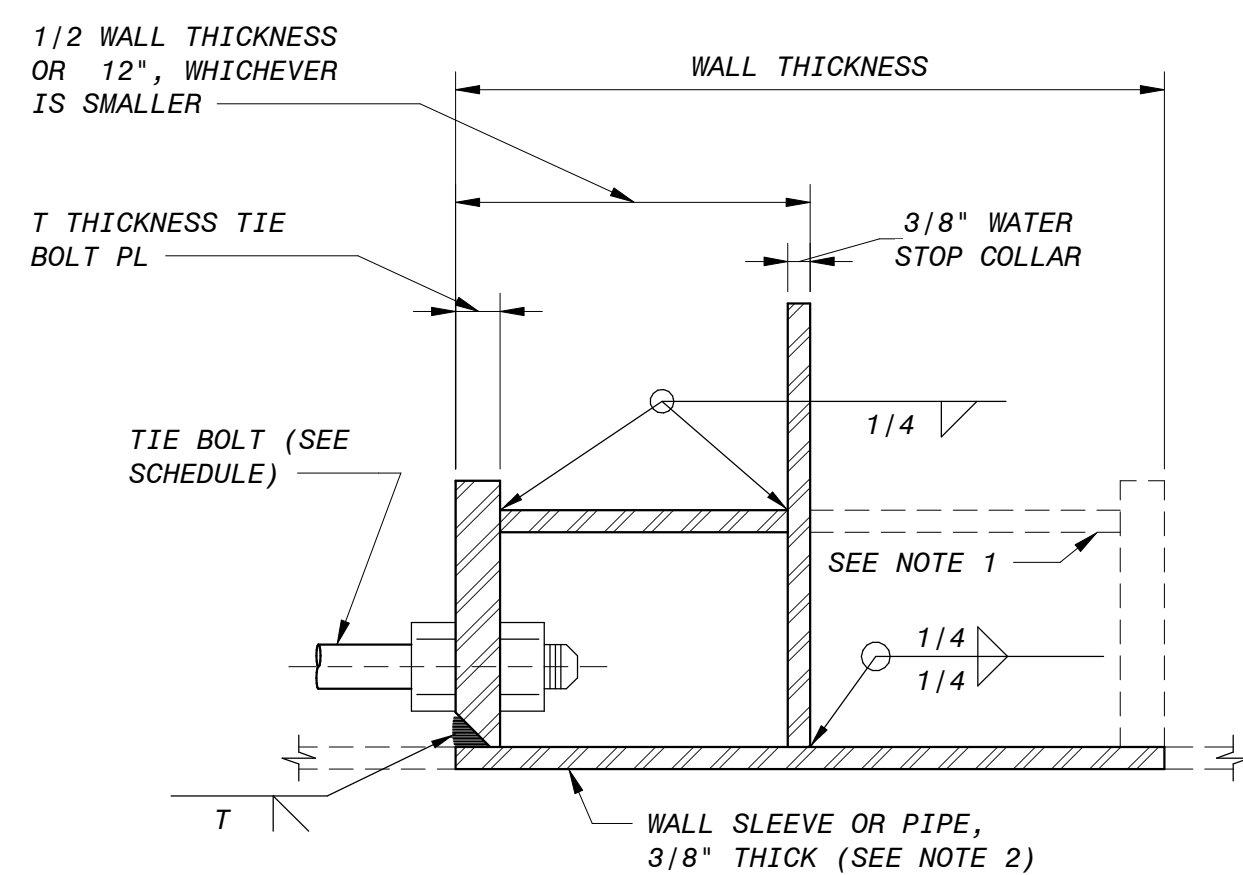
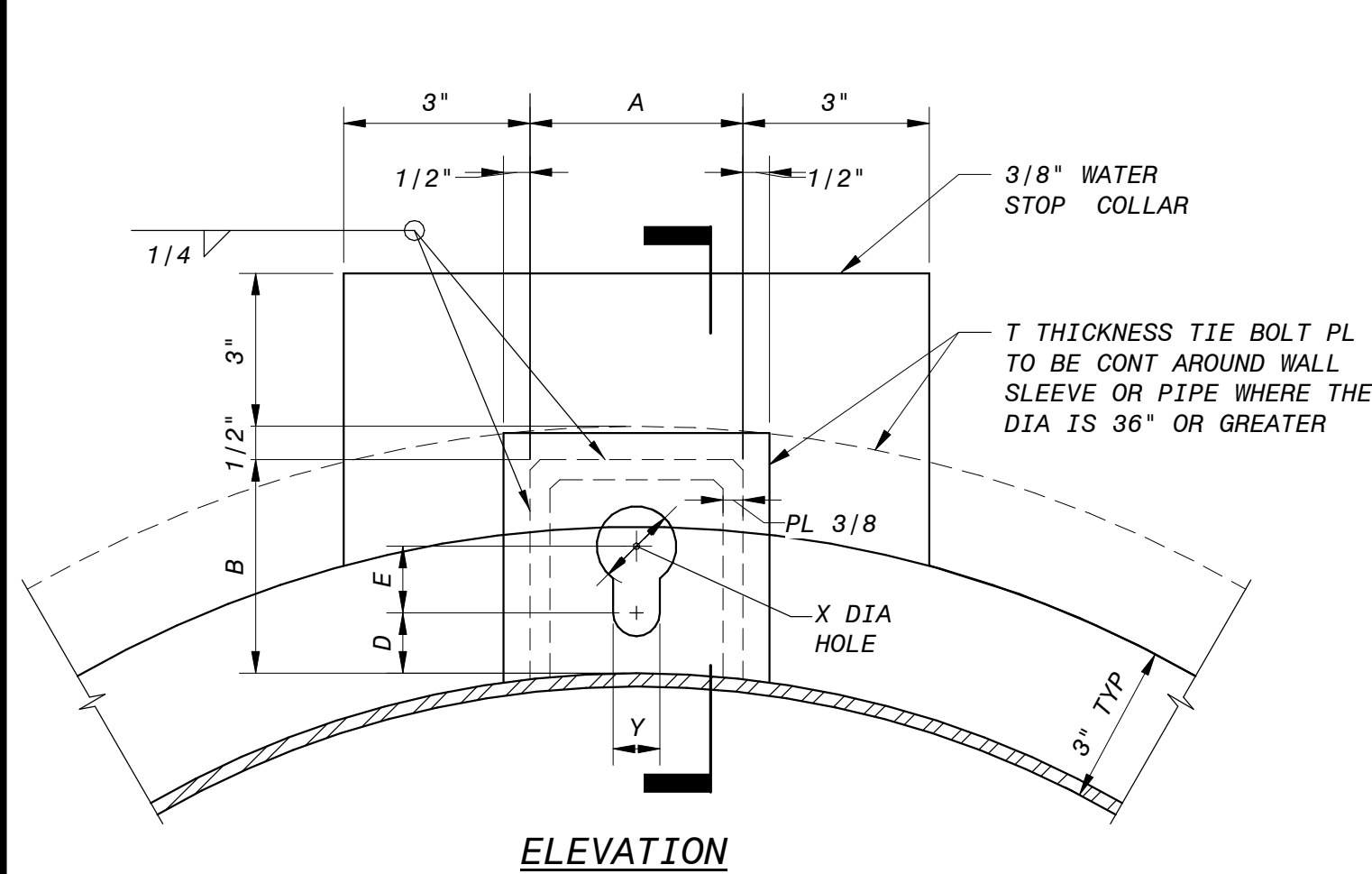
PROJECT NO.
400530
00-M-503
 SHEET
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NOTES :

1. WALL PIPE TO BE FABRICATED OF 3/8" MINIMUM STEEL WITH COATINGS SAME AS CONNECTING PIPE, OR 304L SS, OR OTHER MATERIAL AS SPECIFIED OR INDICATED ON DRAWINGS. IF CONNECTING STEEL PIPE THICKNESS IS GREATER THAN 3/8", WALL PIPE THICKNESS SHALL BE INCREASED TO MATCH CONNECTING PIPE.
2. WALL PIPE MAY BE FLUSH WITH FACE OF WALL, EXTENDED WITH CLOSURE PLATE FOR FUTURE EXTENSION, EXTENDED WITH NON-RESTRAINED GASKETED JOINT, OR RESTRAINED GASKETED JOINTS MAY BE USED ON BOTH SIDES OF THE WALL, AS INDICATED ON THE DRAWINGS.
3. FOR BURIED PIPING WITH NON-RESTRAINED JOINTS, CONTRACTOR TO PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NOT CLOSER THAN 5 FEET.
4. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES, INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.

A HARNESSED WALL PIPE FOR STEEL PIPE
NO SCALE



SECTION

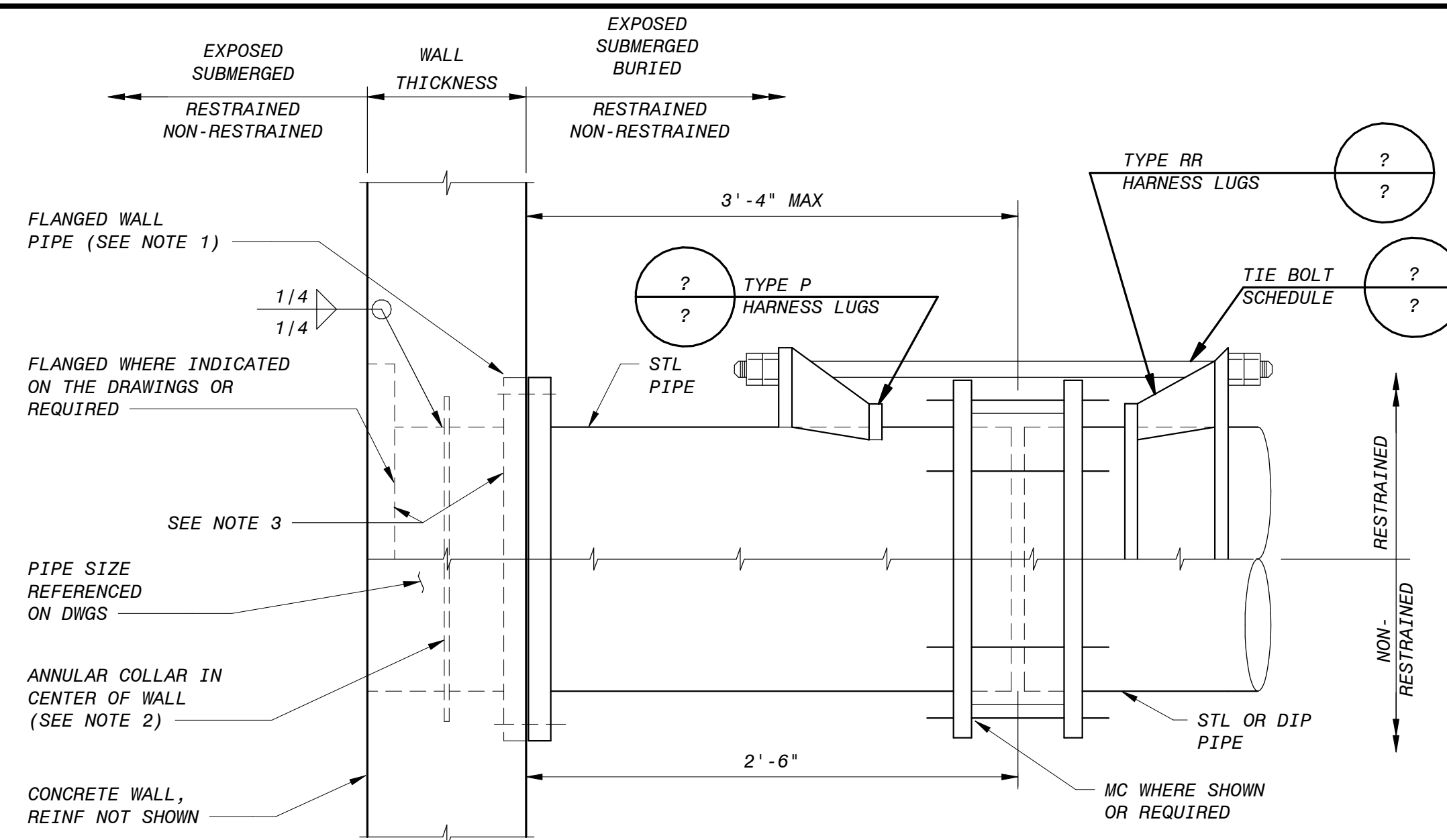
TIE BOLT SCHEDULE (INCHES)							
TIE BOLT DIAMETER	A	B	D	E	X	Y	T
5/8	4	5	*	1	1 3/8	3/4	3/8
3/4	4	5	*	1 1/4	1 1/2	7/8	3/8
7/8	4 1/2	5 1/2	*	1 1/2	1 3/4	1	1/2
1	5	6	*	1 3/4	2	1 1/8	1/2
1 1/8	5	6 1/2	*	1 3/4	2 1/4	1 1/4	1/2
1 1/4	5	7	*	2	2 3/8	1 3/8	5/8
1 3/8	5 1/2	7	*	2 1/4	2 3/4	1 1/2	5/8
1 1/2	5 1/2	7 1/2	*	2 1/2	3	1 5/8	3/4
1 5/8	6	7 1/2	*	2 1/2	3 1/4	1 3/4	3/4
1 3/4	6	8	*	2 3/4	3 3/8	1 7/8	7/8
1 7/8	6 1/2	8 1/2	*	3	3 3/4	2	7/8
2	6 1/2	9	*	3 1/4	4	2 1/8	1
2 1/4	6 1/2	9 1/2	*	3 1/2	4 1/4	2 3/8	1

* D = COUPLING FOLLOWER RING HEIGHT PLUS ONE-HALF BOLT DIA PLUS 1/8".

NOTES :

1. TIE BOLT INSERT MAY BE ON EITHER OR BOTH WALL FACES AS INDICATED ON DRAWINGS.
2. IF CONNECTING STEEL PIPE THICKNESS IS GREATER THAN 3/8" AND WALL SLEEVE OR PIPE IS EXTENDED BEYOND THE FACE OF THE WALL, WALL SLEEVE OR PIPE THICKNESS SHALL BE INCREASED TO MATCH CONNECTING PIPE.

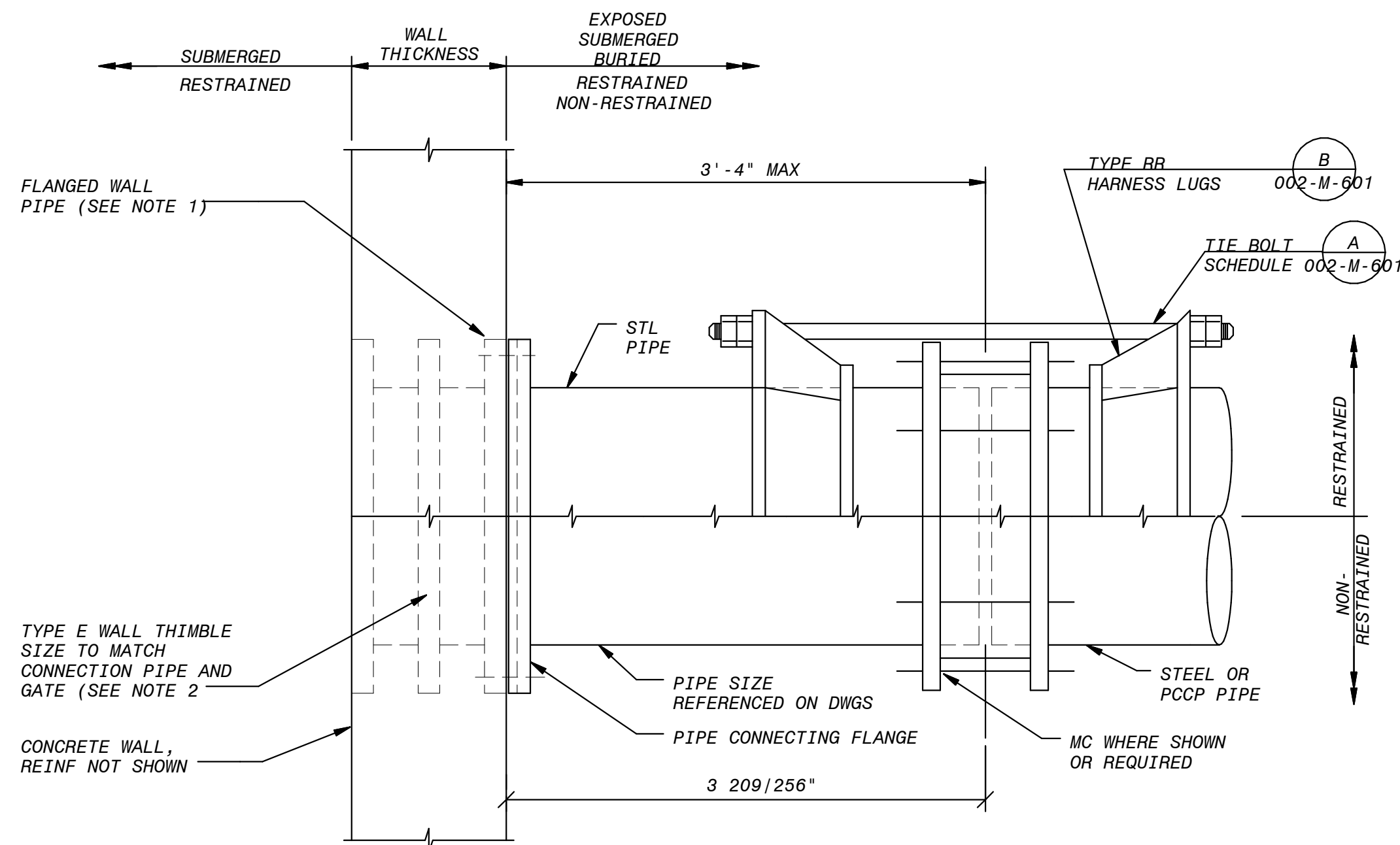
C TIE BOLT INSERT
NO SCALE



NOTES :

1. WALL PIPE MATERIAL SHALL BE DUCTILE IRON, STEEL, OR AS INDICATED ON THE DRAWINGS. STEEL WALL PIPE SHALL BE SCHEDULE 40 FOR PIPE 20" AND SMALLER, 3/8" FOR PIPE LARGER THAN 20", AND HOT DIP GALVANIZED AFTER FABRICATION.
2. ANNULAR COLLAR SHALL BE SAME MATERIAL AS PIPE, 1/4" X 2" FOR PIPE 20" AND SMALLER, AND 3/8" X 3" FOR PIPE LARGER THAN 20"
3. ALL FLANGE BOLT HOLES IN WALL PIPE SHALL BE DRILLED AND TAPPED.
4. WALL PIPE SHALL BE ORIENTATED SO THAT THE BOLT HOLES STRADDLE THE TOP CENTERLINE.
5. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES, INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.

B MECHANICAL COUPLING WALL PIPE FOR STEEL PIPE
NO SCALE



NOTES :

1. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES, INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.
2. TYPE E WALL THIMBLE WITH CIRCULAR PIPE CONNECTING FLANGE AND CIRCULAR OR SQUARE GATE MOUNTING FLANGE TO MATCH GATE SHOWN ON DRAWINGS OR SPECIFIED. DRILL AND TAP PIPE CONNECTING FLANGE TO MATCH PIPE AND GATE MOUNTING FLANGE TO MATCH GATE FRAME.
3. SIMILAR FOR DUCTILE IRON PIPE. USE A COUPLING GLAND STYLE JOINT RESTRAINT IN LIEU OF HARNES LUG.

D 003-234 - STEEL OR DIP CONNECTION AT SLIDE GATE
NO SCALE

0 KEZ RWE EVB
NO. BY CHK PJP
5/19/2020 ISSUED FOR CONSTRUCTION REVISIONS AND RECORD OF USE
DATE

REGISTERED PROFESSIONAL ENGINEER
BRECK V. BEVINGTON
No. C 78836
CIVIL
STATE OF CALIFORNIA
5/20/2020

BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

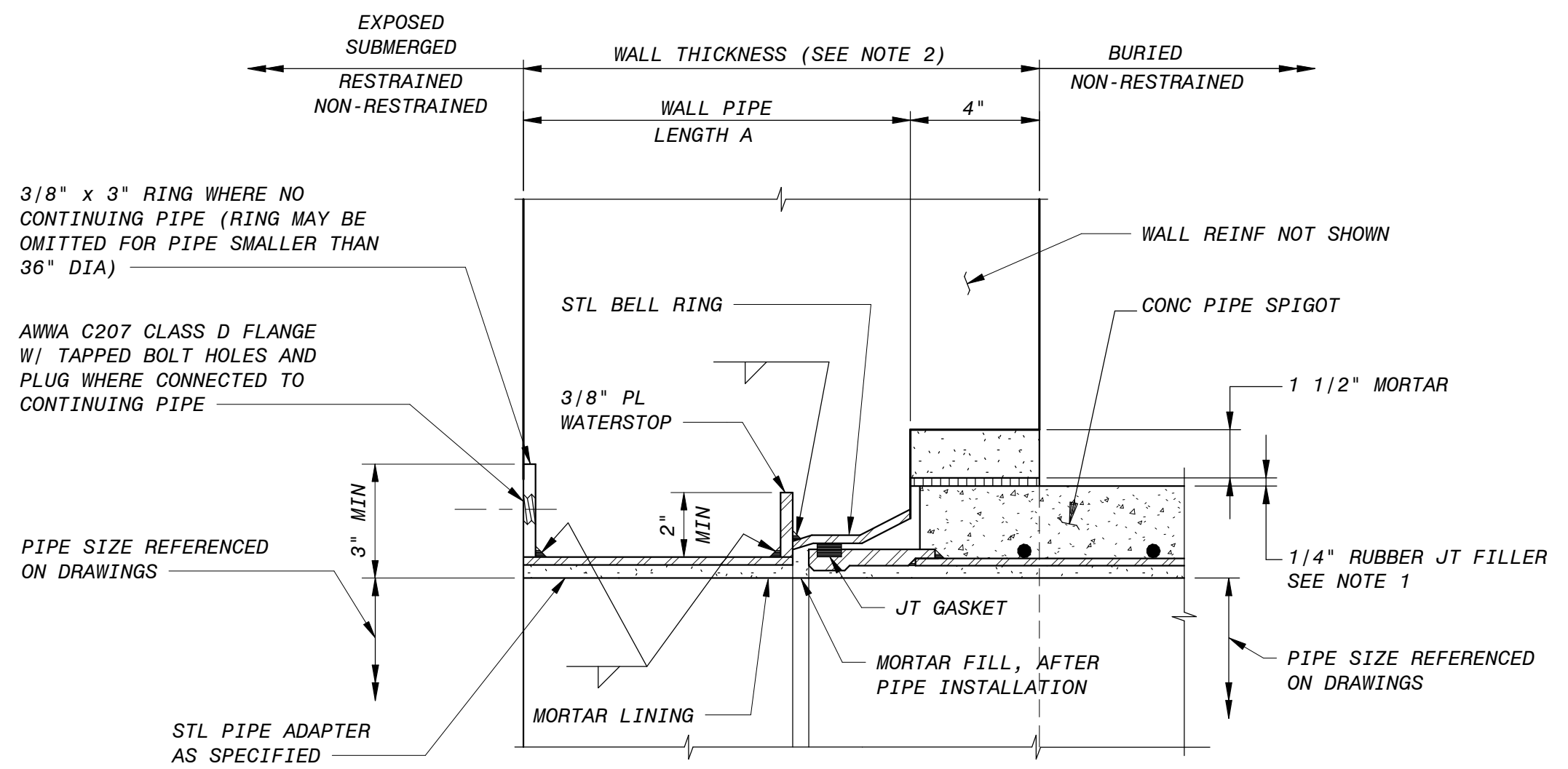
GENERAL
CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

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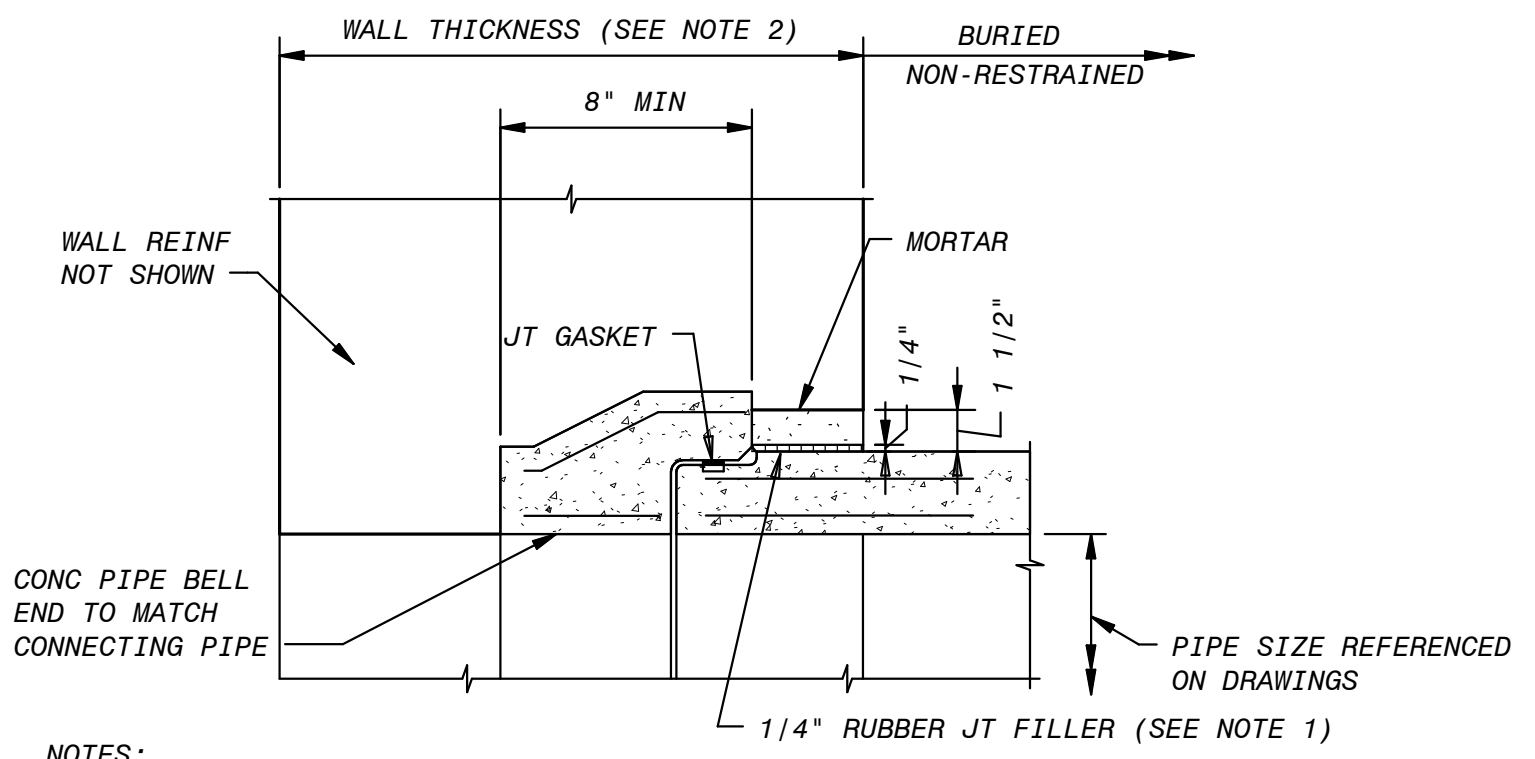
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SHEET
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- NOTES :**
- JOINT FILLER TO BE NATURAL OR SYNTHETIC RUBBER JT FILLER 1/4" THICK x 4" WIDE, CONTINUOUSLY AROUND PIPE, WITH A HARDNESS OF 40 WHEN MEASURED BY ASTM D 2240, TYPE A DUROMETER.
 - WHERE CONCRETE WALL THICKNESS IS LESS THAN MINIMUM THICKNESS INDICATED, THE WALL SHALL BE THICKENED BY CONSTRUCTING A REINFORCED CONCRETE COLLAR AROUND THE PIPE AS INDICATED ON THE DRAWINGS. THE COLLAR SHALL BE CAST WITH THE WALL AND SHALL HAVE A MINIMUM SQUARE DIMENSION OF PIPE O.D. PLUS 2'.
 - CONCRETE PIPE SHALL BE RCP, PCCP, LHCP OR CBCP PIPE AS INDICATED ON DRAWINGS OR SPECIFIED.

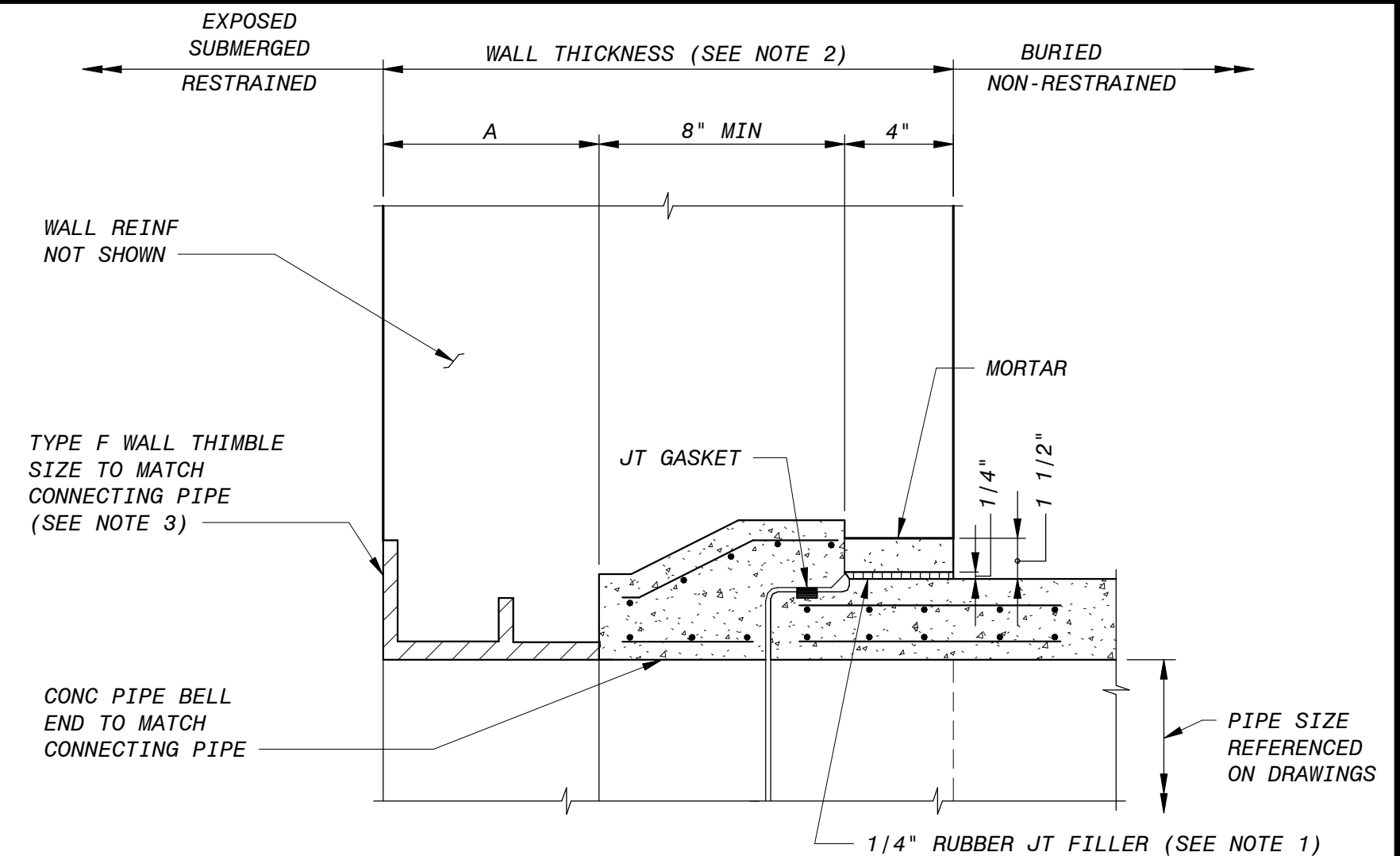
MINIMUM WALL PIPE LENGTH	
PIPE DIA	A
16" - 36"	8"
42" - 54"	9"
60" - 84"	10"
90" - 144"	12"

A RUBBER AND STEEL JOINT CONCRETE WALL PIPE
NO SCALE



- NOTES:**
- JOINT FILLER TO BE NATURAL OR SYNTHETIC RUBBER JOINT FILLER 1/4" THICK x 4" WIDE, CONTINUOUSLY AROUND PIPE, WITH A HARDNESS OF 40 WHEN MEASURED BY ASTM D 2240, TYPE A DUROMETER.
 - WHERE CONCRETE WALL THICKNESS IS LESS THAN MINIMUM THICKNESS INDICATED, THE WALL SHALL BE THICKENED BY CONSTRUCTING A REINFORCED CONCRETE COLLAR AROUND THE PIPE AS INDICATED ON THE DRAWINGS. THE COLLAR SHALL BE CAST WITH THE WALL AND SHALL HAVE A MINIMUM SQUARE DIMENSION OF PIPE O.D. + 2'.
 - CONCRETE PIPE SHALL BE RCP OR LHCP PIPE AS INDICATED ON DRAWING OR SPECIFIED.

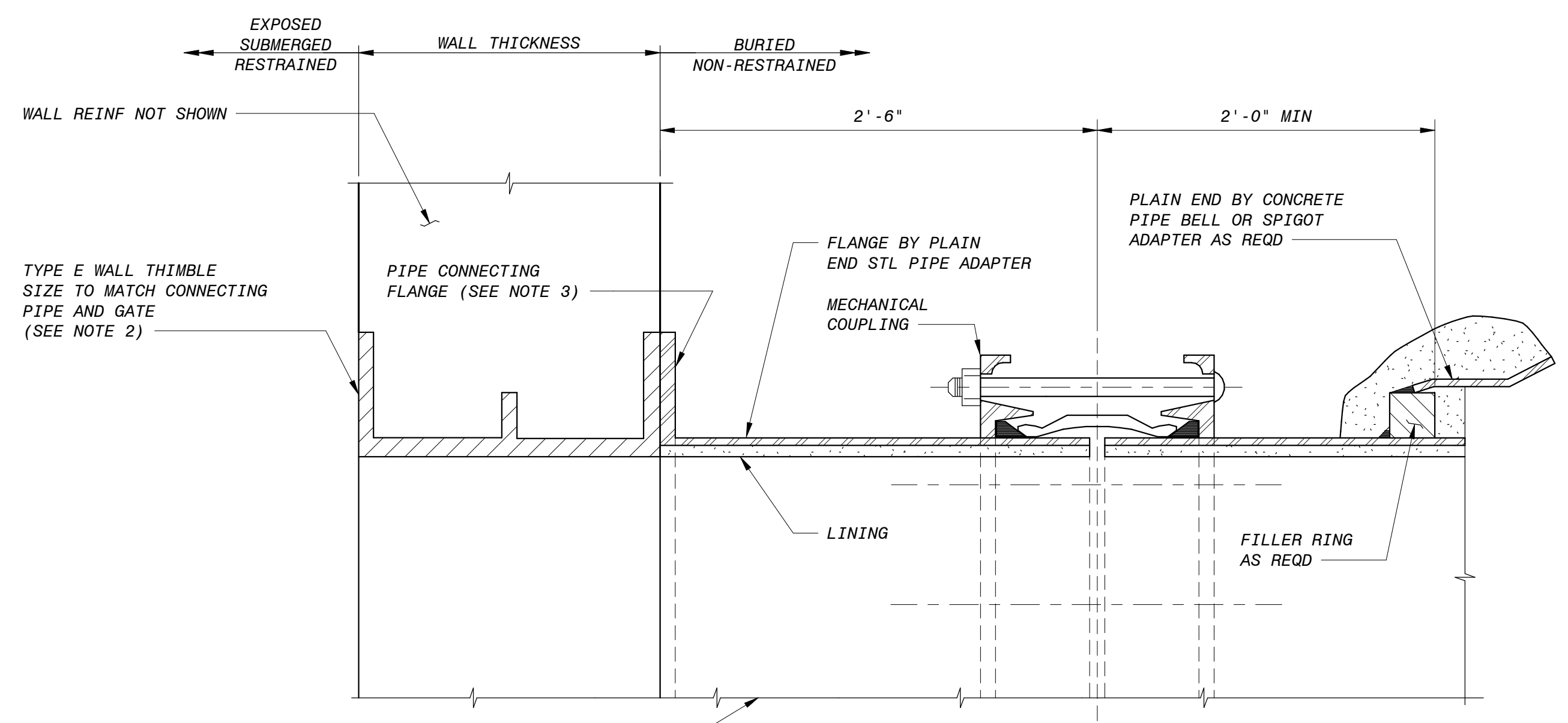
B 003-241 - RUBBER AND CONCRETE JOINT CONCRETE WALL PIPE
NO SCALE



- NOTES :**
- JOINT FILLER TO BE NATURAL OR SYNTHETIC RUBBER JT FILLER 1/4" THICK x 4" WIDE, CONTINUOUSLY AROUND PIPE, WITH A HARDNESS OF 40 WHEN MEASURED BY ASTM D 2240, TYPE A DUROMETER.
 - WHERE CONCRETE WALL THICKNESS IS LESS THAN MINIMUM THICKNESS INDICATED, THE WALL SHALL BE THICKENED BY CONSTRUCTING A REINFORCED CONCRETE COLLAR AROUND THE PIPE AS INDICATED ON THE DRAWINGS. THE COLLAR SHALL BE CAST WITH THE WALL AND SHALL HAVE A MINIMUM SQUARE DIMENSION OF PIPE O.D. PLUS 2'.
 - CIRCULAR TYPE F WALL THIMBLE WITH CIRCULAR OR SQUARE GATE MOUNTING FLANGE TO MATCH GATE SHOWN ON DRAWINGS OR SPECIFIED. DRILL AND TAP GATE MOUNTING FLANGE TO MATCH GATE FRAME.
 - CONCRETE PIPE SHALL BE RCP OR LHCP PIPE AS INDICATED ON DRAWINGS OR SPECIFIED.

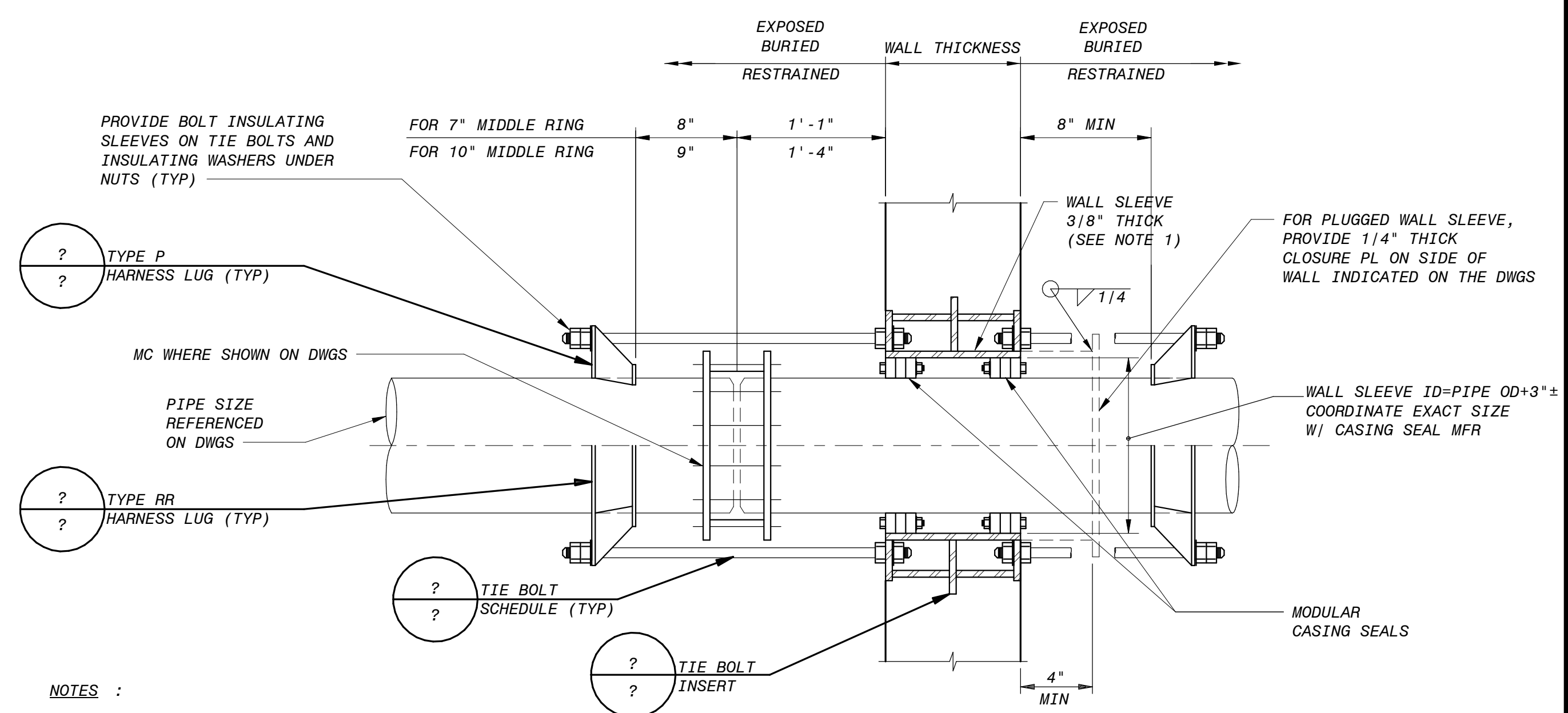
MINIMUM GATE WALL THIMBLE LENGTH	
PIPE DIA	A
24" - 60"	8"
66" - 96"	10"

C RUBBER AND CONCRETE JOINT CONCRETE WALL PIPE AT SLUICE GATE
NO SCALE



- NOTES :**
- USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES, INCLUDING PAINTED SURFACES. FOR PROTECTION OF MECHANICAL COUPLINGS AND ADJACENT PIPE BARREL SURFACES, SHRINK WRAP MAY BE USED IN LIEU OF WAX TAPE. SEE SPECIFICATIONS.
 - TYPE E WALL THIMBLE WITH CIRCULAR PIPE CONNECTING FLANGE AND CIRCULAR OR SQUARE GATE MOUNTING FLANGE TO MATCH GATE SHOWN ON DRAWINGS OR AS SPECIFIED. DRILL AND TAP PIPE CONNECTING FLANGE TO MATCH PIPE AND GATE MOUNTING FLANGE TO MATCH GATE FRAME.
 - CONCRETE PIPE SHALL BE RCP, PCCP, LHCP, OR CBCP PIPE AS INDICATED ON DRAWINGS OR AS SPECIFIED.

D RUBBER AND STEEL JOINT CONCRETE WALL PIPE AT CAST-IRON SLIDE GATE
NO SCALE



- NOTES :**
- WALL SLEEVE TO BE FABRICATED OF STEEL HOT DIP GALVANIZED AFTER FABRICATION, OR 304L SS, OR OTHER MATERIAL AS SPECIFIED OR INDICATED ON DRAWINGS.
 - FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NO MORE THAN 5 FEET.
 - USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.

E HARNESSED WALL SLEEVE FOR STEEL PIPE
NO SCALE

0 KEZ RWE EVB
NO. BY CHK PJP
5/19/2020 ISSUED FOR CONSTRUCTION REVISIONS AND RECORD OF USE
DATE

REGISTERED PROFESSIONAL ENGINEER
BROCK V. BEVINGSON
No. C 78836
CIVIL
STATE OF CALIFORNIA
5/20/2020

BLACK & VEATCH
JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

GENERAL
CIVIL - MECHANICAL
DETAILS

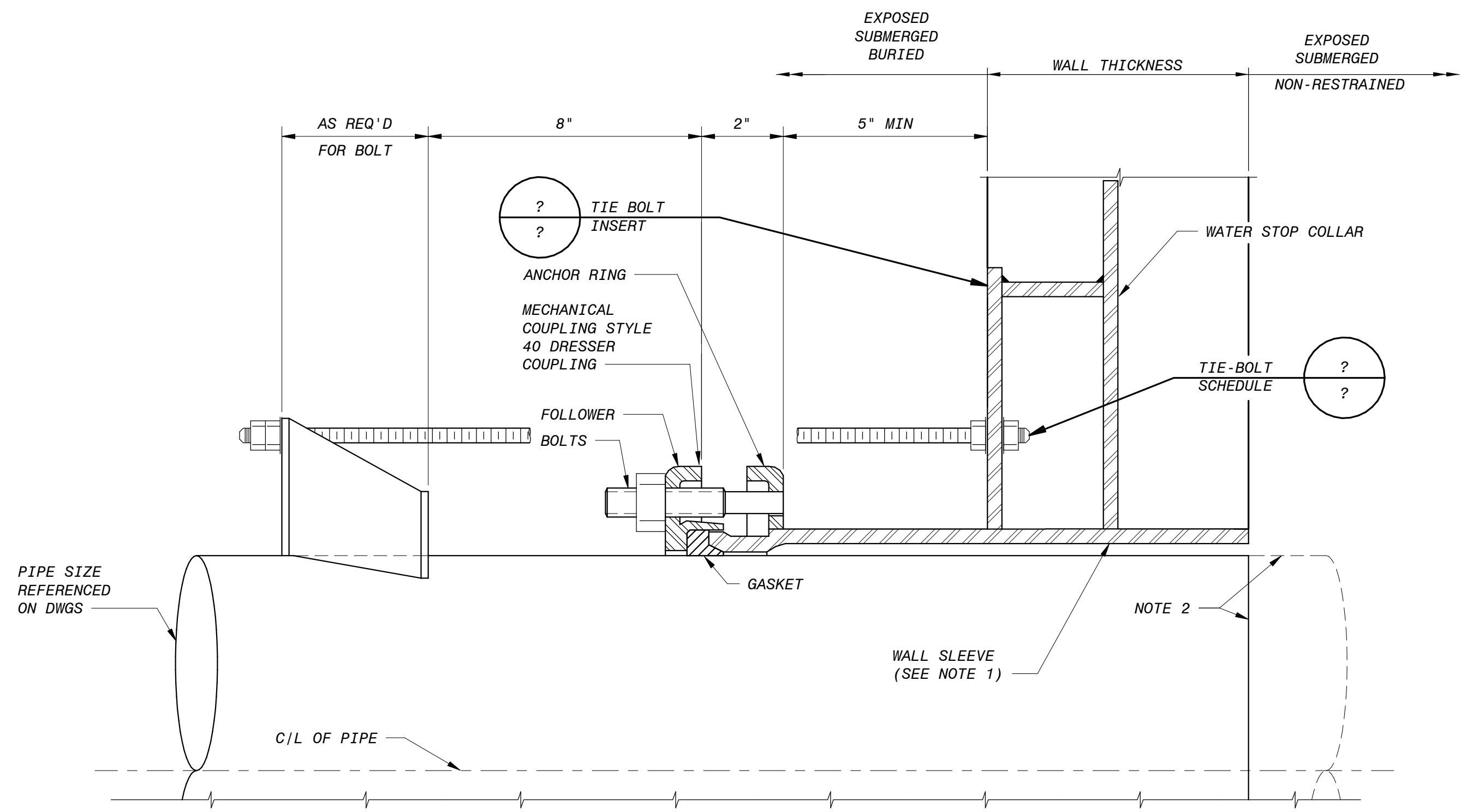
DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

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PROJECT NO.
400530

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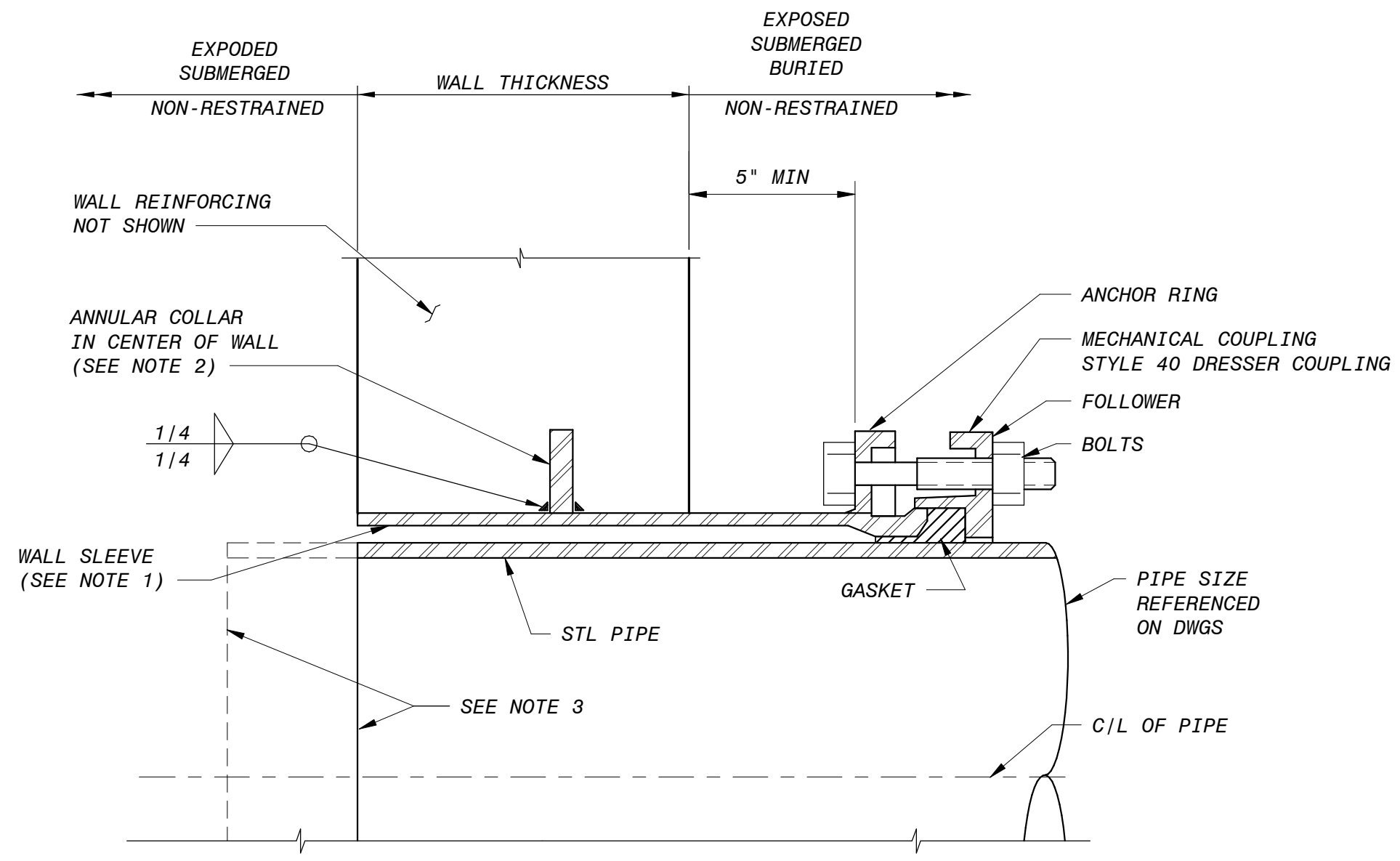
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NOTES :

1. WALL SLEEVE TO BE FABRICATED OF 3/8" MINIMUM STEEL HOT DIP GALVANIZED AFTER FABRICATION, 304 SS, OR OTHER MATERIAL AS SPECIFIED OR INDICATED ON DRAWINGS.
2. PIPING MAY BE FLUSH WITH THE FACE OF THE WALL, OR EXTENDING FROM THE WALL WITH END AS REQUIRED OR INDICATED ON THE DRAWINGS.
3. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.

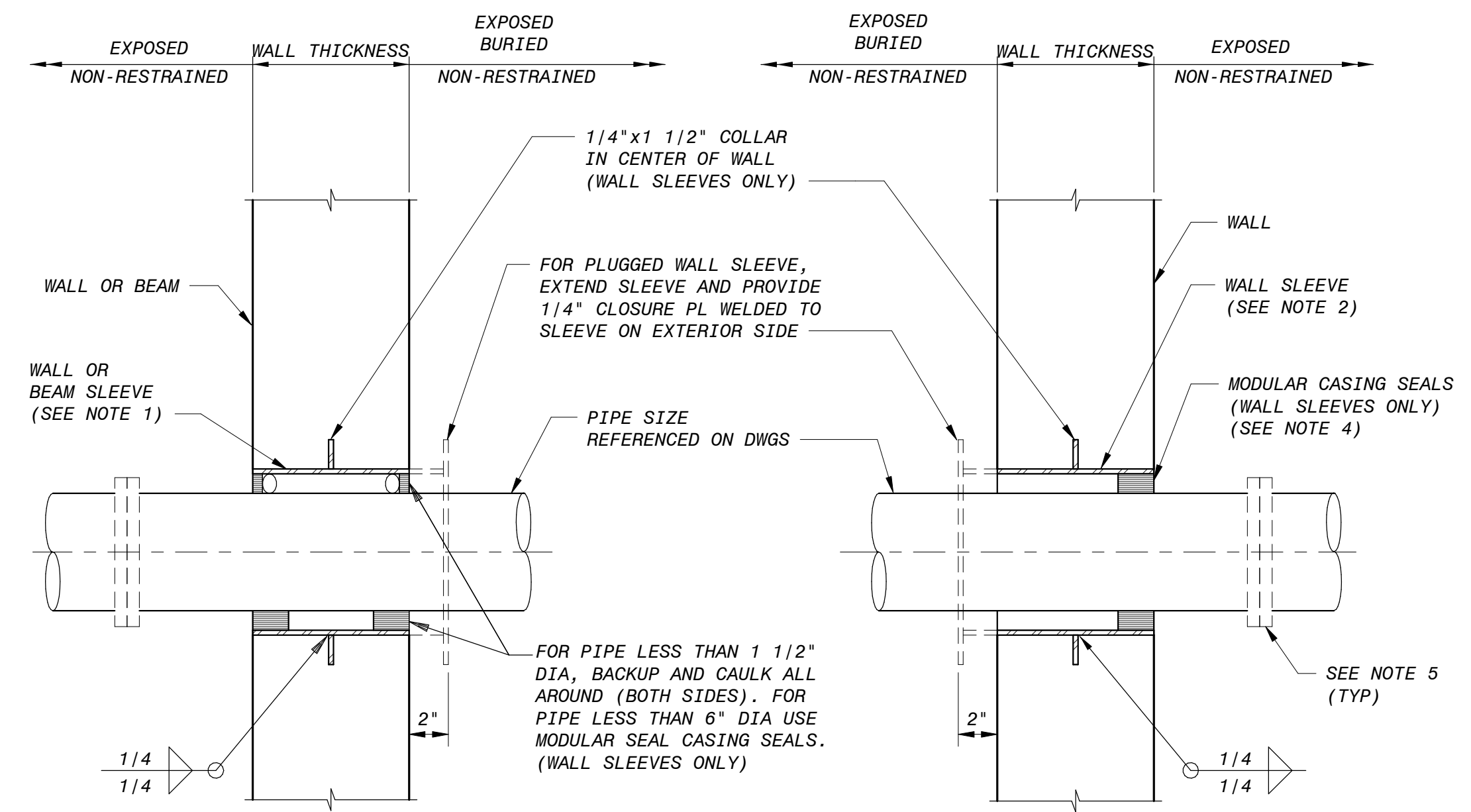
A HARNESSED STEEL PIPE WALL SLEEVE
NO SCALE



NOTES :

1. WALL SLEEVE TO BE FABRICATED OF 3/8" MIN STEEL HOT DIP GALVANIZED AFTER FABRICATION, 304 SS, OR OTHER MATERIAL AS SPECIFIED OR INDICATED ON DRAWINGS.
2. ANNULAR COLLAR SHALL BE SAME MATERIAL AS PIPE 1/4" X 2" FOR PIPE 20" AND SMALLER, AND 3/8" X 3" FOR PIPE LARGER THAN 20".
3. PIPING MAY BE FLUSH WITH THE FACE OF THE WALL OR EXTENDING FROM THE WALL WITH END AS REQUIRED OR INDICATED ON THE DRAWINGS.
6. FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NO MORE THAN 5 FEET.
7. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.

B NON-HARNESSED STEEL PIPE WALL SLEEVE
NO SCALE



FOR PIPE SMALLER THAN 6 INCH DIAMETER

FOR PIPE 6 INCH DIAMETER AND LARGER

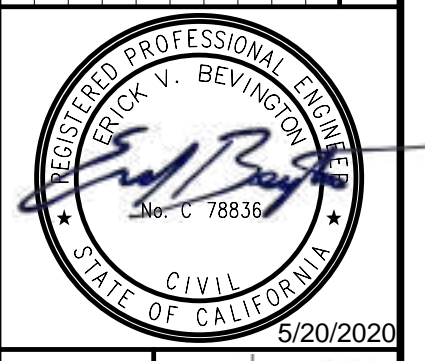
NOTES :

1. SCHEDULE 40 GALV STEEL PIPE SLEEVE. SIZE TO PROVIDE 3/4" ANNULAR SPACE AROUND PIPE FOR ALL BEAM SLEEVES AND FOR WALL SLEEVES FOR PIPES SMALLER THAN 1 1/2" DIAMETER. FOR PIPE SMALLER THAN 6" DIAMETER, COORDINATE WALL SLEEVE DIAMETER WITH MODULAR CASING SEAL MANUFACTURER.
2. WALL SLEEVE, SCHEDULE 40 STEEL PIPE FOR 12" AND SMALLER SLEEVES, 1/4" STEEL PIPE FOR SLEEVES LARGER THAN 12", AND HOT DIP GALVANIZED AFTER FABRICATION, 304 SS, OR OTHER MATERIAL AS SPECIFIED OR INDICATED ON DRAWINGS. COORDINATE WALL SLEEVE DIAMETER WITH MODULAR CASING SEAL MANUFACTURER.
3. FIRESAFING TO BE PROVIDED AT ALL RATED WALLS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEM.
4. WHERE SOIL MAY BE PRESENT, USE TWO SETS OF CASING SEALS. ONE AT EACH FACE OF WALL.
5. TO MINIMIZE SLEEVE SIZE, PROVIDE A SCREW-ON FLANGE, GROOVED COUPLING, OR MECHANICAL COUPLING WITH ANCHOR STUDS ON ONE SIDE OF OPENING.
5. FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NO MORE THAN 5 FEET.
6. USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.
7. FOR AERATION PIPING, MODULAR CASING SEAL SHALL HAVE A TEMPERATURE RATING OF 250 DEGREES F.

C CONCRETE WALL OR BEAM SLEEVE
NO SCALE

PLOTTED: 5/14/2020 4:00:18 PM

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NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISITONS AND RECORD OF USE			
5/19/2020	DATE		



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JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

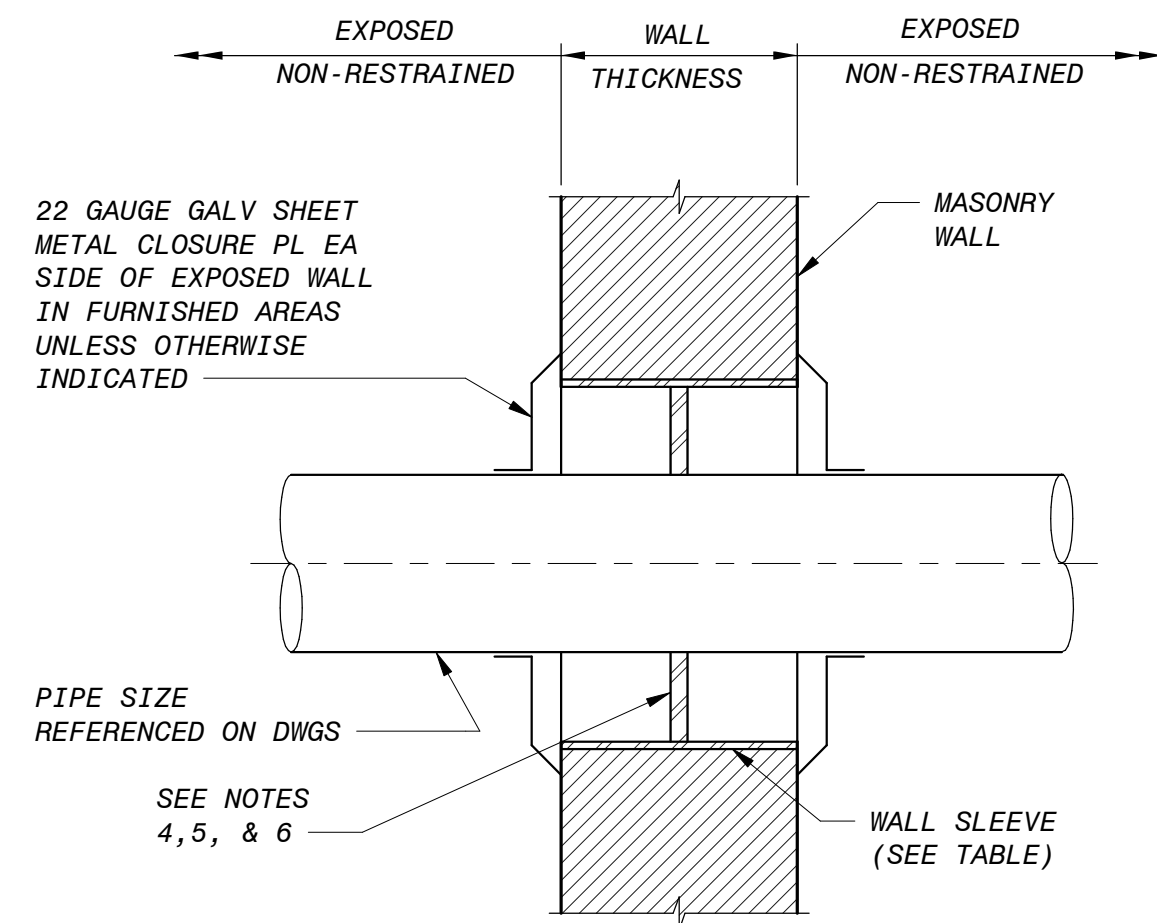
GENERAL
CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

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PROJECT NO.
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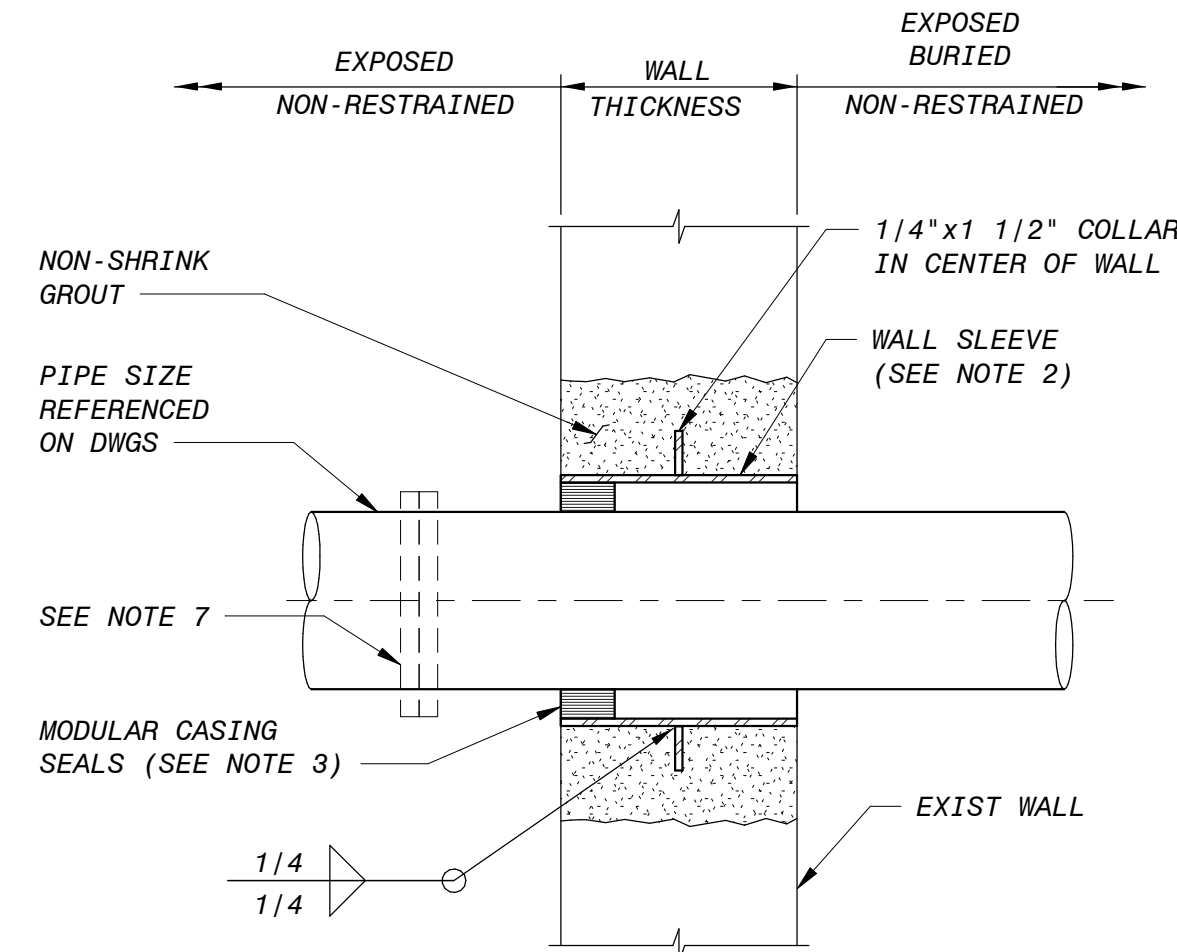
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WALL SLEEVE TABLE	
PIPE SIZE	SLEEVE SIZE UNLESS OTHERWISE INDICATED (SEE NOTES 3 & 4)
1" & SMALLER	3"
1 1/4" & 1 1/2"	3 1/2"
2" & 2 1/2"	4"
3"	6"
4"	6"
6"	8"
8" & LARGER	PIPE OD+2"±

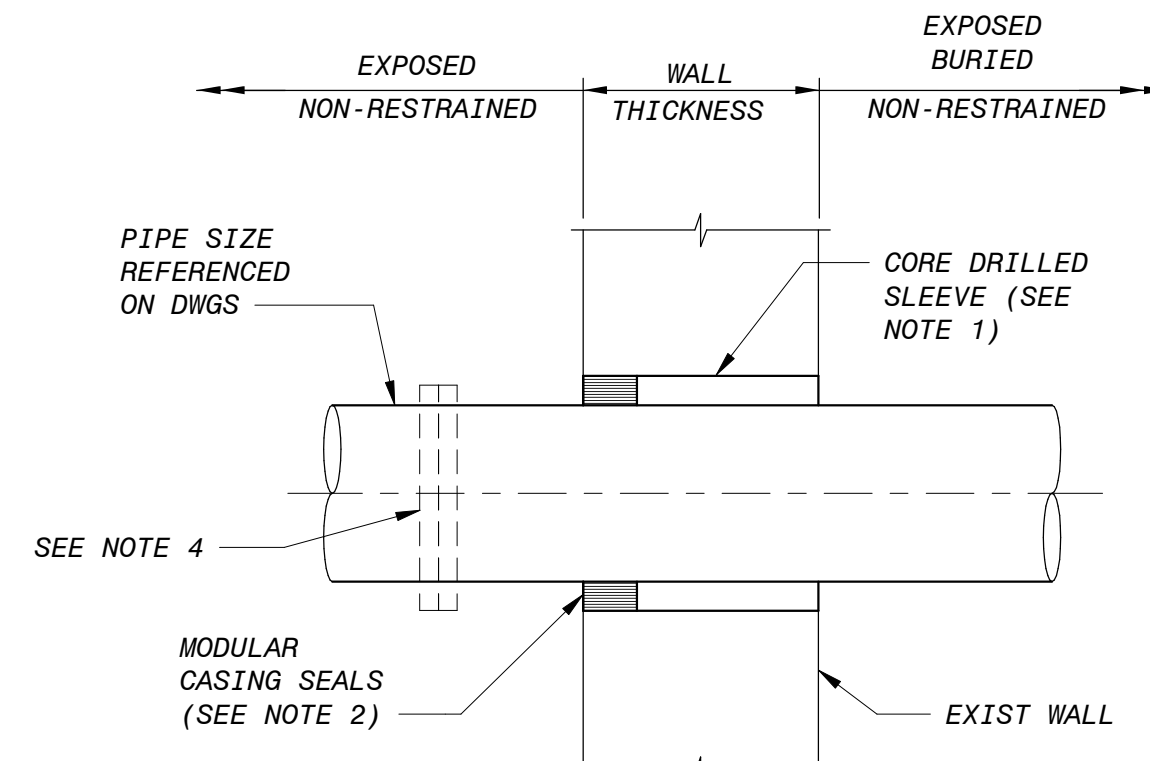
- NOTES :**
- SCHEDULE 40 GALV STEEL PIPE FOR PIPING SMALLER THAN 3", SCHEDULE 20 GALV STEEL PIPE FOR PIPING SMALLER THAN 6", AND GALV 1/4" MINIMUM WALL THICKNESS FOR PIPING LARGER THAN 6".
 - FOR PIPING LARGER THAN 3" PROVIDE PIPE SUPPORT WITHIN 3' OF WALL SLEEVE TO PREVENT THE TRANSFER OF PIPE LOADS TO MASONRY WALL WHEN MODULAR CASING SEALS ARE USED.
 - WHERE REQUIRED, USE SLEEVE LARGE ENOUGH FOR FLANGE OR OTHER JOINT RESTRAINT TO PASS THROUGH.
 - FOR PIPE SIZES 1 1/2" IN DIAMETER AND SMALLER, CAULK ANNULAR SPACE AROUND PIPE. FOR PIPE LARGER THAN 1 1/2" IN DIAMETER, USE MODULAR CASING SEALS AND COORDINATE SLEEVE SIZE WITH CASING SEAL MANUFACTURER.
 - PROVIDE MODULAR CASING SEALS ON ALL SLEEVES AT CHLORINE AND AMMONIA FEED AND STORAGE ROOMS AND WHERE INDICATED ON THE DRAWINGS. COORDINATE SLEEVE SIZE WITH CASING SEAL MANUFACTURER.
 - FIRESAFING TO BE PROVIDED AT ALL RATED WALLS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEMS.

A MASONRY WALL SLEEVE
NO SCALE



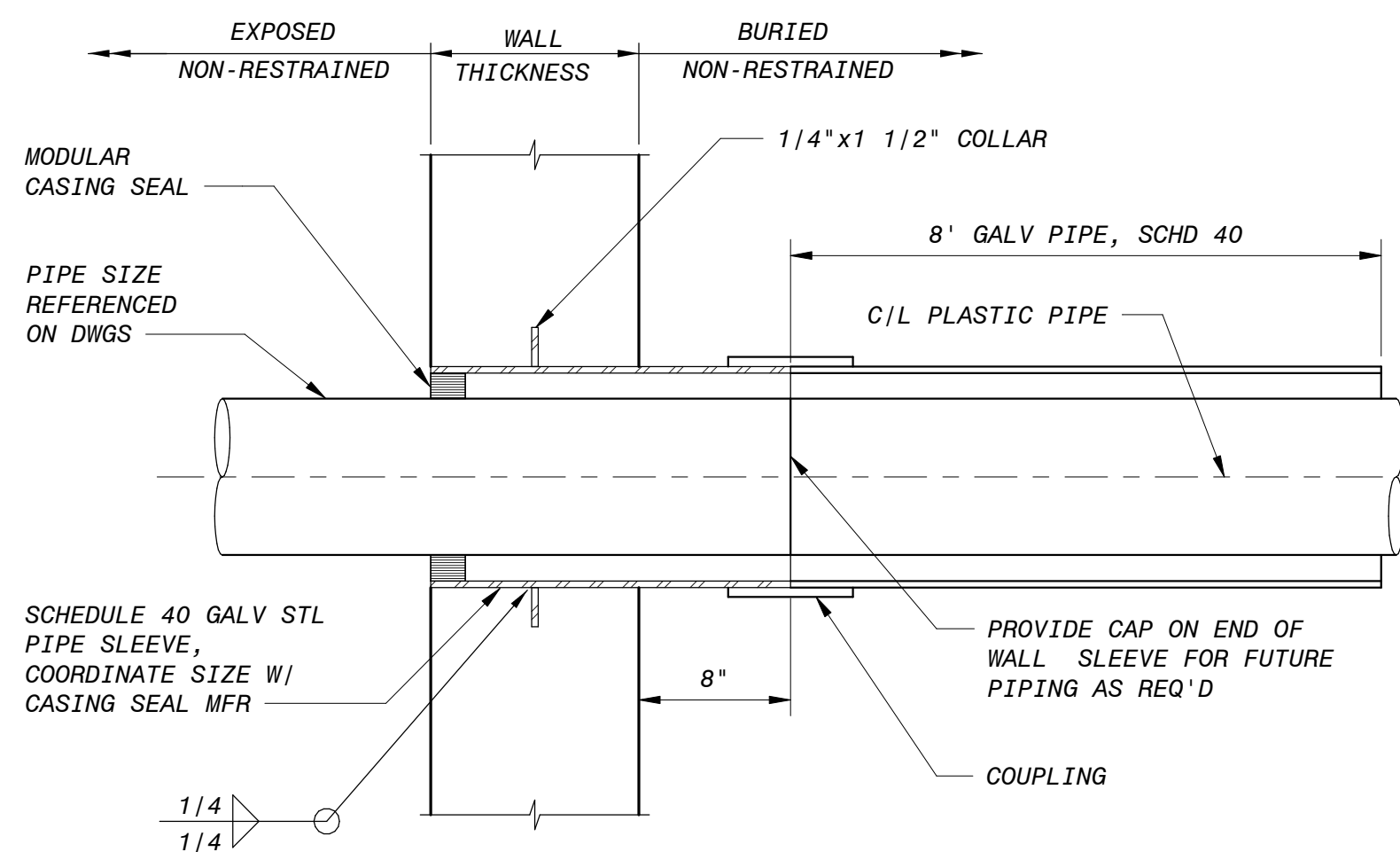
- NOTES :**
- CUT OPENING FOR WALL SLEEVE, ROUGHEN EXIST CONCRETE, APPLY BONDING AGENT AND FILL WITH NON-SHRINK GROUT PER THE SPECIFICATIONS. DIAMETER OF OPENING TO BE COLLAR DIAMETER + 4".
 - WALL SLEEVE, SCHEDULE 40 STEEL PIPE FOR 12" AND SMALLER SLEEVES, 1/4" STEEL PIPE FOR SLEEVES LARGER THAN 12", AND HOT DIP GALVANIZED AFTER FABRICATION, 304 SS, OR OTHER MATERIAL AS SPECIFIED OR INDICATED ON DRAWINGS. COORDINATE SLEEVE SIZE WITH MODULAR CASING SEAL MANUFACTURER.
 - WHERE SOIL MAY BE PRESENT, USE TWO SETS OF CASING SEALS. ONE AT EACH FACE OF WALL.
 - FIRESAFING TO BE PROVIDED AT ALL RATED WALLS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEM.
 - FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NO MORE THAN 5 FEET.
 - USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.
 - TO MINIMIZE SLEEVE SIZE, PROVIDE A SCREW-ON FLANGE, GROOVED COUPLING, OR MECHANICAL COUPLING WITH ANCHOR STUDS ON ONE SIDE OF OPENING.

B WALL SLEEVE AT EXISTING CONCRETE WALL
NO SCALE



- NOTES :**
- CORE DRILL SMOOTH WALL OPENING, COORDINATE CORE DIAMETER AS REQUIRED WITH CASING SEAL MANUFACTURER. MAXIMUM CORE DIAMETER SHALL BE 12".
 - WHEN SOIL MAY BE PRESENT, USE TWO SETS OF CASING SEALS. ONE AT EACH FACE OF WALL.
 - FIRESAFING TO BE PROVIDED AT ALL RATED WALLS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEM.
 - TO MINIMIZE SLEEVE SIZE, PROVIDE A SCREW-ON FLANGE, GROOVED COUPLING, OR MECHANICAL COUPLING WITH ANCHOR STUDS ON ONE SIDE OF OPENING.
 - FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NO MORE THAN 5 FEET.
 - USE WAX TAPE TO PROTECT ALL BURIED FERROUS SURFACES INCLUDING PAINTED SURFACES. SEE SPECIFICATIONS.

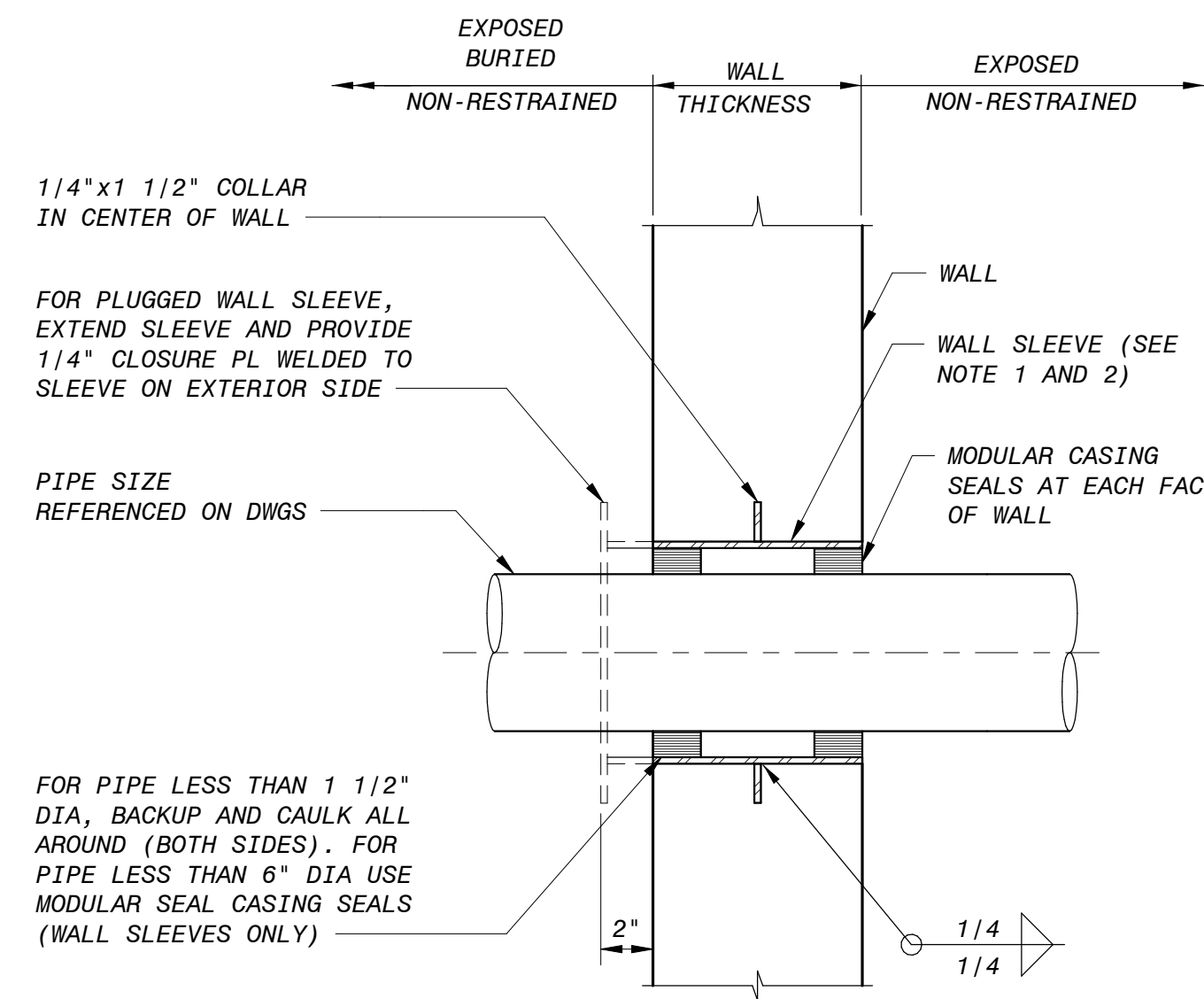
C CORE DRILLED WALL SLEEVE
NO SCALE



FOR PIPE DIAMETER 6 INCH AND SMALLER

- NOTES :**
- WALL SLEEVE, SCHEDULE 40 STEEL PIPE FOR 12" AND SMALLER SLEEVES, 1/4" STEEL PIPE FOR SLEEVES LARGER THAN 12", AND HOT DIP GALVANIZED AFTER FABRICATION, 304 SS, OR OTHER MATERIAL AS SPECIFIED OR INDICATED ON DRAWINGS. COORDINATE WALL SLEEVE DIAMETER WITH MODULAR CASING SEAL MANUFACTURER.
 - FOR PIPE LARGER THAN 6", DIP MJ WALL SLEEVE AND PLASTIC PIPE WITH EQUIVALENT DIP OUTSIDE DIAMETER MAY BE USED AS AN ALTERNATE TO STEEL WALL SLEEVE.
 - FOR BURIED PVC PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS PRACTICAL TO FACE OF WALL, BUT NOT CLOSER THAN 5 FEET.

D EXTERIOR WALL SLEEVE FOR PLASTIC PIPE
NO SCALE



FOR PIPE DIAMETER LARGER THAN 6 INCH



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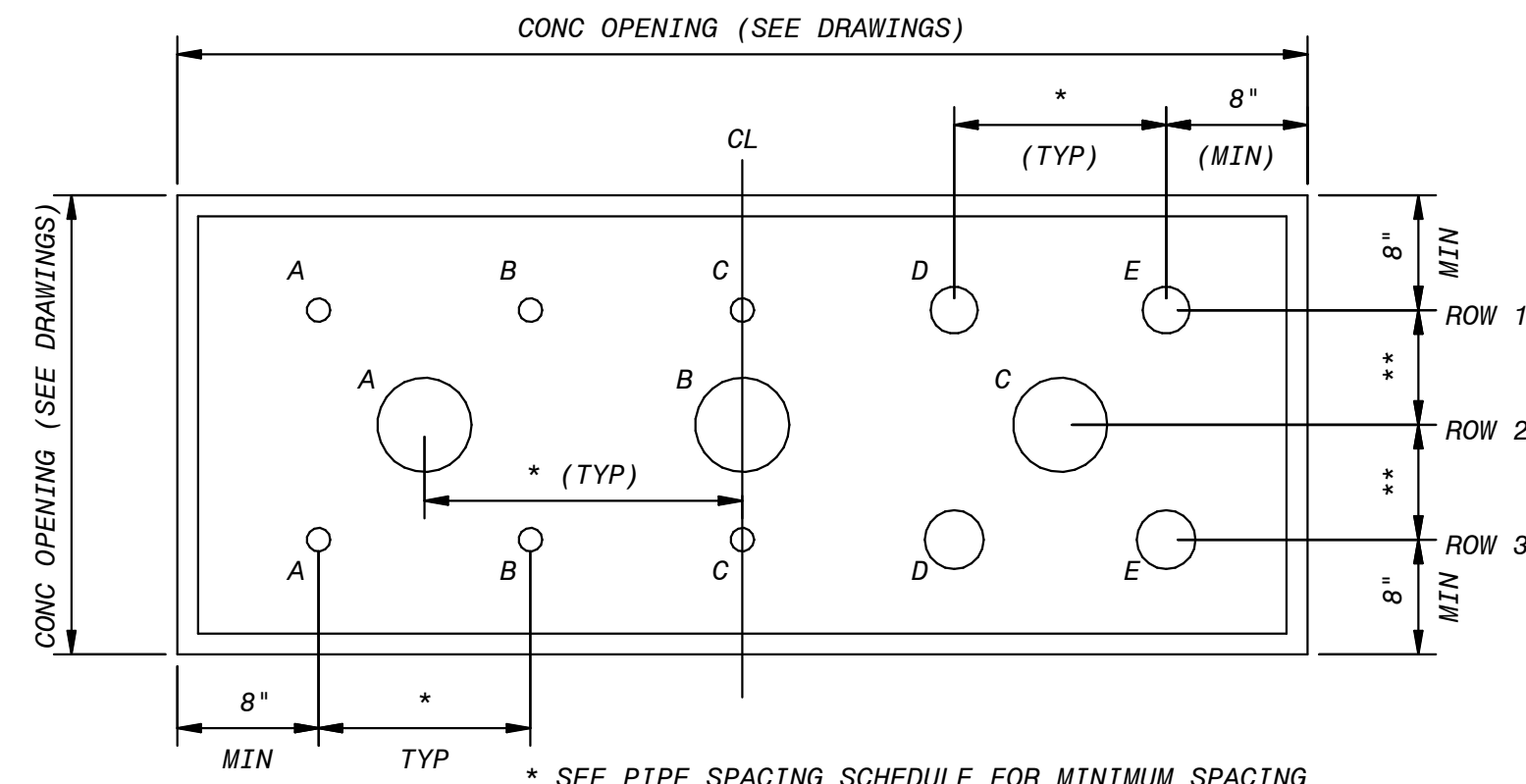
GENERAL
CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

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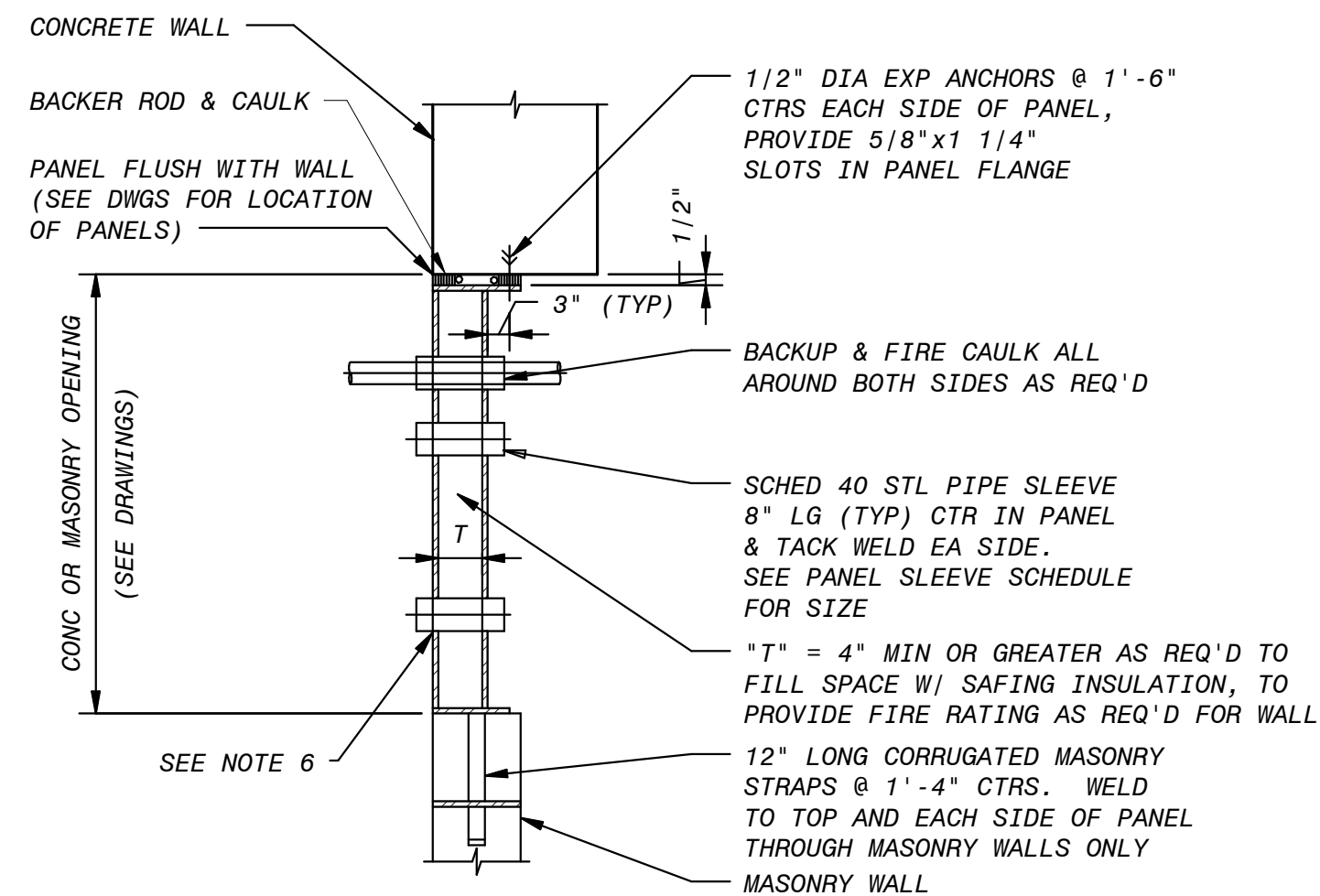
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PANEL SLEEVE SCHEDULE	
SOLUTION OR GAS LINE SIZE (INCHES)	SCHEDULE 40 NOMINAL SLEEVE SIZE (INCHES)
3/4	1 1/2
1	2
1 1/2	2 1/2
2	3
2 1/2, 3	4
4	5

MINIMUM PIPE SPACING SCHEDULE							
MINIMUM CENTERLINE TO CENTERLINE SPACING IN INCHES							
PIPE SIZE (INCHES)							
PIPE SIZE (INCHES)	3/4	1	1 1/2	2	2 1/2	3	4
3/4	4 1/2	4 3/4	5 1/2	6	2 3/4	6 3/4	6 3/4
1	-	5	5 1/2	6	7	7	7
1 1/2	-	-	6 1/4	6 3/4	7 1/2	7 1/2	7 1/2
2	-	-	-	7 1/4	8 1/4	8 1/4	9
2 1/2	-	-	-	-	9	9	10
3	-	-	-	-	-	9	10
4	-	-	-	-	-	-	12

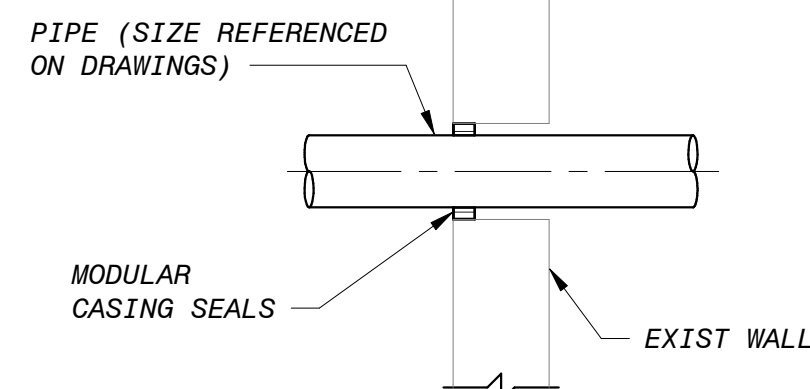
PANEL PIPING SCHEDULE			
PIPE DESIGNATION ROW	LETTER	PIPE SIZE (INCHES)	PIPE SERVICE
1	A	-	-
1	B	-	-
1	C	-	-
1	D	-	-
1	E	-	-
2	A	-	-
2	B	-	-
2	C	-	-
3	A	-	-
3	B	-	-
3	C	-	-
3	D	-	-



NOTES:

- SEE PANEL PIPING SCHEDULE FOR PIPING SIZE AND SERVICE.
- WHERE LINES ARE INDICATED ON PIPING SCHEDULE TO BE FUTURE, INSTALL SLEEVES WITH THREADED ENDS OF THE SIZE AS INDICATED IN PANEL SLEEVE SCHEDULE. FILL SLEEVES WITH SAFING INSULATION AS REQUIRED AND INSTALL THREADED CAPS.
- PIPE SPACING SHALL BE UNIFORM WITHIN THE OPENING, WITH MINIMUM SPACING AND ALLOWANCES AS INDICATED.
- CONTRACTOR SHALL COORDINATE THE SPACING AND ALLOWANCES OF ALL PIPING AND SLEEVES PRIOR TO FABRICATION OF PANEL.
- FIRESAFEING SHALL BE PROVIDED AT ALL RATED LOCATIONS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEMS.
- ALL PANEL MATERIAL, EXCEPT SLEEVES, SHALL BE 1/4" STEEL PL WELDED CONSTRUCTION. IN EXTERIOR LOCATIONS PIPE SLEEVES SHALL BE SEAL WELDED ALL AROUND.

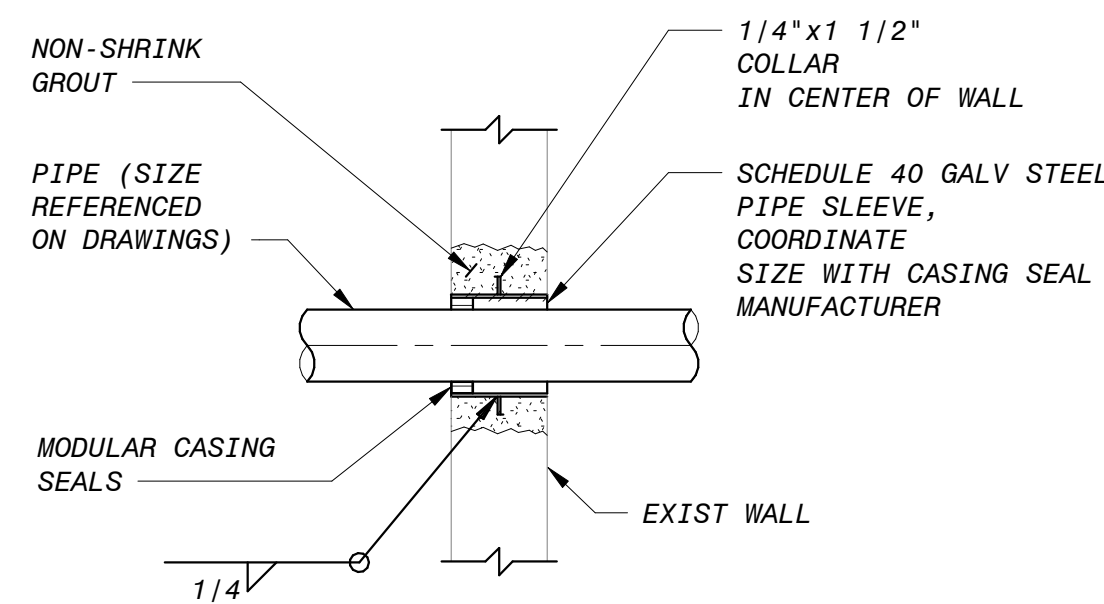
A TYPICAL WALL SLEEVE PANEL
NO SCALE



NOTE:

- CORE DRILL SMOOTH WALL OPENING, DIAMETER AS REQUIRED FOR MODULAR CASING SEALS.

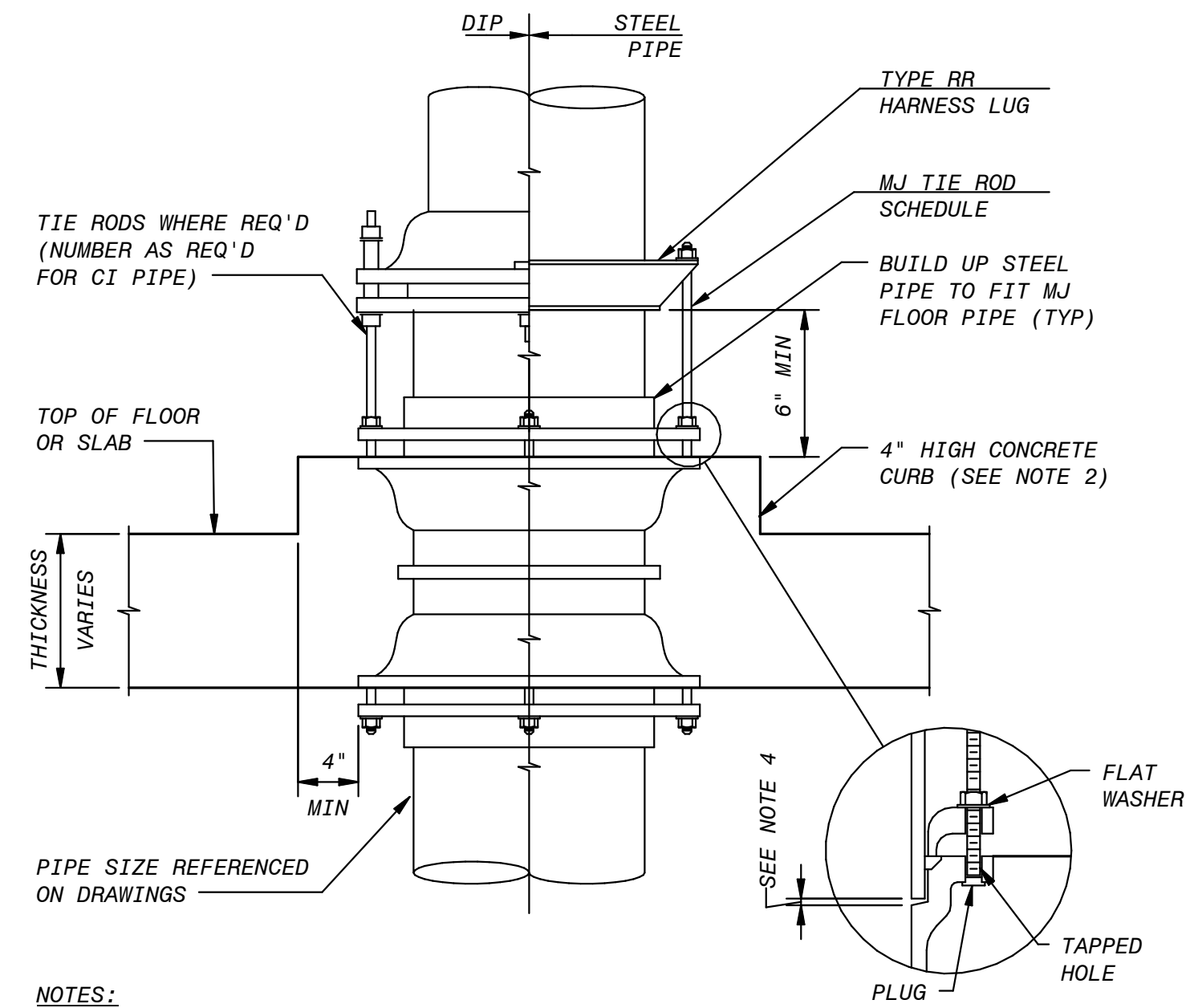
C CORE DRILLED WALL OPENING
NO SCALE



NOTE:

- CUT OPENING FOR WALL SLEEVE, ROUGHEN EXIST CONCRETE, APPLY SIKA "SIKADUR HIMOD" BONDING AGENT AND FILL WITH NON-SHRINK GROUT PER THE SPECIFICATIONS. DIAMETER OF OPENING TO BE WATERSTOP DIAMETER + 4"

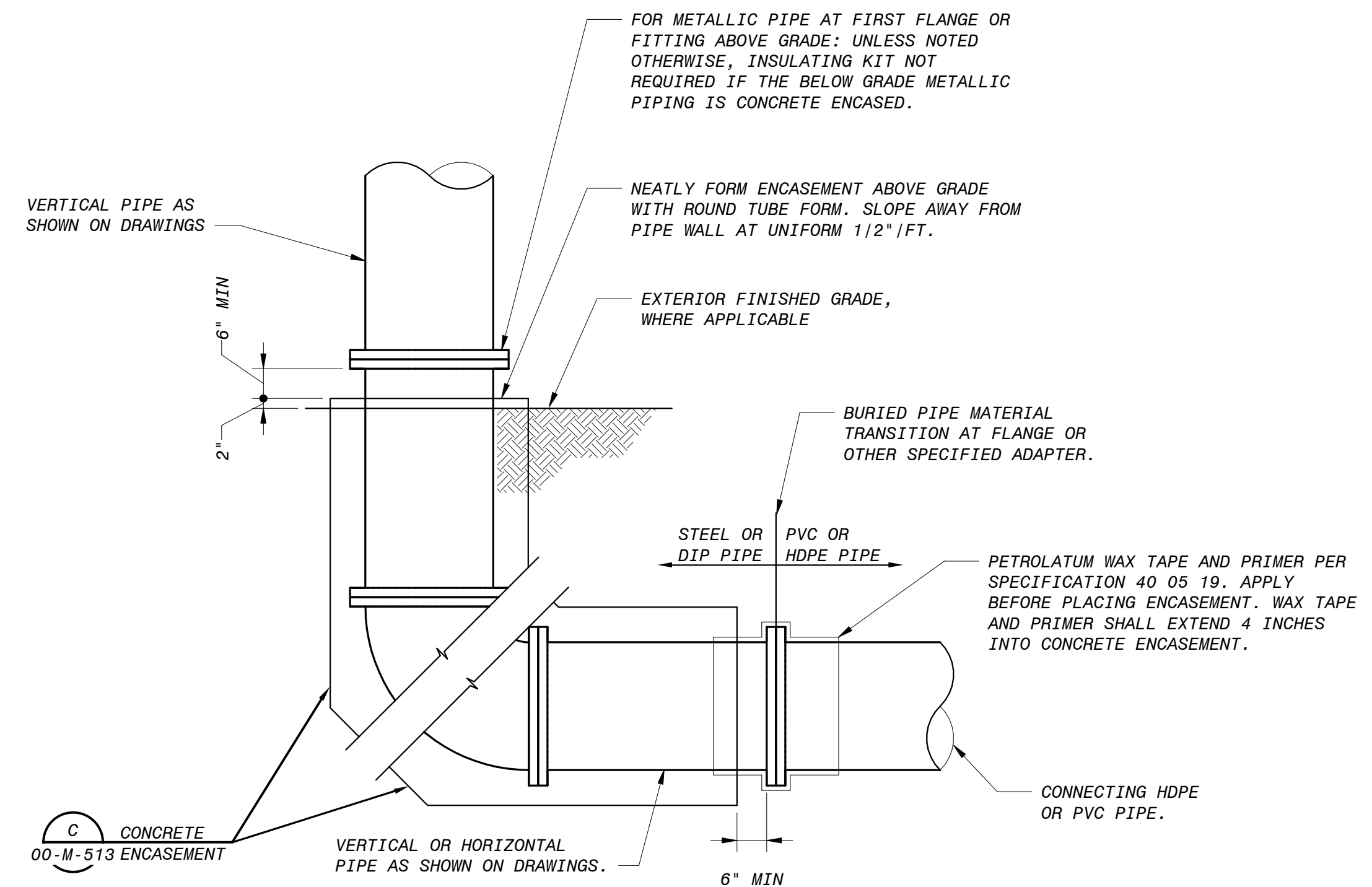
D SLEEVE AT EXISTING CONCRETE WALL
NO SCALE



NOTES:

- WHERE PIPE IS REQUIRED ON ONE SIDE OF THE FLOOR OR SLAB, PROVIDE A MJXPE FITTING
- CURB MAY BE ROUND OR HEXAGONAL AT CONTRACTOR'S OPTION AND POURED SEPARATELY.
- BOLT HOLES OF FLOOR PIPE SHALL BE ALIGNED WITH CONNECTING PIPE.
- FOR PIPING FLEXIBILITY, PROVIDE GAP LARGE ENOUGH TO FACILITATE PIPE ASSEMBLY AND DISASSEMBLY AT ASSOCIATED FLANGE PIPE JOINTS.

B MECHANICAL JOINT FLOOR PIPE
NO SCALE



NOTES:

- PIPING MATERIAL TRANSITIONS SHALL NOT BE LOCATED UNDER SLABS OR IN CONCRETE ENCASUREMENT. PRESSURIZED PROCESS PIPING SHALL BE CONCRETE ENCASED UNDER SLABS. FOR PIPING CONNECTING TO STRUCTURES, LOCATE MATERIAL TRANSITIONS OUTSIDE OF EDGE OF STRUCTURES AND CONCRETE ENCASUREMENT. ANY HARDWARE AND METALLIC PIPING SHALL BE PROTECTED FROM CORROSIVE SOIL CONTACT WITH PETROLATUM WAX TAPE AND PRIMER OR AS OTHERWISE INDICATED.

E BURIED PIPE MATERIAL TRANSITION FOR CORROSIVE SOILS
12-C-503 NO SCALE

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0 KEZ RWE EVB
NO. BY
5/19/2020 ISSUED FOR CONSTRUCTION
DATE
REVISONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
BROCK V. BEVINGTON
No. C 78836
CIVIL
STATE OF CALIFORNIA
5/20/2020

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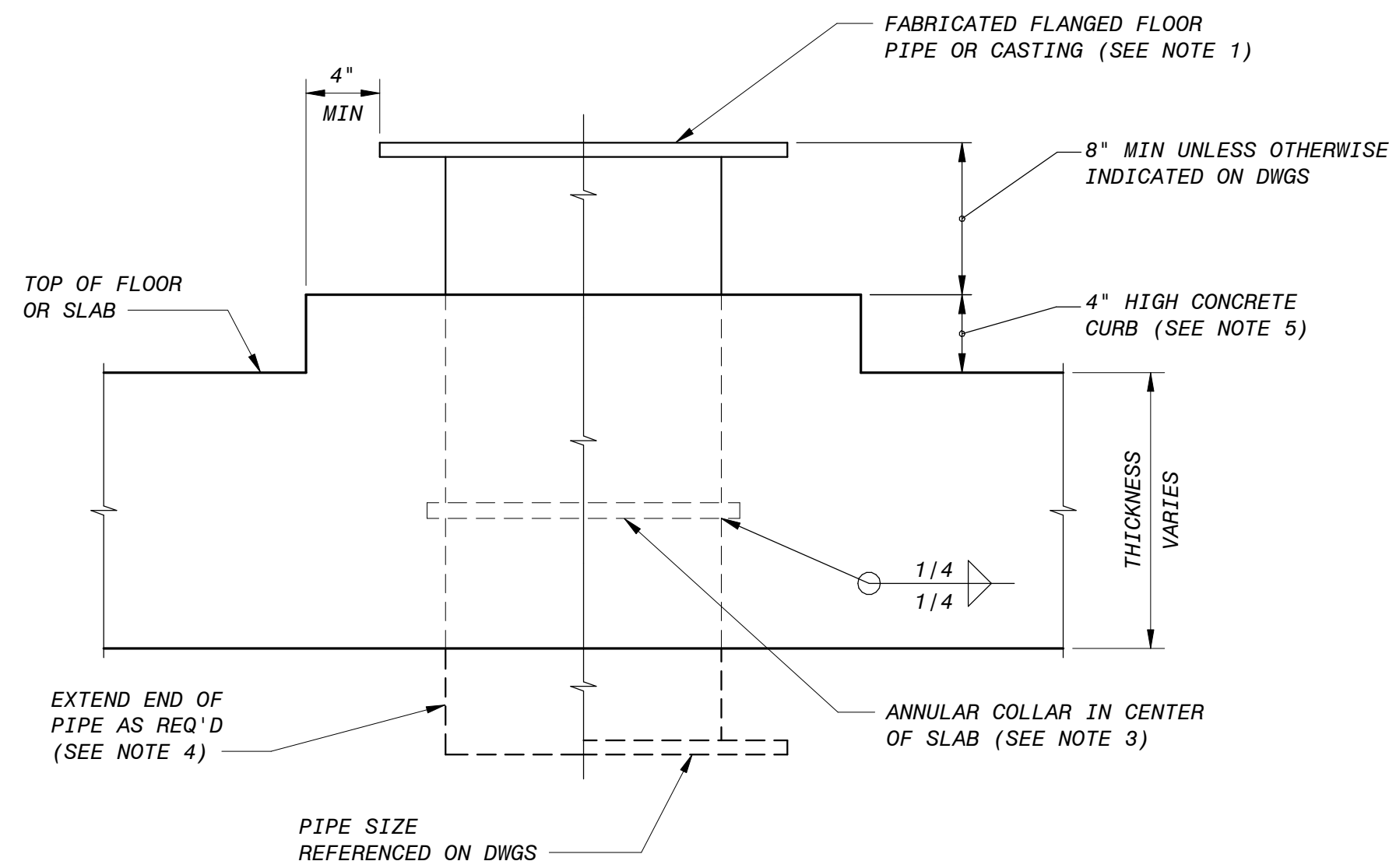
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DESIGNED: KEZ
DETAILED: MAK
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DATE: 5/19/2020

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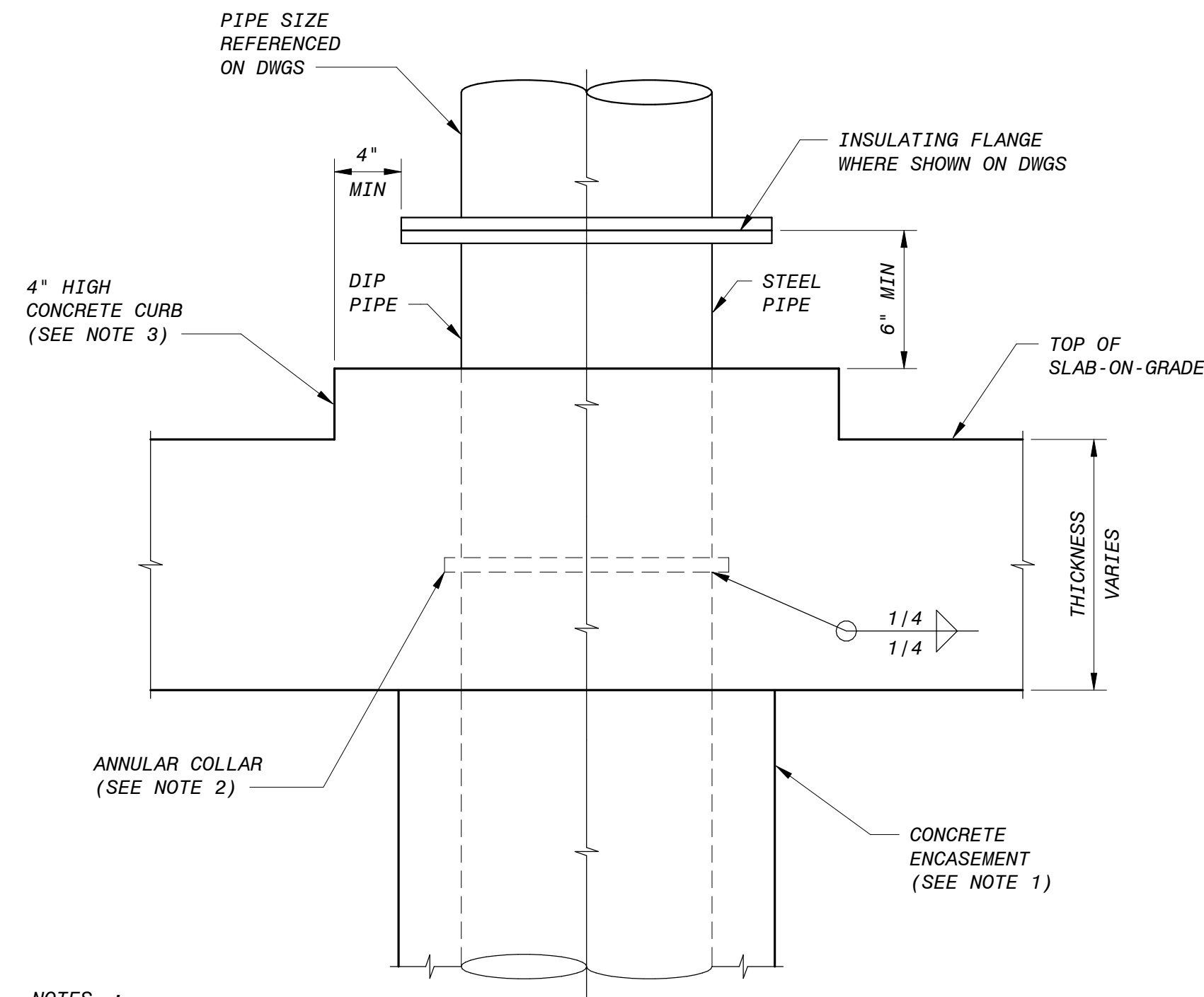
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- NOTES :**
- FLOOR PIPE MATERIAL SHALL BE DUCTILE IRON, STEEL, OR AS INDICATED ON DRAWINGS. STEEL PIPE SHALL BE SCHEDULE 40 FOR PIPE 20" AND SMALLER, 3/8" FOR PIPE LARGER THAN 20", AND COATINGS SAME AS CONNECTING PIPE.
 - IF CONNECTING STEEL PIPE THICKNESS IS GREATER THAN 3/8", STEEL FLOOR PIPE THICKNESS SHALL BE INCREASED TO MATCH CONNECTING PIPE.
 - ANNULAR COLLAR SHALL BE SAME MATERIAL AS PIPE AND SHALL BE 1/4"x2" FOR PIPE 20" AND SMALLER, AND 3/8"x3" FOR PIPE LARGER THAN 20".
 - FLOOR PIPE MAY BE FLUSH WITH FLOOR OR SLAB OR EXTENDED WITH END AS REQUIRED OR INDICATED ON DRAWINGS.
 - CURB MAY BE ROUND OR HEXAGONAL AT CONTRACTOR'S OPTION.
 - ORIENTATION OF FLOOR PIPE SHALL BE COORDINATED WITH CONNECTING PIPE.

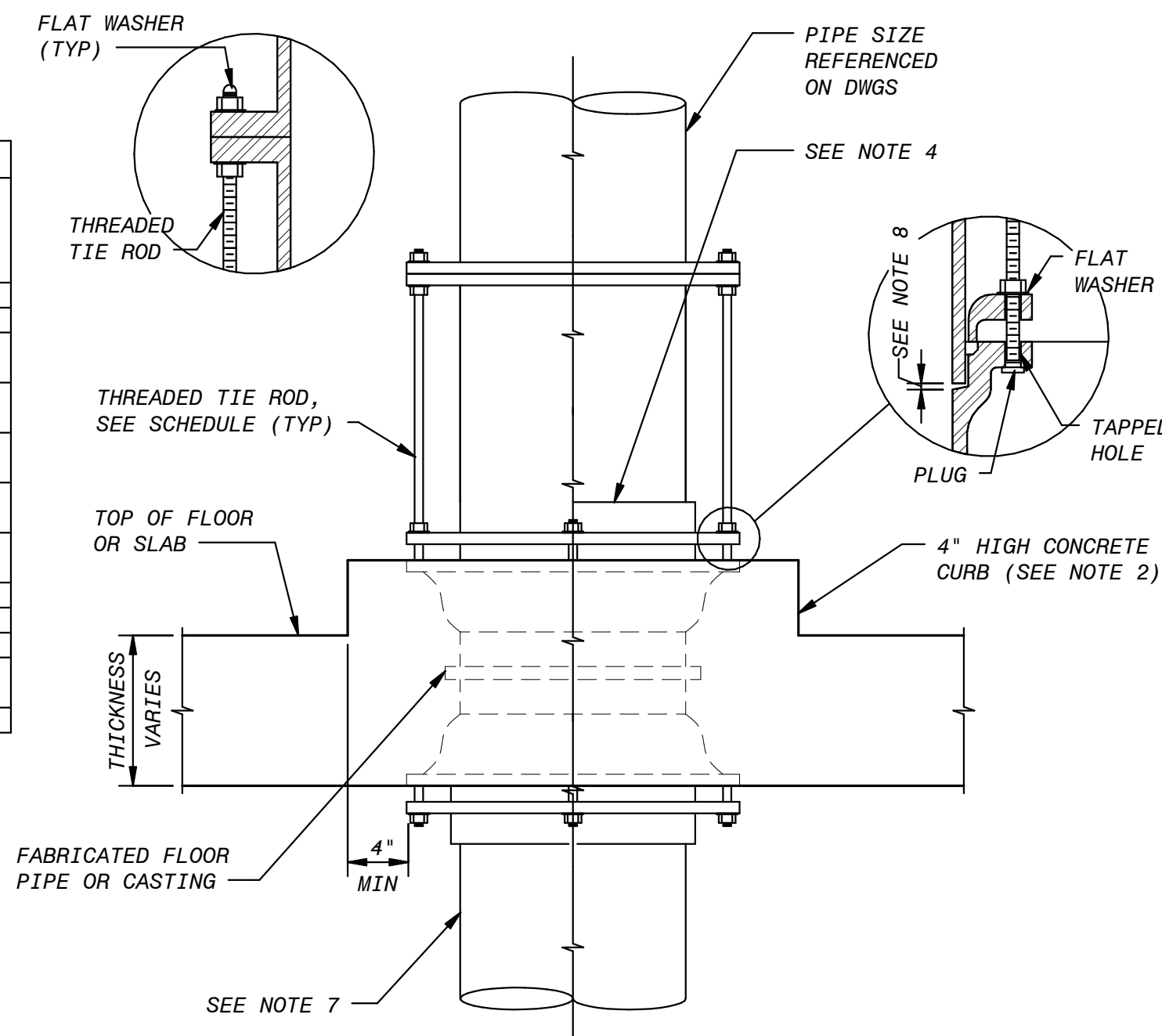
A FLANGED FLOOR PIPE
NO SCALE



- NOTES :**
- SLAB-ON-GRADE APPLICATIONS REQUIRE CONCRETE ENCASEMENT OF BELOW SLAB PIPING. RESTRAINED STYLE JOINTS ARE REQUIRED WHERE PIPE IS CONCRETE ENCASED.
 - ANNULAR COLLAR SHALL BE SAME MATERIAL AS PIPE. 1/4" X 2" FOR STEEL PIPE 20" AND SMALLER, AND 3/8" X 3" FOR PIPE LARGER THAN 20". ANNULAR COLLAR SHALL ONLY BE INCLUDED WHERE INDICATED ON THE DRAWINGS.
 - CURB MAY BE ROUND OR HEXAGONAL AT CONTRACTOR'S OPTION.
 - BOLT HOLES OF FLOOR PIPE SHALL BE ALIGNED WITH CONNECTING PIPE.

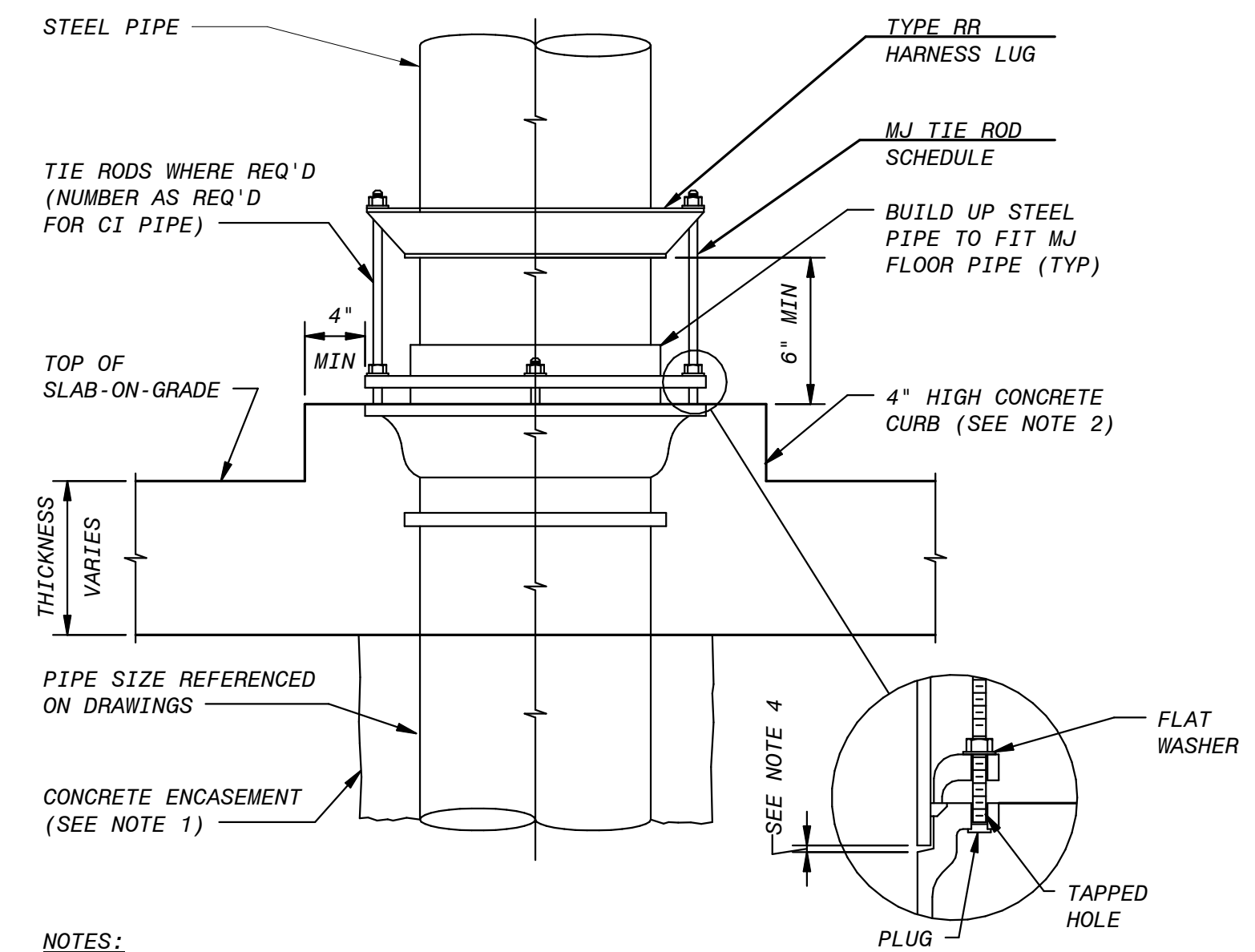
B SLAB-ON-GRADE FLOOR PIPE
NO SCALE

TIE ROD SCHEDULE			
PIPE SIZE (IN)	MAXIMUM PRESSURE (PSI) (NOTE 1)	NO. OF RODS (NOTE 2)	DIA (IN)
6	250 OR LESS	2	3/4
8	150 OR LESS	2	3/4
10	200 OR LESS	2	3/4
	350	6	3/4
12	150 OR LESS	2	3/4
	300	4	3/4
14	100 OR LESS	2	3/4
	200	4	3/4
16	75 OR LESS	2	3/4
	150	4	3/4
18	75 OR LESS	2	3/4
	150	4	3/4
20	50 OR LESS	2	3/4
24	75	4	3/4
30	50 OR LESS	4	1
36	50 OR LESS	4	1
	100	8	1
42	50 OR LESS	4	1 1/4



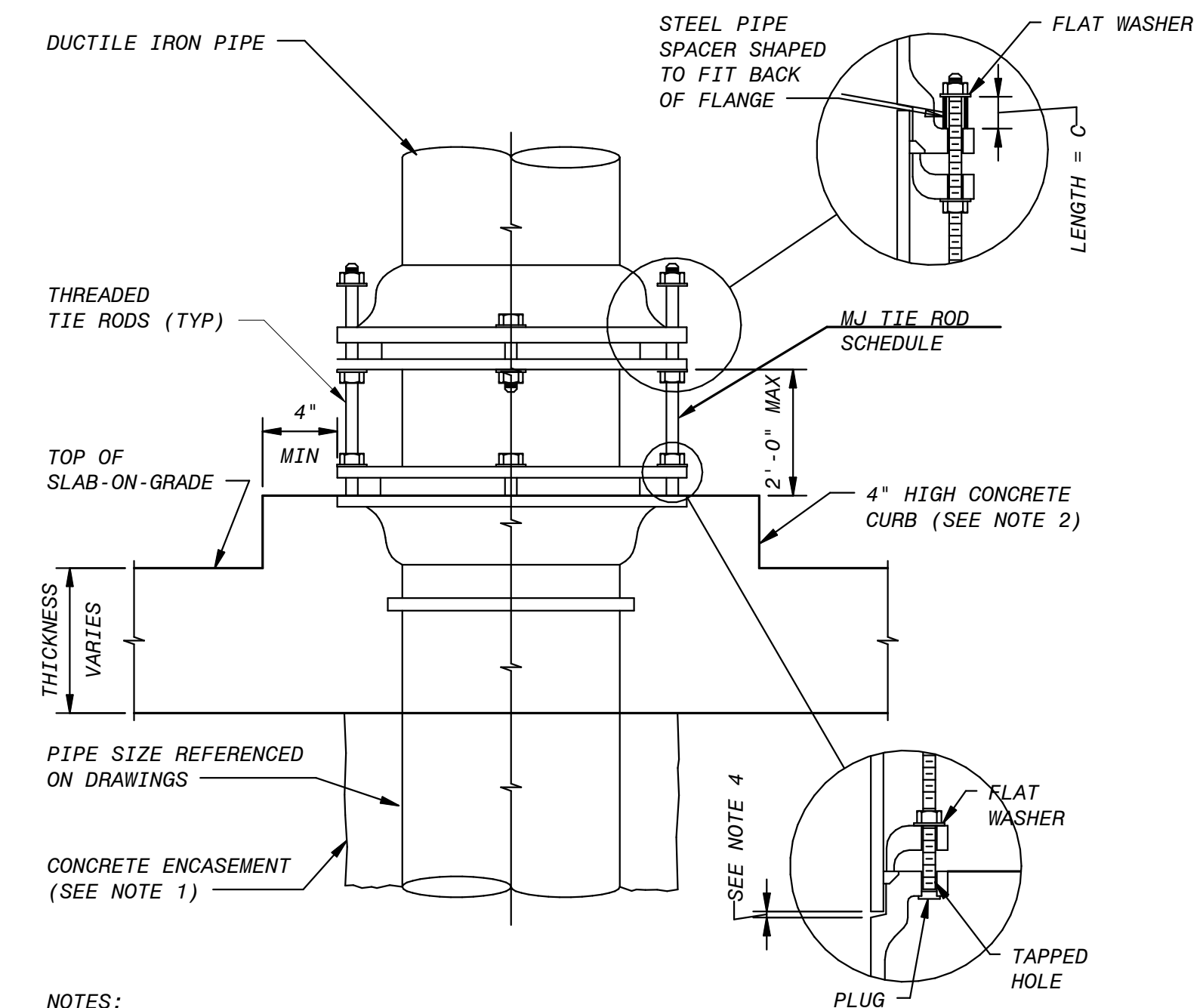
- NOTES :**
- PRESSURE SHALL BE THE PRESSURE AT WHICH THE PIPE IS HYDROSTATICALLY TESTED, OR IF THERE IS NO HYDROSTATIC FIELD TEST, IT SHALL BE THE SPECIFIED SHOP TEST PRESSURE.
 - ORIENTATION OF FLOOR PIPE SHALL BE COORDINATED WITH CONNECTING PIPE AND TIE RODS, TIE RODS SHALL BE SPACED UNIFORMLY AROUND THE PIPE.
 - EXCEPT WHERE TIE RODS ARE REQUIRED, BOLTS FOR FOLLOWER RINGS SHALL BE BOLT-STUDS ON FLOOR PIPE. ALL BOLT HOLES IN FLOOR PIPE SHALL BE TAPPED. BOLT HOLES OF FLOOR PIPE SHALL BE ALIGNED WITH CONNECTING PIPE.
 - FOR STEEL AND OTHER PIPE APPLICATIONS, BUILD UP END OF STEEL PIPE TO FIT MJ WALL PIPE.
 - CURB MAY BE ROUND OR HEXAGONAL AT CONTRACTOR'S OPTION.
 - WHERE PIPE IS REQUIRED ON ONE SIDE OF THE SLAB ONLY, PROVIDE A MJXPE FITTING.
 - SLAB-ON-GRADE APPLICATIONS REQUIRE CONCRETE ENCASEMENT OF BELOW FLOOR PIPING. RESTRAINED STYLE JOINTS ARE REQUIRED WHERE PIPE IS CONCRETE ENCASED.
 - FOR PIPING FLEXIBILITY, PROVIDE GAP LARGE ENOUGH TO FACILITATE PIPE ASSEMBLY AND DISASSEMBLY AT ASSOCIATED FLANGE PIPE JOINTS.

D FLANGED-MECHANICAL JOINT FLOOR PIPE WITH TIE RODS
NO SCALE



- NOTES:**
- SLAB-ON-GRADE APPLICATIONS REQUIRE CONCRETE ENCASEMENT OF BELOW SLAB PIPING. RESTRAINED STYLE JOINTS ARE REQUIRED WHERE PIPE IS CONCRETE ENCASED.
 - CURB MAY BE ROUND OR HEXAGONAL AT CONTRACTOR'S OPTION AND POURED SEPARATELY.
 - BOLT HOLES OF FLOOR PIPE SHALL BE ALIGNED WITH CONNECTING PIPE.
 - FOR PIPING FLEXIBILITY, PROVIDE GAP LARGE ENOUGH TO FACILITATE PIPE ASSEMBLY AND DISASSEMBLY AT ASSOCIATED FLANGE PIPE JOINTS.

C MECHANICAL JOINT SLAB-ON-GRADE FLOOR PIPE
NO SCALE



- NOTES:**
- SLAB-ON-GRADE APPLICATIONS REQUIRE CONCRETE ENCASEMENT OF BELOW SLAB PIPING. RESTRAINED STYLE JOINTS ARE REQUIRED WHERE PIPE IS CONCRETE ENCASED.
 - CURB MAY BE ROUND OR HEXAGONAL AT CONTRACTOR'S OPTION AND POURED SEPARATELY.
 - EXCEPT WHERE TIE RODS ARE REQUIRED, BOLTS FOR THE FOLLOWER RINGS SHALL BE BOLT-STUDS ON FLOOR PIPE. ALL BOLT HOLES IN FLOOR PIPE SHALL BE TAPPED, BOLT HOLES OF FLOOR PIPE SHALL BE ALIGNED WITH CONNECTING PIPE.
 - FOR PIPING FLEXIBILITY, PROVIDE GAP LARGE ENOUGH TO FACILITATE PIPE ASSEMBLY AND DISASSEMBLY AT ASSOCIATED FLANGE PIPE JOINTS.
 - PRESSURE SHALL BE THE PRESSURE AT WHICH THE PIPE IS HYDROSTATICALLY TESTED, OR IF THERE IS NO HYDROSTATIC FIELD TEST, IT SHALL BE THE SPECIFIED SHOP TEST PRESSURE.

E MECHANICAL JOINT SLAB-ON-GRADE FLOOR PIPE 2
NO SCALE



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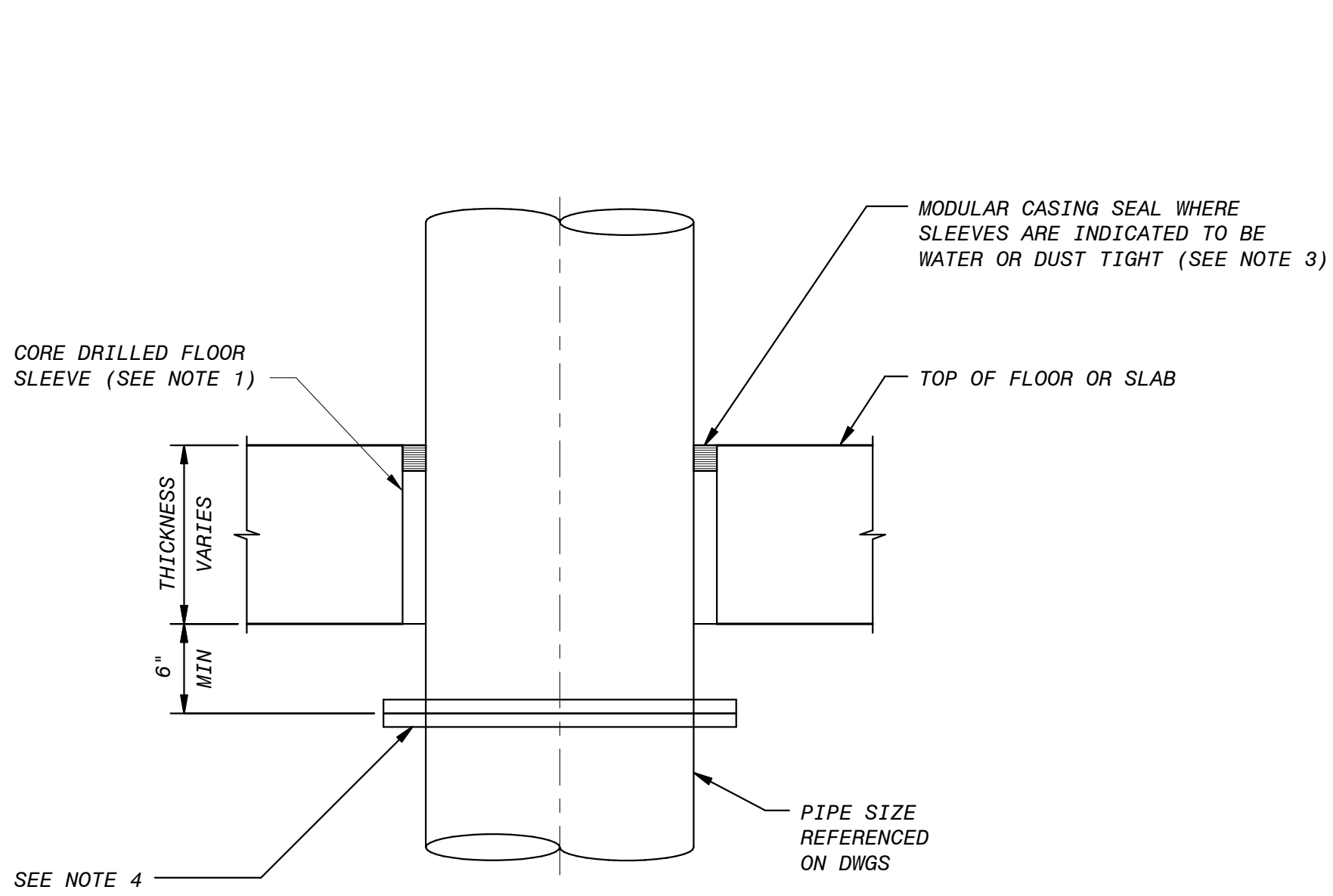
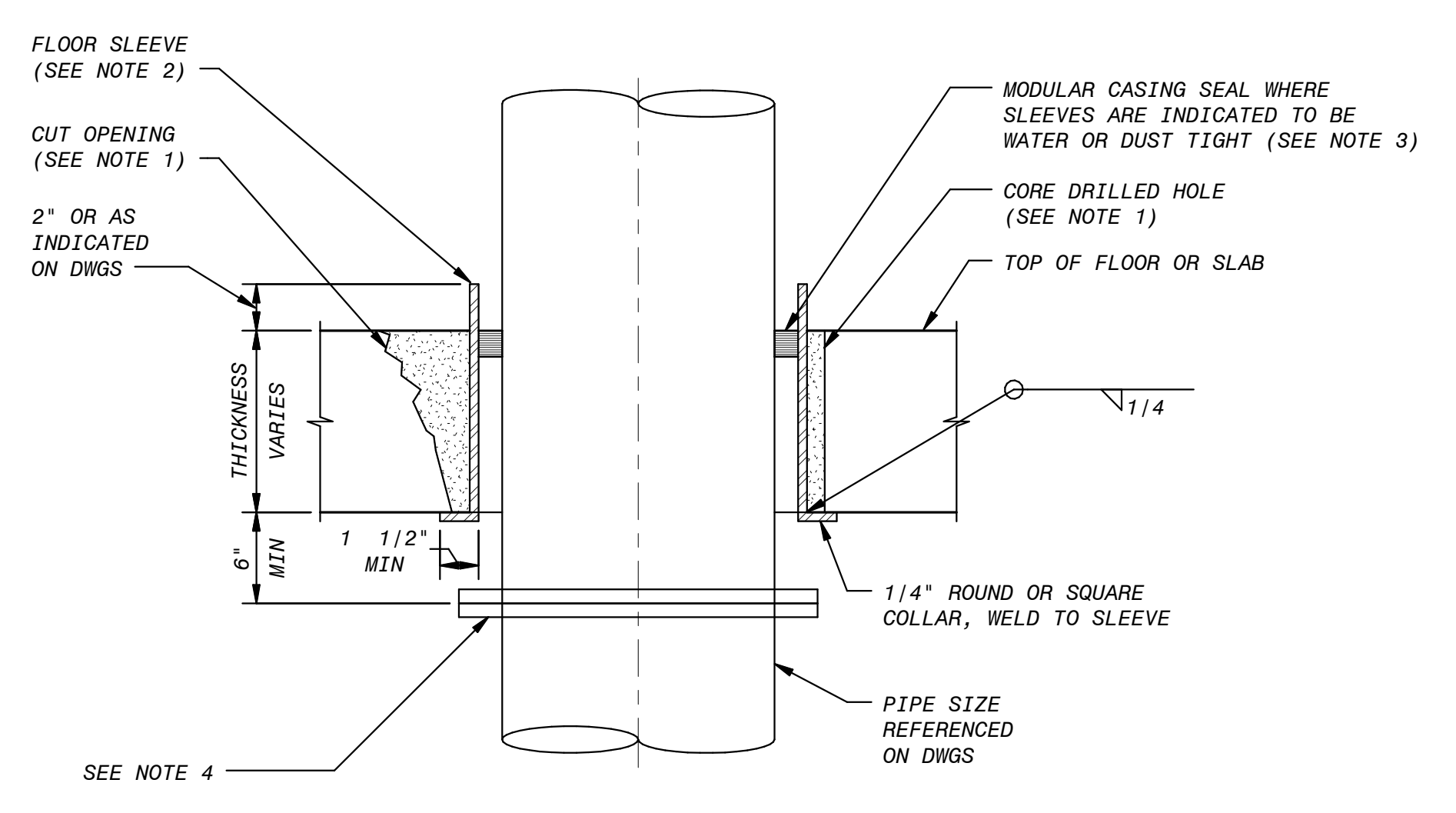
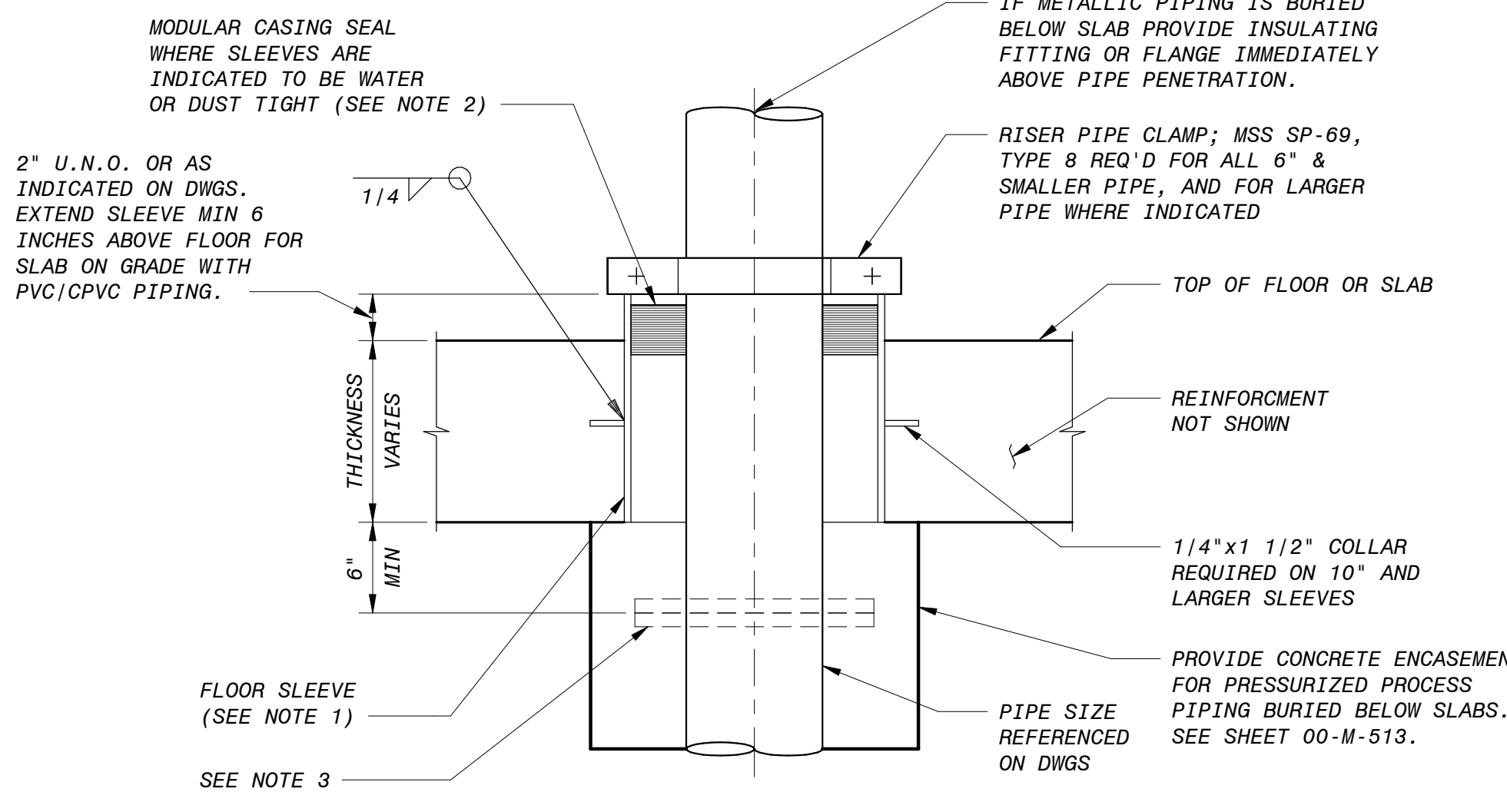
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CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

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PROJECT NO.
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SHEET
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NOTES :

1. FLOOR SLEEVE, SCHEDULE 40 STEEL PIPE FOR 12" AND SMALLER SLEEVES, 1/4" STEEL PIPE FOR SLEEVES LARGER THAN 12", AND HOT DIP GALVANIZED AFTER FABRICATION. COORDINATE SIZE OF SLEEVE WITH MODULAR SEAL MANUFACTURER.
2. FIRESAFING TO BE PROVIDED AT ALL RATED LOCATIONS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEMS.
3. TO MINIMIZE SLEEVE SIZE PROVIDE A SCREW-ON FLANGE, GROOVED COUPLING, OR MECHANICAL COUPLING WITH ANCHOR STUDS ON ONE SIDE OF OPENING.

NOTES:

1. FOR SLEEVE OPENINGS SMALLER THAN 12 INCHES IN DIAMETER, CORE DRILLED OPENINGS MAY BE USED. FOR LARGER SLEEVES CUT AND BREAK OUT OPENINGS AS NOTED ON THE DRAWINGS. APPLY BONDING AGENT TO EXISTING CONCRETE AND FILL SPACE WITH NON-SHRINK GROUT.
2. FLOOR SLEEVE, SCHEDULE 40 STEEL PIPE FOR 12" AND SMALLER SLEEVES, 1/4" STEEL PIPE FOR SLEEVES LARGER THAN 12", AND HOT DIP GALVANIZED AFTER FABRICATION. COORDINATE SIZE OF SLEEVE WITH MODULAR SEAL MANUFACTURER.
3. FIRESAFING TO BE PROVIDED AT ALL RATED LOCATIONS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEMS.
4. TO MINIMIZE SLEEVE SIZE PROVIDE A SCREW-ON FLANGE, GROOVED COUPLING, OR MECHANICAL COUPLING WITH ANCHOR STUDS ON ONE SIDE OF OPENING.

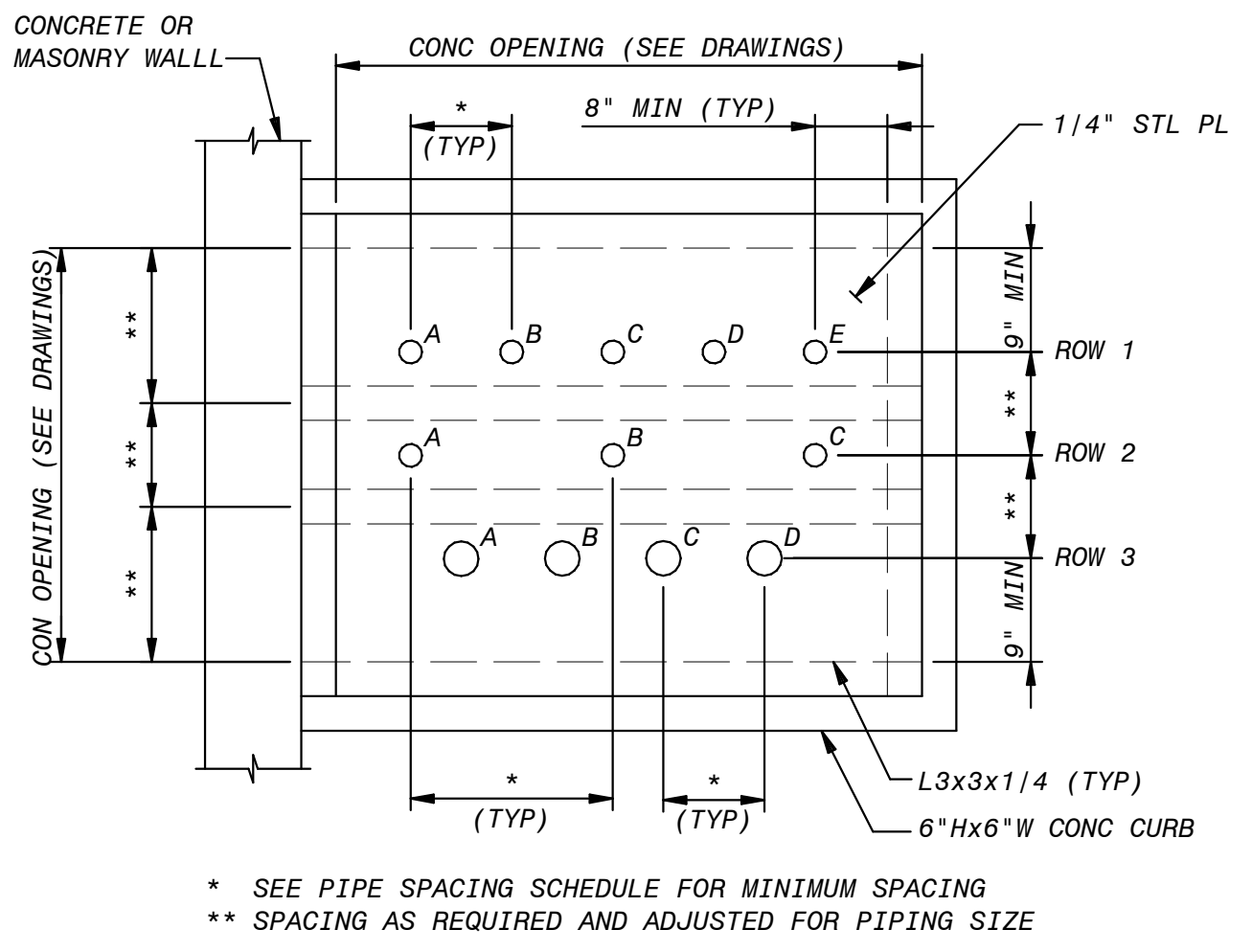
NOTES:

1. CORE DRILL SMOOTH FLOOR OPENING AND COORDINATE DIAMETER WITH MODULAR CASING SEAL MANUFACTURER, MAXIMUM CORE DIAMETER 12".
2. FIRESAFING TO BE PROVIDED AT ALL RATED LOCATIONS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEMS.
3. TO MINIMIZE SLEEVE SIZE PROVIDE A SCREW-ON FLANGE, GROOVED COUPLING, OR MECHANICAL COUPLING WITH ANCHOR STUDS ON ONE SIDE OF OPENING.

A STEEL FLOOR SLEEVE
12-C-503 NO SCALE

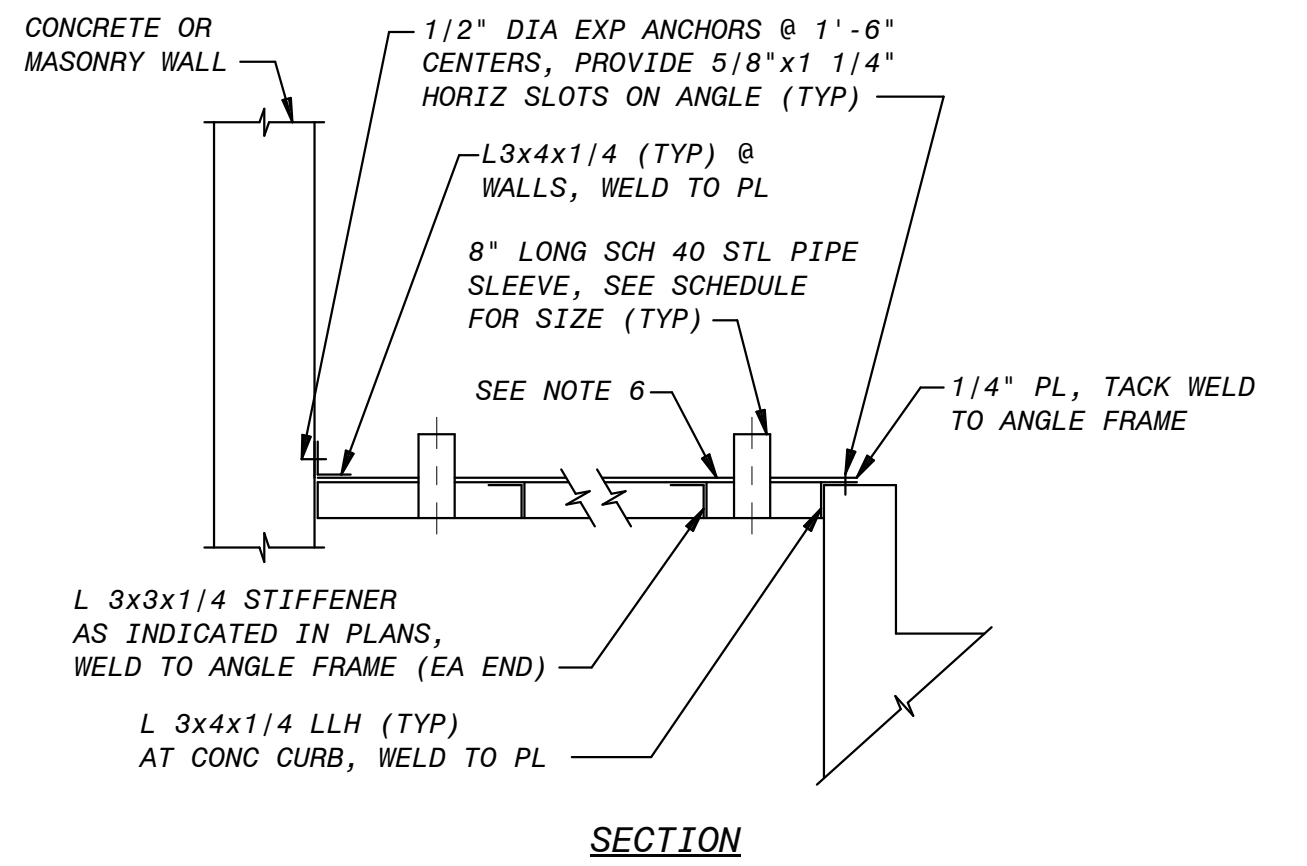
B 003-271 - EXISTING FLOOR SLEEVE
NO SCALE

C 003-272 - CORE DRILLED FLOOR SLEEVE
NO SCALE



* SEE PIPE SPACING SCHEDULE FOR MINIMUM SPACING
** SPACING AS REQUIRED AND ADJUSTED FOR PIPING SIZE

PLAN



SECTION

PANEL SLEEVE SCHEDULE	
SOLUTION OR GAS LINE SIZE (INCHES)	SCHEDULE 40 NOMINAL SLEEVE SIZE (INCHES)
3/4	1 1/2
1	2
1 1/2	2 1/2
2	3
2 1/2, 3	4
4	5

PIPE SPACING SCHEDULE							
MINIMUM CENTERLINE TO CENTERLINE SPACING IN INCHES							
PIPE SIZE (INCHES)	3/4	1	1 1/2	2	2 1/2	3	4
3/4	4 1/2	4 3/4	5 1/4	6	6 3/4	6 3/4	6 3/4
1	-	5	5 1/2	6	7	7	7
1 1/2	-	-	6 1/4	6 3/4	7 1/2	7 1/2	7 1/2
2	-	-	-	7 1/4	8 1/4	8 1/4	9
2 1/2	-	-	-	-	9	9	10
3	-	-	-	-	-	9	10
4	-	-	-	-	-	-	12

PANEL PIPING SCHEDULE			
PIPE DESIGNATION ROW	LETTER	PIPE SIZE (INCHES)	PIPE SERVICE
1	A	-	-
1	B	-	-
1	C	-	-
1	D	-	-
1	E	-	-
2	A	-	-
2	B	-	-
2	C	-	-
3	A	-	-
3	B	-	-
3	C	-	-
3	D	-	-

NOTES :

1. SEE PANEL PIPING SCHEDULE FOR PIPING SIZE AND SERVICE.
2. WHERE LINES ARE INDICATED ON PIPING SCHEDULE TO BE FUTURE, INSTALL SLEEVES WITH THREADED ENDS OF THE SIZE AS INDICATED IN PANEL SLEEVE SCHEDULE. FILL SLEEVE WITH SAFING INSULATION AS REQUIRED AND INSTALL THREADED CAPS.
3. PIPE SPACING SHALL BE UNIFORM WITHIN THE OPENING, WITH MINIMUM SPACING AND ALLOWANCES AS INDICATED.
4. CONTRACTOR SHALL COORDINATE THE SPACING AND ALLOWANCES OF ALL PIPING AND SLEEVES PRIOR TO FABRICATION OF PANEL.
5. FIRESAFING SHALL BE PROVIDED AT ALL RATED LOCATIONS INDICATED ON THE DRAWINGS AND INSTALLED PER ACCEPTED UL RATED SYSTEMS.
6. ALL PANEL MATERIAL, EXCEPT SLEEVES, SHALL BE 1/4" STEEL PL WELDED CONSTRUCTION. IN EXTERIOR LOCATIONS PIPE SLEEVES SHALL BE SEAL WELDED ALL AROUND.

D TYPICAL FLOOR SLEEVE PANEL
NO SCALE

0 KEZ RT EVB
NO. BY CHK APP

5/19/2020 ISSUED FOR CONSTRUCTION
DATE

REVISONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
BROCK V. BEVINGTOWN
No. C 78836
CIVIL
STATE OF CALIFORNIA
5/20/2020

BLACK & VEATCH
JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

GENERAL
CIVIL - MECHANICAL
DETAILS

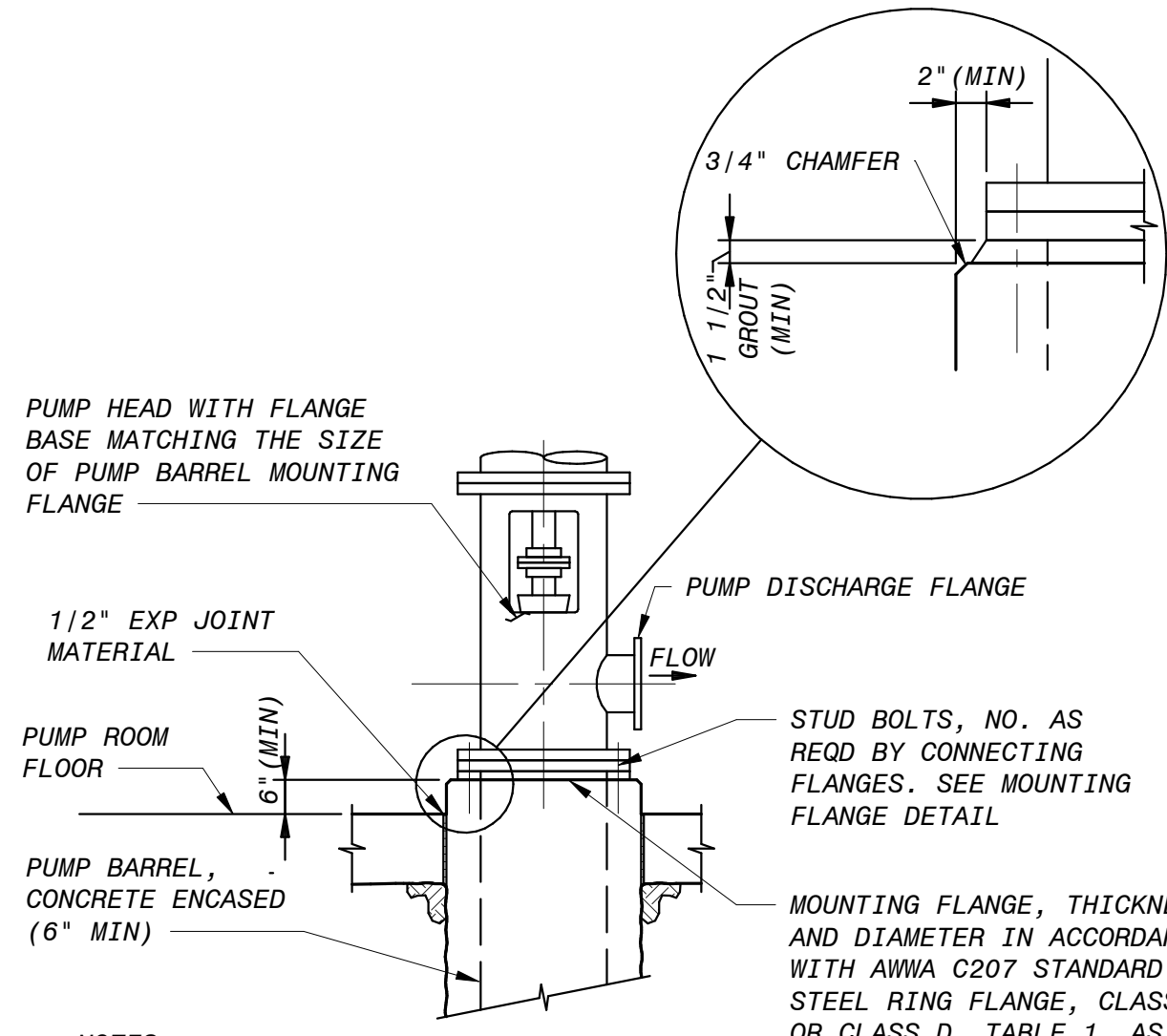
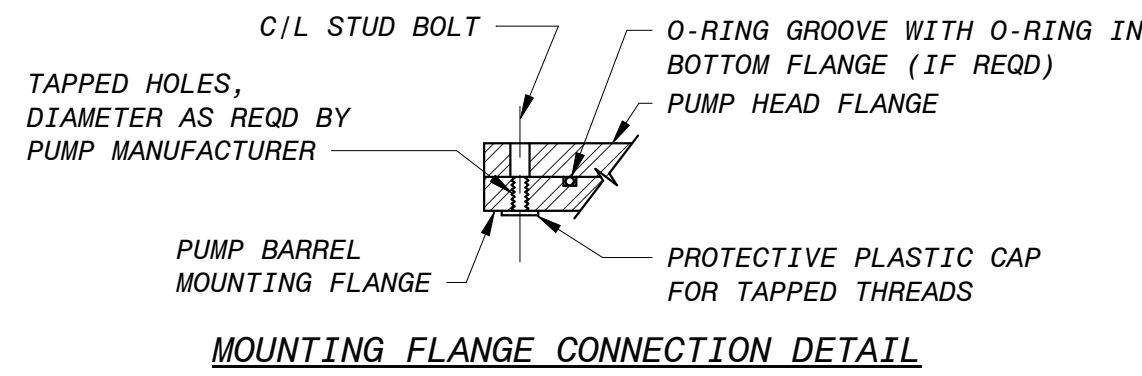
DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530

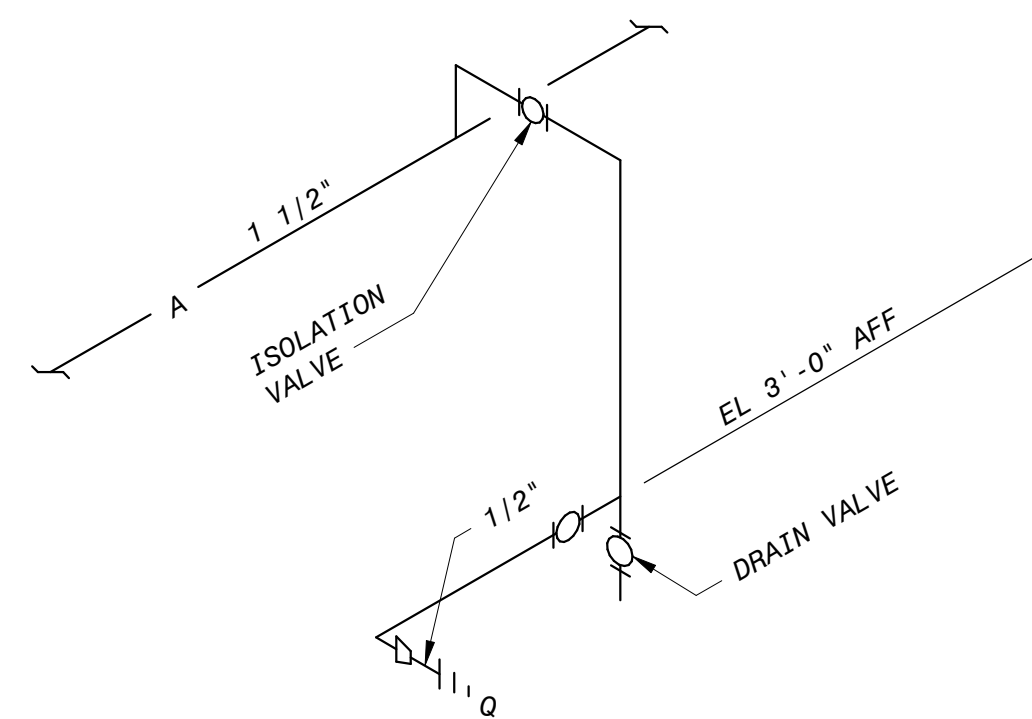
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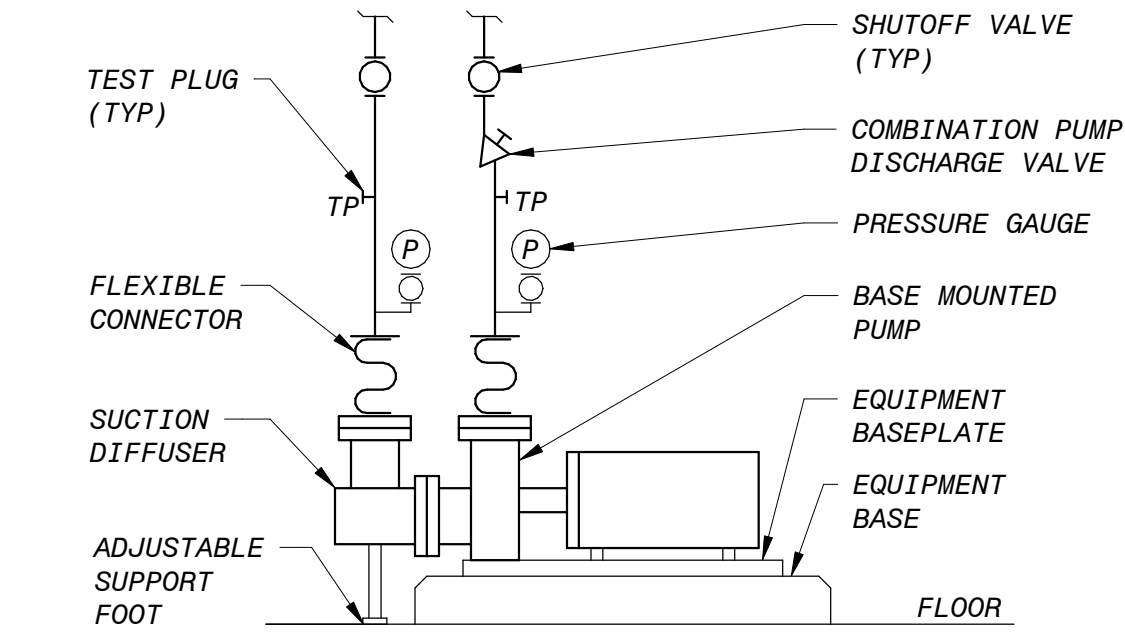


- NOTES:**
- AIR VALVES FOR PUMP AND PUMP BARREL ARE NOT SHOWN
 - CONTACT SURFACES BETWEEN PUMP HEAD AND MOUNTING FLANGE SHALL BE MACHINED.

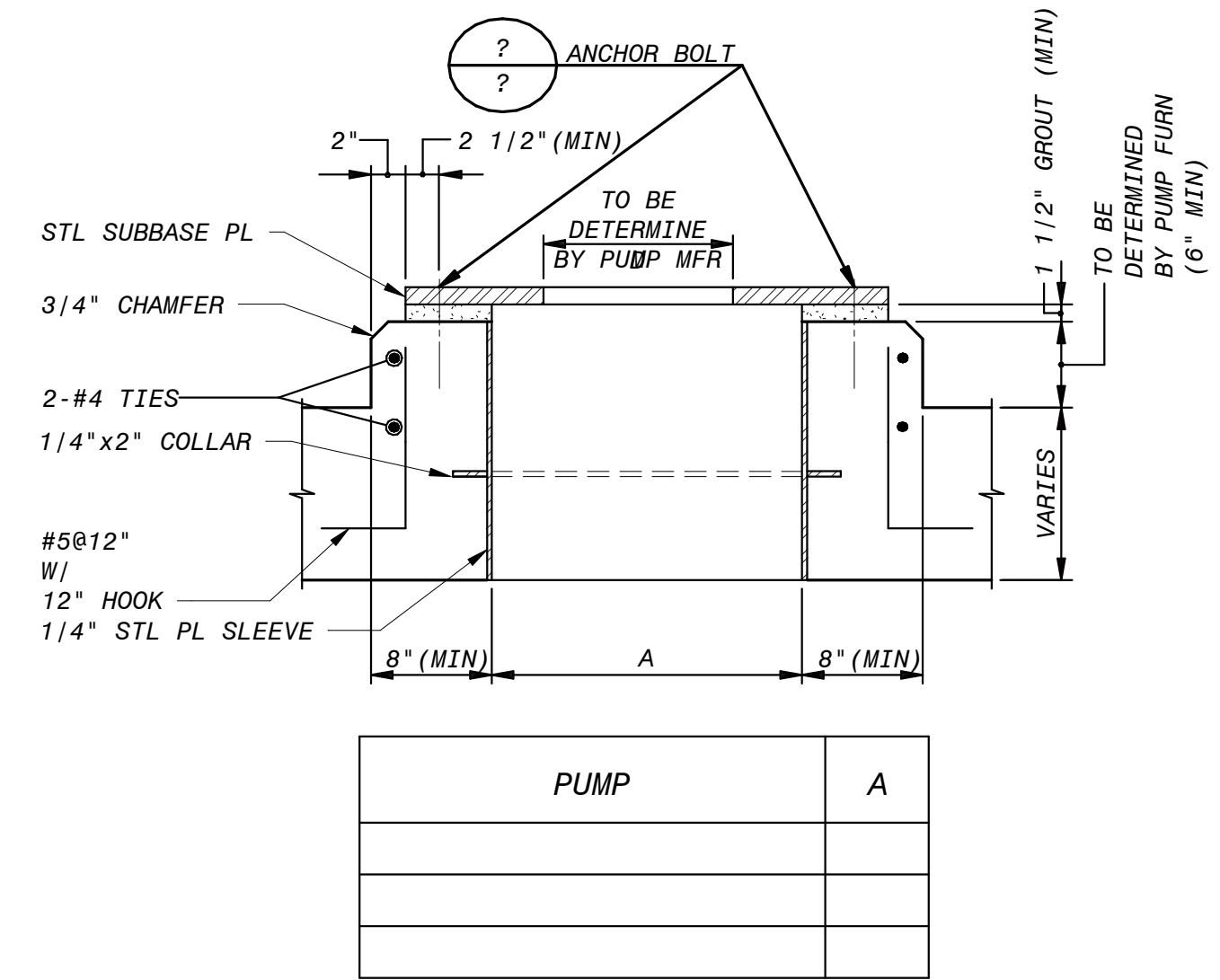
A VERTICAL DIFFUSION VANE PUMP BARREL INSTALLATION DETAILS
NO SCALE



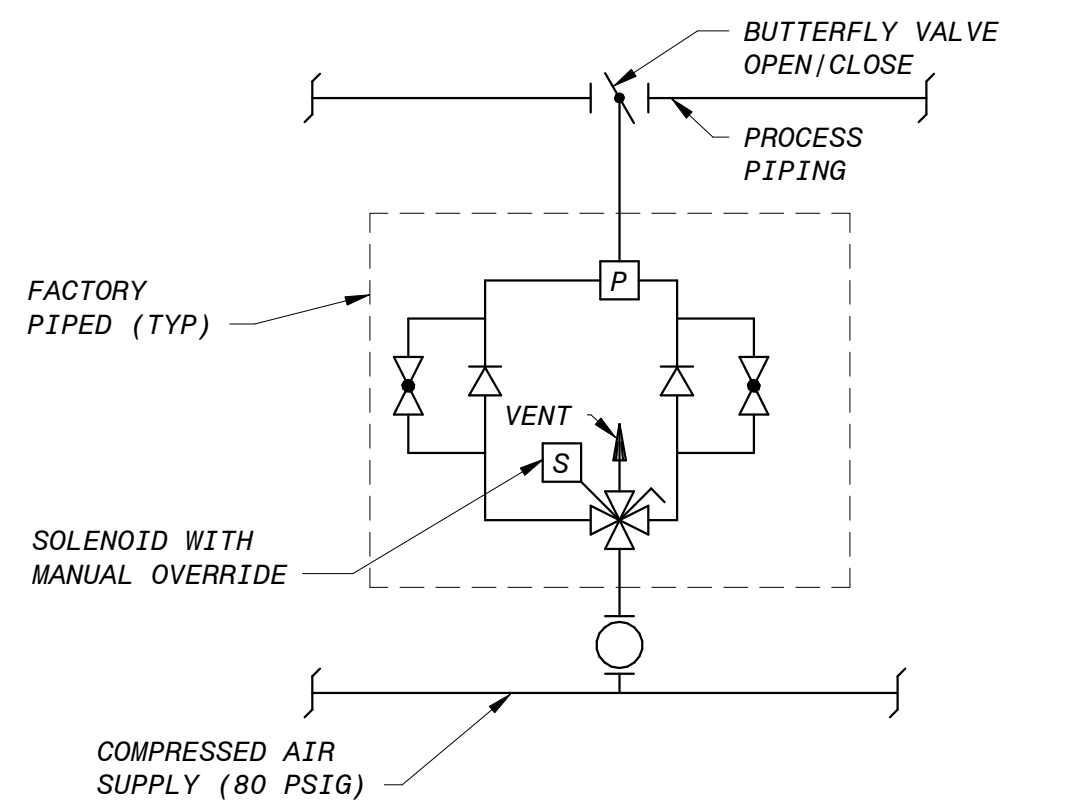
E SERVICE AIR OUTLET PIPING
NO SCALE



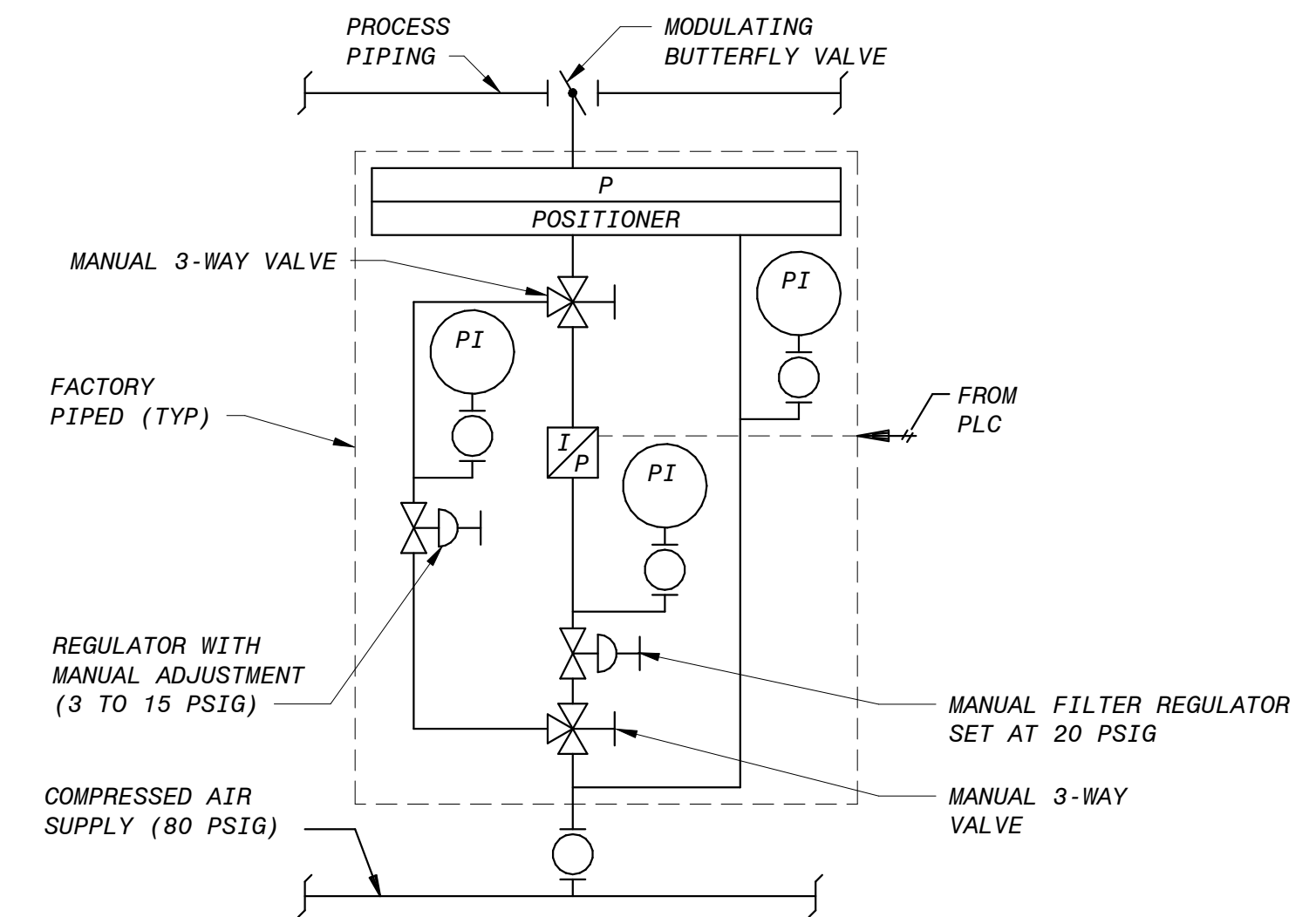
B END SUCTION CENTRIFUGAL PUMP PIPING
NO SCALE



D VERTICAL DIFFUSION PUMP BASE
NO SCALE



H AIR CYLINDER ACTUATOR - OPEN/CLOSE
NO SCALE



I AIR CYLINDER ACTUATOR - MODULATING
NO SCALE



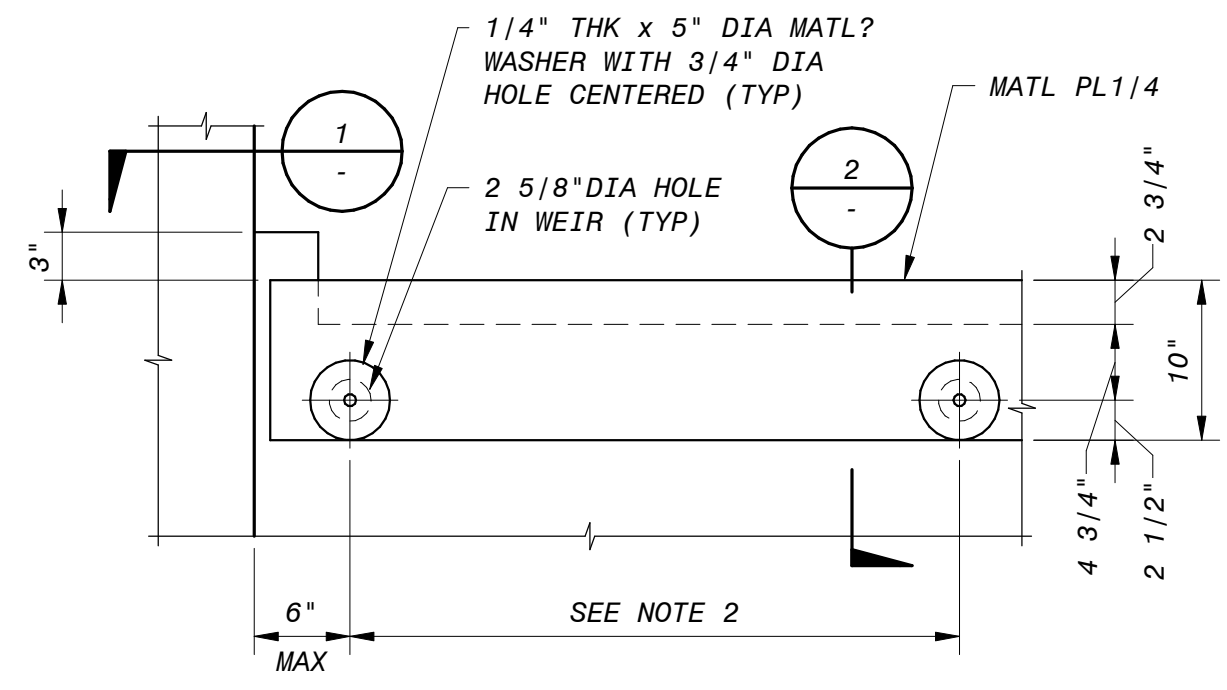
BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
CIVIL - MECHANICAL
DETAILS

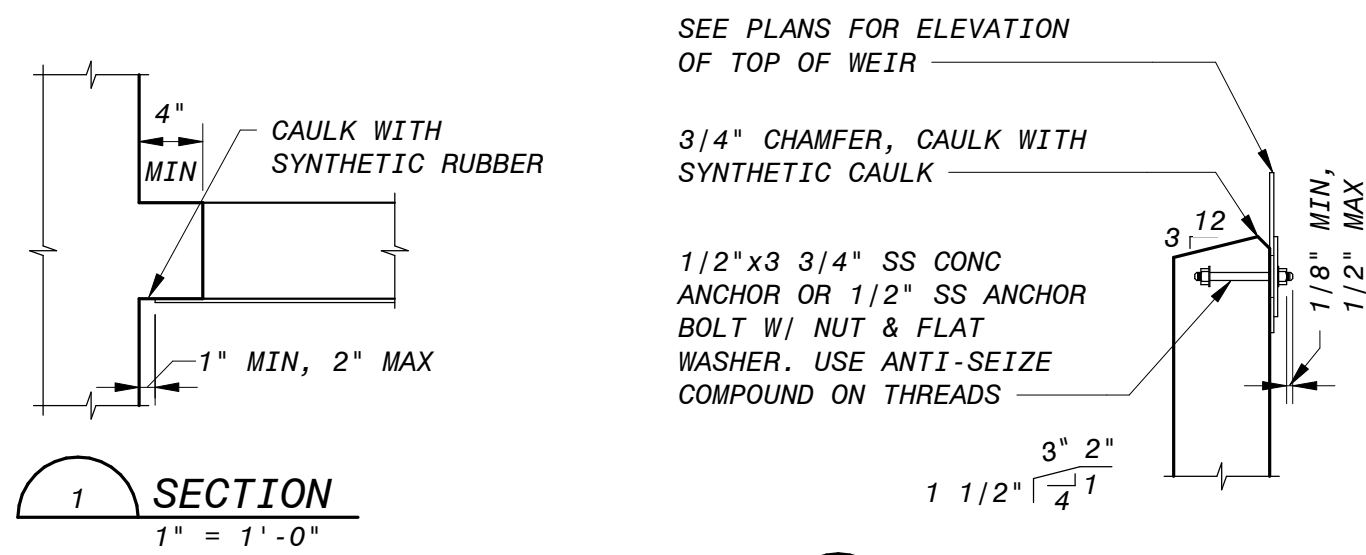
DESIGNED: KEZ
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CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

0 1/2 1
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400530
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ELEVATION



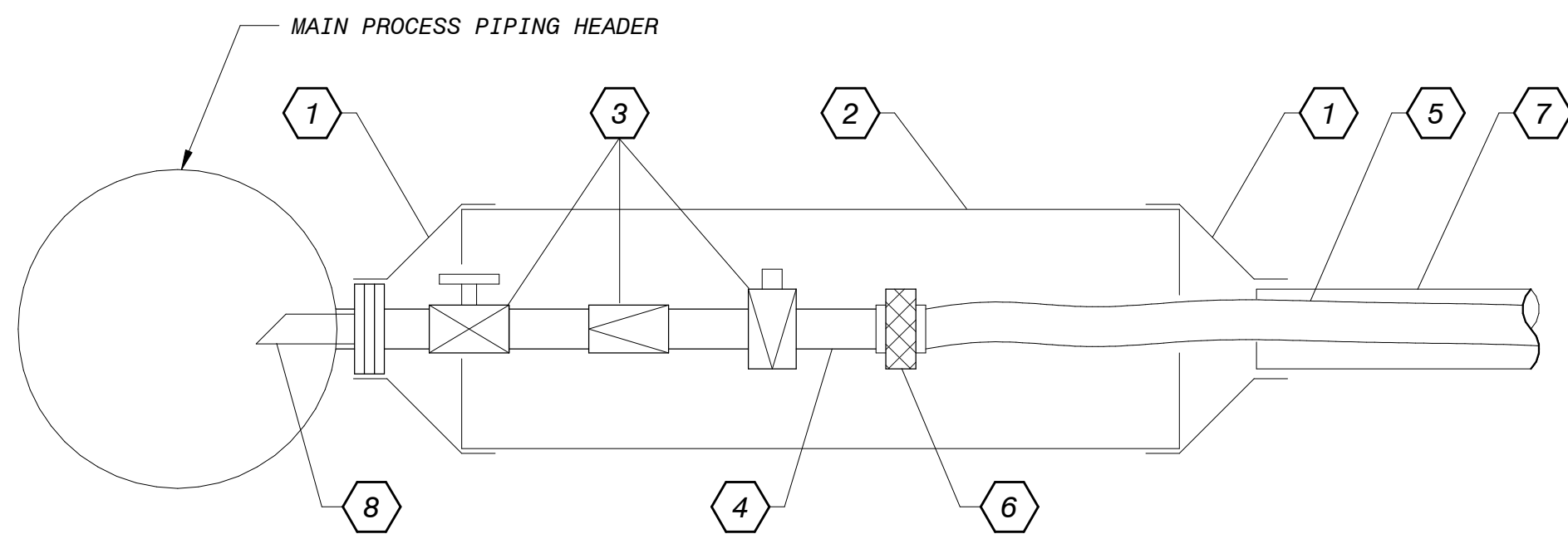
SECTION 1
1" = 1'-0"

SECTION 2
1" = 1'-0"

NOTES:

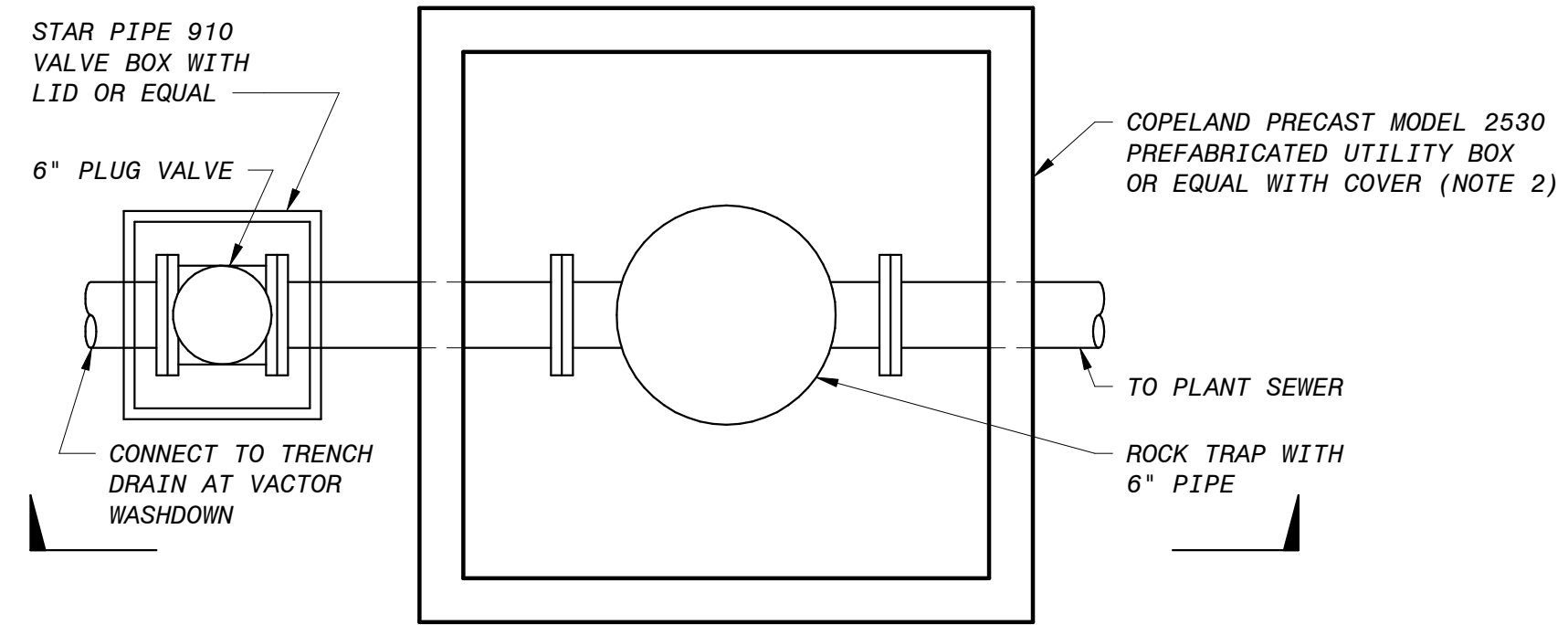
1. ALL EDGES, VOIDS, AND SPLICES SHALL BE SEALED WATER TIGHT WITH SYNTHETIC RUBBER.
2. ANCHOR BOLT SPACING - 12" OC FOR STRAIGHT WEIRS AND 2'-0" FOR CIRCULAR WEIRS.
3. WEIR TO BE SET LEVEL TO PROVIDE UNIFORM DISCHARGE AND ALL ADJACENT WEIRS SHALL BE SET AT THE INDICATED ELEVATION WITH ZERO TOLERANCE.

A SHARP CRESTED WEIR
1" = 1'-0"

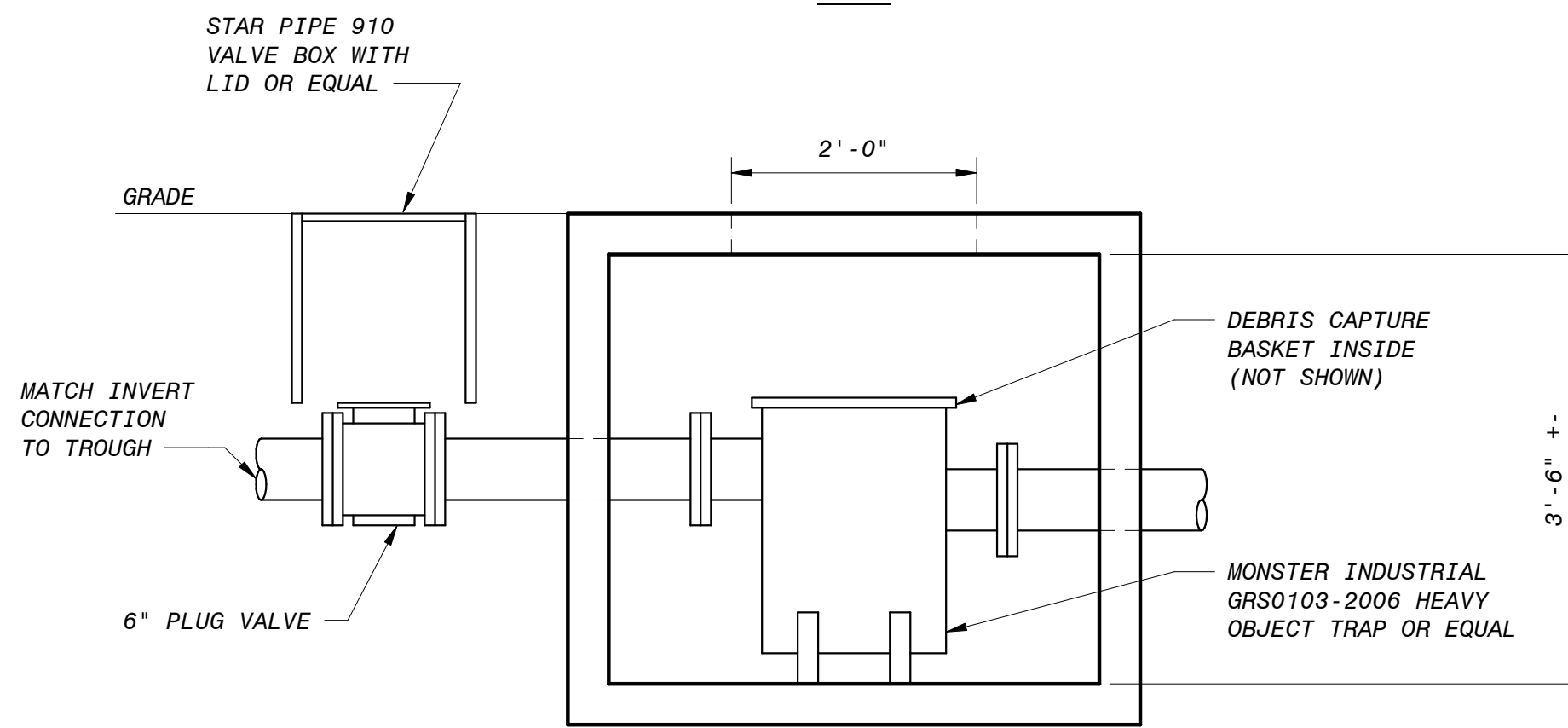


1. FLEXIBLE COUPLING WITH BAND CLAMP ENDS. FERNCO FLEXIBLE CHEMICAL COUPLING OR EQUAL.
2. CLEAR SPLIT PVC PIPING - 6" DIAMETER. CENTRALLY SPLIT FOR ACCESS TO EQUIPMENT. GEORGE FISHER "CONTAIN-IT" OR EQUAL.
3. VALVES - REFER TO P&IDs AND VALVE LIST FOR INFO/SIZING.
4. HARD PIPING - REFER TO P&IDs FOR INFO/SIZING.
5. TUBING - REFER TO P&IDs FOR INFO/SIZING.
6. HARD PIPE TO TUBING ADAPTER.
7. SECONDARY CONATINMENT PIPING - REFER TO P&ID FOR INFO.
8. CHEMICAL INJECTION QUILL/DIFFUSER. MATERIAL SHALL BE COMPATIBLE WITH CHEMICAL PER SPECIFIACTIONS AND P&IDS.

E INJECTION POINT DETAIL
3" = 1'-0"

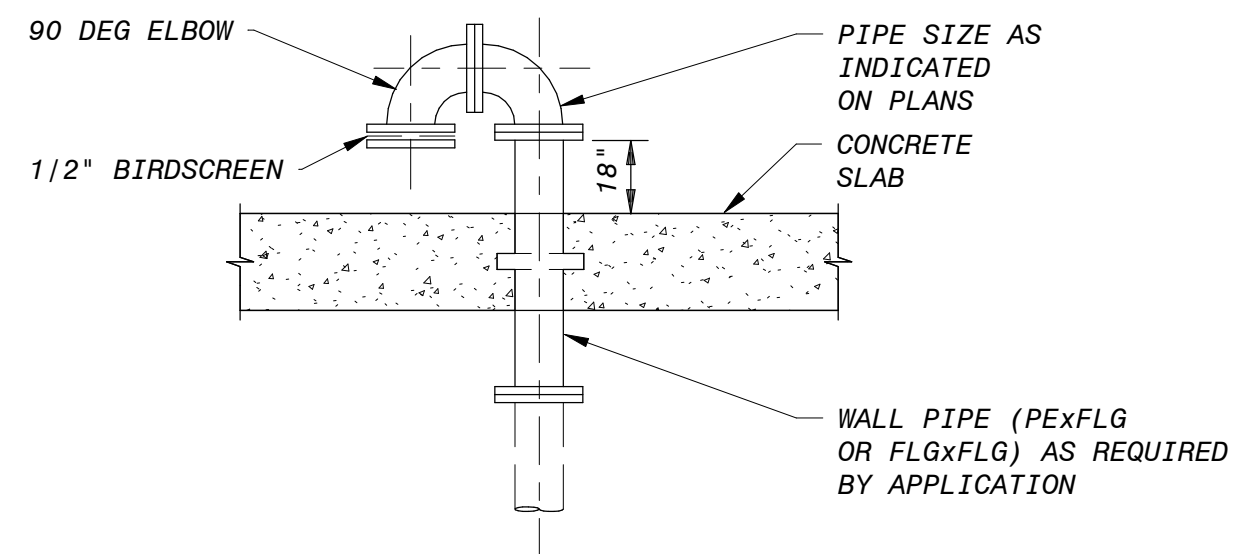


PLAN

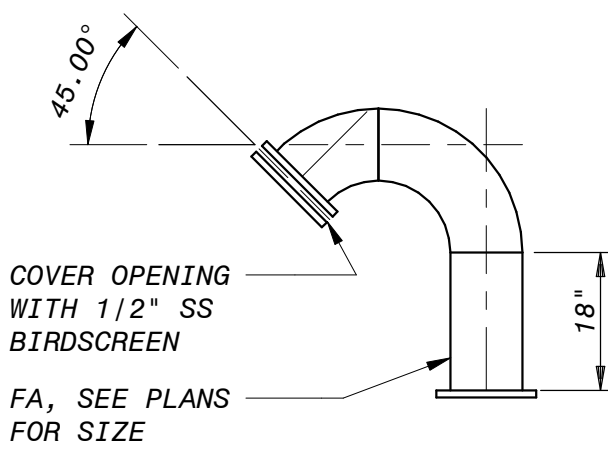


SECTION

B VACTOR WASHDOWN DRAIN ASSEMBLY
NO SCALE



G GOOSENECK VENT - TANK
NO SCALE



H GOOSENECK VENT - PIPE
NO SCALE



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JOINT VENTURE
FILANC **BLACK & VEATCH**

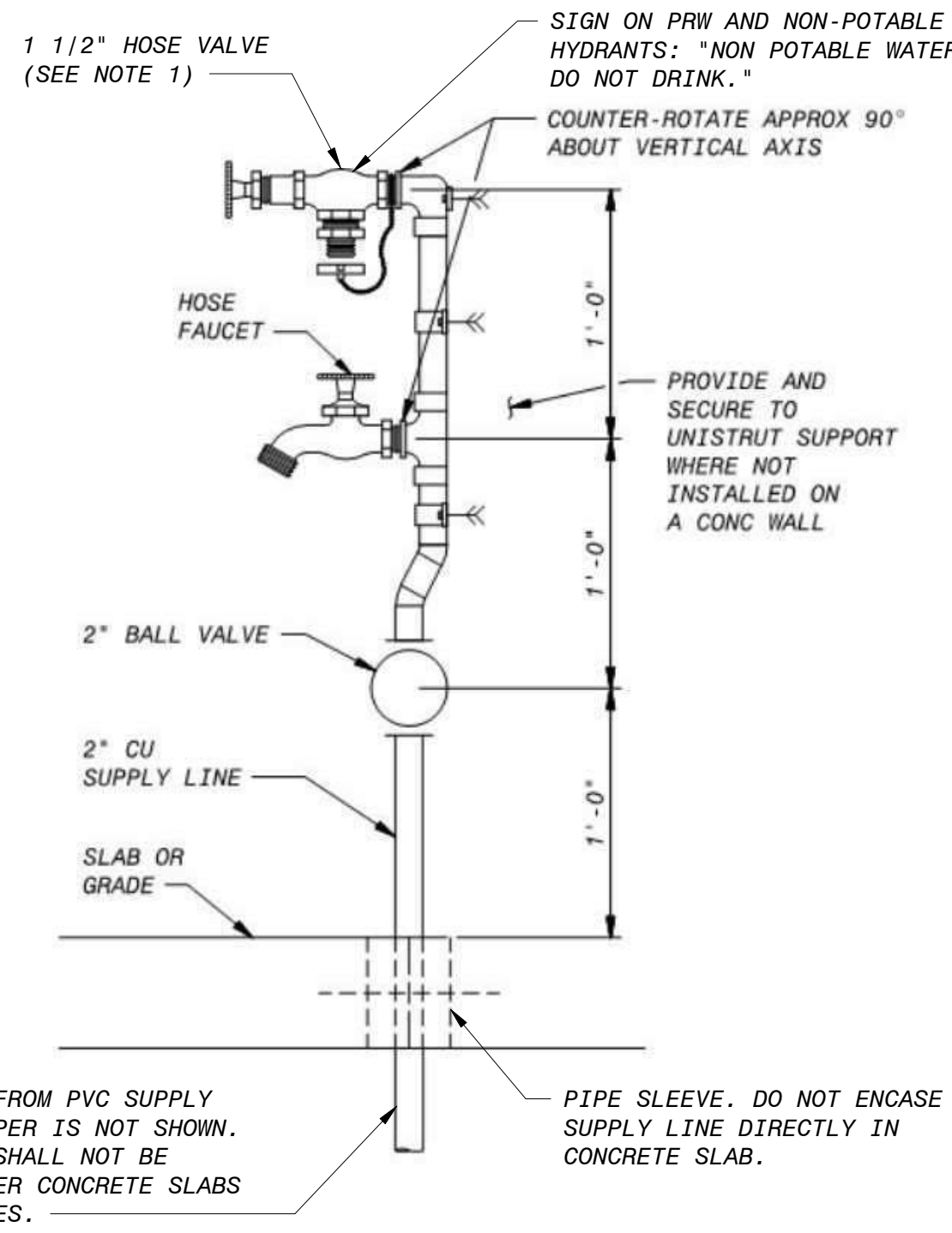
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
DETAILED: JPS
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

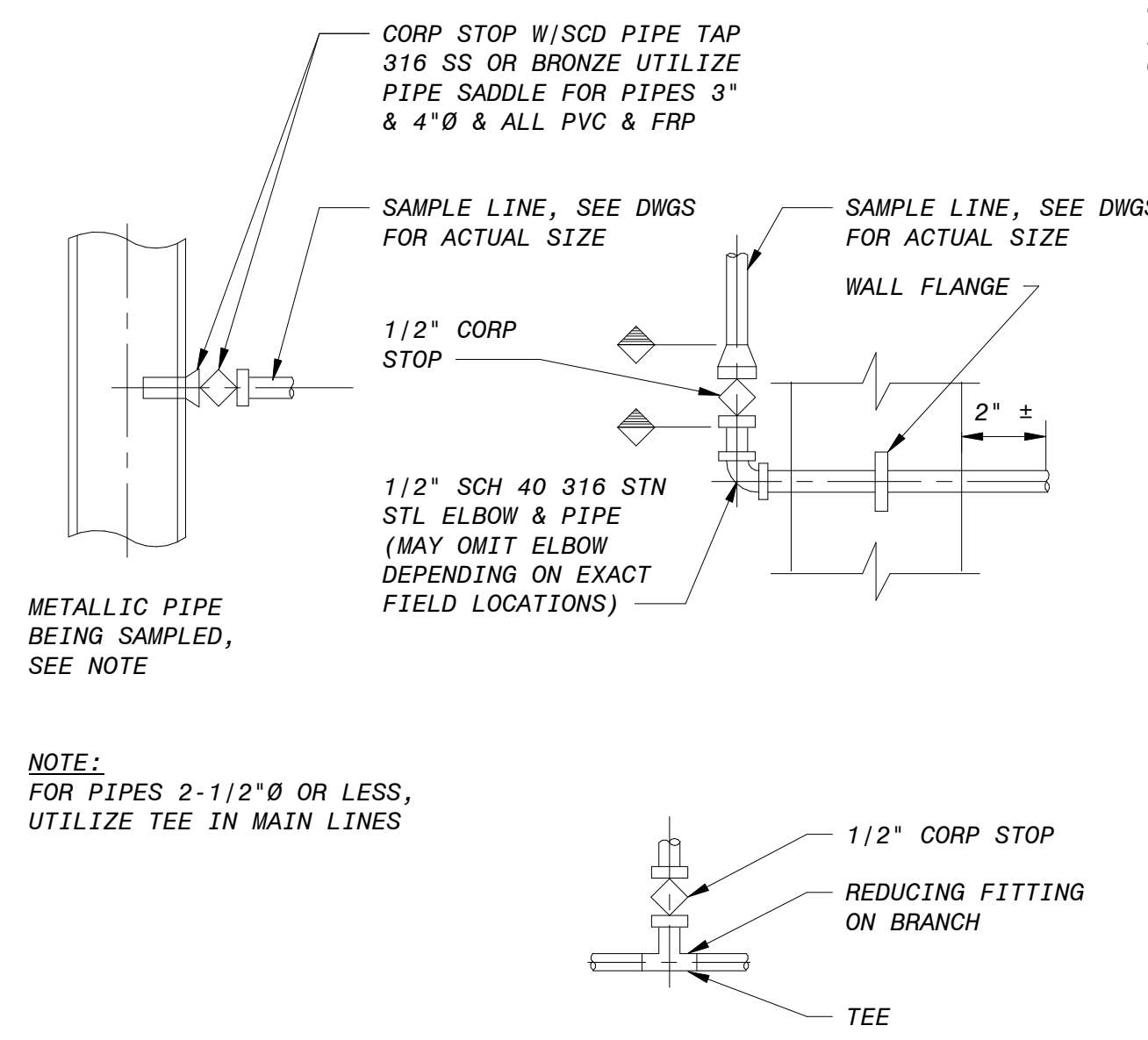
PROJECT NO.
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00-M-512
SHEET
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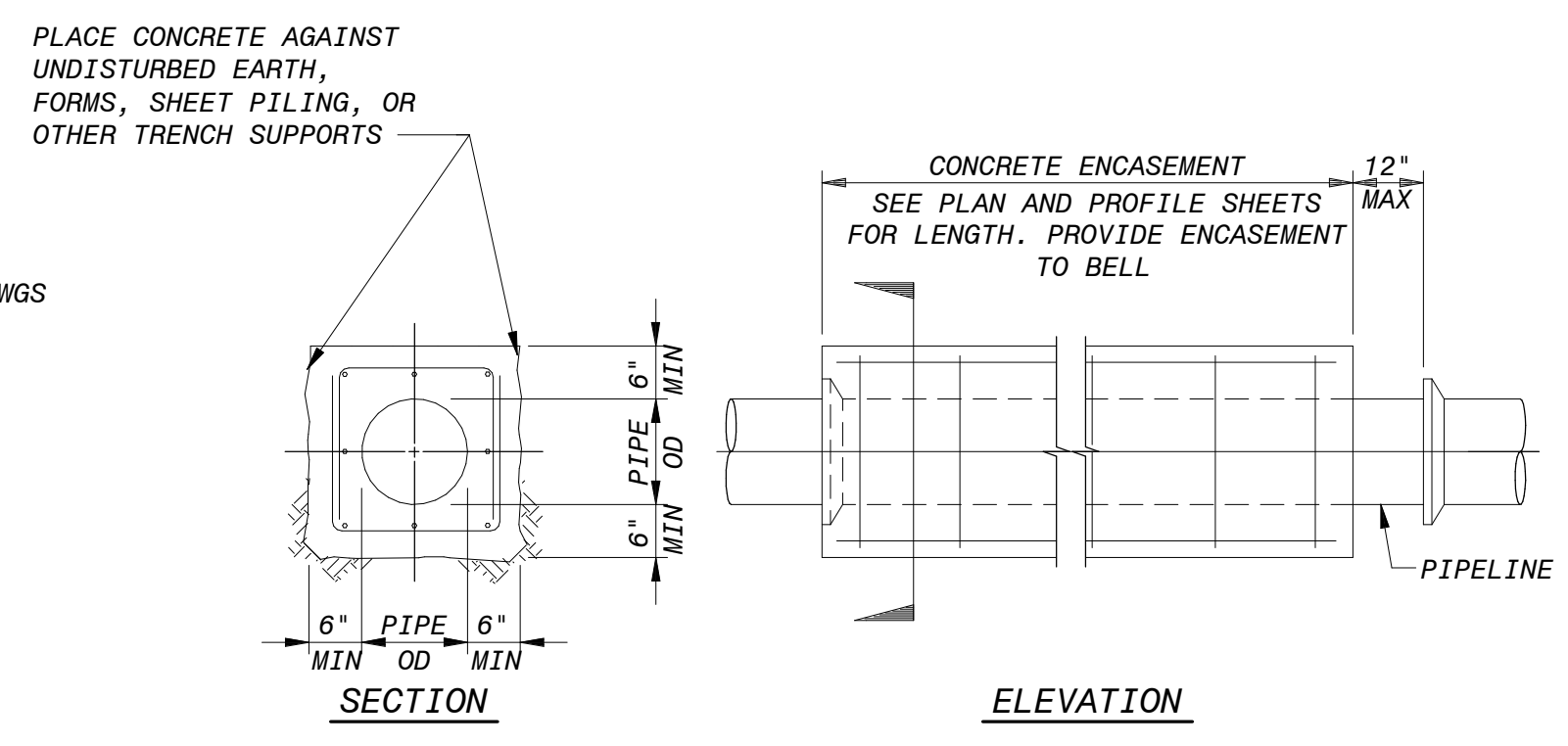


NOTE:
1. FOR WASHDOWN RACK HYDRANTS, PROVIDE 2" HOSE VALVE.

A YARD HYDRANT DETAIL
NO SCALE

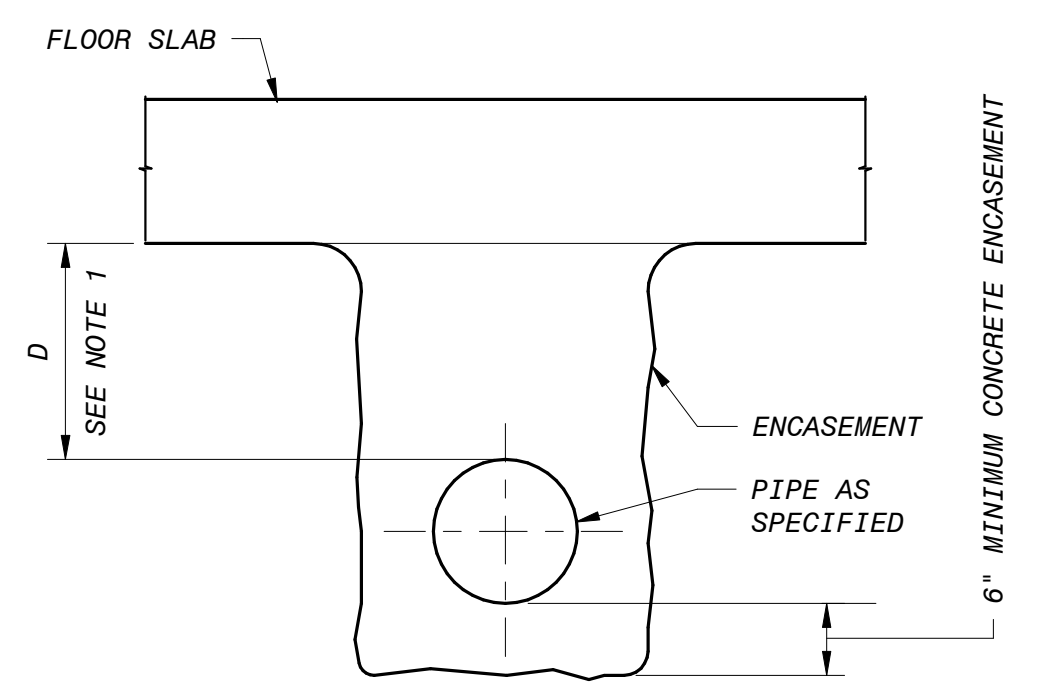


B SAMPLE TAP CONNECTION
3" = 1'-0"



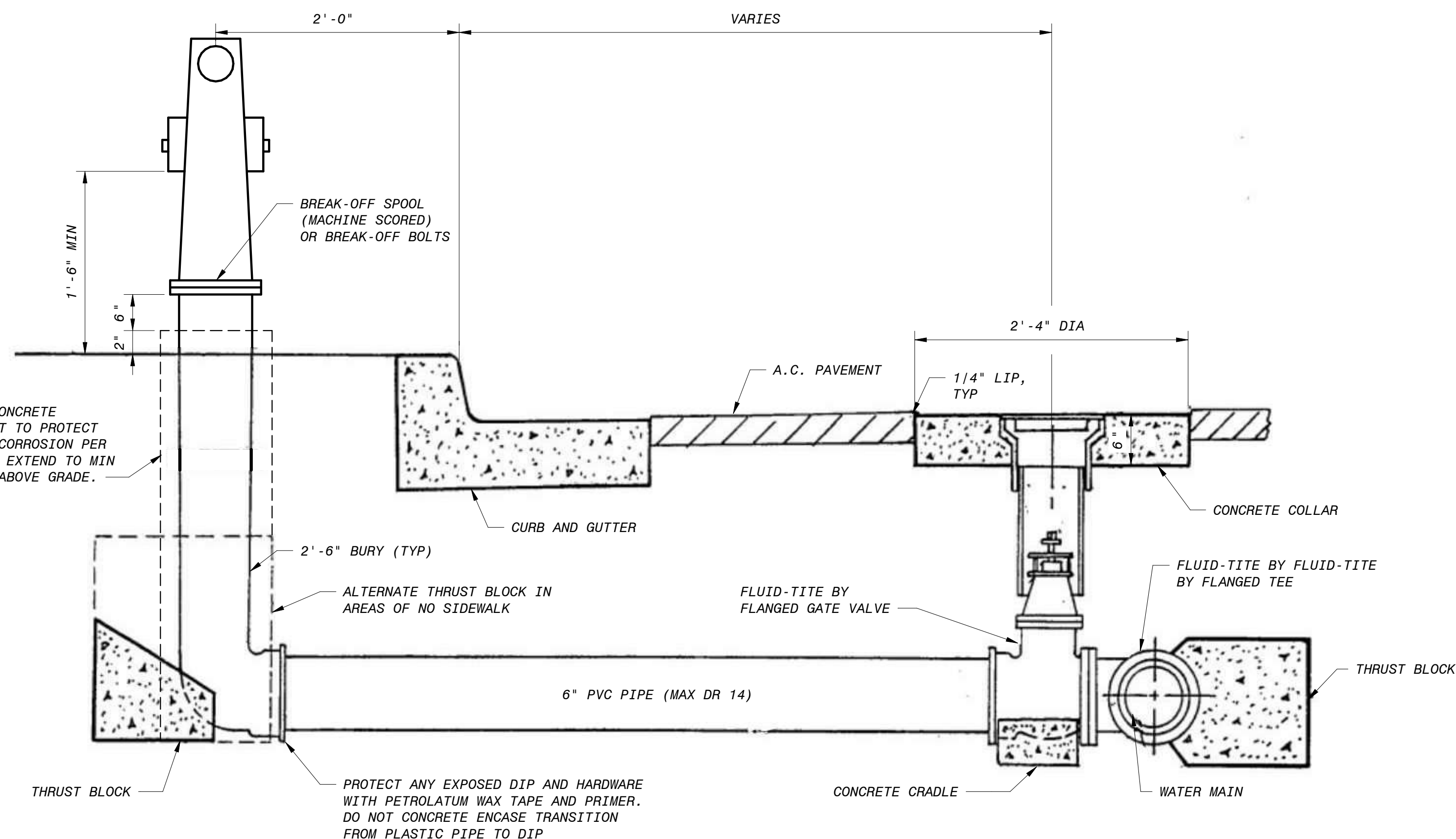
NOTE:
1. HOLD BACK ENCASEMENT 6 INCHES FROM MATERIAL TRANSITIONS TO ACCOMMODATE ASSEMBLY.
2. PROVIDE REINFORCING WHERE LESS THAN MIN ALLOWABLE COVER OVER BURIED PIPING EXCEPT FOR VERTICAL PIPE NEAR GRADE. SIZE AND SPACING TO BE PER ENGINEER OF RECORD.
3. PROVIDE MIN 3 INCHES COVER OVER BELLS AND FLANGES.
4. EXTEND ENCASEMENT OF VERTICAL PIPING AT GRADE TO 2 INCHES ABOVE GRADE. NEATLY FORM CONCRETE WITH ROUND TUBE FORM AND SLOPE AWAY FROM PIPE WALL AT UNIFORM 1/2 IN/FT SLOPE.

C CONCRETE ENCASEMENT
00-M-508 12" = 1'-0"



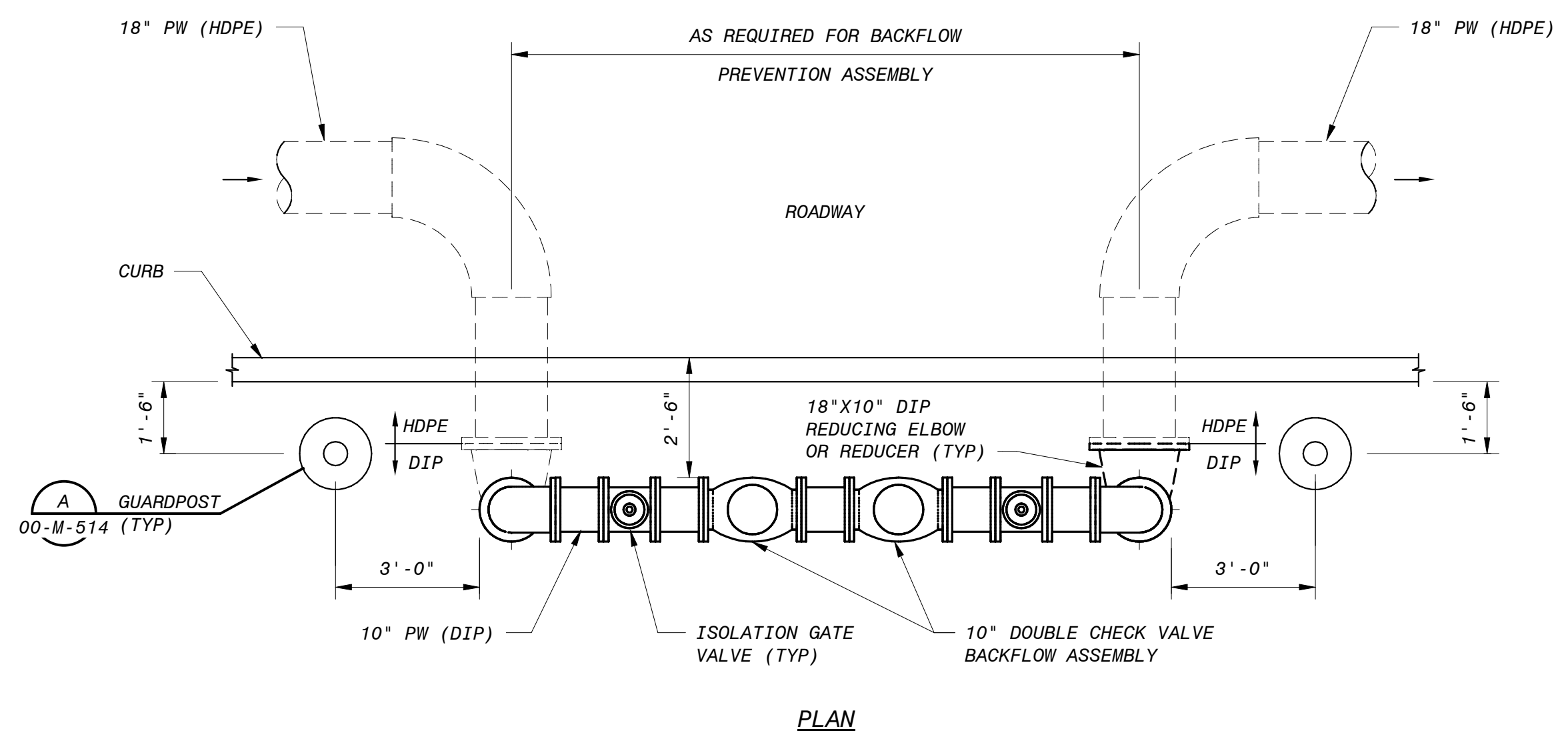
NOTE:
1. IF D IS LESS THAN 1'-6", PROVIDE ENCASEMENT CONTINUOUS TO SLAB IF D IS GREATER THAN 1'-6", ENCASEMENT MAY BE SEPARATED FROM SLAB
2. PROVIDE MIN 3 INCHES COVER OVER BELLS AND FLANGES.

D CONCRETE ENCASEMENT FOR PIPE UNDER SLABS
3/4" = 1'-0"



NOTES:
1. CONCRETE COLLAR, CRADLE, AND THRUST BLOCKS SHALL HAVE A MINIMUM 2500 PSI COMPRESSIVE STRENGTH IN 28 DAYS.
2. VALVE BOX, COVER, AND EXTENSION SHALL BE BROOKS NO 3RT, OR EQUAL AS APPROVED BY PUBLIC WORKS DEPARTMENT. COVER SHALL BE MARKED "WATER".
3. SEE CITY OF MORRO BAY DRAWING W-2 FOR THRUST BLOCK DETAILS.
4. FIRE HYDRANT SHALL HAVE ONE (1) 4-1/2" OUTLET AND TWO (2) 2-1/2" OUTLETS, RICH 960 OR APPROVED EQUAL.
5. PROVIDE TWO GUARD POSTS ADJACENT TO FIRE HYDRANT, ONE EACH SIDE OF HYDRANT, PARALLEL TO ROADWAY. PROVIDE 3 FT CLEARANCE BETWEEN HYDRANT AND GUARDPOST.
6. ELIMINATE THRUST BLOCKS WHERE PIPING IS RESTRAINED IF ALLOWED BY CITY.
7. BURIED FLANGE HARDWARE SHALL BE 316 STAINLESS STEEL. ALL BURIED METALLIC PIPING (WHERE NOT CONCRETE ENCASED) AND HARDWARE SHALL BE PROTECTED WITH PETROLATUM WAX TAPE AND PRIMER.

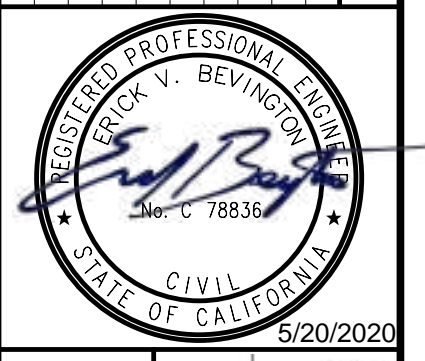
E DETAIL
NO SCALE



NOTES:
1. DOUBLE-CHECK-DETECTOR CHECK BACKFLOW PREVENTER ASSEMBLY (DCDA) SHALL BE IN ACCORDANCE WITH SECTION 7601 OF TITLE 17 OF THE CALIFORNIA CODE OF REGULATIONS AND APPROVED BY THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH. CONTACT THE CITY FOR A LIST OF APPROVED ASSEMBLIES.
2. THE DCDA SHALL BE A SPECIALLY DESIGNED ASSEMBLY COMPOSED OF A LINE-SIZE APPROVED DOUBLE CHECK VALVE ASSEMBLY, TEST COCKS, AND A BYPASS CONTAINING AN APPROVED WATER METER AND DOUBLE CHECK VALVE ASSEMBLY.
3. ALL FITTINGS SMALLER THAN 3" DIA. SHALL BE COPPER WITH LEAD FREE SOLDER OR LEAD-FREE BRASS.
4. ALL RISERS AND ABOVE GROUND MAIN LINE PIPING SHALL BE CEMENT MORTAR LINED FLANGED DIP.
5. MATERIALS SHALL BE UL LISTED FOR FIRE SERVICE.
6. PROVIDE CLEARANCES AROUND DEVICE PER MANUFACTURER'S RECOMMENDATIONS AND ADEQUATE FOR TESTING.
7. GATE VALVES SHALL BE OUTSIDE STEM AND YOKE TYPE RESILIENT SEATED TYPE.
8. DOUBLE CHECK DETECTOR METER SHALL BE SUPPLIED WITH REGISTER THAT MEASURES IN CU FT.
9. BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED ABOVE GROUND WITH 12 TO 24 INCHES CLEARANCE.
10. A MINIMUM OF ONE ADJUSTABLE PIPE SUPPORT SHALL BE PROVIDED UNDER THE ASSEMBLY. PROVIDE TYPICAL EQUIPMENT SUPPORT SLAB FOR SUPPORT.
11. THRUST BLOCKS SHALL BE PROVIDED AT ELBOWS AND SHALL BE PER CITY OF MORRO BAY STANDARD DETAIL W-2 UNLESS OTHERWISE ALLOWED BY CITY.
12. PROVIDE VALVE SUPERVISORY TAMPER SWITCHES ON THE ISOLATION GATE VALVES OF BACKFLOW PREVENTER ASSEMBLY.
13. TRANSITION BETWEEN DIP AND HDPE SHALL BE AT THE BURIED FLANGES INDICATED AND SHALL BE PER THE REQUIREMENTS OF DETAIL E/00-M-508.

F DOUBLE CHECK VALVE BACKFLOW PREVENTER ASSEMBLY ENLARGED VIEW
3/8" = 1'-0"

0	KEZ	RWE	EVB
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5/19/2020	ISSUED FOR CONSTRUCTION	DATE	REVISONS AND RECORD OF USE



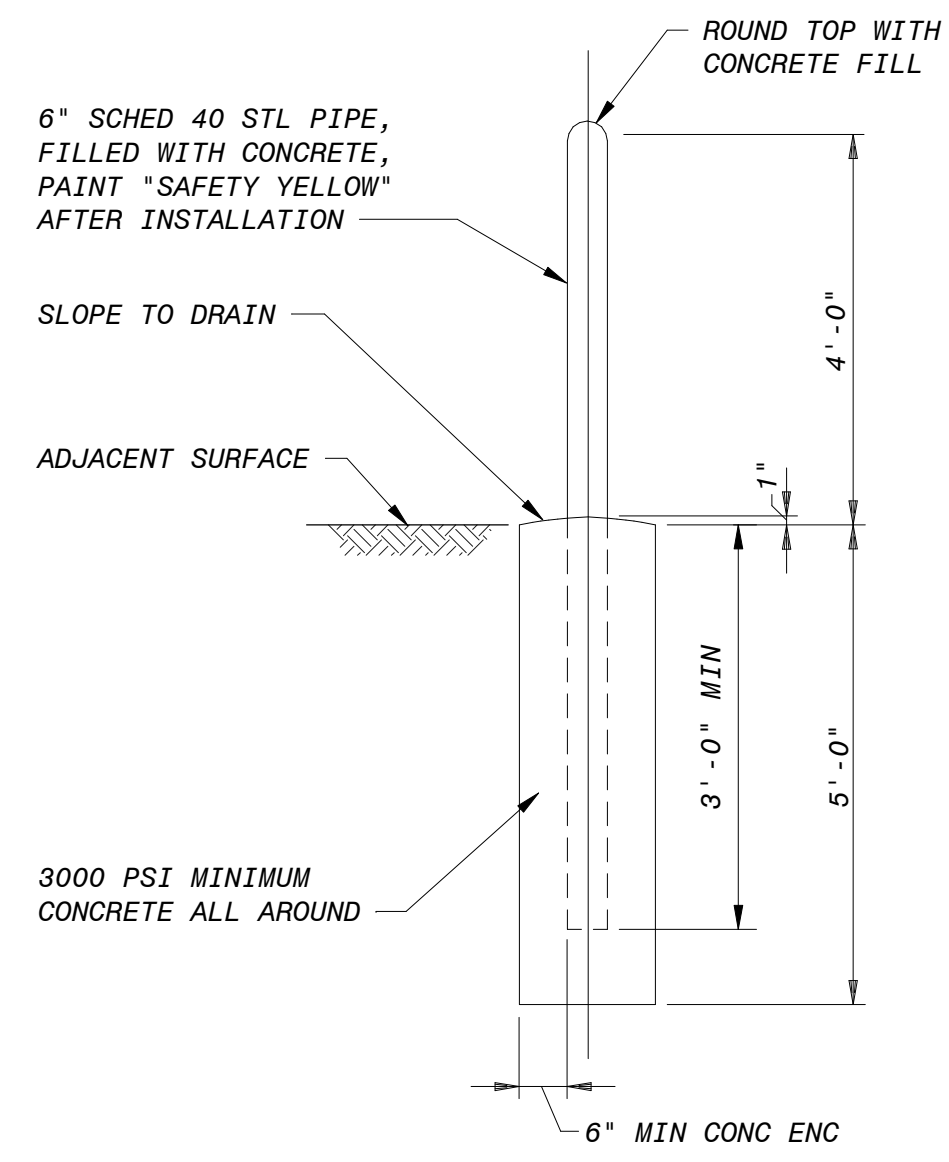
BLACK & VEATCH
JOINT VENTURE
FILANC
BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
CIVIL - MECHANICAL
DETAILS

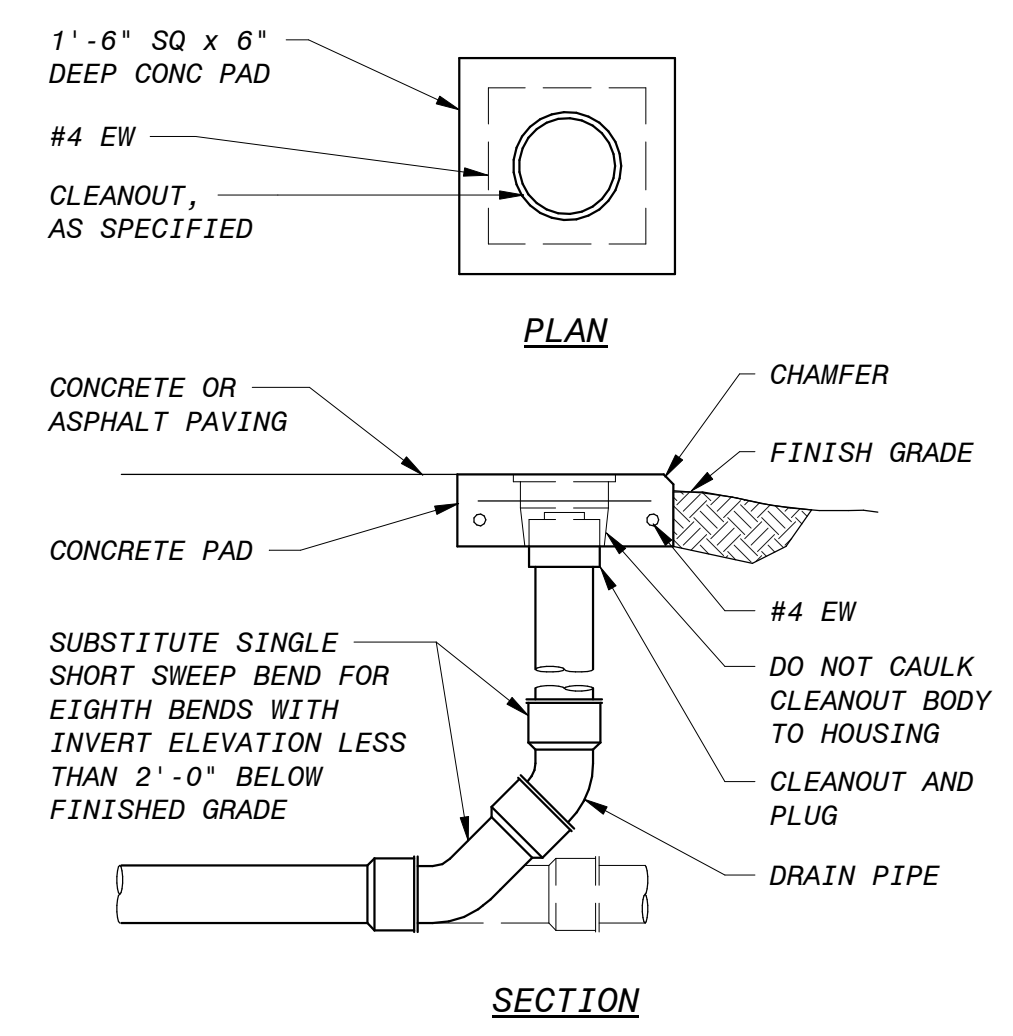
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DETAILED: JPS
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

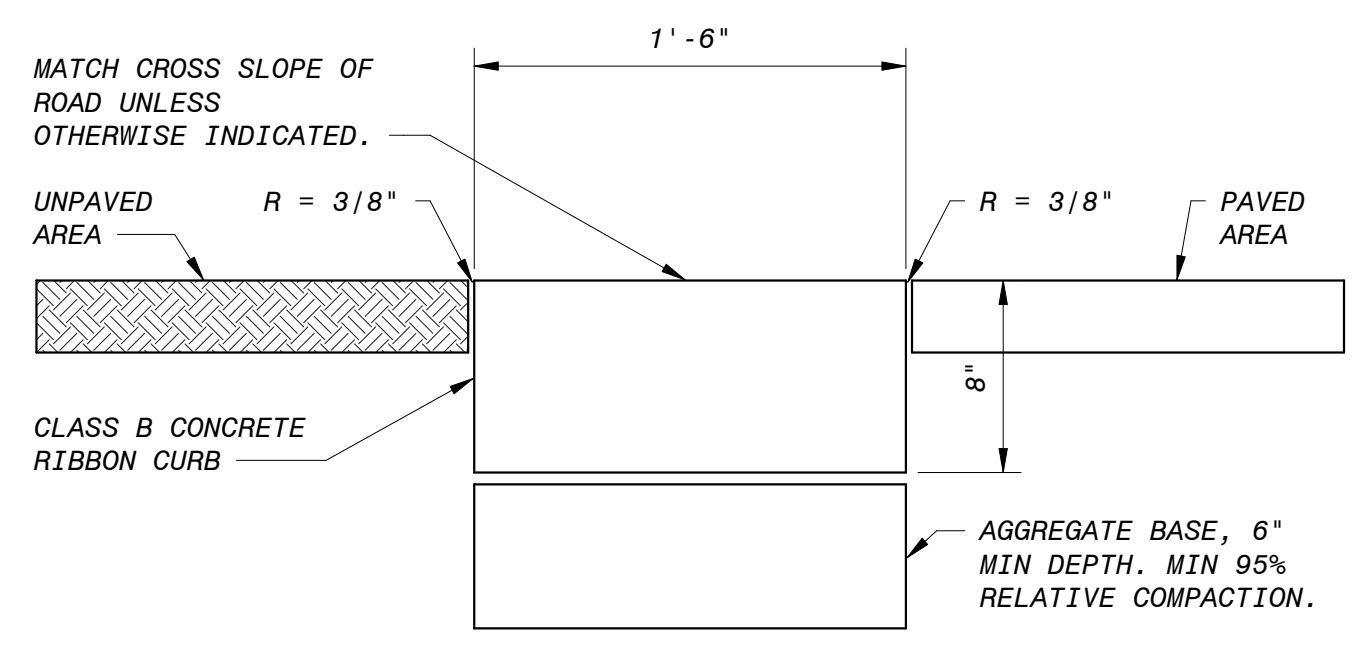
PROJECT NO.
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A GUARD POST DETAIL
00-M-513 12" = 1'-0"

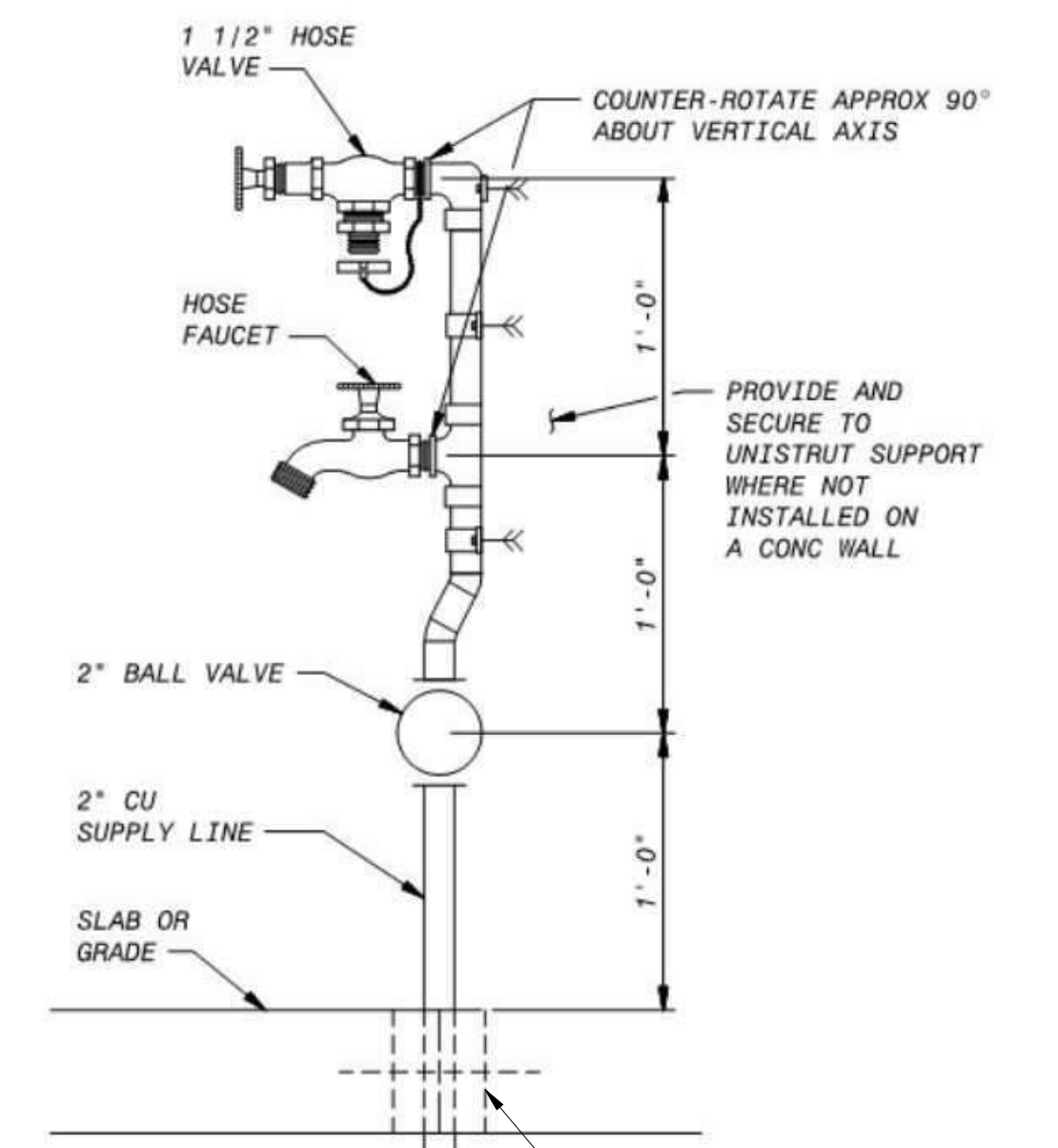


B GRADE CLEANOUT
12" = 1'-0"



- NOTES:
1. 1/4" EXPANSION JOINTS SHALL BE INSTALLED AT 24 FT INTERVALS AND SHALL BE PER CITY OF MORRO BAY STANDARDS.
 2. BROOM FINISH ALL SURFACES.

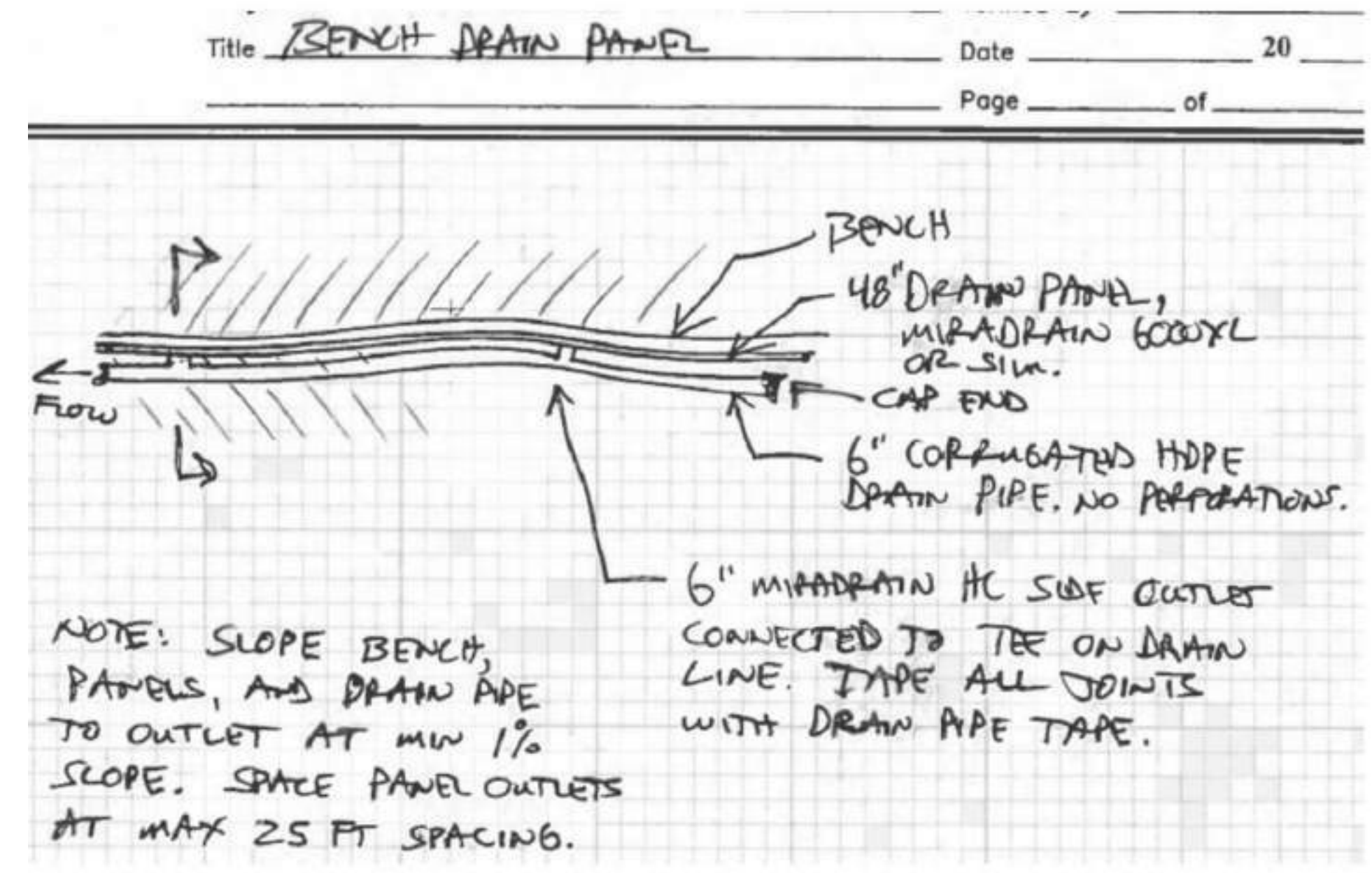
C RIBBON CURB
1 1/2" = 1'-0"



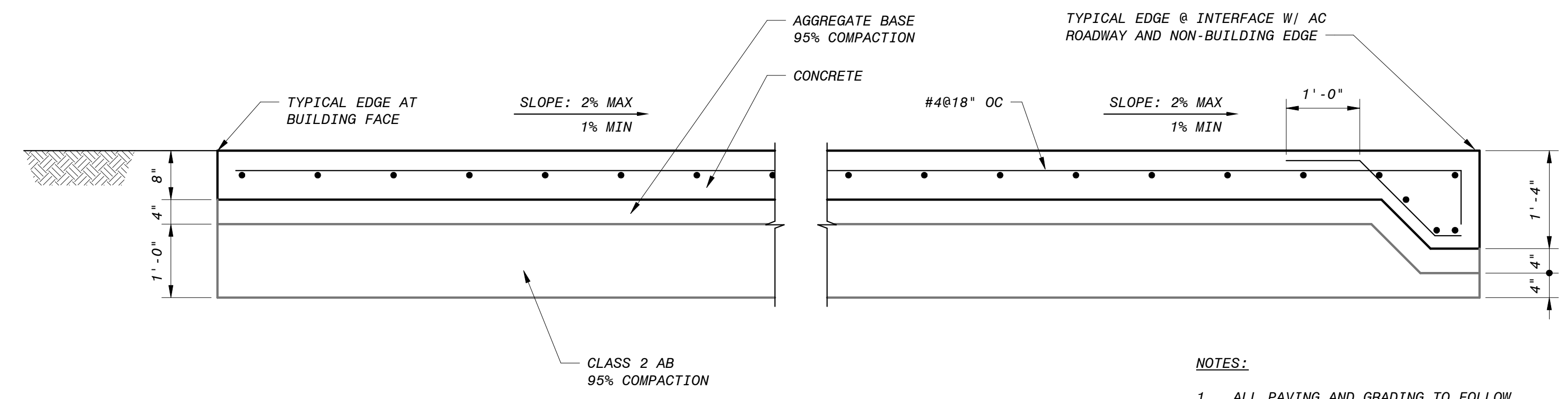
TRANSITION FROM PVC SUPPLY LINE TO COPPER IS NOT SHOWN. TRANSITION SHALL NOT BE LOCATED UNDER CONCRETE SLABS OR STRUCTURES.

NOTE:
REFER TO SPECIFICATION 40 05 51 FOR ADDITIONAL INFORMATION

F POTABLE YARD HYDRANT
NO SCALE



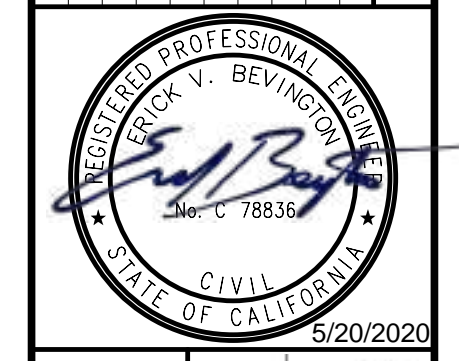
D BENCH DRAIN PANEL
12" = 1'-0"



- NOTES:
1. ALL PAVING AND GRADING TO FOLLOW ELEVATIONS SET BY CONTOURS ON PLAN UNLESS OTHERWISE NOTED.
 2. MINIMUM CLEAR COVER OF 3" SHALL BE USED FOR ALL REINFORCING.
 3. FULL DEPTH CONSTRUCTION JOINTS SHALL BE AT 10 FT CENTERS EACH WAY. PROVIDE #4 SMOOTH JOINT DOWELS AT 18" EACH WAY.

E CONCRETE PAVEMENT TYPICAL CROSS SECTION
3/4" = 1'-0"

0	KEZ	RWE	EVB
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DATE			
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JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
CIVIL - MECHANICAL
DETAILS

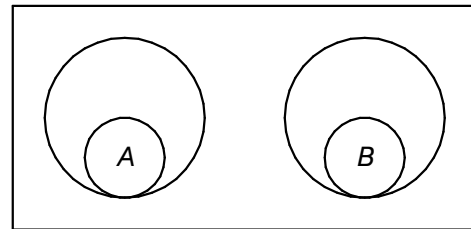
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DETAILED: JPS
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

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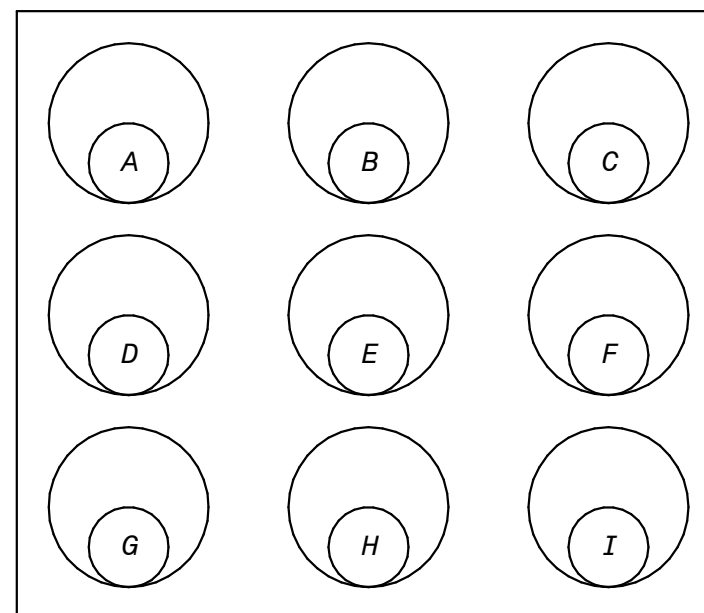
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SECTION 1/12-C-102, 12-C-103



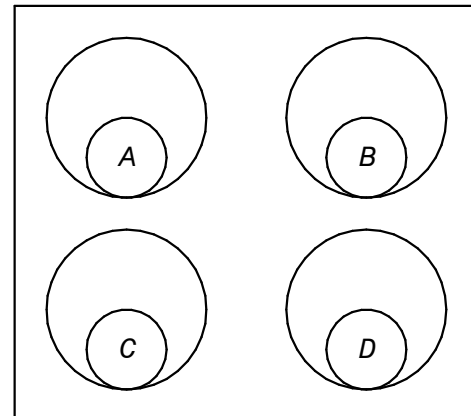
	CHEMICAL	FLUID PIPE	CARRIER PIPE	DOSING POINT
A	SPARE	N/A	2" CPVC	N/A
B	SODIUM BISULFITE	1/2" POLYETHYLENE	2" CPVC	TO DECHLOR STATION

SECTION 4/12-C-103



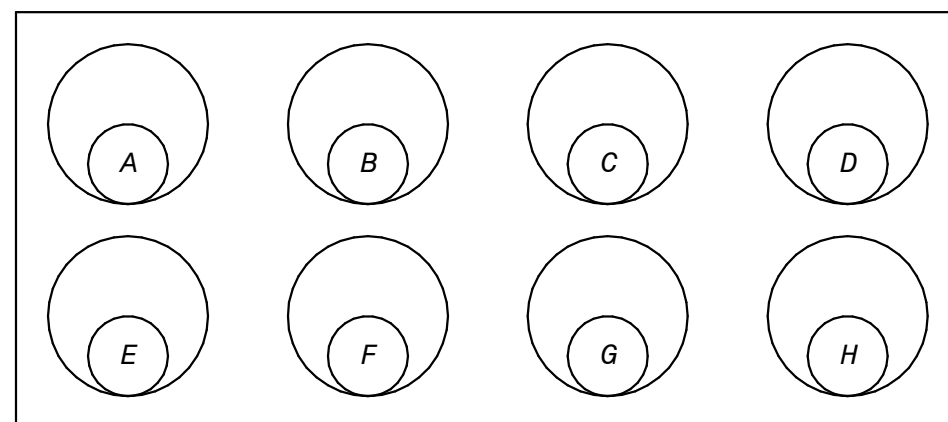
	CHEMICAL	FLUID PIPE	CARRIER PIPE	DOSING POINT
A	SODIUM HYPOCHLORITE	1/2" TEFLON	2" CPVC	BYPASS TO OCEAN OUTFALL
B	CITRIC ACID	1/2" POLYETHYLENE	2" CPVC	RO CIP SYSTEM
C	SULFURIC ACID	1/2" TEFLON	2" CPVC	UPSTREAM OF RO SYSTEM
D	SULFURIC ACID	1/2" TEFLON	2" CPVC	UPSTREAM OF UV SYSTEM
E	SODIUM HYDROXIDE	3/4" POLYETHYLENE	2" CPVC	RO CIP SYSTEM
F	SPARE	N/A	2" CPVC	N/A
G	SODIUM HYPOCHLORITE	1/2" TEFLON	2" CPVC	UPSTREAM OF UV SYSTEM
H	FUTURE LAS	N/A	2" CPVC	N/A
I	ANTISCALANT	1/2" POLYETHYLENE	2" CPVC	UPSTREAM OF RO SYSTEM

SECTION 2/12-C-103



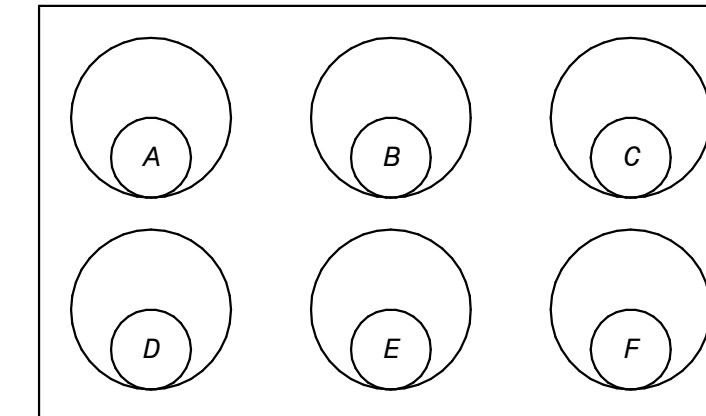
	CHEMICAL	FLUID PIPE	CARRIER PIPE	DOSING POINT
A	SPARE	N/A	2" CPVC	N/A
B	SODIUM HYPOCHLORITE	1/2" TEFLON	2" CPVC	TO PROD WATER INLET
C	SODIUM HYPOCHLORITE	1/2" TEFLON	2" CPVC	TO OUTFALL DISINFECTION
D	SODIUM HYDROXIDE	1/2" POLYETHYLENE	2" CPVC	TO PROD WATER INLET

SECTION 5/12-C-103, 12-C-104



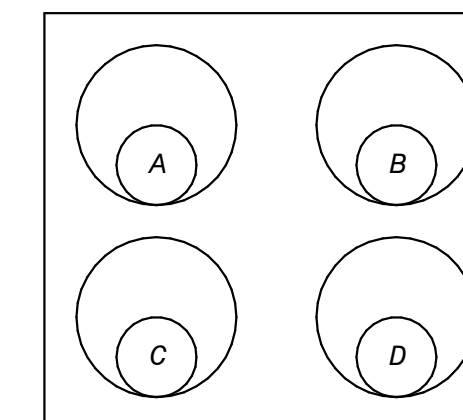
	CHEMICAL	FLUID PIPE	CARRIER PIPE	DOSING POINT
A	SODIUM HYPOCHLORITE	1/2" TEFLON	2" CPVC	PLANT WATER DISCHARGE PUMP
B	SODIUM HYPOCHLORITE	1/2" TEFLON	2" CPVC	UPSTREAM OF RO SYSTEM
C	SODIUM HYPOCHLORITE	3/4" TEFLON	2" CPVC	MBR SYSTEM FOR CLEANING
D	CITRIC ACID	3/4" POLYETHYLENE	2" CPVC	MBR SYSTEM FOR CLEANING
E	SODIUM HYDROXIDE	1/2" POLYETHYLENE	2" CPVC	BNR BASIN INFLUENT
F	SPARE	N/A	2" CPVC	N/A
G	LAS	1/2" POLYETHYLENE	2" CPVC	UPSTREAM OF RO SYSTEM
H	SPARE	N/A	2" CPVC	N/A

SECTION 3/12-C-103



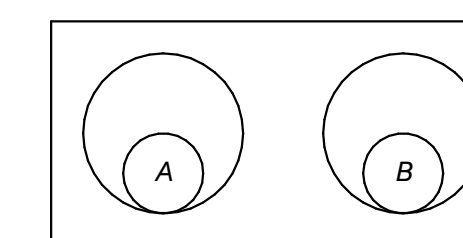
	CHEMICAL	FLUID PIPE	CARRIER PIPE	DOSING POINT
A	SPARE	N/A	2" CPVC	N/A
B	SODIUM BISULFITE	1/2" POLYETHYLENE	2" CPVC	TO DECHLOR STATION
C	SODIUM HYPOCHLORITE	1/2" TEFLON	2" CPVC	TO PROD WATER INLET
D	SPARE	N/A	2" CPVC	N/A
E	SODIUM HYPOCHLORITE	1/2" TEFLON	2" CPVC	TO OUTFALL DISINFECTION
F	SODIUM HYDROXIDE	1/2" POLYETHYLENE	2" CPVC	TO PROD WATER INLET

SECTION 6/12-C-104

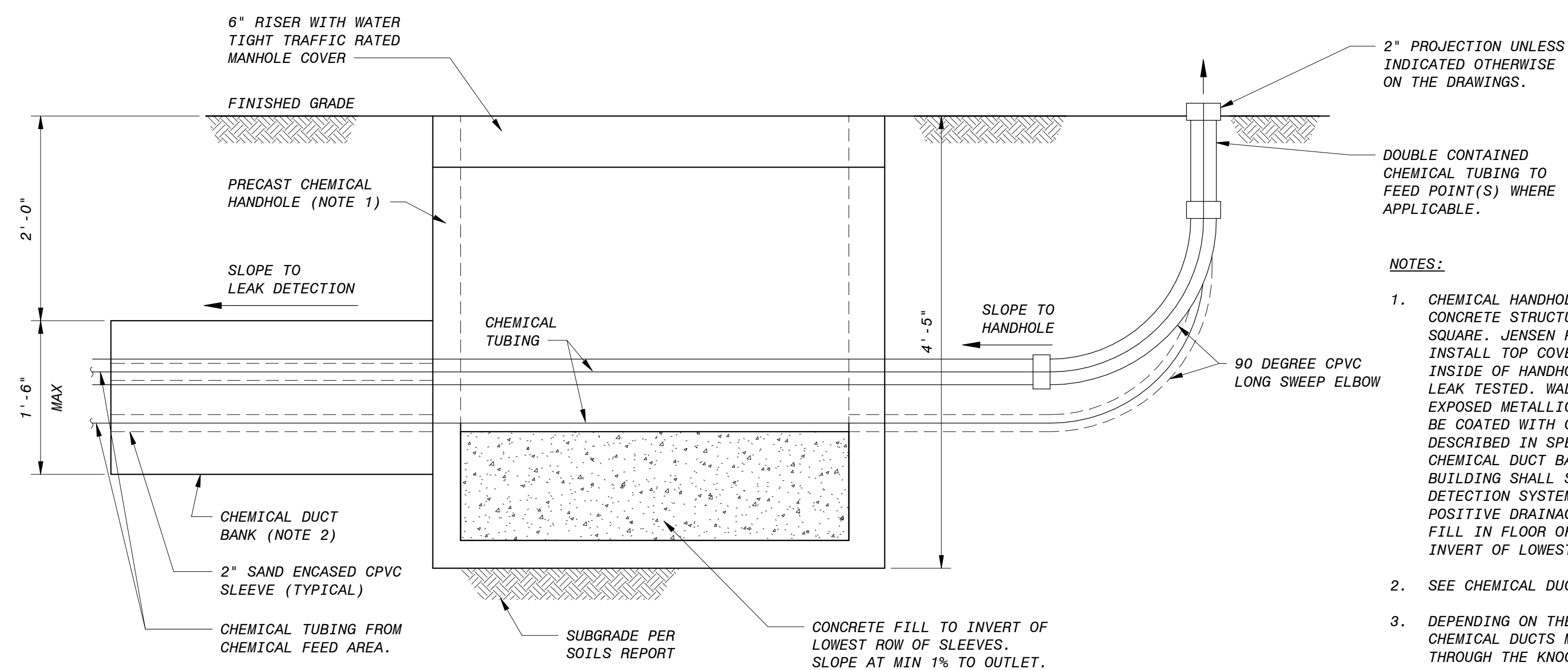


	CHEMICAL	FLUID PIPE	CARRIER PIPE	DOSING POINT
A	SODIUM HYPOCHLORITE	3/4" TEFLON	2" CPVC	MBR SYSTEM FOR CLEANING
B	SODIUM HYDROXIDE	1/2" POLYETHYLENE	2" CPVC	BNR BASIN INFLUENT
C	CITRIC ACID	3/4" POLYETHYLENE	2" CPVC	MBR SYSTEM FOR CLEANING
D	SPARE	N/A	2" CPVC	N/A

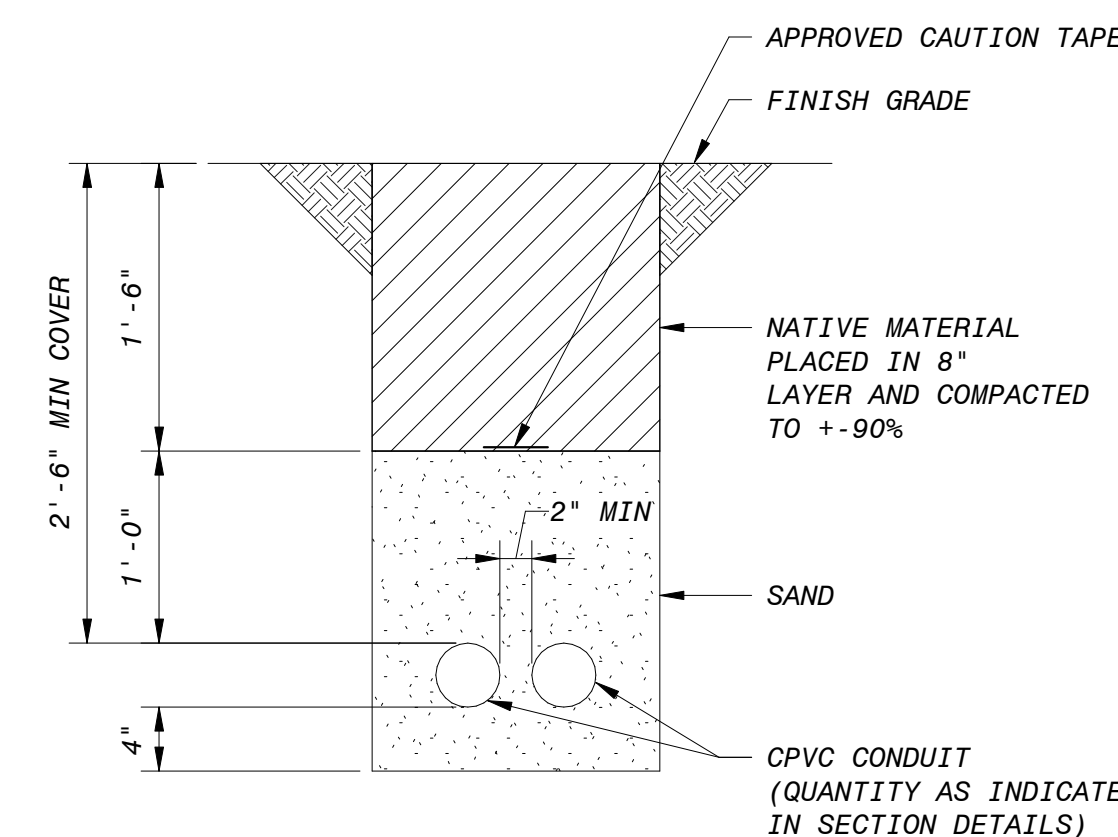
SECTION 7/12-C-104



	CHEMICAL	FLUID PIPE	CARRIER PIPE	DOSING POINT
A	SODIUM HYDROXIDE	1/2" POLYETHYLENE	2" CPVC	BNR BASIN INFLUENT
B	SPARE	N/A	2" CPVC	N/A

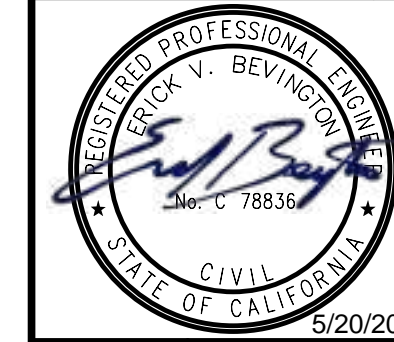


- NOTES:
- CHEMICAL HANDHOLES SHALL BE TRAFFIC RATED PRECAST CONCRETE STRUCTURES MEASURING APPROXIMATELY 4 FT SQUARE. JENSEN PRECAST MODEL 4848 PULL BOX OR EQUAL. INSTALL TOP COVER FLUSH WITH GRADE. WALLS AND FLOOR INSIDE OF HANDHOLES SHALL BE THOROUGHLY SEALED AND LEAK TESTED. WALLS AND FLOORS SHALL NOT HAVE ANY EXPOSED METALLIC COMPONENTS AND THE CONCRETE SHALL BE COATED WITH CHEMICAL RESISTANT EPOXY COATING AS DESCRIBED IN SPECIFICATION 09 97 24. RESPECTIVE CHEMICAL DUCT BANKS NORTH AND SOUTH OF CHEMICAL BUILDING SHALL SLOPE BETWEEN HANDHOLES TO LEAK DETECTION SYSTEM IN LOWEST HANDHOLE. TO ENSURE POSITIVE DRAINAGE BETWEEN HANDHOLES PROVIDE CONCRETE FILL IN FLOOR OF ALL HANDHOLES TO BRING FLOOR UP TO INVERT OF LOWEST OUTLET SLEEVE PRIOR TO COATING.
 - SEE CHEMICAL DUCT BANK SECTIONS ON THIS SHEET.
 - DEPENDING ON THE SELECTED PRE-CAST PULL BOX, CHEMICAL DUCTS MAY NEED TO BE ADJUSTED TO FIT THROUGH THE KNOCK-OUT SPACES PROVIDED.



- NOTES:
- REFER TO DETAILS 1-7 TO DETERMINE THE QUANTITY OF DOUBLE CONTAINED CPVC PIPE.

TYPICAL CHEMICAL DUCT BANK SECTION
NO SCALE

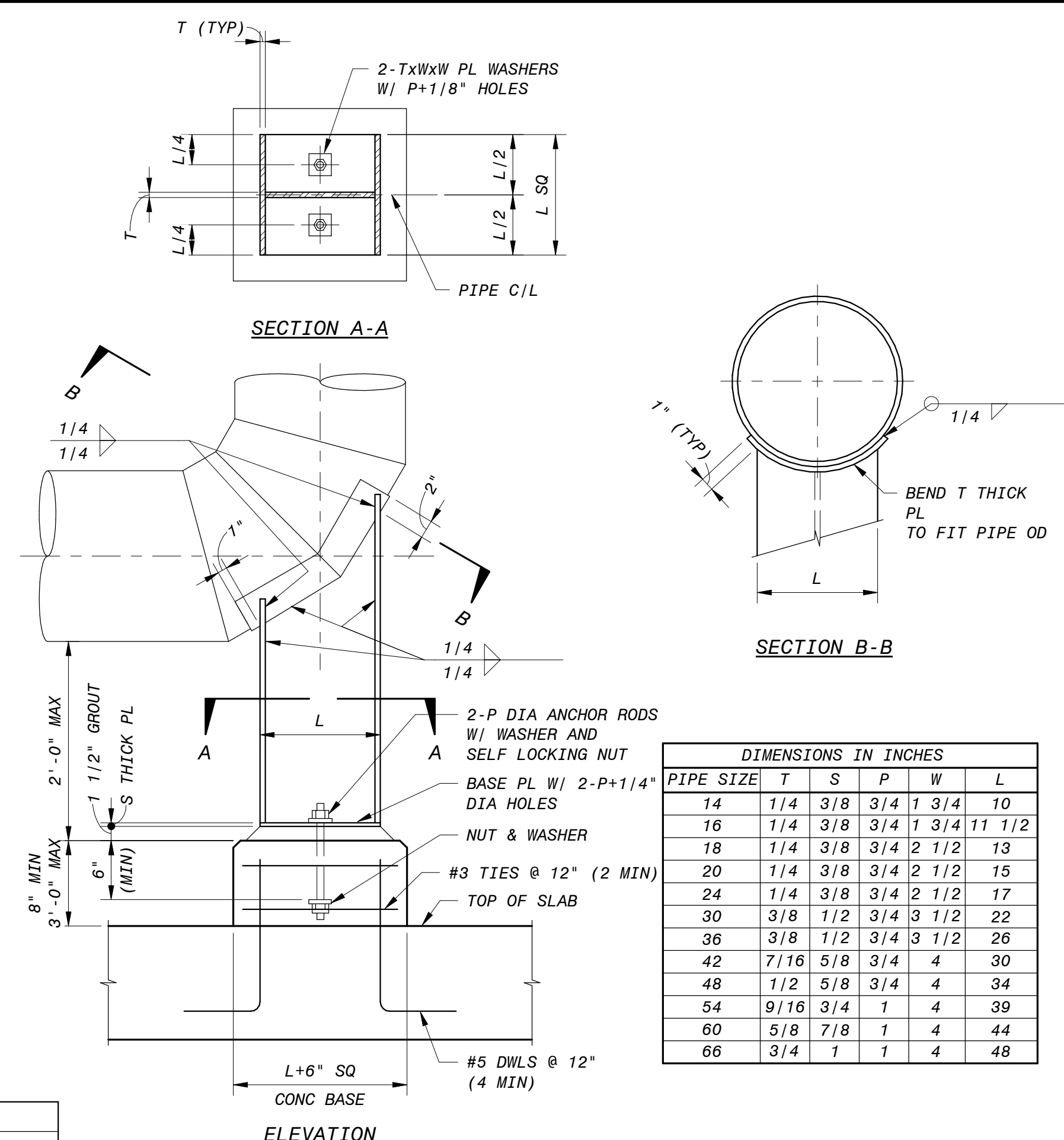
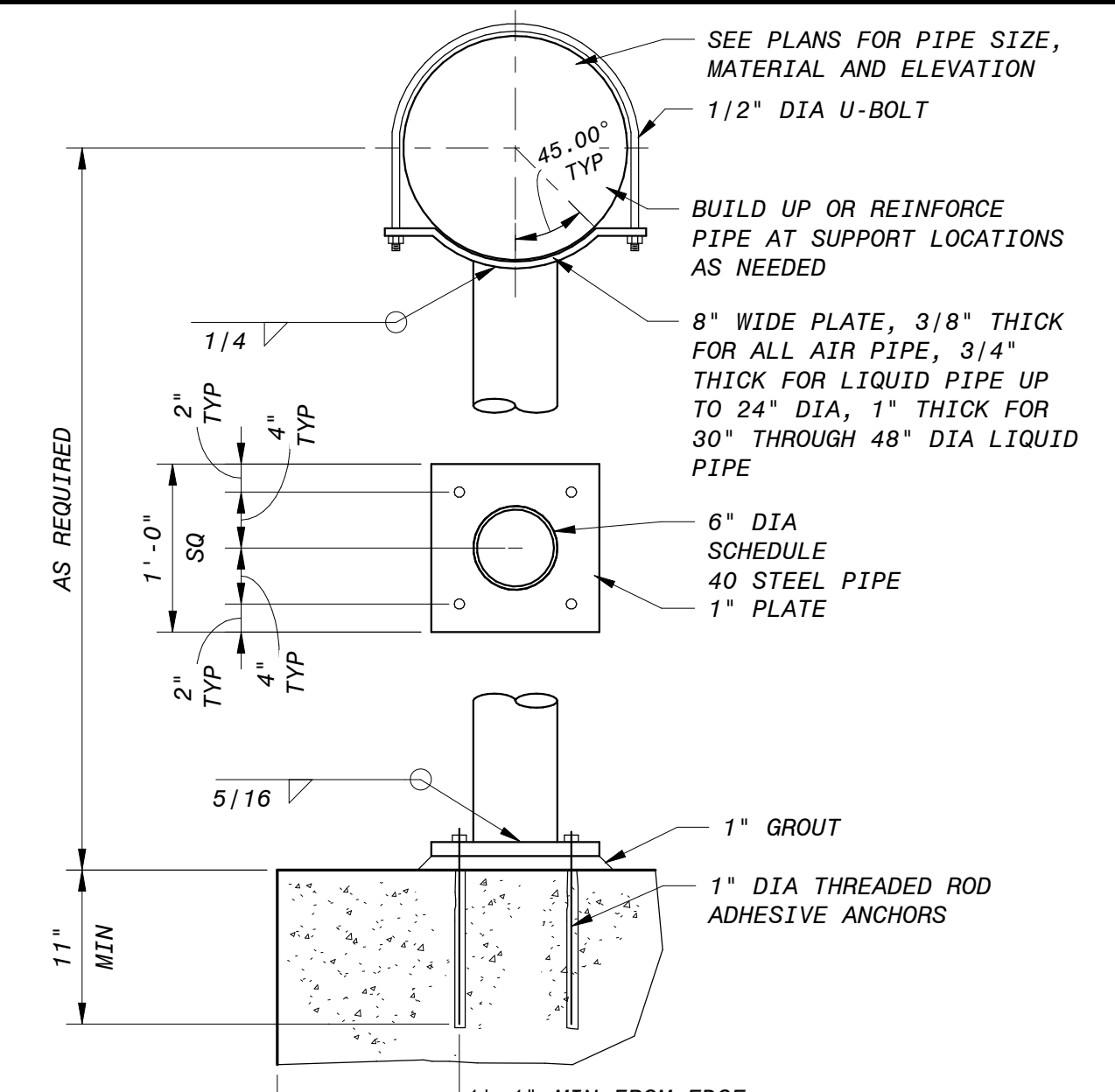
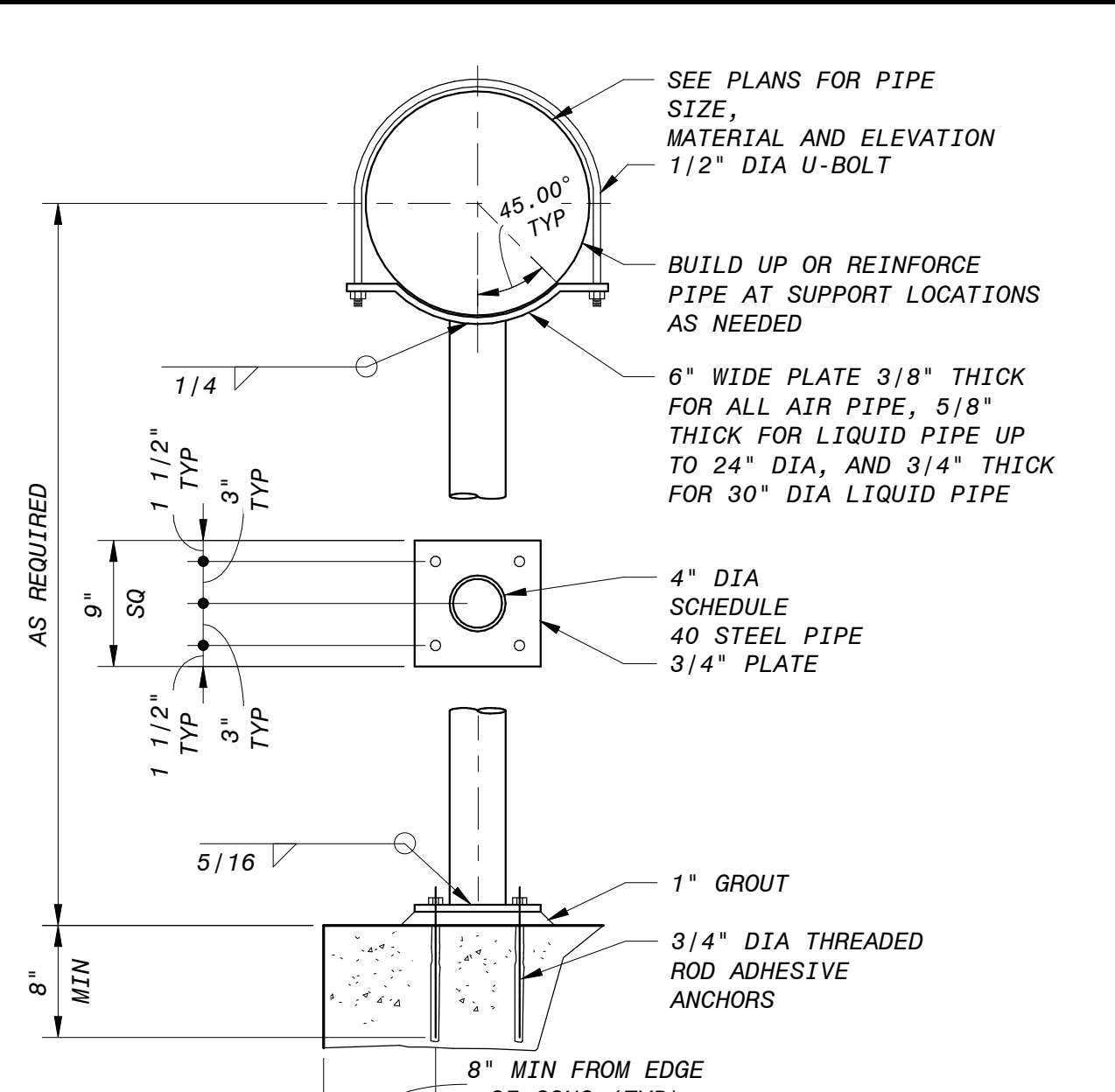
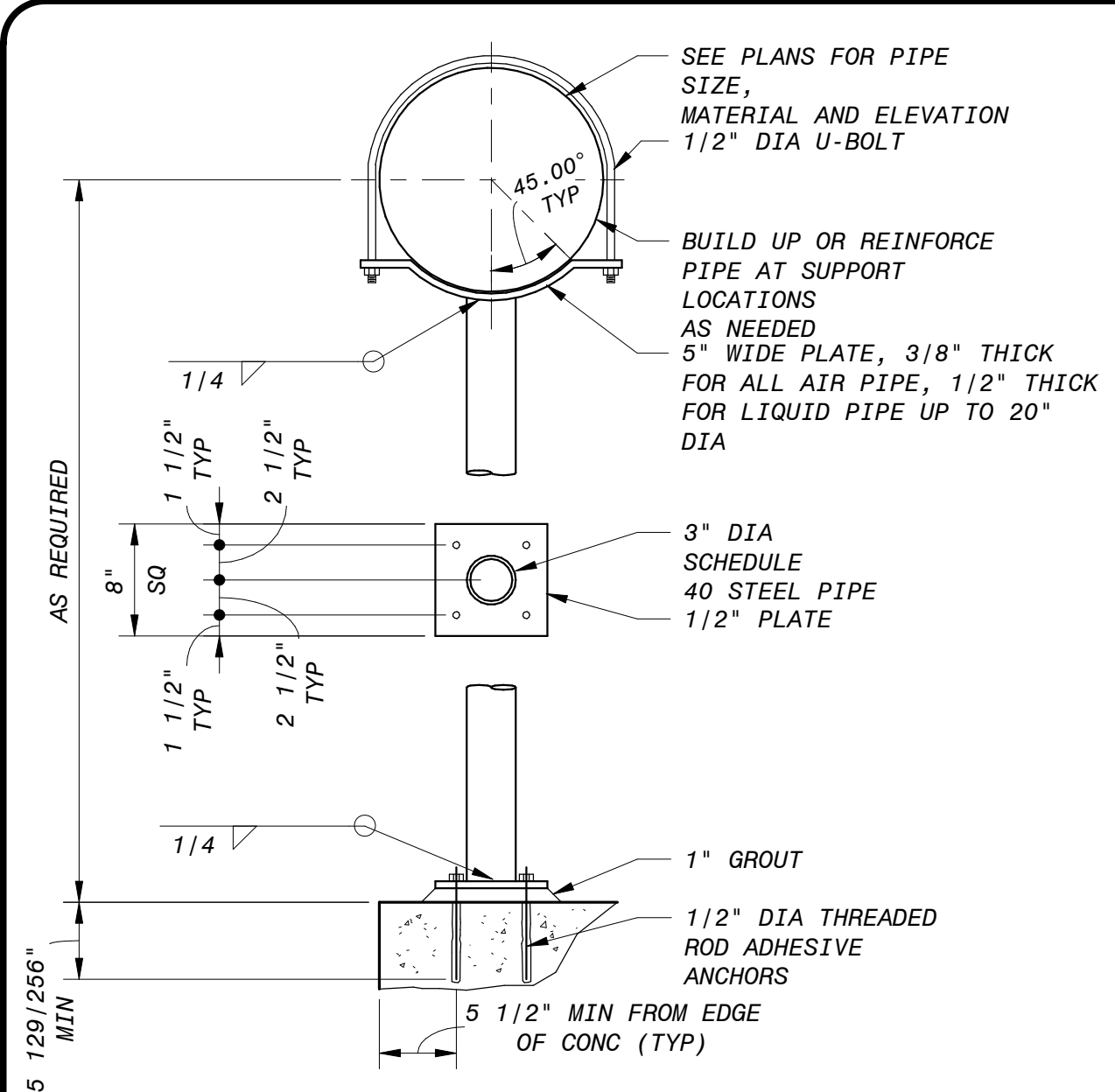


CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
CIVIL - MECHANICAL
DETAILS

DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530
00-M-515
SHEET
34 OF 412



NOTE: ALL STEEL MATERIALS SHALL BE HOT-DIP GALVANIZED FOR EXTERIOR LOCATIONS. VENT HOLES FOR GALVANIZING SHALL BE THE MINIMUM SIZE NECESSARY. HOLES SHALL BE LOCATED IN THE BOTTOM BASEPLATE AND ALSO LOCATED IN THE TOP OF THE PIPE, ADJACENT TO THE CURVED PLATE.

3 INCH DIAMETER STEEL COLUMN PIPE SUPPORT

1" = 1'-0"

NOTE: ALL STEEL MATERIALS SHALL BE HOT-DIP GALVANIZED FOR EXTERIOR LOCATIONS. VENT HOLES FOR GALVANIZING SHALL BE THE MINIMUM SIZE NECESSARY. HOLES SHALL BE LOCATED IN THE BOTTOM BASEPLATE AND ALSO LOCATED IN THE TOP OF THE PIPE, ADJACENT TO THE CURVED PLATE.

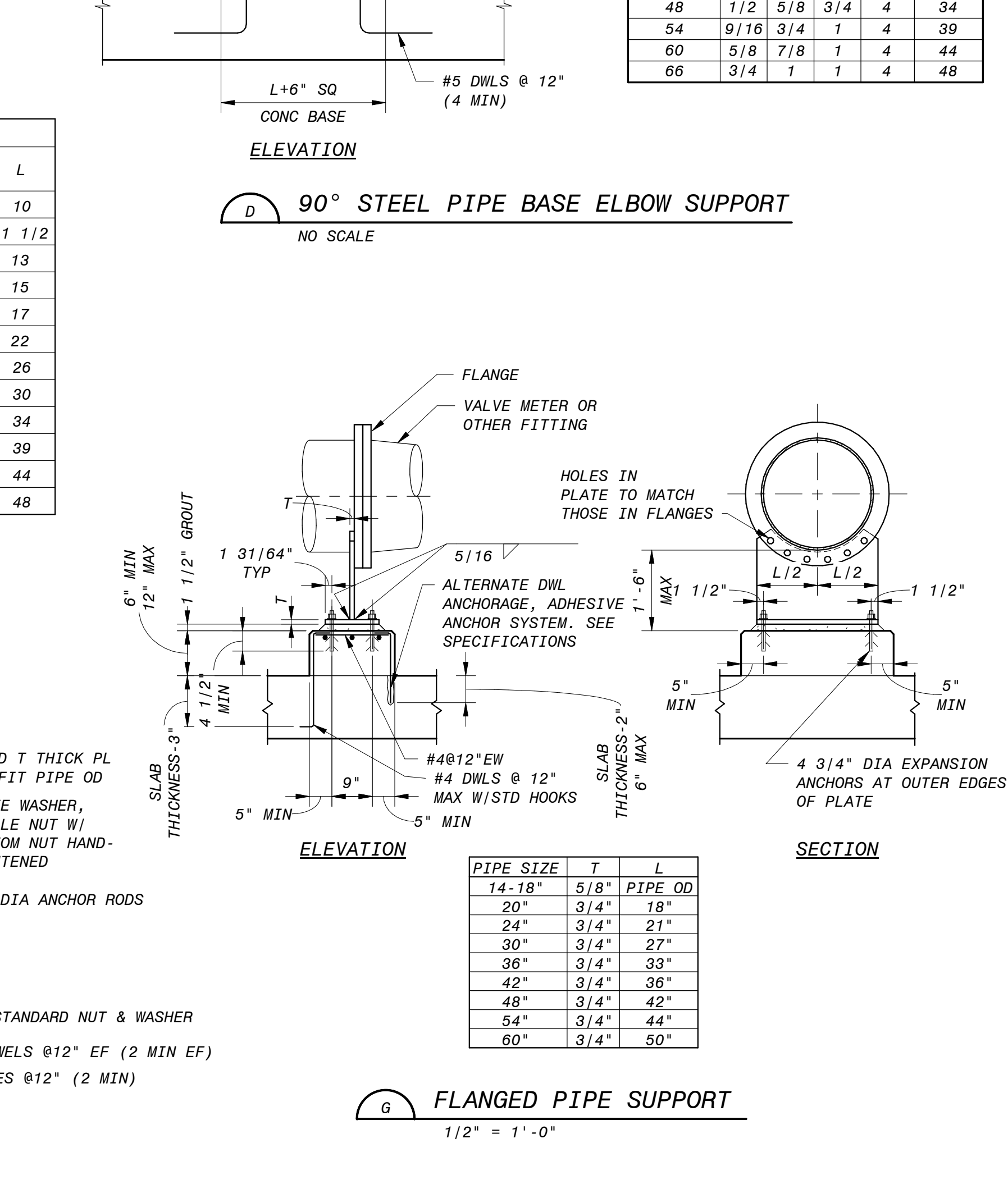
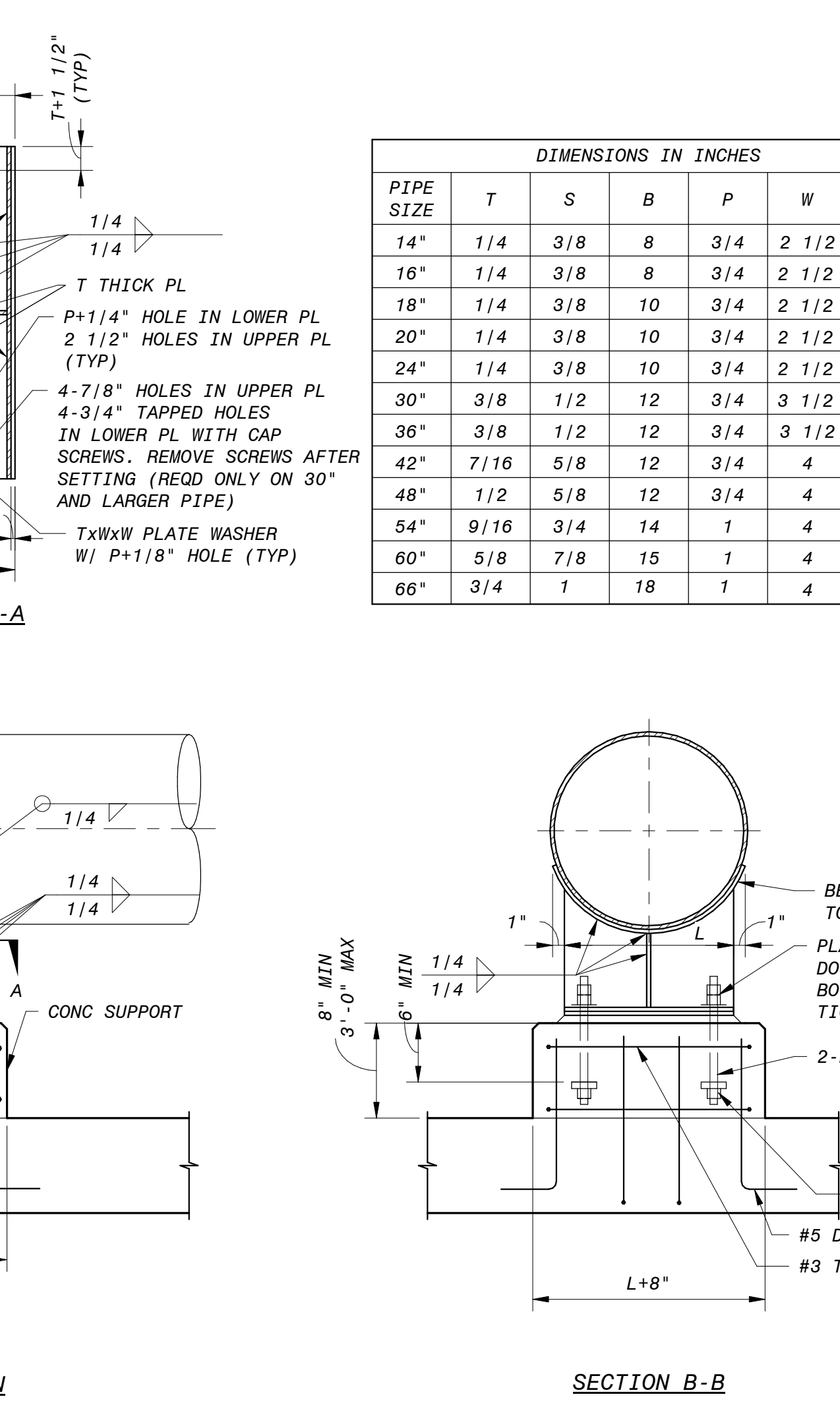
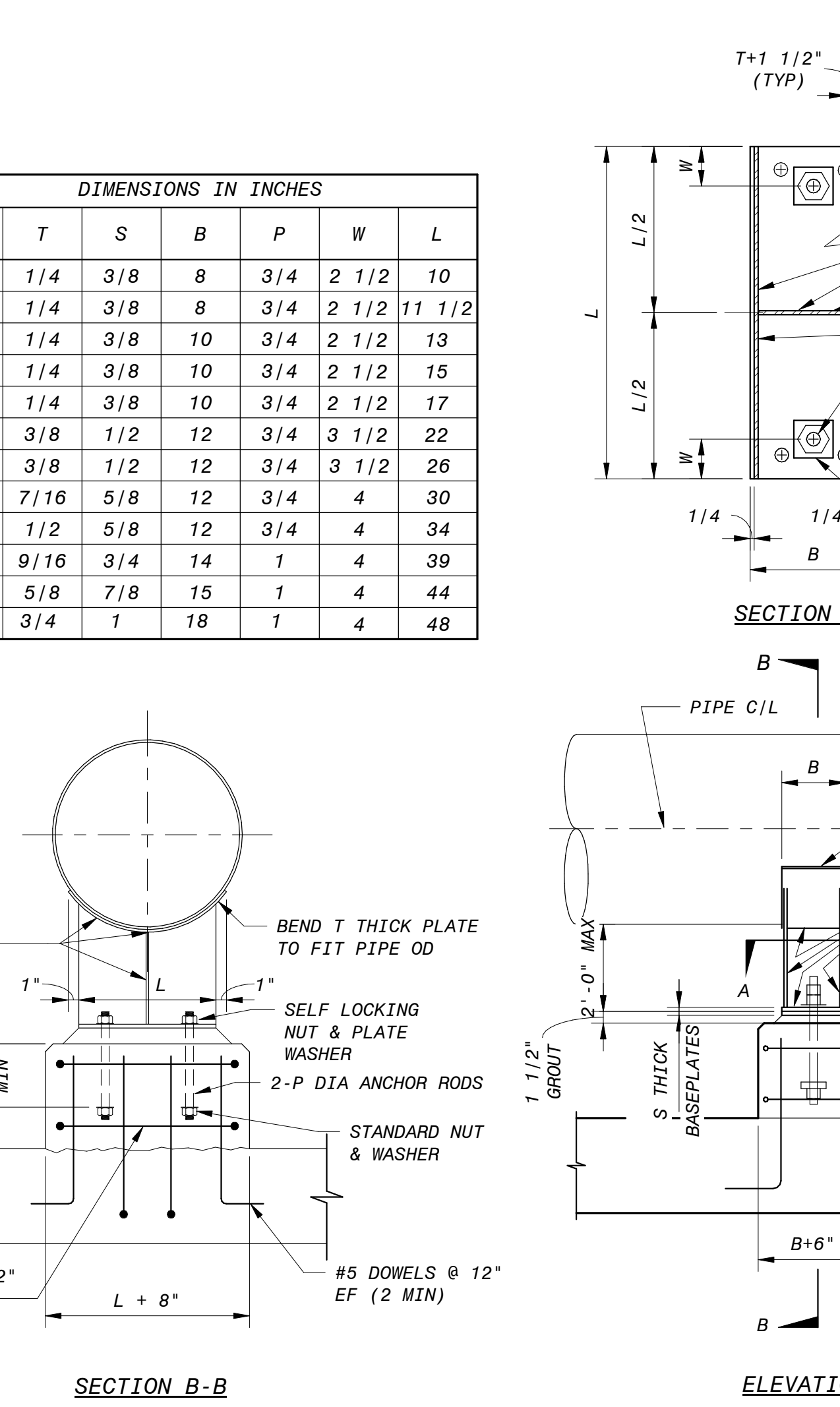
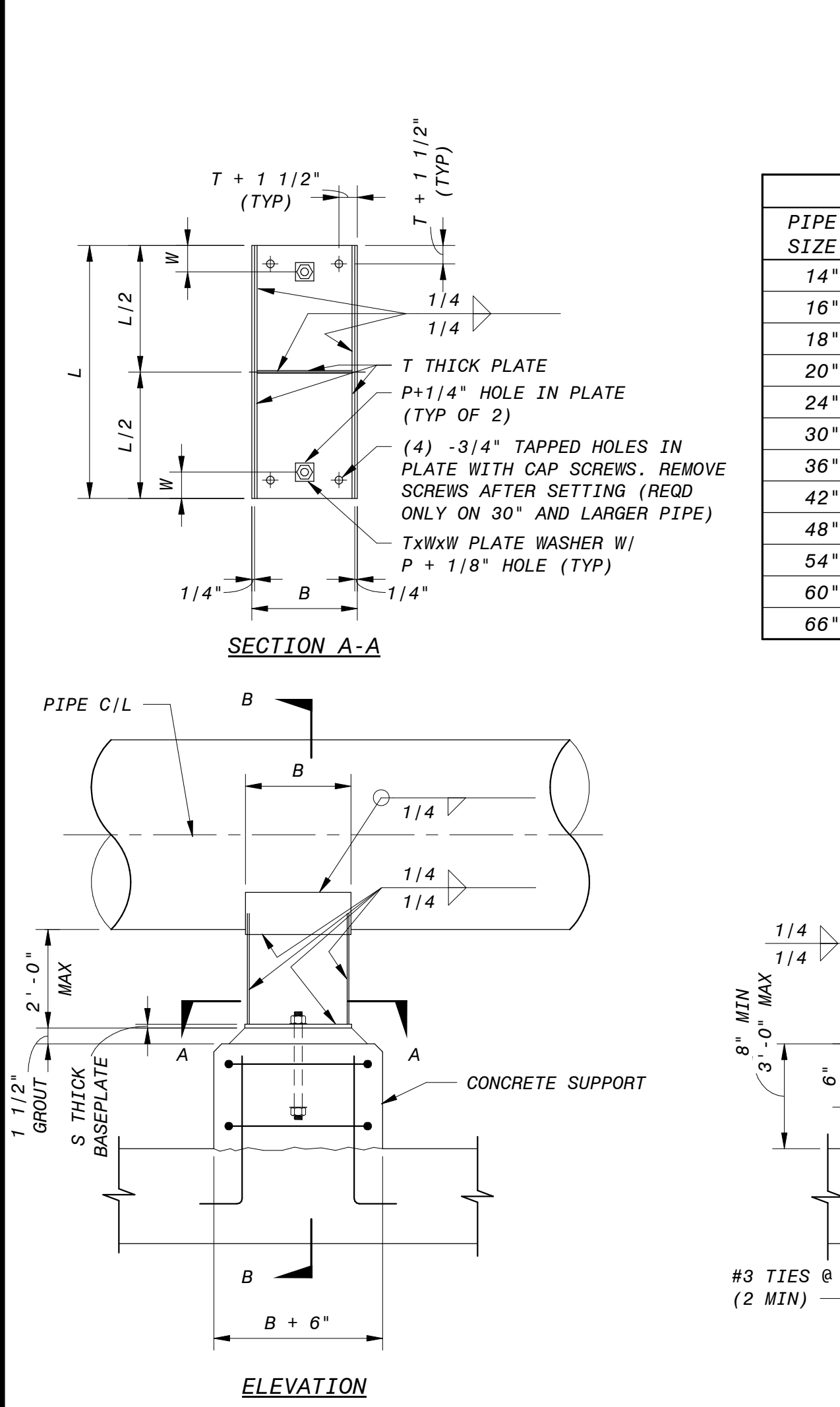
4 INCH DIAMETER STEEL COLUMN PIPE SUPPORT

1" = 1'-0"

NOTE: ALL STEEL MATERIALS SHALL BE HOT-DIP GALVANIZED FOR EXTERIOR LOCATIONS. VENT HOLES FOR GALVANIZING SHALL BE THE MINIMUM SIZE NECESSARY. HOLES SHALL BE LOCATED IN THE BOTTOM BASEPLATE AND ALSO LOCATED IN THE TOP OF THE PIPE, ADJACENT TO THE CURVED PLATE.

6 INCH DIAMETER STEEL COLUMN PIPE SUPPORT

1" = 1'-0"



DESIGNED: KEZ, EVB
 DETAILED: JPS
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

PROJECT NO. 400530
 SHEET 35 OF 412

00-M-601

GENERAL STRUCTURAL STANDARD DETAILS

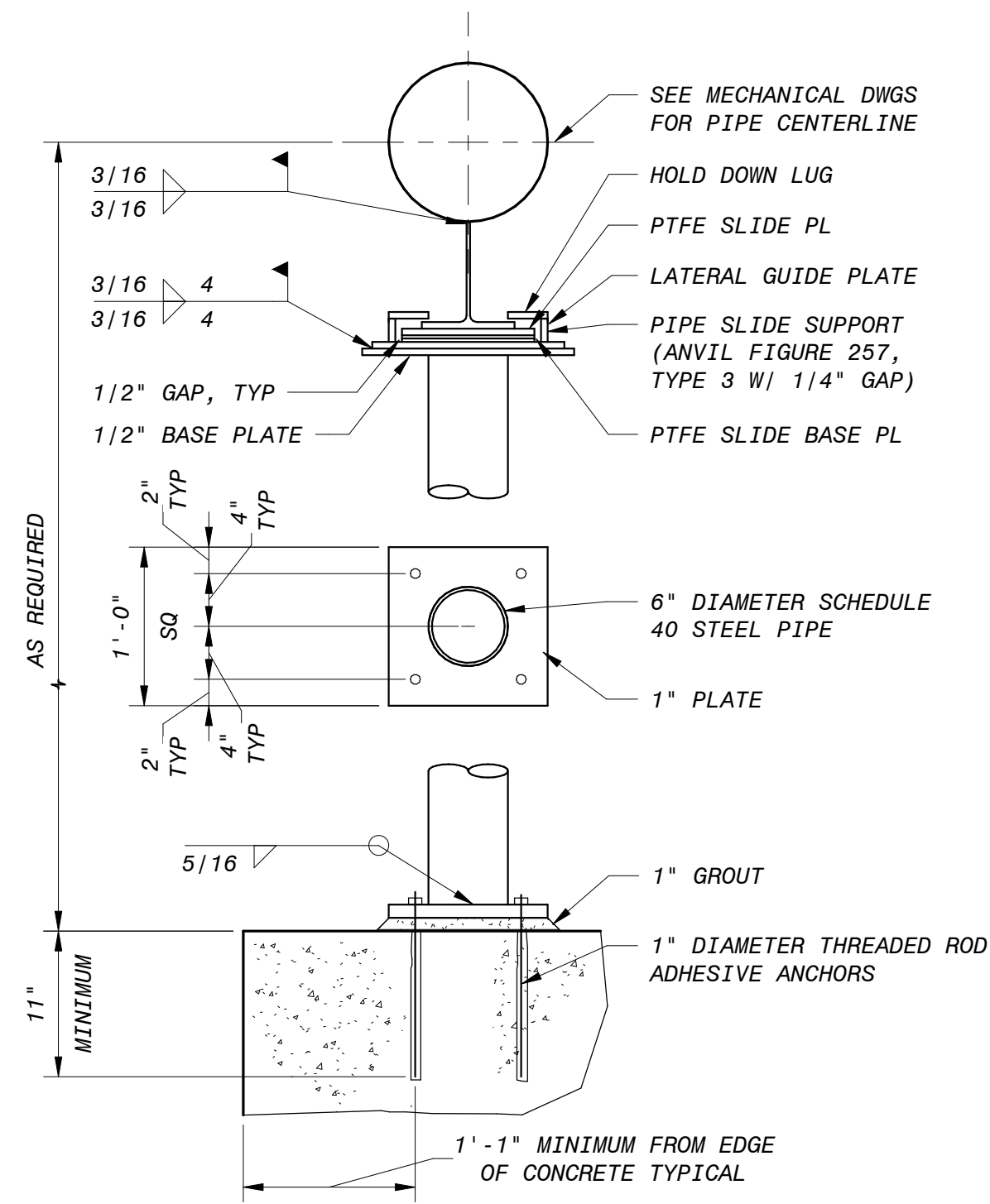
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF)

BLACK & VEATCH JOINT VENTURE FILANC

REGISTERED PROFESSIONAL ENGINEER
 BRECK V. BEVINGTON
 No. C 78836
 CIVIL
 STATE OF CALIFORNIA
 5/20/2020

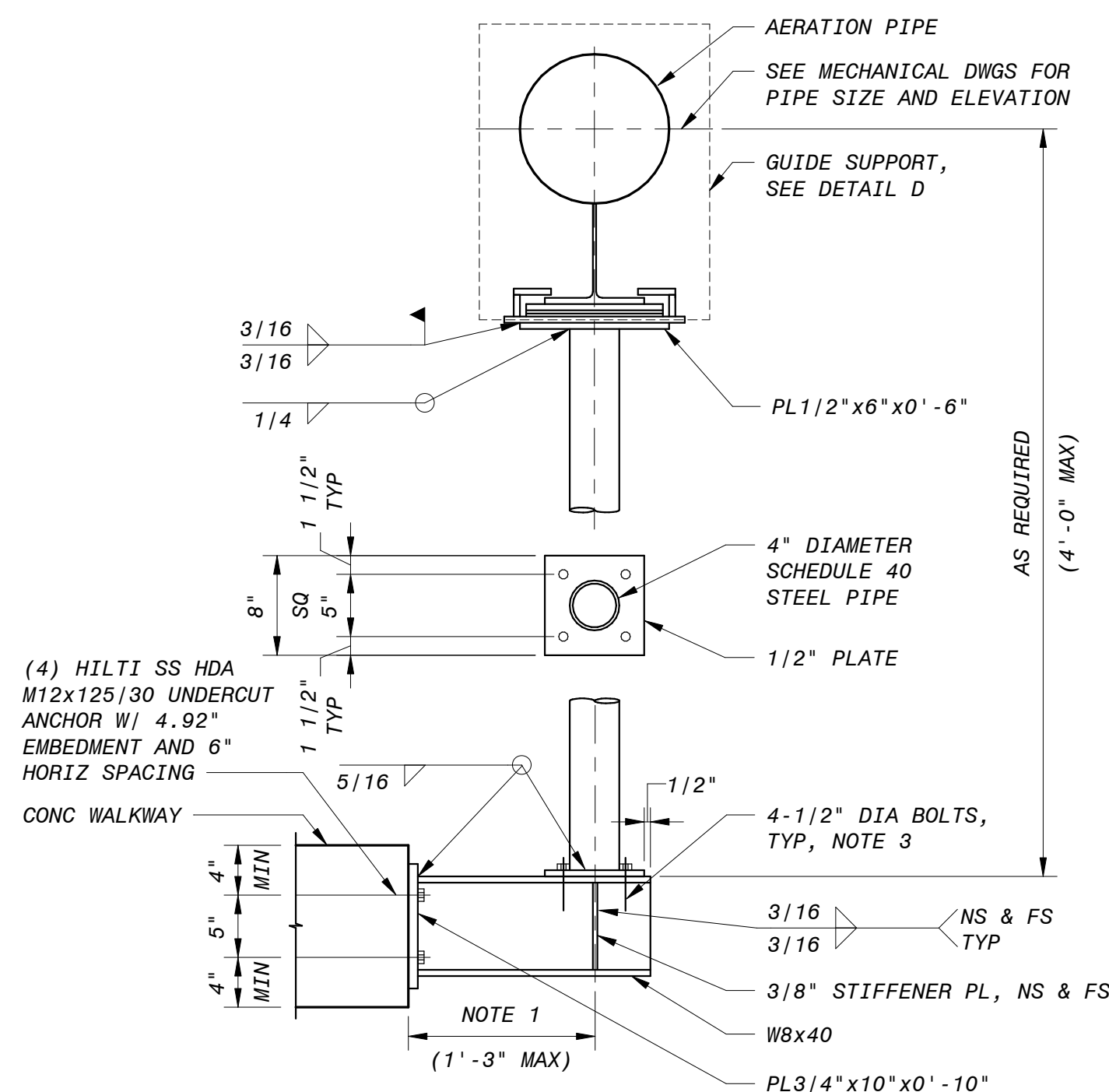
ISSUED FOR CONSTRUCTION
 REVISIONS AND RECORD OF USE
 DATE
 NO. 1 BY CHK/JPP
 0 KEZ RWE/EVB

PLOTTED: 5/14/2020 4:00:31 PM
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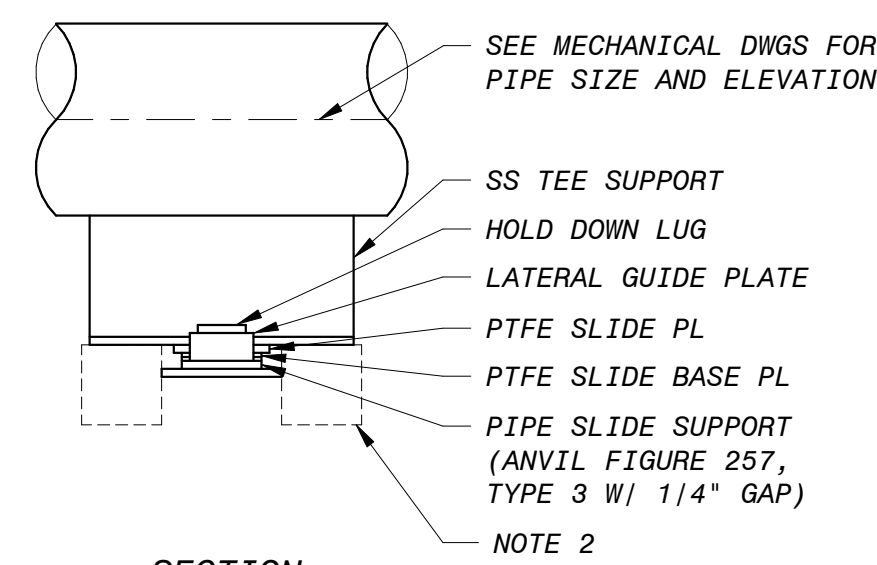
- NOTES:**
- ALL STEEL MATERIALS SHALL BE HOT-DIP GALVANIZED FOR EXTERIOR LOCATIONS. VENT HOLES FOR GALVANIZING SHALL BE THE MINIMUM SIZE NECESSARY. HOLES SHALL BE LOCATED IN THE BOTTOM BASEPLATE AND ALSO LOCATED IN THE TOP OF THE PIPE, ADJACENT TO THE CURVED PLATE. FOR LIQUID SIZES UP TO 30".
 - ALL SUPPORT MATERIALS SHALL BE STAINLESS STEEL FOR AERATION SYSTEM AND ACTIVATED SLUDGE BASINS.

A 6 INCH DIAMETER STEEL COLUMN PIPE SUPPORT
NO SCALE



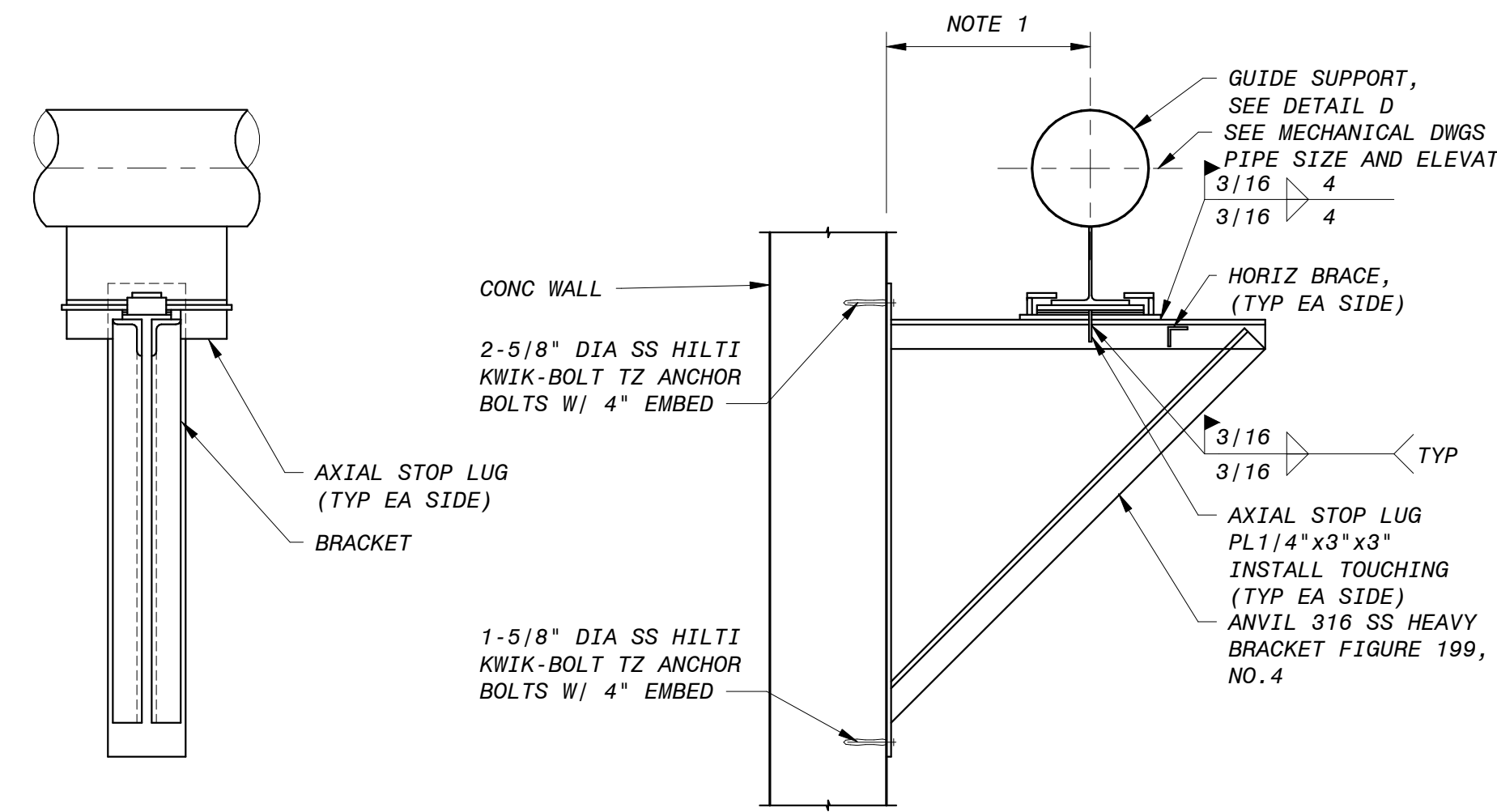
- NOTES:**
- SEE MECHANICAL PLAN DWGS FOR DIMENSION.
 - ALL SUPPORT MATERIALS SHALL BE STAINLESS STEEL FOR AERATION SYSTEM.
 - AT SIM, PROVIDE 1" THICK NON-SHRINK GROUT BELOW BASE PLATE WITH 4-1/2" DIA EXPANSION ANCHORS SS 304.
 - CONTRACTOR SHALL LOCATE REINF PRIOR TO DRILLING.

C BASIN STANCHION GUIDE SUPPORT
NO SCALE

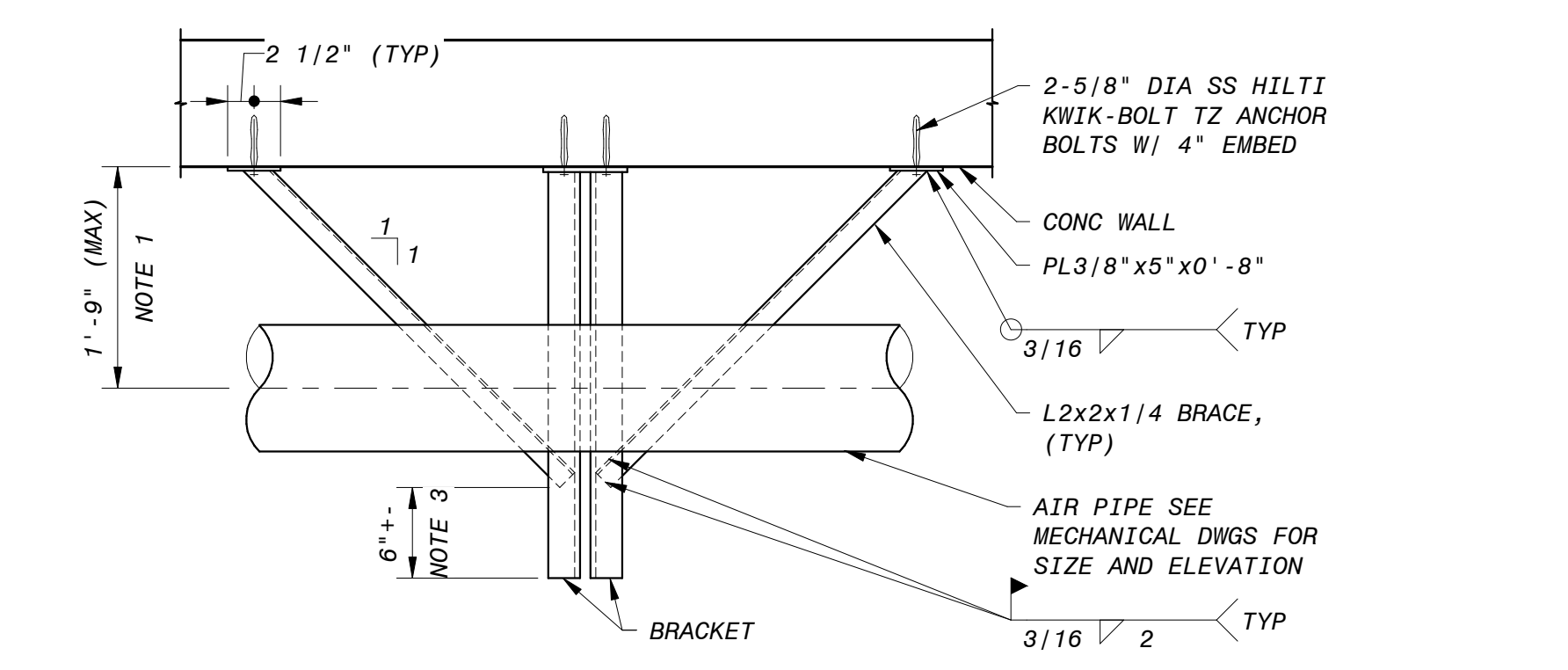


- NOTES:**
- AERATION PIPE SUPPORTS SHALL BE STAINLESS STEEL EXCEPT WHERE NOTED.
 - WHERE AXIAL STOP IS REQUIRED, REDUCE LENGTH OF TOP PTFE SLIDE PL TO 4" AND CENTER ON SUPPORT TEE ABOVE TO ALLOW AXIAL STOP TO BE WELDED TO BOTTOM OF SUPPORT TEE.

F GUIDE SUPPORT
NO SCALE

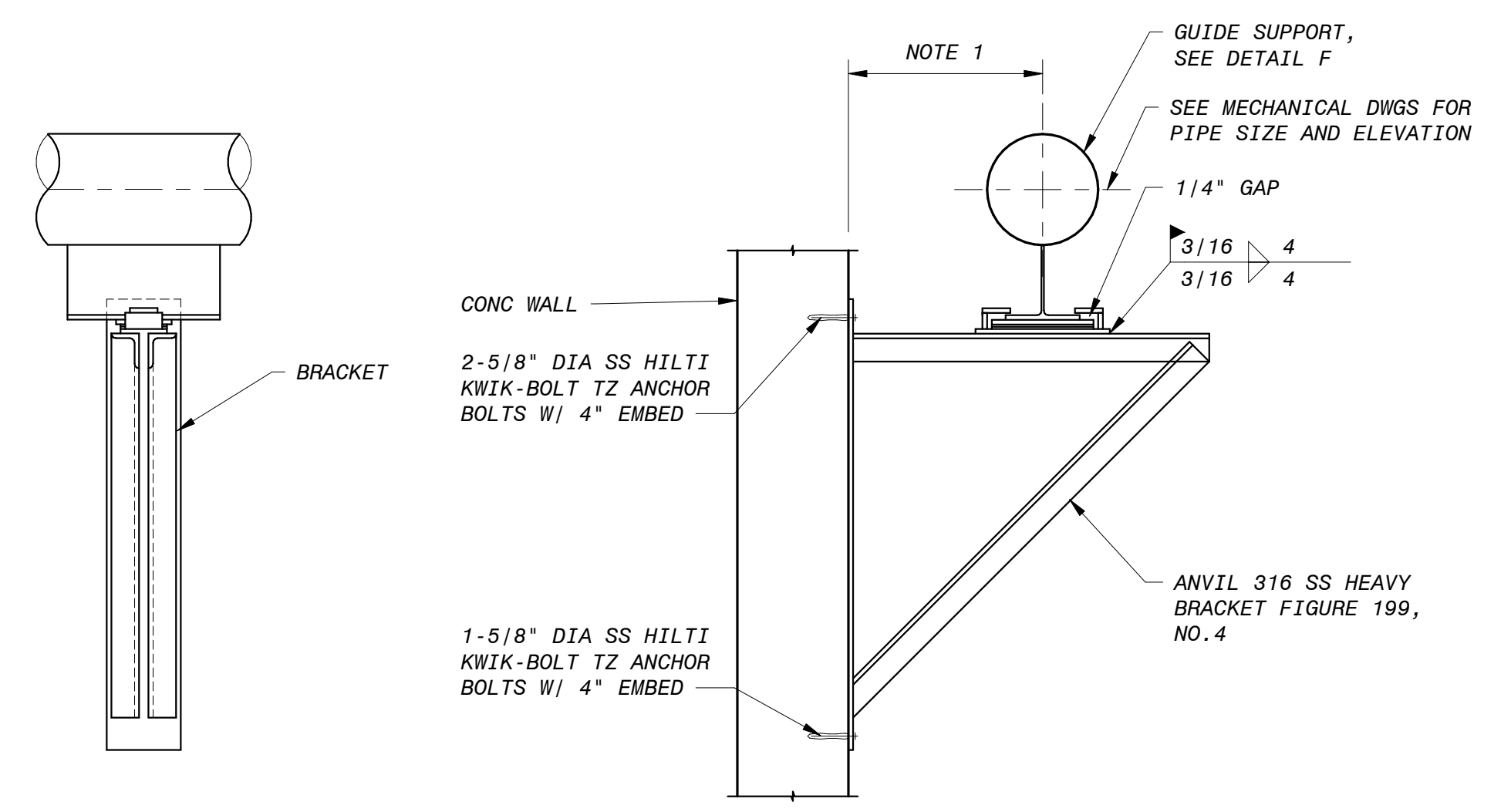


B KNEE BRACE SUPPORT
NO SCALE



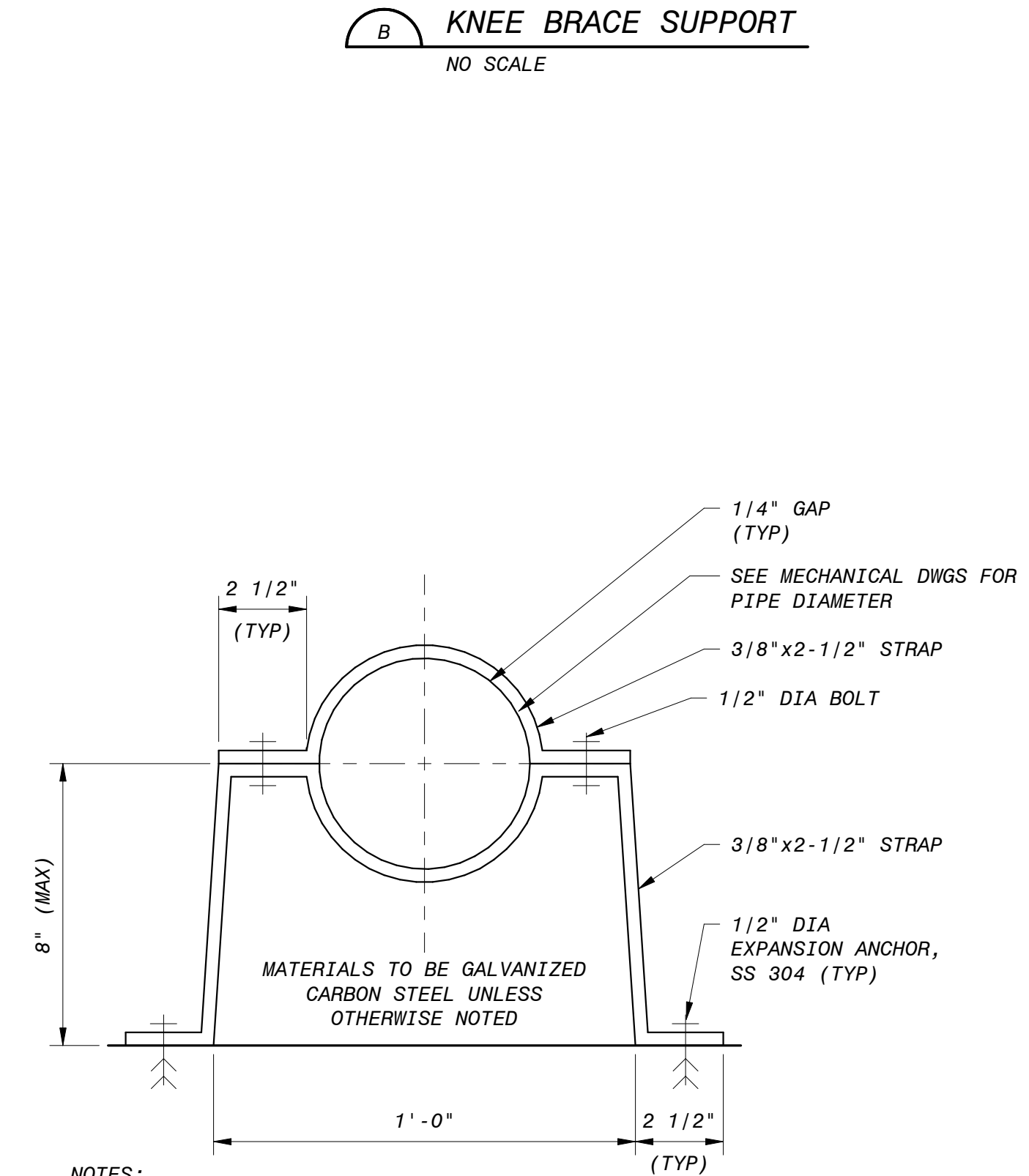
- NOTES:**
- SEE MECHANICAL PLAN DWGS FOR DIMENSION.
 - ALL SUPPORT MATERIALS SHALL BE STAINLESS STEEL FOR AERATION SYSTEM.
 - FIELD LOCATE HORIZONTAL BRACES TO AVOID CONFLICT WITH VERTICAL BRACES AND AXIAL STOP LUG.
 - CONTRACTOR SHALL LOCATE REINF PRIOR TO DRILLING.

D KNEE BRACE AXIAL SUPPORT
NO SCALE



- NOTES:**
- SEE MECHANICAL PLAN DWGS FOR DIMENSION.
 - BRACKET SUPPORTS SHALL BE 316 STAINLESS STEEL FOR AERATION SYSTEM.
 - CONTRACTOR SHALL LOCATE REINF PRIOR TO DRILLING.

E VERTICAL PIPE GUIDE SUPPORT
NO SCALE



- NOTES:**
- FOR AERATION AND ODOR CONTROL PIPE SUPPORTS, MATERIAL SHALL BE STAINLESS STEEL.
 - SEE SADDLE HANGER PIPE SUPPORT FOR DIMENSIONS.
 - SEE ANCHORAGE IN CONCRETE AND MASONRY SECTION FOR ANCHOR PRODUCTS.

E VERTICAL PIPE GUIDE SUPPORT
NO SCALE

0	KEZ	RWE	EVB
NO.	BY	CHK	APP
5/19/2020	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE	DATE

BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

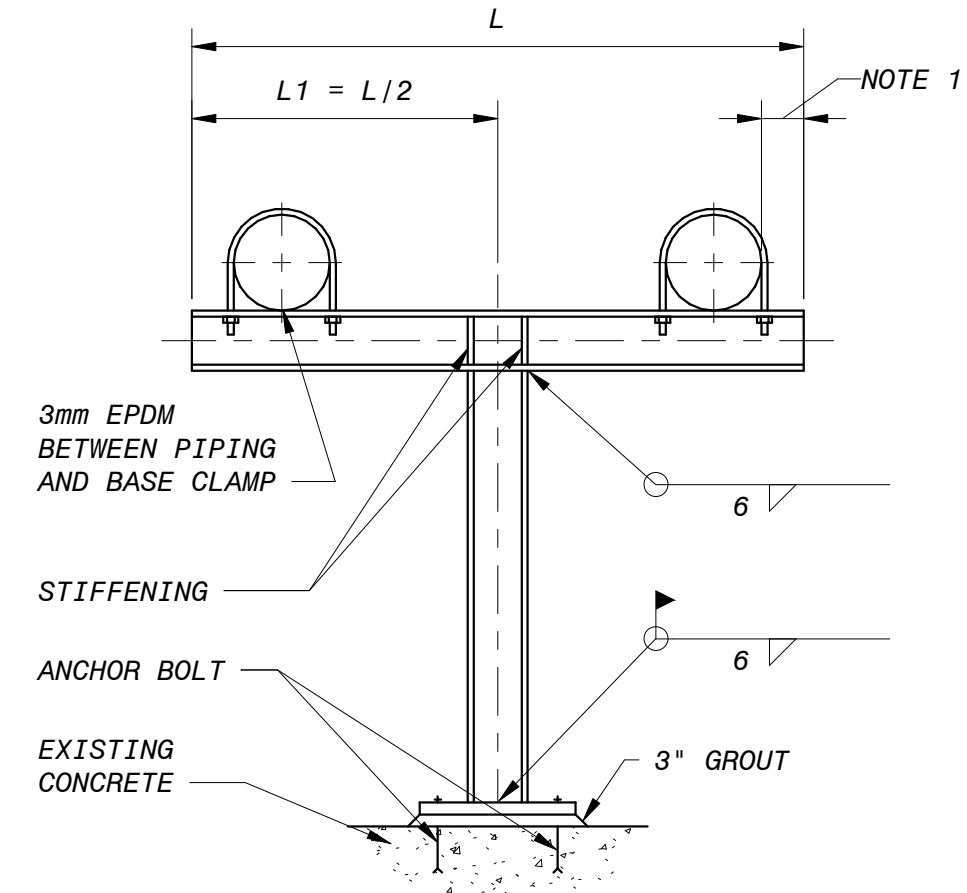
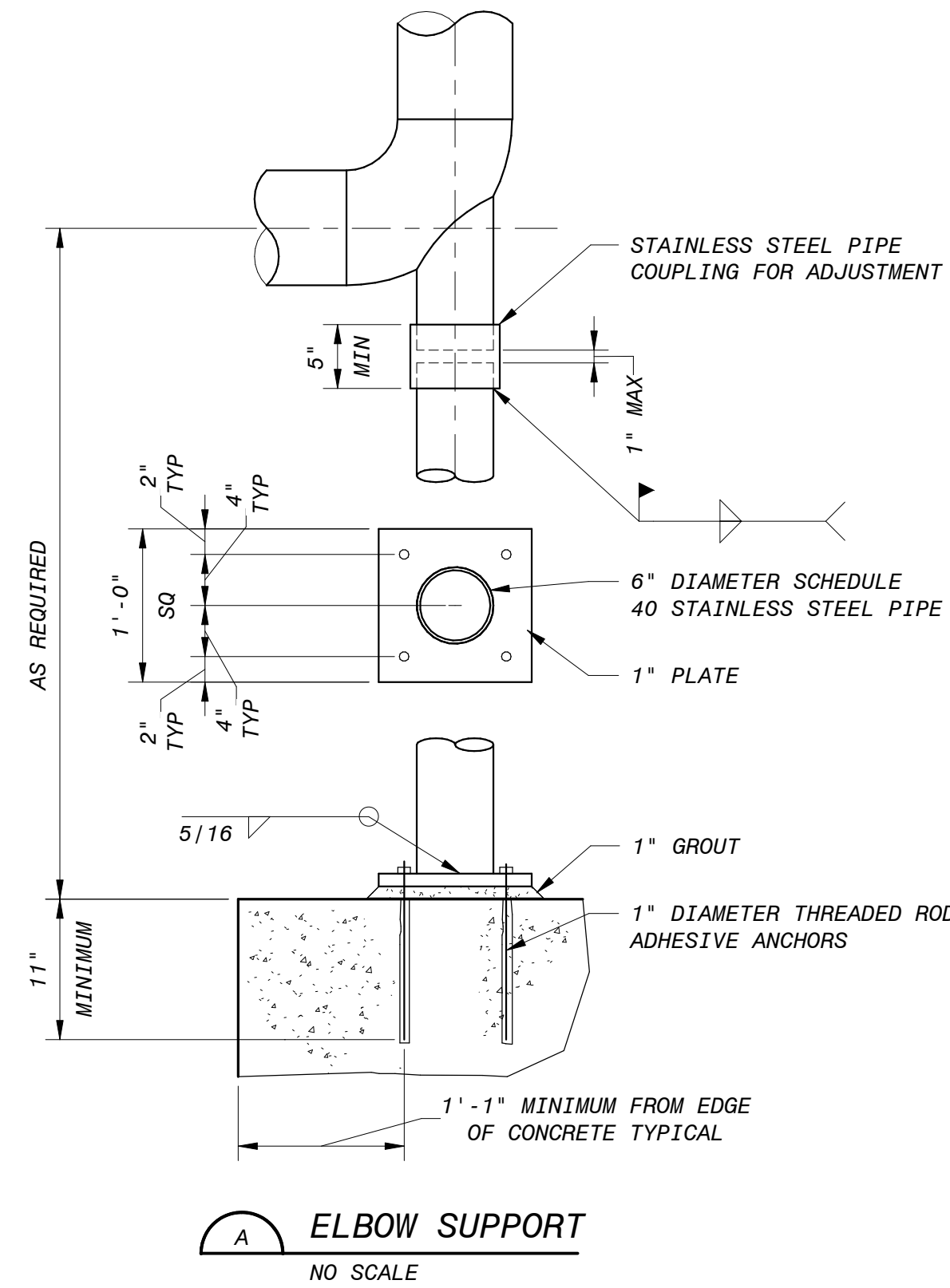
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
STRUCTURAL
STANDARD DETAILS

DESIGNED: KEZ, EVB
DETAILED: JPS
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

PROJECT NO.
400530

00-M-602
SHEET
36 OF 412

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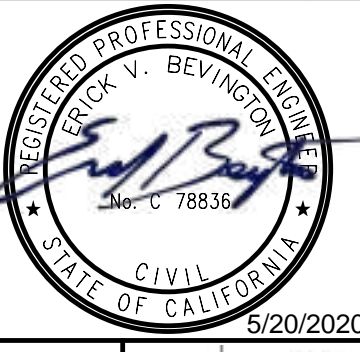


NOTES:

1. MINIMUM DISTANCE FROM EDGE OF THE BEAM TO THE PIPE IS 2".
2. PIPE SUPPORT CAN BE USED WITH ONE OR TWO PIPE ON THE TOP OF THE I-BEAM.
3. PVC OR CPVC PIPE REQUIRES A GAP OF 3mm MINIMUM FOR ALLOWING PIPING EXPANSION AND CONTRACTION.

PLOTTED: 5/19/2020 4:09:31 PM

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BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

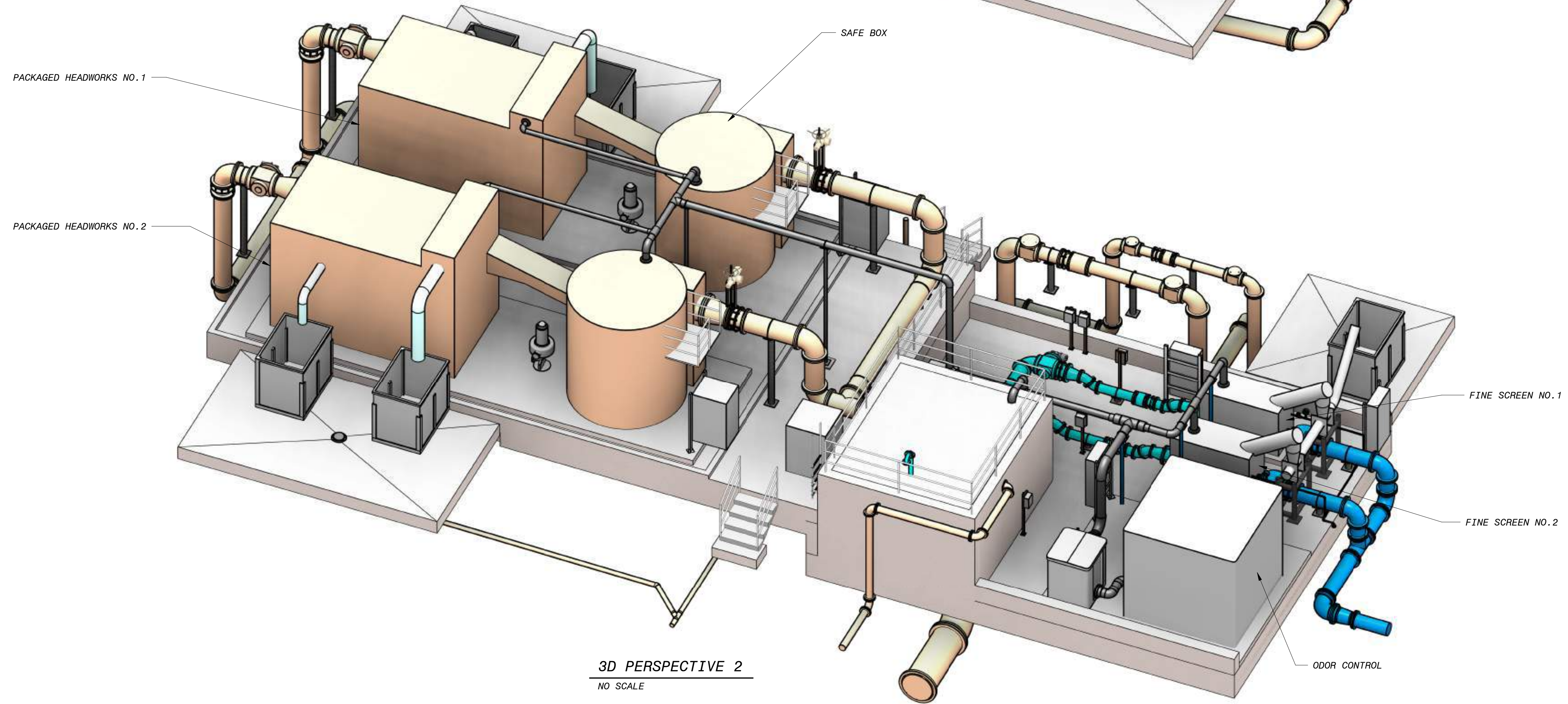
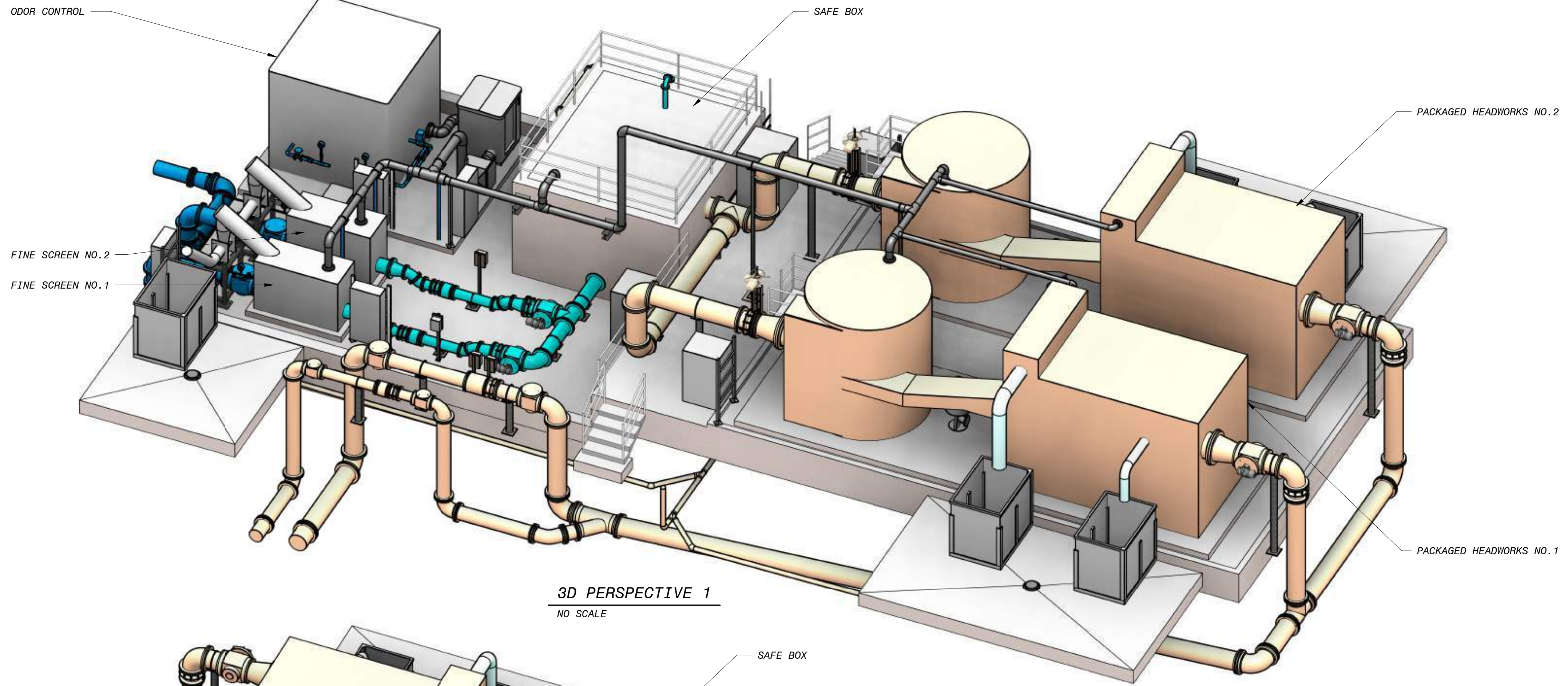
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
GENERAL
STRUCTURAL
STANDARD DETAILS

DESIGNED: KEZ, EVB
DETAILED: JPS
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

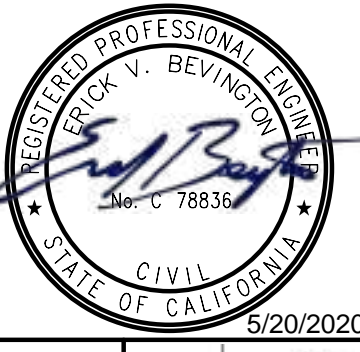
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
00-M-603
SHEET
37 OF 412

0	KEZ	RWE	EVB
NO.	BY	CHK	APP
5/19/2020	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE	DATE



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5/20/2020
BLACK & VEATCH
 JOINT VENTURE
FILANC **BLACK & VEATCH**

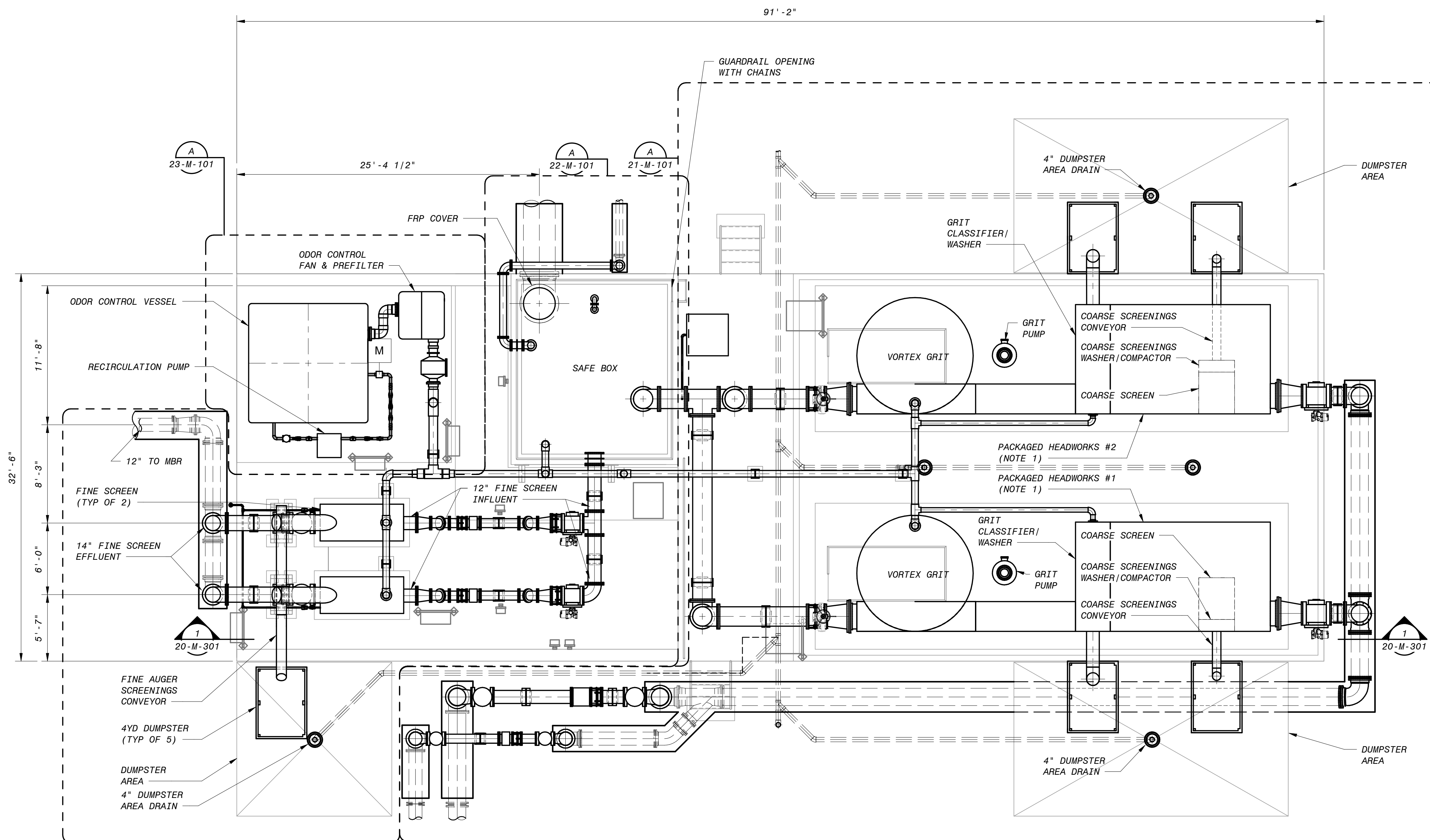
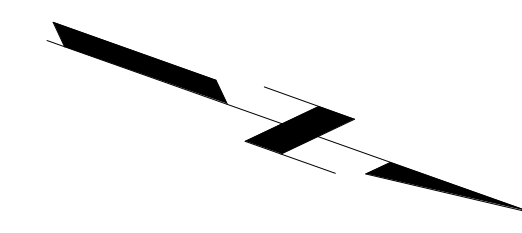
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 HEADWORKS AREA - OVERALL
 CIVIL - MECHANICAL
 3D VIEWS

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

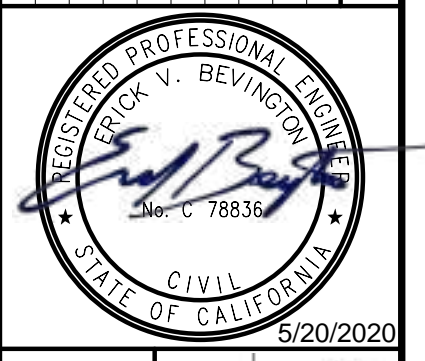
PROJECT NO.
400530
20-M-001
 SHEET
 38 OF 412

NO.	BY	CHK	APP
0	KEZ	EVB	
ISSUED FOR CONSTRUCTION			
REVISITONS AND RECORD OF USE			
DATE			



NOTES:
 1. PACKAGE HEADWORKS LAYOUT IS VENDOR SPECIFIC. THIS LAYOUT WILL BY ADJUSTED WHEN HEADWORKS PACKAGE IS PROCURED.

0	KEZ	RWE	EVB
NO.	BY	DATE	REVISIONS AND RECORD OF USE
5/19/2020	ISSUED FOR CONSTRUCTION		



BLACK & VEATCH
 JOINT VENTURE
FILANC BLACK & VEATCH

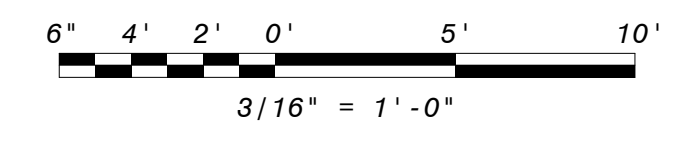
**CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)**
 HEADWORKS AREA - OVERALL
 CIVIL - MECHANICAL
 OPERATING LEVEL PLAN

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

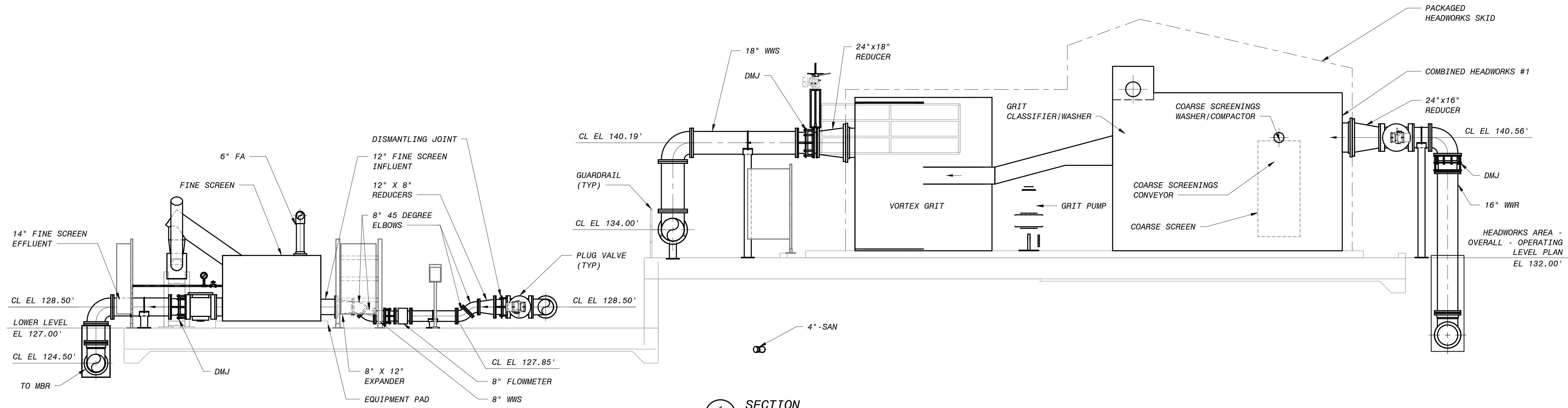
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 IF THIS BAR DOES NOT
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 NOT TO FULL SCALE

PROJECT NO.
400530
20-M-101
 SHEET
 39 OF 412

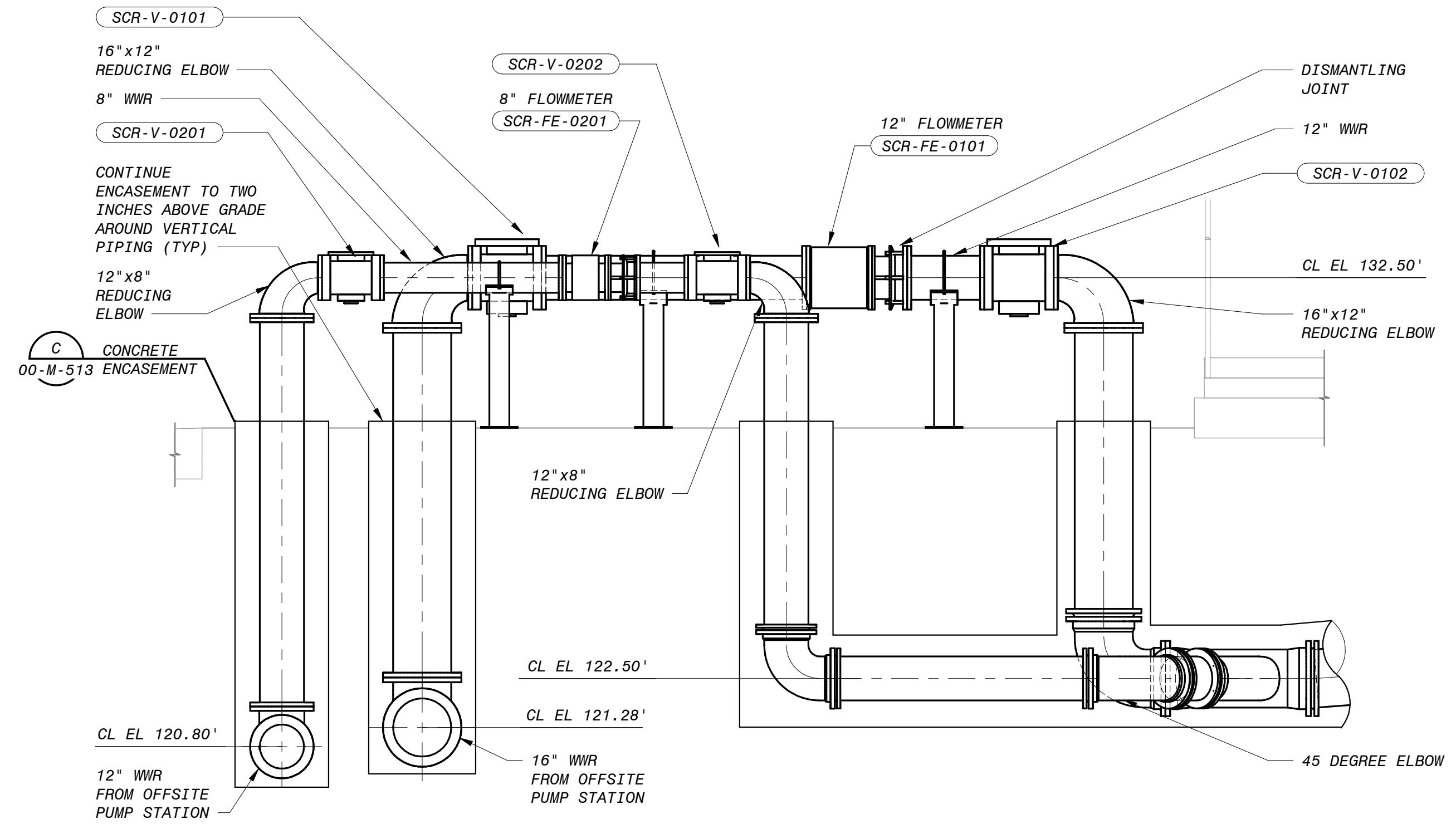
HEADWORKS AREA - OVERALL - OPERATING LEVEL PLAN
 3/16" = 1'-0"



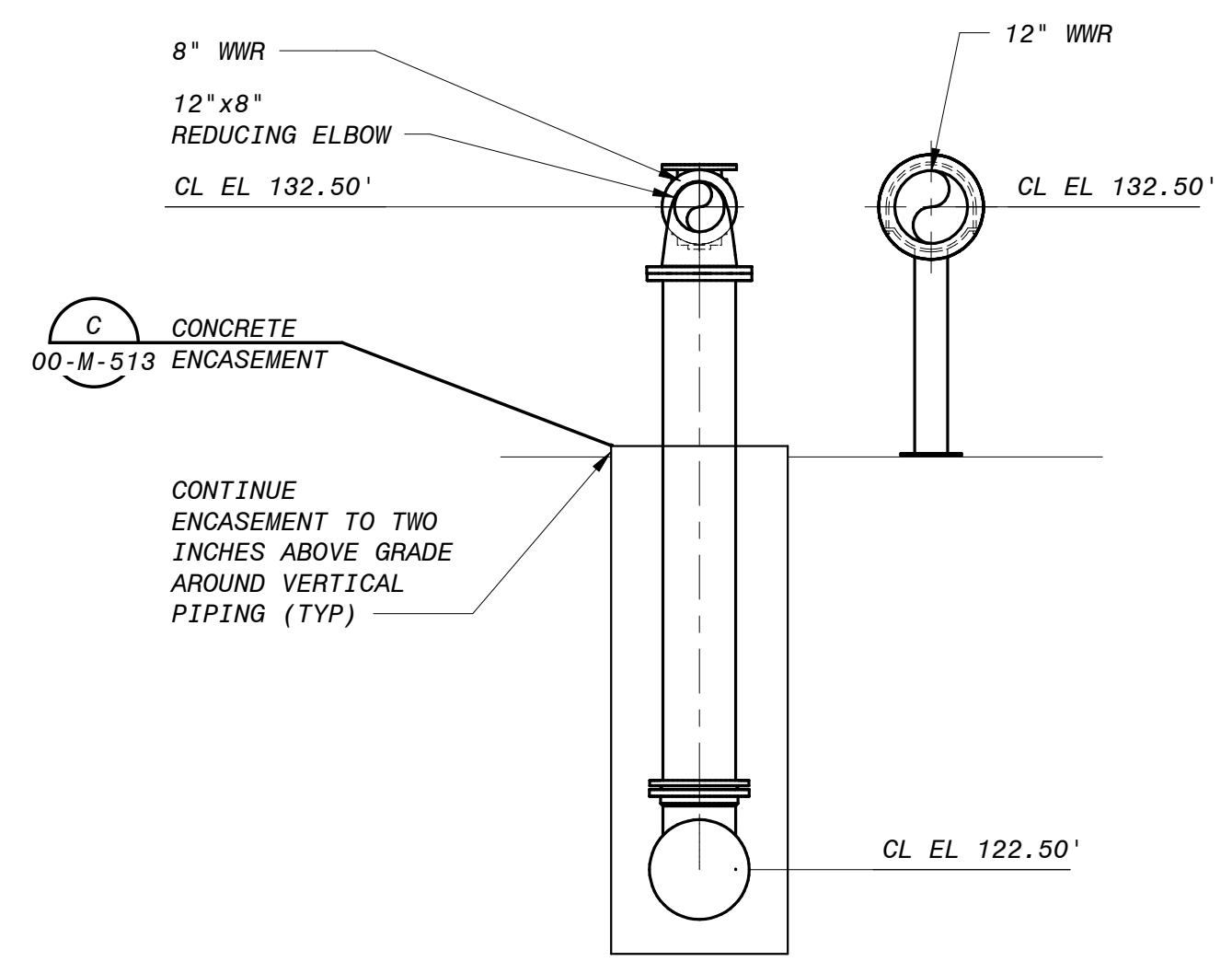
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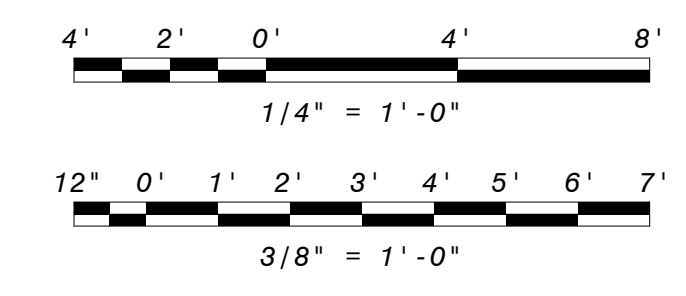
SECTION 1
20-M-101 1/4" = 1'-0"



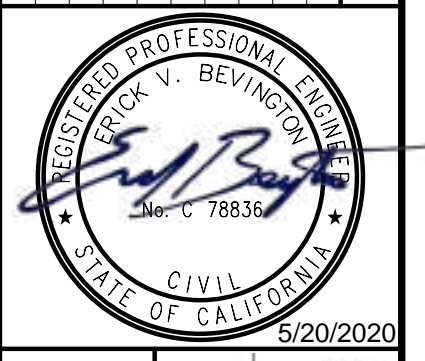
SECTION 2
21-M-101 3/8" = 1'-0"



SECTION 3
21-M-101 3/8" = 1'-0"



0	KEZ	RWE	EVB
NO.	BY	DATE	REVISIONS AND RECORD OF USE
5/19/2020	ISSUED FOR CONSTRUCTION	DATE	



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

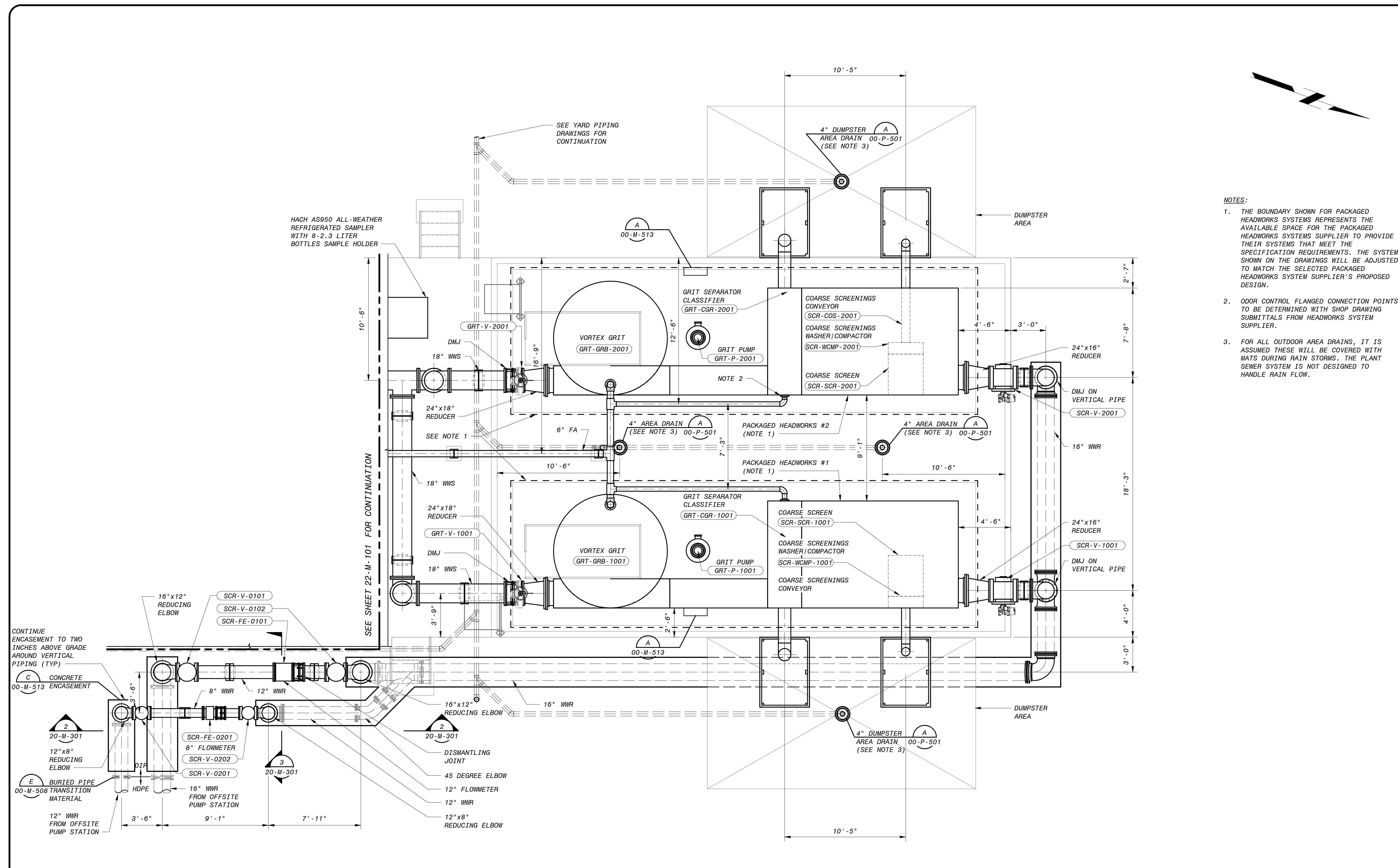
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
HEADWORKS AREA - OVERALL
CIVIL - MECHANICAL
SECTIONS

DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

PROJECT NO.
400530
20-M-301
SHEET
40 OF 412

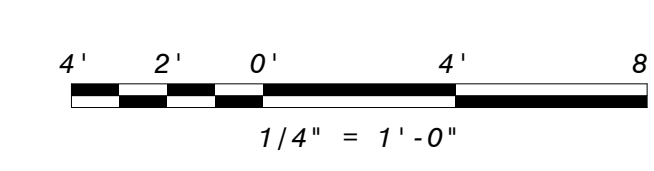
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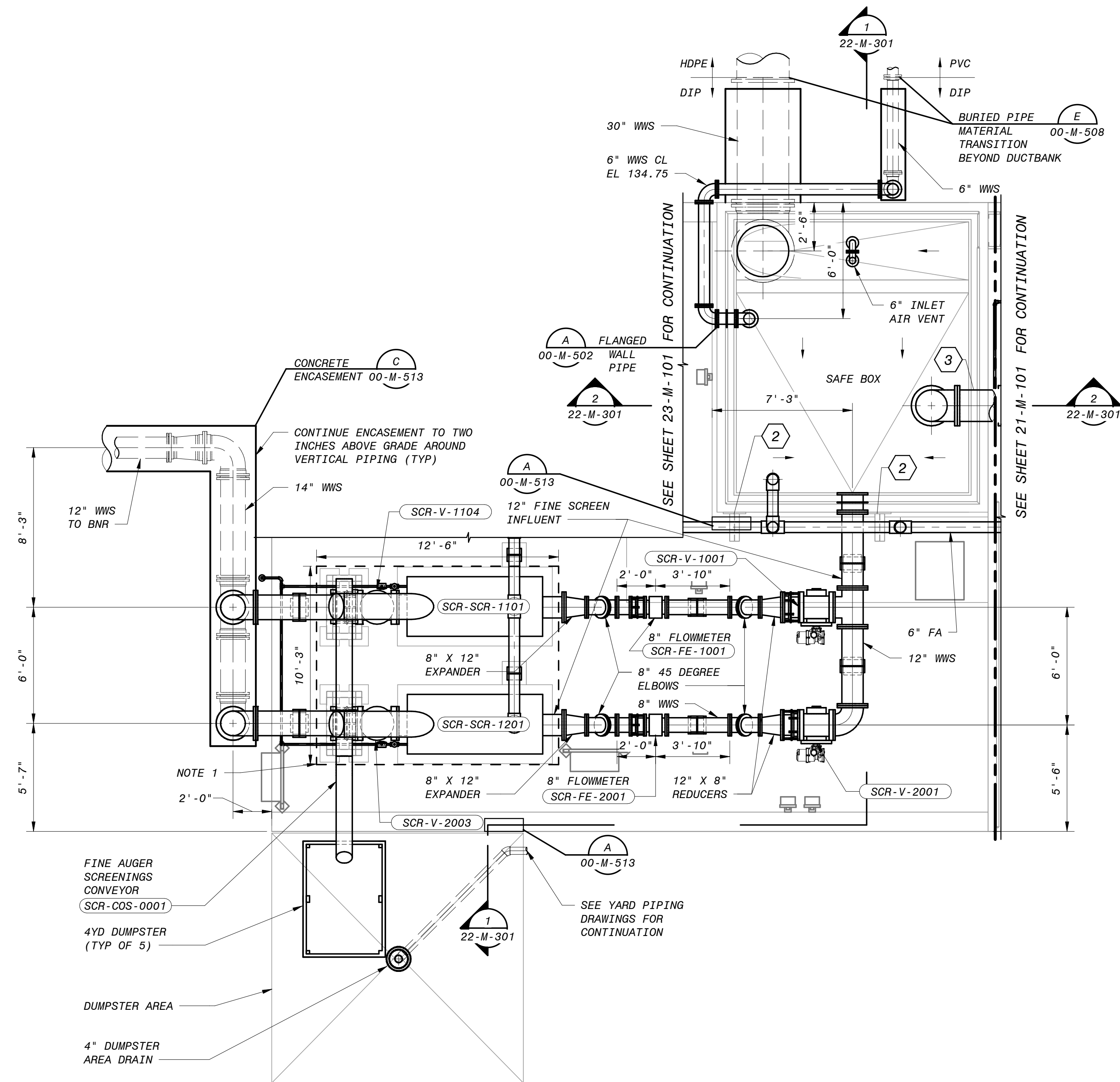


HEADWORKS AREA - HEADWORKS - PLAN
20-M-101 1/4" = 1'-0"

- NOTES:**
1. THE BOUNDARY SHOWN FOR PACKAGED HEADWORKS SYSTEMS REPRESENTS THE AVAILABLE SPACE FOR THE PACKAGED HEADWORKS SYSTEMS SUPPLIER TO PROVIDE THEIR SYSTEMS THAT MEET THE SPECIFICATION REQUIREMENTS. THE SYSTEM SHOWN ON THE DRAWINGS WILL BE ADJUSTED TO MATCH THE SELECTED PACKAGED HEADWORKS SYSTEM SUPPLIER'S PROPOSED DESIGN.
 2. ODOOR CONTROL FLANGED CONNECTION POINTS TO BE DETERMINED WITH SHOP DRAWING SUBMITTALS FROM HEADWORKS SYSTEM SUPPLIER.
 3. FOR ALL OUTDOOR AREA DRAINS, IT IS ASSUMED THESE WILL BE COVERED WITH MATS DURING RAIN STORMS. THE PLANT SEWER SYSTEM IS NOT DESIGNED TO HANDLE RAIN FLOW.



	0 KEZ RWE EVB NO. BY 5/19/2020 ISSUED FOR CONSTRUCTION DATE REVISIONS AND RECORD OF USE
BLACK & VEATCH JOINT VENTURE FILANC	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) HEADWORKS AREA - HEADWORKS CIVIL - MECHANICAL PLAN	
DESIGNED: KEZ, EVB DETAILED: MAK CHECKED: EVB APPROVED: EVB DATE: 5/19/2020	
PROJECT NO. 400530 SHEET 21-M-101 41 OF 412	

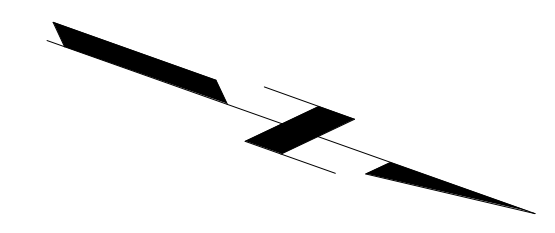


NOTES:

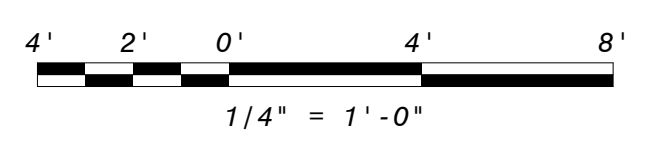
1. DIMENSIONS SHOWN INDICATE AVAILABLE SPACE FOR ALL FINE SCREEN EQUIPMENT.

KEY NOTES:

- 1 COLUMN PIPE SUPPORT. SEE DETAIL A ON 00-M-601
- 2 KNEE BRACE GUIDE SUPPORT. SEE DETAIL B ON 00-M-602
- 3 FLANGED WALL PIPE. SEE DETAIL B ON 00-M-502



A HEADWORKS AREA - FINE SCREENS - PLAN
20-M-101 1/4" = 1'-0"

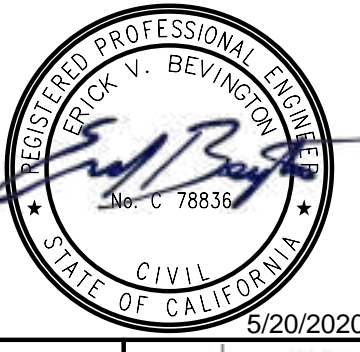
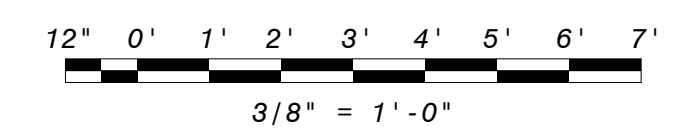
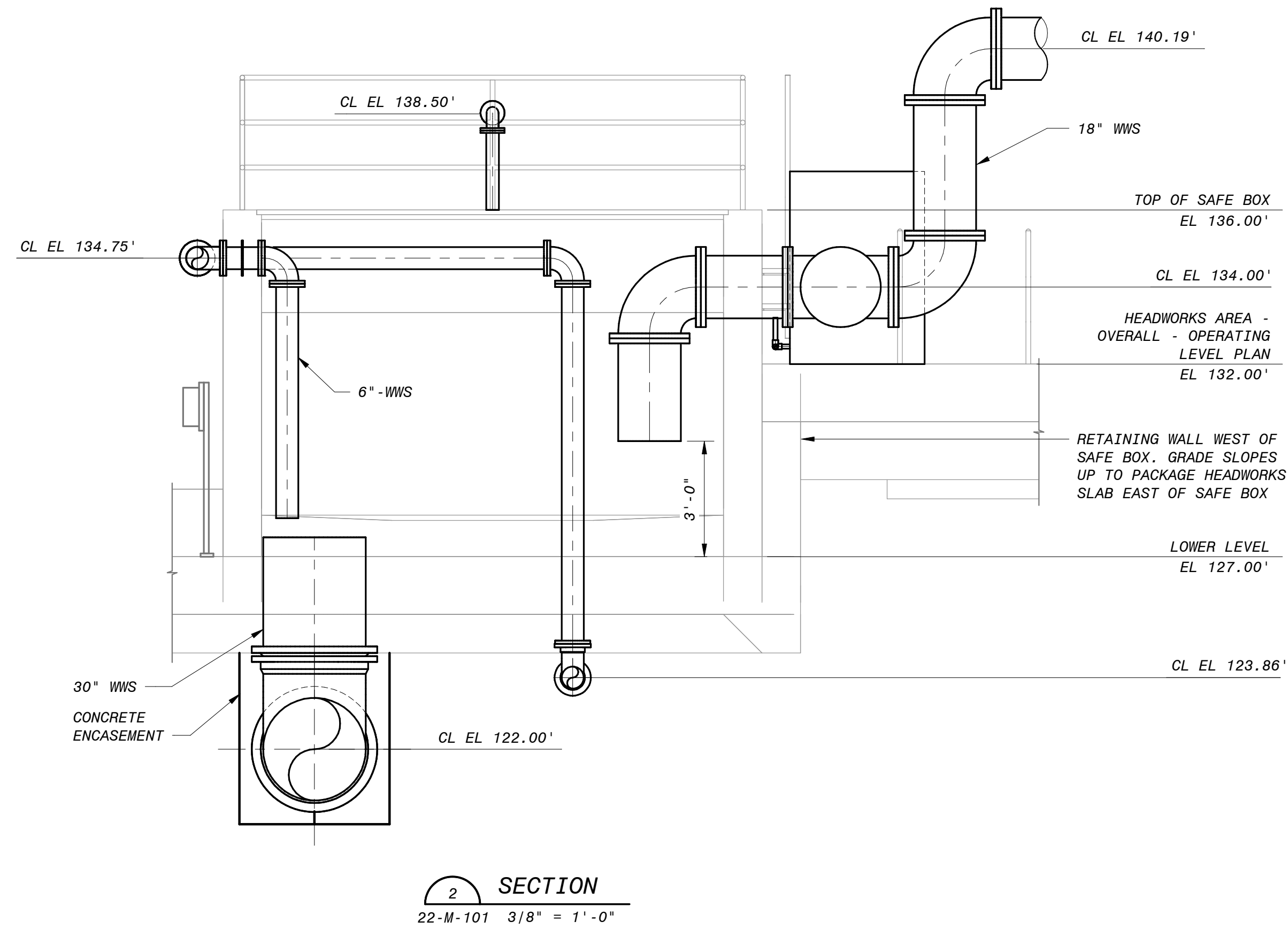
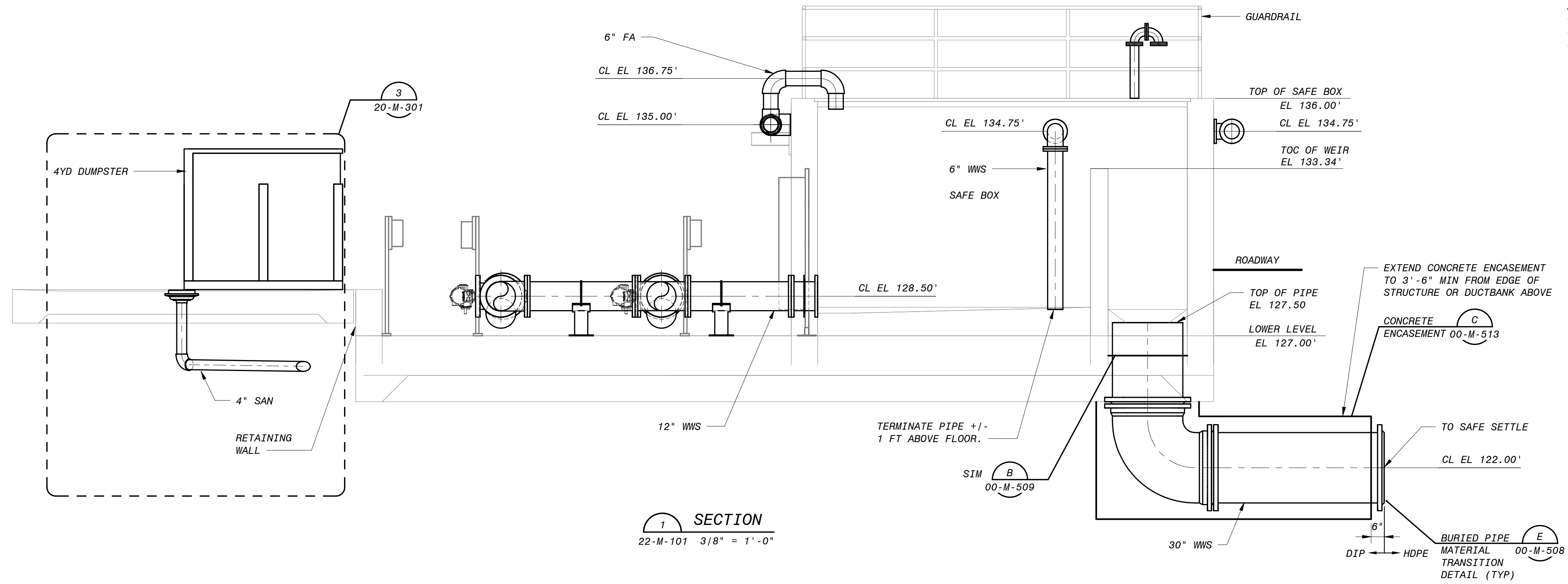


	0 KEZ RWE EVB NO. BY 5/19/2020 ISSUED FOR CONSTRUCTION DATE REVISIONS AND RECORD OF USE
BLACK & VEATCH JOINT VENTURE FILANC	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) HEADWORKS AREA - FINE SCREENS CIVIL - MECHANICAL PLAN	
DESIGNED: KEZ, EVB DETAILED: MAK CHECKED: EVB APPROVED: EVB DATE: 5/19/2020	
PROJECT NO. 400530	
22-M-101 SHEET 42 OF 412	

PLOTTED: 5/19/2020 3:05:19 PM
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NOTES:

- ODOR CONTROL LAYOUT IS FOR REFERENCE ONLY. FINAL LAYOUT AND COMPONENTS WILL BE SHOWN AFTER EQUIPMENT IS PROCURED.
- NOTE THAT THE FOUL AIR PIPING ROUTE IS FLEXIBLE AND DEPENDENT ON FINAL PROCUREMENT DESIGN OF THE ODOR CONTROL SYSTEM, FINAL SIZING OF THE FINE SCREENS, AND FINAL SIZING OF THE HEADWORKS PACKAGE.



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JOINT VENTURE
FILANC
BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
HEADWORKS AREA - FINE SCREENS
CIVIL - MECHANICAL
SECTIONS AND DETAILS 1

DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

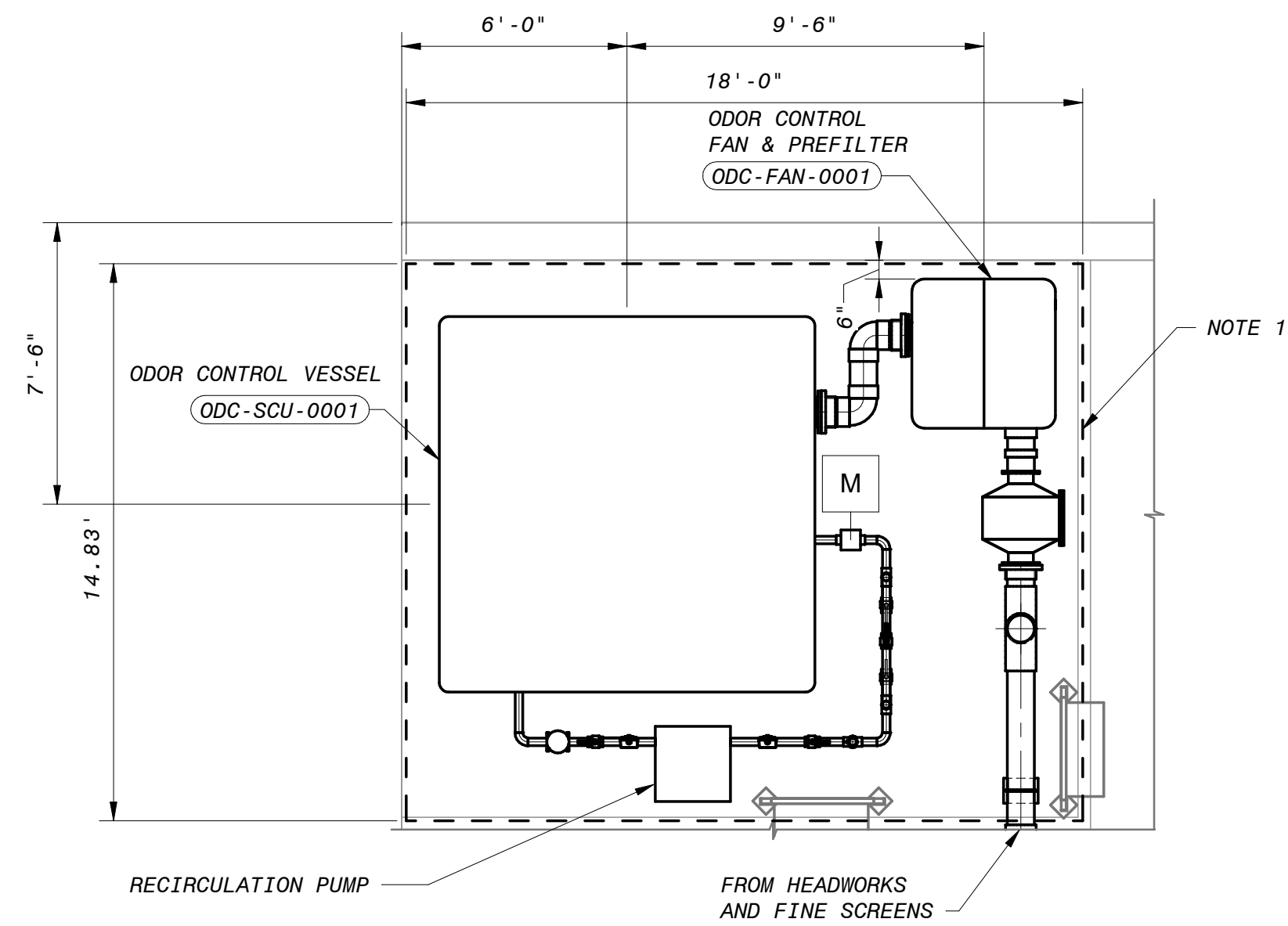
22-M-301
SHEET
43 OF 412

PLOTTED: 5/19/2020 3:06:24 PM
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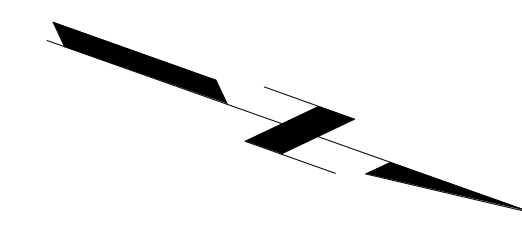
NO.	BY	CHK APP
0	KEZ	EVB

5/19/2020 ISSUED FOR CONSTRUCTION
DATE REVISIONS AND RECORD OF USE

PLOTTED: 5/19/2020 3:06:27 PM
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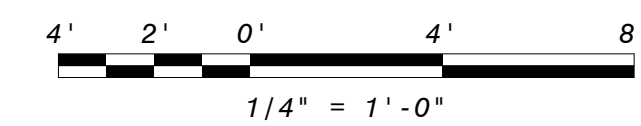


HEADWORKS AREA - ODOR CONTROL - PLAN
 1/4" = 1'-0"



NOTES:

1. ODOR CONTROL LAYOUT IS FOR REFERENCE ONLY. FINAL LAYOUT AND COMPONENTS WILL BE SHOWN AFTER EQUIPMENT IS PROCURED.
2. DIMENSIONS SHOWN INDICATE AVAILABLE SPACE FOR ALL ODOR CONTROL EQUIPMENT, INCLUDING ELECTRICAL AND CONTROL PANELS.



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 JOINT VENTURE
FILANC

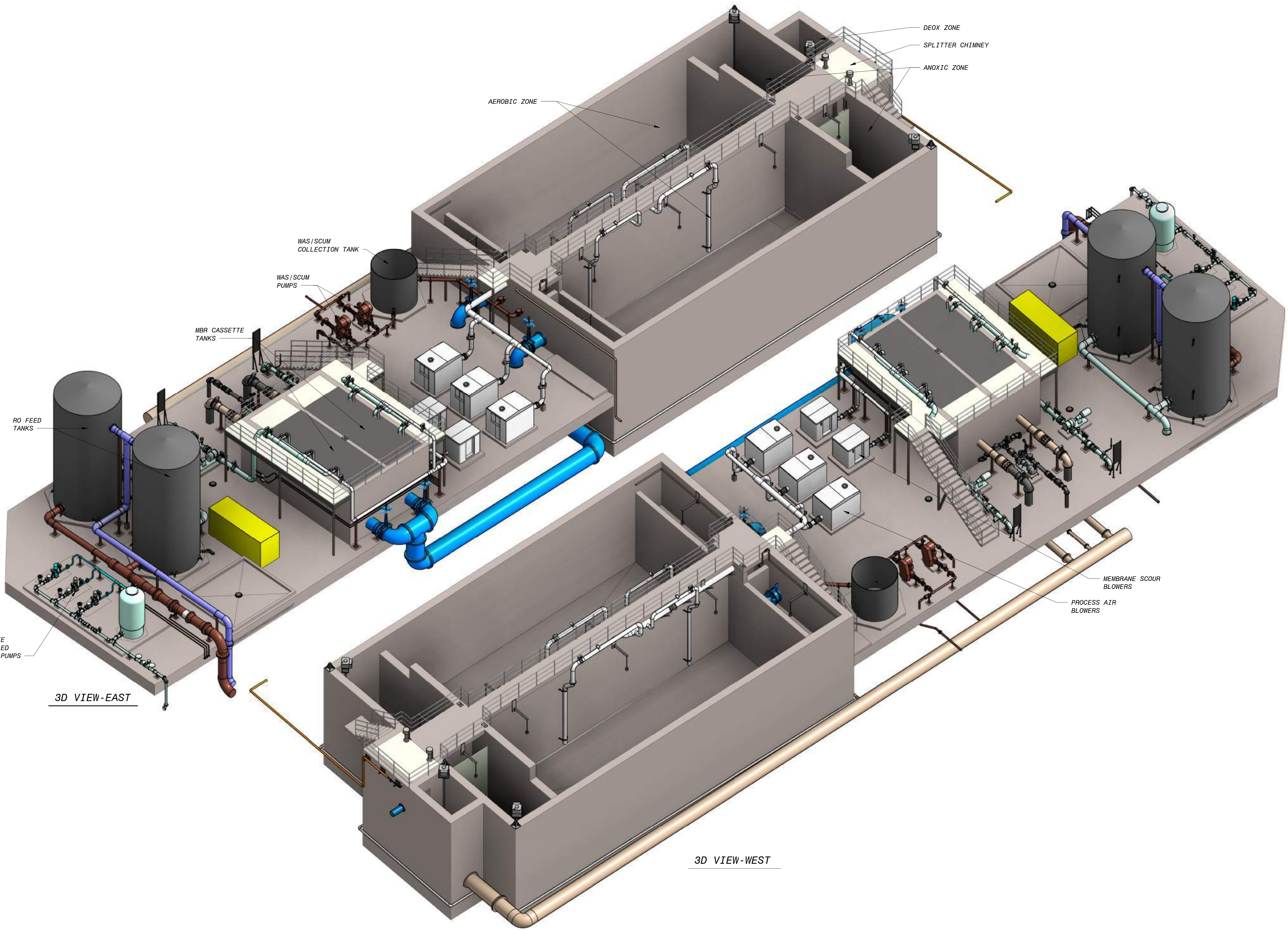
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 HEADWORKS AREA - ODOR CONTROL
 CIVIL - MECHANICAL
 PLAN, SECTIONS AND DETAILS

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

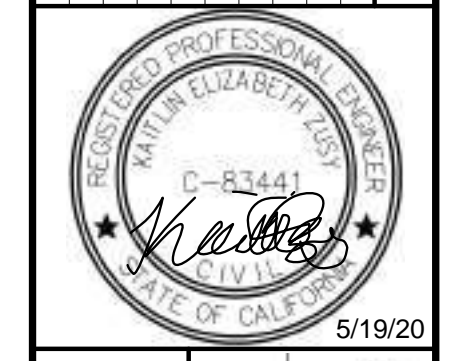
PROJECT NO.
400530
23-M-101
 SHEET
 44 OF 412

NO.	DATE	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE	BY	CHK APP
0					



PLOTTED: 5/19/2020 2:40:46 PM
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0	KEZ	RVB	EVB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
5/19/2020	DATE		



BLACK & VEATCH

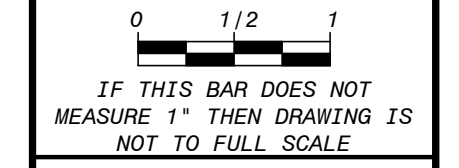
JOINT VENTURE

FILANC

BLACK & VEATCH

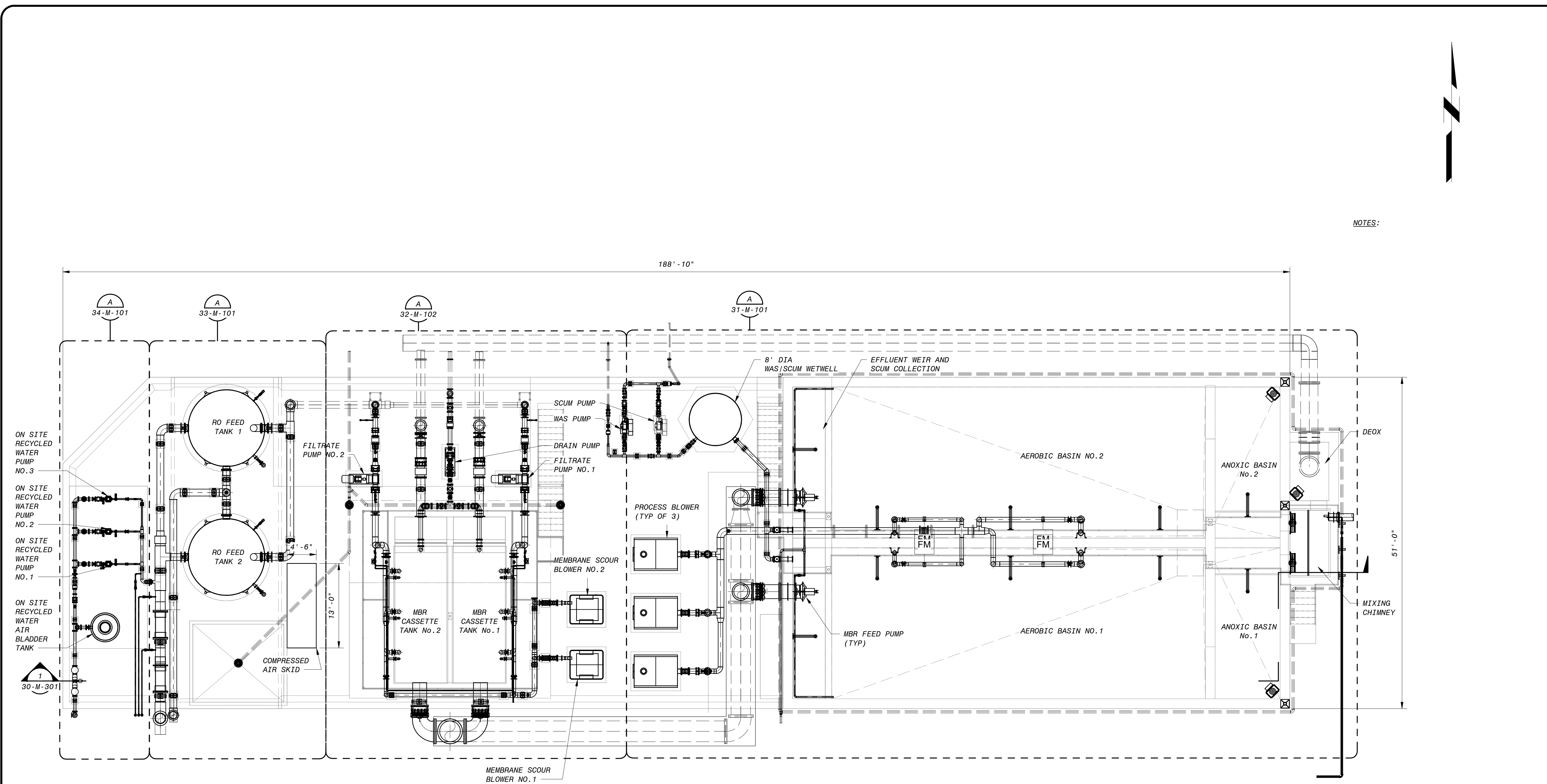
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 TREATMENT AREA - OVERALL
 CIVIL - MECHANICAL
 3D VIEWS

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020



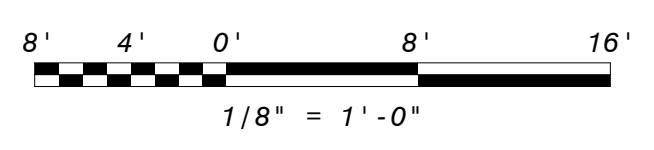
PROJECT NO.
400530
30-M-001
 SHEET
 45 OF 412

PLOTTED: 5/19/2020 2:40:49 PM
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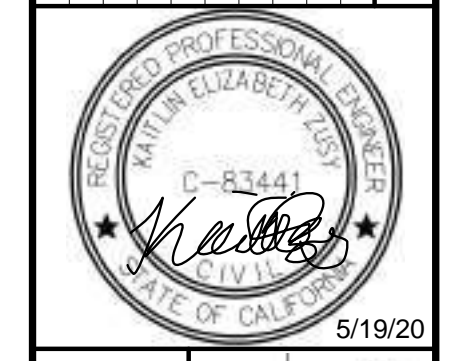


NOTES:

TREATMENT AREA - OVERALL - OPERATING LEVEL PLAN
1/8" = 1'-0"



0	KEZ	RWE	EVB
NO.	BY	CHK	APP
5/19/2020	ISSUED FOR CONSTRUCTION		REVISED AND RECORD OF USE
DATE			



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

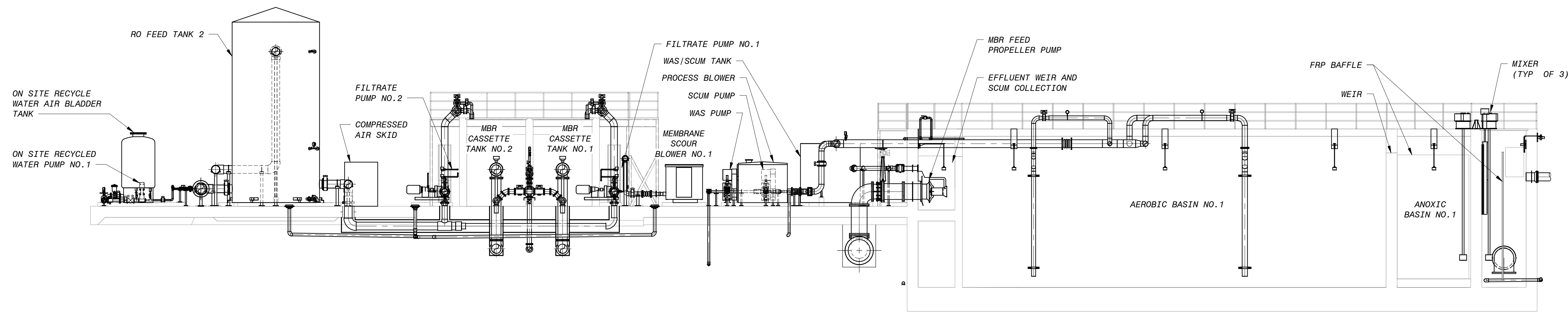
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
TREATMENT AREA - OVERALL
CIVIL - MECHANICAL
OPERATING LEVEL PLAN

DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

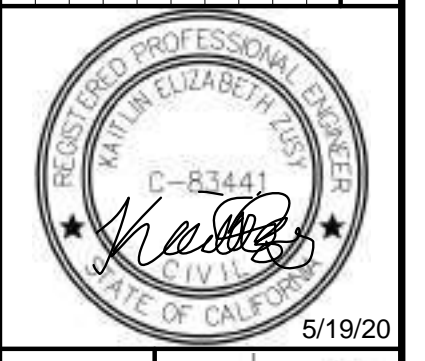
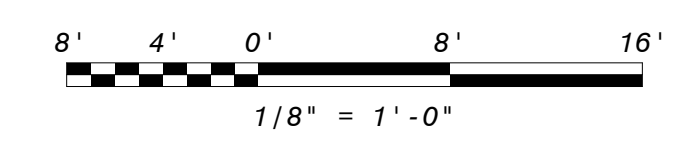
0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530
30-M-101
SHEET
46 OF 412

PLOTTED: 5/19/2020 2:40:57 PM
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SECTION
 30-M-101 1/8" = 1'-0"



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 JOINT VENTURE
FILANC

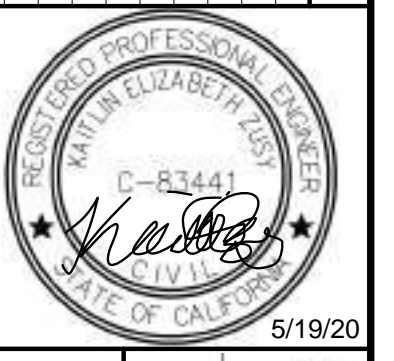
CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 TREATMENT AREA - OVERALL
 CIVIL - MECHANICAL
 SECTION

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

PROJECT NO.
 400530

30-M-301
 SHEET
 47 OF 412

NO.	DATE	REVISIONS AND RECORD OF USE	BY	CHK APP
0	5/19/2020	ISSUED FOR CONSTRUCTION	KEZ	EVB



BLACK & VEATCH
 JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 TREATMENT AREA - BNR BASINS
 CIVIL - MECHANICAL
 UPPER LEVEL PLAN

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

PROJECT NO.
400530

31-M-101
 SHEET
 48 OF 412

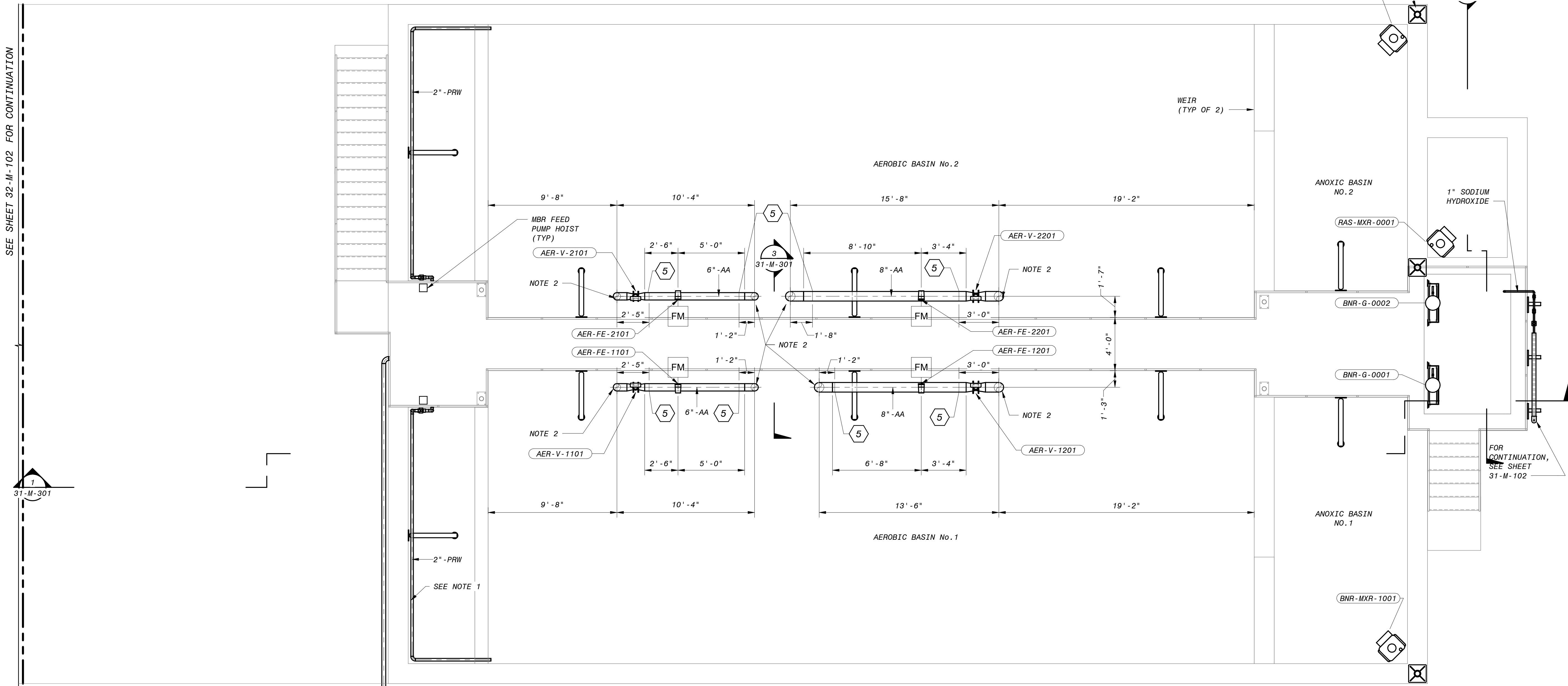
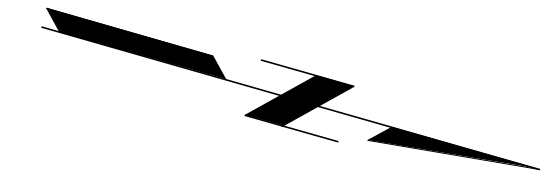
KEY NOTES:

- 1 ELBOW SUPPORT. SEE DETAIL A ON 00-M-603
- 2 COLUMN GUIDE SUPPORT. SEE DETAIL A ON 00-M-602
- 3 FLANGED WALL ANCHOR. SEE DETAIL B ON 00-M-502
- 4 WELDED TEE
- 5 BASIN STANCHION GUIDE SUPPORT. SEE DETAIL C ON 00-M-602
- 6 MODULAR CASING SEAL BEAM SLEEVE. SEE DETAIL C ON 00-M-506
- 7 KNEE BRACE GUIDE SUPPORT. SEE DETAIL B ON 00-M-602
- 8 KNEE BRACE AXIAL STOP SUPPORT. SEE DETAIL D ON 00-M-602

NOTES:

- 1. SPRAY BARS: 10 GPM PER TRAIN. SPEC FULLJET GG NOZZLES 1/8" INLET 3.5 OR 5 GPM CAPACITY. CAN DO 316 SS OR PVC.
- 2. SEE 31-M-102 FOR CONTINUATION.
- 3. ALL BLOWER AIR PIPING SHALL BE INSULATED IF IT IS 8 FEET OR LESS ABOVE FINISHED FLOOR OR ACCESS WALKWAYS.

DAVIT SLEEVES ON TOP OF WALLS FOR ALL ACCESS POINTS
 BNR-MXR-2001
 MIXER (TYP OF 3)

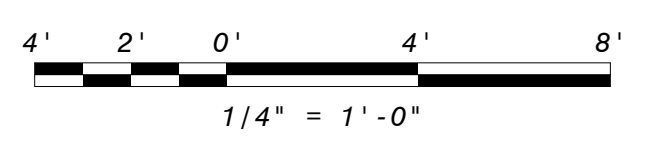


SEE SHEET 32-M-102 FOR CONTINUATION

FOR CONTINUATION, SEE SHEET 31-M-102

3" - PRW FOR CONTINUATION, SEE SHEET 31-M-102

BNR BASINS - UPPER LEVEL PLAN
 30-M-101 1/4" = 1'-0"

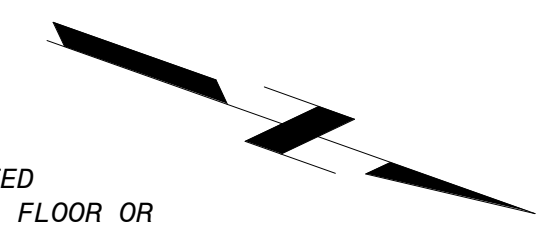


KEY NOTES:

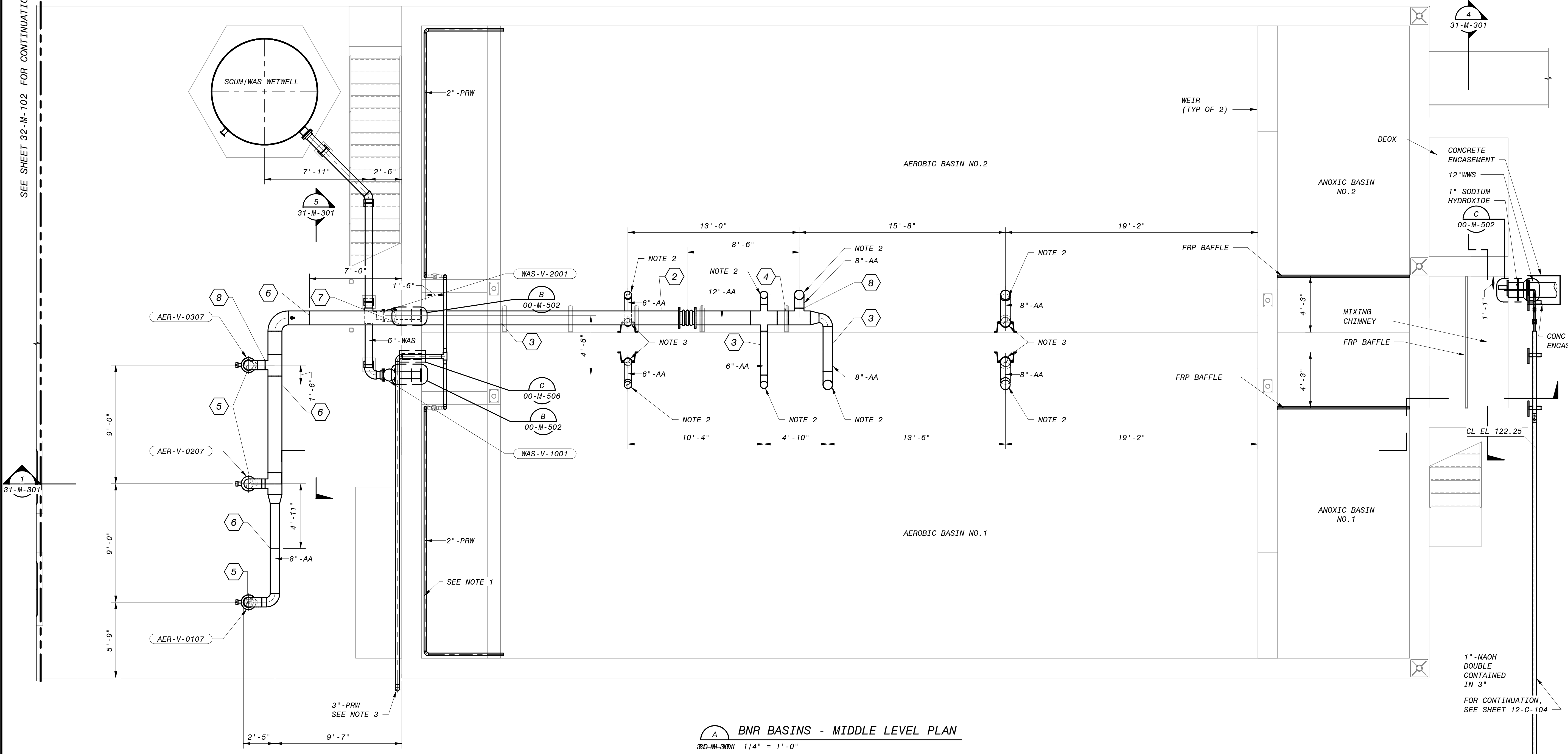
- 1 BASIN STANCHION GUIDE SUPPORT. SEE DETAIL C ON 00-M-602
- 2 KNEE BRACE GUIDE SUPPORT. SEE DETAIL B ON 00-M-602
- 3 MODULAR CASING SEAL BEAM SLEEVE. SEE DETAIL C ON 00-M-506
- 4 KNEE BRACE AXIAL STOP SUPPORT. SEE DETAIL D ON 00-M-602
- 5 ELBOW SUPPORT. SEE DETAIL A ON 00-M-603
- 6 COLUMN GUIDE SUPPORT. SEE DETAIL A ON 00-M-602
- 7 FLANGED WALL ANCHOR. SEE DETAIL B ON 00-M-502
- 8 WELDED TEE

NOTES:

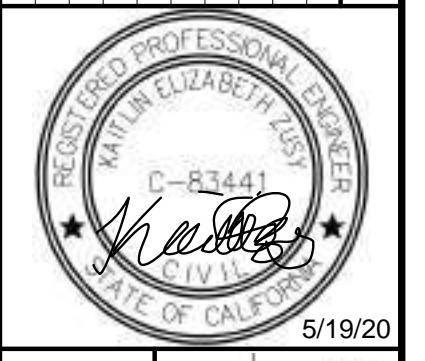
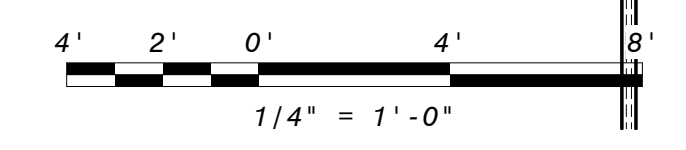
- 1. SPRAY BARS: 10 GPM PER TRAIN. SPEC FULLJET GG NOZZLES 1/8" INLET 3.5 OR 5 GPM CAPACITY. CAN DO 316 SS OR PVC.
- 2. SEE 31-M-101 FOR CONTINUATION.
- 3. SEE 31-M-103 FOR CONTINUATION.
- 4. THERE SHALL BE A MINIMUM OF 3.5' OF CLEAR SPACE AROUND EACH CONTROL PANEL.
- 5. ALL BLOWER AIR PIPING SHALL BE INSULATED IF IT IS 8 FEET OR LESS ABOVE FINISHED FLOOR OR ACCESS WALKWAYS.



SEE SHEET 32-M-102 FOR CONTINUATION



BNR BASINS - MIDDLE LEVEL PLAN
310-M-31011 1/4" = 1'-0"



BLACK & VEATCH
 JOINT VENTURE
FILANC
 BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 TREATMENT AREA - BNR BASINS
 CIVIL - MECHANICAL
 MIDDLE LEVEL PLAN

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

PROJECT NO.
400530

31-M-102
 SHEET
 49 OF 412

PLOTTED: 5/19/2020 2:41:00 PM
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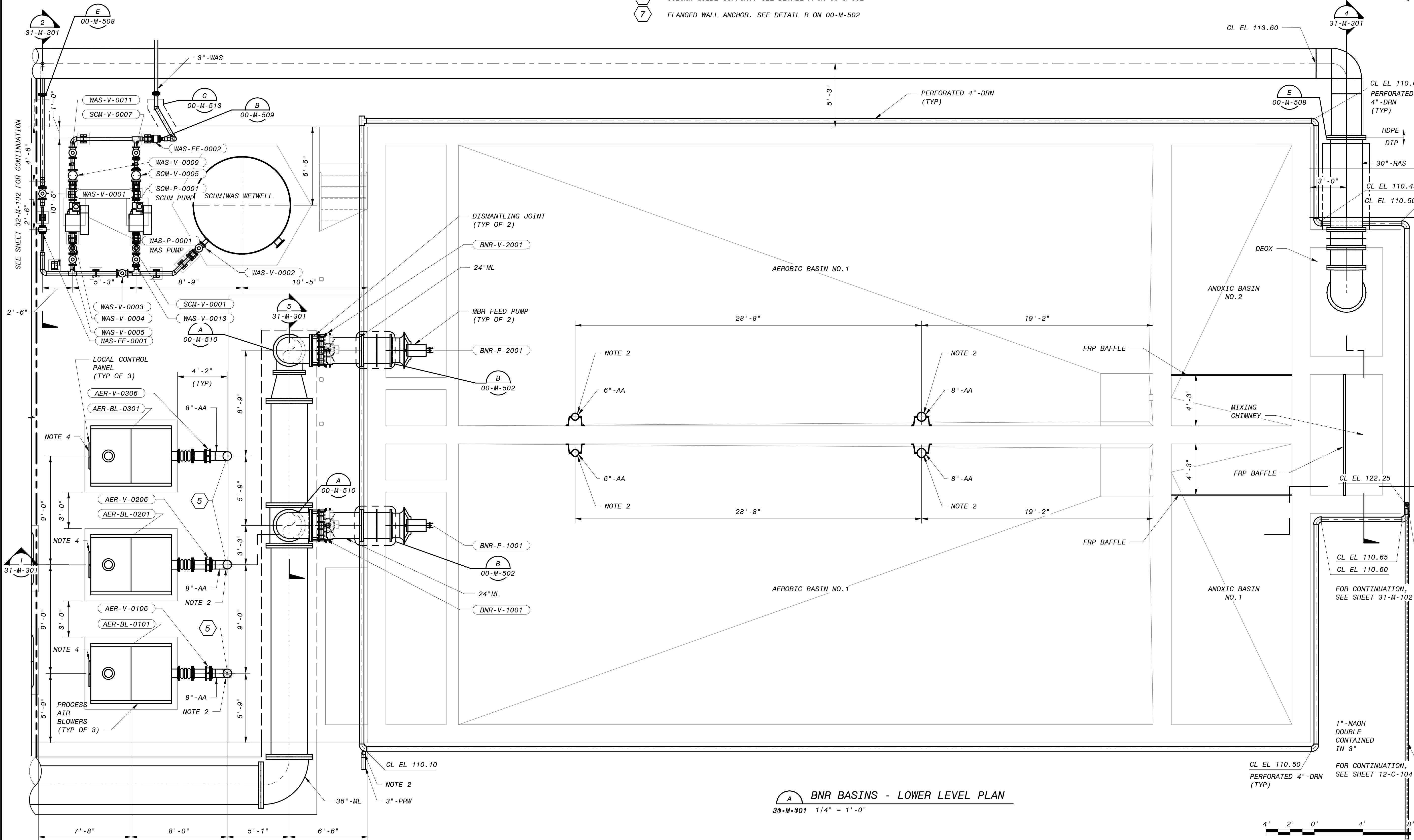
NO.	BY	CHK APP	DATE	REVISIONS AND RECORD OF USE
0	KEZ	EVB	5/19/2020	ISSUED FOR CONSTRUCTION

KEY NOTES:

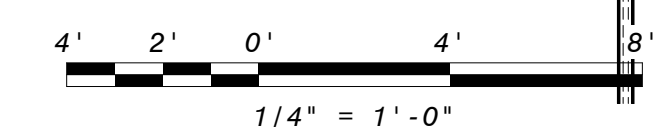
- 1 BASIN STANCHION GUIDE SUPPORT. SEE DETAIL C ON 00-M-602
- 2 KNEE BRACE GUIDE SUPPORT. SEE DETAIL B ON 00-M-602
- 3 MODULAR CASING SEAL BEAM SLEEVE. SEE DETAIL C ON 00-M-506
- 4 KNEE BRACE AXIAL STOP SUPPORT. SEE DETAIL D ON 00-M-602
- 5 ELBOW SUPPORT. SEE DETAIL A ON 00-M-603
- 6 COLUMN GUIDE SUPPORT. SEE DETAIL A ON 00-M-602
- 7 FLANGED WALL ANCHOR. SEE DETAIL B ON 00-M-502

NOTES:

- 1. SPRAY BARS: 10 GPM PER TRAIN. SPEC FULLJET GG NOZZLES 1/8" INLET 3.5 OR 5 GPM CAPACITY. CAN DO 316 SS OR PVC.
- 2. SEE 31-M-102 FOR CONTINUATION.
- 3. ALL BLOWER AIR PIPING SHALL BE INSULATED IF IT IS 8 FEET OR LESS ABOVE FINISHED FLOOR OR ACCESS WALKWAYS.



30-M-301 BNR BASINS - LOWER LEVEL PLAN
1/4" = 1'-0"



	0 KEZ RWE EVB NO. BY CHK APP 5/19/2020 ISSUED FOR CONSTRUCTION DATE REVISIONS AND RECORD OF USE
BLACK & VEATCH JOINT VENTURE FILANC	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) TREATMENT AREA - BNR BASINS CIVIL - MECHANICAL LOWER LEVEL PLAN	
DESIGNED: KEZ, EVB DETAILED: MAK CHECKED: EVB APPROVED: EVB DATE: 5/19/2020	
PROJECT NO. 400530 31-M-103 SHEET 50 OF 412	

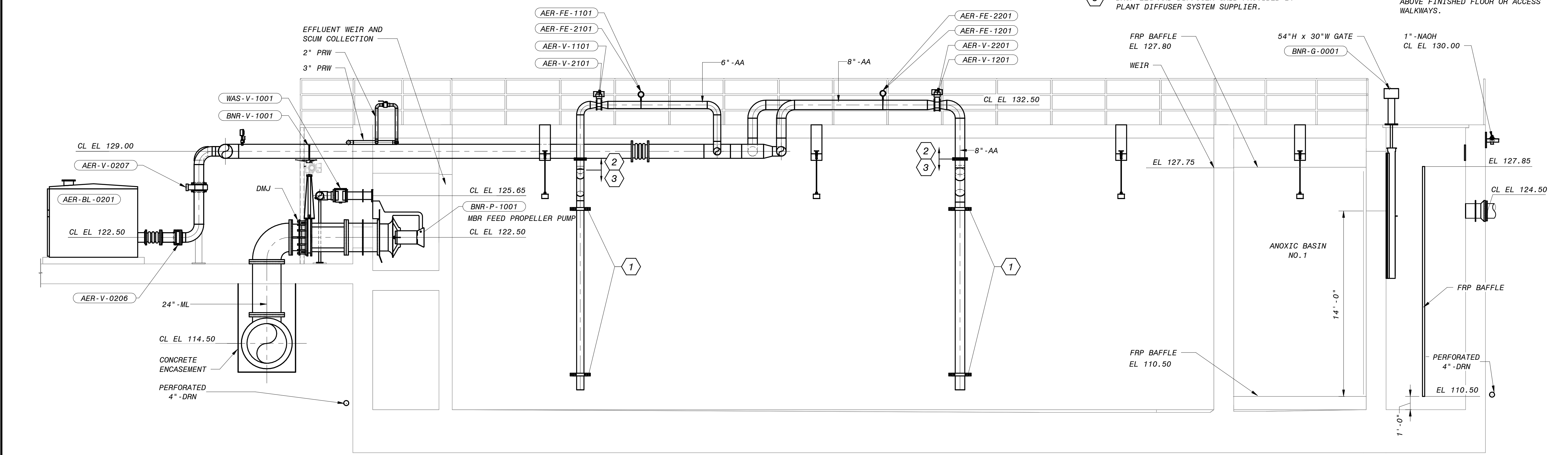
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KEY NOTES:

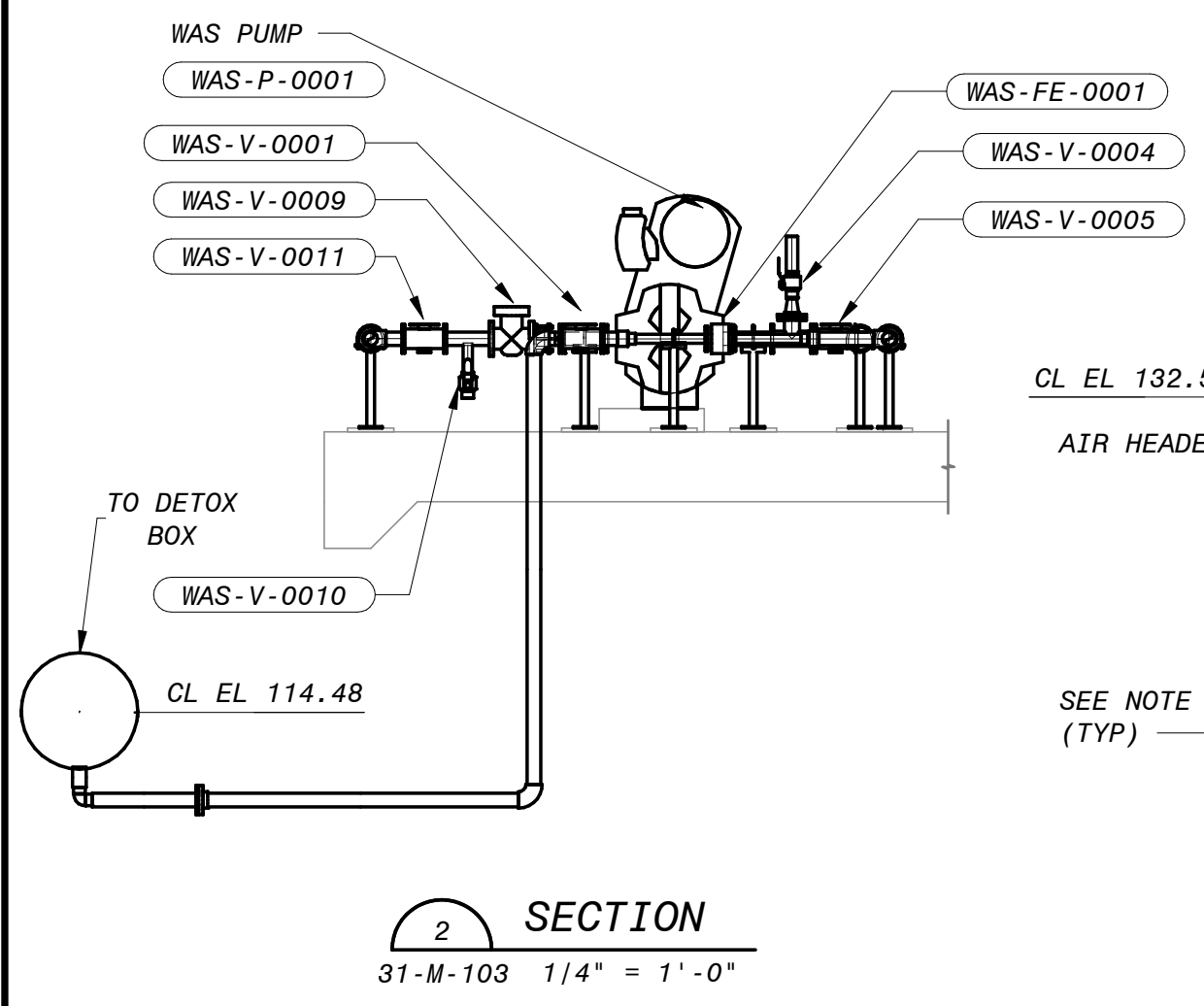
- 1 VERTICAL SUPPORT. SEE DETAIL E ON 00-S-202
- 2 DROP LEG PROVIDED TO FLANGE BY DESIGN-BUILDER.
- 3 DROP LEG AND DIFFUSER GRID PROVIDED BY PLANT DIFFUSER SYSTEM SUPPLIER.

NOTES:

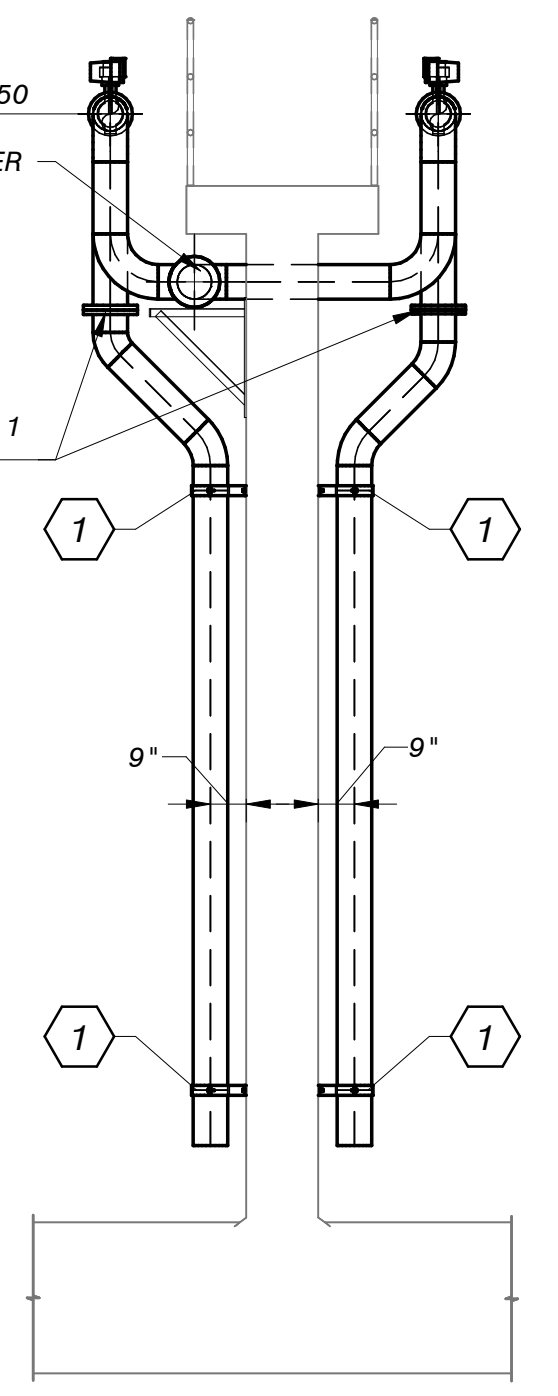
- 1. AERATION SYSTEM SUPPLIER SHALL PROVIDE CONNECTION TO AERATION DROP LEG IN THE LOCATION SHOWN.
- 2. ALL BLOWER AIR PIPING SHALL BE INSULATED IF IT IS 8 FEET OR LESS ABOVE FINISHED FLOOR OR ACCESS WALKWAYS.



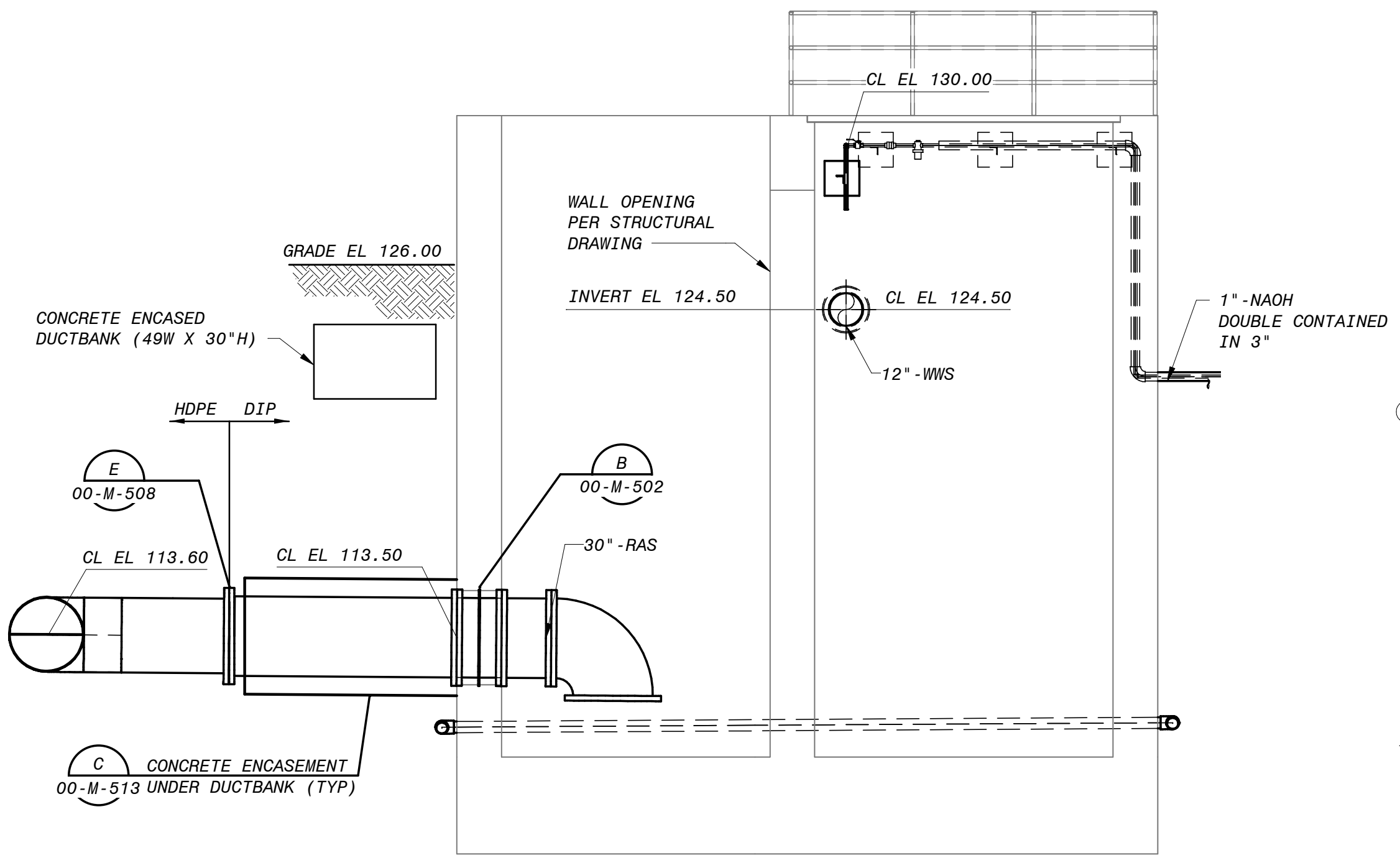
SECTION 1
31-M-101 1/4" = 1'-0"



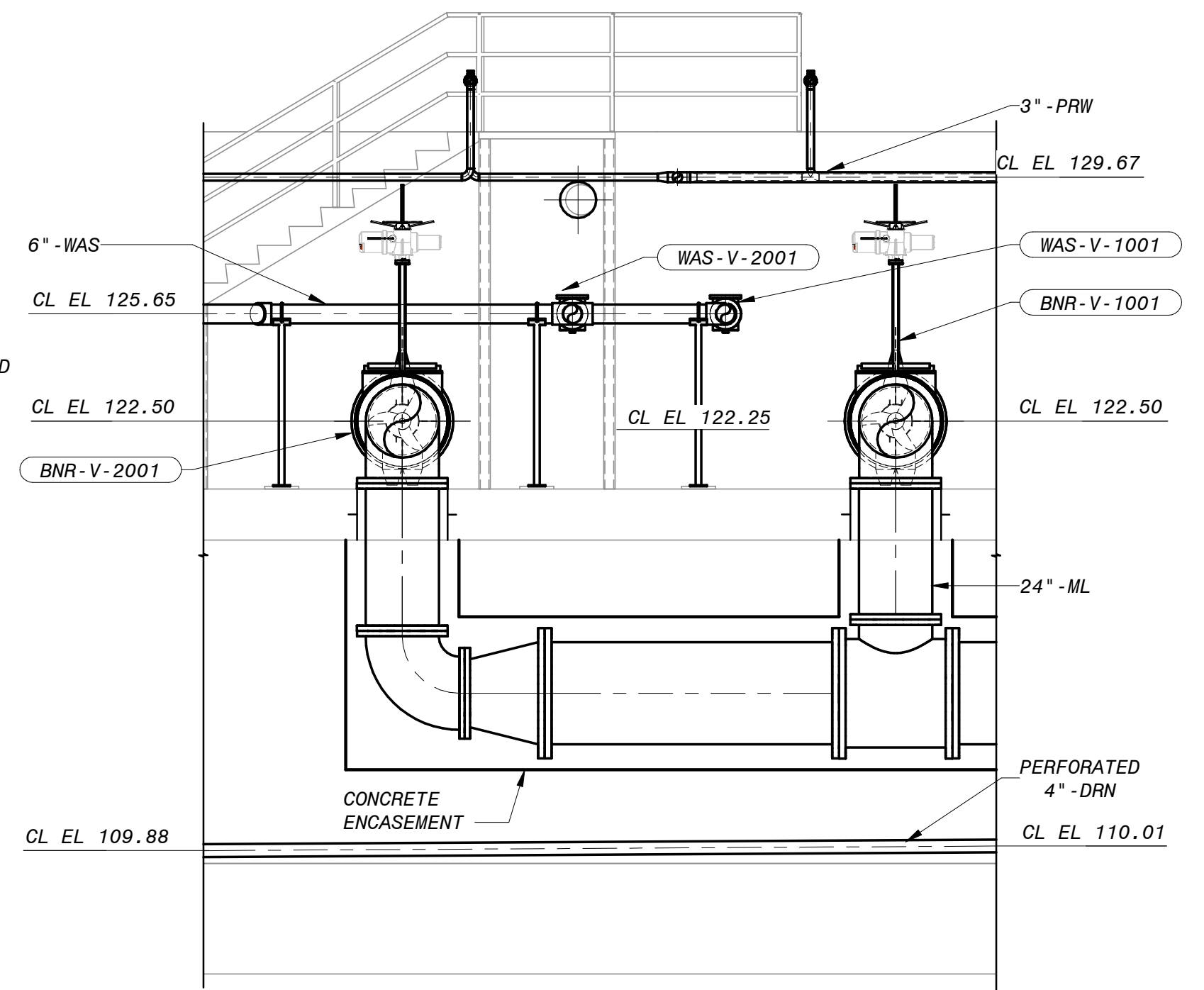
SECTION 2
31-M-103 1/4" = 1'-0"



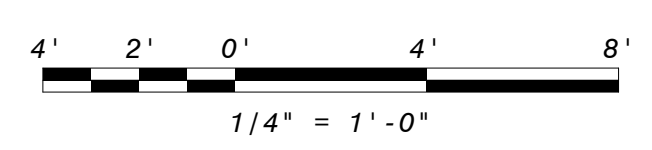
SECTION 3
31-M-101 1/4" = 1'-0"



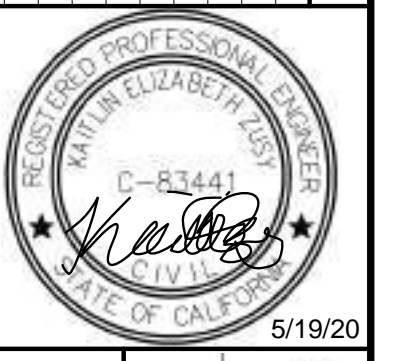
SECTION 4
31-M-101 1/4" = 1'-0"



SECTION 5
31-M-102 1/4" = 1'-0"



NO.	BY	CHK	APP
0	KEZ	EVN	
DATE			
5/19/2020 ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			



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CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
TREATMENT AREA - BNR BASINS
CIVIL - MECHANICAL
SECTION AND DETAILS 1

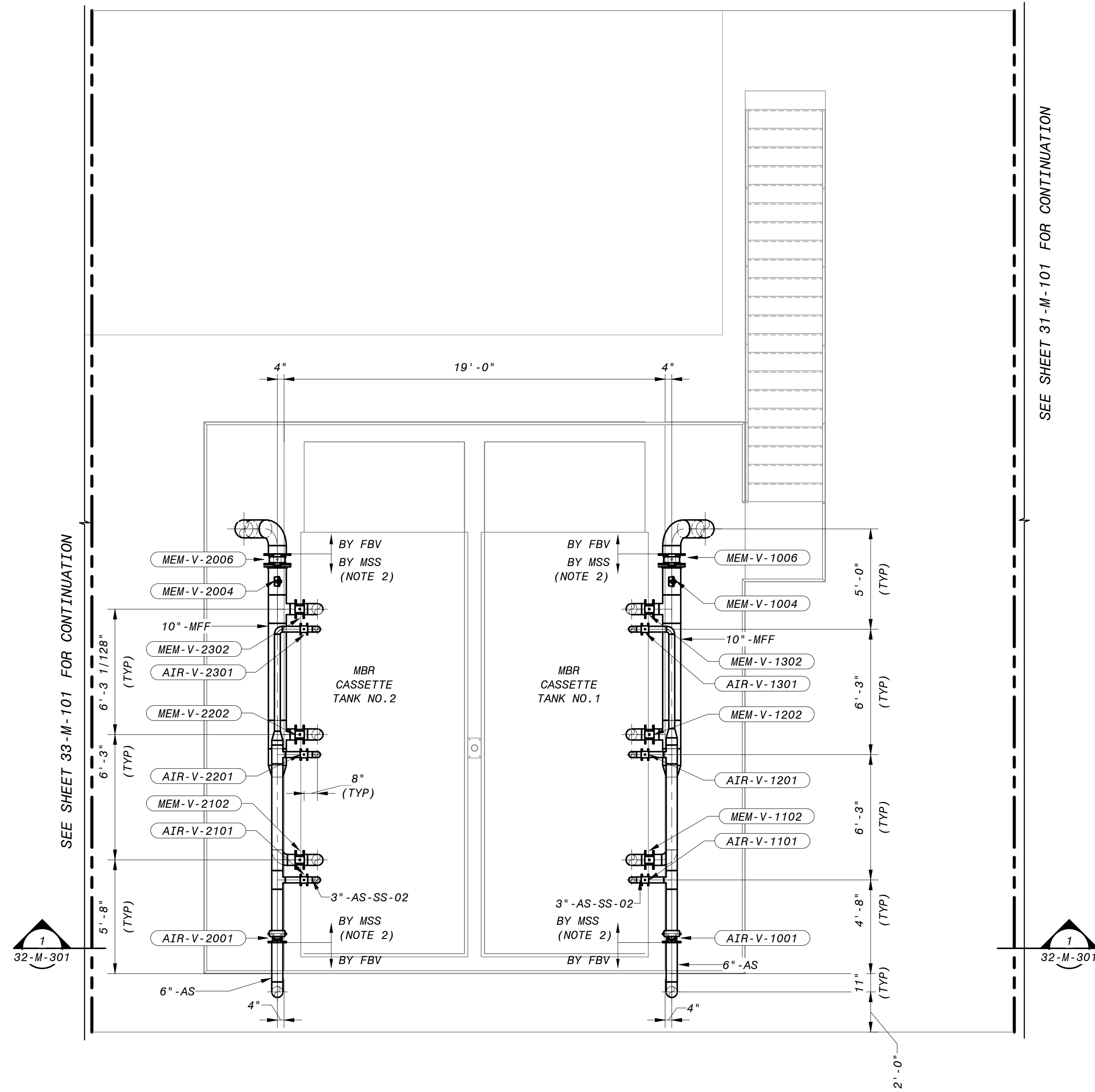
DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
31-M-301
SHEET
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D:\00530

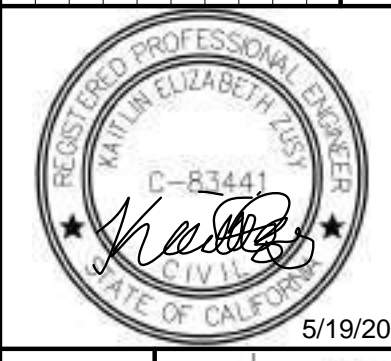
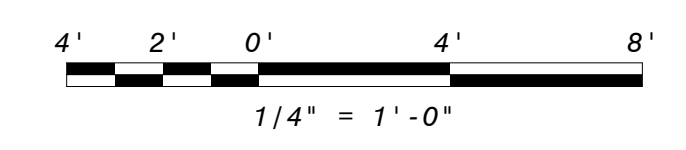


1 MBR SYSTEM - UPPER LEVEL PLAN
31-M-301 1/4" = 1'-0"

SEE SHEET 31-M-101 FOR CONTINUATION

SEE SHEET 33-M-101 FOR CONTINUATION

- NOTES:
1. INFLUENT MANIFOLD AND PIPING PROVIDED BY MBR SYSTEM SUPPLIER.
 2. FILTRATE PIPING AND AERATION HEADERS AND BRANCHES PROVIDED BY MBR SYSTEM SUPPLIER.
 3. ALL BLOWER AIR PIPING SHALL BE INSULATED IF IT IS WITH 8 FEET OF FINISHED FLOOR OR ACCESS WALKWAYS.



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FILANC **BLACK & VEATCH**

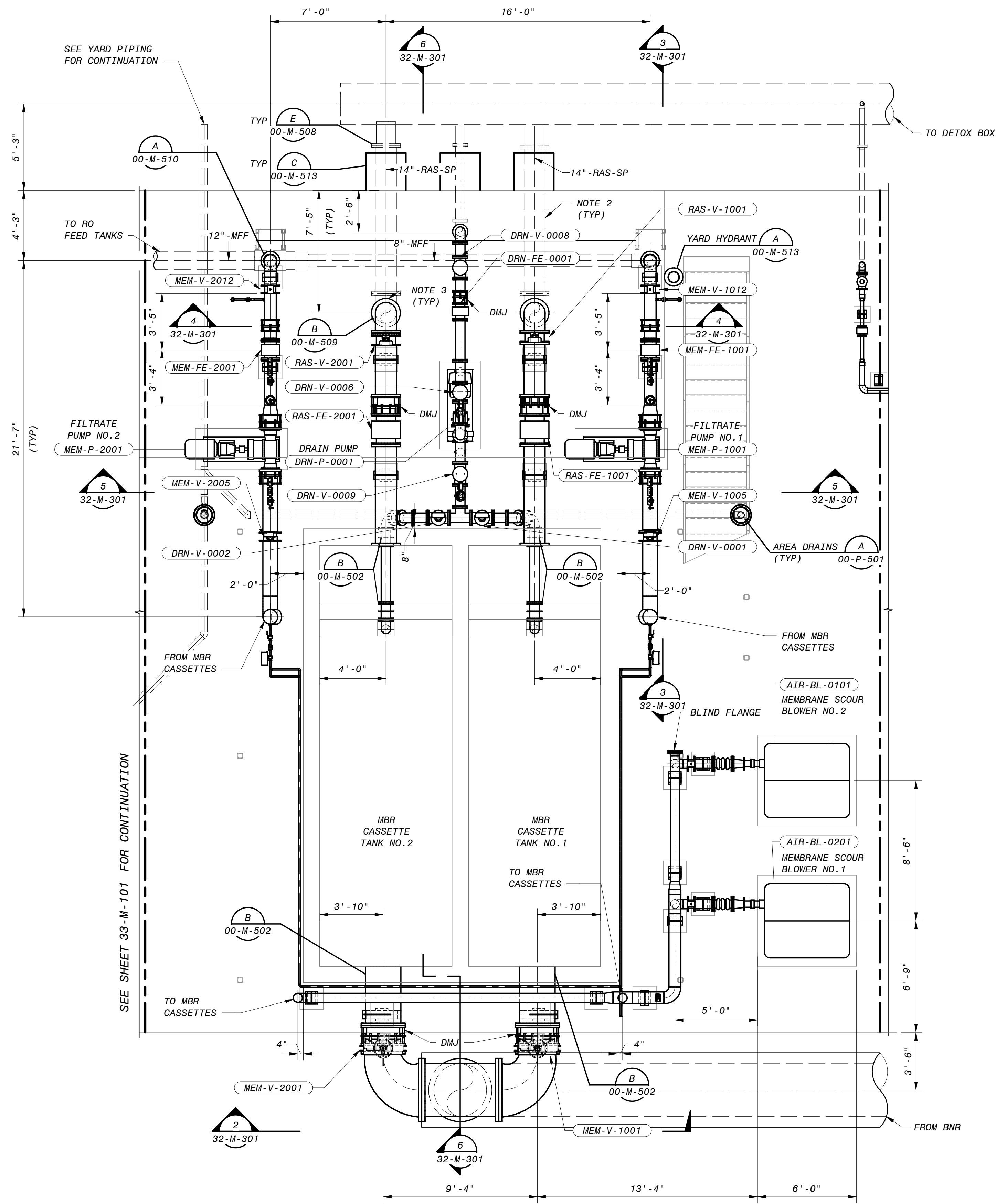
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
TREATMENT AREA - MBR SYSTEM
CIVIL - MECHANICAL
UPPER LEVEL PLAN

DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

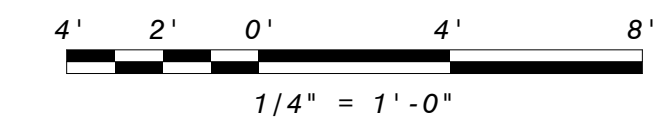
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
32-M-101
SHEET
52 OF 412

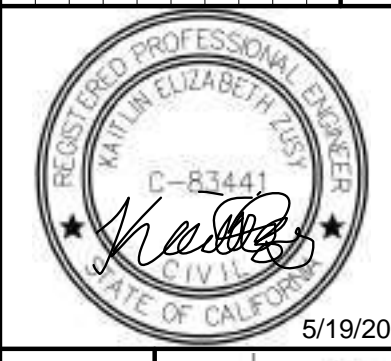
NO.	BY	CHK APP
0	KEZ	RWE EVB
DATE		
5/19/2020		
ISSUED FOR CONSTRUCTION		
REVISONS AND RECORD OF USE		



MBR SYSTEM - LOWER LEVEL PLAN
 30-M-101 1/4" = 1'-0"



- NOTES:
1. VALVES, INSTRUMENTS AND FLOW METERS PROVIDED BY MBR SYSTEM SUPPLIER AS INDICATED ON P&ID DRAWINGS.
 2. CONCRETE ENCASE UNDER SLAB PIPING.
 3. PROVIDE INSULATING KIT AT FIRST FLANGE ABOVE GRADE ON METALLIC PIPING.
 4. PIPING AND AERATION CONNECTIONS PROVIDED BY MBR SYSTEM SUPPLIER.
 5. FOR ALL OUTDOOR AREA DRAINS, IT IS ASSUMED THESE WILL BE COVERED WITH MATS DURING RAIN STORMS. THE PLANT SEWER SYSTEM IS NOT DESIGNED TO HANDLE RAIN FLOW.
 6. ALL BLOWER AIR PIPING SHALL BE INSULATED IF IT IS 8 FEET OR LESS ABOVE FINISHED FLOOR OR ACCESS WALKWAYS.



BLACK & VEATCH
 JOINT VENTURE
 FILANC

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 TREATMENT AREA - MBR SYSTEM
 CIVIL - MECHANICAL
 LOWER LEVEL PLAN

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

PROJECT NO.
 400530

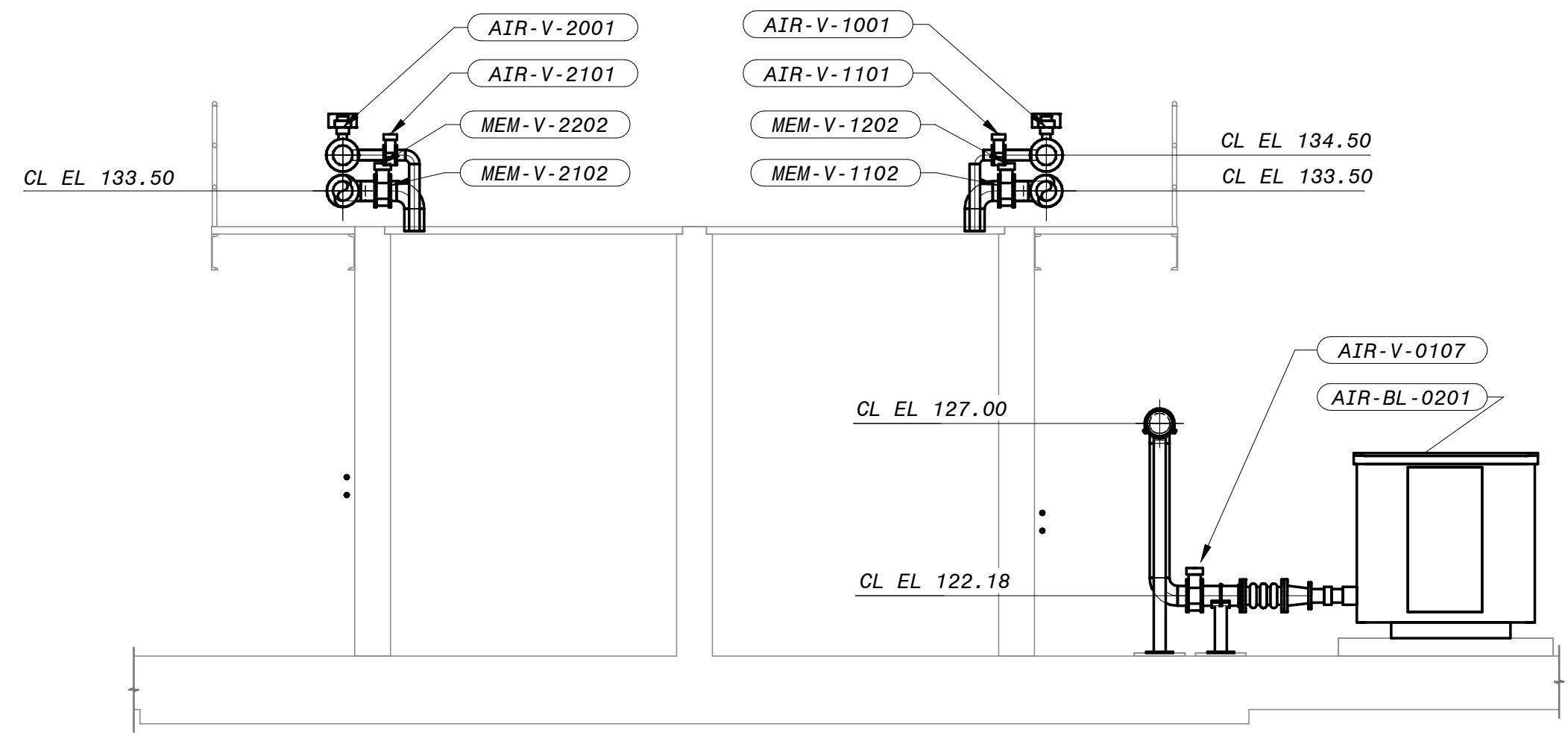
32-M-102
 SHEET
 53 OF 412

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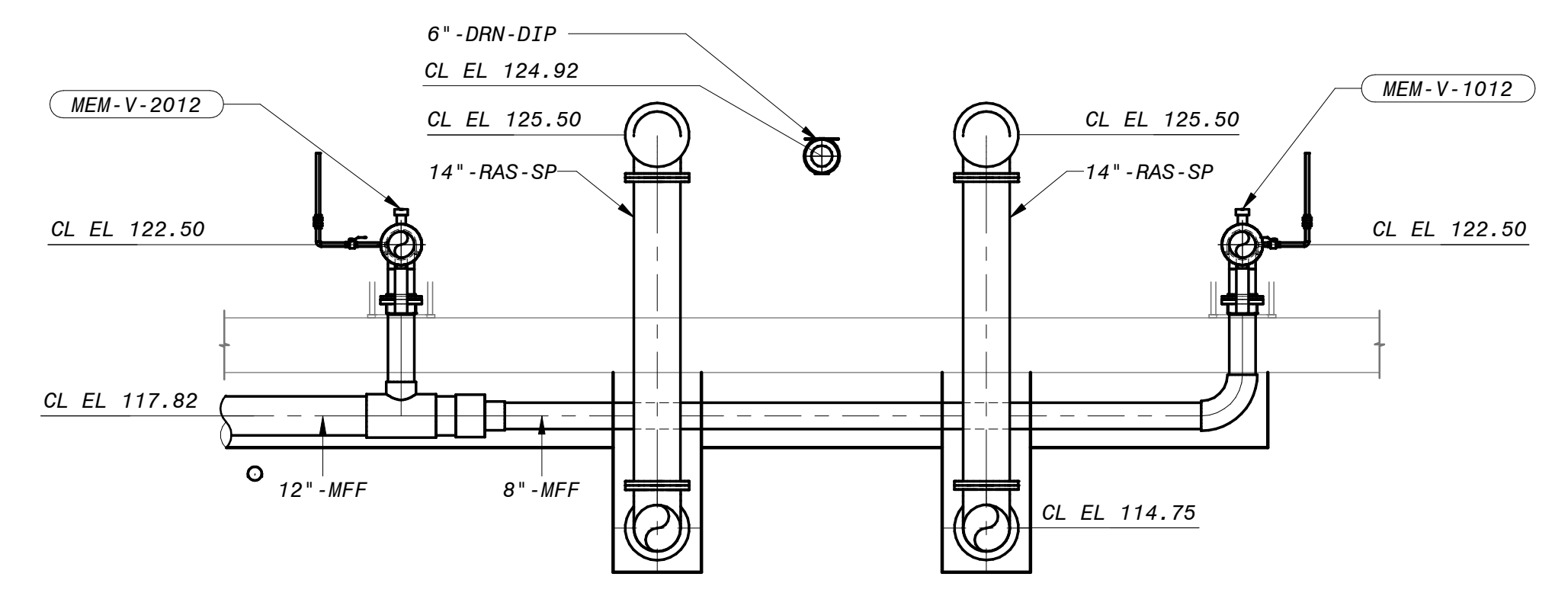
NO.	BY	CHK	APP
0	KEZ	RWE	EVB
DATE			
5/19/2020			
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			

NOTES:

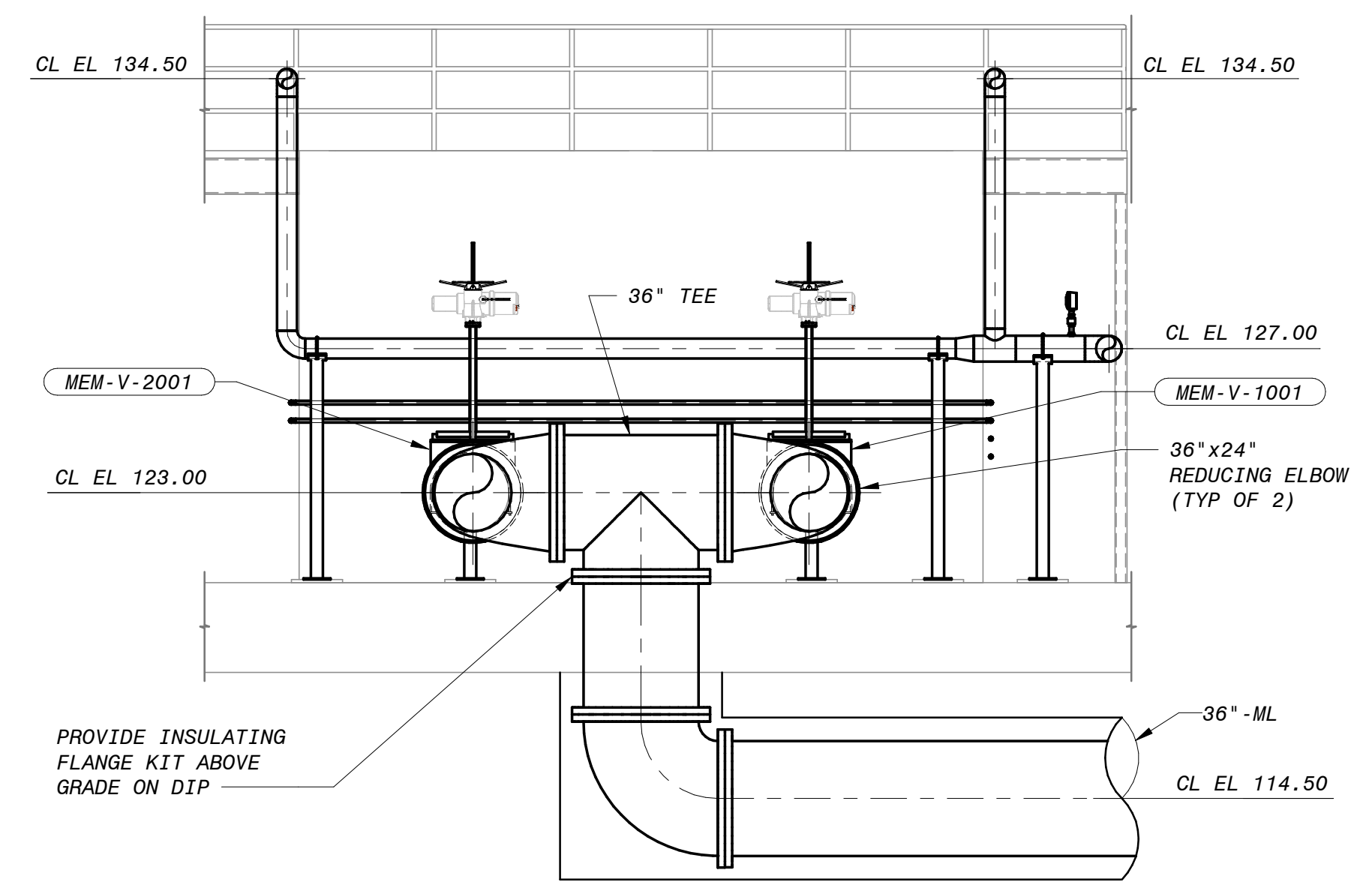
- ALL BLOWER AIR PIPING SHALL BE INSULATED IF IT IS 8 FEET OR LESS ABOVE FINISHED FLOOR OR ACCESS WALKWAYS.



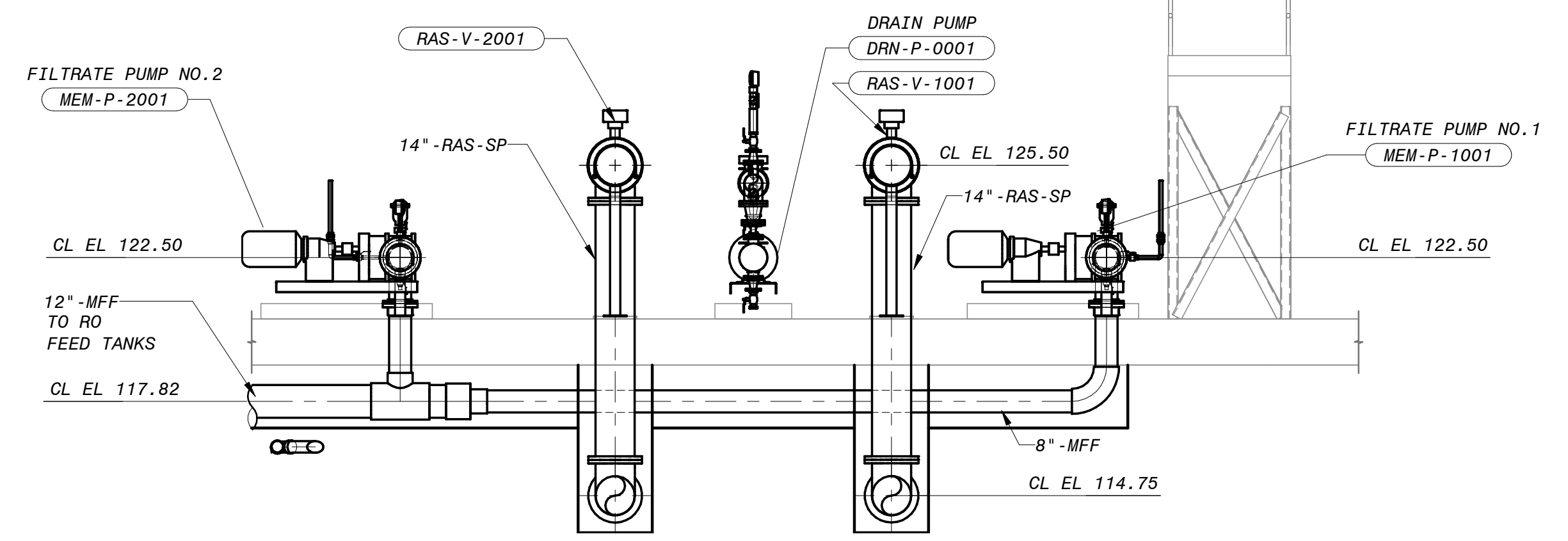
SECTION 1
32-M-101 1/4" = 1'-0"



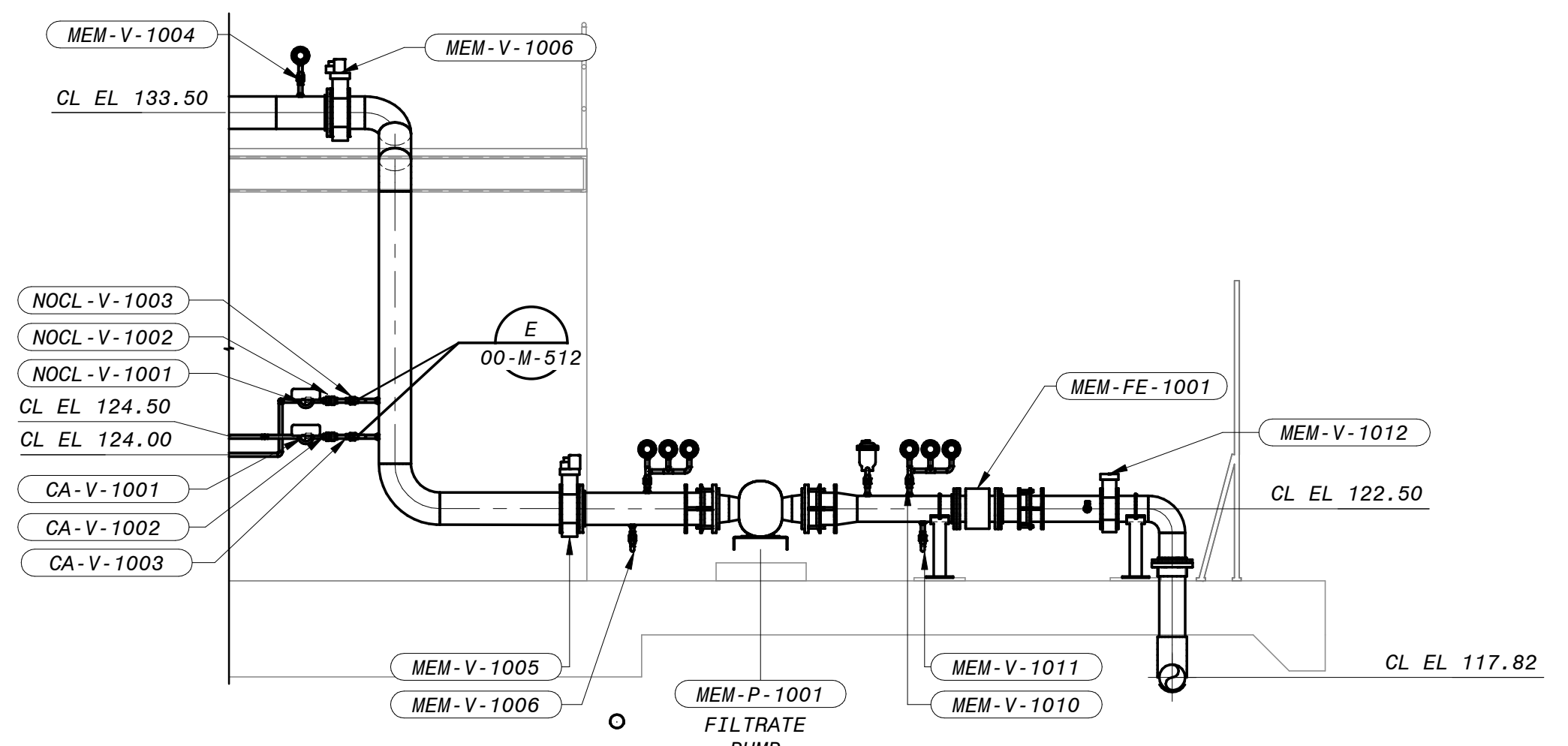
SECTION 4
32-M-102 1/4" = 1'-0"



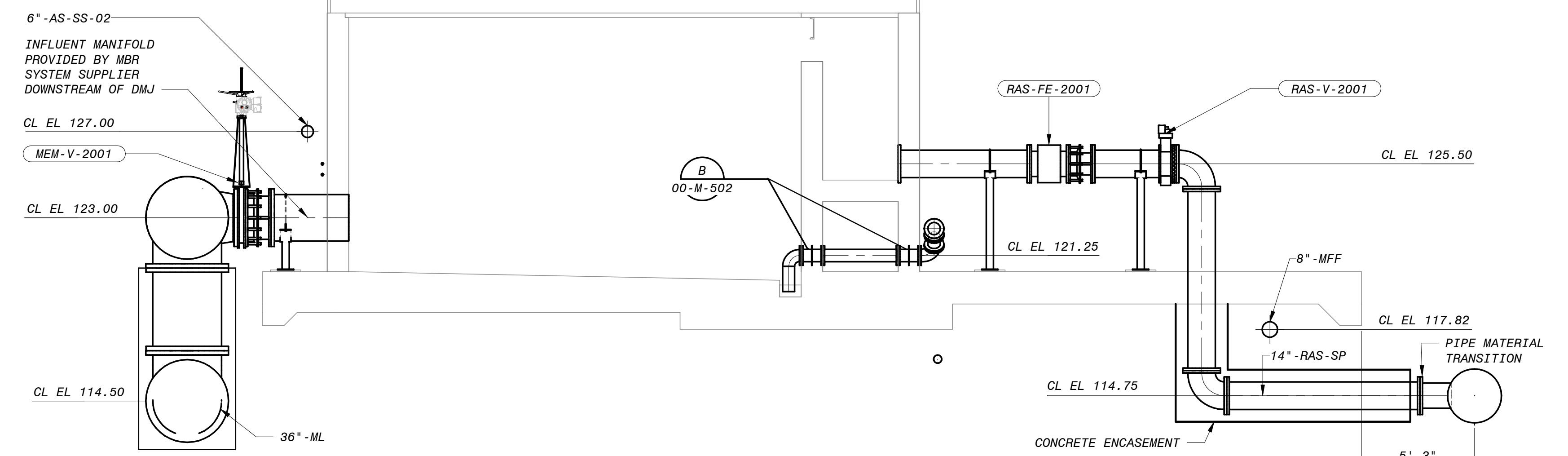
SECTION 2
32-M-102 1/4" = 1'-0"



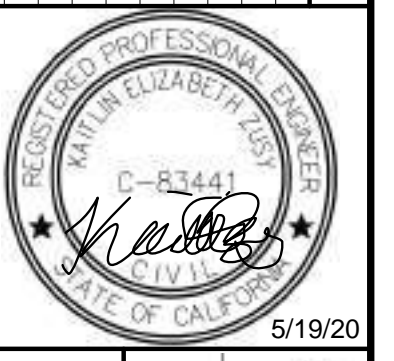
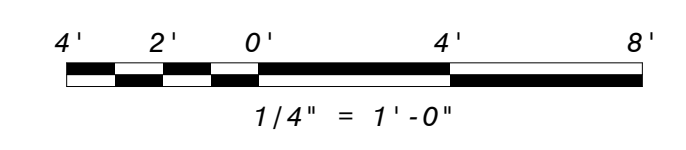
SECTION 5
32-M-102 1/4" = 1'-0"



SECTION 3
32-M-102 1/4" = 1'-0"



SECTION 6
32-M-102 1/4" = 1'-0"



BLACK & VEATCH
JOINT VENTURE
FILANC

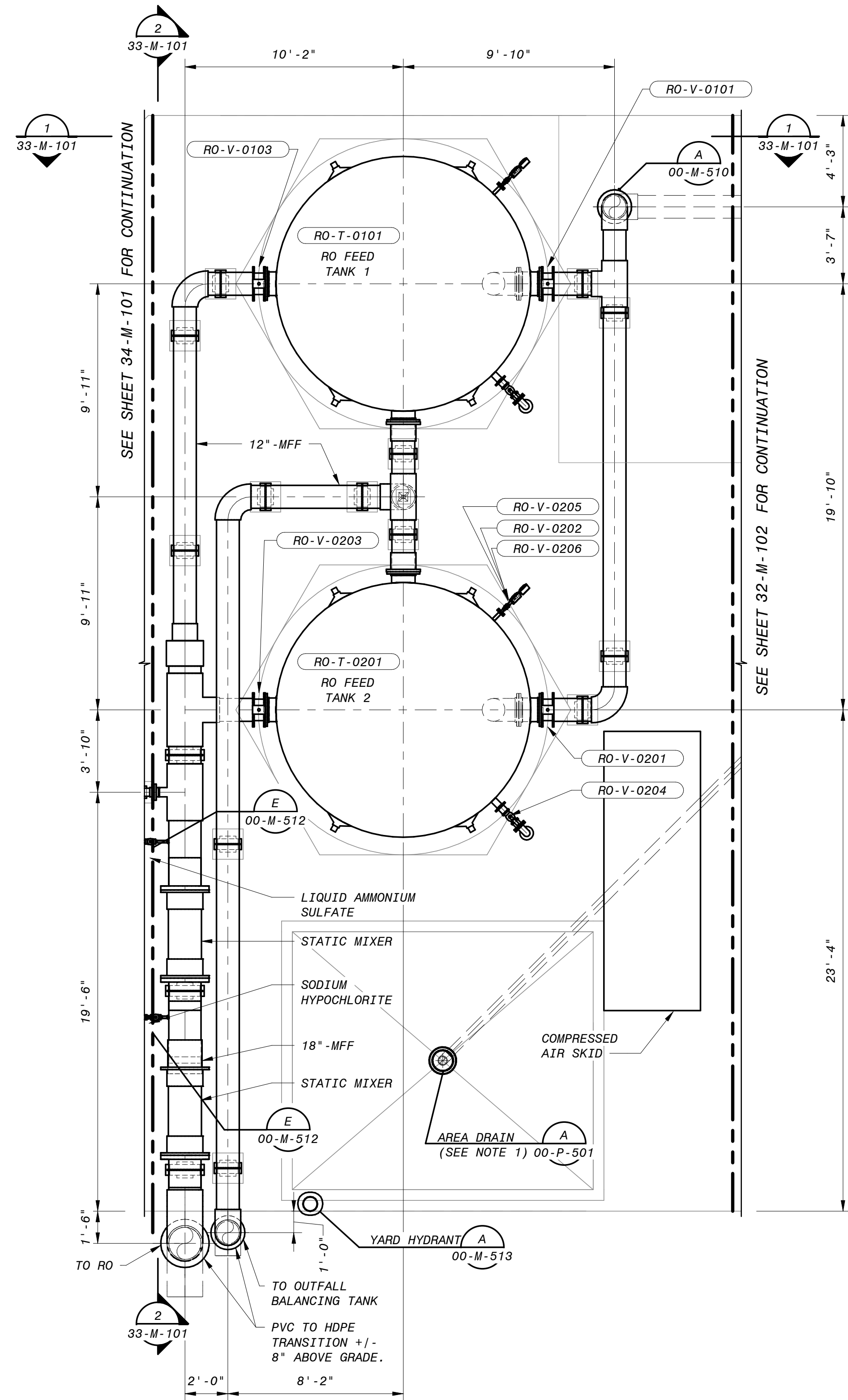
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
TREATMENT AREA - MBR SYSTEM
CIVIL - MECHANICAL
SECTION

DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

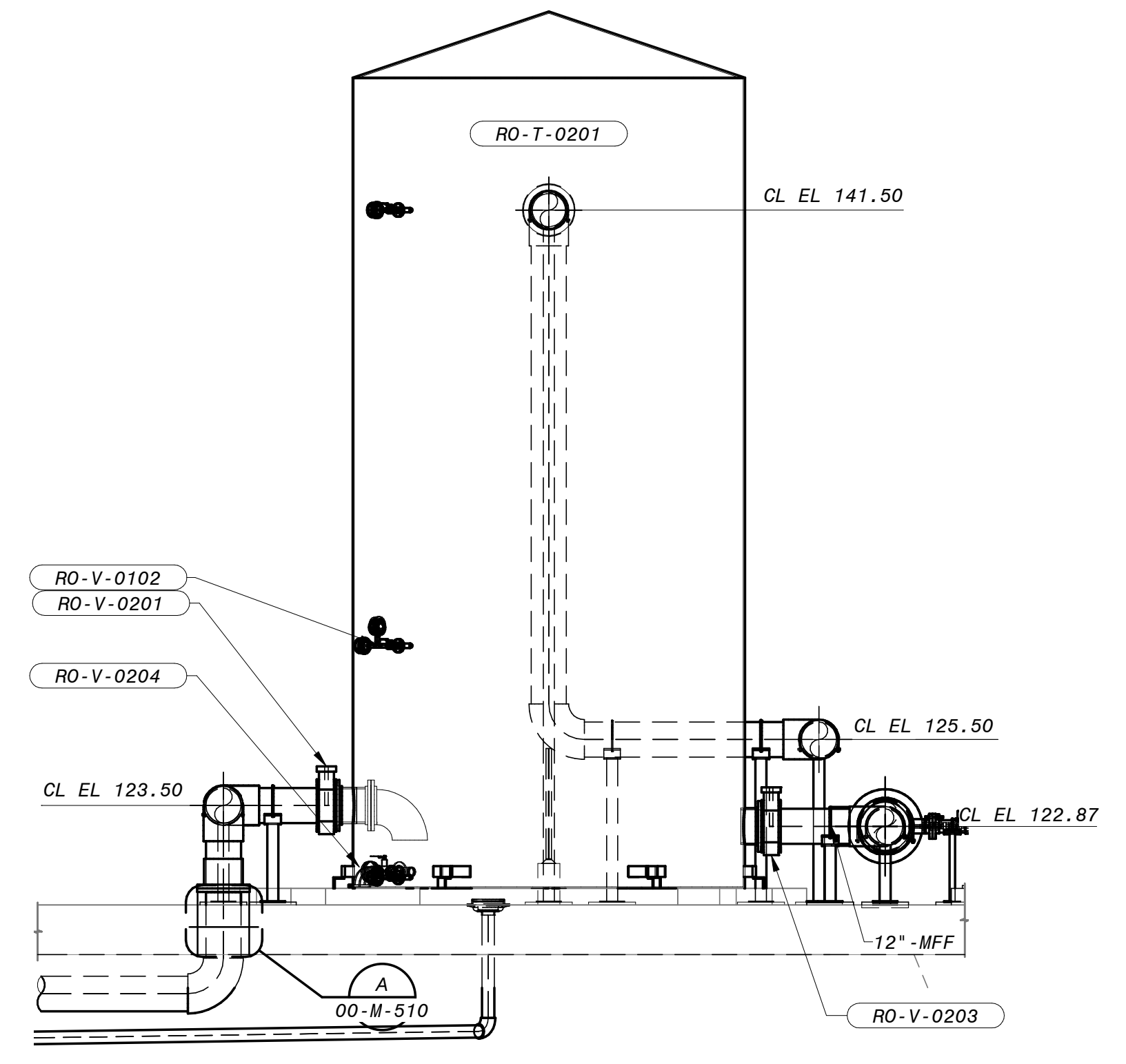
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
32-M-301
SHEET
54 OF 412

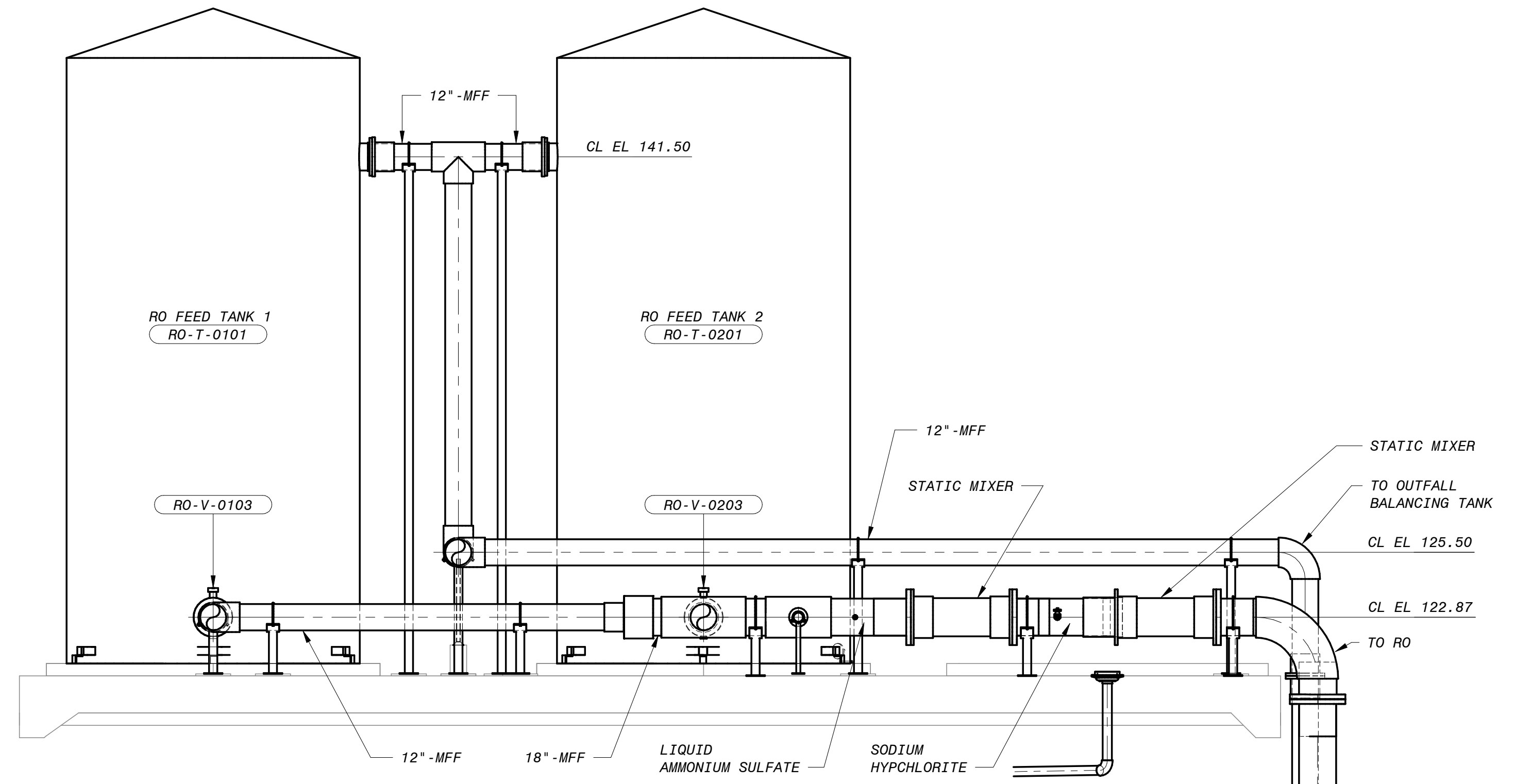
PLOTTED: 5/19/2020 2:41:18 PM



RO FEED TANKS - OPERATING LEVEL PLAN
 30-M-101 1/4" = 1'-0"

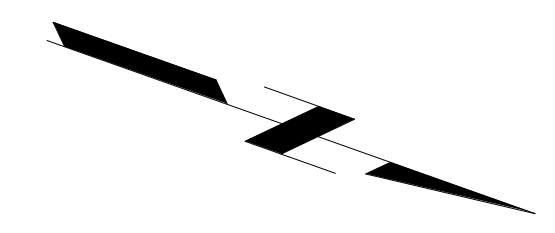


SECTION 1
 33-M-101 1/4" = 1'-0"

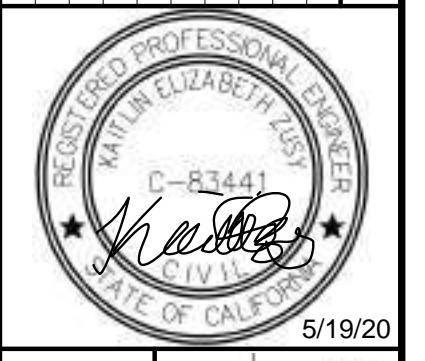


SECTION 2
 33-M-101 1/4" = 1'-0"

NOTES:
 1. FOR ALL OUTDOOR AREA DRAINS, IT IS ASSUMED THESE WILL BE COVERED WITH MATS DURING RAIN STORMS. THE PLANT SEWER SYSTEM IS NOT DESIGNED TO HANDLE RAIN FLOW.



0	KEZ	RWE	EVB
5/19/2020	ISSUED FOR CONSTRUCTION		
		REVISONS AND RECORD OF USE	
		DATE	



BLACK & VEATCH
 JOINT VENTURE
FILANC **BLACK & VEATCH**

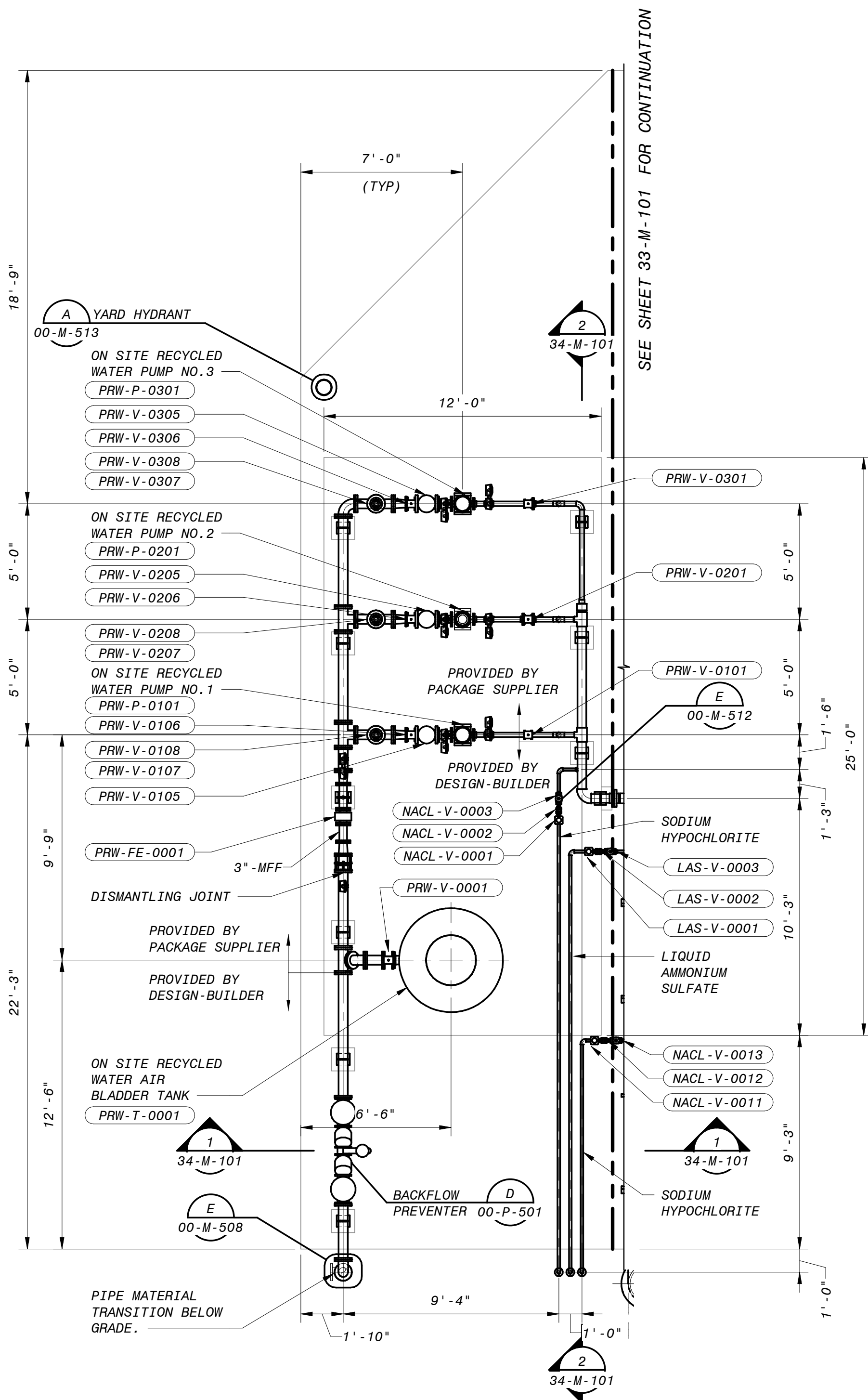
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 TREATMENT AREA - RO FEED TANKS
 CIVIL - MECHANICAL
 OPERATING LEVEL PLAN AND SECTIONS

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

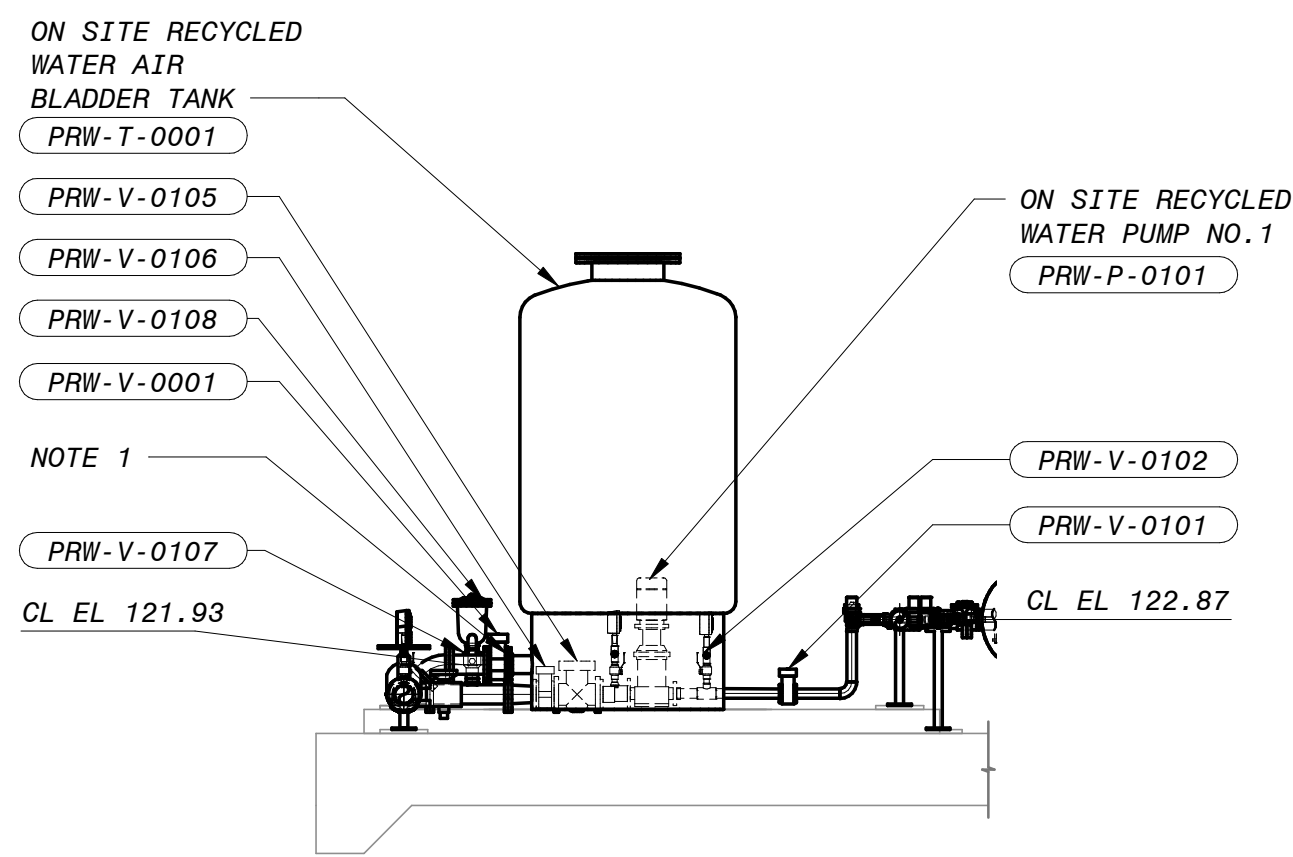
0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
33-M-101
 SHEET
 55 OF 412

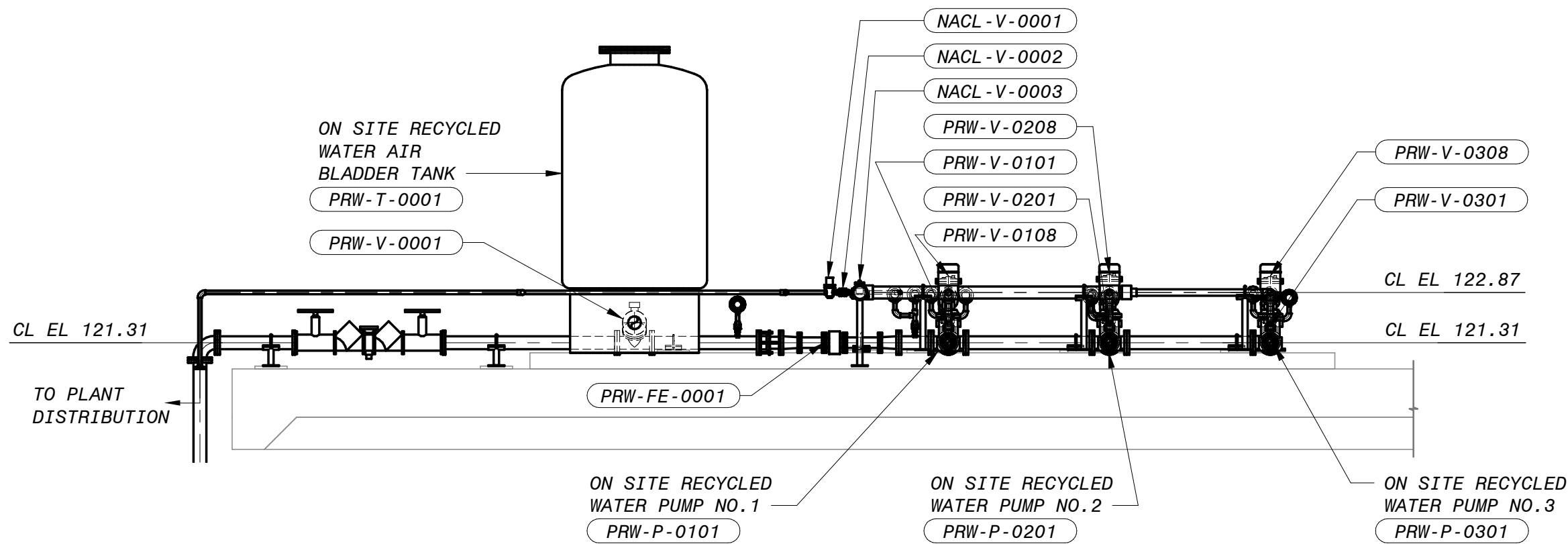
PLOTTED: 5/19/2020 2:41:21 PM
 0400530



RECYCLED WATER PUMP STATION - OPERATING LEVEL PLAN
 30-M-101 1/4" = 1'-0"

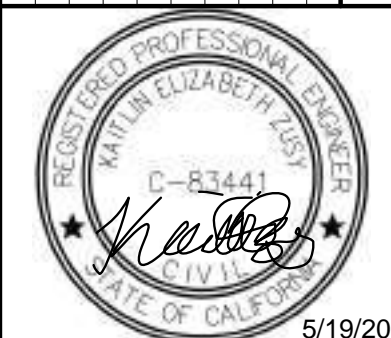


SECTION 1
 34-M-101 1/4" = 1'-0"



SECTION 2
 34-M-101 1/4" = 1'-0"

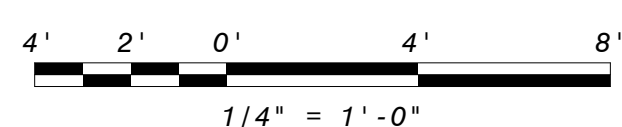
NOTES:
 1. RECYCLED WATER PUMPS AND AIR BLADDER TANK WILL BE PROVIDED BY A SINGLE SUPPLIER. EQUIPMENT ELEVATIONS AND DIMENSIONS WILL BE DEPENDENT ON THE SELECTED SUPPLIER'S PACKAGE. THE DIMENSIONS SHOW THE AVAILABLE SPACE FOR THE PACKAGED PUMP STATION.



BLACK & VEATCH
 JOINT VENTURE
FILANC
 BLACK & VEATCH

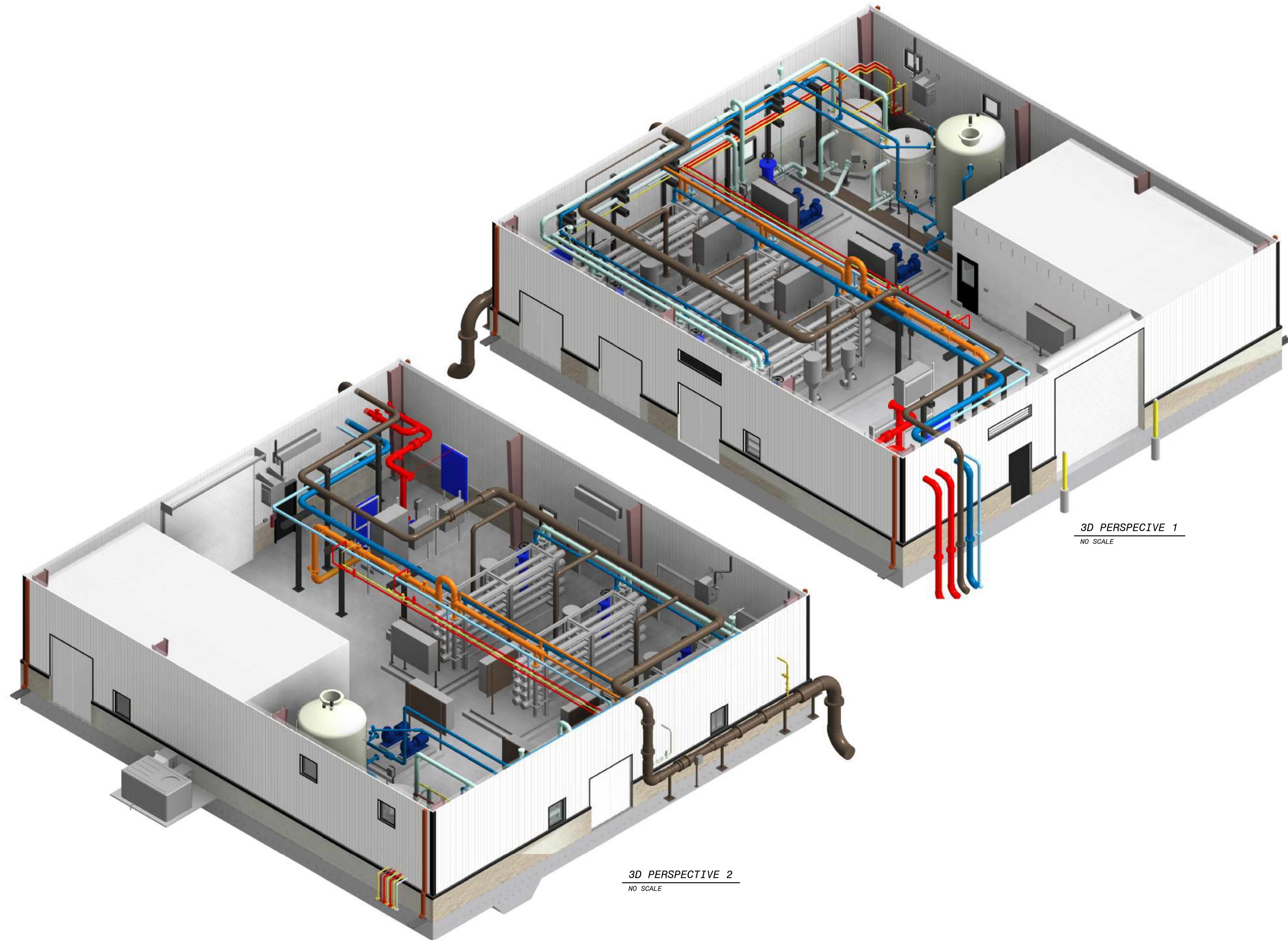
CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
 TREATMENT AREA - RECYCLED WATER PUMP STATION
 CIVIL - MECHANICAL
 OPERATING LEVEL PLAN AND SECTIONS

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020



PROJECT NO.
400530
34-M-101
 SHEET
 56 OF 412

PLOTTED: 5/19/2020 2:41:25 PM
 0400530



3D PERSPECTIVE 1
NO SCALE

3D PERSPECTIVE 2
NO SCALE

PLOTTED: 5/19/2020 8:13:44 AM
 D:\00530



BLACK & VEATCH
 JOINT VENTURE
FILANC

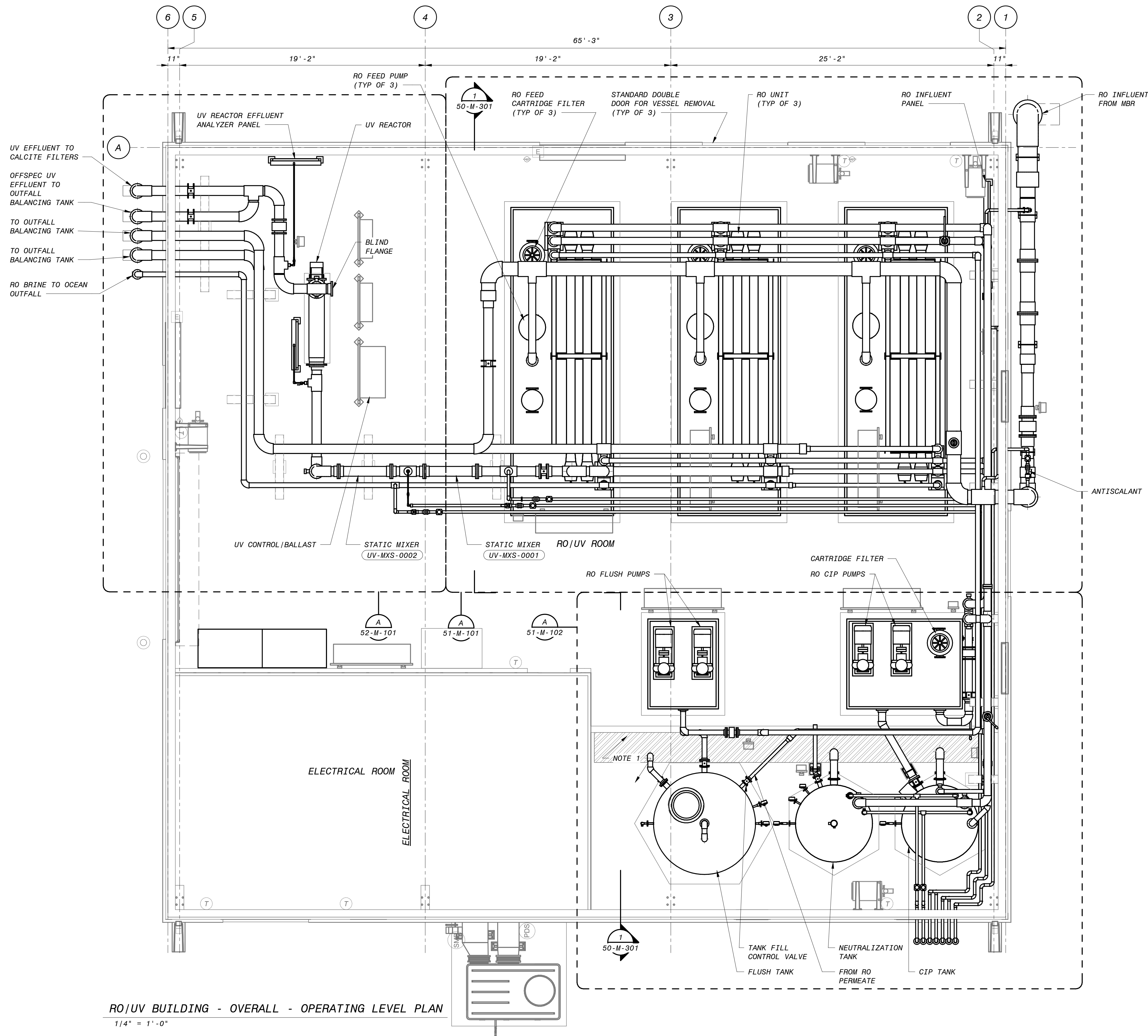
CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 RO/UV BUILDING - OVERALL
 CIVIL - MECHANICAL
 3D VIEWS

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

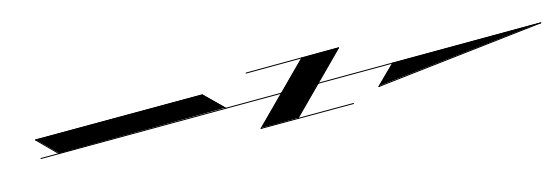
0 1/2 1
 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

PROJECT NO.
 400530
50-M-001
 SHEET
 57 OF 412

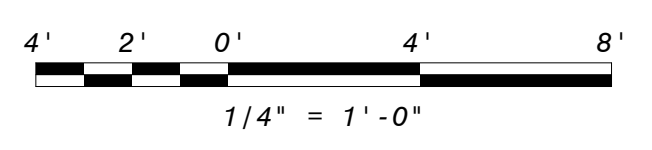
NO.	DATE	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE
0	5/19/2020	KEZ	RWB, EVB
			BY CHK APP



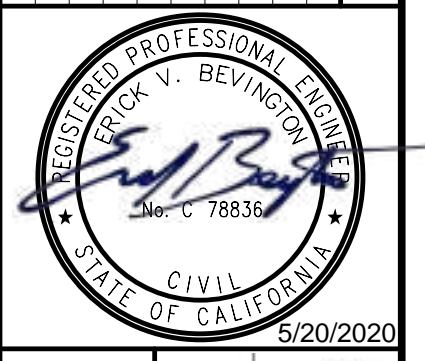
NOTES:
 1. TANK CONTAINMENT AREA TO BE COATED PER THE REQUIREMENTS OF SPECIFICATION 099724.



RO/UV BUILDING - OVERALL - OPERATING LEVEL PLAN
 1/4" = 1'-0"



0	KEZ	RWE	EVB
NO.	BY	CHK	APP
5/19/2020 ISSUED FOR CONSTRUCTION			
DATE REVISIONS AND RECORD OF USE			



BLACK & VEATCH
 JOINT VENTURE
FILANC BLACK & VEATCH

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 RO/UV BUILDING - OVERALL
 CIVIL-MECHANICAL
 OPERATING LEVEL PLAN

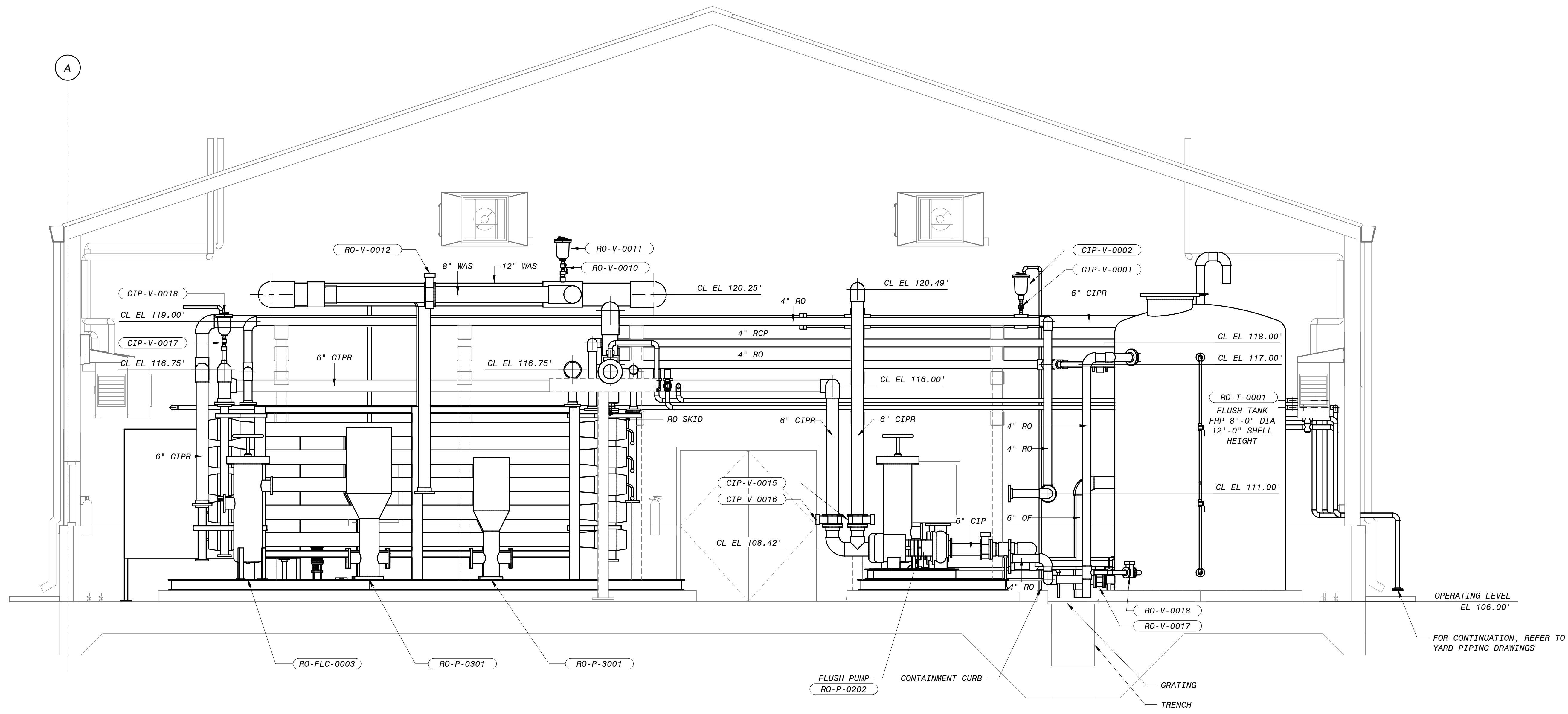
DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

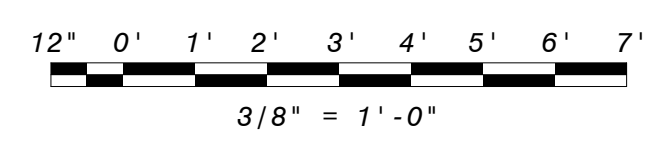
PROJECT NO.
 400530
 SHEET
 58 OF 412

PLOTTED: 5/19/2020 8:17:52 AM
 0400530

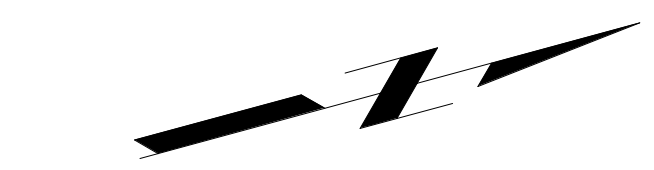
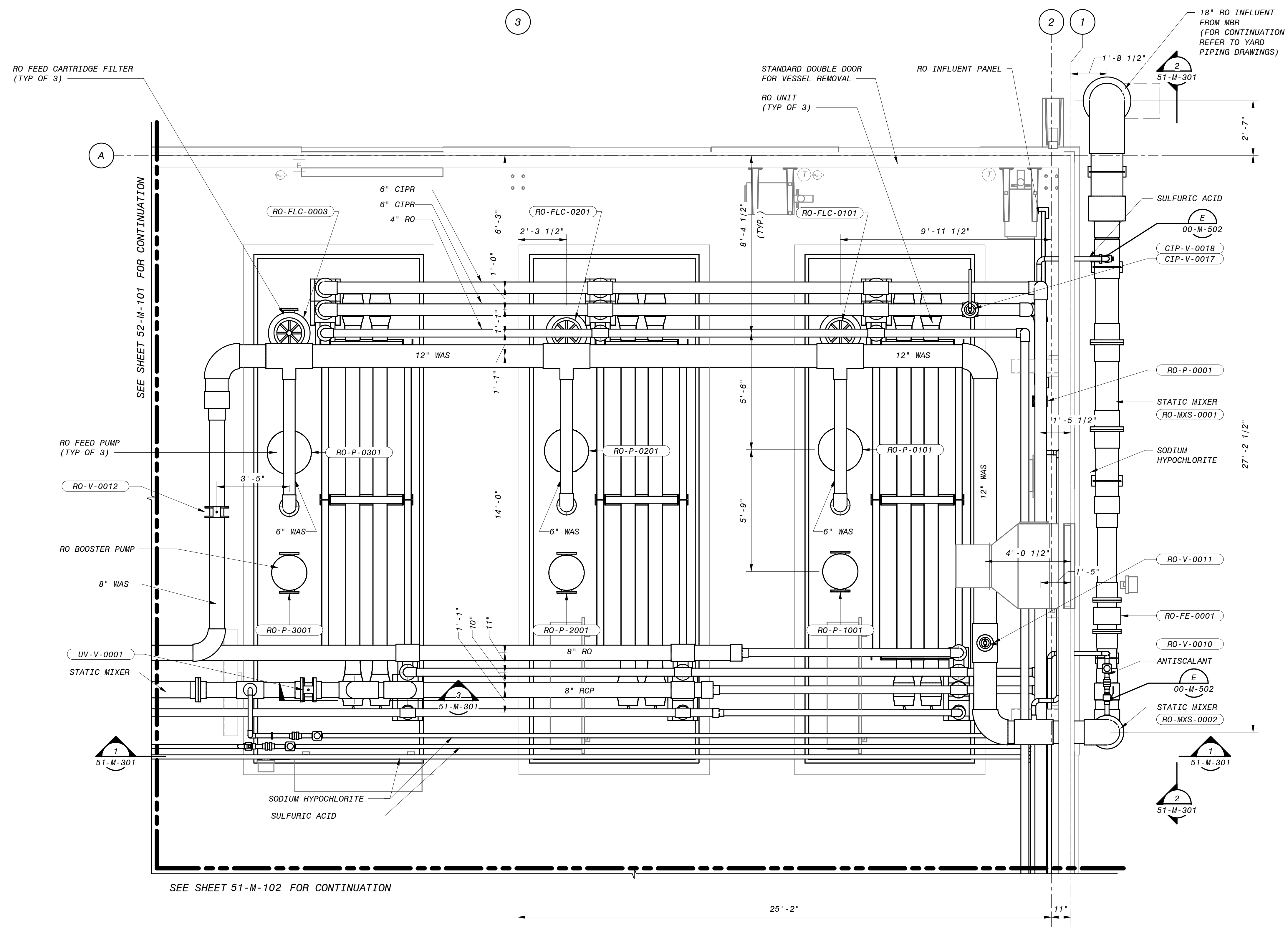
PLOTTED: 5/19/2020 8:13:55 AM
 D:\0050



SECTION
 50-M-101 3/8" = 1'-0"



<p> CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) RO/UV BUILDING - OVERALL CIVIL-MECHANICAL SECTION </p>	<p> BLACK & VEATCH JOINT VENTURE FILANC BLACK & VEATCH </p>
<p> DESIGNED: KEZ, EVB DETAILED: MAK CHECKED: EVB APPROVED: EVB DATE: 5/19/2020 </p>	<p> REGISTERED PROFESSIONAL ENGINEER ERICK V. BEVINGSON No. C 78836 CIVIL STATE OF CALIFORNIA 5/20/2020 </p>
<p> PROJECT NO. 400530 50-M-301 SHEET 59 OF 412 </p>	

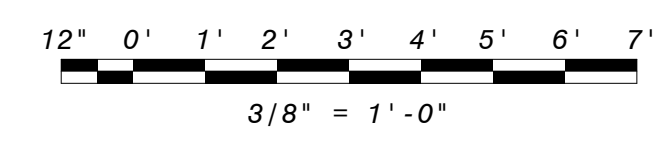


NOTES:
 1. RO CONFIGURATION AND CONNECTION LOCATIONS TO BE FINALIZED WHEN EQUIPMENT SELECTED.

SEE SHEET 52-M-101 FOR CONTINUATION

SEE SHEET 51-M-102 FOR CONTINUATION

A RO SYSTEM - MEMBRANE RACKS PLAN
 50-M-101 3/8" = 1'-0"



DESIGNED: KEZ, EVB	0	KEZ	RMB	EVB
DETAILED: RMB	1	KEZ	RMB	EVB
CHECKED: EVB	2	KEZ	RMB	EVB
APPROVED: EVB	3	KEZ	RMB	EVB
DATE: 5/19/2020	4	KEZ	RMB	EVB
ISSUED FOR CONSTRUCTION	5	KEZ	RMB	EVB
REVISIONS AND RECORD OF USE	6	KEZ	RMB	EVB
NO. BY	7	KEZ	RMB	EVB
DATE	8	KEZ	RMB	EVB

REGISTERED PROFESSIONAL ENGINEER
 BRUCK V. BEVINGSON
 No. C 78836
 CIVIL
 STATE OF CALIFORNIA
 5/20/2020

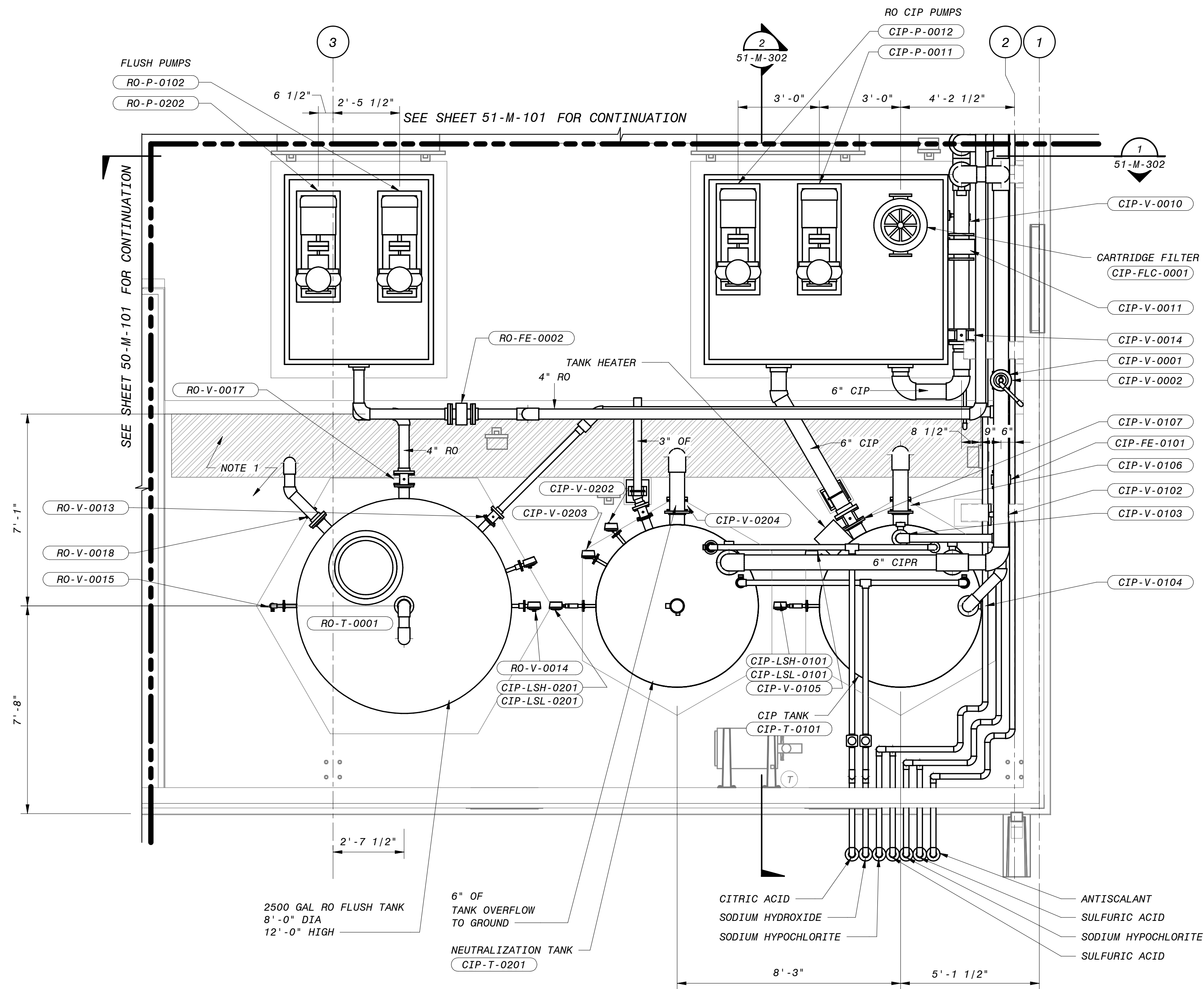
BLACK & VEATCH
 JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 RO/UV BUILDING - RO SYSTEM
 CIVIL-MECHANICAL
 MEMBRANE RACKS PLAN

PROJECT NO.
400530

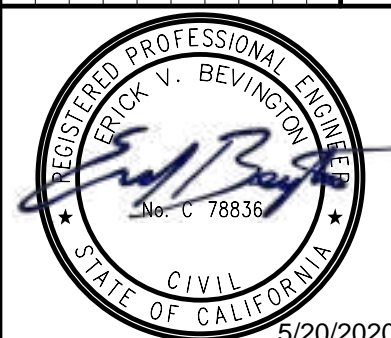
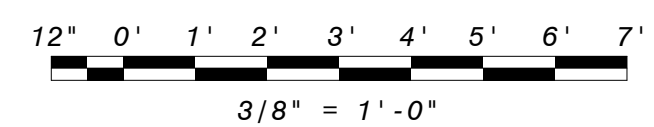
51-M-101
 SHEET
 60 OF 412

PLOTTED: 5/19/2020 8:17:59 AM
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RO SYSTEM - CIP & FLUSH SYSTEMS PLAN
 50-M-101 3/8" = 1'-0"

NOTES:
 1. CIP TANK AREA AND CONTAINMENT TRENCH TO BE COATED PER REQUIREMENTS OF CORROSION PROTECTION SYSTEMS SPECIFICATIONS.



BLACK & VEATCH
 JOINT VENTURE
FILANC BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 RO/UV BUILDING - RO SYSTEM
 CIVIL - MECHANICAL
 CIP & FLUSH SYSTEMS PLAN

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

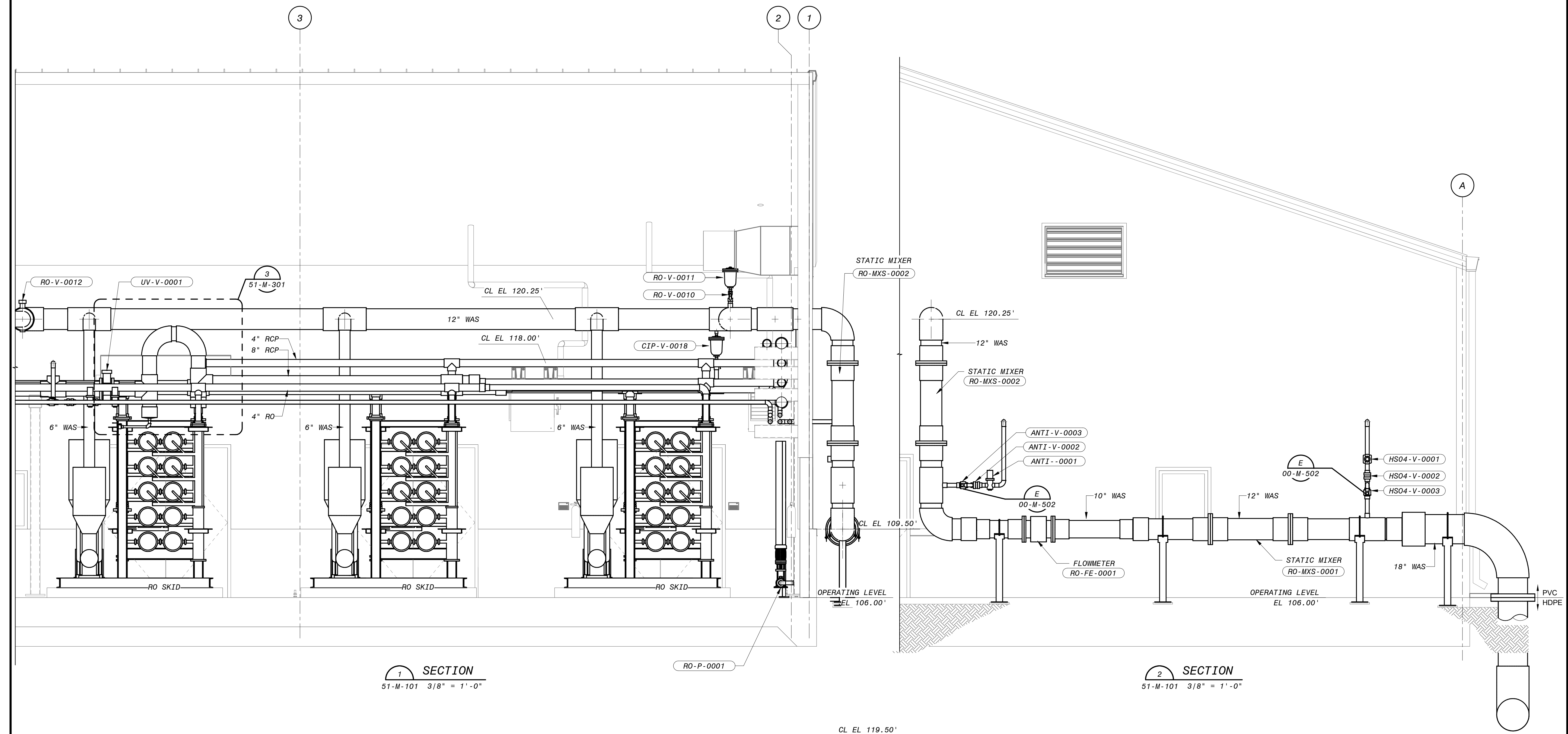
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
51-M-102
 SHEET
 61 OF 412

PLOTTED: 5/19/2020 8:14:03 AM
 D:\00530

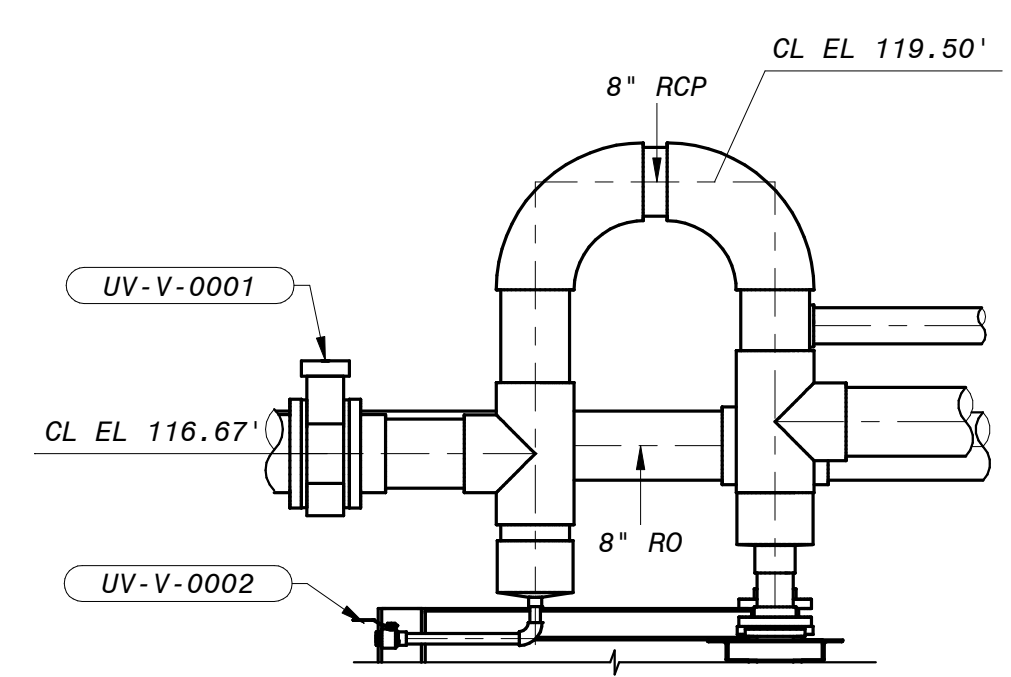
NO.	BY	CHK	APP
0	KEZ	EVB	
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
DATE			
5/19/2020			

NOTES:



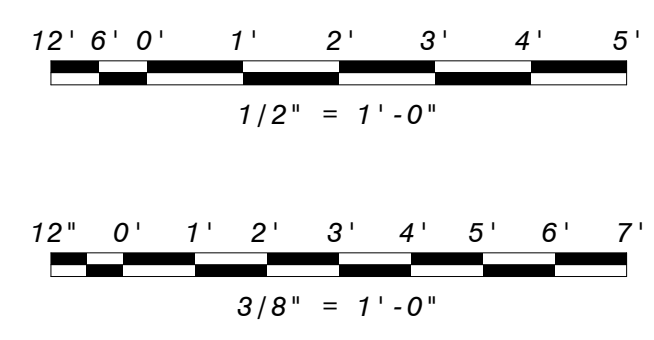
SECTION 1
51-M-101 3/8" = 1'-0"

SECTION 2
51-M-101 3/8" = 1'-0"

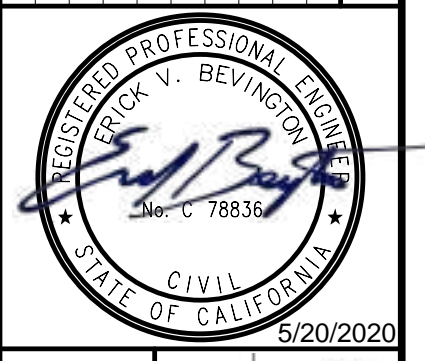


BACKFLOW PREVENTION LOOP

SECTION 3
51-M-101 1/2" = 1'-0"



0	KEZ	RWE	EVB
NO.	BY	CHK	APP
5/19/2020 ISSUED FOR CONSTRUCTION			
DATE			
REVISONS AND RECORD OF USE			



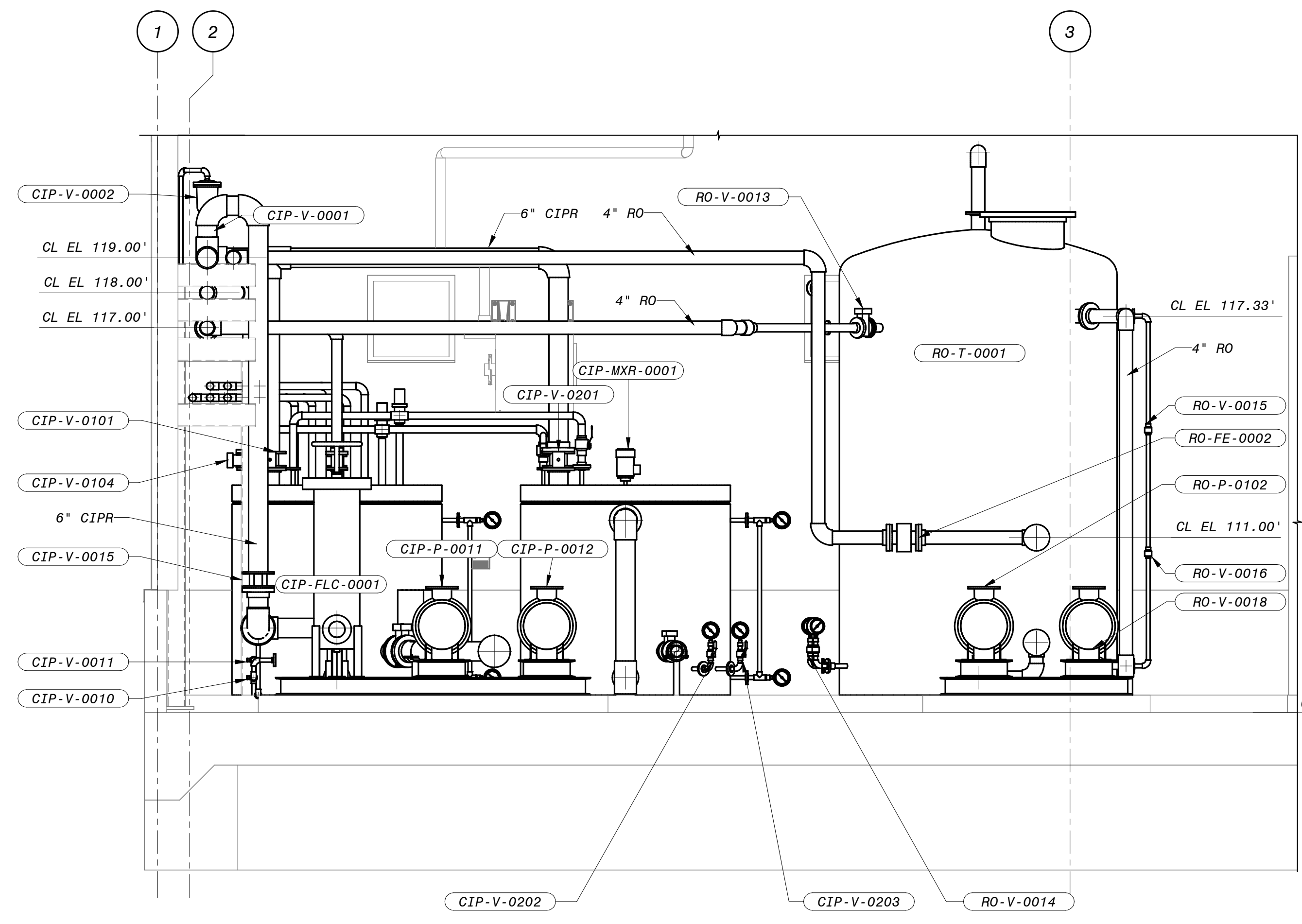
BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
RO-UV BUILDING - RO SYSTEM
CIVIL-MECHANICAL
SECTIONS AND DETAILS 1

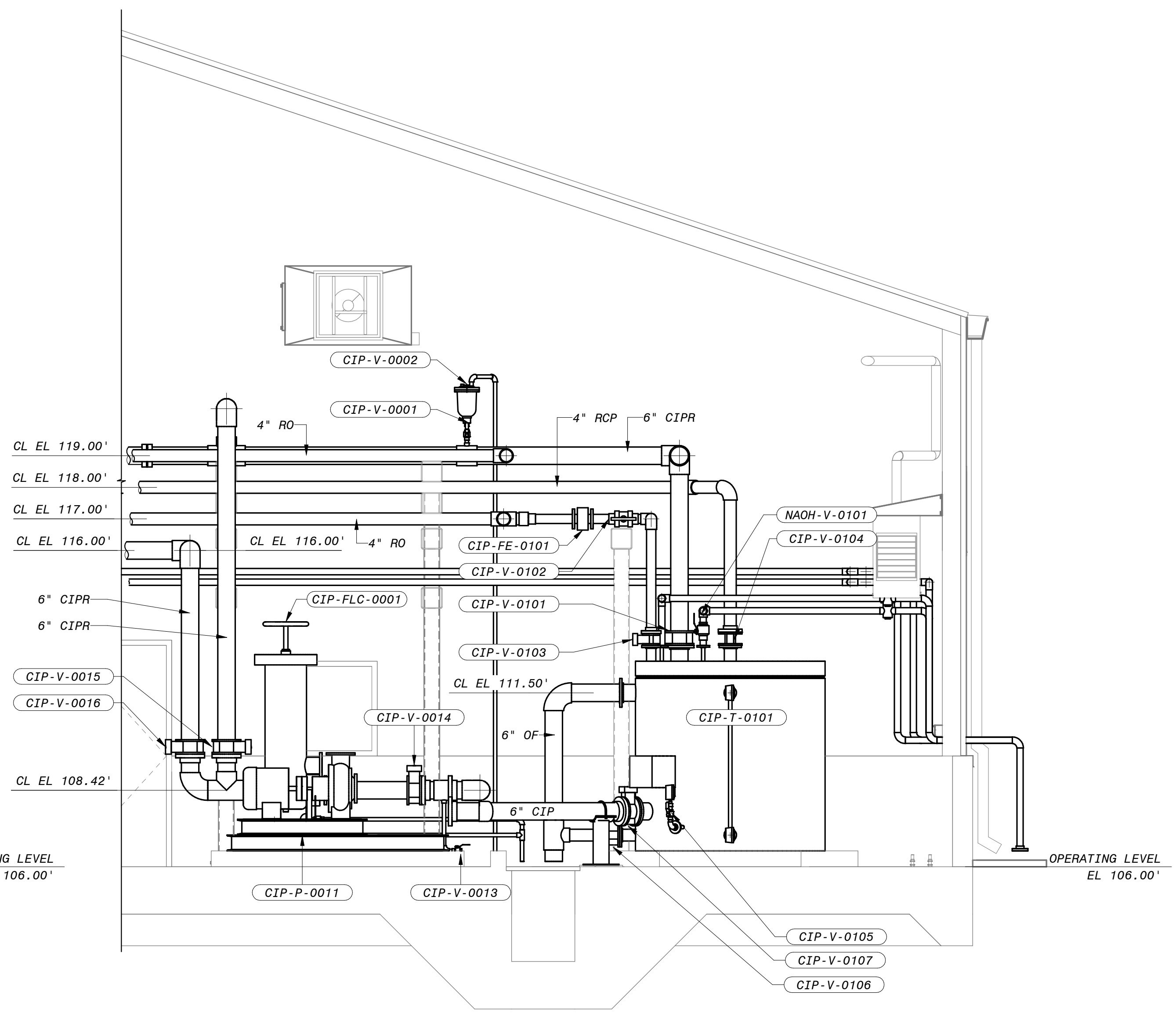
DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020
 PROJECT NO. 400530
51-M-301
 SHEET 62 OF 412

PLOTTED: 5/19/2020 8:14:07 AM D:\0650

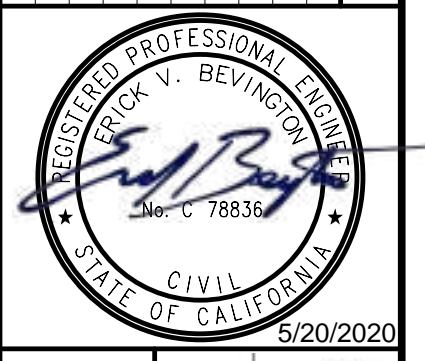
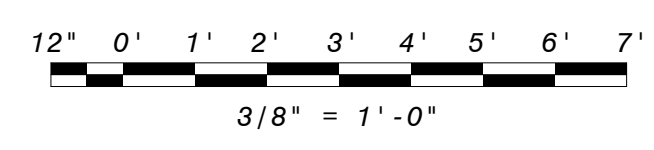
NOTES:



SECTION
 1
 51-M-102 3/8" = 1'-0"



SECTION
 2
 51-M-102 3/8" = 1'-0"



BLACK & VEATCH
 JOINT VENTURE
 FILANC
 BLACK & VEATCH

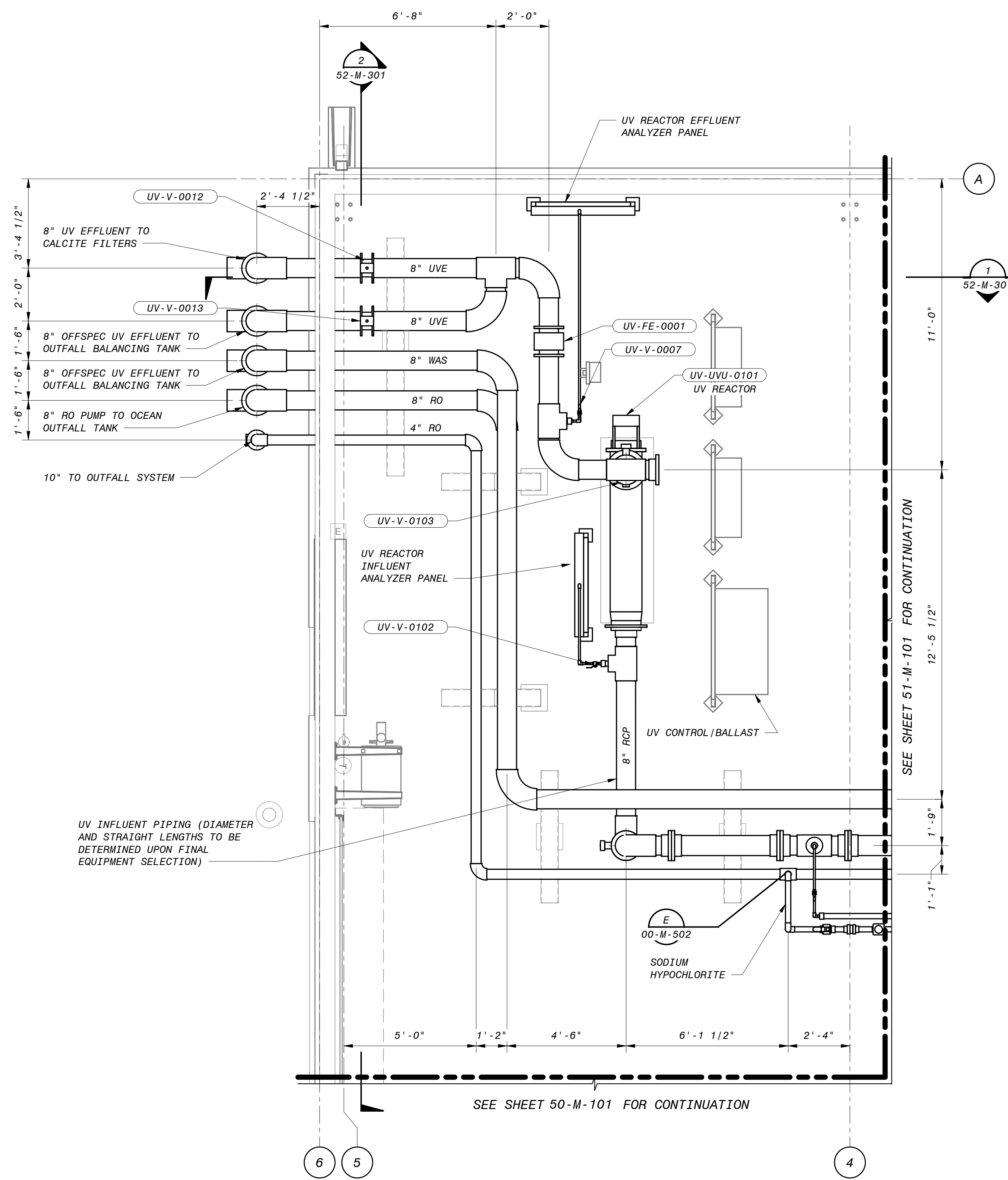
CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 RO/UV BUILDING - RO SYSTEM
 CIVIL-MECHANICAL
 SECTIONS AND DETAILS 2

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

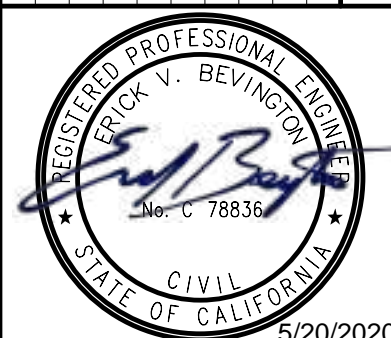
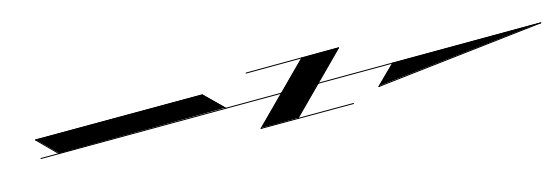
IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

PROJECT NO.
 400530
 51-M-302
 SHEET
 63 OF 412

PLOTTED: 5/19/2020 8:14:11 AM
 D:\00530



NOTES:



5/20/2020
BLACK & VEATCH
 JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 RO/UV BUILDING - UV SYSTEM
 CIVIL-MECHANICAL
 REACTOR SYSTEM PLAN

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

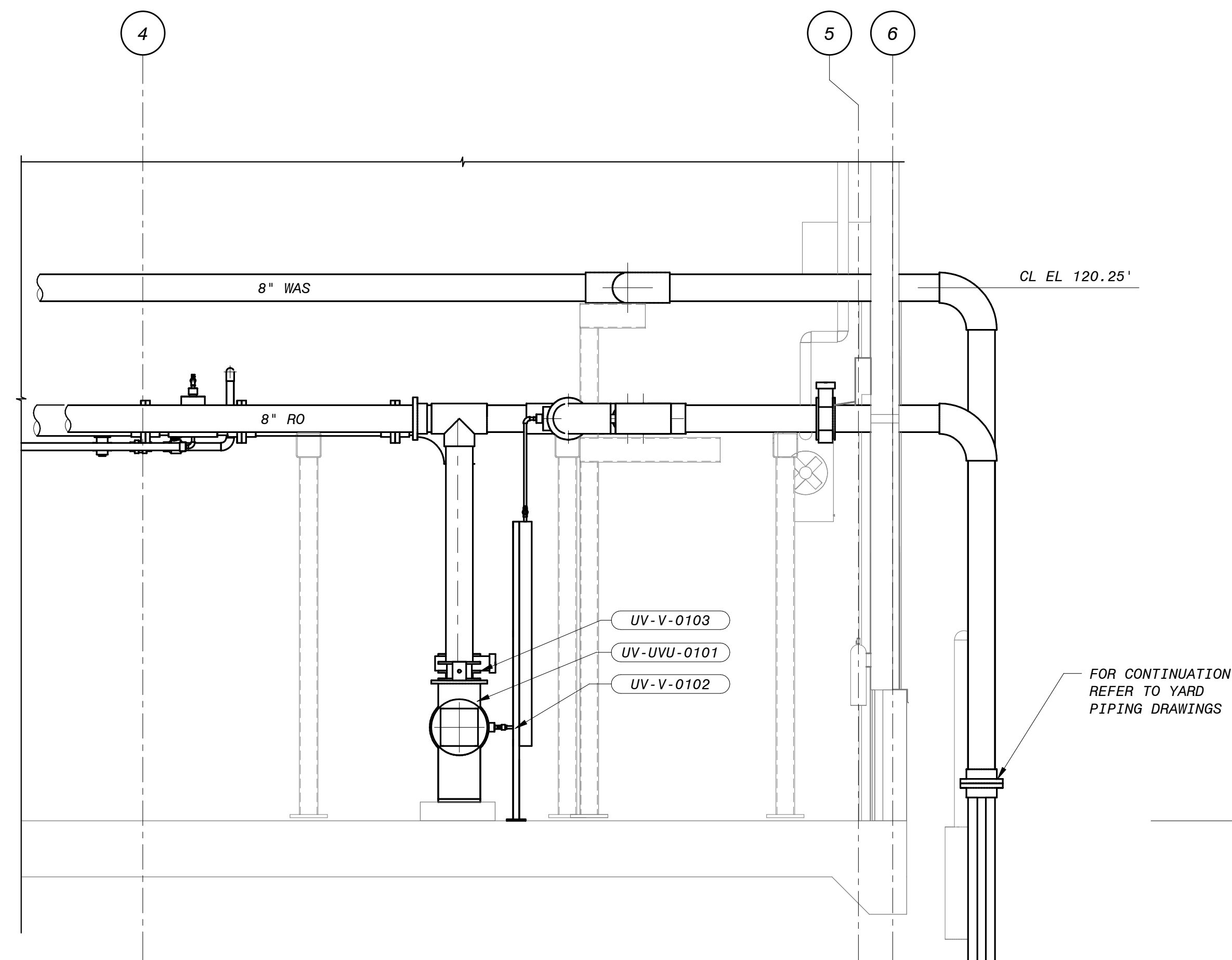
0 1/2 1
 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

PROJECT NO.
400530
52-M-101
 SHEET
 64 OF 412

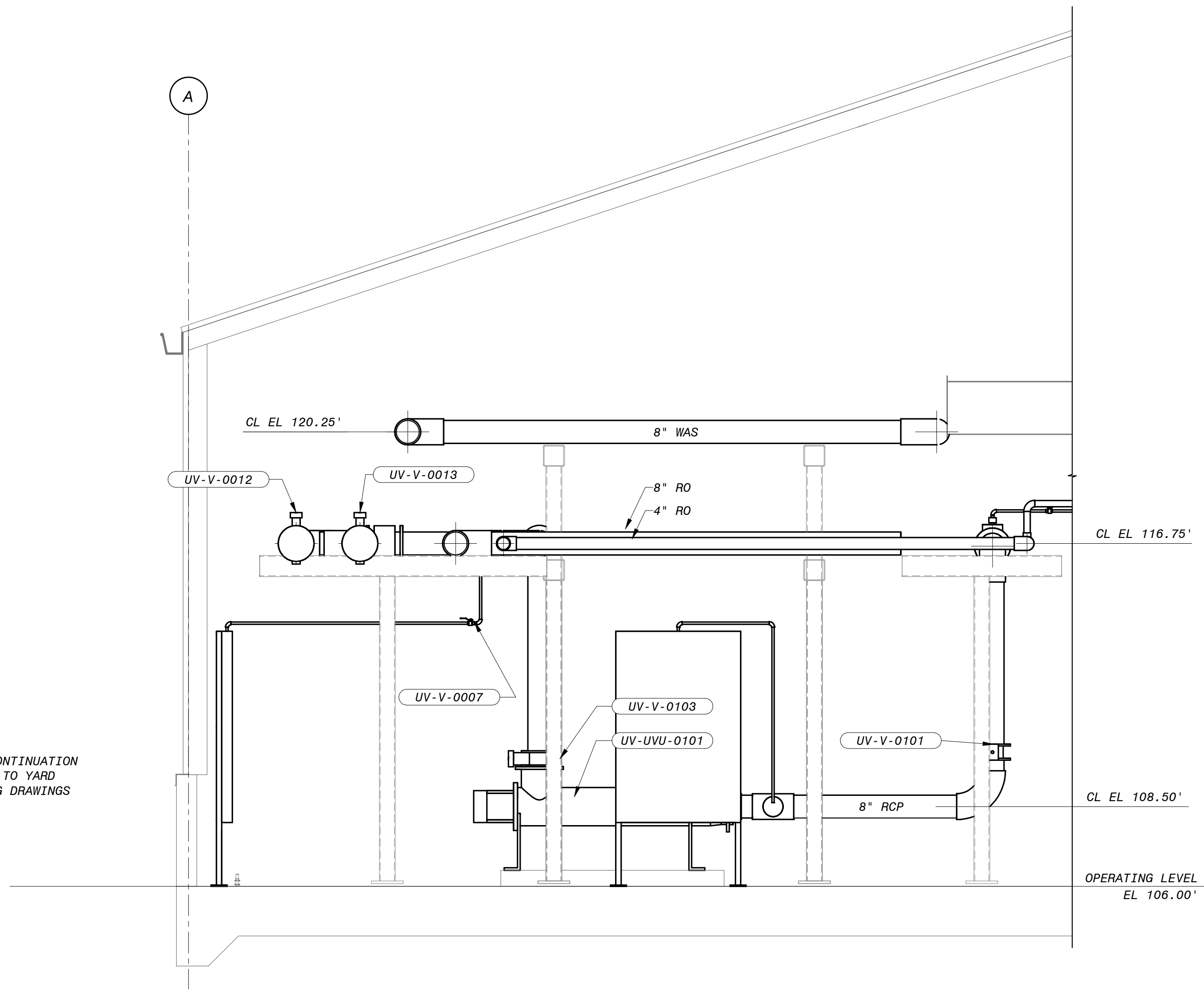
UV SYSTEM - REACTOR SYSTEM PLAN
 50-M-101 3/8" = 1'-0"

12" 0' 1' 2' 3' 4' 5' 6' 7'
 3/8" = 1'-0"

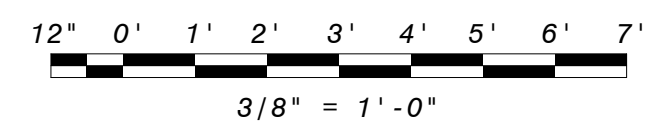
PLOTTED: 5/19/2020 8:14:14 AM
 D:\0650



SECTION 1
52-M-101 3/8" = 1'-0"



SECTION 2
52-M-101 3/8" = 1'-0"



BLACK & VEATCH
JOINT VENTURE
FILANC

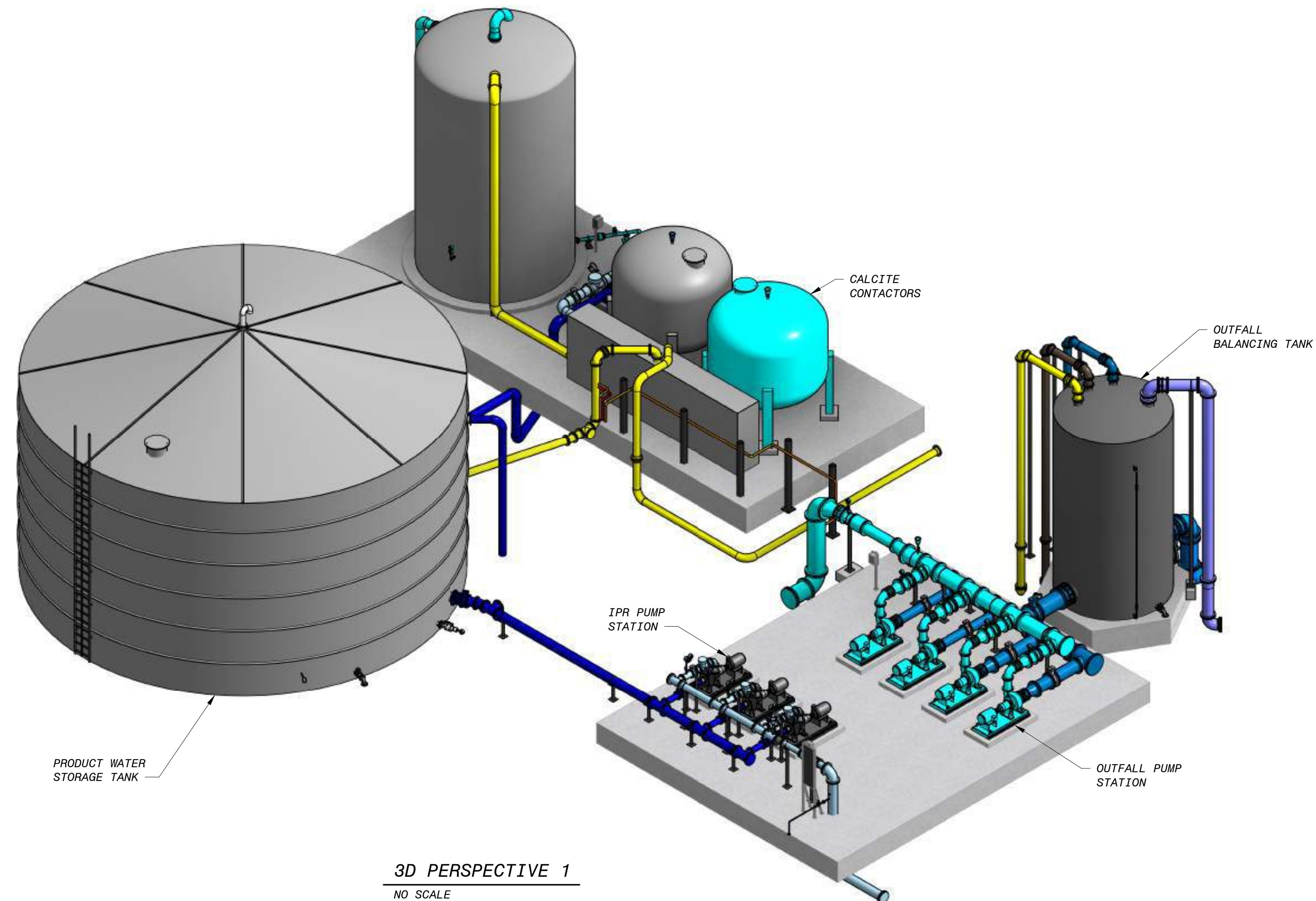
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
RO/UV BUILDING - UV SYSTEM
CIVIL - MECHANICAL
SECTIONS AND DETAILS 1

DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

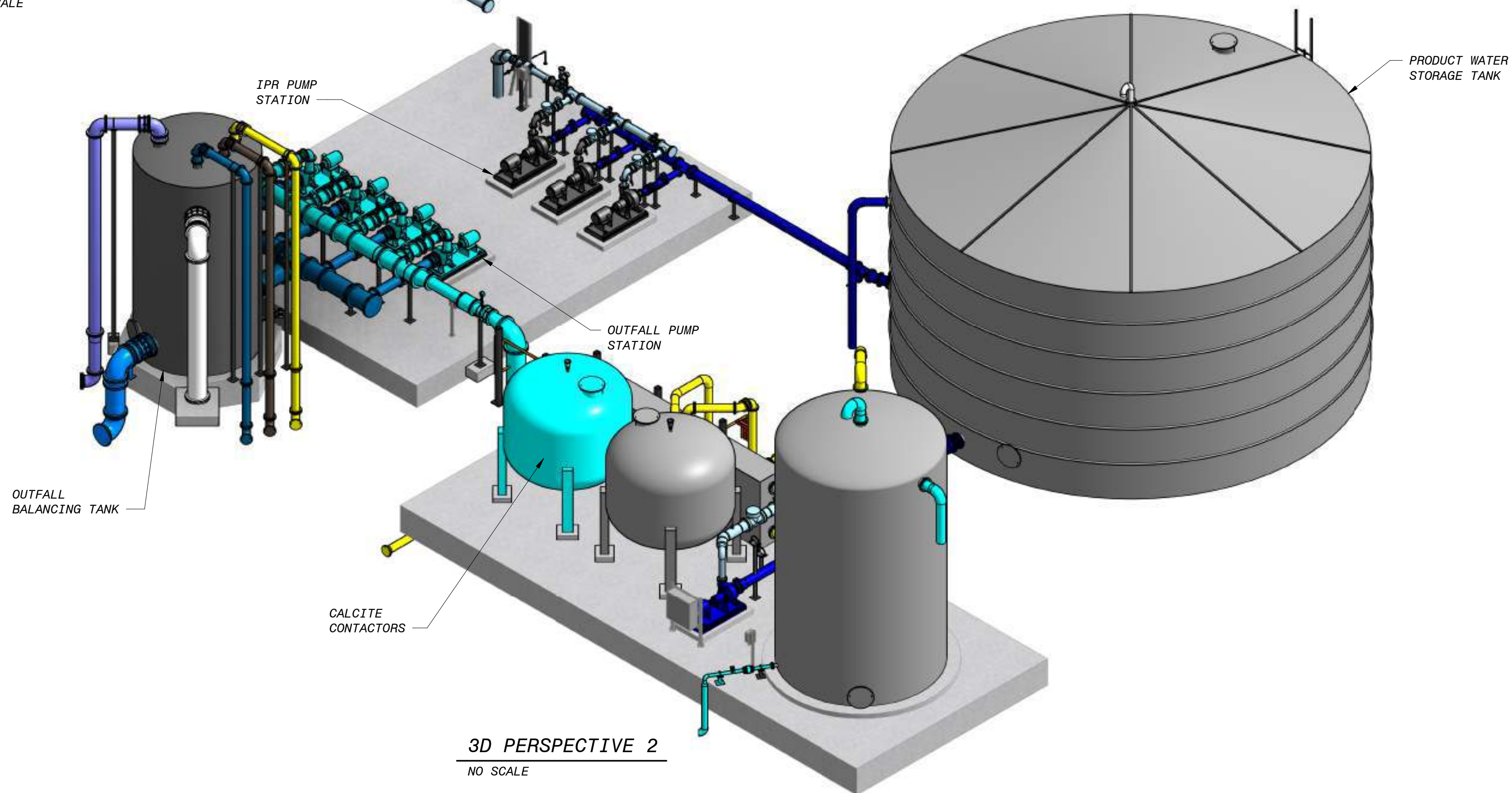
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
52-M-301
SHEET
65 OF 412

NO.	BY	CHK	APP	DATE	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE
0	KEZ	EVB		5/19/2020		



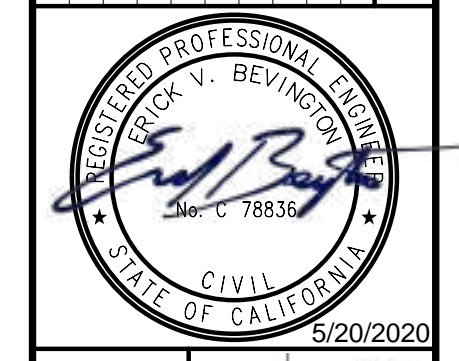
3D PERSPECTIVE 1
NO SCALE



3D PERSPECTIVE 2
NO SCALE

PLOTTED: 5/19/2020 3:37:06 PM
 040630

0	KEZ	EVB
NO.	BY	CHK APP
5/19/2020		
ISSUED FOR CONSTRUCTION		
REVISONS AND RECORD OF USE		
DATE		



BLACK & VEATCH
 JOINT VENTURE
FILANC

BLACK & VEATCH
 FILANC

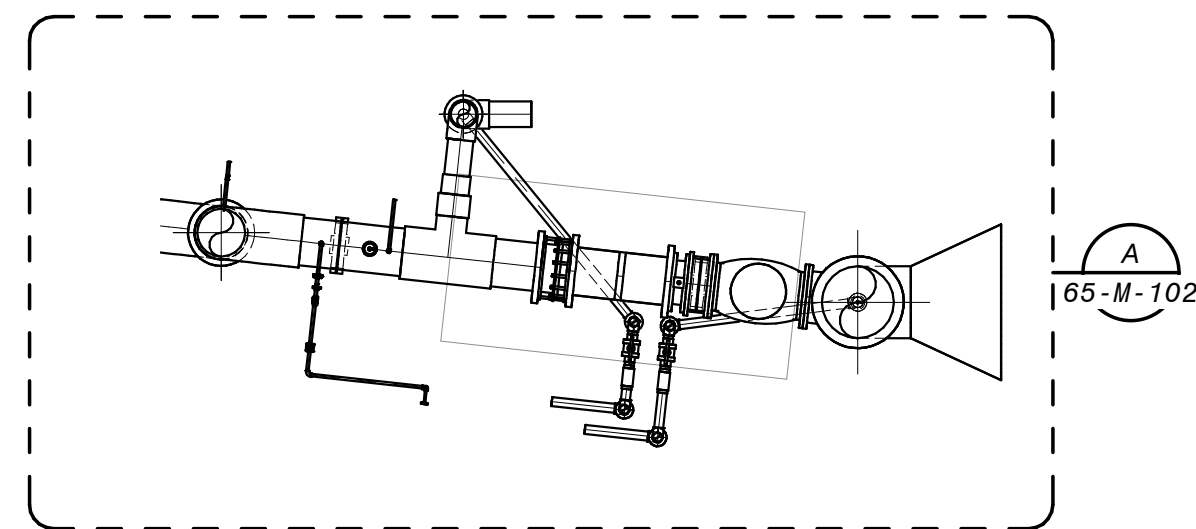
CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 PRODUCT WATER AREA - OVERALL
 CIVIL - MECHANICAL
 3D VIEWS

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

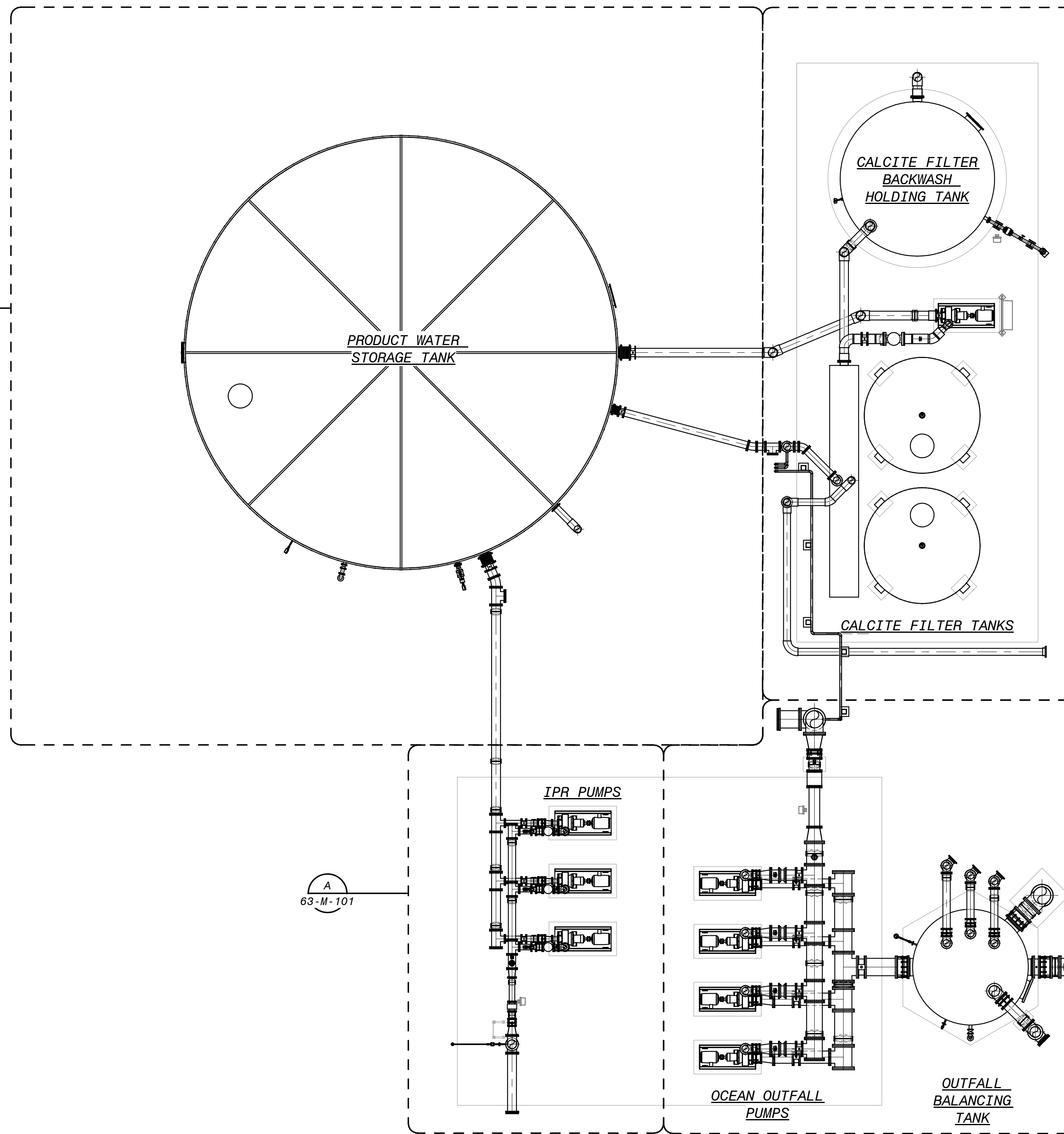
0 1/2 1
 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

PROJECT NO.
 400530
60-M-001
 SHEET
 66 OF 412

PLOTTED: 5/19/2020 3:37:11 PM
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A
62-M-101



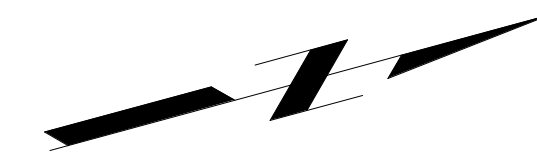
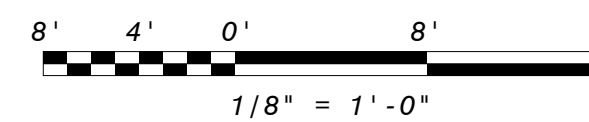
A
61-M-101

A
63-M-101

A
64-M-101

PRODUCT WATER AREA - OVERALL - OPERATING LEVEL PLAN

1/8" = 1'-0"



BLACK & VEATCH
JOINT VENTURE
FILANC

BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

PRODUCT WATER AREA - OVERALL
CIVIL - MECHANICAL
OPERATING LEVEL PLAN

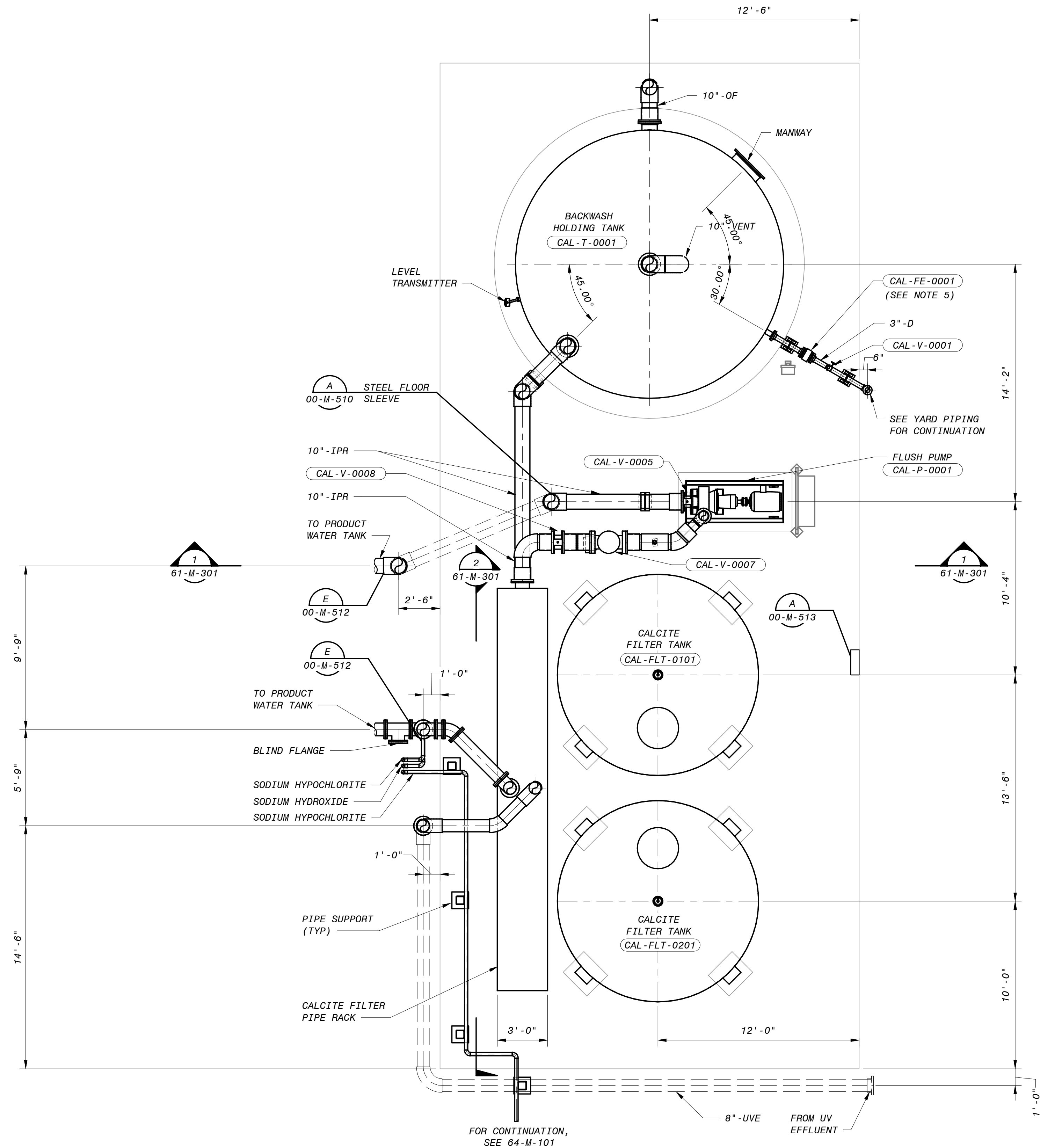
DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530

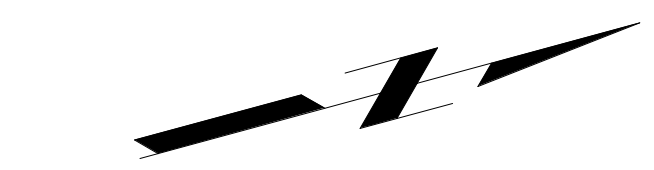
60-M-101
SHEET
67 OF 412

NO.	BY	CHK	APP	DATE	ISSUED FOR CONSTRUCTION	REVISONS AND RECORD OF USE
0	KEZ	RWE	EVB	5/19/2020		



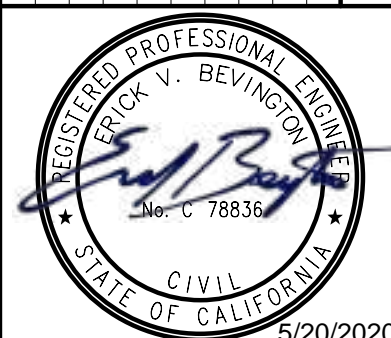
PRODUCT WATER AREA - CALCITE CONTACTOR - PLAN

60-M-101 1/4" = 1'-0"



NOTES:

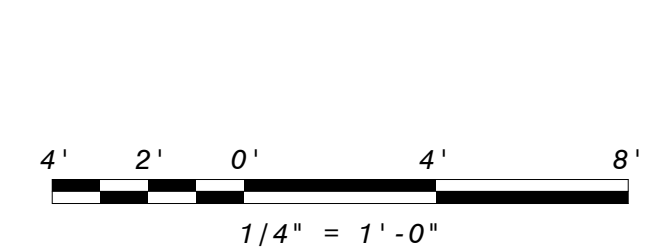
1. PIPING CONFIGURATION WITHIN THE CALCITE CONTACTOR SKID WILL BE PROVIDED BY THE CALCITE CONTACTOR SYSTEM SUPPLIER.
2. PIPING SHOWN GOING TO AND FROM THE EQUIPMENT PAD SHALL BE COORDINATED WITH RECEIPT OF CALCITE CONTACTOR SUBMITTALS.
3. NOTE THE EQUIPMENT SHOWN WITHIN THE EQUIPMENT PAD IS NOT FINAL. FINAL DRAWINGS WILL PROVIDED WHEN EQUIPMENT IS PROCURED.
4. EQUIPMENT SHOWN REPRESENTS THE AVAILABLE SPACE FOR THE CALCITE CONTACTOR.
5. NOTE THAT THE CALCITE CONTACTOR BACKWASH TANK DRAINS TO THE SEWER. THE TANK SHALL NOT BE DRAINED IF ANY OF THE FOLLOWING ACTIVITIES ARE ALSO OCCURRING:
 -BELT FILTER PRESS IS IN OPERATION.
 -STORM WATER OUTLET CONTROL STRUCTURE IS PUMPING FLOW TO THE SEWER.
 -IF MORE THAN THREE AREAS WITH SEWER DRAINS ARE BEING HOSED DOWN AT ONCE.



BLACK & VEATCH
 JOINT VENTURE
 FILANC
 BLACK & VEATCH

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 PRODUCT WATER AREA - CALCITE CONTACTOR
 CIVIL - MECHANICAL
 PLAN

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

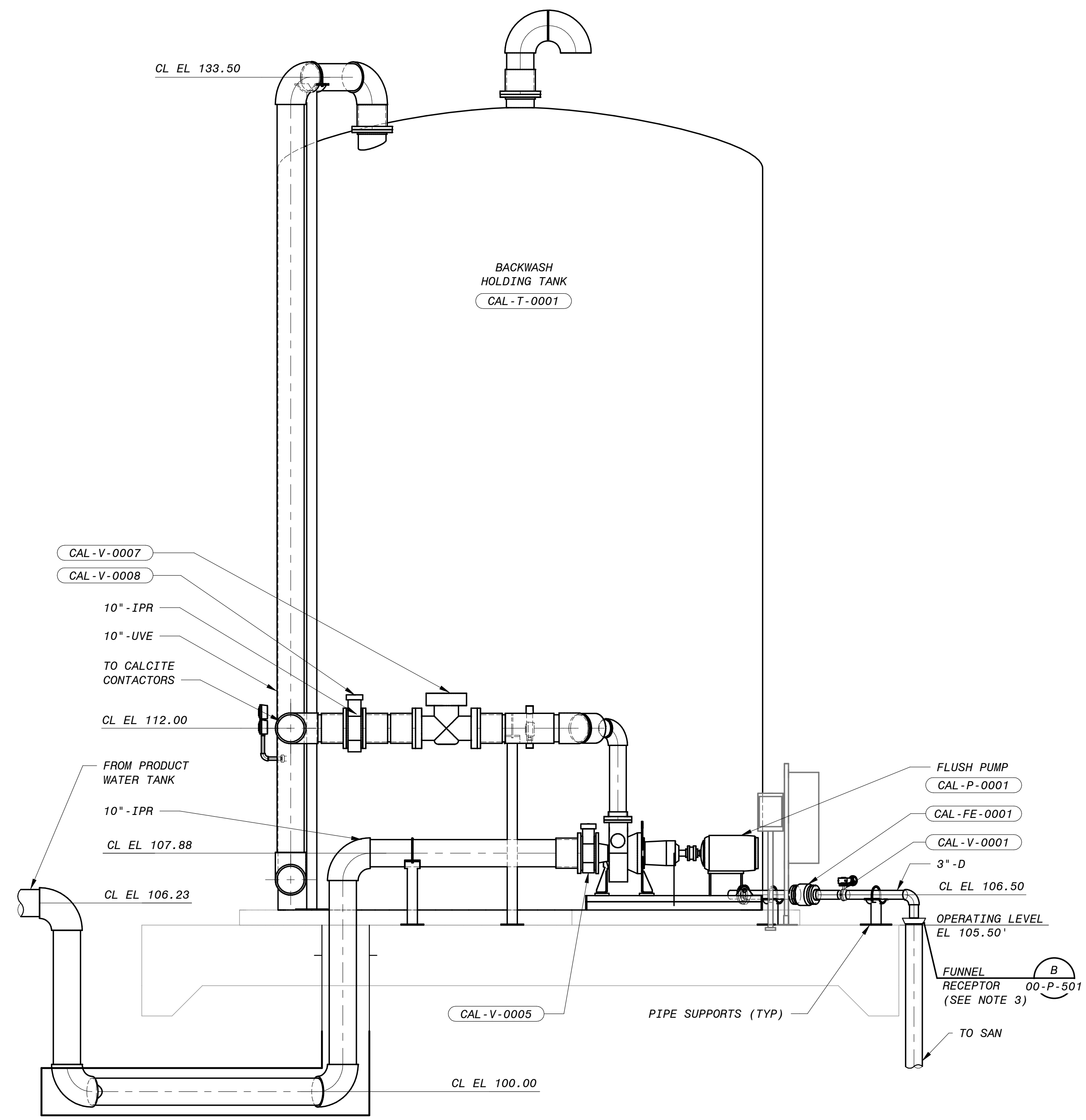


PROJECT NO.
 400530
 61-M-101
 SHEET
 68 OF 412

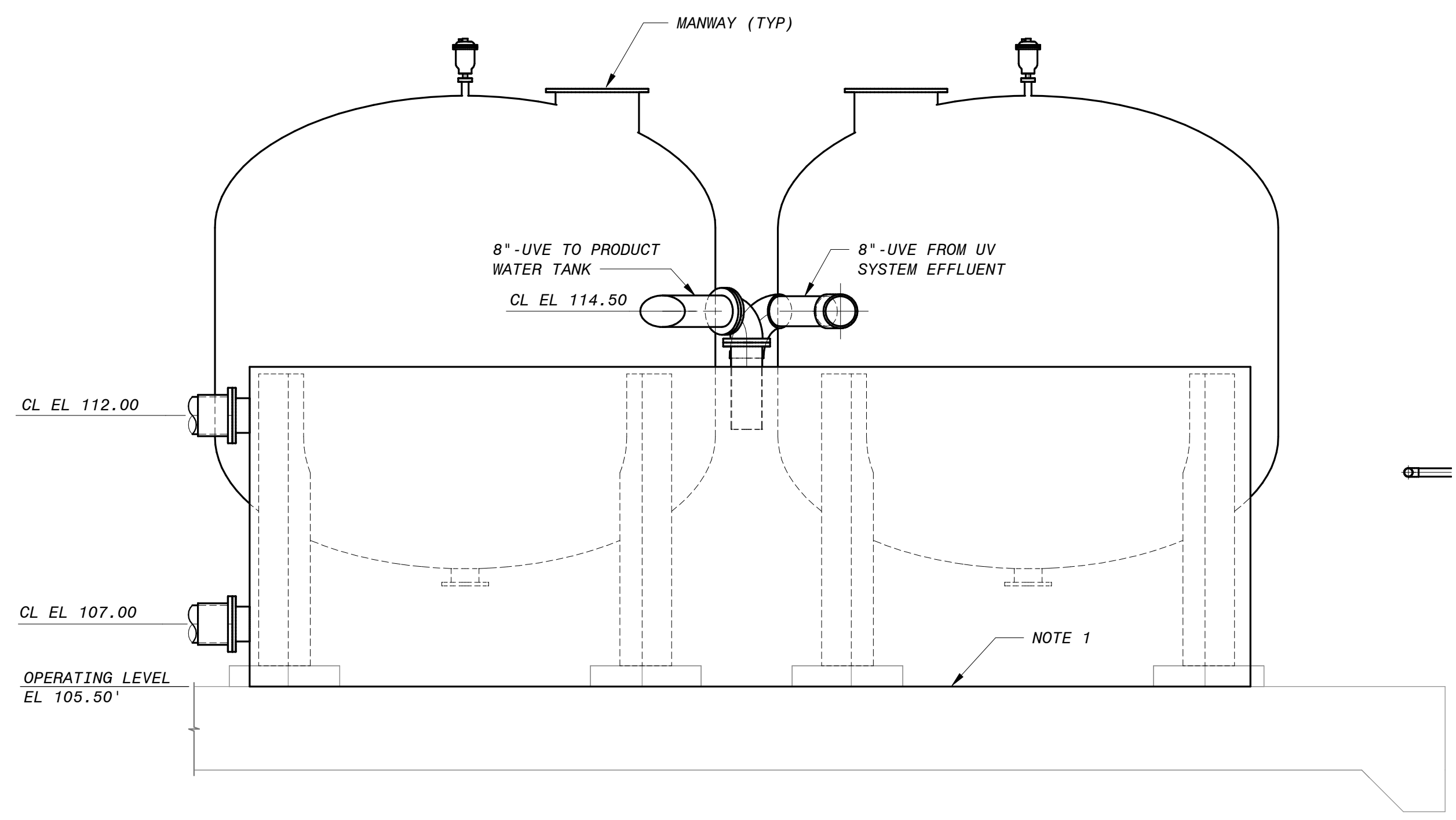
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NO.	BY	DATE	REVISIONS AND RECORD OF USE
0	KEZ	5/19/2020	ISSUED FOR CONSTRUCTION
			REVISED AND RECORD OF USE

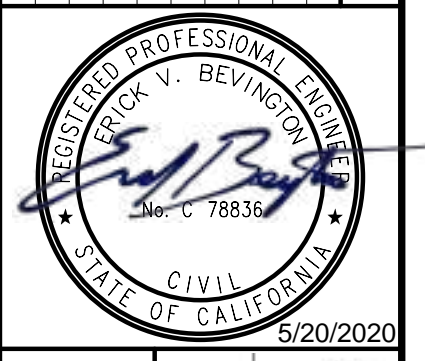
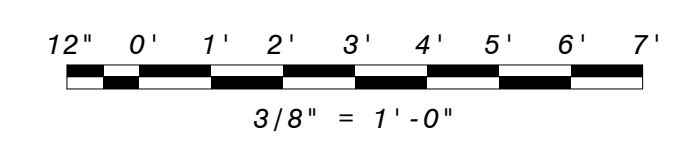
- NOTES:
1. PIPING CONFIGURATION WITHIN THE CALCITE CONTACTOR SYSTEM WILL BE PROVIDED BY THE CALCITE SYSTEM SUPPLIER (CSS). DIMENSIONS AND ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE WITH THE CSS ON THE FINAL FOOTPRINT AND LAYOUT OF THE CALCITE CONTACTOR SYSTEM.
 2. PIPING SHOWN GOING TO AND FROM THE EQUIPMENT PAD SHALL BE COORDINATED.
 3. EXTEND AT LEAST 3" ABOVE FINISHED GRADE. P-TRAP SHALL BE LOCATED DEEP ENOUGH SUCH THAT IT CONNECTS TO SAN PIPING PER THE YARD PIPING DRAWINGS.



1 SECTION
61-M-101 3/8" = 1'-0"



2 SECTION
61-M-101 3/8" = 1'-0"



BLACK & VEATCH
JOINT VENTURE
FILANC

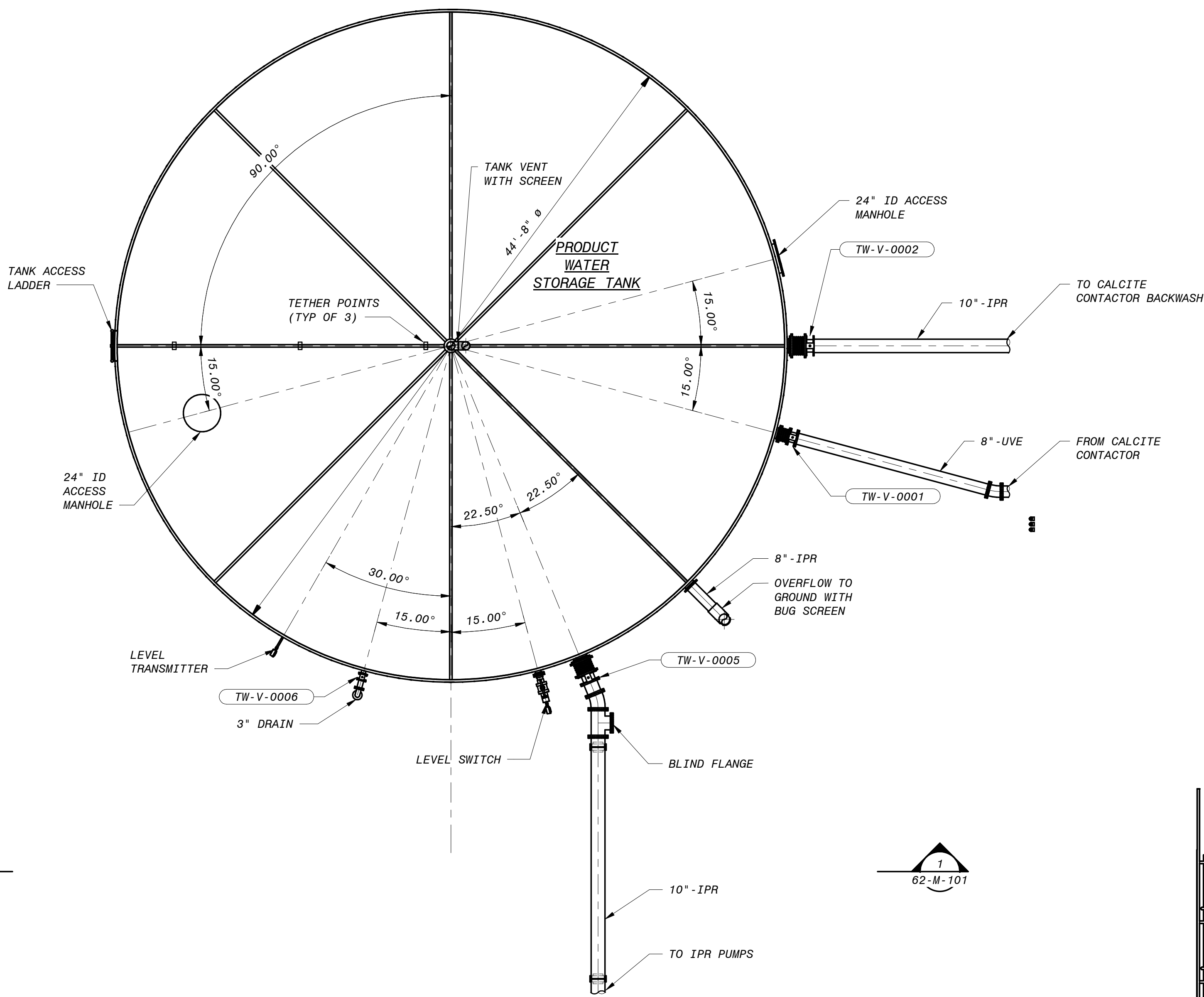
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
PRODUCT WATER AREA - CALCITE CONTACTOR
CIVIL - MECHANICAL
SECTIONS AND DETAILS

DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

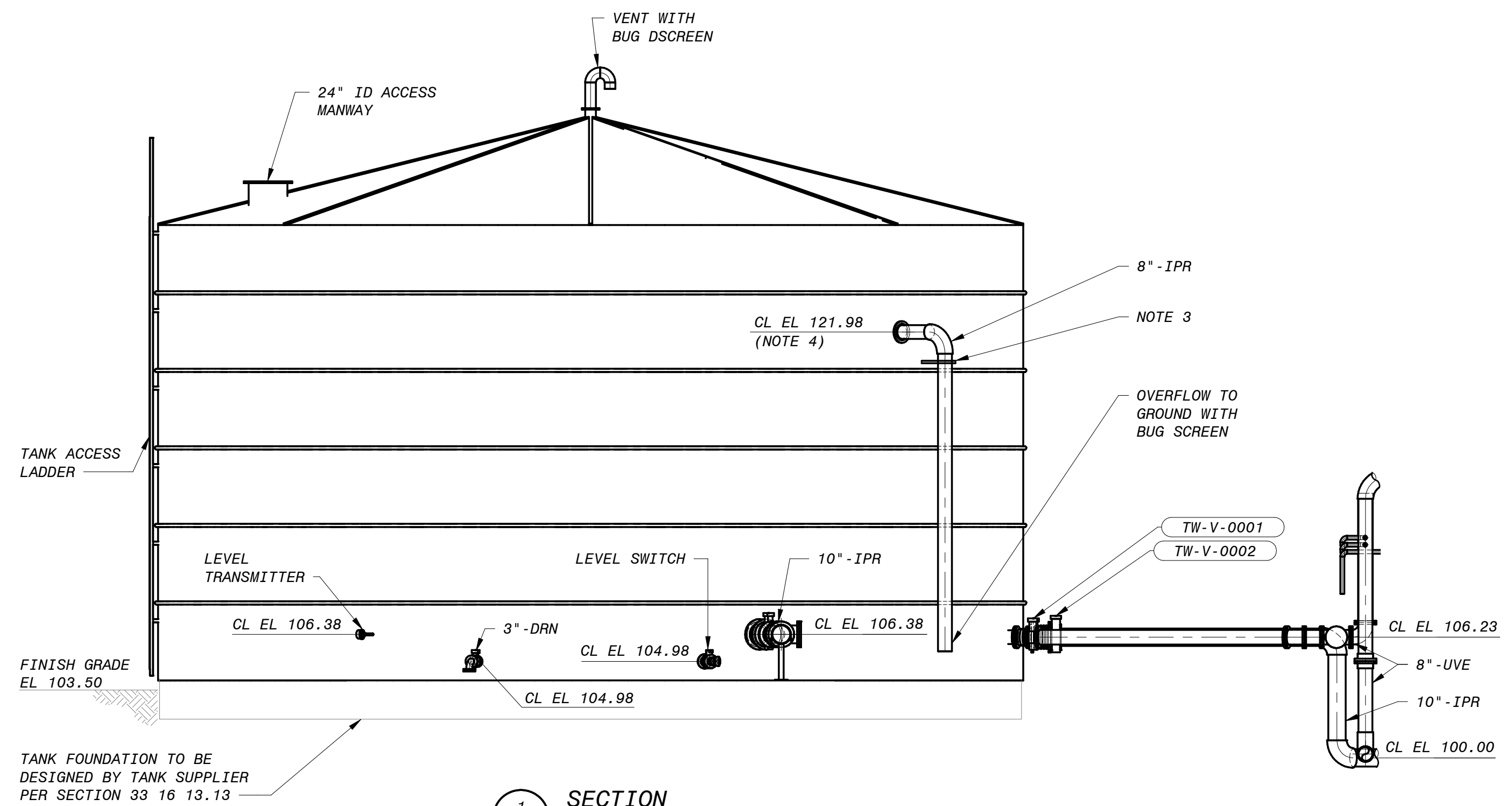
PROJECT NO.
400530
61-M-301
SHEET
69 OF 412

PLOTTED: 5/19/2020 3:37:15 PM
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NO.	BY	CHK APP	DATE	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE
0	KEZ	EVB	5/19/2020		



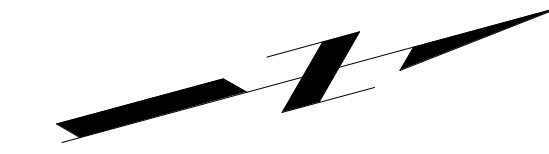
A PRODUCT WATER AREA - PRODUCT WATER STORAGE TANK - PLAN
60-M-101 3/16" = 1'-0"



1 SECTION
62-M-101 3/16" = 1'-0"

NOTES:

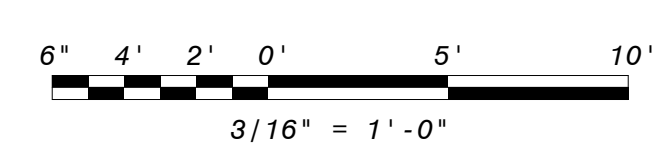
1. TANK ACCESSORIES AND NOZZLE SIZES AND LOCATIONS PER NOZZLE SCHEDULE IN SECTION 33 16 13.13.
2. TANK FOUNDATION DESIGN SHALL BE COMPLETED BY THE TANK SUPPLIER PER SECTION 33 16 13.13.
3. PIPE SUPPORTS ON THE TANK SHALL BE PROVIDED BY THE SUPPLIER.
4. FINAL TANK DIAMETER AND HEIGHT WILL BE DETERMINED BY TANK SUPPLIER TO PROVIDE OPTIMAL DESIGN. THE CENTERLINE ELEVATION SHOWN ON THE DRAWINGS IS THE MAXIMUM ALLOWABLE LEVEL. THE DIAMETER OF THE TANK MAY CHANGE. OVERFLOW PIPE SIZE TO BE DETERMINED BY TANK SUPPLIER.



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
PRODUCT WATER AREA
PRODUCT WATER STORAGE TANK
CIVIL - MECHANICAL
PLAN, SECTIONS AND DETAILS

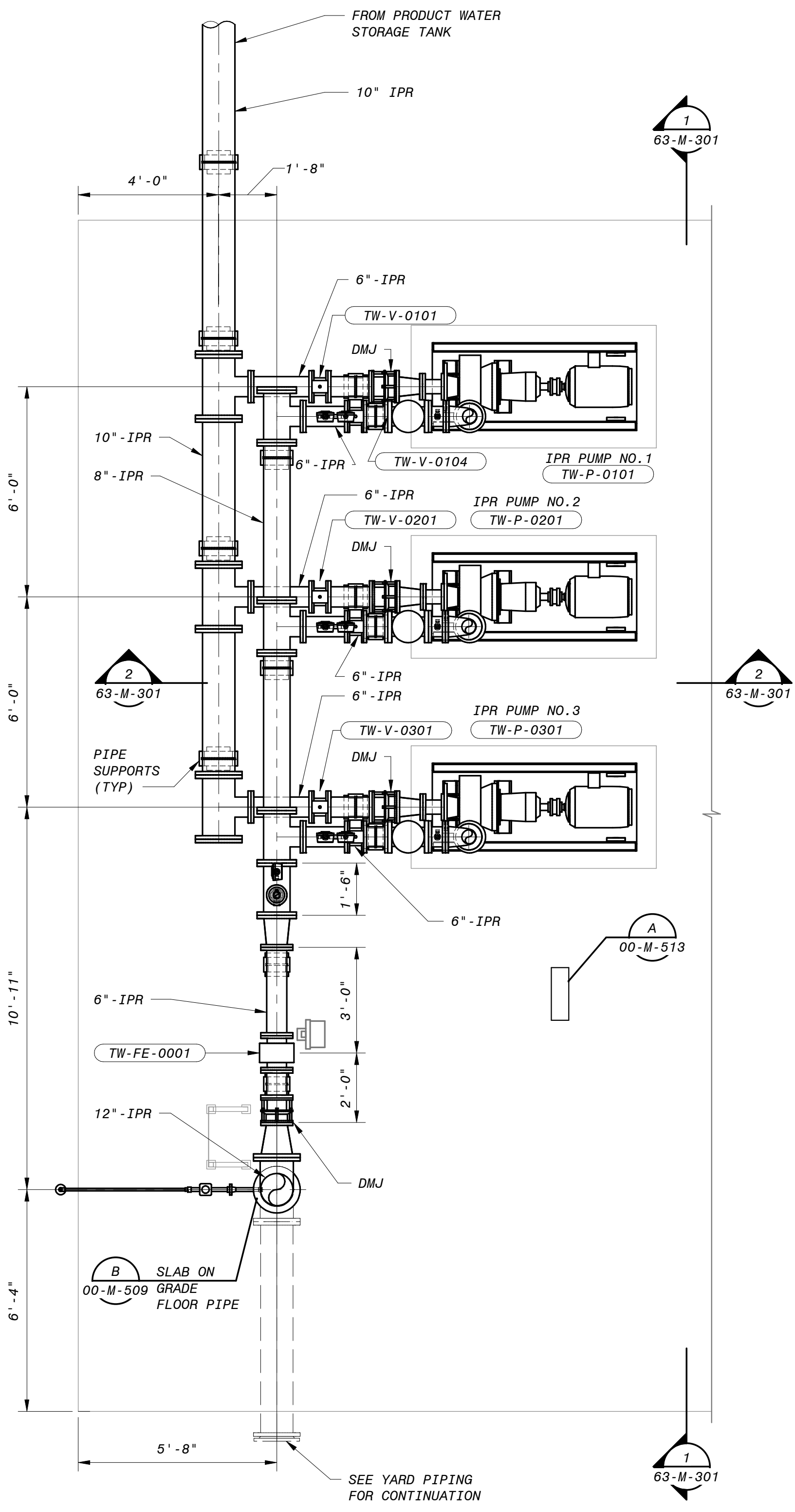
DESIGNED: KEZ, EVB
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020



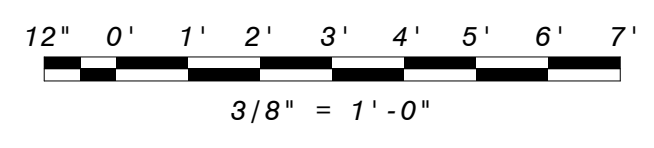
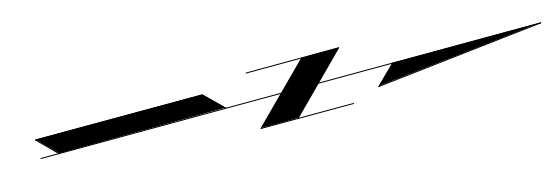
PROJECT NO.
400530
62-M-101
SHEET
70 OF 412

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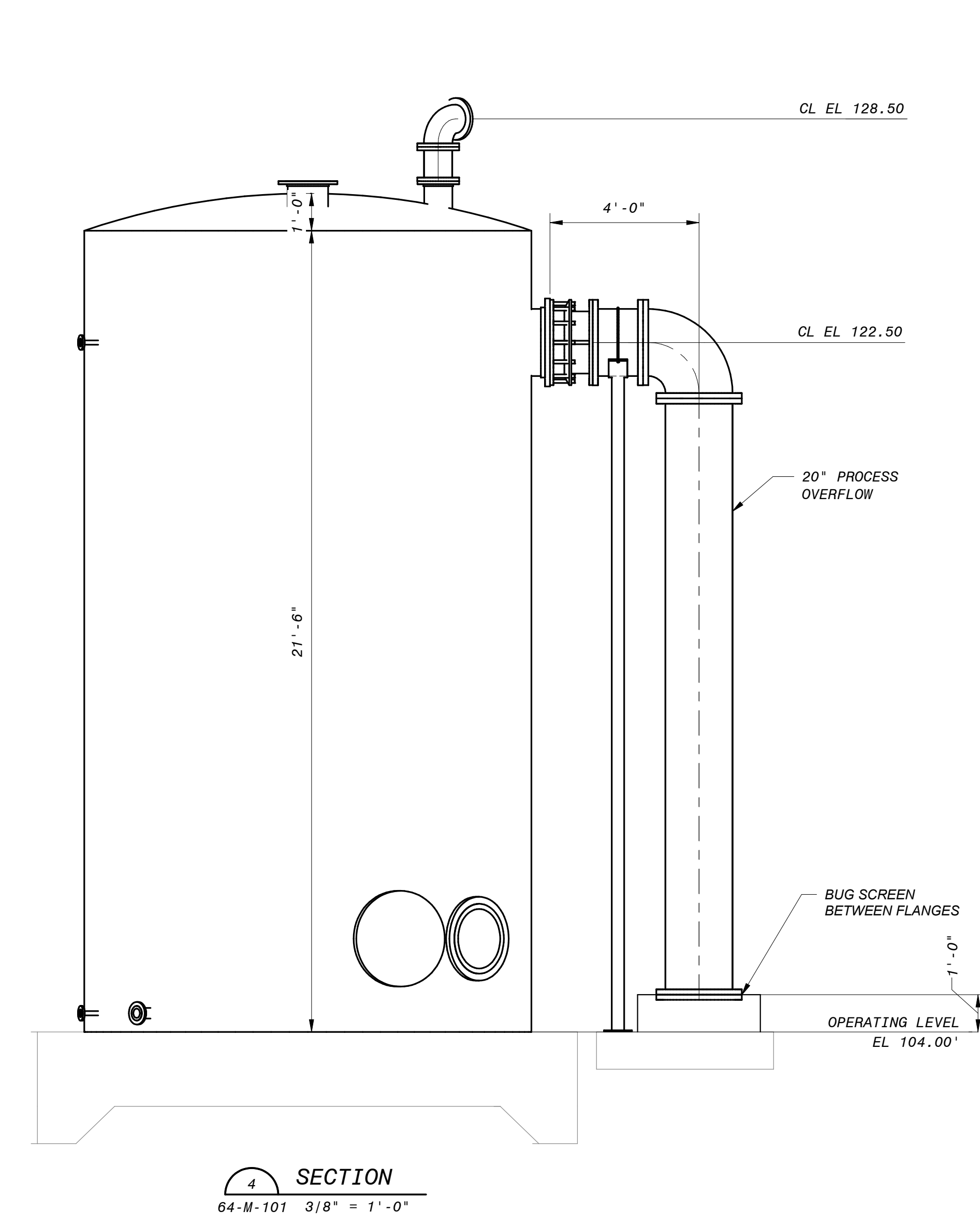
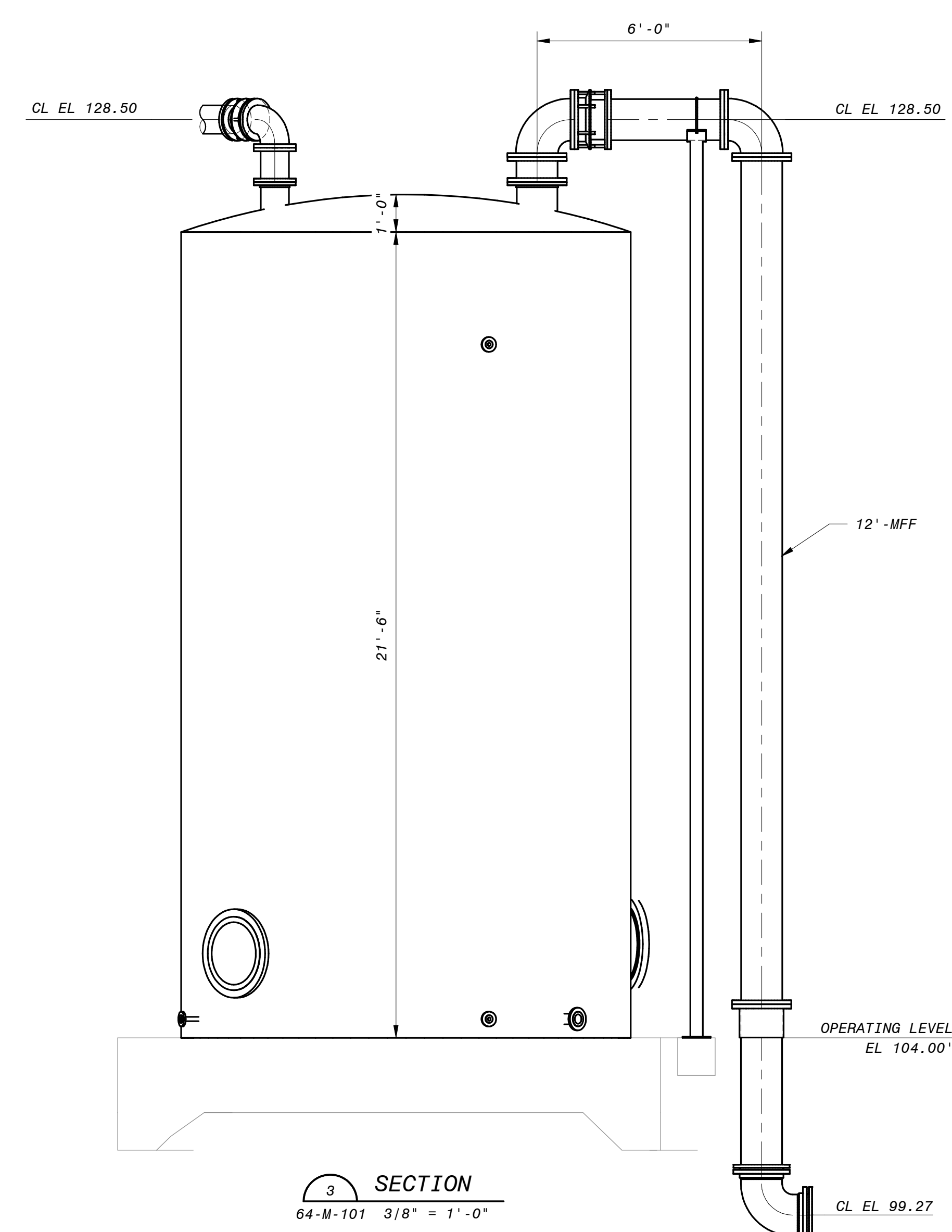
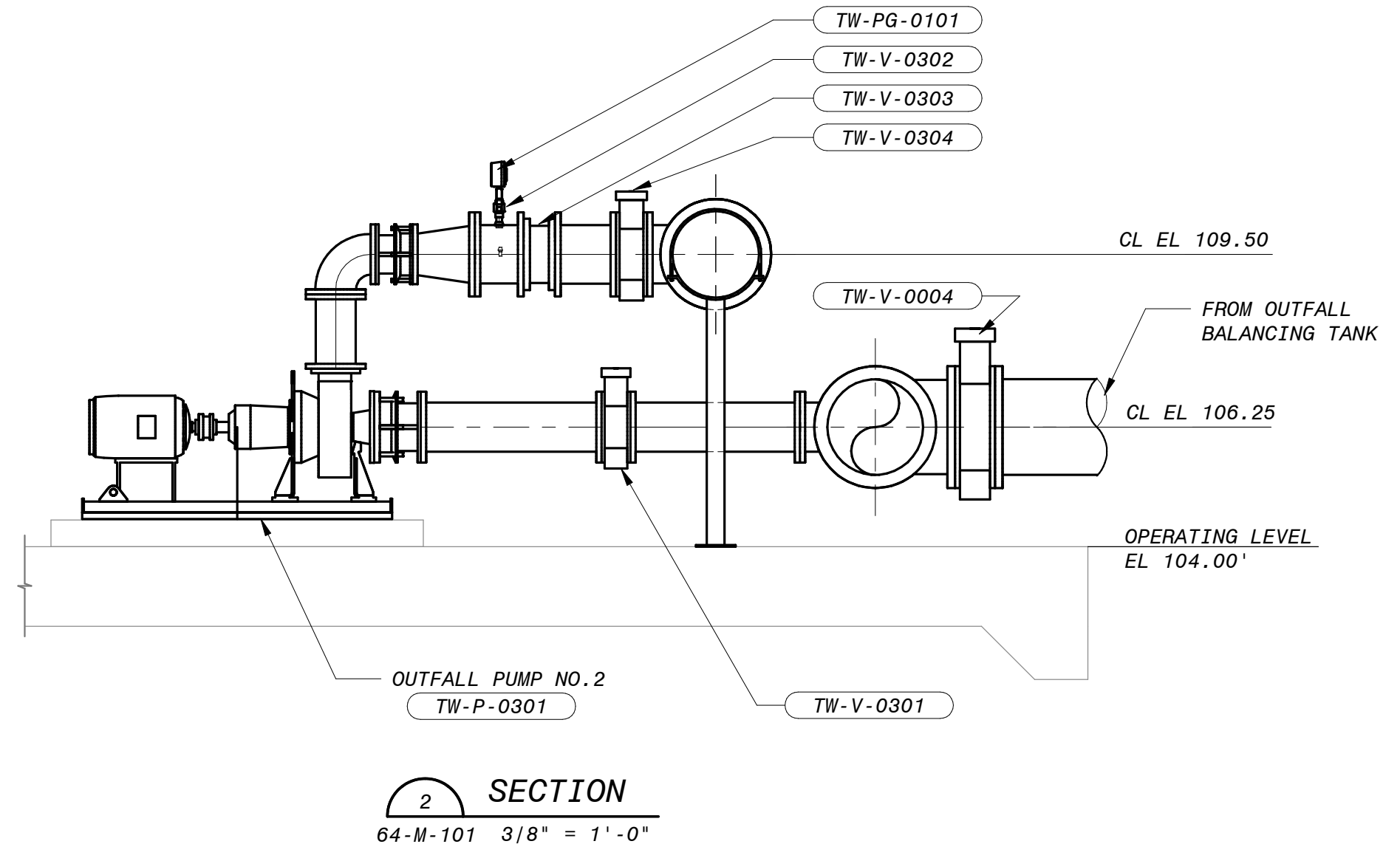
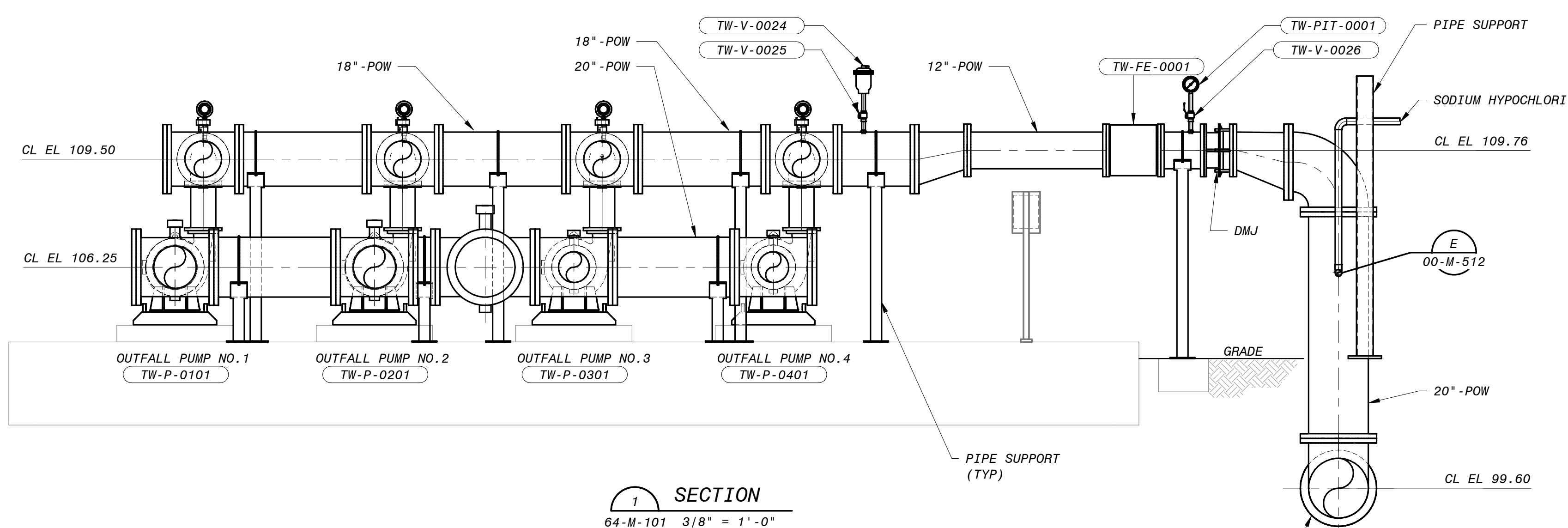
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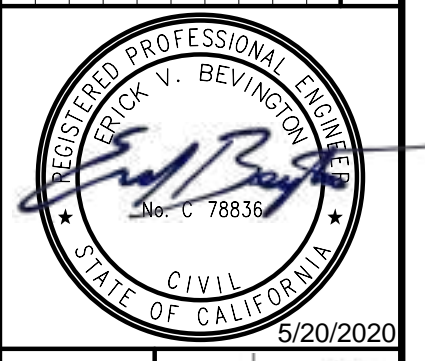
A PRODUCT WATER AREA - IPR PRODUCT WATER PUMP STATION - PLAN
 60-M-101 3/8" = 1'-0"



	0 KEZ RWE EVB NO. BY CHK APP 5/19/2020 ISSUED FOR CONSTRUCTION DATE REVISIONS AND RECORD OF USE
BLACK & VEATCH JOINT VENTURE FILANC	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) PRODUCT WATER AREA IPR PRODUCT WATER PUMP STATION CIVIL - MECHANICAL PLAN	
DESIGNED: KEZ, EVB DETAILED: MAK CHECKED: EVB APPROVED: EVB DATE: 5/19/2020	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
PROJECT NO. 400530	
63-M-101 SHEET 71 OF 412	



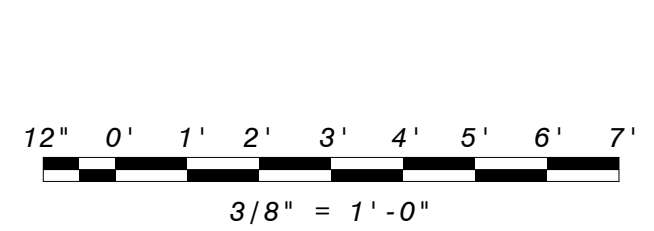
0	KEZ	RWE	EVB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISIONS AND RECORD OF USE			
5/19/2020	DATE		



BLACK & VEATCH
FILANC
 JOINT VENTURE
BLACK & VEATCH

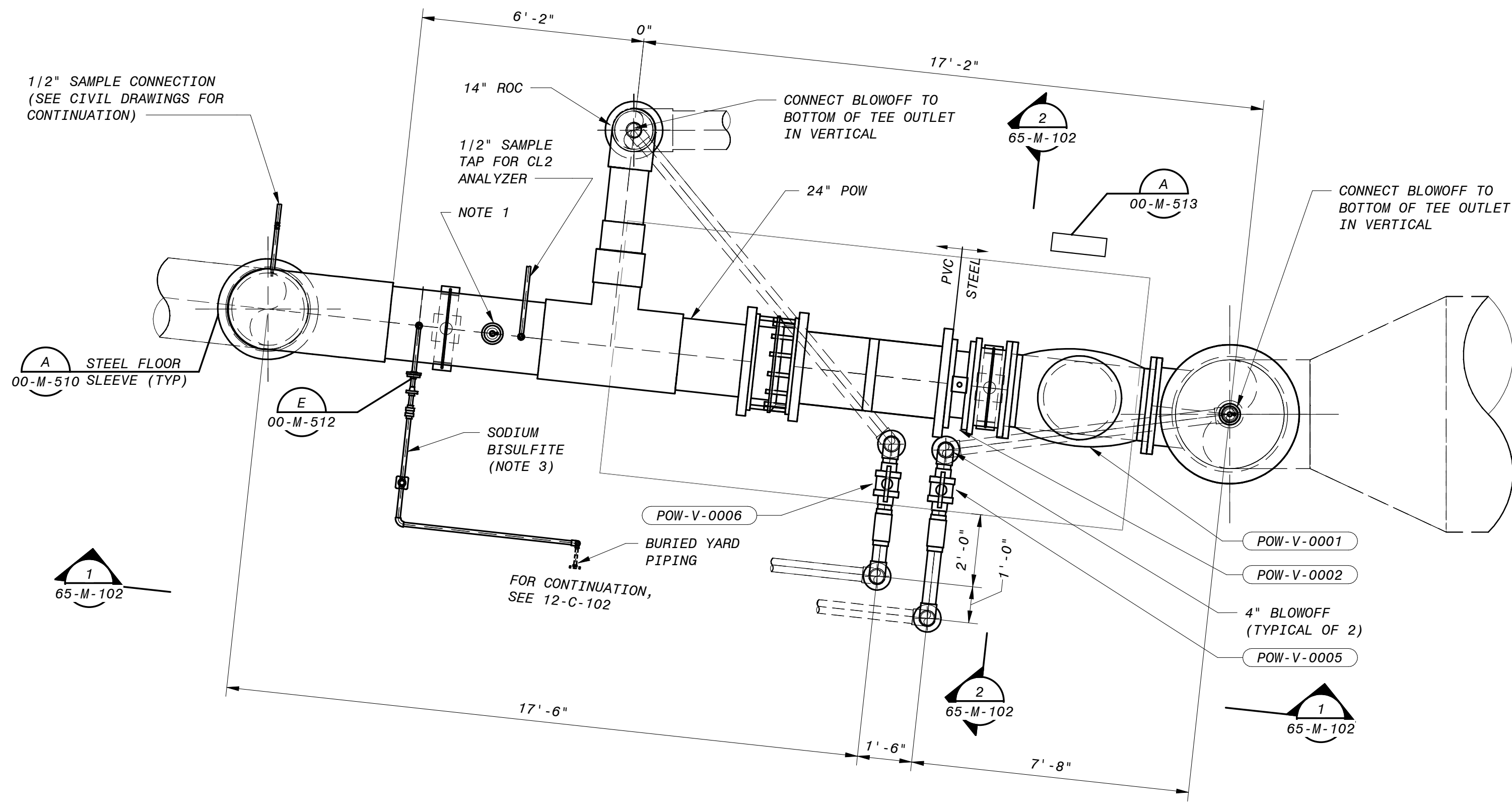
CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
 PRODUCT WATER AREA - OUTFALL PUMP STATION
 CIVIL - MECHANICAL
 SECTIONS AND DETAILS 1

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020



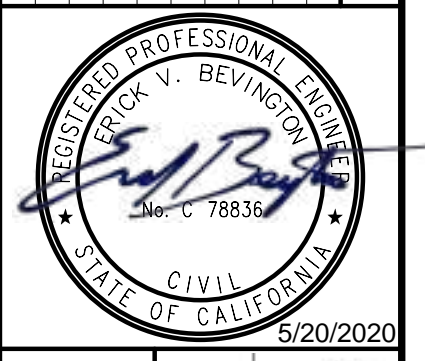
PROJECT NO.
400530
64-M-301
 SHEET
 74 OF 412

PLOTTED: 5/19/2020 3:37:30 PM
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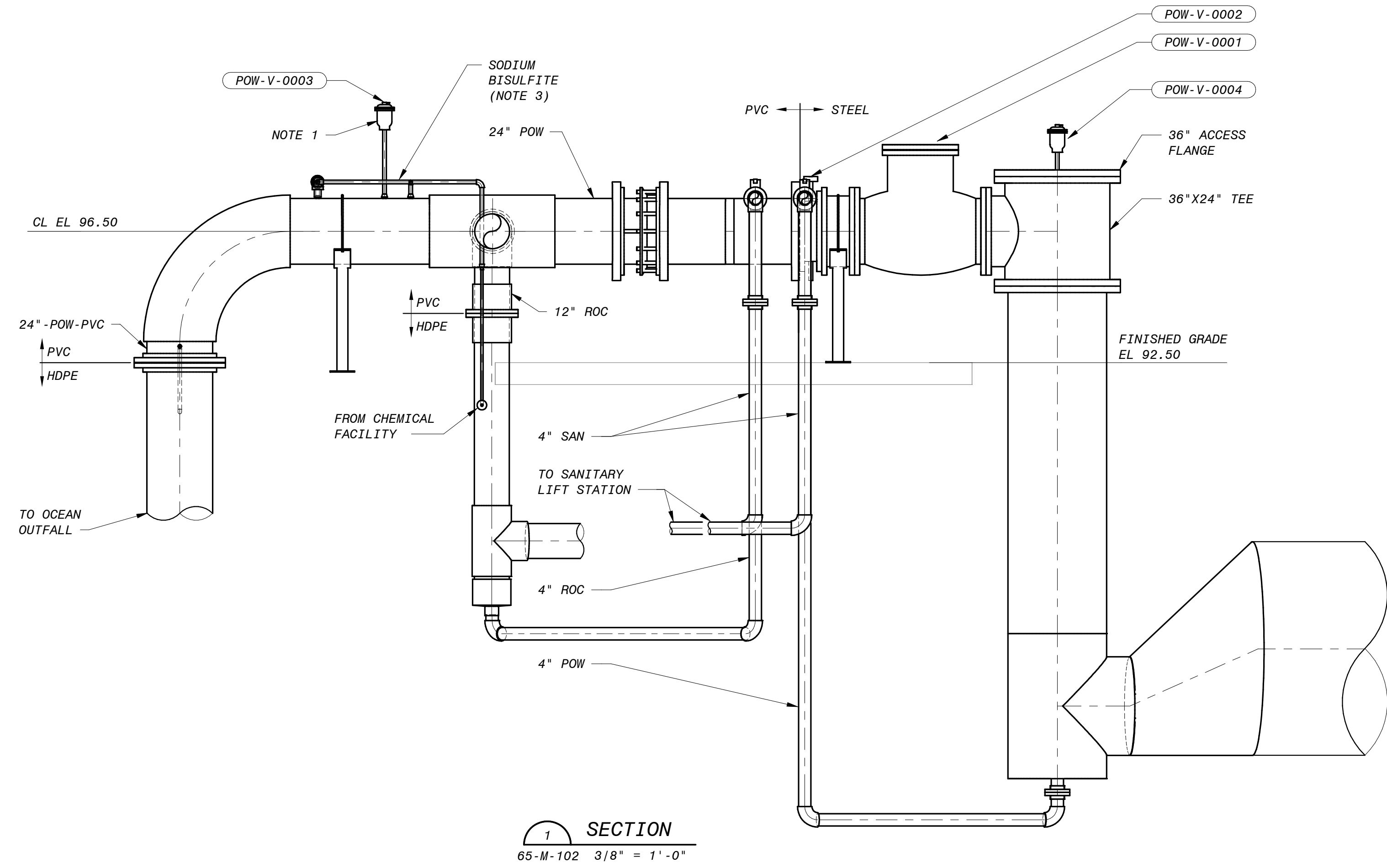


PRODUCT WATER AREA - DECHLORINATION FACILITY - PLAN
 3/8" = 1'-0"

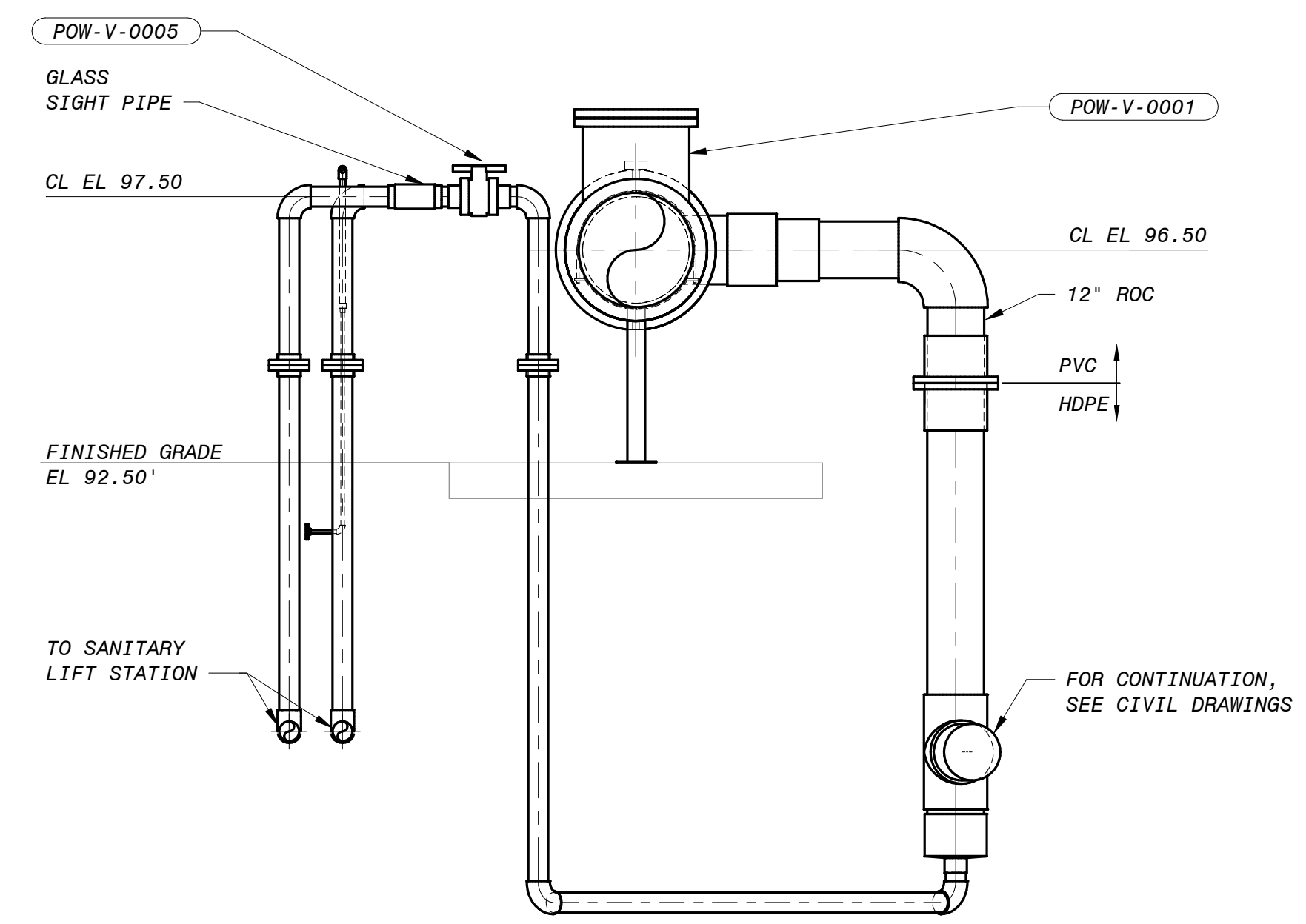
- NOTES:
1. VALVE SHALL BE 3" VENT TECH MODEL SWG.
 2. DECHLORINATION STATION IS LOCATED NEAR THE OPERATIONS BUILDING AND THE WATER AND COLLECTIONS STORAGE SHED. SEE CIVIL SITE PLANS FOR EXACT LOCATION.
 3. ABOVE GRADE SODIUM BISULFITE PIPING SHALL BE INSULATED AND HEAT TRACED.



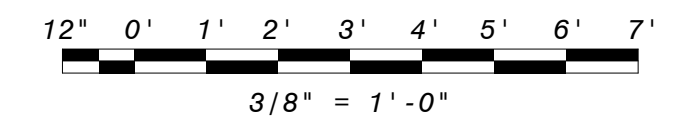
BLACK & VEATCH
 JOINT VENTURE
 FILANC
 BLACK & VEATCH



SECTION 1
 65-M-102 3/8" = 1'-0"



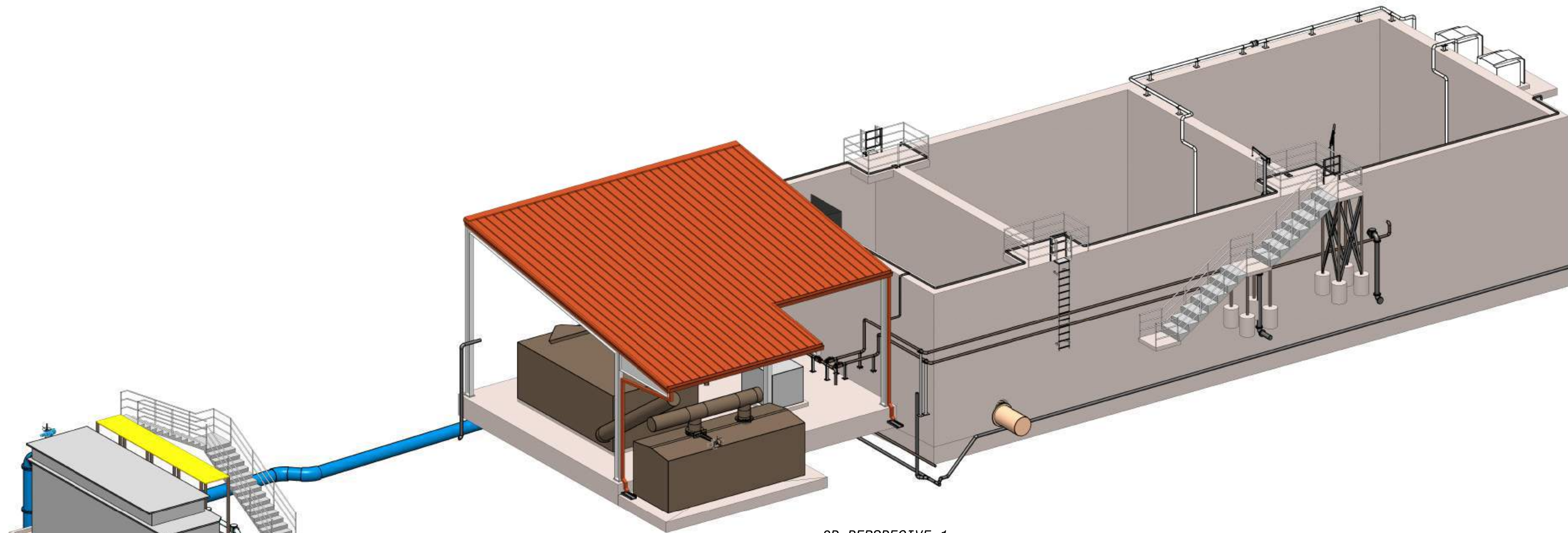
SECTION 2
 65-M-102 3/8" = 1'-0"



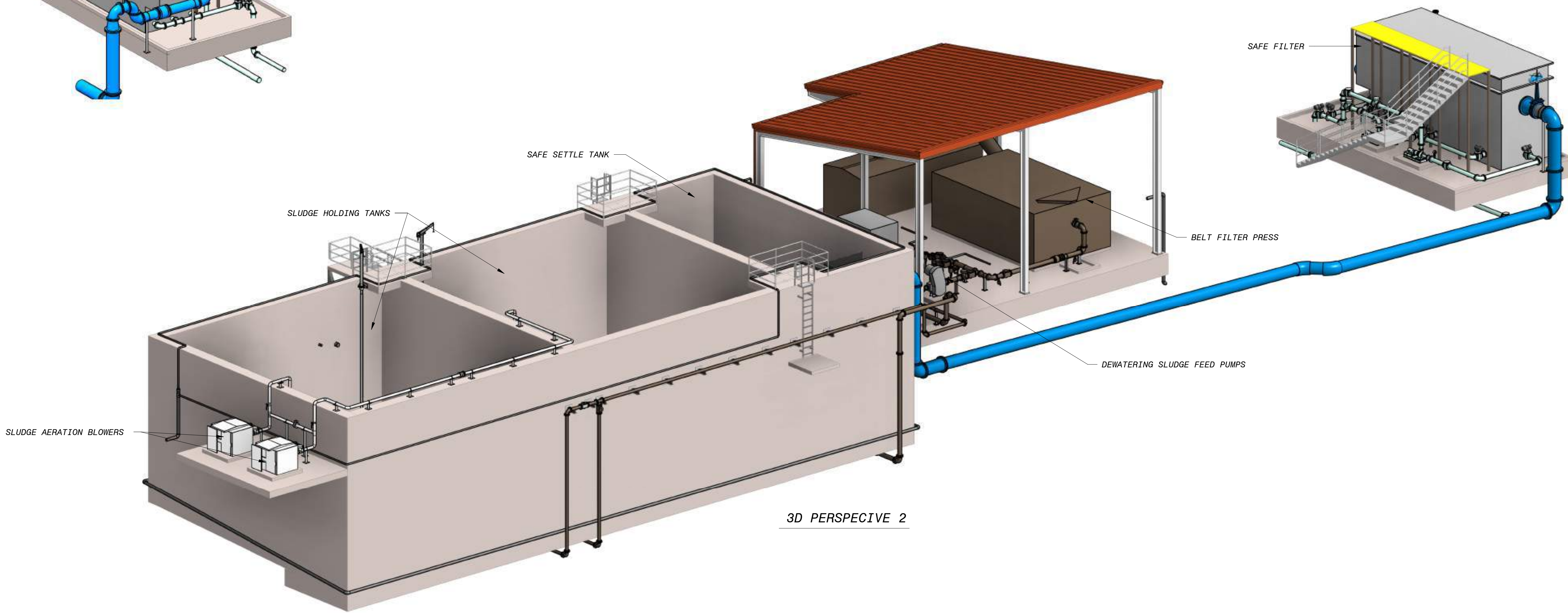
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CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 PRODUCT WATER AREA
 DECHLORINATION FACILITY
 CIVIL - MECHANICAL
 PLAN, SECTIONS AND DETAILS

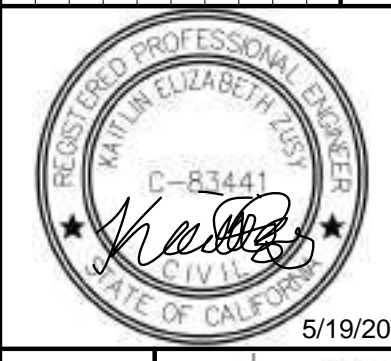
DESIGNED: KEZ, EVB
 DETAILED: RMB
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020
 PROJECT NO.
 400530
 SHEET
 75 OF 412



3D PERSPECIVE 1



3D PERSPECIVE 2



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 JOINT VENTURE
 FILANC

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 RESIDUALS AREA - OVERALL
 CIVIL - MECHANICAL
 3D VIEWS

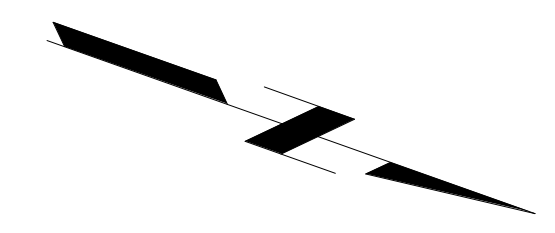
DESIGNED: KEZ
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

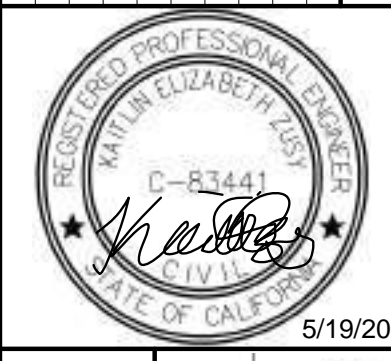
PROJECT NO.
 400530
 70-M-001
 SHEET
 76 OF 412

PLOTTED: 5/19/2020 3:33:47 PM
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NO.	BY	CHK APP	DATE	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE
0	KEZ	RWE	EVB		



- SHEET KEYNOTES**
1. COLUMN GUIDE SUPPORT. SEE DETAIL A ON 00-M-602
 2. COLUMN AXIAL STOP SUPPORT. SEE DETAIL A/00-M-602
 3. VERTICAL PIPE GUIDE SUPPORT. SEE DETAIL E/00-M-602
 4. COARSE BUBBLE DIFFUSER HEADER AND SUPPORT TO BE DESIGNED BY COARSE BUBBLE DIFFUSER SUPPLIER.
- NOTES:**
1. THERE SHALL BE A MINIMUM OF 3'-6" OF CLEARANCE AROUND EACH CONTROL PANEL.



BLACK & VEATCH
 JOINT VENTURE
FILANC BLACK & VEATCH

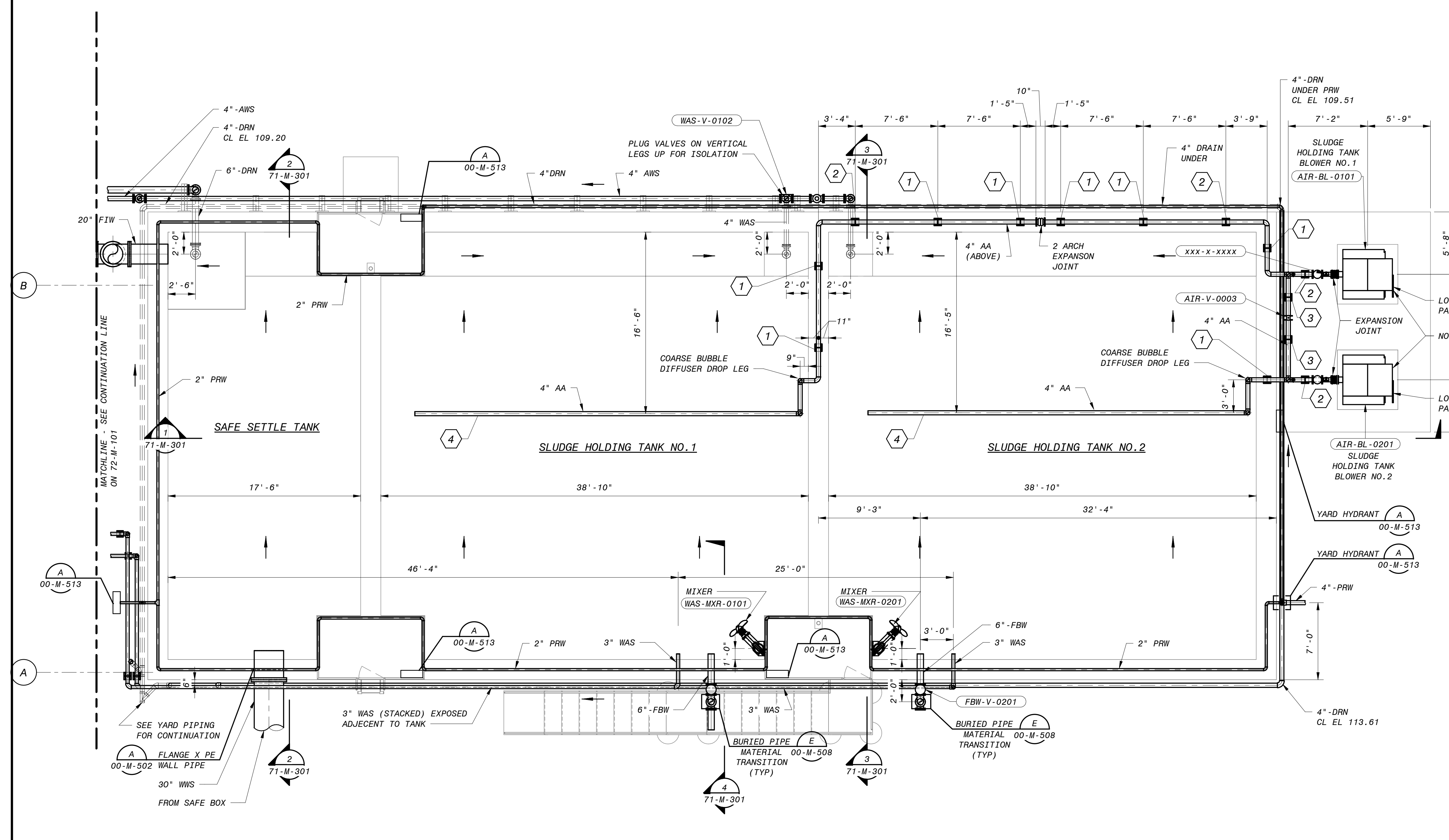
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 RESIDUALS AREA - SLUDGE HOLDING TANKS AND
 SAFE SETTLE TANKS
 CIVIL - MECHANICAL
 OPERATING LEVEL PLAN

DESIGNED: KEZ
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

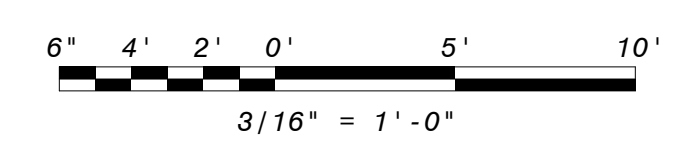
0 1/2 1
 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

PROJECT NO.
400530

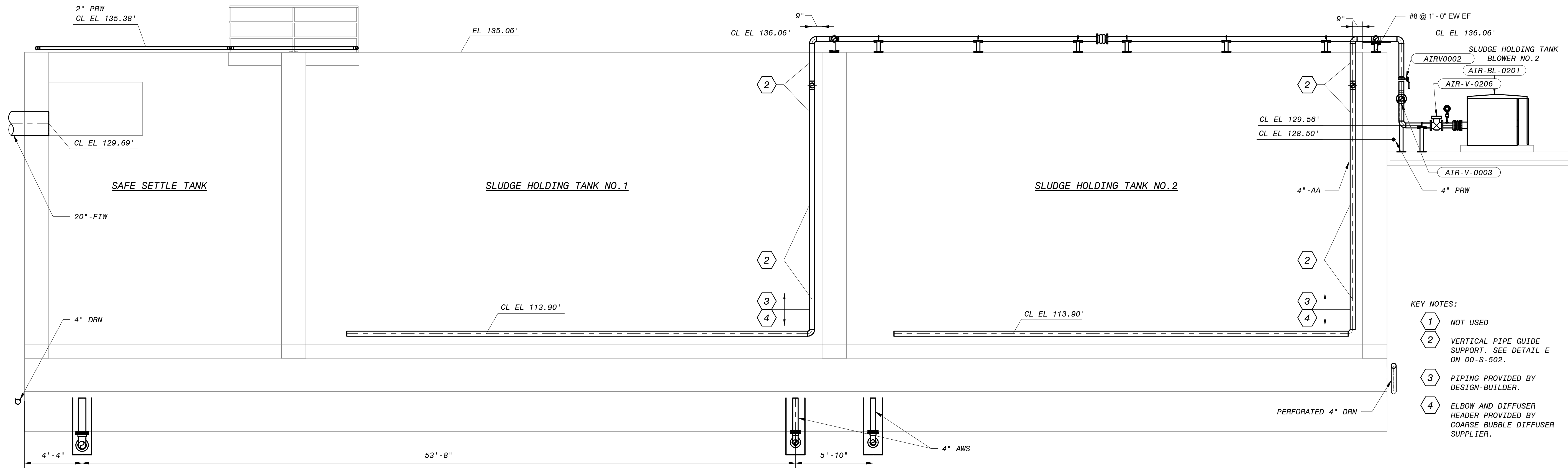
71-M-101
 SHEET
 77 OF 412



OPERATING FLOOR PLAN
 3/16" = 1'-0"

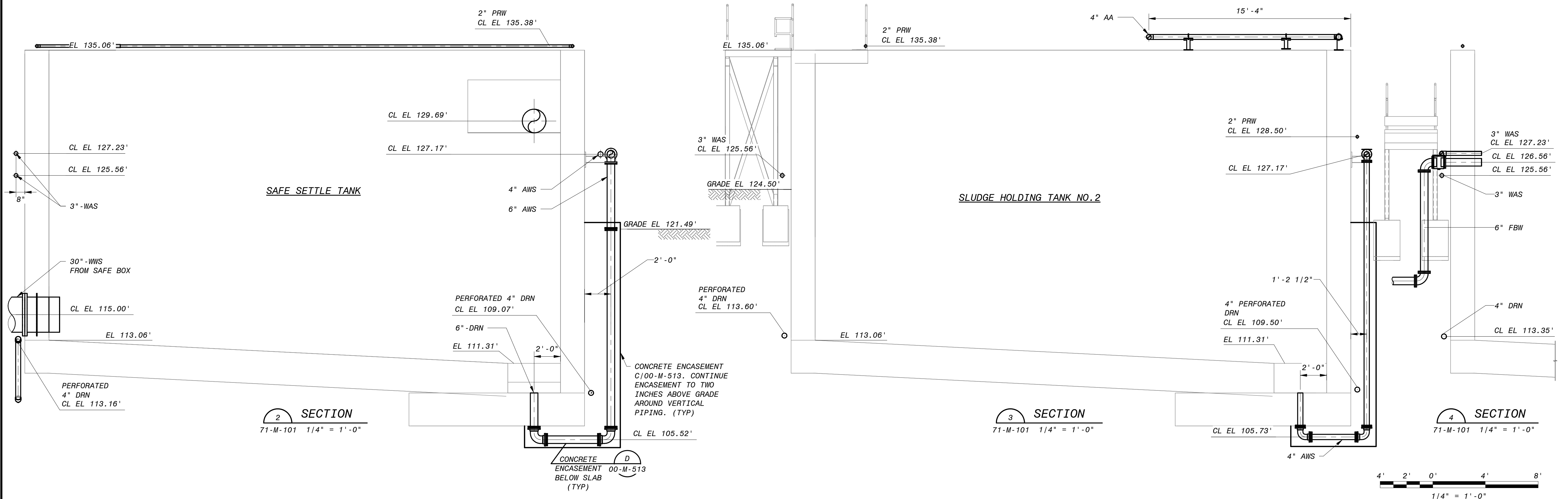


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- KEY NOTES:**
- 1 NOT USED
 - 2 VERTICAL PIPE GUIDE SUPPORT. SEE DETAIL E ON 00-S-502.
 - 3 PIPING PROVIDED BY DESIGN-BUILDER.
 - 4 ELBOW AND DIFFUSER HEADER PROVIDED BY COARSE BUBBLE DIFFUSER SUPPLIER.

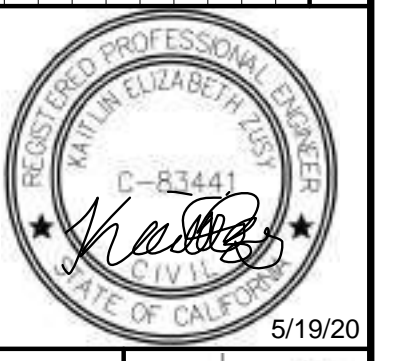
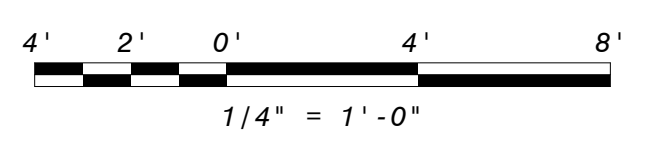
SECTION 1
71-M-101 1/4" = 1'-0"



SECTION 2
71-M-101 1/4" = 1'-0"

SECTION 3
71-M-101 1/4" = 1'-0"

SECTION 4
71-M-101 1/4" = 1'-0"

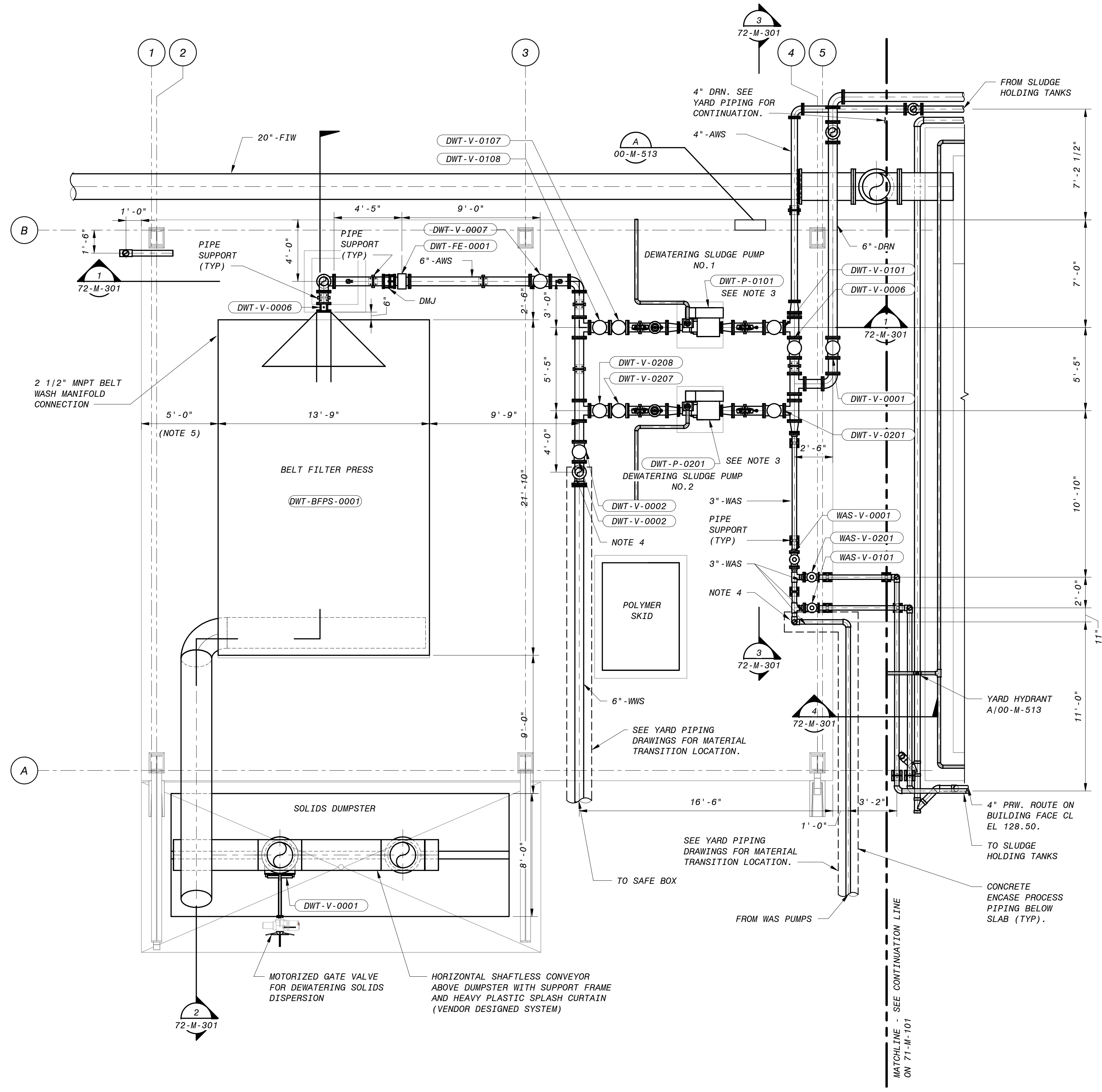


BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
RESIDUALS AREA - SLUDGE HOLDING TANKS AND SAFE SETTLE TANKS
CIVIL - MECHANICAL
SECTIONS & DETAILS 1

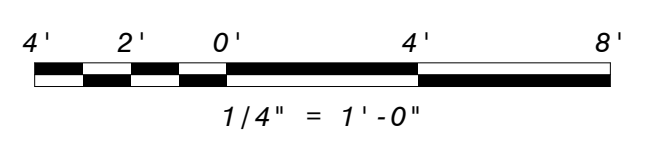
DESIGNED: KEZ
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020
 PROJECT NO. 400530
71-M-301
 SHEET 78 OF 412

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OPERATING FLOOR PLAN
1/4" = 1'-0"

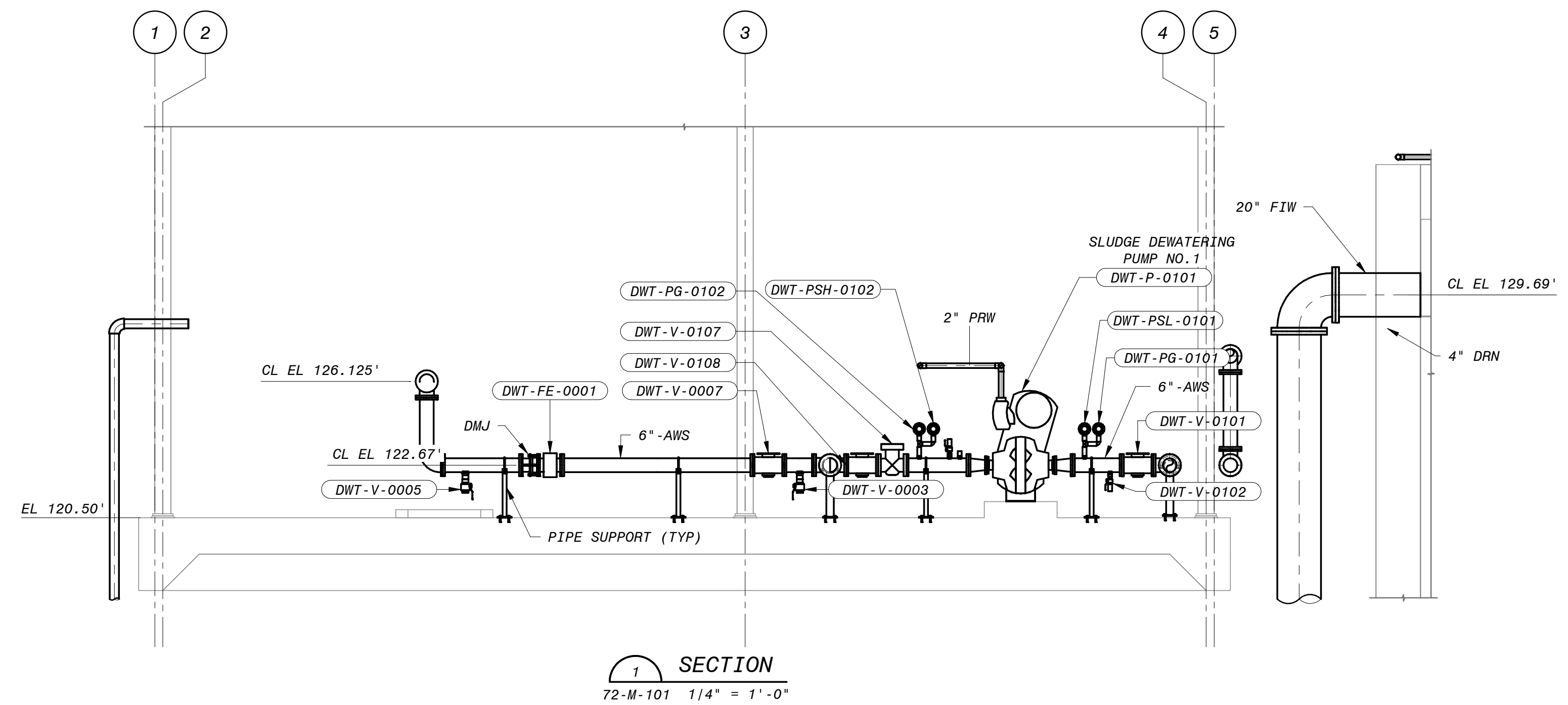
- NOTES:**
1. EXACT LOCATION FOR THE FLOOR DRAIN CONNECTION AT THE BELT FILTER PRESS TO BE CONFIRMED.
 2. SEAL WATER STATION AS REQUIRED.
 3. EXACT DEWATERING PUMP LAYOUT TO BE CONFIRMED WITH VENDOR.
 4. SLAB ON GRADE FLOOR PIPE FOR METALLIC PIPING. PROVIDE INSULATING FLANGE ABOVE SLAB. B/M-00-509.
 5. THERE SHALL BE A MINIMUM OF 5'-0" CLEAR SPACE FROM THE EDGE OF CONCRETE ON THE SOUTH AND WEST SIDES OF THE BELT FILTER PRESS. TO BE FINALIZED WITH BELT FILTER PRESS SHOP DRAWINGS.
 6. NOTE THAT THE BELT FILTER PRESS FILTRATE DRAINS TO THE SANITARY SEWER. THE BELT FILTER PRESS SHOULD NOT BE OPERATED IF ANY OF THE FOLLOWING ACTIVITIES ARE ALSO OCCURRING:
 - CALCITE BACKWASH TANK IS DRAINING.
 - STORM WATER OUTLET CONTROL STRUCTURE IS PUMPING FLOW TO THE SEWER.
 - IF MORE THAN THREE AREAS WITH SEWER DRAINS ARE BEING HOSED DOWN AT ONCE.



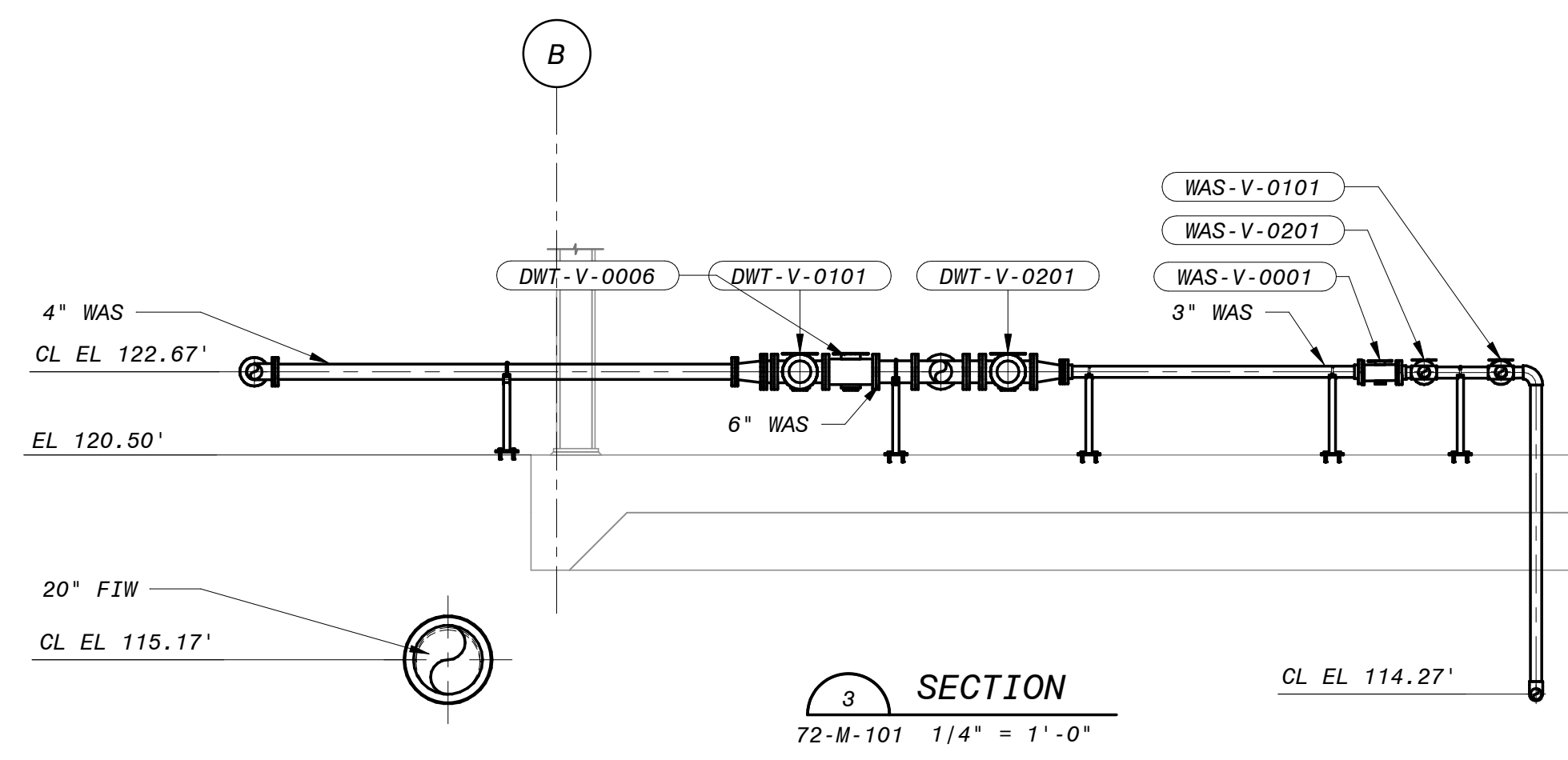
<p>BLACK & VEATCH JOINT VENTURE FILANC</p>	<p>REGISTERED PROFESSIONAL ENGINEER KATHY ELIZABETH JUDY C-32441 CIVIL STATE OF CALIFORNIA 5/19/20</p>
<p>CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF)</p>	
<p>RESIDUALS AREA - DEWATERING FACILITY CIVIL - MECHANICAL PLAN</p>	
<p>DESIGNED: KEZ DETAILED: MAK CHECKED: EVB APPROVED: EVB DATE: 5/19/2020</p>	
<p>PROJECT NO. 400530</p>	
<p>72-M-101 SHEET 79 OF 412</p>	

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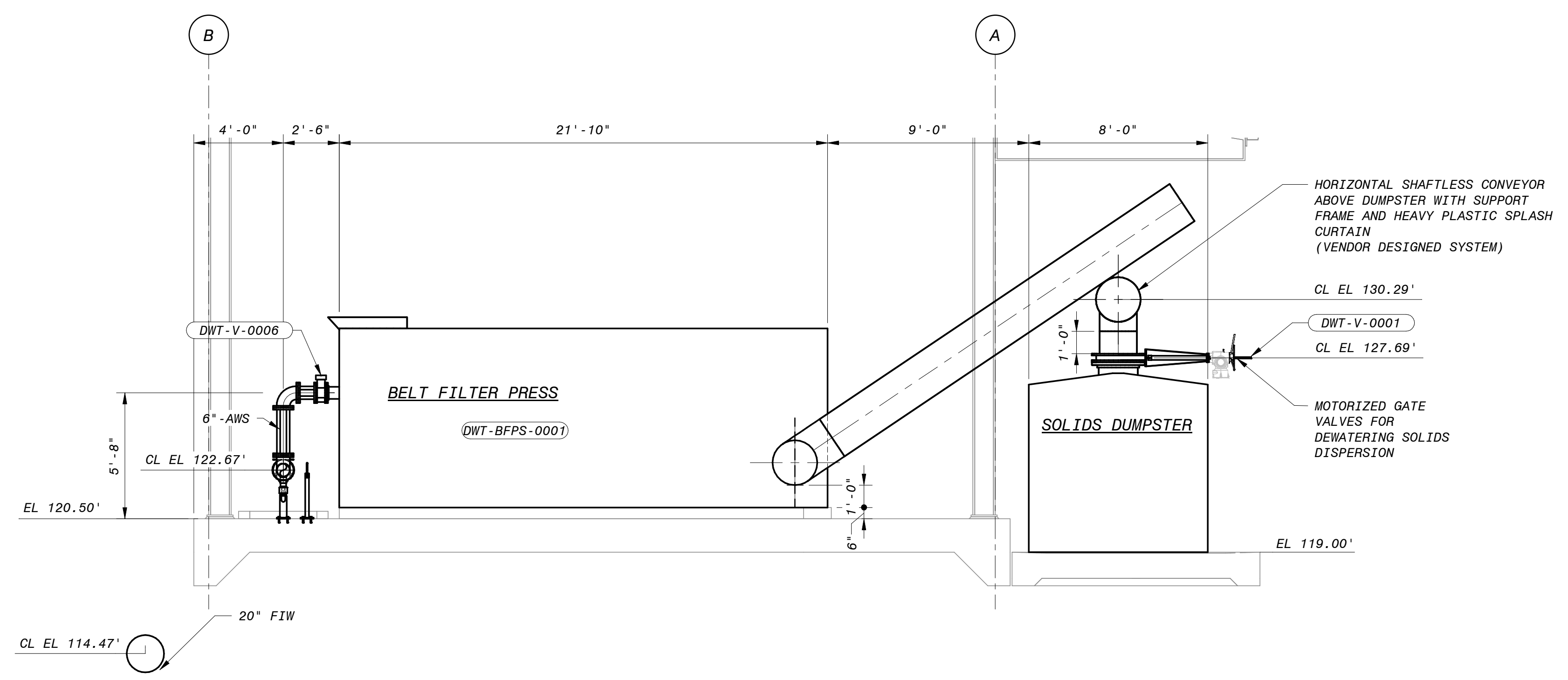
- NOTES:
- FLOOR DRAIN LOCATIONS ARE SHOWN ON THE PLUMBING DRAWING 72-P-101.
 - SEAL WATER STATION AS REQUIRED.
 - EXACT DEWATERING PUMP LAYOUT TO BE CONFIRMED WITH VENDOR.



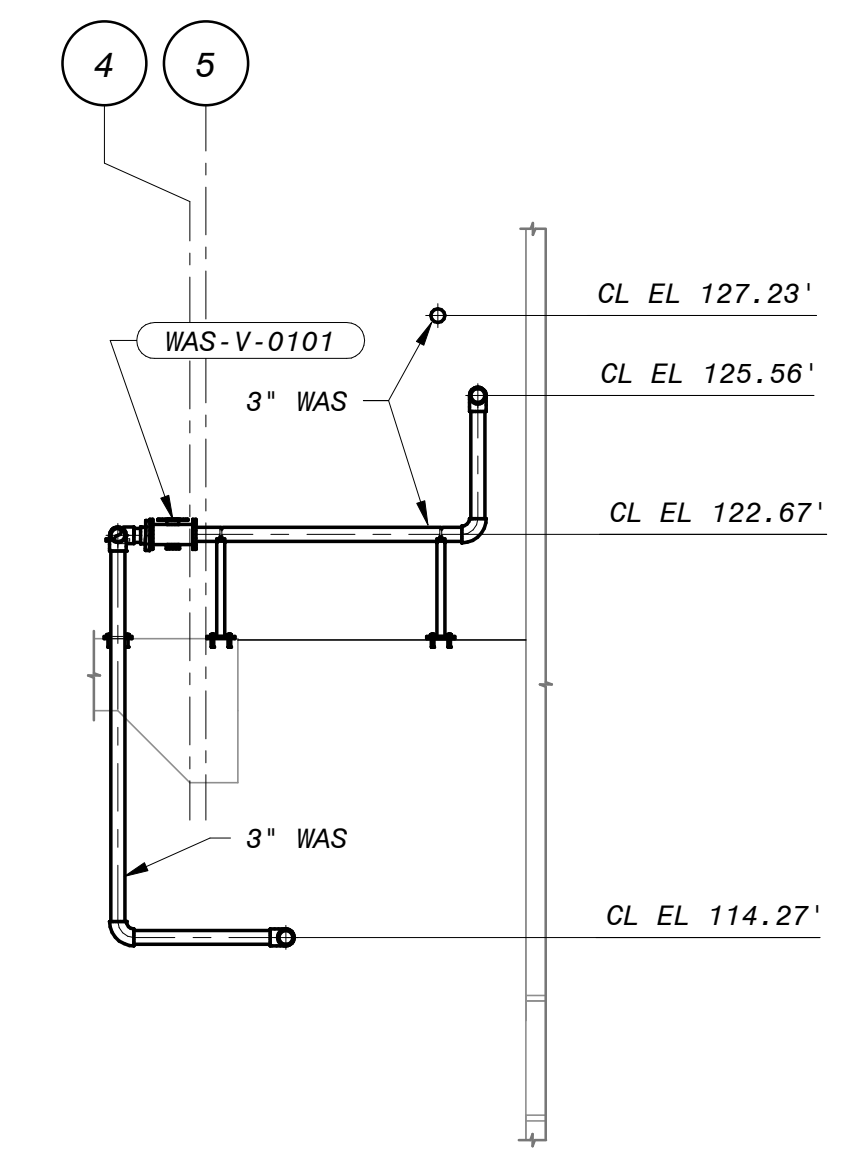
SECTION 1
72-M-101 1/4" = 1'-0"



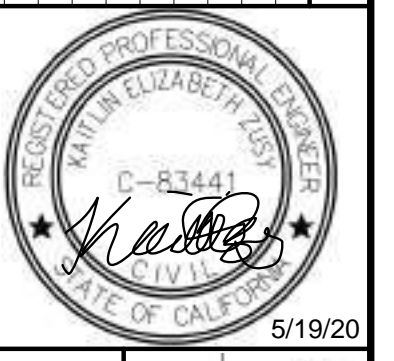
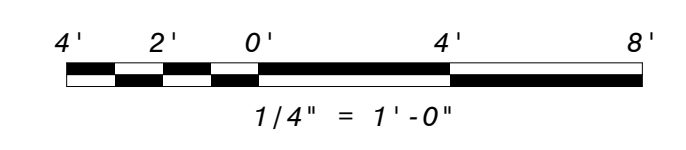
SECTION 3
72-M-101 1/4" = 1'-0"



SECTION 2
72-M-101 1/4" = 1'-0"



SECTION 4
72-M-101 1/4" = 1'-0"



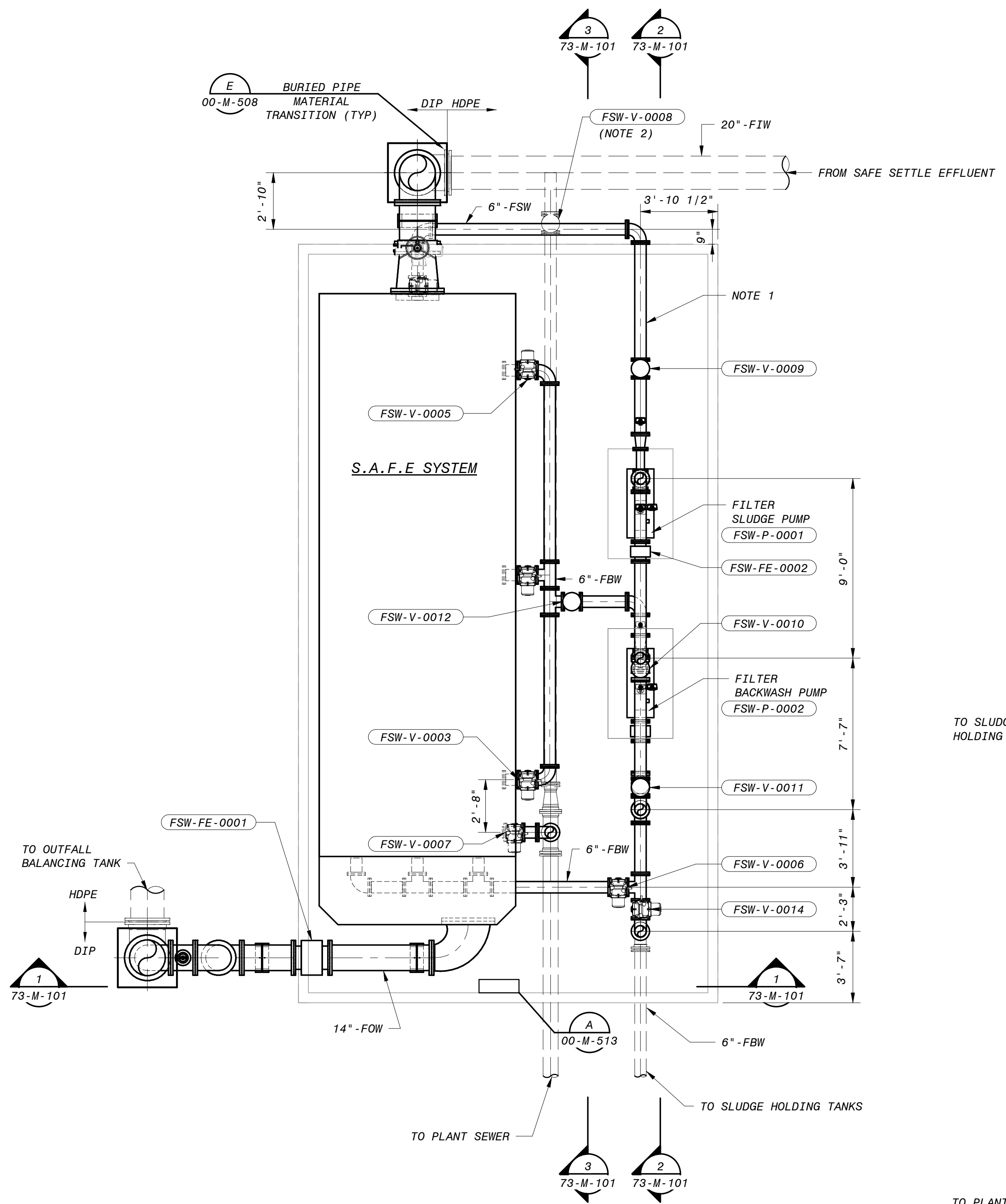
BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
RESIDUALS AREA - DEWATERING FACILITY
CIVIL - MECHANICAL
SECTIONS & DETAILS 1

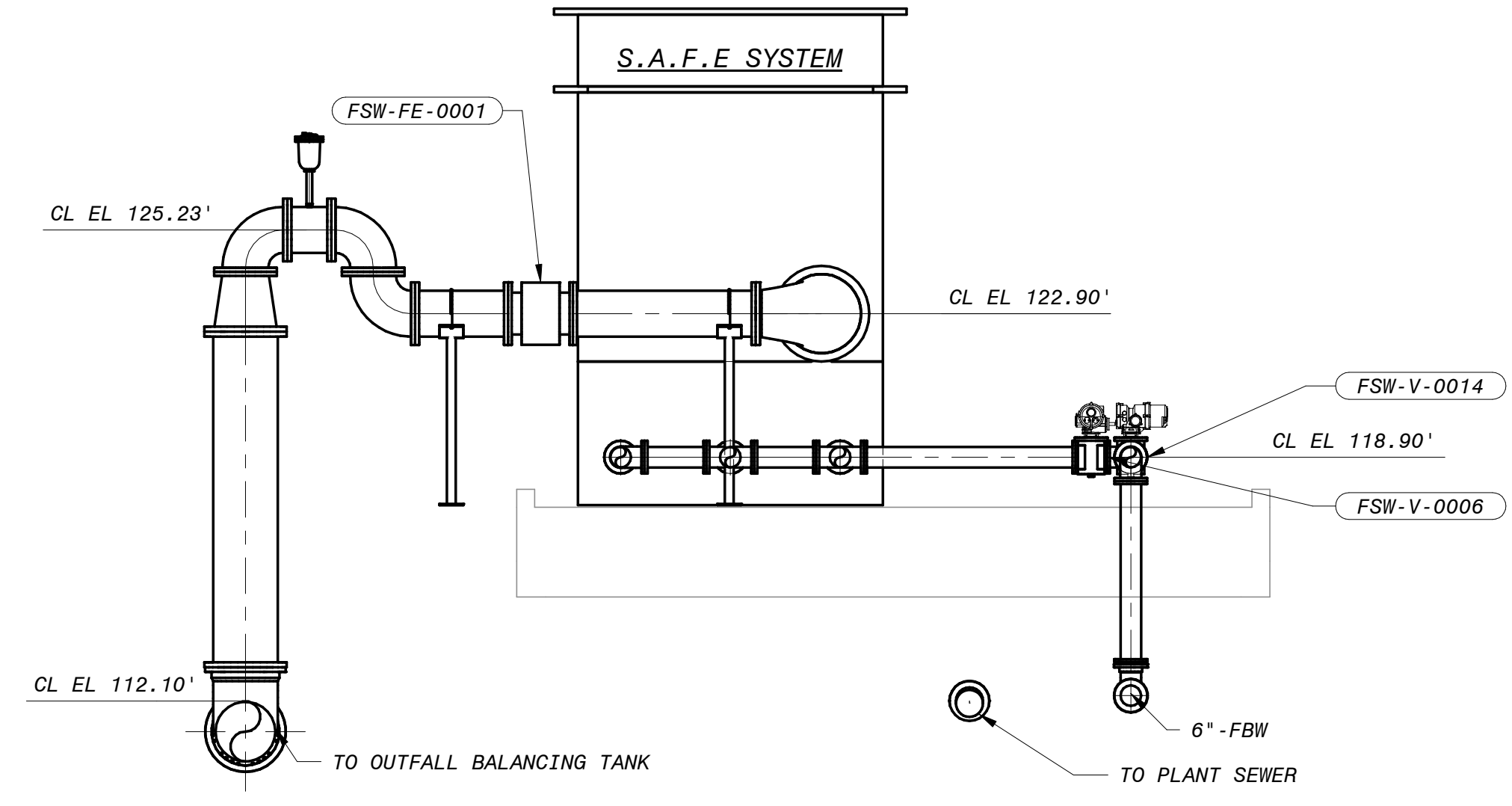
DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

PROJECT NO.
400530
72-M-301
SHEET
80 OF 412

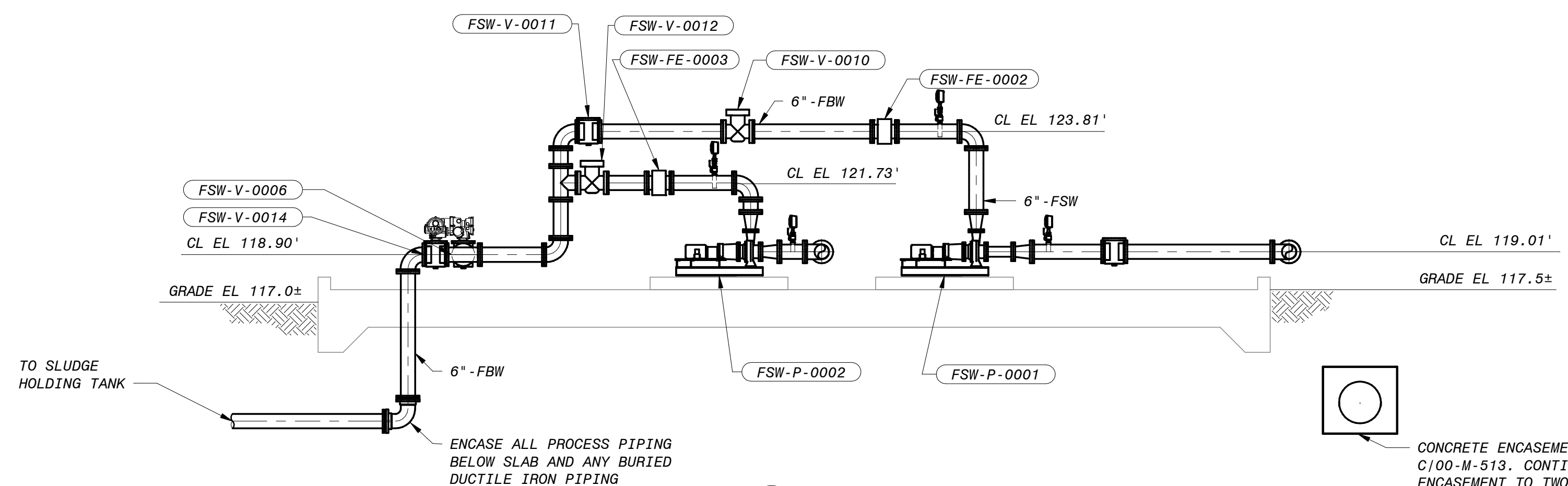
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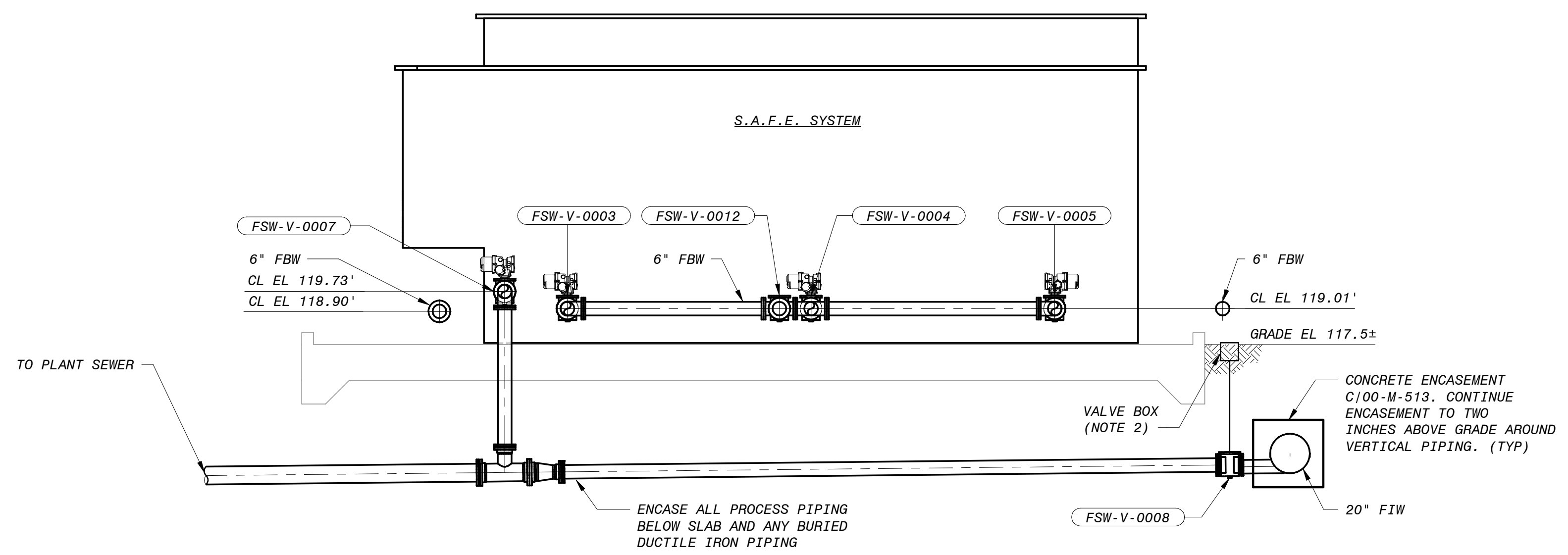
OPERATING FLOOR PLAN
1/4" = 1'-0"



SECTION 1
73-M-101 1/4" = 1'-0"



SECTION 2
73-M-101 1/4" = 1'-0"

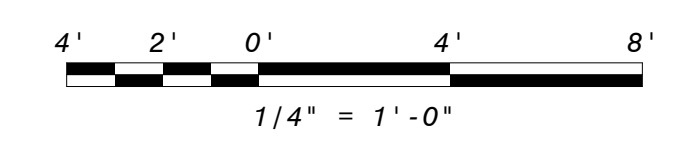


SECTION 3
73-M-101 1/4" = 1'-0"

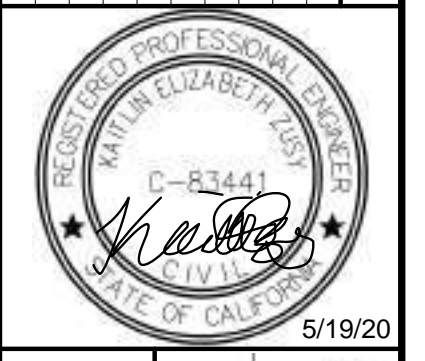
- NOTES:**
- SAFE SYSTEM ABOVE GROUND PIPING LAYOUT TO BE FINALIZED WHEN EQUIPMENT IS PURCHASED.
 - VALVE BOX SHALL BE PER COUNTY STANDARD DETAIL W-3, WITH COVER MARKED "DRAIN" AND WITHOUT VALVE CONCRETE ANCHOR BLOCK.

CONCRETE ENCASEMENT C/00-M-513. CONTINUE ENCASEMENT TO TWO INCHES ABOVE GRADE AROUND VERTICAL PIPING. (TYP)

CONCRETE ENCASEMENT C/00-M-513. CONTINUE ENCASEMENT TO TWO INCHES ABOVE GRADE AROUND VERTICAL PIPING. (TYP)



NO.	BY	CHK APP
0	KEZ	RWE EVB
ISSUED FOR CONSTRUCTION		
REVISONS AND RECORD OF USE		
DATE	5/19/2020	



BLACK & VEATCH
JOINT VENTURE
FILANC BLACK & VEATCH

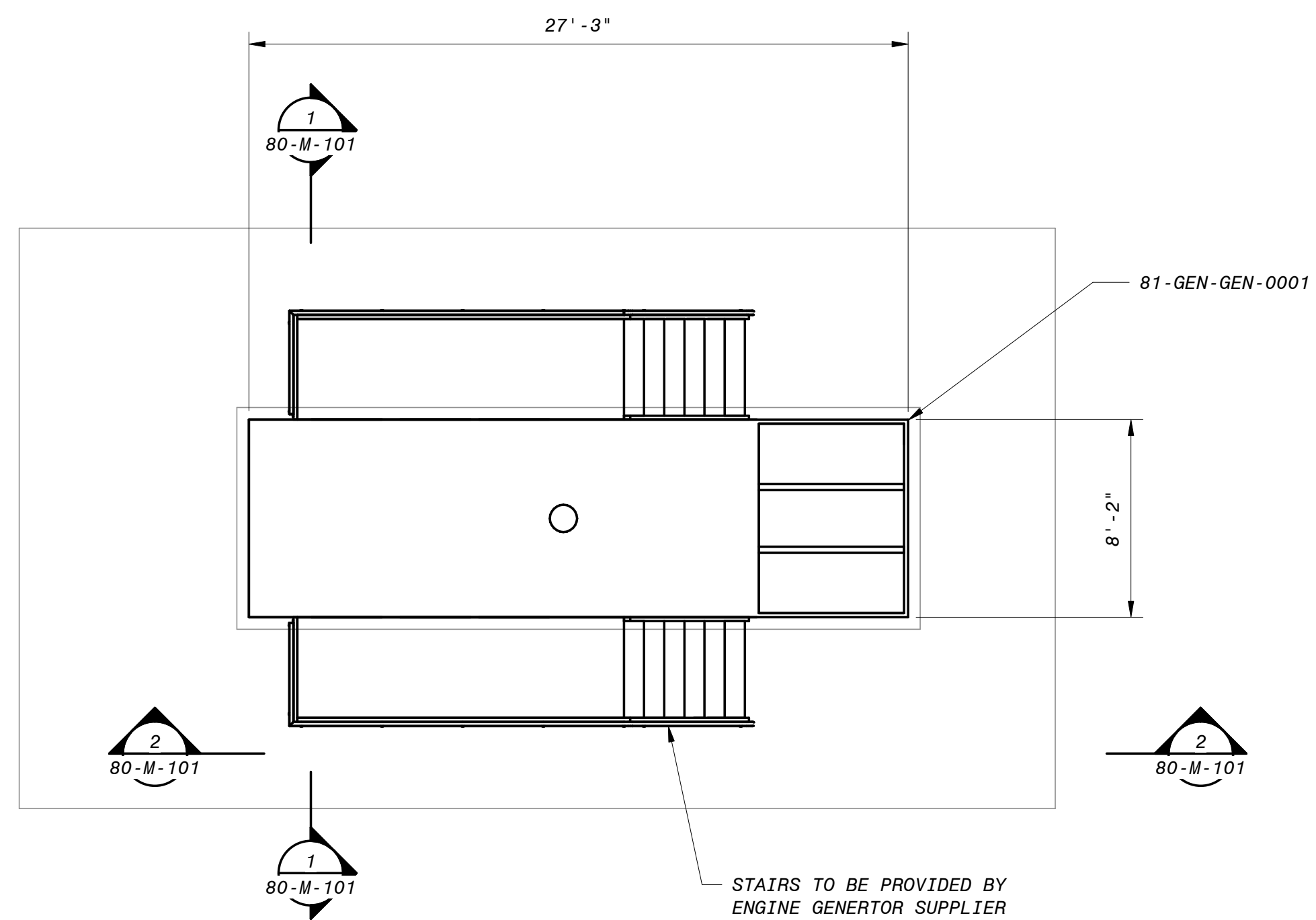
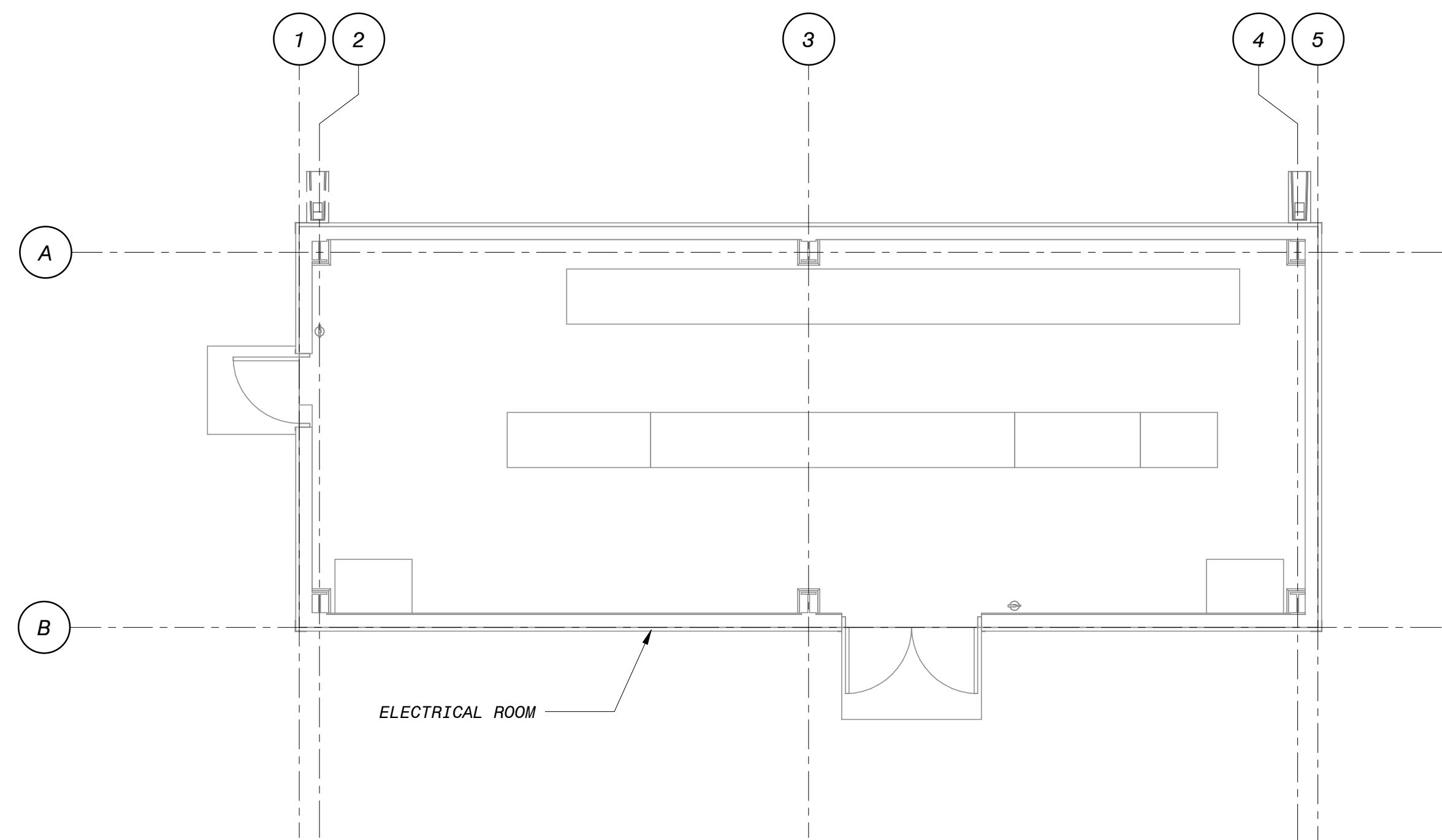
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
RESIDUALS AREA - SAFE FILTER SYSTEM
CIVIL - MECHANICAL
PLAN, SECTIONS AND DETAILS

DESIGNED: KEZ
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020

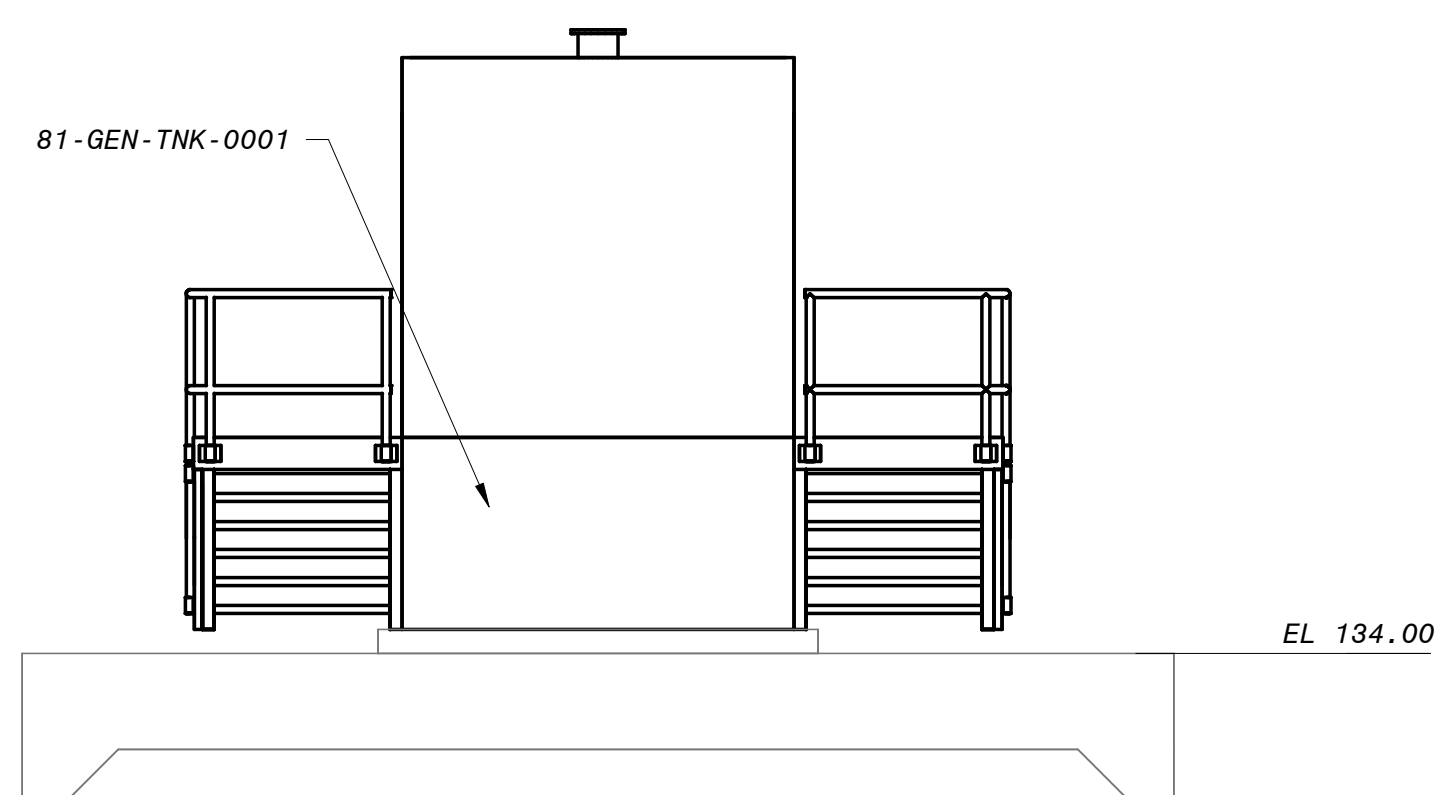
PROJECT NO.
400530

73-M-101
SHEET
81 OF 412

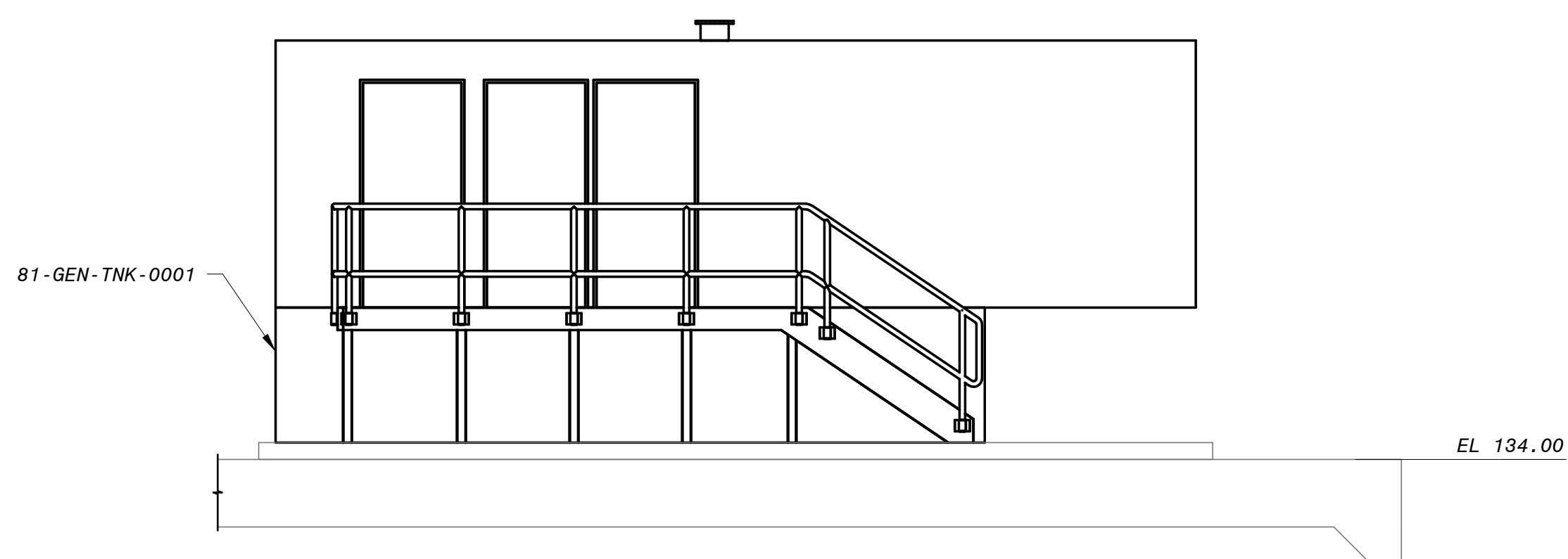
PLOTTED: 5/19/2020 3:34:15 PM
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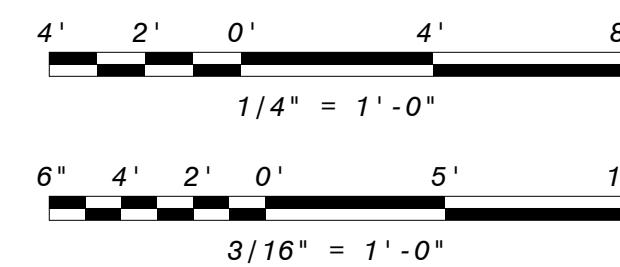
OPERATING LEVEL
3/16" = 1'-0"



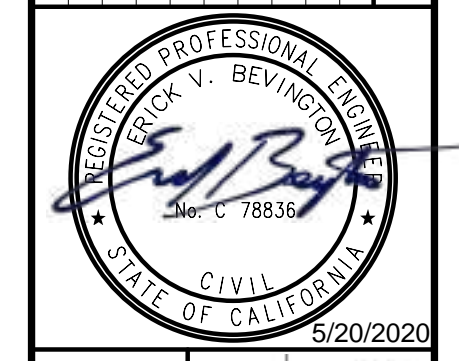
SECTION 1
80-M-101 1/4" = 1'-0"



SECTION 2
80-M-101 1/4" = 1'-0"



NO.	BY	REVISIONS AND RECORD OF USE	DATE
0	KEZ	ISSUED FOR CONSTRUCTION	5/19/2020
	RWE	REVISED	
	EVB	REVISED	



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

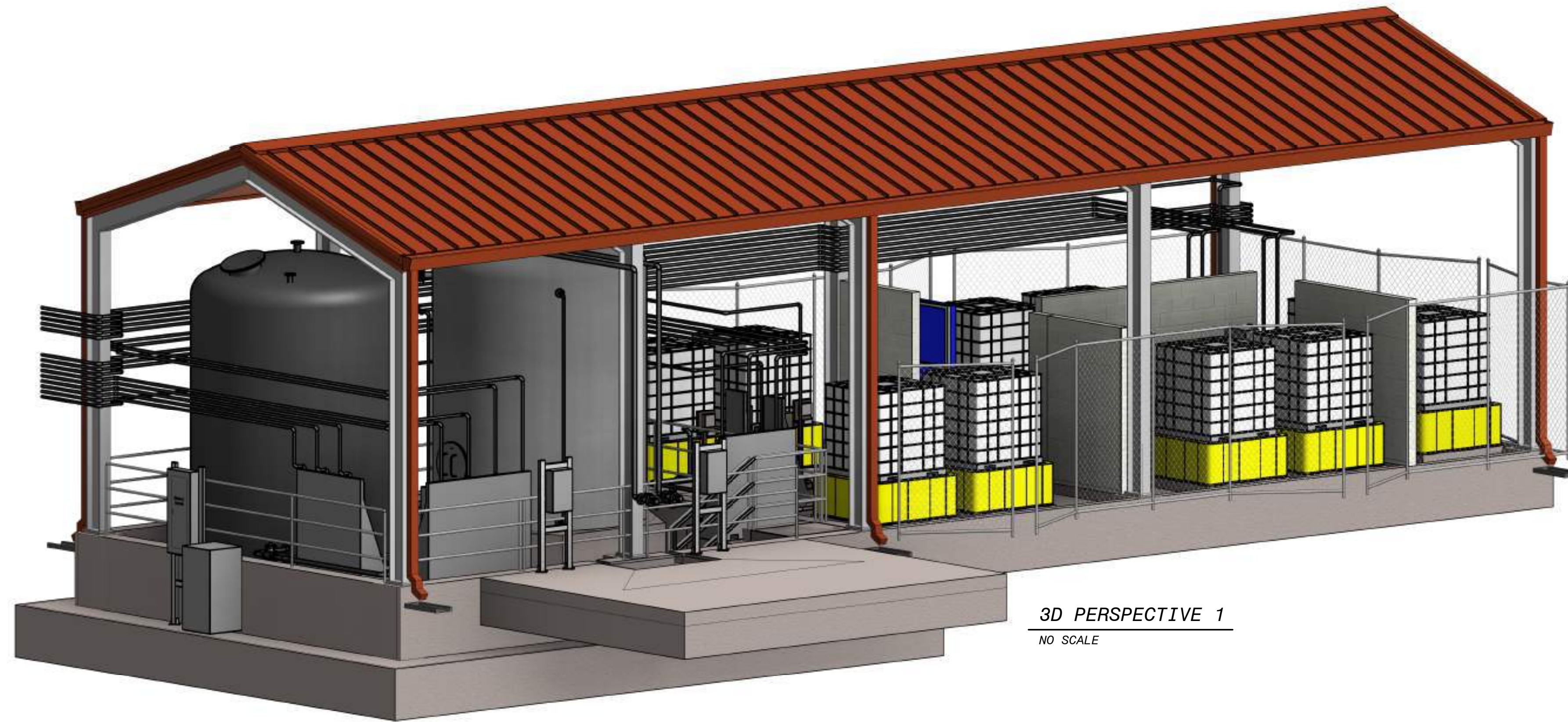
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
ELECTRICAL BUILDING
CIVIL - MECHANICAL
OVERALL PLAN AND SECTIONS

DESIGNED: KEZ
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

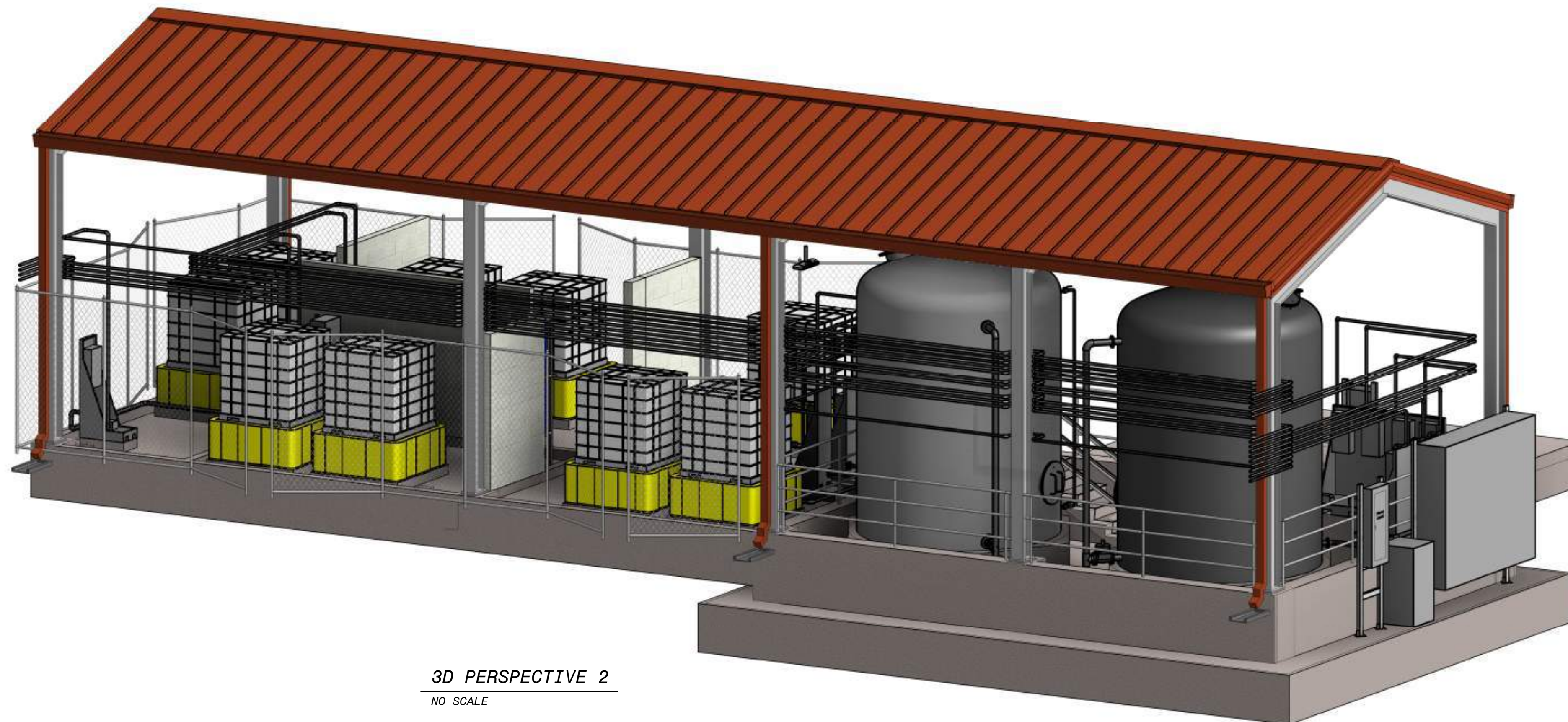
PROJECT NO.
400530

80-M-101
SHEET
82 OF 412

PLOTTED: 5/19/2020 3:24:31 PM
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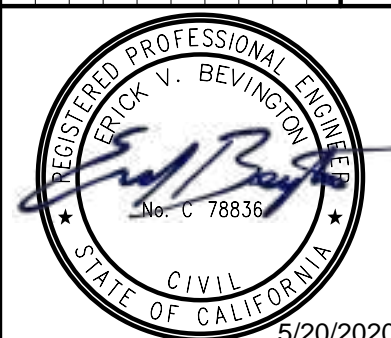


3D PERSPECTIVE 1
NO SCALE



3D PERSPECTIVE 2
NO SCALE

PLOTTED: 5/19/2020 3:27:45 PM
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BLACK & VEATCH
JOINT VENTURE
FILANC
BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
CHEMICAL FACILITY - OVERALL
CIVIL - MECHANICAL
3D VIEWS

DESIGNED: DAV
DETAILED: MAK
CHECKED: EVB
APPROVED: EVB
DATE: 5/19/2020

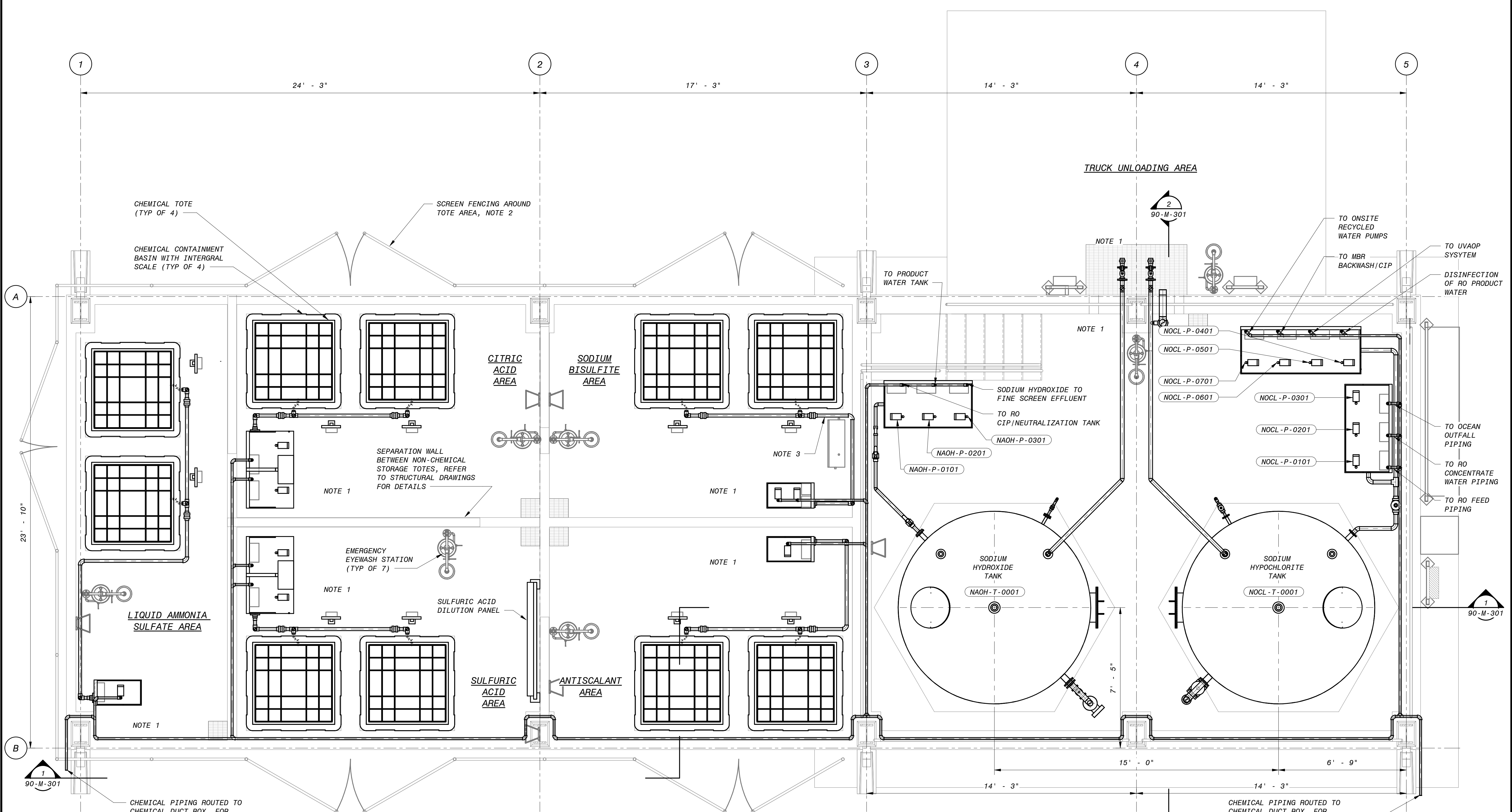
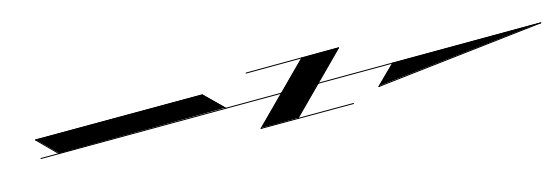
0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530
90-M-001
SHEET
83 OF 412

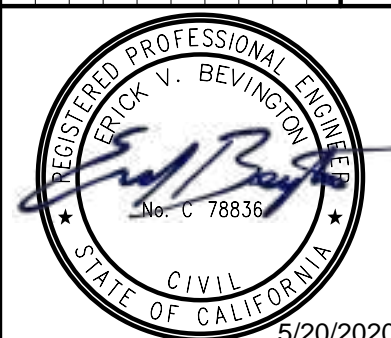
NO.	BY	CHK APP
0	DAV	RWB EVB
ISSUED FOR CONSTRUCTION		
REVISONS AND RECORD OF USE		
DATE		
5/19/2020		

NOTES:

1. AREA TO BE COATED PER THE REQUIREMENTS OF SPECIFICATION 099724.
2. SEE SPECIFICATIONS 323113 "CHAIN-LINK FENCES AND GATES" FOR INSTALLATION DETAILS.
3. ABOVE GRADE SODIUM BISULFITE PIPING SHALL BE INSULATED AND HEAT TRACED.



CHEMICAL FACILITY - OVERALL - PLAN
 3/8" = 1'-0"

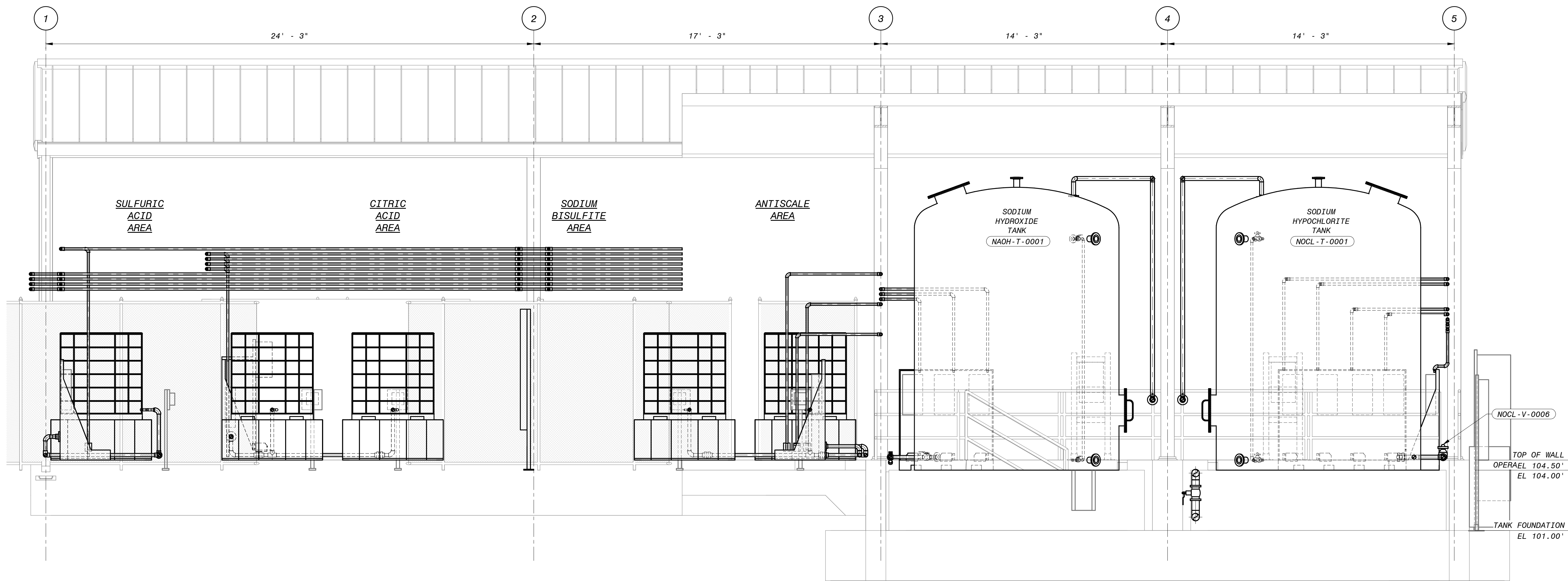


BLACK & VEATCH
 JOINT VENTURE
FILANC
 BLACK & VEATCH

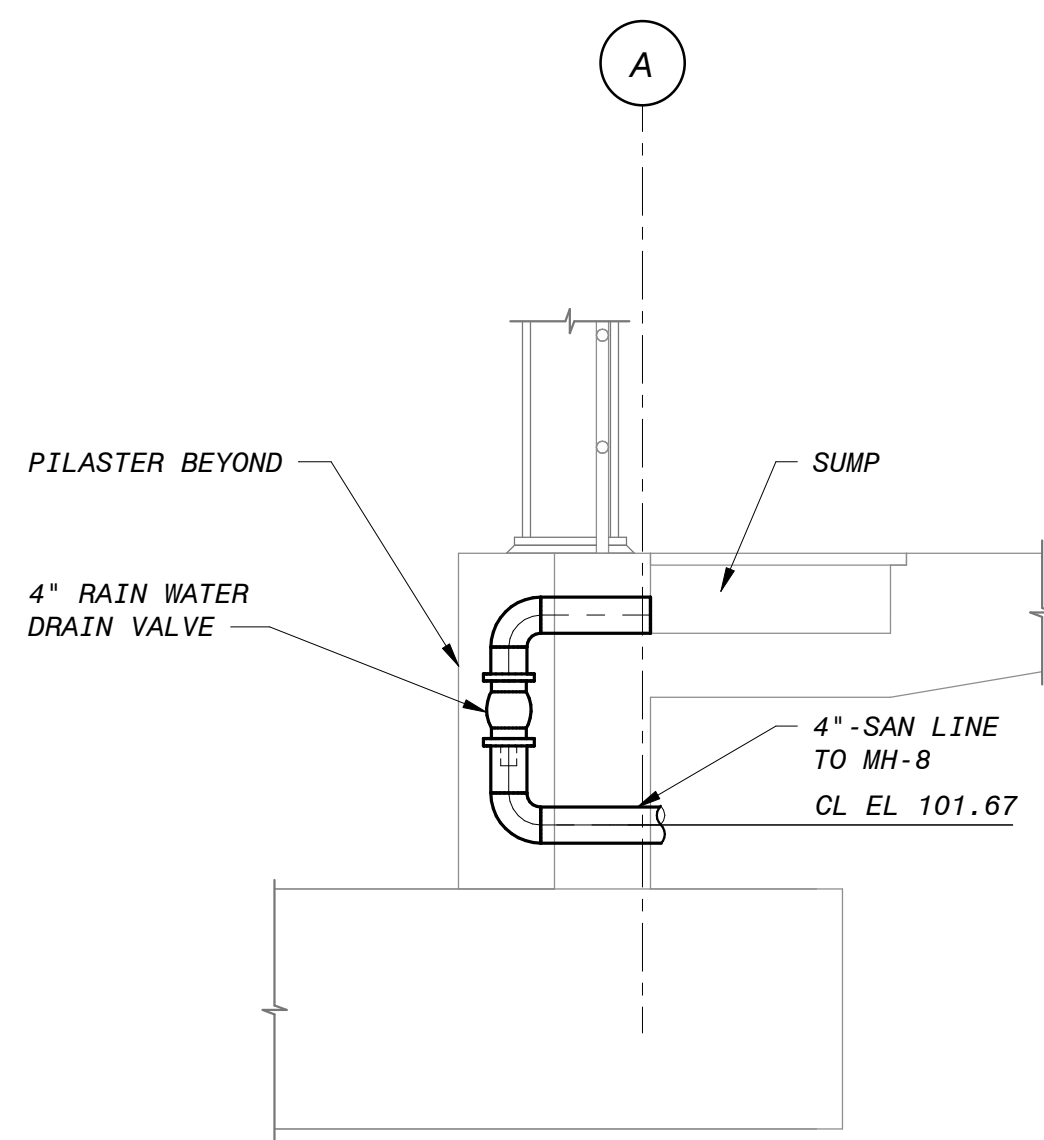
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 CHEMICAL FACILITY - OVERALL
 CIVIL - MECHANICAL
 PLAN

DESIGNED: DAV
 DETAILED: MAK
 CHECKED: EVB
 APPROVED: EVB
 DATE: 5/19/2020
 PROJECT NO. 400530
90-M-101
 SHEET 84 OF 412

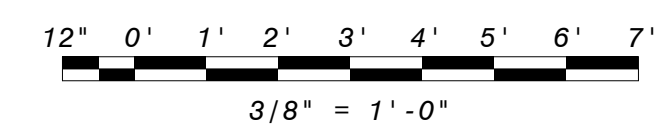
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SECTION
 90-M-101 3/8" = 1'-0"

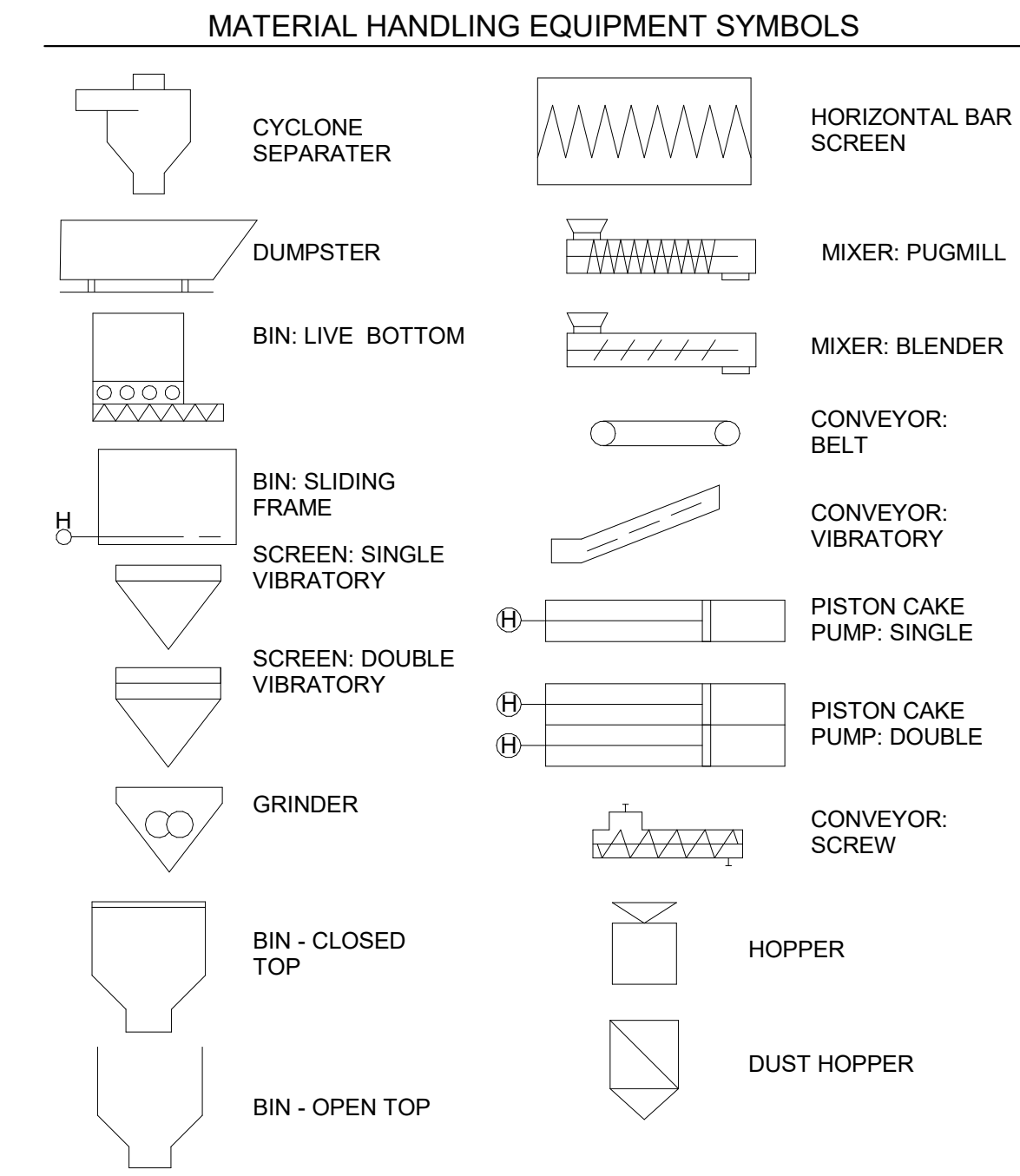
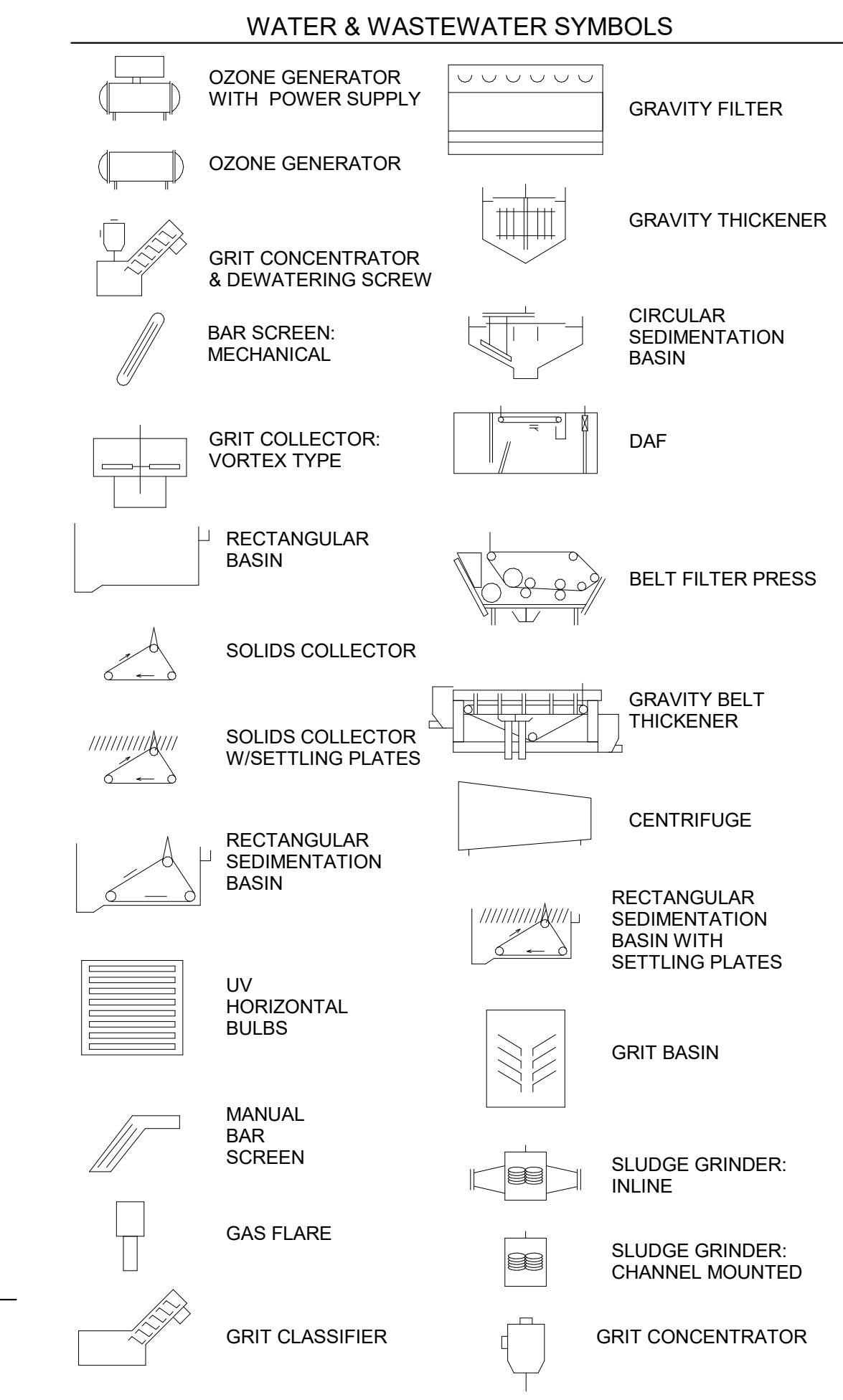
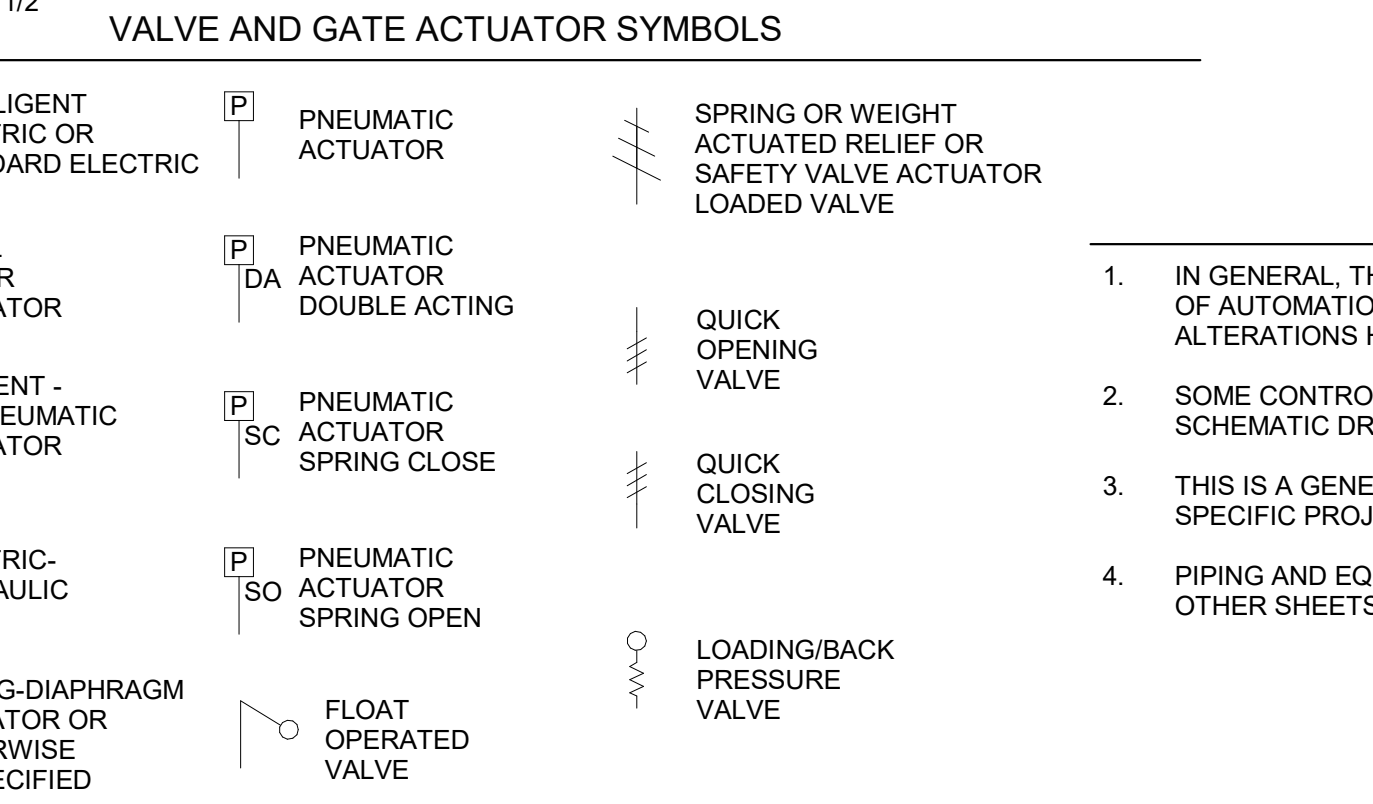
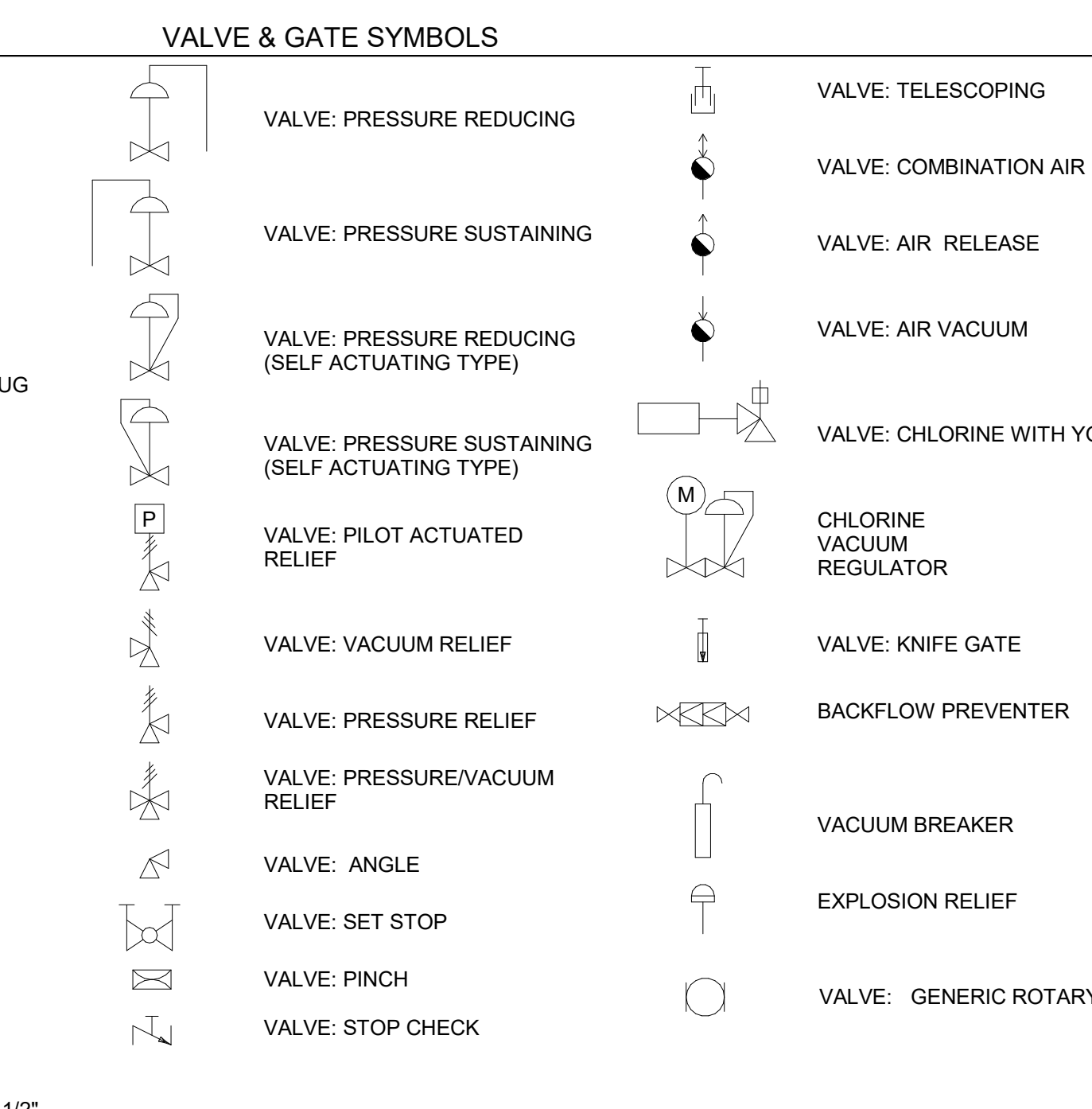
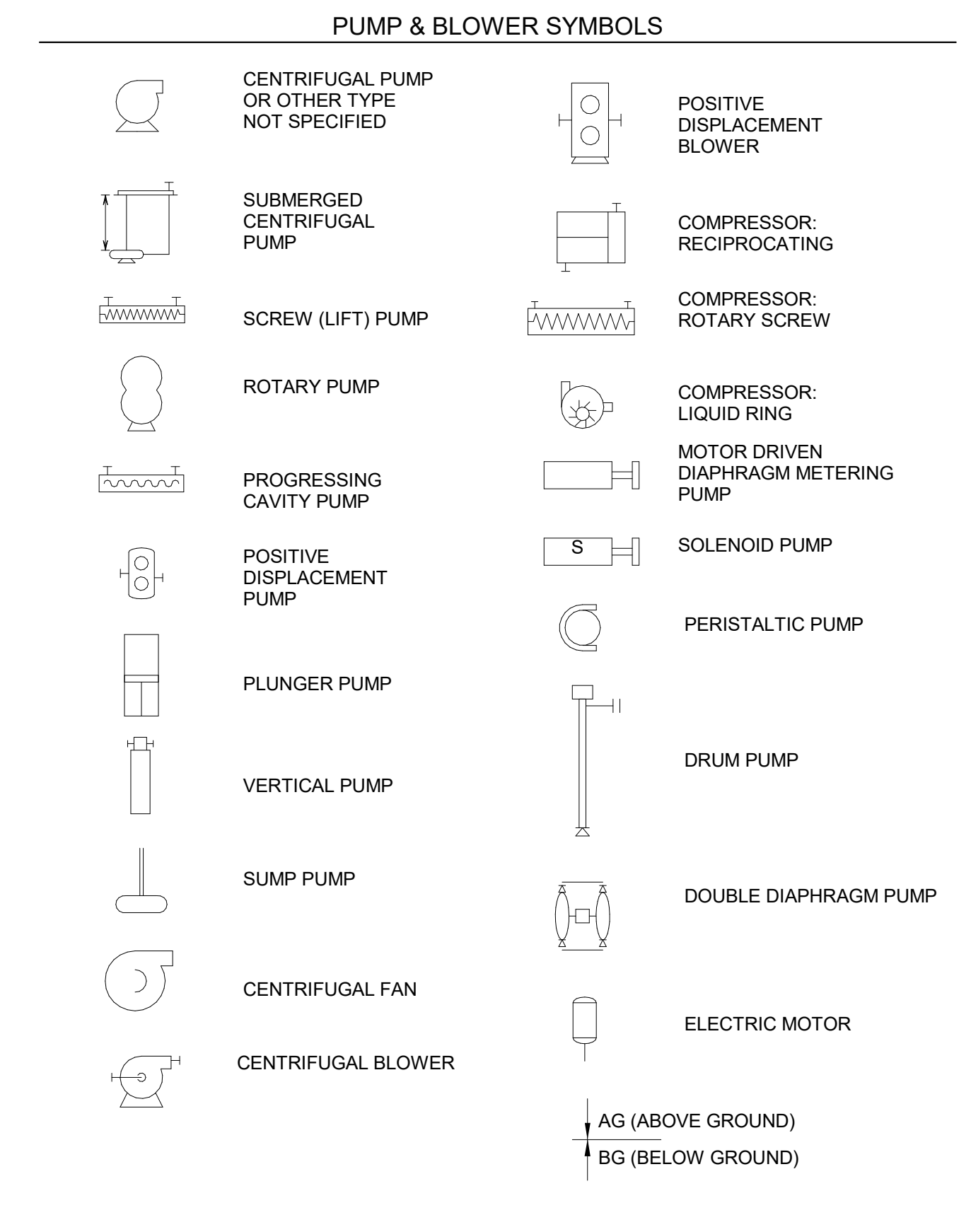
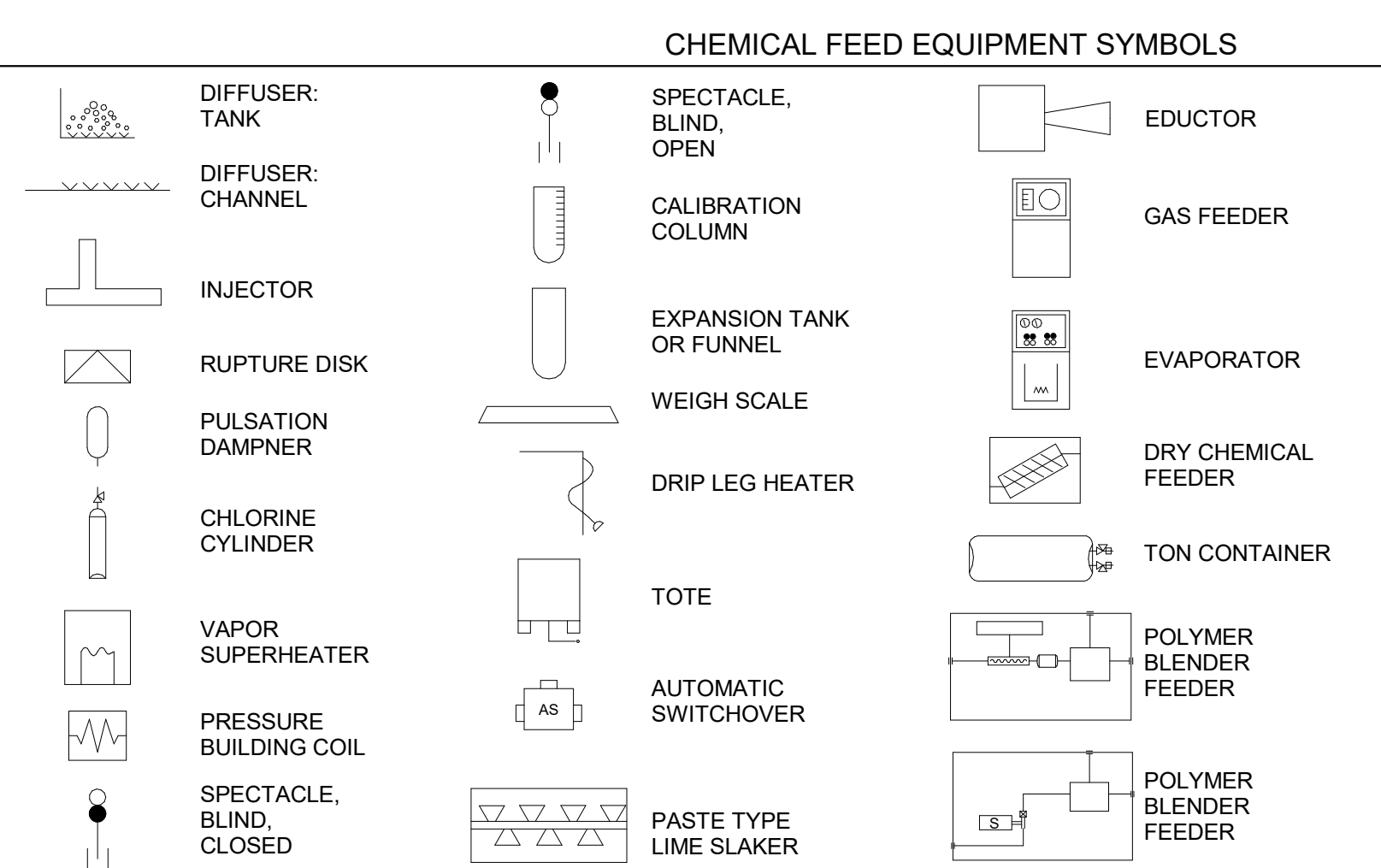
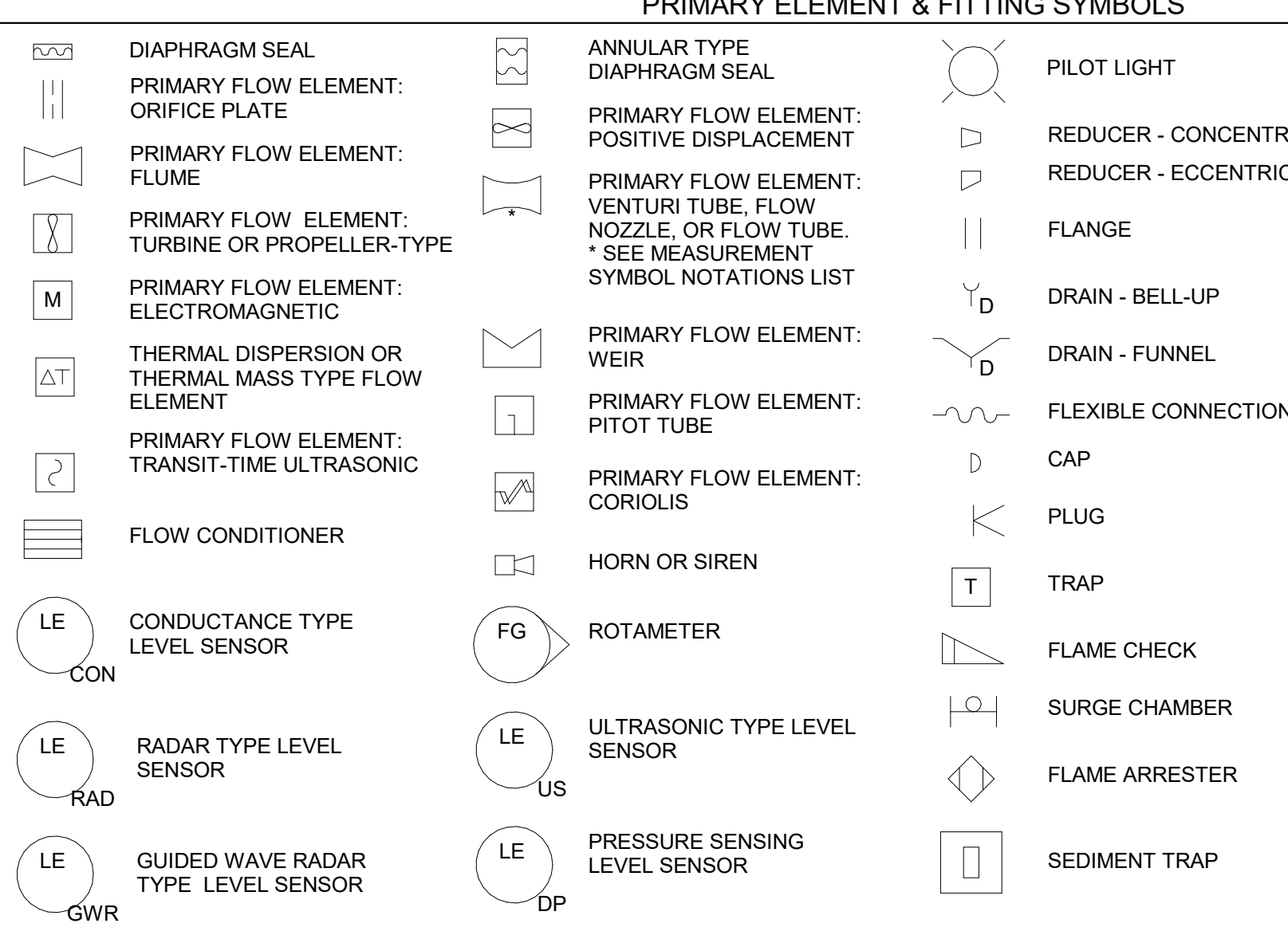
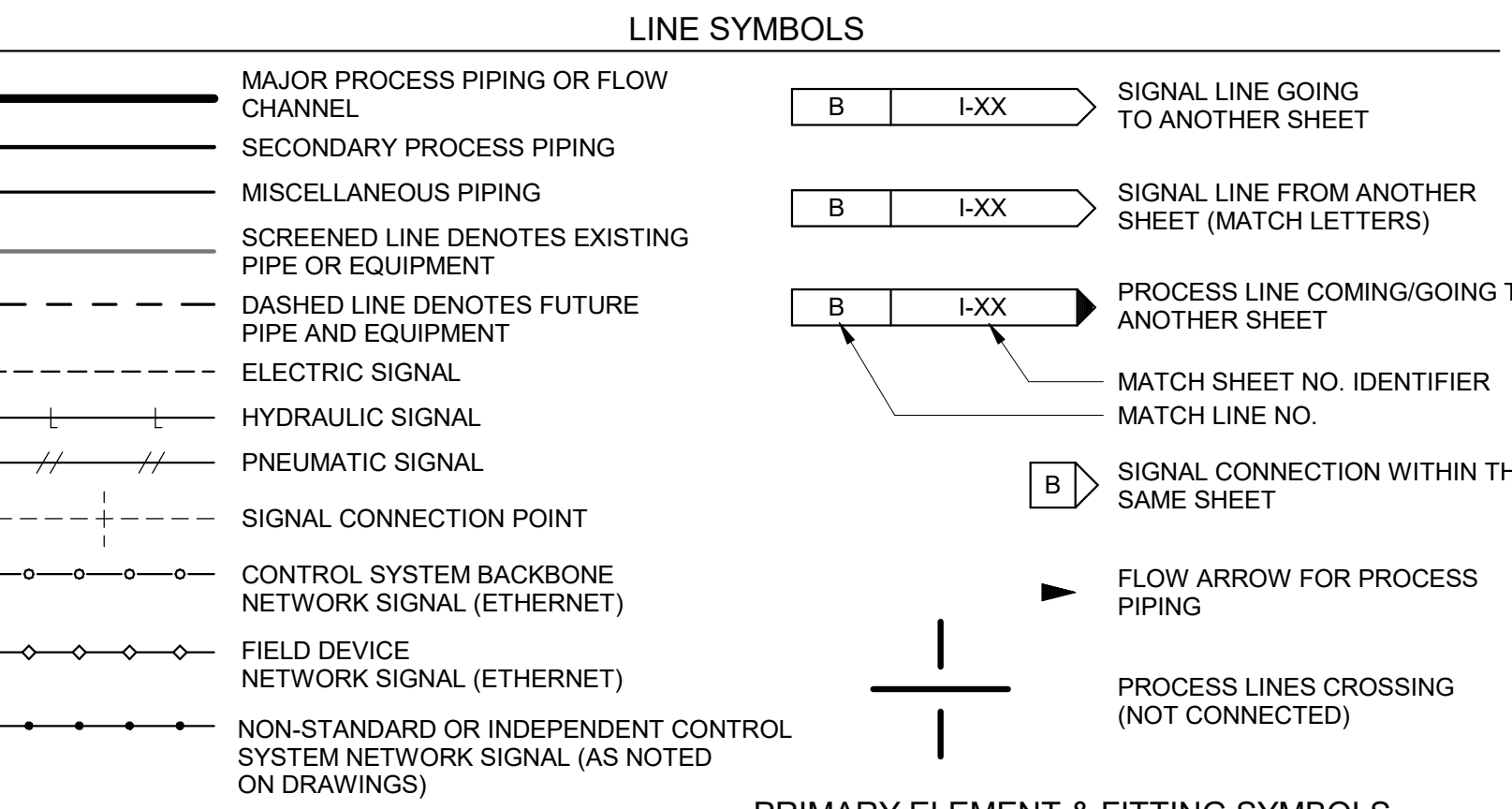
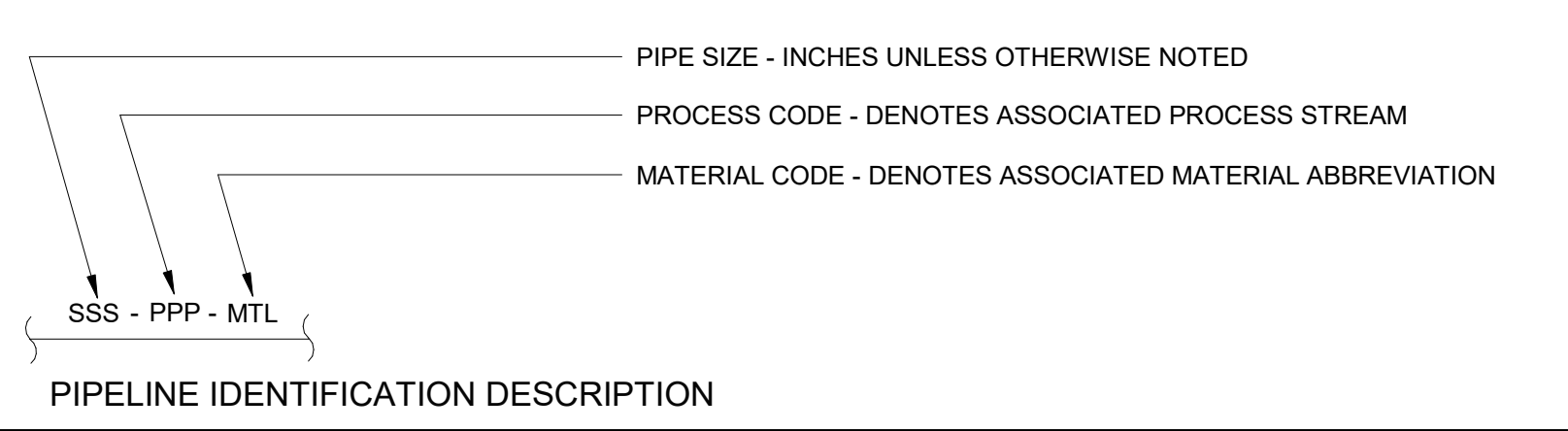
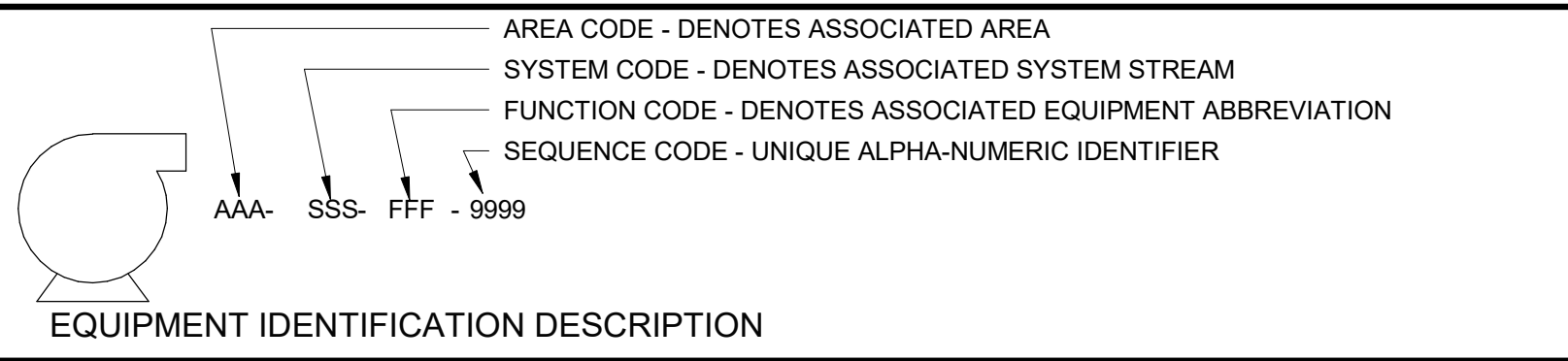


SECTION
 90-M-101 1/2" = 1'-0"



	0 DAY RINE EVB NO. BY CHK APP 5/19/2020 ISSUED FOR CONSTRUCTION REVISIONS AND RECORD OF USE DATE
BLACK & VEATCH JOINT VENTURE FILANC	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) CHEMICAL FACILITY - OVERALL CIVIL - MECHANICAL SECTION AND DETAILS 1	
DESIGNED: DAV DETAILED: MAK CHECKED: EVB APPROVED: EVB DATE: 5/19/2020	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE PROJECT NO. 400530	
90-M-301 SHEET 85 OF 412	

PLOTTED: 5/19/2020 3:28:44 PM
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GENERAL NOTES

- IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
- SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM THE P&ID DRAWINGS.
- THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
- PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.

DESIGNED: BLB
 DETAILED: PVR
 CHECKED: JSM, BOS
 APPROVED: BLB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

00-I-001
 SHEET
 86 OF 412

REGISTERED PROFESSIONAL ENGINEER
 Brian L. Butler
 No. E 16569
 ELECTRICAL
 STATE OF CALIFORNIA

BLACK & VEATCH
 JOINT VENTURE
 FILANC
 BLACK & VEATCH

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)

LEGEND & ABBREVIATIONS
 P&ID
 SHEET 1

5/19/2020 ISSUED FOR CONSTRUCTION
 DATE
 0 BLB USJL BLB
 NO. BY CHK APP

PLOTTED: 5/19/2020 3:58:21 PM
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INSTRUMENT AND I/O ABBREVIATIONS
MEANINGS OF IDENTIFICATION LETTERS

LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	VARIABLE MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT OR ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSE
D	USER'S CHOICE	DIFFERENTIAL			DEVIATION
E	VOLTAGE (EMF)		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER		SCAN		
K	TIME OR TIME-SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	TORQUE		ORIFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE	INTEGRATE OR TOTALIZE		
R	RADIATION		RECORD		RUN
S	SPEED OR FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION OR MECHANICAL ANALYSIS			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL, PROBE		
X	UNCLASSIFIED	X-AXIS	ACCESSORY DEVICES OR UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z-AXIS		DRIVE, ACTUATOR OR FINAL CTRL ELEMENT	

*NOTE TO DESIGNER: UPDATE "USER'S CHOICE" FIELDS FOR EACH PROJECT.

GENERAL NOTES

- IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
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- THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS.

PIPELINE MATERIAL CODE ABBREVIATIONS

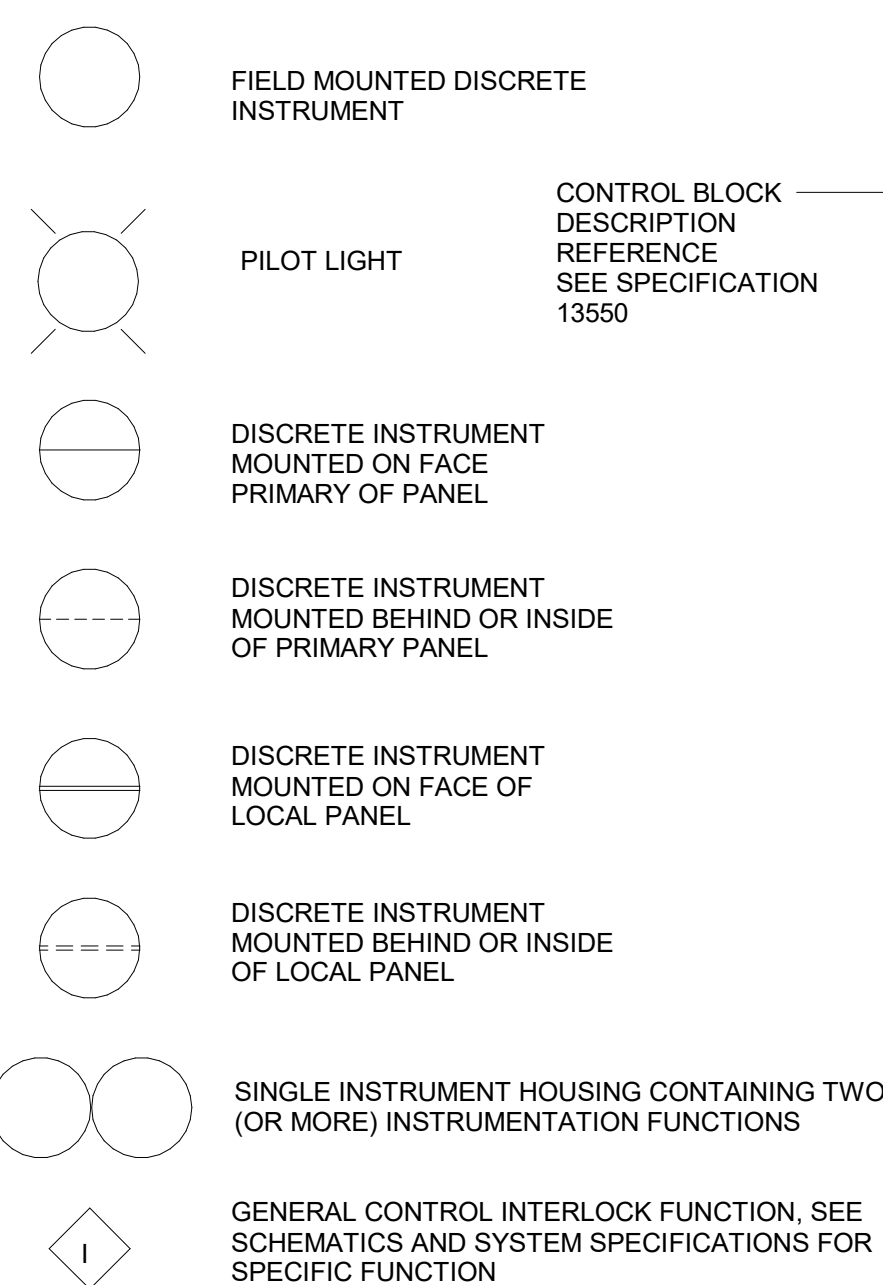
DB-01	POLYETHYLENE TUBING IN SCHEDULE 40 CPVC CARRIER PIPE
DB-02	TEFLON TUBING IN SCHEDULE 40 CPVC CARRIER PIPE
DIP	SECTION 15061, DUCTILE IRON PIPE
SP	SECTION 15062, STEEL PIPE
PVC-XX	SECTION 15061, POLYVINYL CHLORIDE PIPE
PVC-01	SCHEDULE 40 PVC WITH SOLVENT WELDED FITTINGS
PVC-02	SCHEDULE 80 PVC WITH SOLVENT WELDED FITTINGS
PE-XX	SECTION 15067, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PE-06	SECTION 15067, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
CPVC-XX	SECTION 15067, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
CPVC-01	SCHEDULE 40 CPVC WITH SOLVENT WELDED FITTINGS
CPVC-02	SCHEDULE 80 CPVC WITH SOLVENT WELDED FITTINGS
CRP-XX	SECTION 15060, MISCELLANEOUS PIPING AND PIPE ASSEMBLY
CRP-01	CARPENTER 20 PIPE
HDPE	SECTION 02634, HIGH DENSITY POLYETHYLENE (HDPE) PRESSURE PIPE
SS-XX	SECTION 15064, STAINLESS STEEL PIPE, TUBING, AND ACCESSORIES
SS-02	AERATION PIPING SCHEDULE 10, 304SS
SS-04	PROCESS PIPING SCHEDULE 40, 304SS
SS-05	PROCESS PIPING SCHEDULE 40, 316SS
CSG-XX	SECTION 15065, MISCELLANEOUS STEEL PIPE, TUBING, AND ACCESSORIES
CS-XX	SECTION 15065, MISCELLANEOUS STEEL PIPE, TUBING, AND ACCESSORIES
CS-02	STANDARD WEIGHT STEEL WITH SOCKET WELDED FITTINGS
CS-03	STANDARD WEIGHT STEEL WITH BUTTWELDED FITTINGS
CI-XX	SECTION 15069, CAST IRON SOIL PIPE AND ACCESSORIES
CJ-XX	SECTION 15070, COPPER TUBING AND ACCESSORIES

1. XX= numbers 01-20

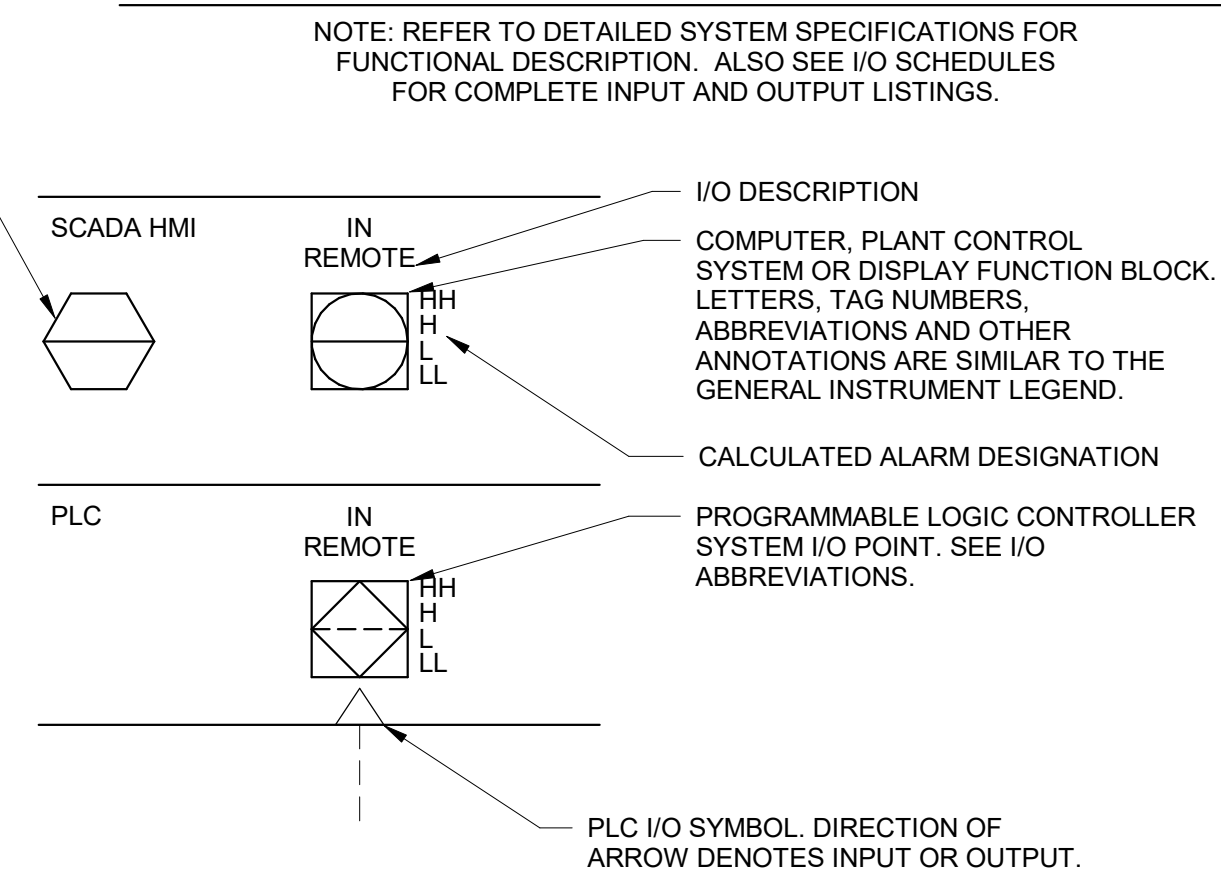
INSTRUMENT AND I/O ABBREVIATION DEFINITIONS

AAH	ANALYZER ALARM HIGH	PDIT	DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
AAHH	ANALYZER ALARM HIGH-HIGH	PDAH	DIFFERENTIAL PRESSURE ALARM HIGH
AAL	ANALYZER ALARM LOW	PDAH	DIFFERENTIAL PRESSURE ALARM HIGH-HIGH
AALL	ANALYZER ALARM LOW-LOW	PDSH	DIFFERENTIAL PRESSURE SWITCH HIGH
AAX	ALARM HORN	PDSH	DIFFERENTIAL PRESSURE SWITCH HIGH-HIGH
AAL	STROBE ALARM LIGHT	PDSL	DIFFERENTIAL PRESSURE SWITCH LOW
AE	ANALYZER SENSOR	PDSL	DIFFERENTIAL PRESSURE SWITCH LOW-LOW
AI	ANALYZER INDICATION	PE	PRESSURE SENSOR
AIT	ANALYZER INDICATING TRANSMITTER	PG	PRESSURE GAUGE
ASH	ANALYZER SWITCH HIGH	PI	PRESSURE INDICATOR (LED OR SCREEN)
ASHH	ANALYZER SWITCH HIGH-HIGH	PIT	PRESSURE INDICATING TRANSMITTER
CB	CONTROL BLOCK REFERENCE (SCADA LEVEL)	PSL	PRESSURE SWITCH LOW
FA	TROUBLE	PSH	PRESSURE SWITCH HIGH
FAL	FLOW ALARM LOW	SI	SPEED INDICATION (LED OR SCREEN)
FAH	FLOW ALARM HIGH	SC	SPEED CONTROL
FC	FLOW CONTROLLER	SIT	SPEED INDICATING TRANSMITTER
FI	FLOW DIGITAL INDICATOR (LED OR SCREEN)	SSL	SPEED SWITCH LOW
FIC	FLOW INDICATING CONTROLLER	SIT	SPEED INDICATING TRANSMITTER
FE	PRIMARY FLOW ELEMENT/SENSOR	TAH	TEMPERATURE ALARM HIGH
FG	FLOW SIGHT GAUGE	TAH	TEMPERATURE ALARM HIGH-HIGH
FIT	FLOW INDICATING TRANSMITTER	TAL	TEMPERATURE ALARM LOW
FQG	FLOW TOTALIZING GAUGE	TDI	DIFFERENTIAL TEMPERATURE INDICATOR (LED OR SCREEN)
FQIT	FLOW TOTALIZING INDICATING TRANSMITTER	TDIT	DIFFERENTIAL TEMPERATURE TRANSMITTER
FSH	FLOW SWITCH HIGH	TE	TEMPERATURE SENSOR/RESISTANCE
FSL	FLOW SWITCH LOW	TE	TEMPERATURE DETECTOR
FY	FLOW SIGNAL CONVERTER, REPEATER, OR ISOLATOR	TSH	TEMPERATURE SWITCH HIGH
HIC	HAND INDICATING CONTROLLER	TSHH	TEMPERATURE SWITCH HIGH HIGH
HMS	HAND SWITCH	TSL	TEMPERATURE SWITCH LOW
HS	MOMENTARY PUSHBUTTON OR SELECTOR SWITCH	TG	TEMPERATURE GAUGE
IE	CURRENT ELEMENT/SENSOR	TI	TEMPERATURE INDICATOR (LED OR SCREEN)
IAH	CURRENT ALARM HIGH (MOTOR OVERLOAD)	TIT	TEMPERATURE INDICATING TRANSMITTER
ISH	CURRENT SWITCH HIGH USED TO DETECT HIGH TORQUE	UA	MULTIVARIABLE/Common Alarm/Common Fault
JA	POWER FAILURE ALARM	UCA	ALARM CONDITION MODIFIED COMMAND
JI	POWER INDICATOR	UCR	RUN/START COMMAND
JL	POWER INDICATING LIGHT	UCS	STOP COMMAND
KOI	TIME TOTALIZING INDICATOR	VAH	VIBRATION ALARM HIGH
LAL	LEVEL ALARM LOW	WE	PRIMARY WEIGHT SENSOR/LOAD CELL
LALL	LEVEL ALARM LOW-LOW	WG	WEIGHT GAUGE
LAH	LEVEL ALARM HIGH	WIT	WEIGHT INDICATING TRANSMITTER
LAHH	LEVEL ALARM HIGH-HIGH	YA	GENERAL ALARM EVENT
LE	PRIMARY LEVEL ELEMENT/SENSOR	YI	EVENT INDICATION (LED OR SCREEN)
LG	LEVEL SIGHT GAUGE	YIR	RUNNING INDICATION
LI	LEVEL INDICATOR (LED OR SCREEN)	YIS	STOPPED INDICATION
LSL	LEVEL SWITCH LOW	YL	EVENT INDICATING LIGHT
LSLL	LEVEL SWITCH LOW LOW	YLR	RUNNING INDICATING LIGHT
LSH	LEVEL SWITCH HIGH	YLS	STOPPED INDICATING LIGHT
LSHH	LEVEL SWITCH HIGH-HIGH	ZI	POSITION INDICATOR
LY	LEVEL SIGNAL CONVERTER, ISOLATOR, OR REPEATER	ZC	POSITION SET POINT
OAH	TORQUE ALARM HIGH	ZCC	CLOSE COMMAND
OAHH	TORQUE ALARM HIGH HIGH	ZCO	OPEN COMMAND
OSH	TORQUE SWITCH HIGH	ZIC	CLOSED INDICATION
OSHH	TORQUE SWITCH HIGH-HIGH	ZIO	OPEN INDICATION
PAL	PRESSURE ALARM LOW	ZLC	CLOSED INDICATING LIGHT
PALL	PRESSURE ALARM LOW-LOW	ZLO	OPEN INDICATING LIGHT
PAH	PRESSURE ALARM HIGH	ZCO	CLOSED POSITION SWITCH
PAHH	PRESSURE ALARM HIGH-HIGH	ZSO	OPEN POSITION SWITCH
PDG	DIFFERENTIAL PRESSURE GAUGE	ZIT	POSITION INDICATING TRANSMITTER
PDI	DIFFERENTIAL PRESSURE INDICATOR (LED OR SCREEN)	ZT	POSITION TRANSMITTER

GENERAL INSTRUMENT SYMBOLS

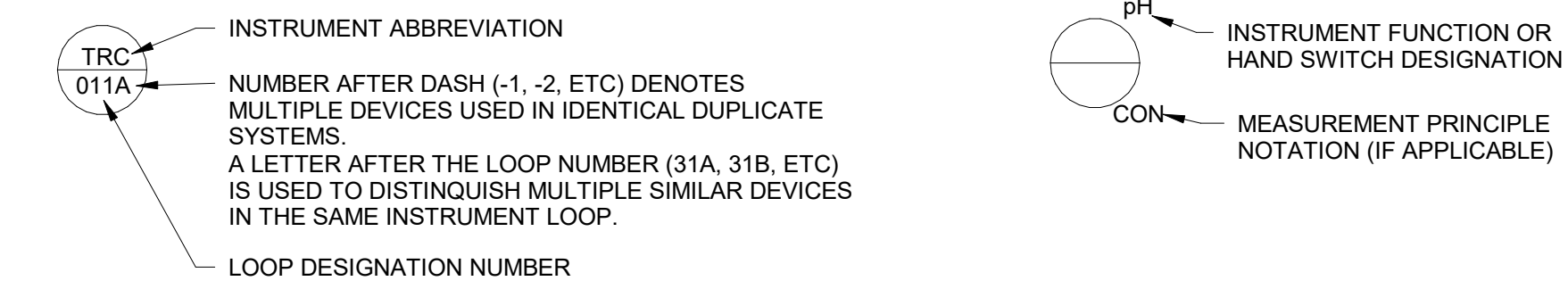


DIGITAL SYSTEMS INTERFACE SYMBOLS



- △ DISCRETE INPUT
- ▽ DISCRETE OUTPUT
- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT
- △ PULSE INPUT

INSTRUMENTATION SYMBOLOGY AND DESIGNATIONS



FUNCTION DESIGNATIONS AND ABBREVIATIONS

MEASUREMENT PRINCIPLE NOTATIONS	INSTRUMENT FUNCTIONS	HAND SWITCH DESIGNATIONS
CON CONDUCTANCE	K GAIN OR ATTENUATE (INPUT:OUTPUT)	FR FORWARD-REVERSE
DP DIFFERENTIAL PRESSURE SENSING	-K GAIN AND REVERSE	OCA OPEN-CLOSE-AUTO
FLN FLOW NOZZLE	Σ ADD OR SUM (ADD AND SUBTRACT)	OOR ON-OFF-REMOTE
FLT FLOW TUBE	Δ SUBTRACT (DIFFERENCE)	OOA ON-OFF-AUTO
GWR GUIDED WAVE RADAR	√ EXTRACT SQUARE ROOT	LOR LOCAL-OFF-REMOTE
RAD RADAR	÷ DIVIDE	OC ON-OFF
US ULTRASONIC	F(X) CHARACTERIZE SIGNAL	LR LOCAL REMOTE
VENT VENTURI TUBE	> HIGH-SELECT	HOA HAND-OFF-AUTO
	< LOW-SELECT	LOA LOCAL-OFF-AUTO
	X MULTIPLY	HOR HAND-OFF-REMOTE
	∫ INTEGRATE (TIME INTEGRAL)	OSC OPEN-STOP-CLOSE
	CH4 METHANE	FWD FORWARD
	CL2 CHLORINE RESIDUAL	REV REVERSE
	CO2 CARBON DIOXIDE	
	DO DISSOLVED OXYGEN	
	H2S HYDROGEN SULFIDE	
	LEL LOWER EXPLOSIVE LIMIT	
	MCC MOTOR CONTROL CENTER	
	MLSS MIXED LIQUOR SUSPENDED SOLIDS	
	02 OXYGEN (PURITY)	
	03 OZONE	
	pH pH	
	TURB TURBIDITY	
	COND CONDUCTIVITY	

TRANSDUCER & CONVERTER DESIGNATION

E	VOLTAGE
FSK	FREQUENCY SHIFT KEYING
H	HYDRAULIC
I	CURRENT
P	PNEUMATIC PULSE
PD	PULSE DURATION
PF	PULSE FREQUENCY
R	RESISTANCE (ELECTRICAL)

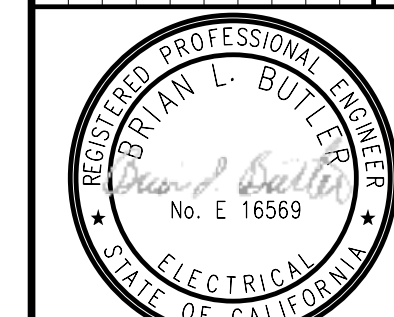
EXAMPLE: I/P = CURRENT TO PNEUMATIC TRANSDUCER

POWER SUPPLY ABBREVIATIONS

AS	AIR SUPPLY
ES	ELECTRIC SUPPLY
GS	GAS SUPPLY
HS	HYDRAULIC SUPPLY
NS	NITROGEN SUPPLY
SS	STEAM SUPPLY
WS	WATER SUPPLY
24V	24VDC
120V	120VAC
480V	480VAC

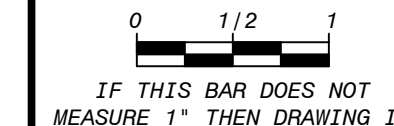
POWER SUPPLY SOURCE LABEL USED ONLY WHERE NECESSARY TO HELP CLARIFY AN INSTRUMENT OR SYSTEM FUNCTION.

*NOTE TO DESIGNER: OR 24VDC OR 480VAC



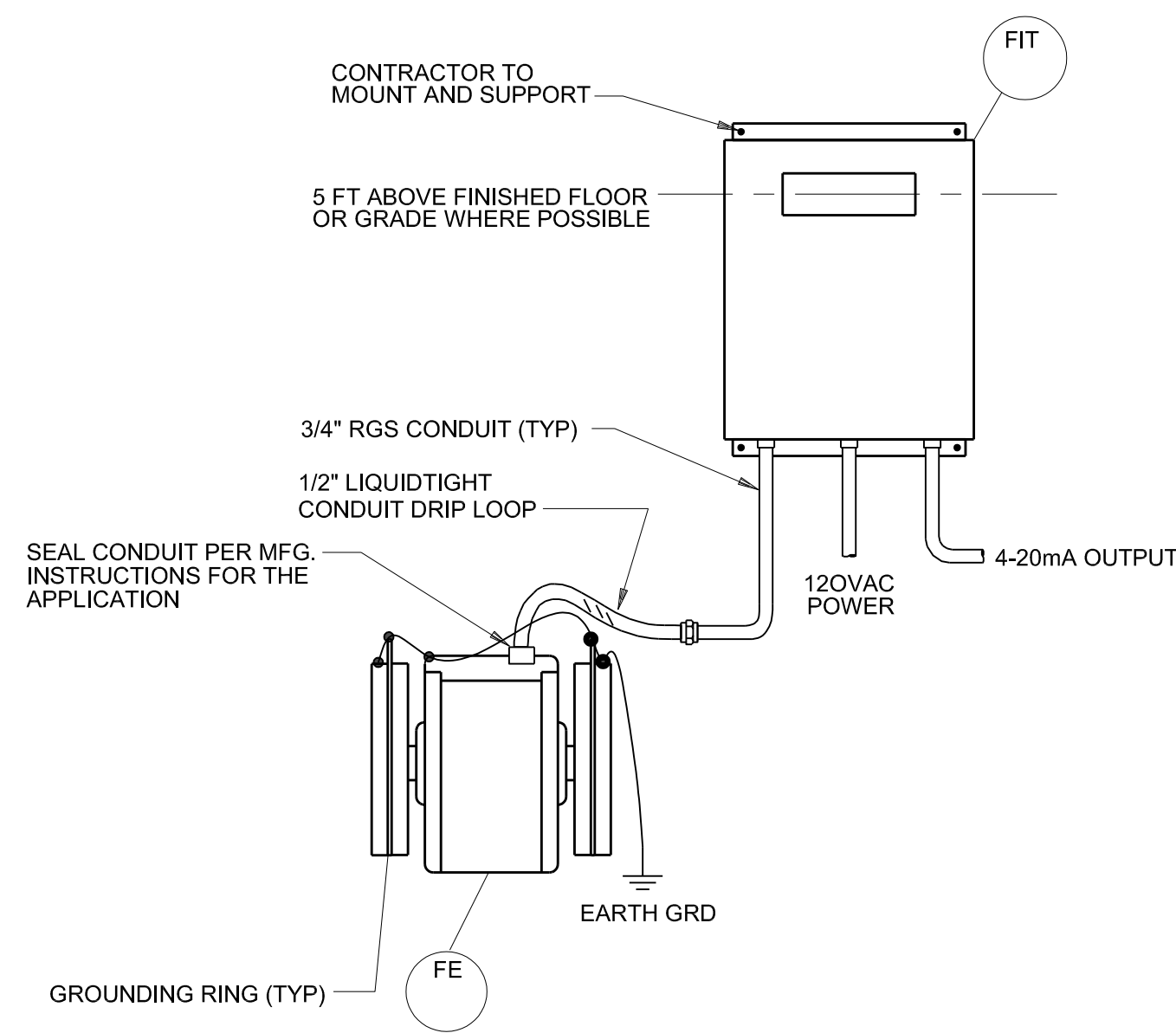
**CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)**
LEGEND & ABBREVIATIONS
P&ID
SHEET 2

DESIGNED: BLB
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020



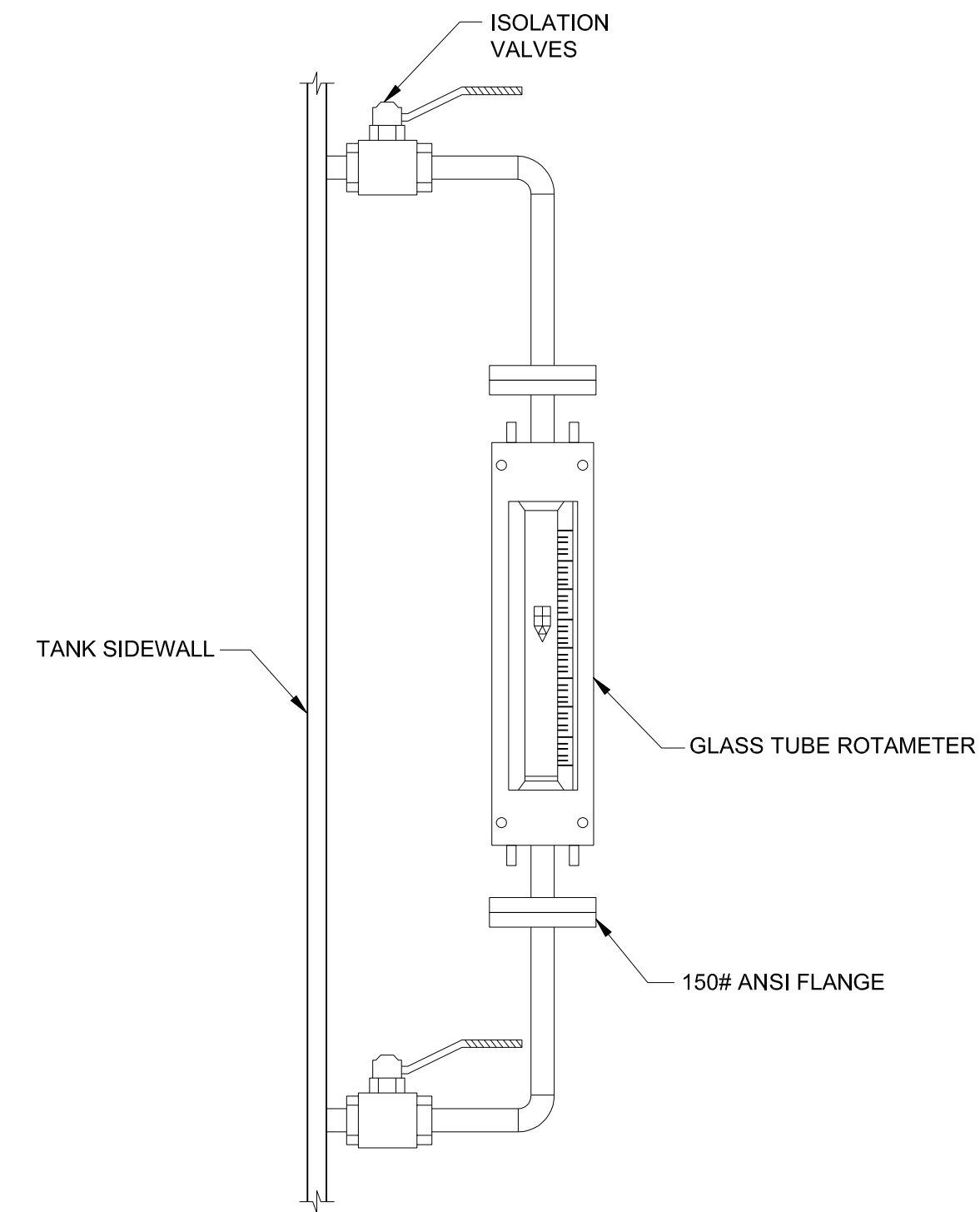
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
00-I-002
SHEET
87 OF 412

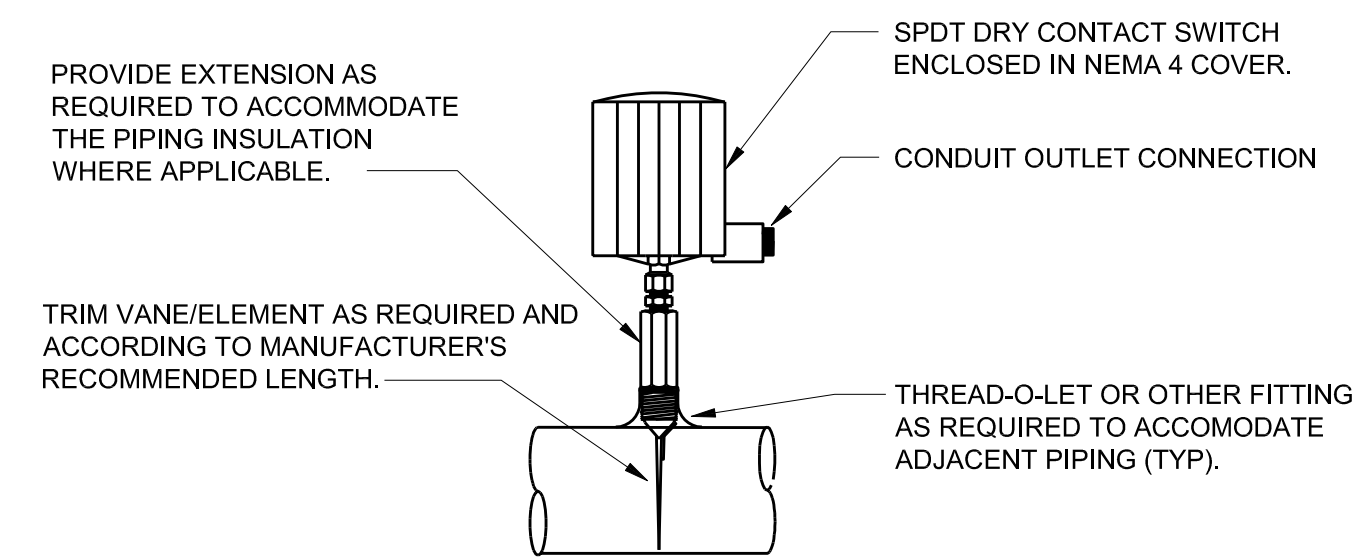


**MAGNETIC FLOWMETER
INSTALLATION DETAIL**
NO SCALE

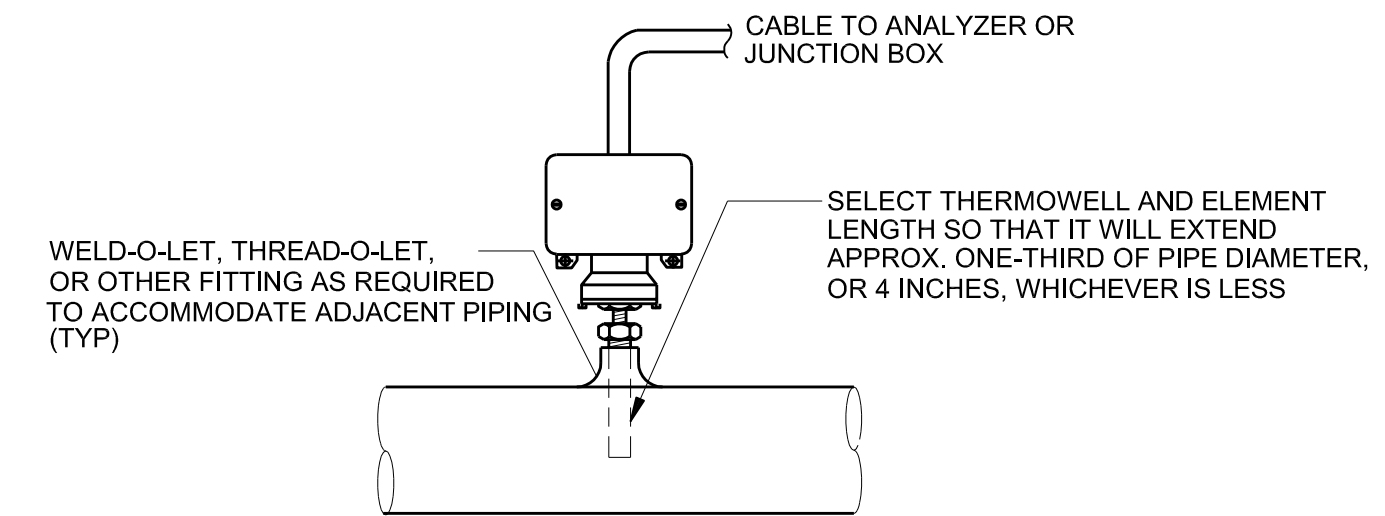
NOTE: PIPE TO BE SUPPORTED ON BOTH SIDES OF METER.



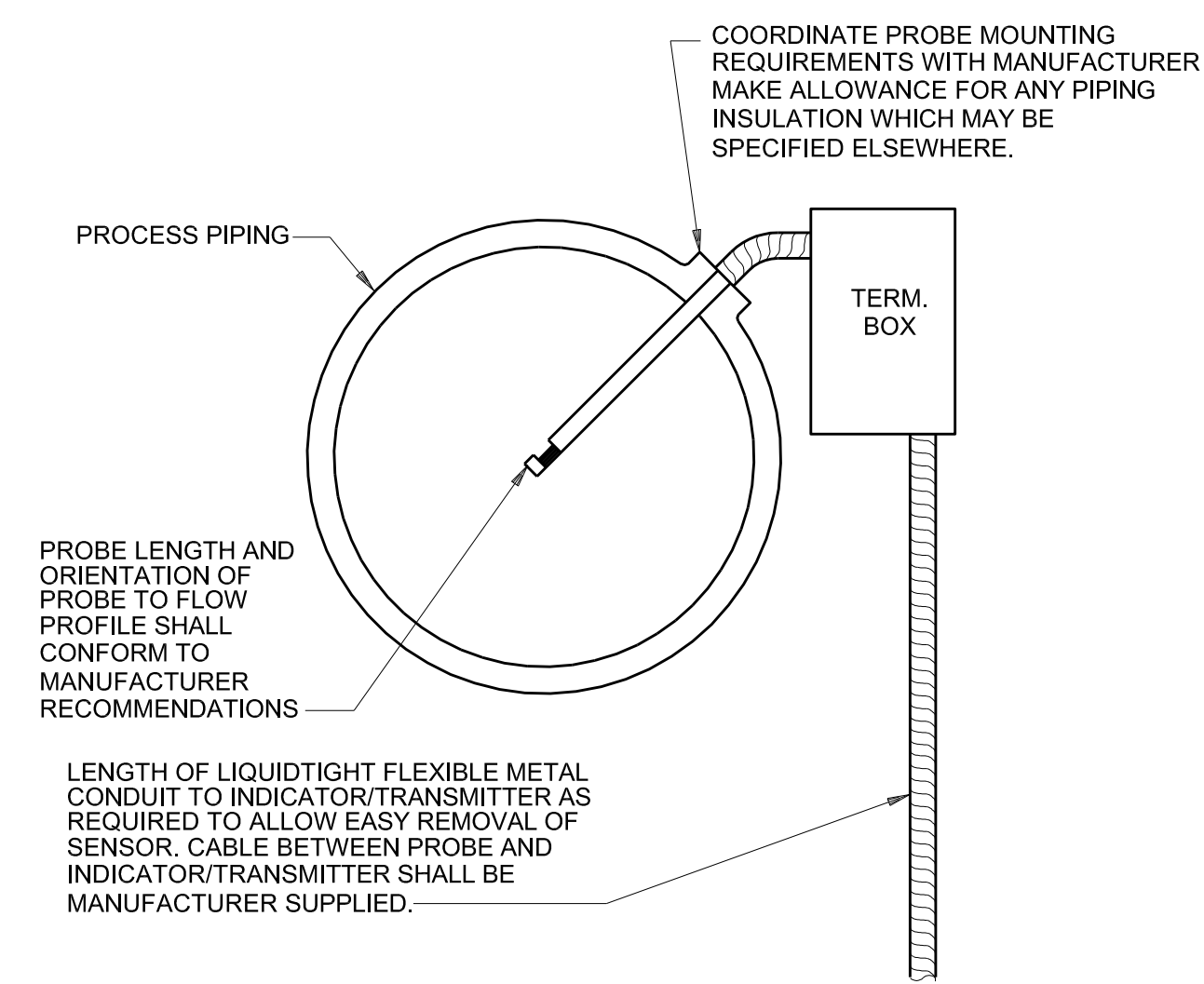
**LIQUID SERVICE ROTAMETER
INSTALLATION DETAIL**
NO SCALE



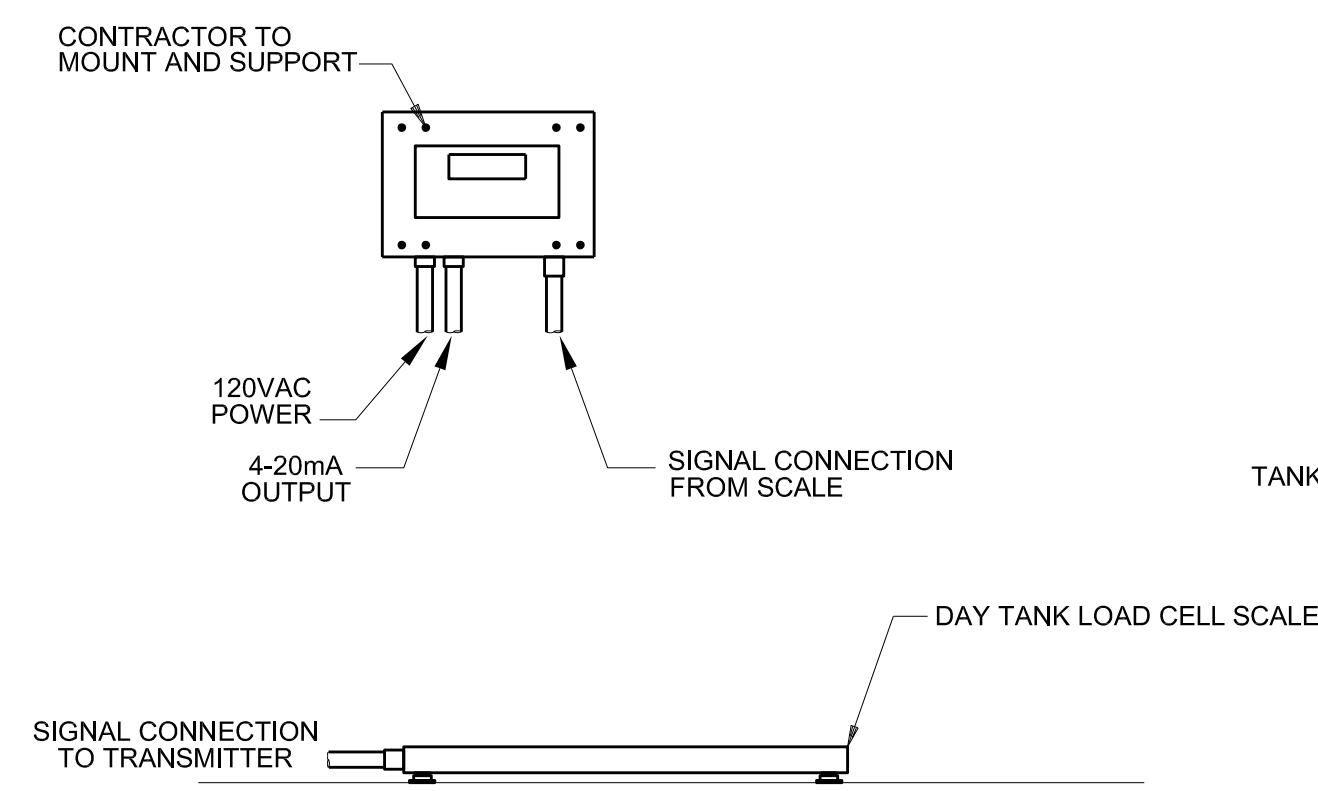
**TARGET-TYPE FLOW SWITCH
INSTALLATION DETAIL**
NO SCALE



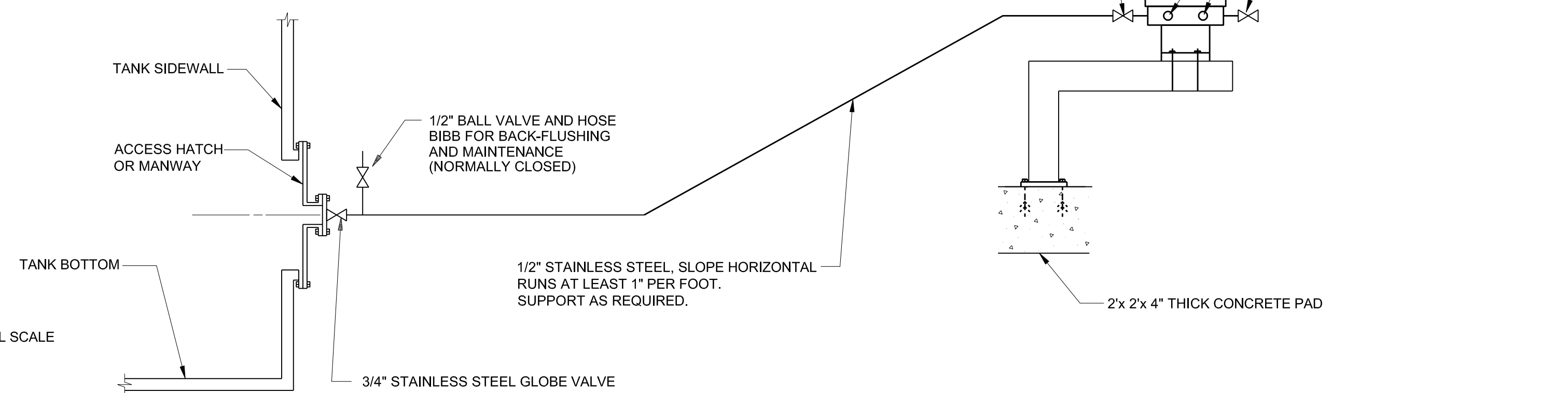
**LOW TEMPERATURE SWITCH
INSTALLATION DETAIL**
NO SCALE



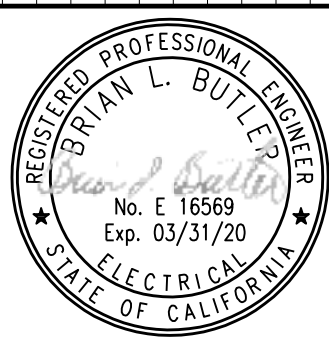
**THERMAL DISPERSION FLOWMETER SENSOR
INSTALLATION DETAIL**
NO SCALE



**LOAD CELL TYPE TANK/TOTE WEIGH SCALE
INSTALLATION DETAIL**
NO SCALE



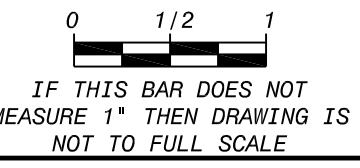
**FLANGE MOUNTED PRESSURE SENSING LEVEL TRANSMITTER
INSTALLATION DETAIL**
NO SCALE



BLACK & VEATCH
JOINT VENTURE
FILANC

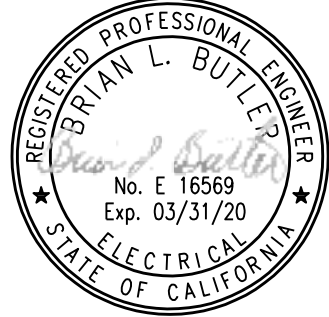
**CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)**
INSTALLATION DETAIL 3

DESIGNED: BLB
DETAILED: PVR, VM
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020



PROJECT NO.
400530
00-I-503
SHEET
91 OF 412

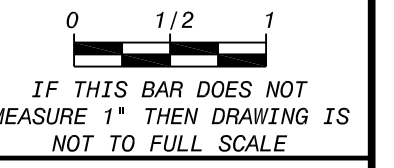
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 0400530



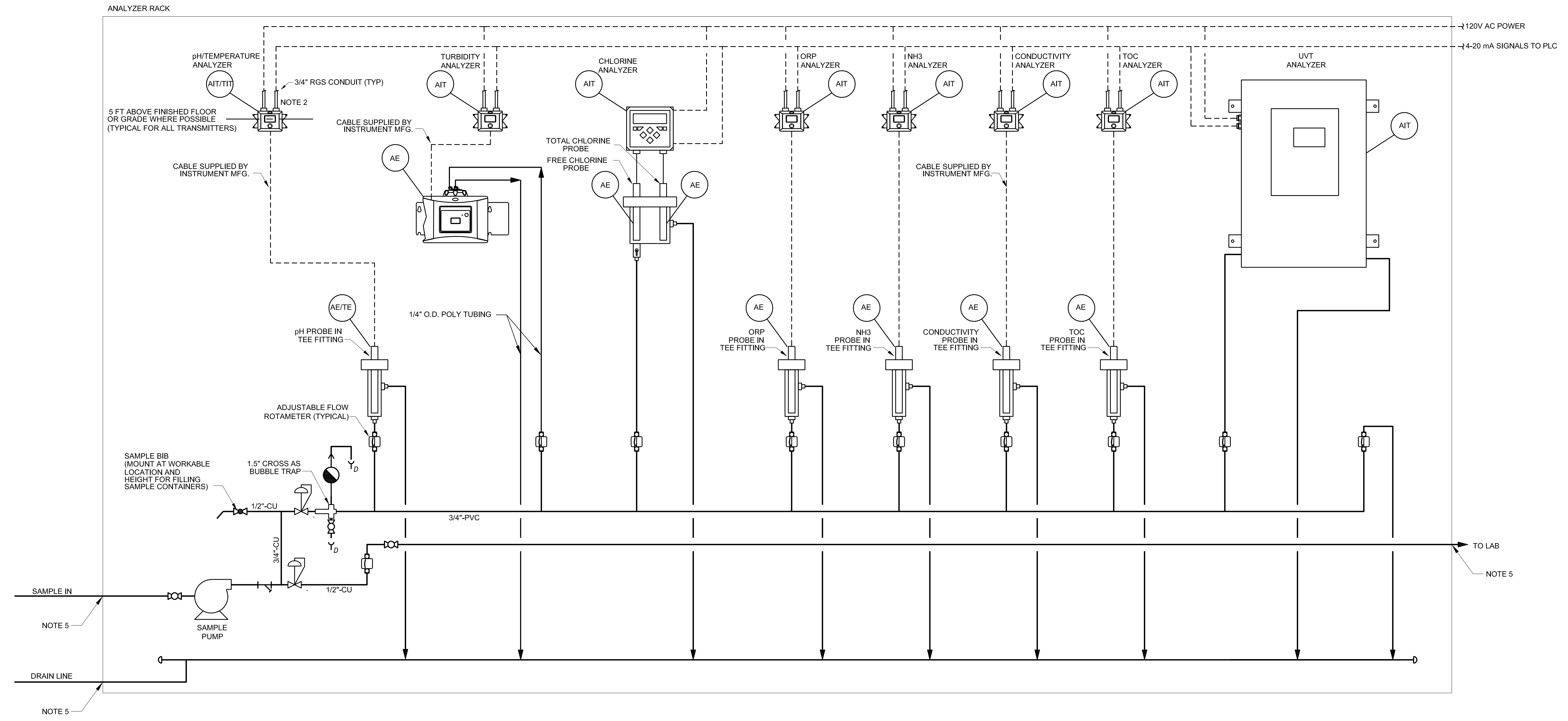
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JOINT VENTURE
FILANC
BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
INSTRUMENTATION
WATER QUALITY STATION DETAIL

DESIGNED: BLB
DETAILED: PVR, VM
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020

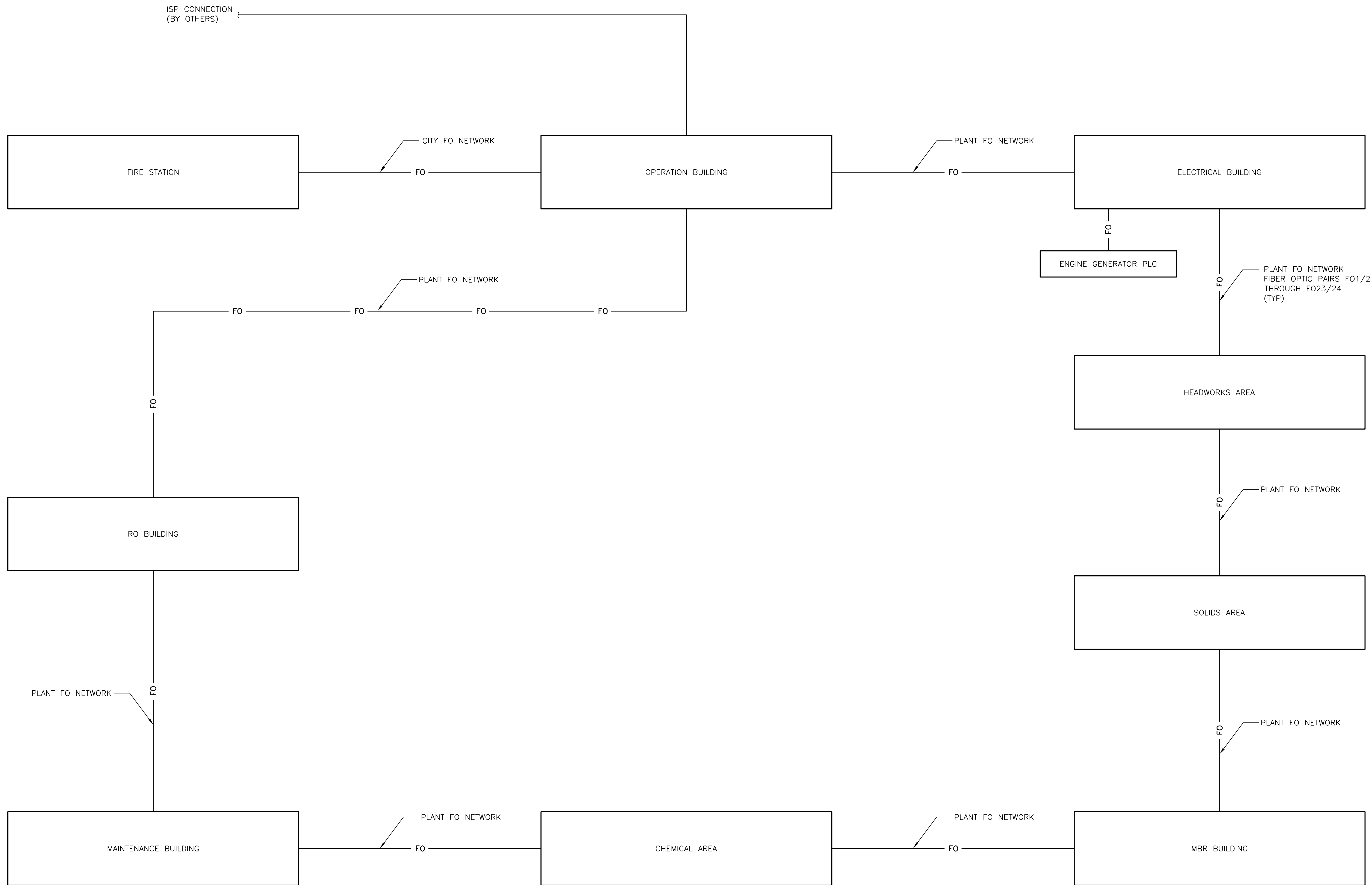


PROJECT NO.
400530
00-I-505
SHEET
93 OF 412

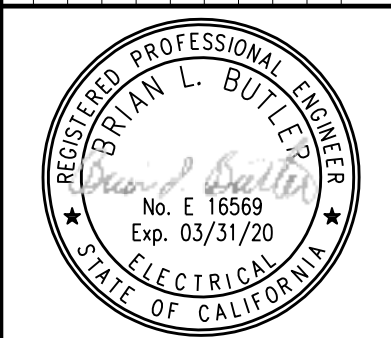


ANALYZER PANEL NAME	pH	ORP	NH3	TURBIDITY	FREE CHLORINE	CONDUCTIVITY	UVT	TOC	PUVIP	NOTES
MBR BASIN 1 FILTRATE ANALYZER PANEL				32 MEM AIT 1001					32 MEM P 0001	
MBR BASIN 2 FILTRATE ANALYZER PANEL				32 MEM AIT 2001					32 MEM P 0002	
MBR FILTRATE MANIFOLD ANALYZER PANEL NO.1			32 MEM AIT 0001							
MBR FILTRATE MANIFOLD ANALYZER PANEL NO.2				32 MEM AIT 0001					32 MEM P 0003	
RO FEED ANALYZER PANEL	51 RO AIT 0006	51 RO AIT 0003	51 RO A T 0005	51 RO A T 0002	51 RO A T 0004	51 RO AIT 0001		51 RO AIT 0007		
RO UNIT OUTFIT TOC ANALYZER PANEL								57-UV-AIT-0001		
UV FACTOR INFILTRANT ANALYZER PANEL	57-UV-AIT-0002									
UV FACTOR EFFILTRANT ANALYZER PANEL	57-UV-AIT-0007									
PROJECT WATER FIT ANALYZER PANEL	63-TW-AIT-0003					63-TW-AIT-0001	63-TW-AIT-0007			
DECHLORINATION ANALYZER PANEL					65-TW-AIT-0001					

- NOTES:
- ASSOCIATED FITTINGS AND TUBING ARE NOT NECESSARY IF ANALYZER OR PUMP IS NOT INCLUDED IN TABLE.
 - REPRESENTS TWO 4-20 mA SIGNALS. ONE FOR pH AND ONE FOR TEMPERATURE.
 - INSTRUMENT AIR MUST BE DRY AND OIL AND DUST FREE.
 - DETAILED DRAWINGS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
 - FIELD PIPING/TUBING CONNECTIONS ARE MADE WITH A FITTING ON EDGE OF THE PANEL.



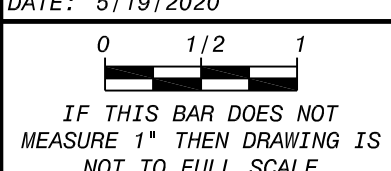
NO.	BY	DATE	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE
0	BLB	5/19/2020		



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FILANC

**CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
OVERALL FIBER OPTIC NETWORK DIAGRAM**

DESIGNED: BLB
 DETAILED: PVR, VM
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

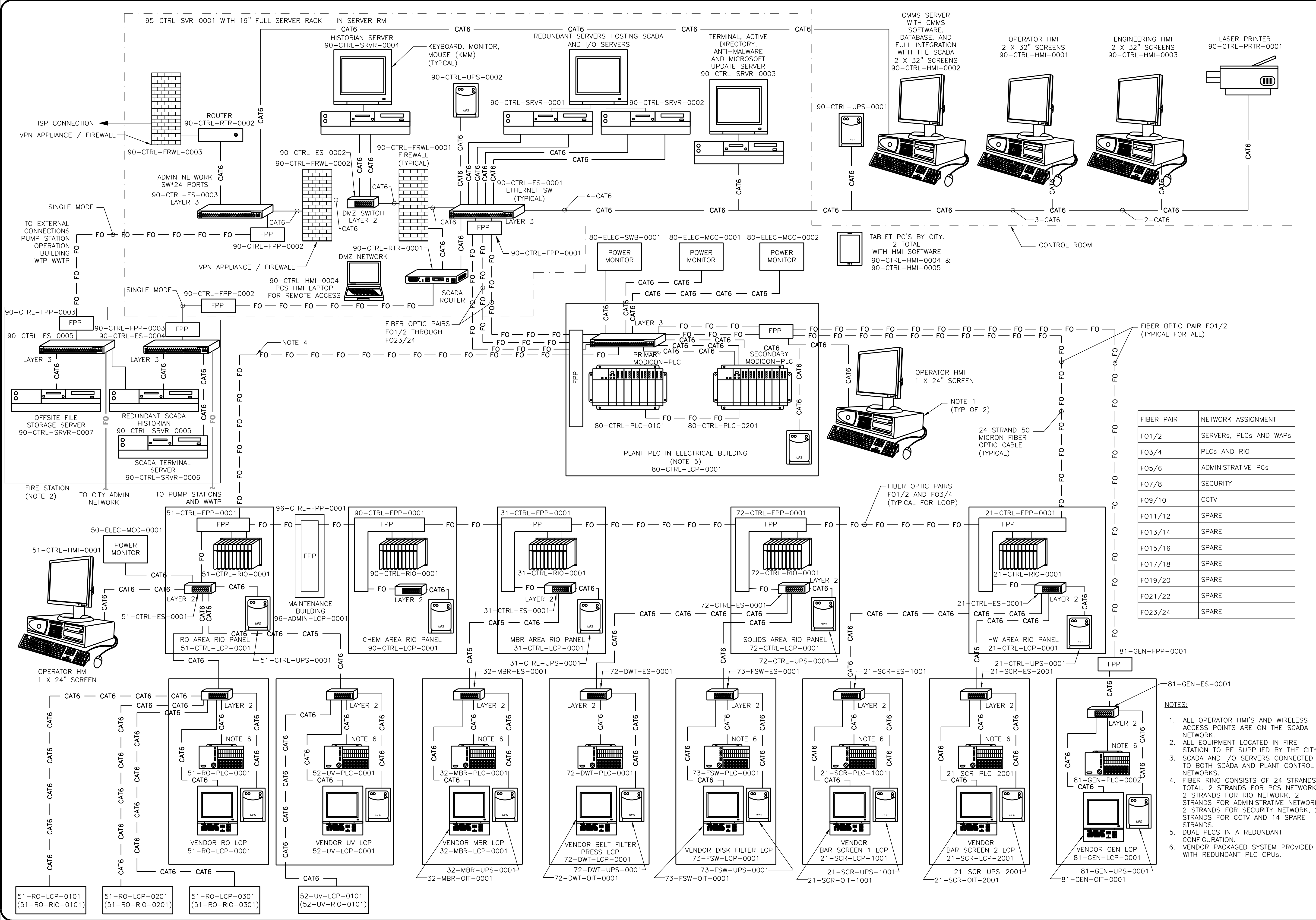


IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

00-I-701
SHEET
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FIBER PAIR	NETWORK ASSIGNMENT
F01/2	SERVERS, PLCs AND WAPs
F03/4	PLCs AND RIO
F05/6	ADMINISTRATIVE PCs
F07/8	SECURITY
F09/10	CCTV
F011/12	SPARE
F013/14	SPARE
F015/16	SPARE
F017/18	SPARE
F019/20	SPARE
F021/22	SPARE
F023/24	SPARE

- NOTES:
- ALL OPERATOR HMI'S AND WIRELESS ACCESS POINTS ARE ON THE SCADA NETWORK.
 - ALL EQUIPMENT LOCATED IN FIRE STATION TO BE SUPPLIED BY THE CITY.
 - SCADA AND I/O SERVERS CONNECTED TO BOTH SCADA AND PLANT CONTROL NETWORKS.
 - FIBER RING CONSISTS OF 24 STRANDS TOTAL. 2 STRANDS FOR PCS NETWORK, 2 STRANDS FOR RIO NETWORK, 2 STRANDS FOR ADMINISTRATIVE NETWORK, 2 STRANDS FOR SECURITY NETWORK, 2 STRANDS FOR CCTV AND 14 SPARE STRANDS.
 - DUAL PLCs IN A REDUNDANT CONFIGURATION.
 - VENDOR PACKAGED SYSTEM PROVIDED WITH REDUNDANT PLC CPUS.

DESIGNED: BLB
 DETAILED: PVR, VM
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

PROJECT NO.
400530

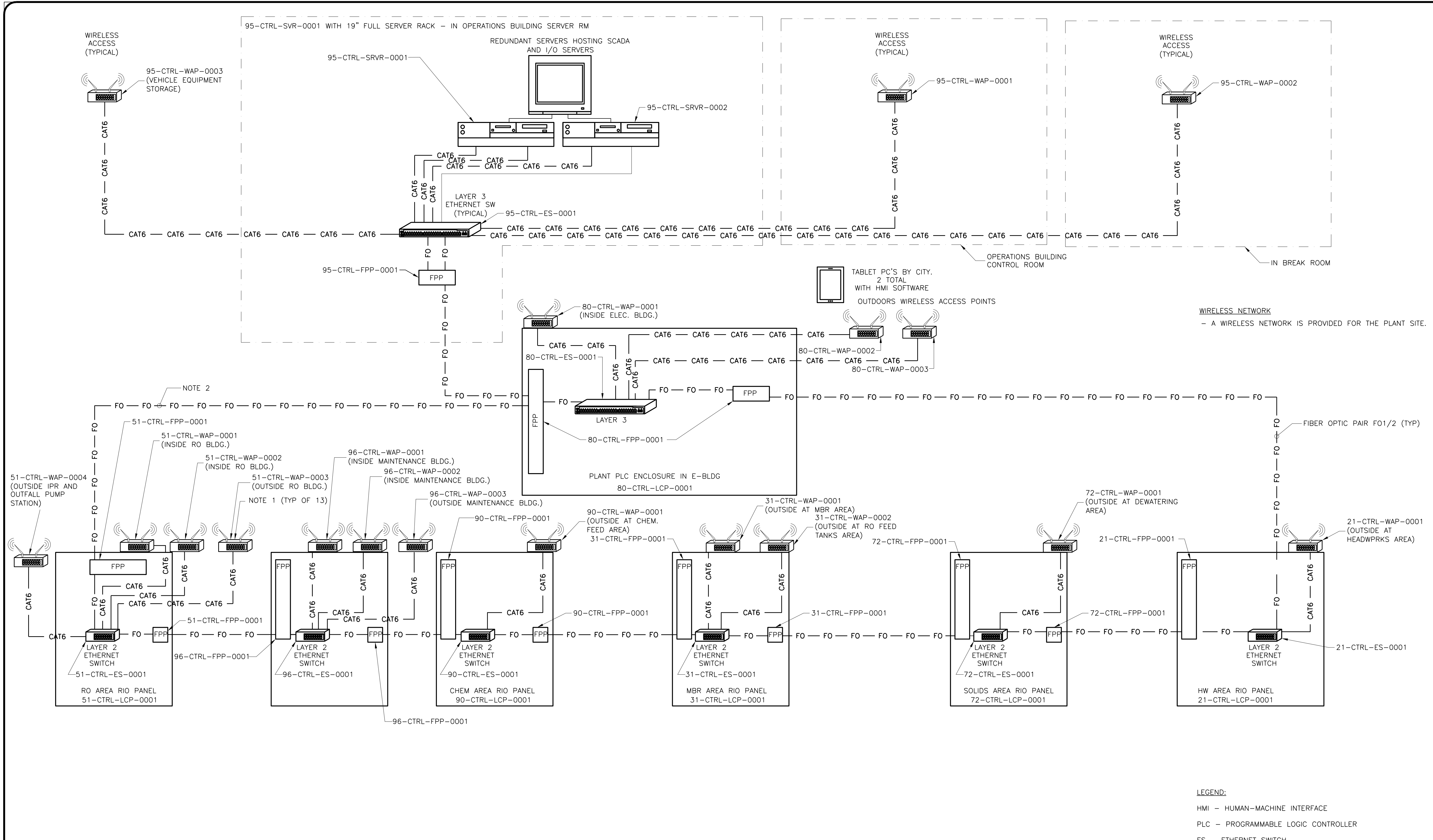
00-I-702
 SHEET
 95 OF 412

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

PLANT CONTROL SYSTEM
 NETWORK DIAGRAM

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 FILANC

REGISTERED PROFESSIONAL ENGINEER
 RYAN L. BUTLER
 No. E 16569
 Exp. 03/31/20
 ELECTRICAL
 STATE OF CALIFORNIA

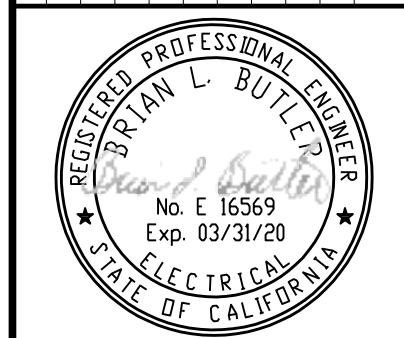


WIRELESS NETWORK
 - A WIRELESS NETWORK IS PROVIDED FOR THE PLANT SITE.

LEGEND:
 HMI - HUMAN-MACHINE INTERFACE
 PLC - PROGRAMMABLE LOGIC CONTROLLER
 ES - ETHERNET SWITCH
 WAP - WIRELESS ACCESS POINT
 TO 00-I-003 EQUIPMENT CODES

- NOTES:**
- ALL WIRELESS ACCESS POINTS ARE ON THE SCADA NETWORK.
 - FIBER RING CONSISTS OF 6 STRANDS TOTAL. 2 STRANDS FOR SCADA NETWORK, 2 STRANDS FOR PLANT CONTROL NETWORK, AND 2 SPARE STRANDS.
 - FIBER RING CONSISTS OF 24 STRANDS TOTAL. 2 STRANDS FOR PCS NETWORK, 2 STRANDS FOR RIO NETWORK, 2 STRANDS FOR ADMINISTRATIVE NETWORK, 2 STRANDS FOR SECURITY NETWORK, 2 STRANDS FOR CCTV AND 14 SPARE STRANDS.

0	BLB	JSM	BLB
	NO.	BY	CHK
ISSUED FOR CONSTRUCTION			
REVISIONS AND RECORD OF USE			
5/19/2020	DATE		

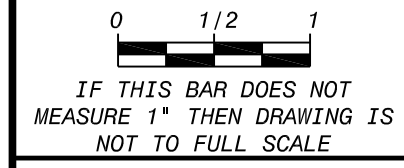


BLACK & VEATCH
JOINT VENTURE
FILANC

**CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)**

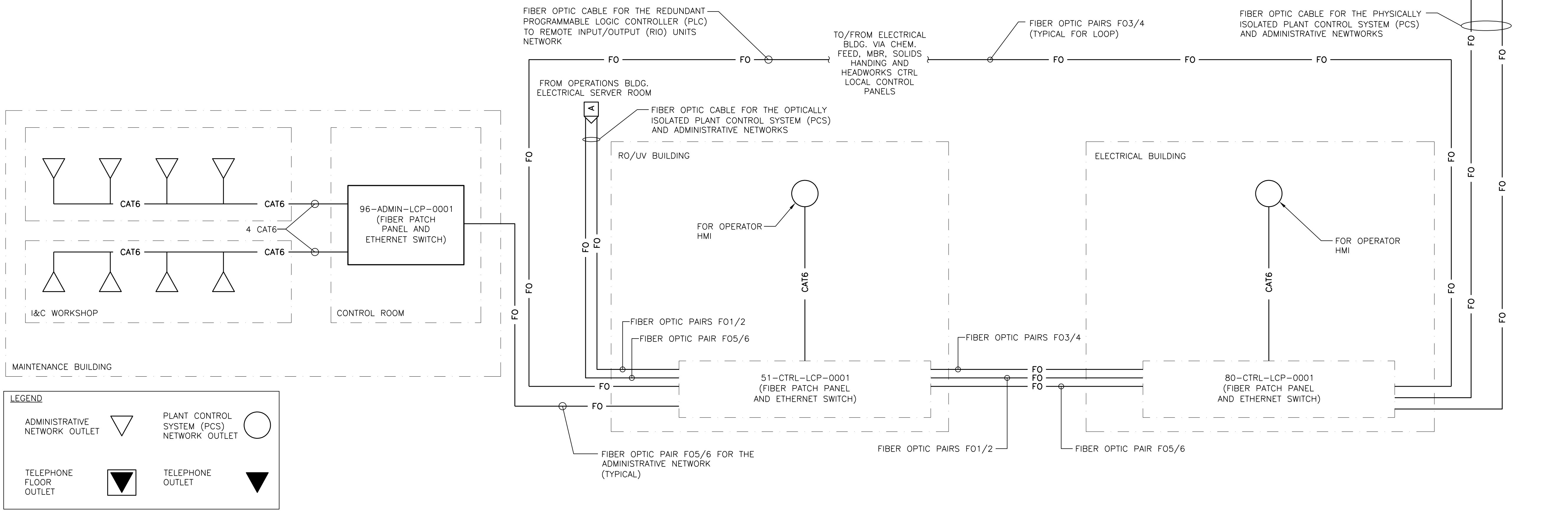
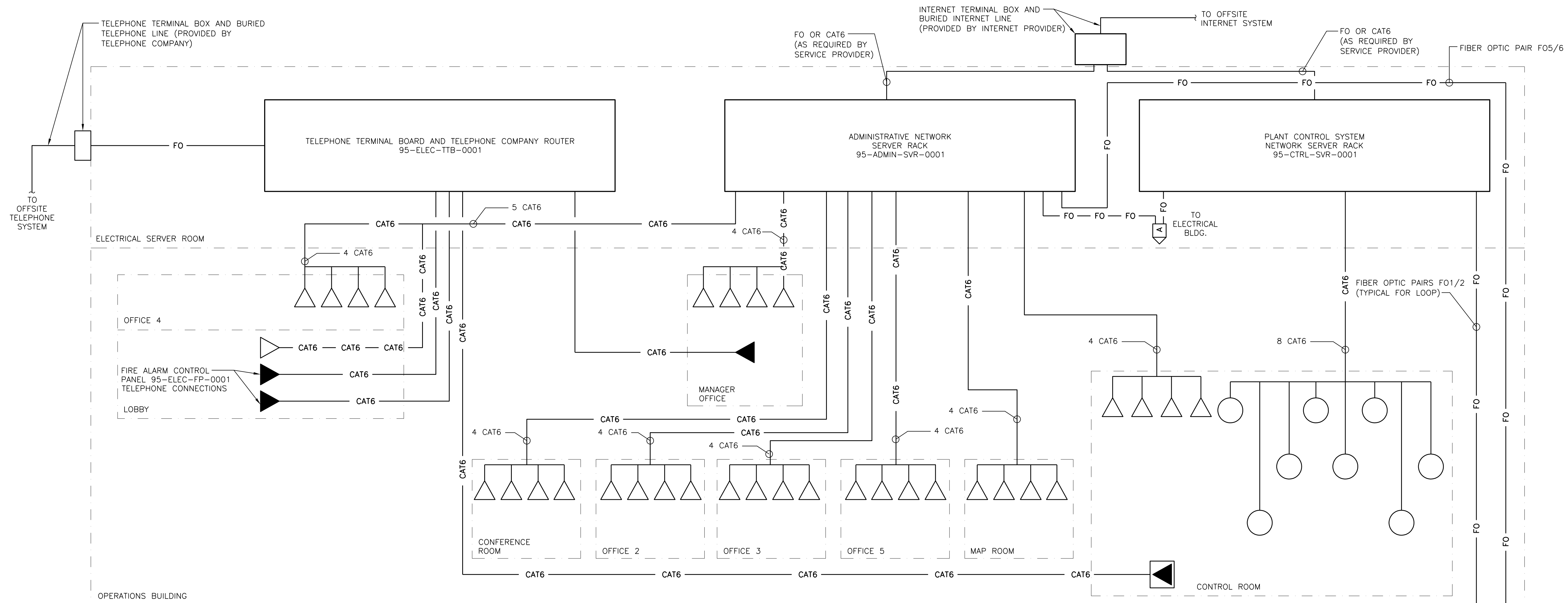
WIRELESS NETWORK DIAGRAM

DESIGNED: BLB
 DETAILED: PVR, VM
 CHECKED: JMS, BDS
 APPROVED: BLB
 DATE: 5/19/2020



PROJECT NO.
400530
00-I-703
 SHEET
 96 OF 412

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 0400530



LEGEND

ADMINISTRATIVE NETWORK OUTLET		PLANT CONTROL SYSTEM (PCS) NETWORK OUTLET	
TELEPHONE FLOOR OUTLET		TELEPHONE OUTLET	

DESIGNED: BLB	PROJECT NO. 400530
DETAILED: PVR, VM	00-I-704
CHECKED: JSM, BDS	SHEET 97 OF 412
APPROVED: BLB	
DATE: 5/19/2020	

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 400530

00-I-704

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CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)

OFFICE NETWORK AND TELEPHONE SYSTEM DIAGRAM

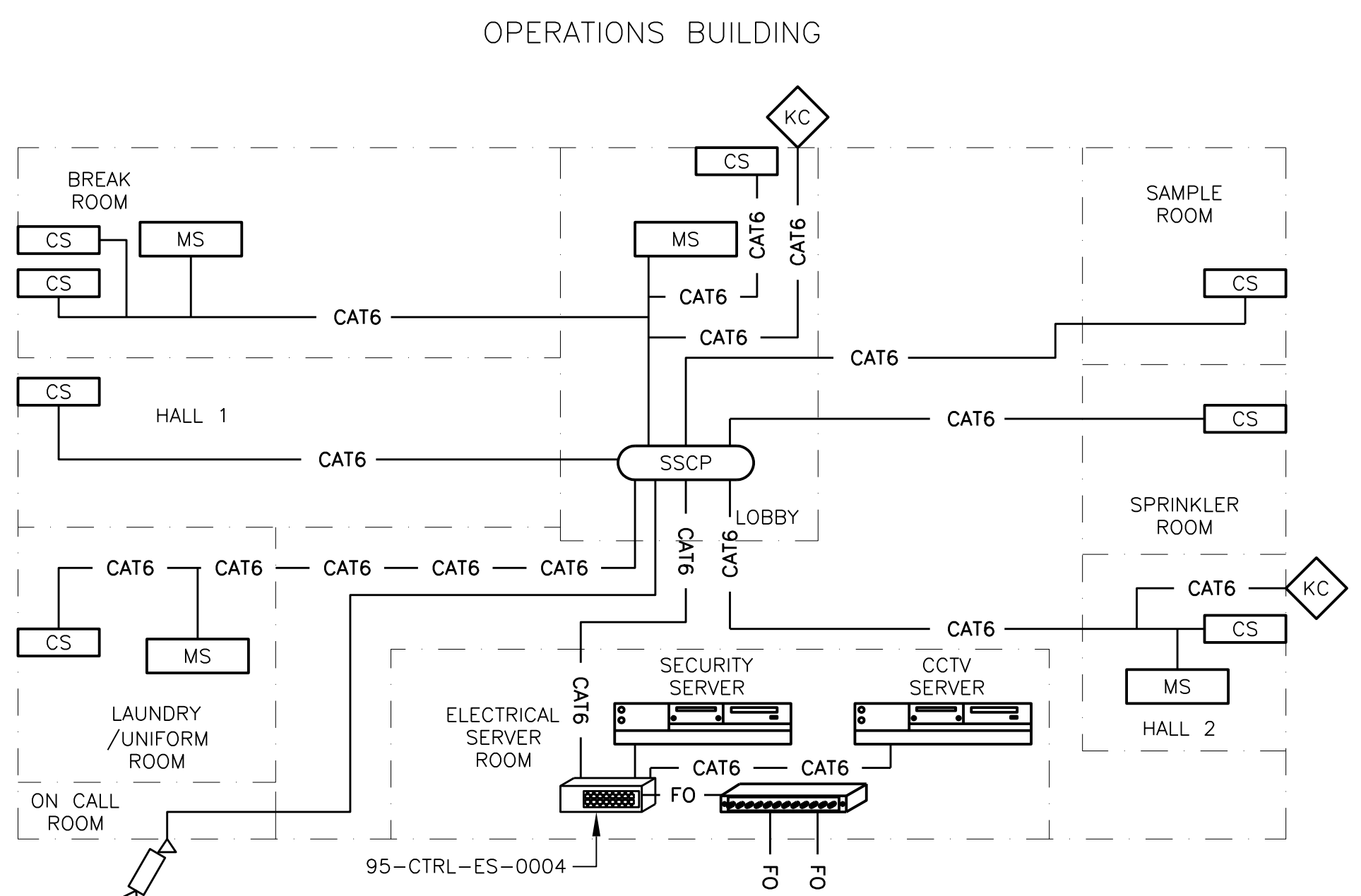
BLACK & VEATCH
JOINT VENTURE
FILANC

REGISTERED PROFESSIONAL ENGINEER
No. E 16569
Exp. 03/31/20
ELECTRICAL
STATE OF CALIFORNIA

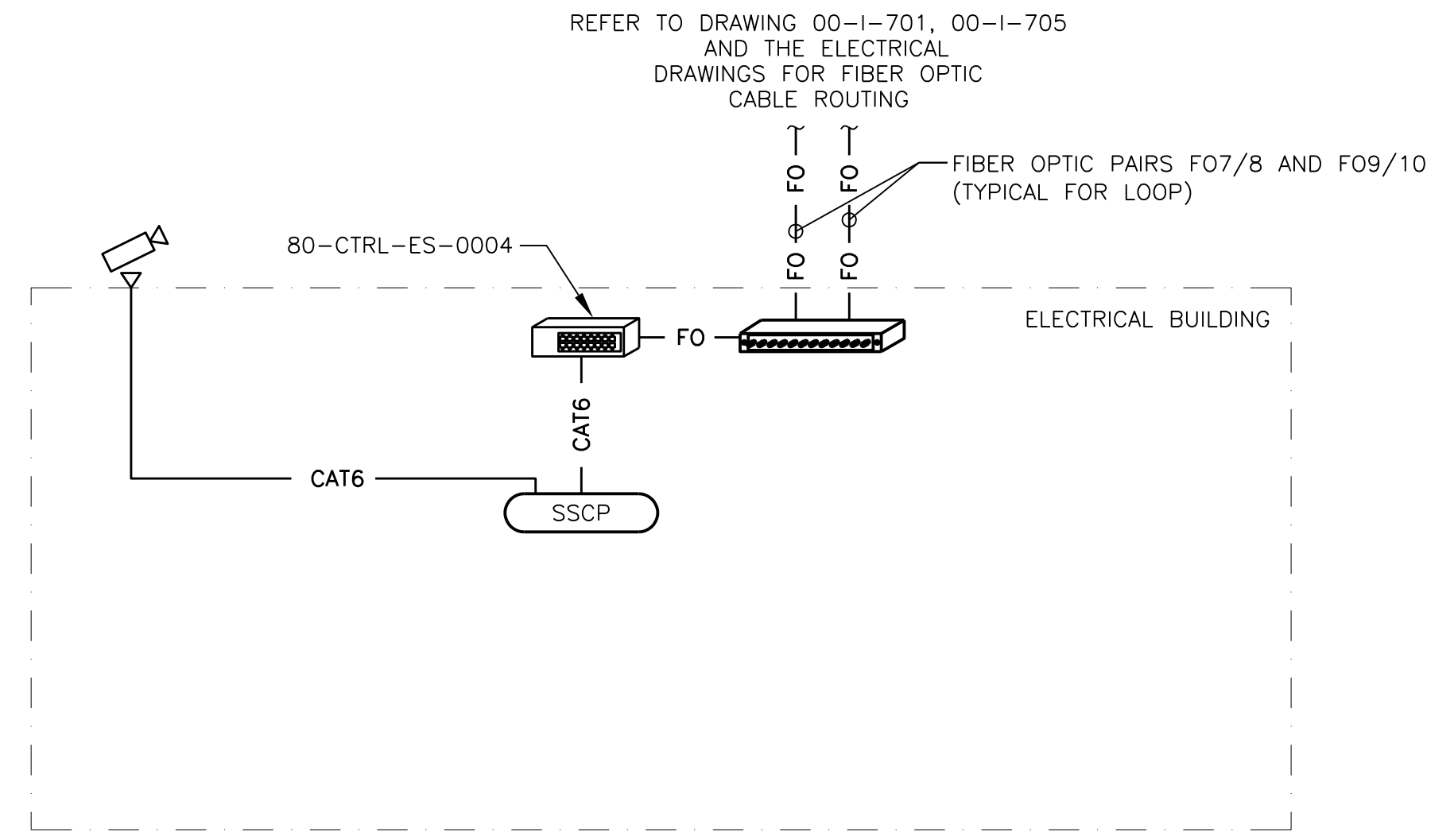
5/19/2020 ISSUED FOR CONSTRUCTION DATE

0 BLB JSM BLB
10 BY
10 BY CHK APP

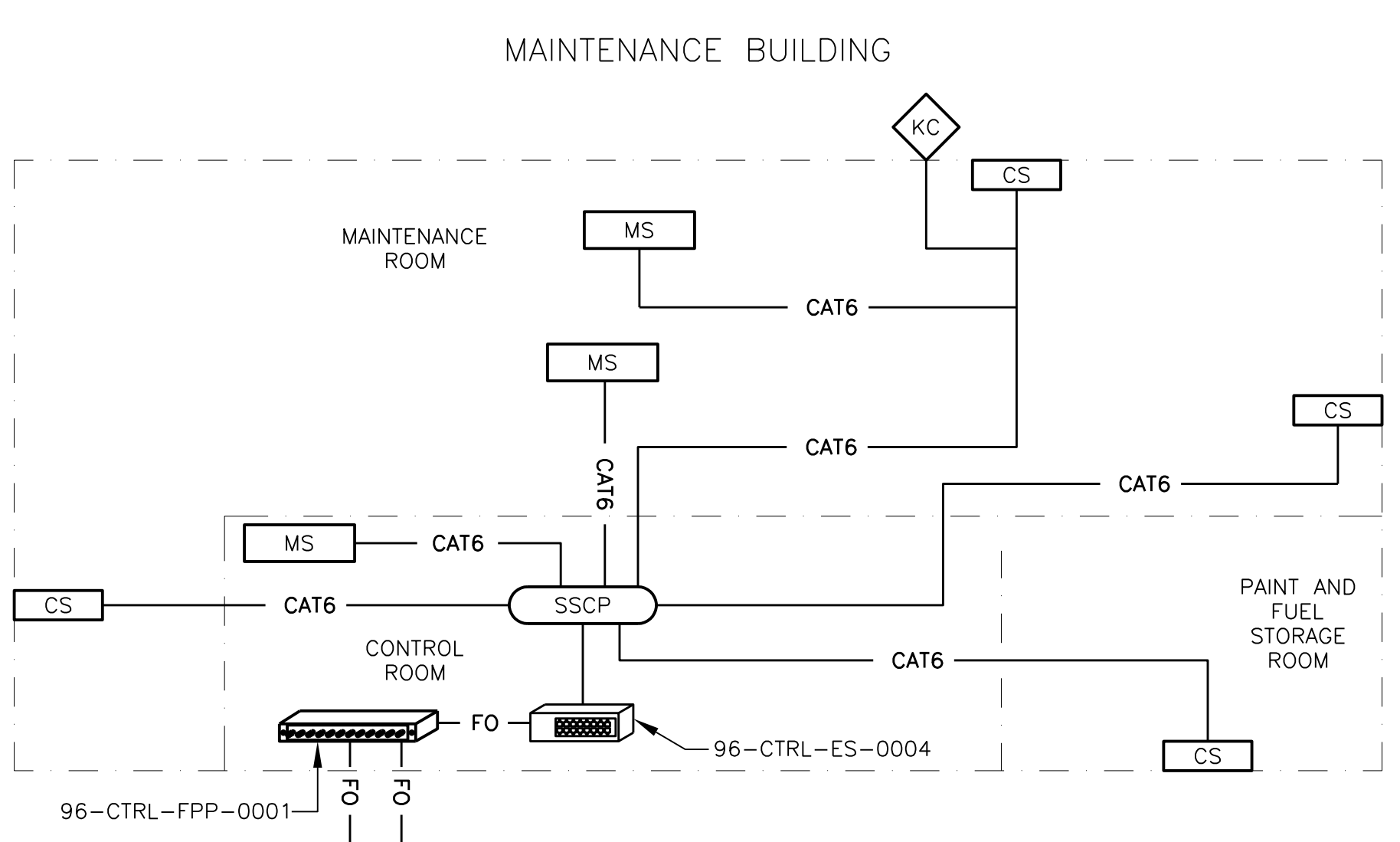
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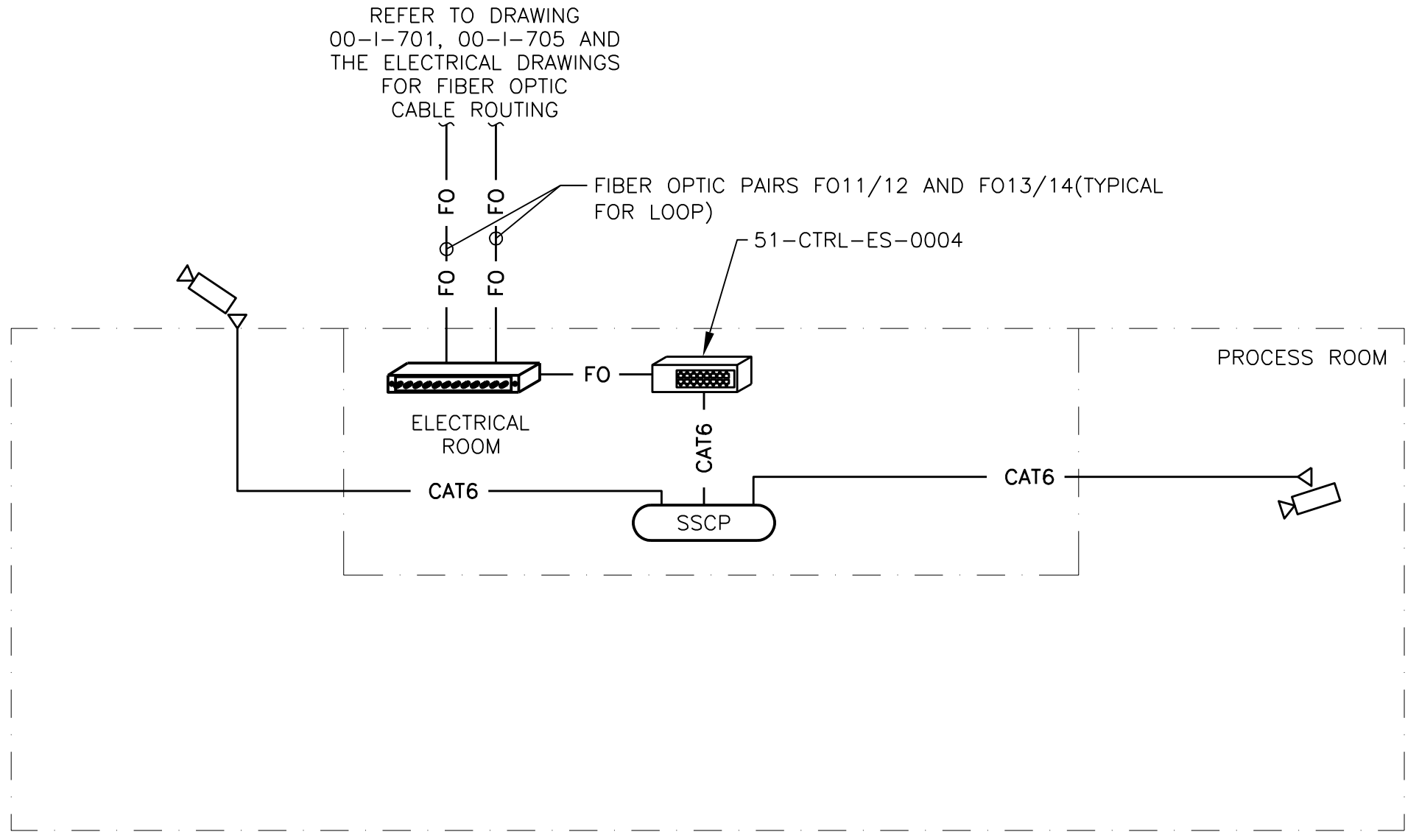
REFER TO DRAWING 00-I-701, 00-I-705 AND THE ELECTRICAL DRAWINGS FOR FIBER OPTIC CABLE ROUTING



REFER TO DRAWING 00-I-701, 00-I-705 AND THE ELECTRICAL DRAWINGS FOR FIBER OPTIC CABLE ROUTING



REFER TO DRAWING 00-I-701, 00-I-705 AND THE ELECTRICAL DRAWINGS FOR FIBER OPTIC CABLE ROUTING

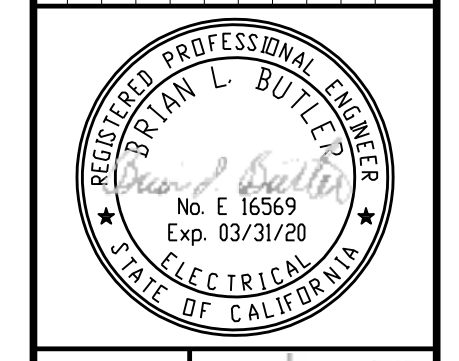


REFER TO DRAWING 00-I-701, 00-I-705 AND THE ELECTRICAL DRAWINGS FOR FIBER OPTIC CABLE ROUTING

LEGEND:

	SSCP SECURITY SYSTEM CONTROL PANEL
	MS MOTION SENSOR
	CS CONTACT SWITCH (DOOR)
	KC CARD READER
	FIBER PATCH PANEL
	CLOSED CIRCUIT TELEVISION CAMERA (CCTV)
	CCTV NETWORK OUTLET
	SERVER

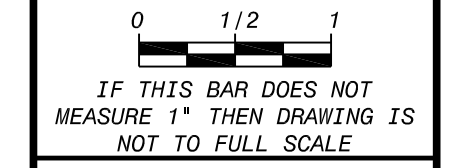
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			NO. BY
			CHK APP
			REVISIONS AND RECORD OF USE
5/19/2020			DATE
			ISSUED FOR CONSTRUCTION



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

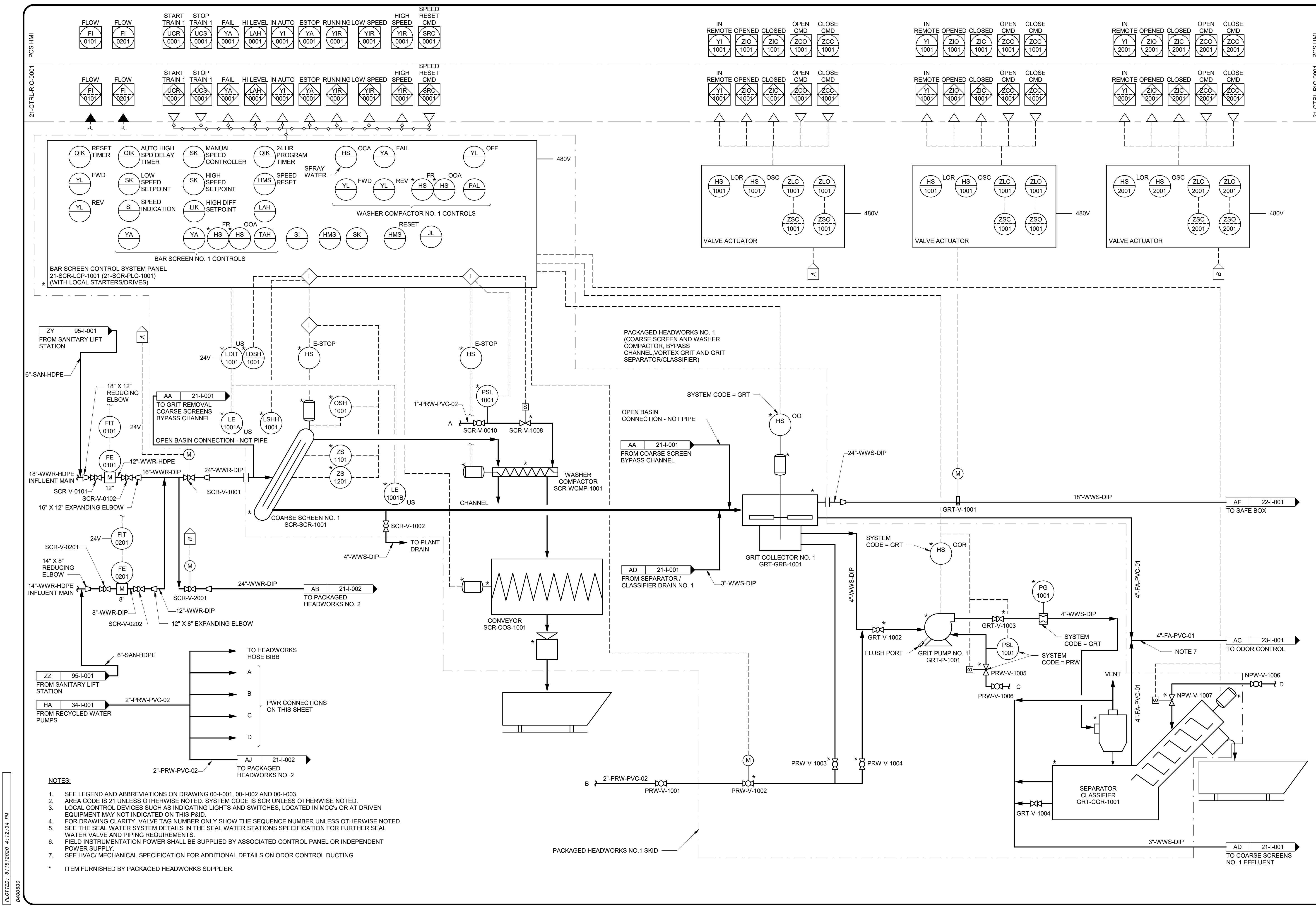
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
SECURITY SYSTEM DIAGRAM

DESIGNED: BLB
DETAILED: PVR, VM
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020



PROJECT NO.
400530
00-I-705
SHEET
98 OF 412

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 RAN64017
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BAR SCREEN CONTROL SYSTEM PANEL
21-SCR-LCP-1001 (21-SCR-PLC-1001)
(WITH LOCAL STARTERS/DRIVES)

PACKAGED HEADWORKS NO. 1
(COARSE SCREEN AND WASHER
COMPACTOR, BYPASS
CHANNEL, VORTEX GRIT AND GRIT
SEPARATOR/CLASSIFIER)

- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 21 UNLESS OTHERWISE NOTED. SYSTEM CODE IS SCR UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.
 - FOR DRAWING CLARITY, VALVE TAG NUMBER ONLY SHOW THE SEQUENCE NUMBER UNLESS OTHERWISE NOTED.
 - SEE THE SEAL WATER SYSTEM DETAILS IN THE SEAL WATER STATIONS SPECIFICATION FOR FURTHER SEAL WATER VALVE AND PIPING REQUIREMENTS.
 - FIELD INSTRUMENTATION POWER SHALL BE SUPPLIED BY ASSOCIATED CONTROL PANEL OR INDEPENDENT POWER SUPPLY.
 - SEE HVAC/ MECHANICAL SPECIFICATION FOR ADDITIONAL DETAILS ON ODOR CONTROL DUCTING
- * ITEM FURNISHED BY PACKAGED HEADWORKS SUPPLIER.

<p>PCS HMI</p> <p>21-CTRL-RIQ-0001</p>	<p>PCS HMI</p> <p>21-CTRL-RIQ-0001</p>
<p>0 1/2 1</p> <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
<p>PROJECT NO. 400530</p> <p>21-I-001</p> <p>SHEET 99 OF 412</p>	
<p>DESIGNED: BLB, TDE DETAILED: PVR CHECKED: JSM, BDS APPROVED: BLB DATE: 5/19/2020</p>	
<p>CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF)</p> <p>HEADWORKS AREA - HEADWORKS P&ID TRAIN 1</p>	
<p>REGISTERED PROFESSIONAL ENGINEER BRIAN L. BUTLER No. E 16569 ELECTRICAL STATE OF CALIFORNIA</p>	
<p>BLACK & VEATCH JOINT VENTURE FILANC BLACK & VEATCH</p>	
<p>5/19/2020 ISSUED FOR CONSTRUCTION DATE REVISIONS AND RECORD OF USE</p>	
<p>0 BLB/USM/BLB NO. BY CHK APP</p>	

PCS HMI

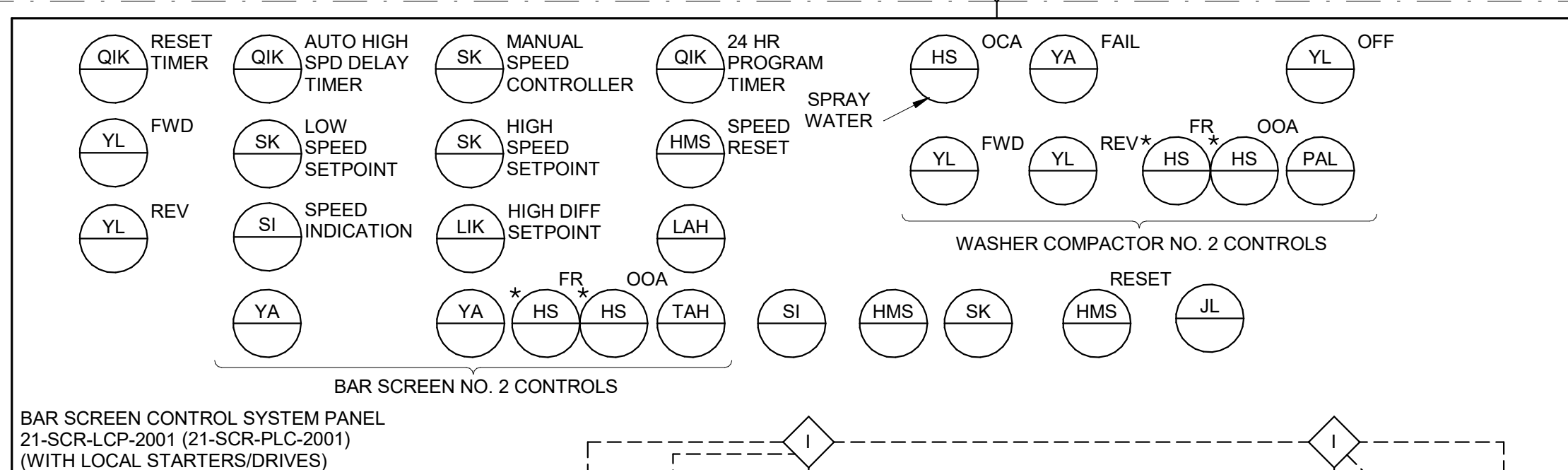
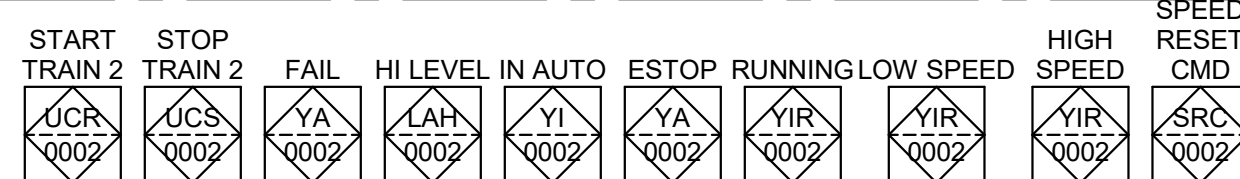
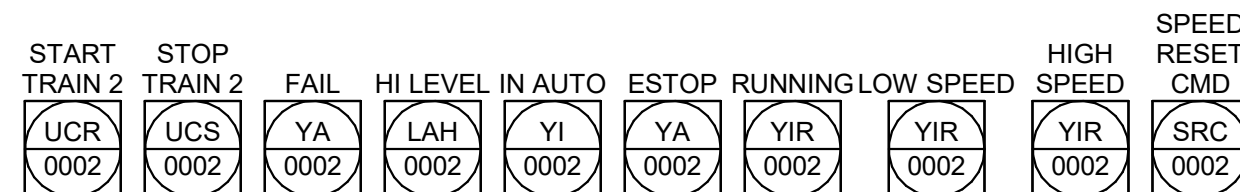
21-CTRL-RIQ-0001

PCS HMI

PCS HMI

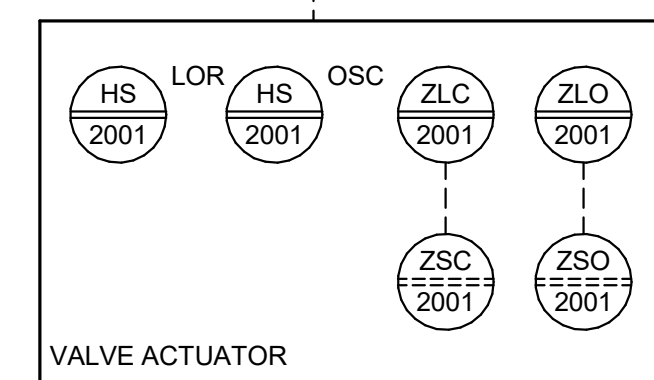
PCS HMI

PCS HMI

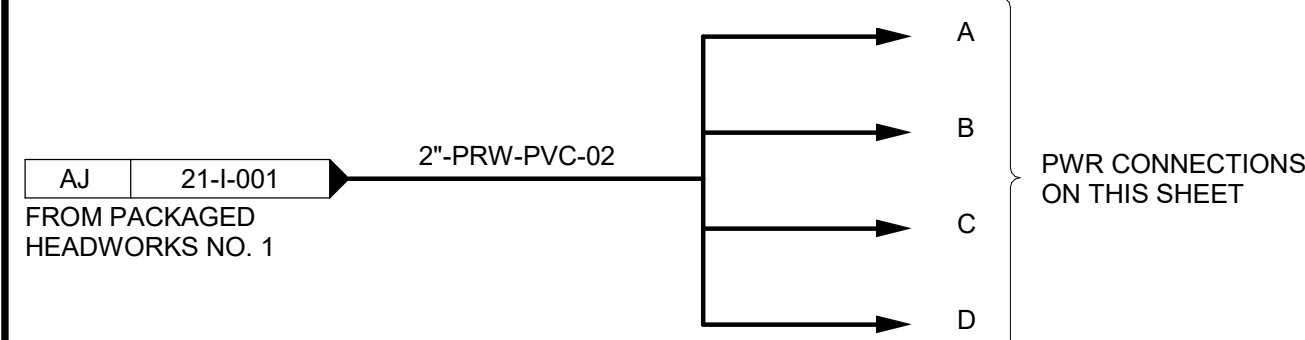
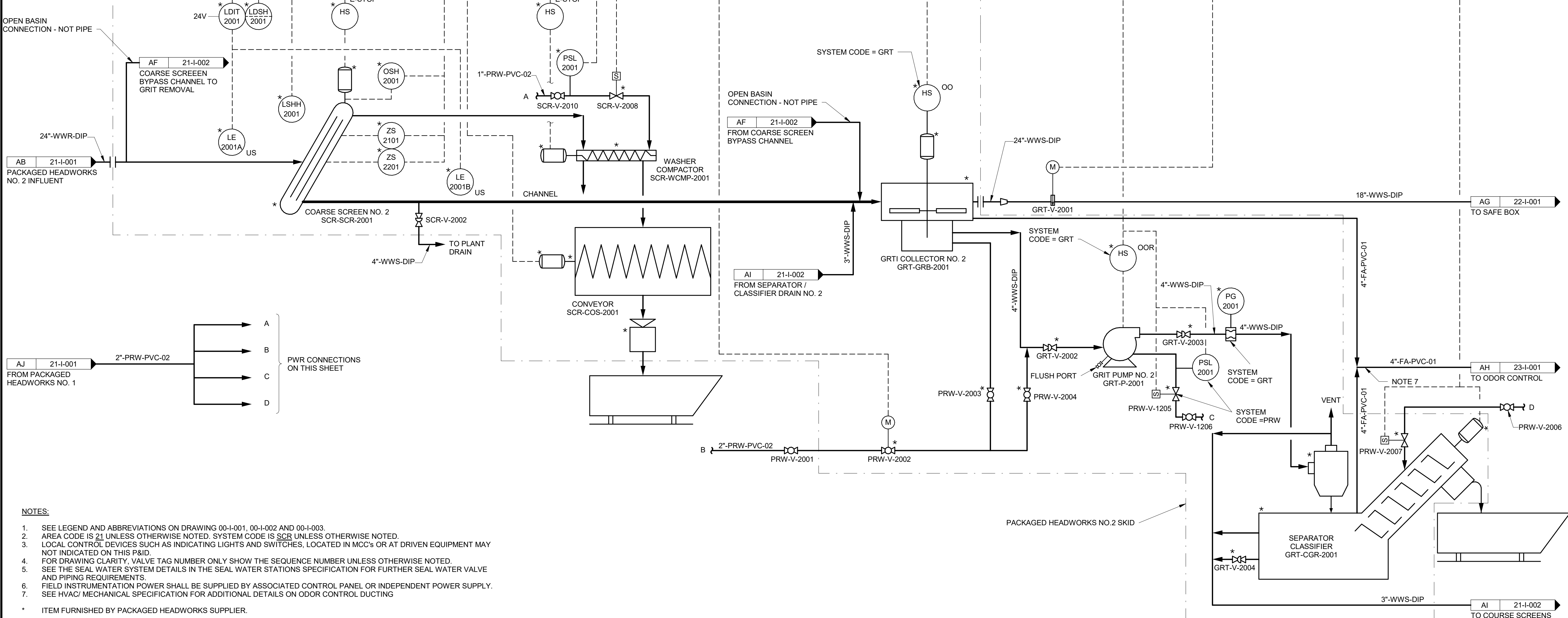


BAR SCREEN CONTROL SYSTEM PANEL
21-SCR-LCP-2001 (21-SCR-PLC-2001)
(WITH LOCAL STARTERS/DRIVES)

PACKAGED HEADWORKS NO. 2
(COARSE SCREEN AND WASHER COMPACTOR,
BYPASS CHANNEL,
VORTEX GRIT AND GRIT SEPARATOR/CLASSIFIER)

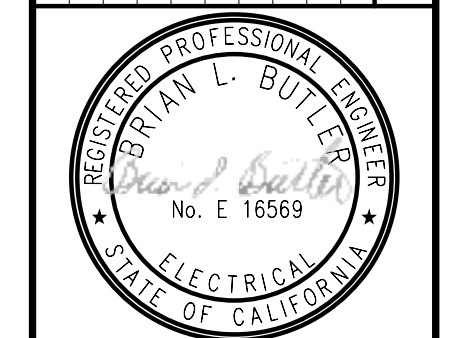


VALVE ACTUATOR



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 21 UNLESS OTHERWISE NOTED. SYSTEM CODE IS SCR UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.
 - FOR DRAWING CLARITY, VALVE TAG NUMBER ONLY SHOW THE SEQUENCE NUMBER UNLESS OTHERWISE NOTED.
 - SEE THE SEAL WATER SYSTEM DETAILS IN THE SEAL WATER STATIONS SPECIFICATION FOR FURTHER SEAL WATER VALVE AND PIPING REQUIREMENTS.
 - FIELD INSTRUMENTATION POWER SHALL BE SUPPLIED BY ASSOCIATED CONTROL PANEL OR INDEPENDENT POWER SUPPLY.
 - SEE HVAC/ MECHANICAL SPECIFICATION FOR ADDITIONAL DETAILS ON ODOR CONTROL DUCTING
- * ITEM FURNISHED BY PACKAGED HEADWORKS SUPPLIER.

0	BLB	USW	BLB
0	BY	CHK	APP
5/19/2020	ISSUED FOR CONSTRUCTION	REVISONS AND RECORD OF USE	DATE



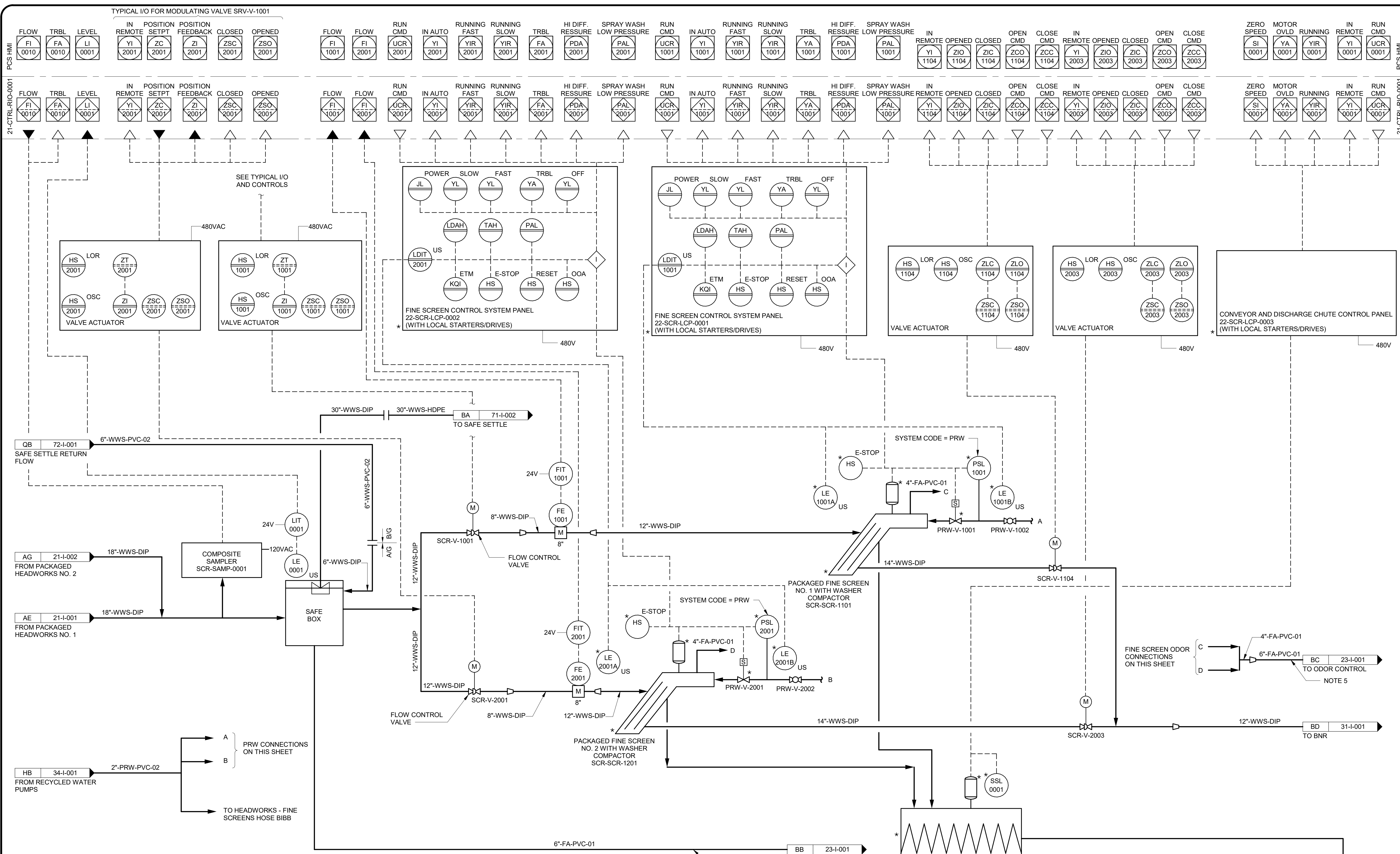
BLACK & VEATCH
JOINT VENTURE
FILANC
BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
HEADWORKS AREA - HEADWORKS
P&ID
TRAIN 2

DESIGNED: BLB, TDE
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020

PROJECT NO.
400530
21-I-002
SHEET
100 OF 412

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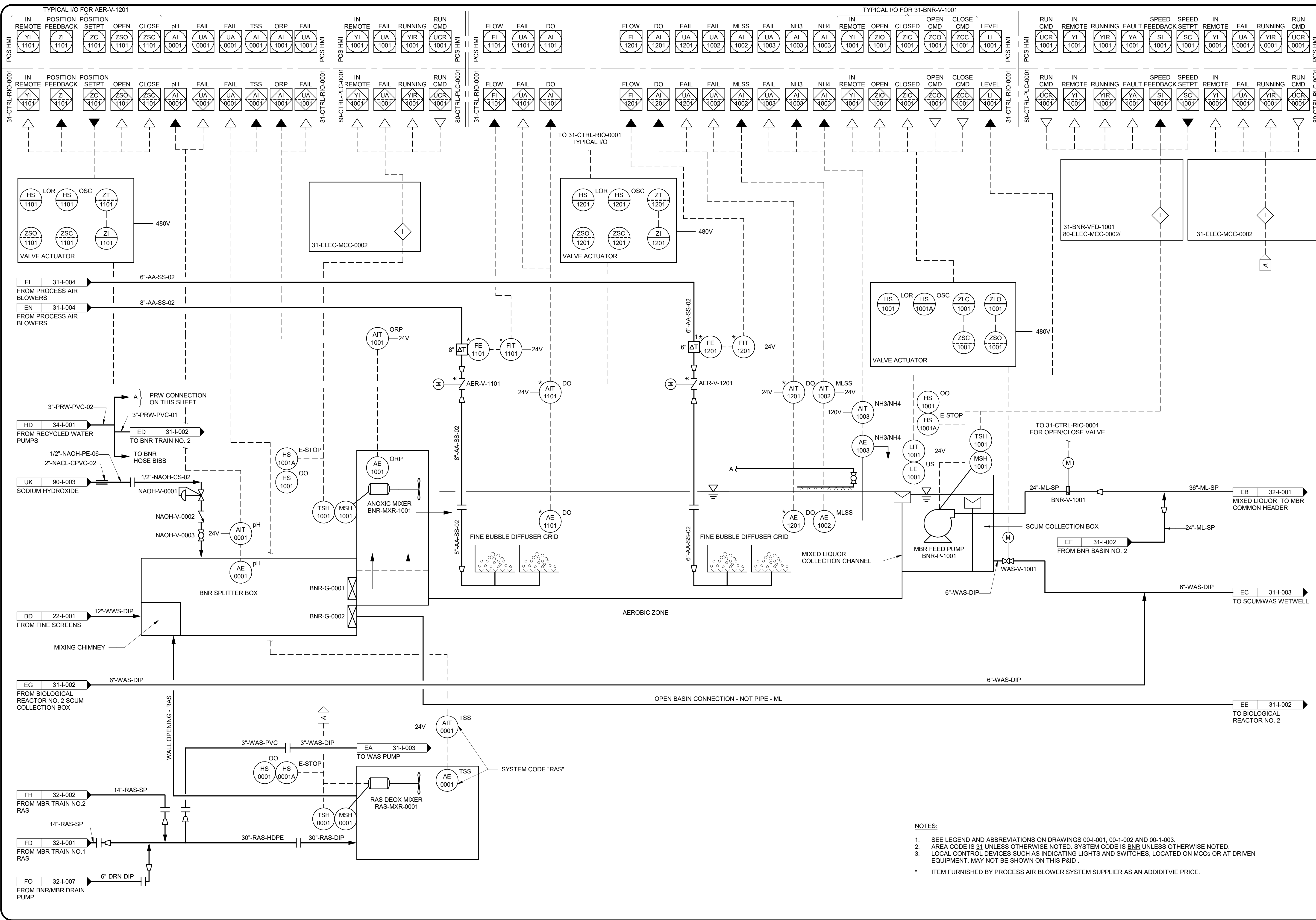


- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 22 UNLESS OTHERWISE NOTED. SYSTEM CODE IS SCR UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT BE INDICATED ON THIS P&ID.
 - FOR DRAWING CLARITY, VALVE TAG NUMBER ONLY SHOW THE SEQUENCE NUMBER UNLESS OTHERWISE NOTED.
 - SEE HVAC/ MECHANICAL SPECIFICATION FOR ADDITIONAL DETAILS ON ODOR CONTROL DUCTING.
 - ITEM FURNISHED BY PACKAGED FINE SCREENS SUPPLIER.

0 BLB/USJ/BLB NO. BY CHK APP 5/19/2020 ISSUED FOR CONSTRUCTION DATE REVISIONS AND RECORD OF USE	
BLACK & VEATCH JOINT VENTURE FILANC	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) HEADWORKS AREA - FINE SCREENS P&ID SAFE BOX & FINE SCREENS	
DESIGNED: BLB, TDE DETAILED: PVR CHECKED: JSM, BDS APPROVED: BLB DATE: 5/19/2020	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
PROJECT NO. 400530 22-I-001 SHEET 101 OF 412	

PLOTTED: 5/18/2020 4:12:36 PM
 D:\06050

PLOTTED: 5/18/2020 4:20:42 PM
D:\060530



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-1-001, 00-1-002 AND 00-1-003.
 - AREA CODE IS 31 UNLESS OTHERWISE NOTED. SYSTEM CODE IS BNR UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
- * ITEM FURNISHED BY PROCESS AIR BLOWER SYSTEM SUPPLIER AS AN ADDITIVE PRICE.

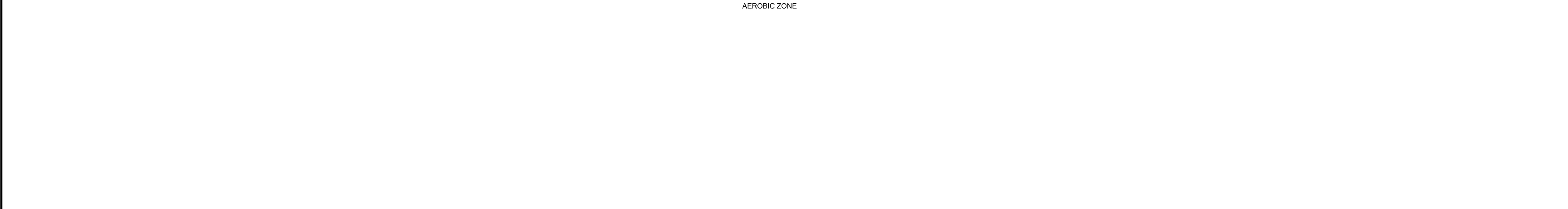
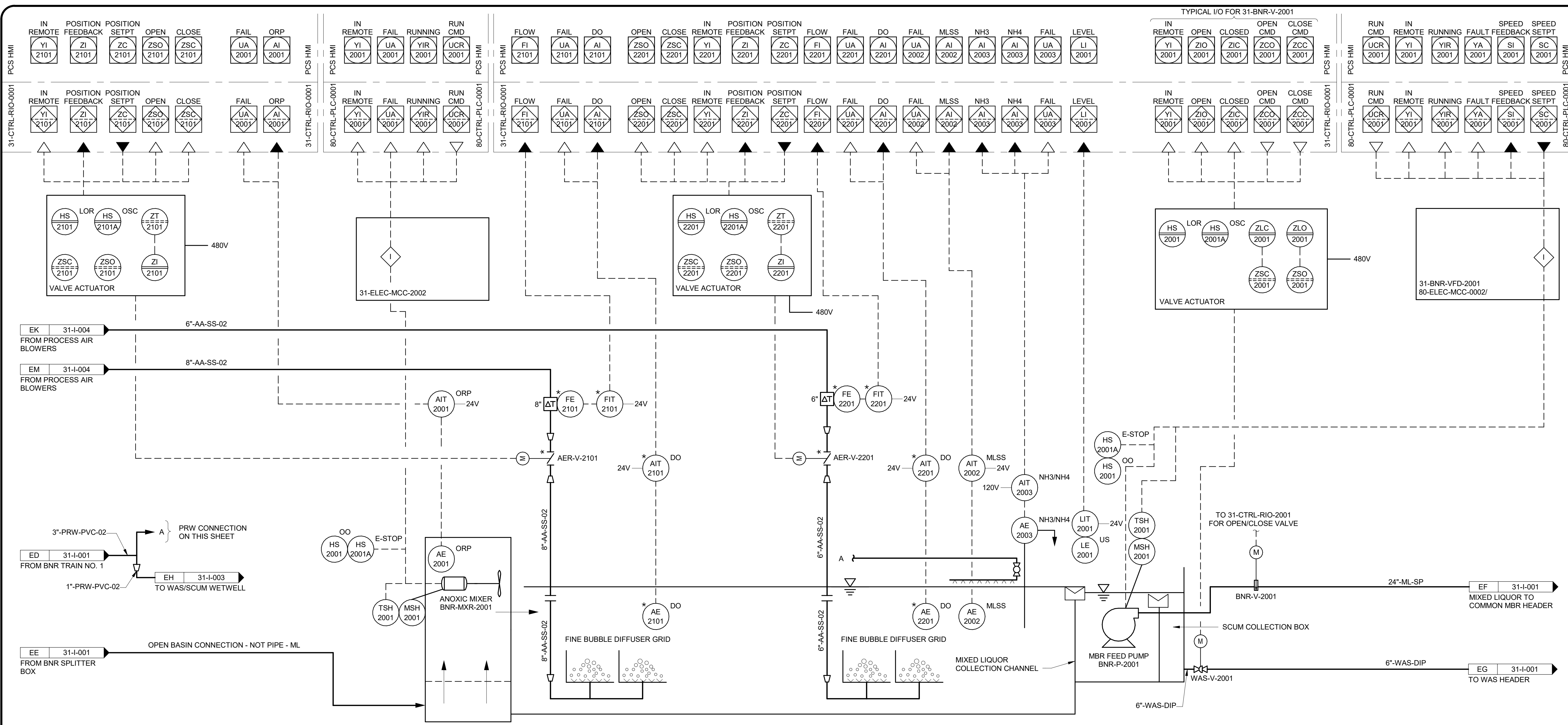
DESIGNED: BLB, KEZ	0	BLB	USJ	BLB
DETAILED: PVR	1	BLB	USJ	BLB
CHECKED: JSM, BDS	2	BLB	USJ	BLB
APPROVED: BLB	3	BLB	USJ	BLB
DATE: 5/19/2020	4	BLB	USJ	BLB
ISSUED FOR CONSTRUCTION	5	BLB	USJ	BLB
REVISIONS AND RECORD OF USE	6	BLB	USJ	BLB
DATE	7	BLB	USJ	BLB
NO. BY	8	BLB	USJ	BLB
CHK APP	9	BLB	USJ	BLB

BLACK & VEATCH
JOINT VENTURE
FILANC
BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
TREATMENT AREA - BNR BASINS
P&ID
BASIN 1 & RAS DEOX

PROJECT NO.
400530

31-I-001
SHEET
103 OF 412



NOTES:

- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-1-001, 00-1-002 AND 00-1-003.
- AREA CODE IS 31 UNLESS OTHERWISE NOTED. SYSTEM CODE IS BNR UNLESS OTHERWISE NOTED.
- LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.

* ITEM FURNISHED BY PROCESS AIR BLOWER SYSTEM SUPPLIER AS AN ADDITVIE PRICE.

DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 400530
31-I-002
 SHEET 104 OF 412

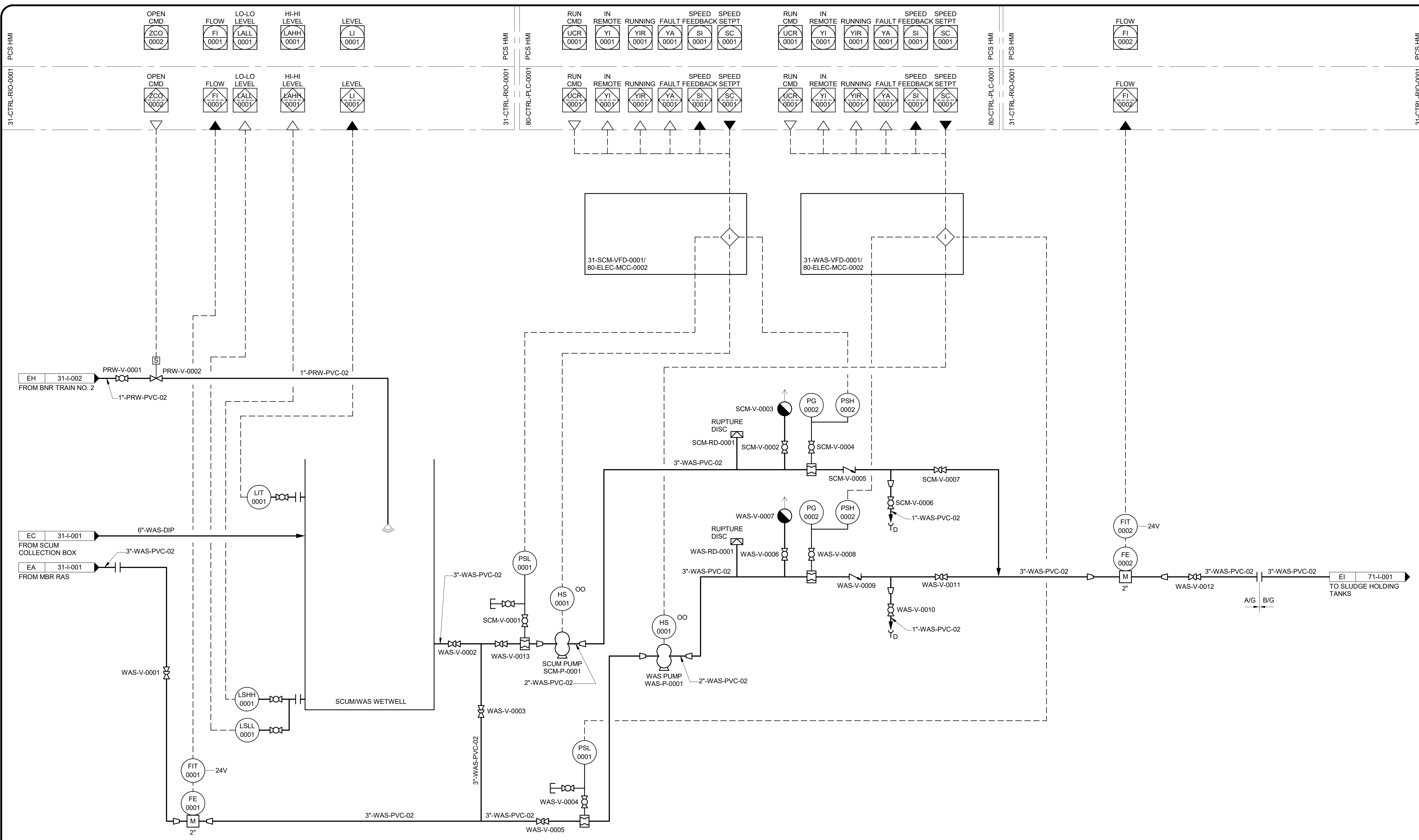
0 BLB USM BLB
 NO. BY CHK APP
 5/19/2020 ISSUED FOR CONSTRUCTION
 DATE REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
 BREWSTER L. BUTLER
 No. E 16569
 ELECTRICAL
 STATE OF CALIFORNIA

BLACK & VEATCH
 JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 TREATMENT AREA - BNR BASINS
 P&ID
 BASIN 2

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 040650



NOTES:

- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-1-002 AND 00-1-003.
- AREA CODE IS 31 UNLESS OTHERWISE NOTED. SYSTEM CODE IS WAS UNLESS OTHERWISE NOTED.
- LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.

DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

31-I-003
 SHEET
 105 OF 412

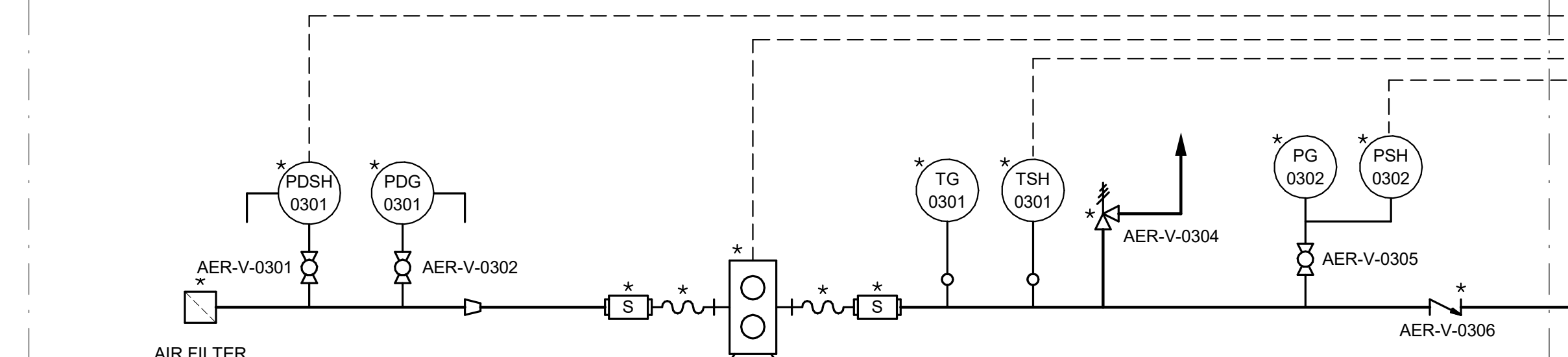
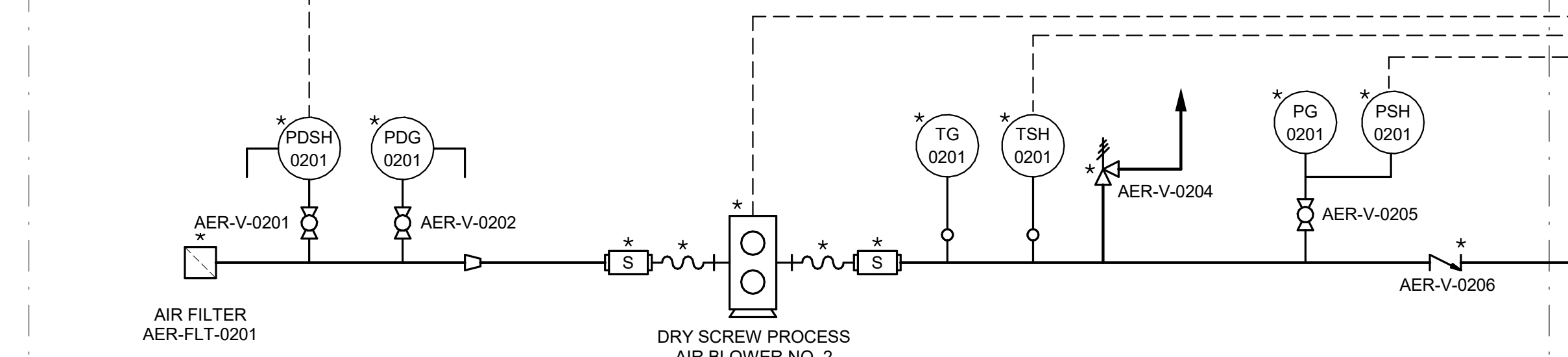
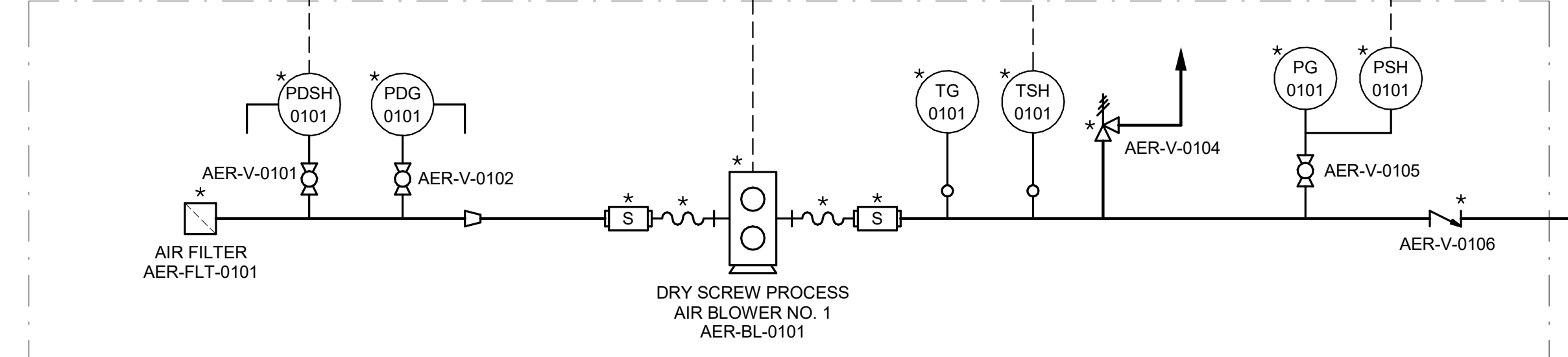
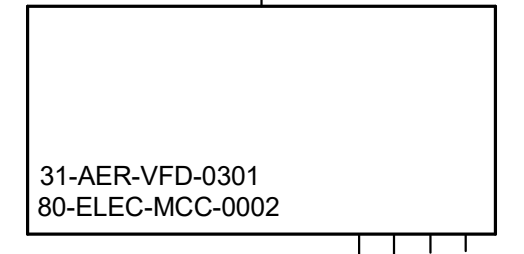
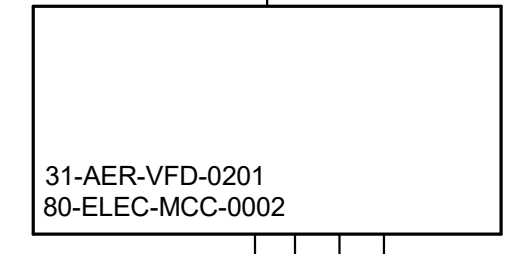
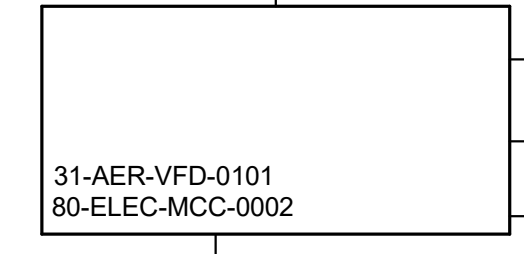
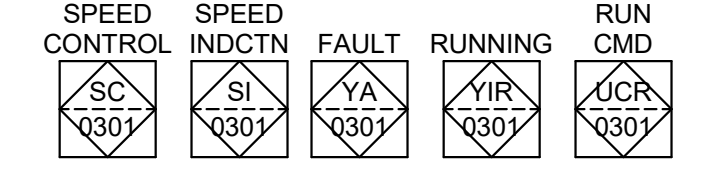
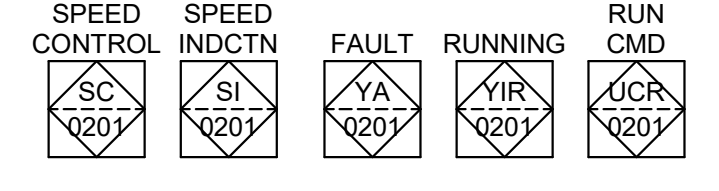
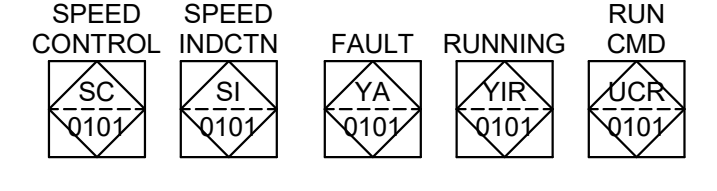
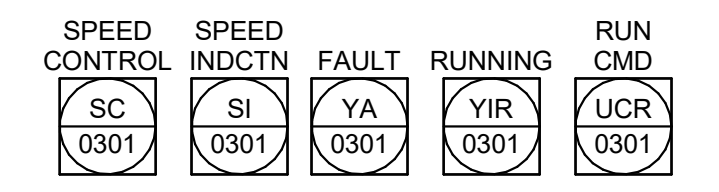
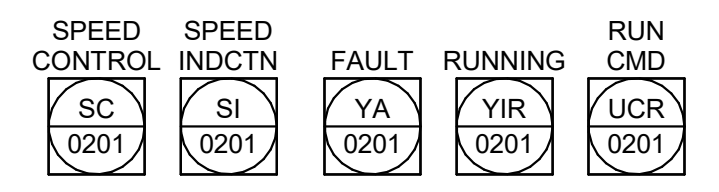
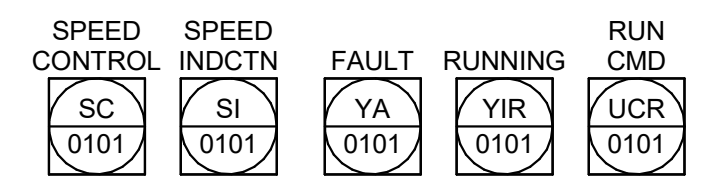
PLOTTED: 5/18/2020 4:20:44 PM
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0	BLB	JSM	BLB
NO.	BY	CHK	APP
5/19/2020	ISSUED FOR CONSTRUCTION		REVISIONS AND RECORD OF USE
DATE			

BLACK & VEATCH
 JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 TREATMENT AREA - BNR BASINS
 P&ID
 WAS SYSTEM

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D:\06530



PROCESS AIR BLOWER SKID (TYP)

NOTES:

- 1. SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003
- 2. LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
- 3. AREA CODE IS 31 UNLESS OTHERWISE NOTED. SYSTEM CODE IS AER UNLESS OTHERWISE NOTED.
- 4. INLET/FILTER/SILENCER, DRIVE, PANEL, BLOWER UNIT, SHALL ALL BE PROVIDED BY THE BLOWER MANUFACTURER.

* ITEM FURNISHED BY PROCESS AIR BLOWER SYSTEM SUPPLIER.

80-CTRL-PLC-0001 PCS HMI

80-CTRL-PLC-0001 PCS HMI

31-CTRL-PLC-0001 PCS HMI

31-CTRL-PLC-0001 PCS HMI

31-CTRL-PLC-0001 PCS HMI

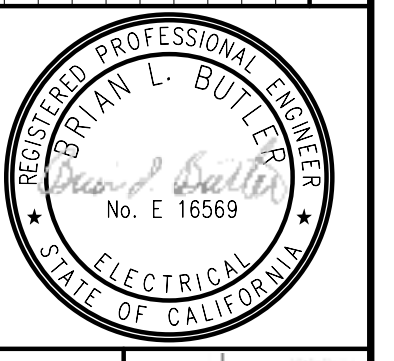
31-CTRL-PLC-0001 PCS HMI

31-CTRL-PLC-0001 PCS HMI

31-CTRL-PLC-0001 PCS HMI

31-CTRL-PLC-0001 PCS HMI

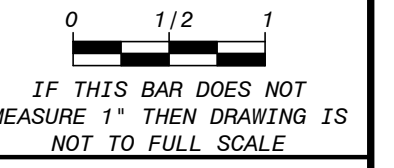
31-CTRL-PLC-0001 PCS HMI



BLACK & VEATCH
JOINT VENTURE
FILANC

**CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)**
TREATMENT AREA - BNR BASINS
P&ID
PROCESS AIR BLOWERS

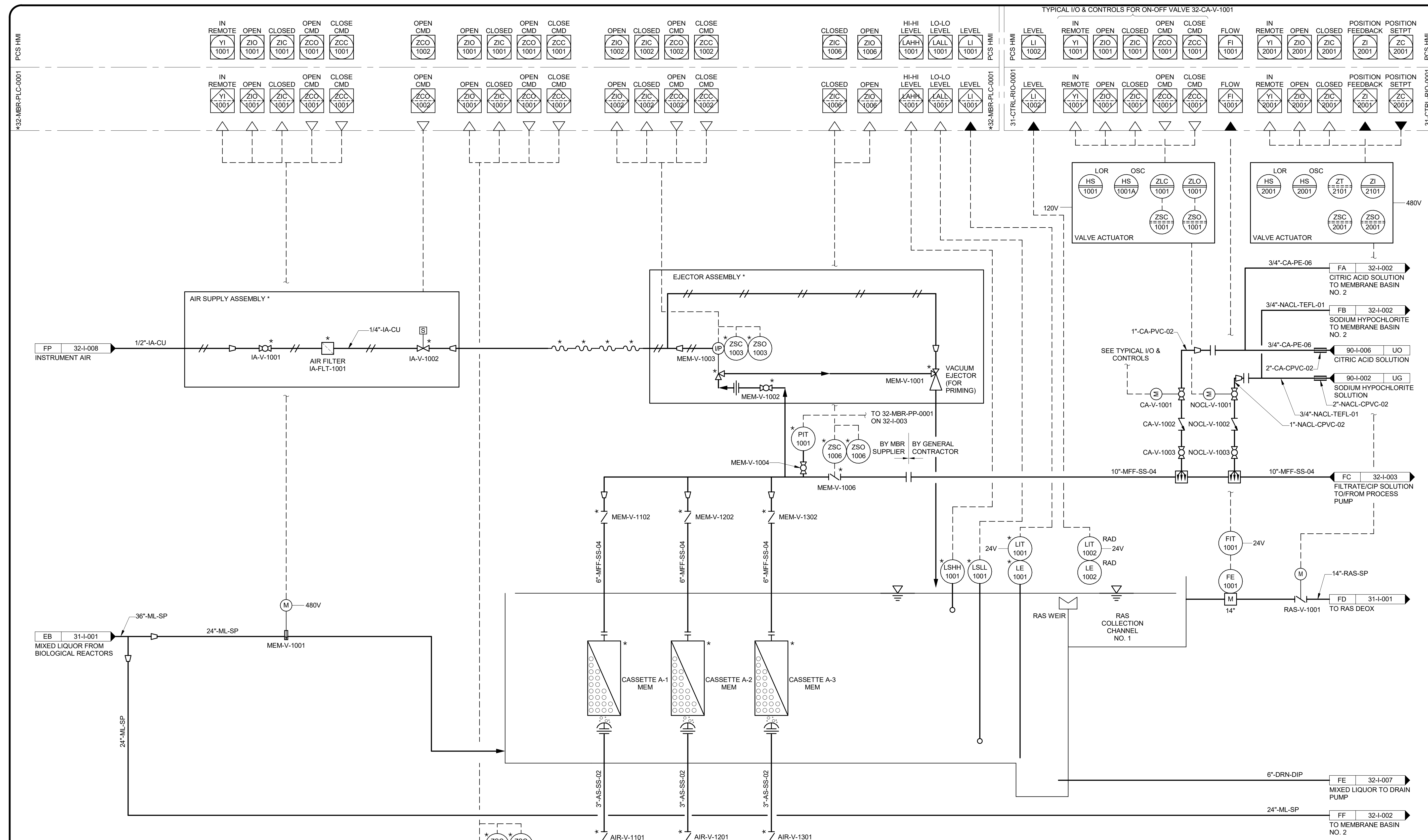
DESIGNED: BLB, KEZ
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020



PROJECT NO.
400530
31-I-004
SHEET
106 OF 412

NO.	BY	DATE	REVISIONS AND RECORD OF USE
0	BLB	5/19/2020	ISSUED FOR CONSTRUCTION
1	BY		REVISED AND RECORD OF USE

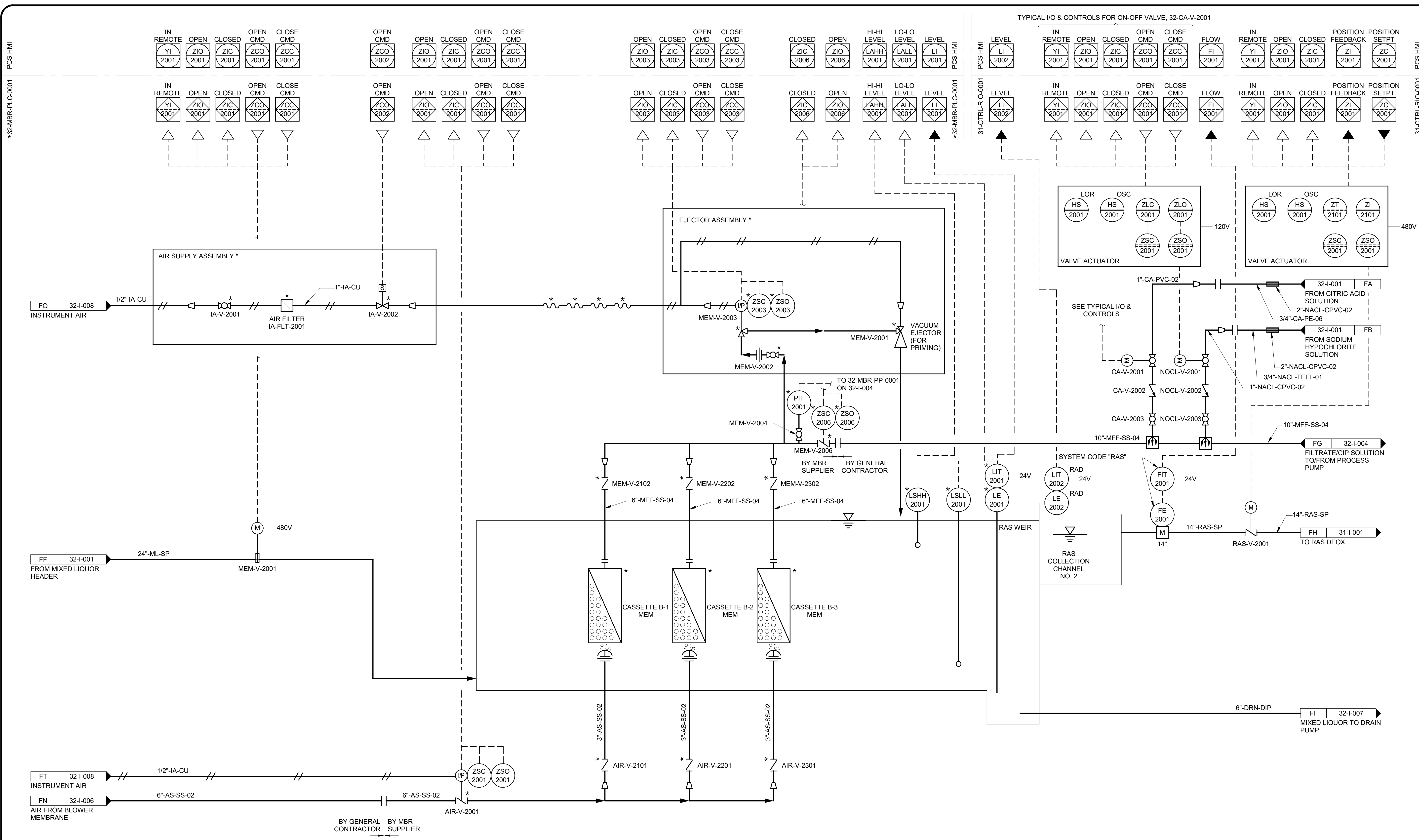
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- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 32 UNLESS OTHERWISE NOTED. SYSTEM CODE IS MEM UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - DRAWING TYPICAL FOR EVERY MEMBRANE TRAIN, WITH EXCEPTION OF COMMON PIPES.
- * ITEM FURNISHED BY MBR SYSTEM SUPPLIER.

<p>PCS HMI</p> <p>32-MBR-PLC-0001</p> <p>PCS HMI</p> <p>31-CTRL-RIO-0001</p> <p>PCS HMI</p> <p>31-CTRL-RIO-0001</p>	<p>0 BLB USJ/BLB</p> <p>NO. BY CHK APP</p> <p>5/19/2020 ISSUED FOR CONSTRUCTION</p> <p>DATE REVISIONS AND RECORD OF USE</p>
<p>BLACK & VEATCH</p> <p>JOINT VENTURE</p> <p>FILANC</p> <p>BLACK & VEATCH</p>	
<p>CITY OF MORRO BAY</p> <p>MORRO BAY WATER RECLAMATION FACILITY (WRF)</p> <p>TREATMENT AREA - MBR SYSTEM</p> <p>P&ID</p> <p>MEMBRANE BASIN 1</p>	
<p>DESIGNED: BLB, KEZ</p> <p>DETAILED: PVR</p> <p>CHECKED: JSM, BDS</p> <p>APPROVED: BLB</p> <p>DATE: 5/19/2020</p>	
<p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
<p>PROJECT NO. 400530</p> <p>32-I-001</p> <p>SHEET 107 OF 412</p>	

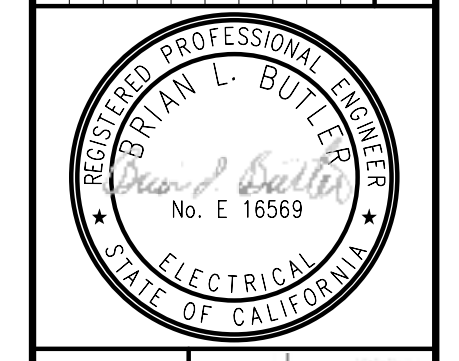
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- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 32 UNLESS OTHERWISE NOTED. SYSTEM CODE IS MEM UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - DRAWING TYPICAL FOR EVERY MEMBRANE TRAIN, WITH EXCEPTION OF COMMON PIPES.

* ITEM FURNISHED BY MBR SYSTEM SUPPLIER

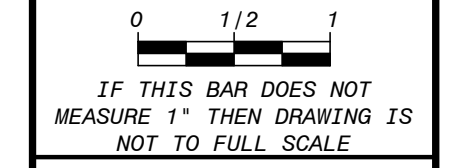
0	BLB	USJ	BLB
NO.	BY	CHK	APP
5/19/2020 ISSUED FOR CONSTRUCTION			
DATE			
REVISONS AND RECORD OF USE			



BLACK & VEATCH
JOINT VENTURE
FILANC

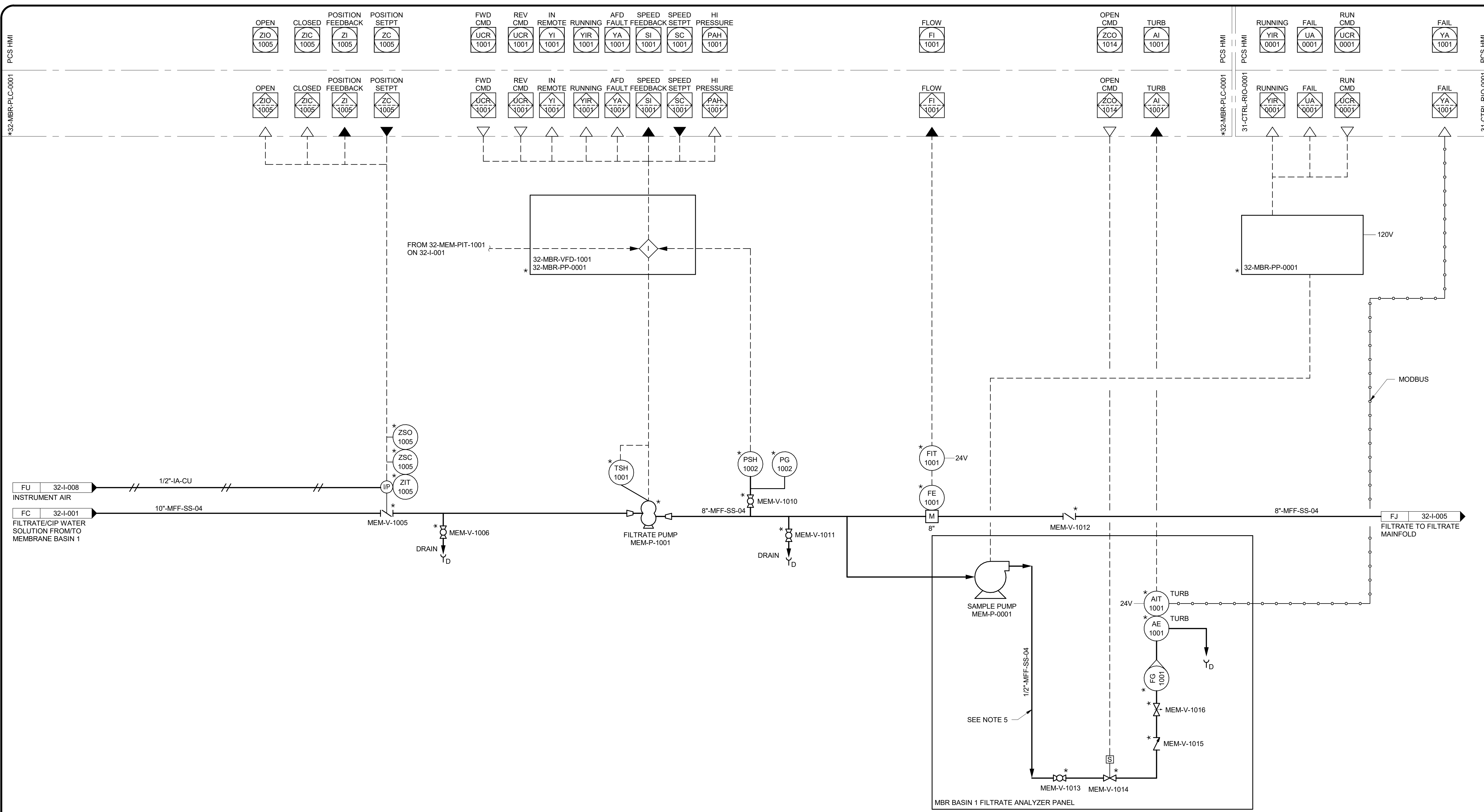
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
TREATMENT AREA - MBR SYSTEM
P&ID
MEMBRANE BASIN 2

DESIGNED:	BLB, KEZ
DETAILED:	PVR
CHECKED:	JSM, BDS
APPROVED:	BLB
DATE:	5/19/2020



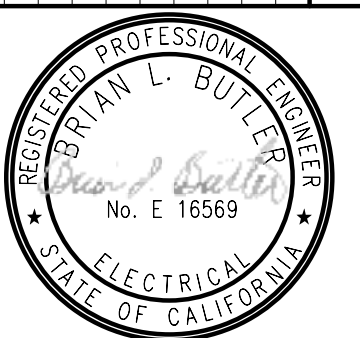
PROJECT NO.
400530
32-I-002
SHEET
108 OF 412

PLOTTED: 5/19/2020 4:20:47 PM
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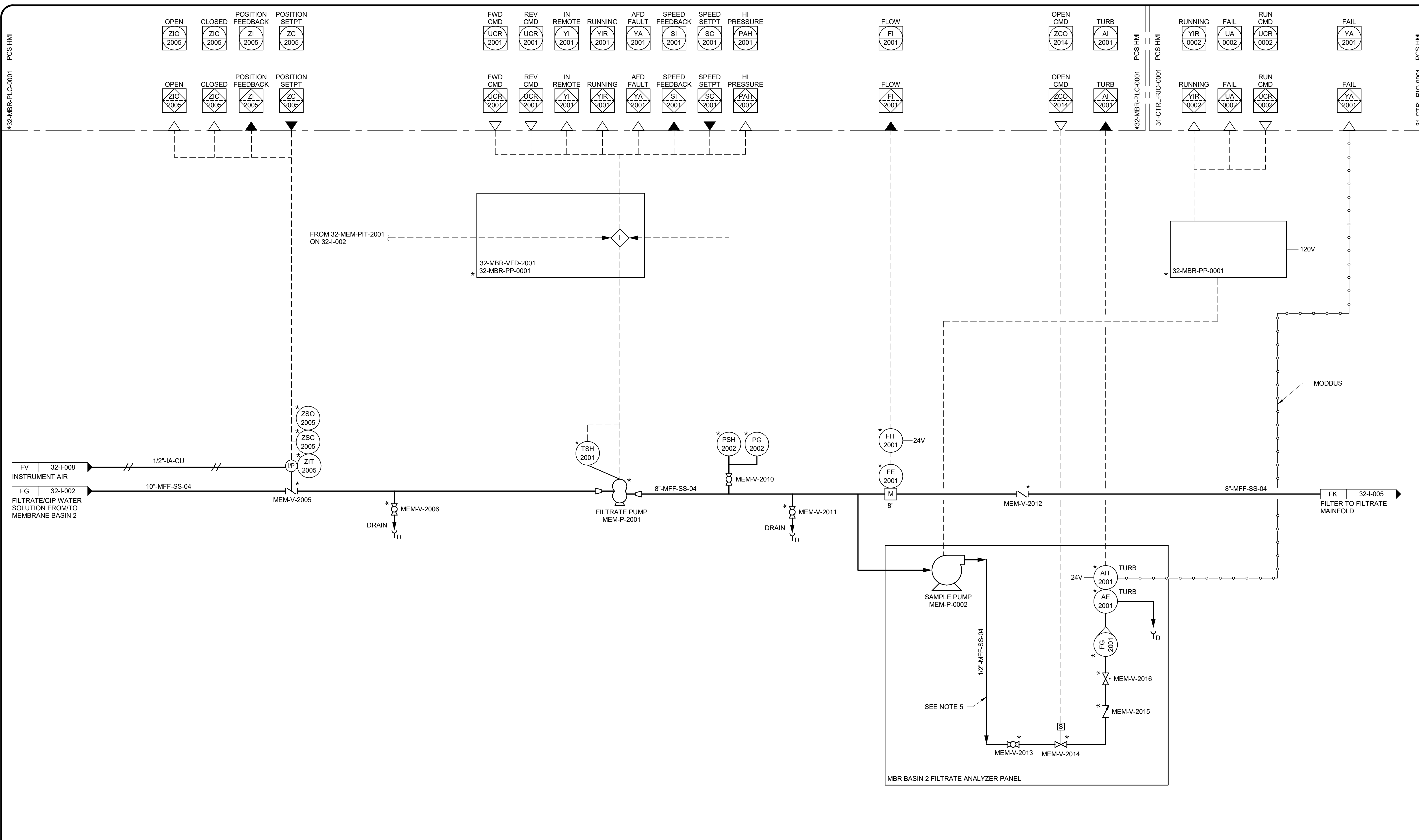
- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 32 UNLESS OTHERWISE NOTED. SYSTEM CODE IS MEM UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - PRIMING SYSTEM CONNECTION AND PRESSURE TRANSMITTER MUST BE LOCATED AT HIGH POINT OF MEMBRANE TANK HEADER.
 - TURBIDIMETER SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- * ITEM FURNISHED BY MBR SYSTEM SUPPLIER.

<p>BLACK & VEATCH</p> <p>JOINT VENTURE</p> <p>FILANC</p>	<p>CITY OF MORRO BAY</p> <p>MORRO BAY WATER</p> <p>RECLAMATION FACILITY (WRF)</p> <p>TREATMENT AREA - MBR SYSTEM</p> <p>P&ID</p> <p>FILTRATE PUMP, BASIN 1</p>
<p>DESIGNED: BLB, KEZ</p> <p>DETAILED: PVR</p> <p>CHECKED: JSM, BDS</p> <p>APPROVED: BLB</p> <p>DATE: 5/19/2020</p>	
<p>0 1/2 1</p> <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
<p>PROJECT NO.</p> <p>400530</p> <p>32-I-003</p> <p>SHEET</p> <p>109 OF 412</p>	



REGISTERED PROFESSIONAL ENGINEER
 B. L. BUTLER
 No. E 16569
 ELECTRICAL
 STATE OF CALIFORNIA

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
 PROJECT NO.
400530
32-I-003
 SHEET
 109 OF 412



NOTES:

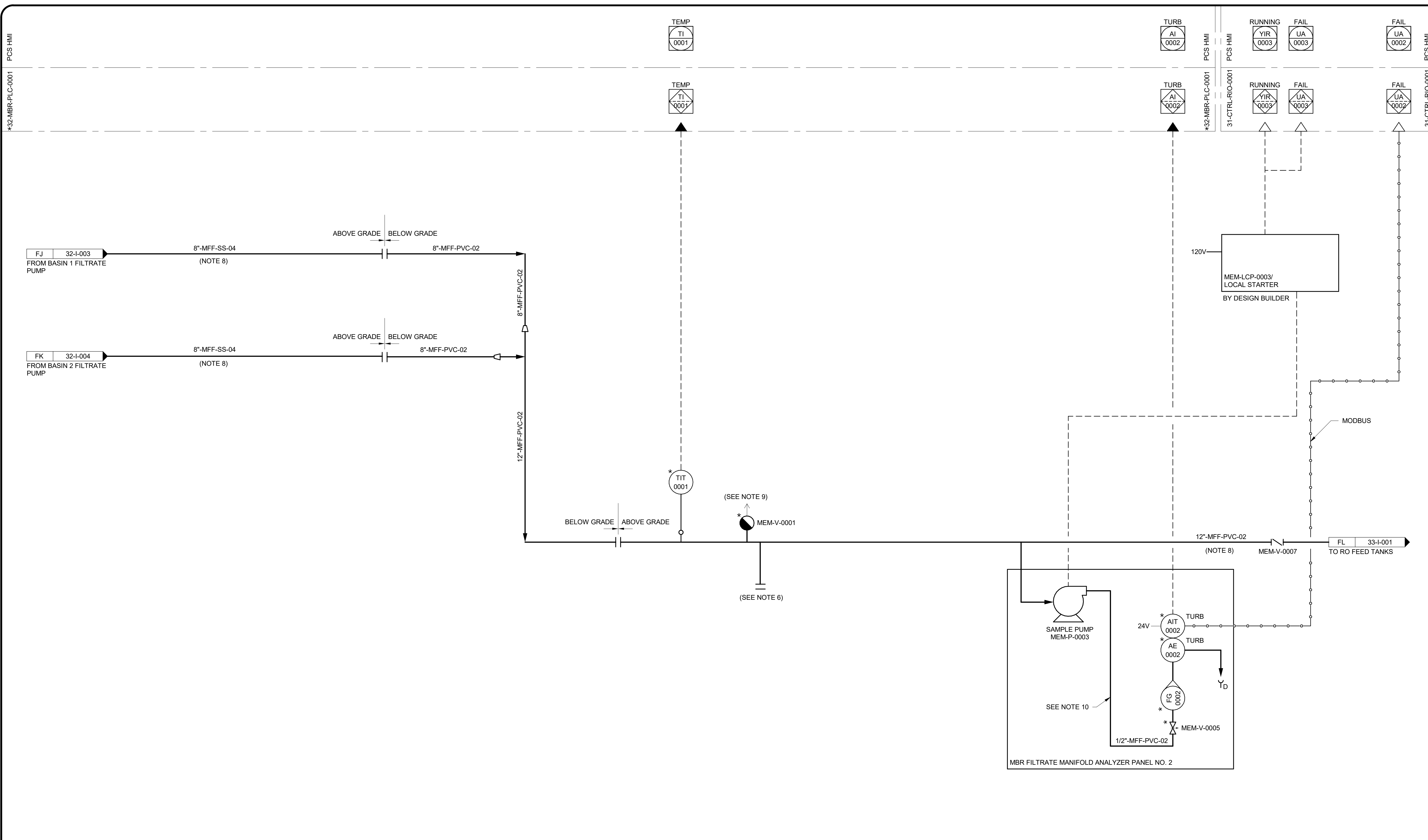
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
- AREA CODE IS 32 UNLESS OTHERWISE NOTED. SYSTEM CODE IS MEM UNLESS OTHERWISE NOTED.
- LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
- PRIMING SYSTEM CONNECTION AND PRESSURE TRANSMITTER MUST BE LOCATED AT HIGH POINT OF MEMBRANE TANK HEADER.
- TURBIDIMETER SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

* ITEM FURNISHED BY MBR SYSTEM SUPPLIER.

PCS HMI	PCS HMI	PCS HMI	PCS HMI
0	0	0	0
BLB	USM	BLB	BLB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
DATE	5/19/2020		
BLACK & VEATCH JOINT VENTURE		FILANC BLACK & VEATCH	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) TREATMENT AREA - MBR SYSTEM P&ID FILTRATE PUMP, BASIN 2			
DESIGNED: BLB, KEZ			
DETAILED: PVR			
CHECKED: JSM, BDS			
APPROVED: BLB			
DATE: 5/19/2020			
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE			
PROJECT NO. 400530			
32-I-004 SHEET 110 OF 412			

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 0400530

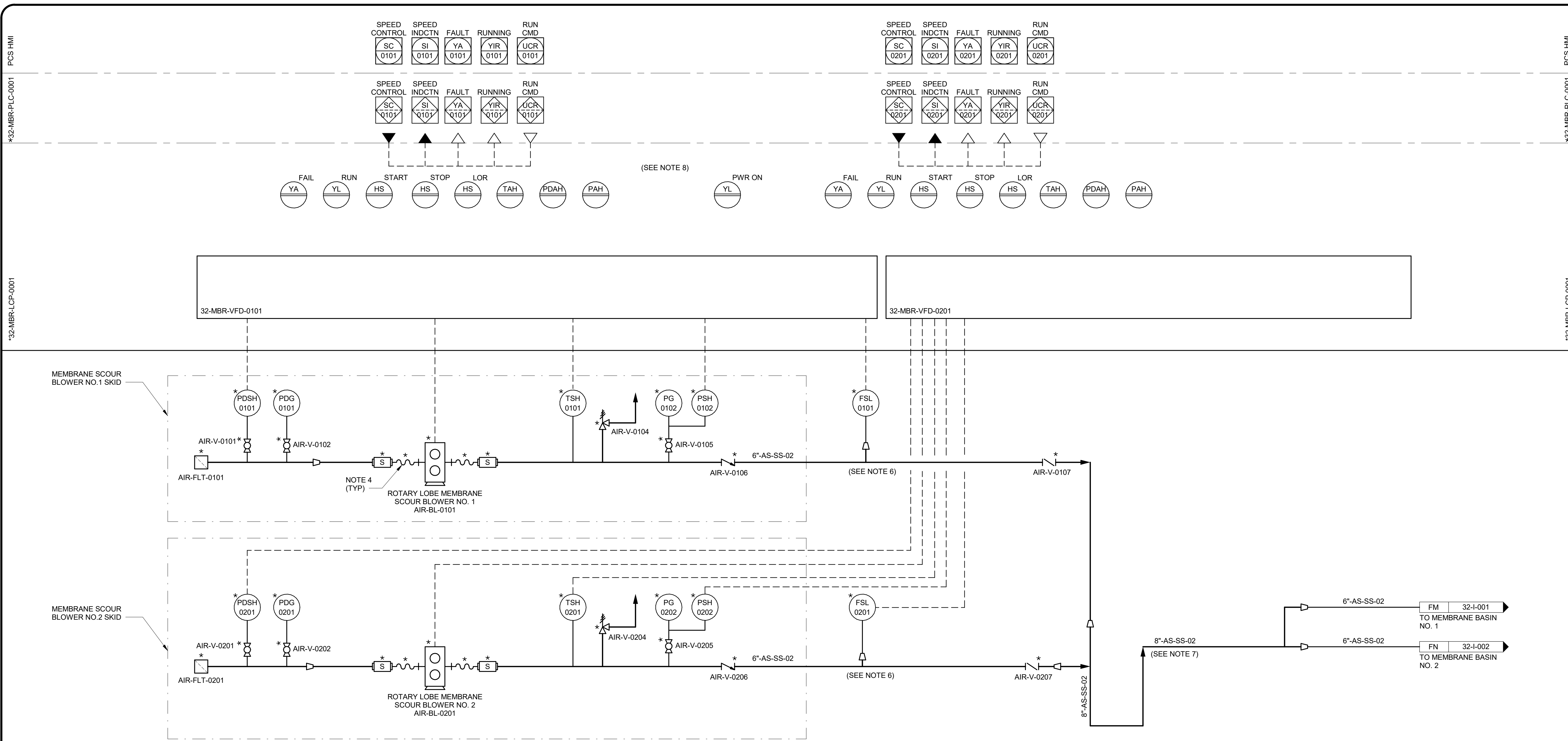
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- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 32 UNLESS OTHERWISE NOTED. SYSTEM CODE IS MEM UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - FLOOR DRAINS TO BE PROVIDED AND PIPED INTO BY GENERAL CONTRACTOR, AS REQUIRED.
 - ALL EQUIPMENT ON THIS SHEET IS DESIGNED TO BE INSTALLED IN A NON-CLASSIFIED AREA (PER NFPA 820)
 - CAPPED CONNECTION FOR RECIRCULATION BACK TO THE BIOREACTOR DURING START-UP. TEMPORARY PIPING IS PROVIDED BY OTHERS.
 - FINAL SIZING AND DESIGN TO BE VERIFIED DURING DETAIL PROJECT ENGINEERING.
 - SCH80 PVC IS ACCEPTABLE.
 - COMBINATION VACUUM BREAK/AIR RELEASE, AS REQUIRED.
 - TURBIDITY SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- * ITEM FURNISHED BY MBR SYSTEM SUPPLIER.

<p>CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF)</p> <p>TREATMENT AREA - MBR SYSTEM P&ID FILTRATE MANIFOLD</p>	<p>BLACK & VEATCH JOINT VENTURE FILANC</p>
<p>REGISTERED PROFESSIONAL ENGINEER BRYAN L. BUTLER No. E. 16569 ELECTRICAL STATE OF CALIFORNIA</p>	
<p>DESIGNED: BLB, KEZ DETAILED: PVR CHECKED: JSM, BDS APPROVED: BLB DATE: 5/19/2020</p>	
<p>0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
<p>PROJECT NO. 400530</p>	
<p>32-I-005 SHEET 111 OF 412</p>	
<p>ISSUED FOR CONSTRUCTION DATE: 5/19/2020</p>	<p>REVISIONS AND RECORD OF USE NO. BY CHK APP</p>

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NOTES:

1. SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 2. AREA CODE IS 32 UNLESS OTHERWISE NOTED. SYSTEM CODE IS AIR UNLESS OTHERWISE NOTED.
 3. LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.
 4. BLOWER FLEXIBLE CONNECTION.
 5. ALL EQUIPMENT ON THIS SHEET DESIGNED TO BE INSTALLED IN A NON-CCLASSIFIED AREA (PER NFPA 820)
 6. A PORTION OF THE AIR LINE NEEDS TO BE HIGHER THAN THE TANK OPERATING LEVEL TO PREVENT WATER BACK FLOW.
 7. FINAL SIZING AND DESIGN TO BE VERIFIED DURING PROJECT ENGINEERING.
 8. HANDSWITCHES, PUSHBUTTONS AND INDICATING LIGHTS ARE DELETED IF AN OIT IS PROVIDED.
- * ITEM FURNISHED BY MBR SYSTEM SUPPLIER.

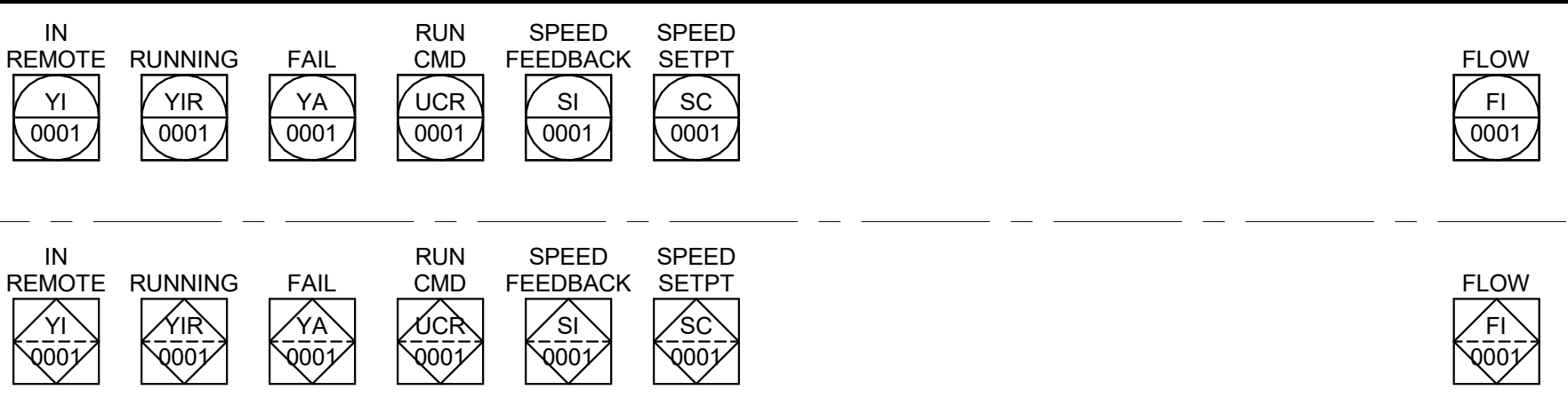
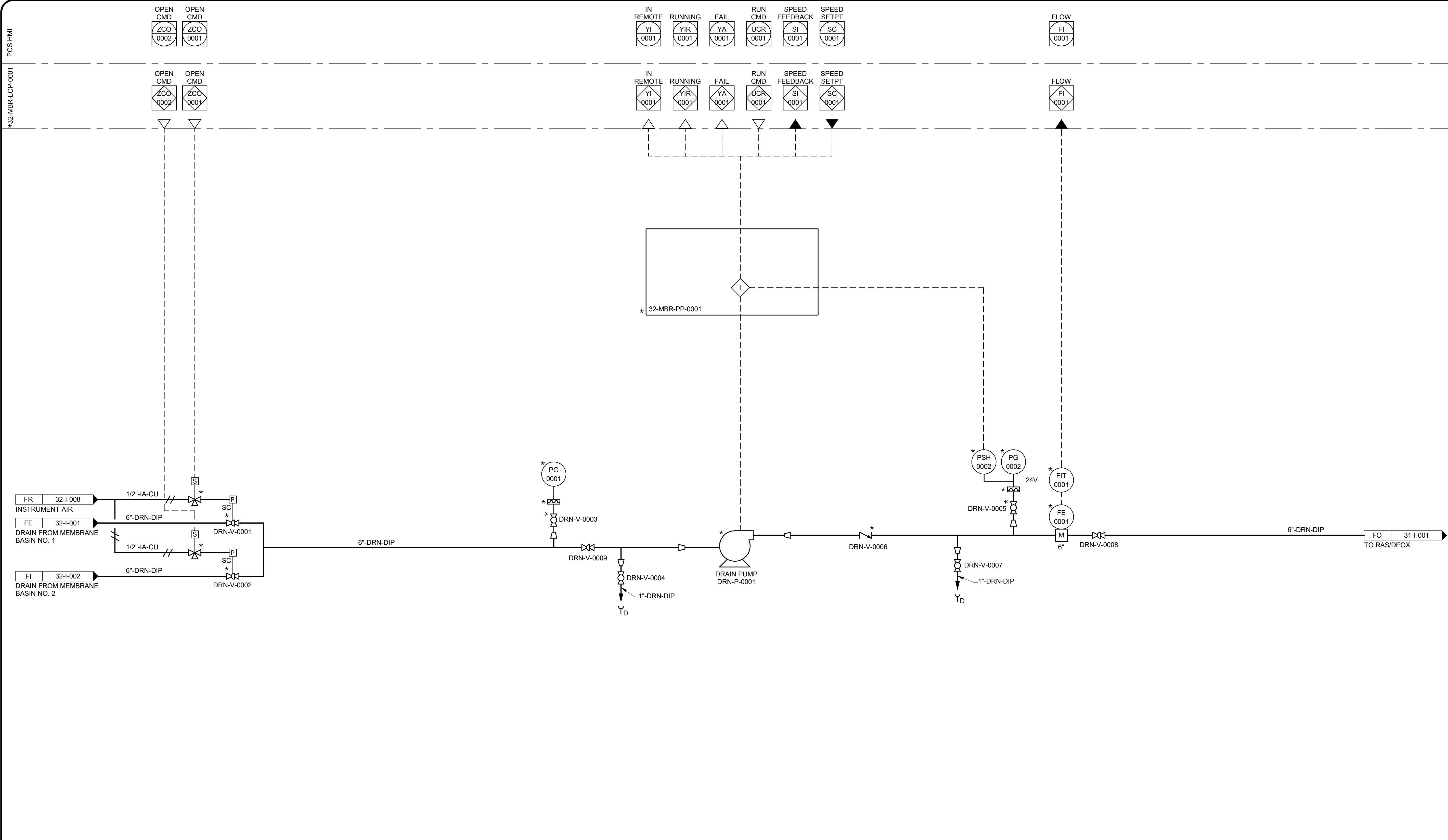
<p>PCS HMI</p> <p>*32-MBR-PLC-0001</p> <p>*32-MBR-LCP-0001</p> <p>PCS HMI</p> <p>*32-MBR-LCP-0001</p>	<p>PCS HMI</p> <p>*32-MBR-PLC-0001</p> <p>*32-MBR-LCP-0001</p> <p>PCS HMI</p> <p>*32-MBR-LCP-0001</p>						
<p>(SEE NOTE 8)</p> <p>PWR ON</p>							
<p>32-MBR-VFD-0101</p> <p>32-MBR-VFD-0201</p>							
<p>MEMBRANE SCOUR BLOWER NO.1 SKID</p> <p>MEMBRANE SCOUR BLOWER NO.2 SKID</p>							
<p>ROTARY LOBE MEMBRANE SCOUR BLOWER NO. 1 AIR-BL-0101</p> <p>ROTARY LOBE MEMBRANE SCOUR BLOWER NO. 2 AIR-BL-0201</p>							
<p>6"-AS-SS-02</p> <p>6"-AS-SS-02</p> <p>8"-AS-SS-02 (SEE NOTE 7)</p> <p>FM 32-I-001 TO MEMBRANE BASIN NO. 1</p> <p>FN 32-I-002 TO MEMBRANE BASIN NO. 2</p>							
<p>DESIGNED: BLB, KEZ DETAILED: PVR CHECKED: JSM, BDS APPROVED: BLB DATE: 5/19/2020</p>							
<p>0 1/2 1</p> <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>							
<p>PROJECT NO. 400530</p>							
<p>32-I-006</p> <p>SHEET 112 OF 412</p>							
<p>CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF)</p> <p>TREATMENT AREA - MBR SYSTEM P&ID MBR SCOUR AIR BLOWERS</p>							
<p>BLACK & VEATCH JOINT VENTURE FILANC</p>							
<p>REGISTERED PROFESSIONAL ENGINEER BRYAN L. BUTLER No. E. 16569 ELECTRICAL STATE OF CALIFORNIA</p>							
<p>ISSUED FOR CONSTRUCTION 5/19/2020 DATE</p> <p>REVISIONS AND RECORD OF USE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO.</th> <th>BY</th> <th>CHK APP</th> </tr> <tr> <td>0</td> <td>BLB</td> <td>JSM</td> </tr> </table>		NO.	BY	CHK APP	0	BLB	JSM
NO.	BY	CHK APP					
0	BLB	JSM					

PCS HMI

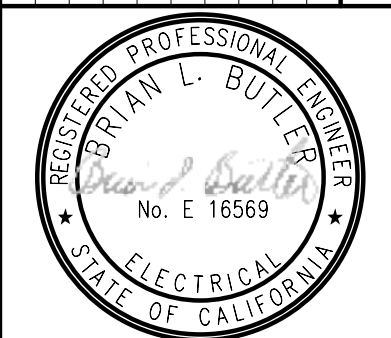
*32-MBR-LCP-0001

PCS HMI

*32-MBR-LCP-0001



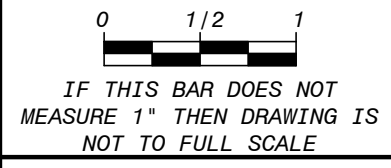
- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 32 UNLESS OTHERWISE NOTED. SYSTEM CODE IS DRN UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - FLOOR DRAINS TO BE PROVIDED AND PIPED INTO BY GENERAL CONTRACTOR, AS REQUIRED.
 - BUTTERFLY VALVES ARE USED ON WASTE WATER AND MIXED LIQUOR SERVICES
 - DESIGN ENGINEER TO BE INSURE THERE ENOUGH BACK PRESSURE IN THIS LINE IN TO ALLOW FOR WAS REMOVAL REFER TO NEXT NOTE FOR MORE DETAILS.
 - OPTIONAL VALVE CAN BE ACTUATED TO BE ABLE TO AUTOMATICALLY THROTTLE THE LINE IN ORDER TO CREATE BACK PRESSURE FOR SLUDGE WASTING - REFER TO PREVIOUS NOTE.
 - 5 PIPES DIAMETERS UPSTREAM, 3 PIPE DIAMETERS DOWN STREAM, STRAIGHT PIE RUN RECOMMENDED FOR MAXIMUM ACCURACY. PIPE MUST BE ARRANGED SO MAG IS ALWAYS FLOODED.
 - ALL EQUIPMENT ON THIS SHEET IS DESIGNED TO BE INSTALLED IN A NON-CCLASSIFIED AREA (PER NFPA 820).
- * ITEM FURNISHED BY MBR SYSTEM SUPPLIER.



BLACK & VEATCH
 JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 TREATMENT AREA - MBR SYSTEM
 P&ID
 TANK DRAIN PUMP

DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

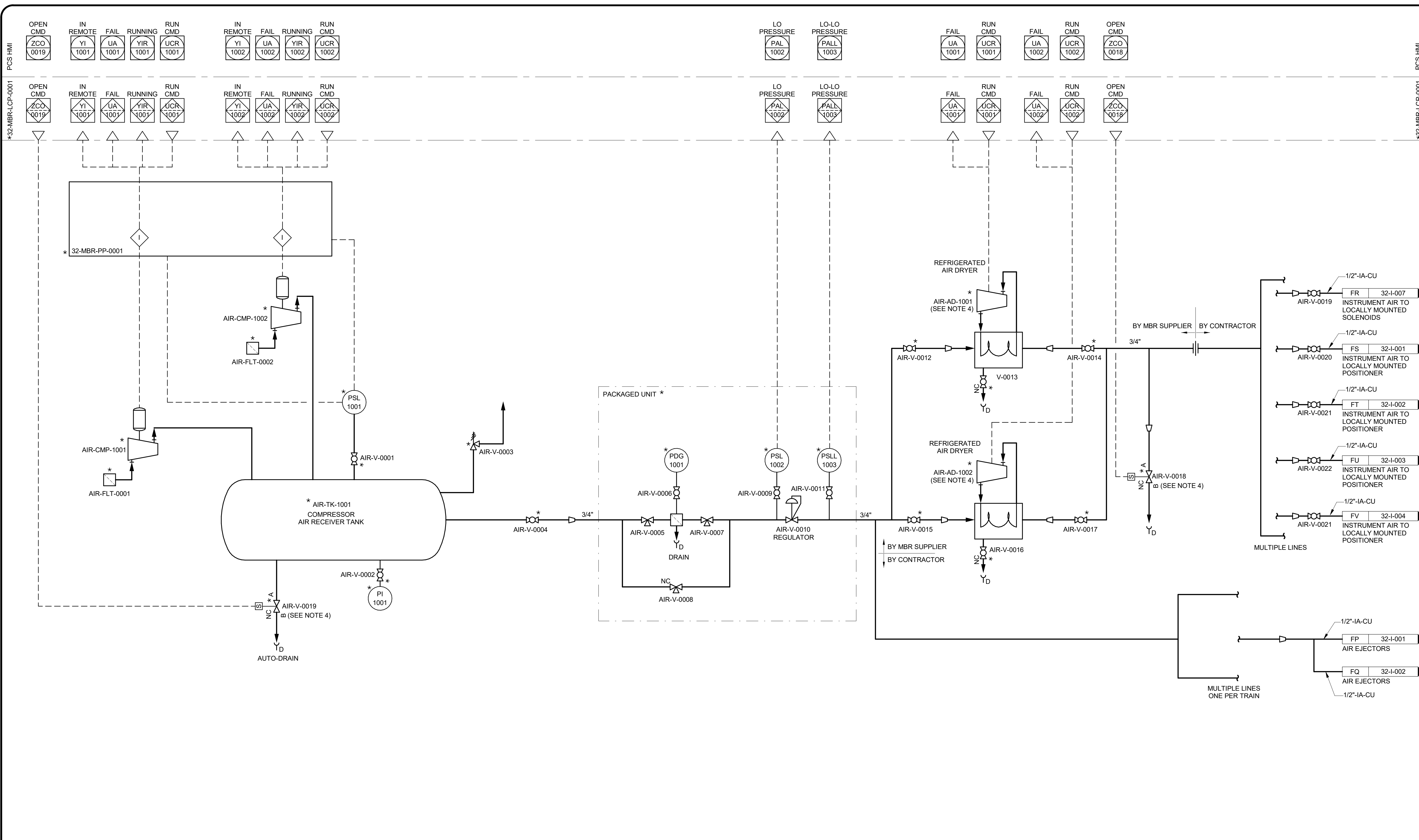


PROJECT NO.
400530
32-I-007
 SHEET
 113 OF 412

PLOTTED: 5/18/2020 4:20:50 PM

NO.	BY	CHK APP
0	BLB	USJ/BLB

DATE
 5/19/2020
 ISSUED FOR CONSTRUCTION
 REVISIONS AND RECORD OF USE



NOTES:

- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
- AREA CODE IS 32 UNLESS OTHERWISE NOTED. SYSTEM CODE IS AIR UNLESS OTHERWISE NOTED.
- COMPRESSOR PACKAGE PROVIDED BY THE MBR SYSTEM SUPPLIER.
- 120 VAC POWER SUPPLY FROM 32-MBR-PP-0001 PANEL.

* ITEM FURNISHED BY MBR SYSTEM SUPPLIER.

DESIGNED: BLB, KEZ
 DETAILED: VSD
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

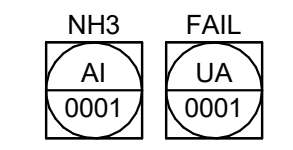
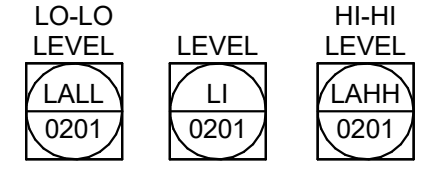
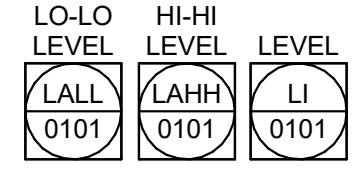
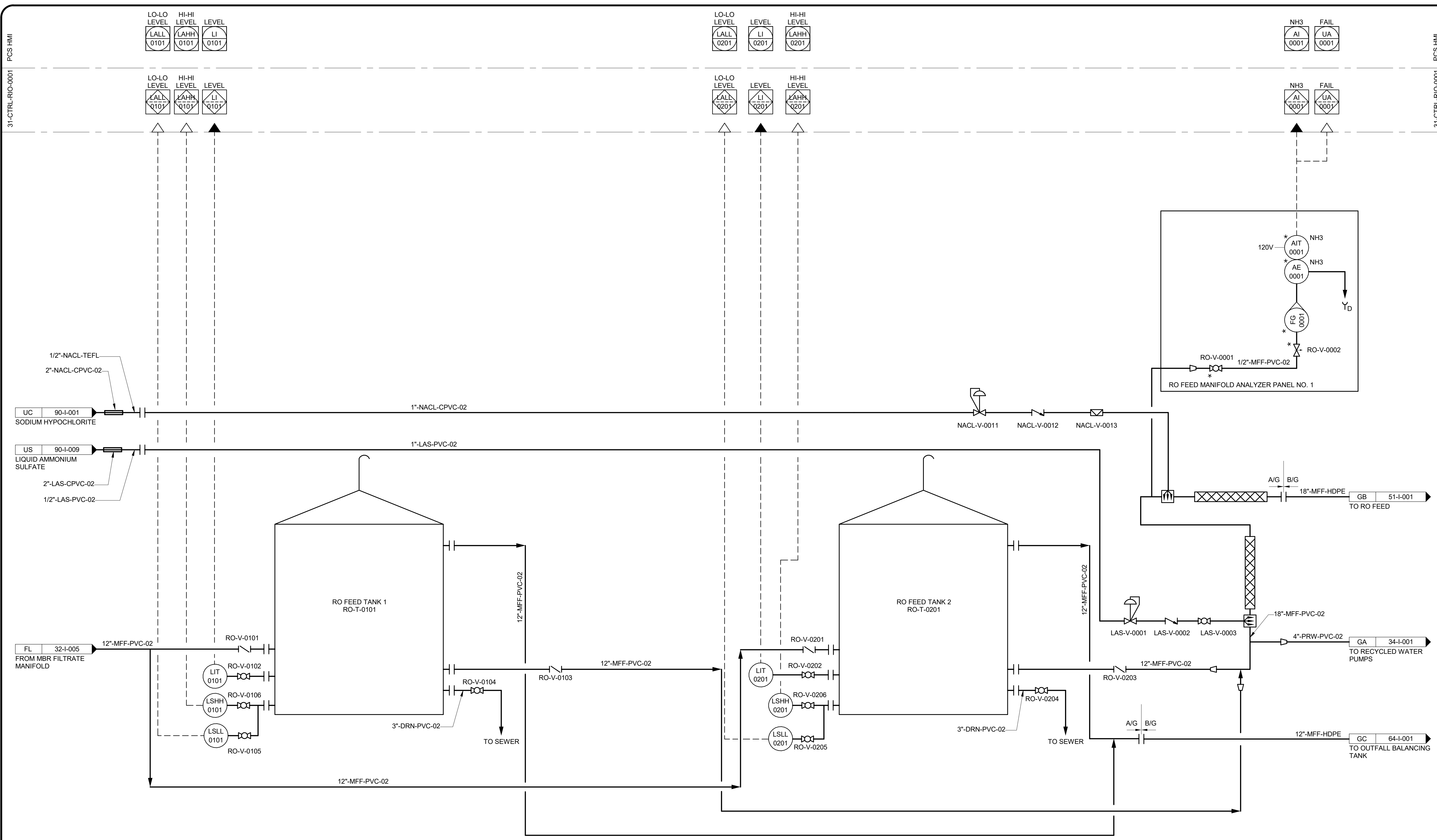
PROJECT NO.
400530

32-I-008
 SHEET
 114 OF 412

PLOTTED: 5/18/2020 4:20:50 PM
 0400530

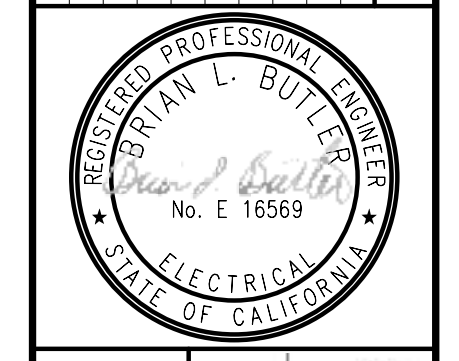
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<p>BLACK & VEATCH</p> <p>JOINT VENTURE</p> <p>FILANC</p>	
<p>CITY OF MORRO BAY</p> <p>MORRO BAY WATER</p> <p>RECLAMATION FACILITY (WRF)</p> <p>P&ID</p> <p>MBR AREA - AIR COMPRESSOR SYSTEM</p>	

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- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 33 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RO UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
- * AMMONIA ANALYZER PROVIDED BY MBR SYSTEM SUPPLIER AND SHIPPED LOOSE.

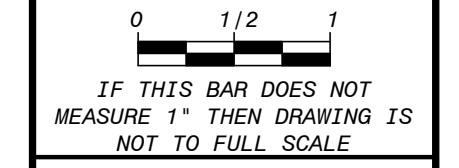
0	BLB	USJ	BLB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
5/19/2020	DATE		



BLACK & VEATCH
JOINT VENTURE
FILANC

**CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)**
TREATMENT AREA - RO FEED TANKS
P&ID
RO FEED TANKS

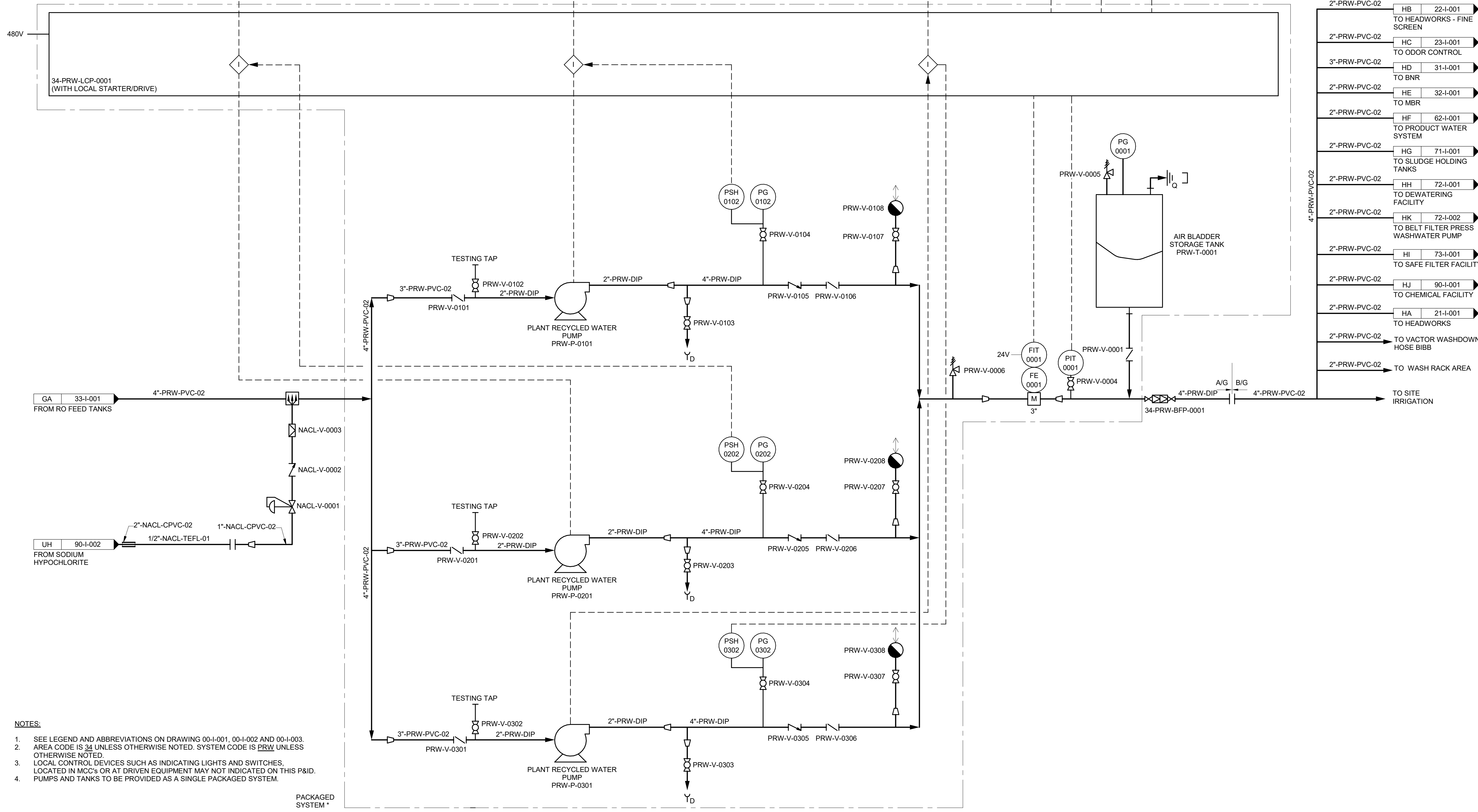
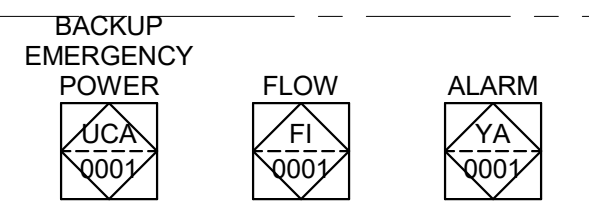
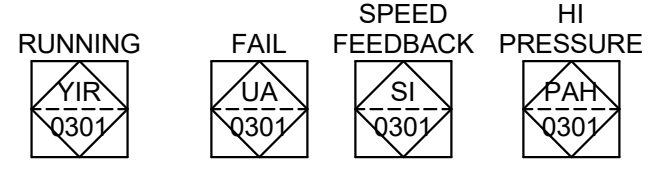
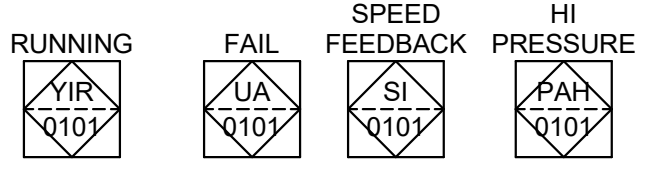
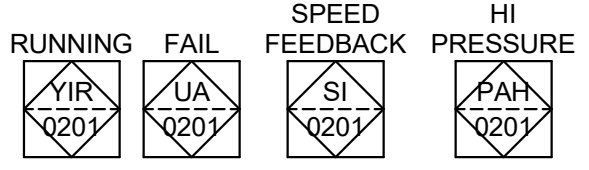
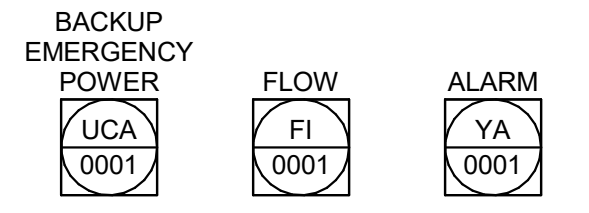
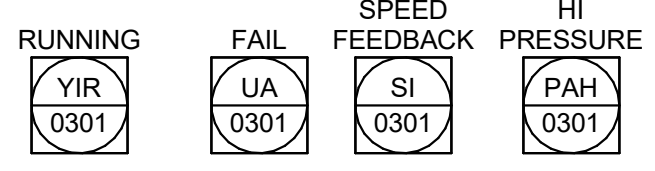
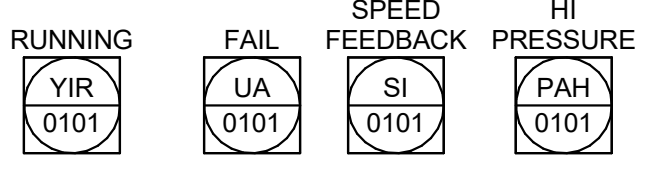
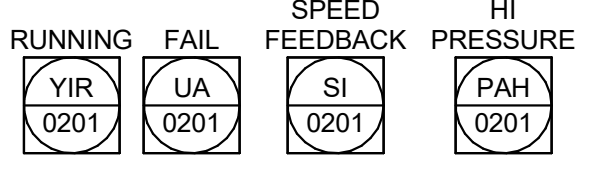
DESIGNED: BLB, KEZ
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020



PROJECT NO.
400530
33-I-001
SHEET
115 OF 412

PCS HMI
31-CTRL-RIO-0001

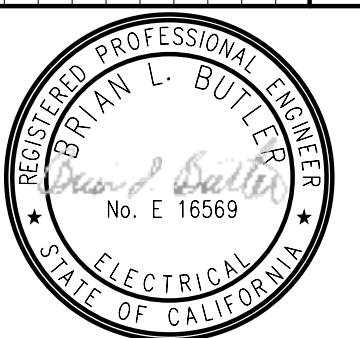
PCS HMI
31-CTRL-RIO-0001



2"-PRW-PVC-02	HB	22-I-001	TO HEADWORKS - FINE SCREEN
2"-PRW-PVC-02	HC	23-I-001	TO ODOR CONTROL
3"-PRW-PVC-02	HD	31-I-001	TO BNR
2"-PRW-PVC-02	HE	32-I-001	TO MBR
2"-PRW-PVC-02	HF	62-I-001	TO PRODUCT WATER SYSTEM
2"-PRW-PVC-02	HG	71-I-001	TO SLUDGE HOLDING TANKS
2"-PRW-PVC-02	HH	72-I-001	TO DEWATERING FACILITY
2"-PRW-PVC-02	HK	72-I-002	TO BELT FILTER PRESS WASHWATER PUMP
2"-PRW-PVC-02	HI	73-I-001	TO SAFE FILTER FACILITY
2"-PRW-PVC-02	HJ	90-I-001	TO CHEMICAL FACILITY
2"-PRW-PVC-02	HA	21-I-001	TO HEADWORKS
2"-PRW-PVC-02			TO VACTOR WASHDOWN HOSE BIBB
2"-PRW-PVC-02			TO WASH RACK AREA
2"-PRW-PVC-02			TO SITE IRRIGATION

- NOTES:
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 34 UNLESS OTHERWISE NOTED. SYSTEM CODE IS PRW UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.
 - PUMPS AND TANKS TO BE PROVIDED AS A SINGLE PACKAGED SYSTEM.

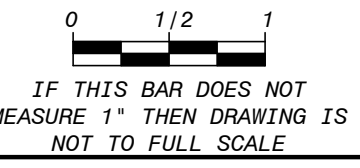
PACKAGED SYSTEM *



BLACK & VEATCH
JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
TREATMENT AREA - PLANT RECYCLED WATER PUMP
STATION
P&ID

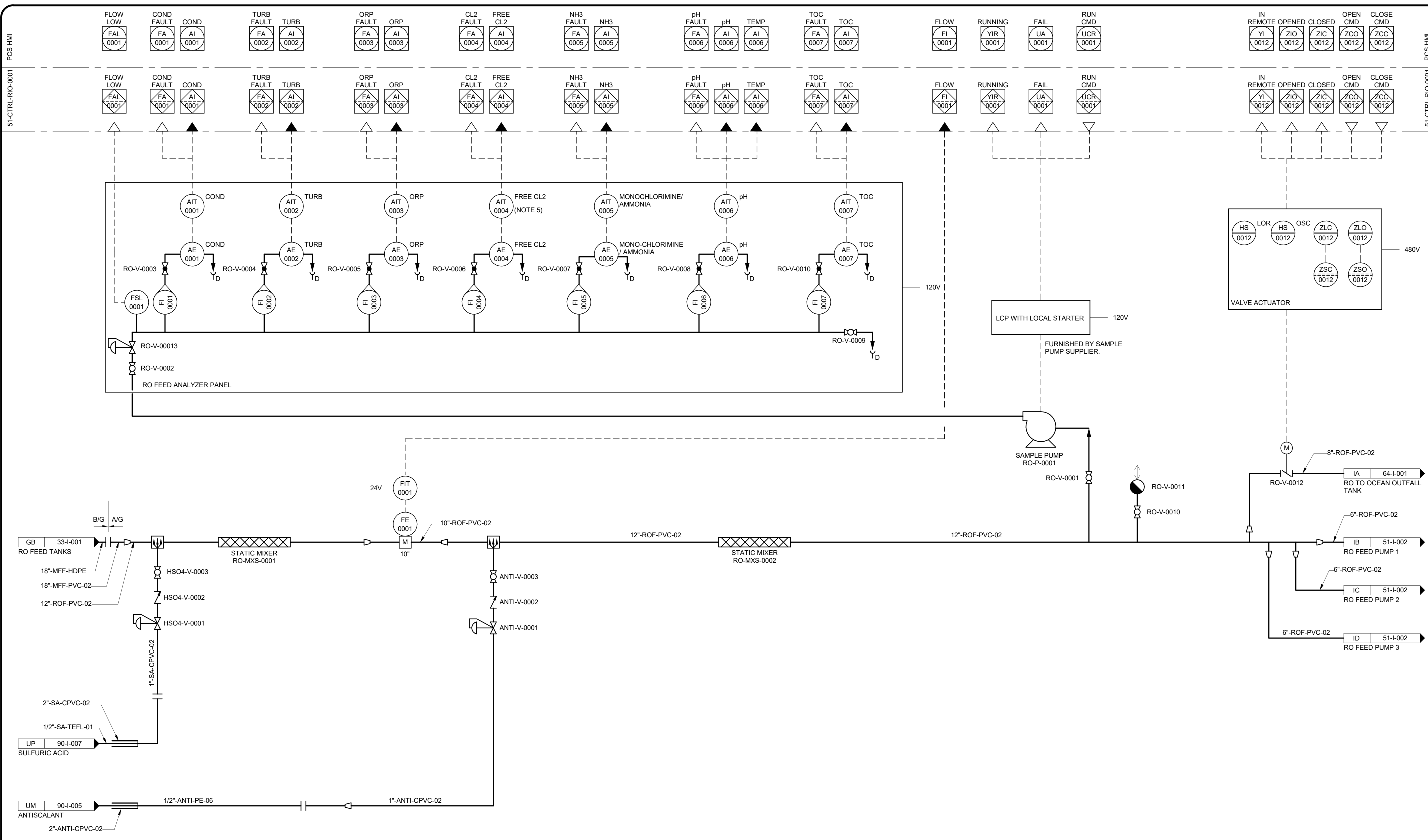
DESIGNED: BLB, KEZ
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020



PROJECT NO.
400530
SHEET
34-I-001
116 OF 412

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0	BLB	USJ	BLB
		NO.	BY
		NO.	CHK
		NO.	APP
5/19/2020	ISSUED FOR CONSTRUCTION	DATE	REVISITONS AND RECORD OF USE



51-CTRL-RO-0001 PCS HMI
 51-CTRL-RO-0001 PCS HMI

FLOW LOW (FAL 0001)
 COND FAULT (FA 0001)
 COND (AI 0001)
 TURB FAULT (FA 0002)
 TURB (AI 0002)
 ORP FAULT (FA 0003)
 ORP (AI 0003)
 CL2 FAULT (FA 0004)
 FREE CL2 (AI 0004)
 NH3 FAULT (FA 0005)
 NH3 (AI 0005)
 pH FAULT (FA 0006)
 pH (AI 0006)
 TEMP (AI 0006)
 TOC FAULT (FA 0007)
 TOC (AI 0007)
 FLOW (FI 0001)
 RUNNING (YIR 0001)
 FAIL (UA 0001)
 RUN CMD (UCR 0001)

IN REMOTE (YI 0012)
 OPENED (ZIO 0012)
 CLOSED (ZIC 0012)
 OPEN CMD (ZCO 0012)
 CLOSE CMD (ZCC 0012)

COND (AIT 0001)
 TURB (AIT 0002)
 ORP (AIT 0003)
 FREE CL2 (AIT 0004) (NOTE 5)
 MONOCHLORIMINE/AMMONIA (AIT 0005)
 pH (AIT 0006)
 TOC (AIT 0007)

COND (AE 0001)
 TURB (AE 0002)
 ORP (AE 0003)
 FREE CL2 (AE 0004)
 MONO-CHLORIMINE/AMMONIA (AE 0005)
 pH (AE 0006)
 TOC (AE 0007)

FSL 0001
 FI 0001
 FI 0002
 FI 0003
 FI 0004
 FI 0005
 FI 0006
 FI 0007

RO-V-0003
 RO-V-0004
 RO-V-0005
 RO-V-0006
 RO-V-0007
 RO-V-0008
 RO-V-0010
 RO-V-0009

RO-V-0002
 RO-V-0001
 RO-V-0011
 RO-V-0012

480V
 120V
 120V
 24V

VALVE ACTUATOR
 LCP WITH LOCAL STARTER
 SAMPLE PUMP RO-P-001

GB 33-I-001 RO FEED TANKS
 18"-MFF-HDPE
 18"-MFF-PVC-02
 12"-ROF-PVC-02
 HSO4-V-0003
 HSO4-V-0002
 HSO4-V-0001
 1"-SA-CPVC-02
 2"-SA-CPVC-02
 1/2"-SA-TEFL-01
 UP 90-I-007 SULFURIC ACID
 UM 90-I-005 ANTISCALANT
 1/2"-ANTI-PE-06
 1"-ANTI-CPVC-02
 10"-ROF-PVC-02
 12"-ROF-PVC-02
 12"-ROF-PVC-02
 8"-ROF-PVC-02
 6"-ROF-PVC-02
 6"-ROF-PVC-02
 6"-ROF-PVC-02
 IA 64-I-001 RO TO OCEAN OUTFALL TANK
 IB 51-I-002 RO FEED PUMP 1
 IC 51-I-002 RO FEED PUMP 2
 ID 51-I-002 RO FEED PUMP 3

FIT 0001
 FE 0001
 ANTI-V-0003
 ANTI-V-0002
 ANTI-V-0001

STATIC MIXER RO-MXS-0001
 STATIC MIXER RO-MXS-0002

RO FEED ANALYZER PANEL
 FURNISHED BY SAMPLE PUMP SUPPLIER.

0 BLB/USM/BLB
 5/19/2020 ISSUED FOR CONSTRUCTION
 DATE
 NO. BY CHK APP
 REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
 BRYAN L. BUTLER
 No. E 16569
 ELECTRICAL
 STATE OF CALIFORNIA

BLACK & VEATCH
FILANC
 JOINT VENTURE

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 RO/UV BUILDING - RO SYSTEM
 P&ID
 RO FEED CONDITIONING SYSTEM

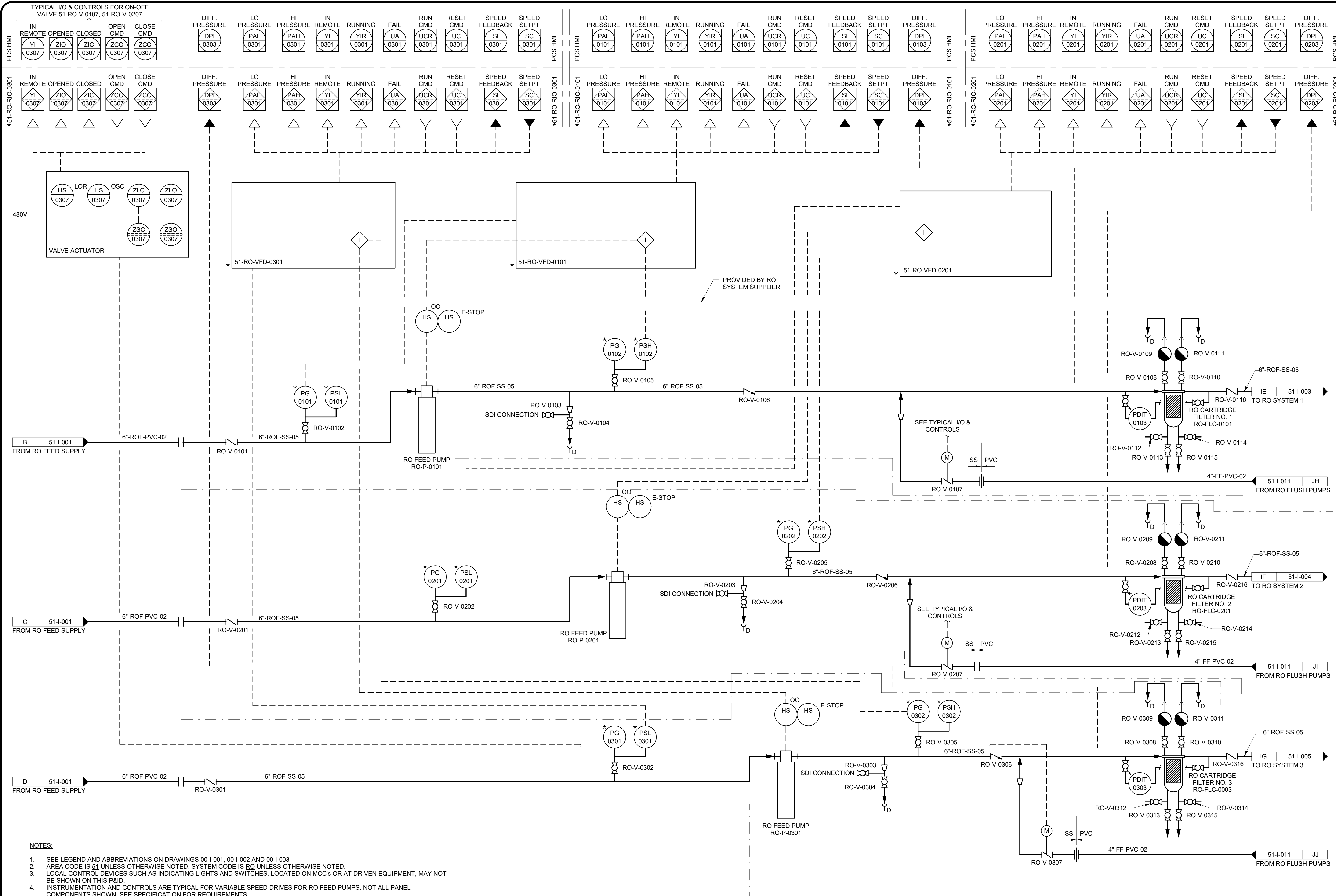
DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
51-I-001
 SHEET
 117 OF 412

NOTES:
 1. SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003
 2. AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RO UNLESS OTHERWISE NOTED.
 3. LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID
 4. ALL INSTRUMENTS SHOWN AS PANEL MOUNTED ON THIS DRAWING ARE LOCATED ON THE RO FEEDWATER INSTRUMENT PANEL MOUNTED ON THIS DRAWING ARE LOCATED ON THE RO FEEDWATER INSTRUMENT PANEL, SHOWN ON DWG. 00-I-505.
 5. INSTRUMENT TO BE TITRATING TYPE NOT PROBE TYPE.

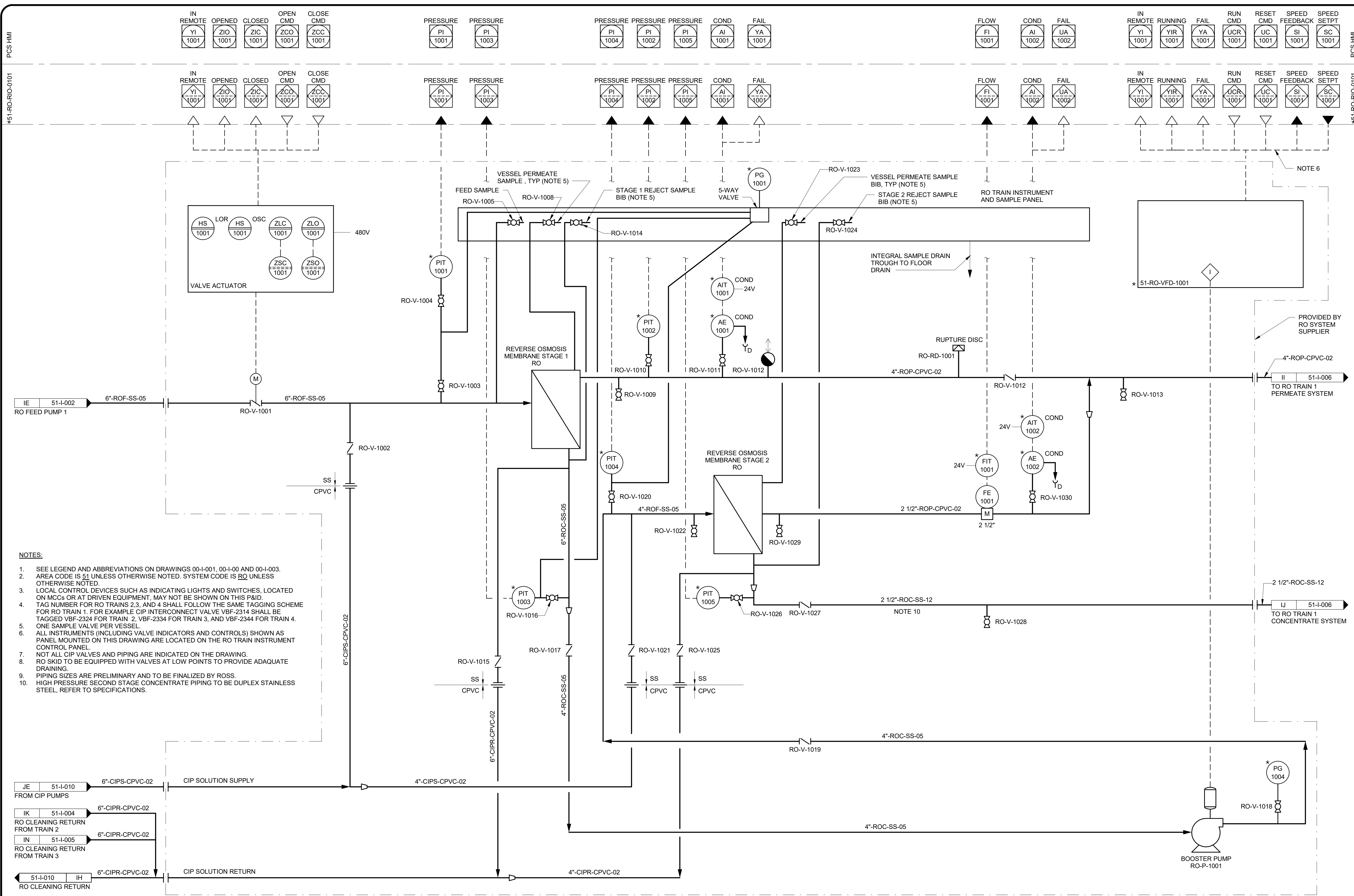
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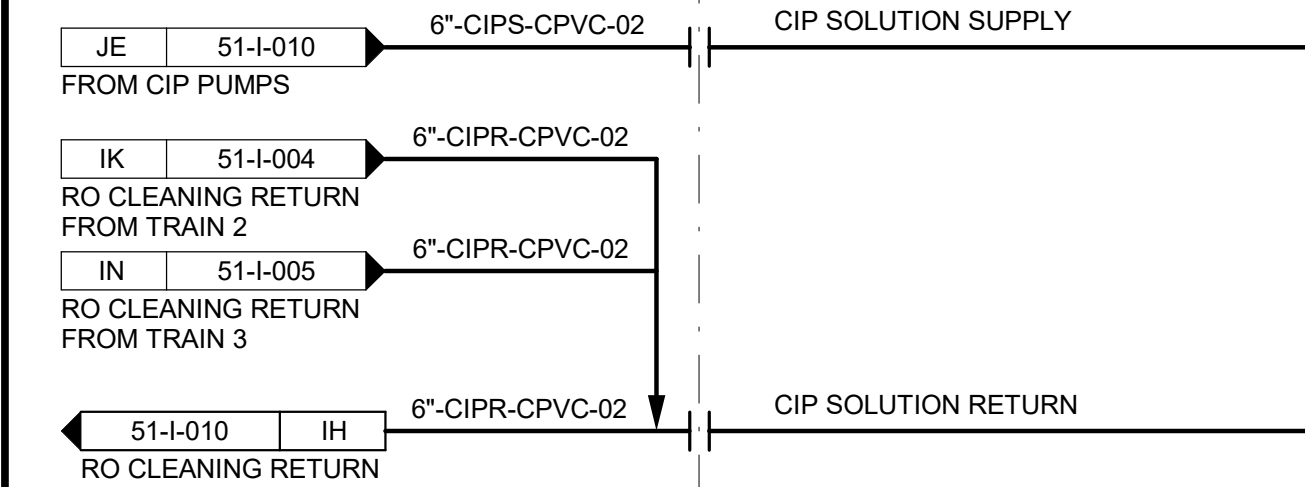
- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RO UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - INSTRUMENTATION AND CONTROLS ARE TYPICAL FOR VARIABLE SPEED DRIVES FOR RO FEED PUMPS. NOT ALL PANEL COMPONENTS SHOWN. SEE SPECIFICATION FOR REQUIREMENTS.
 - PIPING SIZES ARE PRELIMINARY AND TO BE FINALIZED BY ROSS.
 - * INDICATES ITEM FURNISHED BY ROSS (REVERSE OSMOSIS SYSTEM SUPPLIER).

<p>REGISTERED PROFESSIONAL ENGINEER <i>David Butler</i> No. E 16569 ELECTRICAL STATE OF CALIFORNIA</p>	<p>BLACK & VEATCH JOINT VENTURE FILANC BLACK & VEATCH</p>
<p>CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF)</p> <p>RO/UV BUILDING - RO SYSTEM P&ID RO CARTRIDGE FILTERS</p>	
<p>DESIGNED: BLB, ADV DETAILED: PVR CHECKED: JSM, BDS APPROVED: BLB DATE: 5/19/2020</p>	
<p>0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
<p>PROJECT NO. 400530</p> <p>51-I-002 SHEET 118 OF 412</p>	

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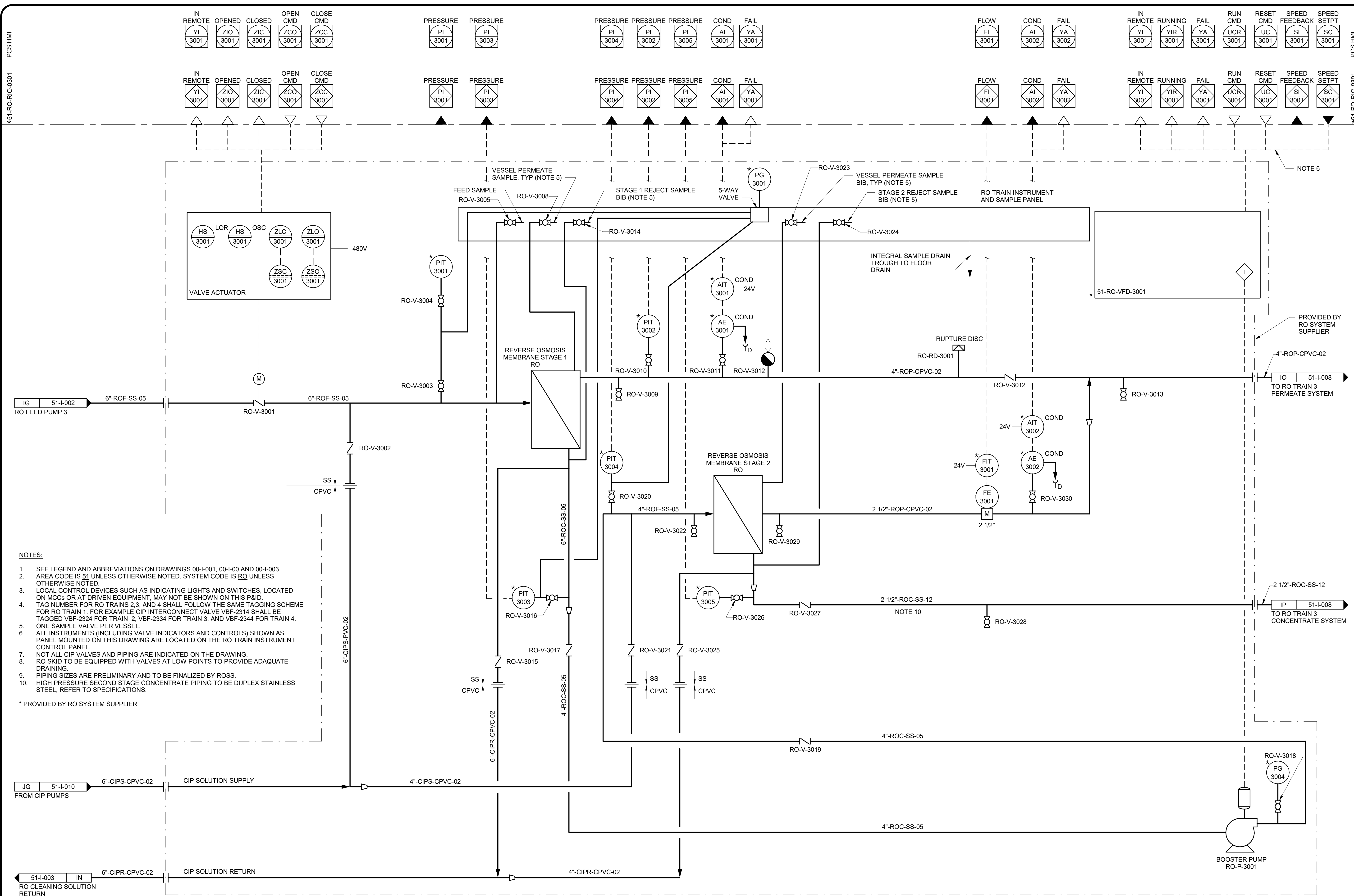


- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-00 AND 00-I-003.
 - AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RO UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - TAG NUMBER FOR RO TRAINS 2,3, AND 4 SHALL FOLLOW THE SAME TAGGING SCHEME FOR RO TRAIN 1. FOR EXAMPLE CIP INTERCONNECT VALVE VBF-2314 SHALL BE TAGGED VBF-2324 FOR TRAIN 2, VBF-2334 FOR TRAIN 3, AND VBF-2344 FOR TRAIN 4. ONE SAMPLE VALVE PER VESSEL.
 - ALL INSTRUMENTS (INCLUDING VALVE INDICATORS AND CONTROLS) SHOWN AS PANEL MOUNTED ON THIS DRAWING ARE LOCATED ON THE RO TRAIN INSTRUMENT CONTROL PANEL.
 - NOT ALL CIP VALVES AND PIPING ARE INDICATED ON THE DRAWING.
 - RO SKID TO BE EQUIPPED WITH VALVES AT LOW POINTS TO PROVIDE ADEQUATE DRAINING.
 - PIPING SIZES ARE PRELIMINARY AND TO BE FINALIZED BY ROSS.
 - HIGH PRESSURE SECOND STAGE CONCENTRATE PIPING TO BE DUPLEX STAINLESS STEEL, REFER TO SPECIFICATIONS.



PCS HMI	IN REMOTE (YI 1001)	OPENED (ZIO 1001)	CLOSED (ZIC 1001)	OPEN CMD (ZCO 1001)	CLOSE CMD (ZCC 1001)	PRESSURE (PI 1001)	PRESSURE (PI 1003)	PRESSURE (PI 1004)	PRESSURE (PI 1002)	PRESSURE (PI 1005)	COND (AI 1001)	FAIL (YA 1001)	FLOW (FI 1001)	COND (AI 1002)	FAIL (UA 1002)	IN REMOTE (YI 1001)	RUNNING (YIR 1001)	FAIL (YA 1001)	RUN CMD (UCR 1001)	RESET CMD (UC 1001)	SPEED FEEDBACK (SI 1001)	SPEED SETPT (SC 1001)	PCS HMI
#51-RO-RO-0101	IN REMOTE (YI 1001)	OPENED (ZIO 1001)	CLOSED (ZIC 1001)	OPEN CMD (ZCO 1001)	CLOSE CMD (ZCC 1001)	PRESSURE (PI 1001)	PRESSURE (PI 1003)	PRESSURE (PI 1004)	PRESSURE (PI 1002)	PRESSURE (PI 1005)	COND (AI 1001)	FAIL (YA 1001)	FLOW (FI 1001)	COND (AI 1002)	FAIL (UA 1002)	IN REMOTE (YI 1001)	RUNNING (YIR 1001)	FAIL (YA 1001)	RUN CMD (UCR 1001)	RESET CMD (UC 1001)	SPEED FEEDBACK (SI 1001)	SPEED SETPT (SC 1001)	#51-RO-RO-0101
<p>DATE: 5/19/2020</p> <p>ISSUED FOR CONSTRUCTION</p> <p>REVISED AND RECORD OF USE</p> <p>NO. BY CHK APP</p> <p>0 BLB USM BLB</p>																							
<p>REGISTERED PROFESSIONAL ENGINEER</p> <p>BRAND L. BUTLER</p> <p>No. E 16569</p> <p>ELECTRICAL</p> <p>STATE OF CALIFORNIA</p>																							
<p>BLACK & VEATCH</p> <p>JOINT VENTURE</p> <p>FILANC</p>																							
<p>CITY OF MORRO BAY</p> <p>MORRO BAY WATER RECLAMATION FACILITY (WRF)</p> <p>RO/UV BUILDING - RO SYSTEM</p> <p>P&ID</p> <p>RO UNIT 1</p>																							
<p>DESIGNED: BLB, ADV</p> <p>DETAILED: PVR</p> <p>CHECKED: JSM, BDS</p> <p>APPROVED: BLB</p> <p>DATE: 5/19/2020</p>																							
<p>0 1/2 1</p> <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>																							
<p>PROJECT NO. 400530</p> <p>51-I-003</p> <p>SHEET 119 OF 412</p>																							

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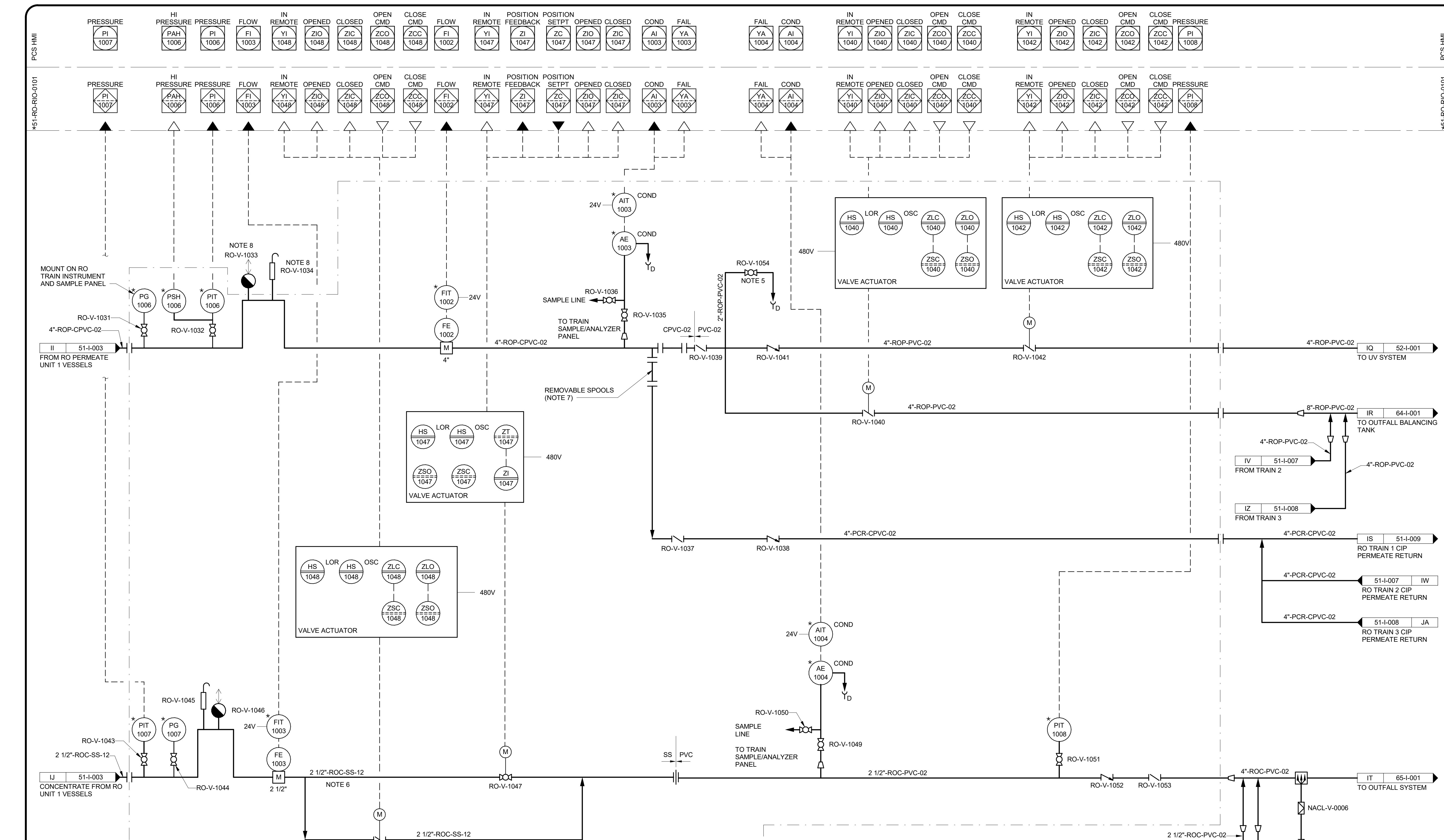


- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-00 AND 00-I-003. AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RO UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - TAG NUMBER FOR RO TRAINS 2,3, AND 4 SHALL FOLLOW THE SAME TAGGING SCHEME FOR RO TRAIN 1. FOR EXAMPLE CIP INTERCONNECT VALVE VBF-2314 SHALL BE TAGGED VBF-2324 FOR TRAIN 2, VBF-2334 FOR TRAIN 3, AND VBF-2344 FOR TRAIN 4.
 - ONE SAMPLE VALVE PER VESSEL.
 - ALL INSTRUMENTS (INCLUDING VALVE INDICATORS AND CONTROLS) SHOWN AS PANEL MOUNTED ON THIS DRAWING ARE LOCATED ON THE RO TRAIN INSTRUMENT CONTROL PANEL.
 - NOT ALL CIP VALVES AND PIPING ARE INDICATED ON THE DRAWING.
 - RO SKID TO BE EQUIPPED WITH VALVES AT LOW POINTS TO PROVIDE ADEQUATE DRAINING.
 - PIPING SIZES ARE PRELIMINARY AND TO BE FINALIZED BY ROSS.
 - HIGH PRESSURE SECOND STAGE CONCENTRATE PIPING TO BE DUPLEX STAINLESS STEEL, REFER TO SPECIFICATIONS.

* PROVIDED BY RO SYSTEM SUPPLIER

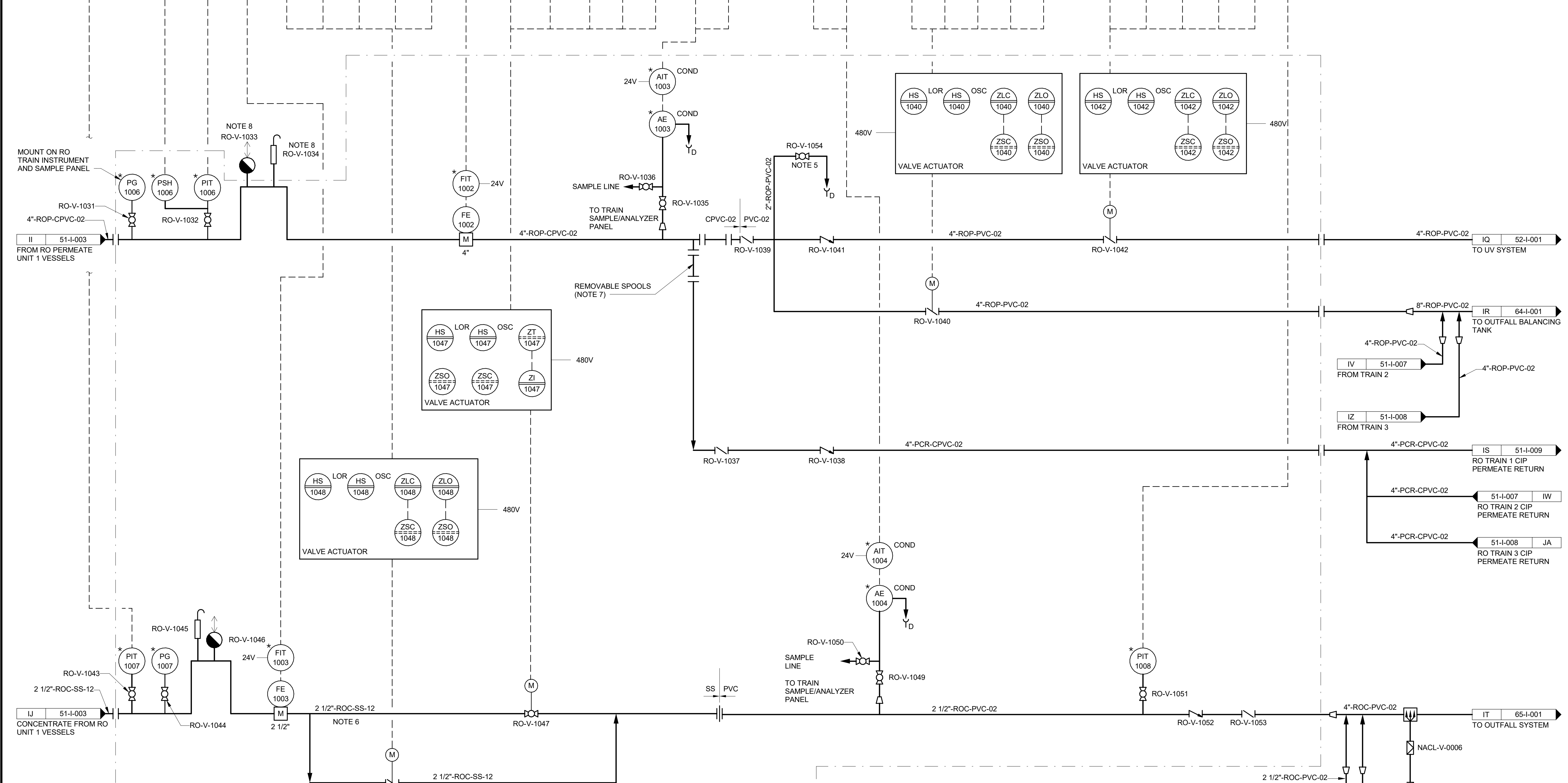
<p>PCS HMI</p> <p>#51-RO-RO-0301</p>	<p>PCS HMI</p> <p>#51-RO-RO-0301</p>
<p>IN REMOTE YI 3001</p> <p>OPENED ZIO 3001</p> <p>CLOSED ZIC 3001</p> <p>OPEN CMD ZCO 3001</p> <p>CLOSE CMD ZCC 3001</p>	<p>IN REMOTE YI 3001</p> <p>RUNNING YIR 3001</p> <p>FAIL YA 3001</p> <p>RUN CMD UCR 3001</p> <p>RESET CMD UC 3001</p> <p>SPEED FEEDBACK SI 3001</p> <p>SPEED SETPT SC 3001</p>
<p>PRESSURE PI 3001</p> <p>PRESSURE PI 3003</p>	<p>FLOW FI 3001</p> <p>COND AI 3002</p> <p>FAIL YA 3002</p>
<p>PRESSURE PI 3004</p> <p>PRESSURE PI 3002</p> <p>PRESSURE PI 3005</p> <p>COND AI 3001</p> <p>FAIL YA 3001</p>	<p>IN REMOTE YI 3001</p> <p>RUNNING YIR 3001</p> <p>FAIL YA 3001</p> <p>RUN CMD UCR 3001</p> <p>RESET CMD UC 3001</p> <p>SPEED FEEDBACK SI 3001</p> <p>SPEED SETPT SC 3001</p>
<p>VALVE ACTUATOR</p> <p>HS 3001</p> <p>LOR 3001</p> <p>OSC 3001</p> <p>ZLC 3001</p> <p>ZLO 3001</p> <p>ZSC 3001</p> <p>ZSO 3001</p>	
<p>REGISTERED PROFESSIONAL ENGINEER</p> <p>BRAND L. BUTLER</p> <p>No. E 16569</p> <p>ELECTRICAL</p> <p>STATE OF CALIFORNIA</p>	
<p>BLACK & VEATCH</p> <p>JOINT VENTURE</p> <p>FILANC</p>	
<p>CITY OF MORRO BAY</p> <p>MORRO BAY WATER</p> <p>RECLAMATION FACILITY (WRF)</p> <p>RO/UV BUILDING - RO SYSTEM</p> <p>P&ID</p> <p>RO UNIT 3</p>	
<p>DESIGNED: BLB, ADV</p> <p>DETAILED: PVR</p> <p>CHECKED: JSM, BDS</p> <p>APPROVED: BLB</p> <p>DATE: 5/19/2020</p>	
<p>0 1/2 1</p> <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
<p>PROJECT NO.</p> <p>400530</p> <p>51-I-005</p> <p>SHEET</p> <p>121 OF 412</p>	

PLOTTED: 5/18/2020 5:12:03 PM
 0400530



PCS HMI	PI 1007	PAH 1006	PI 1006	FI 1003	YI 1048	ZIO 1048	ZIC 1048	ZCO 1048	ZCC 1048	FI 1002	YI 1047	ZI 1047	ZC 1047	ZIO 1047	ZIC 1047	AI 1003	YA 1003	YA 1004	AI 1004	YI 1040	ZIO 1040	ZIC 1040	ZCO 1040	ZCC 1040	YI 1042	ZIO 1042	ZIC 1042	ZCO 1042	ZCC 1042	PI 1008
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#51-RO-RO-0101	PI 1007	PAH 1006	PI 1006	FI 1003	YI 1048	ZIO 1048	ZIC 1048	ZCO 1048	ZCC 1048	FI 1002	YI 1047	ZI 1047	ZC 1047	ZIO 1047	ZIC 1047	AI 1003	YA 1003	YA 1004	AI 1004	YI 1040	ZIO 1040	ZIC 1040	ZCO 1040	ZCC 1040	YI 1042	ZIO 1042	ZIC 1042	ZCO 1042	ZCC 1042	PI 1008
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PCS HMI	PI 1007	PAH 1006	PI 1006	FI 1003	YI 1048	ZIO 1048	ZIC 1048	ZCO 1048	ZCC 1048	FI 1002	YI 1047	ZI 1047	ZC 1047	ZIO 1047	ZIC 1047	AI 1003	YA 1003	YA 1004	AI 1004	YI 1040	ZIO 1040	ZIC 1040	ZCO 1040	ZCC 1040	YI 1042	ZIO 1042	ZIC 1042	ZCO 1042	ZCC 1042	PI 1008
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- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RO UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - PIPING SIZES ARE PRELIMINARY AND TO BE FINALIZED BY ROSS.
 - CIP BLEED VALVE.
 - HIGH PRESSURE SECOND STAGE CONCENTRATE PIPING TO BE DUPLEX STAINLESS STEEL, REFER TO SPECIFICATIONS.
 - PROVIDE REMOVABLE SPOOLS, SWAPABLE FITTING, OR BLOCK AND BLEED VALVING TO PREVENT POTENTIAL CROSS-CONNECTION OF PERMEATE AND CIP RETURN. FURNISH SUITABLE BLIND FLANGES TO REPLACE REMOVABLE SPOOL OR SWAPABLE FITTING AS REQUIRED.
 - AIR RELEASE / VACUUM RELIEF VALVES ARE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

PROVIDED BY RO SYSTEM SUPPLIER

* PROVIDED BY RO SYSTEM SUPPLIER

PLOTTED: 5/18/2020 5:12:04 PM

0 BLB/JSW/BLB
NO. BY CHK/APP

5/19/2020 ISSUED FOR CONSTRUCTION
DATE

REVISITONS AND RECORD OF USE

BLACK & VEATCH

JOINT VENTURE

FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

RO/UV BUILDING - RO SYSTEM
P&ID
RO PERMEATE/CONCENTRATE, UNIT 1

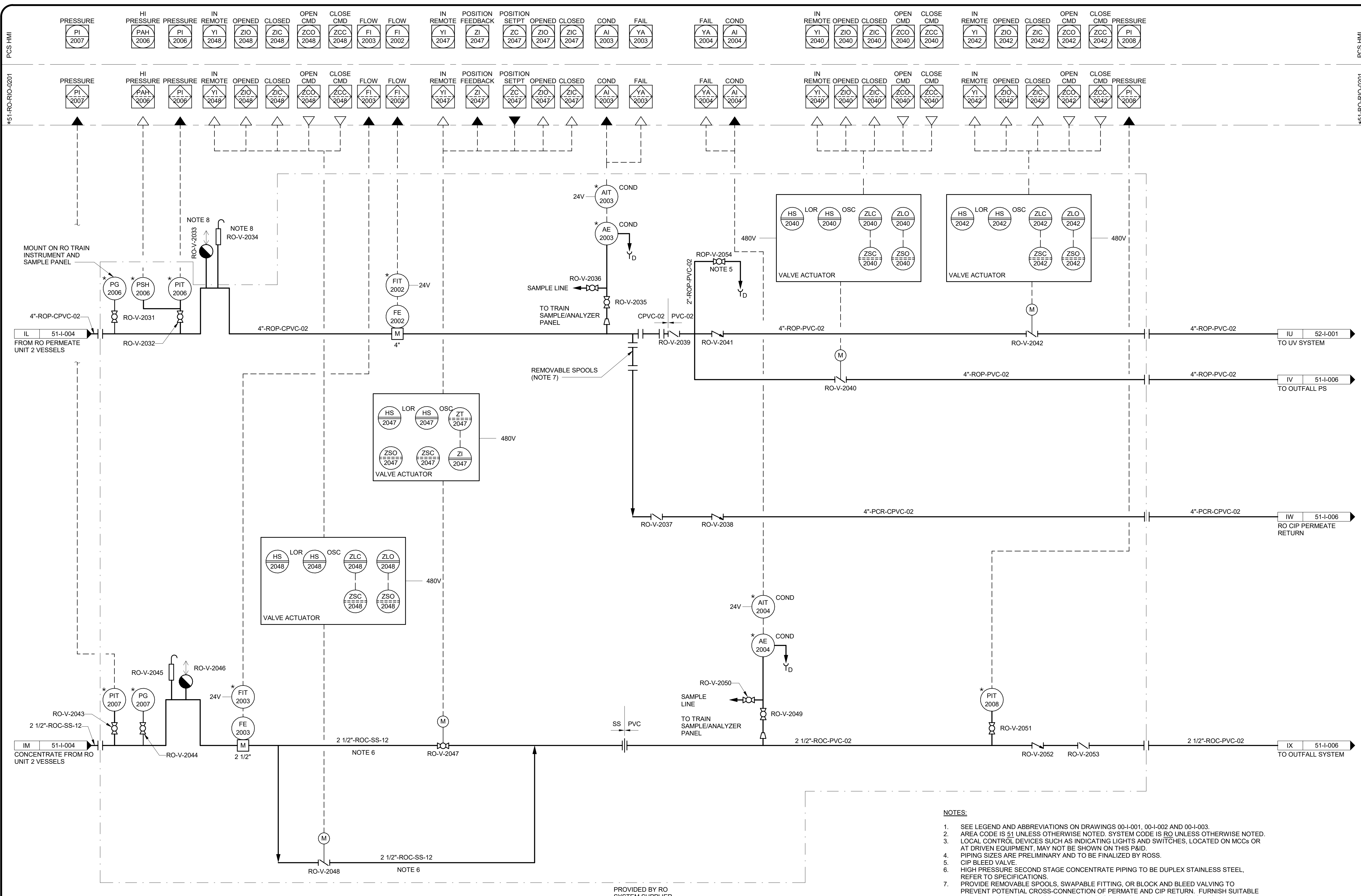
DESIGNED: BLB, ADV
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530

51-I-006
SHEET
122 OF 412

PLOTTED: 5/19/2020 5:12:05 PM
D:\06530



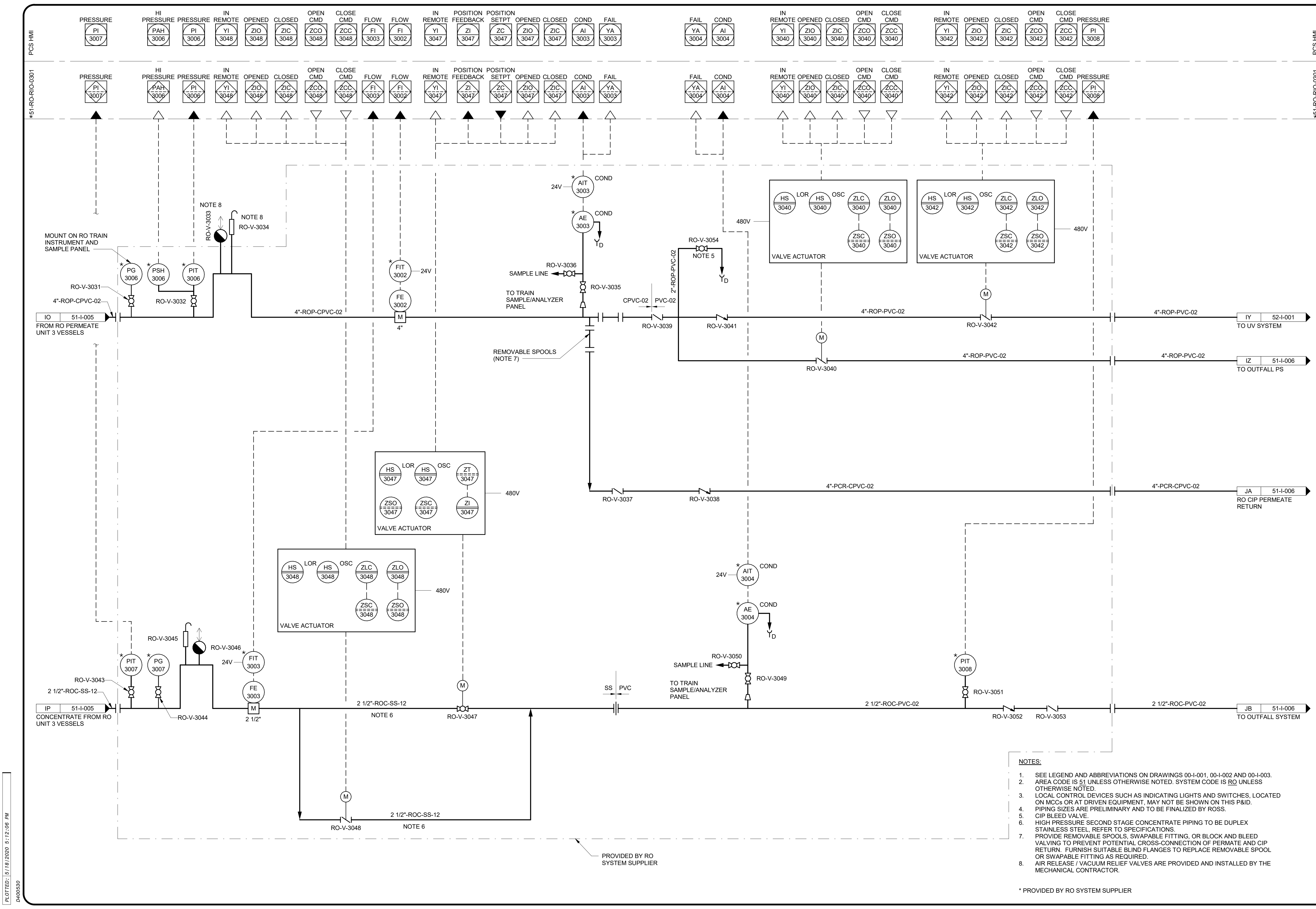
PROVIDED BY RO SYSTEM SUPPLIER

NOTES:

1. SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
2. AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RO UNLESS OTHERWISE NOTED.
3. LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
4. PIPING SIZES ARE PRELIMINARY AND TO BE FINALIZED BY ROSS.
5. CIP BLEED VALVE.
6. HIGH PRESSURE SECOND STAGE CONCENTRATE PIPING TO BE DUPLEX STAINLESS STEEL, REFER TO SPECIFICATIONS.
7. PROVIDE REMOVABLE SPOOLS, SWAPABLE FITTING, OR BLOCK AND BLEED VALVING TO PREVENT POTENTIAL CROSS-CONNECTION OF PERMATE AND CIP RETURN. FURNISH SUITABLE BLIND FLANGES TO REPLACE REMOVABLE SPOOL OR SWAPABLE FITTING AS REQUIRED.
8. AIR RELEASE / VACUUM RELIEF VALVES ARE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

* PROVIDED BY RO SYSTEM SUPPLIER

<p>PCS HMI</p> <p>#51-RO-RO-0201</p> <p>PCS HMI</p> <p>#51-RO-RO-0201</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center;">0</td> <td style="width: 20%; text-align: center;">BLB</td> <td style="width: 20%; text-align: center;">JSM</td> <td style="width: 20%; text-align: center;">BDS</td> <td style="width: 20%; text-align: center;">BY</td> <td style="width: 20%; text-align: center;">CHK</td> </tr> <tr> <td colspan="6" style="text-align: center;">DATE</td> </tr> <tr> <td colspan="6" style="text-align: center;">ISSUED FOR CONSTRUCTION</td> </tr> <tr> <td colspan="6" style="text-align: center;">REVISED AND RECORD OF USE</td> </tr> </table>	0	BLB	JSM	BDS	BY	CHK	DATE						ISSUED FOR CONSTRUCTION						REVISED AND RECORD OF USE					
0	BLB	JSM	BDS	BY	CHK																				
DATE																									
ISSUED FOR CONSTRUCTION																									
REVISED AND RECORD OF USE																									
<p>BLACK & VEATCH</p> <p>JOINT VENTURE</p> <p>FILANC</p> <p>BLACK & VEATCH</p>																									
<p>CITY OF MORRO BAY</p> <p>MORRO BAY WATER</p> <p>RECLAMATION FACILITY (WRF)</p> <p>RO/UV BUILDING - RO SYSTEM</p> <p>P&ID</p> <p>RO PERMEATE/CONCENTRATE, UNIT 2</p>																									
<p>DESIGNED: BLB, ADV</p> <p>DETAILED: PVR</p> <p>CHECKED: JSM, BDS</p> <p>APPROVED: BLB</p> <p>DATE: 5/19/2020</p>																									
<p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>																									
<p>PROJECT NO.</p> <p>400530</p> <p>51-I-007</p> <p>SHEET</p> <p>123 OF 412</p>																									



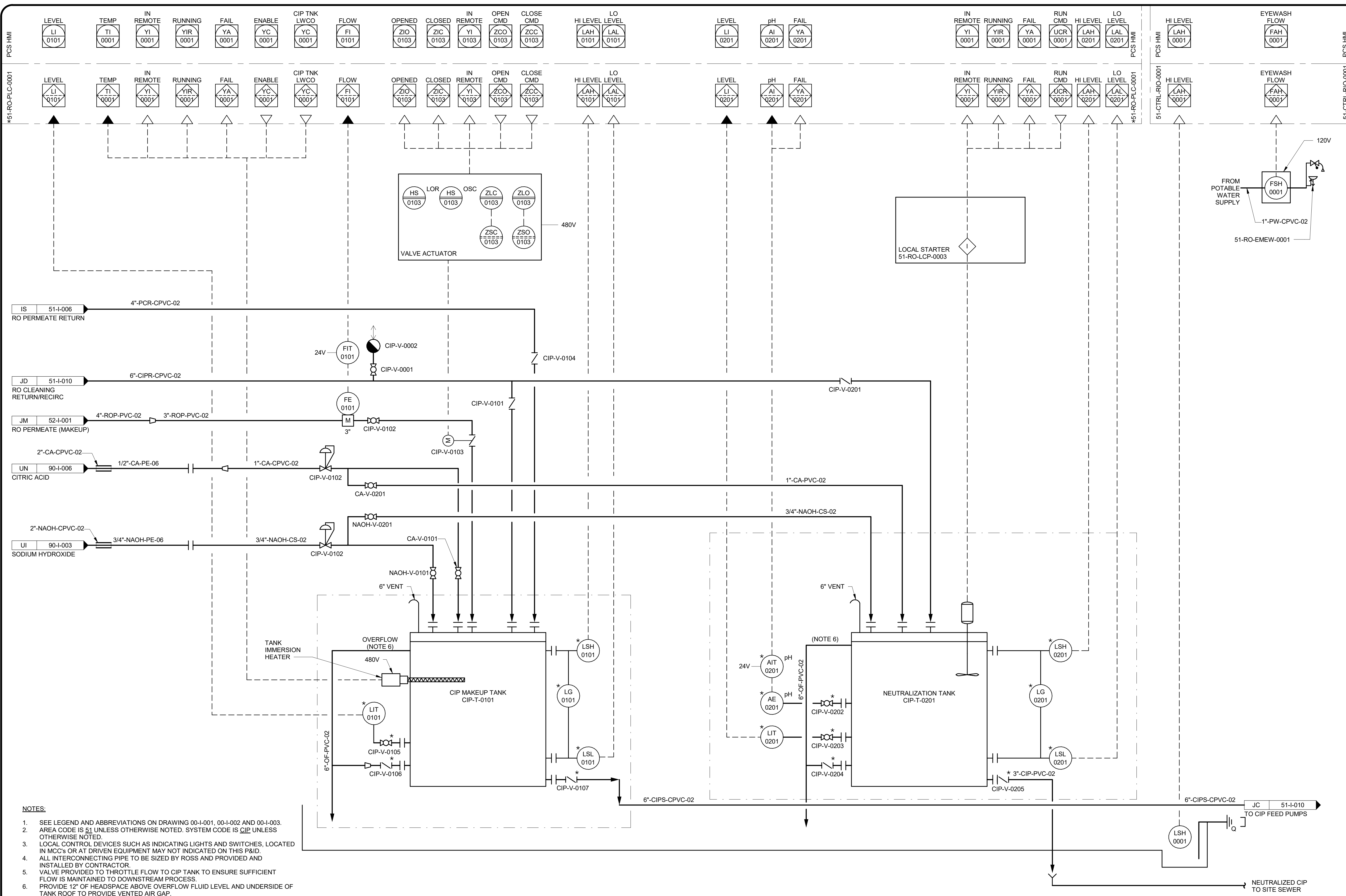
PCS HMI #51-RO-RO-0301 PCS HMI #51-RO-RO-0301
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CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) RO/UV BUILDING - RO SYSTEM P&ID RO PERMEATE/CONCENTRATE, UNIT 3	BLACK & VEATCH JOINT VENTURE FILANC BLACK & VEATCH
DESIGNED: BLB, ADV DETAILED: PVR CHECKED: JSM, BDS APPROVED: BLB DATE: 5/19/2020	PROJECT NO. 400530 SHEET 51-I-008 124 OF 412

- NOTES:**
1. SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 2. AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RO UNLESS OTHERWISE NOTED.
 3. LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 4. PIPING SIZES ARE PRELIMINARY AND TO BE FINALIZED BY ROSS.
 5. CIP BLEED VALVE.
 6. HIGH PRESSURE SECOND STAGE CONCENTRATE PIPING TO BE DUPLEX STAINLESS STEEL, REFER TO SPECIFICATIONS.
 7. PROVIDE REMOVABLE SPOOLS, SWAPABLE FITTING, OR BLOCK AND BLEED VALVING TO PREVENT POTENTIAL CROSS-CONNECTION OF PERMATE AND CIP RETURN. FURNISH SUITABLE BLIND FLANGES TO REPLACE REMOVABLE SPOOL OR SWAPABLE FITTING AS REQUIRED.
 8. AIR RELEASE / VACUUM RELIEF VALVES ARE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

* PROVIDED BY RO SYSTEM SUPPLIER

REGISTERED PROFESSIONAL ENGINEER Brian L. Butler No. E. 16569 ELECTRICAL STATE OF CALIFORNIA	5/19/2020 ISSUED FOR CONSTRUCTION DATE REVISIONS AND RECORD OF USE
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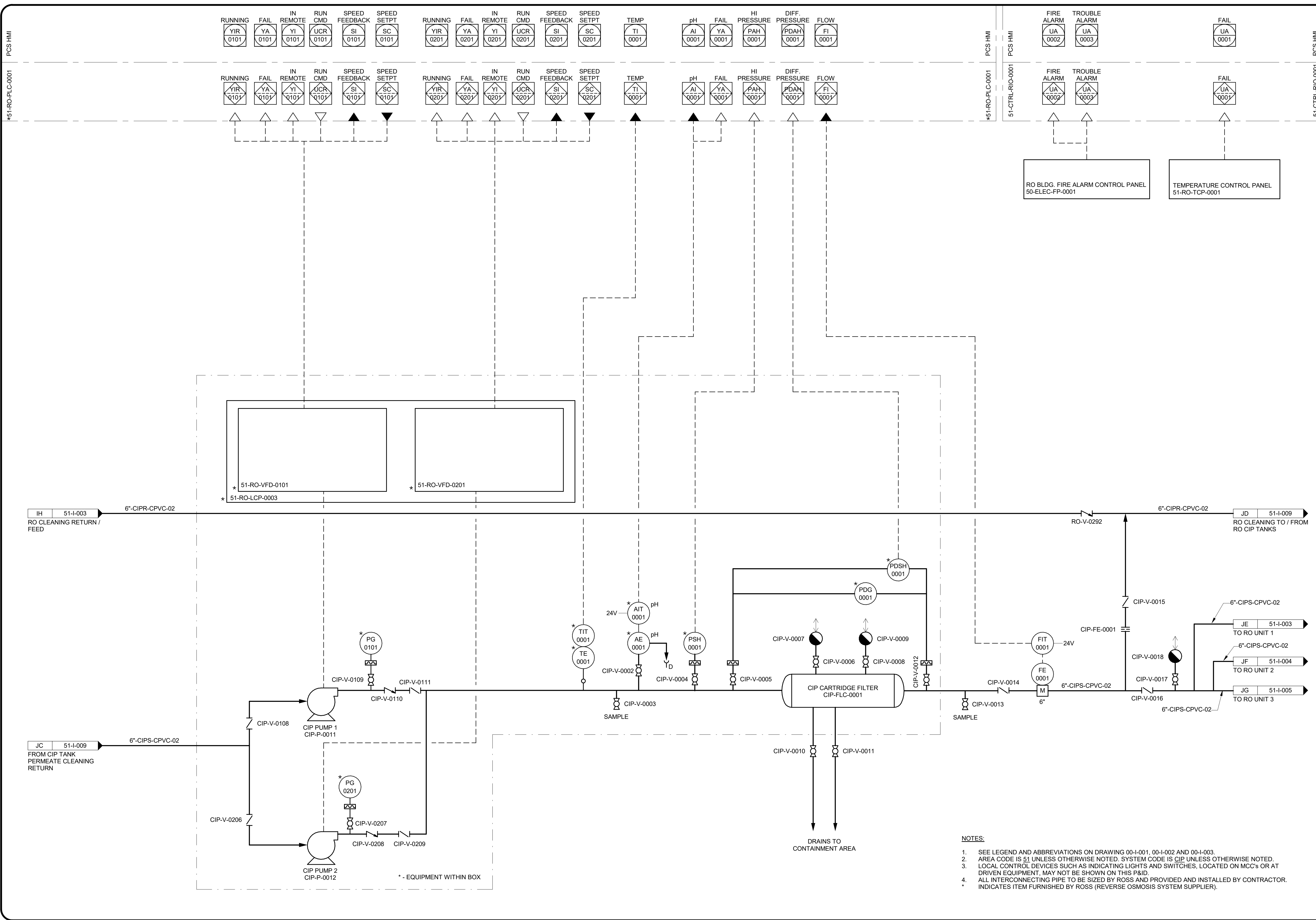
- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS CIP UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.
 - ALL INTERCONNECTING PIPE TO BE SIZED BY ROSS AND PROVIDED AND INSTALLED BY CONTRACTOR.
 - VALVE PROVIDED TO THROTTLE FLOW TO CIP TANK TO ENSURE SUFFICIENT FLOW IS MAINTAINED TO DOWNSTREAM PROCESS.
 - PROVIDE 12" OF HEADSPACE ABOVE OVERFLOW FLUID LEVEL AND UNDERSIDE OF TANK ROOF TO PROVIDE VENTED AIR GAP.

* INDICATES ITEM FURNISHED BY ROSS (REVERSE OSMOSIS SYSTEM SUPPLIER).

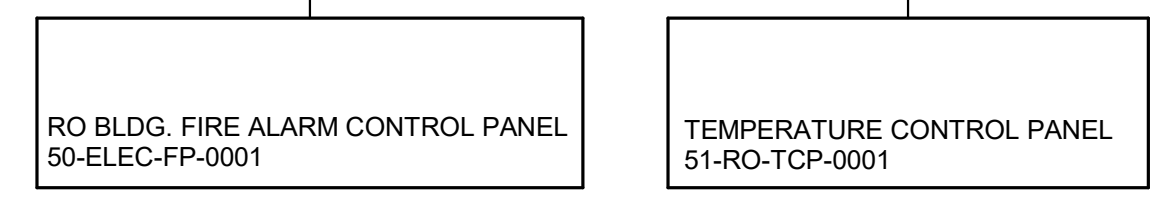
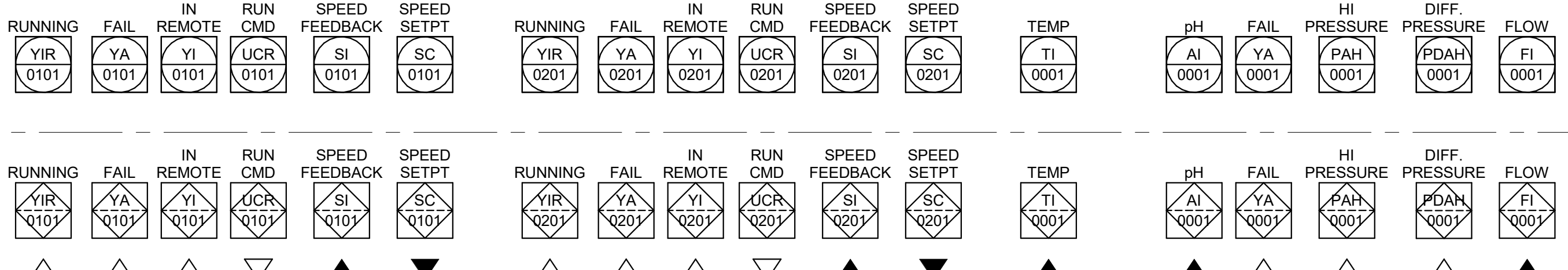
0	BLB	USM	BLB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
5/19/2020	DATE		
BLACK & VEATCH JOINT VENTURE FILANC			
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) RO/UV BUILDING - RO SYSTEM P&ID RO CIP TANKS			
DESIGNED: BLB, ADV			
DETAILED: PVR			
CHECKED: JSM, BDS			
APPROVED: BLB			
DATE: 5/19/2020			
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE			
PROJECT NO. 400530			
51-I-009			
SHEET 125 OF 412			

PLOTTED: 5/18/2020 5:12:07 PM
D:\0630

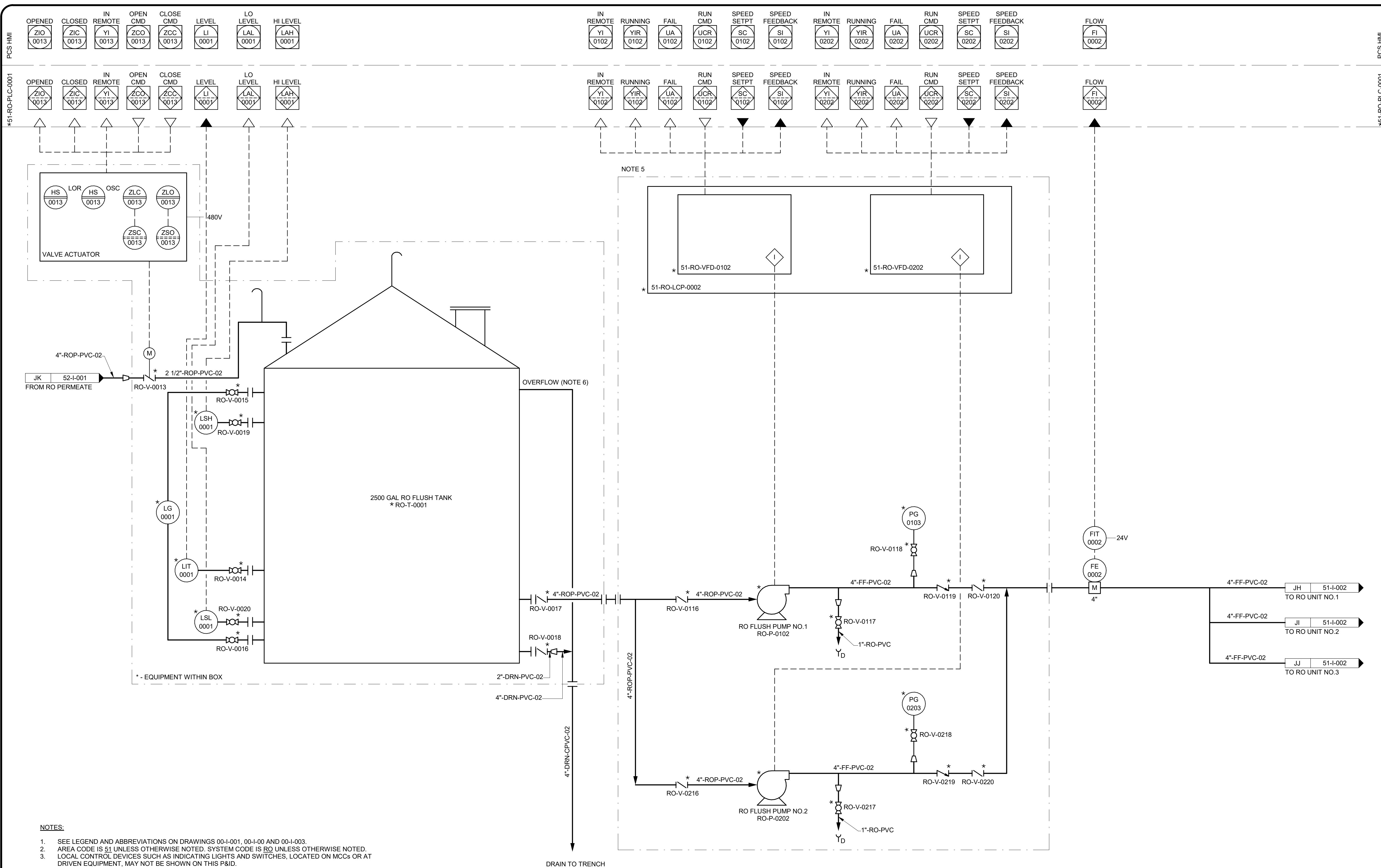
PLOTTED: 5/19/2020 5:12:08 PM
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- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 51 UNLESS OTHERWISE NOTED. SYSTEM CODE IS CIP UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - ALL INTERCONNECTING PIPE TO BE SIZED BY ROSS AND PROVIDED AND INSTALLED BY CONTRACTOR.
 - * INDICATES ITEM FURNISHED BY ROSS (REVERSE OSMOSIS SYSTEM SUPPLIER).



PCS HMI	PCS HMI	PCS HMI	PCS HMI
#51-RO-PLC-0001	#51-RO-PLC-0001	51-CTRL-RIO-0001	51-CTRL-RIO-0001
<p>0 BLB/USM/BLB NO. BY CHK APP</p> <p>ISSUED FOR CONSTRUCTION REVISONS AND RECORD OF USE</p> <p>DATE 5/19/2020</p>			
<p>BLACK & VEATCH JOINT VENTURE FILANC</p>			
<p>CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF)</p> <p>RO/UV BUILDING - RO SYSTEM P&ID RO CIP PUMPS</p>			
<p>DESIGNED: BLB, ADV DETAILED: PVR CHECKED: JSM, BDS APPROVED: BLB DATE: 5/19/2020</p>			
<p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>			
<p>PROJECT NO. 400530</p>			
<p>51-I-010 SHEET 126 OF 412</p>			



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-00 AND 00-I-003.
 - AREA CODE IS S1 UNLESS OTHERWISE NOTED. SYSTEM CODE IS RQ UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - INSTRUMENTATION AND CONTROLS ARE TYPICALLY FOR VARIABLE SPEED DRIVES FOR RO FLUSH FEED PUMPS. NOT ALL PANEL COMPONENTS SHOWN. SEE SPECIFICATIONS FOR INSTALLATIONS FOR REQUIREMENTS.
 - PIPE DIAMETERS INDICATED ARE FOR REFERENCE ONLY. PIPE DIAMETERS TO BE DETERMINED / CONFIRMED BY ROSS.
 - PROVIDE 12" OF HEADSPACE ABOVE OVERFLOW FLUID LEVEL AND UNDERSIDE OF TANK ROOF TO PROVIDE VENTED AIR GAP.
- * PROVIDED BY RO SYSTEM SUPPLIER

DESIGNED: BLB, ADV	DATE: 5/19/2020
DETAILED: PVR	
CHECKED: JSM, BDS	
APPROVED: BLB	
PROJECT NO. 400530	
51-I-011 SHEET 127 OF 412	

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

RO/UV BUILDING - RO SYSTEM
 P&ID
 RO FLUSH SYSTEM

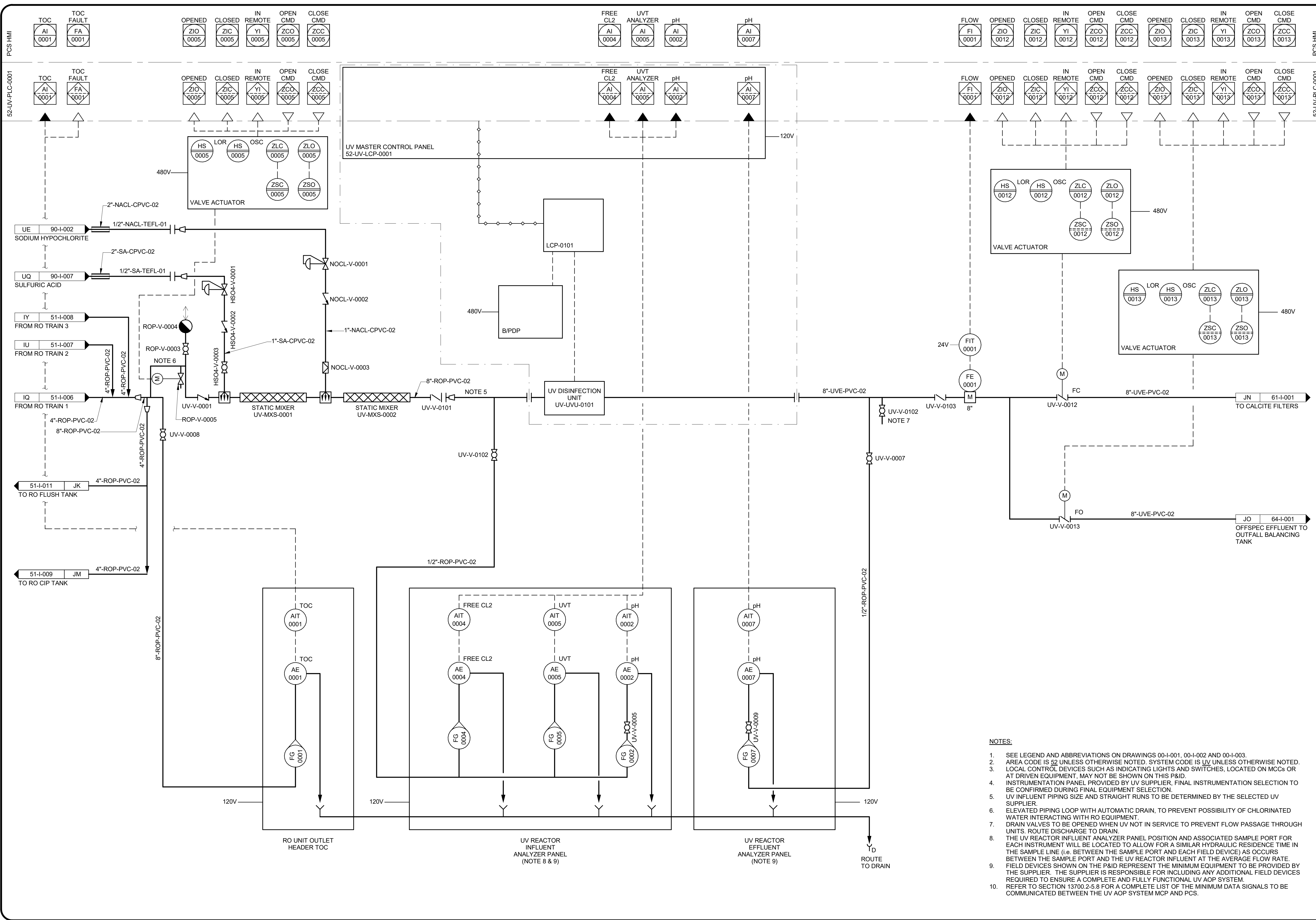
BLACK & VEATCH
 JOINT VENTURE
FILANC

REGISTRED PROFESSIONAL ENGINEER
 ERICK V. BEVINGTON
 No. C. 78836
 CIVIL
 STATE OF CALIFORNIA

5/19/2020 ISSUED FOR CONSTRUCTION DATE	0 BLB USM BLB NO. BY CHK APP REVISIONS AND RECORD OF USE
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PLOTTED: 5/18/2020 5:12:08 PM
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PLOTTED: 5/19/2020 3:24:30 PM
D:\0650



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 52 UNLESS OTHERWISE NOTED. SYSTEM CODE IS UV UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - INSTRUMENTATION PANEL PROVIDED BY UV SUPPLIER, FINAL INSTRUMENTATION SELECTION TO BE CONFIRMED DURING FINAL EQUIPMENT SELECTION.
 - UV INFLUENT PIPING SIZE AND STRAIGHT RUNS TO BE DETERMINED BY THE SELECTED UV SUPPLIER.
 - ELEVATED PIPING LOOP WITH AUTOMATIC DRAIN, TO PREVENT POSSIBILITY OF CHLORINATED WATER INTERACTING WITH RO EQUIPMENT.
 - DRAIN VALVES TO BE OPENED WHEN UV NOT IN SERVICE TO PREVENT FLOW PASSAGE THROUGH UNITS. ROUTE DISCHARGE TO DRAIN.
 - THE UV REACTOR INFLUENT ANALYZER PANEL POSITION AND ASSOCIATED SAMPLE PORT FOR EACH INSTRUMENT WILL BE LOCATED TO ALLOW FOR A SIMILAR HYDRAULIC RESIDENCE TIME IN THE SAMPLE LINE (I.E. BETWEEN THE SAMPLE PORT AND EACH FIELD DEVICE) AS OCCURS BETWEEN THE SAMPLE PORT AND THE UV REACTOR INFLUENT AT THE AVERAGE FLOW RATE.
 - FIELD DEVICES SHOWN ON THE P&ID REPRESENT THE MINIMUM EQUIPMENT TO BE PROVIDED BY THE SUPPLIER. THE SUPPLIER IS RESPONSIBLE FOR INCLUDING ANY ADDITIONAL FIELD DEVICES REQUIRED TO ENSURE A COMPLETE AND FULLY FUNCTIONAL UV AOP SYSTEM.
 - REFER TO SECTION 13700.2-5.8 FOR A COMPLETE LIST OF THE MINIMUM DATA SIGNALS TO BE COMMUNICATED BETWEEN THE UV AOP SYSTEM MCP AND PCS.

PCS HMI	TOC AI 0001	TOC FAULT FA 0001	OPENED ZIO 0005	CLOSED ZIC 0005	IN REMOTE YI 0005	OPEN CMD ZCO 0005	CLOSE CMD ZCC 0005	FREE CL2 AI 0004	UVT ANALYZER AI 0005	pH AI 0002	pH AI 0007	PCS HMI
52-UV-PLC-0001	TOC AI 0001	TOC FAULT FA 0001	OPENED ZIO 0005	CLOSED ZIC 0005	IN REMOTE YI 0005	OPEN CMD ZCO 0005	CLOSE CMD ZCC 0005	FREE CL2 AI 0004	UVT ANALYZER AI 0005	pH AI 0002	pH AI 0007	52-UV-PLC-0001
	FLOW FI 0001	OPENED ZIO 0012	CLOSED ZIC 0012	IN REMOTE YI 0012	OPEN CMD ZCO 0012	CLOSE CMD ZCC 0012	OPENED ZIO 0013	CLOSED ZIC 0013	IN REMOTE YI 0013	OPEN CMD ZCO 0013	CLOSE CMD ZCC 0013	
	FLOW FI 0001	OPENED ZIO 0012	CLOSED ZIC 0012	IN REMOTE YI 0012	OPEN CMD ZCO 0012	CLOSE CMD ZCC 0012	OPENED ZIO 0013	CLOSED ZIC 0013	IN REMOTE YI 0013	OPEN CMD ZCO 0013	CLOSE CMD ZCC 0013	

BLACK & VEATCH
JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
RO/UV BUILDING - UV SYSTEM
P&ID
UV/AOP SYSTEM

DESIGNED: KEZ, EVB
 DETAILED: MAK
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

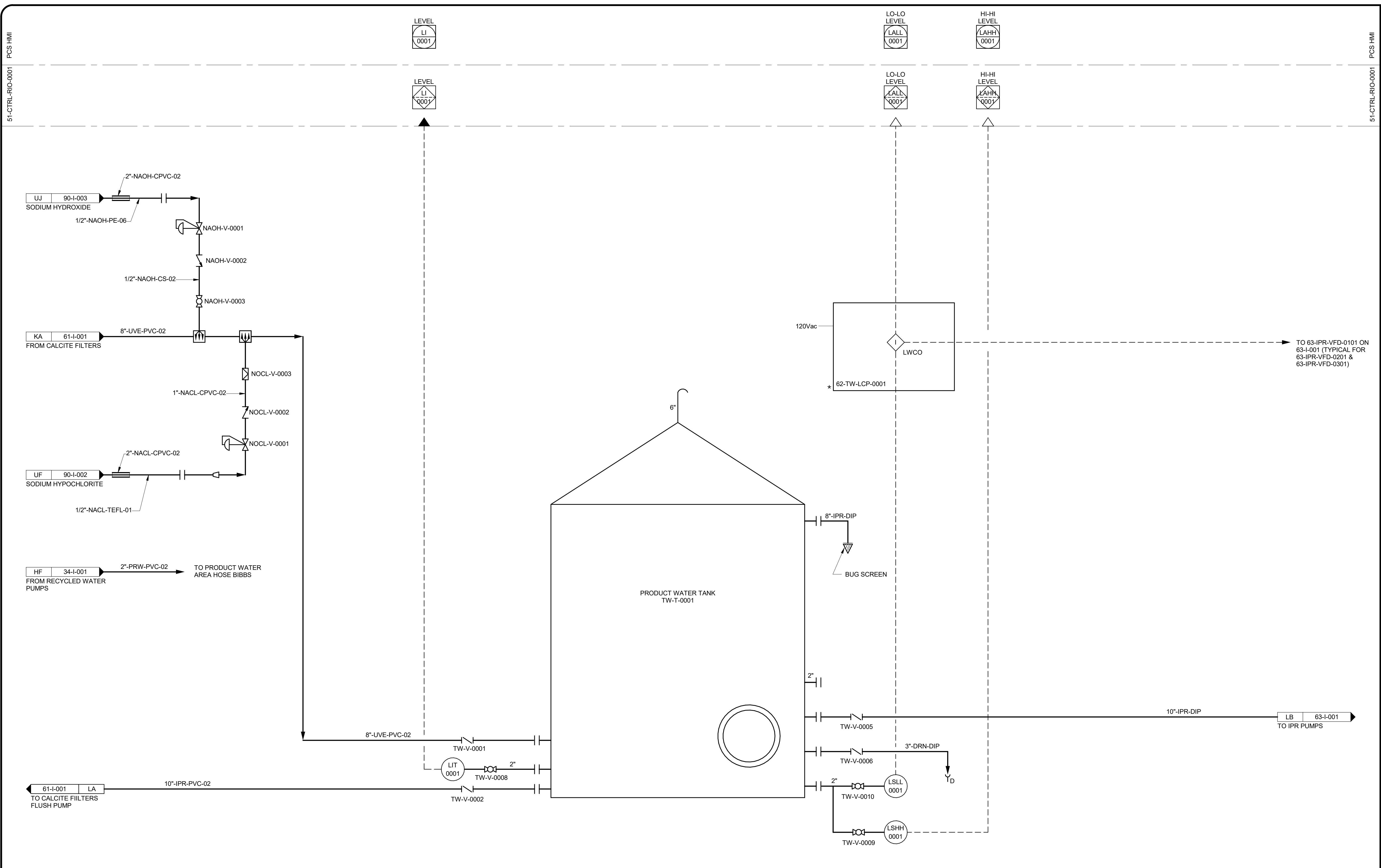
0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

52-I-001
SHEET
128 OF 412

51-CTRL-RIO-0001

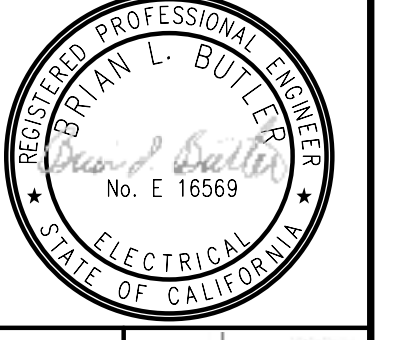
51-CTRL-RIO-0001



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 62 UNLESS OTHERWISE NOTED. SYSTEM CODE IS TW UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.

NO.	BY	CHK	APP
0	BLB	JSM	BLB

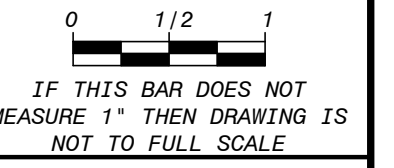
DATE: 5/19/2020
ISSUED FOR CONSTRUCTION
REVISITONS AND RECORD OF USE



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
PRODUCT WATER AREA - IPR PRODUCT WATER STORAGE TANK P&ID
IPR PRODUCT WATER STORAGE TANK

DESIGNED: BLB, KEZ
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020

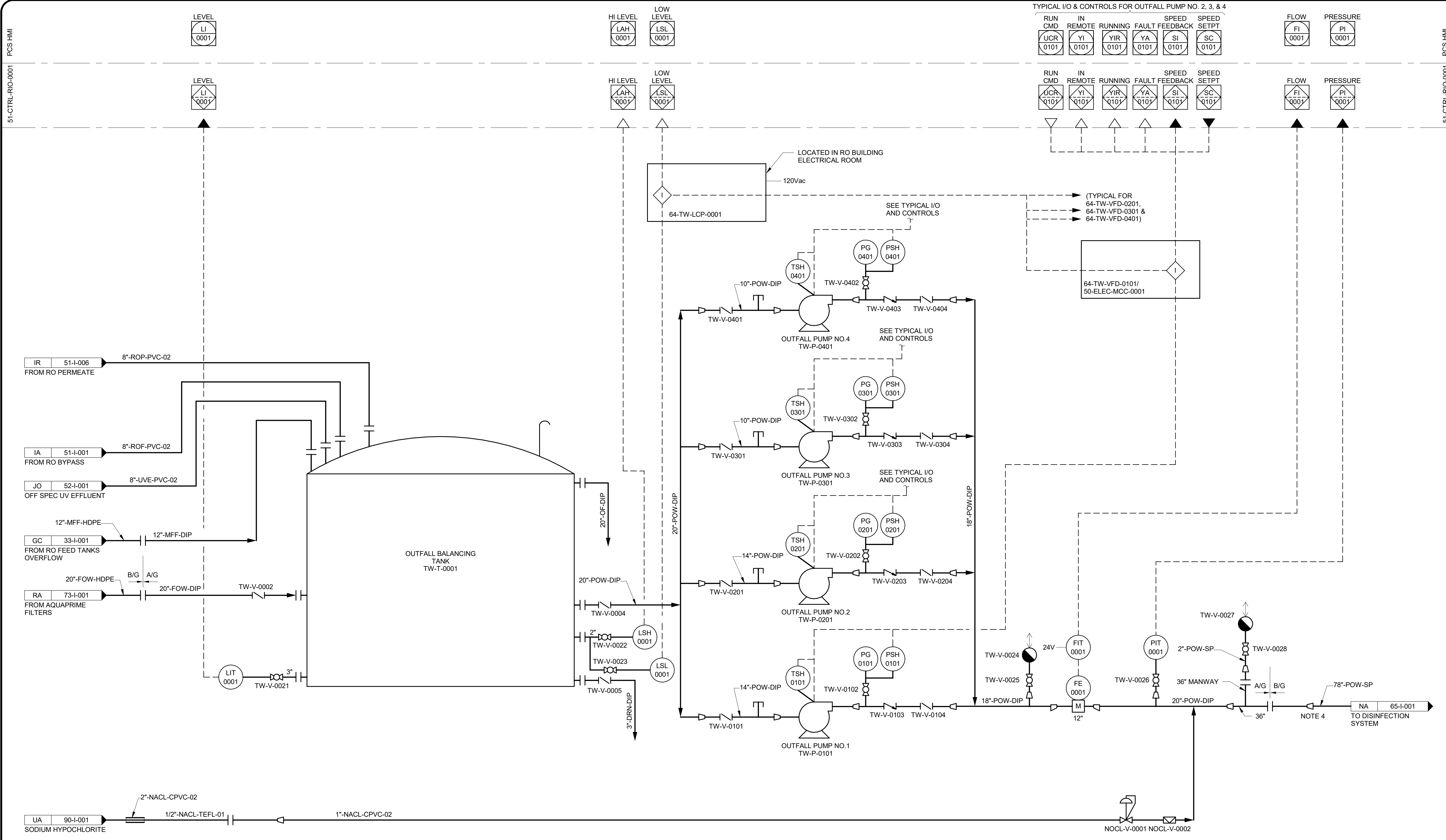


PROJECT NO.
400530
62-I-001
SHEET
130 OF 412

PLOTTED: 5/18/2020 5:20:27 PM

51-CTRL-RIO-0001

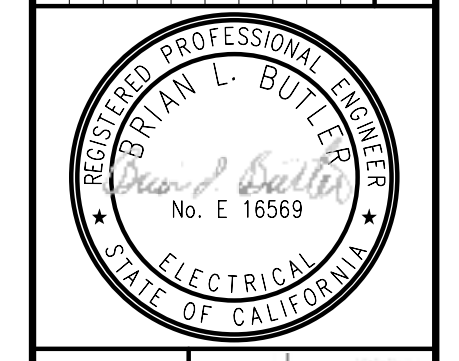
51-CTRL-RIO-0001



TYPICAL I/O & CONTROLS FOR OUTFALL PUMP NO. 2, 3, & 4

RUN CMD	IN REMOTE	RUNNING	FAULT	SPEED FEEDBACK	SPEED SETPT	FLOW	PRESSURE
UCR 0101	Y1 0101	YR 0101	YA 0101	SI 0101	SC 0101	FI 0001	PI 0001

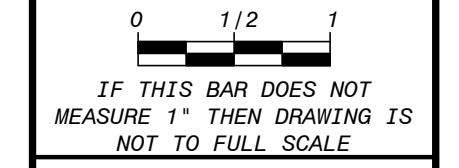
0	BLB	USJ	BLB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
DATE			



BLACK & VEATCH
JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
PRODUCT WATER AREA - OUTFALL PUMP STATION
P&ID
OUTFALL TANK & PUMPS

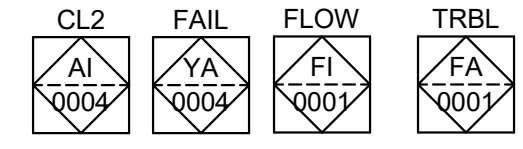
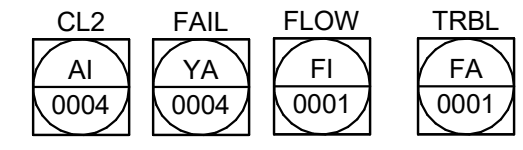
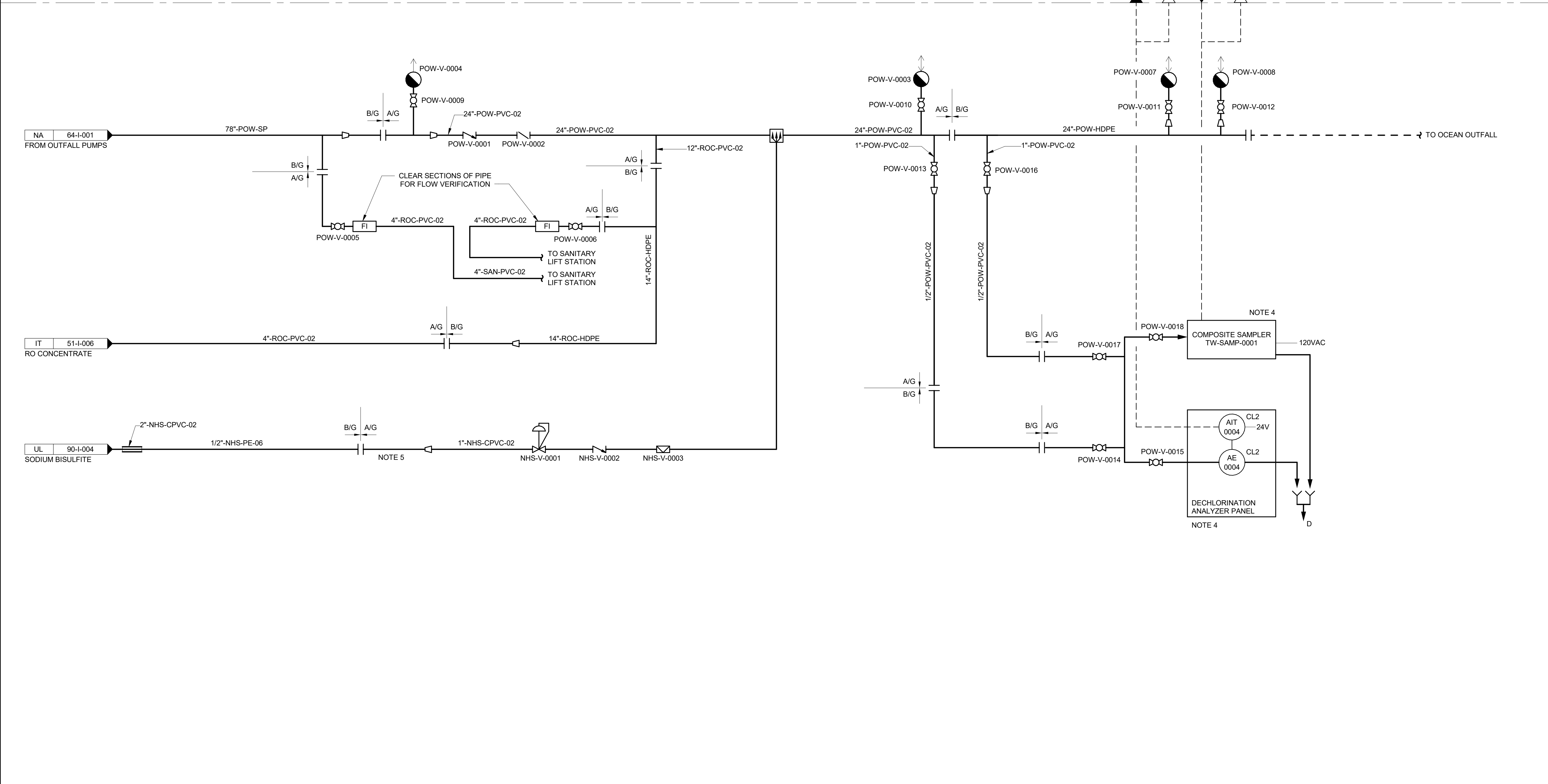
DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020



PROJECT NO.
400530
 SHEET
132 OF 412

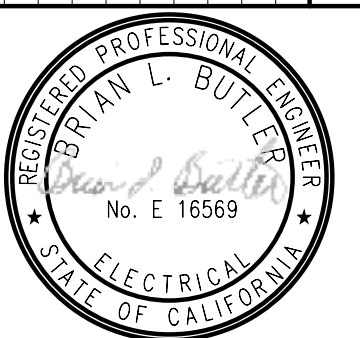
- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 64 UNLESS OTHERWISE NOTED. SYSTEM CODE IS TW UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - OCEAN OUTFALL PIPING INCREASE TO PROVIDE VOLUME REQUIRED FOR FULL DISINFECTION PRIOR TO DECHLORINATION.

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NOTES:

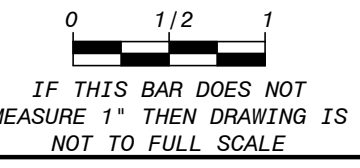
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
- AREA CODE IS 65 UNLESS OTHERWISE NOTED. SYSTEM CODE IS TW UNLESS OTHERWISE NOTED.
- LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
- ANALYZER PANEL AND SAMPLER TO BE LOCATED INSIDE STORAGE BUILDING.
- ABOVE GRADE SODIUM BIFULFITE CPVC PIPING, VALVES AND APPURTENANCES SHALL BE HEAT TRACED FOLLOWING ELECTRICAL SPECIFICATION 260511.



BLACK & VEATCH
JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 PRODUCT WATER AREA - DISINFECTION SYSTEM
 P&ID
 OUTFALL DISINFECTION SYSTEM

DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

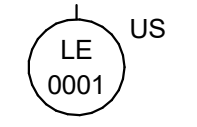
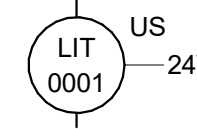
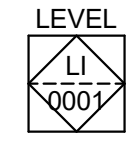
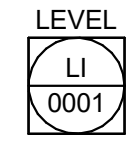


PROJECT NO.
400530
65-I-001
 SHEET
 133 OF 412

0	BLB	JSM	BLB
NO.	BY	CHK	APP
5/19/2020 ISSUED FOR CONSTRUCTION			
DATE			
REVISITONS AND RECORD OF USE			

72-CTRL-RIO-0001 PCS HMI

72-CTRL-RIO-0001 PCS HMI

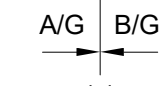


SAFE SETTLE TANK

BA 22-I-001 FROM SAFE DIVERSION BOX

30"-WWS-HDPE

20"-FIW-DIP



20"-FIW-HDPE

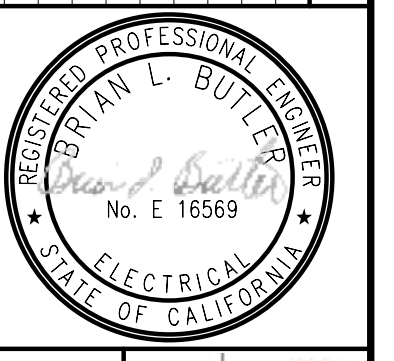
PA 73-I-001 TO SAFE FILTER

4"-DRN-DIP

PB 72-I-001 TO DEWATERING SLUDGE FEED PUMPS

NOTES:

- 1. SEE LEGEND ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
- 2. AREA CODE IS 71 UNLESS OTHERWISE NOTED. SYSTEM CODE IS WAS UNLESS OTHERWISE INDICATED.
- 3. LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.



BLACK & VEATCH
 JOINT VENTURE
FILANC BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
 RESIDUALS AREA - SLUDGE & SAFE SETTLE TANKS
 P&ID
 SAFE SETTLE SYSTEM

DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

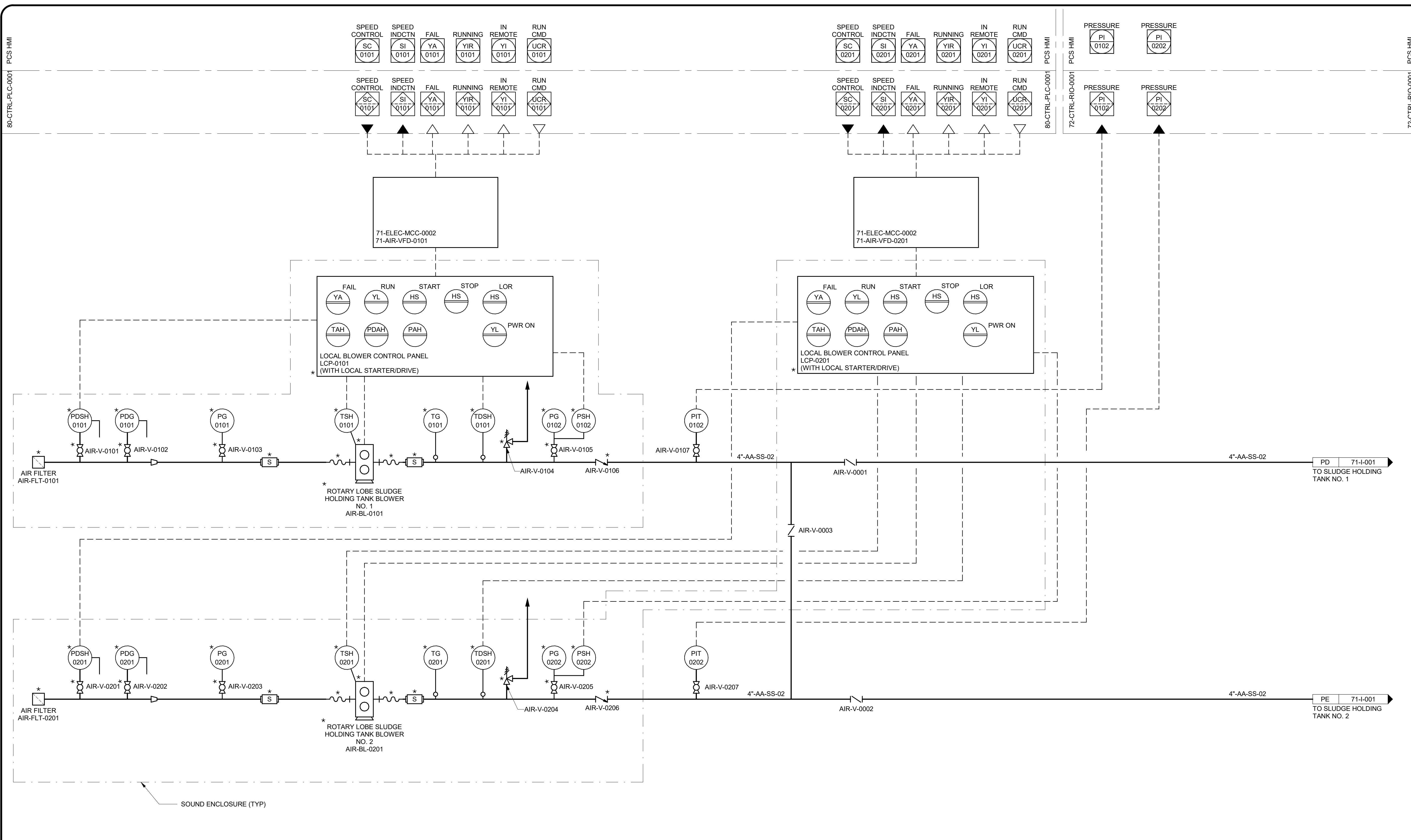
0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
71-I-002
 SHEET
 135 OF 412

NO.	DATE	ISSUED FOR CONSTRUCTION	REVISED AND RECORD OF USE
0	5/19/2020		

PLOTTED: 5/18/2020 5:26:43 PM D:\00530

PLOTTED: 5/19/2020 2:05:23 PM



- NOTES:**
- SEE LEGEND ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 71 UNLESS OTHERWISE NOTED. SYSTEM CODE IS AIR UNLESS OTHERWISE INDICATED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.

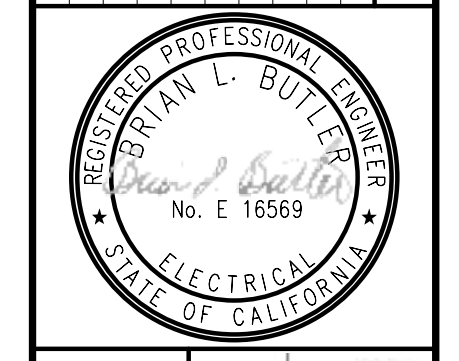
* PROVIDED BY ROTARY POSITIVE DISPLACEMENT BLOWER SUPPLIER.

SOUND ENCLOSURE (TYP)

80-CTRL-PLC-0001 PCS HMI

72-CTRL-RIQ-0001 PCS HMI

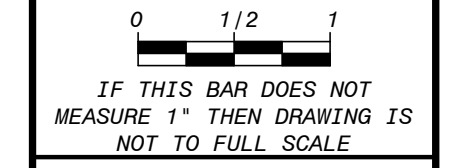
0	BLB	USM	BLB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
DATE			



BLACK & VEATCH
FILANC
 JOINT VENTURE
 BLACK & VEATCH

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 RESIDUALS AREA - SLUDGE & SAFE SETTLE TANKS
 P&ID
 SLUDGE HOLDING TANK BLOWERS

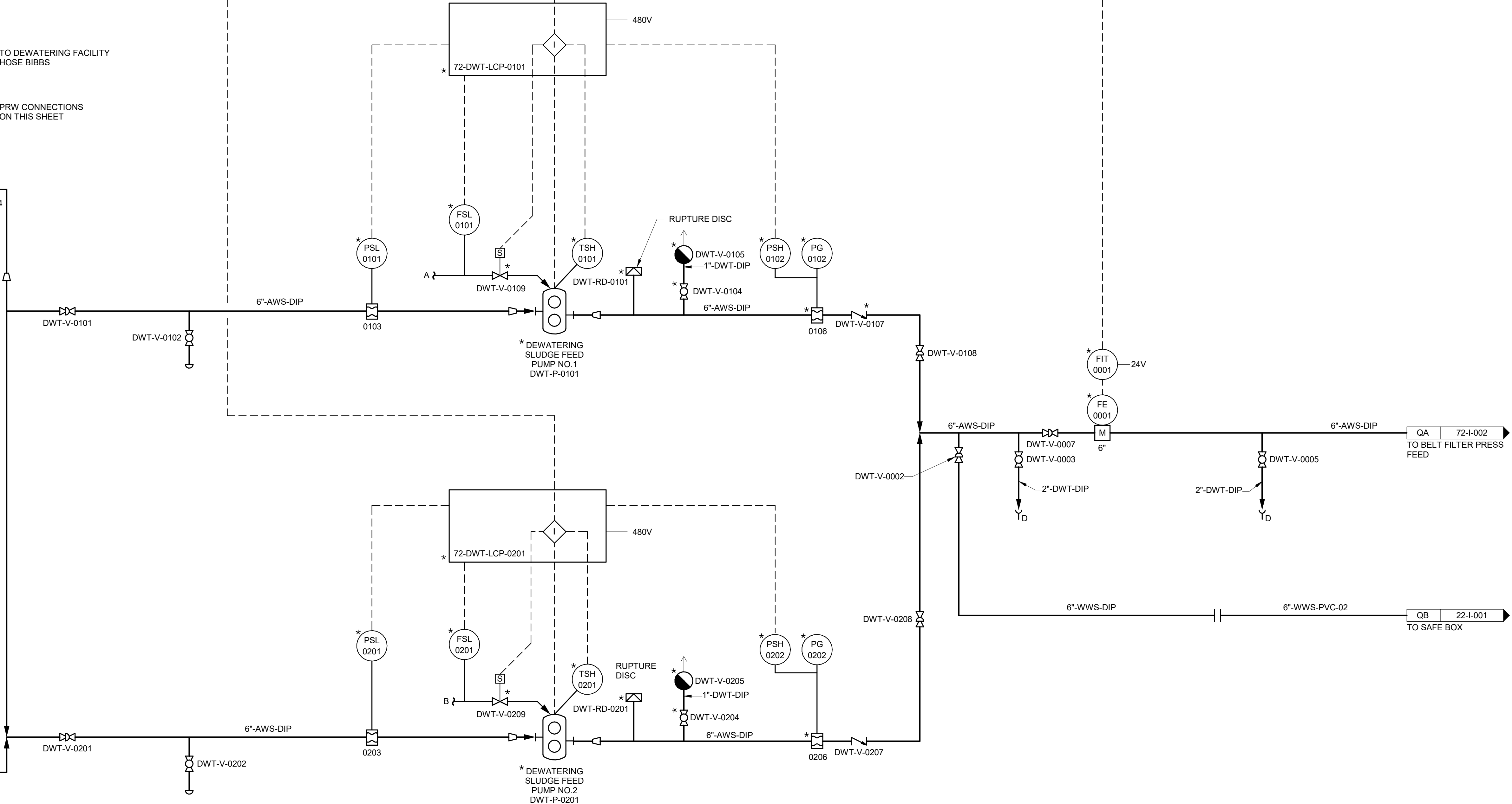
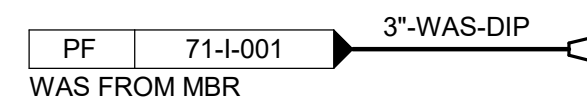
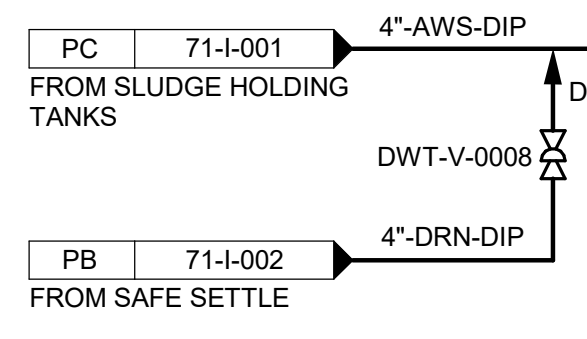
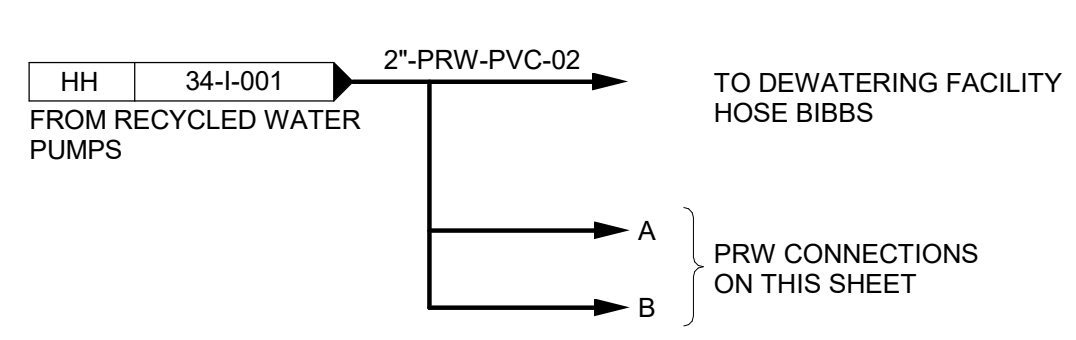
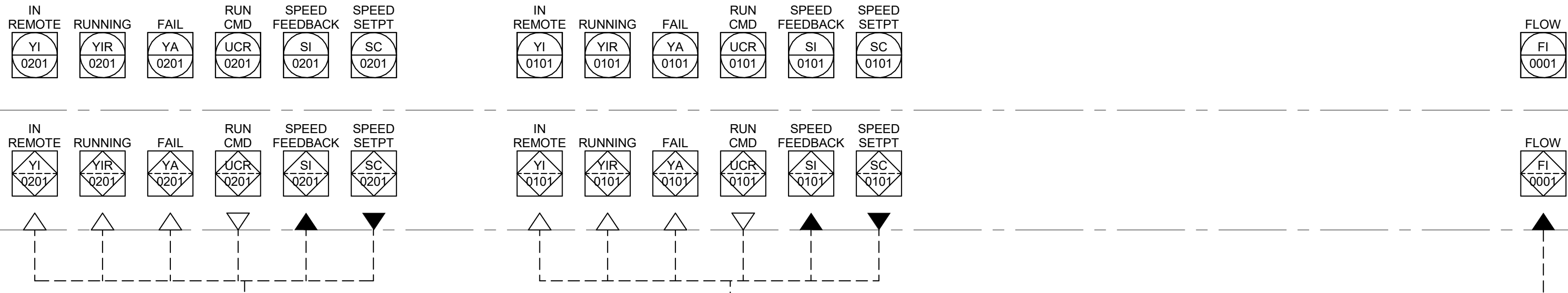
DESIGNED:	BLB, KEZ
DETAILED:	PVR
CHECKED:	JSM, BDS
APPROVED:	BLB
DATE:	5/19/2020



PROJECT NO.
400530
71-I-003
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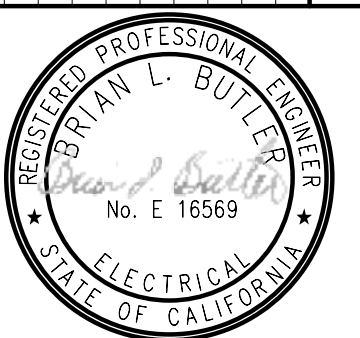
*72-DWT-PLC-0001

PLOTTED: 5/19/2020 5:26:45 PM
D:\06530



- NOTES:**
- SEE LEGEND ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 72 UNLESS OTHERWISE NOTED. SYSTEM CODE IS DWT UNLESS OTHERWISE INDICATED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
- * ITEM FURNISHED BY DEWATERING SYSTEM SUPPLIER

DESIGNED: BLB, KEZ	0	BLB	USM	BLB
DATE: 5/19/2020	ISSUED FOR CONSTRUCTION	REVISED	NO.	BY
5/19/2020	DATE	REVISED	NO.	BY



BLACK & VEATCH
JOINT VENTURE
FILANC

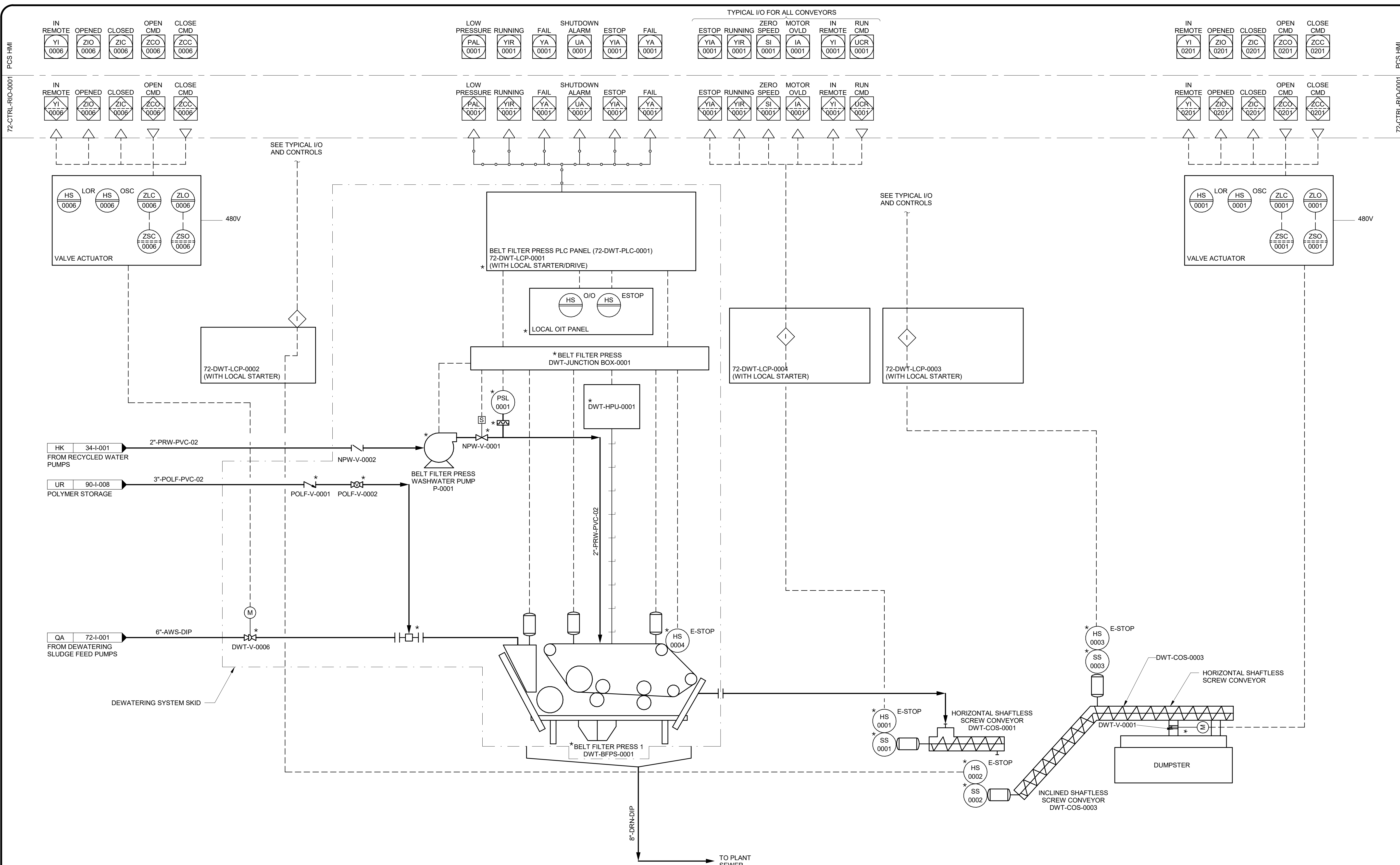
CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
RESIDUALS AREA - DEWATERING SYSTEM
P&ID
DEWATERING SLUDGE FEED PUMPS

DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

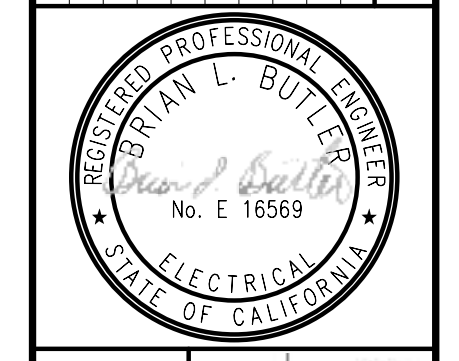
72-I-001
 SHEET
 137 OF 412



- NOTES:**
- SEE LEGEND ON DRAWINGS 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 72 UNLESS OTHERWISE NOTED. SYSTEM CODE IS DWT UNLESS OTHERWISE INDICATED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - BELT FILTER PRESS PACKAGE PLANT I/O MAY VARY BASE ON FINAL VENDOR DESIGN.

* ITEM FURNISHED BY DEWATERING SYSTEM SUPPLIER

PCS HMI	0	BLB	USM	BLB
72-CTRL-RIO-0001				
72-CTRL-RIO-0001				
DATE	5/19/2020	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE	NO. BY CHK APP



BLACK & VEATCH
FILANC
 JOINT VENTURE

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 RESIDUALS AREA - DEWATERING SYSTEM
 P&ID
BELT FILTER PRESS

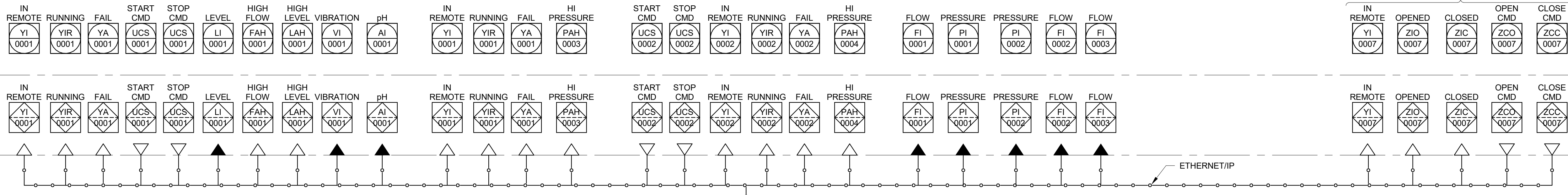
DESIGNED:	BLB, KEZ
DETAILED:	PVR
CHECKED:	JSM, BDS
APPROVED:	BLB
DATE:	5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
72-I-002
 SHEET
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PLOTTED: 5/18/2020 5:26:46 PM 0400530

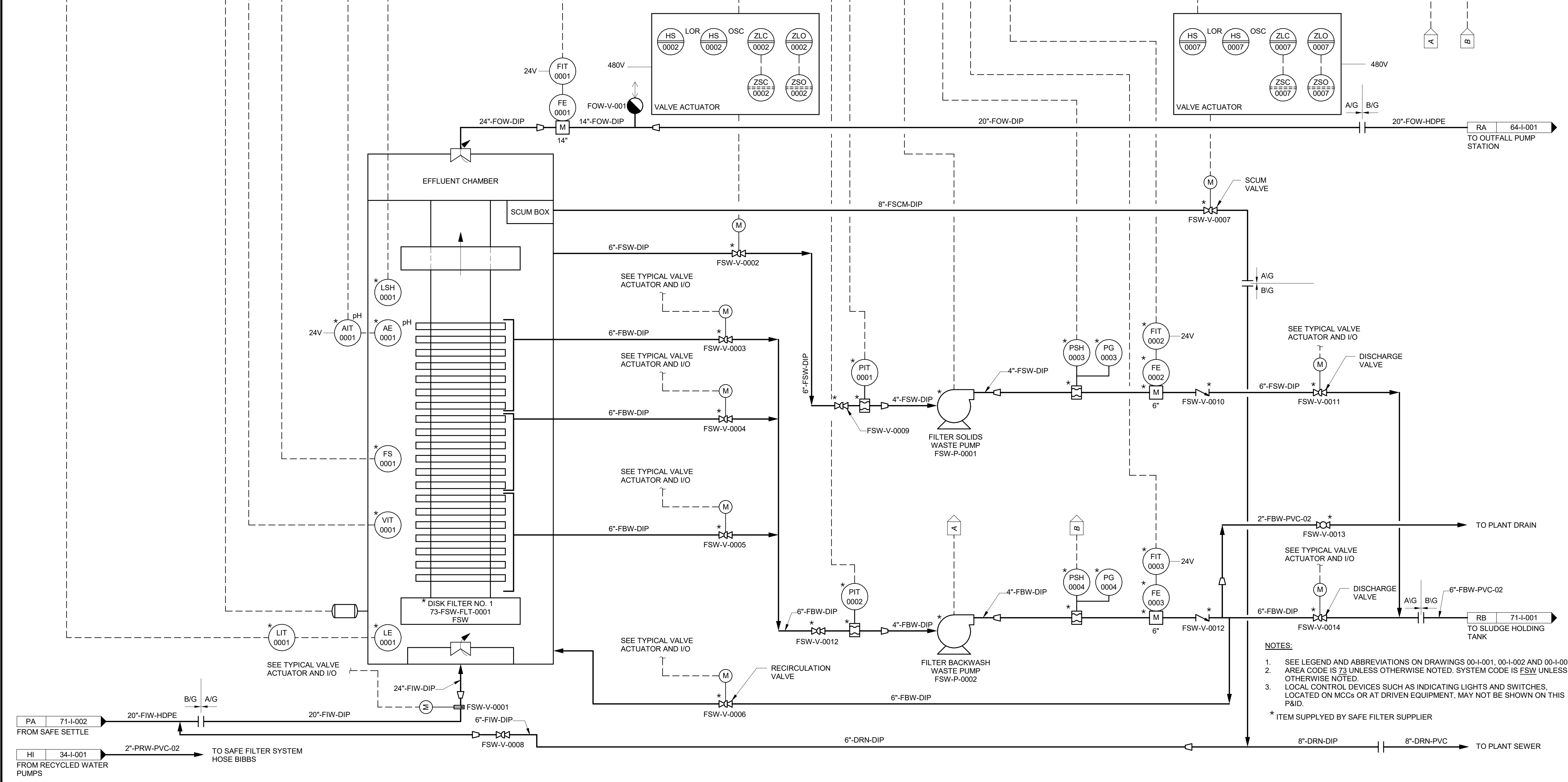
TYPICAL I/O FOR 0001, 0002, 0003, 0004, 0005, 0006, 0011, 0014 VALVE



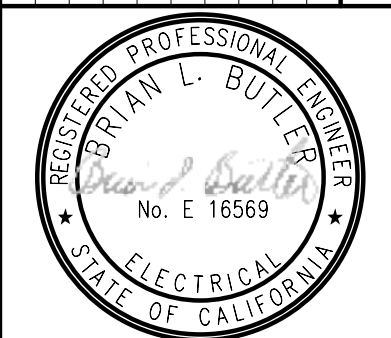
72-CTRL-RIO-0001 PCS HMI

72-CTRL-RIO-0001 PCS HMI

CONTROL PANEL (73-FSW-PLC-0001)
73-FSW-LCP-0001
(WITH LOCAL STARTER/DRIVE)



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 001-001, 001-002 AND 001-003.
 - AREA CODE IS 73 UNLESS OTHERWISE NOTED. SYSTEM CODE IS FSW UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
- * ITEM SUPPLIED BY SAFE FILTER SUPPLIER



BLACK & VEATCH
JOINT VENTURE
FILANC

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
RESIDUALS AREA - SAFE FILTER SYSTEM
P&ID
SAFE SYSTEM

DESIGNED: BLB, KEZ
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020

PROJECT NO.
400530

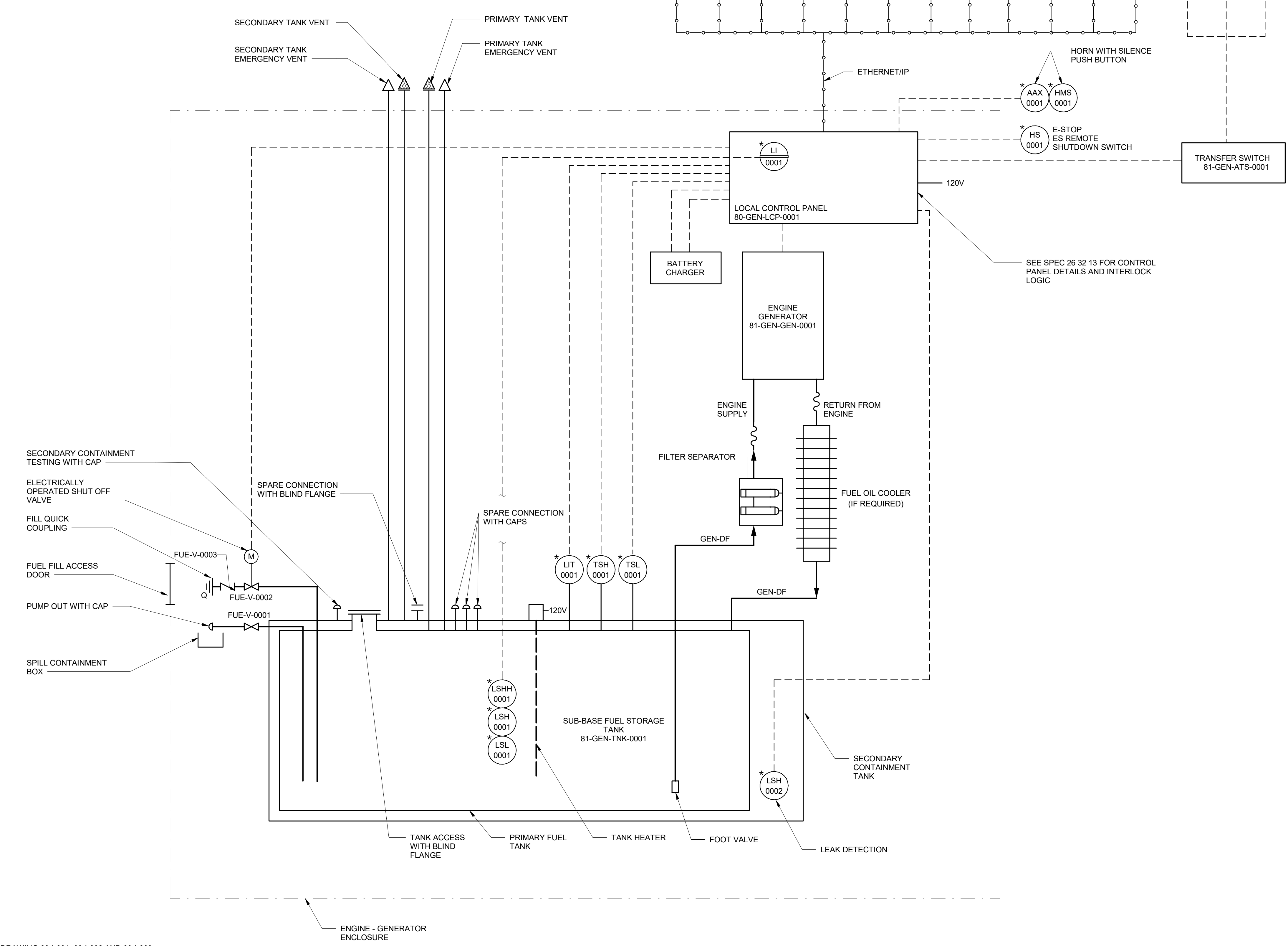
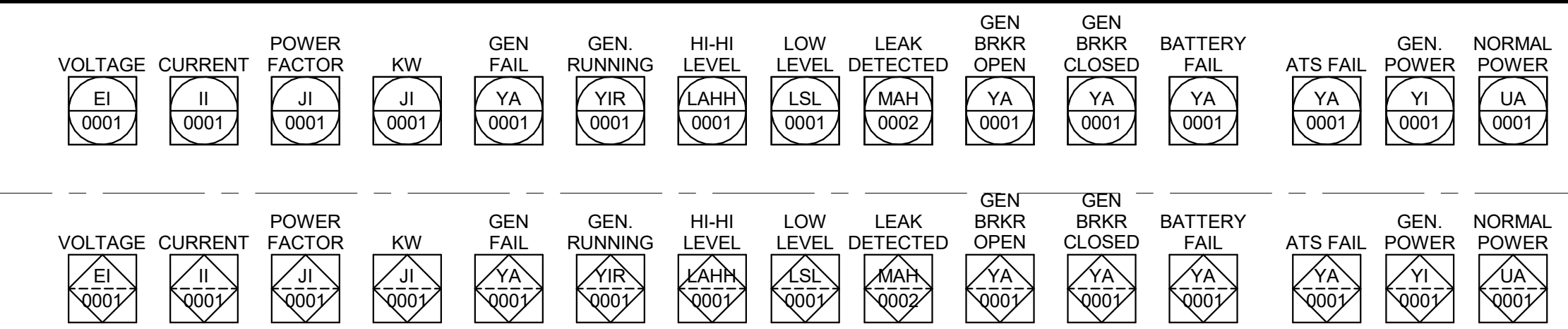
73-I-001
SHEET
139 OF 412

PLOTTED: 5/19/2020 5:26:47 PM

0	BLB	USJ	BLB
	NO.	BY	CHK APP
REVISIONS AND RECORD OF USE			
5/19/2020	ISSUED FOR CONSTRUCTION	DATE	

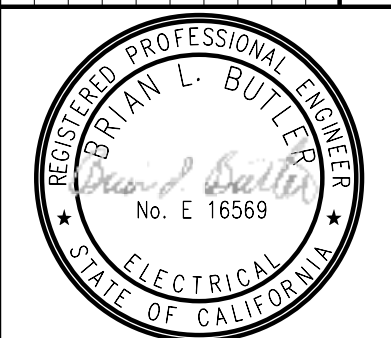
80-CTRL-PLC-0001 PCS HMI

80-CTRL-PLC-0001 PCS HMI



NOTES:

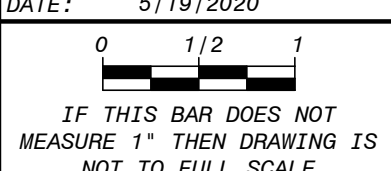
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
- AREA CODE IS 81 UNLESS OTHERWISE NOTED. SYSTEM CODE IS FO UNLESS OTHERWISE NOTED.
- LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.



BLACK & VEATCH
 JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 MISCELLANEOUS - GENERATOR
 P&ID
 GENERATOR SYSTEM

DESIGNED: ME, DAY, JL, BLB
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

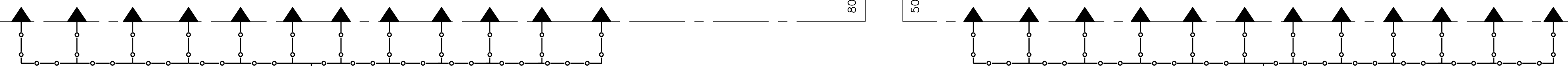
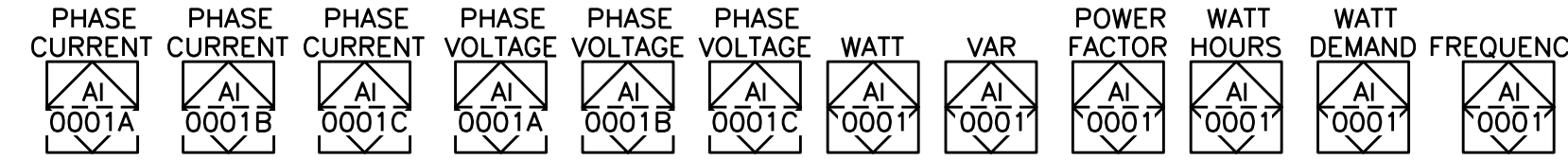
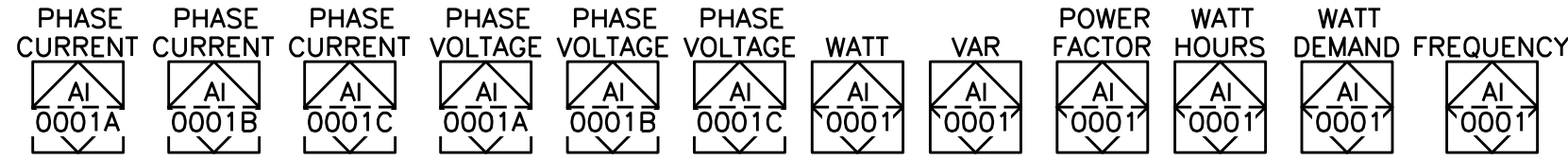
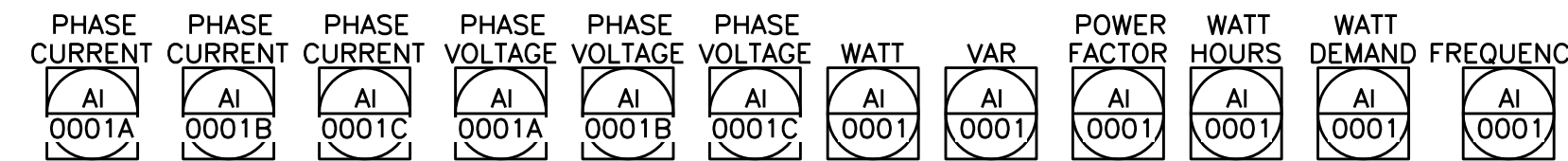
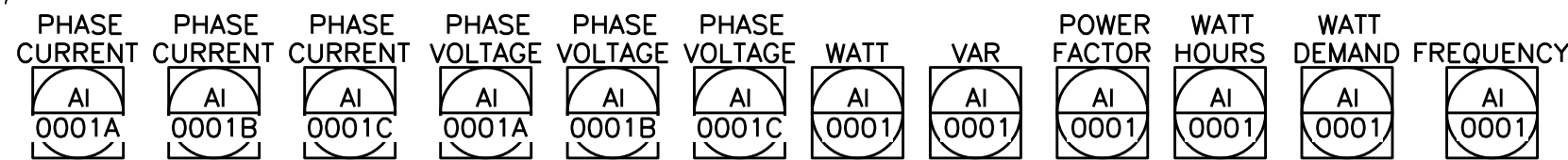


PROJECT NO.
400530
81-I-001
 SHEET
 140 OF 412

PLOTTED: 5/19/2020 5:39:28 PM

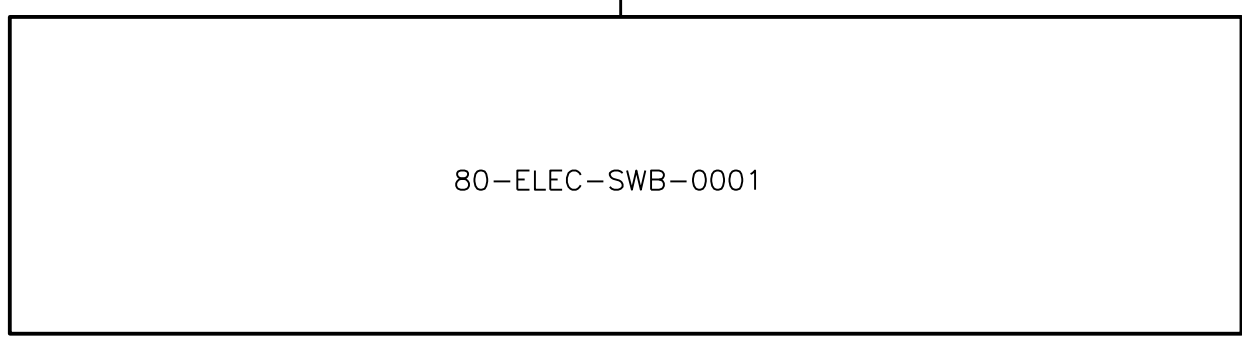
0	BLB	USJ	BLB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
5/19/2020	DATE		

TYPICAL FOR 80-ELEC-SWB-0001 & 80-ELEC-MCC-0002



SEE TYPICAL I/Os & CONTROLS

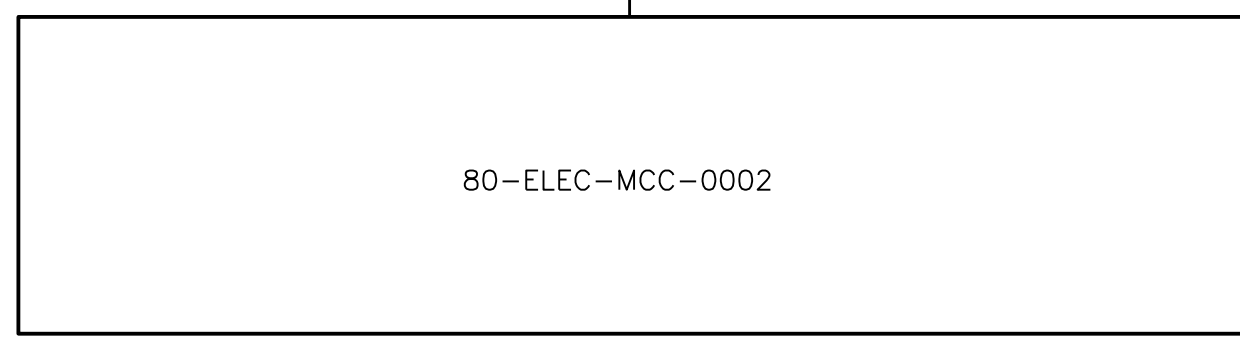
ETHERNET/IP



80-ELEC-SWB-0001

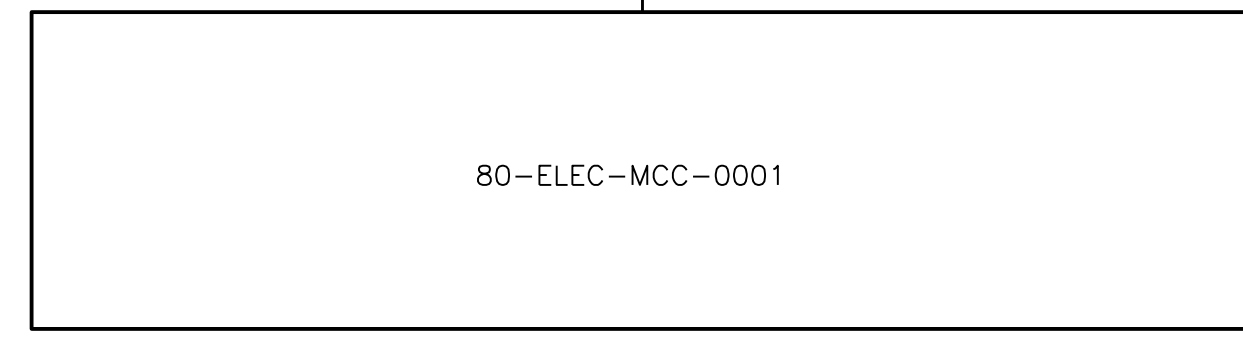
SEE TYPICAL I/Os & CONTROLS

ETHERNET/IP

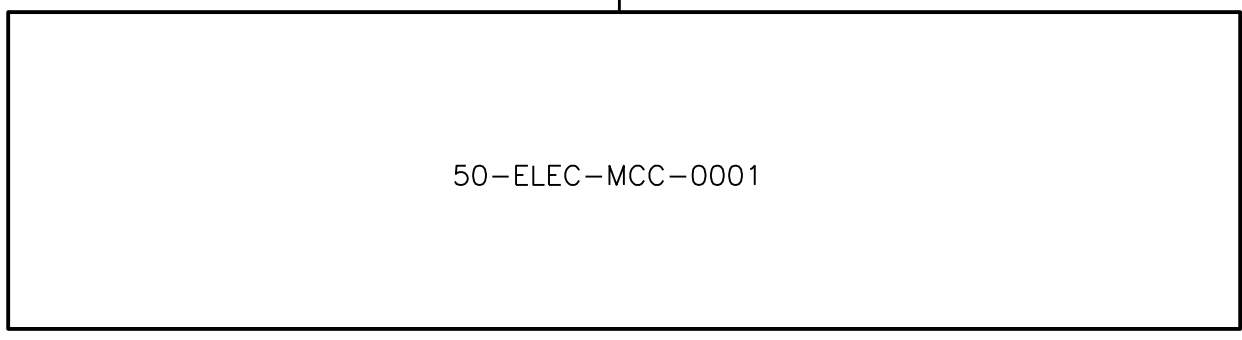


80-ELEC-MCC-0002

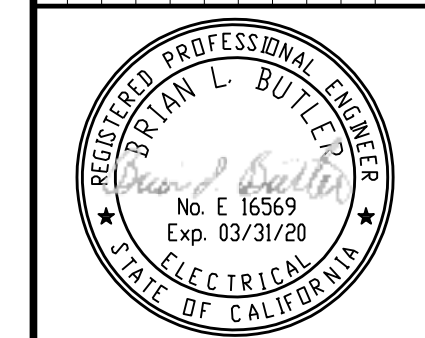
80-ELEC-MCC-0001



ETHERNET/IP



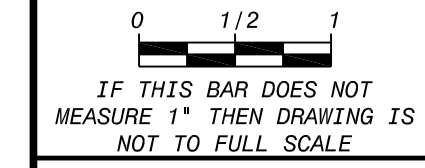
50-ELEC-MCC-0001



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
MISCELLANEOUS - ELECTRICAL
P&ID
SWITCHBOARD & MCCS

DESIGNED: BLB
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020



PROJECT NO.
400530
81-I-002
SHEET
141 OF 412

NO.	BY	CHK	APP
0	BLB	JSM	BLB

ISSUED FOR CONSTRUCTION
DATE: 5/19/2020
REVISIONS AND RECORD OF USE

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 G:\V78404_

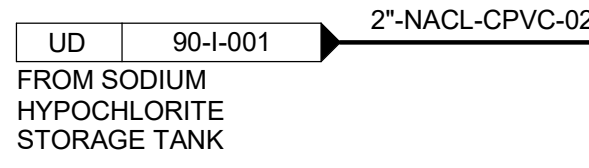
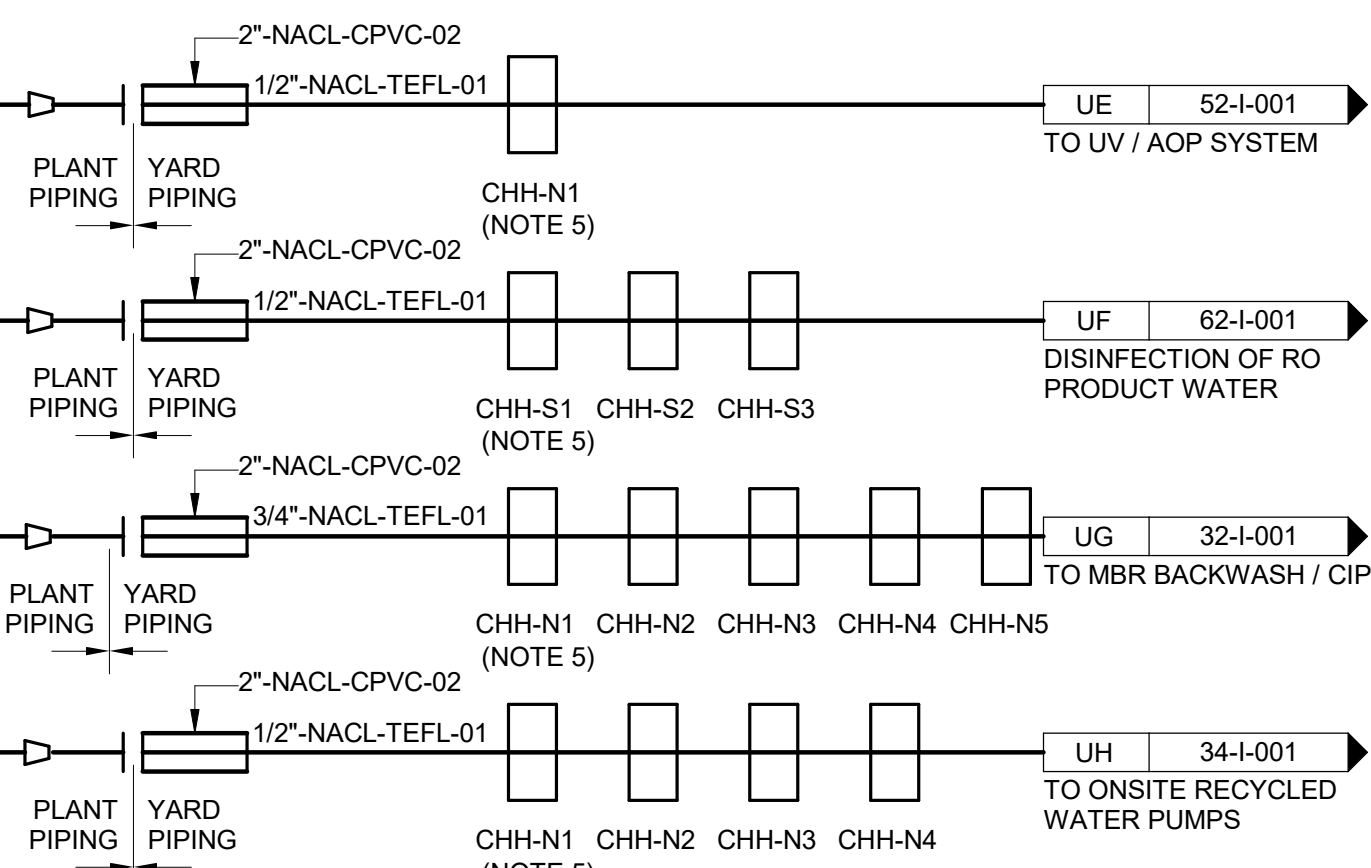
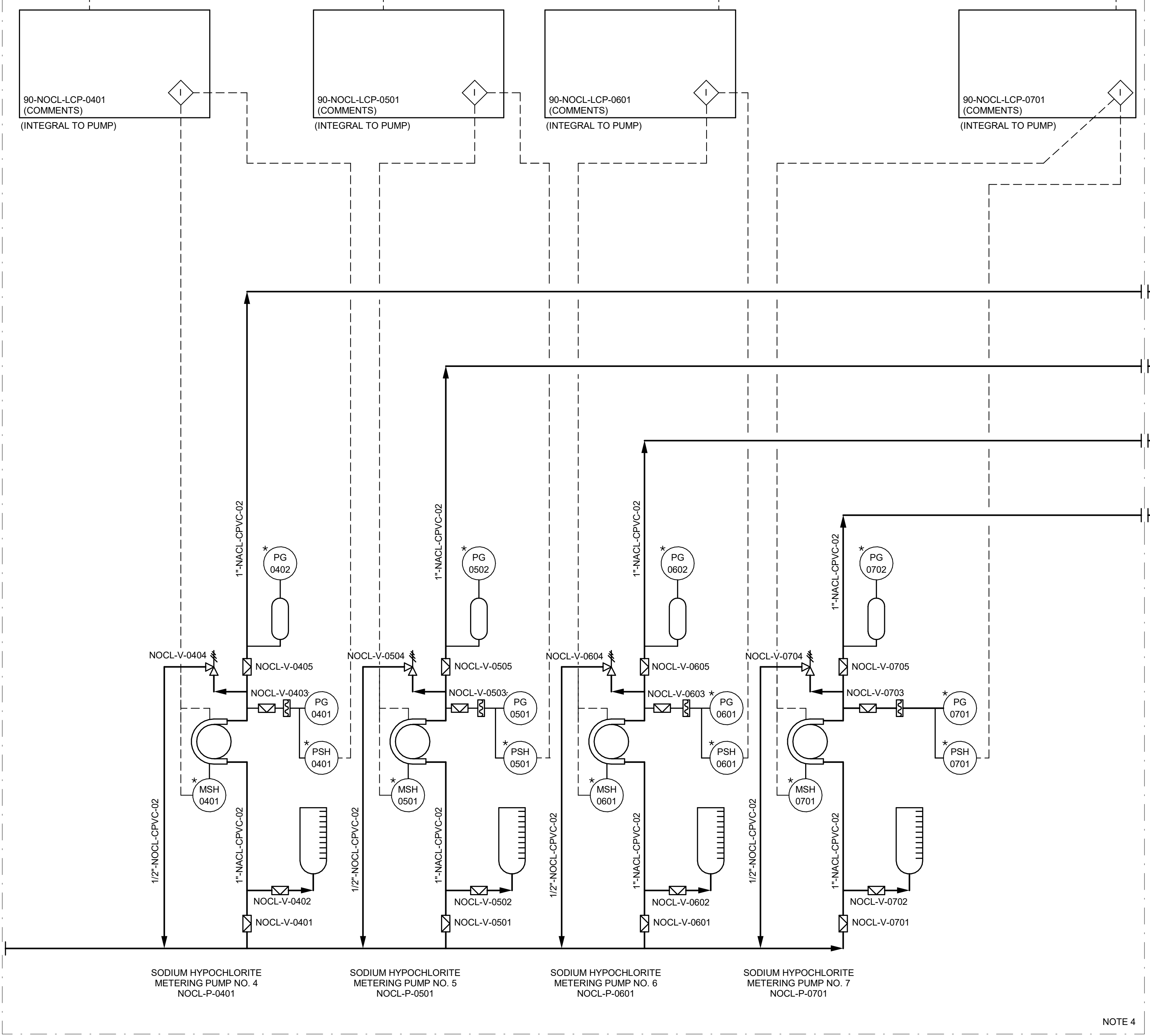
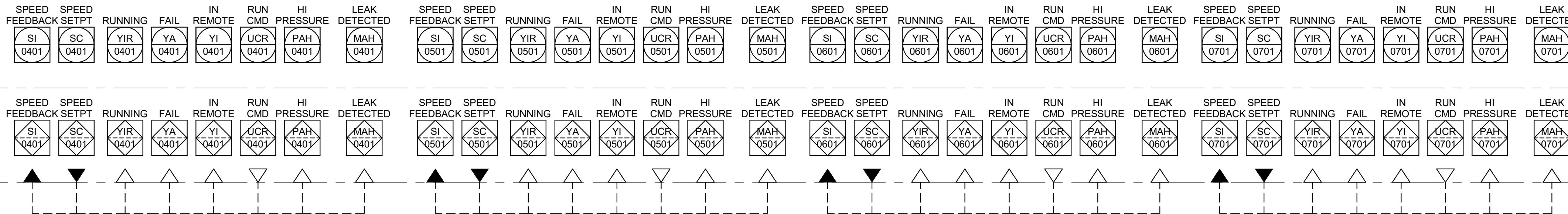
D400530

PCS HMI

90-CTRL-RIQ-001

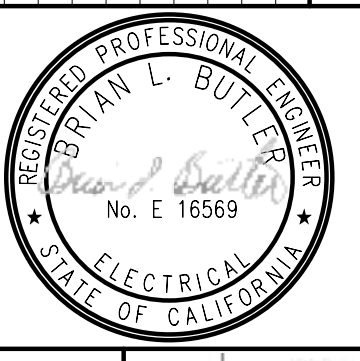
PCS HMI

90-CTRL-RIQ-001



NOTE 4

- NOTES:
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 90 UNLESS OTHERWISE NOTED. SYSTEM CODE IS NOCL UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.
 - DETAILS OF FEEDER / BLENDER SKID TO BE CONFIRMED WITH SELECTED VENDOR EQUIPMENT.
 - LEAK DETECTION PROVIDED IN THIS CHEMICAL PULL BOX. IO IS SHOWN ON P&ID 90-I-001.



BLACK & VEATCH
FILANC
 JOINT VENTURE

CITY OF MORRO BAY
MORRO BAY WATER RECLAMATION FACILITY (WRF)
 CHEMICALS - CHEMICAL FACILITY P&ID
 SODIUM HYPOCHLORITE STORAGE & FEED 2

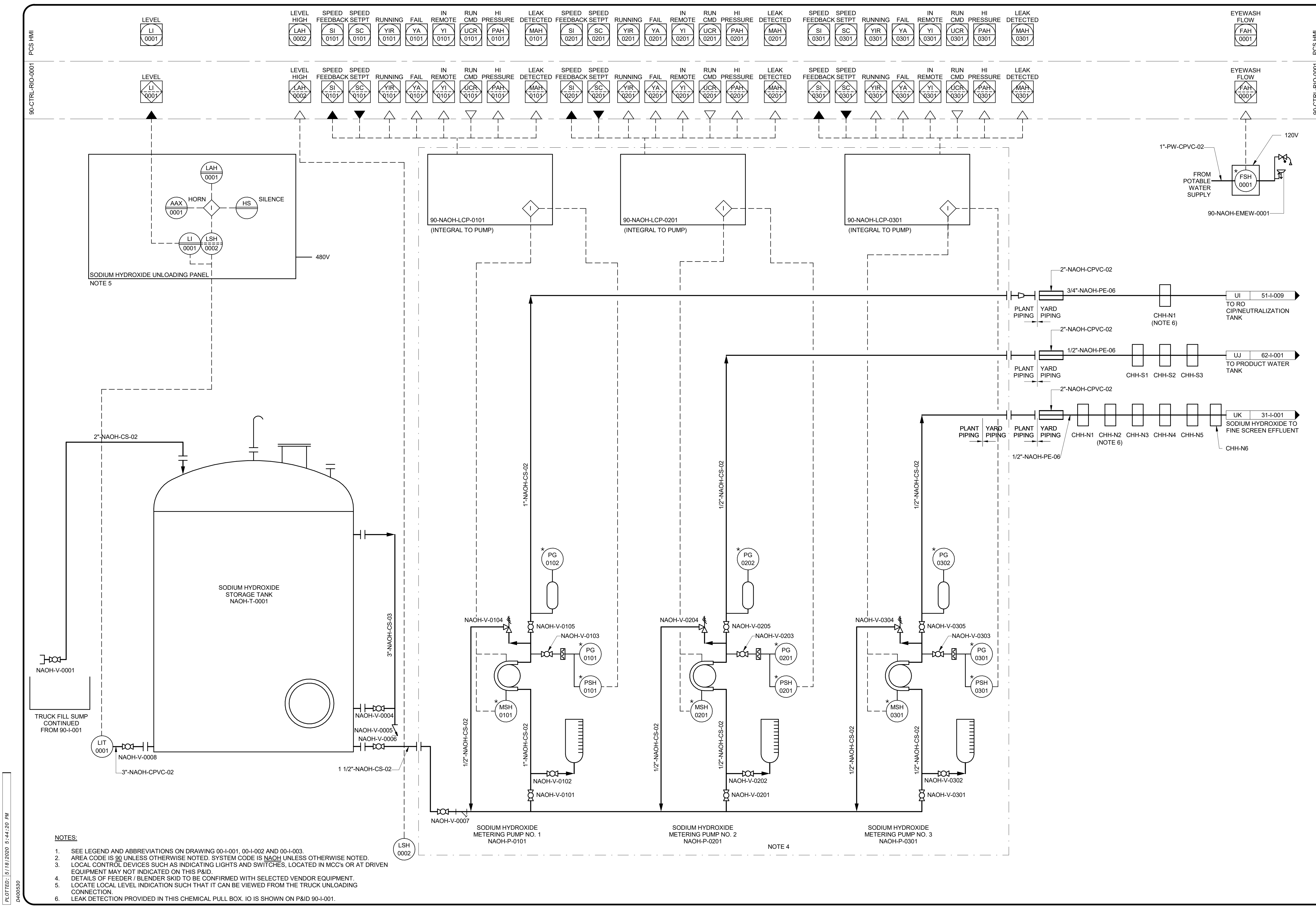
DESIGNED: BLB, DAV
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020

PROJECT NO. 400530

90-I-002
 SHEET 143 OF 412

PLOTTED: 5/18/2020 5:44:18 PM

0	BLB	JSB	BLB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISED AND RECORD OF USE			
DATE			



SODIUM HYDROXIDE UNLOADING PANEL
NOTE 5

SODIUM HYDROXIDE METERING PUMP NO. 1
NAOH-P-0101

SODIUM HYDROXIDE METERING PUMP NO. 2
NAOH-P-0201

SODIUM HYDROXIDE METERING PUMP NO. 3
NAOH-P-0301

NOTE 4

- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 90 UNLESS OTHERWISE NOTED. SYSTEM CODE IS NAOH UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.
 - DETAILS OF FEEDER / BLENDER SKID TO BE CONFIRMED WITH SELECTED VENDOR EQUIPMENT.
 - LOCATE LOCAL LEVEL INDICATION SUCH THAT IT CAN BE VIEWED FROM THE TRUCK UNLOADING CONNECTION.
 - LEAK DETECTION PROVIDED IN THIS CHEMICAL PULL BOX. IO IS SHOWN ON P&ID 90-I-001.

PCS HMI	PCS HMI
LEVEL LI 0001	EYEWASH FLOW FAH 0001
LEVEL HIGH LAH 0002	EYEWASH FLOW FAH 0001
SPEED FEEDBACK SI 0101	
SPEED SETPT SC 0101	
RUNNING YIR 0101	
FAIL YA 0101	
IN REMOTE YI 0101	
RUN CMD UCR 0101	
HI PRESSURE PAH 0101	
LEAK DETECTED MAH 0101	
SPEED FEEDBACK SI 0201	
SPEED SETPT SC 0201	
RUNNING YIR 0201	
FAIL YA 0201	
IN REMOTE YI 0201	
RUN CMD UCR 0201	
HI PRESSURE PAH 0201	
LEAK DETECTED MAH 0201	
SPEED FEEDBACK SI 0301	
SPEED SETPT SC 0301	
RUNNING YIR 0301	
FAIL YA 0301	
IN REMOTE YI 0301	
RUN CMD UCR 0301	
HI PRESSURE PAH 0301	
LEAK DETECTED MAH 0301	

0 BLB/JSB/BLB
NO. BY CHK APP
5/19/2020 ISSUED FOR CONSTRUCTION
DATE REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
BRYAN L. BUTLER
No. E 16569
ELECTRICAL
STATE OF CALIFORNIA

BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
CHEMICALS - CHEMICAL FACILITY
P&ID
SODIUM HYDROXIDE STORAGE & FEED

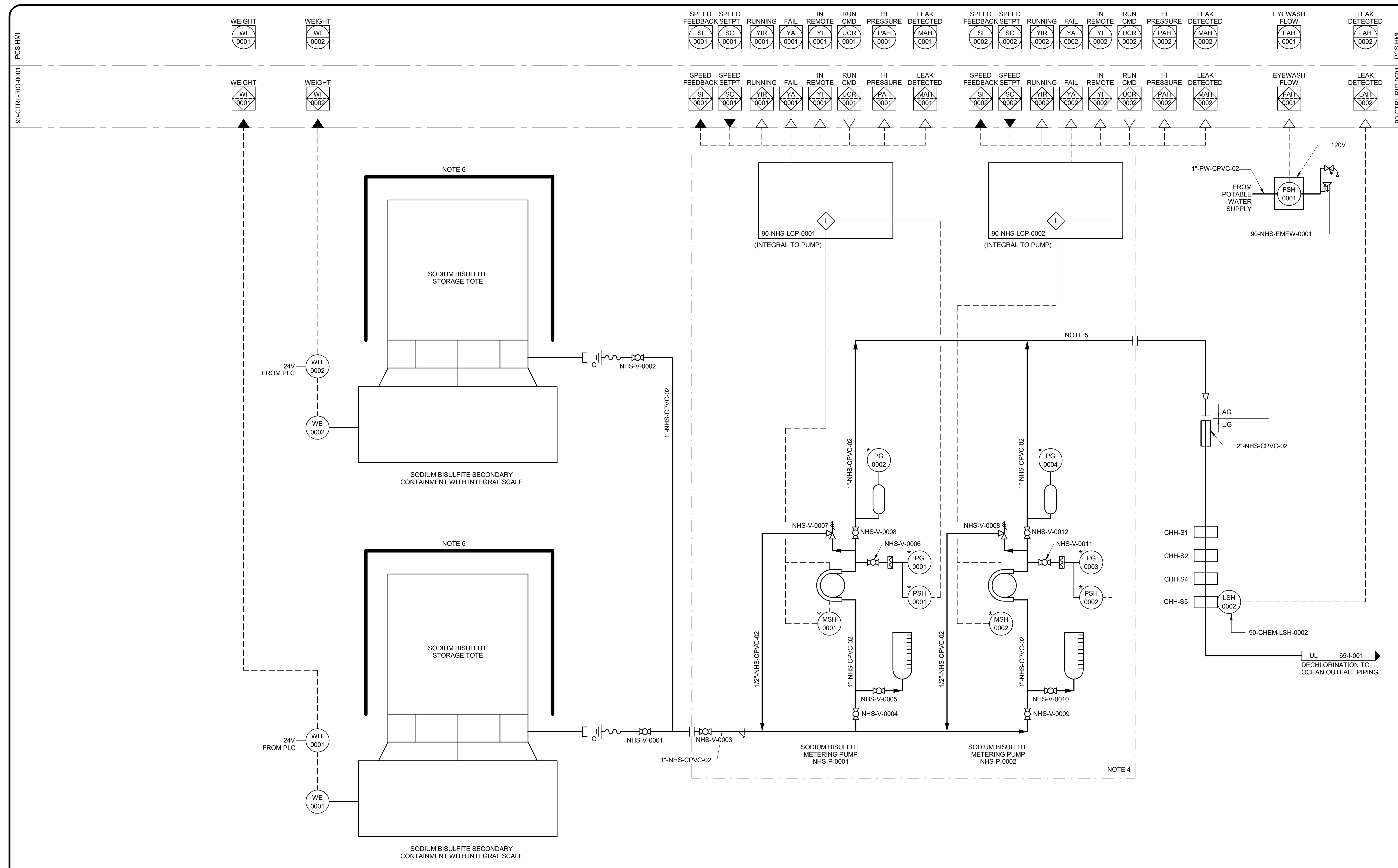
DESIGNED: BLB, DAV
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530
90-I-003
SHEET
144 OF 412

PLOT/DTED: 5/18/2020 5:44:20 PM
D:\06050

PLOTTED: 5/19/2020 5:44:21 PM



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 90 UNLESS OTHERWISE NOTED. SYSTEM CODE IS NHS UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - DETAILS OF FEEDER / BLENDER SKID TO BE CONFIRMED WITH SELECTED VENDOR EQUIPMENT.
 - ABOVE GRADE SODIUM BIFULFITE CPVC PIPING, VALVES AND APPUTERNANCES SHALL BE HEAT TRACED PER ELECTRICAL SPECIFICATIONS 260511 AND INSULATED PMF1 AS SPECIFIED IN 404211 MECHANICAL INSULATION.
 - TOTE HEAT BLANKET REQUIRED. ULINE MODEL H-8023 OR EQUAL

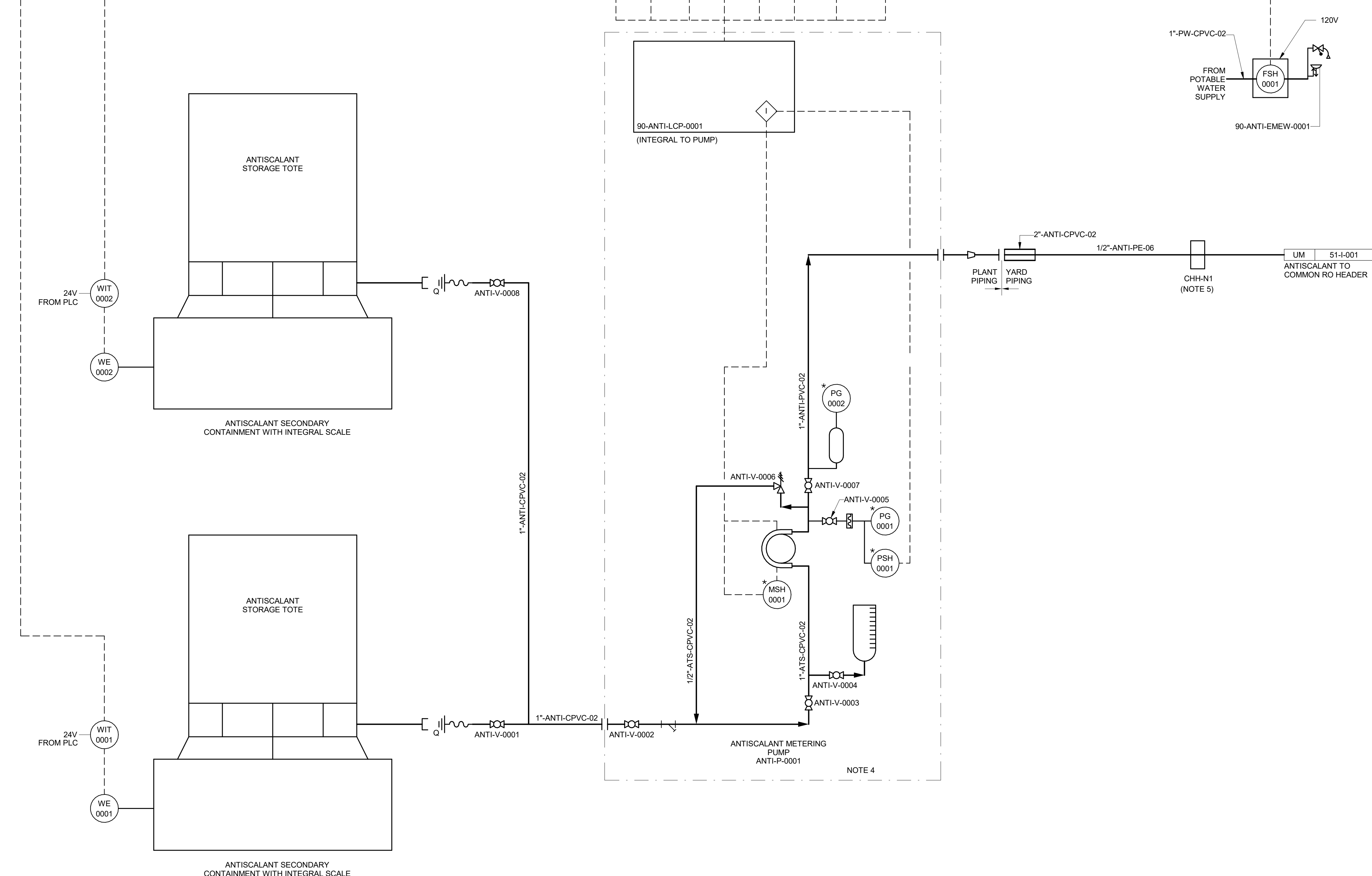
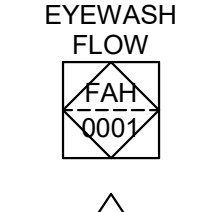
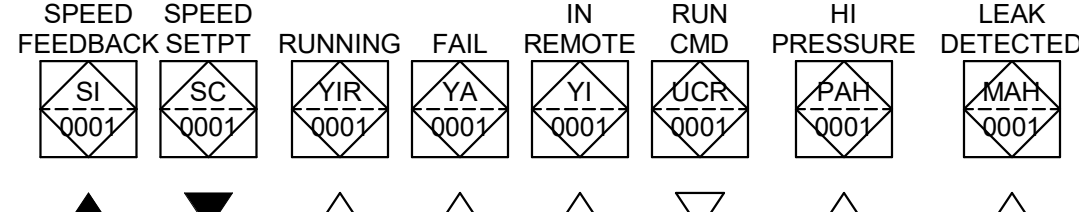
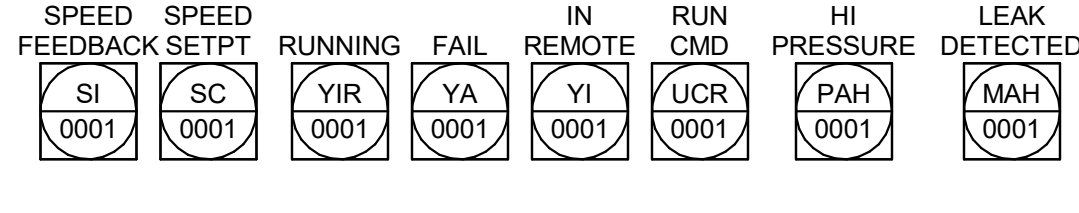
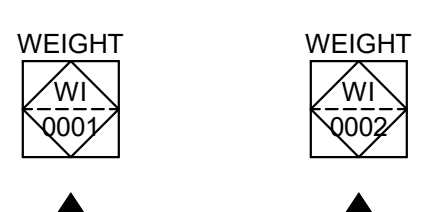
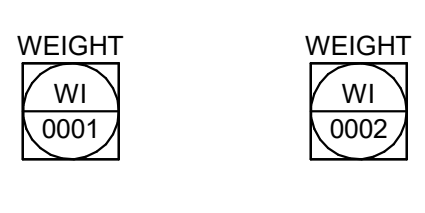
PCS HMI	PCS HMI	0	BLB	USM	BLB
90-CTRL-RIO-0001	90-CTRL-RIO-0001	NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION					
REVISONS AND RECORD OF USE					
DATE					
5/19/2020					
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) CHEMICALS - CHEMICAL FACILITY P&ID SODIUM BISULFITE STORAGE & FEED					
DESIGNED: BLB, DAV					
DETAILED: PVR					
CHECKED: JSM, BDS					
APPROVED: BLB					
DATE: 5/19/2020					
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE					
PROJECT NO. 400530					
SHEET 90-I-004					
145 OF 412					

90-CTRL-RIO-0001

PCS HMI

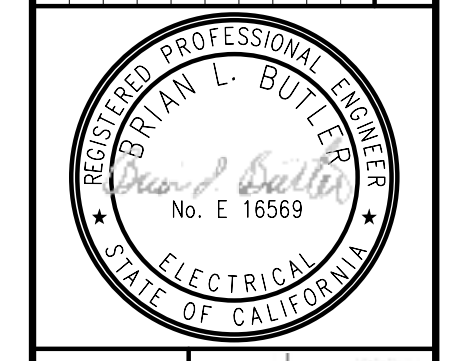
90-CTRL-RIO-0001

PCS HMI



- NOTES:
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 90 UNLESS OTHERWISE NOTED. SYSTEM CODE IS ANTI UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - DETAILS OF FEEDER / BLENDER SKID TO BE CONFIRMED WITH SELECTED VENDOR EQUIPMENT.
 - LEAK DETECTION PROVIDED IN THIS CHEMICAL PULL BOX. IO IS SHOWN ON P&ID 90-I-001

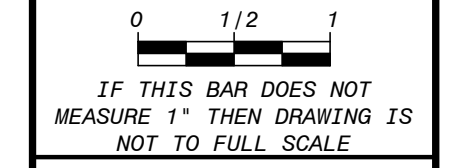
0	BLB	JSM	BLB
			NO.
			BY
			CHK APP
5/19/2020	ISSUED FOR CONSTRUCTION		REVISED AND RECORD OF USE
	DATE		



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
CHEMICALS - CHEMICAL FACILITY
P&ID
ANTISCALANT STORAGE & FEED

DESIGNED: BLB, DAV
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020

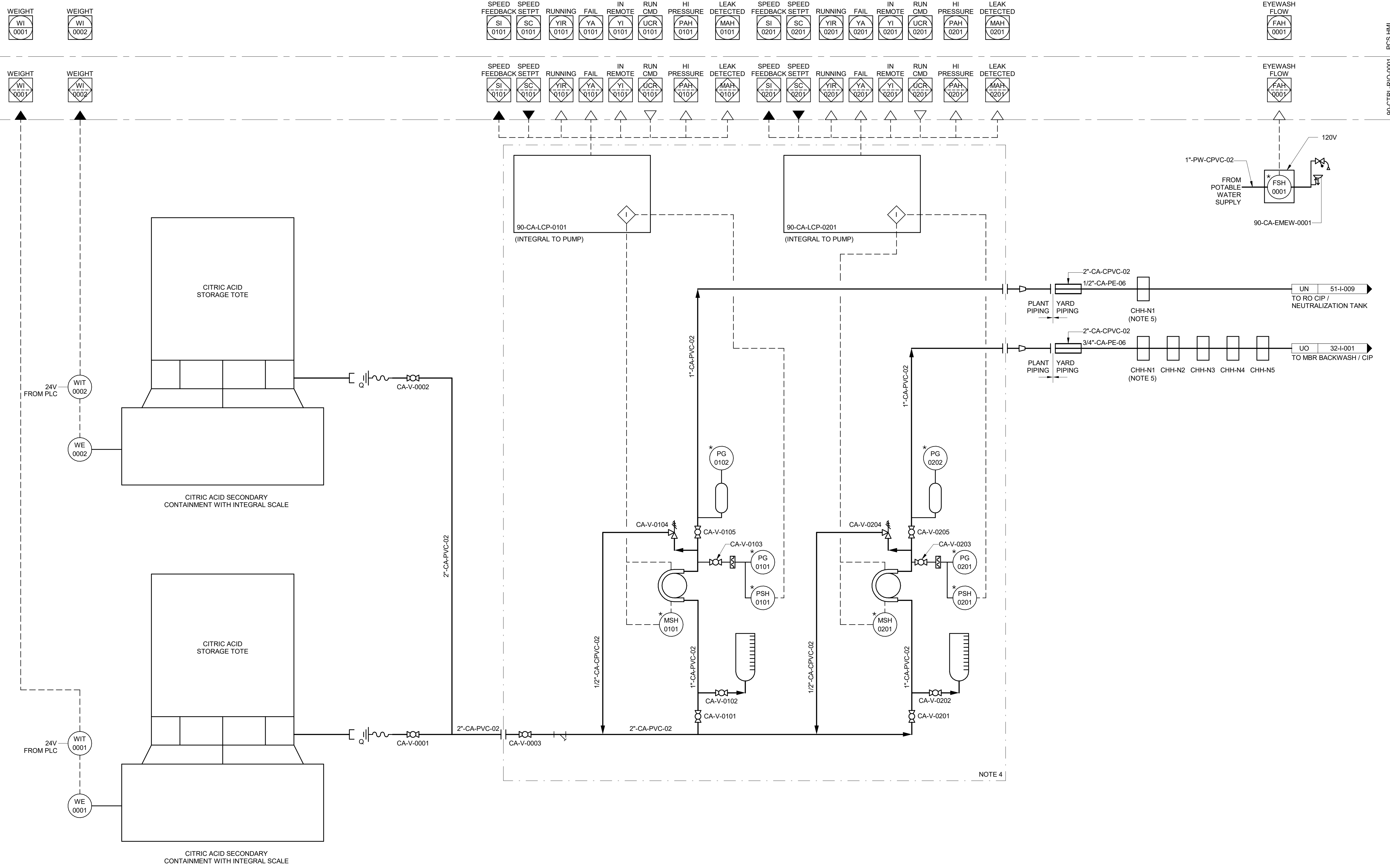


PROJECT NO.
400530
90-I-005
SHEET
146 OF 412

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DA06030

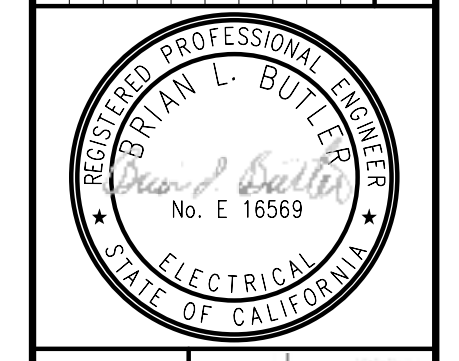
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DA00530



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 90 UNLESS OTHERWISE NOTED. SYSTEM CODE IS CA UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - DETAILS OF FEEDER / BLENDER SKID TO BE CONFIRMED WITH SELECTED VENDOR EQUIPMENT.
 - LEAK DETECTION PROVIDED IN THIS CHEMICAL PULL BOX. IO IS SHOWN ON P&ID 90-I-001.

SPEED FEEDBACK	SPEED SETPT	RUNNING	FAIL	IN REMOTE	RUN CMD	HI PRESSURE	LEAK DETECTED	SPEED FEEDBACK	SPEED SETPT	RUNNING	FAIL	IN REMOTE	RUN CMD	HI PRESSURE	LEAK DETECTED
SI 0101	SC 0101	YIR 0101	YA 0101	YI 0101	UCR 0101	PAH 0101	MAH 0101	SI 0201	SC 0201	YIR 0201	YA 0201	YI 0201	UCR 0201	PAH 0201	MAH 0201

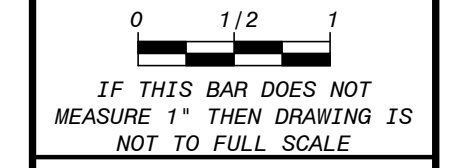
PCS HMI	WEIGHT WI 0001	WEIGHT WI 0002	WEIGHT WI 0001	WEIGHT WI 0002	PCS HMI
90-CTRL-RIC-0001	WEIGHT WI 0001	WEIGHT WI 0002	WEIGHT WI 0001	WEIGHT WI 0002	90-CTRL-RIC-0001



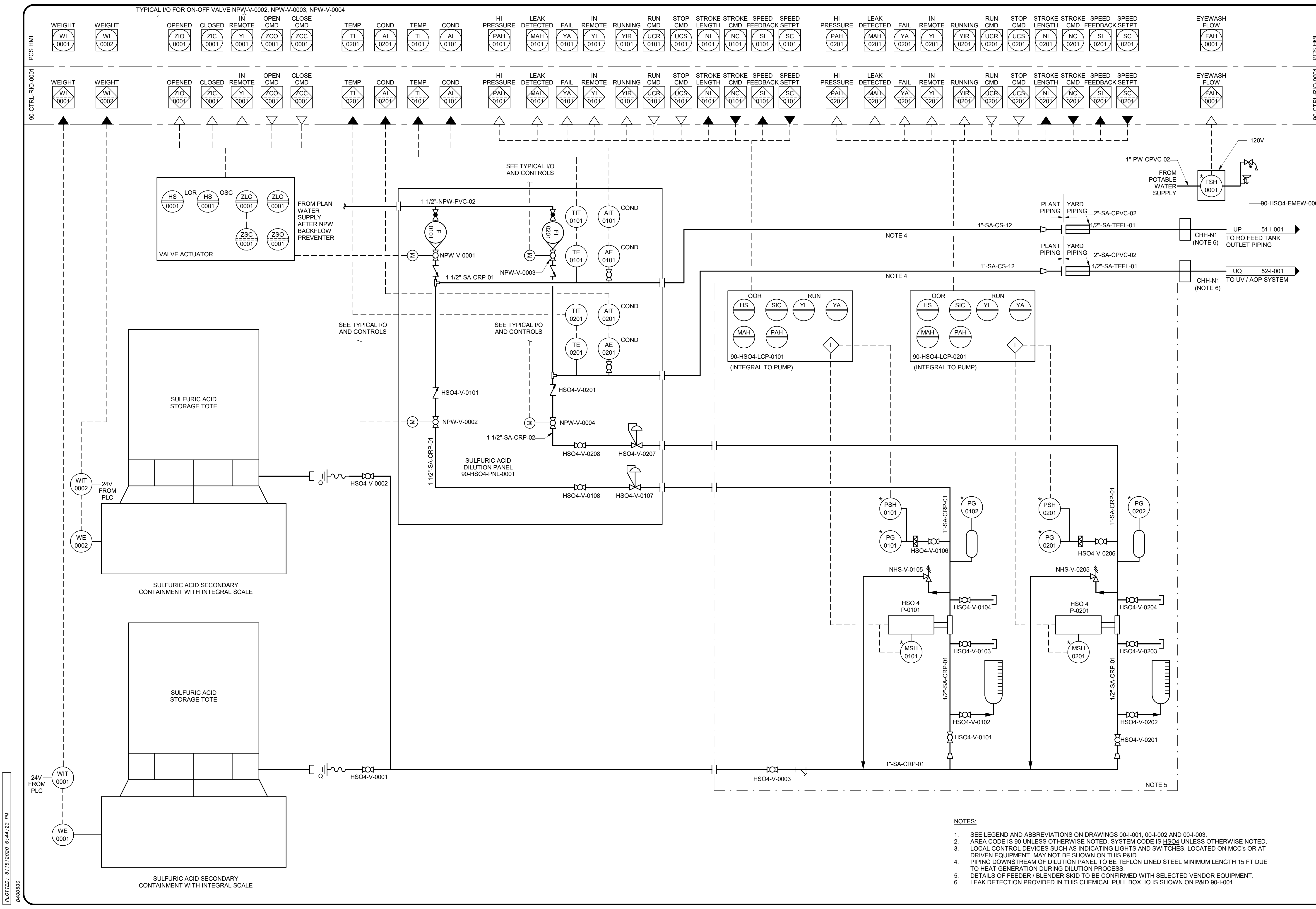
BLACK & VEATCH
JOINT VENTURE
FILANC

**CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)**
CHEMICALS - CHEMICAL FACILITY
P&ID
CITRIC ACID STORAGE & FEED

DESIGNED: BLB, DAV
DETAILED: PVR
CHECKED: JSM, BDS
APPROVED: BLB
DATE: 5/19/2020



PROJECT NO.
400530
90-I-006
SHEET
147 OF 412



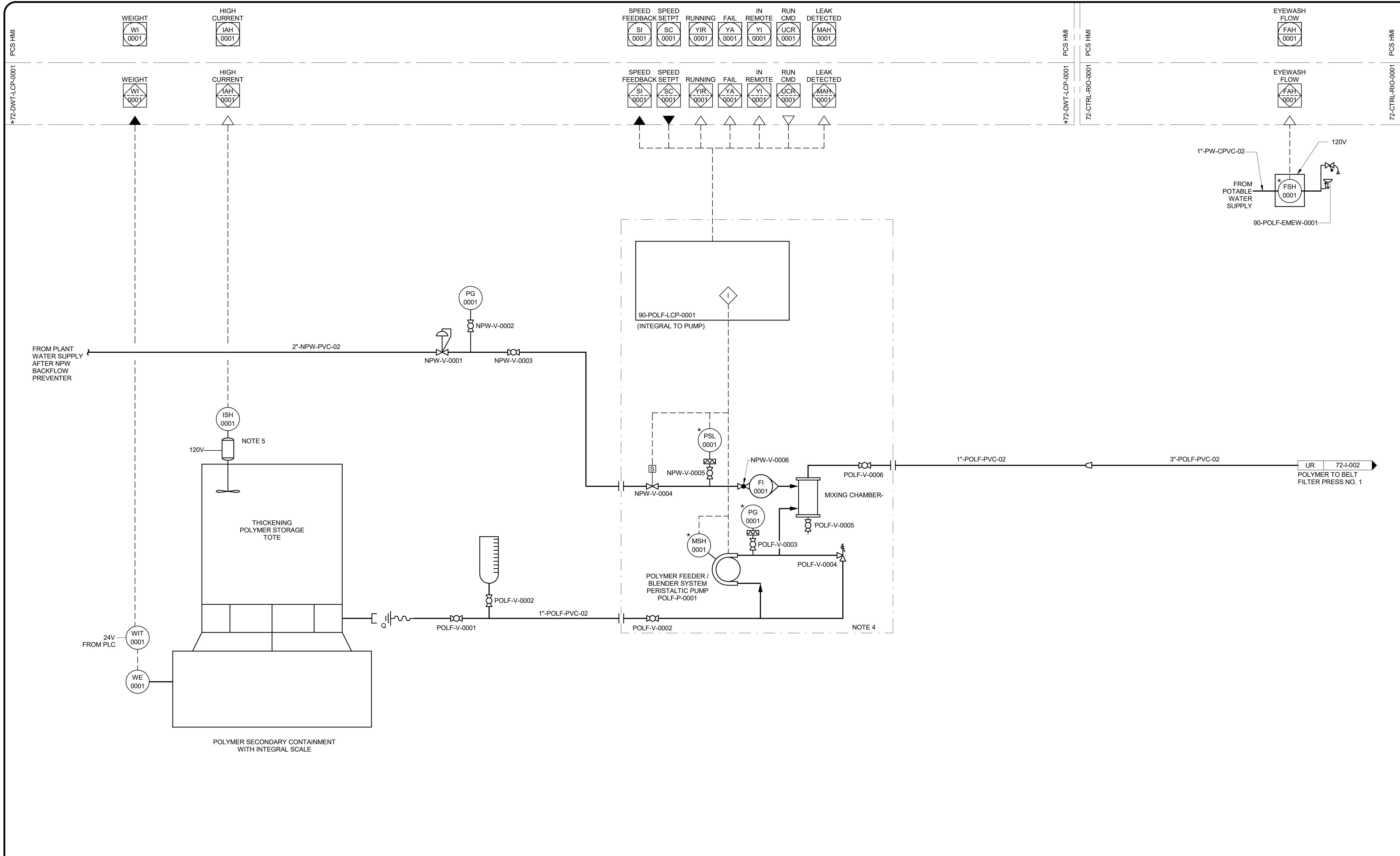
TYPICAL I/O FOR ON-OFF VALVE NPW-V-0002, NPW-V-0003, NPW-V-0004

WEIGHT WI 0001	WEIGHT WI 0002	OPENED ZIO 0001	CLOSED ZIC 0001	IN REMOTE YI 0001	OPEN CMD ZCO 0001	CLOSE CMD ZCC 0001	TEMP TI 0201	COND AI 0201	TEMP TI 0101	COND AI 0101	HI PRESSURE PAH 0101	LEAK DETECTED MAH 0101	FAIL YA 0101	IN REMOTE YI 0101	YIR 0101	YICR 0101	UCS 0101	NI 0101	NC 0101	SI 0101	SC 0101	HI PRESSURE PAH 0201	LEAK DETECTED MAH 0201	FAIL YA 0201	IN REMOTE YI 0201	YIR 0201	YICR 0201	UCS 0201	NI 0201	NC 0201	SI 0201	SC 0201	EYEWASH FLOW FAH 0001
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- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-1-001, 00-1-002 AND 00-1-003.
 - AREA CODE IS 90 UNLESS OTHERWISE NOTED. SYSTEM CODE IS HSO4 UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 - PIPING DOWNSTREAM OF DILUTION PANEL TO BE TEFLON LINED STEEL MINIMUM LENGTH 15 FT DUE TO HEAT GENERATION DURING DILUTION PROCESS.
 - DETAILS OF FEEDER / BLENDER SKID TO BE CONFIRMED WITH SELECTED VENDOR EQUIPMENT.
 - LEAK DETECTION PROVIDED IN THIS CHEMICAL PULL BOX. IO IS SHOWN ON P&ID 90-1-001.

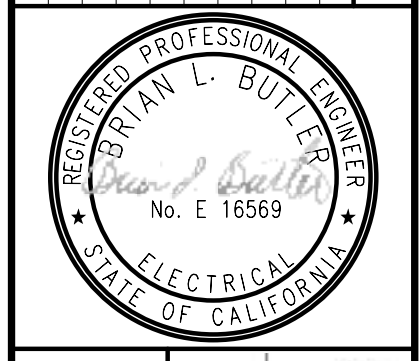
0	BLB	USJ	BLB
NO.	BY	CHK	APP
5/19/2020 ISSUED FOR CONSTRUCTION			
DATE			
REVISITONS AND RECORD OF USE			
BLACK & VEATCH JOINT VENTURE 		BLACK & VEATCH 	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF) CHEMICALS - CHEMICAL FACILITY P&ID SULFURIC ACID STORAGE & FEED			
DESIGNED: BLB, DAV			
DETAILED: PVR			
CHECKED: JSM, BDS			
APPROVED: BLB			
DATE: 5/19/2020			
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE			
PROJECT NO. 400530			
90-I-007 SHEET 148 OF 412			

PLOTTED: 5/18/2020 5:44:23 PM
 0400530



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 - AREA CODE IS 90 UNLESS OTHERWISE NOTED. SYSTEM CODE IS POLF UNLESS OTHERWISE NOTED.
 - LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED IN MCC'S OR AT DRIVEN EQUIPMENT MAY NOT INDICATED ON THIS P&ID.
 - DETAILS OF FEEDER / BLENDER SKID TO BE CONFIRMED WITH SELECTED VENDOR EQUIPMENT.
 - MIXER TO BE POWERED FROM LOCAL WALL RECEPTACLE, REFER TO POLYMER SYSTEM SPECIFICATION FOR ADDITIONAL INFORMATION.

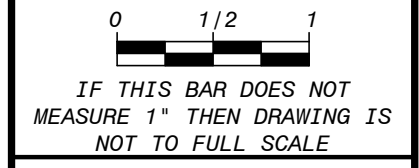
0	BLB	USJ	BLB
			NO.
			BY
			CHK APP
5/19/2020	ISSUED FOR CONSTRUCTION		
	REVISONS AND RECORD OF USE		
			DATE



BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
 CHEMICALS - DEWATERING AREA
 P&ID
 THICKENING POLYMER STORAGE & FEED

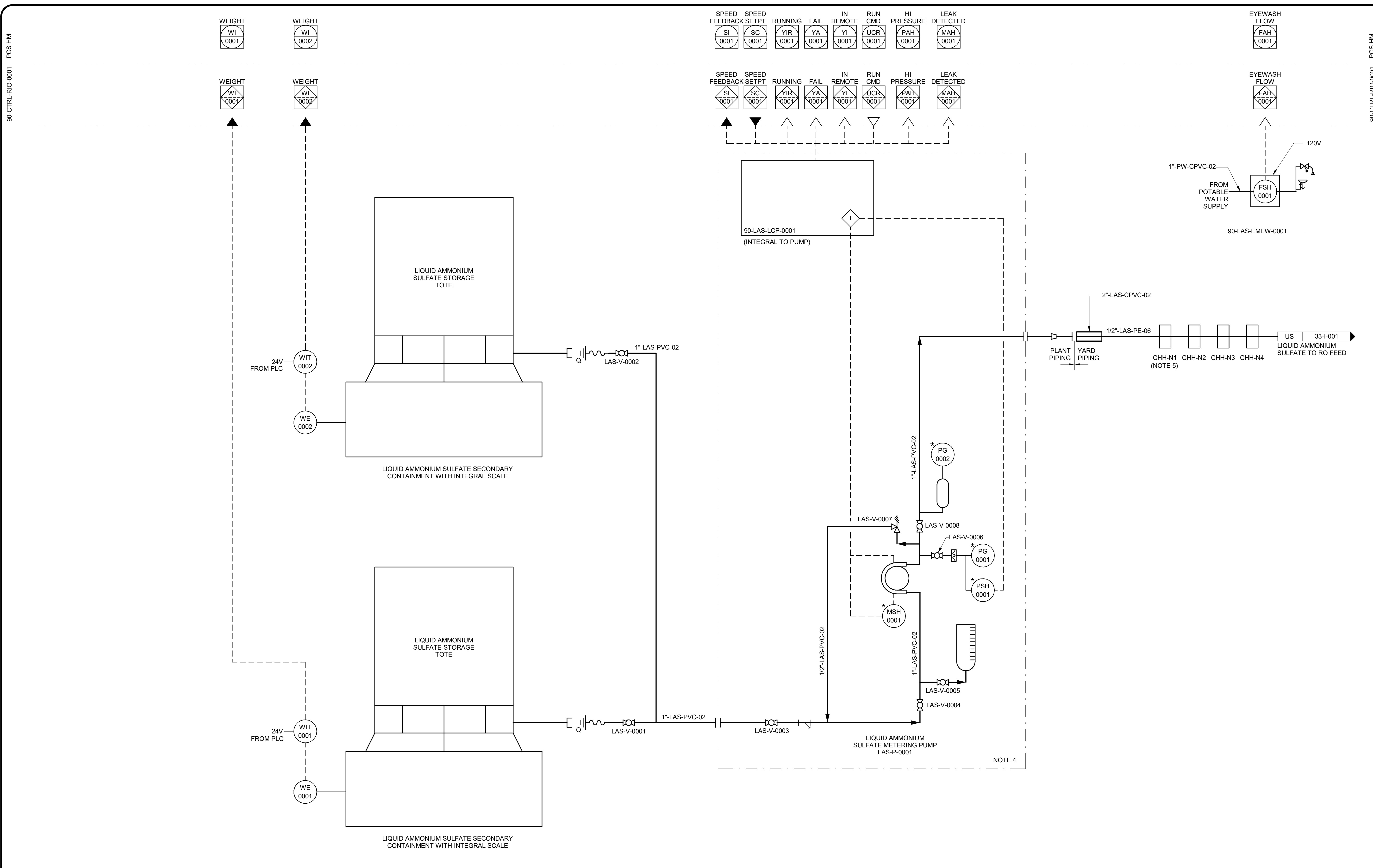
DESIGNED: BLB, DAV
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020



PROJECT NO.
400530
90-I-008
 SHEET
 149 OF 412

PLOTTED: 5/18/2020 5:44:24 PM
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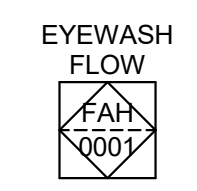
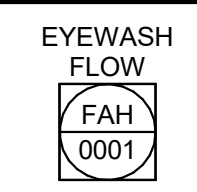
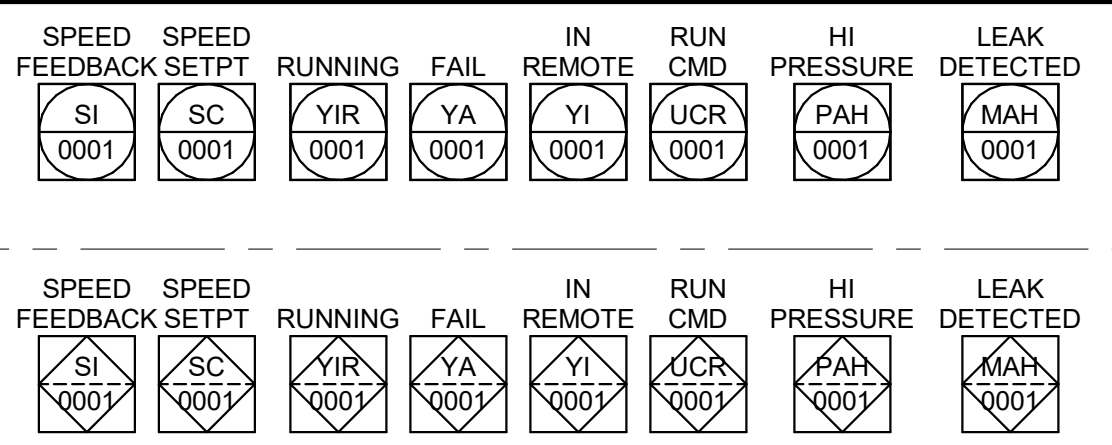
PLOTTED: 5/19/2020 2:38:38 PM
D:\0650



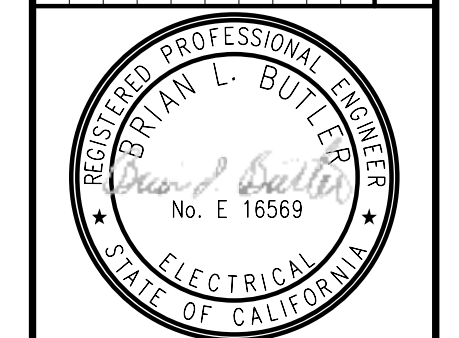
- NOTES:**
1. SEE LEGEND AND ABBREVIATIONS ON DRAWING 00-I-001, 00-I-002 AND 00-I-003.
 2. AREA CODE IS 90 UNLESS OTHERWISE NOTED. SYSTEM CODE IS LAS UNLESS OTHERWISE NOTED.
 3. LOCAL CONTROL DEVICES SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCC'S OR AT DRIVEN EQUIPMENT, MAY NOT BE SHOWN ON THIS P&ID.
 4. DETAILS OF FEEDER/BLENDER SKID TO BE CONFIRMED WITH SELECTED VENDOR EQUIPMENT.
 5. LEAK DETECTION PROVIDED IN THIS CHEMICAL PULL BOX. IO IS SHOWN ON P&ID 90-I-001.

90-CTRL-RIO-0001
PCS HMI

90-CTRL-RIO-0001
PCS HMI



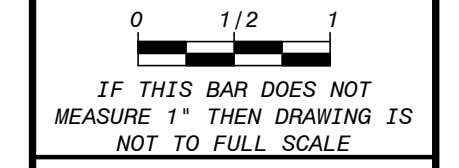
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			NO. BY CHK APP
5/19/2020	ISSUED FOR CONSTRUCTION		REVISONS AND RECORD OF USE
	DATE		



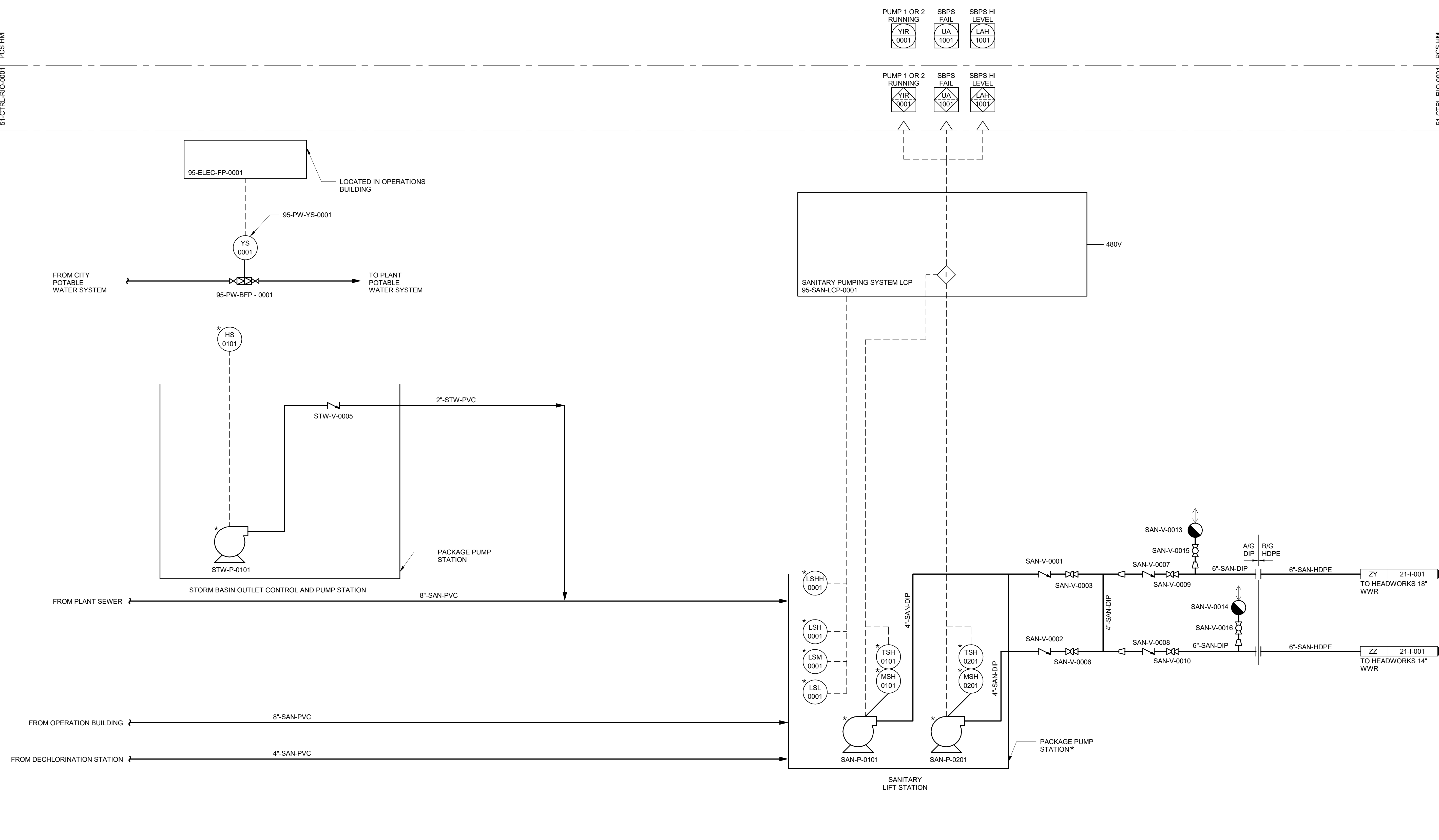
BLACK & VEATCH
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)
CHEMICALS - CHEMICAL FACILITY
P&ID
LIQUID AMMONIUM SULFATE

DESIGNED: BLB, DAV
 DETAILED: VSD
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020



PROJECT NO.
400530
90-I-009
SHEET
150 OF 412

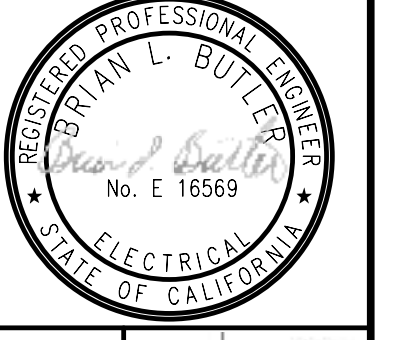


NOTES:

- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS 00-1-001, 00-1-002 AND 00-1-003.
- AREA CODE IS 95 UNLESS OTHERWISE NOTED. SYSTEM CODE IS SAN FOR SANITARY LIFT PUMP STATION AND STW FOR STORM BASIN OUTLET PUMP STATION.

* ITEM TO BE PROVIDED BY SANITARY LIFT STATION SYSTEM SUPPLIER.

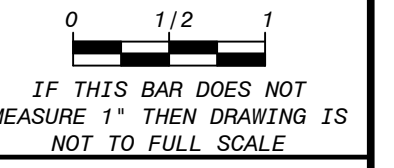
0	BLB	USM	BLB
NO.	BY	CHK	APP
ISSUED FOR CONSTRUCTION			
REVISONS AND RECORD OF USE			
5/19/2020	DATE		



BLACK & VEATCH
FILANC
 JOINT VENTURE

CITY OF MORRO BAY
FILANC BLACK & VEATCH DB PROPOSAL
RECLAMATION FACILITY (WRF)
 P&ID
 SANITARY PUMPING SYSTEM

DESIGNED: BLB, KEZ
 DETAILED: PVR
 CHECKED: JSM, BDS
 APPROVED: BLB
 DATE: 5/19/2020



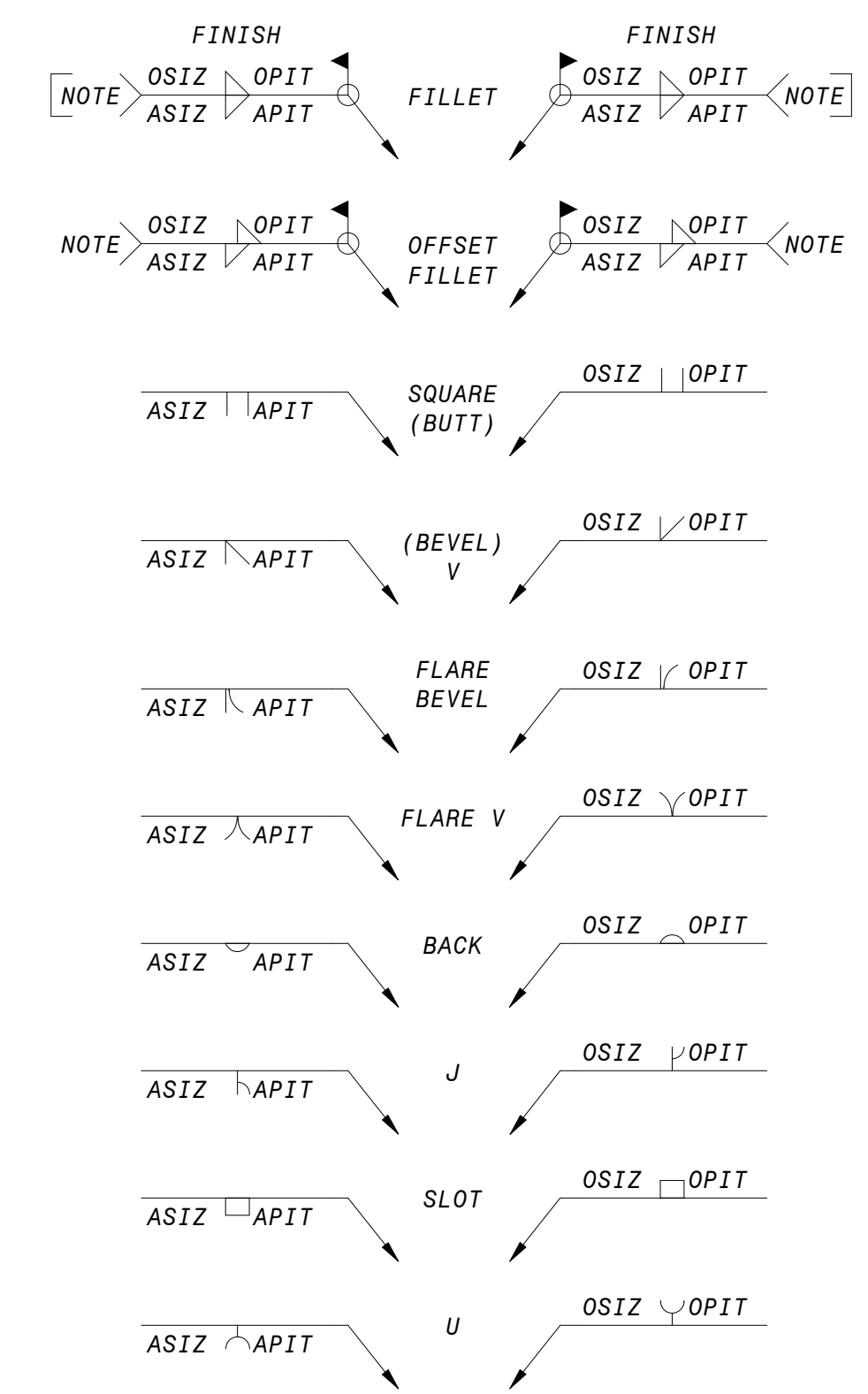
PROJECT NO.
400530
95-I-001
 SHEET
 151 OF 412

STRUCTURAL LEGENDS & ABBREVIATIONS

ABBREVIATIONS

A	ADDL ADDITIONAL	I	ID INSIDE DIAMETER
AFF ABOVE FINISH FLOOR	AHR ANCHOR	IF INSIDE FACE	IN INCHES
AHU AIR HANDLING UNIT	ALT ALTERNATE	INT INTERIOR, INTERNAL	INV INVERT
ALUM ALUMINUM	APPROX APPROXIMATE	J	JT JOINT
AROD ANCHOR ROD	ARCH ARCHITECTURAL	K	K KIPS (1000 LBS)
ASSY ASSEMBLY	AWG AMERICAN WIRE GAUGE	KSF KIPS PER SQUARE FOOT	KSI KIPS PER SQUARE INCH
B	BLDG BUILDING	L	LAB LABORATORY
BM BENCHMARK, BEAM	BO BOTTOM OF	LB POUND	LD DEVELOPMENT LENGTH
BOT BOTTOM	BRDG BRIDGING	LN LINES	LLBB LONG LEG BACK TO BACK
BRG BEARING	BWN BETWEEN	LLH LONG LEG HORIZONTAL	LLV LONG LEG VERTICAL
C	C CAMBER	LOC LOCATION	LONG LONGITUDINAL
CANTIL CANTILEVER	CHKD CHECKERED	LP LOW POINT	LSLT LONG SLOTTED HOLE TRANSVERSE
CHKDPL CHECKERED PLATE	CIP CAST-IN-PLACE	LSH LONG SIDE HORIZONTAL	LSHP LONG SLOTTED HOLE PARALLEL
CJ CONTRACTION JOINT	CJP COMPLETE JOINT PENETRATION	LSV LONG SIDE VERTICAL	LWC LIGHTWEIGHT CONCRETE
CL CENTERLINE	CLR CLEAR	M	M MOMENT
CMU CONCRETE MASONRY UNIT	COL COLUMN	MAS MASONRY	MAX MAXIMUM
CONC CONCRETE	CONN CONNECTION	MATL MATERIAL	MC MOMENT CONNECTION, MECHANICAL COUPLING
CONSTR CONSTRUCTION	CONT CONTINUOUS, CONTINUATION, CONTROL	MECH MECHANICAL	MEZZ MEZZANINE
COORD COORDINATE	COV COVER	MFR MANUFACTURE(R)	MIN MINIMUM
CRNR CORNER	CSJ CONSTRUCTION JOINT	MTL METAL	N
CTRS CENTERS	D	db BAR DIAMETER	DBA DEFORMED BAR ANCHOR
D	DET DETAIL	DN DOWN	DWA DEFORMED WIRE ANCHOR
DIA DIAMETER	DIM DIMENSION	DWG DRAWING	DWL DOWEL
EA EAST	EF EACH FACE	EJ EXPANSION JOINT	EL ELEVATION
EA EACH	EF EACH FACE	EJ EXPANSION JOINT	EL ELEVATION
EMBED EMBEDMENT	EMER EMERGENCY	ENGR ENGINEER	EOR ENGINEER OF RECORD
EQ EQUAL	EQUIP EQUIPMENT	EQUIV EQUIVALENT	EW EACH WAY
EQUIP EQUIPMENT	EQUIV EQUIVALENT	EW EACH WAY	EXIST EXISTING
EQUIV EQUIVALENT	EW EACH WAY	EXIST EXISTING	EXP EXPANSION
EW EACH WAY	EXIST EXISTING	EXP EXPANSION	EXT EXTERIOR
EXT EXTERIOR	F	FAB FABRICATE	f'c 28 DAY CONCRETE STRENGTH =
F	FD FLOOR DRAIN	FDN FOUNDATION	FIN FINISH(ED)
FAB FABRICATE	f'c 28 DAY CONCRETE STRENGTH =	FDN FOUNDATION	FIN FINISH(ED)
FD FLOOR DRAIN	FDN FOUNDATION	FIN FINISH(ED)	FLR FLOOR
FDN FOUNDATION	FIN FINISH(ED)	FLR FLOOR	FS FAR SIDE
FIN FINISH(ED)	FLR FLOOR	FS FAR SIDE	FT FOOT
FLR FLOOR	FS FAR SIDE	FT FOOT	FTG FOOTING
FS FAR SIDE	FT FOOT	FTG FOOTING	FUT FUTURE
FT FOOT	FTG FOOTING	FUT FUTURE	FV FIELD VERIFY
FTG FOOTING	FUT FUTURE	FV FIELD VERIFY	Fy STRUCTURAL STEEL YIELD STRENGTH =
FUT FUTURE	FV FIELD VERIFY	Fy STRUCTURAL STEEL YIELD STRENGTH =	fy REINFORCING STEEL YIELD STRENGTH =
FV FIELD VERIFY	Fy STRUCTURAL STEEL YIELD STRENGTH =	fy REINFORCING STEEL YIELD STRENGTH =	G
Fy STRUCTURAL STEEL YIELD STRENGTH =	fy REINFORCING STEEL YIELD STRENGTH =	G	GA GAUGE
fy REINFORCING STEEL YIELD STRENGTH =	G	GA GAUGE	GALV GALVANIZED
G	GEN GENERAL	GR GRADE	H
GA GAUGE	GALV GALVANIZED	GR GRADE	H HORIZONTAL REACTION
GALV GALVANIZED	GEN GENERAL	GR GRADE	HC HOLLOW CORE
GEN GENERAL	GR GRADE	R	R RADIUS
GR GRADE	R	R RADIUS	RCP REINFORCED CONCRETE PIPE
H	RD ROOD DRAIN	REF REFERENCE	REINF REINFORCEMENT
H HORIZONTAL REACTION	RD ROOD DRAIN	REF REFERENCE	REINF REINFORCEMENT
HC HOLLOW CORE	REF REFERENCE	REINF REINFORCEMENT	REQD REQUIRED
HEX HEXAGONAL	REQD REQUIRED	REV REVISION	RO ROUGH OPENING
HGR HANGER	REV REVISION	RO ROUGH OPENING	S
HORIZ HORIZONTAL	RO ROUGH OPENING	S	S SOUTH
HP HIGH POINT	S	S SOUTH	SC SLIP CRITICAL, SHEAR CONNECTOR
HSA HEADED STUD ANCHOR	SC SLIP CRITICAL, SHEAR CONNECTOR	SCHED SCHEDULE	SDS SELF DRILLING SCREW
HSS HOLLOW STRUCTURAL SECTION	SCHED SCHEDULE	SDS SELF DRILLING SCREW	SECT SECTION

WELD SYMBOL LEGEND



STRUCTURAL TAG LEGEND

W00x00	COLUMN TAG COLUMN TYPE
TYPE MARK	STRUCTURAL FOUNDATION (TYPE MARK)
X00x00	STRUCTURAL FRAMING FRAMING TYPE
00K00	STRUCTURAL FRAMING JOIST OR SLAB

DESIGN PARAMETERS

GENERAL PARAMETERS	
BUILDING CODE	2016 CBC *
ROOF LOADS	
DEAD LOADS (DL)	VARIES (12 PSF MIN)
LIVE LOADS (LL)	20 PSF
FLOOR LOADS	
OPERATING	
DEAD LOADS (DL)	VARIES
LIVE LOADS (LL)	150 PSF
NON-OPERATING	
DEAD LOADS (DL)	VARIES
LIVE LOADS (LL)	150 PSF
CONTROL ROOM FLOORS	
DEAD LOADS (DL)	VARIES
LIVE LOADS (LL)	250 PSF
MISCELLANEOUS	
LARGE EQUIPMENT AREAS	
DEAD LOADS (DL)	VARIES
ADDITIONAL LIVE LOADS (LL)	50 PSF
WALKWAYS, PLATFORMS, STAIRS	
DEAD LOADS (DL)	VARIES
LIVE LOADS (LL)	100 PSF
STORAGE - GENERAL	
DEAD LOADS (DL)	VARIES
LIVE LOADS (LL)	250 PSF
SOILS VALUES	(PER SOILS REPORT)
FOOTINGS	
BEARING PRESSURE- RECOMPACTED FILL (DL)	2000 PSF
BEARING PRESSURE- RECOMPACTED FILL (DL+LL)	3000 PSF
MAT FOUNDATIONS	
BEARING PRESSURE- RECOMPACTED FILL (DL+LL)	2000 PSF
BEARING PRESSURE- RECOMPACTED FILL (DL+LL+ISOLATED COLUMNS)	3000 PSF
LATERAL PASSIVE EFP	350 PCF
AT-REST EFP- (NATIVE SOIL/CRUSHED BEDROCK)	65 PCF
ACTIVE EFP- (NATIVE SOIL/CRUSHED BEDROCK)	50 PCF
FRICTION COEFFICIENT	0.40
WIND DESIGN BASIS	
ULTIMATE WIND SPEED, V_{ULT}	115 MPH
NOMINAL WIND SPEED, V_{ASD}	89 MPH
RISK CATEGORY	III
EXPOSURE	C
IMPORTANCE FACTOR, I_W	1.00
SEISMIC DESIGN BASIS	
SEISMIC DESIGN CATEGORY	D
SITE CLASS	C
SEISMIC FACTORS	
S_2/S_1	1.135 / 0.421
$S_{0.2}/S_{0.1}$	0.757 / 0.387
RISK CATEGORY	III
IMPORTANCE FACTOR, I_e	1.25

*THE 2016 CALIFORNIA BUILDING CODE (CBC), BASED ON THE 2015 INTERNATIONAL BUILDING CODE (IBC), IS THE GOVERNING CODE IN THE STATE OF CALIFORNIA.



ASHLEY & VANCE ENGINEERING, INC.

JOINT VENTURE

BLACK & VEATCH

FILANC

CITY OF MORRO BAY

FILANC BLACK & VEATCH DB PROPOSAL

WATER RECLAMATION FACILITY (WRF)

GENERAL STRUCTURAL LEGENDS & ABBREVIATIONS

DESIGNED: M. MARSH
DETAILED: S. BENJAMIN
CHECKED: I. SHOEBRIDGE
APPROVED: C. ASHLEY
DATE: 5/19/2020
PROJECT NO. 400530
SHEET 00-S-001
152 OF 412

STRUCTURAL GENERAL NOTES

GENERAL

- THE FOLLOWING NOTES, DETAILS, SCHEDULES & SPECIFICATIONS SHALL APPLY TO ALL PHASES OF THIS PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE. NOTES AND DETAILS ON THE STRUCTURAL PLANS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
- ALL DRAWINGS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENTS. THE DESIGN-BUILDER SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY APPLICABLE CODE REQUIREMENTS SHALL BE CORRECTED BY THE DESIGN-BUILDER AT NO EXPENSE TO THE OWNER OR ENGINEER OF RECORD.
- ALL INFORMATION ON EXISTING CONDITIONS SHOWN ON THE STRUCTURAL PLANS ARE BASED ON BEST PRESENT KNOWLEDGE AVAILABLE, BUT WITHOUT GUARANTEE OF ACCURACY. THE DESIGN-BUILDER SHALL BE RESPONSIBLE FOR THE VERIFICATIONS OF ALL DIMENSION AND CONDITIONS AT THE SITE. ANY DISCREPANCIES BETWEEN ACTUAL SITE CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS OR IN THE SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE EOR PRIOR TO THE START OF CONSTRUCTION.
- REFER TO THE ARCHITECTURAL PLANS FOR THE FOLLOWING:
 - SIZE AND LOCATION OF ALL BUILDING INTERIOR AND EXTERIOR WALL LOCATIONS.
 - SIZE AND LOCATION OF ALL BUILDING FLOOR, ROOF AND WALL OPENINGS
 - SPECIFICATION OF ALL BUILDING FINISHES & WATERPROOFING
 - ALL OTHER NON-STRUCTURAL ELEMENTS
- REFER TO THE MECHANICAL, ELECTRICAL AND PLUMBING PLANS FOR THE FOLLOWING:
 - SIZE AND LOCATION OF ALL EQUIPMENT
 - PIPE RUNS, SLEEVES, HANGERS AND TRENCHES
 - ALL OTHER MECHANICAL, ELECTRICAL OR PLUMBING RELATED ELEMENTS
- CONSTRUCTION MATERIALS SHALL BE UNIFORMLY SPREAD OUT IF PLACED ON FLOOR OR ROOF SO AS TO NOT OVERLOAD THE FRAMING. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. IT IS THE DESIGN-BUILDER'S RESPONSIBILITY TO PROVIDE ADEQUATE SHORING AND/OR BRACING AS REQUIRED.
- SPECIFICATIONS AND DETAILING OF ALL WATERPROOFING AND DRAINAGE ITEMS, WHILE SOMETIMES SHOWN ON THE STRUCTURAL PLANS FOR GENERAL INFORMATION PURPOSES ONLY, ARE SOLELY THE DESIGN RESPONSIBILITY OF OTHERS.
- THE ENGINEER OF RECORD WILL NOT BE RESPONSIBLE FOR AND WILL NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION DELINEATED BY THESE PLANS. IT SHOULD BE UNDERSTOOD THAT THE DESIGN-BUILDER OR HIS/HER AGENT(S) SHALL SUPERVISE AND DIRECT ALL WORK AND SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. PERIODIC OBSERVATIONS BY THE ENGINEER OF RECORD, HIS STAFF OR REPRESENTATIVES ARE NOT INTENDED TO INCLUDE VERIFICATION OF DIMENSIONS OR REVIEW THE ADEQUACY OF THE DESIGN-BUILDER'S SAFETY MEASURES ON OR NEAR THE CONSTRUCTION SITE.
- MODIFICATIONS OF THE PLANS, NOTES, DETAILS AND SPECIFICATIONS SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL FROM THE ENGINEER OF RECORD.
- ALL WORKMANSHIP SHALL CONFORM TO THE BEST PRACTICE PREVAILING IN THE VARIOUS TRADES PERFORMING THE WORK. THE DESIGN-BUILDER SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES.
- IT IS THE DESIGN-BUILDER'S RESPONSIBILITY TO ENSURE THAT ONLY APPROVED STRUCTURAL PLANS ARE USED DURING THE COURSE OF CONSTRUCTION. THE USE OF UNAPPROVED DOCUMENTS SHALL BE AT THE DESIGN-BUILDER'S OWN RISK. CORRECTIONS OF ALL WORK BASED ON SUCH DOCUMENTS SHALL BE PERFORMED AT THE DESIGN-BUILDER'S EXPENSE.
- THESE PLANS AND SPECIFICATIONS REPRESENT THE STRUCTURAL DESIGN ONLY. NO INFORMATION NOR WARRANTY IS PROVIDED FOR THE WORK OF ANY OTHER CONSULTANT (ARCHITECT, MECHANICAL, ELECTRICAL, ETC.). THIS INCLUDES, BUT IS NOT LIMITED TO, WATERPROOFING, DRAINAGE, VENTILATION, ACCESSIBILITY.

FOUNDATIONS

- REFER TO STRUCTURAL DESIGN PARAMETERS SECTION ON SHEET 00-S-001 FOR ALL SOIL DESIGN VALUES USED IN CALCULATIONS.
- SOILS VALUES PER GEOLOGIC/GEO TECHNICAL REPORT (OR "SOILS REPORT") BY EARTH SYSTEMS PACIFIC, FILE NO. 301964-002, DATED JULY 1, 2019. THIS REPORT AND ALL RECOMMENDATIONS CONTAINED THEREIN ARE TO BE CONSIDERED A PART OF THESE PLANS.
- IT IS THE DESIGN-BUILDER'S RESPONSIBILITY TO OBTAIN A COPY OF THE SOILS REPORT FROM THE OWNER. A COPY OF THE SOILS REPORT SHALL BE ON THE JOB SITE DURING THE COURSE OF CONSTRUCTION.
- UNEXPECTED SOIL CONDITIONS: ALLOWABLE VALUES AND SUBSEQUENT FOUNDATION DESIGNS ARE BASED ON SOIL CONDITIONS WHICH ARE SHOWN BY TEST BORINGS. ACTUAL SOIL CONDITIONS WHICH DEVIATE APPRECIABLY FROM THAT SHOWN IN THE TEST BORINGS SHALL BE REPORTED TO THE ENGINEER OF RECORD IMMEDIATELY.
- ALL COMPACTION, FILL, BACKFILLING AND SITE PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SOILS REPORT OR THE GOVERNING BUILDING CODE CHAPTER 18 & APPENDIX J. ALL SUCH WORK SHALL BE PERFORMED PER THE RECOMMENDATIONS OF THE PROJECT SOILS ENGINEER OF RECORD.
- EXCAVATE TO REQUIRED DEPTHS AND DIMENSIONS (AS INDICATED IN THE DRAWINGS), CUT SQUARE AND SMOOTH WITH FIRM LEVEL BOTTOMS. CARE SHALL BE TAKEN NOT TO OVER-EXCAVATE FOUNDATION AT LOWER ELEVATION AND PREVENT DISTURBANCE OF SOILS AROUND HIGH ELEVATION.
- FOUNDATIONS SHALL BE POURED IN NEAT EXCAVATIONS.
- EXCAVATE ALL FOUNDATIONS TO REQUIRED DEPTHS INTO COMPACTED FILL OR NATURAL SOIL (AS PER PLANS AND DETAILS) AND AS VERIFIED BY THE BUILDING OFFICIAL AND/OR SOILS ENGINEER OF RECORD.
- ALL FOUNDATIONS SHALL BE INSPECTED AND APPROVED BY THE APPROPRIATE INSPECTOR AND/OR A REPRESENTATIVE OF THE SOILS ENGINEER OF RECORD PRIOR TO FORMING AND PLACEMENT OF REINFORCING OR CONCRETE.
- FOUNDATIONS SHALL NOT BE POURED UNTIL ALL REQUIRED REINFORCING STEEL, FRAMING HARDWARE, SLEEVES, INSERTS, CONDUITS, PIPES, ETC. AND FORMWORK IS PROPERLY PLACED AND INSPECTED BY THE APPROPRIATE INSPECTOR(S).
- IT IS THE RESPONSIBILITY OF THE DESIGN-BUILDER IN CHARGE OF FRAMING TO PROPERLY POSITION ALL HOLDOWN BOLTS, ANCHOR BOLTS, COLUMN BASES, AND ALL OTHER CAST-IN-PLACE HARDWARE. REFER TO TYPICAL DETAILS. ALL HARDWARE TO BE SECURED PRIOR TO FOUNDATION INSPECTIONS.
- THE SIDES AND BOTTOMS OF DRY EXCAVATIONS MUST BE MOISTENED JUST PRIOR TO PLACING CONCRETE. CONVERSELY, DE-WATER FOOTINGS AS REQUIRED TO REMOVE STANDING WATER AND TO MAINTAIN OPTIMUM WORKING CONDITIONS.
- THE DESIGN-BUILDER SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, AND THE PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL SAFETY ORDINANCES. THE DESIGN-BUILDER SHALL PROVIDE FOR THE DESIGN AND INSTALLATION OF ALL CRIBBING, BRACING AND SHORING REQUIRED.

ISSUED FOR CONSTRUCTION	0	NO.	BY	CHK	APP
REVISIONS AND RECORD OF USE					
DATE	5/19/2020				

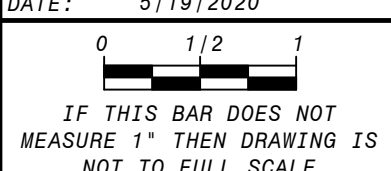


JOINT VENTURE

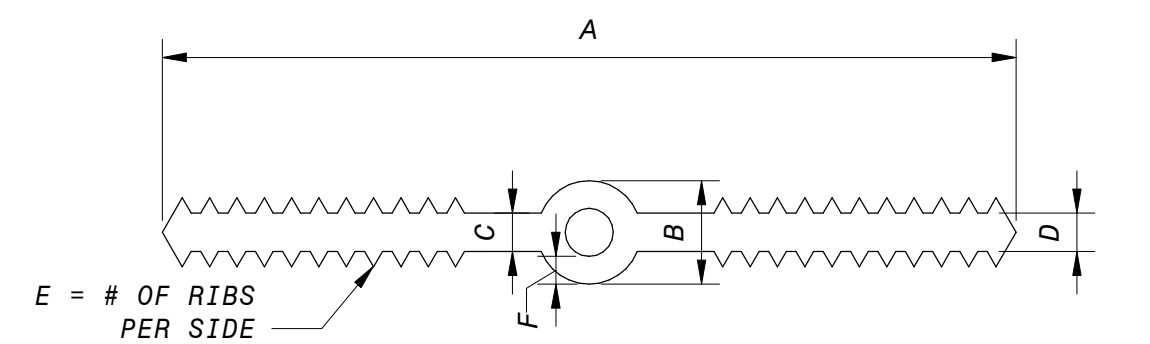
CITY OF MORRO BAY
 FILANC BLACK & VEATCH DB PROPOSAL
 WATER RECLAMATION FACILITY (WRF)

GENERAL
 STRUCTURAL
 GENERAL NOTES

DESIGNED: M. MARSH
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020



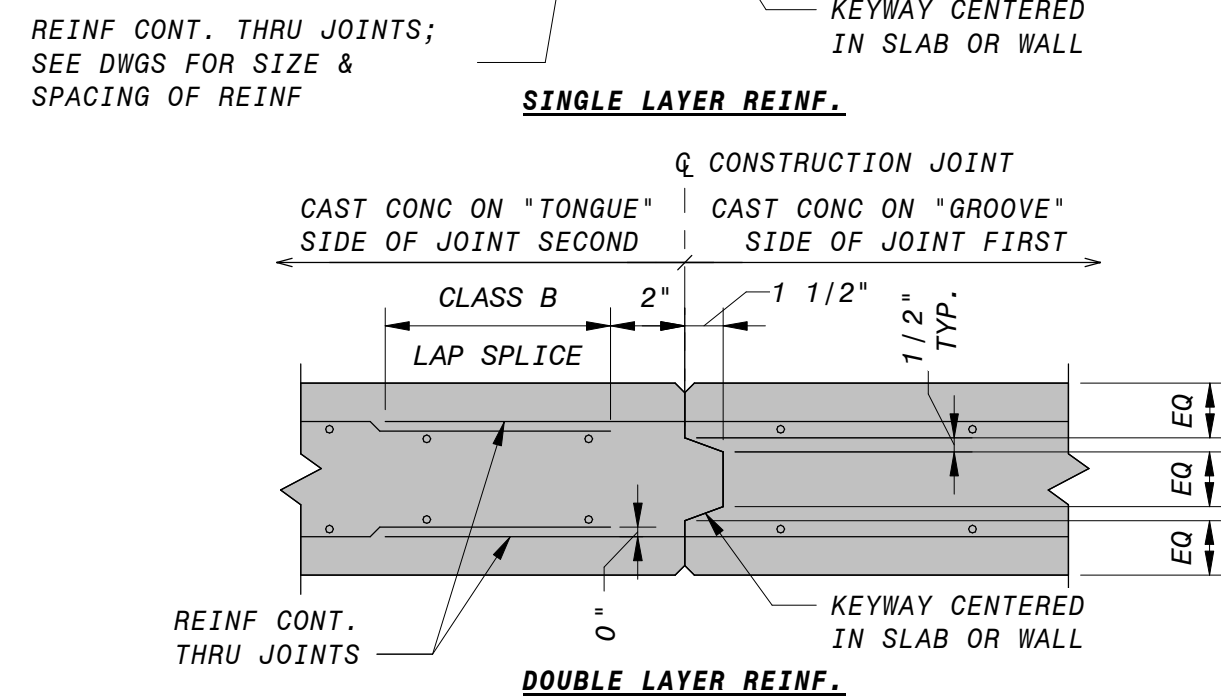
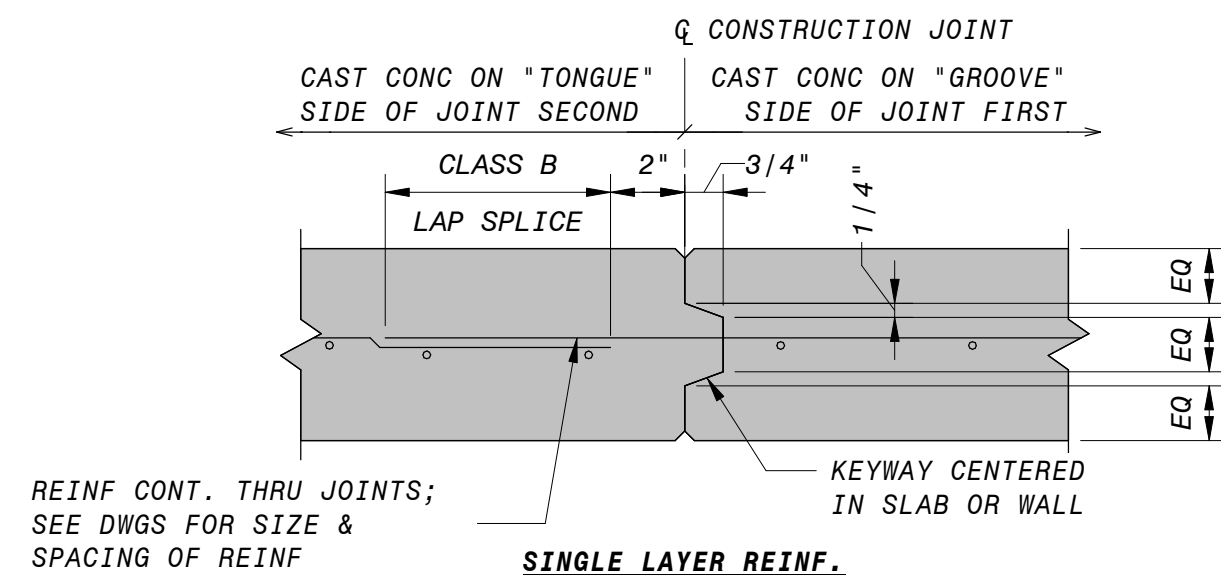
PROJECT NO.
 400530
00-S-002
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TYPE	A	B	C	D	E	F	APPLICATION
W/O CENTERBULB	6"	-	3/8"	3/8"	7	-	SEE NOTES 2 & 6
W/O CENTERBULB	9"	-	3/8"	3/8"	10	-	SEE NOTES 2 & 7
CENTERBULB	6"	7/8"	3/8"	3/8"	8	9/16"	SEE NOTES 4 & 6
CENTERBULB	9"	1"	3/8"	3/8"	8	1/4"	SEE NOTE 4
CENTERBULB	9"	1 1/2"	3/8"	1/4"	8	5/16"	SEE NOTE 5

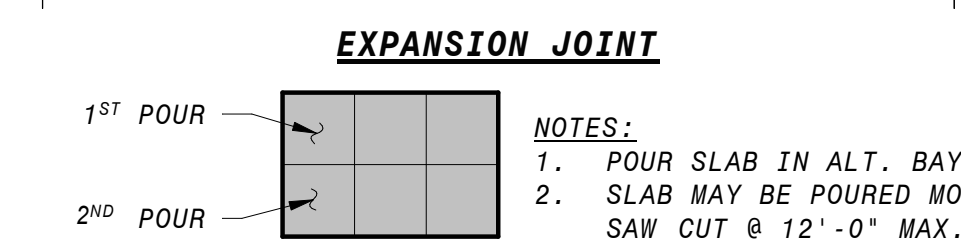
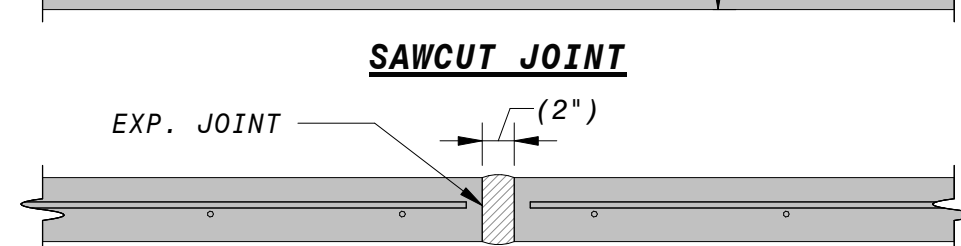
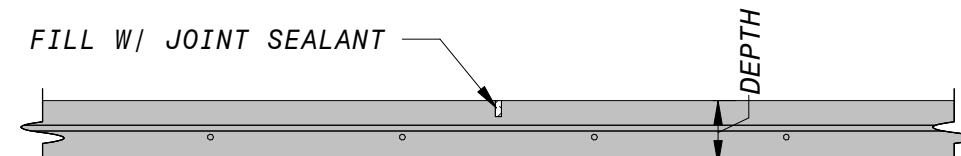
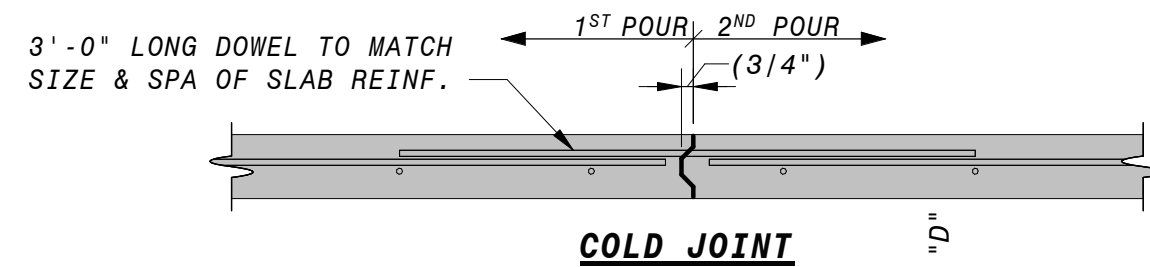
- NOTES:
- SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS. NON-METALLIC WATERSTOPS ARE REQUIRED FOR CONCRETE JOINTS SUBJECTED TO CHLORINATED WATER, SEAWATER, AND WATERBORNE CHEMICALS.
 - FOR CONSTRUCTION JOINTS.
 - SEE SPlice DETAIL (100-S-101).
 - FOR EXPANSION/CONTROL JOINTS 1" AND NARROWER.
 - FOR EXPANSION/CONTROL JOINTS WIDER THAN 1".
 - USE 6 INCH WATERSTOPS IN ALL JOINTS IN CONCRETE SECTIONS LESS THAN 12" IN THICKNESS UNLESS SPECIFICALLY SHOWN OTHERWISE.
 - USE 9 INCH WATERSTOPS IN ALL JOINTS IN CONCRETE SECTIONS GREATER THAN OR EQUAL TO 12" IN THICKNESS UNLESS SPECIFICALLY SHOWN OTHERWISE.
 - PVC WATERSTOP MUST MEET OR EXCEED THE PERFORMANCE REQUIRED IN SPECIFICATIONS, INCLUDING THE U.S. ARMY CORPS OF ENGINEERS CRD-C-572-74.
 - WATERSTOPS ARE TO BE PROPERLY POSITIONED PRIOR TO CONCRETE PLACEMENT AND MUST BE SECURELY POSITIONED IN THE FORMS BY TYING OFF THE OUTER EDGE OF THE WATERSTOP TO ADJACENT REINFORCING STEEL.

8 RIBBED PVC WATERSTOP SCHEDULE
NO SCALE



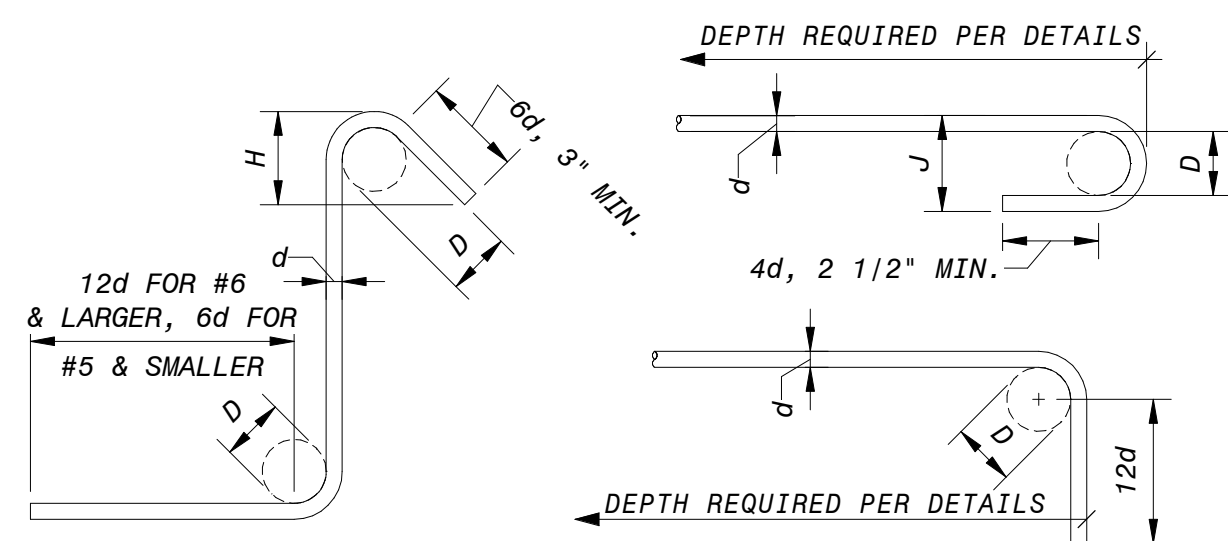
- NOTES:
- COORDINATE LOCATIONS WITH EOR PRIOR TO PLACEMENT.
 - SANDBLAST OR WATER BLAST JOINT AND REINFORCEMENT PRIOR TO PLACING CONCRETE FOR NEXT SLAB OR WALL.
 - FOR WALLS, FORM ALL JOINTS WITH 1/4" CHAMFER.
 - FOR SLABS, EDGE TOP OF EXPOSED SLAB JOINT EDGES TO 1/4" RADIUS.

7 CONSTRUCTION JOINT AT WALL OR SLAB (NON-WATER BEARING ONLY)
NO SCALE



- NOTES:
- POUR SLAB IN ALT. BAYS, 12'-0" SQ. MAX.
 - SLAB MAY BE POURED MONOLITHICALLY IF SAW CUT @ 12'-0" MAX. EA. WAY
 - EXP. JOINTS PER PLAN.
 - DETAIL APPLIES TO NON-STRUCTURAL SLABS ONLY.

4 TYPICAL CONCRETE SLAB JOINTS
NO SCALE

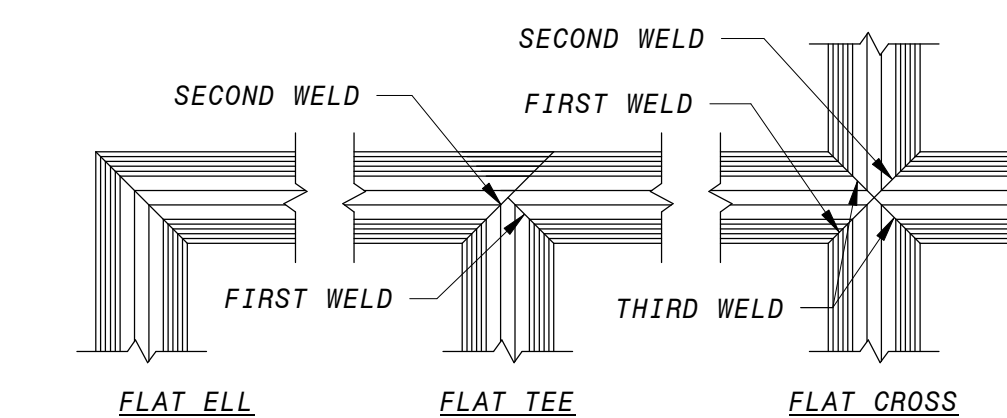
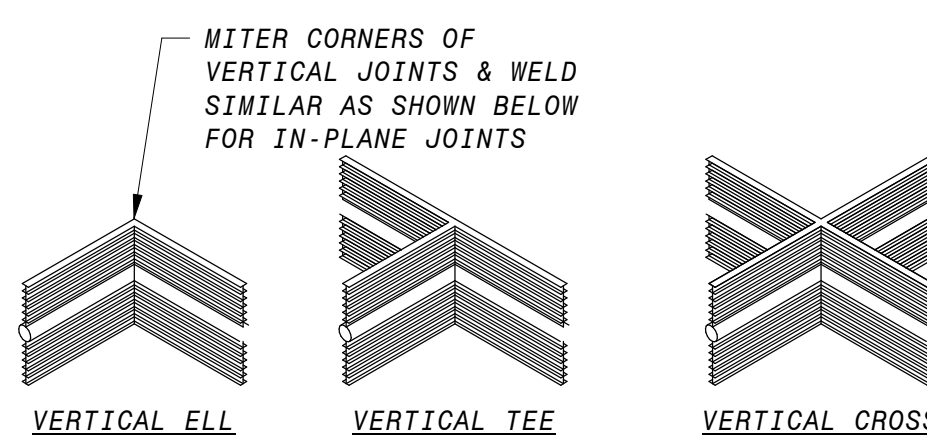


BAR SIZE	D	H (APPROX.)
#3	1-1/2"	3"
#4	2"	3"
#5	2-1/2"	3-3/4"
#6	4-1/2"	4-1/2"
#7	5-1/4"	5-1/4"
#8	6"	6"

BAR SIZE	D	J
#3	2-1/4"	3"
#4	3"	4"
#5	3-3/4"	5"
#6	4-1/2"	6"
#7	5-1/4"	7"
#8	6"	8"
#9	9 1/2"	11 3/4"
#10	10 3/4"	1' 1 1/4"

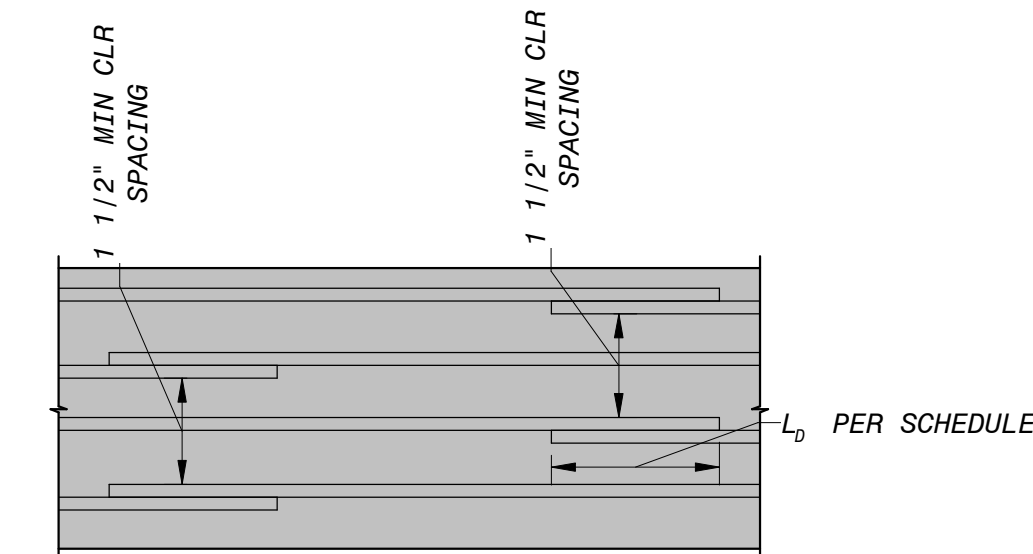
- NOTE: ALL BAR BEND DIAMETERS & END LENGTHS MUST CONFORM TO THE CRSI MANUAL OF STANDARD PRACTICE

5 TYP. REINFORCEMENT BAR BENDS
NO SCALE



- NOTES:
- ALL WELDS SHALL BE PER WATERSTOP MANUFACTURER'S RECOMMENDATIONS.
 - ALL TRANSITIONS, INTERSECTIONS, AND SPLICES ARE TO BE HEAT WELDED TO MAINTAIN CONTINUITY. FACTORY-MADE FABRICATIONS ARE REQUIRED FOR ALL INTERSECTIONS AND CHANGES OF DIRECTION.
 - FIELD SPLICES ARE ONLY ACCEPTABLE IN STRAIGHT SECTIONS.

6 WATERSTOP JOINTS
NO SCALE

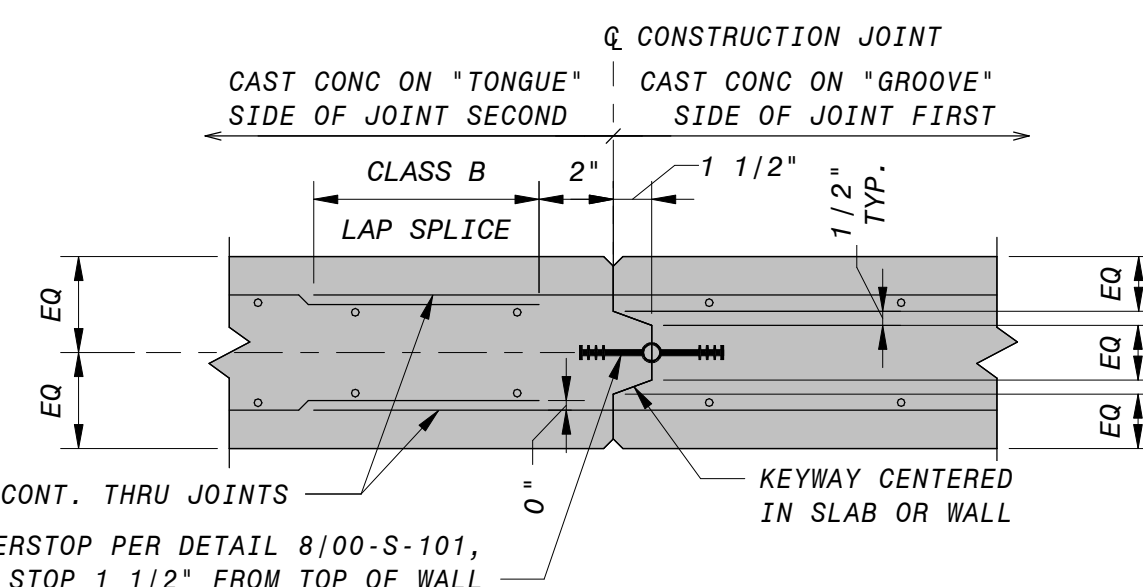


BAR SIZE	TENSION, L _D	HOOKED, L _{DH}	VALUES ASSUME 60 KSI, NON-EPOXY REINFORCEMENT & 3 KSI NORMAL WEIGHT CONCRETE
#3	28"	9"	
#4	37"	11"	
#5	46"	14"	
#6	56"	17"	
#7	81"	20"	
#8	93"	22"	
#9	104"	25"	
#10	116"	28"	

BAR SIZE	TENSION, L _D	HOOKED, L _{DH}	VALUES ASSUME 60 KSI, NON-EPOXY REINFORCEMENT & 4 KSI NORMAL WEIGHT CONCRETE
#3	24"	8"	
#4	32"	10"	
#5	40"	12"	
#6	48"	15"	
#7	70"	17"	
#8	80"	19"	
#9	90"	22"	
#10	100"	24"	

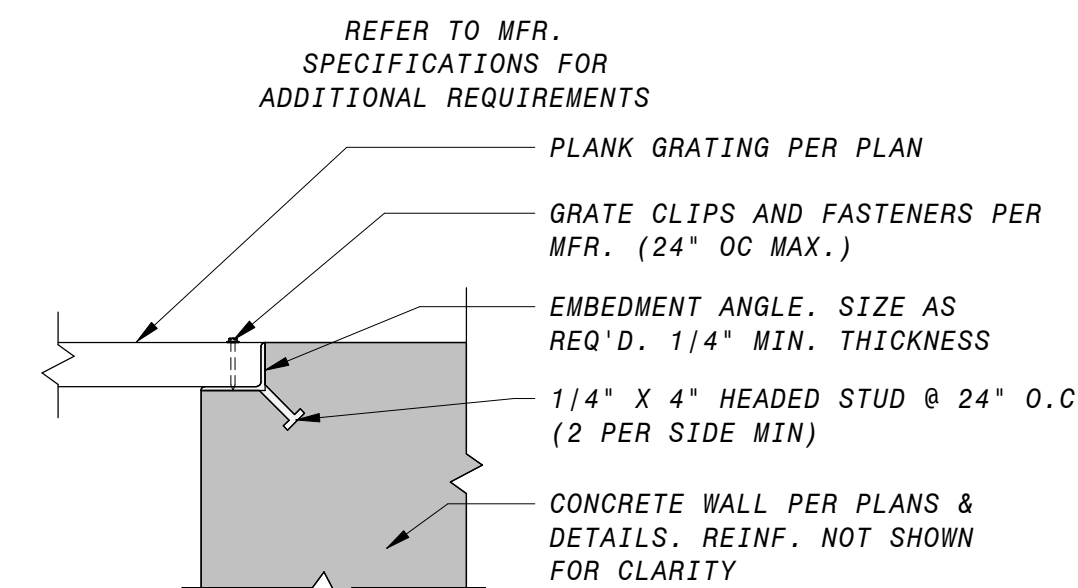
BAR SIZE	TENSION, L _D	HOOKED, L _{DH}	VALUES ASSUME 60 KSI, NON-EPOXY REINFORCEMENT & 4.5 KSI NORMAL WEIGHT CONCRETE
#3	23"	7"	
#4	30"	9"	
#5	38"	12"	
#6	45"	14"	
#7	66"	16"	
#8	76"	18"	
#9	85"	21"	
#10	94"	23"	

1 STD LAP SPLICES
NO SCALE

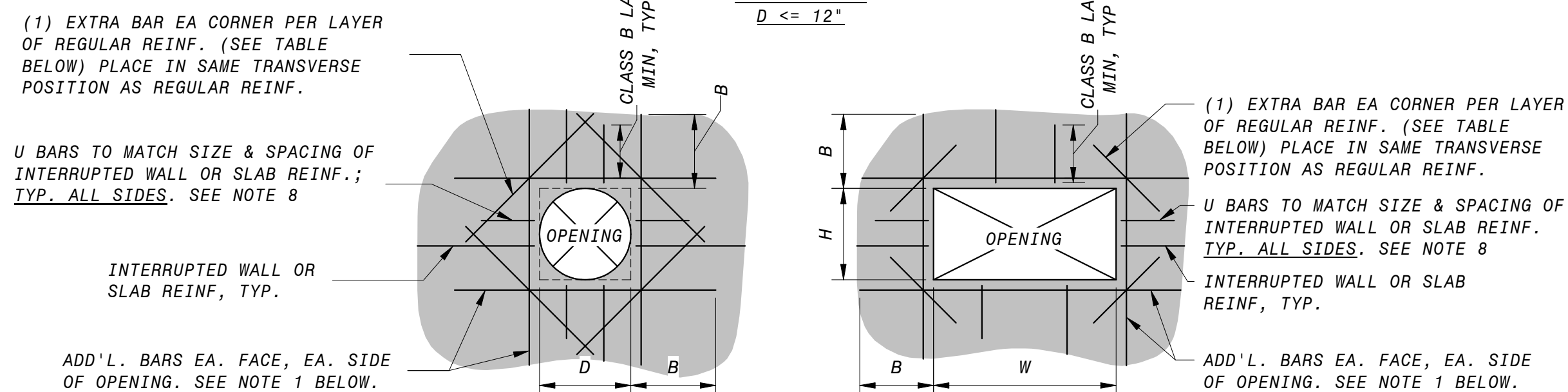


- NOTES:
- COORDINATE LOCATIONS WITH EOR PRIOR TO PLACEMENT.
 - SANDBLAST OR WATER BLAST JOINT AND REINFORCEMENT PRIOR TO PLACING CONCRETE FOR NEXT SLAB OR WALL.
 - FOR WALLS, FORM ALL JOINTS WITH 1/4" CHAMFER.
 - FOR SLABS, EDGE TOP OF EXPOSED SLAB JOINT EDGES TO 1/4" RADIUS.

2 CONSTRUCTION JOINT AT WALL OR SLAB (WATER BEARING)
NO SCALE



3 PLANK GRATING SEAT
NO SCALE



THICKNESS OF CONCRETE	BAR SIZE	BAR LENGTH	
		RECTANGULAR OPNG	CIRCULAR OPNG
< 12"	5	3'-6"	D+24"
12" TO 18"	5	3'-6"	D+24"
> 18"	6	4'-0"	D+24"

FOR OPENINGS
12" <= D/H/W <= 54"

- NOTES:
- 50% OF INTERRUPTED WALL OR SLAB REINF. TO BE PLACED EA. SIDE OF OPENING. BARS TO BE SPACED AT 4" OC OR S/2, WHICHEVER IS LESS EA. FACE (S = BAR SPACING PER PLANS). LENGTH OF ADD'L. REINF. = H + W + (2X CLASS B LAP)
 - SEE PLAN AND SECTIONS FOR TYP. REINF., REINF. SPACING AND WALL OR SLAB THICKNESS.
 - ALL WALL AND/OR SLAB OPENINGS TO BE COORDINATED AND DETAILED ON REINF. SHOP DRAWINGS.
 - ADD'L. OPENINGS SHALL NOT BE PROVIDED W/O EOR APPROVAL.
 - THIS DETAIL SHALL APPLY AT ALL SIDES OF WALL OR SLAB OPENINGS AND/OR DISCONTINUITIES. APPLICABLE REINF. TO BE SHOWN ON SHOP DRAWINGS.
 - DO NOT CORE HOLES THROUGH STRUCTURAL WALLS OR SLABS WITHOUT PRIOR APPROVAL FROM EOR.
 - 2" CLEAR TO CONCRETE OPENINGS OR OUTSIDE FACE OF PIPES AND PIPE SLEEVES. DO NOT OVERCUT REINFORCEMENT FOR EASIER PLACEMENT OF WEEP RINGS AND FLANGES.
 - U BARS MAY BE REPLACED WITH STRAIGHT BARS AT CONCRETE WITH SINGLE MAT OF REINFORCEMENT.
 - B = CLASS B LAP SPLICE

9 TYP REINF AT WALL OR SLAB OPENINGS (<=54")
NO SCALE

DESIGNED: M. MARSH
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

PROJECT NO. 400530
 SHEET 154 OF 412

00-S-101

GENERAL STRUCTURAL STANDARD DETAILS

CITY OF MORRO BAY
 FILANC BLACK & VEATCH DB PROPOSAL
 WATER RECLAMATION FACILITY (WRF)

ASHLEY & VANCE ENGINEERING, INC.
 JOINT VENTURE
 BLACK & VEATCH
 FILANC

REGISTERED PROFESSIONAL ENGINEER
 CHARLES R. ASHLEY
 STATE OF CALIFORNIA
 5258

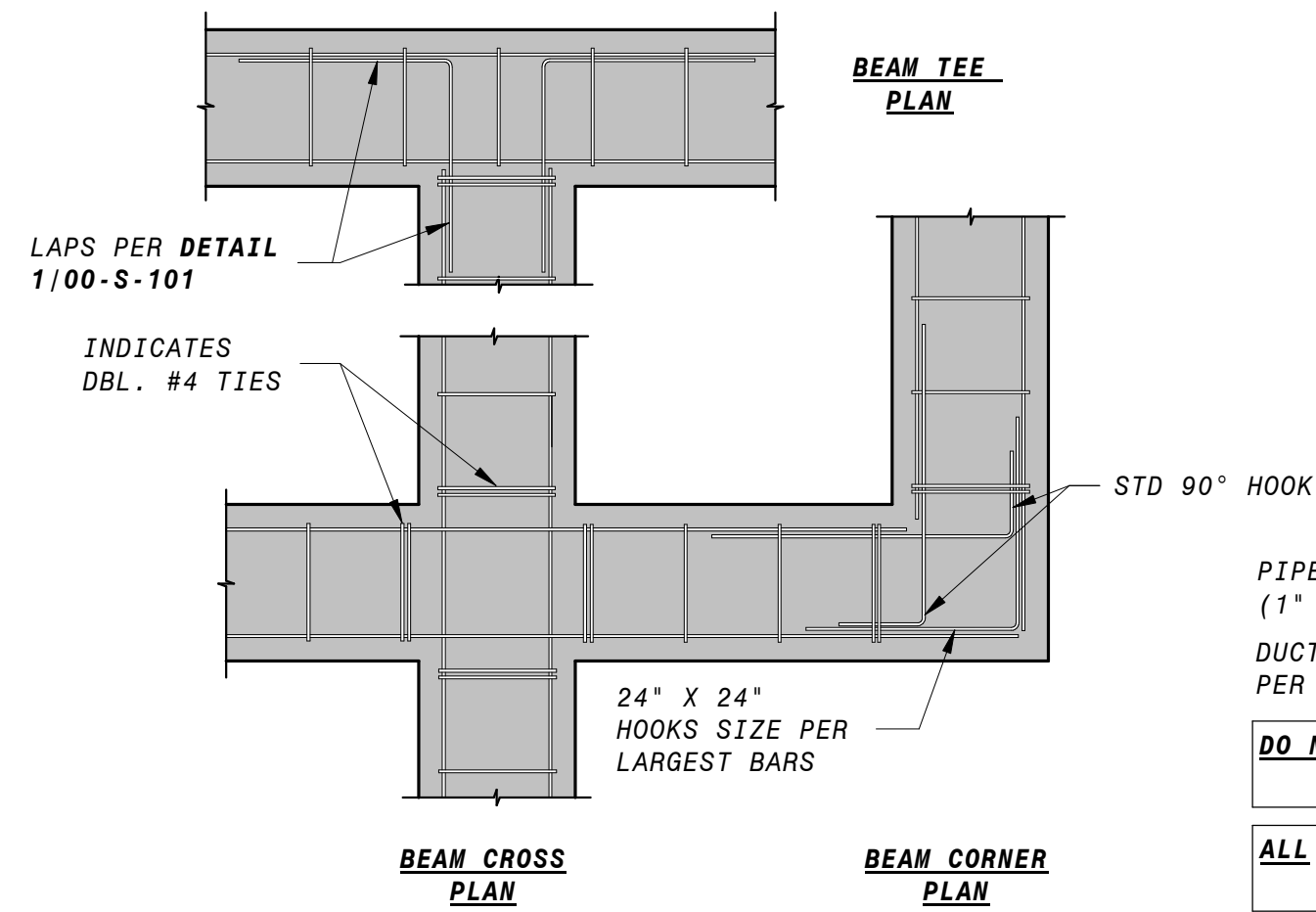
5/19/2020 ISSUED FOR CONSTRUCTION
 DATE

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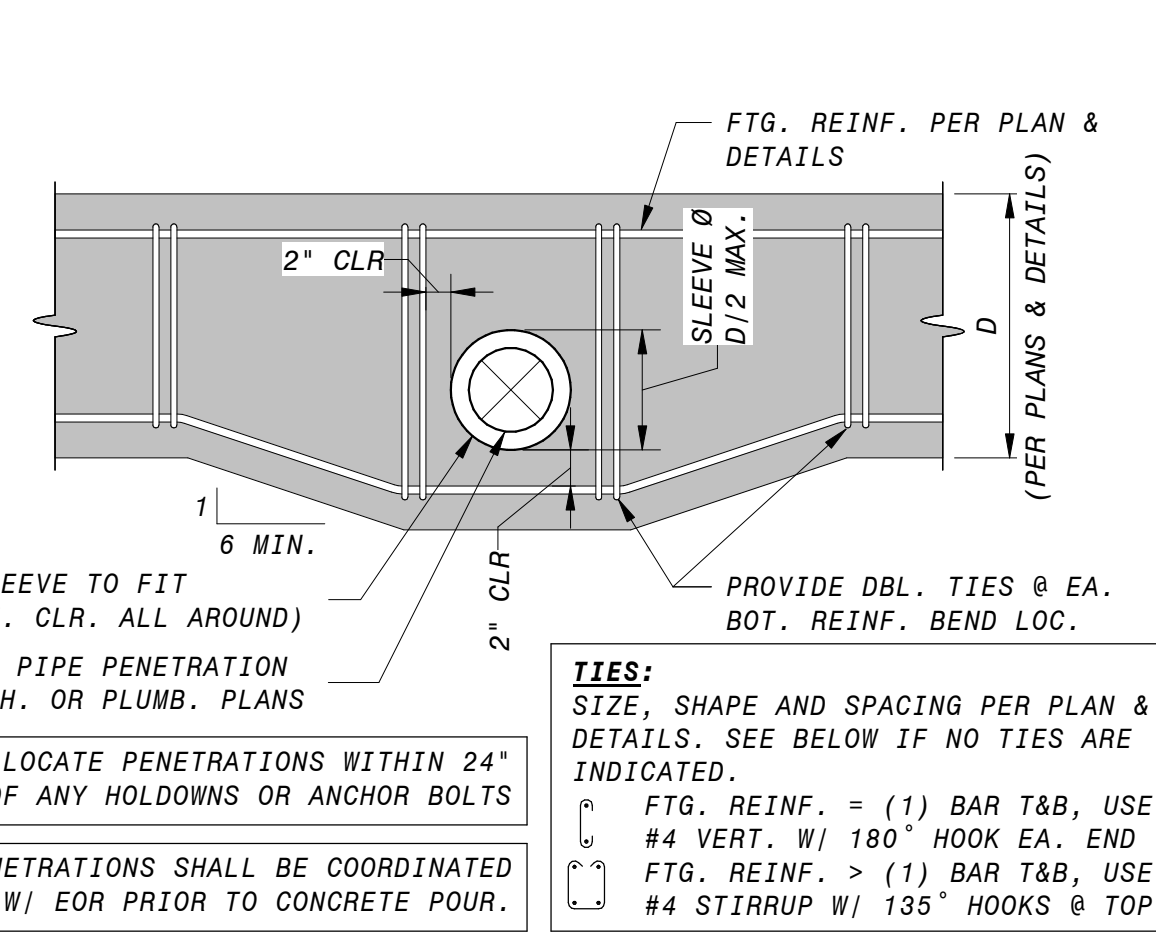
REVISONS AND RECORD OF USE

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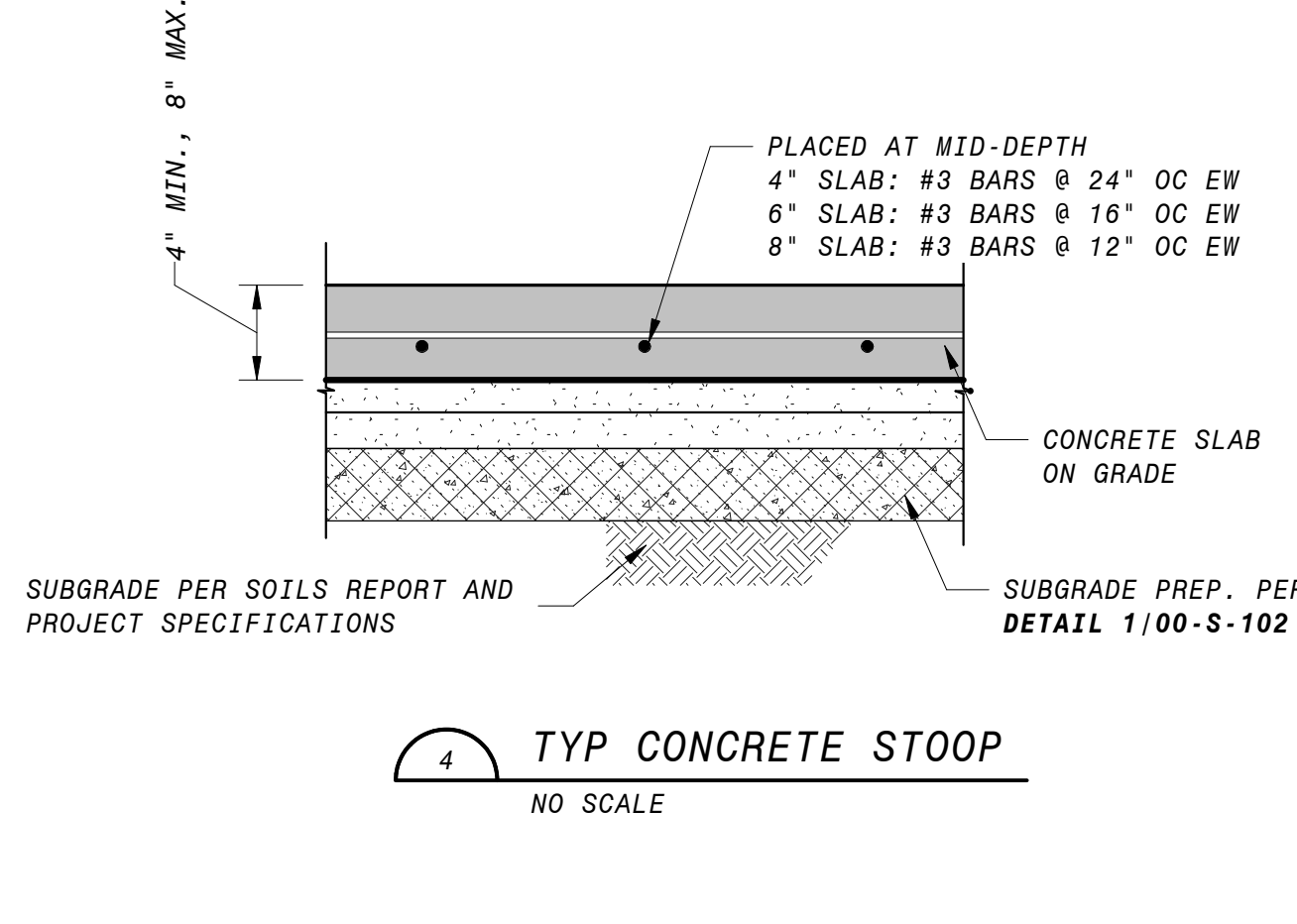
CHK APP



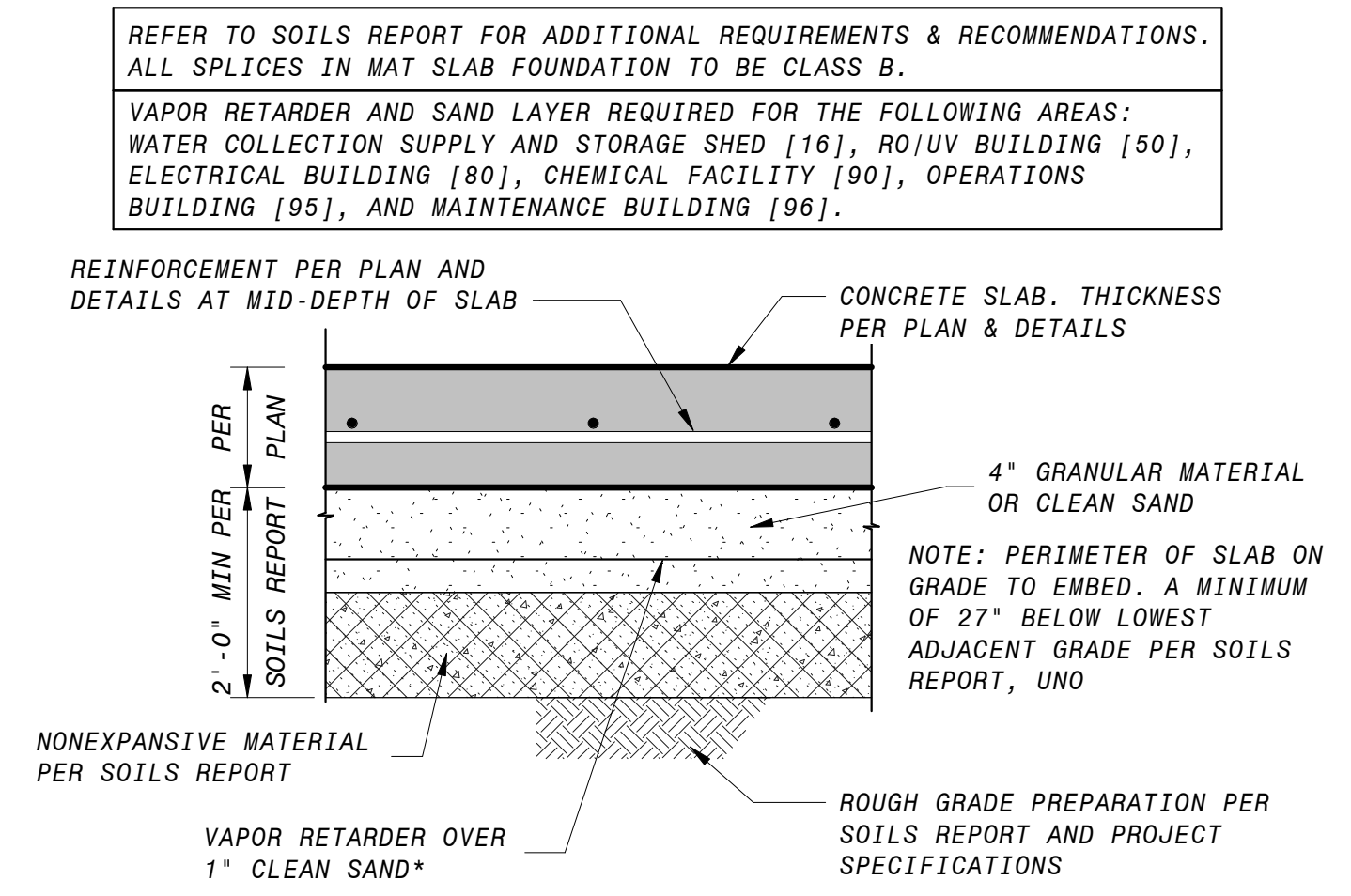
12 BEAM TO BEAM CONNECTIONS
NO SCALE



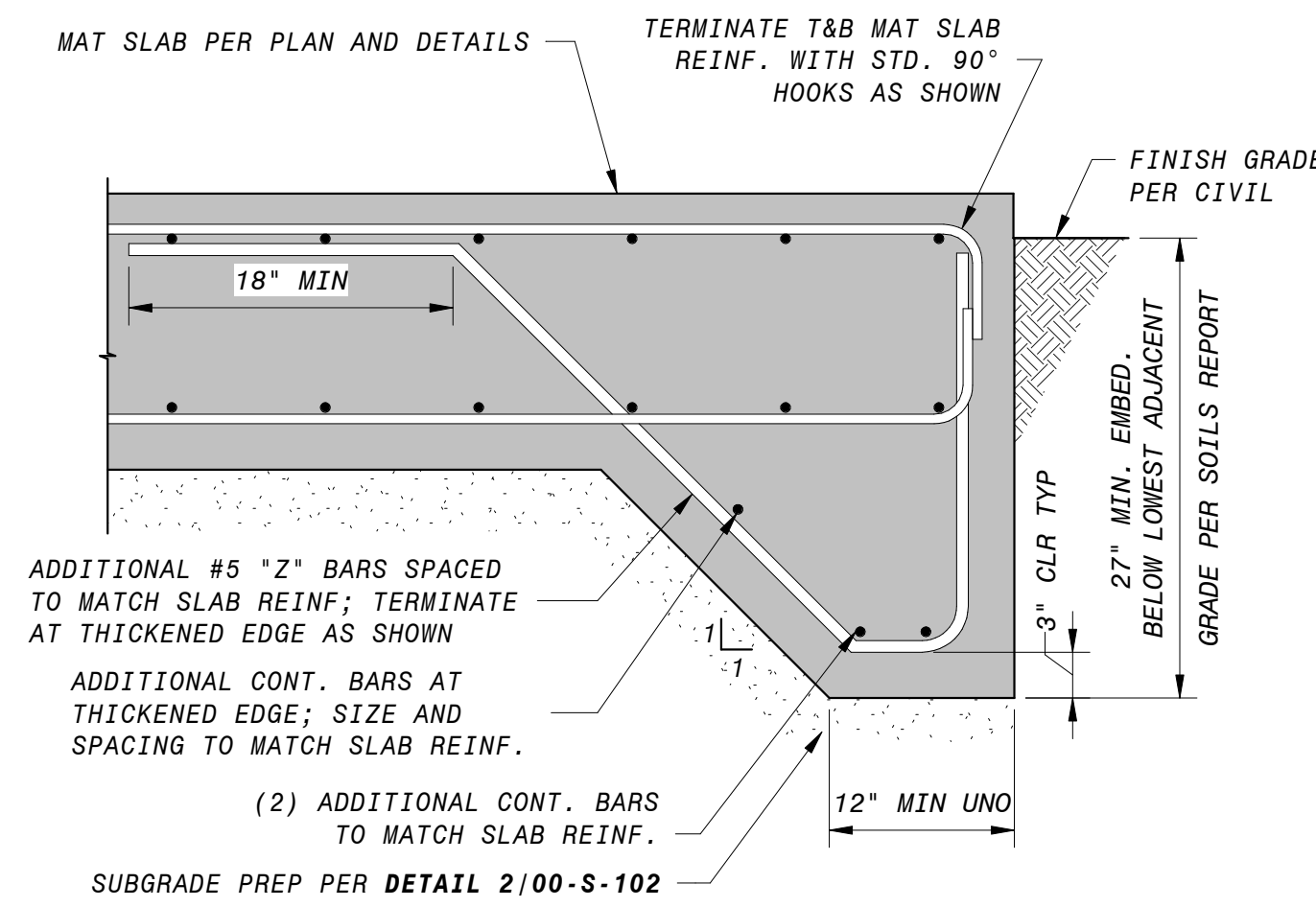
8 TYP. DUCT THROUGH FDN.
NO SCALE



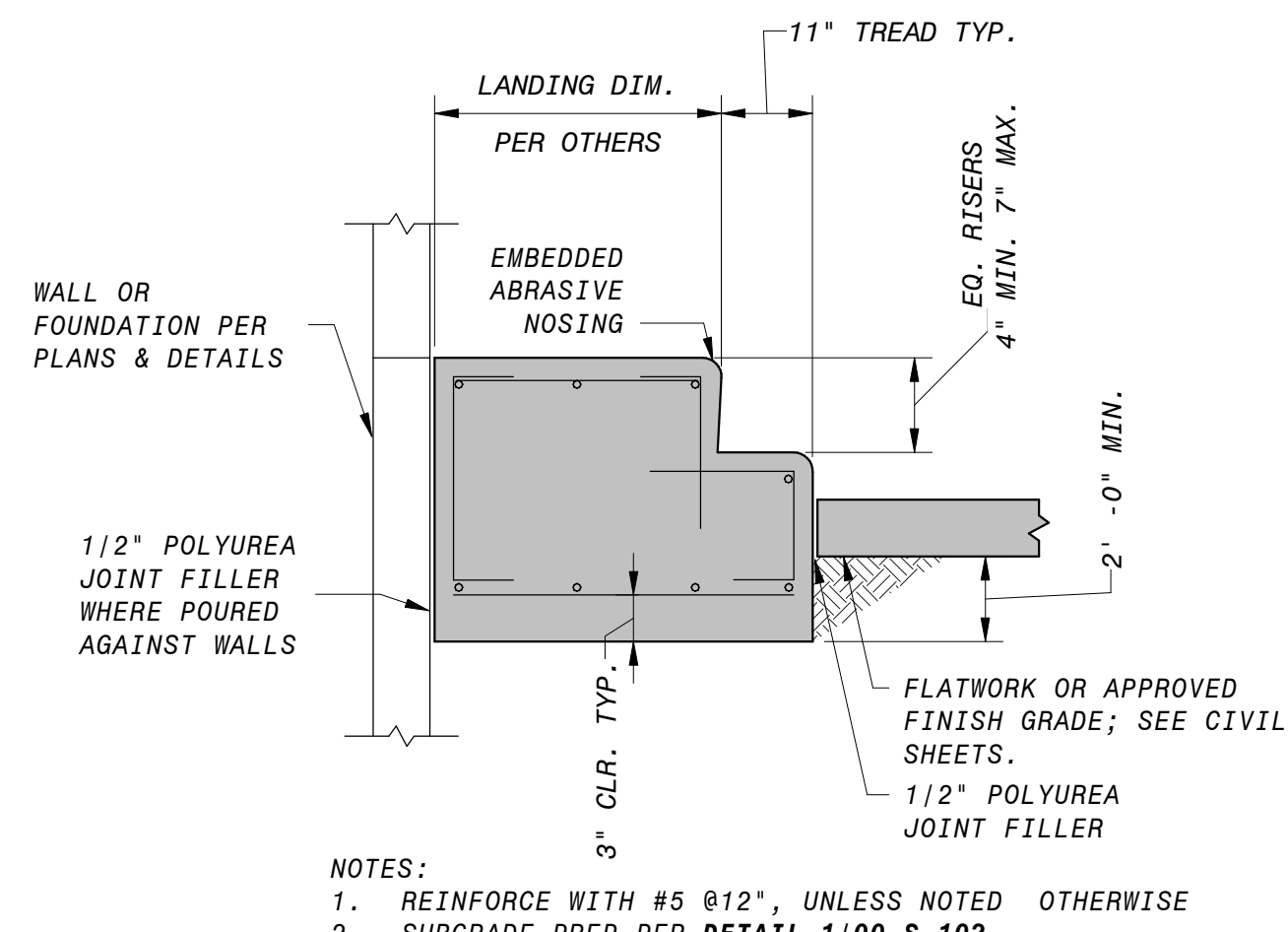
4 TYP CONCRETE STOOP
NO SCALE



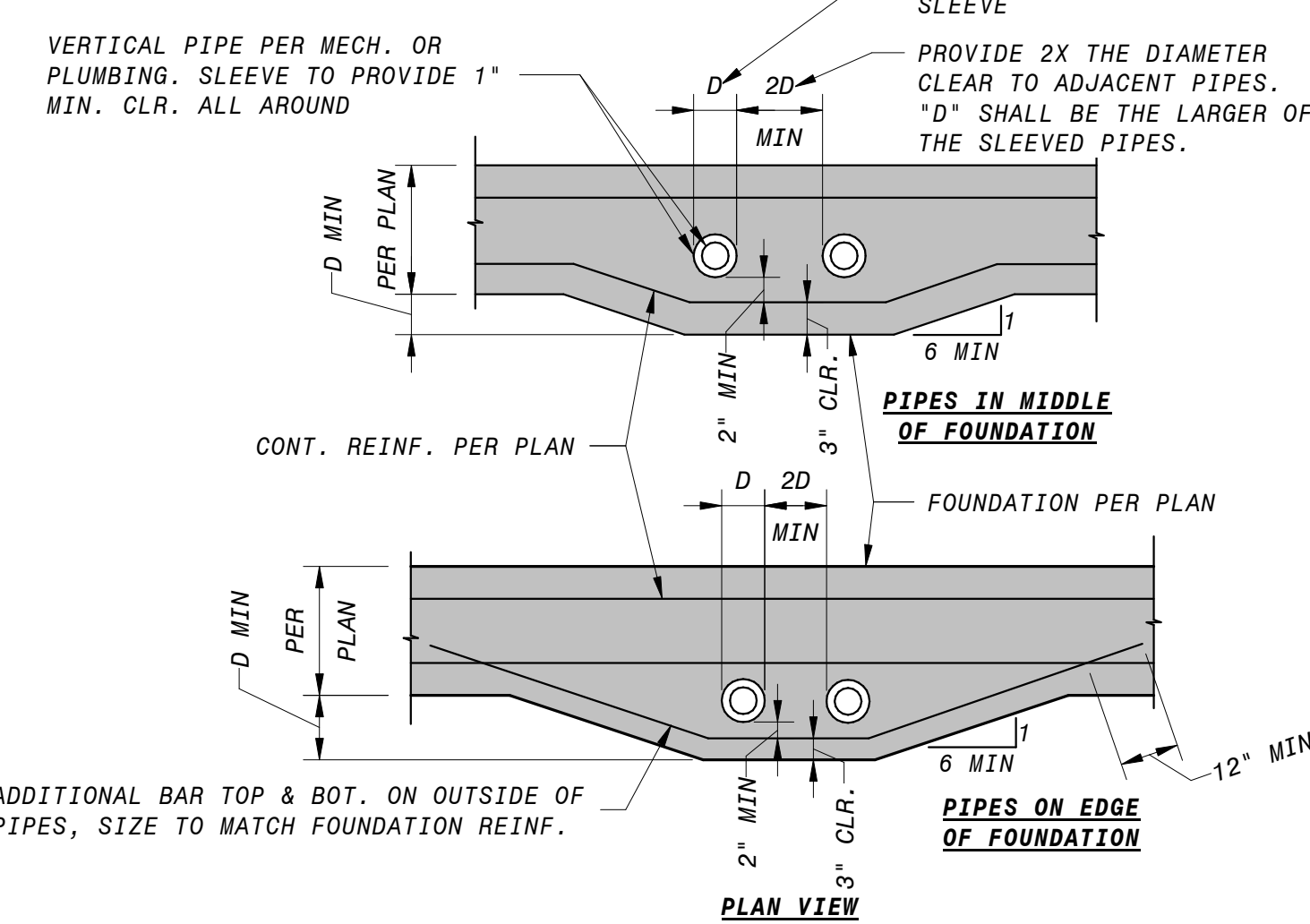
1 TYP. SLAB ON GRADE
NO SCALE



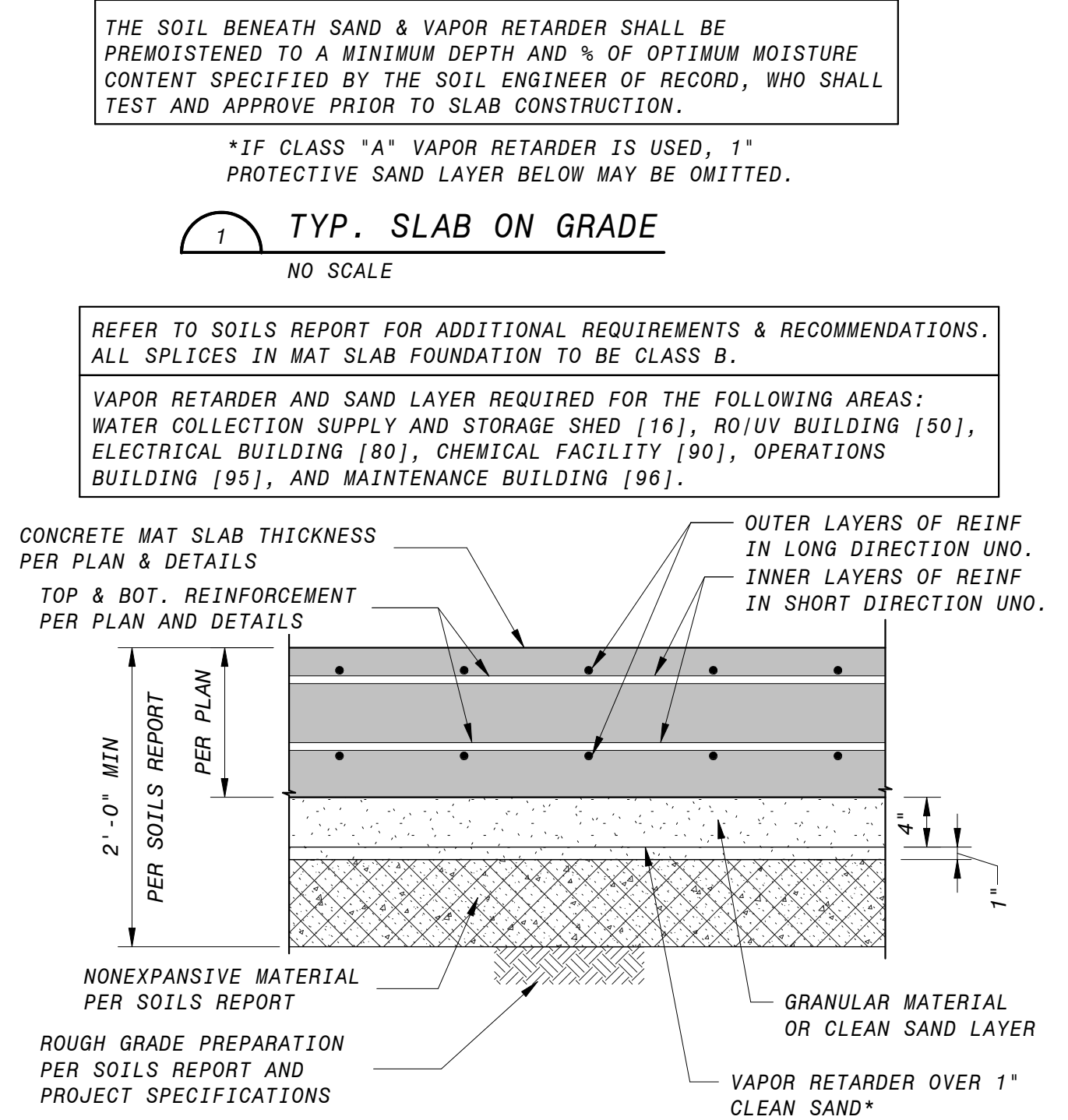
13 TYP THICKENED MAT SLAB EDGE
NO SCALE



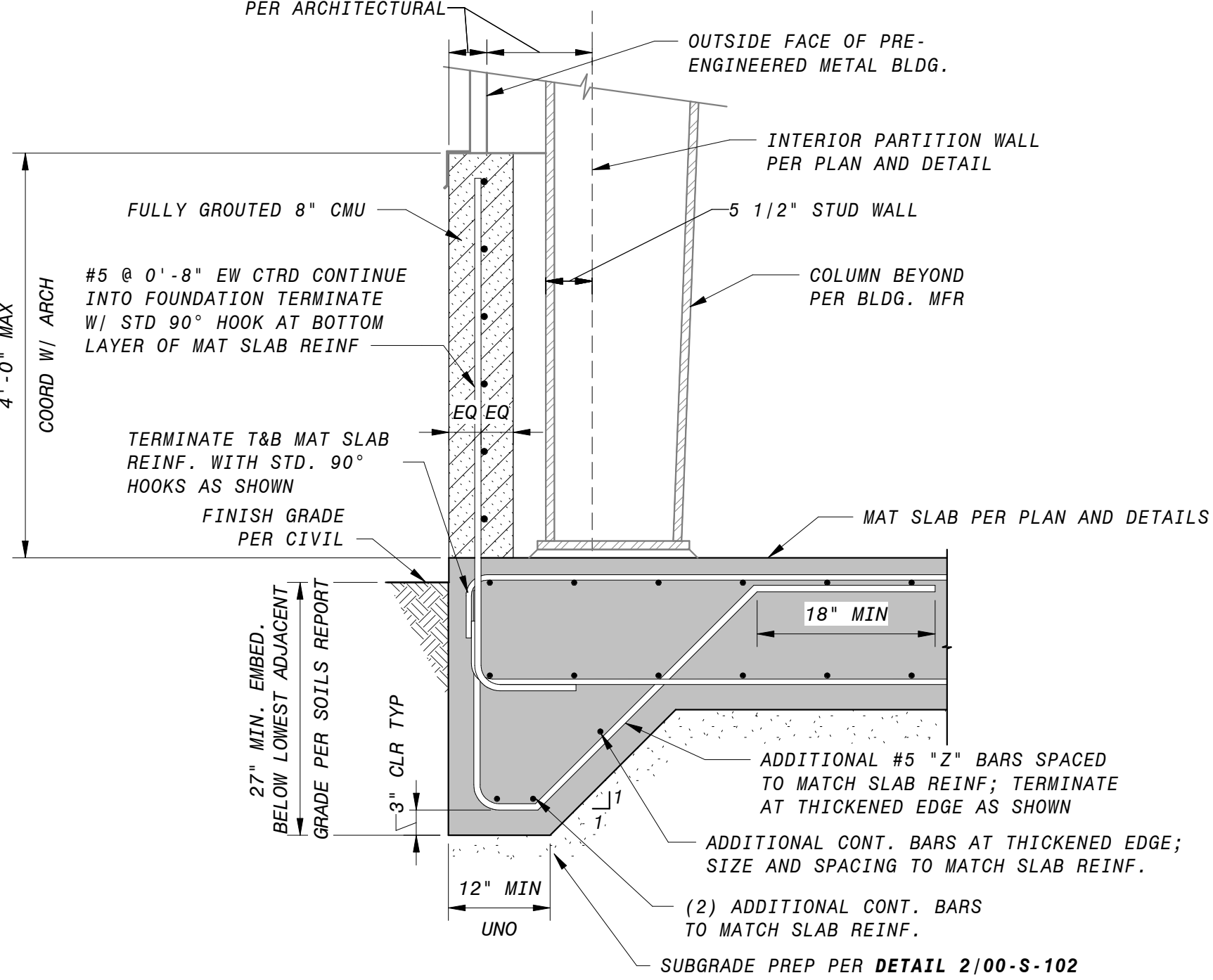
9 CONCRETE STAIR - ON GRADE
NO SCALE



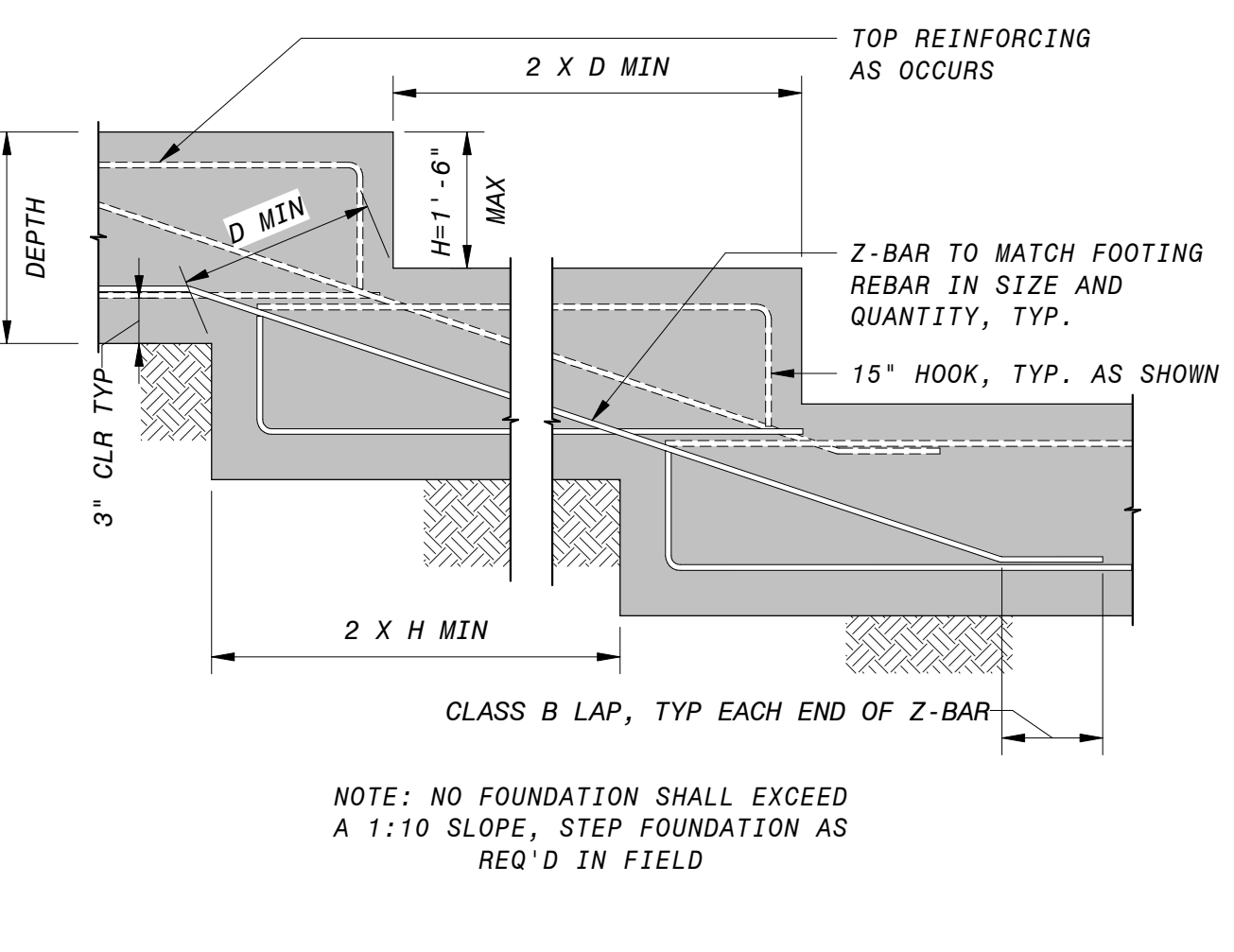
5 TYPICAL VERTICAL PIPES IN FDN.
NO SCALE



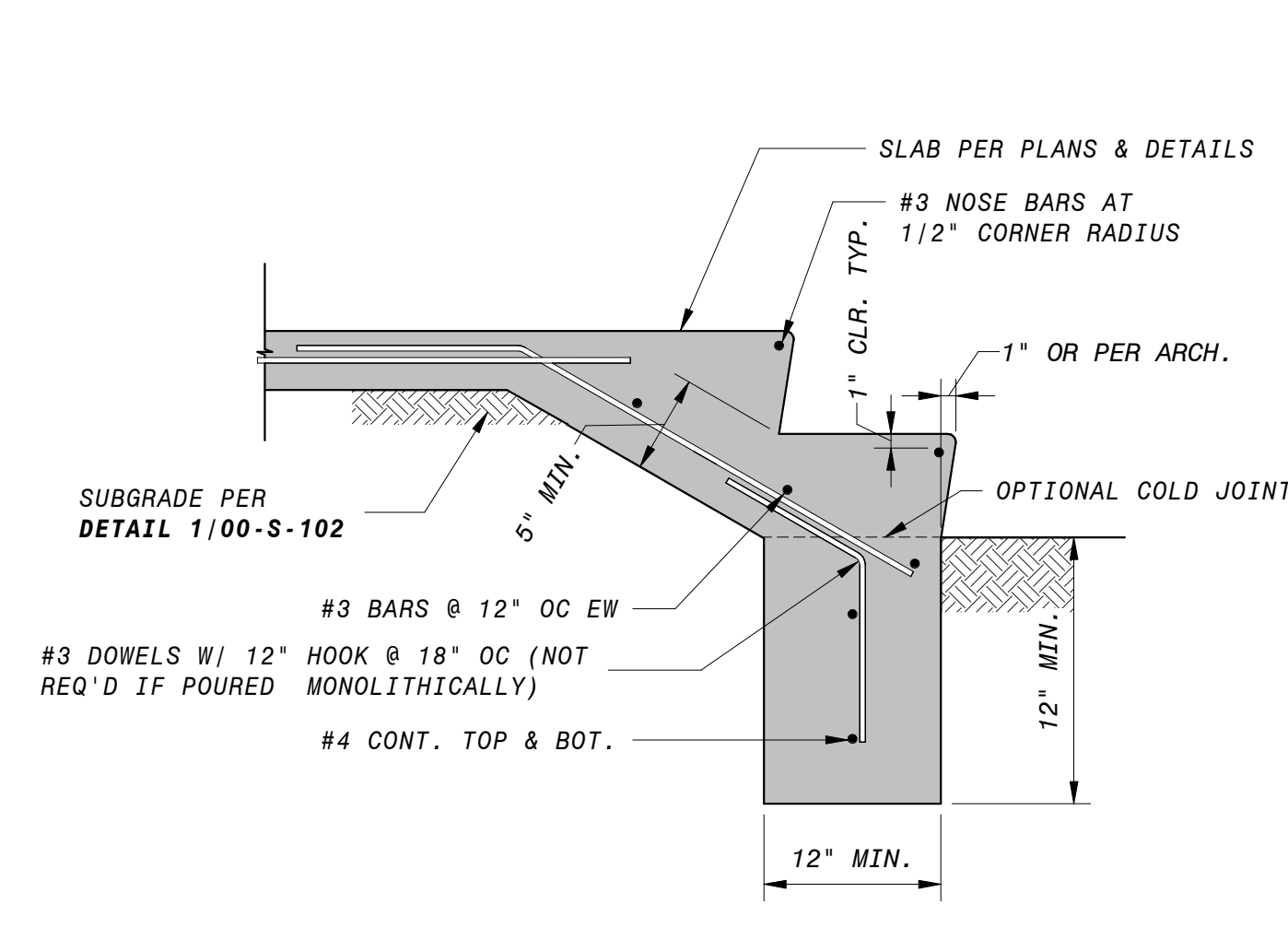
2 TYP. MAT SLAB ON GRADE
NO SCALE



11 TYP CMU WAINSCOT DETAIL
NO SCALE



10 TYPICAL STEPPED FOUNDATION
NO SCALE



6 CONCRETE STAIR AT LANDING EDGE
NO SCALE

NO.	BY	CHK APP
0		
5/19/2020	ISSUED FOR CONSTRUCTION	REVISED AND RECORD OF USE
DATE		

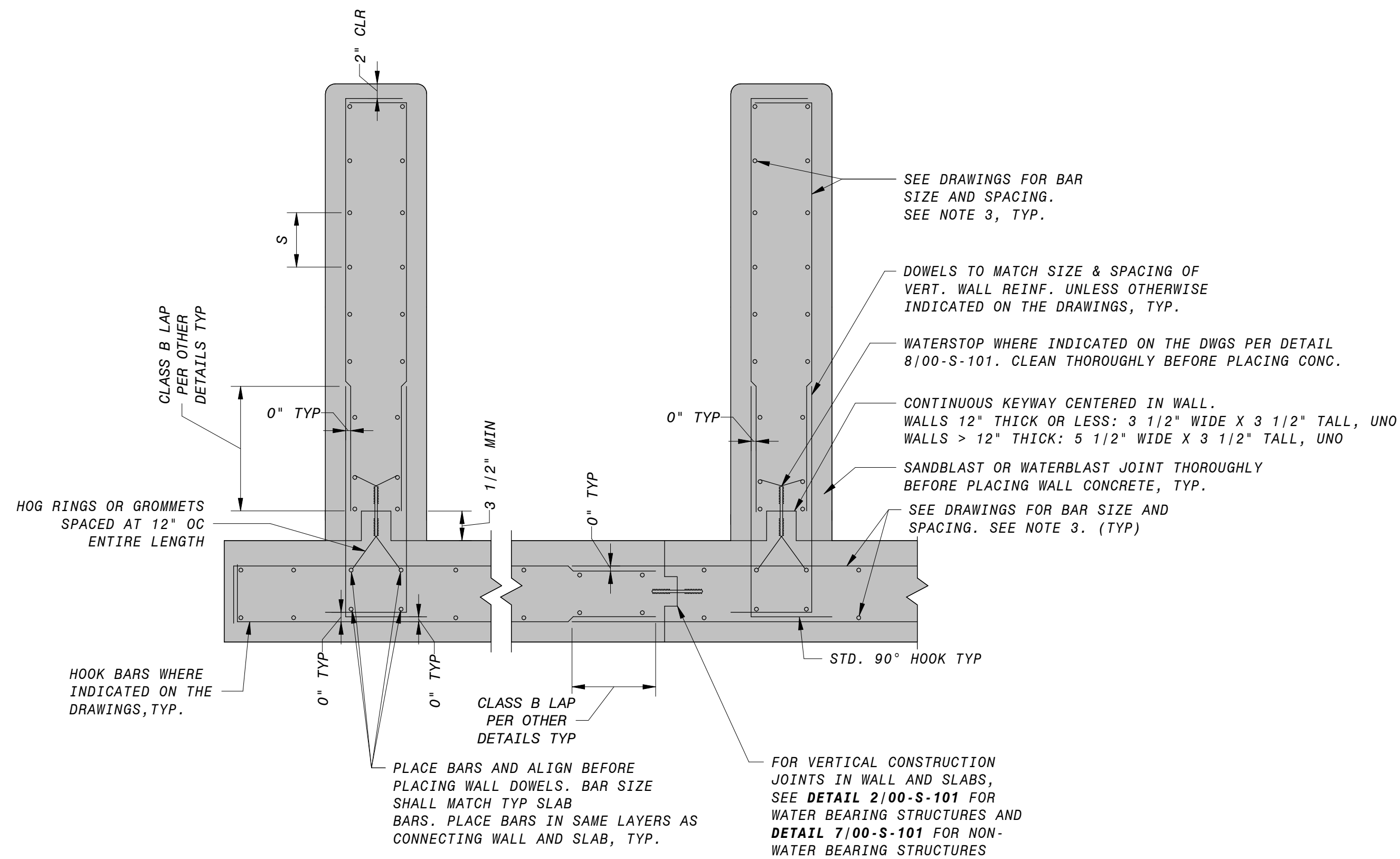


Ashley & Vance ENGINEERING, INC.
JOINT VENTURE
FILANC BLACK & VEATCH

CITY OF MORRO BAY
FILANC BLACK & VEATCH DB PROPOSAL
WATER RECLAMATION FACILITY (WRF)
GENERAL STRUCTURAL STANDARD DETAILS

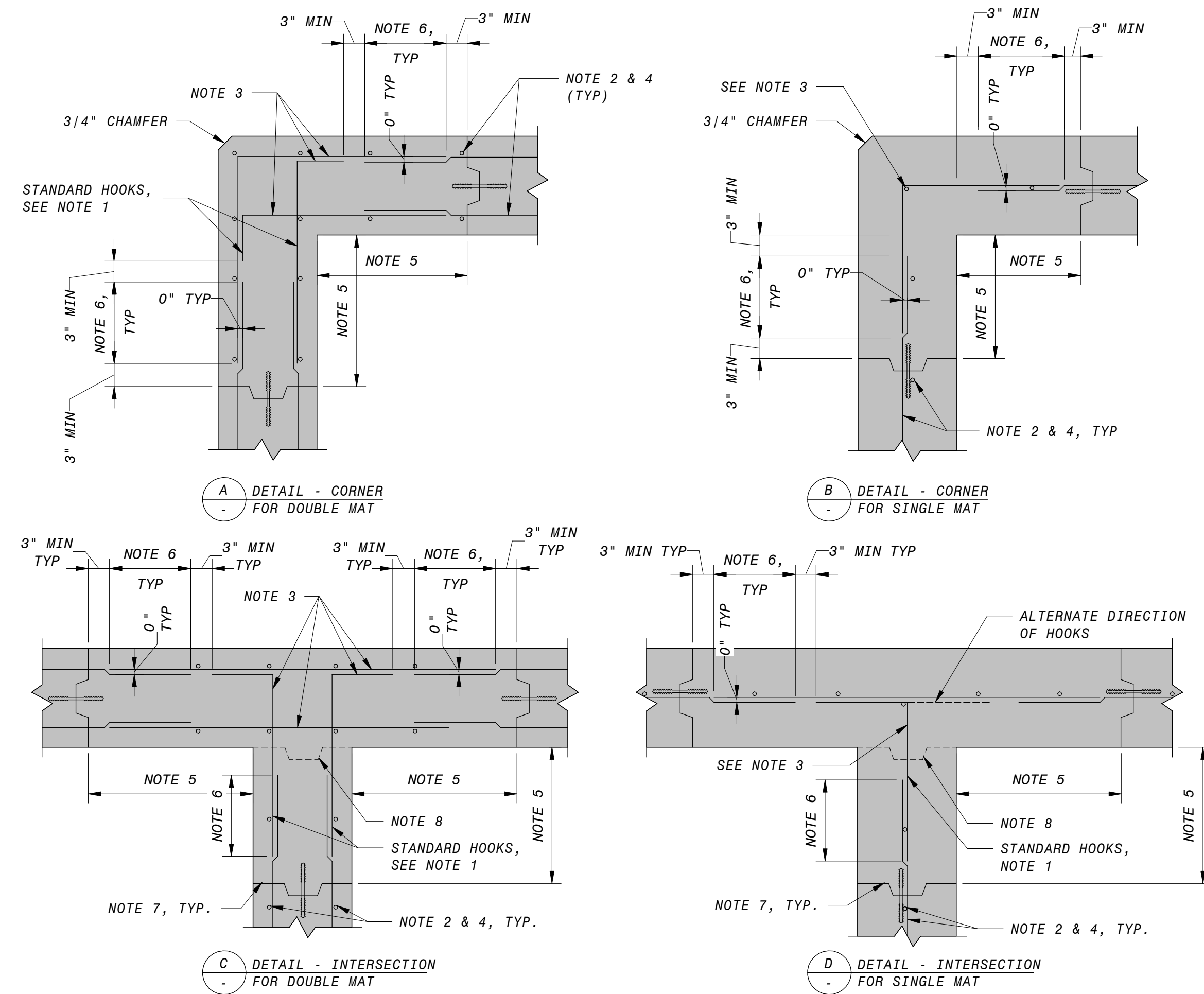
DESIGNED: M. MARSH
DETAILED: S. BENJAMIN
CHECKED: I. SHOEBRIDGE
APPROVED: C. ASHLEY
DATE: 5/19/2020

PROJECT NO. 400530
SHEET 00-S-102
155 OF 412



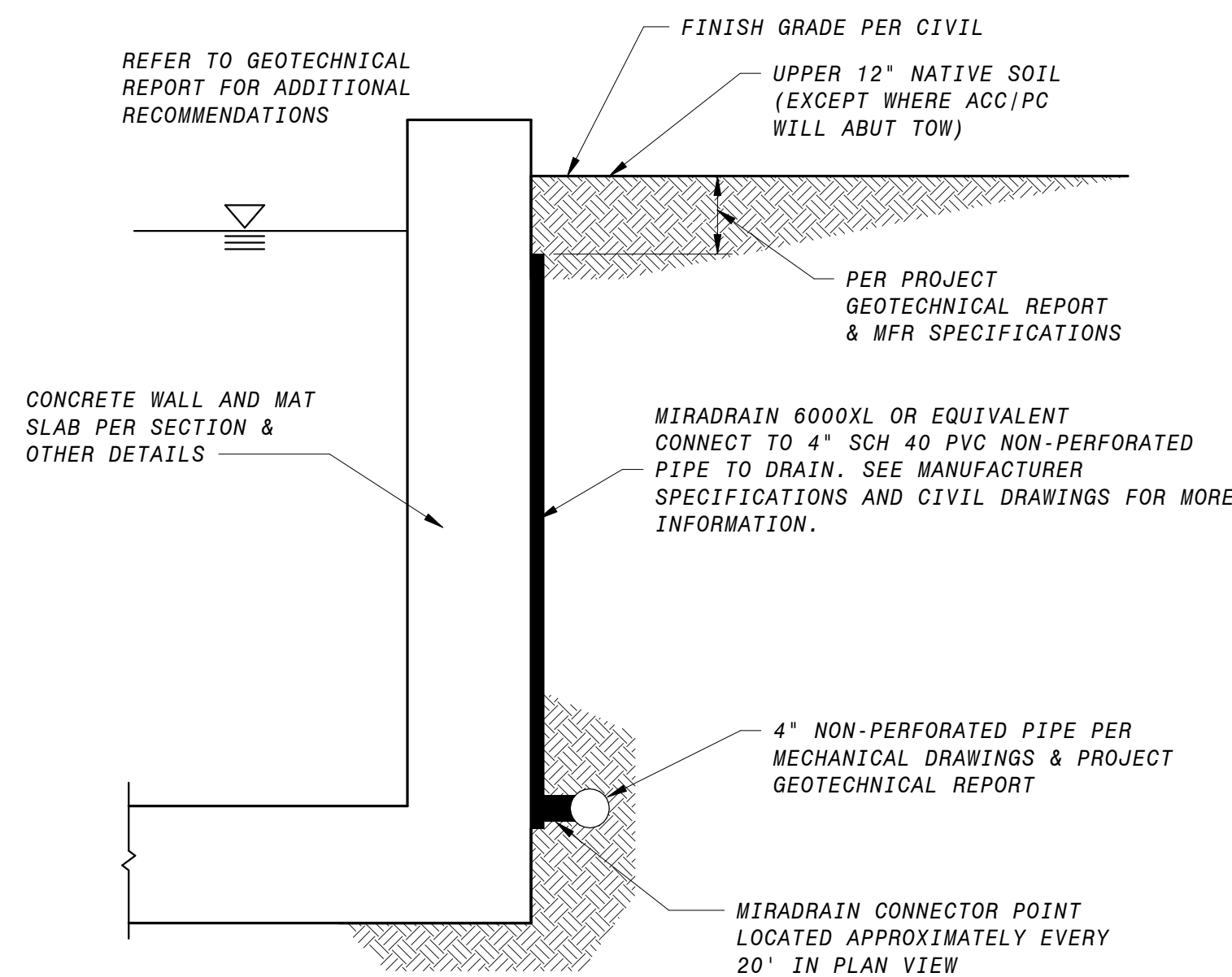
- NOTES:
- "S" = BAR SPACING INDICATED ON THE DRAWINGS.
 - HOOKS SHALL BE STD 90° HOOKS.
 - ORIENTATION OF BARS IN LAYERS SHALL BE AS INDICATED ON THE DRAWINGS.
 - SEE DETAIL 5/00-S-103 THIS SHEET FOR ALTERNATIVE TO FORMED KEYWAY.

2 WALL AND SLAB JOINTS WITH WATERSTOP
NO SCALE

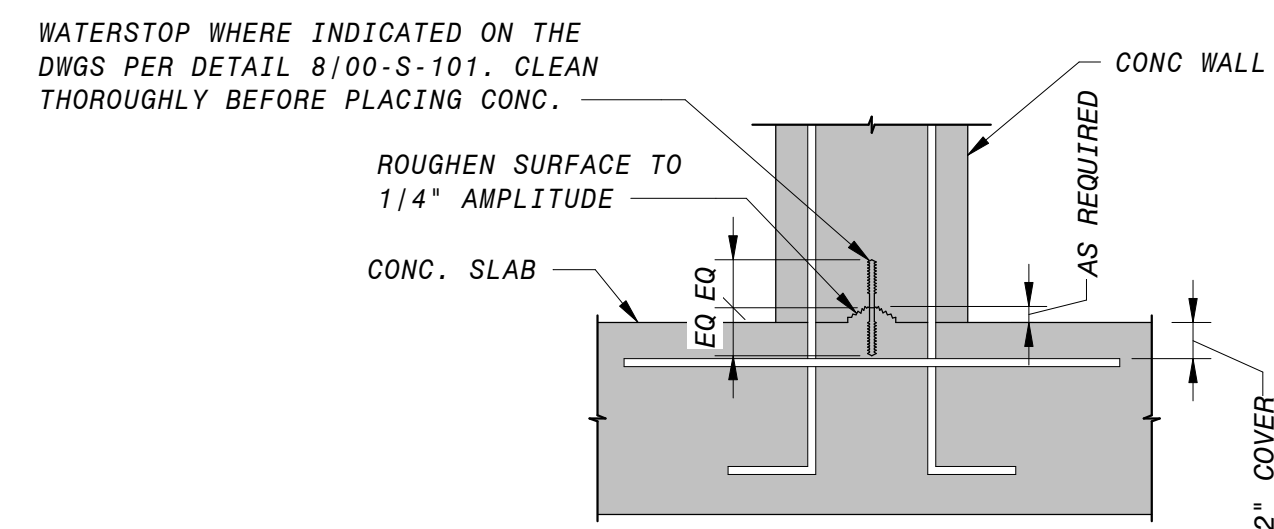


- NOTES:
- HOOKS SHALL BE STANDARD 90° HOOKS.
 - ORIENTATION OF BAR LAYERS SHALL BE AS INDICATED ON THE DRAWINGS.
 - BAR SIZE SHALL MATCH LARGEST BARS IN CONNECTING WALL. PLACE BAR IN SAME LAYERS AS CONNECTING WALLS. (TYP)
 - SEE DRAWINGS FOR BAR SIZE AND SPACING.
 - DISTANCE FROM INSIDE CORNER FACE TO NEAREST VERTICAL CONSTRUCTION JOINT. DIMENSION AS DENOTED IN DETAIL WITH 6" MIN AND 30'-0" MAX FOR LIQUID CONTAINING STRUCTURES OR 40'-0" MAX IN OTHER STRUCTURES. AT "T" INTERSECTIONS WHERE A WATERSTOP IS NOT REQUIRED THIS DIMENSION MAY BE ZERO.
 - OPTIONAL SPLICE LOCATION UNO. CLASS B LAP SPLICE PER OTHER DETAILS, MIN.
 - VERTICAL CONSTRUCTION JOINT NEAREST WALL CORNER WITH WATERSTOP AS REQUIRED AT ALL LIQUID CONTAINING STRUCTURES.
 - ALTERNATE VERTICAL CONSTRUCTION JOINT AT "T" INTERSECTIONS WHERE WATERSTOP ARE NOT REQUIRED.

1 HORIZONTAL WALL REINFORCEMENT AT CORNERS AND INTERSECTIONS
NO SCALE



3 DRAINED CONDITIONS
NO SCALE



- NOTES:
- REINFORCING STEEL IS CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS

5 TYPICAL CONSTRUCTION JOINTS
NO SCALE

NO.	BY	CHK APP
0		
DATE	ISSUED FOR CONSTRUCTION	REVISED AND RECORD OF USE
5/19/2020		

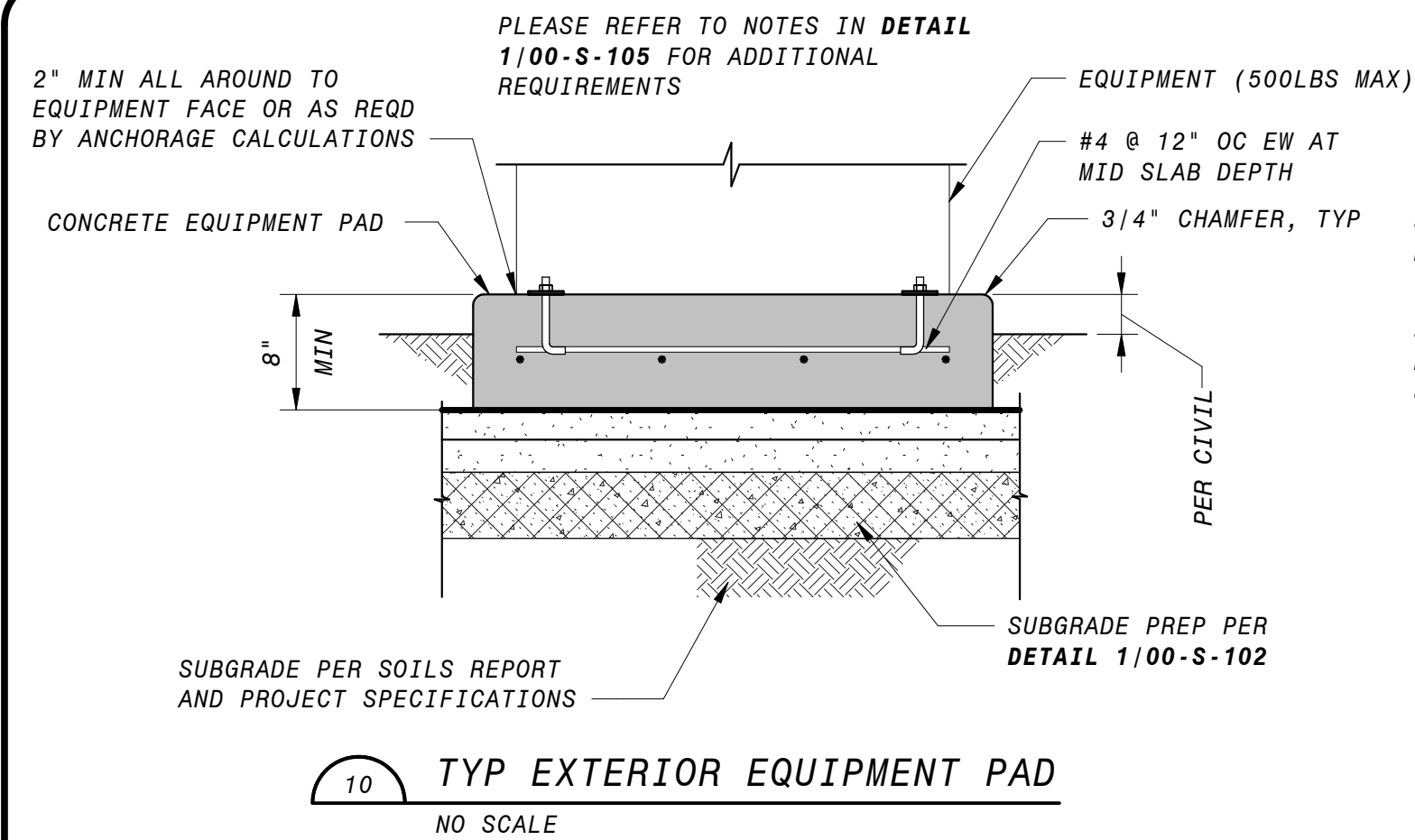


CITY OF MORRO BAY
 FILANC BLACK & VEATCH DB PROPOSAL
 WATER RECLAMATION FACILITY (WRF)
 GENERAL STRUCTURAL STANDARD DETAILS

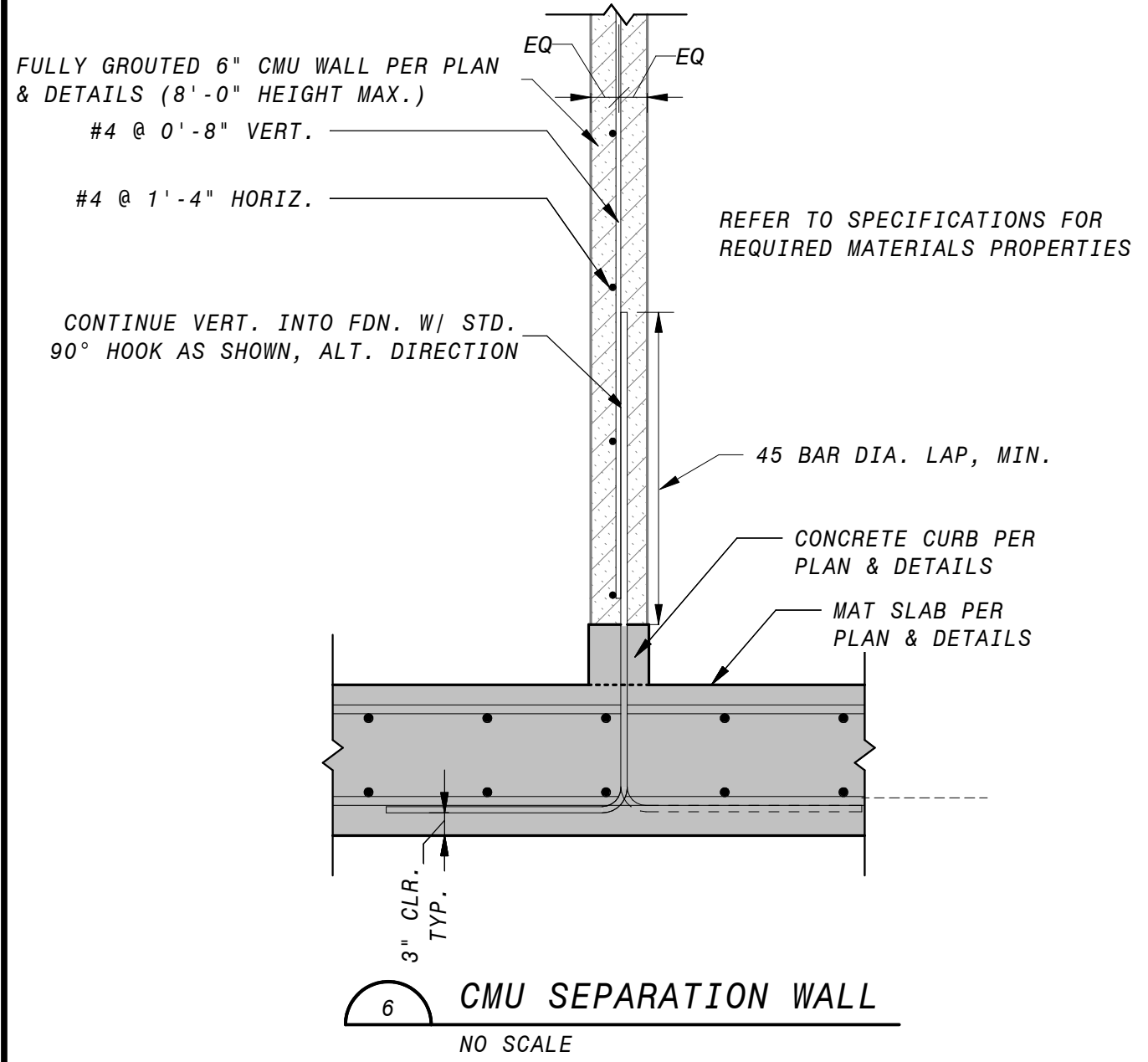
DESIGNED: M. MARSH
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

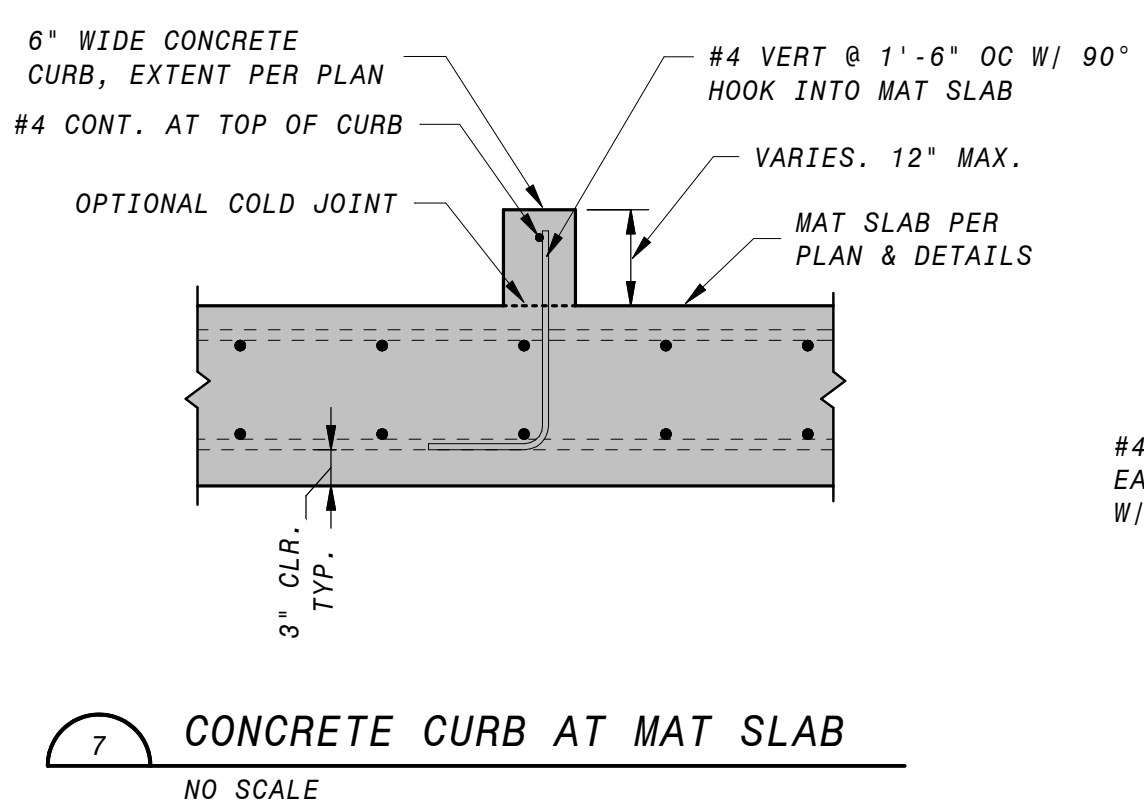
PROJECT NO.
 400530
 SHEET
 156 OF 412



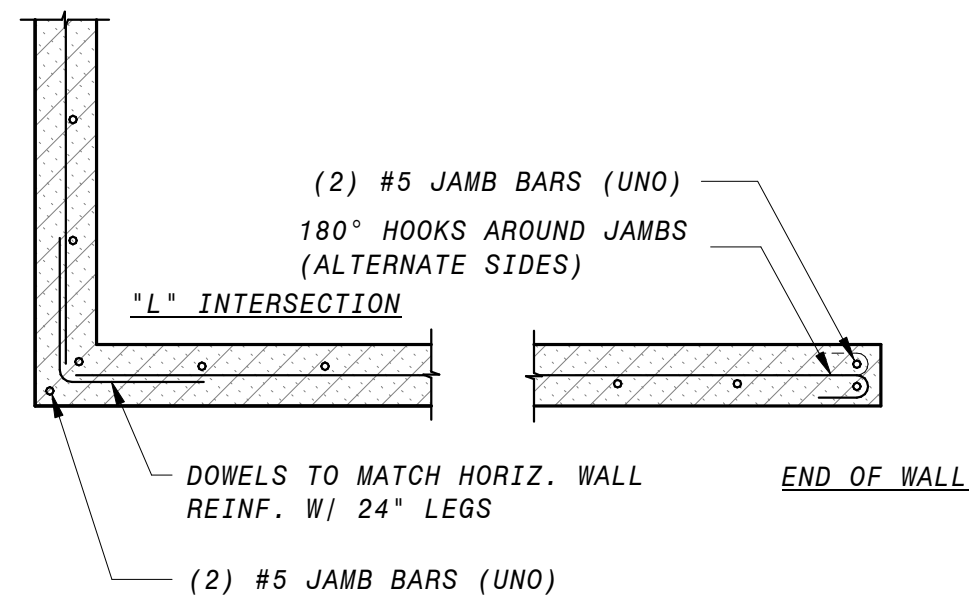
10 TYP EXTERIOR EQUIPMENT PAD
NO SCALE



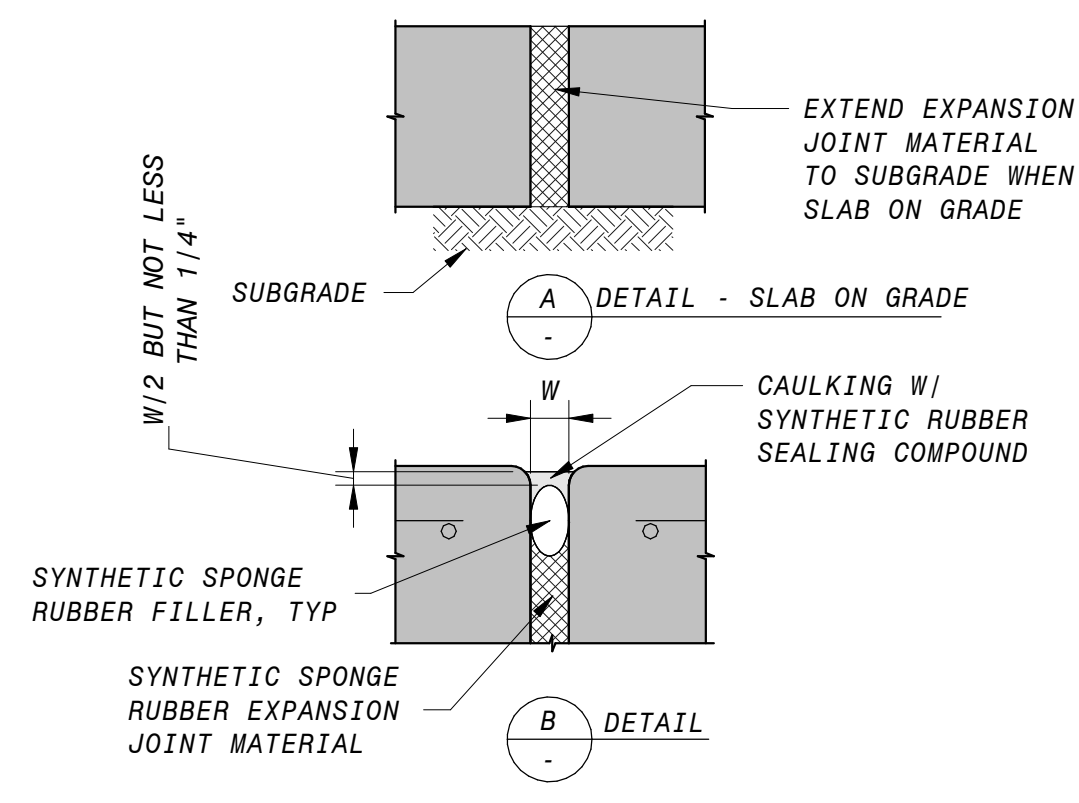
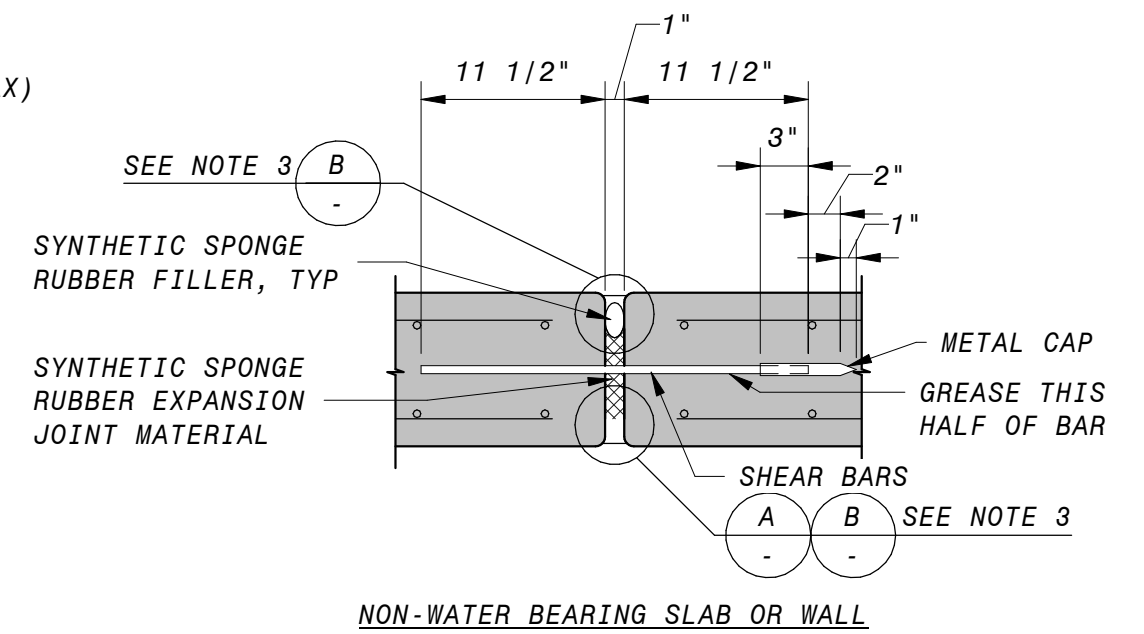
6 CMU SEPARATION WALL
NO SCALE



7 CONCRETE CURB AT MAT SLAB
NO SCALE

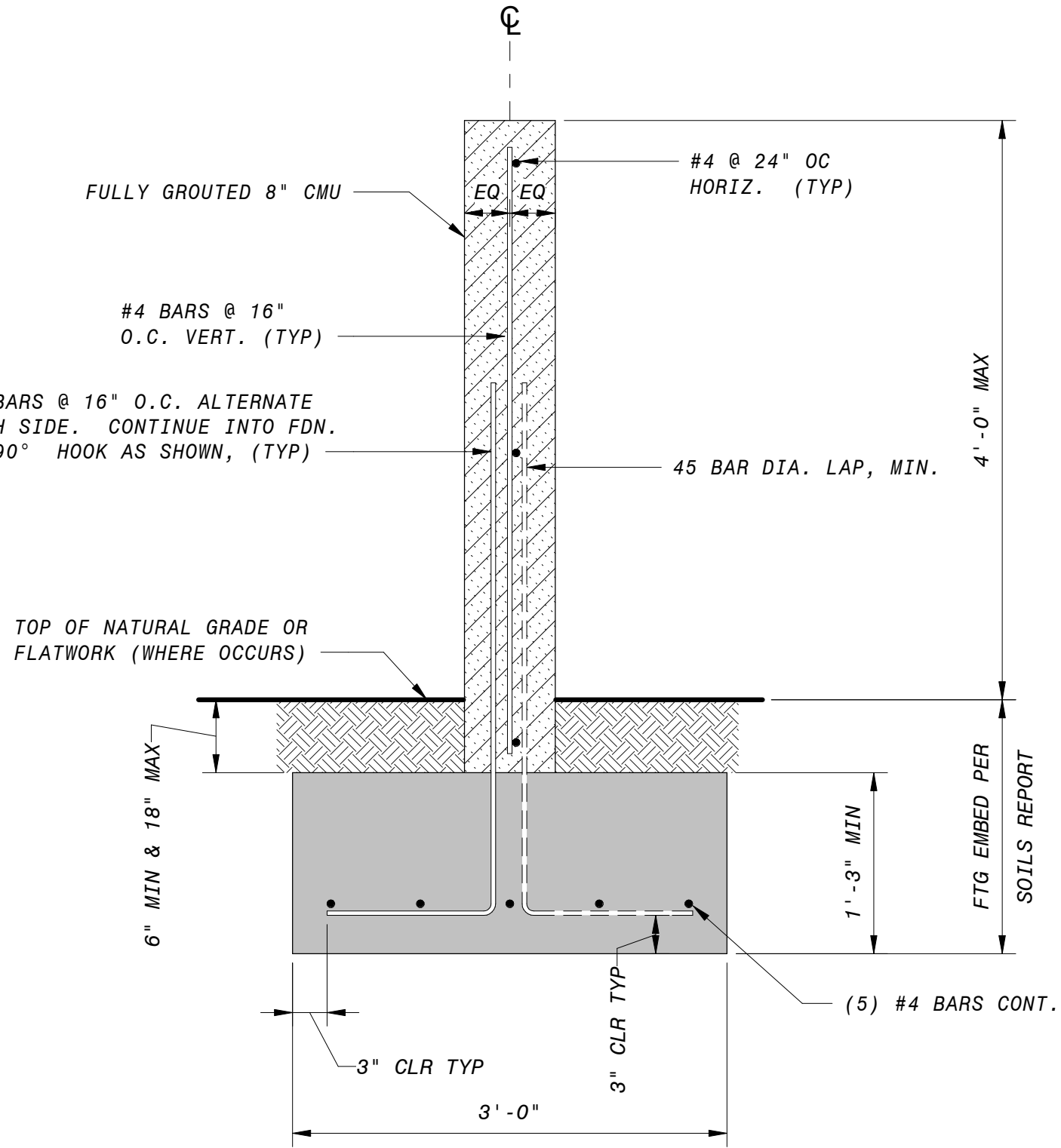


8 TYP CMU WALL INTERSECTIONS
NO SCALE

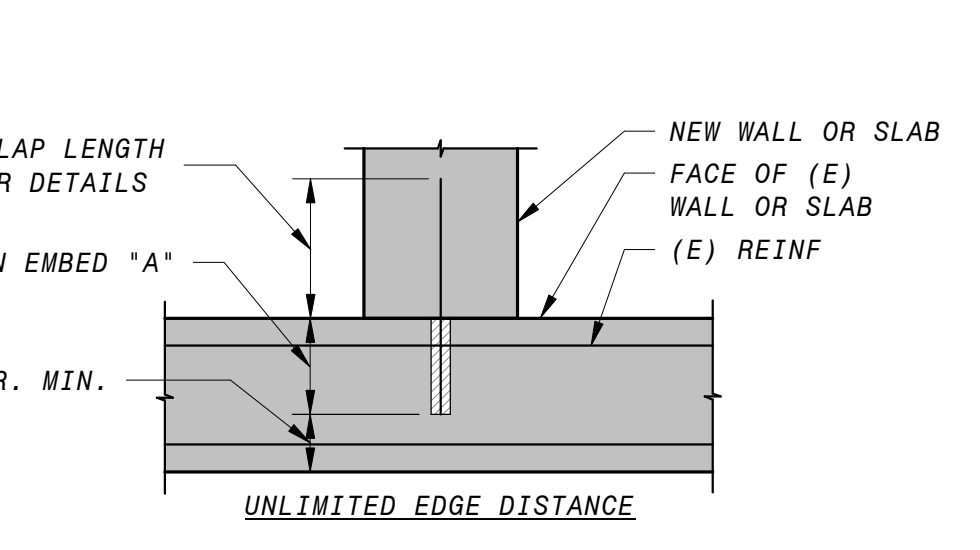
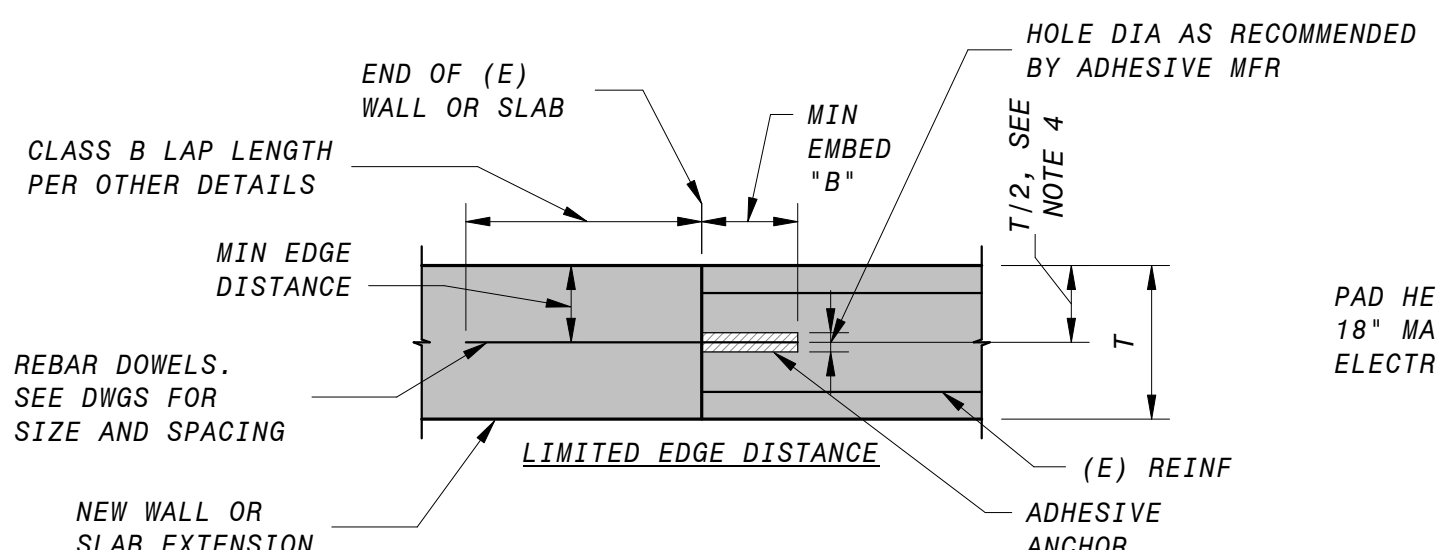


- NOTES:
- FOR WALLS AND EXPOSED SLABS EDGES, FORM ALL JOINT EDGES AT 1/4" CHAMFER.
 - "W" = 1" UNLESS OTHERWISE INDICATED ON THE DRAWINGS. MIN JOINT WIDTH = 3/8".
 - USE DETAIL "A" AT UNDERSIDE OF SLABS ON GRADE ONLY. USE DETAIL "B" AT ALL OTHER LOCATIONS.
 - PROVIDE 3/4" SHEAR BARS @ 1'-6" CTRS ACROSS JOINT UNLESS NOTED OTHERWISE.
 - REINFORCING STEEL SHALL NOT BE EXTENDED ACROSS JOINT UNLESS NOTED OTHERWISE.
 - SHEAR BARS SHALL BE SMOOTH FREE FROM RUST OR SCALE, AND GREASED TO PREVENT BOND (ONE HALF OF BAR ONLY).

5 EXPANSION JOINT
NO SCALE



4 CMU PATIO WALL
NO SCALE



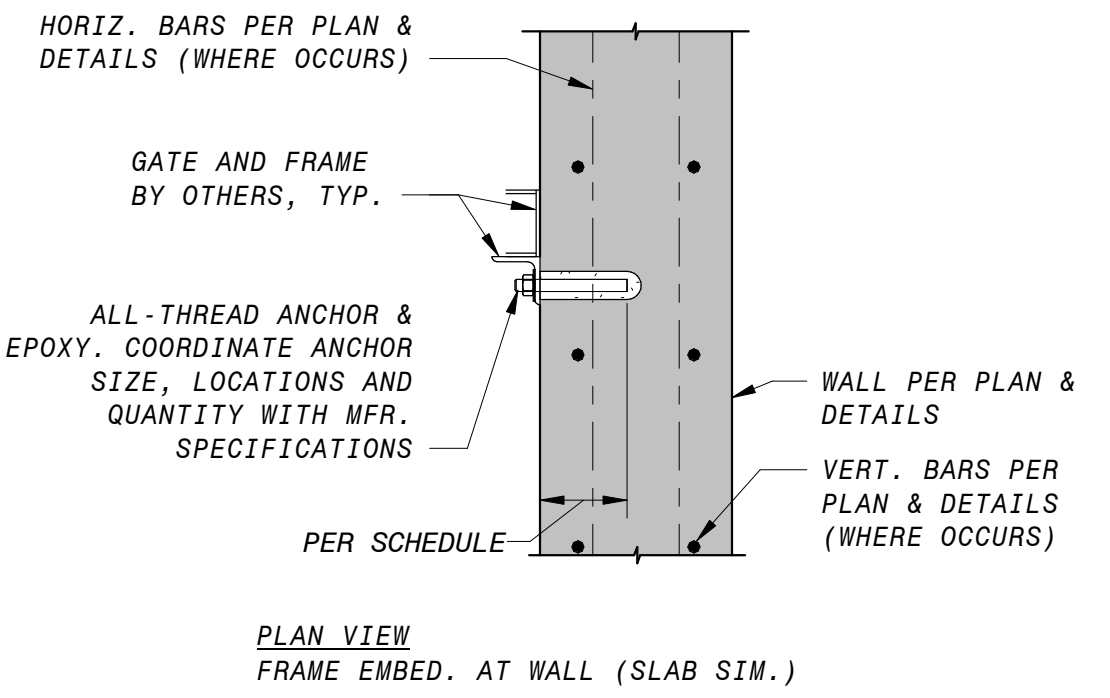
DOWEL SIZE	MIN EDGE DISTANCE	MIN EMBED A	MIN EMBED B
#3	2 5/8"	5 5/8"	8 1/4"
#4	3 1/2"	7 1/2"	11"
#5	4 3/8"	9 3/8"	13 3/4"
#6	5 1/4"	11 1/4"	16 1/2"
#7	6 1/8"	13 1/8"	19 1/4"
#8	7"	15"	22"
#9	7 7/8"	16 7/8"	24 3/4"

- NOTE:
- SPECIAL INSPECTION REQUIRED IN ACCORDANCE WITH THE CURRENT EDITION OF THE CALIFORNIA BUILDING CODE AND PRODUCT ESR REPORT.
 - FOLLOW ADHESIVE MANUFACTURER'S INSTRUCTIONS & ESR REPORT FOR INSTALLATION.
 - USE MINIMUM EMBEDMENTS SHOWN, EXCEPT USE MANUFACTURER'S MINIMUM RECOMMENDED EMBEDMENT IF GREATER.
 - LOCATE DOWELS CENTERED IN WALL OR SLAB UNLESS OTHERWISE NOTED ON DRAWINGS. WHERE 2 ROWS OF DOWELS INDICATED, STAGGER SPACING & LOCATE ALTERNATING DOWELS AT MINIMUM EDGE DISTANCE FROM OPPOSITE FACES.
 - CARE SHALL BE TAKEN TO AVOID EXISTING REINFORCEMENT.
 - COORDINATE WITH DESIGN-BUILDER PRIOR TO DOWELING. EDGE DISTANCE AND EMBEDMENT MAY VARY DEPENDING ON CONDITION.
 - ADHESIVE MAY BE HILTI HIT-RE 500 V3 OR SIMPSON SET-3G.
 - CONFORM TO THE REQUIREMENTS OF SPECIFICATION SECTION 05 81 00, ANCHORAGE IN CONCRETE AND MASONRY

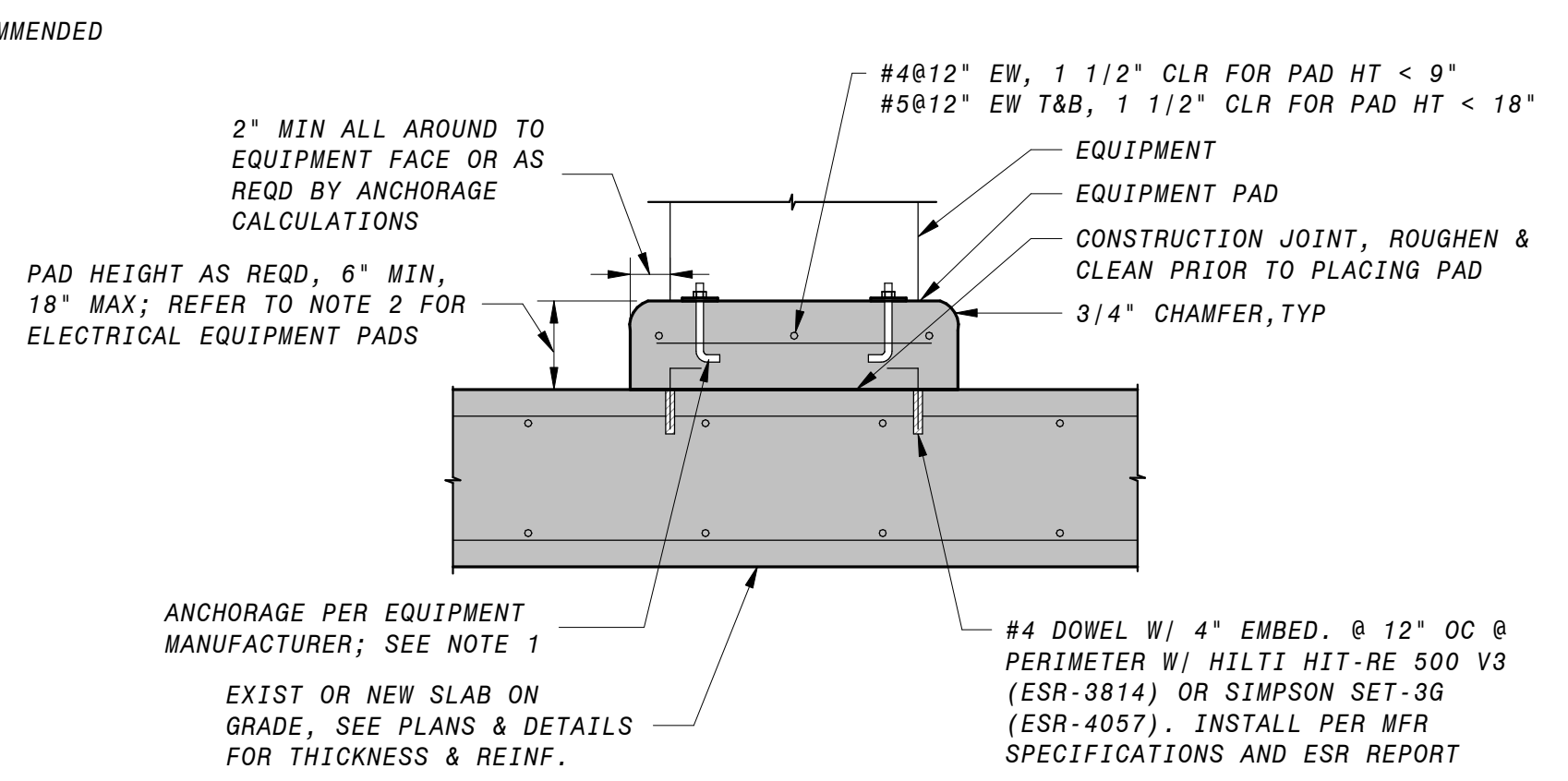
3 ADHESIVE DOWELS
NO SCALE

- NOTES:
- EPOXY SHALL BE HILTI HIT-RE 500 V3 (OR EQ). INSTALL PER MFR SPEC'S AND ESR REPORT. SPECIAL INSPECTION REQUIRED. MIN EDGE DISTANCES PER ESR REPORT.
 - ALL-THREAD ANCHORS TO BE SS316.
 - CARE TO BE TAKEN TO NOT HIT REINF.
 - GATE SHOP DRAWINGS AND ANCHORAGE TO BE COORD WITH EOR PRIOR TO INSTALLATION.

ANCHOR DIA.	MIN. EMBED. (IN)
1/2"	4"
5/8"	5"
3/4"	6"
7/8"	7"

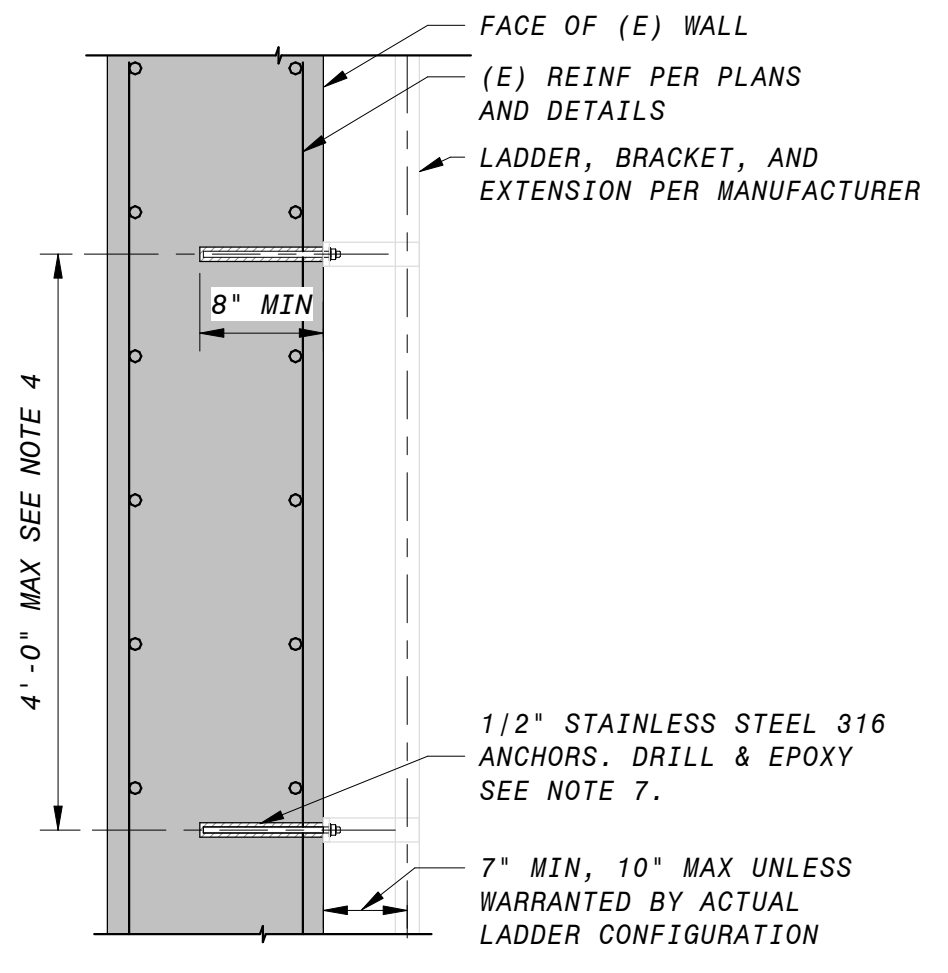


9 SURFACE MOUNT GATE FRAME DETAIL
NO SCALE



- NOTES:
- EQUIPMENT MANUFACTURER TO PROVIDE ANCHORAGE DESIGN INTO EQUIPMENT PAD AS SHOWN AND IN CONFORMANCE WITH THE PROJECT SPECIFICATIONS. INSTALL PER MANUFACTURER INSTRUCTIONS.
 - CONCRETE PADS FOR ELECTRICAL EQUIPMENT SHALL BE 4" HIGH, UNLESS NOTED OTHERWISE.
 - PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE DESIGN-BUILDER. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE OR OTHER ACCEPTABLE MEANS, MATCHING THE BASE PLATE, WHILE PAD IS BEING PLACED.
 - EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS INDICATED OTHERWISE
 - WEDGES, SHIMS, OR LEVELING NUTS SHALL BE USED TO SUPPORT THE BASE WHILE THE NON-SHRINK GROUT IS PLACED. WEDGES OR SHIMS THAT ARE LEFT IN PLACE SHALL NOT BE EXPOSED TO VIEW.
 - WHERE EQUIPMENT OR PIPING ELEVATION REQUIRE A PAD HEIGHT LESS THAN THE MINIMUM SHOWN, CONSULT WITH DESIGN-BUILDER.
 - 1 1/2" MAX., HIGH-STRENGTH, NON-SHRINK GROUT (WHERE REQUIRED) IS PERMITTED.
 - POST-INSTALLED CONCRETE ANCHORS MAY BE USED IN LIEU OF CAST IN PLACE ANCHOR BOLTS WHEN APPROVED BY THE EQUIPMENT MANUFACTURER AND EOR.

1 TYP INTERIOR CONCRETE EQUIPMENT PAD
NO SCALE



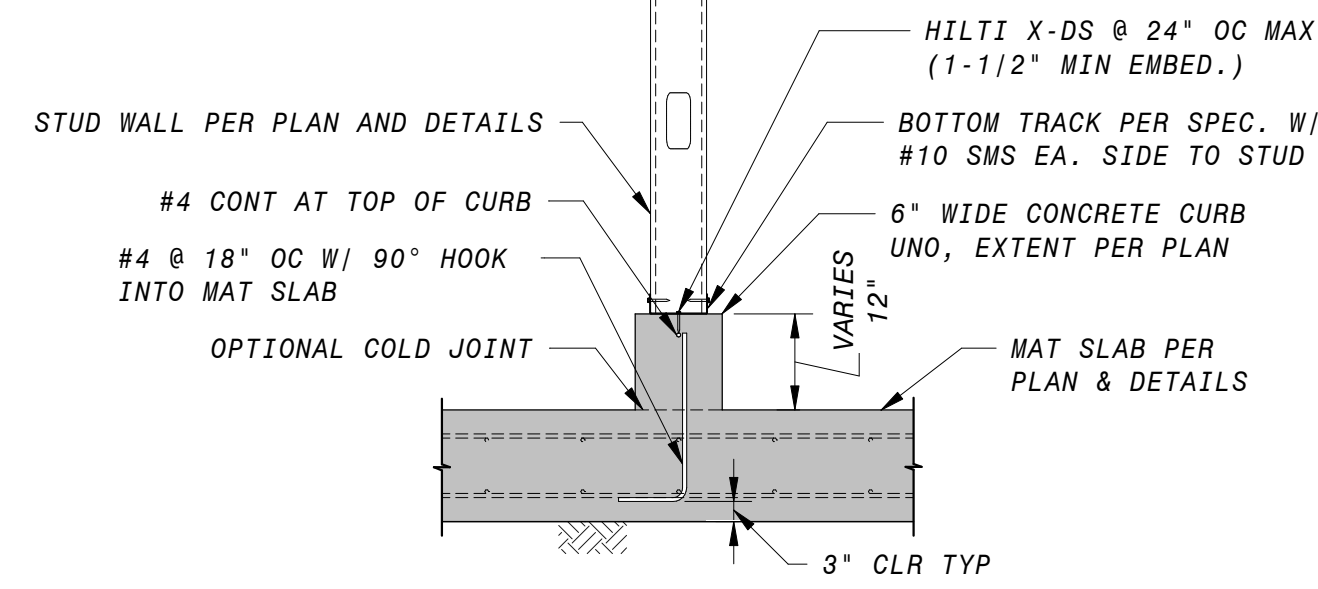
- NOTE:
- SPECIAL INSPECTION REQUIRED IN ACCORDANCE WITH THE CURRENT EDITION OF THE CALIFORNIA BUILDING CODE AND PRODUCT'S ESR REPORT.
 - FOLLOW ADHESIVE MANUFACTURER'S INSTRUCTIONS & ESR REPORT FOR INSTALLATION.
 - USE MINIMUM EMBEDMENTS SHOWN, EXCEPT USE MANUFACTURER'S MINIMUM RECOMMENDED EMBEDMENT IF GREATER.
 - IF LADDER CONFIGURATION REQUIRES A GREATER DISTANCE BETWEEN SUPPORTS THAN INDICATED ON TYPICAL DETAILS, THE LADDER SUPPLIER SHALL DESIGN THE LADDER, LADDER BRACKET, AND LADDER BRACKET CONNECTIONS FOR THE INDICATED SPAN IN ACCORDANCE WITH NOTE 6 BELOW.
 - CARE SHALL BE TAKEN TO AVOID EXISTING REINFORCEMENT.
 - ALL LADDERS SHALL BE DESIGNED AND FABRICATED BY LADDER SUPPLIER IN CONFORMANCE WITH THE LATEST ISSUE OF OASHA/ANSI A14.3, SECTION 1910.27 APPLICABLE BUILDING CODE STANDARDS FOR FIXED WALL LADDERS, AND REQUIREMENTS OF THE CONTRACT DRAWINGS AND SPECIFICATIONS. GENERAL CONFIGURATION AND DETAILS SHALL CONFORM WITH THIS DRAWING. ALL LADDERS TO BE GALVANIZED, UNO.
 - ADHESIVE MAY BE HILTI HIT-RE 500 V3 OR SIMPSON SET-3G.
 - CONFORM TO THE REQUIREMENTS OF SPECIFICATION SECTION 05 81 00, ANCHORAGE IN CONCRETE AND MASONRY.
 - REFER TO SPECIFICATION 06 74 17 FOR LADDER MATERIAL AND ADDITIONAL REQUIREMENTS.

2 LADDER ATTACHMENT
NO SCALE

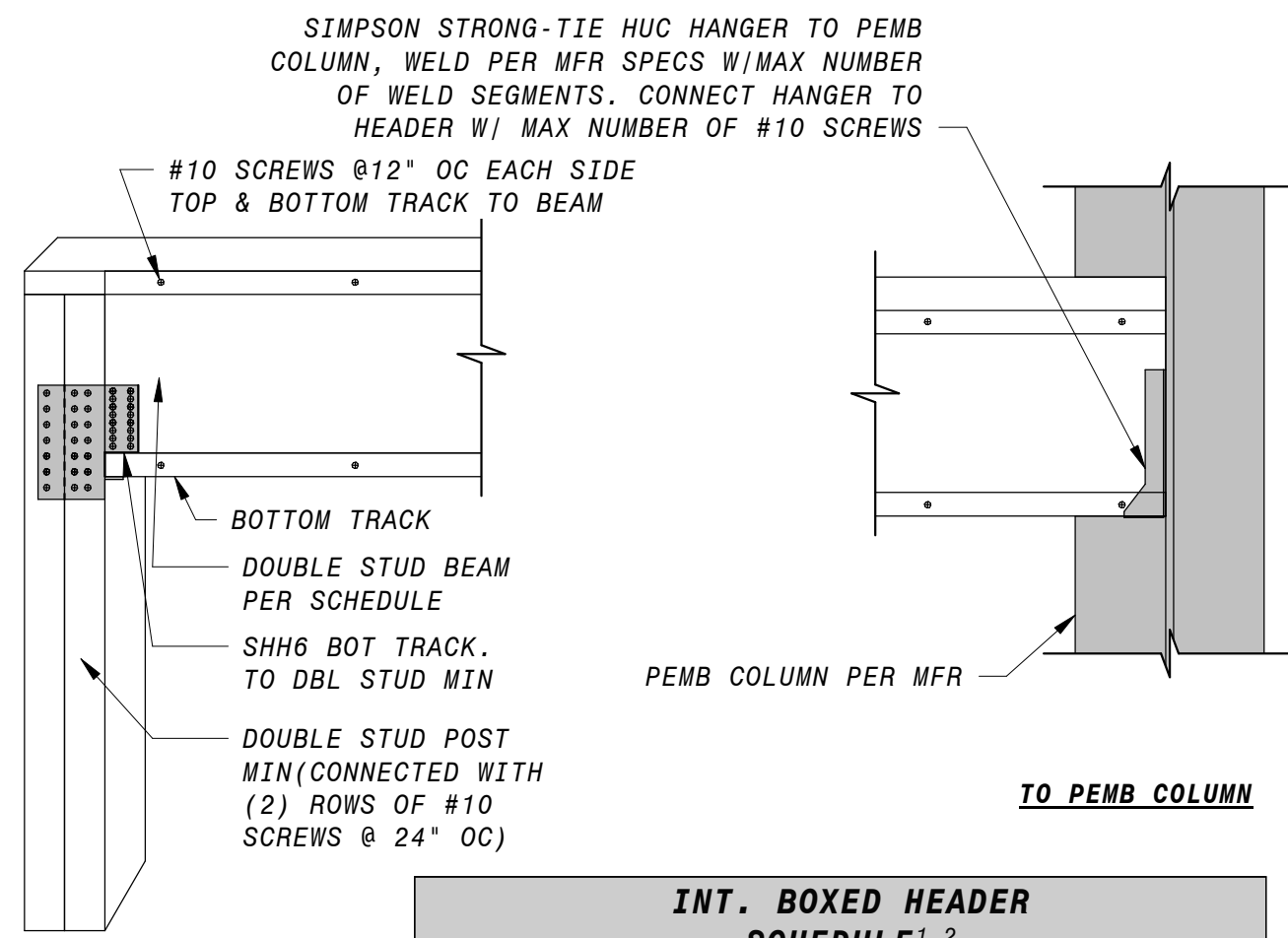
PLOTTED: 5/19/2020 2:45:53 PM D:\06030

NO. 1 BY DATE 5/19/2020 ISSUED FOR CONSTRUCTION REVISIONS AND RECORD OF USE	
JOINT VENTURE FILANC	
GENERAL STRUCTURAL STANDARD DETAILS	
CITY OF MORRO BAY FILANC BLACK & VEATCH DB PROPOSAL WATER RECLAMATION FACILITY (WRF)	
DESIGNED: M. MARSH DETAILED: S. BENJAMIN CHECKED: I. SHOEBRIDGE APPROVED: C. ASHLEY DATE: 5/19/2020	
<p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</p>	
PROJECT NO. 400530	
00-S-105 SHEET 158 OF 412	

- NOTE:**
- LOAD BEARING STUDS MUST BE SEATED TIGHT TO TRACK WEB (MAX. GAP OF 1/16")
 - FOR USE WITH INTERIOR WALLS ONLY.
 - MAXIMUM 5PSF HORIZONTAL LOADING, LIMITED TO WALLS LESS THAN 22' TALL.



9 BOTTOM OF WALL TO CURB
NO SCALE



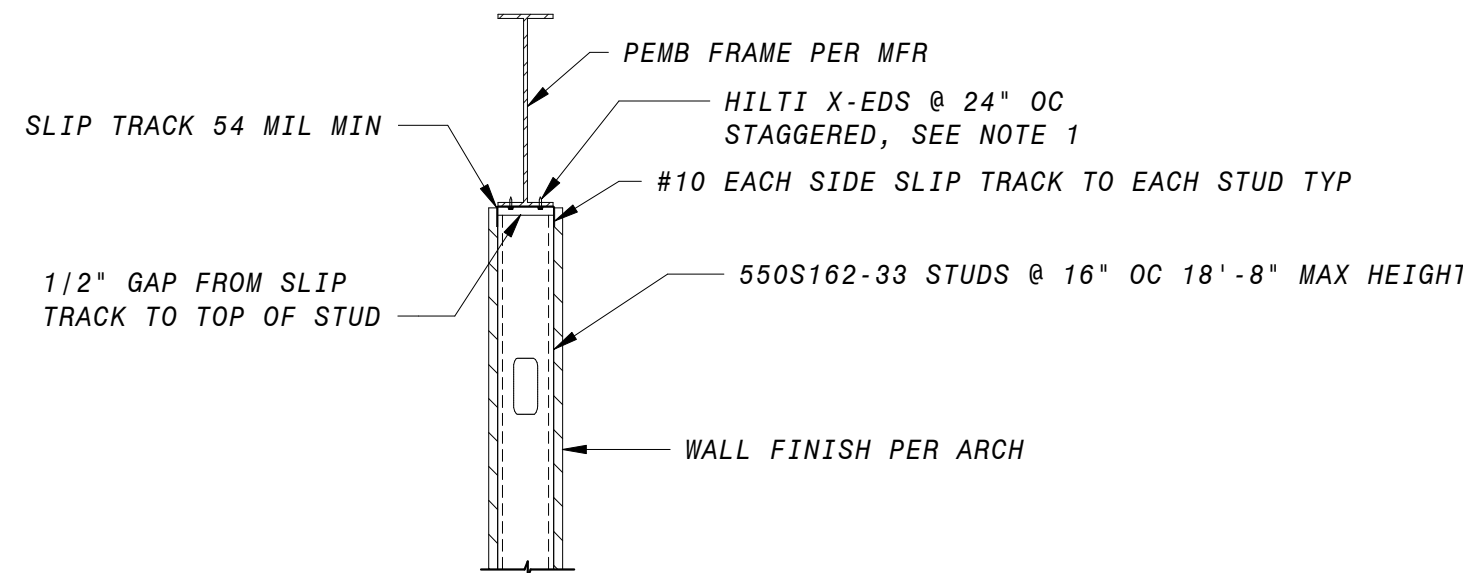
INT. BOXED HEADER SCHEDULE^{1,2}

MAX. SPAN	SIZE	GRADE
6'-0"	(2) 550S162-43	33 KSI
19'-6"	(2) 1400S200-68	33 KSI

NOTES:

- WEB STIFFENERS REQUIRED AT ENDS.
- HEADER DESIGN BASED ON 16PSF TOTAL DEAD LOAD (4 LAYER GYP. WALL BOARD), 5PSF LIVE LOAD (NON-ACCESSIBLE) AND L/240 DEFLECTION LIMIT.

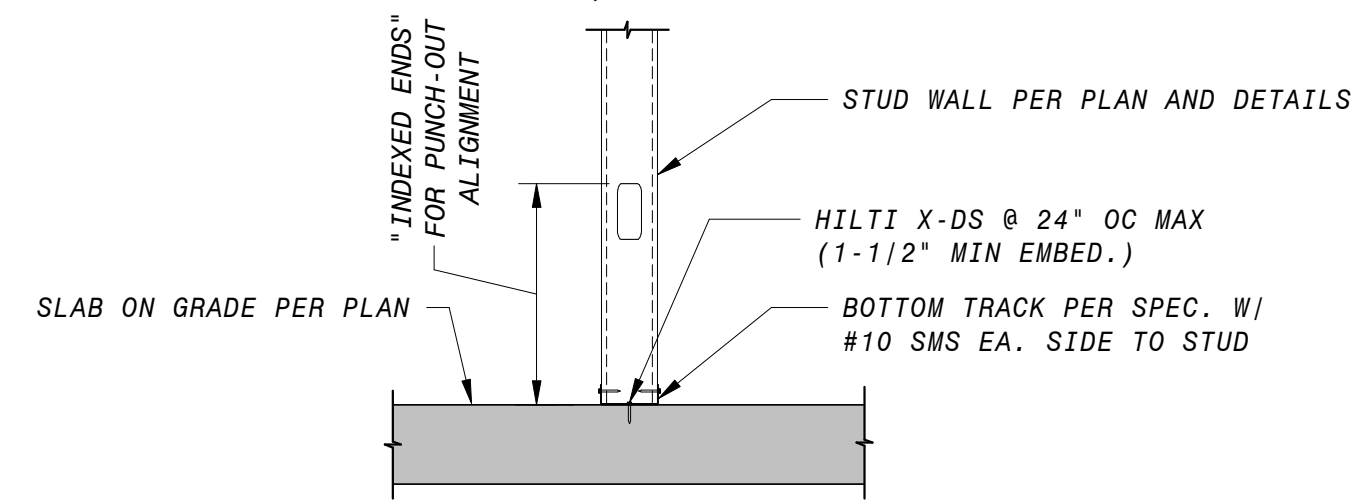
10 TYPICAL ELECTRICAL ROOM HEADER
NO SCALE



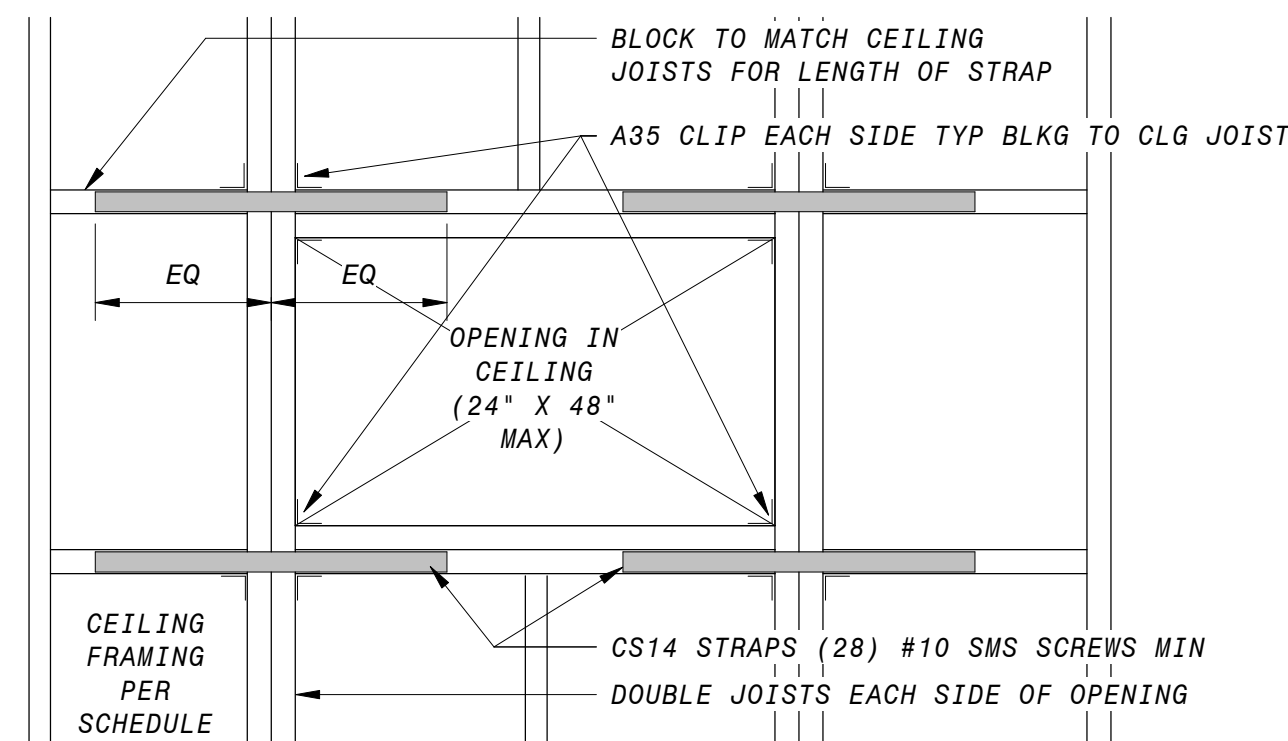
- NOTES:**
- MINIMUM THICKNESS OF BASE MATERIAL (STEEL)=1/4" COORDINATE AS REQUIRED.
 - WALL STUDS SHALL BE BRACED ALONG THEIR LENGTH AT 48" OC IF NOT SHEATHED WITH 5/8" GYP BOARD OF 1/2" PLYWOOD EACH SIDE, FULL HEIGHT.
 - WALL DESIGN BASED ON 5PSF LATERAL LOAD AND L/240 DEFLECTION LIMIT.

11 TOP OF WALL TO PEMB FRAME
NO SCALE

- NOTE:**
- LOAD BEARING STUDS MUST BE SEATED TIGHT TO TRACK WEB (MAX. GAP OF 1/16")
 - FOR USE WITH INTERIOR WALLS ONLY.
 - MAXIMUM 5PSF HORIZONTAL LOADING, LIMITED TO WALLS LESS THAN 22'-0" TALL

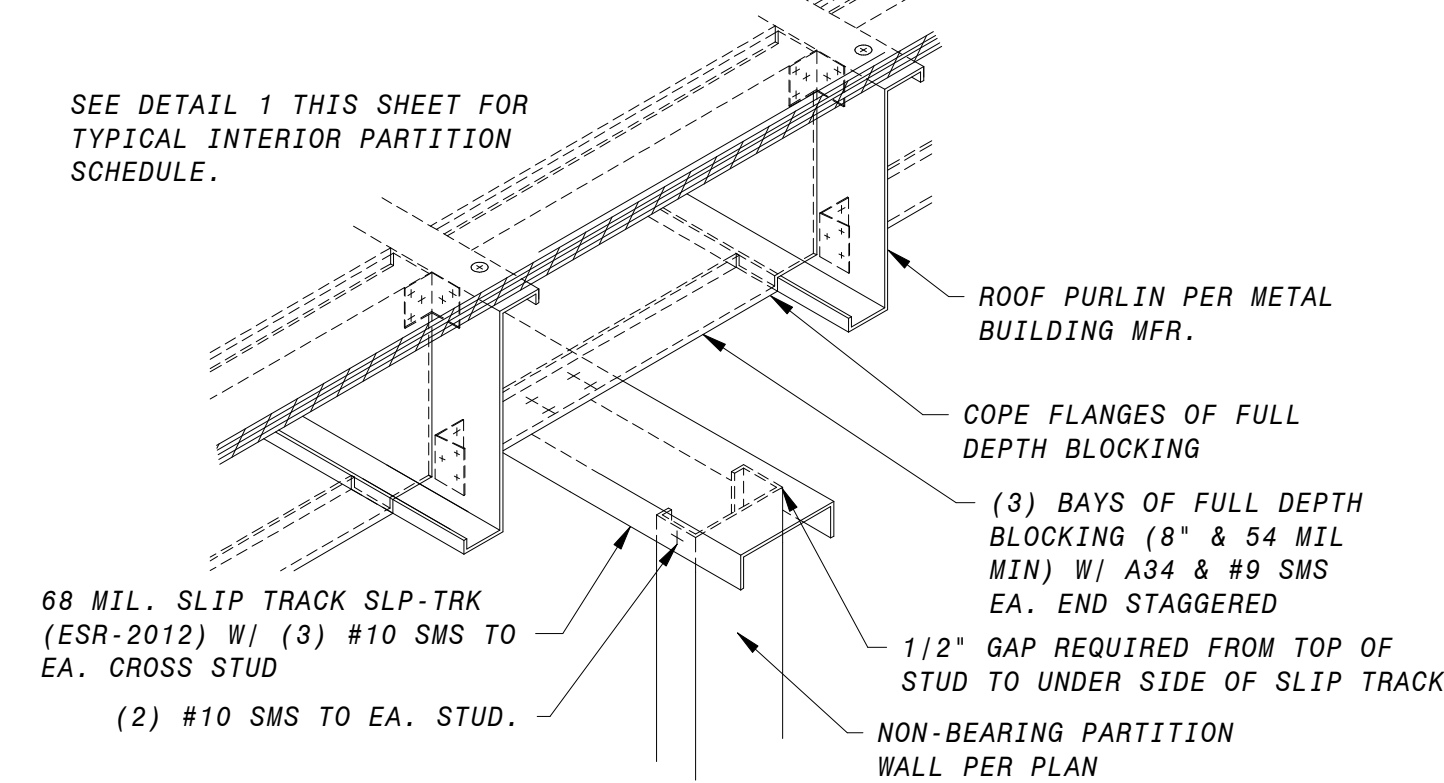


6 BOTTOM OF WALL TO SLAB ON GRADE
NO SCALE



7 TYPICAL BLOCKOUT FRAMING
NO SCALE

SEE DETAIL 1 THIS SHEET FOR TYPICAL INTERIOR PARTITION SCHEDULE.



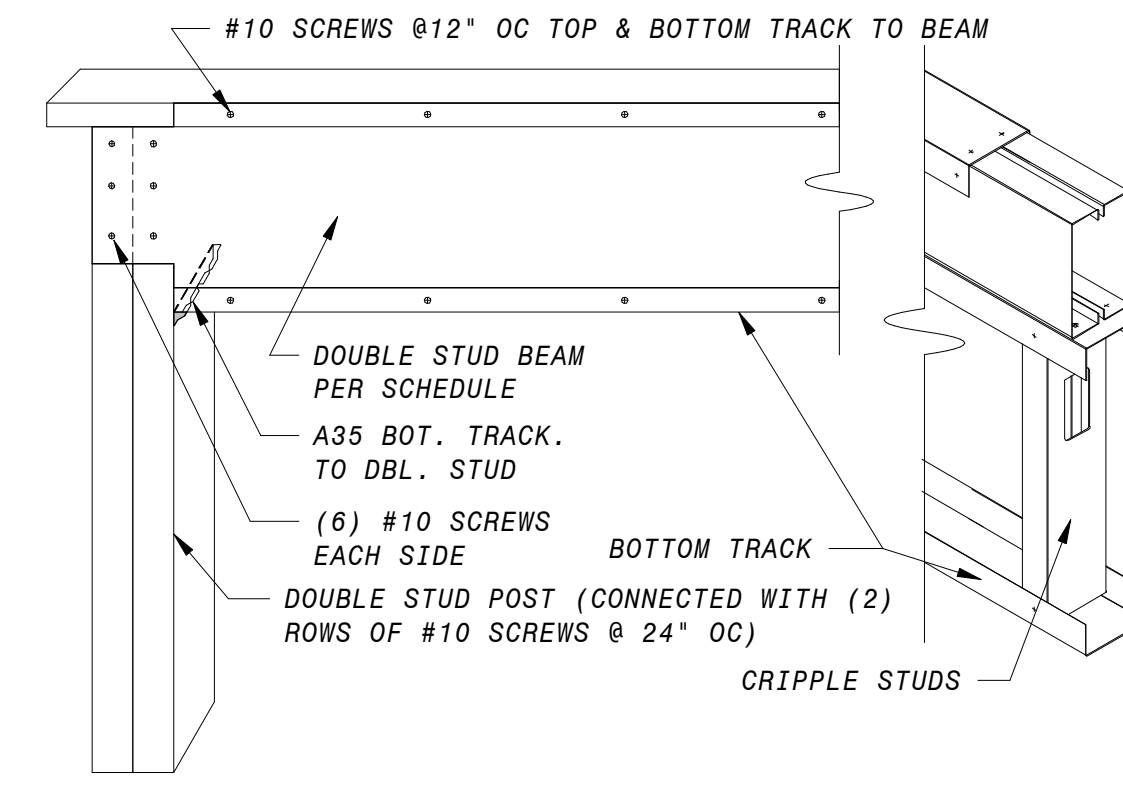
WALL SCHEDULE AT TYPICAL INTERIOR PARTITIONS

WALL	MAX. HT.	SIZE	GRADE	SPACING
TYP INTERIOR WALL	15'-0"	362S137-43	33 KSI	24" OC
	22'-0"	362S162-54	50 KSI	12" OC
PLUMBING WALL	22'-0"	600S162-43	33 KSI	24" OC
INTERIOR WALL W/ CASEWORK, GRAB BAR OR HAND RAILS	15'-0"	362S200-54	50 KSI	12" OC
	22'-0"	600S200-54	50 KSI	12" OC

NOTES:

- WALL STUDS SHALL BE BRACED ALONG THEIR LENGTH AT 48" OC IF NOT SHEATHED WITH 5/8" GYP BOARD OR 1/2" PLYWOOD EACH SIDE, FULL HEIGHT.
- WALL DESIGN BASED ON 5PSF LATERAL LOAD AND L/240 DEFLECTION LIMIT.

8 TOP OF STEEL STUD WALL SUPPORT
NO SCALE



INT. BOXED HEADER SCHEDULE^{1,2}

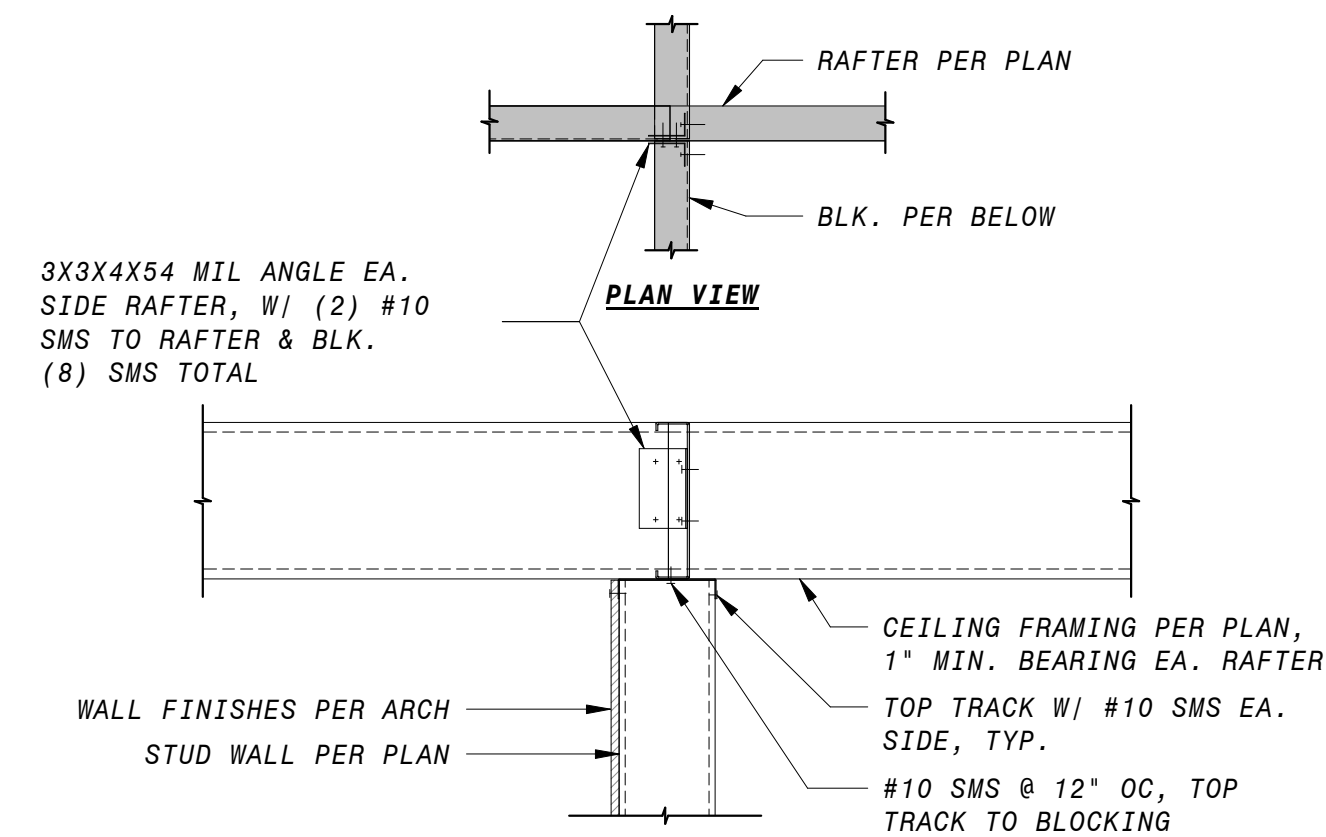
MAX. SPAN	SIZE	GRADE
6'-0"	(2) 550S162-43	33 KSI
10'-0"	(2) 600S162-43	33 KSI

NOTES:

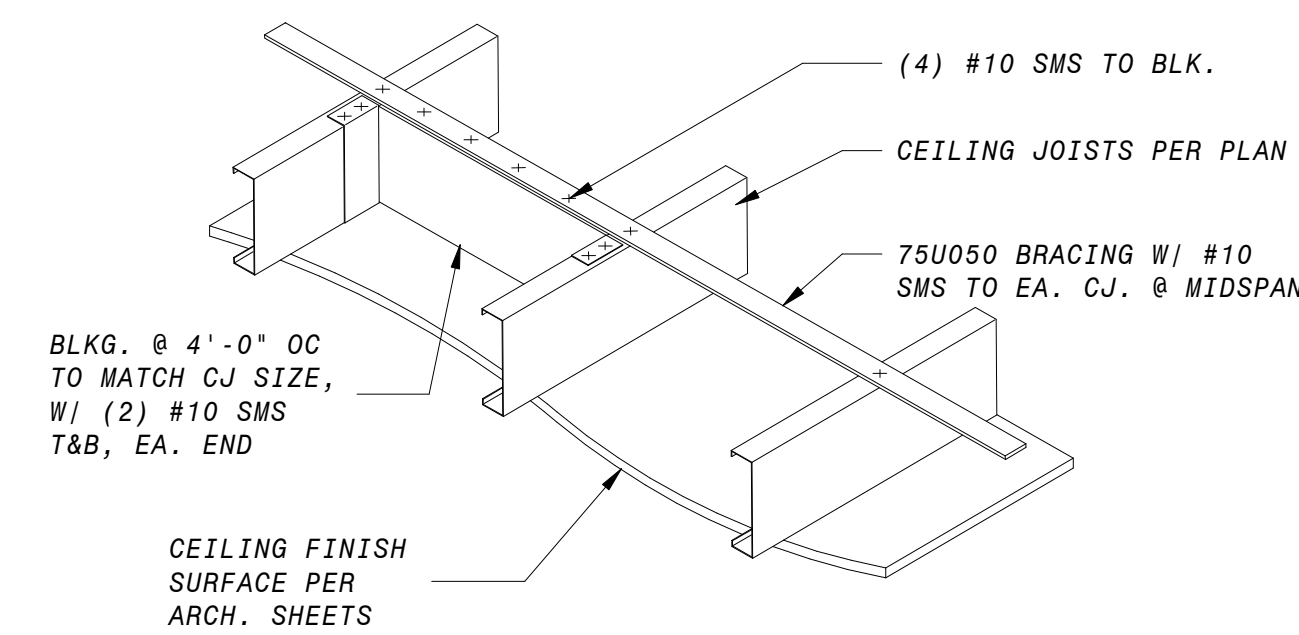
- WEB STIFFENERS REQUIRED AT ENDS.
- TYPICAL HEADER DESIGN BASED ON CEILING LOADING OF 8PSF TOTAL DEAD LOAD, 5PSF LIVE LOAD W/ MAX SPAN OF 24'-0".

3 TYPICAL HEADER
NO SCALE

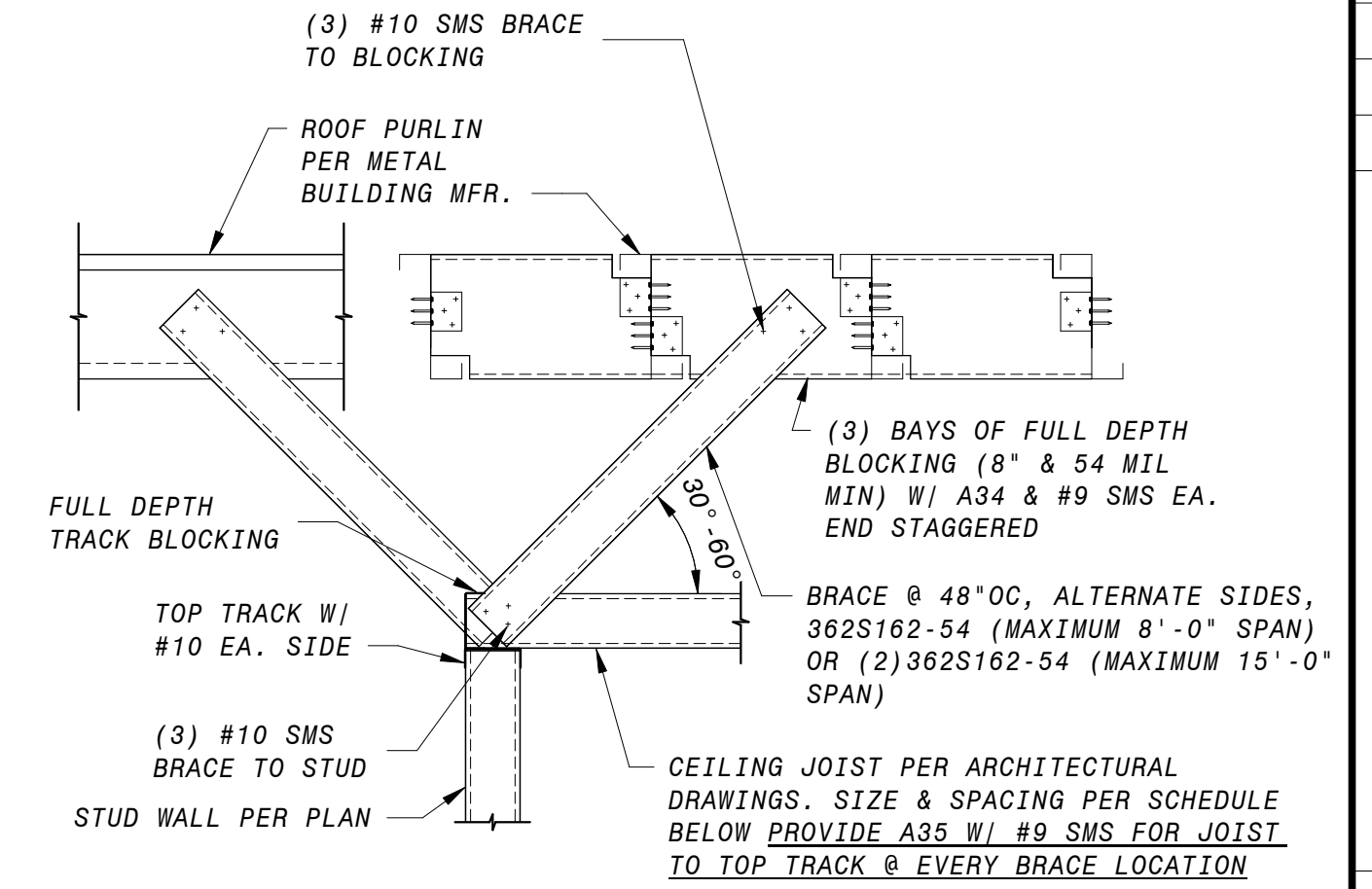
SEE DETAIL 2 THIS SHEET FOR TYPICAL CEILING JOIST SCHEDULE.



4 CEILING JOISTS TO INTERIOR WALL
NO SCALE



5 TYPICAL CEILING JOIST BRACING
NO SCALE



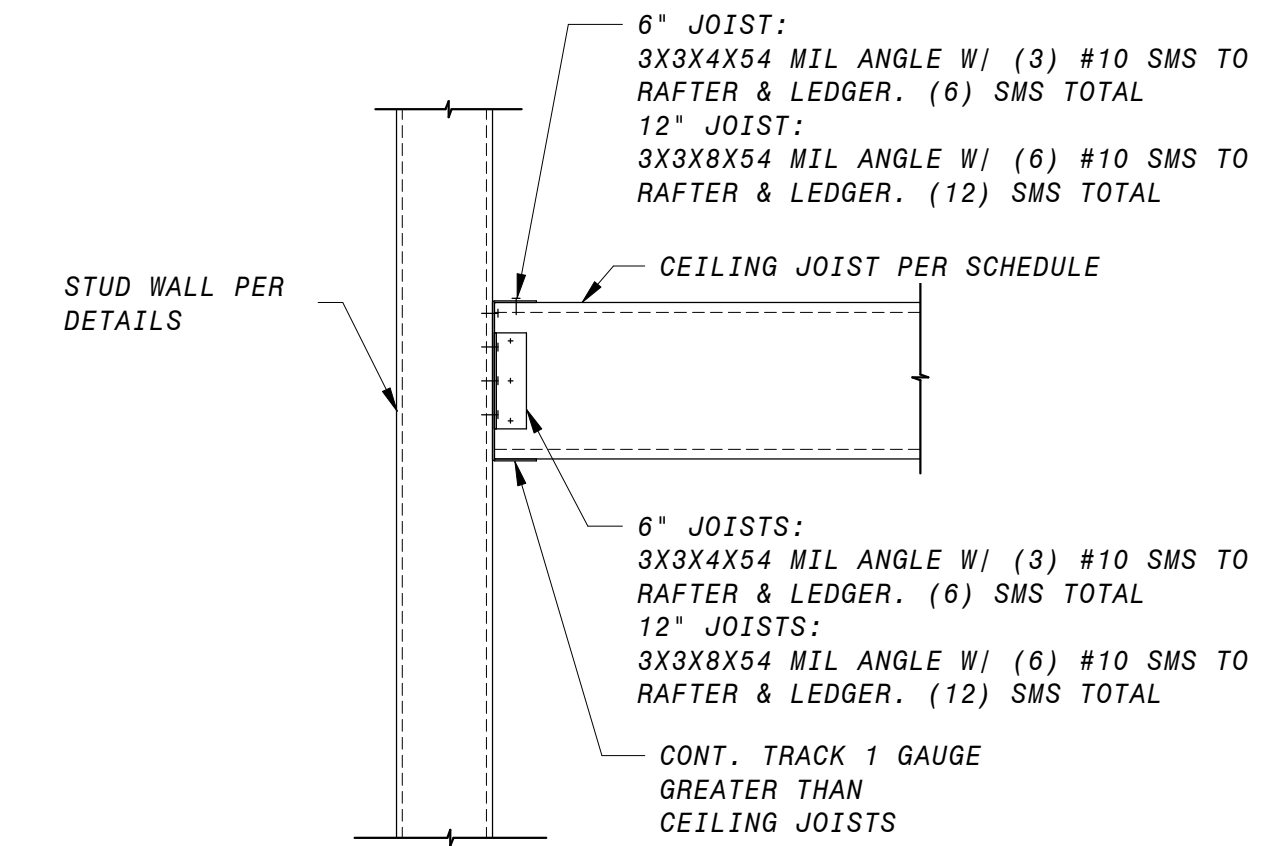
WALL SCHEDULE AT TYPICAL INTERIOR PARTITIONS

WALL	MAX HT	SIZE	GRADE	SPACING
TYP INTERIOR WALL	15'-0"	362S137-43	33 KSI	24" OC
PLUMBING WALL	15'-0"	600S162-43	33 KSI	24" OC
INTERIOR WALL W/ CASEWORK, GRAB BAR OR HAND RAILS	15'-0"	362S200-54	50 KSI	12" OC
	15'-0"	600S200-54	50 KSI	16" OC

NOTES:

- WALL STUDS SHALL BE BRACED ALONG THEIR LENGTH AT 48" OC IF NOT SHEATHED WITH 5/8" GYP BOARD OR 1/2" PLYWOOD EACH SIDE, FULL HEIGHT.
- WALL DESIGN BASED ON 5PSF LATERAL LOAD AND L/240 DEFLECTION LIMIT.

2 TOP OF WALL BRACING
NO SCALE



CEILING JOIST SCHEDULE (MAX SPAN, FT-IN)

SECTION (SSMA)	Fy (KSI)	ALLOWABLE SPAN	SPACING
TYPICAL CEILING LOADING^{1,3,4,5,6,7}			
600S162-43	33	15'-0"	24" O.C.
1200S200-54	50	24'-0"	24" O.C.
E-ROOM LOADING^{2,3,4,5,6,7}			
1200S200-54	50	20'-0"	24" O.C.

NOTES:

- TYPICAL JOIST DESIGN BASED ON 8PSF TOTAL DEAD LOAD (2 LAYER GYP WALL BOARD), 5PSF LIVE LOAD (NON-ACCESSIBLE) AND L/240 DEFLECTION LIMIT.
- TYPICAL JOIST DESIGN BASED ON 16PSF TOTAL DEAD LOAD (4 LAYER GYP. WALL BOARD), 5PSF LIVE LOAD (NON-ACCESSIBLE) AND L/240 DEFLECTION LIMIT.
- 1" MINIMUM BEARING REQUIRED AT EACH END.
- WEB PUNCHOUTS MAY NOT OCCUR NEAR SUPPORTS.
- STORAGE LOADING NOT PERMITTED.
- WEB STIFFENERS REQUIRED AT ENDS.
- BRACING REQUIRED AT MIDSPAN FOR SPANS > 14'

2 CEILING JOIST TO STUD WALL
NO SCALE

DESIGNED: M. MARSH
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

PROJECT NO. 400530
 SHEET 159 OF 412

CITY OF MORRO BAY
 FILANC BLACK & VEATCH DB PROPOSAL
 WATER RECLAMATION FACILITY (WRF)

GENERAL STRUCTURAL STANDARD DETAILS

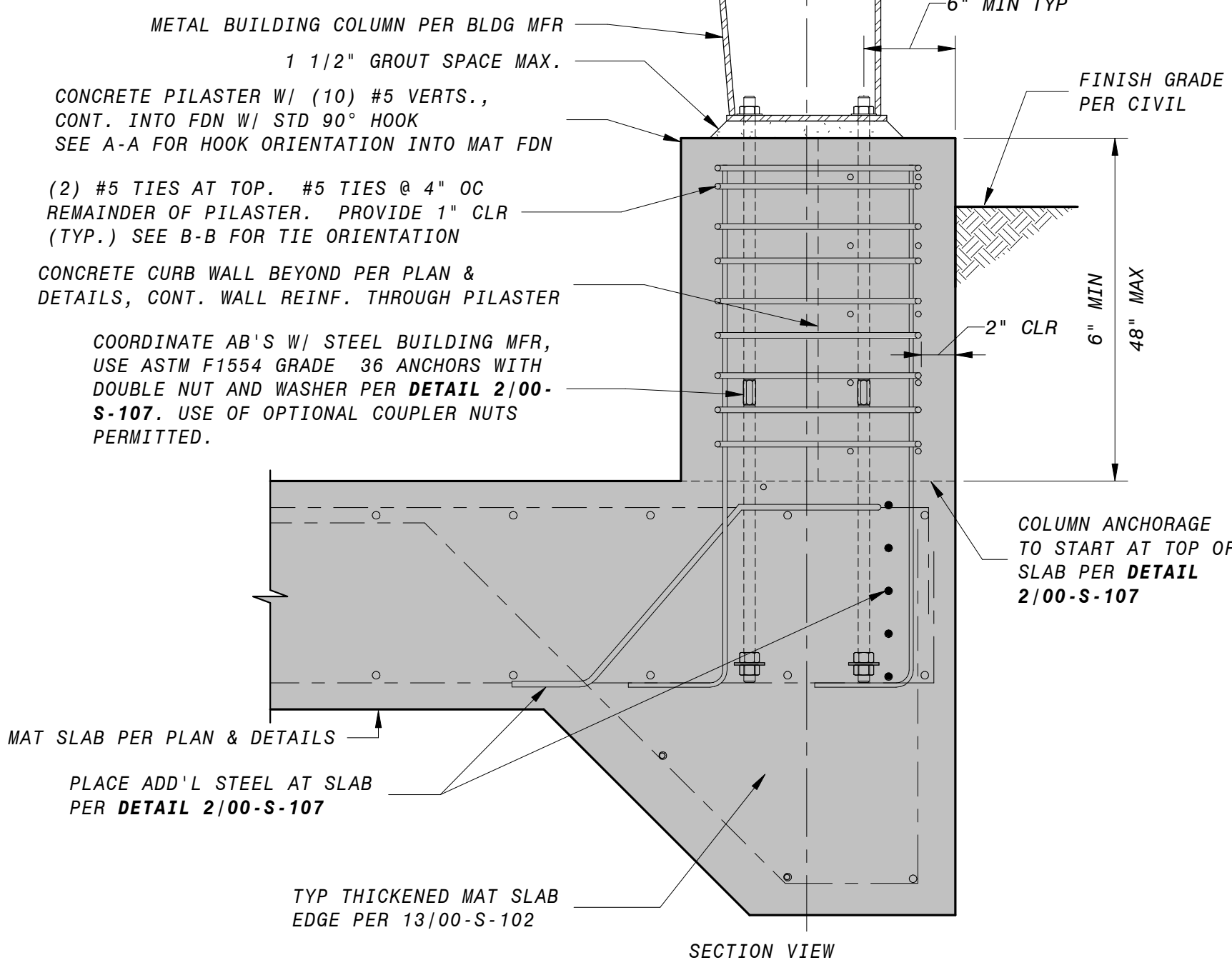
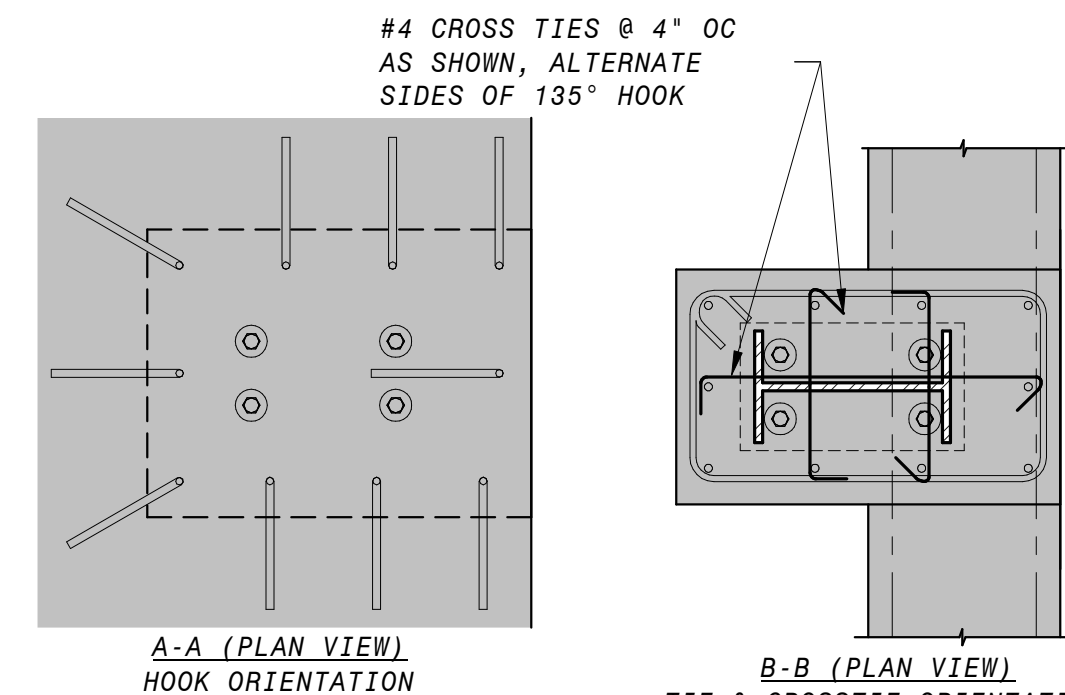
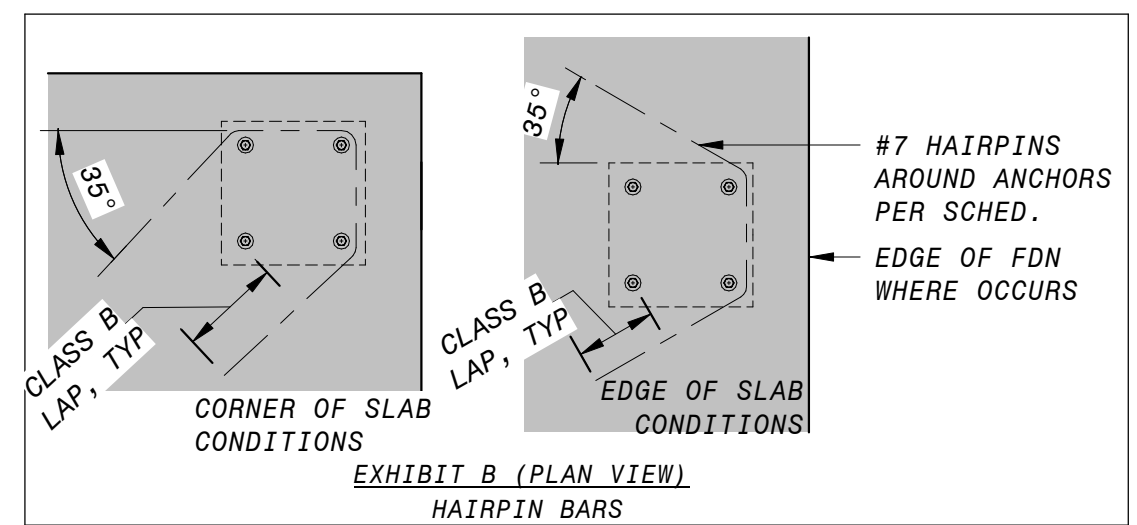
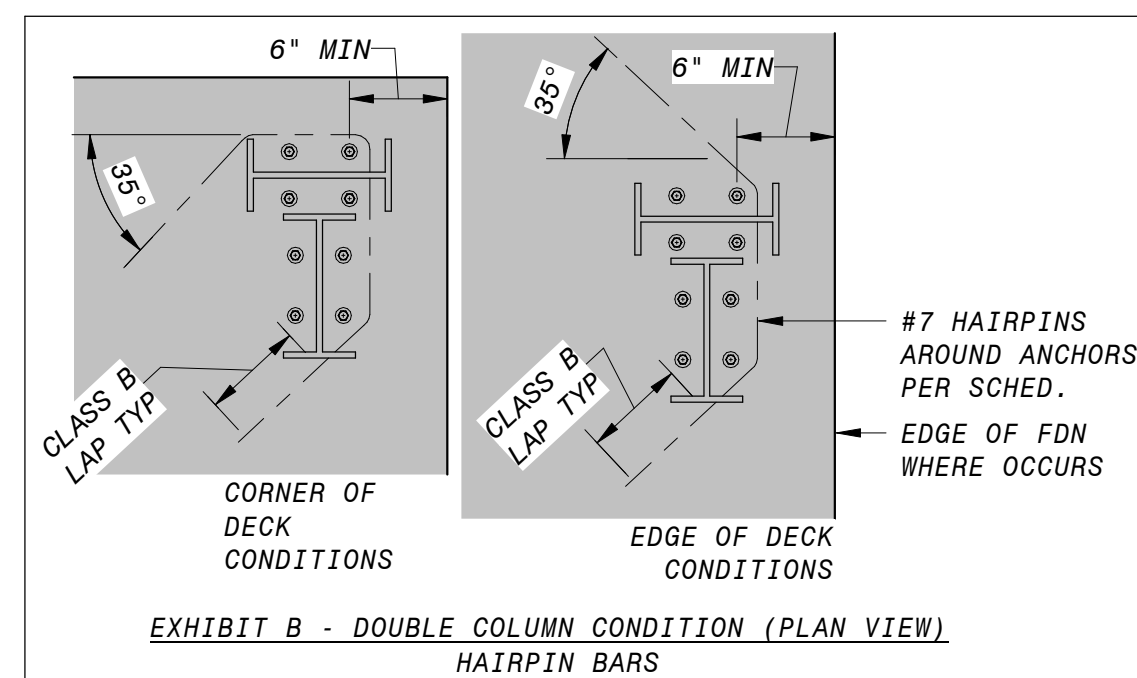
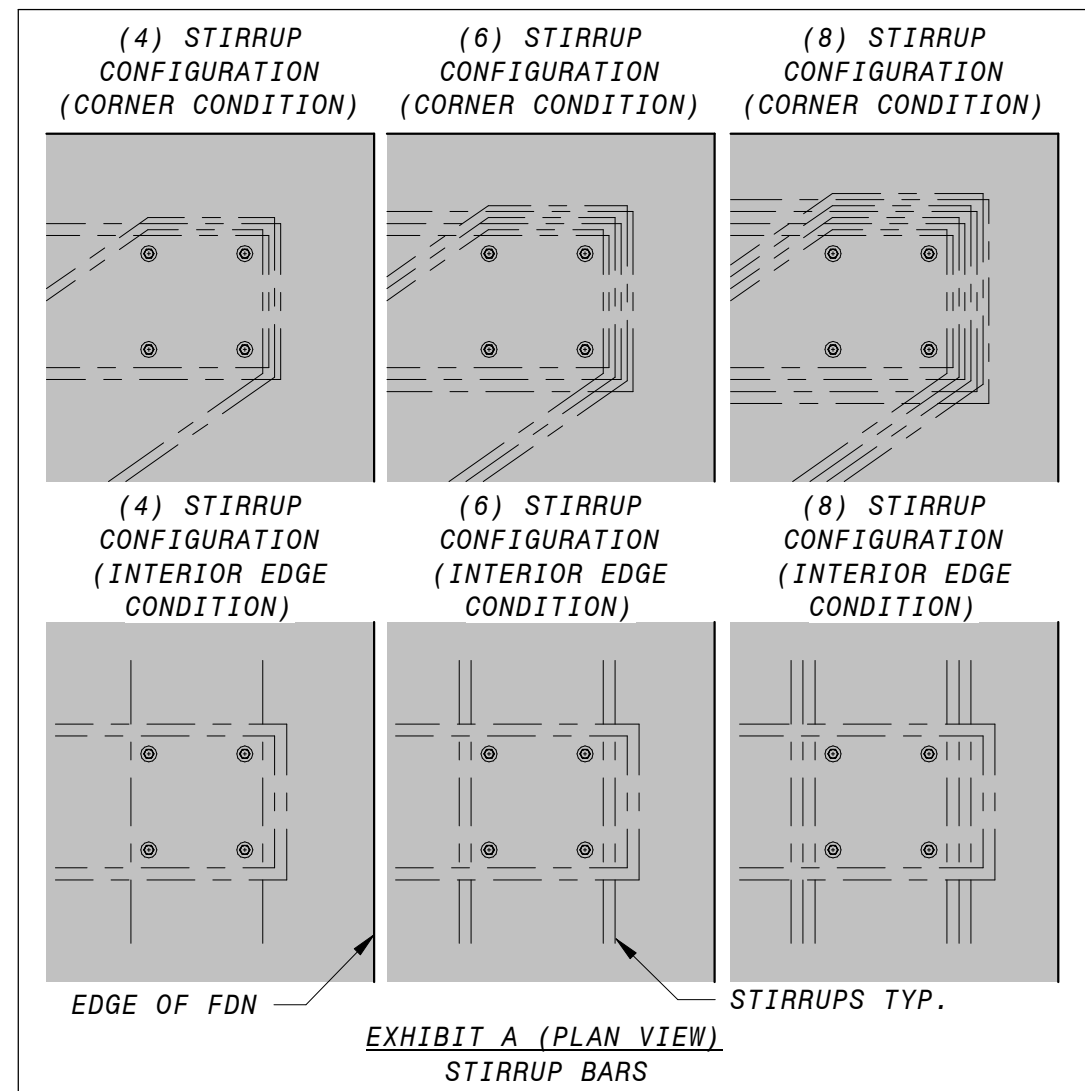
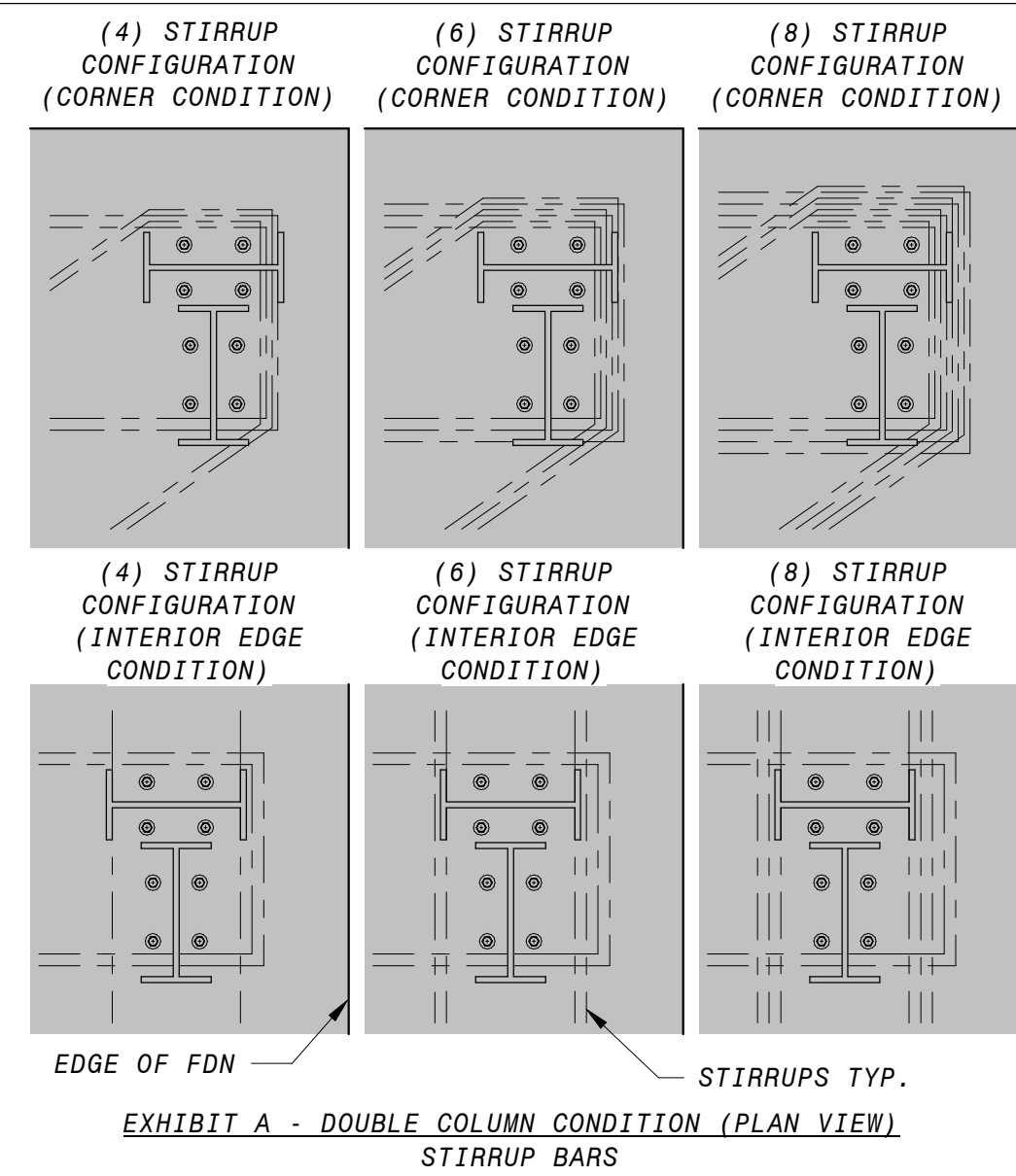
ASHLEY & VANCE ENGINEERING, INC.
 JOINT VENTURE
 FILANC BLACK & VEATCH

REGISTERED PROFESSIONAL ENGINEER
 CHARLES R. ASHLEY
 STATE OF CALIFORNIA
 52258

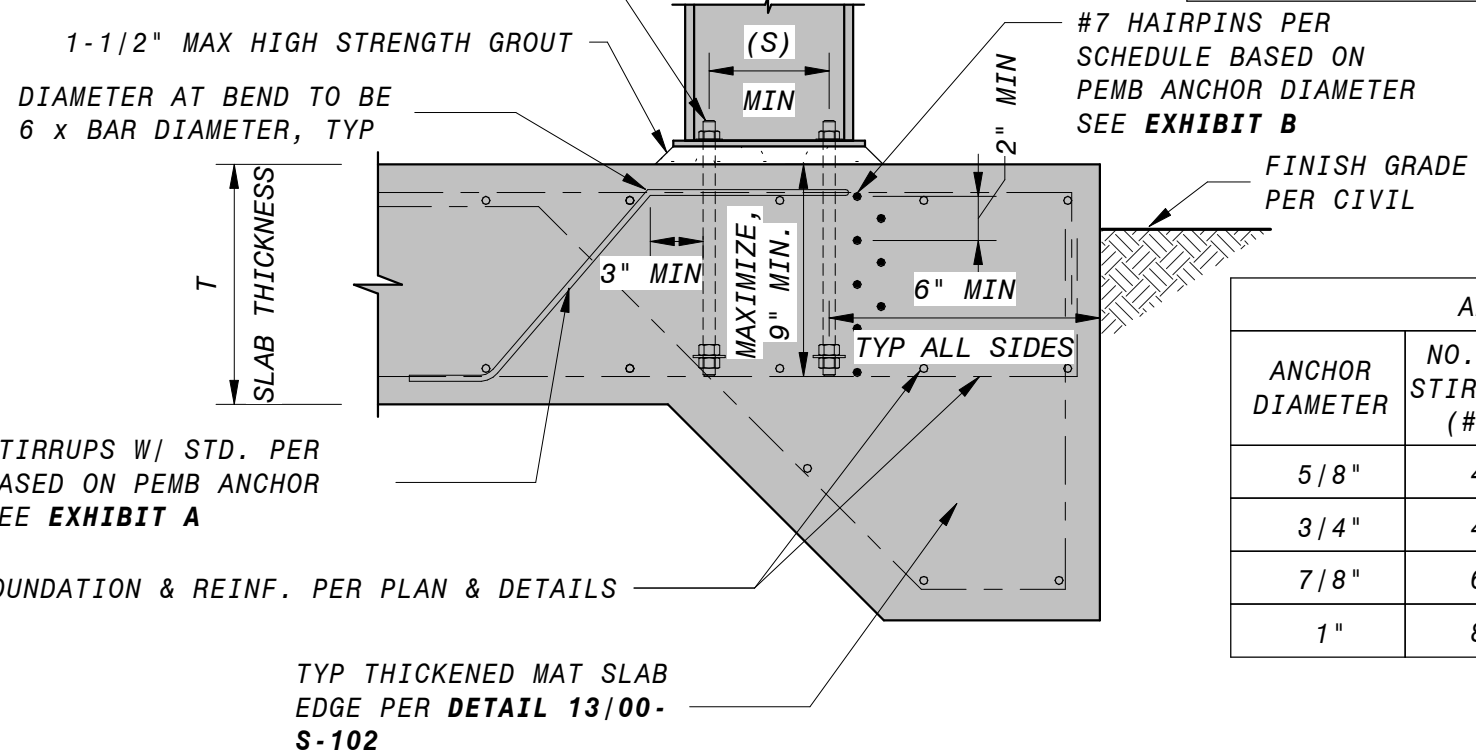
ISSUED FOR CONSTRUCTION
 5/19/2020
 DATE

NO. BY
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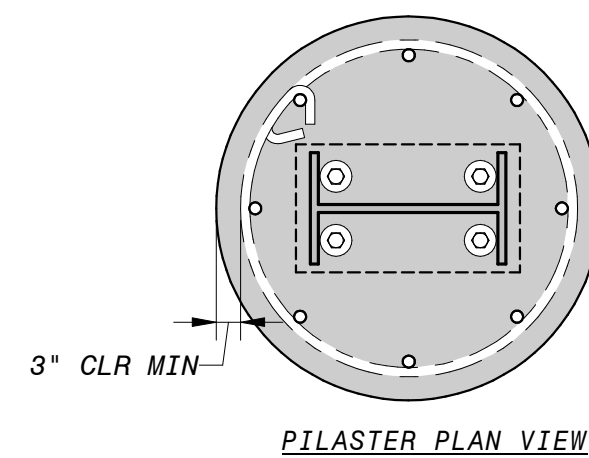
REVISIONS AND RECORD OF USE



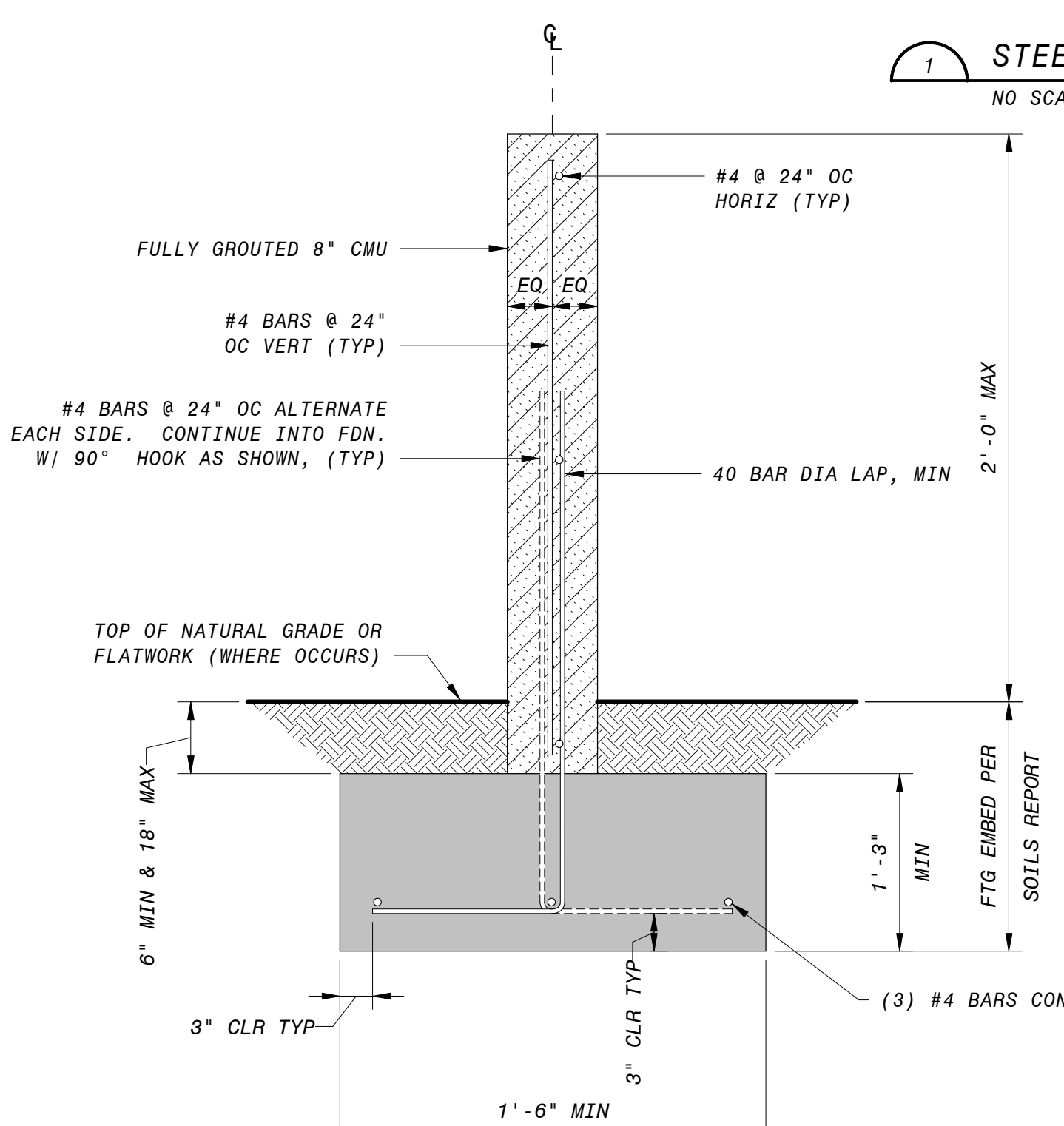
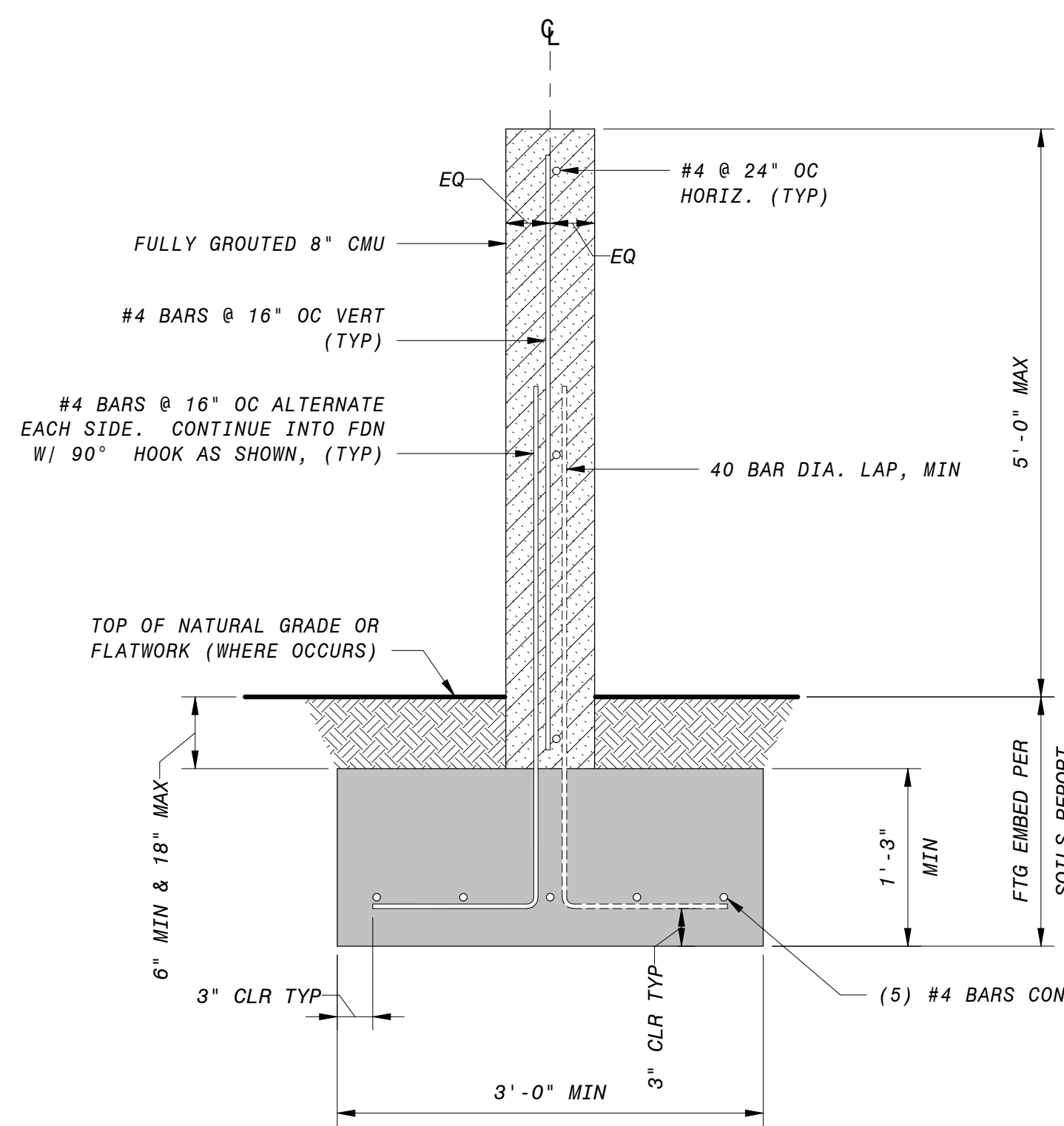
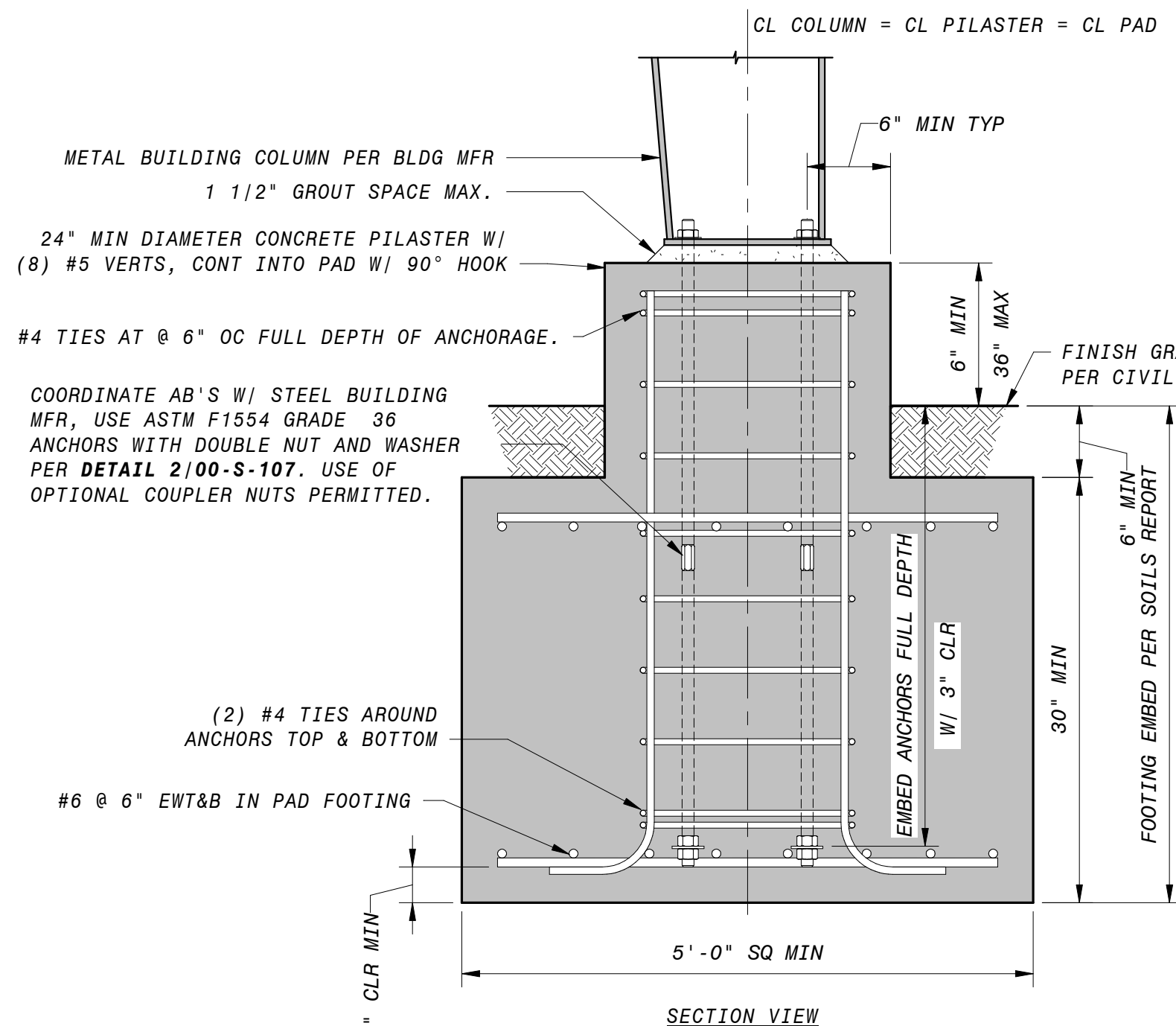
COORDINATE ANCHORS WITH METAL BUILDING MFR, USE ASTM F1554 GRADE 36 ANCHORS WITH DOUBLE NUT AND WASHER PER SCHEDULE



ADD'L REINFORCEMENT SCHEDULE				
ANCHOR DIAMETER	NO. OF STIRRUPS (#5)	NO. OF HAIRPINS (#7)	SPACING (S) MINIMUM	WASHER SIZE
5/8"	4	3	3"	1/2X1-3/4X1-3/4"
3/4"	4	4	4"	1/2X2-1/4X2-1/4"
7/8"	6	5	4"	1/2X2-1/2X2-1/2"
1"	8	7	6"	5/8X3X2-3/4"



1 STEEL FRAME AT CONCRETE PILASTER
 NO SCALE



ISSUED FOR CONSTRUCTION	0	NO. BY	CHK PJP
DATE	5/19/2020	REVISED AND RECORD OF USE	



ASHLEY & VANCE
 ENGINEERING, INC.

JOINT VENTURE

FILANC
 BLACK & VEATCH

CITY OF MORRO BAY
 FILANC BLACK & VEATCH DB PROPOSAL
 WATER RECLAMATION FACILITY (WRF)

GENERAL
 STRUCTURAL
 STANDARD DETAILS

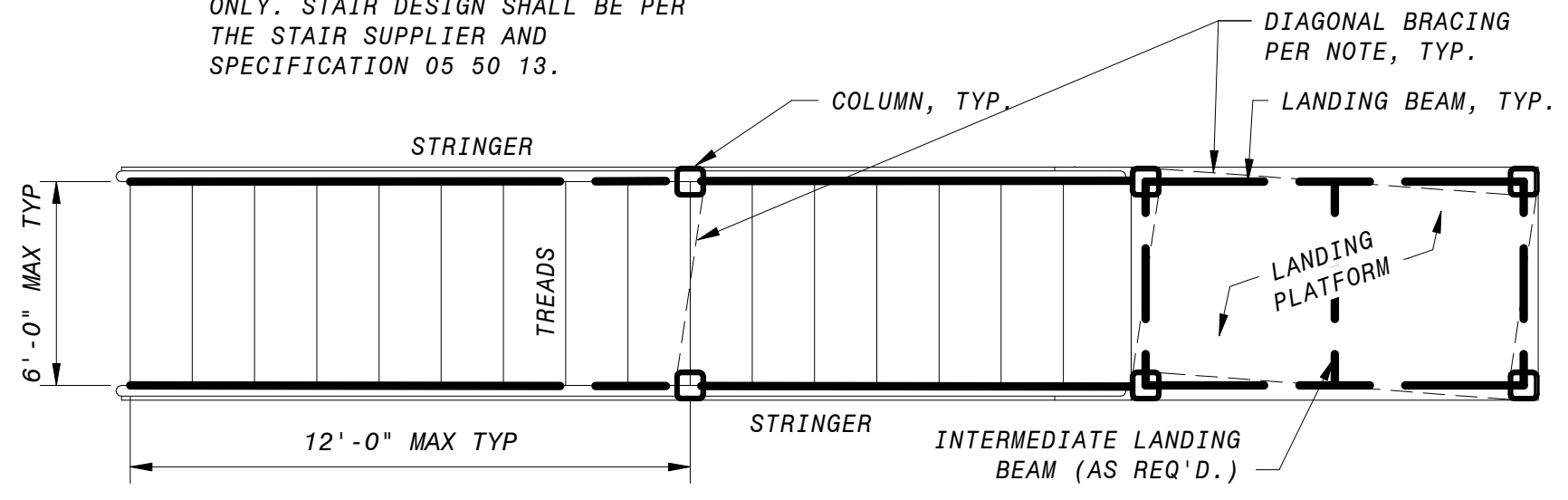
DESIGNED: M. MARSH
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
 400530

00-S-107
 SHEET
 160 OF 412

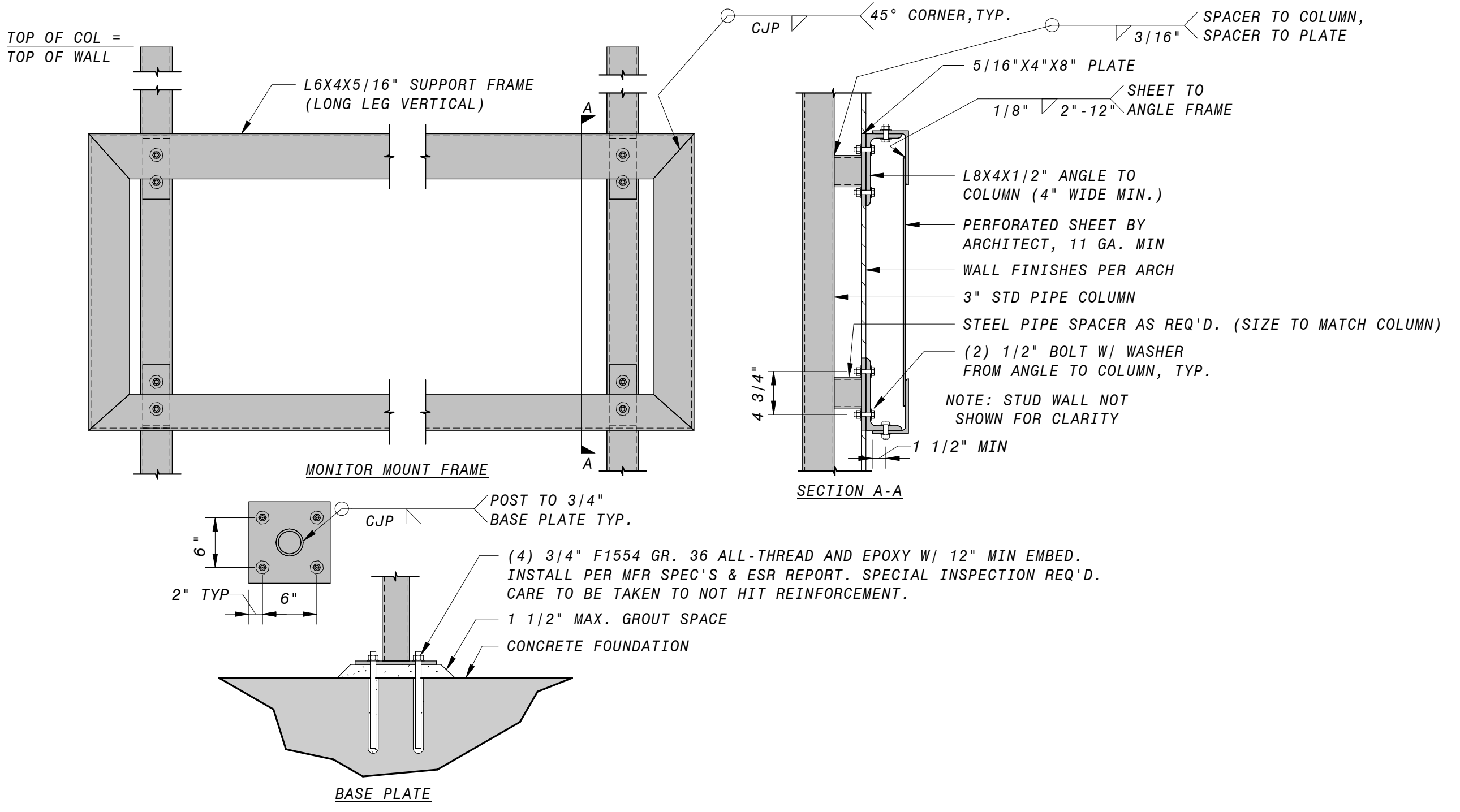
NOTES:
 1. INFORMATION SHOWN IS FOR REFERENCE ONLY. STAIR DESIGN SHALL BE PER THE STAIR SUPPLIER AND SPECIFICATION 05 50 13.



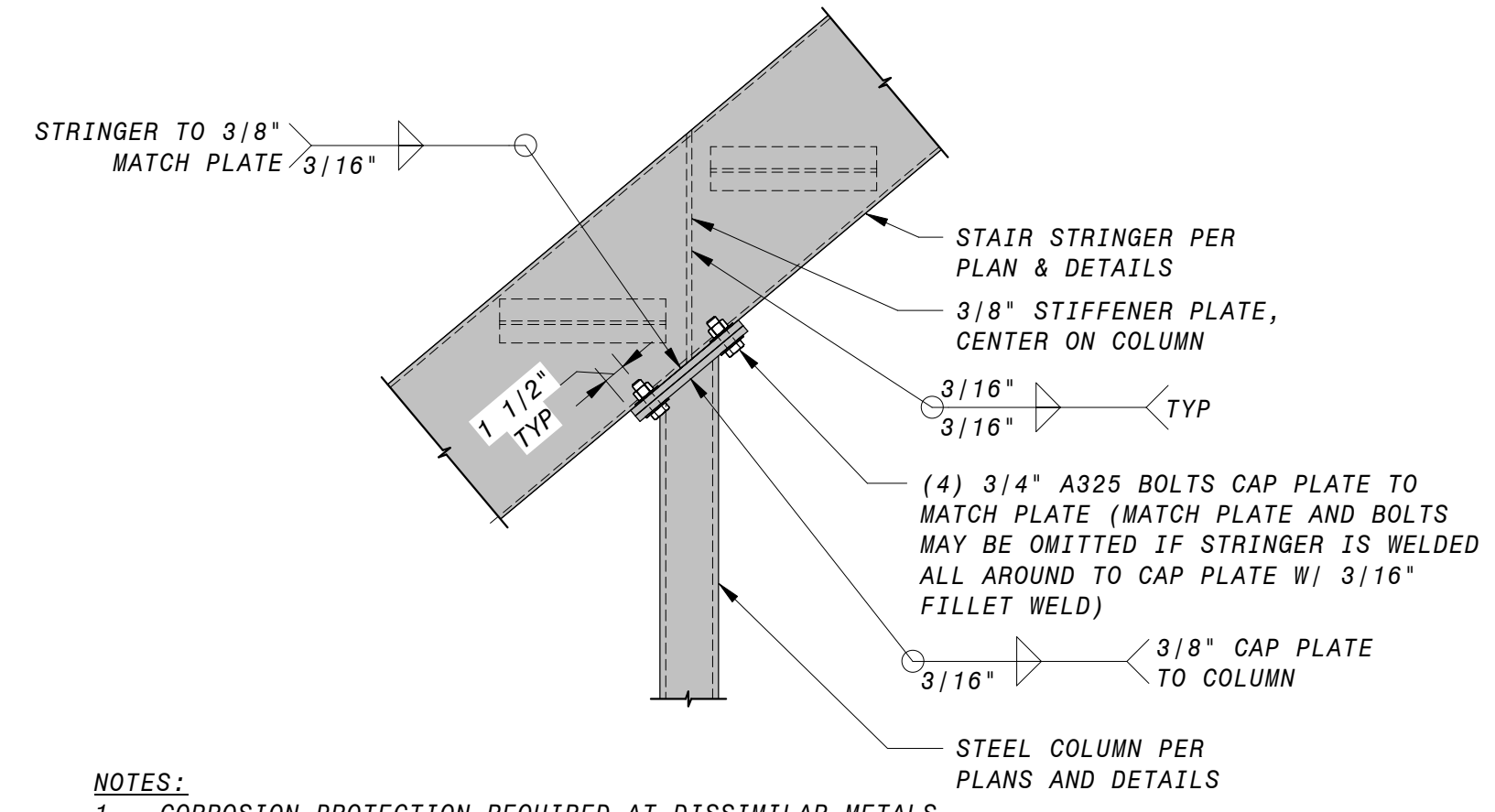
TYP. STAIR LAYOUT REFERENCE

TYP. STEEL STAIR CONSTRUCTION	
TYPICAL FRAMING	
TREADS:	2" MIN GRATING. SEE NOTE BELOW
STRINGERS:	MC12X14.3 MAX SPAN 12'-0"
LANDING BEAMS:	MC12X14.3 MAX SPAN 12'-0"
LANDING PLATFORM:	2" MIN GRATING. SEE NOTE BELOW
COLUMNS:	HSS4X4X1/4" MAX HEIGHT 12'-0"
DIAGONAL BRACING	
AT LANDINGS AND SUPPORTS OVER 6'-0" TALL. PROVIDE L4X4X1/4" DIAGONAL BRACING EACH SIDE W/ 3/16" FILLET WELD ALL AROUND @ EACH END TO COLUMN.	
GRATING	
FURNISH GALVANIZED STEEL GRATING FOR LANDINGS AND TREADS DESIGNED FOR OUTDOOR INSTALLATION IN A COSTAL ENVIRONMENT. GRATING SHALL BE DESIGNED FOR 100PSF UNIFORM DISTRIBUTED LIVE LOAD, 300 LB CONCENTRATED LIVE LOAD, AND LESSER OF L/200 OR 1/4" DEFLECTION AND MAXIMUM SPAN OF 6'-0".	
TYPICAL DETAILS	
1/00-S-104	STAIR TREAD TO STRINGER
3/00-S-104	STRINGER TO CONCRETE
4/00-S-104	CONCRETE STAIR LANDING
7/00-S-104	TYPICAL STRINGER BEND
8/00-S-104	STRINGER OR LANDING BEAM TO CONCRETE WALL
9/00-S-104	CHANNEL TO COLUMN
10/00-S-104	COLUMN TO MAT SLAB
11/00-S-104	FRAMING TO CONCRETE WALL AT LANDING
2/00-S-108	GUARDRAIL POST TO PLATFORM BEAM
3/00-S-108	STRINGER TO STEEL BEAM
4/00-S-108	CHANNEL TO CHANNEL
5/00-S-108	STRINGER TO INTERMEDIATE COLUMN

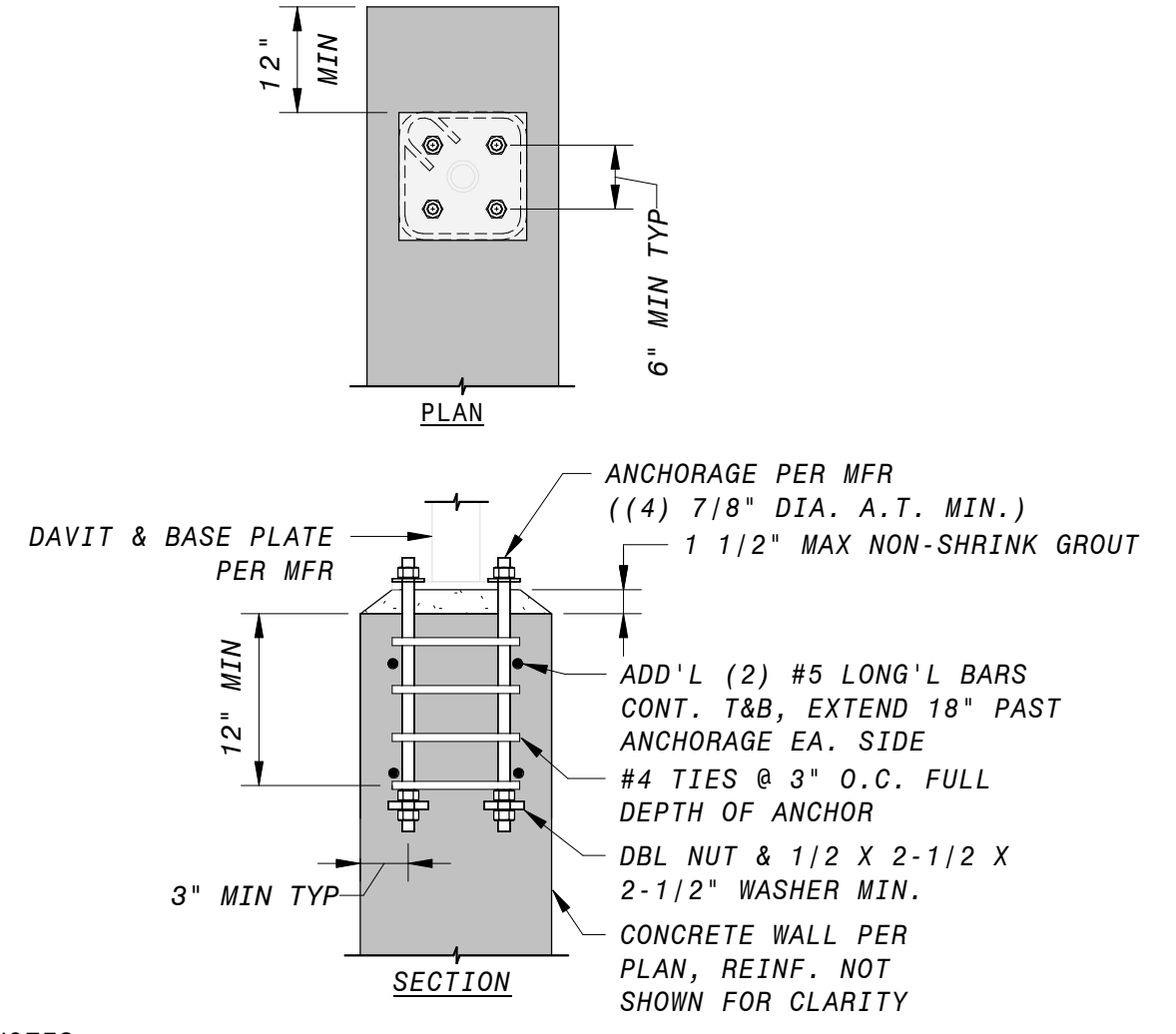
6 TYPICAL STAIR FRAMING
NO SCALE



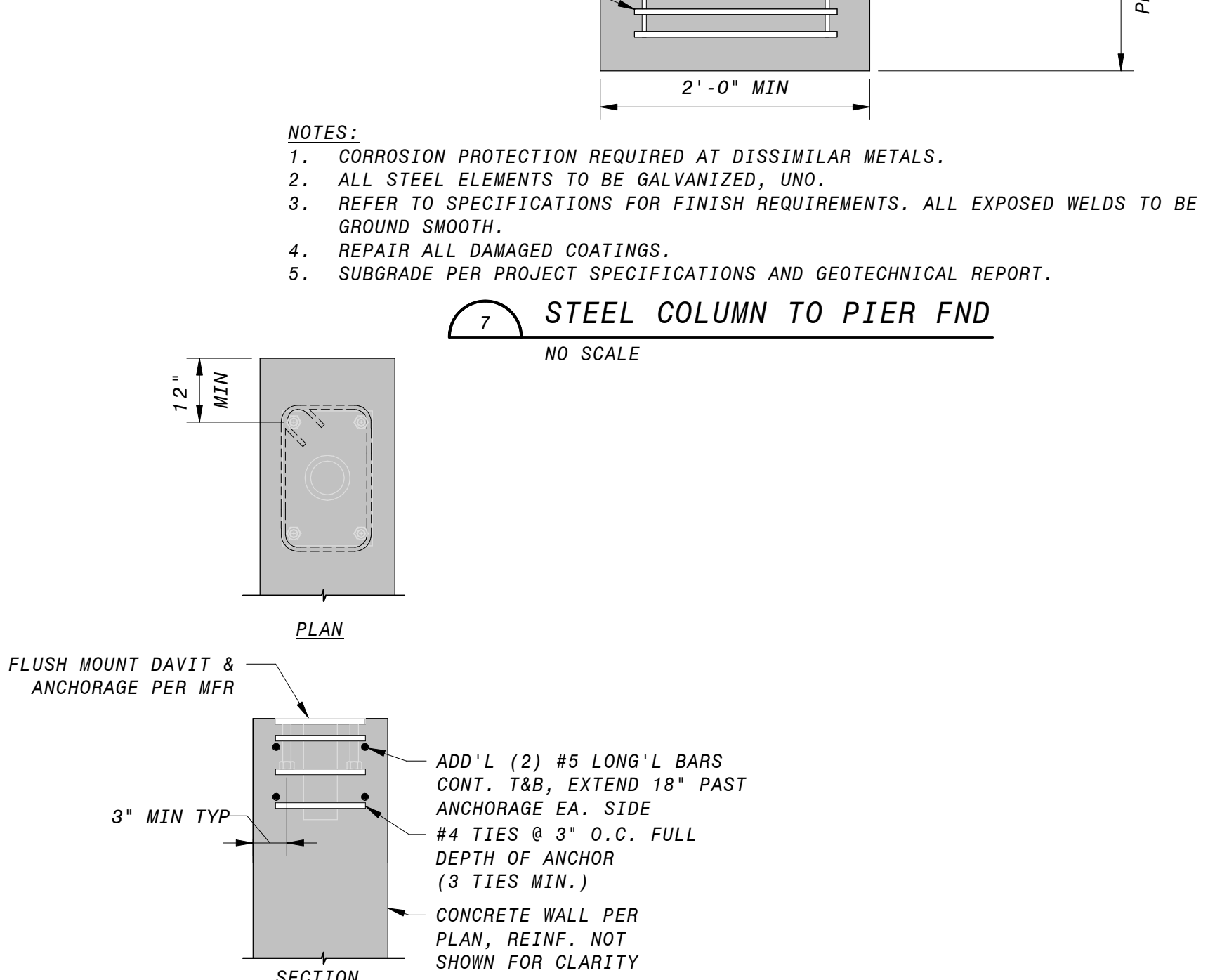
10 CONTROL ROOM MONITOR SUPPORT
NO SCALE



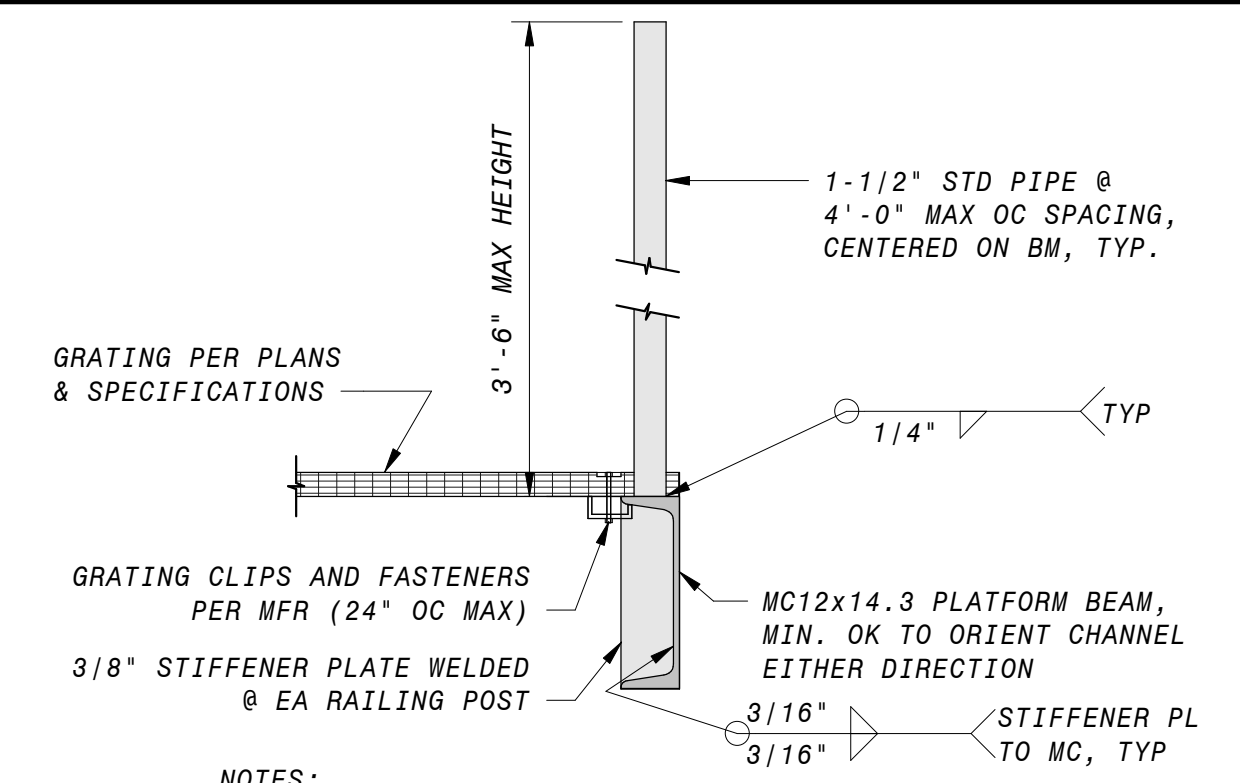
5 STRINGER TO COLUMN
NO SCALE



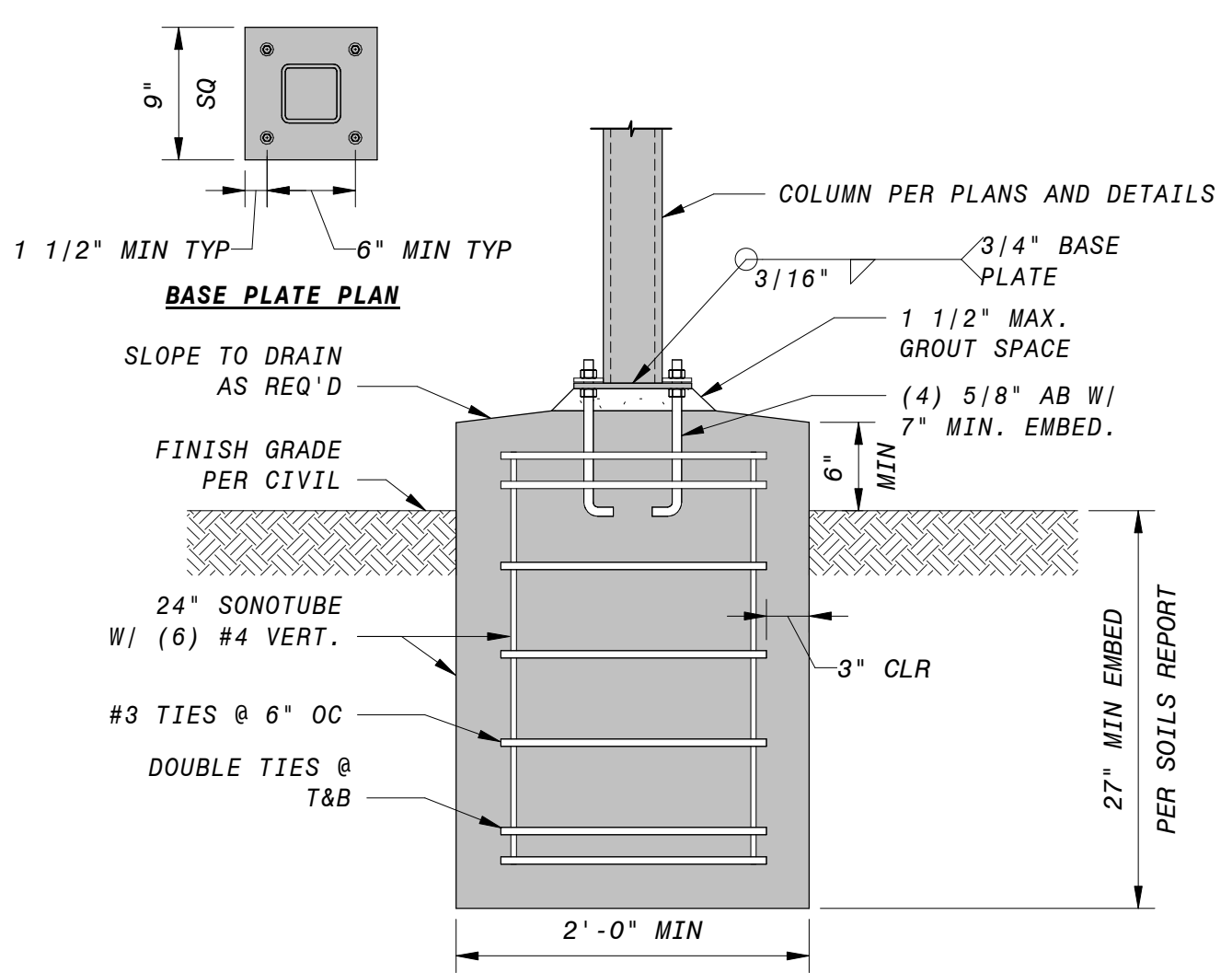
9 DAVIT ANCHORAGE TO CIP WALL
NO SCALE



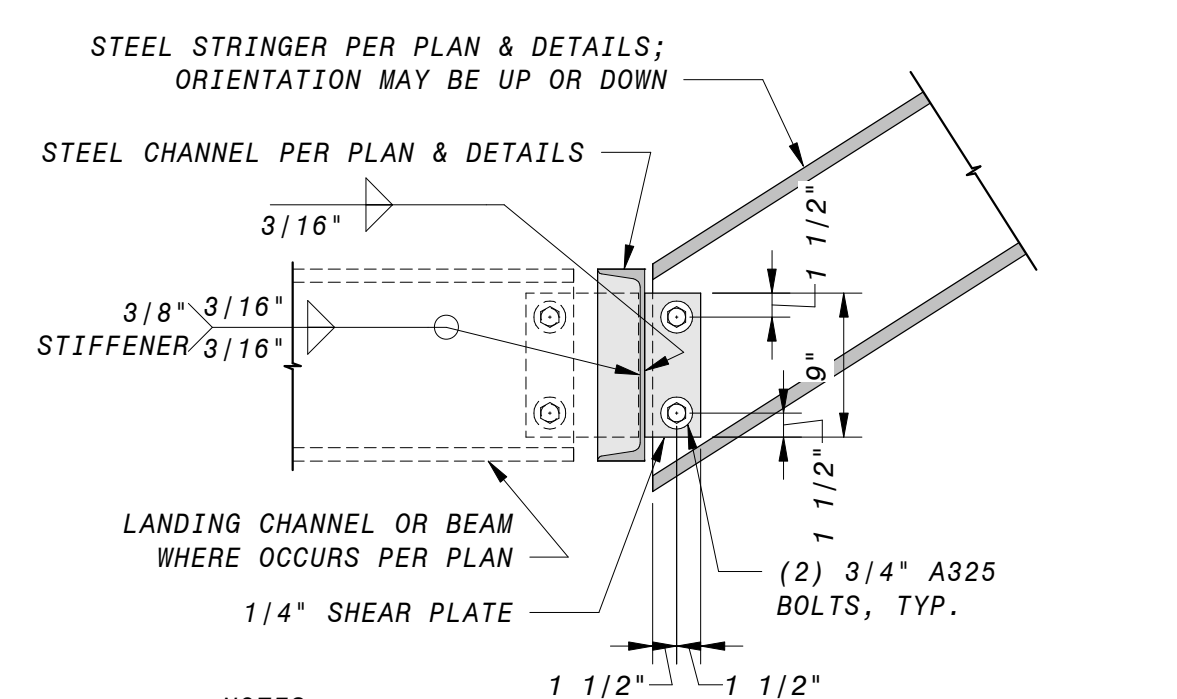
8 FLUSH MOUNT DAVIT ANCHORAGE TO CIP WALL
NO SCALE



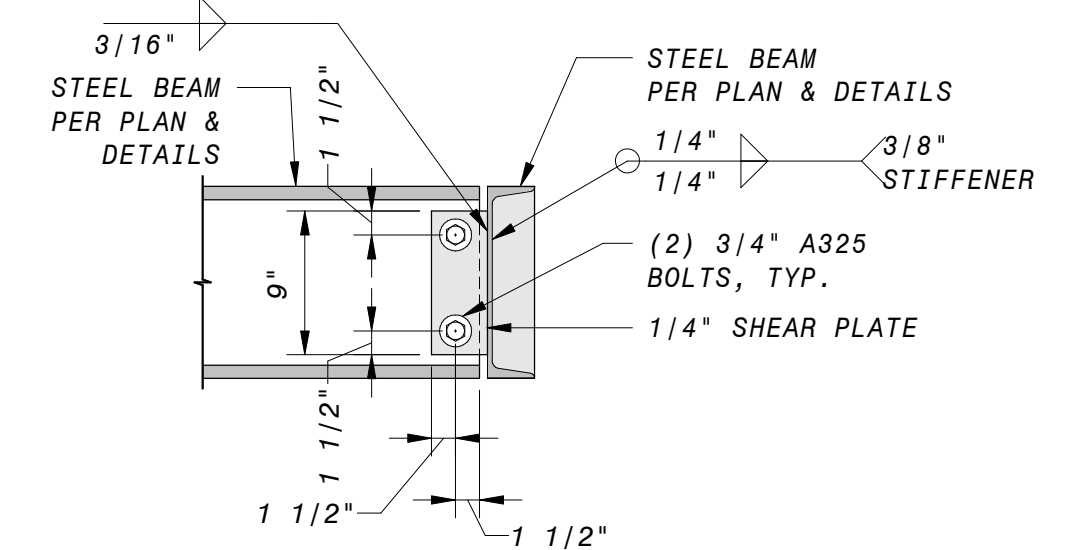
2 GUARDRAIL POST TO PLATFORM BEAM
NO SCALE



7 STEEL COLUMN TO PIER FND
NO SCALE

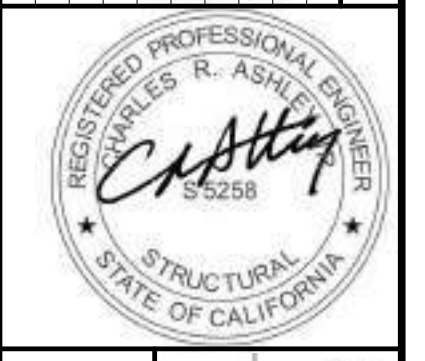


3 STEEL STRINGER TO BEAM
NO SCALE



4 STEEL CHANNEL TO CHANNEL
NO SCALE

ISSUED FOR CONSTRUCTION	NO.	BY	CHK	APP
DATE				
5/19/2020				



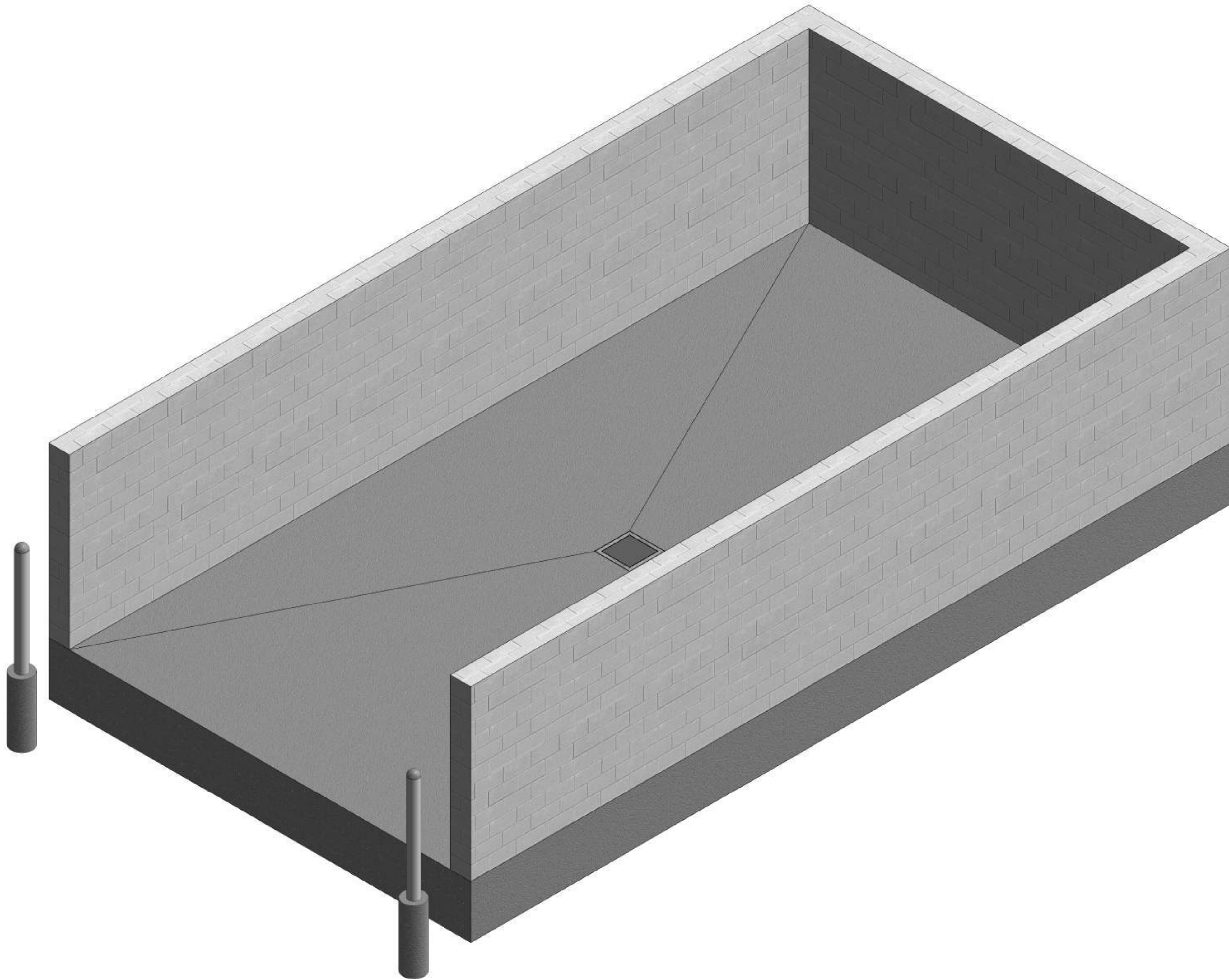
ASHLEY VANCE ENGINEERING, INC.
 JOINT VENTURE
 BLACK & VEATCH
 FILANC

CITY OF MORRO BAY
 FILANC BLACK & VEATCH DB PROPOSAL
 WATER RECLAMATION FACILITY (WRF)
 GENERAL STRUCTURAL STANDARD DETAILS

DESIGNED: M. MARSH
DETAILED: S. BENJAMIN
CHECKED: I. SHOEBRIDGE
APPROVED: C. ASHLEY
DATE: 5/19/2020
PROJECT NO. 400530
SHEET 00-S-108
161 OF 412

PLOTTED: 5/19/2020 2:45:58 PM D:\060530

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D:\00530



3D VIEW



Ashley & Vance
ENGINEERING, INC.
JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
FILANC BLACK & VEATCH DB PROPOSAL
RECLAMATION FACILITY (WRF)

WASH RACK
STRUCTURAL
3D VIEW

DESIGNED: M. MARSH
DETAILED: S. BENJAMIN
CHECKED: I. SHOEBRIDGE
APPROVED: C. ASHLEY
DATE: 5/19/2020

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
400530

13-S-001
SHEET
162 OF 412

NO.	BY	CHK APP	DATE	ISSUED FOR CONSTRUCTION	REVISONS AND RECORD OF USE
0			5/19/2020		

T.O.M.
EL 108.85'

12" CMU
#5 @ 1'-4" EW CTRD
#7 @ 8" OC EXTENDING
2'-8" ABOVE FINISH FLOOR
TERMINATE WITH STD 90°
HOOK AS SHOWN

FINISH GRADE
PER CIVIL
OPERATING LEVEL
EL 100.85'

EMBED PER
SOILS REPORT
(2) ADDITIONAL CONT.
BARS TO MATCH SLAB
REINF. 3" CLR, TYP.
ALL SIDES

ADDITIONAL #5 "Z" BARS SPACED TO MATCH SLAB
REINF; TERMINATE AT THICKENED EDGE AS SHOWN
ADDITIONAL CONT. BARS AT THICKENED EDGE;
SIZE AND SPACING TO MATCH SLAB REINF.

1/2" MIN COMPRESSIBLE JOINT
FILLER, EXTERIOR RATED &
NON-ABSORBENT. SEE PROJECT
SPECIFICATIONS.

JENSEN PRECAST MODEL 1212-HDI
DROP INLET OR EQUAL. COORDINATE
WITH CIVIL & MECHANICAL PROJECT
SPECIFICATIONS.

EL 100.65

EL 100.85

REINF AT OPENING PER 9/00-S-101

EL 97.35

BOX INVERT SHALL BE 1' BELOW PIPE INVERT

SUBGRADE PER SOILS REPORT

SUBGRADE PER SOILS REPORT

T.O.M.
EL 108.85'

SECTION
2
13-S-101 3/4" = 1'-0"

FULLY GROUTED 12" CMU
#5 @ 1'-4" EW CTRD
#7 @ 8" OC EXTENDING 2'-8" ABOVE
FINISH FLOOR
TERMINATE WITH STD 90°
HOOK AS SHOWN

FINISH GRADE PER CIVIL

EMBED PER
SOILS REPORT
(2) ADDITIONAL CONT BARS TO MATCH
SLAB REINF 3" CLR, TYP ALL SIDES

1/2" MIN COMPRESSIBLE JOINT FILLER,
EXTERIOR RATED & NON-ABSORBENT. SEE
PROJECT SPECIFICATIONS.

JENSEN PRECAST MODEL 1212-HDI DROP
INLET OR EQUAL. COORDINATE WITH CIVIL
& MECHANICAL PROJECT SPECIFICATIONS.

EL 100.65

EL 100.85

REINF AT OPENING PER 9/00-S-101

ADDITIONAL #5 "Z" BARS SPACED TO MATCH SLAB
REINF; TERMINATE AT THICKENED EDGE AS SHOWN
ADDITIONAL CONT BARS AT THICKENED EDGE;
SIZE AND SPACING TO MATCH SLAB REINF

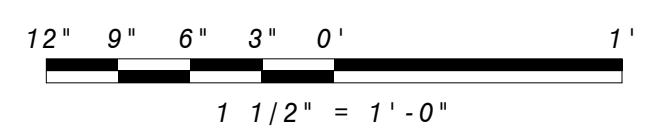
SUBGRADE PER SOILS REPORT

OPERATING LEVEL
EL 100.85'

SECTION
1
13-S-101 3/4" = 1'-0"

GENERAL SECTION NOTES

- FOR GENERAL STRUCTURAL NOTES, SEE SHEETS 00-S-002 AND STANDARD SPECIFICATIONS.
- REINFORCEMENT CLEAR COVER TO BE 2" AT TOP OF SLABS, AND 3" AT BOTTOM OF SLABS, TYP., UNO
- ALL LAP SPLICES TO BE CLASS B PER DETAIL 1/00-S-101.
- ALL SLAB REINFORCEMENT MUST TERMINATE WITH A STANDARD 90° HOOK PER DETAIL 05/00-S-101.
- FOR TYPICAL MAT SLAB EDGE, REFER TO DETAIL 13/00-S-102



NO.	BY	CHK APP
0		
ISSUED FOR CONSTRUCTION		
REVISONS AND RECORD OF USE		
DATE		
5/19/2020		



Ashley & Vance
ENGINEERING, INC.

JOINT VENTURE

FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
FILANC BLACK & VEATCH DB PROPOSAL
RECLAMATION FACILITY (WRF)

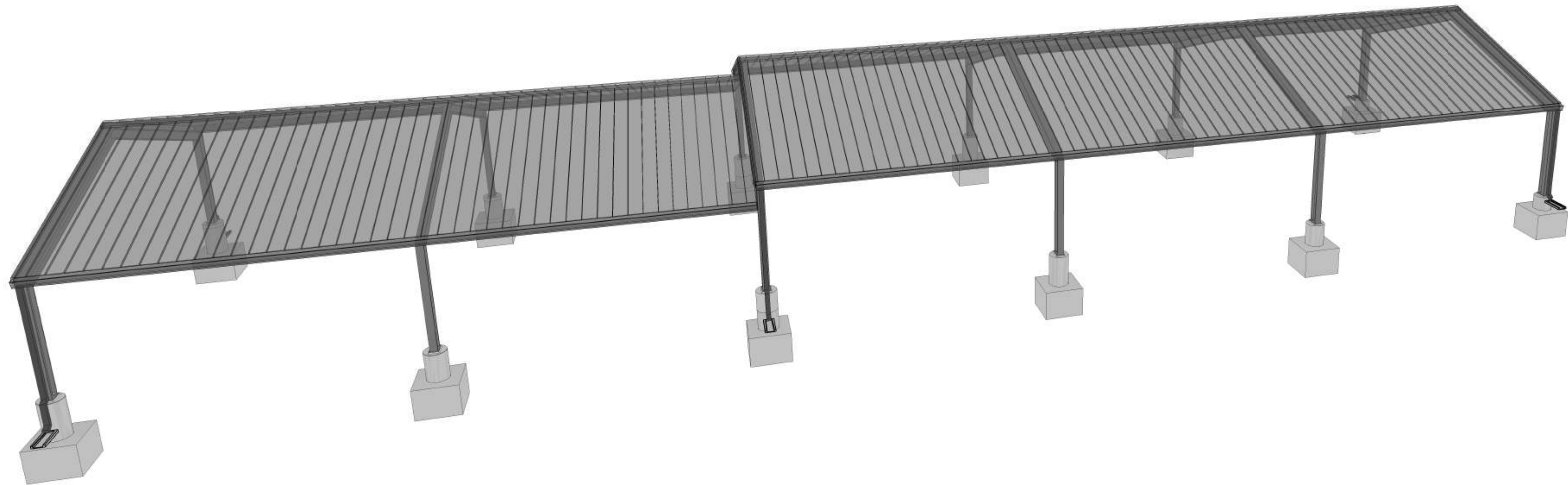
WASH RACK
STRUCTURAL
SECTIONS

DESIGNED: M. MARSH
DETAILED: S. BENJAMIN
CHECKED: I. SHOEBRIDGE
APPROVED: C. ASHLEY
DATE: 5/19/2020

PROJECT NO.
400530

13-S-301
SHEET
164 OF 412

PLOTTED: 5/19/2020 1:43:19 PM
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3D VIEW - SOUTHEAST
NO SCALE

PLOTTED: 5/19/2020 1:40:52 PM
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Ashley & Vance
 ENGINEERING, INC.
 JOINT VENTURE
FILANC BLACK & VEATCH

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 WRF PARKING CANOPY
 STRUCTURAL
 3D VIEW

DESIGNED: C. TAYLOR
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

PROJECT NO.
 400530
14-S-001
 SHEET
 165 OF 412

NO.	BY	DATE	ISSUED FOR CONSTRUCTION	REVISIONS AND RECORD OF USE
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NO.	BY	CHK APP
0		
ISSUED FOR CONSTRUCTION		
REVISONS AND RECORD OF USE		
DATE		
5/19/2020		



Ashley & Vance
ENGINEERING, INC.

JOINT VENTURE

FILANC **BLACK & VEATCH**

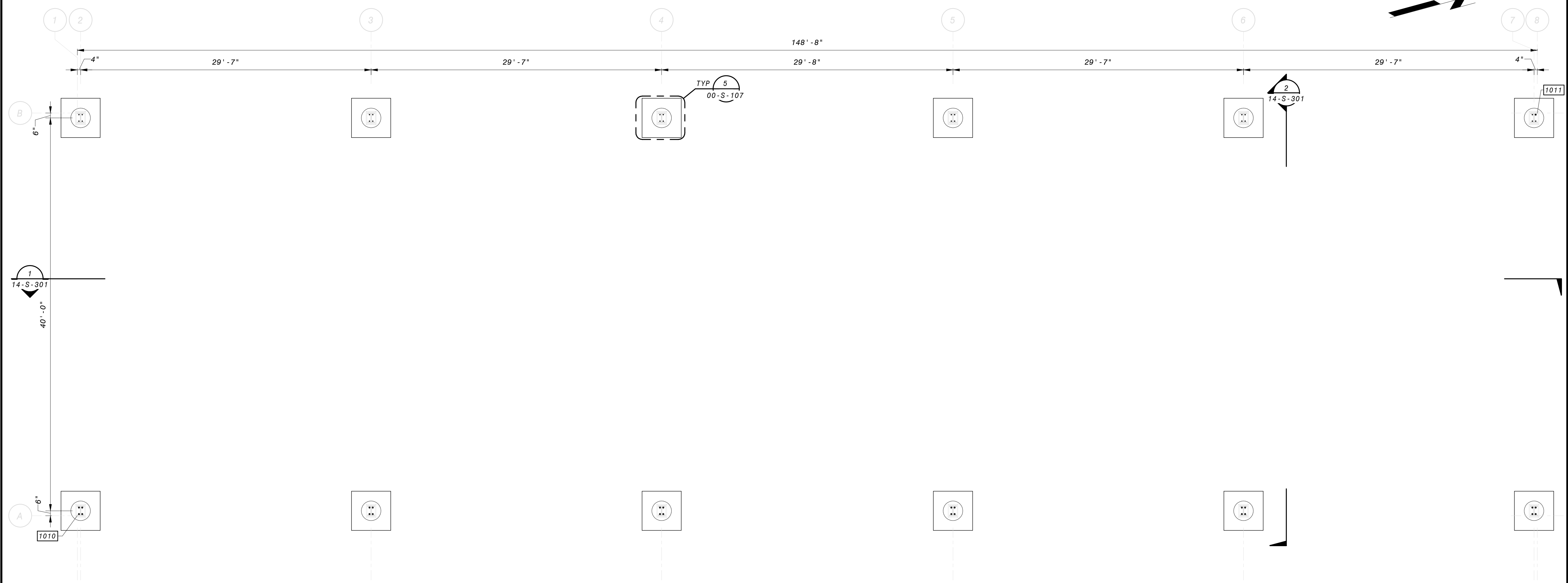
CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

WRF PARKING CANOPY
STRUCTURAL
PLAN

DESIGNED: C. TAYLOR
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

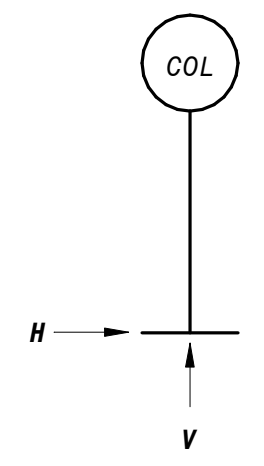
PROJECT NO.
400530

14-S-101
SHEET
166 OF 412



PLAN
3/16" = 1'-0"

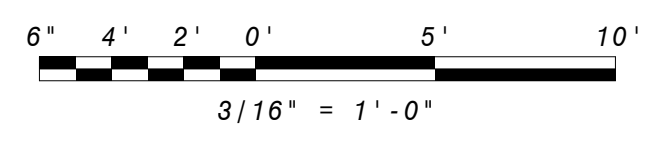
- NOTES:**
- DESIGN AND DRAWINGS FOR STEEL FRAME PRE-ENGINEERED METAL BUILDING TO BE PROVIDED BY BUILDING MFR. SEE SPECIFICATIONS FOR DESIGN CRITERIA.
 - FOUNDATION DESIGN HAS BEEN BASED ON THE FOLLOWING FRAME REACTIONS, ASSUMING A PINNED COLUMN BASE:
 - FRAME REACTIONS INCLUDE BOTH PRINCIPLE DIRECTIONS AND ORTHOGONAL COMBINATION EFFECTS.



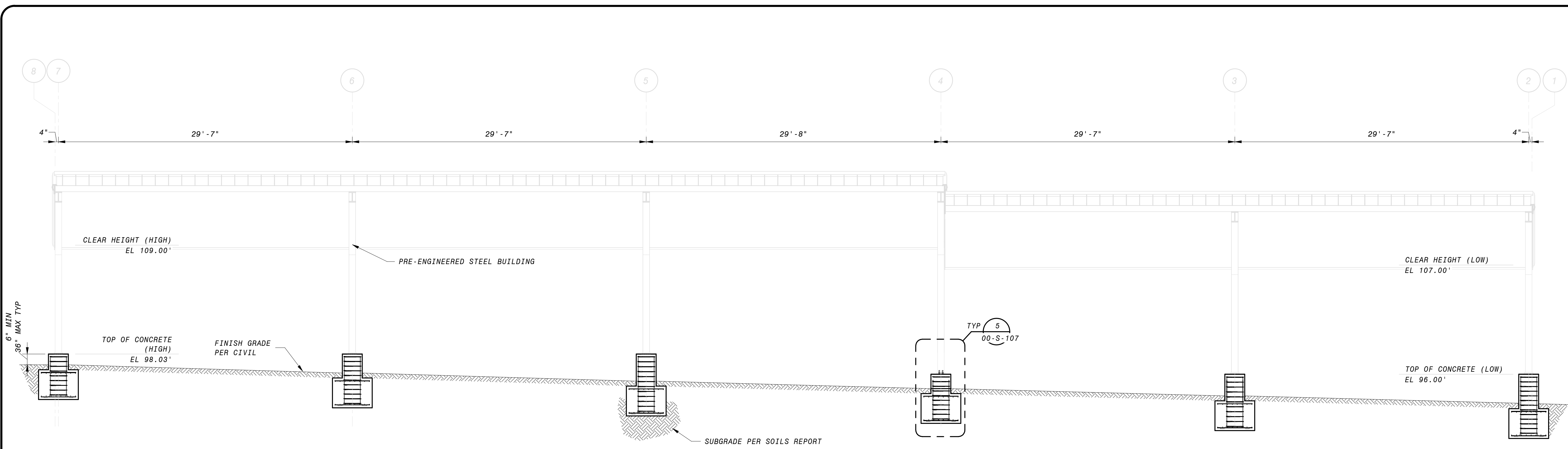
LOAD	VERTICAL V (K)	HORIZONTAL H (K)
DEAD	3.4	0.5
ROOF LIVE	7.7	1.0
SEISMIC	2.0	0.75
WIND (MAX)	10.5	2.5
WIND (MIN)	-10.5	-2.5

GENERAL FOUNDATION NOTES

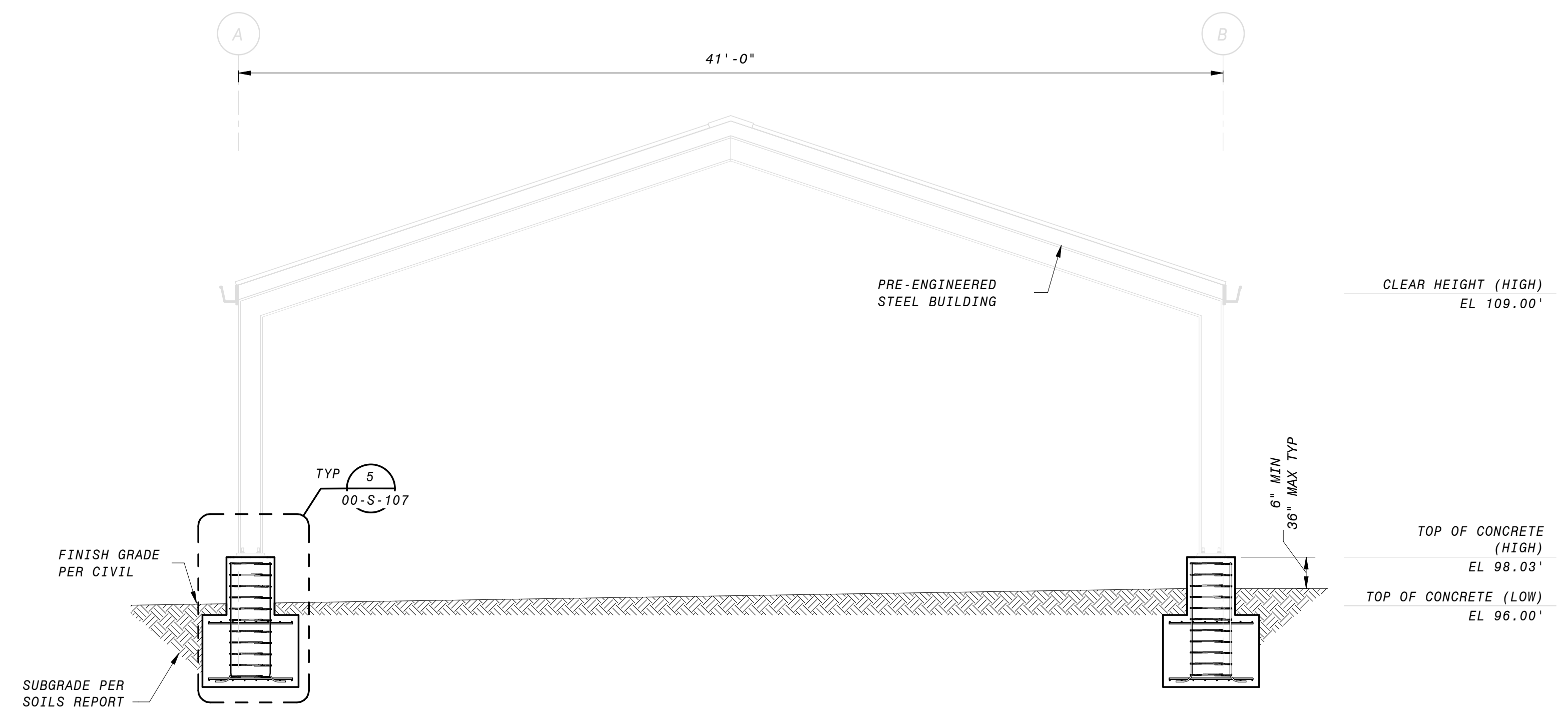
- PLEASE SEE SOILS REPORT FOR ADDITIONAL SPECIFICATIONS AND RECOMMENDATIONS. IT IS THE DESIGN BUILDER'S RESPONSIBILITY TO OBTAIN A COPY OF THE SOILS REPORT FROM THE OWNER OR OWNERS REPRESENTATIVE.
- NOT USED.
- FOR GENERAL STRUCTURAL NOTES, SEE SHEETS 00-S-002 AND STANDARD SPECIFICATIONS.
- VERIFY ALL DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL LAP SPLICES TO BE CLASS B PER DETAIL 1/00-S-101
- COORDINATE COLUMN SIZE, LOCATION, AND ATTACHMENT WITH BUILDING MANUFACTURER PRIOR TO INSTALLATION.



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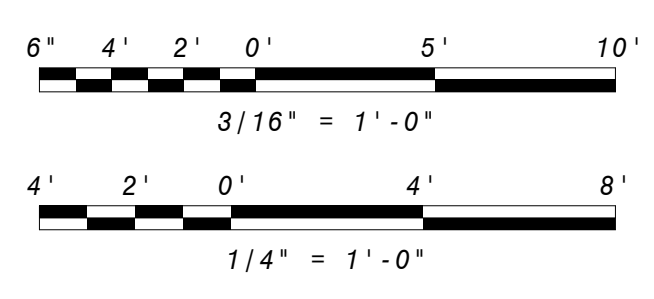


SECTION 1
14-S-101 3/16" = 1'-0"



SECTION 2
14-S-101 1/4" = 1'-0"

- GENERAL SECTION NOTES**
1. FOR GENERAL STRUCTURAL NOTES, SEE SHEETS 00-S-002 AND STANDARD SPECIFICATIONS.
 2. REINFORCEMENT CLEAR COVER TO BE 3" TYP., UNO
 3. ALL LAP SPLICES TO BE CLASS B PER DETAIL 1/00-S-101.



NO.	BY	CHK APP
0		
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REVISONS AND RECORD OF USE		
DATE		
5/19/2020		



Ashley & Vance
ENGINEERING, INC.

JOINT VENTURE

FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)

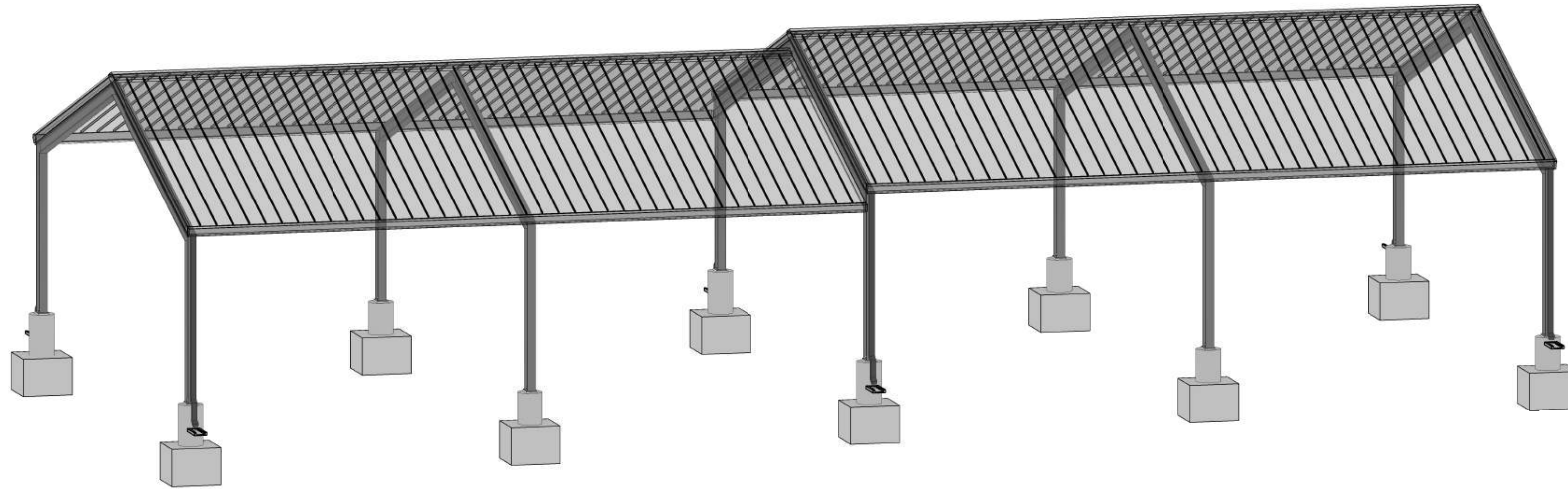
WRF PARKING CANOPY
STRUCTURAL
SECTIONS

DESIGNED: C. TAYLOR
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

PROJECT NO.
400530

14-S-301
SHEET
167 OF 412

PLOTTED: 5/19/2020 1:40:55 PM
D:\0530



WRF EQUIPMENT STORAGE CANOPY

3D VIEW - SOUTHEAST

NO SCALE

PLOTTED: 5/19/2020 1:52:29 PM
 D400530

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0		
ISSUED FOR CONSTRUCTION		
REVISONS AND RECORD OF USE		
DATE		
5/19/2020		



Ashley & Vance
 ENGINEERING, INC.
 JOINT VENTURE
FILANC BLACK & VEATCH

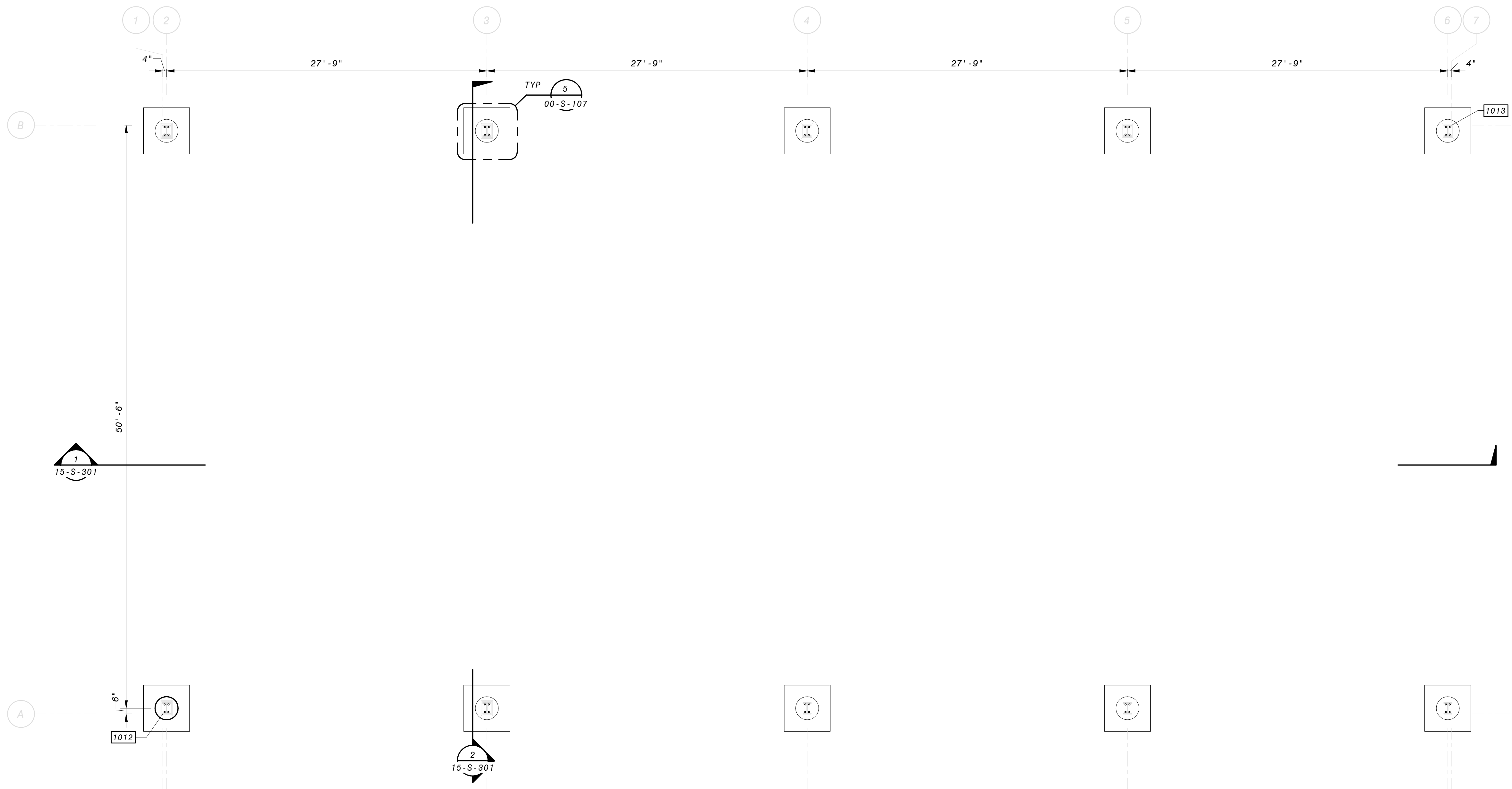
CITY OF MORRO BAY
 FILANC BLACK & VEATCH DB PROPOSAL
 MORRO BAY WRF
 WATER AND COLLECTION VEHICLES EQUIPMENT
 STORAGE
 STRUCTURAL
 3D VIEW

DESIGNED: C. TAYLOR
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

0 1/2 1
 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

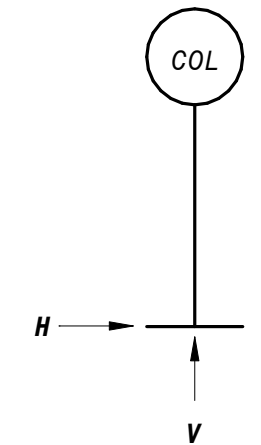
PROJECT NO.
 400530
15-S-001
 SHEET
 168 OF 412

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04/0530



PLAN
3/16" = 1'-0"

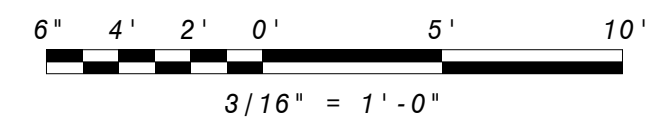
- NOTES:**
- DESIGN AND DRAWINGS FOR STEEL FRAME PRE-ENGINEERED METAL BUILDING TO BE PROVIDED BY BUILDING MFR. SEE SPECIFICATIONS FOR DESIGN CRITERIA.
 - FOUNDATION DESIGN HAS BEEN BASED ON THE FOLLOWING FRAME REACTIONS, ASSUMING A PINNED COLUMN BASE:
 - FRAME REACTIONS INCLUDE BOTH PRINCIPLE DIRECTIONS AND ORTHOGONAL COMBINATION EFFECTS.



LOAD	VERTICAL V (K)	HORIZONTAL H (K)
DEAD	3.4	0.5
ROOF LIVE	7.7	1.0
SEISMIC	2.0	0.75
WIND (MAX)	10.5	2.5
WIND (MIN)	-10.5	-2.5

GENERAL FOUNDATION NOTES

- PLEASE SEE SOILS REPORT FOR ADDITIONAL SPECIFICATIONS AND RECOMMENDATIONS. IT IS THE DESIGN BUILDER'S RESPONSIBILITY TO OBTAIN A COPY OF THE SOILS REPORT FROM THE OWNER OR OWNERS REPRESENTATIVE.
- NOT USED
- FOR GENERAL STRUCTURAL NOTES, SEE SHEETS 00-S-002 AND STANDARD SPECIFICATIONS.
- VERIFY ALL DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL LAP SPLICES TO BE CLASS B PER DETAIL 1/00-S-107
- COORDINATE COLUMN SIZE, LOCATION, AND ATTACHMENT WITH BUILDING MANUFACTURER PRIOR TO INSTALLATION.



NO.	BY	CHK APP
0		

ISSUED FOR CONSTRUCTION
REVISONS AND RECORD OF USE

DATE: 5/19/2020



Ashley & Vance
ENGINEERING, INC.

JOINT VENTURE

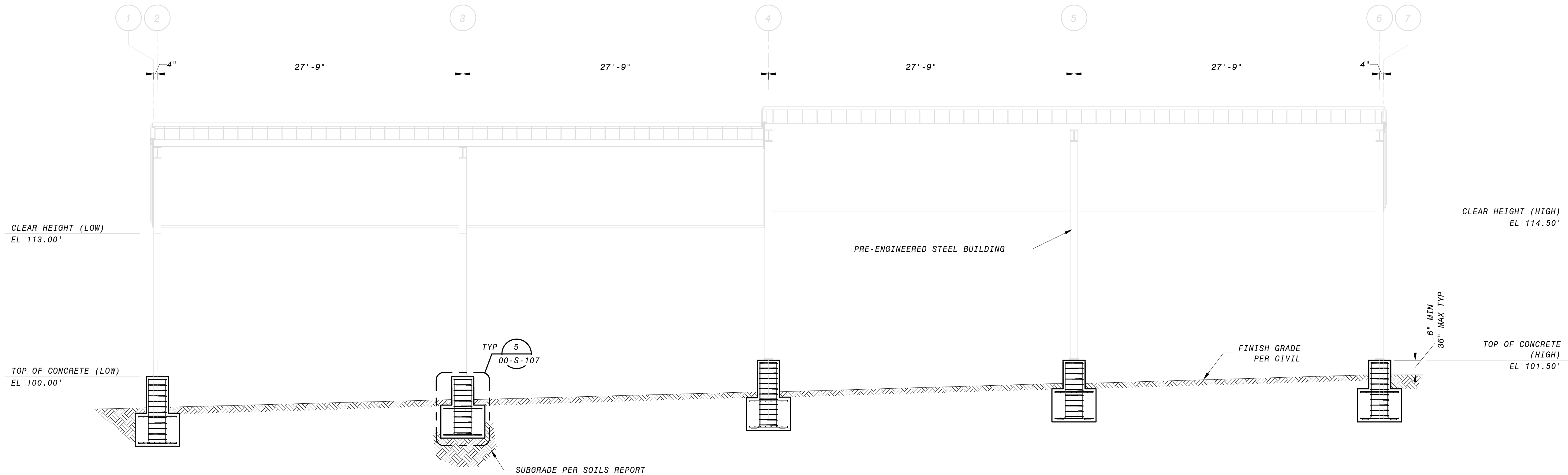
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
FILANC BLACK & VEATCH DB PROPOSAL
MORRO BAY WRF
WATER AND COLLECTION VEHICLES EQUIPMENT STORAGE
STRUCTURAL PLAN

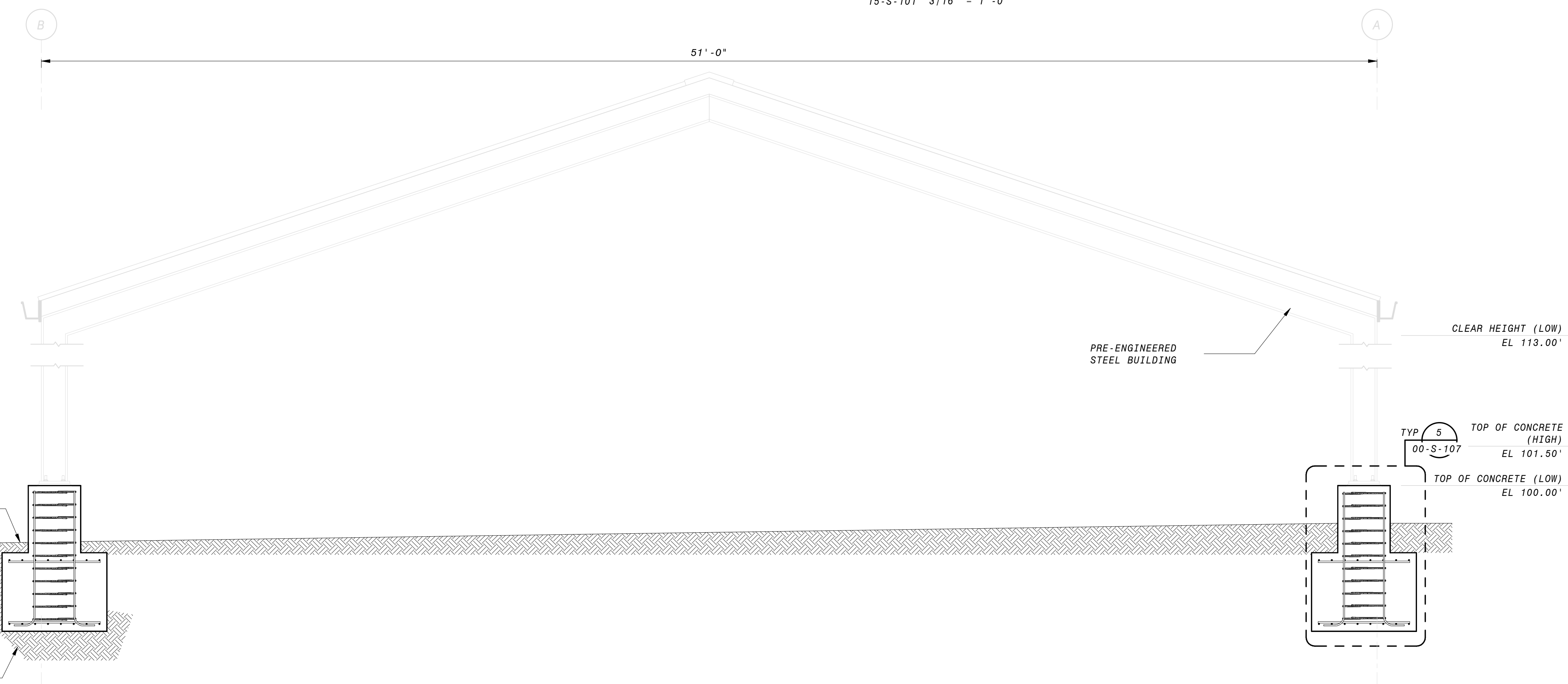
DESIGNED: C. TAYLOR
DETAILED: S. BENJAMIN
CHECKED: I. SHOEBRIDGE
APPROVED: C. ASHLEY
DATE: 5/19/2020

PROJECT NO.
400530

15-S-101
SHEET
169 OF 412

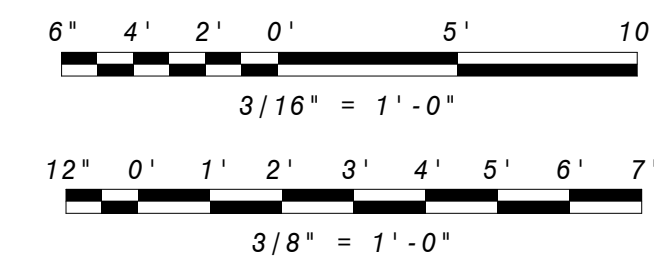


SECTION 1
15-S-101 3/16" = 1'-0"



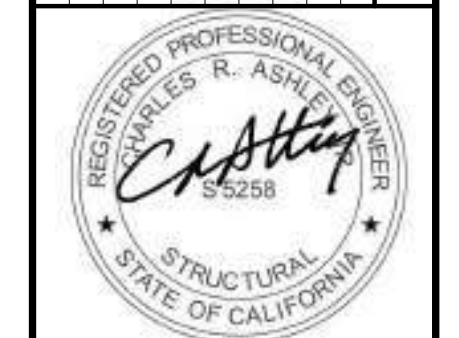
SECTION 2
15-S-101 3/8" = 1'-0"

- GENERAL SECTION NOTES**
- FOR GENERAL STRUCTURAL NOTES, SEE SHEETS 00-S-002 AND STANDARD SPECIFICATIONS.
 - REINFORCEMENT CLEAR COVER TO BE 3" TYP., UNO
 - ALL LAP SPLICES TO BE CLASS B PER DETAIL 1/00-S-101.



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NO.	BY	CHK APP
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ISSUED FOR CONSTRUCTION		
REVISONS AND RECORD OF USE		
DATE		
5/19/2020		



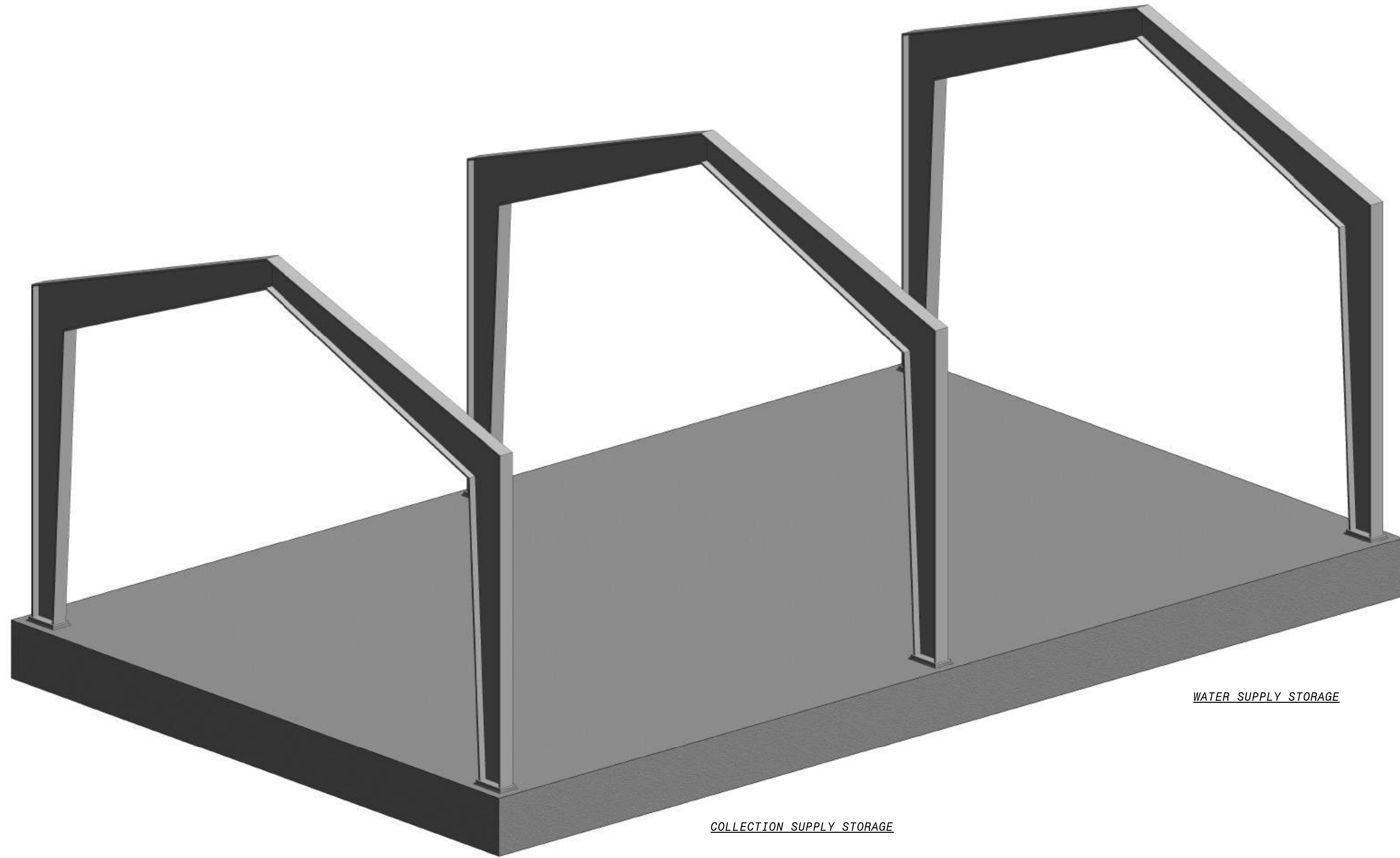
Ashley & Vance
ENGINEERING, INC.

JOINT VENTURE

FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
FILANC BLACK & VEATCH DB PROPOSAL
MORRO BAY WRF
WATER AND COLLECTION VEHICLES EQUIPMENT STORAGE
STRUCTURAL SECTIONS

DESIGNED: C. TAYLOR
DETAILED: S. BENJAMIN
CHECKED: I. SHOEBRIDGE
APPROVED: C. ASHLEY
DATE: 5/19/2020
PROJECT NO. 400530
15-S-301 SHEET 170 OF 412



COLLECTION SUPPLY STORAGE

WATER SUPPLY STORAGE

3D VIEW - NORTHEAST

NO SCALE

PLOTTED: 5/19/2020 1:56:02 PM
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Ashley & Vance
 ENGINEERING, INC.
 JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 WATER AND COLLECTION SUPPLIES STORAGE SHEDS
 STRUCTURAL
 3D VIEW

DESIGNED: M. MARSH
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

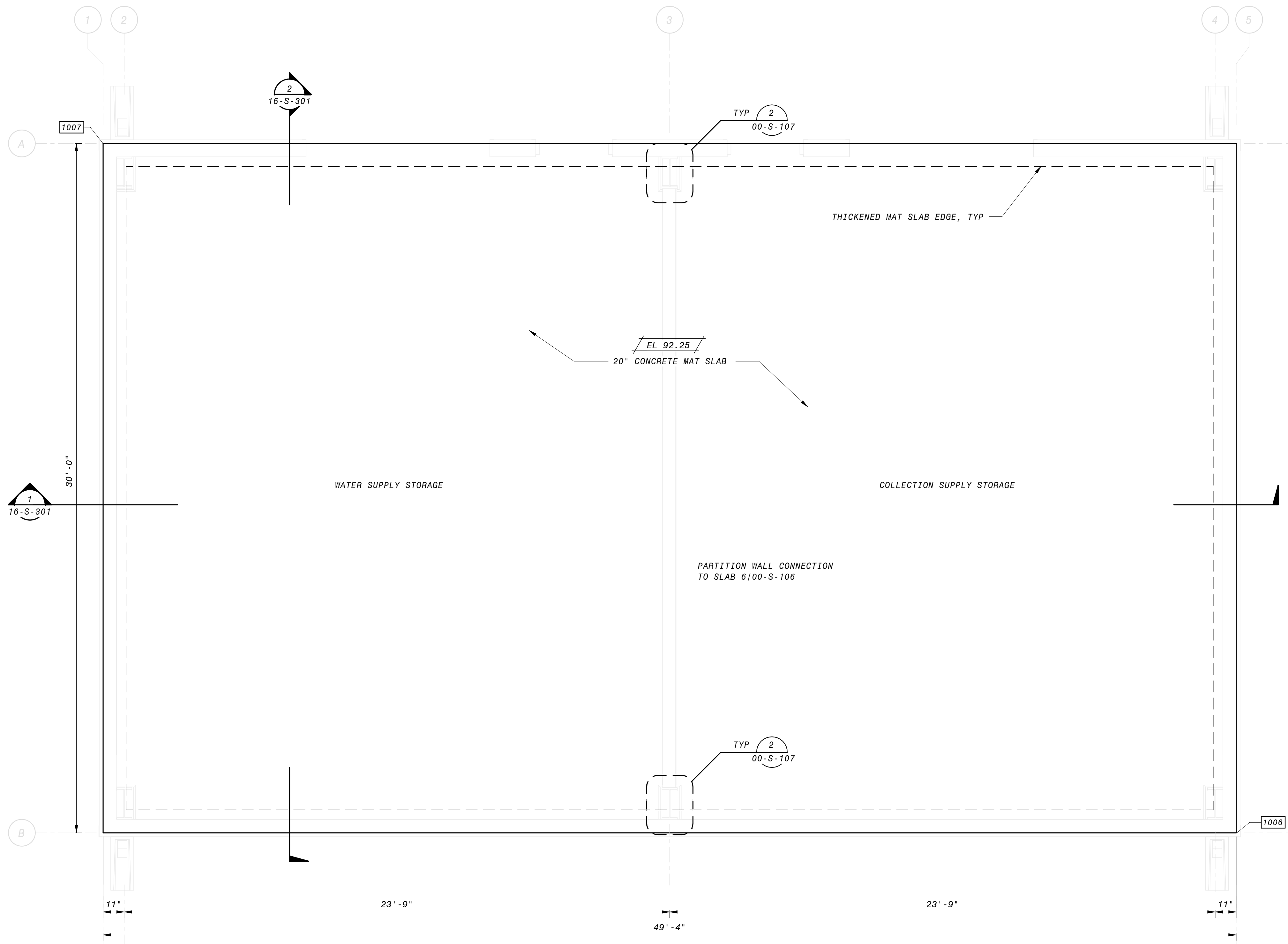
0 1/2 1
 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

PROJECT NO.
 400530

16-S-001
 SHEET
 171 OF 412

NO.	DATE	REVISIONS AND RECORD OF USE
0	5/19/2020	ISSUED FOR CONSTRUCTION
1	3/22/2019	30% SUBMITTAL
		REVISTONS AND RECORD OF USE

EYBDE EYB
 NO. 1 BY CHK APP



GENERAL FOUNDATION NOTES

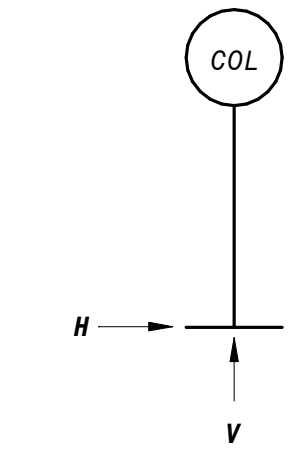
- PLEASE SEE SOILS REPORT FOR ADDITIONAL SPECIFICATIONS AND RECOMMENDATIONS. IT IS THE DESIGN BUILDER'S RESPONSIBILITY TO OBTAIN A COPY OF THE SOILS REPORT FROM THE OWNER OR OWNERS REPRESENTATIVE.
- NOT USED.
- FOR GENERAL STRUCTURAL NOTES, SEE SHEETS 00-S-002 AND STANDARD SPECIFICATIONS.
- VERIFY ALL DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- OUTSIDE LAYER OF MAT SLAB REINFORCEMENT TO BE PLACED IN THE SHORT DIRECTION. INSIDE LAYER OF MAT SLAB REINFORCEMENT TO BE PLACED IN THE LONG DIRECTION. TYPICAL, UNLESS NOTED OTHERWISE.
- ALL LAP SPLICES TO BE CLASS B PER DETAIL 1/00-S-101
- REFER TO MECHANICAL/ELECTRICAL/PLUMBING DRAWINGS FOR SIZE AND LOCATIONS OF PIPE PENETRATIONS AND SLAB OPENINGS. SEE DETAIL 9/00-S-101 FOR TYPICAL REINFORCEMENT REQUIREMENTS. COORDINATE PIPE PENETRATION SEAL WITH MECHANICAL ENGINEER OF RECORD.
- ALL SLAB REINFORCEMENT MUST TERMINATE WITH A STANDARD 90° HOOK PER DETAIL 5/00-S-101.
- FOR TYPICAL MAT SLAB EDGE, REFER TO DETAIL 13/00-S-102.
- COORDINATE LOCATION AND DETAILING FOR ATTACHMENT OF MECHANICAL SUPPORTS WITH BUILDING MANUFACTURER AND MECHANICAL ENGINEER OF RECORD PRIOR TO INSTALLATION.
- COORDINATE ALL INTERIOR WALLS WITH ARCHITECTURAL DRAWINGS. SEE SHEET 00-S-106 AND PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- COORDINATE COLUMN SIZE, LOCATION, AND ATTACHMENT WITH BUILDING MANUFACTURER PRIOR TO INSTALLATION.
- SEE DETAIL 2/00-S-102 FOR TYP MAT SLAB ON GRADE.

NOTES:

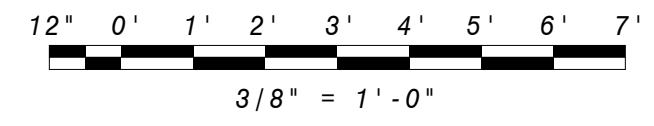
- DESIGN AND DRAWINGS FOR STEEL FRAME PRE-ENGINEERED METAL BUILDING TO BE PROVIDED BY BUILDING MFR. SEE SPECIFICATIONS FOR DESIGN CRITERIA.
- FOUNDATION DESIGN HAS BEEN BASED ON THE FOLLOWING FRAME REACTIONS, ASSUMING A PINNED COLUMN BASE:

LOAD	VERTICAL V (K)	HORIZONTAL H (K)
DEAD	3.5	0.5
ROOF LIVE	6.5	1.5
SEISMIC	5.0	5.0
WIND (MAX)	7.0	13.5
WIND (MIN)	-14.5	4.0

3. FOUNDATION HAS BEEN DESIGNED FOR A LIVE LOAD OF 250 PSF.
 4. FRAME REACTIONS INCLUDE BOTH PRINCIPLE DIRECTIONS AND ORTHOGONAL COMBINATION EFFECTS.

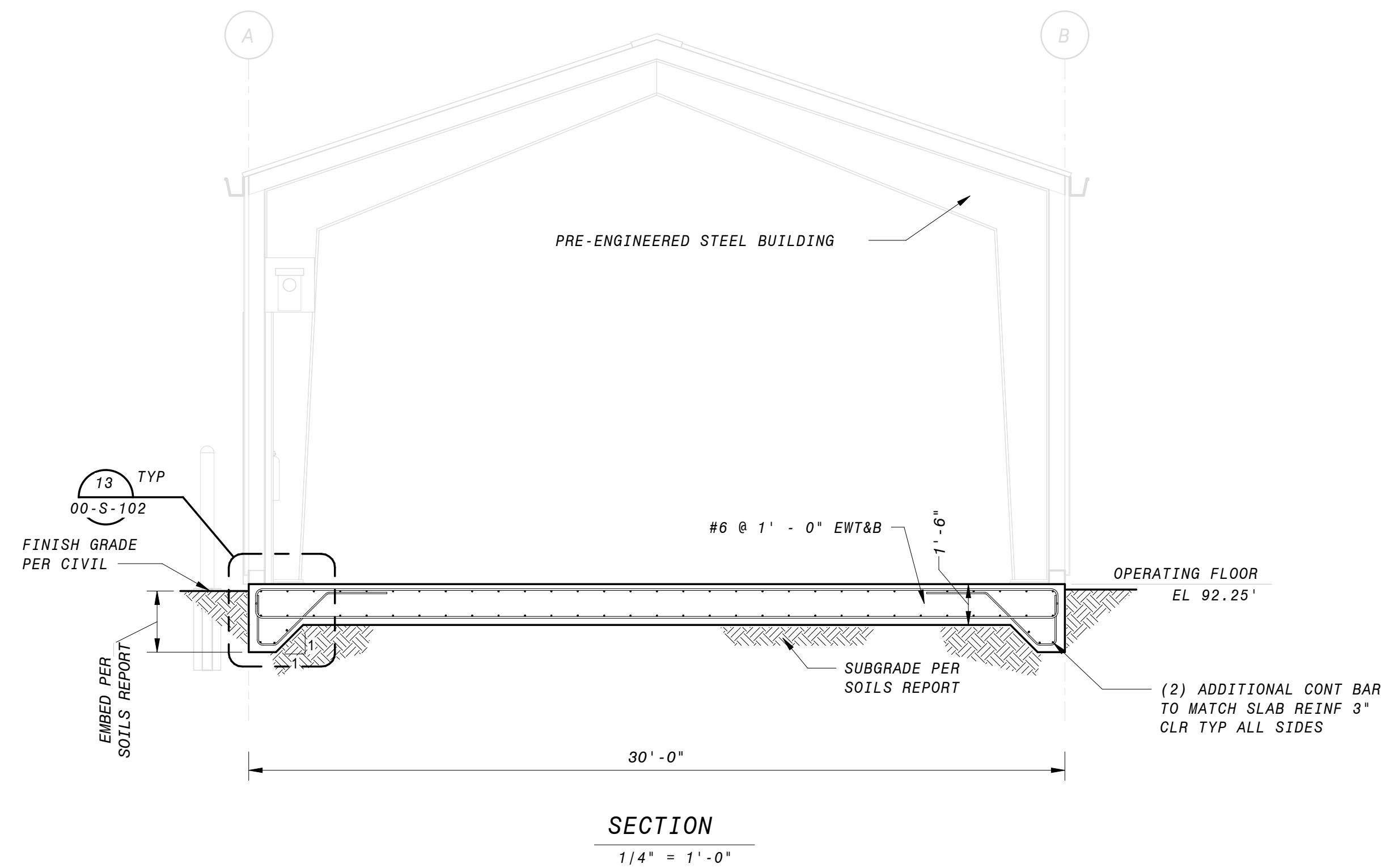
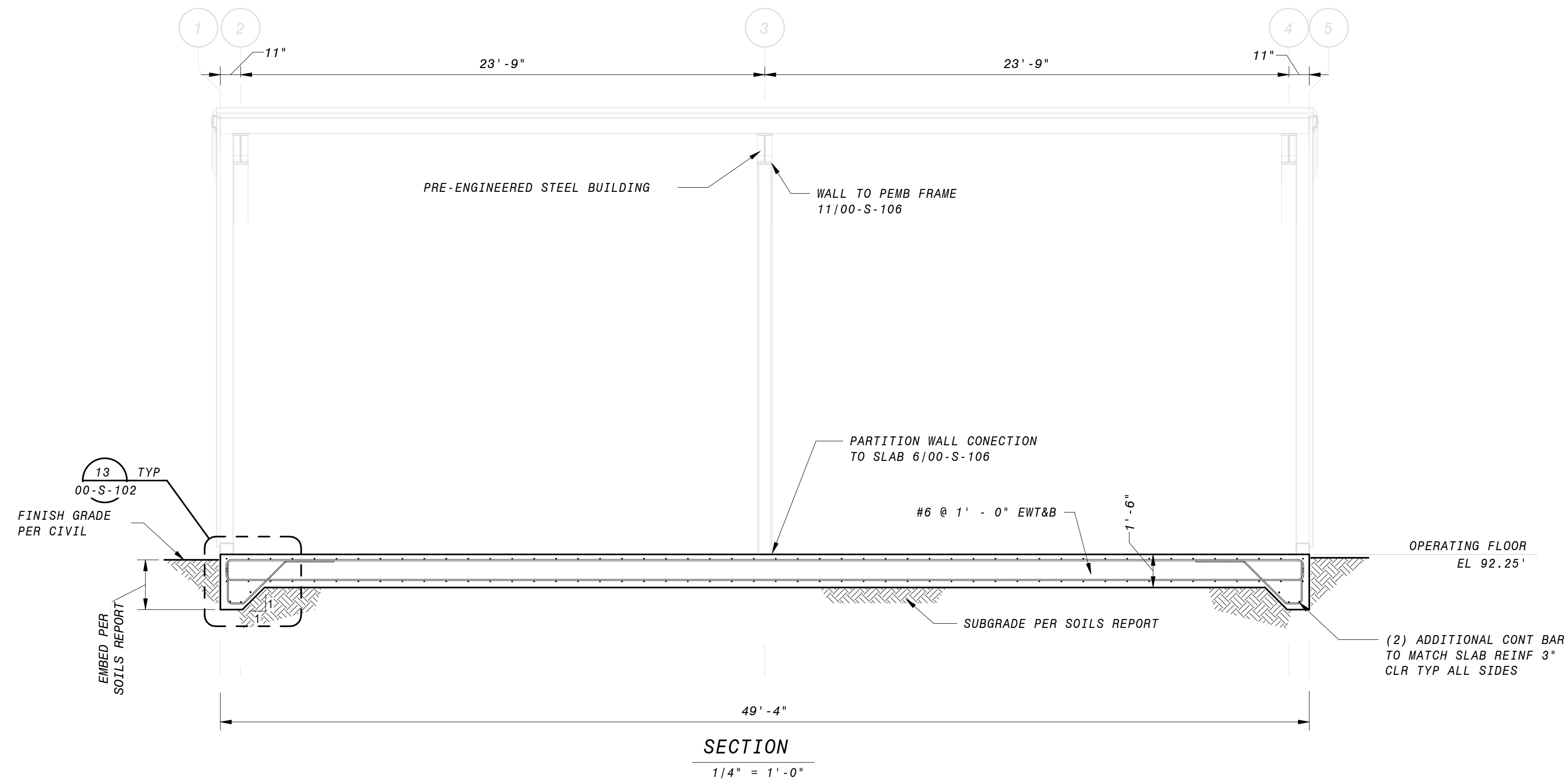


OPERATING FLOOR PLAN
 3/8" = 1'-0"



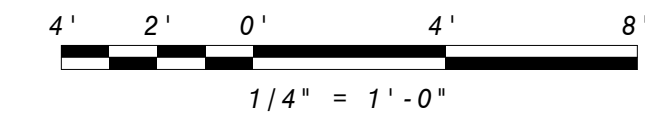
	NO. BY 0 DATE 5/19/2020 ISSUED FOR CONSTRUCTION REVISIONS AND RECORD OF USE
JOINT VENTURE	
FILANC	
CITY OF MORRO BAY MORRO BAY WATER RECLAMATION FACILITY (WRF)	
WATER AND COLLECTION SUPPLIES STORAGE SHEDS STRUCTURAL FOUNDATION PLAN	
DESIGNED: M. MARSH DETAILED: S. BENJAMIN CHECKED: I. SHOEBRIDGE APPROVED: C. ASHLEY DATE: 5/19/2020	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
PROJECT NO. 400530	
16-S-101 SHEET 172 OF 412	

PLOTTED: 5/19/2020 1:56:02 PM
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GENERAL SECTION NOTES

1. FOR GENERAL STRUCTURAL NOTES, SEE SHEETS 00-S-002 AND STANDARD SPECIFICATIONS.
2. REINFORCEMENT CLEAR COVER TO BE 2" EF FOR WALLS, 2" AT TOP OF SLABS, AND 3" AT BOTTOM OF SLABS, TYP., UNO
3. ALL LAP SPLICES TO BE CLASS B PER DETAIL 1/00-S-101.
4. REFER TO MECHANICAL DRAWINGS FOR SIZE AND LOCATIONS OF PIPE PENETRATIONS AND SLAB OPENINGS. SEE DETAIL 9/00-S-101 FOR TYPICAL REINFORCEMENT REQUIREMENTS. COORDINATE PIPE PENETRATION SEAL WITH MECHANICAL EOR (WHERE OCCURS).
5. ALL SLAB REINFORCEMENT MUST TERMINATE WITH A STANDARD 90° HOOK PER DETAIL 05/00-S-101.
6. COORDINATE LOCATION AND DETAILING FOR ATTACHMENT OF MECHANICAL SUPPORTS WITH BUILDING MANUFACTURER AND MECHANICAL ENGINEER OF RECORD PRIOR TO INSTALLATION.
7. COORDINATE ALL INTERIOR WALLS WITH ARCHITECTURAL DRAWINGS. SEE SHEET 00-S-106 AND PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION



NO.	BY	CHK APP
0		
DATE	REVISONS AND RECORD OF USE	
5/19/2020	ISSUED FOR CONSTRUCTION	



JOINT VENTURE

FILANC

**CITY OF MORRO BAY
MORRO BAY WATER
RECLAMATION FACILITY (WRF)**

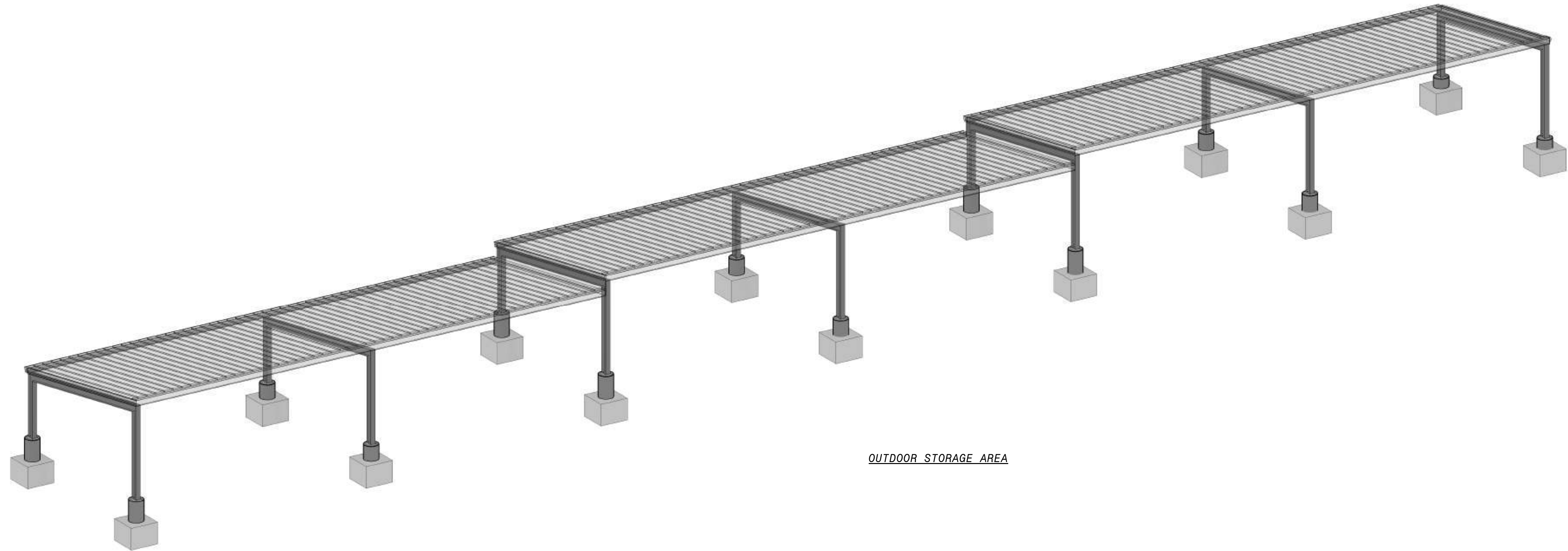
**WATER AND COLLECTION SUPPLIES STORAGE SHEDS
STRUCTURAL
SECTIONS**

DESIGNED: M. MARSH
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
400530

16-S-301
SHEET
173 OF 412

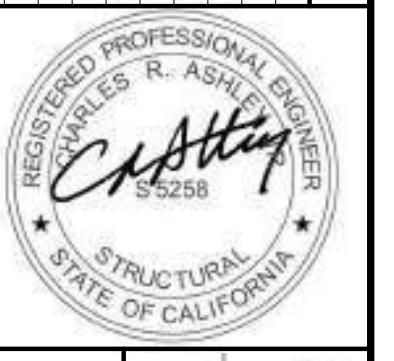


OUTDOOR STORAGE AREA

3D VIEW - SOUTH

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DATE	5/19/2020	ISSUED FOR CONSTRUCTION	
		REVISIONS AND RECORD OF USE	



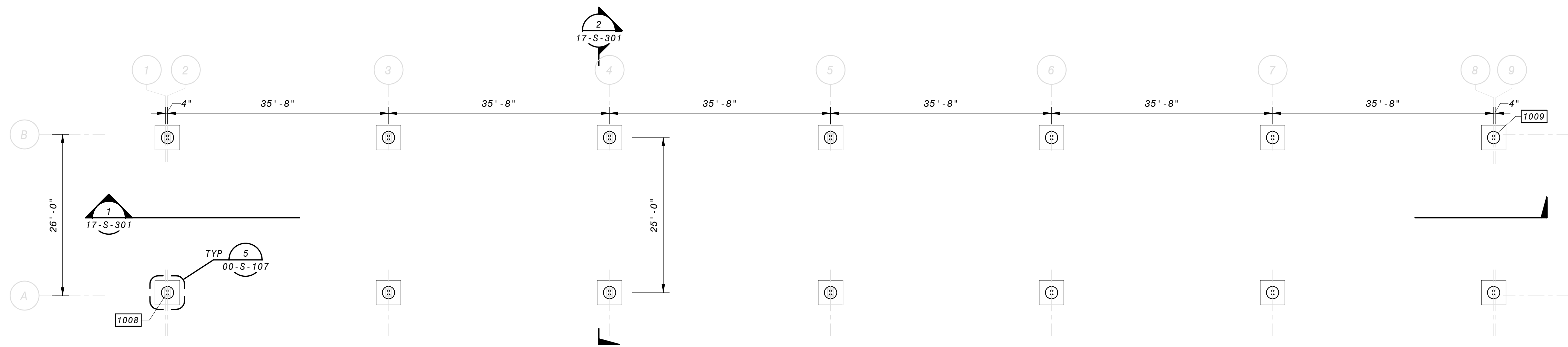
Ashley & Vance
 ENGINEERING, INC.
 JOINT VENTURE
FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 CORPORATION YARD AREA
 STRUCTURAL
 3D VIEW

DESIGNED: C. TAYLOR
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

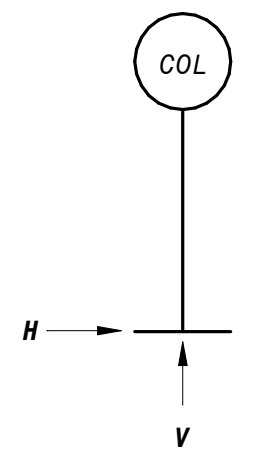
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 IF THIS BAR DOES NOT
 MEASURE 1" THEN DRAWING IS
 NOT TO FULL SCALE

PROJECT NO.
 400530
17-S-001
 SHEET
 174 OF 412



PLAN
3/32" = 1'-0"

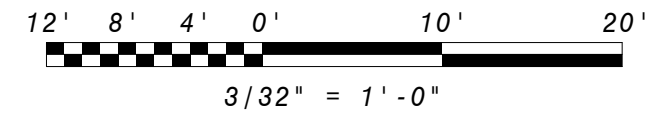
- NOTES:**
- DESIGN AND DRAWINGS FOR STEEL FRAME PRE-ENGINEERED METAL BUILDING TO BE PROVIDED BY BUILDING MFR. SEE SPECIFICATIONS FOR DESIGN CRITERIA.
 - FOUNDATION DESIGN HAS BEEN BASED ON THE FOLLOWING FRAME REACTIONS, ASSUMING A PINNED COLUMN BASE:
 - FRAME REACTIONS INCLUDE BOTH PRINCIPLE DIRECTIONS AND ORTHOGONAL COMBINATION EFFECTS.



LOAD	VERTICAL V (K)	HORIZONTAL H (K)
DEAD	3.4	0.5
ROOF LIVE	7.7	1.0
SEISMIC	2.0	0.75
WIND (MAX)	10.5	2.5
WIND (MIN)	-10.5	-2.5

GENERAL FOUNDATION NOTES

- PLEASE SEE SOILS REPORT FOR ADDITIONAL SPECIFICATIONS AND RECOMMENDATIONS. IT IS THE DESIGN BUILDER'S RESPONSIBILITY TO OBTAIN A COPY OF THE SOILS REPORT FROM THE OWNER OR OWNERS REPRESENTATIVE.
- NOT USED.
- FOR GENERAL STRUCTURAL NOTES, SEE SHEETS 00-S-002 AND STANDARD SPECIFICATIONS.
- VERIFY ALL DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL LAP SPLICES TO BE CLASS B PER DETAIL 1/00-S-101
- COORDINATE COLUMN SIZE, LOCATION, AND ATTACHMENT WITH BUILDING MANUFACTURER PRIOR TO INSTALLATION.



NO.	BY	DATE	REVISIONS AND RECORD OF USE
0		5/19/2020	ISSUED FOR CONSTRUCTION
			REVISED AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
 CHARLES R. ASHLEY
 S 5258
 STRUCTURAL
 STATE OF CALIFORNIA

Ashley & Vance
 ENGINEERING, INC.

JOINT VENTURE

FILANC **BLACK & VEATCH**

CITY OF MORRO BAY
 MORRO BAY WATER
 RECLAMATION FACILITY (WRF)
 OUTDOOR STORAGE AREA
 STRUCTURAL
 PLAN

DESIGNED: C. TAYLOR
 DETAILED: S. BENJAMIN
 CHECKED: I. SHOEBRIDGE
 APPROVED: C. ASHLEY
 DATE: 5/19/2020

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
 400530
 17-S-101
 SHEET
 175 OF 412