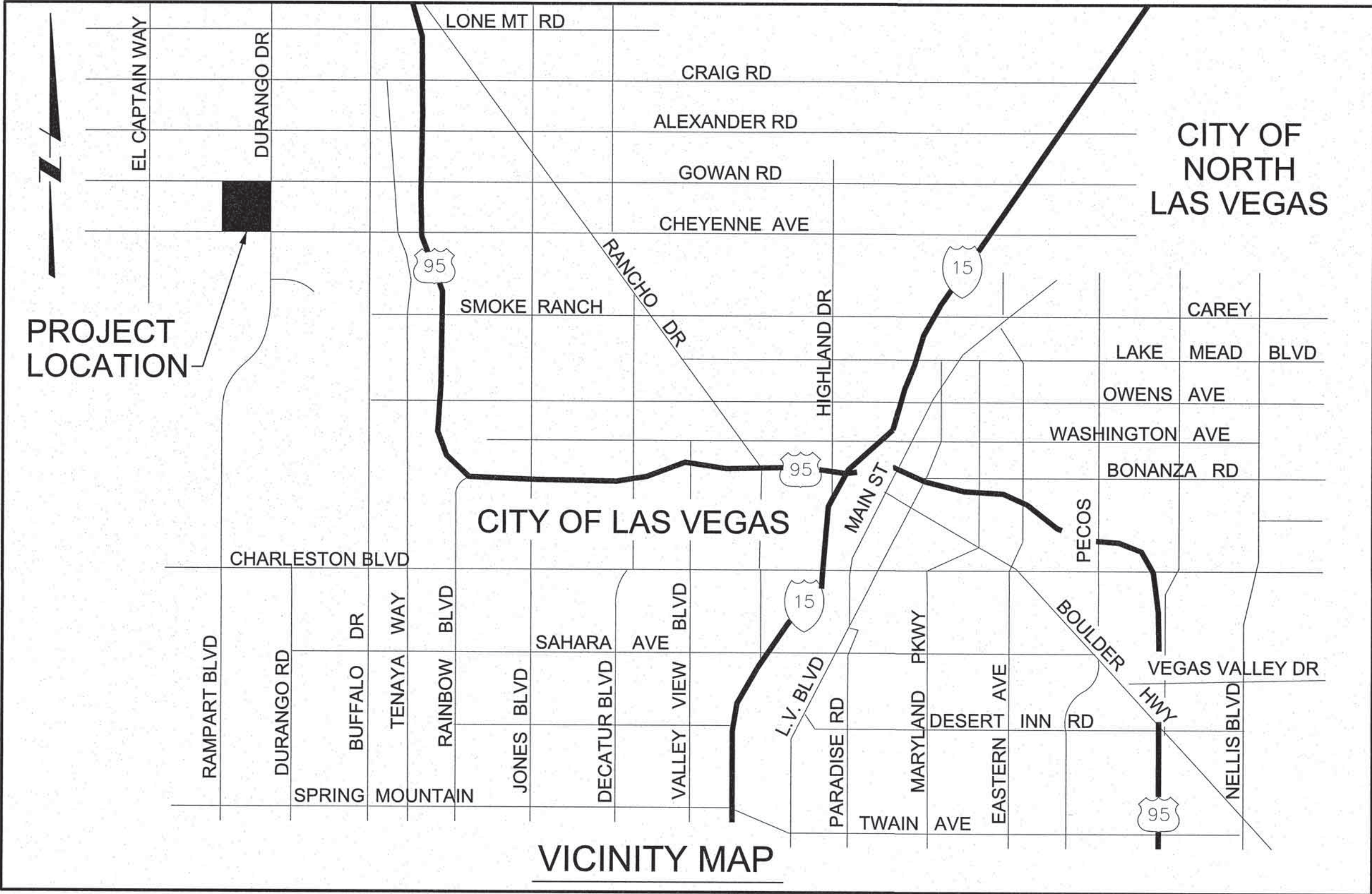


File: DHWRG01.dgn Model: G-1 ColorTable: bw.ctb DesignScript: MWH_lplot_PenTable_2012.pen PlotScale: 0.083333:1 User: svc_projectwise Plot Date: 28-JUL-2016 11:47



City of Las Vegas

MAYOR:

CAROLYN G. GOODMAN

CITY MANAGER:

ELIZABETH N. FRETWELL

CITY COUNCIL:

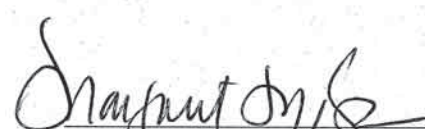
STEVEN D. ROSS (MAYOR PRO TEM)
LOIS TARKANIAN
BOB BEERS
BOB COFFIN
STAVROS S. ANTHONY
RICKY Y. BARLOW

OWNER:

CITY OF LAS VEGAS
6005 EAST VEGAS VALLEY DR
LAS VEGAS, NV 89142
(702) 229-6200

ENGINEER:

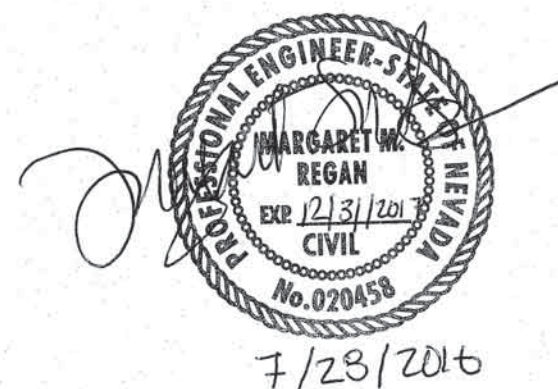
MWH AMERICAS INC.
3010 W CHARLESTON BLVD, STE 100
LAS VEGAS, NV 89102
(702) 878-8010

 20458 7/28/2016
MARGARET REGAN LICENSE NO. DATE



City of Las Vegas
Department of Public Works - Environmental Division
Bid No. 16.53541.05-TB

Durango Hills Water Resource Center
2015 Upgrades Project
FINAL SUBMITTAL - MARCH 2016



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

DESIGNED: R DENNIS		DRAWN: A MANUREKAR		CHECKED: S BRATT	
DURANGO HILLS WATER RESOURCE CENTER UPGRADES		GENERAL COVER SHEET		G-1	
SCALE: NO SCALE		SHEET: G-1		10506196	
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT		MWH		DESCRIPTION	

LIST OF DRAWINGS

SHEET NUMBER TITLE

GENERAL

- G-1 COVER SHEET
- G-2 LIST OF DRAWINGS AND PIPING SCHEDULE
- G-3 SYMBOL - I
- G-4 SYMBOL - II
- G-5 ABBREVIATIONS
- G-6 ODOR CONTROL SCHEMATIC
- G-7 SITE PLAN

INSTRUMENTATION

- GI-1 SYMBOLS AND ABBREVIATIONS - I
- GI-2 SYMBOLS AND ABBREVIATIONS - II
- GI-3 CONTROL BLOCK DIAGRAM
- GI-4 EXAMPLE LOOP DIAGRAM
- GI-5 32 POINT DISCRETE RELAY INPUT TYPICAL WIRING DIAGRAM
- GI-6 16 POINT DISCRETE RELAY OUTPUT TYPICAL WIRING DIAGRAM
- GI-7 16 CHANNEL ANALOG INPUT TYPICAL WIRING DIAGRAM
- GI-8 16 CHANNEL ANALOG OUTPUT TYPICAL WIRING DIAGRAM
- GI-9 INSTALLATION DETAILS - I
- GI-10 INSTALLATION DETAILS - II
- GI-11 INSTALLATION DETAILS - III

- 07I-1 NPW - P&ID
- 11I-1 CHLORINE ANALYZER - P&ID
- 19I-1 RESIDUAL SEWER FLOW METER - P&ID
- 20I-1 GENERATOR - P&ID

STRUCTURAL

- GS-1 STANDARD NOTES - I
 - GS-2 STANDARD NOTES - II
 - GS-3 STANDARD DETAILS - I
 - GS-4 STANDARD DETAILS - II
- 20SD-1 GENERATOR BLOCK WALL PLAN
 - 20SD-2 GENERATOR BLOCK WALL SECTIONS AND DETAILS
 - 20S-1 ADMINISTRATION BUILDING PLAN
 - 20S-2 GENERATOR EQUIPMENT PAD AND BLOCK WALL SECTIONS AND DETAILS

MECHANICAL

- GM-1 STANDARD DETAILS
- 05MD-1 OC DUCTING - WEST GALLERY PLAN AND SECTIONS
 - 05M-1 OC DUCTING - WEST GALLERY UPPER LEVEL PLAN AND SECTIONS
 - 05M-2 OC DUCTING - WEST GALLERY LOWER LEVEL PLAN
 - 06MD-1 AERATION BASIN TUNNEL PLAN
 - 06M-1 AERATION BASIN TUNNEL PLAN AND SECTION
 - 07MD-1 OC DUCTING - EAST GALLERY PLAN AND SECTION
 - 07MD-2 NPW PUMP DETAILS
 - 07M-1 OC DUCTING - EAST GALLERY PLAN AND SECTION
 - 07M-2 OC DUCTING - EAST GALLERY SECTIONS
 - 07M-3 NPW PUMPS DETAILS
 - 11MD-1 NEW TREATMENT MODIFICATION PLAN AND SECTION
 - 11M-1 CL2 ANALYZER - CCB INFLUENT OVERALL PLAN
 - 11M-2 NEW TREATMENT MODIFICATION PLAN AND SECTION
 - 11M-3 NEW TREATMENT MODIFICATION PLAN AND SECTION

ELECTRICAL

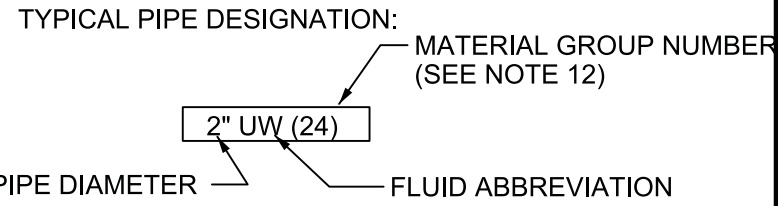
- GE-1 SYMBOL - I
 - GE-2 SYMBOL - II
 - GE-3 NOTES AND ABBREVIATIONS
- ED-1 NORTHEAST ELECTRICAL ROOM EXISTING MCC-D07ELE932-MCC-2-1 SINGLE LINE DIAGRAM
 - ED-2 NORTHEAST ELECTRICAL ROOM EXISTING MCC-D07ELE932-MCC-2-2 SINGLE LINE DIAGRAM AND ELEVATION
 - ED-3 ADMIN BUILDING ELECTRICAL ROOM EXISTING MCC-D20ELE953-MCC-1-1 SINGLE LINE DIAGRAMAND ELEVATION
- E-1 OVERALL SINGLE LINE DIAGRAM
 - E-2 NORTHWEST ELECTRICAL ROOM EXISTING MCC-D05ELE921-MCC-3-2 SINGLE LINE DIAGRAM AND ELEVATION
 - E-3 SOUTHWEST ELECTRICAL ROOM EXISTING MCC-D05ELE921-MCC-3-4 SINGLE LINE DIAGRAM AND ELEVATION
 - E-4 NORTHEAST ELECTRICAL ROOM EXISTING MCC-D07ELE932-MCC-2-1 SINGLE LINE DIAGRAM
 - E-5 NORTHEAST ELECTRICAL ROOM EXISTING MCC-D07ELE932-MCC-2-1SINGLE LINE DIAGRAM AND ELEVATION
 - E-6 NORTHEAST ELECTRICAL ROOM EXISTING MCC-D07ELE932-MCC-2-2 SINGLE LINE DIAGRAM AND ELEVATION
 - E-7 ADMIN BUILDING ELECTRICAL ROOM EXISTING MCC-D20ELE953-MCC-1-1 SINGLE LINE DIGRAM AND ELEVATION
 - E-8 OVERALL SITE PLAN
 - E-9 PANELBOARD SCHEDULES
 - E-10 DUCT BANK SCHEDULES
 - E-11 CONTROL SCHEMATIC - I
 - E-12 CONTROL SCHEMATIC - II
 - E-13 CONTROL SCHEMATIC - III
 - E-14 CONDUIT DEVELOPMENT
 - E-15 CONDUIT AND CONDUCTOR SCHEDULE
- 05E-1 WEST EQUIPMENT GALLERY UPPER LEVEL PLAN
 - 06E-1 AERATION BASIN TUNNEL POWER PLAN
 - 07E-1 EAST EQUIPMENT GALLERY NPW PUMPS POWER AND CONTROL PLAN
 - 07E-2 EAST EQUIPMENT GALLERY UPPER LEVEL PLAN
 - 11ED-1 FINAL TREATMENT BUILDING PLAN
 - 11E-1 CHLORINE CONTACT BASINS ELECTRICAL PLAN
 - 11E-2 FINAL TREATMENT BUILDING POWER AND CONTROL PLAN
 - 20ED-1 ADMINISTRATION BUILDING POWER PLAN
 - 20E-1 ADMINISTRATION BUILDING POWER PLAN

PIPING MATERIAL SCH (SEE NOTE 4 AND GENERAL NOTE AT RIGHT)			
GROUP NO	PIPE (SEE NOTE 13)	FITTINGS	VALVES, 6" AND SMALLER (SEE NOTE 1, 11 & 16)
2	STEEL, ASTM A53, SCH 40, BLACK WELDED, GALVANIZED	2 1/2" AND SMALLER, MALLEABLE IRON, ASME B16.3, THREADED, BANDED, GALVANIZED 150 PSI. 3" AND LARGER, CAST IRON, ASME B16.1, 125 PSI FLANGED OR MECHANICAL COUPLING.	2 1/2" AND SMALLER, ECCENTRIC PLUG, SYNTHETIC RUBBER FACED: DEZURIK PEC, CAST IRON, OR MILLIKEN 603E. BALL: JAMESBURY FIG 351 OR WATTS #B-6080. 3" AND LARGER, ECCENTRIC PLUG, SYNTHETIC RUBBER FACED: DEZURIK PEC, CAST IRON, OR MILLIKEN 601. GATE: AWWA C500. BUTTERFLY: AWWA, FLANGED
7	SAME AS GROUP NO. 2.	MALLEABLE IRON, ASME B16.3, THREADED, BANDED, GALVANIZED, 300 PSI.	BRONZE THREADED, GLOBE: CRANE #212P OR STOCKHAM B-62 OR B-32T. BALL: JAMESBURY FIG 351 OR WATTS #B-6080. CHECK: CRANE #27TF OR STOCKHAM B-32T.
11	DUCTILE IRON, ANSI A21.51, (AWWA C151 AND MODIFIED PER SECTION 339220), ENDS BELL AND SPIGOT, MECH JOINTS OR 125 PSI FLGD. (TYPICAL SERVICE -WATER LINES).	DUCTILE IRON AWWA C110 AND MODIFIED PER SECTION 339220, BELL AND SPIGOT JOINTS (RESTRAINT), MECH CPLNG, FLGD OR MECH JTS, 250 PSI (PRESS. RATING) 12" AND SMALLER, 150 PSI, (PRESS. RATING) 14" AND LARGER, WITH 125 PSI ASME B16.1 FLANGES. FOR HIGHER PRESS. RATING, REFER TO METR CATALOG.	GATE: AWWA C500, O-RING SEALS, MECHANICAL JOINT ENDS, CLOW F-506S. BUTTERFLY: AWWA, ECNETRIC PLUG DEZURIK PEC, CAST IRON OR MILLIKEN 603E. BALL: PRATT OR APCO-WILLAMETTE.
14	STAINLESS STEEL, TYPE 316, ASTM A312, SCHEDULE 40S.	STAINLESS STEEL, TYPE 316, SCREWED, WELDED SLIP-ON FLANGE ASME B16.3, OR SOCKET WELDED FITTINGS SCHEDULE 40S.	STAINLESS STEEL, BALL, FLANGED: CONTROMATICS SERIES 2801 OR JAMESBURY SERIES 7150. CHECK: LADISH 5275 OR CRANE FIG 377 OR AS SHOWN ON DRAWINGS
18	FIBERGLASS REINFORCED PLASTIC, ASTM D2996, FILAMENT-WOUND, SOCKET AND SPIGOT ENDS, ADHESIVE BONDED.	FIBERGLASS REINFORCED PLASTIC, FILAMENT-WOUND, SOCKET ENDS, ADHESIVE BONDED, OR FIBERGLASS FLGD.	PLASTIC LINED, FLANGED. FLANGES TO MATCH 150 PSI ASME B16.5 DIMENSIONS, OR AS INDICATED ON DRAWINGS.
22	REINFORCED CONCRETE, ASTM C76, O-RING BELL AND SPIGOT JOINTS.	USE MANHOLES.	-----
24	COPPER, ASTM B88, TYPE K, SOFT TEMPERED WHERE BURIED, HARD TEMPERED WHERE EXPOSED	WROUGHT COPPER OR CAST BRONZE, ASME B16.22, SOLDER JOINT, 150 PSI, OR COMPRESSION FITTINGS. (FOR OXYGEN PIPING USE SILVER SOLDER, FOR COMPRESSED AIR PIPING USE 95-5 TIN-ANTIMONY SOLDER)	BRONZE, SOLDER JOINT, GLOBE: CRANE #1310 OR STOCKHAM B-14T. CHECK: CRANE #1342 OR 36, OR STOCKHAM B-309Y OR B-345. GATE: CRANE #426 OR STOCKHAM B-104 OR B-105.
26	SAME AS GROUP NO. 11 (TYPICAL SERVICE - SLUDGE AND SEWAGE LINES)	SAME AS GROUP NO. 11.	ECCENTRIC PLUG, SYNTHETIC RUBBER FACED: DEZURIK PEC, CAST IRON OR MILLIKEN 601. SWING TYPE CHECK: CRANE #383 OR POWELL FIG 559. BALL: PRATT OR APCO-WILLAMETTE.
30	SAME AS GROUP NO. 11, CEMENT MORTAR-LINED.	SAME AS GROUP NO. 11, CEMENT-MORTAR LINED	SAME AS GROUP NO 26.
31	CHLORINATED POLYVINYL CHLORIDE (CPVC) TUBING, SDR 11, ASTM D2846.	CPVC, SDR 11, SOCKET AND SOLVENT WELD JOINTS.	AS SPECIFIED AND INDICATED ON DRAWINGS.
33	HASTELLOY-C, ASTM B619, SCH. 40.	HASTELLOY-C, SOCKET WELDED FITTINGS, SCH. 40.	HASTELLOY-C, SOCKET OR FLANGED ENDS.
36	CHLORINATED POLYVINYL CHLORIDE (CPVC) SCH. 80, ASTM DI 784 - CLASS 23447-B.	CPVC, SCHEDULE 80, SOCKET AND SOLVENT WELD JOINTS.	AS SPECIFIED AND INDICATED ON DRAWINGS.
38	HIGH DENSITY POLYETHYLENE (HDPE), ASTM F894, RSC AS SPECIFIED.	INTEGRAL BELL AND SPIGOT, THERMAL WELDED JOINTS.	-----

FLUID ABBREVIATION	FUNCTION THIS LIST INCLUDES SOME LINES NOT USED IN THIS PROJECT (* SEE NOTE 5)	PIPING MATERIALS (SEE SCH AT RIGHT)				FIELD TEST REQUIREMENTS (SEE NOTE 3 AND NOTE 4)		
		EXPOSED PIPING (SEE NOTE 14)		BURIED PIPING (SEE NOTE 13)		MINIMUM TEST PRESSURE PSI	TEST MEDIUM	LEAKAGE ALLOWANCE (SEE NOTE 2)
		4" DIA AND SMALLER	6" DIA AND LARGER	4" DIA AND SMALLER	6" DIA AND LARGER			
NPW	NONPOTABLE WATER	36	--	--	--	150	WATER	(A)
PD	PLANT DRAIN	36	--	--	--	150	WATER	(A)
PW	POTABLE WATER	2,36	2,36	2,36	11,36	150	WATER	(A)
RE	RECYCLED EFFLUENT	2,24,36	--	2,36	11	25	WATER	(A)
SDW	SCREENINGS DILUTION WATER	36	--	--	--	150	WATER	(A)
SHC	SODIUM HYPOCHLORITE	31,33,36	31,36	31,36	31,36	125	WATER	(A)
SA	SAMPLE	36	--	--	--	150	WATER	(A)

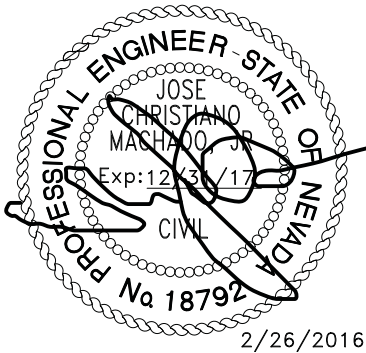
LIST OF SAMPLE LINES

PIPE DESIGNATION	SAMPLE POINT



NOTES:

- GENERAL NOTE**
ALTHOUGH SEVERAL PIPE MATERIAL GROUPS MAY BE LISTED ON THIS SHEET FOR A GIVEN FLUID SERVICE, CONTRACTOR SHALL PROVIDE ONLY THE PIPE MATERIAL GROUP SHOWN ON THE DRAWINGS AND SPECIFIED FOR THAT FLUID SERVICE.
- NOTE 1**
PROPRIETARY NAMES HAVE BEEN QUOTED FOR IDENTIFICATION PURPOSES ONLY. SUBSTITUTIONS WILL BE PERMITTED SUBJECT TO PROVISIONS OF THE SPECIFICATIONS.
- NOTE 2**
LEAKAGE ALLOWANCE IS AS FOLLOWS:
(A) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.
(B) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR UNBURIED PIPE AND WELDED PIPE, AND NOT MORE THAN 0.02 GALLON PER HOUR PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.
(C) PIPES SO DESIGNATED SHALL NOT SHOW A LEAKAGE OF MORE THAN 0.15 GALLON PER HOUR PER INCH OF DIAMETER PER 100 FEET OF PIPE.
(D) PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF PRESSURE OF MORE THAN 5 PERCENT
(E) PIPE SO DESIGNATED SHALL NOT SHOW A LOSS OF VACUUM OF MORE THAN 4 INCHES MERCURY COLUMN
- NOTE 3**
FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS. SEE PIPING SECTION OF SPECIFICATIONS.
- NOTE 4**
NO SUBSTITUTIONS UNLESS ACCEPTED BY THE ENGINEER PER THE SPECIFICATIONS.
- NOTE 5**
PIPING GROUP NUMBER SHOWN THUS * SHALL BE INSULATED. SEE PIPING SECTION OF SPECIFICATIONS FOR INSULATING MATERIALS.
- NOTE 6**
STATIC WATER TEST WITH SURFACE 5 FEET ABOVE HIGH POINT OF PIPE.
- NOTE 7**
INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.
- NOTE 8**
NO APPARENT LEAKS UNDER NORMAL OPERATING CONDITIONS.
- NOTE 9**
INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.
- NOTE 10**
PIPING MATERIALS SHALL BE IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.
- NOTE 11**
FOR VALVES 8" AND LARGER SEE VALVE SCH FOR SPECIAL VALVES SEE SPECIFICATIONS.
- NOTE 12**
CHANGE IN PIPING MATERIAL GROUP NUMBER IS INDICATED THUS:-----◆-----
- NOTE 13**
FOR PIPE LINING AND COATING. SEE SPECIFICATIONS.
- NOTE 14**
EXPOSED PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS. COLORS TO BE SELECTED BY ENGINEER.
- NOTE 15**
FOR SHORT PIPE RUNS, LIME SLURRY PIPING MATERIAL SHALL BE NON-ABRASIVE FLEXIBLE RUBBER HOSE AND QUICK CONNECT COUPLINGS WITH GROUP NO. 1 AT EQUIPMENT.
- NOTE 16**
FOR VALVE ENDS, SEE SPECIFICATIONS.
- NOTE 17**
ALL RECLAIMED WATER PIPING SHALL BE COLOR CODED PURPLE OR AS REQUIRED BY LOCAL CODE.
- NOTE 18**
FOR OUTDOOR EXPOSED PIPING, GROUP NO. 36 IS HIGHLY RECOMMENDED.
- NOTE 19**
UNLESS, OTHERWISE SPECIFIED, PROVIDE DOUBLE CONTAINMENT FOR ALL CHEMICAL PIPING
- NOTE 20**
SIMILAR TO GROUP NO. 16, EXCEPT SCH. 40.



DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

DESIGNED: R DENNIS
DRAWN: A MANJREKAR
CHECKED: S BRATT

GENERAL
LIST OF DRAWINGS AND
PIPING SCHEDULE

SCALE:
NO SCALE

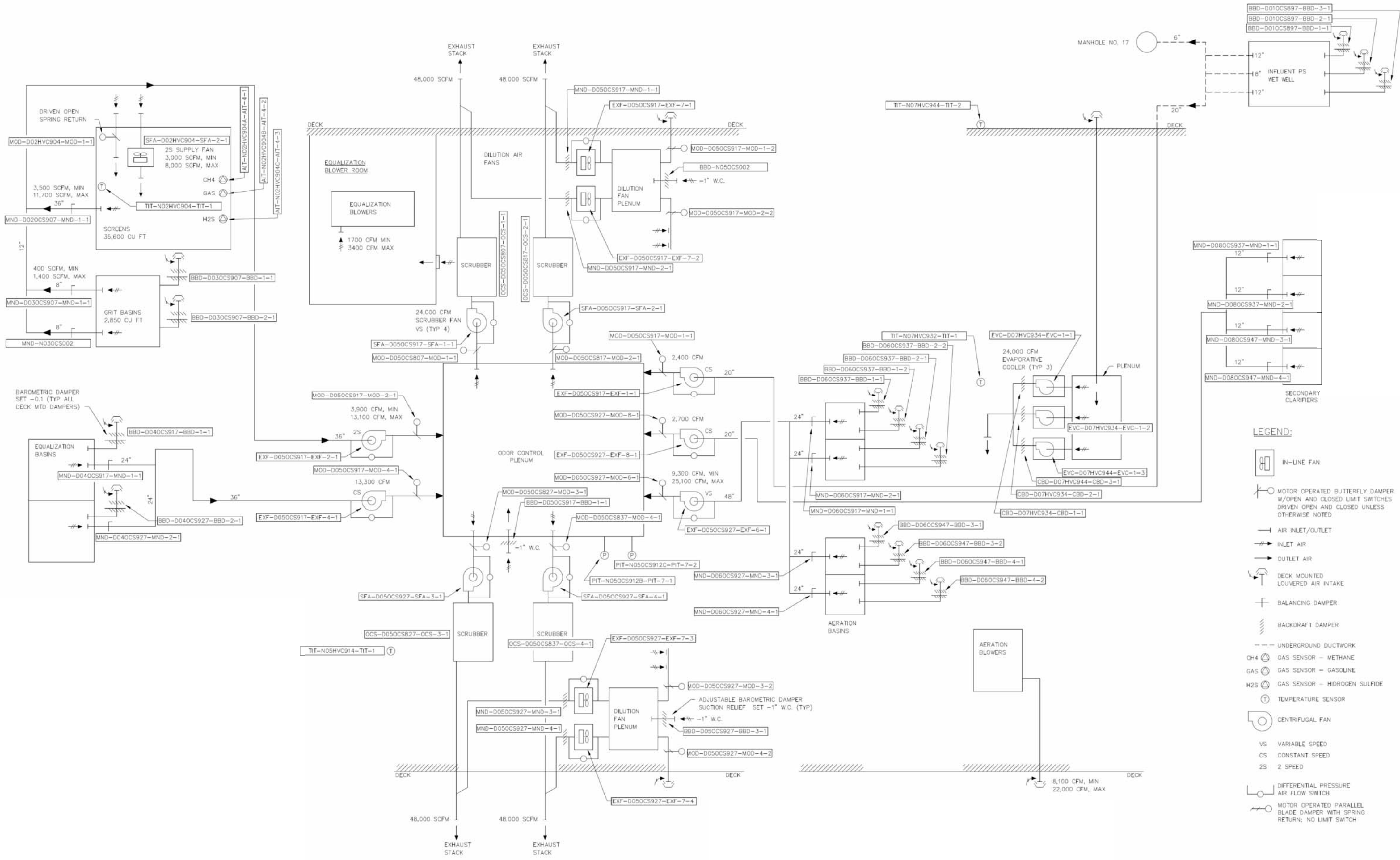
SHEET:
G-2
10506196

DESCRIPTION
BY
DATE
REV

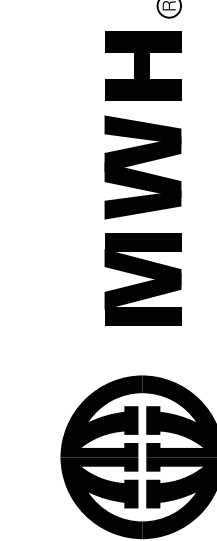


GENERAL SHEET NOTES

1. IMAGE PROVIDED FOR REFERENCE ONLY FROM OCTOBER 1998 NORTHWEST WATER RESOURCE CENTER RECORD DRAWINGS. SEE SPECIFICATION SECTION 01 14 00 CONSTRUCTION CONSTRAINTS FOR TEMPORARY ODOR CONTROL REQUIREMENTS.



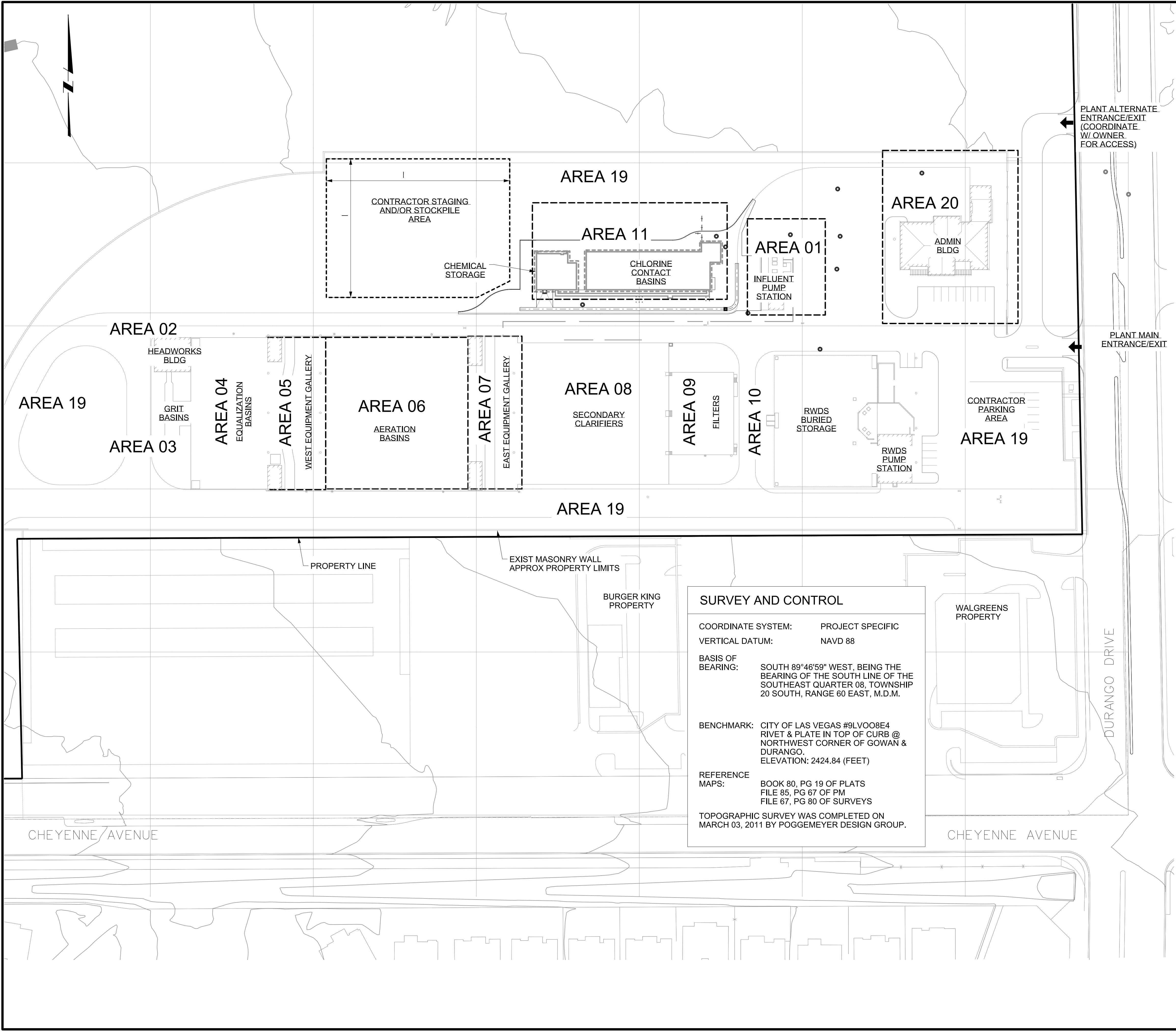
DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED N/A
DRAWN C.AUGUSTINE
CHECKED C.MACHADO

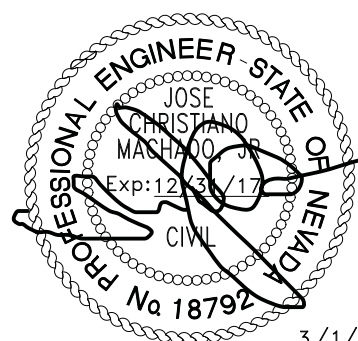
DURANGO HILLS WATER RESOURCE CENTER UPGRADES
GENERAL
ODOR CONTROL SCHEMATIC

SCALE:
1" = 60'
SHEET:
G-6
10506196



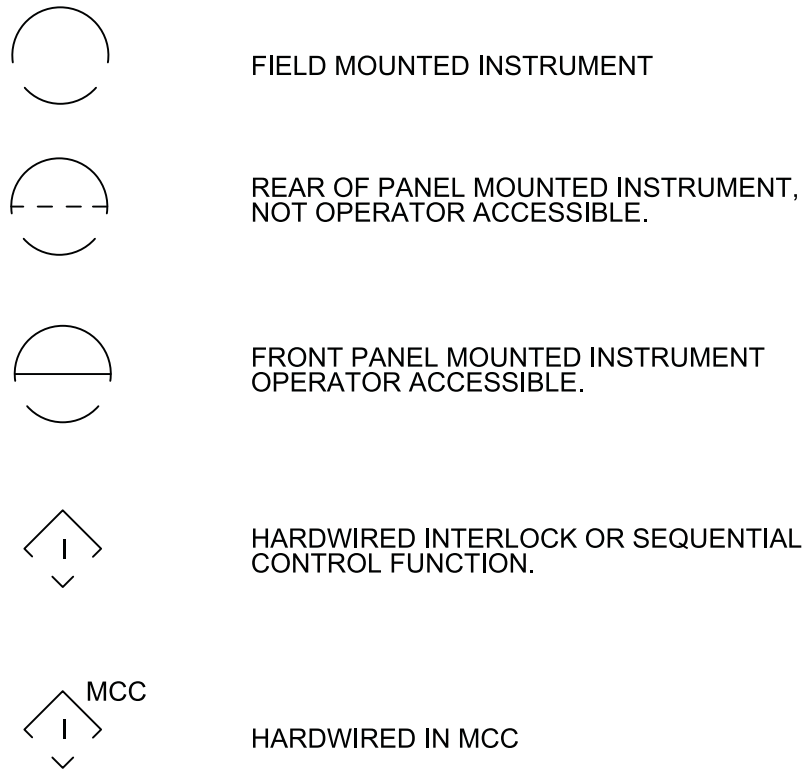
- ### GENERAL SHEET NOTES
- COORDINATE WITH OWNER FOR SITE SECURITY AND SITE ACCESS REQUIREMENTS. SEE SPEC 011400 FOR PLANT ADMINISTRATION HOURS. SITE ACCESS OUTSIDE OF THESE HOURS WILL NEED TO BE COORDINATED WITH OWNER.
 - COORDINATE WITH OWNER FOR SITE SAFETY REQUIREMENTS. MEET THE SAFETY REQUIREMENTS OF SPECIFICATIONS AND ATTEND SAFETY TRAINING AS REQUIRED BY OWNER PRIOR TO MOBILIZATION.
 - EMERGENCY VEHICLE ACCESS TO FACILITIES SHALL BE MAINTAINED AT ALL TIMES. IF ACCESS OR EGRESS IS TEMPORARILY OBSTRUCTED FOR CONSTRUCTION, CONTRACTOR SHALL PROVIDE TEMPORARY ALTERNATIVE ACCESS.
 - SEE SPEC SECTION 011400 FOR CONSTRUCTION CONSTRAINTS.
 - INSTALL 6-FT HIGH TEMPORARY CHAIN LINK FENCE AND ACCESS GATE AROUND STAGING AREA. REMOVE AT COMPLETION OF CONSTRUCTION.
 - PROVIDE PROVISIONS TO DRAIN STAGING/STOCKPILE AREA OR PROVIDE POSITIVE DRAINAGE TO PREVENT PONDING.
 - BENCHMARK LOCATION NOT INDICATED ON SITE PLAN. REFER TO DURANGO HILLS WATER RESOURCE CENTER PROCESS UPGRADES PROJECT RECORD DRAWINGS DATED NOVEMBER 2013.
 - CONTRACTOR, VENDOR AND VISITOR PARKING:
 - ALL CONTRACTOR VEHICLES SHALL BE PROPERLY LABELED, PLACARDED, OR BEAR SIGNS WHICH SHALL AT A MINIMUM INCLUDE THE COMPANY NAME AND/OR PHONE NUMBER.
 - ONLY COMPANY VEHICLES ARE PERMITTED BEYOND THE DESIGNATED PRIVATE VEHICLE PARKING AREAS.
 - ALL PRIVATELY OWNED VEHICLES (POV) SHALL BE PARKED AT THE DESIGNATED CONTRACTOR PARKING AREA LOCATED TO THE SOUTH OF THE ADMIN BUILDING.
 - PROCEDURES FOR THE TRANSPORTATION OF EACH CONTRACTOR'S EMPLOYEES TO THEIR RESPECTIVE JOB SITE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - THE CONTRACTOR SHALL AUTHORIZE VENDORS AND VISITORS TO THE JOB SITE. A NOTICE OF THAT APPROVAL SHALL BE DISPLAYED BY PLACING A VISITOR SIGN ON THE DASH OF THEIR VEHICLE.

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT		DESCRIPTION
DESIGNED: C. MACHADO	DRAWN: C. AUGUSTINE	BY
CHECKED: R. STEPHENSON		DATE
DURANGO HILLS WATER RESOURCE CENTER UPGRADES		REV
GENERAL SITE PLAN		
SCALE: 1" = 60'		
SHEET: G-7 10506196		

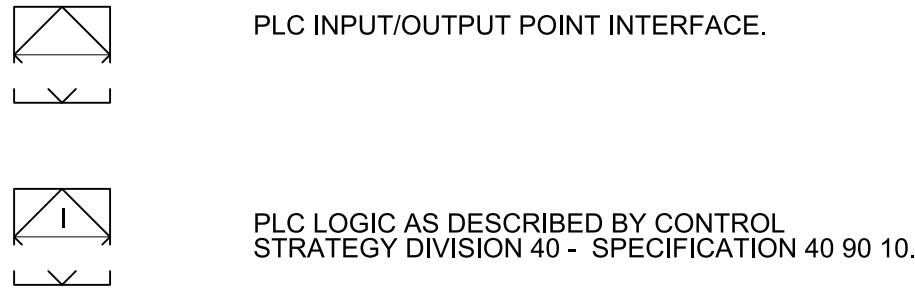


INSTRUMENT AND FUNCTION SYMBOLS

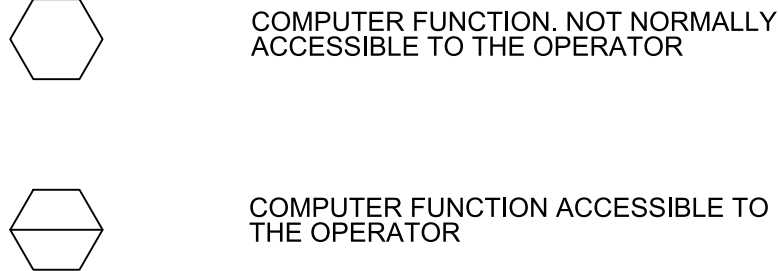
INSTRUMENTS AND INTERLOCKS



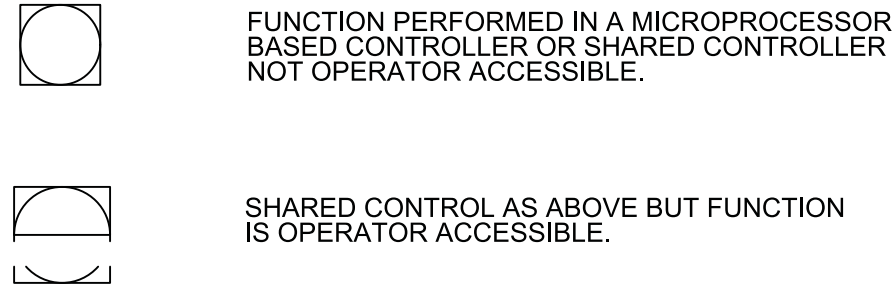
FUNCTION/INTERFACE LOGIC INTEGRAL TO THE PLC



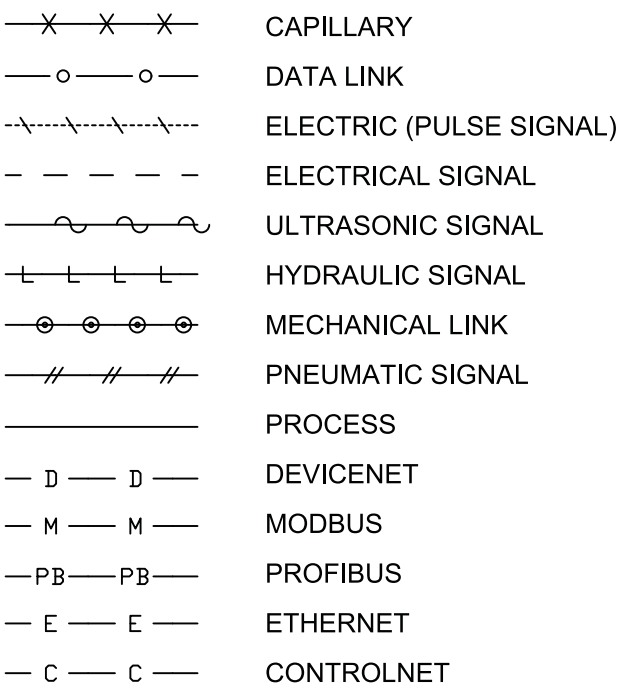
HMI COMPUTER FUNCTION



SHARED CONTROL OR DISPLAY FUNCTIONS



INSTRUMENT SIGNAL LINES

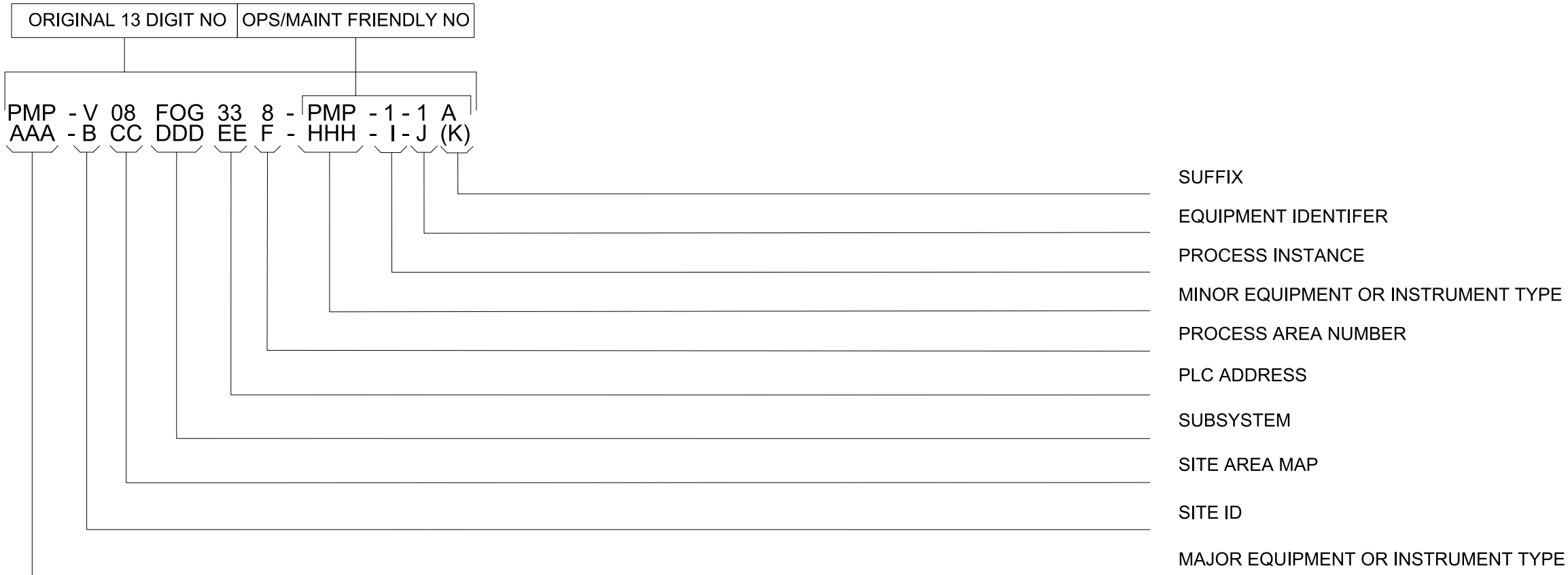


NOTE: SOLID LINES INDICATE WORK UNDER THIS CONTRACT.
SHADED LINES INDICATE EXISTING ITEMS OR WORK BY OTHERS.

INSTRUMENT IDENTIFICATION LEGEND

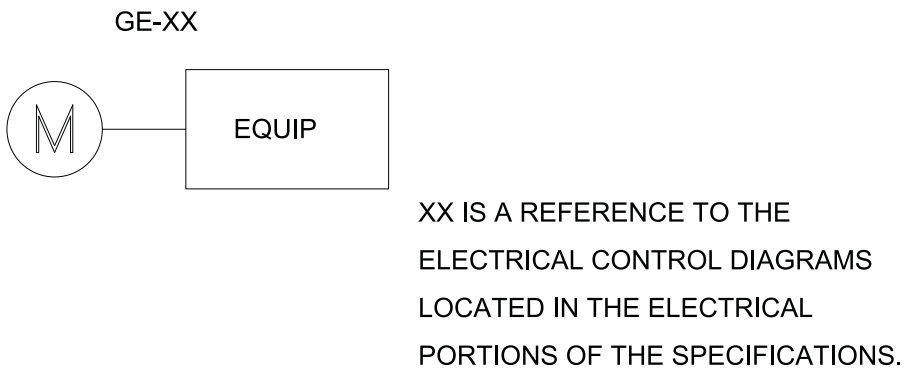
FIRST-LETTER		SUCCEEDING-LETTERS			
	MEASURED INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	-	ALARM	-	-
B	BURNER, COMBUSTION, FLAME	-	-	-	-
C	CONDUCTIVITY	-	-	CONTROL	CLOSED
D	DENSITY, MASS, SPECIFIC GRAVITY	DIFFERENTIAL	-	-	-
E	VOLTAGE	-	SENSOR (PRIMARY ELEMENT)	-	-
F	FLOW RATE	RATIO (FRACTION)	-	-	-
G	FIRE, SMOKE	-	GLASS, VIEWING DEVICE	-	-
H	HAND	-	-	-	HIGH
I	CURRENT (ELECTRICAL)	-	INDICATE	-	-
J	POWER	SCAN	-	-	-
K	TIME, TIME SCHEDULE	TIME, RATE OF CHANGE	-	CONTROL STATION	-
L	LEVEL	-	LIGHT	-	LOW
M	MOTOR, MOISTURE, HUMIDITY	MOMENTARY	-	-	MIDDLE, INTERMEDIATE
N	TORQUE	-	-	-	-
O	USER'S CHOICE	-	ORIFICE, RESTRICTION	-	OPEN
P	PRESSURE, VACUUM	-	POINT (TEST) CONNECTION	-	-
Q	QUANTITY, EVENT	INTEGRATE, TOTALIZE	-	-	-
R	RADIATION, RADIOACTIVITY	-	RECORD	-	-
S	SPEED, FREQUENCY	SAFETY	-	SWITCH	-
T	TEMPERATURE	-	-	TRANSMIT	-
U	MULTIVARIABLE	-	MALFUNCTION	MALFUNCTION	MALFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS, VISCOSITY	-	-	VALVE, DAMPER, LOUVER	-
W	WEIGHT, FORCE	-	WELL	-	-
X	-	X AXIS	-	-	-
Y	EVENT, STATE OR PRESENCE	Y AXIS	-	COMPUTE, CONVERT	-
Z	POSITION, DIMENSION	Z AXIS	-	DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	-

INSTRUMENT AND EQUIPMENT TAG NUMBERS

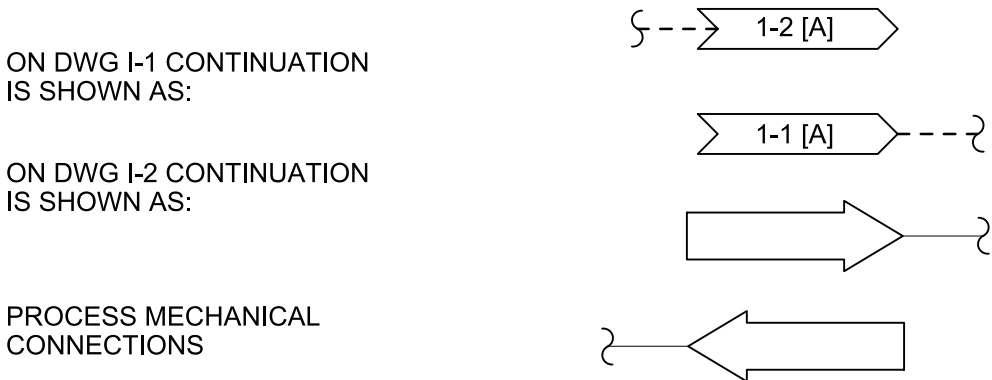


NOTE: REFERENCE LATEST RELEASE OF TM-02 TAG NAMING CONVENTION
FOR VALID VALUES FOR EACH FIELD WITHIN TAG NAME (TM-02 IS AVAILABLE
FROM CITY OF LAS VEGAS TAGGING REPRESENTATIVE).

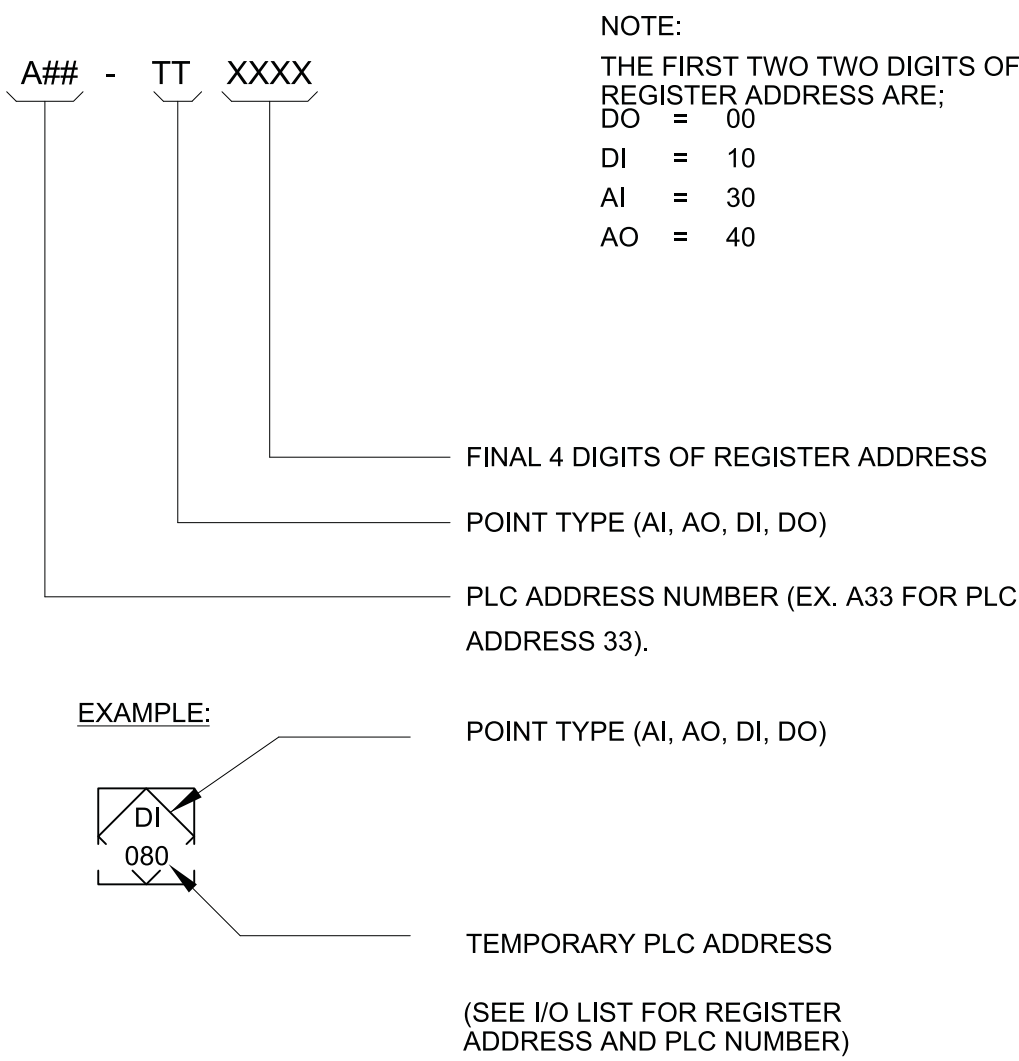
CONTROL DIAGRAM CROSS REFERENCE



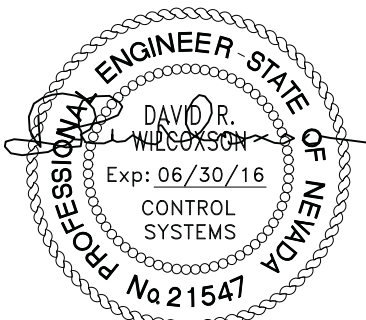
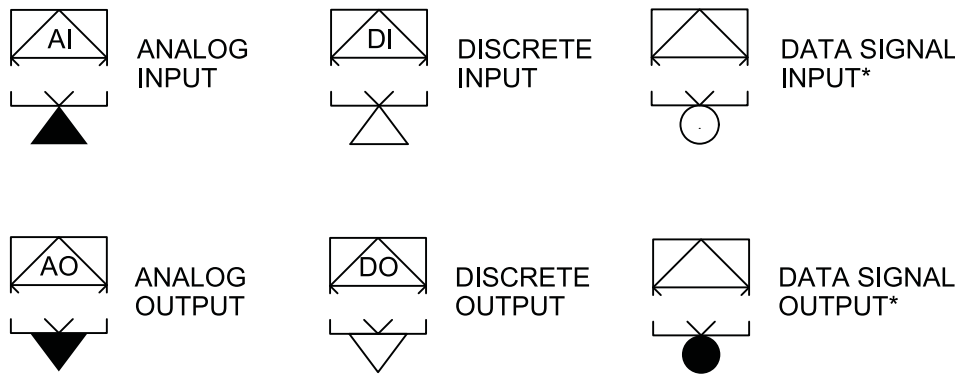
SHEET AND PROCESS CONNECTORS



INPUT/OUTPUT POINT TAG NUMBERS

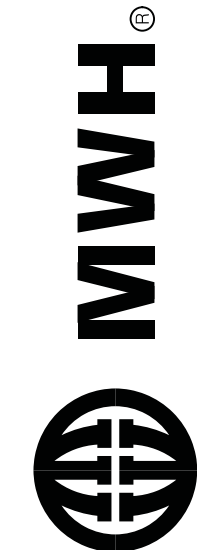


PLC / REMOTE I/O POINTS



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

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED D.WILCOXSON
DRAWN L. RAFTER
CHECKED L. YAUSI

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
GENERAL INSTRUMENTATION
SYMBOLS AND ABBREVIATIONS - I

SCALE:
NO SCALE

SHEET:
GI-1
10506196

FLOW INSTRUMENTS		PRESSURE OR VACUUM INSTRUMENTS		LEVEL INSTRUMENTS		POSITION INSTRUMENTS		REV 01102013 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 WARNING 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
------------------	--	--------------------------------	--	-------------------	--	----------------------	--	--

10506196

GI-2

SHEET:

NO SCALE

SCALE:

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT

DESIGNED D WILCOXSON
DRAWN L RAFTER
CHECKED L YALUSI

GENERAL INSTRUMENTATION
SYMBOLS AND ABBREVIATIONS - II

2/25/2016

ENGINEER STATE OF NEW MEXICO
DAVID R. WILCOXSON
Exp: 06/30/16
CONTROL SYSTEMS
No 21547ALK ALKALINITY
CL₂ CHLORINE CONCENTRATION
COMB COMBUSTIBLE GAS
CON CONDUCTIVITY
DO DISSOLVED OXYGEN
H₂S HYDROGEN SULFIDE
LEL LOWER EXPLOSIVE LIMIT
O₂ OXYGEN CONCENTRATION
O₃ OZONE
ORP OXIDATION/REDUCTION POTENTIAL
PC PARTICLE COUNTER
PH HYDROGEN ION CONCENTRATION
SO₂ SULFUR DIOXIDE
TH TOTAL HARDNESS
TURB TURBIDITY
UV ULTRA VIOLET

FLOW THROUGH ANALYZING ELEMENT WITH TRANSMITTER

XXXX
AIT
AE
DRAIN

ANALYTICAL INSTRUMENTS

POSITION INSTRUMENTS

VALVE POSITION TRANSMITTER ON PNEUMATIC ACTUATED VALVE

LIMIT SWITCH ON MOTORIZED VALVE INDICATING CLOSED POSITION

LEVEL TRANSMITTER, DIFFERENTIAL PRESSURE TYPE, (MOUNTED ON TANK)

GAUGE GLASS (EXTERNALLY CONNECTED)

WEIGHT INSTRUMENTS

HYDRAULIC ACTUATED WEIGHT TRANSMITTER

STRAIN GAUGE CONNECTED TO SEPARATE WEIGHT TRANSMITTER (TAG STRAIN GAUGE WE)

TEMPERATURE INSTRUMENTS

THERMOCOUPLE, RESISTANCE BULB (RTD) OR THERMISTOR (TH) TEMPERATURE TRANSMITTER WITH THERMOWELL

FILLED-SYSTEM TYPE TEMPERATURE TRANSMITTER WITH THERMOWELL

BIOMETALLIC TYPE THERMOMETER, GLASS THERMOMETER, OR OTHER LOCAL UNCLASSIFIED TEMPERATURE INDICATOR

PRESSURE OR VACUUM INSTRUMENTS

PRESSURE INDICATOR DIRECT - CONNECTED

PRESSURE ELEMENT STRAIN-GAUGE TYPE, CONNECTED TO PRESSURE INDICATING TRANSMITTER

SINGLE PORT PITOT TUBE OR PITOT-VENTURI TUBE

SONIC FLOWMETER (DOPPLER OR TRANSIT TIME)

ORIFICE PLATE WITH VENA CONTRACTA, RADIUS, OR PIPE TAPS CONNECTED TO DIFFERENTIAL-PRESSURE -TYPE FLOW TRANSMITTER

FLOW INSTRUMENTS

VORTEX FLOW METER

TURBINE OR PROPELLER TYPE FLOW METER

THERMAL MASS FLOW METER

POSITIVE-DISPLACEMENT TYPE FLOW METER

FLUME WITH ULTRASONIC FLOW TRANSMITTER

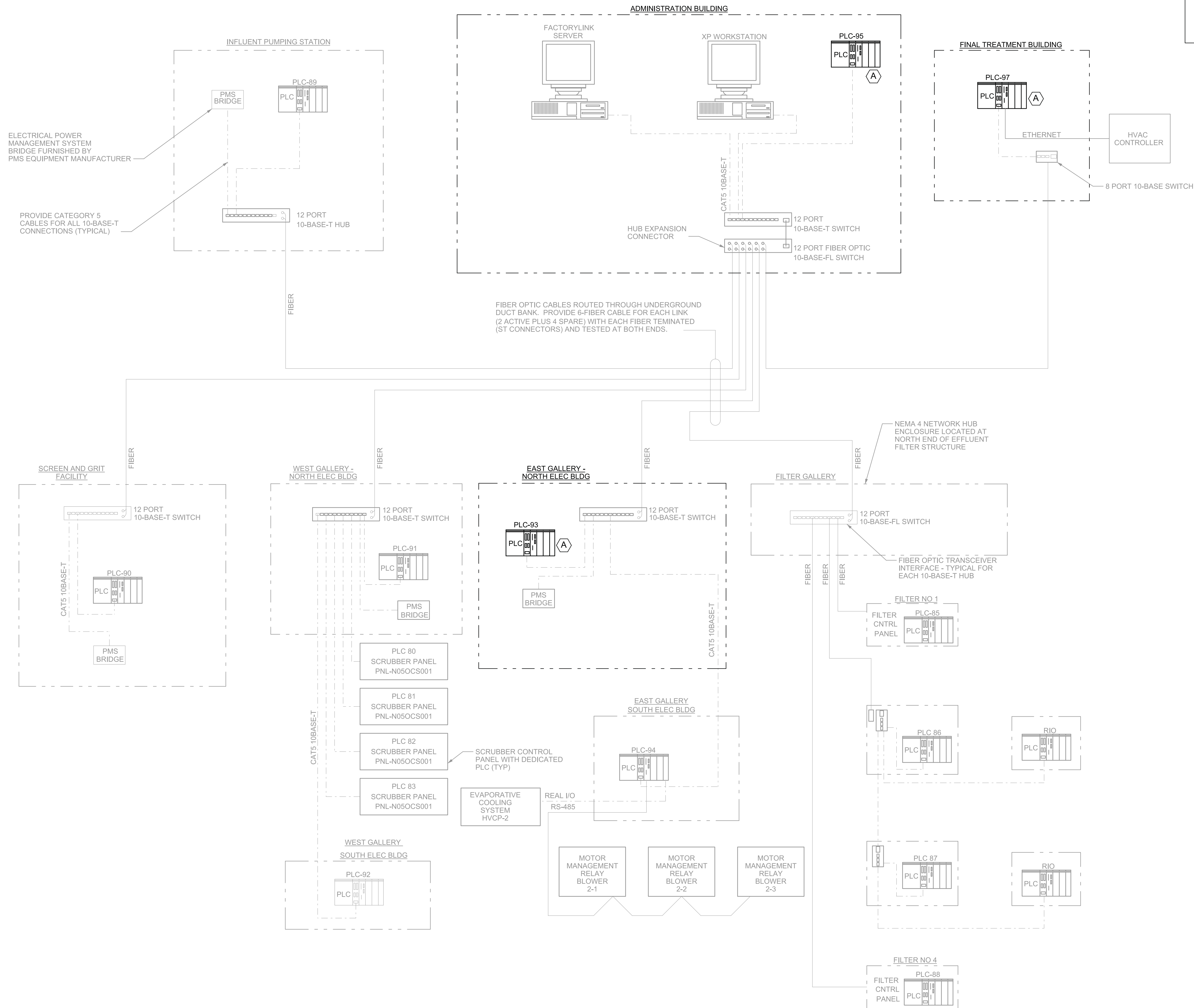
WEIR

WATER RESOURCE CENTER 2015 UPGRADES PROJECT

PLT Date: 25-FEB-2016 17:17

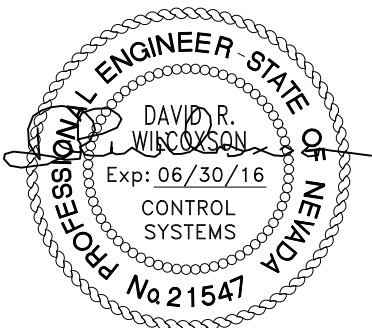
User: svc_projectwise

File: DHWRC_GI02.dgn Model: Layout1 ColorTable: MWH_plt PenTable: 20121.pen PlotScale: 0.083333:1



SHEET KEYNOTES	
A.	SEE SPECIFICATION 40 90 00 FOR DETAILS REGARDING THIS PLC.

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT	
DESIGNED D.WILCOXSON	DESCRIPTION
DRAWN L. RAFTER	BY
CHECKED L. YAUSSI	DATE
DURANGO HILLS WATER RESOURCE CENTER UPGRADES	
GENERAL INSTRUMENTATION CONTROL BLOCK DIAGRAM	
SHEET: NO SCALE	
SHEET: GI-3	



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

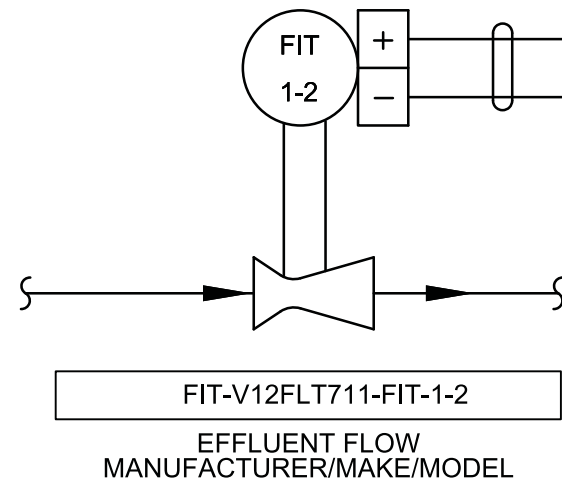
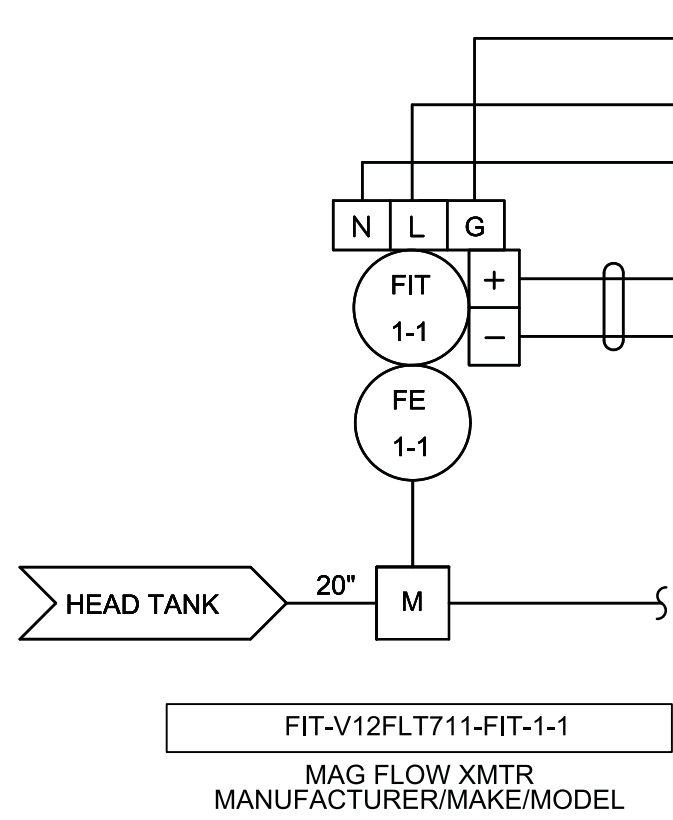
File: DHWRC_G04.dgn Model: Layout1 ColorTable: bw.ctb DesignScript: MWH_iplot_PenTable_2012i.pen PlotScale: 0.083333:1 Plot Date: 25-FEB-2016 17:18 User: svc_projectwise

FIELD

PLC CABINET

GENERAL SHEET NOTES

1. THIS DRAWING IS AN EXAMPLE LOOP DRAWING AND DOES NOT REPRESENT AN ACTUAL PLANT LOOP. PROVIDE LOOP DIAGRAMS FOR THE WORK INSTALLED UNDER THIS CONTRACT. FOLLOW THE FORMAT SHOWN HERE AND THE REQUIREMENTS OF SPECIFICATION SECTION 40 90 00.



GREEN
RED
WHITE

GROUND
UL
UN

FIT-1-1-A47AI0002L

FIT-1-1-A47AI0002

FUSE

(629)

4-20 MA

A47AI0002L

A47AI0002

TYPE:	AI
MODULE MODEL #	140 ACI 040 00
PLC #	47
RACK #	01
SLOT #	06
CHANNEL #	02
ADDRESS #	300002
P&ID DWG #	I-612
P DWG #	P-473

WHITE

BLACK

(651)

(652)

FIT-1-2-A49AI0021L

FIT-1-2-A49AI0021

FUSE

(643)

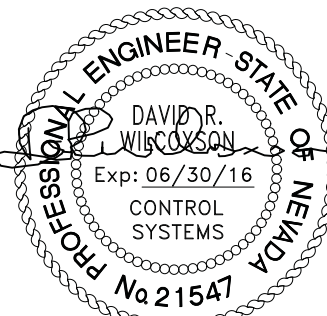
+24 VDC

4-20 MA

A49AI0021

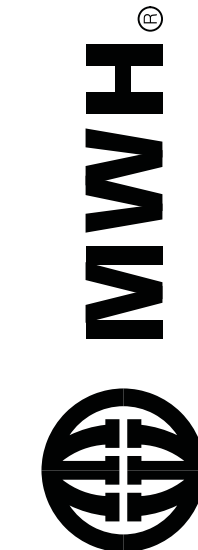
24 VDC COMMON

TYPE:	AI
MODULE MODEL #	140 ACI 040 00
PLC #	49
RACK #	01
SLOT #	07
CHANNEL #	04
ADDRESS #	300021
P&ID DWG #	I-726
P DWG #	P-494



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

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



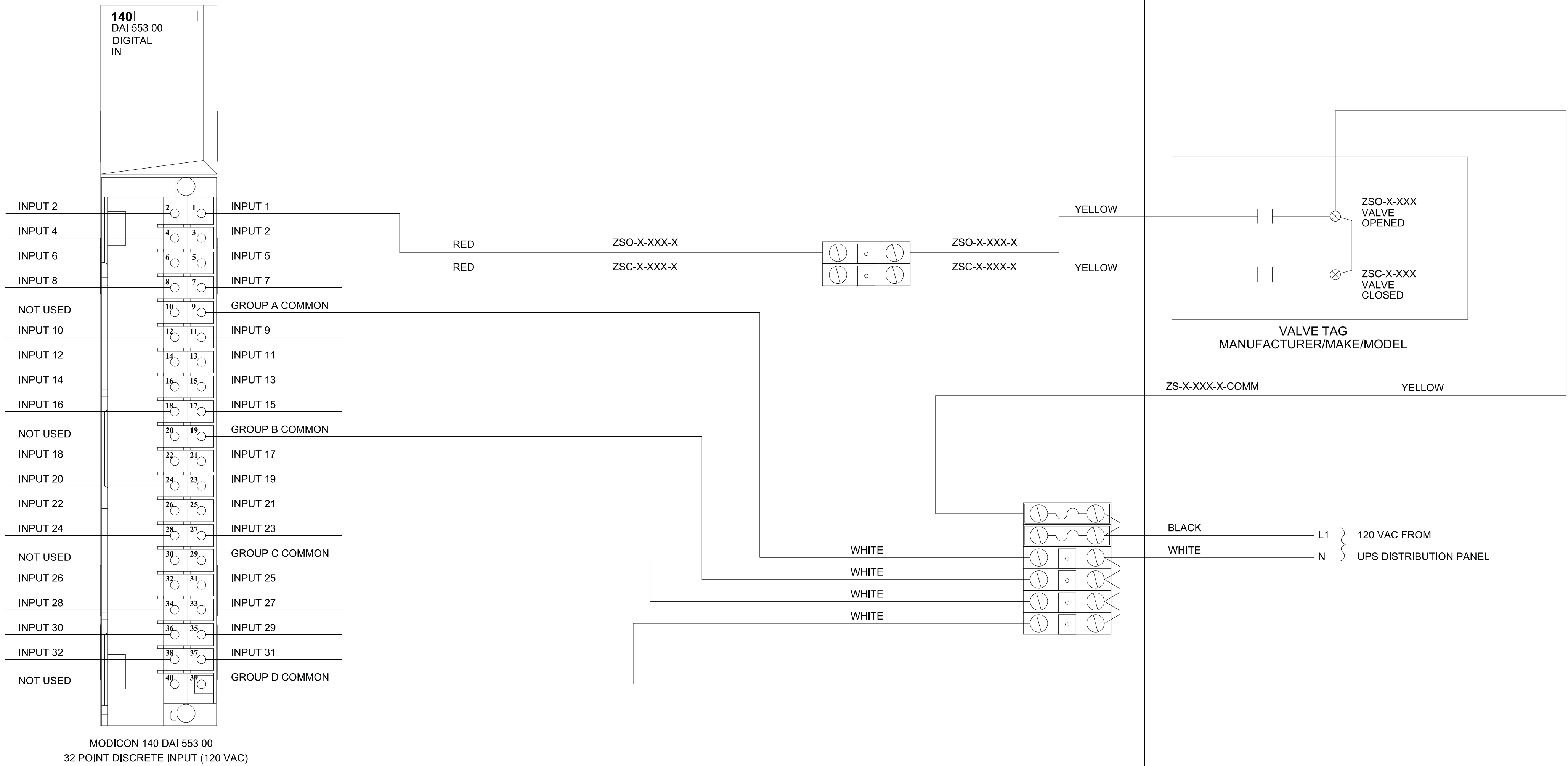
DESIGNED D.WILCOXSON
DRAWN L.RAFTER
CHECKED L.YALUSI

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
GENERAL INSTRUMENTATION
EXAMPLE LOOP DIAGRAM

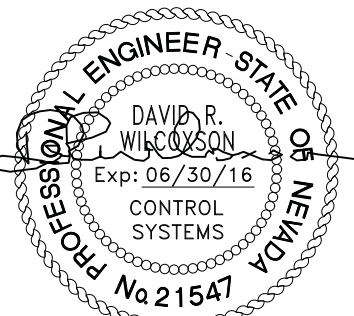
SCALE:
NO SCALE

SHEET:
GI-4
10506196

File: DHWRC_G005.dgn Model: Layout1 ColorTable: bwc.ctb DesignScript: MWH_Iplot_PenTable_2012.pen PlotScale: 0.083333:1 Plot Date: 25-FEB-2016 17:18 User: svc_projectwise



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



DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT			
DESIGNED D. WILCOXSON DRAWN L. RAFTER CHECKED L. YAUSSI			
DURANGO HILLS WATER RESOURCE CENTER UPGRADES GENERAL INSTRUMENTATION 32 POINT DISCRETE RELAY INPUT TYPICAL WIRING DIAGRAM			
SCALE: NO SCALE			
SHEET: GI-5 10506196			

PLC PANEL

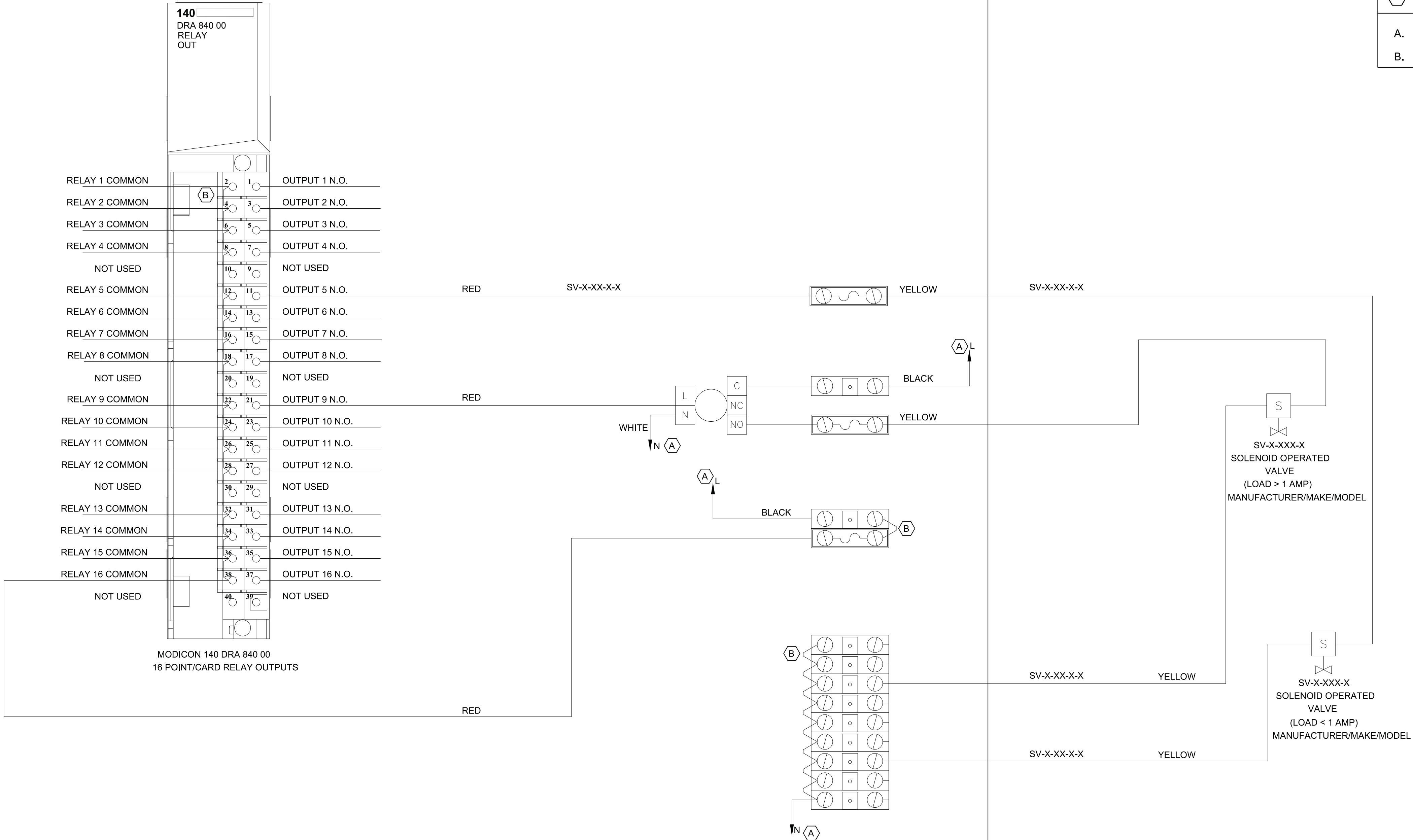
FIELD

GENERAL SHEET NOTES

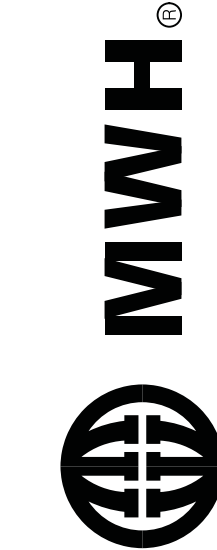
1. THIS DRAWING IS AN EXAMPLE DISCRETE OUTPUT WIRING DRAWING AND DOES NOT REPRESENT ACTUAL PLANT WIRING. PROVIDE WIRING DIAGRAMS FOR THE WORK INSTALLED UNDER THIS CONTRACT. FOLLOW THE FORMAT SHOWN HERE AND THE REQUIREMENTS OF SPECIFICATION SECTION 40 90 00.
2. 16 RELAY DIGITAL OUTPUT CARDS ARE USED FOR ALL NEW PLC INSTALLATIONS.

SHEET KEYNOTES

- A. 120 VAC (L AND N) FROM DISTRIBUTION PANEL (NON UPS POWER).
- B. JUMPER.



DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

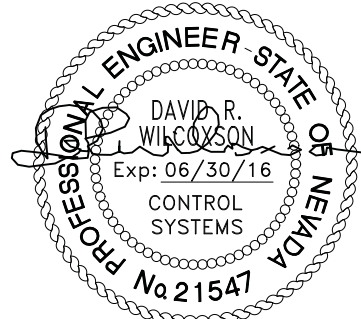


DESIGNED D.WILCOXSON
DRAWN L. RAFTER
CHECKED L. YALUSI

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
GENERAL INSTRUMENTATION
16 POINT DISCRETE RELAY OUTPUT
TYPICAL WIRING DIAGRAM

SCALE:
NO SCALE

SHEET:
GI-6
10506196



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

File: DHWRC_G07.dgn Model: Layout1 ColorTable: bw.ctb DesignScript: MWH_Iplot_PenTable_2012.pen PlotScale: 0.083333:1 Plot Date: 25-FEB-2016 17:18 User: svc_projectwise

PLC PANEL

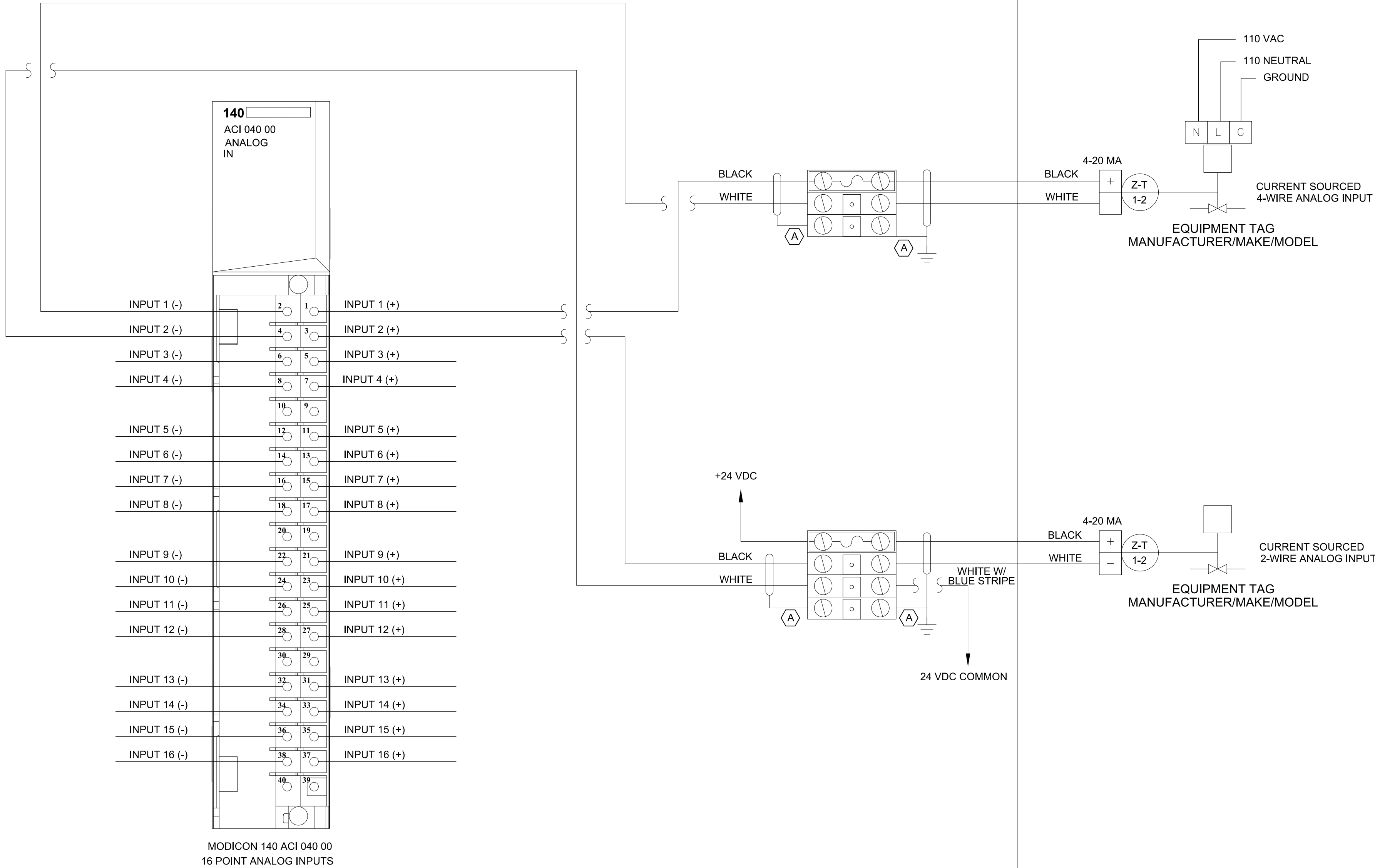
FIELD

GENERAL SHEET NOTES

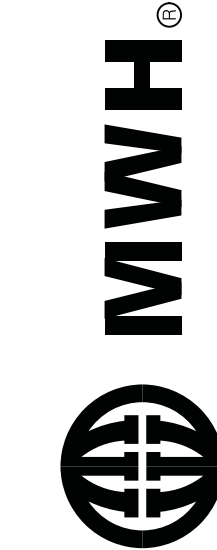
1. TWISTED SHIELDED PAIR SIGNAL CABLES SHALL BE USED.
2. THIS DRAWING IS AN EXAMPLE ANALOG IN PUT WIRING DRAWING AND DOES NOT REPRESENT ACTUAL PLANT WIRING. PROVIDE WIRING DIAGRAMS FOR THE WORK INSTALLED UNDER THIS CONTRACT. FOLLOW THE FORMAT SHOWN HERE AND THE REQUIREMENTS OF SPECIFICATION SECTION 40 90 00.
3. 16 POINT ANALOG INPUT CARDS ARE USED FOR ALL NEW PLC INSTALLATIONS.

SHEET KEYNOTES

- A. CABLE SHIELD GROUNDED ONLY AT TERMINAL BLOCK.



DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

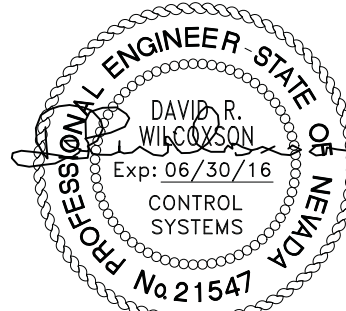


DESIGNED D. WILCOXSON
DRAWN L. RAFTER
CHECKED L. YAUSSI

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
GENERAL INSTRUMENTATION
16 CHANNEL ANALOG INPUT
TYPICAL WIRING DIAGRAM

SCALE:
NO SCALE

SHEET:
GI-7
10506196



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

PLC PANEL

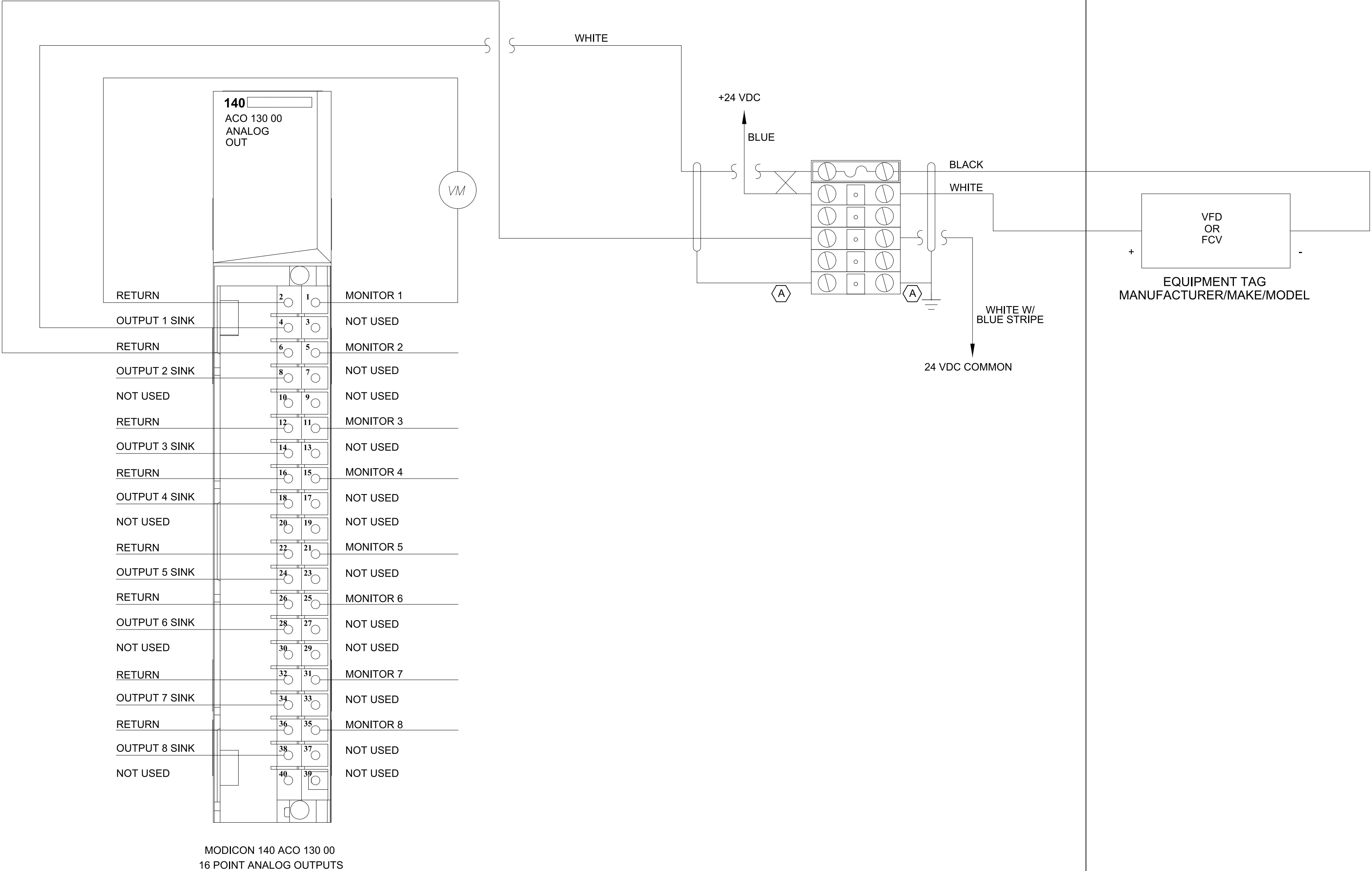
FIELD

GENERAL SHEET NOTES

1. UNUSED CHANNELS WILL INDICATE BROKEN WIRE STATUS UNLESS WIRED TO THE LOOP SUPPLY.
2. VM IS AN OPTIONAL VOLTMETER THAT CAN BE CONNECTED TO READ VOLTAGE PROPORTIONAL TO CURRENT.
3. THE WIRING EXAMPLE SHOWS CHANNEL 1 ACTING AS A CURRENT SINK AND CHANNEL 2 ACTING AS A CURRENT SOURCE.
4. THIS DRAWING IS AN EXAMPLE ANALOG OUTPUT WIRING DRAWING AND DOES NOT REPRESENT ACTUAL PLANT WIRING. PROVIDE WIRING DIAGRAMS FOR THE WORK INSTALLED UNDER THIS CONTRACT. FOLLOW THE FORMAT SHOWN HERE AND THE REQUIREMENTS OF SPECIFICAITON 409000.

SHEET KEYNOTES

- A. CABLE SHIELD GROUNDED ONLY AT TERMINAL BLOCK



DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

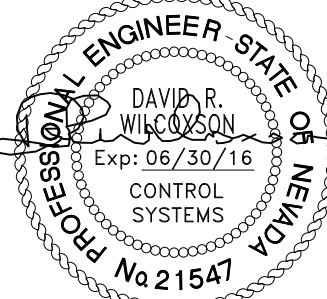


DESIGNED D.WILCOXSON
DRAWN L. RAFTER
CHECKED L. YAUSSI

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
GENERAL INSTRUMENTATION
16 CHANNEL ANALOG OUTPUT
TYPICAL WIRING DIAGRAM

SCALE:
NO SCALE

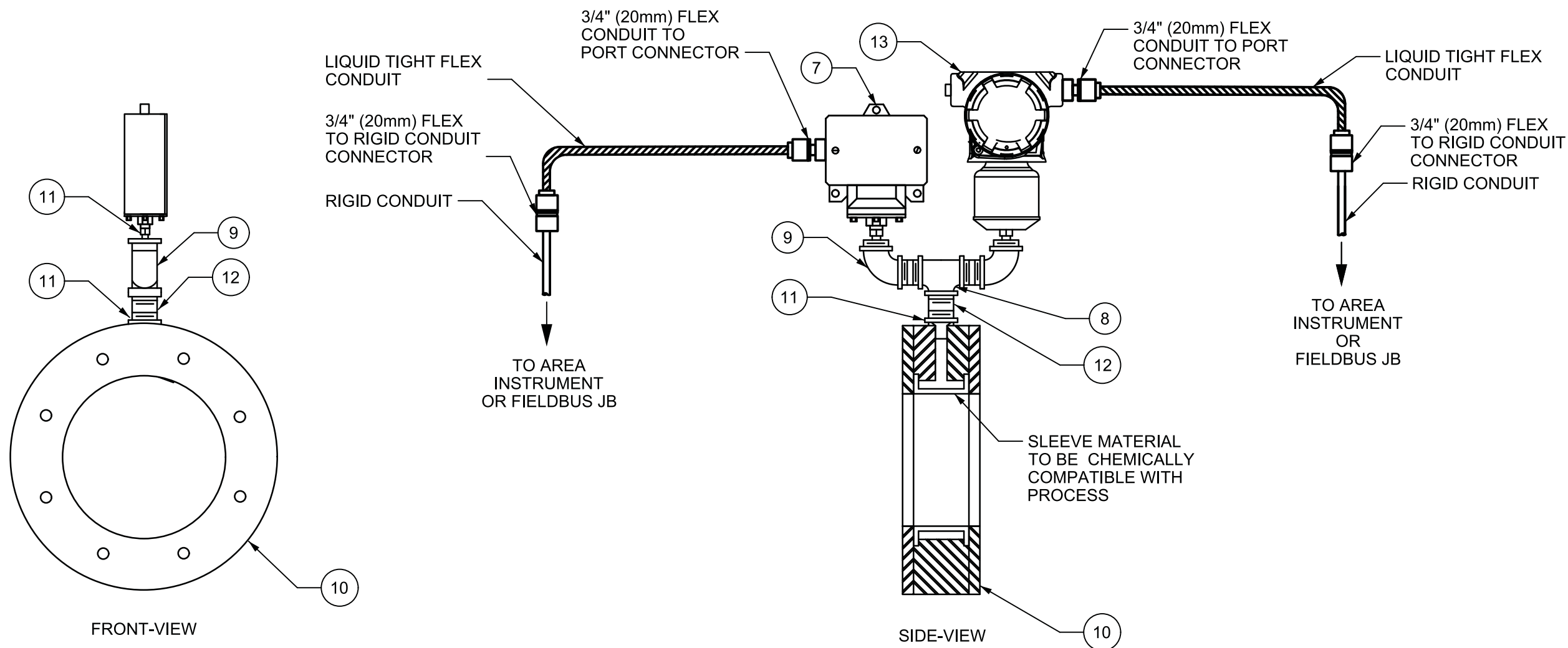
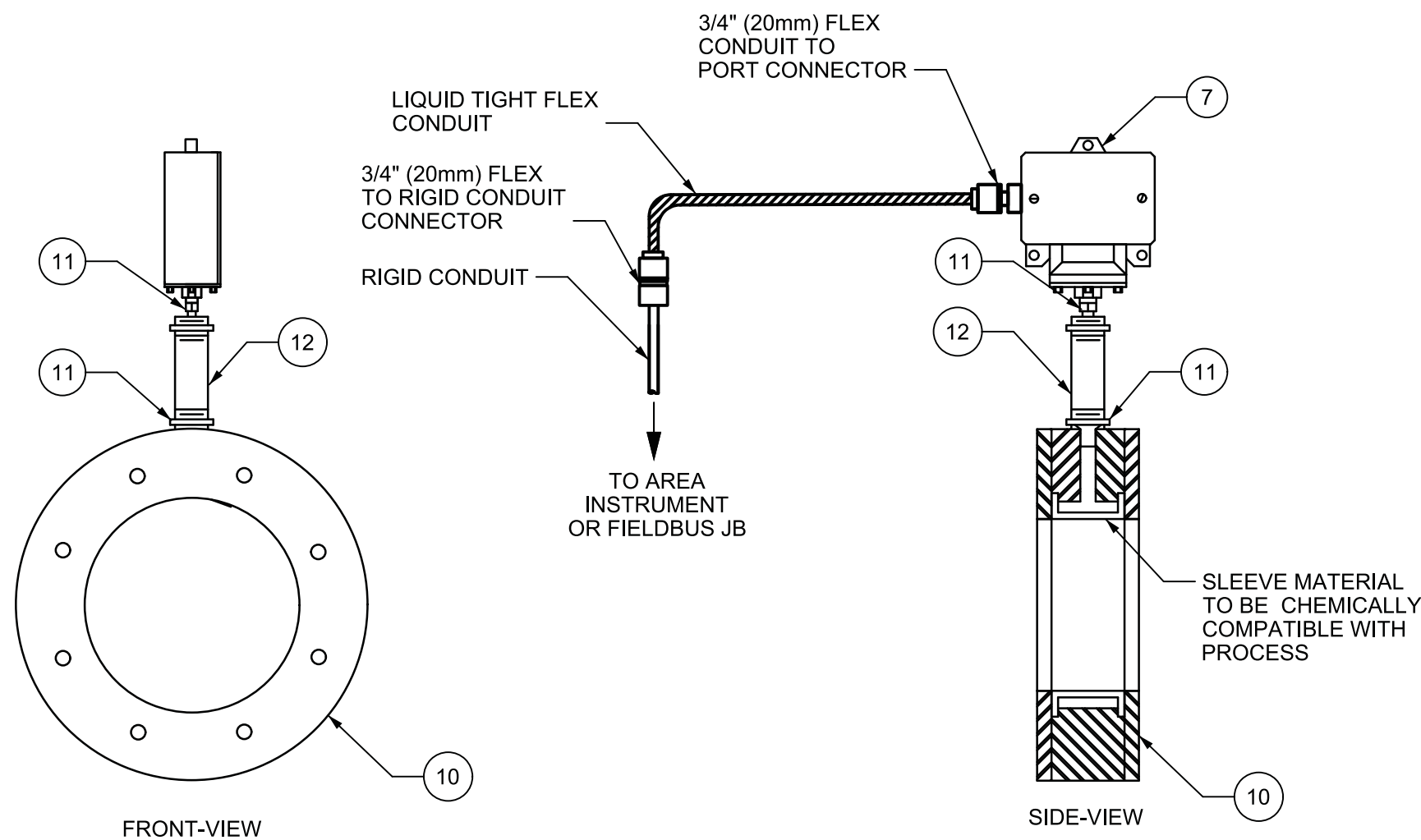
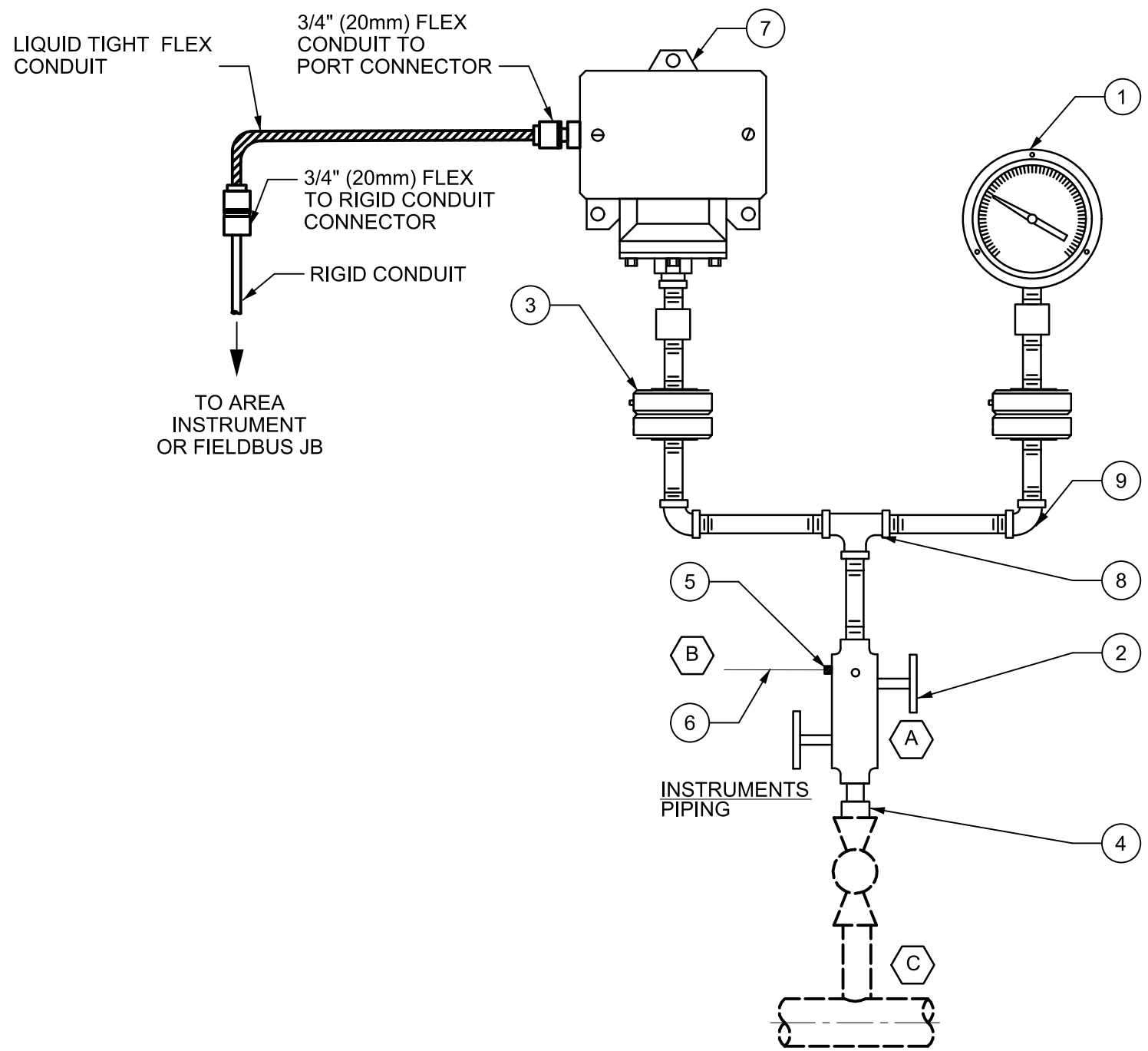
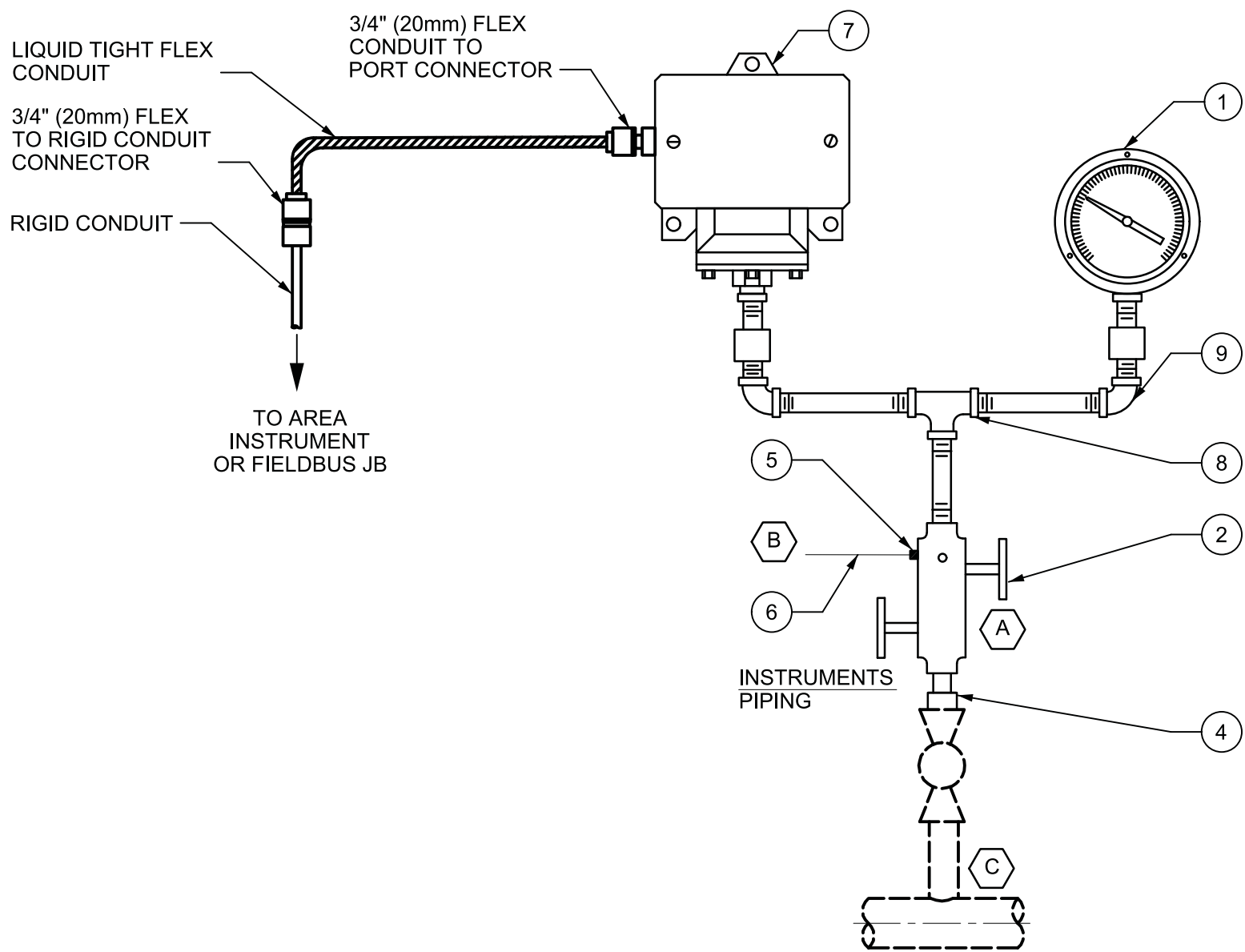
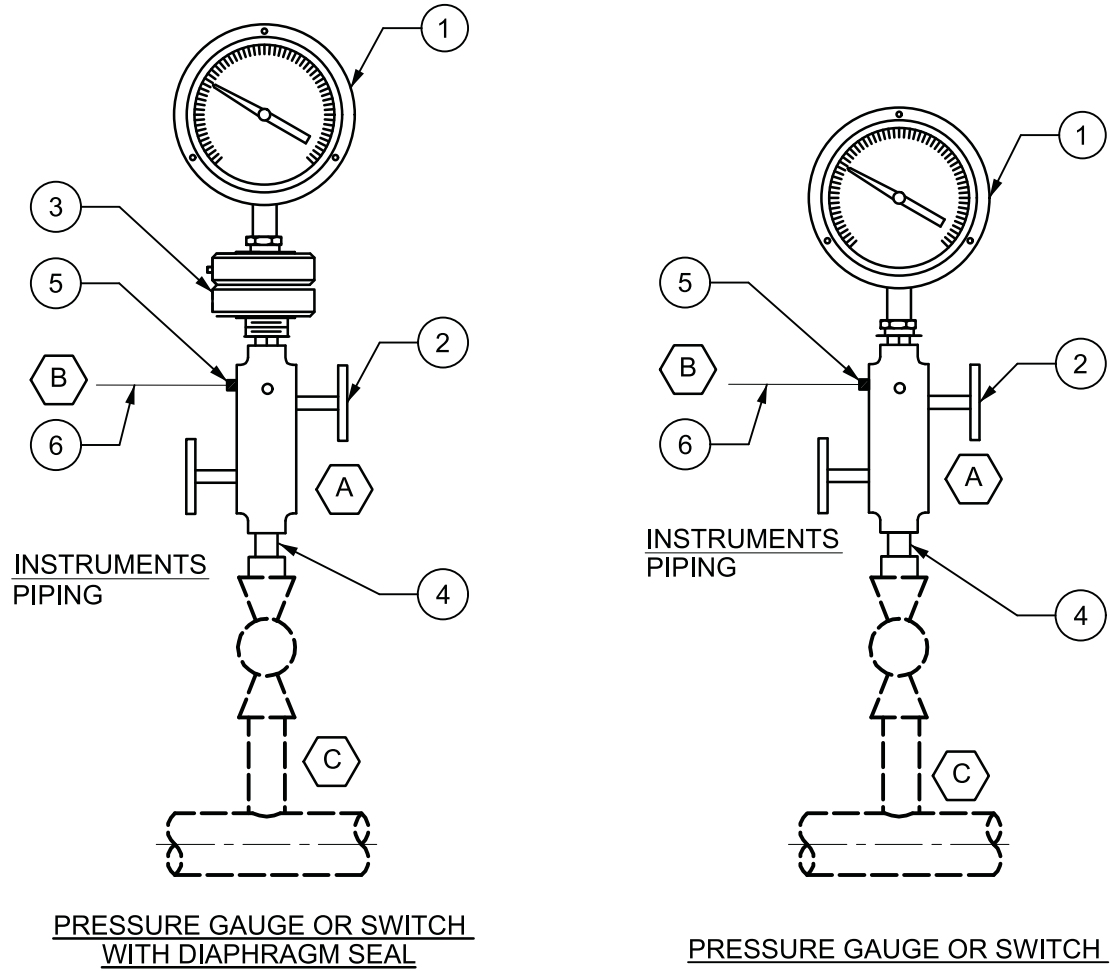
SHEET:
GI-8
10506196



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



1. LEVEL GAUGE SHALL BE SUPPORTED EVERY 1 VERTICAL METER BY MANUFACTURER SUPPLIED MOUNTING BRACKETS.
2. ALL COMPONENT MATERIAL INCLUDING MOUNTING SUPPORT BRACKET SHALL BE COMPATIBLE WITH PROCESS.
3. FLANGE SIZES AND MATERIAL SUBJECT TO VENDOR TANK/VESSEL SUPPLY.
4. ALTERNATIVE MOUNT INSTALLATION OPTIONS PER TANK VENDOR AS APPROVED BY ENGINEER



GENERAL NOTES:

- COUPLING INSTALLATION AND PRIMARY ISOLATION VALVE PROVIDED BY THE MECHANICAL CONTRACTOR OR SKID SUPPLIER.
- ORIENTATION DEPICTED IS RELATION TO NORMAL VIEWING ANGLE AND NOT RELATION TO PROCESS TAP. GAUGES AND SWITCHES SHALL BE INSTALLED FOR RELATED MAINTENANCE AND VIEWING FROM A STANDING POSITION ON A DEFINED WALKWAY. PROVIDE FITTINGS AND PIPING AS REQUIRED FOR CORRECT ORIENTATION.
- MUD DAUBERS/ INSECT SCREENS REQUIRED ON ALL EXHAUSTS/ VENTS/ DRAINS.
- REFER TO P&IDS AND DATA SHEETS FOR PROCESS PIPING SIZE AND MATERIAL.
- WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
- INSTRUMENT ENCLOSURE RATING SHALL CONFORM TO SECTION 16050 TABLE 1.3.
- FLEX CONDUIT IS TYPICALLY LIMITED TO 36" (1METER).

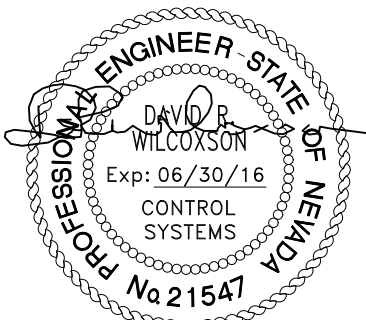
KEYNOTES:

- (A) 2 VALVE MANIFOLD TO BE SUPPLIED BY GAUGE SUPPLIER.
- (B) VENT/ DRAIN TO SAFE LOCATION (GRADE/ DRAIN).
- (C) PRIMARY ISOLATION TO SUIT PIPING SPECIFICATION.
- (D) ALL PIPE FITTINGS SHALL BE FURNISHED BY CONTRACTOR EXCEPT WHERE SEALS ARE USED. ALL FITTINGS FOR FILL FLUIDS SHALL BE FURNISHED BY MANUFACTURER. COORDINATE WITH SPECIFICATION SECTION 40 91 32.30

BILL OF MATERIALS					
ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/ RATING (WATER)	MATERIAL/ RATING (SLUDGE)
1	1	LIQUID-FILLED PRESSURE GAUGE OR PRESSURE SWITCH	MANF	PHENOLIC HOUSING	PHENOLIC HOUSING
2	1	1/2" (15mm) 2 VALVE MANIFOLD WITH INTEGRAL BLEED	SWAGelok	316 SS	316 SS
3	AR	ISOLATION DIAPHRAGM SEAL	MANF	316 SS	316 SS
4	1	HEX REDUCING BUSHING 1" x 1/2" (25mm X 15mm)	CONT	316 SS	316 SS
5	1	MALE CONNECTOR 1/4" (8mm) OD	CONT	316 SS	316 SS
6	AR	TUBING WALL THICKNESS 1/4" (8mm)OD	CONT	316 SS	316 SS
7	1	PRESSURE SWITCH	MANF	316 SS	316 SS
8	1	TEE 1/2" (15mm)	(D)	316 SS	316 SS
9	2	ELBOW 1/2" (15mm)	(D)	316 SS	316 SS
10	1	ANNULAR SEAL	MANF	316 SS	316 SS
11	AR	BUSHING	(D)	316 SS	316 SS
12	1	NIPPLE	(D)	316 SS	316 SS
13	1	PRESSURE TRANSMITTER ELECTRONIC HOUSING	MANF	EPOXY COATED ALUMINIUM	

PRESSURE GAUGE/SWITCH

I-943



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

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

DESIGNED D.WILCOXSON
DRAWN L.RAFTER
CHECKED L.YAUSSI

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
GENERAL INSTRUMENTATION
INSTALLATION DETAILS - II

SCALE:
NO SCALE

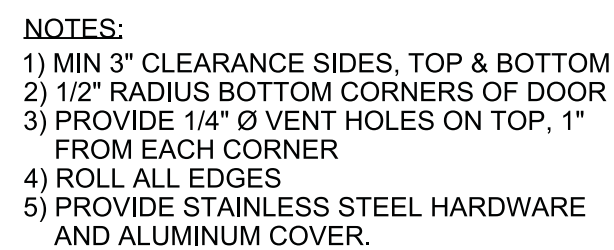
SHEET:
GI-10
10506196

REV

DATE

BY

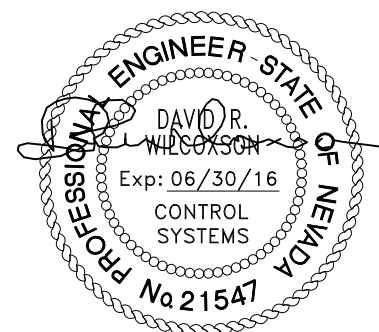
DESCRIPTION

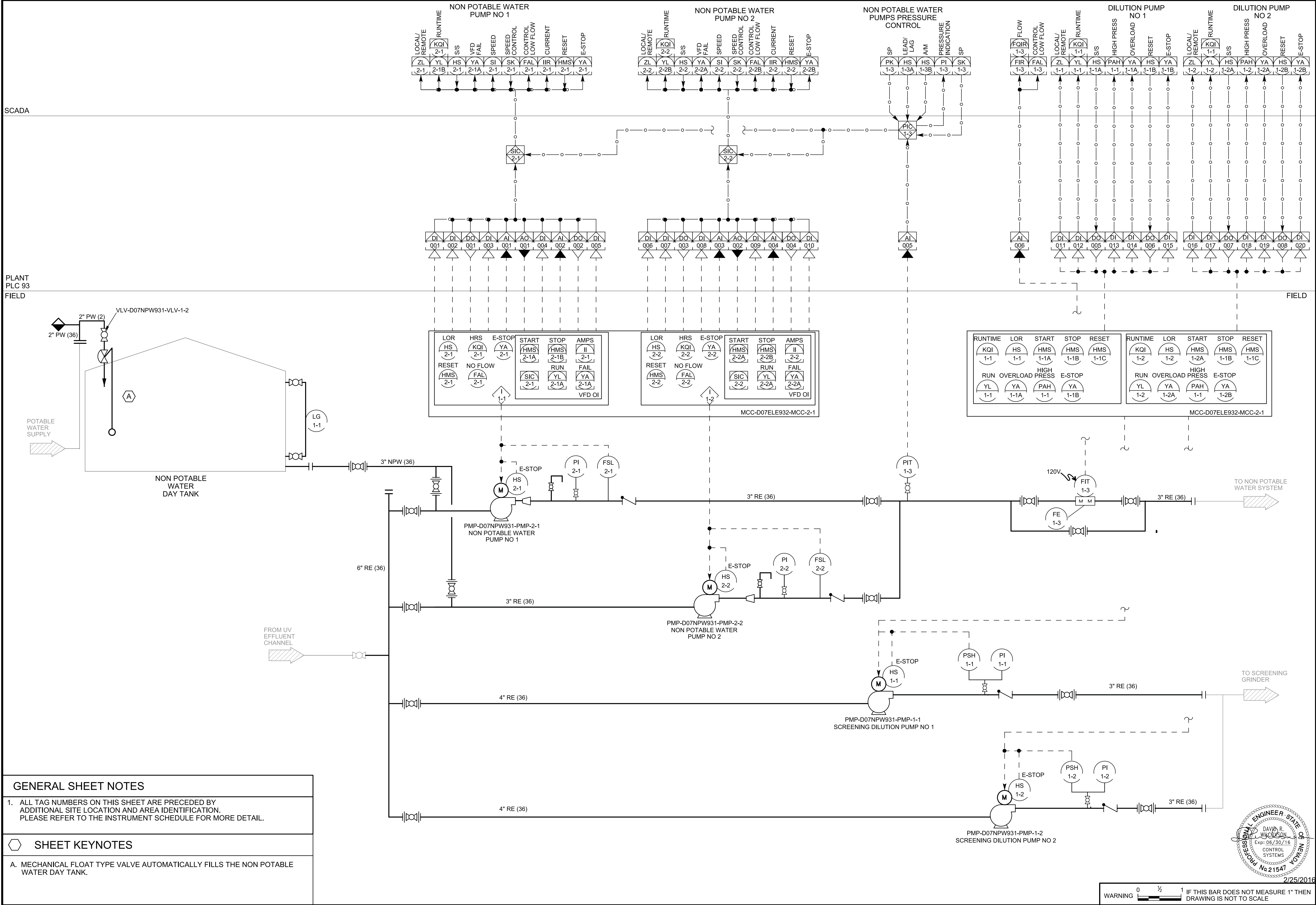


I-901



I-961

[illegible]



REV	DATE	BY	DESCRIPTION

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT

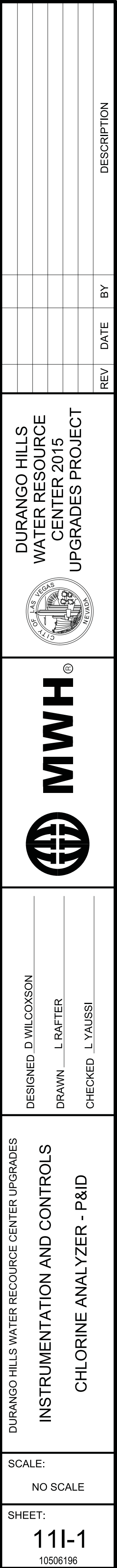
MWH

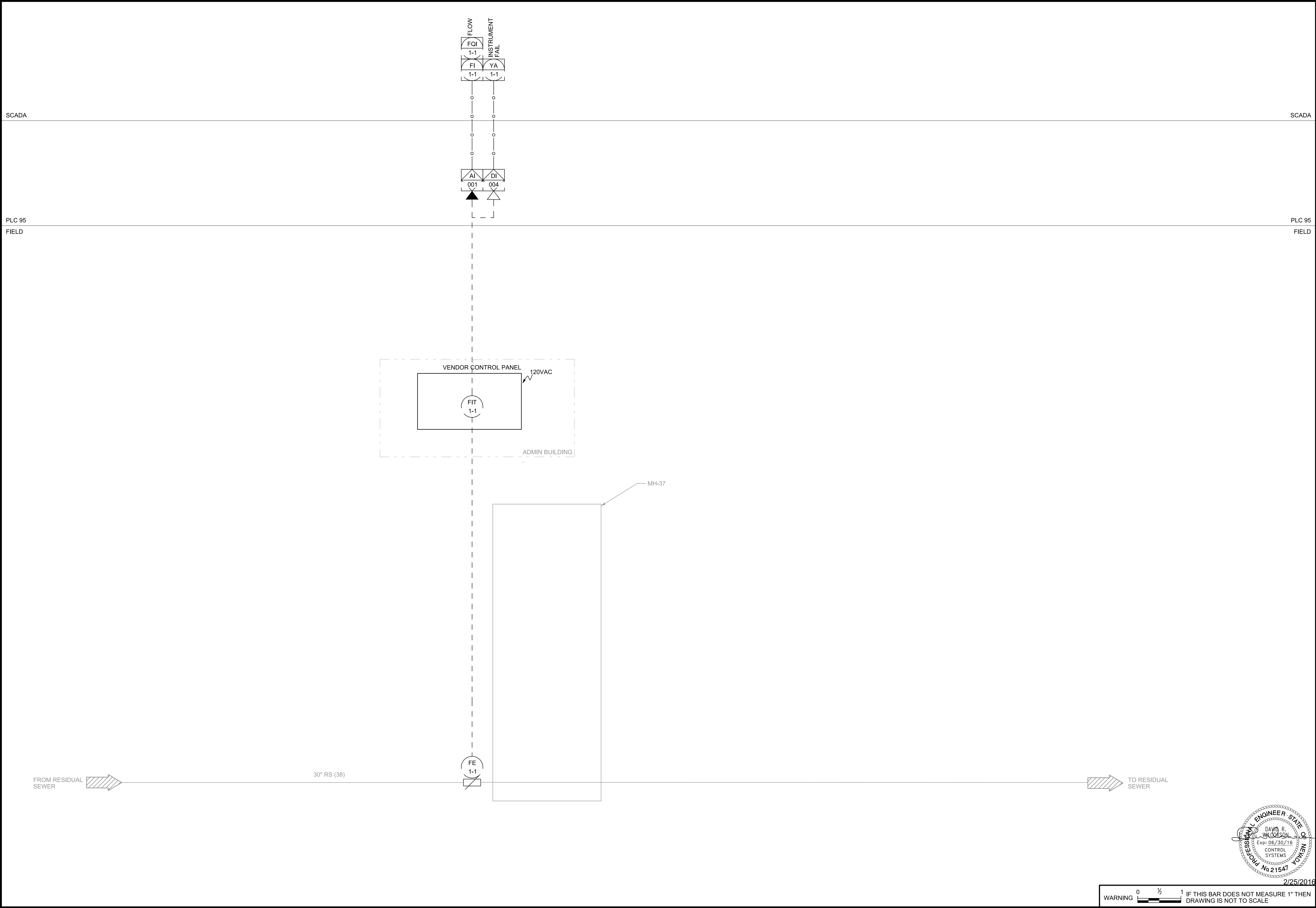
DESIGNED P ATKINSON
DRAWN P ATKINSON
CHECKED L YALUSI

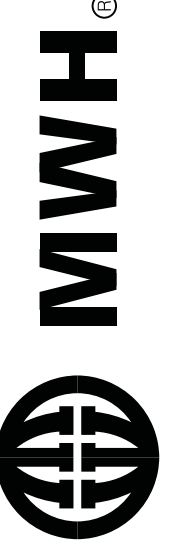
DURANGO HILLS WATER RESOURCE CENTER UPGRADES INSTRUMENTATION AND CONTROLS NPW - P&ID

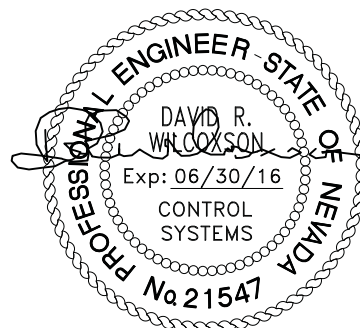
SCALE: NO SCALE

SHEET: **071-1**
10506196





DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT	
	
	
DESIGNED D. WILCOXSON	
DRAWN L. RAFTER	
CHECKED L. YAUSSI	
DURANGO HILLS WATER RESOURCE CENTER UPGRADES INSTRUMENTATION AND CONTROLS RESIDUAL SEWER FLOW METER - P&ID	
SCALE: NO SCALE	
SHEET: 19I-1	
10506196	



STRUCTURAL OBSERVATIONS:

1. STRUCTURAL OBSERVATIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE 2012 IBC. THE OWNER SHALL EMPLOY THE ENGINEER OF RECORD, HIS DESIGNEE, OR A NEVADA REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS, AND WHO SHALL PROVIDE ALL SERVICES NECESSARY TO MEET THE IBC STRUCTURAL OBSERVATIONS REQUIREMENTS.
2. STRUCTURAL OBSERVATIONS SHALL BE PROVIDED DURING ALL FABRICATION AND CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE NOTES AND SCHEDULES ON THIS DRAWING.
3. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE STRUCTURAL OBSERVER AT LEAST 3 BUSINESS DAYS PRIOR TO EACH REQUIRED STRUCTURAL OBSERVATION.

SCHEDULE OF STRUCTURAL OBSERVATIONS

WHEN TO OBSERVE	WHAT TO OBSERVE
FOUNDATIONS	
PRIOR TO THE FIRST CONCRETE POUR, BUT AFTER PLACEMENT OF REINFORCING IS UNDERWAY	REVIEW AREAS OF PARTICULAR CONCERN SUCH AS HIGHLY CONGESTED AREAS AND CHECK THAT APPROVED PLACING PLANS ARE BEING USED.
	REVIEW ANCHOR BOLT PLACEMENT AND PLACEMENT OF HOLD-DOWN BOLTS OR STEEL EMBEDS.
	REVIEW INSTALLATION OF WALL DOWELS.
CONCRETE CONSTRUCTION	
PRIOR TO THE FIRST CONCRETE POUR, BUT AFTER PLACEMENT OF REINFORCING IS WELL UNDERWAY.	REVIEW AREAS OF PARTICULAR CONCERN SUCH AS HIGHLY CONGESTED AREAS OR ANY MECHANICALLY-COUPLED SPLICES AND CHECK THAT APPROVED PLACING PLANS ARE BEING USED.
	REVIEW ANCHOR BOLT PLACEMENT AND PLACEMENT OF HOLD-DOWN BOLTS OR STEEL EMBEDS.
MASONRY CONSTRUCTION	
PRIOR TO THE FIRST GROUT LIFT, BUT AFTER PLACEMENT OF REINFORCING IS WELL UNDERWAY.	REVIEW AREAS OF PARTICULAR CONCERN SUCH AS HIGHLY CONGESTED AREAS AND CHECK THAT APPROVED PLACING PLANS ARE BEING USED.

DEFERRED SUBMITTALS:

DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH ARE PROVIDED BY THE CONTRACTOR AND THEREFORE WERE NOT SUBMITTED AT THE TIME OF THE PERMIT APPLICATION, AND WHICH ARE TO BE SUBMITTED TO THE PERMITTING AGENCY PRIOR TO FABRICATION OR INSTALLATION OF THAT PORTION OF THE WORK.

NO WORK SHALL BE PERFORMED FOR DEFERRED SUBMITTAL ITEMS UNTIL THE PLANS FOR SUCH WORK HAVE BEEN REVIEWED AND FOUND ACCEPTABLE BY THE STRUCTURAL ENGINEER OF RECORD AND APPROVED BY THE BUILDING OFFICIAL.

DRAWINGS AND CALCULATIONS FOR THESE ITEMS SHALL BE SIGNED AND SEALED BY A LICENSED NEVADA PROFESSIONAL ENGINEER. NO FABRICATION SHALL COMMENCE UNTIL THE FINAL APPROVAL HAS BEEN ISSUED BY THE BUILDING OFFICIAL AND THE STRUCTURAL ENGINEER OF RECORD.

THE DEFERRED SUBMITTALS SHALL INCLUDE AS A MINIMUM, BUT NOT BE LIMITED TO, THE FOLLOWING ITEMS:

SPECIFICATION SECTION	ITEM
460100	EQUIPMENT ANCHORAGE
233116	FRP DUCTWORK

INSPECTION OF CONCRETE CONSTRUCTION

1. SPECIAL INSPECTION FOR CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH IBC SECTION 1705.3 AND THE FOLLOWING TABLE.

VERIFICATION AND INSPECTION	INSPECTION		REFERENCED STANDARD (A)	IBC REFERENCE
	CONTINUOUS	PERIODIC		
INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING STEEL, AND PLACEMENT.	-	X	ACI 318: 3.5, 7.1 - 7.7	1910.4
INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	-	X	ACI 318 - 8.1.3, 21.2.8	1908.5, 1909.1
INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS (B).	-	X	ACI 318- 3.8.6, 8.1.3, 21.2.8	1909.1
VERIFYING USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 4, 5.2 - 5.4	1904.2, 1910.2, 1910.3
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1910.10
INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 5.11 - 5.13	1910.9

(A) SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH ACI 355.2 OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF THE WORK.

INSPECTION OF MASONRY CONSTRUCTION (ACI 530 SECT 1.19.2)

1. SPECIAL INSPECTION FOR MASONRY CONSTRUCTION SHALL BE INSPECTED AND VERIFIED IN ACCORDANCE WITH ACI 530 AND ACI 530.1 (LEVEL B) QUALITY ASSURANCE PROGRAM REQUIREMENTS AND THE FOLLOWING TABLE.

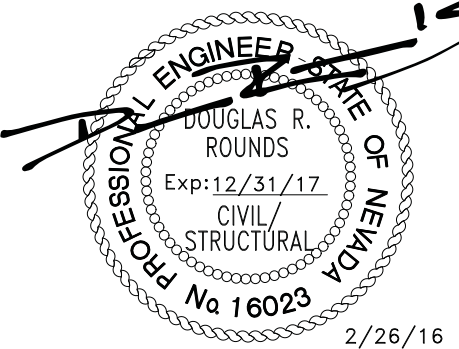
INSPECTION TASK	FREQUENCY (A)		REFERENCE FOR CRITERIA	
	CONTINUOUS	PERIODIC	TMS 402/ACI 530/ ASCE 5	TMS 602/ACI 530.1/ ASCE 6
VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS	-	X		ART. 1.5
AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
PROPORTIONS OF SITE-PREPARED MORTAR	-	X		ART. 2.1, 2.6 A
CONSTRUCTION OF MORTAR JOINTS	-	X		ART. 3.3 B
LOCATION OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES	-	X		ART. 3.4, 3.6 A
PRIOR TO GROUTING THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:				
GROUT SPACE	-	X		ART. 3.2 D, 3.2 F
GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	-	X	Sect 1.16	ART. 2.4, 3.4
PLACEMENT OF REINFORCEMENT, CONNECTIONS, AND ANCHORAGES	-	X	Sect 1.16	ART. 3.2 E, 3.4, 3.6 A
PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	X		ART. 2.6 B, 2.4 G.1.b
CONSTRUCTION OF MORTAR JOINTS	-	X		ART. 3.3 B
VERIFY DURING CONSTRUCTION:				
SIZE AND LOCATION OF STRUCTURAL ELEMENTS	-	X		ART. 3.3 F
TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION	-	X	Sect 1.16.4.3, 1.17.1	
PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMP BELOW 40° F) OR HOT WEATHER (TEMP ABOVE 90° F)	-	X		ART. 3.5, 3.6 C
OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	-	X		ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

(A) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTINUOUS DURING THE TASK LISTED OR PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE.

INSPECTION OF SOILS

1. SPECIAL INSPECTION FOR SOIL SHALL BE IN ACCORDANCE WITH IBC SECTION 1705.6 AND THE FOLLOWING TABLE.

VERIFICATION AND INSPECTION	INSPECTION	
	CONTINUOUS	PERIODIC
VERIFY MATERIALS BELOW FOOTINGS AND SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.	-	X
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X	-
PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X



DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

DESIGNED D.ROUNDS

DRAWN J.BASINSKI

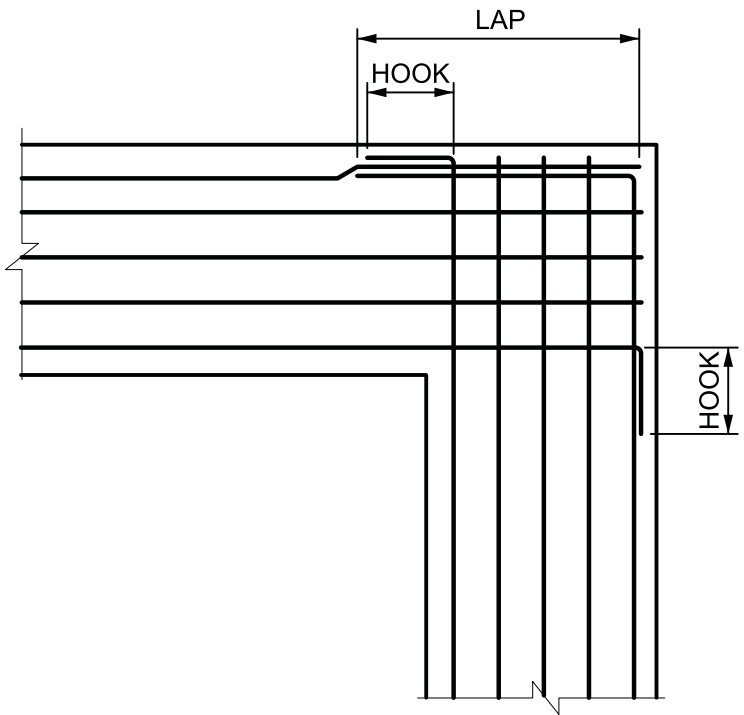
CHECKED C.WILCOX

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
GENERAL STRUCTURAL
STANDARD NOTES - II

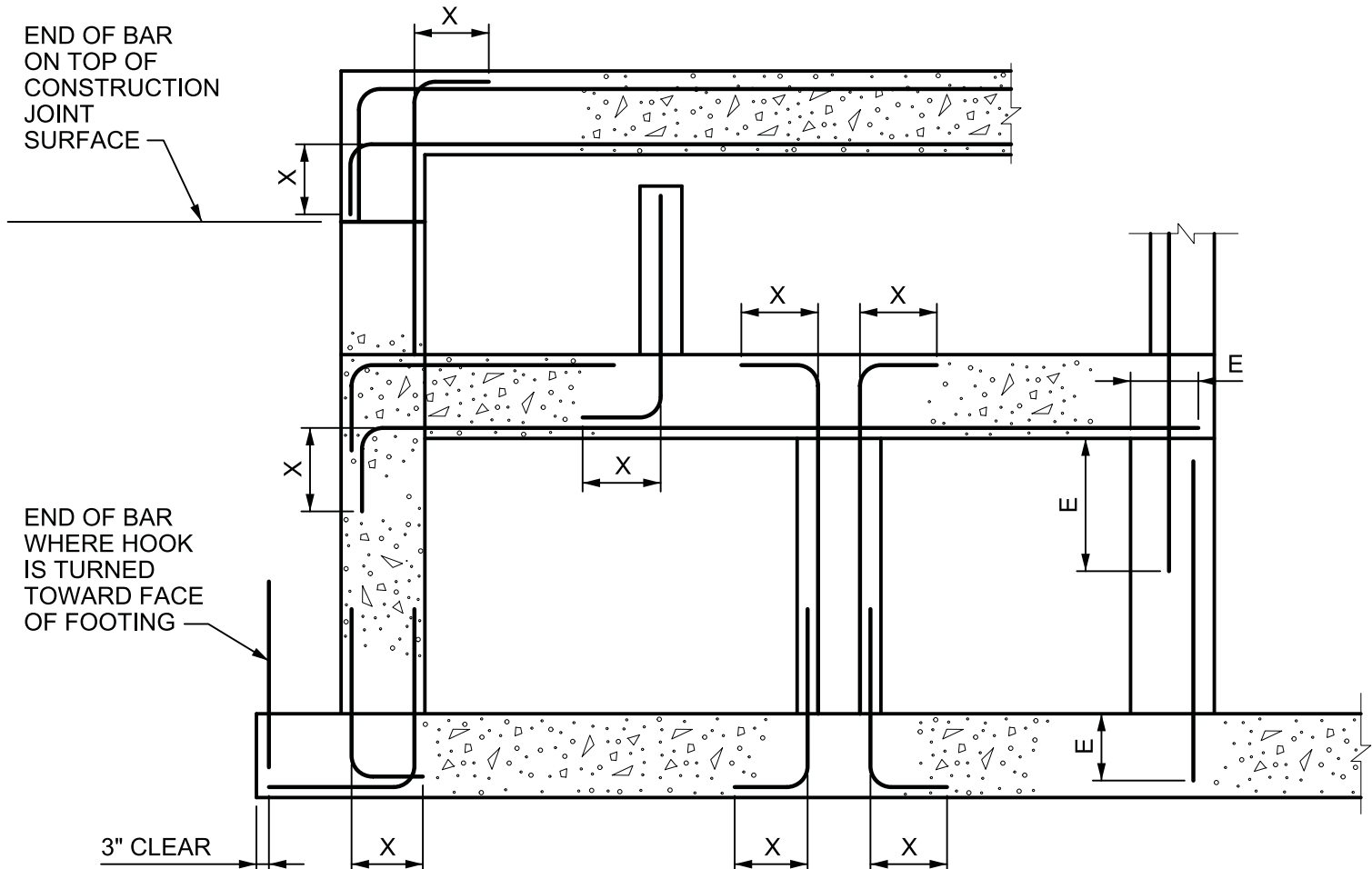
SCALE:
NO SCALE

SHEET:
GS-2
10506196

DESCRIPTION
BY
DATE
REV



HORIZONTAL REINFORCEMENT AT FOUNDATION CORNER S-141



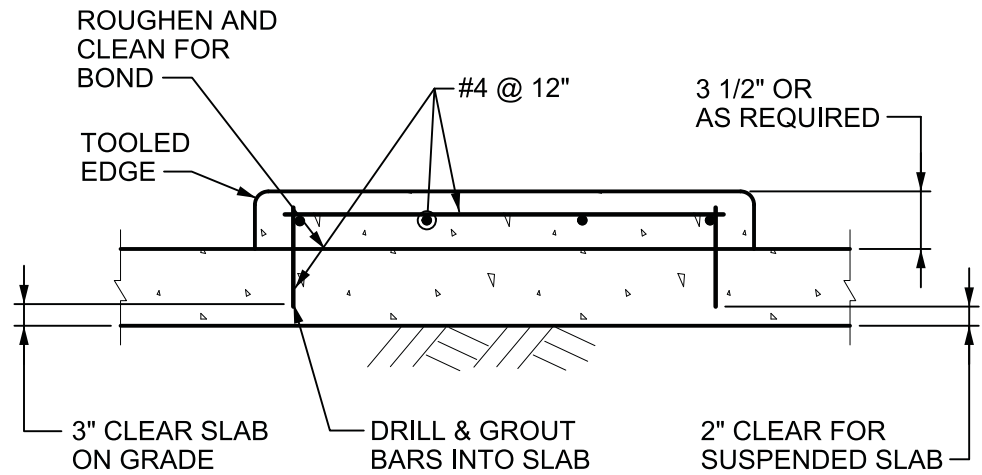
SECTION

LENGTH (*)			
BAR SIZE	HOOK X	LAP	EMBEDMENT E
#3	6"	16" (21")	12" (16")
#4	8"	16" (21")	12" (16")
#5	10"	20" (26")	15" (20")
#6	12"	28" (37")	22" (28")
#7	14"	48" (62")	37" (48")
#8	16"	62" (81")	48" (62")
#9	19"	79" (102")	61" (79")
#10	22"	100" (130")	77" (100")
#11	24"	123" (160")	95" (123")

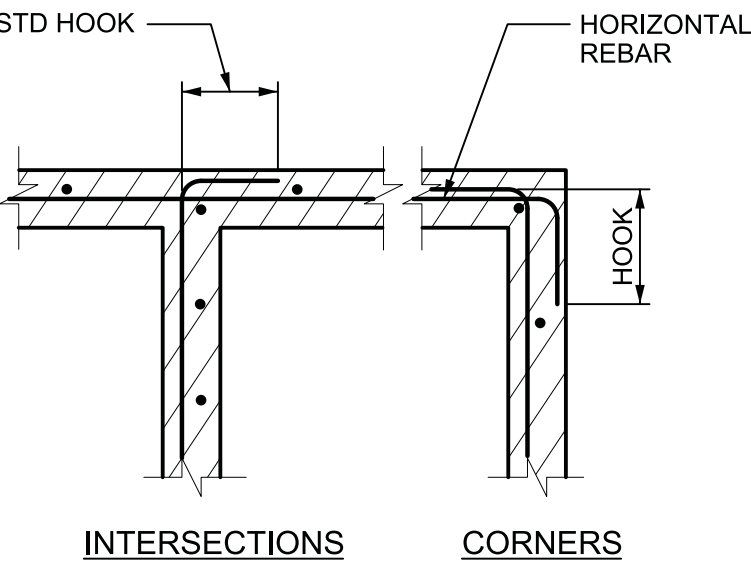
* USE LENGTH IN PARENTHESIS FOR WALL HORIZONTAL REBARS AND SLAB BARS WITH 12" OR MORE OF FRESH CONCRETE UNDERNEATH

- NOTES:
- USE LAP LENGTHS AS DETERMINED FROM THESE TABLES UNLESS SHOWN OTHERWISE.
 - THE TABLES SHOWN ARE FOR $f'_c=4000\text{psi}$, $f_y=60,000\text{psi}$, 1.5" MIN CONCRETE COVER AND 3" MIN BAR SPACING.
 - WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF:
EMBEDMENT LENGTH OF LARGER BAR
LAP LENGTH OF SMALLER BAR
 - ALL DOWEL BARS SHALL EXTEND AN EMBEDMENT LENGTH E INTO ANOTHER MEMBER OR ACROSS A CONSTRUCTION JOINT UNLESS SHOWN TO SPLICE WITH OTHER BARS OR TO EXTEND TO THE FAR FACE OF THE MEMBER AND END WITH A STANDARD HOOK.

STANDARD 90° BAR HOOKS, EMBEDMENT LENGTHS AND LAP LENGTHS S-143 REV 110112



HOUSEKEEPING PAD REV 110112 S-191



INTERSECTIONS CORNERS

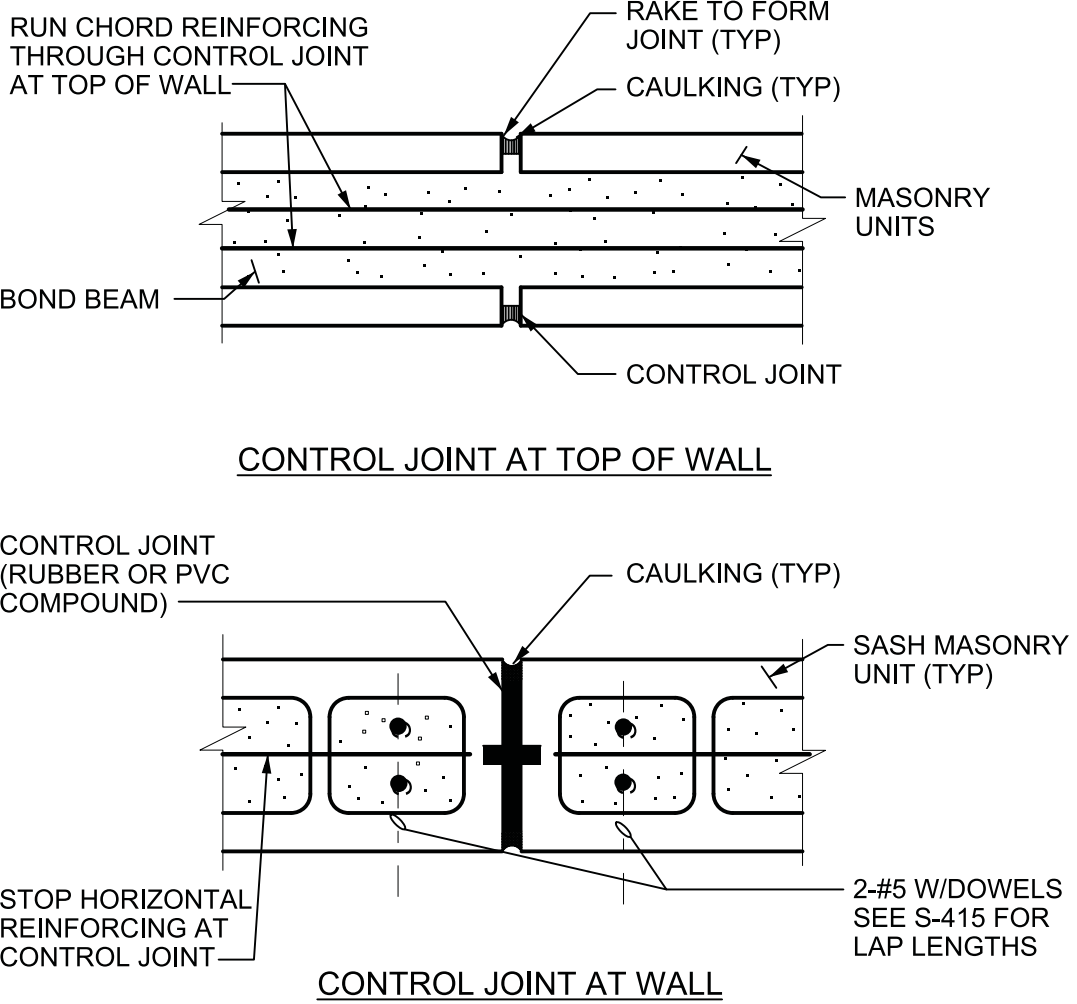
- NOTES:
- DEEP CUT BOND BEAM BLOCKS SHALL BE USED WHERE HORIZONTAL REINFORCING STEEL IS EMBEDDED.
 - H-BLOCK BOND BEAMS MAY BE USED AT LOCATIONS OTHER THAN OPENINGS.
 - HOOKS SHALL BE TAKEN TO FAR FACE.

8" & 12" BLOCK WALL SECTIONS S-401

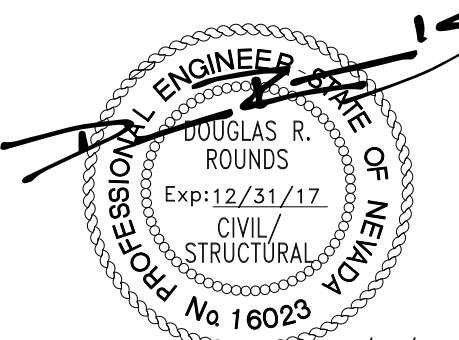
BAR SIZE	90° HOOK	ALLOWABLE HOOK EMBEDMENT LENGTH REDUCTION	8" CMU	12" CMU	
			LAP & EMBEDMENT LENGTHS (CENTERED)	LAP & EMBEDMENT LENGTHS (CENTERED)	LAP & EMBEDMENT LENGTHS (EF) (NOTE 5)
#3	6"	4"	27"	27"	27"
#4	8"	6"	36"	36"	36"
#5	10"	8"	45"	45"	45"
#6	12"	9"	54"	54"	74"
#7	14"	11"	73"	63"	NR
#8	16"	13"	NR	72"	NR

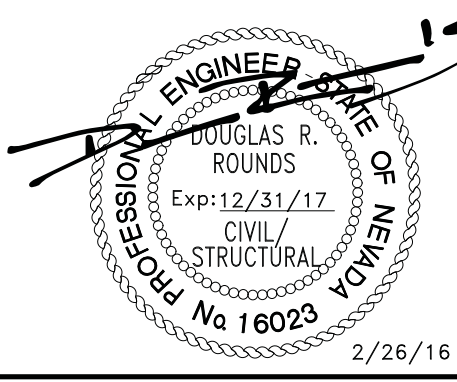
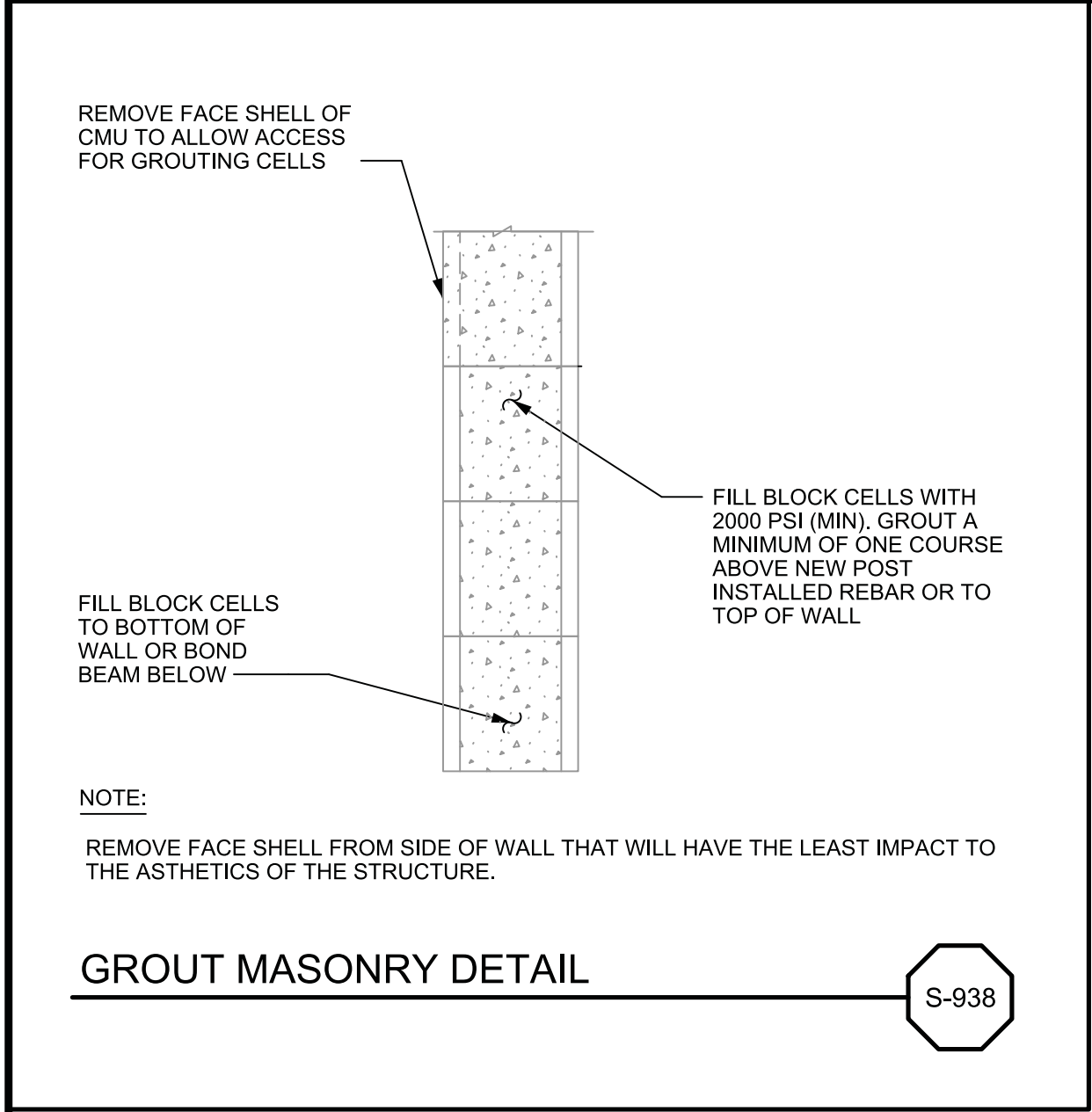
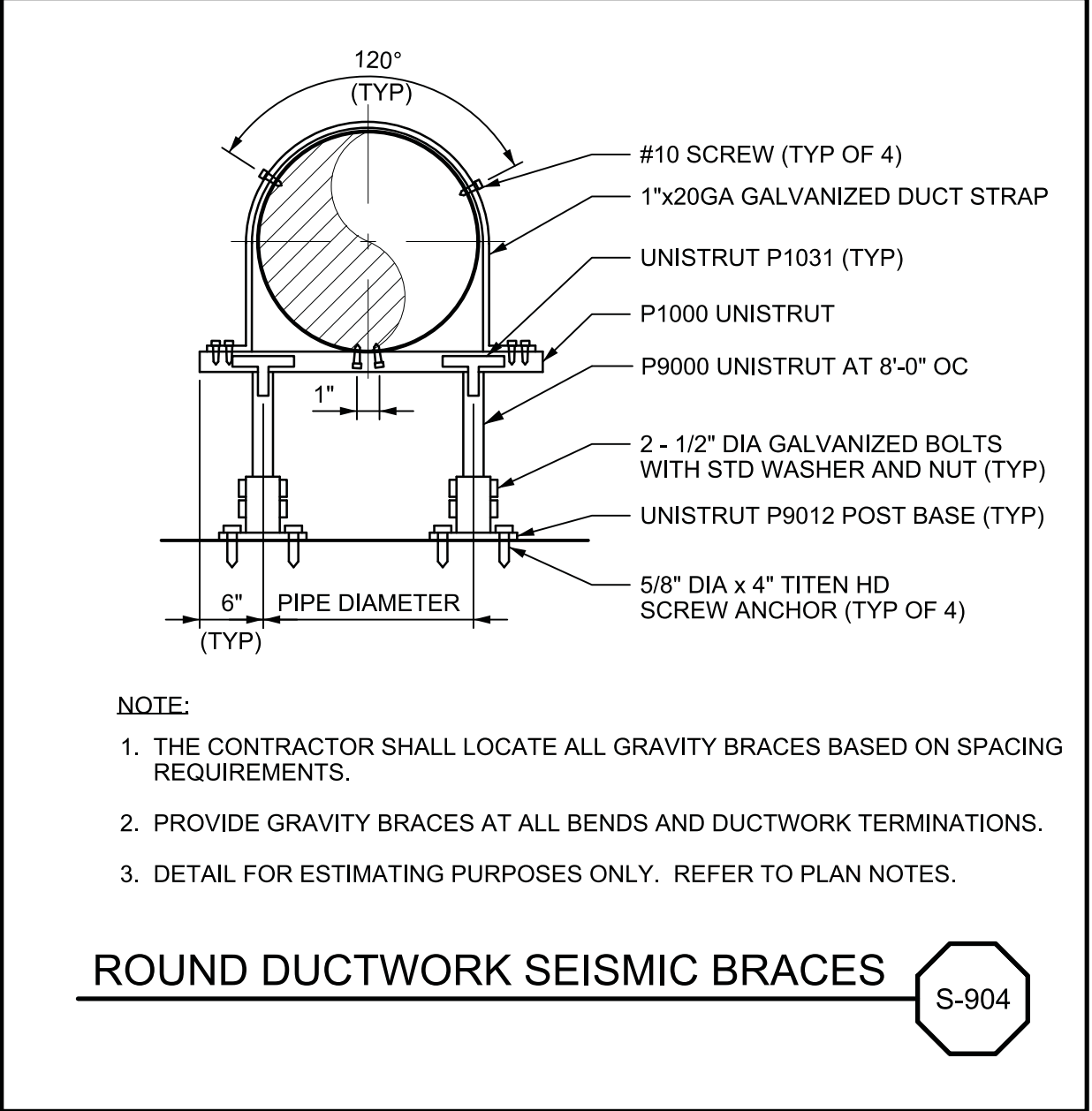
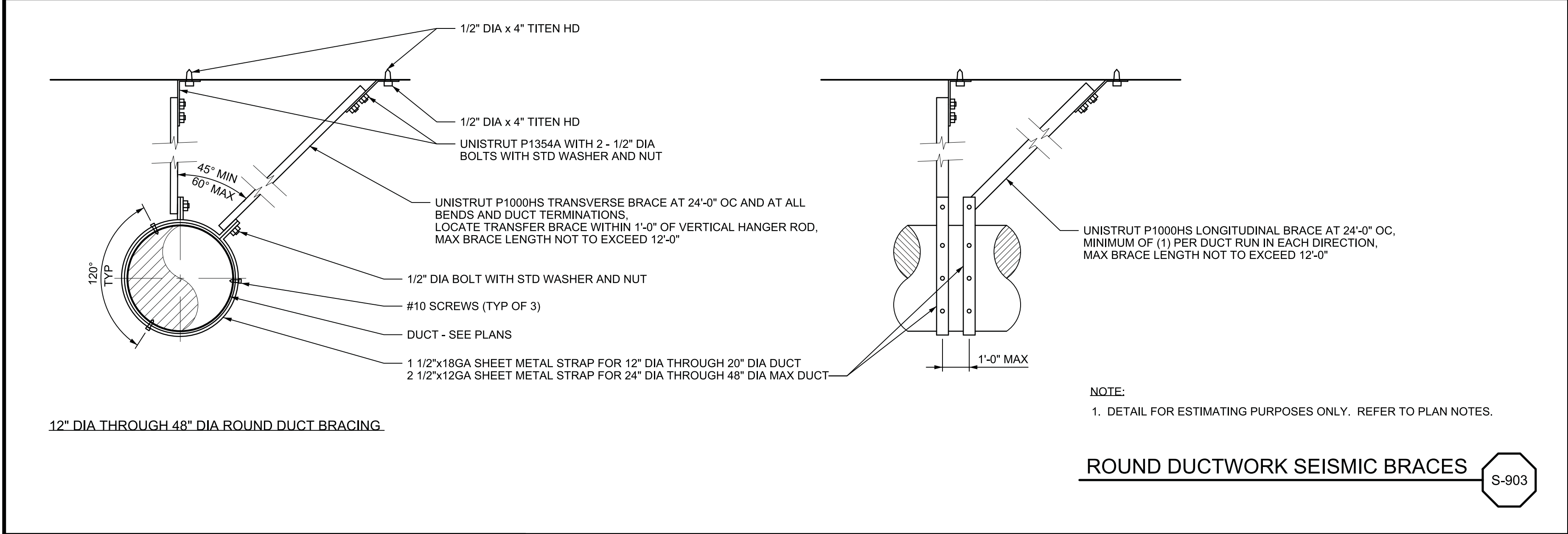
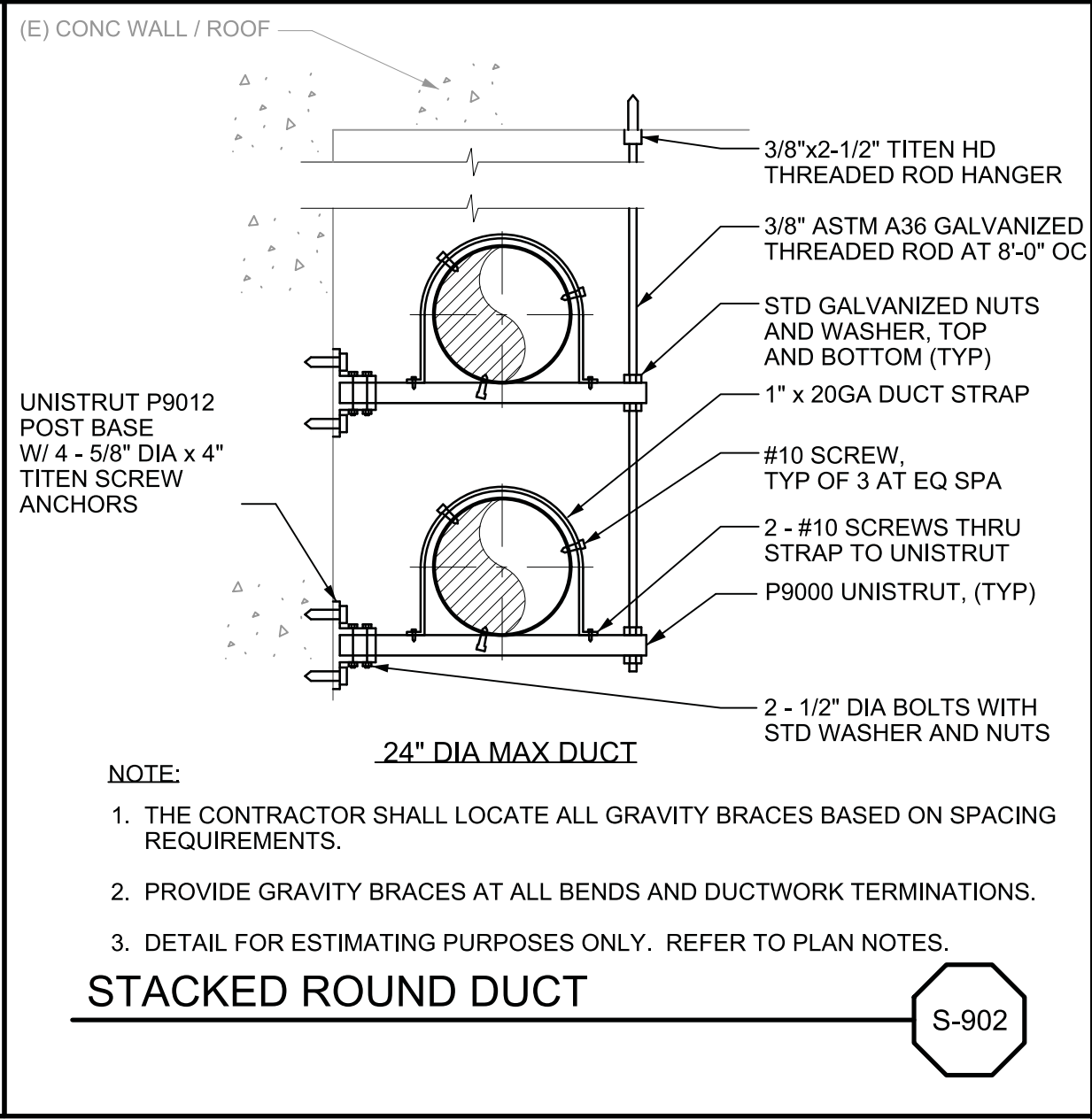
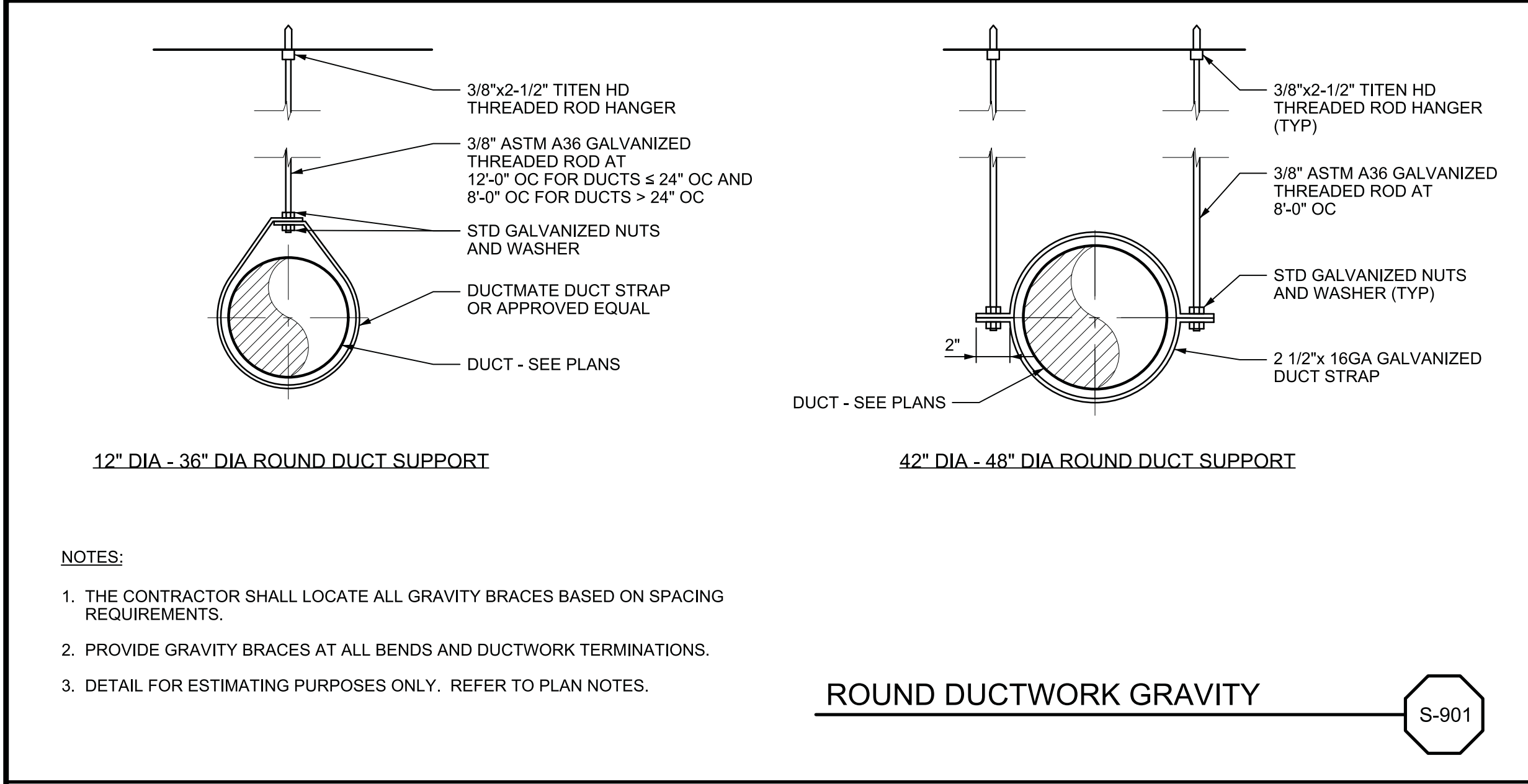
- NOTES:
- THE TABLES SHOWN ARE FOR IBC 2003 AND ACI 530-02 WITH $f_m=1500\text{PSI}$ AND $f_y=60,000\text{PSI}$.
 - USE HOOK, EMBEDMENT AND LAP SPLICE LENGTHS AS DETERMINED FROM THESE TABLES UNLESS INDICATED OTHERWISE.
 - WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF THE EMBEDMENT LENGTH OF THE LARGER BAR, OR THE LAP LENGTH OF THE SMALLER BAR.
 - NR DENOTES "NOT RECOMMENDED", BECAUSE LAP LENGTHS ARE IMPRACTICAL.
 - HOOK EMBEDMENT LENGTH EQUALS EMBEDMENT LENGTH MINUS ALLOWABLE HOOK EMBEDMENT LENGTH REDUCTION.
 - MECHANICAL COUPLERS MAY BE SUBSTITUTED FOR LAP SPLICES FOR ANY BAR SIZE. SUBMIT TO ENGINEER FOR APPROVAL.

LAPS, HOOKS AND EMBEDMENTS FOR 8", 12" CMU REV 110112 S-415

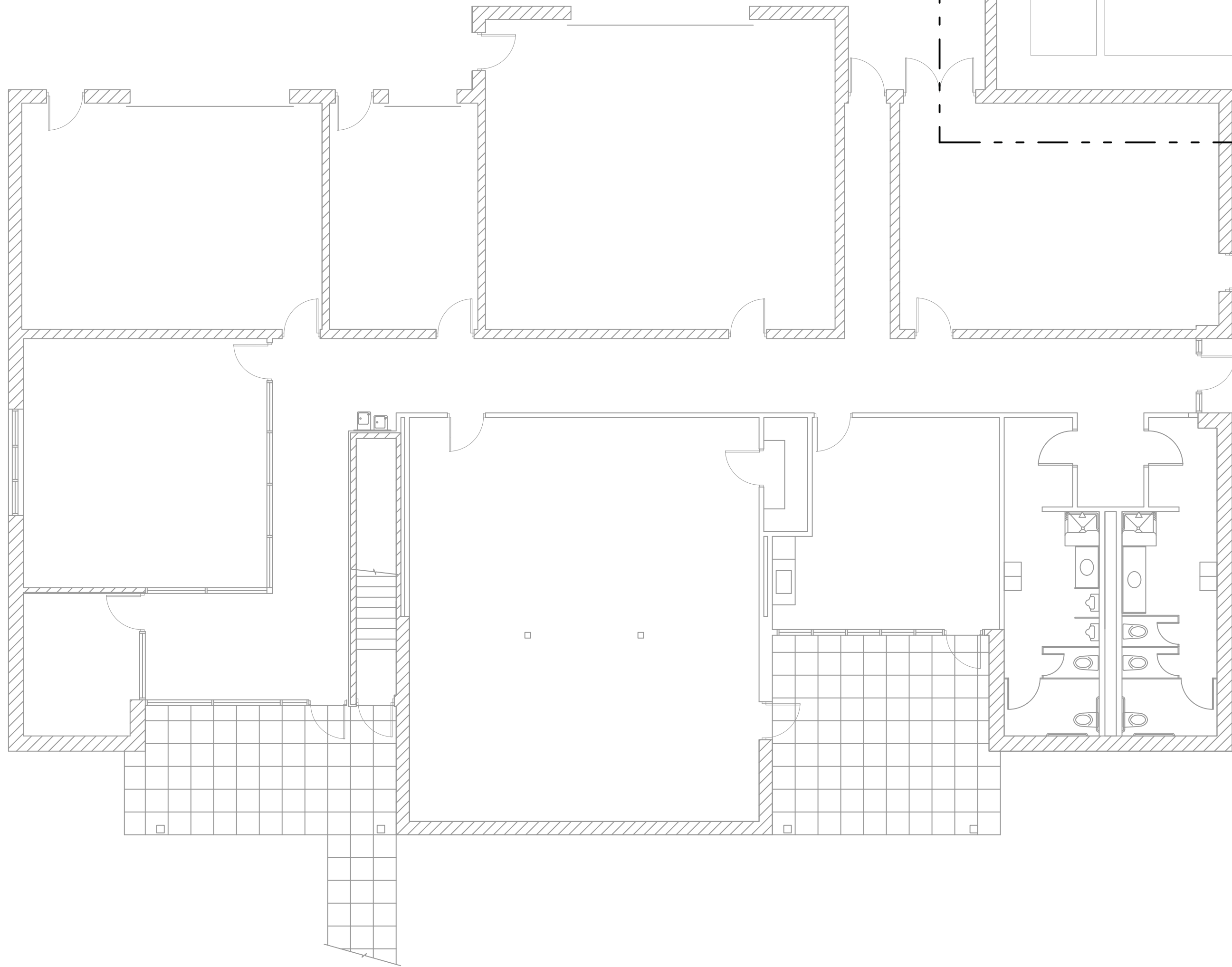


MASONRY CONTROL JOINTS REV 110112 S-430





DESCRIPTION				BY	DATE	REV
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT						
DESIGNED D. ROUNDS						
DRAWN J. BASINSKI						
CHECKED C. WILCOX						
DURANGO HILLS WATER RESOURCE CENTER UPGRADES						
GENERAL STRUCTURAL						
STANDARD DETAILS - II						
SCALE:						
NO SCALE						
SHEET:						
GS-4						
10506196						

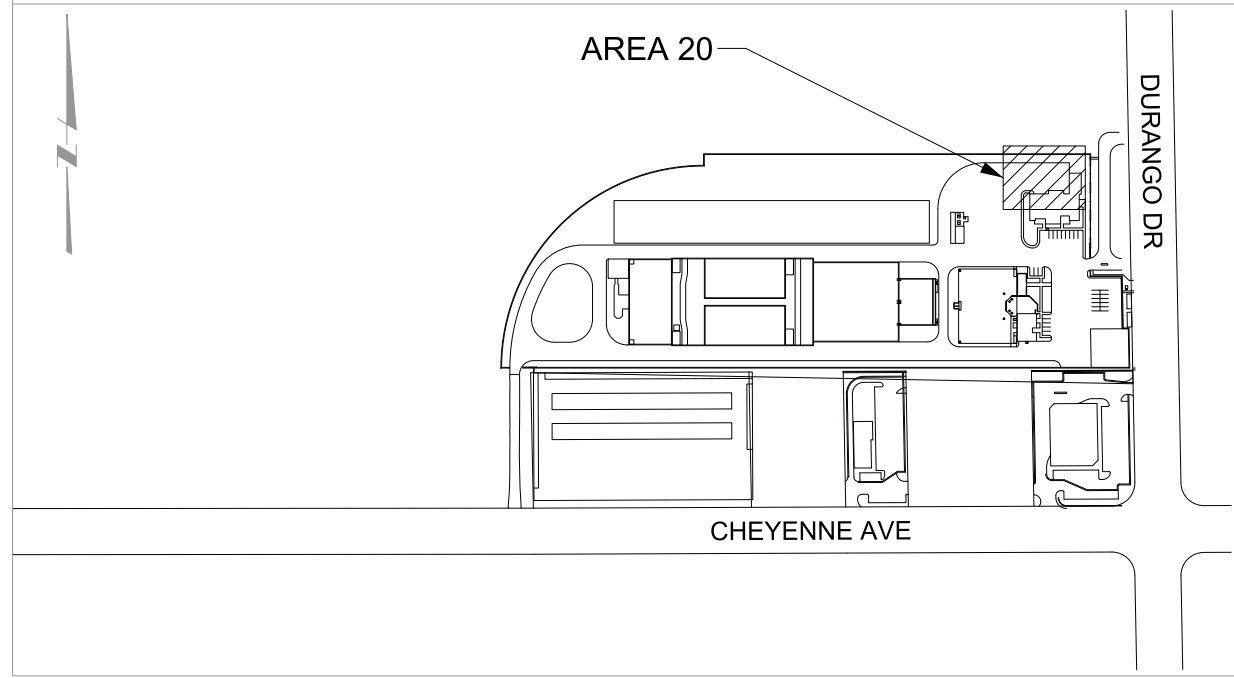


A
INSIDE FACE
OF CMU WALL

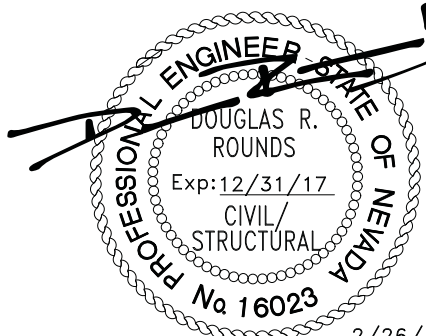
1
20SD-2

PLAN
SCALE: 1/8" = 1'-0"

KEY PLAN

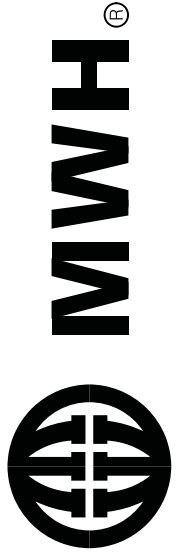


WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



2/26/16

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED D ROUNDS
DRAWN M PERKINS
CHECKED C WILCOX

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
STRUCTURAL DEMOLITION
GENERATOR BLOCK WALL PLAN

SCALE:
AS SHOWN

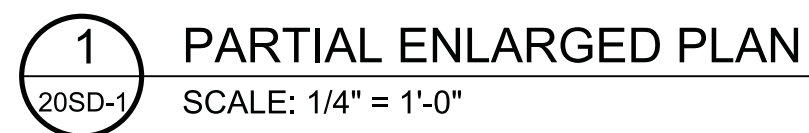
SHEET:
20SD-1
10506196

DESCRIPTION

BY

DATE

REV



AREA 20

CHEYENNE AVE

DURANGO DR

1. PROTECT AND RELOCATE EXISTING IRRIGATION LINES TO ACCOMMODATE DEMOLITION.

- A. DEMOLISH EAST WALL AND FOOTING, PROTECT NORTH AND SOUTH WALLS IN PLACE. BRACE WALLS AS NEEDED TO PROTECT FROM HIGH WINDS.
- B. EXISTING DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING DIMENSIONS AND CONDITIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS. THIS INCLUDES
- C. CUT AND CAP EX 1/2"± GAS LINE A MINIMUM OF 5-FEET AWAY FROM NEW FOUNDATION. CONTRACTOR SHALL COORDINATE WITH SOUTHWEST GAS CORP PRIOR TO CAPPING TO ENSURE CAP IS CODE COMPLIANT.
- D. IF THE EXCAVATION TO EXPOSE AND CAP THE EXISTING GAS LINE ENROACHES ON THE INFLUENCE AREA OF THE NEW WALL FOOTING, THE CONTRACTOR SHALL BACKFILL THE EXCAVATION AS IF IT WERE UNDER THE FOOTING PER THE REQUIREMENTS OF NOTE B ON 20S-2.



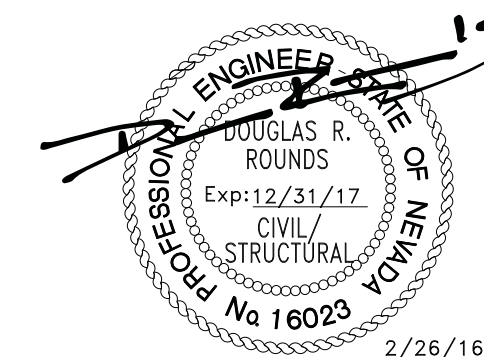
DESIGNED_D ROUNDS
DRAWN_I BATILOV
C WILL COV

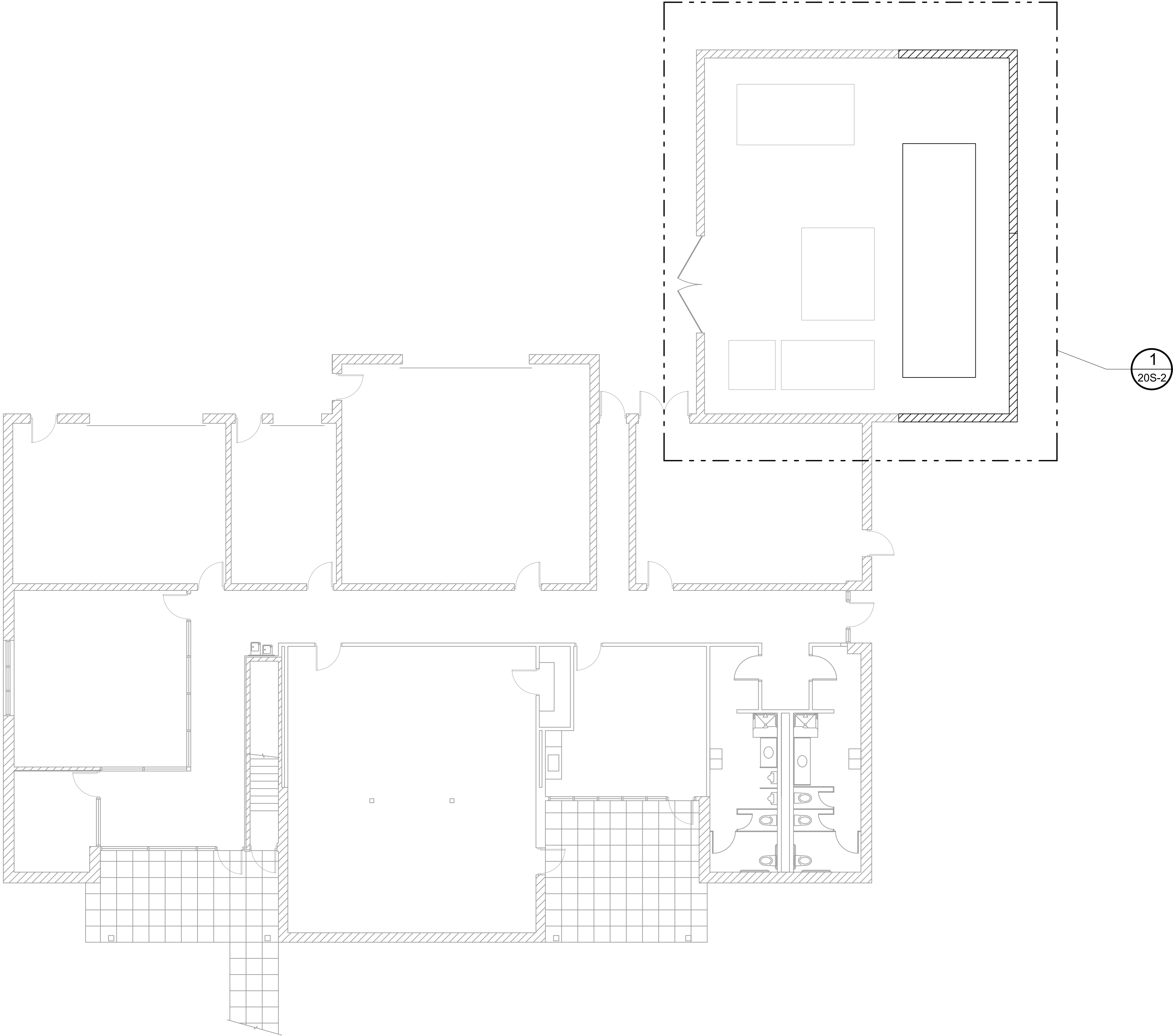
DURANGO HILLS WATER RESOURCE CENTER UPGRADES

STRUCTURAL DEMOLITION GENERATOR BLOCK WALL SECTIONS AND DETAILS

SCALE:
AS SHOWN

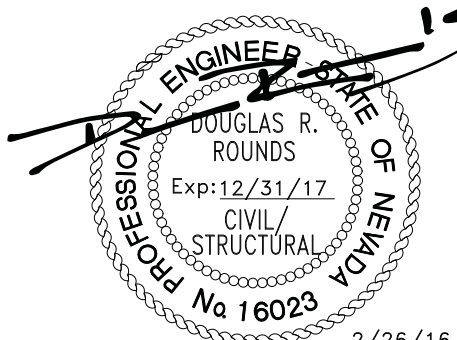
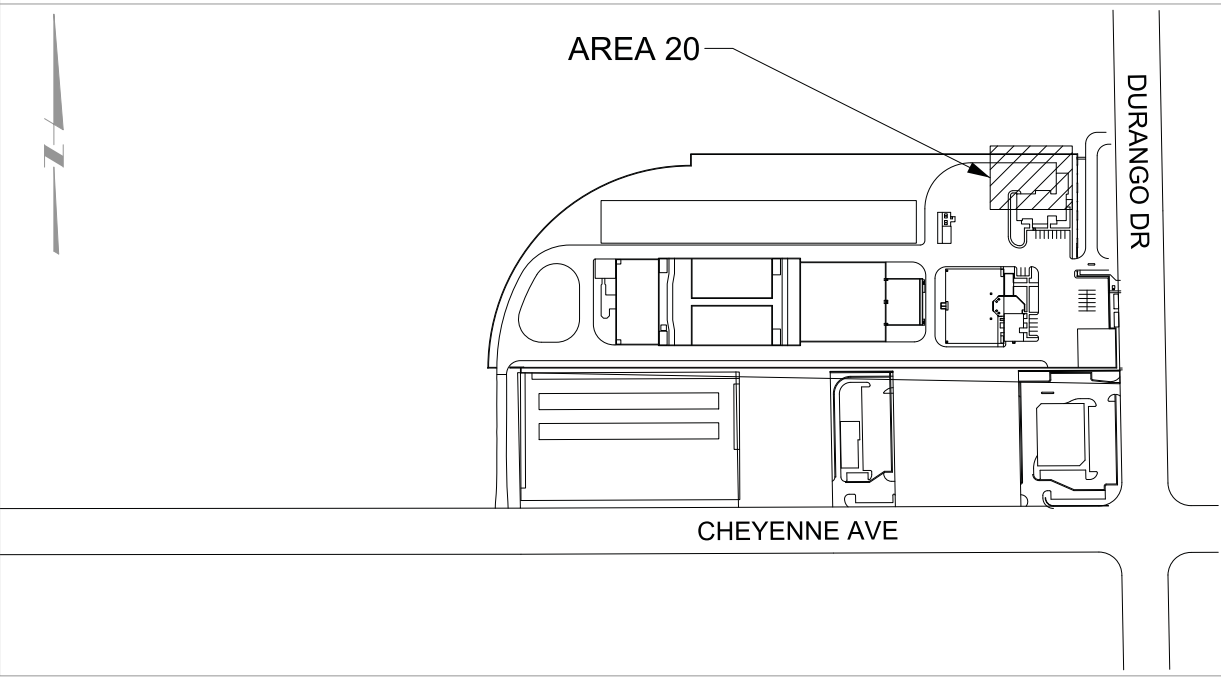
SHEET:
20SD-
10506196





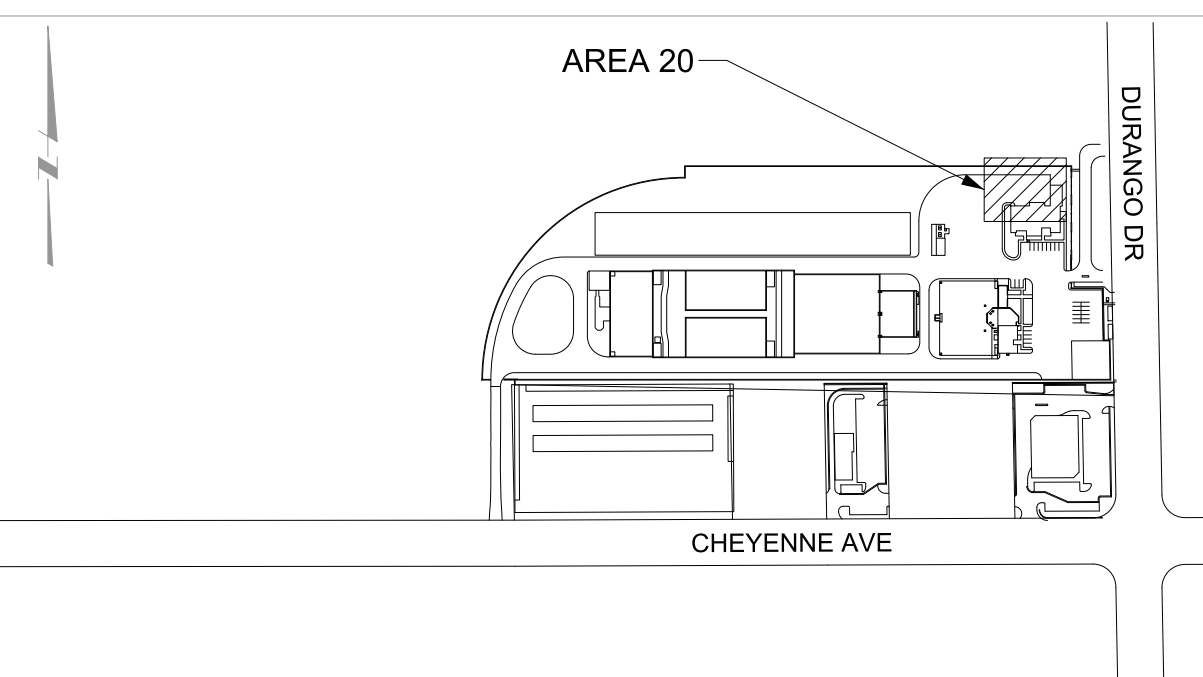
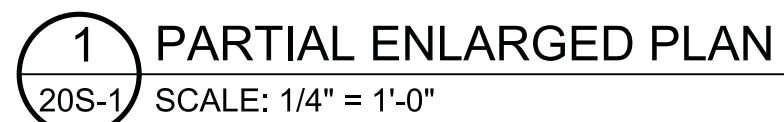
PLAN
SCALE: 1/8" = 1'-0"

KEY PLAN



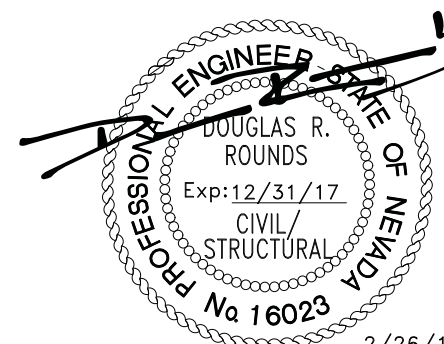
WARNING 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

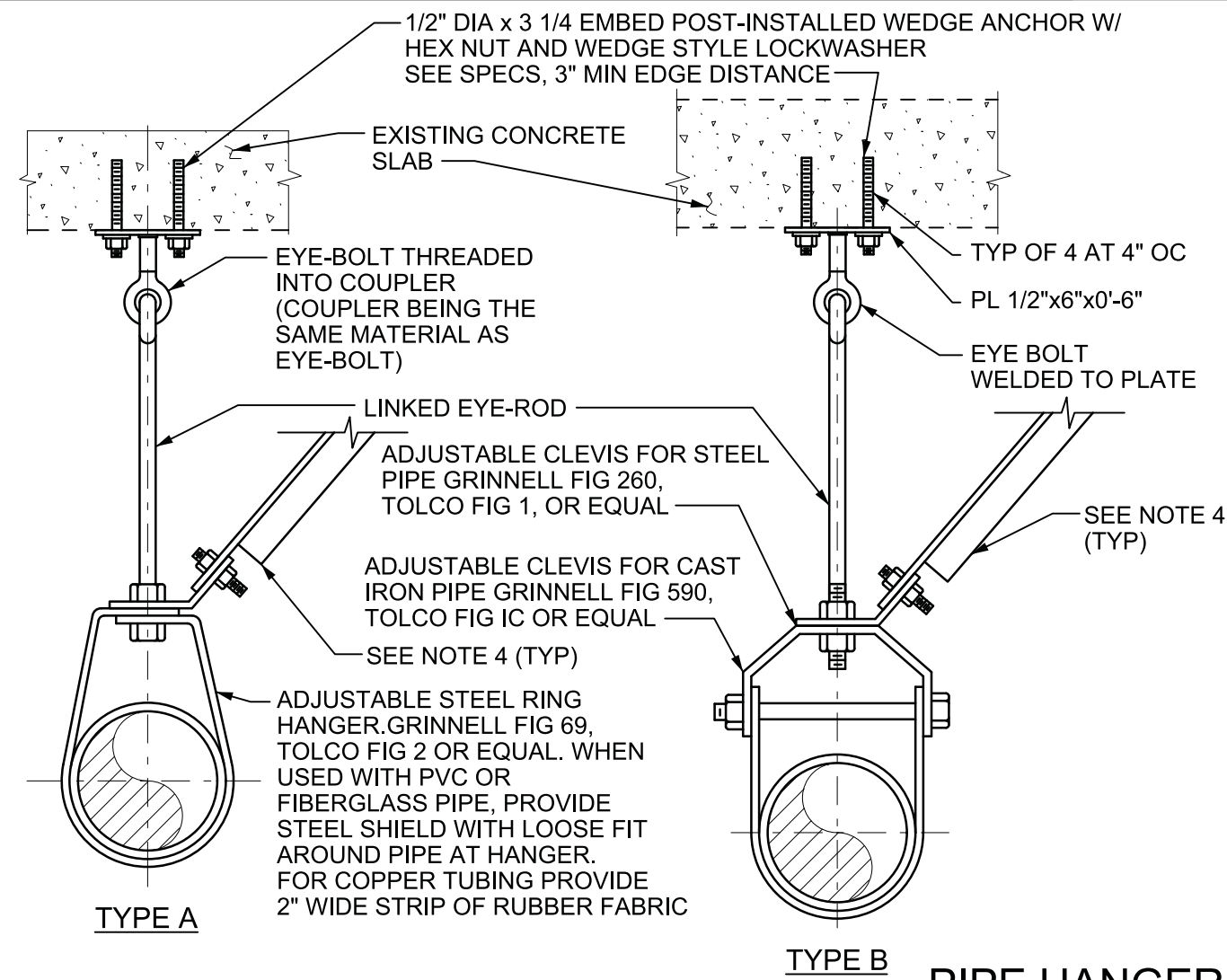
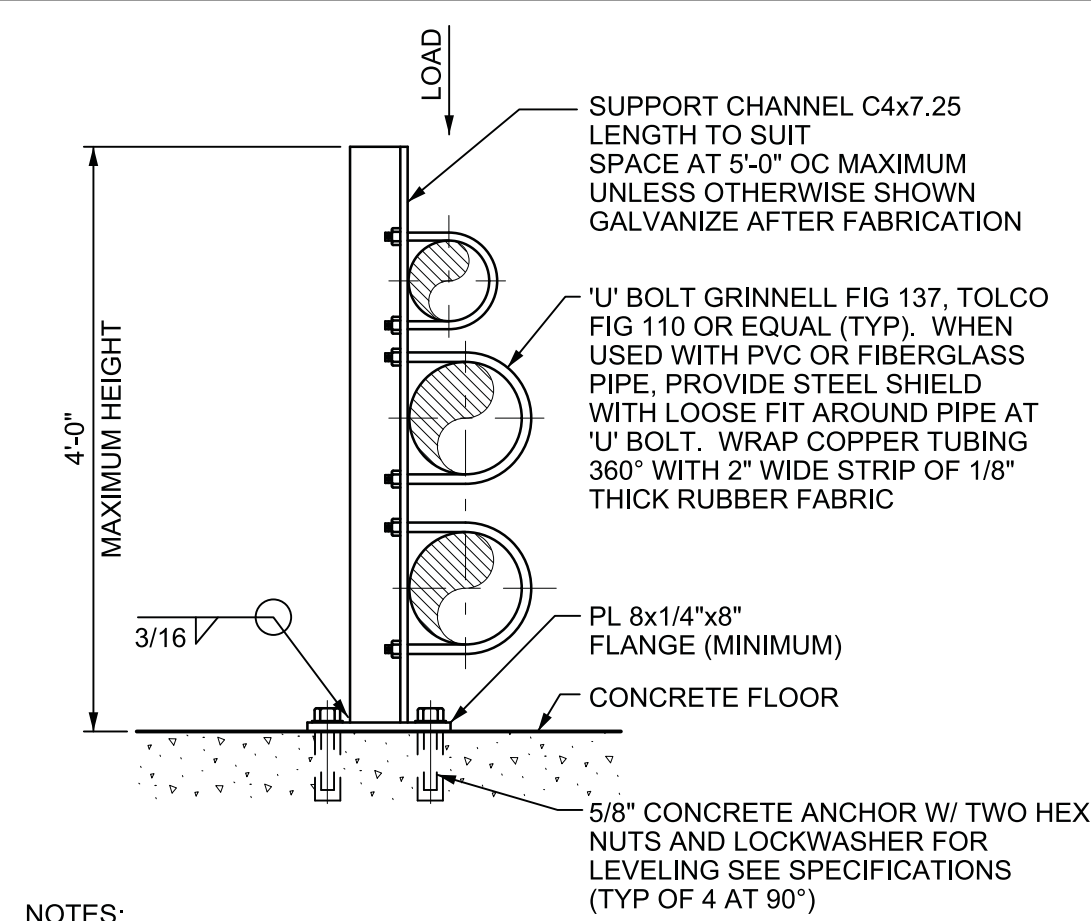
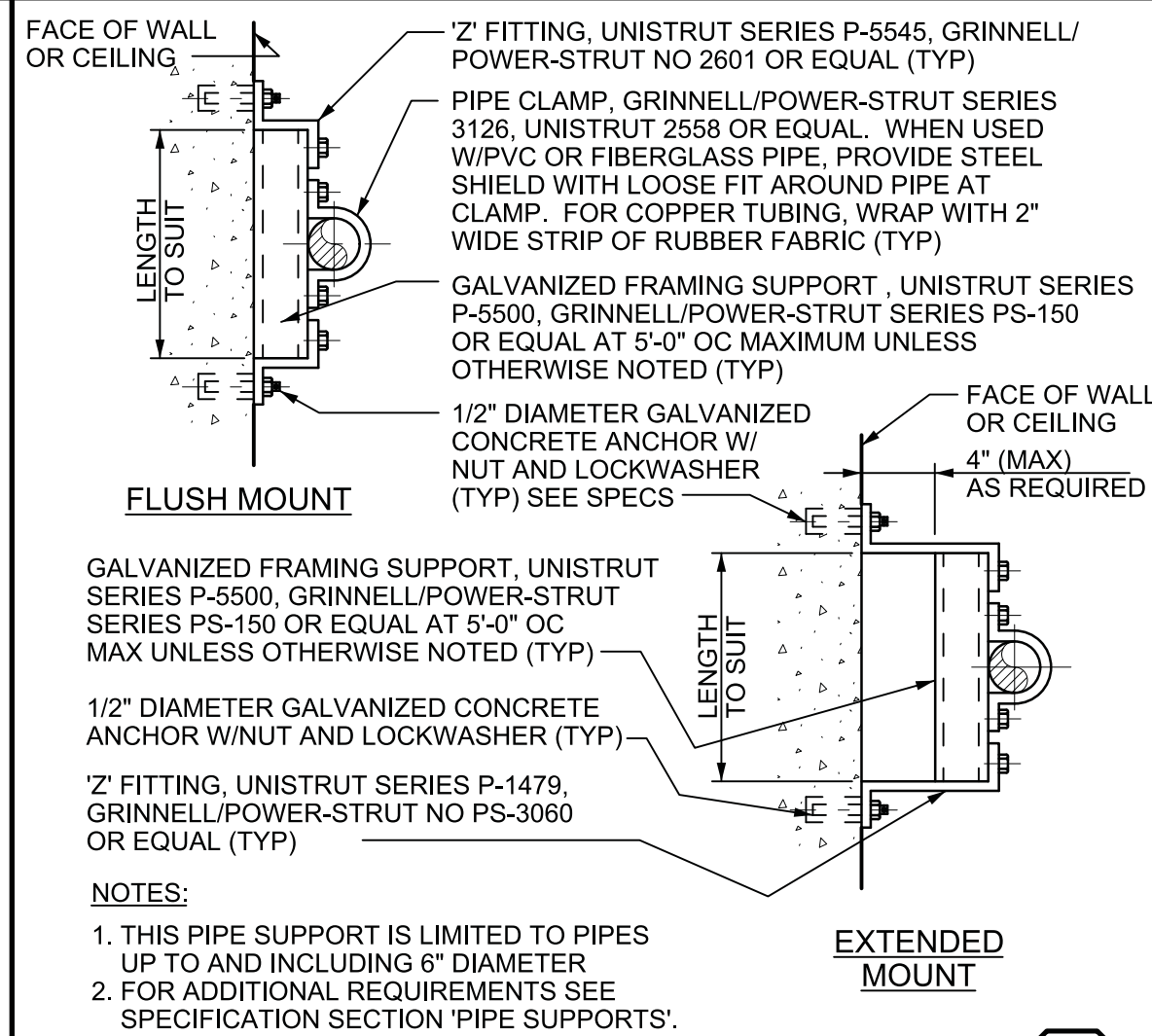
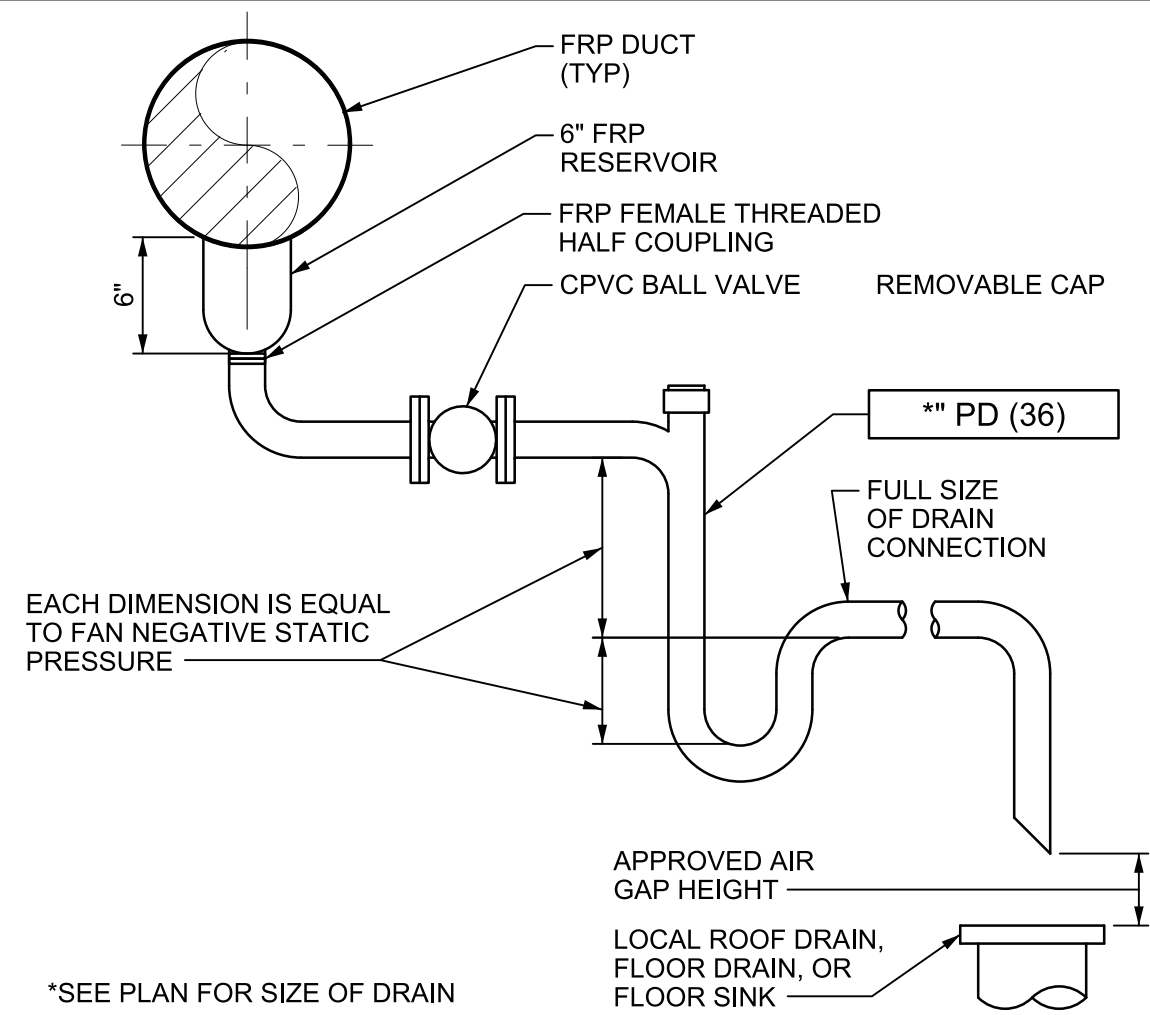
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT		REV	DATE	BY	DESCRIPTION
 MWH [®]					
DESIGNED D ROUNDS					
DRAWN M PERKINS					
CHECKED C WILCOX					
DURANGO HILLS WATER RESOURCE CENTER UPGRADES					
STRUCTURAL ADMINISTRATION BUILDING PLAN					
SCALE:					
AS SHOWN					
SHEET:					
20S-1					
10506196					



1. CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UTILITIES.
2. RELOCATE EXISTING IRRIGATION LINES TO ACCOMMODATE CMU WALL EXTENSION.
3. SHORE THE PERIMETER FENCE FOUNDATION AS REQUIRED IF THE EXCAVATION FOR THE NEW FOUNDATION IS BELOW THE EXISTING FENCE FOUNDATION AND WITHIN A 1:1 SLOPE FROM THE BOTTOM OF THE EXISTING FOUNDATION.

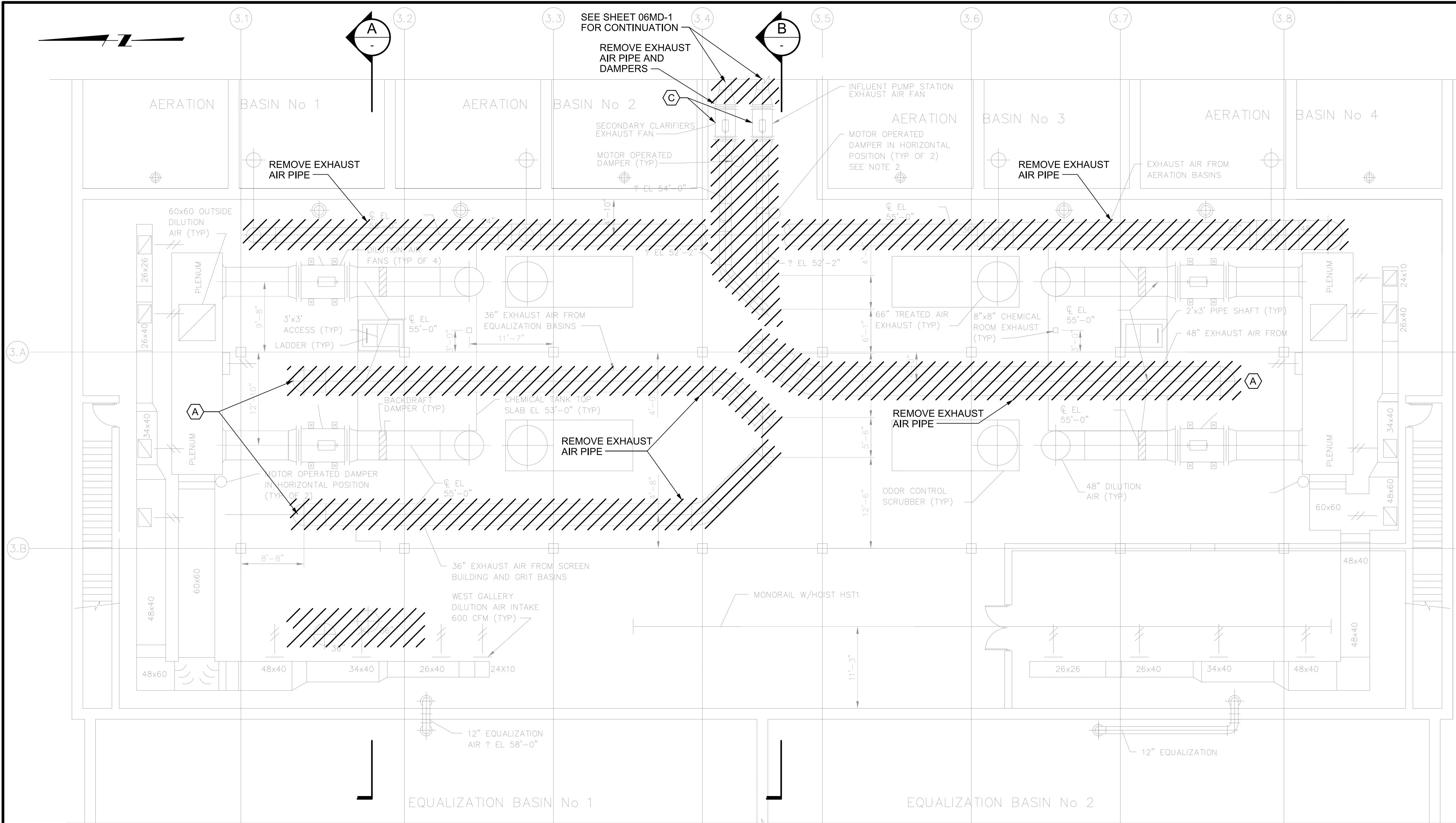
- A. CONTRACTOR SHALL SUBMIT STAMPED AND SIGNED CALCULATIONS FOR DIESEL GENERATOR ANCHORAGE FOR ENGINEERS APPROVAL IN ACCORDANCE WITH THE GENERAL DESIGN CRITERIA ON SHEET GS-1 AND DEFERRED SUBMITTALS ON GS-2.
- B. EXISTING SOILS BELOW THE PROJECT FOOTPRINT SHALL BE OVEREXCAVATED 3'-6" DEEP. SOILS SHALL BE MOISTURE CONDITIONED AND RECOMPACTED IN 8-INCH LIFTS 95% OF MAXIMUM MODIFIED PROCTOR DRY DENSITY (ASTM D 1557). MOISTURE CONTENT SHALL NOT EXCEED 4% OF OPTIMUM AT THE TIME OF PLACEMENT AND COMPACTION. MAXIMUM FILL LIFT THICKNESS SHALL BE 8-INCHES.
- C. AS AN ALTERNATIVE TO 8" CMU WITH 4" ARCHITECTURAL SPLIT FACE CMU, 12" SPLIT FACE TO MATCH EXISTING CMU WITH #5@24" VERTS W/ MATCHING DOWELS WOULD BE ACCEPTABLE.
- D. VENEER LADDER REINFORCING SHALL BE 130 TRUSS-MESH BY HOHMANN & BARNARD. STANDARD WEIGHT WIRE SIZE 12" BLOCK SIZE, SPACED VERTICALLY @ 24".
- E. MINIMUM SIZE OF GENERATOR PAD SHALL BE BASED ON DIESEL GENERATOR'S ANCHORAGE REQUIREMENTS. CONTRACTOR SHALL CONFIRM THAT PAD SIZE MEETS REQUIRED EDGE DISTANCE FOR ANCHORAGE.
- F. LOCATION OF PAD SHALL BE CENTERED ON THE DIESEL GENERATOR SHOWN ON DWG 20E-1.
- G. ALL EXPOSED CMU SURFACES ABOVE GRADE SHALL RECEIVE AN EPOXY OR ACRYLIC MASONRY SEALER PER SPECIFICATION SECTION 09 96 00. CMU BELOW GRADE SHALL BE SEALED WITH AN ELASTOMERIC FLUID APPLIED MEMBRANE (HENRY 787 OR EQUAL).
- H. GRADE SHALL SLOPE MINIMUM 0.5% AWAY FROM CMU AND MATCH EXISTING.



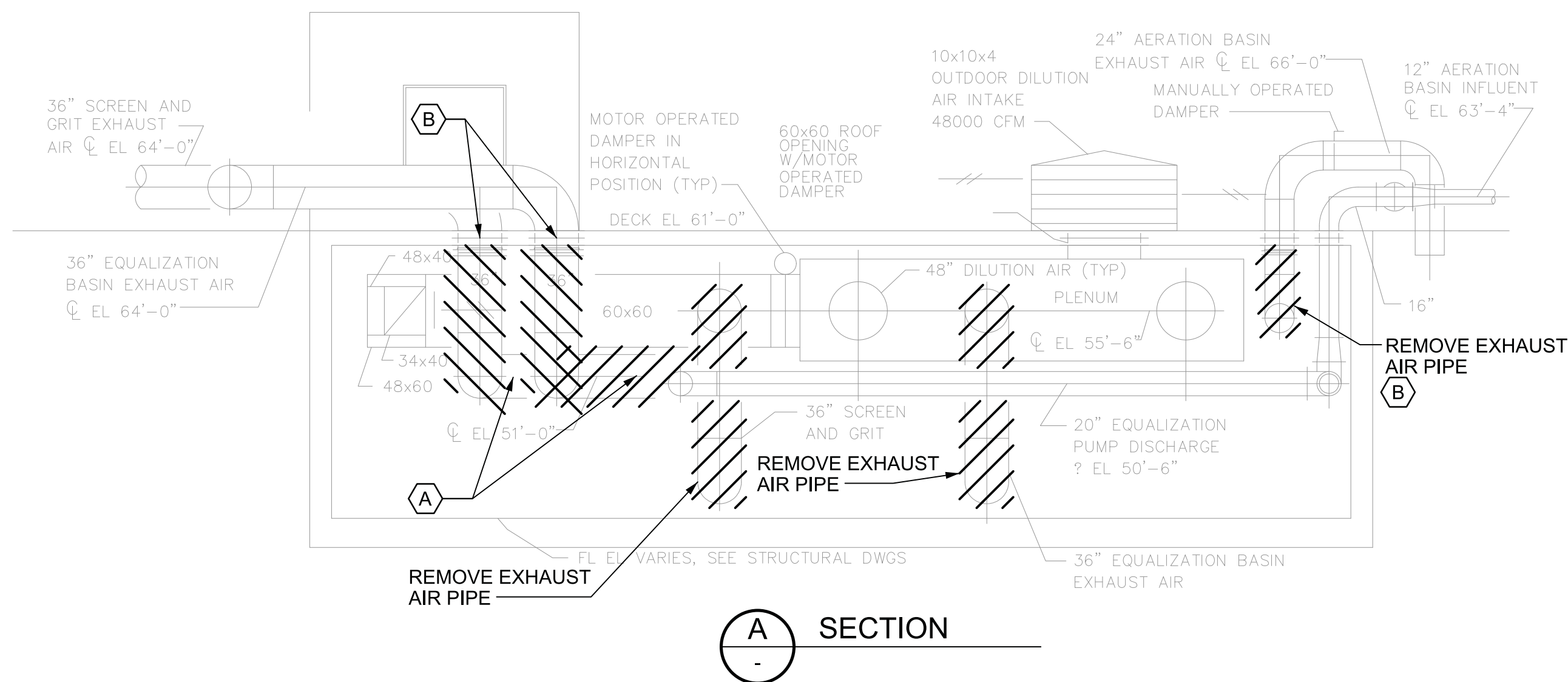


PIPE HANGER RODS AND SUPPORT SPACING					
NOMINAL PIPE SIZE (INCHES)	ROD DIAMETER (INCHES)	MAX SUPPORT SPACING (FEET)		WEIGHT LIMIT (LBS)	
		STD. WEIGHT STEEL PIPE	CI PIPE	TYPE A	TYPE B
1 & SMALLER	3/8	6	10	300	610
1 1/4 TO 2	3/8	10	10	300	610
2 1/2 TO 3 1/2	1/2	12	10	525	1130
4 TO 5	5/8	14	10	650	1430
6, 8	3/4	17	10	1000	1940
10, 12	7/8	18	—	—	3600
14, 16	1	20	—	—	3800

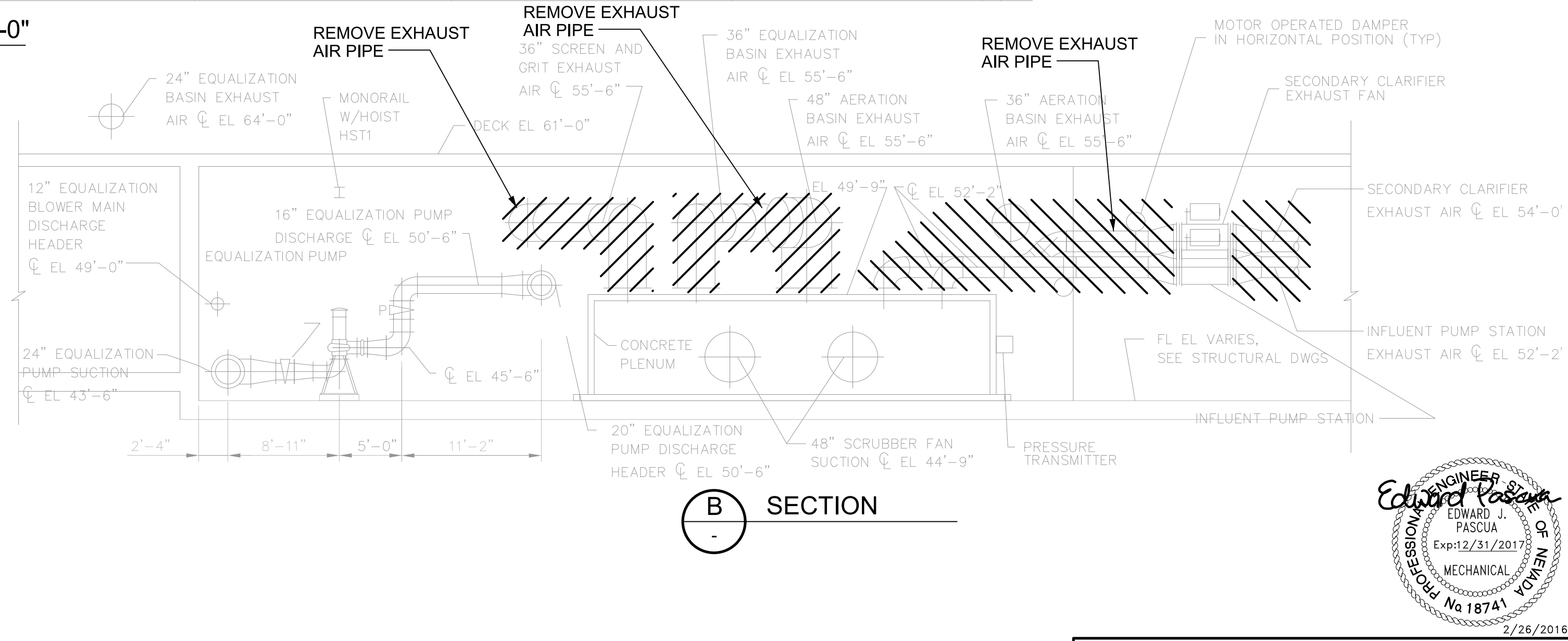
- NOTES:**
1. GALVANIZE ALL PARTS AFTER FABRICATION.
 2. PRESENTED DESIGN IS FOR STATIC LOAD, ONLY.
 3. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'.
 4. LATERAL TRANSVERSE AND LONGITUDINAL BRACING DESIGNED FOR SEISMIC AND WIND BY OTHERS. SEE SPECIFICATION SECTION 46 01 00 FOR DESIGN REQUIREMENTS.



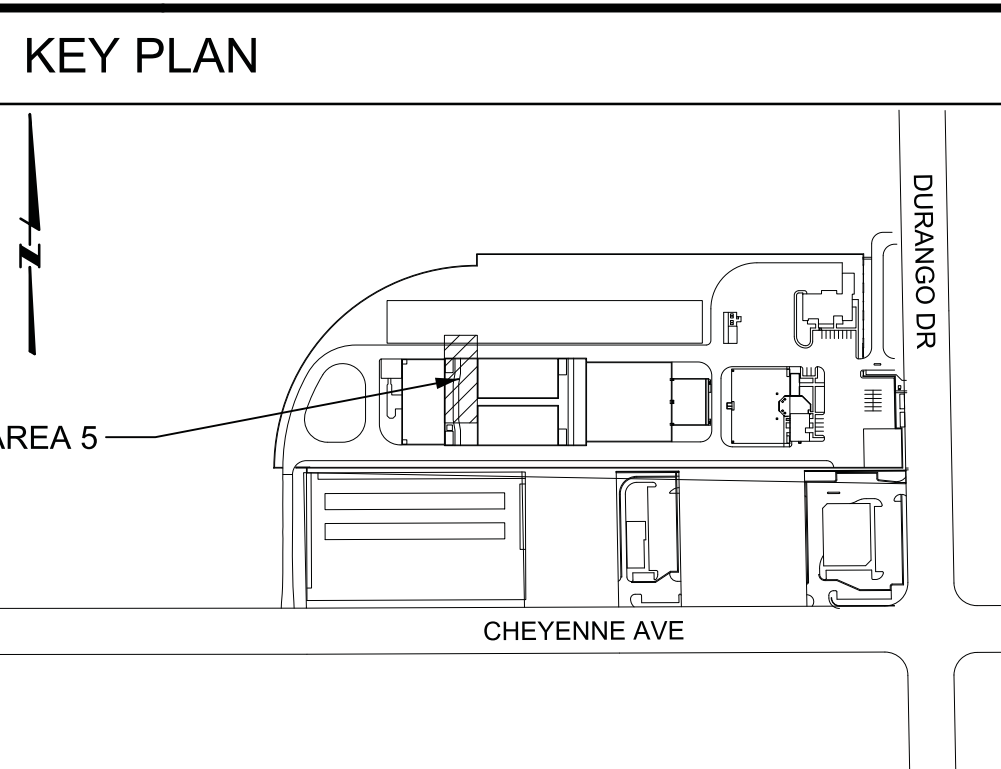
PLAN @ EL 59'-0"



SECTION A



SECTION B



GENERAL SHEET NOTES

1. CONTRACTOR TO PROTECT IN PLACE ALL REMAINING EQUIPMENT AND DUCTWORK
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF REMOVED METAL DUCTWORK, FANS, DAMPERS, SUPPORTS, AND APPURTENANCES
3. CONTRACTOR SHALL DEMOLISH EXISTING SUPPORTS WITH DUCTWORK. ABANDON IN PLACE EXISTING SUPPORT ANCHORS. NEW ANCHORS SHALL BE INSTALLED TO SUPPORT NEW DUCTWORK.
4. CONTRACTOR SHALL DEMOLISH AND REPLACE 9 EXISTING DAMPERS. SEE SHEETS 05M-2 AND 06M-1.

SHEET KEYNOTES

- A. DEMOLITION SHALL EXTEND UP TO EXISTING FOUL AIR EXHAUST FANS
- B. LIMITS OF DEMOLITION SHALL BE TO EXISTING FLANGE BELOW BOTTOM OF CONCRETE ON RISER AT EACH AERATION BASIN
- C. REMOVE AND SALVAGE FANS FOR LATER REINSTALLATION, SEE SECTION 02 41 16.

REVISION	DATE	BY	DESCRIPTION

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

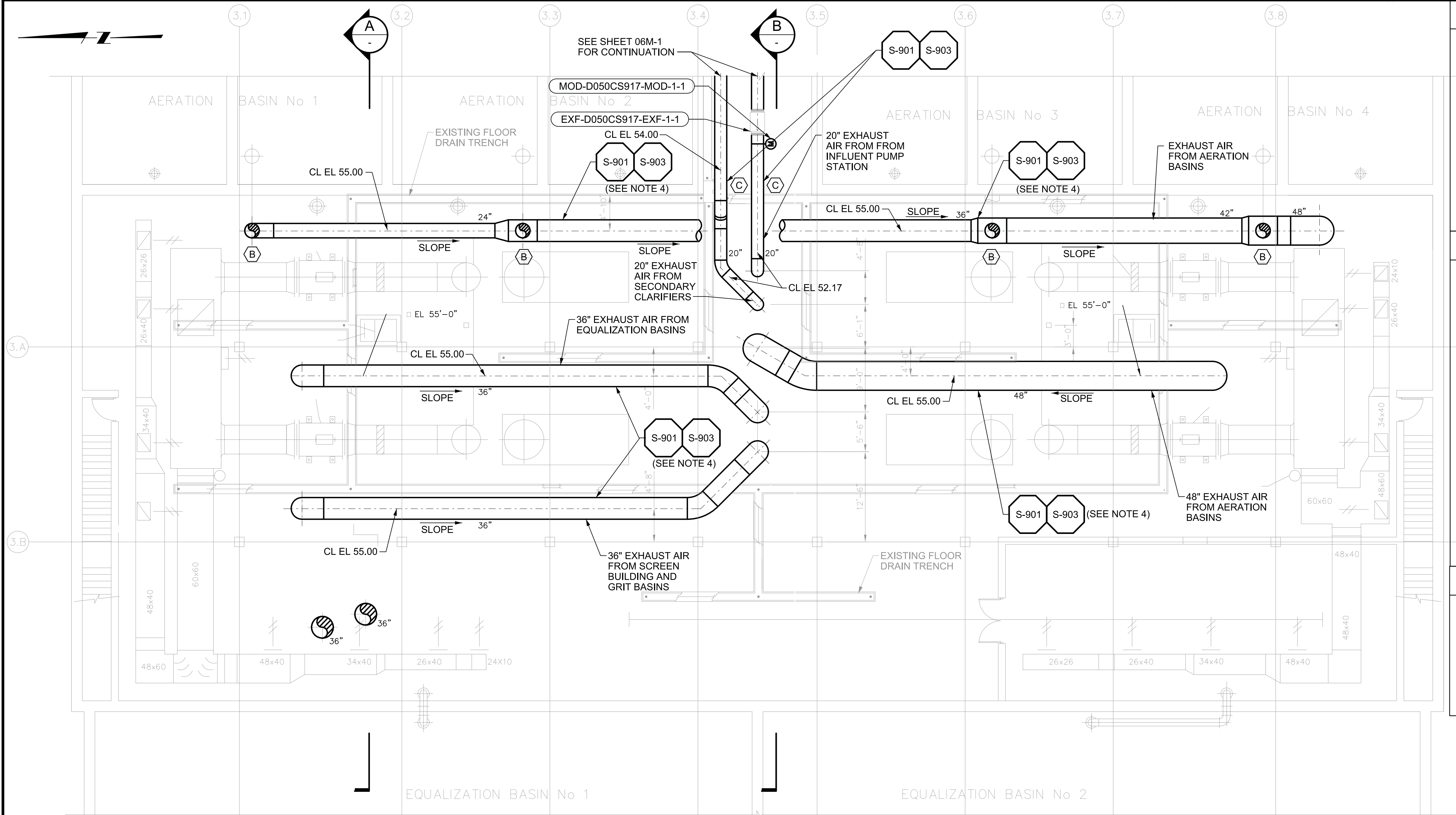
DESIGNED: E. PASCUA
DRAWN: A. MANJREKAR
CHECKED: M. PRICE

MECHANICAL DEMOLITION
OC DUCTING - WEST GALLERY
PLAN AND SECTIONS

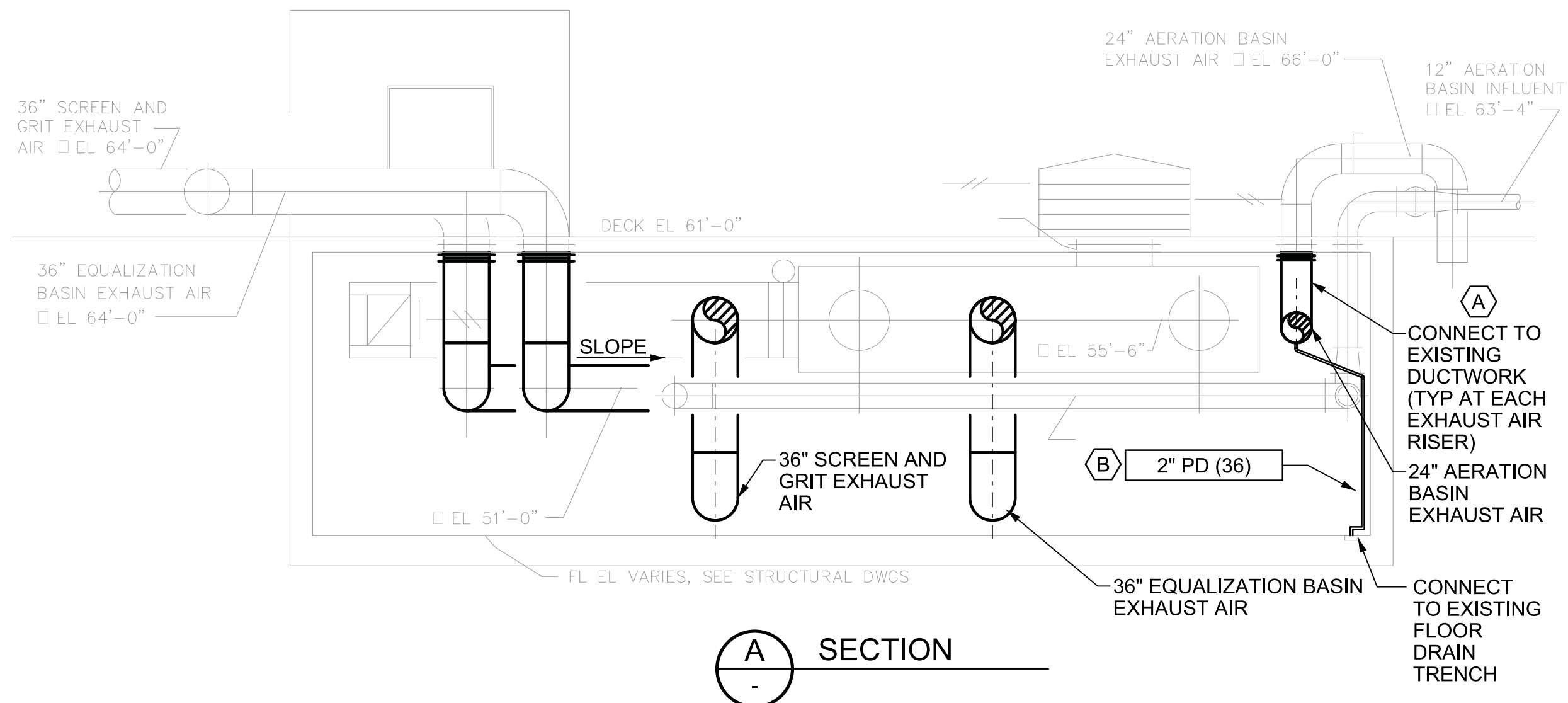
SCALE:
1/8"=1'-0"

SHEET:
05MD-1
10506196

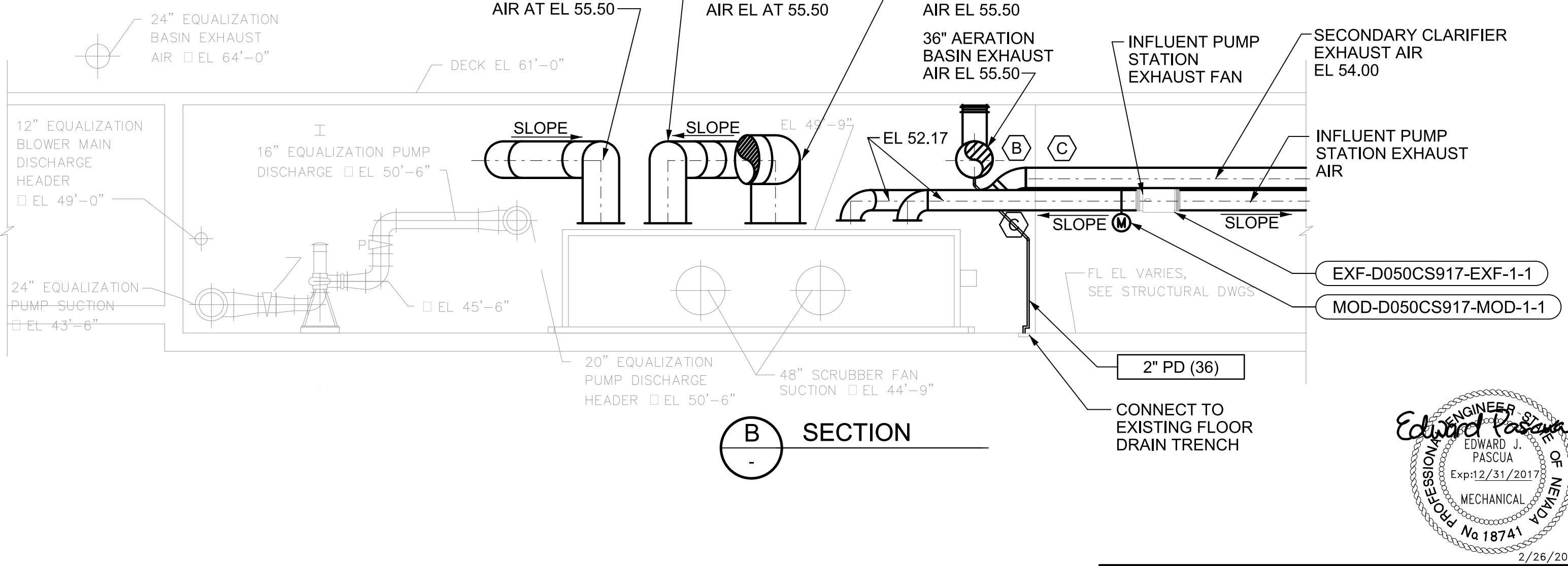
File: DHWRC_05M01.dgn Model: Layout1 ColorTable: bw.ctb DesignScript: MWH_Latol_PenTable_20121.pen PlotScale: 0.0833331 Plot Date: 26-FEB-2016 19:25 User: svc_projectwise



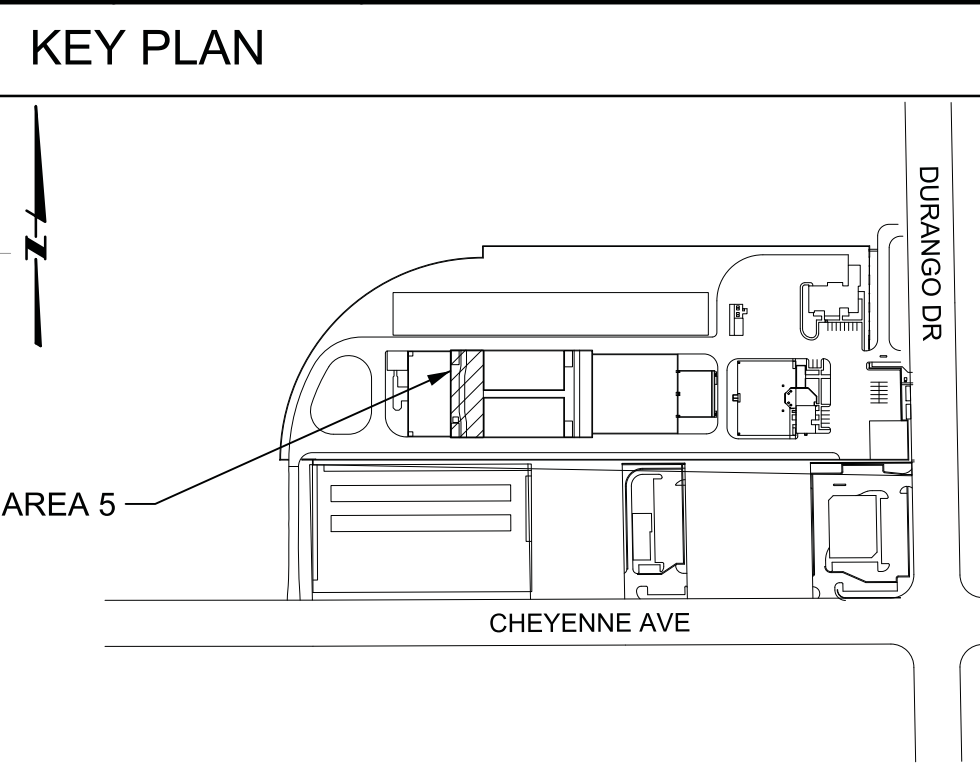
PLAN @ EL 59'-0"



A SECTION



B SECTION



GENERAL SHEET NOTES

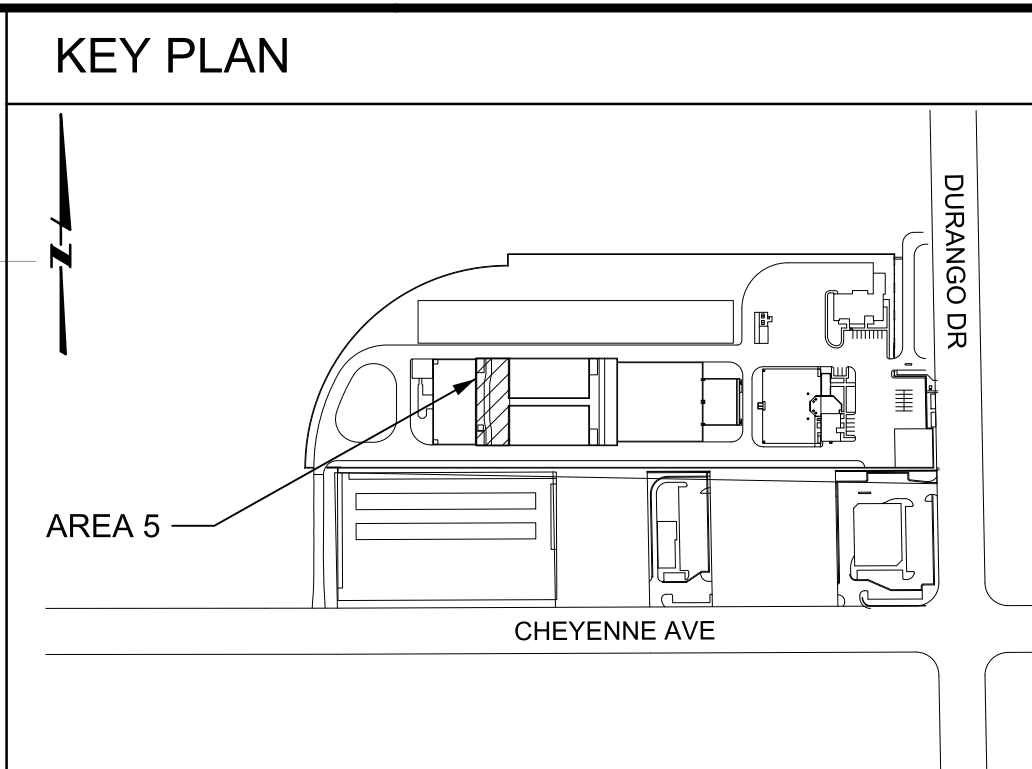
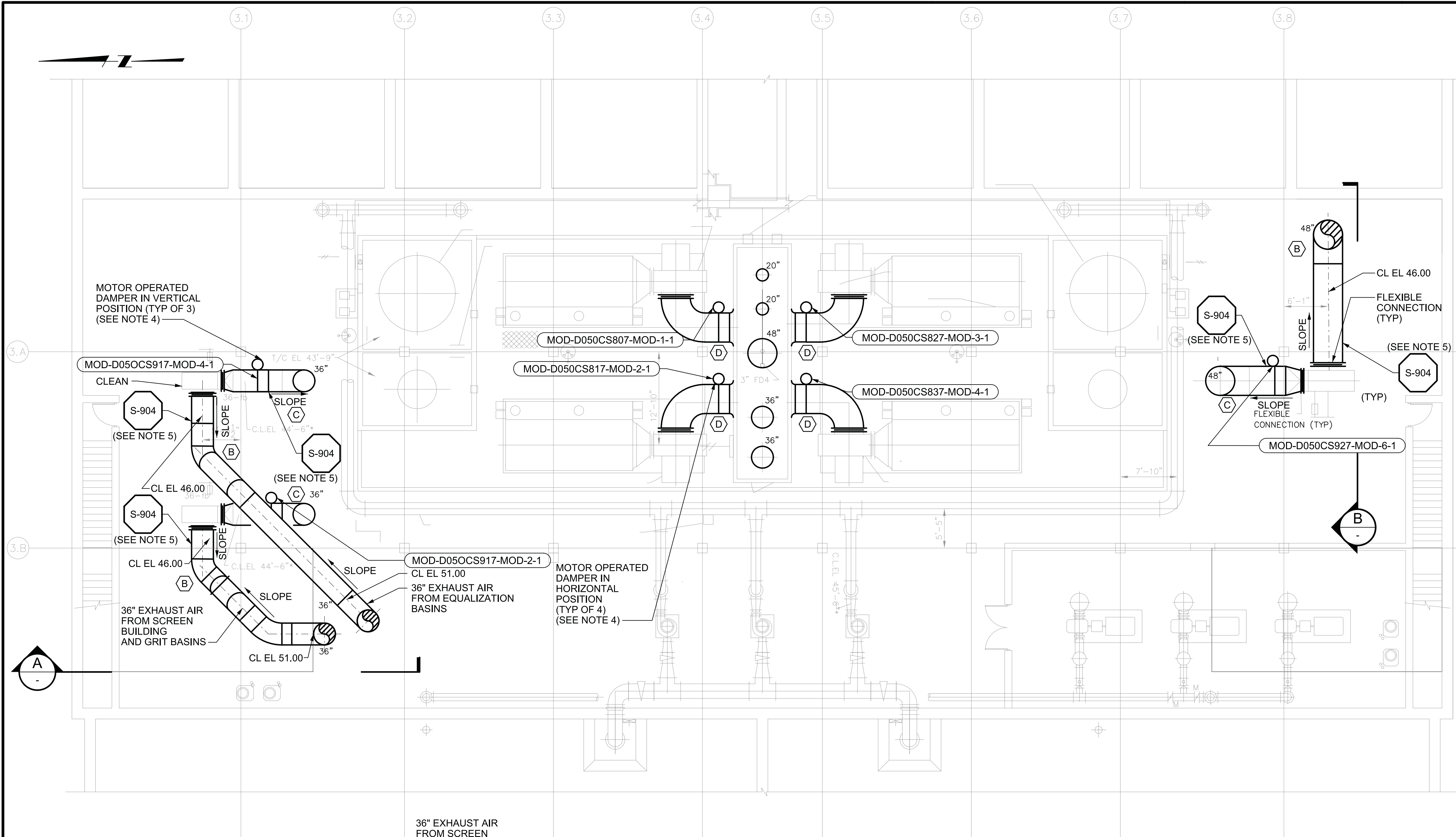
1. PROVIDE CONDENSATE DRAIN AT ALL LOW POINTS IN DUCTWORK AND AT FAN INTAKE AND EXHAUST PER DETAIL H-901 SIMILAR. LOCATION AND NUMBER OF DRAINS INDICATED IN THE DRAWINGS IS APPROXIMATE. CONTRACTOR SHALL CONFIRM LOCATION AND NUMBER OF DRAINS DURING CONSTRUCTION
2. DUCTWORK ELEVATIONS PROVIDED ARE NOMINAL
3. DUCTWORK SHALL BE SLOPED TO LOW POINTS FOR CONDENSATE DRAINAGE
4. MOUNT ODOR CONTROL DAMPER ACTUATORS ON PLATES OR BRACKETS SEPARATED FROM THE DUCTWORK
5. DUCT SUPPORT AND BRACING DETAILS PROVIDED ARE FOR ESTIMATING PURPOSES ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND PROVIDE DUCT SUPPORT DESIGN AND LAYOUT PER SPECIFICATION
6. DUCT SUPPORTS NOT SHOWN FOR CLARITY
7. FOR FAN INTAKES, DUCTWORK MUST SLOPE IN OPPOSITE DIRECTION OF THE AIR FLOW

SHEET KEYNOTES

- A. CONNECT NEW FRP DUCTWORK TO EXISTING METAL DUCTWORK WITH FLANGES AND GASKET
- B. PROVIDE 2" DRAIN PER DETAIL H-901 SIMILAR. ROUTE DRAIN TO NEAREST FLOOR DRAIN TRENCH. SEE SECTION 23 31 16
- C. PROVIDE 1" DRAIN PER DETAIL H-901 SIMILAR. ROUTE DRAIN TO NEAREST FLOOR DRAIN TRENCH. SEE SECTION 23 31 16

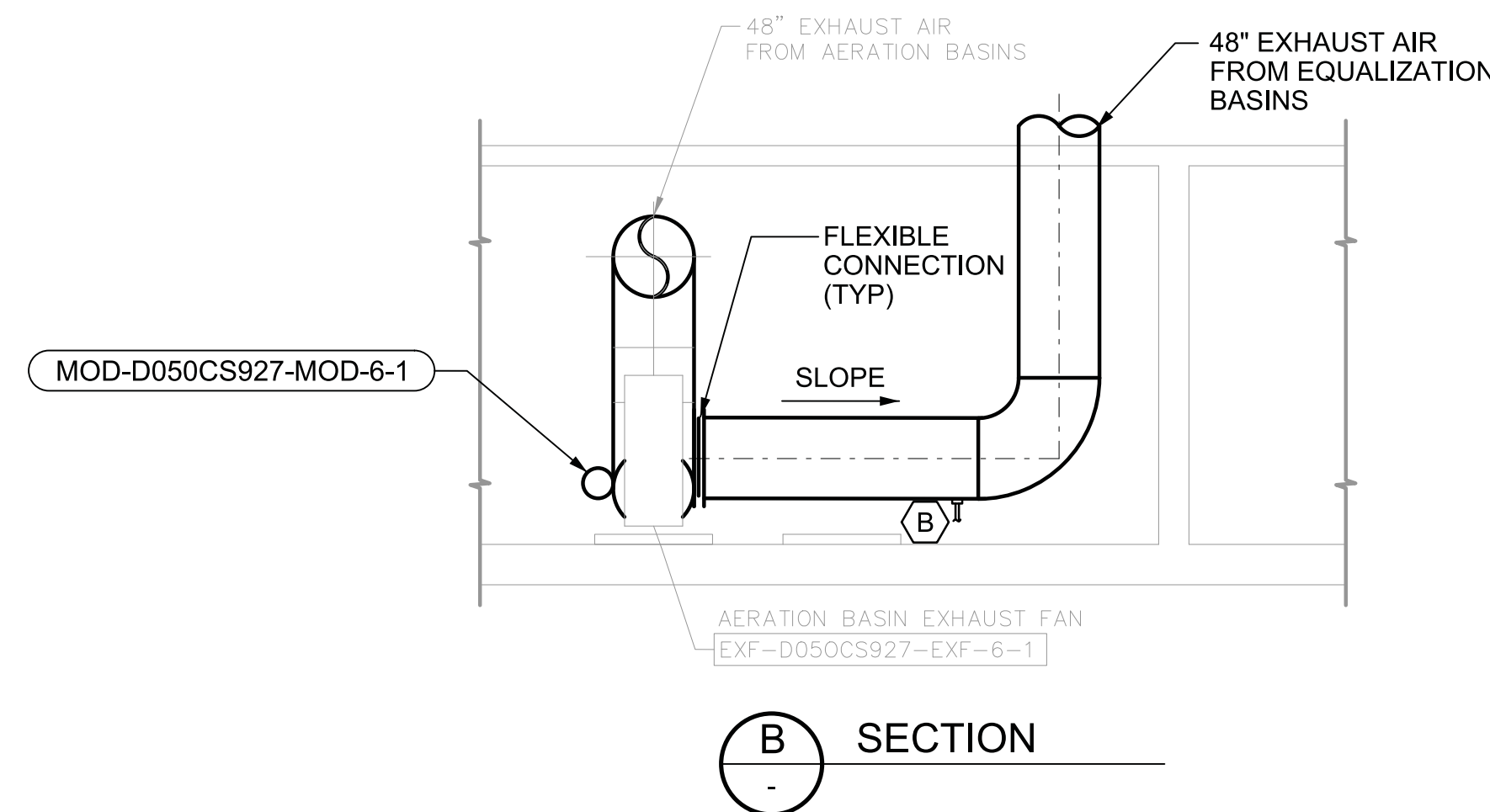
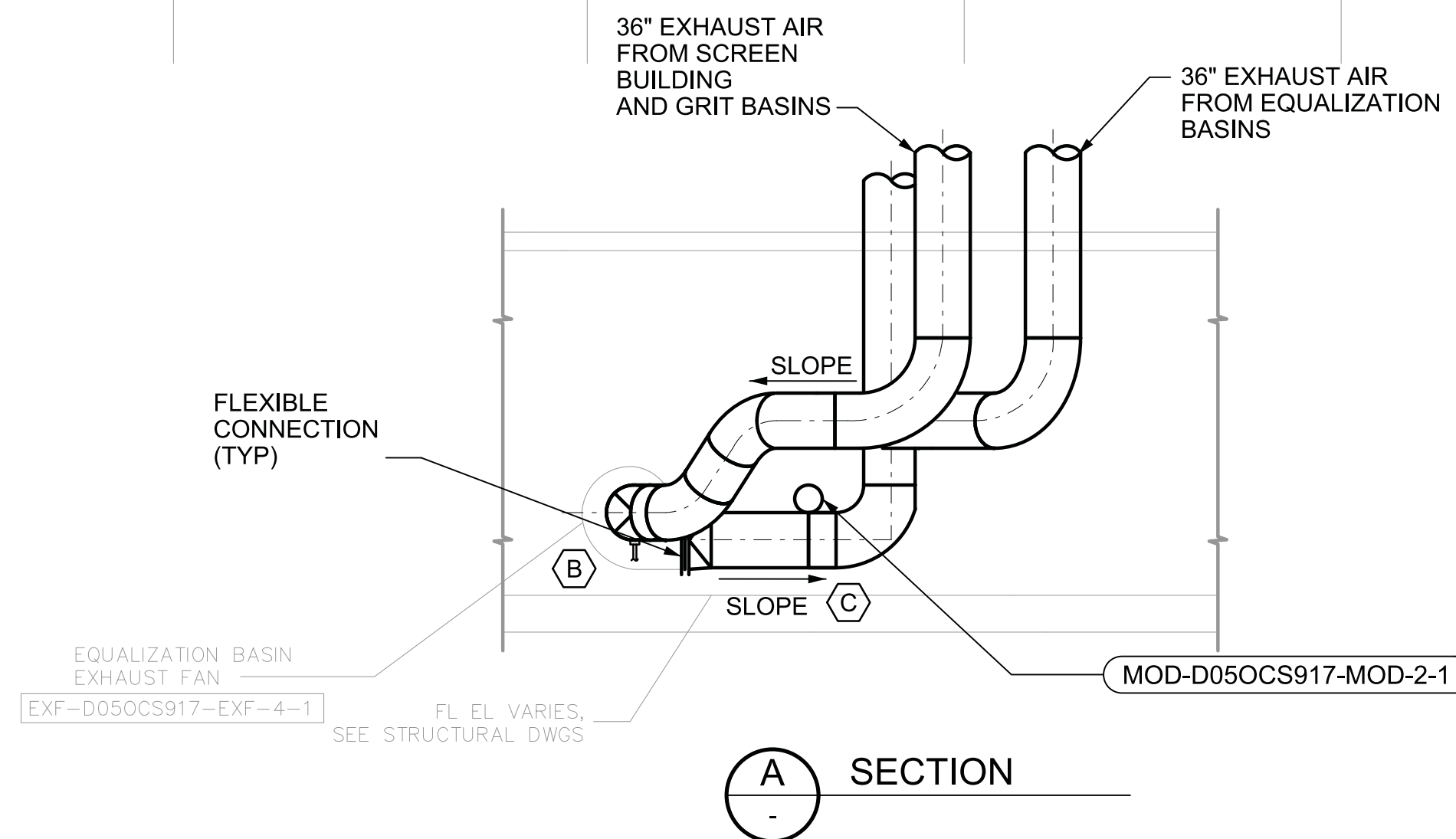


DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT	
DESIGNED	BY
DRAWN	DATE
CHECKED	REV
DESCRIPTION	
DURANGO HILLS WATER RESOURCE CENTER UPGRADES	
MECHANICAL	
OC DUCTING - WEST GALLERY	
UPPER LEVEL PLAN AND SECTIONS	
SCALE: 1/8"=1'-0"	
SHEET: 05M-1	
10506196	

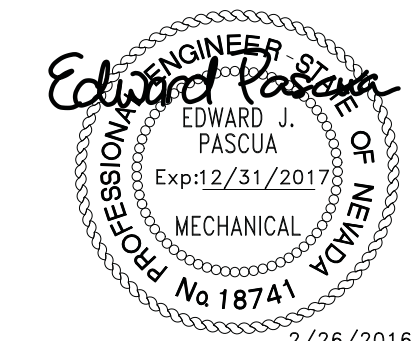


- ### GENERAL SHEET NOTES
1. PROVIDE CONDENSATE DRAIN AT ALL LOW POINTS IN DUCTWORK AND AT FAN INTAKE AND EXHAUST PER DETAIL H-901 SIMILAR. LOCATION AND NUMBER OF DRAINS INDICATED IN THE DRAWINGS IS APPROXIMATE. CONTRACTOR SHALL CONFIRM LOCATION AND NUMBER OF DRAINS DURING CONSTRUCTION
 2. DUCTWORK ELEVATIONS PROVIDED ARE NOMINAL
 3. DUCTWORK SHALL BE SLOPED TO LOW POINTS FOR CONDENSATE DRAINAGE
 4. MOUNT ODOR CONTROL DAMPER ACTUATORS ON PLATES OR BRACKETS SEPARATED FROM THE DUCTWORK
 5. DUCT SUPPORT AND BRACING DETAILS PROVIDED ARE FOR ESTIMATING PURPOSES ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND PROVIDE DUCT SUPPORT DESIGN AND LAYOUT PER SPECIFICATION
 6. CONTRACTOR SHALL ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN OR TRENCH. SEE DETAIL H-901
 7. DUCT SUPPORTS NOT SHOWN FOR CLARITY

- ### SHEET KEYNOTES
- A. EXISTING EXHAUST FANS CONNECTING TO NEW DUCTWORK SHALL BE CLEANED BEFORE REASSEMBLY
 - B. PROVIDE 2" DRAIN PER DETAIL H-901 SIMILAR. ROUTE DRAIN PIPE TO NEAREST FLOOR DRAIN TRENCH
 - C. PROVIDE 1" DRAIN PER DETAIL H-901 SIMILAR. ROUTE DRAIN PIPE TO NEAREST FLOOR DRAIN TRENCH
 - D. MATCH EXISTING DIAMETER

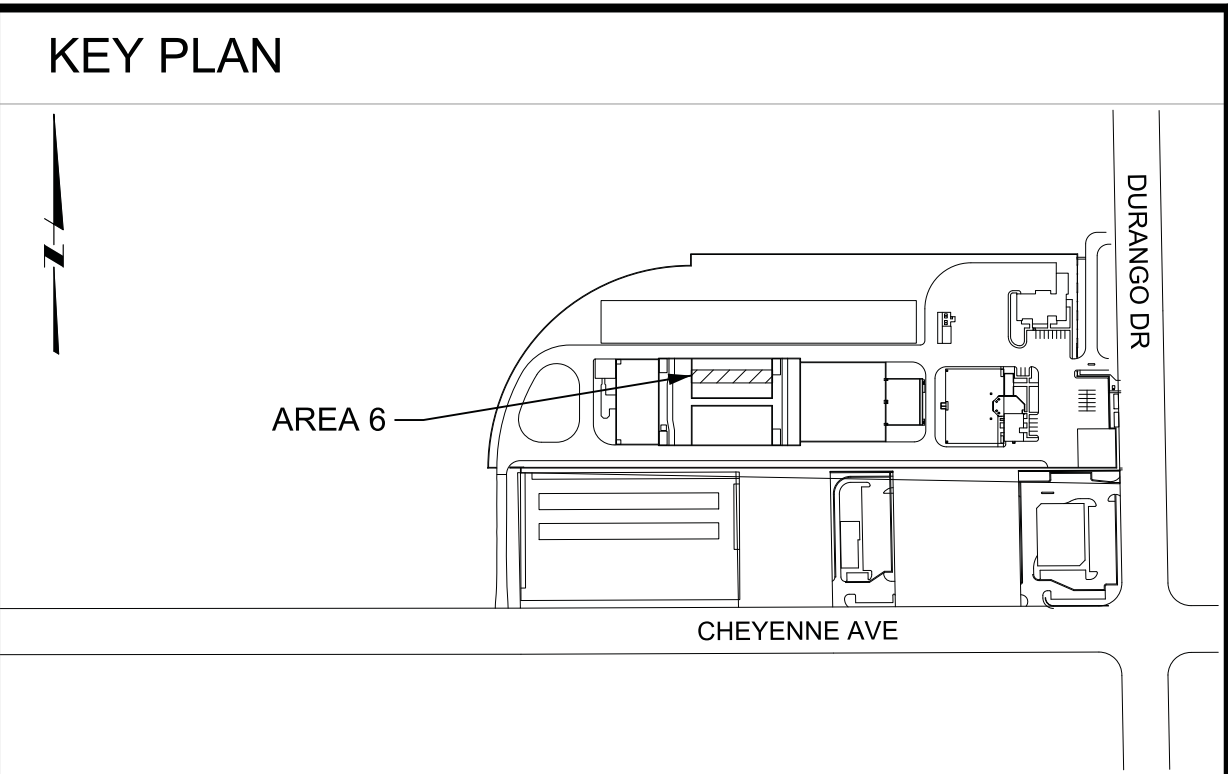
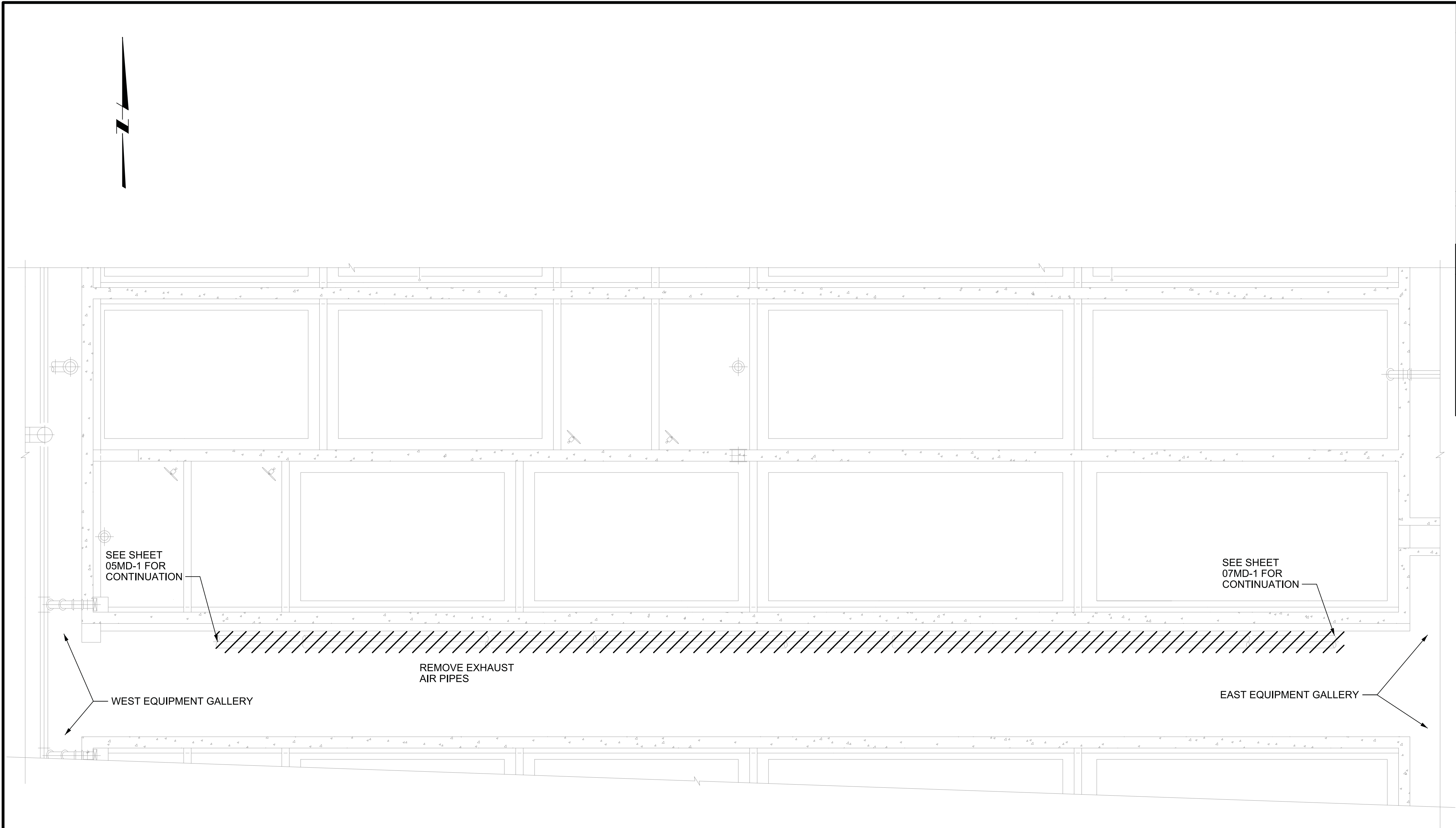


DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT	
DESIGNED E PASCUA	DRAWN A MANJREKAR
CHECKED M PRICE	
DURANGO HILLS WATER RESOURCE CENTER UPGRADES	
MECHANICAL	
OC2 BUILDING - WEST GALLERY	
LOWER LEVEL PLAN	
SCALE:	1/8"=1'-0"
SHEET:	05M-2
10506196	

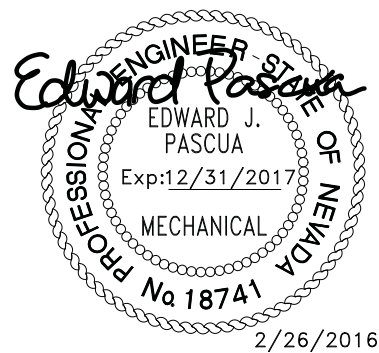


WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

2/26/2016

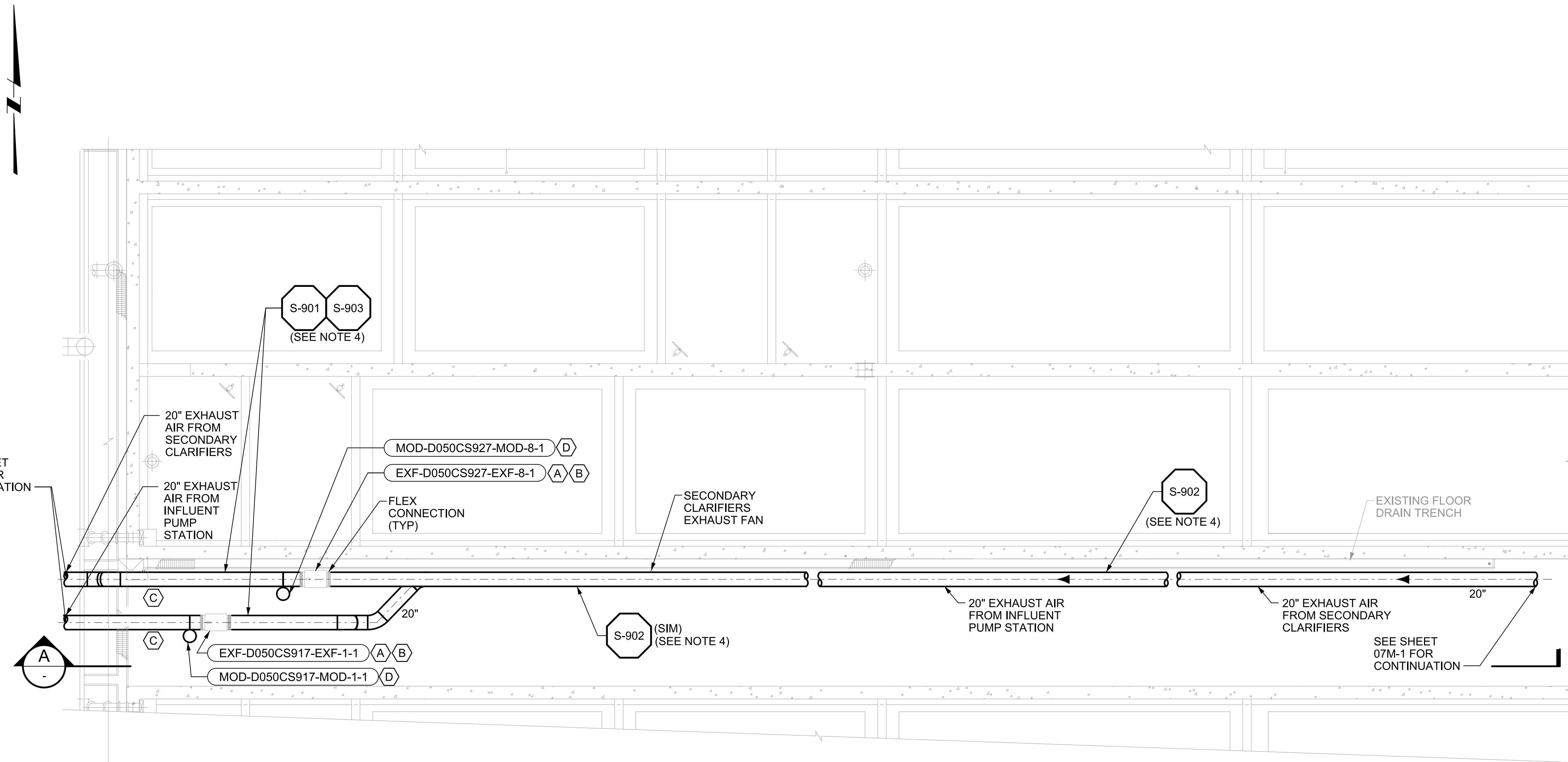


- GENERAL SHEET NOTES**
1. CONTRACTOR TO PROTECT IN PLACE ALL REMAINING EQUIPMENT AND DUCTWORK
 2. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF REMOVED METAL DUCTWORK, FANS, DAMPERS, SUPPORTS, AND APPURTENANCES
 3. CONTRACTOR SHALL DEMOLISH EXISTING SUPPORTS WITH DUCTWORK. ABANDON IN PLACE EXISTING SUPPORT ANCHORS. NEW ANCHORS SHALL BE INSTALLED TO SUPPORT NEW DUCTWORK

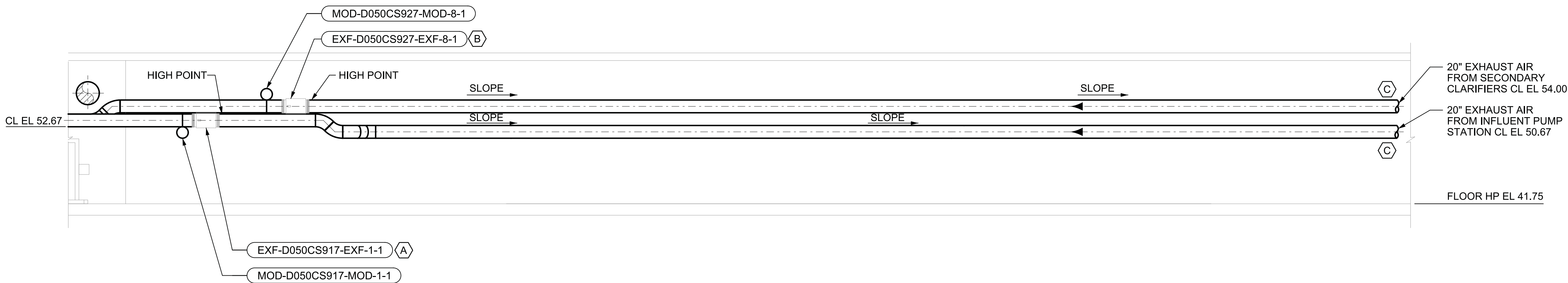


WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT			
DESIGNED	E. PASCUA	DRAWN	A. MANJREKAR
CHECKED	M. PRICE	BY	
REV	DATE	BY	DESCRIPTION
DURANGO HILLS WATER RESOURCE CENTER UPGRADES			
MECHANICAL DEMOLITION AERATION BASIN TUNNEL PLAN			
SCALE: 1/8"=1'-0"			
SHEET: 06MD-1			
10506196			

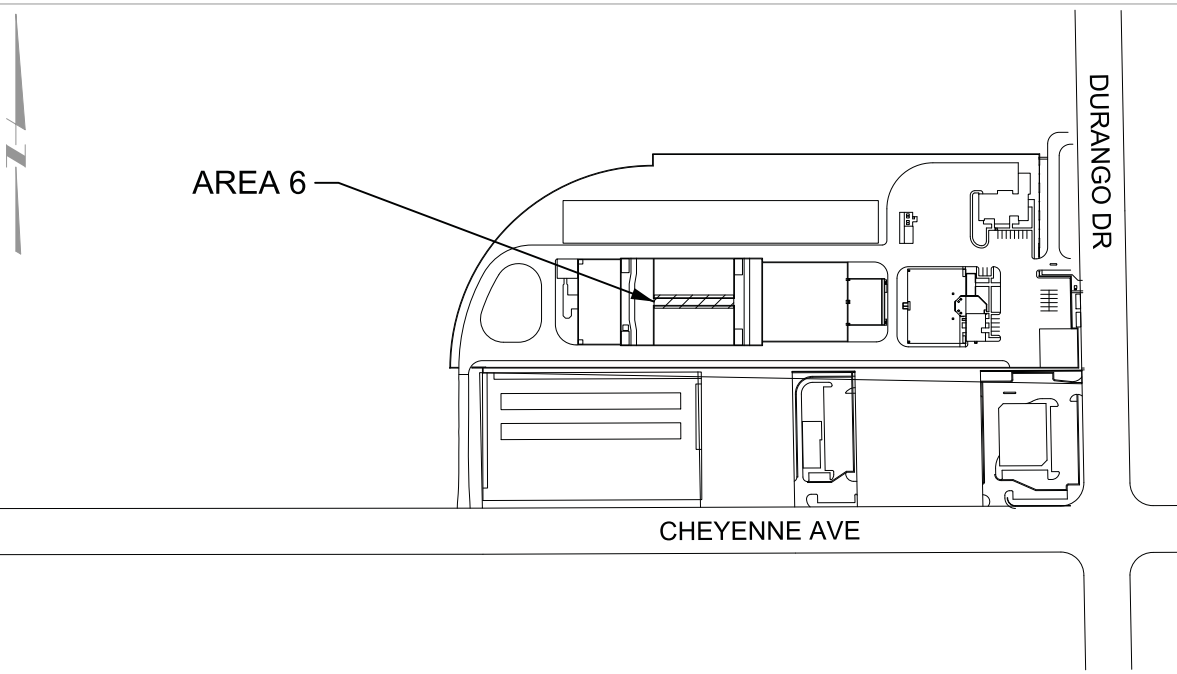


PLAN



A SECTION

KEY PLAN

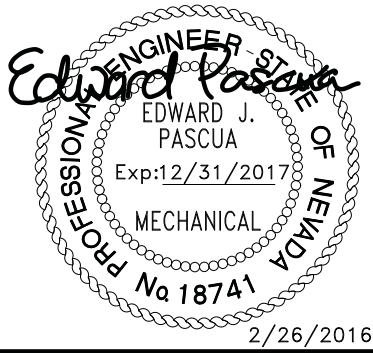
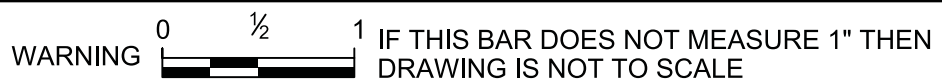


GENERAL SHEET NOTES

1. PROVIDE CONDENSATE DRAIN AT ALL LOW POINTS IN DUCTWORK AND AT FAN INTAKE AND EXHAUST PER DETAIL H-901 SIMILAR. LOCATION AND NUMBER OF DRAINS INDICATED IN THE DRAWINGS IS APPROXIMATE. CONTRACTOR SHALL CONFIRM LOCATION AND NUMBER OF DRAINS DURING CONSTRUCTION
2. DUCTWORK ELEVATIONS PROVIDED ARE NOMINAL. CONTRACTOR MUST CONFIRM AND COORDINATE ALL ELEVATIONS
3. DUCTWORK SHALL BE SLOPED TO LOW POINTS FOR CONDENSATE DRAINAGE
4. DUCT SUPPORT AND BRACING DETAILS PROVIDED ARE FOR ESTIMATING PURPOSES ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND PROVIDE DUCT SUPPORT DESIGN AND LAYOUT PER SPECIFICATION
5. CONTRACTOR SHALL ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN OR TRENCH. SEE DETAIL H-901
6. DUCT SUPPORTS NOT SHOWN FOR CLARITY
7. FOR FAN INTAKES, DUCTWORK MUST SLOPE IN OPPOSITE DIRECTION OF THE AIR FLOW

SHEET KEYNOTES

- A. IN LINE FANS SHALL BE CLEANED AND INSPECTED BEFORE BEING RE-INSTALLED. CONTRACTOR SHALL COORDINATE WITH OWNER TO REPLACE PARTS AND/OR REFURBISH FANS AS NECESSARY
- B. LOCATION OF FANS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY FAN LOCATIONS PRIOR TO REMOVAL AND RE-INSTALL FANS IN SAME LOCATION AS EXISTING
- C. PROVIDE 1" DRAIN PER DETAIL H-901 SIMILAR. ROUTE DRAIN TO NEAREST FLOOR DRAIN
- D. INSTALL NEW MOTOR CONTROL DAMPER IN HORIZONTAL POSITION. MOUNT ODOR CONTROL DAMPER ACTUATORS ON PLATES OR BRACKETS SEPARATED FROM THE DUCTWORK.



DESCRIPTION			
REV	DATE	BY	DESCRIPTION
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT			
DESIGNED: E. PASQUA DRAWN: A. MANJREKAR CHECKED: M. PRICE			
DURANGO HILLS WATER RESOURCE CENTER UPGRADES MECHANICAL AERATION BASIN TUNNEL PLAN AND SECTION			
SCALE: 1/8"=1'-0"			
SHEET: 06M-1 10506196			

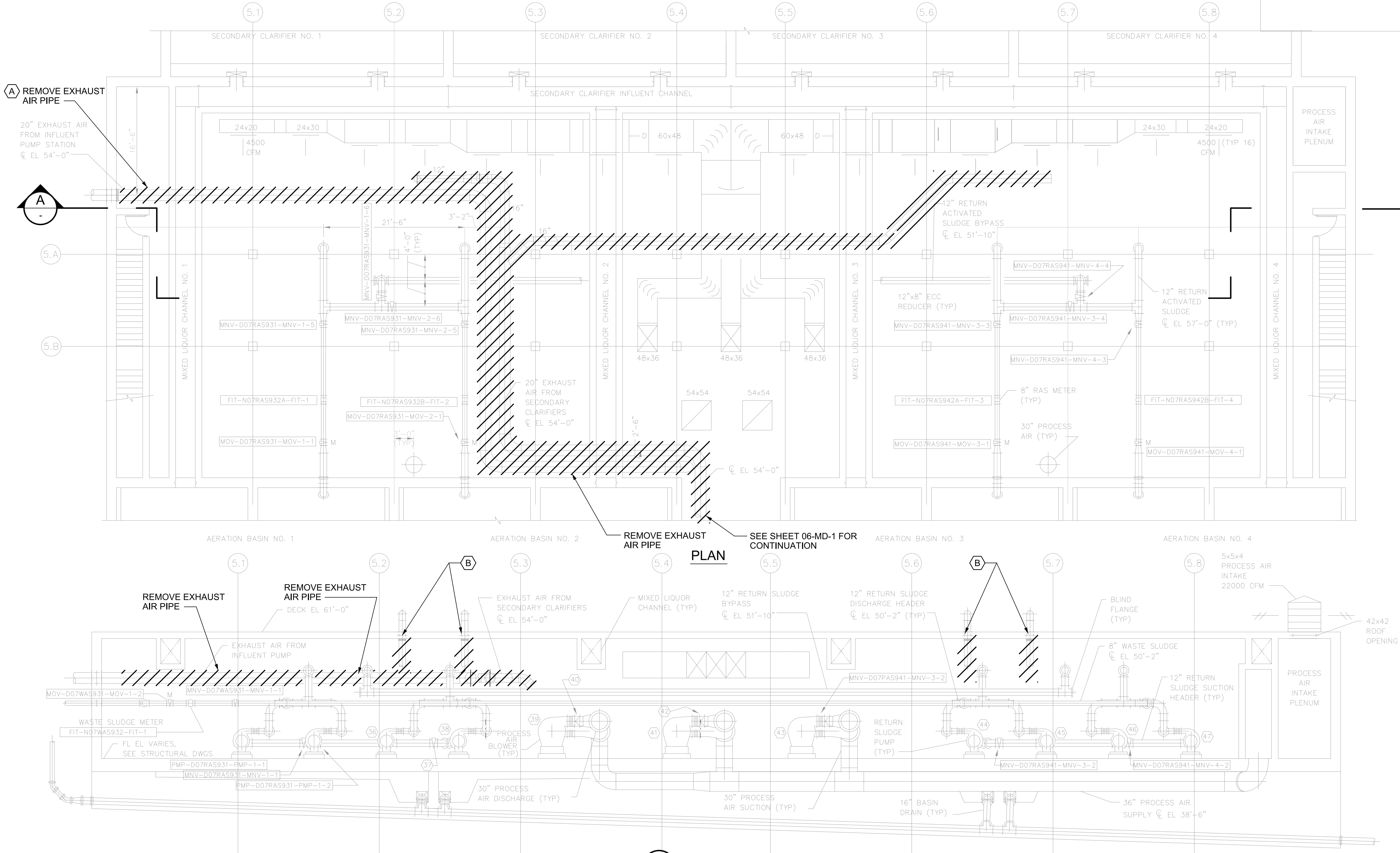
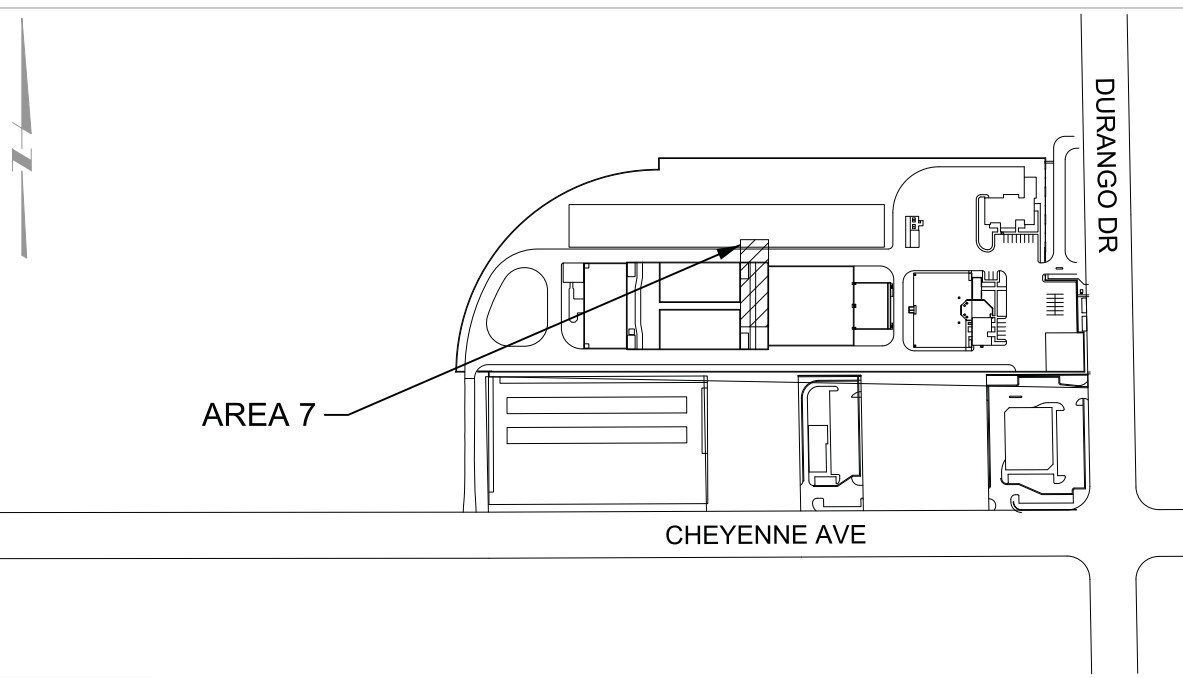
SHEET KEYNOTES

- A. LIMIT OF DEMOLITION SHALL BE TO EXISTING FLANGE AT INTERIOR CONCRETE PENETRATION
- B. LIMIT OF DEMOLITION SHALL BE TO EXISTING FLANGE BELOW BOTTOM OF CONCRETE ON RISER AT EACH AERATION BASIN

GENERAL SHEET NOTES

1. CONTRACTOR TO PROTECT IN PLACE ALL REMAINING EQUIPMENT AND DUCTWORK
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF REMOVED METAL DUCTWORK, FANS, DAMPERS, SUPPORTS, AND APPURTENANCES
3. CONTRACTOR SHALL REMOVE EXISTING SUPPORTS WITH DUCTWORK

KEY PLAN

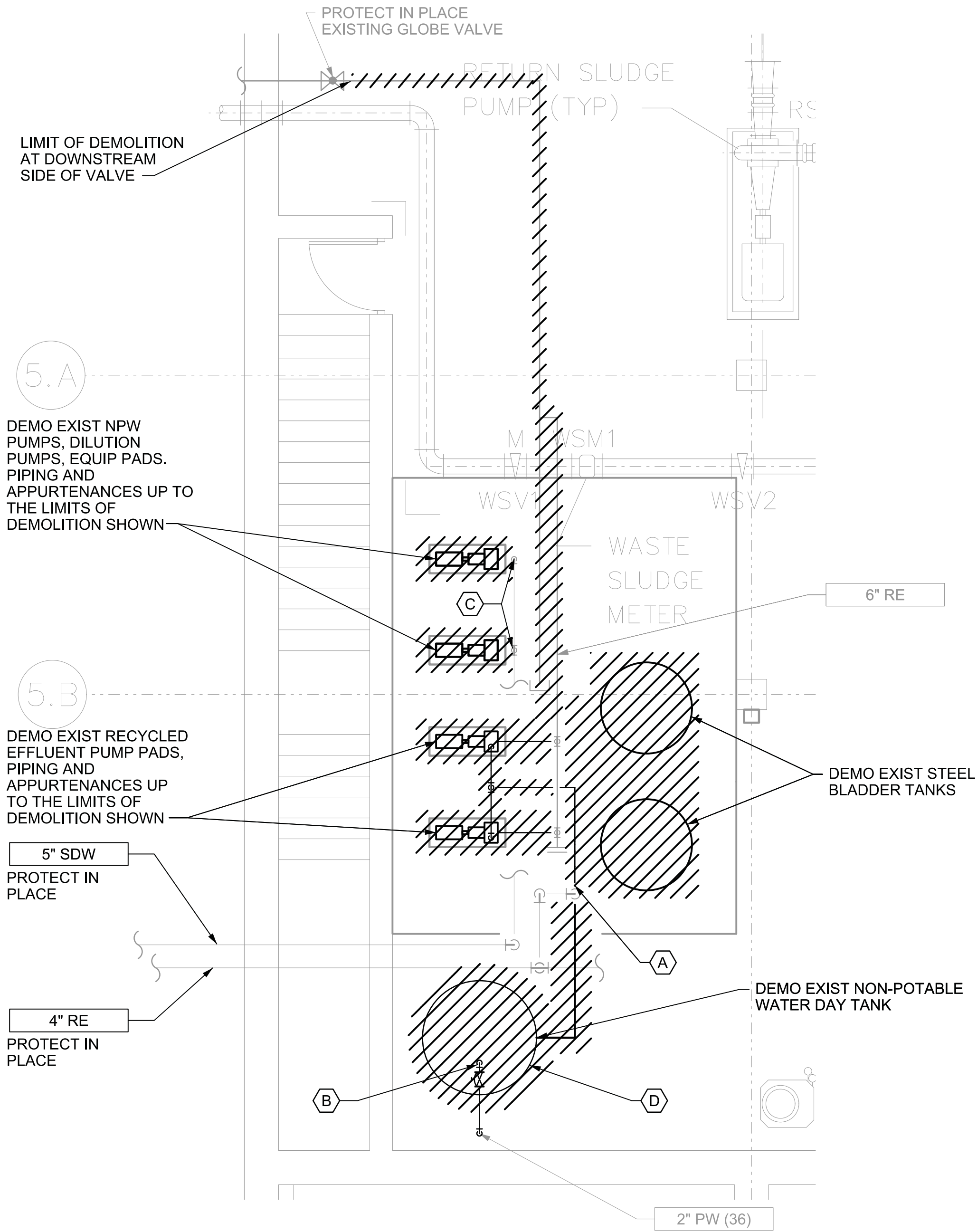


SECTION



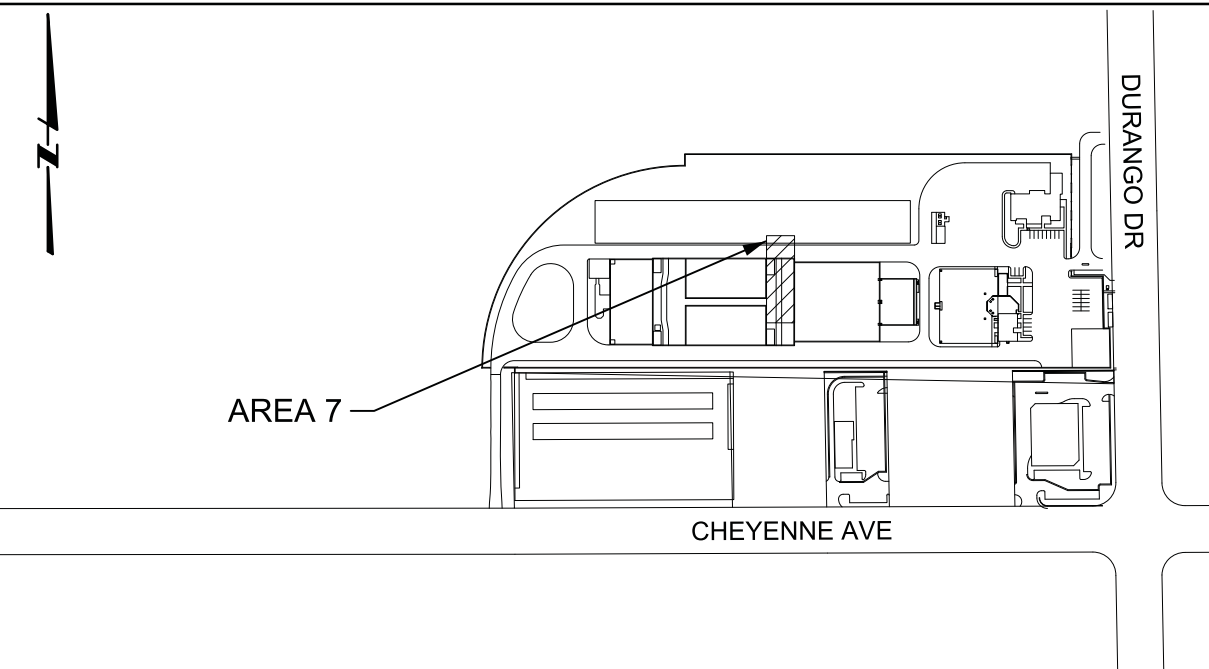
WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT	
DESIGNED E.PASCUA	DRAWN A.MANJREKAR
CHECKED M.PRICE	
DURANGO HILLS WATER RESOURCE CENTER UPGRADES MECHANICAL DEMOLITION OC DUCTING - EAST GALLERY PLAN AND SECTION	
SCALE: 1/8"=1'-0"	SHEET: 07MD-1
10506196	



PLAN - FLOOR ELEVATION 42'-0"

KEY PLAN

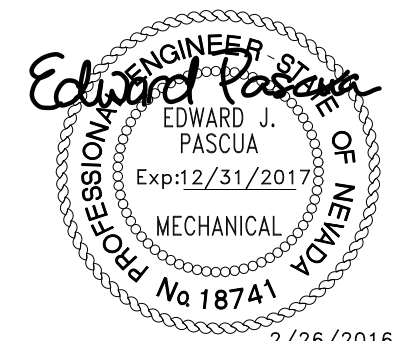


GENERAL SHEET NOTES

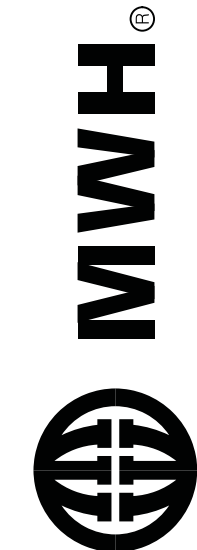
- CONTRACTOR SHALL VERIFY LOCATIONS AND SIZES OF ALL EXISTING PIPE
- PIPE SUPPORTS ON PIPING NOT SHOWN FOR CLARITY. CONTRACTOR SHALL PROVIDE SUPPORTS FOR ALL PIPE BY MEANS SIMILAR TO EXISTING AND IN ACCORDANCE WITH SECTION 43 10 52
- PUMP MOTORS SHALL MEET THE REQUIREMENTS OF DIVISION 26 SPECIFICATIONS
- THE CONTRACTOR SHALL MAINTAIN SUPPLY OF NON-POTABLE WATER WITH A WORKING PRESSURE OF 75 PSI DURING CONSTRUCTION AND SHUT DOWNS.
- CONTRACTOR SHALL SALVAGE AND REUSE EXISTING PIPE SUPPORTS FROM THE CEILING

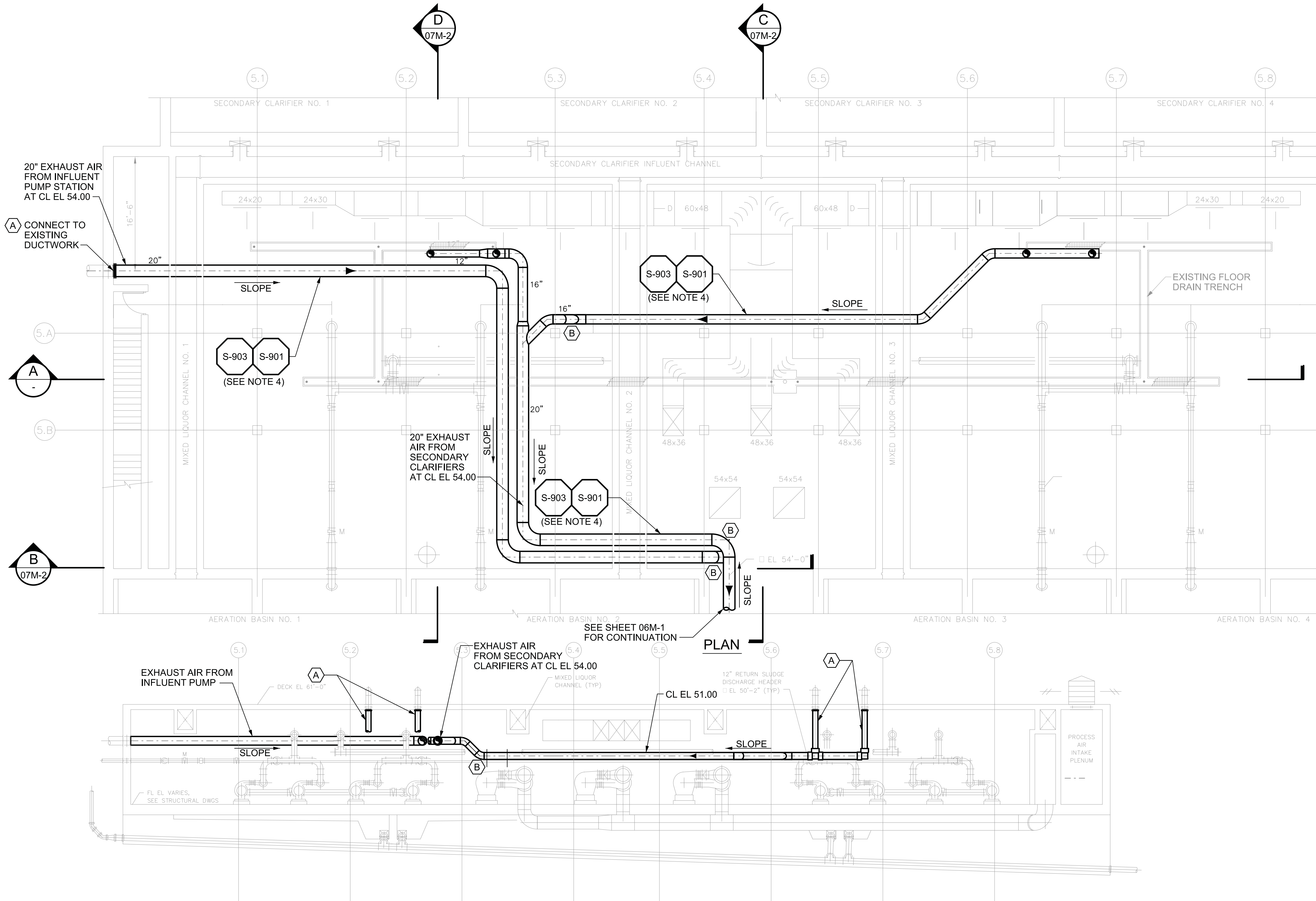
SHEET KEYNOTES

- LIMIT OF DEMOLITION IS UP TO THE UPSTREAM SIDE OF THE EXIST PVC TEE LOCATED AT FLOOR LEVEL
- LIMIT OF DEMOLITION IS UP TO THE FLANGE ON THE EXIST TEE AT CEILING LEVEL INCLUDING THE EXIST VALVE. INSTALL BLIND FLANGE ON EXIST TEE
- LIMIT OF DEMOLITION OF DILUTION PUMP DISCHARGE PIPING IS UP TO THE DISCHARGE HEADER, PROTECT HEADER IN PLACE.
- CONTRACTOR SHALL COORDINATE REMOVAL OF EXISTING TANKS WITH OWNER. REMOVAL OF EXISTING SKYLIGHT MAY BE REQUIRED.



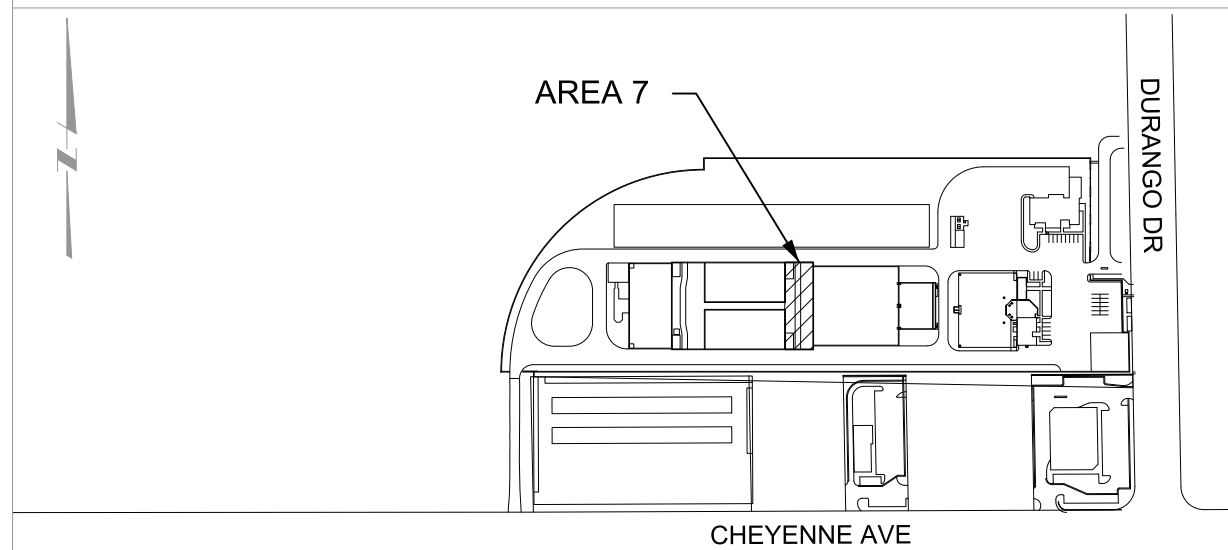
WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT		REV	DATE	BY	DESCRIPTION
		DESIGNED	E. PASCUA		
		DRAWN	A. MANJREKAR		
		CHECKED	M. PRICE		
DURANGO HILLS WATER RESOURCE CENTER UPGRADES					
MECHANICAL DEMOLITION NPW PUMP DETAILS					
SCALE: 1/4" = 1'-0"					
SHEET: 07MD-2					
10506196					



A SECTION

KEY PLAN



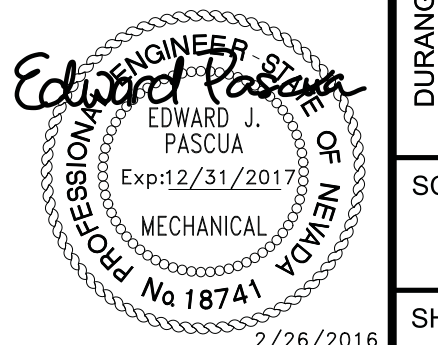
GENERAL SHEET NOTES

1. PROVIDE CONDENSATE DRAIN AT ALL LOW POINTS IN DUCTWORK AND AT FAN INTAKE AND EXHAUST PER DETAIL H-901 SIMILAR. LOCATION AND NUMBER OF DRAINS INDICATED IN THE DRAWINGS IS APPROXIMATE. CONTRACTOR SHALL CONFIRM LOCATION AND NUMBER OF DRAINS DURING CONSTRUCTION
2. DUCTWORK ELEVATIONS PROVIDED ARE NOMINAL
3. DUCTWORK SHALL BE SLOPED TO LOW POINTS FOR CONDENSATE DRAINAGE
4. DUCT SUPPORT AND BRACING DETAILS PROVIDED ARE FOR ESTIMATING PURPOSES ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND PROVIDE DUCT SUPPORT DESIGN AND LAYOUT PER SPECIFICATION
5. DUCT SUPPORTS NOT SHOWN FOR CLARITY
6. CONTRACTOR SHALL ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN OR TRENCH. SEE DETAIL H-901

SHEET KEYNOTES

- A. CONNECT NEW FRP DUCTWORK TO EXISTING METAL DUCTWORK WITH FLANGES AND GASKET
- B. PROVIDE 1" DRAIN PER DETAIL H-901 SIMILAR. ROUTE DRAIN TO NEAREST FLOOR DRAIN

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



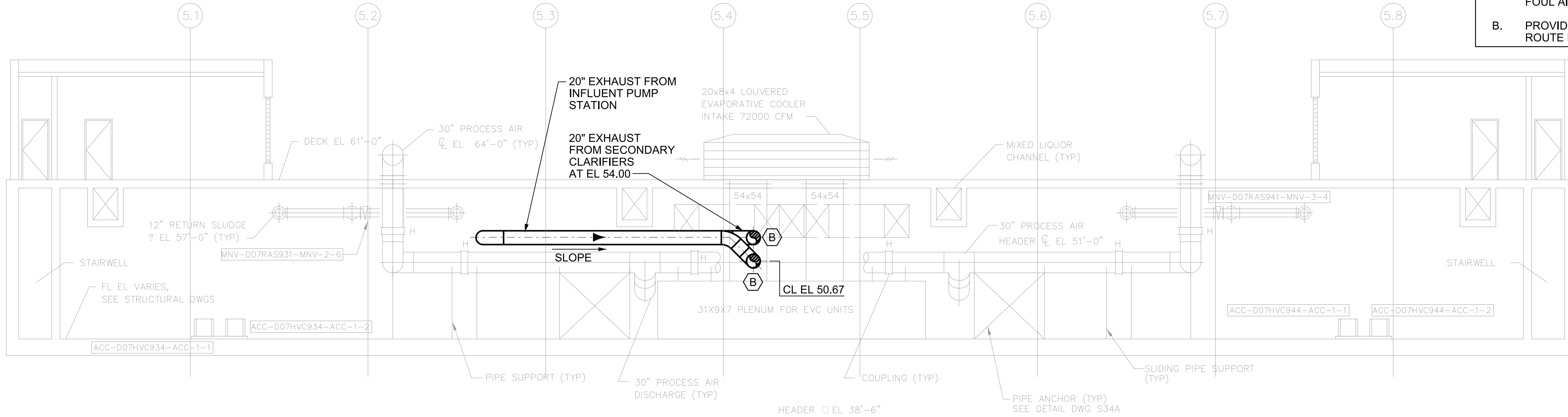
DESCRIPTION		BY	DATE	REV
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT				
DESIGNED E.PASCUA				
DRAWN A.MANJREKAR				
CHECKED M.PRICE				
DURANGO HILLS WATER RESOURCE CENTER UPGRADES				
MECHANICAL				
OC DUCTING - EAST GALLERY				
PLAN AND SECTION				
SCALE:				
1/8"=1'-0"				
SHEET:				
07M-1				
10506196				

GENERAL SHEET NOTES

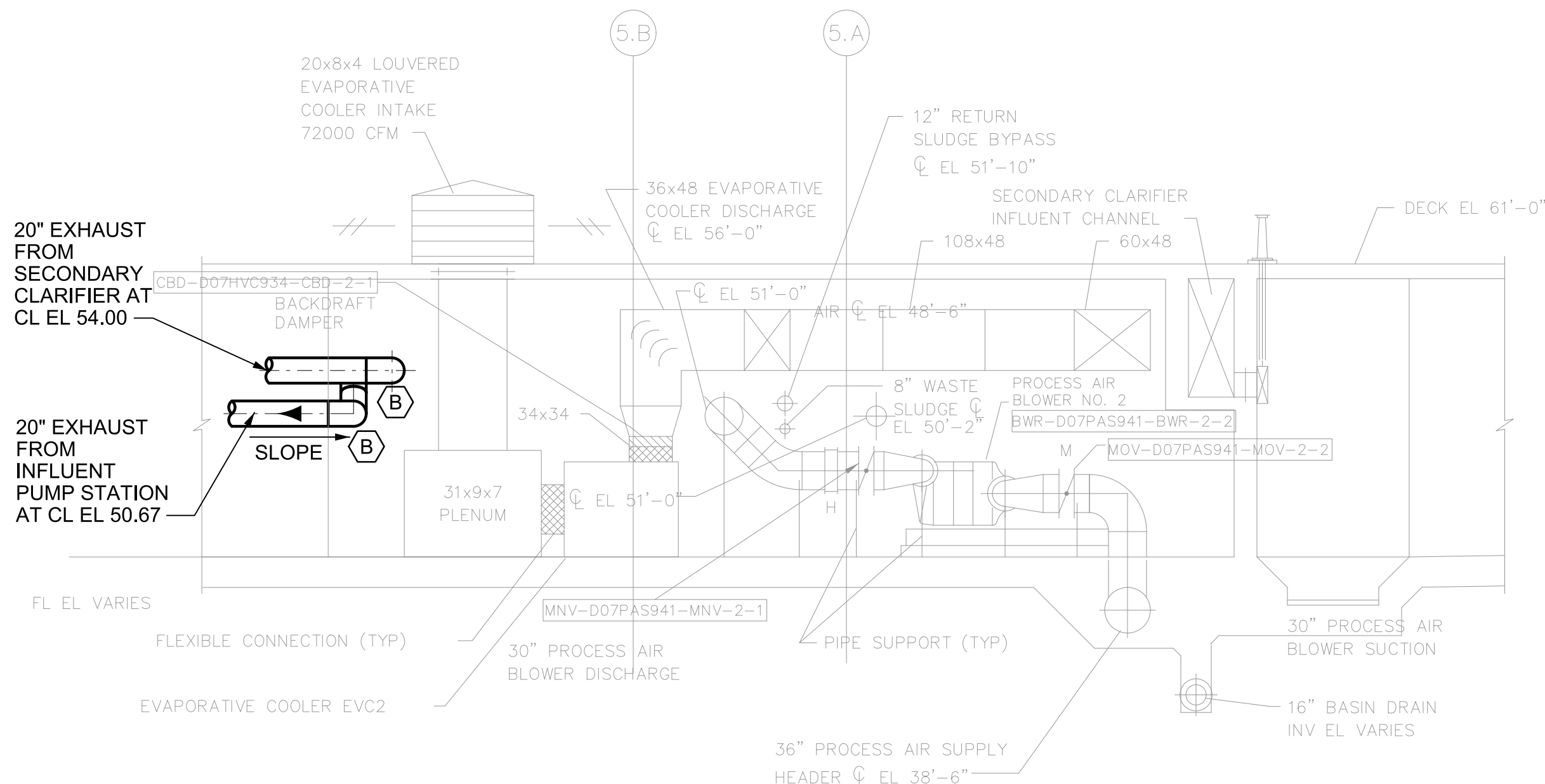
- DUCT HANGERS NOT SHOWN FOR CLARITY
- DUCTWORK SHALL BE SUPPORTED BY GRAVITY SUPPORTS EVERY 10 FEET (MIN) OR AS RECOMMENDED BY THE MANUFACTURER. SEE DETAIL S-902. APPROXIMATE LOCATION OF SEISMIC SUPPORTS ARE SHOWN. CONTRACTOR TO COORDINATE EXACT LOCATION WITH EXISTING UTILITIES

SHEET KEYNOTES

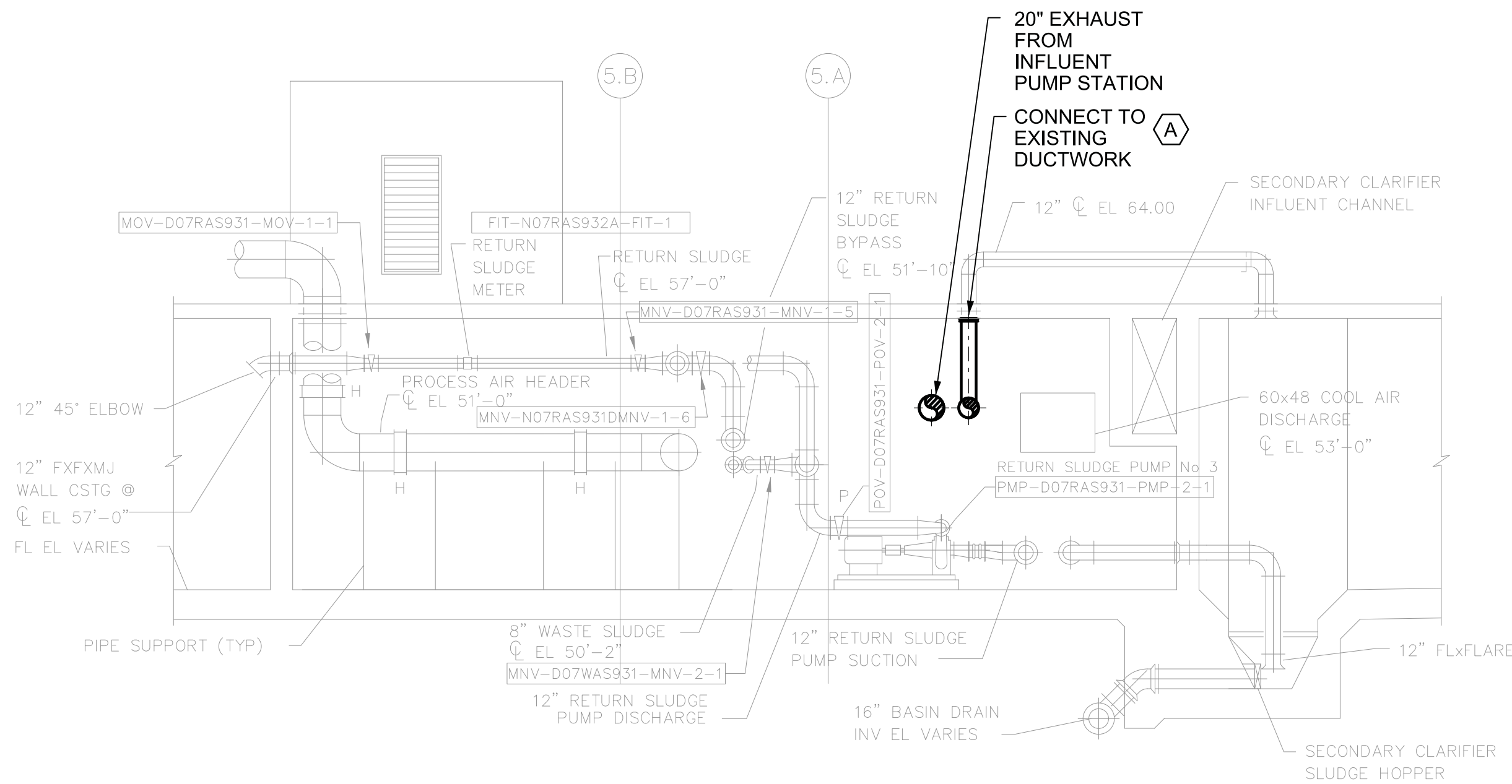
- A. CONNECT NEW FRP DUCTWORK TO EXISTING METAL DUCTWORK WITH FLANGES AND GASKET (TYP AT EACH SECONDARY CLARIFIER FOUL AIR RISER)
- B. PROVIDE 1" DRAIN PER DETAIL H-901 SIMILAR. ROUTE DRAIN TO NEAREST FLOOR DRAIN



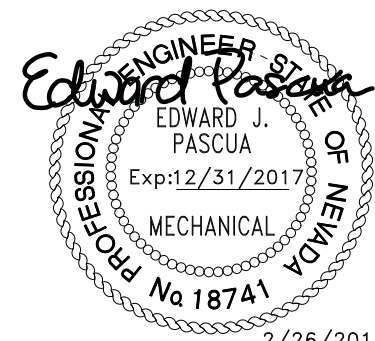
B
SECTION
07M-1



C
SECTION
07M-1

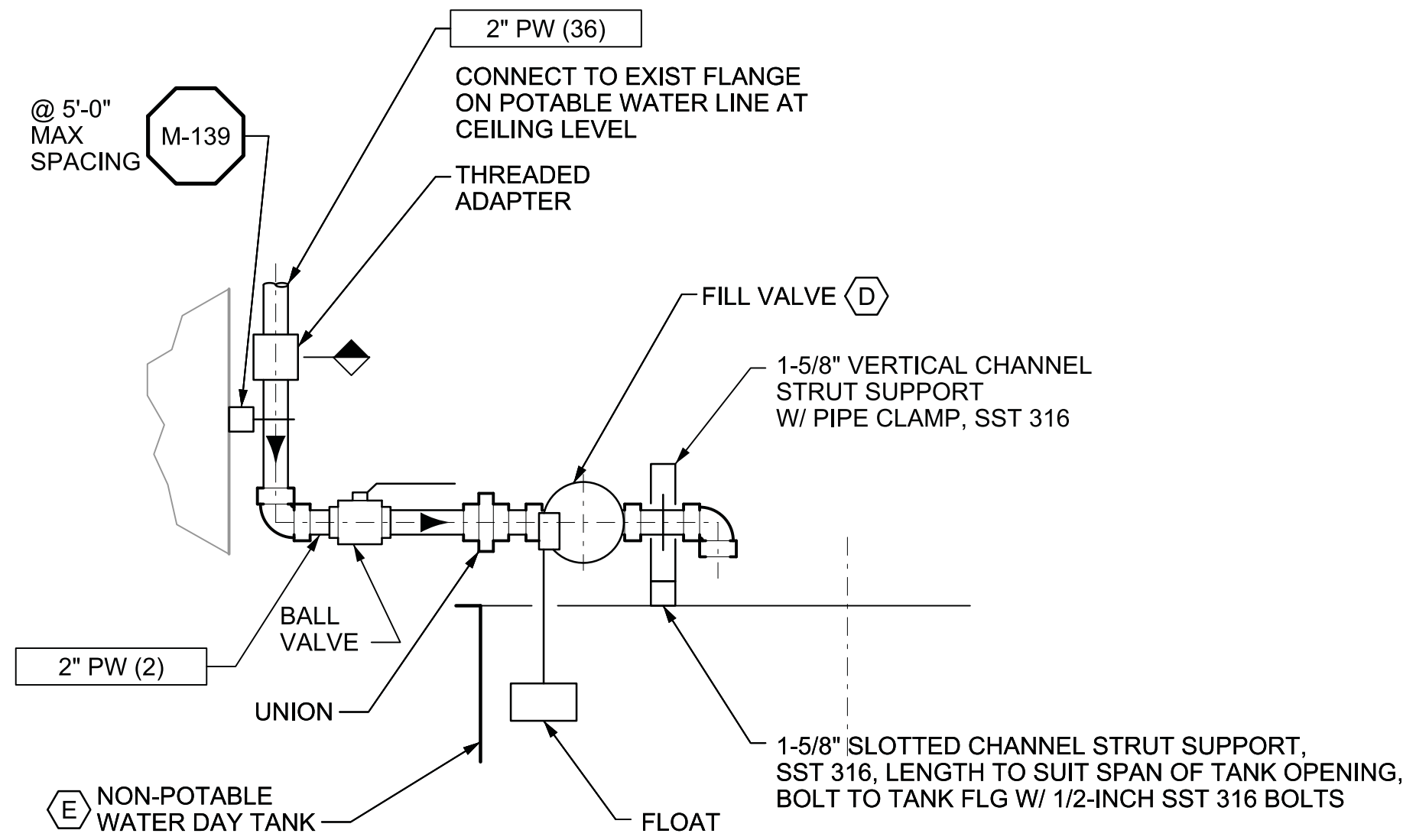
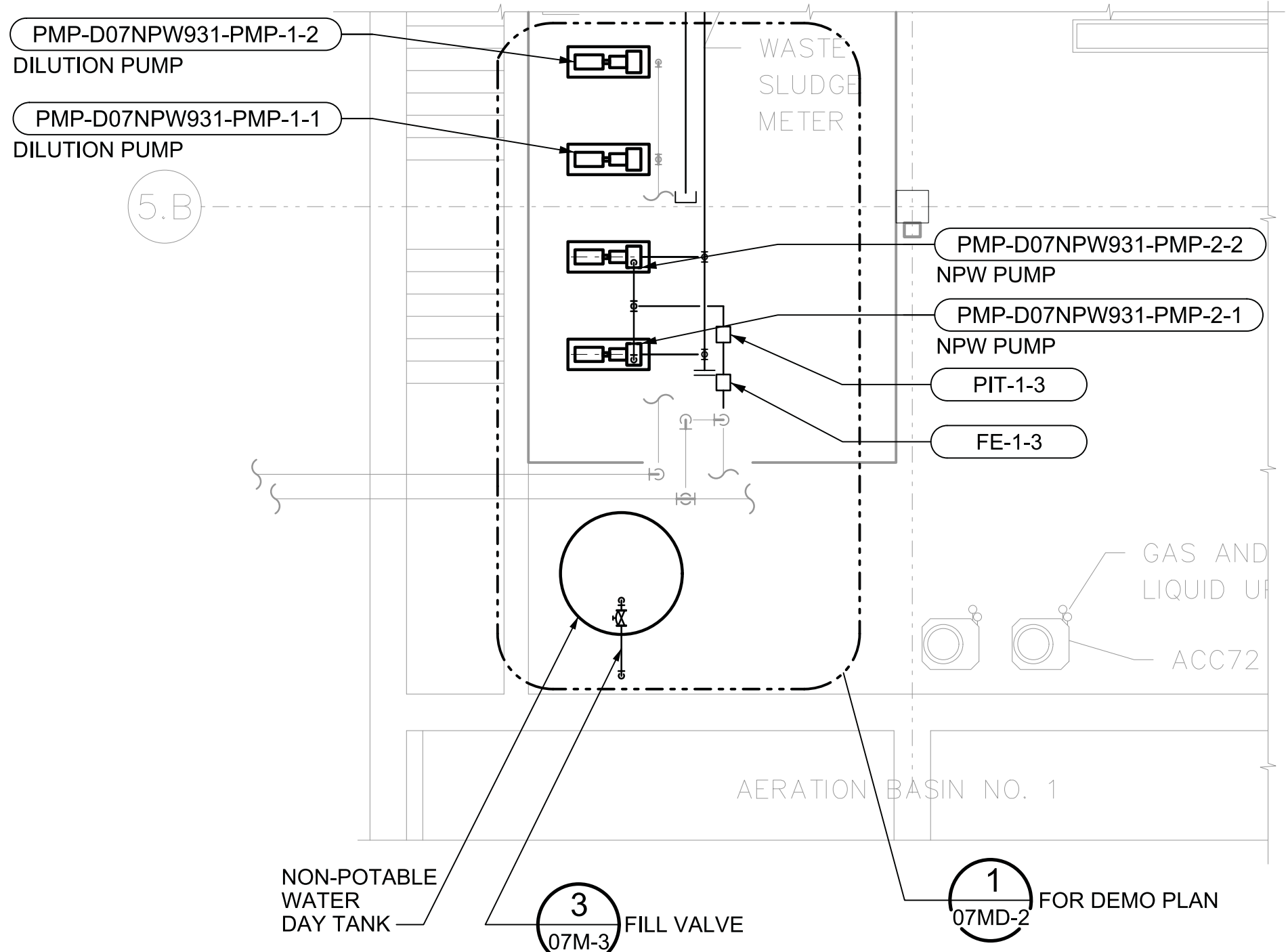


D
SECTION
07M-1

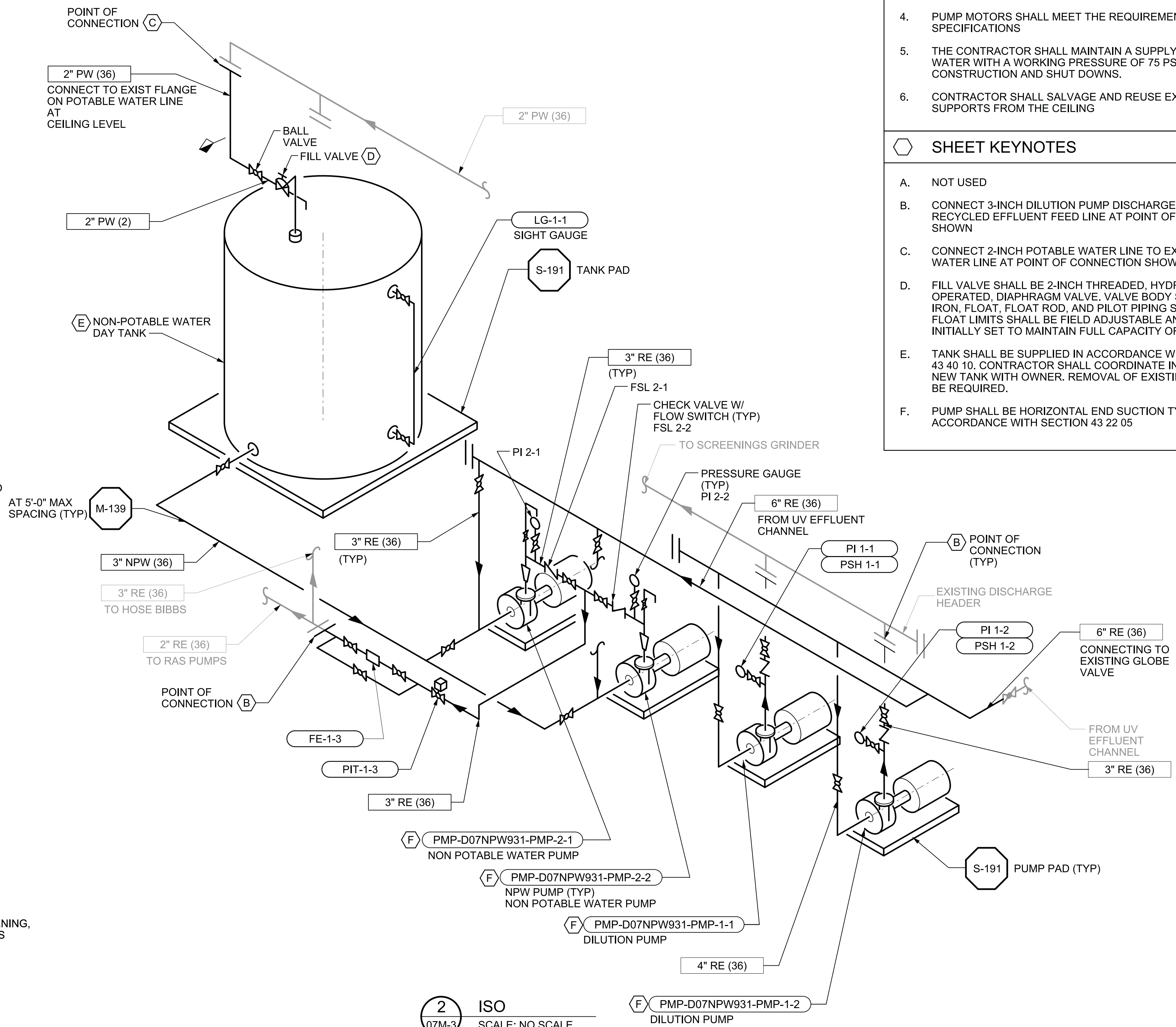


WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED E.PASCUA		DRAWN A.MANJREKAR		CHECKED M.PRICE	
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT					
MECHANICAL OC DUCTING - EAST GALLERY SECTIONS					
SCALE: 1/8"=1'-0"					
SHEET: 07M-2 10506196					



3 DETAIL
07M-3 SCALE: 1" = 1'-0"



2 ISO
07M-3 SCALE: NO SCALE

GENERAL SHEET NOTES

- ISOMETRIC SHOWN FOR GENERAL ARRANGEMENT OF PIPING AND EQUIPMENT AND INTENDED AS A GUIDE ONLY. CONTRACTOR SHALL INSTALL TO SUIT FIELD CONDITIONS.
- CONTRACTOR SHALL VERIFY LOCATIONS AND SIZES OF ALL EXISTING PIPE
- PIPE SUPPORTS ON PIPING NOT SHOWN FOR CLARITY. CONTRACTOR SHALL PROVIDE SUPPORTS FOR ALL PIPE BY MEANS SIMILAR TO EXISTING AND IN ACCORDANCE WITH SECTION 43 10 52
- PUMP MOTORS SHALL MEET THE REQUIREMENTS OF DIVISION 26 SPECIFICATIONS
- THE CONTRACTOR SHALL MAINTAIN A SUPPLY OF NON-POTABLE WATER WITH A WORKING PRESSURE OF 75 PSI DURING CONSTRUCTION AND SHUT DOWNS.
- CONTRACTOR SHALL SALVAGE AND REUSE EXISTING PIPE SUPPORTS FROM THE CEILING

SHEET KEYNOTES

- NOT USED
- CONNECT 3-INCH DILUTION PUMP DISCHARGE LINE TO EXISTING RECYCLED EFFLUENT FEED LINE AT POINT OF CONNECTION SHOWN
- CONNECT 2-INCH POTABLE WATER LINE TO EXISTING POTABLE WATER LINE AT POINT OF CONNECTION SHOWN
- FILL VALVE SHALL BE 2-INCH THREADED, HYDRAULICALLY OPERATED, DIAPHRAGM VALVE. VALVE BODY SHALL BE DUCTILE IRON, FLOAT, FLOAT ROD, AND PILOT PIPING SHALL BE SST 316, FLOAT LIMITS SHALL BE FIELD ADJUSTABLE AND SHALL BE INITIALLY SET TO MAINTAIN FULL CAPACITY OF THE DAY TANK
- TANK SHALL BE SUPPLIED IN ACCORDANCE WITH SECTION 43 40 10. CONTRACTOR SHALL COORDINATE INSTALLATION OF NEW TANK WITH OWNER. REMOVAL OF EXISTING SKYLIGHT MAY BE REQUIRED.
- PUMP SHALL BE HORIZONTAL END SUCTION TYPE, SUPPLIED IN ACCORDANCE WITH SECTION 43 22 05

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

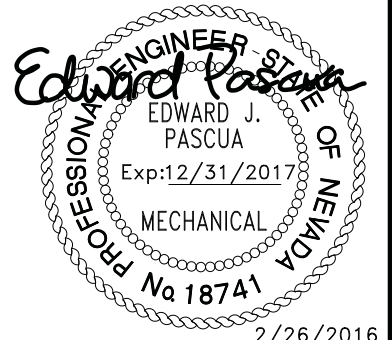


DESIGNED E PASCUA
DRAWN A MANJREKAR
CHECKED M PRICE

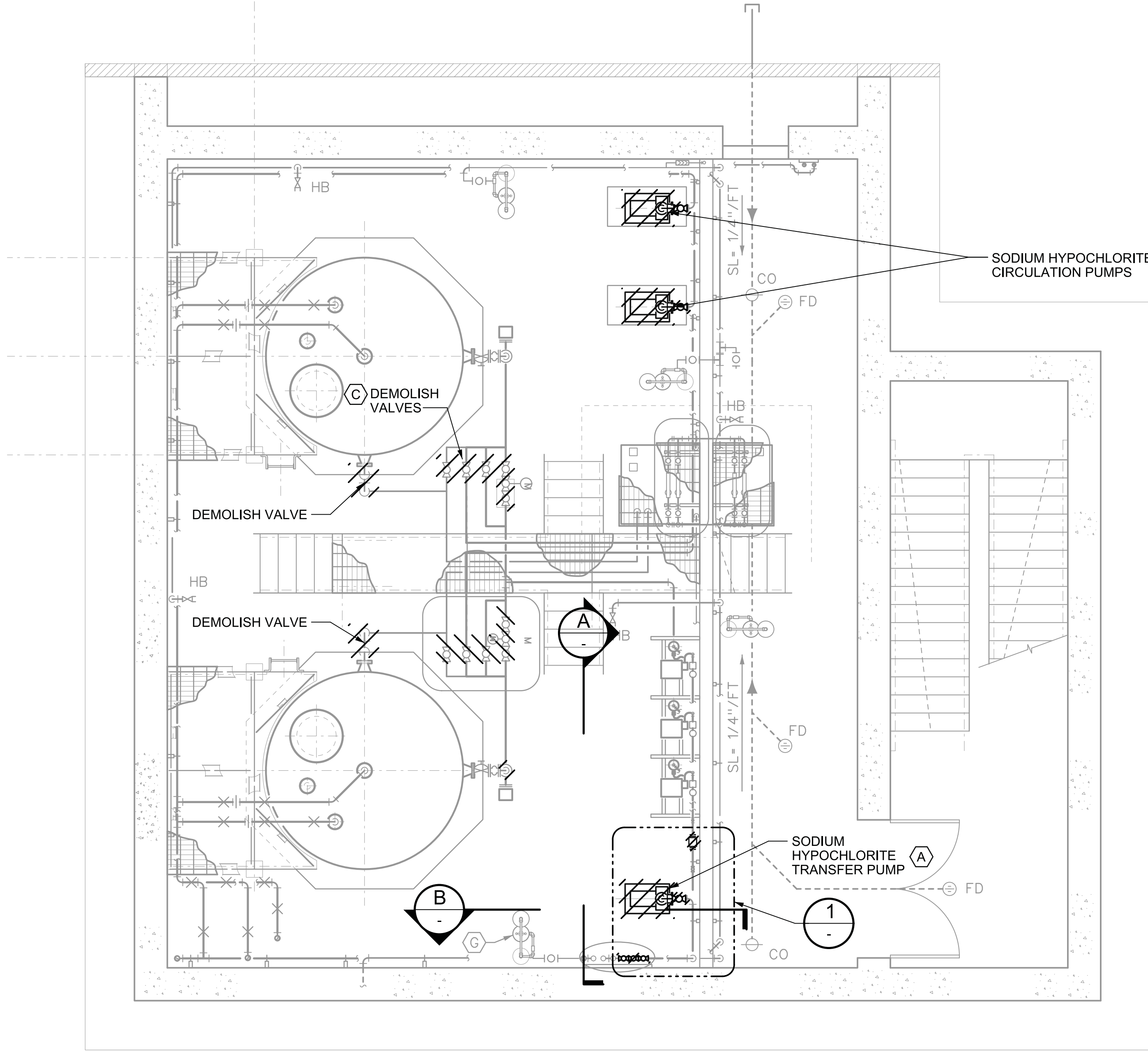
DURANGO HILLS WATER RESOURCE CENTER UPGRADES
MECHANICAL
NPW PUMPS AND DILUTION PUMPS
DETAILS

SHEET:
AS SHOWN

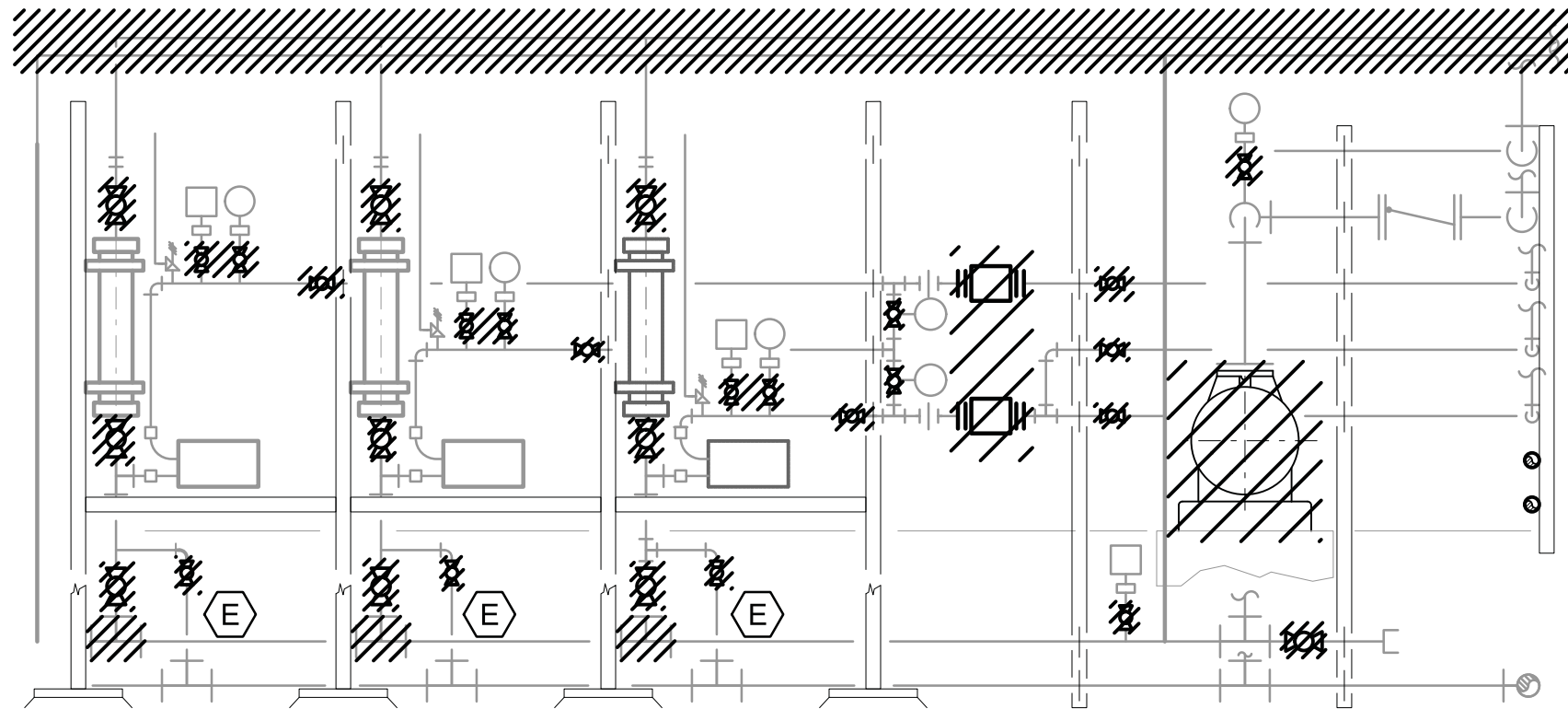
SHEET:
07M-3
10506196



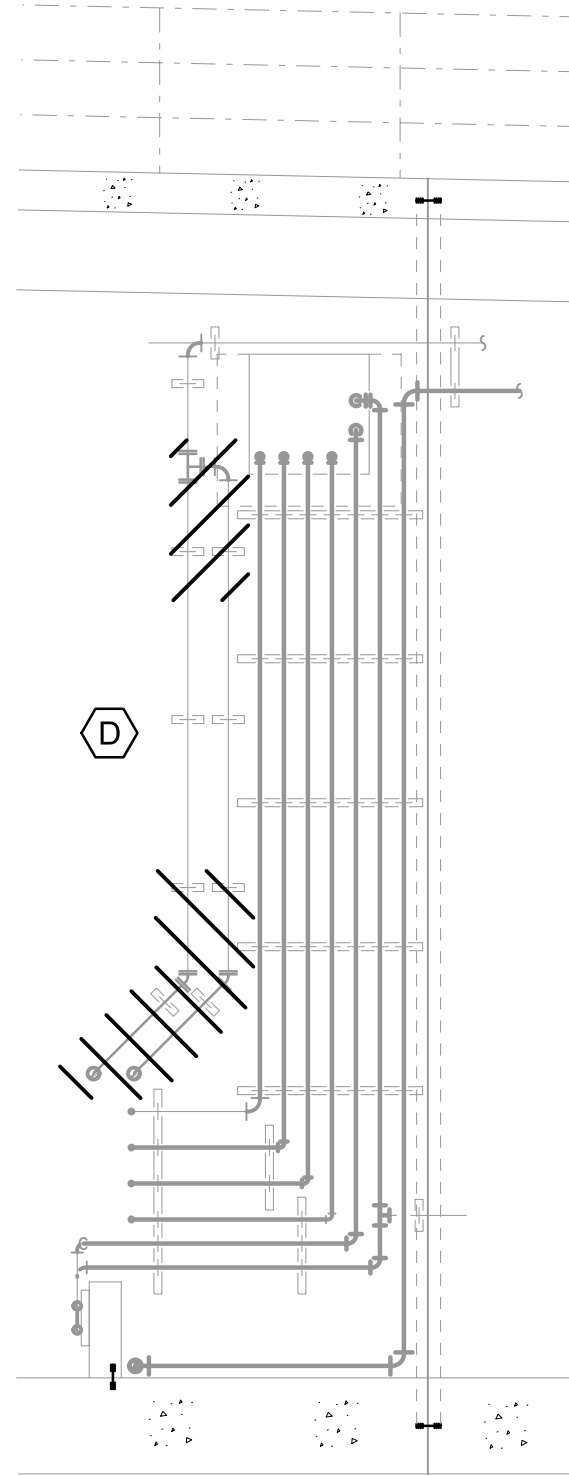
WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



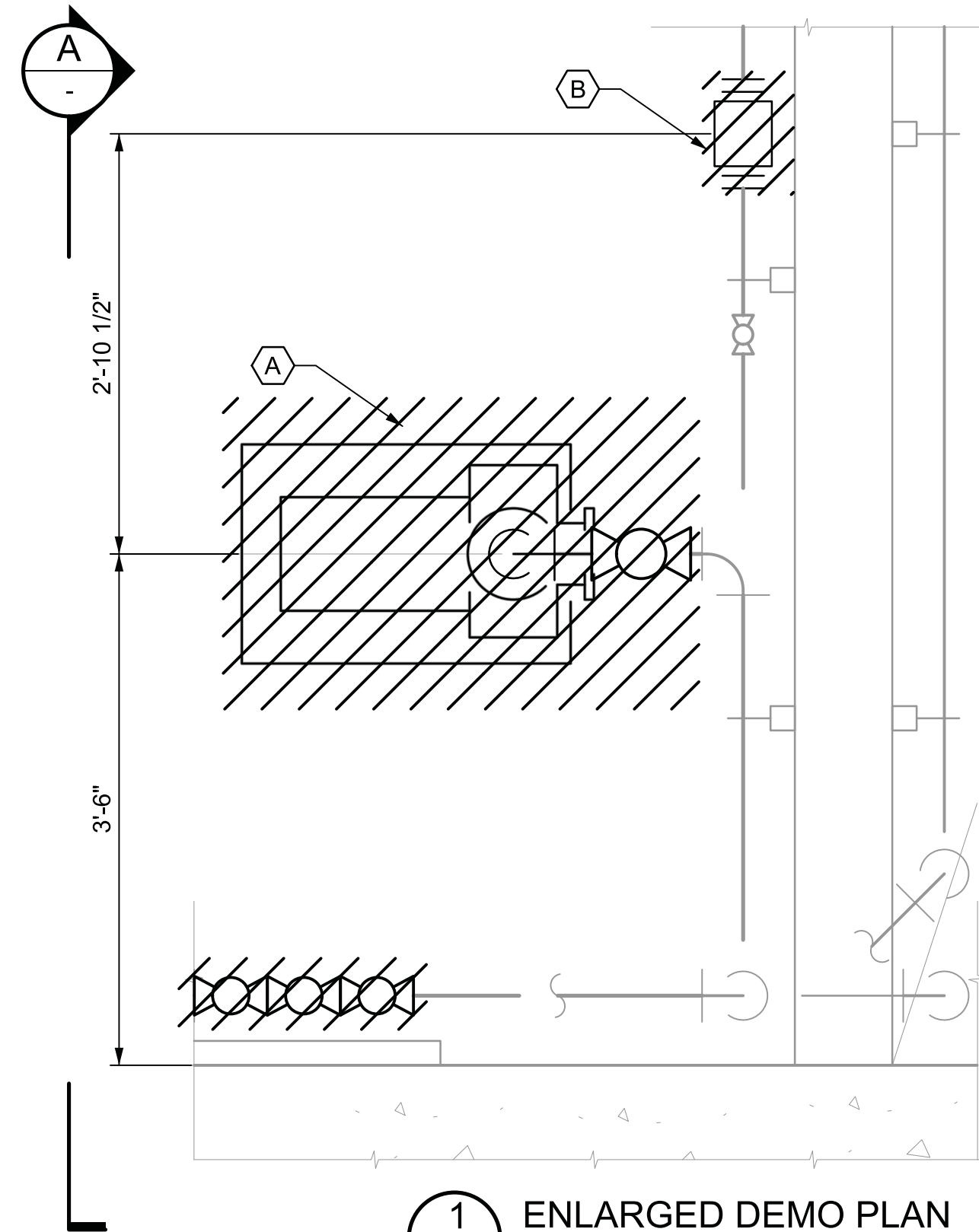
PLAN
SCALE: 1/4" = 1'-0"



A SECTION
NOT TO SCALE

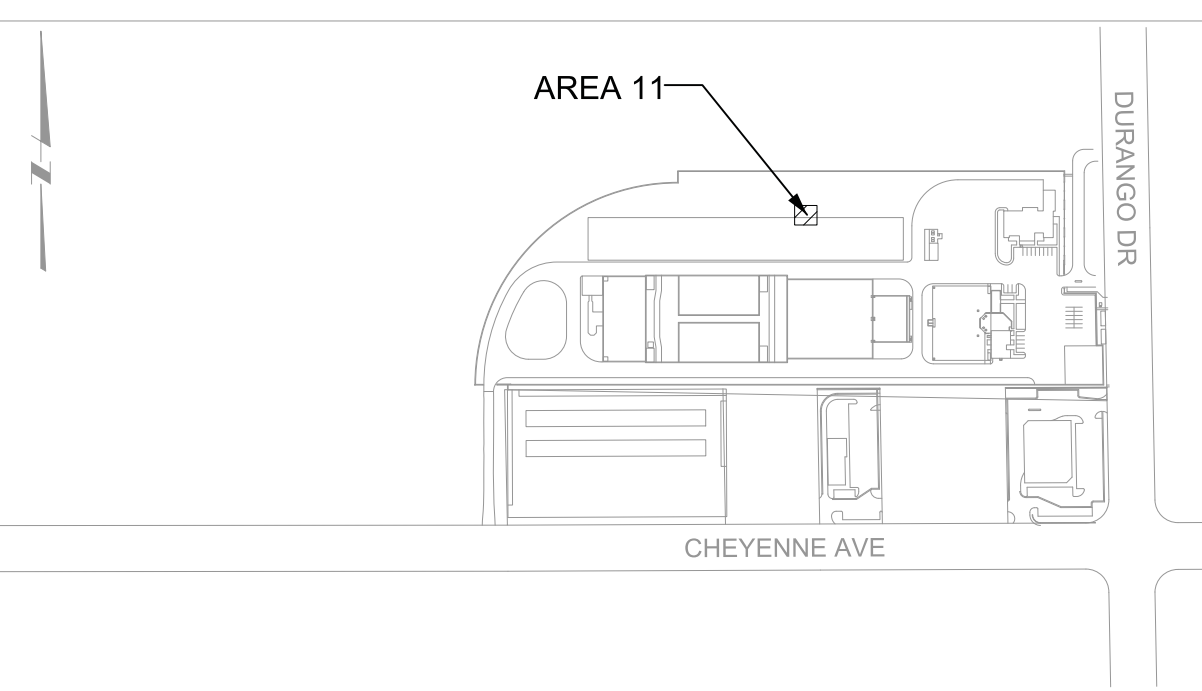


B SECTION
SCALE: 1/4" = 1'-0"



1 ENLARGED DEMO PLAN
SCALE: 1" = 1'-0"

KEY PLAN



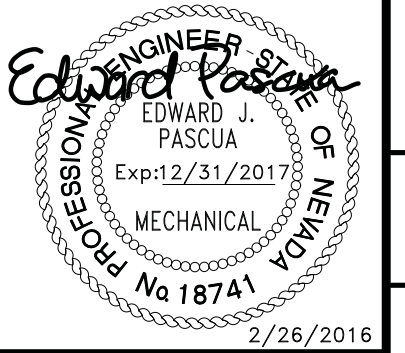
GENERAL SHEET NOTES

1. CONTRACTOR TO PROTECT IN PLACE ALL REMAINING EQUIPMENT
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF REMOVED EQUIPMENT
3. CONTRACTOR SHALL BE CAUTIONED THAT ANY EXISTING BALL VALVE SIEZED IN THE CLOSED POSITION MAY BE INTERNALLY PRESSURIZED
4. ANY ADDITIONAL BALL VALVES REQUIRED SHALL BE VENTED SEE SECTION 43 30 18
5. CPVC GLUE USED SHALL BE OF THE TYPE SPECIFIED IN SECTION 43 10 62

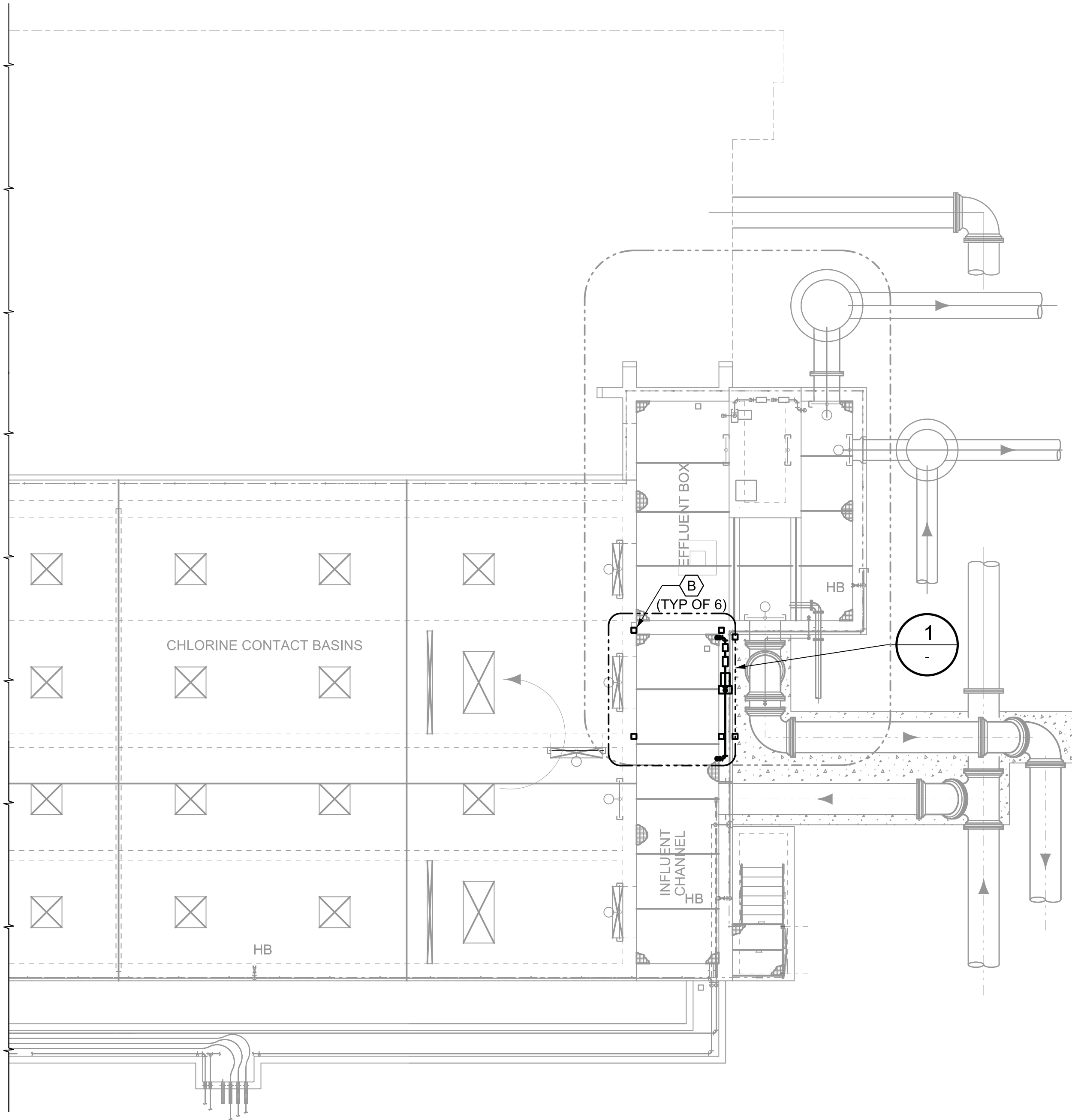
SHEET KEYNOTES

- A. DEMOLISH PUMP, NON-SHRINK GROUT AND PIPING FROM SUCTION VALVE TO DISCHARGE VALVE INCLUDING VALVES AND PRESSURE INDICATOR
- B. DEMOLISH FLOW METERS (TYP OF 2)
- C. CONTRACTOR SHALL DEMOLISH 71 EXISTING BALL VALVES RANGING FROM 1/2" TO 3" DIAMETER ON SODIUM HYPOCHLORITE FEED, VENT, AND DRAIN LINES WITH NEW VENTED BALL VALVES PROVIDED BY OWNER
- D. CONTRACTOR SHALL DEMOLISH SUFFICIENT LENGTH OF EXISTING VENT PIPING FOR CONNECTION OF NEW VENT PIPING TO EXISTING WALL MOUNTED VENT LINES
- E. DEMO EXISTING TEE AND CAP 3" TRANSFER PUMP SUPPLY LINE

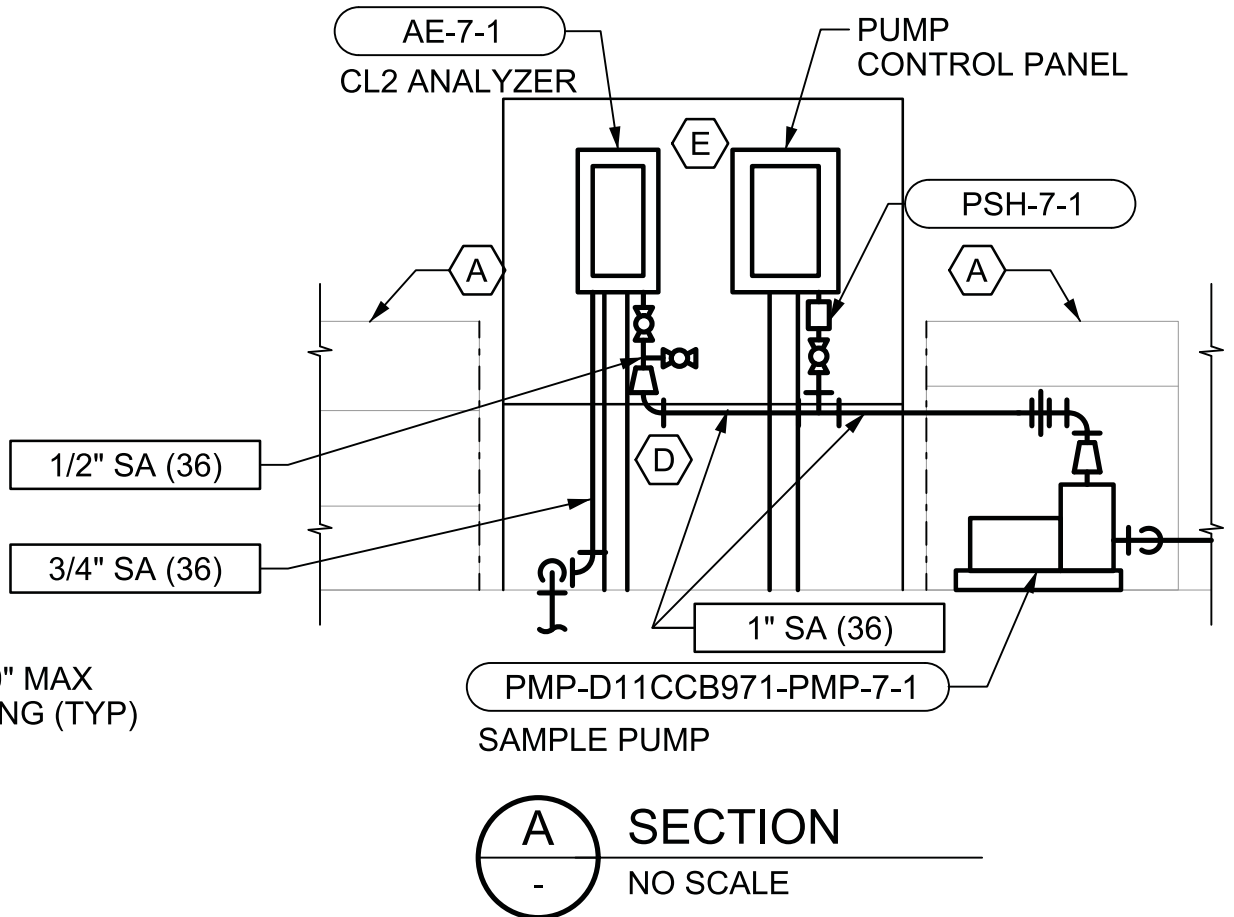
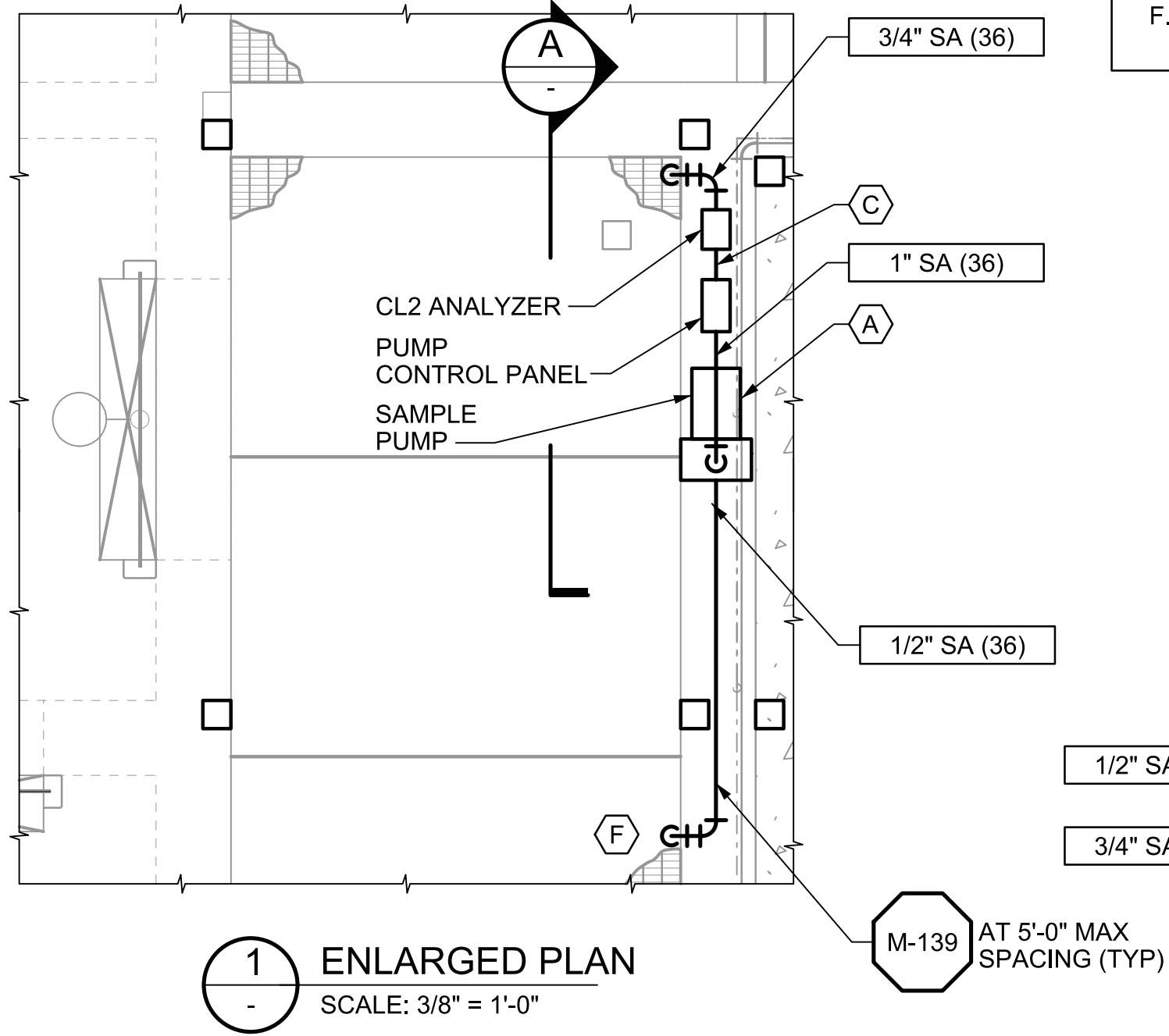
WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



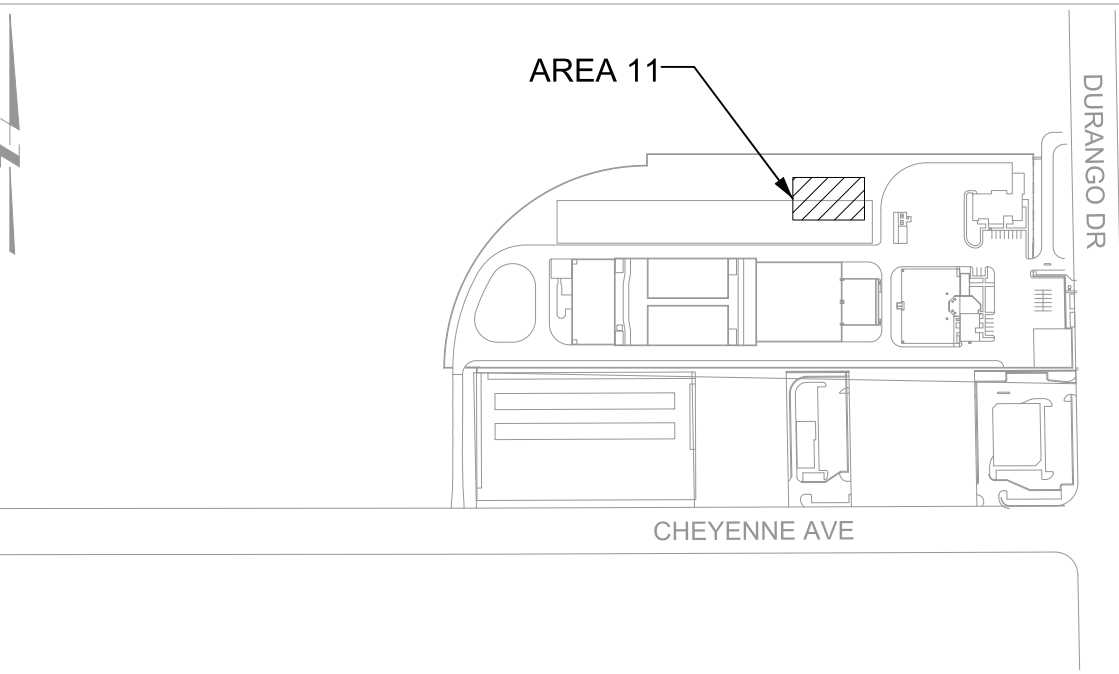
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT		BY	DATE	REV	DESCRIPTION
DESIGNED: E. PASQUA					
DRAWN: P. SAVANHOOR					
CHECKED: M. PRICE					
DURANGO HILLS WATER RESOURCE CENTER UPGRADES MECHANICAL DEMOLITION NEW TREATMENT MODIFICATION PLAN AND SECTION					
SCALE: AS SHOWN					
SHEET: 11MD-1 10506196					



PLAN VIEW
SCALE: 1/8" = 1'-0"



KEY PLAN



GENERAL SHEET NOTES

- PIPE SUPPORTS NOT SHOWN FOR CLARITY. CONTRACTOR SHALL PROVIDE SUPPORTS FOR ALL PIPE IN ACCORDANCE WITH SECTION 431052

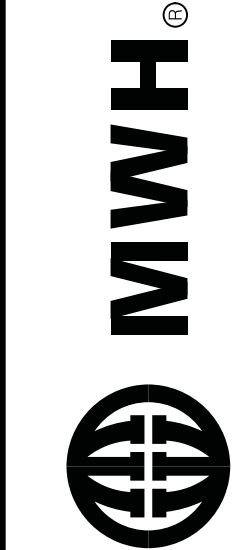
SHEET KEYNOTES

- CONTRACTOR TO MODIFY AND INSTALL NEW HANDRAIL AS NECESSARY FOR INSTALLATION OF PUMP AND ANALYZER
- APPROXIMATE MOUNT LOCATIONS OF PREMANUFACTURED SHADE COVER SUPPORT POSTS. SHADE SCREEN SHALL BE HIP TYPE BY SUN PORTS. COLOR AND TYPE TO MATCH EXISTING SHADE COVER AT EFFLUENT BOX. SEE SECTION 46 01 00 FOR ADDITIONAL REQUIREMENTS
- CONTRACTOR SHALL RELOCATE EXISTING 1" PVC DRAIN TO ACCOMMODATE NEW PUMP, ANALYZER AND PANEL
- CONTRACTOR SHALL PROVIDE PIPE SUPPORTS SEE M-139, SIMILAR
- CONTRACTOR SHALL CONSTRUCT VERTICAL EQUIPMENT PANEL TO MOUNT PUMP CONTROL PANEL, CHLORINE ANALYZER, ASSOCIATED PIPING, AND APPURTENANCES TO MATCH EXISTING PANEL AT EFFLUENT CHANNEL
- CONTRACTOR SHALL COORDINATE LOCATION OF SUPPLY AND RETURN LINES WITH OWNER BEFORE INSTALLATION



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

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

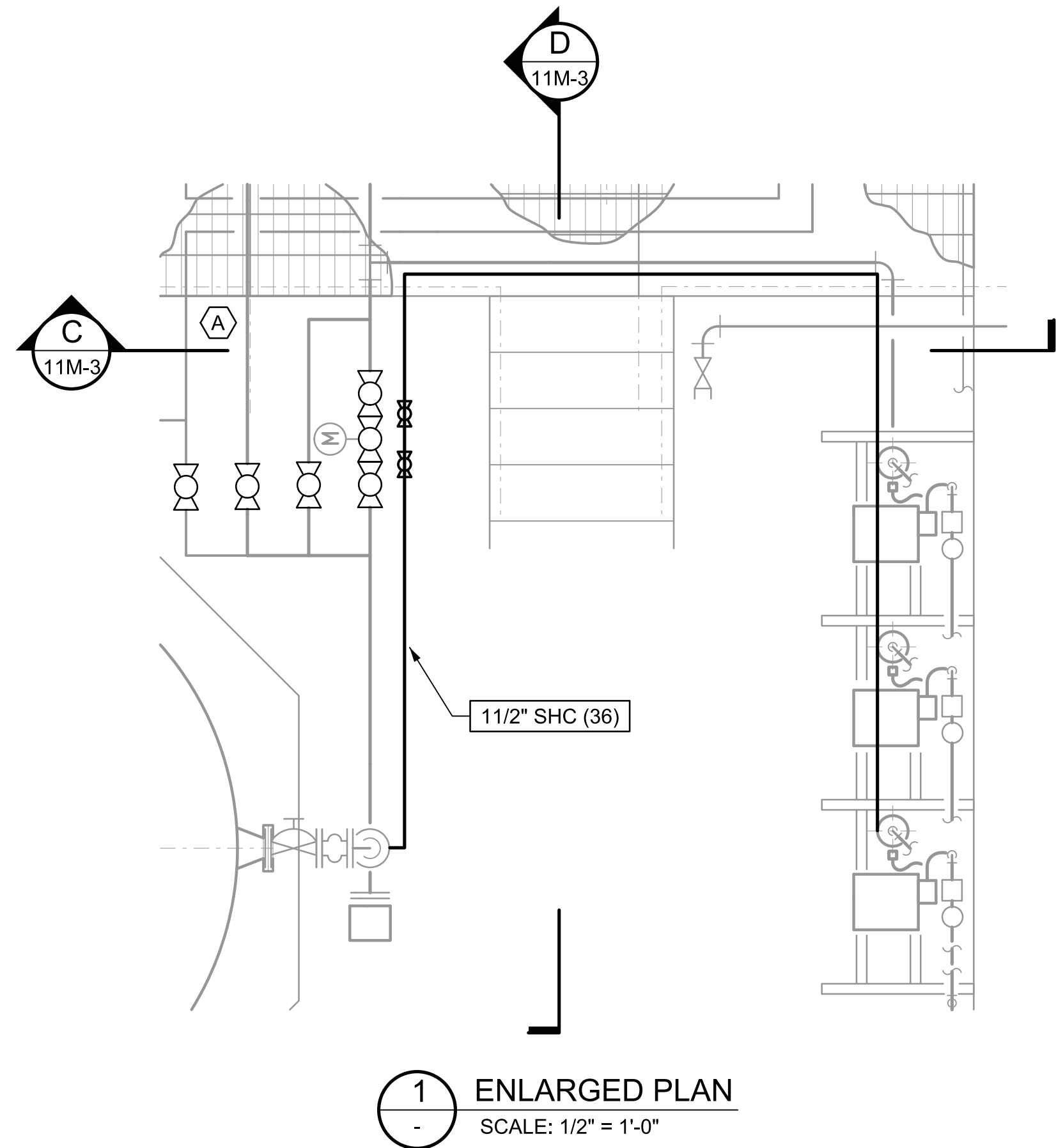
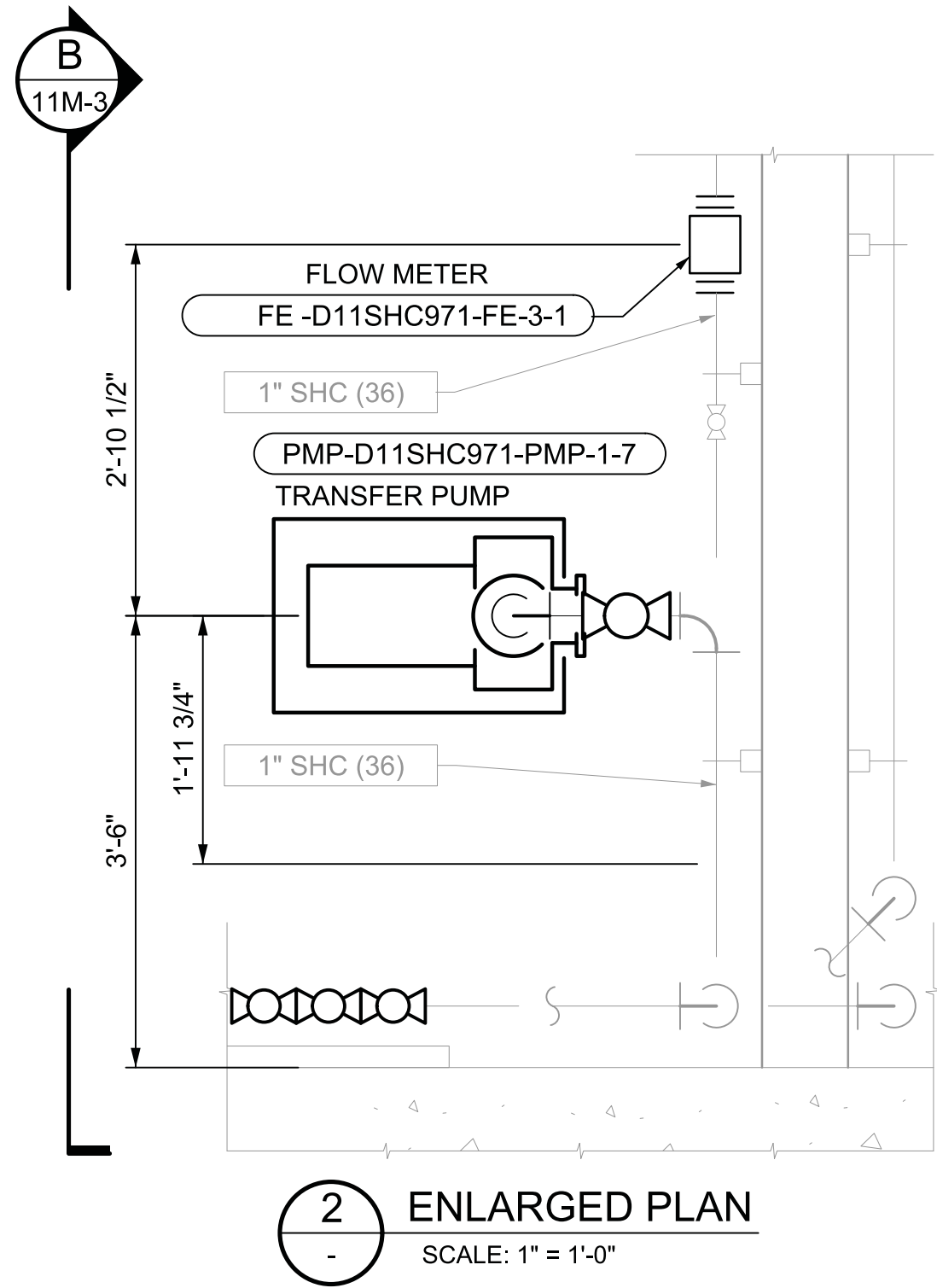
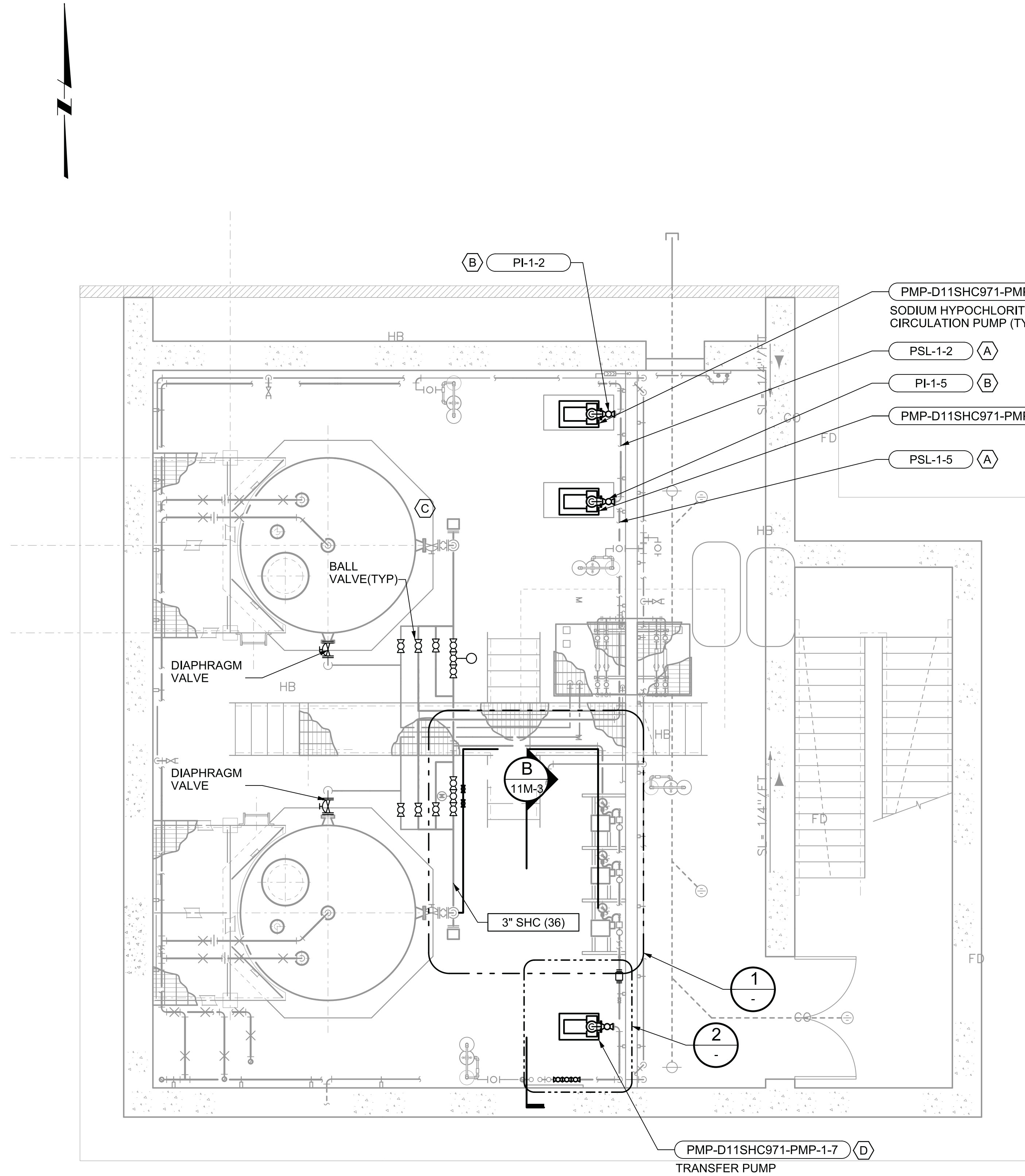


DESIGNED E.PASCUA
DRAWN A.MANJREKAR
CHECKED M.PRICE

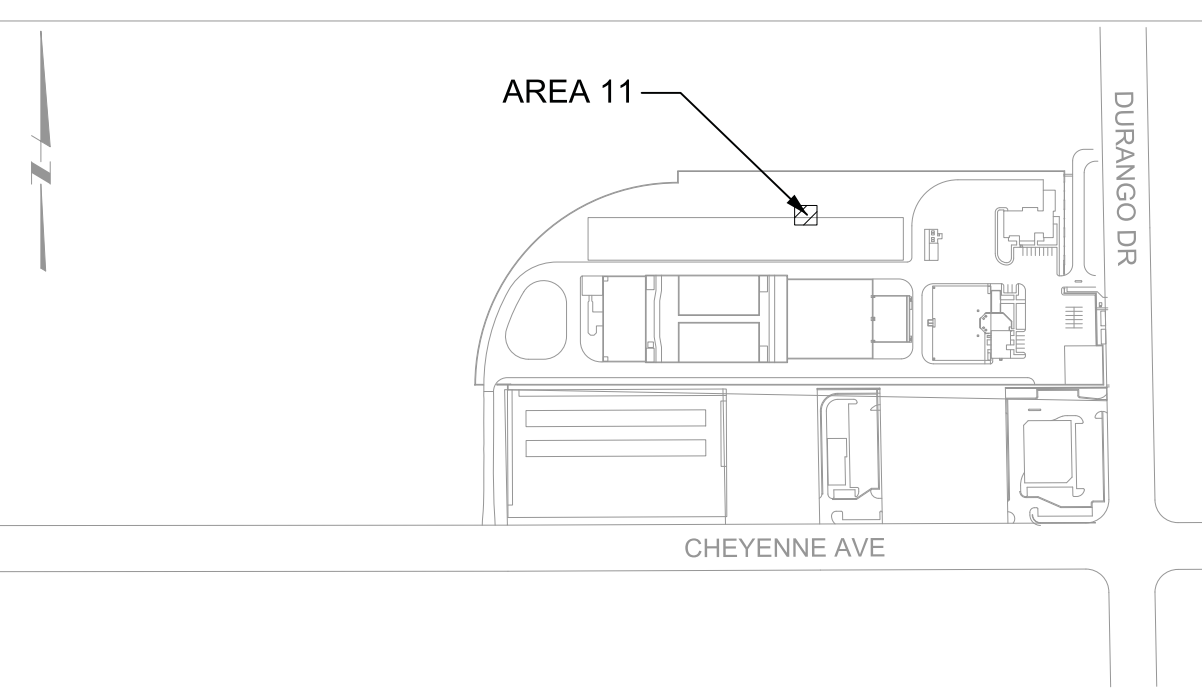
DURANGO HILLS WATER RESOURCE CENTER UPGRADES
MECHANICAL
CL2 ANALYZER - CCB INFLUENT
OVERALL PLAN

SHEET:
AS SHOWN

SHEET:
11M-1
10506196



KEY PLAN

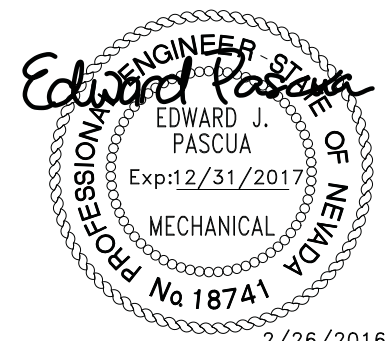


GENERAL SHEET NOTES

1. REROUTE CONDUITS AND PIPES AS NECESSARY TO INSTALL NEW PUMPS
2. PUMP MOTORS SHALL MEET THE REQUIREMENTS OF DIVISION 26 SPECIFICATIONS

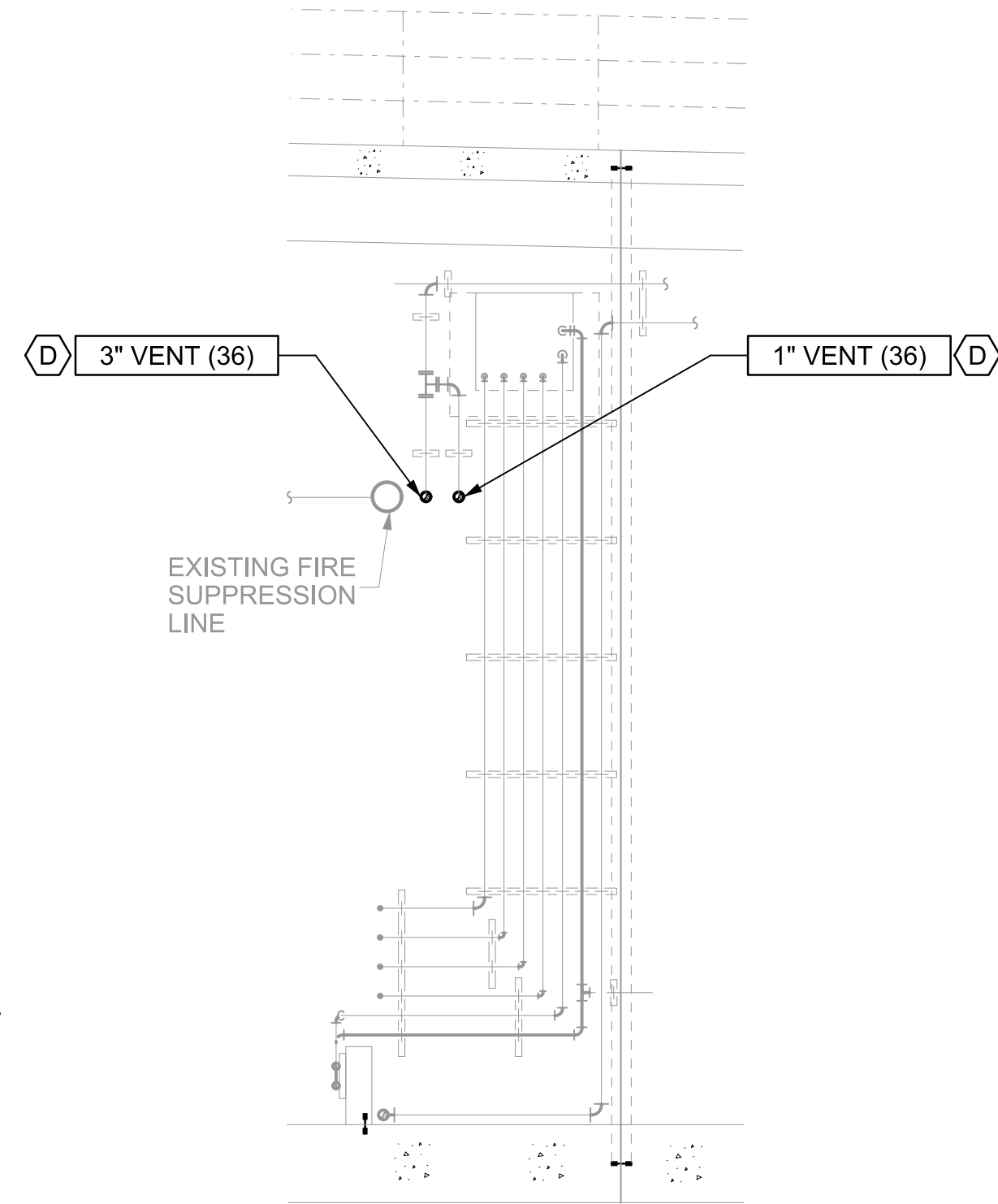
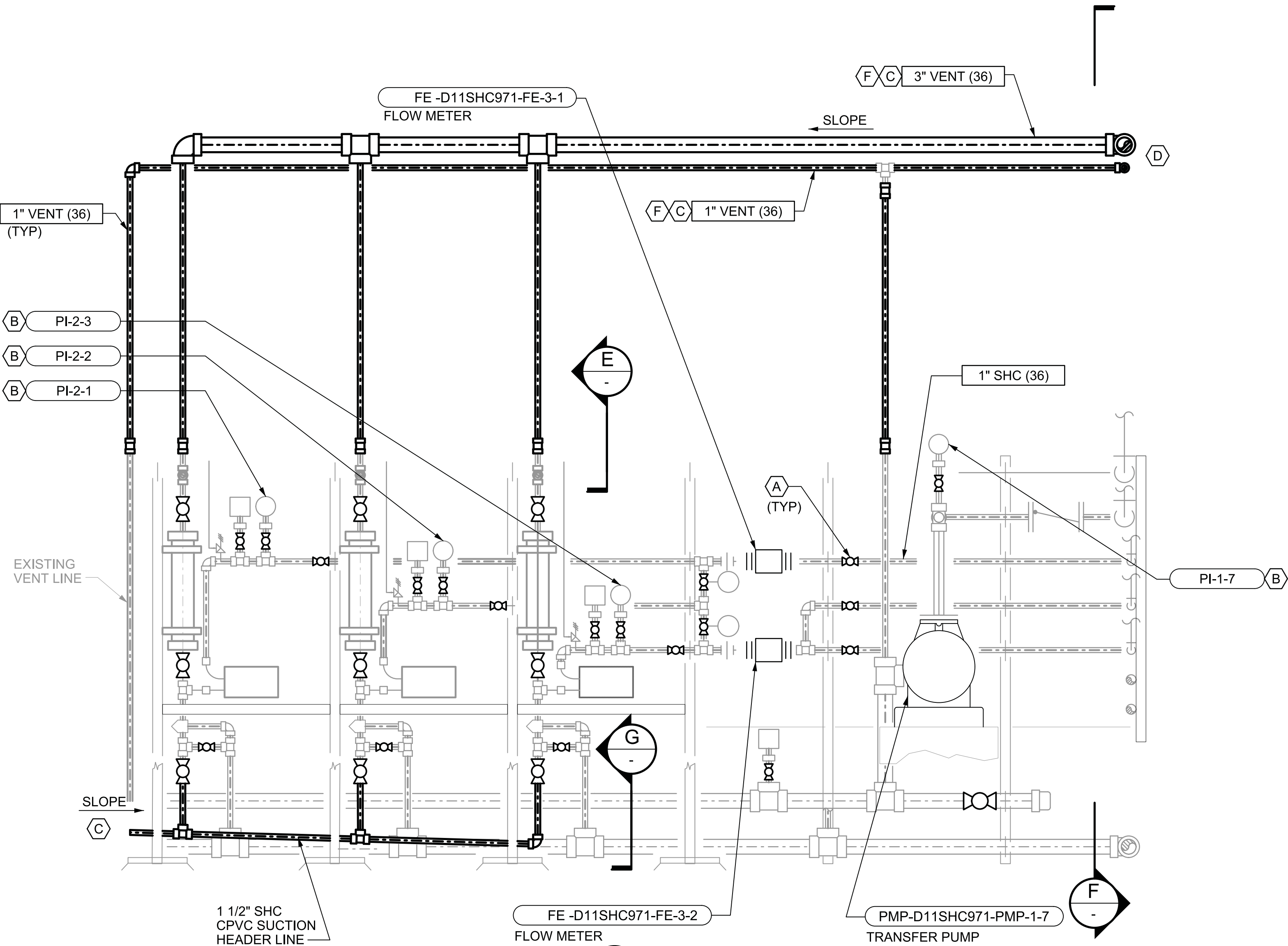
SHEET KEYNOTES

- A. CONTRACTOR SHALL REMOVE TAGS PSH-D09FLT941-PSH-1-1 AND D09FLT941-PSH-1-2 AT RECIRCULATION PUMPS AND REPLACE WITH NEW TAGS PSL-1-2 AND PSL-1-5, RESPECTIVELY
- B. CONTRACTOR SHALL PROVIDE AND INSTALL NEW TAGS FOR PRESSURE GAUGES PI-1-2, PI-1-5
- C. CONTRACTOR SHALL REPLACE 71 EXISTING BALL VALVES RANGING FROM 1/2" TO 3" DIAMETER ON SODIUM HYPOCHLORITE FEED, VENT, AND DRAIN LINES WITH VENTED BALL VALVES PROVIDED BY OWNER
- D. PIPING SHALL BE MODIFIED TO FIT CONFIGURATION OF NEW PUMP

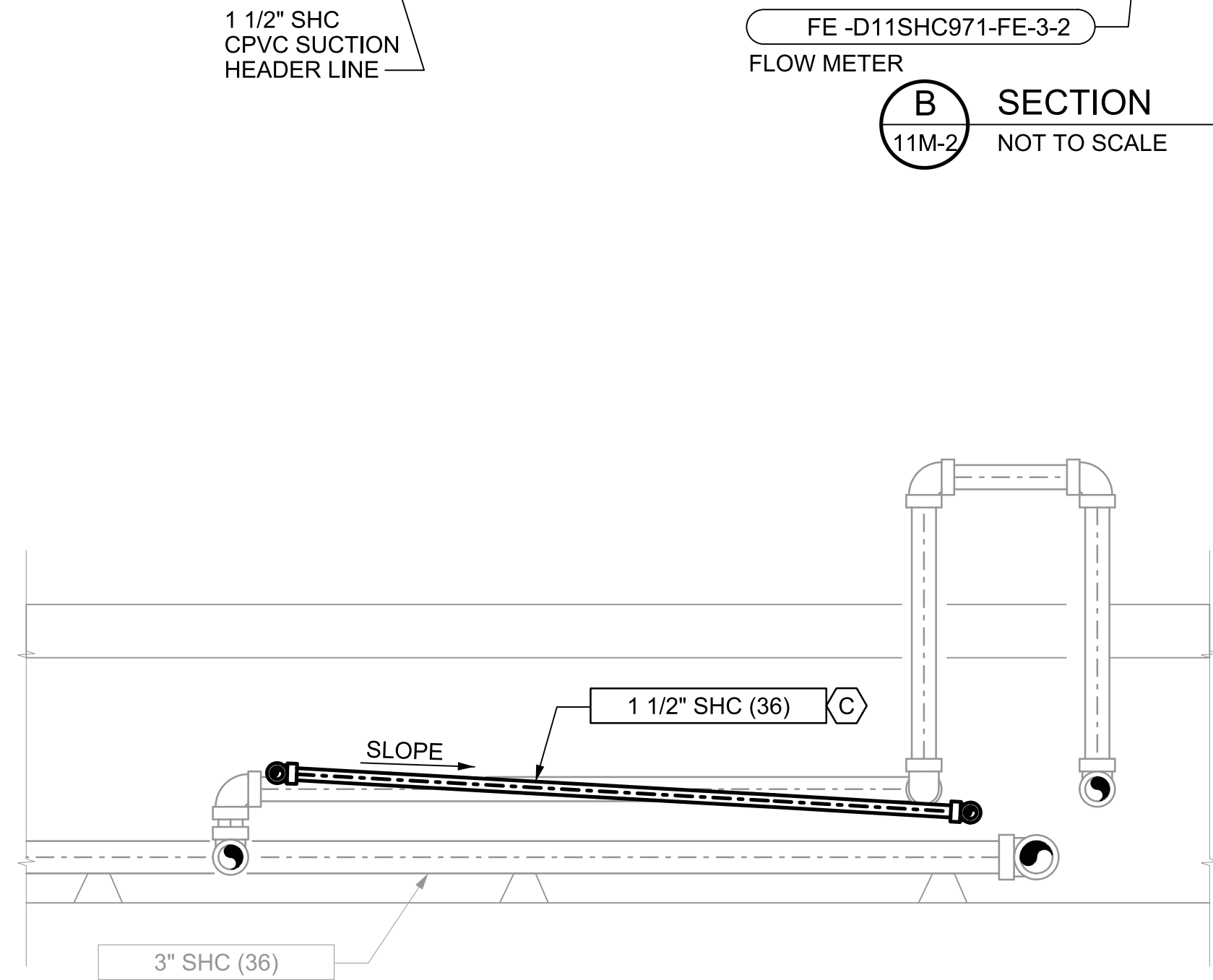


WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

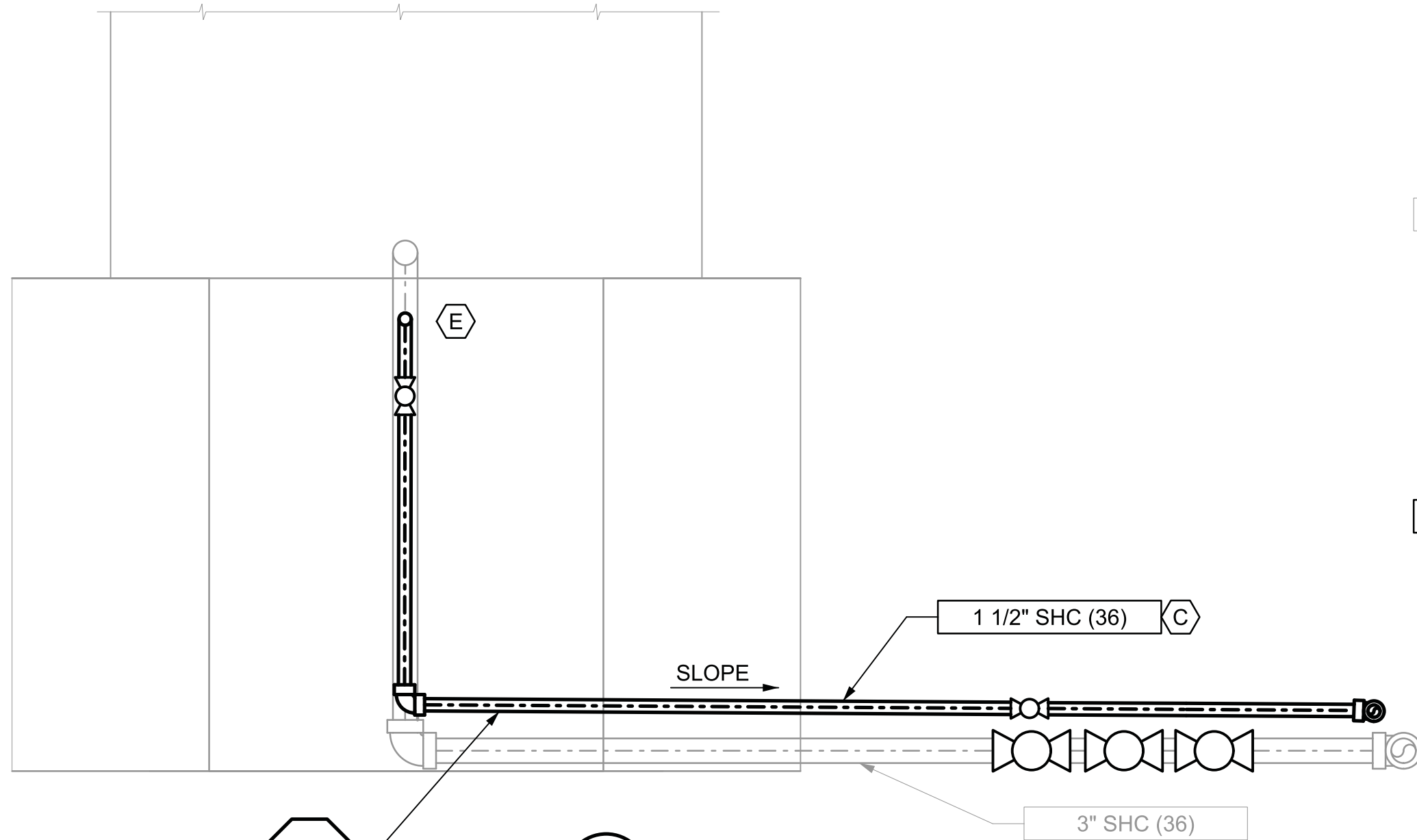
MECHANICAL NEW TREATMENT MODIFICATION PLAN AND SECTION		DESIGNED <u>E PASCUA</u>		 MWH®	DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT				
		DRAWN <u>P SAVANOR</u>							
		CHECKED <u>M PRICE</u>							
SCALE: AS SHOWN		SHEET: 11M-2				REV	DATE	BY	DESCRIPTION
10506196									



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

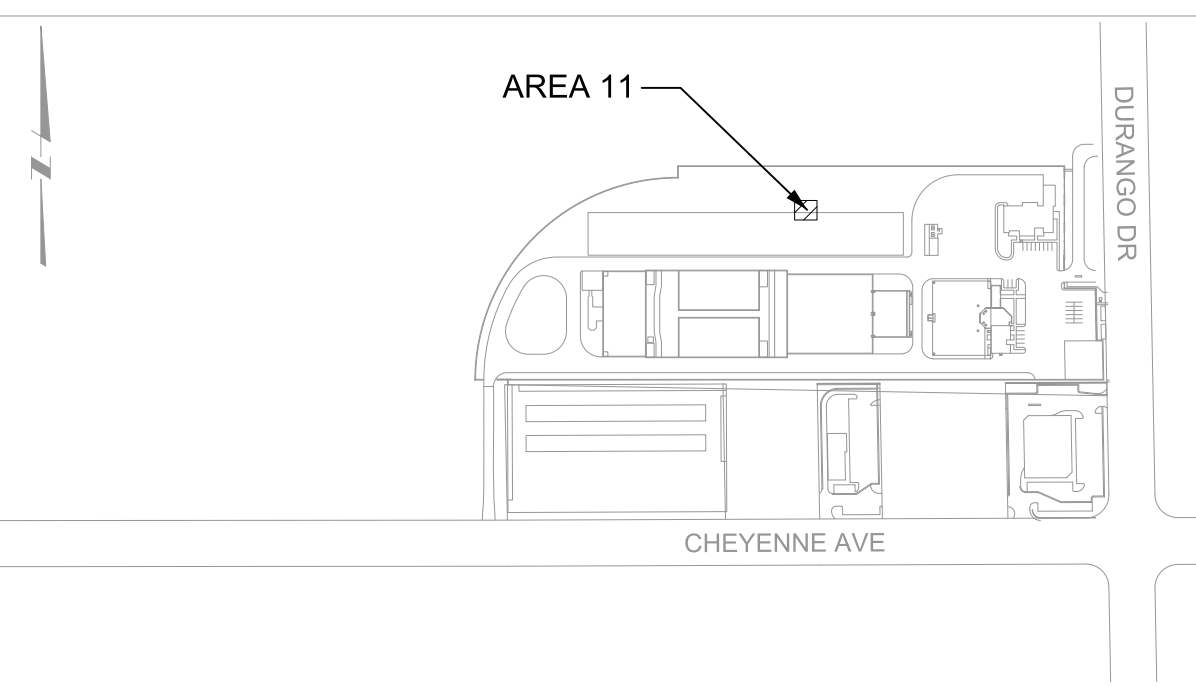


SECTION C
SCALE: 3/4" = 1'-0"



SECTION D
SCALE: 3/4" = 1'-0"

KEY PLAN

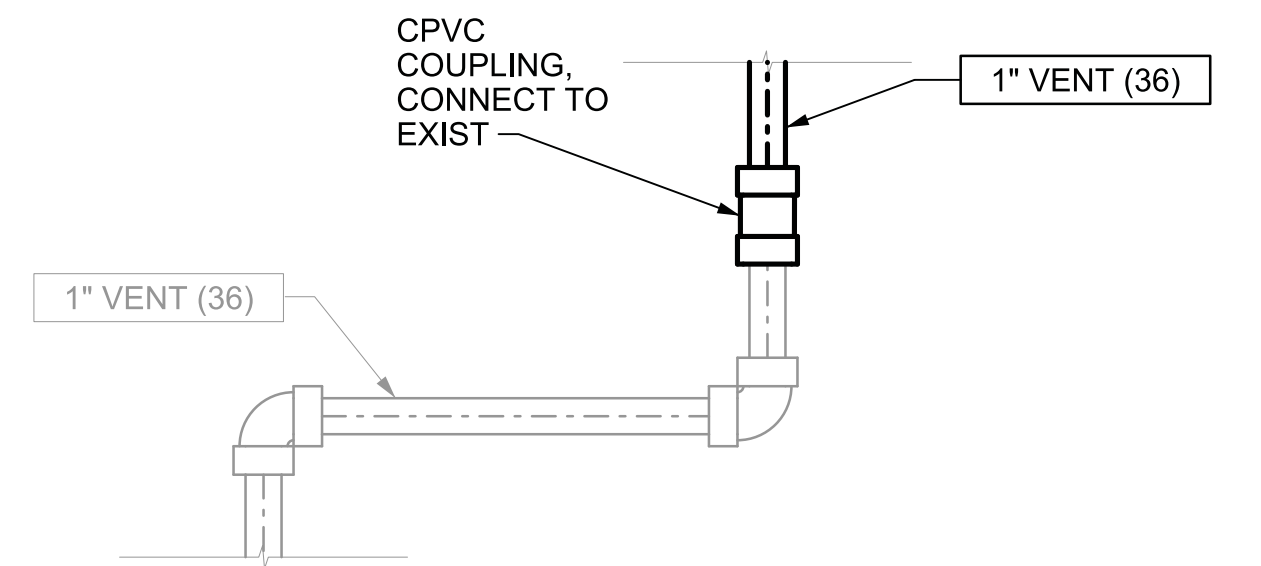


GENERAL SHEET NOTES

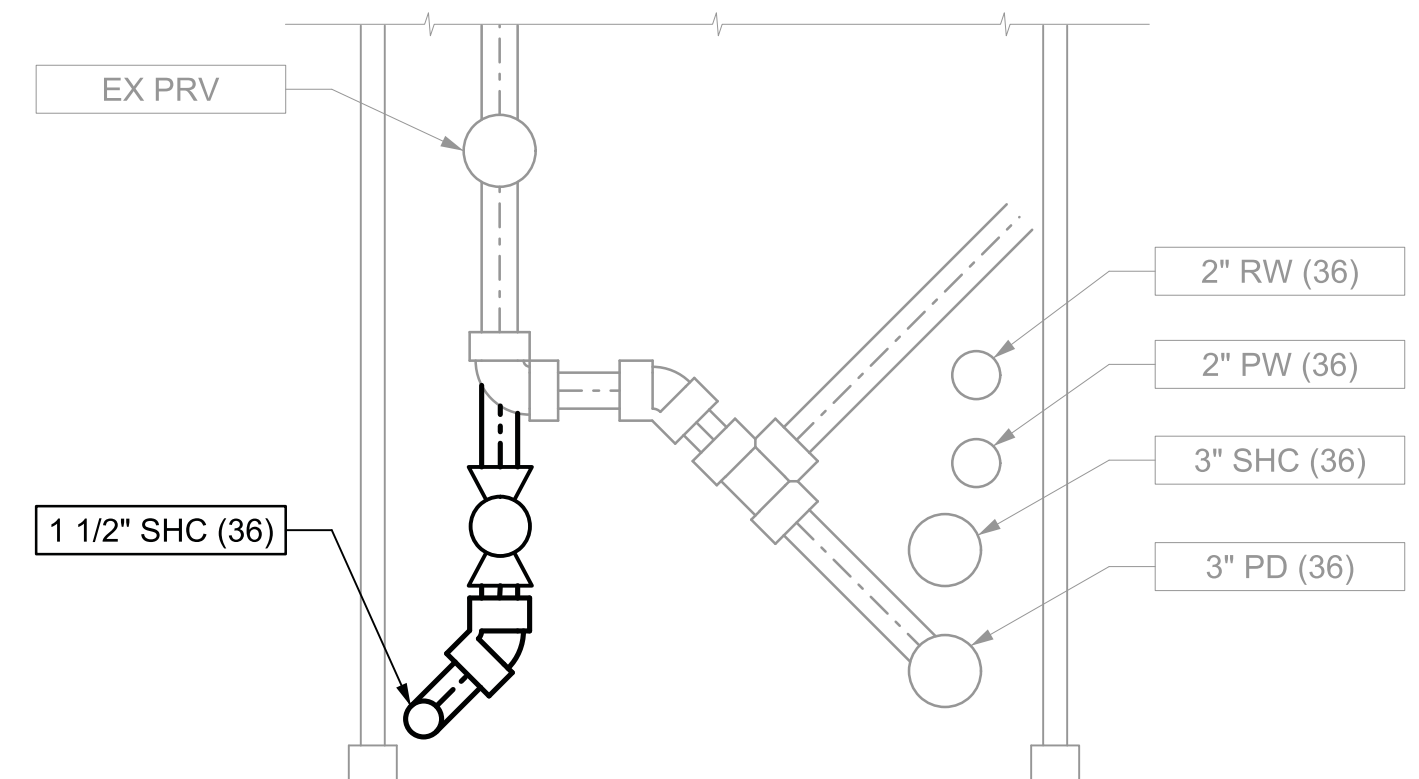
- SODIUM HYPOCHLORITE FEED PUMP PIPING SLOPES SHALL BE CONTINUOUS AT MINIMUM 1/8"/FT

SHEET KEYNOTES

- CONTRACTOR SHALL REPLACE ALL EXISTING BALL VALVES WITH VENTED BALL VALVES PROVIDED BY OWNER
- CONTRACTOR SHALL PROVIDE AND INSTALL NEW TAGS FOR PRESSURE GAUGES PI-1-7, PI-2-1, PI-2-2, PI-2-3
- CONTRACTOR SHALL MAINTAIN CONTINUOUS 1/8" PER FOOT SLOPE
- CONNECT TO EXISTING WALL MOUNTED VENT LINES MINIMUM 17 FEET ABOVE FINISHED FLOOR
- CONNECT TO EXISTING 3" SHC LINE 1' BELOW TANK CONNECTION
- PROVIDE PIPE HANGER MAXIMUM 8' ON CENTER PER M-152



SECTION E
SCALE: 1 1/2" = 1'-0"



SECTION G
NOT TO SCALE

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

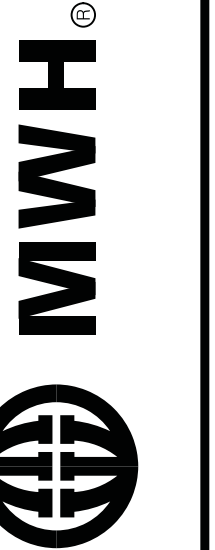
DESCRIPTION

BY

DATE

REV

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

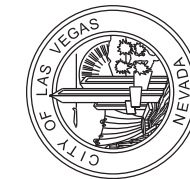


DESIGNED E PASCUA
DRAWN P SAVANOR
CHECKED M PRICE

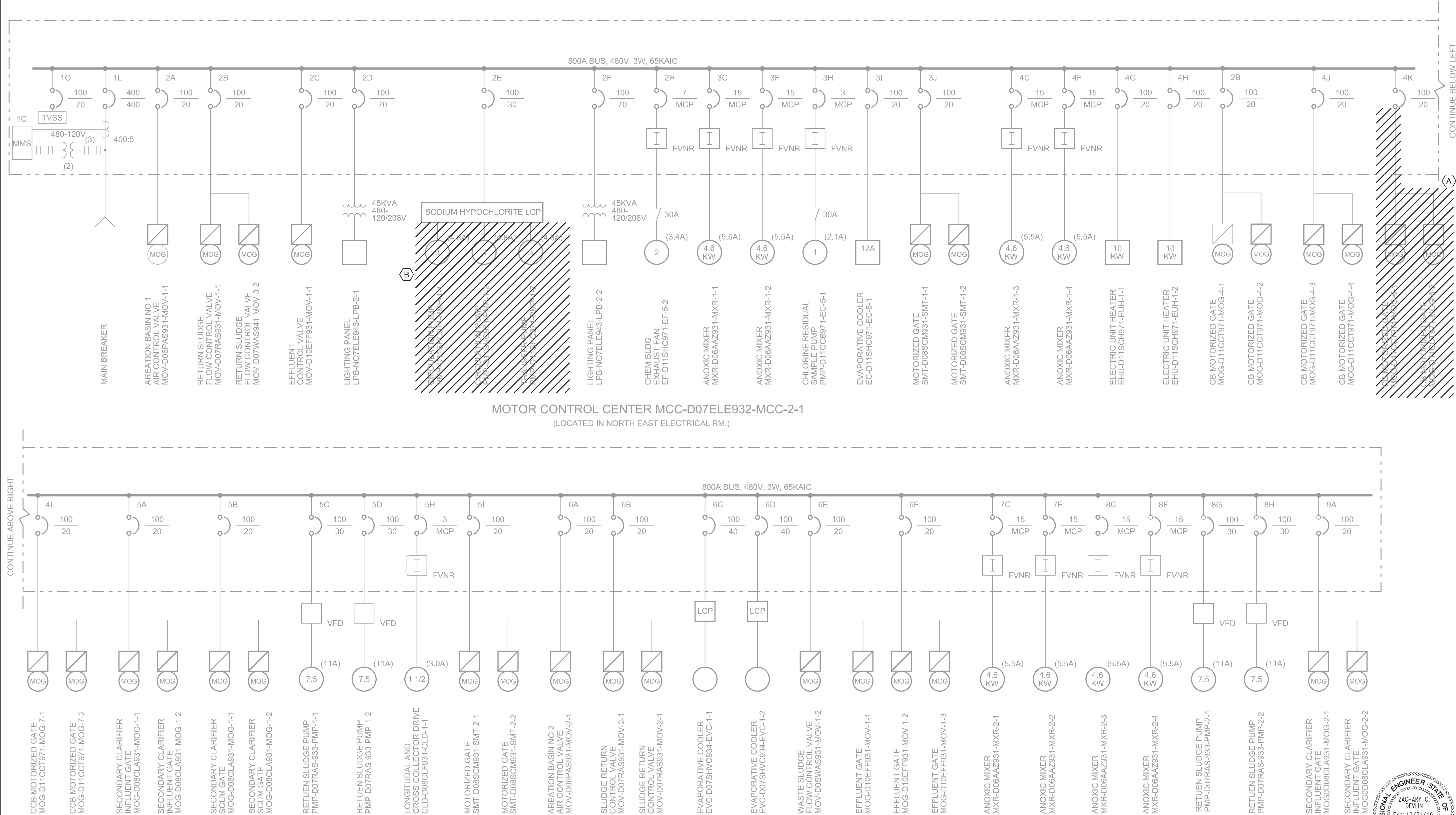
DURANGO HILLS WATER RESOURCE CENTER UPGRADES
MECHANICAL
NEW TREATMENT MODIFICATION
PLAN AND SECTION

SHEET:
AS SHOWN

SHEET:
11M-3
10506196

ELECTRICAL ABBREVIATIONS			GENERAL ELECTRICAL NOTES			ELECTRICAL DEMOLITION NOTES			GENERAL SHEET NOTES		
A AC AF AM ANN AS AT ATS AUTO AWG BATT BC BKR C CAP CB CKT CLF COM COMM COMP CP CPT CR CT DCS DISC DISTR DPDT DPST E EMT ENCL ETM F FDR FLA FLUOR FM FO FVR FVNR GEN GFCI GND H HD HH HID HOA HPS HS HZ IMC INCAND IND INST I/O Isc ISO J,JB KA KAIC KCMIL KVA L LCP LCS LOC LOR LOS LP LRA LS LTG LTS M mA MCP MLO MOV MS MTS NEUT NP O OL PA PB PC PCM PF PFM PH PL PNLBD PP POS POT PRI PT PTZ PWR R RECPT RGS RMS RTU RVSS SEL SW SEQ SHLD SIG SP SP HTR SPDT SPST SSM SSMP ST, SH STR SSTU SW SWBD SWGR TACH TB TERM TM TD TS UPS V VA VAR VFD VM VP W WM WP XFMR XMTR XP MOTOR CONTACTOR COIL MILLIAMPERE MOTOR CIRCUIT PROTECTOR MAIN LUGS ONLY MOTOR OPERATED VALVE MANUAL MOTOR STARTER MANUAL TRANSFER SWITCH NEUTRAL NAMEPLATE OPEN, OFF OVERLOAD PUBLIC ADDRESS PUSHBUTTON, PULLBOX PHOTOCELL PROCESS CONTROL MODULE POWER FACTOR POWER FACTOR METER PHASE PILOT LIGHT PANELBOARD POWER PANELBOARD POSITION POTENTIOMETER PRIMARY POTENTIAL TRANSFORMER PAN-TILT-ZOOM POWER REMOTE RECEPTACLE RIGID GALVANIZED STEEL ROOT MEAN SQUARE REMOTE TERMINAL UNIT REDUCED VOLTAGE SOLID STATE SELECTOR SWITCH SEQUENCE SHIELDED SIGNAL SPARE SPACE HEATER SINGLE POLE DOUBLE THROW SINGLE POLE SINGLE THROW SOLID STATE METER SOLID STATE MOTOR PROTECTOR SHUNT TRIP STARTER SOLID STATE TRIP UNIT SWITCH SWITCHBOARD SWITCHGEAR TACHOMETER TERMINAL BOX TERMINAL REPEAT CYCLE TIMER TIME DELAY RELAY TEMPERATURE SWITCH UNINTERRUPTIBLE POWER SUPPLY VOLTAGE, VOLTS VOLT AMPERE VOLT AMPERE REACTIVE VARIABLE FREQUENCY DRIVE VOLTMETER VAPOR PROOF WATTS, WIRE WATT METER WEATHERPROOF TRANSFORMER TRANSMITTER EXPLOSION PROOF			1. ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES. 2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST APPROVED SHOP DRAWINGS BEFORE STUBBING UP CONDUITS. 3. REFER TO SPECIFICATION SECTION 260533 FOR REQUIREMENTS RELATED TO FLEXIBLE CONDUIT INSTALLATION 4. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT OR STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS AND WALLS. REFER TO SPECIFICATION SECTION 260533. 5. CONDUIT STUB-UPS SHALL NOT BE MORE THAN 6 INCHES FROM THE CENTERLINE OF TERMINAL BOXES. 6. IN THE EVENT OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING AND THE ENGINEER SHALL APPROVE PROPOSED CHANGES BEFORE THEY ARE MADE. 7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INTERIOR OF EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED DAMP OR WET SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4 INCH (MINIMUM) AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL. 8. LOCATION OF PULLBOXES ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH MECHANICAL PIPING AND SHALL BE 6 INCHES (MINIMUM) AWAY FROM MECHANICAL PIPING FLOW LINES. 9. ONLY MAJOR PULLBOXES ARE SHOWN. THE CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE REQUIRED TO MAKE A WORKABLE INSTALLATION. 10. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS. 11. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS. FOR LOCATIONS OF EXPANSION JOINTS, REFER TO THE STRUCTURAL DWGS. 12. LUMINAIRES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LUMINAIRE TO THE FINISHED FLOOR. THE APPROPRIATE MOUNTING BRACKETS AND HARDWARE SHALL BE SUPPLIED. 13. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE CENTERLINE OF THE TOP CIRCUIT BREAKER OPERATING HANDLE IN THE UPPERMOST POSITION TO THE FINISHED FLOOR SHALL NOT EXCEED 6'-7". 14. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS. 15. CONNECTIONS BETWEEN RIGID CONDUIT AND MOTOR TERMINAL BOXES OR SIMILAR EQUIPMENT SUBJECT TO VIBRATION SHALL BE FLEXIBLE LIQUID-TIGHT CONDUIT. 16. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTION TO MOTORS AND OTHER EQUIPMENT. 17. CONDUITS FOR FUTURE EQUIPMENT OR EXTENSIONS SHALL BE TERMINATED AS SHOWN IN DETAIL OR AS SPECIFIED. 18. MCC AND SWITCHGEAR COMPARTMENT DESIGNATIONS SHALL BE AS FOLLOWS: BLANK/SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS. SPARE: CONTAINS A COMPLETE INSTALLED BREAKER OR STARTER AVAILABLE FOR FUTURE USE. 19. ALL MOTOR STARTER CONTROL POWER TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT-AMPERE CAPACITY FOR OPERATING ALL LOCAL AND REMOTE ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR IN ADDITION TO THE STARTER COIL. 20. MOTOR CONTROL CENTERS AND ALL FREE STANDING PANELS SHALL BE SET ON CONCRETE HOUSEKEEPING PADS WITH LEVELING CHANNELS EMBEDDED IN THE PAD. 21. ALL RECEPTACLES IN OUTDOOR AND ANTICIPATED WET AREAS SHALL BE GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES WITH WEATHERPROOF COVERS. 22. ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY THE SCOPE OF WORK WITH FIELD CONDITIONS. PARTICULAR ATTENTION SHOULD BE GIVEN TO NEW CONDUIT RUNS IN EXISTING BUILDINGS. 23. EQUIPMENT LOCKOUTS SHALL BE IN STRICT ACCORDANCE WITH OWNER'S REQUIREMENTS. 24. FOR LIGHTING AND RECEPTACLE SYSTEMS, ONLY CIRCUIT NUMBERS ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL NECESSARY CONDUITS, WIRES, FITTINGS, JUNCTION BOXES AND ALL NECESSARY COMPONENTS SHOWN OR NOT SHOWN ON THE DRAWINGS, TO MAKE THE ELECTRICAL INSTALLATION COMPLETE AND OPERATIONAL. ALL CONDUIT RUNS SHALL BE CONCEALED UNLESS INDICATED OTHERWISE. CIRCUIT LOADING SHALL BE AS INDICATED IN THE PANEL SCHEDULES. ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL INCLUDE GROUND WIRE.			1. BIDDING CONTRACTORS SHALL VISIT THE SITE TO ASSESS THE SCOPE OF DEMOLITION, REMOVAL AND MODIFICATION WORK. 2. ELECTRICAL CONTRACTOR AND THE OWNER SHALL DE-ENERGIZE ALL WIRING PRIOR TO REMOVAL OF EQUIPMENT, DEVICES, MOTORS INSTRUMENTATION, CONTROL PANELS, ETC. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE OWNER. 3. EXPOSED RACEWAYS: REMOVE CONDUIT, WIRES, AND BOXES. PATCH TO MATCH EXISTING. FINISH-ALL OPENINGS IN WALLS AND FLOORS 4. CONCEALED CONDUITS IN THE SLAB: REMOVE EXISTING WIRES TO THE EXTENT POSSIBLE AND ABANDON CONDUITS IN THE SLAB. CUT CONDUIT FLUSH AND PATCH THE FLOOR TO MATCH EXISTING 5. CONTROL PANEL: ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUIT AND WIRE AS DESCRIBED IN NOTE 2. CONTRACTOR SHALL REMOVE PANELS AS NOTED ON THE CONTRACT DRAWINGS. REFER TO NOTE 4 ABOVE FOR DISPOSITION OF ENCASED CONDUITS. 6. MOTOR CONTROL CENTERS: DISCONNECT AND REMOVE ALL CONDUITS AND WIRING TO EXISTING STARTERS AND/OR BREAKERS, PANELBOARDS, BRANCH CIRCUITS, INTERLOCKS AND STATUS WIRING WITHIN MCC. REFER TO SECTION 260000 FOR ADDITIONAL ELECTRICAL DEMOLITION AND REMOVAL REQUIREMENTS.			1. THIS IS A MASTER ABBREVIATIONS LIST AND NOT ALL ABBREVIATIONS INDICATED HERE ARE USED ON THIS PROJECT.		
REV 110112			REV 01102013								
									DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT    DESIGNED Z DEVLIN DRAWN U PARASHAR CHECKED D REED DURANGO HILLS WATER RESOURCE CENTER UPGRADES GENERAL ELECTRICAL NOTES AND ABBREVIATIONS PROFESSIONAL ENGINEER STATE OF NEW MEXICO ZACHARY C. DEVLIN Exp: 12/31/16 ELECTRICAL No 20525 09/18/15  SCALE: NO SCALE SHEET: WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE GE-3 10506196		

1. THIS IS A MASTER ABBREVIATIONS LIST AND NOT ALL ABBREVIATIONS INDICATED HERE ARE USED ON THIS PROJECT.

 SHEET KEYNOTES

- A. EXISTING LOADS TO BE RE-FED FROM ADMIN BLDG
MCC-D20ELE953-MCC-1-1. REFER TO SHEET E-7. PROVIDE
NEW WORK SHOWN ON SHEET E-4.
- B. DISCONNECT MOTORS. PROTECT IN PLACE LCP AND CONDUIT.
PROVIDE NEW WORK SHOWN ON SHEET E-4.

[illegible]

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



MWH®



DESIGNED Z DEVLIN

DRAWN Z DEVLIN

CHECKED D REED

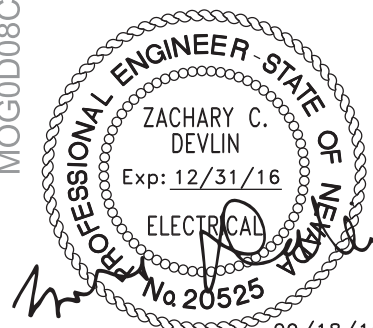
ELECTRICAL DEMOLITION
 NORTHEAST ELECTRICAL ROOM
 EXISTING MCC-D07ELE932-MCC-2-1
 SINGLE LINE DIAGRAM

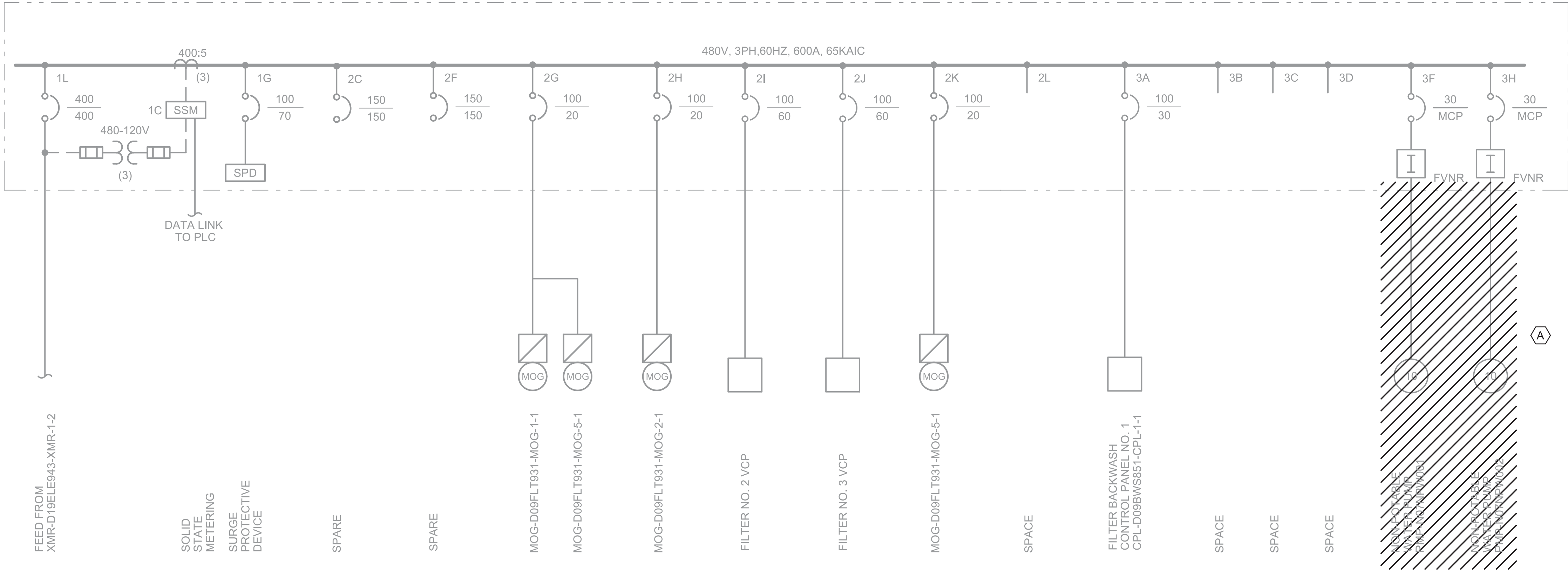
SCALE:
NO SCALE

SHEET:

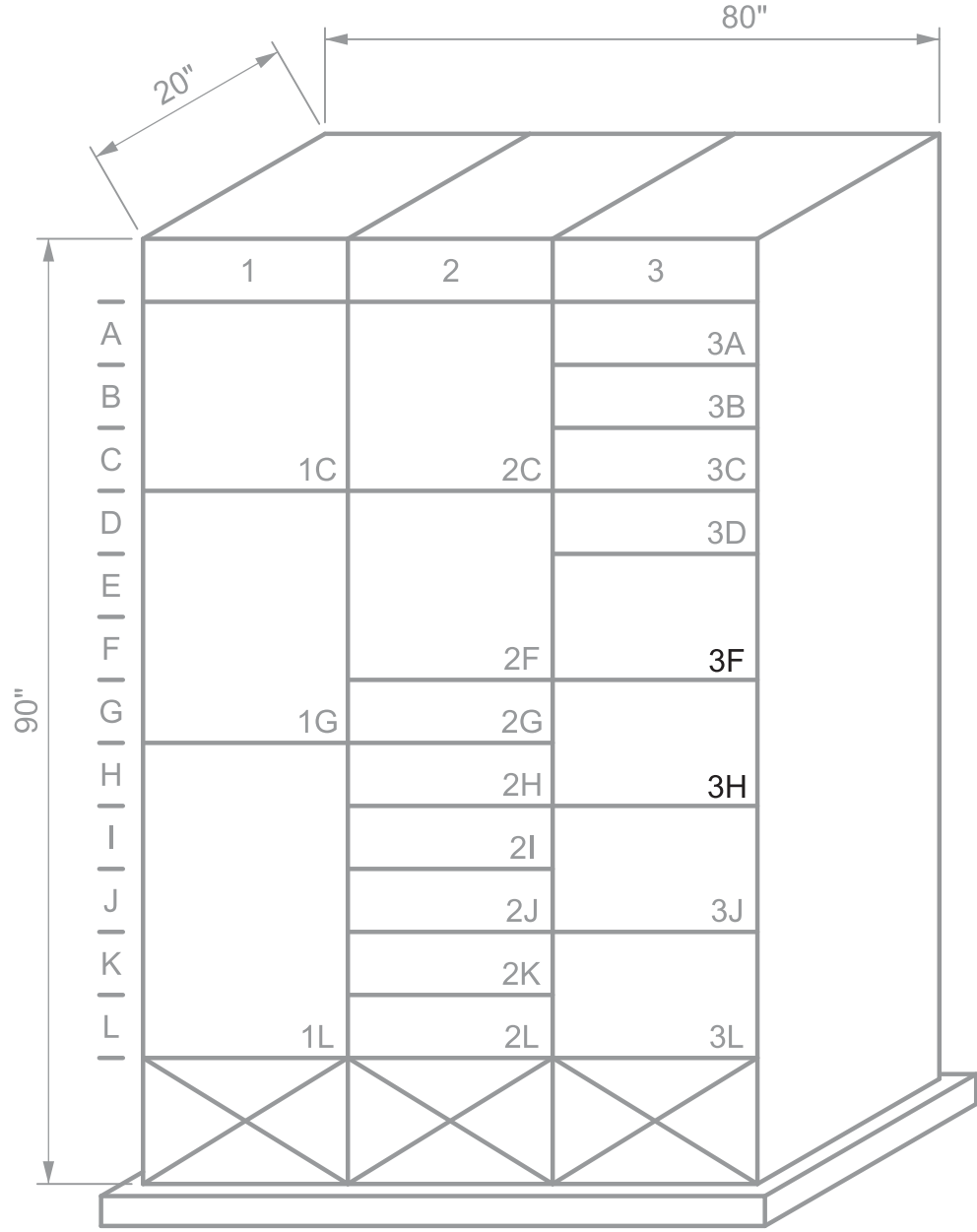
ED-1

10506196





MCC-D07ELE932-MCC-2-2 SINGLE LINE DIAGRAM
(LOCATED IN NORTHEAST ELECTRICAL ROOM)



MCC-D07ELE932-MCC-2-2 ELEVATION
(LOCATED IN NORTHEAST ELECTRICAL ROOM)

GENERAL SHEET NOTES

1. MCC-D07ELE932-MCC-2-2 IS AN EXISTING GE SPECTRA MOTOR CONTROL CENTER, SERIAL NUMBER M-698670.

SHEET KEYNOTES

- A. DEMOLISH EXISTING NON-POTABLE WATER PUMPS AND ASSOCIATED CONDUIT AND CONDUCTORS. PROTECT STARTER IN PLACE. PROVIDE NEW WORK SHOWN ON SHEET E-6.

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



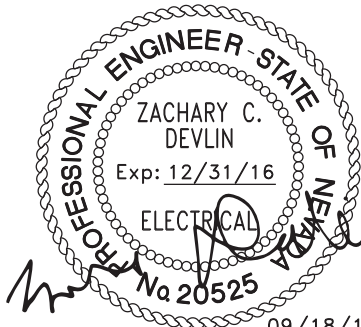
DESIGNED Z DEVLIN
DRAWN Z DEVLIN
CHECKED D REED

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL DEMOLITION
NORTHEAST ELECTRICAL ROOM
EXISTING MCC-D07ELE932-MCC-2-2
SINGLE LINE DIAGRAM AND ELEVATION

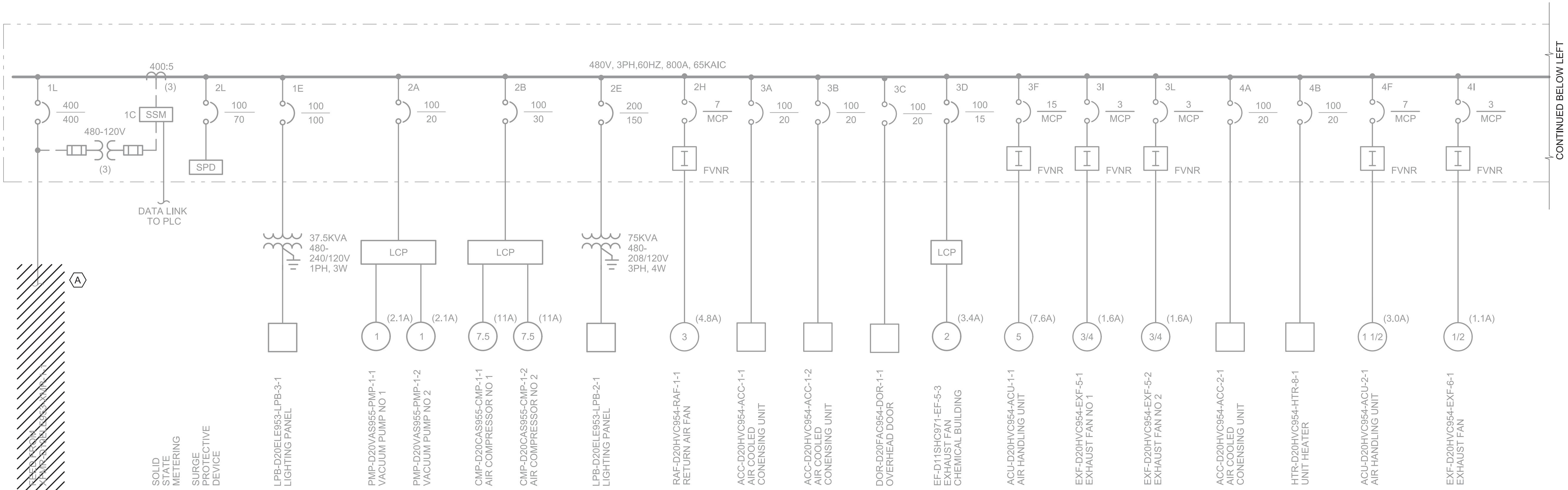
SCALE:
NO SCALE

SHEET:

ED-2
10506196



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



MCC-D20ELE953-MCC-1-1
(LOCATED IN ADMINISTRATION BLDG ELECTRICAL ROOM)

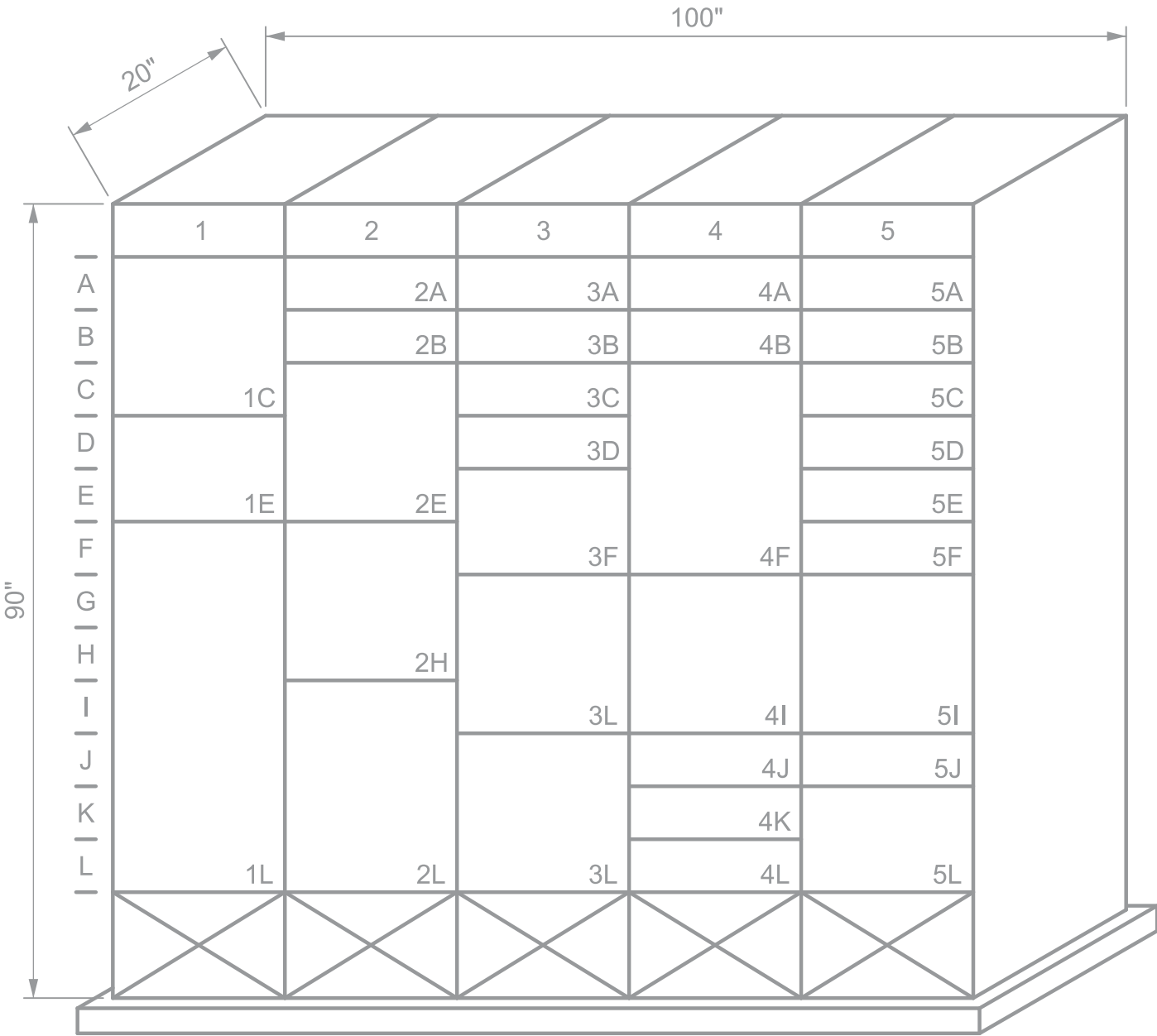
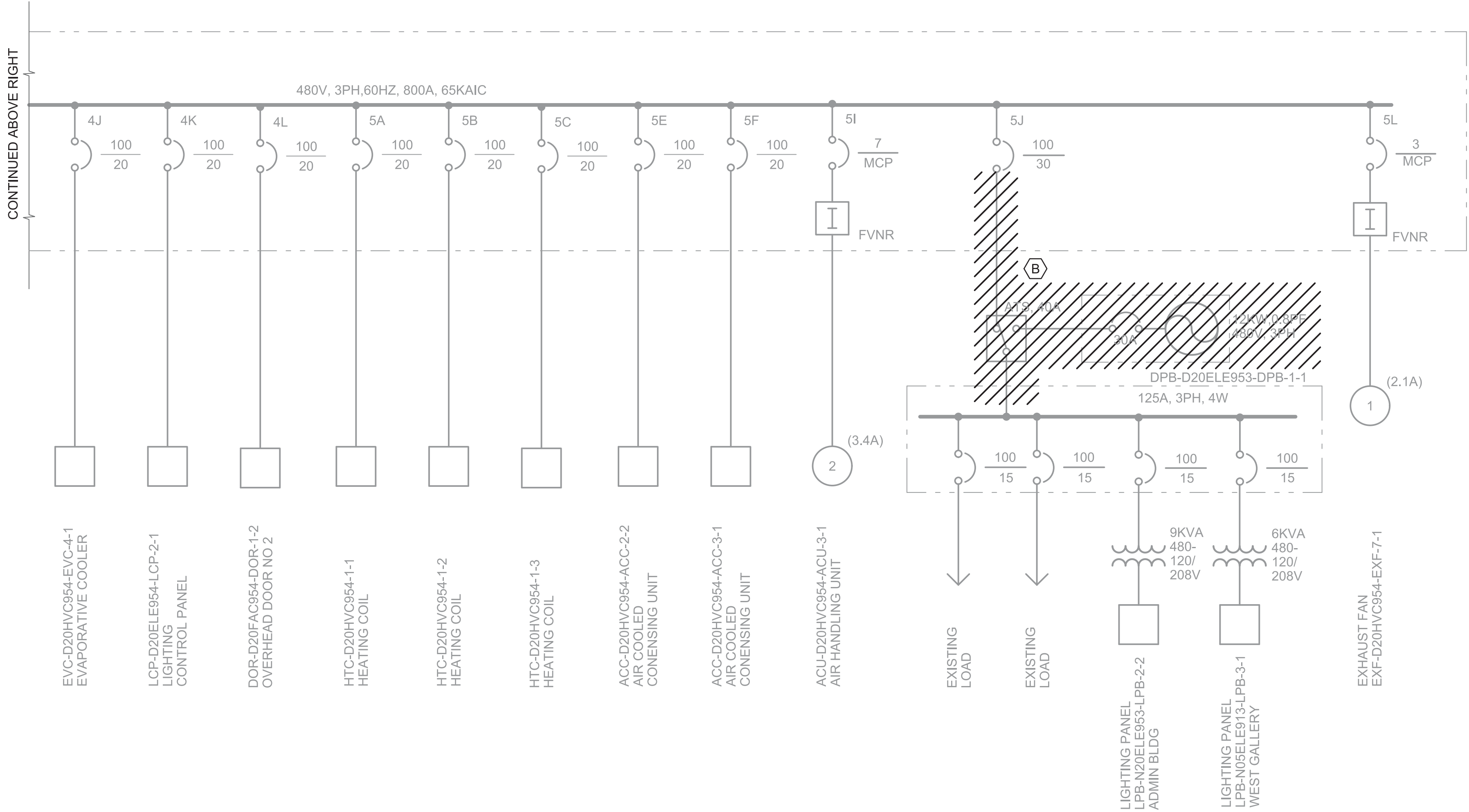
SHEET KEYNOTES

A.

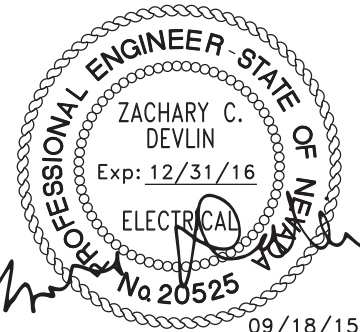
DEMOLISH EXISTING FEED FROM XMR-1-1.

B.

DEMOLISH EXISTING GENERATOR AND TRANSFER SWITCH AND ASSOCIATED CABLES AND CONDUITS.



MCC-D20ELE953-MCC-1-1 ELEVATION
(LOCATED IN ADMINISTRATION BLDG ELECTRICAL ROOM)



DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

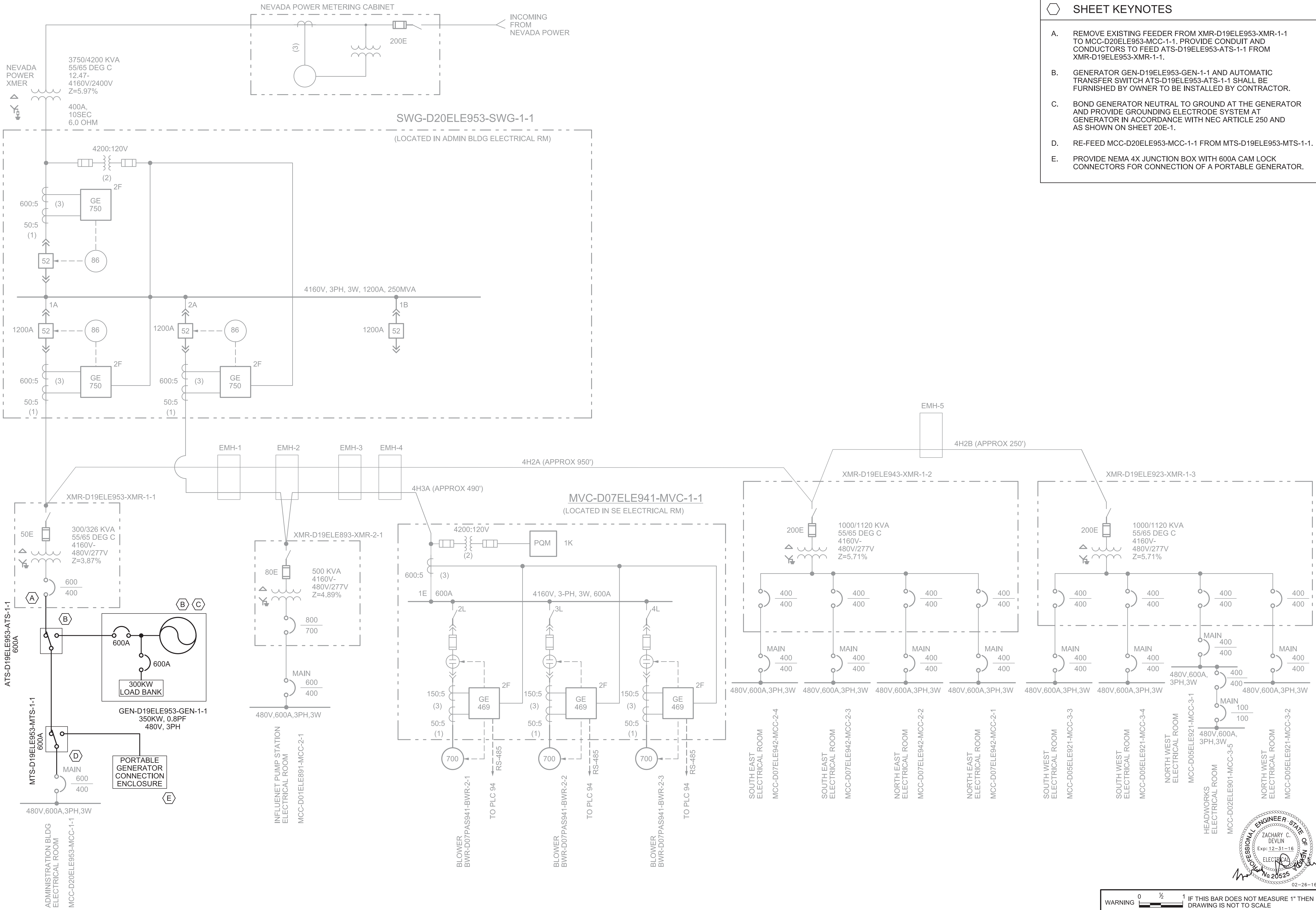
DESIGNED Z DEVLIN
DRAWN Z DEVLIN
CHECKED D REED

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL DEMOLITION
ADMIN BLDG ELECTRICAL ROOM
EXISTING MCC-D20ELE953-MCC-1-1
SINGLE LINE DIAGRAM AND ELEVATION

SCALE:
NO SCALE

SHEET:
ED-3
10506196

REV
DATE
BY
DESCRIPTION



- SHEET KEYNOTES**
- A. REMOVE EXISTING FEEDER FROM XMR-D19ELE953-XMR-1-1 TO MCC-D20ELE953-MCC-1-1. PROVIDE CONDUIT AND CONDUCTORS TO FEED ATS-D19ELE953-ATS-1-1 FROM XMR-D19ELE953-XMR-1-1.
 - B. GENERATOR GEN-D19ELE953-GEN-1-1 AND AUTOMATIC TRANSFER SWITCH ATS-D19ELE953-ATS-1-1 SHALL BE FURNISHED BY OWNER TO BE INSTALLED BY CONTRACTOR.
 - C. BOND GENERATOR NEUTRAL TO GROUND AT THE GENERATOR AND PROVIDE GROUNDING ELECTRODE SYSTEM AT GENERATOR IN ACCORDANCE WITH NEC ARTICLE 250 AND AS SHOWN ON SHEET 20E-1.
 - D. RE-FEED MCC-D20ELE953-MCC-1-1 FROM MTS-D19ELE953-MTS-1-1.
 - E. PROVIDE NEMA 4X JUNCTION BOX WITH 600A CAM LOCK CONNECTORS FOR CONNECTION OF A PORTABLE GENERATOR.

REV	DATE	BY	DESCRIPTION

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT

MWH

DESIGNED: Z DEVLIN
DRAWN: Z DEVLIN
CHECKED: D REED

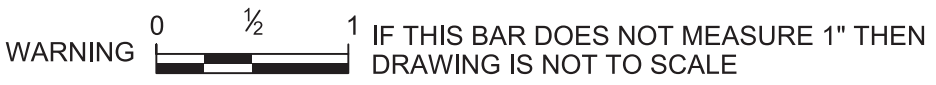
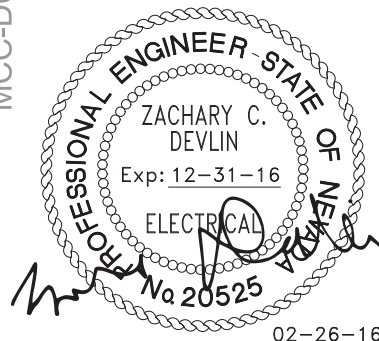
ELECTRICAL OVERALL SINGLE LINE DIAGRAM

DURANGO HILLS WATER RESOURCE CENTER UPGRADES

SCALE: NO SCALE

SHEET: **E-1**

10506196



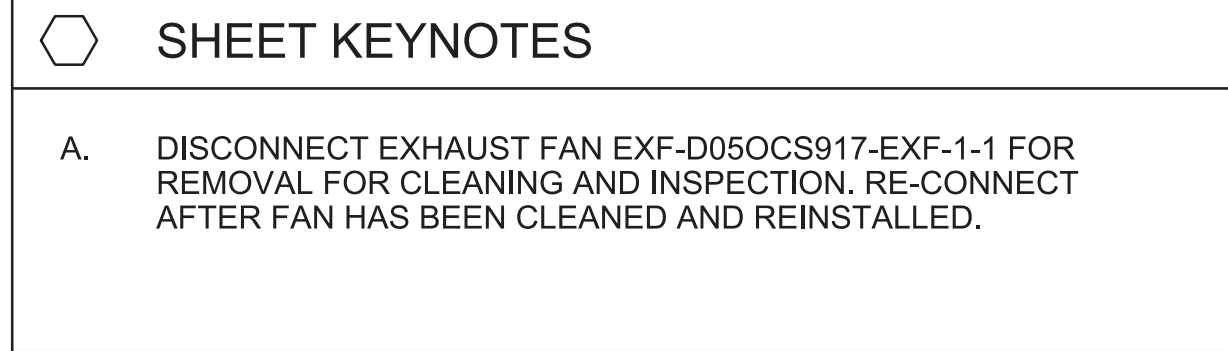
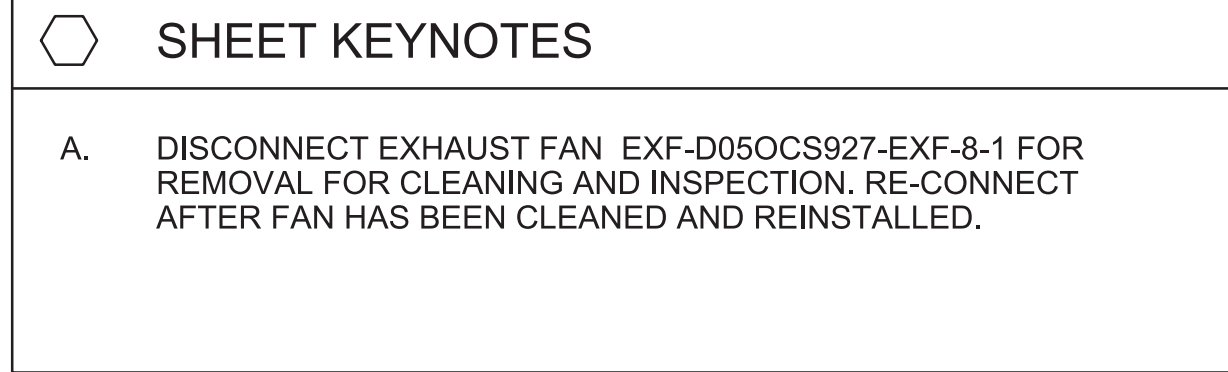


Diagram of a 5x5x5 cube with dimensions 100 inches by 100 inches by 90 inches. The cube is divided into 125 smaller cubes. The top face is labeled with numbers 1 through 5 in columns. The front face is labeled with letters A through L in rows. The bottom face is labeled with numbers 1L through 5L in columns. The cube is shown in a perspective view with a 3D coordinate system.

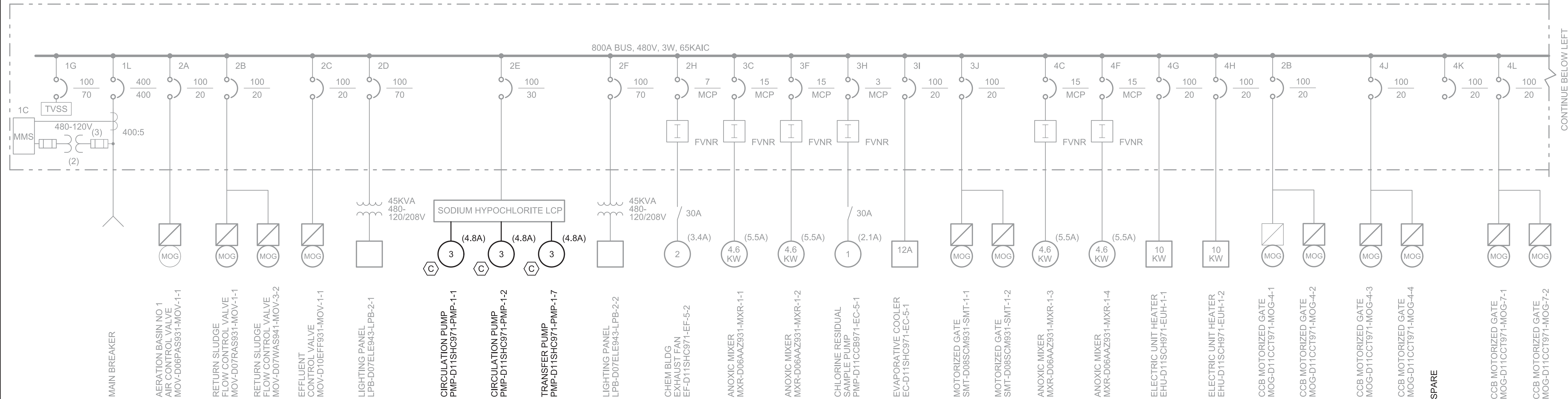
PROFESSIONAL ENGINEER - STATE OF NEW YORK
 ZACHARY C. DEVLIN
 Exp: 12/31/16
 ELECTRICAL
 No 20525



DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT				
DESIGNED Z DEVLIN DRAWN Z DEVLIN CHECKED D REED				
DURANGO HILLS WATER RESOURCE CENTER UPGRADES ELECTRICAL NORTHWEST ELECTRICAL ROOM EXISTING MCC-D05ELE921-MCC-3-2 SINGLE LINE DIAGRAM AND ELEVATION				
SCALE:		NO SCALE		
SHEET:		E-2		
		10506196		



MCC-D05ELE921-MCC-3-4 ELEVATION
(LOCATED IN SOUTHWEST ELECTRICAL ROOM)



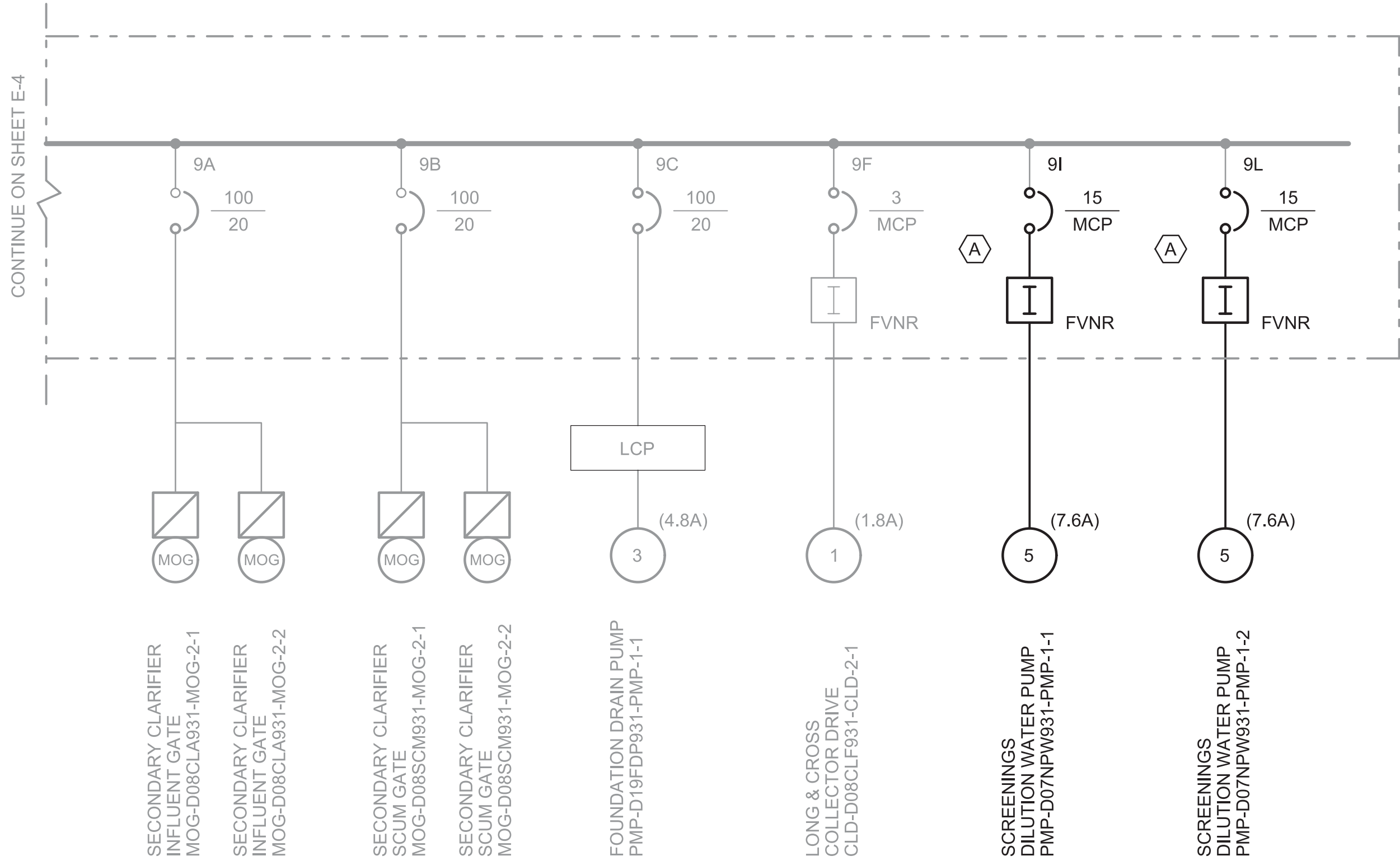
1. MCC-D07ELE932-MCC-2-1 IS AN EXISTING GE SPECTRA MOTOR CONTROL CENTER, SERIAL NUMBER M-698569.

- A. PROVIDE VFD IN EXISTING SPACE.
- B. PROVIDE "SPARE" NAMEPLATE.
- C. PROVIDE CONDUCTORS. REUSE EXISTING CONDUIT.

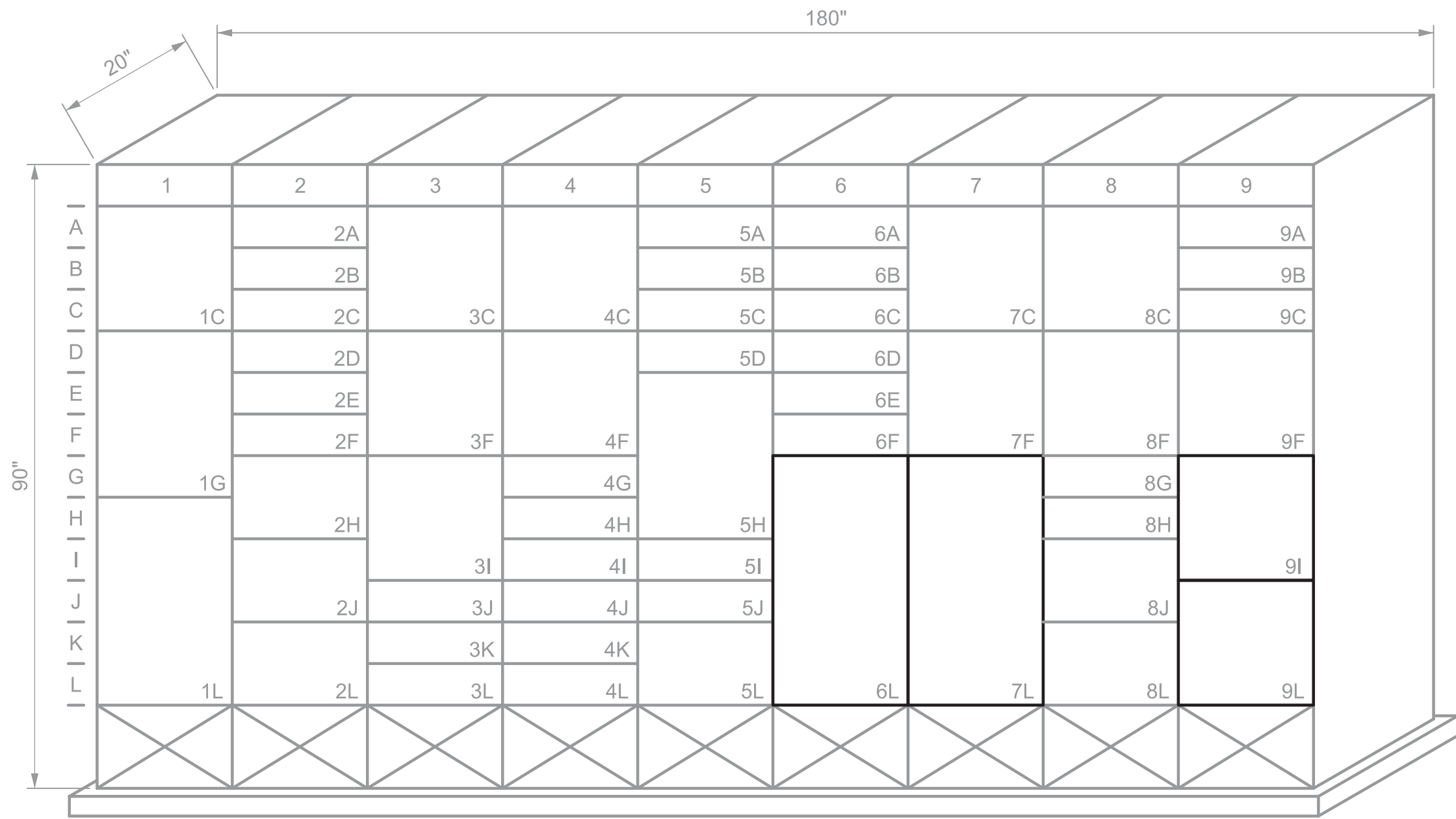
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT	REV	DATE	BY	DESCRIPTION
	DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT			
	DURANGO HILLS WATER RESOURCE CENTER UPGRADES			
DESIGNED <u> Z DEVLIN </u> DRAWN <u> Z DEVLIN </u> CHECKED <u> D REED </u>	ELECTRICAL NORTHEAST ELECTRICAL ROOM EXISTING MCC-D07ELE932-MCC-2-1 SINGLE LINE DIAGRAM			
SCALE: NO SCALE	SHEET: E-4 10506196			

PROFESSIONAL ENGINEER - STATE OF NEVADA
 ZACHARY C. DEVLIN
 Exp: 12/31/16
 ELECTRICAL
 No. 20525





PARTIAL MOTOR CONTROL CENTER MCC-D07ELE932-MCC-2-1
(LOCATED IN NORTH EAST ELECTRICAL RM.)



MOTOR CONTROL CENTER MCC-D07ELE932-MCC-2-1 ELEVATION
(LOCATED IN NORTH EAST ELECTRICAL RM.)

GENERAL SHEET NOTES

1. MCC-D07ELE932-MCC-2-1 IS AN EXISTING GE SPECTRA MOTOR CONTROL CENTER, SERIAL NUMBER M-698569.

SHEET KEYNOTES

- A. PROVIDE STARTER IN EXISTING MCC.

REV	DATE	BY	DESCRIPTION

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



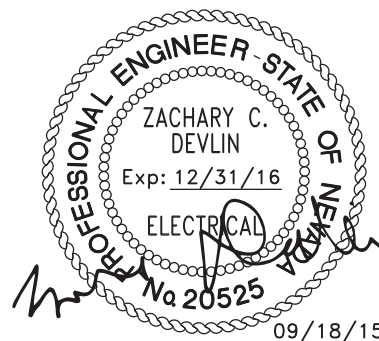
DESIGNED	Z DEVLIN
DRAWN	Z DEVLIN
CHECKED	D REED

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL
NORTHEAST ELECTRICAL ROOM
EXISTING MCC-D07ELE932-MCC-2-1
SINGLE LINE DIAGRAM AND ELEVATION

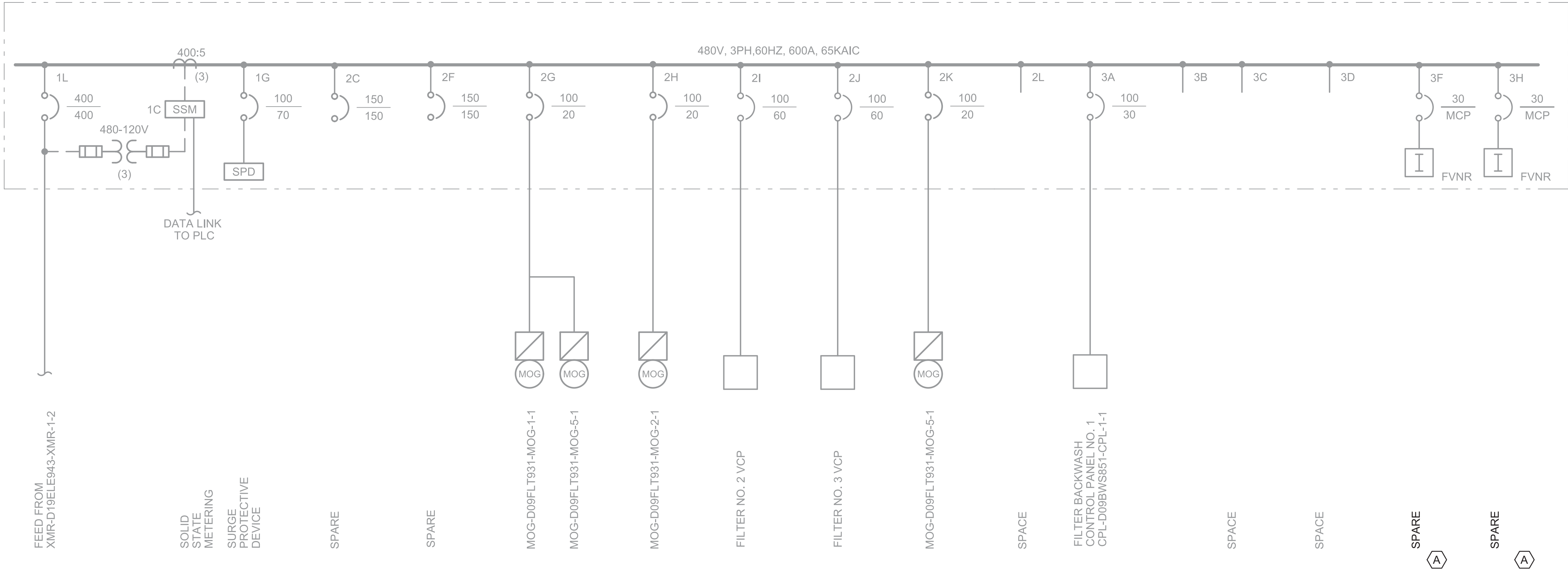
SCALE:
NO SCALE

SHEET:

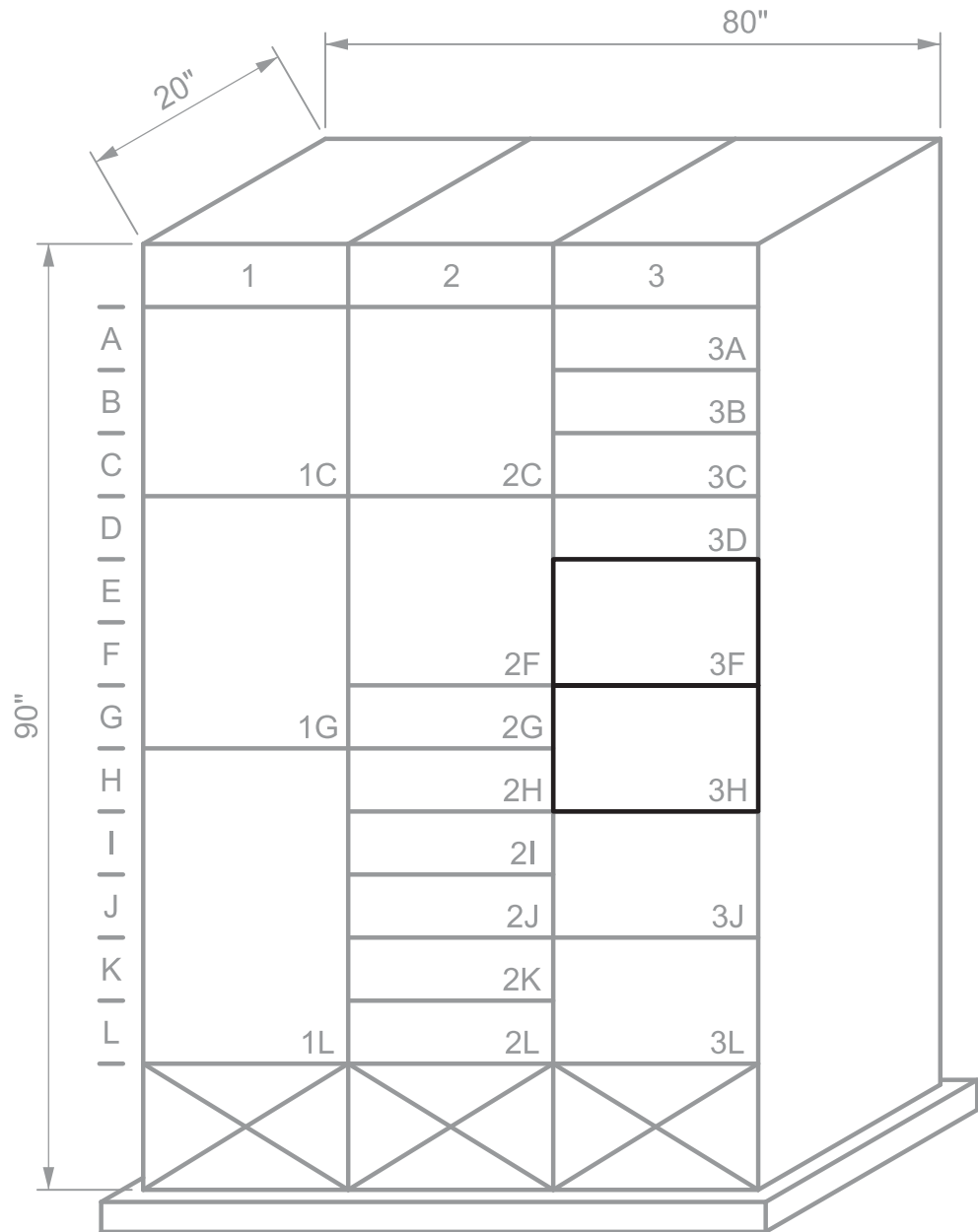
E-5
10506196



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



MCC-D07ELE932-MCC-2-2 SINGLE LINE DIAGRAM
(LOCATED IN NORTHEAST ELECTRICAL ROOM)



MCC-D07ELE932-MCC-2-2 ELEVATION
(LOCATED IN NORTHEAST ELECTRICAL ROOM)

GENERAL SHEET NOTES

1. MCC-D07ELE932-MCC-2-2 IS AN EXISTING GE SPECTRA MOTOR CONTROL CENTER, SERIAL NUMBER M-698670.

SHEET KEYNOTES

- A. PROVIDE "SPARE" NAMEPLATE.

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

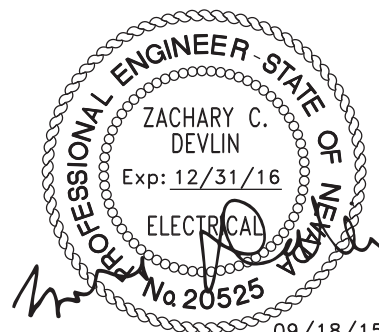


DESIGNED Z DEVLIN
DRAWN Z DEVLIN
CHECKED D REED

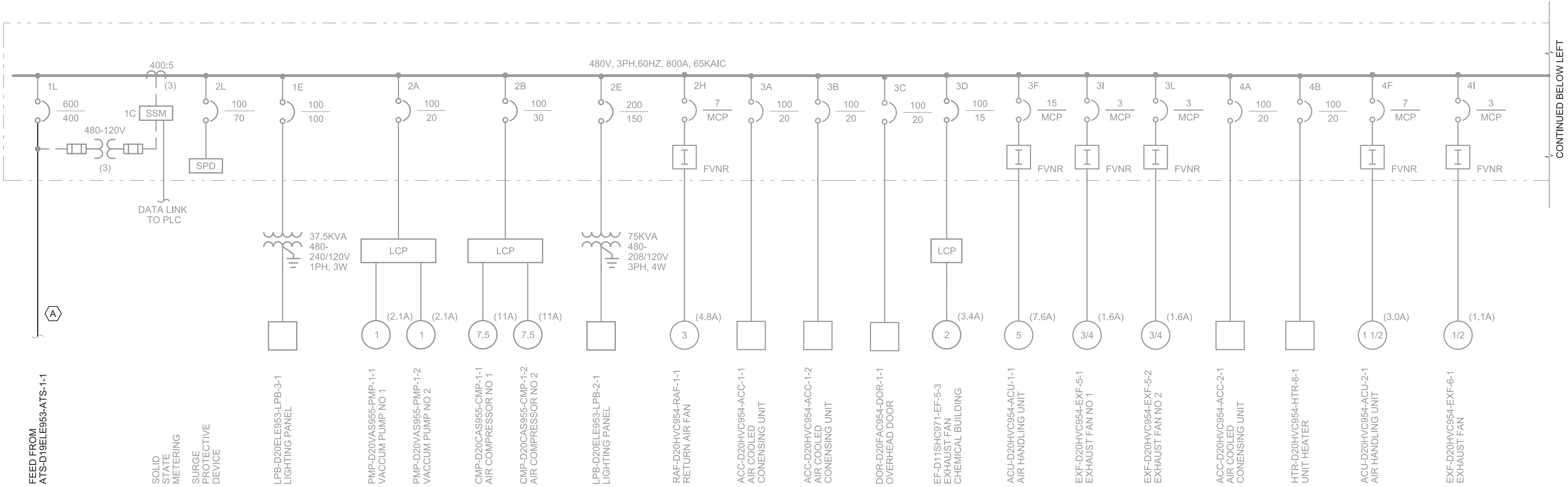
DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL
NORTHEAST ELECTRICAL ROOM
EXISTING MCC-D07ELE932-MCC-2-2
SINGLE LINE DIAGRAM AND ELEVATION

SCALE:
NO SCALE

SHEET:
E-6
10506196



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

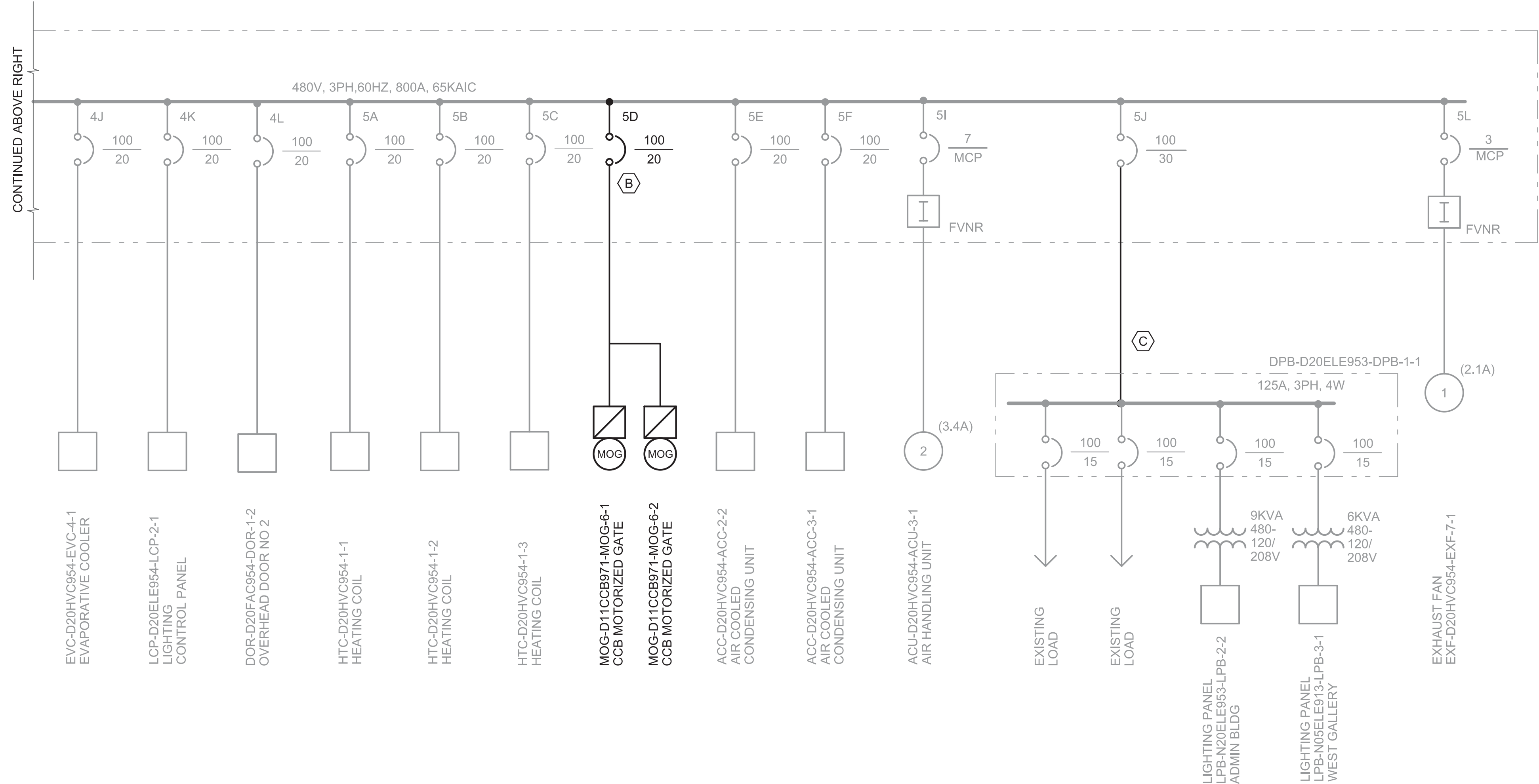


MCC-D20ELE953-MCC-1-1 SINGLE LINE DIAGRAM

(LOCATED IN ADMINISTRATION BLDG ELECTRICAL ROOM)

SHEET KEYNOTES

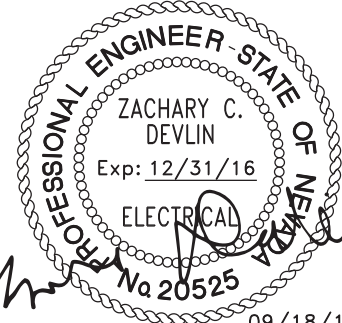
- A. FURNISH AND INSTALL NEW CONDUCTORS AND CONDUIT AS REQUIRED TO RE-FEED MCC-D20ELE953-MCC-1-1 FROM ATS-D19ELE953-ATS-1-1.
- B. FURNISH AND INSTALL NEW DOOR AND 20A BREAKER FOR COMPARTMENT 5D AND CONDUIT AND CONDUCTORS AS NEEDED TO FEED EXISTING MOG-D11CCB971-MOG-6-1 AND MOG-D11CCB971-MOG-6-2.
- C. FURNISH AND INSTALL CONDUIT AND CONDUCTORS AS REQUIRED TO RE-FEED DPB-D20ELE953-DPB-1-1 FROM MCC-D20ELE953-MCC-1-1.



MCC-D20ELE953-MCC-1-1 ELEVATION

(LOCATED IN ADMINISTRATION BLDG ELECTRICAL ROOM)

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



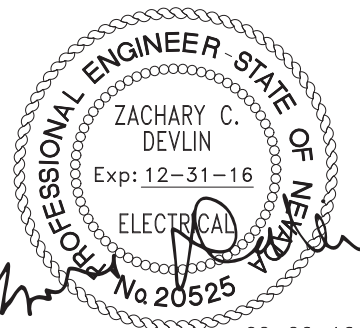
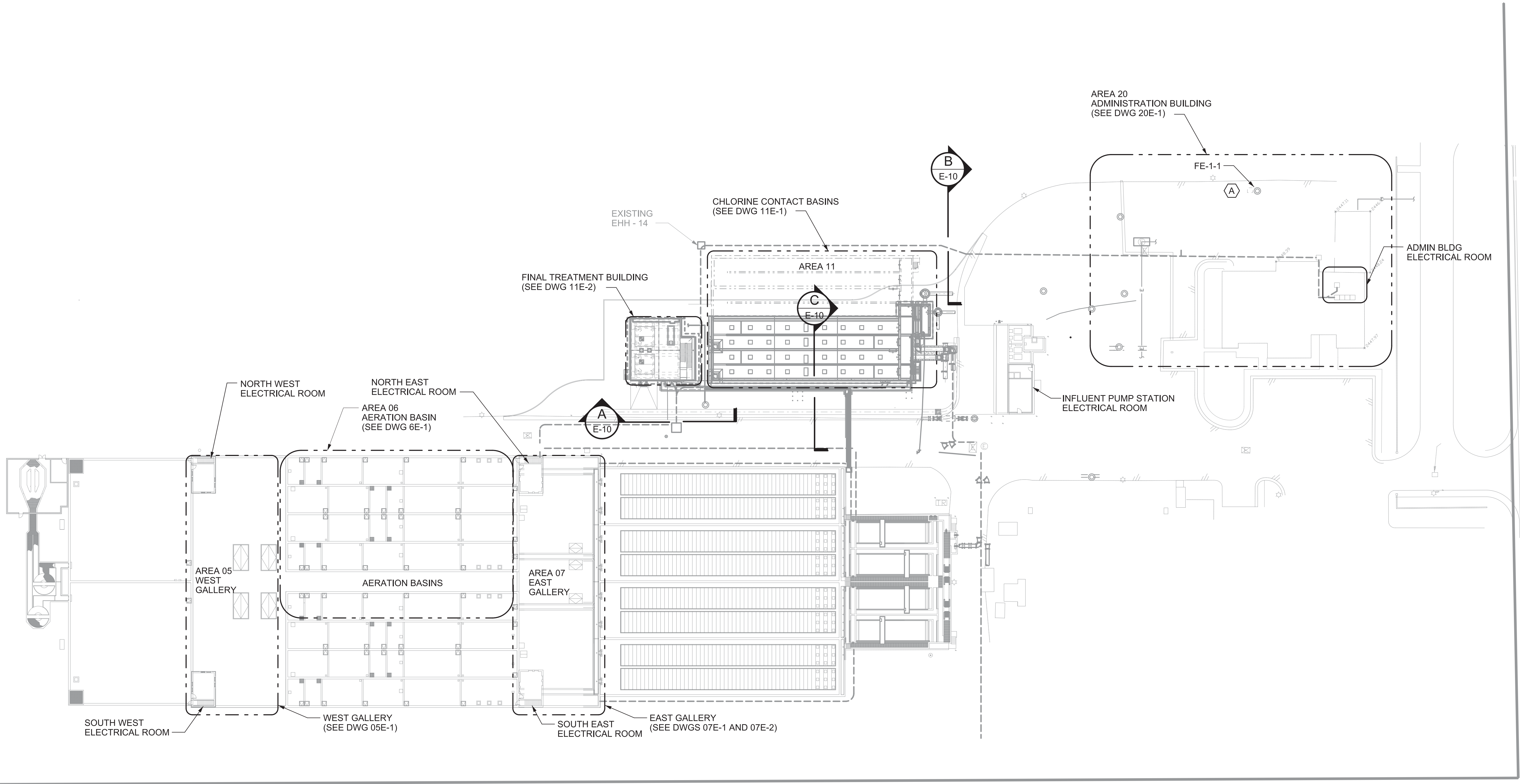
DESIGNED Z DEVLIN				DRAWN Z DEVLIN				CHECKED D REED			
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT											
ELECTRICAL ADMIN BLDG ELECTRICAL ROOM EXISTING MCC-D20ELE953-MCC-1-1 SINGLE LINE DIAGRAM AND ELEVATION											
SCALE: NO SCALE											
SHEET: E-7											
10506196											

File: DHWRC_E-08.dgn Model: Layout1 ColorTable: MWH_Plot_PenTable_2012.pen PlotScale: 0.083333:1 User: svc_projectwise Plot Date: 26-FEB-2016 15:05



SHEET KEYNOTES

- A. INSTALL FE-1-1 IN 30" RESIDUALS SEWER PIPE IN MH37. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. INTERIOR OF MANHOLE AND PIPE ARE CLASS I DIVISION 1 LOCATIONS.



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

DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT				DESCRIPTION
DESIGNED Z DEVLIN	DRAWN UPARASHAR	CHECKED D REED	REV	DATE
ELECTRICAL OVERALL SITE PLAN				BY
DURANGO HILLS WATER RESOURCE CENTER UPGRADES				DATE
SCALE: 1"=40'				BY
SHEET: E-8				DATE
10506196				DESCRIPTION

PANELBOARD: LPB-D01ELE893-LPB-2-1				BUS AMPS: 150				VOLTS: 120/208 V			
LOCATION: IPS BUILDING				MAIN BKR AMPS: 100				PHASE: 3			
				MOUNTING: SURFACE				WIRE: 4			
LOAD DESCRIPTION	KVA			CKT	BKR	BKR	CKT	KVA			LOAD DESCRIPTION
	A	B	C					A	B	C	
LTS ELEC RM	--			1	20	20	2	--			RCPTS CHEMICAL ROOM
RCPTS ELEC RM		--		3	20	20	4		--		LTS CHEMICAL ROOM
SOLENOID			--	5	20	2P	6			--	ACU 002
ACU 001	--			7	20		8	--			
		--		9	2P	20	10		--		SAC CHEM PUMP
ACC 1-1			--	11	30	20	12			--	CHEM FAN
	--			13	3P	20	14	--			CHEM FAN
		--		15		20	16		--		SAC CHEM PUMP
SECURITY			--	17	20	20	18			--	HVAC PANEL
CHEMICAL PUMPS	--			19	20	3P	20	--			ACC 1-2
CHEMICAL PUMPS		--		21	20		22		--		
LTS CHLORINE CONT BASIN			1.0	23	20		24			--	
PMP-D11CCB971-PMP-4-5	0.5			25	20	20	26	0.72			RCPTS CHLORINE CONT BASIN
LIT-4-1, LIT-4-2		0.13		27	20	20	28		0.2		AIT-4-3, AIT-4-4, AIT-7-1
SAMPLE PUMP			0.5	29	20	20	30			0.5	PORTABLE AUTO SAMPLER
	--	--	--	TOTAL				--	--	--	
	PHASE LOAD			TOTAL LOAD							
	--	--	--	--	KVA	--	KVA	(--)			

A

C

240/120V VOLTS 200 A MAIN BREAKER				1 PH 3 W 200 A				PANELBOARD: LPB-D20ELE953-LPB-3-1				FEED: _____			
								LOCATION: ADMIN BLDG ELECT ROOM				MOUNTING: SURFACE			
LOAD DESCRIPTION	KVA		LTG	REC	MIS	CIR	BKR	</							

D

B

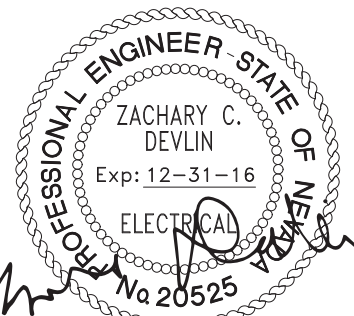


SHEET KEYNOTES

- A. EXISTING SPACE. PROVIDE NEW 1-POLE 20A BREAKER.
- B. EXISTING SPACE. PROVIDE NEW 2-POLE 50A BREAKER.
- C. CONNECT NEW CHLORINE ANALYZER TO EXISTING CIRCUIT.
- D. CIRCUIT NEW FLOW METER FROM EXISTING SPARE BREAKER.

PANELBOARD: LPB-D07ELE933-LPB-1-1				BUS AMPS: 200				VOLTS: 120/208 V				
LOCATION: NORTH EAST ELECTRICAL ROOM				MAIN BKR AMPS: 150				PHASE: 3				
				MOUNTING: SURFACE				WIRE: 4				
LOAD DESCRIPTION	KVA			OKT	BKR	BKR	OKT	KVA			LOAD DESCRIPTION	
	A	B	C					A	B	C		
LTS ELEC RM	--			1	20	20	2	--			RCPTS GALLERY	
RCPTS ELEC RM		--		3	20	20	4		--		LTS GALLERY	
LTS GALLERY			--	5	20	20	6			--	LTS GALLERY	
LTS GALLERY	--			7	20	20	8	--			PLC 5	
E/W GALLERY LTS		--		9	20	30	10		--		ACC-N07HVC001	
E/W GALLERY RCPTS			--	11	20		12			--		
ACU-N07HVC001	--			13	20		14	--				
ACU-N07HVC002		--		15	2P	30	16		--		ACC-N07HVC002	
			--	17	20		18			--		
	--			19	2P		20	--				
STAIR LTS		--		21	20	20	22		--		POLE LTS	
POLE RCPT			--	23	20	20	24			--	N/E DECK LTS	
N/E POLE GFI	--			25	20	30	26	--			UV-HSC	
F.F. RCPT		--		27	20		28		--			
F.F. LTS			--	29	20		30			--		
UV SAMPLER	--			31	20	20	32	--			UV CTRL PANEL	
INSTRUMENTATION		--		33	20	20	34		--		STORM DRAIN FLOW (MH-20)	
FLOW METER			--	35	20	20	36			--	SPARE	
SPACE	--			37	20	20	38	--			SECURITY	
TURBIDITY METER		--		39	20		40		--		SPACE	
SPACE			--	41	20	20	42			0.1	FIT-1-3	
	--	--	--	TOTAL				--	--	--		
	PHASE LOAD			TOTAL LOAD								
	--	--	--	27.5	KVA	27.5	KVA	(95A)				

A



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

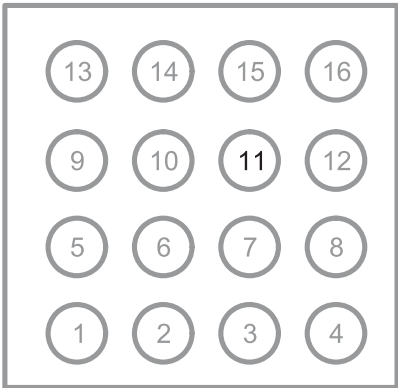
DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT

DESIGNED Z DEVLIN
DRAWN Z DEVLIN
CHECKED D REED

ELECTRICAL
PANELBOARD SCHEDULES

SCALE:
NO SCALE

SHEET:
E-9
10506196



A DUCTBANK SECTION
E-8, 11E-2

DUCT	SIZE (")	WIRE FILL	FROM	TO
1	1	P-025A	MCC-D07ELE932-MCC-2-1	SODIUM HYPO VCP PANEL
2	1 1/2	P-023A	MCC-D07ELE932-MCC-2-1	XMR-N07ELE943-XMR-2-2
3	1	SPARE		
4	1	P-047A	MCC-D07ELE932-MCC-2-1	EF-D11SHC971-EF-5-2
5	1	P-048A	MCC-D07ELE932-MCC-2-1	P-BOX-1P
6	1	P-049A	MCC-D07ELE932-MCC-2-1	EC-D11SHC971-EC-5-1
7	1	P-051A	MCC-D07ELE932-MCC-2-1	EUH-D11SCH971-EUH-1-1
8	1	P-052A	MCC-D07ELE932-MCC-2-1	EUH-D11SCH971-EUH-1-2
9	1	P-053A	MCC-D07ELE932-MCC-2-1	JB-21
10	1	P-054A	MCC-D07ELE932-MCC-2-1	JB-22
11	1	SPARE		
12	1	P-056A	MCC-D07ELE932-MCC-2-1	JB-24
13	1	C-035	MCC-D07ELE932-MCC-2-1	HVCP-1
14	1	SPARE		
15	1	SPARE		
16	1	SPARE		

A



C DUCTBANK SECTION
E-8, 11E-2

DUCT	SIZE (")	WIRE FILL	FROM	TO
1	1	P-053B	MCC-D07ELE932-MCC-2-1	JB-21
2	1	P-054B	MCC-D07ELE932-MCC-2-1	JB-22
3	1	P-055B	MCC-D07ELE932-MCC-2-1	JB-23
4	1	P-056B	MCC-D07ELE932-MCC-2-1	JB-24
5	2	C-043B	PLC-97	JB-27
6	1 1/2	C-044B	PLC-97	JB-28
7	1 1/2	S-035B	PLC-97	JB-29
8	1 1/2	SPARE		

C



B DUCTBANK SECTION
E-8, 20E-1

DUCT	SIZE (")	WIRE FILL	FROM	TO
1	3	(2) FIBER OPTIC CABLES	PLC 97 & DIEBOLD SECURITY PATCH PANEL	ADMIN BLDG CTRL RM
2	3	P-055A	MCC-D20ELE953-MCC-1-1	MOG-6-1, MOG-6-2
3	3	3#10, 1#10 GND	MCC-D20ELE953-MCC-1-1	EF-5-3 LCP CHEM BLDG
4	3	SPARE		

B



SHEET KEYNOTES

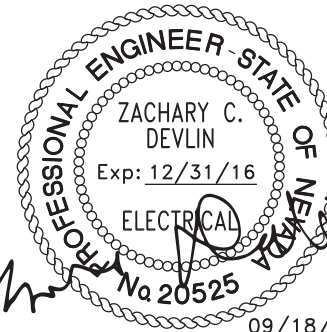
- A. REMOVE EXISTING CIRCUIT P-055A TO MCC-D07ELE932-MCC-2-1. RE-ROUTE CIRCUIT TO MCC-D20ELE953-MCC-1-1.
- B. RE-USE EXISTING SPARE CONDUIT.
- C. EXISTING DUCTBANK DETAILS PROVIDED FOR INFORMATION ONLY.

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED Z DEVLIN
DRAWN U PARASHAR
CHECKED D REED

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL
DUCT BANK SCHEDULES



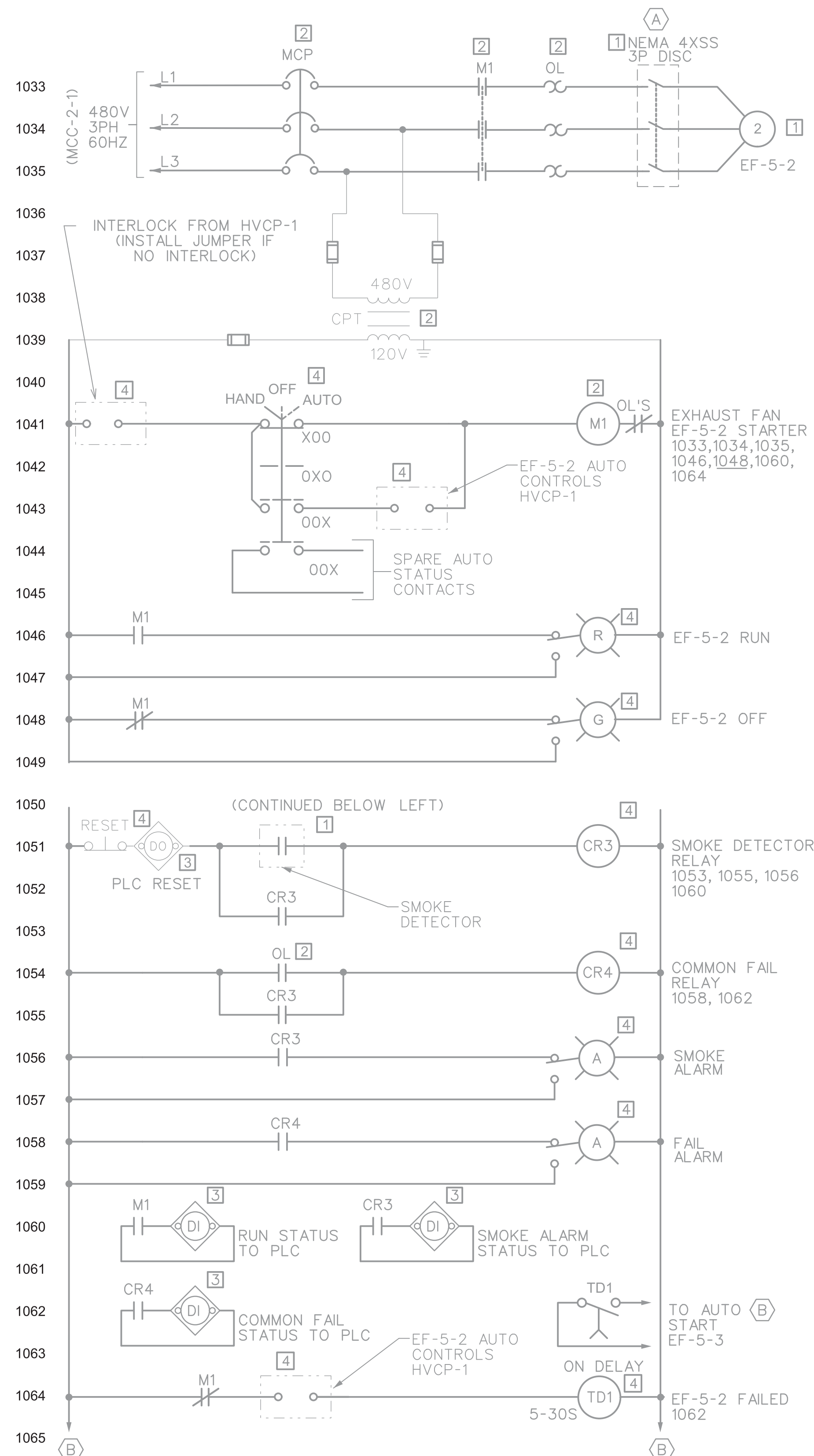
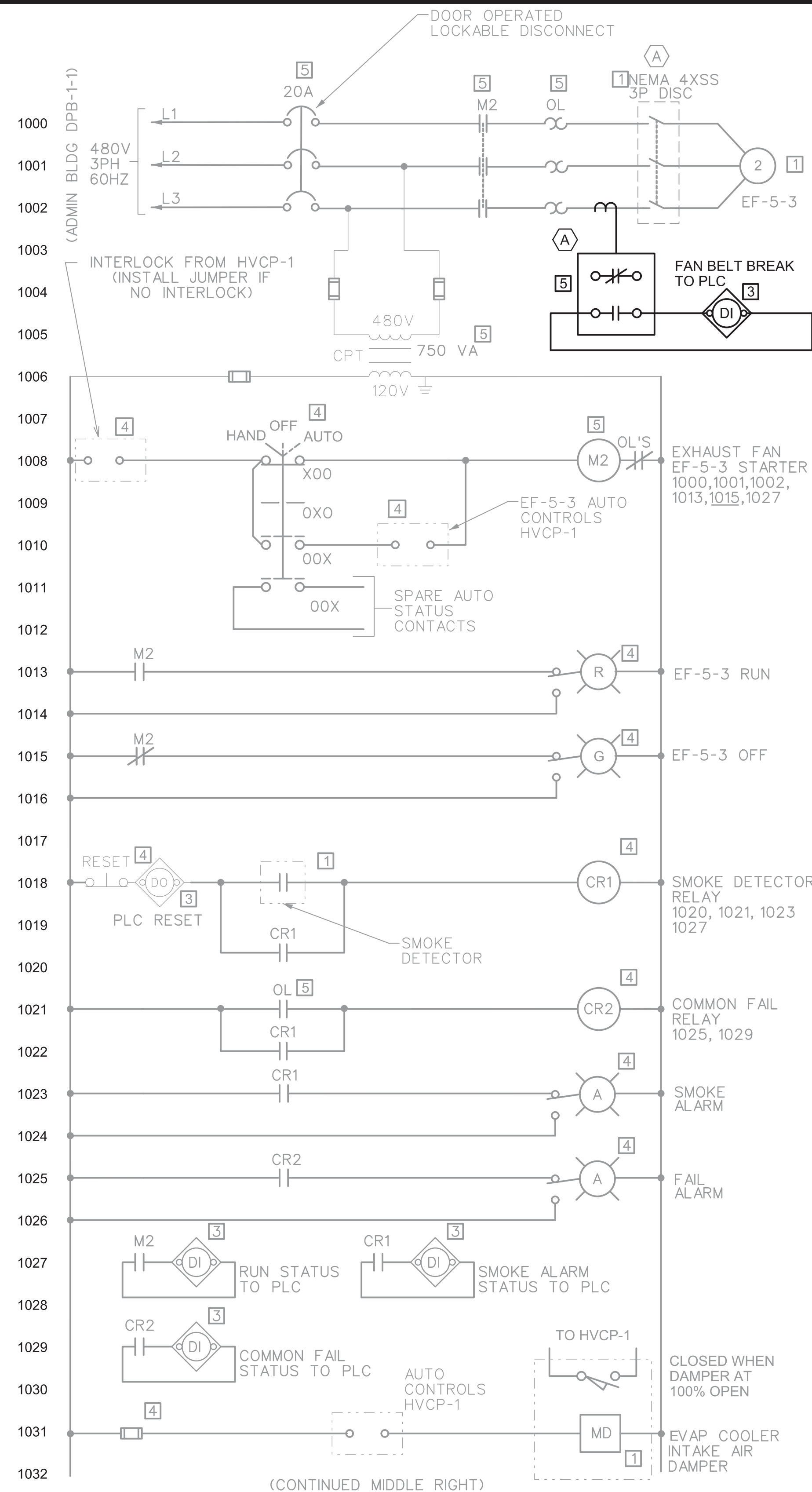
SCALE:
NO SCALE

SHEET:

E-10

10506196

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



ELEMENTARY SCHEMATIC - EXHAUST FANS
(EF-D11 SHC971 -EF-5-2, EF-D11 SHC971 -EF-5-3)

LOCATION LEGEND

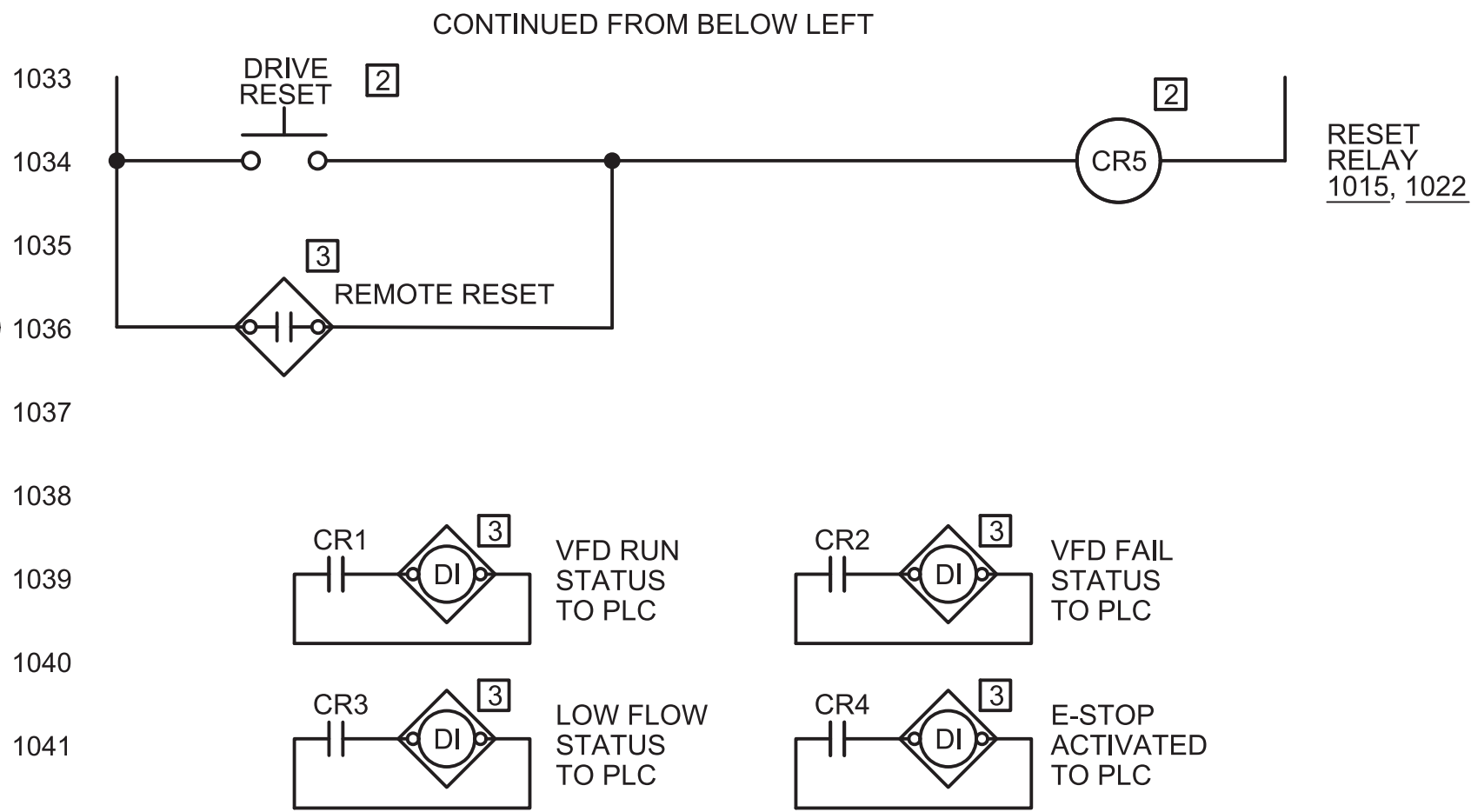
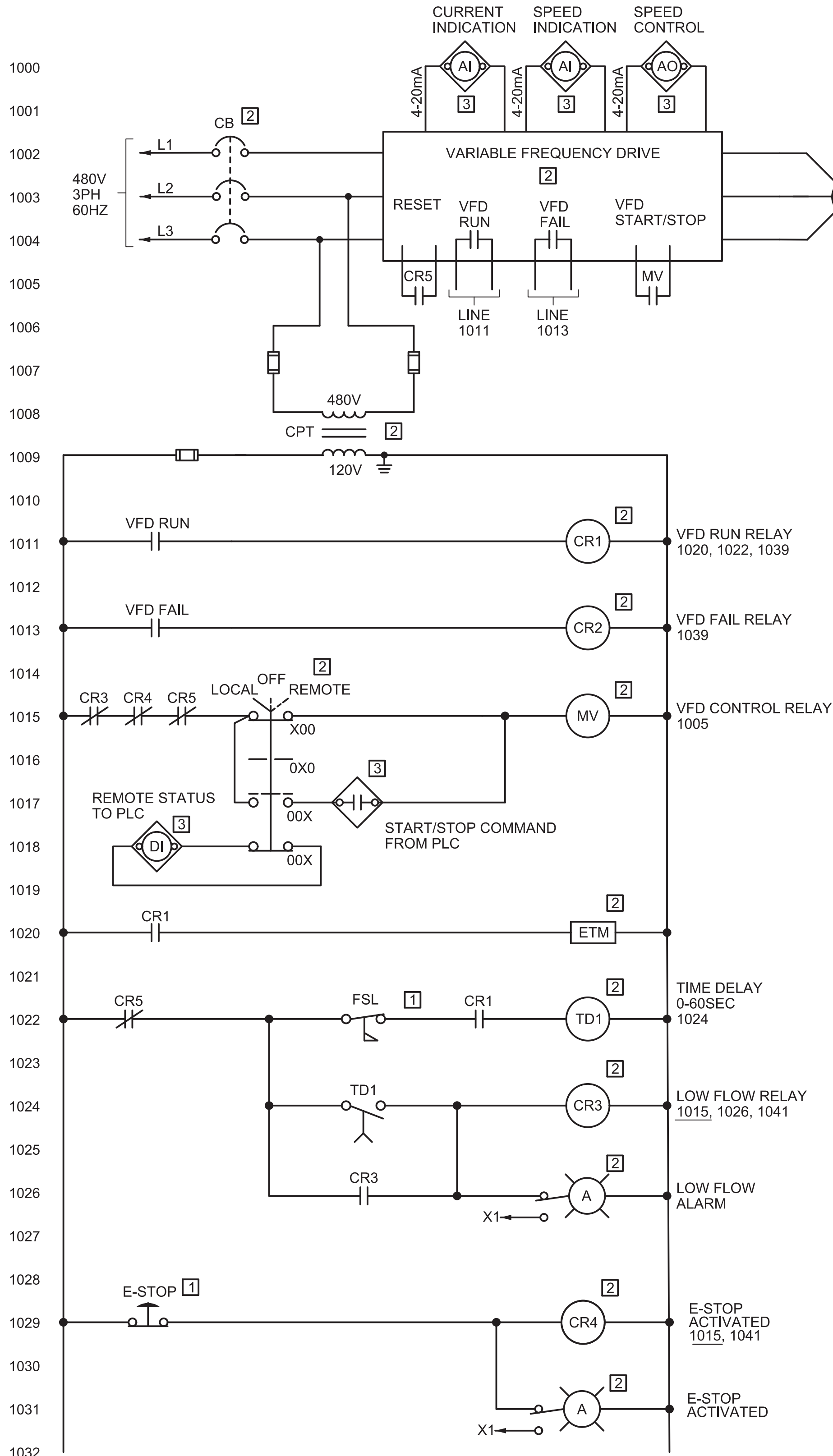
- 1 FIELD MOUNTED
- 2 MCC
- 3 PLC
- 4 HVCP-1 CONTROL PANEL
- 5 EXHAUST FAN EF-5-3 LCP
- 6 LIGHTING CONTROL PANEL

 SHEET KEYNOTES

- A. PROVIDE CURRENT SENSING RELAY. WIRE NORMALLY OPEN CONTACT TO PLC. CONFIGURE RELAY TO DETECT CHANGE IN CURRENT THAT OCCURS UPON BREAKAGE OF FAN DRIVE BELT.

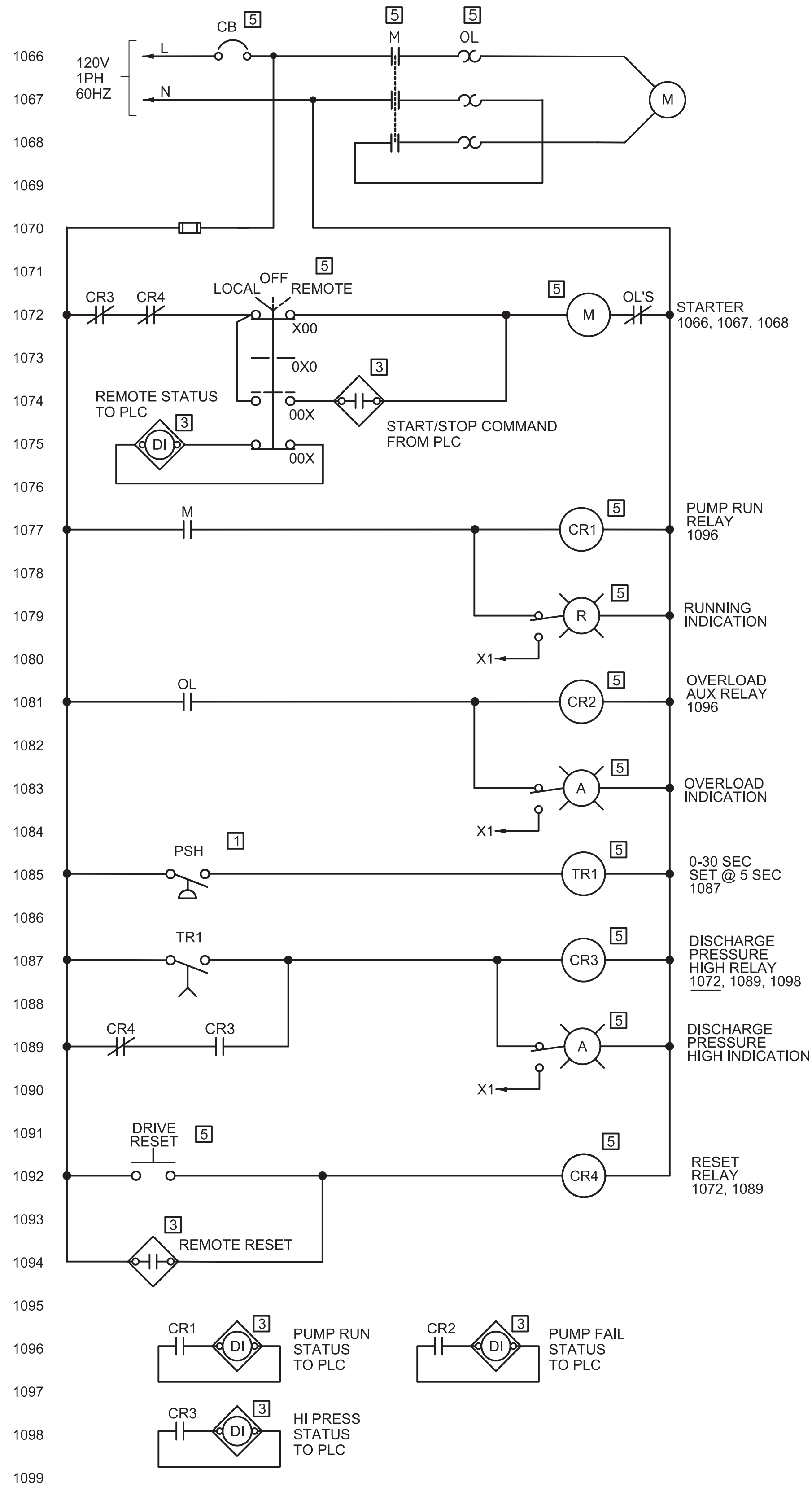
5	SHEET:	E-11	 DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT	REV	DATE	BY	DESCRIPTION
	SCALE:	NO SCALE					
DURANGO HILLS WATER RESOURCE CENTER UPGRADES ELECTRICAL CONTROL SCHEMATIC - I			 MWH ®	DESIGNED <u> Z DEVLIN </u> DRAWN <u> Z DEVLIN </u> CHECKED <u> D REED </u>			





NON-POTABLE WATER PUMP

(TYPICAL FOR PMP-D07NPW931-PMP-2-1 AND PMP-D07NPW931-PMP-2-2)

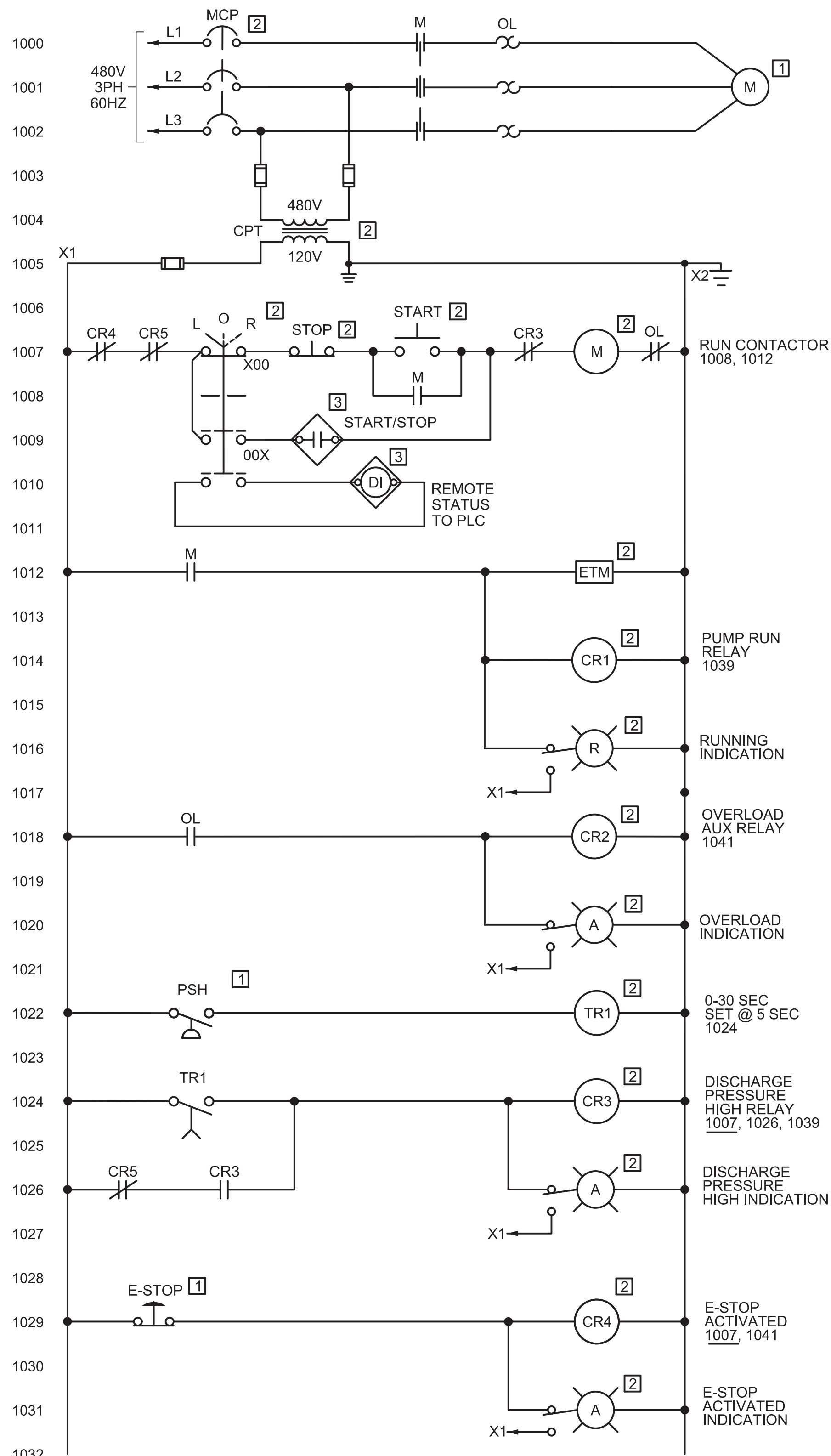


CHLORINE RESIDUAL SAMPLE PUMP

(PMP-D11CCB971-PMP-7-1)

LOCATION LEGEND

- 1 FIELD MOUNTED
- 2 MCC
- 3 PLC
- 4 HVCP-1 CONTROL PANEL
- 5 LCP
- 6 LIGHTING CONTROL PANEL

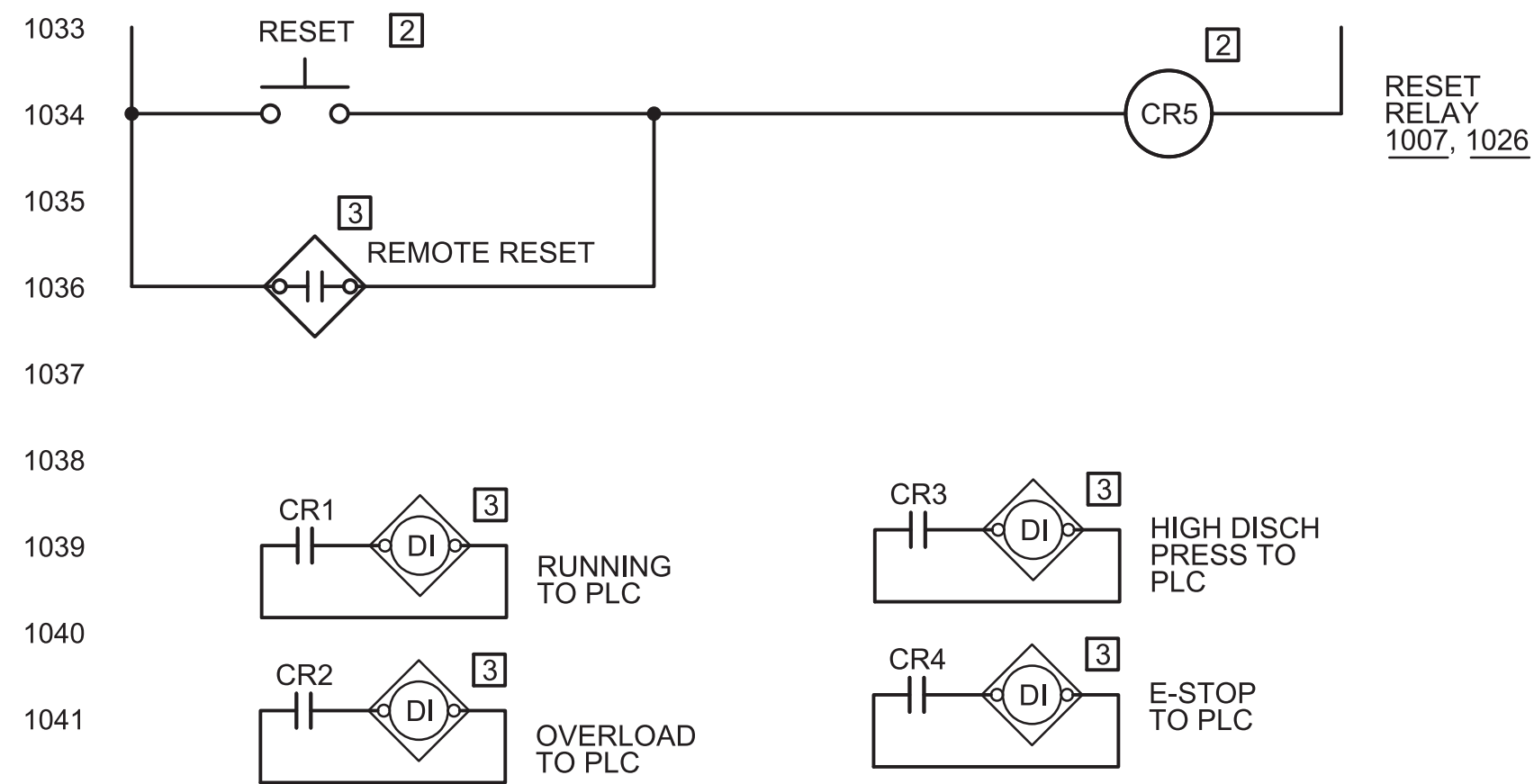


CONTINUED ABOVE RIGHT

LOCATION LEGEND

- 1 FIELD MOUNTED
- 2 MCC
- 3 PLC
- 4 HVCP-1 CONTROL PANEL
- 5 EXHAUST FAN EF-5-3 LCP
- 6 LIGHTING CONTROL PANEL

CONTINUED FROM BELOW LEFT



SCREENINGS DILUTION WATER PUMP

(TYPICAL FOR PMP-D07NPW931-PMP-1-1, PMP-D07NPW931-PMP-1-2)

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



MWH®



DESIGNED Z DEVLIN
DRAWN Z DEVLIN
CHECKED D REED

ELECTRICAL

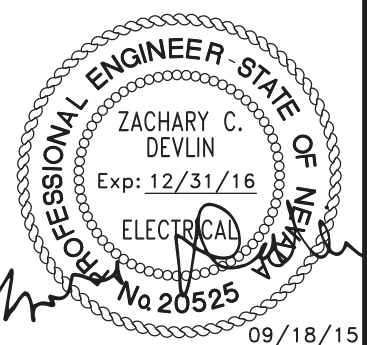
CONTROL SCHEMATIC - III

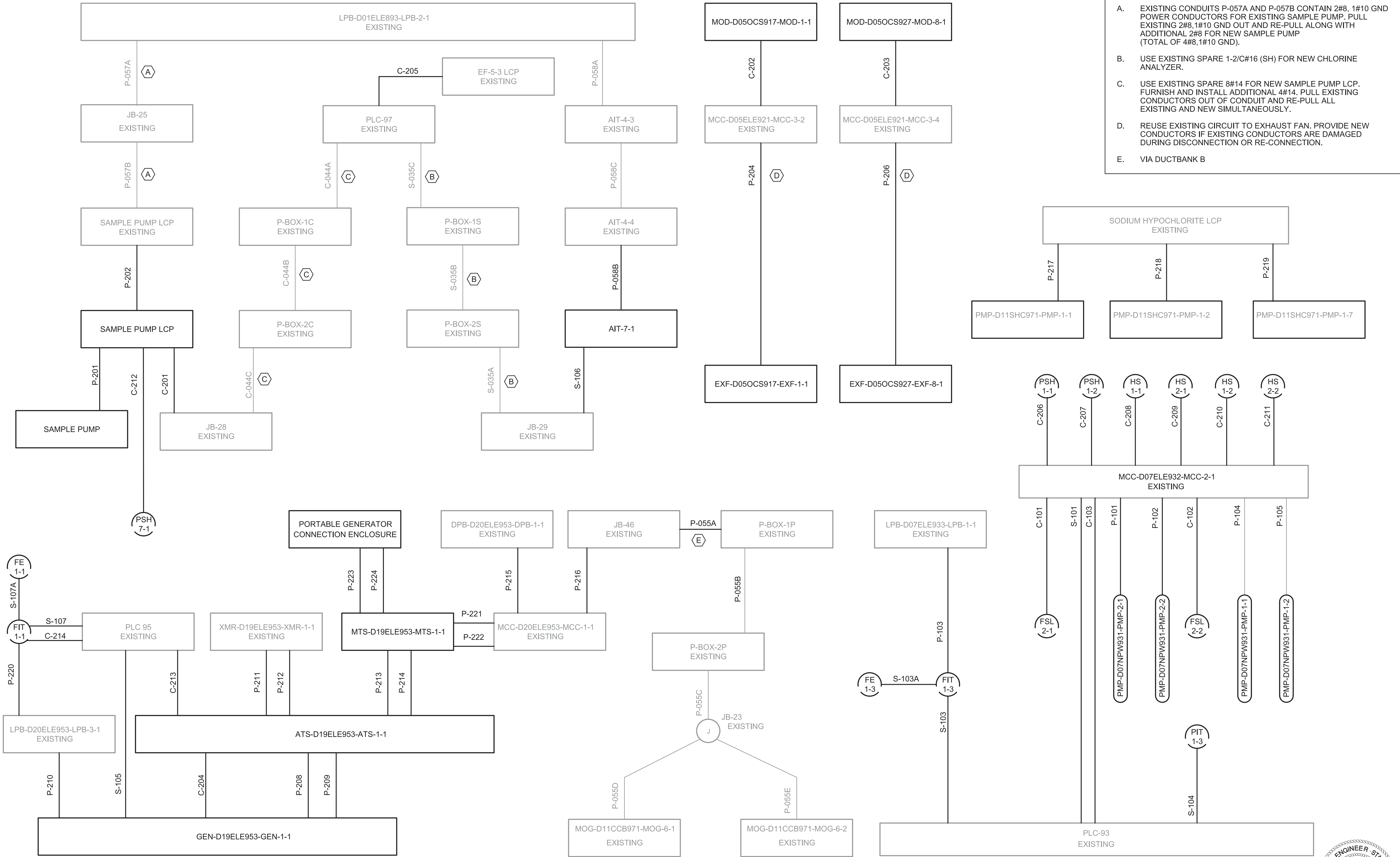
SCALE:

NO SCALE

SHEET:

E-13





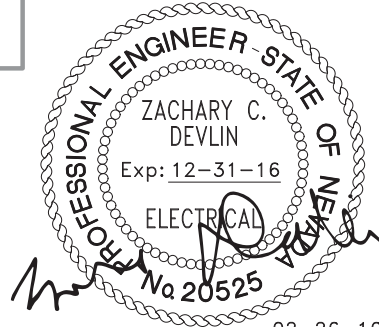
DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED Z DEVLIN
DRAWN UPARASHAR
CHECKED D REED

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL
CONDUIT DEVELOPMENT

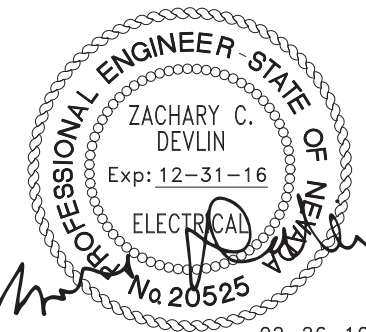
SCALE:
NO SCALE
SHEET:
E-14
10506196

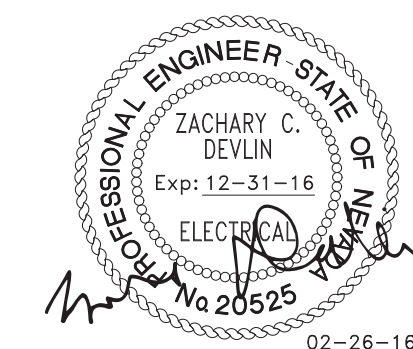
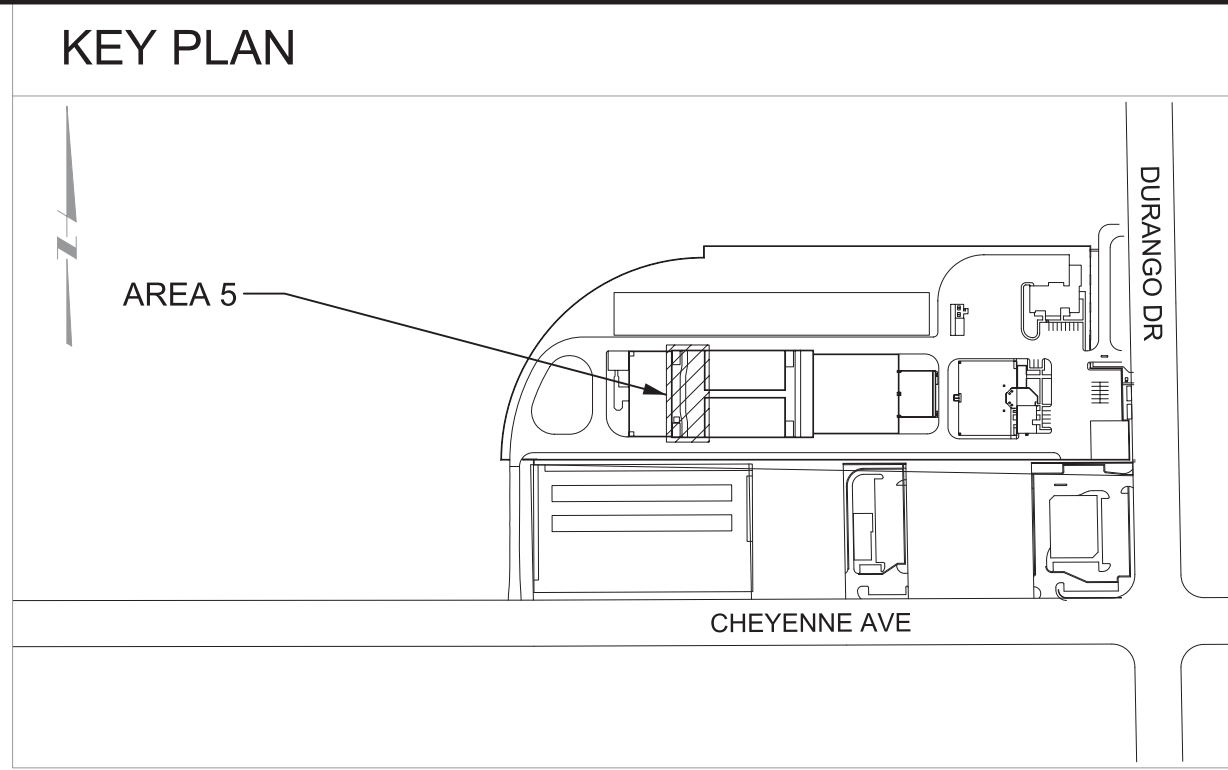


WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

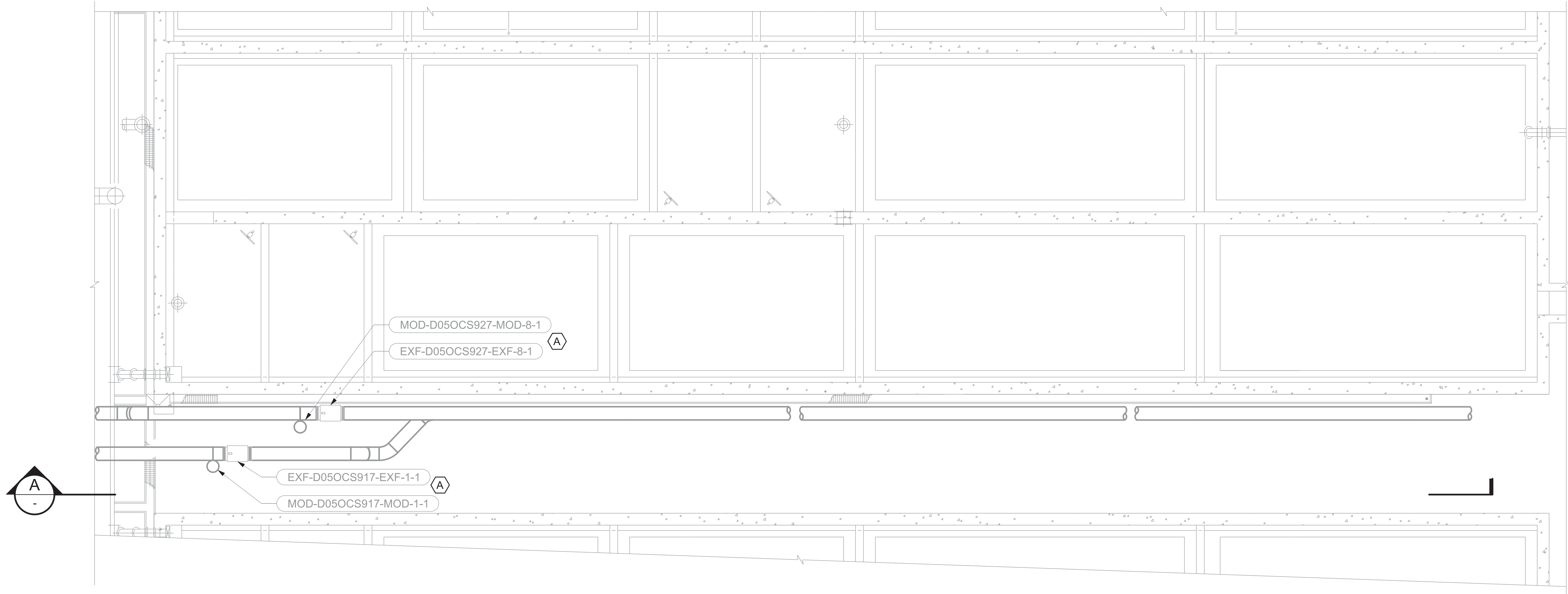
CONDUIT		CONDUCTORS				FROM	TO	REMARKS
NO	SIZE	POWER	CONTROL	SIGNAL	SPARES*			
C-044A	1		12#14, 1#14 GND			P-BOX-1C EXISTING	PLC-97 EXISTING	USE EXISTING CONDUIT
C-044B	1		12#14, 1#14 GND			P-BOX-2C EXISTING	P-BOX-1C EXISTING	USE EXISTING CONDUIT
C-044C	1		12#14, 1#14 GND			JB-28 EXISTING	P-BOX-2C EXISTING	USE EXISTING CONDUIT
C-101	3/4		2#14, 1#14 GND			MCC-D07ELE932-MCC-2-1	FSL-2-1	
C-102	3/4		2#14, 1#14 GND			MCC-D07ELE932-MCC-2-1	FSL-2-2	
C-103	2		64#14, 1#14 GND		8#14	MCC-D07ELE932-MCC-2-1	PLC-93 EXISTING	
C-201	3/4		12#14, 1#14 GND			SAMPLE PUMP LCP	JB-28 EXISTING	
C-202	3/4		2#14, 1#14 GND			MCC-D05ELE921-MCC-3-2 EXISTING	MOD-D05OCS917-MOD-1-1	
C-203	3/4		2#14, 1#14 GND			MCC-D05ELE921-MCC-3-4 EXISTING	MOD-D05OCS927-MOD-8-1	
C-204	3/4		12#14, 1#14 GND			GEN-D19ELE953-GEN-1-1	ATS-D19ELE953-ATS-1-1	
C-205	3/4		2#14, 1#14 GND			PLC-97 EXISTING	EF-5-3 LCP EXISTING	
C-206	3/4		2#14, 1#14 GND			MCC-D07ELE932-MCC-2-1	PSH-1-1	
C-207	3/4		2#14, 1#14 GND			MCC-D07ELE932-MCC-2-1	PSH-1-2	
C-208	3/4		2#14, 1#14 GND			MCC-D07ELE932-MCC-2-1	HS-1-1	
C-209	3/4		2#14, 1#14 GND			MCC-D07ELE932-MCC-2-1	HS-2-1	
C-210	3/4		2#14, 1#14 GND			MCC-D07ELE932-MCC-2-1	HS-1-2	
C-211	3/4		2#14, 1#14 GND			MCC-D07ELE932-MCC-2-1	HS-2-2	
C-212	3/4		2#14, 1#14 GND			SAMPLE PUMP LCP	PSH-7-1	
C-213	3/4		6#14, 1#14 GND			ATS-D19ELE953-ATS-1-1	PLC 95 EXISTING	
C-214	3/4		2#14, 1#14 GND			FIT-1-1	PLC 95 EXISTING	
P-055A	3	3#10, 1#10 GND				JB-46 EXISTING	P-BOX-1P EXISTING	EXISTING SPARE CONDUIT IN DUCTBANK B
P-055B	1	3#10,1#10 GND				P-BOX-1P EXISTING	P-BOX-2P EXISTING	USE EXISTING CONDUIT
P-055C	3/4	3#10,1#10 GND				P-BOX-2P EXISTING	JB-23 EXISTING	USE EXISTING CONDUIT
P-055D	3/4	3#10,1#10 GND				MOG-D11CCB971-MOG-6-1EXISTING	JB-23 EXISTING	USE EXISTING CONDUIT
P-055E	3/4	3#10,1#10 GND				MOG-D11CCB971-MOG-6-2 EXISTING	JB-23 EXISTING	USE EXISTING CONDUIT
P-057A	1	4#8, 1#10 GND				LPB-D01ELE893-LPB-2-1EXISTING	JB-25 EXISTING	USE EXISTING CONDUIT
P-057B	3/4	4#8, 1#10 GND				JB-25 EXISTING	SAMPLE PUMP LCP EXISTING	USE EXISTING CONDUIT
P-058A	3/4	2#12, 1#12 GND				LPB-D01ELE893-LPB-2-1 EXISTING	AIT-4-2 EXISTING	USE EXISTING CONDUIT
P-058B	3/4	2#12, 1#12 GND				AIT-4-4	AIT-4-3 EXISTING	
P-058C	3/4	2#12, 1#12 GND				AIT-4-3 EXISTING	AIT-4-2 EXISTING	USE EXISTING CONDUIT
P-101	1 1/2	3/C#8 AWG W/3 SYM SPACED #14 GND				MCC-D07ELE932-MCC-2-1	PMP-D07NPW931-PMP-2-1	
P-102	1 1/2	3/C#8 AWG W/3 SYM SPACED #14 GND				MCC-D07ELE932-MCC-2-1	PMP-D07NPW931-PMP-2-2	
P-103	3/4	2#12, 1#12 GND				LPB-D07ELE933-LPB-1-1	FIT-1-3	CKT 42
P-104	1	3#12, 1#12 GND				MCC-D07ELE932-MCC-2-1	PMP-D07NPW931-PMP-1-1	USE EXISTING CONDUIT
P-105	1	3#12, 1#12 GND				MCC-D07ELE932-MCC-2-1	PMP-D07NPW931-PMP-1-2	USE EXISTING CONDUIT
P-201	3/4	2#12, 1#12 GND				SAMPLE PUMP LCP	SAMPLE PUMP	
P-202	3/4	2#12, 1#12 GND				SAMPLE PUMP LCP EXISTING	SAMPLE PUMP LCP	
P-204	3/4	3#12, 1#12 GND				EXF-D05OCS917-EXF-1-1	MCC-D05ELE921-MCC-3-2 EXISTING	
P-206	3/4	3#12, 1#12 GND				EXF-D05OCS927-EXF-8-1	MCC-D05ELE921-MCC-3-4 EXISTING	
P-208	3	3-350 KCML, 1#1/0 GND				GEN-D19ELE953-GEN-1-1	ATS-D19ELE953-ATS-1-1	
P-209	3	3-350 KCML, 1#1/0 GND				GEN-D19ELE953-GEN-1-1	ATS-D19ELE953-ATS-1-1	
P-210	3/4	3#8, 1#10 GND				GEN-D19ELE953-GEN-1-1	LPB-D20ELE953-LPB-3-1EXISTING	
P-211	3	3-350 KCML, 1#1/0 GND				ATS-D19ELE953-ATS-1-1	XMR-D19ELE953-XMR-1-1EXISTING	
P-212	3	3-350 KCML, 1#1/0 GND				ATS-D19ELE953-ATS-1-1	XMR-D19ELE953-XMR-1-1EXISTING	
P-213	3	3-350 KCML, 1#1/0 GND				ATS-D19ELE953-ATS-1-1	MTS-D19ELE953-MTS-1-1	
P-214	3	3-350 KCML, 1#1/0 GND				ATS-D19ELE953-ATS-1-1	MTS-D19ELE953-MTS-1-1	
P-215	3/4	3#10, 1#10 GND				MCC-D20ELE953-MCC-1-1EXISTING	DPB-D20ELE953-DPB-1-1EXISTING	

* NO OF SPARES INDICATED IN THE SPARE COLUMN ARE INDICATED IN TOTAL POWER, CONTROL OR SIGNAL COUNT.

[illegible]



DURANGO HILLS WATER RESOURCE CENTER UPGRADES SCALE: 1/8"=1'-0" SHEET: 05E-1 10506196	DURANGO HILLS WATER RESOURCE CENTER UPGRADES ELECTRICAL WEST EQUIPMENT GALLERY UPPER LEVEL PLAN		DESIGNED <u>Z DEVLIN</u> DRAWN <u>U PARASHAR</u> CHECKED <u>D REED</u>	 MWHP ®	 DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT	REV# DATE BY DESCRIPTION



PLAN

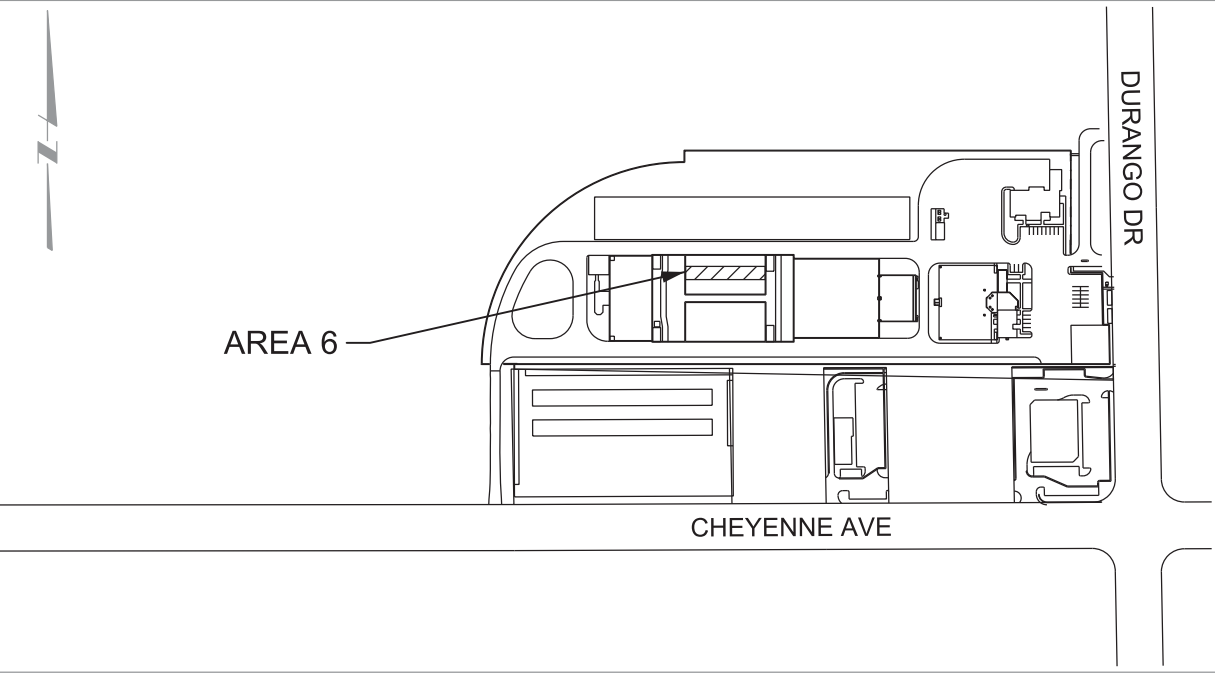


A
-
SECTION

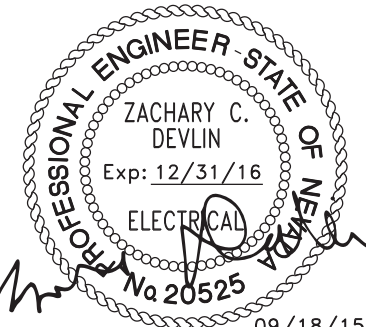
SHEET KEYNOTES

- A. DISCONNECT FOUL AIR EXHAUST FANS AND DAMPERS FOR REMOVAL FOR CLEANING AND INSPECTION. RE-CONNECT CONDUCTORS AFTER FANS HAVE BEEN CLEANED AND REINSTALLED.

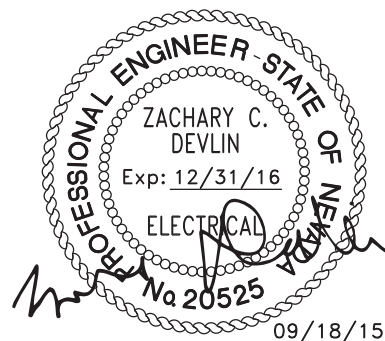
KEY PLAN

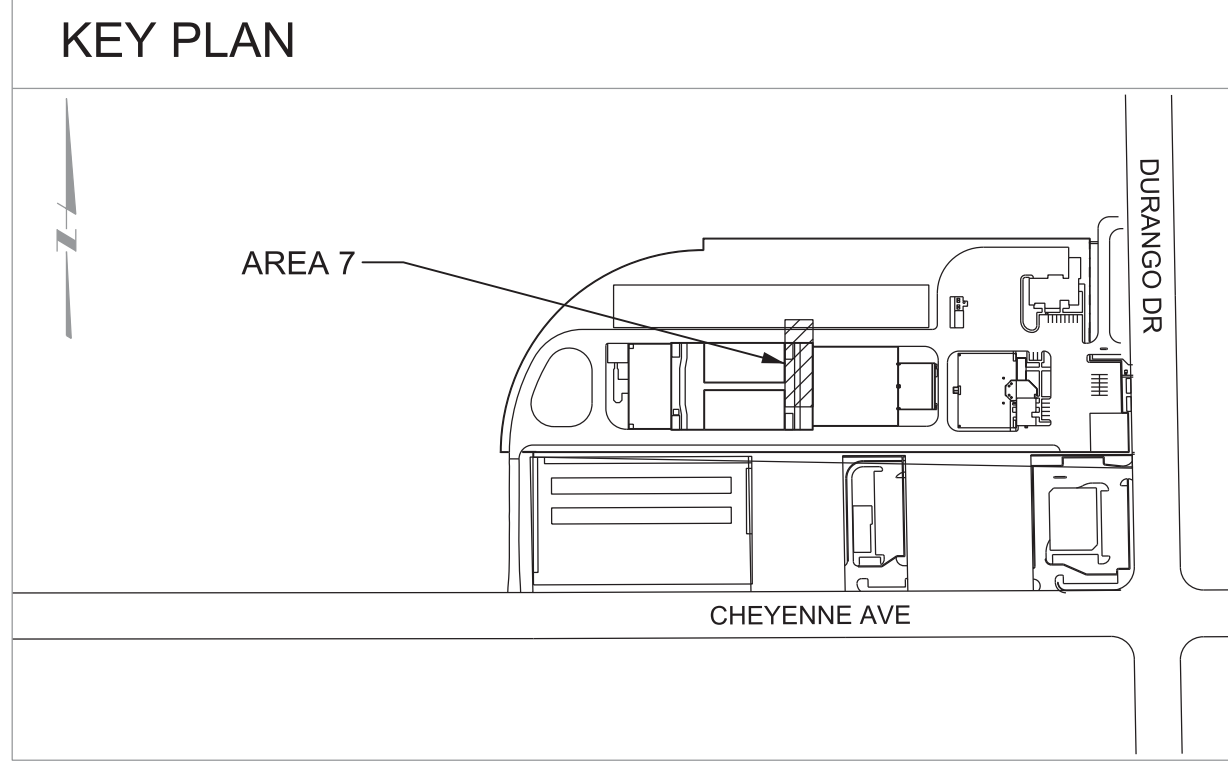
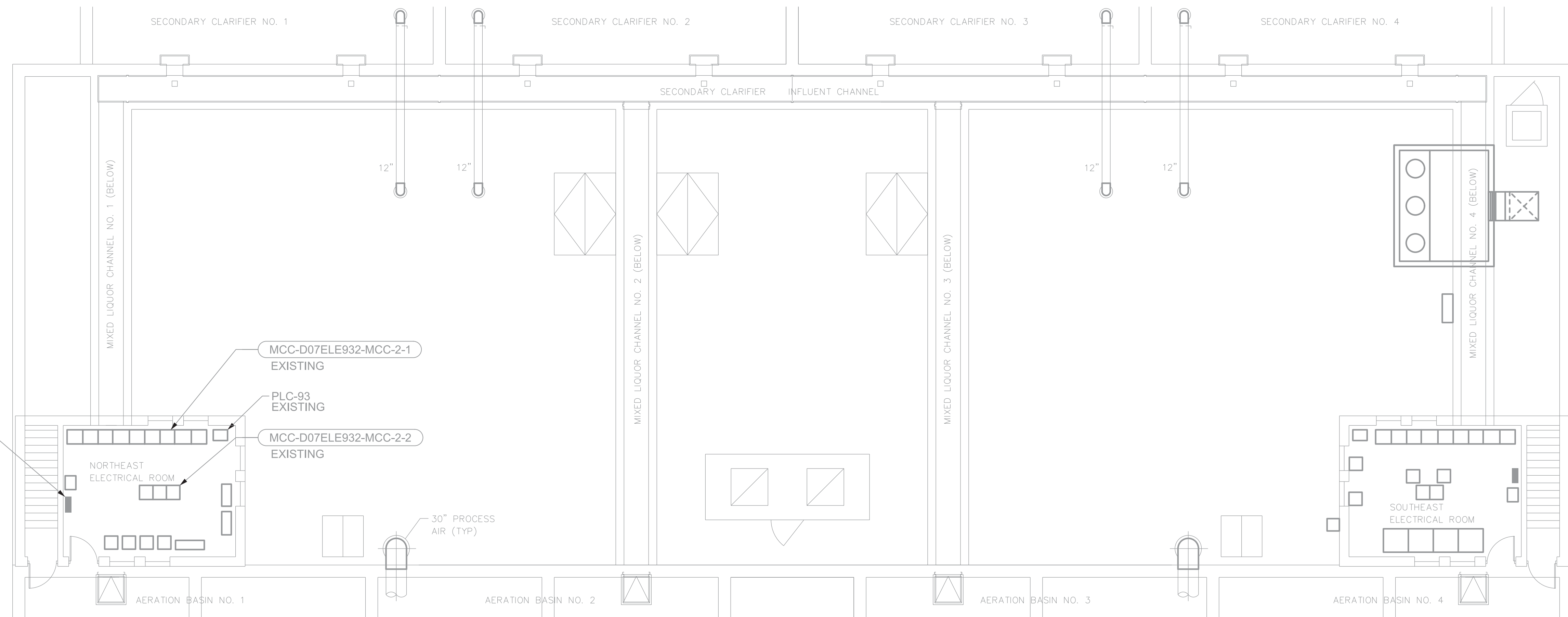


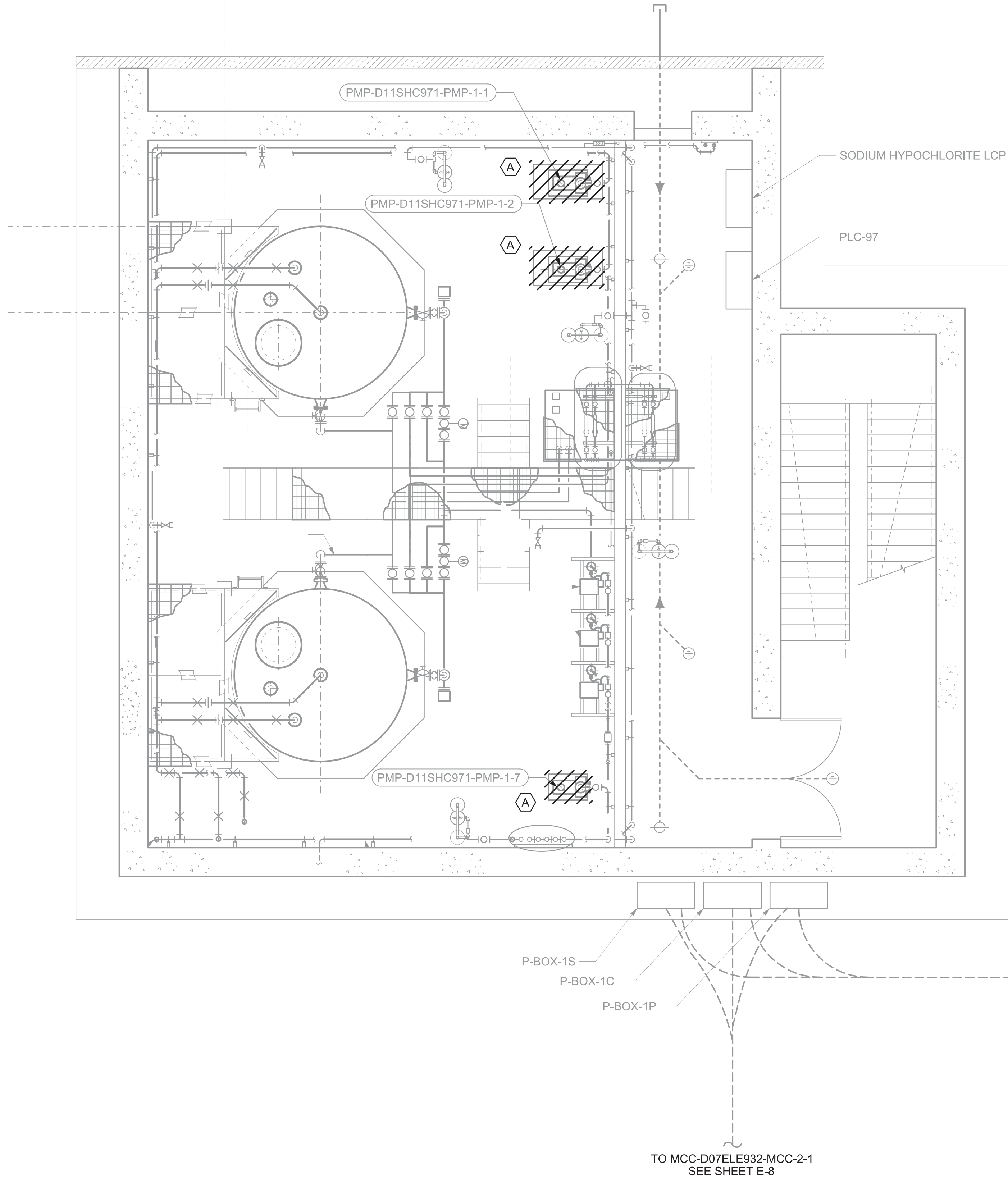
DESIGNED Z DEVLIN		DRAWN U PARASHAR		CHECKED D REED	
DURANGO HILLS WATER RESOURCE CENTER 2015 UPGRADES PROJECT					
ELECTRICAL AERATION BASIN TUNNEL POWER PLAN					
SCALE: 1/8"=1'-0"					
SHEET: 06E-1					
10506196					



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



[illegible]

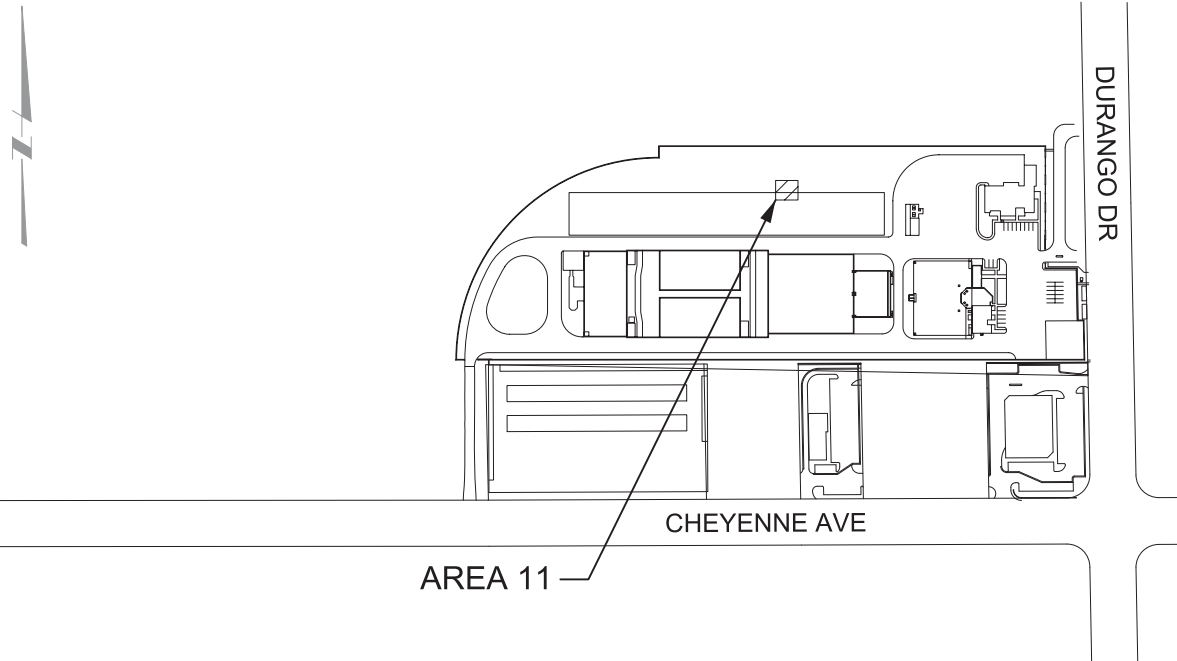


TO EHH - 14
SEE SHEET E-8

CONTINUED ON
SHEET 11E-1

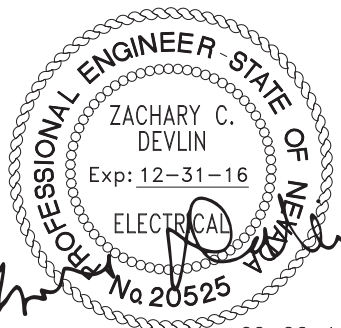
TO MCC-D07ELE932-MCC-2-1
SEE SHEET E-8

KEY PLAN



SHEET KEYNOTES

- A. DISCONNECT AND REMOVE EXISTING PUMP. PROTECT IN PLACE CONDUIT FOR REUSE IN RECONNECTING REPLACEMENT PUMP AS SHOWN ON SHEET 11E-2.



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

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED Z DEVLIN
DRAWN UPARASHAR
CHECKED D REED

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL
FINAL TREATMENT BUILDING
PLAN

SCALE:

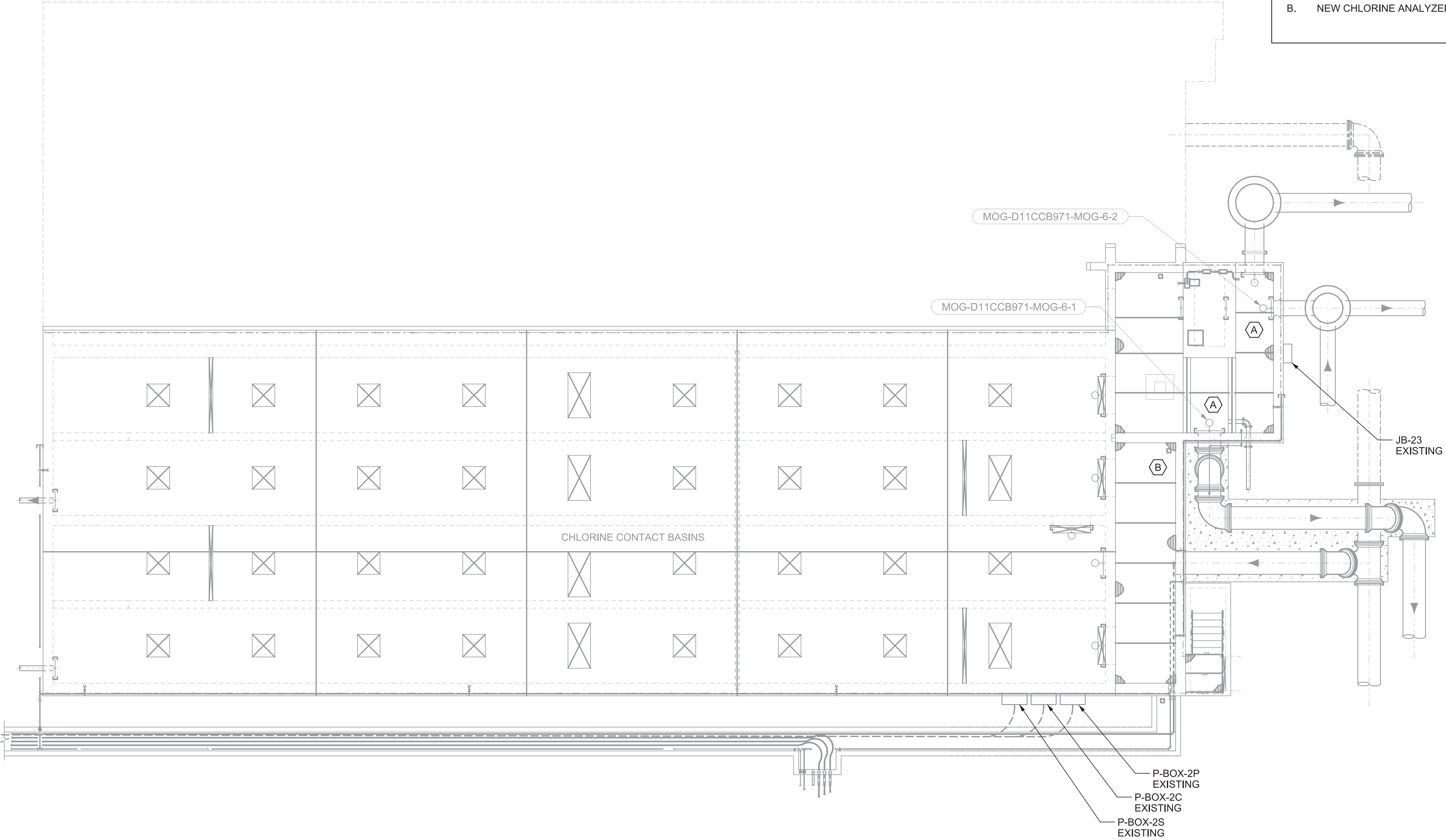
1/4" = 1'-0"

SHEET:

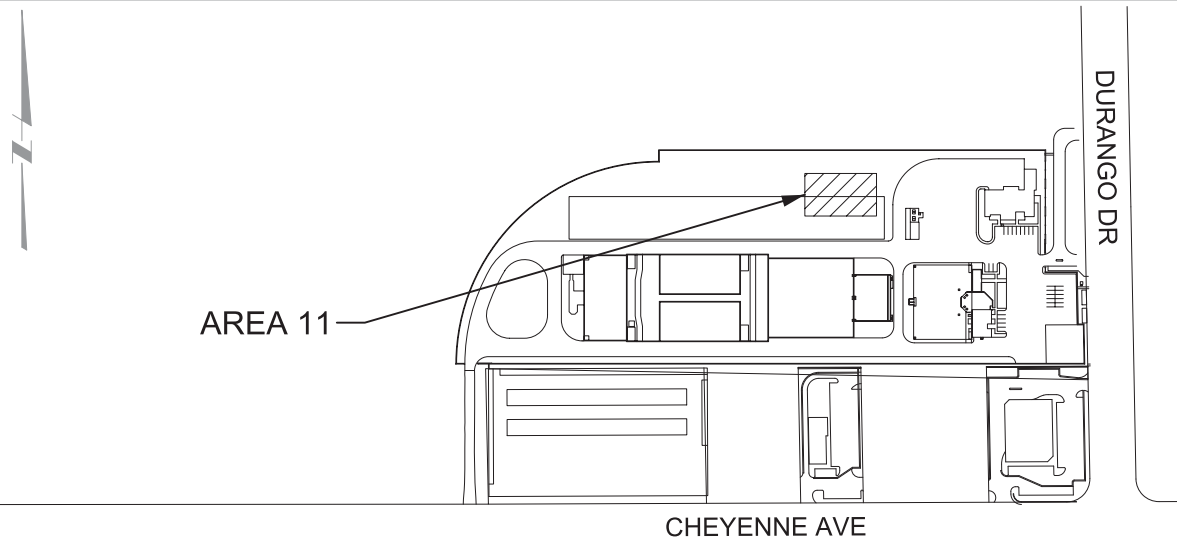
11ED-1

10506196

CONTINUED TO
SHEET 11E-2

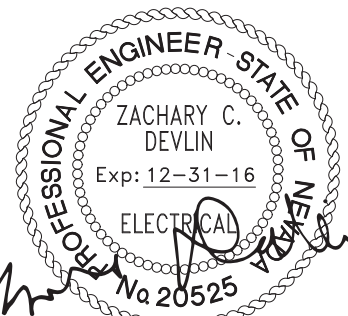


KEY PLAN



SHEET KEYNOTES

- A. RE-FEED EXISTING MOTOR OPERATED GATE FROM MCC-D20ELE953-MCC-1-1.
- B. NEW CHLORINE ANALYZER AND SAMPLE PUMP



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

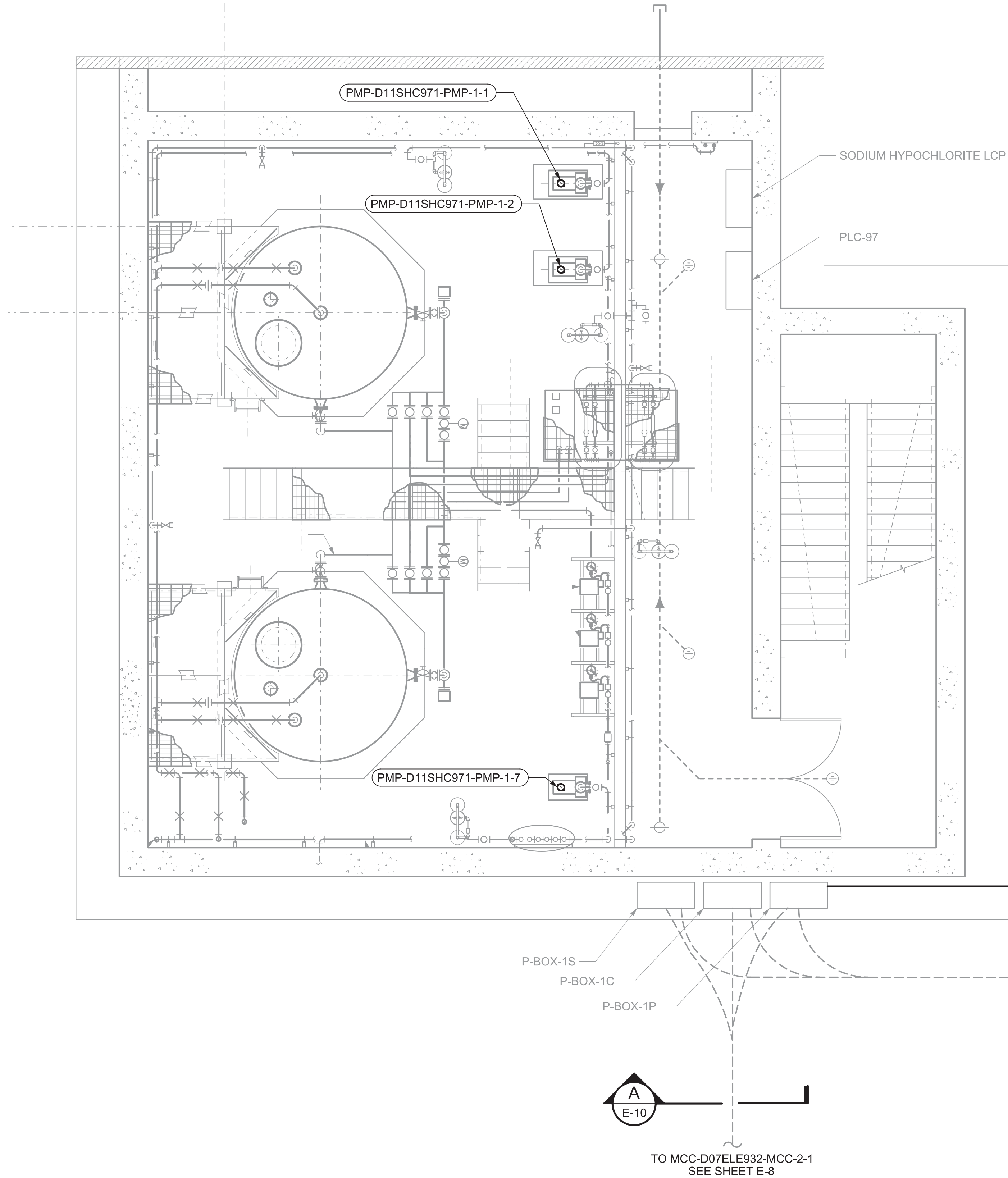
DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED Z DEVLIN
DRAWN UPARASHAR
CHECKED D REED

DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL
CHLORINE CONTACT BASINS
ELECTRICAL PLAN

SCALE:
1/8" = 1'-0"
SHEET:
11E-1
10506196

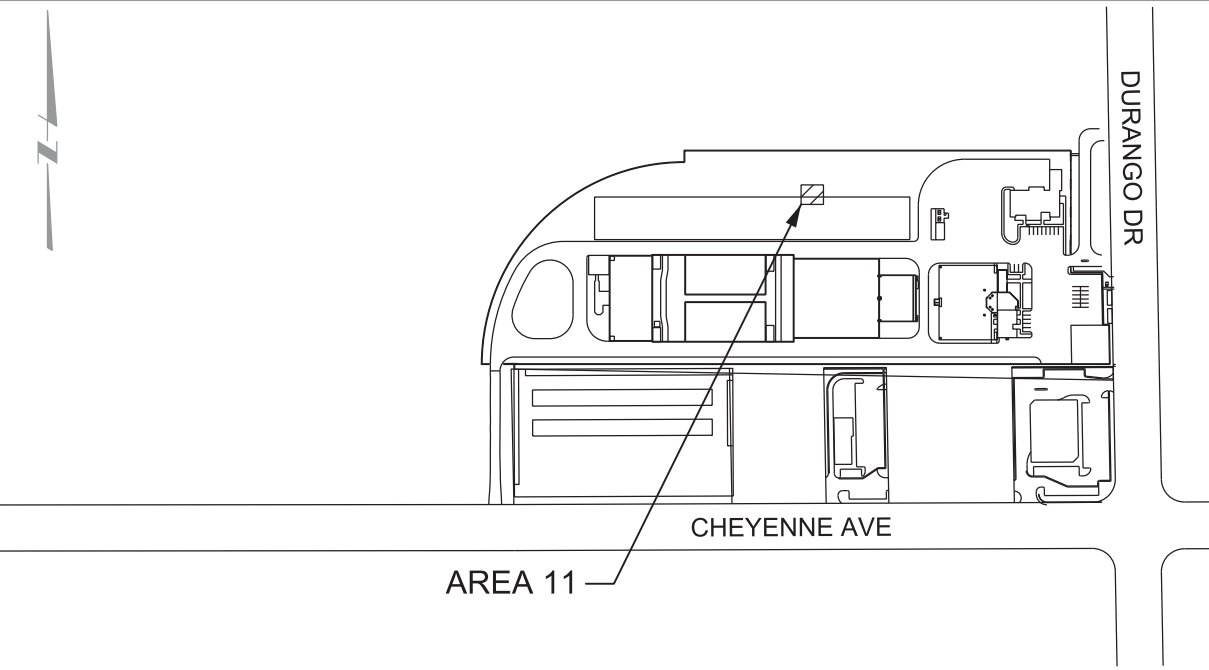


TO EHH - 14
SEE SHEET E-8

CONTINUED ON
SHEET 11E-1

TO MCC-D07ELE932-MCC-2-1
SEE SHEET E-8

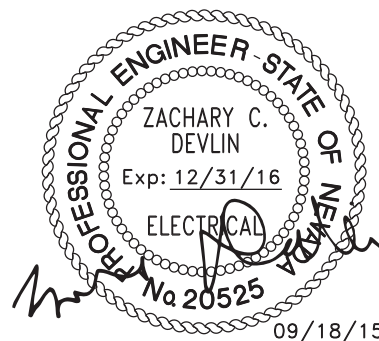
KEY PLAN



SHEET KEYNOTES

- A. EXISTING 3" CONDUIT STUBBED UP NEXT TO BUILDING WALL.
EXTEND TO P-BOX-1P.

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



DURANGO HILLS WATER RESOURCE CENTER UPGRADES
ELECTRICAL
FINAL TREATMENT BUILDING
POWER AND CONTROL PLAN

DESIGNED Z DEVLIN
DRAWN U PARASHAR
CHECKED D REED



DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



REV	DATE	BY	DESCRIPTION

SCALE:
1/4" = 1'-0"
SHEET:
11E-2
10506196



AREA 20—

DURANGO DR

CHEYENNE AVE



SHEET KEYNOTES

- A. REMOVE EXISTING 11KW GENERATOR, NATURAL GAS LINES, TRANSFER SWITCH, AND ASSOCIATED CONDUIT AND CONDUCTORS.

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED BY Z DEVLIN

DRAWN U PARASHAR

CHECKED D REED

DURANGO HILLS WATER RESOURCE CENTER UPGRADES

ELECTRICAL DEMOLITION ADMINISTRATION BUILDING POWER PLAN

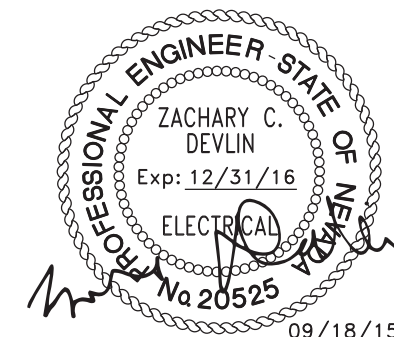
SCALE:

$$1/8'' = 1'-0''$$

5 SHEET:

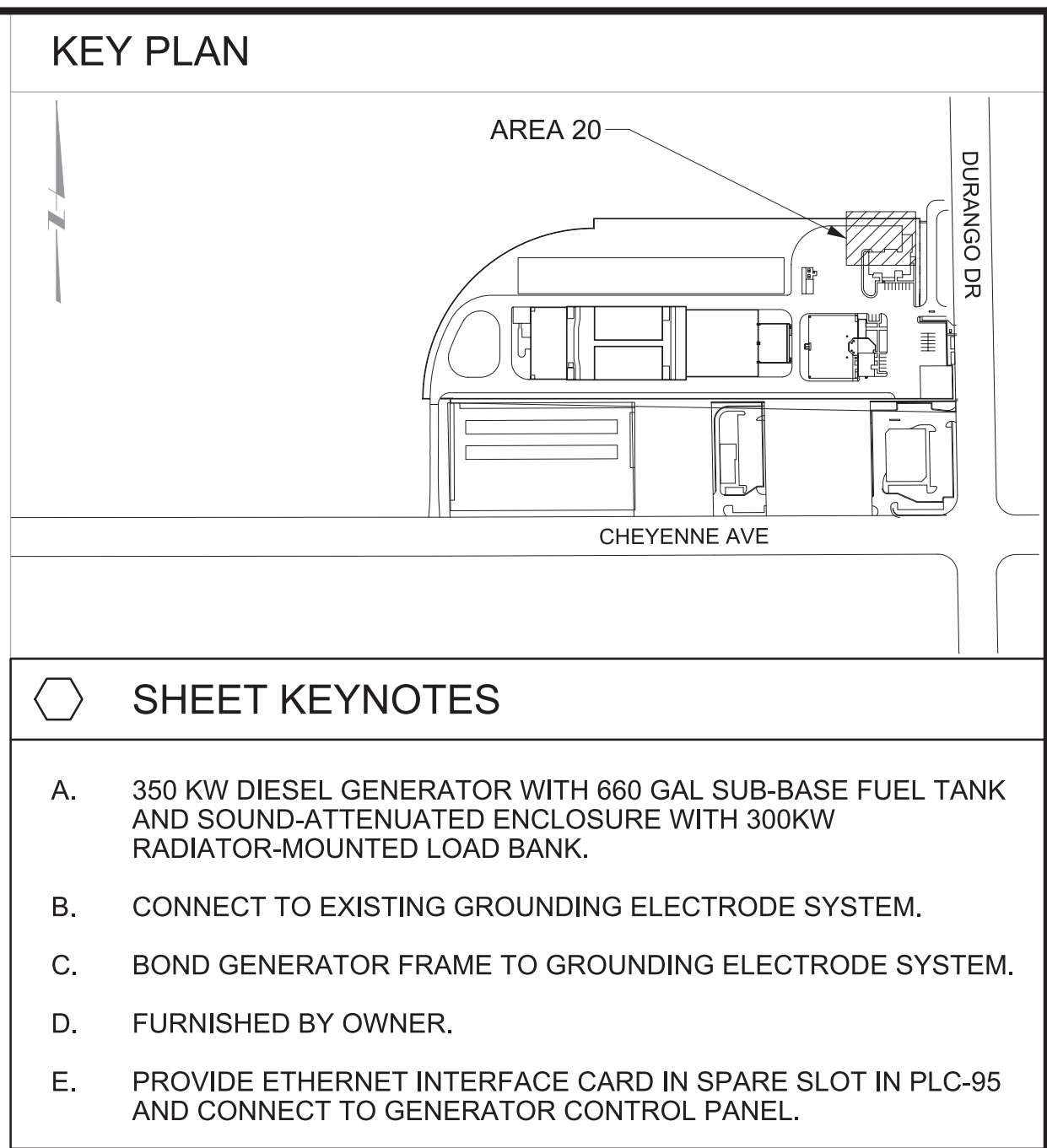
20ED-1

10506196



09/18/15





- A. 350 KW DIESEL GENERATOR WITH 660 GAL SUB-BASE FUEL TANK AND SOUND-ATTENUATED ENCLOSURE WITH 300KW RADIATOR-MOUNTED LOAD BANK.
- B. CONNECT TO EXISTING GROUNDING ELECTRODE SYSTEM.
- C. BOND GENERATOR FRAME TO GROUNDING ELECTRODE SYSTEM.
- D. FURNISHED BY OWNER.
- E. PROVIDE ETHERNET INTERFACE CARD IN SPARE SLOT IN PLC-95 AND CONNECT TO GENERATOR CONTROL PANEL.

DURANGO HILLS
WATER RESOURCE
CENTER 2015
UPGRADES PROJECT



DESIGNED Z DEVLIN
DRAWN U PARASHAR
CHECKED D REED

ELECTRICAL ADMINISTRATION BUILDING POWER PLAN

SCALE:
1/8"=1'-0"

SHEET:

20E-1
10506196

